ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Tektronix PG 506* at our website: *Click HERE*

Tektronix®
COMMITTED TO EXCELLENCE

# PG 506 CALIBRATION GENERATOR

(SN B040000 AND UP)

INSTRUCTION MANUAL

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Tektronix®
COMMITTED TO EXCELLENCE

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

# PG 506 CALIBRATION GENERATOR

## (SN B040000 AND UP)

## INSTRUCTION MANUAL

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

070-3383-00
Product Group 75

Serial Number _____

First Printing NOV 1980
Revised APR 1984

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Copyright © 1980 Tektronix, Inc. All rights reserved. Contents of this publication may not be reproduced in any form without the written permission of Tektronix, Inc.

Products of Tektronix, Inc. and its subsidiaries are covered by U.S. and foreign patents and/or pending patents.

TEKTRONIX, TEK, SCOPE-MOBILE, and  are registered trademarks of Tektronix, Inc. TELEQUIPMENT is a registered trademark of Tektronix U.K. Limited.

Printed in U.S.A. Specification and price change privileges are reserved.

## 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 |
| 100000 | Tektronix Guernsey, Ltd., Channel Islands |
| 200000 | Tektronix United Kingdom, Ltd., London |
| 300000 | Sony/Tektronix, Japan |
| 700000 | Tektronix Holland, NV, Heerenveen, The Netherlands |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# TABLE OF CONTENTS

Page

**LIST OF ILLUSTRATIONS** . . . . . ii

**LIST OF TABLES** . . . . . .

**Section 1 Specification** . . . . . 1-1

**Section 2 Operating Instructions** . . . . . 2-1

**WARNING**

*THE FOLLOWING SERVICE 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.*

**Section 3 Theory of Operation** . . . . . 3-1

**Section 4 Calibration Procedure** . . . . . 4-1

Performance Check . . . . . 4-3
Adjustment Procedure . . . . . 4-12

**Section 5 Maintenance** . . . . . 5-1

**Section 6 Options** . . . . . 6-1

**Section 7 Replaceable Electrical Parts** . . . . . 7-1

**Section 8 Diagrams and Illustrations** . . . . . 8-1

**Section 9 Replaceable Mechanical Parts** . . . . . 9-1



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# LIST OF ILLUSTRATIONS


| Fig. No. | | Page |
|---|---|---|
| | PG 506 Calibration Generator | vi |
| 2-1 | Plug-in installation and removal | 2-2 |
| 2-2 | PG 506 controls and connectors | 2-3 |
| 2-3 | Output signals from the PG 506 Calibration Generator | 2-6 |
| 2-4 | Risetime derating graph | 2-7 |
| 2-5 | Typical waveforms showing correct and incorrect compensation adjustments | 2-8 |
| 2-6 | Typical low frequency response curve | 2-9 |
| 2-7 | Distortion of square waves caused by low frequency effects | 2-9 |
| 2-8 | Typical waveform showing ringing at front corner | 2-9 |
| 3-1 | DVM timing diagram for a negative input to the integrator U460 | 3-4 |
| 4-1 | Attenuator connections for current source | 4-4 |
| 4-2 | Typical response curve of sampling system | 4-9 |
| 4-3 | Typical sampling oscilloscope response display | 4-10 |
| 4-4 | Typical sampling oscilloscope response display | 4-10 |
| 4-5 | Adjustment locations for the A1 Main circuit board | 4-13 |
| 4-6 | Adjustment locations for the A2 DVM/Period circuit board | 4-14 |
| 4-7 | Adjustment locations for the A3 Fast Rise Output circuit board | 4-16 |
| 4-8 | Typical response curve as displayed on the sampling system | 4-17 |
| 4-9 | Typical response curve as displayed on the sampling oscilloscope | 4-17 |
| 5-1 | Pin assignments for the PG 506 (rear view, partial) | 5-3 |
| 5-2 | Main interface board (partial) showing amplitude and trigger output cable connections | 5-4 |




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# LIST OF TABLES


| Table No. | | Page |
|---|---|---|
| 1-1 | Electrical Characteristics | 1-1 |
| 1-2 | Environmental Characteristics | 1-3 |
| 1-3 | Physical Characteristics | 1-3 |
| 2-1 | Output Load Vs. Voltage Out | 2-5 |
| 4-1 | Test Equipment Required | 4-1 |
| 4-2 | Standard Amplitude (into 1 MΩ) Within 0.25%, ±1 μV | 4-3 |
| 4-3 | 100 V dc Range DEFLECTION ERROR % Resolution Tolerances | 4-5 |
| 4-4 | 10 V dc Range DEFLECTION ERROR % Resolution Tolerances | 4-5 |
| 4-5 | Standard Amplitude into a 50 Ω Load | 4-5 |
| 4-6 | Fast Rise and High Amplitude Output Period | 4-7 |
| 5-1 | Selected Component Criteria | 5-1 |
| 5-2 | Relative Susceptibility to Static Discharge Damage | 5-5 |




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# 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



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

### As Marked on Equipment



DANGER — High voltage.



Protective ground (earth) terminal.



ATTENTION — refer to manual.

### Power Source

This product is intended to operate from a power 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.

### Grounding the Product

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

### Danger Arising From Loss of Ground

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

### Use the Proper Fuse

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

Refer fuse replacement to qualified service personnel.

### Do Not Operate in Explosive Atmospheres

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

### Do Not Operate Without Covers (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.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# SERVICE SAFETY SUMMARY

## *FOR QUALIFIED SERVICE PERSONNEL ONLY*

*Refer also to the preceding Operators Safety Summary.*

### 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.

### 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.

### Power Source

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



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




PG 506 Calibration Generator



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# SPECIFICATION

### Performance Conditions

The electrical characteristics are valid only if the PG 506 has been calibrated at an ambient temperature between +20° C and +30° C and is operating at an ambient temperature between 0° C and +50° C. Forced air circulation is required for ambient temperatures above +40° C.

Items listed in the Performance Requirements column of the Electrical Characteristics are verified by completing the Performance Check in the Service Section of this manual. Items listed in the Supplemental Information column are not verified in this manual. They are either explanatory notes or performance characteristics for which no limits are specified.

# SPECIFICATION

**Table 1-1**

**ELECTRICAL CHARACTERISTICS**

| Characteristics | Performance Requirements | Supplemental Information |
|---|---|---|
| | **STANDARD AMPLITUDE OUTPUT** | |
| Range (Peak-to-Peak) | | |
| 1 MΩ Load | 200 μV to 100 V | |
| Accuracy | Within 0.25% ±1 μV | |
| 50 Ω Load | 100 μV to 5 V | |
| Accuracy | Within 0.25% ±1 μV | |
| Period | | Approximately 1 ms (1 kHz square wave, chopped DC) |
| Deflection Error Readout | | |
| Range | + and − 7.5% | |
| Resolution | Within 0.1% | |
| | **HIGH AMPLITUDE OUTPUT** | |
| Amplitude (Peak-to-Peak) | | |
| Unterminated | ≤6 V to ≥60 V | |
| 50 Ω Load | ≤0.5 V to ≥5 V | |
| Polarity | | Positive, measured from a negative potential to ground. |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 1-1 (cont)

| Characteristics | Performance Requirements | Supplemental Information |
|---|---|---|
| 600 Ω Output Resistance | Within 5% | |
| Output Period | | |
| 1 μs to 10 ms | Within 5% | |
| Variable | | Extends output period to at least 100 ms. X1 to greater than X10 range for each decade step. |
| Duty Cycle | | Approximately 50%. |
| Rise Time | | |
| Unterminated | ≤100 ns | |
| 50 Ω Load | ≤10 ns | |
| Leading Edge Aberrations during first 50 ns | Within 2% of signal peak-to-peak amplitude, or 50 mV, whichever is greater. | |
| **FAST RISE OUTPUTS** | | |
| Amplitude (Peak-to-Peak) | | |
| 50 Ω Load | ≤100 mV to >1 V | |
| Polarity | | Simultaneous positive and negative. Positive is measured from a negative potential to ground. Negative is measured from a positive potential to ground. |
| Output Resistance, 50 Ω | Within 3% | At either Fast Rise connector. |
| Risetime, 50 Ω Load | ≤1 ns | |
| Leading Edge Aberrations, first 10 ns | Within 2% of signal peak-to-peak amplitude, or 10 mV, whichever is greater. | |
| Flatness | Within 0.5% after first 10 ns | |
| Output Period | 1 μs to 10 ms | In decade steps. |
| Accuracy | Within 5% | |
| Variable | | Extends output period to >100 ms. X1 to greater than X10 range for each decade step. |
| Duty Cycle | | Approximately 50%. |
| **TRIGGER OUTPUT** | | |
| +Trigger Out | ≥1 V peak-to-peak into a 50 Ω load. Fixed amplitude. | Trigger out function available for HIGH AMPL and FAST RISE modes. Output signal leads HIGH AMPL pulse by about 18 ns and leads FAST RISE pulse by about 8 ns. |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Table 1-2**

**ENVIRONMENTAL CHARACTERISTICS**

| Characteristics | Information |
|---|---|
| Temperature | Test to procedures of MIL-STD-810C Methods 502.1 and 501.1 using Procedure I as specified in MIL-T-28800B paragraph 4.5.5.1.3 and 4.5.5.1.4. |
| Operating | 0°C to +50°C. |
| Non-operating | −55°C to +75°C. |
| Humidity | |
| Operating | +50°C to 95% relative humidity. |
| Non-operating | +60°C to 95% relative humidity.<br>Test to MIL-STD-810C Method 507.1 Procedure IV, modified as specified in MIL-T-28800B paragraph 4.5.5.1.1.2. |
| Altitude | Test to MIL-STD-810C Method 500.1 Procedure I as specified in MIL-T-28800B paragraph 4.5.5.2. |
| Operating | To 15,000 feet. |
| Non-operating | To 50,000 feet. |
| Vibration | |
| Operating and Non-operating | With the instrument operating, the vibration frequency is swept from 10 to 55 to 10 Hz. Vibrate 15 minutes in each of the three major axes at 0.015" total displacement. Hold 10 minutes at any major resonance, or if none, at 55 Hz. Total time, 75 minutes. |
| Shock | |
| Non-operating | 30 g's 1/2 sine, 11 ms duration, 3 shocks in each direction along 3 major axes, for a total of 18 shocks. |
| Transportation | Qualified under National Safe Transmit Committee Test Procedure 1 A, Category II. |

**Table 1-3**

**PHYSICAL CHARACTERISTICS**

| Characteristics | Information |
|---|---|
| Maximum Overall Dimensions | |
| Height | 4.969 inches (12.621 cm). |
| Width | 2.638 inches (6.701 cm). |
| Length | 12.088 inches (30.704 cm). |
| Front Panel | |
| Finish | Anodized aluminum. |
| Net Weight | ≈2 lbs. 4 oz. (1.02 kg). |

@



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# OPERATING INSTRUCTIONS

## INTRODUCTION

### Description

The PG 506 Calibration Generator is designed to operate in a TM 500 Series Power Module. The instrument is a combination Amplitude Calibrator and Square Wave Pulse Generator intended for calibration and adjustments of oscilloscope amplifier systems with a 50 Ω or 1 MΩ input resistance.

The Amplitude Calibrator function provides either a + dc voltage or a 1 kHz square-wave output, as selected by an internal switch. Peak-to-peak amplitudes from 0.2 mV to 100 V across a 1 MΩ load and amplitude of 100 mV to 5 V across a 50 Ω load are available. Output amplitudes are selected in a 1,2,5 sequence.

Because errors are often stated as a percentage, an internal digital differential voltmeter with front-panel light-emitting diode (LED) readout is used to provide a display equal to oscilloscope vertical or horizontal deflection errors. If the indicated deflection on an oscilloscope graticule does not agree with the proper reference line, the output amplitude from the PG 506 Amplitude Calibrator can be varied until the proper alignment is obtained. In this operating mode, the front-panel readout is a direct display of the oscilloscope deflection error.

A 5 mA Current Loop is provided, which supplies current (dc or 1 kHz) for calibration of current probes.

The Pulse Generator provides three square-wave outputs: variable High Amplitude pulses and simultaneous positive and negative-going Fast Rise, variable-amplitude pulses. In the Pulse Generator mode, the Period is selectable from 1 μs to 10 ms in decade steps. A variable control extends the maximum period to at least 100 ms (for each decade step, the period is variable over a 10:1 range). A positive going pretrigger output is also provided for triggering external equipment.

### Installation and Removal

**CAUTION**

*Turn the power module off before inserting the plug-in; otherwise, damage may occur to the plug-in circuitry. Because of the high current drawn by the PG 506, it is also recommended that the power module be turned off before removing the PG 506. Refer to Fig. 2-1. Check to see that the plastic barriers on the interconnecting jack of the selected power module compartment match the cut-outs in the PG 506 circuit board rear edge connector.*



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

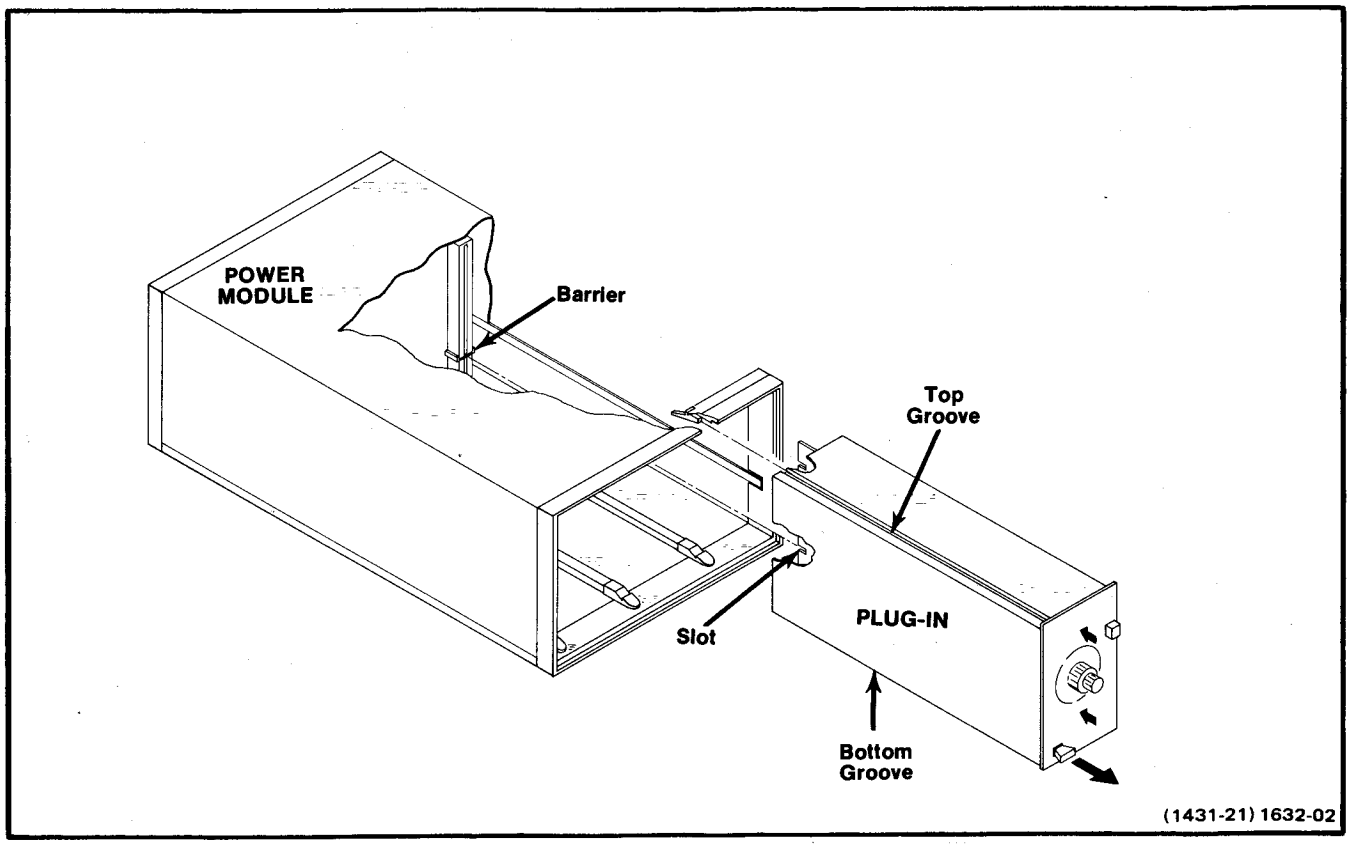



**Fig. 2-1. Plug-in installation and removal.**

## CONTROLS AND CONNECTORS

(1) DEFLECTION ERROR %: A direct display of output amplitude deflection error.

(2) AMPLITUDE: Selects calibrated output amplitudes across 1 MΩ or 50 Ω load attached to AMPL OUTPUT (STD) connector.

(3) VARIABLE (OUT): When released, operates in the standard amplitude mode. The deflection error readout indicates the error in percentages with 0.1% resolution.

(4) PERIOD light: Illuminated when the function switch is in Fast Rise or High Ampl mode.

(5) PERIOD: Selects the period of either the Fast Rise or High Ampl square-wave signals.

(6) VAR: Extends the period range 10:1. The calibrated position is counterclockwise.

(7) +TRIG OUT: Provides a signal source to pretrigger external equipment.

(8) FAST RISE OUTPUTS: Provides for simultaneous positive and negative going square-waves as selected by the PERIOD/VAR controls.

(9) Function switch: Determines whether the instrument is operated in STD AMPL, HIGH AMPL, or FAST RISE mode.

(10) PULSE AMPLITUDE: Controls output amplitude in the High Amplitude or Fast Rise modes.

(11) AMPL OUTPUT HIGH or STD: Common output for High Amplitude or Standard Amplitude modes. 1 kHz square-wave or dc for Standard amplitude. Period of the High Amplitude square-wave is set by the Period controls.

(12) Current Loop: A dc or 1 kHz square-wave 5 mA current supply for calibration of current probes. The



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

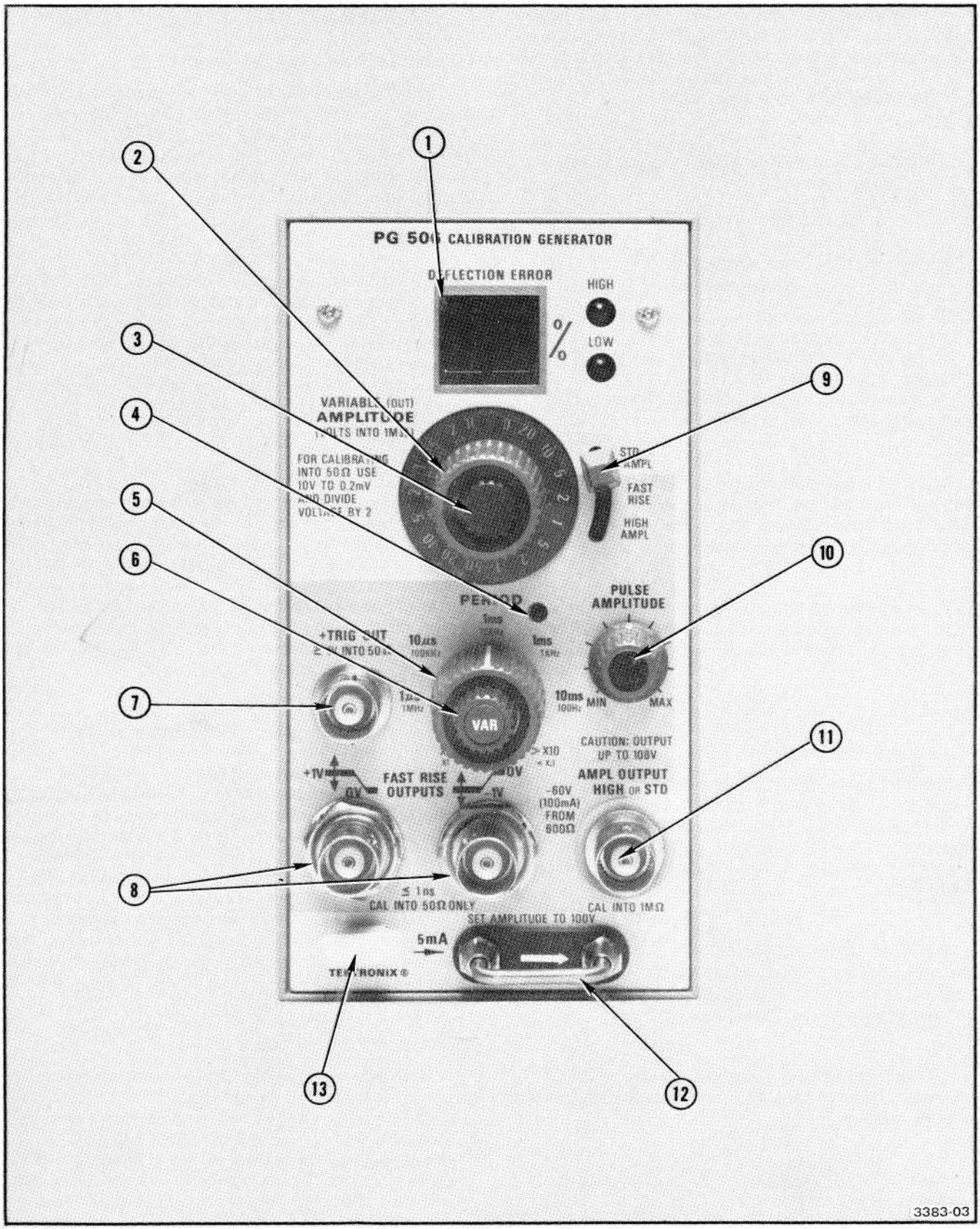



Fig. 2-2. PG 506 controls and connectors.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VARIABLE (OUT) control will vary current through the loop, but DEFLECTION ERROR readout is not directly related to current deviations. The DEFLECTION ERROR readout must be off or adjusted to read 0.0% for a calibrated output.

Release Latch: Pull to remove the instrument from the power module.

**WARNING**

*Dangerous voltage may be present on the front-panel BNC connector labeled AMPL OUTPUT (HIGH or STD). Before installation, turn the control labled AMPLITUDE (VOLTS INTO 1 MΩ) fully counterclockwise (ccw) and the control labeled PULSE AMPLITUDE to MIN.*

Align the upper and lower groove of the PG 506 chassis with the upper and lower guides of the selected compartment. Push the module in and press firmly to seat the circuit board in the interconnecting jack.

To remove the PG 506, pull on the release latch located in the lower left corner until the interconnecting jack disengages and the PG 506 will slide out.

### Preliminary Checks

Make all desired connections to equipment under test before applying power to the PG 506. The power switch is on the Power Module. Power application to the PG 506 is indicated by the PERIOD light turning on, or the light behind the knob skirt of the AMPLITUDE control switch being lighted.

The front-panel LED can be tested (888 display) by setting the three-position Mode switch to STD AMPL position, then pushing and holding the VARIABLE knob concentric with the AMPLITUDE switch.

To test the digital voltmeter system, release the VARIABLE knob to the out position and rotate the control in both directions.

Allow 15 to 20 minutes warmup time for all equipment before using the PG 506.

## AMPLITUDE CALIBRATOR MODE

### Connections and Terminations

To use the PG 506 Amplitude Calibrator system, set the mode switch to the STD AMPL position. Connect the 1 kHz calibrated amplitude signal at the AMPL OUTPUT connector to the input of an oscilloscope through a coaxial cable that has a 50 Ω characteristic impedance (RG-58/U) with a maximum length of 42 inches (shorter cables can be used).

With a cable termination of 1 MΩ and the DEFLECTION ERROR display off, the 1 kHz signal peak-to-peak output amplitude will be equal to the indicated reading on the AMPLITUDE switch. If the cable is terminated into a 50 Ω load, use an output amplitude in the 10 V to 0.2 mV range; the output amplitude will then be one-half the indicated reading on the AMPLITUDE switch.

### Oscilloscope Controls

The deflection factor (either vertical or horizontal) for oscilloscopes is the ratio of the amplitude of the input signal to the amount of beam deflection produced on the cathode-ray tube (crt), usually stated as volts per division of deflection (Volts/Div). Calibration procedures for some oscilloscopes require that the gain be set and the deflection accuracy be checked with a probe (properly compensated) connected between the PG 506 and the oscilloscope input connector.

For oscilloscope gain adjustments and checking of deflection accuracies, it is always best to set all oscilloscope controls exactly as called out in the calibration and performance sections of the oscilloscope instruction manual. However, it may be found desirable to set the oscilloscope sweep controls to a 0.1 ms/div (or faster) sweep rate and free-run the sweep when performing vertical deflection (amplitude) checks and adjustments. This procedure produces two horizontal traces that are separated vertically by an amount proportional to the peak-to-peak amplitude of the 1 kHz square-wave from the PG 506. At faster sweep rates, the display becomes more readable.

### Deflection Error Readout

When performing gain adjustments on oscilloscope or amplifier systems, it is mandatory that the DEFLECTION ERROR readout be turned off in order to obtain calibrated output amplitudes. The PG 506 DEFLECTION ERROR readout feature finds its greatest use in its ability to allow an operator to verify the oscilloscope deflection accuracy associated with amplifier gain and input attenuators.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Gain adjustments for oscilloscope amplifiers are usually made at low levels, for example; at a 10 mV/div deflection factor and a 50 mV signal from the PG 506. This ratio corresponds to five major graticule divisions of beam deflection. If the gain of the oscilloscope amplifier system is low, the indicated deflection will be less than five major graticule divisions, for example; 4.8 major division. The VARIABLE AMPLITUDE (OUT) control on the PG 506 can then be used to increase the output amplitude until the total deflection is exactly five major divisions. At this point, the DEFLECTION ERROR readout will read 4.0% LOW. Conversely, if the oscilloscope amplifier system gain is too high, the indicated deflection on the crt will be above the proper reference line, for example; 5.2 major divisions. Using the VARIABLE AMPLITUDE control on the PG 506 to reduce the output ampliutde for exactly five major divisions of deflection will produce a DEFLECTION ERROR readout of 4.0% HIGH.

For some oscilloscopes the deflection factor may not be constant throughout the full vertical dimensions of the graticule, due to compression or expansion nonlinearities. To check for this type of nonlinearity; center a two-division display, then position the display to the top of the graticule. Measure any deflection errors with the PG 506 VARIABLE AMPLITUDE control. Next, position the two-division display to the bottom of the graticule and measure the deflection errors. These nonlinearities should be taken into account when making measurements with full graticule deflection, or with the crt trace positioned towards the top or bottom graticule limits and using small deflection factors.

### Current Loop

One end of the Current Loop is grounded and terminates a precision voltage divider. The direction of the arrow is oriented for conventional current. To obtain a calibrated 5 mA from the Current Loop, set the mode switch to STD AMPL position and the AMPLITUDE control switch to the 100 V position. The DEFLECTION ERROR readout should be off, or adjusted to read 0.0%. The current signal can be either dc or 1 kHz square-wave current, as selected by an internal switch.

## PULSE GENERATOR MODE

### General

In order to ensure waveform fidelity when using the Pulse Generator function of the PG 506, the following precautions should be observed.

1. Use high quality 50 Ω coaxial cable, connectors, and terminations (where applicable). Make all connections as tight and short as possible.

2. Reduce capacitive and inductive loads to a minimum. Risetime degradation occurs with long cable lengths.

3. Minimum risetime and pulse aberrations are obtained with 50 Ω loads and loads must be capable of dissipating the power available at any output connector in any operating mode.

4. The external equipment is assumed to have no dc voltage across the load to which the PG 506 is connected. If a dc voltage exists, the output amplitude from the PG 506 will be in error by the amount of the dc offset. To prevent dc-offset errors, couple the PG 506 outputs through a dc blocking capacitor to the load. The time constant of the coupling capacitor and the total resistance in series must be long enough to maintain pulse flatness.

### High Amplitude Output

To use the PG 506 Pulse Generator system to produce high amplitude square-waves, set the mode switch to HIGH AMPL position and connect external equipment to the AMPL OUTPUT HIGH connector. Set the Period controls for the period or frequency desired. The output amplitude of this signal can be adjusted with the PULSE AMPLITUDE control.

This signal can be used to adjust oscilloscope amplifier input capacitance, attenuator compensation networks, and other internal frequency compensation networks. The AMPL OUTPUT HIGH signal is negative with respect to ground, with its risetime related to the rising portion (from a negative potential) of the waveform. Refer to Fig. 2-3. The absolute peak-to-peak value of the square-wave is determined by the load resistance and the setting of the PULSE AMPLITUDE control. Table 2-1 lists the *typical amplitudes* available when the PG 506 is terminated into three different load resistances.

**Table 2-1**

**OUTPUT LOAD VS. VOLTAGE OUT**

| HIGH AMPL OUTPUT | PULSE AMPLITUDE Control[1] | |
|---|---|---|
| **Termination** | **MIN** | **MAX** |
| 50 Ω Load | 0.3 V p-p | 5.2 V p-p |
| 600 Ω Load | 1.9 V p-p | 32.5 V p-p |
| 1 MΩ Load | 3.8 V p-p | ⩾60.0 V p-p |

[1] **Approximate amplitudes.**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

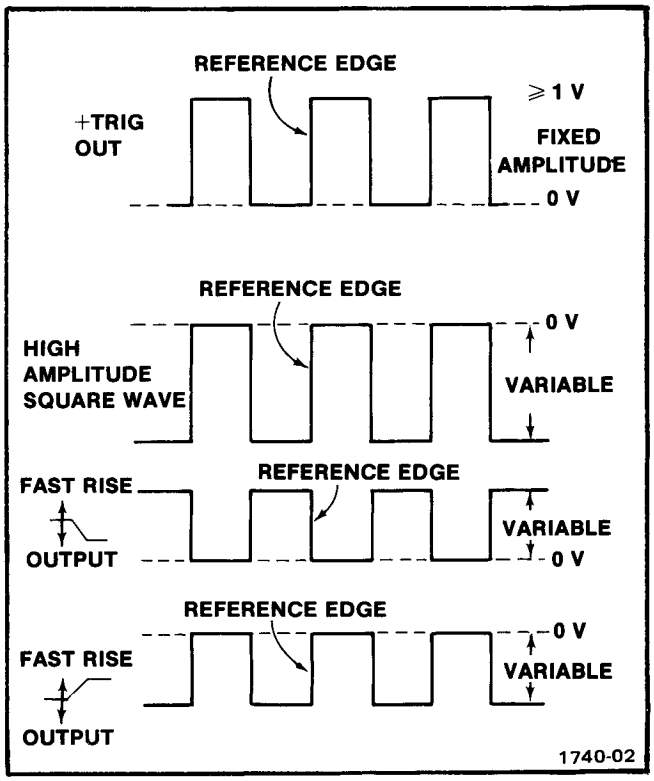



**Fig. 2-3. Output signals from the PG 506 Calibration Generator.**

### Fast Rise Outputs

To use the PG 506 Pulse Generator system to produce low amplitude, fast-rise square-waves, set the mode swtich to FAST RISE position and connect external equipment to the FAST RISE OUTPUTS connector(s). Set the PERIOD controls for the period or frequency desired. The output amplitude can be adjusted by the PULSE AMPLIUTDE control.

These signals are usually used to adjust high-frequency compensation networks in oscilloscope amplifier circuits. The adjustments are made for optimum response (minimum aberrations). The risetime and amplitude specifications for the FAST RISE outputs apply only when they are terminated into a 50 Ω load. Larger amplitudes (greater than 1 V peak-to-peak) can be obtained from these output connectors under unterminated conditions, but the risetime specification is no longer applicable.

## GENERAL INFORMATION

### Risetime Considerations

The PG 506 can be used in conjunction with an oscilloscope to determine the risetime of a device under test. Risetime is normally measured (unless otherwise specified) between the 10% and 90% amplitude levels on the leading edge of a waveform. The risetime of a displayed waveform is illustrated in Fig. 2-4.

Before measuring the risetime of a device under test, the combined risetime of the PG 506 output signal and the oscilloscope vertical amplifier system must be known. Refer to Fig. 2-4 for the percentage error to be expected when the two devices are cascaded. Sweep timing accuracy should be verified before any risetime measurements are made. Inaccuracies in the sweep timing and display reading errors must be added algebraically to the percentage error obtained from computations related to Fig. 2-4.

The graph for Fig. 2-4 can be used as a guideline for the following general conclusions.

1. Oscilloscopes should have a vertical system risetime about one-seventh of the fastest signal applied to keep system errors to a minimum.

2. Conversely, if the signal risetime is at least seven times faster than the risetime of the oscilloscope vertical system, the displayed (observed) waveform will have a risetime that is very close to the risetime of the vertical system.

3. The displayed risetime as observed on any oscilloscope can never be faster than the risetime of the slowest device in the system.

Risetime of a displayed waveform is related to total system bandwidth. A system with limited high-frequency response will produce a displayed risetime that is slower than expected. If a fast-step signal produces a crt display with little or no overshoot or ringing, the product of oscilloscope risetime and oscilloscope bandwidth should result in a factor whose value lies between 0.329 and 0.350.

The following steps describe the procedure to follow in determining the risetime of a device under test.

1. Connect the appropriate output signal from the PG 506 to the oscilloscope vertical input with a short 50 Ω coaxial cable terminated into a 50 Ω load.

2. Set the oscilloscope controls to display the leading edge of the waveform. Risetime measurements should be made over the largest part of the graticule area possible. When the fastest sweep rate is relatively slow compared with the vertical system risetime (or the scale is small), measurements become confined to small sections of the graticule, and the probability of display reading errors becomes greater.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

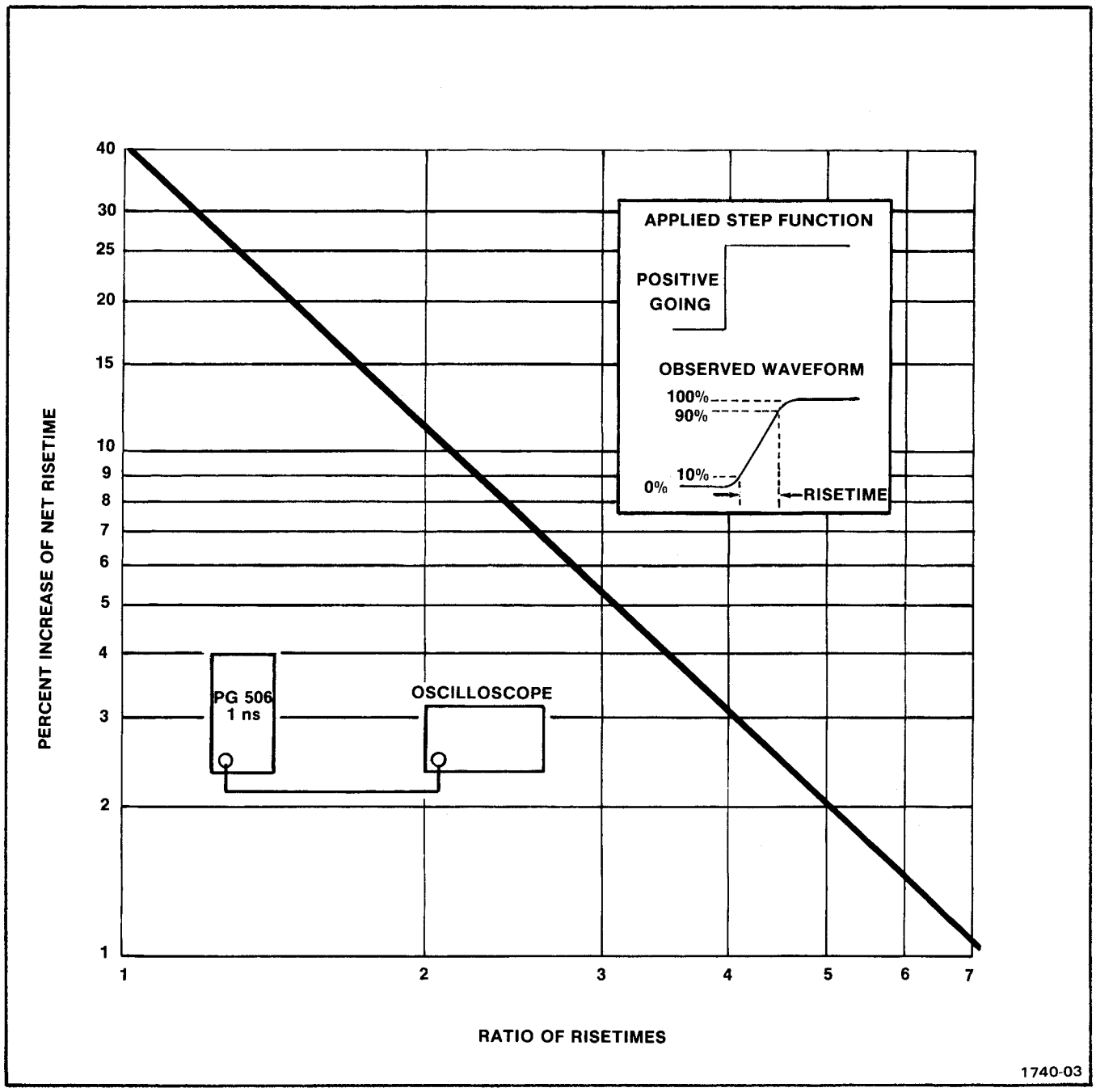



**Fig. 2-4. Risetime derating graph.**

3. Measure the time duration between the 10% and 90% amplitude levels. This is the combined risetime of the PG 506 and the oscilloscope ($T_{rc}$).

4. Disconnect the coaxial cable and 50 Ω termination from the oscilloscope.

5. Connect the coaxial cable from the PG 506 to the input of the device under test and connect the output of the device under test to the oscilloscope vertical input. Terminate the device under test in its characteristics impedance for optimum performance.

6. Set the oscilloscope controls to display the leading edge of the displayed waveform and measure the time duration between the 10% and 90% amplitude levels (over the same graticule area, if possible). This is the total system risetime ($T_{rs}$).



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

7. Calculate the risetime of the device under test (dut) using the following formula:

$$T_r\ (dut) = \left[(T_{rs})^2 - (T_{rc})^2\right]^{1/2}$$

## Checking Amplifier Response

The square-wave output signals from the PG 506 can be used to check the response of active or passive systems. Because the characteristics of a pulse from the PG 506 is known (see ELECTRICAL CHARACTERISTICS), distortion of the waveform beyond these limits is due to the device under test.

The compensation of an ac-voltage divider, such as used in the input attenuator of an oscilloscope or a passive attenuator probe, can be checked by observing its response when a square-wave signal is applied. Correct response is shown by optimum square corner on the displayed waveform. If the waveform has overshoot, rolloff, or front-corner rounding, the system is not correctly compensated. Figure 2-5 shows typical waveforms illustrating correct and incorrect compensation adjustments. When performing these compensation checks, the repetition rate of the applied square-wave signal should be at least 3 to 4 decades above the low-frequency cutoff point (frequency where the equivalent sine-wave amplitude is 30% down).

The low end cut-off frequency (due to RC coupling) for an amplifier can be approximated very closely by using the following procedure.

1. Apply a square-wave at a repetition rate that is not affected by the low-frequency limit.

2. Slowly reduce the square-wave frequency and adjust the oscilloscope (amplifer) controls to display a signal similar to Fig. 2-6.

3. Determine the ratio between the amplitude levels, $V_1$ and $V_2$. Note that $V_1$ and $V_2$ are peak values above the zero-volt reference level.

4. The equivalent RC product can be determined by using the following formula; where $F_a$ is the applied frequency for a given ratio of $V_1/V_2$ (greater than unity).

$$\frac{1}{1\ F_a\ \ln\ V_1/V_2} = RC \text{ (for square-waves only)}$$

5. Using the RC product obtained in step 4, calculate the low-end cut-off frequency.

$$F_L\ (3\ dB) = \frac{159 \times 10^{-3}}{RC}$$

For example; if the applied frequency, $F_a$, is 10 Hz and the amplitude values shown in Fig. 2-6 are used, the lower cut-off frequency is calculated to be about 1.6 Hz.

Figure 2-7 illustrates other waveform distortion effects that may be observed if amplifier circuits are not properly compensated for low frequencies.

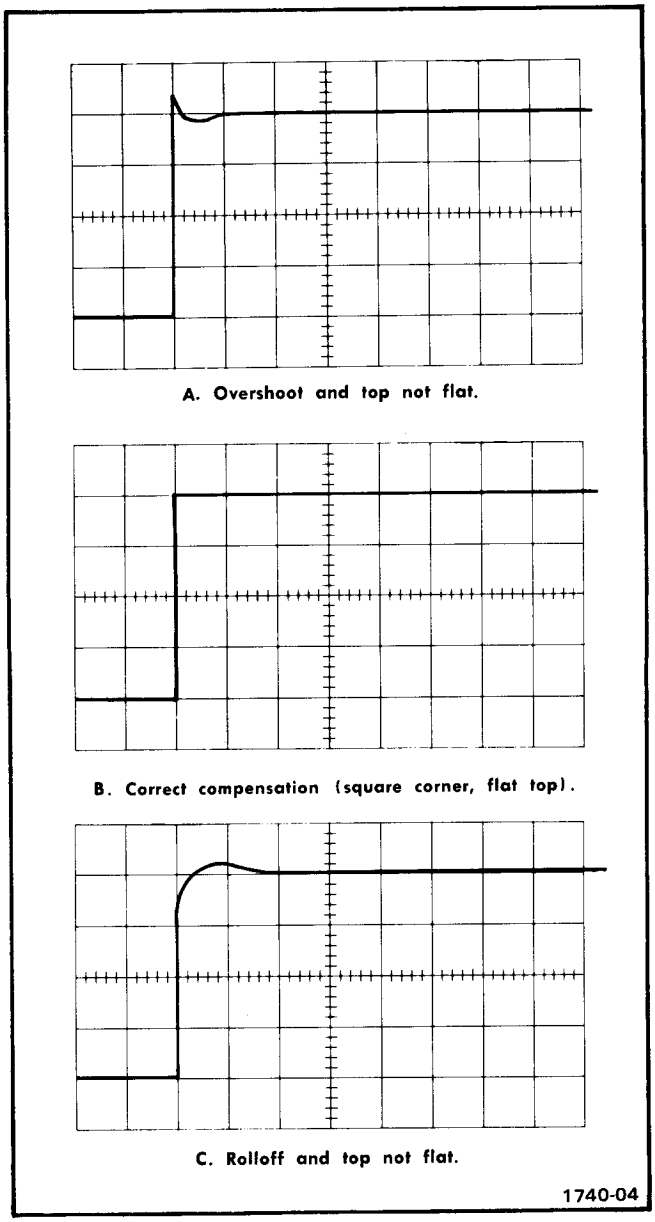



**Fig. 2-5. Typical waveforms showing correct and incorrect compensation adjustments.**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

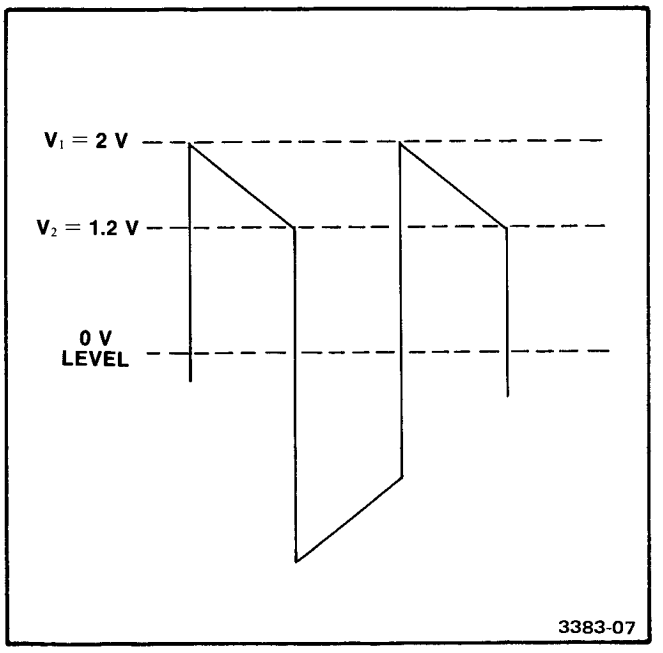



**Fig. 2-6. Typical low frequency response curve.**

Figure 2-8 illustrates waveform distortion due to incorrect high-frequency compensations. Ringing indicates incorrect peaking adjustments or undesired inductive effects, while excessive overshoot and rolloff indicates incorrect capacitive adjustments. Limited high-frequency response is also indicated by risetime measurements that are much slower than expected (see Risetime Considerations). Impedance mismatching will usually show up at excessive aberrations somewhere along the flat portion of the waveform.

## Repackaging Information

If the Tektronix instrument is to be shipped to a Tektronix Service Center for service or repair, attach a tag showing the owner (with address) and the name of an individual at your firm that can be contacted. Include the 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 or urethane foam between carton and instrument on all sides. Seal the carton with shipping tape or an industrial stapler.

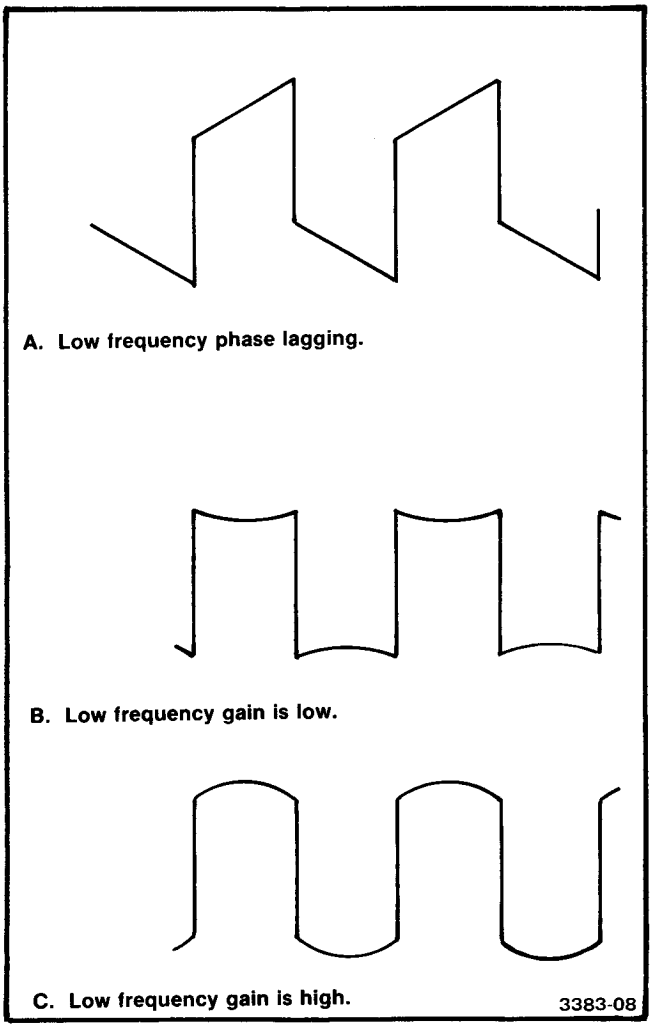



**Fig. 2-7. Distortion of square waves caused by low frequency effects.**

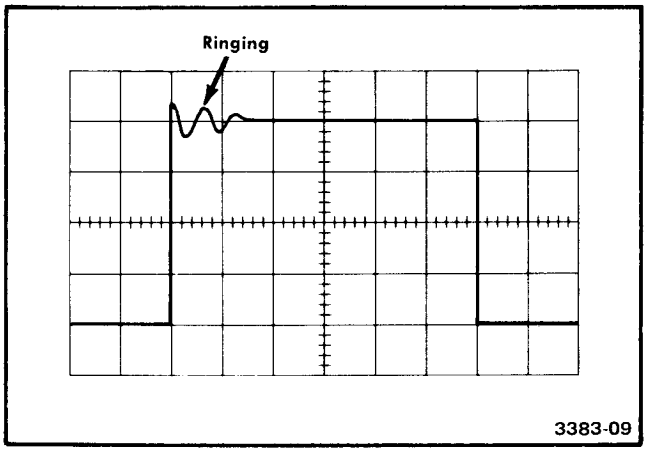



**Fig. 2-8. Typical waveform showing ringing at front corner.**

The carton test strength for this instrument is 200 pounds per square inch.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## 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. REFER TO OPERATORS SAFETY SUMMARY AND SERVICE SAFETY SUMMARY PRIOR TO PERFORMING ANY SERVICE.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# THEORY OF OPERATION

## Primary Power ◇1

The 120 V dc supply is the main power source for the Standard Amplitude system.

The + and −16.5 V dc supply is the main power source for the Digital Voltmeter circuitry, the Fast Rise stages, and two operational amplifier circuits in the Standard Amplitude system.

The −72 V, variable dc supply is the main power source for the High Amplitude section. This supply can vary from about −10 V to about −72 V, dependent upon operating conditions.

All of the above dc supplies are produced by conventional full-wave bridge rectifier circuits that are driven by an inverter system that changes a dc voltage to approximately 25 kHz power in the primary and secondaries of T130. Each supply is switched on or off, dependent upon the operating modes.

The 5.2 V dc supply is derived from a 11.5 V dc source in the power module and is distributed mainly to the Period Generator, Counter circuits, and certain logic gates. This supply is also used as a return for the High Amplitude circuits.

CR10 and CR11, together with C10, convert 25 V ac (rms) from two transformer secondaries in the power module to about 35 V dc. VR10 sets and regulates the base voltage of emitter-follower Q15 to about 15 V, establishing a fixed 14 V supply for the 25 kHz free-running multivibrator (Q90-Q100).

The free-running multivibrator collector output has a peak-to-peak amplitude of about 5 V, and the positive swing is limited to about +5.8 V by CR86 and CR105. This signal drives the bases of Q85 and Q120 for the inverter system. The feedback connections from the collectors of Q80 and Q125, through CR80 and CR125, ensures that both transistors are never on at the same time.

The maximum voltage swing at the collectors of Q80 and Q125 is about twice the dc level established at the junction of L35 and C36 in any operating mode. For the High Amplitude mode, this dc level is dependent on the setting of the PULSE AMPLITUDE control and the external load that terminates the PG 506. With a 1 MΩ (unterminated) load, the dc level will be about 3.5 V for the MIN position and about 20 V for the MAX position.

Remote voltage sensing to regulate the −72 V variable supply originates in the High Amplitude circuit and is applied through CR27 to pin 4 of voltage regulator U20.

When in the Standard Amplitude or Fast Rise mode, the junction of L35 and C36 is about 20 V dc, with the −72 V variable supply disconnected from the High Amplitude circuitry.

Voltage regulation for the Standard Amplitude and Fast Rise modes is dependent upon the peak voltage (about 10 V) developed across C75 by the half-wave rectifier action of CR78, which obtains its ac voltage from a sense winding of T130. The peak level across C75 is applied to a voltage divider composed of R31, R30, and R29. The quiescent level set on pin 4 of U20 by the adjustment of R30 determines the quiescent current through the NPN series-pass transistor. Pin 4 of U20 is the inverting input terminal for an internal comparator, and any voltage change on pin 4 causes a voltage change in the opposite direction on pin 10. A potential difference of 33.0 V across the + and −16.5 V supplies is accomplished by adjusting R30.

Current limiting for the 35 V dc input is controlled by the voltage drop across R22. If pin 2 of U20 goes about 0.6 V more positive than pin 3, pin 10 goes negative to limit current through athe NPN series-pass transistor and the load. CR22 protects a transistor internal to U20. C22 frequency compensates the voltage regulator. VR30 is not normally on; it protects the supply from over-voltage conditions if the potential difference across it exceeds 12 V.

U20 sets its own reference voltage of about 7 V on pin 6, with pin 5 being the non-inverting input to an internal comparator. The reference voltage on pin 6 is divided down by R40 and R42 to set a reference level of 5.2 V on pin 2 of error amplifier U50.

Voltage regulation of the 5.2 V supply is accomplished by comparing the voltage level on pin 3 of U50 with the



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

voltage reference on pin 2. If the voltage on pin 3 is higher than the reference level, the output of U50 goes positive. This voltage increase is applied through emitter-follower Q60 to the base of the PNP series-pass transistor. This action decreases the current in the PNP series-pass transistor and the load, returning the 5.2 V supply to its original level.

VR55 and CR55 operate as current limiting control devices. The normal operating potential at the base of Q60 is about 9.2 V, with VR55 and CR55 not conducting. If the load current increases (due to lower load resistance), pin 3 of U50 goes negative. This drives the base of Q60 negative to about 8.3 V. The action is sufficient to cause VR55 and CR55 to conduct, clamping the emitter of Q60 and the base of the PNP series-pass transistor to about 9 V. R65 limits the load current to about 1.5 A.

An over-voltage condition of about 1 V on the 5.2 V supply causes VR45 to conduct, developing an SCR firing pulse across R45. If Q45 turns on, the output level is clamped to about 0.2 V.

## Standard Amplitude ◇2◇

The Standard Amplitude system consists of two sections, a high-voltage section and a 50 Ω source section. Output amplitudes of 100 V, 50 V and 20 V originate directly from a precision voltage divider composed of R278, R277, R276, R275, and the 5 mA Current Loop. For these three output amplitudes, the input to the 50 Ω source section is disconnected and pin 2 of U375 is grounded through R380. With pin 2 of U375 grounded, its output locks the base of Q365 to +16 V, disabling the current drive for the 50 Ω source section.

The Primary Power section applies 120 V to the emitter of Q280, a 10 mA current source. This 10 mA is split between two branches containing matched diodes; 5 mA through CR280A and the precision dividier and 5 mA through CR280B from the 100 V bus. In the dc mode, Q255 and Q270 are cut off (due to saturation of U255) and the quiescent level at the anodes of the matched diodes is about 100.7 V.

With S225 closed, (VARIABLE AMPLITUDE control pushed in and DEFLECTION ERROR readout off), a 100 V bus is established across a voltage divider composed of R237 and R234. The reference source for the 100 V bus originates with VR210, which produces a 9 V drop when drawing 7.5 mA through R210. The 9 V level across R210 also serves as a reference voltage for the Digital Voltmeter circuit.

When R205 has been adjusted to produce 100.0 V across an external 1 MΩ load, pins 2 and 3 of U200 will be essentially at the same potential (9 V) and pin 6 of U200 is at a quiescent level of about 4 V. The emitter of Q190 will be at 18 V and this point serves as a regulated voltage source to power operational amplifiers in the 50 Ω source section. Because Q190 is included in the feedback loop around U200, the current through VR210 and R210 remains constant.

One mA through R237 and R234 sets a 9 V level on pin 2 of U240. Pin 3 of U240 is returned to the 9 V zener reference through R225A and R215. With almost equal potentials on each side of R225A, the current through this network is in the low mA range. R225A tracks with R225B and serves only as a variable Thevenin input impedance for the non-inverting input terminal of U240, which aids in stabilizing the offset bias current.

U240 and the circuitry associated with Q245 and Q290 operate as a voltage regulating circuit for the 100 V bus. Any voltage change on the 100 V bus is sensed across R237 (or through C237) and applied to pin 2 of U240. Q245 operates as a level shifter and signal inversion through Q290 returns the 100 V bus to its calibrated level. CR290 and CR291 operate to limit turn-on surge current through Q290.

When the VARIABLE AMPLITUDE control is released to the out position, R237 is disconnected from ground and R227 is inserted in series with R225B. The 100 V bus now becomes a variable level. R225B can adjust the 100 V bus over a range of approximately 92—108 V, and the regulating circuit will hold the selected level. The difference in potential between the adjustable level on the 100 V bus and the 9 V zener reference is applied to the Digital Voltmeter circuitry for DEFLECTION ERROR readout (100 V equals 0.0%).

When the 1 kHz (calibrated amplitude) mode is selected, a 1 kHz squarewave is applied to the base of Q270 through U255 and emitter follower Q255. The positive step on the base of Q270 saturates this transistor, pulling its collector below 0.4 V. This action disconnects CR280A and CR280B, allowing the voltage swing across the precision divider to start from ground and rise to the level selected on the variable bus when Q270 is cut off by the negative step of the 1 kHz signal.

The 50 Ω source section must drive either a 1 MΩ or 50 Ω external load resistance. This requirement is met by using a constant-current supply; which, by definition, will alter its output voltage by just the proper amount to maintain its total output current at a constant value when the load resistance changes. The 50 Ω source section operates only when amplitude settings of 10 V or lower are selected.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

A nominal 14 V input to the 50 Ω source section is derived from the precision divider at the junction of R275 and R276 and applied to pin 2 of U375 (R380 is disconnected from ground). This input voltage will always be a dc level proportional to the dc level established on the 100 V bus. U375 and Q365 operate as a tracking voltage source. If the input to U375 changes by 5%, the collector voltage of Q365 changes by 5%.

The constant-current supply is programmed by current-setting resistors in series with the emitter of Q325 and the collector of Q365 to produce three selected output current levels through CR320. Selected calibrated currents of 200 mA, 100 mA, or 40 mA split between three branches consisting of R316, the symmetrical pi (ladder) attenuator network, and the external load. With R340 properly adjusted, three voltage levels (10 V, 5 V, or 2 V) can be selected to appear across R316 for an external termination of 1 MΩ. With an external termination of 50 Ω, the three selected levels across R316 will drop to 5 V, 2.5 V, or 1 V. Each section of the ladder attenuator divides by 10 and if the level across R316 is considered to be a 0 dB reference, the total attenuation is 80 dB (20 dB per section). The attenuator presents an output impedance of 50 Ω at any voltage take-off point.

Regulation for the constant-current supply is provided by the operational amplifier feedback connections from the current-setting resistors low level end through U330 to the base of Q326. Q320 is cut off for the dc mode and operates as a saturating switch for the 1 kHz mode.

## Digital Voltmeter ◇3

The Digital Voltmeter circuitry is an analog-to-digital converter, that operates on the principle of a modified dual-slope integrating system. A change in input current to integrator U460 causes a ramp voltage to appear at pin 6. At a given time during the ramp, C462 is discharged by a reference current of opposite polarity. At the time the discharge current is applied, a counter is at a count of 200 (00). When the integrated waveform on pin 3 of differential comparator U470 (zero crossing detector) reaches zero, a number in the counter is stored. The accumulated counts are displayed as being proportional to the value of the input voltage applied; a higher input voltage means a longer time to zero crossing, thus a higher count. It takes a few cycles of dual-slope integration for the analog-to-digital convertor system to settle down for a stable readout.

A non-linear reciprocal relationship exists between the Standard Amplitude output from the PG 506 and the actual deflection error of an oscilloscope amplifier system. Consequently, to indicate a deflection error that is 6.8% LOW, the output from the PG 506 must be adjusted to be 7.3% high (variable 100 V bus set to 107.3 V). For an indicated deflection error of 7.3% HIGH, the variable 100 V bus must be adjusted for 93.2 V. It is the voltage changes on the variable 100 V bus that result in a DEFLECTION ERROR readout.

Assume that the Latch Pulse for the counter has just occured. The nominal calibrated level (0.0%) on pin 3 of U460 is 9 V. A decrease in voltage on the 100 V bus pulls pin 3 of U470 negative below zero and C462 begins to charge through R460, producing the first ramp after the Latch Pulse. During this charge time, the output of U470 is high and the counter is counting up to a count of 200 (00). Q475 is turned on and light-coupled through U480 to the base of Q480. The collector of Q480 is high, turning on CR480 and HIGH indicator light DS480.

The system contains two reference current sources; a $+I_r$ source from the collector of Q415 and a $-I_r$ source from the collector of Q400. Only one of these current sources is switched on at a given time, dependent on the polarity of the voltage change on the 100 V bus. For a ramp that is negative, pin 5 of U400B is set high and pin 1 of U400A is set to a low. Pins 2 and 4 of these NAND gates connect to a common control line and, while the counter is counting up to a count of 200 (00), pin 8 of U400C is at a low level. During the first ramp period, the output levels of U400A and U400B are high and both reference current sources are cut off. See Fig. 3-1.

When the counter has reached a count of 200 (00), a negative-going Full Pulse appears on pin 9 of U400C. This Full Pulse switches the common control line (pin 8) to a high level. Pin 3 of U400A remains high while pin 6 of U400B goes low, turning off Q410. Q415 is switched on for the $+I_r$ discharge current to C462. The ramp on pin 3 of U470 switches polarity (runs toward zero). The counter begins to accumulate the necessary counts for display. Q435 has been turned on by the Full Pulse and light-coupled through U535 to the emitter of Q540, cutting this transistor off.

When the ramp crosses the 0 V level, a negative-going Latch Pulse occuring on pin 7 of U470 is transmitted through C506 and CR502 to pin 13 of U400D. This Latch Pulse switches pin 8 (common control line) of U400C to a low, locking out both reference current sources and turning off Q535. A positive-going Latch Pulse appears at the collector of Q565 to store the count in the counters for display. After the Latch Pulse has been produced at zero crossing, C462 again starts to charge through R460 (ramp increases in a negative direction) and the cycle repeats.

For input voltages above 100 V, the circuit action is similar to the action just discussed; except that the dual ramps on pin 3 of U470 are positive, DS482 is turned on for a LOW indication of DEFLECTION ERROR, and the $-I_r$



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

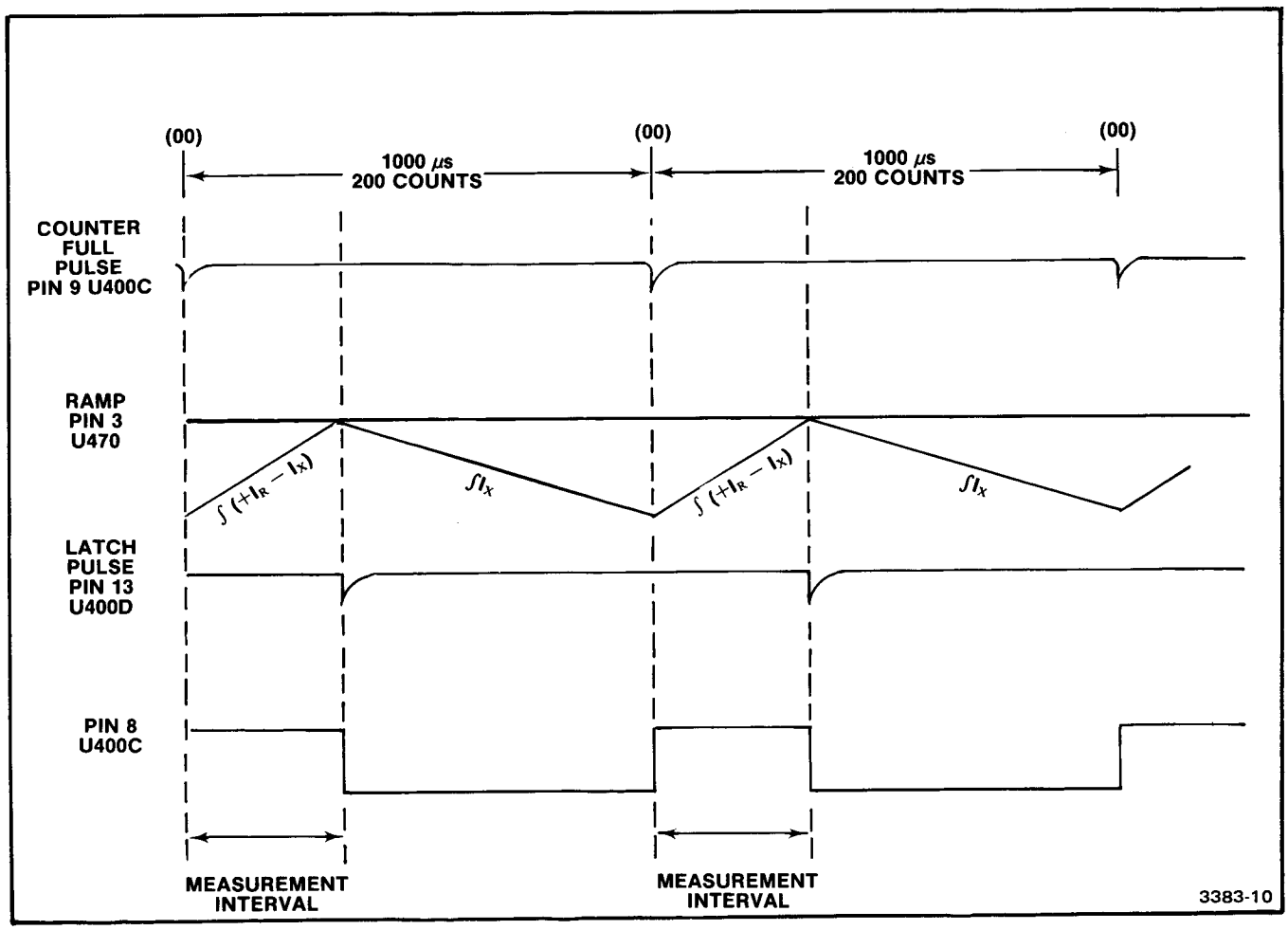



**Fig. 3-1. DVM timing diagram for a negative input to the integrator U460.**

reference current source is used to discharge C462. For positive ramps, the Latch Pulse occuring at zero crossing is transmitted through C500 and CR500 to pin 13 of U400D.

Reference currents from both reference sources track with changes on the 100 V bus and in the same direction, allowing the instrument to be calibrated directly for oscilloscope deflection error rather than output amplitude from the PG 506. The adjustment of R415 calibrates the HIGH indication, while the adjustment or R425 calibrates the LOW indication.

CR395 and CR397 protect components in the DVM circuitry if the + and −16.5 V input connections are accidentally reversed.

## Period Generator and Display ◇4

The Period Generator circuit consists of six transistors (Q575, Q580, Q585, Q595, Q605, and Q610) and timing capacitor C580 in series with main timing resistors R587, R590, and R593. These components set a basic 0.5 μs period (2 MHz square-wave signal) for the entire instrument.

The timing capacitor and resistor(s) have a common connection at the base of Q580. The signal on the base of Q580 is basically a linear ramp (with switching transients) that causes the output level at the collector of Q605 to go high and low when the ramp crosses the hysteresis limits of the circuit.

Assume that when power is applied, Q575 turns on and Q580 turns off. This action also turns off Q595, setting one end of the timing resistors to the saturated level at the collector of Q595. The base of Q580 now begins a ramp rundown toward the lower limit of the hysteresis window. C580 is charging toward a 5 V supply through R582 and the timing resistors. When the ramp at the base of Q580 crosses the lower limit of the hysteresis window, Q580 turns on and Q575 turns off. This action turns Q585 on and



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Q595 off. R593 is now disconnected from essentially a ground potential and connected to a 5 V supply through Q610. The effective voltage across the timing resistors has now changed polarity and C580 begins to discharge because the emitter of Q585 is essentially at zero. The base of Q580 begins a ramp runup toward the upper limit of the hysteresis window. When the ramp crosses the upper limit, Q580 is again turned off and Q575 turned on, reconnecting the timing resistors to the collector level of Q595. The voltage swing across R600 (caused by Q580 turning on and off) are inverted by Q605 and applied as TTL levels to pin 14 of U665.

U665, U666, U667, and U668 operate as a divide-by-ten frequency dividers (multiplies input period by ten) with a 0.2 kHz (5 ms) square-wave on pin 11 of U668 and a 5 $\mu$s (200 kHz) square-wave on pin 11 of U665. Input data for the counter latch circuits originates on pins 1, 12, 9, 8, and 11 of U666 and U667, respectively. BCD data from the counter latches (U670-U671) is decoded by U673 and U675 to drive the seven-segment LED displays (DS700-DS702).

U610A and U610B are each one-half of a dual J-K master-slave flip-flop. The input to pin 1 of U610A is always a 2 kHz signal, obtained from pin 11 of U667. Pin 12 of U610 is a Q terminal and the 1 kHz output signal is used to drive the diode section of U255 in the Standard Amplitude circuitry. To remove the 1 kHz drive to the Standard Amplitude circuitry when it is not needed, pin 2 of U610A is held low, which sets pin 12 to a logical zero. The Standard Amplitude circuitry is in a dc mode when pin 2 is grounded by the closure of S660. For the High Amplitude mode, pin 2 is grounded through CR661; for the Fast Rise mode, through CR660. CR656 and CR657 provide ground connections for the PERIOD light when the PG 506 is used as a Pulse Generator.

The input signals to U610B (as selected by the PERIOD control) are obtained from the frequency dividers (pin 11) or directly from the 2 MHz Period Generator. The period of the output signals on pins 8 and 9 of U610B are twice the selected input period. These signals are applied to NAND gates U615B and U615C to drive the High Amplitude or Fast Rise circuits. The drive signals on one input terminal of a NAND logic device are gated through with inverted polarity if the other input terminal is held high. The +TRIG OUT signals are supplied by inverter connections of U615A and U615D. To remove (lockout) drive signals through both NAND gates when they are not needed (Standard Amplitude mode), pin 6 of U610B is held low by the closure of S180A-5B. This action sets pin 9 of U610B to a logical zero (low) and pin 8 to a logical one (high).

The closure of S180A-7B locks out drive signals to the High Amplitude circuitry when the instrument is in a Fast Rise mode; for the High Amplitude mode, the closure of S180A-6B locks out signals to the Fast Rise circuitry.

To disable the High Amplitude power supply when operating in a Standard Amplitude mode, CR616 is grounded through S180A-5B. When operating in a Fast Rise mode, CR615 is grounded through S180A-7B.

## High Amplitude ◇5

The negative-going output, with Q745 and Q758 supplying the current, is developed across resistor R805 and the external load. CR755 and CR756 operate as disconnect diodes at the 0 V output levels. The specified reference is the positive-going edge of the output waveform, requiring that Q745 be switched off for the output to swing from a negative potential to ground. Q760 serves as a 2 mA current shunt through disconnect diodes CR766 and CR767. This circuit absorbs the leakage currents from Q745 and Q758 during transitions and adds a slight amount of reverse bias to the output disconnect diodes, improving the risetime and ensuring very sharp corners for the output voltage swing.

The transistors Q745 and Q758 are connected in cascode and the voltage transitions at the base of Q745 determines the output current swing. A negative transition at the base of Q745 requires a negative-going transition at the base of Q715 to saturate Q730 and cut off the output current.

The High Amplitude circuitry is floating on a variable power supply with limits of about −10 V to a maximum of about −72 V. The collectors of Q725, Q740, and Q790 translate the dc (and signal) levels from ground to a negative supply for the output stages and amplitude control circuitry. Q790 is a 4 mA current source that floats the amplitude control circuitry at about 6 V more positive than the variable supply voltage level.

R736 in the emitter of Q736, along with R746 in the emitter of Q745, are chosen so that the current into these nodes is a function of the actual supply voltage. The actual current that enters Q745 is controlled by the base voltage and the voltage drop across R745. The emitter of Q736 is a low-impedance driving point that controls the output current limits. Q736 also temperature-compensates the base junction of Q745. The base of Q736 (and the collector of Q782) is considered to be a zero temperature coefficient voltage point.

The PULSE AMPLITUDE control is R785A, located in the base circuit of Q784. This control obtains its reference voltage from across VR790. Q780 and Q784 form a differential circuit with Q780 connected as a diode for



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

temperature compensation. Q736 is driven by Q782, which adds additional gain to set the base of Q780 equal to the base of Q784. R784 sets the minimum output current limit and R790 is adjusted to set a 5.2 V output amplitude across a 50 Ω load. CR734, connected between the variable supply and the most negative level of the amplitude control circuitry, allows an additional 0.7 V voltage drop across Q780 and Q782, thereby improving the amplitude linearity.

The sensing point to regulate any one level of the variable supply is at the collector of Q790. A drift in the supply voltage is level shifted through VR790 and applied to pin 2 of U840. CR27 is turned on to control the level at pin 4 of U20, the voltage regulator in the Primary Power supply.

The actual voltage of the variable supply is made a function of the negative peak levels of the output signal. The negative peaks are sampled through CR800 and emitter-follower Q800 to store a charge on memory capacitor C800. If the output signal amplitude is increase (larger negative peaks), pin 3 of U840 goes negative. A negative charge on pin 4 of U840 results in a larger dc supply for the inverter system in the Primary Power circuit and the variable supply to the High Amplitude circuit goes more negative. The net result is that the voltage drop across the output transistors remains relative constant. The variable supply tracks with the selected output amplitude and in the same direction. The emitter of Q745 is connected through VR790 to pin 2 of U840; the drain of Q758 is connected through Q800 to U840 pin 3. Because an operational amplifier (U840) always attempts to reduce the voltage difference between its input terminals to zero, the constant voltage drop across the output transistor network is essentially equal to the drop across VR790 plus about 2 to 7 V across other components in the feedback loop.

## Fast Rise ◇6

The Fast Rise circuit produces two output signals that occur simultaneously. Q935 and Q995 operate as non-saturated current-mode switching sources for the output signals. CR944 and CR1004 are disconnect diodes that have very low leakage current characteristics at zero-bias levels. These levels occur when Q935 and Q995 are cut off.

In order to produce 1 V across a 25 Ω load (50 Ω termination in parallel with either R950 or R1010) it requires 40 mA. This current is available through resistors in series with the emitters of Q935 and Q995. A negative transition occurs at J950 when Q935 is turned off and a positive transition occurs at J1010 when Q995 is turned off. Both transistors turn off simultaneously with R935 and R995 providing return paths for leakage currents. C940 and C1000 are provided to reduce excessive overshoot and ringing. R940 and R1000 are selected for minimum aberrations and maximum risetime with an optimum value of 120 Ω.

Simultaneous amplitude control of the output signals is accomplished by diverting current from the emitters of Q935 and Q995 through the series path of Q1036 and Q1045. The voltage drop across R1040 is controlled by the adjustable voltage level at the emitter of Q1030, a low impedance source for the base of Q1036. Q1020 operates as a current switch to set the collector of Q1030 to about 5 V when the Fast Rise mode is selected. R1025 sets the minimum amplitude available at the output and R785B controls the minimum and maximum amplitudes.

When the Fast Rise mode is switched off, the + and −16.5 V supplies are switched off. The collectors of Q1020 and Q1030 drop to about zero, driving the base of Q1036 negative. This action completely cuts off the leakage currents that might have existed in the collectors of Q935, Q1036, Q995, and Q1045 if the collector of Q1030 had been tied to a fixed 5 V source. This arrangement ensures that the output connectors rest at a 0 V level with the instrument is not in a Fast Rise mode.

Q860 and Q862 operate as a Schmitt trigger for the Fast Rise circuit, with VR866 providing positive feedback and Q850 serving as a constant-current source. A positive-going pulse at the base of Q860 results in a negative-going pulse at the collector of Q880 and a positive-going pulse at the collector of Q890, where the transitions are speeded up and translated to ground levels by R882 and R892. At this point, the signal currents are split into two paths through differential amplifiers (Q900-Q910 and Q960-Q970). For a positive-going input to the base of Q960, the emitter of Q935 is driven negative by the saturation of Q920 and the emitter of Q995 is driven positive by the saturation of Q980.

CR1062 and CR1067 protect the Fast Rise circuit components if the wiring plug to the circuit board is accidentally reversed. The diodes in the base circuits of Q1030 and Q1045 are for temperature compensation.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# CALIBRATION PROCEDURE

## PERFORMANCE CHECK PROCEDURE

### Introduction

The performance check procedure checks the electrical performance requirements listed in the Specification section in this manual. Perform the Adjustment procedure if the instrument fails to meet these checks. If recalibration does not correct the discrepancy, troubleshooting is indicated. This procedure may be used to determine acceptability of performance in an incoming inspection facility.

For convenience, many steps in the procedure check the performance of this instrument at only one value in the specified performance range. Performance requirements for various temperature ranges are listed in this procedure. When performing the procedure, use only the limits listed for the ambient temperature that the instrument is operating in.

### Calibration Interval

To ensure instrument accuracy, check the calibration every 2000 hours of operation or a minimum of every six months if used infrequently.

### Services Available

Tektronix, Inc. provides complete instrument repair and adjustment 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

The following test equipment or equivalent is suggested to perform the Performance Check and Adjustment Procedure.

**Table 4-1**

**TEST EQUIPMENT REQUIRED**

| Description | Performance Requirements | Applications | Example |
|---|---|---|---|
| Oscilloscope System | 200 MHz vertical bandwidth 1 mV/div at 60 Hz; 5 mV/div to 5 V/div | Waveshape and amplitude measurements, Risetime | TEKTRONIX 7704A<br>TEKTRONIX 7A16A[a]<br>TEKTRONIX 7B80[a]<br>TEKTRONIX 7A11[a] |
| Sampling System | Risetime—30 ps or less, 2 mV to 200 mV sensitivity; Time/Div 10 ps to 5 ms. | Risetime and aberration measurements | TEKTRONIX 7S11[a]<br>TEKTRONIX S-6<br>TEKTRONIX 7T11[a] |
| Precision Volt/Ohmmeter | 100 Vdc to 100 mV +0.025% accuracy; resistance from 50 Ω to 1 kΩ within ±0.05% | Dc voltage and resistance measurements | JOHN FLUKE Model 8375A |
| 50 Ω Termination | 0.1% accuracy, bnc connectors | | Tektronix Part No. 011-0129-00 |
| Power Module | | All tests | Compartments for the PG 506 (1) and other TM 500-Series equipment used. |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 4-1 (cont)

TEST EQUIPMENT REQUIRED

| Description | Performance Requirements | Applications | Example |
|---|---|---|---|
| 50 Ω Termination (2 required) | Bnc connectors | | Tektronix Part No. 011-0049-01 |
| 50 Ω Termination | Sma connectors | | Tektronix Part No. 015-1022-00 |
| 50 Ω Attenuator | 10X, bnc connectors | | Tektronix Part No. 011-0059-02 |
| 50 Ω Attenuator | 10X, sma connectors | | Tektronix Part No. 015-1003-00 |
| Cable | 18", 50 Ω, bnc connectors | | Tektronix Part No. 012-0076-00 |
| Cable | 42", 50 Ω bnc connectors | | Tektronix Part No. 012-0057-01 |
| Cable, Precision (2 required) | 36", 50 Ω, bnc connectors | | Tektronix Part No. 012-0482-00 |
| Adapter | Female to female, bnc connectors | | Tektronix Part No. 103-0028-00 |
| Adapter (2 required) | Male to male, sma connectors | | Tektronix Part No. 015-1011-00 |
| Adapter | Male sma to female bnc connector | | Tektronix Part No. 015-1018-00 |
| Tunnel Diode Pulser | | Sampling system verification | Tektronix Part No. 067-0645-02 |
| Extender Cable | To match power module and PG 506 connectors | | Tektronix Part No. 067-0645-02 |
| 20 mA Constant Current Source | See the Maintenance Section for details | Attenuator Accuracy | |
| Time-mark Generator | 1 ns, within 0.1% | Sampling system verification | TEKTRONIX TG 501[b] |

[a] **Requires a TEKTRONIX 7000-Series Mainframe.**

[b] **Requires a TEKTRONIX TM 500-Series power module.**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

### Preliminary Procedure

1. Ensure that all power switches are off.

2. Ensure that all test equipment and the power module into which the PG 506 under test will be installed are suitably adapted to the line voltage to be applied.

## PERFORMANCE CHECK PROCEDURE

### 1. Check High Amplitude Output Resistance: within 5%

a. Connect the precision volt/ohmmeter to the AMPL OUTPUT HIGH or STD connector.

b. Set the function switch to HIGH AMPL.

c. CHECK—that the output resistance is 600, ±30 Ω.

### 2. Check Std Ampl Output Resistance: within 0.5%

a. Set the function switch to STD AMPL.

b. Set the AMPLITUDE (VOLTS INTO 1 MΩ) to the counterclockwise position.

c. CHECK—that the resistance is 50, ±0.25 Ω.

### 3. Check Fast Rise Output Resistance: within 5%

a. Connect the precision volt/ohmmeter to the FAST RISE OUTPUTS left hand connector.

b. CHECK—that the output resistance is 50, ±1.5 Ω.

c. Connect the precision volt/ohmmeter to the FAST RISE OUTPUTS right hand connector.

d. Repeat part b.

### 4. Check Standard Amplitude dc Voltages (into 1 MΩ)

a. Remove the PG 506 side cover to gain access to the internal DC—Pulse switch. Pull the rear end of the side cover outward from the instrument side (the cover snaps into place).

b. Set the internal DC—Pulse (S660) switch to DC (up).

c. Replace the side cover on the PG 506 and install the PG 506 into the power module.

d. Connect the power module(s) and test equipment to a suitable line voltage source. Turn all equipment on and allow at least 20 minutes for the equipment to warm up and stabilize.

e. Set the precision volt/ohmmeter to measure 100 Vdc.

*NOTE*

*A shunt of the voltmeter input terminals is required that ensures that the total load resistance on the AMPL OUTPUT connector is 1 MΩ within 0.1%; e.g., 1.11 Ω load resistor with a voltmeter that has a 10 MΩ input impedance.*

f. Connect the PG 506 AMPL OUTPUT HIGH or STD to the 1 MΩ voltmeter input.

g. Set the PG 506 AMPLITUDE switch as listed in Table 4-2.

h. CHECK—that the voltmeter reads within the given limits as listed in Table 4-2.

**Table 4-2**
**STANDARD AMPLITUDE (INTO 1 MΩ) WITHIN 0.25%, ±1 μV**

| AMPLITUDE Setting | Limits | | |
|---|---|---|---|
| 100 | 99.75 V | to | 100.25 V |
| 50 | 49.875 V | to | 50.125 V |
| 20 | 19.95 V | to | 20.05 V |
| 10 | 9.975 V | to | 10.025 V |
| 5 | 4.9875 V | to | 5.0125 V |
| 2 | 1.995 V | to | 2.005 V |
| 1 | 0.9975 V | to | 1.0025 V |
| .5 | 0.49875 V | to | 0.50125 V |
| .2 | 0.1995 V | to | 0.2005 V |
| .1 | 0.09975 V | to | 0.10025 V |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

i. RECORD—the voltmeter reading for the .1 Amplitude setting.

j. Turn off the power module and remove the PG 506.

k. Connect the variable 20 mA current source positive lead to the top or R308. See Fig. 4-1.

l. Connect the variable 20 mA current source negative lead to the common floating ground. See Fig. 4-1.

m. Set the 20 mA variable current source output to obtain a voltmeter reading exactly ten times the 6-digit voltage recorded in part i.

n. Set the PG 506 AMPLITUDE control to 10 mV.

o. CHECK—that the voltmeter reading is 0.10025 to 0.09975 V.

p. RECORD—the actual voltmeter reading for the 10 mV range.

q. Connect the variable 20 mA current source positive lead to the top of R304. See Fig. 4-1.

r. Set the current source output to obtain a voltmeter reading exactly ten times the 6-digit voltage recorded in part p.

s. Set the PG 506 AMPLITUDE control to 1 mV.

t. CHECK—that the voltmeter reading is 0.10025 to 0.09975 V.

u. Disconnect the 20 mA variable current source and plug the PG 506 into the power module.

v. Turn on the power module and allow 20 minutes warm-up before continuing.

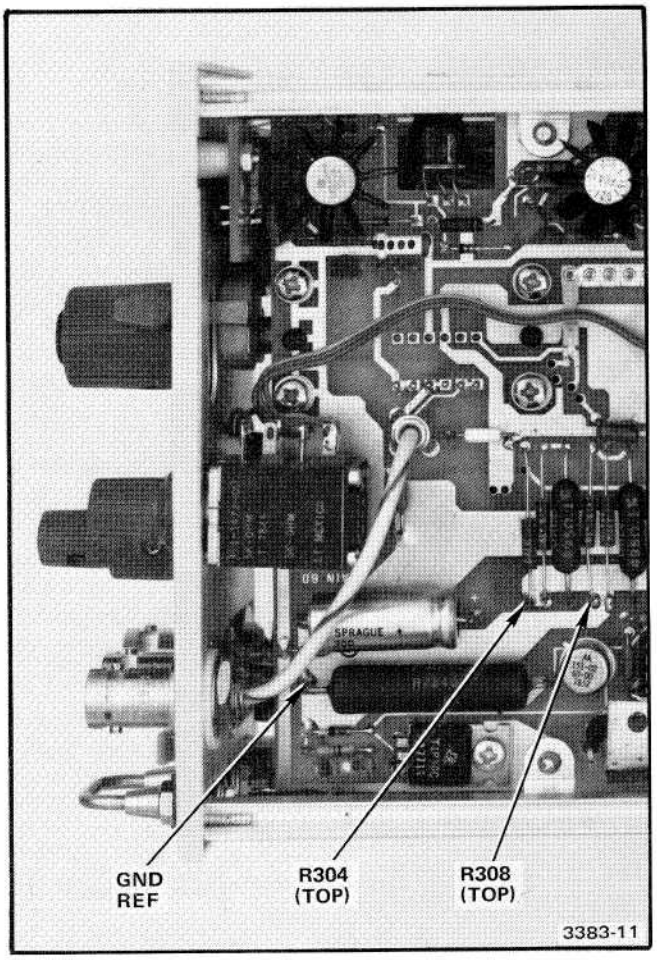



**Fig. 4-1. Attenuator connections for current source.**

### 5. Check DEFLECTION ERROR Range; + & −7.5%, resolution within 0.1%

a. Set the precision volt/ohmmeter to measure 100 Vdc.

b. Set the AMPLITUDE control to 100.

c. Press and release the VARIABLE (OUT) control.

d. Set the VARIABLE (OUT) control for a reading on the precision volt/ohmmeter as listed in Table 4-3.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

e. CHECK—that the DEFLECTION ERROR % readout display is within the display tolerance listed in Table 4-3.

**Table 4-3**

**100 V dc RANGE DEFLECTION ERROR % RESOLUTION TOLERANCES**

| Voltmeter Reading | Display Tolerance |
|---|---|
| 108.5 V | 7.7% to 7.9% LOW lamp lit |
| 107.3 V | 6.6% to 7.0% LOW lamp lit |
| 106.5 V | 5.9% to 6.3% LOW lamp lit |
| 105.6 V | 5.1% to 5.5% LOW lamp lit |
| 104.6 V | 4.2% to 4.6% LOW lamp lit |
| 103.2 V | 2.9% to 3.3% LOW lamp lit |
| 100.0 V | 0.0% to 0.2% LOW or HIGH lamp lit |
| 96.9 V | 3.0% to 3.4% HIGH lamp lit |
| 95.6 V | 4.4% to 4.8% HIGH lamp lit |
| 94.7 V | 5.4% to 5.8% HIGH lamp lit |
| 93.9 V | 6.3% to 6.7% HIGH lamp lit |
| 93.2 V | 7.1% to 7.5% HIGH lamp lit |
| 92.8 V | 7.7% to 7.9% HIGH lamp lit |

f. Set the AMPLITUDE control to 10.

g. CHECK—that the DEFLECTION ERROR % readout display is within 0.1% as listed in Table 4-4.

**Table 4-4**

**10 V dc RANGE DEFLECTION ERROR % RESOLUTION TOLERANCES**

| Voltmeter Reading | Display Tolerance |
|---|---|
| 10.81 V | 7.3% to 7.7% LOW lamp lit |
| 10.56 V | 5.1% to 5.5% LOW lamp lit |
| 10.00 V | 0.0% to 0.2% HIGH or LOW lamp lit |
| 9.47 V | 5.4% to 5.8% HIGH lamp lit |
| 9.30 V | 7.3% to 7.7% HIGH lamp lit |

h. Press in and turn-off the VARIABLE (OUT) control.

## 6. Check Standard Amplitude Voltages (into 50 Ω load)

a. Set the precision volt/ohmmeter to measure 5 V dc.

b. Connect the precision 50 Ω termination to the AMPL OUTPUT HIGH or STD connector.

c. Connect the precision coaxial cable from the termination to the precision volt/ohmmeter input.

*NOTE*

*The Standard Amplitude output voltage accuracy (operating into a 50 Ω load) is highly dependent on the total load resistance. The total load consists of the coaxial cable resistance, all contact resistance, and the termination accuracy. Total load resistance error must not exceed 0.1%.*

d. CHECK—that the voltage readings for the AMPLITUDE settings are within the limits listed in Table 4-5.

**Table 4-5**
**STANDARD AMPLITUDE INTO A 50 Ω LOAD**

| AMPLITUDE Setting | Voltage Reading | Limits |
|---|---|---|
| 10 | 5 V | 4.9875 V to 5.0125 V |
| 5 | 2.5 V | 2.49375 V to 2.50625 V |
| 2 | 1 V | 0.9975 V to 1.0025 V |
| 1 | 0.5 V | 0.498749 V to 0.50125 V |
| .5 | 0.25 V | 0.249374 V to 0.250626 V |
| .2 | 0.1 V | 0.099749 V to 0.100251 V |

e. Remove all connections.

f. Turn off the power module and remove the PG 506.

g. Remove the PG 506 side cover to gain access to the internal DC—Pulse switch (S660). Pull the rear end of the side cover outward from the instrument side (the cover snaps into place).

h. Set the DC—Pulse switch (S660) to Pulse (down).



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

i. Replace the side cover and install the PG 506 into the power module.

j. Turn on the power module power.

k. Allow for a 20 minute stabilization period.

## 7. Check Standard Amplitude Period Accuracy

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| AMPLITUDE | 20 |
| VARIABLE (OUT) | in |
| Function | STD AMPL |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | 5 V |
| Time/Div | .2 ms |

a. Using a 50 Ω coaxial cable, connect the PG 506 AMPL OUTPUT HIGH or STD to the vertical input of the monitor oscilloscope.

b. Set the monitor oscillsocope triggering controls for a stable display.

c. CHECK—for one complete cycle in 5 divisions, ±0.25 divisions.

d. Disconnect the PG 506 from the monitor oscilloscope.

## 8. Check Standard Amplitude Output (into 50 Ω)

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| AMPLITUDE | 10 |
| VARIABLE (OUT) | in |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/DIV | 1 V |

a. Using the 50 Ω coaxial cable and 50 Ω termination, connect the PG 506 AMPL OUTPUT HIGH or STD to the vertical input of the monitor oscilloscope.

b. Set the monitor oscilloscope triggering controls for a stable display.

c. CHECK—for approximately 5 V peak-to-peak of output signal.

## 9. Check High Amplitude Output (into 50 Ω)

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | HIGH AMPL |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |
| PULSE AMPLITUDE | cw |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | 1 V |
| Time/Div | .5 μs |

a. Using the 50 Ω coaxial cable and 50 Ω termination, connect the PG 506 AMPL OUTPUT HIGH or STD to the vertical input of the monitor oscilloscope.

b. CHECK—that the display amplitude is ⩾5 V.

## 10. Check Trigger Out Amplitude

a. Using the 50 Ω coaxial cable and 50 Ω termination, connect the +TRIG OUT to the vertical input of the monitor oscilloscope.

b. Change the Volts/Div to .5 V.

c. CHECK—that the display amplitude is ⩾1 V.

d. Remove all connections.

## 11. Check High Amplitude Output (open ckt)

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | HIGH AMPL |
| PULSE AMPLITUDE | MAX |
| PERIOD | 1 μs 1 MHz |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | 2 V |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

a. Using a 10X probe connected to the vertical input, connect the tip to the AMPL OUTPUT HIGH or STD.

b. Use a probe ground lead and ground the probe.

c. CHECK—that the high amplitude is ≥60 V.

d. Rotate the PULSE AMPLITUDE counterclockwise.

e. Change the monitor oscilloscope Volts/Div to 50 mV (deflection factor with probe of 0.5 V/div).

f. CHECK—that the High Amplitude output is ≤6 V.

g. Remove the probe.

## 12. Check High Amplitude Output Period

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | HIGH AMPL |
| PULSE AMPLITUDE | midrange |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | 1 V |
| Time/Div | .2 μs |

a. Using a 50 Ω coaxial cable and 50 Ω termination, connect the AMPL OUTPUT HIGH or STD output to the vertical input of the monitor oscilloscope.

b. Set the monitor oscilloscope triggering controls for a stable display.

c. CHECK—that the High Amplitude output period display for one full cycle is within the limits listed in Table 4-6.

## 13. Check Fast Rise Output Period

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | FAST RISE |
| PULSE AMPLITUDE | mid range |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | .1 V |
| Time/Div | .2 μs |

a. Using a 50 Ω coaxial cable and 50 Ω termination, connect the positive-going FAST RISE OUTPUTS to the vertical input of the monitor oscilloscope.

b. Set the monitor oscilloscope triggering controls for a stable display.

c. CHECK—that the fast rise output period display for one cycle is within the limits listed in Table 4-6.

d. Change the PG 506 connection to the negative-going FAST RISE OUTPUTS connector and repeat parts b and c.

**Table 4-6**
**FAST RISE AND HIGH AMPLITUDE OUTPUT PERIOD**

| PG 506 Controls | | | Monitor Oscilloscope | |
|---|---|---|---|---|
| PERIOD Setting | | VAR | Time/Div | Display Limits |
| 1 μs | 1 MHz | ccw | .2 μs | 4.75 to 5.25 divisions |
| 10 μs | 100 kHz | ccw | 2 μs | 4.75 to 5.25 divisions |
| .1 ms | 10 kHz | ccw | 20 μs | 4.75 to 5.25 divisions |
| 1 ms | 1 kHz | ccw | .2 ms | 4.75 to 5.25 divisions |
| 10 ms | 100 Hz | ccw | 2 ms | 4.75 to 5.25 divisions |
| 10 ms | 100 Hz | cw | 20 ms | >5 divisions |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## 14. Check Fast Rise Output Amplitude

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | FAST RISE |
| PULSE AMPLITUDE | MAX |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |

**Monitor Oscilloscope**

| | |
|---|---|
| Volts/Div | .2 V |
| Time/Div | 1 μs |

a. Center the display on the monitor oscilloscope.

b. CHECK—that the display amplitude is ≥5 divisions.

c. Change the PG 506 connection to the positive-going FAST RISE OUTPUTS.

d. Repeat part b.

e. Set PULSE AMPLITUDE to MIN and the monitor oscilloscope Volts/Div to 20 mV.

f. CHECK—that the display amplitude is ≤5 divisions.

g. Change the PG 506 connection to the negative-going FAST RISE OUTPUTS.

h. Repeat part f.

*NOTE*

*The following step is used for determining the timing accuracy and response to a voltage step of the sampling system. The procedure need not be accomplished if the sampling system timing accuracy and step response are known.*

## 15. Sampling System Timing Accuracy and Step Response

Set the following controls as indicated:

**Sampling System**

**7S11**

| | |
|---|---|
| mV/Div | 100 |
| Variable | in |
| +Up | in |
| Delay (10 ns range) | midrange |
| Dot Response | midrange |
| Normal (pushbutton) | in |
| Dc Offset | midrange |

**7T11**

| | |
|---|---|
| Slope | + |
| Sequential | in |
| Scan | midrange |
| Rep (pushbutton) | in |
| Time Pos Rng | 50 ns |
| Time/Div | 1 ns |
| Trig Input | Ext 50 Ω 2 V max |

**TG 501**

| | |
|---|---|
| Marker (Sec) | 5-2-in |
| Variable | in |
| 1 ns (pushbutton) | in |

a. Install the S-6 Sampling Head in the 7S11.

b. Make the following connections as indicated:

Sma male to bnc female adapter to the S-6 sampling head upper connector.

TG 501 1 ns Only output through a 50 Ω coaxial cable and 50 Ω termination to the S-6 upper connector.

Sma 50 Ω terminator to the S-6 sampling head lower connector.

Sma male to bnc female adapter to 7T11 Trig Input.

TG 501 +Trigger Out through a 50 Ω coaxial cable to the 7T11 Trigger input.

c. Using the 7S11 Dc Offset, center the display.

d. Using the 7T11 Time Position, place the 50% point of the positive-going sinewave on the second horizontal graticule line.

e. CHECK—that the ninth positive-going sinewave 50% point crosses the tenth horizontal graticule line.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

f. Adjust—7T11 Sweep Cal only if necessary to ensure the 50% point crosses the tenth horizontal graticule line.

g. Remove the TG 501 connections to the sampling system.

h. Using a 50 Ω coaxial cable, connect the PG 506 AMPL OUTPUT HIGH or STD to the TD Pulser input.

i. Connect the TD Pulser to the upper S-6 input connector.

j. Using the necessary adapters and a 10X attenuator, connect the lower S-6 connector (loop thru) output to the 7T11 Trig Input.

k. Using the 7T11 triggering controls, obtain a stable display.

l. Set the 7T11 Time Pos Rng to .5 μs and Time/Div to 1 ns.

m. Adjust the TD Pulser triggered level slowly clockwise to the point where the tunnel diode fires.

n. Using the 7T11 triggering controls and time position, locate the leading pulse edge.

o. Using the 7S11 Variable and DC Offset, obtain a peak-to-peak display of 5 divisions.

p. Using the 7T11 Time Position control, set the leading edge of the pulse at the second horizontal graticule division.

*NOTE*

*Each vertical division now represents 2% of the total pulse amplitude.*

q. Using the 7S11 Dc Offset, center the step top in the display area. Refer to Fig. 4-2.

r. Using the 7T11 Scan control, adjust for a scan rate with minimum display flicker.

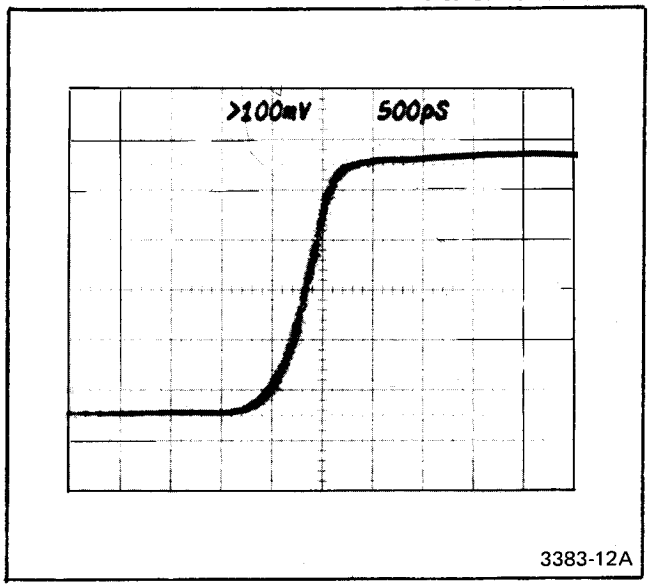



**Fig. 4-2. Typical response curve of sampling system.**

s. The sampling system aberrations can now be determined, and noted (for use in checking risetime and aberrations). Refer to Fig. 4-2.

## 16. Check Fast Rise Output Aberrations and Risetime

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | FAST RISE |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |

**7T11**

| | |
|---|---|
| Time Pos Rng | 0.5 μs |
| Time/Div | 50 ns |

**7S11**

| | |
|---|---|
| mV/div | 100 mV |
| Variable | in |

a. Using the 7T11 triggering controls, obtain a stable display.

b. Using the PG 506 PULSE AMPLITUDE control, obtain a 5 division peak-to-peak display.

c. Set the 7T11 Time/Div to 1 ns.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

d. Using the 7T11 Time Position control, maintain the display on screen.

e. Set the 7S11 mV/Div to 10 mV.

f. Using the 7S11 Dc Offset control, position the top of the pulse in the display area.

g. CHECK—that the aberrations are within 2% (1 div). Refer to Fig. 4-3.

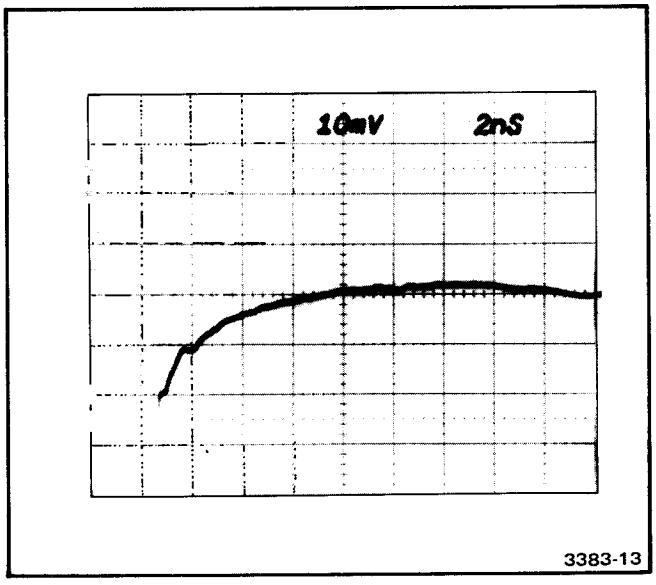



**Fig. 4-3. Typical sampling oscilloscope response display.**

h. Disconnect the coaxial cable from the positive-going FAST RISE OUTPUTS connector and connect it to the negative-going FAST RISE OUTPUTS connector.

i. Set the 7S11 mV/Div to 100 mV and the +Up/Invert switch to Invert.

j. Repeat parts a through f of this step.

k. CHECK—that the aberrations are within 2% (1 div). Refer to Fig. 4-4.

l. Set the following controls as indicated:

| | |
|---|---|
| 7S11 mV/div | 100 mV |
| 7T11 Time/Div | 0.5 ns |

m. Using the PG 506 PULSE AMPLITUDE control, obtain 5 divisions display amplitude.

n. Position the display to measure the risetime. Refer to Fig. 4-2.

o. CHECK—that risetime between the 10% and 90% point on the waveform is ≤1 ns.

p. Disconnect the coaxial cable from the negative-going FAST RISE OUTPUTS connector and connect it to the positive-going FAST RISE OUTPUTS connector.

q. Set the 7S11 +Up/Invert switch to +Up.

r. Using the PG 506 PULSE AMPLITUDE control, obtain 5 divisions display amplitude.

s. Position the display to measure the waveform risetime. Refer to Fig. 4-4.

t. CHECK—that the risetime between the 10% and 90% point is ≤1 ns.

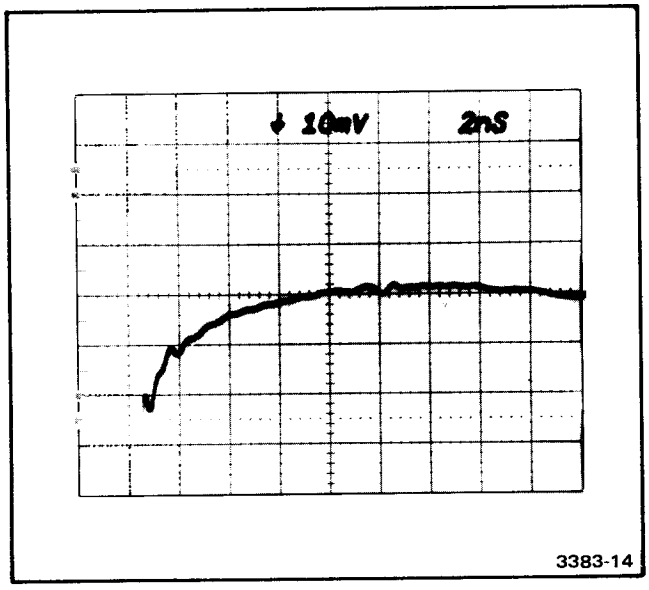



**Fig. 4-4. Typical sampling oscilloscope response display.**

## 17. Check Fast Rise Output Flatness

a. Set the 7T11 Time Pos Rng to 5 s and Time/Div to 50 ns.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

b. Using the 7T11 Time Position, set the rising edge of the display waveform on the first vertical graticule line.

c. CHECK—that the display waveform (following the first 10 ns or 0.2 div) flatness is within 0.25 divisions.

d. Disconnect the coaxial cable from the positive-going FAST RISE OUTPUTS connector and connect it to the negative-going FAST RISE OUTPUTS connector.

e. Set the 7S11 +Up/Invert to Invert.

f. Repeat parts b and c for the negative-going Fast Rise output.

## 18. Check High Amplitude Output Risetime and Aberrations

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | HIGH AMPL |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |
| PULSE AMPLITUDE | MAX |

**7S11**

| | |
|---|---|
| mV/Div | 100 |
| +Up/Invert | +Up |
| Dot Response | midrange |
| Normal | in |
| Sequential | in |

**7T11**

| | |
|---|---|
| Time Pos Rng | 5 μs |
| Time/Div | .1 μs |
| Sequential | in |
| Slop − | in |
| Trig Input | Ext 50 Ω 2 V Max |
| Trig Amp | X1 |

a. Using a 50 Ω precision coaxial cable, 10X attenuator, and sma to bnc female adapter, connect the AMPL OUTPUT HIGH or STD connector to the S-6 upper connector.

b. Using the 7S11 Variable and dc Offset controls, obtain a 5 division peak-to-peak amplitude display.

c. Set the 7T11 Time/Div to 50 ns.

d. Using the 7T11 Time Position and 7S11 dc Offset, place the 50% point of the positive-going waveform at the first vertical graticule line.

e. Set the 7S11 mV/Div to 10.

f. Using the 7S11 dc Offset, align the waveform with the vertical graticule.

g. CHECK—that the aberrations are ≤2% in the first 50 ns.

h. Set the 7S11 mV/Div to 100 and the 7T11 Time/Div to 5 ns.

i. Using the 7S11 dc Offset and 7T11 Time Position, center the display.

j. CHECK—that risetime between the 10% and 90% point is ≤10 ns.

k. Remove the sampling system connections and plug-ins from the 7000-Series oscilloscope and install the real-time oscilloscope plug-ins.

l. Using an FET probe, connect the test oscilloscope vertical input directly to the AMPL OUTPUT HIGH or STD connector.

m. Set the following controls as indicated:

**Test Oscilloscope**

| | |
|---|---|
| Volts/Div | 20 |
| Time/Div | 50 ns |

n. Using the test oscilloscope triggering controls, obtain a stable display.

o. Using the vertical variable sensitivity and horizontal controls, place a 5 division positive-going waveform at midscreen.

p. CHECK—that risetime between the 10% and 90% point is ≤100 ns.

This completes the Performance Check.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# ADJUSTMENT PROCEDURE

## Introduction

This adjustment procedure is to be used to restore the PG 506 to original performance specifications. Adjustment need not be performed unless the instrument fails to meet the Performance Requirements of the Electrical Characteristics listed in the Specification section, or the Performance Check cannot be completed satisfactorily.

Completion of all adjustment steps in this procedure ensures that the instrument will meet the performance requirements listed in the Specification section. However, to fully ensure satisfactory performance, it is recommended that the Performance Check be performed after any adjustment is made.

## Adjustment Instructions

The alphabetical instructions under each step (a, b, c, etc.) may contain Check, Examine, or Adjust as the first word of the instruction. These terms are defined as follows:

1. Check—indicates that the instruction accomplishes a performance requirement check. Each performance requirement is derived from the instrument specification as listed in the Electrical Characteristics in Section 1.

2. Examine—usually precedes an Adjust instruction and describes how to determine whether the adjustment is necessary. Measurement limits following the word Examine are not to be interpreted at performance limits derived from the instrument specifications. They are provided as indicators of a properly functioning instrument and to aid in the adjustment process.

3. Adjust—describes which adjustment to use to make the desired result. We recommend that adjustments not be made if a previous Check or Examine instruction indicates that no adjustment is necessary.

## Adjustment Interval

To maintain instrument accuracy, check the performance of the Calibration Generator every 500 hours of operation, or every three months if used infrequently.

## Services Available

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

## Preparation

a. Remove the side covers of the PG 506 to gain access to the adjustments. Pull the rear end of the side cover outward from the side of the instrument (the cover snaps into place).

b. Be sure that the power module power switch is off. Set the power module for the line voltage to be applied and connect it to the line voltage source.

c. Install the other TM 500-Series equipment into the power module.

d. Connect the extender cable to the power module and connect the PG 506 to the extender cable.

e. Turn on all test equipment and allow 30 minutes for warm up and stabilization.

## 1. Adjust Primary Power Voltage

Set the following controls as indicated:

**PG 506**

| | | |
|---|---|---|
| Function | FAST RISE | |
| AMPLITUDE | 100 | |
| VARIABLE (OUT) | in | |
| PULSE AMPLITUDE | MIN | |
| PERIOD | 1 μs | 1 MHz |
| VAR | ccw | |

a. Connect the voltmeter high input lead to the +16.5 V test point. Refer to Fig. 4-5.

b. Connect the voltmeter low input lead to the −16.5 V test point.

c. Examine—that the voltmeter indicates +32.8 Vdc to +33.2 Vdc.

d. Adjust—Primary Pwr, R30 for 33.0 Vdc.

e. Disconnect the leads.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

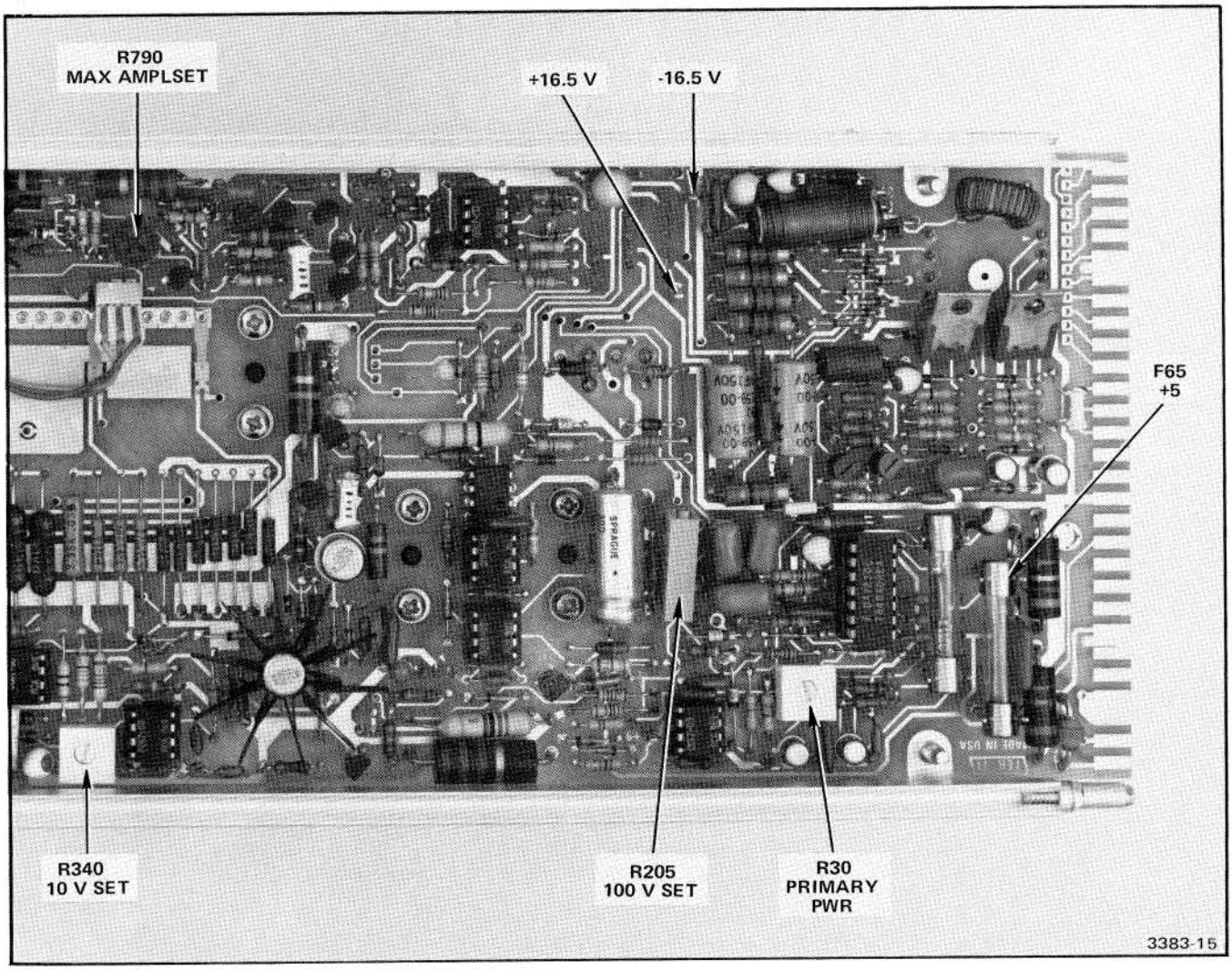



**Fig. 4-5. Adjustment locations for the A1 Main circuit board.**

## 2. Check +5 V Power Supply

a. Connect the voltmeter low input lead to a convenient ground.

b. Connect the voltmeter high input lead to the top end of F65. Refer to Fig. 4-5.

c. Check—that the +5 V supply voltage is +4.75 Vdc to +5.25 Vdc.

d. Disconnect the leads.

## 3. Adjust 100 V and 10 V Set

Set the following controls as indicated:

| PG 506 | |
|---|---|
| Function | STD AMPL |
| AMPLITUDE | 100 |
| VARIABLE (OUT) | in |
| DC— (S660) | DC (up) Refer to Fig. 4-6. |

a. Set the precision volt/ohmmeter to measure 100 Vdc.

*NOTE*

*A shunt of the voltmeter input terminals is required that ensures that the total load resistance on the AMPL OUTPUT HIGH or STD connector is 1 MΩ within 0.1%, e.g., 1.11 MΩ load resistor with a voltmeter that has a 10 MΩ input impedance.*



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

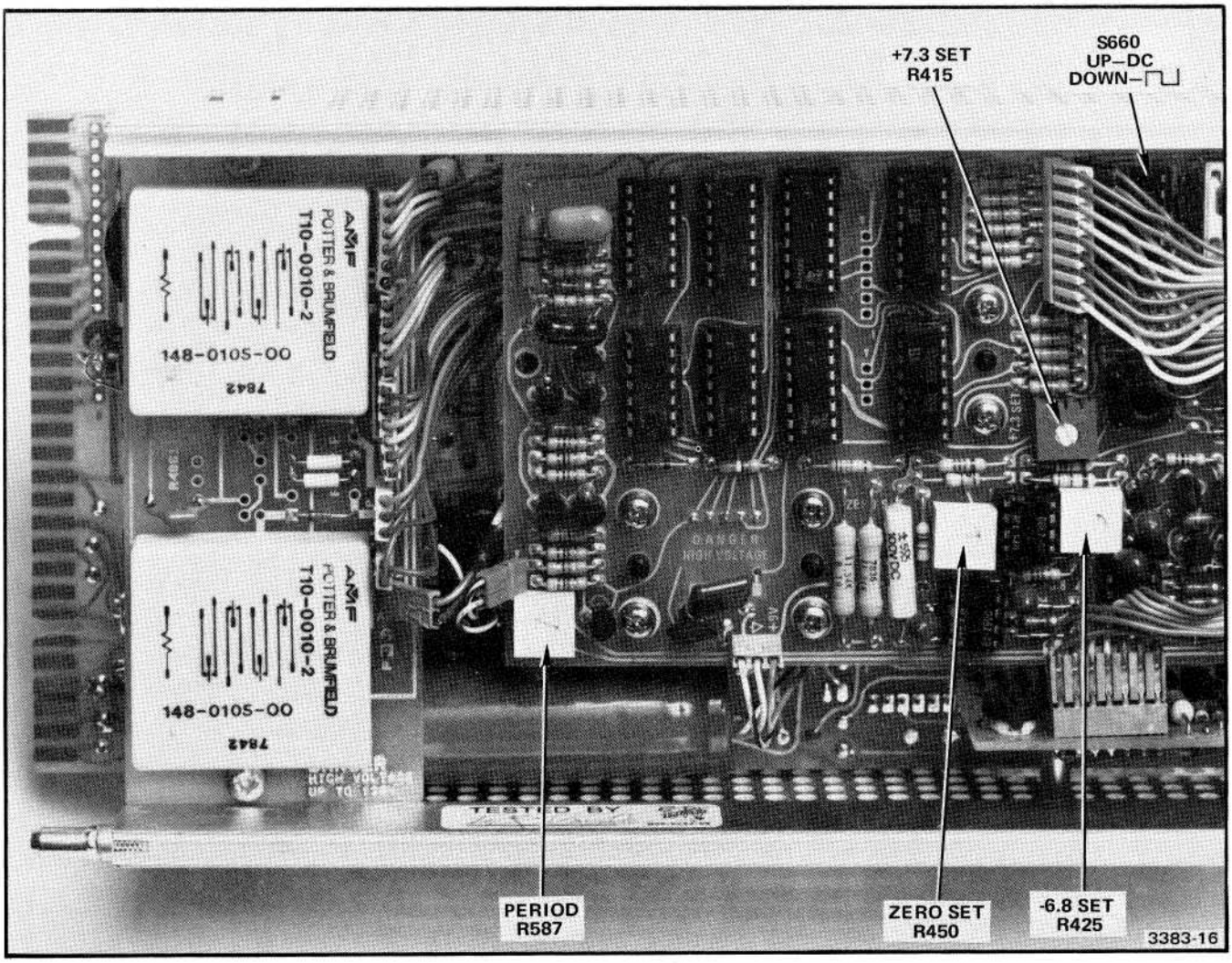



**Fig. 4-6. Adjustment locations for the A2 DVM/Period circuit board.**

b. Using a precision 50 Ω coaxial cable, connect the PG 506 AMPL OUTPUT HIGH or STD to the 1 MΩ voltmeter input.

c. Examine—for a reading of +99.99 Vdc to +100.01 Vdc.

d. Adjust—100 V Set (R205) for 100.00 Vdc.

e. Set the PG 506 AMPLITUDE control to 10.

f. Adjust—10 V Set (R340) for 10.00 Vdc.

g. Set the precision volt/ohmmeter to read 100 Vdc.

h. Repeat parts c thru f to minimize the effect of interaction.

## 4. Adjust DEFLECTION ERROR % Readout

Set the following controls as indicated:

| | PG 506 |
|---|---|
| Function | STD AMPL |
| AMPLITUDE | 100 |
| VARIABLE (OUT) | out |

a. Set the precision volt/ohmmeter to measure 100 Vdc.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

b. Using the VARIABLE (OUT) control, set the output voltage reading on the precision volt/ohmmeter to 100.00 Vdc.

c. Examine—the DEFLECTION ERROR % readout is 0.1, with the HIGH or LOW lamp lit.

d. Adjust—Zero Set (R450) for a 0.0% reading. Refer to Fig. 4-6.

e. Using the VARIABLE (OUT) control, set the output voltage reading to 107.3 Vdc.

f. Examine—the DEFLECTION ERROR % readout is 6.7 to 6.9 with the LOW lamp lit.

g. Adjust—−6.8 Set (R425) for a 6.8 reading. Refer to Fig. 4-6.

h. Using the VARIABLE (OUT) control, set the output voltage reading to 93.2 Vdc.

i. Examine—the DEFLECTION ERROR % readout is 7.2 to 7.4, with the HIGH lamp lit.

j. Adjust—+7.3 Set (R415) for a 7.3 reading. Refer to Fig. 4-6.

k. Disconnect the precision volt/ohmmeter connections.

l. Return the DC—Pulse switch (S660) to Pulse (down).

## 5. Adjust STD AMPL Output Period

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | STD AMPL |
| AMPLITUDE | 20 |
| VARIABLE (OUT) | in |

**Test Oscilloscope**

| | |
|---|---|
| Volts/Div | 5 |
| Time/Div | .2 ms |

a. Using a 50 Ω coaxial cable, connect the AMPL OUTPUT HIGH or STD to the test oscilloscope vertical input.

b. Using the test oscilloscope triggering controls, obtain a stable display.

c. Examine—for one complete cycle in 4.9 to 5.1 divisions.

d. Adjust—Period (R587) for one complete cycle in 5 divisions. Refer to Fig. 4-6.

## 6. Adjust Max Ampl Output Set

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | HIGH AMPL |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |
| PULSE AMPLITUDE | MAX |

**Test Oscilloscope**

| | |
|---|---|
| Volts/Div | 1 V |
| Time/Div | 1 μs |

a. Using a 50 Ω coaxial cable and 50 Ω termination, connect the AMPL OUTPUT HIGH or STD to the test oscilloscope vertical input.

b. Examine—the peak-to-peak amplitude is 5.2 to 5.3 divisions.

c. Adjust—Max Ampl Set (R790) for a peak-to-peak amplitude of 5.2 divisions.

## 7. Adjust Fast Rise Output Amplitude

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | FAST RISE |
| PULSE AMPLITUDE | MIN |

**Test Oscilloscope**

| | |
|---|---|
| Volts/Div | 50 mV |
| Time/Div | 1 μs |

a. Using a 50 Ω coaxial cable and 50 Ω termination, connect the positive-going FAST RISE OUTPUTS connector to the test oscilloscope vertical input. Note the peak-to-peak signal amplitude.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

b. Change the connection to the negative-going FAST RISE OUTPUTS connector. Note the peak-to-peak signal amplitude.

c. Examine—the two noted peak-to-peak signal amplitudes are ≥50 mV and ≤100 mV.

d. Adjsut—Min Ampl (R1025) for positive-going and negative-going FAST RISE OUTPUTS signal amplitude of ≥50 mV and ≤100 mV. Refer to Fig. 4-7.

e. Set PULSE AMPLITUDE to MAX.

f. Examine—positive-going and negative-going FAST RISE OUTPUTS are ≥1 V peak-to-peak.

## 8. Adjust Fast Rise Output Aberrations

Set the following controls as indicated:

**PG 506**

| | |
|---|---|
| Function | FAST RISE |
| PERIOD | 1 μs 1 MHz |
| VAR | ccw |
| PULSE AMPLITUDE | MAX |

**Sampling System**

| | |
|---|---|
| mV/Div | 100 |
| Variable (CAL in) | in |
| +Up | in |
| Dot Response | midrange |
| Normal | in |
| Time Pos Rng | .5 μs |
| Time/Div | 1 ns |
| Sequential | in |
| Slope | – (minus in) |
| Trig Amp | X1 |
| Trig Input | Ext 50 Ω 2 V Max |

a. Using a precision 50 Ω coaxial cable, a 50 Ω 2X attenuator, and a bnc female to sma male adapter, connect the positive-going FAST RISE OUTPUTS connector to the S-6 input.

b. Using the necessary adapters and 18" 50 Ω coaxial cable, connect the S-6 loop thru to the 7T11 external trigger input.

c. Using the 7T11 triggering and time position controls, locate the positive-going step in the display area.

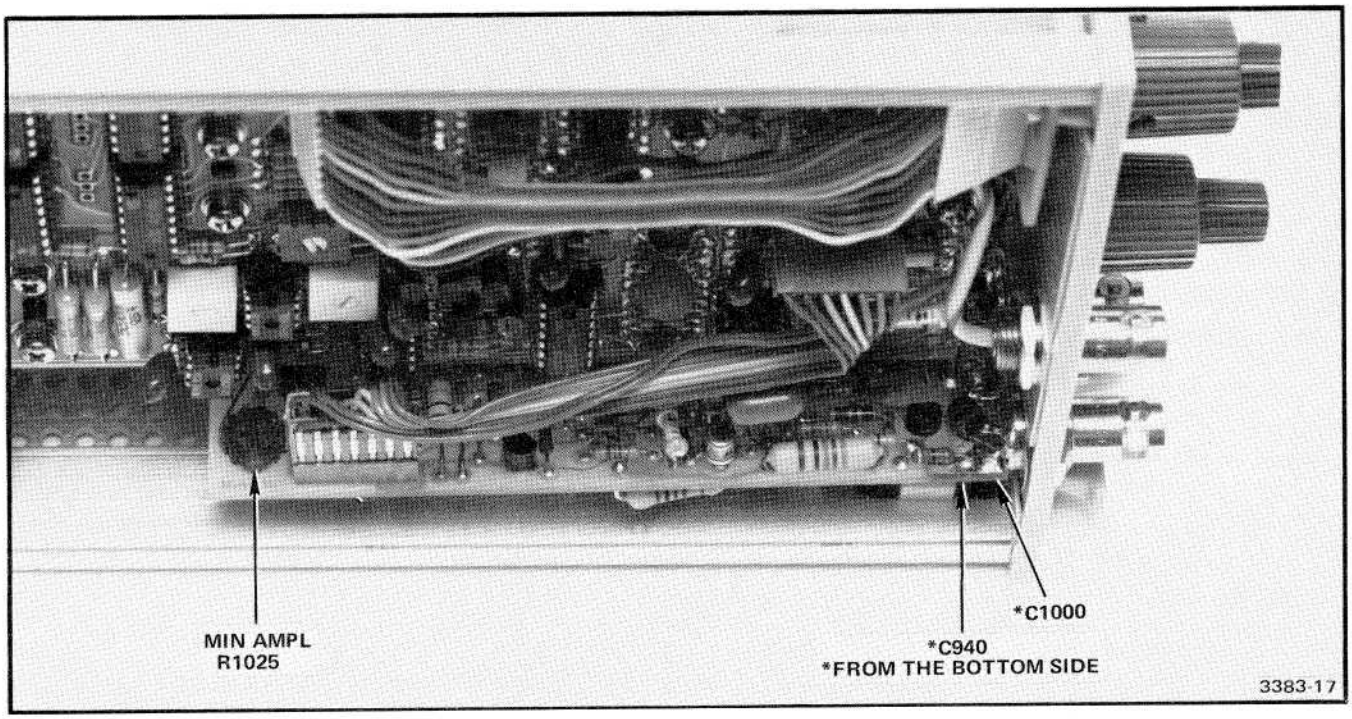



**Fig. 4-7. Adjustment locations for the A3 Fast Rise Output circuit board.**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

d. Using the 7S11 vertical deflection variable control, obtain a display peak-to-peak amplitude of 5 divisions.

e. Set the mV/Div to 10. Do not change the variable setting.

f. Using the 7S11 Dc Offset, align the waveform near the center of the display area.

g. Examine—the positive-going pulse aberrations are 1 division. Refer to Fig. 4-8.

h. Adjust—C1000 for minimum aberrations with risetime ≤1 ns. A slight amount of front-cover overshoot is desirable.

i. Disconnect the precision coaxial cable from the positive-going FAST RISE OUTPUTS connector and connect it to the negative-going FAST RISE OUTPUTS connector.

j. Set the 7S11 mV/Div to 100 mV and the +Up/Invert switch to Invert.

k. Repeat parts c thru g of this step.

l. Adjust—C940 for minimum aberrations with risetime ≤1 ns. A slight amount of front-corner overshoot is desirable. Refer to Fig. 4-9.

This completes the Adjustment Procedure.

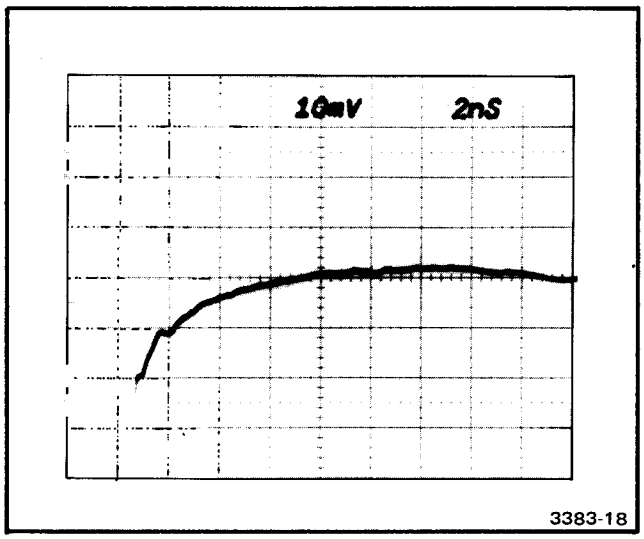



**Fig. 4-8. Typical response curve as displayed on the sampling system.**

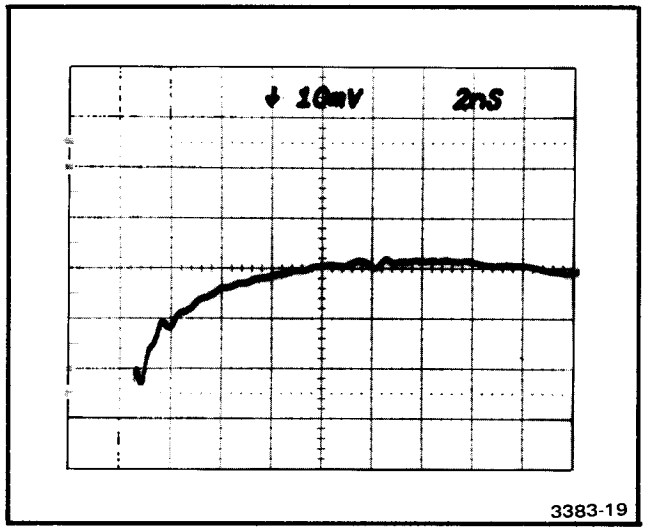



**Fig. 4-9. Typical response curve as displayed on the sampling oscilloscope.**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# MAINTENANCE

## Preventive Maintenance

There are no special preventive maintenance procedures, other than care during handling, calibration, installation, and removal.

## Corrective Maintenance

**General.** For general corrective maintenance procedures and instructions refer to the power module instruction manual.

**J950 or J1010 Replacement.** If either J950 or J1010 is to be replaced, the resistor that is soldered to the rear of the connector (R950 and R1010 respectively) should also be replaced. Attempts to remove these resistors usually result in damage to their disc-type body. If J950 or J1010 is replaced without the resistor there will probably be a termination abberation visible approximately 9 ns from the front corner of the output pulse.

## Selected Components Criteria

During initial calibration selected values of the following components may have been installed to meet certain performance requirements for this instrument. If, during recalibration following corrective maintenance or hours-of-service performance checks, it is determined that one or more of these components needs replacement the following criteria (Table 5-1) should be used.

**Table 5-1**

**SELECTED COMPONENT CRITERIA**

| Component | Circuit Involved | Range of Values | Criteria/Effects |
|---|---|---|---|
| R940, R1000 | Fast Rise Outputs | 68 Ω to 220 Ω | Selected for optimum risetime and minimum aberrations. An increase of resistance increases risetime. |
| R937 | Fast Rise Outputs | 24 Ω to 220 Ω | Matches maximum negative-going output to maximum positive-going output within 20 mV. Maximum negative-going output increases as resistance increases. |
| R757 | High Amplitude Output | 68 Ω to 330 Ω | Selected for optimum risetime and minimum abberations. A decrease of resistance decreases risetime. A decrease of capacitance decreases risetime. |
| C755 | High Amplitude Output | 5 pF to 33 pF | |
| R315 | Standard Amplitude Output | 7 kΩ to 25kΩ | Use a precision ohmmeter between the AMPL OUTPUT HIGH or STD connector and chassis ground with AMPLITUDE set to 10 V and mode set to STD AMPL. Select resistor for a reading of 50 Ω within 0.5%. |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## 20 mA Current Source

A 20 mA current source is needed for the adjustment of the PG 506. Another PG 506, if available, can be used for this purpose by using the AMPL OUTPUT connector, setting the AMPLITUDE control to 2 V, and adjusting the VARIABLE (OUT) control in STD AMPL mode.

If another PG 506 is not available a 20 mA current source approximation can be constructed by inserting a 931 Ω, 1% resistor and a 50 Ω potentiometer in series with a 20 V supply.

## Circuit Board Removal

**A2-DVM.** Note the location of all connectors attached to the front of the board and remove. Remove the ten screws that hold the board to the MAIN board-A1. Lift the board up and out of the mainframe. Note the location of the connectors attached to the rear of the board and remove. To replace the board reverse this procedure.

**A5-Relay.** Note the location of all connectors attached to the board and remove. Remove the two screws that attach the board to the spacers from the frame. Reverse the procedure to replace the board.

**A1-Main.** To remove A1, first remove A2 and A5. With A2 and A5 removed, remove the PULSE AMPLITUDE knob, PERIOD knob, and mode switch knob. Note the location of all connectors and disconnect. Remove the screw that attaches the heat sink for Q758 to the top of the frame. Remove the two spacer screws at the rear of the instrument and the two screws towards the front of the instrument. Remove the board through the rear of the instrument. Reverse this procedure to replace the board.

**A3-Fast Rise.** Note the location of the connectors and remove. Remove the retaining nuts on the front-panel bnc connectors labeled FAST RISE OUTPUTS. Slide the board back until the bnc connectors clear the front panel. Remove the board from the frame. Reverse this procedure to replace the board.

**A4-Display.** Note the location of all connectors and remove. Remove the two screws that attach the board to the front panel. Remove the five screws that attach A1 to the frame and slide A1 towards the rear of the instrument. Pull A4 out through the side of the frame. Reverse this procedure to replace the board.

## Obtaining Replacement Parts

Most electrical and mechanical parts can be obtained through your local Tektronix field office or representative. However, you should be able to obtain many of the standard electronic components from a local commercial source. Before you purchase or order a part from a source other than Tektronix, Inc., please check the Replaceable Electrical Parts list for the proper value, rating, tolerance, and description.

## Ordering Parts

When ordering parts form Tektronix, Inc., it is important that all of the following information be included to ensure receiving the proper parts.

1. Instrument type (including modification or option numbers).

2. Instrument serial number.

3. A description of the part (if electrical, include circuit number).

4. Tektronix part number.

## Troubleshooting Aids

Refer to the power module instruction manual for a general discussion of aids in troubleshooting TM 500 Series equipment.

## Interface Notes

The following information will aid the user in performing both corrective maintenance and in customizing the instrument.

**Pin Assignments.** Besides those pins used to connect the PG 506 to the power module (1-15, A & B), other pins are available to output signals to the interface so that they may be connected to other plug-ins through the interface. Fig. 5-1 shows the pins and their assignments.

**CAUTION**

*When specialized rear interface wiring has been added to a Power Module compartment, the PG 506 may not be fully compatible with all other members of the signal source family. Trigger output (27B and 28B) and main output (28A and 27A) are compatible, as is the ground on 26B. The ground on 22A is not compatible with certain instruments, nor is the bcd information on 17B through 24B and the HIGH-LOW output on 16B. A plastic barrier (Tektronix Part Number 214-1593-02) should be installed in the key slot between contacts 23 and 24 on the power module. However, before inserting any other TM 500 signal source in a compartment with PG 506 interface wiring, check the diagrams in this book for pin-by-pin compatibility. Likewise, do not insert a PG 506 into a slot with rear interface wiring for any other signal source family connection without making the same compatibility check.*



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

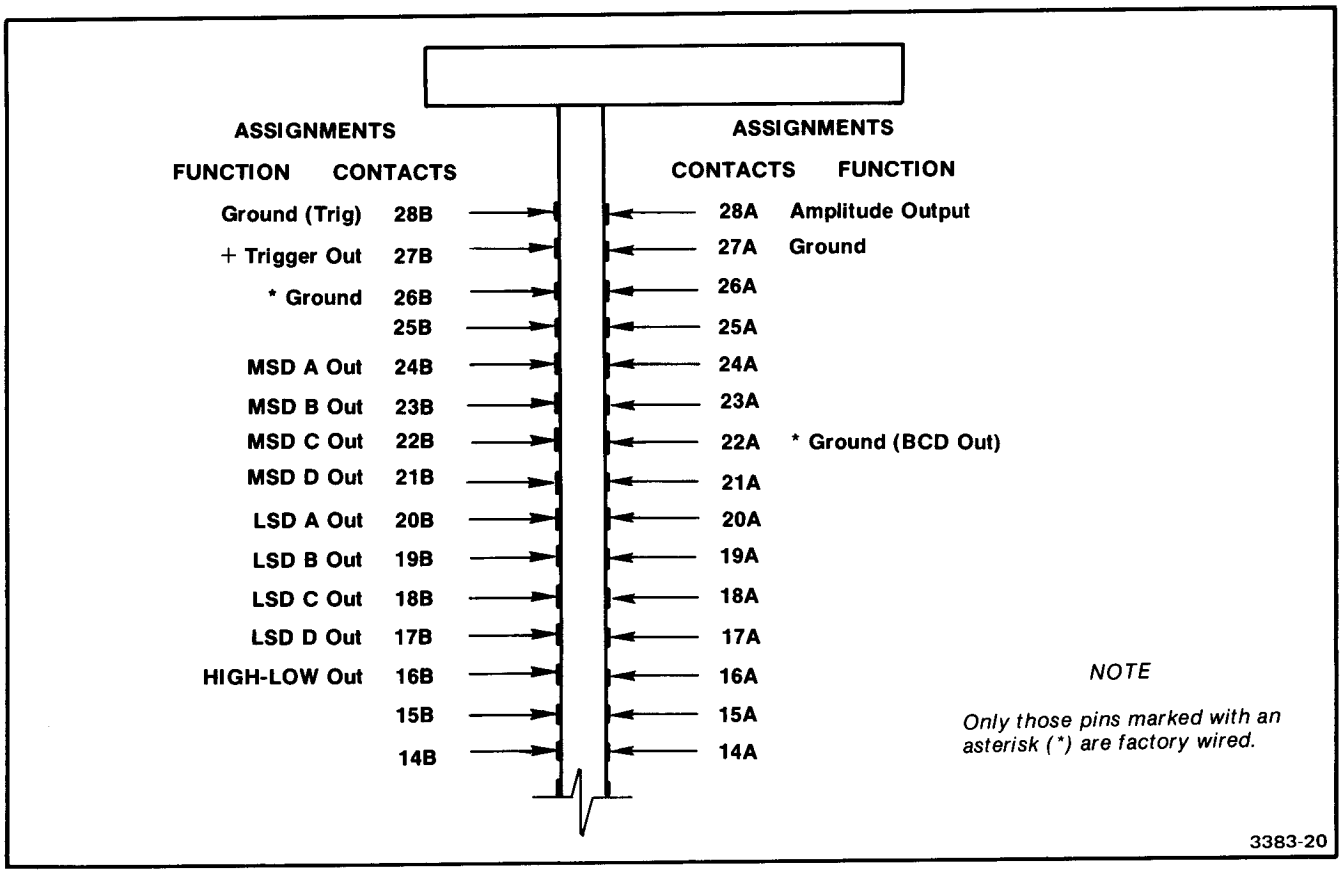



**Fig. 5-1. Pin assignments for the PG 506 (rear view, partial).**

**Amplitude Output.** To obtain the AMPL OUTPUT signal at the rear interface connectors, disconnect the coaxial cable from the main board (located in the lower left corner of the B side). Replace this cable with a miniature 50 Ω coaxial cable (Tektronix Part No. 175-1827-00). Remove the coaxial connector from the other end, and solder the cable to the rear interface connector as follows:

Shield to 27A (3rd hole down from top on the B side)

Center conductor to 28A (4th hole down on the B side)

See Fig. 5-2 for pictorial interface connection detail.

*NOTE*

*Connecting front panel signals to the rear interface will degrade their performance slightly.*

**Trigger Output.** To connect TRIG OUT to the rear interface, disconnect the coaxial 50 Ω lead to the front panel at the DVM board end (located in the upper right corner as viewed from the rear). Replace this cable with a miniatrue 50 Ω coaxial cable (Tektronix Part Number 175-1826-00). Remove the coaxial connector from the other end, and solder the cable to the rear interface connector as follows:

Shield to 28 B (2nd hole down from top on the A side)

Center Conductor to 27B (5th hole down on the A side)

See Fig. 5-2 for pictorial interface connection detail.

*NOTE*

*Ground connections to 26B and 22A are the only rear interface signal connections that are factory wired.*



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

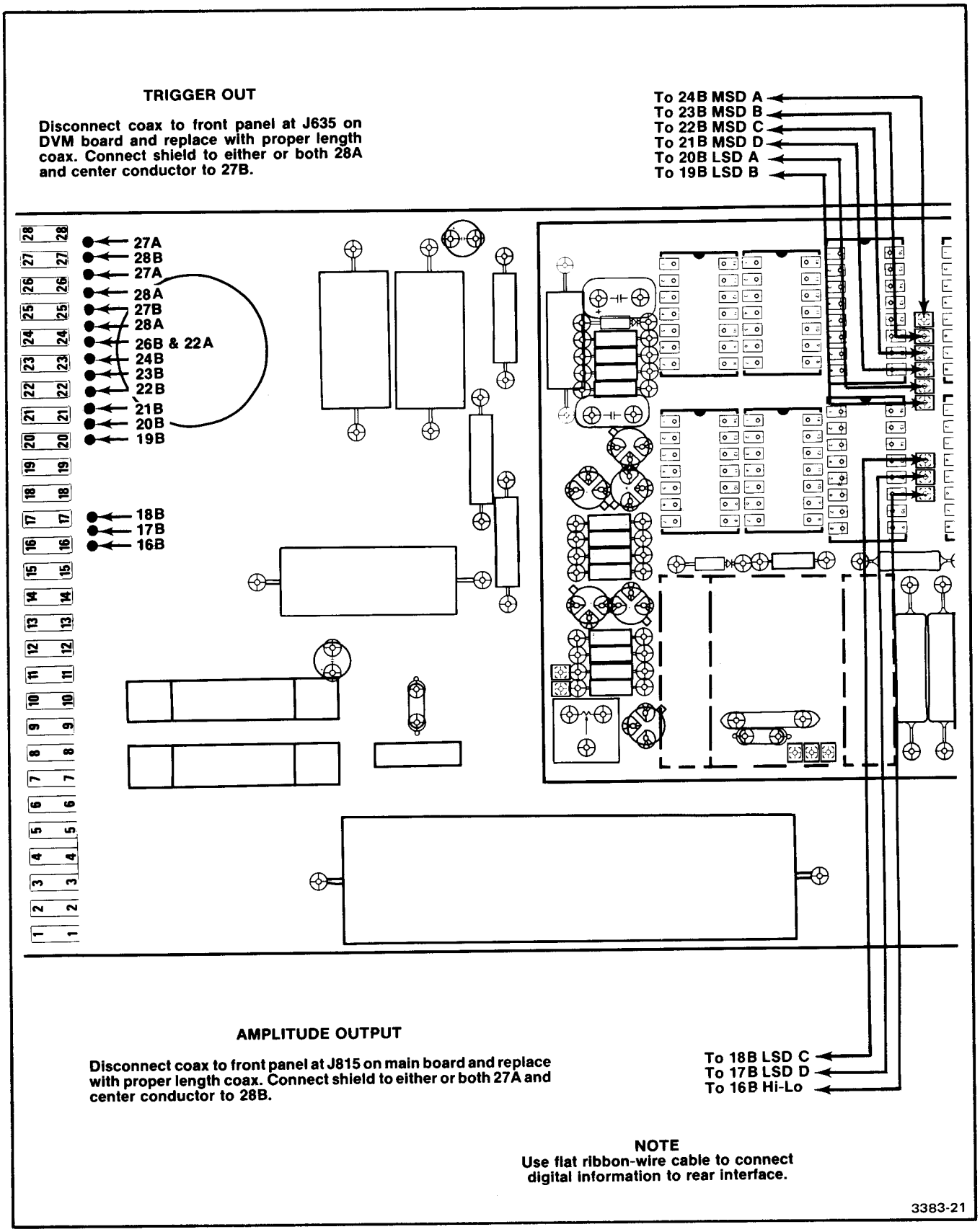



Fig. 5-2. Main interface board (partial) showing amplitude and trigger output cable connections.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**MSD & LSD Outputs.** To obtain readout information at the interface, use flat ribbon-wire to connect this digital information to the through-plated holes as shown in Fig. 5-2 and according to the following list:

MSD A to 24B
MSD B to 23B
MSD C to 22B
MSD D to 21B
LSD A to 20B
LSD B to 19B
} 6 lead flat ribbon-wire

LSD C to 18B
LSD D to 17B
Hi-Lo to 16B
} 3 lead flat ribbon-wire

*NOTE*

*Each of the MSD and LSD outputs is only capable of driving one TTL load. The active level of each output is high.*

*For the Hi-Lo Output, output is low when the HIGH display light on the front panel is on.*

## Static-Sensitive Components

**CAUTION**

*Static discharge can damage any semiconductor component in this instrument.*

This instrument contains electrical components that are susceptible to damage from static discharge. See Table 5-2 for relative susceptibility of various classes of semiconductors. Static voltages of 1 kB to 30 kB are common in unprotected environments.

Observe the following precautions to avoid damage:

1. Minimize handling of static-sensitive components.
2. Transport and store static-sensitive components or assemblies in their original containers, on a metal rail, or on conductive foam. Label any package that contains static-sensitive assemblies or components.
3. Discharge the static voltage from your body by wearing a wrist strap while handling these components. Servicing static-sensitive assemblies or components should be performed only at a static-free work station by qualified service personnel.
4. Nothing capable of generating or holding a static charge should be allowed on the work station surface.
5. Keep the component leads shorted together whenever possible.
6. Pick up components by the body, never by the leads.
7. Do not slide the components over any surface.
8. Avoid handling components in areas that have a floor or work-surface covering capable of generating a static charge.
9. Use a soldering iron that is connected to earth ground.
10. Use only special antistatic suction type or wick type desoldering tools.

**Table 5-2**

**RELATIVE SUSCEPTIBILITY TO STATIC DISCHARGE DAMAGE**

| Semiconductor Classes | | Relative Susceptibility Levels[a] |
|---|---|---|
| MOS or CMOS microcircuits or discretes, or linear microcircuits with MOS inputs. | (Most Sensitive) | 1 |
| ECL | | 2 |
| Schottky signal diodes | | 3 |
| Schottky TTL | | 4 |
| High-frequency bipolar transistors | | 5 |
| JFETs | | 6 |
| Linear microcircuits | | 7 |
| Low-power Schottky TTL | | 8 |
| TTL | (Least Sensitive) | 9 |

**[a] Voltage equivalent for levels:**

**1 = 100 to 500 V**
**2 = 200 to 500 V**
**3 = 250 V**
**4 = 500 V**
**5 = 400 to 600 V**
**6 = 600 to 800 V**
**7 = 400 to 1000 V(est.)**
**8 = 900 V**
**9 = 1200 V**

**(Voltage discharge from a 100 pF capacitor through a resistance of 100 ohms.)**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# OPTIONS

There are no options for the PG 506 at the time of this printing.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# 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 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

| Mfr. Code | Manufacturer | Address | City, State, Zip |
|---|---|---|---|
| 00853 | SANGAMO ELECTRIC CO., S. CAROLINA DIV. | P.O. BOX 128 | PICKENS, SC 29671 |
| 01121 | ALLEN-BRADLEY COMPANY | 1201 2ND STREET SOUTH | MILWAUKEE, WI 53204 |
| 01295 | TEXAS INSTRUMENTS, INC. SEMICONDUCTOR GROUP | P.O. BOX 5012 | DALLAS, TX 75222 |
| 02111 | SPECTROL ELECTRONICS CORPORATION | 17070 EAST GALE AVENUE | CITY OF INDUSTRY, CA 91745 |
| 02735 | RCA CORPORATION, SOLID STATE DIVISION | ROUTE 202 | SOMERVILLE, NY 08876 |
| 03508 | GENERAL ELECTRIC COMPANY, SEMI-CONDUCTOR PRODUCTS DEPARTMENT | ELECTRONICS PARK | SYRACUSE, NY 13201 |
| 03888 | KDI PYROFILM CORPORATION | 60 S JEFFERSON ROAD | WHIPPANY, NJ 07981 |
| 04222 | AVX CERAMICS, DIVISION OF AVX CORP. | P O BOX 867 | MYRTLE BEACH, SC 29577 |
| 04713 | MOTOROLA, INC., SEMICONDUCTOR PROD. DIV. | 5005 E MCDOWELL RD,PO BOX 20923 | PHOENIX, AZ 85036 |
| 05397 | UNION CARBIDE CORPORATION, MATERIALS SYSTEMS DIVISION | 11901 MADISON AVENUE | CLEVELAND, OH 44101 |
| 07263 | FAIRCHILD SEMICONDUCTOR, A DIV. OF FAIRCHILD CAMERA AND INSTRUMENT CORP. | 464 ELLIS STREET | MOUNTAIN VIEW, CA 94042 |
| 08806 | GENERAL ELECTRIC CO., MINIATURE LAMP PRODUCTS DEPARTMENT | NELA PARK | CLEVELAND, OH 44112 |
| 14433 | ITT SEMICONDUCTORS | 3301 ELECTRONICS WAY | |
| | | P O BOX 3049 | WEST PALM BEACH, FL 33402 |
| 14552 | MICRO SEMICONDUCTOR CORP. | 2830 E FAIRVIEW ST. | SANTA ANA, CA 92704 |
| 14936 | GENERAL INSTRUMENT CORP., SEMICONDUCTOR PRODUCTS GROUP | P.O. BOX 600,600 W. JOHN ST. | HICKSVILLE, NY 11802 |
| 24931 | SPECIALITY CONNECTOR CO., INC. | 2620 ENDRESS PLACE | GREENWOOD, IN 46142 |
| 27014 | NATIONAL SEMICONDUCTOR CORP. | 2900 SEMICONDUCTOR DR. | SANTA CLARA, CA 95051 |
| 32159 | WEST-CAP ARIZONA | 2201 E. ELVIRA ROAD | TUCSON, AZ 85706 |
| 32997 | BOURNS, INC., TRIMPOT PRODUCTS DIV. | 1200 COLUMBIA AVE. | RIVERSIDE, CA 92507 |
| 50434 | HEWLETT-PACKARD COMPANY | 640 PAGE MILL ROAD | PALO ALTO, CA 94304 |
| 52763 | STETTNER-TRUSH, INC. | 67 ALBANY STREET | CAZENOVIA, NY 13035 |
| 56289 | SPRAGUE ELECTRIC CO. | 87 MARSHALL ST. | NORTH ADAMS, MA 01247 |
| 57668 | R-OHM CORP. | 16931 MILLIKEN AVE. | IRVINE, CA 92713 |
| 59660 | TUSONIX INC. | 2155 N FORBES BLVD | TUCSON, AZ 85705 |
| 71400 | BUSSMAN MFG., DIVISION OF MCGRAW-EDISON CO. | 2536 W. UNIVERSITY ST. | ST. LOUIS, MO 63107 |
| 72982 | ERIE TECHNOLOGICAL PRODUCTS, INC. | 644 W. 12TH ST. | ERIE, PA 16512 |
| 73138 | BECKMAN INSTRUMENTS, INC., HELIPOT DIV. | 2500 HARBOR BLVD. | FULLERTON, CA 92634 |
| 75042 | TRW ELECTRONIC COMPONENTS, IRC FIXED RESISTORS, PHILADELPHIA DIVISION | 401 N. BROAD ST. | PHILADELPHIA, PA 19108 |
| 77342 | AMF INC., POTTER AND BRUMFIELD DIV. | 200 RICHLAND CREEK DRIVE | PRINCETON, IN 47670 |
| 79727 | C-W INDUSTRIES | 550 DAVISVILLE RD.,P O BOX 96 | WARMINISTER, PA 18974 |
| 80009 | TEKTRONIX, INC. | P O BOX 500 | BEAVERTON, OR 97077 |
| 90201 | MALLORY CAPACITOR CO., DIV. OF P. R. MALLORY AND CO., INC. | 3029 E. WASHINGTON STREET | INDIANAPOLIS, IN 46206 |
| | | P. O. BOX 372 | COLUMBUS, NE 68601 |
| 91637 | DALE ELECTRONICS, INC. | P. O. BOX 609 | SAN FERNANDO, CA 91341 |
| 96733 | SAN FERNANDO ELECTRIC MFG CO | 1501 FIRST ST | |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| A1 | 670-3230-08 | | | CKT BOARD ASSY:MAIN | 80009 | 670-3230-08 |
| A2 | 670-3234-04 | | | CKT BOARD ASSY:DVM/PERIOD | 80009 | 670-3234-04 |
| A3 | 670-3452-02 | B040000 | B058179 | CKT BOARD ASSY:FAST RISE | 80009 | 670-3452-02 |
| A3 | 670-3452-03 | B058180 | | CKT BOARD ASSY:FAST RISE | 80009 | 670-3452-03 |
| A4 | 670-3314-00 | | | CKT BOARD ASSY:DISPLAY | 80009 | 670-3314-00 |
| A5 | 670-4328-00 | | | CKT BOARD ASSY:RELAY | 80009 | 670-4328-00 |
| C3 | 283-0178-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,100V | 72982 | 8131N145651 104Z |
| C10 | 290-0714-00 | | | CAP.,FXD,ELCTLT:2000UF,+75-10%,40V | 56289 | 39D641 |
| C15 | 283-0134-00 | | | CAP.,FXD,CER DI:0.47UF,+80-20%,50V | 72982 | 8131N087Z5U0474Z |
| C20 | 283-0194-00 | | | CAP.,FXD,CER DI:4.7UF,20%,50V | 56289 | 5C37Z5U475M050B |
| C22 | 281-0814-00 | | | CAP.,FXD,CER DI:100PF,10%,100V | 04222 | GC101A101K |
| C27 | 290-0525-00 | | | CAP.,FXD,ELCTLT:4.7UF,20%,50V | 56289 | 196D475X0050KA1 |
| C30 | 283-0167-00 | | | CAP.,FXD,CER DI:0.1UF,10%,100V | 72982 | 8131N145X5R0104K |
| C32 | 290-0559-00 | | | CAP.,FXD,ELCTLT:22UF,20%,35V | 90201 | TDC226M035WLG |
| C34 | 290-0559-00 | | | CAP.,FXD,ELCTLT:22UF,20%,35V | 90201 | TDC226M035WLG |
| C36 | 290-0117-00 | | | CAP.,FXD,ELCTLT:50UF,+75-10%,50V | 56289 | 30D506G050DD9 |
| C40 | 283-0134-00 | | | CAP.,FXD,CER DI:0.47UF,+80-20%,50V | 72982 | 8131N087Z5U0474Z |
| C42 | 283-0198-00 | | | CAP.,FXD,CER DI:0.22UF,20%,50V | 56289 | 1C10Z5U223M050B |
| C45 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C46 | 283-0177-00 | B046760 | | CAP.,FXD,CER DI:1UF,+80-20%,25V | 56289 | 2C20Z5U105Z025B |
| C65 | 290-0529-00 | | | CAP.,FXD,ELCTLT:47UF,20%,20V | 05397 | T362C476M020AS |
| C67 | 290-0529-00 | | | CAP.,FXD,ELCTLT:47UF,20%,20V | 05397 | T362C476M020AS |
| C75 | 283-0134-00 | | | CAP.,FXD,CER DI:0.47UF,+80-20%,50V | 72982 | 8131N087Z5U0474Z |
| C78 | 290-0525-00 | | | CAP.,FXD,ELCTLT:4.7UF,20%,50V | 56289 | 196D475X0050KA1 |
| C80 | 281-0810-00 | | | CAP.,FXD,CER DI:5.6PF,0.5%,100V | 04222 | GC10-1A5R6D |
| C90 | 283-0051-00 | | | CAP.,FXD,CER DI:0.0033UF,5%,100V | 56289 | 1C20C0G332J100B |
| C100 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C125 | 281-0810-00 | | | CAP.,FXD,CER DI:5.6PF,0.5%,100V | 04222 | GC10-1A5R6D |
| C135 | 290-0405-00 | | | CAP.,FXD,ELCTLT:10UF,+50-10%,150V | 56289 | 30D106F150DD2 |
| C140 | 283-0057-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,200V | 56289 | 2C20Z5U104Z200B |
| C145 | 290-0159-00 | | | CAP.,FXD,ELCTLT:2UF,+50-10%,150V | 56289 | 30D205F150BB9 |
| C150 | 290-0159-00 | | | CAP.,FXD,ELCTLT:2UF,+50-10%,150V | 56289 | 30D205F150BB9 |
| C154 | 283-0167-00 | | | CAP.,FXD,CER DI:0.1UF,10%,100V | 72982 | 8131N145X5R0104K |
| C165 | 290-0525-00 | | | CAP.,FXD,ELCTLT:4.7UF,20%,50V | 56289 | 196D475X0050KA1 |
| C170 | 290-0719-00 | | | CAP.,FXD,ELCTLT:47UF,20%,25V | 56289 | 196D476X0025TE3 |
| C175 | 290-0525-00 | | | CAP.,FXD,ELCTLT:4.7UF,20%,50V | 56289 | 196D475X0050KA1 |
| C180 | 290-0719-00 | | | CAP.,FXD,ELCTLT:47UF,20%,25V | 56289 | 196D476X0025TE3 |
| C190 | 290-0442-00 | | | CAP.,FXD,ELCTLT:120UF,+75-10%,150V | 56289 | 39D1197 |
| C196 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C198 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C200 | 290-0117-00 | | | CAP.,FXD,ELCTLT:50UF,+75-10%,50V | 56289 | 30D506G050DD9 |
| C210 | 290-0534-00 | | | CAP.,FXD,ELCTLT:1UF,20%,35V | 56289 | 196D105X0035HA1 |
| C212 | 283-0167-00 | | | CAP.,FXD,CER DI:0.1UF,10%,100V | 72982 | 8131N145X5R0104K |
| C237 | 283-0208-00 | | | CAP.,FXD,CER DI:0.22UF,10%,200V | 72982 | 8151N230 C 224K |
| C240 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C247 | 281-0523-00 | | | CAP.,FXD,CER DI:100PF,+/-20PF,500V | 72982 | 301-000U2M0101M |
| C294 | 290-0405-00 | | | CAP.,FXD,ELCTLT:10UF,+50-10%,150V | 56289 | 30D106F150DD2 |
| C295 | 283-0057-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,200V | 56289 | 2C20Z5U104Z200B |
| C315 | 283-0198-00 | | | CAP.,FXD,CER DI:0.22UF,20%,50V | 56289 | 1C10Z5U223M050B |
| C317 | 281-0638-00 | | | CAP.,FXD,CER DI:240PF,5%,500V | 72982 | 301000Z5D241J |
| C318 | 281-0773-00 | | | CAP.,FXD,CER DI:0.01UF,10%,100V | 04222 | MA201C103KAA |
| C330 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| C365 | 290-0529-00 | | | CAP.,FXD,ELCTLT:47UF,20%,20V | 05397 | T362C476M020AS |
| C370 | 290-0215-00 | | | CAP.,FXD,ELCTLT:100UF,+75-10%,25V | 56289 | 30D107G025DD9 |
| C375 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C380 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C390 | 283-0211-00 | | | CAP.,FXD,CER DI:0.1UF,10%,200V | 04222 | SR406C104KAA |
| C392 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C400 | 290-0519-00 | | | CAP.,FXD,ELCTLT:100UF,20%,20V | 90201 | TDC107M020WLD |
| C420 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C435 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C460 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C462 | 285-0683-00 | | | CAP.,FXD,PLSTC:0.022UF,5%,100V | 56289 | 192P22352 |
| C465 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C470 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C474 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C480 | 290-0536-00 | | | CAP.,FXD,ELCTLT:10UF,20%,25V | 90201 | TDC106M025FL |
| C500 | 283-0065-00 | | | CAP.,FXD,CER DI:0.001UF,5%,100V | 59660 | 0835-591Y5EO102J |
| C506 | 283-0065-00 | | | CAP.,FXD,CER DI:0.001UF,5%,100V | 59660 | 0835-591Y5EO102J |
| C520 | 283-0065-00 | | | CAP.,FXD,CER DI:0.001UF,5%,100V | 59660 | 0835-591Y5EO102J |
| C558 | 281-0543-00 | | | CAP.,FXD,CER DI:270PF,10%,500V | 72982 | 301055X5P271K |
| C580 | 283-0666-00 | | | CAP.,FXD,MICA D:890PF,2%,100V | 00853 | D151F891G0 |
| C582 | 290-0574-00 | | | CAP.,FXD,ELCTLT:47UF,10%,20V | 90201 | TDC476K020CL |
| C615 | 290-0519-00 | | | CAP.,FXD,ELCTLT:100UF,20%,20V | 90201 | TDC107M020WLD |
| C718 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C732 | 290-0159-00 | | | CAP.,FXD,ELCTLT:2UF,+50-10%,150V | 56289 | 30D205F150BB9 |
| C734 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C736 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C752 | 281-0540-00 | | | CAP.,FXD,CER DI:51PF,5%,500V | 59660 | 301-000U2J0510J |
| C755 | 281-0504-00 | | | CAP.,FXD,CER DI:10PF,+/-1PF,500V | 04222 | 7001-COG-100F |
| C755 | ----- ----- | | | (NOMINAL VALUE,SELECTED) | | |
| C764 | 283-0057-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,200V | 56289 | 2C20Z5U104Z200B |
| C782 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C785 | 283-0057-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,200V | 56289 | 2C20Z5U104Z200B |
| C792 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C800 | 281-0773-00 | | | CAP.,FXD,CER DI:0.01UF,10%,100V | 04222 | MA201C103KAA |
| C818 | 281-0773-00 | | | CAP.,FXD,CER DI:0.01UF,10%,100V | 04222 | MA201C103KAA |
| C840 | 281-0775-00 | | | CAP.,FXD,CER DI:0.1UF,20%,50V | 04222 | MA205E104MAA |
| C886 | 281-0618-00 | | | CAP.,FXD,CER DI:4.7PF,+/-0.5PF,200V | 59660 | 374-018C0H0-479D |
| C904 | 283-0156-00 | | | CAP.,FXD,CER DI:1000PF,+100-0%,200V | 96733 | R2670 |
| C906 | 281-0613-00 | | | CAP.,FXD,CER DI:10PF,+/-1PF,200V | 59660 | 374018C0G0100 |
| C914 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C928 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C938 | 283-0324-00 | | | CAP.,FXD,CER DI:0.01UF,+80-20%,50V | 04222 | 08055C103ZA2055 |
| C940 | 281-0213-00 | | | CAP.,VAR,CER DI:0.8-3.8PF,400V | 52763 | RT201-04SD.5/3.5 |
| C962 | 283-0156-00 | | | CAP.,FXD,CER DI:1000PF,+100-0%,200V | 96733 | R2670 |
| C966 | 281-0613-00 | | | CAP.,FXD,CER DI:10PF,+/-1PF,200V | 59660 | 374018C0G0100 |
| C974 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C988 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C998 | 283-0324-00 | | | CAP.,FXD,CER DI:0.01UF,+80-20%,50V | 04222 | 08055C103ZA2055 |
| C1000 | 281-0213-00 | | | CAP.,VAR,CER DI:0.8-3.8PF,400V | 52763 | RT201-04SD.5/3.5 |
| C1026 | 290-0512-00 | | | CAP.,FXD,ELCTLT:22UF,20%,15V | 56289 | 196D226X0015KA1 |
| C1028 | 290-0512-00 | | | CAP.,FXD,ELCTLT:22UF,20%,15V | 56289 | 196D226X0015KA1 |
| C1034 | 283-0156-00 | | | CAP.,FXD,CER DI:1000PF,+100-0%,200V | 96733 | R2670 |
| C1045 | 283-0156-00 | | | CAP.,FXD,CER DI:1000PF,+100-0%,200V | 96733 | R2670 |
| C1060 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| C1062 | 290-0527-00 | | | CAP.,FXD,ELCTLT:15UF,20%,20V | 90201 | TDC156M020FL |
| C1065 | 283-0024-00 | | | CAP.,FXD,CER DI:0.1UF,+80-20%,50V | 72982 | 8121N083Z5U0104Z |
| C1067 | 290-0527-00 | | | CAP.,FXD,ELCTLT:15UF,20%,20V | 90201 | TDC156M020FL |
| C1070 | 290-0527-00 | | | CAP.,FXD,ELCTLT:15UF,20%,20V | 90201 | TDC156M020FL |
| CR1 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR2 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR10 | 152-0198-00 | | | SEMICOND DEVICE:SILICON,200V,3A | 03508 | 1N5624 |
| CR11 | 152-0198-00 | | | SEMICOND DEVICE:SILICON,200V,3A | 03508 | 1N5624 |
| CR22 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR27 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR38 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR55 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR67 | 152-0066-00 | | | SEMICOND DEVICE:SILICON,400V,750MA | 14433 | LG4016 |
| CR70 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR78 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR80 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR85 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR86 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR105 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR120 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR125 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR135 | 152-0586-00 | | | SEMICOND DEVICE:SILICON,600V,500MA | 14936 | RGP10J-011 |
| CR136 | 152-0586-00 | | | SEMICOND DEVICE:SILICON,600V,500MA | 14936 | RGP10J-011 |
| CR137 | 152-0586-00 | | | SEMICOND DEVICE:SILICON,600V,500MA | 14936 | RGP10J-011 |
| CR138 | 152-0586-00 | | | SEMICOND DEVICE:SILICON,600V,500MA | 14936 | RGP10J-011 |
| CR140 | 152-0586-00 | | | SEMICOND DEVICE:SILICON,600V,500MA | 14936 | RGP10J-011 |
| CR145 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR146 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR147 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR148 | 152-0574-00 | | | SEMICOND DEVICE:SILICON,120V,0.15A | 14433 | WG1308 |
| CR165 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR166 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR167 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR168 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR170 | 152-0107-03 | | | SEMICOND DEVICE:SILICON,375V,4OOMA,SEL | 01295 | G727 |
| CR190 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR196 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR235 | 152-0246-00 | | | SEMICOND DEVICE:SW,SI,40V,200MA | 03508 | DE140 |
| CR245 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR275 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR280 | 153-0039-00 | | | SEMICOND DVC SE:SIGNAL,PR | 80009 | 153-0039-00 |
| CR290 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR291 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR294 | 152-0066-00 | | | SEMICOND DEVICE:SILICON,400V,750MA | 14433 | LG4016 |
| CR320 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR395 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR397 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR465 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR466 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR480 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR484 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR485 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR500 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR502 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| CR520 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR535 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR576 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR615 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR616 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR630 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR656 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR657 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR660 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR661 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR668 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR734 | 152-0066-00 | | | SEMICOND DEVICE:SILICON,400V,750MA | 14433 | LG4016 |
| CR755 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR756 | 152-0536-00 | | | SEMICOND DEVICE:SILICON,HOT CARRIER,4V | 80009 | 152-0536-00 |
| CR764 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR766 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR767 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR800 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR810 | 152-0233-00 | | | SEMICOND DEVICE:SILICON,85V,100MA | 07263 | FDH1986 |
| CR825 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR944 | 152-0536-00 | | | SEMICOND DEVICE:SILICON,HOT CARRIER,4V | 80009 | 152-0536-00 |
| CR1004 | 152-0536-00 | | | SEMICOND DEVICE:SILICON,HOT CARRIER,4V | 80009 | 152-0536-00 |
| CR1028 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR1047 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR1048 | 152-0141-02 | | | SEMICOND DEVICE:SILICON,30V,150MA | 01295 | 1N4152R |
| CR1062 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| CR1067 | 152-0333-00 | | | SEMICOND DEVICE:SILICON,55V,200MA | 07263 | FDH-6012 |
| DS480 | 150-1001-01 | | | LAMP,LED:RED,2V,100MA | 50434 | HLMP-3200 |
| DS482 | 150-1001-01 | | | LAMP,LED:RED,2V,100MA | 50434 | HLMP-3200 |
| DS650 | 150-0048-00 | | | LAMP,INCAND:5V,60MA | 08806 | 683 |
| DS700 | 150-1011-01 | | | LAMP,LED,RDOUT:RED SINGLE DIGIT | 07263 | FND5169 |
| DS702 | 150-1011-01 | | | LAMP,LED,RDOUT:RED SINGLE DIGIT | 07263 | FND5169 |
| DS704 | 150-0048-00 | | | LAMP,INCAND:5V,60MA | 08806 | 683 |
| F30 | 159-0022-00 | | | FUSE,CARTRIDGE:3AG,1A,250V,FAST-BLOW | 71400 | AGC 1 |
| F65 | 159-0003-00 | | | FUSE,CARTRIDGE:3AG,1.6A,250V,SLOW-BLOW | 71400 | MDX 1 6/10 |
| J640 | 131-1315-01 | | | CONN,RCPT,ELEC:BNC,FEMALE | 24931 | 28JR 306-1 |
| J820 | 131-1315-01 | | | CONN,RCPT,ELEC:BNC,FEMALE | 24931 | 28JR 306-1 |
| J950 | 131-1727-00 | | | CONNECTOR,RCPT,:BNC,FEMALE | 24931 | 28JR262-1 |
| J1010 | 131-1727-00 | | | CONNECTOR,RCPT,:BNC,FEMALE | 24931 | 28JR262-1 |
| K2 | 148-0105-00 | | | RELAY,ARMATURE:4 FORM C,5V,50 OHM COIL 3A | 77342 | T10-0010-2 |
| K4 | 148-0105-00 | | | RELAY,ARMATURE:4 FORM C,5V,50 OHM COIL 3A | 77342 | T10-0010-2 |
| L35 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |
| L38 | 108-0574-00 | | | COIL,RF:30UH | 80009 | 108-0574-00 |
| L65 | 108-0808-00 | | | COIL,RF:FIXED,500UH | 80009 | 108-0808-00 |
| L135 | 108-0808-00 | | | COIL,RF:FIXED,500UH | 80009 | 108-0808-00 |
| L145 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |
| L150 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |
| L165 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |
| L175 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |
| L582 | 108-0317-00 | | | COIL,RF:FIXED,15UH | 32159 | 71501M |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| Q15 | 151-0302-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S038487 |
| Q45 | 151-0515-01 | | | SCR:SILICON | 04713 | SCR1256K |
| Q60 | 151-0301-00 | | | TRANSISTOR:SILICON,PNP | 27014 | 2N2907A |
| Q70 | 151-0301-00 | | | TRANSISTOR:SILICON,PNP | 27014 | 2N2907A |
| Q80 | 151-0473-00 | | | TRANSISTOR:SILICON,NPN | 03508 | X44C388 |
| Q85 | 151-0302-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S038487 |
| Q90 | 151-0188-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6868K |
| Q100 | 151-0188-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6868K |
| Q120 | 151-0302-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S038487 |
| Q125 | 151-0473-00 | | | TRANSISTOR:SILICON,NPN | 03508 | X44C388 |
| Q190 | 151-0347-00 | | | TRANSISTOR:SILICON,NPN | 56289 | 2N5551 |
| Q245 | 151-0347-00 | | | TRANSISTOR:SILICON,NPN | 56289 | 2N5551 |
| Q255 | 151-0190-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S032677 |
| Q270 | 151-0347-00 | | | TRANSISTOR:SILICON,NPN | 56289 | 2N5551 |
| Q280 | 151-0280-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SS8065 |
| Q290 | 151-0280-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SS8065 |
| Q320 | 151-0260-00 | | | TRANSISTOR:SILICON,NPN | 80009 | 151-0260-00 |
| Q325 | 151-0462-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SJE491 |
| Q326 | 151-0276-00 | | | TRANSISTOR:SILICON,PNP | 04713 | 2N5087 |
| Q365 | 151-0440-00 | | | TRANSISTOR:SILICON,PNP | 03508 | X41E603 |
| Q410 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q415 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q435 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q440 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q445 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q475 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q480 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q490 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q535 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q560 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q565 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q575 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q580 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q585 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q595 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q605 | 151-0223-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8026 |
| Q610 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q715 | 151-0424-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8246 |
| Q725 | 151-0350-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6700 |
| Q730 | 151-0424-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8246 |
| Q736 | 151-0410-00 | | | TRANSISTOR:SILICON,PNP | 80009 | 151-0410-00 |
| Q740 | 151-0350-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6700 |
| Q745 | 151-0446-00 | | | TRANSISTOR:SILICON,NPN | 80009 | 151-0446-00 |
| Q758 | 151-1108-00 | | | TRANSISTOR:FE,N-CHANNEL,SILICON | 80009 | 151-1108-00 |
| Q760 | 151-0406-00 | | | TRANSISTOR:SILICON,PNP | 04713 | OBD |
| Q780 | 151-0410-00 | | | TRANSISTOR:SILICON,PNP | 80009 | 151-0410-00 |
| Q782 | 151-0190-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S032677 |
| Q784 | 151-0410-00 | | | TRANSISTOR:SILICON,PNP | 80009 | 151-0410-00 |
| Q790 | 151-0350-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6700 |
| Q800 | 151-0350-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS6700 |
| Q850 | 151-0190-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S032677 |
| Q860 | 151-0225-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S39291 |
| Q862 | 151-0225-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S39291 |
| Q880 | 151-0434-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SS7144 |
| Q890 | 151-0434-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SS7144 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| Q900 | 151-0441-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SRF501 |
| Q910 | 151-0441-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SRF501 |
| Q920 | 151-0271-00 | B040000 | B047129 | TRANSISTOR:SILICON,PNP | 04713 | SPS8236 |
| Q920 | 151-0271-03 | B047130 | | TRANSISTOR:SILICON,PNP,SELECTED | 04713 | OBD |
| Q935 | 151-0271-00 | B040000 | B047129 | TRANSISTOR:SILICON,PNP | 04713 | SPS8236 |
| Q935 | 151-0271-03 | B047130 | | TRANSISTOR:SILICON,PNP,SELECTED | 04713 | OBD |
| Q960 | 151-0271-00 | B040000 | B047129 | TRANSISTOR:SILICON,PNP | 04713 | SPS8236 |
| Q960 | 151-0271-03 | B047130 | | TRANSISTOR:SILICON,PNP,SELECTED | 04713 | OBD |
| Q970 | 151-0271-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS8236 |
| Q980 | 151-0447-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SRF502-1 |
| Q995 | 151-0658-00 | | | TRANSISTOR:SILICON,NPN | 80009 | 151-0658-00 |
| Q1020 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| Q1030 | 151-0190-00 | | | TRANSISTOR:SILICON,NPN | 07263 | S032677 |
| Q1036 | 151-0424-00 | | | TRANSISTOR:SILICON,NPN | 04713 | SPS8246 |
| Q1045 | 151-0221-00 | | | TRANSISTOR:SILICON,PNP | 04713 | SPS246 |
| R10 | 315-0332-00 | | | RES.,FXD,CMPSN:3.3K OHM,5%,0.25W | 01121 | CB3325 |
| R15 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R20 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R21 | 315-0270-00 | | | RES.,FXD,CMPSN:27 OHM,5%,0.25W | 01121 | CB2705 |
| R22 | 308-0755-00 | | | RES.,FXD,WW:0.75 OHM,5%,2W | 75042 | BWH-R7500J |
| R23 | 315-0270-00 | | | RES.,FXD,CMPSN:27 OHM,5%,0.25W | 01121 | CB2705 |
| R25 | 321-0290-00 | | | RES.,FXD,FILM:10.2K OHM,1%,0.125W | 91637 | MFF1816G10201F |
| R27 | 321-0251-00 | | | RES.,FXD,FILM:4.02K OHM,1%,0.125W | 91637 | MFF1816G40200F |
| R29 | 321-0154-00 | | | RES.,FXD,FILM:392 OHM,1%,0.125W | 91637 | MFF1816G392R0F |
| R30 | 311-1223-00 | | | RES.,VAR,NONWIR:TRMR,250 OHM,0.5W | 02111 | 63M251T602 |
| R31 | 321-0222-00 | | | RES.,FXD,FILM:2K OHM,1%,0.125W | 91637 | MFF1816G20000F |
| R40 | 315-0431-00 | | | RES.,FXD,CMPSN:430 OHM,5%,0.25W | 01121 | CB4315 |
| R45 | 315-0470-00 | | | RES.,FXD,CMPSN:47 OHM,5%,0.25W | 01121 | CB4705 |
| R52 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R54 | 315-0202-00 | | | RES.,FXD,CMPSN:2K OHM,5%,0.25W | 01121 | CB2025 |
| R57 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R60 | 315-0131-00 | | | RES.,FXD,CMPSN:130 OHM,5%,0.25W | 01121 | CB1315 |
| R65 | 308-0677-00 | | | RES.,FXD,WW:1 OHM,5%,2W | 75042 | BWH-1R000J |
| R70 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R72 | 315-0221-00 | | | RES.,FXD,CMPSN:220 OHM,5%,0.25W | 01121 | CB2215 |
| R75 | 301-0511-00 | | | RES.,FXD,CMPSN:510 OHM,5%,0.50W | 01121 | EB5115 |
| R80 | 315-0101-00 | | | RES.,FXD,CMPSN:100 OHM,5%,0.25W | 01121 | CB1015 |
| R82 | 315-0330-00 | | | RES.,FXD,CMPSN:33 OHM,5%,0.25W | 01121 | CB3305 |
| R85 | 315-0472-00 | | | RES.,FXD,CMPSN:4.7K OHM,5%,0.25W | 01121 | CB4725 |
| R86 | 315-0392-00 | | | RES.,FXD,CMPSN:3.9K OHM,5%,0.25W | 01121 | CB3925 |
| R90 | 315-0822-00 | | | RES.,FXD,CMPSN:8.2K OHM,5%,0.25W | 01121 | CB8225 |
| R94 | 315-0623-00 | | | RES.,FXD,CMPSN:62K OHM,5%,0.25W | 01121 | CB6235 |
| R96 | 315-0913-00 | | | RES.,FXD,CMPSN:91K OHM,5%,0.25W | 01121 | CB9135 |
| R98 | 315-0913-00 | | | RES.,FXD,CMPSN:91K OHM,5%,0.25W | 01121 | CB9135 |
| R100 | 315-0822-00 | | | RES.,FXD,CMPSN:8.2K OHM,5%,0.25W | 01121 | CB8225 |
| R104 | 315-0623-00 | | | RES.,FXD,CMPSN:62K OHM,5%,0.25W | 01121 | CB6235 |
| R105 | 315-0392-00 | | | RES.,FXD,CMPSN:3.9K OHM,5%,0.25W | 01121 | CB3925 |
| R108 | 315-0472-00 | | | RES.,FXD,CMPSN:4.7K OHM,5%,0.25W | 01121 | CB4725 |
| R120 | 315-0330-00 | | | RES.,FXD,CMPSN:33 OHM,5%,0.25W | 01121 | CB3305 |
| R122 | 315-0101-00 | | | RES.,FXD,CMPSN:100 OHM,5%,0.25W | 01121 | CB1015 |
| R135 | 315-0124-00 | | | RES.,FXD,CMPSN:120K OHM,5%,0.25W | 01121 | CB1245 |
| R154 | 315-0683-00 | | | RES.,FXD,CMPSN:68K OHM,5%,0.25W | 01121 | CB6835 |
| R170 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R190 | 305-0512-00 | | | RES.,FXD,CMPSN:5.1K OHM,5%,2W | 01121 | HB5125 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| R194 | 315-0104-00 | | | RES.,FXD,CMPSN:100K OHM,5%,0.25W | 01121 | CB1045 |
| R196 | 315-0203-00 | | | RES.,FXD,CMPSN:20K OHM,5%,0.25W | 01121 | CB2035 |
| R200 | 321-0289-07 | | | RES.,FXD,FILM:10K OHM,0.1%,0.125W | 91637 | MFF1816C10001B |
| R205 | 311-1340-00 | | | RES.,VAR,NONWIR:1K OHM,10%,0.50W | 02111 | 43P102T672 |
| R207 | 321-0289-07 | | | RES.,FXD,FILM:10K OHM,0.1%,0.125W | 91637 | MFF1816C10001B |
| R210 | 323-1200-07 | | | RES.,FXD,FILM:1.20K OHM,0.1%,0.50W | 91637 | MFF1226C12000B |
| R212 | 321-0264-00 | | | RES.,FXD,FILM:5.49K OHM,1%,0.125W | 91637 | MFF1816G54900F |
| R215 | 321-0279-00 | | | RES.,FXD,FILM:7.87K OHM,1%,0.125W | 91637 | MFF1816G78700F |
| R220 | 321-0213-00 | B040000 | B046759 | RES.,FXD,FILM:1.62K OHM,1%,0.125W | 91637 | MFF1816G16200F |
| R220 | 321-0216-00 | B046760 | | RES.,FXD,FILM:1.74K OHM,1%,0.125W | 91637 | MFF1816G17400F |
| R225 | 311-1586-00 | | | RES.,VAR,NONWIR:PNL,2 X 20K OHM,0.5W | 01121 | 12M271 |
| R255 | ----- ----- | | | (PART OF S225) | | |
| R227 | 321-1649-07 | | | RES.,FXD,FILM:8.38K OHM,0.1%,0.125W | 91637 | MFF1816C83800B |
| R230 | 321-0213-00 | B040000 | B046759 | RES.,FXD,FILM:1.62K OHM,1%,0.125W | 91637 | MFF1816G16200F |
| R230 | 321-0216-00 | B046760 | | RES.,FXD,FILM:1.74K OHM,1%,0.125W | 91637 | MFF1816G17400F |
| R234 | 323-0381-07 | | | RES.,FXD,FILM:90.9K OHM,0.1%,0.50W | 91637 | MFF1226C90901B |
| R237 | 321-1650-07 | | | RES.,FXD,FILM:8.99K OHM,0.1%,0.125W | 91637 | MFF1816C89900B |
| R238 | 315-0391-00 | | | RES.,FXD,CMPSN:390 OHM,5%,0.25W | 01121 | CB3915 |
| R245 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R247 | 301-0513-00 | | | RES.,FXD,CMPSN:51K OHM,5%,0.50W | 01121 | EB5135 |
| R250 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R255 | 315-0221-00 | | | RES.,FXD,CMPSN:220 OHM,5%,0.25W | 01121 | CB2215 |
| R256 | 315-0203-00 | | | RES.,FXD,CMPSN:20K OHM,5%,0.25W | 01121 | CB2035 |
| R257 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R258 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R260 | 315-0241-00 | | | RES.,FXD,CMPSN:240 OHM,5%,0.25W | 01121 | CB2415 |
| R265 | 315-0241-00 | | | RES.,FXD,CMPSN:240 OHM,5%,0.25W | 01121 | CB2415 |
| R267 | 315-0202-00 | | | RES.,FXD,CMPSN:2K OHM,5%,0.25W | 01121 | CB2025 |
| R275 | 325-0193-00 | | | RES SET,MATCHED:(4) RES R FROM 0-60 DEG C | 75042 | OBD |
| R276 | ----- ----- | | | (PART OF R275) | | |
| R277 | ----- ----- | | | (PART OF R275) | | |
| R278 | ----- ----- | | | (PART OF R275) | | |
| R280 | 321-0154-00 | | | RES.,FXD,FILM:392 OHM,1%,0.125W | 91637 | MFF1816G392R0F |
| R287 | 303-0223-00 | | | RES.,FXD,CMPSN:22K OHM,5%,1W | 01121 | GB2235 |
| R290 | 315-0130-00 | | | RES.,FXD,CMPSN:13 OHM,5%,0.25W | 01121 | CB1305 |
| R295 | 315-0203-00 | | | RES.,FXD,CMPSN:20K OHM,5%,0.25W | 01121 | CB2035 |
| R300 | 308-0787-00 | | | RES SET,MATCHED:4,495 OHM,0.1%,3W | 91637 | SPR993 |
| R302 | ----- ----- | | | (PART OF R300) | | |
| R304 | ----- ----- | | | (PART OF R300) | | |
| R306 | ----- ----- | | | (PART OF R300) | | |
| R308 | ----- ----- | | | (PART OF R300) | | |
| R310 | ----- ----- | | | (PART OF R300) | | |
| R312 | ----- ----- | | | (PART OF R300) | | |
| R314 | ----- ----- | | | (PART OF R300) | | |
| R315 | 321-0291-00 | | | RES.,FXD,FILM:10.5K OHM,1%,0.125W | 91637 | MFF1816G10501F |
| R317 | 315-0510-00 | | | RES.,FXD,CMPSN:51 OHM,5%,0.25W | 01121 | CB5105 |
| R330 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R332 | 321-0189-00 | | | RES.,FXD,FILM:909 OHM,1%,0.125W | 91637 | MFF1816G909R0F |
| R338 | 321-0296-07 | | | RES.,FXD,FILM:11.8K OHM,0.1%,0.125W | 91637 | MFF1816C11801B |
| R340 | 311-1221-00 | | | RES.,VAR,NONWIR:50 OHM,20%,0.50W | 32997 | 3386F-T04-500 |
| R342 | 321-0188-09 | | | RES.,FXD,FILM:887 OHM,1%,0.125W | 91637 | MFF1816C887R0F |
| R350 | 308-0786-00 | | | RES SET MATCHED:7,15 OHM,0.1%,0.5W | 91637 | SPR993-1 |
| R352 | ----- ----- | | | (PART OF R350) | | |
| R354 | ----- ----- | | | (PART OF R350) | | |
| R356 | 308-0786-00 | | | RES SET MATCHED:7,15 OHM,0.1%,0.5W | 91637 | SPR993-1 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| R358 | ----- ----- | | | (PART OF R350) | | |
| R360 | ----- ----- | | | (PART OF R350) | | |
| R362 | ----- ----- | | | (PART OF R350) | | |
| R375 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R377 | 321-0230-00 | | | RES.,FXD,FILM:2.43K OHM,1%,0.125W | 91637 | MFF1816G24300F |
| R380 | 315-0242-00 | | | RES.,FXD,CMPSN:2.4K OHM,5%,0.25W | 01121 | CB2425 |
| R382 | 315-0431-00 | | | RES.,FXD,CMPSN:430 OHM,5%,0.25W | 01121 | CB4315 |
| R400 | 315-0242-00 | | | RES.,FXD,CMPSN:2.4K OHM,5%,0.25W | 01121 | CB2425 |
| R405 | 315-0242-00 | | | RES.,FXD,CMPSN:2.4K OHM,5%,0.25W | 01121 | CB2425 |
| R407 | 315-0132-00 | | | RES.,FXD,CMPSN:1.3K OHM,5%,0.25W | 01121 | CB1325 |
| R410 | 315-0163-00 | | | RES.,FXD,CMPSN:16K OHM,5%,0.25W | 01121 | CB1635 |
| R415 | 311-1225-00 | | | RES.,VAR,NONWIR:1K OHM,20%,0.50W | 32997 | 3386F-T04-102 |
| R417 | 321-0287-00 | | | RES.,FXD,FILM:9.53K OHM,1%,0.125W | 91637 | MFF1816G95300F |
| R420 | 321-0260-00 | | | RES.,FXD,FILM:4.99K OHM,1%,0.125W | 91637 | MFF1816G49900F |
| R423 | 321-0229-00 | | | RES.,FXD,FILM:2.37K OHM,1%,0.125W | 91637 | MFF1816G23700F |
| R425 | 311-1224-00 | | | RES.,VAR,NONWIR:500 OHM,20%,0.50W | 32997 | 3386F-T04-501 |
| R427 | 321-0227-09 | | | RES.,FXD,FILM:2.26K OHM,1%,0.125W | 91637 | MFF1816C22600F |
| R430 | 321-0261-00 | | | RES.,FXD,FILM:5.11K OHM,1%,0.125W | 91637 | MFF1816G51100F |
| R435 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R440 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R445 | 315-0272-00 | | | RES.,FXD,CMPSN:2.7K OHM,5%,0.25W | 01121 | CB2725 |
| R447 | 315-0562-00 | | | RES.,FXD,CMPSN:5.6K OHM,5%,0.25W | 01121 | CB5625 |
| R450 | 311-1224-00 | | | RES.,VAR,NONWIR:500 OHM,20%,0.50W | 32997 | 3386F-T04-501 |
| R452 | 323-0796-07 | | | RES.,FXD,FILM:11.34K OHM,0.1%,0.50W | 91637 | CMF1418C11341B |
| R454 | 323-0796-07 | | | RES.,FXD,FILM:11.34K OHM,0.1%,0.50W | 91637 | CMF1418C11341B |
| R460 | 321-0223-00 | | | RES.,FXD,FILM:2.05K OHM,1%,0.125W | 91637 | MFF1816G20500F |
| R465 | 315-0332-00 | | | RES.,FXD,CMPSN:3.3K OHM,5%,0.25W | 01121 | CB3325 |
| R470 | 315-0242-00 | | | RES.,FXD,CMPSN:2.4K OHM,5%,0.25W | 01121 | CB2425 |
| R475 | 315-0332-00 | | | RES.,FXD,CMPSN:3.3K OHM,5%,0.25W | 01121 | CB3325 |
| R477 | 315-0181-00 | | | RES.,FXD,CMPSN:180 OHM,5%,0.25W | 01121 | CB1815 |
| R480 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R482 | 317-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.125W | 01121 | BB1025 |
| R484 | 315-0392-00 | | | RES.,FXD,CMPSN:3.9K OHM,5%,0.25W | 01121 | CB3925 |
| R486 | 315-0202-00 | | | RES.,FXD,CMPSN:2K OHM,5%,0.25W | 01121 | CB2025 |
| R490 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R495 | 315-0431-00 | | | RES.,FXD,CMPSN:430 OHM,5%,0.25W | 01121 | CB4315 |
| R500 | 315-0133-00 | | | RES.,FXD,CMPSN:13K OHM,5%,0.25W | 01121 | CB1335 |
| R502 | 315-0822-00 | | | RES.,FXD,CMPSN:8.2K OHM,5%,0.25W | 01121 | CB8225 |
| R506 | 315-0133-00 | | | RES.,FXD,CMPSN:13K OHM,5%,0.25W | 01121 | CB1335 |
| R508 | 315-0822-00 | | | RES.,FXD,CMPSN:8.2K OHM,5%,0.25W | 01121 | CB8225 |
| R510 | 315-0273-00 | | | RES.,FXD,CMPSN:27K OHM,5%,0.25W | 01121 | CB2735 |
| R514 | 315-0202-00 | | | RES.,FXD,CMPSN:2K OHM,5%,0.25W | 01121 | CB2025 |
| R516 | 315-0272-00 | | | RES.,FXD,CMPSN:2.7K OHM,5%,0.25W | 01121 | CB2725 |
| R520 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R524 | 315-0391-00 | | | RES.,FXD,CMPSN:390 OHM,5%,0.25W | 01121 | CB3915 |
| R530 | 315-0472-00 | | | RES.,FXD,CMPSN:4.7K OHM,5%,0.25W | 01121 | CB4725 |
| R532 | 315-0392-00 | | | RES.,FXD,CMPSN:3.9K OHM,5%,0.25W | 01121 | CB3925 |
| R535 | 315-0391-00 | | | RES.,FXD,CMPSN:390 OHM,5%,0.25W | 01121 | CB3915 |
| R560 | 315-0472-00 | | | RES.,FXD,CMPSN:4.7K OHM,5%,0.25W | 01121 | CB4725 |
| R563 | 315-0472-00 | | | RES.,FXD,CMPSN:4.7K OHM,5%,0.25W | 01121 | CB4725 |
| R565 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R575 | 315-0242-00 | | | RES.,FXD,CMPSN:2.4K OHM,5%,0.25W | 01121 | CB2425 |
| R576 | 315-0132-00 | | | RES.,FXD,CMPSN:1.3K OHM,5%,0.25W | 01121 | CB1325 |
| R578 | 315-0511-00 | | | RES.,FXD,CMPSN:510 OHM,5%,0.25W | 01121 | CB5115 |
| R582 | 315-0241-00 | | | RES.,FXD,CMPSN:240 OHM,5%,0.25W | 01121 | CB2415 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| R585 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R587 | 311-1223-00 | | | RES.,VAR,NONWIR:TRMR,250 OHM,0.5W | 02111 | 63M251T602 |
| R590 | 311-1747-00 | | | RES.,VAR,NONWIR:PNL,10K OHM,1W | 01121 | 17M360 |
| R593 | 315-0471-00 | | | RES.,FXD,CMPSN:470 OHM,5%,0.25W | 01121 | CB4715 |
| R595 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R597 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R600 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R602 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R605 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R606 | 315-0271-00 | | | RES.,FXD,CMPSN:270 OHM,5%,0.25W | 01121 | CB2715 |
| R615 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R618 | 315-0511-00 | | | RES.,FXD,CMPSN:510 OHM,5%,0.25W | 01121 | CB5115 |
| R620 | 315-0273-00 | | | RES.,FXD,CMPSN:27K OHM,5%,0.25W | 01121 | CB2735 |
| R625 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R627 | 301-0131-00 | | | RES.,FXD,CMPSN:130 OHM,5%,0.50W | 01121 | EB1315 |
| R630 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R635 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R650 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R654 | 315-0511-00 | | | RES.,FXD,CMPSN:510 OHM,5%,0.25W | 01121 | CB5115 |
| R656 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R660 | 315-0103-00 | | | RES.,FXD,CMPSN:10K OHM,5%,0.25W | 01121 | CB1035 |
| R680 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R681 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R682 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R683 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R684 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R685 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R686 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R690 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R691 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R692 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R693 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R694 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R695 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R696 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R700 | 315-0681-00 | | | RES.,FXD,CMPSN:680 OHM,5%,0.25W | 01121 | CB6815 |
| R705 | 315-0200-00 | | | RES.,FXD,CMPSN:20 OHM,5%,0.25W | 01121 | CB2005 |
| R715 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R716 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R718 | 315-0621-00 | | | RES.,FXD,CMPSN:620 OHM,5%,0.25W | 01121 | CB6215 |
| R724 | 315-0152-00 | | | RES.,FXD,CMPSN:1.5K OHM,5%,0.25W | 01121 | CB1525 |
| R730 | 315-0392-00 | | | RES.,FXD,CMPSN:3.9K OHM,5%,0.25W | 01121 | CB3925 |
| R736 | 301-0223-00 | | | RES.,FXD,CMPSN:22K OHM,5%,0.50W | 01121 | EB2235 |
| R738 | 315-0330-00 | | | RES.,FXD,CMPSN:33 OHM,5%,0.25W | 01121 | CB3305 |
| R740 | 315-0112-00 | | | RES.,FXD,CMPSN:1.1K OHM,5%,0.25W | 01121 | CB1125 |
| R745 | 301-0240-00 | | | RES.,FXD,CMPSN:24 OHM,5%,0.50W | 01121 | EB2405 |
| R746 | 303-0682-00 | | | RES.,FXD,CMPSN:6.8K OHM,5%,1W | 01121 | GB6825 |
| R752 | 315-0390-00 | | | RES.,FXD,CMPSN:39 OHM,5%,0.25W | 01121 | CB3905 |
| R757 | 315-0221-00 | | | RES.,FXD,CMPSN:220 OHM,5%,0.25W | 01121 | CB2215 |
| R757 | ----- ----- | | | (NOMINAL VALUE,SELECTED) | | |
| R760 | 315-0271-00 | | | RES.,FXD,CMPSN:270 OHM,5%,0.25W | 01121 | CB2715 |
| R762 | 315-0222-00 | | | RES.,FXD,CMPSN:2.2K OHM,5%,0.25W | 01121 | CB2225 |
| R764 | 315-0222-00 | | | RES.,FXD,CMPSN:2.2K OHM,5%,0.25W | 01121 | CB2225 |
| R780 | 315-0182-00 | | | RES.,FXD,CMPSN:1.8K OHM,5%,0.25W | 01121 | CB1825 |
| R782 | 315-0122-00 | | | RES.,FXD,CMPSN:1.2K OHM,5%,0.25W | 01121 | CB1225 |
| R784 | 315-0561-00 | | | RES.,FXD,CMPSN:560 OHM,5%,0.25W | 01121 | CB5615 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| R785 | 311-1473-00 | | | RES.,VAR,NONWIR:PNL,2 X 5K OHM,0.5W | 01121 | 11M079 |
| R787 | 315-0272-00 | | | RES.,FXD,CMPSN:2.7K OHM,5%,0.25W | 01121 | CB2725 |
| R790 | 311-1562-00 | | | RES.,VAR,NONWIR:2K OHM,20%,0.50W | 73138 | 91-84-0 |
| R792 | 315-0112-00 | | | RES.,FXD,CMPSN:1.1K OHM,5%,0.25W | 01121 | CB1125 |
| R800 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R805 | 308-0392-00 | | | RES.,FXD,WW:600 OHM,2%,14W | 56289 | 459EX600R0J |
| R825 | 315-0273-00 | | | RES.,FXD,CMPSN:27K OHM,5%,0.25W | 01121 | CB2735 |
| R827 | 315-0104-00 | | | RES.,FXD,CMPSN:100K OHM,5%,0.25W | 01121 | CB1045 |
| R830 | 321-0256-00 | | | RES.,FXD,FILM:4.53K OHM,1%,0.125W | 91637 | MFF1816G45300F |
| R832 | 321-0385-00 | | | RES.,FXD,FILM:100K OHM,1%,0.125W | 91637 | MFF1816G10002F |
| R835 | 321-0256-00 | | | RES.,FXD,FILM:4.53K OHM,1%,0.125W | 91637 | MFF1816G45300F |
| R837 | 321-0385-00 | | | RES.,FXD,FILM:100K OHM,1%,0.125W | 91637 | MFF1816G10002F |
| R840 | 315-0104-00 | | | RES.,FXD,CMPSN:100K OHM,5%,0.25W | 01121 | CB1045 |
| R842 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R850 | 322-0164-00 | | | RES.,FXD,FILM:499 OHM,1%,0.25W | 75042 | CEBT0-4990F |
| R854 | 321-0251-00 | | | RES.,FXD,FILM:4.02K OHM,1%,0.125W | 91637 | MFF1816G40200F |
| R855 | 321-0239-00 | | | RES.,FXD,FILM:3.01K OHM,1%,0.125W | 91637 | MFF1816G30100F |
| R857 | 315-0511-00 | | | RES.,FXD,CMPSN:510 OHM,5%,0.25W | 01121 | CB5115 |
| R860 | 307-0106-00 | | | RES.,FXD,CMPSN:4.7 OHM,5%,0.25W | 01121 | CB47G5 |
| R862 | 307-0106-00 | | | RES.,FXD,CMPSN:4.7 OHM,5%,0.25W | 01121 | CB47G5 |
| R865 | 315-0822-00 | | | RES.,FXD,CMPSN:8.2K OHM,5%,0.25W | 01121 | CB8225 |
| R866 | 315-0101-00 | | | RES.,FXD,CMPSN:100 OHM,5%,0.25W | 01121 | CB1015 |
| R870 | 315-0390-00 | | | RES.,FXD,CMPSN:39 OHM,5%,0.25W | 01121 | CB3905 |
| R871 | 315-0360-00 | | | RES.,FXD,CMPSN:36 OHM,5%,0.25W | 01121 | CB3605 |
| R874 | 322-0164-00 | | | RES.,FXD,FILM:499 OHM,1%,0.25W | 75042 | CEBT0-4990F |
| R876 | 315-0750-00 | | | RES.,FXD,CMPSN:75 OHM,5%,0.25W | 01121 | CB7505 |
| R880 | 315-0243-00 | | | RES.,FXD,CMPSN:24K OHM,5%,0.25W | 01121 | CB2435 |
| R882 | 321-0069-00 | | | RES.,FXD,FILM:51.1 OHM,1%,0.125W | 91637 | MFF1816G51R10F |
| R884 | 315-0911-00 | | | RES.,FXD,CMPSN:910 OHM,5%,0.25W | 01121 | CB9115 |
| R886 | 317-0220-00 | | | RES.,FXD,CMPSN:22 OHM,5%,0.125W | 01121 | BB2205 |
| R890 | 315-0911-00 | | | RES.,FXD,CMPSN:910 OHM,5%,0.25W | 01121 | CB9115 |
| R892 | 321-0069-00 | | | RES.,FXD,FILM:51.1 OHM,1%,0.125W | 91637 | MFF1816G51R10F |
| R900 | 317-0220-00 | | | RES.,FXD,CMPSN:22 OHM,5%,0.125W | 01121 | BB2205 |
| R902 | 315-0162-00 | | | RES.,FXD,CMPSN:1.6K OHM,5%,0.25W | 01121 | CB1625 |
| R904 | 315-0162-00 | | | RES.,FXD,CMPSN:1.6K OHM,5%,0.25W | 01121 | CB1625 |
| R906 | 317-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.125W | 01121 | BB1005 |
| R910 | 317-0220-00 | | | RES.,FXD,CMPSN:22 OHM,5%,0.125W | 01121 | BB2205 |
| R914 | 315-0101-00 | | | RES.,FXD,CMPSN:100 OHM,5%,0.25W | 01121 | CB1015 |
| R916 | 321-0150-00 | | | RES.,FXD,FILM:357 OHM,1%,0.125W | 91637 | MFF1816G357R0F |
| R918 | 315-0151-00 | | | RES.,FXD,CMPSN:150 OHM,5%,0.25W | 01121 | CB1515 |
| R920 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R924 | 307-0106-00 | | | RES.,FXD,CMPSN:4.7 OHM,5%,0.25W | 01121 | CB47G5 |
| R928 | 323-0097-00 | | | RES.,FXD,FILM:100 OHM,1%,0.50W | 75042 | CECT0-1000F |
| R930 | 323-0099-00 | | | RES.,FXD,FILM:105 OHM,1%,0.50W | 75042 | CECT0-1050F |
| R935 | 317-0471-00 | | | RES.,FXD,CMPSN:470 OHM,5%,0.125W | 01121 | BB4715 |
| R937 | 315-0330-00 | | | RES.,FXD,CMPSN:33 OHM,5%,0.25W | 01121 | CB3305 |
| R937 | ----- ----- | | | (NOMINAL VALUE,SELECTED) | | |
| R938 | 315-0431-00 | | | RES.,FXD,CMPSN:430 OHM,5%,0.25W | 01121 | CB4315 |
| R940 | 317-0121-00 | | | RES.,FXD,CMPSN:120 OHM,5%,0.125W | 01121 | BB1215 |
| R940 | ----- ----- | | | (NOMINAL VALUE,SELECTED) | | |
| R944 | 317-0180-00 | | | RES.,FXD,CMPSN:18 OHM,5%,0.125W | 01121 | BB1805 |
| R950 | 307-0086-00 | | | RES.,FXD,FILM:50 OHM,1% | 03888 | 62D350-50R0F |
| R960 | 317-0220-00 | | | RES.,FXD,CMPSN:22 OHM,5%,0.125W | 01121 | BB2205 |
| R962 | 315-0162-00 | | | RES.,FXD,CMPSN:1.6K OHM,5%,0.25W | 01121 | CB1625 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| R964 | 315-0162-00 | | | RES.,FXD,CMPSN:1.6K OHM,5%,0.25W | 01121 | CB1625 |
| R966 | 317-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.125W | 01121 | BB1005 |
| R970 | 317-0220-00 | | | RES.,FXD,CMPSN:22 OHM,5%,0.125W | 01121 | BB2205 |
| R974 | 315-0101-00 | | | RES.,FXD,CMPSN:100 OHM,5%,0.25W | 01121 | CB1015 |
| R976 | 323-0150-00 | | | RES.,FXD,FILM:357 OHM,1%,0.50W | 91637 | MFF1226G357R0F |
| R978 | 315-0151-00 | | | RES.,FXD,CMPSN:150 OHM,5%,0.25W | 01121 | CB1515 |
| R980 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R984 | 307-0106-00 | | | RES.,FXD,CMPSN:4.7 OHM,5%,0.25W | 01121 | CB47G5 |
| R988 | 323-0099-00 | | | RES.,FXD,FILM:105 OHM,1%,0.50W | 75042 | CECT0-1050F |
| R990 | 323-0097-00 | | | RES.,FXD,FILM:100 OHM,1%,0.50W | 75042 | CECT0-1000F |
| R995 | 317-0471-00 | | | RES.,FXD,CMPSN:470 OHM,5%,0.125W | 01121 | BB4715 |
| R997 | 315-0330-00 | | | RES.,FXD,CMPSN:33 OHM,5%,0.25W | 01121 | CB3305 |
| R998 | 315-0431-00 | | | RES.,FXD,CMPSN:430 OHM,5%,0.25W | 01121 | CB4315 |
| R1000 | 317-0121-00 | | | RES.,FXD,CMPSN:120 OHM,5%,0.125W | 01121 | BB1215 |
| R1000 | ----- ----- | | | (NOMINAL VALUE,SELECTED) | | |
| R1004 | 317-0180-00 | | | RES.,FXD,CMPSN:18 OHM,5%,0.125W | 01121 | BB1805 |
| R1010 | 307-0086-00 | | | RES.,FXD,FILM:50 OHM,1% | 03888 | 62D350-50R0F |
| R1020 | 315-0102-00 | | | RES.,FXD,CMPSN:1K OHM,5%,0.25W | 01121 | CB1025 |
| R1021 | 315-0123-00 | | | RES.,FXD,CMPSN:12K OHM,5%,0.25W | 01121 | CB1235 |
| R1025 | 311-1562-00 | | | RES.,VAR,NONWIR:2K OHM,20%,0.50W | 73138 | 91-84-0 |
| R1026 | 315-0332-00 | | | RES.,FXD,CMPSN:3.3K OHM,5%,0.25W | 01121 | CB3325 |
| R1028 | 315-0133-00 | | | RES.,FXD,CMPSN:13K OHM,5%,0.25W | 01121 | CB1335 |
| R1030 | 315-0332-00 | | | RES.,FXD,CMPSN:3.3K OHM,5%,0.25W | 01121 | CB3325 |
| R1034 | 315-0273-00 | | | RES.,FXD,CMPSN:27K OHM,5%,0.25W | 01121 | CB2735 |
| R1036 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R1040 | 315-0270-00 | B040000 | B058179 | RES.,FXD,CMPSN:27 OHM,5%,0.25W | 01121 | CB2705 |
| R1040 | 315-0240-00 | B058180 | | RES.,FXD,CMPSN:24 OHM,5%,0.25W | 01121 | CB2405 |
| R1045 | 315-0100-00 | | | RES.,FXD,CMPSN:10 OHM,5%,0.25W | 01121 | CB1005 |
| R1047 | 315-0272-00 | | | RES.,FXD,CMPSN:2.7K OHM,5%,0.25W | 01121 | CB2725 |
| S180 | 263-1098-03 | | | SW CAM ACTR AS:MODE/AMPLITUDE | 80009 | 263-1098-03 |
| S225 | ----- ----- | | | (PART OF R225) | | |
| S610 | 263-1101-00 | | | SW CAM ACTR AS:PERIOD | 80009 | 263-1101-00 |
| S660 | 260-0723-00 | | | SWITCH,SLIDE:DPDT,0.5A,125VAC | 79727 | GF126-0028 |
| T75 | 120-0951-00 | | | TRANSFORMER,RF:BALUN | 80009 | 120-0951-00 |
| T130 | 120-0953-00 | | | TRANSFORMER,RF:POT CORE,BIFILAR | 80009 | 120-0953-00 |
| T520 | 120-0952-00 | | | TRANSFORMER,RF:2 WINDINGS | 80009 | 120-0952-00 |
| T532 | 120-0952-00 | | | TRANSFORMER,RF:2 WINDINGS | 80009 | 120-0952-00 |
| U20 | 156-0071-00 | | | MICROCIRCUIT,LI:VOLTAGE REGULATOR | 04713 | MC1723CL |
| U50 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U200 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U240 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U255 | 156-0399-00 | | | MICROCIRCUIT,DI:OPTOELECTRONIC ISOLATOR | 04713 | 4N27 |
| U330 | 156-0067-00 | B040000 | B046759 | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U330 | 156-0067-11 | B046760 | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 02735 | CA741CE |
| U375 | 156-0067-00 | B040000 | B046759 | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U375 | 156-0067-11 | B046760 | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 02735 | CA741CE |
| U400 | 156-0113-03 | | | MICROCIRCUIT,DI:QUAD 2 INP NAND GATE,SCRN, | 01295 | SN74L00NP3 |
| U430 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U460 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| U470 | 156-0134-00 | | | MICROCIRCUIT,LI:DIFFERENTIAL COMPARATOR | 01295 | TL710CP |
| U480 | 156-0399-00 | | | MICROCIRCUIT,DI:OPTOELECTRONIC ISOLATOR | 04713 | 4N27 |
| U610 | 156-0039-02 | | | MICROCIRCUIT,DI:DUAL J-K MA-SLAVE FF,SCRN | 01295 | SN7473(NP3 OR JP |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|
| U615 | 156-0186-02 | | | MICROCIRCUIT,DI:QUAD 2-INP NAND GATE,SCRN | 01295 | SN7403(NP3 OR JP |
| U665 | 156-0079-02 | | | MICROCIRCUIT,DI:DECADE COUNTER,SCREENED | 01295 | SN7490A(NP3 OR J |
| U666 | 156-0079-02 | | | MICROCIRCUIT,DI:DECADE COUNTER,SCREENED | 01295 | SN7490A(NP3 OR J |
| U667 | 156-0079-02 | | | MICROCIRCUIT,DI:DECADE COUNTER,SCREENED | 01295 | SN7490A(NP3 OR J |
| U668 | 156-0079-02 | | | MICROCIRCUIT,DI:DECADE COUNTER,SCREENED | 01295 | SN7490A(NP3 OR J |
| U670 | 156-0040-02 | | | MICROCIRCUIT,DI:QUAD LATCH,SCREENED | 01295 | SN7475(NP3 OR JP |
| U671 | 156-0040-02 | | | MICROCIRCUIT,DI:QUAD LATCH,SCREENED | 01295 | SN7475(NP3 OR JP |
| U673 | 156-0379-00 | | | MICROCIRCUIT,DI:BCD TO 7-SEGMENT DCDR/DRVR | 80009 | 156-0379-00 |
| U675 | 156-0379-00 | | | MICROCIRCUIT,DI:BCD TO 7-SEGMENT DCDR/DRVR | 80009 | 156-0379-00 |
| U840 | 156-0067-00 | | | MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER | 01295 | MICROA741CP |
| VR10 | 152-0243-00 | | | SEMICOND DEVICE:ZENER,0.4W,15V,5% | 14552 | TD3810983 |
| VR30 | 152-0168-00 | | | SEMICOND DEVICE:ZENER,0.4W,12V,5% | 04713 | SZG35009K4 |
| VR42 | 152-0662-00 | | | SEMICOND DEVICE:ZENER,0.4W,5V,1% | 04713 | SZG195 |
| VR45 | 152-0175-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.6V,5% | 04713 | SZG35008 |
| VR170 | 152-0195-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.1V,5% | 04713 | SZ11755 |
| VR210 | 152-0174-00 | | | SEMICOND DEVICE:ZENER,0.5W,9V,5% | 80009 | 152-0174-00 |
| VR280 | 152-0195-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.1V,5% | 04713 | SZ11755 |
| VR395 | 152-0055-00 | | | SEMICOND DEVICE:ZENER,0.4W,11V,5% | 04713 | SZG35009K1 |
| VR430 | 152-0195-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.1V,5% | 04713 | SZ11755 |
| VR470 | 152-0395-00 | | | SEMICOND DEVICE:ZENER,0.4W,4.3V,5% | 14552 | TD332317 |
| VR790 | 152-0195-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.1V,5% | 04713 | SZ11755 |
| VR792 | 152-0667-00 | | | SEMICOND DEVICE:ZENER,0.4W,3.0V,2% | 04713 | SZG30025RL |
| VR866 | 152-0195-00 | | | SEMICOND DEVICE:ZENER,0.4W,5.1V,5% | 04713 | SZ11755 |
| W100 | 131-0566-00 | | | BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| W540 | 131-0566-00 | | | BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| W558 | 131-0566-00 | | | BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| W814 | 131-0566-00 | | | BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# DIAGRAMS AND CIRCUIT BOARD ILLUSTRATIONS

## Symbols

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

Logic symbology is based on ANSI 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 is in the low state.

Abbreviations are based on ANSI Y1.1-1972.

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

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

American National Standard Institute
1430 Broadway
New York, New York 10018

## Component Values

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

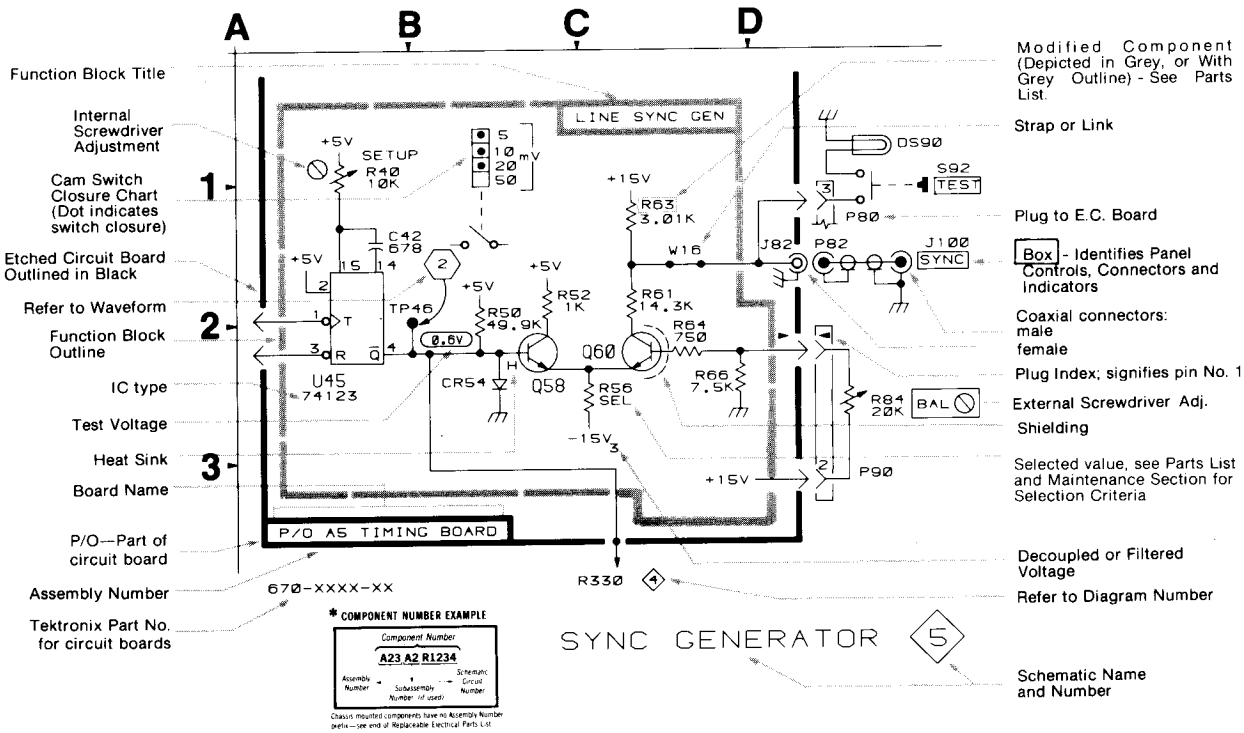
Capacitors = Values one or greater are in picofarads (pF). Values less than one are in microfarads ($\mu$F).
Resistors = Ohms ($\Omega$).

## The information and special symbols below may appear in this manual.

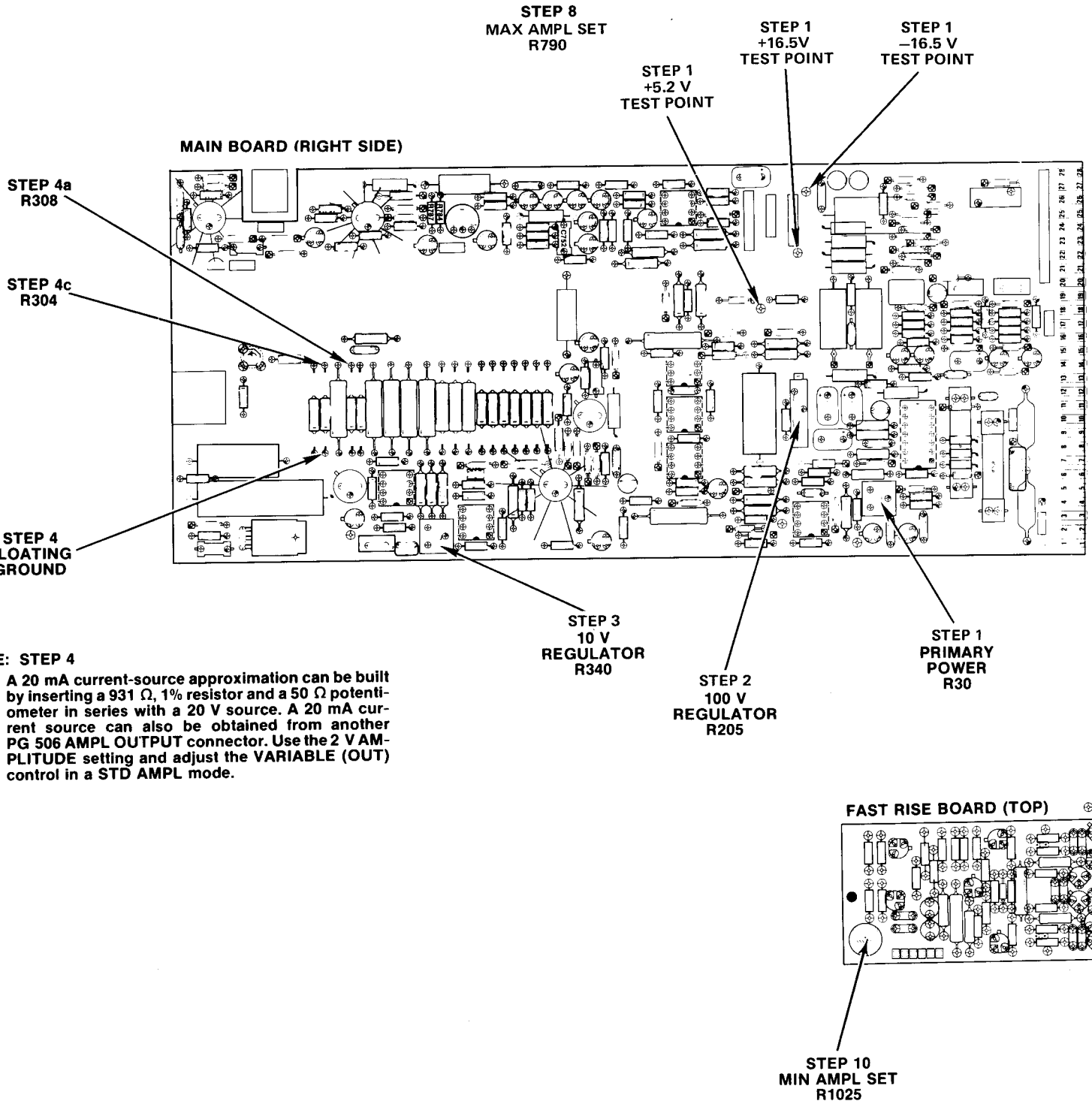
### Assembly Numbers and Grid Coordinates

Each assembly in the instrument is assigned an assembly number (e.g., A20). The assembly number appears on the circuit board outline on the diagram, in the title for the circuit board component location illustration, and in the lookup table for the schematic diagram and corresponding component locator illustration. The Replaceable Electrical Parts list is arranged by assemblies in numerical sequence; the components are listed by component number *(see following illustration for constructing a component number).

The schematic diagram and circuit board component location illustration have grids. A lookup table with the grid coordinates is provided for ease of locating the component. Only the components illustrated on the facing diagram are listed in the lookup table. When more than one schematic diagram is used to illustrate the circuitry on a circuit board, the circuit board illustration may only appear opposite the first diagram on which it was illustrated; the lookup table will list the diagram number of other diagrams that the circuitry of the circuit board appears on.




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




**NOTE: STEP 4**

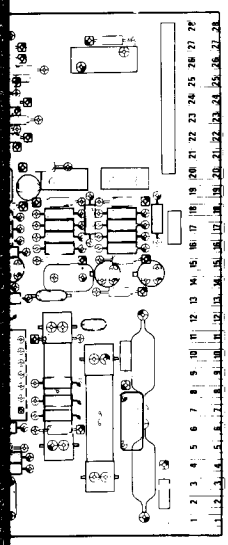
**A 20 mA current-source approximation can be built by inserting a 931 Ω, 1% resistor and a 50 Ω potentiometer in series with a 20 V source. A 20 mA current source can also be obtained from another PG 506 AMPL OUTPUT connector. Use the 2 V AMPLITUDE setting and adjust the VARIABLE (OUT) control in a STD AMPL mode.**

Fig. 8-1. Adjustment locations.

@

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

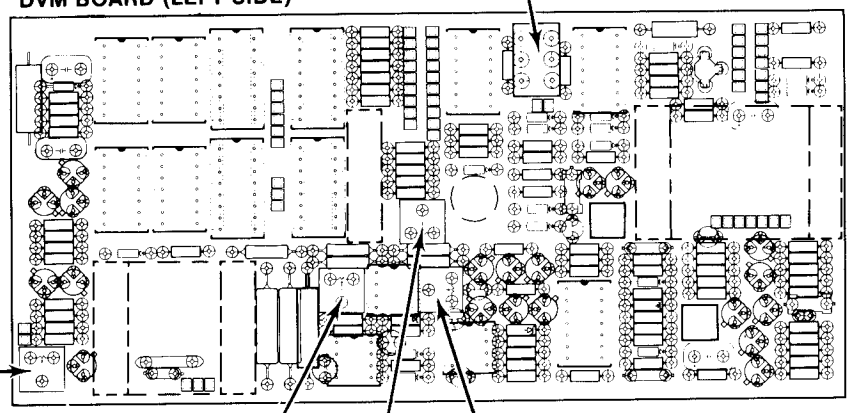
EP 1
6.5 V
POINT



STEP 1
PRIMARY
POWER
R30

STEP 1-UP
STEP 7-DOWN
S660

DVM BOARD (LEFT SIDE)



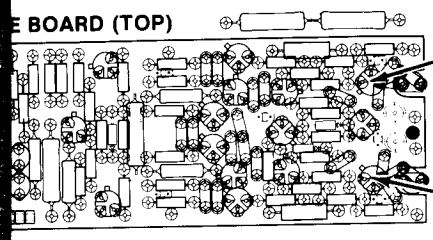
STEP 7
PERIOD
R587

STEP 5a
ZERO SET
R450

STEP 5c
+7.3% SET
R415

STEP 5b
−6.8% SET
R425

E BOARD (TOP)



STEP 11l
C940

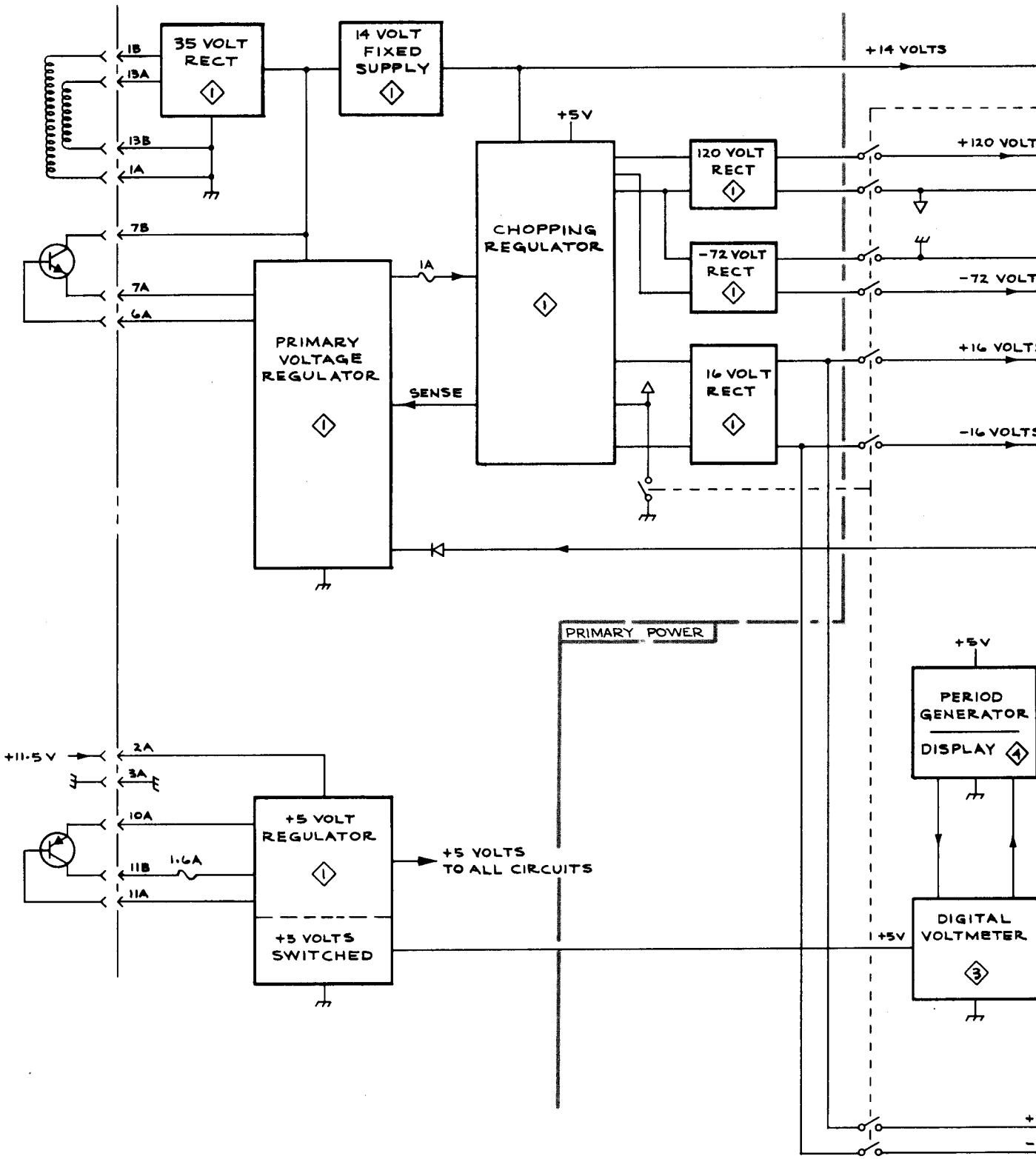
NOTE:
C940 and C1000
LOCATED ON UNDERSIDE
OF BOARD

STEP 11j
C1000

Adjustment locations.

3383-30

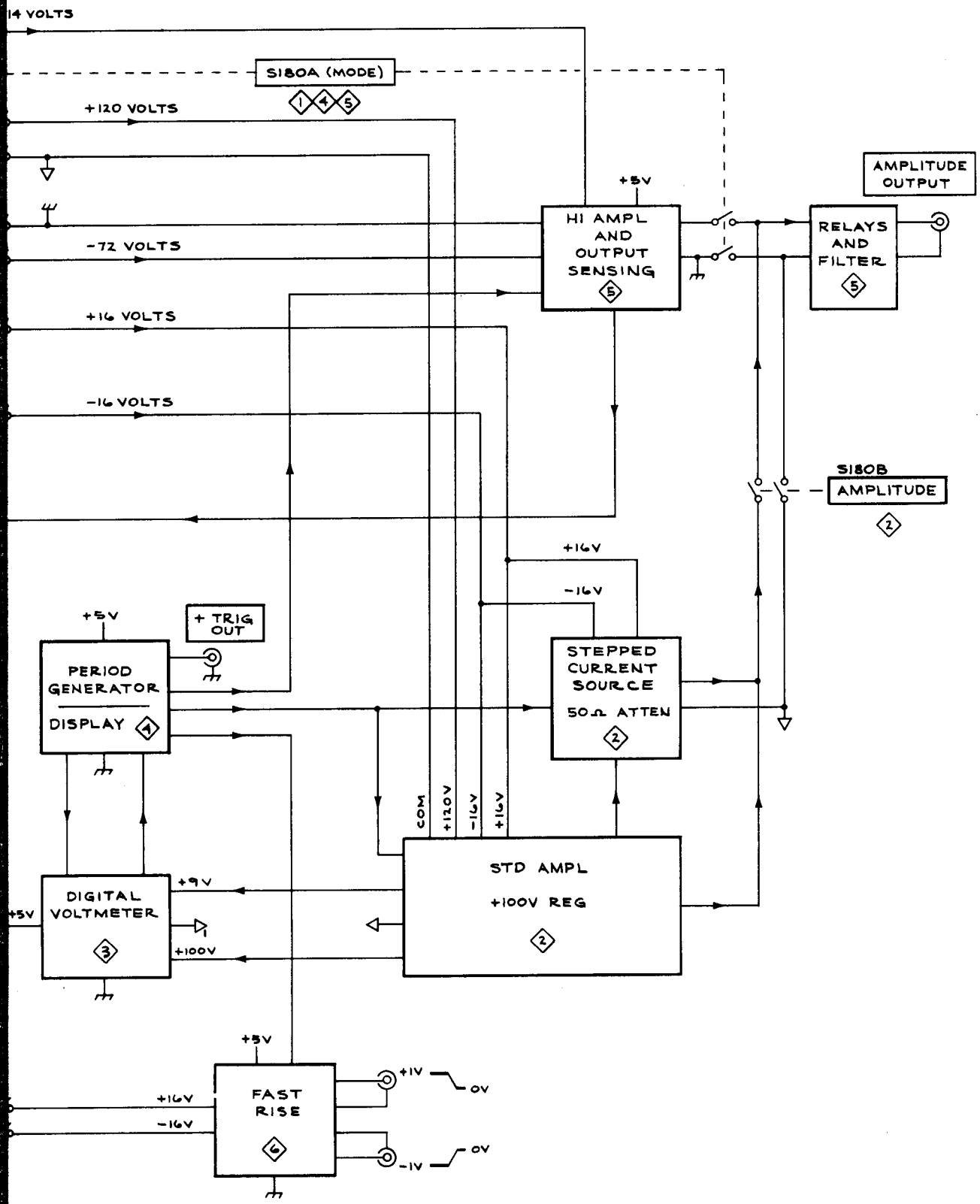
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




9888-22

PG 506 (SN B040000 & UP)

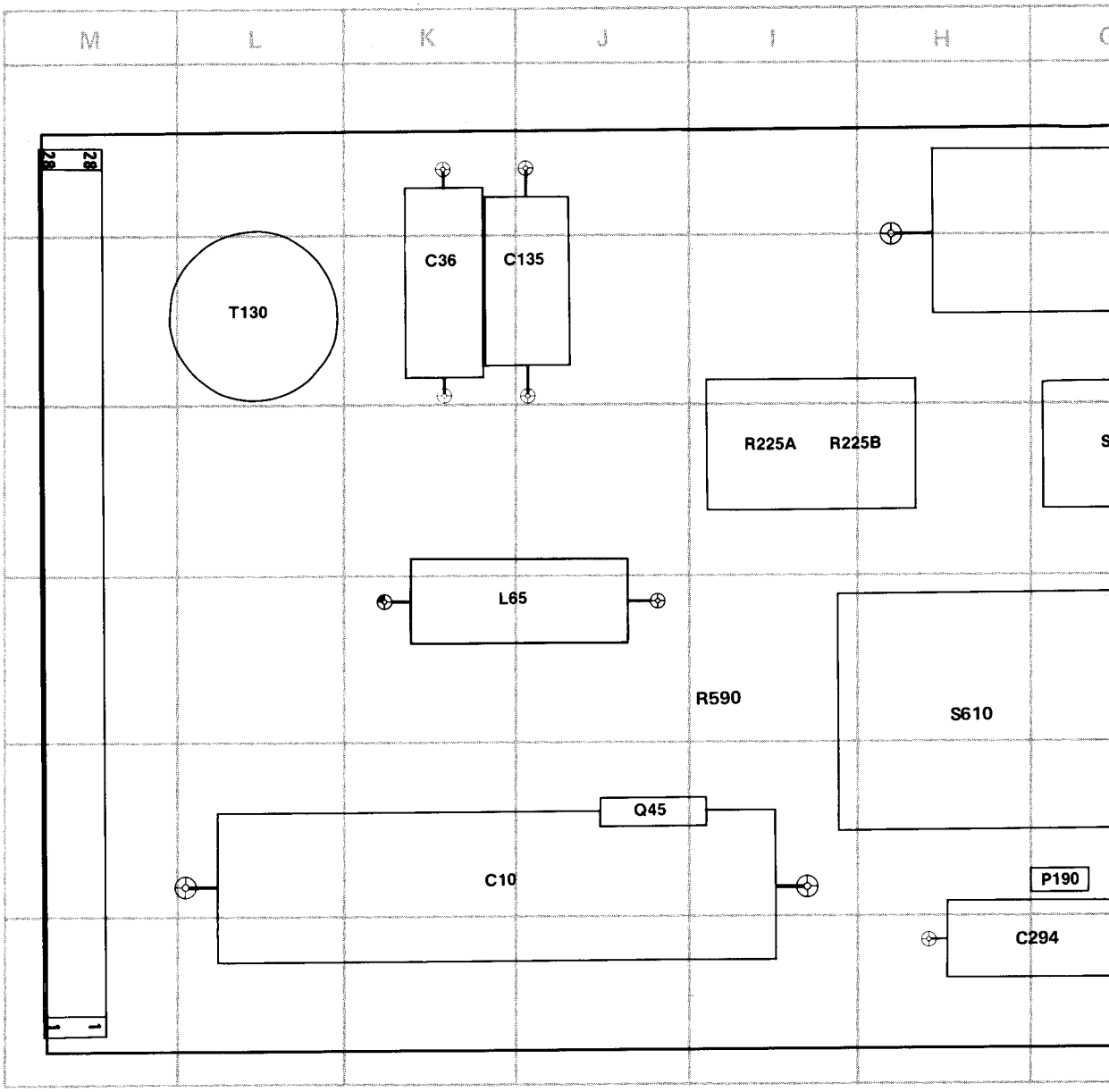
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




Block Diagram



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

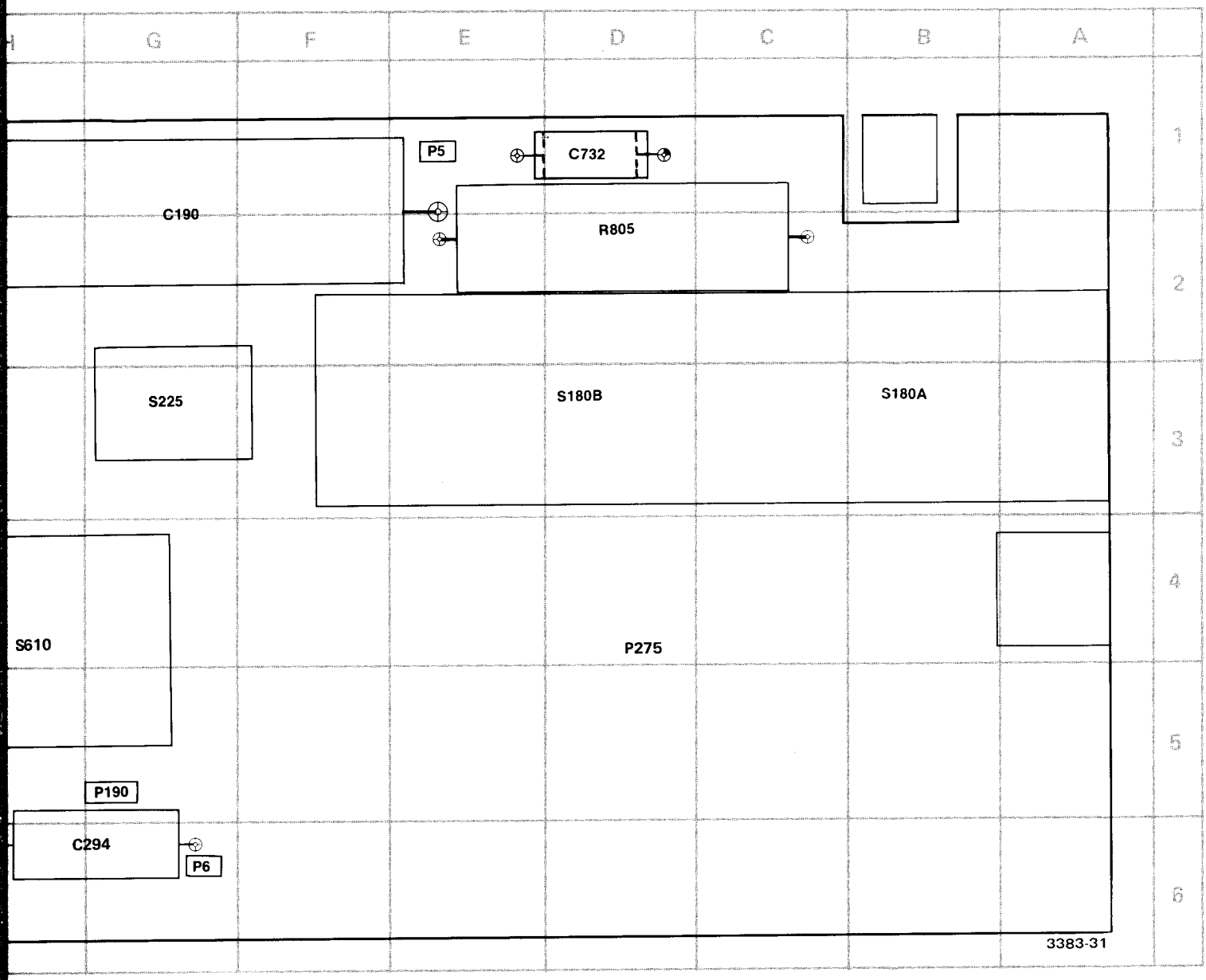



Static Sensitive Devices
*See Maintenance Section*

**Fig. 8-2. A1—Main Boar**

@

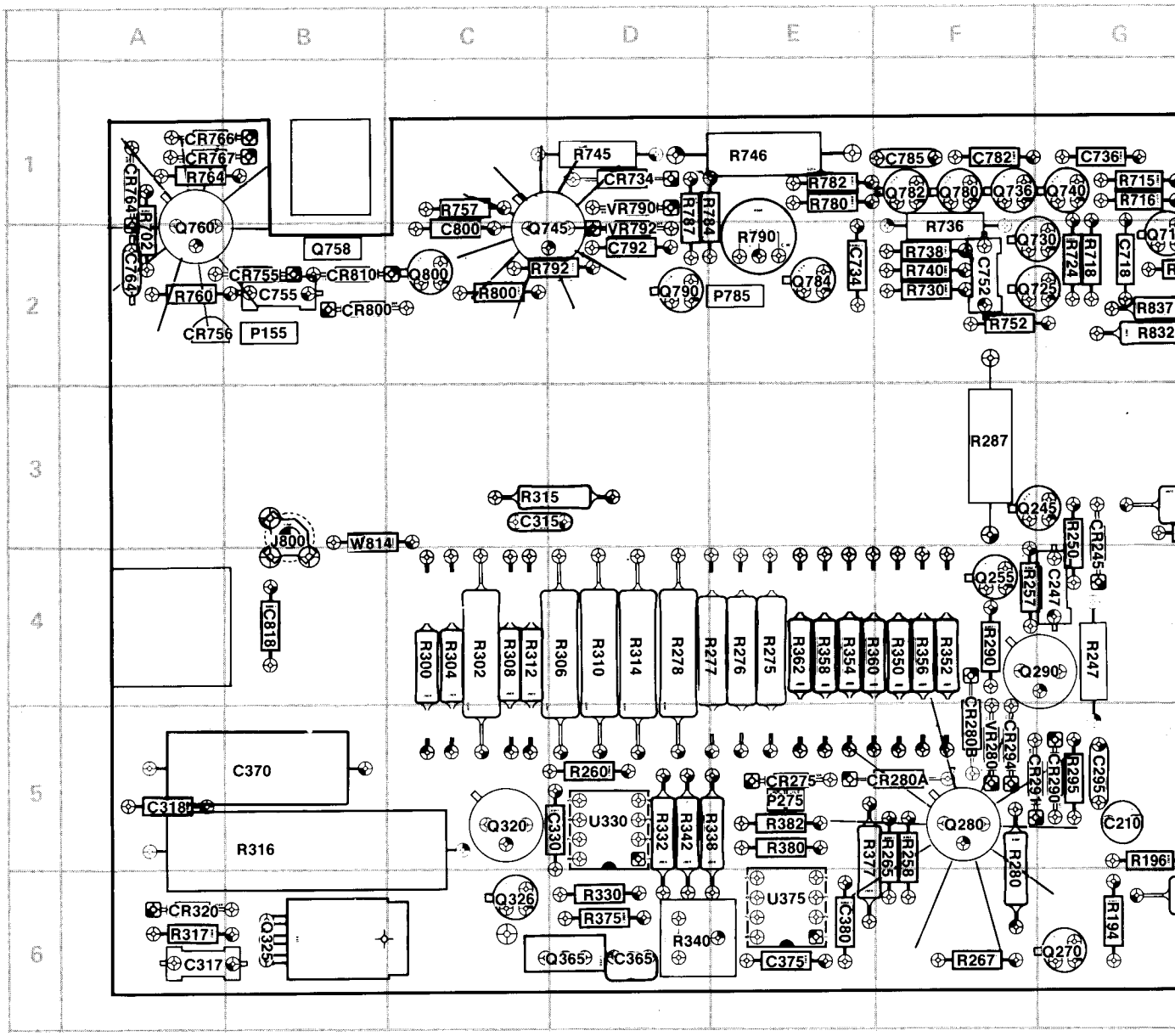
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




2. A1—Main Board "B" component locations.

A1 MAIN BOARD "B"
COMPONENT LOCATIONS

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

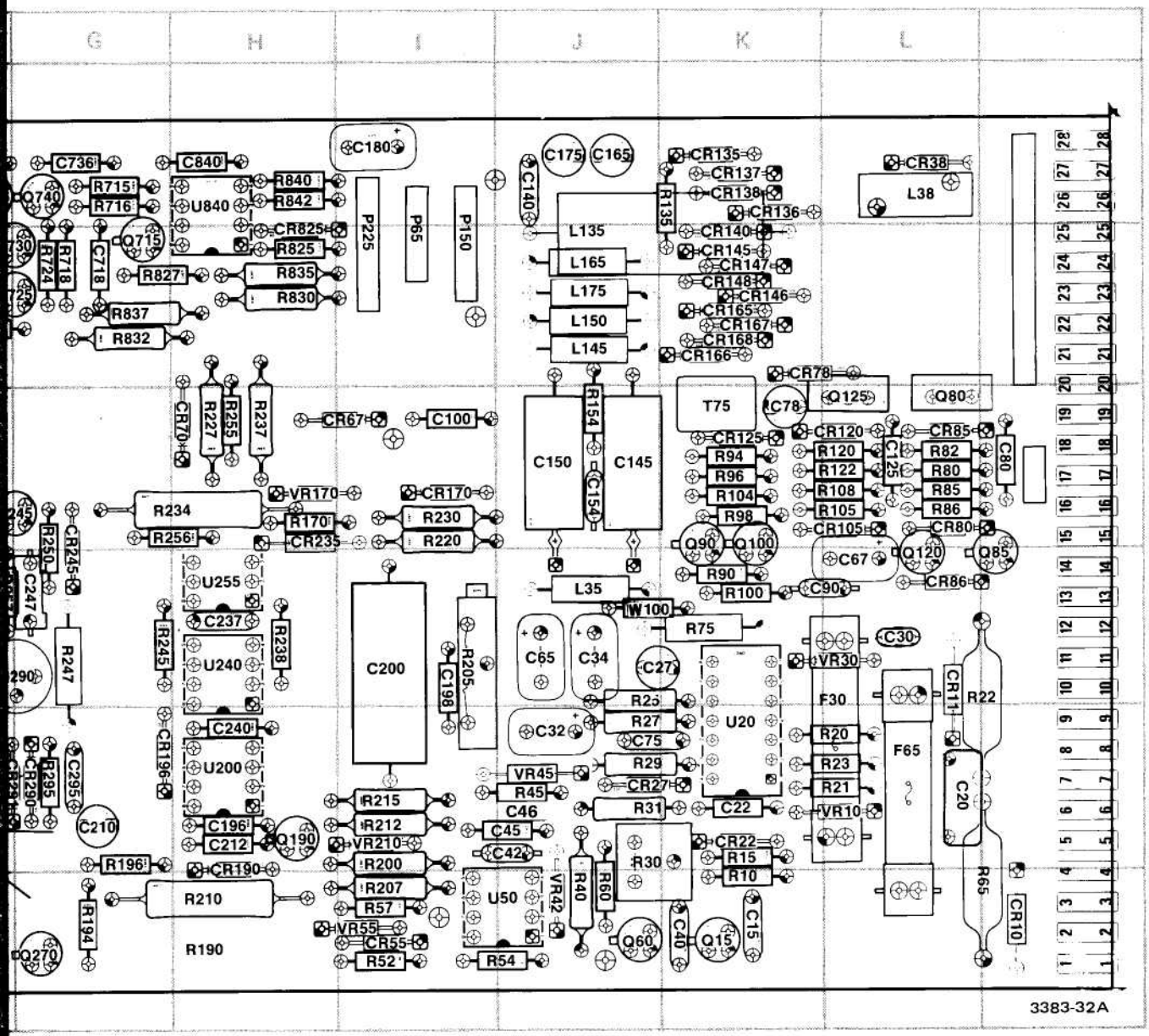



Static Sensitive Devices
*See Maintenance Section*

Fig. 8-3. A1—Main Board compo

A1 MAIN BOARD
COMPONENT LOCATIONS

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




ain Board component locations.

Digitally signed by
http://www.aa4df.com

REV SEP 1981

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**P/O A1 Assy** — **Primary Power** ◇1

| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| C10† | A2 | K5 |
| C15 | B2 | K6 |
| C20 | B3 | L5 |
| C22 | B4 | K5 |
| C27 | A4 | J4 |
| C30 | C4 | L4 |
| C32 | C4 | J5 |
| C34 | C4 | I4 |
| C36† | D4 | K2 |
| C40 | A7 | K6 |
| C42 | A8 | J5 |
| C46* | A8 | J5 |
| C65 | D9 | J4 |
| C67 | D9 | L4 |
| C75 | E6 | J4 |
| C78 | E6 | K3 |
| C80 | E5 | M3 |
| C90 | D2 | K4 |
| C100 | H5 | I3 |
| C125 | E2 | L3 |
| C135† | H3 | J2 |
| C140 | J3 | J1 |
| C145 | G4 | J3 |
| C150 | H4 | J2 |
| C154 | H4 | J2 |
| C165 | H6 | J1 |
| C170 | H4 | I1 |
| C175 | G6 | J1 |
| C180 | H6 | I1 |
| CR10 | A1 | M6 |
| CR11 | A1 | L4 |
| CR22 | B4 | K5 |
| CR27 | B6 | J5 |
| CR38 | E4 | L1 |
| CR55 | C7 | I6 |
| CR67 | E8 | I3 |
| CR78 | F6 | K2 |
| CR80 | F4 | L3 |
| CR85 | E5 | L3 |
| CR105 | E3 | L3 |
| CR120 | E2 | L3 |
| CR125 | F3 | K3 |
| CR135 | G3 | K1 |
| CR136 | G3 | K1 |
| CR137 | G3 | K1 |
| CR138 | G3 | K1 |
| CR140 | H3 | K2 |
| CR145 | G4 | K2 |
| CR146 | G4 | K2 |
| CR147 | G4 | K2 |
| CR148 | G4 | K2 |
| CR165 | G6 | K2 |
| CR166 | G6 | K2 |
| CR167 | G6 | K2 |
| CR168 | G6 | K2 |
| CR170 | H5 | I3 |
| F30 | C4 | L4 |
| F65 | D8 | L5 |
| L35 | C4 | J4 |
| L38 | D4 | L1 |
| L65† | D8 | K4 |
| L135 | H3 | J2 |
| L145 | G4 | J2 |
| L150 | H4 | J2 |
| L165 | G4 | J2 |
| L175 | H6 | J2 |
| P65 | J5 | I2 |
| P155 | J2 | B2 |
| P225 | H4 | J2 |
| Q15 | B2 | K6 |
| Q45† | A8 | J5 |
| Q60 | C7 | J6 |
| Q80 | F5 | L3 |
| Q85 | F5 | M4 |
| Q90 | D2 | K2 |
| Q100 | E2 | E2 |
| Q120 | E3 | L4 |
| Q125 | F3 | L3 |
| R10 | B2 | K6 |
| R15 | B2 | K5 |
| R20 | B3 | L5 |
| R21 | B3 | L5 |
| R22 | C3 | L4 |
| R23 | B3 | L5 |
| R25 | A4 | J4 |
| R27 | A4 | J5 |
| R29 | B6 | J5 |
| R30 | B6 | J6 |
| R31 | B6 | J5 |
| R40 | A7 | J6 |
| R45 | A9 | J5 |
| R52 | B8 | I6 |
| R54 | B7 | J6 |
| R57 | C7 | I6 |
| R60 | C8 | J6 |
| R65 | D7 | M6 |
| R75 | D6 | L4 |
| R80 | E5 | L3 |
| R82 | E5 | L3 |
| R85 | E5 | L3 |
| R90 | D1 | K4 |
| R94 | D3 | K3 |
| R96 | D2 | K3 |
| R98 | D2 | K3 |
| R100 | E2 | K4 |
| R104 | E3 | K3 |
| R105 | E3 | L3 |
| R108 | E3 | L3 |
| R120 | E3 | L3 |
| R122 | E3 | L3 |
| R135 | G3 | K1 |
| R154 | J4 | J2 |
| R170 | H5 | H3 |
| T75 | K3 | E6 |
| T130† | F3 | L2 |
| U20 | B3 | L5 |
| U50 | B7 | J6 |
| VR10 | B2 | L5 |
| VR30 | B4 | L4 |
| VR42 | A8 | J6 |
| VR45 | A8 | J5 |
| VR55 | C7 | I6 |
| VR170 | H5 | H3 |

**P/O A1 ASSY also shown on** ◇2 ◇5

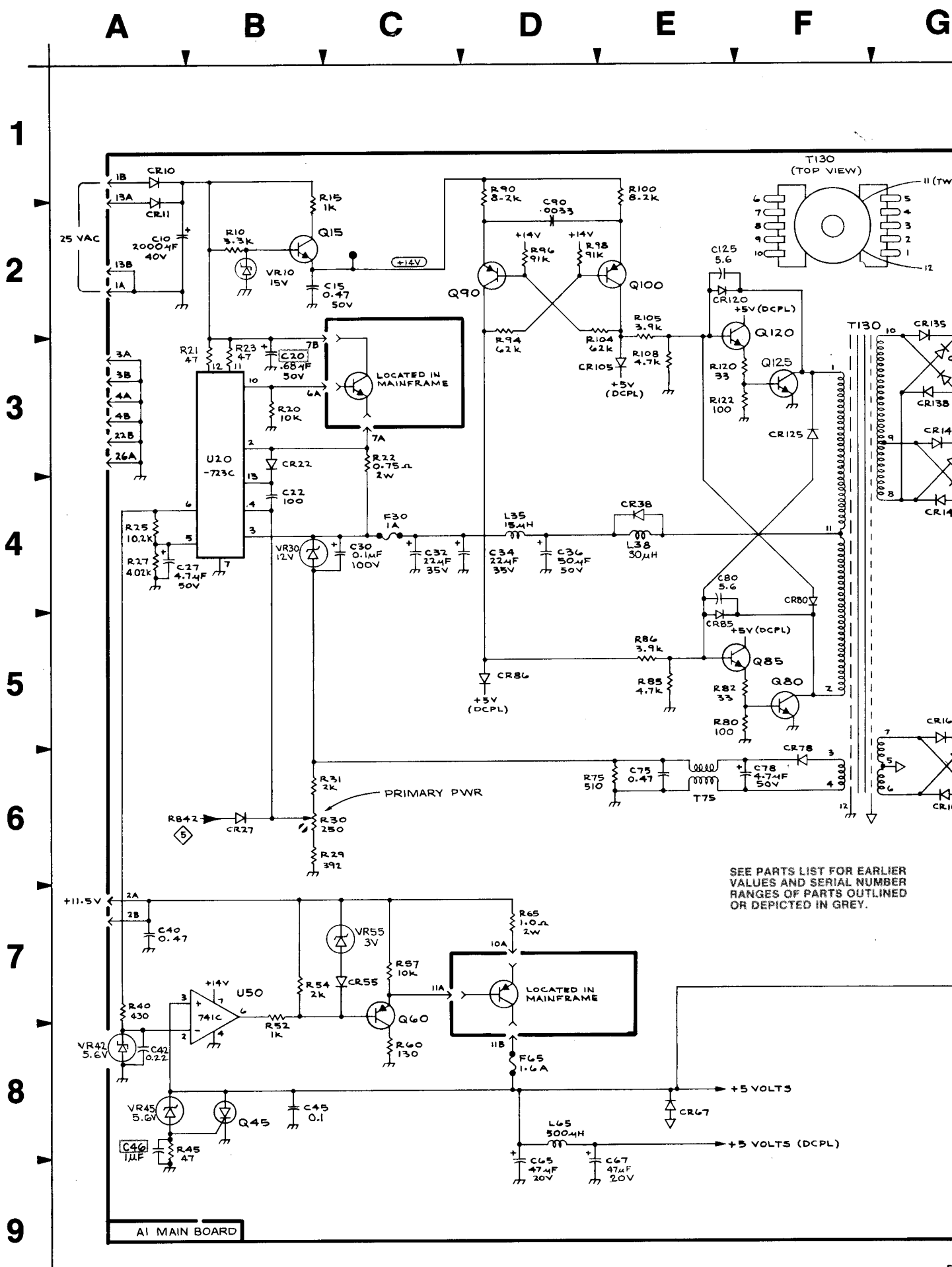
**A5 ASSY** **Located on Fig. 8-4** — **Primary Power** ◇1

| | | |
|---|---|---|
| C3 | K2 | J3 |
| CR2 | L2 | K4 |
| K2 | L2 | J4 |
| K4 | L2 | J2 |

† **Located on back of board.**

***See Parts List for serial number ranges.**

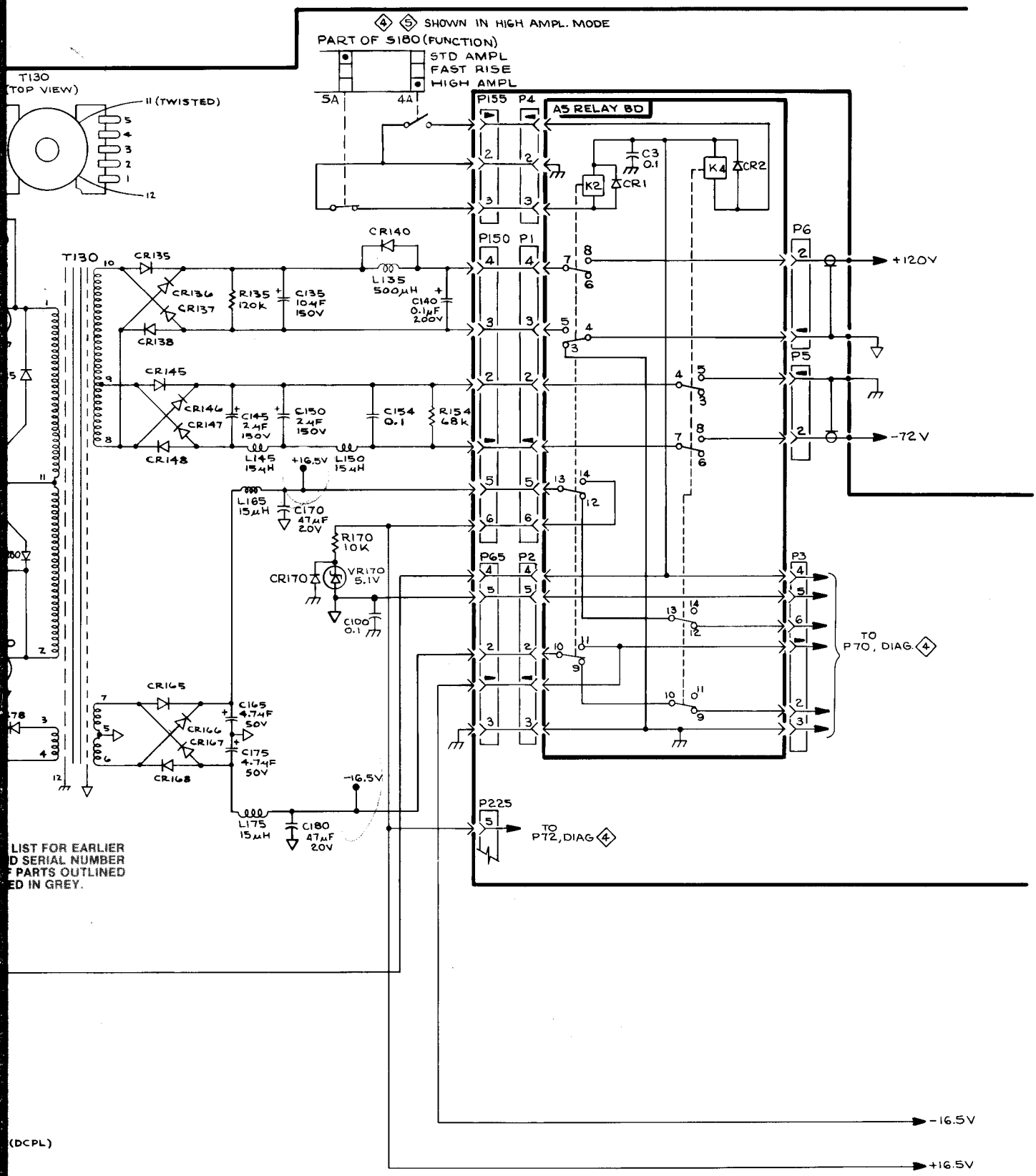
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




PG 506 (SN B040000+ UP)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

F G H J K L M







Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**P/O A1 Assy** — **Standard Amplitude** ◇2

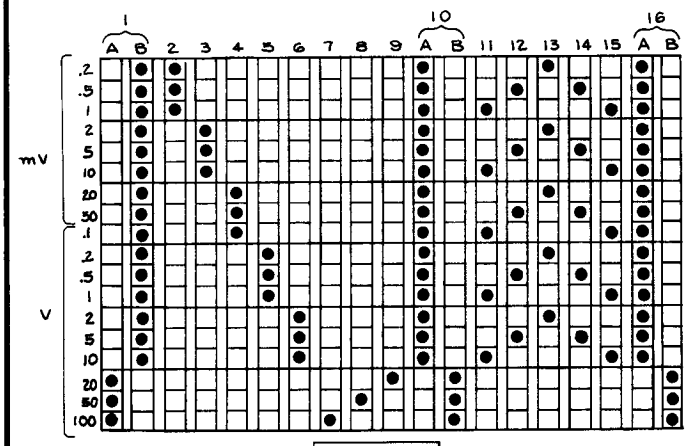
| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| C190† | C5 | G1 |
| C196 | C6 | H5 |
| C198 | C6 | I4 |
| C200 | B6 | I4 |
| C210 | D8 | G5 |
| C212 | D7 | H5 |
| C237 | F6 | H4 |
| C240 | F7 | H5 |
| C247 | F7 | G4 |
| C294† | F6 | G6 |
| C295 | F6 | G5 |
| C315 | L5 | C3 |
| C317 | J5 | A6 |
| C318 | J5 | A5 |
| C330 | J4 | D5 |
| C365 | K3 | D6 |
| C370 | K1 | B5 |
| C375 | H2 | E6 |
| C380 | H2 | E6 |
| CR70 | C8 | H3 |
| CR190 | C6 | H5 |
| CR196 | D6 | G5 |
| CR235 | E7 | H5 |
| CR245 | F7 | G4 |
| CR275 | J8 | E5 |
| CR280A | J6 | F5 |
| CR280B | H6 | F5 |
| CR290 | F6 | G5 |
| CR291 | F6 | F5 |
| CR294 | F6 | F5 |
| CR320 | K4 | A6 |
| P190† | M7 | G5 |
| P225 | C8 | I2 |
| P225 | C9 | I2 |
| Q190 | C6 | H5 |
| Q245 | G7 | G3 |
| Q255 | G8 | F4 |
| Q270 | H8 | G6 |
| Q280 | H6 | F5 |
| Q290 | G6 | G4 |
| Q320 | J4 | C5 |
| Q325 | K4 | B6 |
| Q326 | J4 | C6 |
| Q365 | K2 | D6 |
| R190 | C5 | H6 |
| R194 | D5 | G6 |
| R196 | D6 | G5 |
| R200 | B6 | I5 |
| R205 | C6 | I4 |
| R207 | B6 | I6 |
| R210 | C7 | H6 |
| R212 | C7 | I5 |
| R215 | D7 | I5 |
| R220 | D7 | I3 |
| R225A† | D7 | G3 |
| R225B† | D7 | G3 |
| R230 | D7 | I3 |
| R234 | E6 | H3 |
| R237 | E7 | H3 |
| R238 | F7 | H4 |
| R245 | F7 | G4 |
| R247 | G7 | G4 |
| R250 | G7 | G4 |
| R255 | F9 | H3 |
| R256 | F8 | H3 |
| R257 | F8 | F4 |
| R258 | G9 | F5 |
| R260 | H8 | D5 |
| R265 | H8 | F5 |
| R267 | H8 | F6 |
| R275 | J8 | E4 |
| R276 | J7 | E4 |
| R277 | J7 | E4 |
| R278 | J6 | D4 |
| R280 | H6 | F5 |
| R287 | H6 | F3 |
| R290 | G6 | F4 |
| R295 | F6 | G5 |
| R300 | L5 | C4 |
| R302 | L5 | C4 |
| R304 | K5 | C4 |
| R306 | K5 | D4 |
| R308 | K5 | C4 |
| R310 | K5 | D4 |
| R312 | K5 | C4 |
| R314 | K4 | D4 |
| R315 | L5 | C3 |
| R316 | K5 | B5 |
| R317 | J5 | A6 |
| R330 | J4 | D4 |
| R332 | H4 | D5 |
| R338 | H4 | E5 |
| R340 | H4 | D6 |
| R342 | H4 | D5 |
| R350 | H2 | F4 |
| R352 | H3 | E2 |
| R354 | J2 | E4 |
| R356 | J3 | F4 |
| R358 | J3 | E4 |
| R360 | J3 | E4 |
| R375 | J2 | D6 |
| R377 | H2 | E5 |
| R380 | G2 | E5 |
| R382 | G1 | E5 |
| S225† | B9 | G3 |
| S225† | E8 | G3 |
| U200 | D6 | H5 |
| U240 | F7 | H4 |
| U255 | G8 | H4 |
| U330 | H4 | D5 |
| U375 | H2 | E6 |
| VR210 | C7 | I5 |
| VR280 | H6 | F5 |

**P/O A1 ASSY also shown on** ◇1 ◇5

† **Located on back of board.**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

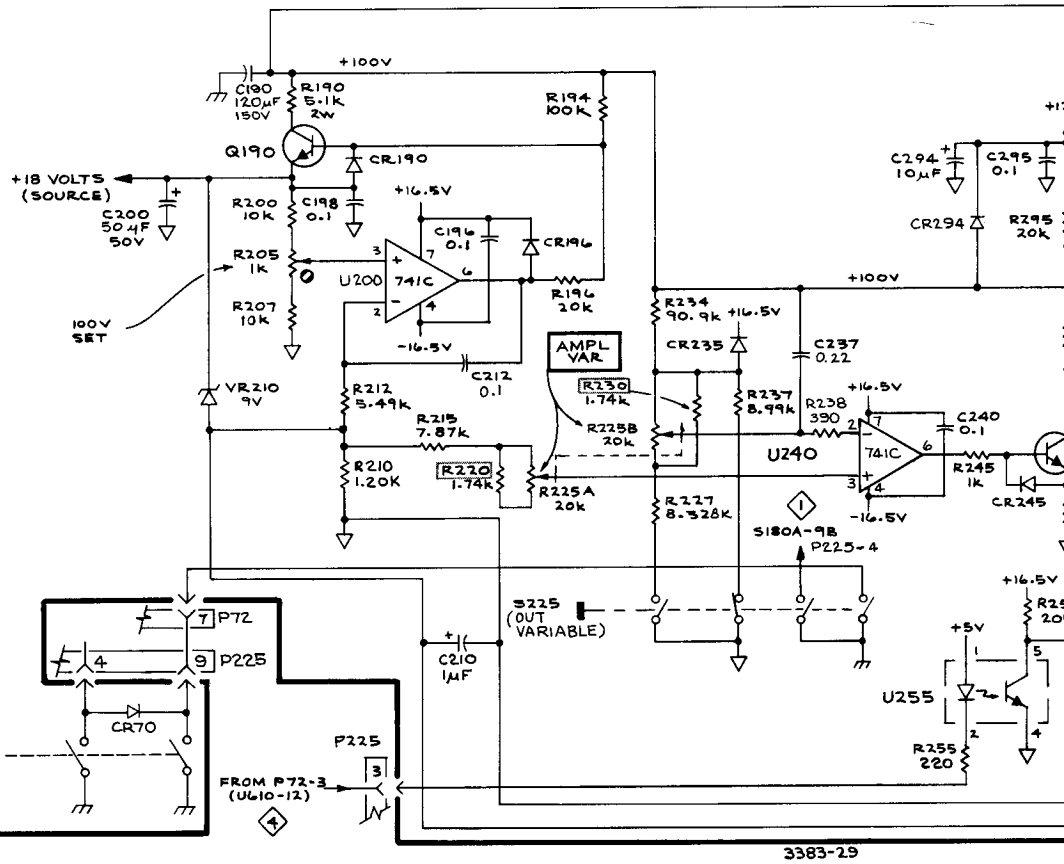
A1 MAIN BOARD




S180B - AMPLITUDE
VOLTS INTO 1MΩ

NOTES:
1. ● INDICATES CONTACT CLOSED
2. SHOWN IN 100V POSITION
3. UNLESS OTHERWISE NOTED ALL CONT SHOWN ON THIS PAGE ARE S180B

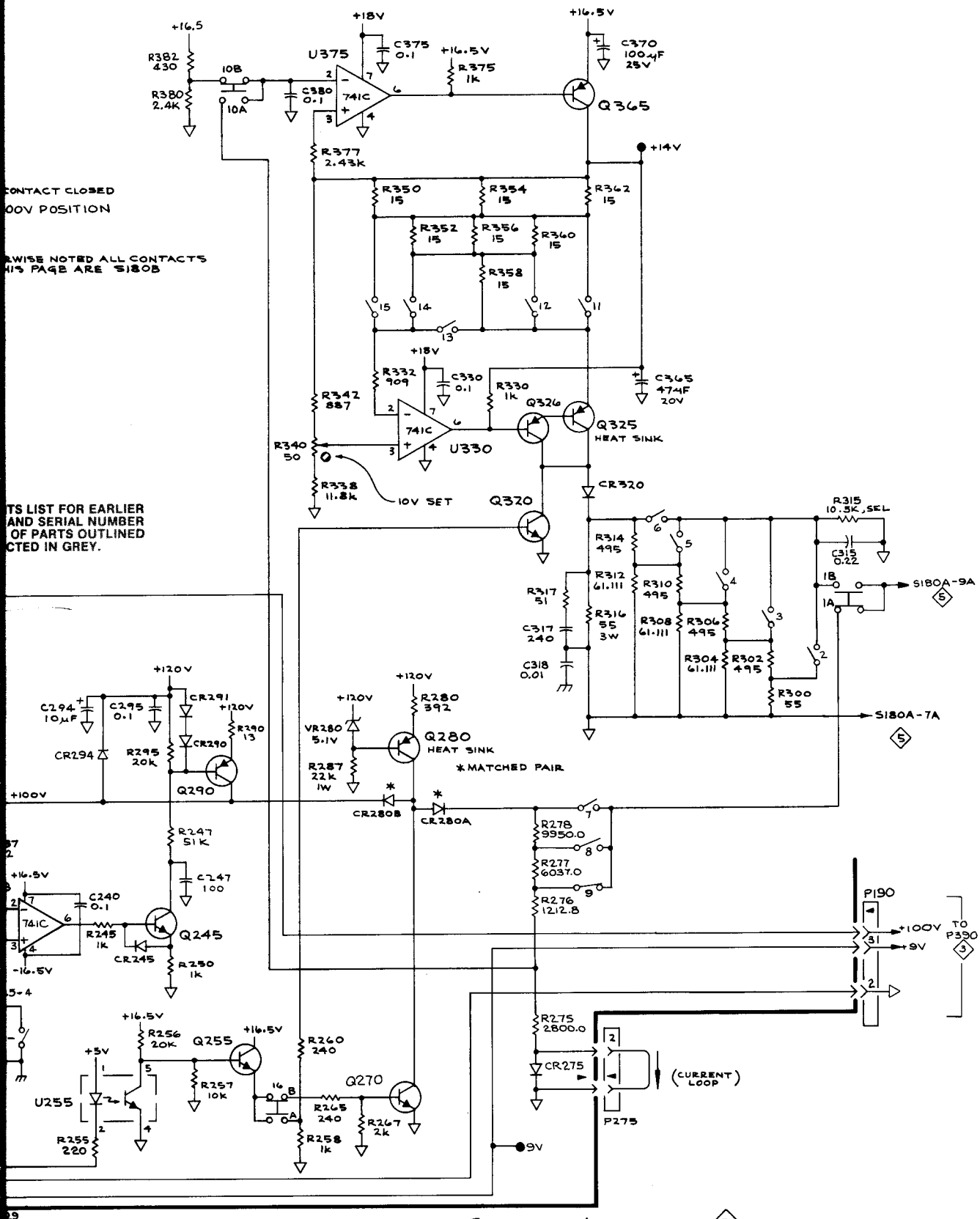
SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS OUTLINED OR DEPICTED IN GREY.




PG 506 (SN B 40000 & UP)

3383-29
REV JUN 1982

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




STANDARD AMPLITUDE 2

1982

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

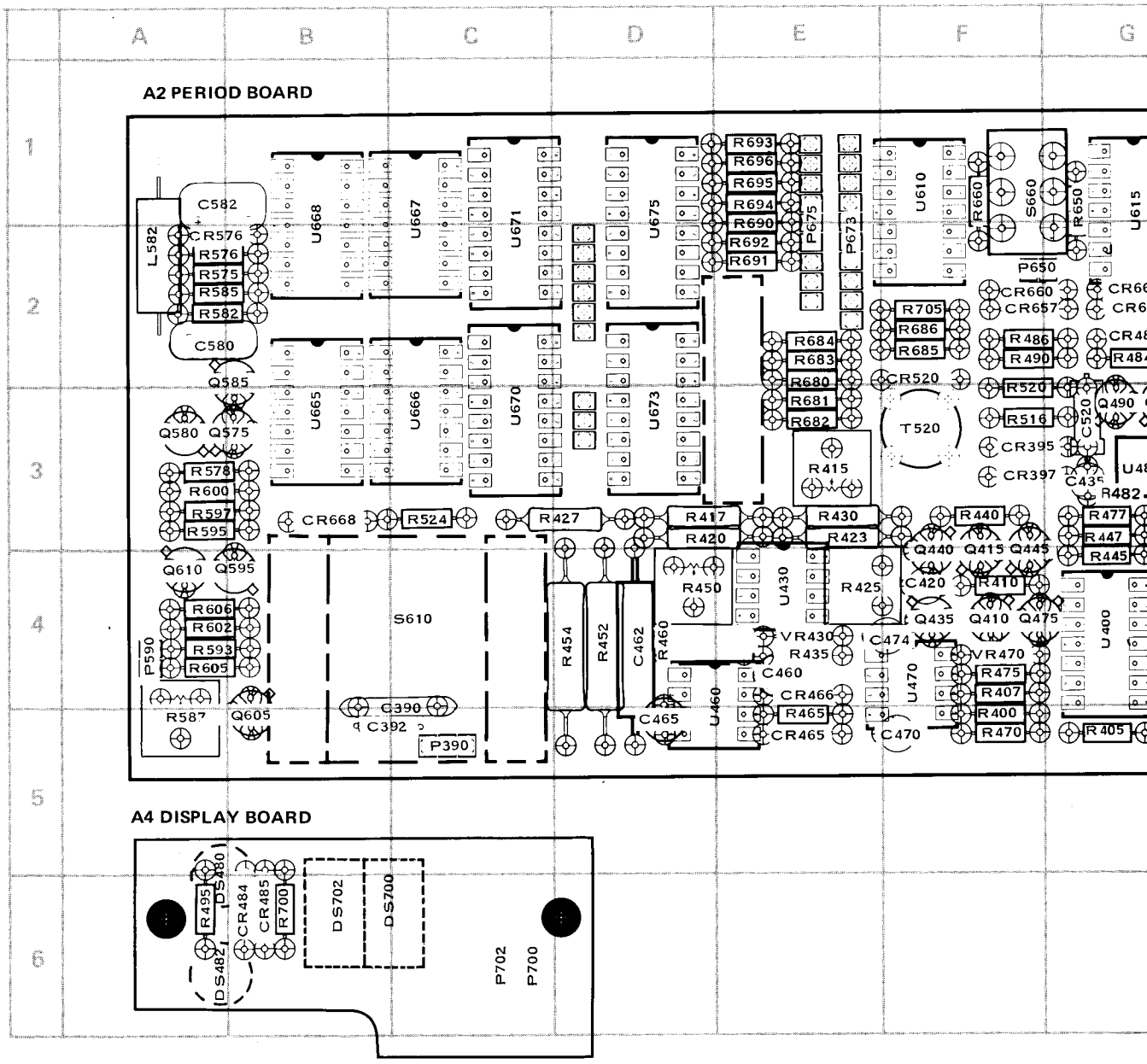
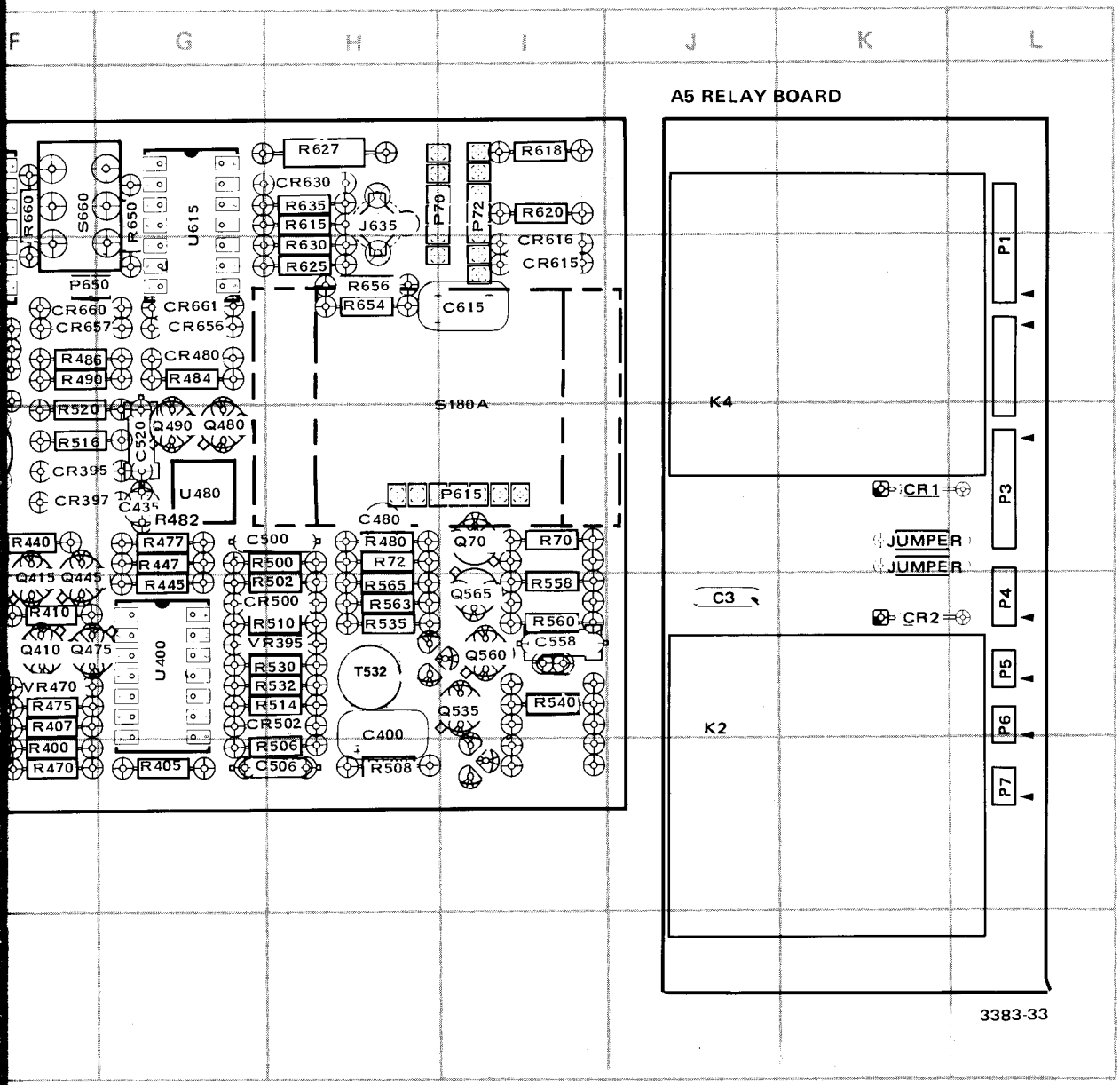



Fig. 8-4. A2—Period and A4—Display Board compo

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




Static Sensitive Devices
*See Maintenance Section*

**Display Board component locations.**

@

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**P/O A2 Assy** — **Digital Voltmeter** 3

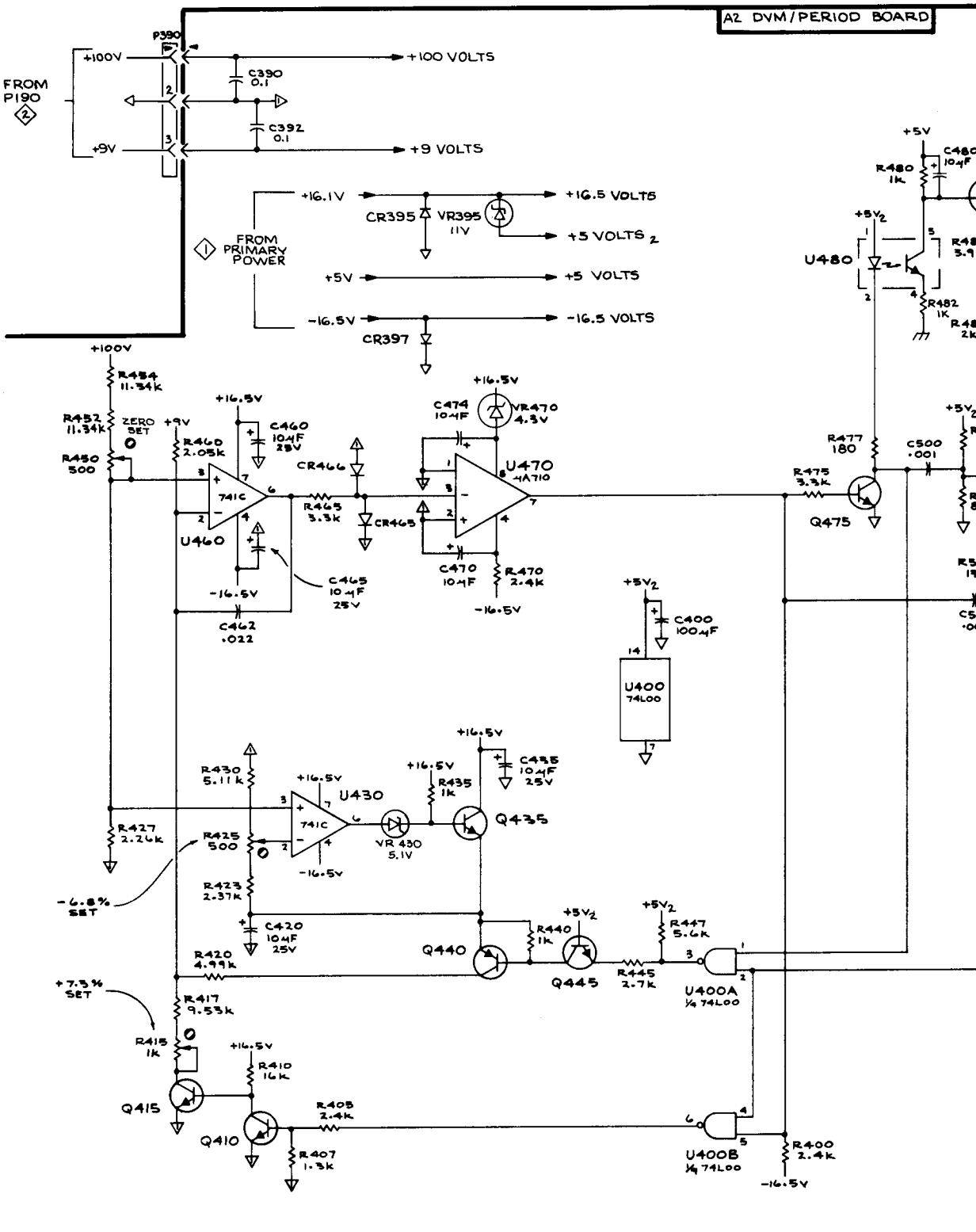
| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| C390 | B1 | C4 |
| C392 | B2 | C5 |
| C400 | E5 | H4 |
| C420 | B7 | F4 |
| C435 | D6 | G3 |
| C460 | B4 | E4 |
| C465 | B5 | D4 |
| C470 | C4 | F5 |
| C474 | C3 | F4 |
| C480 | G2 | H3 |
| C500 | F4 | H3 |
| C506 | G5 | H5 |
| C520 | J5 | G3 |
| C558 | K4 | I4 |
| CR395 | C2 | F3 |
| CR397 | C3 | F3 |
| CR465 | C4 | E5 |
| CR466 | C4 | E4 |
| CR480 | G2 | G2 |
| CR484 | J2 | B6 |
| CR485 | J2 | B6 |
| CR500 | G4 | H4 |
| CR520 | J5 | F2 |
| DS480 | H2 | A6 |
| DS482 | J2 | A6 |
| P390 | B1 | C5 |
| P673 | H2 | E2 |
| P702 | H2 | C6 |
| Q410 | B8 | F4 |
| Q415 | B8 | F4 |
| Q435 | D6 | F4 |
| Q440 | D7 | F3 |
| Q445 | D7 | F3 |
| Q475 | F4 | G4 |
| Q480 | G2 | G3 |
| Q490 | G3 | G3 |
| Q535 | H5 | I4 |
| Q560 | K4 | I4 |
| Q565 | K4 | I4 |
| R400 | E8 | F5 |
| R405 | B8 | G5 |
| R407 | B8 | F4 |
| R410 | B7 | F4 |
| R415 | B7 | E3 |
| R417 | B7 | D3 |
| R420 | B7 | D3 |
| R423 | B6 | E3 |
| R425 | B6 | E4 |
| R427 | B6 | D3 |
| R430 | B6 | E3 |
| R435 | D6 | E4 |
| R440 | D7 | F3 |
| R445 | D7 | G4 |
| R447 | E6 | G3 |
| R450 | A3 | D4 |
| R452 | A4 | D4 |
| R454 | A3 | D4 |
| R460 | B4 | D4 |
| R465 | C4 | E5 |
| R470 | F5 | F4 |
| R475 | F4 | F4 |
| R477 | F4 | G3 |
| R480 | F2 | H3 |
| R482 | F3 | G3 |
| R484 | G2 | G2 |
| R486 | G3 | F2 |
| R490 | G3 | F2 |
| R495 | J2 | A6 |
| R500 | G4 | H3 |
| R502 | G4 | H4 |
| R506 | G4 | H5 |
| R508 | G5 | H5 |
| R510 | G4 | H4 |
| R514 | G4 | H4 |
| R516 | H5 | F3 |
| R520 | J5 | F3 |
| R524 | K6 | C3 |
| R530 | H4 | H4 |
| R532 | H4 | H4 |
| R535 | J4 | H4 |
| R560 | K4 | I4 |
| R563 | K3 | H4 |
| R565 | L3 | H4 |
| T520 | J5 | F3 |
| T532 | J4 | H4 |
| U400A | E7 | G4 |
| U400B | E8 | G4 |
| U400C | H4 | G4 |
| U400D | H5 | G4 |
| U430 | C6 | E4 |
| U460 | B4 | D4 |
| U470 | D4 | F4 |
| U480 | F3 | G3 |
| VR395 | D2 | H4 |
| VR430 | C6 | E4 |
| VR470 | D4 | F4 |
| W540 | J4 | I4 |
| W558 | J4 | I4 |

**P/O A2 ASSY also shown on** 4

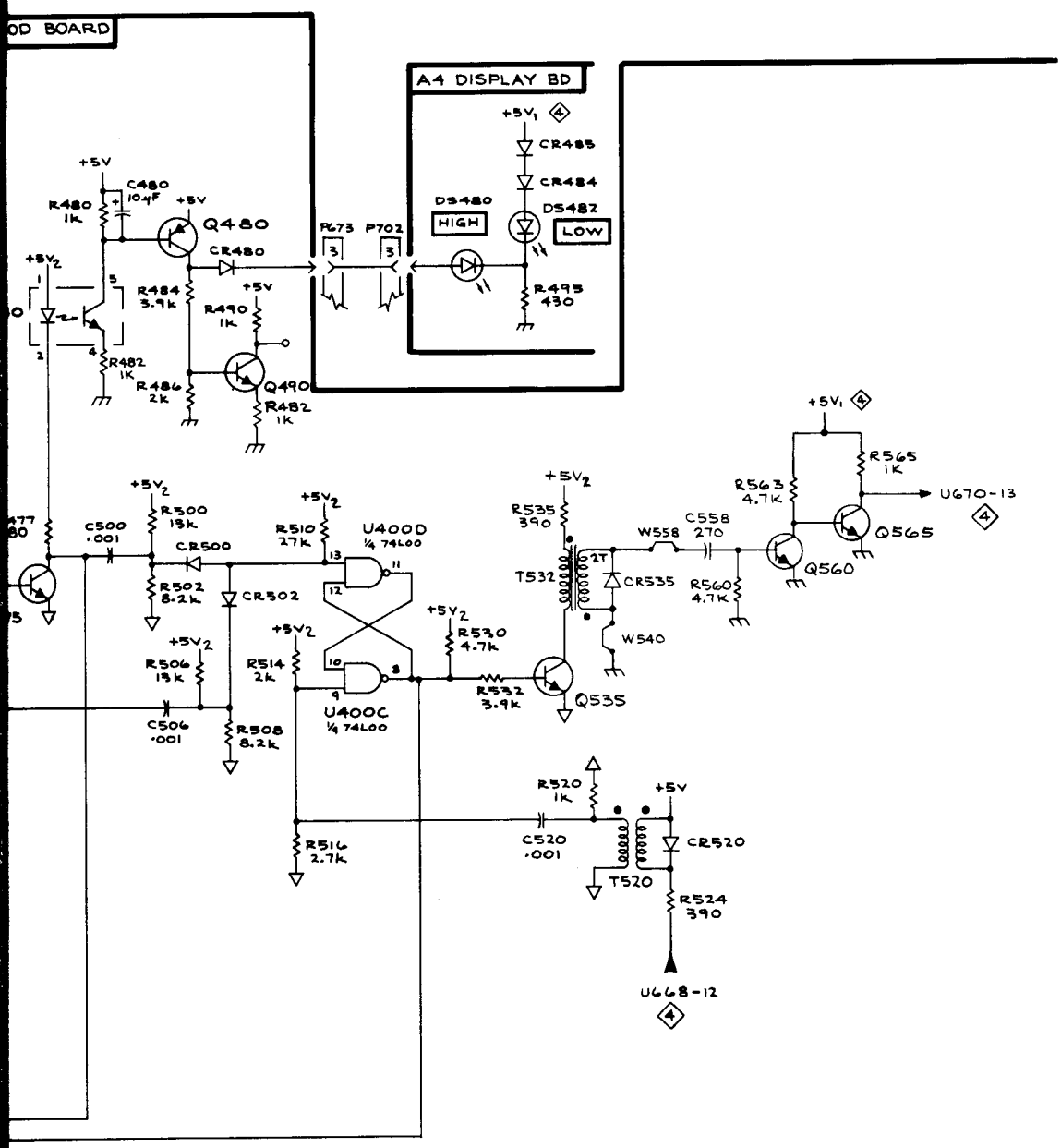
**P/O A4 ASSY** — **Digital Voltmeter** 3

| | | |
|---|---|---|
| CR484 | J2 | B6 |
| CR485 | J2 | B6 |
| DS480 | H2 | A5 |
| DS482 | J2 | A6 |
| R495 | J3 | A6 |
| P702 | H2 | C6 |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com






DIGITAL VOLTMETER ◇3



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**P/O A2 Assy** — **DVM Period Board** 4

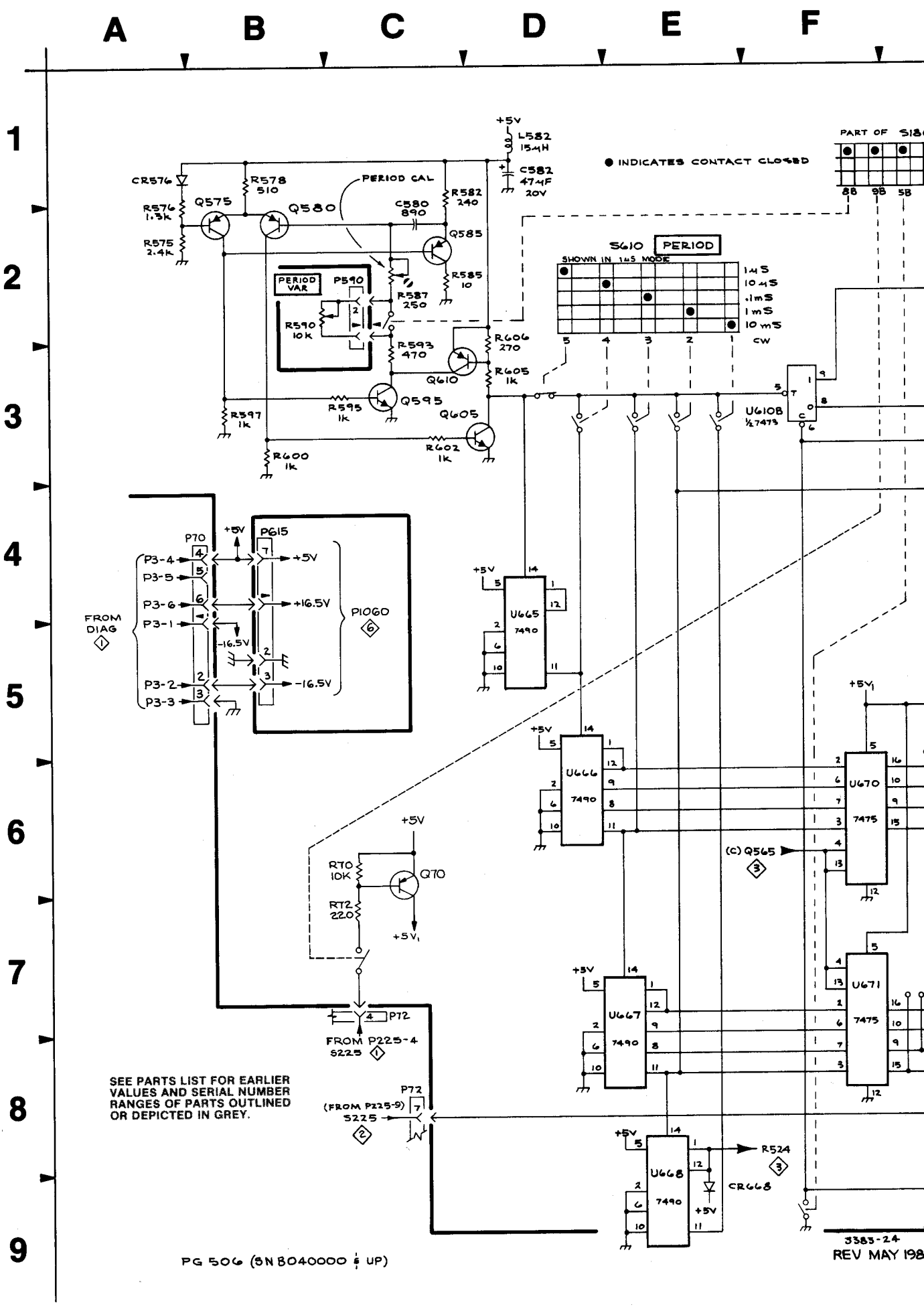
| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| C580 | C2 | A2 |
| C582 | D1 | B1 |
| CR576 | A1 | A2 |
| CR615 | J2 | I2 |
| CR616 | J2 | I2 |
| CR630 | L3 | H1 |
| CR656 | J4 | G2 |
| CR657 | J4 | F2 |
| CR660 | H4 | F2 |
| CR661 | H4 | G2 |
| CR668 | F8 | B3 |
| J635 | L3 | H1 |
| L582 | D1 | A2 |
| P70 | B4 | I1 |
| P72 | L2 | I1 |
| P72 | L3 | I1 |
| P72 | C8 | I1 |
| P590 | C2 | A4 |
| P615 | B4 | I3 |
| P650 | K5 | G2 |
| P673 | K5 | E2 |
| P675 | K7 | E1 |
| Q70 | C6 | I3 |
| Q575 | B1 | B3 |
| Q580 | B1 | A3 |
| Q585 | C2 | B2 |
| Q595 | C3 | B4 |
| Q605 | C3 | B5 |
| Q610 | C3 | A4 |
| R70 | C6 | I3 |
| R72 | C7 | H3 |
| R575 | A2 | B2 |
| R576 | A2 | B2 |
| R578 | B1 | A3 |
| R582 | D1 | A2 |
| R585 | C2 | A2 |
| R587 | C2 | A5 |
| R593 | C2 | A4 |
| R595 | C3 | A3 |
| R597 | B3 | A3 |
| R600 | B3 | A3 |
| R602 | C3 | A4 |
| R605 | D3 | A4 |
| R606 | D2 | A4 |
| R615 | J2 | H1 |
| R618 | J2 | I1 |
| R620 | K2 | I1 |
| R625 | K2 | H2 |
| R627 | K2 | H1 |
| R630 | K3 | H1 |
| R635 | L3 | H1 |
| R650 | K4 | G1 |
| R654 | K3 | H2 |
| R656 | J4 | H2 |
| R660 | H3 | F1 |
| R680 | H5 | E2 |
| R681 | H5 | E3 |
| R682 | H5 | E3 |
| R683 | J5 | E2 |
| R684 | J5 | E2 |
| R685 | J5 | F2 |
| R686 | J5 | F2 |
| R690 | H7 | E1 |
| R691 | H7 | E2 |
| R692 | J7 | E2 |
| R693 | J7 | E1 |
| R694 | J7 | E1 |
| R695 | K7 | E1 |
| R696 | K7 | E1 |
| R705 | K8 | F2 |
| S180A | G1 | I2 |
| S610 | E2 | C4 |
| S660 | G4 | F1 |
| U610 | F3 | F1 |
| U610 | H3 | F1 |
| U615 | K2 | G1 |
| U665 | D5 | B3 |
| U666 | D6 | C3 |
| U667 | D7 | C1 |
| U668 | E8 | B1 |
| U670 | F6 | C3 |
| U671 | F7 | C2 |
| U673 | G6 | D3 |
| U675 | G7 | D1 |

**P/O A2 ASSY also shown on** 3

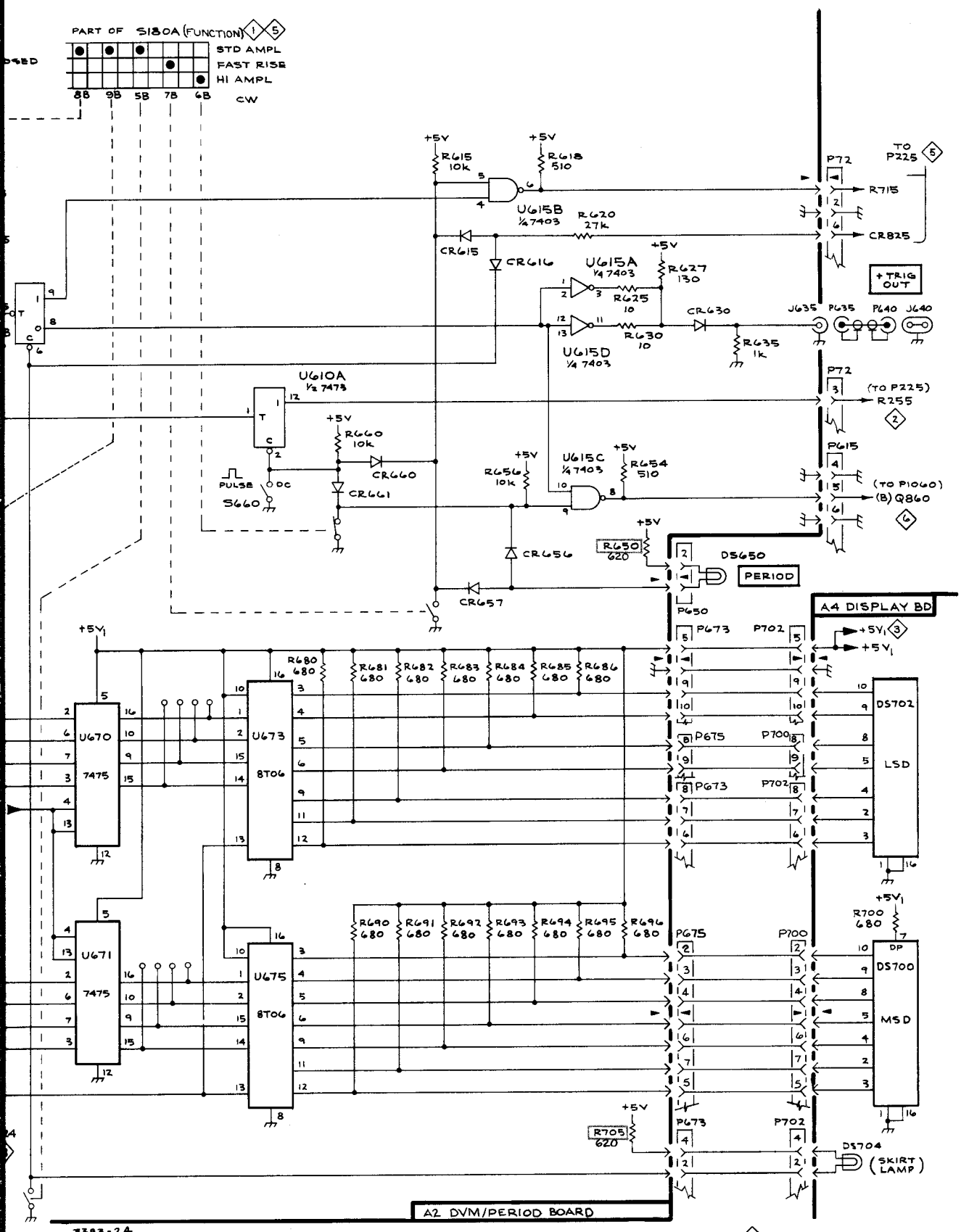
**P/O A4 ASSY** — **DVM Period Board** 4

| | | |
|---|---|---|
| DS700 | M5 | C6 |
| DS702 | M7 | C6 |
| R700 | M7 | B6 |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




3383-24
REV MAY 1983

PERIOD GENERATOR AND DISPLAY 4



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

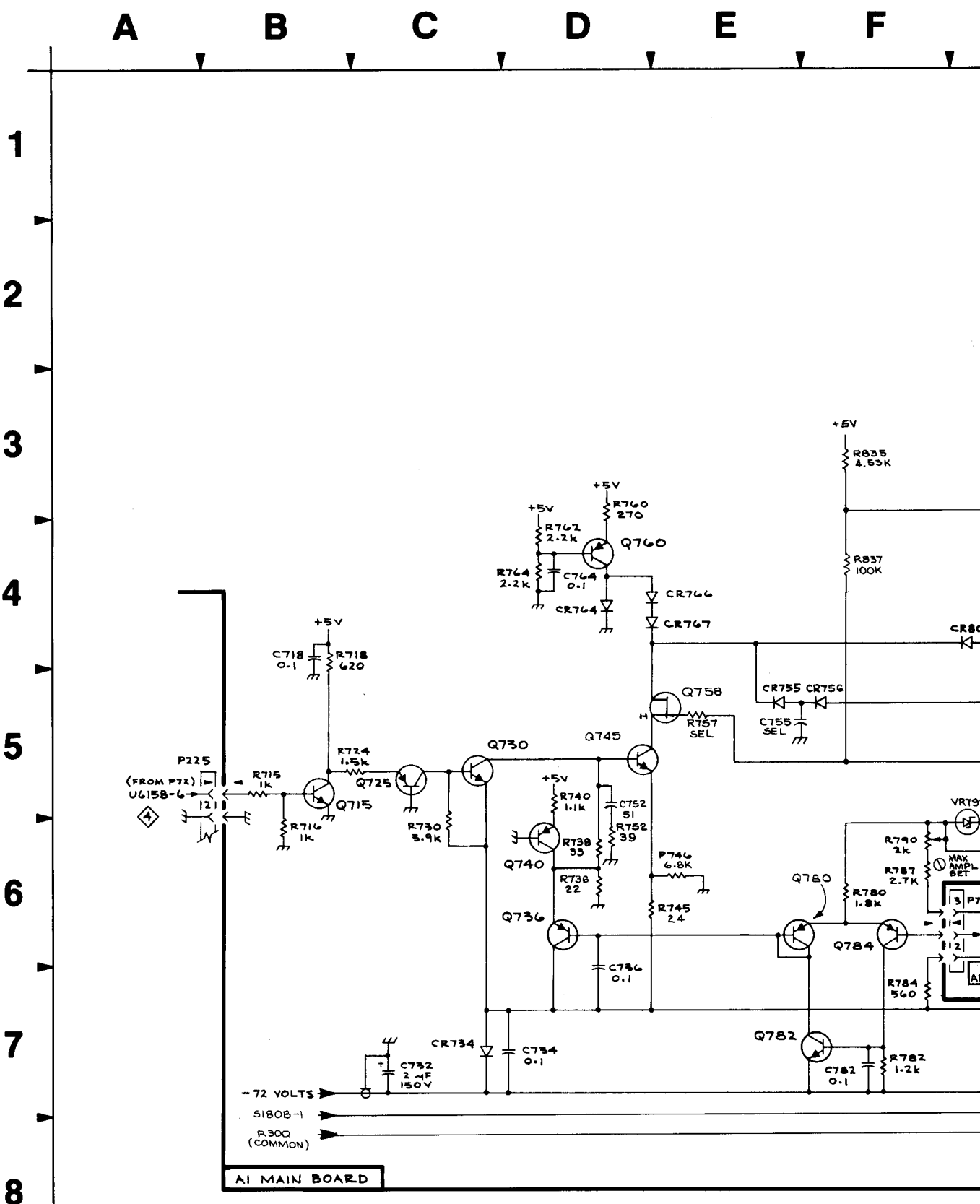
**P/O A1 Assy** — **High Amplitude** ◇5◇

| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION | CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|---|---|---|
| C718 | B4 | G2 | R715 | B5 | G1 |
| C732 | B7 | D1 | R716 | B6 | G1 |
| C734 | C7 | E2 | R718 | B4 | G2 |
| C736 | D7 | G2 | R724 | B5 | G2 |
| C752 | D6 | F2 | R730 | C6 | F2 |
| C755 | E5 | B2 | R736 | D6 | F2 |
| C764 | D4 | A2 | R738 | D6 | F2 |
| C782 | F7 | F1 | R740 | D6 | F2 |
| C785 | G7 | F1 | R745 | D6 | D1 |
| C792 | G6 | D2 | R746 | D6 | E1 |
| C800 | G4 | C2 | R752 | D6 | F2 |
| C818† | H6 | B4 | R757 | E5 | C1 |
| C840 | H3 | H1 | R760 | D3 | A2 |
| CR734 | C7 | D1 | R762 | D4 | A2 |
| CR755 | E5 | B2 | R764 | C4 | A1 |
| CR756 | E5 | A2 | R780 | E6 | E1 |
| CR764 | B4 | A1 | R782 | E7 | E1 |
| CR766 | D4 | A1 | R784 | F7 | E1 |
| CR767 | D4 | A1 | R787 | F6 | D1 |
| CR800 | G4 | B2 | R790 | F5 | E2 |
| CR810 | H5 | B2 | R792 | G5 | C2 |
| CR825 | H2 | H2 | R800 | G4 | C2 |
| J800 | L5 | B3 | R805† | H5 | D2 |
| P225 | A5 | I2 | R825 | H2 | H2 |
| Q715 | B5 | G2 | R827 | H3 | G7 |
| Q725 | C5 | G2 | R830 | G2 | H7 |
| Q730 | C5 | G2 | R832 | G4 | G2 |
| Q736 | D6 | F1 | R835 | F3 | F3 |
| Q740 | D6 | G1 | R837 | F4 | G2 |
| Q745 | D5 | C2 | R840 | H4 | H1 |
| Q758 | D5 | B2 | R842 | J4 | H1 |
| Q760 | D4 | A2 | U840 | H3 | H1 |
| Q780 | E6 | F2 | VR790 | G6 | D1 |
| Q782 | E7 | F2 | VR792 | G6 | D2 |
| Q784 | F6 | E2 | R785A | G6 | CHASSIS |
| Q790 | G6 | D2 | P785 | G6 | CHASSIS |
| Q800 | G5 | C2 | R785 | G6 | CHASSIS |

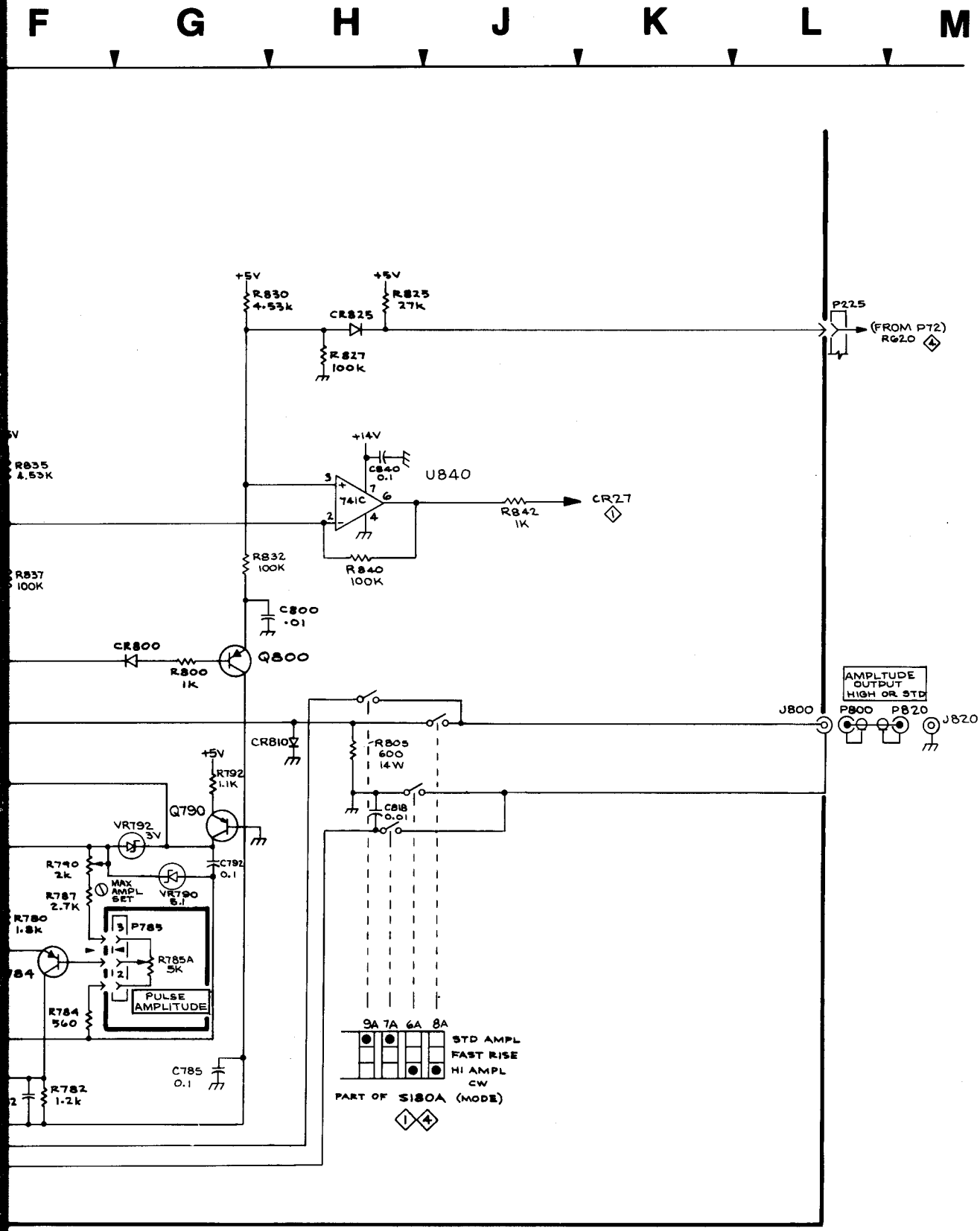
**P/O A1 ASSY also shown on** ◇1◇ ◇2◇

† **Located on back of board.**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




8383-26
@

HIGH AMPLITUDE 5



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

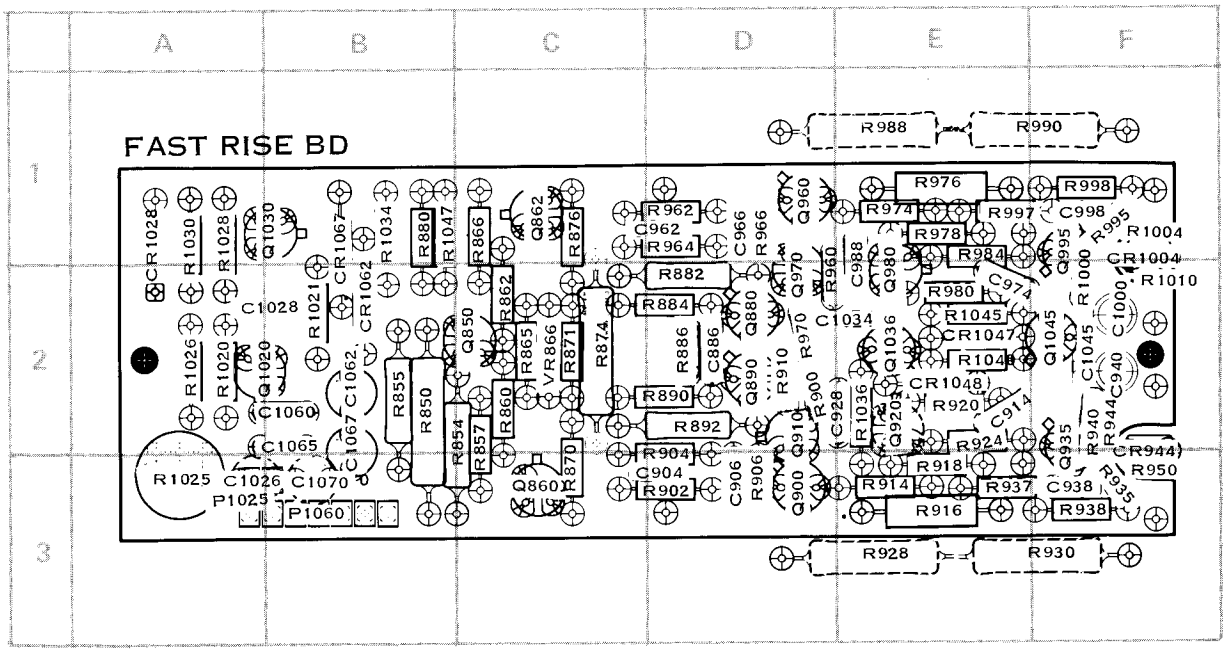



Fig. 8-5. A3—Fast Rise Board component locations.

Static Sensitive Devices
*See Maintenance Section*

A3 FAST RISE BOARD
COMPONENT LOCATIONS

@

† Located on back of

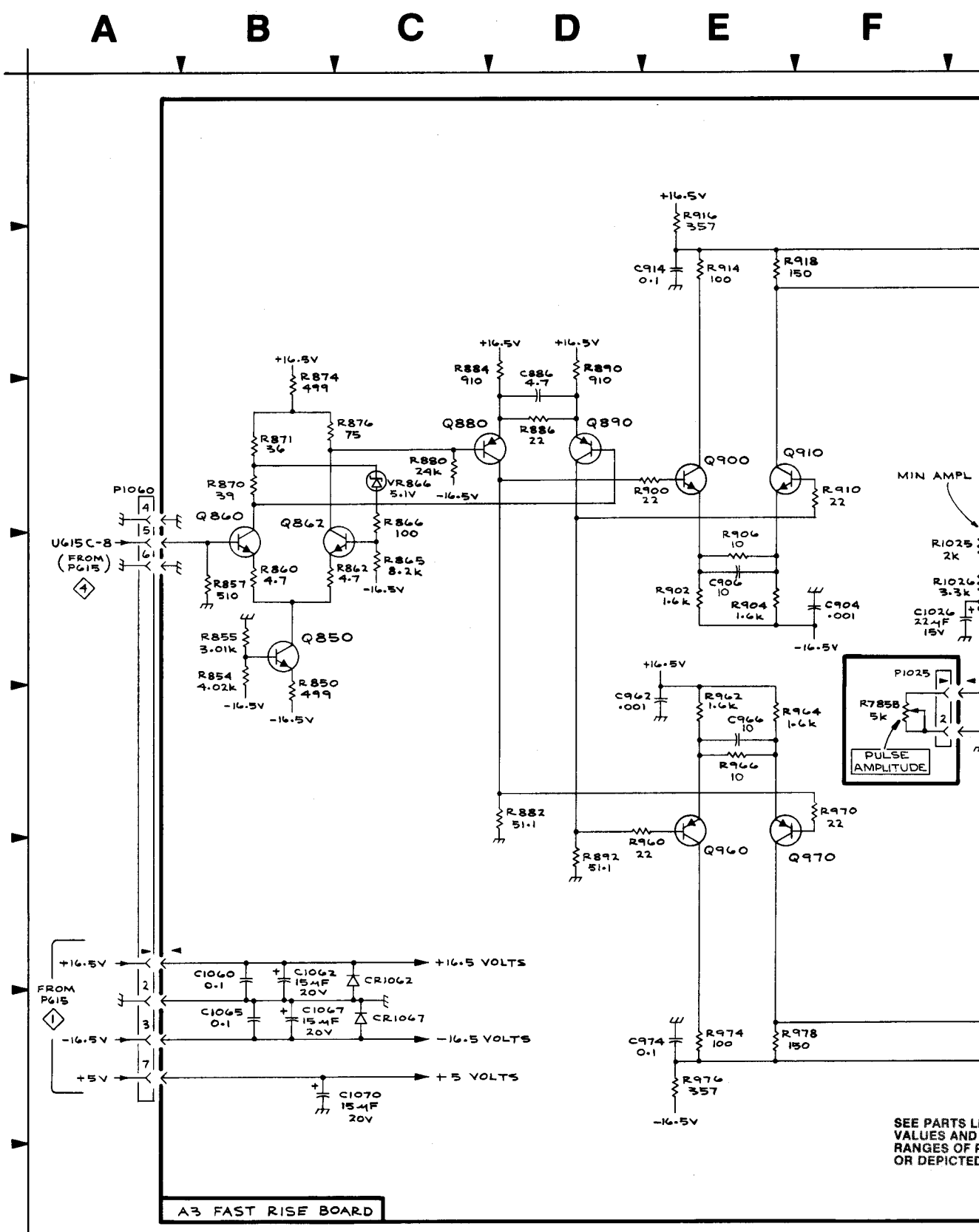
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**A3 Assy** **Fast Rise 6**

| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| C886 | C2 | D2 |
| C904 | E4 | D3 |
| C906 | E4 | D3 |
| C914 | E2 | E2 |
| C928 | J1 | E2 |
| C938 | J1 | E2 |
| C940 | K3 | F2 |
| C962 | E5 | D1 |
| C966 | E5 | D1 |
| C974 | D7 | E2 |
| C988 | J7 | E1 |
| C998 | K7 | F1 |
| C1000 | K6 | F2 |
| C1026 | G4 | A3 |
| C1028 | G4 | A2 |
| C1034 | H4 | E2 |
| C1045 | H5 | F2 |
| C1060 | B6 | B2 |
| C1062 | B7 | B2 |
| C1065 | B7 | B2 |
| C1067 | B7 | B2 |
| C1070 | B7 | B3 |
| CR944 | K3 | F2 |
| CR1004 | K6 | F1 |
| CR1028 | G4 | A1 |
| CR1047 | G5 | E2 |
| CR1048 | H5 | E2 |
| CR1062 | B7 | B2 |
| CR1067 | B7 | B1 |
| P1025 | F5 | A3 |
| P1060 | A3 | B3 |
| Q850 | B4 | C2 |
| Q860 | B3 | C3 |
| Q862 | B3 | C1 |
| Q880 | C3 | D2 |
| Q890 | D3 | D2 |
| Q900 | D3 | D3 |
| Q910 | E3 | D2 |
| Q920† | H2 | E2 |
| Q935 | J2 | F2 |
| Q960 | D6 | D1 |
| Q970 | E6 | D2 |
| Q980 | H7 | E1 |
| Q995 | J7 | F2 |
| Q1020 | H3 | B2 |
| Q1030 | H4 | B1 |
| Q1036 | H4 | E2 |
| Q1045 | H5 | F2 |
| R850 | B5 | B2 |
| R854 | B5 | C2 |
| R855 | A4 | B2 |
| R857 | A4 | C2 |
| R860 | B4 | B2 |
| R862 | B4 | C2 |
| R865 | B4 | C2 |
| R866 | C3 | C1 |
| R870 | C3 | B3 |
| R871 | B3 | C2 |

| CIRCUIT NUMBER | SCHEMATIC LOCATION | BOARD LOCATION |
|---|---|---|
| R874 | B3 | C2 |
| R876 | B3 | C1 |
| R880 | C3 | B1 |
| R882 | D5 | D2 |
| R884 | C2 | D2 |
| R886 | C3 | D2 |
| R890 | D2 | D2 |
| R892 | D6 | D2 |
| R900 | D3 | D2 |
| R902 | D4 | D3 |
| R904 | E4 | D2 |
| R910 | F3 | D2 |
| R914 | E2 | E2 |
| R916 | E2 | E3 |
| R918 | E2 | E2 |
| R920 | H3 | E2 |
| R924 | H2 | E2 |
| R928† | J1 | E3 |
| R930† | J2 | F3 |
| R935 | J2 | F3 |
| R937 | K2 | F2 |
| R938 | K2 | F3 |
| R940 | K3 | F2 |
| R944 | K3 | F2 |
| R950 | L3 | F3 |
| R960 | D6 | D2 |
| R962 | E5 | D1 |
| R964 | E5 | D1 |
| R966 | E5 | D1 |
| R970 | E6 | D2 |
| R974 | E7 | E1 |
| R976 | E7 | E1 |
| R978 | E7 | E1 |
| R980 | H7 | E2 |
| R984 | H7 | E1 |
| R988† | H7 | E1 |
| R990† | J7 | F1 |
| R995 | J6 | F1 |
| R997 | K7 | E1 |
| R998 | K7 | F1 |
| R1000 | K6 | F2 |
| R1004 | K6 | F1 |
| R1010 | L6 | F2 |
| R1020 | G3 | A2 |
| R1021 | G3 | B2 |
| R1025 | G4 | A3 |
| R1026 | G4 | A2 |
| R1028 | G4 | A1 |
| R1030 | G4 | A1 |
| R1034 | H4 | B1 |
| R1036 | H4 | E2 |
| R1040 | H5 | E2 |
| R1045 | H6 | E2 |
| R1047 | G5 | B1 |
| VR866 | B3 | C2 |
| VR866 | D3 | C2 |
| J950 | L3 | CHASSIS |
| J1010 | L6 | CHASSIS |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

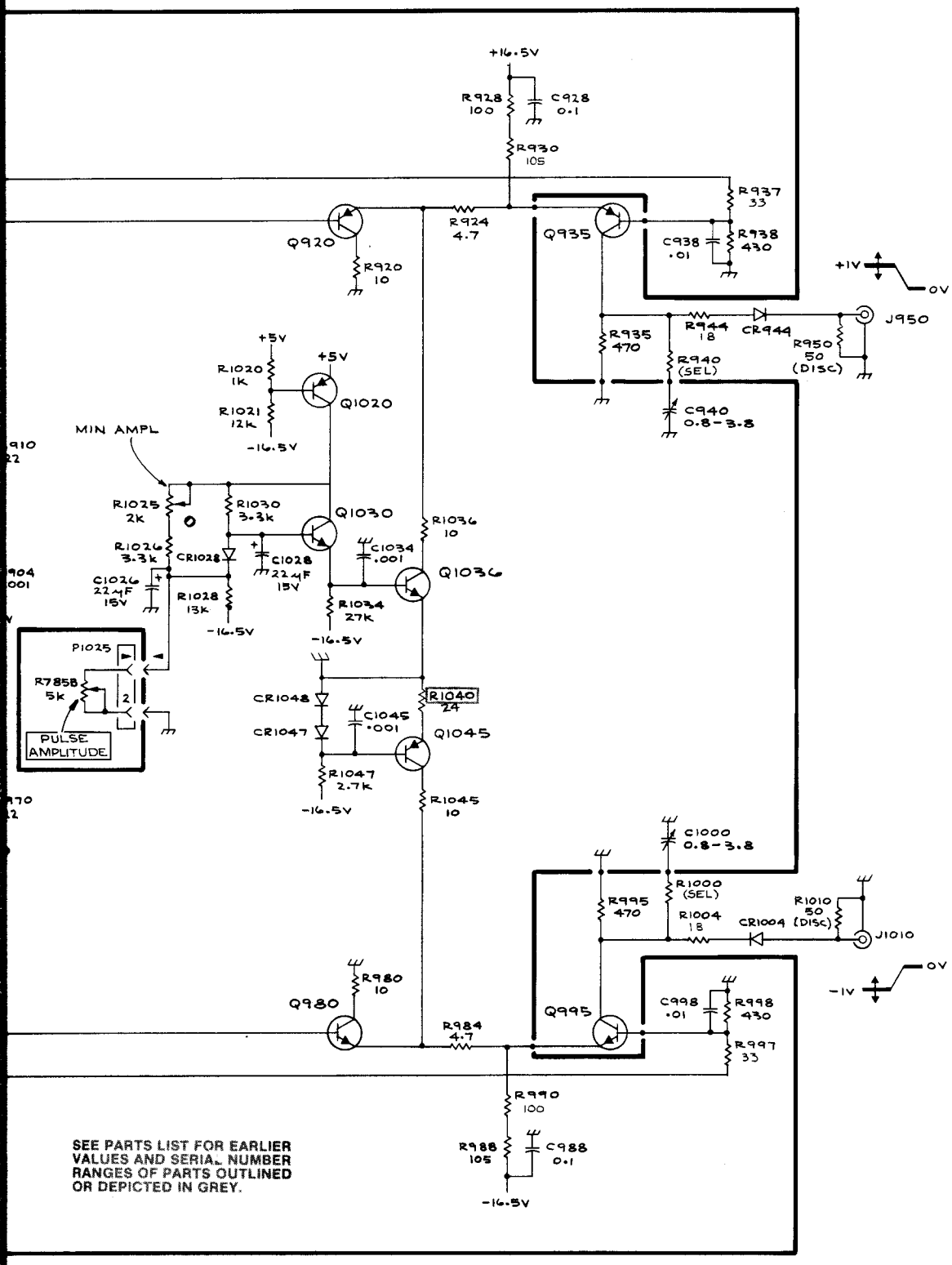



PG 506 (SN B040000 & UP)

3383-27
REV APR 1984

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

F G H J K L M




FAST RISE 6

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# 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 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

| Mfr. Code | Manufacturer | Address | City, State, Zip |
|---|---|---|---|
| 000BB | BERQUIST COMPANY | 4350 WEST 78TH | MINNEAPOLIS, MN 55435 |
| 000BK | STAUFFER SUPPLY | 105 SE TAYLOR | PORTLAND, OR 97214 |
| 000CY | NORTHWEST FASTENER SALES, INC. | 7923 SW CIRRUS DRIVE | BEAVERTON, OR 97005 |
| 000EX | O'HARA METAL PRODUCT COMPANY | 542 BRANNAN STREET | SAN FRANCISCO, CA 94107 |
| 05820 | WAKEFIELD ENGINEERING, INC. | AUDUBON ROAD | WAKEFIELD, MA 01880 |
| 08261 | SPECTRA-STRIP CORP. | 7100 LAMPSON AVE. | GARDEN GROVE, CA 92642 |
| 09922 | BURNDY CORPORATION | RICHARDS AVENUE | NORWALK, CT 06852 |
| 13103 | THERMALLOY COMPANY, INC. | 2021 W VALLEY VIEW LANE<br>P O BOX 34829 | DALLAS, TX 75234 |
| 22526 | BERG ELECTRONICS, INC. | YOUK EXPRESSWAY | NEW CUMBERLAND, PA 17070 |
| 24931 | SPECIALITY CONNECTOR CO., INC. | 2620 ENDRESS PLACE | GREENWOOD, IN 46142 |
| 42838 | NATIONAL RIVET AND MFG. CO. | 1-21 EAST JEFFERSON ST. | WAUPUN, WI 53963 |
| 45722 | USM CORP., PARKER-KALON FASTENER DIV. | | CAMPBELLSVILLE, KY 42718 |
| 49671 | RCA CORPORATION | 30 ROCKEFELLER PLAZA | NEW YORK, NY 10020 |
| 57668 | R-OHM CORP. | 16931 MILLIKEN AVE. | IRVINE, CA 92713 |
| 70278 | ALLIED STEEL AND CONVEYORS, DIV. OF SPARTON CORP. | 17333 HEALY | DETROIT, MI 48212 |
| 71785 | TRW, CINCH CONNECTORS | 1501 MORSE AVENUE | ELK GROVE VILLAGE, IL 60007 |
| 73743 | FISCHER SPECIAL MFG. CO. | 446 MORGAN ST. | CINCINNATI, OH 45206 |
| 73803 | TEXAS INSTRUMENTS, INC., METALLURGICAL MATERIALS DIV. | 34 FOREST STREET | ATTLEBORO, MA 02703 |
| 78189 | ILLINOIS TOOL WORKS, INC. SHAKEPROOF DIVISION | ST. CHARLES ROAD | ELGIN, IL 60120 |
| 79807 | WROUGHT WASHER MFG. CO. | 2100 S. O BAY ST. | MILWAUKEE, WI 53207 |
| 80009 | TEKTRONIX, INC. | P O BOX 500 | BEAVERTON, OR 97077 |
| 83330 | SMITH, HERMAN H., INC. | 812 SNEDIKER AVE. | BROOKLYN, NY 11207 |
| 83385 | CENTRAL SCREW CO. | 2530 CRESCENT DR. | BROADVIEW, IL 60153 |
| 86928 | SEASTROM MFG. COMPANY, INC. | 701 SONORA AVENUE | GLENDALE, CA 91201 |
| 93907 | TEXTRON INC. CAMCAR DIV | 600 18TH AVE | ROCKFORD, IL 61101 |
| 97464 | INDUSTRIAL RETAINING RING CO. | 57 CORDIER ST. | IRVINGTON, NJ 07111 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Qty | 1 2 3 4 5 | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|---|---|
| 1-1 | 337-1399-04 | | | 2 | | SHIELD,ELEC:SIDE | 80009 | 337-1399-04 |
| -2 | 366-1168-00 | | | 1 | | KNOB:BLACK CAP AND RED BODY | 80009 | 366-1168-00 |
| | 213-0153-00 | | | 1 | | .SETSCREW:5-40 X 0.125,STL BK OXD,HEX | 000CY | ORD BY DESCR |
| -3 | 366-1346-02 | | | 1 | | KNOB:RED | 80009 | 366-1346-00 |
| | 213-0153-00 | | | 1 | | .SETSCREW:5-40 X 0.125,STL BK OXD,HEX | 000CY | ORD BY DESCR |
| -4 | 366-1567-00 | | | 1 | | KNOB:GRY,0.252 ID,0.72 OD,0.79 H | 80009 | 366-1567-00 |
| | 213-0153-00 | | | 2 | | .SETSCREW:5-40 X 0.125,STL BK OXD,HEX | 000CY | ORD BY DESCR |
| -5 | 366-1521-00 | | | 1 | | KNOB:GY,VOLTS/DIV,0.252 ID X 1.1 | 80009 | 366-1521-00 |
| | 213-0153-00 | | | 2 | | .SETSCREW:5-40 X 0.125,STL BK OXD,HEX | 000CY | ORD BY DESCR |
| -6 | 366-0494-00 | | | 1 | | KNOB:GRAY WITH SETSCREW | 80009 | 366-0494-00 |
| | 213-0153-00 | | | 1 | | .SETSCREW:5-40 X 0.125,STL BK OXD,HEX | 000CY | ORD BY DESCR |
| -7 | 366-0215-02 | | | 1 | | KNOB:LEVER SWITCH | 80009 | 366-0215-02 |
| -8 | 366-1690-00 | | | 1 | | KNOB:SIL GY,0.53 X 0.23 X 1.059 | 80009 | 366-1690-00 |
| -9 | 131-1315-01 | | | 2 | | CONN,RCPT,ELEC:BNC,FEMALE | 24931 | 28JR 306-1 |
| -10 | 342-0117-00 | | | 2 | | INSULATOR,BSHG:0.375 ID X 0.065 L,DELRIN | 80009 | 342-0117-00 |
| -11 | 119-0238-00 | | | 1 | | COIL,CAL: | 80009 | 119-0238-00 |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -12 | 210-0442-00 | | | 2 | | NUT,PLAIN,HEX.:3-48 X 0.187 INCH,CD PL BRS | 73743 | 3014-402 |
| -13 | 210-0004-00 | | | 2 | | WASHER,LOCK:#4 INTL,0.015 THK,STL CD PL | 000BK | ORD BY DESCR |
| -14 | 210-0994-00 | | | 2 | | WASHER,FLAT:0.125 ID X 0.25" OD,STL | 86928 | 5702-201-20 |
| -15 | 210-0849-00 | | | 2 | | WSHR,SHOULDERED:0.11 ID X 0.188"OD,FIBER | 83330 | 2151 |
| -16 | 210-0593-00 | | | 2 | | NUT,FINISHING:0.25 HEX X 0.312" LONG,BRS | 80009 | 210-0593-00 |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| -17 | 361-0059-01 | | | 1 | | INSULATOR,PLATE:1.093 X 0.343 X 0.125 INC | 80009 | 361-0059-01 |
| -18 | 358-0414-00 | | | 2 | | BUSHING,SLEEVE:0.25 OD X 0.21 INCH LONG | 80009 | 358-0414-00 |
| -19 | 358-0378-00 | | | 2 | | BUSHING,SLEEVE:0.131 ID X 0.125 L | 80009 | 358-0378-00 |
| -20 | ----- ----- | | | 1 | | RES.,VAR,NONWIR:(SEE R785 REPL) | | |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -21 | 210-0583-00 | | | 1 | | NUT,PLAIN,HEX:0.25-32 X 0.312 INCH,BRS | 73743 | 2X20317-402 |
| -22 | 210-0940-00 | | | 1 | | WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL | 79807 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| -23 | ----- ----- | | | 1 | | CKT BOARD ASSY:FAST RISE(SEE A3 REPL) | | |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -24 | 220-0497-00 | | | 2 | | NUT,PLAIN,HEX.:0.5-28 X 0.562 INCH HEX,BRS | 73743 | ORD BY DESCR |
| -25 | 210-0406-00 | | | 1 | | NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| -26 | 211-0109-00 | | | 1 | | SCREW,MACHINE:4-40 X 0.875"100 DEG,FLH ST | 83385 | ORD BY DESCR |
| -27 | 361-0682-00 | | | 1 | | SPACER,SLEEVE:0.648 X 0.189 BRS | 80009 | 361-0682-00 |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| | ----- ----- | | | - | | CKT BOARD ASSY INCLUDES: | | |
| -28 | 131-1727-00 | | | 2 | | .CONNECTOR,RCPT,:BNC,FEMALE | 24931 | 28JR262-1 |
| -29 | 131-0608-00 | | | 9 | | .TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD | 22526 | 47357 |
| -30 | 333-1863-00 | | | 1 | | PANEL,FRONT: | 80009 | 333-1863-00 |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -31 | 210-0405-00 | | | 2 | | NUT,PLAIN,HEX.:2-56 X 0.188 INCH,BRS | 73743 | 12157-50 |
| -32 | 210-0001-00 | | | 2 | | WASHER,LOCK:INTL,0.092 ID X 0.18"OD,ST | 78189 | 1202-00-00-0541C |
| -33 | 211-0034-00 | | | 2 | | SCREW,MACHINE:2-56 X 0.50 INCH,PNH | 83385 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| -34 | 352-0157-00 | | | 1 | | LAMPHOLDER:WHITE PLASTIC | 80009 | 352-0157-00 |
| -35 | 200-0935-00 | | | 1 | | BASE,LAMPHOLDER:0.29 OD X 0.19 CASE | 80009 | 200-0935-00 |
| -36 | 378-0602-03 | | | 1 | | LENS,LIGHT:BLUE | 80009 | 378-0602-03 |
| -37 | 105-0719-00 | | | 1 | | LATCH,RETAINING:PLUG-IN | 80009 | 105-0719-00 |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -38 | 213-0254-00 | | | 1 | | SCREW,TPG,TF:2-32 X 0.250,100 DEG,FLH | 45722 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| -39 | 105-0718-01 | | | 1 | | BAR,LATCH RLSE: | 80009 | 105-0718-01 |
| -40 | 386-2843-00 | | | 1 | | SUBPANEL,FRONT: | 80009 | 386-2843-00 |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -41 | 213-0123-00 | | | 4 | | SCREW,TPG,TF:6-32 X 0.375,SPCL TYPE,FLH | 93907 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********** | | |
| -42 | 378-0742-00 | | | 1 | | LENS,LIGHT:CLEAR | 80009 | 378-0742-00 |
| -43 | 337-1955-00 | | | 1 | | SHIELD,ELEC:REAR SUBPANEL | 80009 | 337-1955-00 |
| -44 | ----- ----- | | | 1 | | CKT BOARD ASSY:DISPLAY(SEE A4 REPL) | | |
| -45 | ----- ----- | | | 2 | | .LAMP,LED:(SEE DS480,DS482 REPL) | | |
| -46 | 136-0252-04 | | | 4 | | .SOCKET,PIN TERM:U/W 0.016-0.018 DIA PINS | 22526 | 75060-007 |
| -47 | 131-0608-00 | | | 19 | | .TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD | 22526 | 47357 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Qty | 1 2 3 4 5 | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|---|---|
| 1-48 | ----- ----- | | | 1 | | CKT BOARD ASSY:DVM/PERIOD(SEE A2 REPL) | | |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -49 | 211-0292-00 | | | 10 | | SCR,ASSEM WSHR:4-40 X 0.29,BRS NI PL | 78189 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********* | | |
| | ----- ----- | | | - | | CKT BOARD ASSY INCLUDES: | | |
| -50 | 136-0252-04 | | | 13 | | .SOCKET,PIN TERM:U/W 0.016-0.018 DIA PINS | 22526 | 75060-007 |
| -51 | ----- ----- | | | 1 | | .SWITCH,SLIDE:(SEE S660 REPL) | | |
| -52 | 175-0825-00 | | | FT | | .WIRE,ELECTRICAL:2 WIRE RIBBON | 80009 | 175-0825-00 |
| -53 | 352-0169-07 | | | 1 | | .CONN BODY,PL,EL:2 WIRE PURPLE | 80009 | 352-0169-07 |
| -54 | 131-0566-00 | | | 3 | | .BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| -55 | 131-0608-00 | | | 46 | | .TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD | 22526 | 47357 |
| -56 | 131-1003-00 | | | 1 | | .CONN,RCPT,ELEC:CKT BD MT,3 PRONG | 80009 | 131-1003-00 |
| -57 | 136-0514-00 | B040000 | B047326 | 3 | | .SKT,PL-IN ELEC:MICROCIRCUIT,8 DIP | 73803 | CS9002-8 |
| | 136-0727-00 | B047327 | | 2 | | .SKT,PL-IN ELEK:MICROCKT,8 CONTACT | 09922 | DILB8P-108 |
| -58 | 136-0269-02 | B040000 | B047326 | 7 | | .SKT,PL-IN ELEK:MICROCIRCUIT,14 DIP,LOW CL | 73803 | CS9002-14 |
| | 136-0728-00 | B047327 | | 2 | | .SKT,PL-IN ELEK:MICROCKT,14 CONTACT | 09922 | DILB14P-108 |
| -59 | 136-0260-02 | B040000 | B047326 | 4 | | .SKT,PL-IN ELEK:MICROCIRCUIT,16 DIP,LOW CL | 71785 | 133-51-92-008 |
| -60 | 131-0604-00 | | | 10 | | .CONTACT,ELEC:CKT BD SW,SPR,CU BE | 80009 | 131-0604-00 |
| -61 | ----- ----- | | | 1 | | CKT BOARD ASSY:RELAY(SEE A5 REPL) | | |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -62 | 213-0336-00 | | | 2 | | SCR,TPG,THD FOR:6-32 X 1.25 INCH,PNH STL | 000BK | ORD BY DESCR |
| -63 | 210-0921-00 | | | 1 | | WASHER,MICA:0.50 X 0.141 X0.005 INCH TH | 80009 | 210-0921-00 |
| -64 | 361-0516-00 | | | 2 | | SPACER,SLEEVE:0.189 OD X 0.986"LONG BRS | 80009 | 361-0516-00 |
| | | | | | | **********(END ATTACHING PARTS)********* | | |
| | ----- ----- | | | - | | CKT BOARD ASSY INCLUDES: | | |
| -65 | 131-0608-00 | | | 26 | | .TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD | 22526 | 47357 |
| -66 | 131-0566-00 | | | 2 | | .BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| -67 | ----- ----- | | | 1 | | CKT BOARD ASSY:MAIN (SEE A1 REPL) | | |
| | | | | | | **********(ATTACHING PARTS)********** | | |
| -68 | 213-0146-00 | | | 2 | | SCR,TPG,THD FOR:6-20 X 0.313 INCH,PNH STL | 83385 | ORD BY DESCR |
| -69 | 211-0105-00 | | | 1 | | SCREW,MACHINE:4-40 X 0.188,100 DEG,FLH ST | 83385 | ORD BY DESCR |
| | | | | | | **********(END ATTACHING PARTS)********* | | |
| | ----- ----- | | | - | | CKT BOARD ASSY INCLUDES: | | |
| -70 | 384-1105-00 | | | 1 | | .EXTENSION SHAFT:8.241 L X 0.081 INCH OD | 80009 | 384-1105-00 |
| -71 | 376-0050-00 | | | 1 | | .CPLG,SHAFT,FLEX:FOR 0.081/0.125 INCH SHAF | 80009 | 376-0050-00 |
| | ----- ----- | | | 1 | | .SW CAM ACTR ASY:(SEE S610 REPL) | | |
| | | | | | | .**********(ATTACHING PARTS)********** | | |
| -72 | 211-0292-00 | | | 4 | | .SCR,ASSEM WSHR:4-40 X 0.29,BRS NI PL | 78189 | ORD BY DESCR |
| | | | | | | .**********(END ATTACHING PARTS)********* | | |
| | ----- ----- | | | - | | .ACTUATOR ASSY INCLUDES: | | |
| -73 | 210-0406-00 | | | 4 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| -74 | 401-0115-00 | | | 1 | | ..BEARING,CAM SW:CENTER | 80009 | 401-0115-00 |
| -75 | 105-0631-00 | | | 1 | | ..ACTUATOR,CAM SW:PERIOD | 80009 | 105-0631-00 |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -76 | 354-0391-00 | | | 1 | | ..RING,RETAINING:0.395"FREE ID X 0.025" S | 97464 | 3100-43-CD |
| | | | | | | ..*********(END ATTACHING PARTS)********* | | |
| -77 | 210-0406-00 | | | 4 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| -78 | 214-1139-02 | | | 2 | | ..SPRING,FLAT:GREEN COLORED | 80009 | 214-1139-02 |
| -79 | 214-1127-00 | | | 1 | | ..ROLLER,DETENT:0.125 DIA X 0.125,SST | 80009 | 214-1127-00 |
| -80 | 401-0081-02 | | | 1 | | ..BEARING,CAM SW:FRONT | 80009 | 401-0081-02 |
| -81 | 384-1323-00 | | | 1 | | .EXTENSION SHAFT:6.4 L X 0.081 OD SST | 80009 | 384-1323-00 |
| -82 | 214-1190-02 | | | 1 | | .CPLG,SHAFT,RGD:0.125 OD TO 0.081 OD,AL | 80009 | 214-1190-02 |
| -83 | 214-1136-00 | | | 1 | | .ACTUATOR,SL SW:DUAL DPST | 80009 | 214-1136-00 |
| | ----- ----- | | | 1 | | .SW CAM ACTR AS:(SEE S180 REPL) | | |
| | | | | | | .**********(ATTACHING PARTS)********** | | |
| -84 | 211-0292-00 | | | 4 | | .SCR,ASSEM WSHR:4-40 X 0.29,BRS NI PL | 78189 | ORD BY DESCR |
| -85 | 211-0292-00 | | | 2 | | .SCR,ASSEM WSHR:4-40 X 0.29,BRS NI PL | 78189 | ORD BY DESCR |
| | | | | | | .**********(END ATTACHING PARTS)********* | | |
| | ----- ----- | | | - | | .ACTUATOR ASSY INCLUDES: | | |
| -86 | 105-0243-00 | | | 1 | | ..ACTUATOR,SWITCH:AC,DC | 80009 | 105-0243-00 |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -87 | 213-0214-00 | | | 1 | | ..SCREW,CAP SCH:2-56 X 0.375"HEX HD STL | 70278 | ORD BY DESCR |
| | | | | | | ..*********(END ATTACHING PARTS)********* | | |
| -88 | 131-1314-00 | | | 1 | | ..CONTACT,ELEC:GROUNDING | 80009 | 131-1314-00 |
| -89 | 210-0406-00 | | | 3 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

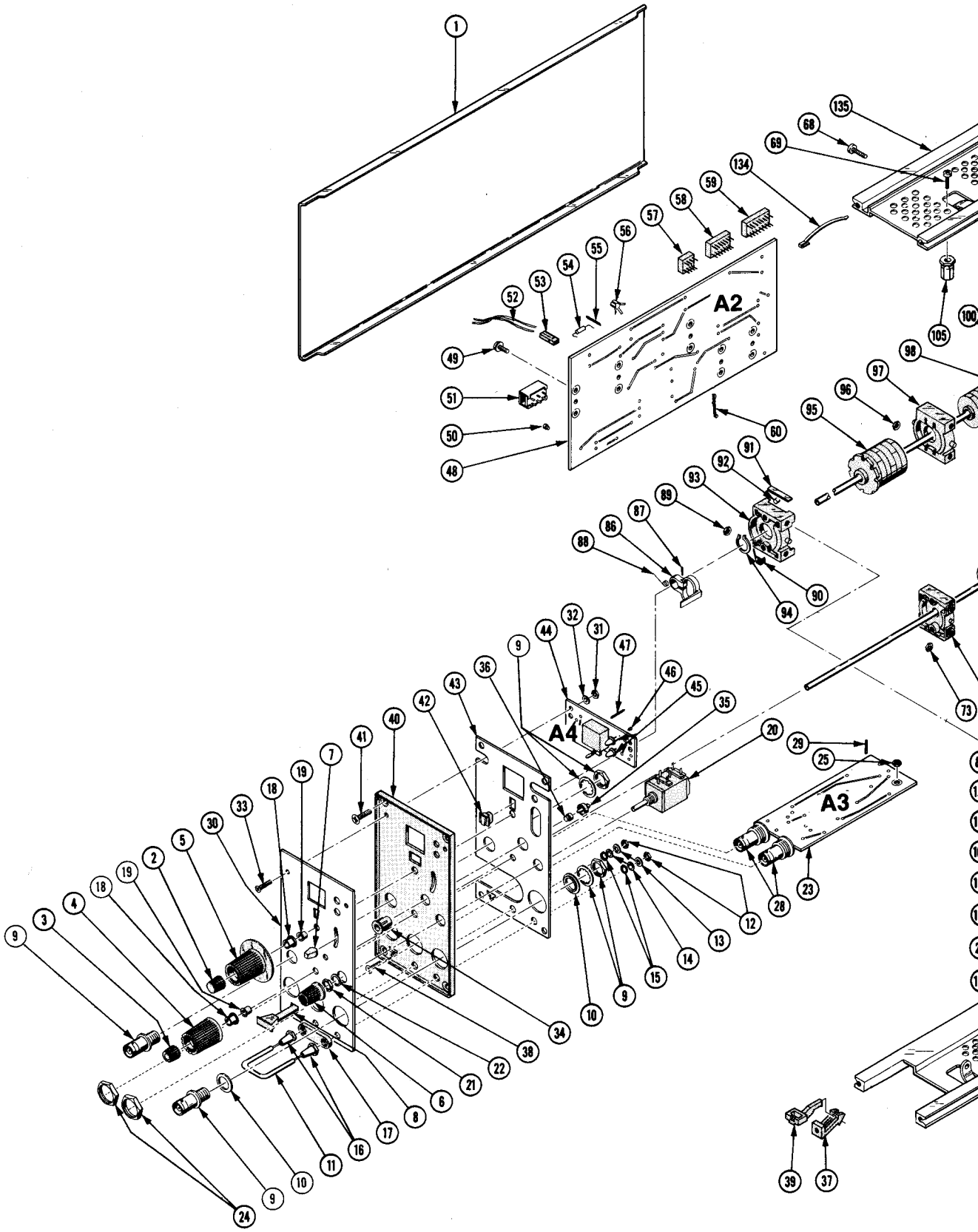
| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Qty | 1 2 3 4 5 | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|---|---|
| 1-90 | 131-0963-00 | | | 1 | | ..CONTACT,ELEC:GROUNDING | 000EX | OBD |
| -91 | 214-1139-02 | | | 1 | | ..SPRING,FLAT:GREEN COLORED | 80009 | 214-1139-02 |
| | 214-1139-03 | | | 1 | | ..SPRING,FLAT:RED COLORED | 80009 | 214-1139-03 |
| -92 | 214-1127-00 | | | 2 | | ..ROLLER,DETENT:0.125 DIA X 0.125,SST | 80009 | 214-1127-00 |
| -93 | 401-0081-02 | | | 1 | | ..BEARING,CAM SW:FRONT | 80009 | 401-0081-02 |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -94 | 354-0391-00 | | | 1 | | ..RING,RETAINING:0.395"FREE ID X 0.025" S | 97464 | 3100-43-CD |
| | | | | | | ..**********(END ATTACHING PARTS)********** | | |
| -95 | 105-0632-01 | | | 1 | | ..ACTUATOR,CAM SW:MODE | 80009 | 105-0632-01 |
| -96 | 210-0406-00 | | | 4 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| -97 | 401-0115-00 | | | 1 | | ..BEARING,CAM SW:CENTER | 80009 | 401-0115-00 |
| -98 | 105-0634-02 | | | 1 | | ..ACTUATOR,CAM SW:AMPL,REAR | 80009 | 105-0634-02 |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -99 | 354-0391-00 | | | 1 | | ..RING,RETAINING:0.395"FREE ID X 0.025" S | 97464 | 3100-43-CD |
| | | | | | | ..**********(END ATTACHING PARTS)********** | | |
| -100 | 105-0482-00 | | | 1 | | ..STOP,DETENT: | 80009 | 105-0482-00 |
| -101 | 210-0406-00 | | | 4 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| -102 | 214-1139-02 | | | 1 | | ..SPRING,FLAT:GREEN COLORED | 80009 | 214-1139-02 |
| | 214-1139-03 | | | 1 | | ..SPRING,FLAT:RED COLORED | 80009 | 214-1139-03 |
| -103 | 214-1127-00 | | | 2 | | ..ROLLER,DETENT:0.125 DIA X 0.125,SST | 80009 | 214-1127-00 |
| -104 | 401-0081-02 | | | 1 | | ..BEARING,CAM SW:FRONT | 80009 | 401-0081-02 |
| -105 | 214-2569-00 | | | 1 | | ..HEAT SINK,XSTR:(1) TO-5,BE-CU | 80009 | 214-2569-00 |
| -106 | 131-1031-00 | | | 16 | | ..CONTACT ASSY,EL:CAM SWITCH,TOP | 80009 | 131-1031-00 |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -107 | 210-0779-00 | | | 16 | | ..RIVET,TUBULAR:0.051 OD X 0.115 INCH LONG | 42838 | RA-29952715 |
| | | | | | | ..**********(END ATTACHING PARTS)********** | | |
| -108 | 131-1030-00 | | | 17 | | ..CONT ASSY,ELEC:CAM SWITCH,BOTTOM | 80009 | 131-1030-00 |
| -109 | 131-0604-00 | | | 10 | | ..CONTACT,ELEC:CKT BD SW,SPR,CU BE | 80009 | 131-0604-00 |
| -110 | 214-0579-00 | | | 6 | | ..TERM,TEST POINT:BRS CD PL | 80009 | 214-0579-00 |
| -111 | 344-0154-00 | | | 4 | | ..CLIP,ELECTRICAL:FUSE,CKT BD MT | 80009 | 344-0154-00 |
| -112 | ----- ----- | | | 1 | | ..RES.,VAR,NONWIR:(SEE R225 REPL) | | |
| -113 | 361-0515-00 | | | 2 | | ..SPACER,SWITCH:PLASTIC | 80009 | 361-0515-00 |
| -114 | ----- ----- | | | 1 | | ..RES.,VAR,NONWIR:(SEE R590 REPL) | | |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -115 | 210-0583-00 | | | 1 | | ..NUT,PLAIN,HEX:0.25-32 X 0.312 INCH,BRS | 73743 | 2X20317-402 |
| -116 | 210-0046-00 | | | 1 | | ..WASHER,LOCK:0.261 ID,INTL,0.018 THK,BRS | 78189 | 1214-05-00-0541C |
| | | | | | | ..**********(END ATTACHING PARTS)********** | | |
| -117 | 407-1393-00 | | | 1 | | ..BRACKET,ANGLE:BRASS | 80009 | 407-1393-00 |
| -118 | 351-0180-00 | | | 1 | | ..SLIDE,GUIDE:SWITCH ACTUATOR | 80009 | 351-0180-00 |
| -119 | 131-1003-00 | | | 1 | | ..CONN,RCPT,ELEC:CKT BD MT,3 PRONG | 80009 | 131-1003-00 |
| -120 | 136-0269-02 | B040000 | B047326 | 1 | | ..SKT,PL-IN ELEK:MICROCIRCUIT,14 DIP,LOW C | 73803 | CS9002-14 |
| | 136-0728-00 | B047327 | | 1 | | ..SKT,PL-IN ELEK:MICROCKT,14 CONTACT | 09922 | DILB14P-108 |
| -121 | 136-0514-00 | B040000 | B047326 | 6 | | ..SKT,PL-IN ELEC:MICROCIRCUIT,8 DIP | 73803 | CS9002-8 |
| | 136-0727-00 | B047327 | | 4 | | ..SKT,PL-IN ELEK:MICROCKT,8 CONTACT | 09922 | DILB8P-108 |
| -122 | 131-0566-00 | | | 1 | | ..BUS CONDUCTOR:DUMMY RES,2.375,22 AWG | 57668 | JWW-0200E0 |
| -123 | 214-1254-00 | | | 1 | | ..HEAT SINK,ELEC:0.422 H X 1.240 INCH OD | 05820 | 209SB |
| -124 | 342-0324-00 | | | 3 | | ..INSULATOR,DISC:TO-5 TRANSISTOR | 13103 | 7717-5N-BLUE |
| -125 | 136-0252-07 | | | 1 | | ..SOCKET,PIN CONN:W/O DIMPLE | 22526 | 75060-012 |
| -126 | 131-0608-00 | | | 29 | | ..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD | 22526 | 47357 |
| -127 | 214-1291-00 | | | 1 | | ..HEAT SINK,ELEC:XSTR,0.72 OD X 0.375"H | 05820 | 207SB |
| -128 | ----- ----- | | | 1 | | ..TRANSISTOR:(SEE Q325 REPL) | | |
| | | | | | | ..**********(ATTACHING PARTS)********** | | |
| -129 | 211-0097-00 | | | 1 | | ..SCREW,MACHINE:4-40 X 0.312 INCH,PNH STL | 83385 | ORD BY DESCR |
| | 210-1178-00 | B046760 | | 1 | | ..WASHER,SHLDR:U/W T0-220 TRANSISTOR | 49671 | DF137A |
| -130 | 210-0406-00 | | | 1 | | ..NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS | 73743 | 12161-50 |
| | | | | | | ..**********(END ATTACHING PARTS)********** | | |
| | 342-0355-00 | B046760 | | 1 | | ..INSULATOR,PLATE:TRANSISTOR,SILICONE RUBB | 000BB | 7403-09FR-51 |
| | 175-3535-00 | | | 1 | | ..CABLE ASSY,RF:50 OHM COAX,5.5 L,9-2 | 80009 | 175-3535-00 |
| | 352-0169-06 | | | 1 | | ...CONN BODY,PL,EL:2 WIRE BLUE | 80009 | 352-0169-06 |
| | 175-3536-00 | | | 1 | | ..CABLE ASSY,RF:50 OHM COAX,7.0 L,9-5 | 80009 | 175-3536-00 |
| | 352-0169-05 | | | 1 | | ...CONN BODY,PL,EL:2 WIRE GREEN | 80009 | 352-0169-05 |
| | 198-4323-00 | | | 1 | | ..WIRE SET,ELEC: | 80009 | 198-4323-00 |
| | 352-0169-02 | | | 1 | | ...CONN BODY,PL,EL:2 WIRE RED | 80009 | 352-0169-00 |
| -131 | 386-3657-01 | | | 2 | | SUPPORT,PLUG IN: | 93907 | OBD |
| -132 | 210-1270-00 | | | 2 | | WASHER,FLAT:0.141 ID X 0.04 THK,AL | 80009 | 210-1270-00 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

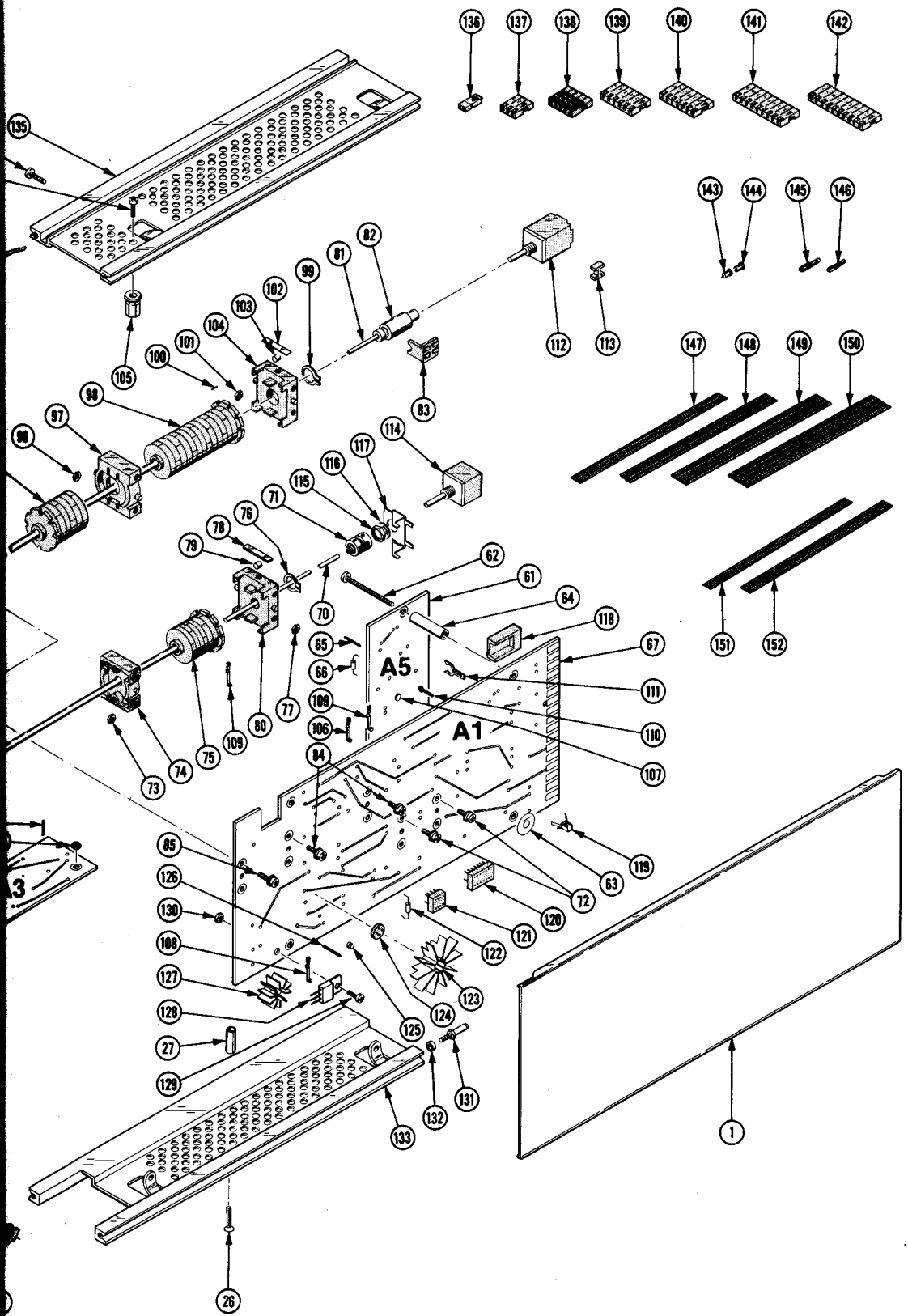
| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Qty | 1 2 3 4 5 | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|---|---|
| 1-133 | 426-0724-06 | | | 1 | | FR SECT,PLUG-IN:BOTTOM | 80009 | 426-0724-06 |
| -134 | 214-1061-00 | | | 1 | | SPRING,GROUND:FLAT | 80009 | 214-1061-00 |
| -135 | 426-0725-22 | | | 1 | | FR SECT,PLUG-IN:TOP | 80009 | 426-0725-22 |
| | 198-2220-02 | | | 1 | | WIRE SET,ELEC: | 80009 | 198-2220-02 |
| -136 | 352-0169-01 | | | 1 | | .HLDR TERM CONN:2 WIRE,BROWN | 80009 | 352-0169-01 |
| | 352-0169-02 | | | 1 | | CONN BODY PL EL:2 WIRE,RED | 80009 | 352-0169-00 |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com




REV FEB 1984

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com






Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Qty 1 2 3 4 5 | Name & Description | Mfr Code | Mfr Part Number |
|---|---|---|---|---|---|---|---|
| | | | | | ACCESSORIES | | |
| | 070-3383-00 | | | 1 | MANUAL,TECH: | 80009 | 070-3383-00 |
| | 012-0482-00 | | | 1 | CABLE ASSY,RF:50 OHM,36 INCH LONG | 80009 | 012-0482-00 |





Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## 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.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Tektronix®
COMMITTED TO EXCELLENCE

# MANUAL CHANGE INFORMATION

Date: 6-6-83 Change Reference: M44725 REV

Product: PG506 Calibration Generator Manual Part No.: 070-3383-00

## DESCRIPTION PG 75

**Effective Serial Number:** B057990

**Change to:**

| | | |
|---|---|---|
| A1 | 670-3230-09 | CKT BOARD ASSY: MAIN |
| A2 | 670-3234-06 | CKT BOARD ASSY: DVM/PERIOD |
| A4 | 670-3314-01 | CKT BOARD ASSY: DISPLAY |
| R650 | 315-0621-00 | RES,FXD,CMPSN:620 OHM, 5%, 0.25W |
| R705 | 315-0621-00 | RES,FXD,CMPSN:620 OHM, 5%, 0.25W |
| DS650, DS704 | 150-1036-00 | LAMP,LT EMITTING DIO,RED,650NM,40MA Max |
| DS700 | 150-1011-02 | LAMP,LED,RDOUT: RED,7SEG,1.0 DIGIT |
| DS702 | 150-1011-02 | LAMP,LED,RDOUT: RED,7SEG,1.0 DIGIT |
| R785 | 311-2214-00 | RES,VAR,NON WW,PANEL: 5K OHM,20%,0,5W |
| S180A,B | 263-1098-04 | ACTR ASSY, CAM S: MODE/AMPLITUDE |

**Refer to the Replaceable Mechanical Parts for the following:**

| Fig. | | | |
|---|---|---|---|
| 1-1 | | 337-3039-00 | SHIELD,ELEC: SIDE |
| 1-3 | | 366-1711-02 | KNOB: RED |
| 1-4 | | 366-2081-00 | KNOB: GRY,0.252 ID,0.72,0.79 H |
| 1-5 | | 366-2082-00 | KNOB: GY,VOLTS/DIV |
| 1-6 | | 366-0494-05 | KNOB: GRAY W/SET SCREW |
| 1-7 | | 366-0215-05 | KNOB: LEVER SWITCH |
| 1-8 | | 366-1815-01 | KNOB,LATCH: SIL GY |
| 1-37 | | 105-0866-00 | LATCH,RETAINING:PLUG-IN |
| 1-39 | | 105-0865-00 | BAR LATCH, RELEASE |
| 1-41 | (1) | 211-0025-00 | SCREW,4-40 X 0.312 L |
| | (3) | 211-0101-00 | SCREW,4-40 X 0.250 L |
| 1-43 | | 337-3075-00 | SHIELD,ELECT: FRONT SUB-PANEL |
| 1-80 | | 384-1066-00 | EXTENSION SHAFT: 6.1 L X 0.081 OD SST |
| 1-97 | | 105-0634-03 | ACTUATOR,CAM SW:AMPL ,REAR |
| 1-133 | | 426-0724-25 | FRAME SECT: BOTTOM |
| 1-134 | | 214-3406-00 | SPRING,GND:FLAT |
| 1-135 | | 426-0725-24 | FRAME SECT: TOP |




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Tektronix®
COMMITTED TO EXCELLENCE

# MANUAL CHANGE INFORMATION

Date: 7-29-83 Change Reference: M44725 Addendum

Product: PG506 Calibration Generator Manual Part No.: 070-3383-00

## DESCRIPTION



Effective Serial Number: B057990

ADD:

| | | |
|---|---|---|
| 2 | 105-0932-00 | LATCH, PANEL: SIDE |
| 2 | 210-0845-00 | WASHER, FLAT: 0.5ID, 0.625 OD |
| 1 | 210-1258-00 | WASHER, FLAT: 0.265ID, 0.375 OD |
| 2 | 211-0244-00 | SCR,ASSEM,WSHR: 4-40 x 0.312 PNH |
| 2 | 213-0793-00 | SCREW,TPG,TF: 6-32 x 0.4375 |
| 1 | 214-3143-00 | SPRING, HLEXT: 0.125 OD x 0.545 L |
| 2 | 214-3364-00 | FASTNER, LATCH: ACETAL, SIL GRAY |
| 1 | 333-3050-00 | PANEL, FRONT: PG506 |
| 1 | 378-2030-06 | LENS, LED DSPL: RED, PRINTED PG506 |
| 1 | 386-4866-00 | SUPPORT, FRAME: REAR,AL |




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Tektronix®
COMMITTED TO EXCELLENCE

# MANUAL CHANGE INFORMATION

Date: 11-10-83 Change Reference: M52846

Product: PG506 CALIBRATION GENERATOR Manual Part No.: 070-3383-00

## DESCRIPTION PG 75

EFFECTIVE SERIAL NUMBER: B058180

CHANGE TO:

| | | |
|---|---|---|
| A1 | 670-3230-10 | CKT BOARD ASSY: MAIN |
| C20 | 283-0179-00 | CAP.,FXD,CER DI: .68uF,10%,100V |



000-2775-00D Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Tektronix®
COMMITTED TO EXCELLENCE

# MANUAL CHANGE INFORMATION

Date: 5-1-84 Change Reference: M50403

Product: PG506 CALIBRATION GENERATOR (B040000 & UP) Manual Part No.: 070-3383-00

## DESCRIPTION PG 75

Effective Serial B058400:

ELECTRICAL PARTS LIST and SCHEMATIC CHANGES

CHANGE TO:

| | | |
|---|---|---|
| A6 | 670-3230-12 | CKT BOARD ASSY: MAIN |
| R315 | 321-0306-00 | RES.,FXD,FILM:15K OHM,1%,0.125W |
| R787 | 315-0202-00 | RES.,FXD,CMPSN:2K OHM,5%,0.25W |
| U20 | 156-0071-03 | MICROCIRCUIT,LI:VOLTAGE REGULATOR |




Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP