

# Instruction Manual



## 118-AS and 118-RC Audio Synchronizer and Remote Control 070-5114-03

### **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.



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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 this product proves defective during the 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 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 the 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

**118-AS/118-RC Audio Synchronizer**

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.



# PREFACE

This manual documents the TEKTRONIX 118-AS Audio Synchronizer. This instrument is designed to operate with the TEKTRONIX 110-S Synchronizer to control audio delay. It can also work with other synchronizers to accommodate stereo and to delay time code.

The preface describes the contents of the manual and provides a brief description of each section.

The Table of Contents is a detailed list of all important pieces of information and their location in the manual.

The manual is arranged in two parts: Operator's Information and Service Information. This page contains the necessary caution and warning statements. All pertinent information regarding the operation of the instrument is located in the Operator's part. This will be of use to both the operator and the service technician. The Service part contains that information necessary to effectively service the instrument. This information is most useful to qualified service technicians only.

The Operator's part includes Section 1 through Section 3, described as follows:

**Section 1 (Introduction)** includes a general description of the instrument and examples of typical operation. A list of standard and optional accessories are also included.

**Section 2 (Specification)** includes an introduction and tables that provide the characteristics for: Audio Input, Audio Output, Audio Processing, Digital Processing, Power Supply, Environmental, and Physical.

**Section 3 (Operating Instructions)** has an introduction and a power-up procedure. Controls, indicators, rear-panel connectors, and remote control operation are also described.

The Service part contains Section 4 through Section 12, described as follows:

**Section 4 (Installation)** includes information concerning the shipping carton, rack mounting instructions, operating mode selection jumpers, and electrical installation. First-time power-up and operational check procedures are also included.

**Section 5 (Theory of Operation)** includes a block diagram description and a detailed circuit description.

**Section 6 (Performance Check & Adjustment Procedures)** includes an introduction, recommended test equipment list, and procedures for checking and adjusting the instrument.

**Section 7 (Troubleshooting)** covers troubleshooting precautions, assembly level troubleshooting, and troubleshooting aids.

**Section 8 (Maintenance)** is divided into three major categories: Preventive Maintenance, Corrective Maintenance, and Replacement/Disassembly instructions. Detailed information about Tektronix services are provided to help you get the instrument or a module repaired quickly.

**Section 9 (Options)** describes orderable options and optional accessories.

**Section 10 (Replaceable Electrical Parts)** includes ordering information and part numbers for all replaceable electrical parts.

**Section 11 (Diagrams & Circuit Board Illustrations)** contains a block diagram, schematics, and circuit board illustrations.

**Section 12 (Replaceable Mechanical Parts)** refers to an exploded view drawing of the instrument and a list of all replaceable mechanical parts with ordering information.

**Appendix A (118-RC Remote Control Unit)** contains instructions, illustrations, schematic diagram, and a parts list for this unit.

**Appendix B (118-F02 Video Interface)** contains instructions, illustrations, a block diagram, and a parts list for this circuit board.

Change and correction information prepared after the manual has been printed is inserted behind a tabbed page at the rear of this manual.

**NOTE**

*Text and diagrams provided in this manual are in accord with and based on the following standards of the American National Standards Institute, Inc. (ANSI):*

*ANSI Y1.1 — 1972, Abbreviations*

*ANSI Y32.2 — 1975, Graphic Symbols*

*ANSI U32.14 — 1973, Graphic Symbols (Logic)*

*ANSI Y32.16 -- 1975, Reference Designators*



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# SAFETY SUMMARY

The general safety information in this part of the summary is for both operating and servicing personnel. Specific warnings and cautions will be found throughout the manual where they apply, but may not appear in this summary.

## TERMS

### In This Manual

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

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


### As Marked on Equipment

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


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

## SYMBOLS


### In This Manual

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

### As Marked on Equipment

 **DANGER** — High voltage.

 Protective ground (earth) terminal.

 **ATTENTION** — refer to manual.

### Power Source

This product is intended to operate from a power module connected to a power source that will not

apply more than 250 volts rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

### Ground the Product

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

### Danger Arising From Loss of Ground

Upon loss of the protective-ground connection, all accessible conductive parts (including knobs and 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 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 Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

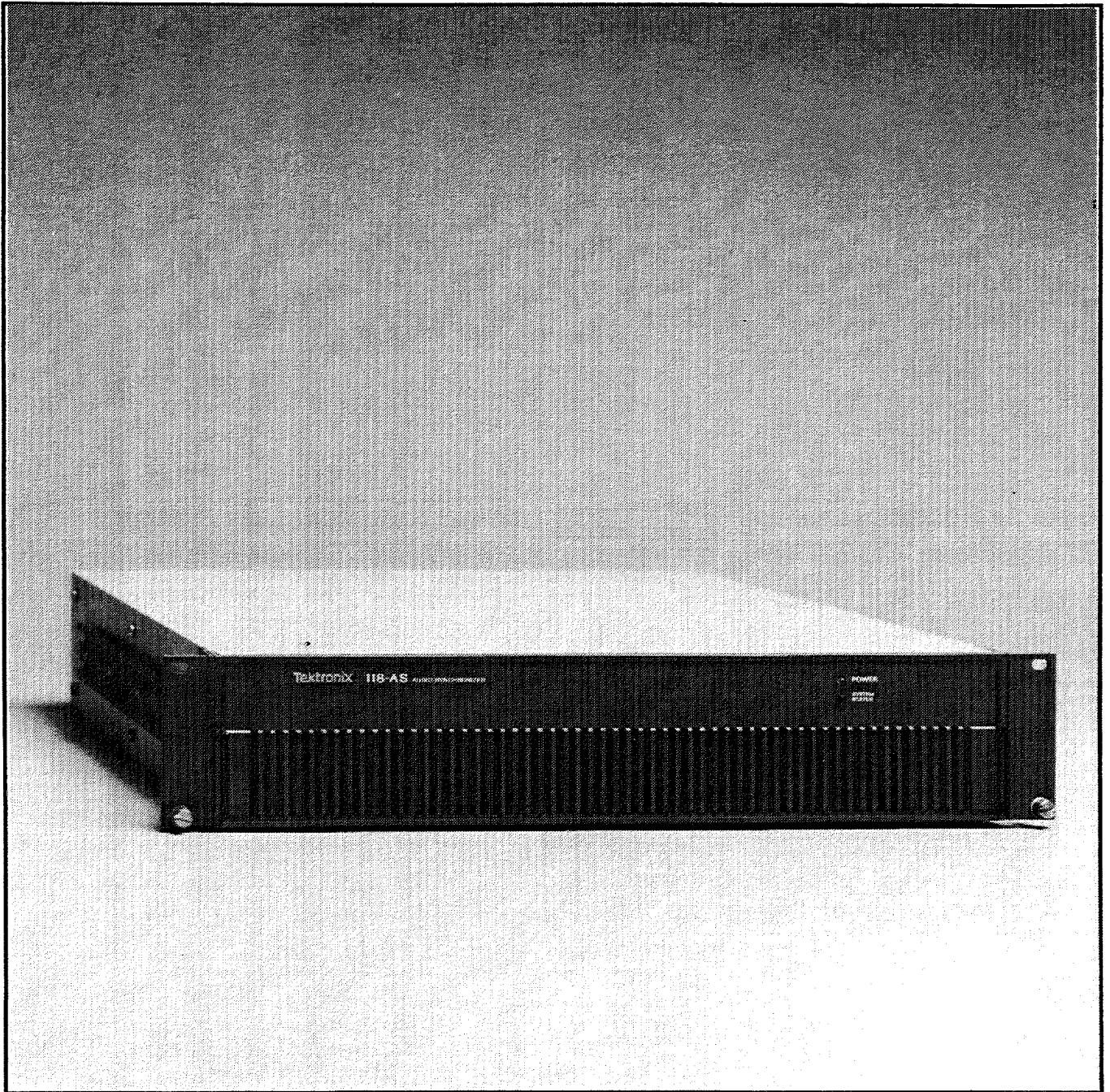
### Do Not Operate Without Covers

To avoid personal injury, do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed.

### Do Not Service Alone

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





The TEKTRONIX 118-AS Audio Synchronizer.



# SECTION 1

## INTRODUCTION

The TEKTRONIX 118-AS is designed to operate with the TEKTRONIX 110-S Synchronizer. However, it is not limited to single channel operation with a 110-S. It is possible to use the 118-AS with other synchronizers, to accommodate stereo, and to delay time code.

### TYPICAL OPERATION

#### Standard Single Channel Operation

The 110-S outputs a delay code that is used by the 118-AS to determine the amount of delay to automatically add to the Program signal. In addition, manual delay can be added to compensate for delays that have occurred upstream. Fig. 1-1 shows how the 118-AS operates in this mode.

#### Multichannel Television Sound (MTS)

Applications that utilize more than one audio signal are becoming common place. Bilingual audio and stereo can easily be accommodated by installing additional audio delay channels that are synchronized to a single reference signal. The addition of 118-F01 kits, which consist of an Analog and Digital board set, make it possible to provide identical delay to two or more audio channels. See Fig. 1-2 for a simple diagram of this operating mode.

#### Delaying Time Code Signals

The 118-AS can delay time code. However, it should be noted that a time code is a data stream and deleting random bits from it will cause additional problems. The 118-AS can be set up to disregard errors up to a frame in duration, but when an error exceeds a frame, delete the equivalent of a frame of time code.

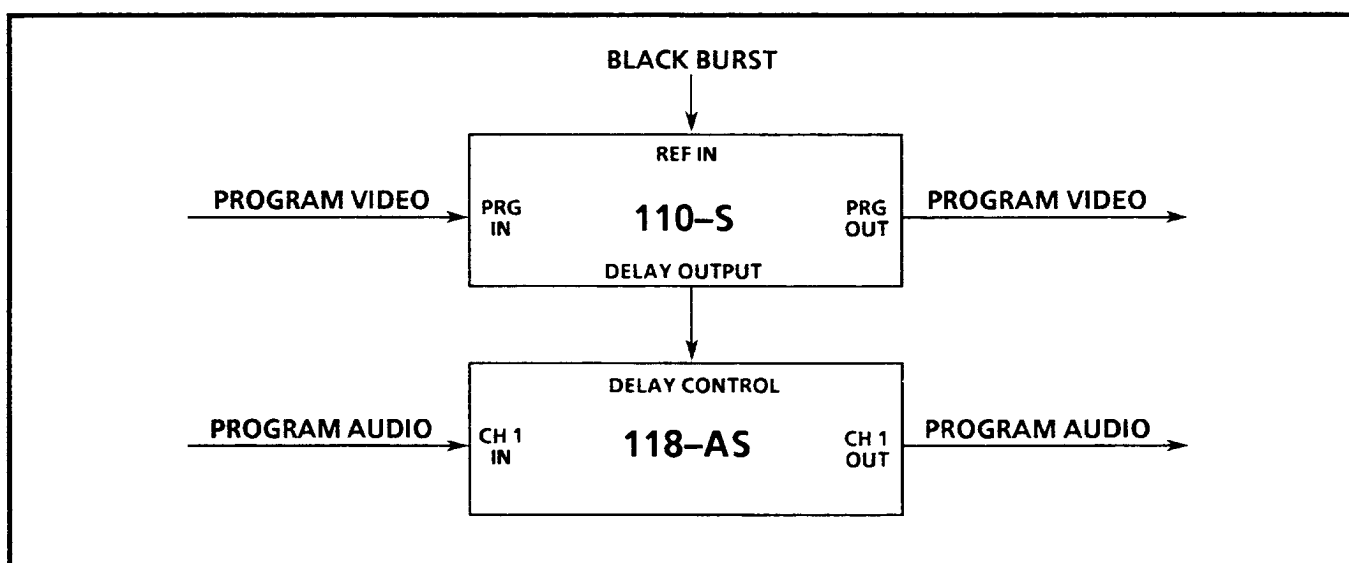


Fig. 1-1. Installation of the 118-AS to delay a single audio channel. Delay code is provided by the TEKTRONIX 110-S Synchronizer.

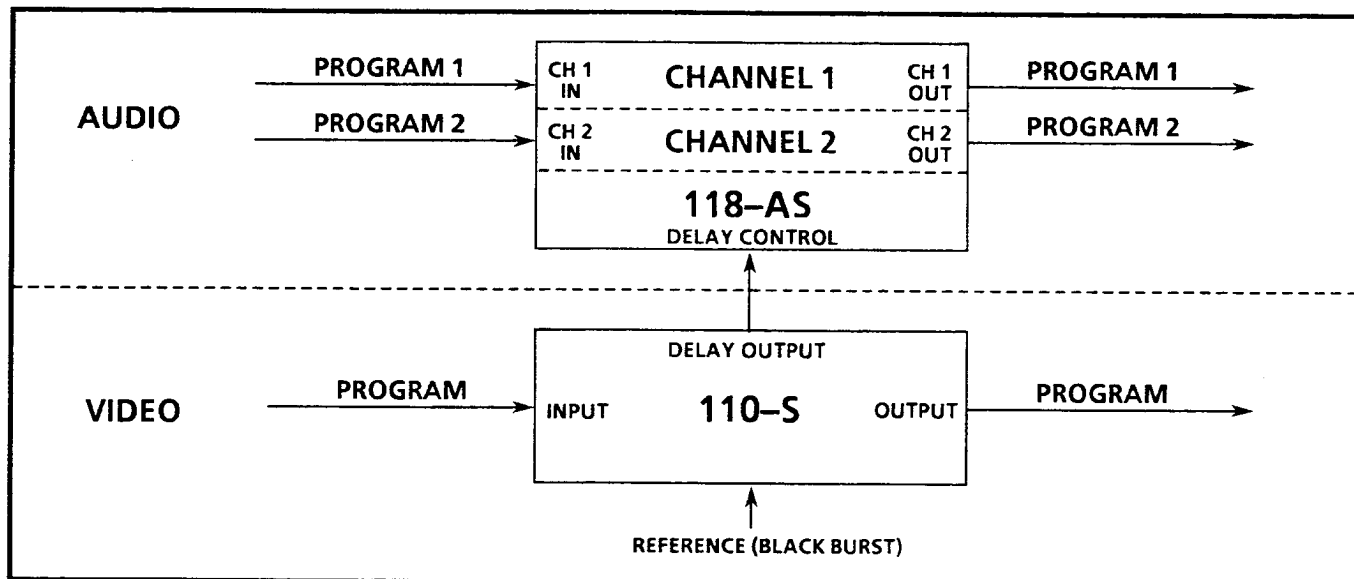


Fig. 1-2. Installation of the 118-AS to delay two audio channels. Delay code is provided by the TEKTRONIX 110-S Synchronizer.

## ACCESSORIES

### Standard Accessories (included with 118-AS)

1. Instruction Manual.
2. Rack slides.
3. Power Cord.
4. An unwired, 25-pin D-Series male connector, with shell (for accessing the 118-AS rear-panel REMOTE CONTROL connector).

Part numbers for the standard accessories and power cord options can be found under "Accessories" at the rear of this manual.

### Optional Accessories (not included with 118-AS)

1. 118-RC Remote Control unit.
2. Circuit Board Extender (same as for TEKTRONIX 110-S Synchronizer). See Section 9 of this manual.

Contact a Tektronix representative or field office for assistance in ordering Optional Accessories.

# SECTION 2

## SPECIFICATION

This section lists the performance requirements for the 118-AS, along with pertinent supplemental information. Performance requirements can be verified by the Performance Check Procedure in Section 6 of this manual.

Items listed as Performance Requirements are quantitative and are stated with tolerance limits. All Performance Requirements are guaranteed. It is possible that some items listed as Performance Requirements cannot be checked by the Performance Check Procedure because:

1. They are parameters that are fixed by the nature of their function.
2. They are characteristics of a very stable nature that would necessitate an exhaustive procedure, or require test equipment that is not commonly available to perform the check.

Items listed as Supplemental Information are not normally verified by the Performance Check Procedure; they are either explanatory notes or characteristics for which no limits are specified.

### PERFORMANCE CONDITIONS

The performance requirements for this instrument are valid under the following conditions:

1. The instrument was calibrated in an ambient temperature between +20° C and +30° C.
2. Operation is at an ambient temperature between 0° C and +50° C.
3. A warm-up time of at least 20 minutes in the ambient operating temperature is allowed before performing any measurements.

### SAFETY STANDARDS

The following safety standards apply to the 118-AS:

ANSI C39.5  
FM 38-20 (Meets UL1244)  
IEC 348  
CSA Bulletin 556B

**Table 2-1  
AUDIO INPUT**

Characteristics	Performance Requirements	Supplemental Information	Perf. Step Check #
Channel Input Number of Channels		1 (can be expanded to 3 channels by adding 118-F01 kits).	
Input Attenuator	0 dB.	Factory set. Can be set at 3 dB or 6 dB by an internal jumper.	
$Z_{in}$	20 k $\Omega$ balanced line.	Input impedance can be set to 150 $\Omega$ or 600 $\Omega$ by internal jumpers.	
Input Coupling		Active or transformer coupled.	
Connector		XLR D3F.	
Level	+ 8 dBm nominal, + 24 dBm maximum at 600 $\Omega$ .	+ 30 dBm maximum at 150 $\Omega$ ; selection of input attenuator (-3 dBm or -6 dBm) allows input levels up to 36 dBm at 150 $\Omega$ , or 30 dBm at 600 $\Omega$ .	

**Table 2-2  
AUDIO OUTPUT**

Characteristics	Performance Requirements	Supplemental Information	Perf. Step Check #
Channel and Monitor Outputs Number of Channels		1 (can be expanded to 3 channels by adding 118-F01 kits. In Bypass mode, a processed signal is still available at the MONITOR output).	
$Z_{out}$		Low impedance to drive 150 $\Omega$ or 600 $\Omega$ .	
Connector		XLR D3M.	
Level	+ 8 dBm nominal, + 24 dBm maximum at 600 $\Omega$ .	+ 27 dBm maximum at 150 $\Omega$ .	

Table 2-3  
AUDIO PROCESSING

Characteristics	Performance Requirements	Supplemental Information	Perf. Step Check #
Gain	Unity $\pm 2$ dB.	Can be jumper set to user-defined gain.	4
Frequency Response	$\pm 0.2$ dB from 50 Hz to 15 kHz and $\pm 0.5$ dB from 20-50 Hz and 15-20 kHz referenced to 1 kHz.		2
Phase Accuracy (Channel to Channel)	Within $\pm 1^\circ$ at 1 kHz and $\pm 10^\circ$ at 10 kHz.		
Total Harmonic Distortion	$\leq 0.05\%$ from 50 Hz to 15 kHz and $\leq 0.1\%$ from 20-50 Hz to 15-20 kHz balanced input over an input level range of 0 dBm to +24 dBm.	Measured with active input coupling.	3
IM Distortion	$\leq 0.08\%$ SMPTE.  $\leq 0.03\%$ CCIF.	Measured with 7 kHz signal and 60 Hz IM signal. $\leq 0.05\%$ over 0-24 dBm operating ranges. Measured with 20 kHz signal and 6 kHz IM signal.	3
Total Dynamic Range	$\geq 100$ dB.		
Signal-to-Noise Ratio	75 dB over an input level range of 0 dBm to +24 dBm.	Same as instantaneous dynamic range.	5
Common Mode Rejection Ratio	$\geq 50$ dB.	Measured from 50 Hz to 15 kHz; 70 dB with transformer input coupling.	6
Maximum Common Mode Voltage	35 V peak.		
Channel Separation	At least 80 dB.		

Table 2-4  
DIGITAL PROCESSING

Characteristics	Performance Requirements	Supplemental Information	Perf. Step Check #
Sampling Frequency	93.75 kHz.		
Quantization	18 bits.	15 bits linear PCM plus 3 bits exponent.	
Delay	174 ms (10 fields).	Memory sockets provided for user expansion to 699 ms (42 fields). 4.4 fields reserved for Automatic Delay.	
Delay Resolution Automatic		286 $\mu$ s (4.5 lines) controlled by a 110-S.	
Manual/Remote		1 ms or 0.1 field.	
Manual Inputs Internal Switches		101 ms for Normal Memory and 625 ms for Extended Memory.	
(Ground Closure) (Remote)		100 ms for Normal Memory and 624 ms for Extended Memory.	
Resolution		4 ms.	
Delay Control (Data Loop-through Inputs)		RS-232C compatible drive levels. +8 V typical, +5 V minimum, +15 V maximum.	
Program Video Inputs and Delayed Video		Loop-through bnc input connectors for Video Interface, Video board, or delay control inputs when each channel in the 118-AS is controlled by a separate 110-S.	
Return Loss	40 dB to 4.2 MHz.		8
Remote Control Data Rate	2400 baud.	Jumper selectable for 300 or 1200.	

**Table 2-5  
POWER SUPPLY**

Characteristics	Performance Requirements	Supplemental Information	Perf. Step Check #
Power Supply Line Frequency Range	48 Hz – 62 Hz.		
Line Voltage Range	90 Vac – 132 Vac. 180 Vac – 250 Vac	Line Selector at 115 V. Line Selector at 230 V.	1
Line Fuse		Front-panel mounted.	
115 V	2 A Slo Blo.		
230 V	1 A Slo Blo.		
Input Power	150 W maximum at nominal line.	40 W for a single channel, and 100 W for three channels.	

**Table 2-6  
ENVIRONMENTAL CHARACTERISTICS**

Characteristics	Information
Temperature Operating	0°C to 50°C.
Storage	-40°C to +65°C.
Altitude Operating	To 4.5 km (15,000 ft.).
Storage	To 15 km (50,000 ft.).
Humidity — Operating or Storage	Withstands 90 to 95% Relative Humidity for up to five days.
Packaged Product	Qualifies under National Safe Transit Assn. Pre-shipment test procedures, Project 1A-B-1.
Electromagnetic Compatibility	Meets FCC EMC Rules for Class A Computing Device; Part 15, Subchapter J.

Table 2-7  
PHYSICAL CHARACTERISTICS

Characteristics	Information
Dimensions Length Width Height	48.77 cm (19.2 inches). 48.26 cm (19.0 inches). 8.81 cm (3.47 inches).
Weight Net Weight Shipping Weight	11.3 kgm (26 pounds). 40.5 pounds.



## SECTION 3

# OPERATING INSTRUCTIONS

Audio signal delay through the 118-AS may be controlled automatically, manually, or a combination of both. The amount of delay in the automatic mode is determined by the delay signal from a TEKTRONIX 110-S Synchronizer. A fixed amount of delay may be selected manually through the 118-AS remote control or with switches internal to the 118-AS.

The TEKTRONIX 118-RC Remote Control unit provides a convenient means for selecting the operating mode and amount of delay.

Front-panel LEDs on the 118-AS and the 118-RC Remote Control unit indicate synchronizer and signal conditions. When operating normally, the 118-AS POWER indicator should be on, and the SYSTEM STATUS indicator off.

### ROUTINE POWER-UP

The 118-AS POWER switch is located behind the front panel, on the Power Supply module. See Fig. 3-1. Power and System Status indicators, paralleling the front-panel indicators, are also located there. The 118-RC Remote Control unit also has a System Status indicator.

The following procedure assumes that the 118-AS has a Delay Control signal from a TEKTRONIX 110-S, and that the program audio line is routed through the CHANNEL input/output.

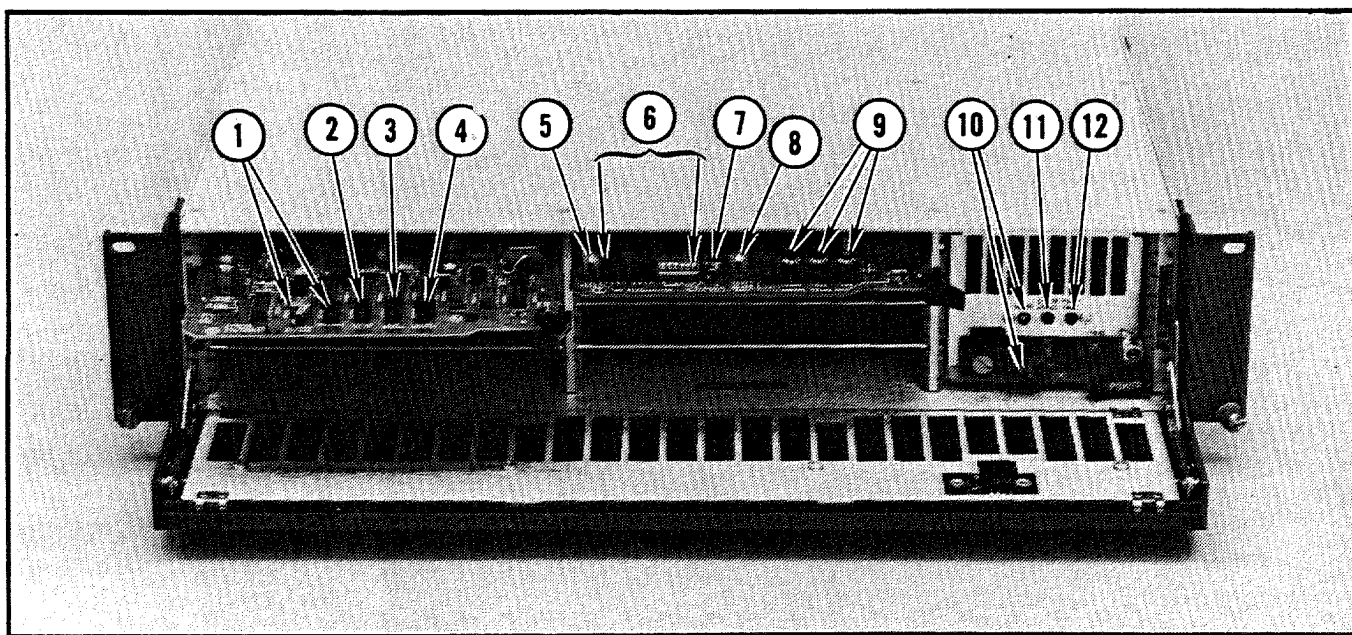


Fig. 3-1. 118-AS internal switches and indicators.

## POWER-UP PROCEDURE

1. Lower the front panel.
2. Set the POWER switch to ON.
3. Check that the green POWER indicator is on.
4. Check that the red SYSTEM STATUS indicator goes off after a few seconds.

If the SYSTEM STATUS indicator is flashing, check the LED indicators on the front edges of the circuit boards. To interpret the LED indicators, see Section 7, Troubleshooting.

## CONTROLS, INDICATORS, AND CONNECTORS

Controls are accessible when the front panel is lowered. See Fig. 3-1. Details of operating mode selection can be found in Section 4, Installation, of this manual.

The TEKTRONIX 118-RC Remote Control unit, described in Appendix A of this manual, provides additional controls.

### Analog Board Controls and Indicators

- (1) **BYPASS** — A switch on the Analog board that controls a relay to route the channel audio around the active circuits. A red LED next to the switch lights when the 118-AS is bypassed. In the bypass mode of operation, a processed signal is still available at the MONITOR output. In a multichannel 118-AS, the BYPASS switches inside the 118-AS control each channel individually. (The Bypass switch on the 118-RC Remote Control unit controls all channels simultaneously.)
- (2) **INPUT CLIP** — A red LED that indicates the input signal is +21 dBm or greater. Signals greater than +24 dBm may be clipped.

- (3) **ADC ERROR** — A red LED that indicates an error has been detected in the conversion process.
- (4) **DEAD OUTPUT** — A red LED that indicates loss of output signal.

### Digital Board Controls and Indicators

- (5) **CPU RESET** — A momentary push-button switch on the Digital board that resets the CPU for troubleshooting. (This is not normally needed since the CPU is reset automatically on power up.)
- (6) **DIAGNOSTICS** — A bank of six switches and eight LEDs.

The LEDs are active during power-up to indicate errors (when power is applied to the 118-AS or the CPU RESET button is pushed). LEDs that stay on indicate a problem. When a power-up error occurs, LED D7 and any one of the LEDs D0 through D6 are turned on.

Five of the switches (D0 through D5) together with the LEDs D0 through D4 are used for checking and displaying memory. The sixth switch, D5, prevents the diagnostics from turning on the SYSTEM STATUS indicator.

- (7) **DISABLE AUTO DELAY** — A switch to delete the delay being added by automatic control from the TEKTRONIX 110-S. When automatic control is disabled, only the manual delay can be selected from the Digital board or the 118-RC.
- (8) **RESET AFTER BOARD SWAP** — A momentary switch to delete remote manual delay stored in memory. Once delay has been set by the 118-RC, it is stored in NVM and remains there until updated from the 118-RC or deleted by the RESET AFTER BOARD SWAP switch. It should be used anytime the Digital board is changed.

- (9) **MANUAL DELAY** — Three rotary switches on the Digital board that select the fixed delay. The switches change delay in increments of 1 ms, 10 ms, and 100 ms. The DELAY LIMIT indicator (LED), located next to the 100 ms switch, comes on if the sum of the manual delay, remote delay, and the four fields reserved for automatic video delay exceeds the available delay. The DELAY LIMIT indicator stays on until the remote and/or manual delay is adjusted to bring the sum within range. The manual delay switches inside the 118-AS are disabled when the 118-RC is being used.

- (12) **POWER FAULT** — A red LED at the front of the Power Supply module that indicates a power failure.

**Rear-Panel Connectors (See Fig. 3-2)**


**Power Supply Controls and Indicators**

- (10) **POWER** — The main power switch is located at the front of the Power Supply module. The green LEDs (one on the Power Supply module that is in parallel with the one on the front panel) come on when there is power to the 118-AS and the switch is on.
- (11) **SYSTEM STATUS** — Red LED indicators on the front panel and the Power Supply module that blink to indicate an abnormal signal or circuit condition. Whenever the System Status indicators are “on,” an indicator on one of the 118-AS circuit boards will also be lit.

- (13) **CH IN (Program Audio)** — Three XLR connectors. In a standard 118-AS, only one input is used. When the 118-AS is in bypass, the internal termination is switched out and the CH IN connector is connected directly to the CH OUT connector.

- (14) **CH OUT (Program Audio)** — Three low impedance outputs to drive 150Ω or 600Ω loads; XLR connectors. In a standard 118-AS, only one output is used. (Connected directly to CH IN connector when in bypass.)

- (15) **MONITOR OUT** — Three low impedance outputs to drive 150Ω or 600Ω loads; XLR connectors. Only one output is used in a standard 118-AS. The monitor outputs are never bypassed.

- (16) **REMOTE CONTROL**  — A 25-pin, D-Series, female connector that provides an interface for the 118-RC Remote Control.

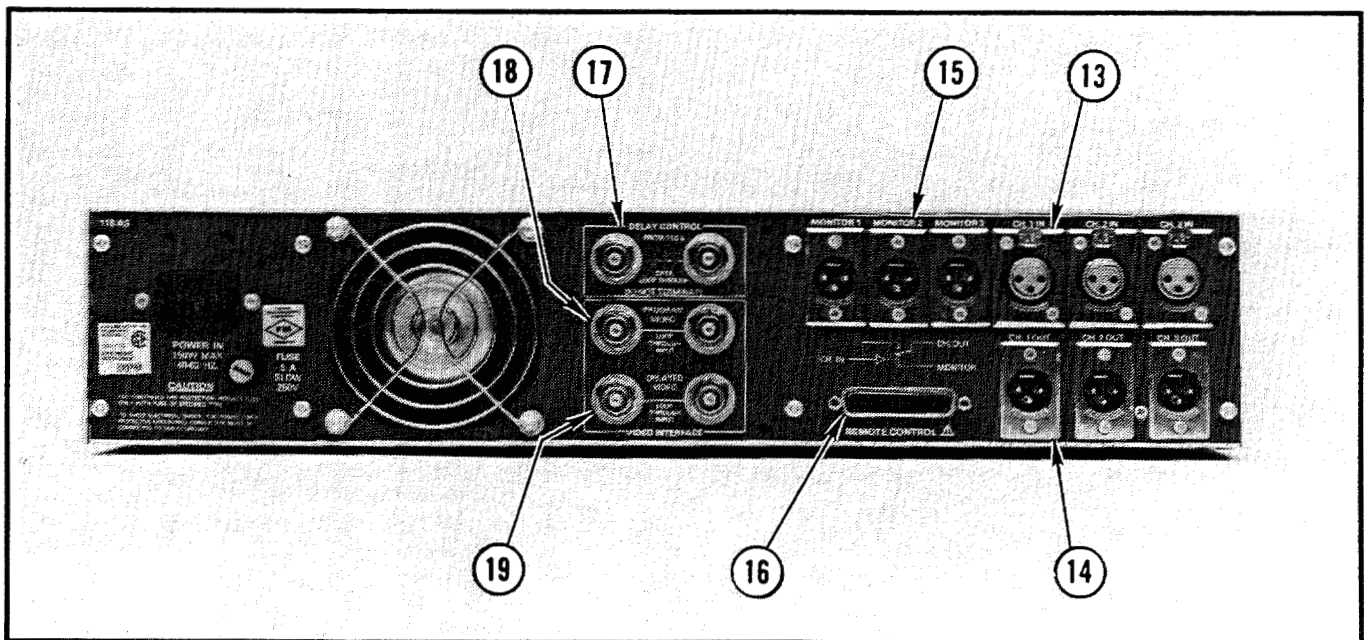


Fig. 3-2. Rear-panel connectors for the 118-AS.

## 118-AS — OPERATING INSTRUCTIONS

- (17) **DELAY CONTROL** — Accepts a delay control signal from a TEKTRONIX 110-S Synchronizer. **DO NOT TERMINATE!**
- (18) **PROGRAM VIDEO** and  
 (19) **DELAYED VIDEO** — Two sets of connectors associated with the 118-F02 Video Interface, which is not available after June, 1989. Refer to 118-F02 Instruction Sheet (P/N 062-9179-00) for information on this product. These may be used as additional control inputs when controlling each channel separately.

**110-S Control Port Selection** — A multichannel 118-AS can be controlled by a single 110-S or each channel can be controlled independently from three separate 110-S Video Synchronizers. When J899 is in the 1-2 position, the Delay Port for the channel is the rear-panel DELAY CONTROL, regardless of channel location within the 118-AS. In Channel 1 location this jumper has no effect. When the jumper is in the 2-3 position, the Control Delay Port for Channel 2 is the PROGRAM VIDEO loop-through. Channel 3 control Delay Port becomes the DELAYED VIDEO loop-through when the Channel 3 jumper is moved to 2-3. **110-S Port Control is set to DELAY CONTROL.**

### REMOTE CONTROL OPERATION

The REMOTE CONTROL interface provides a means to control Bypass, Manual Delay, and Automatic Delay Enable/Disable.

The REMOTE CONTROL interface is compatible with the TEKTRONIX 118-RC Remote Control unit, an optional accessory for the 118-AS. The 118-RC uses an RS-232C interface to control the 118-AS from a remote location. See Table 3-1. See Appendix A for more information about the 118-RC.

Delay can be remotely controlled (without the 118-RC) by using ground closures on the Remote Delay inputs in J410. See Fig. 3-3.

The REMOTE CONTROL connector (J410) is not in full conformance with the RS-232C standard because normally blank pins are being used. See Table 3-1.

**Table 3-1  
REMOTE CONTROL PORT PIN ASSIGNMENT**

Pin	Function	Input or Output
1	Protective Ground	Ground
2	Transmitted Data	Input
3	Received Data	Output
4	Request to Send	Not Used
5	Clear to Send	Output
6	Data Set Ready	Output
7	Signal Ground	Ground
8	Receive Line Signal Detect	Output
9	System Status LED	Output
10	Clip LED	Output
11	Digital Ground	Ground
12	No Connection	Not Used
13	Bypass	Input
14	Remote Delay D0	Input
15	No Connection	Not Used
16	Remote Delay D1	Input
17	No Connection	Not Used
18	Remote Delay D2	Input
19	No Connection	Not Used
20	Data Terminal Ready	Input
21	Remote Delay D3	Input
22	Remote Delay D4	Input
23	Remote Delay D5	Input
24	Remote SPARE 1	Input
25	Remote SPARE 2	Input

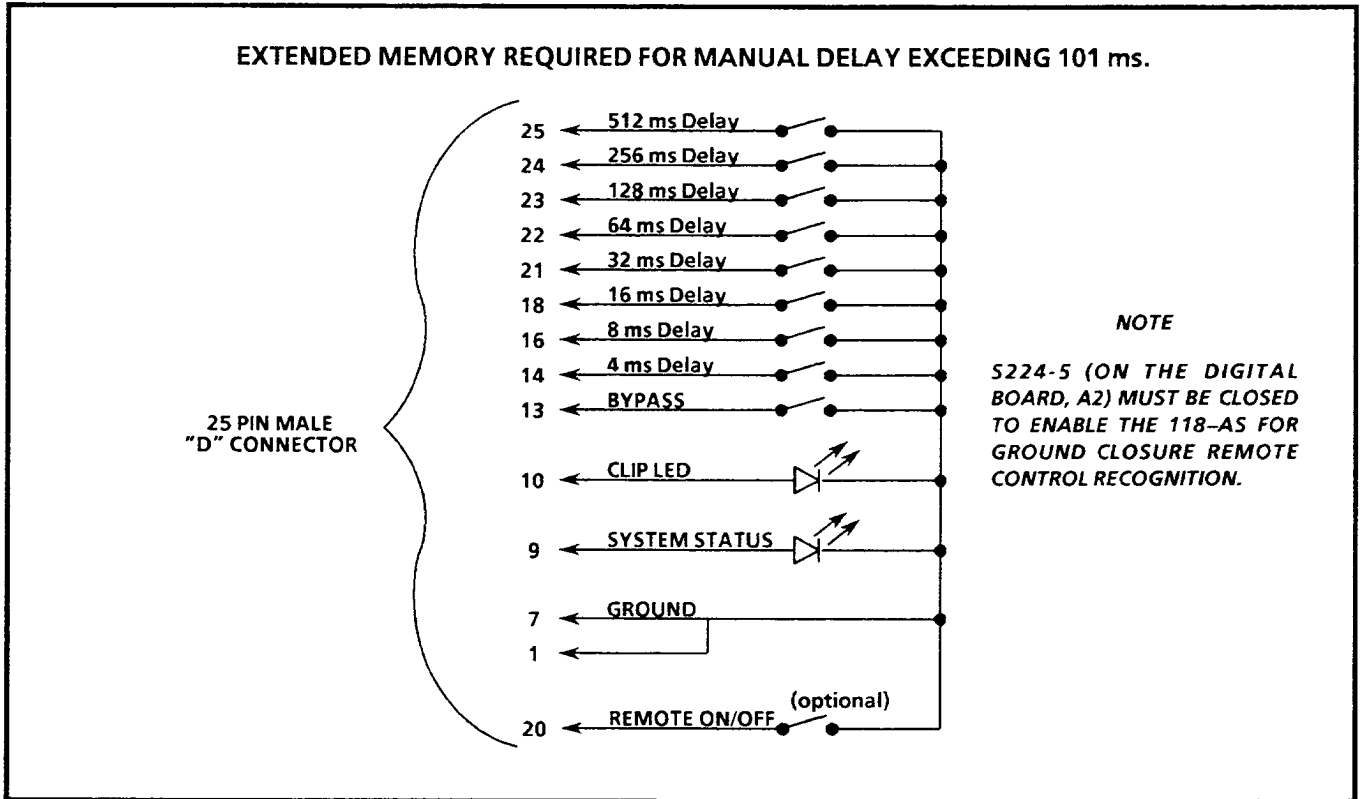


Fig. 3-3. Simple ground closure remote control for the 118-AS. (If Manual Delay Limit is exceeded, the LIMIT LED on the Digital board will light.)





**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.***





# SECTION 4

## INSTALLATION

The information contained in this section covers the rackmounting and electrical considerations for installing the 118-AS. Of special interest is the "Operating Mode Selection," which covers the internal jumper selectable options.

### Repackaging

If this instrument is to be shipped, repackage it in the original manner for maximum protection. The original shipping carton provides maximum protection in the event of re-shipment and should be saved for this purpose. Refer to Section 8, Maintenance, for complete repackaging instructions.

### Environmental Considerations

The recommended operating temperature for the 118-AS is 25°C; however, it can be operated at temperatures up to 50°C. A minimum of 3 inches of rear-panel clearance is required to provide adequate ventilation. Restricted clearance could cause operating problems at ambient temperatures above 25°C.

#### NOTE

*If the internal temperature becomes too high, the Power Supply shuts down and the 118-AS goes into bypass.*

### RACKMOUNTING INSTRUCTIONS

#### Rack Dimensions

The 118-AS is shipped with hardware for rackmounting. Fig. 4-1 shows the major dimensions of the 118-

AS. Spacing between the front rails of the rack must be at least 17-3/4 inches to allow clearance for the instrument and the slide-out tracks when they are mounted in a standard 19-inch rack.

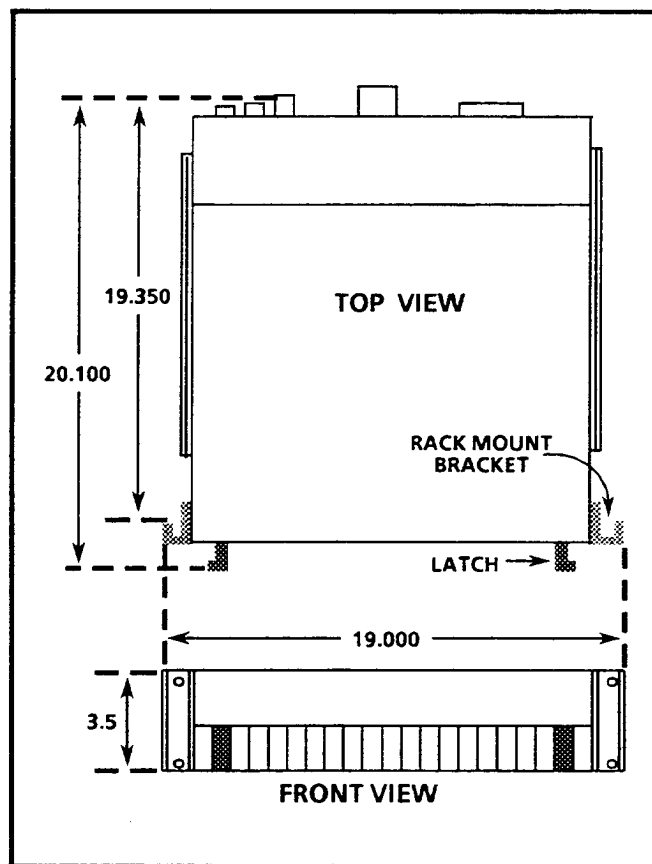


Fig. 4-1. 118-AS dimensions.

The slide-out track assemblies conveniently mount in any rack that has a front-to-rear rail spacing between 15-1/2 and 28 inches. A clearance of 3 inches behind the instrument's rear panel is required for cable connections and adequate air circulation.

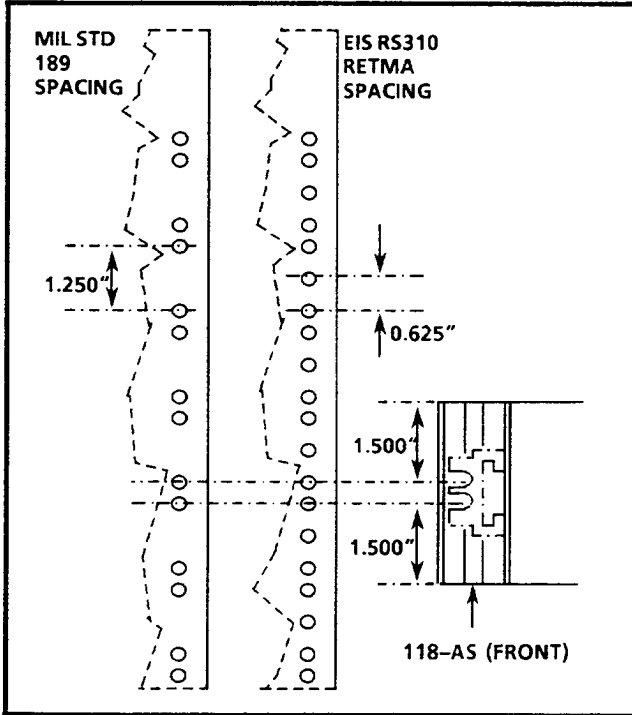


Fig. 4-2. Rail detail for mounting slide tracks.

### Mounting the Slide-out Tracks

Locate the proper rack holes as shown in Fig. 4-2. Notice that the hole spacing varies with the rack. When installing the slide-out track assemblies in EIA-type racks, make certain the assemblies are attached to the 1/2-inch spaced holes.

Mount the slide-out track assemblies to the rails using enclosed hardware as shown in Fig. 4-3. Fig. 4-4 shows the mounting details for both deep and shallow racks.

### OPERATING MODE SELECTION

Operating mode selection jumpers are located on the circuit boards. Fig. 4-5 shows the location of the 118-AS circuit boards.

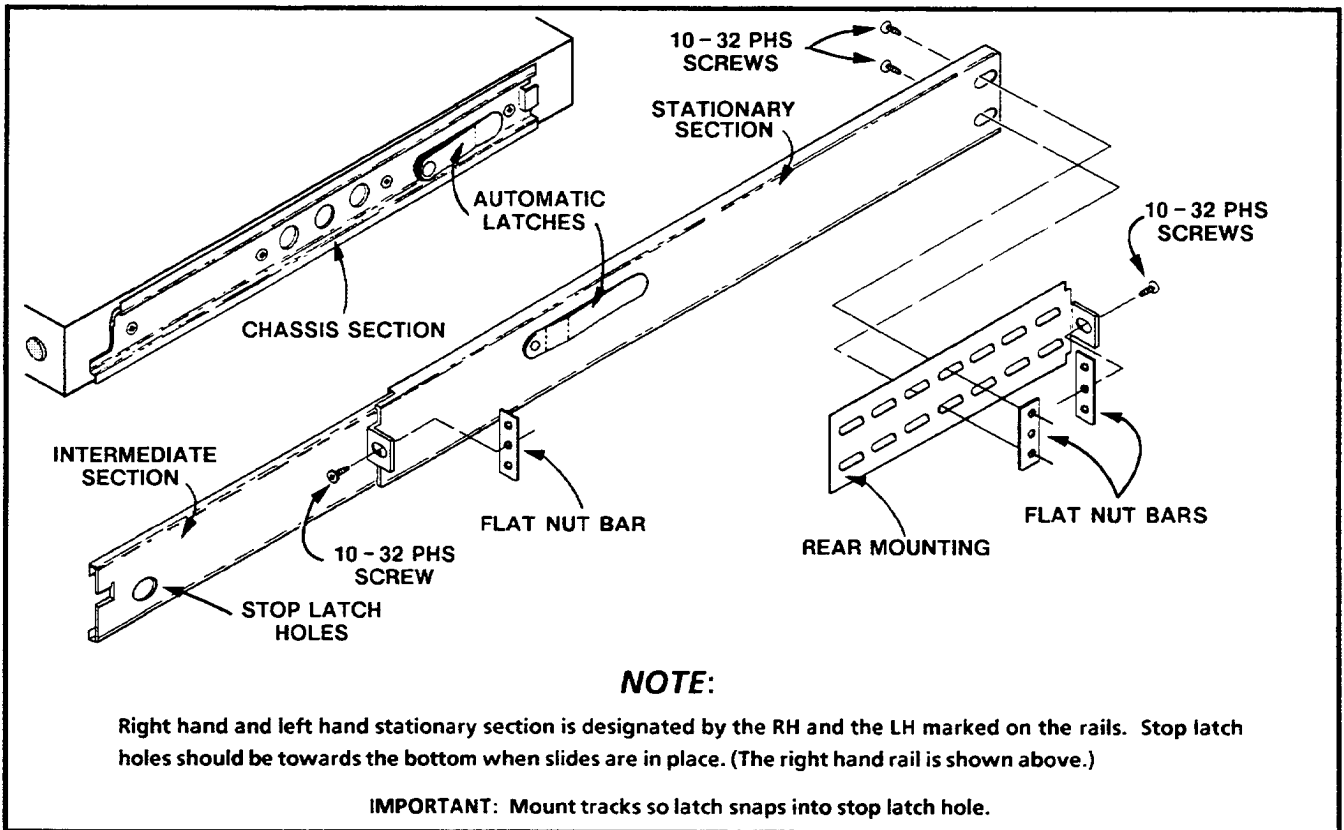


Fig. 4-3. Assembly of rack mounting hardware.

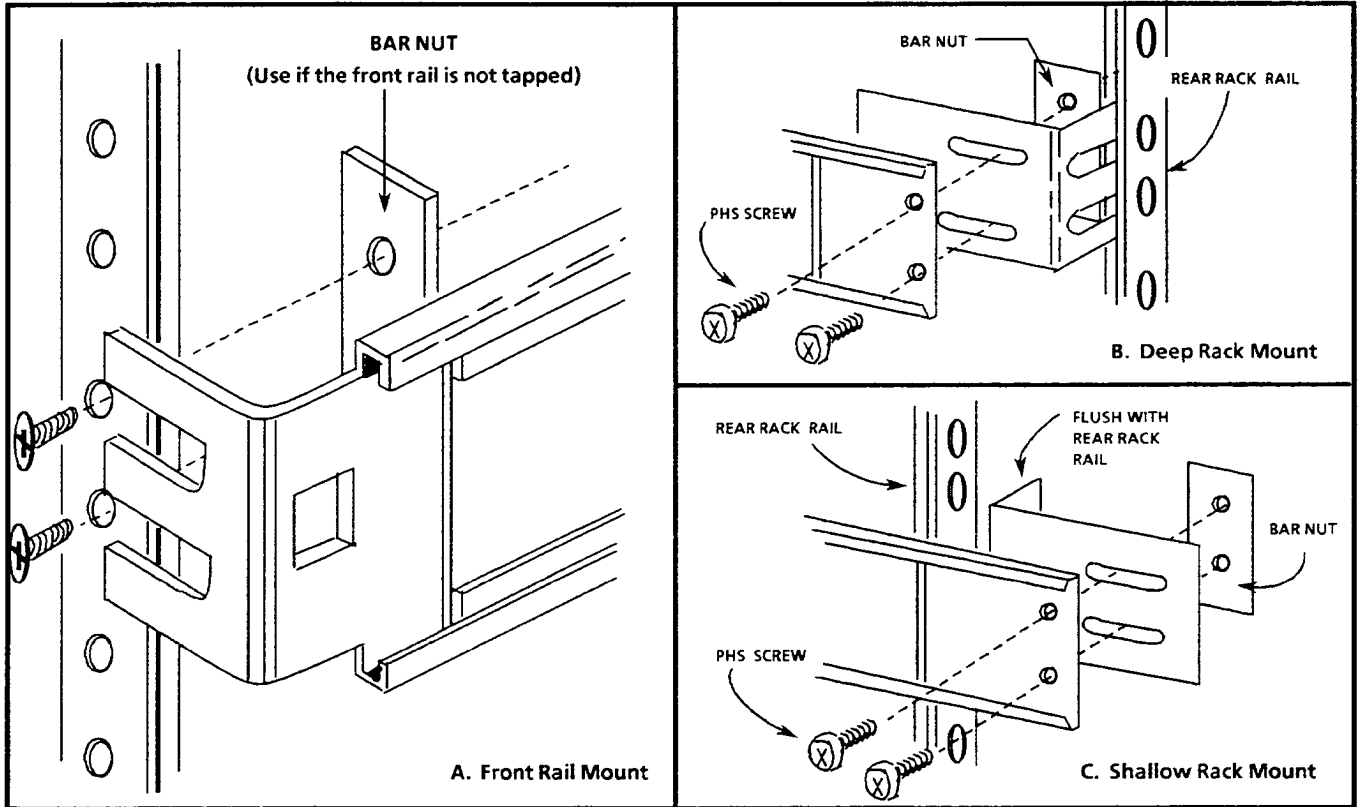


Fig. 4-4. Mounting stationary track sections.

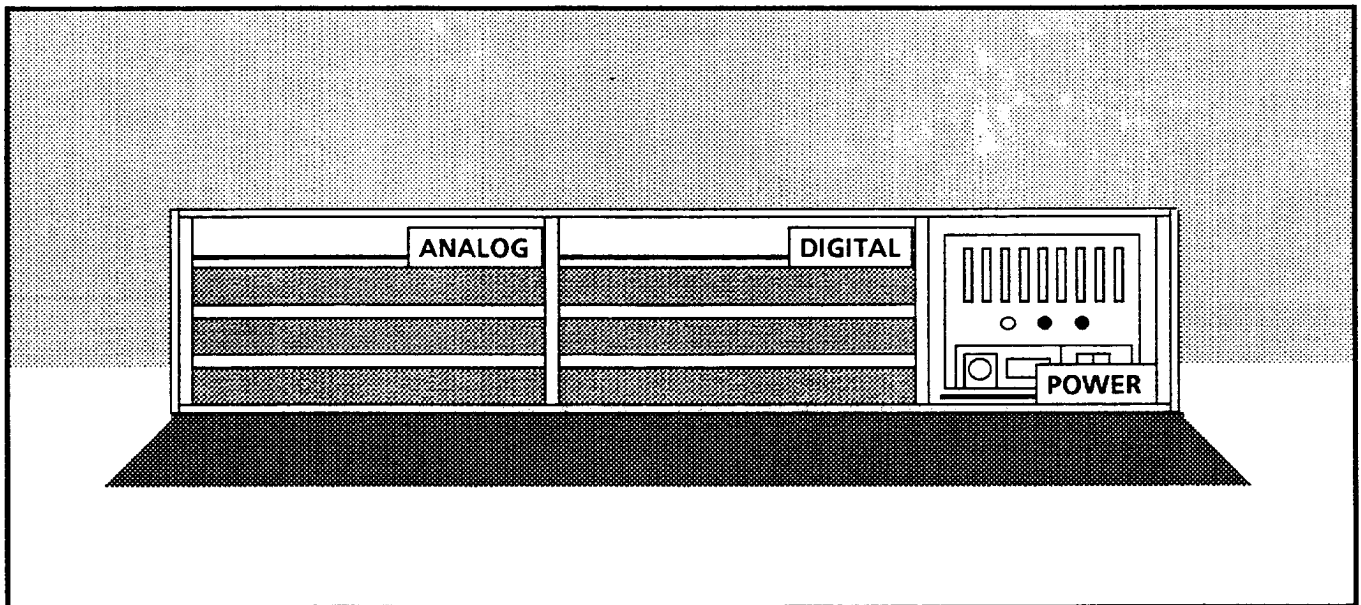


Fig. 4-5. Location of circuit board modules for a single channel 118-AS.

Table 4-1 lists configurations that can be selected by changing internal jumpers. **GREEN** jumpers are used for **operational changes** and **RED** jumpers are for **test** only.

The factory-set position for each jumper is marked on the circuit board by a line around the factory-set pins.

Table 4-1 OPERATING MODE SELECTION

Function	Jumper #	Description	Factory Set
Input Impedance (Fig. 4-6)	J730 = CH 1 J830 = CH 2 J930 = CH 3 all on the I/O board	<b>Pins 1-2:</b> Input impedance is 150Ω. <b>Pins 2-3:</b> Input impedance is 600Ω. <b>Pins 3-4:</b> Input impedance is 20 kΩ.	20 kΩ
Input Attenuator (Fig. 4-7)	J284 & J285 on the Analog board	<b>Pins 1-2:</b> 0 dB input attenuation. <b>Pins 2-4:</b> 3 dB input attenuation. <b>Pins 2-3:</b> 6 dB input attenuation.	0 dB
Input Gain (Fig. 4-7)	J214 on the Analog board	<b>Pins 1-2:</b> Input gain set at 0 dB. <b>Pins 2-3:</b> Input gain variable using R218.	0 dB
Input Coupling (Fig. 4-7)	J384 on the Analog board	<b>Pins 1-2:</b> Active balanced input with 50 dB CMRR rejection. <b>Pins 2-3:</b> Transformer input with 70 dB CMRR but poorer distortion and frequency response.	Active
Output Gain (Fig. 4-7)	J662 on the Analog board	<b>Pins 1-2:</b> Compensated for 20 kΩ load. <b>Pins 2-3:</b> Compensated for 600Ω load. <b>Pins 3-4:</b> Compensated for 150Ω load.	20 kΩ load
Maximum Delay (Fig. 4-8) B050000 & up  pre B050000	J685 & J785 on Digital board	<b>Pins 1-2:</b> Normal memory (625 ms) <b>Pins 2-3:</b> Not Used  <b>Pins 2-3:</b> Normal memory (101 ms). <b>Pins 1-2:</b> Extended memory (625 ms).	Normal  Normal
Simultaneous Delay Change (Fig. 4-8)	S224-3 on the Digital board	<b>S224-3 closed:</b> In a multichannel 118-AS, all channels are forced to change delay simultaneously. <b>S224-3 open:</b> Channels change delay independently of each other.	Simultaneous
110-S Delay Port Selection (Fig. 4-8)	J899 on the Digital board	<b>Pins 1-2:</b> In a multichannel 118-AS, all channels are controlled by a single 110-S. <b>Pins 2-3:</b> Channels operate from three separate 110-S control ports (using the rear-panel PROGRAM VIDEO and DELAYED VIDEO loop-throughs).	Single
Time Code Channel (Fig. 4-8)	S224-4 on the Digital board	<b>S224-4 open:</b> The channel is configured to be a program channel, with controlled rate of delay change. <b>S224-4 closed:</b> The channel is configured to be a time code channel, with lumped delay step.	Controlled
Manual Delay Increment (Fig. 4-8)	S224-2 on the Digital board	<b>S224-2 open:</b> Delay information from the Digital board, RS-232 parallel input, and the 118-RC is selected to be in milliseconds. <b>S224-2 closed:</b> Delay information is in clock cycles.	Milliseconds

Table 4-1  
OPERATING MODE SELECTION — Cont.

Function	Jumper #	Description	Factory Set
Step/Control Manual Delay (Fig. 4-8)	S224-1 on the Digital board	<b>S224-1 open:</b> Manual delay switches are enabled. <b>S224-1 closed:</b> Manual delay switches are disabled.	Should always be in open position
Ground Closure Remote Enable (Fig. 4-8)	S224-5 on the Digital board	<b>S224-5 closed:</b> Enabled. <b>S224-5 open:</b> Disabled.	Disabled
Remote Control BAUD Rate (Fig. 4-8)	J975 on the Digital board	<b>Position 3:</b> Baud rate is 300. <b>Position 12:</b> Baud rate is 1200. <b>Position 24:</b> Baud rate is 2400.	2400

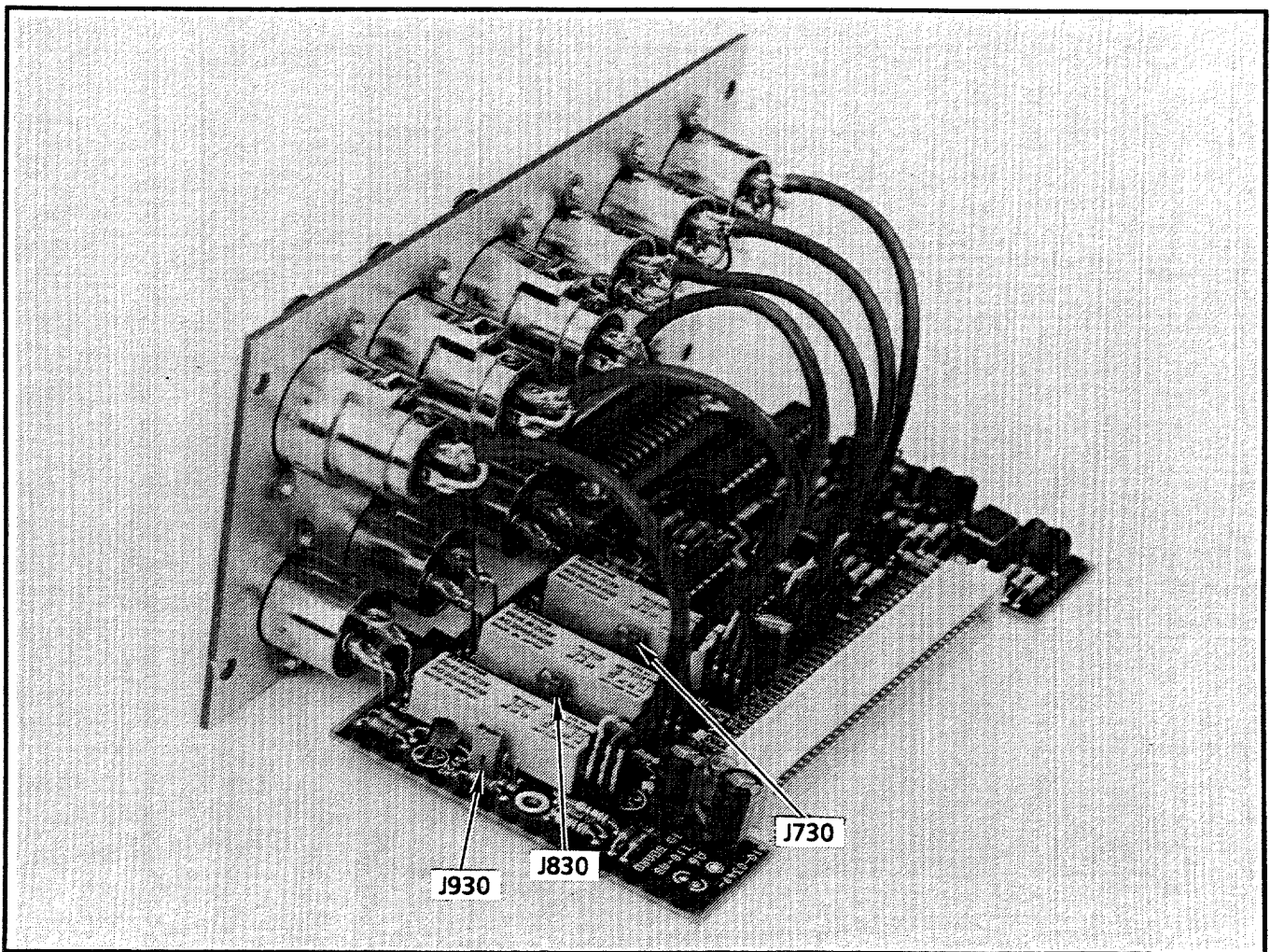


Fig. 4-6. 118-AS I/O circuit board showing the locations of the Input Impedance plug jumpers.

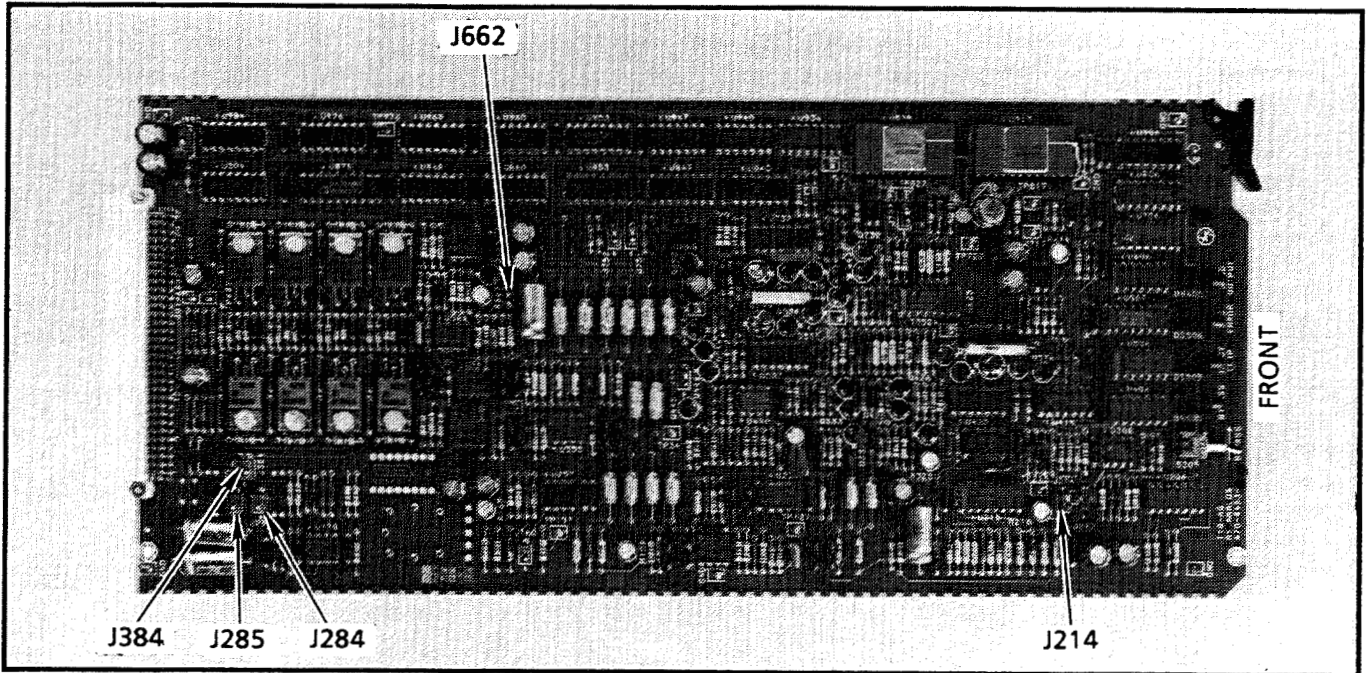


Fig. 4-7. Analog circuit board showing Operating Mode Selection (green) plug jumper locations.

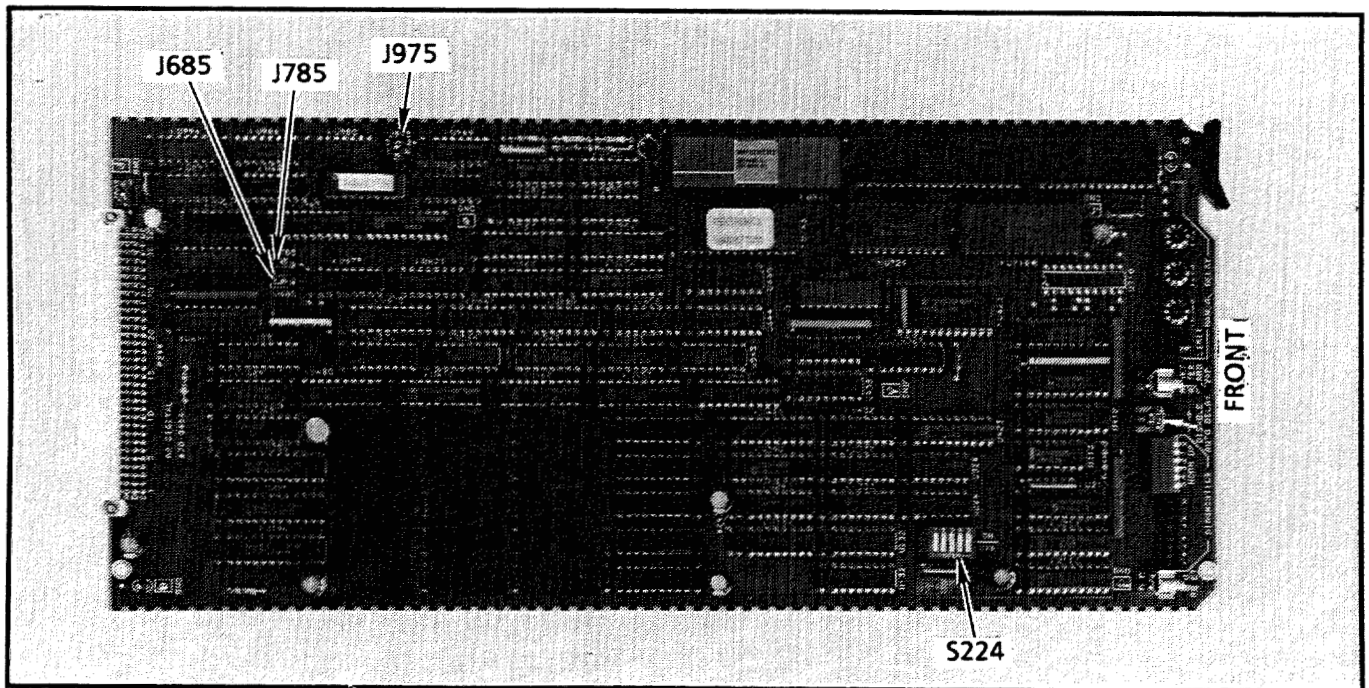


Fig. 4-8. Digital circuit board showing Operating Mode Selection (green) plug jumper locations.

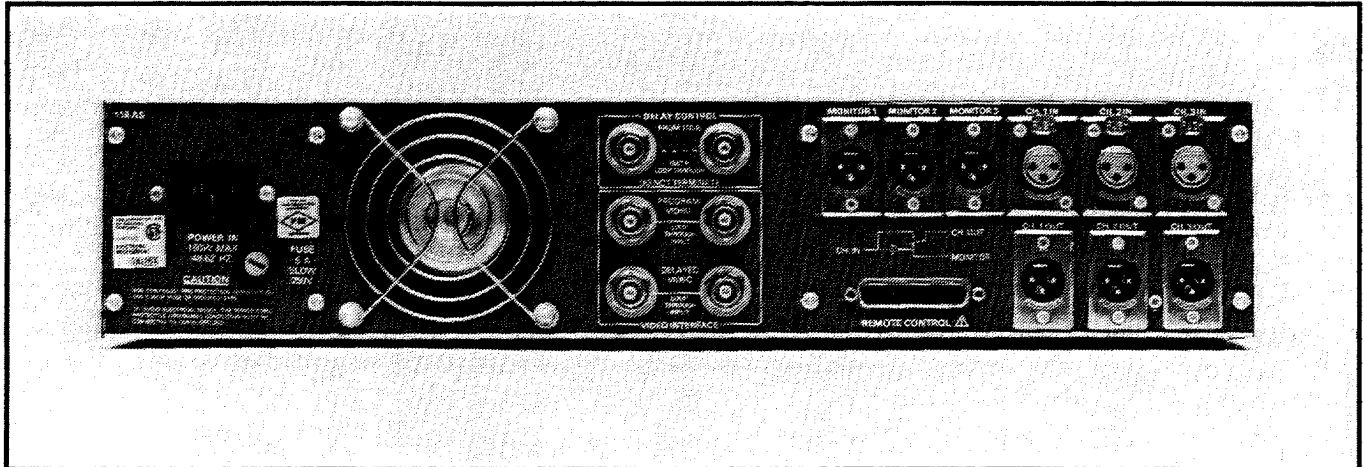


Fig. 4-9. The 118-AS rear panel.

## ELECTRICAL INSTALLATION

### Installation in the Program Audio Line

All inputs and outputs for the 118-AS are through the I/O rear panel. See Fig. 4-9. To install the 118-AS in the Program Audio Line, connect the program audio signal to the CH IN connector and connect the output line to the CH OUT connector. The CH IN connector is terminated in 150 $\Omega$ , 600 $\Omega$ , or 20k $\Omega$  as selected by a jumper(s) on the I/O board. Input termination is switched out when the 118-AS is in bypass.

The input impedance is factory set to 20k $\Omega$ . The output source impedance is 50 $\Omega$  to drive 150 $\Omega$  or 600 $\Omega$ .

Connect the delay signal from the 110-S Synchronizer DELAY OUTPUT connector to the 118-AS DELAY CONTROL connector. This is digital data with RS-232 levels, not video, and **must not be terminated**.

Remote control inputs and outputs are made through the 25-pin REMOTE CONTROL connector on the 118-AS rear panel. Refer to APPENDIX A for remote control information.

### Typical Installation

The simplest installation of a 118-AS is illustrated in Fig. 4-10.

## FIRST-TIME POWER-UP

The following procedure contains steps for powering-up the 118-AS. (A comprehensive performance check is provided in SECTION 6 of this manual.)

### Procedure

1. Lower the 118-AS front panel and check that the Line Selector switch is set to the correct line voltage before connecting to power mains. See Fig. 4-11 for the location of the Line Selector.
2. Apply power to the 118-AS.
3. Check that the power indicator comes on and stays on. The SYSTEM STATUS and BYPASS indicators will flash until power-up diagnostics have been completed.
4. Connect an audio signal to the CH IN connector and a delay signal to the DELAY CONTROL input connector.
5. Check that the SYSTEM STATUS and BYPASS indicators turn off and stay off.
6. Press the RESET AFTER BOARD SWAP switch on the Digital board.

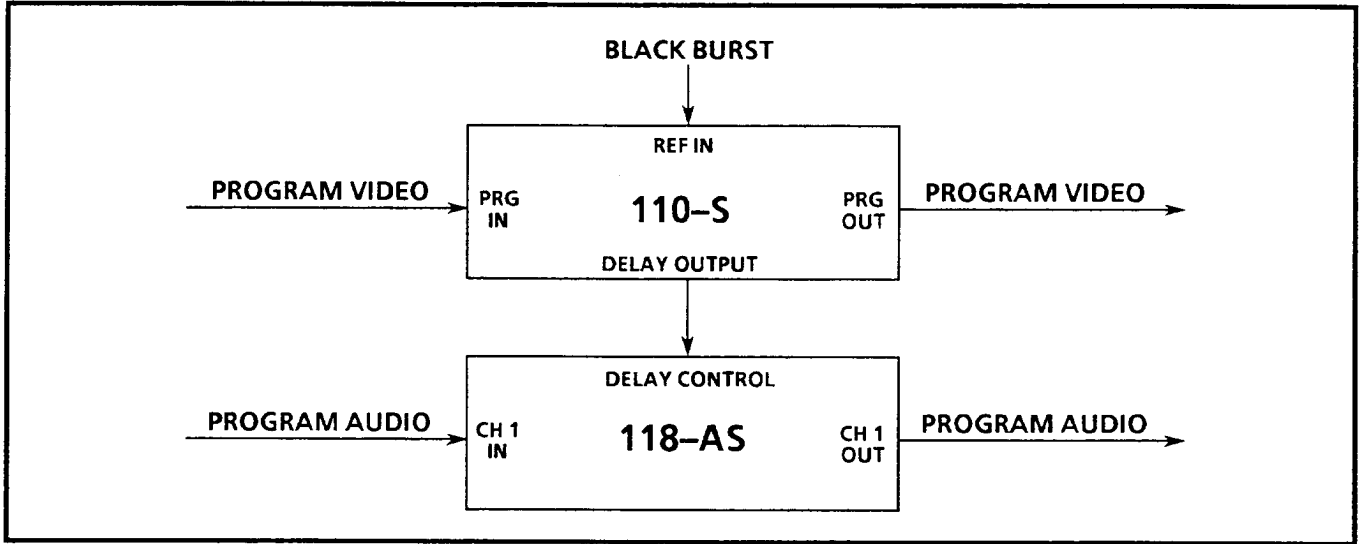


Fig. 4-10. Simple diagram of a single channel 118-AS installation. Delay code generated by a TEKTRONIX 110-S.

### SHORT OPERATIONAL CHECK

A short performance check under normal operating conditions assures that the 118-AS is functional but does not verify the performance specification. If abnormal operation is apparent, refer to Section 7, Troubleshooting.

A comprehensive performance check is provided in Section 6 of this manual.

### Equipment Required

This functional check procedure requires a picture monitor, a frame synchronizer (such as a TEKTRONIX 110-S), and program video and audio feeds.

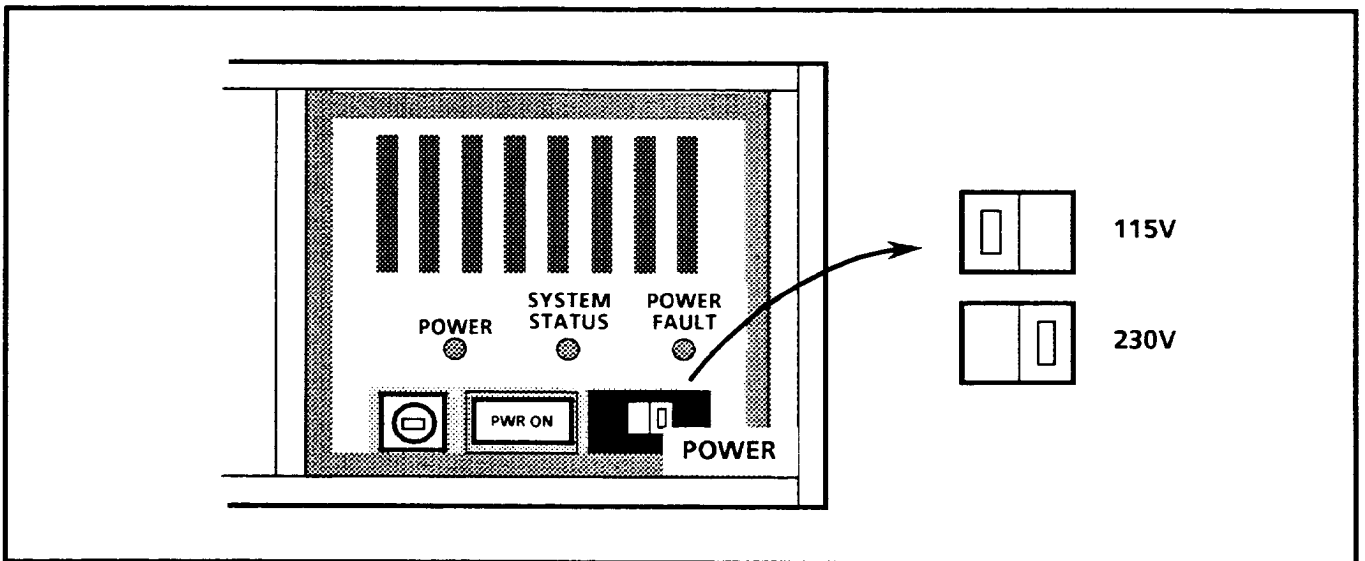


Fig. 4-11. Front view of the 118-AS Power Supply module.



## Memory Expansion

The 118-AS manual delay memory may be expanded by 625 ms, bringing the total to 699 ms (42 fields) with 4.4 fields reserved for Automatic Delay.

This is accomplished by adding 15 dynamic RAMS to the digital board (A2) in the following locations.

A27160	A2U168
A2U176	A2U260
A2U261	A2U268
A2U269	A2U276
A2U277	A2U360
A2U368	A2U376
A2U460	A2U468
A2U476	

The expanded memory is enabled by moving J685 and J785, on the Digital board, to their 1-2 positions.



# SECTION 5

## THEORY OF OPERATION

The 118-AS delays audio signals. It is typically used to synchronize the audio and video components of a TV signal by delaying the audio component to match the delayed video.

### BLOCK DIAGRAM DESCRIPTION

#### Operation

Fig. 5-1 shows the major circuit blocks of the instrument. The Program Input is channeled to the Analog board through the I/O assembly. In the Analog board, the Program Input is amplified by the Compressor/Expander to improve the signal-to-quantizer noise ratio, and then quantized by the A/D Converter. The quantized program signal is then delayed in the Digital board. Delay is inserted by storing the signal in RAM for the desired delay time. After delay insertion, the signal is retrieved from memory and returned to the Analog board, where it is converted back to analog and then attenuated to its pre-Compressor levels by the Expander. The resulting delayed analog signal is sent to the I/O board as the Program Output signal.

#### Controlling Delay Insertion

The sum of delay inserted in the 118-AS is that inserted by manual control plus that inserted by automatic control. If only automatically controlled delay is required, the manual delay controls would be set to zero.

**AUTOMATIC** — Automatic control can be implemented by a TEKTRONIX 110-S Synchronizer through its Delay Control port.

**MANUAL** — Manual control of delay insertion can be implemented either by switches on the front of the Digital board, or by a 118-RC (through the Serial Remote line), or by ground closures of an owner-built remote control unit (through the Parallel Remote line).

#### Simultaneous Channel Delay Switching

When stereo audio is being delayed, it is important that the delay settings for each channel are set simultaneously. The Channel Sync signal provides this capability.

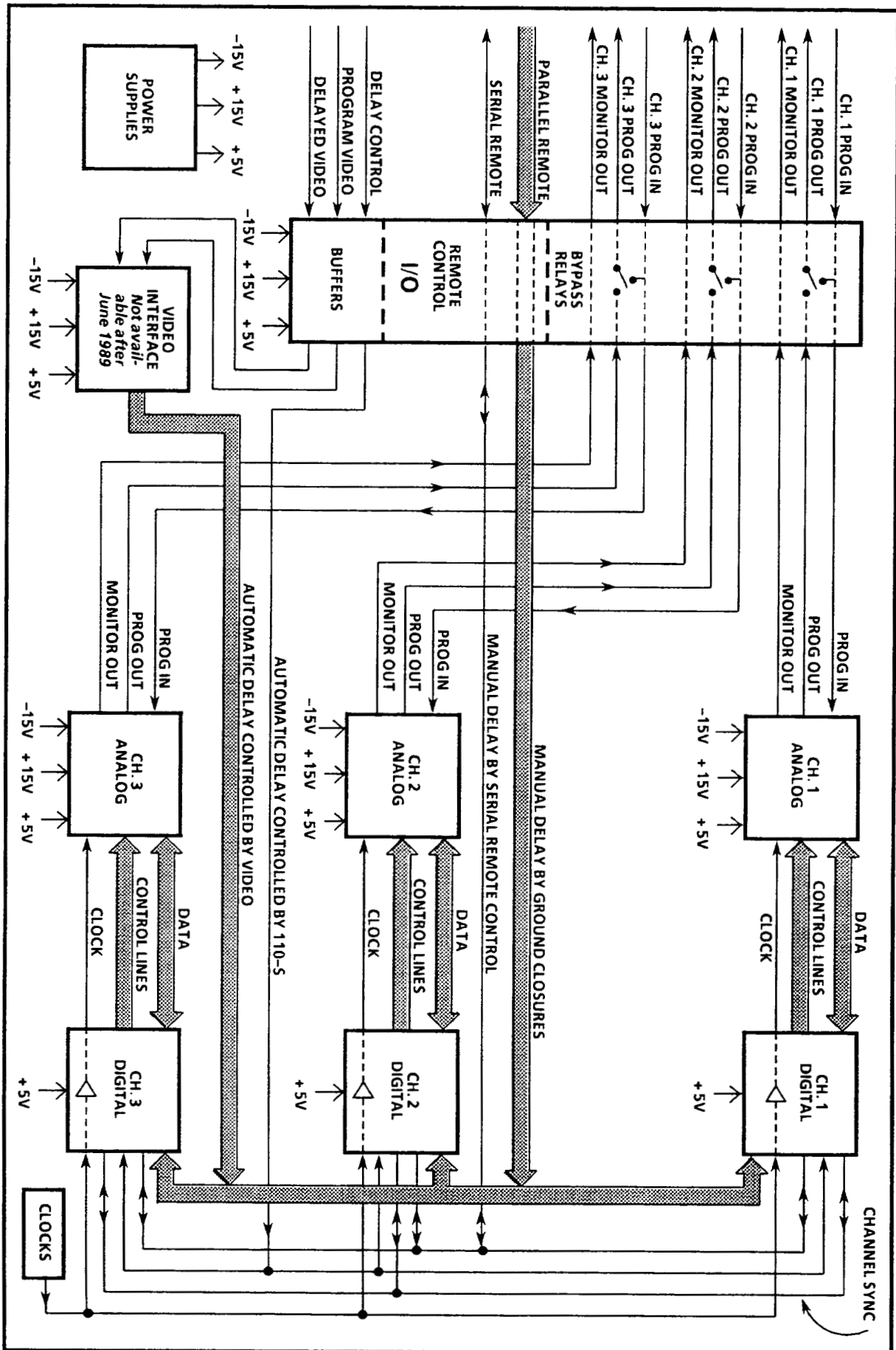


Fig. 5-1. Block diagram of the 118-AS Audio Synchronizer.

# SECTION 6

## PERFORMANCE CHECK AND ADJUSTMENT PROCEDURES

This section consists of two procedures; the Performance Check, which compares performance to instrument performance requirements, and the Adjustment Procedure, which is used to restore operation to within the performance requirements.

In these procedures, controls mounted at the front of circuit modules and 118-AS rear-panel connector names are CAPITALIZED (e.g., BYPASS). Controls whose names are capitalized should be treated as front-panel controls. Control and connector names on test equipment and 118-AS internal adjustments are initial capitalized (e.g., Time/Div, Volts/Div etc.).

Limits, tolerances, and waveforms used in this section are guides and are not instrument specifications unless they are listed as Performance Requirements in Section 2 (Specification) of this manual.

### TEST EQUIPMENT LIST

The test equipment capabilities described in the following list are the minimum required to accomplish the Adjustment and/or Performance Check procedure. Test equipment used in preparing this procedure is provided as an example. If test equipment other than that given in the examples is used, accuracy and test equipment settings may vary.

1. Test Oscilloscope

Vertical Amplifier: 30 MHz bandwidth, 5 mV sensitivity.

Time Base: 10 ns/div to 5 ms/div sweep speeds, triggering to 5 MHz, and capable of accepting both direct and delayed external triggers.

Example: TEKTRONIX 7704A Oscilloscope with a 7A26 Dual-Trace Amplifier, and a 7B53A Dual Time Base. Also 10X probes, P6106 (Tektronix Part No. 010-6106-03), and a 1X probe, P6101 (Tektronix Part No. 010-6101-03).

2. Distortion Analyzer

TEKTRONIX AA5001 Programmable Distortion Analyzer used in a TM5000 Series Power Module.

3. Audio Source

TEKTRONIX SG5010 Programmable Oscillator used in a TM5000 Series Power Module.

4. Leveled Sine Wave Generator

TEKTRONIX SG503 Leveled Sine Wave Generator with digital readout of frequency used in a TM5000 Series Power Module. (Used for Return Loss Performance Check only.)

5. TM5000 Power Module

TEKTRONIX TM5006 Power Module used to power the TEKTRONIX AA5001 Distortion Analyzer, Generator, and DM502A Digital Multimeter.

6. 75Ω Return Loss Bridge

(Used for Performance Check only.) Tektronix Part No. 011-0102-01. The following items are also required when the SG503 is used :

- a. 50Ω cable.
- b. 50Ω-to-75Ω Minimum Loss Attenuator (Tektronix Part No. 011-0057-01).

## 118-AS — PERFORMANCE CHECK AND ADJUSTMENT PROCEDURES

7. BNC Coaxial Cable  
One RG59U, 75 $\Omega$  cable.
8. Circuit Board Extender  
Tektronix Part No. 670-7754-00 (110-S Standard Accessory)
9. Voltage-Variable Transformer  
Example: General Radio Metered Auto Transformer W10MT3W. If 220 V operation must be checked, a conversion transformer or appropriate 220 V autotransformer is needed.
10. Two Audio Cables  
One each with XLR D3F and XLR D3M connectors.

Set up the equipment for both the Performance Check Procedure and the Adjustment Procedure as shown in Fig. 6-1. These procedures are written for a standard 118-AS. If the instrument to be performance checked or calibrated contains more than one channel, repeat procedure for Channel 2 and/or Channel 3.

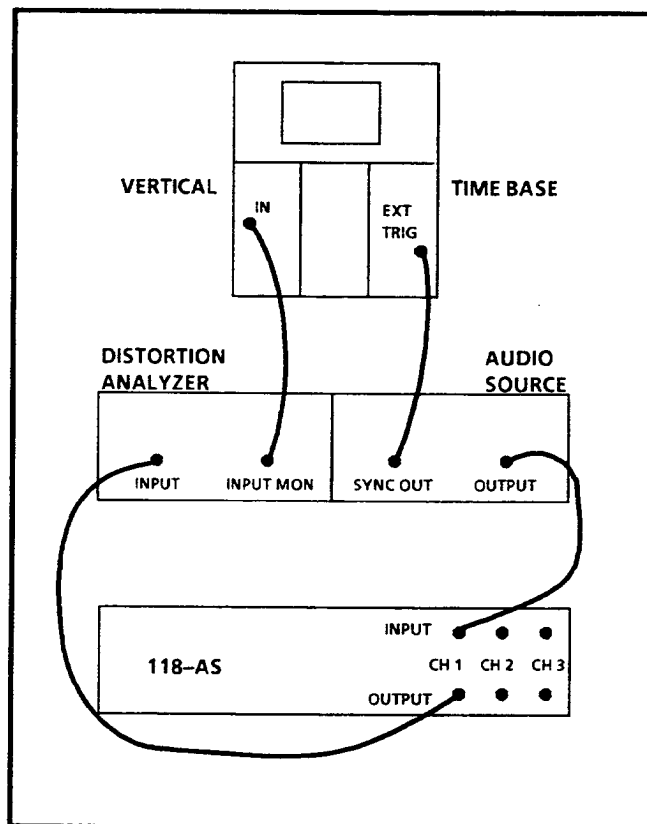


Fig. 6-1. Equipment hookup for Performance Check and Calibration Procedures.

## PERFORMANCE CHECK PROCEDURE

Check that all 118-AS circuit board jumpers are in the normal positions, which are identified by box outlines.

Check the 118-AS for proper fuses, circuit boards correctly installed, and correct power source and power cord.

### 1. Check Line Voltage Range

(115 Vac range: 90 Vac to 132 Vac; 230 Vac range: 180 Vac to 250 Vac)

- a. Connect power to the 110-S through an autotransformer.
- b. Set the autotransformer for low line voltage output.

#### NOTE

*If the nominal mains voltage selector is changed, the correct line fuse must be installed. Refer to the power supply specifications for line fuse values.*

- c. **CHECK** — that the POWER LED (green) remains illuminated and the POWER FAULT LED does not come on as the autotransformer is varied from low line to high line voltage (ac input line voltage varied from 90 V to 132 V or 180 V to 250 V as determined by the Line Voltage selector).

### 2. Check Frequency Response

( $\pm 0.2$  dB from 50 Hz to 15 kHz and  $\pm 0.5$  dB from 20 Hz to 20 kHz referenced to 1 kHz)

- a. Set the Audio Source for a 1 kHz/24 dBm output level.
- b. Set the Distortion Analyzer to read auto-ranged rms measurements with the filters off. Press the dB Ratio button to set up a 0 dB reference.

- c. Vary the Audio Source output frequency between low and high frequency limits to check for output level variations (frequency response).

- d. **CHECK** — that the Distortion Analyzer reads within  $\pm 0.2$  dB as the Audio Source frequency is varied between 50 Hz to 15 kHz, and within  $\pm 0.5$  dB from 20 Hz to 50 Hz and 15 kHz to 20 kHz.

### 3. Check Harmonic Distortion

( $\leq 0.05\%$  from 50 Hz to 15 kHz and  $\leq 0.1\%$  from 20 Hz to 50 Hz and 15 kHz to 20 kHz with an input level of from 0 dBm to 24 dBm; IM distortion 0.1% or less SMPTE)

- a. Set the SG5010 controls for a 1 kHz/24 dBm output level.
- b. Select the THD + N, 22.4 Hz – 22.4 kHz, and Response modes on the AA5001.
- c. **CHECK** — that THD is less than 0.05% for all frequencies between 50 Hz and 15 kHz and less than 0.1% for frequencies from 20 Hz to 50 Hz and 15 kHz to 20 kHz.
- d. Select the IMD mode on the AA5001.
- e. **CHECK** — that SMPTE IM distortion at 7 kHz 24 dBm is equal to or less than 0.08%.
- f. **CHECK** — that CCIF IM distortion at 20 kHz 24 dBm is equal to or less than 0.05%.

### 4. Check Audio Gain

(Unity  $\pm 0.2$  dB)

- a. Set the SG5010 controls for a 1 kHz/24 dBm output level.

## 118-AS — PERFORMANCE CHECK PROCEDURE

- b. Select AA5001 dB Ratio and set 0 dB reference.
  - c. Switch the 118-AS to Bypass.
  - d. Check the AA5001 for a reading of  $0 \pm 2$  dB.
5. **Check Signal-to-Noise Ratio**  
(75 dB over an input level range of 0 dBm to 24 dBm)
- a. Select the THD + N mode on the AA5001.
  - b. Set the SG5010 for a 1 kHz clip level (0.5% distortion), approximately 25 dBm.
  - c. Set 0 dBm reference on AA5001.
  - d. Turn off SG5010 output.
  - e. Check the AA5001 for a reading of -95 dB or less.
  - f. Turn SG5010 output on.
6. **Check DELAY CONTROL (PROGRAM VIDEO and DELAYED VIDEO) Input Return Loss**  
(40 dB to 4.2 MHz)
- a. Connect the return loss bridge to the test scope differential comparator inputs. Connect the leveled sine-wave generator output through a 50 $\Omega$ -to-75 $\Omega$  minimum loss attenuator to the return loss bridge input connector. Set the test scope differential comparator for differential measurement, with Volts/Div set to 0.1.
  - b. Remove the 75 $\Omega$  termination from the Unknown Arm of the return loss bridge.
  - c. Set the leveled sine-wave generator for 50 kHz and adjust the amplitude for 500 mV as measured on the test scope.
  - d. Connect the return loss bridge Unknown Arm to the 118-AS DELAY CONTROL input. Terminate the other side of the DELAY CONTROL input loop-through connector with the precision 75 $\Omega$  termination for the Unknown Arm.
  - e. **CHECK** — test scope for an amplitude of 2.5 mV or less.
  - f. If the 118-AS uses more than one control input, repeat parts d. and e. of this step for the PROGRAM VIDEO and DELAYED VIDEO inputs.



## ADJUSTMENT PROCEDURE

Set up the test equipment as shown in Fig. 6-1.

Check that all 118-AS circuit board jumpers are in the normal positions, which are identified by box outlines.

Mount the Analog board on the Circuit Board Extender before applying power to the 118-AS.

### 1. Adjust DAC Compensation (C723 on the Analog board)

- a. Turn off the SG5010 output.
- b. Monitor TP722 on the Analog board with the oscilloscope.
- c. **Adjust C723** for squarest waveform corners. See Fig. 6-2.

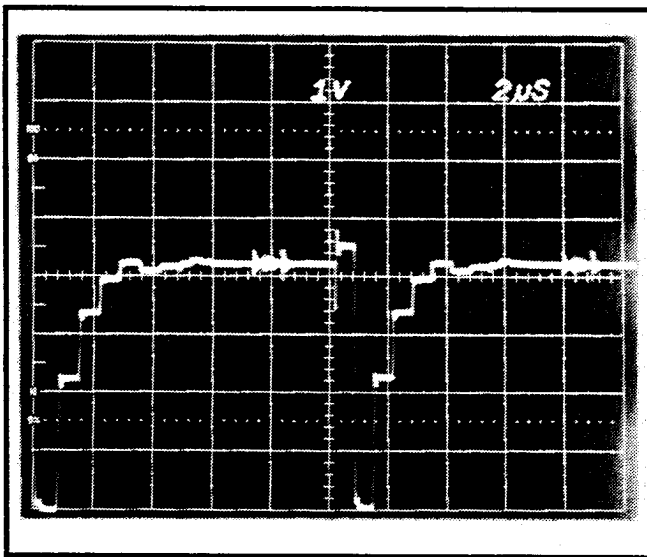


Fig. 6-2. Optimum DAC compensation occurs with squarest waveform corners.

### 2. Adjust Common Mode Rejection (R165 on the Analog board)

- a. Connect the same signal output from the SG5010 to pins 2 and 3 of the 118-AS CHANNEL 1 INPUT.
- b. Set the SG5010 for a 1 kHz/24 dBm output.
- c. Monitor the 118-AS output with the oscilloscope.
- d. **Adjust R165** for a null output.

### 3. Adjust Unity Gain (R663 on the Analog board)

- a. Connect the SG5010 output signal (normal connection) to the 118-AS CHANNEL 1 INPUT.
- b. Set the SG5010 for a 1 kHz/24 dBm output.
- c. Connect the 118-AS CHANNEL 1 OUTPUT to the AA5001 Audio Analyzer.
- d. Set the 118-AS in bypass and note the channel output level in volts (approximately 12.2 V).
- e. Set the BYPASS switch in the operate position.
- f. **Adjust R663** for the same output level noted in part d.

### 4. Adjust Frequency Response (R151 on the Analog board)

- a. Set SG5010 for 19 kHz/24 dBm output.
- b. Monitor the 118-AS output with the AA5001 Audio Analyzer.

## 118-AS — ADJUSTMENT PROCEDURE

- c. Set the 118-AS to bypass and note the channel output level in volts (approximately 11.3 V).
  - d. Set the BYPASS switch in the operate position.
  - e. **Adjust R151** for the same output level noted in part c.
- 5. Adjust Fade Timing**  
(R336 on the Analog board)
- a. Set the SG5010 for a 1 kHz/24 dBm output.
  - b. Monitor the 118-AS output with the oscilloscope. Trigger the oscilloscope externally with the signal at TP347 on the Analog board.
  - c. Set the 118-AS MANUAL DELAY switches (S604, S704, and S705 on the Digital board) for 100 ms delay.
  - d. **Adjust R336** for a complete fade to zero at the output when MANUAL DELAY is changed. (The Digital board CPU RESET will need to be pushed and released every few seconds to keep the Fade pulse.)
- 6. Adjust Minimum Distortion**  
(R755 and R444 on the Analog board)
- a. Set the SG5010 for a 7 kHz/24 dBm signal.
  - b. Monitor the 118-AS output with the AA5001 Audio Analyzer.
  - c. **Adjust R755** for minimum THD as read on the AA5001.
  - d. Change the output of the SG5010 to the SMPTE waveform.
  - e. **Adjust R444** for minimum SMPTE IMD as read on the AA5001.
  - f. Reset the SG5010 output to a 20 kHz CCIF waveform.
  - g. **Readjust R755** for minimum CCIF IMD.

# SECTION 7

## TROUBLESHOOTING

The information in this section can be used to isolate defective 118-AS assemblies. It details troubleshooting aids, outlines precautionary steps, and provides the procedures to isolate the defective assembly.

### ASSEMBLY LEVEL TROUBLESHOOTING

#### TROUBLESHOOTING PRECAUTIONS

Before attempting to troubleshoot this instrument, please read the following precautions.

##### Static-Sensitive Components

This instrument contains electrical components that are susceptible to damage from static discharge. Refer to Section 8, Maintenance, for a discussion on handling "Static-Sensitive Components."

##### Interface Connectors

The connectors on the Interface board can be permanently damaged by probe tips. If measurements are needed from an Interface board connector use the Extender board and connect to its test points.

##### Removing and Reinstalling Assemblies

The POWER switch should be turned off before assemblies are removed from or inserted in the mainframe to avoid component damage.

Care should be exercised to ensure that connectors are not damaged when circuit boards or modules are plugged in. If excessive resistance is encountered, check both halves of the connector for damage. Always make sure the circuit board or module is correctly aligned with the guide slots.

The 118-AS consists of a mainframe that contains the electrical interface and five plug-in circuit boards or modules. All of the plug-in boards and modules are available through the Tektronix Board Exchange (see Section 8, Maintenance, for an explanation of this service). The procedures here provide a method of determining which circuit board or module is defective so that the board exchange can be used or further troubleshooting can be attempted.

As with any troubleshooting method a complete evaluation of the symptoms will eliminate a number of false indications. The 118-AS has diagnostic routines built in to assist in fault isolation. In many cases the LED indicators point directly to the fault, making assembly isolation easy. However, there are some exceptions; the following paragraphs are used to augment the observed diagnostic indications.

##### Front-Panel Indications

Two indicators of 118-AS operation are located on its front panel. The POWER and SYSTEM STATUS LEDs provide an initial indication that an operating fault has occurred. The POWER LED runs off the +5V supply, which is the reference supply for the other supplies. If this indicator is off a power fault has definitely occurred. The SYSTEM STATUS LED can be driven from a number of sources and serves as an instrument or incoming signal fault warning. If the POWER LED is off or the SYSTEM STATUS LED is flashing, open the front panel and check for further symptoms.

**Internal Indications**

The front of the Power Supply module and the Analog and Digital circuit boards have diagnostic LEDs to identify a number of fault areas. POWER and SYSTEM STATUS LEDs are paralleled on the front of the Power Supply module. In the following, indicators are grouped according to the module or board on which they reside.

**Fault Isolation**

The following text and associated tables are designed to isolate any 118-AS circuit fault to a particular module or circuit board. Fig. 7-1 shows the location of the diagnostic indicators used for fault isolation.

If any measurement of Power Supply voltages is required, or the Analog circuit board is suspect the Analog circuit board should be placed on the extender. See Section 9 for more information about the Circuit Board Extender.

**Power Supply**

The 118-AS Power Supply consists of two separate modules that plug together in the mainframe. The Line Filter module is loaded from the rear panel, while the other module (consisting of two circuit boards)

loads into the right front of the mainframe. Each module contains fuses, which need to be checked if all LED indicators (including POWER) are off. Table 7-1 can be used to isolate Power Supply faults.

**Digital Board**

The Digital circuit board has a set of eight LED indicators, that are used for two forms of diagnostics. See Fig. 7-1. When D7 is lit, the Digital board has a fault that prohibits it from powering up correctly. If D7 is lit, push the CPU RESET and see if the symptoms disappear. If power-up symptoms remain, the Digital board contains the fault. Table 7-2 outlines where the fault exists.

If D7 is not lit, the diagnostic LEDs are used to relay memory errors. As long as the SYSTEM STATUS LED is not lit, these LEDs are indicating specific memory errors (see Table 7-3).

The number of errors detected in each memory device can be displayed on the diagnostic LEDs. The memory device is selected via the DIAGNOSTIC switch (S304). (For example, if S304-0 and S304-1 are down and diagnostic LED D1 is lit, two errors have been detected in U253.)

DELAY LIMIT LED lit indicates that there is excessive manual delay selected. Reduce the amount of manual delay.

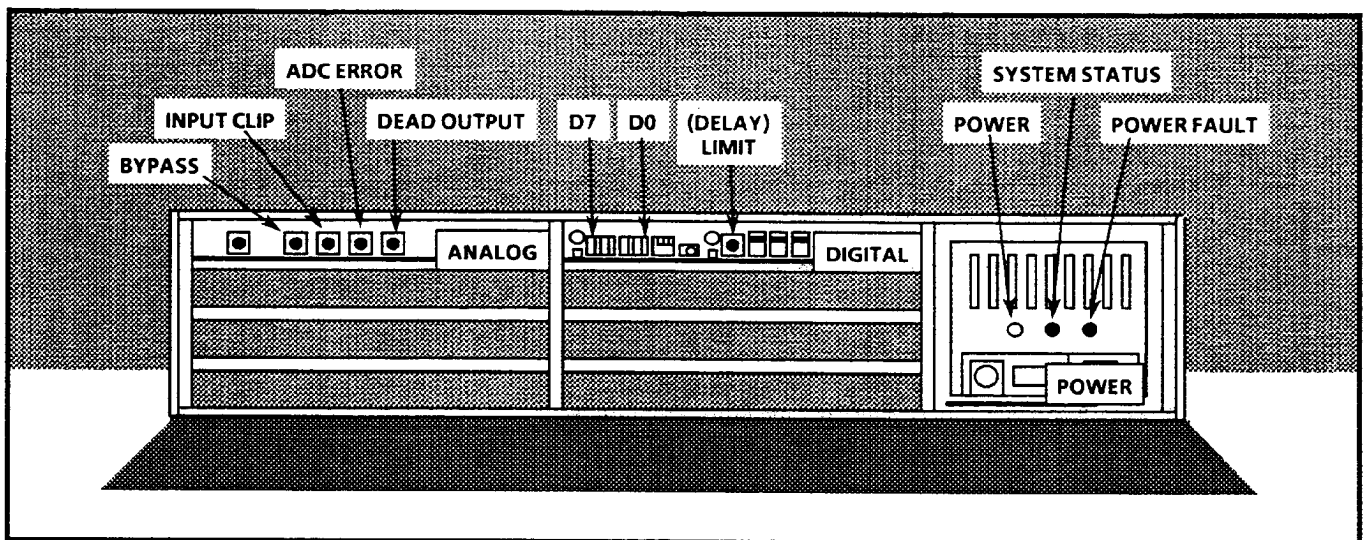


Fig. 7-1. Location of 118-AS diagnostic LED indicators.

**Table 7-1  
POWER SUPPLY FAULTS**

Indicators			Check For
POWER	SYSTEM STATUS	POWER FAULT	
off	off	off	No AC mains to 118-AS, open fuses, or POWER switch off.
off	blinking	on	Overtemperature (95°C). Check that fans are running. Shut off POWER, allow time for internal temperature to fall toward normal and turn POWER back on. Make sure there is an adequate supply of cooling air and that the filter (located on back of the front panel) is not clogged.
on	blinking	on	Power Supply operating undervolts, or a supply is being loaded by another board. Temporarily unplug Analog and Digital circuit boards, one at a time; if symptoms change, problem is on the disconnected board.

**Table 7-2  
DIGITAL BOARD POWER-UP FAULTS**

LED	Error
D7	Power-up error.
D6	Bank Select error.
D5	MSB Adders path error.
D4	LSB Adders path error.
D3	MSB Write Counter path error.
D2	LSB Write Counter path error.
D1	CPU EPROM checksum error.
D0	CPU RAM error.

**Table 7-3  
MEMORY ERRORS**

Diagnostic LED Display (HEX)	Memory Error Location	Diagnostic LED Display (HEX)	Memory Error Location
01	U152	0B	U168
02	U252	0C	U268
03	U253	0D	U269
04	U352	0E	U368
05	U452	0F	U468
06	U160	10	U176
07	U260	11	U276
08	U261	12	U277
09	U360	13	U376
0A	U460	14	U476

**Analog Circuit Board**

The Analog circuit board has four indicators, including the BYPASS LED. Table 7-4 provides methods of determining the cause of the error that has turned on the indicator. The SYSTEM STATUS LED will blink when any Analog board LED is lit.

**Diagrams**

Block and circuit diagrams are generally used the most for troubleshooting. The circuit number and electrical value of each component are shown on the diagrams (see the first page in the Diagrams section for a definition of the reference symbology used to identify components in each circuit). The Replaceable Electrical Parts List gives a complete description of each component.

**TROUBLESHOOTING AIDS**

**Foldout Pages**

The foldout pages at the back of the manual contain information useful for troubleshooting the instrument. Block and schematic diagrams, waveforms, circuit board illustrations, assemblies interconnection tables, and parts locating charts are located on the foldout pages. See Fig. 7-2.

**NOTE**

*Check the Change Information section at the rear of the manual for corrections and modifications to this instrument and manual.*

**Circuit Board Illustrations**

Electrical components, connectors, and test points are identified on circuit board illustrations located on the back of a preceding diagram.

**Table 7-4  
ANALOG BOARD FAULTS**

Indication	Look For
DEAD OUTPUT LED lit	Input signal to channel. If present, move J445 (red) to the 2-3 position and check that the output matches the input and the LED turns off. If the LED stays on, the fault is on the Analog board. 1) If changing the jumper turns off the LED, check for an input to the Sample and Hold, TP215. If input is not present, the fault is on the Analog board. 2) Check for DAC data being returned from the Digital board. Check data lines for moving data while <u>DAC WR</u> is low. If not, error is on the Digital board. 3) Now, check for output of the Output Sample and Hold, TP546. If missing, fault is on the Analog board.
ADC ERROR LED lit	Fault is on the Analog circuit board.
INPUT CLIP LED lit	Input signal level excessive.
BYPASS LED lit	Check for other lit LEDs. If the BYPASS LED is lit, the REMOTE BYPASS or CHANNEL BYPASS switch is thrown.

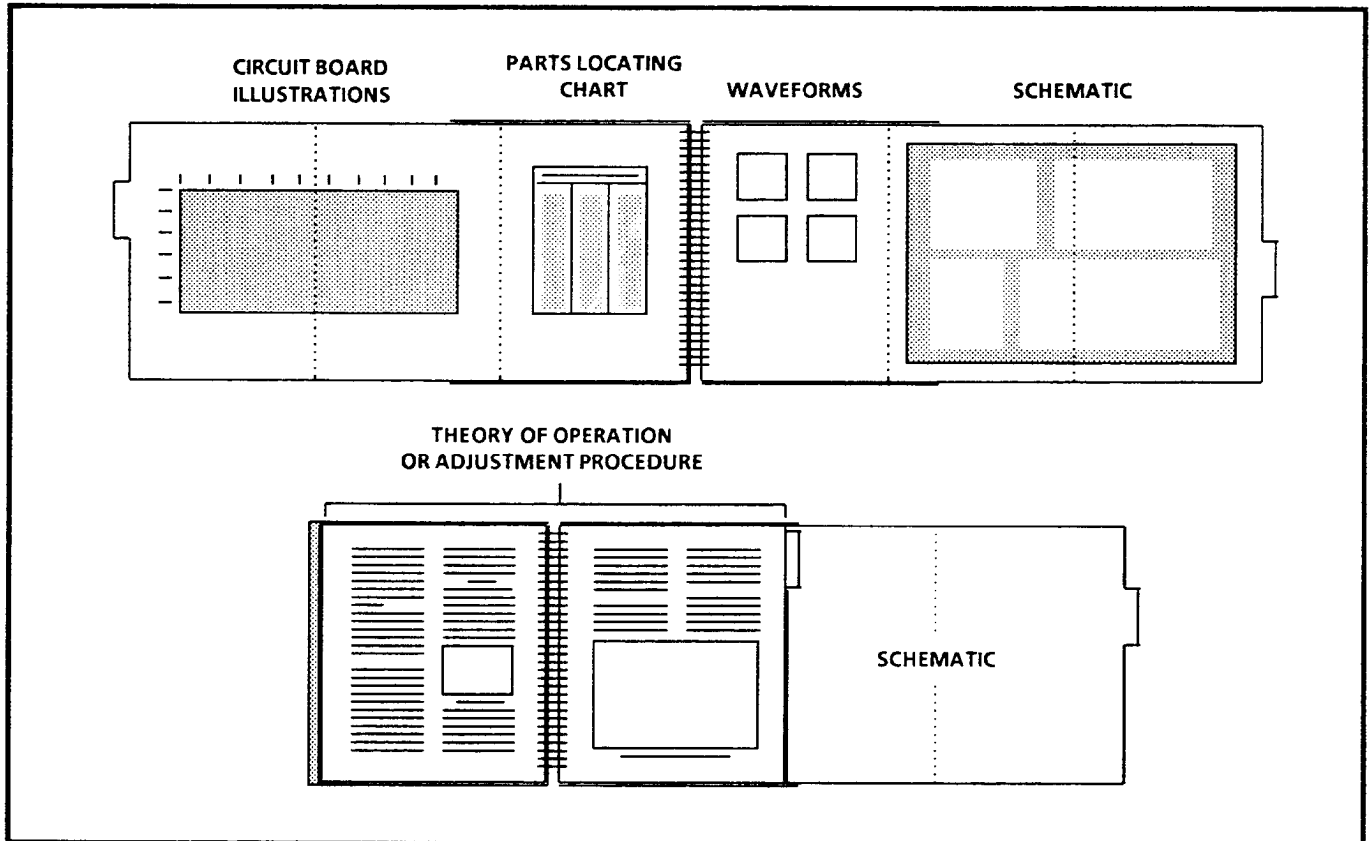


Fig. 7-2. Using the manual foldout pages.

### Parts Locating Charts

The schematic diagrams are assigned location grids. A parts locating chart for each assembly gives grid locations of components on the schematic diagram.

### Multipin Cable Connectors

The front panel and two of the boards in the Power Supply module are interconnected through multipin connectors. The connector holder has an identification mark (a triangle or dot) to designate terminal number 1. A triangular key symbol is located on the circuit board to identify pin 1.





# SECTION 8

## MAINTENANCE

The maintenance information in this section is divided into three major categories: Preventive Maintenance, Corrective Maintenance, and Replacement/Disassembly Instructions. Section 7 of this manual contains the troubleshooting information.

Preventive Maintenance involves cleaning, lubricating, and inspecting the instrument. Corrective Maintenance discusses corrective measures. The Replacement/Disassembly Instructions are procedures for removing major assemblies.



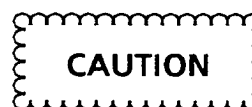
*The multi-layer circuit boards used in the 118-AS contribute to the accuracy and signal quality of the instrument. They REQUIRE SPECIAL CARE. Before soldering refer to "Soldering/Desoldering Techniques" later in this section.*

### PREVENTIVE MAINTENANCE

The preventive maintenance schedule should be based on the amount of use and surrounding environment. Under average conditions a preventive maintenance check should be performed every 2000 hours of instrument operation (severe environmental conditions may shorten the time interval).

#### Cleaning

Dust accumulation forms an insulating blanket, preventing proper cooling, and possibly causing overheating and component breakdown. Under high humidity conditions this dust can become an electrical conduction path.



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

**Exterior.** Remove dust with a soft cloth or small paint brush. Hardened dirt can be removed 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. Any remaining dust can be removed with a small paint brush, followed by swabbing with a soft cloth dampened in a mild detergent and water solution.

**Air Filter.** The filter element is located between the back of the front panel and the aluminum EMI (electromagnetic interference) shield. It should be washed or replaced when it shows a significant build up of dust or grime.

To clean or replace the filter element, unplug the cable from the front-panel LED board and remove the four screws along the center of the EMI shield. Lift the EMI shield and filter element out. The part number of the filter element is in the Replaceable Mechanical Parts List of this manual.

**Lubricating**

The gold plated surfaces of the connector contacts between the Line Filter assembly and the Power Supply module should periodically be lubricated. Apply a contact cleaner and lubricant, such as "No Noise," to the connector contacts of the Power Supply, Line Filter assembly, and Rectifier board. Remove both the Line Filter assembly and the Power Supply module from the 118-AS. (See Replacement/Disassembly Instructions later in this section.)

**Visual Inspection**

Visual inspections during preventive maintenance may show signs of damage, scorched components, and loose or disconnected pin connectors. If any heat-damaged parts are discovered, try to determine the cause of the overheating before they are replaced.

**Static-Sensitive Components**

This instrument contains semiconductor components that are susceptible to damage from static discharge. Static voltages of 1 kV to 30 kV are common in unprotected environments. **NOTE:** a static discharge of less than 2 kV is seldom felt.

**Performance Checks and Readjustment**

Instrument performance should be checked on a regular basis, to ensure operation within Performance Requirements and to assist in locating defects that may not be apparent during regular operation. The Performance Check is in Section 6, Performance Check and Adjustment Procedures.

Failure to perform within the limits stated in a Performance Check step indicates a need for readjustment. Section 6 contains the Adjustment Procedure.

**CORRECTIVE MAINTENANCE**

**Tektronix Services**

Tektronix has two service options for the 118-AS. The Priority Module Exchange provides quick response for customers with critical down time requirements. If rapid "turnaround" is not necessary, Repair and Return may be more appropriate.

**Module Exchange Services.** Once a faulty module is identified it can be exchanged for a properly functioning module. Table 8-1 provides a list of the 118-AS modules covered by Module Exchange.

**Table 8-1  
118-AS MODULES COVERED  
BY EXCHANGE SERVICES**

Module	Tektronix Part Number
Analog Board (A1)	670-8453-XX
Digital Board (A2)	670-8454-XX
Power Supply (A4)	670-8455-XX
I/O (A6)	610-0349-XX
Fan Assembly (A7)	610-0426-XX
Line Filter (A8)	610-0425-XX

**Priority Module Exchange Service (U.S. Customers)**

To obtain a properly operating module, call the Tektronix Module Exchange Center between the hours of 6:00 AM to 5:00 PM (Pacific Time) Monday through Friday. The telephone number is:

**1-800-TEKWIDE, Ext. BV5799  
or  
1-800-TEKWIDE, Ext. MR8600  
for Service Assistance**

**SERVICE DURING WORKING HOURS.** If the phone call is made between 6:00 AM and 5:00 PM (Pacific Time), the Tektronix Module Exchange Center will confirm that a proper operating module is available. That module will be sent within 48 hours from the confirmation. The majority of the modules will be sent well within 24 hours of your request.

Shipment of the module will be made via priority or express one-day or overnight delivery service. After you have received the replacement module, the faulty module must be returned immediately to Tektronix via prepaid common carrier freight. Use the packaging material from the replacement module and the furnished label to prepare the faulty module for return shipment. The furnished shipping label will have this address printed on it:

**Tektronix, Inc.  
Attn: Module Services  
78-099  
Howard Vollum Park  
Beaverton, Oregon 97077**

**SERVICE CHARGE.** A standard fee will be charged for each out-of-warranty module exchanged and will be quoted when the exchange module is requested. If the faulty module is not received at the Module Center within 15 days after the request for the proper operating module, the full catalog price of the module will be invoiced.

Exchanged modules received at the Module Exchange Center that will not be accepted are as follows: a) damaged from repair attempts by personnel other than Tektronix representatives, b) damaged from improper use or connection to incompatible equipment, c) modified by the customer, or d) custom modified from Tektronix. In these cases, the full catalog price of the module will be invoiced.

The Module Exchange Center can provide further details on pricing, invoicing, and shipping methods.

### **Repair and Return Module Exchange Service (U.S. Customers)**

For customers not requiring the quick turnaround of the Priority Module Exchange Service, modules should be returned to:

**Tektronix, Inc.  
Attn: Module Services  
78-099  
Howard Vollum Park  
Beaverton, Oregon 97077**

The module will be repaired and returned to the customer. The repair turnaround inside the Module Exchange Center is approximately 10 working days. Standard fees are charged for each module repaired and restrictions similar to those for the Priority Exchange apply. Refer to repackaging instructions in this section for module packing instructions. Call the Module Exchange Center, 1-800-TEKWIDE, Ext. BV5799, if you need further exchange service information.

The Interconnect board (A5) is not covered by the exchange service. If it is defective, it can only be replaced.

### **Other Service and Assistance (U.S. Customers).**

The Factory Service Center is the only U.S. Tektronix location providing 118-AS service, for those who would rather have Tektronix service the product.

For those customers maintaining the 118-AS, all inquiries for modules or technical assistance must be directed to the Factory Service Center, 1-800-TEKWIDE, Ext MR8600.

**Service for Customers Outside The U.S.** Outside the United States contact the local Tektronix sales subsidiary or distributor for details on servicing the 118-AS.

**Repackaging For Shipment**

To ship an instrument or assembly to the Tektronix Factory Service Center for repair, attach a tag showing:

- owner (with address) and name and phone number of another individual (at place of business)
- complete instrument serial number (for instrument only)

- a description of the service required

For shipping, repackage the instrument or assembly in the original manner for maximum protection (see Fig. 8-1 through Fig. 8-4). If the original packaging is unfit for use or not available, contact the local Tektronix field office or representative for ordering new shipping cartons.

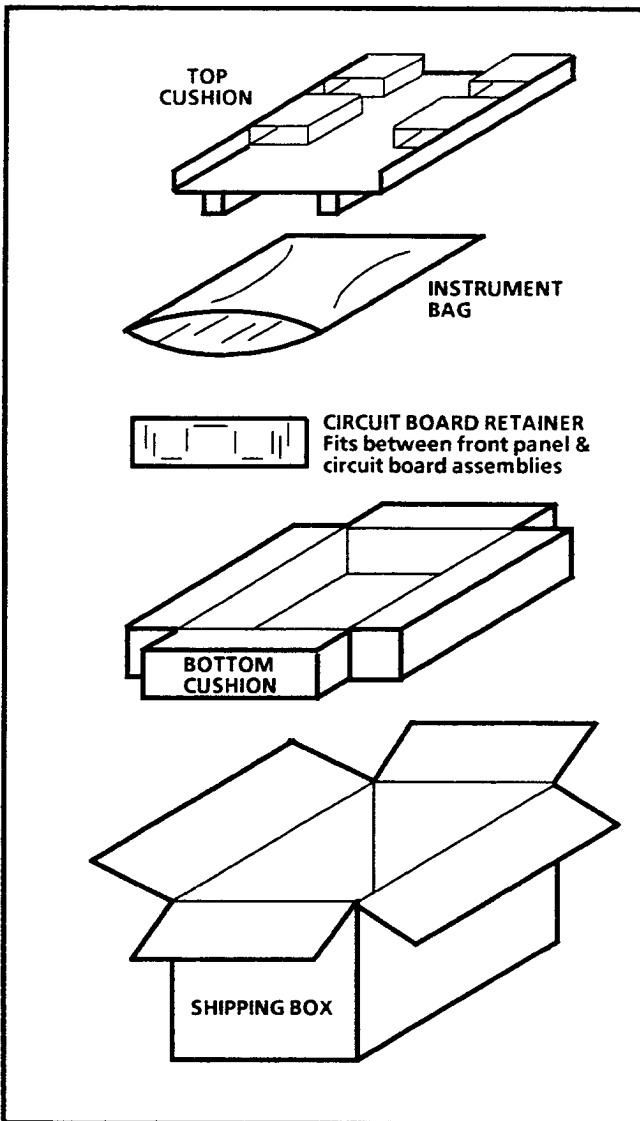


Fig. 8-1. Repackaging the instrument for shipment.

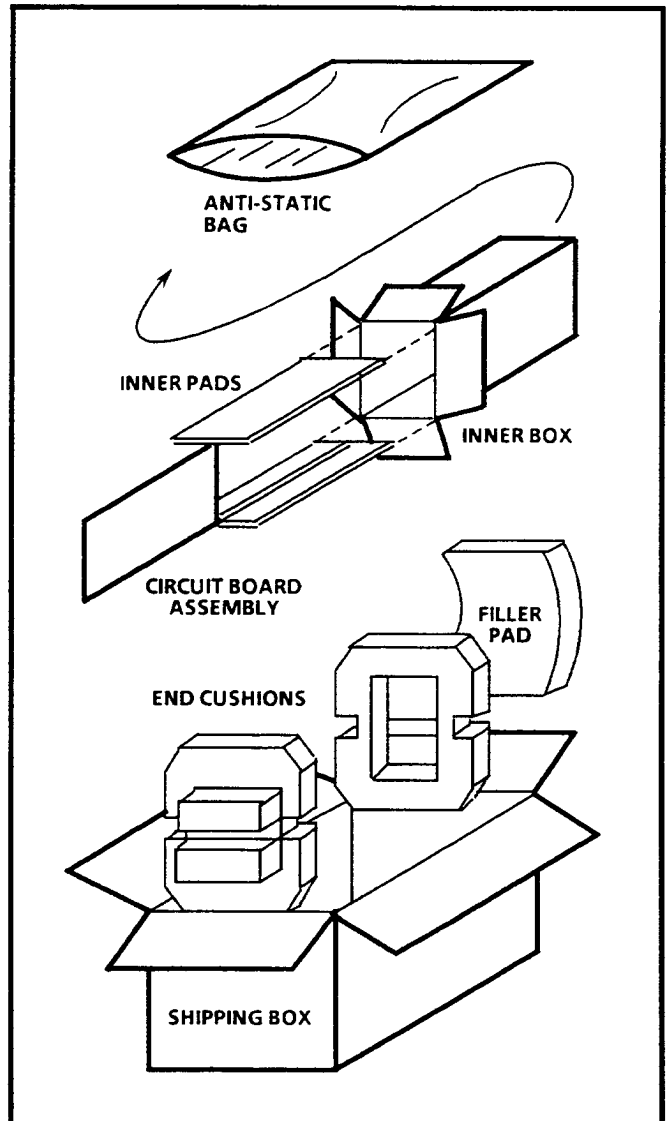


Fig. 8-2. Repackaging circuit board assemblies for shipment.

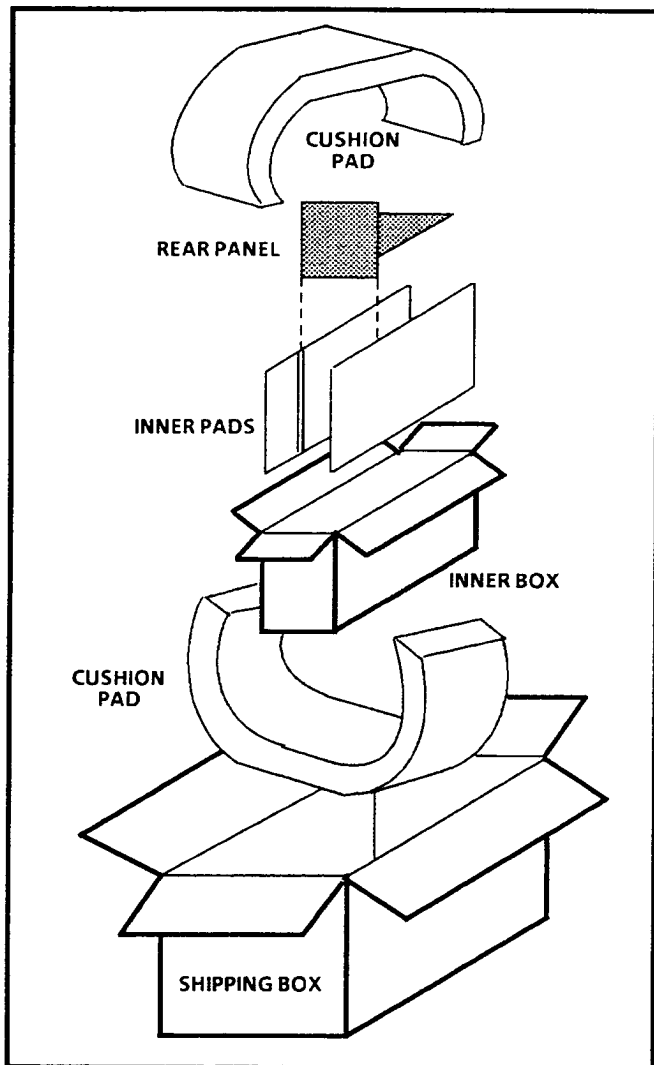


Fig. 8-3. Repackaging I/O or Line Filter assemblies for shipment.

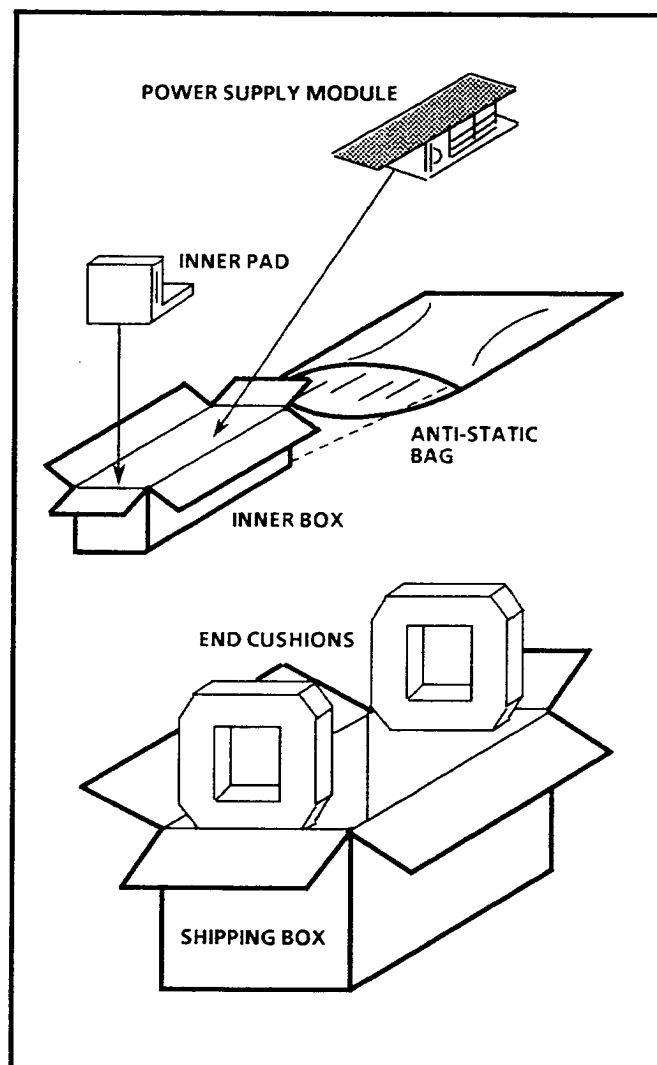


Fig. 8-4. Repackaging Power Supply module for shipment.

### Replacement Parts

Replacement parts are available from or through the user's local Tektronix field office or representative.

Parts lists for Tektronix instruments are sometimes changed to accommodate improved components or to provide the benefit of the latest circuit improvements. Therefore, it is important to include the following information when ordering parts:

1. Tektronix part number
2. Description of the part (if an assembly, include the assembly number)
3. Instrument type and serial number
4. Any option and modification number (if applicable)

Circuit readjustment may be required after a part has been replaced.

**Selected Components.** There are no selected components in the 118-AS.

## Soldering / Desoldering Techniques

Due to the complexity of the instrument, the circuit boards are multilayer with small pads. Extreme care needs to be exercised in soldering (and desoldering) components on the boards. Avoid excessive heat; apply only enough heat to remove the component or to make a good solder joint quickly.

### WARNING

*Disconnect the instrument from its power source before replacing or soldering components.*

### CAUTION

*Only an experienced maintenance person, proficient in soldering techniques, should attempt to repair any of the boards in this instrument.*

### Soldering Iron

Desoldering and removing parts is especially critical and should be done with a temperature limiting soldering iron, preferably in the 30 to 40-watt range, such as the Weller soldering station (WTCPN) with the TC201 iron. A chisel (screwdriver) edge soldering tip should be used.

The width of the tip should be slightly less than the diameter of the pad on the circuit board. Use a number 7 iron-clad tip to obtain and maintain the proper tip temperature (on large ground planes a number 8 tip should be used).

The following soldering techniques should be used to replace a component on any of the circuit boards:

### NOTE

*Some components are difficult to remove due to a bend placed in each lead during machine insertion. The bent leads hold the component in position during the*

*solder-flow process. To make removal of machine inserted components easier, use a small screwdriver or pliers to straighten the component leads on the back of the circuit board.*

When removing multi-lead components that are rigid, cut component leads and unsolder each lead from the board individually. Do not try to unsolder ICs with leads intact. When removing the leads do not heat adjacent pads consecutively. Allow circuit board to cool before proceeding to the next pin.

### Part Replacement Procedure

1. Grip the component lead with thin long-nose pliers. Touch the end of the soldering iron tip to the lead and the flat surface of the chisel edge to the pad on the circuit board.

### CAUTION

*Excessive heat can cause the circuit board runs to separate from the board base material. Never allow the solder iron tip to remain on the circuit board pad for more than two seconds. If the job is not complete within this time, allow the board to cool for a few minutes before reapplying heat.*

2. When the solder melts, pull the lead out gently. If the hole is filled with solder it may be removed with a vacuum-type desoldering tool.
3. Bend the leads of the replacement components to align with the holes in the circuit board. Insert the leads into the holes in the board so that the component is firmly seated against the board, or as originally positioned.
4. Touch the iron to the connection and apply enough solder to make a firm solder joint. Use rosin-core solder, 63% tin and 37% lead.
5. Do not scrape away flux. Use a good quality flux solvent to remove flux from around the solder joint. Be careful not to remove information printed on the circuit board.

## Replacement / Disassembly Instructions

### NOTE

The twelve TORX® screws on the front top and bottom covers (see Fig. 8-5) of the 118-AS form the structure of the instrument. These covers should not be removed for access to internal assemblies.

TORX® is a registered trademark of Camcar Screw & Mfg.

### Replacing the Front Panel

The front panel of the 118-AS can easily be removed. Lower the front panel and unplug the cable connecting the front-panel LED board to the front of the Power Supply module. Once the cable has been removed, loosen the screw at the front of each side panel. See Fig. 8-6. When the screws have been loosened, pull the front panel forward. It should remove easily; if not, loosen the screws further. (No damage will occur if the screws are removed.)

To reinstall the front-panel assembly, reverse the process.

### Replacing Front-Mounted Circuit Board Assemblies

Three types of assemblies are mounted from the front of the 118-AS: the Analog boards, the Digital boards, and Power Supply module. The extractor, on the front of each circuit board assembly, should always be used to disengage the assembly from the instrument.

### CAUTION

The plug connectors used to mate the circuit board assemblies to the 118-AS Interconnect board were selected for their reliability, care must be taken not to damage them.

All circuit board assemblies contain static-sensitive devices. Refer to the static-sensitive parts discussion earlier in this section.

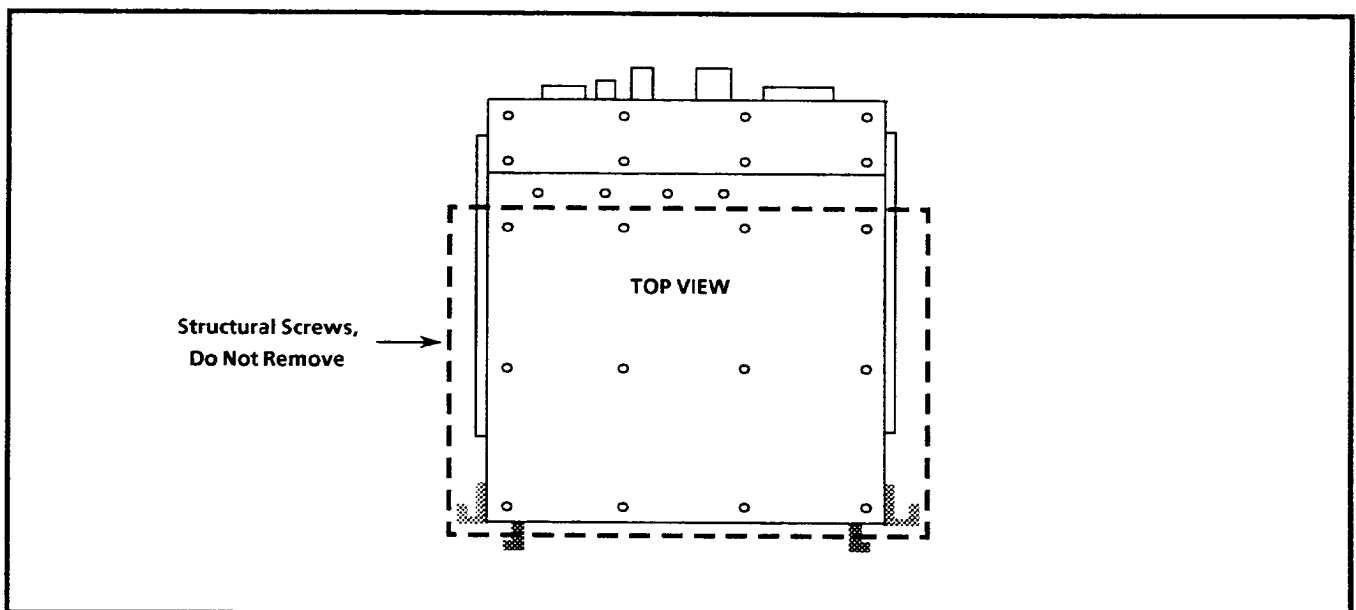


Fig. 8-5. Front top and bottom panels provide structural support for the 118-AS. The 12 structural screws (both top and bottom) do not need to be removed for any normal maintenance operation.

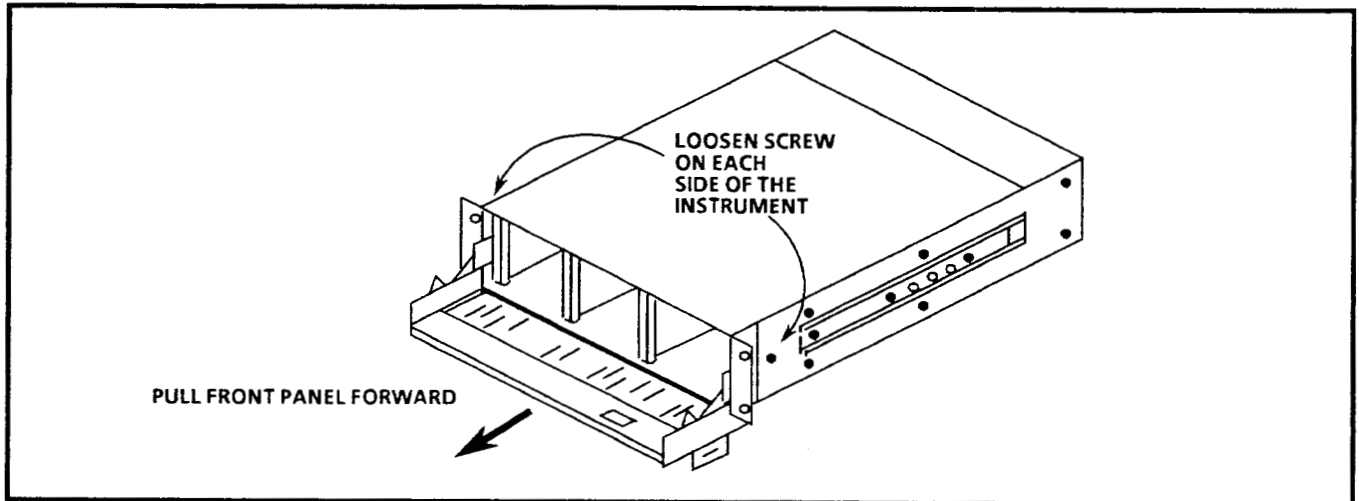


Fig. 8-6. Removing the front panel.

To reinstall circuit board assemblies from the front of the instrument, place the board in the correct slot (see label behind the front panel) and carefully slide it in. Assemblies should slide in smoothly with only a slight amount of resistance encountered when the connectors meet. If resistance seems excessive, pull the assembly all the way out and check the slots and connectors for foreign material or damage. The extractor will automatically latch with the extrusion when the interconnecting sockets mate.

To reinstall the Power Supply module, slide it into the mounting slots in the extrusions and push all the way in. The extractor will automatically latch with the extrusion when the interconnecting sockets mate.

### Replacing the Line Filter Assembly

The Line Filter assembly is located on the left-hand side of the rear panel. Remove the power cord and the screws in the four corners of the assembly panel. Pull the Power Supply module forward to disconnect it from the Line Filter assembly. The Line Filter assembly is now free and can be pulled out of the 118-AS rear panel.

### Replacing the I/O (Input/Output) Assembly

The I/O circuit board, with its connectors and panel, is located at the right-hand side of the 118-AS rear panel. Remove the screws in the corners of the assembly panel and pull the I/O assembly straight out.

(The I/O circuit board plugs into the rear of the Interconnect circuit board.)

**Replacing the Fan.** Remove the I/O and Line Filter assemblies to expose the two screws securing the fan assembly to the rear section of the instrument (see Fig. 8-7). Remove these two screws and pull the fan assembly part way out to expose the leads and their plugs; disconnect the plugs and pull the fan assembly the rest of the way out.

### Replacing the Interconnect Circuit Board

Only the rear top cover needs to be removed to access the Interconnect circuit board. Leave the other covers in place to ensure that the 118-AS remains rigid and circuit boards do not bind.

The following procedure should be used to remove and replace the 118-AS Interconnect circuit board. See Fig. 8-8.

1. Disconnect all signal cables and the power cord.
2. Disengage the front-loaded circuit boards and the Power Supply module from the mounting sockets on the Interconnect board. (Shields cannot be removed.)
3. Remove the nine POZIDRIV® screws holding the top rear cover in place. See Fig. 8-8.

*POZIDRIV® is a registered trademark.*



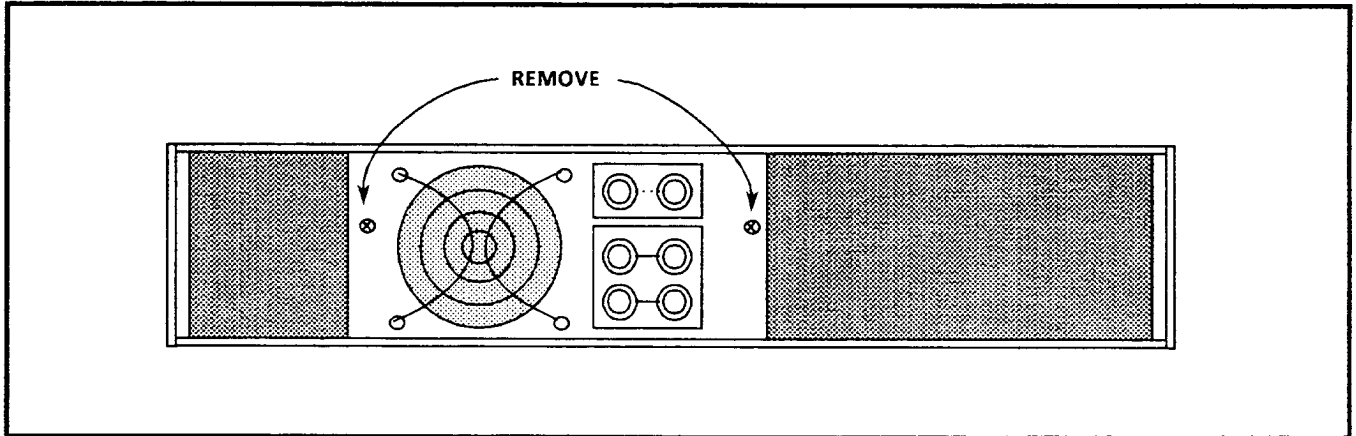


Fig. 8-7. Screws securing fan assembly to 118-AS mainframe.

4. Remove the I/O assembly.
5. Remove the Line Filter assembly.
6. Remove the four POZIDRIV screws that hold the two fan-assembly extrusions from the bottom panel.
7. Remove the four top and four bottom TORX screws holding the Interconnect circuit board in place (see Fig. 8-8). Pull the board back and out from the bottom. A TORX screwdriver with a T-10 point tip can be ordered (Tektronix Part No. 003-0814-00).

To reinstall the Interconnect circuit board reverse the above procedure.

#### Replacing Integrated Circuits

When removing or replacing integrated circuits (ICs) in sockets, pull or pry slowly and evenly on both ends. Try to avoid having one end of the device disengage from the socket before the other, as this may damage the leads. Avoid forcing the leads into the socket when reinserting; always align the leads prior to attempting to seat them in the socket.

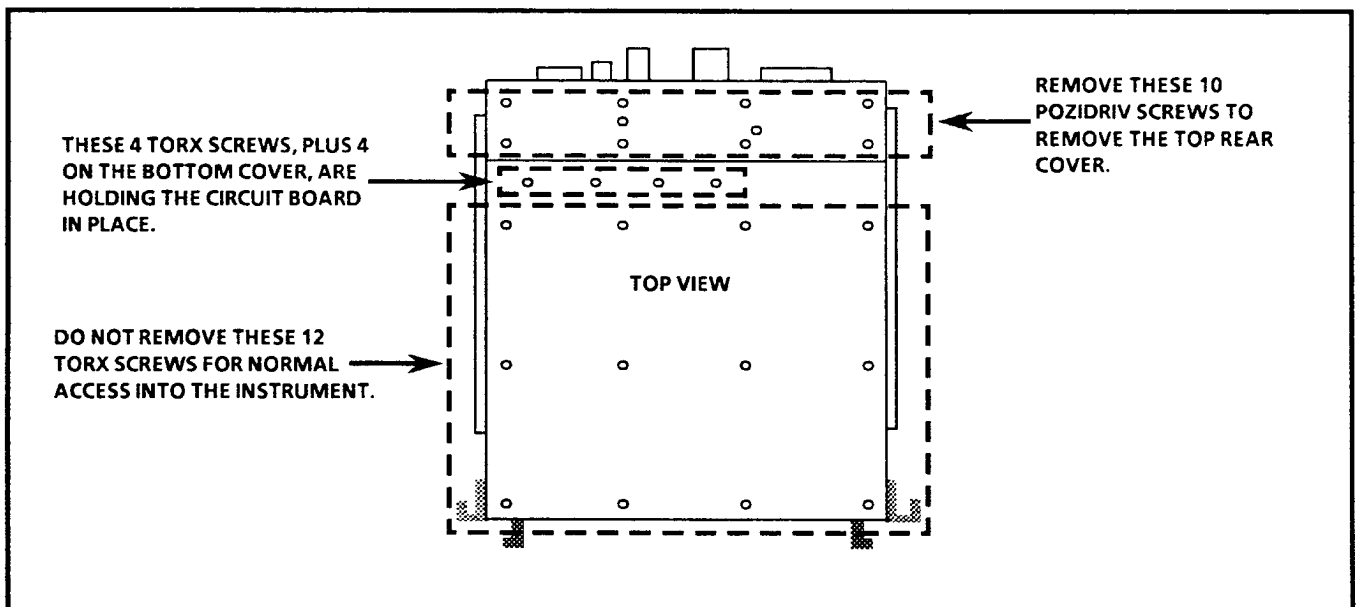


Fig. 8-8. Removing the screws securing the 118-AS Interconnect circuit board.

Soldered Dual and Single In-Line Packages. To avoid damaging the circuit board that is being replaced cut all the leads next to the body of the device. Then individually unsolder each lead from the circuit board.

#### **Circuit Board Interconnect Sockets**

The interconnect sockets on the plug-in circuit board assemblies can be replaced. However, the sockets on the Interconnect circuit board cannot because of the amount of heat required to remove them. The Interconnect assembly should be replaced if a socket is defective.

The procedure to remove and replace an interconnecting socket from an etched circuit board assembly is similar to removing any other soldered-in component.

1. Cut the socket leads as near the body of the socket as possible.
2. Unsolder each lead individually from the circuit board.
3. Remove as much solder as possible from the mounting hole.
4. Install the new socket and solder it in by applying heat primarily to the socket lead near the circuit board.
5. Trim the lead extending through the back side of the circuit board.

## SECTION 9

# OPTIONS

Since all applications for the 118-AS are not identical it is possible to more closely tailor this Audio Synchronizer to fit the installation.

First, there is a choice of power cords, which is the only directly orderable option. Secondly, there are optional accessories which include the 118-RC. And third, there is a Field Option kit, the 118-F01 for adding additional audio channels.

### ORDERABLE OPTIONS

#### Power Cord Options

The 118-AS is normally supplied with a 120 V/15 A power cord equipped with a standard North American three-prong power plug. See Fig. 9-1. Other power cords are available as follows:

Option A1: 220 V, 16 A power cord with the Universal European three-prong power plug.

Option A2: 240 V, 15 A power cord with the United Kingdom three-prong power plug.

Option A3: 240 V, 10 A power cord with the Australian three-prong power plug.

Option A4: 240 V, 15 A power cord with the North American three-prong power plug.

Option A5: 250 V, 6 A power cord with the Swiss three-prong power plug.

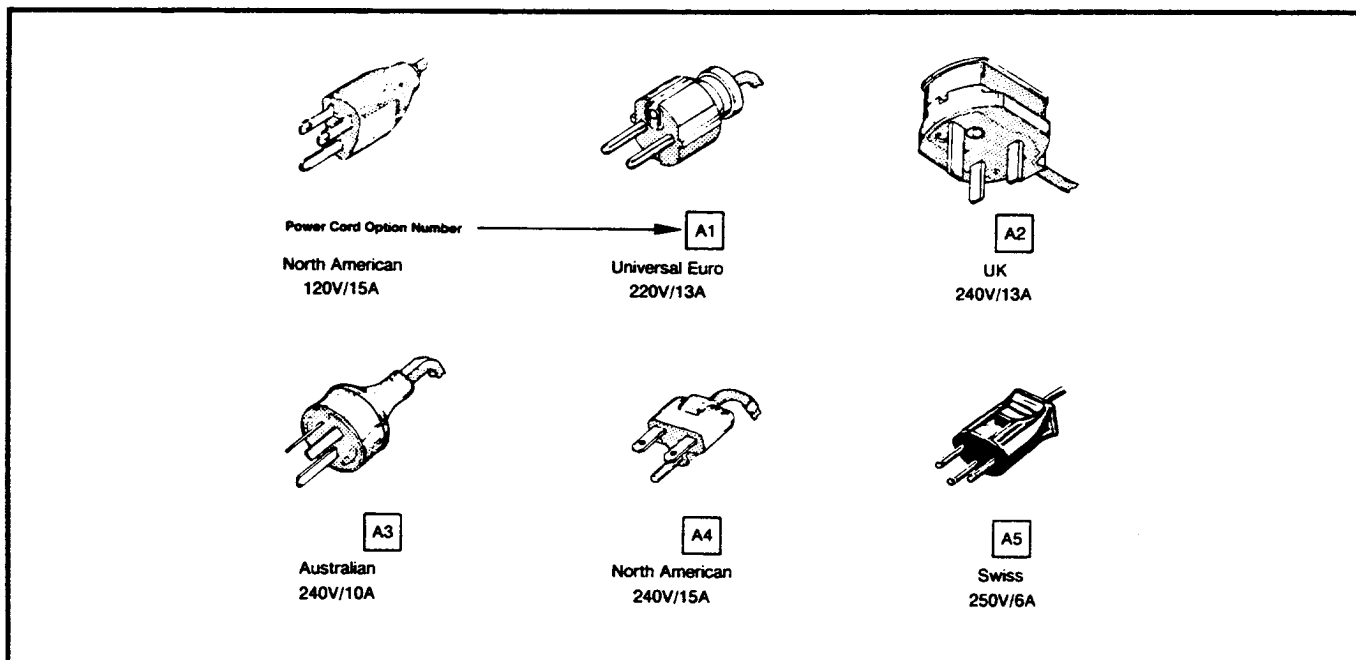


Fig. 9-1. Power plugs available for use with the 118-AS. Power cord option is specified when placing instrument order.

## OPTIONAL ACCESSORIES

### Remote Control

The TEKTRONIX 118-RC Remote Control unit can be purchased as a separate item. It provides manual delay control and Bypass control. In addition it has monitoring for the amount of delay and selected fault isolation. Appendix A in this manual contains additional information on the 118-RC Remote Control.

### Circuit Board Extender

A Circuit Board Extender for troubleshooting and calibration of circuitry on the Analog and Digital circuit boards can be purchased separately. See Fig. 9-2. It is identical to the one supplied, as a standard accessory, with the TEKTRONIX 110-S Synchronizer. Its Tektronix Part Number is 670-7754-00.

## FIELD OPTIONS

There are two field-installable options available for the 118-AS. Kits that provide extra audio channels and a kit to use the 118-AS with other synchronizers can also be ordered. Contact a Tektronix field office or representative for ordering and availability information.

### Extra Channels

The 118-F01 is a field-installable option kit that contains two plug-in circuit boards. It adds an Analog and Digital circuit board for the addition of another audio processing channel. Full information on operation is contained in this manual. Up to two F01 kits can be installed in a 118-AS.

### Video Interface (118-F02)

Not available after June, 1989. Refer to 118-F02 Instruction Sheet (P/N 062-9171-00) for information on this product.

### Ordering Field-Installable Options

To order any listed option or Field Option kits for this instrument, contact a Tektronix field office or representative. You will need to provide the following information when ordering one of the Field Installable Option (FO) kits:

- Instrument type
- Instrument serial number
- F0 number (include 118-F0#)

The serial number for the 118-AS is inside the front panel on the left side of the bottom cover.

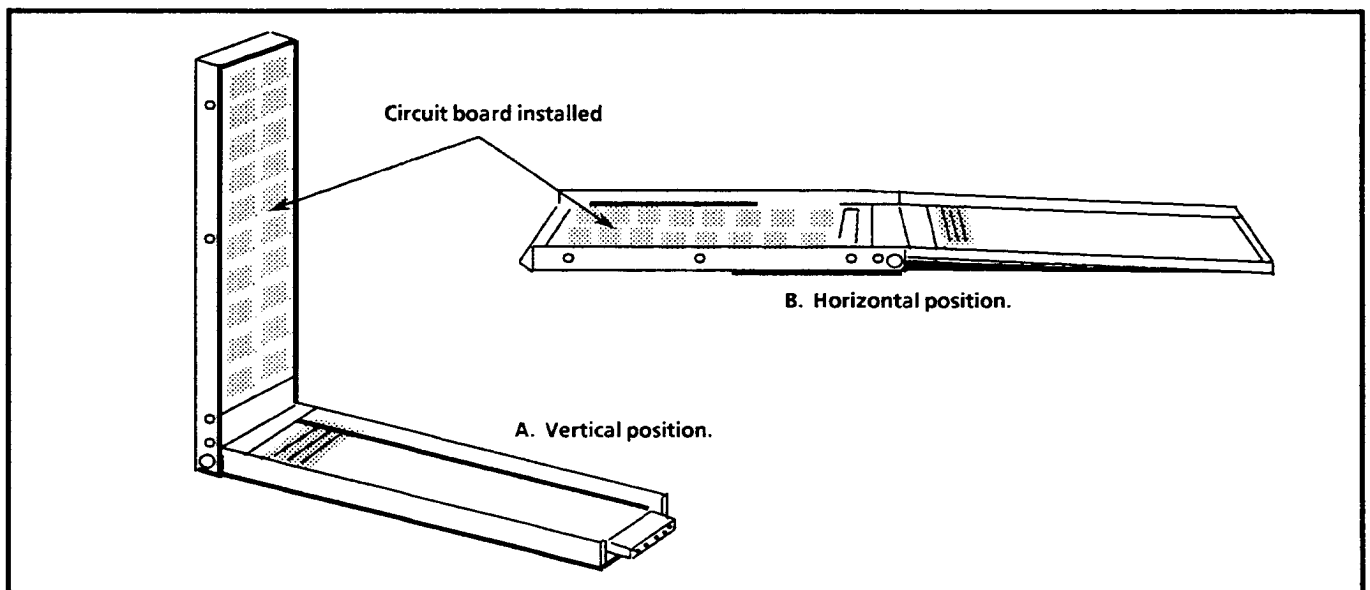


Fig. 9-2. Circuit Board Extender assembly showing the two latched positions.

## Section 10

# Replaceable Electrical Parts

This section contains a list of the components that are replaceable for the 118-AS. 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.

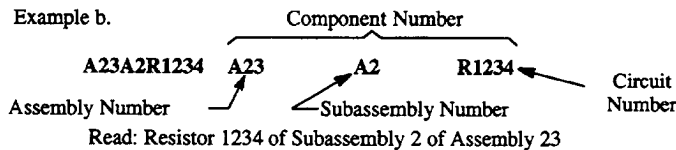
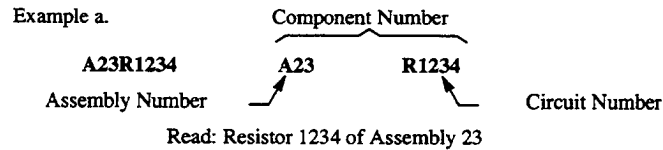
#### **List of Assemblies**

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**

<b>Mfr. Code.</b>	<b>Manufacturer</b>	<b>Address</b>	<b>City, State, Zip Code</b>
TK0213	TOPTRON CORP		TOKYO JAPAN
TK0515	EVOX-RIFA INC	100 TRI-STATE INTERNATIONAL SUITE 290	LINCOLNSHIRE IL 60015
TK0891	MICONICS	1 FAIRCHILD AVE	PLAINVIEW NY 11803
TK1031	L AND M COMPONENTS DIV OF LAMB INDUSTRIES	PO BOX 25110	PORTLAND OR 97225
TK1416	SHARP CORP	22-22 NAGAIKE-CHO ABENO-KU	OSAKA JAPAN
TK1727	PHILIPS NEDERLAND BV AFD ELONCO	POSTBUS 90050	5600 PB EINDHOVEN THE NETHERLANDS
TK1913	WIMA THE INTER-TECHNICAL GROUP IND	2269 SAW MILL RIVER ROAD PO BOX 127	ELMSFORD NY 10523
TK2292	COLUMBUS ELECTRIC MANUFACTURING CO.	147 PLYMOUTH ST PO BOX 3297	LEXINGTON OH 44904
TK2319	COLLMER	14368 PROTON RD	DALLAS TX 75244
TK2611	STACKPOLE CORPORATION	PO BOX 14466	RALEIGH, NC 27610
0AP78	A C INTERFACE INC	15560 ROCKFIELD UNIT 1E	IRVINE CA 92718
0H1N5	TOSHIBA MARCON ELECTRONICS AMERICA CORPORATION	998 FIRST EDGE DRIVE	VERNON HILLS IL 60061
0JR03	ZMAN MAGNETICS INC	7633 S 180th	KENT WA 98032
0J260	COMTEK MANUFACTURING OF OREGON (METALS)	PO BOX 4200	BEAVERTON OR 97076-4200
0LUA3	PHILIPS COMPONENTS	100 PROVIDENCE PIKE	SLATERSVILLE, RI 02876
0N0K0	CALOGIC CORP	237 WHITNEY PLACE	FREMONT CA 94539
0P569	BARKER MICROFARADS INC	PO BOX 697	HILLSVILLE VA 24343
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
01961	PULSE ENGINEERING INC	12220 WORLD TRADE DR P O BOX 12235	SAN DIEGO CA 92112
02113	COILCRAFT INC	1102 SILVER LAKE RD	CARY IL 60013-1658
04222	AVX/KYOCERA DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04426	ITW SWITCHES DIV OF ILLINOIS TOOL WORKS INC	6615 W IRVING PARK RD	CHICAGO IL 60634-2410
04713	MOTOROLA INC SEMICONDUCTOR PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
07716	IRC, INC	2850 MT PLEASANT AVE	BURLINGTON IA 52601
11236	CTS CORPORATION RESISTOR NETWORKS DIVISION	406 PARR ROAD	BERNE IN 46711-9506
11502	IRC, INC	PO BOX 1860	BOONE NC 28607-1860
12954	MICROSEMI CORP – SCOTTSDALE	8700 E THOMAS RD P O BOX 1390	SCOTTSDALE AZ 85252
13409	SENSITRON SEMICONDUCTOR DIV OF RSM ELECTRON POWER INC	221 W INDUSTRY COURT	DEER PARK NY 11729-4605

## Replaceable Electrical Parts

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
13919	BURR-BROWN RESEARCH CORP	6730 S TUCSON BLVD P O BOX 11400	TUCSON AZ 85734
14433	ITT SEMICONDUCTOR	2510 WEST 237TH ST SUITE 208	TORRANCE CA 90505
14936	GENERAL INSTRUMENT CORP POWER SEMICONDUCTOR DIV	600 W JOHN ST	HICKSVILLE NY 11802-0709
15454	KETEMA RODAN DIVISION	2900 BLUE STAR STREET	ANAHEIM CA 92806-2591
15513	DATA DISPLAY PRODUCTS	301 CORAL CIR	EL SEGUNDO CA 90245-4620
18796	MURATA ELECTRONICS NORTH AMERICA INC. STATE COLLEGE OPERATIONS	1900 W COLLEGE AVE	STATE COLLEGE PA 16801-2723
19396	ILLINOIS TOOL WORKS INC PAKTRON DIV	1205 MCCONVILLE RD PO BOX 4539	LYNCHBURG VA 24502-4535
19701	PHILIPS COMPONENTS DISCRETE PRODUCTS DIV RESISTIVE PRODUCTS FACILITY AIRPORT ROAD	PO BOX 760	MINERAL WELLS TX 76067-0760
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
22929	DALE ELECTRONICS CORP FREQUENCY CONTROL GROUP	1155 W 23RD ST	TEMPE AZ 85282-1822
24355	ANALOG DEVICES INC	1 TECHNOLOGY DRIVE	NORWOOD MA 02062
24546	DALE ELECTRONICS A VISHAY INTERTECHNOLOGY INC CO	550 HIGH ST	BRADFORD PA 16701-3737
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
26742	METHODE ELECTRONICS INC	7447 W WILSON AVE	CHICAGO IL 60656-4548
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507-2114
34333	LINFINITY MICROELECTRONICS (FORMERLY: SILICON GENERAL)	11861 WESTERN AVE	GARDEN GROVE CA 92641
34371	HARRIS CORP HARRIS SEMICONDUCTOR PRODUCTS GROUP	200 PALM BAY BLVD PO BOX 883	MELBOURNE FL 32919
4T165	NEC ELECTRONICS USA INC ELECTRON DIV	475 ELLIS ST PO BOX 7241	MOUNTAIN VIEW CA 94039
48726	UNITRODE INTEGRATED CIRCUITS CORP (UICC)	7 CONTINENTAL BLVD PO BOX 399	MERRIMACK NH 03054-0399
5Y921	COMAIR ROTRON	2675 CUSTOMHOUSE CT	SAN YSIDRO, CA 92073
50139	ALLEN-BRADLEY CO ELECTRONIC COMPONENTS	1414 ALLEN BRADLEY DR	EL PASO TX 79936
50434	HEWLETT-PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131-1008
50638	NORTHLAKE ENGINEERING INC	999 ANITA AVE	ANTIOCH IL 60002-1817
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195-4526
56708	ZILOG INC	1315 DELL AVE	CAMPBELL CA 95008-6609
56845	DALE ELECTRONICS INC	2300 RIVERSIDE BLVD PO BOX 74	NORFOLK NE 68701-2242
57668	ROHM CORPORATION	15375 BARRANCA PARKWAY SUITE B207	IRVINE CA 92718
57856	TELTEC INC	7890 12TH AVE SOUTH	MINNEAPOLIS MN 55425
58050	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907



## Replaceable Electrical Parts

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
59660	TUSONIX INC	7741 N BUSINESS PARK DR PO BOX 37144	TUCSON AZ 85740-7144
61271	FUJITSU MICROELECTRONICS INC ELECTRONICS COMPONENTS DIVISION	3545 NORTH FIRST	SAN JOSE, CA 95134-1804
61394	SEEQ TECHNOLOGY INC	47131 BAYSIDE PARKWAY	FREMONT CA 94538
61529	AROMAT CORP	629 CENTRAL AVE	NEW PROVIDENCE NJ 07974
61857	SAN-O INDUSTRIAL CORP	91-3 COLIN DRIVE	HOLBROOK NY 11741
62305	TELMOS INC	740 KIFER RD	SUNNYVALE CA 94086-5121
62643	UNITED CHEMICON INC	9801 W HIGGINS ST SUITE 430	ROSEMONT, IL 60018-4771
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
73138	BECKMAN INDUSTRIAL CORP BECKMAN ELECTRONIC TECHNOLOGIES SUB OF EMERSON ELECTRIC	4141 PALM ST	FULLERTON CA 92635
75498	MULTICOMP INC	3005 SW 154TH TERRACE #3	BEAVERTON OR 97006
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
81312	WINCHESTER ELECTRONICS DIVISION OF LITTON SYSTEMS INC	400 PARK RD	WATERTOWN CT 06795-1612
82389	SWITCHCRAFT INC SUB OF RAYTHEON CO	5555 N ELSTRON AVE	CHICAGO IL 60630-1314
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
84411	AMERICAN SHIZUKI CORP OGALLALA OPERATIONS	301 WEST O ST	OGALLALA NE 69153-1844
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	Serial / Assembly Number Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1	670-8453-00	B010100	B010171	CIRCUIT BD ASSY:ANALOG	80009	670845300
A1	670-8453-01	B010172	B020219	CIRCUIT BD ASSY:ANALOG	80009	670845301
A1	670-8453-02	B020220		CIRCUIT BD ASSY:ANALOG (118AS & 118F01 ONLY)	80009	670845302
A2	670-8454-00	B010100	B030268	CIRCUIT BD ASSY:DIGITAL	80009	670845400
A2	670-8454-01	B030269	B030277	CIRCUIT BD ASSY:DIGITAL	80009	670845401
A2	670-8454-02	B030278	B030354	CIRCUIT BD ASSY:DIGITAL	80009	670845402
A2	670-8454-03	B030355	B040399	CIRCUIT BD ASSY:DIGITAL	80009	670845403
A2	670-8454-04	B040400	B049999	CIRCUIT BD ASSY:DIGITAL	80009	670845404
A2	670-8454-05	B050000		CIRCUIT BD ASSY:DIGITAL (118AS ONLY)	80009	670845405
A2	670-8454-00	B010100	B020227	CIRCUIT BD ASSY:DIGITAL	80009	670845400
A2	670-8454-01	B020228	B020242	CIRCUIT BD ASSY:DIGITAL	80009	670845401
A2	670-8454-02	B020243	B020328	CIRCUIT BD ASSY:DIGITAL	80009	670845402
A2	670-8454-03	B020329		CIRCUIT BD ASSY:DIGITAL (118FO1 ONLY)	80009	670845403
A4	670-8455-01	B010100	B030371	CIRCUIT BD ASSY:PWR SPLY	80009	670845501
A4	670-8455-02	B030372		CIRCUIT BD ASSY:PWR SPLY	80009	670845502
A4A1	670-8658-00			CIRCUIT BD ASSY:PWR LED	80009	670865800
A5	670-8450-00			CIRCUIT BD ASSY:INTCON	80009	670845000
A6	610-0349-00	B010100	B029999	I/O ASSEMBLY:I/O	80009	610034900
A6	610-0349-01	B030000		I/O ASSEMBLY:I/O	80009	610034901
A7	610-0426-00	B010100	B029999	FAN ASSEMBLY:118AS	80009	610042600
A7	610-0426-01	B030000		FAN ASSEMBLY:118AS	80009	610042601
A8	610-0425-00			LINE FLTR ASSY:118AS	80009	610042500
A12	670-7742-00			CIRCUIT BD ASSY:LED	80009	670774200
A1	670-8453-00	B010100	B010171	CIRCUIT BD ASSY:ANALOG	80009	670845300
A1	670-8453-01	B010172	B020219	CIRCUIT BD ASSY:ANALOG	80009	670845301
A1	670-8453-02	B020220		CIRCUIT BD ASSY:ANALOG (118AS & 118F01 ONLY)	80009	670845302
A1C109	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C111	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C114	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C115	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C126	290-0290-00			CAP,FXD,ELCTL:10UF,20%,25V NPLZD (END USAGE 670-8453-00)	0P569	30D472
A1C128	290-0290-00			CAP,FXD,ELCTL:10UF,20%,25V NPLZD (BEGIN USAGE 670-8453-01)	0P569	30D472
A1C135	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C136	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C137	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAA
A1C143	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C146	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C147	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C157	283-0663-00			CAP,FXD,MICA DI:16.8PF,+0.5PF,500V (BEGIN USAGE 670-8453-01)	TK0891	RDM15CD16R8D03
A1C175	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C183	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C186	290-0290-00			CAP,FXD,ELCTL:10UF,20%,25V NPLZD	0P569	30D472
A1C187	290-0290-00			CAP,FXD,ELCTL:10UF,20%,25V NPLZD	0P569	30D472
A1C225	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C227	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C230	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C232	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C235	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C239	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C240	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C242	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1C247	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C249	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C251	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C253	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C254	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C255	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C261	283-0663-00			CAP,FXD,MICA DI:16.8PF,+/-0.5PF,500V (END USAGE 670-8453-00)	TK0891	RDM15CD16R8D03
A1C263	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C265	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C288	_____			(SELECTED)		
A1C289	_____			(SELECTED)		
A1C312	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C318	283-0663-00			CAP,FXD,MICA DI:16.8PF,+/-0.5PF,500V	TK0891	RDM15CD16R8D03
A1C319	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A1C322	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C324	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C330	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C335	283-0706-00			CAP,FXD,MICA DI:91PF,1%,500V	TK0891	RDM15FD910F03
A1C336	283-0164-00			CAP,FXD,CERAMIC:MLC:2.2UF,20%,25V,Z5U,0.40X	04222	SR403E225MAA
A1C353	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C354	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C360	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C361	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C364	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C429	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C438	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C448	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C451	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C461	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C462	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C464	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C467	283-0691-00			CAP,FXD,MICA DI:650PF,1%,300V	TK0891	RDM15FC651F03
A1C468	283-0632-00			CAP,FXD,MICA DI:87PF,1%,500V	TK0891	RDM15ED870F03
A1C487	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C512	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C513	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C517	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C518	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C520	285-0597-00			CAP,FXD,PLASTIC:0.001UF,1%,100V	84411	TEK24.001 1 10
A1C523	283-0640-00			CAP,FXD,MICA DI:160PF,1%,500V	TK0891	RDM15FD161F03
A1C542	283-0640-00			CAP,FXD,MICA DI:160PF,1%,500V	TK0891	RDM15FD161F03
A1C548	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C551	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C553	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C554	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C556	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C557	285-1142-00			CAP,FXD,PLASTIC:0.01UF,1%,200VDC	19396	103F02PP460
A1C560	290-0290-00			CAP,FXD,ELCTL:10UF,20%,25V NPLZD	0P569	30D472
A1C568	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR303E105ZAA
A1C610	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C614	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C615	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C617	283-0706-00	670-8453-02		CAP,FXD,MICA DI:91PF,1%,500V	TK0891	RDM15FD910F03
A1C618	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C619	283-0421-00	670-8453-02		CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C620	283-0421-00	670-8453-02		CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C637	285-0597-00			CAP,FXD,PLASTIC:0.001UF,1%,100V	84411	TEK24.001 1 10

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1C641	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C643	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C646	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C659	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C687	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C711	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C713	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C718	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C723	281-0221-00			CAP,VAR,CER DI:2-10PF,100V	59660	513-016 A 2.0-1
A1C725	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C729	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C730	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C744	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C745	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C746	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C747	283-0706-00			CAP,FXD,MICA DI:91PF,1%,500V	TK0891	RDM15FD910F03
A1C755	283-0649-00			CAP,FXD,MICA DI:105PF,1%,500V	TK0891	RDM15FD1050F03
A1C757	283-0649-00			CAP,FXD,MICA DI:105PF,1%,500V	TK0891	RDM15FD1050F03
A1C759	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C762	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C764	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C834	283-0637-00			CAP,FXD,MICA DI:20PF,2.5%,500V	TK0891	RDM15ED200D03
A1C842	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C850	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C864	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C876	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C881	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C891	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C897	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C910	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C911	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C950	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C957	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C964	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C977	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C981	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C991	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C997	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1J160	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J212	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J214	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J284	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J285	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J384	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J445	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J662	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1J727	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE (END USAGE 670-8453-00)	22526	48283-018

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1J751	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE (END USAGE 670-8453-00)	22526	48283-018
A1J752	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE (END USAGE 670-8453-00)	22526	48283-018
A1J990	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A1P199	131-2866-00			CONN,DIN:PCB;MALE,RTANG,3 X 32,0.1CTR,0.209 MLG X 0.104 TAIL,30 GOLD	58050	072-96114-390
A1Q324	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q325	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q325	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q332	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q332	151-0188-00	670-8453-01		XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPL	04713	2N3906
A1Q333	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q333	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q425	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q425	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q426	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q426	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q433	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q433	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q445	151-1042-00			XSTR,SIG:JFET,N-CH;6V,10-15MA,4.5MS,IDSS(1-2)<0.5MA, AMPLIFIER	04713	SPF627M2
A1Q446	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q446	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q447	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q472	151-0366-00			XSTR,PWR:BIPOLAR,PNP;45V,4.0A,40MHZ	34371	D45C12
A1Q476	151-0366-00			XSTR,PWR:BIPOLAR,PNP;45V,4.0A,40MHZ	34371	D45C12
A1Q480	151-0366-00			XSTR,PWR:BIPOLAR,PNP;45V,4.0A,40MHZ	34371	D45C12
A1Q484	151-0366-00			XSTR,PWR:BIPOLAR,PNP;45V,4.0A,40MHZ	34371	D45C12
A1Q516	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q516	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q517	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q517	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q517	151-0307-00	670-8453-02		XSTR,SIG:BIPOLAR,PNP;45V,300MA,60MHZ,AMPL,TWO DIE DUAL	80009	151030700
A1Q520	151-1103-00	670-8453-00	670-8453-00	XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE
A1Q520	151-1103-01	670-8453-01	670-8453-01	XSTR:MOSFET,N CHANNEL	62305	S0210-01-DE
A1Q520	151-1103-00	670-8453-02		XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE
A1Q523	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q523	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q524	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q524	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q535	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q535	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q536	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q536	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q536	151-0307-00	670-8453-02		XSTR,SIG:BIPOLAR,PNP;45V,300MA,60MHZ,AMPL,TWO DIE DUAL	80009	151030700
A1Q540	151-1103-00	670-8453-00	670-8453-00	XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1Q540	151-1103-01	670-8453-01	670-8453-00	XSTR;MOSFET,N CHANNEL	62305	S0210-01-DE
A1Q540	151-1103-00	670-8453-02		XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE
A1Q544	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q544	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q546	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q546	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q622	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q630	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q630	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q633	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q633	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q634	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q634	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q635	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q635	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q636	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q636	151-0188-00	670-8453-01	670-8453-01	XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q636	151-0307-00	670-8453-02		XSTR,SIG:BIPOLAR,PNP;45V,300MA,60MHZ,AMPL, TWO DIE DUAL	80009	151030700
A1Q640	151-1103-00	670-8453-00	670-8453-00	XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE
A1Q640	151-1103-01	670-8453-01	670-8453-01	XSTR:MOSFET,N CHANNEL	62305	S0210-01-DE
A1Q640	151-1103-00	670-8453-02		XSTR,SIG:DMOSFET,N-CH;ENH,2V,50MA,45OHM	0N0K0	SD210DE
A1Q641	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1Q653	151-0188-03	670-8453-00	670-8453-01	XSTR:SELECTED	80009	151-0188-03
A1Q653	151-0188-00	670-8453-01		XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A1Q663	151-1042-00			XSTR,SIG:JFET,N-CH;6V,10-15MA,4.5MS,IDSS(1-2)<0.5MA, AMPLIFIER	04713	SPF627M2
A1Q672	151-0352-00			XSTR,PWR:BIPOLAR,NPN;45V,4.0A,50MHZ,AMPLIFIER	04713	D44C12
A1Q676	151-0352-00			XSTR,PWR:BIPOLAR,NPN;45V,4.0A,50MHZ,AMPLIFIER	04713	D44C12
A1Q680	151-0352-00			XSTR,PWR:BIPOLAR,NPN;45V,4.0A,50MHZ,AMPLIFIER	04713	D44C12
A1Q684	151-0352-00			XSTR,PWR:BIPOLAR,NPN;45V,4.0A,50MHZ,AMPLIFIER	04713	D44C12
A1Q730	151-0190-05	670-8453-00	670-8453-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A1Q730	151-0190-00	670-8453-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A1R103	322-3248-00			RES,FXD,FILM:3.74K OHM,1%,0.2W,TC=T0	91637	CCF50G37400F
A1R104	322-3202-00			RES,FXD,FILM:1.24K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G12400F
A1R106	315-0303-00			RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R107	315-0303-00			RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R115	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R116	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R117	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R118	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R119	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R120	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R121	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R122	322-3193-07			RES,FXD,FILM:1K OHM,0.1%,0.2W,TC=T9	91637	CCF501C10000B
A1R123	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R124	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R125	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R126	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R127	321-0388-00			RES,FXD,FILM:107K OHM,1%,0.125W,TC=T0MI	07716	CEAD10702F
A1R128	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R132	321-1704-03			RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R134	321-0197-02			RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1R137	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R138	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R139	321-0321-00			RES,FXD,FILM:21.5K OHM,1%,0.125W,TC=T0MI	19701	5043ED21K50F
A1R141	322-3334-00			RES,FXD,FILM:29.4K OHM,1%,0.2W,TC=T0MI,SMALL BODY	57668	CRB20 FXE 29K4
A1R142	322-3194-00			RES,FXD,FILM:1.02K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2G10200F
A1R147	321-0664-00			RES,FXD,FILM:1.56K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K560D
A1R148	322-3231-00	670-8453-00	670-8453-01	RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A1R148	322-3218-00	670-8453-02		RES,FXD:METAL FILM;1.82K OHM,1%,0.2W,TC=100	91637	CCF501G18200F
A1R151	311-1757-00			RES,VAR,NONWW:2.5K OHM 10%,.5W LIN,CERMET	73138	82PR2.5K-124C
A1R153	321-1704-03			RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R154	321-0206-02			RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R156	321-0619-00			RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R158	321-0309-00			RES,FXD,FILM:16.2K OHM,1%,0.125W,TC=T0MI	19701	5033ED16K20F
A1R160	321-0309-00			RES,FXD,FILM:16.2K OHM,1%,0.125W,TC=T0MI	19701	5033ED16K20F
A1R161	321-0816-07			RES,FXD,FILM:5K OHM,0.1%,0.125W,TC=T9MI	TK1727	MPR24-2322-141-
A1R163	322-3411-00			RES,FXD,FILM:187K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G1873FT
A1R164	321-0666-07			RES,FXD,FILM:3.04K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24-2322-141-
A1R165	311-0660-00			RES,VAR,NONWW:TRMR,200K OHM,0.5W	32997	3329H-L58-204
A1R174	322-3315-00			RES,FXD,FILM:18.7K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G18701F
A1R179	321-0239-07			RES,FXD,FILM:3.01K OHM,0.1%,0.125W,TC=T9MI	19701	5033RE3K010B
A1R180	321-0239-07			RES,FXD,FILM:3.01K OHM,0.1%,0.125W,TC=T9MI	19701	5033RE3K010B
A1R206	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A1R207	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A1R208	322-3202-00			RES,FXD,FILM:1.24K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G12400F
A1R209	322-3202-00			RES,FXD,FILM:1.24K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G12400F
A1R210	322-3231-00			RES,FXD,FILM:2.49K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-1G24900F
A1R215	311-0635-00			RES,VAR,NONWW:TRMR,1K OHM,0.5W	32997	3329H-L58-102
A1R233	321-0206-02			RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R234	321-0619-00			RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R242	321-0197-02			RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D
A1R243	321-1704-03			RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R244	321-0206-02			RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R245	321-0619-00			RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R259	321-0816-07			RES,FXD,FILM:5K OHM,0.1%,0.125W,TC=T9MI	TK1727	MPR24-2322-141-
A1R260	321-0429-00			RES,FXD,FILM:287K OHM,1%,0.125W,TC=T0MI	19701	5043ED287K0F
A1R261	321-0666-07			RES,FXD,FILM:3.04K OHM,0.1%,0.125W,TC=T9	TK1727	MPR24-2322-141-
A1R274	322-3315-00			RES,FXD,FILM:18.7K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G18701F
A1R275	322-3360-00			RES,FXD,FILM:54.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G54901F
A1R277	321-0239-07			RES,FXD,FILM:3.01K OHM,0.1%,0.125W,TC=T9MI	19701	5033RE3K010B
A1R278	321-0239-07			RES,FXD,FILM:3.01K OHM,0.1%,0.125W,TC=T9MI	19701	5033RE3K010B
A1R279	321-0281-07			RES,FXD:METAL FILM;8.25K OHM,0.1%,0.125W,TC=25 PPM	19701	5033RE8K250B
A1R280	321-0281-07			RES,FXD:METAL FILM;8.25K OHM,0.1%,0.125W,TC=25 PPM	19701	5033RE8K250B
A1R281	321-0902-01			RES,FXD,FILM:4.66K OHM,0.5%,0.125W,TC=T0	19701	5033RD4K6600
A1R282	321-0731-06			RES,FXD,FILM:11.32K OHM,0.2%,0.125W,TC=T9	91637	CMF55116C11321C
A1R286	321-0731-06			RES,FXD,FILM:11.32K OHM,0.2%,0.125W,TC=T9	91637	CMF55116C11321C
A1R287	321-0902-01			RES,FXD,FILM:4.66K OHM,0.5%,0.125W,TC=T0	19701	5033RD4K6600
A1R305	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R306	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R313	321-0365-00			RES,FXD,FILM:61.9K OHM,1%,0.125W,TC=T0MI	19701	5043ED61K90F
A1R314	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R315	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R316	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R317	321-0057-00			RES,FXD,FILM:38.3 OHM,0.5%,0.125W,TC=T0 MI	TK1727	MR25 2322-151-9
A1R320	321-0067-00			RES,FXD,FILM:48.7 OHM,0.5%,0.125W,TC=T0 MI	TK1727	MR25 2322-151-9
A1R323	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R326	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R327	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=T0MI,SMALL BODY (END USAGE 670-8453-00)	91637	CCF501G499ROF

## Replaceable Electrical Parts

Component Number	Tektronix		Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
	Part Number	Effective	Discontinued				
A1R328	322-3289-00				RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R330	315-0471-00				RES,FXD,FILM:470 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R332	315-0472-00				RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R333	315-0202-00				RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R334	315-0472-00				RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R336	311-0644-00				RES,VAR,NONWWW:TRMR,20K OHM,0.5W	32997	3329H-L58-203
A1R338	315-0242-00				RES,FXD,FILM:2.4K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R339	315-0622-00				RES,FXD,FILM:6.2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R340	315-0202-00				RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R341	315-0102-00				RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R344	315-0103-00				RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R345	322-3289-00				RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A1R346	322-3216-00				RES,FXD,FILM:1.74K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G17400F
A1R354	321-0197-02				RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D
A1R358	321-1704-03				RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R359	321-0197-02				RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D
A1R362	321-0619-00				RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R363	321-0206-02				RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R366	321-1669-03				RES,FXD,FILM:5.31K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K311C
A1R367	321-1669-03				RES,FXD,FILM:5.31K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K311C
A1R368	322-3194-00				RES,FXD,FILM:1.02K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2G10200F
A1R372	315-0182-00				RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R376	315-0182-00				RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R380	315-0182-00				RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R384	315-0182-00				RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R410	307-0696-00				RES NTWK,FXD,FI:7,10K OHM,2%,0.15W EACH	11236	750-81R10KOHM
A1R415	321-0032-00				RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R416	321-0032-00				RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R417	315-0101-00				RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R418	315-0101-00				RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R423	322-3193-00				RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R424	315-0104-00				RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R425	315-0331-00				RES,FXD,FILM:330 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R426	315-0105-00				RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R427	322-3222-00				RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A1R428	322-3193-00				RES,FXD:METAL FILM;1K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10000F
A1R430	322-3297-00				RES,FXD:METAL FILM;12.1K OHM,1%,0.2W,TC=100	91637	CCF501G12101F
A1R433	315-0181-00	670-8453-00	670-8453-01		RES,FXD,FILM:180 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R433	322-3147-00	670-8453-02			RES,FXD:METAL FILM;332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A1R434	315-0103-00				RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R436	315-0680-00	670-8453-00	670-8453-01		RES,FXD,FILM:68 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R436	322-3050-00	670-8453-02			RES,FXD,FILM:32.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G32R40F
A1R437	315-0101-00				RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R442	315-0103-00				RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R444	315-0121-00	670-8453-00	670-8453-01		RES,FXD,FILM:120 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R444	322-3147-00	670-8453-02			RES,FXD:METAL FILM;332 OHM,1%,0.2W,TC=100 PPM	91637	CCF501G332R0F
A1R445	311-1280-00	670-8453-00	670-8453-00		RES,VAR,NONWWW:TRMR,1K OHM,0.5W	32997	3329S-L58-102
A1R445	311-0635-00	670-8453-01	670-8453-01		RES,VAR,NONWWW:TRMR,1K OHM,0.5W	32997	3329H-L58-102
A1R452	321-0619-00				RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R453	321-0206-02				RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R454	321-1704-03				RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R455	321-0206-02				RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R456	321-0619-00				RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R457	321-0619-00				RES,FXD,FILM:1.012K OHM,0.25%,0.125W,TC=T2	91637	CMF55116C10120C
A1R458	321-0206-02				RES,FXD,FILM:1.37K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K370D
A1R459	321-1704-03				RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R460	321-1704-03				RES,FXD,FILM:2.386K OHM,0.25%,0.125W,TC=T2	91637	CMF55116D23860C
A1R461	321-0197-02				RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D



## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1R466	321-0197-02			RES,FXD,FILM:1.10K OHM,0.5%,0.125W,TC=T2	19701	5033RC1K100D
A1R512	315-0106-00			RES,FXD,FILM:10M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R514	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R515	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R518	315-0472-00	670-8453-02		RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R519	315-0202-00	670-8453-02		RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R520	315-0362-00	670-8453-02		RES,FXD,FILM:3.6K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R523	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R524	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R525	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501G20000B
A1R526	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R527	322-3193-07			RES,FXD,FILM:1K OHM,0.1%,0.2W,TC=T9	91637	CCF501C10000B
A1R528	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R529	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R530	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R531	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R532	321-0290-00			RES,FXD,FILM:10.2K OHM,1%,0.125W,TC=T0MI	19701	5043ED10K20F
A1R533	321-0068-00			RES,FXD,FILM:49.9 OHM,0.1%,0.125W,TC=T0 MI	TK1727	MR25 2322-151-9
A1R534	322-3207-00			RES,FXD,FILM:1.4K OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G14000F
A1R535	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R536	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R537	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=T0MI	57668	RB14FXE 21E0
A1R540	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R541	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R542	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R543	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R544	315-0680-00	670-8453-00	670-8453-01	RES,FXD,FILM:68 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R544	322-3050-00	670-8453-02		RES,FXD,FILM:32.4 OHM,1%,0.2W,TC=T0MI,SMALL	91637	CCF501G32R40F
A1R547	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R560	322-3302-00			RES,FXD,FILM:13.7K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF502G13701F
A1R561	322-3371-00			RES,FXD,FILM:71.5K OHM,1%,0.2W,TC=T0	91637	CCF50G71501F
A1R562	321-0397-00			RES,FXD,FILM:133K OHM,1%,0.125W,TC=T0MI	19701	5043ED133K0F
A1R563	322-3194-00			RES,FXD,FILM:1.02K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2G10200F
A1R564	322-3318-00	670-8453-00	670-8453-01	RES,FXD,METAL FILM:20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A1R564	321-0321-00	670-8453-02		RES,FXD,FILM:21.5K OHM,1%,0.125W,TC=T0MI	19701	5043ED21K50F
A1R567	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R569	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R570	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R572	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R573	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R574	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R575	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R577	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R578	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R579	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R580	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R582	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R583	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R584	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R585	315-0220-01			RES,FXD,CMPSN:22 OHM,5%,0.25W	50139	CB2205
A1R586	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R587	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R588	322-3039-00			RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50-2-G24R90F
A1R589	322-3039-00			RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50-2-G24R90F
A1R590	322-3039-00			RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50-2-G24R90F
A1R591	322-3039-00			RES,FXD,FILM:24.9 OHM,1%,0.2W,TC=T0,SMALL BODY	91637	CCF50-2-G24R90F
A1R611	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R612	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	TK1727	SFR25 2322-181-

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1R613	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R614	311-0613-00			RES,VAR,NONWW:TRMR,100K OHM,0.5W (END USAGE 670-8453-00) (SELECTED) (BEGIN USAGE 670-8453-01)	32997	3329H-G48-104
A1R620	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R621	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R622	321-1738-07			RES,FXD,FILM:414.2 OHM,0.1%,0.125W	91637	CMF-55 116C414R
A1R623	321-1739-07			RES,FXD,FILM:585.8 OHM,0.1%,0.125W	91637	CMF-55 116C585R
A1R624	322-3164-00	670-8453-00	670-8453-01	RES,FXD,FILM:499 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G499ROF
A1R624	322-3126-00	670-8453-02		RES,FXD,FILM:200 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G200ROF
A1R625	322-3207-00			RES,FXD,FILM:1.4K OHM,1%,0.2W,TC=TOMI,SMALL	91637	CCF501G14000F
A1R626	322-3314-00	670-8453-00	670-8453-01	RES,FXD:METAL FILM;18.2K OHM,1%,0.2W,TC=100	91637	CCF501G18201F
A1R626	321-0290-00	670-8453-02		RES,FXD,FILM:10.2K OHM,1%,0.125W,TC=TOMI	19701	5043ED10K20F
A1R627	321-0068-00			RES,FXD,FILM:49.9 OHM,0.1%,0.125W,TC=T0 MI	TK1727	MR25 2322-151-9
A1R628	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G499ROF
A1R629	315-0243-00			RES,FXD,FILM:24K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R630	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R631	315-0243-00			RES,FXD,FILM:24K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R642	322-3164-00			RES,FXD,FILM:499 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF501G499ROF
A1R644	315-0362-00			RES,FXD,FILM:3.6K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R663	311-0633-00			RES,VAR,NONWW:TRMR,5K OHM,0.5W	32997	3329H-L58-502
A1R665	322-3194-00			RES,FXD,FILM:1.02K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2G10200F
A1R666	322-3334-00			RES,FXD,FILM:29.4K OHM,1%,0.2W,TC=TOMI,SMALL BODY	57668	CRB20 FXE 29K4
A1R667	321-0403-00			RES,FXD,FILM:154K OHM,1%,0.125W,TC=TOMI	19701	5043ED154K0F
A1R669	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R670	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R714	315-0274-00			RES,FXD,FILM:270K OHM,5%,0.25W (END USAGE 670-8453-00) (SELECTED) (BEGIN USAGE 670-8453-01)	TK1727	SFR25 2322-181-
A1R715	315-0822-00			RES,FXD,FILM:8.2K OHM,5%,0.25W (END USAGE 670-8453-00) (SELECTED) (BEGIN USAGE 670-8453-01)	TK1727	SFR25 2322-181-
A1R716	315-0274-00			RES,FXD,FILM:270K OHM,5%,0.25W (END USAGE 670-8453-00) (SELECTED) (BEGIN USAGE 670-8453-01)	TK1727	SFR25 2322-181-
A1R719				(SELECTED)		
A1R720	321-0270-07			RES,FXD,FILM:6.34K OHM,0.1%,0.125W,TC=T9	19701	5033RE6K340B
A1R723	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A1R724	322-3381-00			RES,FXD,FILM:90.9K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2-G9092FT
A1R725	322-3289-07			RES,FXD,FILM:10K OHM,0.1%,0.2W,TC=T9,T&R,SM BODY	91637	CCF501C10001B
A1R731	321-0116-00			RES,FXD,FILM:158 OHM,1%,0.125W,TC=T0	TK1727	MR25 2322-151-1
A1R733	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R734	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=TOMI	57668	RB14FXE 21E0
A1R735	321-0032-00			RES,FXD,FILM:21.0 OHM,1%,0.125W,TC=TOMI	57668	RB14FXE 21E0
A1R736	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R738	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A1R739	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R740	322-3173-00			RES,FXD,FILM:619 OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2F619ROF
A1R741	322-3385-00			RES,FXD:METAL FILM;100K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G10002F
A1R748	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R749	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R752	311-1282-00			RES,VAR,NONWW:TRMR,5K OHM,0.5W (END USAGE 670-8453-00)	32997	3329S-L58-502
A1R752	311-0633-00			RES,VAR,NONWW:TRMR,5K OHM,0.5W (BEGIN USAGE 670-8453-01)	32997	3329H-L58-502
A1R754	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1R755	315-0102-00	670-8453-00	670-8453-01	RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R755	315-0202-00	670-8453-02		RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R756	321-0323-00	670-8453-00	670-8453-01	RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=TOMI	07716	CEAD22601F
A1R756	322-3327-00	670-8453-02		RES,FXD,FILM:24.9K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2-G24901F
A1R768	321-1669-03			RES,FXD,FILM:5.31K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K311C
A1R769	321-1669-03			RES,FXD,FILM:5.31K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K311C
A1R770	322-3194-00			RES,FXD,FILM:1.02K OHM,1%,0.2W,TC=TOMI,SMALL BODY	91637	CCF50-2G10200F
A1R772	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R776	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R780	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R784	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R835	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R836	322-3222-07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9,SMALL BODY	91637	CCF501C20000B
A1R837	322-3385-00			RES,FXD:METAL FILM;100K OHM,1%,0.2W,TC=100PPM	91637	CCF501G10002F
A1R890	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R911	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R912	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1S305	260-2130-00			SWITCH,TOGGLE:SPDT,100MA,5VDC,0N-NONE-0N	TK1031	UT1D-2-T00-B7-N
A1T169	120-1602-00			TRANSFORMER,AUD:INSERT W/U-METAL SHIELD	50638	T82-107
A1U143	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U178	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U206	156-0411-02			IC,LINEAR:BIPOLAR,COMPARATOR	01295	LM339N
A1U218	156-0513-02			IC,MISC:CMOS,ANALOG MUX;8 CHANNEL	04713	MC14051BCP
A1U238	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U257	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U308	156-1126-03			IC,LINEAR:BIPOLAR,COMPARATOR;TI ONLY,NOT FOR NEW DESIGN,DO NOT USE	01295	LM311P
A1U320	156-1338-01			IC,LINEAR:BIPOLAR,OP-AMP;HIGH OUTPUT DRIVE,MAX NOISE SPECS	01295	NE5534AP
A1U355	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U365	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U406	156-0366-02			IC,DIGITAL:CMOS,FLIP FLOP;DUAL D-TYPE,PRESET,CLR	04713	MC14013BCP
A1U414	156-1080-01			IC,DIGITAL:TTL,BUFFER/DRIVER	01295	SN7407N
A1U423	156-0048-01	670-8453-00	670-8453-01	MICROCKT,LINEAR:5 XSTR ARRAY,INSP	80009	156004801
A1U423	156-0048-02	670-8453-01	670-8453-01	IC,LINEAR:BIPOLAR,XSTR ARRAY	34371	CA3046E
A1U423	156-2849-00	670-8453-02		IC,LINEAR:BIPOLAR,XSTR ARRAY;FIVE,NPN,3 INDEPENDENT,1 DIFFERENTIAL PAIR,30V,50MA,300MHZ	34371	CA3146AE
A1U440	156-0158-07			IC,LINEAR:BIPOLAR,OP-AMP	01295	MC1458P
A1U463	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U506	156-0350-05			IC,DIGITAL:CMOS,GATES;QUAD 2-INPUT NAND	04713	MC14011UBCP
A1U507	156-0582-03			IC,DIGITAL:CMOS,COUNTER;SYNCH 4-BIT BINARY UP/DOWN	04713	MC14516BCP
A1U537	156-0048-01	670-8453-00	670-8453-01	MICROCKT,LINEAR:5 XSTR ARRAY,INSP	80009	156004801
A1U537	156-0048-02	670-8453-01	670-8453-01	IC,LINEAR:BIPOLAR,XSTR ARRAY	34371	CA3046E
A1U537	156-2849-00	670-8453-02		IC,LINEAR:BIPOLAR,XSTR ARRAY;FIVE,NPN,3 INDEPENDENT,1 DIFFERENTIAL PAIR,30V,50MA,300MHZ	34371	CA3146AE
A1U566	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U606	156-0524-02			IC,DIGITAL:CMOS,GATES;TRIPLE 3-INPUT NAND	04713	MC14023BCP
A1U620	156-2848-00	670-8453-02		IC,LINEAR:BIPOLAR,AMPLIFIER;BUFFER,1300V/US	34371	HA7-5002-5
A1U625	156-0513-02			IC,MISC:CMOS,ANALOG MUX;8 CHANNEL	04713	MC14051BCP
A1U706	156-0330-02			IC,DIGITAL:CMOS,BUFFER;HEX	04713	MC14050BCP

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1U720	156-2214-00			IC,LINEAR:BIFET,OPERATIONAL AMPLIFIER;WIDE-BAND,HIGH SLEW RATE,UNCOMPENSATED	34371	HA2-5160-5
A1U737	156-0048-01	670-8453-00	670-8453-01	MICROCKT,LINEAR:5 XSTR ARRAY,INSP	80009	156004801
A1U737	156-0048-02	670-8453-01	670-8453-01	IC,LINEAR:BIPOLAR,XSTR ARRAY	34371	CA3046E
A1U737	156-2849-00	670-8453-02		IC,LINEAR:BIPOLAR,XSTR ARRAY;FIVE,NPN,3 INDEPENDENT,1 DIFFERENTIAL PAIR,30V,50MA,300MHZ	34371	CA3146AE
A1U765	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A1U806	156-0800-01			IC,DIGITAL:CMOS,LATCH;QUAD TRANSPARENT, WITH TRUE/FALSE OUTPUTS	04713	MC14042BCP
A1U840	156-1324-00			IC,LINEAR:BIPOLAR,COMPARATOR;TTL,20NS,COMPLEMENTARY OUTPUT,W/STROBES	27014	LM361N
A1U847	156-0469-02			IC,DIGITAL:LSSTL,DEMUX/DECODER	01295	SN74LS138N
A1U853	156-1335-00			IC,DIGITAL:LSSTL,MULTIVIBRATOR;DUAL RETRIGNO-NOSTABLE	27014	DM96LS02N
A1U860	156-0530-02			IC,DIGITAL:LSSTL,MUX/ENCODER	01295	SN74LS157N
A1U868	156-0530-02			IC,DIGITAL:LSSTL,MUX/ENCODER	01295	SN74LS157N
A1U876	156-0956-02			IC,DIGITAL:LSSTL,BUFFER/DRIVER	01295	SN74LS244N
A1U884	156-0852-02			IC,DIGITAL:LSSTL,GATES	01295	SN74LS367AN
A1U906	156-1335-00			IC,DIGITAL:LSSTL,MULTIVIBRATOR;DUAL RETRIGNO-NOSTABLE	27014	DM96LS02N
A1U917	156-2218-00			IC,CONVERTER:BIPOLAR,D/A;12 BIT,CURRENTOUT,REF	13919	DAC80-CBI-I
A1U929	156-2218-00			IC,CONVERTER:BIPOLAR,D/A;12 BIT,CURRENTOUT,REF	13919	DAC80-CBI-I
A1U936	156-0895-01			IC,DIGITAL:CMOS,COUNTER;14-BIT BINARY	04713	MC14020BCP
A1U940	156-0382-02			IC,DIGITAL:LSSTL,GATES	01295	SN74LS00N
A1U947	156-0381-02			IC,DIGITAL:LSSTL,GATES	01295	SN74LS86AN
A1U953	156-2212-00			IC,DIGITAL:LSSTL,MISC;8-BIT SUCCESSIVE APPROXIMATION REGISTER	27014	DM74LS503N
A1U960	156-2212-00			IC,DIGITAL:LSSTL,MISC;8-BIT SUCCESSIVE APPROXIMATION REGISTER	27014	DM74LS503N
A1U968	156-0530-02			IC,DIGITAL:LSSTL,MUX/ENCODER	01295	SN74LS157N
A1U976	156-0530-02			IC,DIGITAL:LSSTL,MUX/ENCODER	01295	SN74LS157N
A1U984	156-0852-02			IC,DIGITAL:LSSTL,GATES	01295	SN74LS367AN
A1W262	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225L	24546	OMA0207
A1W327	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225L	24546	OMA0207
A1CR126	152-0008-00	670-8453-00	670-8453-01	SEMICON DVC,DI:SIG,GE,60V,60MA,A38A	14433	G1409
A1CR126	152-0664-00	670-8453-02		DIODE,SIG:SCHTKY;70V,0.410MV VF @ 1MA,2.0PF	50434	5082-2800-T25
A1CR127	152-0008-00	670-8453-01	670-8453-01	SEMICON DVC,DI:SIG,GE,60V,60MA,A38A	14433	G1409
A1CR127	152-0664-00	670-8453-02		DIODE,SIG:SCHTKY;70V,0.410MV VF @ 1MA,2.0PF	50434	5082-2800-T25
A1CR140	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR181	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR182	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR226	152-0008-00			SEMICON DVC,DI:SIG,GE,60V,60MA,A38A (END USAGE 670-8453-00)	14433	G1409
A1CR278	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR279	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR307	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR317	152-0008-00	670-8453-00	670-8453-01	SEMICON DVC,DI:SIG,GE,60V,60MA,A38A	14433	G1409
A1CR317	152-0664-00	670-8453-02		DIODE,SIG:SCHTKY;70V,0.410MV VF @ 1MA,2.0PF	50434	5082-2800-T25
A1CR318	152-0008-00	670-8453-00	670-8453-01	SEMICON DVC,DI:SIG,GE,60V,60MA,A38A	14433	G1409
A1CR318	152-0664-00	670-8453-01		DIODE,SIG:SCHTKY;70V,0.410MV VF @ 1MA,2.0PF	50434	5082-2800-T25
A1CR325	152-0460-00	670-8453-02		DIODE,SIG:REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A1CR342	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR343	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR344	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR345	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR373	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR378	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR382	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			
A1CR384	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A1CR385	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A1CR386	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR387	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR388	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR389	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR390	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR434	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR435	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR443	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR445	152-0460-00	670-8453-02		DIODE,SIG:REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A1CR473	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR478	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR482	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR486	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR628	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR629	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR668	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR673	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR678	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR682	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR686	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR712	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR740	152-0460-00	670-8453-02		DIODE,SIG:REGLTR;100V,1.20MA IP,1.45V VL	04713	1N5299
A1CR773	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR778	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR782	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR786	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR832	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR833	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1DS405	150-1090-00			DIODE,OPTO:LED;RED,626NM,4MCD AT 10MA,60 DEG VIEW ANGLE,RIGHT ANGLE MT W/EVEN SHEARED LEADS	15513	SP850211
A1DS505	150-1090-00			DIODE,OPTO:LED;RED,626NM,4MCD AT 10MA,60 DEG VIEW ANGLE,RIGHT ANGLE MT W/EVEN SHEARED LEADS	15513	SP850211
A1DS506	150-1090-00			DIODE,OPTO:LED;RED,626NM,4MCD AT 10MA,60 DEG VIEW ANGLE,RIGHT ANGLE MT W/EVEN SHEARED LEADS	15513	SP850211
A1DS605	150-1090-00			DIODE,OPTO:LED;RED,626NM,4MCD AT 10MA,60 DEG VIEW ANGLE,RIGHT ANGLE MT W/EVEN SHEARED LEADS	15513	SP850211
A1TP102	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP137	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP143	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP157	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP198	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP215	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP347	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP461	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP524	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP533	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1TP546	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP687	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP688	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP717	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP722	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER (END USAGE 670-8453-00)	0J260	ORDER BY DESC
A1TP812	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP817	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER (END USAGE 670-8453-00)	0J260	ORDER BY DESC
A1TP827	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER (END USAGE 670-8453-00)	0J260	ORDER BY DESC
A1TP830	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER (END USAGE 670-8453-00)	0J260	ORDER BY DESC
A1TP834	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP905	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP976	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1TP994	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A1VR324	152-0662-00	670-8453-02		DIODE,ZENER:5V,1%,0.4W	04713	SZG195RL
A1VR337	152-0667-00			DIODE,ZENER:3V,2%,0.4W	04713	SZG30025RL
A1VR444	152-0662-00	670-8453-02		DIODE,ZENER:5V,1%,0.4W	04713	SZG195RL
A1VR516	152-0437-00			DIODE,ZENER:8.2V,2%,0.4W	04713	1N959CRL
A1VR517	152-0437-00			DIODE,ZENER:8.2V,2%,0.4W	04713	1N959CRL
A1VR571	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR572	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR576	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR577	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR580	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR581	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR585	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR586	152-0688-00			DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A1VR739	152-0662-00	670-8453-02		DIODE,ZENER:5V,1%,0.4W	04713	SZG195RL
A2	670-8454-00	B010100	B030268	CIRCUIT BD ASSY:DIGITAL	80009	670845400
A2	670-8454-01	B030269	B030277	CIRCUIT BD ASSY:DIGITAL	80009	670845401
A2	670-8454-02	B030278	B030354	CIRCUIT BD ASSY:DIGITAL	80009	670845402
A2	670-8454-03	B030355	B040399	CIRCUIT BD ASSY:DIGITAL	80009	670845403
A2	670-8454-04	B040400	B049999	CIRCUIT BD ASSY:DIGITAL	80009	670845404
A2	670-8454-05	B050000		CIRCUIT BD ASSY:DIGITAL (118AS ONLY)	80009	670845405
A2	670-8454-00	B010100	B020227	CIRCUIT BD ASSY:DIGITAL	80009	670845400
A2	670-8454-01	B020228	B020242	CIRCUIT BD ASSY:DIGITAL	80009	670845401
A2	670-8454-02	B020243	B020328	CIRCUIT BD ASSY:DIGITAL	80009	670845402
A2	670-8454-03	B020329		CIRCUIT BD ASSY:DIGITAL (118FO1 ONLY)	80009	670845403
A2C118	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C119	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C136	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2C145	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C147	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C155	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C164	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C172	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C182	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C192	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C199	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C217	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C218	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C227	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C235	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C236	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C242	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C243	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C245	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C246	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C247	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C255	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C256	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C263	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C264	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C272	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C273	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C292	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C317	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C327	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C336	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C343	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C346	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C355	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C364	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C373	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C392	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C417	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C428	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C436	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C438	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C444	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C447	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C448	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C455	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C457	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C464	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C466	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C473	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C475	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C482	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C484	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C491	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C493	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C517	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C532	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C537	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C548	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C557	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C572	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C579	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2C593	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C618	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C629	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C638	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C647	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C648	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C655	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C658	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C663	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C667	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C670	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C675	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C679	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C683	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C696	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C710	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C749	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C758	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C767	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C779	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C787	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C795	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C796	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C797	290-0973-00			CAP,FXD,ELCTL:100UF,20%,25VDC	0H1N5	CEUSM1E101
A2C807	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C822	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C835	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C851	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C858	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C865	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C873	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C882	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C890	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C897	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C898	281-0791-00			CAP,FXD,CERAMIC:MLC;270PF,10%,100V,0.100 X0.170	04222	SA102C271KAA
A2C916	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C934	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C954	281-0799-00			CAP,FXD,CER DI:62PF,2%,100V	04222	SA102A620GAA
A2C958	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C965	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C972	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C983	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C990	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2C998	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A2J685	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A2J785	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A2J899	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A2J975	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A2P299	131-2866-00			CONN,DIN:PCB;MALE,RTANG,3 X 32,0.1CTR,0.209 MLG X 0.104 TAIL,30 GOLD	58050	072-96114-390
A2Q951	151-0199-00			XSTR,SIG:BIPOLAR,PNP;12V,80MA,SWITCHING	04713	MPS3640
A2R124	307-0542-00			RES NTWK,FXD,FI:(5)10K OHM,5%,0.125W	11236	750-61-R10K OR
A2R188	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R207	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K



## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2R307	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R312	307-0542-00			RES NTWK,FXD,FI:(5)10K OHM,5%,0.125W	11236	750-61-R10K OR
A2R412	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A2R420	315-0302-00			RES,FXD,FILM:3K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R494	315-0330-00			RES,FXD,FILM:33 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R499	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R512	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A2R527	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R635	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A2R685	307-0541-00			RES NTWK,FXD,FI:(7)1K OHM,10%,1W	11236	750-81-R1 KOHM
A2R693	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A2R694	307-0650-00			RES NTWK,FXD,FI:9.2.7K OHM,5%,0.150W	11236	750-101-R2.7K
A2R807	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R904	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R950	307-0637-00			RES NTWK,FXD,FI:5.2K OHM,2%,0.125W	11236	750-61-R2K
A2R954	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R958	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322-182-
A2R959	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2R965	307-0542-00			RES NTWK,FXD,FI:(5)10K OHM,5%,0.125W	11236	750-61-R10K OR
A2R966	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A2S105	260-0735-00			SWITCH,PUSH:T,NO CONTACT,RED BUTTON	81073	39-1
A2S224	260-1827-00			SWITCH,ROCKER:5,SPST	81073	76SB05S
A2S304	260-2064-00			SWITCH,ROCKER:(6)SPST,125MA,30VDC	81073	76YY2759S
A2S404	260-2130-00			SWITCH,TOGGLE:SPDT,100MA,5VDC,0N-NONE-0N	TK1031	UT1D-2-T00-B7-N
A2S505	260-0735-00			SWITCH,PUSH:T,NO CONTACT,RED BUTTON	81073	39-1
A2S604	260-2233-00			SWITCH,ROTARY:DIP;BCD,10 POSITION,30V,125MA ,5 PIN,GOLD/NICKEL,GLASSREINFORCED NYLON	57856	KDS 10-312
A2S704	260-2233-00			SWITCH,ROTARY:DIP;BCD,10 POSITION,30V,125MA ,5 PIN,GOLD/NICKEL,GLASSREINFORCED NYLON	57856	KDS 10-312
A2S705	260-2233-00			SWITCH,ROTARY:DIP;BCD,10 POSITION,30V,125MA ,5 PIN,GOLD/NICKEL,GLASSREINFORCED NYLON	57856	KDS 10-312
A2U112	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U132	156-0953-02			IC,DIGITAL:LSTTL,COMPARATOR	01295	SN74LS85N
A2U152	156-2188-00	670-8454-00	670-8454-03	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U152	156-2372-00	670-8454-03		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U160	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U160	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U168	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U168	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U176	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U176	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U186	156-1661-00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL W/MUX REGISTER, NONINV, 3-STATE	01295	SN74LS646NT
A2U212	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U213	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U224	156-0388-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS74AN
A2U232	156-0953-02			IC,DIGITAL:LSTTL,COMPARATOR	01295	SN74LS85N
A2U233	156-0953-02			IC,DIGITAL:LSTTL,COMPARATOR	01295	SN74LS85N
A2U239	156-0852-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS367AN
A2U240	156-0852-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS367AN
A2U252	156-2188-00	670-8454-00	670-8454-03	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U252	156-2372-00	670-8454-03		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U253	156-2188-00	670-8454-00	670-8454-03	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U253	156-2372-00	670-8454-03		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U260	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U260	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U261	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U261	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A2U268	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U268	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U269	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U269	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U276	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U276	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U277	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U277	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U286	156-1661-00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL W/MUX REGISTER, NONINV, 3-STATE	01295	SN74LS646NT
A2U313	156-1080-01			IC,DIGITAL:TTL,BUFFER/DRIVER	01295	SN7407N
A2U324	156-0465-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS30N
A2U332	156-0953-02			IC,DIGITAL:LSTTL,COMPARATOR	01295	SN74LS85N
A2U340	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U352	156-2188-00	670-8454-00	670-8454-03	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U352	156-2372-00	670-8454-03		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U360	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U360	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U368	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U368	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U376	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U376	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U386	156-1661-00			IC,DIGITAL:LSTTL,TRANSCEIVER;OCTAL W/MUX REGISTER, NONINV, 3-STATE	01295	SN74LS646NT
A2U412	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U423	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U432	156-0953-02			IC,DIGITAL:LSTTL,COMPARATOR	01295	SN74LS85N
A2U435	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS138N
A2U440	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U443	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U452	156-2188-00	670-8454-00	670-8454-03	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U452	156-2372-00	670-8454-03		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U453	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U460	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U460	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U462	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U468	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U468	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U470	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U476	156-2188-00	670-8454-00	670-8454-04	MICROCKT,DGTL:INMOS,DUAL IN LINEIMS2620P-15,18 PIN	61271	MB81416-10P
A2U476	156-2372-00	670-8454-05		IC,MEMORY:NMOS 65536 X 4 DRAM41464-12,18 DIP	4T165	UPD41464C-10
A2U480	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U487	156-0391-02			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS174N
A2U489	156-0798-02	670-8454-00	670-8454-02	IC,DIGITAL:LSTTL,MUX/ENCODER	01295	SN74LS153N
A2U489	156-1662-00	670-8454-03		IC,DIGITAL:FTTL,MUX/ENCODER;DUAL 4-TO-1 MUX	04713	MC74F153N
A2U513	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVERF	01295	SN74LS244N
A2U526	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS138N
A2U535	156-0530-02			IC,DIGITAL:LSTTL,MUX/ENCODER	01295	SN74LS157N
A2U545	156-0679-01			IC,DIGITAL:LSTTL,ARITH FUNC	01295	SN74LS283N
A2U553	156-0679-01			IC,DIGITAL:LSTTL,ARITH FUNC	01295	SN74LS283N
A2U560	156-0679-01			IC,DIGITAL:LSTTL,ARITH FUNC	01295	SN74LS283N
A2U568	156-0679-01			IC,DIGITAL:LSTTL,ARITH FUNC	01295	SN74LS283N
A2U576	156-0529-02			IC,DIGITAL:LSTTL,MUX/ENCODER	01295	SN74LS257BN
A2U588	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U612	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U623	156-1026-02			IC,DIGITAL:LSTTL,DEMUX	27014	DM74LS154N
A2U635	156-1111-02			IC,DIGITAL:LSTTL,TRANSCEIVER	01295	SN74LS245N
A2U644	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2U645	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS138N
A2U652	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A2U654	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U660	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A2U663	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U667	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A2U671	156-0391-02			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS174N
A2U675	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U679	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS139AN
A2U690	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U718	156-2192-00			IC,MEMORY:NMOS,EEPROM;2K X 8,300NS	61394	DM2817A-300
A2U729	156-1632-00			IC,MEMORY:CMOS,SRAM;2K X 8,250NS	TK1416	LH5116-10
A2U743	160-2672-01	670-8454-00	670-8454-00	MICROCKT,DGTL:8192 X 8 EPROM,PRGM	80009	160267201
A2U743	160-2672-02	670-8454-00	670-8454-00	MICROCKT,DGTL:NMOS,8192 X 8 EPROM,PRGM2764,DIP28	80009	160267202
A2U743	160-2672-03	670-8454-01	670-8454-01	MICROCKT,DGTL:NMOS,8192 X 8 EPROM,PRGM2764,DIP28	80009	160267203
A2U743	160-2672-04	670-8454-02	670-8454-03	MICROCKT,DGTL:NMOS,8192 X 8 EPROM,PRGM2764,DIP28	80009	160267204
A2U743	160-2672-05	670-8454-04		MICROCKT,DGTL:NMOS,8192 X 8 EPROM,PRGM,2764, DIP28	80009	160267205
A2U754	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U763	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U774	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U783	156-0982-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS374N
A2U790	156-0956-02			IC,DIGITAL:LSTTL,BUFFER/DRIVER	01295	SN74LS244N
A2U791	156-1611-00			IC,DIGITAL:FCTL,FLIP FLOP;DUAL D-TYPE	04713	MC74F74N
A2U855	156-0718-03			IC,DIGITAL:LSTTL,GATES	01295	SN74LS27N
A2U862	156-0388-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS74AN
A2U870	156-1611-00			IC,DIGITAL:FCTL,FLIP FLOP;DUAL D-TYPE	04713	MC74F74N
A2U878	160-2671-00			MICROCKT,DGTL:512 X 8 PROM,PRGM	80009	160267100
A2U886	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A2U893	156-0479-02			IC,DIGITAL:LSTTL,GATE	01295	SN74LS32N
A2U912	156-1620-00			IC,PROCESSOR:NMOS,PERIPHERAL,COUNTER TIMER,SCRN	56708	Z0843004PSC
A2U925	156-1424-01			IC,PROCESSOR:NMOS,PERIPHERAL;SERIAL INPUT AND OUTPUT,SCRN	56708	Z80A-SIO/(1CS-1
A2U942	156-0983-01			IC,PROCESSOR:NMOS,MICROPROCESSOR;8-BIT,SCRN	56708	Z0840006PSC
A2U955	156-0479-02			IC,DIGITAL:LSTTL,GATE	01295	SN74LS32N
A2U962	156-0153-02			IC,DIGITAL:TTL,BUFFER/DRIVER	01295	SN7406N
A2U969	156-0386-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS10N
A2U980	156-1172-01			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS393N
A2U986	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A2U994	156-0878-01			IC,MISC:TTL,INTERFACE;	01295	SN75189N
A2DS105	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS106	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS107	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS108	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS205	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS206	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS207	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5
A2DS208	150-1020-00			DIODE,OPTO:LED;RED,635NM,1.0MCD AT 5V,90 DEG VIEW,INTEGRAL RESISTOR,SUBMINIATURE RIGHT ANGLE	15513	PC080-RL5

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2DS505	150-1090-00			DIODE,OPTO:LED;RED,626NM,4MCD AT 10MA,60 DEG VIEW ANGLE,RIGHT ANGLE MOUNT W/EVEN SHEARED LEADS	15513	SP850211
A2TP108	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A2TP196	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A2TP429	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A2TP810	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A2TP868	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A2TP999	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4	670-8455-01	B010100	B030371	CIRCUIT BD ASSY:PWR SPLY	80009	670845501
A4	670-8455-02	B030372		CIRCUIT BD ASSY:PWR SPLY	80009	670845502
A4C109	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V	TK0515	PME 271 M 568
A4C127	283-0211-00			CAP,FXD,CER DI:0.1UF,10%,200V	04222	SR302C104KAA
A4C160	290-0877-00			CAP,FXD,ELCTL:1200UF,+100-10%,6.3V	62643	672D128H6R3DS2A
A4C163	290-0877-00			CAP,FXD,ELCTL:1200UF,+100-10%,6.3V	62643	672D128H6R3DS2A
A4C169	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A4C214	290-1074-00			CAP,FXD,ALUM:470UF,20%,200V,ESR=0.353 OHM (120HZ,20C),25MM X 35MM	0H1N5	CEAUF2D471M20
A4C221	290-1074-00			CAP,FXD,ALUM:470UF,20%,200V,ESR=0.353 OHM (120HZ,20C),25MM X 35MM	0H1N5	CEAUF2D471M20
A4C225	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V,	TK0515	PME 271 M 568
A4C242	285-1192-00			CAP,FXD,PPR DI:0.0022 UF,20%,250VAC,	TK0515	PME271Y422M
A4C245	283-0198-00			CAP,FXD,CERAMIC:MLC;0.22UF,20%,50V,X7R,0.30	04222	SR305C224MAA
A4C246	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A4C247	290-0798-00			CAP,FXD,ELCTL:180UF,+100-10%,40V	62643	672D708A
A4C248	283-0198-00			CAP,FXD,CERAMIC:MLC;0.22UF,20%,50V,X7R,0.30	04222	SR305C224MAA
A4C250	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A4C251	290-0798-00			CAP,FXD,ELCTL:180UF,+100-10%,40V	62643	672D708A
A4C262	290-0877-00			CAP,FXD,ELCTL:1200UF,+100-10%,6.3V	62643	672D128H6R3DS2A
A4C283	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A4C313	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V	TK0515	PME 271 M 568
A4C331	285-1278-00			CAP,FXD,PLASTIC:2.2UF,10%,250V	84411	X661 2.2 10 250
A4C334	285-1278-00			CAP,FXD,PLASTIC:2.2UF,10%,250V	84411	X661 2.2 10 250
A4C337	283-0625-00			CAP,FXD,MICA DI:220PF,1%,500V	TK0891	RDM10FD221F03
A4C346	283-0786-00			CAP,FXD,MICA DI:745PF,1%,500V	TK0891	RDM19FD7450F03
A4C354	283-0111-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR215C104MAA
A4C363	283-0111-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR215C104MAA
A4C367	283-0169-00			CAP,FXD,CER DI:0.022UF,10%,200V	04222	SR302C223KAA
A4C373	283-0065-00			CAP,FXD,CER DI:0.001UF,5%,50V	59660	0835-591-Y5E0-1
A4C412	285-1222-00			CAP,FXD,PLASTIC:0.068UF,20%,250V	TK0515	PME 271 M 568
A4C446	290-0919-00			CAP,FXD,ALUM:470UF,+50-20%,35V	55680	UVX1V471MPA
A4C453	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A4C454	283-0594-00			CAP,FXD,MICA DI:0.001UF,1%,100V	TK0891	RDM15FA102F03
A4C456	283-0111-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR215C104MAA
A4C465	283-0114-00			CAP,FXD,CER DI:1500PF,5%,200V	59660	805-534-Y5D0-15
A4C467	283-0620-00			CAP,FXD,MICA DI:470PF,1%,500V	TK0891	RDM15FD471F03
A4C523	283-0111-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR215C104MAA
A4C539	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305C474MAA
A4C553	283-0330-00			CAP,FXD,CER DI:100PF,5%,50V	18796	RPE121151C0G101
A4C554	290-0804-00			CAP,FXD,ELCTL:10UF,+50-20%,25V	0H1N5	CEUSM1E100
A4C555	283-0220-00			CAP,FXD,CERAMIC:MLC;0.01UF,20%,50V,X7R,0.20	04222	SR155C103MAA
A4C558	283-0330-00			CAP,FXD,CER DI:100PF,5%,50V	18796	RPE121151C0G101

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4C560	283-0065-00			CAP,FXD,CER DI:0.001UF,5%,50V	59660	0835-591-Y5E0-1
A4C561	290-0776-00			CAP,FXD,ALUM:22UF,20%,10V,ESR=15.07 OHM (120HZ,20C)	0H1N5	CEUSM1A220
A4C562	283-0169-00			CAP,FXD,CER DI:0.022UF,10%,200V	04222	SR302C223KAA
A4C568	283-0111-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SR215C104MAA
A4C571	283-0212-00			CAP,FXD,CER DI:2UF,20%,50V	04222	SR405E205MAA
A4C588	290-0770-00			CAP,FXD,ELECTLT:100UF,+50-20%,25VDC	0H1N5	CEUSM1V101
A4F107	159-0023-00			FUSE,CARTRIDGE:3AG,2A,250V,SLOW BLOW (FOR 90-132VAC OPERATION)	71400	MDX2
A4F107	159-0019-00			FUSE,CARTRIDGE:3AG,1A,250V,SLOW BLOW (FOR 180-250VAC OPERATION)	71400	MDL 1
A4J576	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A4L155	108-1236-00			INDUCTOR,FXD:SIGNAL;64UH,12%,IDC<10 A,RDC<0.005 OHM,TOROID CORE,19 TURNS WITH 14 AWG WIRE	0JR03	ORDER BY DESC
A4L227	108-0959-00			IDCTR,FXD:SIGNAL;150UH,10%,ON FORM 276-0240-00	0JR03	108-0959-00
A4L350	120-1565-00			TRANSFORMER,RF:FXD 2 WNDS,265UH,12%	02113	F4834A
A4P265	131-3226-00			CONN,DIN:PCB;MALE,RTANG,3 X 16,0.1CTR,0.498 MLG X 0.598 TAIL,SELECTIVELY LOADED,30 GOLD,1/2 DIN,SAF CONTROLLED	83486	10-8457-048-004
A4Q134	151-1141-01			XSTR,PWR:MOS,N-CH	04713	MTP5N40E
A4Q137	151-1141-01			XSTR,PWR:MOS,N-CH	04713	MTP5N40E
A4Q356	151-0190-05	670-8455-01	670-8455-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A4Q356	151-0190-00	670-8455-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A4Q358	151-0190-05	670-8455-01	670-8455-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A4Q358	151-0190-00	670-8455-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A4Q360	151-0188-03	670-8455-01	670-8455-01	XSTR:SELECTED	80009	151-0188-03
A4Q360	151-0188-00	670-8455-01		XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A4Q361	151-0482-00			XSTR,PWR:BIPOLAR,PNP;100V,3.0A,3.0MHZ,AMPLIFIER	04713	TIP32C
A4Q483	151-0188-03	670-8455-01	670-8455-01	XSTR:SELECTED	80009	151-0188-03
A4Q483	151-0188-00	670-8455-01		XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ,AMPLIFIER	04713	2N3906
A4Q485	151-0190-05			XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A4Q564	151-0190-05	670-8455-01	670-8455-02	XSTR,SIG:BIPOLAR,NPN;SAMPLE BURN-INVERSION OF 151-0190-00,DO NOT USE	80009	151-0190-05
A4Q564	151-0190-00	670-8455-02		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPLIFIER	04713	2N3904
A4R162	307-0105-00			RES,FXD,CMPSN:3.9 OHM,5%,0.25W	50139	CB 39G5
A4R217	301-0154-00			RES,FXD,FILM:150K OHM,5%,0.5W	19701	5053CX150K0J
A4R224	301-0154-00			RES,FXD,FILM:150K OHM,5%,0.5W	19701	5053CX150K0J
A4R226	315-0106-00			RES,FXD,FILM:10M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R227	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A4R228	301-0220-00			RES,FXD,FILM:22 OHM,5%,0.5W	TK1727	SFR30 2322-182-
A4R233	308-0874-00			RES,FXD,WW:10 OHM,5%,1W,	11502	SP-20F 10 OHM 5
A4R236	308-0874-00			RES,FXD,WW:10 OHM,5%,1W,	11502	SP-20F 10 OHM 5
A4R267	315-0121-00			RES,FXD,FILM:120 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R269	315-0272-00			RES,FXD,FILM:2.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R270	308-0836-00			RES,FXD,WW:1.2 OHM,5%,1W FUSIBLE	11502	SP-20F-1.2 OHM
A4R276	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R277	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R278	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R327	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R329	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R337	303-0101-00			RES,FXD,CMPSN:100 OHM,5%,1W	24546	FP32 OR FP1 100
A4R353	322-3233-00			RES,FXD,FILM:2.61K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G2611FT
A4R354	315-0433-00			RES,FXD,FILM:43K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R355	308-0802-00			RES,FXD,WW:0.01 OHM,5%,5W	91637	SPR 100S-R01J
A4R356	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R357	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A4R358	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R368	315-0752-00			RES,FXD,FILM:7.5K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R376	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R377	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R378	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A4R379	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A4R382	322-3280-00			RES,FXD,FILM:8.06K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G80600F
A4R383	322-3251-00			RES,FXD,FILM:4.02K OHM,1%,0.2W,TC=T0	91637	CCF501G40200F
A4R384	322-3280-00			RES,FXD,FILM:8.06K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF501G80600F
A4R385	315-0391-00			RES,FXD,FILM:390 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R411	301-0105-00			RES,FXD,FILM:1M OHM,5%,0.50W	TK2611	RC1/20105J
A4R445	303-0360-00			RES,FXD,CMPSN:36 OHM,5%,1W	24546	FP32 OR FP1 36
A4R446	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A4R447	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A4R448	315-0390-00			RES,FXD,FILM:39 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R452	315-0473-00			RES,FXD,FILM:47K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R454	321-0136-00			RES,FXD,FILM:255 OHM,1%,0.125W,TC=T0	TK1727	MR25 2322-151-2
A4R455	315-0100-02			RES,FXD,CMPSN:10 OHM,5%,0.25W	50139	CB1005
A4R458	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R459	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R460	301-0181-00			RES,FXD,FILM:180 OHM,5%,0.5W	TK1727	SFR30 2322-182-
A4R466	315-0683-00			RES,FXD,FILM:68K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R467	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R468	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R469	321-0253-00			RES,FXD,FILM:4.22K OHM,1%,0.125W,TC=T0MI	19701	5033ED 4K 220F
A4R471	322-3289-00			RES,FXD:METAL FILM;10K OHM,1%,0.2W,TC=100 PPM	91637	CCF50G10001F
A4R472	315-0224-00			RES,FXD,FILM:220K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R474	322-3276-00			RES,FXD,FILM:7.32K OHM,1%,0.2W,TC=T0	91637	CCF50G73200F
A4R475	322-3222-00			RES,FXD:METAL FILM;2K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20000F
A4R476	322-3327-00			RES,FXD,FILM:24.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G24901F
A4R477	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R478	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R557	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R558	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R559	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R563	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A4R564	322-3318-00			RES,FXD:METAL FILM;20K OHM,1%,0.2W,TC=100 PPM	91637	CCF501G20001F
A4R566	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R569	315-0224-00			RES,FXD,FILM:220K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R579	315-0330-00			RES,FXD,FILM:33 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R580	315-0330-00			RES,FXD,FILM:33 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R582	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R583	315-0154-00			RES,FXD,FILM:150K OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A4R584	315-0822-00			RES,FXD,FILM:8.2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R585	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R586	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4R587	315-0154-00			RES,FXD,FILM:150K OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A4R588	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4S307	260-1849-07			SWITCH,PUSH:DPST,4A,250VAC,	31918	601955
A4S340	260-0907-00			SWITCH,THRMSTC:NC,OPEN 97.8,CL 75.6,10A240V	TK2292	430-349
A4S405	260-2116-00			SWITCH,SLIDE:DPDT,10A,125VAC,LINE SEL,	04426	18-000-0019
A4T340	120-1563-00			XFMR,PWR,STPDN:HIG FREQUNECY,	75498	120-1563-00
A4T417	120-1564-00			XFMR,PWR,STPDN:LOW FREQUENCY,	75498	120-1564-00
A4T427	120-1472-00			XFMR,PWR,STPDN:GATE DRIVE HF,	75498	120-1472-00
A4T435	120-1566-00			TRANSFORMER,RF:CURRENT SENSE 100 CENTER TAP	01961	PE-63618
A4U145	156-1903-00			IC,LINEAR:BIPOLAR,VR;NEG,15V,1.5A,1%	48726	UC7915ACT
A4U147	156-1902-00			IC,LINEAR:BIPOLAR,VR;POSITIVE,15V,1.5A,1%	48726	UC7815ACT

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A4U172	119-1842-00			OSC,XTAL CLOCK:12MHZ,+/-0.05%,TTL,4 PIN 14PIN DIP COMPATIBLE	22929	XO-43C 12
A4U174	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A4U176	156-0784-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS163AN
A4U280	156-0411-02			IC,LINEAR:BIPOLAR,COMPARATOR	01295	LM339N
A4U374	156-0852-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS367AN
A4U454	156-1161-00			IC,LINEAR:BIPOLAR,VR;POSITIVE,ADJUSTABLE,1.5A,4%	04713	LM317T
A4U460	156-0853-02			IC,LINEAR:BIPOLAR,OP-AMP	01295	LM358P
A4U464	156-1249-00			IC,LINEAR:BIPOLAR,V REF;POS,10V,0.3%,30PPM,SERIES	24355	AD581JH
A4U473	156-0411-02			IC,LINEAR:BIPOLAR,COMPARATOR	01295	LM339N
A4U542	156-0328-00			IC,DIGITAL:MOS,DRIVER;DUAL CLOCK DRIVER	27014	DS0026CN
A4U557	156-1585-00			IC,LINEAR:BIPOLAR,PWR SUPPLY CONTROLLER; PW,PUSH-PULL TOTEM POLE OUTPUTS	34333	SG2526BJ/11484
A4U567	156-1408-00			IC,MISC:CMOS,TIMER	34371	ICM7555IPA
A4U585	156-1408-00			IC,MISC:CMOS,TIMER	34371	ICM7555IPA
A4CR250	152-0198-02			SEMICON DVC,DI:RECT,SI,200V,3A,A249G	13409	SEN-R-235
A4CR252	152-0198-02			SEMICON DVC,DI:RECT,SI,200V,3A,A249G	13409	SEN-R-235
A4CR324	152-0750-00			DIO,RECT:FAST RCVR;BRIDGE,600V,3A,IFSM=125A,250NS	TK2319	RKBCPC606
A4CR346	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A4CR347	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A4CR348	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A4CR350	152-0066-03			DIODE,RECT:400V,1A,1.1VF AT 1A,30A IFSM,2US	14433	LG4017
A4CR352	152-0066-03			DIODE,RECT:400V,1A,1.1VF AT 1A,30A IFSM,2US	14433	LG4017
A4CR355	152-0692-00			DIODE,RECT:SCHTKY;45V,15A PER JUNCTION,200A	04713	MBR3035CT
A4CR363	152-0198-02			SEMICON DVC,DI:RECT,SI,200V,3A,A249G	13409	SEN-R-235
A4CR446	152-0864-00			DIO,RECT:ULTRA FAST;150V,2A,25NS,IFSM=50A,SOFT REC	0LUA3	BYV27-150
A4CR447	152-0066-03			DIODE,RECT:400V,1A,1.1VF AT 1A,30A IFSM,2US	14433	LG4017
A4CR468	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR476	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR478	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR524	152-0585-00			DIODE,RECT:BRIDGE,200V,1A,50A IFSM,1.0VFAT 1A	14936	W02G
A4CR550	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR551	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR552	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR553	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR581	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4CR582	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A4DS128	150-0035-00			LAMP,GLOW:NEON;90V,0.3MA,AID-T,WIRE LD	TK0213	JH005/3011JA
A4RV227	307-0638-00			RES,V SENSITIVE:18V,20%,0.5 W,	34371	V18ZA1
A4RV316	307-0449-00			RES,V SENSITIVE:1900PF,100A,130V,METAL OXD SAFETY CONTROLLED	34371	V130LA20A
A4RV319	307-0449-00			RES,V SENSITIVE:1900PF,100A,130V,METAL OXD SAFETY CONTROLLED	34371	V130LA20A
A4TP107	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP152	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP452	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP488	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP513	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP542	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4TP558	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER (END USAGE 670-8455-01)	0J260	ORDER BY DESC

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4TP573	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A4A1	670-8658-00			CIRCUIT BD ASSY:PWR LED	80009	670865800
A4A1P135	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A4A1P208	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A4A1R209	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4A1R210	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A4A1DS108	150-1095-01			LT EMITTING DIO:RED,660NM,50MA	0AP78	ESBR 5731
A4A1DS115	150-1095-01			LT EMITTING DIO:RED,660NM,50MA	0AP78	ESBR 5731
A4A1DS122	150-1017-00			LT EMITTING DIO:GREEN,550NM,55MA MAX	50434	HLMP3910
A5	670-8450-00			CIRCUIT BD ASSY:INTCON	80009	670845000
A5C135	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C235	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C275	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C405	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C419	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C575	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C609	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C675	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5C719	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A5J109	131-2867-00			CONN,DIN:WIREWRAP/PCB;FEMALE,STR,3X 32,0.1	81312	96S-6033-0731-1
A5J150	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J240	131-1343-00			CONN,HDR:PCB;MALE,STR,1 X 36,0.1 CTR,0.230 MLG X 0.195 TAIL,30 GOLD	58050	082-3643-SS02
A5J285	131-3225-00			CONN,DIN:PCB;FEMALE,STR,3 X 16,0.1CTR,0.477 H X 0.157 TAIL,30 GOLD,SELECTIVE LOADING,SAF CONT	83486	20-8457-048-001
A5J309	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J350	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J509	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J550	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J609	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A5J650	131-2864-00			CONN,DIN:PCB;FEMALE,STR,3 X 32,0.1CTR,0.457 H X 0.157 TAIL,30 GOLD	58050	173-96124-300
A6	610-0349-00	B010100	B029999	I/O ASSEMBLY:I/O	80009	610034900
A6	610-0349-01	B030000		I/O ASSEMBLY:I/O	80009	610034901
A6C115	283-0698-00			CAP,FXD,MICA DI:390PF,1%,500V	TK0891	RDM15FD391F03
A6C125	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C130	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C131	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C146	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C155	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C156	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C215	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C230	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C235	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C250	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C316	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C325	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C334	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB



## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A6C335	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C340	283-0648-00			CAP,FXD,MICA DI:10PF,+/-0.5PF,500V	TK0891	RDM15CD100D03
A6C410	290-0297-00			CAP,FXD,ELCTLT:39UF,10%,10V	12954	D39B10K1
A6C415	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C515	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C645	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A6C810	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C835	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A6C945	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A6C955	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A6J410	131-0812-00			CONN,DSUB:PCB;FEMALE,RTANG,25 POS,0.112 CTR,0.545 MLG X 0.125 TAIL,ZN PLATED SHELL	00779	205858-1
A6J440	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J445	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J545	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J645	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J650	131-2866-00			CONN,DIN:PCB;MALE,RTANG,3 X 32,0.1CTR,0.209 MLG X 0.104 TAIL,30 GOLD	58050	072-96114-390
A6J650	131-2866-00			CONN,DIN:PCB;MALE,RTANG,3 X 32,0.1CTR,0.209 MLG X 0.104 TAIL,30 GOLD	58050	072-96114-390
A6J730	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J830	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J845	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J930	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6J945	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A6K630	148-0163-00			RELAY,ARMATURE:4 FORM C,2A,30V,COIL 5VDC,62.5 OHM	61529	DS4E-M-DC5V
A6K730	148-0163-00			RELAY,ARMATURE:4 FORM C,2A,30V,COIL 5VDC,62.5 OHM	61529	DS4E-M-DC5V
A6K930	148-0163-00			RELAY,ARMATURE:4 FORM C,2A,30V,COIL 5VDC,62.5 OHM	61529	DS4E-M-DC5V
A6Q410	151-0219-00			XSTR,SIG:BIPOLAR,PNP;40V,50MA,40MHZ,AMPLIFIER	04713	MPS4250
A6Q411	151-0219-00			XSTR,SIG:BIPOLAR,PNP;40V,50MA,40MHZ,AMPLIFIER	04713	MPS4250
A6Q745	151-0207-00			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPLIFIER	27014	PN100A
A6Q811	151-0219-00			XSTR,SIG:BIPOLAR,PNP;40V,50MA,40MHZ,AMPLIFIER	04713	MPS4250
A6Q845	151-0207-00			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPLIFIER	27014	PN100A
A6Q925	151-0219-00			XSTR,SIG:BIPOLAR,PNP;40V,50MA,40MHZ,AMPLIFIER	04713	MPS4250
A6Q945	151-0207-00			XSTR,SIG:BIPOLAR,NPN;45V,300MA,250MHZ,AMPLIFIER	27014	PN100A
A6R110	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A6R125	315-0470-00			RES,FXD,FILM:47 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R145	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R146	322-3130-00			RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R155	322-3130-00			RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R156	321-0321-00			RES,FXD,FILM:21.5K OHM,1%,0.125W,TC=T0MI	19701	5043ED21K50F
A6R157	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R225	315-0470-00			RES,FXD,FILM:47 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R226	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W,MI	TK1727	SFR25 2322-181-
A6R227	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R230	322-3130-00	610-0349-00	610-0349-00	RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R230	322-3311-00	610-0349-01		RES,FXD,FILM:16.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	56845	CCF-50-2-1692F
A6R235	322-3130-00	610-0349-00	610-0349-00	RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R235	322-3311-00	610-0349-01		RES,FXD,FILM:16.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	56845	CCF-50-2-1692F
A6R240	321-0321-00			RES,FXD,FILM:21.5K OHM,1%,0.125W,TC=T0MI	19701	5043ED21K50F

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6R241	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R245	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R246	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R330	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R331	322-3130-00	610-0349-00	610-0349-00	RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R331	322-3311-00	610-0349-01		RES,FXD,FILM:16.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	56845	CCF-50-2-1692F
A6R335	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R340	322-3130-00	610-0349-00	610-0349-00	RES,FXD:METAL FILM;221 OHM,1%,0.2W,TC=100 PPM	57668	RB20FX221E
A6R340	322-3311-00	610-0349-01		RES,FXD,FILM:16.9K OHM,1%,0.2W,TC=T0MI,SMALL BODY	56845	CCF-50-2-1692F
A6R341	321-0321-00			RES,FXD,FILM:21.5K OHM,1%,0.125W,TC=T0MI	19701	5043ED21K50F
A6R345	322-3260-00			RES,FXD,FILM:4.99K OHM,1%,0.2W,TC=T0	91637	CCF501G49900F
A6R415	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R416	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R419	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R420	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R440	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A6R521	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R522	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R523	315-0683-00			RES,FXD,FILM:68K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R524	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R720	322-3173-00			RES,FXD,FILM:619 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F619R0F
A6R725	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R726	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R740	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A6R741	315-0112-00			RES,FXD,FILM:1.1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R820	322-3173-00			RES,FXD,FILM:619 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F619R0F
A6R825	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R826	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R840	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A6R841	315-0112-00			RES,FXD,FILM:1.1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R920	315-0752-00			RES,FXD,FILM:7.5K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R921	315-0153-00			RES,FXD,FILM:15K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R922	322-3173-00			RES,FXD,FILM:619 OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2F619R0F
A6R930	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R945	322-3114-00			RES,FXD:METAL FILM;150 OHM,1%,0.2W,TC=100 PPM	91637	CCF50-2-G1500F
A6R946	315-0112-00			RES,FXD,FILM:1.1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6R947	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A6U220	156-0879-01			IC,MISC:TTL,INTERFACE	01295	SN75188N
A6U235	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A6U250	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A6U320	156-0878-01			IC,MISC:TTL,INTERFACE	01295	SN75189N
A6U335	156-1272-00			IC,LINEAR:BIPOLAR,OP-AMP;DUAL,HIGH OUTPUT DRIVE,LOW NOISE	01295	NE5532P
A6U425	156-0728-02			IC,DIGITAL:LS TTL,GATES	01295	SN74LS09N
A6U435	156-0730-02			IC,DIGITAL:LS TTL,GATES	01295	SN74LS33N
A6CR415	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR420	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR421	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR640	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR740	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR835	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A6CR945	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A6CR946	152-0066-00			DIODE,RECT:400V,1A,IFSM=30A,1.2VF,2US	0LUA3	1N5060
A6TP130	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6TP720	214-0579-00			TERM,TEST POINT:PCB,TEST POINT;EYELET 0.055 /0.045 TIPCHAMFER	0J260	ORDER BY DESC
A7	610-0426-00	B010100	B029999	FAN ASSEMBLY:118AS	80009	610042600
A7	610-0426-01	B030000		FAN ASSEMBLY:118AS	80009	610042601
A7B500	119-1605-00			FAN,TUBEAXIAL:24VDC,3.1 W,3500 RPM,35 CFM,80 X 80 MM, 40 MM THICK	5Y921	SD24B1/028934
A7C129	285-1245-00			CAP,FXD,PLASTIC:0.01UF,10%,400V	TK1913	MKP 10 0.01/400
A7C229	285-1245-00			CAP,FXD,PLASTIC:0.01UF,10%,400V	TK1913	MKP 10 0.01/400
A7C339	285-1245-00			CAP,FXD,PLASTIC:0.01UF,10%,400V	TK1913	MKP 10 0.01/400
A7J115	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7J118	131-0608-00			CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
A7J129	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7J215	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7J229	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7J315	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7J329	131-3217-00			CONN,RCPT,ELEC:BNC,FEMALE,CKT BOARD MOUNT	24931	28JR220-3
A7R122	321-1000-07	610-0426-00	610-0426-00	RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7R122	322-3256-00	610-0426-01		RES,FXD,FILM:4.53K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G4531FT
A7R123	321-1000-07	610-0426-00	610-0426-00	RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7R123	322-3256-00	610-0426-01		RES,FXD,FILM:4.53K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G4531FT
A7R222	321-1000-07	610-0426-00	610-0426-00	RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7R222	322-3256-00	610-0426-01		RES,FXD,FILM:4.53K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G4531FT
A7R223	321-1000-07	610-0426-00	610-0426-00	RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7R223	322-3256-00	610-0426-01		RES,FXD,FILM:4.53K OHM,1%,0.2W,TC=T0MI,SMALL BODY	91637	CCF50-2-G4531FT
A7R322	321-1000-07			RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7R323	321-1000-07			RES,FXD,FILM:21.1K OHM,091%,0.125W,TC=T9	19701	5033RE1K000B
A7CR118	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR119	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR125	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR126	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR218	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR219	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR225	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR226	152-0141-02	610-0426-00	610-0426-00	DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR318	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR319	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR325	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7CR326	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A7VR118	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR119	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR125	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR126	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR218	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR219	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR225	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A7VR226	152-0688-00	610-0426-01		DIODE,ZENER:2.4V,5%,0.4W	04713	1N4370A
A8	610-0425-00			LINE FLTR ASSY:118AS	80009	610042500
A8C245	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V,	TK0515	PME 290 MB 5100
A8C344	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V,	TK0515	PME 290 MB 5100
A8F219	159-0211-00			FUSE,CARTRIDGE:3AG,5AMP,250V,SLOW BLOWSAF CONT	61857	NSD10 5A
A8J149	131-3005-00			CONN,BOX PWR:PCB;FEMALE,RTANG,1 X 5,0.1	26742	3009-105-2103-2
A8J213	131-2663-00			CONN,RCPT,ELEC:PWR,3 MALE,250VAC,10A	82389	EAC 333
A8L236	108-1124-00			COIL,RF:FIXED,150UH	0JR03	108-1124-00
A8L336	108-1124-00			COIL,RF:FIXED,150UH	0JR03	108-1124-00
A8R325	315-0226-00			RES,FXD,FILM:22M OHM,5%,0.25W	50139	CB2265
A8T225	120-1471-00			TRANSFORMER,RF:COMMON MODE	0JR03	ORDER BY DESC

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A8RC328	119-1168-00			CAPACITOR-RES:0.1UF,20% & 22 OHM,10%,250VAC	TK0515	PMR202MD6100M02
A8RT319	307-0746-00			RES,THERMAL:5 OHM,10%,7A/DEG C,	15454	SG200-S STRAI
A8RT322	307-0746-00			RES,THERMAL:5 OHM,10%,7A/DEG C,	15454	SG200-S STRAI
A12	670-7742-00			CIRCUIT BD ASSY:LED	80009	670774200
A12P101	131-1425-00			CONN,HDR:PCB;MALE,RTANG,1 X 36,0.1CTR,0.230 MLG X 0.090 TAIL,30 GOLD,STACKABLE	22526	65521-136
A12DS102	150-1095-01			LT EMITTING DIO:RED,660NM,50MA	0AP78	ESBR 5731
A12DS103	150-1017-00			LT EMITTING DIO:GREEN,550NM,55MA MAX	50434	HLMP3910

# DIAGRAMS & CIRCUIT BOARD ILLUSTRATIONS

This section of the manual contains block and schematic diagrams with waveforms, and etched circuit board illustrations.

## Symbols

Symbols used on the diagrams are based on ANSI Y32.2-1970 and IEEE No. 315 March 1971. Logic symbology is based on ANSI Y32.14-1973 (IEEE Std. 91-1973). Logic symbols depict the logic function performed and may differ from the manufacturer's data.

## Component Values

Electrical components shown on the diagrams are in the following units unless noted otherwise:

Capacitors = Values one or greater are in picofarads (pF).  
Values less than one are in microfarads ( $\mu$ F).

Resistors = Ohms ( $\Omega$ ).

## Semiconductor Types

Refer to the Electrical Parts List.

## Reference Designators

The following letters are used as reference designators to identify components or assemblies on Tektronix, Inc. schematic diagrams.

<b>A</b>	Assembly, separable or repairable (circuit board, etc.)	<b>LR</b>	Inductor/resistor combination
<b>AT</b>	Attenuator, fixed or variable	<b>M</b>	Meter
<b>B</b>	Motor	<b>P</b>	Connector, movable portion
<b>BT</b>	Battery	<b>Q</b>	Transistor, silicon-controlled rectifier, or programmable unijunction transistor
<b>C</b>	Capacitor, fixed or variable	<b>R</b>	Resistor, fixed or variable
<b>CR</b>	Diode, signal or rectifier	<b>RT</b>	Thermistors
<b>DH</b>	Decoupling Hybrid	<b>S</b>	Switch
<b>DL</b>	Delay Line	<b>T</b>	Transformer
<b>DS</b>	Indicating device (lamp)	<b>TC</b>	Thermocouple
<b>E</b>	Spark Gap	<b>TP</b>	Test Point
<b>F</b>	Fuse	<b>U</b>	Assembly, inseparable or non-repairable (integrated circuit, etc.)
<b>FL</b>	Filter	<b>V</b>	Electron tube
<b>H</b>	Heat dissipating device (heat sink, heat radiator, etc.)	<b>VR</b>	Voltage regulator (zener diode, etc.)
<b>HR</b>	Heater	<b>Y</b>	Crystal
<b>J</b>	Connector, stationary portion		
<b>K</b>	Relay		
<b>L</b>	Inductor, fixed or variable		

## Partial Schematic Diagram With Explanations

The partial diagram at the left is an example of the various symbols and other information provided on Tektronix, Inc. diagrams.



## Section 12

# Replaceable Mechanical Parts

This section contains a list of the components that are replaceable for the 118-AS. 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

<p><b>Figure &amp; Index No.</b> (Column 1)</p>	<p>Items in this section are referenced by figure and index numbers to the illustrations.</p>
<p><b>Tektronix Part No.</b> (Column 2)</p>	<p>Indicates part number to be used when ordering replacement part from Tektronix.</p>
<p><b>Serial No.</b> (Column 3 and 4)</p>	<p>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.</p>
<p><b>Qty (Column 5)</b></p>	<p>This indicates the quantity of mechanical parts used.</p>
<p><b>Name and Description</b> (Column 6)</p>	<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> <pre> 1 2 3 4 5      Name &amp; 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*</pre> <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. <b>Mounting parts must be purchased separately, unless otherwise specified.</b></p>
<p><b>Mfr. Code</b> (Column 7)</p>	<p>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.)</p>
<p><b>Mfr. Part Number</b> (Column 8)</p>	<p>Indicates actual manufacturer's part number.</p>



CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
TK0392	NORTHWEST FASTENER SALES INC	7923 SW CIRRIUS DRIVE	BEAVERTON OR 97005-6448
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
TK1158	POWEL AND ASSOCIATES	111 S FINDLAY ST	SEATTLE WA 98108-2427
TK1181	SEA-TAC INDUSTRIES INC	1217 FOURTH AVE N	KENT WA 98031
TK1364	E T I	15050 NE 95TH ST	REDMOND WA 98052
TK1384	LIGHTNING METAL SPECIALTIES INC	2671 UNITED LANE	ELK GROVE VILLAGE IL 60007
TK1386	PYRAMID ELECTRONICS SUPPLY INC	9757 JUANITA DRIVE NE	KIRKLAND WA 98034
TK1389	GMT INTERNATIONAL CORP	VILLA INDUSTRIAL PARK PO BOX 117	VILLA RICA GA 30180
TK1410	NEW CONCEPT MACHINE INC	17300 SW BASELINE RD	BEAVERTON OR 97006-4263
TK1499	AMLAN INC	97 THORNWOOD RD	STAMFORD CT 06903-2617
TK1593	METAL SPECIALTIES	5501 SW ROSEWOOD	LAKE OSWEGO OR 97034
TK1719	NEDELCO BV (THOMAS & BETTS)	POSTBUS 6431	3002 AK ROTTERDAM THE NETHERLANDS
TK1742	WJ WILD MANUFACTURING CO	PO BOX 103 FLOODGATE STREET	BIRMINGHAM B5 55J ENGLAND
TK1828	LITE SPECIALTY METAL WORKS	20460 SW AVERY CT	TUALATIN OR 97062
TK2548	XEROX BUSINESS SERVICES DIV OF XEROX CORPORATION	14181 SW MILLIKAN WAY	BEAVERTON OR 97077
TK2601	MAXTEK COMPONENTS CORPORATION	13335 SW TERMAN RD PO BOX 1480	BEAVERTON, OR 97075-1480
0B445	ELECTRI-CORD MFG CO INC	312 EAST MAIN ST	WESTFIELD PA 16950
0JR05	TRIQUEST CORP	3000 LEWIS AND CLARK HWY	VANCOUVER WA 98661-2999
0KB28	SHELLEY-RAGON INC (DIST)	919 SW 150TH	SEATTLE WA 98166-1829
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
01536	TEXTRON INC CAMCAR DIV SEMS PRODUCTS UNIT	1818 CHRISTINA ST	ROCKFORD IL 61108
04729	UNICORP	291 CLEVELAND ST	ORANGE NJ 07050-2817
05276	ITT POMONA ELECTRONICS DIV	1500 E 9TH ST PO BOX 2767	POMONA CA 91766-3835
06666	GENERAL DEVICES CO INC	1410 S POST RD PO BOX 39100	INDIANAPOLIS IN 46239-9632
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039-2410
08530	RELIANCE MICA CORP	341-39TH ST	BROOKLYN NY 11212-2903
09422	PLASTIC STAMPING CORP	2216 W ARMITAGE AVE	CHICAGO IL 60647-4461
09922	BURNDY CORP	1 RICHARDS AVE	NORWALK CT 06856
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125-4632
13103	THERMALLOY CO INC	2021 W VALLEY VIEW LN PO BOX 810839	DALLAS TX 75381
18565	CHOMERICS INC	77 DRAGON COURT	WOBURN MA 01801-1039
2K262	BOYD CORP	6136 NE 87th AVE PO BOX 20038	PORTLAND OR 97220
2W944	PAPST MECHATRONIC CORP	AQUIDNECK INDUSTRIAL PK	NEWPORT RI 02840
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
27264	MOLEX INC	2222 WELLINGTON COURT	LISLE IL 60532-1613
28205			
31223	MICRO PLASTICS INC	20821 DEARBORN ST	CHATSWORTH CA 91311-5916
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
32559	BIVAR INC	4 THOMAS ST	IRVINE CA 92718-2512
5Y400	TRIAx METAL PRODUCTS INC DIV OF BEAVERTON PARTS MFG CO	1800 NW 216TH AVE	HILLSBORO OR 97124-6629
55566	R A F ELECTRONIC HARDWARE INC	95 SILVERMINE RD	SEYMOUR CT 06483-3915
58050	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907

## Replaceable Mechanical Parts

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<b>Mfr. Code</b>	<b>Manufacturer</b>	<b>Address</b>	<b>City, State, Zip Code</b>
61857	SAN-0 INDUSTRIAL CORP	91-3 COLIN DRIVE	HOLBROOK NY 11741
61935	SCHURTER INC	1016 CLEGG COURT	PETALUMA CA 94952-1152
70399	AMERICAN SCREW MACHINE PRODUCTS INC	5240 BELMONT	DOWNERS GROVE IL 60515-4316
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
73893			
76854	OAK/GRIGSBY AN OAK INDUSTRIES INC CO	88 N DUGAN ROAD PO BOX 890	SUGAR GROVE IL 60544-0890
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIV	ST CHARLES ROAD	ELGIN IL 60120
8X345	NORTHWEST SPRING & MFG CO	5858 SW WILLOW LANE	LAKE OSWEGO OR 97035
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001
80126	PACIFIC ELECTRICORD CO	747 W REDONDO BEACH PO BOX 10	GARDENA CA 90247-4203
82389	SWITCHCRAFT INC SUB OF RAYTHEON CO	5555 N ELSTRON AVE	CHICAGO IL 60630-1314
85471	BOYD CORP	13885 RAMOMA AVE	CHINO CA 91710
86928	SEASTROM MFG CO INC	701 SONORA AVE	GL ENDALE CA 91201-2431
91506	AUGAT IPD	452 JOHN DIETSCH BLVD PO BOX 2510	ATTLEBORO FALLS MA 02763



## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
1-1	386-4928-00			1		PLATE,COVER:TOP REAR *MOUNTING PARTS*	TK1384	ORDER BY DESC
-2	211-0559-00			10		SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	1593-300
-3	348-0768-00			2		PAD,CUSHIONING:6.650 X 2.00,BLACK,	2K262	ORDER BY DESC
-4	386-4929-00			1		PLATE,COVER:TOP FRONT *MOUNTING PARTS*	TK1384	ORDER BY DESC
-5	211-0559-00			16		SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	1593-300
	614-0371-00			1		FR PANEL ASSY:118AS	80009	614037100
-6	426-1969-00			2		.END CAP,FR FR:ALUMINUM *MOUNTING PARTS*	80009	426196900
-7	211-0559-00			6		.SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL	TK0435	1593-300
-8	213-0858-00			4		.SCREW,TPG,TR:6-32 X 0.5 L,TAPTITE,FLH,100 DEG,STEEL	73893	ORDER BY DESC
-9	211-0504-00			2		.SCREW,MACHINE:6-32 X 0.250,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-10	105-0943-00			2		.LATCH,FRAME:FRONT,CU-BE	TK1384	ORDER BY DESC
-11	214-2201-00			2		.PIN,SPRING:0.187 L X 0.069 OD,STL CD PL SAF CONT	0KB01	SPRING PIN: .18
-12	214-3481-00			1		.HINGE:LEFT	TK1384	ORDER BY DESC
	214-3482-00			1		.HINGE:RIGHT	TK1384	ORDER BY DESC
-13	214-3480-00			2		.SPRING,LATCH:FRONT PANEL	8X345	ORDER BY DESC
-14	337-3189-00			1		.SHIELD,ELEC:EMI *MOUNTING PARTS*	TK1593	ORDER BY DESC
-15	211-0504-00			4		.SCREW,MACHINE:6-32 X 0.250,PNH,STL	TK0435	ORDER BY DESC
-16	210-0006-00			4		.WASHER,LOCK:#6 INTL,0.018 THK,STL *END MOUNTING PARTS*	78189	1206-00-00-0541
-17	-----			1		.CKT BOARD ASSY:LED (SEE A12 REPL) *MOUNTING PARTS*		
-18	210-0406-00			2		.NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
-19	210-0054-00			2		.WASHER,LOCK:#4 SPLIT,0.025 THK STL	86928	ORDER BY DESC
-20	361-0552-00			2		.SPACER,SLEEVE:0.093 L X 0.126 ID,BRS *END MOUNTING PARTS*	76854	3-5116-312
						..CKT BOARD ASSY INCLUDES:		
-21	-----			1		..TERM SET,PIN: (SEE A12P101 REPL)		
-22	131-0608-00			4		..CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
-23	378-0226-00			1		.FILTER ELEM,AIR:15.625 X 1.875 X 0.375 THKFOAM	80009	378022600
-24	426-1970-00			1		.FRAME,FRONT:110S	80009	426197000
-25	333-3135-00			1		.PANEL,FRONT:118AS	TK1384	ORDER BY DESC
-26	175-8420-00			1		.CA ASSY,SP,ELEC:26 AWG,5.0 L,RIBBON	TK1364	ORDER BY DESC
-27	337-1924-00			1		SHIELD,CKT BD:W/DIAGNOSTIC CARD SHELF	80009	337192400
-28	337-3102-00			6		SHIELD,ELEC:CIRCUIT BOARD	TK1384	ORDER BY DESC
-29	426-1948-01			2		FRAME SECT,CAB.:INSIDE	80009	426194801
-30	426-1949-01			2		FRAME SECT,CAB.:OUTSIDE	80009	426194901
-31	213-0216-00			2		THUMBSCREW:10-32 X 0.85,0.375 OD HD,SST	0KB01	213-0216-00
-32	210-0894-00			2		WASHER,FLAT:0.19 ID X 0.438 OD X 0.031 POLTHN	09422	ORDER BY DESC
-33	354-0025-00			2		RING,RETAINING:EXTERNAL,U/O 0.187 DIA SFT	TK0941	555-18MI
-34	407-3015-00			2		BRACKET,RACK MT:ALUMINUM *MOUNTING PARTS*	TK1410	ORDER BY DESC
-35	212-0065-00			4		SCREW,MACHINE:8-32 X 0.5 L,PNH,STL	70399	ORDER BY DESC
-36	210-0008-00			4		WASHER,LOCK:#8 INTL,0.02 THK,STL *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-37	351-0104-03			1		SL SECT,DWR EXT:12.625 L,W/O HARDWARE, *MOUNTING PARTS*	06666	C-720-3 (WITHOU
-38	212-0023-00			8		SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESC

## Replaceable Mechanical Parts

Fig. & In- dex No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-39	210-0008-00			8		WASHER,LOCK:#8 INTL,0.02 THK,STL	0KB01	ORDER BY DESC
	211-0504-00			2		SCREW,MACHINE:6-32 X 0.250,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-40	386-4927-00			2		PLATE,SIDE:110S, *MOUNTING PARTS*	TK1384	ORDER BY DESC
-41	212-0023-00			12		SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESC
-42	210-0008-00			12		WASHER,LOCK:#8 INTL,0.02 THK,STL *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-43	386-4930-00			1		PLATE,COVER:BOTTOM *MOUNTING PARTS*	TK1384	ORDER BY DESC
-44	211-0559-00			4		SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL	TK0435	1593-300
-45	211-0559-00			16		SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	1593-300

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
2-1	-----			1		CKT BOARD ASSY:POWER SUPPLY (SEE A4 REPL)		
-2	105-0534-00			1		.EJECTOR,CKT BD:BLACK	32559	LP-06 (BLACK)
	214-1337-00			1		.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	0KB01	ORDER BY DESC
-3	105-0951-00			1		.LATCH,PWR SPLY:118AS	80009	105095100
-4	337-3194-00			1		.SHIELD,ELEC:CIRCUIT BOARD *MOUNTING PARTS*	5Y400	ORDER BY DESC
-5	211-0292-00			2		.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL,POZ	TK0435	ORDER BY DESC
-6	211-0101-00			2		.SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-7	-----			1		.CKT BOARD ASSY:POWER LED (SEE A4A1 REPL) *MOUNTING PARTS*		
-8	211-0007-00			2		..SCREW,MACHINE:4-40 X 0.188,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-9	129-0222-00			2		..SPACER,POST:0.27 L,4-40 THRU,PLSTC,0.25 OD *MOUNTING PARTS*	80009	129022200
-10	211-0007-00			2		..SCREW,MACHINE:4-40 X 0.188,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-11	-----			11		..TERMINAL,PIN: (SEE A4A1P125,P208 REPL)		
	175-9558-00			1		.CA ASSY,SP,ELEC:7,26 AWG,16.25 L,RIBBON	TK1386	ORDER BY DESC
-12	200-2264-00			1		.CAP,FUSEHOLDER:3AG FUSES	61935	FEK 031 1666
-13	204-0906-00			1		.BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	61935	TYPE FAU 031.35
-14	200-2735-00			1		.COVER,POWER SW:BLACK,POLYCARBONATE	0JR05	ORDER BY DESC
-15	366-2157-01			1		.PUSH BUTTON:W/LAMPLESS STATUS INDICATOR	31918	160-866
-16	-----			1		.SWITCH,POWER: (SEE A4S307 REPL) *MOUNTING PARTS*		
-17	211-0198-00			2		.SCREW,MACHINE:4-40 X 0.438,PNH,STL	TK0435	ORDER BY DESC
-18	210-0405-00			2		.NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL	73743	12157-50
-19	210-0053-00			2		.WASHER,LOCK:#2 SPLIT,0.02 THK STL *END MOUNTING PARTS*	TK0392	ORDER BY DESC
-20	220-0016-00			3		.NUT BAR:0.500 L,ALUMINUM *MOUNTING PARTS*	TK1828	ORDER BY DESC
-21	211-0198-00			2		.SCREW,MACHINE:4-40 X 0.438,PNH,STL	TK0435	ORDER BY DESC
-22	211-0097-00			1		.SCREW,MACHINE:4-40 X 0.312,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-23	346-0128-00			1		.STRAP,TIEDOWN,E:8.0 L X 0.1 W,NYLON	TK1719	TY232M
-24	175-9558-00			1		.CA ASSY,SP,ELEC:7,26 AWG,16.25 L,RIBBON	TK1386	ORDER BY DESC
-25	337-3192-00			1		.SHIELD,ELEC:CKT BD *MOUNTING PARTS*	85471	ORDER BY DESC
-26	211-0357-00			2		.SCREW,MACHINE:2-56 X 0.25,BDGH,NYL	31223	010256B025
-27	210-0363-00			2		.NUT,PLAIN,HEX:2-56 X 0.18,NYLON *END MOUNTING PARTS*	31223	0400256HN
-28	129-1053-00			2		.SPACER,POST:2.0 L,4-40 BOTH ENDS,AL,HEX *MOUNTING PARTS*	04729	P-625-M06-F12-4
-29	211-0292-00			1		.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL,POZ	TK0435	ORDER BY DESC
	211-0661-00			1		.SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,CD PL,POZ,MACH *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-30	343-0133-00			1		.RTNR,XSTR COVER:ALUMINUM *MOUNTING PARTS*	80009	343013300
-31	211-0669-00			2		.SCREW,MACHINE:6-32 X 0.75,PNH,SST	TK0435	ORDER BY DESC
-32	210-0055-00			2		.WASHER,LOCK:#6 SPLIT,0.031 THK,STL *END MOUNTING PARTS*	86928	ORDER BY DESC
-33	200-2269-01			1		.COVER,XSTR:7612D	0JR05	ORDER BY DESC
-34	342-0458-00			1		.INSULATOR,PLATE:TRANSISTOR,MICA	08530	1339X1-2MC
-35	342-0449-01			1		.INSULATOR,PLATE:TRANSISTOR,ALUMINA	TK2601	342044901

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
-36	_____			1		.SW,THERMOSTATIC: (SEE A4S340 REPL) *MOUNTING PARTS*		
-37	211-0292-00			2		.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL,POZ *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-38	_____			1		.SEMICONV DEVICE: (SEE A4CR355 REPL) *MOUNTING PARTS*		
-39	211-0669-00			2		.SCREW,MACHINE:6-32 X 0.75,PNH,SST	TK0435	ORDER BY DESC
-40	210-0055-00			2		.WASHER,LOCK:#6 SPLIT,0.031 THK,STL *END MOUNTING PARTS*	86928	ORDER BY DESC
-41	386-0786-00	B010100	B030371	1		.INSULATOR,PLATE:TRANSISTOR,MICA	28205	ORDER BY DESC
	342-0629-00	B030372		1		.INSULATOR,PLATE:TRANSISTOR,SILICONE RUBBER	18565	TO BE ASSIGNED
-42	136-0135-01			1		.SKT,PL-IN ELEK:TRANSISTOR,2 CONT	91506	8080-1G7 WITH M
-43	343-0136-00			1		.CLAMP,LOOP:0.25 ID,PLASTIC *MOUNTING PARTS*	80009	343013600
-44	211-0292-00			1		.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL,POZ	TK0435	ORDER BY DESC
-45	210-0851-00			1		WASHER,FLAT:0.119 ID X 0.375 OD X 0.025,STL *END MOUNTING PARTS*	12327	ORDER BY DESC
-46	_____			1		.MICROCIRCUIT,DI: (SEE A4U145 REPL) *MOUNTING PARTS*		
-47	211-0315-00			1		.SCR,ASSEM WSHR:4-40 X 0.437,PHN,STL CD PL POZ	TK0435	ORDER BY DESC
-48	210-0054-00			1		.WASHER,LOCK:#4 SPLIT,0.025 THK STL	86928	ORDER BY DESC
-49	210-0551-00			1		.NUT,PLAIN,HEX:4-40 X 0.25,ST CD PL	TK0435	ORDER BY DESC
-50	210-1178-00			1		.WASHER,SHLDR:U/W TO-220 TRANSISTOR *END MOUNTING PARTS*	13103	7721-7PPS
-51	342-0322-00			1		.INSULATOR,FILM:TRANSISTOR,PLASTIC	13103	43-77-2
-52	_____			1		.MICROCIRCUIT,DI:(SEE A4U147 REPL) *MOUNTING PARTS*		
-53	211-0315-00			1		.SCR,ASSEM WSHR:4-40 X 0.437,PHN,STL CD PL POZ	TK0435	ORDER BY DESC
-54	210-0054-00			1		.WASHER,LOCK:#4 SPLIT,0.025 THK STL	86928	ORDER BY DESC
-55	210-0551-00			1		.NUT,PLAIN,HEX:4-40 X 0.25,ST CD PL	TK0435	ORDER BY DESC
-56	210-1178-00			1		.WASHER,SHLDR:U/W TO-220 TRANSISTOR *END MOUNTING PARTS*	13103	7721-7PPS
-57	342-0322-00			1		.INSULATOR,FILM:TRANSISTOR,PLASTIC	13103	43-77-2
-58	214-3671-00			1		.HEAT SINK,ELEC:ALUMINUM *MOUNTING PARTS*	80009	214367100
-59	211-0292-00			2		.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL,POZ	TK0435	ORDER BY DESC
-60	211-0658-00			3		.SCR,ASSEM WSHR:6-32 X 0.312,PNH,STL,POZ	TK0435	17691-300
-61	343-0549-00			2		.STRAP,TIEDOWN,E:0.098 W X 4.0 L,ZYTEL	TK1499	HW-047
-62	_____			1		.CONN,RCPT,ELEC: (SEE A4P265 REPL) *MOUNTING PARTS*		
-63	211-0159-00			2		.SCREW,MACHINE:2-56 X 0.375,PNH,STL	TK0435	1183-302
-64	210-0001-00			2		.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-65	361-1222-00			2		.SPACER,CONN:0.188 X 0.5 X 0.267,AL *MOUNTING PARTS*	TK1410	ORDER BY DESC
-66	211-0062-00			4		.SCREW,MACHINE:2-56 X 0.312,PNH,STL	TK0435	ORDER BY DESC
-67	210-0053-00			4		.WASHER,LOCK:#2 SPLIT,0.02 THK STL *END MOUNTING PARTS*	TK0392	ORDER BY DESC
-68	342-0324-00			1		.INSULATOR,DISK:TRANSISTOR,NYLON	13103	7717-5N
-69	_____			7		.TERMINAL,PIN: (SEE A4J576 REPL)		
-70	_____			7		.TERM,TESTPOINT: (SEE A4TP107,TP152,TP452,TP488,TP513,TP558,TP573 REPL)		





## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont				
3-1	_____			1	CKT BOARD ASSY:ANALOG (SEE A1 REPL)		
-2	105-0534-00			1	.EJECTOR,CKT BD:BLACK *MOUNTING PARTS*	32559	LP-06 (BLACK)
-3	214-1337-00			1	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-4	131-2962-00			2	.TERMINAL,STUD:0.262 L	05276	003-1007-000-47
-5	131-0993-02			6	.BUS,CONDUCTOR:SHUNT ASSEMBLY,RED (END USAGE 670-8453-00)	00779	1-850100-O
	131-0993-02			3	.BUS,CONDUCTOR:SHUNT ASSEMBLY,RED (BEGIN USAGE 670-8453-01)	00779	1-850100-O
	131-0993-05			7	.BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
-6	_____			32	.TERMINAL,PIN: (SEE A1J160,J212,J214,J284,J285,J384,J445,J662,J990 REPL)		
-7	_____			14	.TERM,TEST POINT: (SEE A1TP102,TP137,TP143,TP157,TP198,TP215,TP347, TP461,TP523,TP524,TP533,TP546,TP687,TP688,TP717, TP722,TP812,TP817,TP827,TP830,TP834,TP905,TP976,TP994 REPL)		
-8	136-0751-00			2	.SKT,DIP:PCB;STR,2 X 12,24 POS,0.1 X 0.6CTR,0.175 H X 0.13 TAIL,BECU,TIN,ACCOM 0.008-0.015 X 0.014-0.022 LEADS	09922	DILB24P108
-9	_____			8	.TRANSISTOR: (SEE A1Q472,Q476,Q480,Q484,Q672,Q676,Q680,Q684 REPL) *MOUNTING PARTS*		
-10	211-0558-00			8	.SCREW,MACHINE:6-32 X 0.25,BDGH,NYL	TK1158	ORDER BY DESC
-11	210-0407-00			8	.NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL	73743	3038-402
-12	210-1178-00			8	.WASHER,SHLDR:U/W TO-220 TRANSISTOR *END MOUNTING PARTS*	13103	7721-7PPS
-13	_____			1	.CONN.,RCPT,ELEC:(SEE A1P199 REPL) *MOUNTING PARTS*		
-14	211-0185-00			2	.SCREW,MACHINE:2-56 X 0.438,PNH,STL	0KB01	ORDER BY DESC
-15	210-0405-00			2	.NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL	73743	12157-50
-16	210-0001-00			2	.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-17	_____			1	CKT BOARD ASSY:DIGITAL (SEE A2 REPL)		
-18	105-0534-00			1	.EJECTOR,CKT BD:BLACK,	32559	LP-06 (BLACK)
-19	214-1337-00			1	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	0KB01	ORDER BY DESC
-20	131-2962-00			2	.TERMINAL,STUD:0.262 L	05276	003-1007-000-47
-21	131-0589-00			4	.TERMINAL,PIN:PRESSFIT/PCB;MALE,STR,0.025 SQ,0.343 MLG X 0.122 TAIL,0.465 L,50 GOLD,W/FERRULE	22526	48283-087
-22	344-0329-00			2	.CLIP,ELECTRICAL:PCB;FEMALE,STR,ACCOM 5 X 20MM FUSE,5.9MM H X 3.2MM TAIL,5MM PTH SP,1.3MM DIA PTH,BRONZE TIN PLATED	61857	H-0011-2
-23	136-0755-00	670-8454-00	670-8454-05	3	.SKT,DIP:PCB;FEMALE,STR,2 X 14,28 POS,0.1 X 0.6 CTR,0.175 H X 0.130 TAIL,BECU,TIN,ACCOM 0.008-0.0015 X 0.014-0.022 (USED AT A2U718,U743,U912)	09922	DILB28P-108
	136-0755-00	670-8454-05		2	.SKT,DIP:PCB;FEMALE,STR,2 X 14,28 POS,0.1 X 0.6 CTR,0.175 H X 0.130 TAIL,BECU,TIN,ACCOM 0.008-0.0015 X 0.014-0.022 (USED AT A2U718,U743)	09922	DILB28P-108
-24	136-0757-00	670-8454-00	670-8454-05	2	.SKT,DIP:PCB;FEMALE,STR,2 X 20,40 POS,0.1 X 0.6 CTR,0.175 H X 0.130 TAIL,BECU,TIN,ACCOM 0.008-0.015 X 0.014-0.022 IC (USED AT A2U925,U942)	09922	DILB40P-108

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
-25	136-0751-00	670-8454-00	670-8454-05	1	.SKT,DIP:PCB;STR,2 X 12,24 POS,0.1 X 0.6CTR,0.175 H X 0.13 TAIL,BECU,TIN,ACCOM 0.008-0.015 X 0.014-0.022 LEADS (USED AT A2U729)	09922	DILB24P108
-26	136-0752-00	670-8454-00	670-8454-05	4	.SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP (USED AT A2U635,U690,U790)	09922	DILB20P-108
	136-0752-00	670-8454-05		1	.SKT,PL-IN ELEK:MICROCIRCUIT,20 DIP	09922	DILB20P-108
-27	136-0756-00	670-8454-00	670-8454-05	20	.SKT,DIP:PCB;FEMALE,STR,2 X 9,18 POS,0.1 X 0.3 CTR,0.175 H X 0.130 TAIL,BECU,TIN (USED AT A2U152,U160,U168,U176,U252,U253,U260,U261,U268,U269,U276,U277,U352,U360,U368,U376,U452,U460,U468,U476)	09922	DILB18P-108
-28	131-0993-05			4	.BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
-29	_____			13	.TERMINAL,PIN: (SEE A2J685,J785,J889,J975 REPL)		
-30	_____			6	.TERM,TEST POINT: (SEE A2TP108,TP196,TP429,TP810,TP868,TP999 REPL)		
-31	131-2866-00			1	.CONN,DIN:PCB;MALE,RTANG,3 X 32,0.1CTR,0.209 MLG X 0.104 TAIL,30 GOLD *MOUNTING PARTS*	58050	072-96114-390
-32	211-0185-00			2	.SCREW,MACHINE:2-56 X 0.438,PNH,STL	0KB01	ORDER BY DESC
-33	210-0405-00			2	.NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL	73743	12157-50
-34	210-0001-00			2	.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-35	_____			1	CKT BOARD ASSY:INTERCONNECT (SEE A5 REPL)		
-36	_____			1	.CONN.,RCPT,ELEC:FEMALE,3 X 16,0.1 (SEE A5J285 REPL) *MOUNTING PARTS*		
-37	211-0185-00			2	.SCREW,MACHINE:2-56 X 0.438,PNH,STL	0KB01	ORDER BY DESC
-38	210-0001-00			2	.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-39	337-3193-00			1	.SHIELD,ELEC:CKT BD *MOUNTING PARTS*	80009	337319300
-40	211-0357-00			2	.SCREW,MACHINE:2-56 X 0.25,BDGH,NYL	31223	010256B025
-41	210-0363-00			2	.NUT,PLAIN,HEX:2-56 X 0.18,NYLON	31223	0400256HN
-42	210-0001-00			2	.WASHER,LOCK:#2 INTL,0.013 THK,STL	78189	1202-00-00-0541
-43	131-3227-00			1	.CONN,HDR PWR:PCB;MALE,STR,1 X 5,0.156 CTR,0.450 MLG X 0.175 TAIL,20 GOLD,0.045 DIA,W/POS 2,4REMOVED	27264	26-51-2050
-44	_____			1	.TERM. SET,PIN: (SEE A5J240 REPL)		
-45	131-1939-00			1	.CONN,HDR:PCB;MALE,STR,1 X 14,0.15 CTR,0.230 X 0.285 MLG,30 GOLD,SIDE X SIDE STACKABLE,0.025 SQ	22526	65561-114
-46	_____			7	.CONN.,RCPT,ELEC: (SEE A5J150,J309,J350,J509,J550,J609,J650 REPL) *MOUNTING PARTS*		
-47	211-0185-00			14	.SCREW,MACHINE:2-56 X 0.438,PNH,STL	0KB01	ORDER BY DESC
-48	210-0001-00			14	.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-49	_____			1	.CONN.,RCPT,ELEC:FEMALE,3 X 32,0.1 (SEE A5J109 REPL) *MOUNTING PARTS*		
-50	211-0198-00			2	.SCREW,MACHINE:4-40 X 0.438,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-51	384-1653-00			4	.ROD,SUPPORT:3.3 L X 0.25 OD,ALUMINUM	TK1384	ORDER BY DESC
-52	386-4958-00			1	.POST,SUPPORT:CIRCUIT BOARD *MOUNTING PARTS*	TK1410	ORDER BY DESC
-53	211-0003-00			2	.SCREW,MACHINE:2-56 X 0.875,PNH,STL	TK0435	ORDER BY DESC

## Replaceable Mechanical Parts

Fig. & In- dex No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-54	129-0046-00			1		.SPCR,POST:0.25 L,4-40 EXT/2-56 INT,STL,CDPL,0.188 OD	55566	4001-440-256-S-
-55	129-1050-00			1		.SPACER,POST:NYLON *END MOUNTING PARTS*	31223	13SP040-SP40

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
4-1	_____			1		CKT BOARD ASSY:I/O ASSY (SEE A6 REPL) *MOUNTING PARTS*		
	211-0724-00			4		SCREW,MACHINE:6-32 X 0.375,PNH	01536	ORDER BY DESC
-2	210-0006-00			4		WASHER,LOCK:#6 INTL,0.018 THK,STL *END MOUNTING PARTS*	78189	1206-00-00-0541
-3	131-3207-00			6		CKT BOARD ASSY INCLUDES: .CONN,RCPT,ELEC:MALE,3 CONTACT *MOUNTING PARTS*	82389	D3M
-4	211-0038-00			12		.SCREW,MACHINE:4-40 X 0.312,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-5	131-3208-00			3		.CONN,RCPT,ELEC:FEMALE,3 CONTACT, *MOUNTING PARTS*	82389	D3F
-6	211-0038-00			6		.SCREW,MACHINE:4-40 X 0.312,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-7	175-9542-00			6		.CA ASSY,SP,ELEC:3.26 AWG,4.75 L,MULTI COND	TK1386	ORDER BY DESC
-8	220-0016-00			1		.NUT BAR:0.500 L,ALUMINUM *MOUNTING PARTS*	TK1828	ORDER BY DESC
-9	211-0038-00			1		.SCREW,MACHINE:4-40 X 0.312,FLH,100 DEG,STL	TK0435	ORDER BY DESC
-10	211-0244-00			1		.SCR,ASSEM WSHR:4-40 X 0.312,PNH,STL,CD PL,POZ,MACH *END MOUNTING PARTS*	TK0435	7772-312
-11	333-3138-00			1		.PANEL,REAR:I/O SECTION	5Y400	ORDER BY DESC
-12	_____			1		.CKT BOARD ASSY:I/O (SEE A6 REPL)		
-13	_____			1		.CONN,RPCT,ELEC: (SEE A6J410 REPL) *MOUNTING PARTS*		
-14	214-3903-01			2		.SCREW,JACK:4-40 X 0.312 EXT THD,4-40 INT THD,0.188 HEX,STEEL,CADPLATE *END MOUNTING PARTS*	0KB01	214-3903-01
-15	_____			1		CONN,RCPT,ELEC: (SEE A6J650 REPL) *MOUNTING PARTS*		
-16	211-0185-00			2		.SCREW,MACHINE:2-56 X 0.438,PNH,STL	0KB01	ORDER BY DESC
-17	210-0405-00			2		.NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL	73743	12157-50
-18	210-0001-00			2		.WASHER,LOCK:#2 INTL,0.013 THK,STL *END MOUNTING PARTS*	78189	1202-00-00-0541
-19	_____			30		.TERMINAL,PIN: (SEE A6J440,J445,J545,J645,J730,J830,J845,J930,J945 REPL)		
-20	131-0993-05			3		.BUS,CONDUCTOR:SHUNT ASSEMBLY,GREEN	00779	850100-5
-21	136-0728-00			2		.SKT,PL-IN ELEK:MICROCKT,14 CONTACT	09922	DILB14P-108
-22	136-0727-00			3		.SKT,PL-IN ELEK:MICROCKT,8 CONTACT	09922	DILB8P-108
-23	_____			2		.TERM,TEST POINT: (SEE A6TP130,TP720 REPL)		
	_____			1		CKT BOARD ASSY:FAN ASSY (SEE A7 REPL) *MOUNTING PARTS*		
-24	211-0559-00			2		SCREW,MACHINE:6-32 X 0.375,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	1593-300
-25	378-0216-00			1		CKT BOARD ASSY INCLUDES: .GRILLE,FAN:3.27 DIA,STEEL *MOUNTING PARTS*	2W944	LZ22N-1
-26	210-0402-00			4		.NUT,PLAIN,CAP:8-32 X 0.312 HEX,BRS CD PL	73743	93264-402
-27	210-0804-00			4		.WASHER,FLAT:0.17 ID X 0.375 OD X 0.032 *END MOUNTING PARTS*	TK1742	11/64" X 3/8" X
-28	210-0008-00			4		.WASHER,LOCK:#8 INTL,0.02 THK,STL	0KB01	ORDER BY DESC
-29	348-0766-00			4		.MOUNT,RESILIENT:0.156 SHAFT,0.375 L,0.375 DIA	TK1389	ORDER BY DESC

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-30	_____			1		.FAN,TUBEAXIAL: (SEE A7B500 REPL) *MOUNTING PARTS*		
-31	220-0555-00			4		.NUT,PLAIN,HEX:8-32 X 0.25 HEX,STL CD PL	OKB01	ORDER BY DESC
-32	210-0069-00			4		.WASHER,LOCK:#8 SPLIT,0.04 THK STL *END MOUNTING PARTS*	86928	ORDER BY DESC
-33	352-0198-01			1		.HLDR,TERM CONN:2 WIRE,BROWN	80009	352019801
-34	_____			6		.CONN,RCPT,ELEC: (SEE A7J115,J129,J215,J229,J315,J329 REPL)		
-35	210-1402-00			12		.WASHER,SHLDR:0.515 ID X 0.75 OD X 0.098THK,NYL	OKB01	210-1402-00
-36	210-0551-00			6		.NUT,PLAIN,HEX:4-40 X 0.25,ST CD PL	TK0435	ORDER BY DESC
	210-0055-00			2		.WASHER,LOCK:#6 SPLIT,0.031 THK,STL	86928	ORDER BY DESC
-37	_____			10		.TERMINAL,PIN: (SEE A7J118 REPL)		
-38	_____			1		.CKT BOARD ASSY: (SEE A7 REPL)		
-39	333-3140-00			1		.PANEL,REAR:FAN ASSEMBLY	5Y400	ORDER BY DESC
-40	175-2924-00			1		.CA ASSY,SP,ELEC:10,26 AWG,6.0 L,RIBBON	TK1386	ORDER BY DESC
-41	426-1962-01			2		FR SECT,FAN:110S	80009	426196201
				1		CKT BOARD ASSY:LINE FILTER ASSY (SEE A8 REPL) *MOUNTING PARTS*		
-42	211-0724-00			4		SCREW,MACHINE:6-32 X 0.375,PNH	01536	ORDER BY DESC
-43	210-0006-00			4		WASHER,LOCK:#6 INTL,0.018 THK,STL *END MOUNTING PARTS*	78189	1206-00-00-0541
						CKT BOARD ASSY INCLUDES:		
-44	200-2264-00			1		.CAP,FUSEHOLDER:3AG FUSES	61935	FEK 031 1666
-45	204-0833-00			1		.BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	61935	031 1653 (MODEL
-46	200-0237-04			1		.COVER,FUHLR:PLASTIC	0JR05	ORDER BY DESC
-47	210-1039-00			1		.WASHER,LOCK:0.521 ID,INT,0.025 THK,SST	OKB01	1224-02-00-0541
-48	333-3139-00			1		.PANEL,REAR:POWER SUPPLY	5Y400	ORDER BY DESC
-49	210-0202-00			1		.TERMINAL,LUG:0.146 ID,LOCKING,BRZ TIN PL	TK1181	ORDER BY DESC
-50	210-0407-00			1		.NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL	73743	3038-402
-51	334-3379-03			1		.MARKER,IDENT:MARKED GROUND SYMBOL	07416	ORDER BY DESC
-52	_____			1		.CONN,RCPT,ELEC: (SEE A8J213 REPL) *MOUNTING PARTS*		
-53	211-0315-00	B010100	B053645	2		.SCR,ASSEM WSHR:4-40 X 0.437,PHN,STL CD PL POZ	TK0435	ORDER BY DESC
	211-0014-00	B053646		2		.SCREW,MACHINE:4-40 X 0.5,PNH,STL	TK0435	ORDER BY DESC
	210-0055-00	B053646		2		.WASHER,LOCK:#6 SPLIT,0.031 THK,STL	86928	ORDER BY DESC
-54	210-0586-00			2		.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-55	337-3054-00			1		.SHIELD,ELEC:LINE IN *MOUNTING PARTS*	TK1384	ORDER BY DESC
-56	211-0315-00			3		.SCR,ASSEM WSHR:4-40 X 0.437,PHN,STL CD PL POZ *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-57	_____			1		.CKT BOARD ASSY: (SEE A8 REPL) *MOUNTING PARTS*		
-58	211-0315-00			2		.SCR,ASSEM WSHR:4-40 X 0.437,PHN,STL CD PL POZ	TK0435	ORDER BY DESC
-59	210-0586-00			2		.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-60	343-0549-00			1		.STRAP,TIEDOWN,E:0.098 W X 4.0 L,ZYTEL	TK1499	HW-047
-61	_____			1		CONN,RCPT,ELEC: (SEE A8J149 REPL)		
-62	_____			1		.TRANSFORMER,RF: (SEE A8T225 REPL) *MOUNTING PARTS*		
-63	212-0667-00			2		.SCREW,MACHINE:10-24 X 1.25,PNH,NYLON	TK0392	MACHINE SCREW:

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
-64	220-0835-00			2		.NUT,PLAIN,HEX:10-24,0.375 DIA,NYLON	0KBZ8	HNNY-1024NA-M
-65	210-0917-00			4		.WASHER,FLAT:0.191 ID X 0.625 OD X 0.025 *END MOUNTING PARTS*	86928	FLAT WASHER: .1
-66	407-2989-00	B010100	B053645	1		BRKT,DBL ANGLE:CABLE TIE,ALUMINUM	80009	407298900
	131-3573-00	B053646		1		CONN,PLUG,ELEC:MALE,W/LOCKING ADAPTER *MOUNTING PARTS*	80126	B-0779
-67	213-0934-00	B010100	B053645	2		THUMBSCREW:6-32 X 0.25 L,0.375 OD,SST *END MOUNTING PARTS*	80009	213093400

## Replaceable Mechanical Parts

Fig. & In- dex No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
5-						STANDARD ACCESSORIES		
-1	161-0066-00	B010100	B053645	1		CA ASSY,PWR:3,18 AWG,250V/10A,98 INCH,STR,IEC320, RCPT X NEMA 5-15P,US,SAFTEY CONTROLLED	0B445	ECM-161-0066-00
	161-0216-00	B053646		1		CABLE ASSY,PWR:3,18 AWG,2.5M L,BLACK	80126	C7120-25M-BL
-2	131-0570-00			1		CONN,DSUB:SLDR CUP/PNL,MALE,STR,25 POS,0.112 CTR,0.207 H X 0.144 L SLDR CUP TAIL,0.120 DIA THRU MTG,GRD INDENT	00779	747912-5
-3	200-1667-00			1		SHLD,ELEC CONN:DSUB,HSG;PLASTIC SHELL,25 POS,DSUB,(2)HEX NUTS,(4)4-40 SCREWS,0.335 MAX CABLE OPENING	00779	206472-1
-4	351-0636-00			1		SLIDE,DWR,EXT:20.0 X 1.69,PAIR,R&L	06666	C-1252
	070-5114-00			1		MANUAL,TECH:INSTR,118AS	TK2548	070511400
						OPTIONAL ACCESSORIES		
	670-7754-00			1		CIRCUIT BD ASSY:EXTENDER	80009	670775400

**Replaceable Mechanical Parts**

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# APPENDIX A

## 118-RC REMOTE CONTROL

### Introduction

The TEKTRONIX 118-RC REMOTE CONTROL is an optional accessory for the 118-AS Audio Synchronizer. It controls 118-AS delay of one, two, or three audio channels, individually or simultaneously, via an RS-232C-type interface.

Operating and servicing instructions for the 118-RC are contained in this appendix.

### OPERATING INFORMATION

All controls are located on the front panel of the 118-RC REMOTE CONTROL.

The RS-232 Control Port is located on the rear panel of the 118-RC.

### Controls and Indicators (See Fig. A-1)

- (1) SYSTEM STATUS — A red LED that blinks slowly to indicate an abnormal signal or circuit condition in the 118-AS. Change DISPLAY CHANNEL switch to determine which channel is causing the abnormality.
- (2) INPUT CLIP — An LED that lights when the audio input signal level to the 118-AS is too high and the signal could be clipped.
- (3) BYPASS — An LED that lights to indicate the 118-AS is bypassed. Bypass may be from either the 118-RC or the 118-AS.
- (4) BYPASS Switch — Manually controls bypass of all 118-AS channels. In the normal position automatic bypass is active and the 118-AS Internal Bypass switch(es) still work.

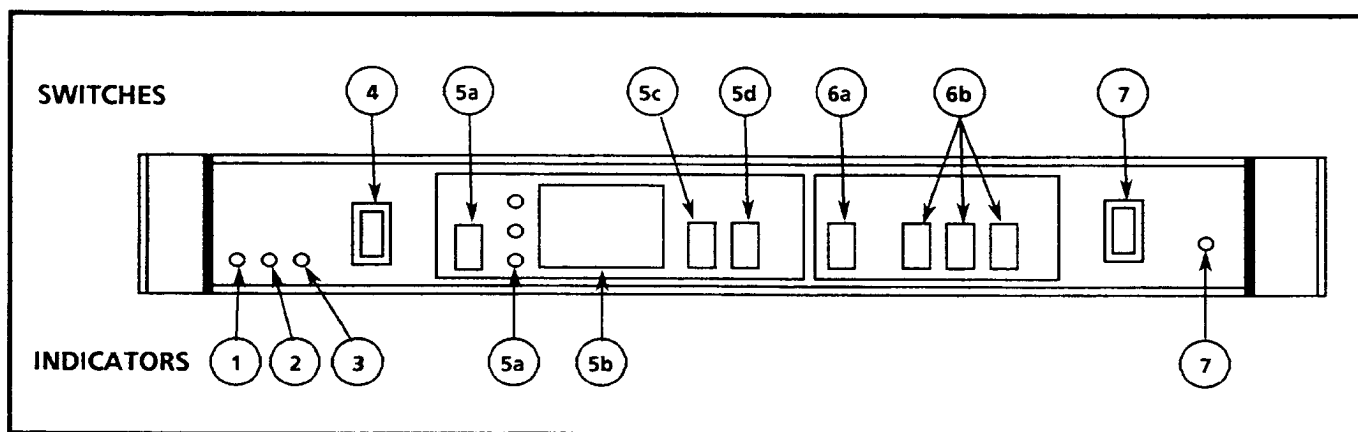


Fig. A-1. 118-RC front-panel switches and indicators.

(5) DELAY

- a. DISPLAY CHANNEL Switch and LEDs — A momentary push-button switch to select the channel whose delay is being read out. One of three green LEDs identifies the selected channel (1, 2, or 3). Delay can be read out in either fields or milliseconds, depending on the setting of the DISPLAY MODE switch. Channel 1 delay is displayed at power up.
- b. Readout — Three 7-segment LED displays that show the delay of the selected channel. The readout also shows the amount of delay selected by the MANUAL DELAY, while it is being changed. Once the delay change is made the display reverts to the channel number selected by the DISPLAY CHANNEL switch.

DISPLAY MODE

- c. FIELDS/MSEC — A momentary push-button switch that selects the units of display (fields or milliseconds). A green LED shows the selected readout.
- d. MANUAL/AUTO/TOTAL — A momentary push-button switch to select whether the readout displays the delay manually added (by the 118-RC), automatic delay (from the 118-AS), or the total delay (automatic delay + manual delay). Green LEDs identify which delay is being read.

(6) MANUAL DELAY

- a. SET CHANNEL — A momentary push-button switch that selects the channels for manual delay setting. The switch first comes up with all channels displayed. This allows changing the manual delay for all channels simultaneously. This makes it possible to reset all channels at once, even if more than one 118-AS is involved.

When all three channels are on, a software reset can be accomplished by pushing the DISPLAY CHANNEL.

The DISPLAY CHANNEL indicator LEDs light to indicate which channel delay is being set. The readout displays the lowest numbered channel whose delay is being manually set, and returns to the channel selected by the DISPLAY CHANNEL switch (in the DELAY DISPLAY mode) after the SET CHANNEL selection times out. If ALL is selected, Channel 1 delay is displayed. SET CHANNEL must be selected before changing delay.

- b. INCREASE/SLOW/DECREASE — Three momentary push-button switches that increase or decrease the amount of manual delay. Pushing either INCREASE or DECREASE changes the delay fast (1 field or 10 ms), and pushing one switch in conjunction with the SLOW switch reduces the rate of change (1 ms or 0.1 field).

- (7) AUTO DELAY — A rocker switch that enables or disables the 118-AS automatic delay control. When automatic delay is disabled, only the manual delay from the 118-RC is available. All channels are affected. The DISABLE LED lights to indicate that automatic delay control from the synchronizer is disabled. (The SYSTEM STATUS LED does not blink when the AUTO DELAY is disabled.)

**Rear-Panel Connectors**

REMOTE CONTROL Port (DTE Male Connector) — A 25-pin D-Series, male connector that interfaces the 118-RC REMOTE CONTROL to the 118-AS. This port is not in full conformance with RS-232 because pin 13 (normally left unused in an RS-232 connector) is used for BYPASS. See Table A-1.

Table A-1  
REMOTE CONTROL PORT PIN ASSIGNMENT

Pin	Function	Input or Output
1	Protective Ground	Ground
2	Transmitted Data	Output
3	Received Data	Input
4	Request to Send	Output
5	Clear to Send	Input
6	Data Set Ready	Input
7	Signal Ground	Ground
8	Received Line Signal Detector	Input
13	Bypass	Output
20	Data Terminal Ready	Output

## ACCESSORIES

### Standard Accessories

A 3-foot interconnecting cable with 25-pin D-type connectors. See Appendix A Electrical Parts List for the Tektronix part number.

Power Cord, see Section 9 (Options) for plug description.

## INSTALLATION

The 118-RC is shipped with the interconnecting cable.

The 118-RC is rack mounted by installing the two knurled screws through the front-panel rack mounting ears. Because of its low weight, no other supporting hardware is necessary.

## NTSC / PAL OPERATION

Starting with S/N B030000 the 118-RC can be used in PAL systems, where the 118-AS is used with a VS211. The 118-AS must have the expanded memory installed to work with PAL. Expanded memory is standard in 118-AS with S/N B050000 and above. See the Memory Expansion discussion in Section 4 of this manual for use with pre-B050000 instruments.

An added jumper, at J124, selects between NTSC and PAL operation of the 118-RC. The ON position of P124 selects NTSC operation, and the OFF position selects PAL operation. The 118-RC is shipped with this jumper in the NTSC position.

## SPECIFICATION

Table A-2 ELECTRICAL CHARACTERISTICS

Characteristics	Performance Requirements	Supplemental Information
Data Rate		2400 baud.
Power Supply Line Frequency Range		48 Hz - 62 Hz.
Line Voltage Range	90 Vac - 132 Vac. 180 Vac - 250 Vac.	Line Selector 115 V. Line Selector 230 V.
Line Fuse 115 V 230 V	300 mA Slo Blo. 150 mA Slo Blo.	Rear-panel mounted.
Input Power	25 W maximum at nominal line.	
Typical Power		13 W.

**Table A-3  
ENVIRONMENTAL CHARACTERISTICS**

Characteristics	Information
Temperature Operating	0°C to 50°C.
Storage	-40°C to +65°C.
Altitude Operating	To 4.5 km (15,000 ft).
Storage	To 15 km (50,000 ft).
Humidity — Operating or Storage	Withstands 90 to 95% Relative Humidity for up to five days.
Packaged Product	Qualifies under National Safe Transit Assn. Pre-shipment test procedures, Project 1A-B-1.
Electromagnetic Compatibility	Meets FCC EMC Rules for Class A Computing Device; Part 15, Subchapter J.

**Table A-4  
MECHANICAL CHARACTERISTICS**

Characteristics	Information
Height	44.5 mm (1.8 inches)
Width	480 mm (19.0 inches)
Depth	177 mm (7 inches)
Net Weight	1.8 kg (4.0 lbs)

## THEORY OF OPERATION

### Microprocessor Kernel

The 118-RC Microprocessor Kernel consists of the CPU (U415), an EPROM (U635) for code storage, a RAM (U435) used as the CPU stack and for miscellaneous storage, a CTC (Counter Timer, U735) which counts and times events to generate interrupts, and two interfaces.

The SIO (Serial Input/Output, U615) handles all of the RS-232C traffic between the 118-AS and the 118-RC. It has a fixed (non-selectable) baud rate of 2400. The CPU polls the 118-AS on a 4 to 5-second interval to determine if there has been a change in the 118-AS status, and if there has, modifies the remote control program and display accordingly.

The PIO (Parallel Input/Output, U315) handles all front-panel traffic. When a front-panel switch is closed, the Counter Timer, through U315, generates an interrupt that causes the CPU to check the front-panel status. If the status has changed, the modified instructions are executed.

The five diagnostic test jumpers (J111, J112, J113, J125, and J122) are interfaced through U315. They are normally in the off position; moving one of them to the on position alters 118-RC operation. Jumpers should only be moved to perform diagnostics, and once diagnostics are completed and the jumper replaced in off position, the momentary Reset switch should be pushed. Perform diagnostic tests one at a time, starting with the EPROM and RAM tests; the other diagnostic tests require EPROM and the stack (RAM) to execute. Always Reset after a diagnostic test is run.

## DIAGNOSTIC TESTS

EPROM (J111) — Tests U635; generates a front-panel readout of 111 followed by Err.

RAM (J112) — Tests U435; generates a front-panel readout of 112 followed by Err.

RS232C I/O (J113) — Tests communication through U615; outputs a continuous stream through the serial input/output.

Display and LED (J125) — Tests the front-panel display and LEDs by slowly turning them on and off. Interpretation is by observation of a faulty LED or display device segment.

Continuous Diagnostics (J122) — Repeats the diagnostic tests on a continuous basis.

Always Reset following diagnostics.

### Clock Circuit

U863 generates an accurate 4 MHz clock. U751 and Q851 form a pulse shaping network to meet the particular clock pulse requirements of the Z80A — CPU (U415).

### Reset

U665A is the reset timer. It provides a reset pulse of approximately 20 ms (about 4 times as long as U415 requires). C660 and R659 are the timing elements for the reset.

### Decoder

The Decoder consists of three OR gates and two 3-line to 8-line decoders. It decodes for the SIO, PIO, CTC, RAM, and EPROM enables, along with decoding for the front-panel display.

### Display

The Display circuit consists of three 7-segment LED devices and the individual LED indicators. All of the display outputs are driven by latched data from the CPU. U434 is a buffer for the data driving the 7-segment display devices. U550, U565, U363, U348, and U335 are edge-triggered D-type flip-flops employed as data latches.

### Pulse Width Modulator

U442, U463, and U450 form a timing circuit that pulses the Display data latches, which in turn causes the input to the 7-segment LED devices to be a pulse rather than a steady level. The net result is an increase in brightness and a decrease in current consumption. C468 is the timing capacitor for the circuit.

## POWER SUPPLY

The Power Supply for the 118-RC consists of three separate supplies utilizing a common unregulated 32 volts. The + and -12 V supplies are derived directly from the unregulated 32 V supply by precision voltage regulators, Q586 and Q590.

The +5 V supply is a switching supply employing a Pulse Width Modulator, U374. The Pulse Width Modulator uses voltage sensing (pin 1) and current trip (Q376). When an overload condition exists, Q376 is pulled down, creating a high on the Shut Down, pin 10. Pins 6 and 7 comprise a restart circuit, which attempts to restart the Pulse Width Modulator; however, as long as pin 10 remains high it will not start.

Pin 2 through U275 is the voltage reference.

## MAINTENANCE

General maintenance instructions given in Section 8 of this manual also apply to the 118-RC. No special procedures are required.

Separate the front-panel casting from the chassis if controls or switches ever need to be replaced.



# Replaceable Electrical Parts

This section contains a list of the components that are replaceable for the 118-RC. 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.

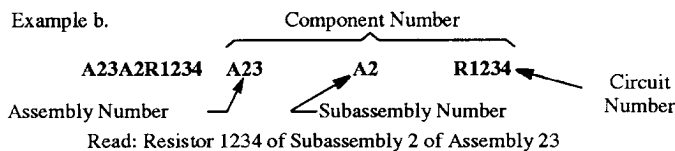
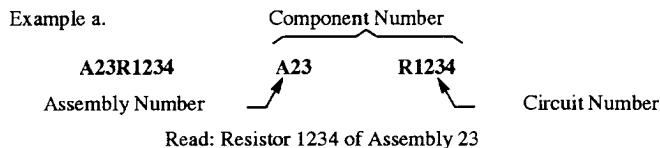
### **List of Assemblies**

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**

<b>Mfr. Code.</b>	<b>Manufacturer</b>	<b>Address</b>	<b>City, State, Zip Code</b>
D5243	ROEDERSTEIN ERNST GMBH	LUDMILLASTRASSE 23	8300 LANDSHUT GERMANY
TK0891	MICONICS	1 FAIRCHILD AVE	PLAINVIEW NY 11803
TK1416	SHARP CORP	22-22 NAGAIKE-CHO ABENO-KU	OSAKA JAPAN
TK1727	PHILIPS NEDERLAND BV AFD ELONCO	POSTBUS 90050	5600 PB EINDHOVEN THE NETHERLANDS
TK1743	UNITRODE (UK) LTD	6 CRESSWELL PARK BLACKHEATH	LONDON SE 3 9RD ENGLAND
TK2424	CHAMPION TECHNOLOGIES	2553 N EDGINGTON ST	FRANKLIN PARK IL 60131
0H1N5	TOSHIBA MARCON ELECTRONICS AMERICA CORPORATION	998 FIRST EDGE DRIVE	VERNON HILLS IL 60061
0JR03	ZMAN MAGNETICS INC	7633 S 180th	KENT WA 98032
0LUA3	PHILIPS COMPONENTS	100 PROVIDENCE PIKE	SLATERSVILLE, RI 02876
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655303	DALLAS TX 75262-5303
02114	PHILIPS COMPONENTS AMPEREX ELECTRONICS CORP FERROXCUBE DIV	5083 KINGS HWY	SAUGERTIES, NY 12477
04222	AVX/KYOCERA DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04426	ITW SWITCHES DIV OF ILLINOIS TOOL WORKS INC	6615 W IRVING PARK RD	CHICAGO IL 60634-2410
04713	MOTOROLA INC SEMICONDUCTOR PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
09353	C AND K COMPONENTS INC	15 RIVERDALE AVE	NEWTON MA 02158-1057
11236	CTS CORPORATION RESISTOR NETWORKS DIVISION	406 PARR ROAD	BERNE IN 46711-9506
14936	GENERAL INSTRUMENT CORP POWER SEMICONDUCTOR DIV	600 W JOHN ST	HICKSVILLE NY 11802-0709
15454	KETEMA RODAN DIVISION	2900 BLUE STAR STREET	ANAHEIM CA 92806-2591
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
34333	LINFINTY MICROELECTRONICS (FORMERLY: SILICON GENERAL)	11861 WESTERN AVE	GARDEN GROVE CA 92641
50139	ALLEN-BRADLEY CO ELECTRONIC COMPONENTS	1414 ALLEN BRADLEY DR	EL PASO TX 79936
50434	HEWLETT-PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131-1008
51993	INTERNATIONAL RECTIFIER	233 KANSAS STREET	EL SEGUNDO, CA 90245
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195-4526
56708	ZILOG INC	1315 DELL AVE	CAMPBELL CA 95008-6609
56845	DALE ELECTRONICS INC	2300 RIVERSIDE BLVD PO BOX 74	NORFOLK NE 68701-2242
71400	BUSSMANN DIV OF COOPER INDUSTRIES INC	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
75498	MULTICOMP INC	3005 SW 154TH TERRACE #3	BEAVERTON OR 97006
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001

## Replaceable Electrical Parts

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<b>Mfr. Code.</b>	<b>Manufacturer</b>	<b>Address</b>	<b>City, State, Zip Code</b>
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		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1	670-8642-00	B010100	B010180	CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864200
A1	670-8642-01	B010181	B029999	CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864201
A1	670-8642-02	B030000	B030655	CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864202
A1	670-8642-03	B030656		CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864203
A2	670-8655-00			CIRCUIT BD ASSY:FR PNL	80009	670865500
A1	670-8642-00	B010100	B010180	CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864200
A1	670-8642-01	B010181	B029999	CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864201
A1	670-8642-02	B030000		CIRCUIT BD ASSY:REMOTE CONTROL	80009	670864202
A1C102	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C203	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C271	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C277	281-0812-00			CAP,FXD,CERAMIC:MLC;1000PF,10%,100V,0.100 X	04222	SA101C102KAA
A1C279	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C282	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C284	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C303	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C326	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C343	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C357	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C376	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C383	281-0815-00			CAP,FXD,CERAMIC:MLC;0.027UF,20%,50V,0.100 X	04222	SA205C273MAA
A1C402	290-0973-00			CAP,FXD,ELCTLT:100UF,20%,25VDC	0H1N5	CEUSM1E101
A1C426	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C454	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C457	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C468	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C474	281-0773-00			CAP,FXD,CERAMIC:MLC;0.01UF,10%,100V,,	TK1743	CGB103KEX
A1C526	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C570	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C574	290-0873-00			CAP,FXD,ELCTLT:3300UF,+50-20%,35WVDC	55680	TVX1V332MDA
A1C580	290-0873-00			CAP,FXD,ELCTLT:3300UF,+50-20%,35WVDC	55680	TVX1V332MDA
A1C584	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C603	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C626	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C646	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C647	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C660	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A1C667	290-0536-00			CAP,FXD,ELCTLT:10UF,20%,25V TANTALUM	D5243	ETP-3F 10UF 25V
A1C671	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C674	290-0918-00			CAP,FXD,ELCTLT:220UF,+50-20%,63WVDC	0H1N5	CEUST1J221
A1C681	283-0198-00			CAP,FXD,CERAMIC:MLC;0.22UF,20%,50V,X7R,0.30	04222	SR305C224MAA
A1C685	283-0198-00			CAP,FXD,CERAMIC:MLC;0.22UF,20%,50V,X7R,0.30	04222	SR305C224MAA
A1C686	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C689	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C703	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C710	281-0775-01	670-8642-03		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A1C726	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C747	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C764	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C803	283-0059-00			CAP,FXD,CER DI:1UF,+80-20%,50V	04222	SR305C105MAA
A1C827	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C839	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C854	283-0421-00			CAP,FXD,CER DI:0.1UF,+80-20%,50VDIP STYLE	04222	MD015C104MAB
A1C855	283-0629-00			CAP,FXD,MICA DI:62PF,1%,500V	TK0891	RDM10ED620F03
A1C868	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	0H1N5	CEUSM1E100
A1E488	276-0507-00			CORE,EM:TOROID;FERRITE,UO=650 20% (1KHZ)	02114	56-590-65B/3B

## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1F858	159-0029-01			FUSE, CARTRIDGE:3AG,0.3A,250V,12 MIN,BUSSMAN (FOR 90-250VAC OPERATION)	71400	MDL3/10
A1L388	108-1039-00			COIL,RF:FIXED,223UH	OJR03	108-1039-00
A1Q376	151-0301-02			TRANSISTOR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ ,AMPLIFIER,W/JANTX REL PROCESSING	04713	2N2907AJTX
A1Q378	151-0190-05	670-8642-00	670-8642-02	TRANSISTOR,SIG:BIPOLAR,NPN	80009	151-0190-05
A1Q378	151-0190-00	670-8642-02		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q478	151-0190-05	670-8642-00	670-8642-02	TRANSISTOR,SIG:BIPOLAR,NPN	80009	151-0190-05
A1Q478	151-0190-00	670-8642-02		TRANSISTOR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL	04713	2N3904
A1Q488	151-0301-02			TRANSISTOR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ ,AMPLIFIER,W/JANTX REL PROCESSING	04713	2N2907AJTX
A1Q489	151-0701-00	670-8642-00	670-8642-02	TRANSISTOR,PWR:BIPOLAR,NPN;120V,10A,60MHZ,AMPL	80009	151070100
A1Q489	151-0426-00	670-8642-02		TRANSISTOR,PWR:BIPOLAR,NPN;80V,10A,50MHZ,AMPL	80009	151042600
A1Q851	151-0199-00			TRANSISTOR,SIG:BIPOLAR,PNP;12V,80MA,SWITCHING	04713	MPS3640
A1R107	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A1R120	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	11236	750-101-R10K
A1R235	307-0649-00			RES NTWK,FXD,FI:8,33 OHM,2%,0.125W	11236	761-3-R33 OHM
A1R248	307-0649-00			RES NTWK,FXD,FI:8,33 OHM,2%,0.125W	11236	761-3-R33 OHM
A1R263	307-0649-00			RES NTWK,FXD,FI:8,33 OHM,2%,0.125W	11236	761-3-R33 OHM
A1R269	322-3262-00			RES,FXD,FILM:5.23K OHM,1%,0.2W,TC=T0	91637	CCF50G52300F
A1R272	322-3262-00			RES,FXD,FILM:5.23K OHM,1%,0.2W,TC=T0	91637	CCF50G52300F
A1R273	322-3258-00			RES,FXD,METAL FILM;4.75K OHM,1%,0.2W,TC=100	56845	CCF50-2-G4751FT
A1R277	315-0303-00			RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R278	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R280	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R281	315-0303-00			RES,FXD,FILM:30K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R369	322-3258-00			RES,FXD,METAL FILM;4.75K OHM,1%,0.2W,TC=100	56845	CCF50-2-G4751FT
A1R376	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R377	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R378	315-0682-00			RES,FXD,FILM:6.8K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R380	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R382	308-0695-00			RES,FXD,WW:0.05 OHM,10%,5W	91637	LVR5-13
A1R384	323-0114-00			RES,FXD,FILM:150 OHM,1%,0.5W,TC=T0	91637	CMF65116G150R0F
A1R425	307-0450-00			RES,THERMAL:2.5 OHM,15A	15454	SG160-S
A1R450	307-1188-00			RES NTWK,FXD,FI:150 OHM,DUAL IN LINE,16 PIN	50139	316B151
A1R455	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R463	307-1188-00			RES NTWK,FXD,FI:150 OHM,DUAL IN LINE,16 PIN	50139	316B151
A1R466	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R475	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R476	315-0133-00			RES,FXD,FILM:13K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R486	315-0561-00			RES,FXD,FILM:560 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R487	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R488	315-0270-00			RES,FXD,FILM:27 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R503	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R655	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R658	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R659	315-0363-00			RES,FXD,FILM:36K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R665	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W,,MI	TK1727	SFR25 2322-181-
A1R666	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R840	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R849	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R852	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W,	TK1727	SFR25 2322-182-
A1R856	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R858	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1R865	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	TK1727	SFR25 2322-181-
A1S669	260-0735-00			SWITCH,PUSH:T.NO CONTACT,RED BUTTON	81073	39-1
A1S880	260-2116-00			SWITCH,SLIDE:DPDT,10A,125VAC,LINE SEL,	04426	18-000-0019

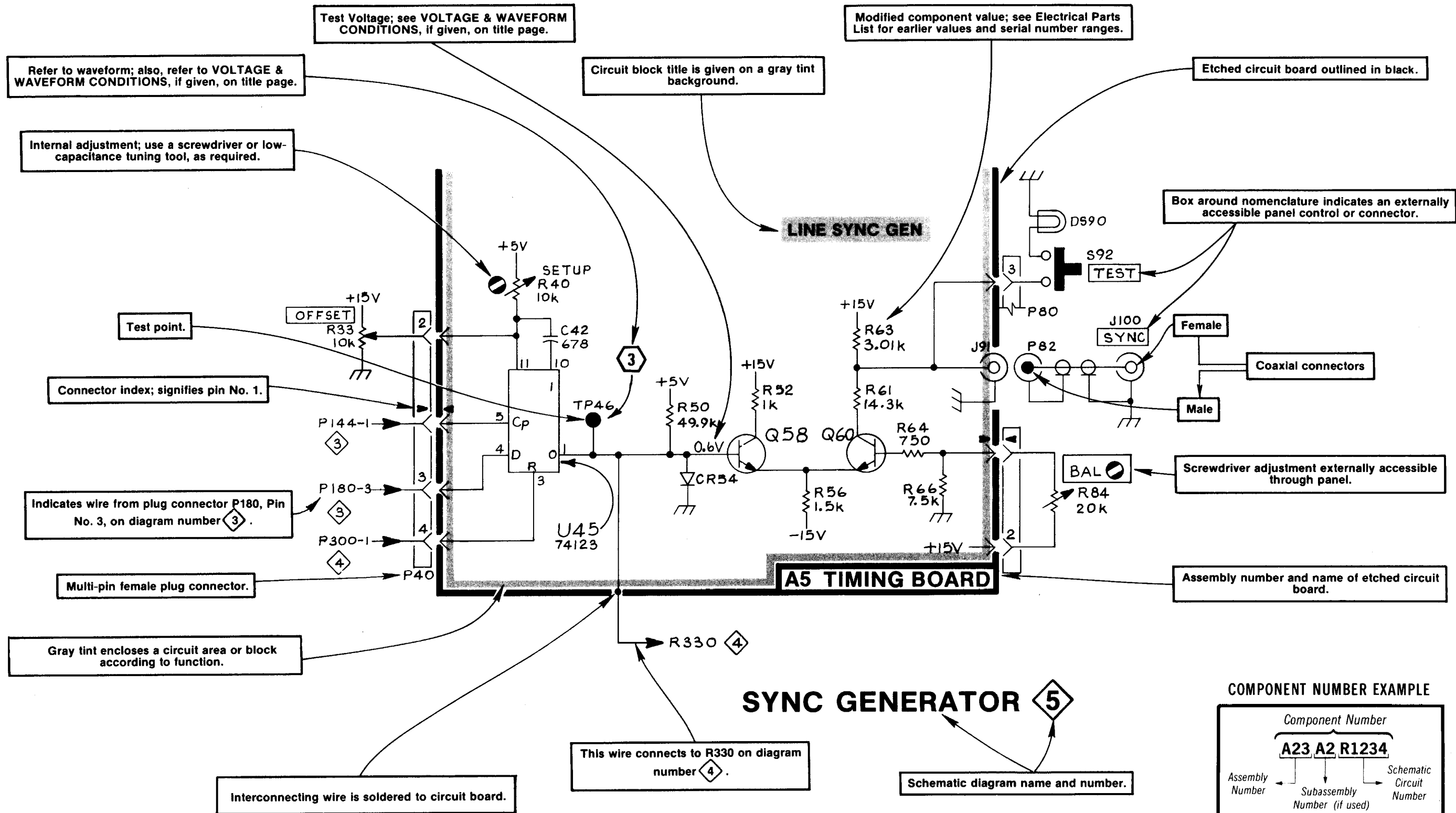
## Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A1U208	156-1753-00			IC,DIGITAL:ALSTTL,BUFFER;OCTAL INV BUFFER/DRIVER, 3-STATE	01295	SN74ALS240AN
A1U220	156-1753-00			IC,DIGITAL:ALSTTL,BUFFER;OCTAL INV BUFFER/DRIVER, 3-STATE	01295	SN74ALS240AN
A1U275	156-1437-00			IC,LINEAR:BIPOLAR,VOLTAGE REFERENCE;POSITIVE, 5V,1.0%,25PPM,SERIES	04713	MC1404AU5
A1U315	156-1612-00			IC,PROCESSOR:NMOS,PERIPHERAL;PRL INTERFACE,PIO	56708	Z80A-PIO 156-16
A1U335	156-1664-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL NONINV D-TYPE, 3-STATE	01295	SN74ALS574BN
A1U348	156-1664-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL NONINV D-TYPE, 3-STATE	01295	SN74ALS574BN
A1U363	156-1664-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL NONINV D-TYPE, 3-STATE	01295	SN74ALS574BN
A1U374	156-0933-00			IC,LINEAR:BIPOLAR,SW-REGULATOR CONTROLLER;PWM, PUSH-PULL,OC/OE	34333	SG3524N
A1U415	156-0983-01			IC,PROCESSOR:NMOS,MICROPROCESSOR;8-BIT,SCRN	56708	Z0840006PSC
A1U434	156-1111-02			IC,DIGITAL:LSTTL,TRANSCIEVER	01295	SN74LS245N
A1U435	156-1632-00			IC,MEMORY:CMOS,SRAM;2K X 8,250NS	TK1416	LH5116-10
A1U450	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS139AN
A1U463	156-0412-02			IC,DIGITAL:LSTTL,COUNTER	01295	SN74LS193N
A1U472	156-0402-02	670-8642-00	670-8642-00	IC,MISC:BIPOLAR,TIMER	27014	LM555CN
A1U472	156-0402-00	670-8642-01		IC,MISC:BIPOLAR,TIMER	27014	LM555CN
A1U550	156-1664-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL NONINV D-TYPE, 3-STATE	01295	SN74ALS574BN
A1U565	156-1664-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL NONINV D-TYPE, 3-STATE	01295	SN74ALS574BN
A1U586	156-0285-01			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR	01295	UA7812CKC
A1U590	156-0872-00			IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;NEGATIVE, -12V,1.0A,4%	01295	UA7912CKC
A1U615	156-1424-01			IC,PROCESSOR:NMOS,PERIPHERAL;SERIAL INPUT AND OUTPUT,SCRN	56708	Z80A-SIO/(1CS-1
A1U635	160-3336-00	670-8642-00	670-8642-01	MICROCKT,DGTL:NMOS,8192 X 8 EPROM,PRGM28 DIP CER PKG	80009	160333600
A1U635	160-3336-02	670-8642-02		MICROCKT,DGTL:CMOS,16 X 8,EPROM,PRGM;27C128	80009	160333602
A1U650	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS138N
A1U651	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER	01295	SN74LS138N
A1U660	156-0462-02			IC,DIGITAL:TTL,SCHMITT TRIG;HEX INV	01295	SN7414N
A1U665	156-0706-02			IC,DIGITAL:TTL,MULTIVIBRATOR	01295	SN74221N
A1U707	156-0878-01			IC,MISC:TTL,INTERFACE	01295	SN75189N
A1U715	156-0879-01			IC,MISC:TTL,INTERFACE	01295	SN75188N
A1U735	156-1620-00			IC,PROCESSOR:NMOS,PERIPHERAL;CNTR TIMER,SCRN	56708	Z0843004PSC
A1U751	156-0153-02			IC,DIGITAL:TTL,BUFFER/DRIVER	01295	SN7406N
A1U760	156-0385-02			IC,DIGITAL:LSTTL,GATES	01295	SN74LS04N
A1U768	156-0721-02			IC,DIGITAL:LSTTL,GATES	04713	SN74LS132N
A1U835	156-0479-02			IC,DIGITAL:LSTTL,GATE	01295	SN74LS32N
A1U845	156-0388-03			IC,DIGITAL:LSTTL,FLIP FLOP	01295	SN74LS74AN
A1U863	119-1555-00			OSCILLATOR,RF:4MHZ,0.01%,CRYSTALDEC.CERTIFIED	TK2424	RASCO PLUS 4.0
A1CR484	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR485	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A1CR486	152-0754-00			DIODE,RECT:SCHTK;40V,8A,380A IFSM,AXIAL LEAD	51993	95-4421 (80SQ04
A1CR488	152-0040-00			DIODE,RECT:600V,1A,50A IFSM	0LUA3	1N5061
A1CR680	152-0769-00			SEMICONDC DVC,DI:RECT BRIDGE,SI,400VKBPC804	14936	KBPC804-9
A1CR866	152-0141-02			DIODE,SIG:ULTRA FAST;40V,150MA,4NS,2PF	27014	FDH9427
A2	670-8655-00			CIRCUIT BD ASSY:FR PNL	80009	670865500
A2S115	260-2241-00			SWITCH,ROCKER:SPDT;5A,120VAC	09353	7101.J1ZBE2-SPE
A2S123	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S153	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S158	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000

## Replaceable Electrical Parts

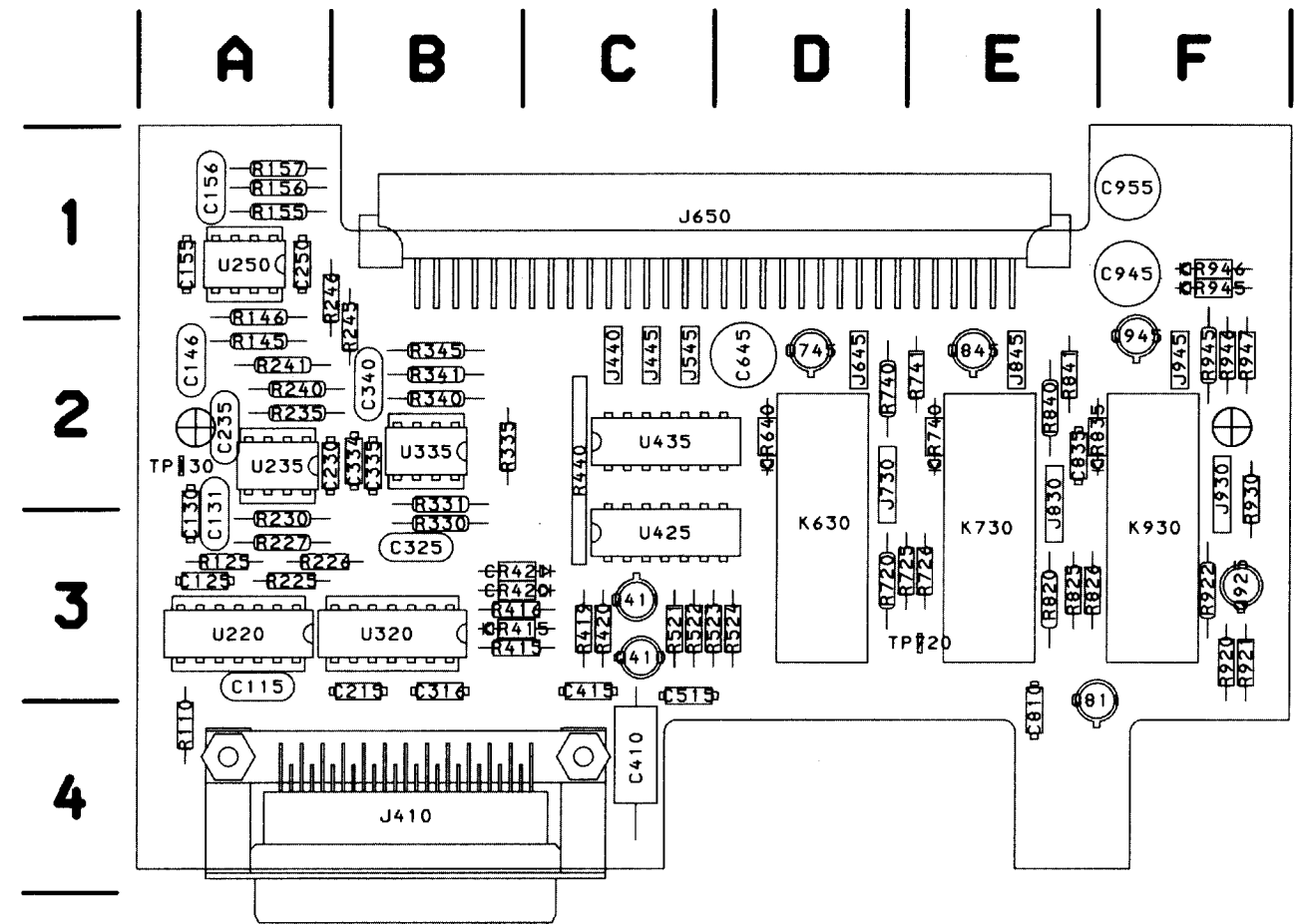
Component Number	Tektronix Part Number	Serial / Assembly Number		Name & Description	Mfr. Code	Mfr. Part Number
		Effective	Discontinued			
A2S168	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S178	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S183	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S186	260-2240-00			SWITCH,PUSH:SPDT,10MA,24V	80009	260224000
A2S193	260-2241-00			SWITCH,ROCKER:SPDT,5A,120VAC	09353	7101.J1ZBE2-SPE
A2DS102	150-1133-00			LT EMITTING DIO:RED,HIGH EFFICIENCY	50434	HLMP-3366
A2DS105	150-1133-00			LT EMITTING DIO:RED,HIGH EFFICIENCY	50434	HLMP-3366
A2DS108	150-1133-00			LT EMITTING DIO:RED,HIGH EFFICIENCY	50434	HLMP-3366
A2DS127	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS128	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS133	150-1131-00			LAMP,LED RDOUT:GREEN,7 SEGMENT,0.8 DIGIT	50434	HDSP-8600
A2DS138	150-1131-00			LAMP,LED RDOUT:GREEN,7 SEGMENT,0.8 DIGIT	50434	HDSP-8600
A2DS142	150-1131-00			LAMP,LED RDOUT:GREEN,7 SEGMENT,0.8 DIGIT	50434	HDSP-8600
A2DS149	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS150	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS161	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS162	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS171	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS172	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS198	150-1133-00			LT EMITTING DIO:RED,HIGH EFFICIENCY	50434	HLMP-3366
A2DS228	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS262	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
A2DS272	150-1132-00			DIODE,OPTO:LED;GRN,569MCD,10.6MCD AT10MA,40 DEG VIEW ANGL	50434	HLMP-3568
T1	120-1592-00			XFMR,PWR,STPDN:LOW FREQUENCY	75498	120-1592-00





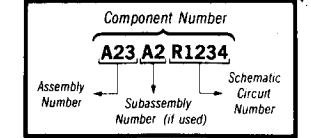
# SCHEMATIC EXAMPLE





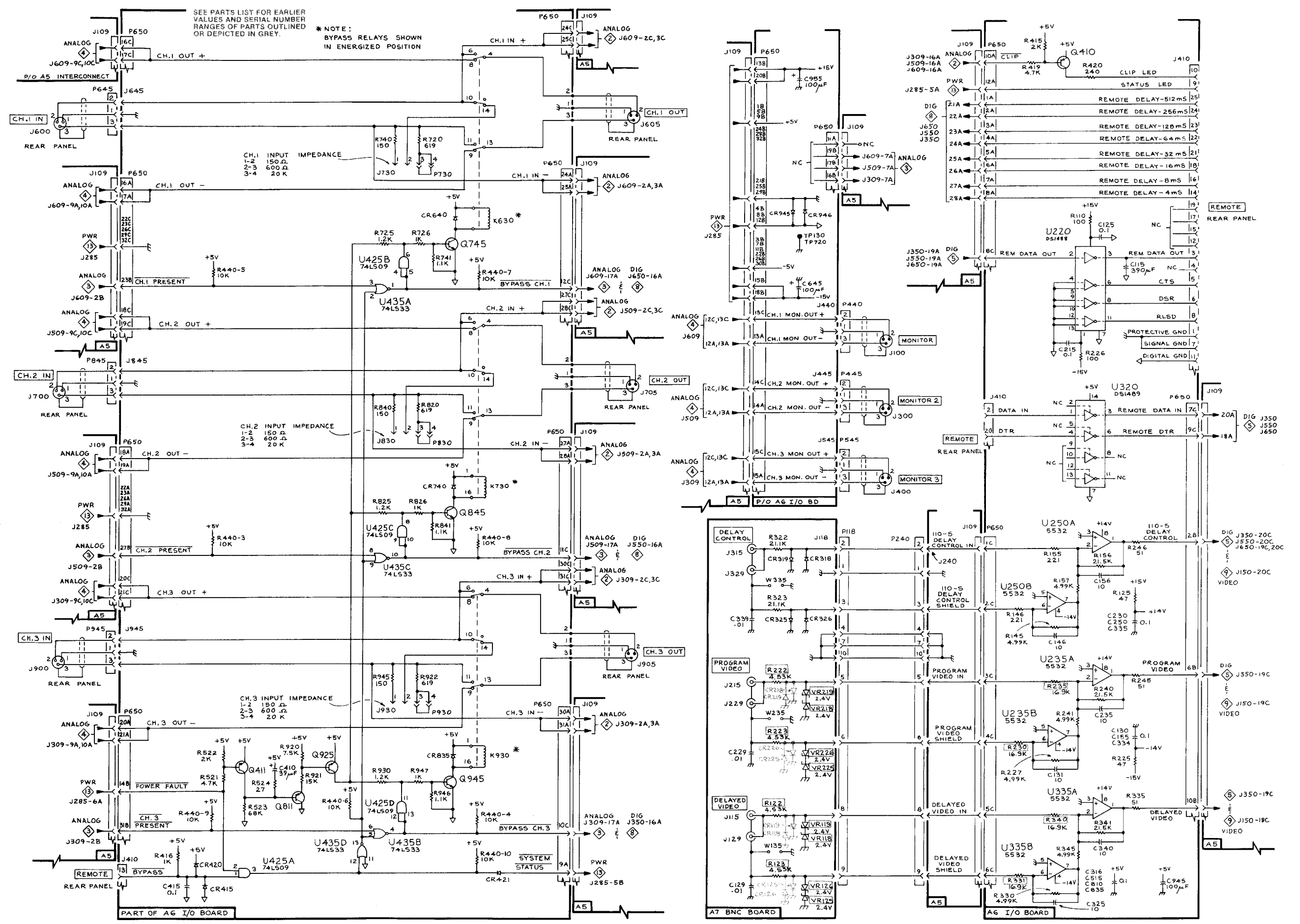
INPUT / OUTPUT CIRCUIT BOARD - A6

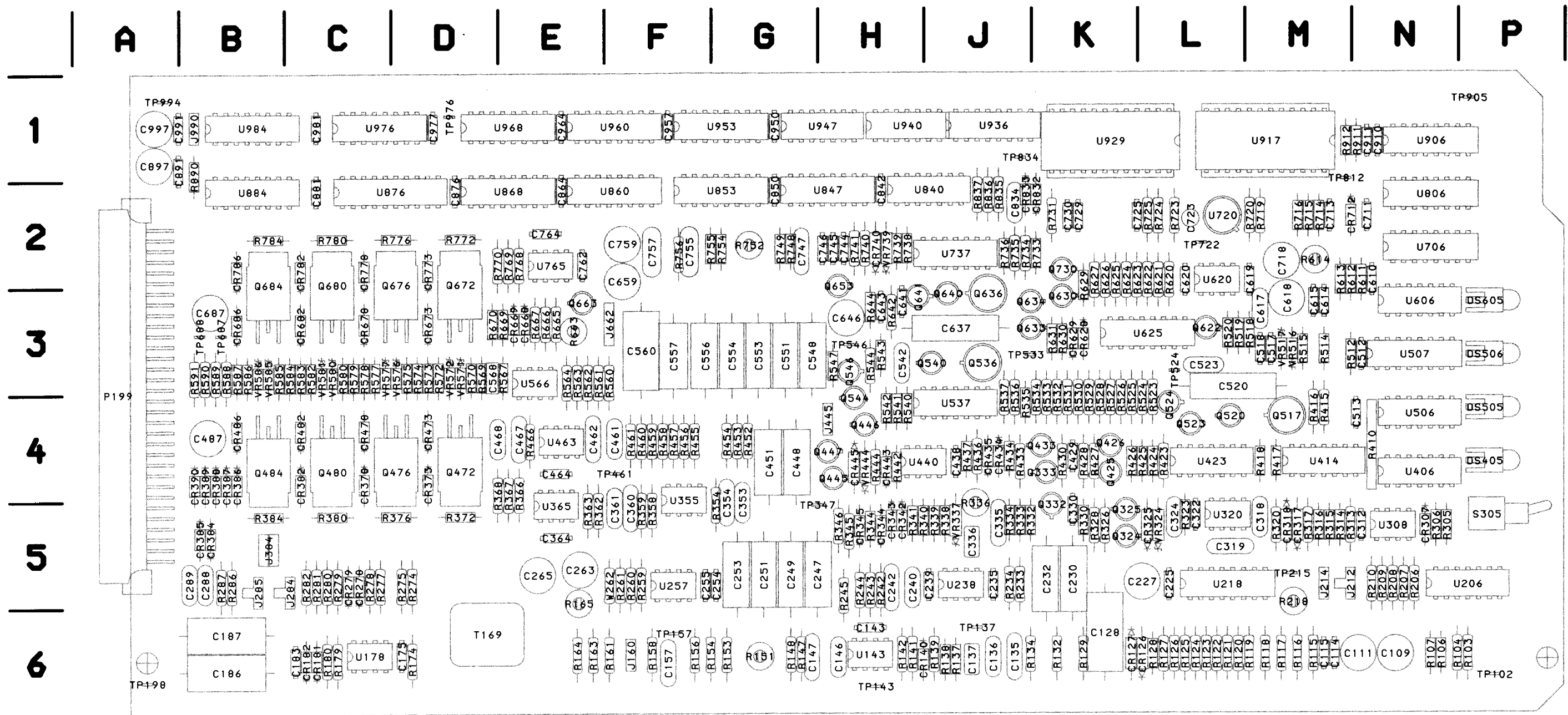
COMPONENT NUMBER EXAMPLE



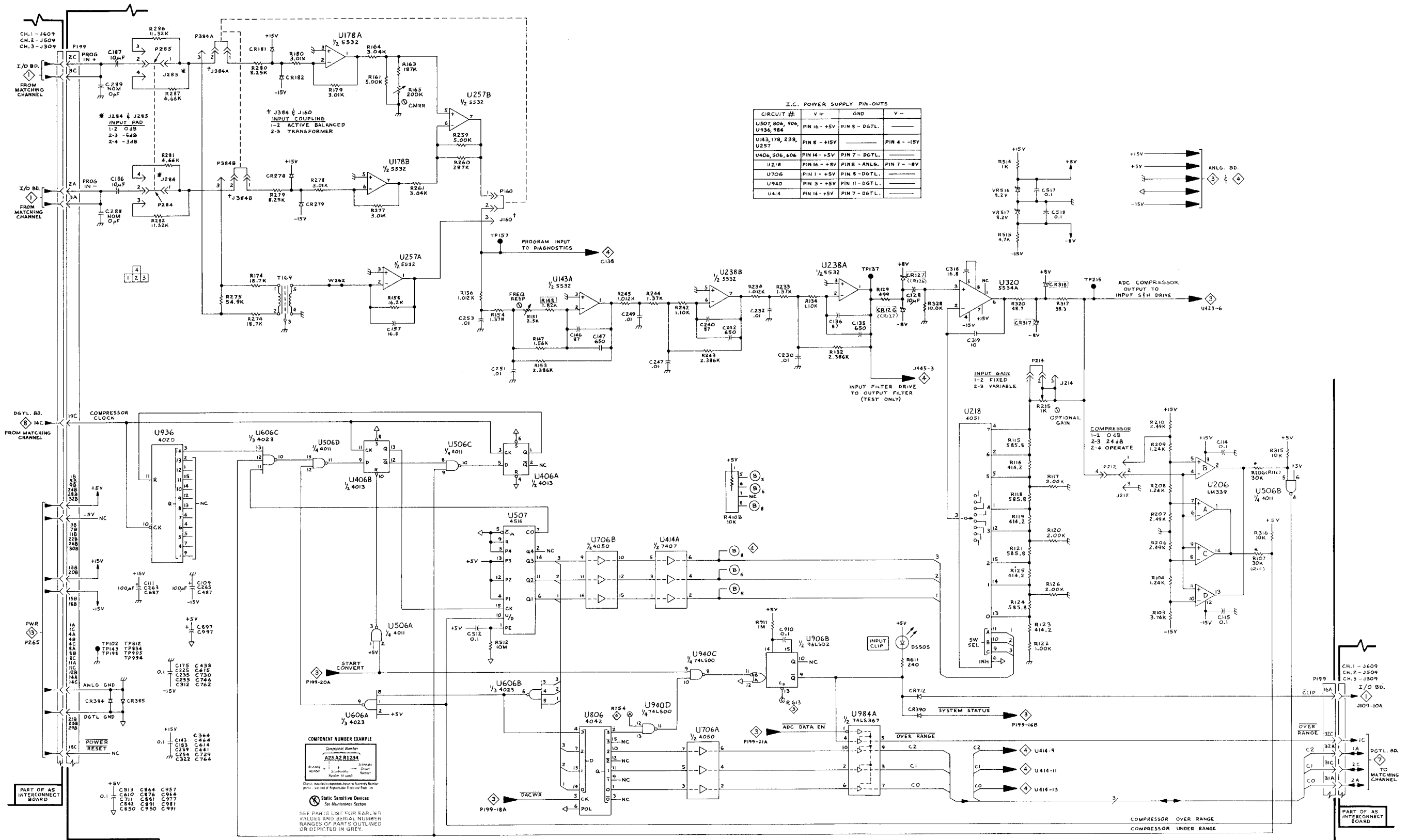
⊗ Static Sensitive Devices  
See Maintenance Section

Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.





ANALOG CIRCUIT BOARD - A1 (SN B020220 & UP)



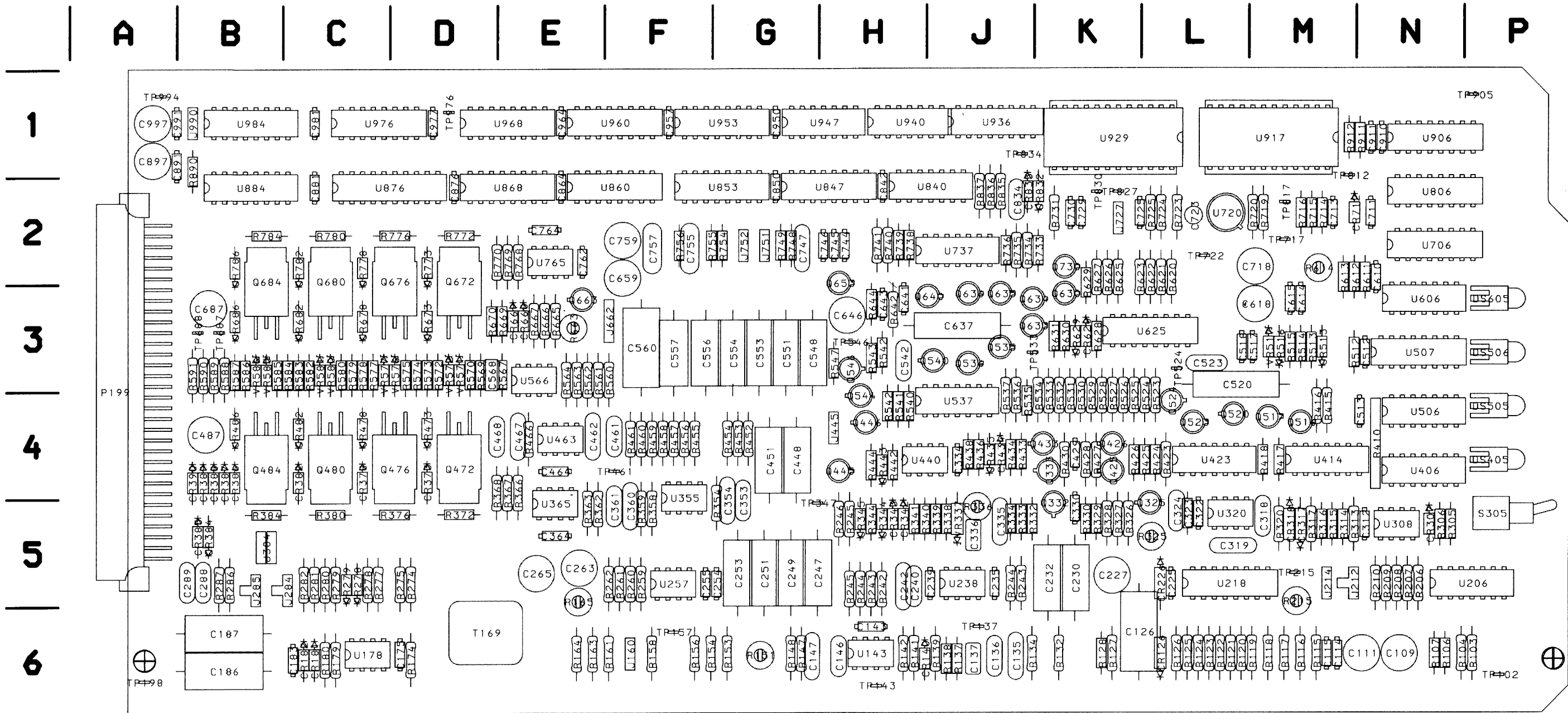
I.C. POWER SUPPLY PIN-OUTS

CIRCUIT #	V +	GND	V -
U507, 806, 906, U936, 984	PIN 16 - +5V	PIN 8 - DGTL.	
U413, 178, 238, U257	PIN 14 - +15V		PIN 4 - -15V
U406, 506, 606	PIN 14 - +5V	PIN 7 - DGTL.	
U218	PIN 16 - +5V	PIN 8 - ANLG.	PIN 7 - -8V
U706	PIN 1 - +5V	PIN 8 - DGTL.	
U940	PIN 3 - +5V	PIN 11 - DGTL.	
U414	PIN 14 - +5V	PIN 7 - DGTL.	

COMPONENT NUMBER EXAMPLE  
 Component Number  
**A23A2 R123A**  
 Assembly - 1 - Scheme  
 Number - 2 - Substrate - 3 - Die  
 Number - 4 - Lot  
 (Do not include component lead to identify number parts - see end of Regenerative Electronic Parts List)

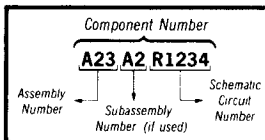
Static Sensitive Devices  
 See Maintenance Section

SEE PARTS LIST FOR EARLY 181 VALUES AND SERIAL NUMBERS RANGES OF PARTS OUTLINED OR DEPICTED IN GREY.



5114-200

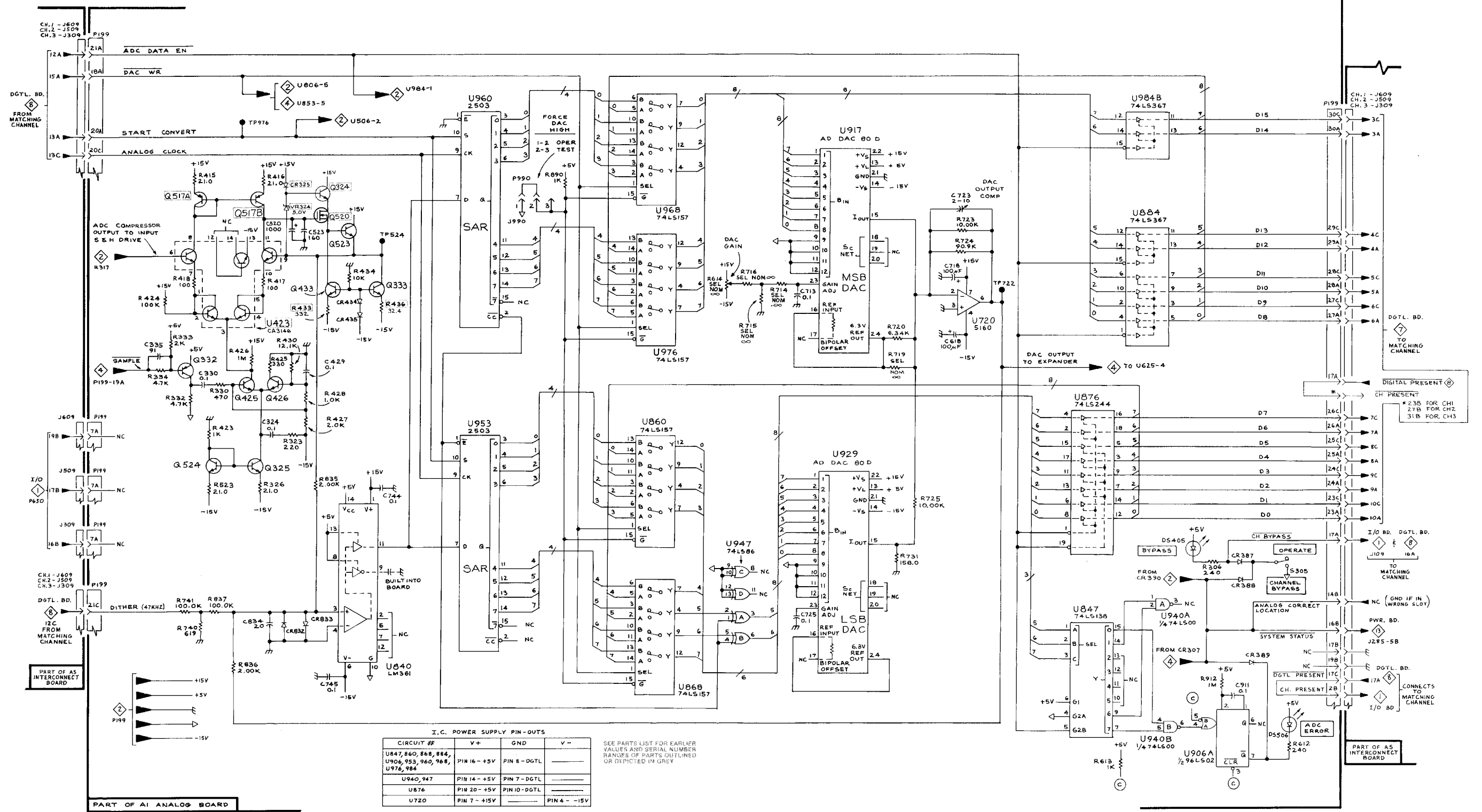
**COMPONENT NUMBER EXAMPLE**



Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.



**ANALOG CIRCUIT BOARD - A1 (SN B020219 & BELOW)**



118-A5

I.C. POWER SUPPLY PIN-OUTS

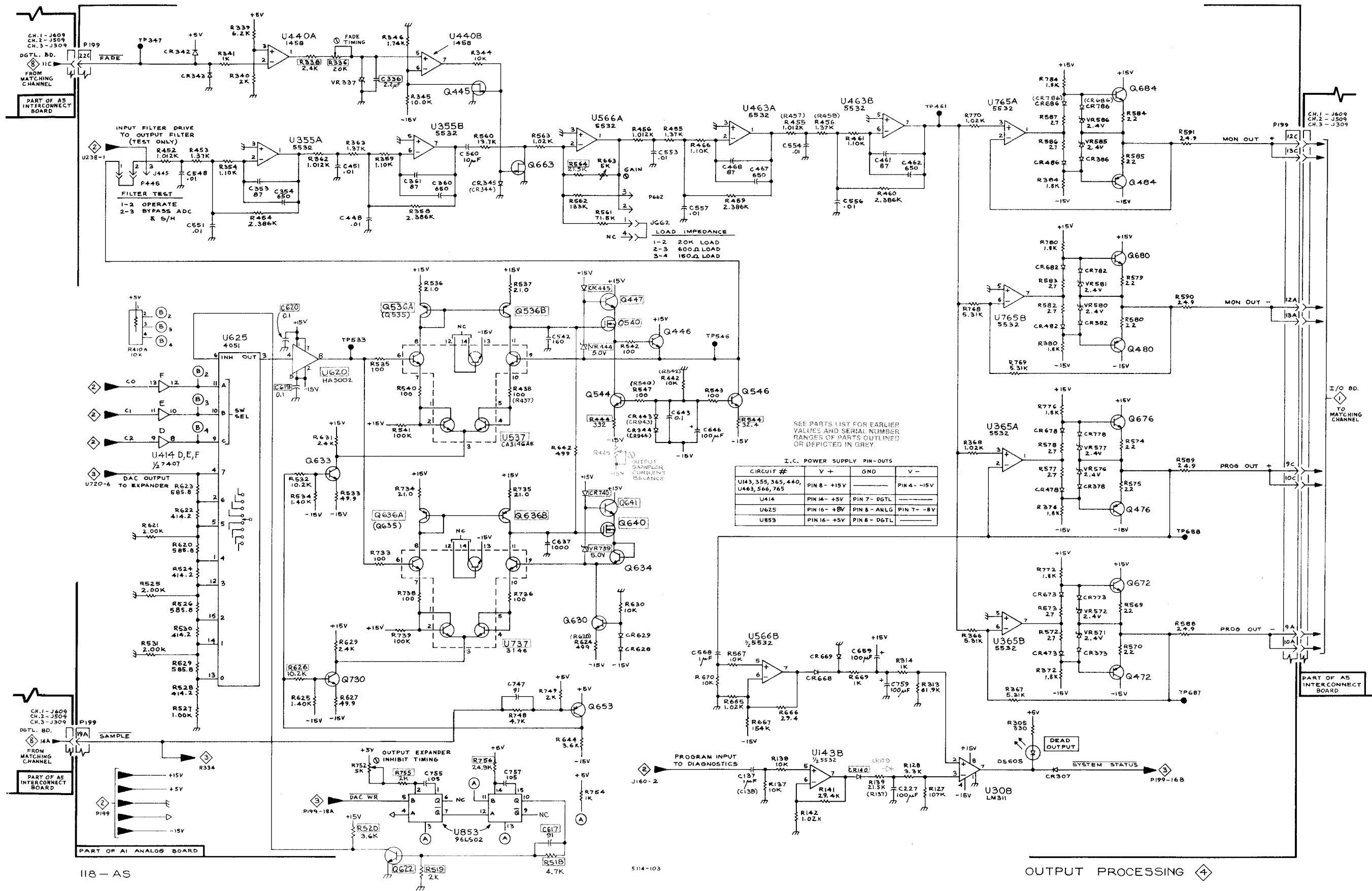
CIRCUIT #	V+	GND	V-
U847, 860, 868, 884, U906, 953, 960, 968, U976, 984	PIN 16 - +5V	PIN 8 - DGTL	
U940, 947	PIN 14 - +5V	PIN 7 - DGTL	
U876	PIN 20 - +5V	PIN 10 - DGTL	
U720	PIN 7 - +15V		PIN 4 - -15V

SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS OUTLINED OR DEPICTED IN GREY

514-102

A/D & D/A CONVERTER 3





SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS OUTLINED OR DEPICTED IN GREY.

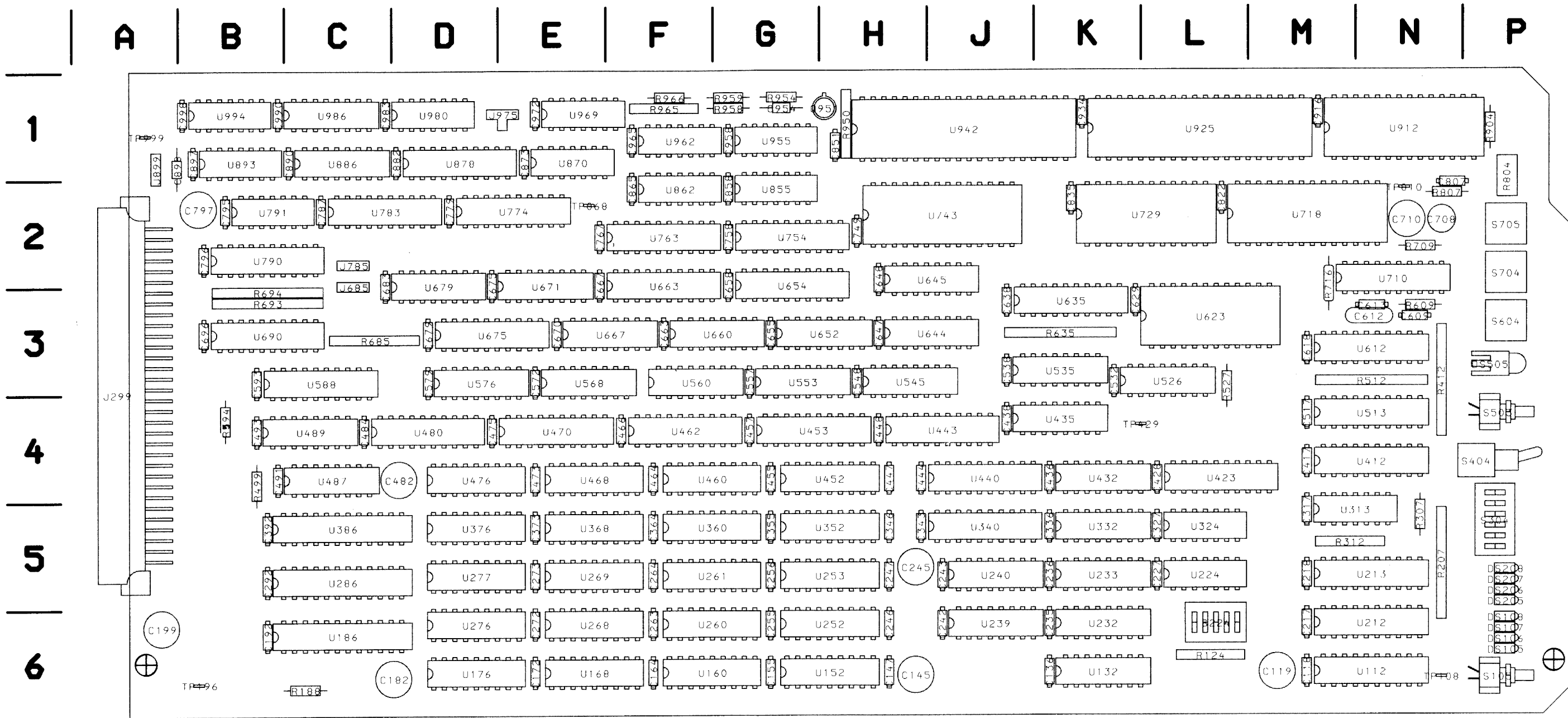
CIRCUIT #	V +	GND	V -
U143, 355, 365, 440, U463, 566, 765	PIN 8 - +5V		PIN 4 - -15V
U414	PIN 14 - +5V	PIN 7 - DCTL	
U625	PIN 16 - +5V	PIN 8 - ANLG	PIN 7 - -8V
U853	PIN 16 - +5V	PIN 8 - DCTL	

118-AS

5114-103

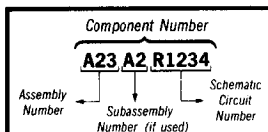
OUTPUT PROCESSING 4





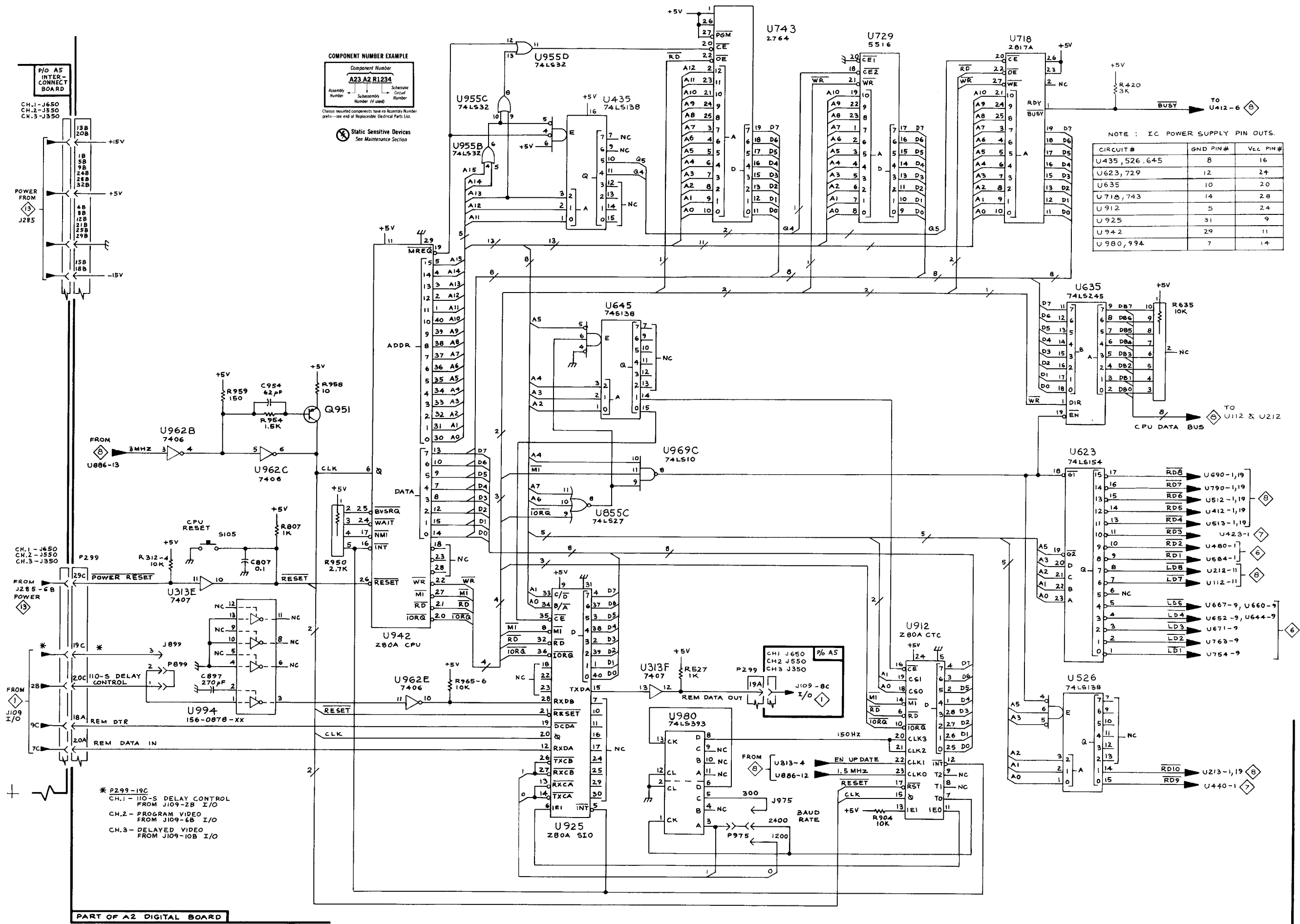
DIGITAL CIRCUIT BOARD - A2

COMPONENT NUMBER EXAMPLE



Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

⊗ Static Sensitive Devices  
See Maintenance Section



**COMPONENT NUMBER EXAMPLE**

Component Number  
 A23 A2 R1234  
 Assembly Number    Subassembly Number (if used)    Schedule Number (if used)

Character mounted components have an Assembly Number prefix - see end of Reproducible Electrical Parts List.

⊗ Static Sensitive Devices  
 See Maintenance Section

NOTE: IC POWER SUPPLY PIN OUTS.

CIRCUIT #	GND PIN #	Vcc PIN #
U435, 526, 645	8	16
U623, 729	12	24
U635	10	20
U718, 743	14	28
U912	5	24
U925	31	9
U942	29	11
U980, 994	7	14

CH.1 - J650  
 CH.2 - J550  
 CH.3 - J350

POWER FROM J285

FROM J285 - 6B POWER

FROM J109 I/O

\* P299-19C  
 CH.1 - I/O-S DELAY CONTROL FROM J109-2B I/O  
 CH.2 - PROGRAM VIDEO FROM J109-6B I/O  
 CH.3 - DELAYED VIDEO FROM J109-10B I/O

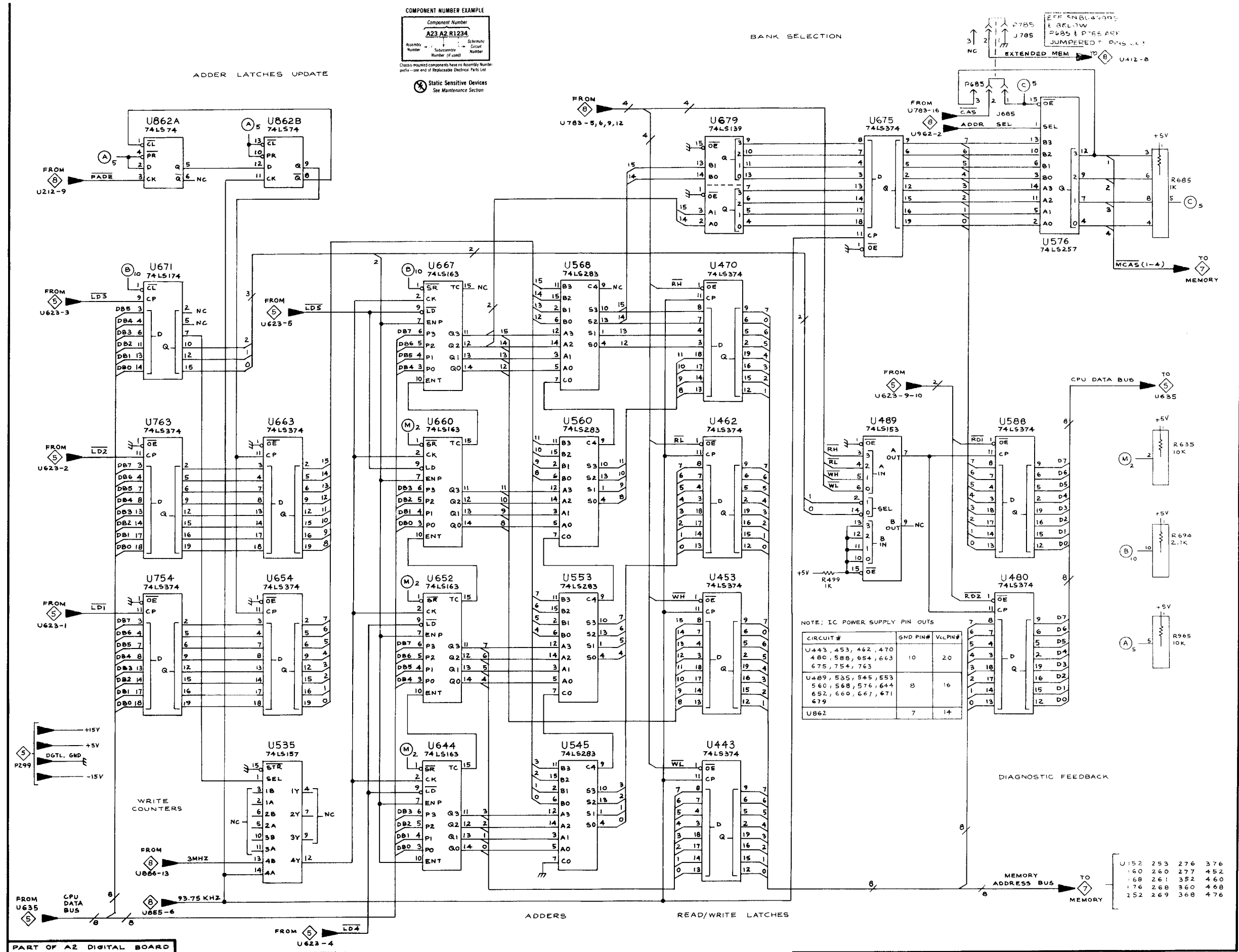


**COMPONENT NUMBER EXAMPLE**

Component Number	
A23 A2 R1234	
Assembly Number	Schematic Number
Subassembly Number (if used)	Circuit Number
Number (if used)	

Classified components have no Assembly Number prefix—see end of Replaceable Electrical Parts List

⊗ Static Sensitive Devices  
See Maintenance Section



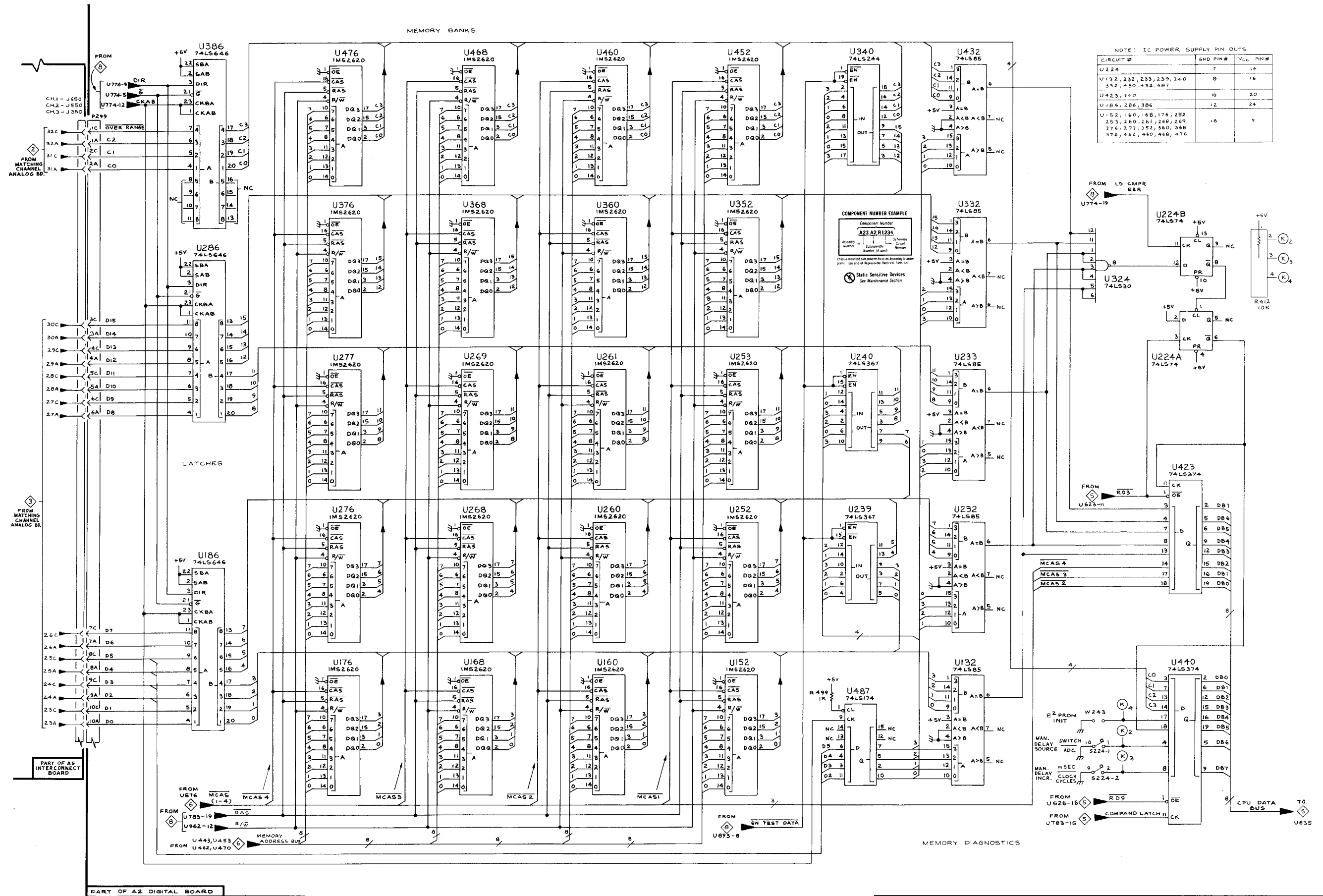
NOTE: IC POWER SUPPLY PIN OUTS

CIRCUIT #	GND PIN #	Vcc PIN #
U443, 453, 462, 470	10	20
480, 588, 654, 663		
675, 754, 763		
U489, 535, 545, 553	8	16
560, 568, 576, 644		
652, 660, 667, 671		
U862	7	14

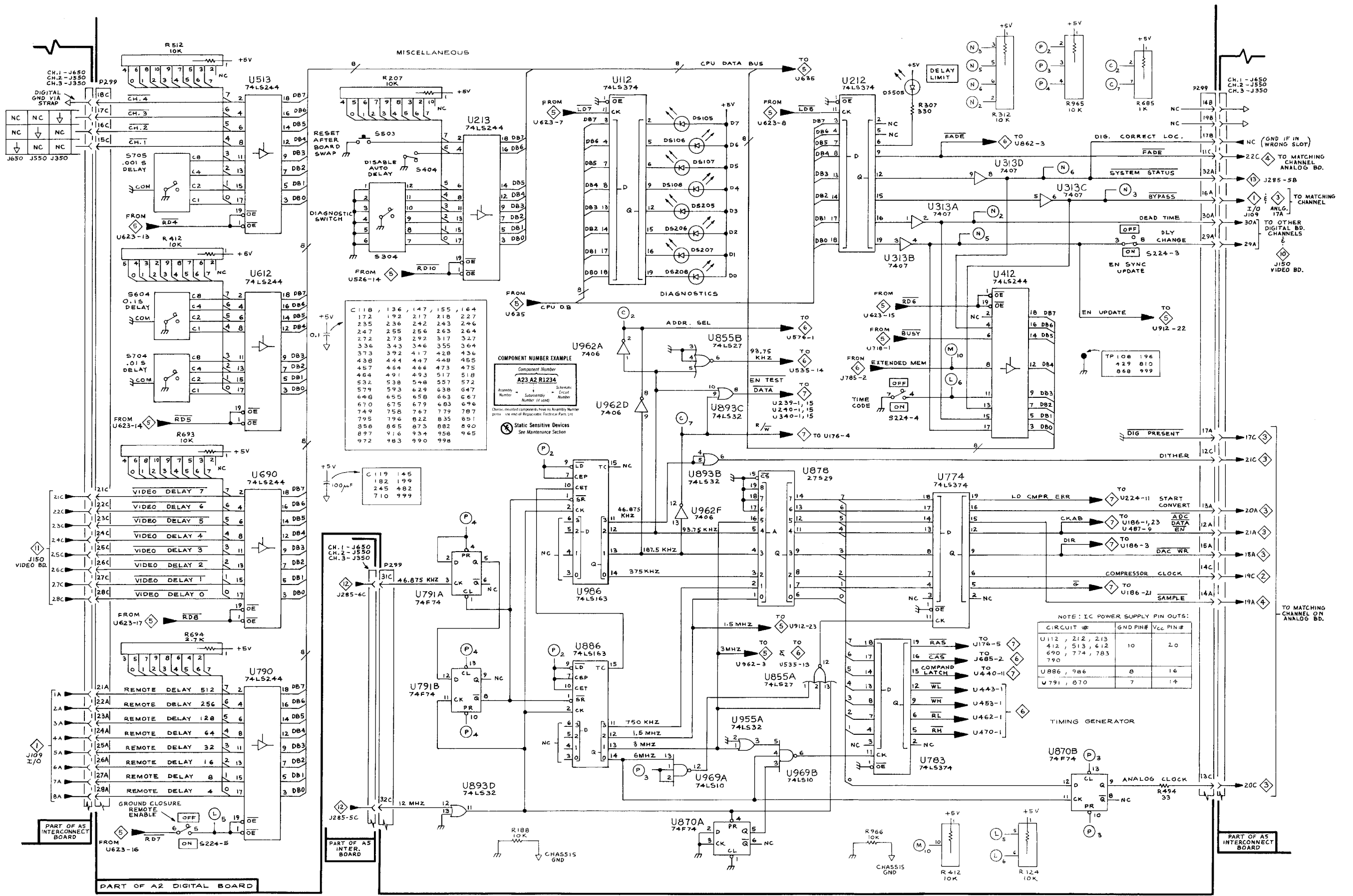
U152	253	276	376
160	260	277	452
168	261	352	460
176	268	360	468
252	269	368	476

PART OF A2 DIGITAL BOARD

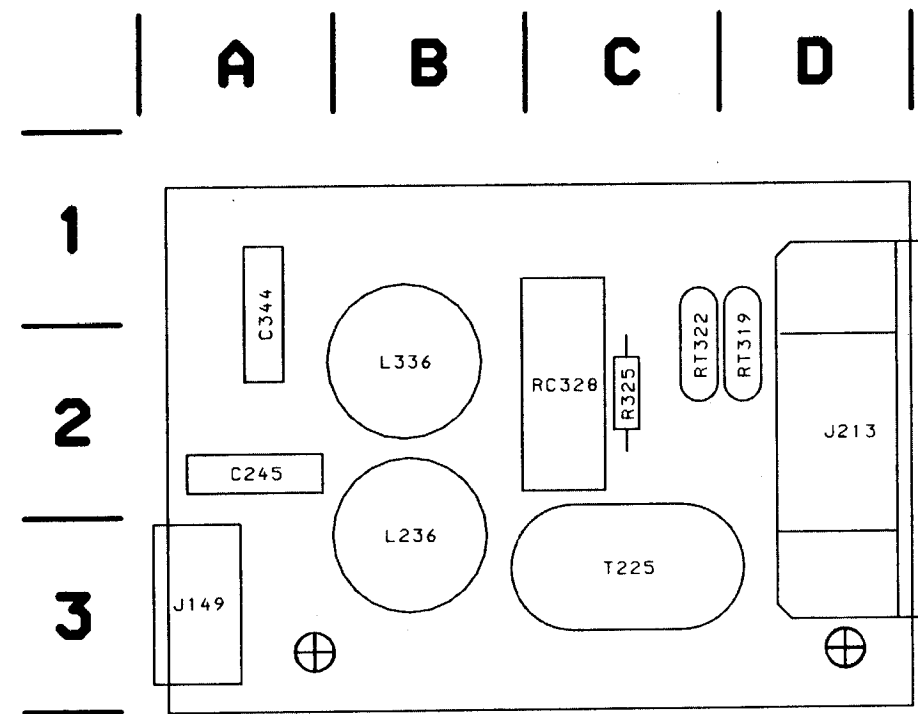






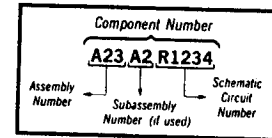






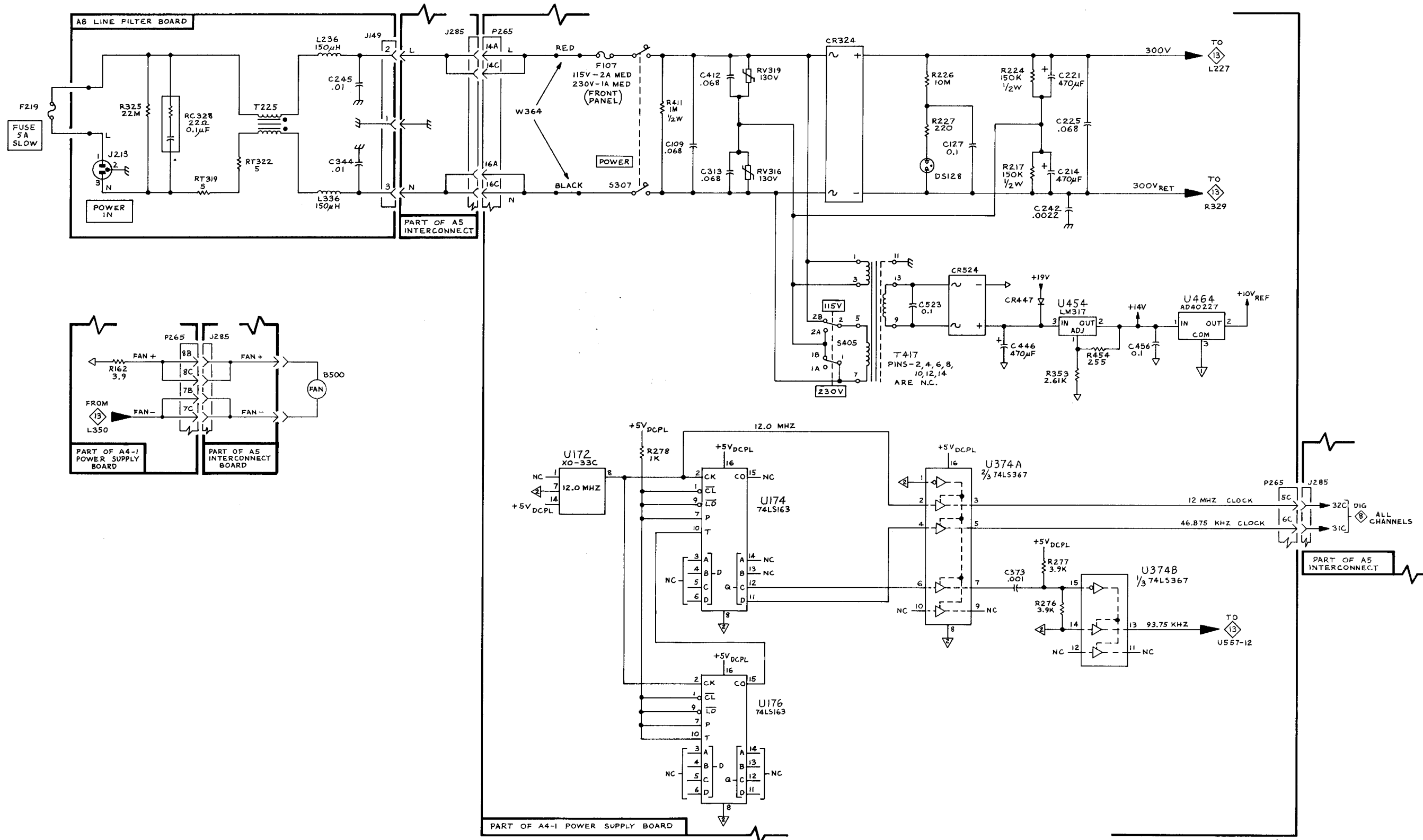
LINE FILTER CIRCUIT BOARD - A8

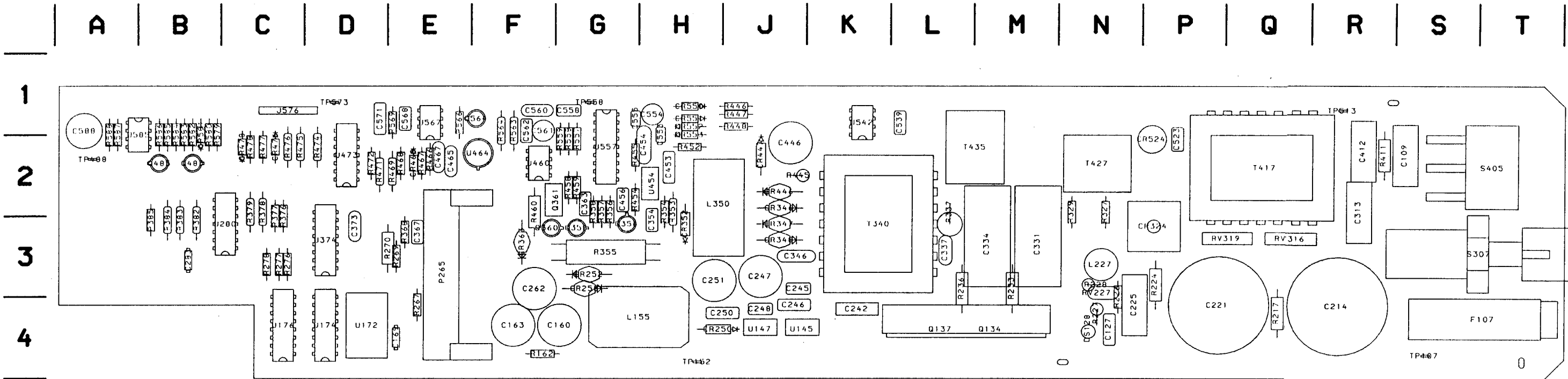
COMPONENT NUMBER EXAMPLE



Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

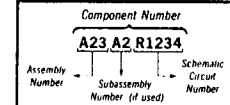
 Static Sensitive Devices  
See Maintenance Section





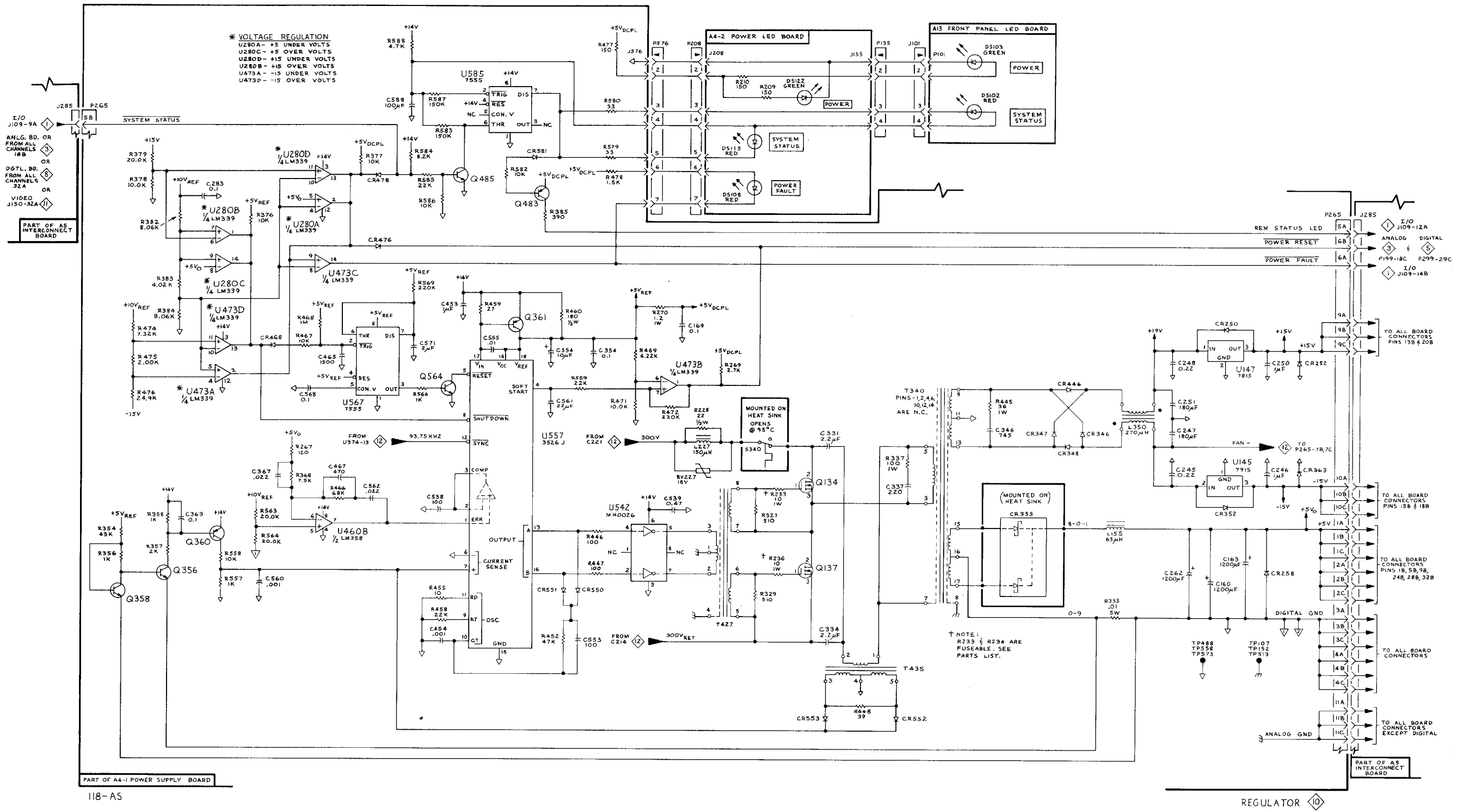
REGULATOR CIRCUIT BOARD - A4-1

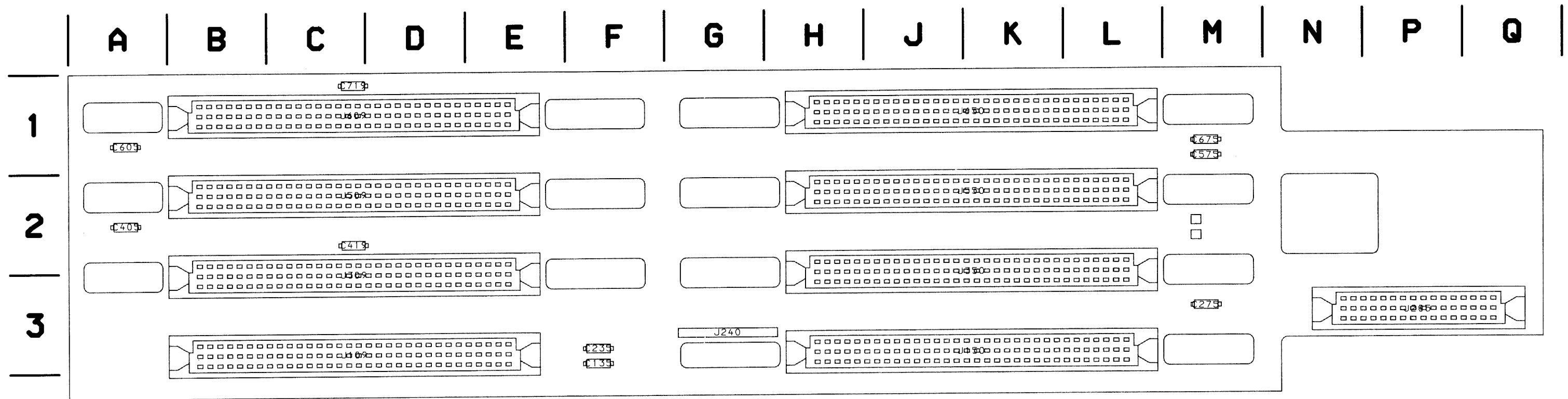
COMPONENT NUMBER EXAMPLE



Static Sensitive Devices See Maintenance Section

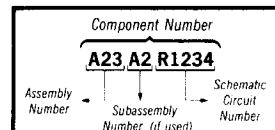
Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.





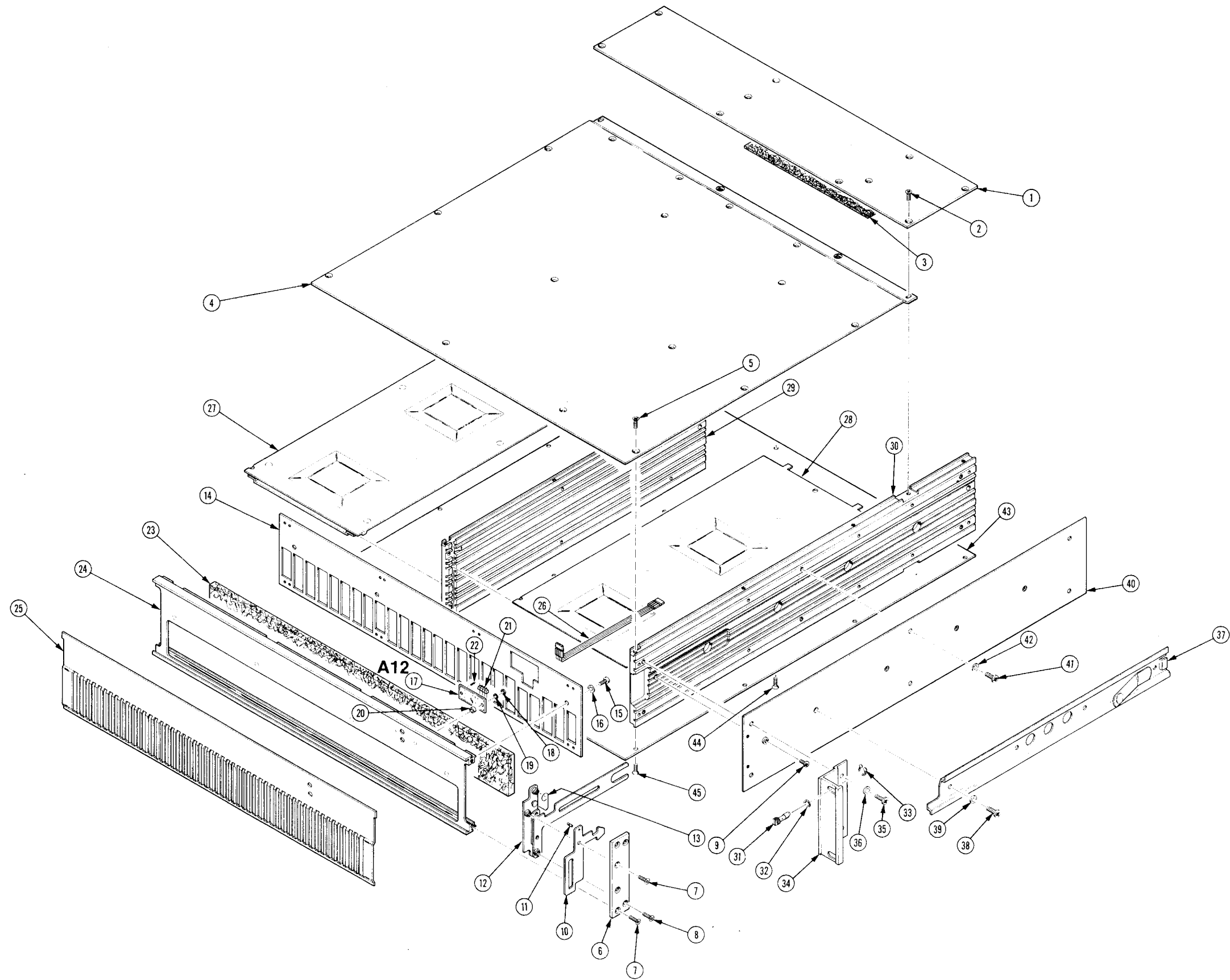
INTERCONNECT CIRCUIT BOARD - A5

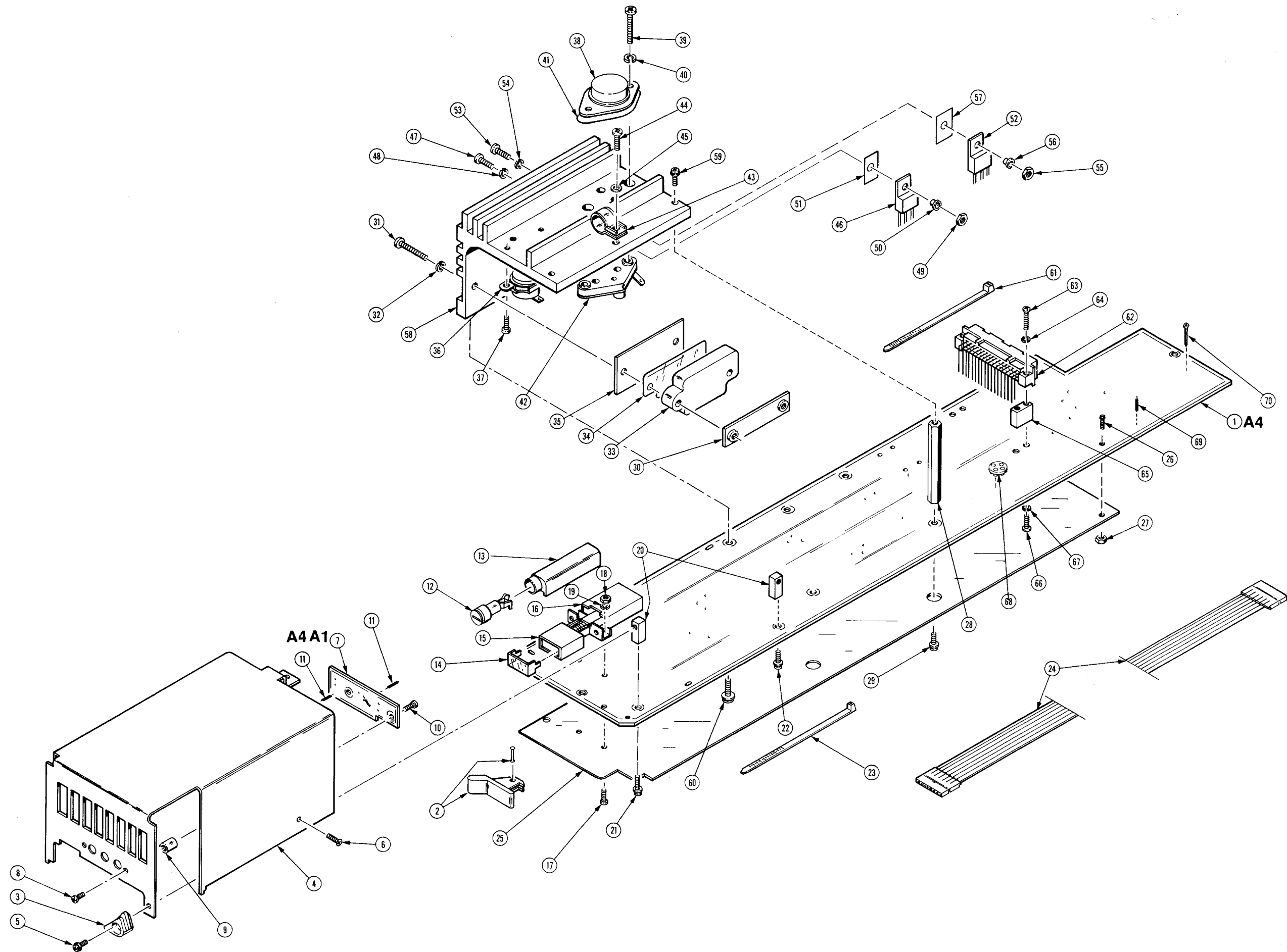
COMPONENT NUMBER EXAMPLE



Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

Static Sensitive Devices  
See Maintenance Section





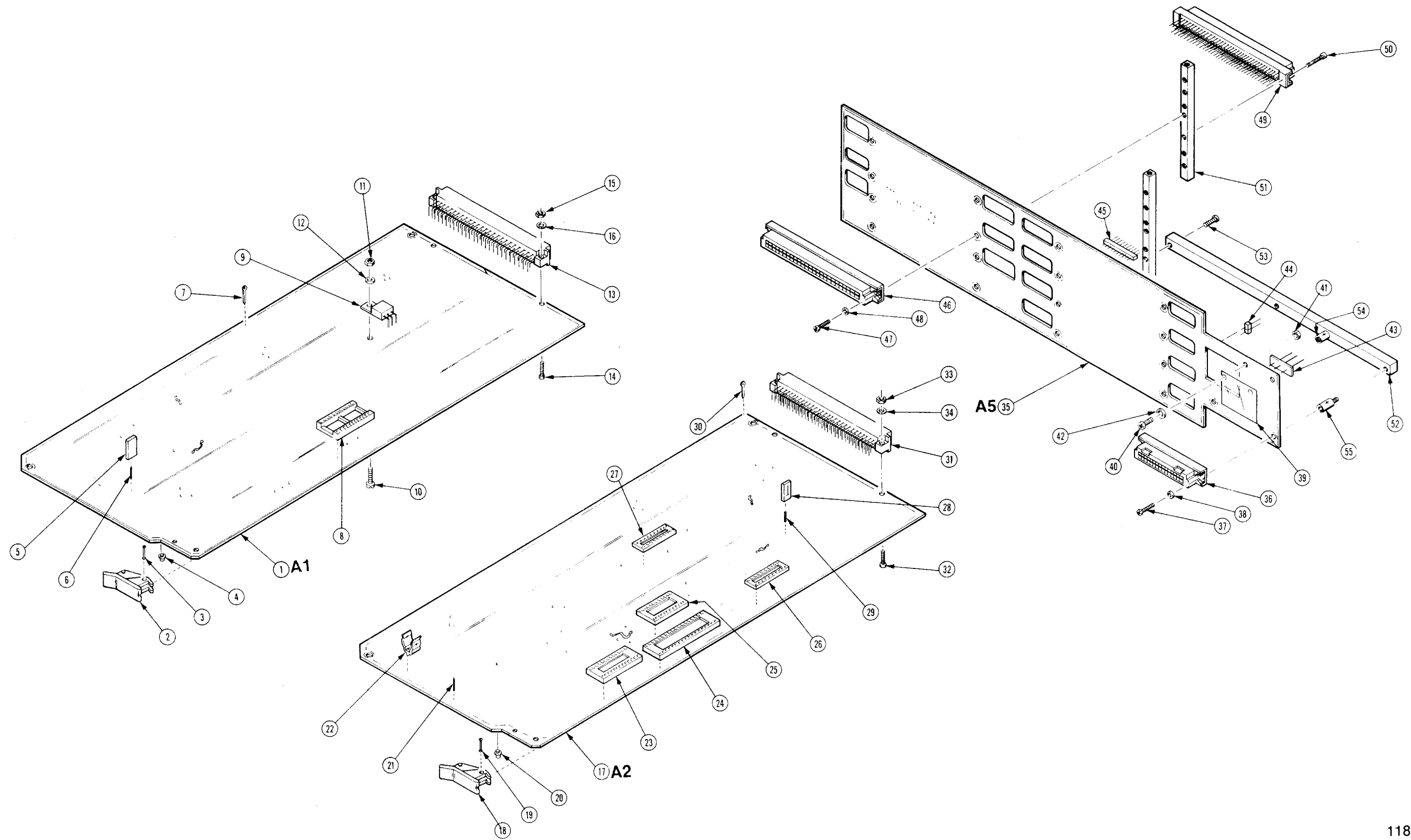
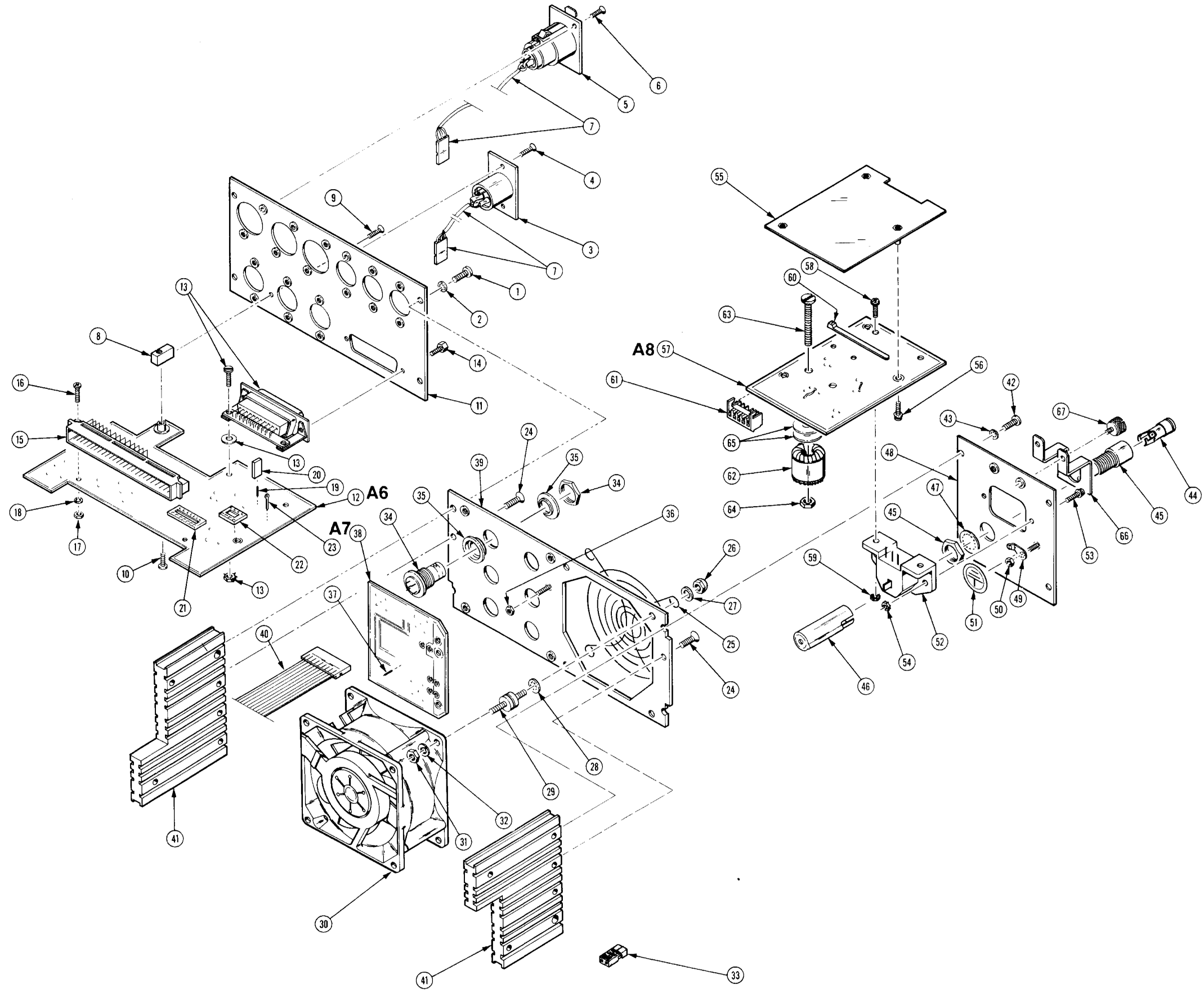


FIGURE 3 CIRCUIT BOARDS



FIGURE 4 REAR



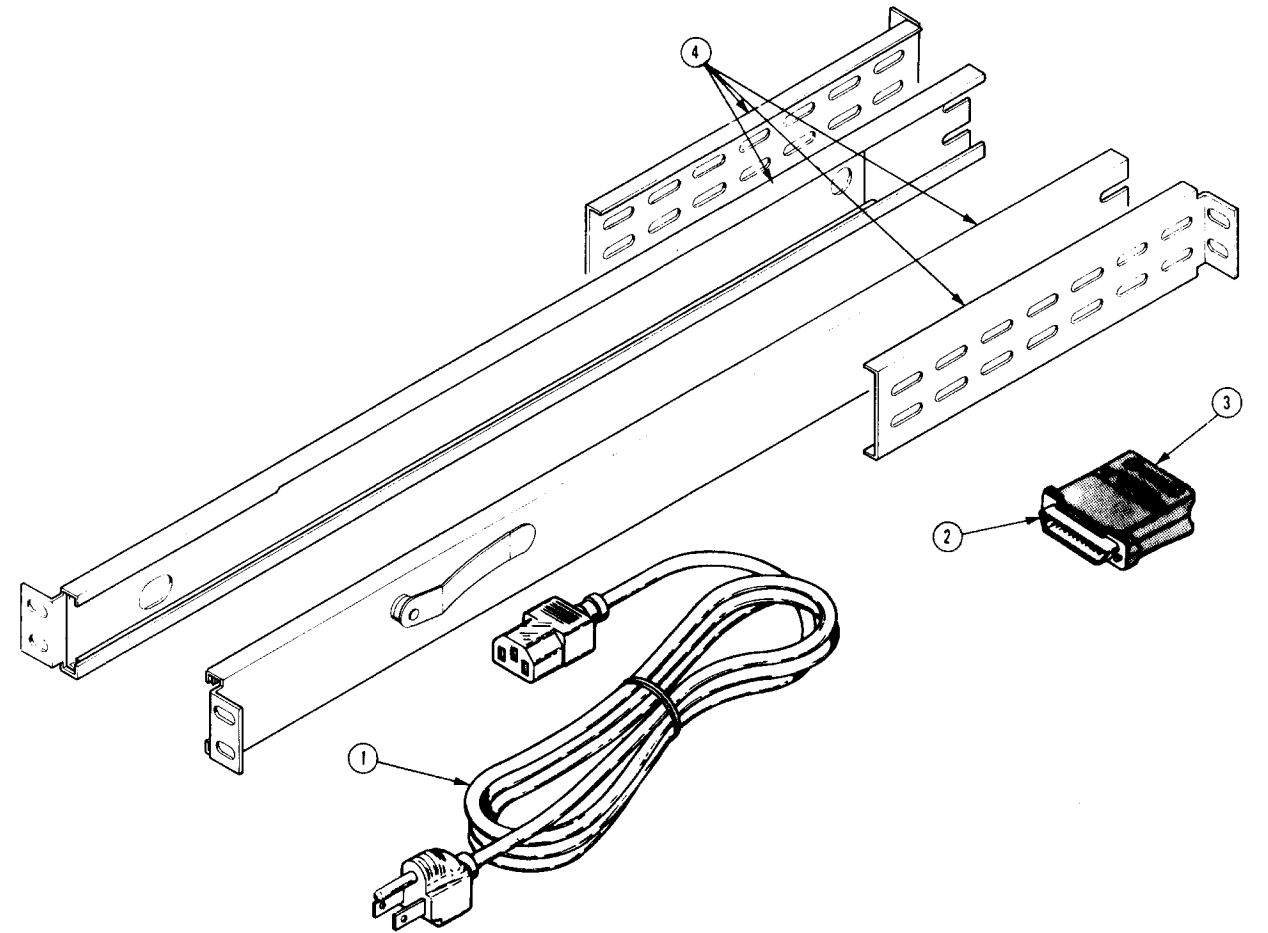
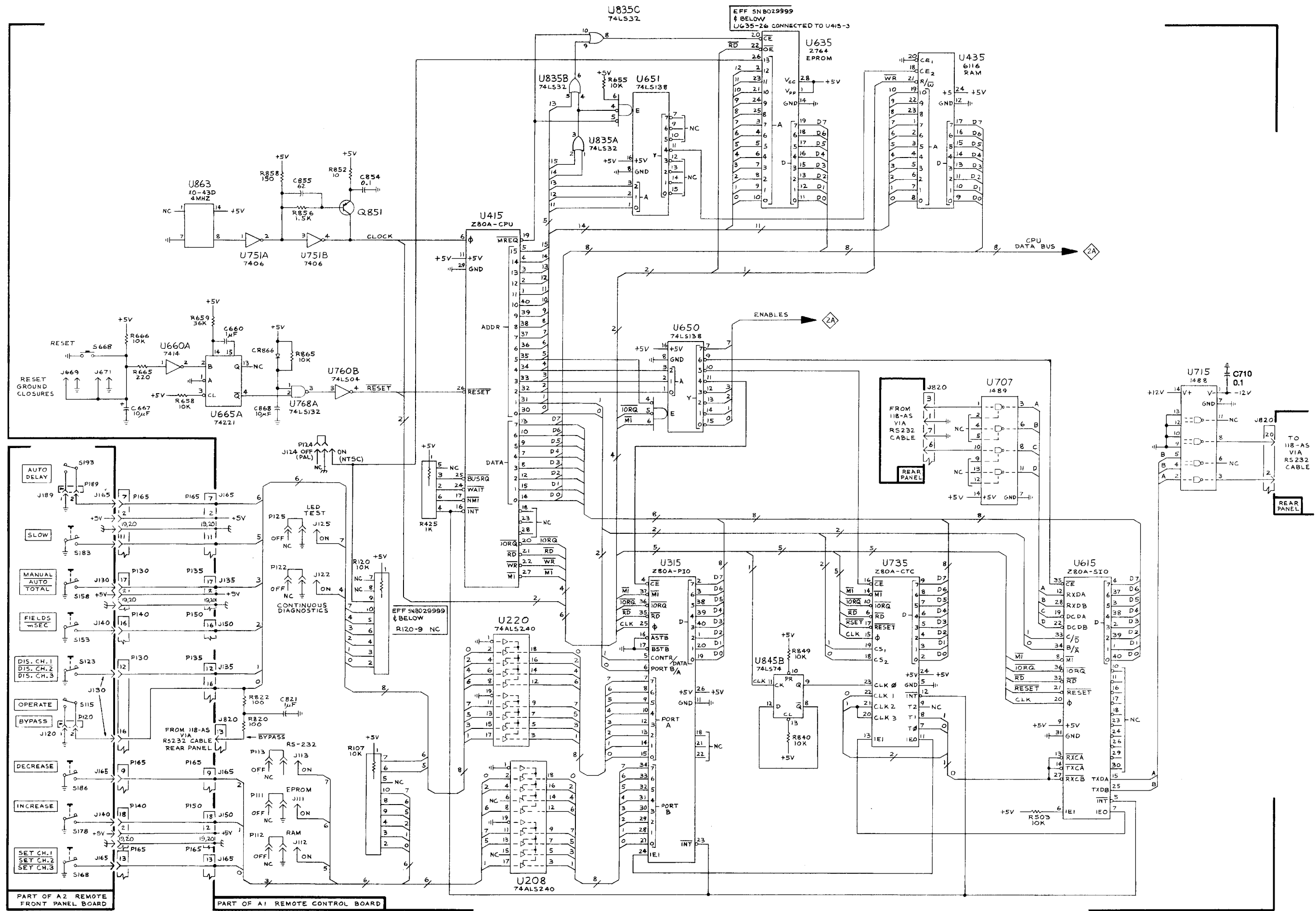


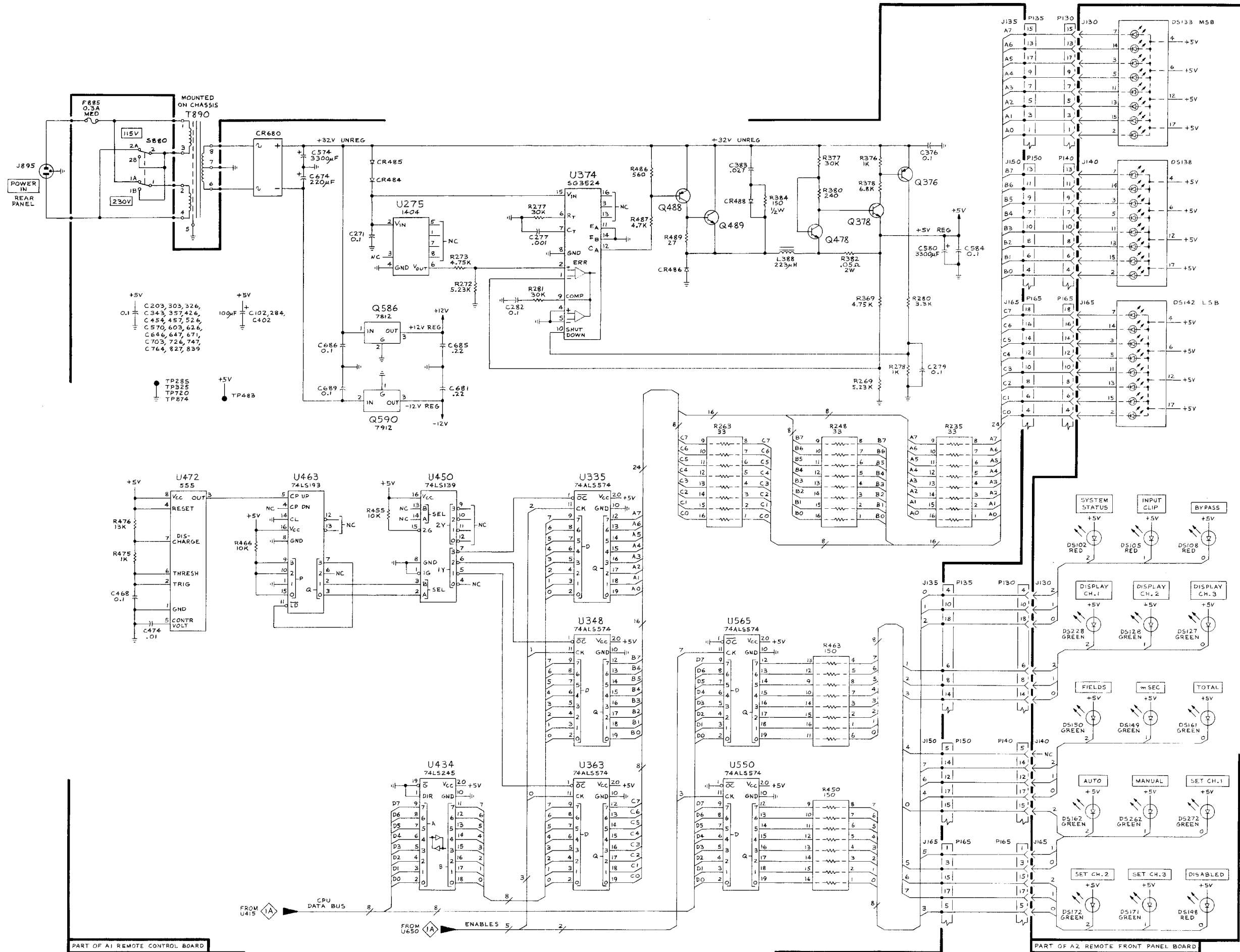
Fig. & Index No.	Tektronix Part No.	Serial/Model No.		Qty						Name & Description	Mfr Code	Mfr Part Number
		Eff	Dscont		1	2	3	4	5			
STANDARD ACCESSORIES												
5-1	161-0066-00			1							16428	CH8481,FH8481
-2	131-0570-00			1							71468	DB25P
-3	200-1667-00			1							00779	206472-1
-4	351-0636-00			1							80009	351-0636-00
	061-3076-00			1							80009	061-3076-00
OPTIONAL ACCESSORIES												
	670-7754-00			1							80009	670775400

FIGURE 5 ACCESSORIES









PART OF A1 REMOTE CONTROL BOARD

PART OF A2 REMOTE FRONT PANEL BOARD







# Replaceable Mechanical Parts

This section contains a list of the components that are replaceable for the 118-RC. 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

<p><b>Figure &amp; Index No.</b> (Column 1)</p>	<p>Items in this section are referenced by figure and index numbers to the illustrations.</p>
<p><b>Tektronix Part No.</b> (Column 2)</p>	<p>Indicates part number to be used when ordering replacement part from Tektronix.</p>
<p><b>Serial No.</b> (Column 3 and 4)</p>	<p>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.</p>
<p><b>Qty (Column 5)</b></p>	<p>This indicates the quantity of mechanical parts used.</p>
<p><b>Name and Description</b> (Column 6)</p>	<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> <pre> <b>1 2 3 4 5      Name &amp; Description</b> 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*</pre> <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. <b>Mounting parts must be purchased separately, unless otherwise specified.</b></p>
<p><b>Mfr. Code</b> (Column 7)</p>	<p>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.)</p>
<p><b>Mfr. Part Number</b> (Column 8)</p>	<p>Indicates actual manufacturer's part number.</p>

**CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER**

Mfr. Code	Manufacturer	Address	City, State, Zip Code
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
TK1384	LIGHTNING METAL SPECIALTIES INC	2671 UNITED LANE	ELK GROVE VILLAGE IL 60007
TK1547	MOORE ELECTRONICS INC (DIST)	19500 SW 90TH COURT PO BOX 1030	TUALATIN OR 97062
TK1719	NEDELCO BV (THOMAS & BETTS)	POSTBUS 6431	3002 AK ROTTERDAM THE NETHERLANDS
0B445	ELECTRI-CORD MFG CO INC	312 EAST MAIN ST	WESTFIELD PA 16950
0GV52	SCHAFFNER EMC INC	9-B FADEM ROAD	SPRINGFIELD, NJ 07081
0JR05	TRIQUEST CORP	3000 LEWIS AND CLARK HWY	VANCOUVER WA 98661-2999
0J260	COMTEK MANUFACTURING OF OREGON (METALS)	PO BOX 4200	BEAVERTON OR 97076-4200
0J7N4	ARCHER PRECISION SHEET METAL INC	10950 SW 5TH ST	BEAVERTON OR 97005
0J7N9	MCX INC	30608 SAN ANTONIO ST	HAYWARD CA 94544
0KBZ8	SHELLEY-RAGON INC (DIST)	919 SW 150TH	SEATTLE WA 98166-1829
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
02114	PHILIPS COMPONENTS AMPEREX ELECTRONICS CORP FERROXCUBE DIV	5083 KINGS HWY	SAUGERTIES, NY 12477
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039-2410
09922	BURNDY CORP	1 RICHARDS AVE	NORWALK CT 06856
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125-4632
18565	CHOMERICS INC	77 DRAGON COURT	WOBURN MA 01801-1039
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
55566	R A F ELECTRONIC HARDWARE INC	95 SILVERMINE RD	SEYMOUR CT 06483-3915
61857	SAN-0 INDUSTRIAL CORP	91-3 COLIN DRIVE	HOLBROOK NY 11741
61935	SCHURTER INC	1016 CLEGG COURT	PETALUMA CA 94952-1152
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIV	ST CHARLES ROAD	ELGIN IL 60120
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001
83553	ASSOCIATED SPRING RAYMOND	3443 MORSE DRIVE	DALLAS, TX 75236
86928	SEASTROM MFG CO INC	701 SONORA AVE	GL ENDALE CA 91201-2431
92830	ASSOCIATED SPRING BARNES GROUP INC	18 MAIN ST	BRISTOL CT 06010-6527
98978	INTERNATIONAL ELECTRONIC RESEARCH CORP	135 W MAGNOLIA BLVD PO BOX 7704	BURBANK CA 91502

## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
1-1	200-3050-00			1		COVER,CHASSIS:TOP,REMOTE CONTROL	TK1384	ORDER BY DESC
	214-0603-02			5		.PIN ASSY,SECRG:W/SPRING WASHER	0J260	ORDER BY DESC
-2	214-0603-01			5		..PIN,SECURING:0.45 DIA X 0.27,ZAMAK CD PL	80009	214060301
-3	214-0604-00			5		..WASHER,SPR TNSN:0.26 ID X 0.47 OD X 0.01 THK,SST	92830	ORDER BY DESC
-4	386-0227-01			5		.STOP,CLP,RIM CL:BLACK ACETAL	0JR05	386-0227-01
-5	386-1151-00			5		.CLAMP,RIM CLENC:SPG STL CD PL	83553	ORDER BY DESC
-6	213-0940-00			2		THUMBSCREW:10-32 X 1.15,0.375 OD,SST *MOUNTING PARTS*	80009	213094000
-7	354-0025-00			2		RING,RETAINING:EXTERNAL,U/O 0.187 DIA SFT *END MOUNTING PARTS*	TK0941	555-18MI
-8	407-2846-00			2		BRACKET,RACK MT:ALUMINUM *MOUNTING PARTS*	80009	407284600
-9	211-0512-00			4		SCREW,MACHINE:6-32 X 0.5,FLH,100 DEG,STL CDPL POZ	TK0435	ORDER BY DESC
-10	212-0506-00			4		SCREW,MACHINE:10-32 X 0.375,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-11	200-2920-00			2		CAP,END:AL,0.82 X 1.72 X 0.062 *MOUNTING PARTS*	80009	200292000
-12	211-0512-00			4		SCREW,MACHINE:6-32 X 0.5,FLH,100 DEG,STL CDPL POZ *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-13	367-0135-00			2		HANDLE,CARRYING:BLACK CHROME PLATED	80009	367013500
-14	333-3156-00			1		PANEL,FRONT:118RC	07416	ORDER BY DESC
-15	_____			1		CKT BOARD ASSY:FRONT PANEL(SEE A2 REPL) *MOUNTING PARTS*		
-16	210-0405-00			8		NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL *END MOUNTING PARTS*	73743	12157-50
-17	_____			2		CKT BOARD ASSY INCLUDES: .SWITCH ROCKER: (SEE A2S115,A2S193 REPL) *MOUNTING PARTS*		
-18	210-0405-00			8		.NUT,PLAIN,HEX:2-56 X 0.188,BRS CD PL	73743	12157-50
-19	210-0001-00			8		.WASHER,LOCK:#2 INTL,0.013 THK,STL	78189	1202-00-00-0541
-20	355-0250-00			8		.STUD,SHOULDERED:0.156 DIA,2-56 THD BOTH ENDS,0.375 L,STEEL *END MOUNTING PARTS*	80009	355025000
-21	175-2623-00			1		.CA ASSY,SP,ELEC:2,26 AWG,3.0 L,RIBBON	0J7N9	175-2623-00
-22	131-0608-00			64		.CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
-23	378-0256-00			1		.FILTER,LED DSPL:2.435 X 1.11	80009	378025600
-24	355-0250-00			8		STUD,SHOULDERED:0.156 DIA,2-56 THD BOTH ENDS,0.375 L,STEEL	80009	355025000
-25	426-2058-00			1		FRAME PANEL,FR:ALUMINUM EXTRUSION	80009	426205800
-26	_____			1		TRANSFORMER: (SEE T1 REPL) *MOUNTING PARTS*		
-27	211-0514-00			4		SCREW,MACHINE:6-32 X 0.750,PNH,STL	TK0435	1541-300
-28	210-0803-00			4		WASHER,FLAT:0.15 ID X 0.375 OD X 0.032,STL	12327	ORDER BY DESC
-29	210-0935-00			8		WASHER,SHLDR:0.141 ID X 0.375 OD X 0.078 THK,FBR *END MOUNTING PARTS*	0KB01	ORDER BY DESC
-30	129-1062-00			4		SPACER,POST:0.437 L,6-32 THRU,AL,0.375HEX	55566	2237-632-A-7
-31	210-0204-00			2		TERMINAL,LUG:0.142 ID,LOCKING,BRZ TINNED *MOUNTING PARTS*	86928	A373-175
-32	210-0407-00			2		NUT,PLAIN,HEX:6-32 X 0.25,BRS CD PL *END MOUNTING PARTS*	73743	3038-402
-33	131-3117-00			1		CONN,RCPT,ELEC:PWR LINE FLTR,3,MALE *MOUNTING PARTS*	0GV52	FS2287-1-07
-34	211-0101-00			2		SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-35	_____			1		CKT BOARD ASSY:REMOTE CONT (SEE A1 REPL) *MOUNTING PARTS*		

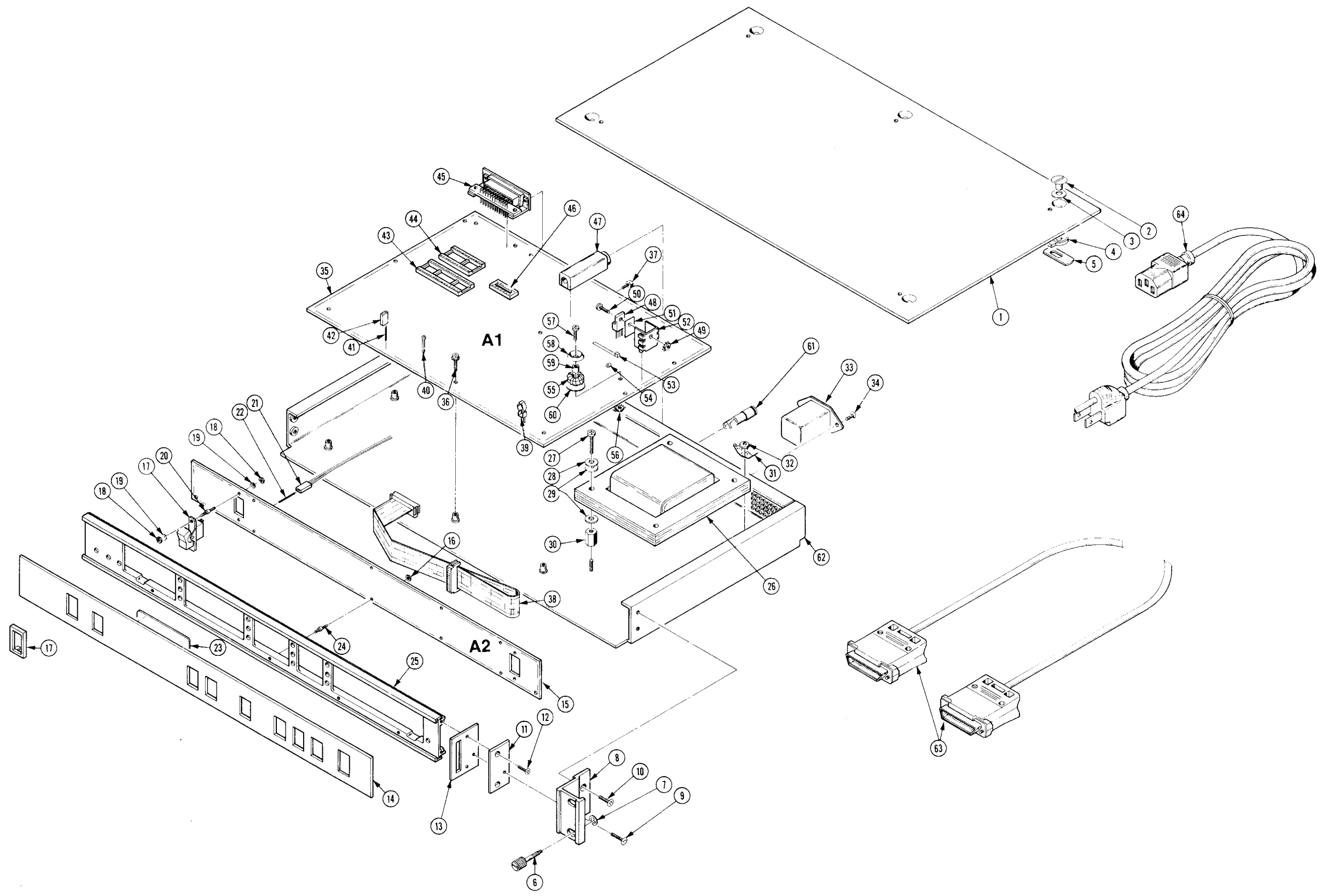
## Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number		Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
		Effective	Dscont					
-36	211-0661-00			8		SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,CD PL,POZ,MACH	TK0435	ORDER BY DESC
-37	214-3903-01			2		SCREW,JACK:4-40 X 0.312 EXT THD,4-40 INT THD,0.188 HEX,STEEL,CADPLATE *END MOUNTING PARTS* CKT BOARD ASSY INCLUDES:	0KB01	214-3903-01
-38	175-9691-00			3		.CA ASSY,SP,ELEC:20,28 AWG,7.0 L,RIBBON	TK1547	ORDER BY DESC
-39	344-0329-00			1		.CLIP,ELECTRICAL:PCB,;FEMALE,STR,ACCOM 5 X 20MM FUSE,5.9MM H X 3.2MM TAIL,5MM PTH SP,1.3MM DIA PTH, BRONZE TIN PLATED	61857	H-0011-2
-40	214-0579-00			5		.TERM,TEST POINT:PCB,TEST POINT,EYELET 0.055 ID,0.4 L X 0.052 WIDE X 0.032 THK,TIN PL,W/0.045 TIPCHAMFER	0J260	ORDER BY DESC
-41	131-0608-00	B010100	B029999	19		.CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
	131-0608-00	B030000		22		.CONN,TERMINAL:PRESSFIT/PCB;MALE,STR,0.025SQ,0.248 MLG X 0.137 TAIL,50 GOLD,PHZ BRZ,W/FERRULE	22526	48283-018
	131-0589-00			2		.TERMINAL,PIN:PRESSFIT/PCB;MALE,STR,0.025 SQ,0.343 MLG X 0.122 TAIL,0.465 L,50 GOLD,W/FERRULE	22526	48283-087
-42	131-0993-09			5		.BUS,CONDUCTOR:SHUNT ASSEMBLY,WHITE	00779	850100-1
	131-0993-00	B030000		1		.CONN,BOX:SHUNT;FEMALE,STR,1 X 2,0.1 CTR,0.385 H,30 GOLD,BLACK,JUMPER	22526	65474-006
-43	136-0757-00			1		.SOCKET,DIP:PCB,;FEMALE,STR,2 X 20,40 POS,0.1 X 0.6 CTR,0.175 H X 0.130 TAIL,BECU,TIN,ACCOM 0.008-0.015 X 0.014-0.022 IC	09922	DILB40P-108
-44	136-0755-00			1		.SOCKET,DIP:PCB,;FEMALE,STR,2 X 14,28 POS,0.1 X 0.6 CTR,0.175 H X 0.130 TAIL,BECU,TIN,ACCOM 0.008-0.0015 X 0.014-0.022	09922	DILB28P-108
-45	131-2199-00			1		.CONN,DSUB:PCB/PNL,;MALE,RTANG,25 POS,0.112CTR, 0.590 MLG X 0.125 TAIL,4-40 THD INSERT,GOLD/TIN	00779	747047-3
-46	136-0728-00			4		.SKT,PL-IN ELEK:MICROCKT,14 CONTACT	09922	DILB14P-108
-47	204-0906-00			1		BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	61935	TYPE FAU 031.35
-48	_____			2		.MICROCIRCUIT,LI: (SEE A1U586,A1U590 REPL)		
	_____			1		.TRANSISTOR: (SEE Q489 REPL) *MOUNTING PARTS*		
-49	210-0586-00			3		.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	TK0435	ORDER BY DESC
-50	211-0008-00			3		.SCREW,MACHINE:4-40 X 0.25,PNH,STL *END MOUNTING PARTS*	TK0435	ORDER BY DESC
-51	342-0563-00			2		.INSULATOR,PLATE:XSTR,FIBERGLASS REINFORCED SILICON RUBBER	18565	69-11-8805-1674
-52	214-3036-00			3		.HEAT SINK,SEMIC:TRANSISTOR,TO-220;ALUMINUM, BLACK ANODIZE	98978	7-363-BA
-53	346-0128-00			1		.STRAP,TIEDOWN,E:8.0 L X 0.1 W,NYLON	TK1719	TY232M
-54	276-0507-00			1		.CORE,EM-TOROID;FERRITE,UO=650 20% (1KHZ)	02114	56-590-65B/3B
-55	_____			1		.COIL: (SEE L388 REPL) *MOUNTING PARTS*		
-56	210-0586-00			1		.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	TK0435	ORDER BY DESC
-57	211-0016-00			1		.SCREW,MACHINE:4-40 X 0.625,PNH,STL	TK0435	ORDER BY DESC
-58	210-1298-00			1		.WSHR,SHLDR&REC:0.195 ID X 0.195 THK,PLSTC,0.575 OD	0KB01	ORDER BY DESC
-59	129-0222-00			1		.SPACER,POST:0.27 L,4-40 THRU,PLSTC,0.25 OD	80009	129022200
-60	210-0917-00			1		.WASHER,FLAT:0.191 ID X 0.625 OD X 0.025 *END MOUNTING PARTS*	86928	FLAT WASHER: .1
-61	200-2264-00			1		.CAP,FUSEHOLDER:3AG FUSES	61935	FEK 031 1666
-62	441-1590-00			1		CHASSIS,RC:118RC	0J7N4	ORDER BY DESC
-63	012-1133-00			1		STANDARD ACCESSORIES CABLE,SP,ELEC:3 CONDUCTOR,48.0 L,SHLD,25PIN FEMALE,25 PIN MALE	0KBZ8	ORDER BY DESC
-64	161-0066-00			1		CA ASSY,PWR:3,18 AWG,250V/10A,98 INCH,STR,IEC320, RCPT X NEMA 5-15P,US,SAF CONTROLLED	0B445	ECM-161-0066-00

## Replaceable Mechanical Parts

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## Manual Change Information

Tektronix products are constantly under development for increased performance or lower cost to the customer. Often, changes are incorporated into a product as soon as they are shown to meet the highest quality standards.

This aggressive policy of product improvement can result in changes that are not reflected in the appropriate sections of the manual. Information regarding such changes will appear on the following pages. If no change notices are inserted after this page, the manual is correct as printed.

Please review any included change information and note the changes that will affect your use of the product. A single change may apply to several sections of the manual. Because change information sheets are inserted until all the changes are incorporated into every applicable section of the manual, some duplication may result.

## Change Information Log

Change	Description
M82407	Mechanical changes
M82653	Mechanical changes for CE Compliance.
M82756	Rolls the Analog Board to 670-8453-03; includes new circuitry.
M81848	Mechanical changes
M82572	Electrical part change
M82355	Electrical part changes
M86068	Rolls Remote Control board to 670-8642-04; adds 2 resistor networks

Date: 10/15/96Change Reference: M82407

Product:	Manual P/N:	Effective S/N:
118AS	070-5114-01	B051468

## Replaceable Mechanical Parts Changes

Section 12 Replaceable Mechanical Parts, Figure 1:

**Delete:**

1-6, 1-7, 1-10, 1-11, 1-13

**Change to Read:**

1-12	214-3481-01	HINGE, ASSEMBLY:LEFT HINGE ASSY;118AS
	214-3482-01	HINGE, ASSEMBLY:RIGHT HINGE ASSY;118AS



Product:            Manual P/N:            Effective S/N:  
 118AS                070-5114-01            B051444

### Replaceable Electrical Parts Changes

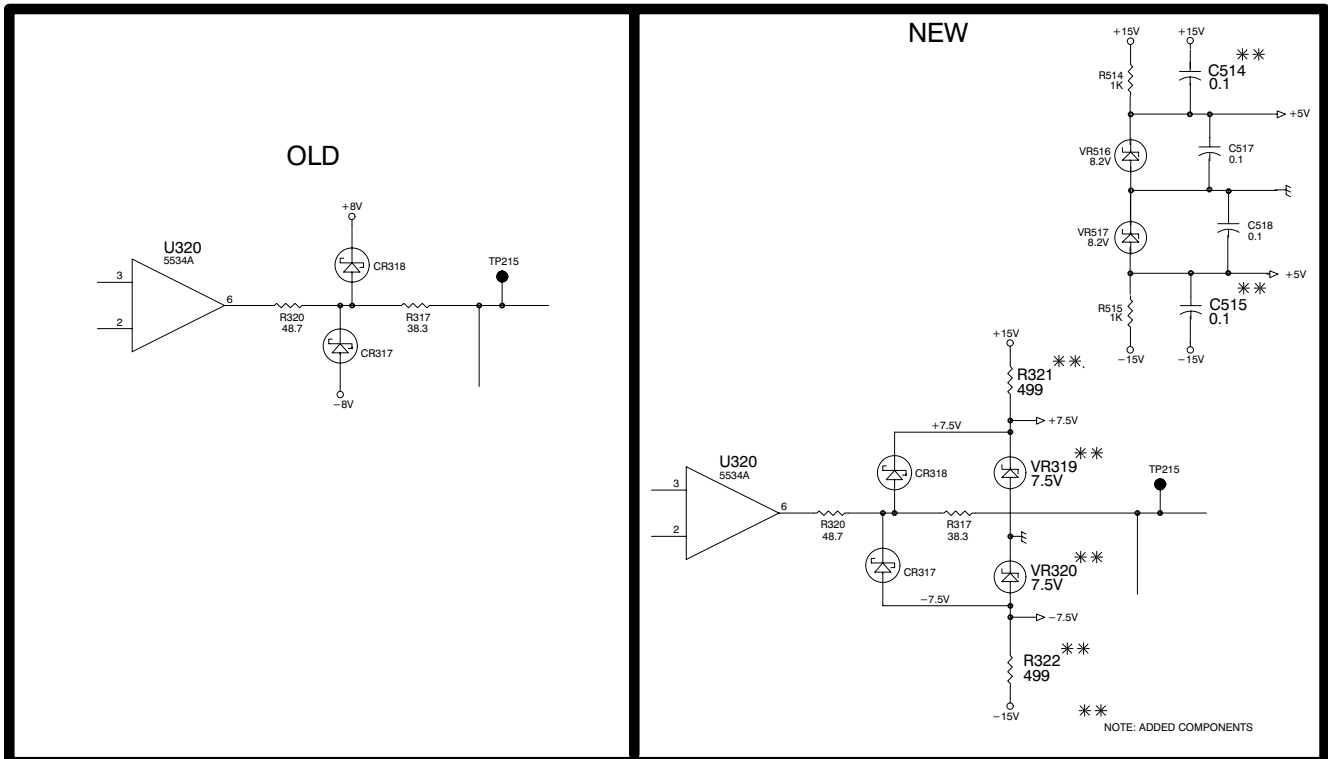
#### Section 10 Replaceable Electrical Parts

#### Change to Read:

A1	670-8453-03	CKT BD ASSY:ANALOG BOARD
A1C318	283-0766-00	CAP,FXD,MICA DI:47 PF,1%,500V
A1CR126	152-0836-00	DIODE,RECT: SCHTKY;40V,1A,25A,1N5819
A1CR127	152-0836-00	DIODE,RECT: SCHTKY;40V,1A,25A,1N5819
A1CR317	152-0836-00	DIODE,RECT: SCHTKY;40V,1A,25A,1N5819
A1CR318	152-0836-00	DIODE,RECT: SCHTKY;40V,1A,25A,1N5819

#### Add:

A1C514	283-0177-05	CAP,FXD,MICA DI: 47 PF,1%,500V 1UF,+80-20%,25V
A1C515	283-0177-05	CAP,FXD,MICA DI: 47 PF,1%,500V 1UF,+80-20%,25V
A1R321	322-3164-00	RES,FXD,FILM:499 OHM,1%,0.2W
A1R322	322-3164-00	RES,FXD,FILM:499 OHM,1%,0.2W
A1VR319	152-0127-01	DIODE,ZENER:7.5V,2.7%,0.4W;HZ7C2
A1VR320	152-0127-01	DIODE,ZENER:7.5V,2.7%,0.4W;HZ7C2



Part of schematic 2 showing added parts and circuitry changes



Date: 10/15/96Change Reference: M81848

Product:	Manual P/N:	Effective S/N:
118AS	070-5114-01	B051321

## Replaceable Mechanical Parts Changes

Section 12 Replaceable Mechanical Parts, Figure 4:

**Delete:**

4-26, 4-29, 4-31

**Change to Read:**

4-28	210-0458-00	NUT,PL,ASSEM WA.:8-32 X 0.344,STL CD PL
4-32	210-0010-00	SCREW,MACHINE: 8-32 X 0.625,PNH,STL CD PL,POZ





Date: 10/15/96Change Reference: M82572

Product:	Manual P/N:	Effective S/N:
118RC	070-5114-00	B030670

## Replaceable Mechanical Parts Changes

APPENDIX A Replaceable Electrical Parts:

**Change to Read:**

A1CR680 152-0602-00 DIODE,RECT:BRIDGE,600V,6A,IFSM=100A;RKBPC806



Date: 10/15/96Change Reference: M82355

Product:	Manual P/N:	Effective S/N:
118RC	070-5114-01	N/A

## Replaceable Electrical Parts Changes

118RC, Appendix A Replaceable Electrical Parts

### Change to Read:

A1Q376	151-0301-00	TRANSISTOR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ,AMPLIFIER;2N2907A,TO-18
A1Q488	151-0301-00	TRANSISTOR,SIG:BIPOLAR,PNP;60V,600MA,200MHZ,AMPLIFIER;2N2907A,TO-18



Date: 12/3/97Change Reference: M82653 REV 1

Product:	Manual P/N:	Effective S/N:
118AS	070-5114-03	B051446
118RC	070-5114-03	B040000

## Replaceable Electrical Parts Changes

### Section 12 118AS Replaceable Mechanical Parts

#### Change item 4-48 to Read:

4-48	333-3139-01	1	PANEL, REAR:POWER SUPPLY 118AS
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### Appendix A 118-RC Replaceable Mechanical Parts

#### Change items 1-33, 1-34 and 1-62 to Read:

1-33	119-1536-00	1	FILTER,RFI:3A,250VAC,50/60HZ (ATTACHED PARTS)
	175-0675-00	3"	WIRE,ELECTRICAL:STRD,18 AWG,300V RMS, BLACK
	175-0721-00	3"	WIRE,ELECTRICAL:STRD,18 AWG,300V RMS,GRAY,
	175-0809-01	2"	WIRE,ELECTRICAL:STRD,18 AWG,300V RMS,GRN/YLW
1-34	211-0097-00	2	SCREW,MACHINE:4-40 X 0.312,PNH,STL CD PL,POZ (END ATTACHED PARTS)
1-62	441-1590-01	1	CHASSIS, RC:118RC



Product:            Manual P/N:            Effective S/N:  
 118RC            070-5114-03            B040761

## Replaceable Electrical Parts Changes

Appendix A 118-RC Replaceable Electrical Parts

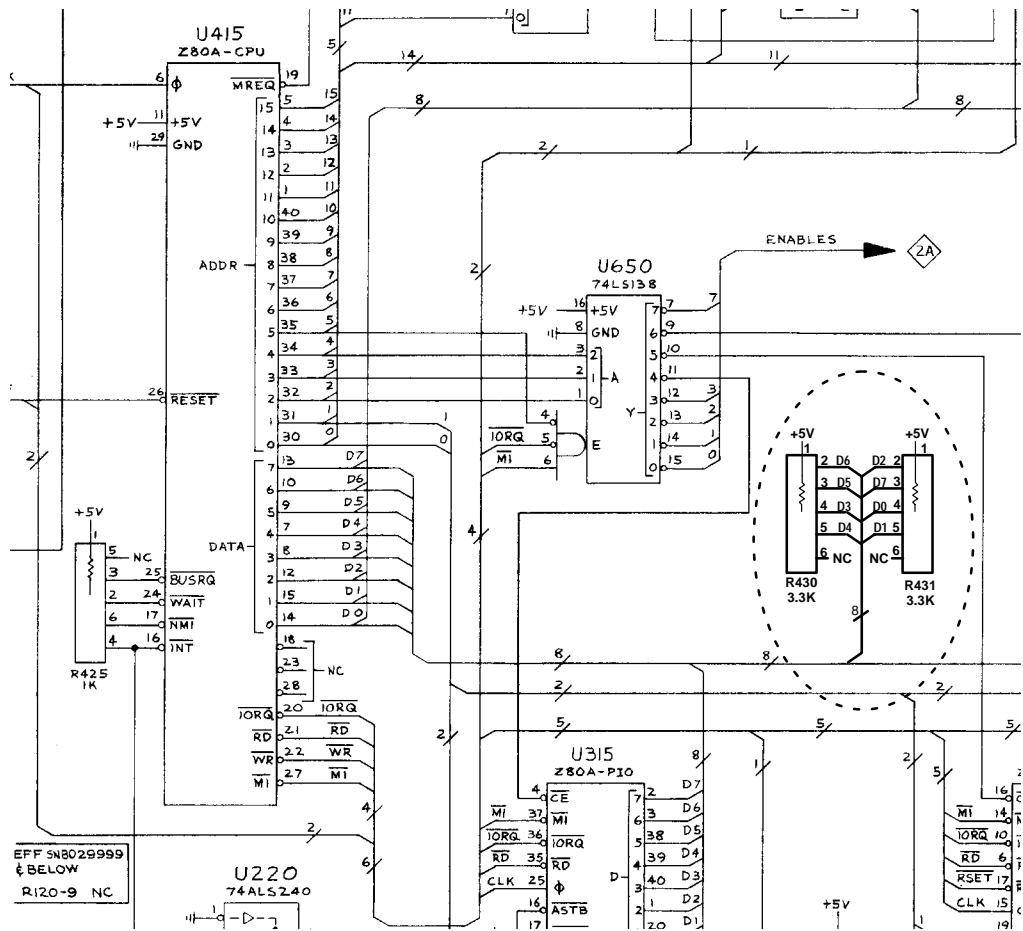
### Change to Read:

A1            670-8642-04            CKT BD ASSY:REMOTE CONTROL

### ADD:

A1R430    307-0651-00            RES NTWK,FXD,FI5:3.3K OHM,5%,0.150W  
 A1R431    307-0651-00            RES NTWK,FXD,FI5:3.3K OHM,5%,0.150W

Added parts are shown below:



Part of 118-RC schematic A1 showing added parts







