

Instruction Manual

Tektronix

**ECO 422
Changeover Unit**

070-8472-02

Warning

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

CE

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WARRANTY

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

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

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EC Declaration of Conformity

We

Tektronix Holland N.V.
Marktweg 73A
8444 AB Heerenveen
The Netherlands

declare under sole responsibility that the

ECO422 Changeover Unit

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

EN 50081-1 Emissions:

EN 55022 Class B Radiated and Conducted Emissions

EN 50082-1 Immunity:





IEC 801-2 Electrostatic Discharge Immunity

IEC 801-3 RF Electromagnetic Field Immunity

IEC 801-4 Electrical Fast Transient/Burst Immunity

High-quality shielded cables must be used to ensure compliance to the above listed standards.

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Safety Summary

The general safety information in this part of the summary is for both operating and service personnel. Find specific warnings and cautions throughout the manual where they apply.

Terms

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.

Symbols

Terms on the Product

These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product

The following symbols may appear on the product:



DANGER
High Voltage



Protective Ground
(Earth) Terminal



ATTENTION
Refer to
Manual



Double
Insulated

Power Source

This product is intended to operate from a power source that will not apply more than 250 volts rms between the supply conductors or between either supply and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Grounding The Product

This product is grounded through the grounding conductor of the power module power cord. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product input or output terminals. A protective ground connection by way of the grounding conductor in the power module power cord is essential for safe operation.

Danger Arising From Loss Of Ground

Upon loss of the protective ground connection, all accessible conducting parts (including controls that may appear to be insulating) can render an electric shock.

Use The Proper Fuse

To avoid fire hazard, use only the fuse of the correct type, voltage rating, and current rating as specified in the parts list for your product.

Refer fuse replacement to qualified service personnel.

Do Not Operate In An Explosive Atmosphere

To avoid explosion, 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 personal injury, do not operate this product without covers or panels installed.

Certifications and Compliances

CSA Certified Power Cords

CSA Certification includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Safety Certification of Plug-in or VXI Modules

For modules (plug-in or VXI) that are safety certified by Underwriters Laboratories, UL Listing applies only when the module is installed in a UL Listed product. CSA Certification applies only when the module is installed in a CSA Certified product.

Compliances

Consult the product specifications for IEC Installation Category, Pollution Degree, and Safety Class.

Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone

Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power

To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

Use Caution When Servicing the CRT

To avoid electric shock or injury, use extreme caution when handling the CRT. Only qualified personnel familiar with CRT servicing procedures and precautions should remove or install the CRT.

CRTs retain hazardous voltages for long periods of time after power is turned off. Before attempting any servicing, discharge the CRT by shorting the anode to chassis ground. When discharging the CRT, connect the discharge path to ground and then the anode. Rough handling may cause the CRT to implode. Do not nick or scratch the glass or subject it to undue pressure when removing or installing it. When handling the CRT, wear safety goggles and heavy gloves for protection.

Use Care When Servicing With Power On

Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

X-Radiation

To avoid x-radiation exposure, do not modify or otherwise alter the high-voltage circuitry or the CRT enclosure. X-ray emissions generated within this product have been sufficiently shielded.



Getting Started

Getting Started

Product Description

The ECO 422 Changeover Unit (Figure 1–1 and Figure 1–2) provides automatic selection of reference sources. Automatic changeover may occur upon fault detection in any active source. Automatic transfer ensures uninterrupted signals for critical applications. The ECO 422 is an in-line device without internal buffers. Switching is by mechanical relay. The ECO 422 also provides internal termination for unused inputs.

There are 11 identical channels. Each consists of a Primary Input, a Backup Input, and an Output. All relays switch in unison upon fault detection in any active channel, front-panel command, or remote command.

The ECO 422 bases error checking on signal amplitude. You can configure each channel to check for a different type of input. There are six predefined checking levels: no checking, PAL analog black burst, NTSC black burst, serial digital component video, NTSC serial digital composite video, and serial digital audio. A fault occurs when the signal is between 2 and 4 dB (or 2 and 5 dB) down from nominal for these predefined signals. There are also two user-defined checking thresholds available.

Separate indicators on the front-panel display faults for both the primary and backup generator. These indicators remain on until cleared by the operator.

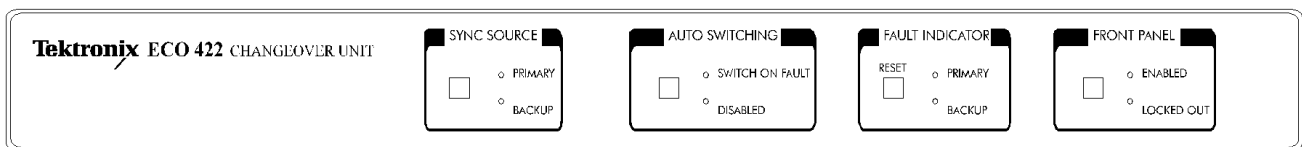


Figure 1–1: Front of the ECO 422

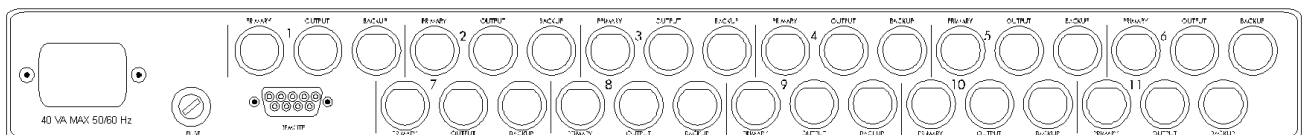


Figure 1–2: Rear of the ECO 422

Accessories

The ECO 422 comes with three accessories:

1. Rack slides (351-0751-01, 351-0104-03)
2. Reference card (063-1828-XX)
3. This manual (070-8472-XX)

Installation

Mechanical Installation

Rackmounting. The ECO 422 is shipped with the hardware for rackmounting. The instrument fits in a standard 19-inch rack. Spacing between the front rails of the rack must be at least 17- $\frac{3}{4}$ inches to allow clearance for the slide-out tracks. Rack slides conveniently mount in any rack that has a front-to-rear rail spacing between 15- $\frac{1}{2}$ and 28 inches. The ECO 422 requires six inches of clearance between the instrument rear panel and any rear cabinet panel for connector space and to provide adequate air circulation.

Mounting the Slide Tracks. Mount the rails using the enclosed hardware as shown in Figure 1-6. Figures 1-4 and 1-5 shows the rail mounting details for both deep and shallow racks. Figure 1-3 shows the front mounting details. Make sure that the stationary sections are horizontally aligned, level, and parallel.

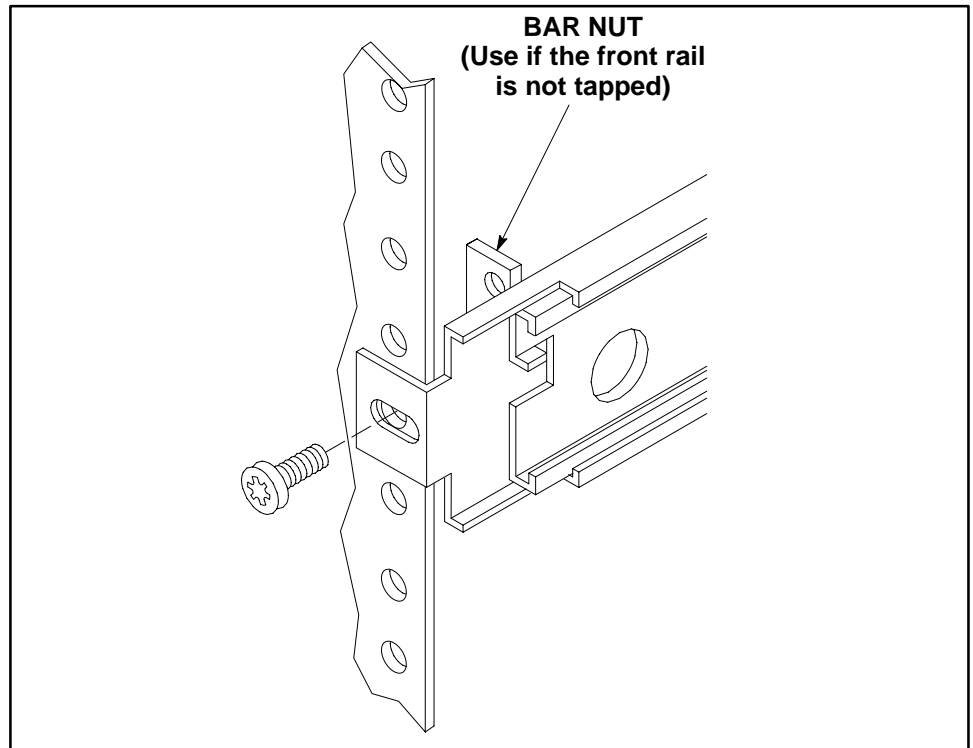


Figure 1-3: Front Rail Mount

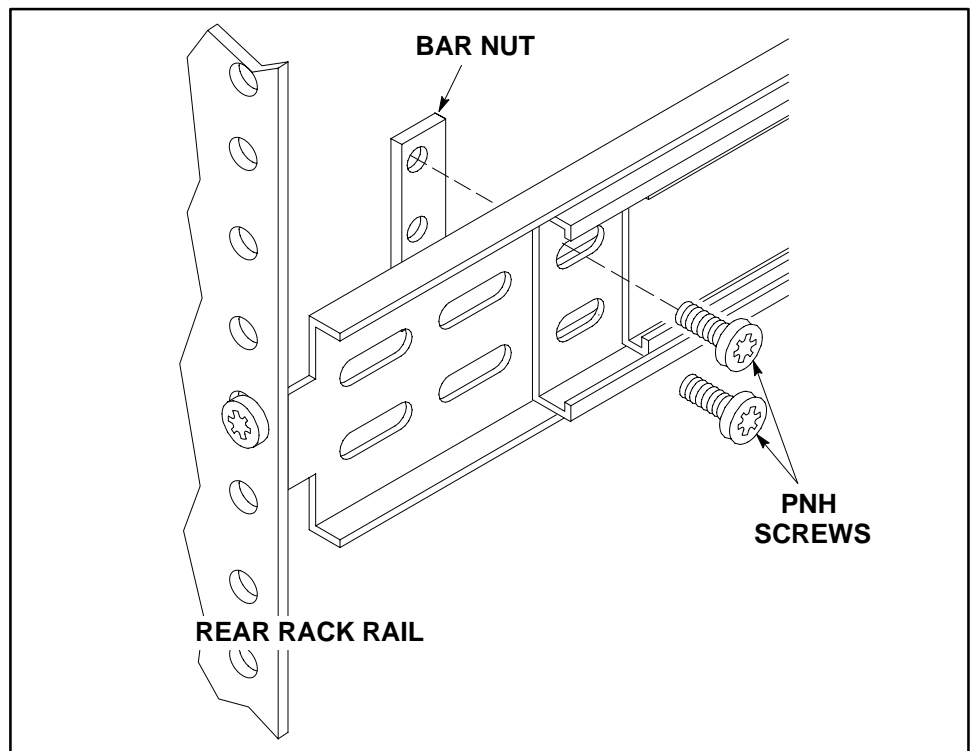


Figure 1-4: Deep Rackmount

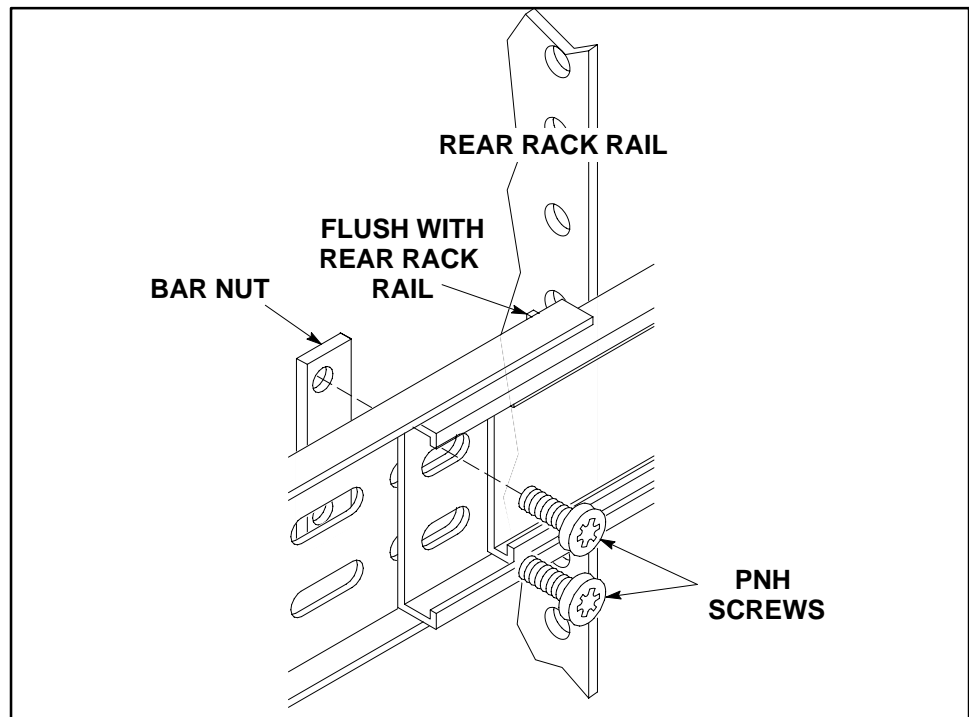


Figure 1-5: Shallow Rackmount

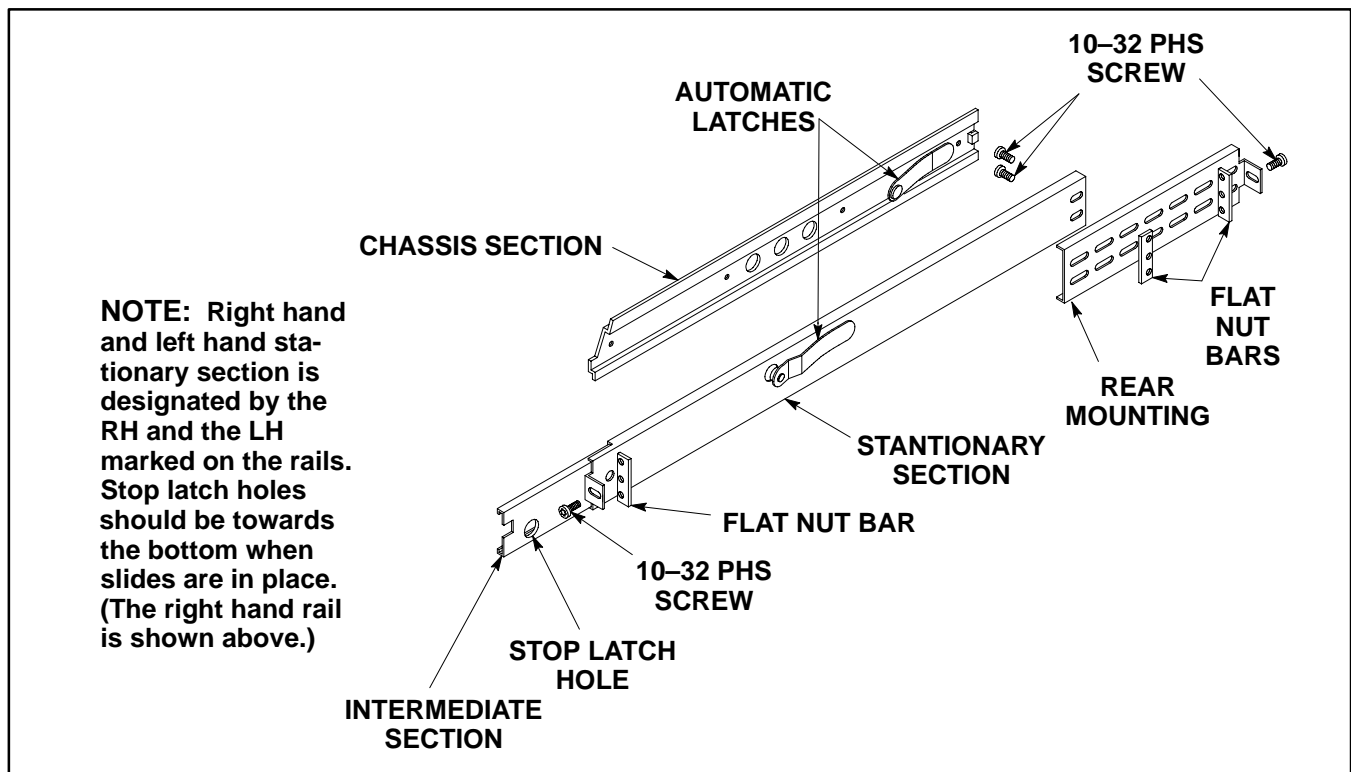


Figure 1-6: Assembly of Rackmounting Hardware

Installing the Instrument. Install the instrument in the rack, as shown in Figure 1-7.

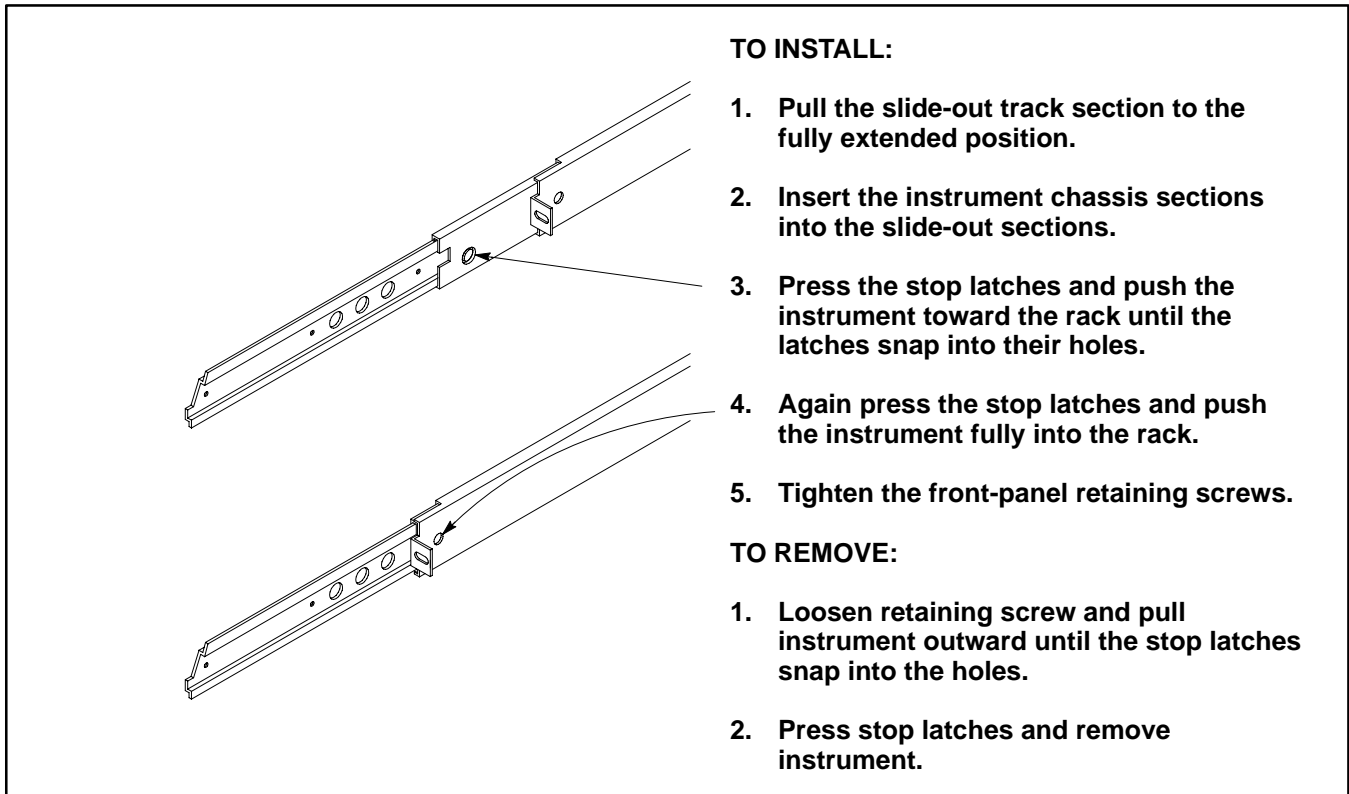


Figure 1-7: Installing the Instrument in the Rack Slides

Rack Adjustments. After installation, if not properly adjusted, the slide tracks may bind. To adjust the tracks, slide the instrument out about 10 inches, slightly loosen the screws holding the tracks to the front rails, and allow the tracks to seek an unbound position. Retighten the screws and check the tracks for smooth operation by sliding the instrument in and out of the rack several times.

Once the instrument is in place within the rack, tighten the knurled retaining screw to fasten it securely into the rack.

Rack Slide Maintenance. The slide-out tracks do not require lubrication. The dark gray finish on the tracks is a permanent, lubricated coating.

Removing the Instrument. First, loosen the front-panel knurled retaining screw. See Figure 1-7. Grasp the front handles and pull the instrument out until all three slide sections latch. The instrument is firmly held in this position.

To completely remove the instrument, first be sure to disconnect all cabling. Then, press both release-latch buttons (visible in the stop-latch holes) and carefully slide the instrument free from the tracks.

Electrical Installation

You can order any of the following power cord options for the ECO 422. If no power cord option is ordered, the instrument is shipped with a North American 125 V power cord and one replacement fuse.

Option A1. Universal Europe, 220 V/16 A Power Plug (power cord and one replacement fuse)

Option A2. United Kingdom, 240 V/15 A Power Plug (power cord and one replacement fuse)

Option A3. Australian, 240 V/10 A Power Plug (power cord and one replacement fuse)

Option A4 North American, 250 V/10 A Power Plug (power cord and one replacement fuse)

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 in the Standard Accessories list at the end of the Replaceable Mechanical Parts List, in Section 11.

Cable Installation

NOTE. *The BNC connectors are tightly spaced on the ECO 422 rear panel. You may find it necessary to use a BNC Cable Tool to remove or install cables (example: Trompeter RT-1L).*

There are many different ways to configure the ECO 422. The illustration below is only one example. One thing to keep in mind, the ECO 422 will automatically change to the Primary signals whenever it loses power. Therefore, always power the Backup source and the ECO 422 by the same source and the Primary source separately. Using this scheme both power sources would have to go down before you would lose your signals.

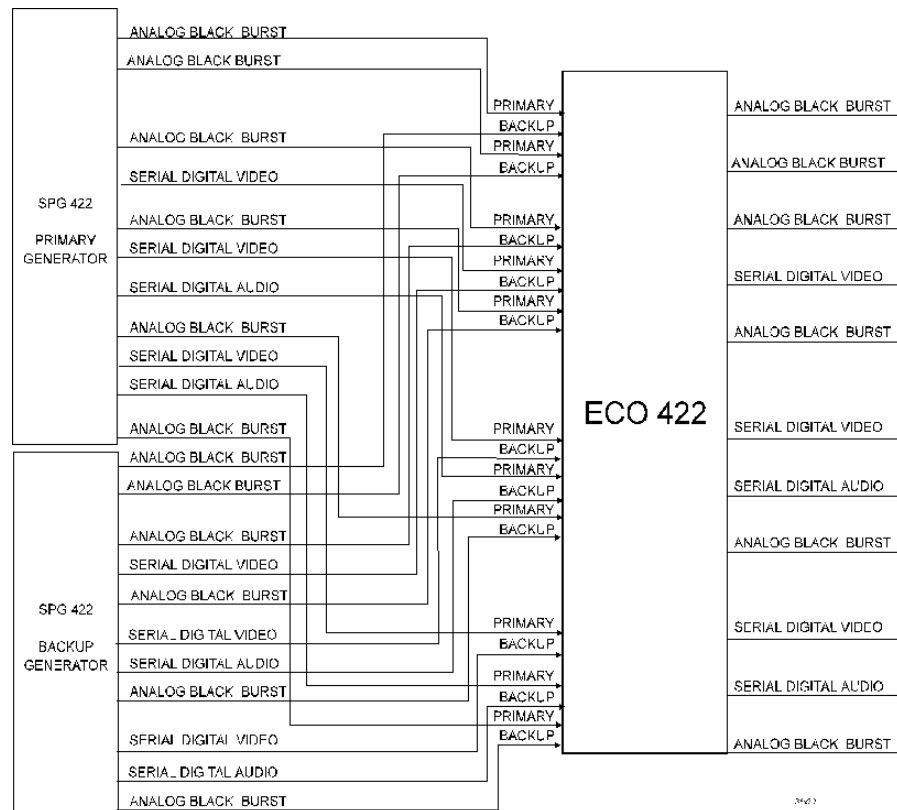


Figure 1-8: Example of How the ECO 422 Can be Connected

Use the Channel Configuration Switches Table on page 1-9 to record what type of signals you have connected to each set of outputs on the rear panel. Then use the DIP selection guide to make sure that the DIP switches are correctly configured. There is also a reference card available to keep track of how the ECO 422 is configured and aid in setting up the instrument.

Hints on Using the User Configuration Switches

There are the several different types of signal checking already available but you may need to feed a different signal through the ECO 422. This section gives one example, analog active video.

Active Analog Video. The ECO 422 will pass active analog video by using the no checking mode, but there will be times when you need to check for the presence of an active video signal. You have at least two options. First, you can set up a custom checking level using one of the “user-defined” levels. This is great if you are always passing color bars or some other test signal where the average picture level remains constant and never fades to black. If the average picture level drops below the custom set level then an error occurs, causing the ECO 422 to switch sources. The set level could easily be well above black burst. The second option is to use the predefined black burst level. This works very well when your goal is to check for “present/not present” active video. It will accept long periods of

black without generated an error, but it will switch if the signal goes “completely” away.

Again, to summarize the three options available, if you want active video to pass through the ECO 422:

1. No checking.
2. Set a user-defined level — best for a constant test signal.
3. Use the predefined black setting — best for video with a wide variation of average picture levels or regular fades to blacks.

Configuration

NOTE. *Make sure that any channel not in use has checking disabled. If checking is not disabled, errors will always be generated. No error checking also allows the maximum voltage, current, and frequency to pass through the ECO 422.*

Photocopy the list of the DIP switches below to log the configuration of your system and use it as a quick reference. If using one of the “user-defined” levels, write the definition on the line as a reminder.

All of these switches are available through a small access panel on top of the ECO 422, eliminating any need to remove the top cover just to change the function of the outputs.

There is also a Mode switch, switch S14–8. Set it for either Normal or Override operation. If set for Normal operation, it will not allow you to manually switch to a bad signal, unless both signals are “bad.” For example: you are set for manual operation and the Primary signal is in error while the Backup is good. Press the Sync Source button to change to the Backup source. No matter how many times you press the Sync Source button again, the ECO 422 will not allow you to return to the Primary source because it is in error. The only time that you can switch to an “error” signal in Normal mode is when both of the signals are bad. In that case, you can manually switch between the two signals. In Override mode, you can always manually switch to a bad signal. The other positions of S14 are only used for testing purposes.

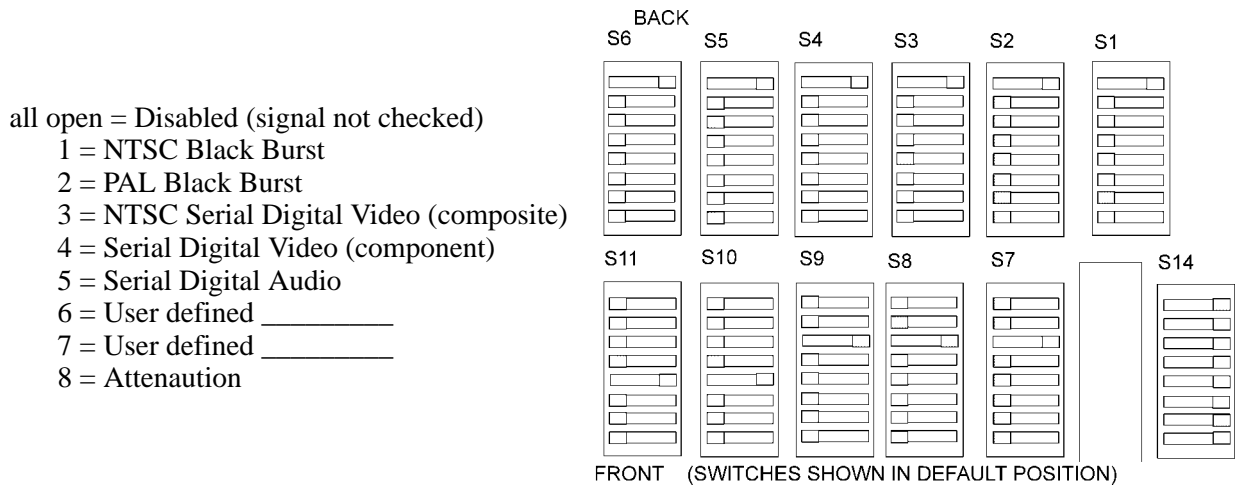


Figure 1-9: Default Position of the User Configuration and Mode Switches

Table 1-1: Channel Configuration Switches (S1 – S11)

Output # / Switch #	Setting (see above)	Attenuation (set with Sx-8)		Type of Signal Attached
		On	Off	
1 / S1				
2 / S2				
3 / S3				
4 / S4				
5 / S5				
6 / S6				
7 / S7				
8 / S8				
9 / S9				
10 / S10				
11 / S11				

Functional Check and First Time Operation

This section steps through how the ECO 422 will react under its most common operating circumstances: two good signals, loss and then return of the Primary signal, loss and return of the Backup signal, and loss of power. Only two input signals are used here to avoid confusion.

For more details on the controls, what they do, and how they interact, see Operating Basics, Section 2.

To check out the entire instrument, repeat these procedures for each of the eleven sets of inputs and outputs.

Two Good Signals Power down all instruments.

Connect the ECO 422 as shown in Figure 1–10.

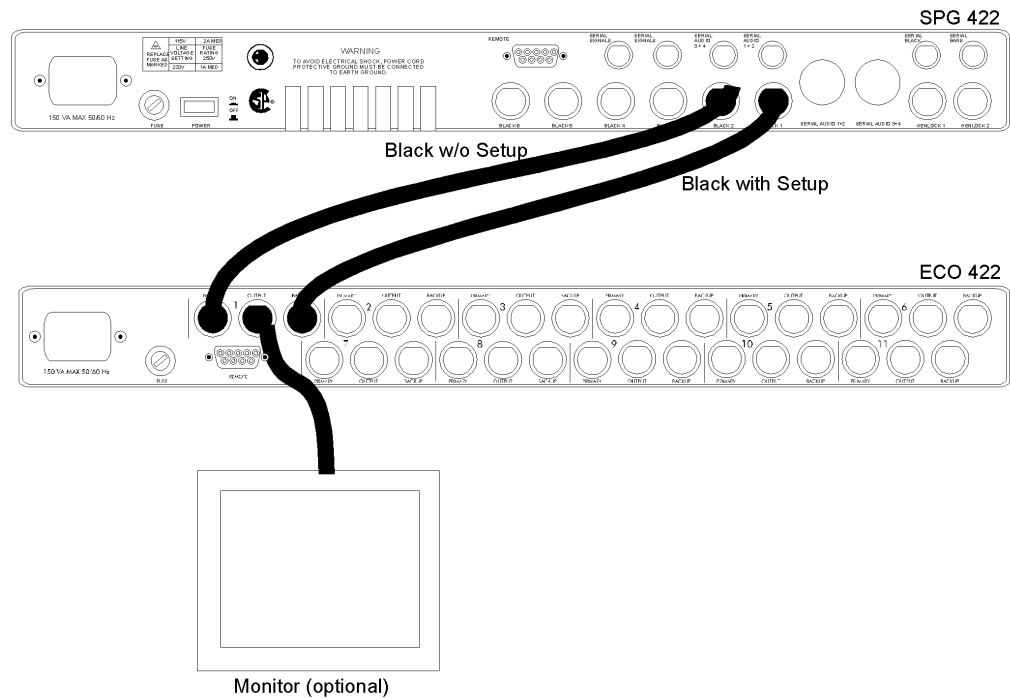


Figure 1–10: Setup for the Functional Check

Set all of the DIP switches (S1 – S11) to open, except for S1–1, which should be set to closed (NTSC black burst). Note that Primary input is black burst without setup and the Backup input is black burst with setup. (This is just to illustrate which signal is the Output.)

Set the user switch (S14–8) to Normal (closed).

Power up all instruments.

Enable the front panel, using the Front Panel button.

Set the ECO 422 to “Switch on Fault” using front-panel buttons. (This is the default at power on.)

If Primary is not already the source, press the Sync Source button to make Primary the source. (This is the default at power on.)

Note that the output signal is the Primary input signal (black burst with setup) and that none of the fault indicators light.

Press the Sync Source button to change to the Backup source.

Note that the signal changes to black burst without setup (Backup).

Check that there is no error on either signal.

Press the Sync Source button again, to switch back to the Primary input.

Loss of the Primary Signal

Disconnect the Primary signal source. (Remove the cable between the SPG 422 and the Primary 1 input of the ECO 422.)

Note the signal automatically switches to the Backup input and the Primary fault indicator lights.

Reconnect the Primary signal source. (Replace the cable between the SPG 422 and the Primary 1 input of the ECO 422.)

Note that the Primary fault indicator remains on and the Sync Source remains the Backup (the ECO 422 does not automatically switch back to Primary).

Press the Reset button.

Note that the Primary fault indicator turns off.

Press the Sync Source button to return to the Primary as the source.

Press the Auto Switching button to disable the “Switch on Fault” function.

Remove the Primary input signal. (Again, remove the cable between the SPG 422 and the Primary 1 input of the ECO 422.)

Note that no switching occurs, but that the Primary fault indicator lights.

Press the Sync Source button to change to the Backup signal.

Press the Sync Source button again to try to change back to the Primary input. (It should not let you change to a bad input.)

Reconnect the Primary input source. (Replace the cable between the SPG 422 and the Primary 1 input of the ECO 422.)

Press the Reset button to clear the fault indicator LED.

Return the auto switching to “Switch on Fault.”

Note that the sync source is still Backup.

Loss of the Backup Signal

Disconnect the Backup signal. (Remove the cable between the SPG 422 and the Backup 1 input of the ECO 422.)

Note that the output signal has changed to the Primary input signal and the Backup fault indicator LED lights.

Reconnect the Backup signal. (Replace the cable between the SPG 422 and the Backup 1 input of the ECO 422.)

Clear the fault indicator by pressing the Reset button.

Press the Sync Source button to return to Backup sync source.

Loss of Power to the ECO 422

Remove the power source from the ECO 422.

Note that the output signal switches to the Primary input signal.

Return the power source.



Operating Basics

Operating Basics

Controls and Indicators

Front-Panel Controls (See
Figure 2-1)

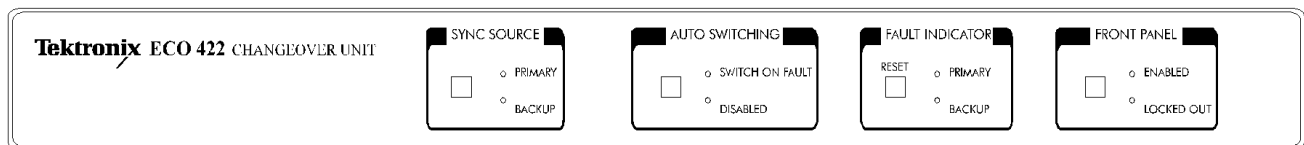


Figure 2-1: Front-Panel Controls

Sync Source – Primary/Backup. The LED indicates the current Output (whether it is from the Primary or Backup input). It can be manually changed using the Sync Source button. (If the ECO 422 is in Normal mode, this is only true when the other input is good or both inputs are bad.) Only one of these LEDs can be on. Primary is the default at power-up.

Auto Switching – Switch on Fault/Disabled. This selects whether the ECO 422 will automatically switch to the other input source whenever it detects a fault (Switch on Fault) or not switch (Disabled). Only one of these LEDs can be on. Switch on Fault is the default at power-up.

Fault Indicator (Reset) – Primary/Backup. Either one or both of these LEDs could be on. They indicate that a fault has occurred on the input. Press the Reset button to clear the fault indicators (turn off the LEDs) after the fault has been corrected. The fault indicator does not automatically reset after an error condition improves. At power-up, the LEDs are reset.

Front Panel – Enabled/Locked Out. This control determines whether or not the operator has access to the other front-panel controls. If it is Enabled, then the user can control the instrument from the front panel. If it is Locked Out, then the user can only toggle back to Enabled and no other front-panel controls are available. The ECO 422 will automatically lock out after about 1 minute of inactivity to prevent accidental switching. The front panel is automatically locked out at power-up.

Internal Controls

Channel Configuration Switch (11 identical clip switches S1 – S11; see Figure 2-2). These switches select the signal type checked on a channel by setting the amplitude comparison level. Only one switch from each DIP package should be enabled (closed) for each channel, except for attenuation (DIP 8 on all switches), which is allowed to be combined with either of the user-defined levels.

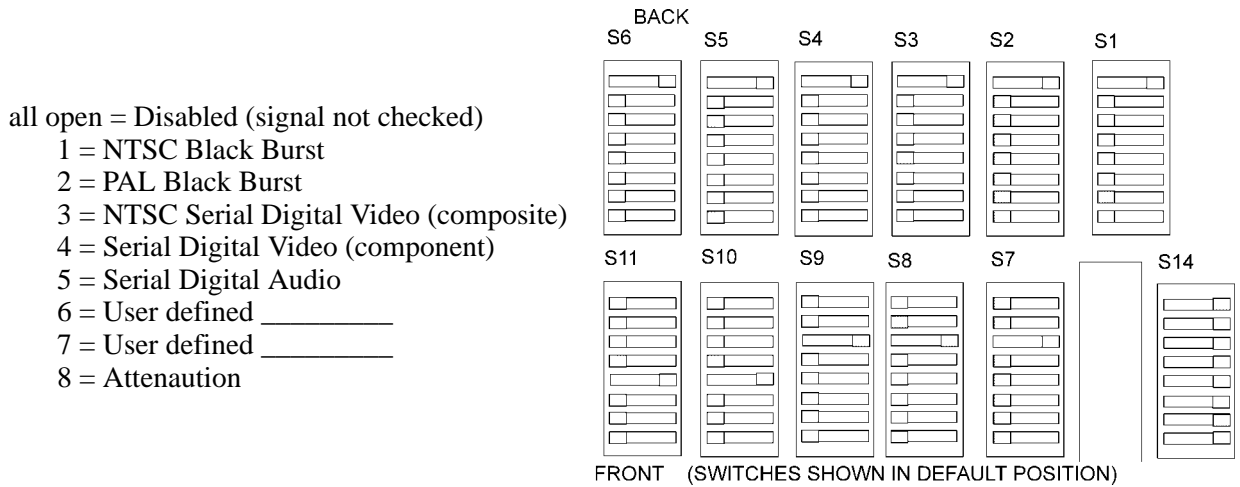


Figure 2-2: Default Position of the User Configuration and Mode Switches

Below is a list of the functions for each of the switches.

DIP #	Input Signal
All Open	Disabled (signal not checked)
1	NTSC Black Burst
2	PAL Black Burst
3	NTSC Serial Digital Video (composite)
4	Serial Digital Video (component)
5	Serial Digital Audio
6	User defined
7	User defined
8	Attenuation

Table 2-1 lists the factory setting of the switches. (NTSC or PAL black burst is determined by the power cord option ordered with the instrument.)

Table 2-1: Factory Settings of Channel Configuration Switches (S1 – S11)

Output # / Switch #	Setting (see above)	Attenuation (set with Sx-8)		Type of Signal Attached
		On	Off	
1 / S1	1 or 2		✓	Black Burst
2 / S2	1 or 2		✓	Black Burst
3 / S3	1 or 2		✓	Black Burst
4 / S4	1 or 2		✓	Black Burst
5 / S5	1 or 2		✓	Black Burst
6 / S6	1 or 2		✓	Black Burst
7 / S7	4		✓	Serial Digital Video (Component)
8 / S8	4		✓	Serial Digital Video (Component)
9 / S9	4		✓	Serial Digital Video (Component)
10 / S10	5		✓	Serial Digital Audio
11 / S11	5		✓	Serial Digital Audio

User Configuration Switch (S14-8) –closed– –Normal–

Attenuation. Attenuation allows larger signals to have their signal level checked. The attenuator adds about 14 dB (x5) attenuation to the signal level being checked. This has no effect on the level of the output signal and only extends the range of the check circuitry. Use this in conjunction with large H sync pulses to increase the accuracy on the level check. Only use this switch in conjunction with the User Defined Levels.

User Configuration Switch (S14 – 8). This switch determines how the ECO 422 responds to faulty signals — either Normal or Override.

For Normal operation, the user cannot switch to a bad signal whether the instrument is in manual or auto switch mode. For example, the ECO 422 is in manual mode and the Primary signal is bad, while the Backup signal is good. If the user presses the Sync Source button, the output will be the Backup signal. If the user presses the Sync Source button again, the output continues to be the Backup signal. It will not change to Primary until the signal is good and the fault indicator is reset.

In the Override mode, the user can manually switch to a “bad” signal, with Auto mode disabled.

Reference Level Adjustments R266 and R265. These two adjustments set the reference level for the two user-defined signal options. Select these levels with DIPS 6 (R266) and 7 (R265) of the Channel Configuration switches. These allow

the user to set their own signal switching level for special applications. Two examples of signals that may require checking are an active video signal or an H Sync signal.

The procedure used to set these levels is on page 2–8.

Connectors (See Figure 2–3)

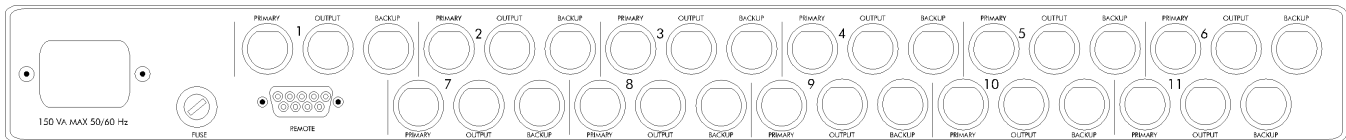


Figure 2–3: Rear of the ECO 422

Power

This instrument is intended to operate from a single-phase power source with one current-carrying conductor at or near earth-ground (the neutral conductor). Only the line conductor is fused for over current protection. Mains frequency is 50 or 60 Hz. The operating voltage range is continuous from 90 to 250 VAC.



WARNING. Do not connect power to the ECO 422 if the top cover is not installed. Dangerous potentials are present on the Power Supply board.

Video Signals (11 Channels)

There are 33 video connectors on the rear panel. Eleven are for the Primary input, 11 are for the Backup input, and 11 are for the Output. A general overview of each one is below.

Primary. Input from the primary sync generator. It can be PAL black burst, NTSC black burst, serial digital video (NTSC component or composite), or serial digital audio if signal checking is desired. There are also two user-defined levels available. If no signal checking is required, almost any signal can pass through the unit (within the bandwidth and voltage/current limitations). This should be the same signal type as its Backup signal pair.

Output. Signal output. It is either from the Primary or the Backup source. How the ECO 422 is configured determines under what conditions the source changes.

Backup. Input from the backup sync generator. This should be the same signal type as its Primary signal pair.

Remote. The rear-panel connector is a 9-pin female D-connector, with one pin tied to ground (see Figure 2–4). The connector has the following pinout:

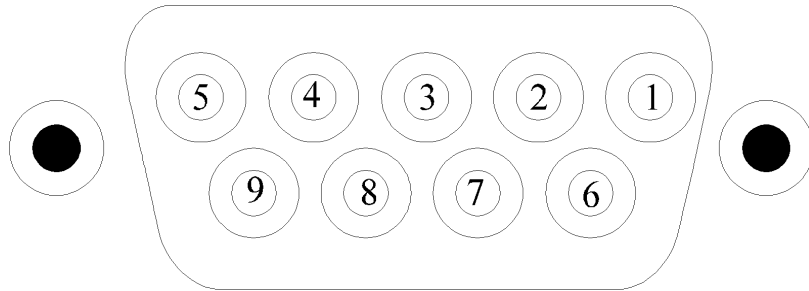


Figure 2–4: Remote Connector Pin-Out

The pin assignment is as follows:

Ground-Closure

Pin	Signal Function
1	Auto Switching (Input)
2	Toggle Sync Source (Input)
3	Indicate Primary Sync Source Active (Output)
4	Indicate Backup Sync Source Active (Output)
5	Fault Alarm (Output)
6	Fault Reset
7	Fault Reporting +
8	Fault Reporting –
9	Ground

Auto Switching (active low) If low, the automatic switching function from the front panel is disabled. The front panel cannot override this remote command.

Toggle Sync Source (active low) Operates the same as the Sync Source button on the front panel. A low pulse will cause the ECO 422 to toggle between Primary and Backup as the output signal.

Indicate Primary Sync Source Active (active high) Indicates that the Primary signals are the sync source.

Indicate Backup Sync Source Active (active high) Indicates that the Backup signals are the sync source.

Fault Alarm (active high) Indicates that at least one of the Primary or Backup input signals is “bad.” This alarm signal is latched and will remain high until the error is cleared and the Reset button is pressed.

Fault Reset (active low) This operates like the front-panel Reset button. It clears the fault indicators (turns off the LEDs) after the fault has been corrected.

Fault Reporting – and + It is normally open, indicating that everything is good. It will close in the cases of: loss of power to the ECO 422 or one (or more) input signals are bad. The fault is latched and will remain until the fault is cleared. This fault reporting system follows SMPTE 269M guidelines except the interface is 2 pins of the Remote connector (7 & 8) instead of the standard isolated BNC connector and there is no pulsing. When in the open state, the leakage across the closure is less than 100 μ A at any voltage from 0 to 5 VDC. The closure is able to withstand 24 VDC in the open state without damage. In the closed state, the maximum voltage drop across the closure should not exceed 2 V at 20 mA. The sensing device should not supply more than 20 mA of current to the reporting device. To provide compliance with the standard, wire a BNC connector adapter as shown in Figure 2–5.

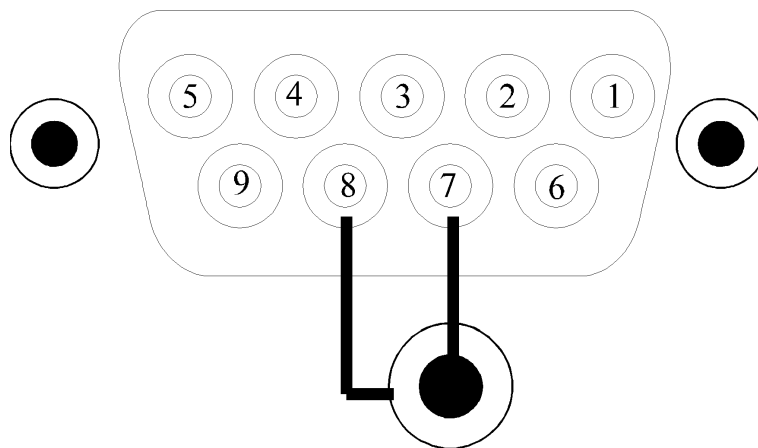


Figure 2–5: Wiring Required to Conform with SMPTE Fault Reporting

Reference

Operating Basics

In normal operation, the ECO 422 is basically a switch that triggers whenever an error occurs in any channel. All 11 Channels switch at the same time.

If any channel is not being used, it is mandatory that its checking function be disabled. Otherwise it will always trigger an error and the ECO 422 will not operate properly.

This section covers the state machine discussions (what will happen when some signals go bad) and how to adjust the user-defined inputs.

State Machine Discussion

Table 2–2 is a truth table that gives the various states the ECO 422 outputs based on the state of the inputs. Note that Primary is set to check a given level.

Power – the state of the power supply.

User Config – the state of the user configuration switch. It can either be N (Normal) or O (Override). In Normal mode, the ECO 422 will not switch to a “bad signal.” In Override operation, the user is allowed to manually switch to a “bad signal.”

Switch – Indicates whether or not the Sync Source button on the front panel or the Toggle Sync Source on the remote control has been selected. Note that the front panel and the remote control commands are ANDed together (active low) to produce the switch results.

P – Primary input. It outputs to Output.

B – Backup input. It is part of the Output set.

O Auto – Output signal with the ECO 422 set to “Auto Switching” (switch on error). It can either output Primary or Backup.

O Manual – Output signal with the ECO 422 set to “Manual” (no switching on error). It can either output Primary or Backup.

0 – bad signal.

1 – good signal.

↑ – switch (change the current output signal).

↓ – no switch (stay with the current signal).

X – Don’t care.

Table 2-2: Truth Table for ECO 422 Switching

Power	User Config	Switch	P	B	O Auto	O Manual
1	N	↓	0	0	↓	↓
1	N	↓	0	1	B	↓
1	N	↓	1	0	P	↓
1	N	↓	1	1	↓	↓
1	N	↑	0	0	↑	↑
1	N	↑	0	1	B	B
1	N	↑	1	0	P	P
1	N	↑	1	1	↑	↑
1	O	↓	0	0	↓	↓
1	O	↓	0	1	B	↓
1	O	↓	1	0	P	↓
1	O	↓	1	1	↓	↓
1	O	↑	0	0	↑	↑
1	O	↑	0	1	B	↑
1	O	↑	1	0	P	↑
1	O	↑	1	1	↑	↑
0	X	X	X	X	P	P

How to Adjust the User-Defined Threshold Levels

The User-defined Threshold Levels are the two levels available from User Configuration switches 6 and 7. They are available so that the user can trigger on signal levels other than the seven predefined levels.

In order to set the Threshold Levels, you need:

- Two good versions of the type of signal you want to check
- A step attenuator (example: 847 Attenuator from KAY Elemetrics)
- A waveform monitor or oscilloscope (optional)
- The ECO 422

The example sets switch 7 for NTSC active video with the threshold set for a 3 dB down color bar. It uses a TSG 170D as the signal source, a 1780R waveform monitor/vectorscope (optional) to view the signal level, and a step attenuator.

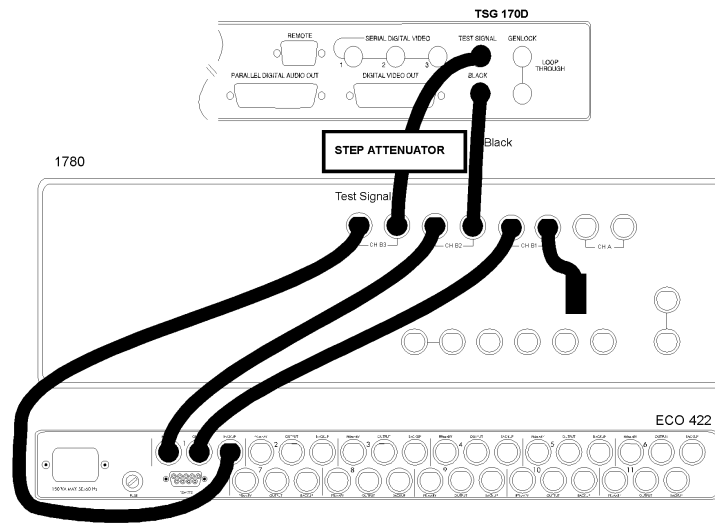
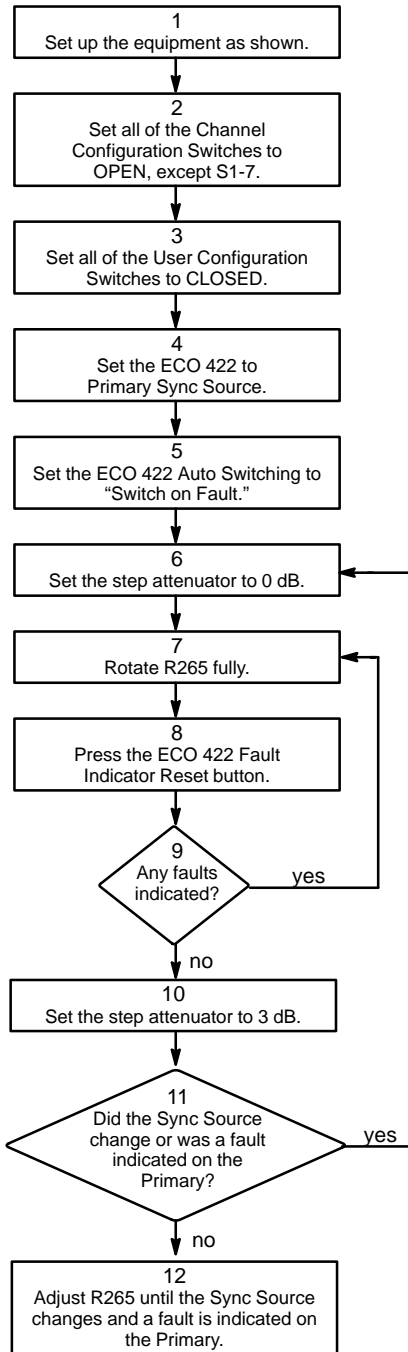


Figure 2-6: Setup for Adjusting R265 (the User Level for SX-7)



1. Connect the equipment as shown in Figure 2–6.
2. Set all of the User Configuration switches to “open” except for S1–7 (for channel 1).
3. Set all S14 switches “closed.”
4. Set the ECO 422 to Primary Sync Source.
5. Set the ECO 422 Auto Switching to “Switch on Fault.”
6. Set the step attenuator to 0 dB of attenuation.
7. Rotate potentiometer R265 fully. (You are attempting to allow the minimum signal level to pass through before the threshold is reached.)
8. Press the fault indicator Reset button. (This clears any errors.)
9. Check the fault indicator for an error indication on either the Primary or Backup channels. If there are no faults, then proceed to the next step. Otherwise, try rotating the potentiometer in the other direction. (You are trying to get the minimum signal level to pass through before reaching the switching threshold.)
10. Set the step attenuator to 3 dB of attenuation (or whatever attenuation is required for your application).
11. Check to see that the sync source has not changed to Backup and no faults are on the Primary channel.
12. Slowly adjust R265 until the ECO 422 switches to the Backup sync source and a fault occurs on the Primary channel. Press Reset to verify that the fault is still preset. If the Primary fault indicator LED goes out, continue adjusting the potentiometer. If the LED remains on, S1–7 through S11–7 are set for your user-defined level.

NOTE. If you cannot adjust R265 satisfactorily, try inserting the attenuator (close S1–8) and repeat the adjustment steps from the beginning.

Adjust R266 in the same Sync manner to set a user-defined level for S1–6 through S11–6.

Figure 2–7: Flowchart for Adjusting R265



Specifications

Specifications

Introduction

The items listed in the following tables describe the performance of the ECO 422 Changeover Unit. Performance Requirements are generally quantitative and can be tested by a Performance Verification procedure contained in the service part of this manual.

Supplemental Information is valuable data pertaining to the operation and output capabilities of this instrument. Only a few items listed in this category may be tested in the Performance Verification procedure.

Performance Conditions – The requirements listed in the electrical specification apply over an ambient temperature range of 0° C to +40° C. The rated accuracies are valid when the instrument is calibrated at an ambient temperature range of +20° C to +30° C, after a warm-up time of 20 minutes. Test equipment used to verify Performance Requirements must be calibrated and working within the limits specified under the Equipment Required list.

These instruments are intended to operate from an AC power source that will not apply more than 250 V_{RMS} between the supply conductors or either supply conductor and ground. A protective ground connection by way of the grounding conductor is essential for safe operation.

Environmental specifications are listed toward the back of the following tables. In addition a list of appropriate safety and electromagnetic interference (EMI) standards also can be found there.

Table 3-1: General Characteristics

Characteristics	Performance Requirements	Supplemental Information
Return Loss All Inputs and Outputs		30 dB, 0 to 10 MHz 15 dB, 10 to 270 MHz 12 dB at 360 MHz (15 dB typical) when selected
Insertion Loss		0.2 dB, DC to 10 MHz 0.5 dB, 10 to 200 MHz 1.0 dB, 200 to 360 MHz
Maximum Switched Voltage		±5 V
Maximum Switched Current		100 mA
Crosstalk (unselected input to output or channel to channel)		-60 dB to 10 MHz -30 dB to 200 MHz -15 dB to 360 MHz
Relay Switch Time		Time that it takes for the relays to switch and settle. Approximately 10 msec.

Table 3-2: Signal Loss Detection

Characteristics	Performance Requirements	Supplemental Information	Per. Ver.
Input Signal	Switching Level within:	These are the defined switching thresholds set with the internal Channel Configuration switch. Between 2 and 4 dB down from nominal.	
NTSC Black Burst (sync level)	-180 to -230 mV	-200 mV	2 & 4
PAL Black Burst (sync level)	-190 to -240 mV	-210 mV	3 & 5
Serial Digital Video (NTSC Composite)	450 to 630 mV	540 mV (between 2 and 5 dB down)	10 & 11
Serial Digital Video (Component)	450 to 630 mV	540 mV (between 2 and 5 dB down)	7 & 8
Serial Digital Audio	630 to 790 mV	710 mV	13 & 14
User Adjustable	-100 to -700 mV -700 to -3500 mV	Using the two user-defined Channel Configuration switches. Using the user-defined Channel Configuration switch with the attenuator on.	
Attenuation		approximately x5	

Table 3–3: Power Supply

Characteristics	Performance Requirements	Supplemental Information
External Power Voltage	90 to 250 VAC	Full range, no selector
Input Frequency Range		48 Hz to 62 Hz
Power Consumption		20 Watts, typical
Supply Accuracy +5 V –5 V		+5 V \pm 200 mV –5 V \pm 200 mV
Hum +5 V –5 V		Typical values: 10 mV 10 mV
Noise +5 V –5 V		(5 MHz measurement bandwidth) \leq 50 mV \leq 50 mV
Crest Factor		\geq 1.35
Fuse Required		1 ampere medium blow fuse for all applications.

Table 3–4: Mechanical (Physical) Characteristics

Characteristics	Supplemental Information
Rackmount Dimensions	
Height	1.734 inches (4.4 cm)
Width	19.0 inches (48.3 cm)
Length	22.1 inches (56.1 cm)
Net Weight	10.8 lbs (4.9 kg)
Shipping Weight	18 lbs, 5 oz (8.3 kg)

Table 3-5: Environmental Characteristics

Characteristics	Supplemental Information
Temperature Nonoperating Operating	-40° C to +65° C 0° C to +50° C IEC 1010-1 compliance to +40° C.
Altitude Nonoperating Operating	to 40,000 feet to 10,000 feet (4572 meters) IEC 1010-1 compliance to 2000 meters.
Humidity	5 – 95% humidity, noncondensing
Vibration Operating	From 5 to 350 Hz: 0.0002 g ² /Hz Acceleration Power Spectral Density (APSD). From 350 to 500 Hz: -3 dB/Octave Slope. At 500 Hz: 0.00014 g ² /Hz APSD. 0.31 overall GRMS. 10 minutes/axis.
Nonoperating	From 5 to 100 Hz: 0.020 g ² /Hz (APSD). From 100 to 200 Hz: -3 dB/Octave Slope. From 200 to 350 Hz: 0.010 g ² /Hz APSD. From 350 to 500 Hz: -3 dB/Octave Slope. At 500 Hz: 0.007 g ² /Hz APSD. 2.46 overall GRMS. 10 minutes/axis.
Shock (nonoperating)	Half Sine Wave Shock levels: 50 g's (instrument), 11 msec duration, 3 shocks per direction.
Transportation	Qualified under NTSB Test Procedure 1A, Category II (24-inch drop).
Vehicle Vibration (Random Vibration)	Vibrate along all three axes at an overall vibration level of 1.33 GRMS. One hour per axis.
Second Manual Handling (Shock)	Drop on all sides once from a height of 24 inches. Drop on the bottom from a height of 48 inches.
Equipment Type	Measurement
Equipment Class	Class I (grounded product), as defined in IEC 1010-1, Annex H.
Installation Category	Installation Category II, as defined in IEC 1010-1, Annex J. Rated for indoor use only.
Pollution Degree	Pollution Degree 2, as defined in IEC 1010-1.

Certification

The following safety standards apply to the ECO 422:

- UL3111-1 – Standard for Electrical Measuring and Test Equipment
- ANSI/ISA S82 – Safety Standard for Electrical and Electronic Test, Measuring, Controlling, and Related Equipment
- IEC1010-1 – Safety Requirements for Electronic Equipment for Measurement, Control, and Laboratory Use
- CAN/CSA C22.2 No. 1010.1-92 – Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use

EMI Standards

The following electromagnetic interference (EMI) standard applies to the ECO 422:

- FCC EMI Compatibility – FCC Rules Part 15 Subpart J, Class A

Refer to the compliance declaration in the front of this manual for a list of other standards.

WARNING

The following servicing instructions are for use only by qualified personnel. To avoid injury, do not perform any servicing other than that stated in the operating instructions unless you are qualified to do so. Refer to all Safety Summaries before performing any service.



Theory of Operation

Theory of Operation

Introduction

This section provides information on how the ECO 422 circuitry works, in order to troubleshoot the instrument.

Logic Conventions

Signal names are all capital letters. For example, SIGNAL.

An active low signal (normally denoted by an overscore) is a signal name enclosed in parentheses. For example, (SIGNAL).

The aside of a signal name is always in square brackets. For example, [SIGNAL].

The aside of an active-low signal is the signal name in parentheses and then enclosed in square brackets. For example, [(SIGNAL)].

ECO 422 Block Level Description (See Figure 4-1)

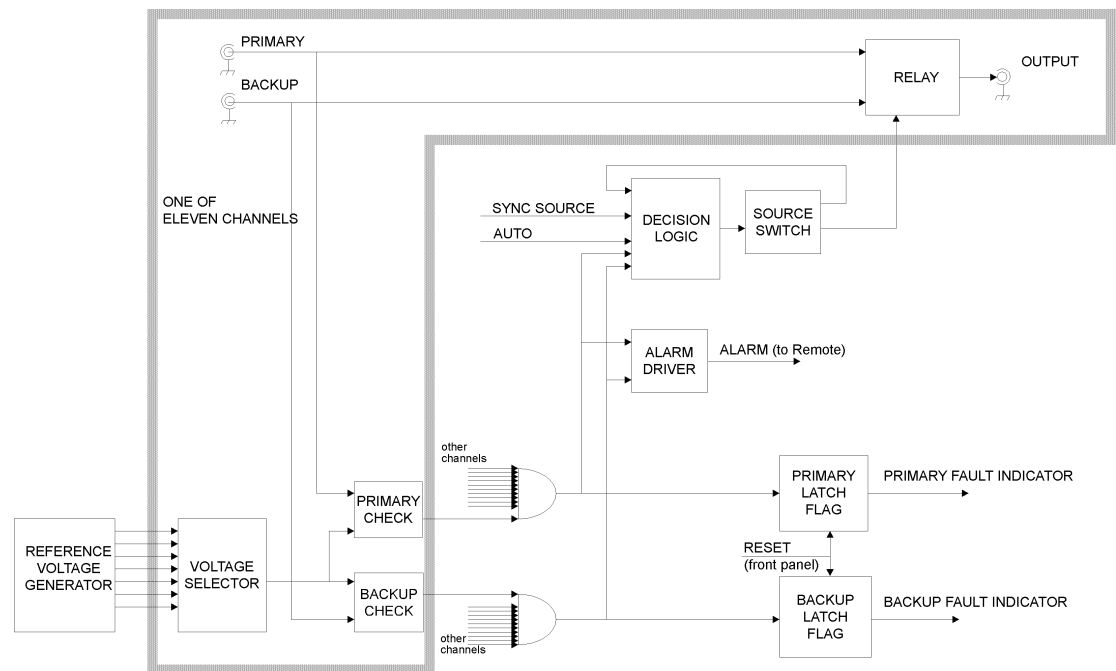


Figure 4-1: Block Diagram of the ECO 422

The Primary and Backup signals enter through the BNCs. The signal goes directly to the Relay where one switches through to the rear-panel Output and the other terminates in $75\ \Omega$. The rest of the circuitry determines which signal goes to the Output.

A copy of the Primary and Backup signals go to the Primary and Backup Check circuitry. This block consists of a peak detector that compares the peak level of the incoming signal with a predefined level from the Reference Voltage Generator that is selected by the Voltage Selector. The result of this check is ANDed with the results from the ten other input sets and sent to the Decision Logic circuit that determines the state of the relays. Additional circuitry runs the Alarm Driver for the remote output and the fault indicators on the front panel.

ECO 422 Detailed Circuit Description

Input and Comparators 2 through 7

The Input and Comparator circuit takes the input signals, selects between them, and prepares the peak signals for the Decision Logic circuit. There are five input signal sets on the Main board and six input signal sets on the Connector board. All of the Input and Comparator circuits are identical for each signal set, therefore only Channel 1 (on the Connector board) is discussed.

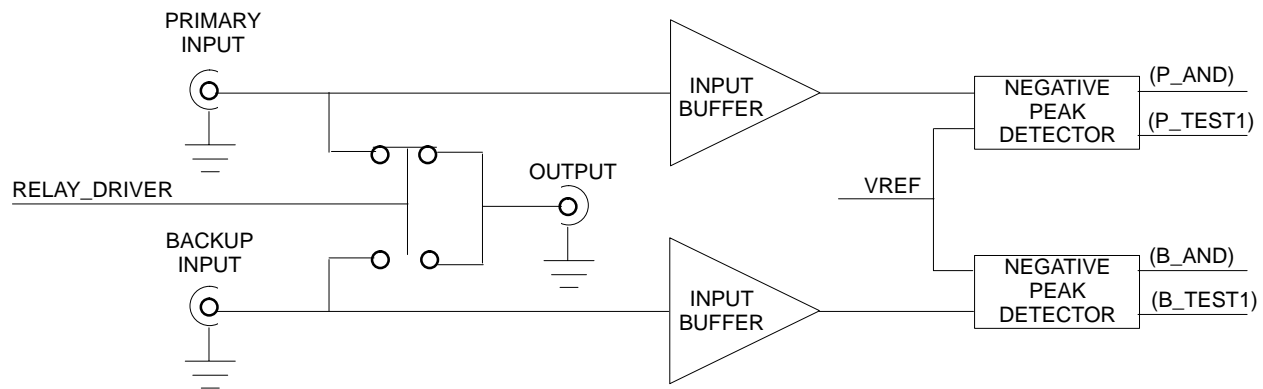


Figure 4-2: Block Diagram of the Input Comparator

RF Relay. The Primary input signal connects to $75\ \Omega$ BNC, J17. The signal passes through a $75\ \Omega$ microstrip to the RF relay, K6. Meanwhile the Backup signal enters J16 and connects to the other side of relay K6 also through a $75\ \Omega$ microstrip. This relay switches the signal to either two $37.5\ \Omega$ resistors in series for $75\ \Omega$ termination, or to the J18 output BNC. A $1.5\ \text{k}\Omega$ resistor (R262 for

Primary and R261 for Backup) AC coupled with 47 and 0.01 F parallel capacitors (C194 and C132 for Primary and C195 and C131 for Backup) samples the input signals. This signal then goes to the Input Buffer.

Input Buffers. The Emitter-follower Input Buffer (Q32 for Primary and Q33 for Backup) reduces the input capacitance that could degrade the return loss at high frequencies. The signal may be attenuated by Q36 for the Primary circuit and Q37 for the Backup circuit. If the ATTEN1 from the Selector Switch signal is high, it turns on the transistor that reduces the amplitude of the signal. This allows checking a broader range of signals without the Negative Peak Detectors being overdriven or saturated. The output of the Input Buffers goes to the Negative Peak Detectors.

Negative Peak Detectors. The Negative Peak Detector circuit begins with a transistor that inverts the input signal. The Peak Detector circuit picks off the input signal peaks, which charge the memory capacitor, C140 or C139. When no peaks are present, the memory capacitor is discharged by R260 or R259. The DC output of the peak detector is buffered by a low drift op-amp, U11A and B.

Voltage Comparator. The Voltage Comparator takes the output of the Negative Peak Detector and compares it to a DC reference voltage, VREF1, selected from eight possible choices: off, five presets, or two user-defined values. When the input negative peaks generate a voltage less than the selected reference, the output of the comparator goes low, signaling a fault to the control circuit. The resulting signal is (P_AND_C) for the Primary and (B_AND_C) for the Backup. (P_TEST1) and (B_TEST1) are only for automated testing purposes. All the Primary signals are wire-ANDed together as the (P_AND_C) signal and sent to the Main board via J19. The same is done with all the Backup signals.

Control and Remote

The Primary and Backup signals from the Voltage Comparators on the Main board are ANDed with like signals coming from the Connector board and passed to the Controller PLD that then generates the control signals for the switching relays.

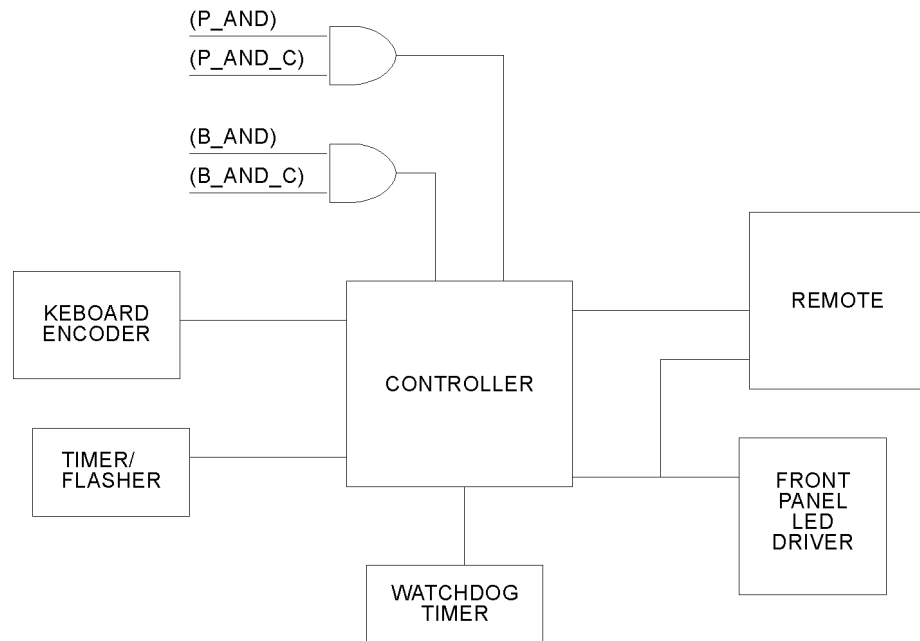


Figure 4-3: Block Diagram for the Control and Remote Circuit

Keyboard Encoder. The front panel is connected to the Main board through J16. The input from the front panel is scanned by the Keyboard encoder, U11. The outputs are active high and chosen so that only one can be active at a time. The KEY_VALID signal is ANDed with each output inside the controller to provide switch debouncing.

Front-panel LED Driver. U12 outputs the signals to drive the LEDs on the front panel. It drives the LEDs to +5 V.

U12 outputs the signals to driver the LEDs on the front panel. It drives the LEDs to +5 V. The timer, U13, provides the pulsing necessary to flash the front-panel fault LEDs and clock the front panel Time Out circuit in the Controller. When (TIMER_DIS) is low, the timer is prevented from pulsing. When the input goes high, the timer output goes low, turning on and allowing the Controller to flash the LEDs.

Remote. The Remote port, J17, provides three inputs and four outputs from the Controller. (R_AUTO) controls auto switching, (R_SOURCE) is a manual source switch, and (R_RESET) resets the fault indicator LEDs. These signals are buffered by U18B that is always enabled. The input has six diodes for ESD protection.

The buffer drives the two input source light outputs through resistors to ground because there is no remote power on the rear-panel connector. The inversion of

the select lines is accomplished by cross wiring P_LED and B_LED, through the buffer to (B_O) and (P_O), which are complimentary.

The high current (ALARM) output is provided by Q32 and a high wattage 22 Ω resistor. A 10 k Ω pull-down is provided for test purposes.

The fault reporting output, U15 and Q33, provide a method of fault indication that also includes remote indication of instrument failure. A 24 V, 20 mA current limited input and ground are connected to J17-2 and J17-4. When the controller detects an input fault or suffers a power failure, the LED in U15 shuts off. The transistor opens up allowing Q33 to saturate to less than 1.5 V, signaling the fault. When the LED is on, Q33 is cut off leaving less than 100 nA of leakage. The diodes, CR48 and VR1, are provided for reverse voltage and ESD protection.

Controller. The Controller has five main functions:

- Encode the keyboard signals.
- Send the correct signals to the LED Driver.
- Generate the ALARM signal for the Remote circuit.
- Generate the Switch or Auto Switch command.
- Keep track of the Time Out circuit.

The five inputs from the Keyboard Encoder enter the Controller. KEY_VALID is internally delayed three clock cycles to allow key data setup. The ENABLE and the delayed KEY_VALID signal clock a toggle flip-flop high to enable the three input gates. Once enabled, the combination of delayed KEY_VALID and each input produces a control signal for the Controller LED Driver circuit, the Lockout circuit, and the Fault circuit.

The fault block of the Controller uses four input signals (PFAULT), (BFAULT), (TIMER), and RESET. These signals determine whether the (ALARM) signal needs to be sent to the Remote, if the Primary or Backup front panel Alarm LEDs should be on, and if the auto switch function should be activated. The RESET command turns off the LEDs and the Remote Alarm output. The (TIMER) signal is NANDed with the LED fault signal to make it flash.

The automatic source change with fault detection function is enabled by the (AUTO_O) signal from the Keyboard Encoder circuitry. This signal and some other controls generate (AUTO_ON). (AUTO_ON) can be switched off by the (R_AUTO) control from the rear-panel Remote connector. The (AUTO_ON) signal is also used to derive the (P_SELECT) and (B_SELECT) signals. (AUTO_ON) and (AUTO_OFF) are sent to drive the front-panel LED circuit.

After the front panel is enabled, the ECO 422 will only allow the front panel approximately 60 seconds of inactivity before it will automatically disable the

front panel. The Controller gets a timing signal from the Timer circuit. It counts this signal to check the inactivity of the front panel. Every time that a front-panel key is pressed the internal counter is reset. If the counter reaches one minute, the front panel is automatically locked out.

Reference Voltage and Selector Switch Farm

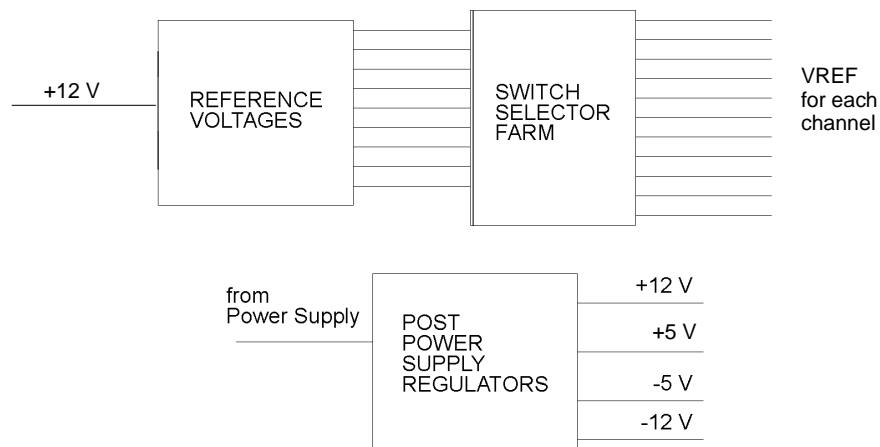


Figure 4-4: Reference Voltage and Selector Switch Farm Block Diagram

Reference Voltages. The +2.5 V reference voltage is provided by U31. This signal is used to produce the $-2.5V_REF$ and the Attenuation signals.

The +2.5 V signal from U31 is combined with $ATTEN_SW$ and buffered by U23B and U20B. The resulting signal is set to the Switch Farm as $ATTEN_M$ and $ATTEN_C$ to control the input attenuators.

The -5 V signal is inverted and buffered by U20A, resulting in the $-2.5V_REF$ signal. This signal drives five inverting amplifiers, each with a DC output equivalent to the recovered DC from the Peak Detector Buffers for a specific type of input. It also drives two adjustable amplifiers whose amplitude is adjusted by R266 and R265. The results are the $BUFX$ signals that are connected to the Switch Farm by S14-1 through S14-7.

Switch Farm. The Switch Farm, S1-S11, is a set of 11 eight-bit DIP switches, one for each channel. The user selects which reference amplifier, $VREF$, for each channel using the switches and whether or not the attenuator, $ATTEN$, is inserted. Opening the seven reference amplitude switches allows $VREF$ to go to

a negative voltage. Since the peak detector will never produce a negative voltage, the comparators will be disabled.

Post Regulated Power Supply

Power is supplied to the Main and Connector boards through J21 from an OEM supply which provides +15 V, -15 V and +5 V logic level voltage. The 15 V supplies are regulated to +5 and -5 V. The +15 V is reduced by 22 Ω resistors and then used directly by the relay.

NOTE. *There are two fuses in the instrument. One is accessible through the rear panel and the other is on the power supply. Make sure to check the internal fuse if the instrument will not power up.*



Performance Verification



Performance Verification

Introduction

This section consists of checklists and detailed procedures to use in verifying performance parameters and adjusting it to within tolerances.

The order of these procedures has been chosen to minimize changes in equipment setups. Performance parameters may be checked in any order.

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. (Some steps have been omitted.)

Calibration Data Report

Instrument ECO 422

Cal. Date _____

Serial Number _____

Certificate Number¹ _____

Technician _____

Procedure 070-8472-00

Revision Date _____

STEP	OPERATION	MINIMUM TOLERANCE	MAXIMUM TOLERANCE	INCOMING	OUTGOING
1	Overall Switching Disabled				
	Channel 1:				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 2: (swap S2 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		

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

STEP	OPERATION	MINIMUM TOLERANCE	MAXIMUM TOLERANCE	INCOMING	OUTGOING
	Channel 3: (swap S3 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 4: (swap S4 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 5: (swap S5 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		

Performance Verification

STEP	OPERATION	MINIMUM TOLERANCE	MAXIMUM TOLERANCE	INCOMING	OUTGOING
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 6: (swap S6 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 7: (swap S7 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		

STEP	OPERATION	MINIMUM TOLERANCE	MAXIMUM TOLERANCE	INCOMING	OUTGOING
	Channel 8: (swap S8 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 9: (swap S9 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 10: (swap S10 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		

STEP	OPERATION	MINIMUM TOLERANCE	MAXIMUM TOLERANCE	INCOMING	OUTGOING
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		
	Channel 11: (swap S11 for S1)				
2	NTSC Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
4	NTSC Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
3	PAL Black Burst Switch – Primary	switch at 2 dB down	switch at 4 dB down		
5	PAL Black Burst Switch – Backup	switch at 2 dB down	switch at 4 dB down		
7	Serial Digital Component Switch – Primary	switch at 2 dB down	switch at 5 dB down		
8	Serial Digital Component Switch – Backup	switch at 2 dB down	switch at 5 dB down		
10	NTSC Serial Digital Composite Switch – Primary	switch at 2 dB down	switch at 5 dB down		
11	NTSC Serial Digital Composite Switch – Backup	switch at 2 dB down	switch at 5 dB down		
13	Serial Digital Audio Switch – Primary	switch at 2 dB down	switch at 4 dB down		
14	Serial Digital Audio Switch – Backup	switch at 2 dB down	switch at 4 dB down		

Equipment Required

Signal Source – SPG 422. Must be able to generate black burst signal (NTSC and PAL), serial digital video (component), and serial digital audio. Also requires two outputs of each signal.

Signal Source – TSG 170D option 1S. Must be able to output serial digital composite video.

Step Attenuator – The step attenuator must be able to attenuate a signal at least 60 dB and step from 1 to 4 dB in 0.5 dB steps. (Example: 847 Attenuator from KAY Elemetrics Corp.)

Oscilloscope or waveform monitor. Used only to monitor the signals. (Examples: 11000 series oscilloscope or 1780 Waveform Monitor.)

75 Ω terminators. (Example: Tektronix part number 011-0102-00 or 011-0102-01)

75 Ω Cables. (Example: Tektronix part number 012-0074-00)

Performance Verification Procedure

Signal Checking Disabled

1. Check Overall Switching Disabled

Disconnect all signals (if any) from the ECO 422 and power down the instrument.

Set all switches on S1 through S11 to “open” to disable switches on all channels.

Power the ECO 422 up. (No inputs or outputs are required at this point.)

CHECK – that there are no error shown on the front panel.

Black Burst Checks

2. NTSC Black Burst Check for Channel 1 Primary Switch between 2 and 4 dB down from nominal

Connect the equipment as shown in Figure 5–1.

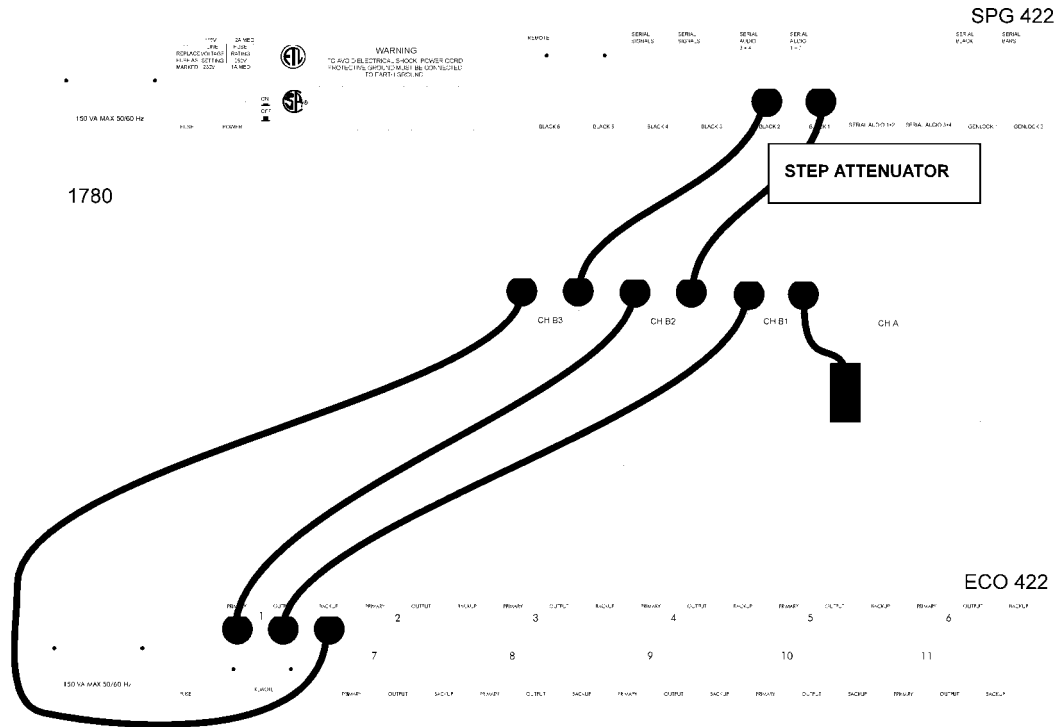


Figure 5-1: Setup to Check Black Burst Levels

Power down all equipment.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to NTSC Black Burst for Channel 1 (set S1-1 to “closed” and S1-2 through S1-8 “open”).

Set the step attenuator to 0 dB of attenuation.

Power up all equipment.

Set the SPG 422 to output an NTSC black burst signal.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Primary” Sync Source and Auto Switch “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Primary input signal until the signal source switches to the Backup.

Press the Reset button on the front panel and try to return the signal source to Primary.

CHECK – that the Primary signal still shows an error and automatically switches back to Backup. If the ECO 422 doesn't continue to show the Primary signal in error after the reset, continue adding attenuation until the Primary signal switches to Backup again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

3. **PAL Black Burst Check for Channel 1 Primary Switch between 2 and 4 dB down from nominal**

Connect the equipment as shown in Figure 5–1.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S2 through S11 to “open”).

Set the Channel Configuration switch to PAL Black Burst for Channel 1 (set S1–1 to “open,” S1–2 “closed,” and S1–3 through S1–8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output a PAL black burst signal.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Primary” Sync Source and Auto Switch “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Primary input signal until the signal source switches to the Backup.

Press the Reset button on the front panel and try to return the signal source to Primary.

CHECK – that the Primary signal still shows an error and automatically switches back to Backup. If the ECO 422 does not continue to show the Primary signal in error after the reset, continue adding attenuation until the Primary signal switches to Backup again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

4. **NTSC Black Burst Check for Channel 1 Backup Switch between 2 and 4 dB down from nominal**

Connect the equipment as shown in Figure 5–1, except swap the Primary and Backup input signals so that the step attenuator is on the Backup channel.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to NTSC Black Burst for Channel 1 (set S1-1 to “closed” and SW1-2 through S1-8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output an NTSC black burst signal.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Backup” Sync Source and Auto Switch to “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Backup input signal until the signal source switches to the Primary.

Press the Reset button on the front panel and try to return the signal source to Backup.

CHECK – that the Backup signal still shows an error and automatically switches back to Primary. If the ECO 422 does not continue to show the Backup signal in error after the reset, continue adding attenuation until the Backup signal switches to Primary again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

5. PAL Black Burst Check for Channel 1 Backup Switch between 2 and 4 dB down from nominal

Connect the equipment as shown in Figure 5-1, except swap the Backup and Primary input signals so that the step attenuator is on the Backup input signal.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S2 through S11 to “open”).

Set the Channel Configuration switch to PAL Black Burst for Channel 1 (set S1-1 to “open,” S1-2 “closed,” and S1-30 through S1-8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output a PAL black burst signal.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Backup” Sync Source and Auto Switch to “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Backup input signal until the signal source switches to the Primary.

Press the Reset button on the front panel and try to return the signal source to Backup.

CHECK – that the Backup signal still shows an error and automatically switches back to Primary. If the ECO 422 does not continue to show the Backup signal in error after the reset, continue adding attenuation until the Backup signal switches to Primary again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

**6. Check the NTSC & PAL Black Burst for Channels 2 – 11
Switch between 2 and 4 dB down from nominal**

Repeat the four previous procedures for Channels 2 – 11 of the ECO 422. Move the cables from Channel 1 to the channel under test. Replace the switch setting for S1 as given in the following Table.

Channel No.	Switch No.
2	S2
3	S3
4	S4
5	S5
6	S6
7	S7
8	S8
9	S9
10	S10
11	S11

**Serial Digital Video
Checks**

**7. Serial Digital Component Check for Channel 1 Primary
Switch between 2 and 5 dB down from nominal**

Connect the equipment as shown in Figure 5–2.

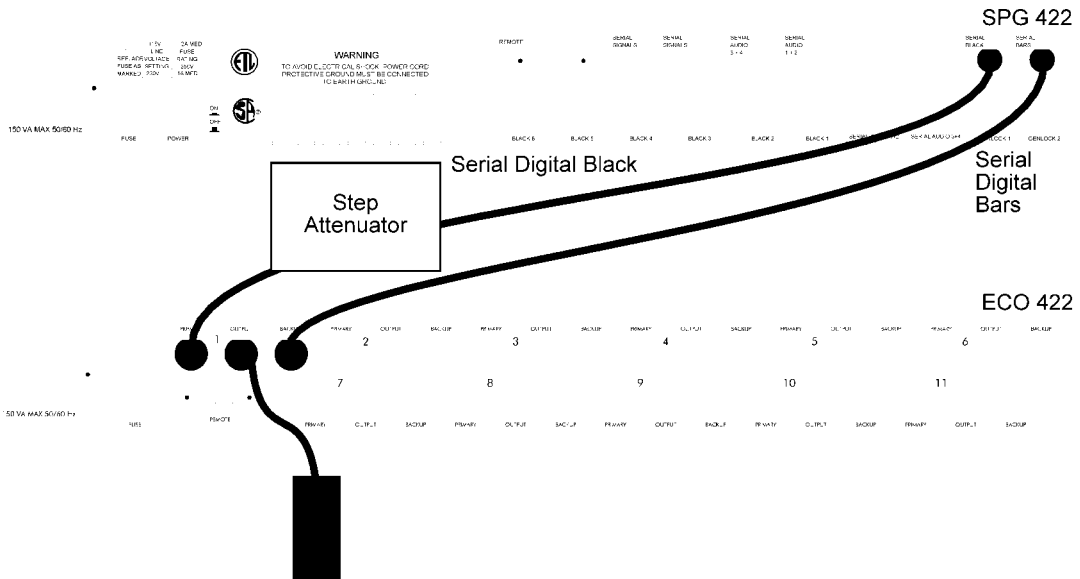


Figure 5-2: Setup to Check the Component Serial Digital Video Levels

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to Serial Digital Video Component for Channel 1 (set S1-4 to “closed,” S1-1 through S1-3 “open,” and S1-5 through S1-8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output any serial digital bars signal using either the 525/59.94 or 625/50 standard.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 (using the front panel) to “Primary” Sync Source and Auto Switch “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Primary input signal until the signal source switches to Backup.

Press the Reset button on the front panel and try to return the signal source to Primary.

CHECK – that the Primary signal still shows an error and automatically switches back to Backup. If the ECO 422 does not continue to show the Primary signal in error after the reset, continue adding attenuation until the Primary signal switches to Backup again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 5 dB down.

Repeat using the 625/50 standard bars signal as the input.

8. Serial Digital Component Check for Channel 1 Backup Switch between 2 and 5 dB down from nominal

Connect the equipment as shown in Figure 5–2, except swap the Primary and Backup input signals so that the step attenuator is on the Backup input.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to Serial Digital Video Component for Channel 1 (set S1–4 to “closed,” S1–1 through S1–3 “open,” and S1–5 through S1–8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output any serial digital bars signal using either the 525/59.94 or 625/50 standard.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 (using the front panel) to “Backup” Sync Source and Auto Switch “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Backup input signal until the signal source switches to Primary.

Press the Reset button on the front panel and try to return the signal source to Backup.

CHECK – that the Backup signal still shows an error and automatically switches back to Primary. If the ECO 422 does not continue to show the Backup signal in error after the reset, continue adding attenuation until the Backup signal switches to Primary again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 5 dB down.

Repeat using a 625/50 bars signal as the input.

**9. Check Serial Digital Video (Component) for Channels 2 through 11
Switch between 2 and 5 dB down from nominal**

Repeat the previous two procedures for Channels 2 through 11 of the ECO 422. Move the cables from Channel 1 to the channel under test. Replace the switch setting for S1 as given in the following table.

Channel No.	Switch No.
2	S2
3	S3
4	S4
5	S5
6	S6
7	S7
8	S8
9	S9
10	S10
11	S11

**10. NTSC Serial Digital Composite Check for Channel 1 Primary
Switch between 2 and 5 dB down from nominal**

Connect the equipment as shown in Figure 5–3.

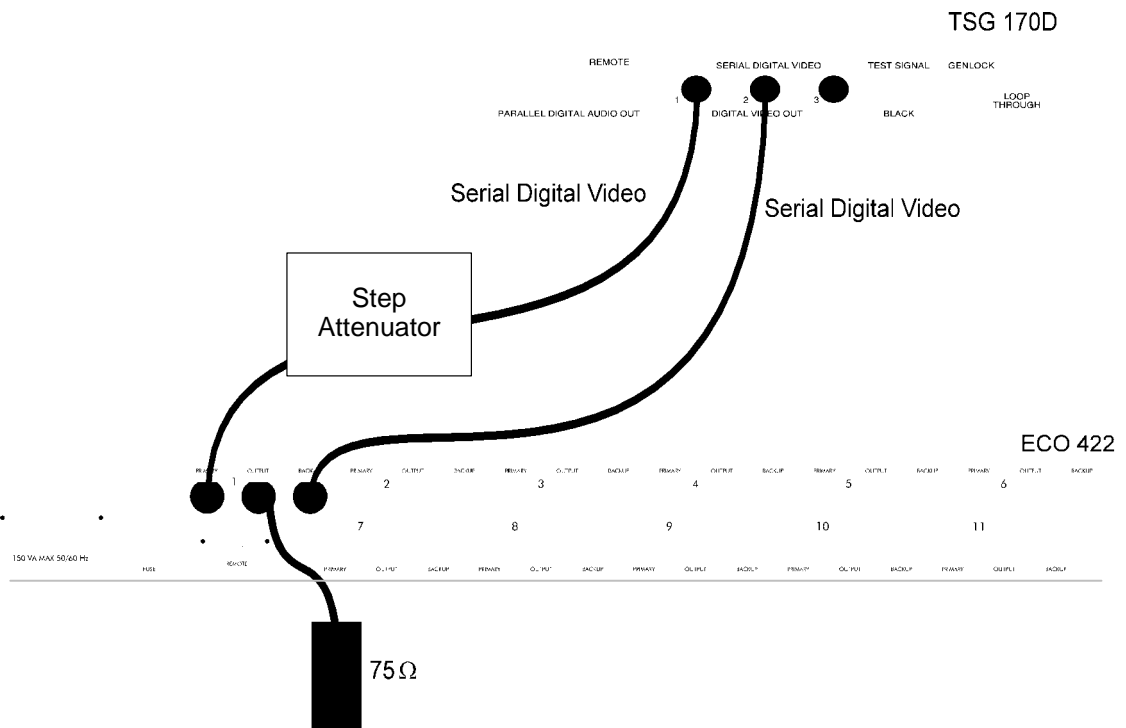


Figure 5–3: Setup to Check the Serial Digital Video Composite Levels

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “closed”).

Set the Channel Configuration switch to NTSC Serial Digital Video Composite for Channel 1 (set S1–3 to “closed,” S1–1 and S1–2 “open,” and S1–4 through S1–8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the TSG 170D to output any serial digital signal.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Primary” Sync Source and Auto Switch to “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Primary input signal until the signal source switches to Backup.

Press the Reset button on the front panel and try to return the signal source to Primary.

CHECK – that the Primary signal still shows an error and automatically switches back to Backup. If the ECO 422 does not continue to show the Primary signal in error after the reset, continue adding attenuation until the Primary signal switches to Backup again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 5 dB down.

11. NTSC Serial Digital Composite Check for Channel 1 Backup Switch between 2 and 5 dB down from nominal

Connect the equipment as shown in Figure 5–3, except swap the Primary and Backup signals, so that the step attenuator is on the Backup input.

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “closed”).

Set the Channel Configuration switch to Serial Digital Video Composite for Channel 1 (set S1–3 to “closed,” S1–1 and S1–2 “open,” and S1–4 through S1–8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the TSG 170D to output any serial digital signal. (Do not use the SDI Check Field signal.)

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Backup” Sync Source and Auto Switch “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Backup input signal until the signal source switches to Primary.

Press the Reset button on the front panel and try to return the signal source to Backup.

CHECK – that the Backup signal still shows an error and automatically switches back to Primary. If the ECO 422 does not continue to show the Backup signal in error after the reset, continue adding attenuation until the Backup signal switches to Primary again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 5 dB down.

12. Check Serial Digital Video (Composite) for Channels 2 through 11 Switch between 2 and 5 dB down from nominal

Repeat the previous two procedures for Channels 2 through 11 of the ECO 422. Move the cables from Channel 1 to the channel under test. Replace the switch setting for S1 as given in the following table.

Channel No.	Switch No.
2	S2
3	S3
4	S4
5	S5
6	S6
7	S7
8	S8
9	S9
10	S10
11	S11

Serial Digital Audio Checks

13. Serial Digital Audio Check for Channel 1 Primary Switch between 2 and 4 dB down from nominal

Connect the equipment as shown in Figure 5–4.

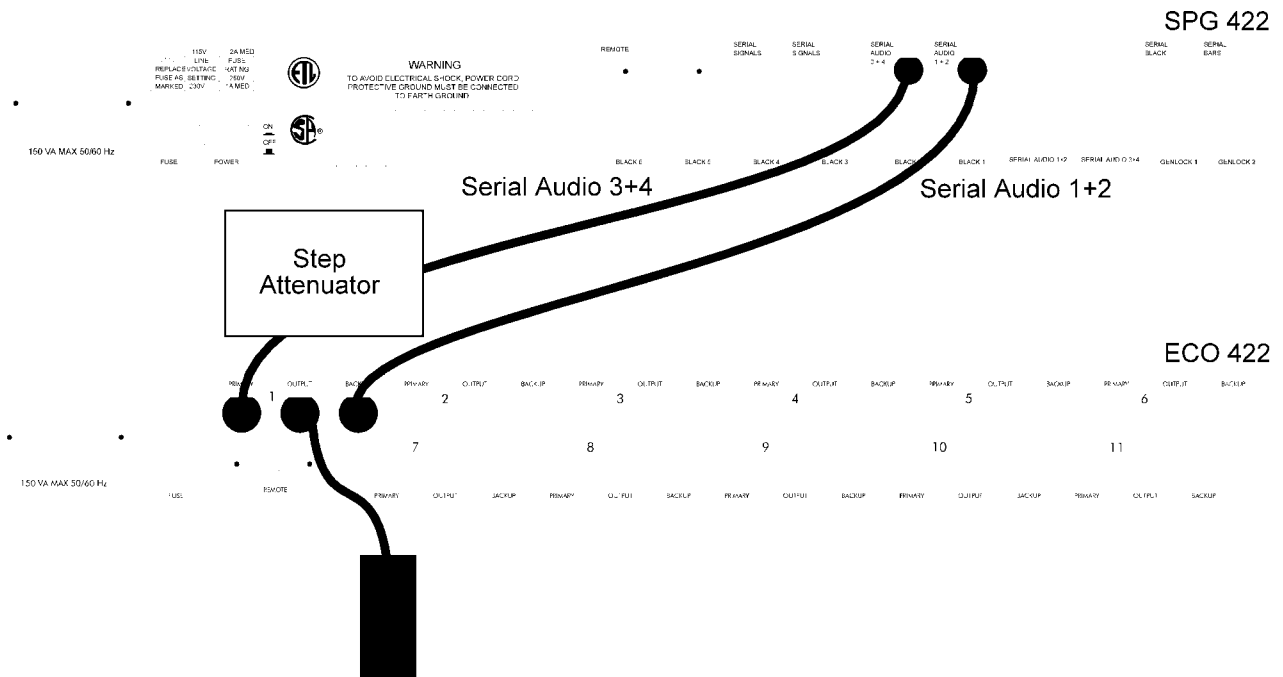


Figure 5-4: Setup to Check the Serial Audio Levels

Set the Channel Configuration switches to Disabled (signal not checked) for all channels (set all the DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to Serial Digital Audio for Channel 1 (set S1-5 to “closed,” S1-1 through S1-4 “open,” and S1-6 through S1-8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output either a 1000 or 800 Hz serial digital audio tone on all four channels.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Primary” Sync Source and Auto Switch to “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Primary input signal until the signal source switches to Backup.

Press the Reset button on the front panel and try to return the signal source to Primary.

CHECK – that the Primary signal still shows an error and automatically switches back to Backup. If the ECO 422 does not continue to show the Primary signal in error after the reset, continue adding attenuation until the Primary signal switches to Backup again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

14. Serial Digital Audio Check for Channel 1 Backup Switch between 2 and 4 dB down from nominal

Connect the equipment as shown in Figure except swap the Primary and Backup cables so that the attenuator is on the Backup side.

Set the Channel Configuration switches to Disabled (Signal not checked) for all channels. (set all the DIP switches on S1 through S11 to “open”).

Set the Channel Configuration switch to Serial Digital Audio for Channel 1 (set S1–5 to “closed,” S1–1 through S1–4 “open,” and S1–6 through S1–8 “open”).

Set the step attenuator to 0 dB of attenuation.

Set the SPG 422 to output either a 1000 or 800 Hz serial digital audio tone on all four channels.

Press Reset.

CHECK – that there are no errors shown for either the Primary or Backup ECO 422 sync sources.

Set the ECO 422 to “Backup” Sync Source and Auto Switch to “Switch on Fault.”

Add attenuation, 0.5 dB at a time, to the Backup input signal until the signal source switches to Primary.

Press the Reset button on the front panel and try to return the signal source to Backup.

CHECK – that the Backup signal still shows an error and automatically switches back to Primary. If the ECO 422 does not continue to show the Backup signal in error after the reset, continue adding attenuation until the Backup signal switches to Primary again.

Note the attenuation of the step attenuator.

CHECK – that the ECO switches between 2 and 4 dB down.

**15. Check Serial Digital Audio for Channels 2 through 11
Switch between 2 and 4 dB down from nominal**

Repeat the previous two procedures for Channels 2 through 11 of the ECO 422. Move the cables from Channel 1 to the channel under test. Replace the switch setting for S1 as given in the following table.

Channel No.	Switch No.
2	S2
3	S3
4	S4
5	S5
6	S6
7	S7
8	S8
9	S9
10	S10
11	S11



Adjustment Procedure

Adjustment Procedure

Introduction

The only adjustment required for the ECO 422 is the user-defined threshold levels.

Adjustment Procedure

How to Adjust the User-Defined Threshold Levels

The user-defined threshold levels are the two levels available from User Configuration switches SX-6 (R266) and SX-7 (R265). They are available so that the user can check the levels of signals other than the five predefined levels.

The procedure to adjust these levels is an operator adjustment, not a service adjustment. Therefore it is given in the User portion of this manual, see page 2-10.



Maintenance

Maintenance

This section discusses the various options available for servicing the Tektronix ECO 422. 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 recalibration, 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 turn-around repair and recalibration 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.

Preparation

- Read the Safety Summary and the Service Strategy
- Read Operating Basics

Inspection and Cleaning

Preventive maintenance consists of cleaning, lubricating, visual inspection, checking performance, and readjusting the ECO 422 on a regular schedule. The Inspection and cleaning schedule should be established based on the amount of use and the surrounding environment of the ECO 422. Under average conditions, a preventive maintenance check should be performed on a one year interval (severe environmental conditions may dictate a shorter time interval).

Cleaning

Clean the instrument often enough to prevent dust or dirt from accumulating. Dust accumulating in the instrument acts as an insulating blanket, preventing proper cooling, and possibly causing overheating and component breakdown.

Under high humidity conditions, accumulated dust can also provide an electrical conduction path.



CAUTION. *Avoid the use of chemical cleaning agents that might damage the plastics used in the instrument. Avoid using organic cleaning solutions such as benzene, toluene, xylene, acetone, freon, or other halogenated hydrocarbon solvents. Use a nonresidue-type of cleaner, preferably isopropyl alcohol.*

Exterior. Remove accumulated dust with a soft cloth or small paint brush. The brush is particularly useful around the connectors and front-panel buttons. Remove hardened dirt with a soft cloth, dampened in a mild detergent and water solution. Do not use abrasive cleaners.

Interior. The best way to remove accumulated dust inside the instrument is to blow it off with dry, low-velocity air. Remove remaining dust with a small paint brush, followed by a soft cloth dampened in a mild detergent and water solution.



CAUTION. *Do not allow water to get inside any enclosed assembly or component.*

Visual Inspection

Visually inspect the instrument during the preventive maintenance routine for signs of damage, scorched components, and loose or disconnected pin connectors. If you discover heat damaged parts, try to determine the cause of the overheating before replacing the damaged parts; otherwise, the damage may repeat.

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



CAUTION. *Static discharge can damage or degrade many semiconductor components.*

This instrument contains electrical components that are susceptible to damage or degradation from static discharge. See Table 7-1 for relative susceptibility of various classes of semiconductors. Higher static discharge voltages than the levels listed in Table 7-1 can degrade the performance and reliability of the semiconductor components. Static voltages of 1 kV to 30 kV are common in unprotected environments.

Table 7-1: Static-Sensitive Components

Semiconductor Classes	Relative Susceptibility Levels
MOS or CMOS microcircuits or discrete or linear microcircuits with MOS inputs (most sensitive)	100 to 500 V
EL, 74F, 74ALS, and 155- P/N parts	200 to 500 V
Schottky Signal Diodes	250 V
Schottky TTL	500 V
High-frequency Bipolar Transistors and ICs	400 to 600 V
JFETs	600 to 800 V
Low-frequency Linear Microcircuits	400 to 1000 V
Low-power Schottky TTL	900 V
TTL (least sensitive)	1200 V

NOTE. *Static discharges of less than 2 kV are seldom felt.*

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 or on nonconductive surfaces.
3. Discharge the static voltage from your body by wearing a grounded wrist strap while handling these components. Service static-sensitive components or assemblies only at a static free workstation by qualified personnel. If soldering is involved, use a soldering iron connected to earth ground and special antistatic desoldering tools.
4. Avoid handling components in areas that have a floor or work surface covering capable of generating a static charge. Carpeted floors should be sprayed to reduce static problems. Also 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 the leads.
7. Do not slide the components over any surface.
8. Use a soldering iron that is connected to earth ground.
9. Use only special antistatic, suction, or wick-type desoldering tools.

Performance Verification 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 Verification and Adjustment Procedures are included in this manual.

Corrective Maintenance

The following procedure is designed to assist in isolating problems, which in turn expedites repairs and minimizes down time. There are no specific troubleshooting procedures for this instrument because it is a very simple instrument.

NOTE. *There are two fuses in this instrument. One is accessible through the rear panel and the other is on the power supply. Make sure to check the internal fuse if the instrument will not power up.*

General Troubleshooting Procedures

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 Basics), and by checking that a malfunction has not occurred upstream from the ECO 422.

Determine and evaluate all trouble symptoms. This is accomplished by isolating the problem to a general area, such as an assembly. The block diagram, given with the schematics or the Theory of Operation, is a valuable aid in signal tracing and circuit isolation.



CAUTION. *Use extreme care when probing with meter leads or probes. The components are very dense and there is only 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.*

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.

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.

Use successive electrical checks to locate the source of the problem. The primary tool for the problem isolation is the oscilloscope. Use the Performance Verification 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.

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 in this section.



CAUTION. Always remove the assembly from the instrument, prior to attempting to replace a solder-in component. See this section for the correct procedure.

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.

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. US Customers can call our service organization directly using 1-800-TEK-WIDE (835-9433) and ask for "Service Training." The 800 number is a 24-hour service, but service training specialists are only available between 8 am and 4 pm 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, US 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 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, US 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 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 (A#) and the nine-digit circuit board part number (67#-####-##) will help 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 7-2 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 7-2: Assemblies in the ECO 422

Assembly Name	Circuit Board Assembly No.	First Seven Digits of the Part No.	Part No. Suffix
Front Panel	A1	671-3241	-00
Main	A2	671-3243	-00
Connector	A3	671-3258	-00
Power	A4	119-4112	-00

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 your instrument serial number. See the Replaceable Electrical Parts list Serial Number/Assembly Effective/Discontinued column for the range in which your instrument serial number falls.

Having these pieces of information from Table 7–2 plus the instrument type, serial number, and software version number (if applicable) 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 electric 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)

Etched Circuit Boards

The instrument consists of etched circuit boards. All of the circuit boards are designed as assemblies. Each assembly has an alphanumeric designation (A1 through A4). 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.

Removal/Replacement Instructions

Removal/Replacement Instructions

In general, the boards are held down with Torx® screws. Please make sure to use a Torx tip to remove or replace the screws. Also, check that you have removed all screws (or nuts on the BNC connector) before trying to remove a board.

Special Instructions for the Connector Board

To remove the Connector board, first remove all the nuts from the top row of BNCs. Then remove the two screws from the posts (see Figure 7-1). Next, unscrew the posts from the Main board and remove them (see Figure 7-1). Finally, keeping the board level, slide the board towards the front of the instrument until the BNCs clear both the rear panel and the clips (see Figure 7-2).

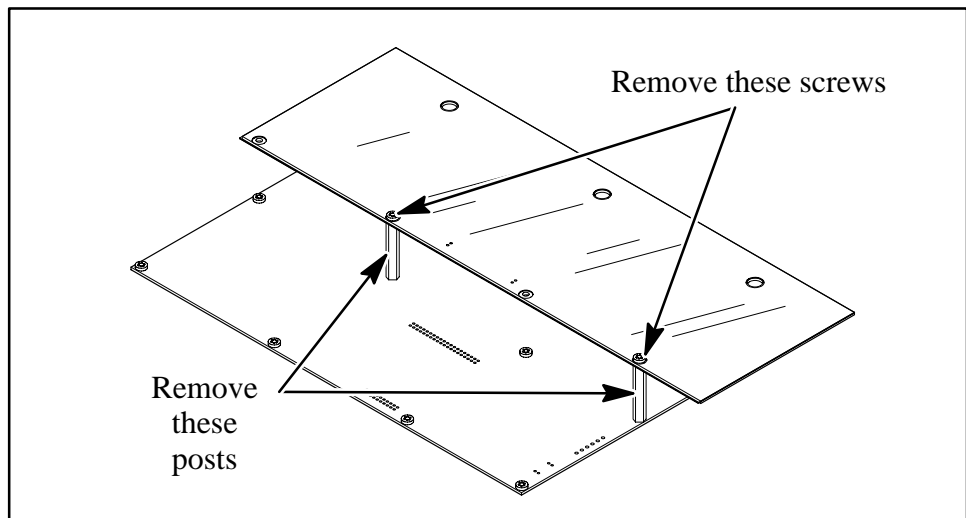


Figure 7-1: Remove these Screws and Post before Attempting to Remove the Connector Board

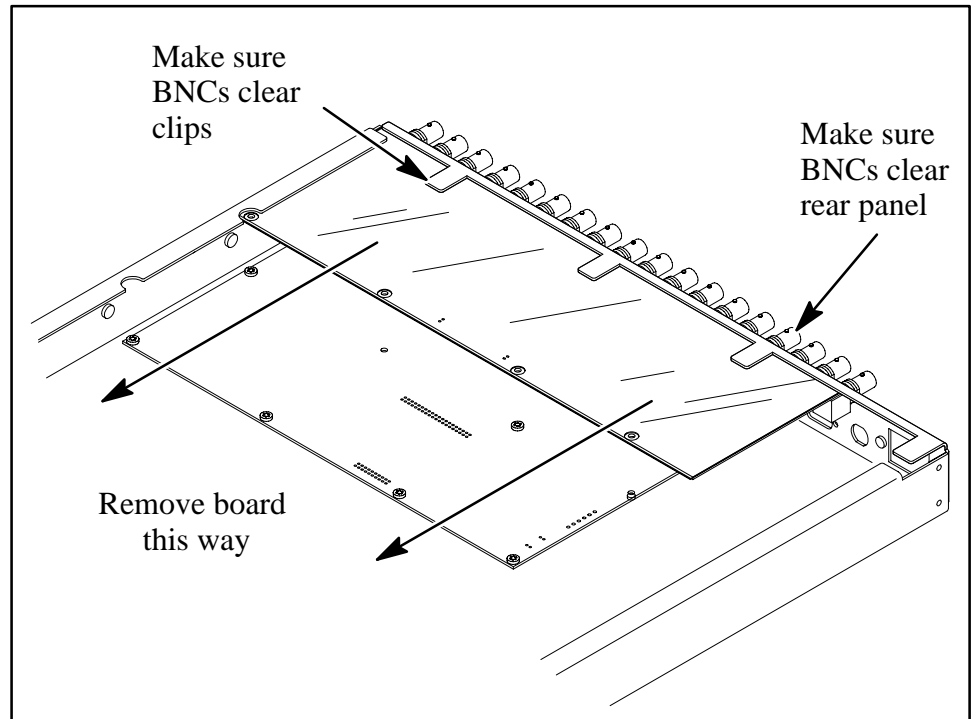


Figure 7-2: Slide the Connector Board Out this Way



CAUTION. Use extreme care when sliding any of the boards to clear the rear panel because there are components on both sides of the boards.

How to Remove the Heat Sinks

U28 and U29 have heat sinks that must be removed in order to replace the components. See Figure 7-3 for how to remove the heat sinks.

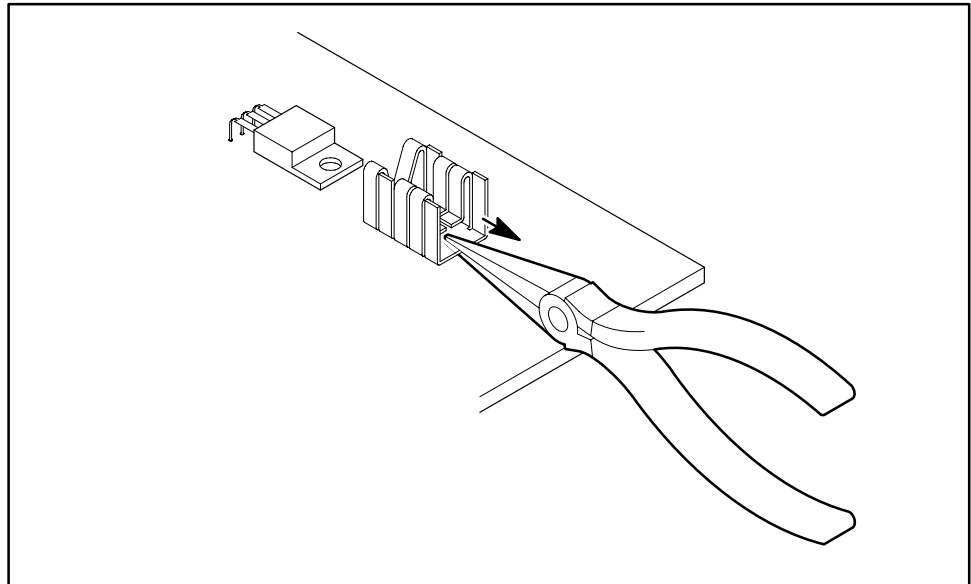


Figure 7-3: Remove the Heat Sinks this Way

Repackaging Instructions

Identification Tag

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

1. Owner (with complete address) and the name of the person at your firm that can be contacted.
2. 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). If the original packaging is not available or is unfit for use, repackage the instrument as follows:

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 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

This instrument is orderable with an “A” option to accommodate the various national electrical power connections.

Power Cord Options

Any of the following power cord options can be ordered for the ECO 422. If no power cord option is ordered, instruments are shipped with a North American 125 V power cord.

Option A1. Universal Europe, 220 V/16 A Power Plug (power cord and one replacement fuse)

Option A2. United Kingdom, 240 V/15 A Power Plug (power cord and one replacement fuse)

Option A3. Australian, 240 V/10 A Power Plug (power cord and one replacement fuse)

Option A4 North American, 250 V/10 A Power Plug (power cord and one replacement fuse)

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.



Replaceable Electrical Parts

Replaceable Electrical Parts

This section contains a list of the components that are replaceable for the ECO 422. 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

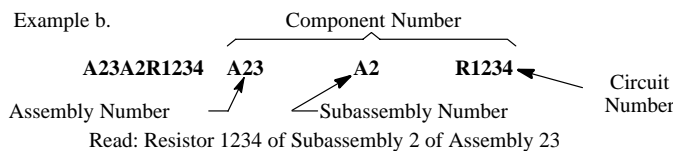
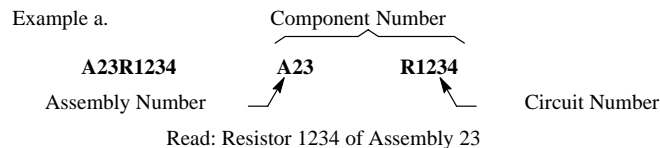
Abbreviations conform to American National Standards Institute (ANSI) standard Y1.1.

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
TK1547	MOORE ELECTRONICS INC (DIST)	19500 SW 90TH COURT PO BOX 1030	TUALATIN OR 97062
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
TK1857	HIROSE ELECTRIC USA INC	2688 WESHILLS COURT	SIMI VALLEY, CA 93065-6235
TK1955	COMPUTER PRODUCTS BOSCHERT INCORPORATED	1331 CALIFORNIA CIRCLE	MILPITAS CA 95035
TK2058	TDK CORPORATION OF AMERICA	1600 FEEHANVILLE DRIVE	MOUNT PROSPECT, IL 60056
TK2073	TOKYO AMERICA INC	565 W GULF ROAD	ARLINGTON HEIGHTS IL 60005
TK2469	UNITREK CORPORATION	3000 LEWIS & CLARK WAY SUITE #2	VANCOUVER WA 98601
0B0A9	DALLAS SEMICONDUCTOR CORP	4350 BELTWOOD PKWY SOUTH	DALLAS TX 75244
0JR04	TOSHIBA AMERICA INC ELECTRONICS COMPONENTS DIV	9775 TOLEDO WAY	IRVINE CA 92718
0JR05	TRIQUEST CORP	3000 LEWIS AND CLARK HWY	VANCOUVER WA 98661-2999
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
0MS63	QUALITY TECHNOLOGIES CORP	610 N MARY AVENUE	SUNNYVALE CA 94086
00213	MSD INC	700 ORANGE ST	DARLINGTON, SC 29532
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
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
06090	RAYCHEM CORP	300 CONSTITUTION DRIVE	MENLO PARK CA 94025-1111
13764	MICRO PLASTICS INC	HWY 178 N	FLIPPIN AR 72634
15513	DATA DISPLAY PRODUCTS	301 CORAL CIR	EL SEGUNDO CA 90245-4620
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
26364	COMPONENTS CORP	6 KINSEY PLACE	DENVILLE NJ 07834-2611
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
27264	MOLEX INC	2222 WELLINGTON COURT	LISLE IL 60532-1613
30161	AAVID ENGINEERING INC	ONE KOOL PATH PO BOX 400	LACONIA NH 03247
34371	HARRIS CORP HARRIS SEMICONDUCTOR PRODUCTS GROUP	200 PALM BAY BLVD PO BOX 883	MELBOURNE FL 32919
50434	HEWLETT-PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131-1008
53387	3M COMPANY ELECTRONIC PRODUCTS DIV	3M AUSTIN CENTER	AUSTIN TX 78769-2963
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195-4526
57668	ROHM CORPORATION	15375 BARRANCA PARKWAY SUITE B207	IRVINE CA 92718

Replaceable Electrical Parts

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
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
61935	SCHURTER INC	1016 CLEGG COURT	PETALUMA CA 94952-1152
66958	SGS THOMSON MICROELECTRONICS	1000 E BELL RD	PHOENIX AZ 85022-2649
67183	ALTERA CORP	3525 MONROE ST	SANTA CLARA CA 95051
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
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
91637	DALE ELECTRONICS INC	2064 12TH AVE PO BOX 609	COLUMBUS NE 68601-3632

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1	671-3241-00			CKT BD ASSY:FRONT PANEL	80009	671324100
A2	671-3243-00	B010100	B010144	CKT BD ASSY:MAIN BOARD	80009	671324300
A2	671-3243-01	B010145	B019999	CKT BD ASSY:MAIN BOARD	80009	671324302
A2	671-3243-02	B020000		CKT BD ASSY:MAIN BOARD	80009	671414900
A3	671-3258-00	B010100	B019999	CKT BD ASSY:CONNECTOR BD	80009	671325800
A3	671-3258-01	B020000		CKT BD ASSY:CONNECTOR BD	80009	671325801
A4	119-4112-00			POWER SUPPLY:SWITCHING,AUTO IN 85-264VAC, 47-440HZ,OUT 5VDC 5A,+15V2A, -15V 0.5A	TK1955	NFS40-7610
A1	671-3241-00			CKT BD ASSY:FRONT PANEL	80009	671324100
A1DS1	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1DS2	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1DS3	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1DS4	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1DS5	150-1059-00			DIODE,OPTO:LED;RED,626NM,20MCD AT 10MA,35 DEG VIEW ANGLE	15513	HLMP-3316
A1DS6	150-1059-00			DIODE,OPTO:LED;RED,626NM,20MCD AT 10MA,35 DEG VIEW ANGLE	15513	HLMP-3316
A1DS7	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1DS8	150-1223-00			DIODE,OPTO:LED;GRN,565NM,1.6MCD AT 10MA	50434	HLMP-3502
A1J1	174-3266-00			CA ASSY,SP:RIBBON;IDC,20,28 AWG,17.0L,2X10,0.1 CTR, RCPT,NON PLZ X 2X10,0.1 CTR PCB	80009	174326600
A1S1	260-2442-00			SWITCH,PUSH:SPST;MOM,NO,100 GRM FRC,COND RUBBER CONTACTS,GRN LED,W/KEYCAP *ATTACHED PARTS*	TK1857	HL20-LSG
	366-0672-00			PUSH BUTTON:W/O LENS,HL20-0101 *END ATTACHED PARTS*	TK1857	HL20-0101
A1S2	260-2442-00			SWITCH,PUSH:SPST;MOM,NO,100 GRM FRC,COND RUBBER CONTACTS,GRN LED,W/KEYCAP *ATTACHED PARTS*	TK1857	HL20-LSG
	366-0672-00			PUSH BUTTON:W/O LENS,HL20-0101 *END ATTACHED PARTS*	TK1857	HL20-0101
A1S3	260-2442-00			SWITCH,PUSH:SPST;MOM,NO,100 GRM FRC,COND RUBBER CONTACTS,GRN LED,W/KEYCAP *ATTACHED PARTS*	TK1857	HL20-LSG
	366-0672-00			PUSH BUTTON:W/O LENS,HL20-0101 *END ATTACHED PARTS*	TK1857	HL20-0101
A1S4	260-2442-00			SWITCH,PUSH:SPST;MOM,NO,100 GRM FRC,COND RUBBER CONTACTS,GRN LED,W/KEYCAP *ATTACHED PARTS*	TK1857	HL20-LSG
	366-0672-00			PUSH BUTTON:W/O LENS,HL20-0101 *END ATTACHED PARTS*	TK1857	HL20-0101
A2	671-3243-00	B010100	B010144	CKT BD ASSY:MAIN BOARD	80009	671324300
A2	671-3243-01	B010145	B019999	CKT BD ASSY:MAIN BOARD	80009	671324301
A2	671-3243-02	B020000		CKT BD ASSY:MAIN BOARD	80009	671324301
A2C1	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C2	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C3	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C4	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C7	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C8	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C9	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C10	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			
A2C11	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C12	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C13	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C14	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C15	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C16	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C17	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C18	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C19	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C20	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C21	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C22	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C23	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C24	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C25	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C27	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V,,	TK1743	CGB103KEX
A2C28	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V,,	TK1743	CGB103KEX
A2C29	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RAD IAL,NONPOLAR,BULK	55680	USP1C470MCA1TP
A2C30	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RAD IAL,NONPOLAR,BULK	55680	USP1C470MCA1TP
A2C33	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C34	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C35	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C36	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C37	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C38	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C39	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C40	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C41	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C42	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C43	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C44	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C45	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C46	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C47	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C48	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C49	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C50	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C52	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C53	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C54	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C55	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C56	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C59	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C60	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C61	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C62	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C63	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2C64	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C65	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C66	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C67	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C68	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C69	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C70	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C71	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C72	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C73	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C74	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C75	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C76	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C77	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C79	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C80	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C81	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C82	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C85	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C86	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C87	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C88	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C89	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C90	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C91	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C92	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C93	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C94	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C95	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C96	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C97	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C98	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C99	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C100	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C101	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C102	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C103	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C105	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C106	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C107	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C108	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A2C111	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C112	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C113	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C114	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C115	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C116	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2C117	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C118	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C119	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C120	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C121	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C122	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C123	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C124	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A2C125	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C126	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C127	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C128	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C129	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C131	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C132	281-0563-00			CAP,FXD,CERAMIC:MLC:0.47UF,20%,50V,0.150 X0.290	04222	SA305E474MAA
A2C133	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C134	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C135	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C136	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C137	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C138	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C139	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C140	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C141	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C142	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C143	281-0563-00			CAP,FXD,CERAMIC:MLC:0.47UF,20%,50V,0.150 X0.290	04222	SA305E474MAA
A2C144	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C145	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C146	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C147	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C148	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C149	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C150	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C151	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C152	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C153	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C154	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C155	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C156	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C157	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C158	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A2C159	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C169	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C170	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C176	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A2C177	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A2C180	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A2C181	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			
A2C182	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C183	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A2C186	290-1315-00			CAP,FXD,ALUM:47UF,20%,35V,ESR=0.34 OHM(100KHZ,20C),6X11MM,LOW IMP	55680	UPL1V470MEH1TD
A2C189	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C190	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C193	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C196	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C199	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C202	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C203	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C204	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C205	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C206	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C207	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C208	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C209	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C210	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C211	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C212	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C213	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A2C214	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V,,	TK1743	CGB103KEX
A2C215	290-0778-01			CAP,FXD,ALUM:1UF,20%,50V,ESR=198.94 OHM (120HZ,20C)	55680	UVP1H010MAAITD
A2C216	290-0778-01			CAP,FXD,ALUM:1UF,20%,50V,ESR=198.94 OHM (120HZ,20C)	55680	UVP1H010MAAITD
A2C217	290-0778-01			CAP,FXD,ALUM:1UF,20%,50V,ESR=198.94 OHM (120HZ,20C)	55680	UVP1H010MAAITD
A2C218	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C219	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C220	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C221	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A2C222	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C223	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C224	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C225	281-0563-00			CAP,FXD,CERAMIC:MLC;0.47UF,20%,50V,0.150 X0.290	04222	SA305E474MAA
A2C226	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C227	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C228	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C229	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C230	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C231	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C232	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C233	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C234	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C235	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C236	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C237	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C238	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C239	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C240	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			
A2C241	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C242	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C243	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A2C244	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C245	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C246	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C247	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C248	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C249	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C250	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C251	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C252	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C253	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A2C254	281-0773-00	671-3243-01		CAP,FXD,CERAMIC:MCL:0.01UF,10%,100V	TK1743	CGB103KEX
A2C255	281-0775-01	671-3243-02		CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V	80009	281-0755-01
A2CR1	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR2	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR5	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR6	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR7	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR8	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR9	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR10	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR11	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR14	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR15	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR16	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR17	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR18	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR19	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR20	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR23	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR24	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR25	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR26	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR27	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR28	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR29	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR32	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR33	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR34	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR35	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR36	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR37	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR38	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR41	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR42	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A2CR43	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR44	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR45	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR46	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR47	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR48	152-0601-01			DIODE,RECT:ULTRA FAST;150V,25NS,35A IFSM	04713	MUR115RL
A2CR49	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR50	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR51	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR52	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR53	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2CR54	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR55	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR56	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR57	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR66	152-0601-01			DIODE,RECT:ULTRA FAST;150V,25NS,35A IFSM	04713	MUR115RL
A2CR67	152-0601-01			DIODE,RECT:ULTRA FAST;150V,25NS,35A IFSM	04713	MUR115RL
A2CR68	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR69	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR70	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR71	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR72	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR73	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR74	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR75	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR77	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR78	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR80	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR81	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR82	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR83	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR84	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR85	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR86	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR87	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2CR88	152-0141-02	671-3243-02		DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2J1	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J2	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J3	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J4	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J5	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J6	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J7	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J8	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J9	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J10	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J11	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J12	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J13	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J14	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J15	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A2J16	131-3360-01			CONN,HDR:PCB;MALE,STR,2 X 10,0.1 CTR,0.365D,BD RETENTION	53387	2520-60K2UB
A2J17	131-3520-00			CONN,HDR:PCB;MALE,STR,2 X 5,0.1 CTR,0.365 H X 0.112 TAIL,SHRD/4 SIDES,MIL PLZ,30 GOLD	53387	2510-6002UB
A2J18	131-3323-00			CONN,HDR:PCB;MALE,STR,2 X 20,0.1 CTR,0.365D	22526	66506-025

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2J20	131-3360-01			CONN,HDR:PCB;MALE,STR,2 X 10,0.1 CTR,0.365D,BD RETENTION	53387	2520-60K2UB
A2J21	131-5227-00			CONN,HDR PWR:PCB;MALE,STR,1 X 6,0.156 CTR,0.450 MLG X 0.140 TAIL,TIN,NON PLZ,BD RETENTION PEGS	27264	26-64-2060
A2J22	131-3360-01			CONN,HDR:PCB;MALE,STR,2 X 10,0.1 CTR,0.365D,BD RETENTION	53387	2520-60K2UB
A2J23	131-3152-00			CONN,HDR:PCB;MALE,STR,2 X 8,0.1 CTR,0.365 H X 0.112 TAIL,SHRD/4 SIDES,CTR PLZ,30 GOLD	53387	2516-6002UB
A2J24	131-3362-00			CONN,HDR:PCB;MALE,STR,2 X 13,0.1 CTR,0.365D	53387	2526-6002UB
A2K1	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A2K2	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A2K3	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A2K4	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A2K5	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A2Q1	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q1	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q2	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q2	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q3	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q4	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q5	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q6	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q7	151-0254-03			XSTR,SIG:BIPOLAR,NPN:30V,500MA,125MHZ,AMPL,DARLINGTON	OJR04	MPSA14, TPE2
A2Q8	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q8	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q9	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q9	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q10	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q11	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q12	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q13	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q14	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q14	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q15	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q15	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q16	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q17	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q18	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q19	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q20	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q20	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q21	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q21	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q22	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q23	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q24	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2Q25	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q26	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q26	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP;20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q27	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A2Q27	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP;20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A2Q28	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q29	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A2Q30	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q31	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A2Q32	151-0164-01			XSTR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ,AMPL	04713	MPS2907ARLRP
A2Q33	151-0254-03			XSTR,SIG:BIPOLAR,NPN;30V,500MA,125MHZ,AMPL,DARLINGTON	0JR04	MPSA14, TPE2
A2Q34	151-0254-03	671-3243-02		TRANSISTOR,SIG:BIPOLAR,NPN,30V,500MA,125MHZ,AMPLIFIER,DARLINGTON,MPSA14,TO-92 EBC,T&A	04713	MPSA14RLRP
A2R1	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2F37R40F
A2R2	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R3	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R4	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649ROF
A2R5	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649ROF
A2R6	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF50-1G24900F
A2R7	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF50-1G24900F
A2R8	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF50-1G2320F
A2R9	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R10	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF501G13301F
A2R11	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G76R80F
A2R12	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G200ROF
A2R13	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF50-1G2320F
A2R14	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R15	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G76R80F
A2R16	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=T0MI,SM BODY	91637	CCF501G13301F
A2R17	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G200ROF
A2R18	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R19	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R20	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A2R21	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A2R22	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R23	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R24	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2F37R40F
A2R25	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A2R26	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A2R27	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R28	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R29	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A2R30	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A2R31	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G25500F
A2R32	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=T0SMALL BODY	91637	CCF501G50000F
A2R33	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A2R37	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A2R39	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G10003F
A2R40	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F24301F
A2R41	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F24301F
A2R42	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G10003F
A2R43	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R44	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R45	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A2R46	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R47	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R48	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R49	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R50	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R51	322-3271-00			RES,FXD,FILM:6.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2-G-64900
A2R52	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R53	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R54	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R55	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R56	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R57	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R58	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R59	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R60	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R61	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R62	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R63	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R64	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R65	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R66	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R67	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R68	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R69	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R70	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R71	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R72	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R73	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R74	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R75	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R76	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R77	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R78	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R79	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R80	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R81	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R82	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A2R83	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF501G50000F
A2R84	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R88	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R90	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R91	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R92	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R93	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R94	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A2R95	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R96	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R97	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R98	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R99	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R100	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R101	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R102	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R103	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R104	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R105	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R106	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R107	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R108	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R109	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R110	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R111	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R112	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R113	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R114	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R115	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R116	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R117	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R118	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R119	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R120	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R121	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R122	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R123	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R124	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R125	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R126	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R127	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R128	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R129	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A2R130	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A2R131	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R135	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R137	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R138	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R139	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R140	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R141	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A2R142	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R143	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R144	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R145	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R146	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R147	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R148	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R149	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A2R150	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A2R151	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R152	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R153	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R154	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R155	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R156	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R157	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R158	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R159	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R160	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R161	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R162	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A2R163	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R164	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R165	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R166	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R167	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R168	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R169	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R170	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R171	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R172	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R173	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R174	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R175	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R176	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A2R177	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A2R178	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R182	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R184	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R185	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R186	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R187	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R188	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A2R189	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R190	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R191	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R192	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R193	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R194	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R195	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R196	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R197	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A2R198	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R199	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A2R200	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R201	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R202	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R203	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R204	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200R0F
A2R205	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A2R206	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R207	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A2R208	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A2R209	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200R0F
A2R210	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R211	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R212	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R213	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R214	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R215	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A2R216	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R217	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R218	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R219	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R220	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R221	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R222	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A2R223	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A2R224	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A2R225	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R229	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A2R231	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R232	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R233	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A2R234	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A2R235	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A2R236	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R237	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R238	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R239	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A2R240	308-0269-00			RES,FXD,WW:22 OHM,5%,3W	00213	1240S-22R00J
A2R242	322-3377-00			RES,FXD:METAL FILM:82.5K OHM,1%,0.2W,TC=100	91637	CCF50-2F82501F
A2R244	322-3183-00			RES,FXD,FILM:787 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G787ROF
A2R245	322-3114-00			RES,FXD:METAL FILM:150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A2R246	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R247	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R248	322-3226-00			RES,FXD:METAL FILM:2.21K OHM,1%,0.2W,TC=100	91637	CCF501G22100F
A2R249	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A2R250	322-3130-00			RES,FXD:METAL FILM:221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A2R251	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R252	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R253	322-3469-00			RES,FXD,FILM:750K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G75002F
A2R254	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R255	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R256	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R257	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R258	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R260	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R261	322-3097-00			RES,FXD:METAL FILM:100 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G100R0F
A2R262	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R263	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R264	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A2R265	311-2235-00			RES,VAR,TRMR:CERMET;10K OHM,20%,0.5W,0.197 SQ, TOP ADJUST	TK2073	GF06UT2 103 M L
A2R266	311-2235-00			RES,VAR,TRMR:CERMET;10K OHM,20%,0.5W,0.197 SQ, TOP ADJUST	TK2073	GF06UT2 103 M L
A2R267	322-3226-00			RES,FXD:METAL FILM:2.21K OHM,1%,0.2W,TC=100	91637	CCF501G22100F
A2R268	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R269	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A2R270	322-3221-00			RES,FXD,FILM:1.96K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F19600F
A2R271	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R272	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A2R273	322-3223-00			RES,FXD,FILM:2.05K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G20500F
A2R274	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A2R275	322-3208-00			RES,FXD,FILM:1.43K OHM,1%,0.2W,TC=T0	91637	CCF501G14300F
A2R276	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A2R277	322-3244-00			RES,FXD,FILM:3.4K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G34000F
A2R278	322-3485-07			RES,FXD,FILM:5K OHM,0.1%,0.2W,TC=T9,SMALL BODY	91637	CCF501C50000B
A2R279	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R280	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R281	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A2R283	322-3252-00			RES,FXD,FILM:4.12K OHM,1%,0.2W,TC=T0	91637	CCF501G41200F
A2R284	322-3252-00			RES,FXD,FILM:4.12K OHM,1%,0.2W,TC=T0	91637	CCF501G41200F
A2R285	322-3273-00			RES,FXD:METAL FILM:6.81K OHM,1%,0.2W,TC=100	91637	CCF50-2-G68100F
A2R286	322-3207-00			RES,FXD,FILM:1.4K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G14000F
A2R287	322-3207-00			RES,FXD,FILM:1.4K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G14000F
A2R288	322-3273-00			RES,FXD:METAL FILM:6.81K OHM,1%,0.2W,TC=100	91637	CCF50-2-G68100F
A2R290	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R292	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R293	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R294	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R295	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R296	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G499ROF
A2R297	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G499ROF
A2R300	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R301	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R302	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R303	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R304	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R305	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R306	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R307	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R308	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R309	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R310	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A2R311	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A2R312	322-3030-00			RES,FXD:METAL FILM:20 OHM,1%,0.2W,TC=100 PPM	91637	CCF50G20R00F
A2R313	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R314	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R315	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R316	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R317	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R318	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R319	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R320	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R321	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R322	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R323	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R324	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R325	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R326	322-3147-00			RES,FXD:METAL FILM:332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A2R327	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R328	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A2R329	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R330	322-3155-00			RES,FXD,FILM:402 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G402ROF
A2R331	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R332	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A2R333	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R334	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R335	308-0269-00			RES,FXD,WW:22 OHM,5%,3W	00213	1240S-22R00J
A2R336	308-0269-00			RES,FXD,WW:22 OHM,5%,3W	00213	1240S-22R00J
A2R337	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R338	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R339	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A2R340	322-3183-00			RES,FXD,FILM:787 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G787ROF
A2R341	322-3161-00			RES,FXD,FILM:464 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2G464R0F
A2R342	322-3288-00			RES,FXD,FILM:9.76K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G97600F
A2R343	322-3134-00			RES,FXD,FILM:243 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G243R0F
A2R344	322-3289-00	671-3243-02		RES,FXD:METAL FILM,10K OHM,1%,0.2W,TC=100 PPM,AXIAL,T&R,SMALL BODY	57668	CRB20T29EFX1002
A2R345	322-3271-00	671-3243-02		RES,FXD,FILM:6.49K OHM,1%,0.2W,TC=TO MI,SMALL BODY	91637	CCF50-6491F-R36
A2R346	322-3289-00	671-3243-02		RES,FXD:METAL FILM,10K OHM,1%,0.2W,TC=100 PPM,AXIAL,T&R,SMALL BODY	57668	CRB20T29EFX1002
A2S1	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S2	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S3	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S4	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S5	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S6	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S7	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S8	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S9	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S10	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2S11	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2S14	260-1721-00			SWITCH,ROCKER:8,SPST,125MA,30VDC	81073	76SB08S
A2TP1	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP2	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP3	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP4	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP5	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP6	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2TP7	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A2U1	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOWDRIFT	27014	LF412CN
A2U2	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A2U3	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A2U4	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A2U5	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A2U6	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A2U7	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A2U8	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A2U9	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A2U10	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR;DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A2U11	156-1215-01			IC,DIGITAL:CMOS,MUX/ENCODER	27014	MM74C923N
A2U12	156-3305-00			IC,DGTL:ACTCMOS,BFR;NONINV, OCTAL, LINE DRVR, 3-STATE	0JR04	TC74ACT244P
A2U13	156-1408-00			IC,MISC:CMOS,TIMER	34371	ICM7555IPA
A2U15	156-0907-00			CPLR,OPTOELECTR:LED,2500V ISOLATION	0MS63	4N26
A2U16	156-6500-00			IC,DIGITAL:CMOS,PLD;EEPLD,7032,32 M/C,32 I/O,4 IN,15NS *MOUNTING PARTS*	67183	EPM7032LC44-15
	136-1047-00			SKT,PLCC:PCB;44 POS,0.05 CTR,0.360H X 0.125 TAIL,TIN *END MOUNTING PARTS*	00779	821575-1
A2U17	156-3369-00			IC,DIGITAL:ACMOS,GATE;QUAD 2-INPUT AND	04713	MC74AC08N
A2U18	156-3305-00			IC,DIGITAL:ACTCMOS,BUFFER;NONINV, OCTAL, LINE DRIVER, 3-STATE	0JR04	TC74ACT244P
A2U20	156-0853-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,SINGLESUPPLY	01295	LM358P
A2U21	156-0853-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,SINGLESUPPLY	01295	LM358P
A2U22	156-0853-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,SINGLESUPPLY	01295	LM358P
A2U23	156-0853-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,SINGLESUPPLY	01295	LM358P
A2U24	156-0853-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,SINGLESUPPLY	01295	LM358P
A2U28	156-0277-00			IC,LINEAR:BIPOLAR,VR;POSITIVE,5.0V,1.0A,4% *ATTACHED PARTS*	01295	UA7805CKC
	214-3796-00			HTSK,SEMIC:ALUM,TO-220;VERT ECB MT,TINNED TAB *END ATTACHED PARTS*	30161	576802B03900
A2U29	156-0846-00			IC,LINEAR:BIPOLAR,VR;NEGATIVE,-5.0V,1.0A,4.0% *ATTACHED PARTS*	27014	LM320T-5.0
	214-3796-00			HTSK,SEMIC:ALUM,TO-220;VERT ECB MT,TINNED TAB *END ATTACHED PARTS*	30161	576802B03900
A2U30	156-4521-00			IC,MISC:CMOS,PWR SUPPLY SUPERVISOR;MPU RESET GEN,5V SUPPLY SENSING,10%,350MS RESET TIME	0B0A9	DS1233-10
A2U31	156-1173-00			IC,LINEAR:BIPOLAR,V REF;POS,2.5V,1.0%,40PPM,SERIES	04713	MC1403U

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2VR1	152-0147-00			DIODE,ZENER:27V,5%,0.4W	04713	SZ50622KRL
A2Y1	158-0391-00			OSC,XTAL CLOCK:8.0 MHZ,+/-0.01% HCMOS,CL 15PF,4 PIN 14 PIN COMPATIBLE PKG	61429	F5C-8.0 MHZ
A3	671-3258-00	B010100	B019999	CKT BD ASSY:CONNECTOR BD	80009	671325800
A3	671-3258-01	B020000		CKT BD ASSY:CONNECTOR BD	80009	671325800
A3C1	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C2	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C3	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C4	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C7	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C8	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C9	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C10	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C11	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C12	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C13	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C14	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C15	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C16	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C17	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C18	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C19	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C20	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C21	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C22	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C23	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C24	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C25	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C27	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C28	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C29	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C30	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP
A3C33	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C34	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C35	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C36	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C37	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C38	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C39	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C40	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C41	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C42	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C43	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C44	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C45	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C46	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C47	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON- POLAR,BULK	55680	USP1C470MCA1TP

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3C48	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C49	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C50	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C52	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C53	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C54	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C55	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C56	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C59	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C60	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C61	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C62	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C63	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C64	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C65	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C66	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C67	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C68	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C70	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C71	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C72	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C73	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C74	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C75	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C76	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C77	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C79	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C80	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C81	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C82	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C85	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C86	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C87	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C88	281-0775-01			CAP,FXD,CERAMIC:MCL;0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C89	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C90	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C91	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C92	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C93	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C94	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C95	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C96	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C97	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C98	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C99	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C100	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3C101	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C102	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C103	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C105	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C106	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C107	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C108	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C111	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C112	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C113	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C114	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C115	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C116	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C117	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C118	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C119	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C120	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C121	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C122	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C123	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C124	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C125	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C126	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C127	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C128	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C129	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C131	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C132	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C133	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C134	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C137	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C138	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C139	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C140	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C141	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C142	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C143	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C144	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C145	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C146	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C147	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C148	281-0773-00			CAP,FXD,CERAMIC:MLC:0.01UF,10%,100V	TK1743	CGB103KEX
A3C149	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C150	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C151	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C152	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C153	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C155	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3C156	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C157	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C158	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C159	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C160	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C),5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C161	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C164	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C167	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C170	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C173	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C176	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C179	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C180	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C181	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C182	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C183	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V	TK1743	CGB103KEX
A3C184	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C185	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C186	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C187	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C188	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C189	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C190	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C191	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C192	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C193	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C194	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C195	290-1289-00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RADIAL,NON-POLAR,BULK	55680	USP1C470MCA1TP
A3C196	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C197	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C198	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C199	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C200	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C201	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C202	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C203	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C204	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C205	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C206	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C207	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C208	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C209	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C210	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			
A3C211	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C212	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C213	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C214	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C215	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C216	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C217	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C218	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C219	281-0775-01			CAP,FXD,CERAMIC:MCL:0.1UF,20%,50V,Z5U,0.170	04222	SA105E104MAA
A3C220	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C221	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C222	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C223	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C224	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C225	290-1311-00			CAP,FXD,ALUM:10UF,20%,50V,ESR=1.4 OHM(100KHZ,20C), 5X11MM,105C,5000HRS	55680	UPL1H100MDH1TD
A3C226	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C227	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C228	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C229	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C230	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C231	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C232	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C233	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C234	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C235	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C236	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3C237	281-0770-00			CAP,FXD,CER DI:1000PF,20%,100V	04222	SA101C102MAA
A3CR1	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR2	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR5	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR6	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR7	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR8	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR9	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR10	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR11	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR14	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR15	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR16	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR17	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR18	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR19	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR20	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR23	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR24	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR25	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR26	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR27	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR28	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR29	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427
A3CR32	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR33	152-0951-00			DIODE,SIG:SCHTKY:60V,2.25PF	66958	1N6263
A3CR34	152-0141-02			DIODE,SIG:ULTRA FAST:40V,150MA,4NS,2PF	27014	FDH9427

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3CR35	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR36	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR37	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR38	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR41	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A3CR42	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A3CR43	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR44	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR45	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR53	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR54	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR55	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR56	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR57	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR58	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR59	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR62	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A3CR63	152-0951-00			DIODE,SIG:SCHTKY;60V,2.25PF	66958	1N6263
A3CR64	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR65	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR66	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR67	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR68	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR69	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR71	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR72	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR74	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR75	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR77	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR78	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR80	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR81	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR83	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3CR84	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A3J1	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J2	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J3	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J4	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J5	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J6	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J7	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J8	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J9	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J10	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J11	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J12	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3J13	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J14	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J15	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J16	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J17	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J18	131-5414-00			CONN,RF JACK:BNC;75 OHM,FEMALE,RTANG,PCB/REAR PNL,0.625 H X 0.187TALL W/O MTG FLANGE,W/MTG POSTS	00779	222092-1
A3J19	131-3323-00			CONN,HDR:PCB;MALE,STR,2 X 20,0.1 CTR,0.365D	22526	66506-025
A3K1	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3K2	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3K3	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3K4	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3K5	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3K6	148-0232-00			RELAY,ARM:2 FORM C,75 OHM,COIL,12V 411 OHM,CONTACTS,24VDC 1A,INSERTION LOSS 1DB MAX @900MHZ	61529	RG2E-12V
A3Q1	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q1	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q2	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q2	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q3	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q4	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q5	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q6	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q7	151-0254-03			XSTR,SIG:BIPOLAR,NPN:30V,500MA,125MHZ,AMPL,DARLINGTON	OJR04	MPSA14, TPE2
A3Q8	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q8	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q9	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q9	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q10	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q11	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q12	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q13	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q14	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q14	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q15	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q15	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q16	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q17	151-0711-02			XSTR,SIG:BIPOLAR,NPN:25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q18	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q19	151-0207-01			XSTR,SIG:BIPOLAR,NPN:45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q20	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q20	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3Q21	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q21	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q22	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q23	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q24	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q25	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q26	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q26	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q27	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q27	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q28	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q29	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q30	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q31	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q32	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q32	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q33	151-0369-03		671-3243-01	TRANSISTOR,SIG:BIPOLAR,PNP,15V,30MA,2.0GHZ,AMPL	04713	MPSH69RLRP
A3Q33	151-0712-02	671-3243-02		TRANSISTOR,SIG:BIPOLAR,PNP,20V,50MA,600MHZ,AMPLIFIER,MPSH81,TO-92 BEC,T&A	04713	MPSH81RLRP
A3Q34	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q35	151-0711-02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ,AMPL	04713	MPSH10RLRP
A3Q36	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3Q37	151-0207-01			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPL	27014	PN100A/D75Z
A3R1	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2F37R40F
A3R2	322-3318-00			RES,FXD,METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R3	322-3318-00			RES,FXD,METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R4	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R5	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R6	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A3R7	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A3R8	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G2320F
A3R9	322-3385-00			RES,FXD,METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R10	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G13301F
A3R11	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G76R80F
A3R12	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALLBODY	91637	CCF501G200ROF
A3R13	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G2320F
A3R14	322-3385-00			RES,FXD,METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R15	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G76R80F
A3R16	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G13301F
A3R17	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G200ROF
A3R18	322-3318-00			RES,FXD,METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R19	322-3318-00			RES,FXD,METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R20	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A3R21	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2G47502F
A3R22	322-3210-00			RES,FXD,METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R23	322-3210-00			RES,FXD,METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R24	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF50-2F37R40F
A3R25	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A3R26	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A3R27	322-3193-00			RES,FXD,METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R28	322-3193-00			RES,FXD,METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R29	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A3R30	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB2D FXE 432
A3R31	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G25500F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R32	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R33	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R37	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R39	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R40	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R41	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R42	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R43	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R44	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R45	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A3R46	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R47	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R48	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R49	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R50	322-3289-00			RES,FXD:METAL FILM:10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A3R51	322-3271-00			RES,FXD,FILM:6.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2-G-64900
A3R52	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R53	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R54	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R55	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A3R56	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A3R57	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R58	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R59	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R60	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R61	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R62	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R63	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R64	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R65	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R66	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R67	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R68	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R69	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R70	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R71	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R72	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R73	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R74	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R75	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R76	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R77	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R78	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R79	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R80	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R81	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R82	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A3R83	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R84	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R88	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R90	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R91	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R92	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R93	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R94	315-0205-00			RES,FXD,FILM:10M OHM,5%,0.25W	80009	315-0205-00
A3R95	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R96	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R97	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R98	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R99	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R100	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R101	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R102	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R103	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R104	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R105	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R106	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R107	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R108	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R109	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R110	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200R0F
A3R111	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R112	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R113	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R114	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R115	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200R0F
A3R116	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R117	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R118	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R119	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R120	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R121	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R122	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R123	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R124	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R125	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R126	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R127	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R128	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R129	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A3R130	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R131	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R135	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R137	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R138	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R139	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R140	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R141	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A3R142	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R143	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R144	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R145	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R146	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R147	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R148	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R149	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R150	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649R0F
A3R151	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R152	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R153	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R154	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R155	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R156	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R157	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200R0F
A3R158	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R159	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R160	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R161	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R162	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R163	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R164	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R165	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R166	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R167	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R168	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R169	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R170	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R171	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R172	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R173	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R174	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R175	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R176	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A3R177	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R178	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R182	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R184	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R185	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R186	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC-TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R187	322-3481-00			RES,FXD,FILM:1M OHM.1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R188	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A3R189	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R190	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R191	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R192	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R193	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R194	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R195	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R196	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A3R197	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=TO,SMALL BODY	91637	CCF50G649R0F
A3R198	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R199	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R200	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R201	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R202	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R203	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R204	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R205	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R206	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R207	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R208	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R209	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R210	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R211	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R212	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R213	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R214	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R215	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R216	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R217	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R218	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R219	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R220	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R221	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R222	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R223	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A3R224	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R225	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R229	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R231	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R232	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R233	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R234	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R235	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A3R236	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R237	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R238	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R239	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R240	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R241	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R242	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R243	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649ROF
A3R244	322-3175-00			RES,FXD,FILM:649 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50G649ROF
A3R245	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R246	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G24900F
A3R247	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R248	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R249	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R250	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R251	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R252	322-3228-00			RES,FXD,FILM:2.32K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-1G2320F
A3R253	322-3385-00			RES,FXD:METAL FILM:100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A3R254	322-3086-00			RES,FXD,FILM:76.8 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G76R80F
A3R255	322-3301-00			RES,FXD,FILM:13.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G13301F
A3R256	322-3126-00			RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A3R257	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R258	322-3318-00			RES,FXD:METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A3R259	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R260	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R261	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R262	322-3210-00			RES,FXD:METAL FILM:1.5K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G15000F
A3R263	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R264	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R265	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R266	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R267	322-3193-00			RES,FXD:METAL FILM:1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A3R268	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R269	322-3158-00			RES,FXD,FILM:432 OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB2D FXE 432
A3R270	322-3232-00			RES,FXD,FILM:2.55K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G25500F
A3R271	322-3485-00			RES,FXD,FILM:5.0K OHM,1%,0.2W,TC=TOSMALL BODY	91637	CCF501G50000F
A3R272	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R275	322-3450-00			RES,FXD,FILM:475K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2G47502F
A3R276	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R277	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R278	322-3326-00			RES,FXD,FILM:24.3K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F24301F
A3R279	322-3481-00			RES,FXD,FILM:1M OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G10003F
A3R280	315-0205-00			RES,FXD,FILM:2M OHM,5%,0.25W	80009	315020500
A3R281	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R282	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R283	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R284	322-3222-00			RES,FXD:METAL FILM:2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A3R301	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A3R302	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R303	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R304	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R305	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R306	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R307	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R308	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R309	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R310	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R311	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3R312	322-3056-00			RES,FXD,FILM:37.4 OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF50-2F37R40F
A3TP1	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3TP2	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3TP3	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3TP4	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3TP5	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3TP6	214-4085-00			TERM,TEST POINT:0.070 ID,0.220 H,0.063 DIAP CB,0.015 X 0.032 BRASS,W/RED NYLON COLLAR	26364	104-01-02
A3U1	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U2	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A3U3	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U4	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A3U5	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U6	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A3U7	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U8	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A3U9	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U10	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A3U11	156-1699-00			IC,LINEAR:BIFET,OP-AMP;DUAL,LOW OFFSET,LOW DRIFT	27014	LF412CN
A3U12	156-1225-00			IC,LINEAR:BIPOLAR,COMPARATOR:DUAL,OPEN COLLECTOR,300NS	01295	LM393P
A4	119-4112-00			POWER SUPPLY:SWITCHING,AUTO IN 85-264VAC, 47-440HZ,OUT 5VDC 5A,+15V2A,-15V 0.5A	TK1955	NFS40-7610
F100	159-0022-00			FUSE,CARTRIDGE:3AG,1A,250V,FAST BLOW *ATTACHED PARTS*	71400	AGC-1
	162-0531-00			INSUL SLVG,ELEC:HT SHRINK,0.165 IDPOLYOLEFIN,BLK, 0.02 THK W	06090	VERSAFIT
	196-3418-00			LEAD,ELECT:DESCRETE:PSC,18 AWG,5-4,4.0 L,0.25 CUT& STRIP X 0.146 ID,RING TONGUE,45 DEG ANGLE,SAF CONT	80009	196341800
	196-3419-00			LEAD,ELECTRICAL:DESCRETE:CUT,18 AWG,1000V, 8-01,GRAY W/BLK&BRM STRIPES,0.25 STRIP BOTH	TK2469	196-3419-00
	200-0237-04			COVER,FUHLR:PLASTIC	OJR05	ORDER BY DESC
	200-2264-00			CAP,FUSEHOLDER:3AG FUSES	61935	FEK 031 1666
	204-0832-00			BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	61935	031 1673 (FEU M
	220-0187-00			NUT,HEX:4-40,NYLON *END ATTACHED PARTS*	13764	0500440CN
FL100	119-1536-00			FILTER,RFI:3A,250VAC,50/60HZ	TK2058	ZUB2203-00

Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
				ATTACHED PARTS		
	174-3369-00			CA ASSY,SP:DESCRETE;CPM,2,18 AWG,9-01,13.0250 CUT & STRIP (CONNECTED @ FL100 TO A4J1)	80009	174336900
	211-0324-00			SCR,ASSEM WSHR:4-40 X 0.188,PNH,SST,PASS,T-9 TORX DR,MACHINE	0KB01	ORDER BY DESC
J100	175-9877-00			*END ATTACHED PARTS* CA ASSY,SP,ELEC:10,28 AWG,12.5 L,RIBBON (CONNECTED @ "REMOTE" REAR PANEL TO A2J17)	TK1547	ORDER BY DESC
	214-3903-01			*MOUNTING PARTS* SCREW,JACK:4-40 X 0.312 EXT THD,4-40 INT THD,0.188 HEX,STEEL,CADPLATE (QUANTITY 2)	0KB01	214-3903-01
W18	174-1495-00			*END MOUNTING PARTS* CA ASSY,SP,ELEC:20,28 AWG,3,0 L,RIBBONSAF CONT (CONNECTED @ A2J18 & A3J19)	TK1547	174-1495-00
W21	174-3370-00			CA ASSY,SP:DESCRETE;PSC,6,18 AWG,12.0 L,0.156 CTR,1X6,0.156 CTR,RCPT,W/FRICTION LOCK BOTH ENDS,GOLD PL (CONNECTED @ A2J21 & A4J2)	80009	174337000



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).

microfarads (μF). Values less than one are in

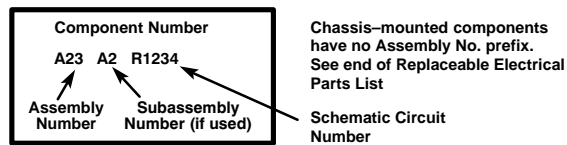
Resistors Ohms (Ω).

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.

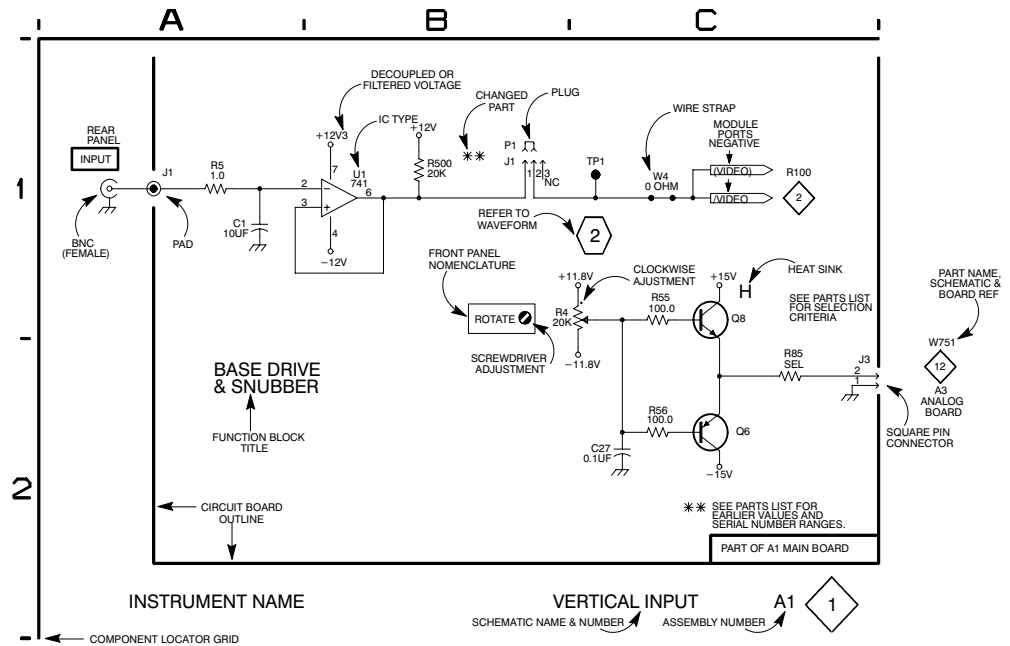
The Replaceable Electrical Parts List is arranged by assembly number in numerical sequence; the components are listed by component number. Example:

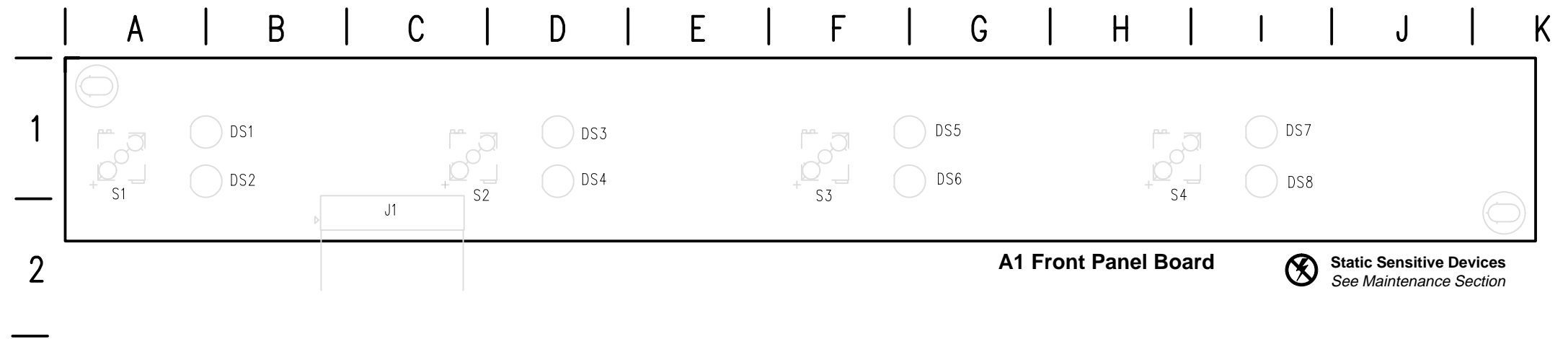


Grid Coordinates

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.





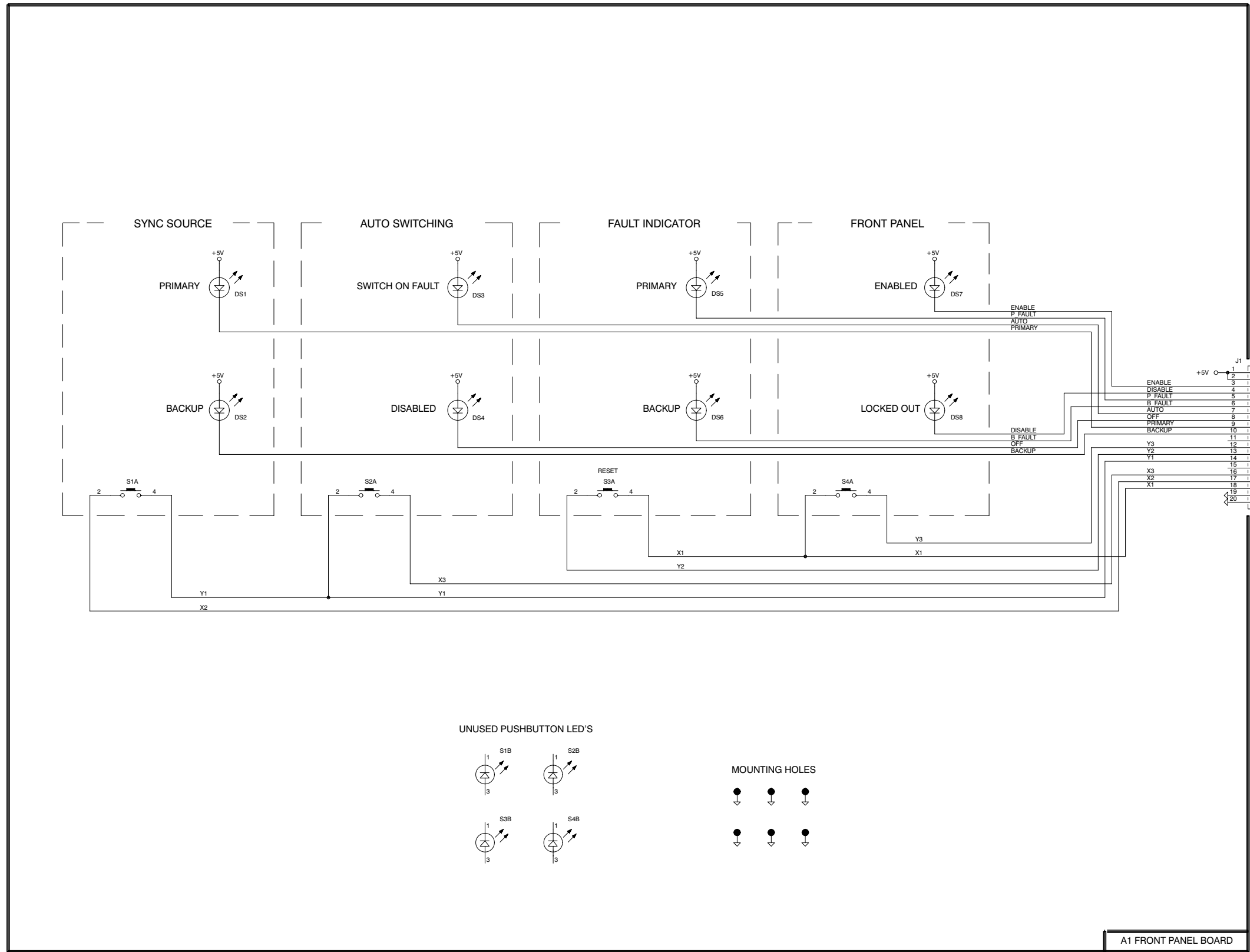
**Front Panel Board and
Schematic Diagram <1>
Component Locator Chart**

A1 Front Panel Board.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
DS1	B2	B1	S1A	B3	A1
DS2	B3	B1	S1B	D4	A1
DS3	D2	D1	S2A	C3	C1
DS4	D3	D1	S2B	D4	C1
DS5	E2	G1	S3A	D3	F1
DS6	E3	G1	S3B	D5	F1
DS7	F2	I1	S4A	E3	H1
DS8	F3	I1	S4B	D5	H1
J1	H3	B2			

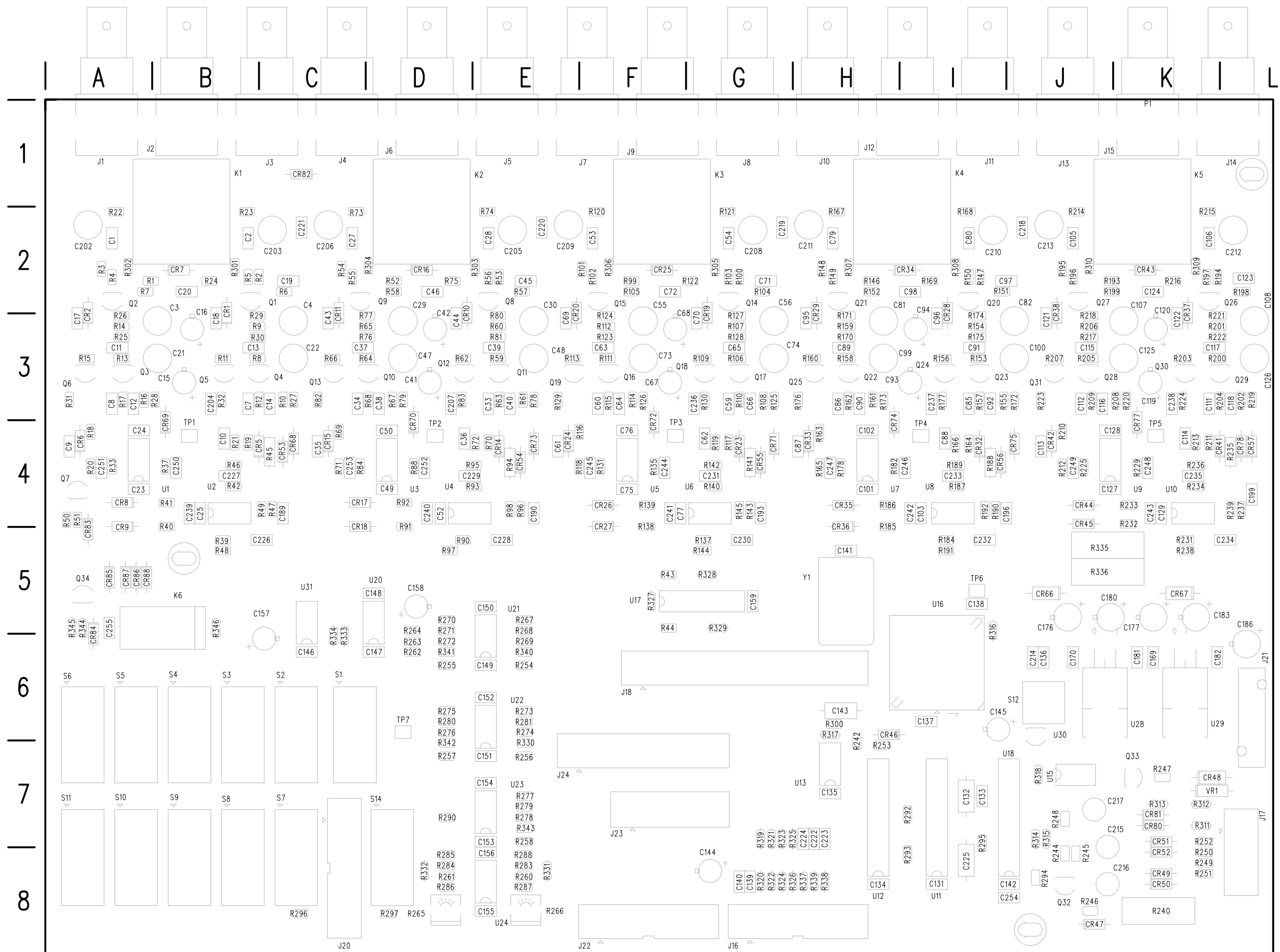
A B C D E F G H

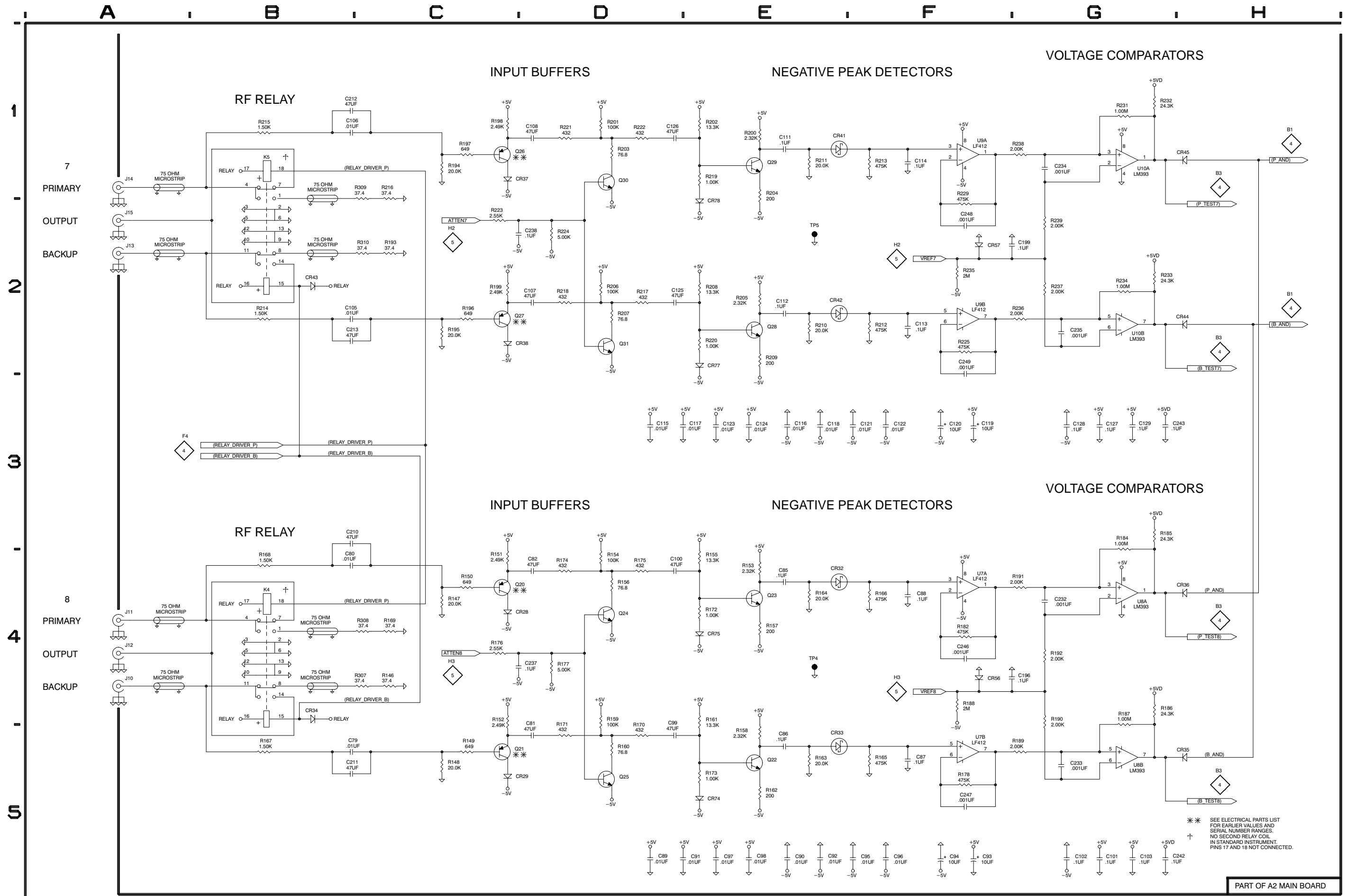
1
2
3
4
5



J1
CONNECTS
TO J16
A2
MAIN
BOARD

A1 FRONT PANEL BOARD

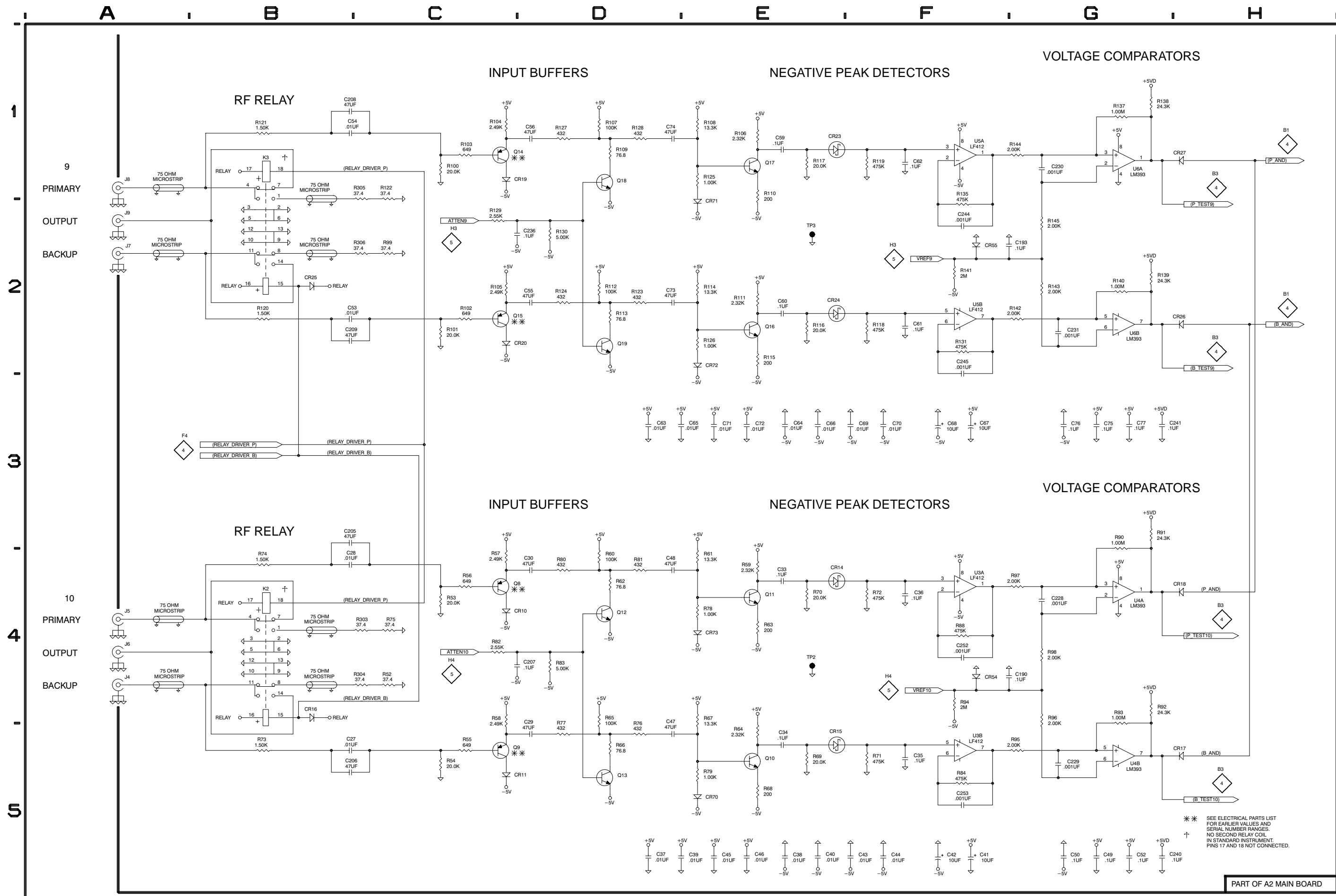




**Main Board Schematic Diagram <2>
Component Locator Chart**

A2 Main Board. Partial A2 also shown on Schematics 1, 3, 4, and 5.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C27	B5	C2	C209	B2	E2				R107	D1	G3
C28	B4	E2	C228	G4	E5	R52	C4	D2	R108	E1	G3
C29	D5	D2	C229	G5	D4	R53	C4	E2	R109	D1	G3
C30	D4	E2				R54	C5	C2	R110	E1	G3
C33	E4	E3	C230	G1	G5	R55	C5	C2			
			C231	G2	G4	R56	C4	E2	R111	E2	F3
C34	E5	C3	C236	C2	G3				R112	D2	F3
C35	F5	C4	C240	G5	D4	R57	C4	E2	R113	D2	E3
C36	F4	D4	C241	G3	F4	R58	C4	D2	R114	E2	F3
C37	D5	C3				R59	E4	E3	R115	E2	F3
C38	E5	D3	C244	F2	F4	R60	D4	E3			
			C245	F2	F4	R61	E4	E3	R116	E2	F4
C39	D5	E3	C252	F4	D4				R117	E1	G4
C40	E5	E3	C253	F5	C4	R62	D4	D3	R118	F2	F4
C41	F5	D3				R63	E4	E3	R119	F1	G4
C42	F5	D3	CR10	C4	D3	R64	E5	C3	R120	B2	F2
C43	F5	C3	CR11	C5	C3	R65	D4	C3			
			CR14	E4	E4	R66	D5	C3	R121	B1	G2
C44	F5	D3	CR15	E5	C4				R122	C1	F2
C45	E5	E2	CR16	B4	D2	R67	E4	D3	R123	D2	F3
C46	E5	D2				R68	E5	D3	R124	D2	F3
C47	D5	D3	CR17	H5	C4	R69	E5	C4	R125	E1	G3
C48	D4	E3	CR18	H4	C5	R70	E4	E4			
			CR19	C1	G3	R71	F5	C4	R126	E2	F3
C49	G5	D4	CR20	C2	E3				R127	D1	G3
C50	G5	D4	CR23	E1	G4	R72	F4	E4	R128	D1	G3
C52	G5	D4				R73	B5	C2	R129	C2	E3
C53	B2	F2	CR24	E2	E4	R74	B4	E2	R130	D2	G3
C54	B1	G2	CR25	B2	F2	R75	C4	D2			
			CR26	H2	F4	R76	D5	C3	R131	F2	F4
C55	D2	F2	CR27	H1	F5				R135	F2	F4
C56	D1	G2	CR54	F4	E4	R77	D5	C3	R137	G1	G5
C59	E1	G3				R78	E4	E3	R138	G1	F5
C60	E2	F3	CR55	F2	G4	R79	E5	D3	R139	G2	F4
C61	F2	E4	CR70	E5	D4	R80	D4	E3			
			CR71	E2	G4	R81	D4	E3	R140	G2	G4
C62	F1	G4	CR72	E2	F4				R141	F2	G4
C63	D3	F3	CR73	E4	E4	R82	C4	C3	R142	G2	G4
C64	E3	F3				R83	D4	D3	R143	G2	G4
C65	D3	G3	J4	A4	C1	R84	F5	C4	R144	G1	G5
C66	E3	G3	J5	A4	E1	R88	F4	D4			
			J6	A4	D1	R90	G3	D5	R145	G2	G4
C67	F3	F3	J7	A2	F1				R303	C4	E2
C68	F3	F3	J8	A1	G1	R91	G3	D5	R304	C4	D2
C69	F3	E3	J9	A2	F1	R92	G4	D4	R305	C1	G2
C70	F3	G3				R93	G4	D4	R306	C2	F2
C71	E3	G2	K2	B4	E1	R94	F4	E4			
			K3	B1	G1	R95	G5	D4	TP2	E4	D4
C72	E3	F2							TP3	E2	F4
C73	D2	F3	Q8	C4	E2	R96	G4	E4			
C74	D1	G3	Q9	C5	D2	R97	G4	D5	U3A	F4	D4
C75	G3	F4	Q10	E5	D3	R98	G4	E4	U3B	F5	D4
C76	G3	F4	Q11	E4	E3	R99	C2	F2	U4A	G4	D4
			Q12	D4	D3	R100	C1	G2	U4B	G5	D4
C77	G3	F4							U5A	F1	F4
C190	F4	E4	Q13	D5	C3	R101	C2	F2	U5B	F2	F4
C193	F2	G4	Q14	C1	G2	R102	C2	F2	U6A	G1	G4
C205	B4	E2	Q15	C2	F2	R103	C1	G2	U6B	G2	G4
C206	B5	C2	Q16	E2	F3	R104	C1	G2			
			Q17	E1	G3	R105	C2	F2			
C207	C4	D3	Q18	D1	F3						
C208	B1	G2	Q19	D2	E3	R106	E1	G3			

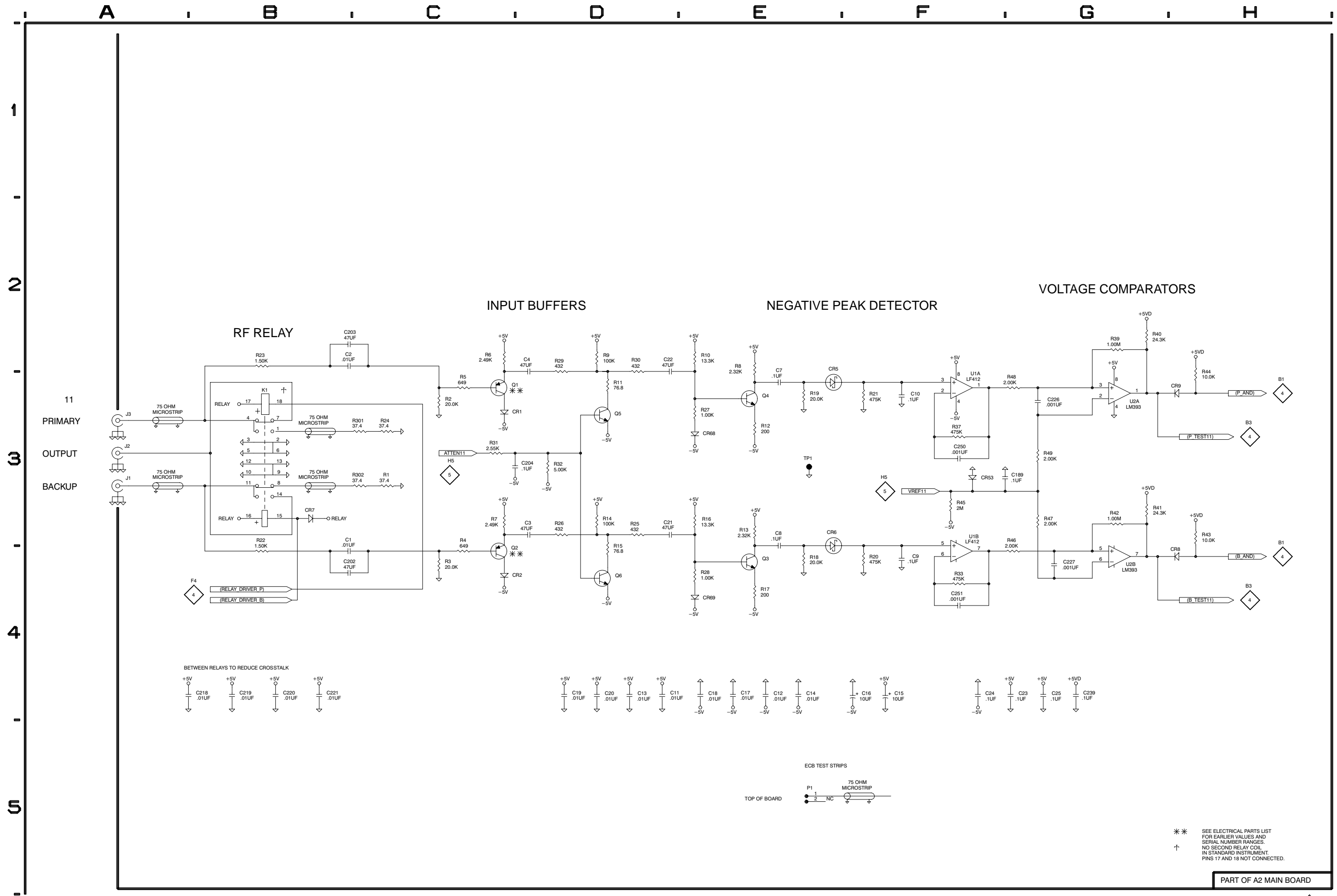


PART OF A2 MAIN BOARD

**Main Board Schematic Diagram <3>
Component Locator Chart**

A2 Main Board. Partial A2 also shown on Schematics 1, 2, 4, and 5.

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	B4	A2	C220	B4	E2	Q6	D4	A3	R27	E3	C3
C2	B3	B2							R28	E4	B3
C3	D3	B2	C221	B4	C2	R1	C3	A2	R29	D2	B3
C4	D2	C2	C226	G3	B5	R2	C3	C2	R30	D2	B3
C7	E3	B3	C227	G4	B4	R3	C4	A2			
			C239	G4	B4	R4	C4	A2	R31	C3	A3
C8	E3	A3	C250	F3	B4	R5	C3	B2	R32	D3	B3
C9	F4	A4	C251	F4	A4				R33	F4	A4
C10	F3	B4				R6	C2	C2	R37	F3	B4
C11	D4	A3	CR1	C3	B3	R7	C3	A2	R39	G2	B5
C12	E4	A3	CR2	C4	A3	R8	E2	B3			
			CR5	E3	C4	R9	D2	B3	R40	G2	B5
C13	D4	B3	CR6	E3	A4	R10	E2	C3	R41	G3	B4
C14	E4	C3	CR7	B3	B2				R42	G3	B4
C15	F4	B3				R11	D3	B3	R43	H3	F5
C16	F4	B3	CR8	H4	A4	R12	E3	C3	R44	H2	F5
C17	E4	A3	CR9	H3	A5	R13	E3	A3			
			CR53	F3	C4	R14	D3	A3	R45	F3	C4
C18	E4	B3	CR68	E3	C4	R15	D3	A3	R46	G4	B4
C19	D4	C2	CR69	E4	B4				R47	G3	C4
C20	D4	B2				R16	E3	A3	R48	G3	B5
C21	D3	B3	J1	A3	A1	R17	E4	A3	R49	G3	C4
C22	D2	C3	J2	A3	A1	R18	E4	A4			
			J3	A3	C1	R19	E3	B4	R301	C3	B2
C23	G4	A4				R20	F4	A4	R302	C3	A2
C24	F4	A4	K1	B3	B1				TP1	E3	B4
C25	G4	B4				R21	F3	B4			
C189	F3	C4	P1	E5	K1	R22	B4	A2	U1A	F3	B4
C202	B4	A2				R23	B3	B2	U1B	F3	B4
			Q1	C3	C2	R24	C3	B2	U2A	G3	B4
C203	B2	C2	Q2	C3	A2	R25	D3	A3	U2B	G4	B4
C204	C3	B3	Q3	E4	A3						
C218	A4	J2	Q4	E3	C3	R26	D3	A3			
C219	B4	G2	Q5	D3	B3						

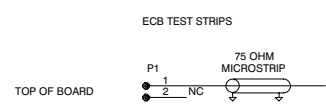


BETWEEN RELAYS TO REDUCE CROSSTALK

+5V C218 .01UF
+5V C219 .01UF
+5V C220 .01UF
+5V C221 .01UF

+5V C19 .01UF
+5V C20 .01UF
+5V C13 .01UF
+5V C11 .01UF
-5V C18 .01UF
-5V C17 .01UF
-5V C12 .01UF
-5V C14 .01UF
+5V C16 .01UF
+5V C15 .01UF

+5V C24 .01UF
+5V C23 .01UF
+5V C25 .01UF
+5V C239 .01UF



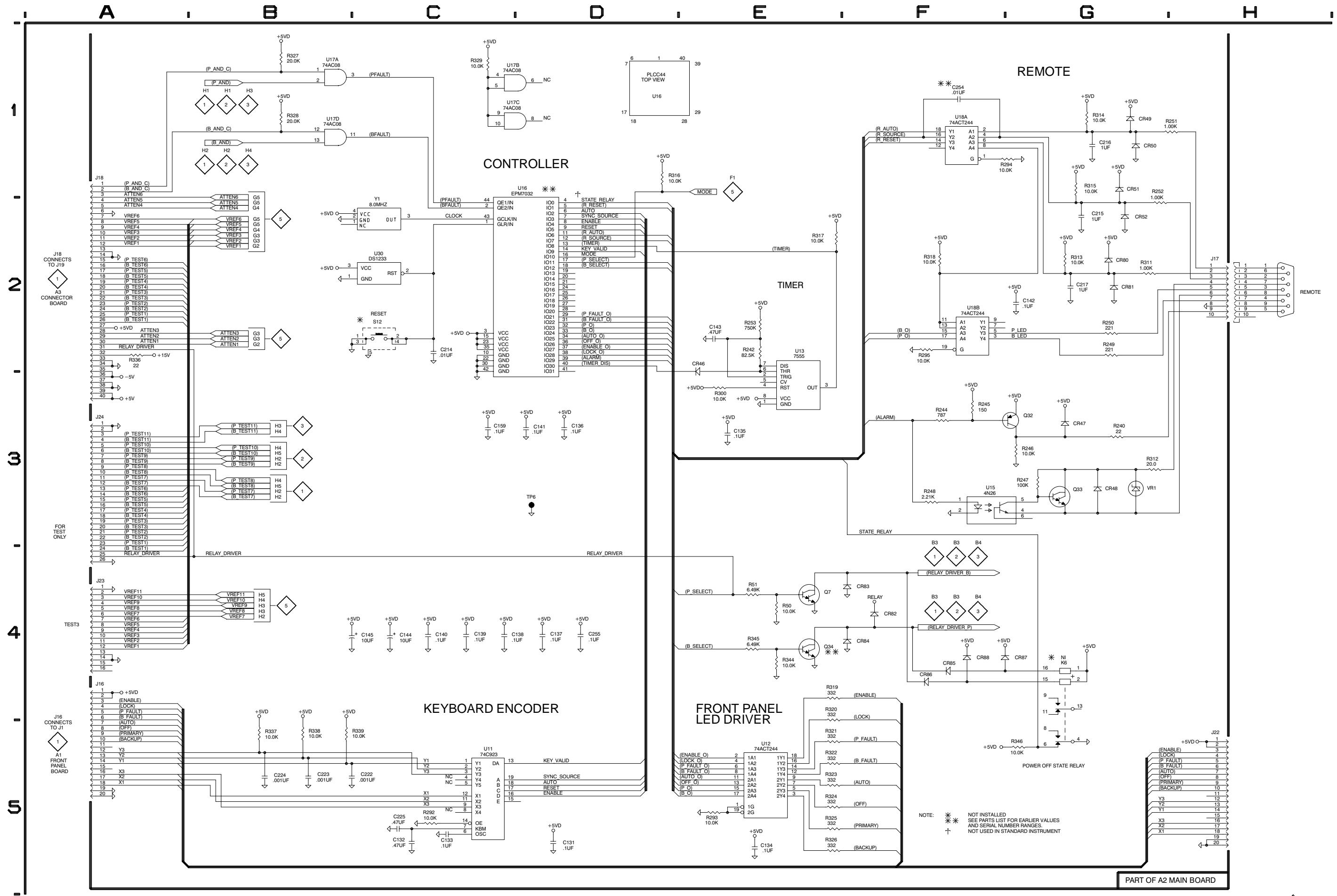
** SEE ELECTRICAL PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES.
+ NO SECOND RELAY COIL IN STANDARD INSTRUMENT. PINS 17 AND 18 NOT CONNECTED.

PART OF A2 MAIN BOARD

**Main Board Schematic Diagram <4>
Component Locator Chart**

A2 Main Board. Partial A2 also shown on Schematics 1, 2, 3, and 5.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C131	D5	I8	CR51	G1	K7	R248	F3	J7	R344 *	E4	A5
C132	C5	I7	CR52	G2	K8	R249	G2	K8	R345 *	E4	A6
C133	C5	I7	CR80	G2	K7				R346 *	G5	B5
C134	E5	H8	CR81	G2	K7	R250	G2	K8			
C135	E3	H7	CR82 *	F4	C1	R251	G1	K8	R336	A2	J5
			CR83 *	E4	A5	R252	G2	K7	R337	B5	H8
C136	D3	J6	CR84 *	E4	A6	R253	E2	H7			
C137	D4	I6	CR85 *	F4	A5	R292	C5	I7	R338	B5	H8
C138	D4	I5	CR86 *	F4	A5				R339	B5	H8
C139	C4	G8	CR87 *	F4	A5	R293	E5	I8			
C140	C4	G8	CR88 *	F4	A5	R294	F1	J8	S12	C2	J6
						R295	F2	I8			
C141	D3	H5				R300	E3	H6	TP6	D3	I5
C142	G2	I8	J16	A4	G8	R311	G2	K7	U11	C5	I8
C143	E2	H6	J17	H2	L7				U12	E5	H8
C144	C4	G8	J18	A1	F6	R312	G3	K7	U13	E2	H7
C145	C4	I6	J22	H5	F8	R313	G2	K7	U15	F3	J7
			J23	A4	F7	R314	G1	J8			
C159	C3	G5	J24	A3	E7	R315	G1	J7	U16	C2	I5
C214	C2	J6				R316	D1	I6	U17A	B1	F5
C215	G2	J7	Q7	E4	A5				U17B	C1	F5
C216	G1	K8	Q32	F3	J8	R317	E2	H6	U17C	C1	F5
C217	G2	J7	Q33	G3	K7	R318	F2	J7	U17D	B1	F5
			Q34 *	E4	A5 R82	R319	E4	G8			
C222	B5	H8	*	E4	C1	R320	E4	G8	U18A	F1	I8
C223	B5	H8				R321	E5	G8	U18B	F2	I8
C224	B5	H8							U30	C2	J6
C225	C5	I8	R50	E4	A4	R322	E5	G8			
C254 *	F1	I8	R51	E4	A4	R323	E5	G8	VR1	G3	K7
C255 *	D4	A5	R240	G3	K8	R324	E5	G8			
			R242	E2	H7	R325	E5	H8	Y1	C2	H5
CR46	E2	H6	R244	F3	J8	R326	E5	H8			
CR47	G3	J8									
CR48	G3	K7	R245	F3	J8	R327	B1	F5			
CR49	G1	K8	R246	G3	J8	R328	B1	G5			
CR50	G1	K8	R247	G3	K7	R329	C1	G5			

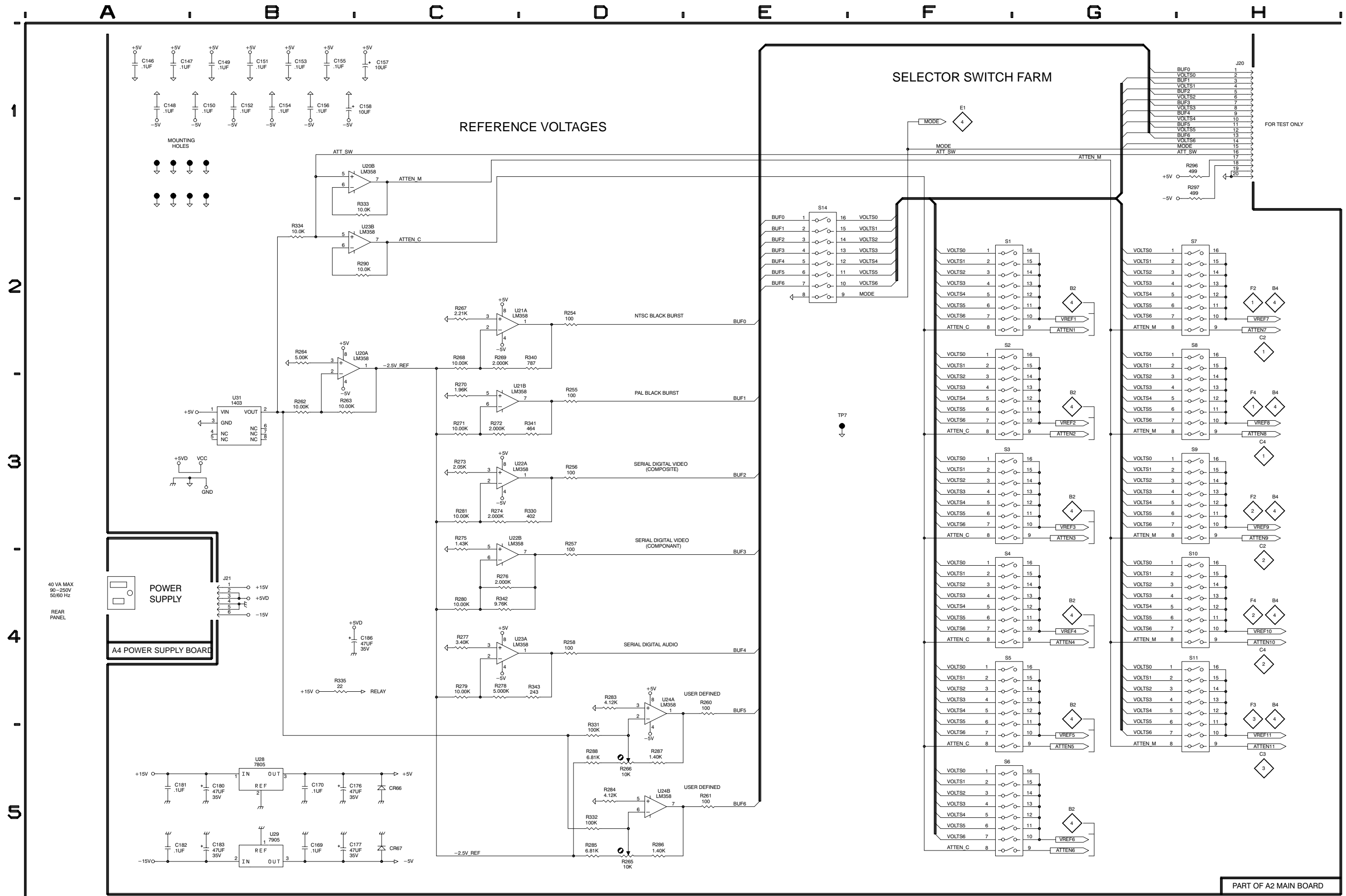


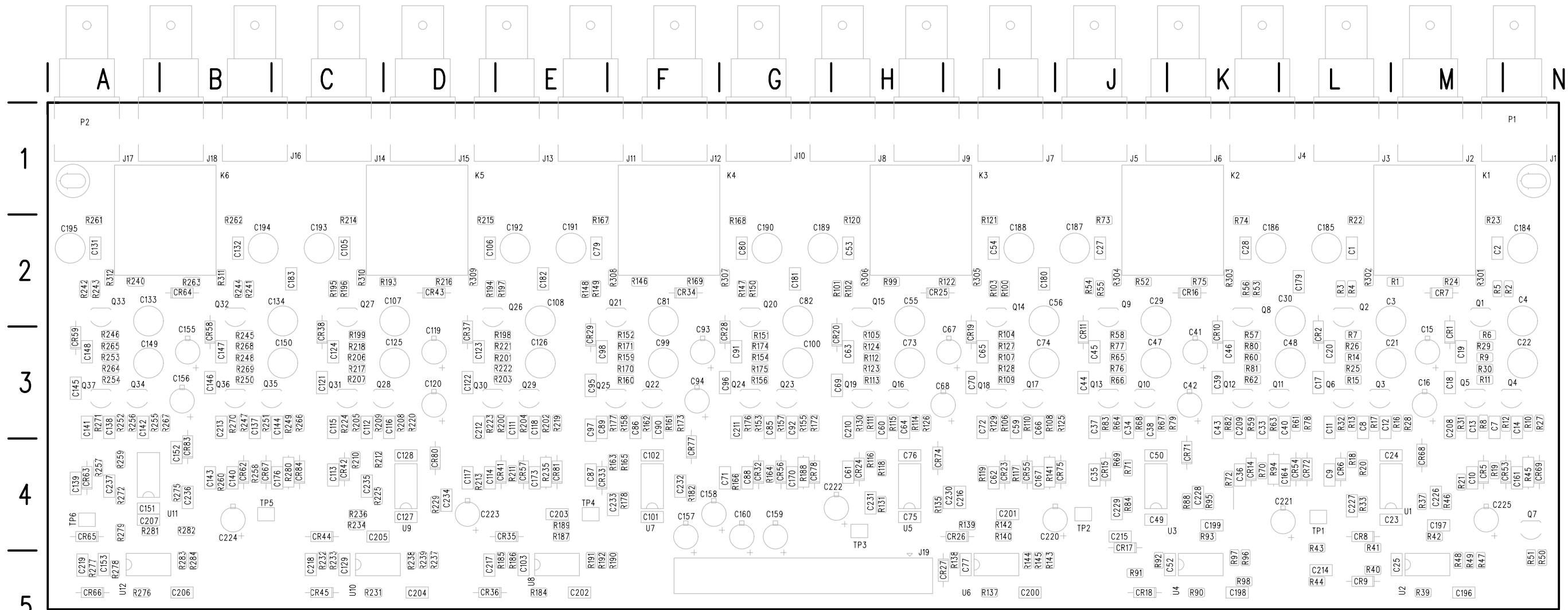
Main Board Schematic Diagram <5>

Component Locator Chart

A2 Main Board. Partial A2 also shown on Schematics 1, 2, 3, and 4.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C146	A1	C6	J21	B4	L6	R280	C4	D6	S6	F5	A6
C147	A1	D6				R281	C3	E6	S7	H2	C7
C148	A1	D5	R254	D2	E6	R283	D4	E8	S8	H2	B7
C149	B1	E6	R255	D3	D6	R284	D5	D8	S9	H3	B7
C150	B1	E5	R256	D3	E7	R285	D5	D8	S10	H4	A7
			R257	D4	D7						
C151	B1	E7	R258	D4	E7						
C152	B1	E6				R286	D5	D8	S11	H4	A7
C153	B1	E7	R260	E4	E8	R287	D5	E8	S14	E2	D7
C154	B1	E7	R261	E5	D8	R288	D5	E8			
C155	B1	E8	R262	B3	D6	R290	C2	D7	TP7	E3	D6
			R263	B3	D6	R296	H1	C8			
C156	B1	E8	R264	B2	D6				U20A	B2	D5
C157	C1	B5				R297	H1	D8	U20B	B1	D5
C158	B1	D5	R265	D5	D8	R330	D3	E7	U21A	C2	E5
C169	B5	K6	R266	D5	E8	R331	D5	E8	U21B	C3	E5
C170	B5	J6	R267	C2	E5	R332	D5	D8	U22A	C3	E6
			R268	C2	E6	R333	C2	C6			
C176	B5	J5	R269	C2	E6				U22B	C3	E6
C177	B5	K5				R334	B2	C6	U23A	C4	E7
C180	B5	J5	R270	C3	D5	R335	B4	J5	U23B	B2	E7
C181	A5	K6	R271	C3	D6	R340	D2	E6	U24A	D4	E8
C182	A5	L6	R272	C3	D6	R341	D3	D6	U24B	D5	E8
			R273	C3	E6	R342	C4	D7			
C183	B5	K5	R274	C3	E6	R343	D4	E7	U28	B5	K6
C186	B4	L5							U29	B5	K6
			R275	C3	D6	S1	F2	C6	U31	B3	C5
CR66	C5	J5	R276	C4	D6	S2	F2	C6			
CR67	C5	K5	R277	C4	E7	S3	F3	B6			
			R278	C4	E7	S4	F4	B6			
J20	H1	C8	R279	C4	E7	S5	F4	A6			





A3 Connector board locator chart on back of Connector board Schematic 1.

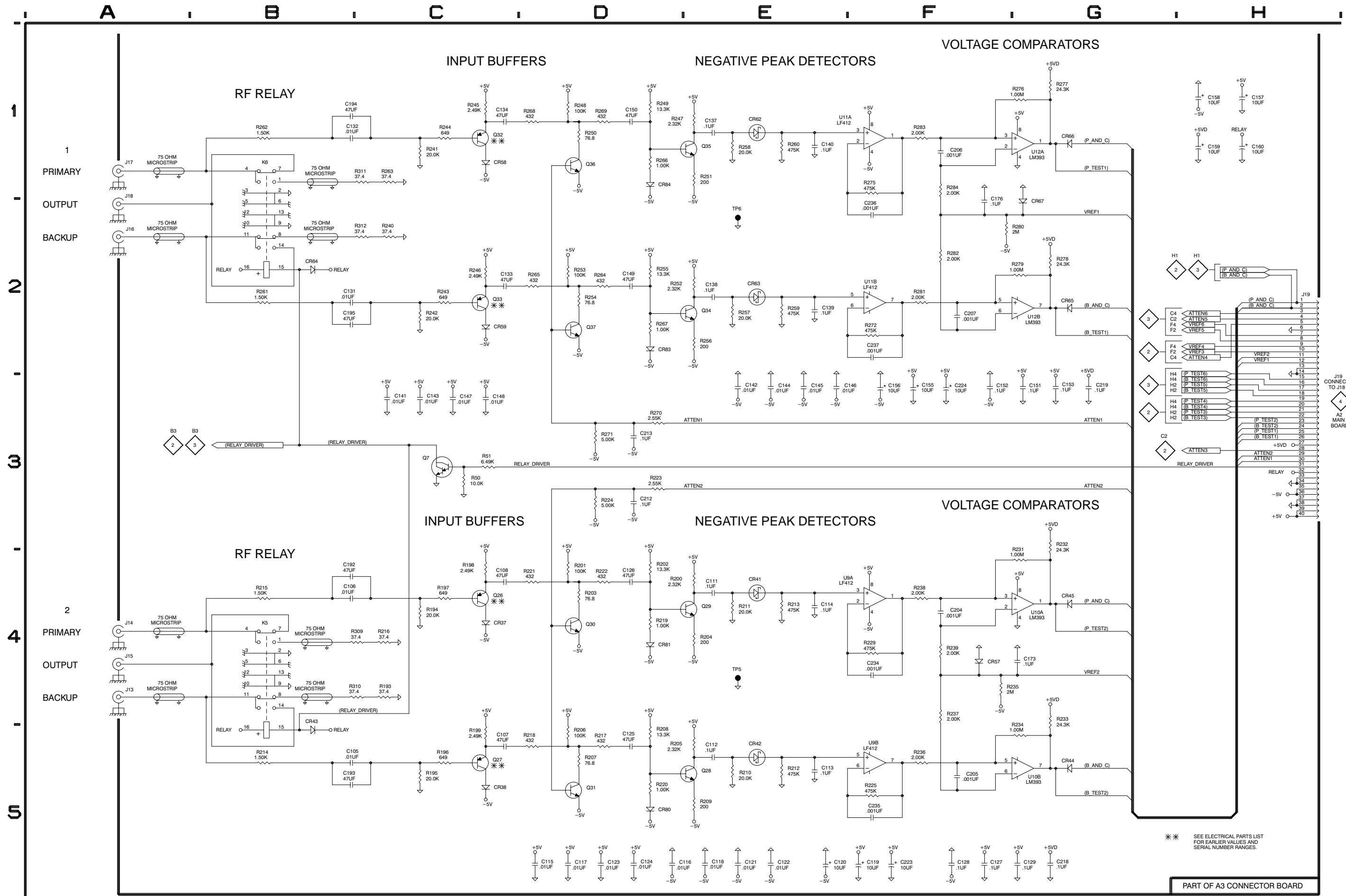
A3 Connector Board

 **Static Sensitive Devices**
See Maintenance Section

Connector Board Schematic Diagram <1> Component Locator Chart

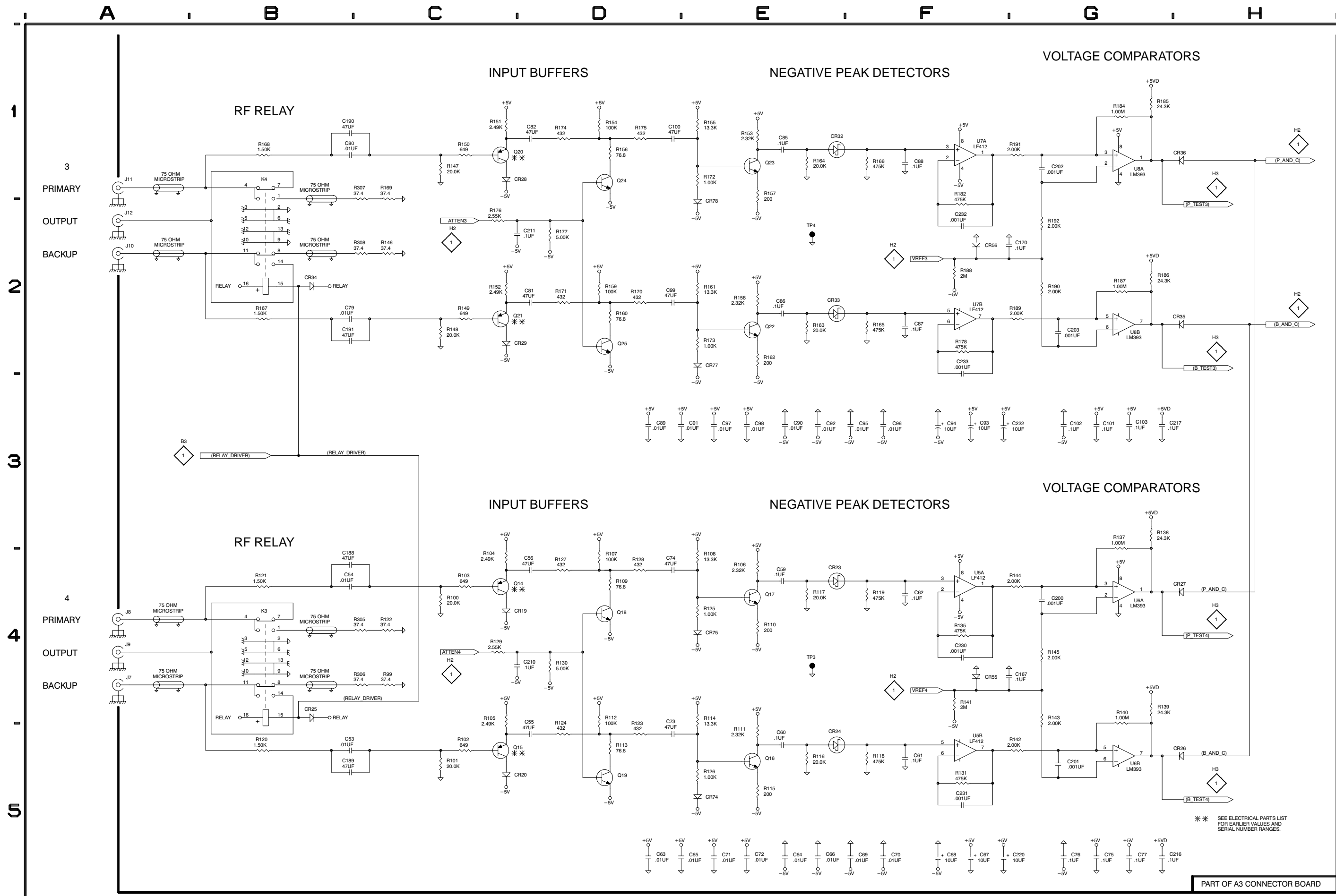
A3 Connector board. Partial A3 also shown on Schematics 2 and 3.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc			
C105	B5	C2	C133	C2	A2	C160	H1	G4	CR42	E5	C4	R199	C5	C3	R223	D3	D3	R251	E1	B3	R277	G1	A5
C106	B4	D2	C134	C1	B2	C173	G4	E4	CR43	B5	D2	R200	E4	E3	R224	D3	C3	R252	E2	A3	R278	G2	A5
C107	C5	D2	C137	E1	B3	C176	F2	C4	CR44	G5	C4	R201	D4	E3	R225	F5	C4	R253	D2	A3	R279	G2	A4
C108	C4	E2	C138	E2	A3	C192	B4	E2	CR45	G4	C5	R202	D4	E3	R229	F4	D4	R254	D2	A3	R280	F2	C4
C111	E4	E3	C139	E2	A4	C193	B5	C2	CR57	F4	E4	R203	D4	D3	R231	G4	C5	R255	D2	A3	R281	F2	A4
C112	E5	C3	C140	E1	B4	C194	B1	B2	CR58	C1	B3	R204	E4	E3	R232	G3	C5	R256	E2	A3	R282	F2	B4
C113	E5	C4	C141	C3	A3	C195	B2	A2	CR59	C2	A3	R205	E5	C3	R233	G4	C5	R257	E2	A4	R283	F1	B5
C114	E4	D4	C142	E3	A3	C204	F4	D5	CR62	E1	B4	R206	D5	C3	R234	G5	C4	R258	E1	B4	R284	F1	B5
C115	D5	C3	C143	C3	B4	C205	F5	C4	CR63	E2	A4	R207	D5	C3	R235	F4	E4	R259	E2	A4	R309	B4	D2
C116	D5	D3	C144	E3	C3	C206	F1	B5	CR64	B2	B2	R208	D5	D3	R236	F5	C4	R260	E1	B4	R310	B4	C2
C117	D5	D4	C145	E3	A3	C207	F2	A4	CR65	G2	A4	R209	E5	C3	R237	F4	D5	R261	B2	A2	R311	C1	B2
C118	E5	E3	C146	E3	B3	C212	D3	D3	CR66	G1	A5	R210	E5	C4	R238	F4	D5	R262	B1	B2	R312	C2	A2
C119	F5	D3	C147	C3	B3	C213	D3	B3	CR67	G2	B4	R211	E4	E4	R239	F4	D5	R264	D2	A3	TP5	E4	B4
C120	E5	D3	C148	C3	A3	C218	G5	C5	CR80	D5	D4	R212	E5	C4	R240	C2	A2	R265	D2	A3	TP6	E2	A4
C121	E5	C3	C149	D2	A3	C219	G3	A5	CR81	D4	E4	R213	E4	D4	R241	C1	B2	R266	D1	C3	U9A	F4	D4
C122	E5	D3	C149	D2	A3	C223	F5	D4	CR83	D2	B4	R214	B5	C2	R242	C2	A2	R267	D2	B3	U9B	F5	D4
C123	D5	D3	C150	D1	C3	C224	F3	B4	CR84	D1	C4	R215	B4	D2	R243	C2	A2	R268	D1	B3	U10A	G4	C5
C124	D5	C3	C151	G3	A4	C234	F4	D4	J13	A4	E1	R216	C4	D2	R244	C1	B2	R269	D1	B3	U10B	G5	C5
C125	D5	D3	C152	F3	B4	C235	F5	C4	J14	A4	C1	R217	D5	C3	R245	C1	B3	R270	D3	B3	U11A	F1	B4
C126	D4	E3	C153	G3	A5	C236	F2	B4	J15	A4	D1	R218	D5	C3	R246	C2	A3	R271	D3	A3	U11B	F2	B4
C127	F5	D4	C155	F3	B3	C237	F2	A4	J16	A2	C1	R219	D4	E3	R247	E1	B3	R272	F2	A4	U12A	G1	A5
C128	F5	D4	C156	F3	B3	CR37	C4	D3	J17	A1	A1	R220	D5	D3	R248	D1	B3	R275	F1	B4	U12B	G2	A5
C129	G5	C5	C157	H1	F4	CR38	C5	C3	J18	A1	B1	R196	C5	C2	R249	D1	C3	R276	G1	A5			
C131	B2	A2	C158	H1	F4	CR41	E4	E4	J19	H2	H5	R197	C4	E2	R221	D4	E3						
C132	B1	B2	C159	H1	G4							R198	C4	E3	R222	D4	D3						



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

PART OF A3 CONNECTOR BOARD

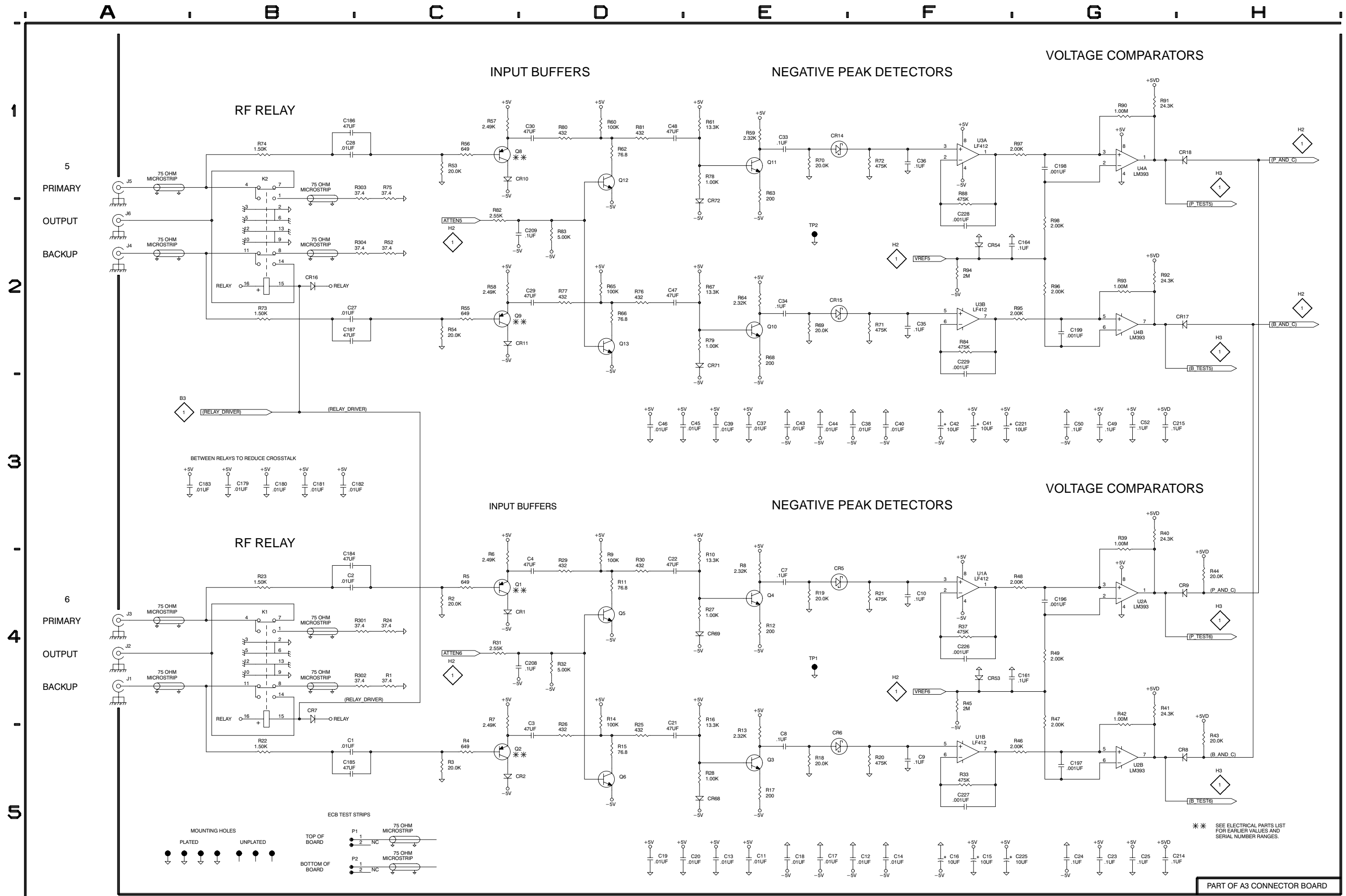


Connector Board Schematic Diagram <3>

Component Locator Chart

A3 Connector Board. Partial A3 also shown on Schematics 1 and 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
C1	B5	L2	C186	B1	K2	Q10	E2	J3			
C2	B4	M2	C187	B2	J2	Q11	E1	K3			
C3	D5	L2	C196	G4	M5				R57	C1	K3
C4	D4	N2	C197	G5	M4	Q12	D1	K3	R58	C2	J3
C7	E4	M3	C198	G1	K5	Q13	D2	J3	R59	E1	K3
									R60	D1	K3
C8	E5	L3	C199	G2	K4	R1	C4	M2	R61	E1	L3
C9	F5	L4	C208	C4	M3	R2	C4	N2			
C10	F4	M4	C209	C2	K3	R3	C5	L2	R62	D1	K3
C11	E5	L3	C214	G5	L5	R4	C5	L2	R63	E1	K3
C12	F5	L3	C215	G3	J4	R5	C4	M2	R64	E2	J3
									R65	D2	J3
C13	E5	M3	C221	F3	K4	R6	C4	M3	R66	D2	J3
C14	F5	N3	C225	F5	M4	R7	C4	L3			
C15	F5	M3	C226	F4	M4	R8	E4	M3	R67	E2	J3
C16	F5	M3	C227	F5	L4	R9	D4	M3	R68	E2	J3
C17	E5	L3	C228	F2	K4	R10	E4	N3	R69	E2	J4
			C229	F2	J4				R70	E1	K4
C18	E5	M3				R11	D4	M3	R71	F2	J4
C19	D5	M3	CR1	C4	M3	R12	E4	N3			
C20	D5	L3	CR2	C5	L3	R13	E5	L3	R72	F1	K4
C21	D5	L3	CR5	E4	M4	R14	D4	L3	R73	B2	J2
C22	D4	N3	CR6	E5	L4	R15	D5	L3	R74	B1	K2
			CR7	B4	M2				R75	C1	K2
C23	G5	L4				R16	E4	M3	R76	D2	J3
C24	G5	L4	CR8	H5	L4	R17	E5	L3			
C25	G5	M5	CR9	H4	L5	R18	E5	L4	R77	D2	J3
C27	B2	J2	CR10	C1	K3	R19	E4	M4	R78	E1	L3
C28	B1	K2	CR11	C2	J3	R20	F5	L4	R79	E2	K3
			CR14	E1	K4				R80	D1	K3
C29	D2	J2				R21	F4	M4	R81	D1	K3
C30	D1	L2	CR15	E2	J4	R22	B5	L2			
C33	E1	K3	CR16	B2	K2	R23	B4	M2	R82	C2	K3
C34	E2	J3	CR17	H2	J5	R24	C4	M2	R83	D2	J3
C35	F2	J4	CR18	H1	J5	R25	D5	L3	R84	F2	J4
			CR53	F4	N4				R88	F2	K4
C36	F1	K4				R26	D5	L3	R90	G1	K5
C37	E3	J3	CR54	F2	L4	R27	E4	N3			
C38	F3	J3	CR68	E5	M4	R28	E5	M3	R91	G1	J5
C39	E3	K3	CR69	E4	N4	R29	D4	M3	R92	G2	J5
C40	F3	L3	CR71	E2	K4	R30	D4	M3	R93	G2	K4
			CR72	E2	L4				R94	F2	K4
C41	F3	K3				R31	C4	M3	R95	G2	K4
C42	F3	K3	J1	A4	N1	R32	D4	L3			
C43	E3	K3	J2	A4	M1	R33	F5	L4	R96	G2	K5
C44	E3	J3	J3	A4	L1	R37	F4	M4	R97	G1	K5
C45	D3	J3	J4	A2	L1	R39	G3	M5	R98	G2	K5
			J5	A1	J1				R301	C4	M2
C46	D3	K3	J6	A2	K1	R40	G3	L5	R302	C4	L2
C47	D2	J3				R41	G4	L5			
C48	D1	L3	K1	B4	M1	R42	G4	M4	R303	C1	K2
C49	G3	J4	K2	B1	K1	R43	H5	L5	R304	C2	J2
C50	G3	J4				R44	H4	L5			
			P1	B5	N1				TP1	E4	L4
C52	G3	K5	P2	B5	A1	R45	F4	N4	TP2	E2	J4
C161	F4	N4				R46	G5	M4			
C164	F2	L4	Q1	C4	M2	R47	G4	M5	U1A	F4	M4
C179	B3	L2	Q2	C5	L2	R48	G4	M5	U1B	F5	M4
C180	B3	I2	Q3	E5	L3	R49	G4	M5	U2A	G4	M5
			Q4	E4	N3				U2B	G5	M5
C181	B3	G2	Q5	D4	M3	R52	C2	J2	U3A	F1	K4
C182	B3	E2				R53	C1	K2			
C183	A3	C2	Q6	D5	L3	R54	C2	J2	U3B	F2	K4
C184	B4	N2	Q8	C1	K2	R55	C2	J2	U4A	G1	K5
C185	B5	L2	Q9	C2	J2	R56	C1	K2	U4B	G2	K5



PART OF A3 CONNECTOR BOARD



Replaceable Mechanical Parts

Replaceable Mechanical Parts

This section contains a list of the components that are replaceable for the ECO 422. 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*
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					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
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0941	BEARINGS INC (DIST)	2720 NW 29TH PO BOX 3005	PORTLAND OR 97210-1702
TK1955	COMPUTER PRODUCTS BOSCHERT INCORPORATED	1331 CALIFORNIA CIRCLE	MILPITAS CA 95035
0J4C1	TVT DIECASTING AND MFG INC	7330 SW LANDMARK LANE	PORTLAND OR 97223
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
06666	GENERAL DEVICES CO INC	1410 S POST RD PO BOX 39100	INDIANAPOLIS IN 46239-9632
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
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

Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
1-1	200-4212-00			1		COVER, TOP: ECO422 *MOUNTING PARTS*	80009	200421200
-2	211-0538-00			16		SCREW, MACHINE: 6-32 X 0.312, FLH, 100 DEG, STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-3	200-4213-00			1		COVER, TOP: ECO422 *MOUNTING PARTS*	80009	200421300
-4	211-0538-00			4		SCREW, MACHINE: 6-32 X 0.312, FLH, 100 DEG, STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-5	367-0437-03			1		HANDLE: ALUMINUM *MOUNTING PARTS*	OJ4C1	367-0437-03
-6	211-0538-00			2		SCREW, MACHINE: 6-32 X 0.312, FLH, 100 DEG, STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-7	367-0437-01			1		HANDLE: ALUMINUM *MOUNTING PARTS*	OJ4C1	367-0437-01
-8	211-0538-00			2		SCREW, MACHINE: 6-32 X 0.312, FLH, 100 DEG, STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-9	213-0216-00			1		THUMBSCREW: 10-32 X 0.85, 0.375 OD HD, SST	OKB01	213-0216-00
-10	354-0025-00			1		RING, RETAINING: EXTERNAL, U/O 0.187 DIA SFT	TK0941	555-18MI
-11	426-2512-00			1		FRONT FRAME: ALUMINIUM *MOUNTING PARTS*	80009	426251200
-12	211-0538-00			4		SCREW, MACHINE: 6-32 X 0.312, FLH, 100 DEG, STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-13	333-4150-00			1		FRONT, PANEL: FRONT PANEL, ECO422 *MOUNTING PARTS*	80009	333415000
-14	211-0324-00			10		SCR, ASSEM WSHR: 4-40 X 0.188, PNH, SST, PASS, T-9 TORX DR, MACHINE *END MOUNTING PARTS*	OKB01	ORDER BY DESC
-15	-----			1		CKT BD ASSY: FRONT PANEL (SEE A1 REPL)		
-16	-----			1		POWER SUPPLY: SWITCHING, AUTO IN 85-264VAC, 47-440HZ, OUT 5VDC 5A, +15V2A, -15V 0.5A (SEE A4 REPL) *MOUNTING PARTS*		
-17	211-0324-00			3		SCR, ASSEM WSHR: 4-40 X 0.188, PNH, SST, PASS, T-9 TORX DR, MACHINE *END MOUNTING PARTS*	OKB01	ORDER BY DESC
-18	337-3738-00			1		SHIELD, ELEC: POWER SUPPLY,	85471	337-3738-00
-19	-----			1		CKT BD ASSY: CONNECTOR BD (SEE A3 REPL) *MOUNTING PARTS*		
-20	211-0324-00			2		SCR, ASSEM WSHR: 4-40 X 0.188, PNH, SST, PASS, T-9 TORX DR, MACHINE	OKB01	ORDER BY DESC
-21	129-1449-00			2		SPACER, POST: ECO422, 1.282 L	80009	129144900
-22	220-0497-00			18		NUT, PLAIN, HEX: 0.5-28 X 0.562 HEX, BRS CD PL	73743	ORDER BY DESC
-23	210-1039-00			18		WASHER, LOCK: 0.521 ID, INT, 0.025 THK, SST *END MOUNTING PARTS*	OKB01	1224-02-00-0541
-24	337-4007-00			1		SHIELD, ELECT: ECO422	80009	337400700
-25	-----			1		CKT BD ASSY: MAIN BOARD (SEE A2 REPL) *MOUNTING PARTS*		
-26	211-0324-00			6		SCR, ASSEM WSHR: 4-40 X 0.188, PNH, SST, PASS, T-9 TORX DR, MACHINE	OKB01	ORDER BY DESC
-27	220-0497-00			15		NUT, PLAIN, HEX: 0.5-28 X 0.562 HEX, BRS CD PL	73743	ORDER BY DESC
-28	210-1039-00			15		WASHER, LOCK: 0.521 ID, INT, 0.025 THK, SST *END MOUNTING PARTS*	OKB01	1224-02-00-0541
-29	337-4008-00			1		SHIELD, ELEC: ECO422	80009	337400800

Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-30	131-4131-00			1		CONN,PLUG,ELEC:MALE W/LOCKING ADPTR,EXT MTG *MOUNTING PARTS*	80126	B-0778
-31	211-0012-00			2		SCREW,MACHINE:4-40 X 0.375,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-32	351-0104-03			1		SL SECT,DWR EXT:12.625 L,W/O HARDWARE *MOUNTING PARTS*	06666	C-720-3 (WITHOU
-33	212-0158-00			8		SCREW,MACH:8-32 X 0.375,PNH,STL,CDPL,T-20 TORX DR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-34	441-4150-00			1		CHASSIS:ECO422	80009	441415000
						STANDARD ACCESSORIES		
	063-1828-00			1		CARD,INFO:REFERENCE CARD,LEXAN,ECO422	80009	063182800
	070-8472-02			1		MANUAL,TECH:INSTRUCTION, ECO422	80009	070847201
-35	351-0859-00			1		TRK SL OUT SECT:STATIONARY & INTERMEDIATE SAFETY CONTROLLED	06666	CC3442-99-0005
-36	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,SAFTEY CONTROLLED (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,SAFTEY CONTROLLED (AUSTRALIAN OPTION A3 ONLY)	S3109	198-000
	161-0154-00			1		CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER,STR, IEC320,RCPT,SWISS,SAFTEY CONTROLLED (SWISS OPTION A5 ONLY)	S3109	12-H05VVF3G 00-

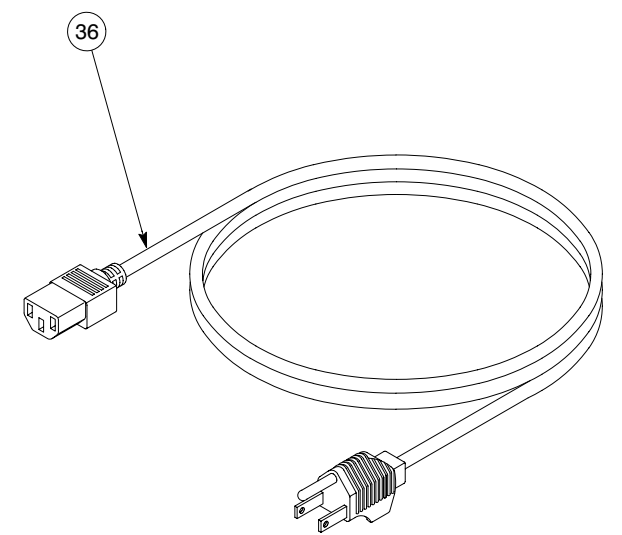
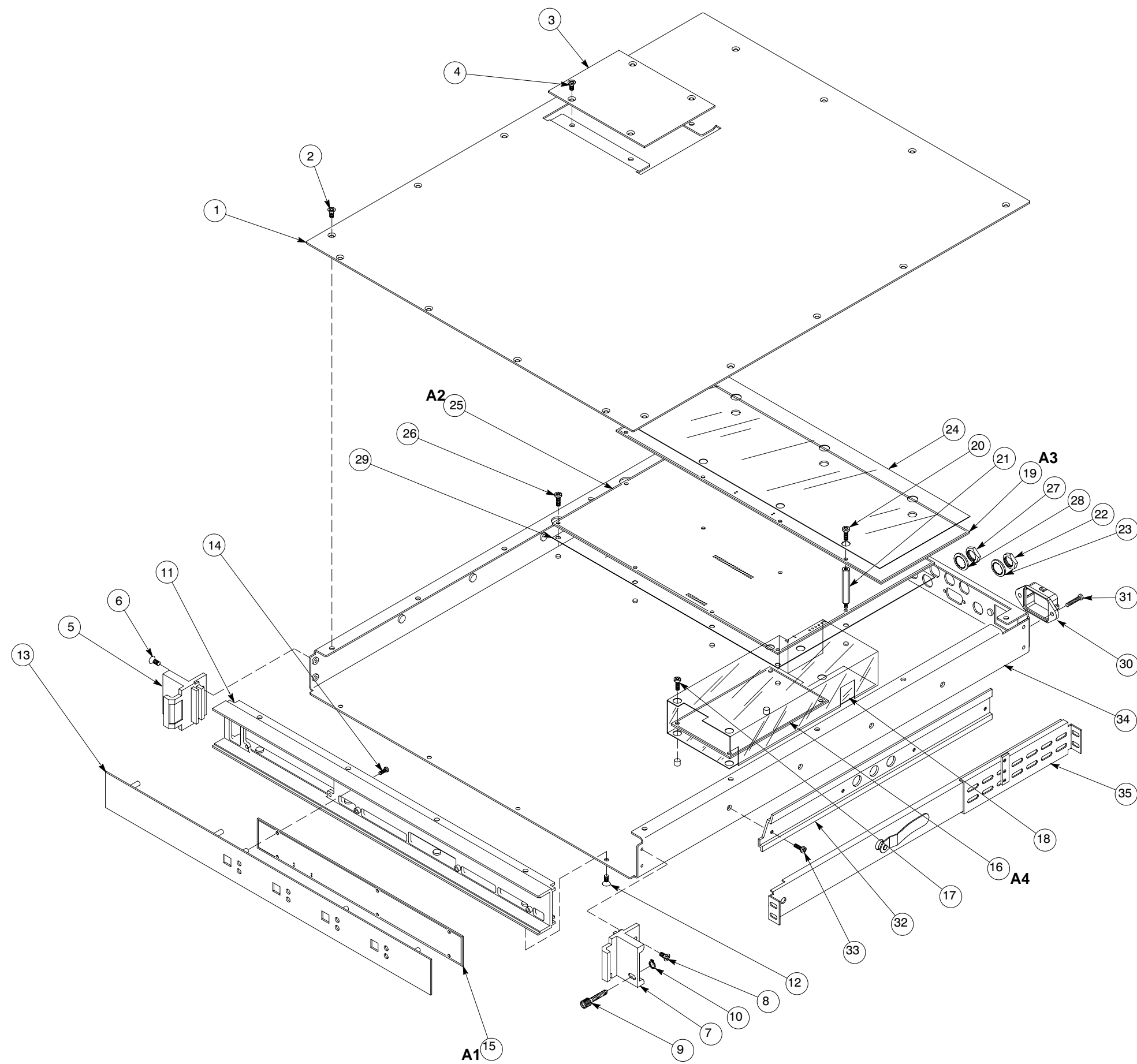


FIG. 1 EXPLODED VIEW

