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PLEASE CHECK FOR CHANGE INFORMATION AT THE REAR OF THIS MANUAL.

5A14N FOUR CHANNEL AMPLIFIER

INSTRUCTION MANUAL

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97077

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Product Group 52

Serial Number _____

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INSTRUMENT SERIAL NUMBERS

Each instrument has a serial number on a panel insert, tag, or stamped on the chassis. The first number or letter designates the country of manufacture. The last five digits of the serial number are assigned sequentially and are unique to each instrument. Those manufactured in the United States have six unique digits. The country of manufacture is identified as follows:

B000000	Tektronix, Inc., Beaverton, Oregon, USA
1000000	Tektrnoix Guernsey, Ltd., Channel Islands
2000000	Tektronix United Kingdom, Ltd., London
3000000	Sony/Tektronix, Japan
7000000	Tektronix Holland, NV, Heerenveen, The Netherlands

TABLE OF CONTENTS

WARNING

THE FOLLOWING SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL ONLY. TO AVOID PERSONAL INJURY, DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.

OPERATORS 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


Static-Sensitive Devices.


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.

WARNINGS

Power Source

This product is intended to operate in a mainframe 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.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition.

Refer cord and connector changes to qualified personnel.

Grounding the Product

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

Danger Arising From Loss of Ground

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.

Do Not Operate In Explosive Atmospheres

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

Do Not Remove Covers or Panels

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

Do Not Operate Without Covers (For TM 500 Plug-Ins Only)

To avoid personal injury, do not operate this product without covers or panels installed. Do not apply power to the plug-in via a plug-in extender.

SERVICING SAFETY SUMMARY

FOR QUALIFIED SERVICE PERSONNEL ONLY

Refer also to the preceding Operators Safety Summary

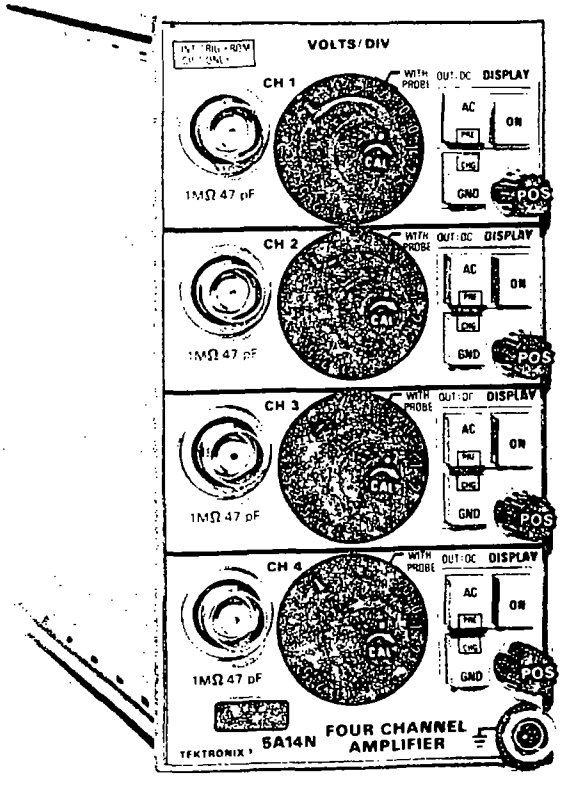
Use Care When Servicing With Power On

Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on.

Disconnect power before removing protective panels, soldering, or replacing components.

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.



5A14N Four Channel Amplifier.

SECTION 1
OPERATING INSTRUCTIONS

INSTRUMENT DESCRIPTION

The 5A14N Four Channel Amplifier is a general-purpose plug-in unit (refer to current Tektronix Products Catalog for compatible mainframe information). The unit contains independent amplifier channels with identical characteristics, and features solid-state circuitry and simplicity of operation. The VOLTS/DIV knob skirts are lighted to provide a direct readout of calibrated deflection factor either with or without a probe. Any channel may be used to produce a single-channel display. All channels may be displayed alternately, or channel 4 and 3 may be alternated with 2 and 1 to produce four displayed channels. While designed primarily for use as a vertical amplifier, the unit can be operated in conjunction with the horizontal deflection system of the oscilloscope for X-Y displays.

CONTROLS AND CONNECTORS

This is a brief description of the function or operation of the controls and connectors. Additional operating information is given under General Information.

DISPLAY	Applies logic levels to the oscilloscope system to enable plug-in operation. The switch functions only when the plug-in is operated in one of the vertical plug-in compartments.
POSITION	Positions display.
VOLTS/DIV	Volts per major graticule division. Selects calibrated deflection factors from 1 mV/div to 5 V/div; 12 steps in a 1-2-5 sequence. Knob skirt is illuminated to indicate deflection factor. Readout is automati-cally scaled when readout-coded 10X probe is installed.
Variable (CAL) Volts/Div	Provides uncalibrated, continuously variable deflection factor between calibrated steps; extends range to 12.5 V/ div.
Input Coupling Pushbuttons	AC-DC: Button pushed in selects capacitive coupling of input signal; button out selects direct coupling of input signal. GND: Disconnects the input signal and provides ground reference to the amplifier input stage. PRE CHG: Both AC and GND buttons pushed in allows precharging of the coupling capacitor. Release GND for measurement.
Single or Dual Beam Selector (Internal)	Slide switch at the rear of the plug-in that selects the channel logic sequence. When the switch is in the forward position (toward the front panel), the plug-in is in the single-beam mode, which provides a 4-3, 4-3, 2-1, 2-1 logic sequence. In the opposite position, the plug-in is in the dual-beam mode, which provides a 4-3-2-1 logic sequence.
Input Connectors	BNC connectors for application of external voltage signals. Includes a coded-probe input ring for activation of 10X readout.

BASIC OPERATION

Preparation

The 5A14N is calibrated and ready for use when received. It can be installed in any compartment of any 5000-series oscilloscope, but it is intended for use primarily in vertical compartments (the center and left compartments). For X-Y operation, the 5A14N may also be installed in the horizontal (right) compartment (refer to the 5000 Oscilloscope System Instruction Manual for information on X-Y operation).

NOTE

If the oscilloscope system receives no DISPLAY ON logic levels from the vertical plug-ins, it is designed to display the unit in the left compartment.

To install, align the upper and lower rails of the 5A14N with the plug-in compartment tracks and fully insert it (the plug-in panel must be flush with the oscilloscope panel). To remove, pull the release latch to disengage the 5A14N from the oscilloscope.

The first few steps of the following procedure are intended to quickly obtain a trace on the screen and prepare the instrument for immediate use. The remainder of the steps demonstrate some of the basic functions of the 5A14N. Operation of the other instruments in the system is described in the instruction manuals for those units.

1. Insert the unit all the way into the oscilloscope system plug-in compartment.

2. Turn the oscilloscope Intensity control fully counterclockwise and turn the oscilloscope power on. Preset the time-base and triggering controls for a 2-ms/division sweep rate and automatic triggerng.

3. Set the 5A14N front-panel controls as follows:

CH 1 through CH 4	
DISPLAY	ON (deflection factor illuminated)
POSITION	Midrange
VOLTS/DIV	0.2 V (Calibrated)
Input Coupling	DC, GND

4. Adjust the Intensity control for normal viewing of the four traces.

5. Position the traces two divisions apart with the POSITION controls.

6. Apply a 400-millivolt peak-to-peak signal (available at the oscilloscope Calibrator loop) through a test lead or 1X probe to the CH 1 input connector.

7. Release the CH 1 GND pushbutton. The display should be square waves approximately two divisions in amplitude, with the bottom of the display at the reference established in step 5. Adjust trigger Level, if necessary, to obtain a stable display. Rotate the CAL control throughout its range, observing a reduction of the display amplitude. Return the CAL control to the detent (calibrated Volts/Div) position).

NOTE

The preceding procedure applies for each channel. However, the internal trigger signal for the time-base plug-in is obtained from CH 1 only.

8. To demonstrate AC-coupled operation, position (with the POSITION control) the bottom of the display to the graticule centerline.

9. Push in the AC button and note that the display shifts downward to its average level.

Gain Check (All Channels)

The vertical and horizontal deflection system of the 5000-series oscilloscopes are gain-standardized to permit a plug-in to be moved from one oscilloscope to another (or from one compartment to another within the oscilloscope) without the need to recheck the calibration each time.

This completes the basic operating procedure for the 5A14N. Instrument operations not explained here or those that need further explanation are discussed under General Information.

GENERAL INFORMATION

Applying Signals

When measuring DC voltage, use the largest deflection factor (5 V/Div) when first connecting the 5A14N to an unknown voltage source. If the deflection is too small to make the measurement, switch to a smaller deflection factor.

In general probes offer the most convenient method of connecting a signal to the input of the 5A14N. Tektronix probes are shielded to prevent pickup of electrostatic interference. A 10X attenuator probe offers a high input impedance and allows the circuit under test to perform very close to normal operating conditions. The 5A14N is designed for compatibility with coded probes,. The input connector has an outer ring to which the coding ring on the probe connector makes contact. This type of probe allows the vertical deflection factor indicated by the readout to correspond with the actual deflection factor at the probe tip, eliminating the need to consider the attenuation factor of the probe when measuring the signal amplitude on the graticule scale. See your Tektronix, Inc., catalog for characteristics and compatibility of probes for use with this system.

Sometimes unshielded test leads can be used to connect the 5A14N to a signal source, particularly when a high-level, low-frequency signal is monitored at a low-impedance point. However, when any of these factors is missing, it becomes increasingly important to use shielded signal cables. In all cases, the signal transporting leads should be kept as short as practical. Be sure to establish a common ground connection between the device under test and the 5A14N. The shield of a coaxial cable or ground strap of a signal probe provides an adequate common ground connection.

Channel Sequence Logic

The 5A14N has two channel-sequence modes selected by the internal Single Beam/Dual Beam selector. In the forward or Single Beam position (toward the front panel), the channels are displayed in a 4-3, 4-3, 2-1, 2-1 sequence. In the rear or Dual Beam position, the channels are displayed in a 4-3-2-1, 4-3-2-1 sequence. The Single Beam sequence is necessary in order to display all channels when operating with a single-beam oscilloscope where each vertical compartment is given two time slots in sequence before the other compartment receives its two time slots. Since a possible four channels per compartment may be desired, a double count of each 4-3 and 2-1 pair is necessary. The Dual Beam sequence is useful when only one vertical compartment of a single-beam oscilloscope is being used, or when a dual-beam oscilloscope is being used in any YT mode.

Input Coupling

The AC-DC pushbutton switch allows a choice of input coupling. The type of display desired will determine the coupling used.

DC coupling (button out) can be used for most applications. However, if the DC component of the signal is much larger than the AC component, AC coupling (button in) will probably provide a better display. DC coupling should be used to display AC signals below about 2 hertz as they will be attenuated in the AC position.

In the AC position, the DC component is blocked by a capacitor in the input circuit. The low-frequency response in the AC position is about 2 hertz (–3 dB point). Therefore, some low-frequency attenuation can be expected near this frequency limit. Distortion will also appear in square waves which have low-frequency components.

The GND pushbutton provides a ground reference at the amplifier input. The signal applied to the input connector is presented with a one-megohm load, while the amplifier input is grounded. This eliminates the need to externally ground the input to establish a DC ground reference.

Pre-charging. To minimize surge currents in the circuit under test when using deflection factors of 50 mV/div through 1 mV/div and a test lead or 1X probe, use the AC-DC and GND pushbuttons to take advantage of the pre-charging circuit permits charging the coupling capacitor to the DC source voltage when the AC and GND buttons are pressed in, and also limits surge current to the coupling capacitor from the signal source. The procedure for using this circuit is as follows:

a. Before connecting the 5A14N to a signal containing a DC component, push in the AC and GND buttons. Then connect the input to the circuit under test.

b. Wait about one second for the coupling capacitor to charge.

c. Remove the ground from the coupling capacitor (GND button out). The display will remain on-screen and the AC component can be measured in the usual manner.

Deflection Factor

The amount of trace deflection produced by a signal is determined by the signal amplitude, the attenuation factor (if any) of the probe, the setting of the VOLTS/DIV switch, and the setting of the Variable control. The deflection factors indicated by the VOLTS/DIV switch are calibrated only when the CAL control is rotated fully clockwise to the detent position.

The range of the CAL control is at least 2.5:1. It provides uncalibrated deflection factors covering the full range between the fixed settings of the VOLTS/DIV switch. The control can be set to extend the deflection factor to at least 12.5 volts/division.

Display Modes

SINGLE TRACE. To display a single channel, apply the signal to the desired input and press the DISPLAY button to display the corresponding channel.

FOUR TRACE. To display all four channels, press all the DISPLAY buttons.

Trigger Source

The internal trigger signal for the time-base plug-in unit is obtained from the Channel 1 display only. Select the trigger source by pushing the CH 1 DISPLAY button.

Oscilloscope Applications

Refer to the Operating Instructions of a 5000-series Oscilloscope System manual for basic oscilloscope applications, including peak-to-peak AC voltage measurements, instantaneous DC voltage measurements, comparison measurements, time-duration measurements, determining frequency, rise time measurements, X-Y measurements, etc.

ELECTRICAL CHARACTERISTICS

In this manual the word Volts/Div or division refers to major graticule division.

Performance Conditions

The following characteristics apply when the 5A14N is operating within the environment described in the 5000-series Oscilloscope System manual. In addition, the 5A14N must have been calibrated at an ambient temperature between +220° C and +30° C.

Display Modes

Selectable by switch on rear panel. All four channels displayed alternately, i.e., 4-3-2-1-4-3-2-1, or channel 4 and 3 alternated with 2 and 1, i.e., 4-3-4-3-2-1-2-1, which provides a full display of left and right vertical channels when the 5A14N is used in a 3 plug-in single-beam system.

Bandwidth (–3 dB)

DC (DIRECT) COUPLED: DC to at least 1 MHz.

AC (CAPACITIVE) COUPLED: 2 Hz or less to at least 1 MHz.

Deflection Factor

1 mV/Div to 5 V/div within 2% in a 12 step, 1-2-5 sequence.

Uncalibrated, continuously variable between steps and to 12.5 V/div.

Maximum Safe Input Voltage

DC (DIRECT) COUPLED: 350 V (DC + peak AC).

AC (CAPACITIVE) COUPLED: 350 VDC.

Channel Isolation

At least 50 dB with any displayed combination.

Input RC

1 MΩ paralleled by ≈47 pF.

REPACKAGING FOR SHIPMENT

If the Tektronix instrument is to be shipped to a Tektronix Service Center for service or repair, attach a tag showing: owner (with address) and the name of an individual at your firm that can be contacted. Include complete instrument serial number and a description of the service required.

Save and re-use the package in which your instrument was shipped. If the original packaging is unfit for use or not available, repackage the instrument as follows:

Surround the instrument with polyethylene sheeting to protect the finish of the instrument. Obtain a carton of corrugated cardboard of the correct carton strength and having inside dimensions of no less than six inches more than the instrument dimensions. Cushion the instrument by tightly packing three inches of dunnage of urethane foam between carton and instrument, on all sides. Seal carton with shipping tape or industrial stapler.

The carton test strength for your instrument is 200 pounds.

WARNING

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SECTION 2
THEORY OF OPERATION

INTRODUCTION

This section contains an electrical description of the circuits in the 5A14N Four Channel Amplifier unit. A complete block and schematic diagram is given on a pullout page at the back of the manual.

The four channels are nearly identical except for Trigger Pickoff, which occurs in Channel 1 only. Thus, this discussion concerns only Channel 1 except for the Channel Switching portion, which necessarily involves all the channels.

PLUG-IN LOGIC

When the DISPLAY button, S510, is pressed, a logic level is applied to the electronic switching circuit in the oscilloscope to enable plug-in operation (this button has no effect when the plug-in is inserted in a horizontal plug-in compartment). Power is applied to illuminate the front-panel knob-skirt readout lamps, indicating the ON mode.

INPUT COUPLING

Signals applied to the front-panel input connectors may be capacitive coupled (AC), direct coupled (DC), or internally disconnected (GND). Provision is made to precharge (or discharge) the input capacitor to protect delicate circuitry under test. When both the AC and GND buttons are pressed, the input to the amplifier is grounded and the input capacitor is pre-charged through a one-megohm resistor to the level of the applied input signal.

INPUT ATTENUATOR

The deflection factor of the plug-in is set by a combination of gain switching in the amplifier and input attenuation.

The input attenuator is a frequency-compensated voltage divider that provides 100X attenuation in the 0.1 V to 5 V positions of the VOLTS/DIV switch. At DC and for low-frequency signals, the divider is essentially resistive (attenuation ratio determined by the resistance ratio of R107 and R108). At higher frequencies, the capacitive reactance becomes effective and the attenuation ratio is determined by the impedance ratio.

In addition to providing constant 100X attenuation, the input attenuator maintains a constant input RC characteristic (one megohm paralleled by about 47 pF) for 0.1 V to 5 V settings of the VOLTS/DIV switch.

AMPLIFIER

The input amplifier consists of two identical feedback amplifiers, connected in a paraphrase configuration. Quiescently, the two sides of the amplifier are balanced by the internal Step Atten Bal adjustment R115 so there is no current through the gain-setting resistor (R123 through R128). See Figure 2-1. An input signal is developed across the gain-setting resistor, shifting the current through

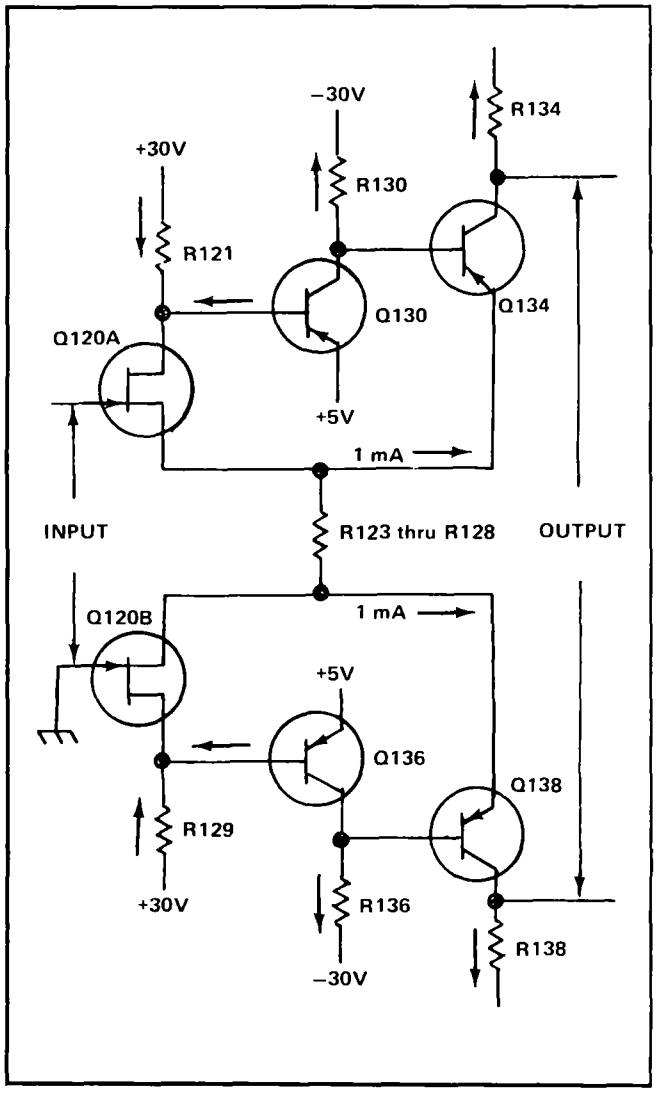


Figure 2-1. Input amplifier partial diagram showing quiescent current paths.

Q134 and Q138 by the amount established through R123-R128, and developing a push-pull output signal across R134 and R138. The gain of this amplifier ranges from about one to fifty, and is primarily determined by the ratio of the gain-setting resistor to the sum of R134 and R138.

The push-pull signal voltage from Q134 and Q138 collectors then passes through emitter followers Q142 and Q146 and is transformed to a signal current by Q160 and Q162.

The Variable VOLTS/DIV (CAL) potentiometer R168, and the Gain-setting potentiometer R166, reduce the gain in the Q160-Q162 stage by developing an adjustable amount of signal voltage between their emitters.

Q150, Q156 and Q158 in Channel 1 only receive the push-pull signal and provide a single-ended trigger signal out. Q177 and Q178 provide positioning current.

CHANNEL SWITCHING

When only the CH 1 DISPLAY button S510 is pressed, Q510 is biased off, turning on Channel 1 switches Q180 and Q182 and allowing a signal to pass.

When only the CH 2 DISPLAY button S520 is pressed, Q510 is biased on, switching Q516 off. This action turns Channel 2 switches Q280 and Q282 on.

When both CH 1 and CH 2 buttons are pressed (dual-trace mode), the state of Q510 and Q516 is determined by the channel-switching signal generated in the oscilloscope mainframe. The form of this signal is selected on the sweep plug-in by the Alternate-Chop Mode button.

Channels 3 and 4 operate as a switched pair just as Channels 1 and 2. Thus, the Channel 3 switches Q380 and Q382 are controlled by Q520, and the Channel 4 switches Q480 and Q482 are controlled by Q526. When both Channels 3 and 4 are ON, they are either alternated or chopped as a pair through Q520 and Q526 by the channel-switching signal.

Channels 1 and 2 are displayed as a composite pair when their composite switches Q530 and Q534 are turned on. This occurs when Q550 is biased off. Channels 3 and 4 composite switches Q540 and Q544 are similarly turned on when Q556 is biased off. When one or two channels from each composite pair are ON, U550 switches between the two pairs at either 1/2 or 1/4 the Alternate or Chop rate of the channel-switching signal. U550 divides the channel-switching signal by 2 in the Dual Beam position or by 4 in the Single Beam position of S550. The divided channel-switching signal from S550 determines the state of Q550 and Q556 when 1 or 2 channels from each composite pair are ON.

PROBE SENSING

Either of two lamps located behind the VOLTS/ DIV knob skirt illuminates the selected deflection factor to provide a direct readout. Normally, DS190 is lit; connection of a readout-coded 10X probe extinguishes DS190 and lights DS196. This changes the knob skirt readout by a factor of 10 to reflect the probe attenuation, eliminating possible operator error.

SECTION 3
CALIBRATION

Introduction

This section of the manual contains a procedure to return the circuits of the 5A14N within their designed operating capabilities. Calibration is generally required after a repair has been made, or after long time intervals in which normal aging of components may affect instrument accuracy. For initial inspection, verify instrument operation by performing the procedures described under Basic Operation in Section 1.

Instrument Maintenance

Before complete calibration, thoroughly clean and inspect this instrument as outlined in the Maintenance section of the Oscilloscope System manual. Also, the System manual contains information for general maintenance of this instrument, including preventive maintenance, component identification and replacement, etc.

Service Available

Tektronix, Inc. provides complete instrument repair and calibration at local Field Service Centers and at the Factory Service Center. Contact your local Tektronix Field Office or representative for further information.

TEST EQUIPMENT REQUIRED

General

The following test equipment and accessories, or the equivalent are required for complete calibration of the 5A14N. Specifications given for the test equipment are the minimum necessary for accurate calibration. Therefore, some of the specifications listed may be less rigorous than the actual performance capabilities of the test equipment. All test equipment is assumed to be correctly calibrated and operating within the listed specifications.

Calibration Equipment Alternatives

If other test equipment is substituted, control settings or set-up may need altering to meet the requirements of the equipment used. Detailed operating instructions for the test equipment are not given in this procedure. Refer to the instruction manual for the test equipment if more information is needed.

Special Calibration Fixtures

Special Tektronix calibration fixtures are used in this procedure only where they facilitate instrument calibration. These special fixtures are available from Tektronix, Inc. Order by part number through your local Tektronix Field Office or representative.

Test Instruments

1. 5000-series oscilloscope system. For this procedure, a 5110 Oscilloscope with a 5B10N Time-Base plug-in is used.

2. Constant amplitude sine-wave generator. Frequency, 2 Hz to 1 MHz; output amplitude, about 0.5 V to at least 4 V P-P. Tektronix FG 501 Function Generator recommended (requires a TM 500-series power module).

3. Standard amplitude calibrator. Output signal, 1 kHz square wave; output amplitude, 5 mV to at least 20 V; accuracy, within 0.25%. Tektronix PG 506 Calibration Generator recommended (requires a TM 500-series power module).

Accessories

1. Coaxial cable, Impedance, 50Ω; length, 42 inches; connectors, BNC. Tektronix Part No. 012-0057-01.

2. Input RC normalizer. RC time constant, 47 ms (1 MΩ x 47 pF); connectors, BNC. Tektronix Calibration Fixture 0067-0541-00 recommended.

3. In-line termination. Impedance, 50 Ω; accuracy, within 2%; connectors, BNC. Tektrnoix Part No. 011-0049-01 recommended.

4. Plug-in extension for the 5000-series oscilloscope system. Tektrnoix Calibration Fixture 0067-0645-03 (not mandatory for this procedure).

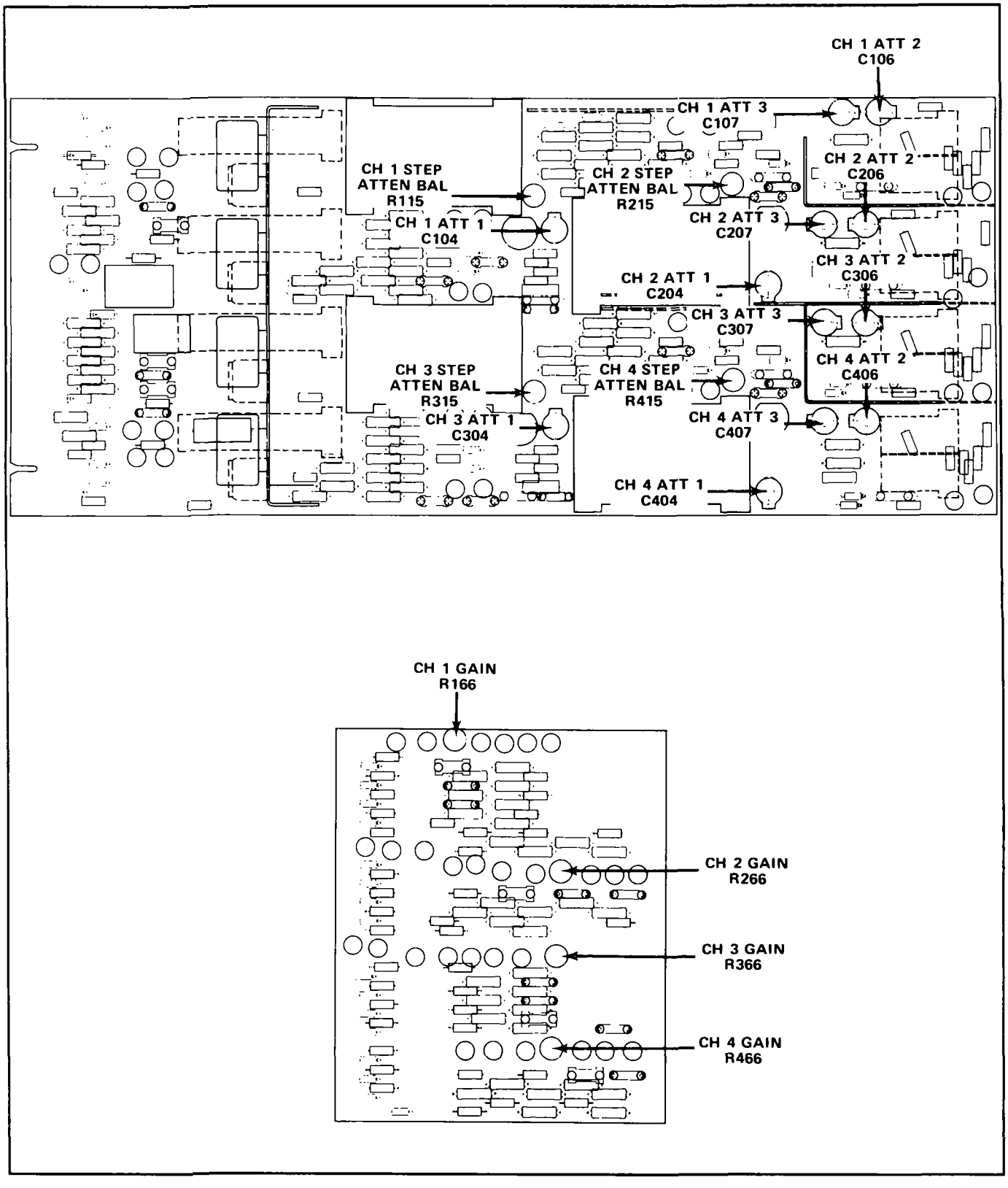


Figure 3-1. Internal adjustment locations.

PROCEDURE

Preparation

1. Remove the protective cover from the left side of the 5A14N and also the left side panel from the 5000-series oscilloscope. (The plug-in extender can be used to gain access to the internal adjustments rather than by removing the oscilloscope side panel.) Insert the 5A14N into the left plug-in compartment, and the 5B10N into the right compartment.

2. Connect the oscilloscope to the power source for which it is wired. Set the controls as described under Initial Control Settings. Refer to Figure 3-1 for location of internal adjustments and test points.

NOTE

This instrument should be calibrated at an ambient temperature between +20° C and +30° C (+68° F and +86° F) for best accuracy.

Initial Control Settings

NOTE

Do not preset internal controls unless they are known to be significantly out of adjustment, or unless repairs have been made in the circuit. In these instances, the internal control scan be set to midrange.

5A14N (All Channels)

POSITION	Centered
DISPLAY	On
VOLTS/DIV	50 m
INPUT COUPLING	GND
All other pushbuttons	Out
CAL	In detent (fully cw)

Time Base (5B10N)

Seconds/Div	0.5 m
Position	Centered
Level	Fully cw
Triggering Source	Left/Right (Composite)
Trigger Mode	Auto Trig
All other pushbuttons	Out

1. Step Attenuator Balance

a. Position the CH 1 trace to graticule center and adjust R115 (CH 1 STEP ATTEN BAL) for no trace shift when the VOLTS/DIV switch is turned throughout its range.

b. Turn the CH 1 CAL control throughout its range and check for less than 1 division of trace shift. Return the CAL control to the fully cw (detent) position.

c. Repeat the preceding procedure for CH 2 through CH 4. Adjust R215, R315, and R415 respectively.

2. Input and Attenuator Compensation

a. Set all VOLTS/DIV switches to 0.1. Apply a 1 volt signal from the Standard Amplitude Calibrator, using the HIGH AMPL mode, through the Input RC Normalizer to the 5A14N CH 1 input. Adjust the time base triggering Level control for a stable display.

b. Adjust C104, C106, and C107 (CH 1 ATT 1,2, and 3) for a square leading corner on the square-wave display.

c. Set CH 1 VOLTS/DIV to 50 m and the Standard Amplitude Calibrator for a 0.5 volt output. Adjust C106 (ATT 2) for a square leading corner on the display.

d. Set CH 1 VOLTS/DIV to 0.1 and the Standard Amplitude Calibrator for a 1 volt output. Adjust C107 (ATT 3) for a square leading corner on the display.

e. Repeat the preceding procedure for the remaining channels. Adjust the attenuator capacitors that correspond to those adjusted in channel 1.

3. Amplifier Gain and VOLTS/DIV Accuracy

a. Set all VOLTS/DIV switches to 1 and connect the Standard Amplitude Calibrator, using the STD AMPL mode, through the Coaxial Cable to the CH 1 input.

b. Set Standard Amplitude Calibrator for a 5 volt square-wave output and adjust the time-base triggering Level control for a stable display.

c. Adjust R166 (CH 1 GAIN) for exactly 5 divisions of display.

d. Repeat the preceding procedure for CH 2 through CH 4. Adjust R266, R366, and R466 respectively.

e. Set all VOLTS/DIV switches to 5 and connect the Standard Amplitude Calibrator the CH 1 input.

f. Check the VOLTS/DIV accuracy as outlined in Table 3-1.

TABLE 3-1
VOLTS/DIV ACCURACY

VOLTS/DIV Switch Setting	Standard Amplitude Calibrator Output	CRT Display (Vertical Deflection)
5 V	20 volts	4 div, ±0.08 div
2 V	10 volts	5 div, ±0.1 div
1 V	5 volts	5 div, ±0.1 div
0.5 V	2 volts	4 div, ±0.08 div
0.2 V	1 vol	5 div, ±0.1 div
0.1 V	0.5 volt	5 div, ±0.1 div
50 mV	0.2 volt	4 div, ±0.08 div
20 mV	0.1 volt	5 div, ±0.1 Div
10 mV	50 mV	5 div, ±0.1 div
5 mV	20 mV	4 div, ±0.08 div
2 mV	10 mV	5 div, ±0.1 div
1 mV	5 mV	5 div, ±0.1 div

g. Repeat the preceding procedure for CH 2 through CH 4.

4. Amplifier Bandwidth

a. Change the following control settings:

5A14N (All Channels)

VOLTS/DIV	0.1
Input Coupling	AC

Time Base (5B10N)

Triggering Level	Fully cw

b. Apply a 6 division 1 kHz signal from the Constant Amplitude Sine-Wave Generator to the CH 1 input

c. Change the Generator frequency to 2 Hz and check that the display amplitude is at least 4.2 divisions.

d. Release the Input Coupling button to DC couple the input and check for a 6 division display.

e. Repeat the preceding procedure for CH 2 through CH 4.

f. Apply a 6 division 50 kHz signal from the Constant Amplitude Sine-Wave Generator through the In-Line Termination to the CH 1 input.

g. Change the Generator output to 1 MHz and check that the display amplitude is at least 4.2 divisions.

h. Repeat steps f and g for CH 2 through CH 4.

This completes the 5A14N calibration procedure.

DIAGRAMS AND PARTS LISTS

Symbols and Reference Designators

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

Capacitors = Values one or greater are in picofarads (pF).
Values less than one are in microfarads (μF).

Resistors = Ohms (Ω).

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

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

The overline on a signal name indicates that the signal performs its intended function when it goes to the low state.

Abbreviations are based on ANSI Y1.1-1972.

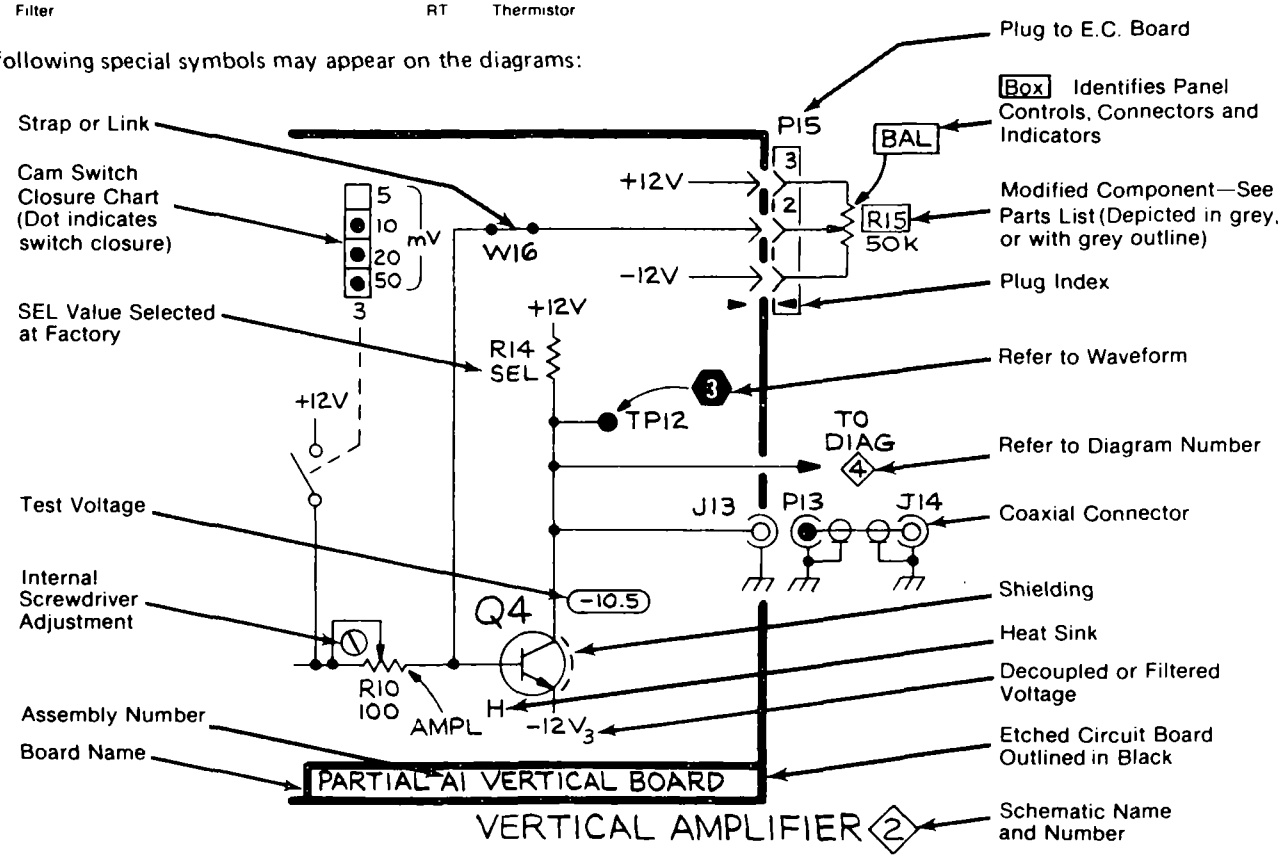
Other ANSI standards that are used in the preparation of diagrams by Tektronix, Inc. are:

Y14.15, 1966	Drafting Practices.
Y14.2, 1973	Line Conventions and Lettering.
Y10.5, 1968	Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering.

The following prefix letters are used as reference designators to identify components or assemblies on the diagrams.

A	Assembly, separable or repairable (circuit board, etc)	H	Heat dissipating device (heat sink, heat radiator, etc)	S	Switch or contactor
AT	Attenuator, fixed or variable	HR	Heater	T	Transformer
B	Motor	HY	Hybrid circuit	TC	Thermocouple
BT	Battery	J	Connector, stationary portion	TP	Test point
C	Capacitor, fixed or variable	K	Relay	U	Assembly, inseparable or non-repairable (integrated circuit, etc.)
CB	Circuit breaker	L	Inductor, fixed or variable	V	Electron tube
CR	Diode, signal or rectifier	M	Meter	VR	Voltage regulator (zener diode, etc.)
DL	Delay line	P	Connector, movable portion	W	Wirestrap or cable
DS	Indicating device (lamp)	Q	Transistor or silicon-controlled rectifier	Y	Crystal
E	Spark Gap, Ferrite bead	R	Resistor, fixed or variable	Z	Phase shifter
F	Fuse	RT	Thermistor		
FL	Filter				

The following special symbols may appear on the diagrams:



REPLACEABLE ELECTRICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

SPECIAL NOTES AND SYMBOLS

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

ITEM NAME

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

ABBREVIATIONS

ACTR	ACTUATOR	PLSTC	PLASTIC
ASSY	ASSEMBLY	QTZ	QUARTZ
CAP	CAPACITOR	RECP	RECEPTACLE
CER	CERAMIC	RES	RESISTOR
CKT	CIRCUIT	RF	RADIO FREQUENCY
COMP	COMPOSITION	SEL	SELECTED
CONN	CONNECTOR	SEMICOND	SEMICONDUCTOR
ELCTLT	ELECTROLYTIC	SENS	SENSITIVE
ELEC	ELECTRICAL	VAR	VARIABLE
INCAND	INCANDESCENT	WW	WIREWOUND
LED	LIGHT EMITTING DIODE	XFMR	TRANSFORMER
NONWIR	NON WIREWOUND	XTAL	CRYSTAL

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
00853	SANGAMO WESTON INC SANGAMO CAPACITOR DIV	SANGAMO RD P O BOX 128	PICKENS SC 29671
01121	ALLEN-BRADLEY CO	1201 SOUTH 2ND ST	MILWAUKEE WI 53204
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPRESSWAY P O BOX 225012 M/S 49	DALLAS TX 75265
03508	GENERAL ELECTRIC CO SEMI-CONDUCTOR PRODUCTS DEPT	W GENESEE ST	AUBURN NY 13021
04222	AVX CERAMICS DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04713	MOTOROLA INC SEMICONDUCTOR GROUP	5005 E MCDOWELL RD	PHOENIX AZ 85008
05397	UNION CARBIDE CORP MATERIALS SYSTEMS DIV	11901 MADISON AVE	CLEVELAND OH 44101
07263	FAIRCHILD CAMERA AND INSTRUMENT CORP SEMICONDUCTOR DIV	464 ELLIS ST	MOUNTAIN VIEW CA 94042
07716	TRW INC TRW ELECTRONICS COMPONENTS TRW IRC FIXED RESISTORS/BURLINGTON	2850 MT PLEASANT AVE	BURLINGTON IA 52601
11236	CTS OF BERNE INC	406 PARR ROAD	BERNE IN 46711
12697	CLAROSTAT MFG CO INC	LOWER WASHINGTON ST	DOVER NH 03820
14433	ITT SEMICONDUCTORS DIV		WEST PALM BEACH FL
15238	ITT SEMICONDUCTORS A DIVISION OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORP	500 BROADWAY P O BOX 168	LAWRENCE MA 01841
15513	DATA DISPLAY PRODUCTS	303 N OAK ST	LOS ANGELES CA 90302
19701	MEPCO/ELECTRA INC A NORTH AMERICAN PHILIPS CO	P O BOX 760	MINERAL WELLS TX 76067
24546	CORNING GLASS WORKS	550 HIGH ST	BRADFORD PA 16701
24931	SPECIALTY CONNECTOR CO INC	2620 ENDRESS PLACE P O BOX D	GREENWOOD IN 46142
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55343
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507
52763	STETTNER ELECTRONICS INC	6135 AIRWAYS BLVD PO BOX 21947	CHATTANOOGA TN 37421
53944	GLOW LITE CORP	BOX 698	PAULS VALLEY OK 73075
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195
57668	ROHM CORP	16931 MILLIKEN AVE	IRVINE CA 92713
59660	TUSONIX INC	2155 N FORBES BLVD	TUCSON, ARIZONA 85705
71590	GLOBE-UNION INC CENTRALAB ELECTRONICS DIV	HWY 20 W P O BOX 858	FORT DODGE IA 50501
73138	BECKMAN INSTRUMENTS INC HELIPOT DIV	2500 HARBOR BLVD	FULLERTON CA 92634
74970	JOHNSON E F CO	299 10TH AVE S W	WASECA MN 56093
79727	C-W INDUSTRIES	550 DAVISVILLE RD P O BOX 96	WARMINSTER PA 18974
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
91637	DALE ELECTRONICS INC	P O BOX 609	COLUMBUS NE 68601

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A1	670-1891-00	B010100	B069999	CIRCUIT BD ASSY:MAIN	80009	670-1891-00
A1	670-1891-01	B070000	B079999	CIRCUIT BD ASSY:MAIN	80009	670-1891-01
A1	670-1891-02	B080000		CIRCUIT BD ASSY:MAIN	80009	670-1891-02
A2	670-1892-00			CIRCUIT BD ASSY:SECONDARY	80009	670-1892-00
C101	285-0603-00			CAP,FXD,PLASTIC:0.1UF,3.5%,600V	80009	285-0603-00
C104	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C106	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C107	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C108	283-0605-00			CAP,FXD,MICA DI:678PF,1%,300V	00853	D153F6780F0
C110	283-0068-00	B010100	B063738	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C110	281-0614-00	B063739		CAP,FXD,CER DI:6800PF,+80-20%,500V	52763	2RDPLZ007 6N80Z6
C113	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR302E105ZAATR
C130	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C135	290-0247-00			CAP,FXD,ELCTLT:5.6UF,10%,6V	05397	T322B565K006AS
C136	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C139	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V	04222	SR155E103MAA
C167	281-0628-00			CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C177	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C178	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C190	283-0068-00	B010100	B069999	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C201	285-0603-00			CAP,FXD,PLASTIC:0.1UF,3.5%,600V	80009	285-0603-00
C204	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C206	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C207	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C208	283-0605-00			CAP,FXD,MICA DI:678PF,1%,300V	00853	D153F6780F0
C210	283-0068-00	B010100	B063738	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C210	281-0614-00	B063739		CAP,FXD,CER DI:6800PF,+80-20%,500V	52763	2RDPLZ007 6N80Z6
C213	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR302E105ZAATR
C218	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V (CHANNEL 2 ONLY)	04222	SR155E103MAA
C230	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C235	290-0247-00			CAP,FXD,ELCTLT:5.6UF,10%,6V	05397	T322B565K006AS
C236	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C239	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V	04222	SR155E103MAA
C267	281-0628-00			CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C277	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C278	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C290	283-0068-00	B010100	B069999	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C301	285-0603-00			CAP,FXD,PLASTIC:0.1UF,3.5%,600V	80009	285-0603-00
C304	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C306	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C307	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C308	283-0605-00			CAP,FXD,MICA DI:678PF,1%,300V	00853	D153F6780F0
C310	283-0068-00	B010100	B063738	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C310	281-0614-00	B063739		CAP,FXD,CER DI:6800PF,+80-20%,500V	52763	2RDPLZ007 6N80Z6
C313	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR302E105ZAATR
C330	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C335	290-0247-00			CAP,FXD,ELCTLT:5.6UF,10%,6V	05397	T322B565K006AS
C336	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C339	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V	04222	SR155E103MAA
C367	281-0628-00			CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C377	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C378	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C390	283-0068-00	B010100	B069999	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C401	285-0603-00			CAP,FXD,PLASTIC:0.1UF,3.5%,600V	80009	285-0603-00
C404	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C406	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
C407	281-0166-00			CAP,VAR,AIR DI:1.9-15.7 PF,250V	74970	187-0109-055
C408	283-0605-00			CAP,FXD,MICA DI:678PF,1%,300V	00853	D153F6780F0
C410	283-0068-00	B010100	B063738	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C410	281-0614-00	B063739		CAP,FXD,CER DI:6800PF,+80-20%,500V	52763	2RDPLZ007 6N80Z6
C413	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	04222	SR302E105ZAATR
C430	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C435	290-0247-00			CAP,FXD,ELCTLT:5.6UF,10%,6V	05397	T322B565K006AS
C436	281-0700-00			CAP,FXD,CER DI:3.3PF,+/-0.33PF,500V	52763	2RDPLZ007 3P30KS
C439	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V	04222	SR155E103MAA
C467	281-0628-00			CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C477	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C478	283-0023-00			CAP,FXD,CER DI:0.1UF,+80-20%,12V	71590	2DDU66B104Z
C490	283-0068-00	B010100	B069999	CAP,FXD,CER DI:0.01UF,+100-0%,500V	59660	871-533E103P
C512	283-0000-00			CAP,FXD,CER DI:0.001UF,+100-0%,500V	59660	831-610-Y5U0102P
C517	281-0628-00	B010100	B051982	CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C517	281-0579-00	B051983		CAP,FXD,CER DI:21PF,5%,500V	52763	2RDPLZ007 21P0JC
C522	283-0000-00			CAP,FXD,CER DI:0.001UF,+100-0%,500V	59660	831-610-Y5U0102P
C527	281-0628-00	B010100	B051982	CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C527	281-0579-00	B051983		CAP,FXD,CER DI:21PF,5%,500V	52763	2RDPLZ007 21P0JC
C550	283-0212-00	B080000		CAP,FXD,CER DI:2UF,20%,50V	04222	SR405E205MAA
C551	283-0000-00			CAP,FXD,CER DI:0.001UF,+100-0%,500V	59660	831-610-Y5U0102P
C557	281-0628-00	B010100	B051982	CAP,FXD,CER DI:15PF,5%,500V	52763	2RDPLZ007 15P0JC
C557	281-0579-00	B051983		CAP,FXD,CER DI:21PF,5%,500V	52763	2RDPLZ007 21P0JC
C590	290-0480-00	B010100	B069999	CAP,FXD,ELCTLT:0.5UF,+50-10%,200V	55680	THU2DR47TAA
CR113	152-0246-00			SEMICOND DVC,DI:SW,SI,40V,200MA,DO-7	14433	WG1537TK
CR130	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR136	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR180	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR181	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR182	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR183	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR190	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR195	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR213	152-0246-00			SEMICOND DVC,DI:SW,SI,40V,200MA,DO-7	14433	WG1537TK
CR230	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR236	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR280	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR281	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR282	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR283	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR290	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR295	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR313	152-0246-00			SEMICOND DVC,DI:SW,SI,40V,200MA,DO-7	14433	WG1537TK
CR330	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR336	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR380	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR381	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR382	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR383	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR390	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR395	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR413	152-0246-00			SEMICOND DVC,DI:SW,SI,40V,200MA,DO-7	14433	WG1537TK
CR430	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR436	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR480	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR481	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR482	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR483	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
CR490	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR495	152-0141-02	B010100	B069999	SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR510	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR516	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR520	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR526	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR530	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR531	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR534	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR535	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR540	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR541	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR544	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR545	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR550	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
CR556	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
DS190	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS190	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS196	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS196	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS290	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS290	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS296	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS296	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS390	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS390	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS396	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS396	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS490	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS490	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
DS496	150-0111-00	B010100	B069999	LAMP,GLOW:125V MAX,1.5MA,2AC-AT,WIRE	53944	A1B-9
DS496	150-1064-00	B070000		LT EMITTING DIO:YELLOW,585NM,40 MA MAX	15513	SP840113
J101	131-0679-00	B010100	B031128	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR168-1
J101	131-0679-02	B031129		CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR270-1
J201	131-0679-00	B010100	B031128	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR168-1
J201	131-0679-02	B031129		CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR270-1
J301	131-0679-00	B010100	B031128	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR168-1
J301	131-0679-02	B031129		CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR270-1
J401	131-0679-00	B010100	B031128	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR168-1
J401	131-0679-02	B031129		CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR270-1
Q120	151-1049-00			TRANSISTOR:FET,N-CHAN,SI,TO-71	04713	SFD1049
Q130	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q134	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q136	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q138	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q142	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q146	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q150	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q156	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q158	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q160	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q162	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q177	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q178	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q180	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q182	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q190	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
Q190	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q196	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q196	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q220	151-1049-00			TRANSISTOR:FET,N-CHAN,SI,TO-71	04713	SFD1049
Q230	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q234	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q236	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q238	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q260	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q262	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q277	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q278	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q280	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q282	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q290	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q290	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q296	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q296	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q320	151-1049-00			TRANSISTOR:FET,N-CHAN,SI,TO-71	04713	SFD1049
Q330	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q334	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q336	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q338	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q360	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q362	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q377	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q378	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q380	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q382	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q390	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q390	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q396	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q396	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q420	151-1049-00			TRANSISTOR:FET,N-CHAN,SI,TO-71	04713	SFD1049
Q430	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q434	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q436	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q438	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q460	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q462	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q477	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q478	151-0342-00			TRANSISTOR:PNP,SI,TO-92	07263	S035928
Q480	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q482	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q490	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q490	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q496	151-0347-00	B010100	B069999	TRANSISTOR:NPN,SI,TO-92	04713	SPS7951
Q496	151-0254-00	B070000		TRANSISTOR:DARLINGTON,NPN,SI,625MW,TO-92	03508	X38L3118
Q510	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q516	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q520	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q526	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q530	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q534	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q540	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q544	151-1005-00			TRANSISTOR:FET,N-CHAN,SI,TO-106	04713	SPF685
Q550	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919
Q556	151-0341-00			TRANSISTOR:NPN,SI,TO-106	04713	SPS6919

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R101	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	NTR25J-E680E
R102	316-0105-00	B010100	B069999	RES,FXD,CMPSN:1M OHM,10%,0.25W	01121	CB1051
R102	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R107	322-0624-03			RES,FXD,FILM:990K OHM,0.25%,0.25W,TC=T2	91637	MFF1421D99002C
R108	321-0289-03			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T2	07716	CEAC10001C
R110	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R110	315-0224-00	B070000		RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
R111	316-0102-00	B010100	B069999	RES,FXD,CMPSN:1K OHM,10%,0.25W	01121	CB1021
R111	315-0102-00	B070000		RES,FXD,FILM:1K OHM,5%,0.25W	57668	NTR25JE01K0
R113	316-0223-00	B010100	B069999	RES,FXD,CMPSN:22K OHM,10%,0.25W	01121	CB2231
R113	315-0223-00	B070000		RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
R114	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R114	315-0154-00	B070000		RES,FXD,FILM:150K OHM,5%,0.25W	57668	NTR25J-E150K
R115	311-0613-00			RES,VAR,NONWW:TRMR,100K OHM,0.5W	32997	3329H-G48-104
R117	321-0435-00			RES,FXD,FILM:332K OHM,1%,0.125W,TC=T0	07716	CEAD33202F
R118	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	19701	5033ED1K00F
R121	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R123	321-0097-03			RES,FXD,FILM:100 OHM,0.25%,0.125W,TC=T0	91637	CMF55116D100R0C
R124	321-0126-03			RES,FXD,FILM:200 OHM,0.25%,0.125W	19701	5033RC200R0C
R125	321-0612-03			RES,FXD,FILM:500 OHM,0.25%,0.125W,TC=T2	19701	5033RC500R0C
R126	321-0193-03			RES,FXD,FILM:1K OHM,0.25%,0.125W,TC=T2	07716	CEAC10000C
R127	321-0222-03			RES,FXD,FILM:2.0K OHM,0.25%,0.125W,TC=T2	19701	5033RC2K000C
R128	321-0816-03			RES,FXD,FILM:5K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K000C
R129	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R130	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R130	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R134	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R135	316-0220-00	B010100	B069999	RES,FXD,CMPSN:22 OHM,10%,0.25W	01121	CB2201
R135	315-0220-00	B070000		RES,FXD,FILM:22 OHM,5%,0.25W	19701	5043CX22R00J
R136	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R136	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R138	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R139	321-0289-00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5033ED10K0F
R141	316-0471-00	B010100	B063868	RES,FXD,CMPSN:470 OHM,10%,0.25W	01121	CB4711
R141	315-0471-00	B063869		RES,FXD,FILM:470 OHM,5%,0.25W	57668	NTR25J-E470E
R142	316-0333-00	B010100	B063868	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R142	315-0333-00	B063869		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R146	316-0333-00	B010100	B063868	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R146	315-0333-00	B063869		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R150	321-0255-00			RES,FXD,FILM:4.42K OHM,1%,0.125W,TC=T0	19701	5033ED4K420F
R152	321-0320-00			RES,FXD,FILM:21.0K OHM,1%,0.125W,TC=T0	19701	5033ED21K00F
R154	321-0185-00			RES,FXD,FILM:825 OHM,1%,0.125W,TC=T0	07716	CEAD825R0F
R156	321-0320-00			RES,FXD,FILM:21.0K OHM,1%,0.125W,TC=T0	19701	5033ED21K00F
R158	316-0153-00	B010100	B063868	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R158	315-0153-00	B063869		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R159	316-0181-00	B010100	B063868	RES,FXD,CMPSN:180 OHM,10%,0.25W	01121	CB1811
R159	315-0181-00	B063869		RES,FXD,FILM:180 OHM,5%,0.25W	57668	NTR25J-E180E
R161	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R163	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R166	311-0978-00			RES,VAR,NONWW:TRMR,250 OHM,0.5W	73138	82PR250-37C
R167	321-0214-00			RES,FXD,FILM:1.65K OHM,1%,0.125W,TC=T0	19701	5033ED1K65F
R168	311-1327-00	B010100	B030563	RES,VAR,NONWW:PNL,5K OHM,2W	11236	551-8B30659
R168	311-1400-00	B030564		RES,VAR,NONWW:PNL,5K OHM,1W	12697	CM43516
R170	311-1068-00			RES,VAR,NONWW:PNL,5K OHM,0.5W	01121	W-7682
R171	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R172	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R172	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R173	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R173	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R174	321-0260-00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
R177	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R178	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R179	316-0392-00	B010100	B063868	RES,FXD,CMPSN:3.9K OHM,10%,025W	01121	CB3921
R179	315-0392-00	B063869		RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	NTR25J-E03K9
R180	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R180	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R181	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R181	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R182	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R182	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R183	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R183	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R184	316-0153-00	B010100	B063868	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R184	315-0153-00	B063869		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R190	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R191	316-0334-00	B010100	B069999	RES,FXD,CMPSN:330K OHM,10%,0.25W	01121	CB3341
R191	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R192	316-0474-00	B010100	B069999	RES,FXD,CMPSN:470K OHM,10%,0.25W	01121	CB4741
R192	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R193	315-0753-00	B010100	B069999	RES,FXD,FILM:75K OHM,5%,0.25W	57668	NTR25J-E75K0
R193	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R194	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R194	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R195	316-0155-00	B010100	B069999	RES,FXD,CMPSN:1.5M OHM,10%,0.25W	01121	CB1551
R195	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R196	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R196	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R197	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R198	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R199	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R201	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	NTR25J-E680E
R202	316-0105-00	B010100	B069999	RES,FXD,CMPSN:1M OHM,10%,0.25W	01121	CB1051
R202	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R207	322-0624-03			RES,FXD,FILM:990K OHM,0.25%,0.25W,TC=T2	91637	MFF1421D99002C
R208	321-0289-03			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T2	07716	CEAC10001C
R210	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R210	315-0224-00	B070000		RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
R211	316-0102-00	B010100	B069999	RES,FXD,CMPSN:1K OHM,10%,0.25W	01121	CB1021
R211	315-0102-00	B070000		RES,FXD,FILM:1K OHM,5%,0.25W	57668	NTR25JE01K0
R213	316-0223-00	B010100	B069999	RES,FXD,CMPSN:22K OHM,10%,0.25W	01121	CB2231
R213	315-0223-00	B070000		RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
R214	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R214	315-0154-00	B070000		RES,FXD,FILM:150K OHM,5%,0.25W	57668	NTR25J-E150K
R215	311-0613-00			RES,VAR,NONWW:TRMR,100K OHM,0.5W	32997	3329H-G48-104
R217	321-0435-00			RES,FXD,FILM:332K OHM,1%,0.125W,TC=T0	07716	CEAD33202F
R218	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	19701	5033ED1K00F
R221	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R223	321-0097-03			RES,FXD,FILM:100 OHM,0.25%,0.125W,TC=T0	91637	CMF55116D100R0C
R224	321-0126-03			RES,FXD,FILM:200 OHM,0.25%,0.125W	19701	5033RC200R0C
R225	321-0612-03			RES,FXD,FILM:500 OHM,0.25%,0.125W,TC=T2	19701	5033RC500R0C
R226	321-0193-03			RES,FXD,FILM:1K OHM,0.25%,0.125W,TC=T2	07716	CEAC10000C
R227	321-0222-03			RES,FXD,FILM:2.0K OHM,0.25%,0.125W,TC=T2	19701	5033RC2K000C
R228	321-0816-03			RES,FXD,FILM:5K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K000C
R229	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R230	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R230	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R234	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R235	316-0220-00	B010100	B069999	RES,FXD,CMPSN:22 OHM,10%,0.25W	01121	CB2201
R235	315-0220-00	B070000		RES,FXD,FILM:22 OHM,5%,0.25W	19701	5043CX22R00J
R236	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R236	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R238	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R239	321-0289-00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5033ED10K0F
R261	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R263	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R266	311-0978-00			RES,VAR,NONWW:TRMR,250 OHM,0.5W	73138	82PR250-37C
R267	321-0214-00			RES,FXD,FILM:1.65K OHM,1%,0.125W,TC=T0	19701	5033ED1K65F
R268	311-1327-00	B010100	B030563	RES,VAR,NONWW:PNL,5K OHM,2W	11236	551-BB30659
R268	311-1400-00	B030564		RES,VAR,NONWW:PNL,5K OHM,1W	12697	CM43516
R270	311-1068-00			RES,VAR,NONWW:PNL,5K OHM,0.5W	01121	W-7682
R271	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R272	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R272	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R273	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R273	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R274	321-0260-00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
R277	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R278	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R279	316-0392-00	B010100	B063868	RES,FXD,CMPSN:3.9K OHM,10%,025W	01121	CB3921
R279	315-0392-00	B063869		RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	NTR25J-E03K9
R280	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R280	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R281	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R281	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R282	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R282	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R283	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R283	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R284	316-0153-00	B010100	B063868	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R284	315-0153-00	B063869		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R290	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R291	316-0334-00	B010100	B069999	RES,FXD,CMPSN:330K OHM,10%,0.25W	01121	CB3341
R291	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R292	316-0474-00	B010100	B069999	RES,FXD,CMPSN:470K OHM,10%,0.25W	01121	CB4741
R292	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R293	315-0753-00	B010100	B069999	RES,FXD,FILM:75K OHM,5%,0.25W	57668	NTR25J-E75K0
R293	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R294	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R294	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R295	316-0155-00	B010100	B069999	RES,FXD,CMPSN:1.5M OHM,10%,0.25W	01121	CB1551
R295	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R296	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R296	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R297	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R298	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R299	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R301	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	NTR25J-E680E
R302	316-0105-00	B010100	B069999	RES,FXD,CMPSN:1M OHM,10%,0.25W	01121	CB1051
R302	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R307	322-0624-03			RES,FXD,FILM:990K OHM,0.25%,0.25W,TC=T2	91637	MFF1421D99002C
R308	321-0289-03			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T2	07716	CEAC10001C
R310	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R310	315-0224-00	B070000		RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
R311	316-0102-00	B010100	B069999	RES,FXD,CMPSN:1K OHM,10%,0.25W	01121	CB1021

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R311	315-0102-00	B070000		RES,FXD,FILM:1K OHM,5%,0.25W	57668	NTR25JE01K0
R313	316-0223-00	B010100	B069999	RES,FXD,CMPSN:22K OHM,10%,0.25W	01121	CB2231
R313	315-0223-00	B070000		RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
R314	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R314	315-0154-00	B070000		RES,FXD,FILM:150K OHM,5%,0.25W	57668	NTR25J-E150K
R315	311-0613-00			RES,VAR,NONWW:TRMR,100K OHM,0.5W	32997	3329H-G48-104
R317	321-0435-00			RES,FXD,FILM:332K OHM,1%,0.125W,TC=T0	07716	CEAD33202F
R318	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	19701	5033ED1K00F
R321	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R323	321-0097-03			RES,FXD,FILM:100 OHM,0.25%,0.125W,TC=T0	91637	CMF55116D100R0C
R324	321-0126-03			RES,FXD,FILM:200 OHM,0.25%,0.125W	19701	5033RC200R0C
R325	321-0612-03			RES,FXD,FILM:500 OHM,0.25%,0.125W,TC=T2	19701	5033RC500R0C
R326	321-0193-03			RES,FXD,FILM:1K OHM,0.25%,0.125W,TC=T2	07716	CEAC10000C
R327	321-0222-03			RES,FXD,FILM:2.0K OHM,0.25%,0.125W,TC=T2	19701	5033RC2K000C
R328	321-0816-00			RES,FXD,FILM:5K OHM,1%,0.125W,TC=T0	24546	NA55D5001F
R329	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R330	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R330	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R334	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R335	316-0220-00	B010100	B069999	RES,FXD,CMPSN:22 OHM,10%,0.25W	01121	CB2201
R335	315-0220-00	B070000		RES,FXD,FILM:22 OHM,5%,0.25W	19701	5043CX22R00J
R336	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R336	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R338	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R339	321-0289-00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5033ED10K0F
R361	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R363	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R366	311-0978-00			RES,VAR,NONWW:TRMR,250 OHM,0.5W	73138	82PR250-37C
R367	321-0214-00			RES,FXD,FILM:1.65K OHM,1%,0.125W,TC=T0	19701	5033ED1K65F
R368	311-1327-00	B010100	B030563	RES,VAR,NONWW:PNL,5K OHM,2W	11236	551-8830659
R368	311-1400-00	B030564		RES,VAR,NONWW:PNL,5K OHM,1W	12697	CM43516
R370	311-1068-00			RES,VAR,NONWW:PNL,5K OHM,0.5W	01121	W-7682
R371	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R372	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R372	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R373	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R373	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R374	321-0260-00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
R377	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R378	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R379	316-0392-00	B010100	B063868	RES,FXD,CMPSN:3.9K OHM,10%,025W	01121	CB3921
R379	315-0392-00	B063869		RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	NTR25J-E03K9
R380	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R380	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R381	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R381	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R382	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R382	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R383	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R383	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R384	316-0153-00	B010100	B063868	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R384	315-0153-00	B063869		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R390	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R391	316-0334-00	B010100	B069999	RES,FXD,CMPSN:330K OHM,10%,0.25W	01121	CB3341
R391	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R392	316-0474-00	B010100	B069999	RES,FXD,CMPSN:470K OHM,10%,0.25W	01121	CB4741
R392	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R393	315-0753-00	B010100	B069999	RES,FXD,FILM:75K OHM,5%,0.25W	57668	NTR25J-E75K0

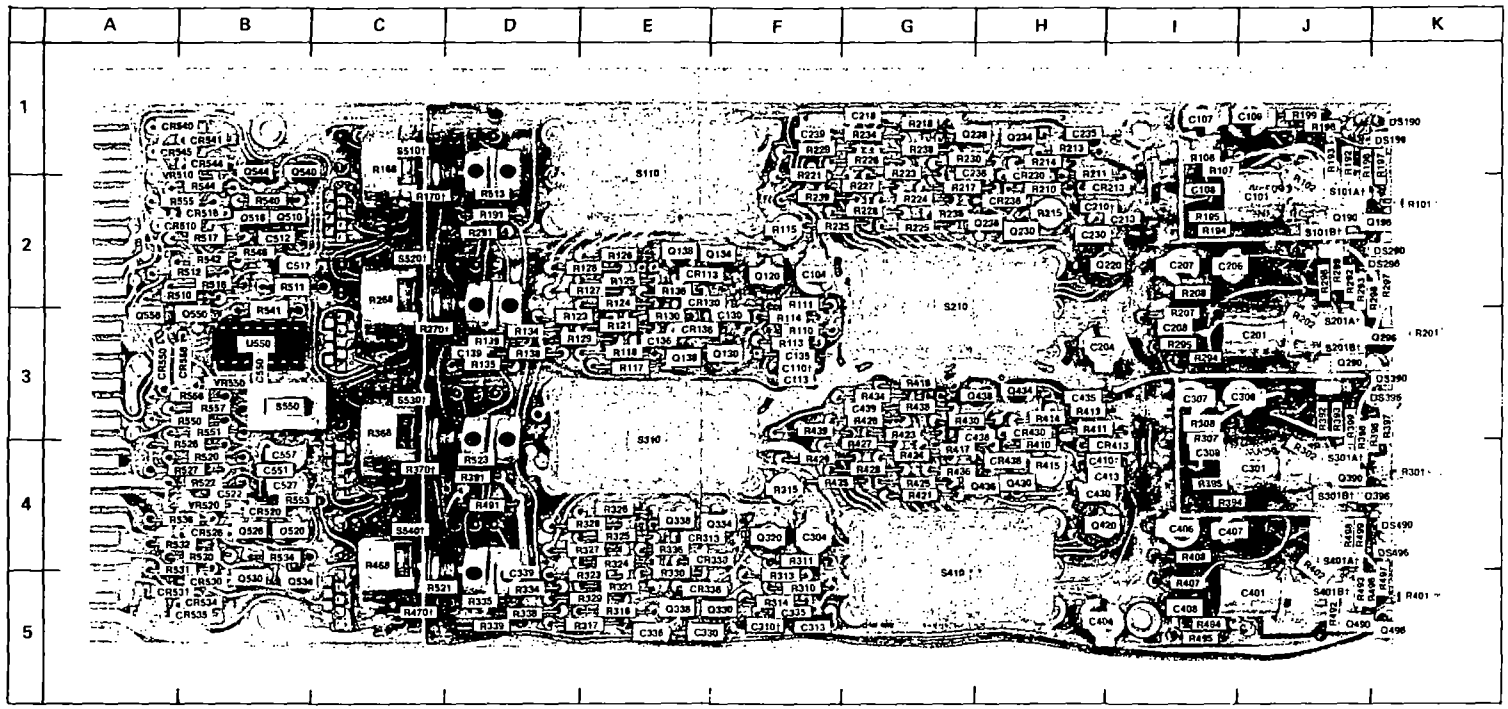
Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R393	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R394	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R394	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R395	316-0155-00	B010100	B069999	RES,FXD,CMPSN:1.5M OHM,10%,0.25W	01121	CB1551
R395	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R396	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R396	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R397	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R398	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R399	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R401	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	NTR25J-E680E
R402	316-0105-00	B010100	B069999	RES,FXD,CMPSN:1M OHM,10%,0.25W	01121	CB1051
R402	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R407	322-0624-03			RES,FXD,FILM:990K OHM,0.25%,0.25W,TC=T2	91637	MFF1421D99002C
R408	321-0289-03			RES,FXD,FILM:10.0K OHM,0.25%,0.125W,TC=T2	07716	CEAC10001C
R410	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R410	315-0224-00	B070000		RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
R411	316-0102-00	B010100	B069999	RES,FXD,CMPSN:1K OHM,10%,0.25W	01121	CB1021
R411	315-0102-00	B070000		RES,FXD,FILM:1K OHM,5%,0.25W	57668	NTR25JE01K0
R413	316-0223-00	B010100	B069999	RES,FXD,CMPSN:22K OHM,10%,0.25W	01121	CB2231
R413	315-0223-00	B070000		RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
R414	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R414	315-0154-00	B070000		RES,FXD,FILM:150K OHM,5%,0.25W	57668	NTR25J-E150K
R415	311-0613-00			RES,VAR,NONWW:TRMR,100K OHM,0.5W	32997	3329H-G48-104
R417	321-0435-00			RES,FXD,FILM:332K OHM,1%,0.125W,TC=T0	07716	CEAD33202F
R418	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=T0	19701	5033ED1K00F
R421	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R423	321-0097-03			RES,FXD,FILM:100 OHM,0.25%,0.125W,TC=T0	91637	CMF55116D100R0C
R424	321-0126-03			RES,FXD,FILM:200 OHM,0.25%,0.125W	19701	5033RC200R0C
R425	321-0612-03			RES,FXD,FILM:500 OHM,0.25%,0.125W,TC=T2	19701	5033RC500R0C
R426	321-0193-03			RES,FXD,FILM:1K OHM,0.25%,0.125W,TC=T2	07716	CEAC10000C
R427	321-0222-03			RES,FXD,FILM:2.0K OHM,0.25%,0.125W,TC=T2	19701	5033RC2K000C
R428	321-0816-03			RES,FXD,FILM:5K OHM,0.25%,0.125W,TC=T2	19701	5033RC5K000C
R429	321-0328-00			RES,FXD,FILM:25.5K OHM,1%,0.125W,TC=T0	19701	5043ED25K50F
R430	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R430	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R434	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R435	316-0220-00	B010100	B069999	RES,FXD,CMPSN:22 OHM,10%,0.25W	01121	CB2201
R435	315-0220-00	B070000		RES,FXD,FILM:22 OHM,5%,0.25W	19701	5043CX22R00J
R436	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R436	315-0333-00	B070000		RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
R438	321-0232-00			RES,FXD,FILM:2.55K OHM,1%,0.125W,TC=T0	19701	5043ED2K550F
R439	321-0289-00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=T0	19701	5033ED10K0F
R461	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R463	321-0325-00			RES,FXD,FILM:23.7K OHM,1%,0.125W,TC=T0	07716	CEAD23701F
R466	311-0978-00			RES,VAR,NONWW:TRMR,250 OHM,0.5W	73138	82PR250-37C
R467	321-0214-00			RES,FXD,FILM:1.65K OHM,1%,0.125W,TC=T0	19701	5033ED1K65F
R468	311-1327-00	B010100	B030563	RES,VAR,NONWW:PNL,5K OHM,2W	11236	551-BB30659
R468	311-1400-00	B030564		RES,VAR,NONWW:PNL,5K OHM,1W	12697	CM43516
R470	311-1068-00			RES,VAR,NONWW:PNL,5K OHM,0.5W	01121	W-7682
R471	321-0323-00			RES,FXD,FILM:22.6K OHM,1%,0.125W,TC=T0	07716	CEAD22601F
R472	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R472	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R473	316-0272-00	B010100	B063868	RES,FXD,CMPSN:2.7K OHM,10%,0.25W	01121	CB2721
R473	315-0272-00	B063869		RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	NTR25J-E02K7
R474	321-0260-00			RES,FXD,FILM:4.99K OHM,1%,0.125W,TC=T0	19701	5033ED4K990F
R477	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F
R478	321-0326-00			RES,FXD,FILM:24.3K OHM,1%,0.125W,TC=T0	19701	5043ED24K30F

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R479	316-0392-00	B010100	B063868	RES,FXD,CMPSN:3.9K OHM,10%,025W	01121	CB3921
R479	315-0392-00	B063869		RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	NTR25J-E03K9
R480	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R480	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R481	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R481	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R482	316-0470-00	B010100	B063868	RES,FXD,CMPSN:47 OHM,10%,0.25W	01121	CB4701
R482	315-0470-00	B063869		RES,FXD,FILM:47 OHM,5%,0.25W	57668	NTR25J-E47E0
R483	316-0103-00	B010100	B063868	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R483	315-0103-00	B063869		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R484	316-0153-00	B010100	B063868	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R484	315-0153-00	B063869		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R490	316-0154-00	B010100	B069999	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R491	316-0334-00	B010100	B069999	RES,FXD,CMPSN:330K OHM,10%,0.25W	01121	CB3341
R491	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R492	316-0474-00	B010100	B069999	RES,FXD,CMPSN:470K OHM,10%,0.25W	01121	CB4741
R492	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R493	315-0753-00	B010100	B069999	RES,FXD,FILM:75K OHM,5%,0.25W	57668	NTR25J-E75K0
R493	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R494	316-0333-00	B010100	B069999	RES,FXD,CMPSN:33K OHM,10%,0.25W	01121	CB3331
R494	315-0104-00	B070000		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R495	316-0155-00	B010100	B069999	RES,FXD,CMPSN:1.5M OHM,10%,0.25W	01121	CB1551
R495	315-0105-00	B070000		RES,FXD,FILM:1M OHM,5%,0.25W	19701	5043CX1M000J
R496	316-0224-00	B010100	B069999	RES,FXD,CMPSN:220K OHM,10%,0.25W	01121	CB2241
R496	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R497	315-0334-00	B070000		RES,FXD,FILM:330K OHM,5%,0.25W	57668	NTR25J-E 330K
R498	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R499	315-0750-00	B070000		RES,FXD,FILM:75 OHM,5%,0.25W	57668	NTR25J-E75E0
R510	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R511	316-0472-00	B010100	B069999	RES,FXD,CMPSN:4.7K OHM,10%,0.25W	01121	CB4721
R511	315-0472-00	B070000		RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	NTR25J-E04K7
R512	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R513	316-0154-00	B010100	B063288	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R513	315-0104-00	B063289		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R516	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R517	321-0362-00	B010100	B074797	RES,FXD,FILM:57.6K OHM,1%,0.125W,TC=T0	19701	5043ED57K60F
R517	321-0360-00	B074798		RES,FXD,FILM:54.9K OHM,1%,0.125W,TC=T0	19701	5033ED54K90F
R520	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R521	316-0472-00	B010100	B069999	RES,FXD,CMPSN:4.7K OHM,10%,0.25W	01121	CB4721
R521	315-0472-00	B070000		RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	NTR25J-E04K7
R522	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R523	316-0154-00	B010100	B063288	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R523	315-0104-00	B063289		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R526	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R527	321-0362-00	B010100	B074797	RES,FXD,FILM:57.6K OHM,1%,0.125W,TC=T0	19701	5043ED57K60F
R527	321-0360-00	B074798		RES,FXD,FILM:54.9K OHM,1%,0.125W,TC=T0	19701	5033ED54K90F
R530	316-0103-00	B010100	B069999	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R530	315-0103-00	B070000		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R531	316-0153-00	B010100	B069999	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R531	315-0153-00	B070000		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J
R532	321-0188-00			RES,FXD,FILM:887 OHM,1%,0.125W,TC=T0	07716	CEAD887R0F
R534	316-0103-00	B010100	B069999	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R534	315-0103-00	B070000		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R536	321-0188-00			RES,FXD,FILM:887 OHM,1%,0.125W,TC=T0	07716	CEAD887R0F
R540	316-0103-00	B010100	B069999	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R540	315-0103-00	B070000		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R541	316-0153-00	B010100	B069999	RES,FXD,CMPSN:15K OHM,10%,0.25W	01121	CB1531
R541	315-0153-00	B070000		RES,FXD,FILM:15K OHM,5%,0.25W	19701	5043CX15K00J

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
R542	321-0188-00			RES,FXD,FILM:887 OHM,1%,0.125W,TC=T0	07716	CEAD887R0F
R544	316-0103-00	B010100	B069999	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
R544	315-0103-00	B070000		RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
R546	321-0188-00			RES,FXD,FILM:887 OHM,1%,0.125W,TC=T0	07716	CEAD887R0F
R550	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R551	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R553	316-0154-00	B010100	B063288	RES,FXD,CMPSN:150K OHM,10%,0.25W	01121	CB1541
R553	315-0104-00	B063289		RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
R555	316-0472-00	B010100	B069999	RES,FXD,CMPSN:4.7K OHM,10%,0.25W	01121	CB4721
R555	315-0472-00	B070000		RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	NTR25J-E04K7
R556	321-0356-00			RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
R557	321-0362-00	B010100	B074797	RES,FXD,FILM:57.6K OHM,1%,0.125W,TC=T0	19701	5043ED57K60F
R557	321-0360-00	B074798		RES,FXD,FILM:54.9K OHM,1%,0.125W,TC=T0	19701	5033ED54K90F
R590	316-0103-00	B010100	B069999	RES,FXD,CMPSN:10K OHM,10%,0.25W	01121	CB1031
S101	260-1227-00			SWITCH,PUSH:DPDT,PUSH-PUSH	31918	ORDER BY DESCR
S110	105-0315-00			ACTR ASSY,CAM S:VOLTS/DIV	80009	105-0315-00
S201	260-1227-00			SWITCH,PUSH:DPDT,PUSH-PUSH	31918	ORDER BY DESCR
S210	105-0314-00			ACTR ASSY,CAM S:VOLTS/DIV	80009	105-0314-00
S301	260-1227-00			SWITCH,PUSH:DPDT,PUSH-PUSH	31918	ORDER BY DESCR
S310	105-0315-00			ACTR ASSY,CAM S:VOLTS/DIV	80009	105-0315-00
S401	260-1227-00			SWITCH,PUSH:DPDT,PUSH-PUSH	31918	ORDER BY DESCR
S410	105-0314-00			ACTR ASSY,CAM S:VOLTS/DIV	80009	105-0314-00
S510	260-1361-00			SWITCH,PUSH:1 BUTTON,6 POLE,OFF-ON	31918	ORDER BY DESCR
S520	260-1361-00			SWITCH,PUSH:1 BUTTON,6 POLE,OFF-ON	31918	ORDER BY DESCR
S530	260-1361-00			SWITCH,PUSH:1 BUTTON,6 POLE,OFF-ON	31918	ORDER BY DESCR
S540	260-1361-00			SWITCH,PUSH:1 BUTTON,6 POLE,OFF-ON	31918	ORDER BY DESCR
S550	260-0723-00			SWITCH,SLIDE:DPDT,0.5A,125VAC	79727	GF126-0028
U550	156-0039-02			MICROCKT,DGTL:DUAL J-K MA-SLAVE FF,SCRN	01295	SN7473NP3
VR510	152-0149-00			SEMICOND DVC,DI:ZEN,SI,10V,5%,0.4W,DO-7	15238	Z5406
VR520	152-0149-00			SEMICOND DVC,DI:ZEN,SI,10V,5%,0.4W,DO-7	15238	Z5406
VR550	152-0149-00			SEMICOND DVC,DI:ZEN,SI,10V,5%,0.4W,DO-7	15238	Z5406

5A14N

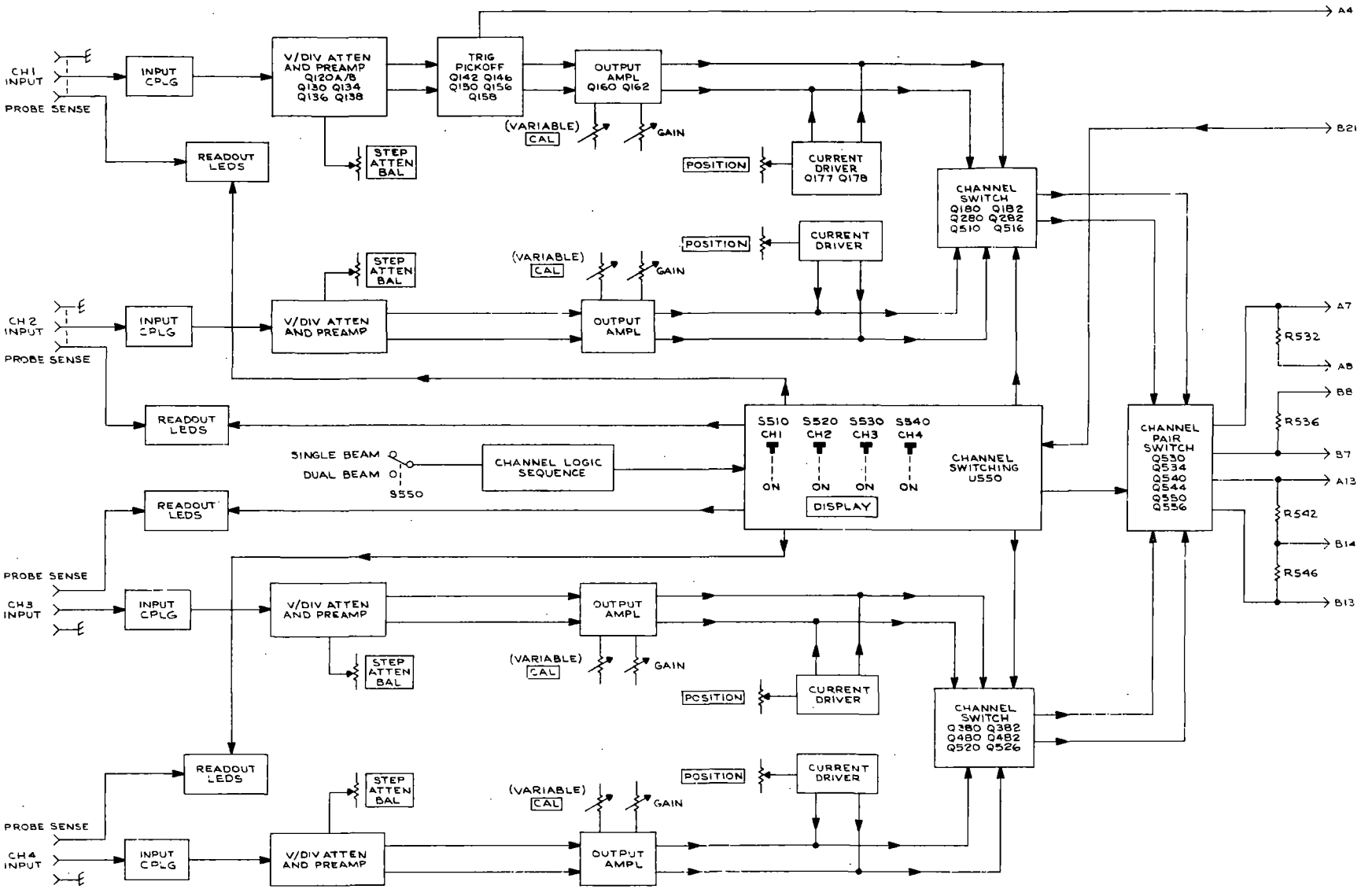
5A14N Main Board (SN B070000 & Up)



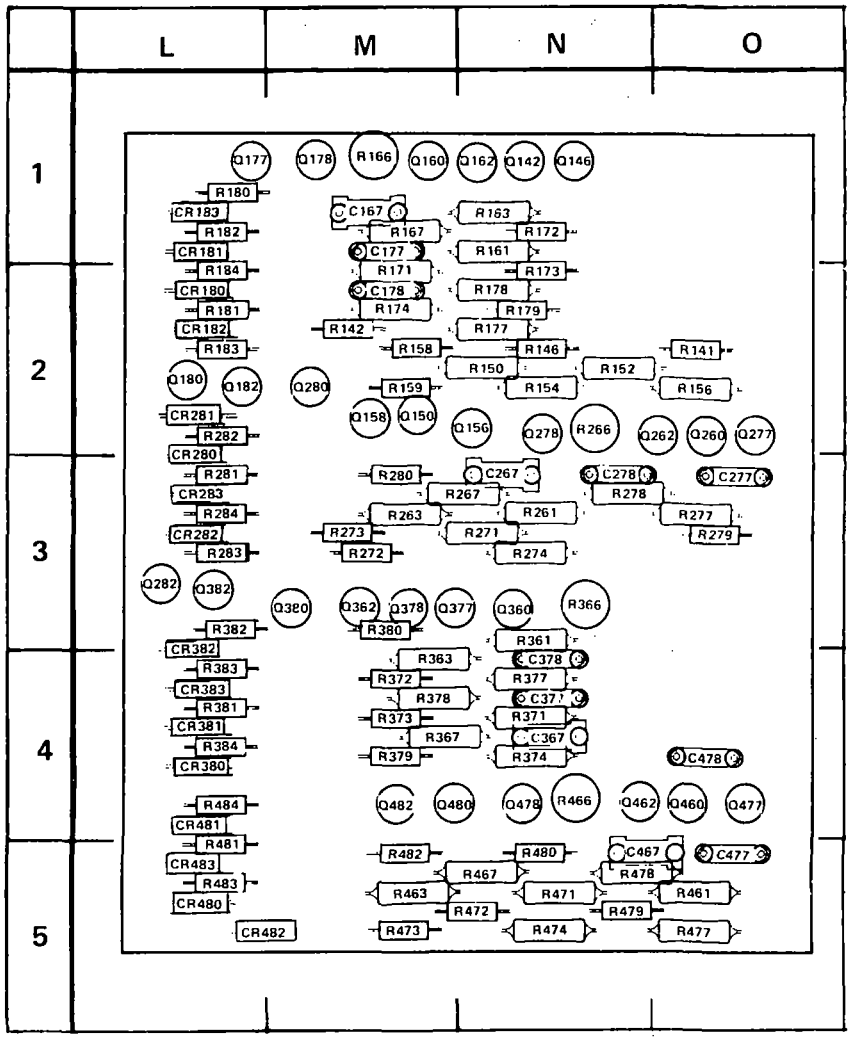
*See Parts List for serial number ranges.

†Located on back of board.

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO
C101	J2	C235	H1	C413	I4	CR313	E4	DS190	K1	Q290	J3	Q530	B5	R124	E2	R197	K1	R228	G2	R302	J4	R335	D5	R411	H3	R468	C4	R523	D4	S101A†	J2	VR5
C104	F2	C236	H1	C430	H4	CR330	F4	DS196	K1	Q296	K3	Q534	B5	R125	E2	R198	J1	R229	F1	R307	I4	R336	E4	R413	H3	R470†	C5	R526	B4	S101B†	J2	VR5
C106	J1	C239	F1	C435	H3	CR336	E5	DS290	K2	Q320	F4	Q540	B2	R126	E2	R199	J1	R230	G1	R308	I3	R338	D5	R414	H3	R491	D4	R527	B4	S110	E1	VR5
C107	I1	C301	J4	C436	H3	CR413	I4	DS295	K2	Q330	F5	Q544	B2	R127	E2	R201	K3	R234	G1	R310	F5	R339	D5	R415	H4	R492	J5	R530	B4	S201A†	J3	
C108	I2	C304	F4	C439	G3	CR430	H3	DS390	K3	Q334	F4	Q550	B3	R128	E2	R202	J3	R235	F2	R311	F4	R368	C3	R417	G4	R493	J5	R531	B4	S201B†	J3	
C110†	F3	C306	J3	C512	B2	CR436	H4	DS398	K3	Q336	E5	Q556	A3	R129	D3	R207	I3	R236	G2	R313	F5	R370†	C4	R418	G3	R494	I5	R532	B4	S210	G3	
C113	F3	C307	I3	C517	B2	CR510	B2	DS490	K4	Q338	E4			R130	E3	R208	I2	R238	G1	R314	F5	R391	D4	R421	G4	R495	I5	R534	B4	S301A†	J4	
C130	F3	C308	I4	C522	B4	CR516	B2	DS496	K4	Q390	J4	R101	K2	R134	D3	R210	H2	R239	F2	R315	F4	R392	J4	R423	G3	R496	K5	R536	B4	S301B†	J4	
C135	F3	C310†	F5	C527	B4	CR520	B4			Q396	K4	R102	J2	R135	D3	R211	H1	R268	C2	R317	E5	R393	J4	R424	G4	R497	K5	R540	B2	S310	E4	
C136	E3	C313	F5	C550*†	B3	CR526	B4	Q120	F2	Q420	I4	R107	I1	R136	E2	R213	H1	R270†	C3	R318	E5	R394	I4	R425	G4	R498	J4	R541	B3	S401A†	J4	
C139	D3	C330	E5	C551	B4	CR530	B5	Q130	F3	Q430	H4	R108	I1	R138	D3	R214	H1	R291	D2	R321	E5	R395	I4	R426	G3	R499	J4	R542	B2	S401B†	J5	
C201	J3	C335	F5	C557	B4	CR531	A5	Q134	F2	Q434	H3	R110	F3	R139	D3	R215	H2	R292	J2	R323	E5	R396	K3	R427	G4	R510	B2	R544	B2	S410	G5	
C204	I3	C336	E5			CR534	B5	Q136	E3	Q436	H4	R111	F2	R168	C1	R217	G2	R293	J2	R324	E4	R397	K3	R428	G4	R511	B2	R546	B2	S510	C1	
C206	I2	C339	D5			CR535	B5	Q138	E2	Q438	H3	R113	F3	R170†	C2	R218	G1	R294	I3	R325	E4	R398	J3	R429	F4	R512	B2	R550	B3	S520	C2	
C207	I2	C401	J5	CR113	E2	CR540	A1	Q190	J2	Q490	J5	R114	F3	R191	D2	R221	F1	R295	I3	R326	E4	R399	J4	R430	G3	R513	D2	R551	B3	S530	C3	
C208	I3	C404	I5	CR130	F2	CR541	B1	Q220	K2	Q496	K5	R115	F2	R192	J1	R223	G2	R296	K2	R327	E4	R401	K5	R434	G3	R516	B2	R553	B4	S540	C4	
C210†	I2	C406	I4	CR136	E2	CR544	B1	Q230	H2	Q510	B2	R117	E3	R193	J1	R224	G2	R297	K2	R328	E4	R402	J5	R435	F4	R517	B2	R555	B2	S550	B3	
C213	I2	C407	I4	CR213	I2	CR545	A1	Q234	H1	Q516	B2	R118	E3	R194	I2	R225	G2	R298	J2	R329	E5	R407	I5	R436	G4	R520	B4	R556	B3			
C218	G1	C408	I5	CR230	H2	CR550	A3	Q236	H2	Q520	B4	R121	E3	R195	I2	R226	G1	R299	J2	R330	E5	R408	I4	R438	G3	R521	C5	R557	B3	U550	B3	
C230	H2	C410†	H4	CR236	H2	CR556	B3	Q238	H1	Q526	B4	R123	D3	R196	J1	R227	G2	R301	K4	R334	D5	R410	H4	R439	F3	R522	B4					


CH1 INPUT
PROBE SENSE
INPUT CPLG
V/DIV ATTEN AND PREAMP Q120A/B Q130 Q134 Q136 Q138
TRIG PICKOFF Q142 Q146 Q150 Q156 Q158
OUTPUT AMPL Q160 Q162
READOUT LEDS
STEP ATTEN BAL
(VARIABLE) CAL
GAIN
POSITION
CURRENT DRIVER Q177 Q178
CHANNEL SWITCH Q180 Q182 Q280 Q282 Q510 Q516
A4
B21
CH2 INPUT
PROBE SENSE
INPUT CPLG
V/DIV ATTEN AND PREAMP
OUTPUT AMPL
CURRENT DRIVER
A7
R532
A8
B8
R536
B7
A13
R542
B14
R546
B13
S510 CH1
S520 CH2
S530 CH3
S540 CH4
ON
DISPLAY
CHANNEL SWITCHING U550
SINGLE BEAM
DUAL BEAM
S550
CHANNEL LOGIC SEQUENCE
CHANNEL PAIR SWITCH Q530 Q534 Q540 Q544 Q550 Q556
CH3 INPUT
CHANNEL SWITCH Q380 Q382 Q480 Q482 Q520 Q526
CH4 INPUT

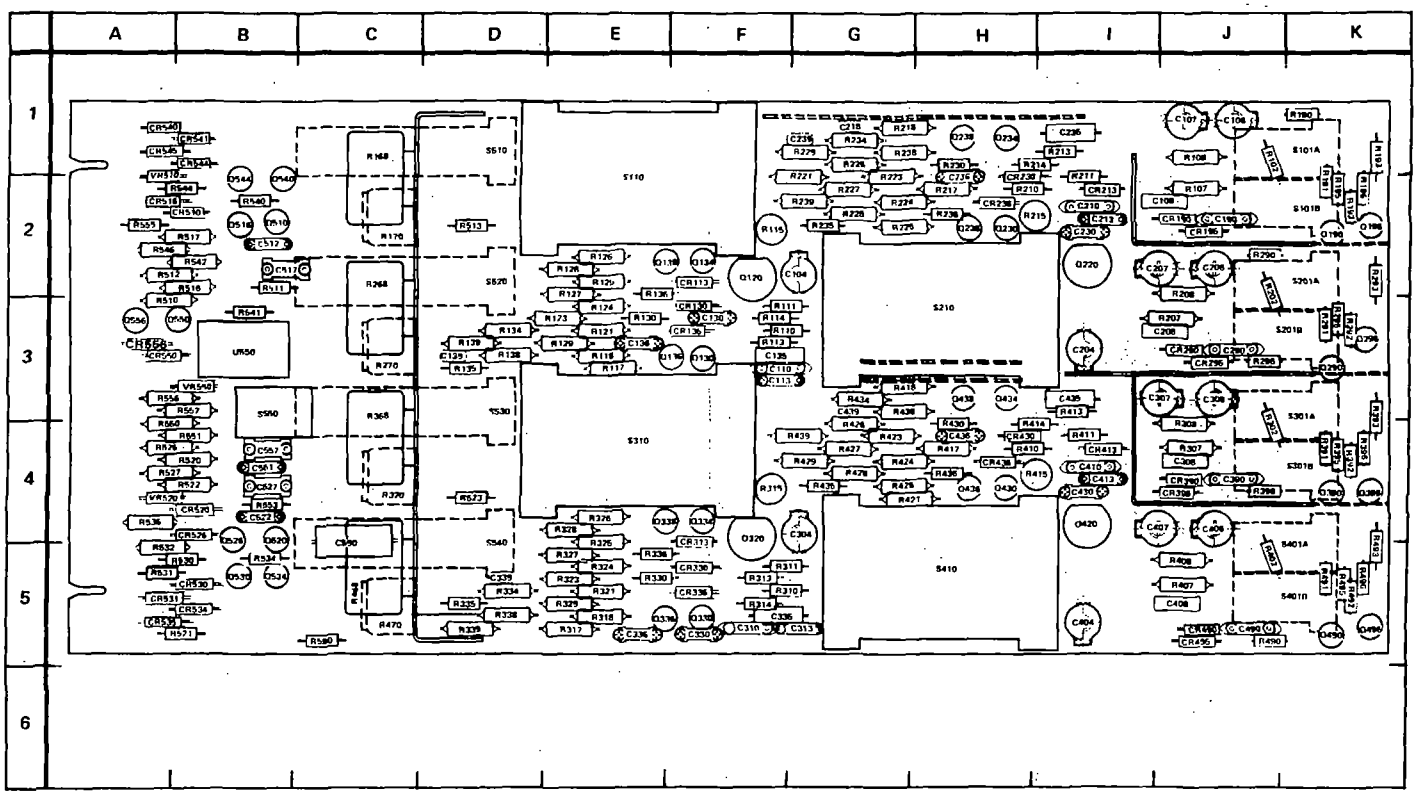
5A14N Upper Board



CKT NO	GRID LOC
510	A1
520	B4
550	B3

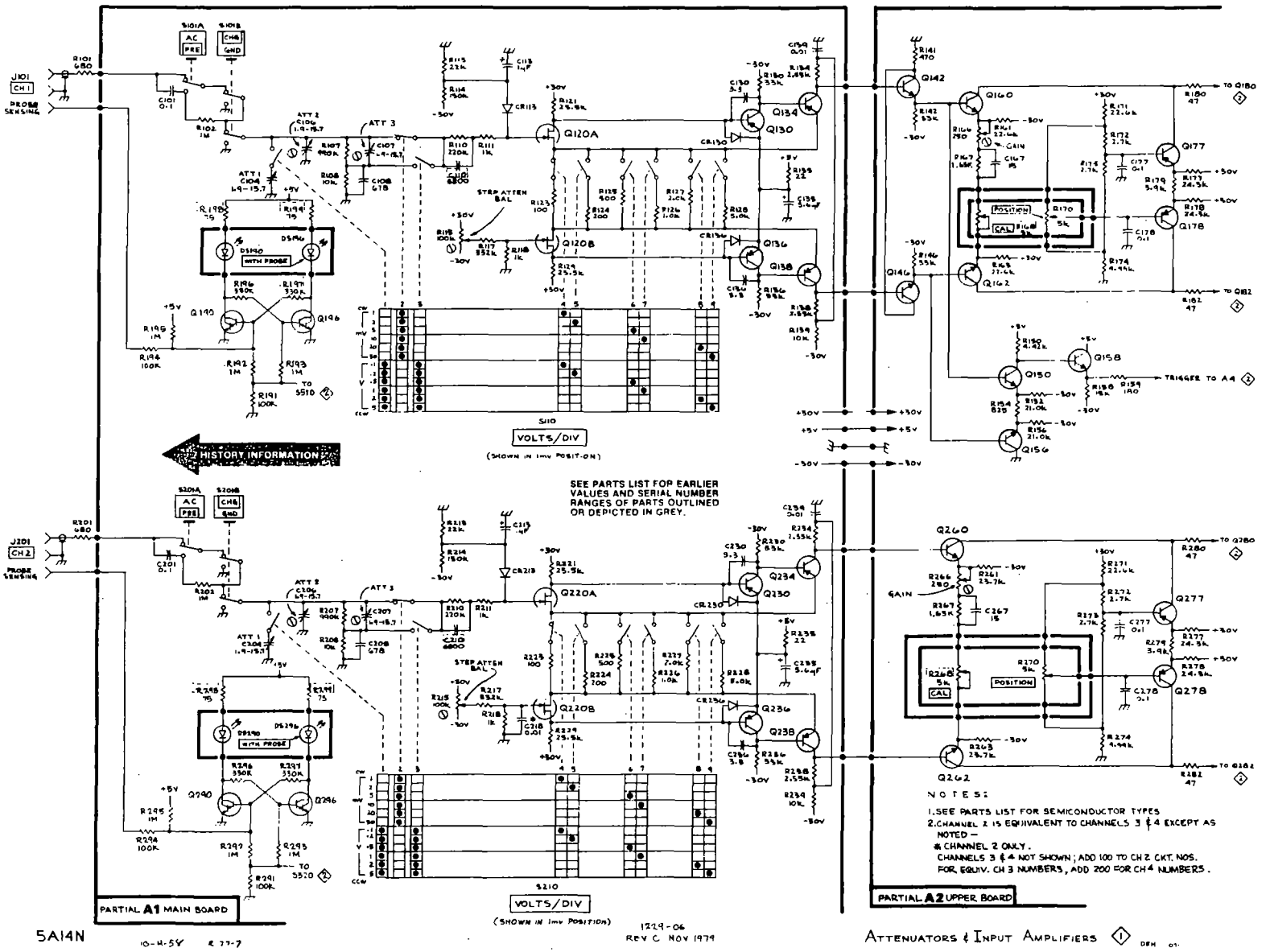
CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C167	M1	CR480	L5	Q378	M3	R173	N2	R284	L3	R477	O5
C177	M1	CR481	L4	Q380	M3	R174	M2	R361	N3	R478	N5
C178	M2	CR482	L5	Q382	L3	R177	N2	R363	M4	R479	N5
C267	N3	CR483	L5	Q460	O4	R178	N2	R366	N3	R480	N5
C277	O3			Q462	N4	R179	N2	R367	M4	R481	L5
C278	N3	Q142	N1	Q477	O4	R180	L1	R371	N4	R482	M5
C367	N4	Q146	N1	Q478	N4	R181	L2	R372	M4	R483	L5
C377	N4	Q150	M2	Q480	M4	R182	L1	R373	M4	R484	L4
C378	N4	Q156	N2	Q482	M4	R183	L2	R374	N4		
C467	N5	Q158	M2			R184	L2	R377	N4		
C477	O5	Q160	M1	R141	O2	R261	N3	R378	M4		
C478	O4	Q162	N1	R142	M2	R263	M3	R379	M4		
		Q177	L1	R146	N2	R266	N2	R380	M3		
CR180	L2	Q178	M1	R150	N2	R267	M3	R381	L4		
CR181	L1	Q180	L2	R152	N2	R271	N3	R382	L3		
CR182	L2	Q182	L2	R154	N2	R272	M3	R383	L4		
CR183	L1	Q260	O2	R156	O2	R273	M3	R384	L4		
CR280	L2	Q262	N2	R158	M2	R274	N3	R461	O5		
CR281	L2	Q277	O2	R159	M2	R277	O3	R463	M5		
CR282	L3	Q278	N2	R161	N1	R278	N3	R466	N4		
CR283	L3	Q280	M2	R163	N1	R279	O3	R467	N5		
CR380	L4	Q282	L3	R166	M1	R280	M3	R471	N5		
CR381	L4	Q360	N3	R167	M1	R281	L3	R472	N5		
CR382	L4	Q362	M3	R171	M2	R282	L2	R473	M5		
CR383	L4	Q377	N3	R172	N1	R283	L3	R474	N5		

5A14N Main Board (SN B069999 & below)



*See Parts List for serial number ranges.

†Located on back of board.



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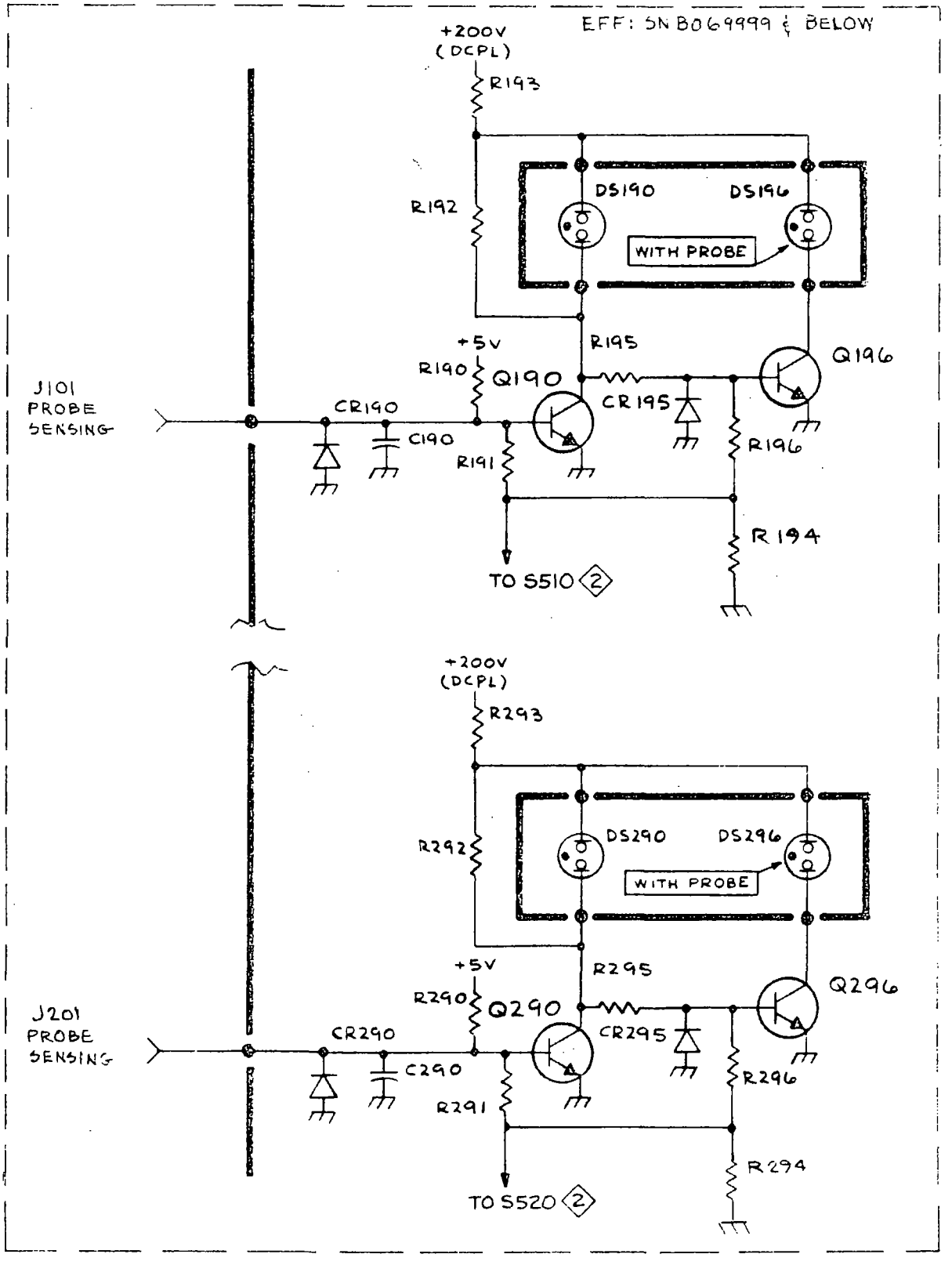
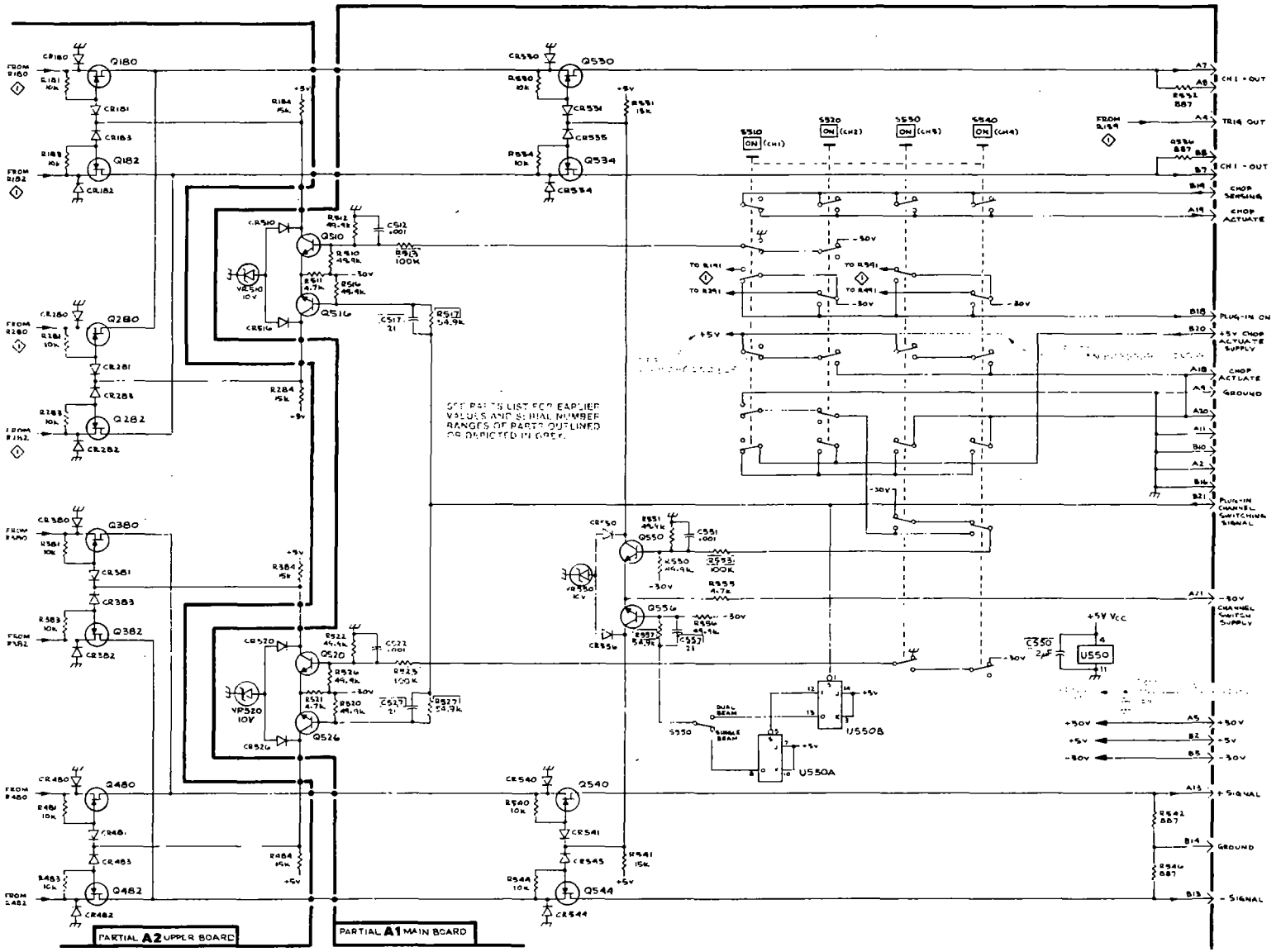
ATTENUATORS & INPUT AMPLIFIERS 1 DFH 01


EFF: SN B069999 & BELOW
+200V (DCPL)
R193
R192
DS190
DS196
WITH PROBE
R195
+5V
R190
Q190
Q196
J101 PROBE SENSING
CR190
CR195
C190
R191
R196
R194
TO S510 2
+200V (DCPL)
R293
R292
DS290
DS296
WITH PROBE
R295
+5V
R290
Q290
Q296
J201 PROBE SENSING
CR290
CR295
C290
R291
R296
R294
TO S520 2

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C104	G2	CR436	H4	R125	E2	R334	D5	R555	A2
C106	J1	CR490	J5	R126	E2	R335	D5	R556	A3
C107	J1	CR495	J5	R127	E2	R336	E5	R557	B3
C108	J2	CR510	B2	R128	E2	R338	D5	R590	C5
C110†	F3	CR516	A2	R129	E3	R339	D5		
C113	F3	CR520	B4	R130	E3	R368	C3	S101A	K1
C130	F3	CR526	B4	R134	D3	R370	C4	S101B	K2
C135	F3	CR530	B5	R135	D3	R390	J4	S110	E2
C136	E3	CR531	A5	R136	E2	R391	K4	S201A	K2
C139	D3	CR534	B5	R138	D3	R392	K4	S201B	K3
C190	J2	CR535	A5	R139	D3	R393	K3	S210	H3
C204	I3	CR540	A1	R168	C1	R395	K4	S301A	K3
C206	J2	CR541	B1	R170	C2	R396	K4	S301B	K4
C207	J2	CR544	B1	R190	K1	R402	K5	S310	E4
C208	J3	CR545	A1	R191	K1	R407	J5	S401A	K5
C210†	I2	CR550	A3	R192	K2	R408	J5	S401B	K5
C213	I2	CR556	A3	R193	K1	R410	H4	S410	H5
C218	G1			R195	K2	R411	I4	S510	D1
C230	I2	Q120	F2	R196	K2	R413	I3	S520	D2
C235	I1	Q130	F3	R202	J2	R414	H4	S530	D3
C236	H1	Q134	F2	R207	J3	R415	H4	S540	D4
C239	G1	Q136	E3	R208	J2	R417	H4	S550	B3
C290	J3	Q138	E2	R210	H2	R418	G3		
C304	G4	Q190	K2	R211	I2	R421	G4	U550	B3
C306	J3	Q196	K2	R213	I1	R423	G4		
C307	J3	Q220	I2	R214	H1	R424	G4	VR510	A1
C308	J4	Q230	H2	R215	H2	R425	G4	VR520	A4
C310†	F5	Q234	H1	R217	H2	R426	G4	VR550	B3
C313	G5	Q236	H2	R218	G1	R427	G4		
C330	F5	Q238	H1	R221	G2	R428	G4		
C335	F5	Q290	K3	R223	G2	R429	G4		
C336	E5	Q296	K3	R224	G2	R430	H4		
C339	D5	Q320	F4	R225	G2	R434	G3		
C390	J4	Q330	F5	R226	G1	R435	G4		
C404	I5	Q334	F4	R227	G2	R436	H4		
C406	J4	Q336	E5	R228	G2	R438	G3		
C407	J4	Q338	E4	R229	G1	R439	G4		
C408	J5	Q390	K4	R230	H1	R468	C5		
C410†	I4	Q396	K4	R234	G1	R470	C5		
C413	I4	Q420	I4	R235	G2	R490	J5		
C430	I4	Q430	H4	R236	H2	R491	K5		
C435	I3	Q434	H3	R238	G1	R492	K5		
C436	H4	Q436	H4	R239	G2	R493	K5		
C439	G3	Q438	H3	R268	C2	R495	K5		
C490	J5	Q490	K5	R270	C3	R496	K5		
C512	B2	Q496	K5	R290	J2	R510	A3		
C517*	B2	Q510	B2	R291	K3	R511	B2		
C522	B4	Q516	B2	R292	K3	R512	A2		
C527*	B4	Q520	B4	R293	K2	R513	D2		
C551	B4	Q526	B4	R295	K3	R516	B2		
C557*	B4	Q530	B5	R296	J3	R517	B2		
C590	B4	Q534	B5	R302	J4	R520	B4		
		Q540	B2	R307	J4	R521	B5		
CR113	F2	Q544	B2	R308	J4	R522	B4		
CR130	F3	Q550	B3	R310	F5	R523	D4		
CR136	F3	Q556	A3	R311	F5	R526	A4		
CR190	J2			R313	F5	R527	A4		
CR195	J2	R102	J1	R314	F5	R530	B5		
CR213	I2	R107	J2	R315	F4	R531	A5		
CR230	H2	R108	J1	R317	E5	R532	A5		
CR236	H2	R110	F3	R318	E5	R534	B5		
CR290	J3	R111	F3	R321	E5	R536	A4		
CR295	J3	R113	F3	R323	E5	R540	B2		
CR313	F4	R114	F3	R324	E5	R541	B3		
CR330	F5	R115	F2	R325	E4	R542	B2		
CR336	F5	R117	E3	R326	E4	R544	B2		
CR390	J4	R118	E3	R327	E5	R546	A2		
CR395	J4	R121	E3	R328	E4	R550	A4		
CR413	I4	R123	E3	R329	E5	R551	B4		
CR430	H4	R124	E3	R330	E5	R553	B4		



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1229-08
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CHANNEL SWITCHING & OUTPUT AMPLIFIERS ◇2

REPLACEABLE MECHANICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

SPECIAL NOTES AND SYMBOLS

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

FIGURE AND INDEX NUMBERS

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

INDENTATION SYSTEM

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

1 2 3 4 5 Name & Description

Assembly and/or Component
Attaching parts for Assembly and/or Component
\- - - * - - -
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
\- - - * - - -
Parts of Detail Part
Attaching parts for Parts of Detail Part
\- - - * - - -

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

Attaching parts must be purchased separately, unless otherwise specified.

ITEM NAME

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

ABBREVIATIONS

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

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

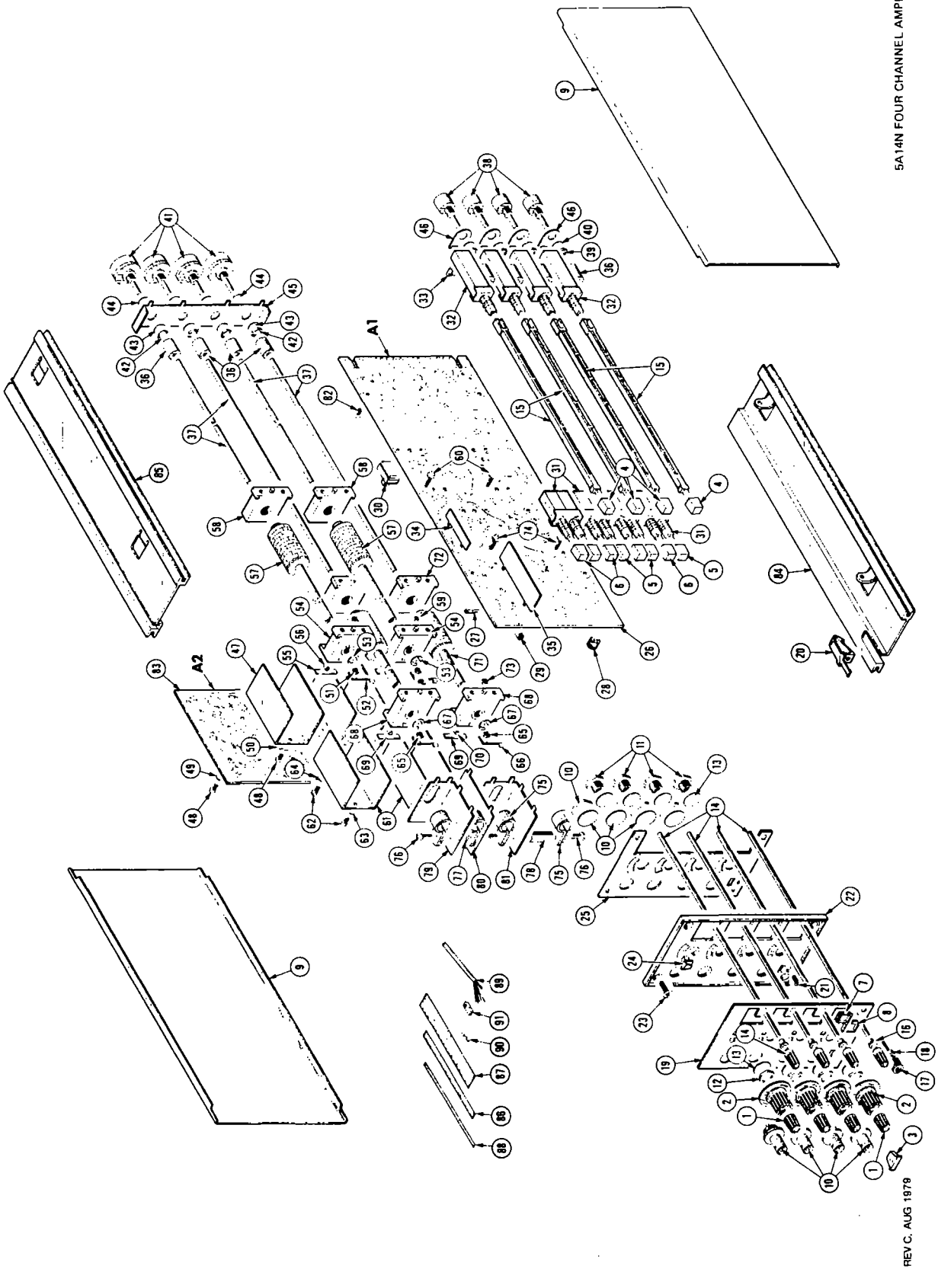
Mfr. Code	Manufacturer	Address	City, State, Zip Code
06915	RICHCO PLASTIC CO	5825 N TRIPP AVE	CHICAGO IL 60646
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039
08261	SPECTRA-STRIP AN ELTRA CO	7100 LAMPSON AVE	GARDEN GROVE CA 92642
09922	BURNDY CORP	RICHARDS AVE	NORWALK CT 06852
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125
12703	JUDD WIRE DIV ELECTRONIZED CHEMICALS CORP	250 TURNPIKE RD P O BOX 390	TURNERS FALLS MA 01376
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT CONNECTOR SYSTEMS DIV MILITARY PRODUCTS GROUP	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
24931	SPECIALTY CONNECTOR CO INC	2620 ENDRESS PLACE P O BOX D	GREENWOOD IN 46142
28520	HEYCO MOLDED PRODUCTS	147 MICHIGAN AVE P O BOX 160	KENILWORTH NJ 07033
45722	USM CORP., PARKER-KALON FASTENER DIV		CAMPBELLSVILLE, KY 42718
71785	TRW INC TRW CINCH CONNECTORS	1501 MORSE AVE	ELK GROVE VILLAGE IL 60007
73743	FISCHER SPECIAL MFG CO	446 MORGAN ST	CINCINNATI OH 45206
77900	SHAKEPROOF DIV OF ILLINOIS TOOL WORKS	SAINT CHARLES RD	ELGIN IL 60120
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIVISION	ST CHARLES ROAD	ELGIN IL 60120
79136	WALDES KOHINOOR INC	47-16 AUSTEL PLACE	LONG ISLAND CITY NY 11101
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
83385	MICRODOT MANUFACTURING INC GREER-CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61101
TK0392	NORTHWEST FASTENER SALES INC	7923 SW CIRRUS DRIVE	BEAVERTON OR 97005
TK0435	LEWIS SCREW CO	4114 S PEORIA	CHICAGO IL 60609
TK1319	MORELLIS Q & D PLASTICS	1812 16-TH AVE	FOREST GROVE OR 97116
TK1665	PORTLAND DIE AND STAMPING INC	4805 SE 26TH	PORTLAND OR 97202

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-1	366-1031-03			4	KNOB:RED,CAL,0.127 ID X 0.392 OD X 0.466 H	80009	366-1031-03
	213-0153-00			4	.SETSCREW:5-40 X 0.125,STL	TK0392	ORDER BY DESCR
-2	366-1367-00	B010100	B086208	4	KNOB:GY,V/DIV,0.252 ID X 1.0 OD X 0.6 H	80009	366-1367-00
	366-1367-01	B086209		4	KNOB:CLEAR,V/DIV,0.252 ID X 1.0 OD X 0.6 H	80009	366-1367-01
	213-0153-00			8	.SETSCREW:5-40 X 0.125,STL	TK0392	ORDER BY DESCR
-3	366-1286-00	B010100	B029999	1	KNOB:SIL GY,0.5 X 0.2 X 0.375	80009	366-1286-00
	366-1286-03	B030000	B063428	1	KNOB:GY,0.5 X 0.2 X 0.375	80009	366-1286-03
	366-1690-00	B063429		1	KNOB,LATCH:SIL GY,0.53 X 0.23 X 1.059	80009	366-1690-00
	214-1840-00	B030000	B063428	1	PIN,KNOB SECRG:0.12 L X 0.094-0.1 OD,ACETAL	80009	214-1840-00
-4	366-1257-74			4	PUSH BUTTON:SIL GY,ON	80009	366-1257-74
-5	366-1257-12			4	PUSH BUTTON:SIL GY,CHG GND	80009	366-1257-12
-6	366-1257-11			4	PUSH BUTTON:SIL GY,AC PRE	80009	366-1257-11
-7	426-0836-00			4	FRAME,PUSH BTN:	80009	426-0836-00
-8	426-0681-00			4	FRAME,PUSH BTN:	80009	426-0681-00
-9	337-1399-00			2	SHIELD,ELEC:SIDE	80009	337-1399-00
-10	131-0679-00	B010100	B031128	4	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR168-1
	131-0679-02	B031129		4	CONN,RCPT,ELEC:BNC,MALE,3 CONTACT	24931	28JR270-1
					(ATTACHING PARTS)		
	220-0497-00	B031129		4	NUT,PLAIN,HEX:0.5-28 X 0.562 HEX,BRS CD PL	80009	220-0497-00
	210-1039-00	B031129		4	WASHER,LOCK:0.521 ID,INT,0.025 THK,SST	24931	ORDER BY DESCR
					(END ATTACHING PARTS)		
-11	358-0029-00			4	BSHG,MACH THD:0.375-32 X 0.5 HEX,BRS NP	80009	358-0029-00
-12	210-0590-00			4	NUT,PLAIN,HEX:0.375-32 X 0.438 BRS CD PL	73743	28269-402
-13	210-0978-00			4	WASHER,FLAT:0.375 ID X 0.5 OD X 0.024,STL	12327	ORDER BY DESCR
-14	384-1114-00			4	EXTENSION SHAFT:7.6 L X 0.123 OD,PLASTIC	80009	384-1114-00
-15	384-1059-01			4	EXTENSION SHAFT:	80009	384-1059-01
-16	358-0378-00	B010100	B053218	4	BUSHING,SLEEVE:0.131 ID X 0.18 OD X 0.125 L	80009	358-0378-00
	358-0599-00	B053219		4	BUSHING,SLEEVE:0.125 ID X 0.25 OD X 0.234	28520	B-187-125
-17	220-0633-00			1	NUT,PLAIN,KNURL:0.25-28 X 0.375 OD,BRS NP	80009	220-0633-00
-18	355-0170-00			1	STUD,SHLDR&STEP:BINDING POST	80009	355-0170-00
-19	333-1507-00	B010100	B086208	1	PANEL,FRONT:	80009	333-1507-00
	333-1507-01	B086209		1	PANEL,FRONT:	80009	333-1507-01
-20	214-1513-00	B010100	B029999	1	LCH,PL-IN RTNG:PLASTIC	80009	214-1513-00
	214-1513-01	B030000	B063428	1	LCH,PL-IN RTNG:PLASTIC	80009	214-1513-01
	105-0718-01	B063429		1	BAR,LATCH RLSE:	80009	105-0718-01
	105-0719-00	B063429		1	LATCH,RETAINING:PLUG-IN	80009	105-0719-00
-21	213-0254-00			1	SCREW,TPG,TF:2-32 X 0.25,TYPE B,FLH,100 DEG	45722	ORDER BY DESCR
-22	386-2117-00			1	SUBPANEL,FRONT:	80009	386-2117-00
					(ATTACHING PARTS)		
-23	213-0229-00			3	SCREW,TPG,TF:6-20 X 0.375,TYPE B,FLH,100 DEG,STL	93907	ORDER BY DESCR
					(END ATTACHING PARTS)		
-24	378-0702-00	B010100	B069999	8	LENS,LIGHT:CLEAR	80009	378-0702-00
	378-0108-00	B070000		8	LENS,LIGHT:CLEAR	80009	378-0108-00
-25	337-1530-00	B010100	B069999	1	SHIELD,ELEC:REAR SUBPANEL	80009	337-1530-00
	337-1530-01	B070000		1	SHIELD,ELEC:REAR SUBPANEL	80009	337-1530-01
-26	----- -----			1	CKT BOARD ASSY:MAIN(SEE A1 REPL)		
	131-0608-00	B070000		8	.TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
-27	131-0604-00			36	.CONTACT,ELEC:CKT BD SW,SPR,CU BE	80009	131-0604-00
-28	136-0235-00			4	.SKT,PL-IN ELEK:TRANSISTOR,6 CONTACT	71785	133-96-12-062
	136-0269-02	B010100	B085858	1	.SKT,PL-IN ELEK:MICROCIRCUIT,14 DIP	09922	DILB14P-108T
	136-0728-00	B085859		1	.SKT,PL-IN ELEK:MICROCKT,14 CONTACT	09922	DILB14P-108
-29	200-1298-00	B010100	B069999	4	.COVER,LAMP:	80009	200-1298-00
-30	----- -----			1	.SWITCH,SLIDE:(SEE A1S550 REPL)		
-31	----- -----			4	.SWITCH,PUSH:(SEE A1S101,S201,S301, .S401 REPL)		
-32	----- -----			4	.SWITCH,PUSH:(SEE A1S510,S520,S530, .S540 REPL)		
	342-0327-00	B085520		1	.INSULATOR,FILM:REF MODULE COVER,POLYEST	80009	342-0327-00
	361-0685-00	B085520		16	.SPACER,PUSH SW:0.04 L,TURQUOISE BLUE	TK1319	ORDER BY DESCR
-33	361-0385-00			8	.SPACER,PB SW:0.164 L,GREEN POLYCARBONATE	80009	361-0385-00
-34	337-1555-00			4	.SHIELD,ELEC:SIGNAL	80009	337-1555-00
-35	337-1552-00	B010100	B073888	3	.SHIELD,ELEC:INPUT SWITCH	80009	337-1552-00
	337-1552-01	B073889		3	.SHIELD,ELEC:INPUT SWITCH	80009	337-1552-01
-36	376-0051-00	B010100	B085843	4	.CPLG,SHAFT,FLEX:0.127 ID X 0.375 OD,DELRIN	80009	376-0051-00
	376-0051-01	B085844		4	.CPLG,SHAFT,FLEX:0.127 ID X 0.375 OD,DELRIN	80009	376-0051-01
	376-0029-00			4	.CPLG,SHAFT,RGD:0.128 ID X 0.312 OD,AL	80009	376-0029-00
-37	384-0162-00			4	.EXTENSION SHAFT:8.564 L X 0.125 OD,AL	80009	384-0162-00

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-	343-0006-00	B010100	B086295	1	.CLAMP,LOOP:0.5 ID,PLASTIC	06915	E8 CLEAR ROUND
	343-0603-01	B086296		1	.CLAMP,LOOP:0.5 IN,STL CD PL	80009	343-0603-01
-38	----- -----			4	.RES,VAR:(SEE A1R168,R268,R368,R468 REPL) .(ATTACHING PARTS)		
-39	210-0583-00			4	.NUT,PLAIN,HEX:0.25-32 X 0.312,BRS CD PL	73743	2X-20319-402
-40	210-0046-00			4	.WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL	77900	1214-05-00-0541C
	210-0905-00	B010100	B030564	4	.WASHER,FLAT:0.256 ID X 0.438 OD X 0.05,BRS .(END ATTACHING PARTS)	83385	ORDER BY DESCR
-41	----- -----			4	.RES,VAR:(SEE A1R170,R270,R370,R470 REPL) .(ATTACHING PARTS)		
-42	210-0583-00			4	.NUT,PLAIN,HEX:0.25-32 X 0.312,BRS CD PL	73743	2X-20319-402
-43	210-0940-00	B010100	B030564	4	.WASHER,FLAT:0.25 ID X 0.375 OD X 0.02,STL	12327	ORDER BY DESCR
-44	210-0046-00			4	.WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL .(END ATTACHING PARTS)	77900	1214-05-00-0541C
-45	*407-1010-00*			1	*.BRACKET,VAR RES:ALUMINUM*	*80009*	*407-1010-00*
-46	387-0794-00			4	.PLATE,CMPNT MTG:VAR RESISTOR,BRASS	TK1665	ORDER BY DESCR
	----- -----			2	.ACTR ASSY,CAM S:(SEE S110 AND S310 REPL)		
-47	200-1193-00			2	..COVER,CAM SW:10 ELEMENTS ..(ATTACHING PARTS)	80009	200-1193-00
-48	211-0022-00			4	..SCREW,MACHINE:2-56 X 0.188,PNH,STL	TK0435	ORDER BY DESCR
-49	210-0001-00			2	..WASHER,LOCK:#2 INTL,0.013 THK,STL	77900	1202-00-00-0541C
-50	210-0259-00			2	..TERMINAL,LUG:0.099 ID,LOCKING,BRS CD PL	80009	210-0259-00
-51	220-0636-00			4	..NUT,PLAIN,HEX:2-56 X 0.188 HEX,BRS CD PL ..(END ATTACHING PARTS)	73743	ORDER BY DESCR
-52	131-1219-00			2	..CONTACT,ELEC:GROUNDING,CU BE	80009	131-1219-00
-53	354-0219-00			2	..RING,RETAINING:EXT,CRESCENT,U/O 0.25 DIA	79136	5103-25-S-ZD-R
-54	401-0057-00			2	..BEARING,CAM SW:FRONT W/0.83 DIA BSHG	80009	401-0057-00
-55	214-1139-00			2	..SPRING,FLAT:0.885 X 0.156 CU BE GLD CLR ..(REPLACE WITH PART BEARING THE SAME ..COLOR CODE)	80009	214-1139-00
	214-1139-02			2.	..SPRING,FLAT:0.885 X 0.156 CU BE GRN CLR ..(REPLACE WITH PART BEARING THE SAME ..COLOR CODE)	80009	214-1139-02
	214-1139-03			2	..SPRING,FLAT:0.885 X 0.156 CU BE RED CLR ..(REPLACE WITH PART BEARING THE SAME ..COLOR CODE)	80009	214-1139-03
-56	214-1127-00			2	..ROLLER,DETENT:0.125 DIA X 0.125,SST	80009	214-1127-00
-57	105-0328-00			2	..ACTUATOR,CAM SW:VOLTS/DIV,LONG SHAFT	80009	105-0328-00
-58	401-0056-00			2	..BEARING,CAM SW:REAR,0.83 DIA CAM	80009	401-0056-00
-59	210-0406-00			8	..NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL .(ATTACHING PARTS FOR ACTR)	73743	12161-50
-60	211-0292-00			8	.SCR,ASSEM WSHR:4-40 X 0.29,PNH,BRS NI PL .(END ATTACHING PARTS)	78189	51-040445-01
	----- -----			2	.ACTR ASSY,CAM S:(SEE S210 & S410 REPL)		
-61	200-1193-00			2	..COVER,CAM SW:10 ELEMENTS ..(ATTACHING PARTS)	80009	200-1193-00
-62	211-0022-00			4	..SCREW,MACHINE:2-56 X 0.188,PNH,STL	TK0435	ORDER BY DESCR
-63	210-0001-00			2	..WASHER,LOCK:#2 INTL,0.013 THK,STL	77900	1202-00-00-0541C
-64	210-0259-00			2	..TERMINAL,LUG:0.099 ID,LOCKING,BRS CD PL	80009	210-0259-00
-65	220-0636-00			4	..NUT,PLAIN,HEX:2-56 X 0.188 HEX,BRS CD PL ..(END ATTACHING PARTS)	73743	ORDER BY DESCR
-66	131-1219-00			2	..CONTACT,ELEC:GROUNDING,CU BE	80009	131-1219-00
-67	354-0219-00			2	..RING,RETAINING:EXT,CRESCENT,U/O 0.25 DIA	79136	5103-25-S-ZD-R
-68	401-0057-00			2	..BEARING,CAM SW:FRONT W/0.83 DIA BSHG	80009	401-0057-00
-69	214-1139-00			2	..SPRING,FLAT:0.885 X 0.156 CU BE GLD CLR ..(REPL ONLY WITH PART BEARING THE SAME ..COLOR CODE AS PART IN YOUR INSTR)	80009	214-1139-00
	214-1139-02			2	..SPRING,FLAT:0.885 X 0.156 CU BE GRN CLR ..(REPL ONLY WITH PART BEARING THE SAME ..COLOR CODE AS PART IN YOUR INSTR)	80009	214-1139-02
	214-1139-03			2	..SPRING,FLAT:0.885 X 0.156 CU BE RED CLR ..(REPL ONLY WITH PART BEARING THE SAME ..COLOR CODE AS PART IN YOUR INSTR)	80009	214-1139-03
-70	214-1127-00			2	..ROLLER,DETENT:0.125 DIA X 0.125,SST	80009	214-1127-00
-71	105-0327-00			2	..ACTUATOR,CAM SW:VOLTS/DIV,SHORT SHAFT	80009	105-0327-00
-72	401-0056-00			2	..BEARING,CAM SW:REAR,0.83 DIA CAM	80009	401-0056-00
-73	210-0406-00			8	..NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL .(ATTACHING PARTS FOR ACTR)	73743	12161-50

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-74	211-0116-00			8	.SCR,ASSEM WSHR:4-40 X 0.312,PNH,BRS,POZ .(END ATTACHING PARTS)	77900	ORDER BY DESCR
-75	343-0006-00			3	.CLAMP,LOOP:0.5 ID,PLASTIC	06915	E8 CLEAR ROUND
-76	211-0565-00			4	.SCREW,MACHINE:6-32 X 0.250,TRH,STL	TK0435	ORDER BY DESCR
-77	210-0457-00			2	.NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
	210-0803-00			1	.WASHER,FLAT:0.15 ID X 0.375 OD X 0.032,STL	12327	ORDER BY DESCR
-78	129-0089-00	B010100	B030724	1	.SPACER,POST:0.83 L,6-32,AL,0.25 HEX	80009	129-0089-00
	385-0079-00	B030725		1	.SPACER,POST:0.375 L W/6-32 THD THRU,AL	80009	385-0079-00
-79	337-1533-00			1	.SHIELD,ELEC:CHANNEL 1-2	80009	337-1533-00
-80	337-1532-00			1	.SHIELD,ELEC:CHANNEL 2-3	80009	337-1532-00
-81	337-1547-00			1	.SHIELD,ELEC:CHANNEL 3-4 (ATTACHING PARTS FOR CKT BD)	80009	337-1547-00
-82	213-0146-00			4	SCREW,TPG,TF:6-20 X 0.312,TYPE B,PNH,STL (END ATTACHING PARTS)	83385	ORDER BY DESCR
	334-3448-00	B063639		1	MARKER,IDENT:MARKED NOTICE	07416	ORDER BY DESCR
-83	----- -----			1	CKT BOARD ASSY:SECONDARY(SEE A2 REPL)		
-84	426-0724-01			1	FR SECT,PLUG-IN:BOTTOM	80009	426-0724-01
-85	426-0725-00			1	FR SECT,PLUG-IN:TOP	80009	426-0725-00
	198-2819-00	B010100	B069999	1	WIRE SET,ELEC:	80009	198-2819-00
	198-2819-01	B070000	B079999	1	WIRE SET,ELEC:	80009	198-2819-01
	198-2819-02	B080000		1	WIRE SET,ELEC:	80009	198-2819-02
-86	175-0828-00	B010100	B069999	AR	.CABLE,SP,ELEC:5,26 AWG,STRD,PVC JKT,RBN	08261	111-2699-955
	175-0827-00	B070000		AR	.CABLE,SP,ELEC:4,26 AWG,STRD,PVC JKT,RBN	08261	111-2699-954
-87	175-0832-00			AR	.CABLE,SP,ELEC:9,26 AWG,STRD,PVC JKT,RBN	08261	111-2699-956
-88	175-0825-00			AR	.CABLE,SP,ELEC:2,26 AWG,STRD,PVC JKT,RBN	80009	175-0825-00
-89	177-0977-00			AR	.CABLE,RF:50 OHM COAX,9-0	12703	ORDER BY DESCR
-90	131-0707-00	B070000		4	.CONTACT,ELEC:22-26 AWG,BRS,CU BE GLD PL	22526	47439-000
-91	352-0169-02	B070000		2	.HLDR,TERM CONN:2 WIRE,RED	80009	352-0169-02
					STANDARD ACCESSORIES		
	070-1229-00			1	MANUAL,TECH:INSTRUCTION	80009	070-1229-00

FIG. 1 EXPLODED



5A14N FOUR CHANNEL AMPLIFIER

REV C, AUG 1978

MANUAL CHANGE INFORMATION

At Tektronix, we continually strive to keep up with latest electronic developments by adding circuit and component improvements to our instruments as soon as they are developed and tested.

Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

A single change may affect several sections. Since the change information sheets are carried in the manual until all changes are permanently entered, some duplication may occur. If no such change pages appear following this page, your manual is correct as printed.