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Service Manual

Tektronix

1740A/1750A/1760–Series Waveform/Vector Monitor

070-8469-00

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

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

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Tektronix warrants that this product, that it manufactures and sells, will be free from defects in materials and workmanship for a period of three (3) years from the date of shipment. If any such product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

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

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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The three members of the 1740A Series

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German Postal Information

Certificate of the Manufacturer/Importer

We hereby certify that the 1740A/1750A/1760–Series Waveform Vector Monitor and all factory-installed options complies with the RF Interference Suppression requirements of Postal Regulation Vfg. 243/1991, Amended per Vfg. 46/1992

The German Postal Service was notified that the equipment is being marketed.

The German Postal Service has the right to re-test the series and to verify that it complies.

TEKTRONIX

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das 1740A/1750A/1760–Series Waveform Vector Monitor und alle fabrikinstallierten Optionen in Übereinstimmung mit den Bestimmungen der Amtsblatt-Verfügung Vfg. 243/1991 und Zusatzverfügung 46/1992 funkentstört sind.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhalten der Bestimmungen eingeräumt.

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NOTICE to the user/operator:

The German Postal Service requires that Systems assembled by the operator/user of this instrument must also comply with Postal Regulation, Vfg. 243/1991, Par. 2, Sect. 1.

HINWEIS für den Benutzer/Betreiber:

Die vom Betreiber zusammengestellte Anlage, innerhalb derer dieses Gerät eingesetzt wird, muß ebenfalls den Voraussetzungen nach Par. 2, Ziff. 1 der Vfg. 243/1991, genügen.

NOTICE to the user/operator:

The German Postal Service requires that this equipment, when used in a test setup, may only be operated if the requirements of Postal Regulation, Vfg. 243/1991, Par. 2, Sect. 1.8.1 are complied with.

HINWEIS für den Benutzer/Betreiber:

Dieses Gerät darf in Meßaufbauten nur betrieben werden, wenn die Voraussetzungen des Par. 2, Ziff. 1. 8.1 der Vfg. 243/1991 eingehalten werden.

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Standards Compliance

The 1740A/1750A/1760–Series Waveform Vector Monitors comply with the following safety standards:

- Underwriters Laboratories: UL1244 — Second Edition—*Standard for Electrical and Electronic Measuring and Testing Equipment*
- Canadian Standards Association: C22.2 No. 231 Series–M89—*CSA Safety Requirements for Electrical and Electronic Measuring and Testing Equipment*
- American National Standard: ANSI/ISA–S82–1988—*Safety Standard for Electrical and Electronic Test, Measuring, Controlling and Related Equipment*
- International Standard: IEC 348—Second Edition—*Safety Requirements for Electronic Measuring Apparatus*

The 1740A/1750A/1760–Series Waveform Vector Monitors comply with the following regulatory standards:

- U.S. EMI: FCC Rules, Part 15, Subpart J, Class A
- German EMI: VDE 0871.5 (Class B)—*Radio frequency Interference Suppression of Electrical Equipment and Systems*

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Safety Summary

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

Terms

In this manual

CAUTION statements identify conditions or practices that can damage the equipment or other property.

WARNING statements identify conditions or practices that can cause injury or loss of life.

As marked on equipment

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

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

Symbols

In this manual



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

As marked on the equipment



DANGER — High voltage.



Protective ground (earth) terminal.



ATTENTION — refer to manual.

Power source

This product is intended to operate from a power source that applies no more than 250 volts RMS between the supply conductors or between either supply conductor and ground.

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Ground the product

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

Danger arising from loss of ground

If the protective connection to ground is lost, all accessible conductive parts (including knobs and controls that may appear to be insulated) can render an electric shock.

Use the proper fuse

Use only the fuse of correct type, voltage rating, and current rating, as specified in the parts list for the product. Refer fuse replacement to qualified personnel.

Do not operate in an explosive atmosphere

Do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

Do not operate without covers

To avoid injury, do not operate the product without its covers and panels properly installed.

Do not service alone

Do not service or adjust this product unless another person capable of rendering first aid and cardio–pulmonary resuscitation is present.

Power supply shield

The plastic shield on the power supply board is required for protection from dangerous voltages that are present on the board. This shield must be in place at all times when operating the instrument.

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Preface

This manual provides servicing information for the 1740A/1750A/1760–Series of instruments. Material found in this volume is targeted at the service technician; operating information, tailored to the specific family member, can be found in that instrument's "User" manual.

To date there are three manuals available for this family of instruments. This Service Manual applies to all instruments in the family. There is a User manual for the 1740A–Series and 1750A–Series. (The 1750A is identical to the 1740A with the exception of SCH Phase measurements in the 1750A–Series.) A different User manual is supplied with the 1760-Series. The 1760-Series adds component analog measurement capability to the basic 1740A-Series, while the 1760-Series Option SC adds the same component analog measurement capability to a 1750A-Series instrument.

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

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

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

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

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

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

The User manual contains some servicing instructions for quick, non dangerous operations; however, the bulk of the servicing instructions are located in this manual. Note that there are specific procedures for troubleshooting and disassembly in this manual, they should only be attempted by competent service technicians. Items in the maintenance section contain both *Warnings* and *Cautions* that should be read and followed when performing maintenance on the 1740A/1750A/1760-Series of instruments.

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

Readjustment These instruments are designed to be returned to operation within stated specifications through a PC-based adjustment procedure. The disk holder for this manual contains two computer disks: 1. A software disk containing instruments operating software (Version 2.2 or greater). 2. A calibration software disk.

An IBM compatible personal computer (PC) with a DOS 3.3 or higher operating system, and a $3^1/_2$ inch high density floppy drive is required to perform the readjustment procedure or reload the operating software.

The spare software disk is provided in the event that the Main circuit board, which contains the software, requires replacement. In all cases the operating software must be Version 2.2 or above to perform the Readjustment Procedure.

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Specification

The 1740A/1750A/1760–Series is a half-rack width by three-rack-unit high instrument. It is a versatile waveform monitor/vectorscope for composite and component television signals. Most circuitry and the mechanical components are shared throughout the series. In addition to NTSC and PAL standard versions, a dual standard (NTSC/PAL) version is available.

These instruments employ a bright, post accelerated CRT with lighted internal graticule. The parallax free internal graticule structure contains targets and markings for both the vector and waveform functions. The “Lightning” graticule, for the 1760–Series, is electronic, in order to keep from complicating the waveform/vector graticule. Option 74, which uses a white phosphor (P4) CRT, is available for all three instrument series.

These monitors are microprocessor controlled to provide greater versatility. Switch settings, affecting the operation of the instrument, are continuously polled by the processor, with any change in status acted upon immediately. Current operating conditions are preserved in Non-Volatile Random Access Memory (NOVRAM), which returns the front panel settings to the current settings, in the event of power interruption (either accidental or routine power down).

Many operational measurements are performed on a repetitive basis, and these instruments provide a method of repeating common measurements by simply selecting stored measurement settings from a CRT menu list. The common measurement front panel settings can be stored and named by the user. Measurement specific, front-panel settings can be recalled by pushing the front-panel Preset Menu button and selecting the desired preset by name or number.

Many functions that were formerly selected by changing internal jumpers and/or wire straps are now accessible through on screen menu selections. Menus are selected by pushing the appropriate front panel Menu selection. Menu items are then selected by pushing one or more of the assignable switches and/or rotating the assigned front-panel control. Once selected these menu choices are retained until changed by subsequent reconfiguration.

The front panel provides both assignable switches (located next to the CRT) and controls (located beneath the CRT), that operate with CRT readout to increase functionality without cluttering the limited front panel area. Function of these switches and controls is dictated by the front-panel Display and initial Menu choices.

The 1740A–Series is a full capability waveform/vector monitor that also provides audio and time code measurements. The 1750A–Series has all of the capabilities of the 1740A–Series, with the addition of SCH phase measurements.

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The 1760–Series combines component measurements with the composite capabilities of the 1740A/1750A–Series. It incorporates all of the measurements of the 1740A–Series with a full set of component analog measurements. The assignable cursors, along with the CRT readout can be used for time, voltage, and phase measurements. The system of Menus and CRT readout simplifies the configuration of this monitor for measurement or monitoring of signal characteristics.

Characteristics Tables

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

Categories

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

Descriptions

The second column of the two column format contains all of the descriptive material about the listed characteristic. In addition, the performance verification procedure step number, used to verify the characteristic, is also in this column. Because this series of instruments is designed to operate on both PAL and NTSC standards some of the tolerances are defined in millivolts and IREs; in these dual value tolerances PAL values appear in parentheses.

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

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

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

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Table 1–1: Waveform Vertical Deflection

(PAL Values in Parentheses)

CATEGORY	DESCRIPTION
Deflection Factor	***Req:*** 1 V full scale (X1): 1 volt input displayed within 1% of 140 IRE (1.00 V) X5 Gain: 0.2 volt input displayed within 1% of 140 IRE (1.00 V) X10 Gain: 0.1 volt input displayed within 1% of 140 IRE (1.00 V) ***RI:*** Any one of the 8 inputs ***Performance Verification Procedure Step: 9***
Variable Gain Range	***Req:*** 0.2X to 1.4X ***Performance Verification Procedure Step: 9***
Overscan	***Req:*** ≤1% variation in baseline of chroma when positioned anywhere between sync tip and 100% white ***RI:*** X1, X5, or X10 with any variable gain setting ***Performance Verification Procedure Step: 16***
Video Maximum Operating Input Voltage	***RI:*** –1.8 V to +2.2 V, (all inputs, A – B3) dc+peak ac
Absolute Video Input Voltage	***RI:*** –8.5 V to +8.5 V (dc+peak ac)
Video Input DC Impedance	***RI:*** ≥ 20kΩ
Video Input Return Loss	***Req:*** ≥ 40 dB to 6 MHz ***RI:*** Typically ≥ 46 dB to 6 MHz; ≥ 40 dB to 10 MHz ***Performance Verification Procedure Step: 34***
Video Input DC Offset Between Channels	***Req:*** ≤ 1 IRE (7 mV) ***RI:*** Typically ≤ 1 mV ***Performance Verification Procedure Step: 4***
Video Input Offset Range	***RI:*** CHA2, A3, B2, & B3 can be offset from CHA1 or CHB1 by ± 350 mV
Video Input Loop-Through Isolation	***RI:*** Typically ≥ 70 dB
Video Input Crosstalk Between Channels	***RI:*** Typically ≥ 60 dB
Frequency Response (Flat)	***Req:*** ± 2% to 10 MHz (X1 Gain) ± 4% to 10 MHz (X5 and X10 Gain), on screen signal (0.2 V or 0.1 V) ***RI:*** All inputs ac or dc coupling ***Performance Verification Procedure Step: 12***
Luminance Filter Gain	***Req:*** 1 ± 1% ***RI:*** Reference is FLAT at 50 kHz ***Performance Verification Procedure Step: 13***
Luminance Filter Response	***Req:*** ≤ 3 dB attenuation at 1 MHz ≥ 40 dB attenuation at F_{SC} ***Performance Verification Procedure Step: 13***

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Table 1–1: Waveform Vertical Deflection (Cont.)

(PAL Values in Parentheses)

CATEGORY	DESCRIPTION
Luminance Filter Chrominance Rejection (1745A–1755A–1765 only)	***Req:*** ≥34 dB
Chrominance Filter Gain	***Req:*** 1 ±1% ***RI:*** Ref. is flat at F_{SC} (3.58 or 4.43 MHz) ***Performance Verification Procedure Step: 14***
Chrominance Filter Bandwidth	***Req:*** 1.5 MHz ±0.3 MHz ***RI:*** Centered at F_{SC}. Passband is typically F_{SC} + and – 750 kHz
Chrominance Filter Attenuation at 2X F_{SC}	***RI:*** ≥25 dB
Differentiated Step Filter Attenuation at 2X F_{SC}	***RI:*** ≥40 dB
Transient Response	***Req:*** Pulse-to-Bar Ratio 0.99:1 to 1.01:1 ***RI:*** Preshoot ≤1% ***RI:*** Overshoot ≤1% ***RI:*** Ringing ≤1% ***Req:*** Field-Rate Tilt ≤1% ***Req:*** Line-Rate Tilt ≤1% ***RI:*** Differential Gain ≤1% ***Performance Verification Procedure Step: 17***
Pix Out Gain	***Req:*** 1±3%
Pix Out Frequency Response	***Req:*** ±3% to 6 MHz
Pix Out Differential Gain	***RI:*** ≤1%
Pix Out Differential Phase	***RI:*** ≤1°
Pix Out Output Impedance	***RI:*** 75Ω
Pix Out Return Loss	***Req:*** ≥ 30 dB to 6 MHz ***Performance Verification Procedure Step: 34***
Pix Out Line Select Strobe	***RI:*** A dc offset is added to output in line select to bright up the selected line or lines.
DC Restorer 60 Hz (50 Hz) Attenuation	***Req:*** Slow Mode ≤10% Fast Mode ≥95% ***RI:*** Back porch or sync tip clamp point is selected through menu. ***Performance Verification Procedure Step: 18***

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Table 1–1: Waveform Vertical Deflection (Cont.)

(PAL Values in Parentheses)

CATEGORY	DESCRIPTION
DC Restorer Offset Error	***Req:*** ≤1 IRE (7 mV) ***RI:*** Typically 3 mV ***Performance Verification Procedure Step: 4***
Fast Settling Time	***RI:*** ≤6 video lines
Blanking Shift with 10 to 90% APL Change	***Req:*** ≤1 IRE (7 mV) ***Performance Verification Procedure Step: 19***
Blanking Shift with Presence and Absence of Burst	***Req:*** ≤1 IRE (7 mV) ***Performance Verification Procedure Step: 19***

Table 1–2: External Reference

CATEGORY	DESCRIPTION
Input	***RI:*** Composite video or black burst
Maximum Operating Input Voltage	***RI:*** –1.8 V to +2.2 V, dc + peak ac
Absolute Maximum Input Voltage	***RI:*** –8.5 V to +8.5 V, dc + peak ac
DC Input Impedance	***RI:*** ≥20 kΩ
Return Loss	***Req:*** ≥40 dB to 6 MHz ***RI:*** Typically ≥46 dB to 6 MHz; ≥40 dB to 10 MHz ***Performance Verification Procedure Step: 34***

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Table 1–3: Waveform Horizontal Deflection

CATEGORY	DESCRIPTION
Sweep	***Req:*** Synchronization: Sweep triggered by horizontal and vertical sync pulses ***RI:*** Sweep Length: ≈12 divisions ***RI:*** Sweep freeruns without input ***Performance Verification Procedure Step: 8***
Sweep Timing Accuracy	***Req:*** 1 Line: 5 µs/division ±1% 2 Line: 10 µs/division ±1% ***RI:*** 1 Field: displays one full field, including field rate sync 2 Field: displays two full fields and the field rate sync between them ***Performance Verification Procedure Step: 7***
Sweep Linearity	***Req:*** 1 line: ±1% 2 line: ±1% ***Performance Verification Procedure Step: 7***
Magnified Sweep Accuracy	***Req:*** 1 Line: 0.2 µs/division ±1% 2 Line: 1.0 µs/division ±1% ***Performance Verification Procedure Step: 7***
Magnified Sweep Linearity	***Req:*** 1 line: ±1% 2 line: ±1% ***Performance Verification Procedure Step: 7***
Horizontal Position Range	***Req:*** Any portion of the synchronized sweep can be positioned on screen in all sweep modes. ***Performance Verification Procedure Step: 5***
External Horizontal Input	***Req:*** 2 divisions/volt, ±2% ***RI:*** Menu is selected and enabled by REMOTE connector ground closure. ***Performance Verification Procedure Step: 29***
Remote Sync	***RI:*** Input Amplitude: TTL level ***RI:*** Frequency: 25 Hz to 100 Hz positive edge-triggered sweep ***RI:*** Enabling Signal: TTL low or ground closure ***Performance Verification Procedure Step: 33***

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Table 1–4: Measurement Cursors

CATEGORY	DESCRIPTION
Waveform Accuracy	***Req:*** Voltage: 0.5% Timing: 0.5%, for line rate sweeps ***RI:*** Typically 0.5% for field rate sweeps ***Performance Verification Procedure Step: 9 & 6***
Vector Accuracy	***Req:*** Gain: ±1.5% Phase: ±1° ***RI:*** Measured with respect to the Color Bar signal ***Performance Verification Procedure Step: 10***

Table 1–5: RGB/YRGB

CATEGORY	DESCRIPTION
RGB/YRGB	***Req:*** Staircase input gain: 0.8 V/division ±10% ***RI:*** RGB Sweep Length: 1 Field ≈30% of normal 1 Line ≈ 30% of normal ***RI:*** YRGB Sweep Length: 1 Field ≈ 25% of normal 1 Line ≈ 25% of normal ***RI:*** Maximum staircase operating signal: DC signal plus peak ac not to exceed –12 V to +12 V. Line or field rate sweep. ***RI:*** Peak-to-peak ac signal not to exceed 12 V. ***RI:*** Sweep Repetition Rate: Field or line rate of displayed video or external sync signal as selected by the front-panel sweep selection ***Performance Verification Procedure Step: 30***

Table 1–6: Calibrator

CATEGORY	DESCRIPTION
Waveform Square Wave	***Req:*** Amplitude: 1.0 V ±0.5% ***Performance Verification Procedure Step: 9*** ***Req:*** Frequency: 100 kHz ±0.1% ***RI:*** Crystal controlled 10 µs square wave ***Performance Verification Procedure Step: 6***
Waveform Sine Wave	***Req:*** Amplitude: $1.0V_{p\text{-}p}$, ±1%
Vector Circle	***RI:*** Circle that approximates the graticule compass rose

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Table 1–7: Vector Mode

CATEGORY	DESCRIPTION
Input Requirements	***Req:*** 1 V_{p-p} ±6 dB ***RI:*** Instrument freeruns with no input ***RI:*** External Reference: Black burst or composite video
Nominal Subcarrier Frequency (F_{SC})	***RI:*** NTSC 3.579545 MHz PAL 4.43361875 MHz
Chrominance Processing Bandwidth (–3 dB)	***Req:*** 1 MHz ±200 kHz ***Performance Verification Procedure Step: 15***
PAL +V	***RI:*** V Axis is inverted at 1/2 video line rate
Display Phase Accuracy Error	***Req:*** ≤1.25° ***Performance Verification Procedure Step: 23***
Display Gain Accuracy Error	***Req:*** ≤2.5% with 75% amplitude color bars ***Performance Verification Procedure Step: 23***
Quadrature Phasing Error	***Req:*** ≤0.5° ⟨Bursts set to targets) ***Performance Verification Procedure Step: 22***
Subcarrier Regenerator Pull-in Range	***Req:*** NTSC: ±50 Hz PAL: ±10 Hz ***Performance Verification Procedure Step: 24***
Subcarrier Regenerator Pull-in Time	***RI:*** ≤2 seconds
Phase Shift with F_{SC} Change	***Req:*** NTSC: ≤2° (F_{SC} to F_{SC} ±50 Hz) PAL: ≤2° (F_{SC} to F_{SC} ±10 Hz)
Phase Shift with Burst Amplitude Change of ±6 dB	***Req:*** ≤ 2° ***Performance Verification Procedure Step: 25***
Phase Shift With Video Input Channel Change	***Req:*** ≤1° ***RI:*** With external reference selected. Typically ≤0.5° ***Performance Verification Procedure Step: 27***
Phase Shift With Variable Gain Control +3 dB to –6 dB.	***Req:*** ≤0.5° ***Performance Verification Procedure Step: 26***
Burst Jitter	***RI:*** ≤0.5° rms
Clamp Stability	***Req:*** ≤1/64 inch (0.4 mm) ***RI:*** Center spot movement with rotation of the phase control ***Performance Verification Procedure Step: 28***
Phase Control Range	***RI:*** 360° continuous rotation ***Performance Verification Procedure Step: 28***

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Table 1–7: Vector Mode (Cont.)

CATEGORY	DESCRIPTION
Phase Control Quantization	***RI:*** ≤ 0.2°
Position Control Range	***Req:*** ≥ 0.236 inch (6 mm) from center ***Performance Verification Procedure Step: 28***
Differential Phase	***Req:*** ≤ 1° ***Performance Verification Procedure Step: 21***
Differential Gain	***Req:*** ≤ 1 % ***Performance Verification Procedure Step: 21***

Table 1–8: Audio Mode

CATEGORY	DESCRIPTION
Input	***RI:*** DC coupled, differential input
Input Impedance	***RI:*** 20 kΩ
Full Scale Selection	***RI:*** 0, 4, 8, & 12 dBm full scale. Menu selected
Full Scale Accuracy	***Req:*** ± 0.5 dB ***RI:*** Measured at 1 kHz ***Performance Verification Procedure Step: 31***
Maximum Input Voltage	***RI:*** ± 8 V peak ***RI:*** Measured to chassis ground
Bandwidth (–3 dB)	***Req:*** –3 dB ≥ 200.0 kHz ***Performance Verification Procedure Step: 32***
X & Y Input Phase Matching	***Req:*** ≤ 1° ***RI:*** Measured at 20 kHz ***Performance Verification Procedure Step: 33***

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Table 1–9: Time Code

CATEGORY	DESCRIPTION
Input	***RI:*** Longitudinal Time Code. DC coupled, differential input
Input Impedance	***RI:*** 20 kΩ.
Input Amplitude	***RI:*** 0, 4, 8, & 12 dBm full scale. Menu selectable for 140 IRE (1.0 V) deflection
Maximum Input Voltage	***RI:*** –10 V to +10 V peak
Bandwidth (–3 dB)	***Req:*** ≥ 200.0 kHz ***Performance Verification Procedure Step: 32***

Table 1–10: SCH Phase Mode (1750–Series and 1760 OPT SC Only)

CATEGORY	DESCRIPTION
Absolute Accuracy	***Req:*** ≤ 5° ***RI:*** Applies over a temperature range of 0 – 50° C ***RI:*** Calibrated at 25° C. ± 3 dB input amplitude. Typically ≤ 5° with ± 6 dB input amplitude ***Performance Verification Procedure Step: 35***
Relative Accuracy	***RI:*** 2°
Acquisition Time	***RI:*** ≤ 1 Second
Displayed Phase Error Caused by CRT Geometry Variations	***RI:*** ± 1.25°
Input Timing	***RI:*** Stable display with Video to External Reference timing
Color Frame Range	***RI:*** ± 70° (Color frame correctly identified when applied external reference signal is ≤ 70° of 0° SCH.) ***Performance Verification Procedure Step: 35***

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Table 1–11: Component Vector Mode (1760–Series only)

CATEGORY	DESCRIPTION
Vertical Bandwidth	***Req:*** –3 dB at ≥ 1.0 MHz
Horizontal to Vertical Bandwidth Matching	***Req:*** No eye opening at 500 kHz or 2 MHz
Vertical Gain Accuracy	***Req:*** ± 2.5%. ***RI:*** With respect to graticule ***Performance Verification Procedure Step: 36***
Horizontal Gain Accuracy	***Req:*** ± 2.5% ***RI:*** With respect to graticule ***Performance Verification Procedure Step: 36***
Display to Graticule Registration	***Req:*** ≤ 0.25 box with the color bar black display dot centered in target
Vector Display	***RI:*** Ch A2 or B2 is displayed on the horizontal axis and Ch A3 or B3 is displayed on the vertical axis.

Table 1–12: Lightning Mode (1760–Series only)

CATEGORY	DESCRIPTION
Vertical Gain Accuracy	***Req:*** ± 2% ***RI:*** With respect to electronic graticule ***Performance Verification Procedure Step: 37***
Horizontal Gain Accuracy	***Req:*** ± 2% ***RI:*** With respect to electronic graticule ***Performance Verification Procedure Step: 37***
Electronic Graticule Display	***RI:*** Ch A1 or B1 is displayed vertically. Ch A2 or B2 is displayed horizontally on top half of display. Ch A3 or B3 is displayed horizontally on bottom half of display.

Table 1–13: Bowtie Mode (1760–Series only)

CATEGORY	DESCRIPTION
Common Mode Rejection Ratio	***Req:*** ≥ 34 dB at 3 MHz ***RI:*** Timing error contributed by the specification limit will be less than 0.6 ns. ***Performance Verification Procedure Step: 40***
Electronic Graticule Display	***RI:*** Y minus P_B (CH1– CH2) is displayed on the left half of the display. Y minus P_R (CH1– CH3) is displayed on the right half of the display.

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Table 1–14: Transcoded GBR Outputs

CATEGORY	DESCRIPTION
Input Format	***RI:*** GBR, SMPTE, MII, or Betacam format. Selectable from a menu
Accuracy	***Req:*** 1 ±3% ***RI:*** Typically <1% ***RI:*** No line select strobe on GBR outputs ***Performance Verification Procedure Step: 43***
GBR Output Impedance	***RI:*** Nominally 75Ω. Back porch clamped to 0V

Table 1–15: CRT Display

(PAL Values in Parentheses)

CATEGORY	DESCRIPTION
CRT Viewing Area	***RI:*** 80 X 100 mm Horizontal: 12.5 divisions Vertical: 170 IRE (1.19 V)
Accelerating Potential	***RI:*** Nominally 13.75 kV
Trace Rotation Range	***Req:*** < + and –1° from horizontal ***RI:*** Total adjustment range is typically ≥8°. ***Performance Verification Procedure Step:*** **3**
Graticule	***RI:*** Internal with variable illumination

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Table 1–16: Power Source

CATEGORY	DESCRIPTION
Mains Voltage Range	***Req:*** 90 –250 V ***RI:*** Continuous range from 90 to 250 V ac ***Performance Verification Procedure Step: 2***
Mains Frequency	***RI:*** 50 or 60 Hz.
Power Consumption	***RI:*** 110 VA (67 watts) maximum; 102 VA (60 watts) typical

Table 1–17: Environmental Characteristics

CATEGORY	DESCRIPTION
Operating Temperature	***Req:*** 0° to 50° C (+32° to 122° F)
Storage Temperature	***Req:*** –40° to 75° C (–40° to 158° F)
Operating Altitude	***Req:*** To 15,000 feet (4572 meters)
Storage Altitude	***Req:*** To 50,000 feet (15,240 meters)
Vibration	***Req:*** 5 minutes at 5 – 15 Hz with 0.060 inch displacement 5 minutes at 15 – 25 Hz with 0.040 inch displacement 5 minutes at 25 – 55 Hz with 0.020 inch displacement Military Specification: Mil–T–28800D, Paragraph 1.2.2, Class 3
Mechanical Shock	***Req:*** Non Operating: 50 g's 1/2 sine, 11 ms duration 3 shocks per surface (18 total)
Transportation	***Req:*** Qualified under NSTA Test Procedure 1A, Category II (24 inch drop)
Humidity	***Req:*** Will operate at 95% relative humidity for up to five days. Do not operate with visible moisture on the circuit boards.

Table 1–18: Certification

CATEGORY	DESCRIPTION
Safety	**Designed to meet or exceed:** UL1244 Factory Mutual 3820 CSA Standard 231 IEC 348

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Table 1–18: Certification (Cont.)

CATEGORY	DESCRIPTION
EMI	**Designed to meet or exceed:** FCC EMI Compatibility (FCC Rules Part 15, Sub-part J, Class A) VDE 0871.5 (Class B) ***RI:*** Instrument must be installed in a cabinet equal to the shielding provide by Tektronix 1700F00, 1700F02, or 1700F05 cabinets to qualify for EMI certification.

Table 1–19: Physical Characteristics

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

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Installation

The information contained here deals with the installation and operation of the 1740A/1750A/1760–Series instrument. If the instrument is to be removed from its installed position for servicing, this will provide the information needed to remove it or reinstall it. Note that the repackaging information is located at the end of the Maintenance section.

Standard Accessories

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

1. One User Manual.
2. Power cord assembly (See Options)
3. One cartridge fuse.
4. Four replacement graticule light bulbs.
5. Four replacement air filters

Floppy Disks Included with this Manual

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

One of the disks contains the current operating software for the instrument. Version 2.2 or higher software must be loaded in the instrument to be able to use the Adjustment procedures contained on the second disk.

To determine the level of software loaded in an instrument perform the following steps:

1. Power up the 1740A/1750A/1760–Series.
2. Push the CONFIG menu button.
3. Select the REMOTE submenu.
4. Read the software version number from the lower right corner of the CRT.

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

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Mechanical Installation

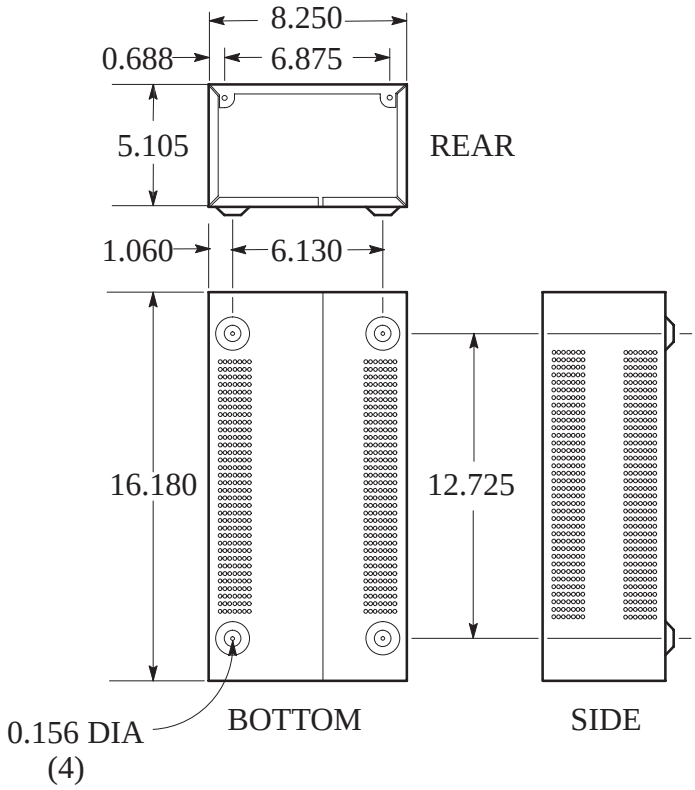


Figure 2–1: Dimensions of the 1700F00 plain cabinet

Cabinets

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

All qualification testing for the 1740A/1750A/1760–Series instruments was performed in a 1700F00 cabinet. To guarantee compliance with specifications, the instrument should be operated in a cabinet. The plain cabinet, 1700F00, is shown in Figure 2–1.

The optional 1700F00 cabinet is the basic element for all of the cabinets that fit this instrument. The 1700F02 Portable carrying case is an enhanced version of this cabinet, as is the 1700F04 side-by-side rack mount assembly. All of these cabinets are available from Tektronix. If you need one of these cabinets, contact your nearest Tektronix field office or representative for assistance in ordering.

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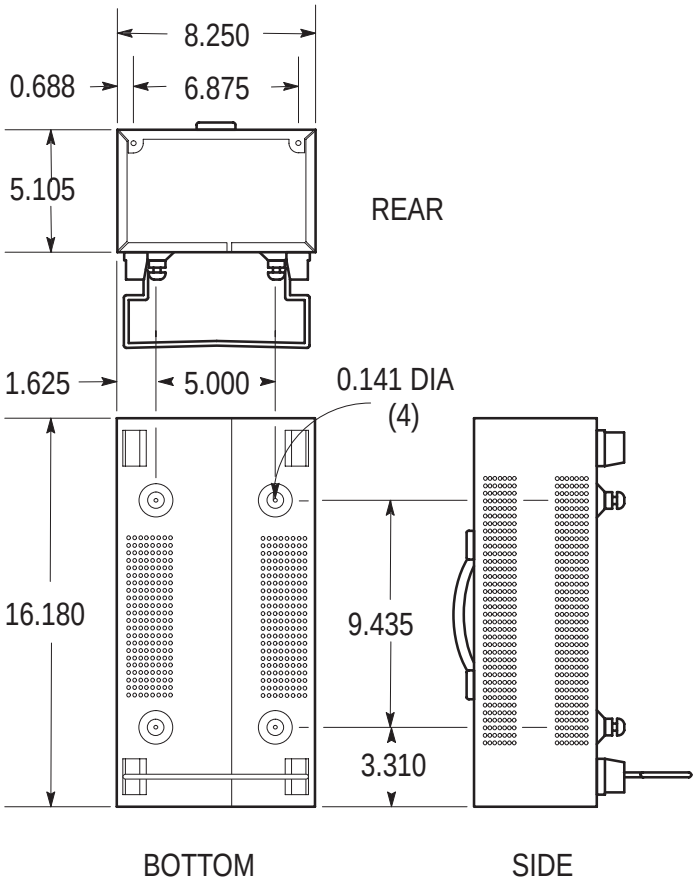


Figure 2–2: 1700F02 portable cabinet

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

All of the 1700–Series metal cabinets, which are available from Tektronix as Optional Accessories, provide the proper electrical environment for the instrument. They supply adequate shielding, minimize handling damage, and reduce dust accumulation within the instrument.

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Cabinetizing

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

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

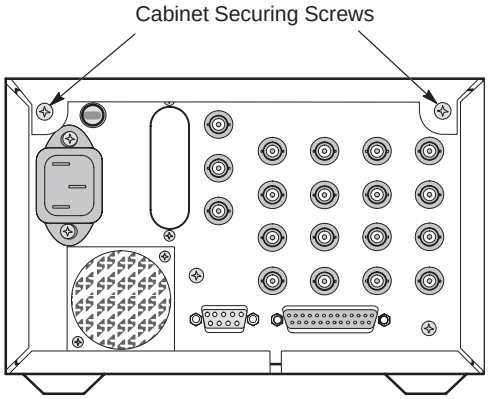


Figure 2–3: Rear view showing the securing screws

Rack Adapter

The optional 1700F05 side-by-side rack adapter, shown in Figure 2–4, consists of two attached cabinets. It can be used to mount the 1740A/1750A/1760–Series and another half-rack width instrument, such as a spectrum monitor (Tektronix 1705A), in a standard 19-inch rack.

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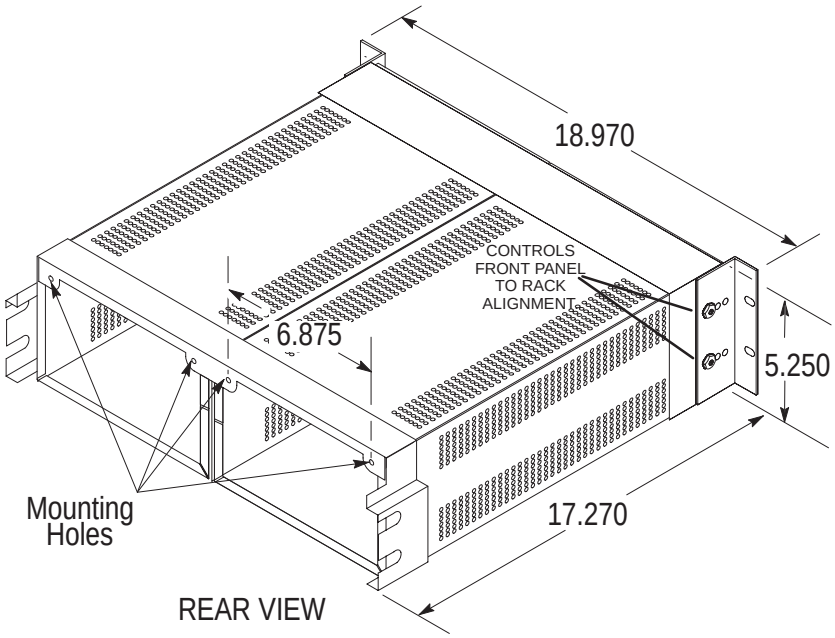


Figure 2–4: The 1700F05 side-by-side rack adapter

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

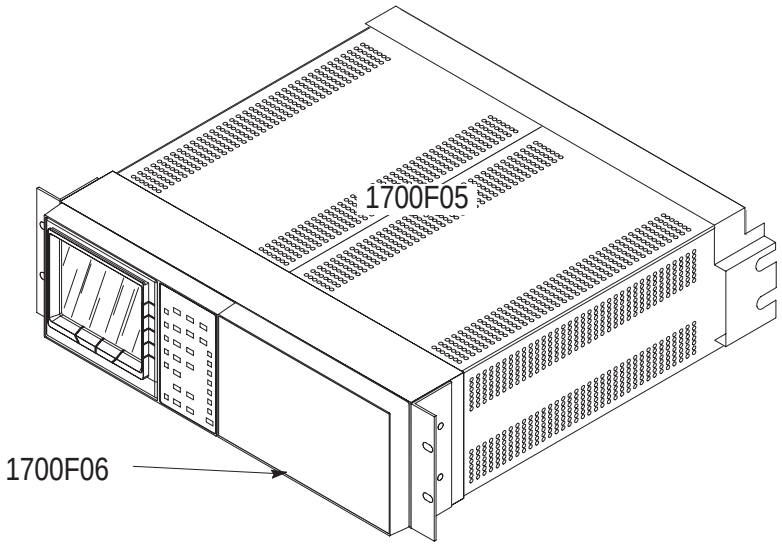


Figure 2–5: A1700F05 with a blank front panel (1700F06)

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

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

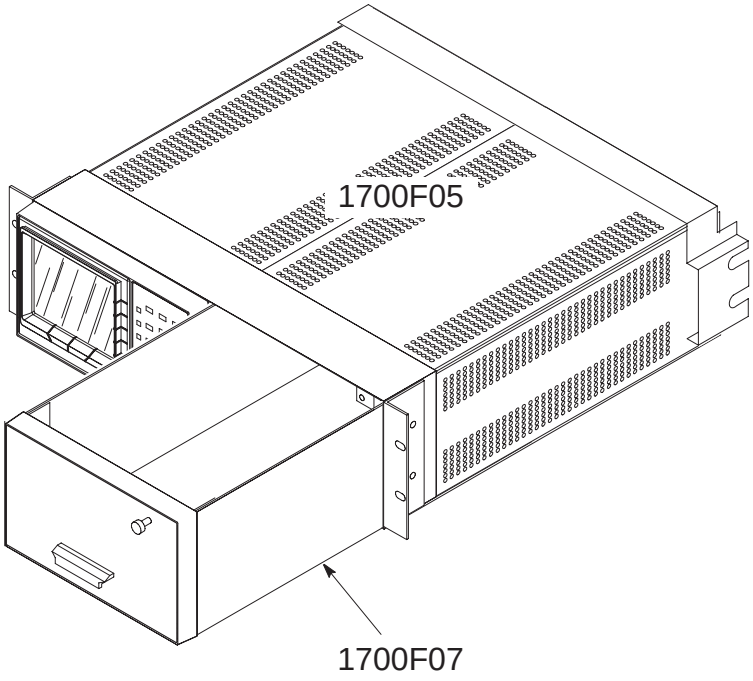


Figure 2–6: 1700F05 rack mounting with a 1700F07 utility drawer

Custom Installation

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

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

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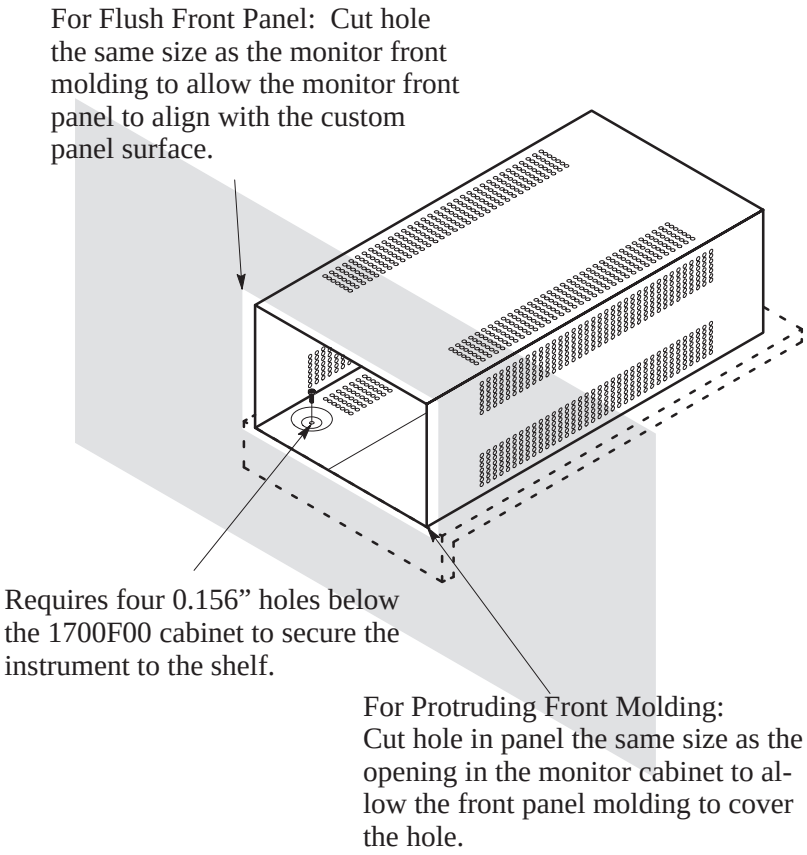


Figure 2–7: Custom installation of an instrument

Electrical Installation

Power Source

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



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

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Mains Frequency and Voltage Range

The 1740A/1750A/1760–Series monitors operate at 50 and 60 Hz, over the range of 90–250 Volts, without operator adjustment.

Power Cord Options

The 1740A/1750A/1760–Series of instruments are delivered from the factory with a 60 Hz/117 V power cord, unless one of the power cord options was ordered. Table 2–1 provides a description of the available power cord options for these monitors.

Table 2–1: Power Cord Options

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

For additional information see the Accessories foldout at the back of the manual.

Operational Changes

No operational modifications are made to this monitor through internal jumper settings.

Rear Panel Connectors

Signals into and out of the instrument are connected via the rear panel. Video signals are input/output through the bnc connectors, except for the RGB staircase signal which is input through the REMOTE connector. General information about the rear panel connectors is provided in the following paragraphs. Figure 2–8 shows the rear panel configuration for a 1760–Series instrument. The only difference between the 1760–Series rear panel and the other instrument rear panels is the presence of the GBR outputs.

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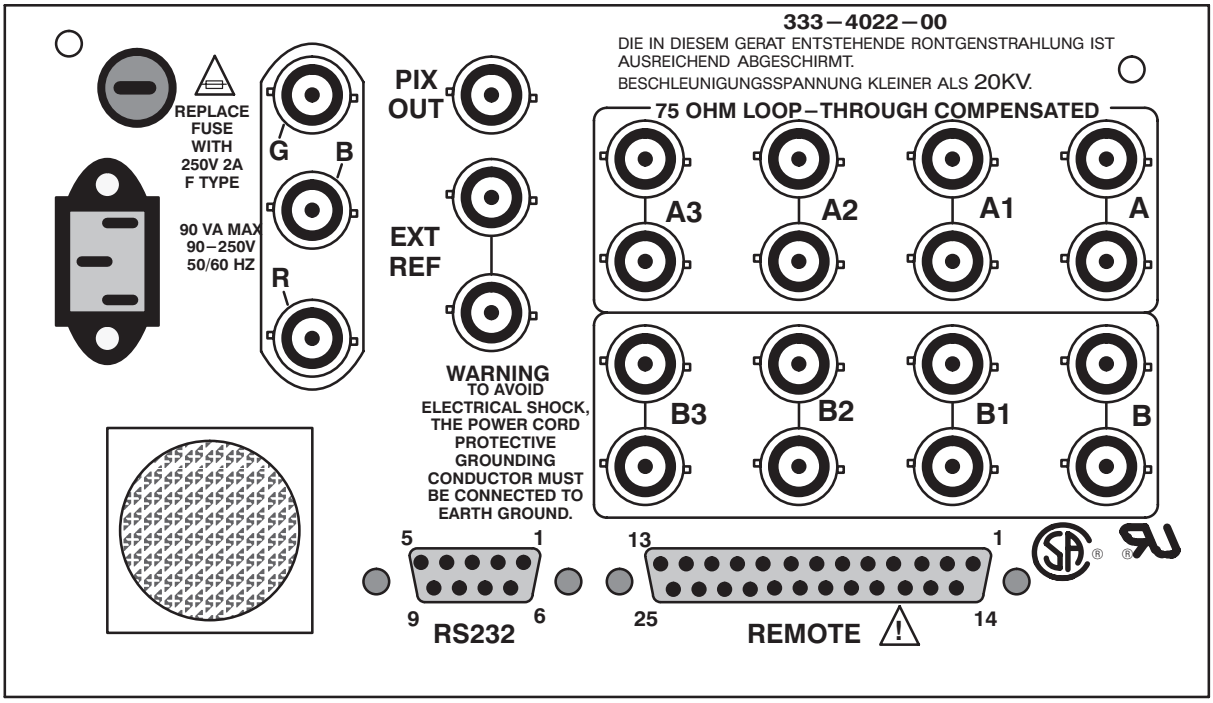


Figure 2–8: Rear panel connectors

75Ω Loop-Through Video Inputs

There are a total of eight 75Ω compensated loop-through video input bnc connectors. These inputs are not internally terminated; inputs require 75Ω external termination to provide accurate measurement capabilities. Inputs A and B are dedicated composite inputs regardless of instrument type. Inputs A1–A2–A3 and B1–B2–B3 can also be used as composite inputs, but if component signals are to be displayed they become the component inputs.

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

External Reference (EXT REF)

The external reference input provides both external synchronizing signals and external subcarrier input to these instruments. Input is either black burst or composite video. It is a 75Ω compensated loop-through input, requiring external termination.

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Picture Monitor Out (PIX OUT)

The PIX OUT is a 75Ω, non-filtered output designed to drive a picture monitor. A bright-up strobe is added when the instrument is operated in the line select mode. Strobe will either be the line in the selected field, the line in all fields or of 15 lines duration in the selected field or all fields. In the 15 line mode the bright up starts with the selected line.

GBR Output

1760–Series Only. These three 75Ω outputs are from the color difference-to-GBR transcoder. When the input is RGB, the transcoder is bypassed. The G (green) output contains sync.

Remote Connector

The rear-panel REMOTE connector is a 25-pin, D-type connector. It provides the input for stereo L and R audio. TTL signal or ground closure to designated pins are the enables. Eight front-panel setups can also be stored and recalled through the Remote connector. Table 2–2 shows pin assignments and Figure 2–9 shows the connector.

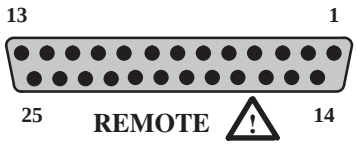


Figure 2–9: Rear panel REMOTE connector.

Table 2–2: Remote Connector

Pin No.	Function	Signal Requirement	Miscellaneous Information
1	RGB/YRGB Staircase Input	+10 V for RGB/YRGB	≈9 div of sweep. (Staircase/external horizontal and RGB/YRGB selected through menu.)
	External Horizontal Input	0 – +5 V Sawtooth	10 div. of horiz. deflection.
2	Ground		
3	Staircase/Ext. Horizontal Enable	Ground (TTL low)	Grounding enables the function. (Staircase or external horizontal selected through menu.)
4	External Blanking Input	Negative-going signal	Enabled by menu selection.

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Table 2–2: Remote Connector (Cont.)

Pin No.	Function	Signal Requirement	Miscellaneous Information
5	Remote Sync Input	TTL level square wave triggers 2-field sweep.	30/90 Hz for NTSC 25/100 Hz for PAL
6	Remote Sync Enable	Ground (TTL low)	Grounding enables the function.
7	Ground		
8	+Y Audio Input	Max. Input ±8 V peak.	Left in phase. Measured to Chassis Ground.
9	−Y Audio Input	Max. Input ±8 V peak.	Left out of phase. Measured to Chassis Ground.
10	+X Audio Input	Max. Input ±8 V peak.	Right in phase. Measured to Chassis Ground.
11	−X Audio Input	Max. Input ±8 V peak.	Right out of phase. Measured to Chassis Ground.
12	+ Time Code Input	−10 − +10 V peak.	Longitudinal Time Code, differential.
13	− Time Code Input	−10 − +10 V peak.	Longitudinal Time Code, differential.
14	Ground		
15	Not used		
16	Not used		
17	Preset 1	Ground (TTL low)	Grounding pin 17 recalls front-panel setup from preset 1. Grounding pins 17 and 25 stores current front-panel setup at preset 1.
18	Preset 2	Ground (TTL low)	Grounding pin 18 recalls front-panel setup from preset 2. Grounding pins 18 and 25 stores current front-panel setup at preset 2.
19	Preset 3	Ground (TTL low)	Grounding pin 19 recalls setup from preset 3. Grounding pins 19 and 25 stores current setup at preset 3.
20	Preset 4	Ground (TTL low)	Grounding pin 20 recalls setup from preset 4. Grounding pins 20 and 25 stores current setup at preset 4.
21	Preset 5	Ground (TTL low)	Grounding pin 21 recalls setup from preset 5. Grounding pins 21 and 25 stores current setup at preset 5.
22	Preset 6	Ground (TTL low)	Grounding pin 22 recalls setup from preset 6. Grounding pins 22 and 25 selects preset 6 as storage location for current setup.
23	Preset 7	Ground (TTL low)	Grounding pin 23 recalls setup from preset 7. Grounding pins 23 and 25 selects preset 7 as storage location for current setup.

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Table 2–2: Remote Connector (Cont.)

Pin No.	Function	Signal Requirement	Miscellaneous Information
24	Preset 8	Ground (TTL low)	Grounding pin 24 recalls setup from preset 8. Grounding pins 24 and 25 selects preset 8 as storage location for current setup.
25	Store	Ground (TTL low)	Grounding this pin along with one of the Preset pins stores the current front-panel setup at the selected Preset location.

Remote Connector Converter

If the 1740A/1750A/1760–Series is used as a direct replacement for a 1740–Series or 1750–Series instrument, an adapter or rewired remote cable will be required. Figure 2–10 is a diagram of how the adapter or cable will need to be wired. If the 1740A/1750A/1760–Series replaces an Option 16 instrument, construct the adapter in the same manner, omitting the pin 3-to-pin-25 connection.

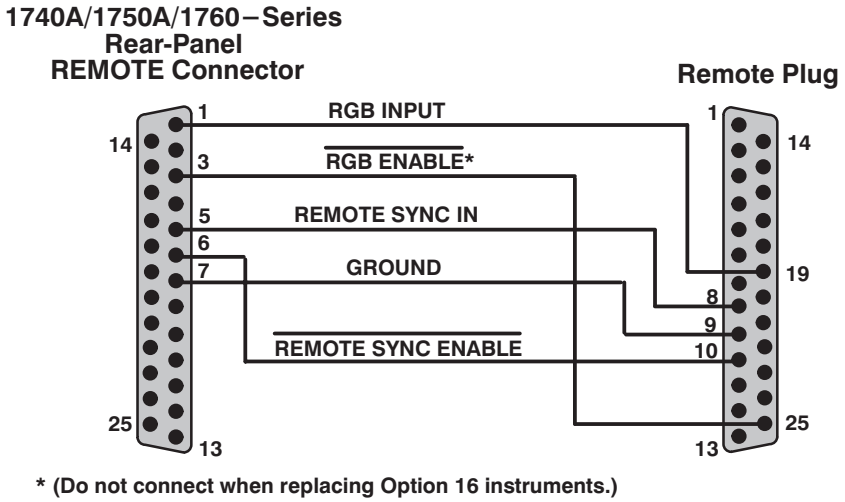
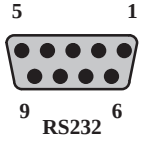


Figure 2–10: Replacement adapter for 1740/1750

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RS232 Connector

The serial interface is 9-pin subminiature D-type connector that provides a serial interface for remote control. It has a driver built in for RS232 serial binary data interchange. The operational mode is full duplex. Data rate = 9600 baud; data type is asynchronous. Figure 2–11 shows both the pin assignments and the connector orientation.



PIN NUMBER	DATA CONNECTION
1	**DCD**
2	**RXD** (RECEIVED DATA)
3	**TXD** (TRANSMITTED DATA)
4	**DTR** (DTE READY)
5	**SIGNAL GROUND**
6	**DCR** (DCE READY)
7	**RTS** (REQUEST TO SEND)
8	**CTS** (CLEAR TO SEND)
9	**NOT CONNECTED**

Figure 2–11: Rear panel RS232 connector

Installing Software

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

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

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

Software Disk

The software disk is a 3.5” (1.44MB) high-density disk. It contains all programs necessary to upgrade or reload the operating software in the Tektronix 1740A/1750A/1760–Series instruments to software version 2.2 or greater. If a disk drive other than 3.5” is to be used, have the contents of the disk copied to the desired size disk or to a hard disk directory. The disk contents are:

- NVSAVE.EXE Saves calibration constants and user presets.
- CONVERT.EXE Updates format of calibration and preset data.

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- UPGRADE.EXE Performs software upgrade.
- NVRESTOR.EXE Restores calibration constants and user presets.
- NEW_CAL.EXE Used to calibrate new features.
- SOFTWARE.BIN Data file used by UPGRADE.EXE.

Equipment Required to Perform Software Upgrades

IBM Compatible PC with the following:

DOS 3.3 or Higher.
640 K Bytes Random-Access Memory (RAM).
High Density Floppy Drive (3.5”/1.44 MB).
Available RS232 Port (COM 1, 2, 3, or 4).

RS232 Cable to connect PC to the 1740A/1750A/1760–Series RS232 connector.

Jumper cable for XROM board (If 1740A or 1750A–Series with XROM board installed. See Figure 2–15.)

Instrument Reset

Certain conditions, such as removing the power source while a program is running, may cause the 1740A/1750A/1760–Series instrument front-panel controls to become locked.

Reset as follows:

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



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



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



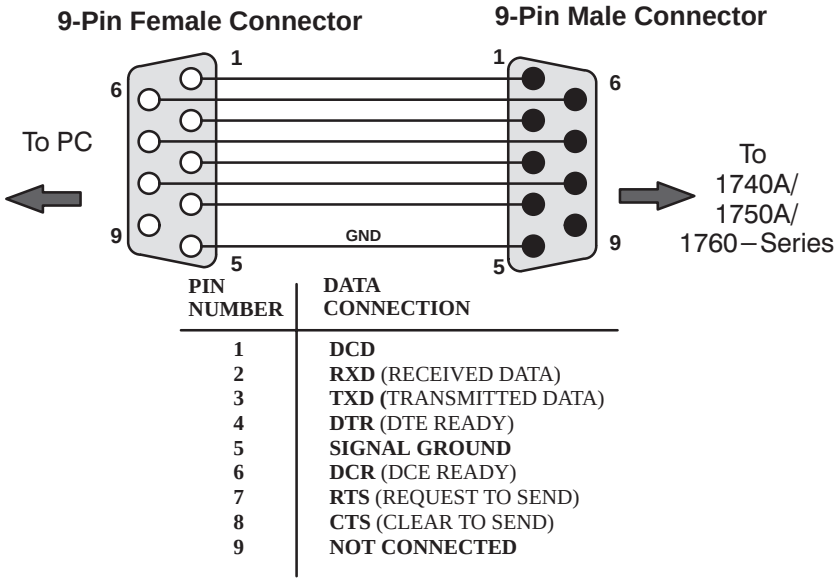
CAUTION. *The programs are designed to read or create their respective files in the current DOS directory. If you choose to copy these files to a hard drive, be sure to run them from the directory in which they are contained.*

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

Procedure for Loading Software

PC Hookup Hook up the 1740A/1750A/1760–Series rear-panel RS232 connector to the COM 1, 2, 3, or 4 connector on the PC, as shown in Figure 2–12, Figure 2–13, or Figure 2–14. If pins two and three (RXD and TXD) are swapped, as in some MODEM connections, the upgrade will not operate.



PIN NUMBER	DATA CONNECTION
1	**DCD**
2	**RXD** (RECEIVED DATA)
3	**TXD (**TRANSMITTED DATA)
4	**DTR** (DTE READY)
5	**SIGNAL GROUND**
6	**DCR** (DCE READY)
7	**RTS** (REQUEST TO SEND)
8	**CTS** (CLEAR TO SEND)
9	**NOT CONNECTED**

Figure 2–12: Hookup for 9-Pin PC Connector

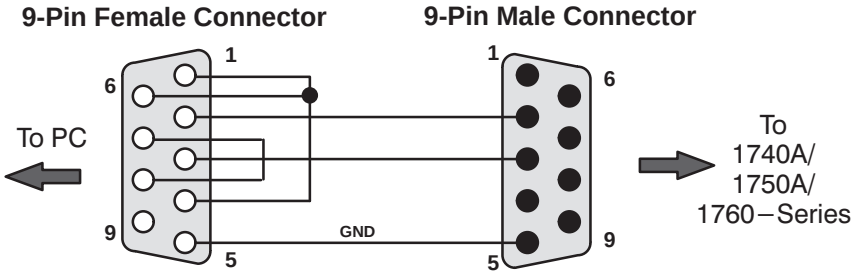


Figure 2–13: Alternate Hookup for 9-Pin PC Connector

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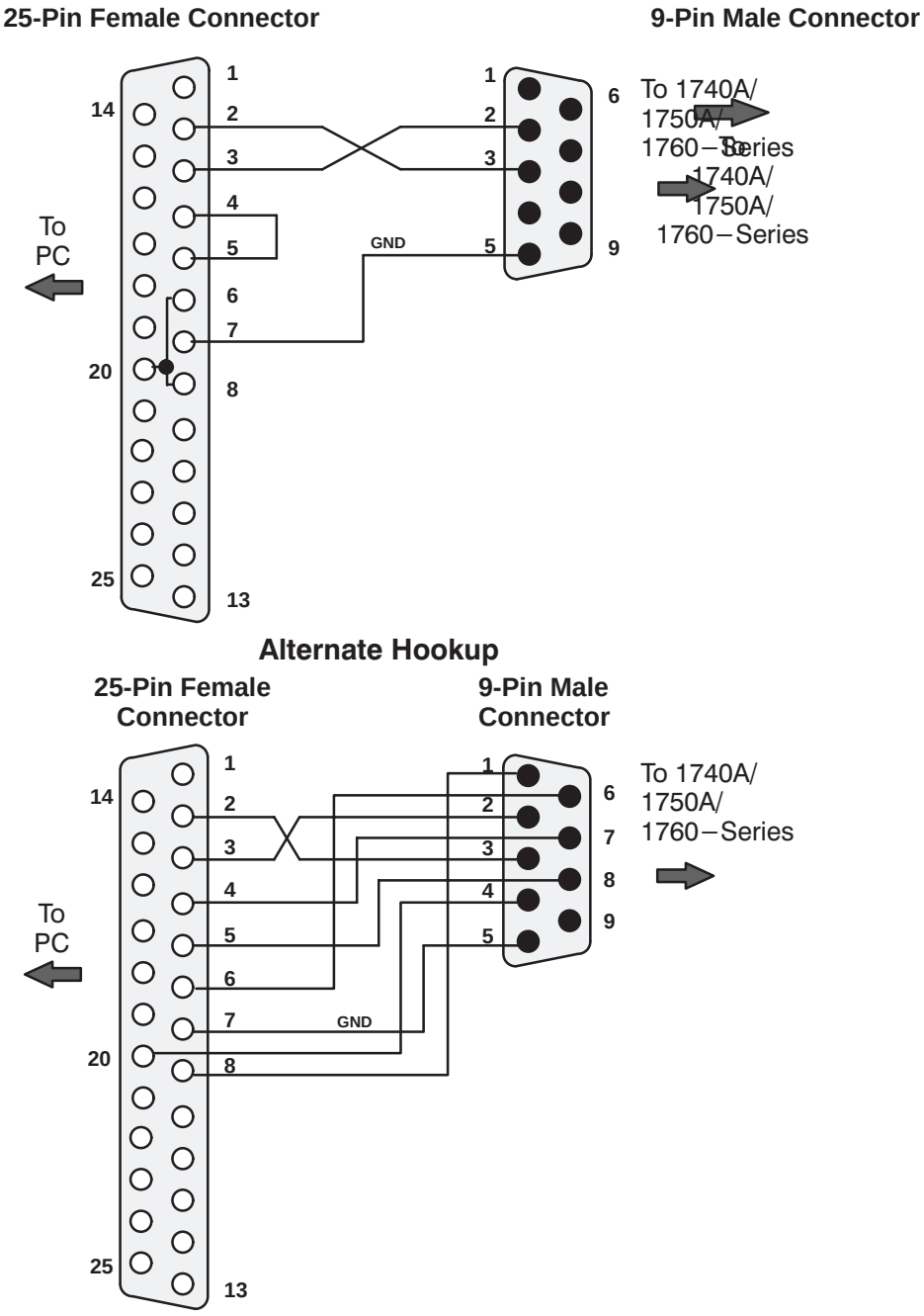


Figure 2–14: RS232 cable standard and alternate hookups for 25-Pin PC Connector

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

   a. Turn on the 1740A/1750A/1760–Series instrument.

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NOTE. *PC Floppy Drive or Hard Disk*

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

b. Insert disk into PC 3.5 inch floppy Drive.



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

c. At the DOS prompt, type **"B:"** and ENTER.

d. Type **"NVSAVE"** and ENTER. When asked for the COM port, respond with the number of the port you are using. (If you enter an incorrect port number, you will be prompted to try again.)

e. Wait for the message that the program execution is completed.

f. Note: This program stores the following temporary files on the floppy disk: **CALS.TMP** (calibration constants), **PRESET.CUR** (instrument's current front-panel setup), **PRESET.001–009** (user-defined presets), and **PRESET.FCT** (factory-defined preset).

2. Run CONVERT (Execution time <1 minute)

a. Type "**CONVERT**" and ENTER.

3. Prepare Waveform Monitor for Upgrade

a. Turn instrument power to STANDBY.



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

b. Move the plug jumper on J4 (Main board) to pins 1 and 2 (the pins closest to U14).

c. Some 1740A–Series and 1750A–Series instruments contain an XROM (A8) circuit board located next to the CRT. See Figure 2–15. If this circuit board is present, install a wire lead between pin 1 of A3P4 (on the Main circuit board) and the single pin on A8 PAD 1 on the XROM board. Do not move plug jumper A3J4.

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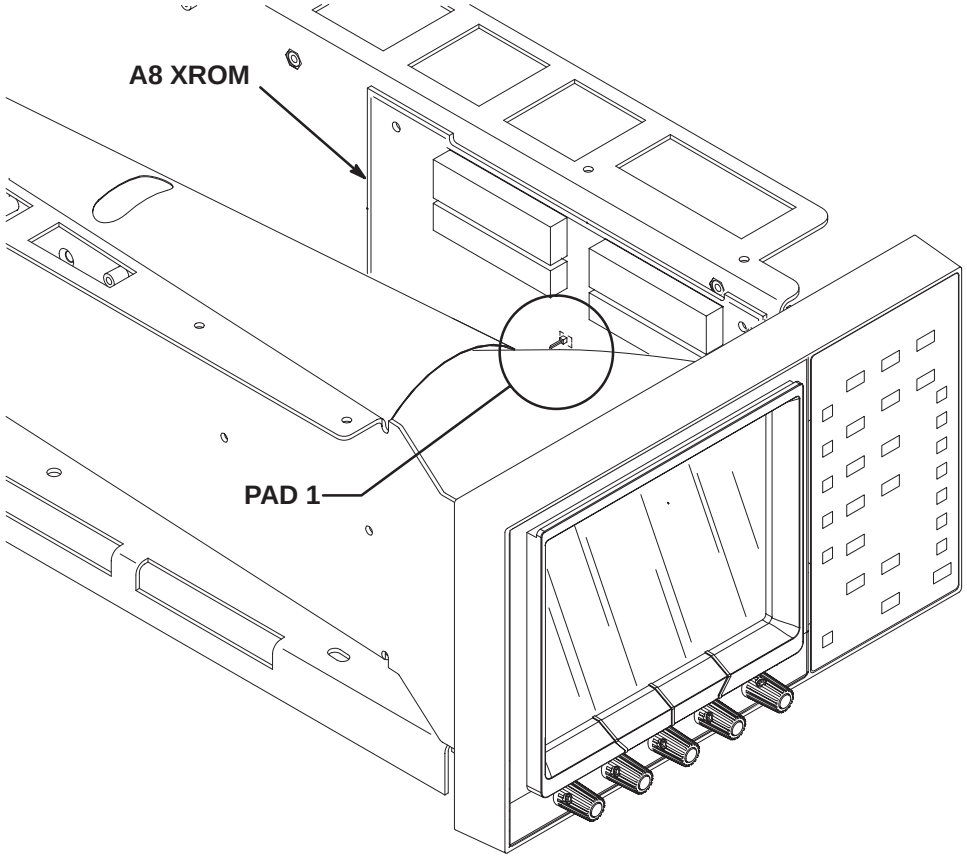


Figure 2–15: Location of XROM circuit board with PAD 1 shown

d. Set switch 4 of SW1 to the open position. (SW1 is the red switch on the Main board, near the front of the instrument.)

e. Turn on the instrument and allow it to boot (wait a few moments until the 1740A/1750A/1760–Series CRT and front-panel LEDs are illuminated as for normal operation).

4. Run UPGRADE
(Execution time ≈12 minutes)

***NOTE**. If a power loss to either the PC or the 1740A/1750A/1760–Series occurs during execution of the software loading, the instrument may lock up and not restart normally. A special recovery procedure can be found on page 2–20, should this problem occur.*

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a. Be sure that **NVSAVE** was executed (step 1).

b. At the DOS prompt, type **"B:"** and ENTER.

c. Type **"UPGRADE"** and ENTER. When asked for the COM port, respond with the number of the connector you are using.

d. Wait for the message that the program execution is completed.

e. Turn off the 1740A/1750A/1760–Series instrument power.

f. Return the plug jumper to pins 2 and 3, and return #4 of SW1 to the closed state.

g. Turn on instrument power to enable the new software.

5. Run NVRESTOR
(Execution time <1 minute)

a. At the DOS prompt, type **"B:"** and ENTER.

b. Type **"NVRESTOR"** and ENTER. When asked for the COM port, respond with the number of the port you are using.

c. Wait for the message that the program execution is completed.

d. Verify that step 4f has been performed.

e. This completes the Software Upgrade Procedure.

Calibration of New Features

The new instrument features must be calibrated using the following procedure. A color bar signal is required.

1. Run NEW_CAL

a. After installing the new version software, with the RS232 cable still attached and the instrument operating, type "**NEW_CAL**" and ENTER.

NOTE. *Each time an adjustment is indicated in the following steps, type the given letter on the PC keyboard, then press the up/down or left/right keyboard arrows as many times as required to achieve the described adjustment. The arrows function as follows:*

→	↑
large increase	*small increase*
←	↓
large decrease	*small decrease*

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2. Calibrate the new features.
   a. Perform steps A through I for all instruments.
   b. Perform steps J and K for 1760–Series.
   c. Type X to exit the program.

Special Recovery Procedure for Power Loss During the Execution of UPGRADE

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

1. Turn the 1740A/1750A/1760–Series front-panel POWER switch to STANDBY.
2. Start the PC upgrade procedure program and proceed through the menus until the SELECT COM PORT menu is on screen.
3. Type in the number of the COM PORT, but ***do not*** press the RETURN.
4. Turn the 1740A/1750A/1760–Series front-panel POWER switch to ON.
5. Within 6 seconds, press RETURN on the PC.

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Operating Instructions

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

Getting Started

The Tekronix 1740A/1750A/1760 family of Waveform/Vector monitors has been designed for ease of operation. If you have previous experience with waveform monitors and vector scopes, you may be able to operate the instrument without referring frequently to this section. However, you should be aware of the following "special characteristics" of the 1740A/1750A/1760–Series:

- Composite (that is, NTSC or PAL) signals can be connected to any or all of the eight input channels. Three-channel component (for example, GBR or Y, P_B, P_R) signals should be connected to inputs A1–A2–A3 and B1–B2–B3. Select the CONFIG/INPUT display to configure the "A123" and "B123" inputs for the type of signal you are monitoring.
- Each type of Waveform display (one line, two line, one field, and two field) has one level of horizontal magnification that may be turned on and off with the MAG button. The level of magnification depends on the display type; you can sequentially display the four magnified views by repeatedly pressing the Line/Field SWEEP button (once SWEEP MAG has been selected).
- The 1760–Series BOWTIE Display subtracts channels 2 and 3 from channel 1 and automatically displays the results in a "parade" format. In other words, when "A123" is selected, the A1 minus A2 waveform is shown to the left of the A1 minus A3 waveform. This lets you use the Tektronix-developed Bowtie test signal to check and adjust inter-channel timing on component systems. The 1740A–Series and 1750A–Series do not have this "subtract" feature.
- Audio signals are input through the rear-panel REMOTE connector. See Appendix B of the User manual for the pin assignments.
- The five buttons arranged vertically to the right of the display are called *Bezel Buttons*. Use these buttons to toggle or select the on-screen menu options that they are aligned with.

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- The middle three knobs under the display are called *Bezel controls*. Turn these knobs to adjust the parameters—or scroll through the lists—that appear above them on the display screen.

Operating Instructions

1. Connect the instrument to the desired signal path(s). Remember to connect component signals to A1–2–3 or B1–2–3. Be sure that all paths are terminated; add a termination to the loop-through connector, as necessary.
2. Plug the instrument in and switch it on. The On/Standby (POWER) switch is on the bottom-right corner of the front panel.
3. Select the CONFIG menu with its front-panel button and adjust the parameters as required for your particular installation.

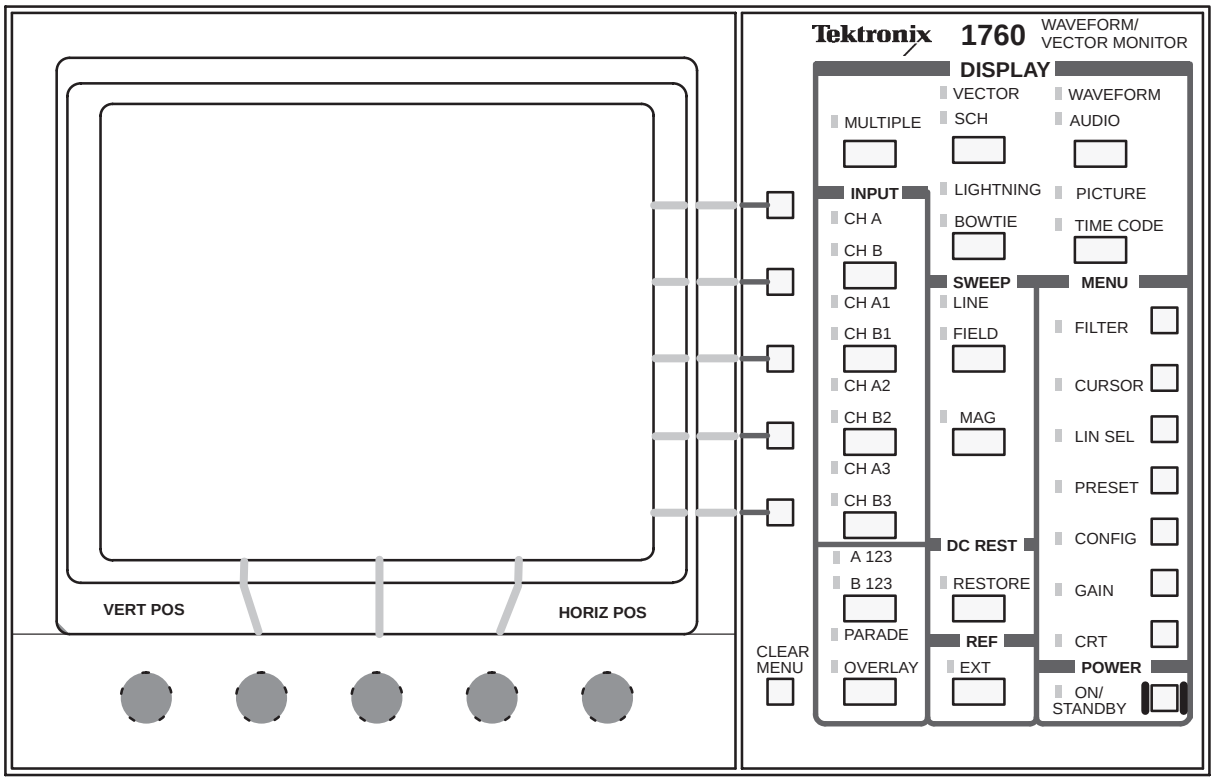


Figure 2–16: 1760 front panel

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4. Use the DISPLAY and INPUT buttons to view some aspect of the desired signal.

5. Select the CRT menu to adjust the waveform, readout, and scale brightness, and the waveform focus. Press the CLEAR MENU button to remove the menu from the display.

6. Use the front panel controls to observe and measure the signal(s) of your choice. If necessary, see the following pages for limited details, or the User manual for complete instructions.

General Menu Information

The 1740A/1750A/1760–Series menus are almost self-explanatory. The next few paragraphs describe the general techniques. To get started, press the appropriate MENU button (on the far right of the front panel) to call up one of the on-screen menu readouts.

Multi-Use Bezel Controls and Buttons

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

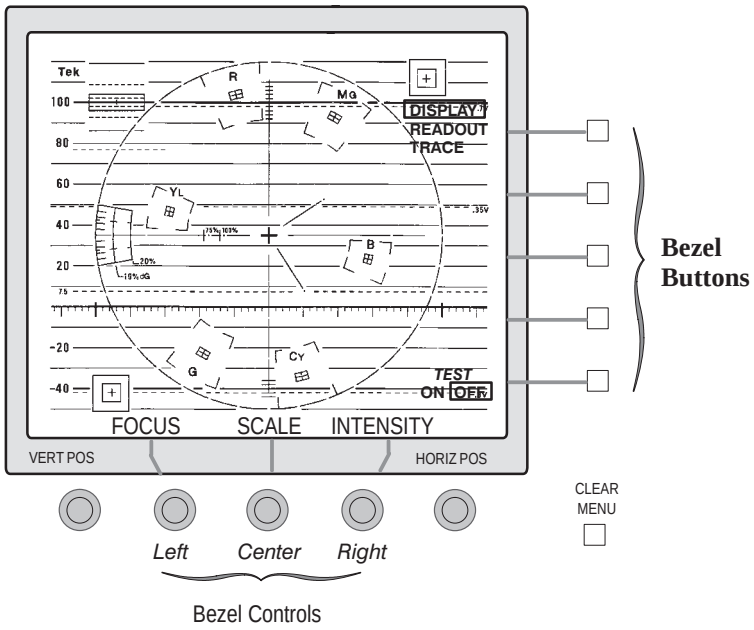


Figure 2–17: The CRT menu, with the bezel controls and buttons

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Figure 2–17 shows the bezel controls and buttons.

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

Moving Between Menus

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

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

Clear Menu

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

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

Exiting a Menu Function

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

Functional Overview

The *Functional Overview* describes the various ways a signal may be monitored with your instrument. For information on how to select a particular signal, see *Displaying a Signal*, on page 2–27.

Display Modes

The type of the signal will determine which display modes may be used. The displays that can be chosen with front-panel buttons are listed in Table 2–3 and explained in the following paragraphs.

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Table 2–3: The available display modes

Mode	Composite	Component
VECTOR	Yes	1760–Series only
SCH	1750A–Series and 1760–Series, Option SC only	
WAVEFORM	Yes	Yes
AUDIO	Yes (via REMOTE input)	Yes (via REMOTE input)
LIGHTNING and Diamond		1760–Series only
BOWTIE		1760–Series only
PICTURE	Yes	Yes
TIME CODE	Yes	Yes
MULTIPLE Displays	Yes	Yes

Vector

The vector mode presents an XY plot of demodulated chrominance phase and amplitude. The angle represents chrominance phase and the distance from the center represents chrominance amplitude. A bezel control adjusts vector phase.

With a component input (A123 or B123), vector display is channel 3 (typically R–Y or P_R) versus channel 2 (typically B–Y or P_B).

SCH

SCH (the 1750A–Series and 1760–Series with option SC only) provides a vector display of the subcarrier-to-horizontal-sync phase relationship. The burst vector and the phase of the 50% point of the leading edge of sync are displayed.

Subcarrier-to-horizontal phase and color framing are displayed graphically in the polar SCH display. Sync jitter over the field is displayed as a moving sync vector dot. Correct color framing can be verified by the position of the single sync vector dot, relative to the color subcarrier vector when the monitor is externally referenced.

The SCH phase of the reference signal is separately sensed to allow reliable color framing comparison. Using this method of determining relative color framing eliminates the requirement for a precise horizontal timing match between the reference and measured signals.

Waveform

The waveform monitor portion of the instrument provides a voltage-versus-time display of the video signal. The selected input can be displayed in one or two line, or one or two field sweeps. In LINE SELECT mode, identified lines of any field can be selected and displayed. Multiple inputs can be displayed, or multiple filters can be used on one input for signal analysis. TIME and VOLTAGE cursors can be activated and positioned for reference or measurement.

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Audio

Audio amplitude and phase is monitored using a calibrated X/Y Lissajous display. The operator can verify that the program audio will be properly reproduced on both monaural and stereo receivers. Correct phasing between two audio channels is quickly verified by the direction of the display.

Lightning and Diamond (1760–Series only)

The front-panel LIGHTNING button is used for both the Lightning and the Diamond displays. Use the *DISPLAY* button on the CONFIG/FORMAT menu to toggle between the Lightning and Diamond displays. Press the front panel CLEAR MENU button to remove the menu from the screen.

Selecting Lightning mode forces the instrument to A123 input display; it can be changed to B123 with the front-panel button.

NOTE. *A123 (or B123) must be configured as a component input (through the COMPONENT/INPUT menu) for proper LIGHTNING or DIAMOND display.*

Bowtie

In BOWTIE mode (1760–Series only), the display is forced to a two line or field sweep and A123 input is selected. The left half of the display shows CH-1 minus CH-2 and the right half shows CH-1 minus CH-3. If the timing between channels is matched, the centers of the bowties will be centered and not skewed. If CH-2 is delayed with respect to CH-1, the skew moves to the right. If CH-2 is advanced with respect to CH-1, the skew moves to the left.

NOTE. *A123 (or B123) must be configured as a component input (through the COMPONENT/INPUT menu) for proper BOWTIE display.*

Picture

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

Time Code

Longitudinal time code is monitored in a frame-rate display to allow observation of amplitude, synchronization, and phase with respect to reference vertical sync. Synchronization is confirmed by the stationary display and time code phase is determined by horizontal position of the time code sync word on the CRT.

Multiple

When MULTIPLE is pushed, WAVEFORM, VECTOR, and SCH (Option SC only) can be selected at the same time.

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When exiting MULTIPLE, the instrument will return to the previous (non-MULTIPLE) display settings. When entering MULTIPLE again, the previous MULTIPLE display settings will be restored.

Displaying a Signal

The paragraphs below describe how to use the various front-panel buttons to display exactly the signal or signals you want.

Inputs

There are eight rear-panel loop-through inputs, which may eliminate the need for an external routing switcher. The inputs can be displayed singly or in several different combinations.

Without PARADE or OVERLAY selected, only one input selection can be made at a time. Each input channel button (including A123/B123 or SEL A/SEL B) toggles between A and B, and is cancelled when another input button is pressed.

With PARADE or OVERLAY selected, the input channels can be displayed in combination. Pushing an input channel button sequences through the labeled channels, both, then off. Pushing another input button does not cancel the current selection, but adds to it. To return to “single input” operation, push the PARADE/OVERLAY button until it is off (LED is no longer lighted).

Inputs A1–A2–A3 and B1–B2–B3 may be used either as inputs for three-wire component signals, or inputs for three separate composite signals. (The CONFIG/INPUTS menu settings must match the actual signal type.)

A123/B123

Selecting A123 provides a side-by-side display of the CH-A1, CH-A2, and CH-A3 inputs (B123 displays the CH-B1, CH-B2, and CH-B3 inputs).

When PARADE or OVERLAY is selected, A123 and B123 can be displayed together and in combination with other inputs. If both A123 and B123 are selected, the display will consist of a side-by-side display of channels A1, A2, and A3, overlayed with a side-by-side display of channels B1, B2, and B3.

Parade

Selecting PARADE independent of A123/B123 displays the input channels last selected for PARADE, allowing a custom configuration of inputs. In PARADE mode, the LINE/FIELD button offers only two choices: one line and one field.

PARADE allows up to four channels to be displayed side-by-side. Additional channels will be overlayed.

Overlay

OVERLAY superimposes the selected input signals. In OVERLAY mode, the LINE/FIELD button remains a four-way toggle, providing one line, two line, one field, and two field displays.

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Sweep

Sweep buttons are used to select the waveform sweep rate. LINE/FIELD toggles through four sweep rate selections: one line, two line, one field, and two field. In PARADE mode, the LINE/FIELD button becomes a two-way switch, toggling between line and field.

The MAG button is used with LINE/FIELD to provide horizontal magnification of each rate as follows:

- One line magnified = 200 ns/division
- Two line magnified = 1 µs/division
- One field or two field magnified = approximately X20 magnification.

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Block Diagram Description

The 1740A–Series of Waveform/Vector Monitors has the typical composite displays used to monitor video quality. The 1750A–Series adds SCH phase measurements. The 1760–Series provides both composite and component analog capabilities. Option SC added to the 1760–Series provides SCH phase measurements.

The block diagrams that are discussed here are located in the Diagrams and Circuit Board Illustrations, at the rear of this volume. There are three block diagrams. Circuits shown on a diagonal patterned background are not present in the 1740A–Series instruments; these are the unique circuits for the 1750A–Series and the 1760–Series.

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

Block Diagram 1 Input and Waveform Monitor

Input Amplifier, Clamp, and Input Selection

There are eight identical clamped input amplifiers. Their gain is approximately unity. They are of the bridging loop-through type and are compensated for 75Ω characteristic input impedance. All inputs are active and a multiplexer is used to select signals for display. All three instrument series can accept both composite and component inputs. Input coupling can be either ac or dc as selected from the Configure menu. Clamp timing and clamping point are selected in the same manner. Coupling and clamping selections are for all inputs; they can not be individually changed.

The Input Multiplexer provides the means to select the input signal for display. Selection of signals is controlled by the Line Rate Controller in response to front panel switch selections. The choices are a single input, parade of three inputs (A1 – A3 or B1 – B3), or an overlaid display of the same three inputs that can be selected for parade display. Overlay display is at the selected line or field rate. Parade display is three consecutive lines or fields beginning with the A1 or B1 input signal followed by A2 or B2 and A3 or B3.

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Horizontal Reference Multiplexer and Reference Switch

In addition to driving the Input Multiplexer the video signal also drives the Horizontal Reference Multiplexer to select the internal sync and subcarrier references for the Line Rate Controller, chroma for the vectorscope, and SCH Phase.

The Internal/External Reference switch selects either the internal video or the external reference input as the instrument sync and subcarrier reference. Both the Multiplexer and the Reference Switch are controlled by outputs from the Line Rate Controller.

Pix Out, Filters, and Calibrator

The Input Multiplexer drives both the Picture Monitor Out (Pix Out) and the chrominance and luminance filters. The filters can be bypassed to provide an unfiltered (Flat) display. The Pix Out signal, with or without line select bright up (strobe), is the buffered, unprocessed input signal from the Input Multiplexer. The Pix Out has a characteristic output impedance of 75Ω to match the input impedance of picture monitors.

In addition to removing chrominance for the displayed video, the Luminance Filter drives the Diff Step Filter, and an input to the Horizontal Amplifier where the monochrome Pix Mon intensity signal is derived.

There are chrominance filters for both of the color standards that filter both the input video signal and the output of the F_{SC} Oscillator. The F_{SC} Oscillator generates the test circle for the vectorscope. Output of the appropriate color standard Chroma Filter is selected by a Microprocessor-generated switching signal. The chrominance signal is routed through the Vertical Amplifier, is buffered, and drives the vectorscope Chroma Amplifier.

The calibrator provides a 1 volt, 100 kHz output. Its amplitude is controlled by the microprocessor and its timing is set by the Line Rate Controller.

Auxiliary Switching

The Auxiliary Switching, controlled by the Line Rate Controller extends the number of signals that can be input to the Filter Selection Multiplexer. In addition to being an input to the Auxiliary Switching the differential time code input is recovered, buffered, and output to the Microprocessor which generates time code display synchronizing signals.

Filter Selection Multiplexer

The Filter Selection Multiplexer selects one of seven inputs, including the Auxiliary Switching, to be displayed. The vectorscope R–Y and the component vertical signal outputs are input through this multiplexer.

Vertical Amplifier

The Vertical Amplifier is a variable gain amplifier that has controlling inputs driven by either Microprocessor or synchronous Line Rate Controller outputs.

Stage gain is controlled by the microprocessor-generated DAC converted control voltages. Magnification is switched by a signal from the Line Rate Controller.

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An offset voltage from the DACs vertically positions the display. When CRT readout is being processed the gain of the amplifier is changed by the Line Rate Controller. The differential output of the Vertical Amplifier drives the vertical output amplifier to normalize signal amplitude and drive the CRT deflection plates.

An additional internal amplifier stage provides a chrominance differential output to drive the vector chroma amplifier. Gain of the chrominance signal is controlled by the Microprocessor.

Sweep Generators and Horizontal Signal Multiplexer

Line and Field Rate signal generators are started and stopped by the retrace signals from the Line Rate Controller. Sweep ramp run up times ≈17 ms for the field sweep and 64 µs for the line sweep are controlled by the Microprocessor.

The Horizontal Signal Multiplexer is controlled by the Line Rate Controller to select a signal to drive the horizontal circuitry. The vectorscope B–Y and the component horizontal signal outputs are input through this multiplexer.

Horizontal Amplifier

The Horizontal Amplifier is a variable gain amplifier with controlling inputs from either the Microprocessor or the Line Rate Controller. Stage gain is controlled by the microprocessor-generated control voltages. Magnification is switched by a signal from the Line Rate Controller.

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

The differential output of the Horizontal Amplifier drives the horizontal output amplifier to normalize signal amplitude and drive the CRT deflection plates.

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

Blanking Logic

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

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Block Diagram 2
Vector – SCH – Component

The vector circuits on this page are common to all monitors of this family. The SCH circuitry, in the upper left corner, is used by the 1750A–Series and the 1760–Series Option SC. Component circuits located in the lower right corner of this page are used only by the 1760–Series.

Subcarrier Regenerator and Phase Shifter

Chrominance from the incoming video signal, either internal or from the external reference, is conditioned by a chrominance amplifier and input to the Phase Detector at burst time. The chrominance input to the Lock Detector is delayed by 90° and compared to the regenerated subcarrier, from the VCO, with the output low pass filtered and buffered. The resulting signal is a pulse, when burst is present, that clamps the Phase Detector output. It is also checked for phase lock and, if unlocked, an output is supplied to the Error Amplifier to increase its bandwidth for faster locking. When the Calibrator (Cal Sig On) is selected (from the Configure menu in Vector mode) the Error Amplifier is forced into an unlocked state to provide the test circle.

The regenerated subcarrier output by the VCO can be phase shifted up to 360° by a digital phase shifter whose output is buffered and input to the demodulators.

Demodulators

These instruments employ quadrature demodulation, which consists of delaying the regenerated subcarrier by 90° to the R–Y (U) Demodulator. The incoming chrominance is compared to the regenerated subcarrier and the output is low pass filtered and amplified. Center dot clamping is used to keep the effects of chrominance from distorting the display center dot.

For PAL signals the regenerated subcarrier is switched between + and – inputs of the R–Y (U) Demodulator to accommodate the 180° phase shift between subsequent lines. When +V is selected the V–Axis switcher clamps one regenerated subcarrier input of the R–Y (U) demodulator to ground to force demodulation on a single phase and disable the PAL switching.

SCH (1750A–Series & 1760–Series Opt. SC only)

A regenerated subcarrier signal is phase locked to the 50% point of sync. The subcarrier is then demodulated to produce an on-screen dot display in a vectorscope-type presentation. Actual SCH phase is determined by measuring the dot displacement from the displayed burst vector.

The 50% Detectors compare levels at backporch (burst gate) and sync tip to output transitions coincident with a point half way between the backporch and the sync tip. The 4 x F_{SC} oscillator is harmonically locked to the transition from this 50% point detector.

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The resultant output for internal reference is a propeller (2 SCH dots 180° apart) display. When color framing of two signals is needed an external reference signal is required.

The display logic is developed by comparing the incoming reference video SCH and sync and then comparing the result to the subcarrier generated by the 4 x F_{SC} Oscillator. This provides a single dot display and the relationship of the two subcarriers is determined by measuring the displacement of the SCH dot from the burst vector.

Component Input Switching and Amplifier (1760–Series only)

Output of the CH1, 2, and 3 (either A or B) Input Amplifiers drives the Component input switching matrix. Switch output is buffered and becomes the CH1, CH2, and CH3 inputs to the Component display mode switching.

Color Difference to GBR Transcoder and GBR Outputs (1760–Series only)

The three channel outputs drive both the Component Display mode switching matrix and the Color Difference to GBR Transcoder. Either a GBR input signal or the transcoded color difference signal can be buffered to drive the backporch clamped GBR Output Amplifiers. GBR outputs are compensated in 75Ω.

GBR to Diamond Transcoder and Mode Switching (1760–Series only)

GBR signals from the Color Difference to GBR Transcoder are input to the GBR to Diamond Transcoder to be matrixed and applied to the Component Mode switching. The outputs from the Transcoder are 0.5 times G+B or R or B–G. These outputs drive the vertical and horizontal axes for the diamond display. Mode switching provides the inputs to the axes for Lightning, Diamond, Component Vector, and Bowtie displays.

Horizontal and Vertical Component Outputs (1760–Series only)

The Vertical Output Amplifier is a backporch clamped differential amplifier with unity gain. Its output is low-pass filtered (1.5 MHz) for all display modes except Bowtie, which bypasses the filter. The Horizontal Output Amplifier is a backporch clamped buffer whose output is low-pass filtered (1.5 MHz). The outputs of both the amplifiers are input into the Output Amplifier Switching. In addition, the output of the Horizontal Amplifier drives the transition intensifier that causes the Z–Axis to brighten enough to make the vector and lightning transitions clearly visible.

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Block Diagram 3
Microprocessor and Line Rate Controller

The heart of these instruments is a microprocessor. It controls all aspects of the instruments operation. Where synchronous control signals are required a Line Rate Controller is employed.

Microprocessor

The 16-bit microprocessor has its program code stored in a Flash Erasable Programmable Read-Only Memory (EPROM). The Non-Volatile Random Access Memory (NOVRAM) stores all of the constants used by the Microprocessor. The Random Access Memory (RAM) is used to move system level code for execution by the Microprocessor. The Read-Only Memory (ROM) contains Microprocessor code that is output on the 8 most significant bits to the data bus.

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

Component or XROM

The control circuitry for the component circuit board (1760–Series) is controlled by the Microprocessor. Some 1740A/1750A–Series instruments have the XROM circuit board installed in this location to extend the Flash EPROM.

Line Rate Controller

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

Sync Separators

Two sync separators are used to time the line rate controller. One strips sync from the internal video signal, while the second strips sync from the external reference video. Two separators are required to support color field identification (SCH).

Synchronous Outputs

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

Readout State Machine

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

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Serial Static Outputs This is a serial in/parallel out register for signals that do not need to be synchronized to the video signal.

Serial Interface The Serial Interface is a latch, driven by the Microprocessor, that outputs the chip select and enables for the serial devices, such as the DACs and the serial/parallel registers used for the Remote and Front Panel.

Digital-to-Analog Converter There are a number of D-to-A Converters (DAC) used to decode Microprocessor instructions and output positioning, gain, and level dc levels to the various circuits throughout the instrument. The DACs are part of serially loaded and clocked devices that are commonly referred to as Daculators.

RS232 Consists of a 9-pin connector and a line driver. It is used to calibrate the instrument.

Remote The Remote input consists of a 25-pin connector and parallel in/serial out registers to provide an external interface for remote control of the instrument.

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Circuit Theory

The following discusses the circuit theory of these instruments down to the component level. It is arranged on a diagram-by-diagram basis for the schematic diagrams located in the Diagrams and Circuit Board Illustrations, located near the back of the volume.

Diagrams 1 & 2 Channel A and Channel B Inputs

All of the video input circuits appearing on these two diagrams are identical; therefore, we have elected to describe only the Channel A Input circuits.

Input Amplifiers

The input is a high impedance bridging loopthrough compensated for operation in a 75Ω environment. Q2 is an FET that turns on and bypasses the ac coupling capacitor when the AC$\overline{\text{DC}}$ SEL control line goes low. Gain through the input and switch is approximately 0.8.

The input amplifier (U2) is a non-inverting, current-driven feedback amplifier, whose gain is approximately 1.09. When the DC Restorer is off U1D is closed to couple a positioning offset, V REF A, to the – input of the amplifier.

When the DC Restorer is turned on U1D opens and the feedback amplifier becomes an error amplifier that outputs a dc level whenever the clamp pulse occurs. U4 is a hold capacitor that charges toward the dc level. U4 is paralleled when slow restorer is selected; Q1 turns on and provides a ground for C3. The charge on the hold capacitor begins discharging when the clamp pulse ends and offsets the – input of the amplifier.

The three switching levels (AC$\overline{\text{DC}}$ SEL, SLOW$\overline{\text{FAST}}$, and DCREST ON) are generated by digital-to-analog converters controlled by the Microprocessor. The CLAMP PLS is output by the Line Rate Controller at a time coincident with either the backporch or sync tip of the incoming video signal.

External Reference Input

The EXT REF input is a high impedance bridging loopthrough compensated for operation in a 75Ω environment. Q18 is an emitter follower to provide the high input impedance. CR1 and CR2 prevent the power supply impedance from affecting the return loss characteristics of the loopthrough-through input when the power supply is turned off.

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Diagram 3 Vertical Input

Input MUX

The Input MUX is an 8-to-1 multiplexer (U79) controlled by the Line Rate Controller on Diagram 7. It selects one or a combination of the input signals to drive the Pix Out, the Filters, the Internal Video Sync Separator (Diagram 7), and the flat input of the Filter Multiplexer (Diagram 4).

Pix Out

The Pix Out Amplifier is a negative feedback operational amplifier, U81, whose output is 2V peak-to-peak across a 75Ω load (R316). Q23 increases the dc level of the Pix Out signal when the line strobe pulse from the Line Rate Controller (Diagram 7) occurs. Strobe pulse width can be up to 15 lines in duration.

Horiz Ref MUX

The multiplexer is made up of two 4-to-1, Line Rate Controller asserted multiplexers, U74 and U75. Selection of an internal reference channel is controlled by two control lines and the chip selects. If neither chip select (REFCH SEL2 or 3) is asserted, there will be no output. This occurs when External Reference is selected.

When the INT $\overline{\text{EXT}}$ control line is asserted (goes low) U70D and U70A close to drive Q19 from the EXT REF input. Q19 is an emitter follower providing a high impedance output that drives a sync separator on Diagram 7. Q17 clamps the input side of U70A to ground when Internal Reference is selected.

Luminance/Diff Step Filters

The output of the Input MUX drives the luminance filter through R302. L5 and L6 are adjusted for a white bar square corner while C131 is adjusted for minimum chrominance. The filtered output drives U72B to output the luminance signal for the Picture Monitor mode and component analog applications (J13) for the 1760–Series. The output signal from U72B also drives the Diff Step Filter.

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

Chroma Filter

There are two chroma filters, driven in parallel, by the Input MUX. Construction of the filters is identical, with the component values selected for the appropriate subcarrier frequency. The PAL filter is centered on 4.43 MHz and the NTSC on 3.58 MHz. U80 the chrominance amplifier is driven by either the video signal or the test circle oscillator, depending on whether U76B or U76C is closed.

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The chroma filtered video appropriate for the input color standard (PAL or NTSC) is selected by the Microprocessor through a Serial Converter on Diagram 9. Either the PAL $\overline{\text{NTSC}}$ (for NTSC) or the NTSC $\overline{\text{PAL}}$ (for PAL) control signal is asserted to close U76A or U76D to route the filtered video to the Vertical Amplifier (Diagram 4) and subsequently to the vectorscope demodulators.

F_{SC} Oscillator

The F_{SC} Oscillator generates the test circle pattern used to check vectorscope calibration. It is a crystal controlled, fed back, voltage-controlled oscillator (VCXO). There is a crystal for each of the color standards. Crystal selection is accomplished by turning on a switching transistor that provides a ground to complete the circuit through the crystal. When PAL is selected U83E completes the circuit through Y2, which drives Q22 and Q21, a high gain amplifier. The output of the oscillator is filtered by a low-pass filter consisting of C158, C169, L9, and C160.

The filtered output is then fed back to the emitter of U83A, which along with U83B, forms a comparator. The comparison is with the dc level through the emitter of U83B, supplied by a DAC shown on Diagram 9.

When NTSC is selected Y3, the NTSC crystal, is activated and C157 is added to the output filter in parallel with C169.

The output of the F_{SC} Oscillator is input to the Chroma Filter when $\overline{\text{OSC SEL}}$ goes low to close U76B, and OSC SEL goes high to open U76C and disconnect the incoming video signal.

Diagram 4 Vertical Output

Square Wave Calibrator

The input CAL LEVEL is from a DAC, shown on Diagram 9. It drives the inverting input of U47A, an operational amplifier. Q20 is a saturating switch driven by a 100 kHz output from the Line Rate Controller on Diagram 7. The square wave output is 1.096V.

Filter MUX

The Filter MUX is an 8-to-1 multiplexer controlling the input selection for the Vertical Amplifier. In order to accommodate an additional 3 inputs U66 selects the signal to be applied to the AUX input of U67. Switches are closed when their control lines are asserted low by synchronous outputs from the Line Rate Controller shown on Diagram 7. The Y Audio and Time Code inputs are differential. U84A (Audio) and U88B (Time Code) are converters, for the differential inputs, that output a single ended signal to drive the Filter MUX.

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Vertical Amplifier

The Vertical Amplifier, U55, contains two independent amplifiers. The external gain controlled Auxiliary amplifier is used as differential output chrominance amplifier. The output of the Chroma Filter Amplifier (Diagram 3) is input to the + input of the Aux amplifier. Its gain is controlled by the CHROM GAIN level from a DAC shown on Diagram 9. The differential output is converted to a single ended output by U73 to drive the Vector Chroma Amplifier shown on Diagram 13.

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

Vertical control levels, such as Gain, and Position from the DACs (Diagram 9) and the Magnifier control signal from the Line Rate Controller (Diagram 7) control the output gain and positioning of the displayed signal. Gain and frequency response characteristics of the CRT are compensated for by a network between the VOUT+ and VOUT– terminals of U55.

Vertical Deflection

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

Diagram 5 Horizontal

Sweep Generators

The sweep generators are nearly identical buffered integrators. They are started by either the line or field sweep speed signal from a DAC shown on Diagram 9. For purposes of simplicity we will discuss only the Field Sweep generator.

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

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Horizontal Signal MUX

The Horizontal Signal input selection consists of dual-in-line package (DIP) switch segments (U59, U63, U70, and U94) and an 3-to-8 line decoder (U50). The decoder is controlled by 3 synchronous outputs from the Line Rate Controller (Diagram 7). It is permanently enabled (pins 4, 5, and 6) so that any change in state of the control lines (pins 1, 2, and 3) will pull one of the six outputs (Y0–Y6) low and close the appropriate DIP switch segment.

Horizontal Amplifier

The Horizontal Amplifier, U56, contains two independent amplifiers. The external gain controlled Auxiliary Amplifier is used as a single ended luminance amplifier. The output of the Luminance Filter Amplifier (Diagram 3) is input to the + input of the Aux amplifier. Its gain is controlled by the PIX CONTRAST level from a DAC shown on Diagram 9. The single ended output drives an inverting operational amplifier, U73B. The minus input of U47B is a summing junction for the PIX BK LVL (black level) and the luminance from U56. The output of U47B is the picture monitor intensity signal to the Z–Axis control circuit.

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

Horizontal levels, such as Gain and Position from the DACs (Diagram 9), and control signals, such as Mag from the Line Rate Controller (Diagram 7), are input through U56, the Horizontal Amplifier. Gain and frequency response characteristics of the CRT are compensated for by a network between the VOUT+ and VOUT– terminals. The + and –H signals from the VOUT terminals are also supplied to the Vertical Deflection Amplifier (Diagram 6) for orthogonality adjustment (Y-Align).

Horizontal Deflection

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

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

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

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Diagram 6 Microprocessor

The Microprocessor controls the functions of the 1740A/1750A/1760–Series. It has a 32-bit internal architecture and operates with a 16-bit data bus and a 24-bit address bus.

Microprocessor

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

SP1 is a permanent magnet-type speaker for audible feedback that is driven by Q3. CR2 is an inductive compensation for the speaker voice coil.

U13 is a Read Only Memory (ROM) with 18 addresses; it outputs the 8 Most Significant Bits (MSB) to the data bus.

Data and Address Buffers

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

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

NOVRAM, RAM, & Flash EPROM

The NOVRAM (U14) stores all of the constants used by the Microprocessor. The Microprocessor writes the 8 MSBs into the NOVRAM when both $\overline{\text{CE}}$ and $\overline{\text{WE}}$ are pulled low. R$\overline{\text{W}}$ from the Microprocessor pulls down $\overline{\text{WE}}$. $\overline{\text{CE}}$ is pulled low by $\overline{\text{NOVRAM}}$ which is decoded by the address decoder. Content of the NOVRAM is read back out to the Microprocessor, through the Data Buffer (U19) when R$\overline{\text{W}}$ goes high and the $\overline{\text{CE}}$ and $\overline{\text{OE}}$ are pulled low by $\overline{\text{NOVRAM}}$.

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

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

Decoders

The Address Decoder is U21. It is a 3-line to 8-line decoder using the 3 MSBs of the address bus to output 5 control signals. The decoder is enabled when the Microprocessor pulls $\overline{\text{DECODE}}$ and $\overline{\text{ADDR EN}}$ low.

U2 is a logic array that decodes Microprocessor outputs. It uses buffered address 0 (BA0) as a clock. Its outputs enable the data and address buffers, control read and write for the RAM and Flash EPROM, and output 2 control signals for digital expansion.

Buffered Output

U23 buffers 5 outputs and 1 input for the Microprocessor. It is permanently enabled by pulling pins 1G and 2G low. 2G is set up to be pulled low when a component (1760–Series) board is installed.

Diagram 7 Dynamic Control

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

Sync Separator

The sync separator consists of U68 and U71. The V sync and H sync outputs are used to synchronize the Line Rate Controller (U34). The two integrated circuits are identical, one is driven by the internal video that drives the vertical deflection circuits and the other is driven by the selected reference input.

Line Rate Controller

The Line Rate Controller (U34) is a programmable logic device. It is capable of logic and timing simulations. It has three separate clock signals; 6 MHz from U93, 16 MHz from the Microprocessor, and a 5 MHz clock signal from an ECL oscillator. In order to lock the internal clock to video, U34 asserts $\overline{\text{START}}$ at the leading edge of H sync. When $\overline{\text{START}}$ goes low, it remains low for approximately 60 µs; it then goes high to shut off the oscillator (Q4, Q5, Q6, and U26C) until the next cycle.

U34 has 144 configurable blocks of RAM that are loaded from ROM at power up. U40 is a first-in/first-out RAM that is loaded from the Microprocessor, and read out to the Line Rate Controller and synchronous latches on command from the Line Rate Controller. U40 can be written to by the Microprocessor and read from by the Line Rate Controller independently.

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Synchronous Outputs

Output signals from the Microprocessor are timed out to analog switches and DACs by the Line Rate Controller clocks synchronous latches. Each latch is clocked by its own individual output from the Line Rate Controller.

Diagram 8 Readout

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

Readout Control

The Readout Control is a programmable logic device, U27, configured as a state machine. It uses 13 buffered addresses and 8 buffered data bits to produce an 8-bit data word (R0 – R7) that is converted by an 8-bit DAC (U37). Device clock is the buffered 16 MHz from the Microprocessor. When Readout Control is off U36, a RAM, can be written to directly by the Microprocessor, through its 13 bit address port. A screen draw requires 13 bits.

U37 is a dual DAC, that decodes the Microprocessor instructions. The A output drives the Vertical Readout Stroke Generator and the B half performs the same function for the Horizontal Readout Stroke Generator. Calibration constants are provided by the serial digital to analog DACs shown on Diagram 9.

Readout Stroke Generator

The Readout Stroke Generator consists of two identical circuits. Each generator has an inverting buffer amplifier, U48A or U48B, whose gain is unity. The output of the buffer amplifier drives a sample-and-hold, U54A or U54C. Timing for the sample-and-holds is identical and determined by a single RC circuit (R376 and C76). The output of the sample-and-hold drives an integrator, U48C or U48D, whose output is a negative-going sawtooth waveform. Charging current is controlled by the Shape adjustment (R134 or R135). The output of the Readout Stroke Generator drives the Vertical and Horizontal deflection circuits when readout is enabled.

Diagram 9 DACS & Serial

Serial Interface & Serial Static Outputs

U24 is a 4-line to 8-line decoder that outputs chip select and enable signals for the non-synchronous switching control lines. U9 is an 8-bit parallel load serial output shift register. Status of the A, B, C, and D input lines identify the Main circuit board revision level. SW1 is included for troubleshooting purposes. R28 is a set of pull-up resistors for 8 parallel inputs and 3 of the Microprocessor (Diagram 6) control lines.

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U77 and U82 are 8-bit serial in/parallel out shift registers. Their outputs are asynchronous switching control lines. Q24 is a driver for the 8 input coupling AC/DC switches.

D/A Converters

U32 and U38 are 8-bit serial in/parallel out shift registers that generate DAC load and chip enable signals. These signals are used by the DACs, Remote interface parallel in/serial out shift registers (Diagram 10), and the chip selects for the Bezel Controls A/D converters on Diagram 11.

U31, U35, and U86 are serial digital-to-analog converters with 16x12 static RAM. VOUT (0–15) are the analog outputs, each of which has a sample-and-hold for the output level. Serial data is loaded from the serial bus (BMOSI) when the LD goes low. The clock signal (BSCK) is from the Microprocessor. Output voltage levels provide the instrument's operating levels.

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

Diagram 10 Remote & 1760–Series / XROM Bus Connectors

RS232

U92 is an RS232 line driver receiver. C175 is part of the internal voltage doubler circuit and C171 is part of a voltage inverter circuit. Input and output signals are TTL. Chip output will be low with an input signal of +2.4 V or more.

Remote

U90 and U91 are 8-bit parallel-load, serial-output shift registers. Levels at the parallel inputs are loaded into the shift register and clocked out by the serial clock (BSCK). U90 and U91 are cascaded by taking the serial output of U91 and tying it to the serial input of U90. Inputs to the registers are asserted TTL low; R356 is a pull-up resistor to set the inputs to a TTL high when they are not asserted. Serial output, to the Microprocessor, is from pin 9 of U90.

1760–Series & XROM Digital Bus Connectors (1760–Series only)

The Component circuit board, assembly A7, for the 1760–Series plugs into J2 and J5. Not all signals routed through the connectors are used by the Component board. Note that the serial digital bus (MISO) is routed to the Component circuit board.

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Diagram 11 Z-Axis & Control

Bezel Controls

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

U3 and U4 are 8-bit switched capacitor successive approximation A-to-D converters with serial output. Levels, from the potentiometers, are input on the AN inputs, converted, and output as serial data that can be read by the Microprocessor (Diagram 6) on the serial bus (MISO).

Blanking Logic

U49 is a 4-section, Dual In-line Package (DIP) switch. Blanking selection signals, from the Dynamic Control (Diagram 7), going low close the switch elements. CR4 serves as an OR gate. The output of CR4 drives Q7, which is the current drive for the Z–Axis amplifier on Diagram 22. The higher the collector current the greater the CRT intensity.

CR5 is also an OR gate. The $\overline{\text{OPT BLANK}}$ originates on the Component circuit board for the 1760–Series. $\overline{\text{BLANK}}$ is from the Dynamic Control (Diagram 7) and pulls low, to ground the base of Q7 when the CRT is blanked.

Trace Rotation

Trace rotation is controlled by an output from one of the DACs on Diagram 9. U5A drives a coil around the CRT that is located inside the CRT shield.

Graticule Lights

U1D is an oscillator with a 600 ms period. Its output drives U1A directly and U1B through a comparator (U1C). The output of U1A and U1B is a 50% duty cycle, with each amplifier driving two of the four graticule light bulbs. Only two of the bulbs are lit at one time.

+8 V & –8 V Supplies and VPP1 Supply

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

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

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Diagram 12 Front Panel

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

LED Drivers Low levels to complete the LED circuits are loaded into the serial in/parallel out shift registers (U2, U3, U4, and U5) from BMOSI (buffered serial interface bus). Levels are then shifted into the parallel register by the $\overline{LED\ CS}$ and clocked out by the $\overline{LED\ EN}$, which is delayed by U10A, a D-type flip-flop.

Diagram 13 DACs & Digital Control

Chrominance Amplifier The reference signal is ac-coupled through a tuned circuit, C102 and L11, to drive the Chroma Amplifier, Q33 and Q34. Luminance is removed and in normal operation the chrominance is amplified by about three times.

Chroma Switch U12, Q13, and Q14 form a chrominance switch that selects either chrominance from the Vertical Amplifier (Diagram 4) or the SCH Signal (1750A/1760 [Option SC] –Series) to drive the chrominance input to the Demodulators (Diagram 16). Q13 and Q14 clamp the input side of U12A or U12D to ground when the switch is open.

DAC U18 is a series of serial input DACs. Serial data is loaded from BMOS (buffered serial bus) when LD goes low. Output levels, from the internal sample and holds, are clocked out by the buffered serial clock (BSCK) from the Microprocessor.

Serial Address DeMUX U19 is a serial in/parallel out shift register used to decode the vector/SCH-related instructions from the serial bus. It outputs chip selects and enables for SCH board identification, to control the DACs, and to enable the Vector Locked, SCH Locked, and Burst Present outputs to the serial interface bus.

8-Bit Serial Output U22 is a serial in/parallel out shift register to output asynchronous switching signals for the vector and SCH modes.

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SCH Board ID

When an SCH board is installed, the SCH ID0–SCH ID3 inputs to U27 are held low for recognition by the Microprocessor (when it requests ID over the buffered serial bus).

Diagram 14 Subcarrier Regenerator

45° Phase Flipper

When PAL subcarrier is input to the Loop Phase Detector a 90° phase shift is required on alternate lines. This is accomplished by either delaying or advancing the demodulator carrier inputs by 45°.

U28B, which is clocked at an H rate, provides the flipper control signals that alternately turn Q31 and Q32 on and off to provide a 90° subcarrier input phase shift between lines. C100, R188, and R189 provide the 45° phase delay when Q31 is turned on and Q32 is turned off. C101, R184, and R205 provide the 45° advance when Q32 is turned on and Q31 turned off.

When an NTSC signal is input, the preset for U28B is pulled high to turn on Q32 and keep Q31 turned off. When Q32 is on, the input subcarrier signal is correctly phased for NTSC signals.

Loop Phase Detector

U31 is the Loop Phase Detector. It is a balanced demodulator, whose carrier input is driven by the VCXO CW sine wave and its signal input is driven by burst gate from the Line Rate Controller. The output of this phase detector is an ac multiplication of the input signals, which occurs only during the time that both of the input signals are present and the demodulator is turned on by the Burst Gate signal. Q36 is the gate switch for the Loop Phase Detector. The average dc output level is proportional to the difference in phase between the inputs. When the loop is locked up the output of U31 (p in 12) is 0.

The output corresponding in time to the burst packet is low-pass filtered to remove any chrominance and harmonics to drive U26. The filter (L6, C74, and C71) has a 377 kHz bandwidth. U26 is a non-inverting, high-gain operational amplifier that drives the Error Amplifier.

Error Amplifier

U24A is a non-inverting amplifier whose RC feedback network acts as a low-pass filter to determine the Subcarrier Regenerator loop response. Any input voltage to U24A is amplified and biases the VCXO varicap (Diagram 15).

Loop frequency determines the speed that the loop locks up. When the phase lock loop is not locked up, a wider bandwidth is needed. If the loop is unlocked, C58, R108, R107, and C65 are the filter elements. When lockup is achieved, U20B closes and shunts another filter, consisting of C59, R109, and C66, across the filter to slow down filter response and make it less sensitive to noise.

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Lock Detector

The Lock Detector is similar to the Loop Phase Detector, except that the + Carrier input signal is phase shifted by 90°. This results in the output of the Lock Detector being maximum when the output of the Loop Phase Detect or is zero. Since Loop Phase Detector output is zero (phases are matched) during burst, the Lock Detector provides a large-amplitude pulse occurring only during burst time. When NTSC is selected, Q30 is turned on to provide an additional 45° fixed phase shift.

U24B is an integrating amplifier that outputs a low level when the loop is locked. When the subcarrier regenerator is unlocked the output of U24B will be alternately positive and negative, making a net output term of 0. When the output of U24B is low (locked) the output of U23A goes high and U20C turns on to close switch U20B, which slows down the loop response. The output of U23A (LOCKED) is also read by the Microprocessor to determine when the loop is locked.

Burst Detector

Q16 and Q17 form an envelope detector with a current output. When the Subcarrier Regenerator is locked, burst current flows through Q21 to U26. Prior to lockup the burst gate is steered through Q15 to U26. When lockup occurs, burst sampling occurs on burst. When the Subcarrier Regenerator is not locked, sampling occurs in a window corresponding to the Burst Gate signal.

Q35 is an inverter amplifier that outputs a burst sample pulse to the lock detector circuit on Diagram 13.

PAL Phase Initializer

The phase alternate line characteristic of the PAL signal makes it possible for the Subcarrier Regenerator to lockup 180° out of phase. If lockup is attempted in this condition the output of the Lock Detector will be positive for one burst and negative for the other, instead of high for both bursts.

When the Subcarrier Regenerator is locked to $F_{SC,}$ the Lock Detector outputs only a high at burst time. If the Lock Detector outputs a low at burst time, U23B outputs a low. A low output from U23B turns on Q19 to charge an RC network (C84 and R160) with a time constant of approximately 50 ms. The output of the RC network turns on Q20 which keeps the output of U23B high.

The output of U23B pulls the Preset of U28B down, which pulls up on its Q output. When the Q output goes high Q32, in the 45° Phase Flipper, turns on. The next –45° PAL burst that occurs will cause the output of U31 to go low and U30 to go high, which is the locked-up state.

When lockup occurs, Q18 turns on to lock out the PAL Phase Initializer and the Subcarrier Regenerator is locked to the correct phase. In addition, when U23B is locked out the Preset line for U28B goes high, which allows it to be clocked by the H rate clock signal.

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Diagram 15 Phase Shifter

VCXO

The VCXO is a crystal-controlled, ECL oscillator consisting of U29A and B. Center frequency is established by Y1 for PAL and Y2 for NTSC. The center frequency for the crystal oscillator is fine tuned by Netting Capacitor adjustments C106 and C109. Subcarrier Regenerator error voltage (Diagram 14) is applied across a varactor, CR8, which changes capacity with a voltage change. This provides the frequency correction for the VCXO.

When the CAL mode is selected Q23, is turned on hard and saturates to place a high on the control line to freerun the oscillator and, if there is a subcarrier present on the input, provide a display of circles.

The 4 x subcarrier output of the oscillator is input to a Johnson Counter, U25A and U25B, which divides its input frequency by 4 to yield a PAL or NTSC in-phase and a quadrature output.

The in-phase output provides the F_{SC} signal back to the Subcarrier Regenerator to complete the phase lock loop.

Phase Shift

The Vector Phase control output is read by the Microprocessor to provide DAC Sine and Cosine signals that drive the Control inputs of demodulators, U14 and U15.

The ÷4 Johnson counter provides in-phase and quadrature outputs to the Phase Shift mixers. Pins 8 and 10 of both mixers have ECL levels of the subcarrier. Pin 1 of both U14 and U15 have levels between + and –2.5 V, generated by the Microprocessor, corresponding to the current setting of the front-panel Vector Phase control.

The output of the mixers, pin 12, is the result of multiplying and adding the in-phase and quadrature components of subcarrier with the sine and cosine levels. L5, C41, and C44 form a filter to remove unwanted resultants. Q10 is a limiter driving a filter consisting of L3, C35, C33, and C25 that outputs a clean phase-shifted PAL or NTSC subcarrier to drive the Demodulators (Diagram 15).

Post Regulators

The + and –11 V supplies generated on the Power Supply circuit board are further regulated to meet the on-board needs of the Main (A3) circuit board. U10 and U9 are the post regulators for the –8 V and +8 V supplies.

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Diagram 16 Demodulator

Incoming chrominance is band-pass filtered, clamped at sync tip time, and compared to the phase-shifted, regenerated subcarrier signal for demodulation. Subcarrier signal is quadrature shifted (90°) before input to the R–Y (V) demodulator. In addition, for PAL applications, and any time the front-panel selected Test Circle is enabled, a V–Axis switcher shifts the subcarrier input by 180° for alternate lines.

Output signal from the Demodulators is low-pass filtered and amplified prior to driving the Horizontal and Vertical Output Amplifiers.

V-Axis Switcher

V-axis switching displays the PAL signal with the –V lines overlayed on the +V lines. The resulting display appears as though only the +V signal is displayed, similar to an NTSC display. This display evaluates relative differences between the +V and –V lines, just as the signal is decoded in a PAL receiver. The Microprocessor pulls the Preset input of U3B (a D-type flip-flop) high, which allows the horizontal sync, clock pulses to toggle its outputs at a line rate. The D input is controlled by another flip-flop, U28A (on Diagram 14), which has identified the +V lines (for PAL) in the Subcarrier Regenerator.

The flip-flop outputs drive Q5 and Q6. A high output turns on the corresponding transistor to shunt the signal at its collector to ground. This alternately grounds and drives the + and – carrier inputs on the V Demodulator with subcarrier to demodulate the –V lines 180° away from the +V lines.

Chrominance Demodulators

The chrominance demodulators, U26 and U28, are double-balanced demodulators, whose outputs are voltages proportional to the phase difference between the signal input (pins 1 and 4) and the carrier input (pins 8 and 10). The signal inputs are driven by chrominance from the Chroma Amplifier (Diagram 13). The carrier inputs are driven by a continuous sine wave, at subcarrier frequency, from the Subcarrier Regenerator (Diagram 14). T1 is a balanced transformer driving an LRC delay network, with L3 adjusted for PAL quad phase and C26 adjusted for NTSC quad phase. The V–Axis Switching circuit, when operating, determines which carrier input of the R–Y (V) Demodulator is driven by subcarrier. When NTSC is selected, U3B Preset input is forced low to turn on Q6 and ground the + Carrier input.

The demodulator gains are set by R36 for R–Y and R52 for B–Y. R36 is the +V Balance which provides offset voltage for pins 2 and 3. The bias is controlled by the Center Dot Position Clamp circuits.

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Demodulator Output Filters and Amplifiers

A four-pole, active, low-pass filter (Q2 and Q3 for the R–Y (V) and Q1 and Q4 for the B–Y (U)) removes the high-frequency components of the demodulation process. These filters determine the bandwidth of the vector mode signal path to control the rise time and delay of the demodulated signal.

U1 (for the R–Y/V) and U2 (for the B–Y/U) are inverting operational amplifiers with a gain of about 15.

Vector Center Dot Position Clamp

The R–Y (V) Demodulator output is also fed back through U4B to a clamp circuit consisting of U4A. U4A is an operational transconductance amplifier used in a sample-and-hold circuit. The demodulated R–Y chrominance drives the negative input (pin 2), while the R–Y Offset from Diagram 13, is the reference level to the positive input (pin 3).

The B–Y (U) Demodulator output is also fed back through U7B to a clamp circuit consisting of U7A. U7A is an operational transconductance amplifier used in a sample-and-hold circuit. The demodulated B–Y chrominance drives the negative input (pin 2), while the B–Y Offset from Diagram 13 is reference level to the positive input (pin 3).

Diagram 17 Internal SCH

50% Point Detector

Q8, Q9, and Q12 form an inverting amplifier with a gain of 8. R34 and R26 determine the ac gain. U4 and U7 (sample-and-holds) sample the amplifier output at backporch and sync tip time. Timing for the backporch and sync tip sample-and-holds is provided by the Line Rate Controller. Burst Gate occurs during sync backporch, while the sync tip sample pulse is coincident with the sync tip. A resistive divider (R46 – R51) derives a voltage halfway between the backporch and sync tip. U29 is a comparator that provides an output pulse when inverted sync (through L3) and the 50% transition are coincident.

The 50% level is also stored on C27. Q10 (an emitter follower) buffers the voltage and feeds it to the amplifier input through R27. This sets the 50% sync point at the amplifier output, which is approximately +3 V.

Q9, in the operational amplifier, saturates when the amplifier output drops below 0 V. This saturation condition, coupled with the clamp feedback, is used to strip off large amplitude video what would otherwise break down the comparator.

SCH Sync Locked Oscillator

U11 and U27 form a 4 x F_{SC} oscillator that is series tuned by a selected crystal Y1(NTSC) or Y2 (PAL) and varactor CR10. C42 and C46 are adjusted so that the oscillator runs at 4 x F_{SC} when there is 5.5 V on the varactor.

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Sync Delay

The transitions from the 50% point detector are one input to a one shot, U12A. The other input is the sync gate from the Line Rate Controller. When the 50% transition occurs during sync time (active video line), U12A switches and generates a pulse whose duration is dependent on the current through Q15. Q15 is controlled by a DAC level from the Vector board (Diagram 13). The trailing edge of the pulse output by U12A triggers U12B, another one shot, whose output is a 126-ns pulse. When this pulse straddles a zero crossing of subcarrier the charge pump detector outputs a dc level.

Charge Pump Comparator

The phase-shifted differential F_{SC} signal, output by U9, is fed to a phase detector, U23D. U23, Q19, and Q20 form the charge pump phase detector. The phase detector is gated on with a sample pulse from U12B. During the time the phase detector is gated on, current flows in and out of the integrating capacitors, C70 and C71. The direction of the current flow is controlled by the F_{SC} feedback signal driving U23D pins 2 and 4. When pin 2 is low and pin 4 is high, current flows out of the integrating capacitors through the collector of U23D (pin 5). When pin 2 is high and pin 4 is low, the current from U23 is routed into a current mirror (Q19 and Q20) and added to the integrating capacitors. An equilibrium condition exists when the net charge transfer is zero; therefore, the transitions at pin 2 will occur at the mid point of the 126-ns pulse from U12B when the loop is locked. R122 and the integrating capacitors, C70 and C71, form the loop filter that controls the phase lock loop response. The net current flow into the loop filter produces the VCO control voltage, which controls the varactor, CR10, through R96.

Lock Detector

The lock detector is made up of U14A and U28. When lock is achieved the output of U28 is high, which has the gate of Q26 high and keeps it turned off. In addition, the output of U28 is the SCH locked level (high for locked and low for unlocked) that is detected by the SCH lock detector on Diagram 13. When the charge pump detector outputs a sawtooth waveform, the output of U28 goes low and turns on Q26, which connects the –8 V supply directly to R153 to boost the current through the charge pump detector to speed lockup. In addition to speeding up the detector, the SCH Locked line goes low, causing the SCH lock detector on Diagram 13 to output a low to the Microprocessor.

4 F_{SC} Divider

U9 is a Programmable Array Logic (PAL) device. It contains all of the logic required to output a signal that can be converted to an analog sync coincident sine wave for plotting against the burst locked sine wave in a vector-type display. The resultant difference is the horizontal-to-subcarrier phase error.

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The oscillator output is divided by 4 with a Johnson counter internal to U9. The counter's four outputs are 90° apart. The four output signals drive a 4:1 multiplexer also internal to U9. The multiplexer is controlled by the NTSC and PAL pulses from U24 (Diagram 18) and pulses and levels from the Line Rate Controller (Diagram 7). By controlling the multiplexer the F_{SC} signal output can be phase shifted in 90° increments.

In NTSC, there are 227.5 cycles of F_{SC} per horizontal line. Thus, when the F_{SC} signal is sampled each line, the samples will differ 180° from one line to the next. However, phase shifting the F_{SC} signal by 180° from line to line provides successive samples that will be in phase. The counter and multiplexer in U9 provide the line rate phase shifting. In PAL a similar phase shift occurs, except that the shift is 90° per line.

F_{SC} and $\overline{F_{SC}}$ signals are fed back as one set of inputs to the phase detector (U23). For internal SCH phase U9 outputs two phases 180° degrees apart. U35A and Q29 provide gain control. Gain is controlled by the Microprocessor through a DAC on the Vector circuit board (Diagram 13). The collector of Q22 drives a filter that converts the digital output to an analog sine wave. U25 is an inverting amplifier that outputs a sync-coincident sine wave that is switched in to drive the demodulator chroma input when sync phase is to be displayed. See Diagram 13.

When external reference is used to display SCH the display also provides color frame information for color field 1. The display is a single dot for NTSC and a blanked area in the vector circle for PAL. When this determination is being made U9 requires additional inputs from the NTSC and PAL pulse generators on Diagram 18, plus inputs from the Line Rate Controller to assist in locating line 21 (NTSC) or line 18 (PAL), which are by definition, in color frame 1.

Diagram 18 Reference SCH

50% Point Detector

Q6, Q3, and Q11 form an inverting amplifier with a gain of 8. R8 and R18 determine the ac gain. U1 and U5 (sample-and-holds) sample the amplifier output at backporch and sync tip time. Timing for the backporch and sync tip sample-and-holds is provided by the Line Rate Controller. Burst Gate occurs during back porch, while the sync tip sample pulse is coincident with the sync tip. A resistive divider (R29 – R32) derives a voltage halfway between the backporch and sync tip. U31 is a comparator providing an output when inverted sync (through L1) and the 50% transition are coincident.

The 50% level is also stored on C7. Q4 (an emitter follower) buffers the voltage and feeds it to the amplifier input through R9. This sets the 50% sync point at the amplifier output, which is approximately +3 V.

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Q3, in the operational amplifier, saturates when the amplifier output drops below 0 V. This saturation condition, coupled with the clamp feedback, is used to strip off large amplitude video what would otherwise break down the comparator.

SCH Sync Locked Oscillator

U18 and U15 form an F_{SC} oscillator that is series tuned by a selected crystal, Y3 (NTSC) or Y4 (PAL), and varactors CR3 and CR4. C69 and C54 are adjusted so that the oscillator runs at F_{SC} when there is 7.5 V on the varactor.

Sync Delay and Charge Pump Comparator

The transitions from the 50% point detector are one input to a one shot, U8A. The other input is the sync gate from the Line Rate Controller. When the 50% transition occurs during sync time, U8A switches and generates a pulse whose duration is dependent on the current through Q14. Q14 is controlled by a DAC level from the Vector board (Diagram 13). The trailing edge of the pulse output by U8A triggers U8B, another one shot, whose output is a 126 ns pulse. When this pulse straddles a zero crossing of subcarrier the charge pump detector (U13) outputs a dc level.

The differential F_{SC} signal, output by U18B, is fed to a phase detector, U13D. U13, Q16, and Q17 form a charge pump phase detector. It is gated on with a sample pulse from U8B. During the time the phase detector is gated on, current flows in and out of the integrating capacitors C40 and C41. The direction of the current flow is controlled by the F_{SC} feedback signal driving U13D pin 2. When pin 2 is low and pin 4 is high, current flows out of the integrating capacitors through the collector of U13D (pin 5). When pin 2 is high and pin 4 is low, the current from U13 is routed into a current mirror (Q16 and Q17) and then added to the integrating capacitors. An equilibrium condition exists when the net charge transfer is zero causing the fed back F_{SC} to be locked to the mid point of the 126 ns pulse. R73 and the integrating capacitors, C40 and C41, form the loop filter that controls the phase locked loop response. The net current flow into the loop filter produces the VCO control voltage, which controls the varactors, CR3 and CR4, through U14B.

Mixer & Pulse Generator

U17 is a double balanced demodulator used as a mixer. Its differential voltage output is proportional to the phase difference between the signal input, which is the reference video burst, and the carrier input, which is the sync-locked F_{SC} output of the oscillator. U22A is a comparator that outputs a positive-going Ref SCH pulse every other line for NTSC and a pair of pulses every fourth line for PAL. U24 is a pair of one shots that lengthen the pulses from the comparator so they can be used by the clocking logic internal to U9 to generate the SCH FIELD signal for the Microprocessor. See Figures 3–1 and 3–2.

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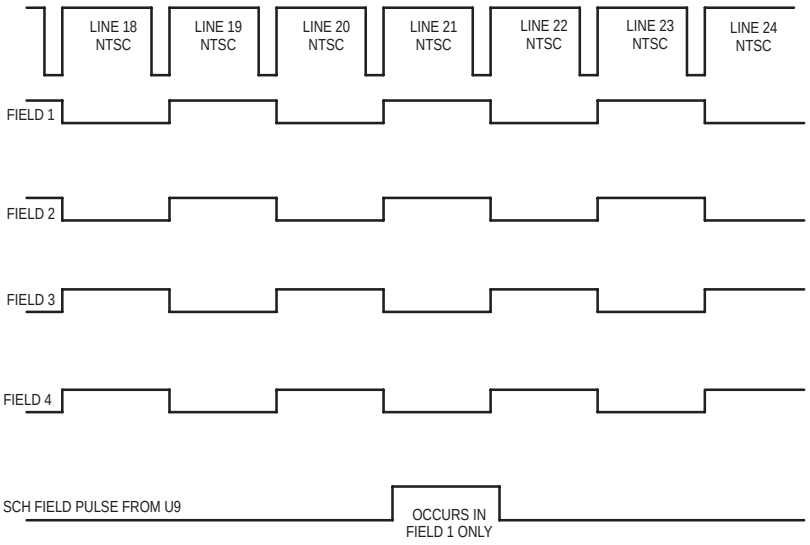


Figure 3–1: NTSC line count (U24) & color frame 1 SCH Field Pulse

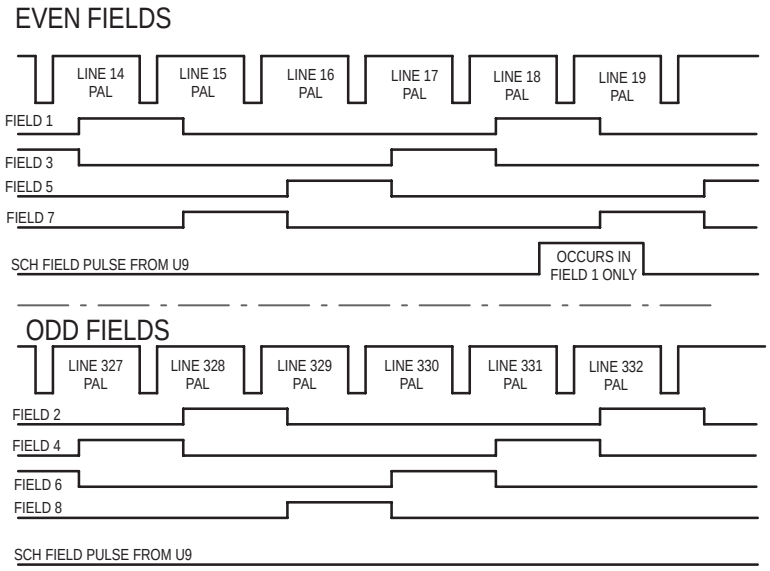


Figure 3–2: PAL line count (U24) & color frame 1 SCH Field Pulse

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Diagram 19 Component Inputs, Transcoders, & RGB Outputs

This schematic diagram is used only with 1760–Series instruments.

Input Selection

Video from the A1 – A3 and B1 – B3 input amplifiers is routed to emitter followers Q2 and Q3 for channel 1 (A1 or B1), Q12 and Q13 for channel 2, and Q22 and Q23 for channel 3. Q1, Q11, and Q21 ground the input emitter followers when composite input is selected.

When A123 is selected from the front panel, Q204 is turned on and provides emitter voltage to Q2, Q12, and Q22, which turns them on as emitter followers. When Q2, Q12, and Q22 are on, CR2, CR12, and CR22 are forward biased to couple the incoming video signals through to the channel 1, 2, and 3 drivers.

If the composite inputs are selected (A or B), Q201 is turned on to turn on Q1, Q2, and Q3 to ground the input drivers.

The output and differential amplifiers and transcoders are driven by low output impedance emitter followers to reduce crosstalk. Q4 and Q5 form the channel 1 (Y) driver, Q14 and Q15 are the channel 2 (P_B) driver, and Q24 and Q25 are the channel 3 (P_R) driver.

RGB Transcoder

Driven by the output emitter followers, the Color Difference to RGB Transcoder consists of three operational amplifiers and switchable resistance matrices. The GBR outputs are always active. When the input signal is a color difference signal it must be transcoded to RGB for output. When the input signal is RGB the transcoder is bypassed.

The operational amplifiers and the resistance matrices are signal mixers. Subtraction and addition of signals is accomplished by presenting the color difference components to either the inverting or non-inverting inputs of the amplifiers. The resultant signal proportions are shown in Table 3–1. Note that Y is input to the non-inverting input of all three amplifiers (U41, U212, and U61), and that both P_B and P_R are input to the inverting input of U41 (the G transcoder). This makes the output mix for SMPTE format $Y - 0.3441\ P_B - 0.7141\ P_R$.

Table 3–1: Transcoder Signal Mixing

GBR	SMPTE	BETA 60
Green	$Y - 0.3441\ P_B - 0.7141\ P_R$	$Y - 0.7079\ (0.3441\ P_B + 0.7141\ P_R)$
Blue	$Y + 1.772\ P_B$	$Y + 0.7079\ (1.772\ P_B)$
Red	$Y + 1.402\ P_R$	$Y + 0.7079\ (1.402\ P_R)$

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When Beta format is selected, the four DIP switches, U40C, U40D, U51C, and U52C are open and the gain of the amplifiers is changed to reduce the P_R and P_B components of the RGB signal by approximately 30%. When the SMPTE format is selected the switches are closed and the $P_{R,}$ P_B components are at full amplitude.

When the input signal is RGB it is routed around the transcoder amplifiers. To accomplish this U40A, U51A, and U52A close, and U40B, U51B and U52B open. Conversely, when the input signal is color difference the transcoder output is from closing the B switches and opening the A switches.

RGB Output

The RGB output amplifiers, along with the Diamond Transcoder, are driven by emitter followers (Q51, Q53, and Q61). The emitter followers provide a low output impedance to reduce crosstalk between channels. The output amplifiers are non-inverting, clamped operational amplifiers with a gain of 1.5 to compensate for the drop across the 75Ω series output resistance. Clamping occurs at backporch time when the Line Rate Controller outputs the OPT PLS. The level at backporch time charges the hold capacitors (C80, C90, and C100) and applies the level to the output amplifier.

Diamond Transcoder

The diamond transcoder consists of three emitter followers and an inverting operational amplifier, U70. Its output is the four signals required to create the diamond display (G+R, G+B, B–G, and R–G). Signal gain is approximately 0.5. C74 is adjusted for clean, sharp transitions between the dots.

Diagram 20 Component Control and Switching

This schematic diagram is used only with 1760–Series instruments.

Controller

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

U204 and U205 are asynchronous registers that handle transactions that do not need to be synchronized to the instrument sync.

Sync Blanking

In all display modes, except lightning, the display is kept blanked until a point well into the backporch. To keep the display blanked a pair of one-shot multivibrators are used. U502A fires when blanking occurs and holds its output high for approximately the active portion of the line. When the Q output of U502A again goes low U502B fires just long enough to blank sync.

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When the lightning display is selected, the sync dot, at center screen, needs to be unblanked. In order to display the sync dot the Clear input for U502B goes low to clear it.

Output Switching

Signal selection for the component displays is accomplished by a series of DIP switches activated by the Controller switch enable signals SW1 – SW11. Signals to input for the various displays are routed to the vertical inverting and non-inverting amplifier inputs and to the non-inverting horizontal amplifier as shown in Table 3–2. Switch enable signals that are asserted to close the individual switches are included in parentheses.

Table 3–2: Component Display Output Switching

CRT Display	Line	Vertical Non-Inverting Input	Vertical Inverting Input	Horizontal Input (non-inverting)
Component Vector	All	P_R (SW 4)	Ground (SW 5)	P_B (SW 6)
Lightning (Difference)	X	Y (SW 3)	Ground (SW 5)	P_R (SW 11)
	X+1	Ground (SW 2)	Y (SW 3)	P_B (SW 6)
Diamond (RGB)	X	G+B (SW 1)	Ground (SW 5)	B-G (SW 1)
	X+1	Ground (SW 2)	G+R (SW 8)	R-G (SW 8)
Bowtie (Difference)	X	Y (SW 3)	Ground (SW 5)	P_B (SW 10)
	X+1	Y (SW 3)	Ground (SW 5)	P_R (SW 11)

Vertical Amplifier

The Vertical Amplifier has an inverting and non-inverting input. The non-inverting input from U101 (a four-section DIP switch) drives Q111. The collector of Q111 drives either an active low-pass filter Q131, Q134, and Q136, or is switched past the filter for bowtie display.

The low-pass filter consists of three emitter follower stages with an overall gain of less than unity. C135 and C136 are adjusted for the straightest transitions between dots on the component vector display.

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When the signal from the inverted input is switched in, U101C grounds the base of Q111 and U103 or U102C, which provides the input signal to the emitter of Q111 through Q127, an emitter follower. The output of Q111 can be backporch clamped. Because the signal can be deflected positive and negative from center, a different clamp level is required for positive-going signals than for the negative-going signals. The sample capacitors, C120 and C121, are charged whenever the OPT PLS (from the Line Rate Controller, Diagram 7) goes low and either locally generated $\overline{\text{TOP}}$ or $\overline{\text{BOTTOM}}$ is asserted, causing the output of U125A or U125B to go low and close either U124A or U124D. The clamped amplifiers, U126A and U126B, have a dc level at their non-inverting inputs. When the lightning display is selected this voltage is adjusted to overlay the backporch levels at the vertical center point of the positive and negative excursions.

Q112 and Q114 are an emitter coupled pair driving Q116 to output the clamp level on the collector output of Q111.

Horizontal Amplifier

The horizontal amplifier is driven by Q180 and emitter follower to provide a high output impedance. Q151 and Q157 form an active low-pass filter that is used by all of the component outputs. U162A and U162B are clamped amplifiers. Their operation is very similar to that of the vertical amplifier clamps. R159 aligns the top and bottom halves of the display along the vertical center line, at backporch time.

GBR Intensification

In order to measure the variations in the horizontal transitions of the lightning display it is necessary to bright them up. U171 is employed as a dual comparator mixer to provide an output pulse to the Z–Axis Amplifier on Diagram 21. As the horizontal signal deflects from center both of the active inputs to U171 change. When the changes are compared to a fixed level (the opposite side of the comparator amplifier) the mixer output changes to create a bright-up level.

Diagram 21 Low Voltage Power Supply

The Low Voltage Power Supply converts the mains line voltage (90–250 Vac) to supply the power requirements of the instrument. The voltages supplied by the Low Voltage Power Supply are +40 V, ± 15 V, and +5 V.

The Low Voltage Power Supply is called a flyback switcher. When switcher mosfet Q14 is turned on, its drain voltage drops to approximately 0 V. The current through the 350 μH primary winding of T3 begins ramping up. The voltages present at all secondaries is such that the rectifier diodes are reverse biased. Energy is being stored in the magnetic field of T3. When Q14 turns off,

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the drain voltage “flies back” in a positive direction. Current now flows in all of the secondary windings and supplies power.

Line Rectifier and Filter

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

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

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

Transformer Driver

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

If power is removed from the instrument U8A, retains its memory due to the storage capacitor, C58. C58 is capable of holding its charge for a week or more at a time. In order to prevent the one-shot multivibrator, U5A, from tripping U8A if power is lost, a short time constant (C56 and R89) pulls V_{CC} for U5A down before Q13 quits oscillating.

Pulse Width Modulator

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

U6 pin 2 is the inverting input of an internal operational amplifier. The non-inverting input is set to 2.5 V by an internal voltage reference. Current from the peak detector flows through R87 and R94. R86 provides a 100 μA offset. The voltage at pin 1 will vary in order to maintain pin 2 at 2.5 V.

The voltage at U6 pin 1 is modified by an internal circuit and sets the trip point of the internal comparator. Pin 3 is the external input to the comparator. Pin 4 sets the internal oscillator to 80 kHz, R92 and C55 determine the frequency.

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

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

Snubber

The primary winding (pins 1 and 2) has a shadow winding (pins 3 and 4) with one end connected to ground. The B+ end of the primary winding is in phase with the grounded end of the shadow winding. The signal ends of both windings are connected together through C51. Because both windings have the same number of turns and their signal ends are connected, the signal voltages on the windings are forced to be the same regardless of stray inductance in the transformer. CR23 ties the signal end of the shadow winding to the B+ end of the primary winding to prevent it from having a peak signal voltage greater than B+. This also prevents the primary winding from having a peak signal voltage greater than B+.

The signal end of the primary winding can go no more that 2 x B+ (about 700 V with a 250 V mains) because the other end of its winding is at B+. Holding the signal voltage at 700 V or less protects the switching transistor, Q14.

Rise time snubbing is done with CR25, R88, and C59. Slowing the risetime of Q14 reduces RF interference.

Output Filters

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

Error Amplifier

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

An optoisolator consists of a light emitting diode, as a transmitting device, and a light-sensitive transistor as a receiver. When the intensity of the LED changes the base current in the receiver changes equivalently to alter the pulse width modulator feedback voltage.

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Shutdown Logic

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

U7B is the comparator for the +16 V supply. U7C is the line voltage comparator, sensing the rectified ac primary. If either output is low, Q15 turns off to shut down the power supply. U7A senses the power switch status from the Q output of U8A. Whenever the output of Q8A is low, the output of U7A will also go low.

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

Over Voltage Protection

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

DS6, which is an LED that is internal to the instrument, is lit whenever the +5 V supply is running. This is simply a servicing aid making it possible to determine if the power supply is operating without having to look at the front panel.

Diagram 22 High Voltage Power Supply

HV Osc and Error Amp

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

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

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C25 and Q8 are a start delay circuit that holds the error amplifier output low, through CR12, until C25 is charged. Delaying the start of the high voltage oscillator allows the Low Voltage Power Supply to start, unencumbered by the load from the high voltage oscillator.

Power Supply Outputs

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

Focus Amplifier

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

Grid Drive Circuit

The cathode of the CRT is at a –2750 V potential with the grid coupled to the Z–Axis Amplifier by the grid drive circuit. The grid is approximately 75 V negative with respect to the cathode. The 200 V p-to-p sine wave present at the cathode of CR11 is input to the grid drive circuit where it is clipped for use as CRT control grid bias.

The sine wave from the cathode of CR11 is coupled through R41 to a clipping circuit consisting of CR8 and CR9. Clipping level for the positive excursion of the sine wave is set by the CRT Bias adjustment, R53. The negative clipping level is set by the front-panel INTENSITY control through the Z–Axis Amplifier. The clipped sine wave is coupled through C12 to a rectifier made up of CR5 and CR6. The rectified, clipped sine wave is the CRT control grid bias voltage. C8 couples the blanking signal from the Z–Axis Amplifier to the CRT control grid. DS1 and DS2 limit the CRT grid to cathode voltage at instrument turn on or off. DS4 limits the CRT heater to cathode voltage.

Z-Axis Amplifier

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

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Diagram 23 XROM

This is a special circuit board that may be present in some 1740A/1750A–Series instruments. It is not used in the 1760–Series instruments. Where it is employed, it is physically located next to the CRT.

Diagnostics and Circuit Board Identification

U5 is a parallel in/serial out shift register. It is used for two purposes, both of which relate primarily to the assembly and original testing of the circuit board. The four resistors, R2 – R5, can be used to output a binary code to the processor for circuit board identification. Their value can be either 0 or 10 kΩ.

Switch S1 is used as a troubleshooting aid by setting 4 bits either high or low.

Flash EPROM

U7 is a logic array that decodes Microprocessor outputs. It uses buffered address 0 (BA0) as a clock. Its outputs enable the data and control read and write for the Flash EPROM.

System level code is loaded into RAM (for reading by the Microprocessor) from the Flash EPROM, where it is stored. Unless VPP is high (for programming purposes) the Flash EPROM, U1, U2, U3, & U4, function as a 256k X 8 Read Only Memory (ROM). (Write instructions are ignored.) U1 & U4 store the lower 8 bits and U2 and U3 the upper 8 bits. It is read out when $\overline{\text{FLASH}}$ and $\overline{\text{RD}}$ $\overline{\text{LO}}$ and $\overline{\text{RD HI}}$ are pulled low.

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Performance Verification

Recommended Equipment List

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

Electrical Instruments

1. Test Oscilloscope

Vertical Amplifier:
30 MHz Bandwidth, 2 mV sensitivity.

Time Base:
10 ns/Div to 5 ms/Div sweep speeds, triggering to 50 MHz.

For example:
A TEKTRONIX TAS 465 Oscilloscope. Also 10X probe, P6109B, and 1X probe, P6119B.

2. Television Signal Generator

Color test signals for the television standard of the monitor to be tested: color bar signal, linearity staircase and variable apl, pulse and bar; with 2T pulse, 2T bar, and modulated pulse, field square wave signal, and black burst signal.

For example:
NTSC TEKTRONIX 1410 with Option AA and Option AB (modified SPG2 and TSG7), TSG3, and TSG5.

PAL TEKTRONIX 1411 with Option AA and Option AB (modified SPG12 and TSG17), TSG13, and TSG15.

NOTE. *1410–Series Generators:*

The 1410–Series generators with standard SPG and TSG modules can be used, but not all checks and adjustments can be made. The standard SPG2/SPG12 modules will not check lock to changes in sync amplitude, cw lock to changes in burst amplitude, and frequency lock to burst offset frequency changes.

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The signal generator can be ordered with one or both options (AA and AB).

The TSG3 and TSG13 are Modulated Staircase Generators with variable APL.

The TSG5 and TSG15 are Pulse and Bar Generators with modulated pulse and field square wave signals.

3. Digital Television Signal Generator

For example:

TEKTRONIX	TSG-170A	NTSC
TEKTRONIX	TSG-271	PAL
TEKTRONIX	TSG-300	Component

4. Swept Sine Wave Generator

Frequencies from 50 kHz to 10 MHz. CW signal can be used as time marks.

For example:
HP3336C, Option 005. Option 005 provides increased flatness and attenuator accuracy (+0.07 dB flatness in CW mode). The standard frequency accuracy (+5 ppm of programmed frequency) is sufficient for time base verification.

5. Leveled Sine Wave Generator

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

For example:
TEKTRONIX SG503 installed in a TM500–Series Power Module.

6. Function Generator

Range: 0.1 to 5 Vpp when loaded by 75Ω; 10 Vpp when unloaded.
Frequency: 10 Hz to 2 kHz.

For example:
TEKTRONIX FG503 installed in a TM500–Series Power Module.

7. Variable Autotransformer

For example:
General Radio Metered Auto Transformer W10MT3W. If 220 V operation must be checked, a conversion transformer or appropriate 220 V autotransformer is needed.

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8. Voltmeter

Range: 0 to > 100 Vdc. Accuracy: ± 0.1%.

For example:
TEKTRONIX DM501A installed in a TM500–Series Power Module.

9. Frequency Counter

Range: 10 Hz to 10 MHz. Accuracy: ± 0.001%.

For example:
TEKTRONIX DC503A installed in a TM500–Series Power Module.

10. Video Amplitude Calibrator (VAC)

Signal: Adjustable square wave 0.0 to 999.9 mVpp. Resolution: 0.1 mV. Accuracy: 0.05%. Frequency: Approximately 270 Hz.

For example:
TEKTRONIX 067-0916-00 installed in a TM500–Series Power Module.

11. Peak-to-Peak Detector

Input Signal Range: 0.25 to 1.0 Vpp. Flatness: ± 0.2% 50 kHz to 10 MHz. Input Impedance: 75Ω.

For example:
Tektronix Part No. 015-0408-00 (includes Peak-to-Peak Detector Head 015-0413-00) installed in a TM500–Series Power Module.

12. Power Module

For powering and housing Tektronix SG503, FG503, DM501A, DC503A, 067-0916-00, and a 015-0408-00.

For example:
Tektronix TM500–Series Power Module.

13. Spectrum Analyzer

Bandwidth up to 10 MHz and sensitivity up to 50 dB; with internal tracking generator.

For example:
Tektronix 2712 Option 04.

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14. RF Bridge

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

For example:
Wide Band Engineering Part No. A57TLSCR, and high-frequency terminator A56T75B.

Auxiliary Equipment

15. 75Ω Precision High-Frequency End-Line Termination

0.25% dc accuracy, with return loss of 42 dB or greater up to 30 MHz (for use with the RF Bridge).

For example:
Wide Band Engineering termination model A56T75B.

16. 75Ω Terminators

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

For example:
End-line, 75Ω terminator (Tektronix Part No. 011-0102-00). Feed-through, 75Ω terminator (Tektronix Part No. 011-0103-02).

17. Coaxial Cables

Three 75Ω cables required, one precision (1%) 50Ω cable required.

For example:
75Ω – 42-inch (Tektronix Part No. 012-0159-00).
50Ω – 36-inch 1% precision (Tektronix Part No. 012-0482-00).

18. Dual Input Coupler

Matched BNC cable-T for making phase comparisons between two inputs. Matched length of the two arms within ±0.1 inch.

For example:
Tektronix Part No. 067-0525-02.

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19. External Horizontal/RGB and YRGB Cable Adapter

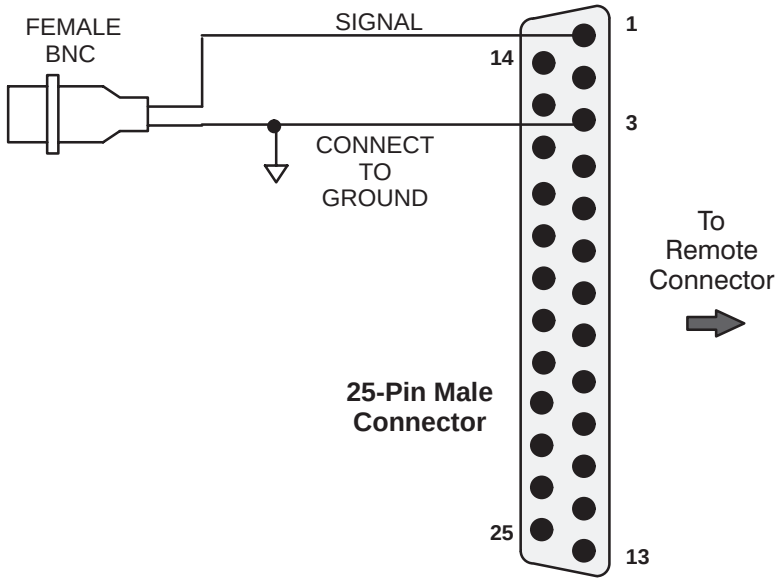


Figure 4–1: External Horizontal or RGB/YRGB Cable Adapter

20. Remote Sync Cable Adapter

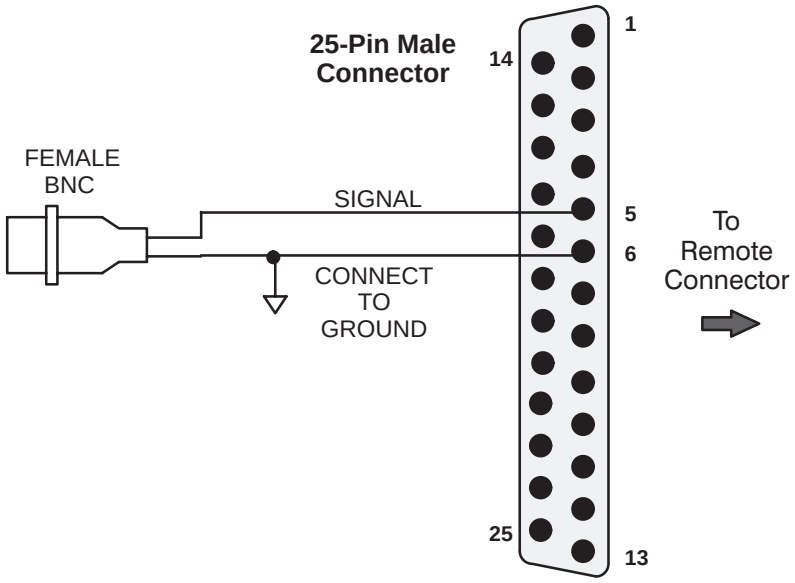


Figure 4–2: Remote Sync Cable Adapter

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21. Audio and Timecode Cable Adapter

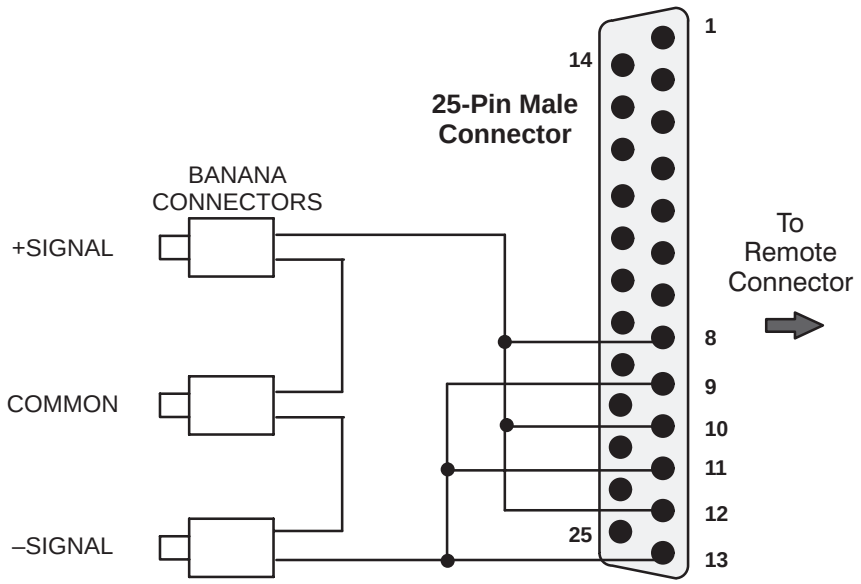


Figure 4–3: Audio and Timecode Cable Adapter

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Performance Check Procedure Short-Form Reference

The short-form reference table is intended for those who are familiar with the complete Performance Check procedure. Step and page numbers provide easy cross-reference to the long-form procedure on the following pages.

Table 4–1: Short-Form Performance Check

Step #	Step Name	Step Requirement	Page #
1	**Preliminary Setup**	Initial equipment connections and control settings.	4–10
2	**Power Supply Operation**	Stable operation over an ac input range of 90 - 250 V.	4–11
3	**Trace Rotation Range and Graticule Illumination**	Rotation of ≥ ±1° from the horizontal.	4–11
4	**Input Channel DC and Restorer Offsets**	DC Offset between input channels ≤1 IRE (7 mV PAL). DC Restorer Offset between input channels ≤1 IRE (7 mV PAL).	4–11
5	**Horizontal Mag Registration and Position Range**	Any portion of the synchronized sweep can be positioned on screen in all sweep modes.	4–13
6	**Calibrator Timing Frequency**	Frequency: 100 kHz ±0.1%.	4–14
7	**Timing and Linearity**	Sweep Timing Accuracy: 5 μs/Div. (1 Line), 10 μs/Div. (2 Line), 0.2 μs/Div. (1 Line + MAG), 1.0 μs/Div. (2 Line + MAG), ±1%. Sweep Linearity: 1 Line and 2 Line sweeps unmagnified or magnified, ±1%.	4–14
8	**Sweep Length**	Sweep Length: 12 divisions ±0.5 minor division.	4–15
9	**Vertical Gain, Calibrator Amplitude, and Variable Gain Range**	1 Volt Full Scale (X1): 1 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. X5 Gain: 0.2 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. X10 Gain: 0.1 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. Calibrator Amplitude: Square Wave: 140 IRE (1.0 V PAL) ±0.5%; Sine Wave: 140 IRE (1.0 V PAL) ±1%. Variable Gain Range: 0.2X to 1.4X.	4–15
10	**Voltage, Timing, and Vector Cursors**	Voltage Accuracy: ±0.5%. Timing Accuracy: ±0.5%, for line rate sweeps. Vector Accuracy: Gain ±1.5%, Phase ±1°.	4–17
11	**PIX OUT Gain and Response**	Gain: ±3%. Frequency Response: ±3% to 6 MHz.	4–18
12	**Input Channel Frequency Response**	X1 Flat Response (No Filter): ±2% to 10 MHz. X5 and X10 Flat Response: ±4% to 10 MHz.	4–19
13	**Luminance Filter Gain and Frequency Response**	Gain: ±1%. Frequency Response: ≤3 dB attenuation at 1 MHz. ≥40 dB attenuation at F_{SC}.	4–20
14	**Chrominance Filter Gain and Frequency Response (Waveform Display)**	Gain: ±1%.	4–22
15	**Chrominance Filter Frequency Response** (Vector Display)	Chrominance Bandwidth: 1 MHz ±200 kHz. (Center frequency is F_{SC}.)	4–22
16	**Overscan**	Overscan Baseline Distortion: ≤1% (7 mV) variation.	4–23
17	**Transient Response** (Waveform Display)	Preshoot, Overshoot, and Ringing: ≤1%. Pulse-to-Bar Ratio: 0.99:1 to 1.01:1. Field Rate Tilt: ≤1%.	4–23

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Table 4–1: Short-Form Performance Check

Step #	Step Name	Step Requirement	Page #
18	**Restorer Response**	60 Hz (50 Hz PAL) Attenuation: Slow Mode ≤ 10%. Fast Mode ≥ 95%.	4–24
19	**DC Restorer Blanking Shift**	Blanking shift with Presence or Absence of Burst: ≤ 1 IRE (7 mV PAL). Blanking shift with 10–90% APL Change: ≤ 1 IRE (7 mV PAL).	4–25
20	**Differentiated Step Filter**	Attenuation: ≥ 40 dB at F_{SC}. Step Amplitude: Within 2% of flat display.	4–26
21	**Amplifier Linearity**	Differential Phase: ≤ 1°. Differential Gain: ≤ 1%. (Measured with a 140 IRE (1 V PAL) linearity signal (5-step, 10-step, or ramp) with 40 IRE (300 mV PAL) subcarrier.	4–27
22	**Quadrature Phase and R–Y Balance and Display**	Quadrature Phasing Error: ≤ 0.5%.	4–27
23	**Vector Phase, Gain, and Transients**	Phase Accuracy Error: ≤ 1.25°. Gain Accuracy Error: ≤ 2.5%.	4–28
24	**Lock-In Range**	Subcarrier Regenerator Pull-in Range: NTSC ± 50 Hz. PAL ± 10 Hz.	4–29
25	**Burst Phase with Burst Amplitude Change**	Phase Shift with Burst Amplitude Change of ± 6 dB: ≤ 2°.	4–30
26	**Vector Phase Shift with Variable Gain Change**	Phase Shift with Variable Gain Control +3 to –6 dB: ≤ 0.5°.	4–30
27	**Channel Phase Match**	Phase Shift with Video Input Channel Change: ≤ 1°.	4–30
28	**Clamp Stability, Phase Control, and Position Control Range**	Clamp Stability: ≤ 1/64 inch (0.4 mm). Phase Control Range: 360° continuous rotation. Position Control Range: ≥ 0.236 inch (6 mm) from center.	4–31
29	**External Horizontal Gain**	External Horizontal Gain: 2 divisions/Volt ± 2%.	4–31
30	**RGB/YRGB**	Staircase Input Gain: 0.8 division ± 10%. Sweep Length: RGB – 33% of normal, YRGB – 25% of normal.	4–32
31	**Audio and Timecode Modes**	Audio Mode Full Scale Accuracy: ± 0.5 dB. Timecode Mode Input Amplitude: Menu selectable for 140 IRE (1.0 V PAL) deflection.	4–32
32	**Audio Phasing, and Audio and Timecode Bandwidths**	X/Y Input Phase Match: ≤ 1° (measured at 20 kHz). Audio Bandwidth and Timecode Bandwidth: ≥ 500 kHz at –3 dB.	4–33
33	**Remote Sync**	Remote Sync Frequency: 30 Hz, 90 Hz (25 Hz, 100 Hz PAL).	4–34
34	**Return Loss**	Video Inputs: ≥ 40 dB to 6 MHz. Power on or off. Pix Out: ≥ 30 dB to 6 MHz. Power on.	4–35
35	**SCH Phase Mode** (1750A–Series, 1760–Series Option SC Only)	Absolute Accuracy: ≤ 5°. Color Frame Range: ± 70°.	4–36
36	**Component Vector Gain** (1760–Series Only)	Vertical and Horizontal Gain Accuracy: ± 2.5%.	4–37
37	**Lightning Gain and Variable Gain Registration** (1760–Series Only)	Vertical Gain Accuracy: ± 2%.	4–38
38	**Option Blanking Pulse** (1760–Series Only)	The falling edge of the option blanking pulse occurs 0.5 µs (1 µs PAL) before the 50% point of the falling edge of the sync pulse ± 0.25 µs.	4–38

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Table 4–1: Short-Form Performance Check

Step #	Step Name	Step Requirement	Page #
39	**Bowtie Gain and Offset** (1760–Series Only)	Bowtie gain matches CH-A1 INPUT gain ± 2%. Bowtie DC offset between channels <5 mV.	4–39
40	**Bowtie Common Mode Rejection Ratio** (1760–Series Only)	≥ 34 dB at 3 MHz.	4–40
41	**Component Vector Registration and Phase** (1760–Series Only)	Vector Registration – X5 Gain: within 0.25 inches of CRT graticule center. X10 Gain: within 0.5 inch of CRT graticule center. Vector Phase – Less than a trace-width eye opening.	4–41
42	**Diamond Display Phase** (1760–Series Only)	Opening of <2 minor divisions on the vertical transition.	4–41
43	**GBR Picture Monitor Outputs** (1760–Series Only)	Accuracy: ± 3%.	4–42

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Performance Check Procedure

1. **Preliminary Setup**

   a. Connect the 1740A/1750A/1760–Series ac power cord to the variable autotransformer. Set the mains Power switch for the autotransformer to On and set the autotransformer to the local nominal mains voltage (110 V or 220 V).

   b. Connect a television test signal generator color bar signal, via a 75Ω feed-through termination and dual-input connector, to the 1740A/1750A/1760–Series CH-A and CH-A1 INPUTs.

   c. Connect the television test signal generator black burst signal to the 1740A/1750A/1760–Series EXT REF connector. Connect a 75Ω end-line termination to the remaining side of the EXT REF loop-through connector.

   d. Set the 1740A/1750A/1760–Series instrument POWER switch to ON (front panel).

NOTE. *External Reference Signal:*

Leave the Black Burst signal connected to the EXT REF connector throughout the entire Performance Check Procedure except when directed otherwise.

NOTE. *Instrument Warm-up:*

Once the instrument is powered up, allow at least 20 minutes of warm-up time before continuing.

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   e. Set the 1740A/1750A/1760–Series front-panel controls and menu selections to the factory settings by entering the Preset menu and selecting FACTORY and then selecting RECALL (CRT menu).

NOTE. *Factory Front-Panel Presets:*

Periodically throughout this procedure, the front-panel controls and menu selections will be reset to the factory settings from the Preset menu. Control and menu changes needed for that particular step will then be listed. Detailed information about the factory settings is found in Section 2.

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   f. Enter the CRT menu and adjust the FOCUS, SCALE, and INTENSITY controls (bezel knobs) for best viewing of the display. Exit the CRT menu.

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2. Power Supply Operation

Requirement – Stable operation over an ac input range of 90 - 250 V.

a. Vary the autotransformer from low-line to high-line voltage (90 - 132 V for 110 V, or 180 - 250 V for 220 V operation).

b. **Check** – for stable instrument operation over the prescribed voltage range.

c. Set the autotransformer to the nominal mains voltage.

3. Trace Rotation Range and Graticule Illumination

Requirement – Rotation of $\geq \pm 1°$ from the horizontal.

a. Enter the CRT menu and select TRACE (CRT menu).

b. Position the trace to the graticule baseline.

c. **Check** – that the TRACE ROTATE control (bezel knob) moves the trace $\geq \pm 1°$ from the graticule baseline.

d. Adjust the TRACE ROTATE control (bezel knob) for a level trace across the graticule baseline.

e. From the CRT menu select DISPLAY (CRT menu).

f. **Check** – that the SCALE control changes the graticule illumination from completely extinguished to fully illuminated.

g. Adjust the SCALE control (bezel knob) for the desired graticule illumination.

h. Exit the CRT menu.

4. Input Channel DC and Restorer Offsets

Requirement – DC Offset between input channels ≤ 1 IRE (7 mV PAL). DC Restorer Offset between input channels ≤ 1 IRE (7 mV PAL).

a. Turn off the DC REST (front panel) and then position the signal blanking level to the CRT graticule baseline.

b. Select PARADE (front panel). Note: CH-A, CH-A1, CH-A2, and CH-A3 INPUTs should be selected.

c. Enter the GAIN menu and select X10 (CRT menu). If desired, press the CLEAR MENU button (front panel) to remove the readout.

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d. **Check** – that the CH-A and CH-A1 baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division).

e. **Check** – that the CH-A2 and CH-A3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

f. Move the dual-input coupler from the CH-A3 to the CH-B INPUT.

g. Select CH-A and CH-B INPUTs (front panel). Note: Deselect the other input channels.

h. **Check** – that the CH-A and CH-B baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division).

i. Select CH-A, CH-B1, CH-B2, and CH-B3 INPUTs (front panel). Note: Deselect CH-B INPUT.

j. **Check** – that the CH-B1, CH-B2, and CH-B3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

k. Enter the CONFIG menu and select AC COUPLING. If desired, press the CLEAR MENU button to remove the readout.

l. Move the dual-input coupler from the CH-B3 to the CH-A1 INPUT.

m. Select CH-A, CH-A1, CH-A2, and CH-A3 INPUTs. Note: Deselect CH-B1, CH-B2, and CH-B3 INPUTs.

n. Position the signal blanking level to the CRT graticule baseline.

o. **Check** – that the CH-A and CH-A1 baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division). Note: Allow a few seconds for the signal to settle when moving the input cable between channels.

p. **Check** – that the CH-A2 and CH-A3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

q. Move the dual-input coupler from the CH-A3 to the CH-B INPUT.

r. Select CH-A and CH-B INPUTs. Note: Deselect the other input channels.

s. **Check** – that the CH-A and CH-B baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division).

t. Select CH-A, CH-B1, CH-B2, and CH-B3 INPUTs. Note: Deselect CH-B INPUT.

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u. Check – that the CH-B1, CH-B2, and CH-B3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

v. Turn on the DC REST and select EXT REF.

w. Move the dual-input coupler from the CH-B3 to the CH-A1 INPUT.

x. Select CH-A, CH-A1, CH-A2, and CH-A3 INPUTs. Note: Deselect CH-B1, CH-B2, and CH-B3 INPUTs.

y. Position the signal blanking level to the CRT graticule baseline.

z. Check – that the CH-A and CH-A1 baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division).

aa. Check – that the CH-A2 and CH-A3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

ab. Move the dual-input coupler from the CH-A3 to the CH-B INPUT.

ac. Select CH-A and CH-B INPUTs. Note: Deselect the other input channels.

ad. Check – that the CH-A and CH-B baselines are within ≤1 IRE (7 mV PAL) of each other (1 major division).

ae. Select CH-A, CH-B1, CH-B2, and CH-B3 INPUTs. Note: Deselect CH-B INPUT.

af. Check – that the CH-B1, CH-B2, and CH-B3 baselines are within ≤1 IRE (7 mV PAL) of the CH-A baseline (1 major division) by moving the dual-input coupler to each respective input channel.

ag. Enter the CONFIG menu and select DC COUPLING. Exit the CONFIG menu.

ah. Enter the GAIN menu and select X1. Exit the GAIN menu.

ai. Turn off the DC REST and PARADE, and select INT REF.

aj. Remove the dual-input coupler from the CH-A and CH-B3 INPUTs.

5. Horizontal Mag Registration and Position Range

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

a. Connect the color bar signal to the CH-A INPUT and terminate the loop-through connector in 75Ω.

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b. Horizontally center the display, and then turn on the MAG SWEEP.

c. **Check** – that part of the sync pulse and burst is displayed.

d. **Check** – by adjusting the HORIZ POS control, that both ends of the display can be positioned past the center of the CRT.

e. Turn off the MAG SWEEP.

6. Calibrator Timing Frequency

Requirement – Frequency: 100 kHz ±0.1%.

a. Set the frequency counter Timing to 1 S.

b. Connect a X1 probe from the frequency counter to the ribbon cable side of A3R274 (Main board).

c. Adjust the frequency counter controls for a stable readout.

d. **Check** – that the counter reading is 100 kHz ±0.1 kHz.

e. Remove the frequency counter probe from A3R274.

7. Timing and Linearity

Requirement – Sweep Timing Accuracy: 5 µs/Div. (1 Line), 10 µs/Div. (2 Line), 0.2 µs/Div. (1 Line + MAG), 1.0 µs/Div. (2 Line + MAG), ±1%. Sweep Linearity: 1 Line and 2 Line sweeps unmagnified or magnified, ±1%.

a. Enter the CONFIG menu. Select CALIBRATE, then select CAL SIG ON (100 kHz rate). If desired, press the CLEAR MENU button to remove the readout.

b. **Check** – for one cycle of calibrator signal per major division ±0.5 minor division over the center 10 divisions.

c. Turn on the MAG SWEEP.

d. **Check** – for one cycle of calibrator signal per 10 major divisions ±0.5 minor division over the center 10 divisions.

e. **Check** – both ends of the magnified sweep for one cycle of calibrator signal per 10 major divisions ±0.5 minor division over the center 10 divisions.

f. Turn off the MAG SWEEP and select 1 LINE SWEEP (5 µs/div).

g. **Check** – for one cycle of calibrator signal per two major divisions ±1 minor division over the center 10 divisions.

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h. Enter the CONFIG menu and select CAL SIG OFF. Exit the CONFIG menu.

i. Connect the output of the Multiburst generator to the digital counter. Set the Multiburst generator to Low, Continuous, Manual, and turn the Markers Off. Adjust the Multiburst frequency to 5.0 MHz.

j. Replace the color bar signal on the CH-A INPUT with the multiburst signal. Leave the loop-through connector terminated.

k. Turn on the MAG SWEEP.

l. Set the Multiburst generator to Composite.

m. Check – for one cycle per division ±0.5 minor division.

n. Turn off the MAG SWEEP.

8. Sweep Length

Requirement – Sweep Length: 12 divisions ±0.5 minor division.

a. Replace the multiburst signal on the CH-A INPUT with the color bar signal. Leave the loop-through connector terminated.

b. Select 1 FIELD SWEEP.

c. Check – for 12 divisions of signal ±0.5 minor division.

d. Select 2 FIELD SWEEP.

e. Check – for 12 divisions of signal ±0.5 minor division.

f. Select 2 LINE SWEEP (10 μs/div).

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

Requirement – 1 Volt Full Scale (X1): 1 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. X5 Gain: 0.2 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. X10 Gain: 0.1 V input displayed within 1% of 140 IRE (1.00 V PAL) graticule. Calibrator Amplitude: Square Wave: 140 IRE (1.0 V PAL) ±0.5%; Sine Wave: 140 IRE (1.0 V PAL) ±1%. Variable Gain Range: 0.2X to 1.4X.

a. Replace the color bar signal on the CH-A INPUT with the output from the VAC. Remove the loop-through terminator. Set the VAC amplitude to 999.9 mV, and select +LUM.

b. Select EXT REF.

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c. **Check** – that the signal display is 140 IRE ±1.4 IRE (1.0 V ±10 mV PAL).

d. Enter the GAIN menu and select X5. If desired, press the CLEAR MENU button to remove the readout.

e. Set the VAC amplitude to 199.9 mV.

f. **Check** – that the signal display is 140 IRE ±1.4 IRE (1.0 V ±10 mV PAL).

g. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button to remove the readout.

h. Set the VAC amplitude to 99.9 mV.

i. **Check** – that the signal display is 140 IRE ±1.4 IRE (1.0 V ±10 mV PAL).

j. Enter the GAIN menu and select X1. Exit the GAIN menu.

k. Enter the CONFIG menu. Select CALIBRATE, then select CAL SIG ON (100 kHz rate) (CRT menu). If desired, press the CLEAR MENU button to remove the readout.

l. **Check** – for a calibrator signal display of 140 IRE ±0.7 IRE (1.0 V ±5 mV PAL).

m. Enter the CONFIG menu and select FSC OSC.

n. **Check** – for a calibrator signal display of 140 IRE ±1.4 IRE (1.0 V ±10 mV PAL).

o. From the CONFIG menu, select 100KHZ, then select CAL SIG OFF. Exit the CONFIG menu.

p. Set the VAC amplitude to 999.9 mV.

q. Enter the GAIN menu and select VARIABLE ON. If desired, press the CLEAR MENU button to remove the readout.

r. **Check** – by adjusting the 1740A/1750A/1760–Series VAR GAIN control (front panel), that the signal amplitude can be adjusted to <28 IRE (200 mV PAL).

s. Set the VAC amplitude to 499.9 mV.

t. **Check** – by adjusting the VAR GAIN control (bezel knob), that the signal amplitude can be adjusted to >100 IRE (700 mV PAL).

u. Enter the GAIN menu and select VARIABLE OFF. Exit the GAIN menu.

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10. Voltage, Timing, and Vector Cursors

Requirement – Voltage Accuracy: ±0.5%. Timing Accuracy: ±0.5%, for line rate sweeps. Vector Accuracy: Gain ±1.5%, Phase ±1°.

a. Set the VAC amplitude to 999.9 mV.

b. Vertically position the signal to range from the 100 IRE to the –40 IRE graticules (1.0 V to the 0 V graticules PAL).

c. Enter the CURSOR menu (VOLT should be selected). If desired, press the CLEAR MENU button (front panel) to remove the readout.

d. Use the appropriate bezel knob to set the Volt1 cursor to the 100 IRE (1.0 V PAL) graticule.

e. Set the Volt2 cursor to the –40 IRE (0 V PAL) graticule.

f. **Check** – that the cursor reading is 140 IRE ±0.7 IRE (1000 mV ±5 mV PAL).

g. In the CURSOR menu select TIME.

h. Use the bezel knob to set the Time1 cursor to the 10 µs graticule mark, and set the Time2 cursor to the 110 µs graticule mark. See Figure 4–4.

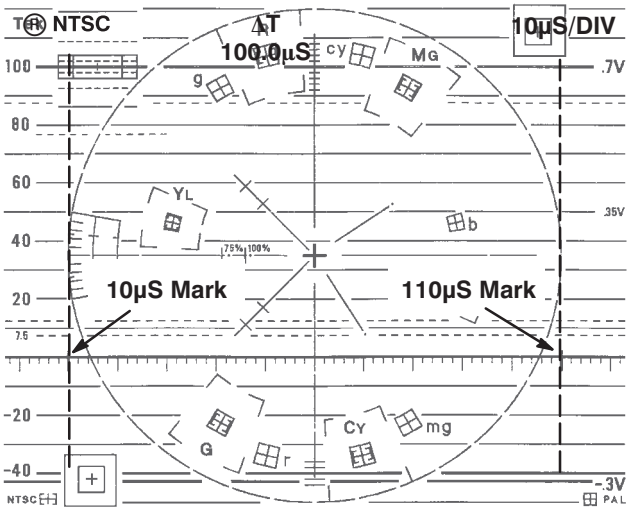


Figure 4–4: Timing Cursor Check

i. **Check** – that the cursor reading is 100 µs ±0.5 µs.

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j. Replace the VAC output on the CH-A INPUT with the color bar signal. Terminate the loop-through in 75Ω.

k. Select VECTOR DISPLAY. Adjust the AMPLITUDE and PHASE bezel knob controls for readouts of 0.0 IRE (0.0 mV PAL) and 0.0°.

l. Exactly center the vector display using the VERT and HORIZ POS controls. Adjust the VECTOR PHASE control to place the burst vector on the 0° graticule line.

m. Center the vector cursor on the Red vector dot using the AMPLITUDE and PHASE controls.

n. **Check** – for AMPL and PHASE readouts as listed in Table 4–2.

Table 4–2: Vector Cursor Readout Values

VECTOR	AMPL READOUT	PHASE READOUT
Red	NTSC 87.7 IRE ± 1.5% (86.4 to 89.1 IRE). PAL 664 mV ± 1.5% (654 to 674 mV).	103.5° ± 1°.
Yellow	NTSC 62.1 IRE ± 1.5% (61.1 to 63.0 IRE). PAL 471 mV ± 1.5% (464 to 478 mV).	167.1° ± 1°.
Cyan	NTSC 87.7 IRE ± 1.5% (86.4 to 89.1 IRE). PAL 664 mV ± 1.5% (654 to 674 mV).	283.5° ± 1°.
Blue	NTSC 62.1 IRE ± 1.5% (61.1 to 63.0 IRE). PAL 471 mV ± 1.5% (464 to 478 mV).	347.1° ± 1°.

o. Repeat step n. for each of the vectors listed in Table 4–2.

p. Exit the CURSOR menu, then select WAVEFORM DISPLAY.

11. PIX OUT Gain and Response

Requirement – Gain: ± 3%. Frequency Response: ± 3% to 6 MHz.

a. Connect the output from the VAC to the test oscilloscope. Set the VAC amplitude to 999.9 mV.

b. Set the test oscilloscope Volts/Div to 0.2, Coupling to DC, and Time/Div to 0.5 ms.

c. Adjust the test oscilloscope Variable Gain control to set the display amplitude to exactly 1 V.

d. Replace the color bar signal on the CH-A INPUT with the output from the VAC. Remove the loop-through terminator.

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e. Connect a 75Ω cable from the 1740A/1750A/1760–Series PIX OUT to the test oscilloscope, terminating the oscilloscope end of the cable with a 75Ω feedthrough terminator.

f. **Check** – for a signal amplitude on the test oscilloscope of 1 V ±0.75 minor division.

g. Replace the VAC output on the CH-A INPUT with the leveled sine wave generator output. Terminate the loop-through in 75Ω.

h. Set the leveled sine wave generator frequency to 50 kHz and adjust its amplitude for a 1 V display on the test oscilloscope. Set the generator frequency to 1.0 MHz.

i. **Check** – that the amplitude on the test oscilloscope is 1 V ±0.75 minor division while varying the leveled sine wave generator frequency from 1.0 to 6.0 MHz.

j. Remove the PIX OUT cable from the 1740A/1750A/1760–Series and the test oscilloscope.

12. Input Channel Frequency Response

Requirement – X1 Flat Response (No Filter): ±2% to 10 MHz. X5 and X10 Flat Response: ±4% to 10 MHz.

a. Verify that EXT REF is selected, then remove the terminator on the CH-A INPUT.

b. Connect the 015-0413-00 Peak-to-Peak Detector Head to the open CH-A INPUT and connect the other end to the 015-0408-00 Peak-to-Peak Detector + Input.

c. Connect the Peak-to-Peak Detector Output to either an oscilloscope or DMM. Note: The DMM must have a “Reading Null” ability, or else use the oscilloscope.

d. Set the leveled sine wave generator frequency to 50 kHz and adjust the generator amplitude for exactly 100 IRE (700 mV PAL) of display on the 1740A/1750A/1760–Series.

e. Adjust the Peak-to-Peak Detector plus amplifier and input control until the Green LED is on.

f. Null the DMM readout to 0.00 mV or center the trace on the oscilloscope graticule.

g. Set the sine wave generator frequency to 1 MHz.

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h. **Check** – that the signal amplitude is 100 IRE ±2 IRE (700 mV ±14 mV PAL) while varying the leveled sine wave generator frequency from 1.0 to 10.0 MHz.

i. Remove the Peak-to-Peak Detector Head from the CH-A INPUT and terminate the loop-through in 75Ω.

j. Set the sine wave generator frequency to 1 MHz.

k. Enter the GAIN menu and select X5. If desired, press the CLEAR MENU button to remove the readout.

l. Adjust the sine wave generator amplitude for a 100 IRE (700 mV PAL) signal on the 1740A/1750A/1760–Series.

m. **Check** – that the signal amplitude is 100 IRE ±4 IRE (700 mV ±28 mV PAL) while varying the leveled sine wave generator frequency from 1.0 to 10.0 MHz.

n. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button to remove the readout.

o. Adjust the sine wave generator amplitude for a 100 IRE (700 mV PAL) signal on the 1740A/1750A/1760–Series.

p. **Check** – that the signal amplitude is 100 IRE ±4 IRE (700 mV ±28 mV PAL) while varying the leveled sine wave generator frequency from 1.0 to 10.0 MHz.

q. Enter the GAIN menu and select X1. Exit the GAIN menu.

r. Repeat parts b. through h. for CH-A1, CH-A2, CH-A3, CH-B, CH-B1, CH-B2, and CH-B3 by moving the leveled sine wave generator output and terminator to each of the respective INPUTs.

s. Select INT REF.

t. Disconnect the leveled sine wave generator and terminator from the 1740A/1750A/1760–Series.

13. Luminance Filter Gain and Frequency Response

Requirement – Gain: ±1%. Frequency Response: ≤3 dB attenuation at 1 MHz. ≥40 dB attenuation at $F_{SC.}$ Chrominance Rejection (1745A-1755A-1765 only) ≥34 dB.

a. Connect the function generator output to the CH-A INPUT, then terminate the loop-through in 75Ω. Select CH-A INPUT.

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b. Set the function generator for a sine wave output. Adjust the frequency to 15 kHz and adjust the amplitude for a 100 IRE (700 mV PAL) display on the 1740A/1750A/1760–Series.

c. Enter the FILTER menu.

d. **Check** – by switching between FLAT and LUM(CRT menu), that the amplitude changes < 1 IRE (7 mV PAL).

e. In the FILTER menu select LUM.

f. Set the function generator frequency to 1.0 MHz.

g. **Check** – that the displayed amplitude is > 70 IRE (490 mV PAL).

h. In the FILTER menu select FLAT.

i. Replace the function generator output on the CH-A INPUT with the output of the leveled sine wave generator.

j. Set the leveled sine wave generator frequency to 50 kHz and adjust the amplitude for 10 vertical divisions of display on the 1740A/1750A/1760–Series.

k. In the FILTER menu select LUM.

l. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button to remove the readout.

NOTE. *For 1745A-1755A-1765 skip steps m. and n. and perform steps o. through r.*

---

m. Set the leveled sine wave generator frequency to 3.58 MHz (4.43 MHz PAL).

n. **Check** – that the displayed amplitude is < 1 major division.

NOTE. *Perform steps o. through r. for 1745A-1755A-1765 only.*

---

o. Set the leveled sine wave generator frequency to 3.58 MHz.

p. **Check** – that the displayed amplitude is ≤ 2 major divisions.

q. Set the leveled sine wave generator frequency to 4.43 MHz PAL.

r. **Check** – that the displayed amplitude is ≤ 2 major divisions.

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14. Chrominance Filter Gain and Frequency Response (Waveform Display)

Requirement – Gain: ±1%.

a. Enter the GAIN menu and select X1. Exit the GAIN menu.

b. Enter the FILTER menu and select FLAT.

c. Adjust the leveled sine wave generator amplitude for a 100 IRE (700 mV PAL) display on the 1740A/1750A/1760–Series.

d. **Check** – by switching between FLAT and CHROM, that the amplitude changes <1 IRE (7 mV PAL).

e. In the FILTER menu select CHROM.

f. Set the leveled sine wave generator frequency to 2.68 MHz (3.53 MHz PAL).

g. **Check** – that the displayed amplitude is <70 IRE (490 mV PAL).

h. Set the leveled sine wave generator frequency to 2.98 MHz (3.83 MHz PAL).

i. **Check** – that the displayed amplitude is >70 IRE (490 mV PAL).

j. Set the leveled sine wave generator frequency to 4.48 MHz (5.33 MHz PAL).

k. **Check** – that the displayed amplitude is <70 IRE (490 mV PAL).

l. Set the leveled sine wave generator frequency to 4.18 MHz (5.03 MHz PAL).

m. **Check** – that the displayed amplitude is >70 IRE (490 mV PAL).

n. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button to remove the readout.

o. Set the leveled sine wave generator frequency to 7.2 MHz (8.8 MHz PAL).

p. **Check** – that the displayed amplitude is <5.6 IRE (39 mV PAL).

q. Enter the GAIN menu and select X1. Exit the GAIN menu.

15. Chrominance Filter Frequency Response (Vector Display)

Requirement – Chrominance Bandwidth: 1 MHz ±200 kHz. (Center frequency is F_{SC}.)

a. Select VECTOR DISPLAY.

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b. Set the leveled sine wave generator frequency to 3.58 MHz (4.43 MHz PAL), and adjust the amplitude to place the signal on the compass rose.

c. Set the leveled sine wave generator frequency to 2.98 MHz (3.83 MHz PAL).

d. **Check** – that the circle is inside the 3 dB marks.

e. Set the leveled sine wave generator frequency to 3.18 MHz (4.03 MHz PAL).

f. **Check** – that the circle is outside the 3 dB marks.

g. Set the leveled sine wave generator frequency to 4.18 MHz (5.03 MHz PAL).

h. **Check** – that the circle is inside the 3 dB marks.

i. Set the leveled sine wave generator frequency to 3.98 MHz (4.83 MHz PAL).

j. **Check** – that the circle is outside the 3 dB marks.

k. Select WAVEFORM DISPLAY.

l. Enter the FILTER menu and select FLAT. Exit the FILTER menu.

16. Overscan

Requirement – Overscan Baseline Distortion: ≤ 1% (7 mV) variation.

a. Replace the leveled sine wave generator output on the CH-A INPUT with the pulse and bar signal from the television signal generator. Leave the loop-through terminated.

b. Select 1 LINE SWEEP (5 µs/div).

c. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button (front panel) to remove the readout.

d. Set the pulse and bar signal Field Sq Wave to Off.

e. **Check** – that the bottom of the mod pulse baseline varies ≤ 7 mV (0.7 major division), while being positioned vertically over the entire 140 IRE (1.0 V PAL) graticule area.

f. Enter the GAIN menu and select X1. Exit the GAIN menu.

17. Transient Response (Waveform Display)

Requirement – Preshoot, Overshoot, and Ringing: ≤ 1%. Pulse-to-Bar Ratio: 0.99:1 to 1.01:1. Field Rate Tilt: ≤ 1%.

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a. Select 2 LINE SWEEP (10 µs/div) and turn on the MAG SWEEP.

b. Set the pulse and bar signal controls as follows: Overlay On, Amplitude Full, Luminance On, Setup Off (NTSC only), Window Off, Field Sq Wave Off, Burst On, T Pulse On, and T Bar On.

c. **Check** – that the preshoot, overshoot, and ringing is within ±1% (0.5 minor division).

d. **Check** – that the pulse amplitude is within ±1 IRE (0.7 mV PAL) of the bar amplitude (0.5 minor division).

e. Enter the GAIN menu and select X10. If desired, press the CLEAR MENU button to remove the readout.

f. **Check** – that the preshoot, overshoot, and ringing is within ±1% (1 major division).

g. **Check** – that the pulse amplitude is within ±1 IRE (0.7 mV PAL) of the bar amplitude (1 major division).

h. Select 1 FIELD SWEEP and turn Off the MAG SWEEP.

i. Set pulse and bar signal Field Sq Wave to On.

j. **Check** – for tilt of ≤1% (1 major division).

k. Enter the GAIN menu and select X1. Exit the GAIN menu.

18. Restorer Response

Requirement – 60 Hz (50 Hz PAL) Attenuation: Slow Mode ≤10%. Fast Mode ≥95%.

a. Select 2 LINE SWEEP (10 µs/div).

b. Replace the pulse and bar signal on the CH-A INPUT with the function generator output. Leave the loop-through connector terminated.

c. Set the function generator frequency to 60.0 Hz (50.0 Hz PAL), and adjust the amplitude for a 140 IRE (1.0 V PAL) display.

d. Turn on the DC REST and select INT REF.

e. Enter the CONFIG menu. Select INPUT, then select CLAMP ST (Sync Tip) . If desired, press the CLEAR MENU button to remove the readout.

f. **Check** – that the displayed amplitude is >126 IRE (900 mV PAL).

g. Enter the CONFIG menu and select CLAMP BP (backporch). If desired, press the CLEAR MENU button to remove the readout.

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h. Check – that the displayed amplitude is > 126 IRE (900 mV PAL).

i. Enter the CONFIG menu and select DC RESTORER FAST. Enter the GAIN menu and select X10. Press the CLEAR MENU button.

j. Select 2 FIELD SWEEP and EXT REF.

k. Check – that the sine wave portion of the signal is ≤ 7 major divisions (5 major divisions PAL). Note: Disregard the spike on the signal. See Figure 4–5.

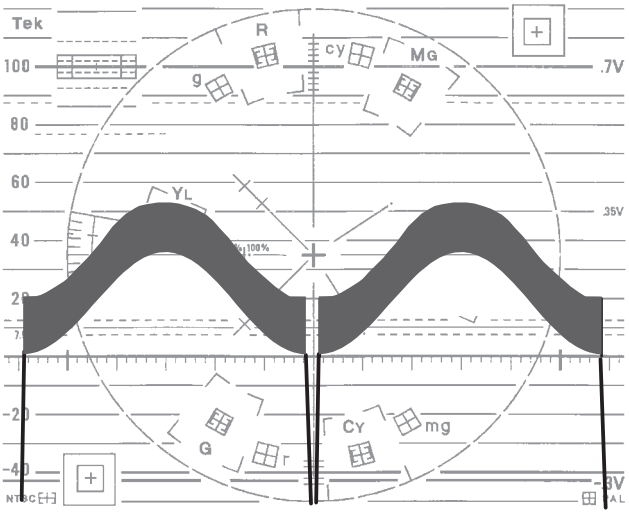


Figure 4–5: Fast DC Restorer Response

l. Enter the CONFIG menu and select CLAMP ST (Sync Tip). If desired, press the CLEAR MENU button to remove the readout.

m. Check – that the sine wave portion of the signal is ≤ 7 major divisions (5 major divisions PAL). Note: Disregard the spike on the signal.

n. Exit the CONFIG and GAIN menus.

19. DC Restorer Blanking Shift

Requirement – Blanking shift with Presence or Absence of Burst: ≤ 1 IRE (7 mV PAL). Blanking shift with 10–90% APL Change: ≤ 1 IRE (7 mV PAL).

a. Enter the PRESET menu and select RECALL FACTORY. Exit the PRESET menu.

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b. Replace the function generator output on the CH-A INPUT with the color bar signal from the television signal generator. Leave the loop-through connector terminated.

c. Enter the GAIN menu and select X10 . If desired, press the CLEAR MENU button to remove the readout.

d. **Check** – that the blanking level does not shift more than 1 major division (0.7 major division PAL) while switching the color bar signal Burst, On and Off (for PAL generators, push U and Y together).

e. Replace the color bar signal on the CH-A INPUT with the television signal generator linearity signal. Leave the loop-through terminated.

f. Set the linearity signal controls as follows: AC Bounce On, Full Field On, 5 Steps On, and 180° Subcarrier On and 40 IRE (U Subcarrier On and 280 mV PAL).

g. **Check** – that the blanking shift is within ±1 major division (0.7 major division PAL) while APL bounces.

h. Turn off the DC REST.

i. Enter the GAIN menu and select X1. Exit the GAIN menu.

20. Differentiated Step Filter

Requirement – Attenuation: ≥40 dB at F_{SC}. Step Amplitude: Within 2% of flat display.

a. Turn the linearity signal AC Bounce Off.

b. Select 1 LINE SWEEP (5 µs/div).

c. Enter the FILTER menu and select DIFF. If desired, press the CLEAR MENU button to remove the readout.

d. Enter the GAIN menu and select VARIABLE ON . If desired, press the CLEAR MENU button to remove the readout.

e. Adjust the VAR GAIN control (bezel knob) so that the amplitude of the differential spikes are 100 IRE (700 mV PAL).

f. Enter the GAIN menu and select X5. If desired, press the CLEAR MENU button to remove the readout.

g. **Check** – that the differential spike tip amplitudes are within 2% (1 major division) of each other.

h. Enter the GAIN menu and select X1. If desired, press the CLEAR MENU button to remove the readout.

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i. Replace the linearity signal on the CH-A INPUT with the output from the leveled sine wave generator. Leave the loop-through terminated.

j. Enter the FILTER menu and select FLAT. If desired, press the CLEAR MENU button to remove the readout.

k. Adjust the leveled sine wave generator frequency to 3.58 MHz (4.43 MHz PAL), and the generator amplitude for a 100 IRE (700 mV PAL) signal display on the 1740A/1750A/1760–Series.

l. Enter the FILTER menu and select DIFF. If desired, press the CLEAR MENU button (front panel) to remove the readout.

m. Check – for ≤ 1 IRE (7 mV PAL) of signal display.

n. Enter the FILTER menu and select FLAT. Exit the FILTER menu.

21. Amplifier Linearity

Requirement – Differential Phase: ≤ 1°. Differential Gain: ≤ 1%. (Measured with a 140 IRE (1 V PAL) linearity signal (5-step, 10-step, or ramp) with 40 IRE (300 mV PAL) subcarrier.

a. Replace the leveled sine wave generator output on the CH-A INPUT with the television signal generator linearity signal. Leave the loop-through terminated.

b. Select VECTOR DISPLAY.

c. Enter the GAIN menu and select X5 and VARIABLE ON. If desired, press the CLEAR MENU button to remove the readout.

d. Use the VAR GAIN and VECTOR PHASE controls (bezel knobs) to position the vector dot (representing the subcarrier on the staircase) to the 0° mark on the compass rose.

e. Check – that the dots are overlaid ± 1° phase and ± 1% gain.

22. Quadrature Phase and R–Y Balance and Display

Requirement – Quadrature Phasing Error: ≤ 0.5%.

a. Replace the linearity signal on the CH-A INPUT with the television signal generator color bar signal. Leave the loop-through terminated.

b. Enter the GAIN menu and select X1. Set the VARIABLE GAIN control to maximum (bezel knob).

c. Use the VECTOR PHASE control (bezel knob) to position the burst to the 0° mark.

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d. Enter the CONFIG menu. Select VECTOR, then select VECTOR TEST ON.

e. **Check** – for the best overlay of the circles without any separation, and best center dot overlay (should appear to be one dot).

f. Exit the CONFIG menu, then enter the GAIN menu. Select VARIABLE OFF. Exit the GAIN menu.

g. Select WAVEFORM DISPLAY.

h. Enter the FILTER menu and select R–Y.

i. **Check** – for the R–Y display. See Figure 4–6.

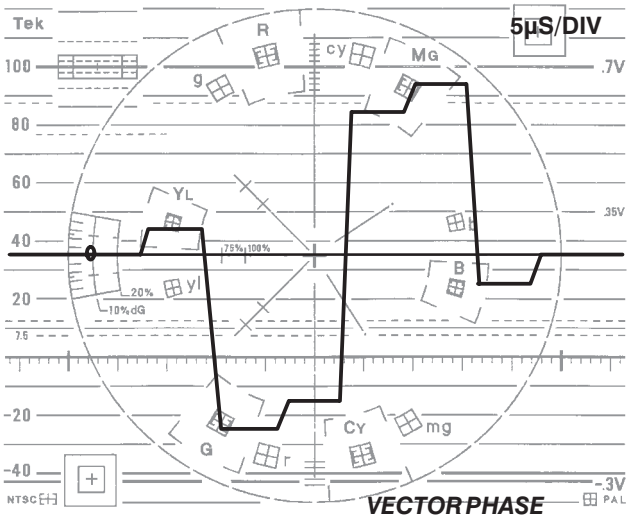


Figure 4–6: R–Y Display

j. Enter the FILTER menu and select FLAT. Exit the FILTER menu.

23. Vector Phase, Gain, and Transients

Requirement – Phase Accuracy Error: ≤ 1.25°. Gain Accuracy Error: ≤ 2.5%.

a. Select VECTOR DISPLAY and EXT REF.

b. **Check** – that all the color vector dots can be placed within the boxes ± 1.25° and an amplitude of ± 2.5%. Note: The burst vector position is not critical.

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c. **Check** – that the dots on the vector display are clear and do not have tails and the lines between the dots are reasonably straight.

d. Select 100% bars on the color bar signal.

e. Enter the CONFIG menu. Select VECTOR, then select 100% BARS. If desired, press the CLEAR MENU button to remove the readout.

f. **Check** – that all the color vector dots can be placed within the boxes ±1.25° and an amplitude of ±2.5%. Note: The burst vector position is not critical.

g. **Check** – that the dots on the vector display are clear and do not have tails and the lines between the dots are reasonably straight.

h. Select 75% bars on the color bar signal.

i. Enter the CONFIG menu and select 75% BARS. Exit the CONFIG menu.

j. (PAL ONLY) Enter the CONFIG menu and select VECTOR, and then select +V ON. If desired, press the CLEAR MENU button to remove the readout.

k. (PAL ONLY) **Check** – that the burst vectors can be overlayed within ±2°.

l. (PAL ONLY) Enter the CONFIG menu and select +V OFF.

m. Select INT REF.

24. Lock-In Range

Requirement – Subcarrier Regenerator Pull-in Range: NTSC ±50 Hz. PAL ±10 Hz.

a. Set the television signal generator SPG2 Option AA Variable Subcarrier Frequency Offset push-button switch to On. Set the Frequency button to offset the frequency 50 Hz for NTSC. (For PAL, use the SPG12 Option AA button to offset the frequency 10 Hz.)

b. On the television signal generator, press the ±50 Hz button (±10 Hz button for PAL).

c. **Check** – that the display is locks ≤1 second.

d. Select EXT REF and repeat parts a. through d.

e. Select INT REF.

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25. Burst Phase with Burst Amplitude Change

Requirement – Phase Shift with Burst Amplitude Change of ±6 dB: ≤2°.

a. Remove the color bar signal from the CH-A INPUT. Move the black burst signal from the EXT REF INPUT and connect it to the CH-A INPUT. Leave the CH-A INPUT terminated.

b. Select MULTIPLE DISPLAY. Vector and waveform displays selected.

c. **Check** – that while varying the sync generator Variable Burst amplitude control from 20 to 57 IRE (145 to 400 mV PAL) on the waveform display, that the burst vector changes ≤2° on the vector display.

26. Vector Phase Shift with Variable Gain Change

Requirement – Phase Shift with Variable Gain Control +3 to –6 dB: ≤0.5°.

a. Select VECTOR DISPLAY.

b. Remove the terminator from the CH-A INPUT.

c. Position the center dot on the Vector Cross Hairs. Position the burst vector to 0°.

d. Enter the GAIN menu and select VARIABLE ON.

e. **Check** – that the burst vector changes ≤0.5° while varying the VARIABLE GAIN control (bezel knob) from minimum gain to setting the burst on the compass rose.

27. Channel Phase Match

Requirement – Phase Shift with Video Input Channel Change: ≤1°.

a. Move the black burst signal from the CH-A INPUT to the EXT REF INPUT. Leave the EXT REF INPUT terminated in 75Ω.

b. Connect the color bar signal via a 75Ω termination to the dual-input coupler. Connect the dual-input coupler to the CH-A and CH-B INPUTs.

c. Select EXT REF. Enter the GAIN menu.

d. Set the RED vector to the 0° graticule on the compass rose using VECTOR PHASE and VARIABLE GAIN controls (bezel knobs). If desired, press the CLEAR MENU button to remove the readout.

e. **Check** – while changing between the CH-A and CH-B INPUTs, that the phase change is ≤1°.

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f. Enter the GAIN menu and select VARIABLE OFF. Exit the GAIN menu.

28. Clamp Stability, Phase Control, and Position Control Range

Requirement – Clamp Stability: ≤ 1/64 inch (0.4 mm). Phase Control Range: 360° continuous rotation. Position Control Range: ≥ 0.236 inch (6 mm) from center.

a. Select CH-A INPUT and INT REF.

b. Remove the dual-input coupler from the 1740A/1750A/1760–Series. Connect the television signal generator color bar signal to the CH-A INPUT. Terminate the loop-through in 75Ω.

c. **Check** – while rotating the VECTOR PHASE control 360° (bezel knob), that the center dot shifts ≤ 1/64 inch (0.4 mm).

d. **Check** – while rotating the VECTOR PHASE control 360° (bezel knob), that the vectors move in a smooth continuous motion.

e. **Check** – while varying the VERT and HORIZ POS controls, that the center dot can be positioned at least ± 1/4 inch (6 mm) from the centered position.

f. Return the vector dot to the centered position.

29. External Horizontal Gain

Requirement – External Horizontal Gain: 2 divisions/Volt ± 2%.

a. Enter the PRESET menu and select RECALL FACTORY.

b. Enter the CONFIG menu. Select the REMOTE submenu. Select REM INPUT EXT HORIZ, and STAIRCASE:RGB.

c. Set the function generator frequency for a 1 kHz square wave, with an amplitude of 0 to +5 V as measured on the test oscilloscope. (5 V square wave to Staircase and Horizontal In on the remote connector.)

d. Connect the function generator output via the Ext Horiz/RGB and YRGB remote cable adapter to the REMOTE INPUT connector pin 1. See Figure 4–1.

e. Set pin 3 of the remote cable low.

f. **Check** – that the two vertical lines are 10.0 divisions apart ± 1 minor division.

g. Set pin 3 of the remote cable high.

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30. RGB/YRGB

Requirement – Staircase Input Gain: 0.8 division ±10%. Sweep Length: RGB – 33% of normal, YRGB – 25% of normal.

a. In the CONFIG menu select REM INPUT:STAIRCASE.

b. Set the function generator amplitude to 0 to +10 V as measured on the test oscilloscope. (10 V square wave to Staircase and Horizontal In on the remote connector pin 1.)

c. Set pin 3 of the remote cable low.

d. **Check** – that the signal separation from the beginning of first color bar display to the beginning of the second color bar display is between 7.2 and 8.8 divisions.

e. **Check** – that the color bar display on the right is between 3.3 and 4.1 divisions in length.

f. In the CONFIG menu, select STAIRCASE YRGB (CRT menu).

g. **Check** – that the right color bar display is between 2.5 and 3.1 divisions in length.

h. Exit the CONFIG menu and remove the Ext Horiz/RGB and YRGB remote cable adapter from the REMOTE INPUT.

31. Audio and Timecode Modes

Requirement – Audio Mode Full Scale Accuracy: ±0.5 dB. Timecode Mode Input Amplitude: Menu selectable for 140 IRE (1.0 V PAL) deflection.

a. Select AUDIO DISPLAY.

b. Enter the GAIN menu and select 0 DBM.

c. Center the display dot using the VERT and HORIZ POS controls.

d. Set the function generator for a sine wave output. Adjust the frequency to 1 kHz and the amplitude to 2.19 V.

e. Connect the function generator output via the Audio and Timecode remote cable adapter to the REMOTE INPUT connector pins 8 and 10. Ground pins 9, 11, and 13 of the REMOTE INPUT connector. See Figure 4–3.

f. **Check** – that the trace ends land on the audio box cross hairs.

g. Select TIMECODE DISPLAY.

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h. Enter the GAIN menu and select 0 DBM.

i. Connect the function generator output to the REMOTE INPUT connector pin 12.

j. **Check** – for a 140 IRE display ±7 IRE (1.0 V ±50 mV PAL).

k. Repeat parts a. through j. using the Gain and signal amplitude settings in Table 4–3.

Table 4–3: Audio and Timecode Values

GAIN	SIGNAL AMPLITUDE (V_{PP})
0 dBm	2.19 V
4 dBm	3.47 V
8 dBm	5.50 V
12 dBm	8.71 V

l. Remove Audio and Timecode remote cable adapter from the REMOTE INPUT.

32. Audio Phasing, and Audio and Timecode Bandwidths

Requirement – X/Y Input Phase Match: ≤1° (measured at 20 kHz). Audio Bandwidth and Timecode Bandwidth: ≥500 kHz at –3 dB.

a. Select AUDIO DISPLAY.

b. Center the display dot using the VERT and HORIZ POS controls.

c. Set the function generator frequency to 20 kHz and amplitude to 2.19 V.

d. Connect the sine wave generator output via the Audio and Timecode remote cable adapter to the REMOTE INPUT connector pins 8 and 10.

e. **Check** – for up to a trace width of eye opening in the audio trace (1%). See Figure 4–7.

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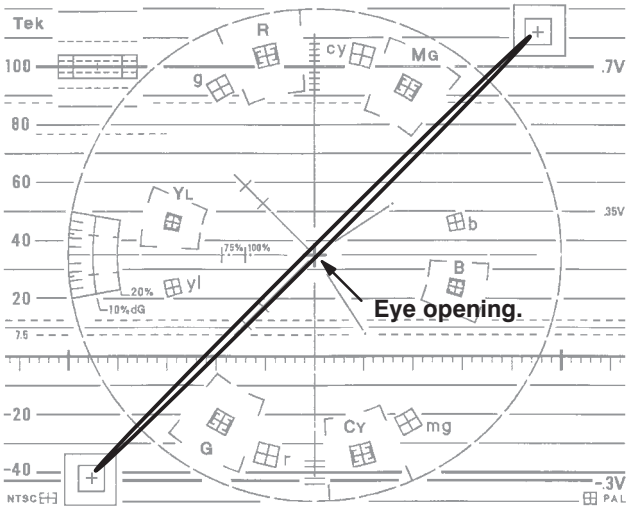


Figure 4–7: Audio Display

f. Set the function generator frequency to 500 kHz.

g. **Check** – that the audio trace extends past the compass rose.

h. Select TIMECODE DISPLAY.

i. **Check** – for a display amplitude of ≥98 IRE (700 mV PAL).

33. Remote Sync

Requirement – Remote Sync Frequency: 30 Hz, 90 Hz (25 Hz, 100 Hz PAL).

a. Replace the color bar signal on the CH-A INPUT with the output of the function generator. Leave the loop-through terminated.

b. Connect the Trig Out from the function generator to the Remote Sync cable adapter. See Figure 4–2.

c. Enter the PRESET menu and select RECALL FACTORY. Exit the PRESET menu. Select 1 FIELD SWEEP.

d. Set the function generator for a sine wave output. Adjust the generator frequency to 30 Hz, and the amplitude for a 1 V display on the 1740A/1750A/1760–Series.

e. **Check** – the display for a locked sine wave.

f. Set the function generator frequency to 60 Hz.

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g. **Check** – the display for a locked sine wave.

h. Set the function generator frequency to 90 Hz.

i. **Check** – the display for a locked sine wave.

j. Remove the function generator output and the Remote Cable Adapter from the 1740A/1750A/1760–Series.

34. Return Loss

Requirement – Video Inputs: ≥ 40 dB to 6 MHz. Power on or off. Pix Out: ≥ 30 dB to 6 MHz. Power on.

***NOTE**. Return Loss Check:*

The Return Loss Check needs to be done only if repairs have been made on the Input circuitry.

---

a. Enter the Preset menu and select RECALL FACTORY.

b. Connect a precision 50Ω cable from the spectrum analyzer RF Input to the RF Output on the RF Bridge.

c. Connect a precision 50Ω cable from the spectrum analyzer TG Output to the RF Input on the RF Bridge.

d. Select Demod/TG on the spectrum analyzer. Turn on the tracking generator and set the tracking generator fixed level to 0.00 dBm.

e. Set the spectrum analyzer Span/Div to 1 MHz and the Resolution Bandwidth to 3 kHz.

f. Set the spectrum analyzer Reference Level to the first major division down from the top on the analyzer display.

g. Set the spectrum analyzer Vertical Scale to 10 dB.

h. Remove one of the cables from the RF Bridge.

i. Set the spectrum analyzer Frequency to 5 MHz, turn on the Marker, and then set the Marker to 6 MHz.

j. Reconnect the cable to the RF Bridge.

k. **Note** – the Reference Level Readout.

l. Adjust the spectrum analyzer External Attenuation Amplitude (on the 2712 Input menu) by the amount noted in the previous step. Note: The Reference Level Readout should now be 0.00 dBm.

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m. Connect the precision high-frequency terminator to the Device Under Test connector on the RF Bridge.

n. **Check** – that the frequency response from 0 MHz to 6 MHz is ≥ 40 dBm.

o. Return the spectrum analyzer frequency marker to 6 MHz if it was moved.

p. Remove the precision high-frequency terminator from the RF Bridge.

q. Connect the Device Under Test connector on the RF Bridge to the 1740A/1750A/1760–Series CH-A INPUT. Terminate the CH-A loop-through with the same precision high-frequency terminator used in step p.

r. Select CH-A INPUT.

s. **Check** – that the Reference Level Readout on the spectrum analyzer is ≥ 40 dBm.

t. Repeat parts q. through s. for each Input channel (CH-A1, CH-A2, CH-A3, CH-B, CH-B1, CH-B2, CH-B3, and EXT REF).

u. Connect the Device Under Test connector on the RF Bridge to the 1740A/1750A/1760–Series PIX OUT connector.

v. **Check** – that the Reference Level Readout on the spectrum analyzer is ≥ 30 dBm.

w. Remove all cables and terminators from the 1740A/1750A/1760–Series.

This completes the 1740A–Series Performance Verification procedure.

35. SCH Phase Mode (1750A–Series, 1760–Series Option SC Only)

Requirement – Absolute Accuracy: ≤ 5°. Color Frame Range: ± 70°.

a. Connect the color bar signal from the TSG-170A to the CH-A INPUT. Terminate the loop-through in 75Ω.

b. Connect the TSG-170A Black Out to the EXT REF INPUT and terminate the loop-through in 75Ω.

c. Select SCH DISPLAY.

d. Center the burst dot using the VERT and HORIZ POS controls. Position the burst vector to 0° using the VECTOR PHASE control (bezel knob).

e. Select EXT REF (front panel) and then reposition the burst vector to 0° using the VECTOR PHASE control.

f. **Check** – that the SCH dots are on the compass rose.

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g. **Check** – that the SCH dots are within ≤5° of the 0° SCH line when either EXT or INT REF are selected . Note: Leave INT REF selected.

h. Enter the LINE SELECT menu and select Line 11 (Line 7 PAL) using the LINE SELECT control (bezel knob).

i. Connect a 75Ω cable from the PIX OUT connector to CH1 of the test oscilloscope, terminating the oscilloscope end of the cable in 75Ω.

j. Connect a frame black signal to CH2 of the test oscilloscope, terminating the oscilloscope end of the cable in 75Ω.

k. Set the test oscilloscope controls as follows: CH1 Volts/Div to 500 mV, DC Coupling, CH2 Volts/Div to 5 V, Chop Display Mode, DC Coupling, Trigger Source to CH2, Negative Trigger, and Time/Div to 2 ms.

l. **Check** – that a positive-going pulse in the test oscilloscope CH1 (PIX OUT) display occurs at the same time as the pulse in the CH2 display (frame black signal).

m. Remove the TSG-170A signals and terminators from the CH-A and EXT REF INPUTs.

n. Connect the 1410 Black Burst signal to the CH-A INPUT. Connect a 75Ω cable from the CH-A INPUT loop-through to the EXT REF INPUT. Terminate the EXT REF INPUT in 75Ω.

o. Exit the LINE SELECT menu and select EXT REF (front panel).

p. Adjust the television signal generator Subcarrier Phase control to place on SCH dot on the 0° SCH line.

q. **Check** – while adjusting the television signal generator Subcarrier Phase control, that the display flip occurs after the SCH dot has moved ±70° from the 0° SCH line.

r. Disconnect all cables and terminators from the 1750A/1760–Series.

This completes the 1750A–Series Performance Verification procedure.

36. Component Vector Gain (1760–Series Only)

Requirement – Vertical and Horizontal Gain Accuracy: ±2.5%.

a. Connect the component signals Y, B–Y, and R–Y to the CH-A1, CH-A2, and CH-A3 INPUTs respectively. Terminate the loop-throughs in 75Ω. Set the component signal generator for SMPTE 100% color bars.

b. Select VECTOR DISPLAY and A123.

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c. Enter the CONFIG menu. Select VECTOR and then select BARS 100%.

d. In the Config menu, select FORMAT, then select LIGHTNING DISPLAY, and then select SMPTE/EBU.

e. **Check** – that the component vector dots are in the graticule boxes ±2.5%.

f. **Check** – that the component vector gain does not change while switching the component signal generator and the 1760–Series between 100% and 75% Bars.

g. When this step is completed, leave the generator and instrument in 100% Bars.

37. Lightning Gain and Variable Gain Registration (1760–Series Only)

Requirement – Vertical Gain Accuracy: ±2%.

a. Select LIGHTNING DISPLAY.

b. **Check** – that the lightning display dots are in the electronic graticule boxes ±2%.

c. Select MAG. Enter the GAIN menu and select X5.

d. **Check** – that the center dot, the Y dot, and the R dot are in the center of their graticule boxes.

e. **Check** – for no visible gaps or tails at the corners of the electronic graticule target boxes.

f. Center the lightning display using the VERT and HORIZ POS controls.

g. Enter the GAIN menu. Select VAR V GAIN ON and VAR H GAIN ON.

h. **Check** – that there is no center dot movement as the VAR V GAIN and VAR H GAIN controls (bezel knobs) are adjusted.

i. Exit the GAIN menu.

38. Option Blanking Pulse (1760–Series Only)

Requirement – The falling edge of the option blanking pulse occurs 0.5 µs (1 µs PAL) before the 50% point of the falling edge of the sync pulse ±0.25 µs.

a. Connect the G OUTPUT to the CH2 oscilloscope input with a 75Ω feed-through terminator.

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b. Connect a X10 probe from the CH1 oscilloscope input to A7U602 pin 9.

c. Set the oscilloscope for 10 µs/Div and position the sync pulse (CH2) to the CRT graticule center.

d. Select X10 Mag on the oscilloscope.

e. **Check** – that the falling edge of the option blanking pulse (CH1) occurs 0.5 µs (1 µs PAL) before the 50% point of the falling edge of the sync pulse (CH2) ± 2.5 µs. See Figure 4–8.

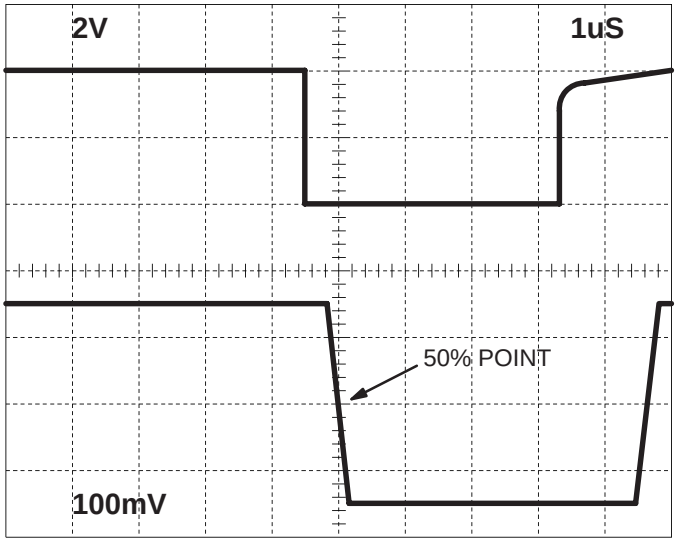


Figure 4–8: Option Blanking Pulse

39. Bowtie Gain and Offset (1760–Series Only)

Requirement – Bowtie gain matches CH-A1 INPUT gain ± 2%. Bowtie DC offset between channels <5 mV.

a. Enter the PRESET menu and select FACTORY RECALL. Select A123.

b. Note the amplitude of the CH-A1 INPUT display.

c. Disconnect the CH-A2 INPUT signal and select BOWTIE DISPLAY.

d. **Check** – that the amplitude of the Bowtie display matches the amplitude noted in step a. ± 2% (2.8 IRE or 20 mV PAL).

e. Reconnect the CH-A2 INPUT signal.

f. Enter the GAIN menu and select X10.

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g. **Check** – that the offset between the two lines is less than 0.5 major divisions.

h. Connect the component signals Y, B–Y, and R–Y to the CH-B1, CH-B2, and CH-B3 INPUTs respectively. Terminate the loop-throughs in 75Ω. Leave the signal generator set for 100% SMPTE Color Bars.

i. Select B123.

j. **Check** – that the offset between the two lines is less than 5 mV (0.75 major division or 0.5 major division PAL).

40. Bowtie Common Mode Rejection Ratio (1760–Series Only)

Requirement – ≥ 34 dB at 3 MHz.

a. Select the multiburst signal on the component signal generator.

b. Disconnect the signals and terminators from the CH-B1, CH-B2, and CH-B3 INPUTs.

c. Connect the component signal Y to the CH-A1 and CH-A2 INPUTs via a 75Ω terminator and T connector.

d. Select A123. Enter the GAIN menu and select X5.

e. **Check** – that the amplitude of the 3 MHz packet is < 0.4 division. See Figure 4–9.

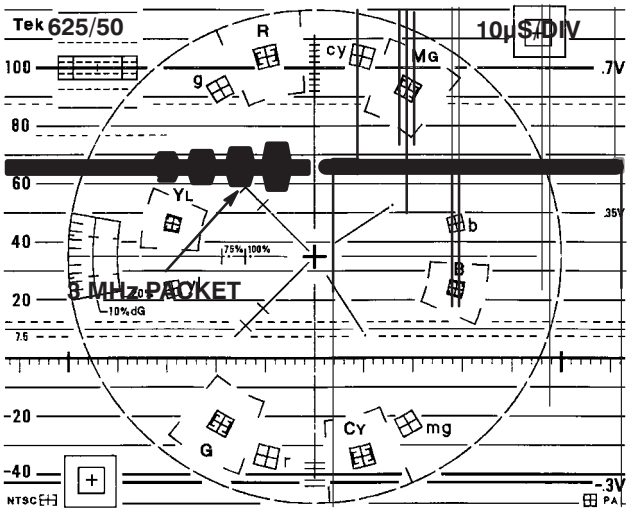


Figure 4–9: Bowtie Common Mode Rejection Ratio

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f. Disconnect the T connector and terminator from the CH-A1 and CH-A2 INPUTs.

g. Connect the component signals Y, B-Y, and R–Y to the CH-A1, CH-A2, and CH-A3 INPUTs respectively. Terminate the loop-throughs in 75Ω.

h. Select Bowtie on the component signal generator.

i. From the GAIN menu select X1.

j. **Check** – for a marker in the center of the null between each channel display.

41. Component Vector Registration and Phase (1760–Series Only)

Requirement – Vector Registration – X5 Gain: within 0.25 inches of CRT graticule center. X10 Gain: within 0.5 inch of CRT graticule center. Vector Phase – Less than a trace-width eye opening.

a. Select the 100% SMPTE color bars signal from the component signal generator.

b. Select VECTOR DISPLAY and center the display with the VERT and HORIZ POS controls.

c. Enter the GAIN menu and select X5.

d. **Check** – that the signal center dot is within 1/4 inch of the CRT graticule center.

e. Select X10 from the GAIN menu.

f. **Check** – that the signal center dot is within 1/2 inch of the CRT graticule center.

g. Select the multiburst signal on the component signal generator.

h. Select X1 from the GAIN menu.

i. **Check** – for a straight line with less than a trace-width eye opening.

42. Diamond Display Phase (1760–Series Only)

Requirement – Opening of <2 minor divisions on the vertical transition.

a. Select the 100% GBR color bars signal on the component signal generator.

b. Select LIGHTNING DISPLAY and MAG SWEEP on.

c. Enter the CONFIG menu. Select FORMAT, then select DISPLAY DIAMOND and GBR.

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d. In the CONFIG menu select VECTOR, then select 100% BARS.

e. **Check** – for an opening of < 2 minor divisions on the vertical transition.

43. GBR Picture Monitor Outputs (1760–Series Only)

Requirement – Accuracy: ± 3%.

a. Connect the G OUTPUT to the test oscilloscope using a 75Ω feed-through terminator. Set the oscilloscope for 0.1 V/Div and 10 µs/Div.

b. Enter the PRESET menu and select FACTORY RECALL. Select LIGHTNING DISPLAY and A123.

c. Enter the CONFIG menu and select VECTOR, then select 100% BARS.

d. In the CONFIG menu select FORMAT, then select DISPLAY LIGHTNING and SMPTE/EBU.

e. **Check** – for signal amplitude on the oscilloscope of 7.0 divisions ± 3% (0.75 division) from the baseline to the top of the 100% white bar.

f. Repeat step e. for the FORMAT menu selections of BETA, GBR, and MII.

g. Repeat steps d. through f. for the B and R OUTPUTs.

This completes the 1760–Series Performance Verification procedure.

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Adjustment Procedure

The Adjustment Procedures for the 1740A/1750A/1760–Series are loaded on the 3 $^{1}/_{2}$ inch high-density disk included in this manual (Tektronix Part No. 063-1690-00). The information contained is this section includes the Recommended Equipment List, the Initial Setup instructions to run the Adjustment Procedure program, and the illustrations to detail specific adjustment steps. The instrument software version must be 2.2 or greater to use this Adjustment Procedure.

To determine the software version loaded in the instrument, check the lower right corner of the REMOTE submenu of the front panel selected CONFIG menu. If the software version is lower than 2.2, load new operating software from the software disk included with this manual. See Installation section for instructions.

Recommended Equipment List

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

Electrical Instruments

1. IBM Compatible PC

System requirements:
DOS 3.3 or higher.
640K bytes of random-access memory (RAM).
High-density floppy drive (3.5 inch/144 MB).
Available RS232 Port (COM 1, 2, 3, or 4).

2. Test Oscilloscope

Vertical Amplifier:
30 MHz Bandwidth, 2 mV Sensitivity.

Time Base:
10 ns/div to 5 ms/div sweep speeds, Triggering to 50 MHz.

For example:
A TEKTRONIX TAS 465 Oscilloscope. Also 10X probe, P6109B, and 1X probe, P6119B.

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3. Television Signal Generator

Color test signals for the television standard of the monitor to be tested: Color bar signal, multiburst signal, and black burst signal.

For example:
NTSC Tektronix 1410 with Option AA and Option AB (modified SPG2 and TSG7), TSG3, and TSG5.

PAL Tektronix 1411 with Option AA and Option AB (modified SPG12 and TSG17), TSG13, and TSG15.

NOTE. *1410–Series Generators:*

The 1410–Series generators with standard SPG and TSG modules can be used, but not all checks and adjustments can be made. The standard SPG2/SPG12 modules will not check lock to changes in sync amplitude, cw lock to changes in burst amplitude, or frequency lock to burst offset frequency changes.

The signal generator can be ordered with one or both options (AA and AB).

4. Digital Television Signal Generator

For example:

Tektronix	TSG-170A	NTSC
Tektronix	TSG-271	PAL
Tektronix	TSG-300	Component

5. Swept Sine Wave Generator

Frequencies from 50 kHz to 10 MHz. CW signal can be used as time marks.

For example:
HP3336C, Option 005. Option 005 provides increased flatness and attenuator accuracy (+0.07 dB flatness in CW mode). The standard frequency accuracy (+5 ppm of programmed frequency) is sufficient for time base verification.

6. Square Wave Generator

Range: 0.1 to 5 V p-p when loaded by 75Ω; 10 V p-p when unloaded.
Frequency: 10 Hz to 2 kHz.

For example:
Tektronix FG503 installed in a TM500–Series Power Module.

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7. Variable Autotransformer

For example:
General Radio Metered Auto Transformer W10MT3W. If 220 V operation must be checked, a conversion transformer or appropriate 220 V autotransformer is needed.

8. Voltmeter

Range: 0 to > 100 Vdc. Accuracy: ± 0.1%.

For example:
Tektronix DM501A installed in a TM500–Series Power Module.

9. Video Amplitude Calibrator (VAC)

Signal: Adjustable square wave 0.0 to 999.9 mV p-p. Resolution: 0.1 mV. Accuracy: 0.05%. Frequency: Approximately 270 Hz.

For example:
Tektronix 067-0916-00 installed in a TM500–Series Power Module.

10. Peak-to-Peak Detector

Input Signal Range: 0.25 to 1.0 V p-p. Flatness: ± 0.2% 50 kHz to 10 MHz. Input Impedance: 75Ω.

For example:
Tektronix Part No. 015-0408-00 (includes Peak-to-Peak Detector Head 015-0413-00) installed in a TM500–Series Power Module.

11. Power Module

For powering and housing Tektronix SG505, FG503, DM501A, DC503A, 067-0916-00, and a 015-0408-00.

For example:
Tektronix TM500–Series Power Module.

12. Low-Distortion Oscillator

1-kHz balanced output, 387 mV to 1.54 V amplitude.

For example:
Tektronix SG505 Opt. 2.

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Auxiliary Equipment

13. 75Ω Terminators

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

For example:
End-line, 75Ω terminator (Tektronix Part No. 011-0102-00).
Feed-through, 75Ω terminator (Tektronix Part No. 011-0103-02).

14. Coaxial Cable

Three 75Ω cables required; one 50Ω cable required.

For example:
75Ω – 42-inch RG59U (Tektronix Part No. 012-0159-00).
50Ω – 42-inch RG58U (Tektronix Part No. 012-0057-01).

15. Dual-Input Coupler

Matched BNC cable-T for making phase comparisons between two inputs. Matched length of the two arms within ±0.1 inch.

For example:
Tektronix Part No. 067-0525-02.

16. BNC Female-to-Dual Banana Adapter

Two required.

For example:
Tektronix Part No. 103-0090-00.

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17. External Horizontal/RGB and YRGB Cable Adapter

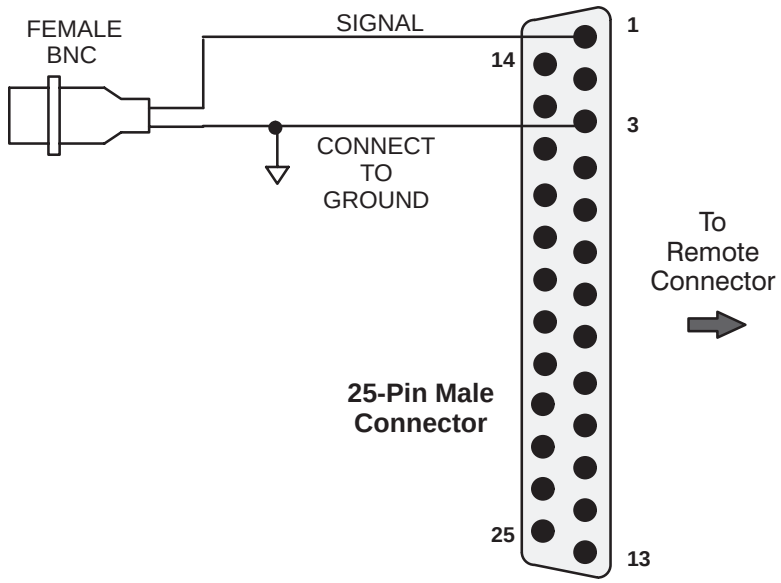


Figure 5–1: External Horizontal/RGB and YRGB Cable Adapter

18. Remote Sync Cable Adapter

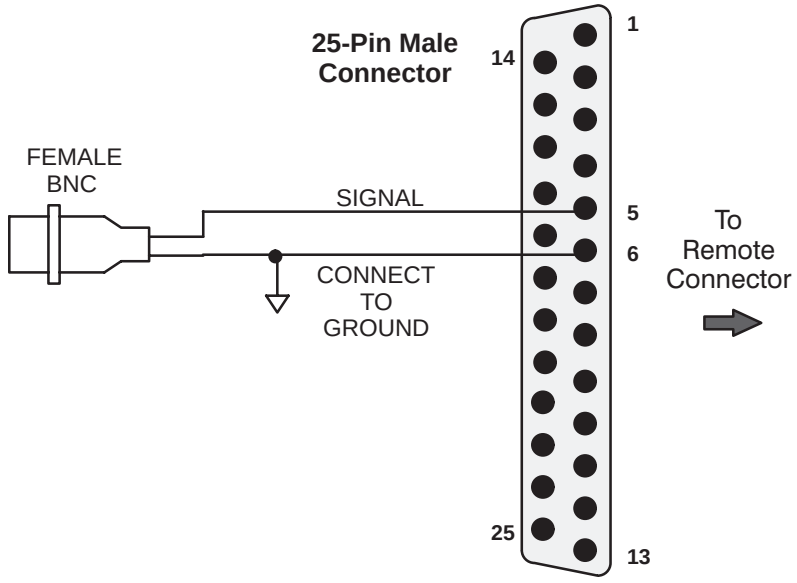


Figure 5–2: Remote Sync Cable Adapter

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19. Audio and Timecode Cable Adapter

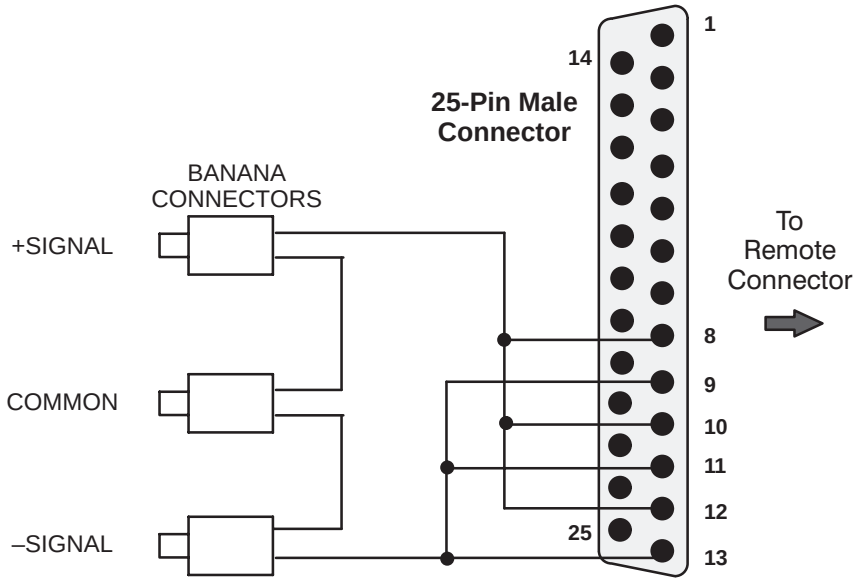


Figure 5–3: Audio and Timecode Cable Adapter

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20. RS232 Cable

Connector or adapter which allows hookup between the PC and the waveform monitor. Figure 5–4 shows the cable connections for a 9-pin PC connector. For a 25-pin to 9-pin adapter, construct one as shown in Figure 5–5 or purchase an RS232 DTE cable or adapter. Do not use a DCE or modem cable.

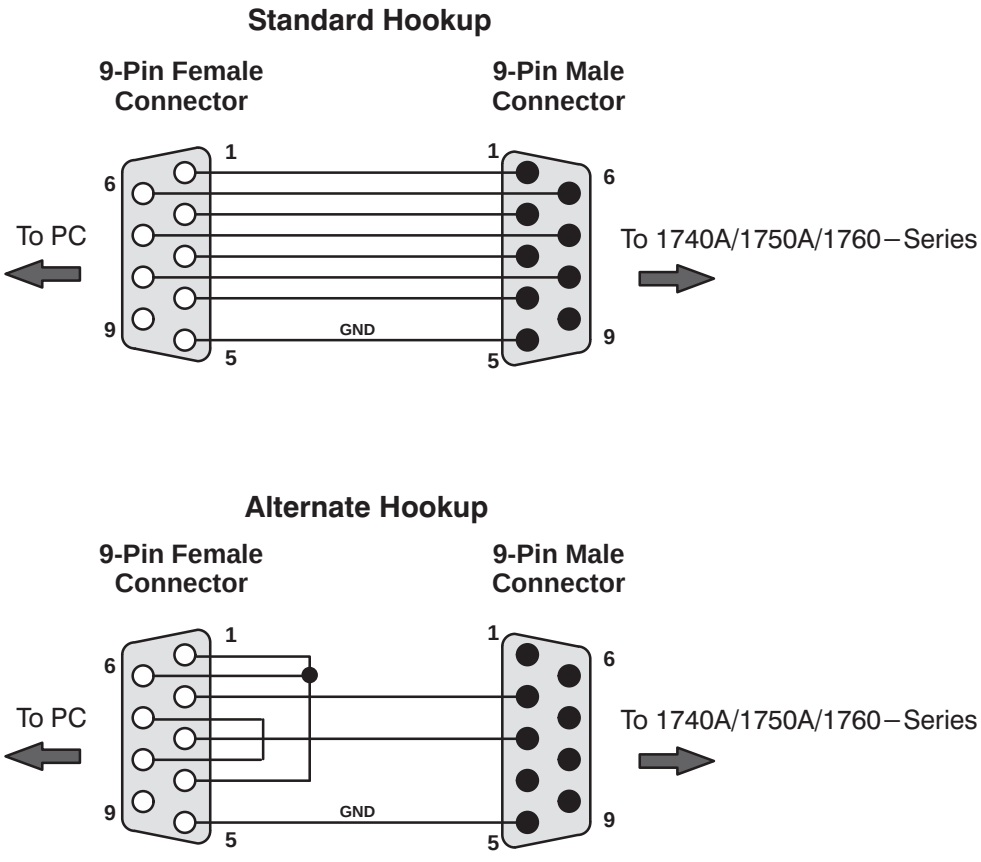


Figure 5–4: RS232 cable standard and alternate hookups for 9-pin PC connector

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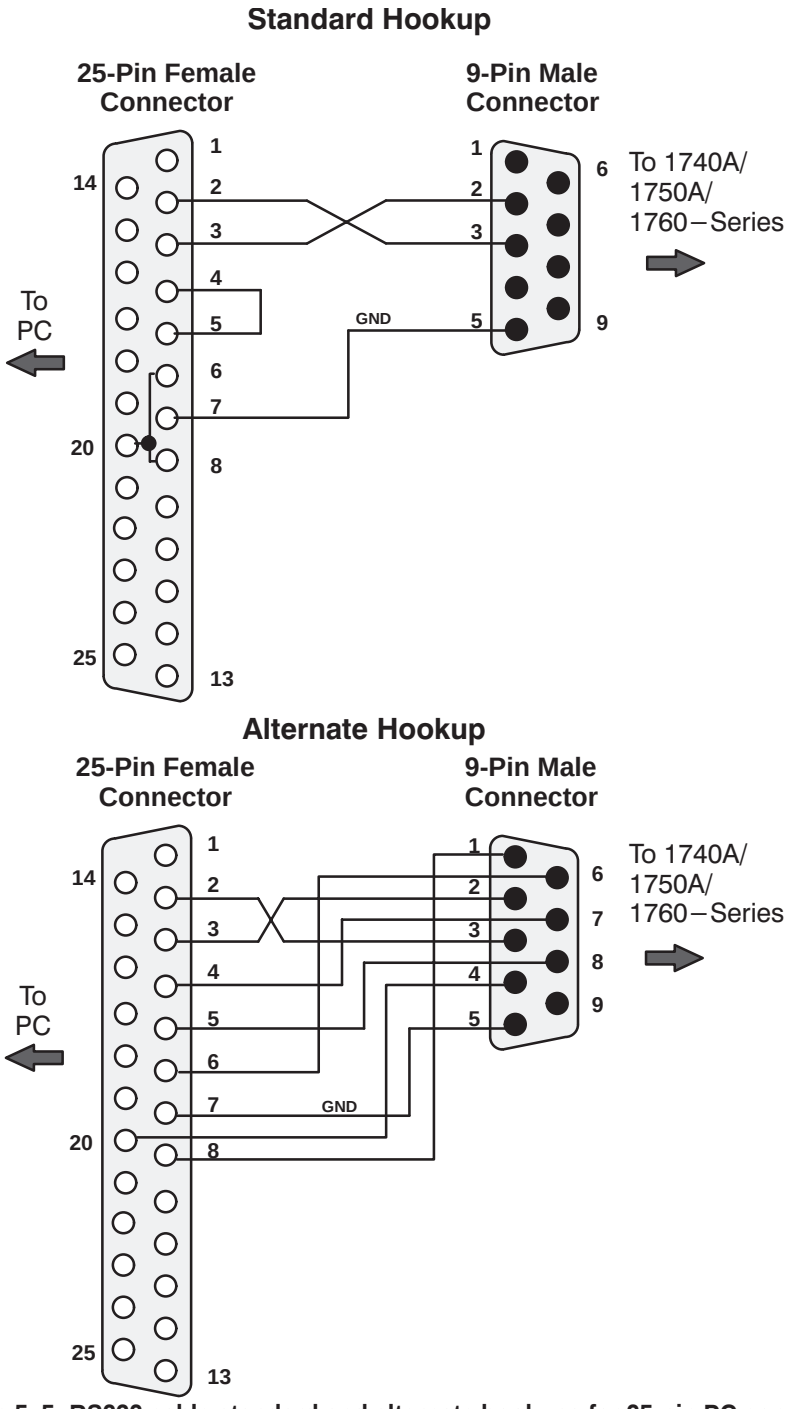


Figure 5–5: RS232 cable standard and alternate hookups for 25-pin PC connector

Optional Equipment

21. Magnifying Glass

For aid in viewing CRT graticule as necessary.

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Getting Started

1. Initial Equipment Setup

   a. Connect an RS232 cable from the 1740A/1750A/1760–Series rear-panel RS232 connector to the COM 1, 2, 3, or 4 connector on the PC. See the Required Equipment List for the cable wiring illustrations.

NOTE. *Cable Wiring*

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

---

   b. Connect the 1740A/1750A/1760–Series to power and turn on the instrument.

NOTE. *Instrument Power*

The 1740A/1750A/1760–Series power switch must be set to ON before the Adjustment Procedures program is started. If the instrument is not turned on, the PC will not be able to establish communications with the instrument. Turning the instrument power ON after the Adjustment Procedures program is started, can cause the PC to lock up, requiring a system reset.

---

   c. Enter the Configure menu on the 1740A/1750A/1760–Series. From the menu, select REMOTE and then select BAUD 9600. Exit the Configure menu.

NOTE. *Baud Rate*

The 1740A/1750A/1760–Series RS232 interface baud rate must be set to 9600 baud. If the baud rate is set to 1200 or 4800 baud, the PC will not be able to establish communications with the instrument.

---

2. Load the Adjustment Procedures Program

   a. This manual section was written for the Adjustment Procedures program version 1.0. Verify that the Adjustment Procedures disk is version 1.0.

   b. Insert the Adjustment Procedures disk into the PC floppy drive.

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***NOTE**. PC Floppy Drive*

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

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

***NOTE**. PC Hard Drive*

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

d. Type **CAL** and then press the Return key.

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

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Functional Description of PC Display

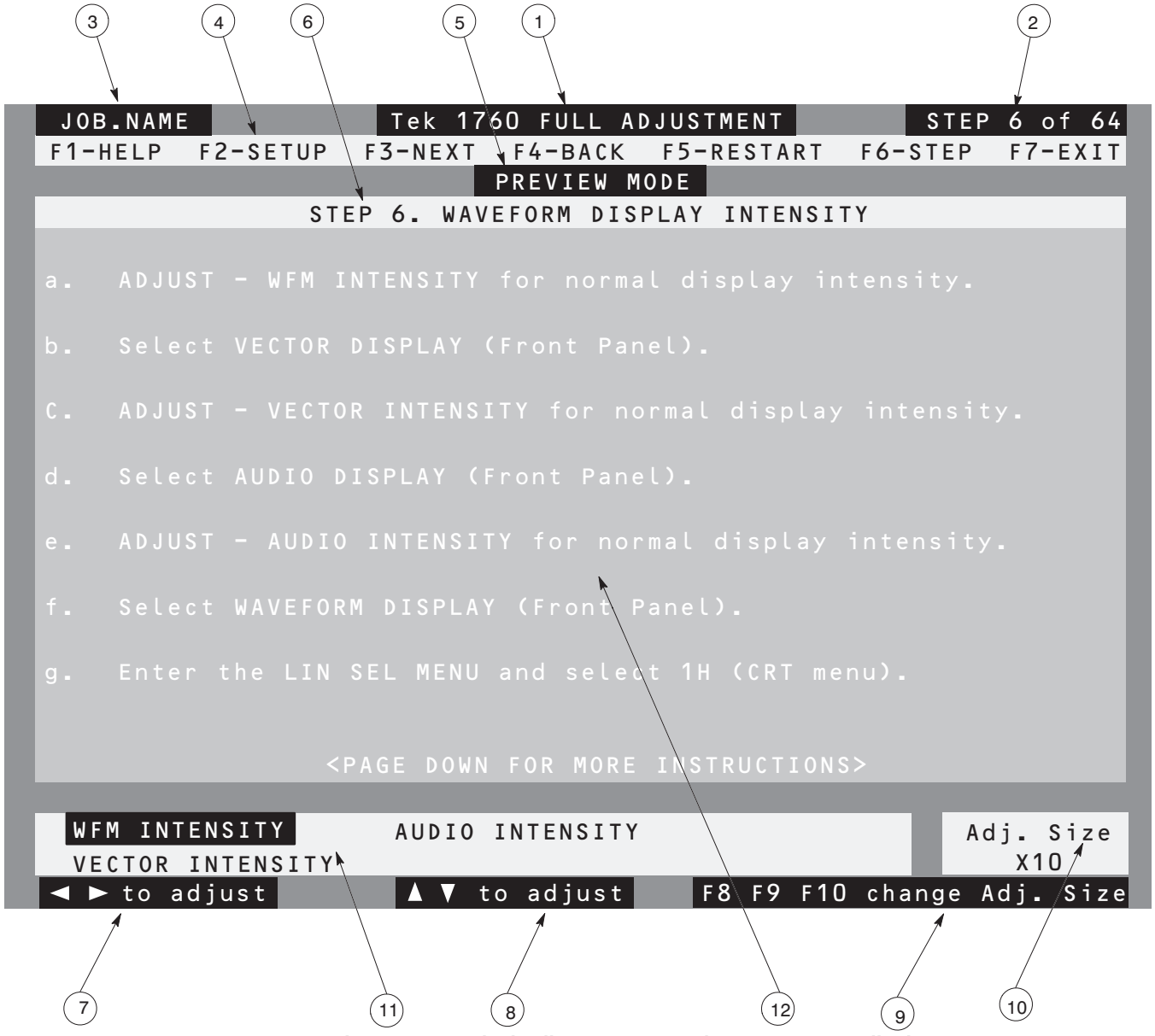


Figure 5–6: Typical Adjustment Procedures PC screen display

1 This box lists the instrument type and which procedure is being performed.

2 This box lists the current step number and how many steps there are in the procedure being performed.

3 This box only appears when the procedure being performed is a saved job. The name of the job is displayed in the box.

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4 This box lists the active function keys which can be pressed during the program. They function as follows:

F1 Pressing this key brings up the Help Menu.

F2 Pressing this key brings up the Setup Window which details the initial equipment connections for that particular step. Only those connections listed in the Setup Window should be in place when the step is started. All other connections from previous steps should be removed.

F3 Pressing this key sends the Adjustment Procedures program to the next step.

F4 Pressing this key sends the Adjustment Procedures program to the previous step.

F5 Pressing this key returns the Adjustment Procedures program to the beginning of the current step. All front-panel settings and internal instrument settings are returned to their former state (the same state they were in when the current step was started).

F6 Pressing this key brings up the Select Step window which allows the user to select any step in the procedure to perform. The current step is highlighted when the window opens. Selections are made by pressing the PAGE UP or PAGE DOWN keys on the PC. Pressing the ESC key will close the window and return the user to the current step.

F7 Pressing this key brings up the Exit Menu which allows the user to change procedure types, save the current Adjustment job, or to exit to DOS.

5 This box appears only when the procedure is in the Preview Mode.

6 This box displays the current step number and title.

7 This box appears when the current step has more than one adjustment controlled by the PC Up/Down arrow keys. The box serves as a reminder for which arrow keys control the adjustment selection.

8 This box appears when the current step has an adjustment controlled by the PC Up/Down arrow keys. The box serves as a reminder for which arrow keys control the adjustment.

9 This box appears when the current step has an adjustment controlled by the PC Up/Down arrow keys. Pressing the F8, F9, or F10 function key selects the amount of change each press of an Up or Down arrow key has on the adjustment. The current adjustment size is displayed above the box.

F8 Selects X1 as the adjustment size. The X1 setting provides the smallest adjustment size and is used for fine tuning an adjustment to exact position.

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F9 Selects X10 as the adjustment size. X10 is the default adjustment size and is used to bring an adjustment close to proper position.

F10 Selects X100 as the adjustment size. X100 is the largest adjustment size and is used to rough in adjustments that are far out of position.

10 This box displays the current arrow key adjustment size.

11 This window list the names of the adjustments for the current step. The active adjustment (the one currently assigned to be controlled by the PC Up/Down arrow keys) is highlighted. The Left/Right PC arrow keys control the adjustment selection.

12 This window displays the actual procedure steps to be performed. The message <PAGE DOWN FOR MORE INSTRUCTIONS> refers to the PAGE DOWN key on the PC and appears at the bottom of the procedure steps window when there are additional steps to be performed.

Circuit Board Adjustment Locations

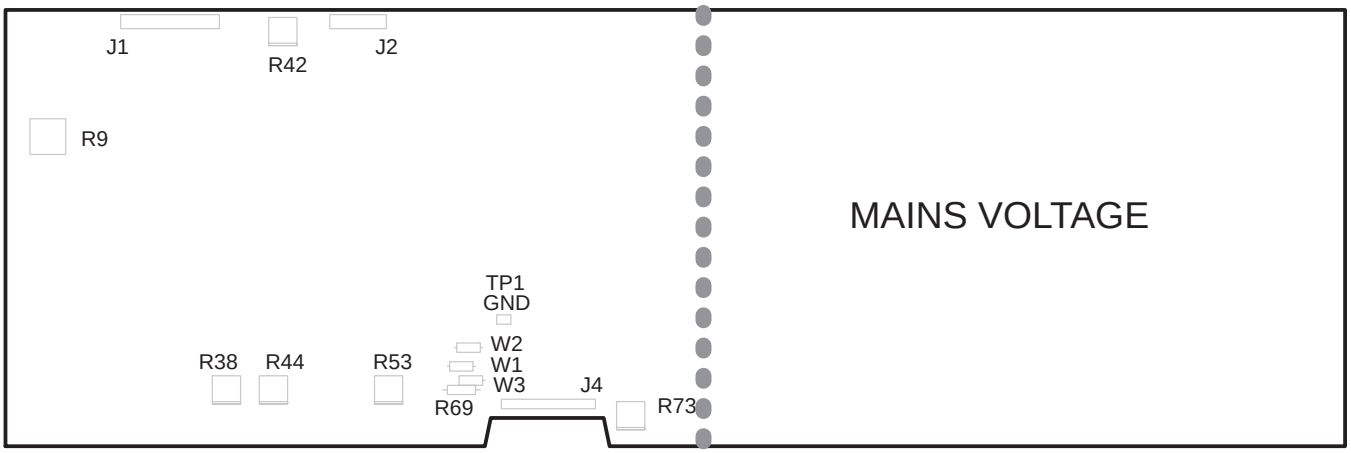


Figure 5–7: A1 Power Supply Board

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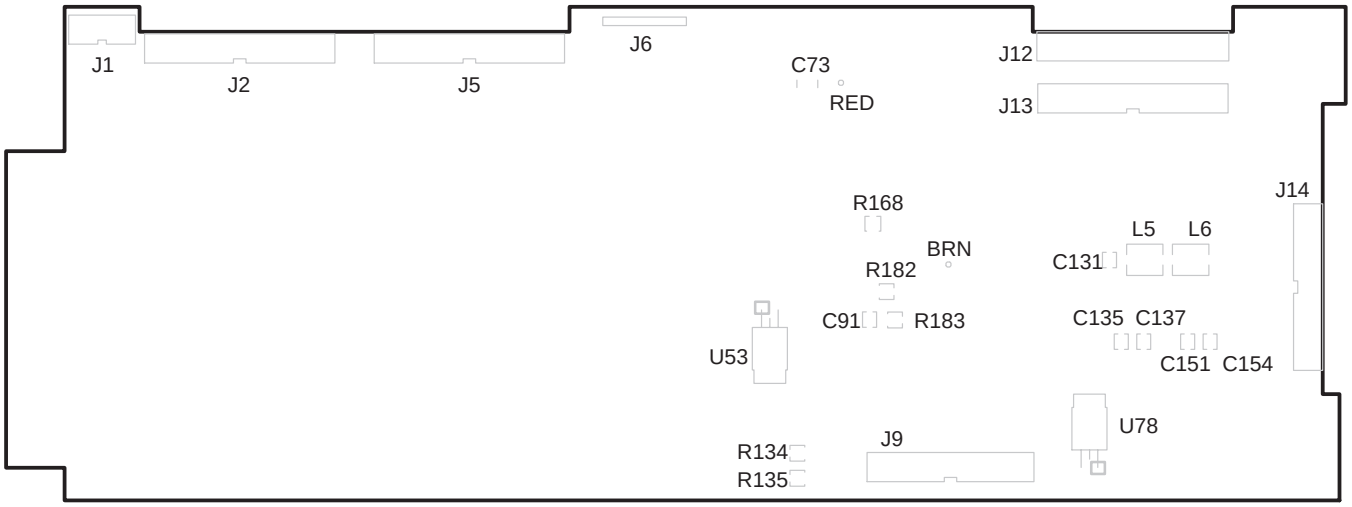


Figure 5–8: A3 Main Board

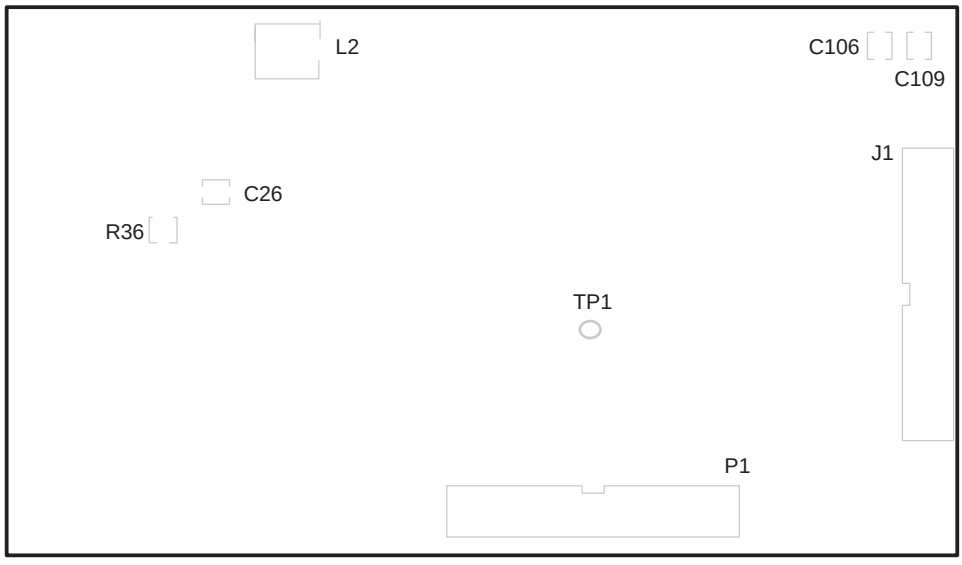


Figure 5–9: A5 Vector Board

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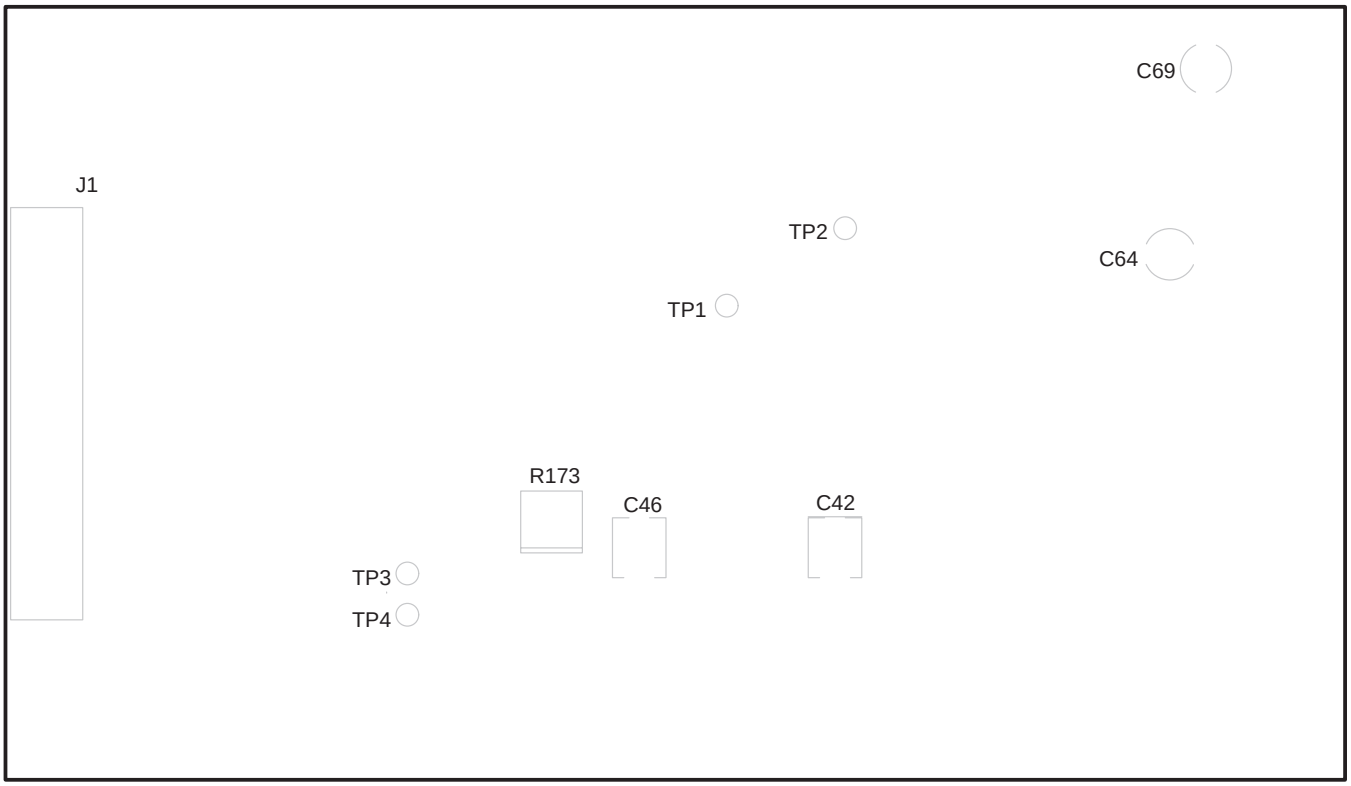


Figure 5–10: A6 SCH Board

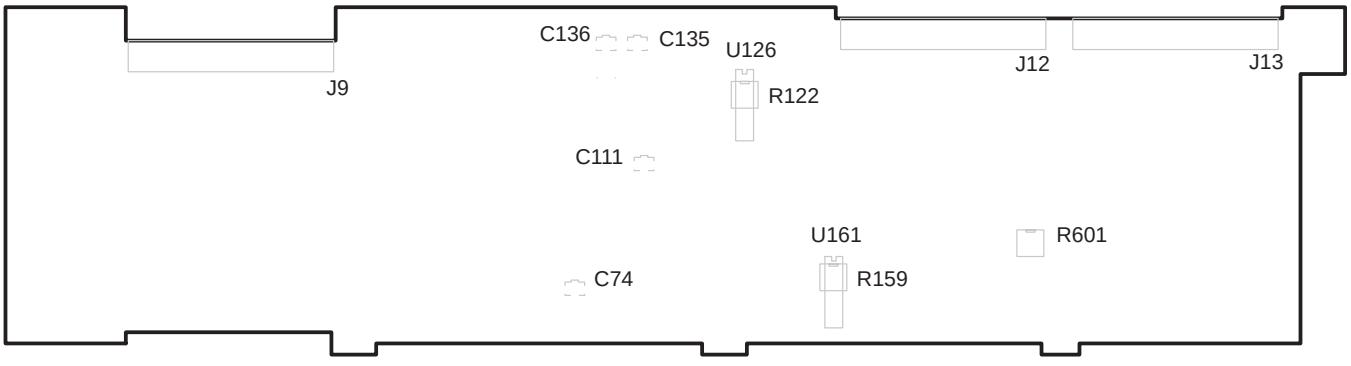


Figure 5–11: A7 Component Board

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Waveform Illustrations

The following waveform illustrations are provided as a reference. The illustrations are of the 1765 unless otherwise noted.

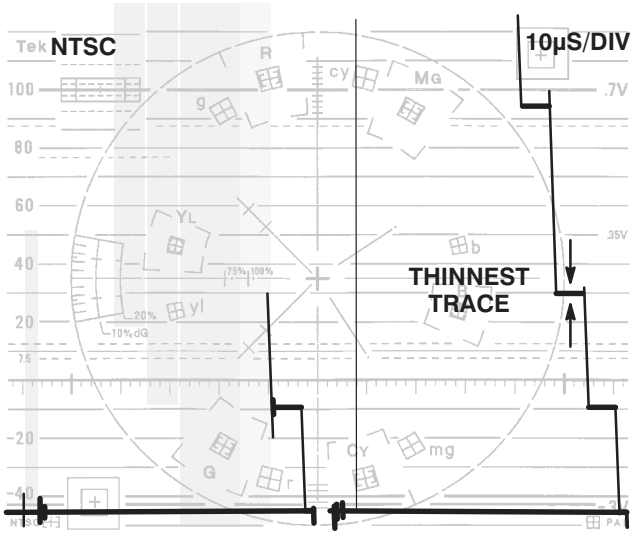


Figure 5–12: Adjusting for thinnest Luminance Step

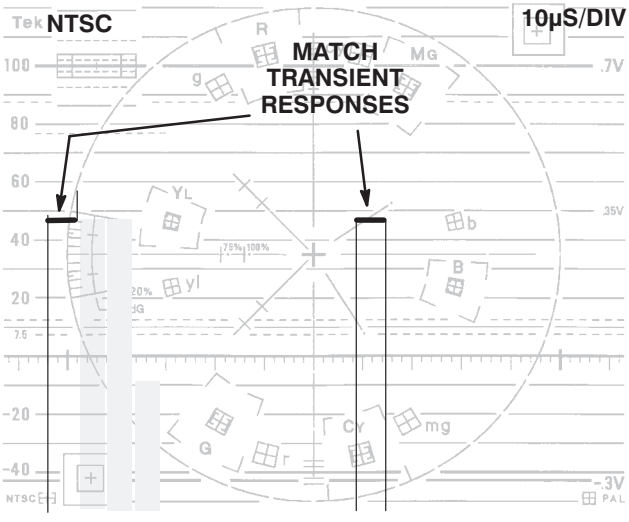


Figure 5–13: Matching Flat and Luminance Filter responses

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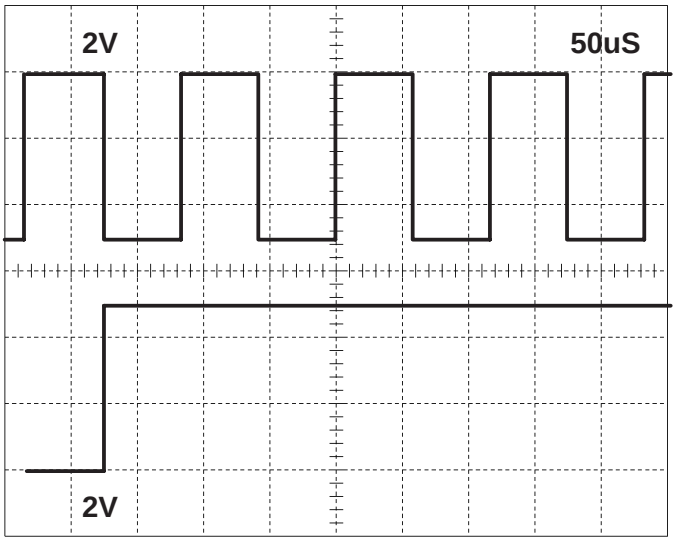


Figure 5–14: Adjusting the NTSC SCH on the oscilloscope

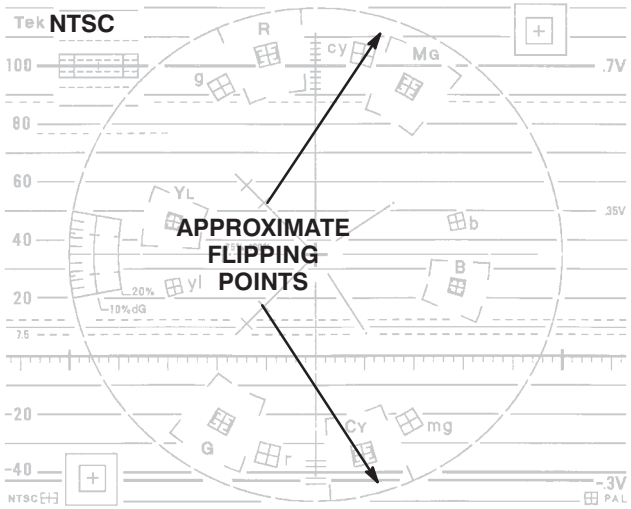


Figure 5–15: Matching the SCH dot flipping points

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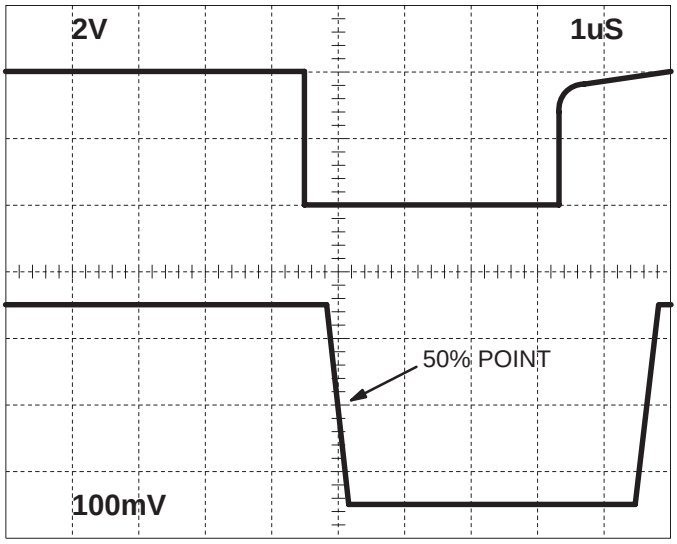


Figure 5–16: Adjusting the Option Blanking Pulse

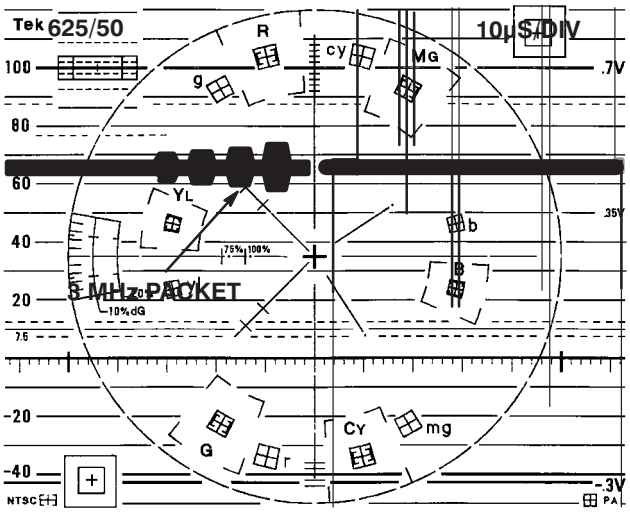


Figure 5–17: Adjusting for minimum Bowtie amplitude

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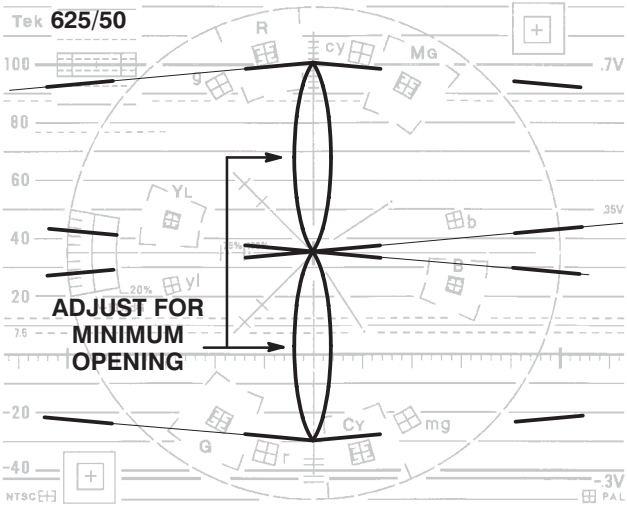


Figure 5–18: Adjusting Diamond Display phase

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Maintenance

This section discusses the various options available for servicing the 1740A/1750A/1760–Series of Waveform Vector Monitors. It also contains instructions for preventive maintenance, general troubleshooting, and corrective maintenance. If the instrument does not function properly, troubleshooting and corrective measures should be taken immediately to circumvent additional problems.

Service Options

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

Tektronix Service

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

Preventive Maintenance

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

Cleaning

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

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

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

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

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



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

Replacing and Cleaning the Air Filter

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

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

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

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

Visual Inspection

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

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

Static-Sensitive Components

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

Table 6–1: Static Susceptibility

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

Observe the following precautions to avoid damage:

1. Minimize handling of static-sensitive components.

2. Transport and store static-sensitive components or assemblies in their original containers, on a metal rail, or on conductive foam. Label any package that contains static-sensitive components or assemblies.

3. Discharge the static voltage from your body, by wearing a wrist grounding strap, while handling these components. Servicing static-sensitive assemblies or components should be done only at a static-free work station by qualified 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 the components by the body, never by the leads.

7. Do not slide the components over any surface.

8. Avoid handling components in areas that have a floor or work surface covering capable of generating a static charge.

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9. Use a soldering iron that is connected to earth ground.

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

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

Determining the Software Version

Operation of this instrument is dependent on the software, which is loaded in Flash EPROM. It is possible that an instrument may contain older software and therefore not be performing up to the level expected. It may save considerable time and troubleshooting effort to determine which software version the instrument contains. The User Manual that was shipped with the instrument contains the software version level when the instrument was first delivered. However, it is possible that the instrument was upgraded, or possibly a particular instrument was missed for a field upgrade and therefore does not perform up to expectation. Prior to servicing it is wise to determine that the instrument has software that matches the level specified at the front of the User Manual.

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

Updating Software To update the operating software loaded in the instrument, see the instructions in the Installation section of this manual. Both the software disk (Version 2.2 or higher) and the Adjustment software disks are included in this manual. The instrument must have Version 2.2 or higher software to use the Adjustment software.

Performance Checks and Readjustments

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

General Troubleshooting Techniques

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

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1. Ensure that the malfunction exists in the instrument. This is done by making sure that the instrument is operating as intended by Tektronix (see Operating Instructions), and by checking that a malfunction has not occurred up stream from the waveform monitor.

2. Determine and evaluate all trouble symptoms. This is accomplished by isolating the problem to a general area such as an assembly. The block diagram is a valuable aid in signal tracing and circuit isolation.



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

3. Determine the nature of the problem. Attempt to make the determination of whether the instrument is out of calibration or if there has been a component failure. Once the type of failure has been determined, proceed on to identify the functional area most likely at fault.

4. Visually inspect the suspect assembly for obvious defects. Most commonly these will be broken or loose components, improperly seated components, overheated or burned components, chafed insulation, etc. Repair or replace all obvious defects. In the case of overheated components, determine the cause of overheating and correct the cause before re−applying power.

5. Use successive electrical checks to locate the source of the problem. The primary tool for problem isolation is the oscilloscope. Use the Performance Check Procedure to determine if a circuit is operating within specifications. At times it may be necessary to change a calibration adjustment to determine if a circuit is operational, but since this can destroy instrument calibration, care should be exercised. Before changing an adjustment, note its position so that it can be returned to its original setting.

6. Determine the extent of the repair. If the necessary repair is complex, it may be advisable to contact your local Tektronix field office or representative before continuing. If the repair is minor, such as replacing a component, see the parts list for replacement information. Removal and replacement procedures for the assemblies can be found under Corrective Maintenance.



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

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Line Fuse Replacement

This instrument is protected with an F-type cartridge fuse, located in a holder, directly above the line cord receptacle on the rear panel. The fuse should only be replaced with the correct type and value. Using a higher rated or slo blo fuse could cause circuit damage. The correct value and type is silk screened on the rear panel, adjacent to the fuse holder.

Specific Troubleshooting Techniques

Power Supply

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



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

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

Troubleshooting Procedure

The equipment needed to troubleshoot the power supply:

- Digital Multimeter (DMM), with a diode check function
- Oscilloscope
- 20 Vdc Variable Power Supply
- 5 Vdc Power Supply
- High Voltage Probe, ≥ 1 GΩ input resistance

NOTE. *Reading the power supply Theory of Operation is recommended before attempting repairs.*

Introduction

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

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Table 6–2: Power Supply Fault Symptoms

Symptom	Procedure
Line fuse open	Rectifier/Switcher/Snubber Check
Power Supply cycles OFF/ON Note: Check instrument for shorts.	Output Check Error Amplifier Check Shutdown Logic Check
Does not power up	Controller/Gate Drive Check Transformer Driver Check Error Amplifier Check Shutdown Logic Check Rectifier/Switcher/Snubber Check
+5 V not regulating	Error Amplifier Check
Improper CRT display	High Volts Supply Checks

Low Volts Supply

1. Preliminary Checks

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

Table 6–3: Low Volts Supply Voltages

Test Point	Voltage Range
W1 – (+5 V)	+5.0 V
W4 – (+11 V)	+10.5 to +12.0 V
W3 – (–11 V)	–10.5 to –12.0 V
W2 – (+40 V)	+39.0 to +41.0 V

***NOTE**. The Low Volts power supply troubleshooting is performed without applying ac power.*

b. Disconnect ac power from the instrument. Disconnect the instrument from the Power Supply by removing the plug jumper from J4.

c. Use the digital multimeter to measure the voltage between TP2 and the tab (drain) of Q14. Check that the voltage is near 0 V.

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

2. Rectifier/Switcher/Snubber Check

a. Use the digital multimeter to measure the voltage between TP2 and TP3. Be sure the voltage is near 0 V before proceeding.

b. Remove the plug jumper P7.

c. With the negative lead of the digital multimeter connected to TP3 and the positive lead connected to TP2, measure the circuit resistance. A resistance of less than 20 kΩ indicates a shorted mosfet (Q14). If the mosfet is shorted, replace it and perform the Control Circuit Check.

d. Using the digital multimeter diode test function, test CR32, CR33, CR34, and CR35 for shorts. Diode replacements must be fast reverse recovery (300 ns) types to reduce conducted noise.

e. Using the digital multimeter diode test function, test the snubber diodes CR23 and CR25 for shorts.

f. Replace P7.

3. Output Check

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

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

b. Connect the negative output from the 20 Vdc Power Supply to TP1 and the positive output to R69 (+40 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR19 or Q7 (High Volts Power Supply).

c. Connect the positive output from the 20 Vdc Power Supply to TP1and the negative output to W2 (–11 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR18.

d. Connect the negative output from the 5 Vdc Power Supply to TP1 and the positive output to W1 (+5 V). The circuit should draw less than 20 mA. Excessive current draw can be caused by CR17 or Q1 and Q2 (High Volts Power Supply).

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4. **Controller/Gate Drive Check**

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

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

   c. Use the oscilloscope to observe the signal at the cathode of CR28. It should be an 80 kHz square wave, switching between –1 and 12 volts. The fall time is 0.2 μs and the rise time is 1 μs.

Table 6–4: Control Circuit Test Points

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

   d. Remove the short from across Q15.

5. **Transformer Driver Check**

   a. Connect the negative output from the 20 Vdc Power Supply to TP3. Connect the positive output to the cathode of CR22.

   b. Connect the negative output from the 5 Vdc Power Supply to TP3. Connect the positive output to the cathode of VR3.

   c. Connect the oscilloscope probe ground to TP3.

   d. Using the oscilloscope, observe the signal at U8, pin 5. It should toggle between 0 and 5 Vdc when J3 is shorted and unshorted. If the pulse is not present, continue with the check.

   e. Using the oscilloscope, observe the signal at U8, pin 3. A positive-going, 100 ms pulse should occur when J3 is shorted and unshorted. If the pulse is not present, continue with the check.

   f. Using the oscilloscope, observe the signal at U5, pin 1. It should be a logical high when J3 is unshorted and a logical low when it is shorted. If the signal is not present, continue with the check.

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g. Using the oscilloscope, observe the signal at the collector of Q13. With J3 un shorted this point should have a 1 V, 170 kHz sine wave riding on 5 Vdc. With J3 shorted this point should be at 5 Vdc.

6. Error Amplifier/Voltage Reference/Over Voltage Check

a. Set the variable Power Supply to 4.6 Vdc. Connect the negative lead to TP1 and the positive output to W1 (+5 V).

b. Connect the digital multimeter common lead to TP1.

c. Using the digital multimeter measure the voltage at U3, pin 6. It should be 0 V.

d. Using the digital multimeter measure the voltage at U3, pin 1. It should be 2.5 V.

e. Set the variable Power Supply to 5.4 V.

f. Using the digital multimeter measure the voltage at U3, pin 6. It should be 5 V.

g. Slowly increase the voltage of the variable Power Supply. Before 6 V is reached the over voltage protection circuit should fire and pull the voltage below 1 V.

7. Shut Down Logic Check

a. Connect the negative output of the 20 Vdc Power Supply to TP3. Connect the positive output to the cathode of CR22.

b. Connect the digital multimeter common lead to TP3.

c. Measure the voltages according to Table 6–5 to see if the shut down logic circuit is functioning properly.

Table 6–5: Shut Down Logic Levels

Circuit Location	Approximate Voltage
U7, pin 1	0 V
U7, pin 4	2 Vdc
U7, pin 6	3 Vdc
U7, pin 7	4.15 Vdc
U7, pin 9	0.3 Vdc

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

High Volts Supply



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

1. Preliminary Checks

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

Table 6–6: High Volts Supply Fault Symptoms

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

b. Load the Low Volts Supply with the instrument.

2. Focus Amplifier Check

a. Using the digital multimeter, measure the voltage between TP1 and the collector of Q2.

b. It should vary from 0 to –300 Vdc when the front-panel FOCUS control is rotated.

3. Z-Axis Amplifier Check

a. Using the digital multimeter, measure the voltage between TP1 and the collector of Q6.

b. Short together the base and emitter of Q3. The collector of Q6 should be near 0 V.

c. Short together the base and emitter of Q4. The collector of Q6 should be near 0 V.

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4. **Grid Drive Check**

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

   b. Power up the Power Supply.

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

5. **High Voltage Oscillator Check**

   a. Connect the oscilloscope probe to T1 pin 3 (Q6 collector) and the probe ground to TP1. Power up the supply. The signal should be a +70 V p-p, 22 kHz sine wave.

   b. Check the voltages listed in Table 6–7 using the digital multimeter:

Table 6–7: High Voltage Oscillator Test Points

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

6. **CRT Voltage Check**

NOTE. *High-Voltage Probe:*

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

   a. Connect the high-voltage probe ground to TP1.

   b. Power up the Power Supply.

   c. Use the high-voltage probe to measure the voltage at the anode of CR4. It should be approximately –2750 V.

   d. Measure the voltage at the anode end of CR3. It should be 50–150 V more negative than the reading from the anode of CR4.

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Corrective Maintenance

Tektronix Service Offerings

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

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

Service Training

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

Field Service Centers

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

Module Exchange

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

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

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

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

Table 6–8: 1740A/1750A/1760–Series Replacement Circuit Boards

Circuit Board Assembly Number	Assembly Name	First Seven Digits of the Part Number	Part Number Suffix	Used By
A1	Power Supply	67X-XXXX	XX	1740A–Series, 1750A–Series, & 1760–Series
A3	Main	67X-XXXX	XX	1740A–Series, 1750A–Series, & 1760–Series
A4	Input and BNC	67X-XXXX	XX	1740A–Series, 1750A–Series, & 1760–Series
A5	Vectorscope	67X-XXXX	XX	1740A–Series, 1750A–Series, & 1760–Series
A6	SCH	67X-XXXX	XX	1750A–Series, & 1760–Series Option SC
A7	Component	67X-XXXX	XX	1760–Series

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

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

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

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

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

Factory Replacement Parts

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

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

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

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

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Etched Circuit Boards

The individual instruments for this series have many common etched circuit boards. The differences between members of this family are largely defined by the etched circuit boards making up the instrument. All of the circuit boards are designated as assemblies. Each assembly has an alphanumeric designation (A1 through A8). These assembles are listed at the beginning of the Replaceable Electrical Parts list of this manual.

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

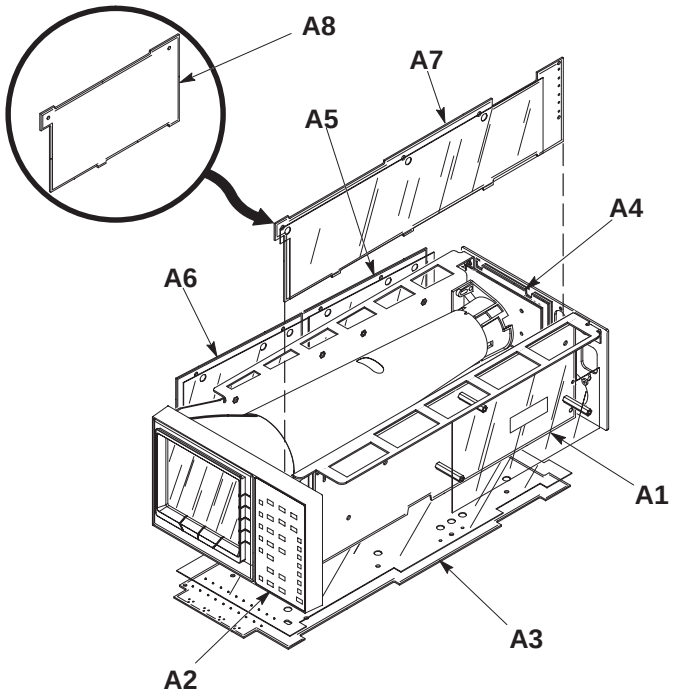


Figure 6–1: Instrument etched circuit board assemblies

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Figure 6–1 shows the locations of all circuit board assembles for the 1760–Series Option SC. Most of the circuit boards shown in the illustration are used by the 1740A/1750A–Series also. See Table 6–9. A8 is used in some 1740A–Series and 1750A–Series instruments, it contains additional Flash EPROM. A8 occupies the position that the Component circuit board (A7), in 1760–Series, occupies.

Table 6–9: Etched Circuit Board Assemblies

Assembly Number	Assembly Name	Where Used
A1	Power Supply	ALL
A2	Front Panel	ALL
A3	Main Circuit Board	ALL
A4	Input	ALL
A4A1	BNC	ALL
A5	Vector	ALL
A6	SCH	1750A–Series 1760–Series (Opt. SC)
A7	Component	1760–Series
A8	XROM	1740A/1750A–Series

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Major Assembly Interconnection

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

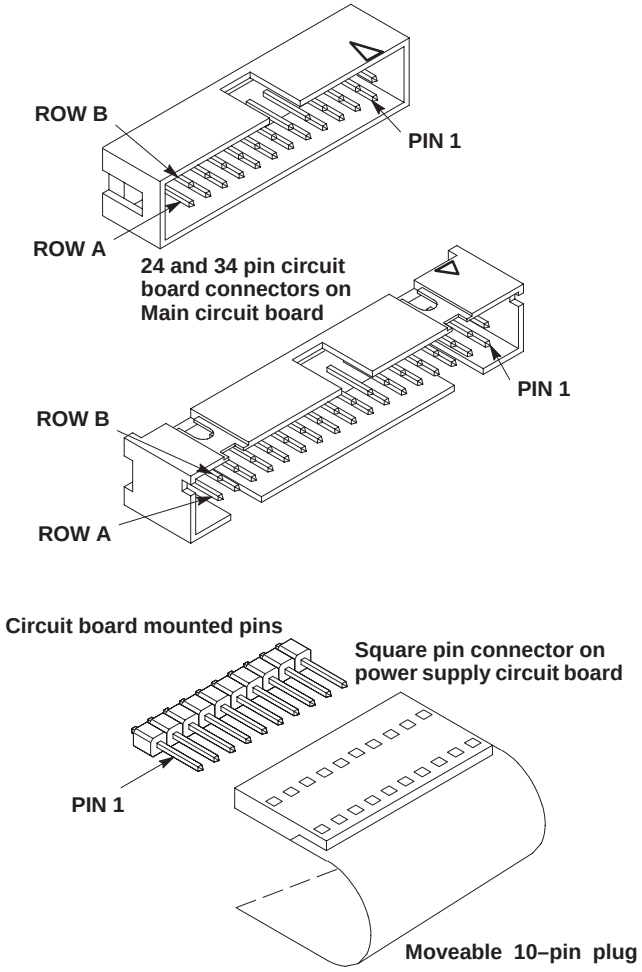


Figure 6–2: Multiple pin connectors

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Mechanical Disassembly/Assembly

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

WARNING. *Before attempting any disassembly of the instrument be sure to disconnect the power cord.*

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

Bezel Removal

1. Remove the five knobs located below the CRT, using a $^{1}/_{16}$-inch Allen wrench. See Figure 6–3.

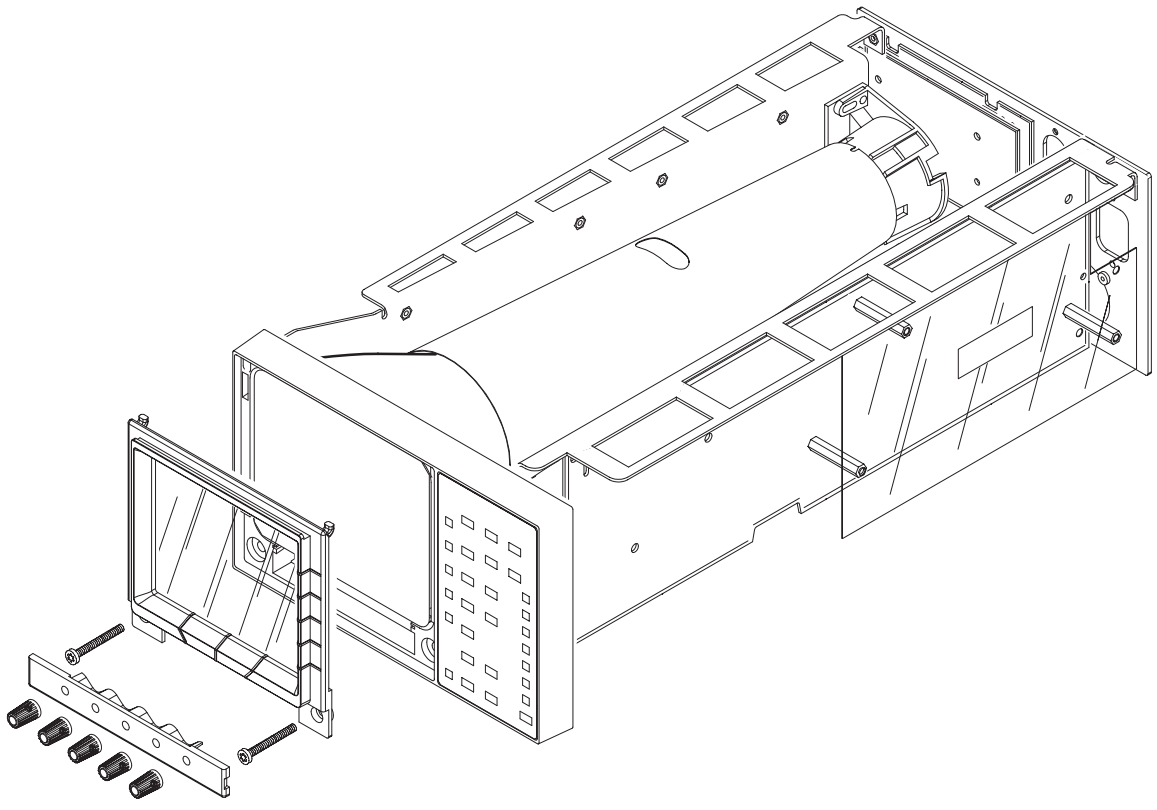


Figure 6–3: CRT bezel removal

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

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

3. Remove the two bezel screws.

4. Grasping the bottom of the bezel, pull straight out and upward. There are two hinges at the top of the bezel that hold it in place; once the bezel is at an approximate 45° angle with the front panel they will disengage.

5. To replace, reverse the procedure, pushing in on the small panel instead of out.

Graticule Light Removal and Replacement

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

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



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

Procedure

1. Remove the bezel according to the preceding instructions.

2. To remove a bulb, position the tweezer tips or grasp the thin, flat portion of the bulb (close to the plastic socket). Carefully pull the bulb straight out. See Figure 6–4.

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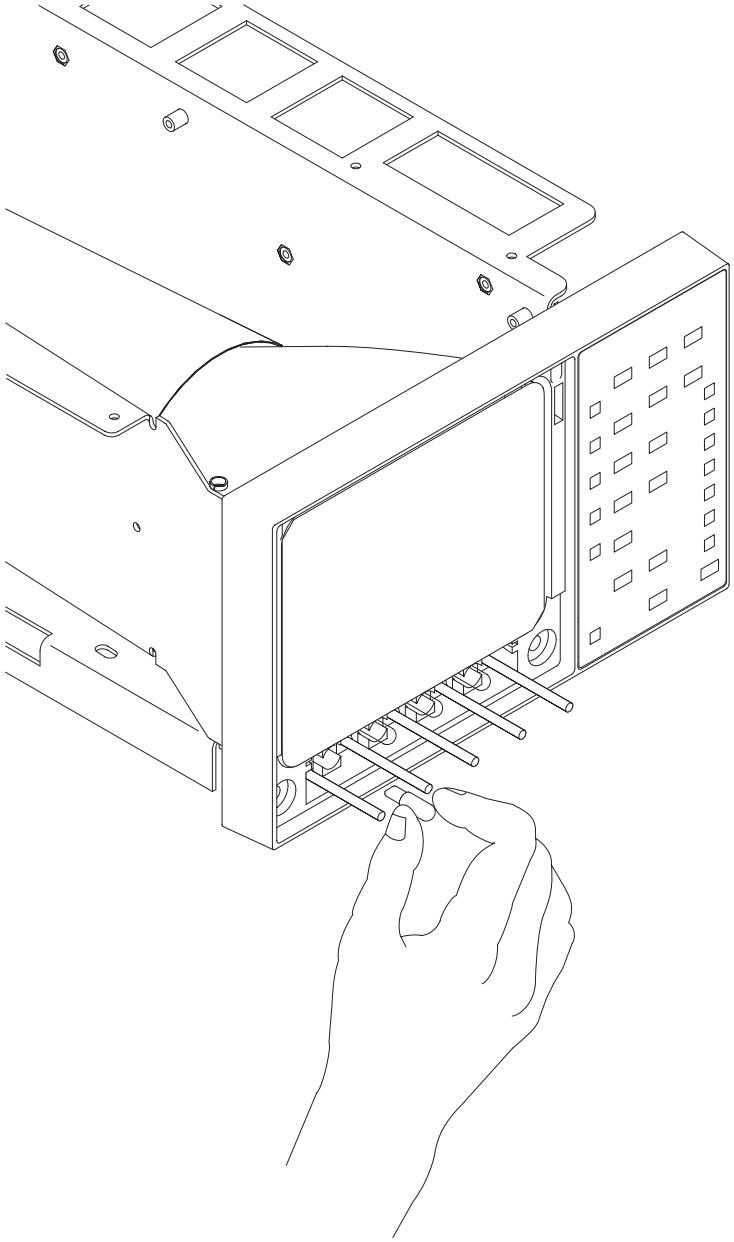


Figure 6–4: Replacing graticule light bulbs

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

4. Replace the bezel.

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CRT Removal

1. Remove the bezel.

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

2. Disconnect the anode, by separating the connector. Do not touch the exposed tip of the connector. Discharge the connector tip to the chassis. See Figure 6–5.

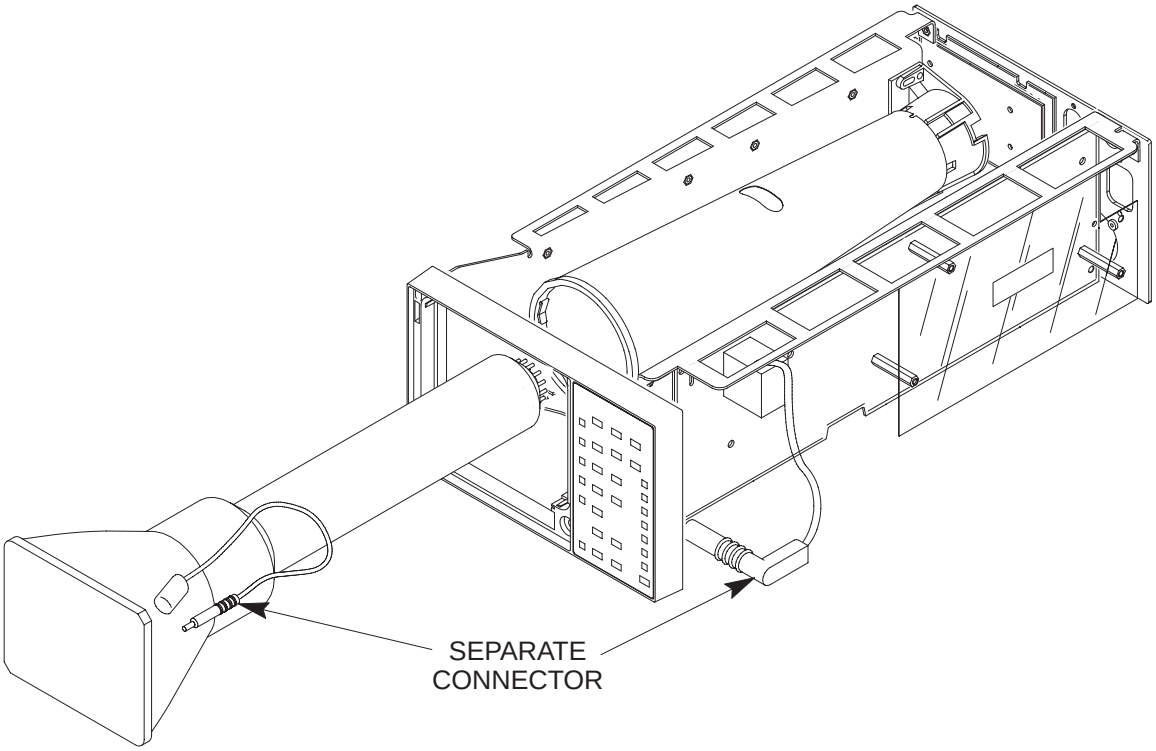


Figure 6–5: Removing the CRT

3. Disconnect the plug from J3 (trace rotation connector) on the Main board and push the connector through the hole in the board.

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

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4. Hold one hand in front of the CRT. Grasp the CRT just behind the anode cap and push the CRT straight out (some pressure is needed).

Replacement of the CRT

5. Reposition the metal CRT shield on the CRT base mounting.

6. Remove the clear plastic cover from the back of the CRT holder. This will make it easier to line up the connections on the CRT holder.

7. Slip the CRT part way back into position, so that the wires (and plug) from the trace rotation coil can be fed back through the hole in the Main board.

8. Slide the CRT back into the rear CRT socket. Align the socket and CRT base. The screws holding the rear mount down may be loosened slightly, if necessary. The CRT should fit securely in place.

9. Press the CRT the rest of the way in by pressing straight back on the corners of the faceplate.

10. Replace the clear rear cover on the CRT holder and screw the holder screws back down (if they were loosened).

11. Wipe off the faceplate of the CRT to remove fingerprints.

12. Reconnect the anode connector and the trace rotation (J3 Main board) plug. (To ensure the correct orientation of J3, the red lead is toward the front of the instrument.)

13. Replace the bezel.

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Removing the Rear Panel and the Input and BNC Circuit Boards

1. Remove the nine rear screws. See Figure 6–6.

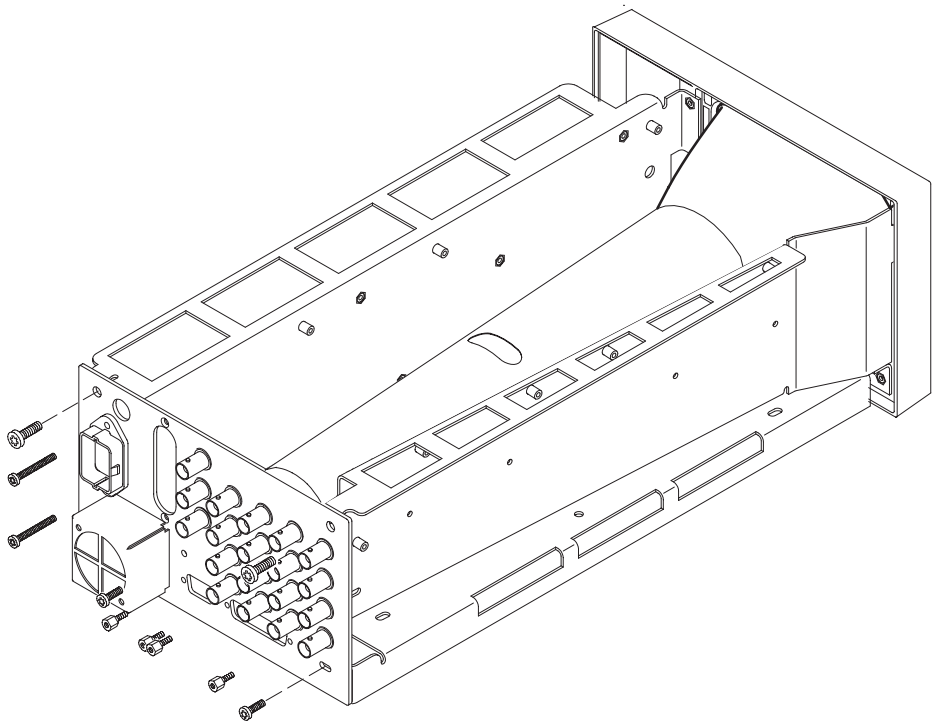


Figure 6–6: Removing the rear panel and Input/BNC assembly

2. Unplug the plug from J12 on the Main (A3) etched circuit board.

3. Pull the rear panel free from the main chassis enough to be able to slip P12 through the notch in the chassis.

4. Unplug the fan leads from J5 on the Power Supply (A1) circuit board assembly, and carefully slip the fan cable free.

5. Once the plug on J12 is free from the chassis notch, the rear panel can be removed to gain access to the Input (A4) assembly.

To Remove Input/BNC Assembly

6. Use a $^{5}/_{16}$-inch nut driver or box end wrench to remove the four securing screws. See Figure 6–7.

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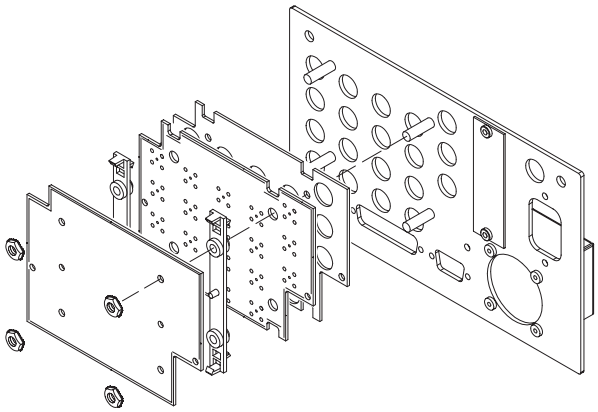


Figure 6–7: Disassembling Input/BNC assembly A4/A4–A1

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

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

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Removing the Front Panel and the Front Panel Circuit Board

1. Remove the blue multiwire connector from J154.

2. Push down on the clip located on the top of the front-panel assembly and push outward on the upper part of the assembly. See Figure 6–8.

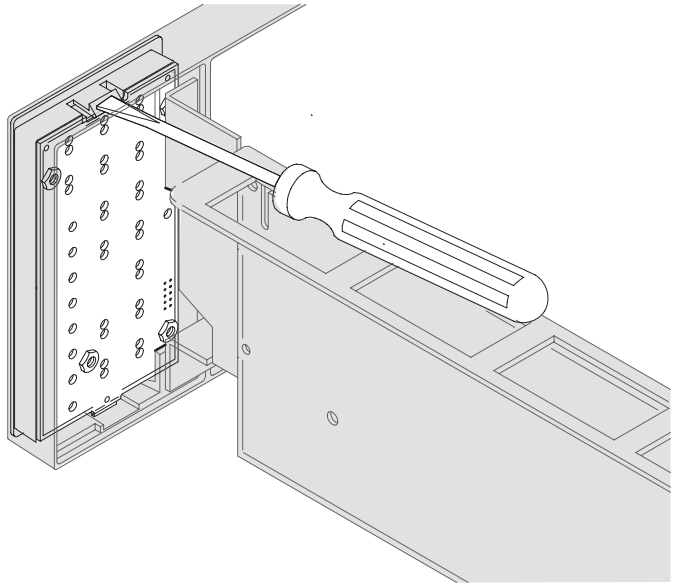


Figure 6–8: Removing the front–panel assembly

3. Remove the board by slipping it through the front-panel opening.

4. To access the Front Panel board components:

   a. Use a $^{1}/_{4}$ inch nut driver or box end wrench to remove the four nuts holding the assembly together. See Figure 6–9.

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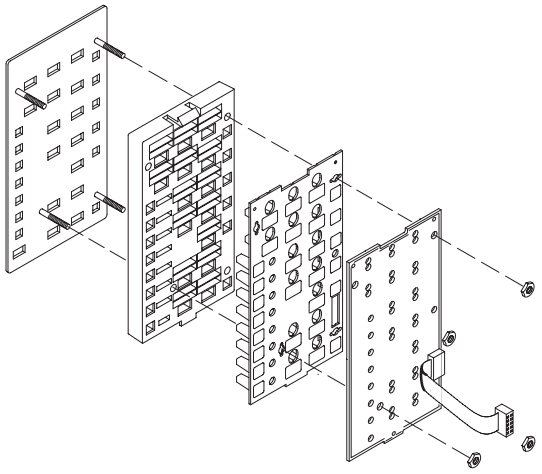


Figure 6–9: Front Panel circuit board assembly

b. The board should now separate from the front panel, spacer, and the switches to make the components accessible.

5. To re–assemble, reverse the procedure.

Removing the Main Board

1. Remove the plugs from the connectors as shown in Table 6–10.

Table 6–10: Main Board Plug Connections

Plug from-Jack Number	Location	From	Instrument Type
A3J1	Main Circuit Board	Front Panel Circuit Board	All
A3J2	Main Circuit Board	XROM Circuit Board Component Circuit Board	1740A/1750A-Series 1760–Series
A3J3	Main Circuit Board	Trace Rotation Coil (CRT)	All
A3J5	Main Circuit Board	XROM Circuit Board Compnent Circuit Board	1740A/1750A-Series 1760–Series
A3J9	Main Circuit Board	Vector Circuit Board	All
A3J12	Main Circuit Board	Input Circuit Board	All
A3J13	Main Circuit Board	Component Circuit Board	1760–Series
A1J4	Power Supply Circuit Board	Main Circuit Board	All

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2. Use a $^{1}/_{16}$-inch Allen wrench to remove the five front-panel knobs immediately below the CRT. Remove the small panel from immediately below the CRT bezel. See Bezel removal instructions.

3. Slip the CRT and trace rotation leads through the appropriate holes in the Main board.

4. Use a $^{3}/_{16}$-inch nut driver or box end wrench to remove the mounting studs for the rear-panel RS232 and REMOTE connectors.

5. Remove the eight screws that are holding the board in place. See Figure 6–10 for their locations.

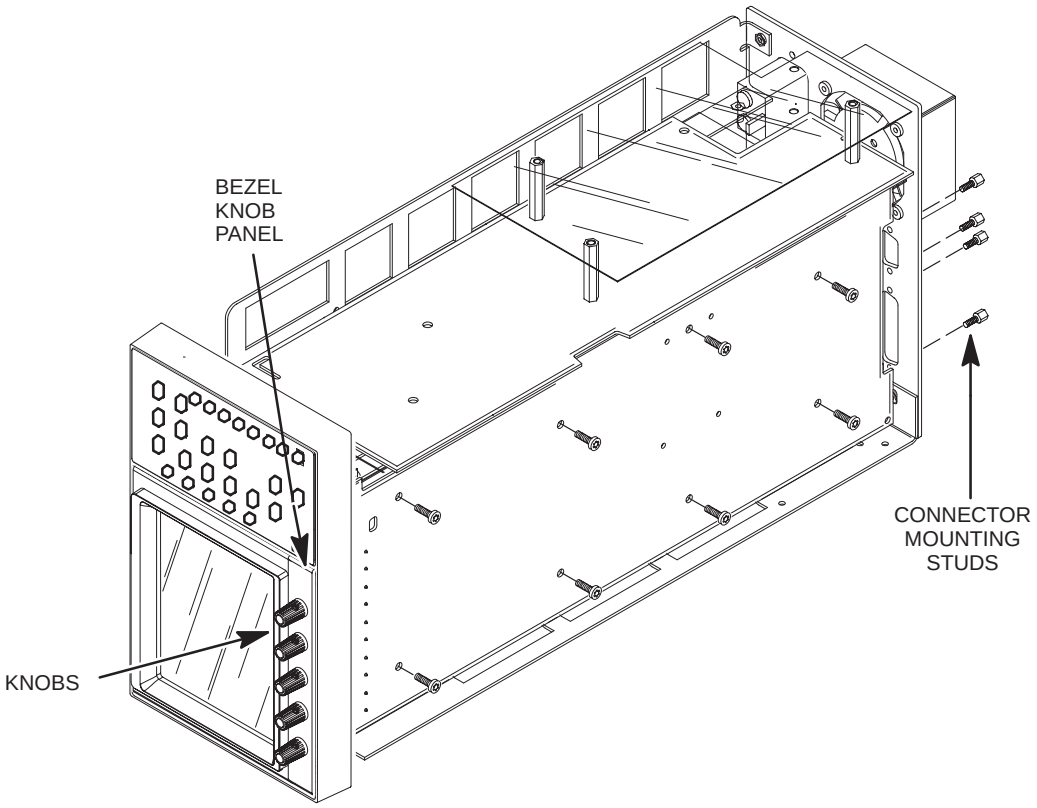


Figure 6–10: Screws holding the Main circuit board in place

6. Slide the Main circuit board as far forward as space allows to remove the REMOTE and RS232 connectors from the rear panel.

7. Remove the board by sliding it slightly upward and toward the rear panel until the control shafts on the front of the board clear the front, then lift out.

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8. To replace the Main board, lay the board flat and slide it back into place.

9. To complete the replacement of the board, reverse the rest of the steps.

Removing the Power Supply Board

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

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

2. Remove the plug from J4 on the Power Supply board, This is the connection to the Main board.

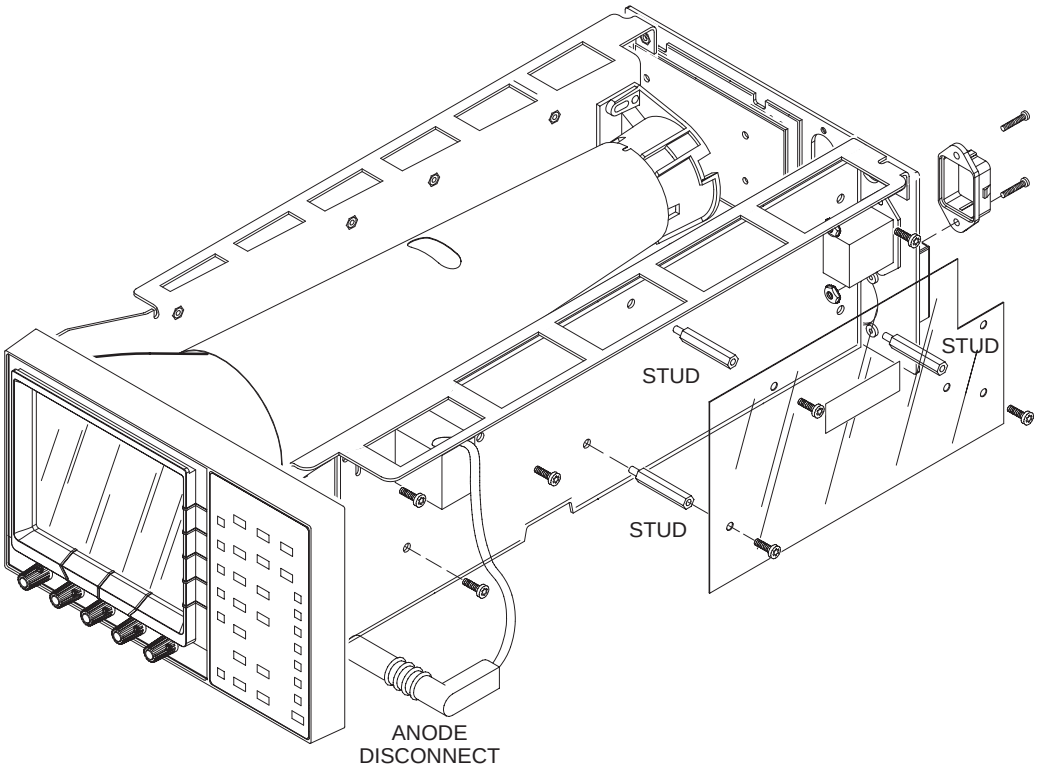


Figure 6–11: Securing screws for the Power Supply circuit

3. Disconnect the CRT anode connection at its disconnect point and discharge it to ground. See Figure 6–11.

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

4. Remove the connectors on J1, J2, J4, and J5.

5. Remove the four screws that hold the Power Supply board down, and the three screws that hold the plastic shield in place. See Figure 6–11.

6. Use a $^1/_4$-inch nut driver or box end wrench to remove the 3 studs that support the plastic shield.

7. Remove the board by sliding it forward and lifting it up.

8. To replace the board, reverse this procedure.

Removing the Vector Board

1. Unplug the cable to A3J9 (Main circuit board) and feed the cable and plug through the chassis.

2. If there is an SCH circuit board, unplug A5J1.

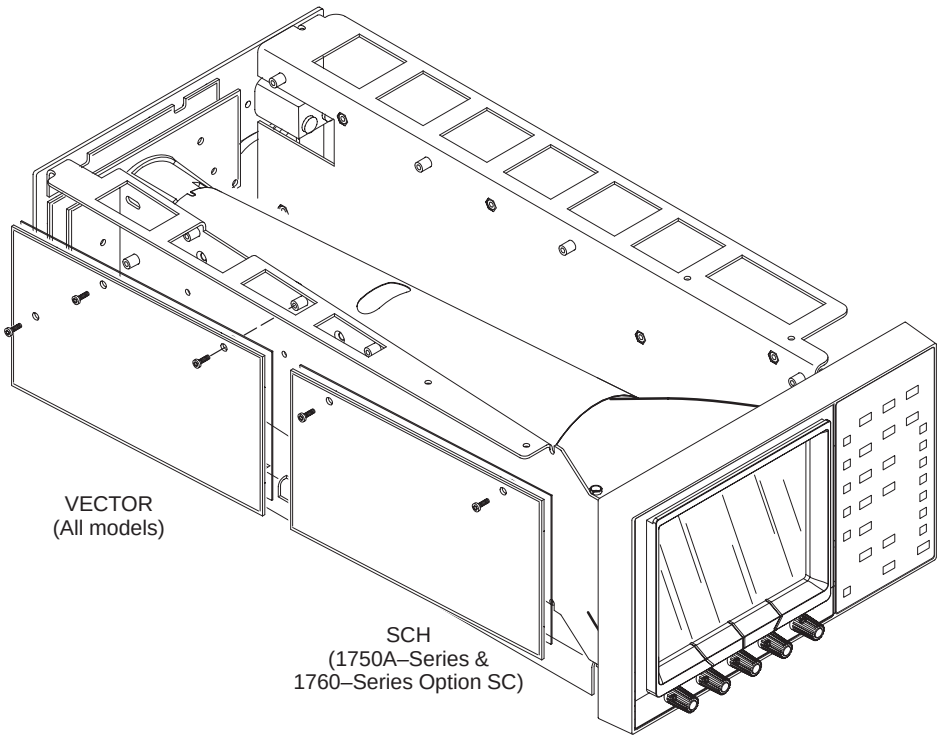


Figure 6–12: Mounting hardware for the Vector and SCH circuit boards

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3. Remove the three screws holding the circuit board in place. See Figure 6–12.

4. Move top of circuit board out and up to remove.

5. To reinstall the circuit board reverse the procedure.

Removing the SCH Board

(1750A–Series & 1760–Series Option SC only)

1. Unplug the cable from A5J1 (Vector circuit board).

2. Remove the two screws holding the SCH circuit board in place. See Figure 6–12.

3. Move top of circuit board out and up to remove.

4. To reinstall the circuit board reverse the procedure.

Removing the XROM Board

(1740A–Series & 1750A–Series only)

1. Unplug the connectors on A8J1 and J3.

2. Remove the two screws holding the XROM circuit board in place. See Figure 6–13.

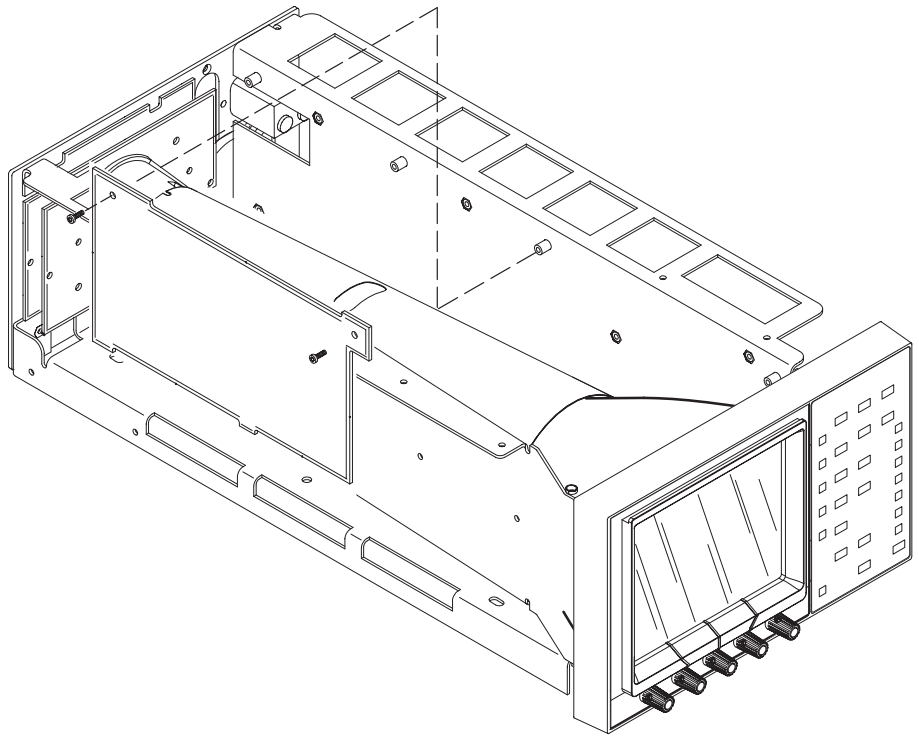


Figure 6–13: Mounting hardware for the XROM circuit board

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***NOTE**. Not all 1740A/1750A–Series instruments contain an XROM circuit board.*

3. Move the circuit board up to remove.
4. To reinstall the circuit board reverse the procedure.

Removing the Component Board
(1760–Series only)

1. Unplug the connectors on A7J9, J11, and J13.
2. Remove the two rear-panel screws securing the GBR connectors. See Figure 6–14.

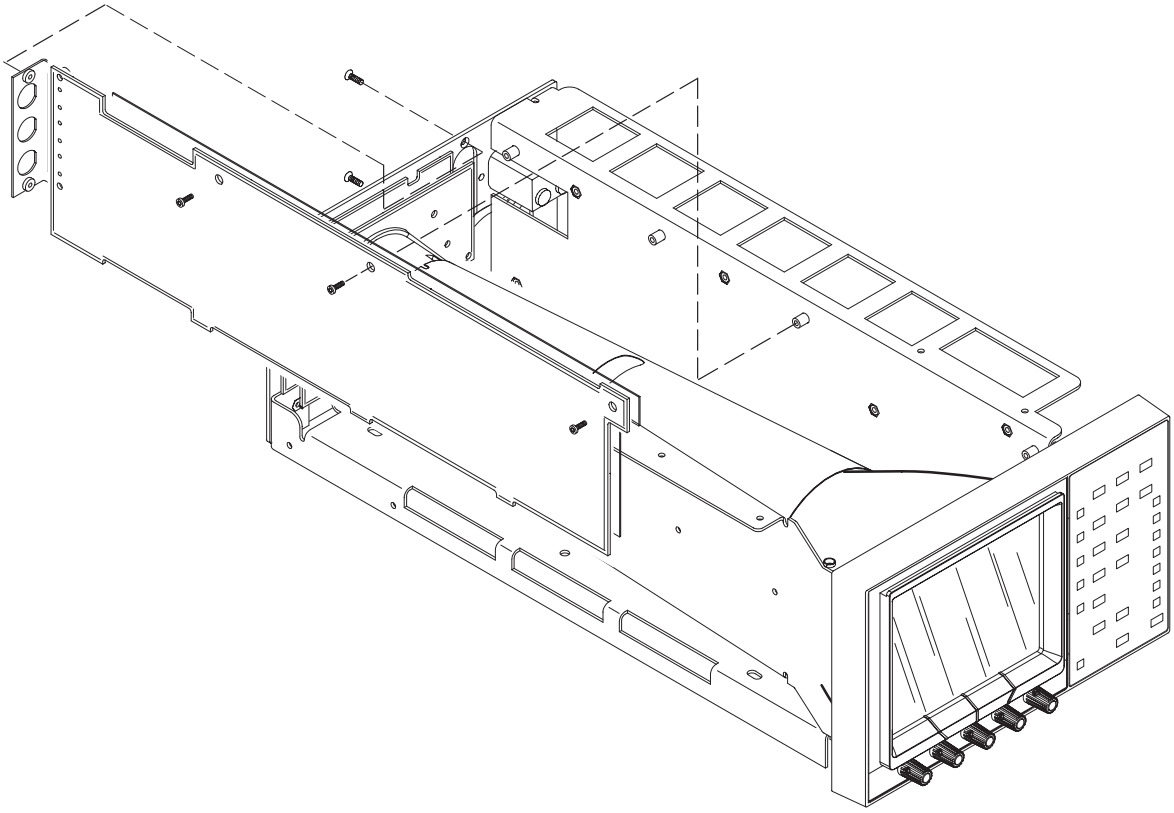


Figure 6–14: Component circuit board mounting hardware

3. Remove the three screws holding the circuit board. See Figure 6–14.
3. Move the circuit board up to remove.
4. To reinstall the circuit board reverse the procedure.

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Repackaging

Identification Tag

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

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

Repackaging for Shipment

Repackage the instrument in the original manner to provide adequate protection (see Figure 6–15). If the original packaging is not available or is unfit for use, repackage the instrument as follows:

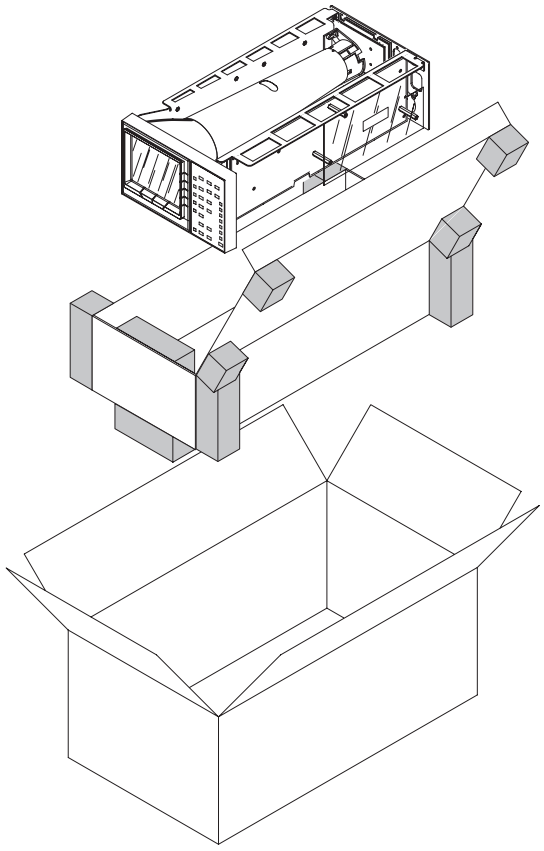


Figure 6–15: Repackaging a 1740A/1750A/1760–Series instrument

1. Obtain a corrugated cardboard carton whose inside dimensions are at least six inches greater than the dimensions of the instrument to allow room

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for cushioning. The shipping carton should have a test strength of at least 275 pounds.

2. Surround the instrument with polyethylene sheeting to protect the finish.

3. Cushion the instrument on all sides by tightly packing dunnage or urethane foam between the carton and the instrument. Allow three inches on all sides for cushioning.

4. Seal the carton with shipping tape or an industrial stapler.

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Options

Orderable Options

All three instruments of this series are orderable with an A option to accommodate the various national electrical power connections. In addition, all three series members can be ordered with the white phosphor option (P4). A number of field upgrade kits, to add cabinets, are available also. See “Cabinets” for more information.

1740A/1750A–Series

Options and Field Upgrades for this instrument include:

- Option A1 through A5 (Power Cords)
- Option 74 (White Phosphor CRT)
- 1700F00, 1700F02, and 1700F05 Cabinet Field upgrades
  - 1700F06 Blank Panel
  - 1700F07 Utility Drawer

1760–Series

Options and Field Upgrades for this instrument include:

- Option SC which adds SCH Phase Measurement capability
- Option A1 through A5 (Power Cords)
- Option 74 (White Phosphor CRT)
- 1700F00, 1700F02, and 1700F05 Cabinet Field upgrades
  - 1700F06 Blank Panel
  - 1700F07 Utility Drawer

1760–Series Option SC

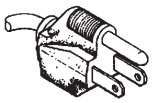
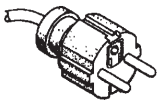
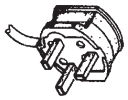
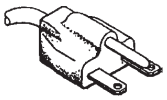
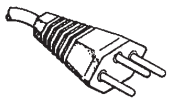
The 1760–Series can perform SCH Phase and Color Frame measurements when it is equipped with an A6 Assembly (SCH circuit board and appropriate software). Option SC is a catalog option to allow the instrument to make all measurements that the 1750A–Series can make. Existing instruments can be upgraded; contact your nearest Tektronix representative or sales office for more information.

Power Cord Options

Any of the following power cord options can be ordered for the 1740A/1750A/1760–Series. If no power cord option is ordered, instruments are shipped with a North American 125 V power cord.

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Table 7–1: Power Plugs Available for These Instruments

Power Plug	Description	
	Standard 120 V 3-prong power plug, on a 2.5 meter long power cord, for use with common ground systems in North America.	
	Option A1	Universal Europe 220 V/16 A Locking Power Plug, on a 2.5 meter long power cord.
	Option A2	United Kingdom 240 V/15 A Power Plug, on a 2.5 meter long power cord.
	Option A3	Australian 240 V/10 A Power Plug, on a 2.5 meter long power cord.
	Option A4	North American 250 V/18 A Power Plug, on a 2.5 meter long power cord.
	Option A5	Swiss 240 V/6 A Power Plug, on a 2.5 meter long power cord.

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

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CRT Options

The standard instrument is shipped with a P31 (green) phosphor CRT installed. If Option 74 is ordered, the instrument is shipped with a P4 (white) phosphor CRT installed. The Option 74 CRT part number is given at the end of the Replaceable Electrical Parts list.

Cabinets

All of the Safety and EMI tests used to qualify the 1740A/1750A/1760–Series were performed in a cabinet. There are two optional cabinets and a dual rack adapter available for the installation of these instruments. Only a brief description is provided here; for more information contact a Tektronix field office or distributor.

Plain Cabinet (1700F00)

This is a plain, silver-grey cabinet that is designed for permanent mounting. The pattern of ventilating holes in top, bottom, and sides provides adequate air circulation for any heat generated within the instrument. When being permanently mounted, care must be taken to allow the free circulation of air to and from these ventilating holes. A dimensional drawing of this cabinet, that can be used as an installation guide is located in “Installation.”

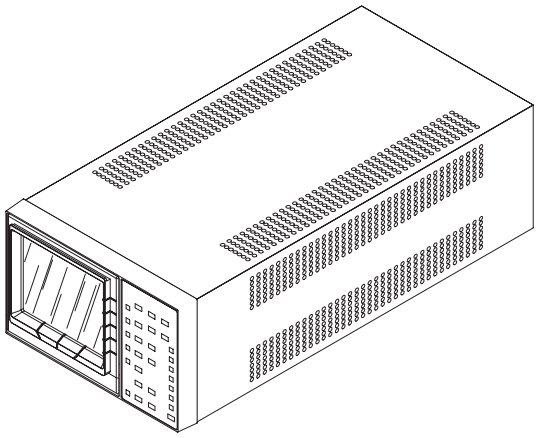


Figure 7–1: The 1700F00 metal cabinet

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Carrying Case (1700F02)

This is a silver-grey, metal cabinet, with feet, front elevating bail, and carrying handle designed for portable applications.

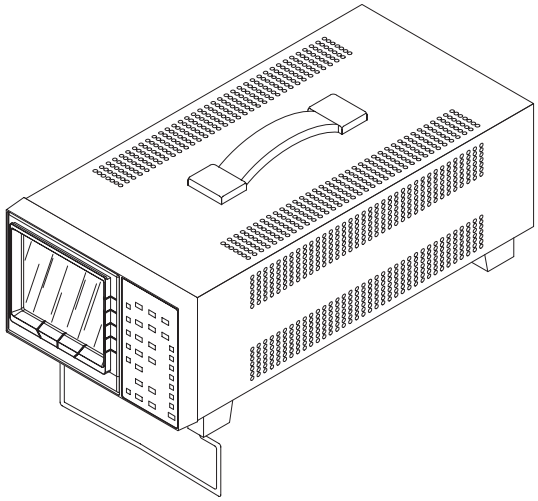


Figure 7–2: The 1700F02 portable carrying case

Side-by-Side Rack Adapter (1700F05)

This is a 19-inch, rack mounting adapter that accepts two 1700–Series instruments in a side-by-side configuration. Instrument cabinets are 1700F00 that are connected together for this installation.

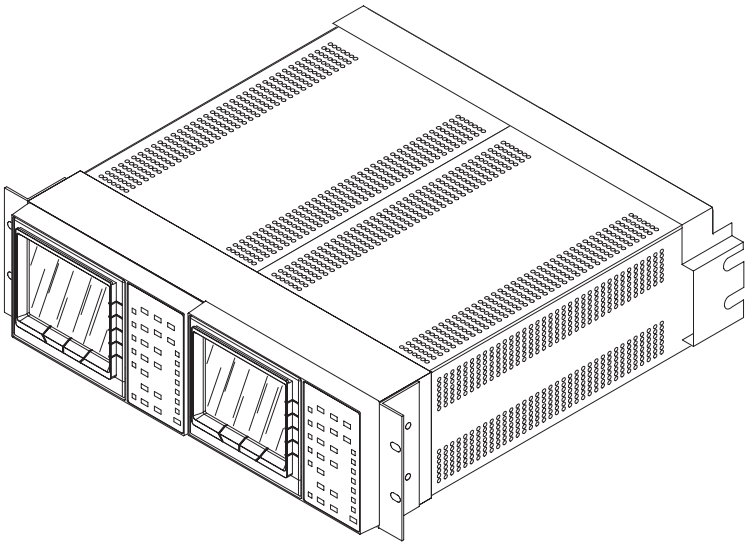


Figure 7–3: A1700F05 with two half rack (1700–Series) instruments

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Blank Panel (1700F06)

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

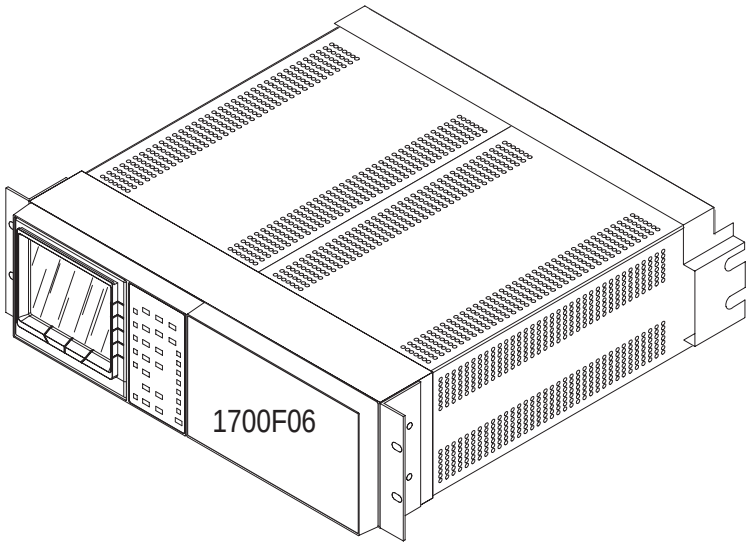


Figure 7–4: A1700F05 with a blank front-panel (1700F06)

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Utility Drawer (1700F07)

When only one side of a dual rack adapter is used, an alternate to the blank panel is the 1700F07 utility drawer. This drawer provides over $^1/_3$-cubic foot of accessory storage. The drawer kit includes a permanently mounted tray.

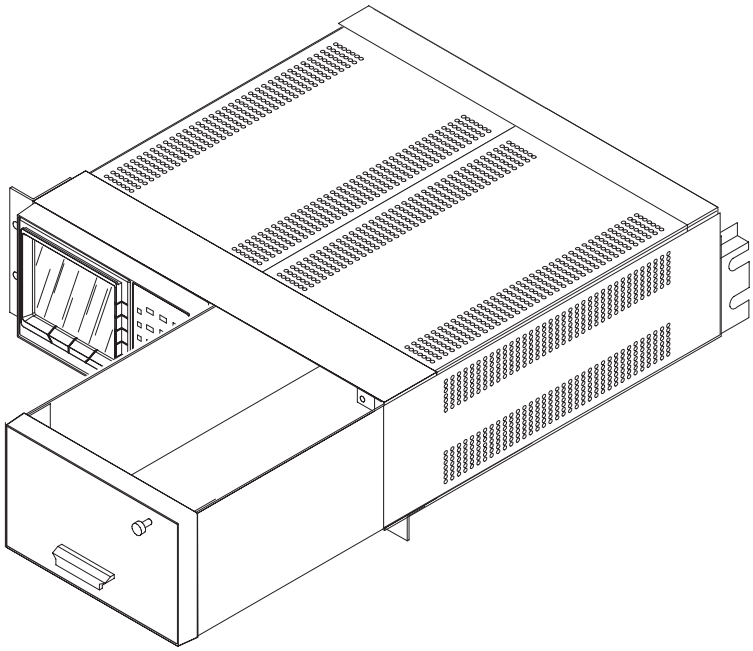


Figure 7–5: 1700F05 rack mounting with a 1700F07 utility drawer

Ordering

Any of these items can be ordered with the 1740A/1750A/1760–Series instrument. In addition, these items are available, along with accessory items listed in this manual, from your nearest Tektronix field office or distributor. Be sure to include both the name and number of any Field Upgrade Kits ordered.

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Replaceable Electrical Parts

This section contains a list of the components that are replaceable for the 1740A/1750A/1760–Series. Use this list to identify and order replacement parts. There is a separate Replaceable Electrical Parts list for each instrument.

Parts Ordering Information

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

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

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

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

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

Using the Replaceable Electrical Parts List

The tabular information in the Replaceable Electrical Parts list is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replaceable parts.

Cross Index–Mfr. Code Number to Manufacturer

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

Abbreviations

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

List of Assemblies

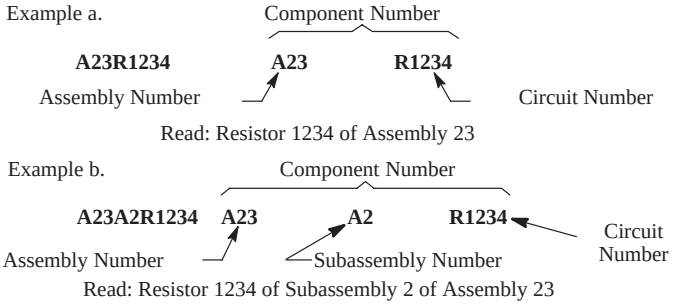
A list of assemblies can be found at the beginning of the electrical parts list. The assemblies are listed in numerical order. When the complete component number of a part is known, this list will identify the assembly in which the part is located.

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Column Descriptions

Component No. (Column 1)

The component circuit number appears on the diagrams and circuit board illustrations, located in the diagrams section. Assembly numbers are also marked on each diagram and circuit board illustration, in the Diagram section and on the mechanical exploded views, in the mechanical parts list. The component number is obtained by adding the assembly number prefix to the circuit number.



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

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

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

Tektronix Part No. (Column 2)

Indicates part number to be used when ordering replacement part from Tektronix.

Serial/Assembly No. (Column 3 and 4)

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

Name and Description (Column 5)

An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.

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

Mfr. Code (Column 6)

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

Mfr. Part No. (Column 7)

Indicates actual manufacturer's part number.

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CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
01121	ALLEN–BRADLEY CO INDUSTRIAL CONTROL PRODUCTS	1201 S 2ND ST	MILWAUKEE WI 53204–2410
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655012	DALLAS TX 75265
04222	AVX CERAMICS DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04713	MOTOROLA INC SEMICONDUCTOR PRODUCTS SECTOR	5005 E MCDOWELL RD	PHOENIX AZ 85008–4229
07263	FAIRCHILD SEMICONDUCTOR CORP		
07716	TRW INC TRW IRC FIXED RESISTORS/BURLINGTON	2850 MT PLEASANT AVE	BURLINGTON IA 52601
09023	CORNELL–DUBILIER ELECTRONICS DIV FEDERAL PACIFIC ELECTRIC CO	2652 DALRYMPLE ST	SANFORD NC 27330
0J9R5	MARCON AMERICA CORP		
12969	MICROSEMI CORPORATION WATERTOWN DIVISION	530 PLEASANT STREET	WATERTOWN MA 02172
14301	ANDERSON ELECTRONICS INC	PO BOX 89	HOLLIDAYSBURG PA 16648–0089
14552	MICROSEMI CORP	2830 S FAIRVIEW ST	SANTA ANA CA 92704–5948
18324	PHILIPS SEMICONDUCTORS MILITARY PRODUCTS DIV	830 STEWART	SUNNYVALE CA 94088
18796	MURATA ERIE NORTH AMERICAN INC STATE COLLEGE OPERATIONS	1900 W COLLEGE AVE	STATE COLLEGE PA 16801–2723
19701	PHILIPS COMPONENTS DISCRETE PRODUCTS DIV RESISTIVE PRODUCTS FACILITY AIRPORT ROAD	PO BOX 760	MINERAL WELLS TX 76067–0760
22526	BERG ELECTRONICS INC (DUPONT)	857 OLD TRAIL RD	ETTERS PA 17319
24165	SPRAGUE ELECTRIC CO	267 LOWELL ROAD	HUDSON NH 03051
26364	COMPONENTS CORP	6 KINSEY PLACE	DENVILLE NJ 07834–2611
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507–2114
37942	NORTH AMERICAN CAPACITOR CO MALLORY DIVISION	INDIANAPOLIS ROAD, HWY 240 PO BOX 240	GREEN CASTLE IN 46135 1
50101	FREQUENCY SOURCES INC SEMICONDUCTOR DIV SUB OF LORAL CORP	16 MAPLE RD	CHELMSFORD MA 01824–3737
50434	HEWLETT–PACKARD CO OPTOELECTRONICS DIV	370 W TRIMBLE RD	SAN JOSE CA 95131–1008
51406	MURATA ERIE NORTH AMERICA INC HEADQUARTERS AND GEORGIA OPERATIONS	2200 LAKE PARK DR	SMYRNA GA 30080
52769	SPRAGUE–GOODMAN ELECTRONICS INC	134 FULTON AVE	GARDEN CITY PARK NY 11040–5352
53387	MINNESOTA MINING MFG CO	PO BOX 2963	AUSTIN TX 78769–2963
54583	TDK ELECTRONICS CORP	12 HARBOR PARK DR	PORT WASHINGTON NY 11550
55112	WESTLAKE CAPACITORS INC	5334 STERLING CENTER DRIVE	WESTLAKE VILLAGE CA 91361
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195–4526
56289	SPRAGUE ELECTRIC CO WORLD HEADQUARTERS		
57668	ROHM CORP	8 WHATNEY PO BOX 19515	IRVINE CA 92713
58050	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907
59660	TUSONIX INC	7741 N BUSINESS PARK DR PO BOX 37144	TUCSON AZ 85740–7144
60705	CERA–MITE CORPORATION	1327 6TH AVE	GRAFTON WI 53024–1831
61429	FOX ELECTRONICS DIV OF FOX ELECTRONICS INC	5842 CORPORATION CIRCLE	FOR MEYERS FL 33905
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076–9749
74276	GENERAL INSTRUMENT CORP		
75498	MULTICOMP INC	3005 SW 154TH TERRACE #3	BEAVERTON OR 97006
75915	LITTELFUSE INC SUB TRACOR INC	800 E NORTHWEST HWY	DES PLAINES IL 60016–3049
76493	BELL INDUSTRIES INC JW MILLER DIV	19070 REYES AVE PO BOX 5825	COMPTON CA 90224–5825
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077–0001
84411	AMERICAN SHIZUKI CORP OGALLALA OPERATIONS	301 WEST O ST	OGALLALA NE 69153–1844
91637	DALE ELECTRONICS INC	2064 12TH AVE PO BOX 609	COLUMBUS NE 68601–3632
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108–5181

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Replaceable Electrical Part

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
S3629	SCHURTER AG H C/O PANEL COMPONENTS CORP	2015 SECOND STREET	BERKELEY CA 94170
S4307	SCHAFFNER ELECTRONIK AG		LUTERBACH SWITZERLAND
TK0510	PANASONIC COMPANY DIV OF MATSUSHITA ELECTRIC CORP	ONE PANASONIC WAY	SECAUCUS NJ 07094
TK0978	KINSEKI LTD	8–1 IZUMI–HONCHO 1–CHOME KOMAE CITY	TOKYO JAPAN
TK1066	STAR MICRONICS		
TK1134	TUSONIX INC	2155 N FORBES BLVD	TUCSON AZ 85705
TK1345	ZMAN & ASSOCIATES		
TK1424	MARCON AMERICA CORP		
TK1450	TOKYO COSMOS ELECTRIC CO LTD	2–268 SOBUDAI ZAWA	KANAGAWA 228 JAPAN
TK1468	LINEAR TECHNOLOGY CORP	1630 MCCARTHY BLVD	MILPITAS CA 95037
TK1573	WILHELM WESTERMAN	PO BOX 2345 AUGUSTA–ANLAGE 56	6800 MANNHEIM 1 WEST GERMANY
TK1913	WIMA THE INTER–TECHNICAL GROUP IND	2269 SAW MILL RIVER ROAD PO BOX 127	ELMSFORD NY 10523
TK2073	TOCOS AMERICA INC	565 W GULF ROAD	ARLINGTON HEIGHTS IL 60005

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1	671–2484–00	B010100	B011701	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–00
A1	671–2484–01	B011702	B012075	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–01
A1	671–2484–02	B012076	B013303	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–02
A1	671–2484–03	B013304		CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–02
A2	671–2356–00	B010100	B010596	CIRCUIT BD ASSY:FRONT PANEL	80009	671–2356–00
A2	671–2356–01	B010597		CIRCUIT BD ASSY:FRONT PANEL	80009	671–2356–01
A3	671–2355–00	B010100	B010179	CIRCUIT BD ASSY:MAIN	80009	671–2355–00
A3	671–2355–01	B010180	B010433	CIRCUIT BD ASSY:MAIN	80009	671–2355–01
A3	671–2355–02	B010434	B010462	CIRCUIT BD ASSY:MAIN	80009	671–2355–02
A3	671–2355–03	B010463	B011229	CIRCUIT BD ASSY:MAIN	80009	671–2355–03
A3	671–2355–04	B011230	B011759	CIRCUIT BD ASSY:MAIN	80009	671–2355–04
A3	671–2978–00	B011760	B013908	CIRCUIT BD ASSY:MAIN	80009	671–2978–00
A3	671–2978–01	B013909	B014449	CIRCUIT BD ASSY:MAIN	80009	671–2978–01
A3	671–2978–02	B014450		CIRCUIT BD ASSY:MAIN (1740A/1750A–SER ONLY)	80009	671–2978–02
A3	671–2355–00	B010100	B010179	CIRCUIT BD ASSY:MAIN	80009	671–2355–00
A3	671–2355–01	B010180	B010433	CIRCUIT BD ASSY:MAIN	80009	671–2355–01
A3	671–2355–02	B010434	B010462	CIRCUIT BD ASSY:MAIN	80009	671–2355–02
A3	671–2355–03	B010463	B011229	CIRCUIT BD ASSY:MAIN	80009	671–2355–03
A3	671–2355–04	B011230	B011719	CIRCUIT BD ASSY:MAIN	80009	671–2355–04
A3	671–2355–05	B011720	B013471	CIRCUIT BD ASSY:MAIN	80009	671–2355–05
A3	671–2355–06	B013472	B013890	CIRCUIT BD ASSY:MAIN	80009	671–2355–06
A3	671–2355–07	B013891	B014580	CIRCUIT BD ASSY:MAIN	80009	671–2355–07
A3	671–2355–08	B014581		CIRCUIT BD ASSY:MAIN (1760–SERIES ONLY)	80009	671–2355–08
A4	672–1396–00	B010100	B010287	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–00
A4	672–1396–01	B010288	B010302	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–01
A4	672–1396–02	B010303	B010424	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–02
A4	672–1396–03	B010425	B011531	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–03
A4	672–1396–04	B011532	B011719	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–04
A4	672–1396–05	B011720		CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–05
A4A1	——— ———			CIRCUIT BD ASSY:BNC		
A5	671–2339–00	B010100	B010179	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–00
A5	671–2339–01	B010180	B010478	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–01
A5	671–2339–02	B010479	B011195	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–02
A5	671–2339–03	B011196	B012610	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–03
A5	671–2339–04	B012611	B014117	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–04
A5	671–2339–05	B014118		CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–05
A6	671–2472–00	B010100	B010354	CIRCUIT BD ASSY:SCH	80009	671–2472–00
A6	671–2472–01	B010355	B010596	CIRCUIT BD ASSY:SCH	80009	671–2472–01
A6	671–2472–02	B010597	B011070	CIRCUIT BD ASSY:SCH	80009	671–2472–02
A6	671–2472–03	B011071	B013001	CIRCUIT BD ASSY:SCH	80009	671–2472–03
A6	671–2472–04	B013002	B014498	CIRCUIT BD ASSY:SCH	80009	671–2472–04
A6	671–2472–05	B014499		CIRCUIT BD ASSY:SCH (1750–SER,1760–SER OPT SC ONLY)	80009	671–2472–05
A7	671–2471–01	B010100	B012051	CIRCUIT BD ASSY:COMPONENT	80009	671–2471–01
A7	671–2471–02	B012052	b012604	CIRCUIT BD ASSY:COMPONENT	80009	671–2471–02
A7	671–2471–03	B012605		CIRCUIT BD ASSY:COMPONENT	80009	671–2471–03
A8	671–2969–00	B011760	B013492	CIRCUIT BD ASSY:XROM	80009	671–2969–00
A8	671–2969–01	B013493		CIRCUIT BD ASSY:XROM (1740A/1750A–SER ONLY)	80009	671–2969–01
A1	671–2484–00	B010100	B011701	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–00
A1	671–2484–01	B011702	B012075	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–01
A1	671–2484–02	B012076	B013303	CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–02
A1	671–2484–03	B013304		CIRCUIT BD ASSY:POWER SUPPLY	80009	671–2484–02
				ATTACHED PARTS		
	337–3801–00	671–2484–00	671–2484–00	SHIELD,ELEC:POWER SUPPLY	80009	337–3801–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
				END ATTACHED PARTS		
A1C1	283–0429–00			CAP,FXD,CER DI:270PF,20%,2000V	51406	DHR12–Z5U271M–2K
A1C2	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C3	283–0021–00			CAP,FXD,CER DI:0.001UF,20%,5000V	18796	DE1310Y5P102M6KV
A1C4	283–0639–01			CAP,FXD,MICA DI:56PF,1%,500V,T&A	09023	CDA15ED560F03
A1C5	283–0339–01			CAP,FXD,CER:MLC;0.22UF,10%,50V,X7R,0.300 X 0.300,RDL	80009	283–0339–01
A1C6	283–0261–00			CAP,FXD,CER DI:0.01UF,20%,4000V	51406	DHR28Z5U103M4KV
A1C7	283–0261–00			CAP,FXD,CER DI:0.01UF,20%,4000V	51406	DHR28Z5U103M4KV
A1C8	283–0261–00			CAP,FXD,CER DI:0.01UF,20%,4000V	51406	DHR28Z5U103M4KV
A1C9	285–1341–01			CAP,FXD,MTLZD:0.1UF,20%,100VDC	84411	X674L .1 20 100
A1C10	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C11	283–0000–04			CAP,FXD,CER DI:0.001UF,+100–0X,500V	80009	283–0000–04
A1C12	283–0021–00			CAP,FXD,CER DI:0.001UF,20%,5000V	18796	DE1310Y5P102M6KV
A1C13	283–0189–00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C14	285–1341–01			CAP,FXD,MTLZD:0.1UF,20%,100VDC	84411	X674L .1 20 100
A1C15	290–1277–00	671–2484–00	671–2484–01	CAP,FXD,AL:10UF,20%,50V,5 X 11;RDL,105 DEG,BULK	80009	290–1277–00
A1C15	290–1311–00	671–2484–02		CAP,FXD,ALUM:10UF,20%,50V,5 X 11MM;5000 HOURS,RDL	80009	290–1311–00
A1C16	283–0084–02			CAP,FXD,CER DI:270PF,5%,1000V,DISC	60705	562CRE102EF271JA
A1C17	285–1341–01			CAP,FXD,MTLZD:0.1UF,20%,100VDC	84411	X674L .1 20 100
A1C18	283–0189–00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C19	285–1341–01			CAP,FXD,MTLZD:0.1UF,20%,100VDC	84411	X674L .1 20 100
A1C20	283–0189–00			CAP,FXD,CER DI:0.1UF,20%,400V	04222	SR508C104MAA
A1C21	290–1277–00	671–2484–00	671–2484–01	CAP,FXD,AL:10UF,20%,50V,5 X 11;RDL,105 DEG,BULK	80009	290–1277–00
A1C21	290–1311–00	671–2484–02		CAP,FXD,ALUM:10UF,20%,50V,5 X 11MM;5000 HOURS,RDL	80009	290–1311–00
A1C22	290–0939–00			CAP,FXD,ELCTLT:10UF,+100–10%,100V	80009	290–0939–00
A1C23	285–1189–00			CAP,FXD,MTLZD:0.1 UF,5%,100 V	55112	160/.1/J/100/C
A1C24	285–1328–00			CAP,FXD,PLSTC:MTLZD FILM;0.01UF,5%,2000V,POLYPROPYLENE,1.25X.95;RDL,T/A	TK1573	FKP1 .01/2000/5
A1C25	290–1276–00	671–2484–00	671–2484–01	CAP,FXD,AL:10UF,20%,160V,60 X 20;105 DEG,RDL,.2 LEADS,BULK	80009	290–1276–00
A1C25	290–1310–00	671–2484–01		CAP,FXD,ALUM:10UF,20%,160V,13 X 20MM;RDL,0.2LS,105 DEG,5000 HR	80009	290–1310–00
A1C26	290–1277–00	671–2484–00	671–2484–01	CAP,FXD,AL:10UF,20%,50V,5 X 11;RDL,105 DEG,BULK	80009	290–1277–00
A1C26	290–1311–00	671–2484–02		CAP,FXD,ALUM:10UF,20%,50V,5 X 11MM;5000 HOURS,RDL	80009	290–1311–00
A1C27	283–0339–01			CAP,FXD,CER:MLC;0.22UF,10%,50V,X7R,0.300 X 0.300;RDL	80009	283–0339–01
A1C28	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C29	290–1069–00	671–2484–00	671–2484–01	CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290–1069–00
A1C29	290–1302–00	671–2484–02		CAP,FXD,ALUM:1000UF,20%,35V,12.5 X 30MM (0.492 X 1.180);RDL,LOWIMP,1.95A RIPPLE,BULK	80009	290–1302–00
A1C30	290–1276–00	671–2484–00	671–2484–01	CAP,FXD,AL:10UF,20%,160V,60 X 20;105 DEG,RDL,.2 LEADS,BULK	80009	290–1276–00
A1C30	290–1310–00	671–2484–01		CAP,FXD,ALUM:10UF,20%,160V,13 X 20MM;RDL,0.2LS,105 DEG,5000 HR	80009	290–1310–00
A1C31	290–1267–00			CAP,FXD,AL:560UF,20%,50V,12.5 X 31.5,LOW IMP;RDL	80009	290–1267–00
A1C32	290–0939–00			CAP,FXD,ELCTLT:10UF,+100–10%,100V	80009	290–0939–00
A1C33	290–0939–00			CAP,FXD,ELCTLT:10UF,+100–10%,100V	80009	290–0939–00
A1C34	290–1100–00	671–2484–00	671–2484–01	CAP,FXD,ALUM:100UF,20%,25V,10 X 20 MM;RDL	TK1424	CEUFM1E101
A1C34	290–1309–00	671–2484–02		CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,L0W Z,T&A	80009	290–1309–00
A1C35	290–1034–00	671–2484–00	671–2484–01	CAP,FXD,ALUM:330UF,20%,25V,13 X 25MM;RDL	TK1424	CEUFM1E331
A1C35	290–1314–00	671–2484–02		CAP,FXD,ALUM:330UF,20%,63V,12.5 X 25MM;LOW IMP,RDL	80009	290–1314–00
A1C36	290–1069–00	671–2484–00	671–2484–01	CAP,FXD,ELCTLT:1000UF,20%,6.3V	80009	290–1069–00
A1C36	290–1302–00	671–2484–02		CAP,FXD,ALUM:1000UF,20%,35V,12.5 X 30MM (0.492 X 1.180);RDL,LOWIMP,1.95A RIPPLE,BULK	80009	290–1302–00
A1C37	290–1100–00	671–2484–00	671–2484–01	CAP,FXD,ALUM:100UF,20%,25V,10 X 20 MM;RDL	TK1424	CEUFM1E101
A1C37	290–1309–00	671–2484–02		CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,L0W Z,T&A	80009	290–1309–00
A1C38	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C40	290–1100–00	671–2484–00	671–2484–01	CAP,FXD,ALUM:100UF,20%,25V,10 X 20 MM;RDL	TK1424	CEUFM1E101

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1C40	290–1309–00	671–2484–02		CAP,FXD,AL:100UF,20%,63V,10 X 20MM,RDL,105 DEG,L0W Z,T&A	80009	290–1309–00
A1C41	290–1267–00			CAP,FXD,AL:560UF,20%,50V,12.5 X 31.5,LOW IMP;RDL	80009	290–1267–00
A1C42	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX,MI	80009	281–0773–00
A1C43	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C44	285–1420–00			CAP,FXD,PLSTC:FILM&FOIL;4700PF,63V,5%,POLYPROPY-LENE,6X7.2MM,RDL, 5 MM LS	TK1913	FKP2 4700/63/5
A1C45	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C46	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C47	281–0813–00			CAP,FXD,CER:MLC;0.047UF,20%,50V,0.100 X 0.170;AX,MI	04222	SA105E473MAA
A1C48	283–0111–04			CAP,FXD,CER DI:0.1UF,20%,50V	80009	283–0111–04
A1C49	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C51	285–1331–00			CAP,FXD,MTLZD:0.47UF,5%,400V	TK1573	MKS4 .47/400/5
A1C52	285–1331–00			CAP,FXD,MTLZD:0.47UF,5%,400V	TK1573	MKS4 .47/400/5
A1C53	281–0823–00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A1C55	281–0786–00			CAP,FXD,CER:MLC;150PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101A151KAA
A1C56	290–0776–01	671–2484–00	671–2484–01	CAP,FXD,ELCTLT:22UF,20%,10WVDC	55680	UVX1A220MAA1TD
A1C56	290–1315–00	671–2484–02		CAP,FXD,ALUM:47UF,20%,35V,6 X 11MM;LOW IMP,RDL	80009	290–1315–00
A1C57	285–1251–00			CAP,FXD,PLSTC:0.033UF,10%,400VAC	80009	285–1251–00
A1C58	290–1264–00			CAP,FXD,ELCTLT:0.047F,–20%/+80%,5.5V,0.53 OD X 0.295 L	80009	290–1264–00
A1C59	285–1470–00			CAP,FXD,PLSTC:	80009	285–1470–00
A1C60	285–1420–00			CAP,FXD,PLSTC:FILM&FOIL;4700PF,63V,5%,POLYPROPY-LENE,6X7.2MM,RDL, 5 MM LS	TK1913	FKP2 4700/63/5
A1C61	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C62	290–1193–00	671–2484–00	671–2484–01	CAP,FXD,ELCTLT:220UF,20%,25V	0J9R5	CEUFM1E221
A1C62	290–1314–00	671–2484–02		CAP,FXD,ALUM:330UF,20%,63V,12.5 X 25MM;LOW IMP,RDL	80009	290–1314–00
A1C63	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C64	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C65	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C66	285–1246–00			CAP,FXD,PPR DI:0.022UF,20%,250VAC	80009	285–1246–00
A1C67	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C68	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C69	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C70	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C71	290–1275–00			CAP,FXD,AL:330UF,20%,400V,35 X 35;105 DEG,SNAP IN	80009	290–1275–00
A1C72	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A1C74	285–1246–00			CAP,FXD,PPR DI:0.022UF,20%,250VAC	80009	285–1246–00
A1C75	285–1222–00			CAP,FXD,PLSTC:0.068UF,20%,250V	37942	158/.068/M/250/H
A1C76	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A1C77	283–0339–01			CAP,FXD,CER:MLC;0.22UF,10%,50V,X7R,0.300 X 0.300;RDL	80009	283–0339–01
A1CR1	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR2	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR3	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR4	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR5	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR6	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR7	152–0409–00			DIO,RECT:FAST RCVRY;12KV,10MA,250NS;CRVT150,AX LEAD	80009	152–0409–00
A1CR8	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR9	152–0061–00			DIO,SIG:200V,0.1A,700NS,4.0PF;FDH2161,T&R	07263	FDH2161
A1CR10	152–0400–00			DIO,RECT:FAST RCVRY;400V,1A,200NS;1N4936,DO–41	80009	152–0400–00
A1CR11	152–0400–00			DIO,RECT:FAST RCVRY;400V,1A,200NS;1N4936,DO–41	80009	152–0400–00
A1CR12	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR13	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR14	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR15	152–0400–00			DIO,RECT:FAST RCVRY;400V,1A,200NS;1N4936,DO–41	80009	152–0400–00
A1CR16	152–0720–00			DIO,RECT:ULTRA FAST;100V,8A,25NS,100A IFSM;BYW29–100,TO–220	80009	152–0720–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
				ATTACHED PARTS		
	210–0406–00			NUT,PLAIN,HEX:4–40 X 0.188,BRS CD PL	73743	12161–50
	211–0008–00			SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
	214–3841–00			HTSK,XSTR:TO–220 W/SLDR TABS,AL	80009	214–3841–00
				END ATTACHED PARTS		
A1CR17	152–0720–00			DIO,RECT:ULTRA FAST;100V,8A,25NS,100A IFSM;BYW29–100,TO–220	80009	152–0720–00
				ATTACHED PARTS		
	210–0406–00			NUT,PLAIN,HEX:4–40 X 0.188,BRS CD PL	73743	12161–50
	211–0008–00			SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
	214–3841–00			HTSK,XSTR:TO–220 W/SLDR TABS,AL	80009	214–3841–00
				END ATTACHED PARTS		
A1CR18	152–0720–00			DIO,RECT:ULTRA FAST;100V,8A,25NS,100A IFSM;BYW29–100,TO–220	80009	152–0720–00
				ATTACHED PARTS		
	210–0406–00			NUT,PLAIN,HEX:4–40 X 0.188,BRS CD PL	73743	12161–50
	211–0008–00			SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
	214–3841–00			HTSK,XSTR:TO–220 W/SLDR TABS,AL	80009	214–3841–00
				END ATTACHED PARTS		
A1CR19	152–0863–00			SEMICOND DVC,DI:RECT,SI,600V,1A,30NS	80009	152–0863–00
A1CR20	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR21	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR22	152–0400–00			DIO,RECT:FAST RCVRY;400V,1A,200NS;1N4936,DO–41	80009	152–0400–00
A1CR23	152–0897–00			DIO,RECT:FAST RCVRY;1000V,1.5A,300NS,SOFT RCVRY;BYV96E,T&R	80009	152–0897–00
A1CR24	152–0863–00			SEMICOND DVC,DI:RECT,SI,600V,1A,30NS	80009	152–0863–00
A1CR25	152–0897–00			DIO,RECT:FAST RCVRY;1000V,1.5A,300NS,SOFT RCVRY;BYV96E,T&R	80009	152–0897–00
A1CR26	152–0400–00			DIO,RECT:FAST RCVRY;400V,1A,200NS;1N4936,DO–41	80009	152–0400–00
A1CR27	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR28	152–0863–00			SEMICOND DVC,DI:RECT,SI,600V,1A,30NS	80009	152–0863–00
A1CR29	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR30	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR31	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A1CR32	152–0661–00	671–2484–00	671–2484–02	DIO,RECT:FAST RCVRY;600V,3A,200NS;T&R	80009	152–0661–00
A1CR32	152–1165–00	671–2484–03		DIO,RECT:ULTRA FAST;600V,4A,50NS;MUR460,T&R	80009	152–1165–00
A1CR33	152–0661–00	671–2484–00	671–2484–02	DIO,RECT:FAST RCVRY;600V,3A,200NS;T&R	80009	152–0661–00
A1CR33	152–1165–00	671–2484–03		DIO,RECT:ULTRA FAST;600V,4A,50NS;MUR460,T&R	80009	152–1165–00
A1CR34	152–0661–00	671–2484–00	671–2484–02	DIO,RECT:FAST RCVRY;600V,3A,200NS;T&R	80009	152–0661–00
A1CR34	152–1165–00	671–2484–03		DIO,RECT:ULTRA FAST;600V,4A,50NS;MUR460,T&R	80009	152–1165–00
A1CR35	152–0661–00	671–2484–00	671–2484–02	DIO,RECT:FAST RCVRY;600V,3A,200NS;T&R	80009	152–0661–00
A1CR35	152–1165–00	671–2484–03		DIO,RECT:ULTRA FAST;600V,4A,50NS;MUR460,T&R	80009	152–1165–00
A1DS1	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1DS2	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1DS3	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1DS4	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1DS5	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1DS6	150–1152–00			DIO,OPTO:LED;HI EFFIC. RED,635NM,INT RES;HLMP–1600–002,T1,T&R	50434	HLMP–1600–002
A1DS7	150–0050–00			LAMP,GLOW:135V MAX,1.9MA,C2A–T,WIRE LEAD	74276	LT2–24–2 (NE2H)
A1F1	159–0021–00			FUSE,CRTG:3AG,2A,250V,FAST BLOW	75915	312 002
				MOUNTING PARTS		
	200–2264–00			CAP,FSHLDR:3AG FUSES	S3629	FEK 031 1666
	204–0906–00			BODY,FSHLDR:3AG & 5 X 20MM FUSES	S3629	TYPEFAU031.3573
				END MOUNTING PARTS		
A1J1	131–5338–00			CONN,HDR:	80009	131–5338–00
A1J2	131–5337–00			CONN,HDR:	80009	131–5337–00
A1J3	131–4794–00			CONN,HDR:PCBMALE,STR,1 X 2,0.1 CTR,0.235 MLG X 0.112 TAIL,30 GLD,0.035 DIA PCB	80009	131–4794–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1J4	131–3392–00			CONN,HDR:PCBMALE,STR,1 X 10,0.1 CTR,0.230 MLG X 0.120 TAIL,30 GLD,BD RETENTION	80009	131–3392–00
A1J5	131–4794–00			CONN,HDR:PCBMALE,STR,1 X 2,0.1 CTR,0.235 MLG X 0.112 TAIL,30 GLD,0.035 DIA PCB	80009	131–4794–00
A1J6	131–4794–00			CONN,HDR:PCBMALE,STR,1 X 2,0.1 CTR,0.235 MLG X 0.112 TAIL,30 GLD,0.035 DIA PCB	80009	131–4794–00
A1J7	131–4794–00			CONN,HDR:PCBMALE,STR,1 X 2,0.1 CTR,0.235 MLG X 0.112 TAIL,30 GLD,0.035 DIA PCB	80009	131–4794–00
A1J8	119–1946–00			FLTR,RFI:1A,250V,400HZ W/PC TERM	S4307	FN326–1/02–K–D–T
A1L1	108–1262–00			COIL,RF:FXD,100UH,10%,Q=30,SRF 8.2MHZ,DCR 0.23 OHM,I MAX 0.75ARDL LEAD	80009	108–1262–00
A1L2	108–1262–00			COIL,RF:FXD,100UH,10%,Q=30,SRF 8.2MHZ,DCR 0.23 OHM,I MAX 0.75ARDL LEAD	80009	108–1262–00
A1L3	108–1412–00			COIL,RF:FXD, 4.7 UH, +/– 20 %,Q 25, SRF 50 MHZ, DCR 0.017 OHM I MAX 3.7 A,RDL LEAD	54583	TSL08074R7M3RO
A1L4	108–1411–00			COIL,RF:FXD, 47UH, 10%,Q=45,SRF11 MHZ,DCR 0.17 OHM,I MAX 0.96ARDL LEAD	54583	TSL0707–470 KR94
A1L5	108–1411–00			COIL,RF:FXD, 47UH, 10%,Q=45,SRF11 MHZ,DCR 0.17 OHM,I MAX 0.96ARDL LEAD	54583	TSL0707–470 KR94
A1L6	108–1411–00			COIL,RF:FXD, 47UH, 10%,Q=45,SRF11 MHZ,DCR 0.17 OHM,I MAX 0.96ARDL LEAD	54583	TSL0707–470 KR94
A1L7	108–1412–00			COIL,RF:FXD, 4.7 UH, +/– 20 %,Q 25, SRF 50 MHZ, DCR 0.017 OHM I MAX 3.7 A,RDL LEAD	54583	TSL08074R7M3RO
A1L8	108–0205–00			COIL,RF:IDCTR;FXD,1MH,+–5%, DCR 2.12 OHMS, FERRITE CORE	76493	8209
A1P8	131–0993–00			CONN,BOX:SHUNT/SHORTING;FEM,STR,1 X 2,0.1 CTR,0.385 H,30 GLD,BLK,JUMPER	22526	65474–006
A1P9	131–0993–00			CONN,BOX:SHUNT/SHORTING;FEM,STR,1 X 2,0.1 CTR,0.385 H,30 GLD,BLK,JUMPER	22526	65474–006
A1Q1	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A1Q2	151–0749–00			XSTR,SIG:BIPOLAR,PNP;400V,500MA,50MHZ, AMPL;MPSA94,TO–92 EBC	80009	151–0749–00
A1Q3	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A1Q4	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A1Q5	151–0350–03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ, AMPL;2N5401,TO–92 EBC,T&A	80009	151–0350–03
A1Q6	151–0347–02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ, AMPL;2N5551,TO–92 EBC,T&A	56289	CT7916
A1Q7	151–0476–00			XSTR,PWR:BIPOLAR,NPN;100V,3.0A,3.0MHZ, AMPL;TIP31C,TO–220	80009	151–0476–00
				ATTACHED PARTS		
	210–0406–00			NUT,PLAIN,HEX:4–40 X 0.188,BRS CD PL	73743	12161–50
	211–0008–00			SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
	214–3841–00			HTSK,XSTR:TO–220 W/SLDR TABS,AL	80009	214–3841–00
				END ATTACHED PARTS		
A1Q8	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A1Q9	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A1Q10	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A1Q11	151–0528–00			THYRISTOR,PWR:BIPOLAR,SCR;50V,16A RMS,PH CONT;2N6400,TO–220	80009	151–0528–00
A1Q12	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A1Q13	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1Q14	151–1286–00			XSTR,PWR:MOS,N–CH;800V,4.0A,3.0 OHM;BUK456–800A,TO–220	80009	151–1286–00
				ATTACHED PARTS		
	210–0406–00			NUT,PLAIN,HEX:4–40 X 0.188,BRS CD PL	73743	12161–50
	211–0008–00			SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
	214–4197–00			HTSK:XSTR,T0=218,AL	80009	214–4197–00
				END ATTACHED PARTS		
A1Q15	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A1R1	301–0225–02			RES,FXD,CMPSN:2.2M OHM,5%,0.5W	80009	301–0225–02
A1R2	303–0155–00			RES,FXD,CMPSN:1.5M OHM,5%,1W	80009	303–0155–00
A1R3	303–0155–00			RES,FXD,CMPSN:1.5M OHM,5%,1W	80009	303–0155–00
A1R4	303–0155–00			RES,FXD,CMPSN:1.5M OHM,5%,1W	80009	303–0155–00
A1R5	322–3344–00			RES,FXD,FILM:37.4K OHM,1%,0.2W, TC=T0	80009	322–3344–00
A1R6	322–3251–00			RES,FXD,FILM:4.02K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 4K02
A1R8	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A1R9	311–1256–00			RES,VAR,TRMR:CERMET;2.5M OHM,10%,0.5W,0.375 SQ,TOP ADJUST;BULK	80009	311–1256–00
A1R10	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R11	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A1R12	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A1R13	303–0155–00			RES,FXD,CMPSN:1.5M OHM,5%,1W	80009	303–0155–00
A1R14	322–3339–00			RES,FXD:MET FILM;33.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3339–00
A1R15	322–3481–00			RES,FXD,FILM:1M OHM.1%,0.2W, TC=T0	80009	322–3481–00
A1R16	315–0101–03			RES,FXD,CMPSN:100 OHM,5%,0.25W	80009	315–0101–03
A1R17	322–3254–00			RES,FXD,FILM:4.32K OHM,1%,0.2W, TC=T0	80009	322–3254–00
A1R18	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A1R19	315–0223–03			RES,FXD,CMPSN:22K OHM,5%,0.25 W	80009	315–0223–03
A1R20	315–0102–03			RES,FXD,CMPSN:1K OHM,5%,0.25W	80009	315–0102–03
A1R21	322–3306–00			RES,FXD:MET FILM;15K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 15K0
A1R22	322–3105–00			RES,FXD:MET FILM;121 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3105–00
A1R23	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R24	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R25	322–3034–00			RES,FXD:MET FILM;22.1 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20FXE2K94
A1R26	315–0470–03			RES,FXD,CMPSN:47 OHM,5%,0.25W	80009	315–0470–03
A1R27	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A1R28	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R29	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R30	315–0226–01			RES,FXD,CMPSN:22 M OHM,5%,0.25W	80009	315–0226–01
A1R31	315–0471–03			RES,FXD,CMPSN:470 OHM,5%,0.25W	80009	315–0471–03
A1R32	315–0471–03			RES,FXD,CMPSN:470 OHM,5%,0.25W	80009	315–0471–03
A1R33	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A1R34	315–0471–03			RES,FXD,CMPSN:470 OHM,5%,0.25W	80009	315–0471–03
A1R35	322–3273–00			RES,FXD:MET FILM;6.81K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3273–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A1R36	315–0102–03			RES,FXD,CMPSN:1K OHM,5%,0.25W	80009	315–0102–03
A1R37	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R38	311–2239–00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST;T&R	TK1450	GF06UT 100K
A1R39	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R40	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A1R41	322–3435–00			RES,FXD:MET FILM;332K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3435–00
A1R42	311–2240–00			RES,VAR,NONWW:TRMR,200K OHM,20%,0.5W LIN	TK1450	GF06UT 200K
A1R43	322–3273–00			RES,FXD:MET FILM;6.81K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3273–00
A1R44	311–2239–00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST;T&R	TK1450	GF06UT 100K
A1R45	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R46	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R47	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R48	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R49	322–3024–00			RES,FXD,FILM:17.4 OHM,1%,0.2W, TC=T0	57668	CRB20FXE1K62
A1R50	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R51	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R52	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R53	311–2239–00			RES,VAR,TRMR:CERMET;100K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST;T&R	TK1450	GF06UT 100K
A1R54	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R55	322–3481–00			RES,FXD,FILM:1M OHM.1%,0.2W, TC=T0	80009	322–3481–00
A1R56	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R57	322–3235–00			RES,FXD:MET FILM;2.74K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K74
A1R58	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R59	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R60	322–3260–00			RES,FXD,FILM:4.99K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 4K99
A1R61	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A1R62	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A1R63	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R64	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A1R65	322–3201–00			RES,FXD:MET FILM;1.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3201–00
A1R66	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R67	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R68	322–3339–00			RES,FXD:MET FILM;33.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3339–00
A1R69	307–0106–00			RES,FXD,CMPSN:4.7 OHM,5%,0.25W	01121	CB47G5

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A1R70	303–0100–00			RES,FXD,CMPSN:10 OHM,5%,1W,CMPSN OR FILM	80009	303–0100–00
A1R71	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R72	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A1R73	311–2238–00			RES,VAR,TRMR:CERMET;50K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST;T&R	TK1450	GF06UT 50 K
A1R74	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A1R75	322–3306–00			RES,FXD:MET FILM;15K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 15K0
A1R76	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R77	322–3352–00			RES,FXD,FILM:45.3K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 45K3
A1R78	322–3225–00			RES,FXD,FILM:2.15K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 2K15
A1R79	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R80	322–3327–00			RES,FXD,FILM:24.9K OHM,1%,0.2W, TC=T0	80009	322–3327–00
A1R81	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R82	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R83	322–3418–00			RES,FXD:MET FILM;221K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 221K
A1R84	322–3235–00			RES,FXD:MET FILM;2.74K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K74
A1R85	322–3481–00			RES,FXD,FILM:1M OHM.1%,0.2W, TC=T0	80009	322–3481–00
A1R86	322–3254–00			RES,FXD,FILM:4.32K OHM,1%,0.2W, TC=T0	80009	322–3254–00
A1R87	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A1R88	305–0242–00			RES,FXD,CMPSN:2.4K OHM,5%,2W	80009	305–0242–00
A1R89	322–3402–00	671–2484–00	671–2484–01	RES,FXD:MET FILM;150K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3402–00
A1R89	322–3369–00	671–2484–02		RES,FXD:MET FILM;68.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3369–00
A1R90	308–0793–00			RES,FXD:0.51 OHM,5%,1WTC=150PPM/DEG C,MI,T&R	80009	308–0793–00
A1R91	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R92	322–3205–00			RES,FXD,FILM:1.33K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 1K33
A1R93	322–3121–00			RES,FXD:MET FILM;178 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3121–00
A1R94	322–3347–00			RES,FXD,FILM:40.2K OHM,1%,0.2W, TC=T0	91637	CCF50–2–G40201F
A1R95	322–3260–00			RES,FXD,FILM:4.99K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 4K99
A1R96	322–3034–00			RES,FXD:MET FILM;22.1 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20FXE2K94
A1R97	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A1R98	322–3256–00			RES,FXD,FILM:4.53K OHM,1%,0.2W, TC=T0	80009	322–3256–00
A1R99	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R100	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A1R101	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R102	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A1R103	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A1R104	322–3435–00			RES,FXD:MET FILM;332K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3435–00

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A1R105	322–3431–00			RES,FXD,FILM:301K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 301K
A1R106	322–3339–00			RES,FXD:MET FILM;33.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3339–00
A1R107	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A1R108	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A1R109	322–3431–00			RES,FXD,FILM:301K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 301K
A1R110	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R111	322–3351–00			RES,FXD:MET FILM;44.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3351–00
A1R112	322–3452–00			RES,FXD,FILM:499K OHM,1%,0.2W, TC=TO	91637	CCF50–2–G4993FT
A1R113	322–3452–00			RES,FXD,FILM:499K OHM,1%,0.2W, TC=TO	91637	CCF50–2–G4993FT
A1R114	322–3339–00			RES,FXD:MET FILM;33.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3339–00
A1R115	322–3401–00			RES,FXD,FILM:147K OHM,1%,0.2W, TC=T0	80009	322–3401–00
A1R116	308–0290–00			RES,FXD,WW:8 OHM,5%,5W	80009	308–0290–00
A1R117	322–3393–00			RES,FXD:MET FILM;121K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3393–00
A1R118	322–3393–00			RES,FXD:MET FILM;121K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3393–00
A1R119	305–0154–00			RES,FXD,CMPSN:150K OHM,5%,2W	01121	HB1545
A1R120	306–0104–00			RES,FXD,CMPSN:100K OHM,10%,2W	01121	HB1041
A1R121	305–0154–00			RES,FXD,CMPSN:150K OHM,5%,2W	01121	HB1545
A1R122	306–0104–00			RES,FXD,CMPSN:100K OHM,10%,2W	01121	HB1041
A1R123	307–0353–00			RES,THERMAL:5 OHM,10%	80009	307–0353–00
A1R124	322–3322–00			RES,FXD:MET FILM;22.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3322–00
A1R125	322–3481–00			RES,FXD,FILM:1M OHM.1%,0.2W, TC=T0	80009	322–3481–00
A1R126	322–3254–00			RES,FXD,FILM:4.32K OHM,1%,0.2W, TC=T0	80009	322–3254–00
A1T1	120–1695–00			XFMR,PWR:HI V,FDBK 3V, RESONANT 231V, 100V 1MA,	80009	120–1695–00
A1T2	120–1532–00			XFMR,RF:	75498	128–8036–EB
A1T3	120–1921–00			XFMR,RF:	80009	120–1921–00
A1TP1	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A1TP2	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A1TP3	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A1U1	152–0900–00			MOD,HV:7.5KVAC IN,15KVDC OUT,POTTED MOD;MSL2556	80009	152–0900–00
A1U2	156–0067–00			IC,LIN:BIPOLAR,OP–AMP;741C,DIP08.3	80009	156–0067–00
A1U3	156–1719–00			IC,LIN:BIPOLAR,OP–AMP;LOW V OPN,W/V REF;LM10CN,DIP08.3	TK1468	LM10CN
A1U4	156–0885–00			CPLR,OPTOELECTR:LED,5KV ISLN	04713	SOC 123A
A1U5	156–2761–01			IC,DGTL:	80009	156–2761–01
A1U6	156–2524–00			IC,LIN:	12969	UC3842N
A1U7	156–0411–00			IC,LIN:BIPOLAR,COMPTR;QUAD,SGL SPLY,300NS;LM339N,DIP14.3	80009	156–0411–00
A1U8	156–2009–00			IC,DGTL:HCMOS,FLIP FLOP;DUAL D–TYPE;74HC74,DIP14.3,TUBE	80009	156–2009–00
A1VR1	152–0195–00			DIO,ZENER:5.1V,5%,0.4W;1N751A FMLY,DO–35 OR 7	80009	152–0195–00
A1VR3	152–0175–00			DIO,ZENER:5.6V,5%,0.4W;1N752A,DO–7 OR 35,TR	14552	TD3810976
A1W1	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A1W2	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A1W3	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A2	671–2356–00	B010100	B010596	CIRCUIT BD ASSY:FRONT PANEL	80009	671–2356–00
A2	671–2356–01	B010597		CIRCUIT BD ASSY:FRONT PANEL	80009	671–2356–01

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A2CR1	152–5038–00			DIO,SIG:30V,1.5PF,VF = 600MV @ 10MA;MMBD301L,SOT–23,8MM T&R	80009	152–5038–00
A2CR2	152–5038–00			DIO,SIG:30V,1.5PF,VF = 600MV @ 10MA;MMBD301L,SOT–23,8MM T&R	80009	152–5038–00
A2CR3	152–5038–00			DIO,SIG:30V,1.5PF,VF = 600MV @ 10MA;MMBD301L,SOT–23,8MM T&R	80009	152–5038–00
A2CR4	152–5038–00			DIO,SIG:30V,1.5PF,VF = 600MV @ 10MA;MMBD301L,SOT–23,8MM T&R	80009	152–5038–00
A2DS1	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS1	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS2	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS2	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS3	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS3	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS4	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS4	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS5	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS5	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS6	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS6	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS7	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS7	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS8	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS8	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS9	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS9	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS10	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS10	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS11	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS11	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS12	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS12	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS13	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS13	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS14	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS14	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS15	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS15	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS16	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS16	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS17	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS17	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS18	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS18	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS19	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS19	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS20	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS20	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS21	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS21	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS22	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS22	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS23	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS23	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS24	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS24	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS25	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS25	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A2DS26	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS26	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS27	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS27	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS28	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS28	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS29	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS29	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS30	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS30	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS31	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS31	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS32	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS32	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS33	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS33	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS34	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS34	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS35	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS35	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS36	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS36	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS37	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS37	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2DS38	150–5008–00	671–2356–00	671–2356–00	DIO,OPTO:	50434	HLMP–6505 OPT21
A2DS38	150–5011–00	671–2356–01		DIO,OPTO:	80009	150–5011–00
A2J2	174–1168–00			CA ASSY,SP,ELEC:10 PIN,4.25 L,RBN	80009	174–1168–00
A2R2	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R3	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R4	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R5	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R6	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R7	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R8	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R9	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R10	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R11	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R12	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R13	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R14	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R15	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R16	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R17	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A2R18	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R19	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R20	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R21	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R22	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R23	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R24	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R25	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R26	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R27	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R28	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R29	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R30	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R31	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R32	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R33	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R34	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A2R35	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A2R36	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A2R37	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A2R38	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R39	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R40	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R41	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R42	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R43	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R44	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R45	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A2R47	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A2R48	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A2R49	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R50	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R51	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2R52	321–5045–00			RES,FXD:THK FILM;68.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5045–00
A2U1	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A2U2	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U3	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U4	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U5	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U6	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A2U7	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U8	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A2U9	156–5480–01			IC,DGTL:	80009	156–5480–01
A2U10	156–5074–00			IC,DGTL:HCMOS,FLIP FLOP;DUAL D–TYPE;74HC74,SO14.150,TUBE	80009	156–5074–00
A3	671–2355–00	B010100	B010179	CIRCUIT BD ASSY:MAIN	80009	671–2355–00
A3	671–2355–01	B010180	B010433	CIRCUIT BD ASSY:MAIN	80009	671–2355–01
A3	671–2355–02	B010434	B010462	CIRCUIT BD ASSY:MAIN	80009	671–2355–02
A3	671–2355–03	B010463	B011229	CIRCUIT BD ASSY:MAIN	80009	671–2355–03
A3	671–2355–04	B011230	B011759	CIRCUIT BD ASSY:MAIN	80009	671–2355–04
A3	671–2978–00	B011760	B013908	CIRCUIT BD ASSY:MAIN	80009	671–2978–00
A3	671–2978–01	B013909	B014449	CIRCUIT BD ASSY:MAIN	80009	671–2978–01
A3	671–2978–02	B014450		CIRCUIT BD ASSY:MAIN (1740A/1750A–SERIES ONLY)	80009	671–2978–02
A3	671–2355–00	B010100	B010179	CIRCUIT BD ASSY:MAIN	80009	671–2355–00
A3	671–2355–01	B010180	B010433	CIRCUIT BD ASSY:MAIN	80009	671–2355–01
A3	671–2355–02	B010434	B010462	CIRCUIT BD ASSY:MAIN	80009	671–2355–02
A3	671–2355–03	B010463	B011229	CIRCUIT BD ASSY:MAIN	80009	671–2355–03
A3	671–2355–04	B011230	B011719	CIRCUIT BD ASSY:MAIN	80009	671–2355–04
A3	671–2355–05	B011720	B013471	CIRCUIT BD ASSY:MAIN	80009	671–2355–05
A3	671–2355–06	B013472	B013890	CIRCUIT BD ASSY:MAIN	80009	671–2355–06
A3	671–2355–07	B013891	B014580	CIRCUIT BD ASSY:MAIN	80009	671–2355–07
A3	671–2355–08	B014581		CIRCUIT BD ASSY:MAIN (1760 – SERIES ONLY)	80009	671–2355–08
				ATTACHED PARTS		
	337–0607–00			PLATE,ELEC SHLD:CIRCUIT BOARD	80009	337–0607–00
				END ATTACHED PARTS		
A3C1	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C2	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C3	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C4	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C5	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C6	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C7	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C8	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C9	290–5024–00			CAP,FXD,TANT:3.3UF,20%,25V,0.236 X 0.126,6032;SMD	24165	293D335X0025C2T

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3C10	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C11	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C12	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C13	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C14	283–5107–00			CAP,FXD,CER:MLC;22PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A220JAT1A
A3C15	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C16	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C17	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C18	283–5107–00			CAP,FXD,CER:MLC;22PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A220JAT1A
A3C19	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C20	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C21	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C22	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C26	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C29	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C30	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C31	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C32	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C33	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C34	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C35	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C36	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C37	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C38	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C39	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C40	283–0620–01			CAP,FXD,MICA DI:470PF,1%,500V,T&A	80009	283–0620–01
A3C41	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C42	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C43	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C44	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C45	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C46	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C47	283–5098–00	671–2355–00	671–2355–02	CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A

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A3C48	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C49	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C50	283–5197–00			CAP,FXD,CER:MLC;330PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A331JAT1A
A3C51	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C52	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C53	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C54	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C55	283–5098–00	671–2355–00	671–2355–00	CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C55	281–0775–01	671–2355–01		CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A3C56	283–5098–00	671–2355–00	671–2355–00	CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C56	281–0775–01	671–2355–01		CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A3C57	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C58	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C59	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C60	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C61	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C62	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C63	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C64	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C65	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C66	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C67	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C68	283–5109–00	671–2355–00	671–2978–01	CAP,FXD,CER:MLC;680PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A681JAT1A
A3C68	283–5203–00	671–2978–02		CAP,FXD,CER:MLC;1000PF,10%,100V,X7R	80009	283–5203–00
A3C68	283–5109–00	671–2355–00	671–2355–07	CAP,FXD,CER:MLC;680PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A681JAT1A
A3C68	283–5203–00	671–2355–08		CAP,FXD,CER:MLC;1000PF,10%,100V,X7R	80009	283–5203–00
A3C69	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C70	283–5109–00	671–2355–00	671–2978–01	CAP,FXD,CER:MLC;680PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A681JAT1A
A3C70	283–5203–00	671–2978–02		CAP,FXD,CER:MLC;1000PF,10%,100V,X7R	80009	283–5203–00
A3C70	283–5109–00	671–2355–00	671–2355–07	CAP,FXD,CER:MLC;680PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A681JAT1A
A3C70	283–5203–00	671–2355–08		CAP,FXD,CER:MLC;1000PF,10%,100V,X7R	80009	283–5203–00
A3C71	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C72	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C73	283–5256–00			CAP,FXD:	80009	283–5256–00
A3C74	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C75	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C76	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A

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A3C77	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C78	283–5314–00			CAP,FXD,CER:	80009	283–5314–00
A3C79	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C80	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C81	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C82	283–5003–00	671–2355–00	671–2978–01	CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A3C82	283–5068–00	671–2978–02		CAP,FXD,CER:MLC;2200PF,10%,50V,X7R	80009	283–5068–00
A3C82	283–5003–00	671–2355–00	671–2355–07	CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A3C82	283–5068–00	671–2355–08		CAP,FXD,CER:MLC;2200PF,10%,50V,X7R	80009	283–5068–00
A3C83	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C84	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C85	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C86	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C87	283–0177–05	671–2355–00	671–2355–03	CAP,FXD,CER DI:1UF,+80–20%,25V	04222	SR303E105ZAAAP1
A3C87	283–5267–00	671–2355–04		CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C88	283–5259–00			CAP,CER CHIP:6.8PF,+/–0.25PF,1206 SMT PKG	80009	283–5259–00
A3C89	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C90	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C91	281–0271–00			CAP,VAR,CER DI:7–50PF,50V	51406	TZB04500BA014
A3C92	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C93	283–5259–00			CAP,CER CHIP:6.8PF,+/–0.25PF,1206 SMT PKG	80009	283–5259–00
A3C94	283–5314–00			CAP,FXD,CER:	80009	283–5314–00
A3C95	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C96	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C97	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C98	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C99	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C100	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C101	285–1349–00			CAP,FXD,MTLZD:0.1UF,5%,63VDC	80009	285–1349–00
A3C102	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C103	290–5034–01	671–2355–00	671–2978–00	CAP,FXD,ALUM:33UF,20%,10V,5.7MM (0.224);SMD,T&R	80009	290–5034–01
A3C103	290–5037–01	671–2978–01		CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C103	290–5034–01	671–2355–00	671–2355–06	CAP,FXD,ALUM:33UF,20%,10V,5.7MM (0.224);SMD,T&R	80009	290–5034–01
A3C103	290–5037–01	671–2355–07		CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C104	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C105	283–0934–00			CAP,FXD,PLSTC:0.0022UF,5%,100WVDC	TK1913	FKP2 2200/100/5
A3C106	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C107	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C108	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C110	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C111	283–5203–00	671–2355–00	671–2978–00	CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3C111	283–5189–00	671–2978–01		CAP,FXD,CER:MLC;220PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A221JAT1A
A3C111	283–5203–00	671–2355–00	671–2355–06	CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A3C111	283–5189–00	671–2355–07		CAP,FXD,CER:MLC;220PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A221JAT1A
A3C112	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C113	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C115	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C116	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C117	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C118	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C119	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C120	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C121	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C122	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C123	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C124	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C125	283–0698–01			CAP,FXD,MICA DI:390PF,1%,500V,T&A	09023	CDA15FD391F03
A3C126	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A
A3C127	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C128	283–5201–00			CAP,FXD,CER:MLC;33PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A330JAT1A
A3C129	283–5195–00			CAP,FXD,CER:MLC;10PF,5%,100V ,NPO,1206;SMD,8MM	04222	12061A100JAT1A
A3C130	283–5107–00			CAP,FXD,CER:MLC;22PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A220JAT1A
A3C131	281–5007–00			CAP,VAR,CER DI:4.5–20PF,100V	80009	281–5007–00
A3C132	283–0640–01			CAP,FXD,MICA DI:160PF,1%,100V	80009	283–0640–01
A3C133	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C134	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A
A3C135	281–0271–00			CAP,VAR,CER DI:7–50PF,50V	51406	TZB04500BA014
A3C136	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C138	283–5003–00			CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A3C139	290–5037–01			CAP,FXD,ALUM:10UF,20%,35V,5.7 H X 5 DIA MM;SMD,T&R	80009	290–5037–01
A3C140	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C141	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C142	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C143	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C144	283–0639–01			CAP,FXD,MICA DI:56PF,1%,500V,T&A	09023	CDA15ED560F03
A3C145	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A
A3C146	283–5196–00			CAP,FXD,CER:MLC;47PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A470JAT1A
A3C147	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C148	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C149	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C150	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C151	281–0271–00			CAP,VAR,CER DI:7–50PF,50V	51406	TZB04500BA014
A3C152	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3C153	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C154	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A3C155	283–5014–00			CAP,FXD,CER:MLC;330PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5014–00
A3C156	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C157	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C158	281–0271–00			CAP,VAR,CER DI:7–50PF,50V	51406	TZB04500BA014
A3C159	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C160	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A3C161	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A3C162	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C163	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C164	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C165	283–5189–00			CAP,FXD,CER:MLC;220PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A221JAT1A
A3C166	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C167	283–5014–00			CAP,FXD,CER:MLC;330PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5014–00
A3C168	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C169	283–5109–00			CAP,FXD,CER:MLC;680PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A681JAT1A
A3C170	290–5036–01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM (0.224);SMD,T&R	80009	290–5036–01
A3C171	290–5036–01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM (0.224);SMD,T&R	80009	290–5036–01
A3C172	290–5036–01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM (0.224);SMD,T&R	80009	290–5036–01
A3C173	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C174	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C175	290–5036–01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM (0.224);SMD,T&R	80009	290–5036–01
A3C176	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C177	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3C178	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A3C179	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C180	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A3C181	283–5003–00	671–2355–00	671–2978–00	CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A3C181	283–5015–00	671–2978–01		CAP,FXD,CER DI:3300PF,10%,50V	80009	283–5015–00
A3C181	283–5003–00	671–2355–00	671–2355–06	CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A3C181	283–5015–00	671–2355–07		CAP,FXD,CER DI:3300PF,10%,50V	80009	283–5015–00
A3C182	281–0775–01	671–2355–00	671–2355–03	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A3C182	283–5098–00	671–2355–04		CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A3CR1	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A3CR2	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A3CR3	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A3CR4	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A3CR5	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A3CR6	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3CR8	152–5047–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–CATH;MMBD1204,SOT–23,8MM T&R	80009	152–5047–00
A3CR9	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A3DS1	150–5008–00			DIO,OPTO:	50434	HLMP–6505 OPT21
A3DS2	150–0168–00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75 FOR SKT MT	80009	150–0168–00
				MOUNTING PARTS		
	136–1185–00			SKT,LPHLDR:PCB,WEDGE BASE;FEM,RTANG, SGL,0.328 H X 0.172 TAIL,TIN,T–1.75	80009	136–1185–00
				END MOUNTING PARTS		
A3DS3	150–0168–00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75 FOR SKT MT	80009	150–0168–00
				MOUNTING PARTS		
	136–1185–00			SKT,LPHLDR:PCB,WEDGE BASE;FEM,RTANG, SGL,0.328 H X 0.172 TAIL,TIN,T–1.75	80009	136–1185–00
				END MOUNTING PARTS		
A3DS4	150–0168–00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75 FOR SKT MT	80009	150–0168–00
				MOUNTING PARTS		
	136–1185–00			SKT,LPHLDR:PCB,WEDGE BASE;FEM,RTANG, SGL,0.328 H X 0.172 TAIL,TIN,T–1.75	80009	136–1185–00
				END MOUNTING PARTS		
A3DS5	150–0168–00			LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75 FOR SKT MT	80009	150–0168–00
				MOUNTING PARTS		
	136–1185–00			SKT,LPHLDR:PCB,WEDGE BASE;FEM,RTANG, SGL,0.328 H X 0.172 TAIL,TIN,T–1.75	80009	136–1185–00
				END MOUNTING PARTS		
A3J1	131–3718–00			CONN,HDR:	80009	131–3718–00
A3J2	131–3323–00			CONN,HDR:	22526	66506–025
A3J3	131–4752–00			CONN,HDR:PCBMALE,45 DEG,1 X 2,0.1 CTR,0.240 MLG X 0.110 TAIL,30 GLD	80009	131–4752–00
A3J4	131–4530–00			CONN,HDR:PCBMALE,STR,1 X 3,0.1 CTR,0.230 MLG X 0.120 TAIL,30 GLD,BD RETENTION	80009	131–4530–00
A3J5	131–3323–00			CONN,HDR:	22526	66506–025
A3J6	175–9797–00			CA ASSY,SP:FLAT FLEX;FLX,10,27 AWG,2.5 L,1X10,BOX X STR,SLDR TAB,CONN NON PLZ	00779	487729–1
A3J9	131–3364–00			CONN,HDR:	53387	2534–6002UB
A3J12	131–3181–00			CONN,HDR:	80009	131–3181–00
A3J13	131–3323–00			CONN,HDR:	22526	66506–025
A3J14	174–2743–00			CA ASSY SP:	80009	174–2743–00
A3L1	108–5018–00			COIL,RF:	80009	108–5018–00
A3L2	108–5018–00			COIL,RF:	80009	108–5018–00
A3L3	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A3L4	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A3L5	114–0482–00			COIL,RF:	80009	114–0482–00
A3L6	114–0482–00			COIL,RF:	80009	114–0482–00
A3L7	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A3L8	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A3L9	108–5018–00			COIL,RF:	80009	108–5018–00
A3LS1	119–2101–00			XDCR,AUDIO:	TK1066	SMX–06
A3P4	131–0993–00			CONN,BOX:SHUNT/SHORTING;FEM,STR,1 X 2,0.1 CTR,0.385 H,30 GLD,BLK,JUMPER	22526	65474–006
A3Q1	151–5021–00			XSTR,SIG:BIPOLAR,NPN;40V,600MA,300MHZ, AMPL;MMBT2222AL,TO–236/SOT–23,8MM T&R	80009	151–5021–00
A3Q2	151–5021–00			XSTR,SIG:BIPOLAR,NPN;40V,600MA,300MHZ, AMPL;MMBT2222AL,TO–236/SOT–23,8MM T&R	80009	151–5021–00
A3Q3	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q4	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3Q5	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q6	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q7	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q8	151–0350–03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ, AMPL;2N5401,TO–92 EBC,T&A	80009	151–0350–03
A3Q9	151–5022–00			XSTR,SIG:BIPOLAR,NPN;15V,50MA,600MHZ, AMPL;MMBT918L,TO–236/SOT–23,8MM T&R	80009	151–5022–00
A3Q10	151–0211–00			XSTR,SIG:BIPOLAR,NPN;30V VCEO,55V VCBO,400MA,500MHZ, AMPL;2N3866,TO–39	80009	151–0211–00
				ATTACHED PARTS		
	214–2593–00			HTSK,XSTR:TO–5,AL	80009	214–2593–00
				END ATTACHED PARTS		
A3Q11	151–0347–02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ, AMPL;2N5551,TO–92 EBC,T&A	56289	CT7916
A3Q12	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q13	151–0347–02			XSTR,SIG:BIPOLAR,NPN;160V,600MA,100MHZ, AMPL;2N5551,TO–92 EBC,T&A	56289	CT7916
A3Q14	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q15	151–0350–03			XSTR,SIG:BIPOLAR,PNP;150V,600MA,100MHZ, AMPL;2N5401,TO–92 EBC,T&A	80009	151–0350–03
A3Q16	151–0211–00			XSTR,SIG:BIPOLAR,NPN;30V VCEO,55V VCBO,400MA,500MHZ, AMPL;2N3866,TO–39	80009	151–0211–00
				ATTACHED PARTS		
	214–2593–00			HTSK,XSTR:TO–5,AL	80009	214–2593–00
				END ATTACHED PARTS		
A3Q17	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q19	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q20	151–5029–00			XSTR,SIG:BIPOLAR,NPN;15V,500MA,SWING;MMBT2369L, TO–236/SOT–23,8MM T&R	80009	151–5029–00
A3Q21	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q22	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q23	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q24	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A3Q25	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q26	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q27	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3Q28	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A3Q29	151–0190–00	671–2355–03	671–2355–03	XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A3Q29	151–5001–00	671–2355–03		XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A3R1	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R2	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R3	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R4	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R5	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R6	311–2442–02			RES,VAR,PNL:	80009	311–2442–02
A3R7	311–2442–02			RES,VAR,PNL:	80009	311–2442–02
A3R8	311–2442–02			RES,VAR,PNL:	80009	311–2442–02
A3R9	311–2442–02			RES,VAR,PNL:	80009	311–2442–02
A3R10	311–2442–02			RES,VAR,PNL:	80009	311–2442–02
A3R11	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R12	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R13	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R14	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R15	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R16	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R17	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R18	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R19	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R20	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R21	307–5041–00			RES NTWK,FXD,FI:4.7K OHM,2%,0.125W	32997	4816P–002–472
A3R22	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R23	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A3R24	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R25	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A3R26	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A3R27	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A3R28	307–5041–00			RES NTWK,FXD,FI:4.7K OHM,2%,0.125W	32997	4816P–002–472
A3R29	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R30	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R31	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R32	321–5208–00			RES,FXD:THK FILM;10M OHM,5%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–106JT
A3R33	321–5048–00			RES,FXD:THK FILM;332K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5048–00
A3R34	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R35	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R36	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R37	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R38	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R39	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R40	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R41	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R42	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R43	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R44	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R45	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R46	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R47	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R48	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R49	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R50	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R51	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R52	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R53	321–5169–00			RES,FXD:THK FILM;475K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–47502FT
A3R54	321–5035–00			RES,FXD:THK FILM;27.4K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5035–00
A3R55	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R56	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R57	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R58	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R59	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R60	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R61	321–5169–00			RES,FXD:THK FILM;475K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–47502FT
A3R62	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R63	321–5015–00	671–2355–00	671–2355–02	RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R63	322–3126–00	671–2355–03	671–2355–03	RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A3R63	321–5093–00	671–2355–04		RES,FXD,FILM:200 OHM,1%,0.125W,1206,8MM	91637	CRCW12062000FT
A3R64	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R65	321–5009–00			RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00

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A3R66	321–5009–00			RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A3R67	321–5042–00			RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A3R68	321–5011–00			RES,FXD:THK FILM;274 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5011–00
A3R69	321–5011–00			RES,FXD:THK FILM;274 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5011–00
A3R70	321–5017–00			RES,FXD:THK FILM;825 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5017–00
A3R71	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R72	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R73	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R74	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R75	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R76	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R77	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R78	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A3R79	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R80	321–5037–00			RES,FXD:THK FILM;39.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5037–00
A3R81	321–5037–00			RES,FXD:THK FILM;39.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5037–00
A3R82	307–5041–00			RES NTWK,FXD,FI:4.7K OHM,2%,0.125W	32997	4816P–002–472
A3R83	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R84	321–5037–00			RES,FXD:THK FILM;39.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5037–00
A3R85	321–5037–00			RES,FXD:THK FILM;39.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5037–00
A3R86	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R87	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R88	321–5122–00			RES,FXD,FILM:499 OHM,1%,0.125W,1206,8MM	80009	321–5122–00
A3R89	321–5004–00			RES,FXD:THK FILM;22.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5004–00
A3R90	321–5004–00			RES,FXD:THK FILM;22.1 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5004–00
A3R91	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R92	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R93	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R94	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R95	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R96	321–5166–00			RES,FXD:THK FILM;150K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–15002FT
A3R97	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R99	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R100	321–5031–00			RES,FXD:THK FILM;12.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5031–00
A3R101	321–5036–00			RES,FXD:THK FILM;33.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5036–00
A3R102	321–5035–00			RES,FXD:THK FILM;27.4K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5035–00
A3R103	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R104	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R105	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R106	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R107	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R108	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R109	321–5122–00			RES,FXD,FILM:499 OHM,1%,0.125W,1206,8MM	80009	321–5122–00
A3R110	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R111	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A3R112	321–5037–00			RES,FXD:THK FILM;39.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5037–00
A3R113	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R114	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R115	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R116	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R117	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R118	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R119	321–5017–00			RES,FXD:THK FILM;825 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5017–00
A3R120	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R121	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R122	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R123	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R124	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R125	321–5032–00			RES,FXD:THK FILM;15.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5032–00
A3R126	321–5036–00			RES,FXD:THK FILM;33.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5036–00
A3R127	322–3185–00	671–2978–02		RES,FXD:MET FILM;825 OHM,1%,0.2W,TC=100 PPM	80009	322–3185–00
A3R127	322–3185–00	671–2355–08		RES,FXD:MET FILM;825 OHM,1%,0.2W,TC=100 PPM	80009	322–3185–00
A3R128	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R129	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R130	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R131	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R132	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R133	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R134	311–5036–00			RES,VAR,TRMR:CERMET;5K OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	80009	311–5036–00
A3R135	311–5036–00			RES,VAR,TRMR:CERMET;5K OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	80009	311–5036–00
A3R136	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R137	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R138	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R139	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R140	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R141	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R142	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R143	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R144	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R145	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R146	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R147	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R148	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R149	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A3R150	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R151	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R152	321–5016–00			RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A3R153	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R154	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R155	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R156	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R157	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R158	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R159	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R160	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R161	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R162	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R163	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R164	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R165	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R166	321–5009–00			RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A3R167	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R168	311–5041–00			RES,VAR,TRMR:CERMET;100K OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	TK2073	G4DT104–M
A3R169	321–5143–00			RES,FXD,FILM:301 OHM,1%,0.125W	91637	CRCW12063010FT
A3R170	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R171	321–5009–00			RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A3R172	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R173	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R174	321–5028–00	671–2355–00	671–2978–00	RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R174	321–5027–00	671–2978–01		RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R174	321–5028–00	671–2355–00	671–2355–06	RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R174	321–5027–00	671–2355–07		RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R175	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R176	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R177	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R178	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R179	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R180	321–5143–00			RES,FXD,FILM:301 OHM,1%,0.125W	91637	CRCW12063010FT
A3R181	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R182	311–5032–00			RES,VAR,TRMR:CERMET;200 OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	32997	3314J–1–201G
A3R183	311–5032–00			RES,VAR,TRMR:CERMET;200 OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	32997	3314J–1–201G
A3R184	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R185	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R186	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R187	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R188	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R189	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R190	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R191	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R192	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R193	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R194	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R195	321–5046–00			RES,FXD:THK FILM;82.5 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5046–00
A3R196	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R197	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R198	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R199	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R200	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R201	321–5087–00			RES,FXD,FILM:620 OHM,5%,0.125W	80009	321–5087–00
A3R202	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R203	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R204	321–5024–00	671–2355–00	671–2978–00	RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R204	321–5030–00	671–2978–01		RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R204	321–5024–00	671–2355–00	671–2355–06	RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R204	321–5030–00	671–2355–07		RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R205	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R210	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R211	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A3R212	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R213	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R214	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R215	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A3R216	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R217	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R218	321–5087–00			RES,FXD,FILM:620 OHM,5%,0.125W	80009	321–5087–00
A3R219	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R220	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R221	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R224	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R225	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R226	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R227	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R228	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R229	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R230	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R231	321–5041–00			RES,FXD:THK FILM;82.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5041–00
A3R232	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R234	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R235	321–5055–00			RES,FXD:THK FILM;681K OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCD6813FT
A3R237	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R241	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R242	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R243	321–5055–00			RES,FXD:THK FILM;681K OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCD6813FT
A3R244	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R245	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R246	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R247	321–5014–00	671–2355–00	671–2978–00	RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R247	321–5023–00	671–2978–01		RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R247	321–5014–00	671–2355–00	671–2355–06	RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R247	321–5023–00	671–2355–07		RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R248	321–5028–00	671–2355–00	671–2978–00	RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R248	321–5026–00	671–2978–01		RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R248	321–5028–00	671–2355–00	671–2355–06	RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A3R248	321–5026–00	671–2355–07		RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R249	321–5006–00	671–2355–00	671–2978–00	RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R249	321–5014–00	671–2978–01		RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R249	321–5006–00	671–2355–00	671–2355–06	RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R249	321–5014–00	671–2355–07		RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R250	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R251	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R252	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R253	321–5032–00			RES,FXD:THK FILM;15.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5032–00
A3R254	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R255	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R258	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A3R259	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A3R260	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A3R261	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R262	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R263	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R264	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R265	321–5039–00			RES,FXD:THK FILM;56.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5039–00
A3R266	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R267	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R268	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R269	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R270	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R271	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R272	321–5212–00			RES,FXD:THK FILM;4.99K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW–1206–4991FT
A3R273	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A3R274	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R275	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R276	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R277	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R278	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A3R279	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R280	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A3R281	321–5011–00			RES,FXD:THK FILM;274 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5011–00
A3R282	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R283	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R284	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R285	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R286	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R287	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A3R288	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A3R289	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R290	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R291	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R292	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R293	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A3R294	321–5032–00			RES,FXD:THK FILM;15.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5032–00
A3R295	321–5043–00			RES,FXD:THK FILM;47.5 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5043–00
A3R296	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A3R297	321–5010–00			RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A3R298	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R299	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R300	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R301	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R302	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R303	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A3R304	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R305	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R306	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A3R307	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R308	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A3R309	321–5044–00			RES,FXD:THK FILM;56.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCD56R2FT

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R310	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R311	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R312	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R313	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A3R314	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R315	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R316	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A3R317	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R318	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R319	321–5038–00			RES,FXD:THK FILM;47.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5038–00
A3R320	321–5032–00			RES,FXD:THK FILM;15.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5032–00
A3R321	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R322	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R323	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R324	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R325	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R326	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R327	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R328	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R329	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R330	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R331	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R332	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R333	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R334	321–5017–00			RES,FXD:THK FILM;825 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5017–00
A3R335	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R336	321–5169–00			RES,FXD:THK FILM;475K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–47502FT
A3R337	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R338	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R339	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R340	321–5031–00			RES,FXD:THK FILM;12.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5031–00
A3R341	321–5029–00			RES,FXD:THK FILM;8.25K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5029–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A3R342	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R343	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R344	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A3R345	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R346	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R347	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A3R348	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R349	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R350	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R351	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R352	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R353	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R354	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A3R355	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A3R356	307–5041–00			RES NTWK,FXD,FI:4.7K OHM,2%,0.125W	32997	4816P–002–472
A3R357	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A3R358	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A3R359	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A3R360	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R361	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A3R362	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A3R363	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A3R364	321–5010–00			RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A3R365	321–5010–00			RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A3R366	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A3R367	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R368	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R369	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R370	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R371	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R372	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R373	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00

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A3R374	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R375	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A3R376	322–3130–00	671–2355–00	671–2355–03	RES,FXD:MET FILM;221 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3130–00
A3R376	321–5010–00	671–2355–04		RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A3R377	322–3385–00	671–2355–00	671–2355–03	RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A3R377	321–5047–00	671–2355–04		RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A3R378	322–3178–00	671–2355–03	671–2355–03	RES,FXD,FILM:698 OHM,1%,0.2W, TC=T0	91637	CCF50–2G698ROF
A3R378	321–5016–00	671–2355–04		RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A3R379	321–5003–00	671–2355–04		RES,FXD:THK FILM;18.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW 18E2
A3S1	260–1965–00			SW,RKR:(4)SPST,125MA,30VDC	80009	260–1965–00
A3T1	120–1057–00			XFMR,RF:TOROID	80009	120–1057–00
A3T2	120–1057–00			XFMR,RF:TOROID	80009	120–1057–00
A3U1	156–2051–01			MICROCKT,LIN:OPNAL AMPL,QUAD,JET IN	80009	156–2051–01
A3U2	160–8970–00			IC,DGTL:CMOS,PLD;EEPLD,16V8,15NS,90MA,PLCC20	80009	160–8970–00
A3U3	156–6007–00			IC,CONV:CMOS,A/D;8–BIT,13US,11 CHAN MUX,SER OUT;TLC540,PLCC20	80009	156–6007–00
A3U4	156–6007–00			IC,CONV:CMOS,A/D;8–BIT,13US,11 CHAN MUX,SER OUT;TLC540,PLCC20	80009	156–6007–00
A3U5	156–6256–01			IC,LIN:BIPOLAR,OP–AMP;DUAL,HI OUT CUR;MC33178D,SO8.150,12MM T&R	80009	156–6256–01
A3U6	156–5058–01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3–STATE;74F245,SO20.300,24MM T&R	80009	156–5058–01
A3U7	156–5489–01			IC,MISC:	80009	156–5489–01
A3U8	156–5058–01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3–STATE;74F245,SO20.300,24MM T&R	80009	156–5058–01
A3U9	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A3U10	156–6461–01			IC,MEM:CMOS,EPROM;256K X 8,150NS FLASH;28F020,PLCC32,T&R	80009	156–6461–01
				(671–2355–XX ONLY)		
A3U11	156–6151–00			IC,MEM:CMOS,SRAM;128K X 8,100NS,15UA,OE;431000,SO32.440	80009	156–6151–00
A3U12	156–5058–01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3–STATE;74F245,SO20.300,24MM T&R	80009	156–5058–01
A3U13	160–8969–00	671–2355–00	671–2355–04	IC,MEM:CMOS,EPROM,128K X 8,120NS,PLCC32	80009	160–8969–00
A3U13	160–8969–01	671–2355–05		IC,MEM:CMOS,EPROM;128K X 8,120NS,PLCC32	80009	160–8969–01
				MOUNTING PARTS		
	136–5011–00			SKT,PLCC:SMD;32 POS,0.05 CTR,0.800 X 0.700 INCH WIDE,0.200 H,BE/CU,TIN,W/O PLZ POSTS	80009	136–5011–00
				END MOUNTING PARTS		
A3U14	156–4224–00			IC,MEM:CMOS,NVRAM;8K X 8,100NS,INT BTRY;DS1225D–100, DIP28.6,TUBE	80009	156–4224–00
A3U15	156–5058–01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3–STATE;74F245,SO20.300,24MM T&R	80009	156–5058–01
A3U16	156–6461–01			IC,MEM:CMOS,EPROM;256K X 8,150NS FLASH;28F020,PLCC32,T&R	80009	156–6461–01
				(671–2355–XX ONLY)		
A3U17	156–6151–00			IC,MEM:CMOS,SRAM;128K X 8,100NS,15UA,OE;431000,SO32.440	80009	156–6151–00
A3U18	156–6454–00			IC,PROCESSOR:HCMOS,MICRO-CONT;32–BIT,16.78MHZ,2K RAM;68332,PQFP132	80009	156–6454–00

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A3U19	156–5058–01			IC,DGTL:FTTL,BUS XCVR;OCTAL, NONINV, 3–STATE;74F245,SO20.300,24MM T&R	80009	156–5058–01
A3U20	156–5441–01			IC,LIN:	80009	156–5441–01
A3U21	156–5190–01			IC,DGTL:FTTL,DEMUX/DCDR;1–OF–8 DCDR;74F138,SO16.150,16MM T&R	80009	156–5190–01
A3U22	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A3U23	156–5057–01			IC,DGTL:FTTL,BFR/DRVR;NONINV OCTAL, LINE DRVR, 3–STATE;74F244,SO20.300,24MM T&R	80009	156–5057–01
A3U24	156–5123–00			IC,DGTL:HCTCMOS,DEMUX/DCDR;4–TO–16 DCDR;74HCT154,SO24.300,TUBE	80009	156–5123–00
A3U25	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A3U26	156–5863–00			IC,DGTL:ECL,GATE;QUAD 2–IN OR;10H103,PLCC20,TUBE	80009	156–5863–00
A3U27	156–6147–00			IC,DGTL:CMOS,PLD;FPGA,3030,100 CLB,80 IOB,74 I/O,70MHZ;3030–70,PLCC84,TUBE	80009	156–6147–00
A3U28	156–5052–01			IC,DGTL:FTTL,GATE;HEX INV;74F04,SO14.150,16MM T&R	80009	156–5052–01
A3U29	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A3U30	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A3U31	156–6224–00			IC,CONV:CMOS,D/A;12 BIT,V OUT,16 CHAN,SER IN,DACU-LATOR;l10412,SO28.300	80009	156–6224–00
A3U32	156–5480–01			IC,DGTL:	80009	156–5480–01
A3U33	156–5299–01			IC,LIN:BIPOLAR,VR;NEG,–5V,100MA,5%; MC79L05ACD,SO8.150, 12MM T&R	80009	156–5299–01
A3U34	156–6194–00			IC,DGTL:CMOS,PLD;FPGA,3042,144 CLB,96 IOB,74 I/O,70MHZ;3042–70,PLCC84,TUBE	80009	156–6194–00
A3U35	156–6224–00			IC,CONV:CMOS,D/A;12 BIT,V OUT,16 CHAN,SER IN,DACU-LATOR;l10412,SO28.300	80009	156–6224–00
A3U36	156–5011–01			IC,MEM:CMOS,SRAM;8K X 8,150NS,OE;6264, SO28M.350,T&R	80009	156–5011–01
A3U37	156–6425–01			IC,CONV:	80009	156–6425–01
A3U38	156–5480–01			IC,DGTL:	80009	156–5480–01
A3U39	156–2051–01			MICROCKT,LIN:OPNAL AMPL,QUAD,JET IN	80009	156–2051–01
A3U40	156–5446–01	671–2355–00	671–2355–01	IC,MEM:CMOS,FIFO;512 X 9,65NS;7201,PLCC32,T&R	80009	156–5446–01
A3U40	156–6619–01	671–2355–02		IC,MEM:CMOS,FIFO;512 X 9,35NS;7201,PLCC32,T&R	80009	156–6619–01
A3U41	156–5073–01	671–2355–00	671–2978–00	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053, SO16.150,16MM,T&R	80009	156–5073–01
A3U41	156–5571–00	671–2978–01		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U41	156–5073–01	671–2355–00	671–2355–06	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U41	156–5571–00	671–2355–07		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U42	156–5289–01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, 3–STATE;74HCT574,SO20.300,24MM T&R	80009	156–5289–01
A3U43	156–5289–01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, 3–STATE;74HCT574,SO20.300,24MM T&R	80009	156–5289–01
A3U44	156–5289–01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, 3–STATE;74HCT574,SO20.300,24MM T&R	80009	156–5289–01
A3U45	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U46	156–5073–01	671–2355–00	671–2978–00	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U46	156–5571–00	671–2978–01		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U46	156–5073–01	671–2355–00	671–2355–06	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U46	156–5571–00	671–2355–07		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U47	156–2051–01			MICROCKT,LIN:OPNAL AMPL,QUAD,JET IN	80009	156–2051–01
A3U48	156–2051–01			MICROCKT,LIN:OPNAL AMPL,QUAD,JET IN	80009	156–2051–01

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A3U49	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A3U50	156–5073–01	671–2355–00	671–2978–00	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U50	156–5571–00	671–2978–01		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U50	156–5073–01	671–2355–00	671–2355–06	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U50	156–5571–00	671–2355–07		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U51	156–5289–01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, 3–STATE;74HCT574,SO20.300,24MM T&R	80009	156–5289–01
A3U52	156–5289–01			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, 3–STATE;74HCT574,SO20.300,24MM T&R	80009	156–5289–01
A3U53	156–4234–00			IC,LIN:BIPOLAR,VR;NEG,–8.0 VOLTS,1.0A,2%;MC7908 ACT–TO–220	80009	156–4234–00
A3U54	156–6446–01			IC,MISC:CMOS,SAMPLE/HOLD;QUAD, 9US TO 0.01;SMP–04,SO16.150	80009	156–6446–01
A3U55	234–0739–21			IC,ASIC:BIPOLAR,VIDEO PREAMPL;QC6–40,M639B–039; PLCC44,BOX	80009	234–0739–21
A3U56	234–0739–21			IC,ASIC:BIPOLAR,VIDEO PREAMPL;QC6–40,M639B–039; PLCC44,BOX	80009	234–0739–21
A3U57	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U59	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A3U60	156–5088–01			IC,DGTL:HCTCMOS,DEMUX/DCDR;3–TO–8 DCDR;74HCT138,SO16.150,16MM T&R	80009	156–5088–01
A3U62	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150,12MM T&R	80009	156–5138–01
A3U63	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A3U64	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150,12MM T&R	80009	156–5138–01
A3U65	156–5853–01			IC,LIN:BIPOLAR,OP–AMP;35MHZ,UNITY GAIN STB;LM6361M,SO8.150,12MM T&R	80009	156–5853–01
A3U66	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A3U67	234–0728–21			IC,ASIC:BIPOLAR,ANALOG MUX;QC6–40,M639–028;PLCC44,BOX	80009	234–0728–21
A3U68	156–5694–00			MICROCKT,LIN:BIPOLAR,VIDEO SYNC SEPARATOR	80009	156–5694–00
A3U70	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A3U71	156–5694–00			MICROCKT,LIN:BIPOLAR,VIDEO SYNC SEPARATOR	80009	156–5694–00
A3U72	156–5138–01	671–2355–00	671–2978–00	IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U72	156–6279–01	671–2978–01		IC,LIN:BIFET,OP–AMP;MC33282D,SO8.150	80009	156–6279–01
A3U72	156–5138–01	671–2355–00	671–2355–06	IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U72	156–6279–01	671–2355–07		IC,LIN:BIFET,OP–AMP;MC33282D,SO8.150	80009	156–6279–01
A3U73	156–6415–00			IC,LIN:	80009	156–6415–00
A3U74	156–6462–01			IC,MISC:BIPOLAR,ANALOG MUX;VIDEO CROSSPT SW,4 X 1;GX214–ACTB,SO14.150,16MM T&R	80009	156–6462–01
A3U75	156–6462–01			IC,MISC:BIPOLAR,ANALOG MUX;VIDEO CROSSPT SW,4 X 1;GX214–ACTB,SO14.150,16MM T&R	80009	156–6462–01
A3U76	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150, 16MM T&R	80009	156–6059–01
A3U77	156–5480–01			IC,DGTL:	80009	156–5480–01
A3U78	156–2959–00			IC,LIN:BIPOLAR,VR;POS,8.0V,1.0M,2%;MC7808ACT,TO–220	80009	156–2959–00
A3U79	234–0728–21			IC,ASIC:BIPOLAR,ANALOG MUX;QC6–40,M639–028; PLCC44,BOX	80009	234–0728–21
A3U80	156–6415–00			IC,LIN:	80009	156–6415–00

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A3U81	156–6415–00			IC,LIN:	80009	156–6415–00
A3U82	156–5480–01			IC,DGTL:	80009	156–5480–01
A3U83	156–5692–00			IC,LIN:	80009	156–5692–00
A3U84	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U85	156–5299–01			IC,LIN:BIPOLAR,VR;NEG,–5V,100MA,5%; MC79L05ACD,SO8.150, 12MM T&R	80009	156–5299–01
A3U86	156–6224–00			IC,CONV:CMOS,D/A;12 BIT,V OUT,16 CHAN,SER IN,DACU-LATOR;I10412,SO28.300	80009	156–6224–00
A3U87	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A3U88	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A3U89	156–5000–01			IC,LIN:BIPOLAR,COMPTR;OPEN COLL,200NS;LM311D, SO8.150,12MM T&R	80009	156–5000–01
A3U90	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A3U91	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A3U92	156–5776–00			IC,MISC:	80009	156–5776–00
A3U93	158–5024–00			OSC,RF:XTAL CONT;6MHZ,+/–0.01%,TTL OUT,SMD,FSO TYPE,24MM T&R	80009	158–5024–00
A3U94	156–5073–01	671–2355–00	671–2978–00	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U94	156–5571–00	671–2978–01		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U94	156–5073–01	671–2355–00	671–2355–06	IC,MISC:HCMOS,ANALOG MUX;TPL SPDT;HC4053,SO16.150,16MM,T&R	80009	156–5073–01
A3U94	156–5571–00	671–2355–07		IC,CMOS:ANALOG MUX;TPL,2CHAN;MC14053B,SO16.150	80009	156–5571–00
A3U95	156–5298–01			IC,LIN:BIPOLAR,VR;POS,5V,100MA,5%; MC78L05ACD,SO8.150,12MM T&R	80009	156–5298–01
A3VR1	152–5011–00			DIIO,SIG:6.2V,5%,225MW;MMBZ5234BL,SOT–23,8MM T&R	80009	152–5011–00
A3VR2	152–5011–00			DIIO,SIG:6.2V,5%,225MW;MMBZ5234BL,SOT–23,8MM T&R	80009	152–5011–00
A3VR3	152–5011–00			DIIO,SIG:6.2V,5%,225MW;MMBZ5234BL,SOT–23,8MM T&R	80009	152–5011–00
A3VR4	152–5002–00			DIO,ZENER:3.6V,5%,225MW; MMBZ5227BL,SOT–23,8MM	04713	MMB25227LBT1
A3Y1	158–5013–00			XTAL UNIT QTZ:	61429	FSM327
A3Y2	158–0367–00			XTAL UNIT,QTZ:4.421303MHZ,+/–0.002%,PRL	14301	016–210–00054
A3Y3	158–0368–00			XTAL UNIT,QTZ:3.589MHZ,0.002%,PAR,32PF,MINI DIP	14301	016–210–00053
A4	672–1396–00	B010100	B010287	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–00
A4	672–1396–01	B010288	B010302	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–01
A4	672–1396–02	B010303	B010424	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–02
A4	672–1396–03	B010425	B011531	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–03
A4	672–1396–04	B011532	B011719	CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–04
A4	672–1396–05	B011720		CIRCUIT BD ASSY:INPUT & BNC	80009	672–1396–05
A4C1	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C2	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C3	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C4	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C5	290–5008–00			CAP,FXD,TANT:1UF,20%,35V,0.138 X 0.110;3528,SMD,T&R	24165	293D105X0035B2T
A4C6	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C7	290–5008–00			CAP,FXD,TANT:1UF,20%,35V,0.138 X 0.110;3528,SMD,T&R	24165	293D105X0035B2T
A4C8	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C9	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPO-LAR,BULK	80009	290–1289–00
A4C10	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C11	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C12	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C13	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4C14	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C15	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C16	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C17	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C18	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C19	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C20	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C21	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C22	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C23	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C24	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C25	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C26	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C27	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C28	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C29	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C30	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C31	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C32	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C33	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C34	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C35	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C36	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C37	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C38	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C39	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C40	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C41	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C42	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C43	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A4C44	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A4C45	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C46	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C47	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C48	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C49	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C50	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C51	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C52	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A4C54	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C54	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C55	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C55	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C56	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C56	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C57	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C57	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C58	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C58	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C59	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C59	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C60	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4C60	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C61	281–0775–01	672–1396–00	672–1396–00	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A4C61	283–5004–00	672–1396–01		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A4C62	——— ———			(TEST SELECTED)		
A4C63	——— ———			(TEST SELECTED)		
A4C64	——— ———			(TEST SELECTED)		
A4C65	——— ———			(TEST SELECTED)		
A4C66	——— ———			(TEST SELECTED)		
A4C67	——— ———			(TEST SELECTED)		
A4C68	——— ———			(TEST SELECTED)		
A4C69	——— ———			(TEST SELECTED)		
A4CR1	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A4CR2	152–0141–02	672–1396–00	672–1396–00	DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35,T&R	80009	152–0141–02
A4CR2	152–5018–00	672–1396–01		DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A4J1	174–2745–00			CA ASSY,SP,ELEC:40,20 AWG,8.25 L,RBN	80009	174–2745–00
A4L1	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L2	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L3	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L4	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L5	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L6	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L7	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4L8	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A4Q1	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q2	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q4	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q5	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q6	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q7	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q8	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q9	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q10	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q11	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q12	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q13	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q14	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q15	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q16	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ,AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A4Q17	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A4Q18	151–5012–00			XSTR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ,AMPL;MMBTH69L,TO–236/SOT–23,8MM T&R	80009	151–5012–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4R1	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R2	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R2	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R3	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R3	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R4	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R8	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R9	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R10	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R11	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R12	321–5113–00			RES,FXD:THK FILM;75 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5113–00
A4R14	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R15	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R16	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R17	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R17	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R18	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R18	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R19	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R23	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R24	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R25	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R26	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R27	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R28	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R28	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R29	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R29	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R30	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R34	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4R35	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R36	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R37	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R38	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R39	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R39	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R40	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R40	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R41	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R45	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R46	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R47	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R48	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R49	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R50	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R50	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R51	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R51	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R52	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R56	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R57	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R58	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R59	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R60	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R61	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R61	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R62	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R62	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R63	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R67	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4R68	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R69	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R70	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R71	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R72	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R72	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R73	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R73	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R74	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R78	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R79	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R80	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R81	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R82	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A4R83	321–5025–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A4R83	321–5009–00	672–1396–03		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R84	321–5033–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R84	321–5034–00	672–1396–03		RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A4R85	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R89	321–5033–00			RES,FXD:THK FILM;18.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5033–00
A4R90	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A4R91	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R92	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A4R93	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A4R94	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A4R95	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A4R96	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A4R97	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A4R98	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R98	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4R99	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R99	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R100	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R100	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R101	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R101	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R102	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R102	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R103	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R103	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R104	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R104	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R105	321–5000–00	672–1396–00	672–1396–02	RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A4R105	321–5042–00	672–1396–03		RES,FXD:THK FILM;39.2 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5042–00
A4R106	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R106	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R107	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R107	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R108	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R108	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R109	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R109	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R110	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R110	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R111	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R111	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R112	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R112	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00
A4R113	322–3123–00	672–1396–03	672–1396–03	RES,FXD:MET FILM;187 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3123–00
A4R113	321–5009–00	672–1396–04		RES,FXD:THK FILM;182 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5009–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4U1	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A4U2	156–6407–00			IC,LIN:	80009	156–6407–00
A4U3	156–6407–00			IC,LIN:	80009	156–6407–00
A4U4	156–6407–00			IC,LIN:	80009	156–6407–00
A4U5	156–6407–00			IC,LIN:	80009	156–6407–00
A4U6	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150, 16MM T&R	80009	156–6059–01
A4U7	156–6407–00			IC,LIN:	80009	156–6407–00
A4U8	156–6407–00			IC,LIN:	80009	156–6407–00
A4U9	156–6407–00			IC,LIN:	80009	156–6407–00
A4U10	156–6407–00			IC,LIN:	80009	156–6407–00
A4A1	——— ———			CIRCUIT BD ASSY:BNC		
A4A1J2	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J3	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J4	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J5	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J6	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J7	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J8	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J9	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J10	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J11	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J12	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J13	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J14	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J15	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J16	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J17	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J18	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J19	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1J100	131–5436–00			CONN,RF JACK:BNC;50 OHM,FEM,STR,PCB,0.450 H X (4)0.040 SQ,0.189 TAIL,ON 0.250 CTR PCB	80009	131–5436–00
A4A1L1	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L2	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L3	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L4	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L5	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L6	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L7	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A4A1L8	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A4A1L9	108–0455–00	672–1396–00	672–1396–01	COIL,RF:FIXED,24NH,15%	80009	108–0455–00
A5	671–2339–00	B010100	B010179	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–00
A5	671–2339–01	B010180	B010478	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–01
A5	671–2339–02	B010479	B011195	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–02
A5	671–2339–03	B011196	B012610	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–03
A5	671–2339–04	B012611	B014117	CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–04
A5	671–2339–05	B014118		CIRCUIT BD ASSY:VECTORSCOPE	80009	671–2339–05
A5C1	283–0728–01			CAP,FXD,MICA DI:120PF,1%,500V,T&A	09023	CDA15FD121F03
A5C2	283–0625–01			CAP,FXD,MICA DI:220PF,1%,500V	09023	CDA10FD221F03
A5C3	290–0973–01			CAP,FXD,ALUM:100UF,20%,25VDC;8 X 11MM,0.2 LS;RDL	55680	UVX1E101MPA1TA
A5C4	283–0796–01			CAP,FXD,MICA DI:100PF,5%,500V,TAPE & AMMO	09023	CDA10FD101J03
A5C5	283–0625–01			CAP,FXD,MICA DI:220PF,1%,500V	09023	CDA10FD221F03
A5C6	283–0644–01			CAP,FXD,MICA DI:150PF,1%,500V	80009	283–0644–01
A5C7	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C8	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C9	283–0796–01			CAP,FXD,MICA DI:100PF,5%,500V,TAPE & AMMO	09023	CDA10FD101J03
A5C10	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C11	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C12	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C13	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C14	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C15	290–0973–01			CAP,FXD,ALUM:100UF,20%,25VDC;8 X 11MM,0.2 LS;RDL	55680	UVX1E101MPA1TA
A5C17	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C18	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C19	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C20	283–0728–01			CAP,FXD,MICA DI:120PF,1%,500V,T&A	09023	CDA15FD121F03
A5C21	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C22	283–5003–00			CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A5C23	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C24	283–0663–01			CAP,FXD,MICA DI:16.8PF,500V	80009	283–0663–01
A5C25	283–0728–01			CAP,FXD,MICA DI:120PF,1%,500V,T&A	09023	CDA15FD121F03
A5C26	281–5007–00			CAP,VAR,CER DI:4.5–20PF,100V	80009	281–5007–00
A5C27	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C28	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C29	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C30	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C31	283–0796–01			CAP,FXD,MICA DI:100PF,5%,500V,TAPE & AMMO	09023	CDA10FD101J03
A5C32	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C33	283–5201–00			CAP,FXD,CER:MLC;33PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A330JAT1A
A5C34	290–0944–01			CAP,FXD,ELCTLT:220UF,20%,10V	55680	UVX1C221MPA1TA
A5C35	283–0785–01			CAP,FXD,MICA DI:250PF,1%,500V,T&A	09023	CDA15FD251F03
A5C36	283–0677–01			CAP,FXD,MICA DI:82PF,1%,500V,T&A	09023	CDA15ED820F03
A5C37	283–5203–00			CAP,FXD,CER:MLC;1000PF,10%,100V,X7R,1206;SMD,8MM	04222	12061C102KAT1A
A5C38	283–5201–00			CAP,FXD,CER:MLC;33PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A330JAT1A
A5C39	290–0944–01			CAP,FXD,ELCTLT:220UF,20%,10V	55680	UVX1C221MPA1TA
A5C40	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C41	283–5195–00			CAP,FXD,CER:MLC;10PF,5%,100V ,NPO,1206;SMD,8MM	04222	12061A100JAT1A
A5C42	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C43	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C44	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A5C45	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C46	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C47	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C48	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C49	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C50	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C51	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5C52	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C53	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C54	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C55	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C56	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C57	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C58	283–5187–00	671–2339–00	671–2339–04	CAP,FXD,CER:MLC;15PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A150JAT1A
A5C58	283–5001–00	671–2339–05		CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A5C59	283–5113–00	671–2339–00	671–2339–00	CAP,FXD,CER:MLC;0.047UF,10%,50V,X7R,1206;SMD,8MM	04222	12065C473KAT1A
A5C59	283–5003–00	671–2339–01		CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A5C60	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C61	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C62	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C63	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C64	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C65	283–5066–00	671–2339–00	671–2339–04	CAP,FXD,CER:MLC;150PF,10%,100V,NPO,0.126 X 0.063;1206,SMD,T&R	04222	12061A151KAT1A
A5C65	283–5239–00	671–2339–05		CAP,FXD,CER DI:0.1200PF,5%,100V	80009	283–5239–00
A5C66	283–5200–00	671–2339–00	671–2339–00	CAP,FXD,CER DI:0.47UF,+80–20%,50V	80009	283–5200–00
A5C66	281–0775–01	671–2339–01	671–2339–02	CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A5C66	283–5004–00	671–2339–03		CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C67	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C68	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A5C69	283–5267–00			CAP,FXD,CER:MLC;1UF,+80%–20%,25V,Y5V,1206;SMD,T&R	80009	283–5267–00
A5C70	283–5189–00			CAP,FXD,CER:MLC;220PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A221JAT1A
A5C71	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C72	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C73	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C74	283–5068–00			CAP,FXD,CER:MLC;2200PF,10%,50V,X7R,1206;SMD,8MM	04222	12065C222KAT1A
A5C75	283–5195–00			CAP,FXD,CER:MLC;10PF,5%,100V ,NPO,1206;SMD,8MM	04222	12061A100JAT1A
A5C76	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C77	283–0677–01			CAP,FXD,MICA DI:82PF,1%,500V,T&A	09023	CDA15ED820F03
A5C78	283–5001–00	671–2339–05		CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A5C79	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C80	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C81	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C82	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C83	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C84	283–5003–00			CAP,FXD,CER:MLC;0.01UF,10%,50V,X7R,1206;SMD,8MM	80009	283–5003–00
A5C85	290–5036–01			CAP,FXD,ALUM:22UF,20%,16V,5.7MM (0.224);SMD,T&R	80009	290–5036–01
A5C86	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C87	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A5C88	290–5034–01			CAP,FXD,ALUM:33UF,20%,10V,5.7MM (0.224);SMD,T&R	80009	290–5034–01
A5C90	283–5106–00	671–2339–00	671–2339–03	CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C90	283–5066–00	671–2339–04		CAP,FXD,CER:MLC;150PF,10%,100V,NPO,0.126 X 0.063;1206,SMD,T&R	04222	12061A151KAT1A
A5C91	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C92	283–5106–00			CAP,FXD,CER:MLC;470PF,5%,100V,NPO,1206;SMD,8MM	80009	283–5106–00
A5C93	283–5068–00			CAP,FXD,CER:MLC;2200PF,10%,50V,X7R,1206;SMD,8MM	04222	12065C222KAT1A
A5C94	283–5187–00			CAP,FXD,CER:MLC;15PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A150JAT1A
A5C95	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C96	283–0728–01	671–2339–00	671–2339–03	CAP,FXD,MICA DI:120PF,1%,500V,T&A	09023	CDA15FD121F03
A5C96	283–0677–01	671–2339–04		CAP,FXD,MICA DI:82PF,1%,500V,T&A	09023	CDA15ED820F03
A5C97	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C98	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C99	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C100	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A
A5C101	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5C102	283–5001–00			CAP,FXD,CER:MLC;100PF,5%,50V,NPO,1206;SMD,8MM	80009	283–5001–00
A5C103	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C104	283–5187–00			CAP,FXD,CER:MLC;15PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A150JAT1A
A5C105	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C106	281–5007–00			CAP,VAR,CER DI:4.5–20PF,100V	80009	281–5007–00
A5C107	283–5108–00			CAP,FXD,CER:MLC;68PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A680JAT1A
A5C108	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C109	281–5007–00			CAP,VAR,CER DI:4.5–20PF,100V	80009	281–5007–00
A5C110	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C111	283–0640–01			CAP,FXD,MICA DI:160PF,1%,100V	80009	283–0640–01
A5C112	283–5187–00			CAP,FXD,CER:MLC;15PF,5%,100V,NPO,1206;SMD,8MM	04222	12061A150JAT1A
A5C113	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C114	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5C115	283–5004–00			CAP,FXD,CER:MLC;0.1UF,10%,25V,X7R,1206;SMD,8MM	80009	283–5004–00
A5CR1	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A5CR2	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A5CR3	152–5018–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF,SER–PAIR;MMBD1203–HI,SOT–23,8MM T&R	80009	152–5018–00
A5CR4	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR5	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR6	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR7	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR8	152–0269–01			DIO,SIG:VVC;C4=33PF,5%,C4/C20=2;SMV1263–1,DO–7	04713	SMV1263–1
A5CR9	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR10	152–5062–00			DIO,SIG:ULTRA FAST;100V,0.74VF,4NS,2.0PF, COM–ANODE;MMBD1205,SOT–23,8MM T&R	80009	152–5062–00
A5CR11	152–0141–02	671–2339–01	671–2339–01	DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A5J1	131–3364–00			CONN,HDR:	53387	2534–6002UB
A5L1	108–5009–00			COIL,RF:	80009	108–5009–00
A5L2	114–0478–00			COIL,RF:	80009	114–0478–00
A5L3	108–5023–00			COIL,RF:	54583	NL453232T–5R6M
A5L4	108–5057–00			COIL,RF:	54583	NL453232T–680K
A5L5	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A5L6	108–5015–00			COIL,RF:	80009	108–5015–00
A5L7	108–5015–00			COIL,RF:	80009	108–5015–00
A5L8	108–5015–00			COIL,RF:	80009	108–5015–00
A5L9	108–5015–00			COIL,RF:	80009	108–5015–00
A5L10	108–5015–00			COIL,RF:	80009	108–5015–00
A5L11	108–5002–00			COIL,RF:	TK0510	ELJ–FB150KE
A5P1	174–2744–00			CA ASSY,SP,ELEC:34,28 AWG, 3.25 L,RBN	80009	174–2744–00
A5Q1	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q2	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q3	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q4	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q5	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q6	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00

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A5Q7	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A5Q8	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q9	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q10	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q11	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q12	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A5Q13	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q14	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q15	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q16	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q17	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q18	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q19	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q20	151–5002–00			XSTR,SIG:JFET,N–CH;5V,75MA,60 OHM,SW;MMBF4392L,SOT–23,8MM T&R	80009	151–5002–00
A5Q21	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q22	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q23	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q24	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q25	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q26	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q27	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q28	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q29	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q30	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q31	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q32	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q33	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5Q34	151–5000–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;MMBT3906L,TO–236/SOT–23,8MM T&R	04713	MMBT3906LT1
A5Q35	151–5001–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;MMBT3904L,TO–236/SOT–23,8MM T&R	80009	151–5001–00
A5R1	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00

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A5R2	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R4	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R5	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A5R6	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R7	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R8	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R9	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A5R10	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R11	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R12	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A5R13	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A5R14	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A5R15	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R16	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R17	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A5R18	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R19	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R20	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R21	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R22	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A5R23	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R24	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R25	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R26	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R27	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R28	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A5R29	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A5R30	321–5049–00	671–2339–00	671–2339–00	RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R31	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A5R32	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00

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A5R33	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R34	321–5049–00	671–2339–00	671–2339–00	RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R35	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R36	311–5039–00			RES,VAR.TRMR:CERMET;1K OHM,25%,0.25W,4MM SQ,TOP ADJ;SMD,T&R	TK2073	G4DT102M
A5R37	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R38	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R39	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R40	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R41	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A5R42	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A5R43	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R44	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A5R45	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A5R46	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R47	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R48	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A5R49	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A5R50	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A5R51	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R52	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R53	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R54	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A5R55	——— ———			(TEST SELECTED)		
A5R56	321–5013–00			RES,FXD:THK FILM;392 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5013–00
A5R57	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R58	321–5024–00			RES,FXD:THK FILM;3.32K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5024–00
A5R59	321–5038–00			RES,FXD:THK FILM;47.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5038–00
A5R60	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R61	——— ———			(TEST SELECTED)		
A5R62	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R63	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00

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A5R64	321–5038–00			RES,FXD:THK FILM;47.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5038–00
A5R65	321–5036–00			RES,FXD:THK FILM;33.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5036–00
A5R66	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R67	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R68	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R69	321–5038–00			RES,FXD:THK FILM;47.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5038–00
A5R70	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R71	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R72	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R73	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R74	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A5R75	321–5266–00			RES,FXD:THK FILM;11K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5266–00
A5R76	321–5016–00			RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A5R77	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A5R78	321–5016–00			RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A5R79	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R80	——— ———			(TEST SELECTED)		
A5R81	——— ———			(TEST SELECTED)		
A5R82	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R83	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R84	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R85	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R86	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R87	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R88	321–5028–00			RES,FXD:THK FILM;6.81K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5028–00
A5R89	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R90	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R91	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R92	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R93	321–5016–00			RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A5R94	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R95	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R96	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R97	321–5023–00			RES,FXD:THK FILM;2.74K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5023–00
A5R98	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R99	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R100	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R101	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R102	321–5008–00			RES,FXD:THK FILM;150 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5008–00
A5R103	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R104	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R105	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R106	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R107	321–5208–00	671–2339–00	671–2339–04	RES,FXD:THK FILM;10M OHM,5%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–106JT
A5R107	321–5049–00	671–2339–05		RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R108	321–5208–00	671–2339–00	671–2339–04	RES,FXD:THK FILM;10M OHM,5%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–106JT
A5R109	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A5R110	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R111	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R112	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R113	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R114	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R115	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A5R116	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R117	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R118	321–5016–00			RES,FXD:THK FILM;681 OHM,1%,0.125W, TC=100 PPM;1206,T&R	01121	BCK6810FT
A5R119	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A5R120	321–5169–00			RES,FXD:THK FILM;475K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–47502FT
A5R121	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R122	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R123	321–5169–00			RES,FXD:THK FILM;475K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–47502FT
A5R124	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R125	321–5090–00			RES,FXD,FILM:20K OHM,1%,0.125W	80009	321–5090–00
A5R126	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R127	321–5064–00			RES,FXD:THK FILM;200K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5064–00
A5R128	321–5036–00			RES,FXD:THK FILM;33.2K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5036–00
A5R129	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R130	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R131	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R132	321–5011–00			RES,FXD:THK FILM;274 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5011–00
A5R133	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R134	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R135	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R136	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R137	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R138	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R139	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R140	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R141	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R142	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R143	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R144	321–5167–00			RES,FXD:THK FILM;221K OHM,1%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–22102FT
A5R145	321–5012–00			RES,FXD:THK FILM;332 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5012–00
A5R146	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R147	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A5R148	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R149	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R150	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R151	321–5000–00			RES,FXD:THK FILM;10 OHM,1%,0.125W, TC=100 PPM;1206,T&R	57668	MCR18EZHFW10E
A5R152	321–5011–00			RES,FXD:THK FILM;274 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5011–00
A5R153	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R154	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R155	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R156	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R157	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R158	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R159	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R160	321–5208–00			RES,FXD:THK FILM;10M OHM,5%,0.125W, TC=100 PPM;1206,T&R	91637	CRCW1206–106JT
A5R161	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R162	321–5020–00			RES,FXD:THK FILM;1.5K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5020–00
A5R163	321–5022–00			RES,FXD:THK FILM;2.21K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5022–00
A5R164	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R165	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R166	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R167	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R168	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R169	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R170	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R171	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R174	321–5018–00	671–2339–00	671–2339–03	RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R174	321–5021–00	671–2339–04		RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A5R175	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R176	321–5026–00	671–2339–00	671–2339–00	RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R176	321–5018–00	671–2339–01		RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R177	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R178	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R179	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R180	321–5014–00			RES,FXD:THK FILM;475 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5014–00
A5R182	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R183	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R184	321–5010–00			RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A5R185	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R186	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R187	321–5026–00	671–2339–00	671–2339–00	RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R187	321–5018–00	671–2339–01		RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R188	321–5010–00			RES,FXD:THK FILM;221 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5010–00
A5R189	321–5143–00			RES,FXD,FILM:301 OHM,1%,0.125W	91637	CRCW12063010FT
A5R190	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R191	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R192	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R193	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R194	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R195	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A5R196	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R197	321–5027–00			RES,FXD:THK FILM;5.62K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5027–00
A5R198	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R199	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R200	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R201	321–5049–00			RES,FXD:THK FILM;1M OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5049–00
A5R202	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R203	321–5006–00			RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5R204	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R205	321–5143–00			RES,FXD,FILM:301 OHM,1%,0.125W	91637	CRCW12063010FT
A5R206	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R207	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R208	321–5034–00			RES,FXD:THK FILM;22.1K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5034–00
A5R209	321–5021–00			RES,FXD:THK FILM;1.82K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5021–00
A5R210	321–5015–00			RES,FXD:THK FILM;562 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5015–00
A5R211	321–5025–00			RES,FXD:THK FILM;3.92K OHM,1%,0.125W, TC=100 PPM;1206,T&R,SAF CONT	80009	321–5025–00
A5R212	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R213	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R214	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A5R215	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00
A5R216	321–5047–00			RES,FXD:THK FILM;100K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5047–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5R217	321–5026–00			RES,FXD:THK FILM;4.75K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5026–00
A5R218	321–5018–00			RES,FXD:THK FILM;1.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5018–00
A5R219	321–5048–00			RES,FXD:THK FILM;332K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5048–00
A5R220	322–3097–00	671–2339–00	671–2339–02	RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A5R220	321–5006–00	671–2339–03		RES,FXD:THK FILM;100 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5006–00
A5T1	120–1057–00			XFMR,RF:TOROID	80009	120–1057–00
A5U1	156–5853–01			IC,LIN:BIPOLAR,OP–AMP;35MHZ,UNITY GAIN STB;LM6361M,SO8.150,12MM T&R	80009	156–5853–01
A5U2	156–5853–01			IC,LIN:BIPOLAR,OP–AMP;35MHZ,UNITY GAIN STB;LM6361M,SO8.150,12MM T&R	80009	156–5853–01
A5U3	156–5145–01			IC,DGTL:HCTCMOS,FLIP FLOP;DUAL D–TYPE;74HCT74,SO14.150,16MM T&R	80009	156–5145–01
A5U4	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A5U5	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150, 16MM T&R	80009	156–6059–01
A5U6	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5U7	156–5138–01			IC,LIN:BIFET,OP–AMP;DUAL;MC34002/TL072,SO8.150, 12MM T&R	80009	156–5138–01
A5U8	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5U9	156–2959–00			IC,LIN:BIPOLAR,VR;POS,8.0V,1.0M,2%;MC7808ACT,TO–220	80009	156–2959–00
A5U10	156–4234–00			IC,LIN:BIPOLAR,VR;NEG,–8.0 VOLTS,1.0A,2%;MC7908ACT,TO–220	80009	156–4234–00
A5U11	156–5081–01			IC,DGTL:HCTCMOS,GATE;HEX INV;74HCT04,SO14.150,16MM T&R	80009	156–5081–01
A5U12	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A5U13	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A5U14	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5U15	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5U16	156–5299–01			IC,LIN:BIPOLAR,VR;NEG,–5V,100MA,5%; MC79L05ACD,SO8.150, 12MM T&R	80009	156–5299–01
A5U17	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A5U18	156–6224–00			IC,CONV:CMOS,D/A;12 BIT,V OUT,16 CHAN,SER IN,DACU-LATOR;I10412,SO28.300	80009	156–6224–00
A5U19	156–5480–01			IC,DGTL:	80009	156–5480–01
A5U20	156–6059–01			IC,MISC:CMOS,ANALOG SW;QUAD;DG444DY,SO16.150,16MM T&R	80009	156–6059–01
A5U21	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A5U22	156–5480–01			IC,DGTL:	80009	156–5480–01
A5U23	156–5019–01			IC,LIN:BIPOLAR,COMPTR;DUAL,SGL SPLY;LM393D,SO8.150,12MM TAPE & REEL	80009	156–5019–01
A5U24	156–6279–01			IC,LIN:BIFET,OP–AMP;DUAL,TWO POLE FREQ COMP;MC33282D,SO8.150,12MM T&R	80009	156–6279–01
A5U25	156–5221–01			IC,DGTL:ECL,FLIP FLOP;DUAL D–TYPE;10H131,PLCC20,16MM T&R	80009	156–5221–01
A5U26	156–5487–01			IC,LIN:BIPOLAR,OP–AMP;TRANSCONDUC-TANCE;CA3080AM,SO8.150,12MM T&R	80009	156–5487–01
A5U27	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A5U28	156–5145–01			IC,DGTL:HCTCMOS,FLIP FLOP;DUAL D–TYPE;74HCT74,SO14.150,16MM T&R	80009	156–5145–01

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A5U29	156–5269–01	671–2339–00	671–2339–03	IC,DGTL:ECL,RCVR,TPL LINE RCVR,10H116,PLCC20,16MM	80009	156–5269–01
A5U29	156–5361–00	671–2339–04		IC,DGTL:ECL,RCVR,TPL LINE RCVR,10116,PLCC20	80009	156–5361–00
A5U30	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5U31	156–5136–00			IC,MISC:BIPOLAR,MOD/DEMOD;MC1496D,SO14.150,TUBE	80009	156–5136–00
A5VR1	152–5023–00			DIO,ZENER:5.1V,5%,225MW;MMBZ5231BL,SOT–23,8MM	04713	MMBZ5231BLT1
A5VR2	152–5002–00			DIO,ZENER:3.6V,5%,225MW; MMBZ5227BL,SOT–23,8MM	04713	MMB25227LBT1
A5VR3	152–5002–00			DIO,ZENER:3.6V,5%,225MW; MMBZ5227BL,SOT–23,8MM	04713	MMB25227LBT1
A5Y1	158–0270–00			XTAL UNIT,QTZ:17.734MHZ,0.001%	80009	158–0270–00
A5Y2	158–0308–00			XTAL UNIT,QTZ:14.31818MHZ,0.003%, PRL,CL=30PF,PKG HC–49/U	TK0978	53590
A6	671–2472–00	B010100	B010354	CIRCUIT BD ASSY:SCH	80009	671–2472–00
A6	671–2472–01	B010355	B010596	CIRCUIT BD ASSY:SCH	80009	671–2472–01
A6	671–2472–02	B010597	B011070	CIRCUIT BD ASSY:SCH	80009	671–2472–02
A6	671–2472–03	B011071	B013001	CIRCUIT BD ASSY:SCH	80009	671–2472–03
A6	671–2472–04	B013002	B014498	CIRCUIT BD ASSY:SCH	80009	671–2472–04
A6	671–2472–05	B014499		CIRCUIT BD ASSY:SCH	80009	671–2472–05
				(1750–SER,1760–SER OPT SC ONLY)		
				ATTACHED PARTS		
	337–3104–00			SHIELD,ELEC:CKT BD	80009	337–3104–00
				END ATTACHED PARTS		
A6C1	281–0777–00			CAP,FXD,CER:MLC;51PF,5%,100V,0.100 X 0.170;AX,MI	80009	281–0777–00
A6C2	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A6C3	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A6C4	283–0651–00			CAP,FXD,MICA DI:430PF,1%,500V	80009	283–0651–00
A6C5	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A6C6	283–0622–00			CAP,FXD,MICA DI:450PF,1%,300V	80009	283–0622–00
A6C7	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C8	283–0674–01			CAP,FXD,MICA DI:85PF,500V	80009	283–0674–01
A6C9	290–1289–00			CAP,FXD,ALUM:47UF,20%,16V,0.250 X 0.276;RDL,NONPOLAR,BULK	80009	290–1289–00
A6C10	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A6C11	281–0864–00			CAP,FXD,CER:MLC;430PF,5%,100V,0.100 X 0.170;AX,MI	04222	SA101A431JAA
A6C12	283–0672–01			CAP,FXD,MICA DI:200PF,1%,500V	80009	283–0672–01
A6C13	283–0600–01			CAP,FXD,MICA DI:43PF,5%,500V	09023	CDA10ED430J03
A6C14	281–0772–00			CAP,FXD,CER:MLC;4700PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101C472KAA
A6C15	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C16	281–0772–00			CAP,FXD,CER:MLC;4700PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101C472KAA
A6C17	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C18	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C19	283–0674–01			CAP,FXD,MICA DI:85PF,500V	80009	283–0674–01
A6C21	281–0772–00			CAP,FXD,CER:MLC;4700PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101C472KAA
A6C22	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C23	281–0772–00			CAP,FXD,CER:MLC;4700PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101C472KAA
A6C24	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C25	283–0642–01			CAP,FXD,MICA DI:33PF,2%,500V	09023	CDA10ED330G03
A6C26	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C27	283–0177–05			CAP,FXD,CER DI:1UF,+80–20%,25V	04222	SR303E105ZAAAP1
A6C28	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C29	283–0642–01			CAP,FXD,MICA DI:33PF,2%,500V	09023	CDA10ED330G03
A6C30	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C31	281–0756–00	671–2472–01		CAP,FXD,CER:MLC;2.2PF,+/–0.5PF,200V,0.100 X 0.170;AX	04222	SA102A2R2DAA
A6C32	283–0644–01			CAP,FXD,MICA DI:150PF,1%,500V	80009	283–0644–01
A6C33	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C34	283–0633–01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,T&A	09023	CDA15ED770F03
A6C35	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6C36	283–0642–01			CAP,FXD,MICA DI:33PF,2%,500V	09023	CDA10ED330G03
A6C37	283–0633–01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,T&A	09023	CDA15ED770F03
A6C38	283–0597–00			CAP,FXD,MICA DI:470PF,10%,300V	80009	283–0597–00
A6C39	281–0765–00	671–2472–00	671–2472–04	CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A6C39	281–0761–00	671–2472–05		CAP,FXD,CER DI:27PF,5%,100V	80009	281–0761–00
A6C40	283–0100–00			CAP,FXD,CER DI:0.0047UF,10%,200V	04222	SR302A472KAA
A6C41	281–0920–00			CAP,FXD:CER,MLC,1000PF,5%,50V,0.170 X 0.1;NPO,AX	80009	281–0920–00
A6C42	281–0184–00			CAP,VAR,PLSTC:2–18PF,500VDC	80009	281–0184–00
A6C43	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C44	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A6C45	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A6C46	281–0184–00			CAP,VAR,PLSTC:2–18PF,500VDC	80009	281–0184–00
A6C47	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C48	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A6C49	283–0597–00			CAP,FXD,MICA DI:470PF,10%,300V	80009	283–0597–00
A6C51	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C52	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C53	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C54	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C55	283–0644–01			CAP,FXD,MICA DI:150PF,1%,500V	80009	283–0644–01
A6C56	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C57	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C59	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C60	281–0920–00			CAP,FXD:CER,MLC,1000PF,5%,50V,0.170 X 0.1;NPO,AX	80009	281–0920–00
A6C61	281–0864–00			CAP,FXD,CER:MLC;430PF,5%,100V,0.100 X 0.170;AX,MI	04222	SA101A431JAA
A6C62	283–0625–01			CAP,FXD,MICA DI:220PF,1%,500V	09023	CDA10FD221F03
A6C64	281–0302–00			CAP,VAR,PLSTC:1.2–4PF,100V	52769	GXL4R000
A6C65	281–0863–00			CAP,FXD,CER:MLC;240PF,5%,100V,0.100 X 0.170;AX,MI	04222	SA101A241JAA
A6C66	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C67	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C69	281–0302–00			CAP,VAR,PLSTC:1.2–4PF,100V	52769	GXL4R000
A6C70	281–0826–00			CAP,FXD,CER:MLC;2200PF,10%,100V,0.100 X 0.170;AX,MI	04222	SA101C222KAA
A6C71	283–0239–02			CAP,FXD,CER DI:0.022UF,10%,50WVDC,X7R,T&A	04222	SR595C223KAAAP1
A6C72	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C73	283–0687–00			CAP,FXD,MICA DI:560PF,2%,300V	80009	283–0687–00
A6C74	283–0687–00			CAP,FXD,MICA DI:560PF,2%,300V	80009	283–0687–00
A6C75	281–0863–00			CAP,FXD,CER:MLC;240PF,5%,100V,0.100 X 0.170;AX,MI	04222	SA101A241JAA
A6C77	281–0767–00	671–2472–00	671–2472–01	CAP,FXD,CER:MLC;330PF,20%,100V,0.100 X 0.170;AX,MI	04222	SA102C331MAA
A6C77	283–0680–00	671–2472–02		CAP,FXD,MICA DI:330PF,1%,500V	80009	283–0680–00
A6C80	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C81	283–0479–00			CAP,FXD,CER DI:0.47UF,+80–20%,25V	80009	283–0479–00
A6C83	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C84	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C85	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C86	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C87	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C88	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C89	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A6C90	283–0352–00	671–2472–00	671–2472–04	CAP,FXD,CER DI:86PF,5%,100V	TK1134	8121BXXXP380860J
A6C91	281–0765–00	671–2472–03		CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A6CR1	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR2	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR3	152–0650–00	671–2472–00	671–2472–02	DIO,SIG:VVC;30V,2.3PF@C25,C3/25=5.25;BB105B,PLSTC STRIPLINE	50101	U11–4101
A6CR3	152–1187–00	671–2472–02		DIO,SIG:VVC;30V,11PF AT 3V,2.1PF AT 25V, C3/C25=5.2,Q=300,1R=50NA;KN3201,D0–34,T&R	80009	152–1187–00
A6CR4	152–0650–00	671–2472–00	671–2472–02	DIO,SIG:VVC;30V,2.3PF@C25,C3/25=5.25;BB105B,PLSTC STRIPLINE	50101	U11–4101

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6CR4	152–1187–00	671–2472–02		DIO,SIG:VVC;30V,11PF AT 3V,2.1PF AT 25V, C3/C25=5.2,Q=300,1R=50NA;KN3201,D0–34,T&R	80009	152–1187–00
A6CR5	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR6	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR7	152–0141–02	671–2472–02		DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR8	152–0141–02	671–2472–02		DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6CR9	152–0141–02	671–2472–03		DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A6D1	152–0269–01			DIO,SIG:VVC;C4=33PF,5%,C4/C20=2;SMV1263–1,DO–7	04713	SMV1263–1
A6J1	174–2747–00			CA ASSY,SP,ELEC:2 X 17,28 AWG,1.75 L,RBN	80009	174–2747–00
A6L1	108–0317–01			COIL,RF:FIXED,15UH,TUBULAR	80009	108–0317–01
A6L2	108–1212–00			COIL,RF:FIXED,9UH,2%	TK1345	108–1212–00
A6L3	108–0317–01			COIL,RF:FIXED,15UH,TUBULAR	80009	108–0317–01
A6L4	108–1212–00			COIL,RF:FIXED,9UH,2%	TK1345	108–1212–00
A6L5	108–1212–00			COIL,RF:FIXED,9UH,2%	TK1345	108–1212–00
A6L6	108–1212–00			COIL,RF:FIXED,9UH,2%	TK1345	108–1212–00
A6Q1	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q2	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q3	151–0223–06			XSTR,SIG:BIPOLAR,NPN;15V,500MA,SWING; MPS2369A,TO–92 EBC,T&A	04713	SPS9110RLRP
A6Q4	151–0192–05			XSTR,SIG:BIPOLAR,NPN;25V,100MA,200MHZ, AMPL;MPS6521,TO–92 EBC,T&A	80009	151–0192–05
A6Q5	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q6	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A6Q7	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A6Q8	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A6Q9	151–0223–06			XSTR,SIG:BIPOLAR,NPN;15V,500MA,SWING; MPS2369A,TO–92 EBC,T&A	04713	SPS9110RLRP
A6Q10	151–0192–05			XSTR,SIG:BIPOLAR,NPN;25V,100MA,200MHZ, AMPL;MPS6521,TO–92 EBC,T&A	80009	151–0192–05
A6Q11	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q12	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q13	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A6Q14	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q15	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q16	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q17	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q19	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q20	151–0216–04			XSTR,SIG:BIPOLAR,PNP;25V,100MA,170MHZ, AMPL;MPS6523,TO–92 EBC,T&A	80009	151–0216–04
A6Q21	151–0190–00	671–2472–00	671–2472–01	XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6Q21	151–0711–02	671–2472–02		XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A6Q22	151–0190–00	671–2472–00	671–2472–01	XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00

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A6Q22	151–0711–02	671–2472–02		XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A6Q26	151–1039–00			XSTR,SIG:JFET,P–CH;9V,16MA,2MS,GENER-AL;2N5462,TO–92,SDG	80009	151–1039–00
A6Q27	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A6Q28	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A6R1	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R2	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R4	322–3300–02			RES,FXD,FILM:13K OHM,0.5%,0.2W, TC=T2	57668	CRB20 DYE 13K0
A6R5	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R6	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R7	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6R8	322–3231–00			RES,FXD,FILM:2.49K OHM,1%,0.2W, TC=T0	80009	322–3231–00
A6R9	322–3177–02			RES,FXD,FILM:681 OHM,0.5%,0.2W, TC=T2	80009	322–3177–02
A6R13	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A6R14	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A6R15	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A6R16	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R17	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A6R18	322–3318–00			RES,FXD:MET FILM;20K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 20K0
A6R19	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R21	131–0566–00			BUS,CNDCT:DUM RES,0.094 OD X 0.225 L	80009	131–0566–00
A6R22	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R23	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R24	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R25	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A6R26	322–3231–00			RES,FXD,FILM:2.49K OHM,1%,0.2W, TC=T0	80009	322–3231–00
A6R27	322–3185–00			RES,FXD:MET FILM;825 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 825E
A6R28	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R29	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R30	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R31	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A6R32	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R33	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6R34	322–3306–00			RES,FXD:MET FILM;15K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 15K0
A6R35	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R36	322–3160–00			RES,FXD,FILM:453 OHM,1%,0.2W, TC=T0	80009	322–3160–00

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A6R37	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R38	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6R39	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R40	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R42	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A6R43	322–3255–00			RES,FXD,FILM:4.42K OHM,1%,0.2W, TC=T0	80009	322–3255–00
A6R44	322–3297–00			RES,FXD:MET FILM;12.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 12K1
A6R45	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A6R46	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A6R48	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R50	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A6R51	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A6R53	322–3373–00	671–2472–00	671–2472–01	RES,FXD,FILM:75K OHM,1%,0.2W, TC=T0	80009	322–3373–00
A6R54	322–3254–00			RES,FXD,FILM:4.32K OHM,1%,0.2W, TC=T0	80009	322–3254–00
A6R55	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R57	322–3275–00			RES,FXD,FILM:7.15K OHM,1%,0.2W, TC=T0	80009	322–3275–00
A6R58	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R59	322–3266–00			RES,FXD,FILM:5.76K OHM,1%,0.2W, TC=T0	80009	322–3266–00
A6R60	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A6R61	322–3266–00			RES,FXD,FILM:5.76K OHM,1%,0.2W, TC=T0	80009	322–3266–00
A6R62	322–3233–00			RES,FXD,FILM:2.61K OHM,1%,0.2W, TC=T0	80009	322–3233–00
A6R63	322–3184–00			RES,FXD,FILM:806 OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 806E
A6R64	322–3184–00			RES,FXD,FILM:806 OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 806E
A6R65	322–3276–00			RES,FXD,FILM:7.32K OHM,1%,0.2W, TC=T0	80009	322–3276–00
A6R66	322–3325–00			RES,FXD,FILM:23.7K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 23K7
A6R67	322–3357–00			RES,FXD,FILM:51.1K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 51K1
A6R68	322–3169–00			RES,FXD:MET FILM;562 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F562R0F
A6R69	322–3169–00			RES,FXD:MET FILM;562 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F562R0F
A6R70	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R71	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R72	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R73	322–3431–00			RES,FXD,FILM:301K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 301K
A6R74	322–3126–00			RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A6R76	322–3169–00			RES,FXD:MET FILM;562 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F562R0F
A6R78	322–3126–00			RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A6R79	322–3204–00			RES,FXD,FILM:1.3K OHM,1%,0.2W, TC=T0	80009	322–3204–00
A6R80	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6R81	322–3155–00			RES,FXD,FILM:402 OHM,1%,0.2W, TC=T0	80009	322–3155–00
A6R82	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6R83	322–3265–00			RES,FXD:MET FILM;5.62K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3265–00
A6R84	322–3265–00			RES,FXD:MET FILM;5.62K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3265–00

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A6R85	322–3265–00			RES,FXD:MET FILM;5.62K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3265–00
A6R87	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R88	322–3356–00			RES,FXD,FILM:49.9K OHM,1%,0.2W, TC=T0	80009	322–3356–00
A6R89	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A6R90	322–3393–00			RES,FXD:MET FILM;121K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3393–00
A6R91	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R92	322–3393–00			RES,FXD:MET FILM;121K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3393–00
A6R93	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A6R94	322–3265–00			RES,FXD:MET FILM;5.62K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3265–00
A6R95	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A6R96	322–3393–00			RES,FXD:MET FILM;121K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3393–00
A6R100	322–3487–00			RES,FXD,FILM:500 OHM,1%,0.2W, TC=TO	80009	322–3487–00
A6R101	322–3487–00			RES,FXD,FILM:500 OHM,1%,0.2W, TC=TO	80009	322–3487–00
A6R102	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R103	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A6R104	322–3204–00			RES,FXD,FILM:1.3K OHM,1%,0.2W, TC=T0	80009	322–3204–00
A6R105	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R106	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R107	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R108	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R109	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A6R110	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R111	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R112	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R113	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R114	322–3318–00			RES,FXD:MET FILM;20K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 20K0
A6R115	322–3155–00			RES,FXD,FILM:402 OHM,1%,0.2W, TC=T0	80009	322–3155–00
A6R116	322–3231–00			RES,FXD,FILM:2.49K OHM,1%,0.2W, TC=T0	80009	322–3231–00
A6R117	322–3158–00			RES,FXD,FILM:432 OHM,1%,0.2W, TC=T0	80009	322–3158–00
A6R121	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R122	322–3435–00			RES,FXD:MET FILM;332K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3435–00
A6R123	322–3173–00			RES,FXD,FILM:619 OHM,1%,0.2W, TC=T0	91637	CCF50–2F619R0F
A6R124	322–3158–00			RES,FXD,FILM:432 OHM,1%,0.2W, TC=T0	80009	322–3158–00
A6R125	322–3173–00			RES,FXD,FILM:619 OHM,1%,0.2W, TC=T0	91637	CCF50–2F619R0F
A6R128	322–3243–00			RES,FXD:MET FILM;3.32K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–1–G33200F
A6R129	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R130	322–3246–00	671–2472–00	671–2472–02	RES,FXD,FILM:3.57K OHM,1%,0.2W, TC=T0	80009	322–3246–00
A6R130	322–3281–00	671–2472–03		RES,FXD:MET FILM;8.25K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3281–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6R131	322–3126–00			RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A6R132	322–3126–00			RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A6R133	322–3184–00			RES,FXD,FILM:806 OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 806E
A6R134	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A6R135	322–3184–00			RES,FXD,FILM:806 OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 806E
A6R136	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R137	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R139	322–3250–00	671–2472–00	671–2472–01	RES,FXD:MET FILM;3.92K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F39200F
A6R139	322–3193–00	671–2472–02		RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R140	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R141	322–3222–00	671–2472–00	671–2472–01	RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A6R141	322–3373–00	671–2472–02		RES,FXD,FILM:75K OHM,1%,0.2W, TC=T0	80009	322–3373–00
A6R143	322–3201–00			RES,FXD:MET FILM;1.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3201–00
A6R144	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R145	322–3173–00	671–2472–00	671–2472–01	RES,FXD,FILM:619 OHM,1%,0.2W, TC=T0	91637	CCF50–2F619R0F
A6R145	322–3339–00	671–2472–02		RES,FXD:MET FILM;33.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3339–00
A6R146	322–3201–00			RES,FXD:MET FILM;1.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3201–00
A6R150	322–3085–00			RES,FXD:MET FILM;75 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 75E0
A6R153	322–3162–00			RES,FXD:MET FILM;475 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3162–00
A6R154	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R155	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A6R156	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R157	322–3318–00			RES,FXD:MET FILM;20K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 20K0
A6R163	322–3481–00			RES,FXD,FILM:1M OHM.1%,0.2W, TC=T0	80009	322–3481–00
A6R164	322–3465–00			RES,FXD,FILM:681K OHM,1%,0.2W, TC=T0	91637	CCF–506813F
A6R165	322–3465–00			RES,FXD,FILM:681K OHM,1%,0.2W, TC=T0	91637	CCF–506813F
A6R167	322–3169–00			RES,FXD:MET FILM;562 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F562R0F
A6R168	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A6R169	322–3132–00			RES,FXD,FILM:232 OHM,1%,0.2W, TC=T0	80009	322–3132–00
A6R170	322–3226–00	671–2472–00	671–2472–01	RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R170	322–3233–00	671–2472–02		RES,FXD,FILM:2.61K OHM,1%,0.2W, TC=T0	80009	322–3233–00
A6R171	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A6R172	322–3318–00			RES,FXD:MET FILM;20K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 20K0
A6R173	311–2238–00			RES,VAR,TRMR:CERMET;50K OHM,20%,0.5W,0.197 SQ,SIDE ADJUST;T&R	TK1450	GF06UT 50 K
A6R174	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A6R175	322–3283–00			RES,FXD,FILM:8.66K OHM,1%,0.2W, TC=T0	80009	322–3283–00
A6R176	322–3176–00			RES,FXD,FILM:665 OHM,1%,0.2W, TC=T0	80009	322–3176–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6R177	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R178	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A6R179	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A6R180	322–3260–00			RES,FXD,FILM:4.99K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 4K99
A6R181	322–3318–00			RES,FXD:MET FILM;20K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 20K0
A6R182	322–3126–00	671–2472–02		RES,FXD,FILM:200 OHM,1%,0.2W, TC=T0	80009	322–3126–00
A6R183	322–3201–00	671–2472–02		RES,FXD:MET FILM;1.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3201–00
A6R184	322–3212–00	671–2472–02		RES,FXD,FILM:1.58K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 1K58
A6R185	322–3369–00	671–2472–02		RES,FXD:MET FILM;68.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3369–00
A6R186	322–3273–00	671–2472–02		RES,FXD:MET FILM;6.81K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3273–00
A6R187	322–3289–00	671–2472–03		RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A6TP1	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A6TP2	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A6TP3	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A6TP4	214–4085–00			TERM,TEST PT:0.070 ID,0.220 H,0.063 DIA PCB,0.015 X 0.032 BRS,W/ RED NYL CLR	26364	104–01–02
A6U1	156–0433–00			IC,LIN:SAMPLE & HOLD	80009	156–0433–00
A6U4	156–0433–00			IC,LIN:SAMPLE & HOLD	80009	156–0433–00
A6U5	156–0433–00			IC,LIN:SAMPLE & HOLD	80009	156–0433–00
A6U6	156–1191–00			IC,LIN:BIFET,OP–AMP;DUAL;TL072CN/LF353N,DIP08.3	80009	156–1191–00
A6U7	156–0433–00			IC,LIN:SAMPLE & HOLD	80009	156–0433–00
A6U8	156–1195–01	671–2472–00	671–2472–04	IC,DGTL:STTL,MULTIVIBRATOR;DUAL RETRIG, RESET ONE–SHOT;26S02,DIP16.3	80009	156–1195–01
A6U8	156–1335–00	671–2472–05		IC,DGTL:STTL,MULTIVIB;DUAL RETRIG MONOST-ABLE;96L02,DIP16.3	80009	156–1335–00
A6U9	160–8968–00			IC,DGTL:CMOS,PLD;EEPLD,20RA10,30NS,100MA,PLCC28	80009	160–8968–00
				MOUNTING PARTS		
	136–1005–00			SKT,PLCC:	00779	3–821581–1
				END MOUNTING PARTS		
A6U10	156–1191–00			IC,LIN:BIFET,OP–AMP;DUAL;TL072CN/LF353N,DIP08.3	80009	156–1191–00
A6U11	156–0860–02			IC,DGTL:ECL,RCVR;10116,DIP16.3,TUBE	80009	156–0860–02
A6U12	156–1195–01	671–2472–00	671–2472–04	IC,DGTL:STTL,MULTIVIBRATOR;DUAL RETRIG, RESET ONE–SHOT;26S02,DIP16.3	80009	156–1195–01
A6U12	156–1335–00	671–2472–05		IC,DGTL:STTL,MULTIVIB;DUAL RETRIG MONOST-ABLE;96L02,DIP16.3	80009	156–1335–00
A6U13	156–0048–00			IC,LIN:	80009	156–0048–00
A6U14	156–1191–00			IC,LIN:BIFET,OP–AMP;DUAL;TL072CN/LF353N,DIP08.3	80009	156–1191–00
A6U15	156–1225–00			IC,LIN:BIPOLAR,COMPTR;DUAL,OPEN COLL,300NS;LM393N,DIP08.3	01295	LM393P
A6U17	156–2460–00			IC,MISC:BIPOLAR,MOD/DEMOD;BAL-ANCED;MC1496P,DIP14.3	04713	MC1496P
A6U18	156–0295–02			IC,DGTL:ECL,GATE;10107,DIP16.3,TUBE	80009	156–0295–02
A6U22	156–1225–00			IC,LIN:BIPOLAR,COMPTR;DUAL,OPEN COLL,300NS;LM393N,DIP08.3	01295	LM393P
A6U23	156–0048–00			IC,LIN:	80009	156–0048–00
A6U24	156–2761–01			IC,DGTL:	80009	156–2761–01
A6U25	156–3226–00			IC,LIN:BIPOLAR,OP–AMP;35 MHZ,UNITY GAIN STB;LM6361N,DIP08.3	80009	156–3226–00
A6U27	156–1225–00			IC,LIN:BIPOLAR,COMPTR;DUAL,OPEN COLL,300NS;LM393N,DIP08.3	01295	LM393P

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A6U28	156–1225–00			IC,LIN:BIPOLAR,COMPTR;DUAL,OPEN COLL,300NS;LM393N,DIP08.3	01295	LM393P
A6U29	156–4135–00			IC,LIN:BIPOLAR,COMPTR;TTL OUT,9NS,LATCH;MAX9686BCPA,DIP08.3	80009	156–4135–00
A6U30	156–4135–00			IC,LIN:BIPOLAR,COMPTR;TTL OUT,9NS,LATCH;MAX9686BCPA,DIP08.3	80009	156–4135–00
A6U31	156–4135–00			IC,LIN:BIPOLAR,COMPTR;TTL OUT,9NS,LATCH;MAX9686BCPA,DIP08.3	80009	156–4135–00
A6U32	156–1150–01			IC,LIN:BIPOLAR,VR;NEG,–5.0V,100MA,4%; MC79L05ACP,TO–92,T&R	80009	156–1150–01
A6U33	156–0991–02			IC,LIN:BIPOLAR,VR;POS,5.0V,100MA,5%; MC78L05ACP,TO–92 T&A	80009	156–0991–02
A6U34	156–0991–02			IC,LIN:BIPOLAR,VR;POS,5.0V,100MA,5%; MC78L05ACP,TO–92 T&A	80009	156–0991–02
A6U35	156–1191–00	671–2472–02		IC,LIN:BIFET,OP–AMP;DUAL;TL072CN/LF353N,DIP08.3	80009	156–1191–00
A6Y1	158–0308–00			XTAL UNIT,QTZ:14.31818MHZ,0.003%, PRL,CL=30PF,PKG HC–49/U	TK0978	53590
A6Y2	158–0270–00			XTAL UNIT,QTZ:17.734MHZ,0.001%	80009	158–0270–00
A6Y3	158–0396–00			XTAL,UNIT QTZ:3.587412MHZ,+/–0.005%,SER,CL 16PF,4 PIN MINI DIP PKG	80009	158–0396–00
A6Y4	158–0395–00			XTAL,UNIT QTZ:4.4375MHZ,+/–0.005%,SER,CL 16PF,4 PIN MINI DIP PKG	80009	158–0395–00
A7	671–2471–01	B010100	B012051	CIRCUIT BD ASSY:COMPONENT	80009	671–2471–01
A7	671–2471–02	B012052	b012604	CIRCUIT BD ASSY:COMPONENT	80009	671–2471–02
A7	671–2471–03	B012605		CIRCUIT BD ASSY:COMPONENT	80009	671–2471–03
A7C1	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C2	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C3	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C5	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C8	281–0928–00			CAP,FXD,CER DI:150PF,5%	04222	SA101A151JAA
A7C9	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C18	281–0928–00			CAP,FXD,CER DI:150PF,5%	04222	SA101A151JAA
A7C19	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C25	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C28	281–0928–00			CAP,FXD,CER DI:150PF,5%	04222	SA101A151JAA
A7C36	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A7C41	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C42	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C46	281–0819–00			CAP,FXD,CER:MLC;33 PF,5%,50V,0.100 X 0.170;AX,MI	04222	SA102A330JAA
A7C47	281–0898–00			CAP,FXD,CER DI:7.5PF,+/–0.5PF,500V	04222	MA107A7R5DAA
A7C48	281–0898–00			CAP,FXD,CER DI:7.5PF,+/–0.5PF,500V	04222	MA107A7R5DAA
A7C51	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C52	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C53	281–0904–00			CAP,FXD,CER:MLC;12PF,10%,100V,0.100 X 0.170;AX,MI	80009	281–0904–00
A7C57	281–0960–00			CAP,FXD,CER:MLC;10PF,+/–.25PF,200V,NPO,.170X.100;AX	80009	281–0960–00
A7C61	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C62	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C63	281–0761–00			CAP,FXD,CER:MLC;27PF,5%,100V,0.100 X 0.170;AX,MI	80009	281–0761–00
A7C66	281–0904–00			CAP,FXD,CER:MLC;12PF,10%,100V,0.100 X 0.170;AX,MI	80009	281–0904–00
A7C73	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C74	281–0140–00			CAP,VAR,CER DI:5–25PF,100V	59660	518–038A–5–25
A7C75	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C80	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C90	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C91	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C92	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C100	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C111	281–0139–00			CAP,VAR,CER DI:2.5–9PF,100V	80009	281–0139–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A7C118	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A7C119	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A7C120	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C121	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C130	283–0633–01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,T&A	09023	CDA15ED770F03
A7C131	283–0647–01			CAP,FXD,MICA DI:70PF,1%,500V,T&A	09023	CDA15ED700F03
A7C133	283–0649–01			CAP,FXD,MICA DI:105PF,1%,500V,T&A	09023	CDA15FD(105)F03
A7C134	283–0779–00			CAP,FXD,MICA DI:27 PF,2%,500V	80009	283–0779–00
A7C135	281–0140–00			CAP,VAR,CER DI:5–25PF,100V	59660	518–038A–5–25
A7C136	281–0140–00			CAP,VAR,CER DI:5–25PF,100V	59660	518–038A–5–25
A7C141	281–0563–00			CAP,FXD,CER:MLC;0.47UF,20%,50V,0.150 X 0.290;AX,MI	80009	281–0563–00
A7C151	283–0633–01			CAP,FXD,MICA DI:77PF,1%,500V,RDL,T&A	09023	CDA15ED770F03
A7C152	283–0647–01			CAP,FXD,MICA DI:70PF,1%,500V,T&A	09023	CDA15ED700F03
A7C155	283–0649–01			CAP,FXD,MICA DI:105PF,1%,500V,T&A	09023	CDA15FD(105)F03
A7C156	283–0636–01			CAP,FXD,MICA DI:36PF,1.%,500V,T&A	80009	283–0636–01
A7C162	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C163	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C164	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A7C165	281–0773–00			CAP,FXD,CER:MLC;0.01UF,10%,100V,SAF,0.100 X 0.170;AX	80009	281–0773–00
A7C170	281–0767–00			CAP,FXD,CER:MLC;330PF,20%,100V,0.100 X 0.170;AX,MI	04222	SA102C331MAA
A7C172	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C174	281–0767–00			CAP,FXD,CER:MLC;330PF,20%,100V,0.100 X 0.170;AX,MI	04222	SA102C331MAA
A7C176	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A7C180	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C181	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A7C190	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C191	290–0974–03			CAP,FXD,ELCTLT:10UF,20%,60VDC	55680	UVX1H100MAA1TD
A7C202	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C205	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C206	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C207	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C338	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A7C358	281–0765–00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A7C408	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C418	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C428	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C601	281–0910–00			CAP,FXD,CER DI:1800PF,1%,50V	04222	MA205A182FAA
A7C603	281–0865–00			CAP,FXD,CER DI:1000PF,5%,100V	04222	SA201A102JAA
A7C604	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C605	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C606	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C607	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7C608	281–0775–01			CAP,FXD,CER:MCL;0.1UF,20%,50V,Z5U,0.170 X 0.100;AX	04222	SA105E104MAA
A7CR1	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR2	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR3	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR11	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR12	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR13	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR21	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR22	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR23	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR180	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR181	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR190	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7CR191	152–0141–02			DIO,SIG:ULTRA FAST;40V,150MA,4NS,2PF;1N4152,DO–35	80009	152–0141–02
A7J9	131–3181–00			CONN,HDR:	80009	131–3181–00
A7J12	131–3181–00			CONN,HDR:	80009	131–3181–00

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A7J13	131–3181–00			CONN,HDR:	80009	131–3181–00
A7J81	131–3378–00			CONN,RF JACK:	00779	227677–1
A7J82	131–3378–00			CONN,RF JACK:	00779	227677–1
A7J83	131–3378–00			CONN,RF JACK:	00779	227677–1
A7Q1	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q2	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q3	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q4	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q5	151–0369–03			XSTR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ, AMPL;MPSH69,TO–92 EBC,T&A	80009	151–0369–03
A7Q11	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q12	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q13	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q14	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q15	151–0369–03			XSTR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ, AMPL;MPSH69,TO–92 EBC,T&A	80009	151–0369–03
A7Q21	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q22	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q23	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q24	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q25	151–0369–03			XSTR,SIG:BIPOLAR,PNP;15V,30MA,2.0GHZ, AMPL;MPSH69,TO–92 EBC,T&A	80009	151–0369–03
A7Q51	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q52	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q53	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q54	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q61	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q62	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q111	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q112	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q114	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q116	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q127	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q131	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q134	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00

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A7Q136	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q143	151–0711–02			XSTR,SIG:BIPOLAR,NPN;25V,50MA,650MHZ, AMPL;MPSH10,TO–92 BEC,T&A	80009	151–0711–02
A7Q151	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q157	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q180	151–0188–00			XSTR,SIG:BIPOLAR,PNP;40V,200MA,250MHZ, AMPL;2N3906,TO–92 EBC	80009	151–0188–00
A7Q201	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q204	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q207	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7Q210	151–0190–00			XSTR,SIG:BIPOLAR,NPN;40V,200MA,300MHZ, AMPL;2N3904,TO–92 EBC	80009	151–0190–00
A7R2	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R3	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R4	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R5	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R6	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R7	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R8	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A7R9	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R11	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R12	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R13	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R14	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R15	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R16	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R17	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R18	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A7R19	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R20	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R21	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R22	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R23	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R24	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R25	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R26	322–3230–00			RES,FXD,FILM:2.43K OHM,1%,0.2W, TC=T0	80009	322–3230–00
A7R27	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R28	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A7R29	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00

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A7R36	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R40	321–0317–00			RES,FXD,FILM:19.6K OHM,1%,0.125W, TC=T0	07716	CEAD19601F
A7R41	322–3287–00			RES,FXD,FILM:9.53K OHM,1%,0.2W, TC=T0	80009	322–3287–00
A7R42	322–3281–00			RES,FXD:MET FILM;8.25K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3281–00
A7R43	322–3221–00			RES,FXD,FILM:1.96K OHM,1%,0.2W, TC=T0	91637	CCF50–2F19600F
A7R44	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R45	321–0210–07			RES,FXD:MET FILM;1.5K OHM,0.1%,0.125W, TC=25 PPM;AX	19701	5033RE1K50B
A7R46	322–3258–00			RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A7R47	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R48	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R49	322–3250–00			RES,FXD:MET FILM;3.92K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F39200F
A7R50	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R51	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R52	321–0210–07			RES,FXD:MET FILM;1.5K OHM,0.1%,0.125W, TC=25 PPM;AX	19701	5033RE1K50B
A7R53	321–0929–07			RES,FXD,FILM:2.5K OHM,0.1%,0.125W, TC=T9	80009	321–0929–07
A7R54	321–0929–07			RES,FXD,FILM:2.5K OHM,0.1%,0.125W, TC=T9	80009	321–0929–07
A7R55	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R56	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R57	321–0929–07			RES,FXD,FILM:2.5K OHM,0.1%,0.125W, TC=T9	80009	321–0929–07
A7R58	322–3250–00			RES,FXD:MET FILM;3.92K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F39200F
A7R59	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R60	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R61	322–3220–00			RES,FXD,FILM:1.91K OHM,1%,0.2W, TC=T0	80009	322–3220–00
A7R62	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R63	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R64	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R65	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R66	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R67	322–3250–00			RES,FXD:MET FILM;3.92K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F39200F
A7R68	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R70	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R71	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R72	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R73	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R74	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R75	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R76	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R77	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R78	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R79	322–3222–07			RES,FXD,FILM:2K OHM,0.1%,0.2W TC=T9	80009	322–3222–07
A7R80	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R81	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R82	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A7R83	322–3346–00			RES,FXD:MET FILM;39.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3346–00
A7R85	322–3085–07			RES,FXD:MET FILM;75 OHM,0.1%,0.2W, TC=25 PPM;AX,T&R,SM BODY	91637	CCF502–C75ROOBT

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A7R90	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R91	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R92	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A7R93	322–3346–00			RES,FXD:MET FILM;39.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3346–00
A7R95	322–3085–07			RES,FXD:MET FILM;75 OHM,0.1%,0.2W, TC=25 PPM;AX,T&R,SM BODY	91637	CCF502–C75ROOBT
A7R100	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R101	322–3193–07			RES,FXD,FILM:1K OHM,0.1%,0.2W, TC=T9	80009	322–3193–07
A7R102	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A7R103	322–3346–00			RES,FXD:MET FILM;39.2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3346–00
A7R105	322–3085–07			RES,FXD:MET FILM;75 OHM,0.1%,0.2W, TC=25 PPM;AX,T&R,SM BODY	91637	CCF502–C75ROOBT
A7R110	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A7R111	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R112	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R113	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R114	322–3235–00			RES,FXD:MET FILM;2.74K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K74
A7R115	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R116	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R117	322–3226–00			RES,FXD:MET FILM;2.21K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K21
A7R118	322–3243–00			RES,FXD:MET FILM;3.32K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–1–G33200F
A7R119	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A7R120	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R121	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R122	311–2269–00			RES,VAR,NONWW:TRMR,20K OHM,20%,0.5W	80009	311–2269–00
A7R123	322–3154–00			RES,FXD:MET FILM;392 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	RB20FX392E
A7R124	322–3222–00			RES,FXD:MET FILM;2K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 2K00
A7R125	322–3204–00			RES,FXD,FILM:1.3K OHM,1%,0.2W, TC=T0	80009	322–3204–00
A7R126	322–3175–00			RES,FXD,FILM:649 OHM,1%,0.2W, TC=T0	80009	322–3175–00
A7R127	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R128	322–3175–00			RES,FXD,FILM:649 OHM,1%,0.2W, TC=T0	80009	322–3175–00
A7R130	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R131	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R132	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A7R133	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R134	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R135	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A7R136	322–3165–00			RES,FXD,FILM:511 OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 511E

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A7R137	322–3210–00			RES,FXD:MET FILM;1.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K50
A7R140	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A7R141	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R142	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R143	322–3173–00			RES,FXD,FILM:619 OHM,1%,0.2W, TC=T0	91637	CCF50–2F619R0F
A7R150	322–3354–00			RES,FXD:MET FILM;47.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3354–00
A7R151	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R152	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R153	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A7R155	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R156	322–3193–00			RES,FXD:MET FILM;1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K00
A7R157	322–3210–00			RES,FXD:MET FILM;1.5K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 1K50
A7R158	322–3385–00			RES,FXD:MET FILM;100K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100K
A7R159	311–2269–00			RES,VAR,NONWW:TRMR,20K OHM,20%,0.5W	80009	311–2269–00
A7R160	322–3154–00			RES,FXD:MET FILM;392 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	RB20FX392E
A7R162	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R163	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R164	322–3258–00	671–2471–01	671–2471–01	RES,FXD:MET FILM;4.75K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3258–00
A7R164	322–3250–00	671–2471–02		RES,FXD:MET FILM;3.92K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	91637	CCF50–2F39200F
A7R170	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R171	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R172	322–3261–00			RES,FXD,FILM:5.11K OHM,1%,0.2W, TC=T0	80009	322–3261–00
A7R173	322–3175–00			RES,FXD,FILM:649 OHM,1%,0.2W, TC=T0	80009	322–3175–00
A7R174	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R175	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R176	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R177	322–3306–00			RES,FXD:MET FILM;15K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 15K0
A7R180	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R181	322–3239–00			RES,FXD,FILM:3.01K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 3K01
A7R201	322–3277–00			RES,FXD,FILM:7.5K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 7K50
A7R202	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R203	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R204	322–3277–00			RES,FXD,FILM:7.5K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 7K50
A7R205	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00

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A7R206	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R207	322–3277–00			RES,FXD,FILM:7.5K OHM,1%,0.2W, TC=T0	57668	CRB20 FXE 7K50
A7R208	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R209	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R210	322–3297–00			RES,FXD:MET FILM;12.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 12K1
A7R211	322–3289–00			RES,FXD:MET FILM;10K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3289–00
A7R301	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R302	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R303	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R312	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R336	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R338	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R358	322–3097–00			RES,FXD:MET FILM;100 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 100E
A7R408	322–3001–00			RES,FXD:MET FILM;10 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3001–00
A7R418	322–3085–00	671–2471–01	671–2471–02	RES,FXD:MET FILM;75 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 75E0
A7R418	322–3051–00	671–2471–03		RES,FXD:MET FILM;33.2 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3051–00
A7R428	322–3085–00			RES,FXD:MET FILM;75 OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	57668	CRB20 FXE 75E0
A7R601	311–2269–00			RES,VAR,NONWW:TRMR,20K OHM,20%,0.5W	80009	311–2269–00
A7R602	322–3369–00			RES,FXD:MET FILM;68.1K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3369–00
A7R603	322–3281–00			RES,FXD:MET FILM;8.25K OHM,1%,0.2W, TC=100 PPM;AX,T&R,SM BODY	80009	322–3281–00
A7U40	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U41	156–3226–00			IC,LIN:BIPOLAR,OP–AMP;35 MHZ,UNITY GAIN STB;LM6361N,DIP08.3	80009	156–3226–00
A7U51	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U52	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U61	156–3226–00			IC,LIN:BIPOLAR,OP–AMP;35 MHZ,UNITY GAIN STB;LM6361N,DIP08.3	80009	156–3226–00
A7U70	156–3226–00			IC,LIN:BIPOLAR,OP–AMP;35 MHZ,UNITY GAIN STB;LM6361N,DIP08.3	80009	156–3226–00
A7U80	156–4150–00			IC,LIN:	80009	156–4150–00
A7U90	156–4150–00			IC,LIN:	80009	156–4150–00
A7U100	156–4150–00			IC,LIN:	80009	156–4150–00
A7U101	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U102	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U103	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U124	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A7U125	156–2463–00			IC,DGTL:HCMOS,GATE;QUAD 2–IN OR;74HC32,DIP14.3	18324	74HC32N
A7U126	156–1688–00			IC,LIN:BIFET,OP–AMP;DUAL,LOW OFFSET,LOW DRIFT;LF412ACN,DIP08.3	80009	156–1688–00
A7U151	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U161	156–3972–00			IC,MISC:CMOS,ANALOG SW;QUAD SPST,100 OHM,400NS;DG444,DIP16.3	80009	156–3972–00
A7U162	156–1688–00			IC,LIN:BIFET,OP–AMP;DUAL,LOW OFFSET,LOW DRIFT;LF412ACN,DIP08.3	80009	156–1688–00
A7U171	156–2460–00			IC,MISC:BIPOLAR,MOD/DEMOD;BAL-ANCED;MC1496P,DIP14.3	04713	MC1496P
A7U180	156–2959–00			IC,LIN:BIPOLAR,VR;POS,8.0V,1.0M,2%;MC7808ACT,TO–220	80009	156–2959–00
A7U190	156–4234–00			IC,LIN:BIPOLAR,VR;NEG,–8.0 VOLTS,1.0A,2%;MC7908ACT,TO–220	80009	156–4234–00
A7U202	156–2583–00			IC,DGTL:HCMOS,DEMUX/DCDR;3–TO–8 DCDR,ACTIVE LOW;74HC138,DIP16.3,TUBE	01295	SN74HC138N
A7U203	156–3065–00			IC,DGTL:HCMOS,SHF RGTR;8–BIT PISO;74HC165,DIP16.3	80009	156–3065–00
A7U204	156–2357–00			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, NONINV, 3–STATE;74HCT574,DIP20.3,TUBE	80009	156–2357–00
A7U205	156–2349–00			IC,DGTL:HCMOS,RGTR;8–BIT SIPO, LATCHED 3–STATE;74HC595,DIP16.3,TUBE	80009	156–2349–00
A7U206	156–4009–00			IC,MEM:CMOS,FIFO;512 X 9,65NS,7201–65,DIP28.6	80009	156–4009–00
A7U207	160–9401–00			IC,DGTL:CMOS,PLD;EEPLD,22V10,130MA,25NS,PLCC28	80009	160–9401–00
				MOUNTING PARTS		
	136–1005–00			SKT,PLCC:	00779	3–821581–1
				END MOUNTING PARTS		
A7U208	156–2357–00			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, NONINV, 3–STATE;74HCT574,DIP20.3,TUBE	80009	156–2357–00
A7U209	156–2357–00			IC,DGTL:HCTCMOS,FLIP FLOP;OCTAL D–TYPE, NONINV, 3–STATE;74HCT574,DIP20.3,TUBE	80009	156–2357–00
A7U211	156–2707–00			IC,DGTL:HCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HC125,DIP14.3,TUBE	80009	156–2707–00
A7U212	156–3226–00			IC,LIN:BIPOLAR,OP–AMP;35 MHZ,UNITY GAIN STB;LM6361N,DIP08.3	80009	156–3226–00
A7U602	156–1335–00			IC,DGTL:LSTTL,MULTIVIBRATOR;DUAL RETRIG MO-NOSTB;96LS02,DIP16.3	80009	156–1335–00
A7U603	156–2026–00			IC,DGTL:HCMOS,GATE;QUAD 2–IN NOR;74HC02,DIP14.3,TUBE	80009	156–2026–00
A7VR4	152–0395–00			DIO,ZENER:4.3V,5%,0.4W;1N749A,DO–35 OR 7,TR	80009	152–0395–00
A7VR14	152–0395–00			DIO,ZENER:4.3V,5%,0.4W;1N749A,DO–35 OR 7,TR	80009	152–0395–00
A7VR24	152–0395–00			DIO,ZENER:4.3V,5%,0.4W;1N749A,DO–35 OR 7,TR	80009	152–0395–00
A7VR201	152–0149–00			DIO,ZENER:10V,5%,0.4W;1N961B,DO–7 OR 35,T&R	04713	1N961B
A7VR204	152–0149–00			DIO,ZENER:10V,5%,0.4W;1N961B,DO–7 OR 35,T&R	04713	1N961B
A7VR207	152–0149–00			DIO,ZENER:10V,5%,0.4W;1N961B,DO–7 OR 35,T&R	04713	1N961B
A8	671–2969–00	B011760	B013492	CIRCUIT BD ASSY:XROM	80009	671–2969–00
A8	671–2969–01	B013493		CIRCUIT BD ASSY:XROM	80009	671–2969–01
				(1740A/1750A–SER ONLY)		
A8C1	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C2	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C3	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C4	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C5	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C6	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A

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Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
A8C7	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8C8	283–5098–00			CAP,FXD,CER:MLC;0.1UF,+80%–20%,50V,Z5U,1206;SMD,8 MM T&R	04222	12065E104ZAT3A
A8J1	131–3181–00			CONN,HDR:	80009	131–3181–00
A8J2	131–3323–00			CONN,HDR:	22526	66506–025
A8J3	131–3181–00			CONN,HDR:	80009	131–3181–00
A8J4	131–3323–00			CONN,HDR:	22526	66506–025
A8J5	131–1857–00			CONN,HDR:PCBMALE,STR,1 X 36,0.1 CTR,0.230 MLG X 0.100 TAIL,GLD	58050	082–3644–SS10
A8R1	307–5041–01			RES,NTWK FXD:FILM;(15),4.7K OHM,2%,0.08W EACH,50PPM;SO16M.200,T&R	80009	307–5041–01
A8R2	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A8R3	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A8R4	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A8R5	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A8R7	321–5051–00			RES,FXD:THK FILM;0 OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5051–00
A8R8	321–5030–00			RES,FXD:THK FILM;10.0K OHM,1%,0.125W, TC=100 PPM;1206,T&R	80009	321–5030–00
A8S1	260–1965–00			SW,RKR:(4)SPST,125MA,30VDC	80009	260–1965–00
A8U1	156–6085–01			IC,MEM:CMOS,EPROM;128K X 8,200NS,FLASH;28F010,PLCC32,T&R	80009	156–6085–01
A8U2	156–6085–01			IC,MEM:CMOS,EPROM;128K X 8,200NS,FLASH;28F010,PLCC32,T&R	80009	156–6085–01
A8U3	156–6085–01			IC,MEM:CMOS,EPROM;128K X 8,200NS,FLASH;28F010,PLCC32,T&R	80009	156–6085–01
A8U4	156–6085–01			IC,MEM:CMOS,EPROM;128K X 8,200NS,FLASH;28F010,PLCC32,T&R	80009	156–6085–01
A8U5	156–5358–00			IC,DGTL:HCMOS,RGTR;8–BIT PISO SHF RGTR;74HC165,SO16.150,TUBE	80009	156–5358–00
A8U6	156–5304–01			IC,DGTL:HCTCMOS,BFR;QUAD BFR, /OE, 3–STATE;74HCT125,SO14.150,16MM T&R	80009	156–5304–01
A8U7	160–9672–00			IC,DGTL:CMOS,PLD;EEPLD,16V8,10NS,115MA,	80009	160–9672–00
B100	119–4038–01			FAN,DC:	80009	119–4038–01
V1	154–0965–00			ELCTRN TUBE:CRT,T1710–31–3.43 (STANDARD,1740A/1750A/1760 ONLY)	80009	154–0965–00
V1	154–0965–16			ELCTRN TUBE:CRT,T1710–4–3.43 (OPT 74,1740A/1750A/1760 ONLY)	80009	154–0965–16
V1	154–0966–00			ELCTRN TUBE:CRT,T1710–31–3.44 (STANDARD,1741A/1751A/1761 ONLY)	80009	154–0966–00
V1	154–0966–16			ELCTRN TUBE:CRT,T1710–4–3.44 (OPT 74,1741A/1751A/1761 ONLY)	80009	154–0966–16
V1	154–0967–00			ELCTRN TUBE:CRT,T1710–31–3.45 (STANDARD,1745A/1755A/1765 ONLY)	80009	154–0967–00
V1	154–0967–16			ELCTRN TUBE:CRT,T1710–4–3.45 (OPT 74,1745A/1755A/1765 ONLY)	80009	154–0967–16
W1	174–2746–00	B011760		CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RBN (CONNECTED @ A3J5 & A8J1,1740A/1750A–SER ONLY)	80009	174–2746–00
W3	174–2746–00	B011760		CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RBN (CONNECTED @ A3J2 & A8J3,1740A/1750A–SER ONLY)	80009	174–2746–00
W9	174–2746–00			CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RBN (CONNECTED @ A3J13 & A7J9,1760–SER ONLY)	80009	174–2746–00
W12	174–2746–00			CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RBN	80009	174–2746–00

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Replaceable Electrical Parts

Component Number	Tektronix Part Number	Serial / Assembly Number Effective	Discontinued	Name & Description	Mfr. Code	Mfr. Part Number
W13	174–2746–00			(CONNECTED @ A3J5 & A7J12,1760–SER ONLY) CA ASSY,SP,ELEC:2 X 20,28 AWG,5.5 L,RBN (CONNECTED @ A3J2 & A7J13,1760–SER ONLY)	80009	174–2746–00

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Diagrams/Circuit Board Illustrations

Symbols

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

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

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

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

Abbreviations are based on ANSI Y1.1–1972.

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

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

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

Component Values

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

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

Resistors — Ohms (Ω).

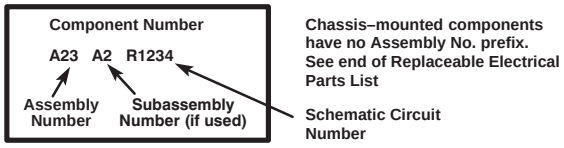
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The following information and special symbols may appear in this manual.

Assembly Numbers

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

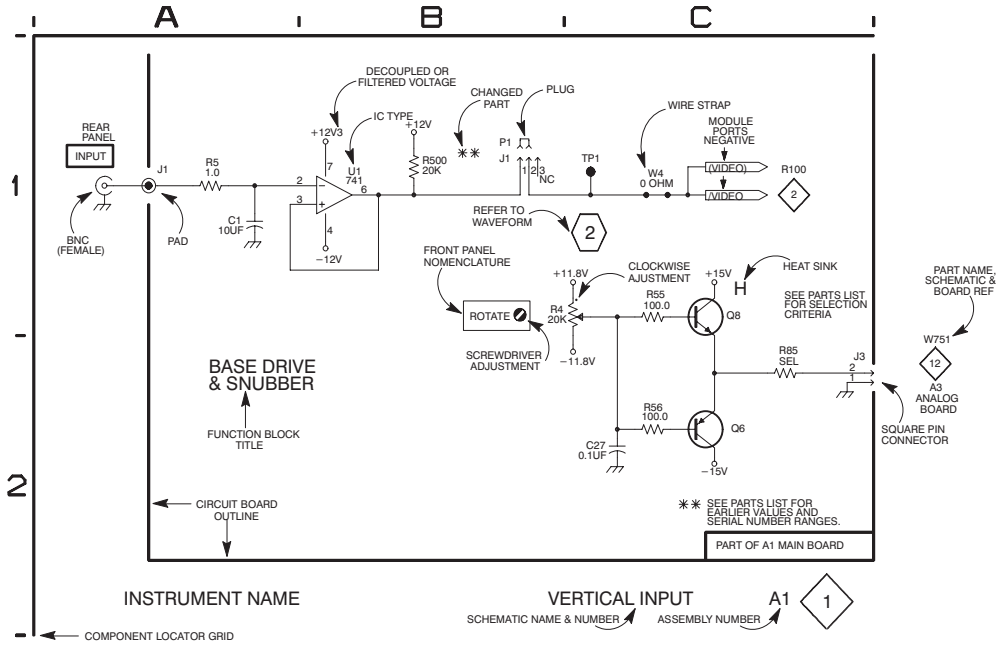
The Replaceable Electrical Parts List is arranged by assembly number in numerical sequence; the components are listed by component number. Example:



Grid Coordinates

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

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



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Replaceable Mechanical Parts

This section contains a list of the components that are replaceable for the 1740A/1750A/1760–Series. Use this list to identify and order replacement parts. There is a separate Replaceable Mechanical Parts list for each instrument.

Parts Ordering Information

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

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

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

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

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

Using the Replaceable Mechanical Parts List

The tabular information in the Replaceable Mechanical Parts list is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replaceable parts.

Cross Index–Mfr. Code Number to Manufacturer

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

Abbreviations

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

Chassis Parts

Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Electrical Parts list.

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Column Descriptions

Figure & Index No. (Column 1)

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

Tektronix Part No. (Column 2)

Indicates part number to be used when ordering replacement part from Tektronix.

Serial No. (Column 3 and 4)

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

Qty (Column 5)

This indicates the quantity of mechanical parts used.

Name and Description (Column 6)

An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.

Following is an example of the indentation system used to indicate relationship.

1 2 3 4 5 Name & Description

Assembly and/or Component
Mounting parts for Assembly and/or Component
MOUNTING PARTS/*END MOUNTING PARTS*
    Detail Part of Assembly and/or Component
    Mounting parts for Detail Part
    MOUNTING PARTS/*END MOUNTING PARTS*
        Parts of Detail Part
        Mounting parts for Parts of Detail Part
        MOUNTING PARTS/*END MOUNTING PARTS*

Mounting Parts always appear in the same indentation as the Item it mounts, while the detail parts are indented to the right. Indented items are part of and included with, the next higher indentation. **Mounting parts must be purchased separately, unless otherwise specified.**

Mfr. Code (Column 7)

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

Mfr. Part Number (Column 8)

Indicates actual manufacturer's part number.

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CROSS INDEX – MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code.	Manufacturer	Address	City, State, Zip Code
01536	TEXTRON INC CAMCAR DIV SEMS PRODUCTS UNIT	1818 CHRISTINA ST	ROCKFORD IL 61108
06383	PANDUIT CORP	17301 RIDGELAND	TINLEY PARK IL 07094–2917
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039–2410
0KB01	STAUFFER SUPPLY	810 SE SHERMAN	PORTLAND OR 97214
18677	SCANBE MFG CO DIV OF ZERO CORP	3445 FLETCHER AVE	EL MONTE CA 91731
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
34785	DEK INC	3480 SWENSON AVE	ST CHARLES IL 60174–3450
70903	COOPER BELDEN ELECTRONICS WIRE AND C SUB OF COOPER INDUSTRIES INC		
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076–9749
75915	LITTELFUSE INC SUB TRACOR INC	800 E NORTHWEST HWY	DES PLAINES IL 60016–3049
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIV	ST CHARLES ROAD	ELGIN IL 60120
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077–0001
80126	PACIFIC ELECTRICORD CO	747 W REDONDO BEACH PO BOX 10	GARDENA CA 90247–4203
83385	MICRODOT MFG INC GREER–CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61108–5181
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609–3320
TK1373	PATELEC–CEM (ITALY)	10156 TORINO	VAICENTALLO 62/45S ITALY
TK1543	CAMCAR/TEXTRON	600 18TH AVE	ROCKFORD IL 61108–5181

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Replaceable Mechanical Parts

Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Serial Number Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1–1	333–4024–00			1	PANEL,FRONT:1740A (1740A ONLY)	80009	333–4024–00
	333–4017–00			1	PANEL,FRONT:1741A (1741A ONLY)	80009	333–4017–00
	333–4018–00			1	PANEL,FRONT:1745A (1745A ONLY)	80009	333–4018–00
	333–4019–00			1	PANEL,FRONT:1750A (1750A ONLY)	80009	333–4019–00
	333–4020–00			1	PANEL,FRONT:1751A (1751A ONLY)	80009	333–4020–00
	333–4016–00			1	PANEL,FRONT:1755A (1755A ONLY)	80009	333–4016–00
	333–4014–00			1	PANEL,FRONT:1760 (1760 ONLY)	80009	333–4014–00
	333–4015–00			1	PANEL,FRONT:1761 (1761 ONLY)	80009	333–4015–00
	333–4021–00			1	PANEL,FRONT:1765 (1765 ONLY)	80009	333–4021–00
–2	——— ———			1	CIRCUIT BD ASSY:FRONT PANEL (SEE A2 REPL) *MOUNTING PARTS*		
–3	210–0407–00			4	NUT,PLAIN,HEX:6–32 X 0.25,BRS CD PL *END MOUNTING PARTS*	73743	3038–402
–4	119–4381–00			1	KEYPAD ASSY:1740A	80009	119–4381–00
–5	361–1620–00			1	SPACER,FR PNL:POLYCARBONATE	80009	361–1620–00
–6	366–0649–00			5	KNOB:GY,0.127 ID X 0.392 OD X 0.5 H	80009	366–0649–00
–7	333–4023–00			1	PANEL,FRONT:CRT,1740A/1750A	80009	333–4023–00
–8	426–2455–00			1	FRAME,CRT:BEZEL *MOUNTING PARTS*	80009	426–2455–00
–9	211–0690–02			2	SCR,MACH:6–32 X 0.875,PNH,SST *END MOUNTING PARTS*	TK1543	B20–70430
–10	378–0258–00			1	FLTR,CONTRASTIN:GRAY,POLYCARBONATE	80009	378–0258–00
–11	348–0660–00			4	CUSHION,CRT:POLYURETHANE	80009	348–0660–00
–12	426–2456–00			1	FRAME SECT,CAB:FRONT *MOUNTING PARTS*	80009	426–2456–00
–13	211–0721–00			2	SCR,MACH:6–32 X 0.375,PNH,STL *END MOUNTING PARTS*	83486	ORDER BY DESCR
–14	——— ———			1	CIRCUIT BD ASSY:MAIN (SEE A3 REPL) *MOUNTING PARTS*		
–15	211–0721–00			8	SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
–16	214–3903–01			4	SCR,JACK:4–40 X 0.312 EXT THD,4–40 INT THD,0.188 HEX,STEEL,CAD PLATE *END MOUNTING PARTS*	80009	214–3903–01
–17	337–3837–00			1	SHIELD,ELEC:PLASTIC,MAIN	80009	337–3837–00
–18	337–3802–00			1	SHIELD,ELEC:LEXAN *MOUNTING PARTS*	80009	337–3802–00
–19	211–0721–00			3	SCR,MACH:6–32 X 0.375,PNH,STL *END MOUNTING PARTS*	83486	ORDER BY DESCR
–20	334–3003–00			1	MARKER,IDENT:MKD DANGER	80009	334–3003–00
–21	——— ———			1	CIRCUIT BD ASSY:POWER SUPPLY (SEE A1 REPL) *MOUNTING PARTS*		
–22	211–0721–00			4	SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
–23	129–1410–00			3	SPACER,POST:	80009	129–1410–00
–24	210–0586–00			2	NUT,PL,ASSEM WA:4–40 X 0.25,STL CD PL	78189	211–041800–00
–25	211–0014–00			2	SCR,MACH:4–40 X 0.5,PNH,STL	93907	ORDER BY DESCR

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Fig. & Index No.	Tektronix Part No.	Serial Number Effective	Serial Number Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
						END MOUNTING PARTS		
–26	131–3573–00			1		CONN,PLUG,ELEC:MALE,W/LOCKING ADAPTER	80126	B–0779
–27	337–3841–00			1		SHIELD,ELEC:PLASTIC,POWER SUPPLY	80009	337–3841–00
–28	333–4022–00			1		PANEL,REAR:1740A/1750A	80009	333–4022–00
						MOUNTING PARTS		
–29	211–0720–01			2		SCR,MACH:6–32 X 0.50,PNH,STL,TORX T–15 WITH SLOT	0KB01	211–0720–01
–30	211–0721–00			2		SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
						END MOUNTING PARTS		
–31	——— ———			1		CIRCUIT BD ASSY:INPUT & BNC (SEE A4 REPL)		
						MOUNTING PARTS		
–32	210–0457–00			4		NUT,PL,ASSEM WA:6–32 X 0.312,STL CD PL	78189	511–061800–00
						END MOUNTING PARTS		
–33	344–0467–00			2		CLIP,INPUT:POLYCARBONATE	80009	344–0467–00
–34	——— ———			1		CIRCUIT BD ASSY:BNC (SEE A4A1 REPL)		
–35	337–3842–00			1		SHIELD,ELEC:PLASTIC,BNC	80009	337–3842–00
–36	200–4047–00			1		COVER,FAN:1740A	80009	200–4047–00
						MOUNTING PARTS		
–37	211–0027–00			2		SCR,MACH:4–40 X 1.5,PNH,STL	83385	ORDER BY DESCR
						END MOUNTING PARTS		
–38	378–0335–00			1		FILTER,AIR:1.6 X 1.6,30PPI,0.188 THK	80009	378–0335–00
–39	——— ———			1		FAN,DC: (SEE B100 REPL)		
						MOUNTING PARTS		
–40	211–0020–00			2		SCR,MACH:4–40 X 1.125,PNH,STL	TK0435	ORDER BY DESCR
						END MOUNTING PARTS		
–41	200–4051–00			1		GUARD,FAN:1.500 INCH, WIRE FORM,NICKELCHROME PLATED;FG150	80009	200–4051–00
–42	426–2464–00			1		MOUNT,BNC:1760 (1760–SERIES ONLY)	80009	426–2464–00
	200–4054–00			1		COVER,BNC:1750A (1740A/1750A–SERIES ONLY)	80009	200–4054–00
						MOUNTING PARTS		
–43	211–0101–00			2		SCR,MACH:4–40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCR
						END MOUNTING PARTS		
–44	200–4042–00			1		CAP,CRT SOCKET:	80009	200–4042–00
–45	426–2096–01			1		MOUNT,RESILIENT:1740A	80009	426–2096–01
						MOUNTING PARTS		
–46	211–0721–00			2		SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
						END MOUNTING PARTS		
–47	136–1167–00			1		SKT,CRT ASSY:	80009	136–1167–00
–48	346–0120–00			2		STRAP,TIEDOWN,E:5.5 L MIN,PLASTIC,WHITE	06383	SST1.5M
–49	337–3487–00			1		SHIELD,ELEC:CRT,STL	80009	337–3487–00
–50	334–1379–00			1		MARKER,IDENT:MKD HI VACUUM	07416	ORDER BY DESCR
–51	386–4443–00			1		SUPPORT,SHIELD:CRT,FRONT,PLASTIC	80009	386–4443–00
–52	——— ———			1		CIRCUIT BD ASSY:VECTORSCOPE (SEE A5 REPL)		
						MOUNTING PARTS		
–53	211–0721–00			3		SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
						END MOUNTING PARTS		
–54	337–3839–00	B010100	B012374	1		SHIELD,ELEC:PLASTIC,VECTOR	80009	337–3839–00
	337–3839–01	B012375		1		SHIELD,ELEC:PLASTIC,VECTOR	80009	337–3839–01
–55	——— ———			1		CIRCUIT BD ASSY:SCH (SEE A6 REPL,1750A/1760–SERIES OPT SC ONLY)		
						MOUNTING PARTS		
–56	211–0720–00			2		SCR,ASSEM WSHR:6–32 X 0.50,PNH,STL,TORX,T15	01536	829–09487

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						(1750A–SERIES/1760–SERIES OPT SC ONLY)		
						END MOUNTING PARTS		
–57	337–3839–00	B010100	B012374	1		SHIELD,ELEC:PLASTIC,VECTOR	80009	337–3839–00
	337–3839–01	B012375		1		SHIELD,ELEC:PLASTIC,VECTOR	80009	337–3839–01
						(1750A–SERIES/1760–SERIES OPT SC ONLY)		
–58	351–0688–00			1		GUIDE,CKT BOARD:NYLON,12.0 L	18677	11633–5
–59	——— ———			1		CIRCUIT BD ASSY:COMPONENT		
						(SEE A7 REPL,1760–SERIES ONLY)		
						MOUNTING PARTS		
–60	211–0721–00			3		SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
						(1760–SERIES ONLY)		
–61	211–0008–00			2		SCR,MACH:4–40 X 0.25,PNH,STL	93907	ORDER BY DESCR
						(1760–SERIES ONLY)		
–62	220–0497–00			6		NUT,PLAIN,HEX:0.5–28 X 0.562 HEX,BRS CD PL	80009	220–0497–00
						(1760–SERIES ONLY)		
–63	210–1039–00			3		WASHER,LOCK:0.521 ID,INT,0.025 THK,SST	24931	ORDER BY DESCR
						(1760–SERIES ONLY)		
						END MOUNTING PARTS		
–64	337–3838–00			1		SHIELD,ELEC:PLASTIC,COMPONENT	80009	337–3838–00
						(1760–SERIES ONLY)		
–65	——— ———	B011760		1		CIRCUIT BD ASSY:XROM		
						(SEE A8 REPL,1740A/1750A–SERIES ONLY)		
						MOUNTING PARTS		
–66	211–0721–00	B011760		2		SCR,MACH:6–32 X 0.375,PNH,STL	83486	ORDER BY DESCR
						(1740A/1750–SERIES ONLY)		
						END MOUNTING PARTS		
–67	348–0171–00			1		GROMMET,PLASTIC:BLACK,U–SHAPED,0.276 ID	80009	348–0171–00
–68	343–0916–00			1		CLAMP,LOOP:0.5 ID,NYLON	34785	029–500
–69	426–2454–00			1		FRAME,CHASSIS:ALUMINUM,1740A	80009	426–2454–00
						STANDARD ACCESSORIES		
	070–8470–02			1		MANUAL,TECH:OPERATORS,1740A/1750A SERIES	80009	070–8470–02
	070–8473–01			1		MANUAL,TECH:OPERATORS,1760	80009	070–8473–01
	150–0168–00			4		LAMP,INCAND:14V,0.08A,WEDGE BASE,T1.75 FOR SKT MT	80009	150–0168–00
	159–0021–00			1		FUSE,CARTRIDGE:3AG,2A,250V,FAST BLOW	75915	312 002
	378–0335–00			4		FILTER,AIR:1.6 X 1.6,30PPI,0.188 THK	80009	378–0335–00
–70	161–0216–00			1		CABLE ASSY,PWR:3,18 AWG,2.5M L,BLACK	80126	C7120–25M–BL
						(STANDARD ONLY)		
						OPTIONAL ACCESSORIES		
	161–0215–00			1		CABLE ASSY,PWR:3,0.75MU,2.5MM L,GREY	80009	161–0215–00
						(EUROPEAN OPTION A1 ONLY)		
	161–0066–10			1		CABLE ASSY,PWR:	TK1373	24230
						(UNITED KINGDOM OPTION A2 ONLY)		
	161–0066–11			1		CABLE ASSY,PWR:3,0.75MM,240V,96.0 L	80009	161–0066–11
						(AUSTRALIAN OPTION A3 ONLY)		
	161–0066–12			1		CABLE ASSY,PWR:3,18 AWG,98 L,SVT,GREY/BLK,60 DEG C,BME X STR,IEC RCPT,10A/250V	70903	CH–77893
						(NORTH AMERICAN OPTION A4 ONLY)		
	161–0154–00			1		CABLE ASSY,PWR:3,1.00MM SQ,250V,10A,2.5METER	80009	161–0154–00
						(SWISS OPTION A5 ONLY)		
	070–8469–00			1		MANUAL,TECH:SERVICE,1740A/1750A/1760 SERIES	80009	070–8469–00
	016–0475–00			1		VIEWING HOOD:	80009	016–0475–00
	200–3897–01			1		COVER,FRONT:1700F02,HOT STAMPED	80009	200–3897–01
	——— ———			1		CAMERA,SCOPE:C9		
						(OPTION 20 ONLY)		
	——— ———			1		PLAIN,CASE:1700F00		

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	——— ———			1		PTD CASE ASSY:1700F02		
	——— ———			1		RACK ADAPTER,SIDE–BY–SIDE:1700F05		
	——— ———			1		FILLER PANEL:1700F06		
	——— ———			1		DRAWER,UTILITY:1700F07		

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Glossary

AC Coupled A connection which removes the constant voltage (DC component) on which the signal (AC component) is riding. Usually implemented by passing the signal through a capacitor.

APL (Average Picture Level.) The average signal level (with respect to blanking) during active picture time, expressed as a percentage of the difference between the blanking and reference white levels.

Backporch The portion of the video signal which lies between the trailing edge of the horizontal sync pulse and the start of the active picture time. Burst is located on backporch.

Bandwitdth The range of frequencies over which signal amplitude remains constant (within some limit) as it is passed through a system.

Baseband Refers to the composite video signal as it exists before modulating the picture carrier. Composite video distributed throughout a studio and used for recording is at baseband.

Black Burst (NTSC) Also called “color black,” black burst is a composite video signal consisting of all horizontal and vertical synchronization information, burst, and usually setup. Typically used as the house reference synchronization signal in television facilities.

Black Burst (PAL) Also called “color black,” black burst is a composite video signal consisting of all horizontal and vertical synchronization information and burst. Typically used as the house reference synchronization signal in television facilities.

Blanking Level Refers to the 0-IRE level for NTSC systems (0.3-volt level, with respect to sync tip, for PAL systems) which exists before and after horizontal sync and during the vertical interval.

Bowtie Bowtie display. A display used to assess relative timing and gain through a three-channel component system.

Breezeway The portion of the video signal which lies between the trailing edge of the horizontal sync pulse and the start of burst. Breezeway is part of backporch.

Broad Pulses Another name for the vertical synchronizing pulses in the center of the vertical interval. These pulses are long enough to be distinguished from all others, and are the part of the signal actually detected by vertical sync separators.

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Bruch Blanking (PAL) A 4-field burst blanking sequence employed in PAL signals to ensure that burst phase is the same at the end of each vertical interval.

Burst (NTSC) A small reference packet of the subcarrier sine wave, typically 8 or 9 cycles, which is sent on every line of video. Since the carrier is suppressed, this phase and frequency reference is required for synchronous demodulation of the color information in the receiver.

Burst (PAL) A small reference packet of the subcarrier sine wave sent during the horizontal blanking interval on every line of video. Since the carrier is suppressed, this phase and frequency reference is required for synchronous demodulation of the color difference signals in the receiver.

B–Y (NTSC) One of the color difference signals used in the NTSC system, obtained by subtracting luminance from the blue camera signal. This is the signal which drives the horizontal axis of a vectorscope.

B–Y (PAL) One of the color difference signals used in the PAL system, obtained by subtracting luminance (Y) from the blue camera signal (B).

Chrominance Chrominance refers to the color information in a television picture. Chrominance can be further broken down into two properties of color: hue and saturation.

Chrominance Signal The high-frequency portion of the video signal which is obtained by quadrature amplitude modulation of a 3.58 MHz (NTSC) or 4.43 MHz (PAL) subcarrier with R–Y and B–Y information.

Color Black See Black Burst.

Color Difference Signals Signals used by color television systems to convey color information in such a way that the signals go to zero when there is no color in the picture. R–Y, B–Y, I, and Q are all color difference signals for the NTSC system; U and V are color difference signals for the PAL system. Component system color difference signal is Y, P_B, P_R as specified by SMPTE and CCIR standards.

Color Gamut The area between minimum and maximum reproducible limits for elements of the color difference or RGB signals.

Component Video Video which exists in the form of three separate signals, all of which are required in order to completely specify the color picture. For example, R, G, and B; or Y, R–Y, and B–Y.

Composite Video A single video signal containing all of the necessary information to reproduce a color picture. Created by adding quadrature amplitude modulated R–Y and B–Y to the luminance signal for NTSC systems or U and V to the luminance signal for PAL systems.

CW Continuous Wave. Refers to a separate subcarrier sine wave used for synchronization of chrominance information.

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dB (Decibel) A decibel is a logarithmic unit used to describe signal ratios. For voltages, dB = 20 Log_{10} (V_1/V_2).

DC-Coupled A connection configured so that both the signal (ac component) and the constant voltage on which it is riding (dc component) are passed through.

DC Restorer A circuit used in picture monitors and waveform monitors to clamp one point of the waveform to a fixed dc level.

Demodulator In general, this term refers to any device which recovers the original signal after it has modulated a high-frequency carrier. In television it may refer to:
(1) An instrument, such as a TEKTRONIX 1450, which takes video in its transmitted form (modulated onto the picture carrier) and converts it to baseband.

(2) The circuits which recover R–Y and B–Y for NTSC systems or U and V for PAL systems from the composite signal.

Diamond Diamond display. A simplified vector display for RGB signals that defines the valid gamut limits in the form of two diamonds.

Distortion If a sine wave of a single frequency is put into a system, and harmonic content at multiples of that frequency appears at the output, there is harmonic distortion present in the system. Harmonic distortion is caused by nonlinearities in the system.

Equalizer The pulses which occur before and after the broad pulses in the vertical interval.

Envelope Detection A demodulation process in which the shape of the RF envelope is sensed. This is the process used by a diode detector.

Field In interlaced scan systems, the information for one picture is divided up into two fields. Each field contains one half of the lines required to produce the entire picture. Adjacent lines in the picture are in alternate fields.

Frequency Modulation (FM) is the process by which the frequency of a carrier signal is varied in proportion to the signal of interest. In both the NTSC and PAL television systems, audio information is transmitted using FM.

Frame A frame (sometimes called a “picture”) contains all the information required for a complete picture. For interlaced scan systems, there are two fields in a frame.

Front Porch The portion of the video signal between the end of active picture time and the leading edge of horizontal sync.

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Gamma (NTSC) Since picture monitors have a nonlinear relationship between the input voltage and brightness, the signal must be correspondingly predistorted. Gamma correction is always done at the source (camera) in television systems: the R, G, and B signals are converted to $R^{1}/_{V}$, $G^{1}/_{V}$, and $B^{1}/_{V}$. Values of about 2.2 are typically used for gamma.

Gamma (PAL) Since picture monitors have a nonlinear relationship between the input voltage and brightness, the signal must be correspondingly predistorted. Gamma correction is always done at the source (camera) in television systems: the R, G, and B signals are converted to $R^{1}/_{V}$, $G^{1}/_{V}$, and $B^{1}/_{V}$. Values for gamma range from 2.2 to 2.8.

Gamut See Color Gamut.

GBR The same signals as RGB, but rearranged in sequence to correspond with SMPTE specification.

Gen Lock The process of locking both sync and burst of one signal to sync and burst of another, making the two signals completely synchronous.

Graticule The scale which is used to quantify the information on a waveform monitor or vectorscope display. Graticules may either be screened onto the faceplate of the crt itself (internal graticule), or onto a piece of glass or plastic which fits in front of the crt (external graticule). They can also be electronically generated.

Horizontal Blanking Horizontal blanking is the entire time between the end of the active picture time of one line and the beginning of active picture time of the next line. It extends from the start of front porch to the end of backporch.

Horizontal Sync Horizontal sync is the –40 IRE pulse in NTSC systems (–300 mV pulse for PAL systems) occurring at the beginning of each line. This pulse signals the picture monitor to go back to the left side of the screen and trace another horizontal line of picture information.

Hue Hue is the property of color which allows us to distinguish between colors such as red, yellow, purple, etc.

Hum Hum refers to the undesirable coupling of the 60 Hz power sine wave for NTSC systems (50 Hz power sine wave in PAL systems) into other electrical signals.

ITS (PAL) Insertion Test Signal. A test signal which is inserted in one line of the vertical interval to facilitate in-service testing.

IRE (NTSC) A unit equal to 1/140 of the peak-to-peak amplitude of the video signal, which is typically 1 volt. The 0 IRE point is at blanking level, with sync tip at –40 IRE and white extending to +100 IRE. IRE stands for Institute of Radio Engineers, the organization which defined the unit.

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Lightning Lightning display. A display, for use with SMPTE specified color difference signal (Y, P_B, P_R), that plots the two color difference signals against luminance to create a display similar in appearance to a lightning bolt.

Linear Distortion Refers to distortions which are independent of signal amplitude.

Luminance The signal which represents brightness, or the amount of light in the picture. This is the only signal required for black and white pictures, and for color systems it is obtained as a weighted sum (Y = 0.3R + 0.59G + 0.11B) of the R, G, and B signals.

Modulated (NTSC) When referring to television test signals, this term implies that chrominance information is present. (For example, a modulated staircase has subcarrier on each step.)

Modulated (PAL) When referring to television test signals, this term implies that chrominance information is present. (For example, a modulated ramp has subcarrier on each step.)

Modulation A process which allows signal information to be moved to other frequencies in order to facilitate transmission or frequency-domain multiplexing. See **AM** and **FM** for details.

Non–Linear Distortion Refers to distortions which are amplitude-dependent.

NTSC National Television System Committee. The organization which developed the television standard currently in use in the United States, Canada, and Japan. Now generally used to refer to that standard.

PAL Phase Alternate Line. Refers to one of the television systems used in Europe and many other parts of the world. The phase of one of the color difference signals alternates from line to line to help cancel out phase errors.

Quadrature AM A process which allows two different signals to modulate a single carrier frequency. The two signals of interest Amplitude Modulate carrier signals which are the same frequency but differ in phase by 90 degrees (hence the Quadrature notation). The two resultant signals can be added together, and both signals recovered at the other end, if they are also demodulated 90 degrees apart.

Quadrature Distortion Distortion resulting from the asymmetry of sidebands used in vestigial sideband television transmission. Quadrature distortion appears when envelope detection is used, but can be eliminated by using a synchronous demodulator.

RF Radio Frequency. In television applications, RF generally refers to the television signal after the picture carrier modulation process.

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RGB Red, Green, and Blue. Also referred to as GBR. The three primary colors used in color television's additive color reproduction system. These are the three color signals generated by the camera and used by the picture monitor to produce a picture.

R–Y One of the color difference signals is obtained by subtracting luminance (Y) from the red camera signal.

Saturation The property of color which relates to the amount of white light in the color. Highly saturated colors are vivid, while less saturated colors have more white mixed in and, therefore, appear pastel. For example, red is highly saturated, while pink is the same hue, but much less saturated.

In signal terms, saturation is determined by the ratio between luminance level and chrominance amplitude. It should be noted that a vectorscope does not display saturation; the length of the vectors represents chrominance amplitude. In order to verify that the saturation of the colors in a color bar signal is correct, you must check luminance amplitudes with a waveform monitor in addition to observing the vectors.

SCH The timing relationship between the horizontal sync pulses and the zero crossings of the reference subcarrier (burst).

Setup In NTSC systems, video black is typically 7.5 IRE above the blanking level. This 7.5 IRE level is referred to as the black setup level, or simply as setup.

Subcarrier The modulation sidebands of the color subcarrier contain the R–Y (V) and B–Y (U) information. For NTSC, subcarrier frequency is 3.579545 MHz. For PAL, subcarrier frequency is 4,433,618.75 Hz.

Synchronous Detection A demodulation process in which the original signal is recovered by multiplying the modulated signal with the output of a synchronous oscillator locked to the carrier.

Termination In order to accurately send a signal through a transmission line, there must be an impedance at the end which matches the impedance of the source and of the line itself. Amplitude errors and reflections will otherwise result. Video is a 75Ω system, so a 75Ω terminator must be put at the end of the signal path.

Time Code, Longitudinal (LTC) LTC is an 80-bit signal with information which makes it possible to accurately identify an individual frame. The LTC signal is typically recorded on an audio channel.

Time Code, Vertical (VITC) VITC is a signal in the vertical interval of video, which makes it possible to accurately identify an individual field.

U The B–Y signal after a weighting factor of 0.493 has been applied. The weighting is necessary to reduce peak modulation in the composite signal.

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Unmodulated When used to describe television test signals, this term refers to pulses and pedestals which do not have high-frequency chrominance information added to them.

V The R–Y signal after a weighting factor of 0.877 has been applied. The weighting is necessary to reduce peak modulation in the composite signal.

Vectorscope A specialized oscilloscope which demodulates the video signal and presents a display of R–Y versus B–Y in NTSC systems (or V versus U in PAL systems). The angle and magnitude of the displayed vectors are respectively related to hue and saturation.

Vertical Interval The synchronizing information which appears between fields and signals the picture monitor to go back to the top of the screen to begin another vertical scan.

Waveform Monitor A specialized oscilloscope that plots voltage versus time to evaluate television signals.

Y Abbreviation for luminance.

Zero Carrier Reference A pulse in the vertical interval which is produced by the demodulator to provide a reference for evaluating depth of modulation.

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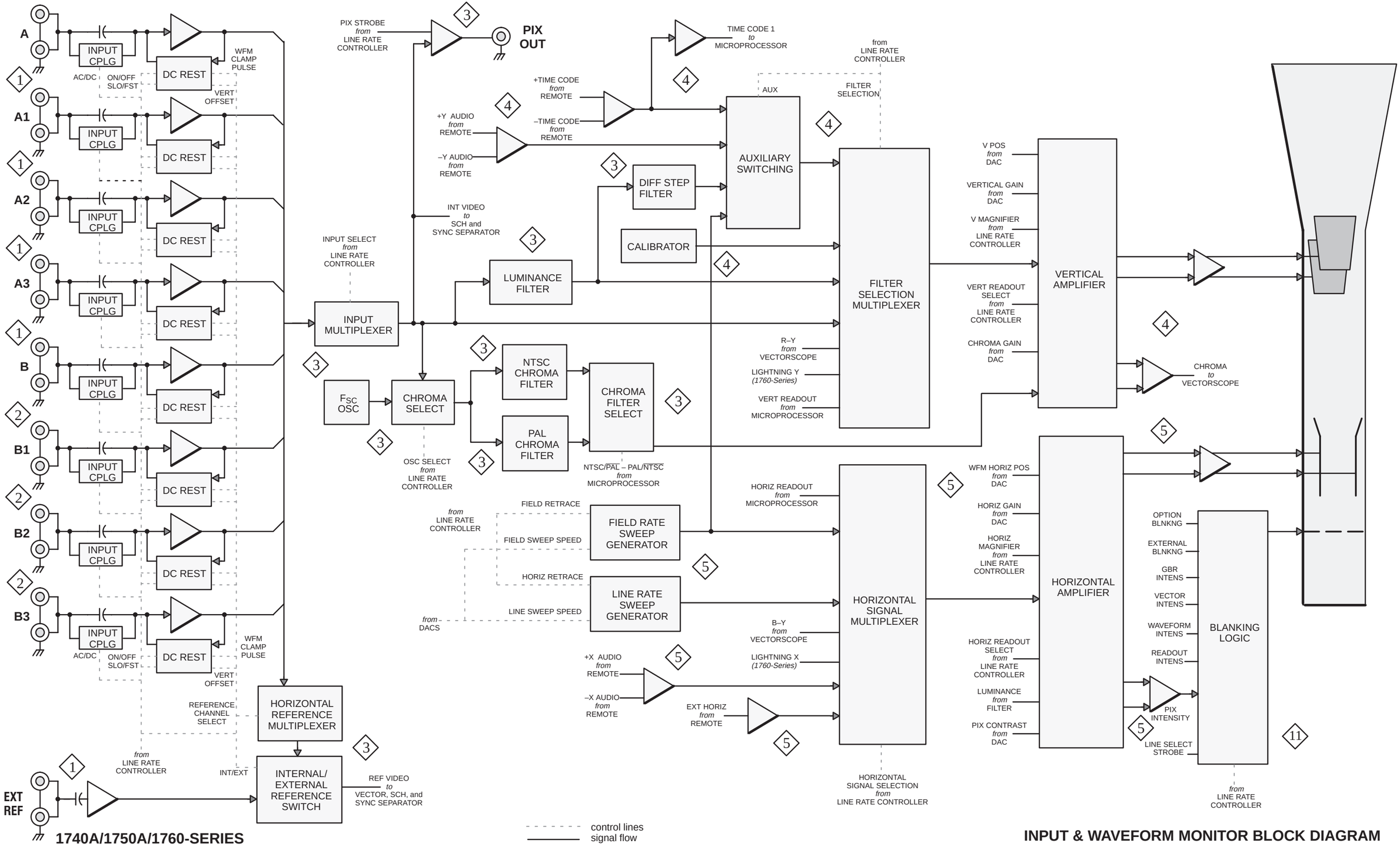
W

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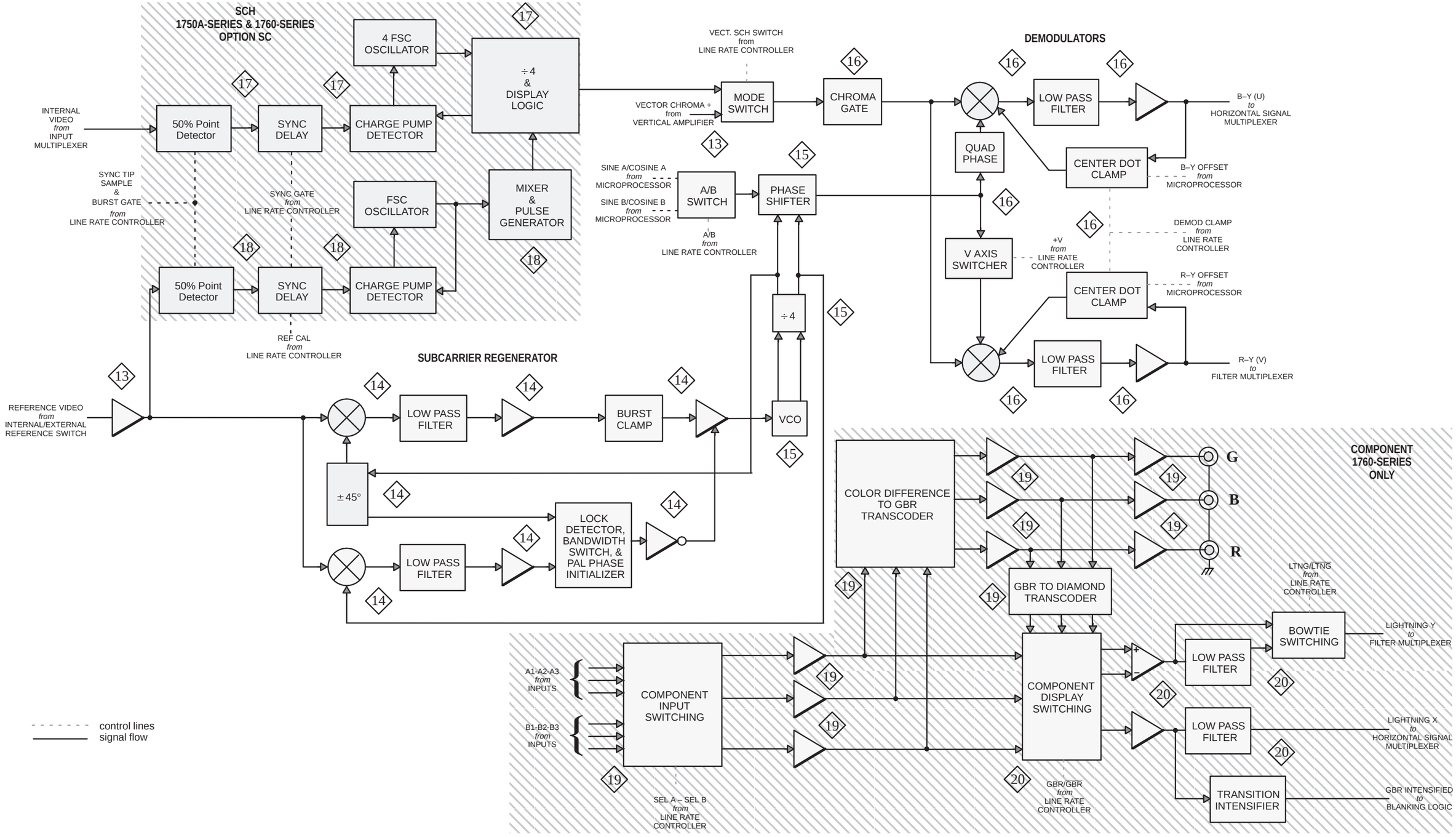
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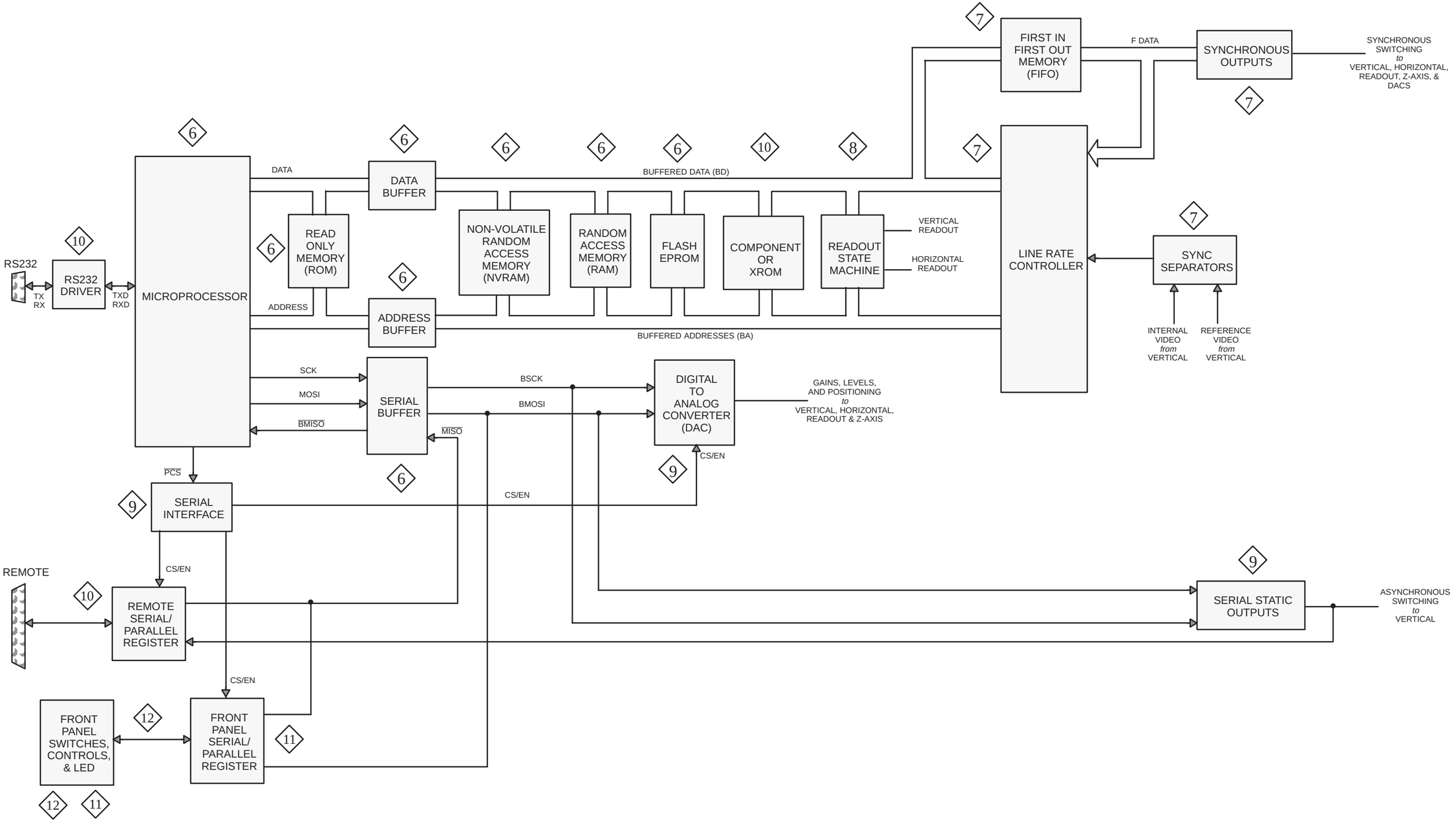
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VECTOR - SCH - COMPONENT BLOCK DIAGRAM

1740A/1750A/1760-SERIES

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1740A/1750A/1760-SERIES

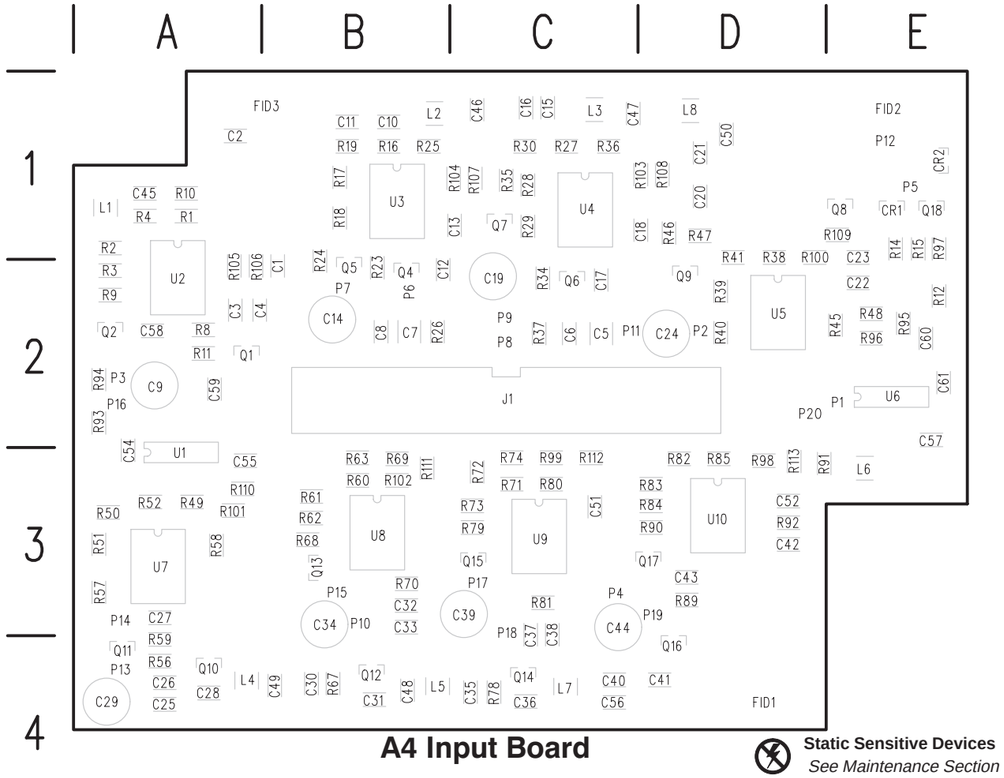
MICROPROCESSOR & LINE RATE CONTROLLER BLOCK DIAGRAM

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A4 Input Board Component Locator Chart

(with cross-references to schematic diagrams 1 and 2)

Comp No	Diag No	Diag Loc	Bd Loc
C1	1	G1	B2
C2	1	G1	A1
C3	1	D1	A2
C4	1	E1	B2
C5	2	H3	C2
C6	2	H3	C2
C7	2	H4	B2
C8	2	H4	B2
C9	1	D1	A2
C10	1	G2	B1
C11	1	G2	B1
C12	1	D2	B2
C13	1	E2	C1
C14	1	D2	B2
C15	1	G3	C1
C16	1	G3	C1
C17	1	D4	C2
C18	1	E4	D1
C19	1	D3	C2
C20	1	G5	D1
C21	1	G5	D1
C22	1	D5	E2
C23	1	E5	E2
C24	1	D4	D2
C25	2	G1	A4
C26	2	G1	A4
C27	2	D1	A3
C28	2	D1	A4
C29	2	D1	A4
C30	2	G1	B4
C31	2	G1	B4
C32	2	D3	B3
C33	2	D3	B3
C34	2	D2	B3
C35	2	G1	C4
C36	2	G1	C4
C37	2	D4	C4
C38	2	D4	C4
C39	2	D3	C3
C40	2	G2	C4
C41	2	G2	D4
C42	2	D5	D3
C43	2	D5	D3
C44	2	D5	C4
C45	1	F1	A1
C46	1	F2	C1
C47	1	F3	D1
C48	2	E2	B4
C49	2	E1	B4
C50	1	F5	D1
C51	2	E3	C3
C52	2	E5	D3
C54	2	E2	A3
C55	2	E3	A3
C56	2	E4	C4
C57	2	E5	E2
C58	1	F2	A2
C59	1	F3	A2
C60	1	F4	E2
C61	1	F5	E2
CR1	1	C5	E1
CR2	1	C5	E1
J1	2	H2	C2
L1	1	F1	A1
L2	1	F2	B1
L3	1	F3	C1
L4	2	E1	A4
L5	2	E2	B4
L6	2	E5	E3
L7	2	E3	C4
L8	1	F5	D1
P1	1	B5	E2
P2	1	B5	D2
P3	1	B1	A2
P4	2	B4	C3
P5	2	B5	E1
P6	1	B2	B2
P7	1	B2	B2
P8	1	B3	C2
P9	1	B3	C2
P10	2	B2	B3
P11	1	B4	C2
P12	2	B5	E1
P13	2	B1	A4
P14	2	B1	A3
P15	2	B2	B3
P16	1	B1	A2
P17	2	B3	C3
P18	2	B3	C4
P19	2	B5	D3
P20	1	B5	D2
Q1	1	D1	A2
Q2	1	D1	A2
Q4	1	D3	B2
Q5	1	D2	B2
Q6	1	D4	C2
Q7	1	D3	C1
Q8	1	D5	E1
Q9	1	D5	D2
Q10	2	D1	A4
Q11	2	C1	A4
Q12	2	D3	B4
Q13	2	C2	B3
Q14	2	D4	C4
Q15	2	C3	C3
Q16	2	D5	D4
Q17	2	C5	D3
Q18	1	C5	E1
R1	1	E1	A1
R2	1	D1	A1
R3	1	E1	A2
R4	1	E1	A1
R8	1	D1	A2
R9	1	D1	A2
R10	1	F1	A1
R11	1	F1	A2
R12	1	C5	E2
R14	1	B5	E1
R15	1	B5	E1
R16	1	E2	B1
R17	1	D2	B1
R18	1	E2	B1
R19	1	E2	B1
R23	1	D3	B2
R24	1	D2	B2
R25	1	F2	B1
R26	1	F2	B2
R27	1	E3	C1
R28	1	D3	C1
R34	1	D4	C2
R35	1	D4	C1
R36	1	F3	C1
R37	1	F4	C2
R41	1	E4	D2
R48	1	F5	E2
R56	2	C1	A4
R57	2	C1	A3
R58	2	E1	A3
R59	2	E1	A4
R60	2	D2	B3
R61	2	D2	B3
R62	2	D2	B3
R63	2	D2	B3
R67	2	C3	B4
R68	2	C3	B3
R69	2	E2	B3
R70	2	E3	B3
R71	2	E3	C3
R72	2	D3	C3
R73	2	D3	C3
R74	2	C4	C4
R78	2	C4	C3
R79	2	C4	C3
R80	2	E3	C3
R81	2	E4	C3
R82	2	E4	D3
R83	2	D5	D3
R84	2	D4	D3
R85	2	D4	D3
R89	2	C5	D3
R90	2	C5	D3
R91	2	E5	E3
R92	2	E5	D3
R93	2	E1	A2
R94	2	E2	A2
R95	2	E4	E2
R96	2	E4	E2
R97	1	C5	E1
R98	2	E4	D3
R99	2	E3	C3
R100	1	F4	D2
R101	2	E1	A3
R102	2	E2	B3
R103	1	F3	D1
R104	1	F2	C1
U1A	2	E2	A2
U1B	2	E3	A2
U1C	1	E3	A2
U1D	1	E1	A2
U2	1	E1	A2
U3	1	E2	B1
U4	1	E3	C1
U5	1	E4	D2
U6A	2	E4	E2
U6B	2	E5	E2
U6C	1	E5	E2
U6D	1	E4	E2
U7	2	E1	A3
U8	2	E2	B3
U9	2	E3	C3
U10	2	E5	D3



A4 Input Board

Static Sensitive Devices
See Maintenance Section

Schematic Diagram <1> Component Locator Chart

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

Assembly A4. Partial Assembly A4 also shown on Schematic 2.

Comp No	Diag Loc	Bd Loc
A4 Board		
C1	G1	B2
C2	G1	A1
C3	D1	A2
C4	E1	B2
C9	D1	A2
C10	G2	B1
C11	G2	B1
C12	D2	B2
C13	E2	C1
C14	D2	B2
C15	G3	C1
C16	G3	C1
C17	D4	C2
C18	E4	D1
C19	D3	C2
C20	G5	D1
C21	G5	D1
C22	D5	E2
C23	E5	E2
C24	D4	D2
C45	F1	A1
C46	F2	C1
C47	F3	D1
C50	F5	D1
C58	F2	A2
C59	F3	A2
C60	F4	E2
C61	F5	E2
CR1	C5	E1
CR2	C5	E1
L1	F1	A1
L2	F2	B1
L3	F3	C1
L8	F5	D1
P1	B5	E2
P2	B5	D2
P3	B1	A2
P6	B2	B2
P7	B2	B2
P8	B3	C2
P9	B3	C2
P11	B4	C2
P16	B1	A2
P20	B5	D2
Q1	D1	A2
Q2	D1	A2
Q4	D3	B2
Q5	D2	B2
Q6	D4	C2
Q7	D3	C1
Q8	D5	E1
Q9	D5	D2
Q18	C5	E1
R1	E1	A1
R2	D1	A1
R3	E1	A2
R4	E1	A1
R8	D1	A2
R9	D1	A2
R10	F1	A1
R11	F1	A2
R12	C5	E2
R14	B5	E1
R15	B5	E1
R16	E2	B1
R17	D2	B1
R18	E2	B1
R19	E2	B1
R23	D3	B2
R24	D2	B2
R25	F2	B1
R26	F2	B2
R27	E3	C1
R28	D3	C1
R29	E3	C1
R30	E3	C1
R34	D4	C2
R35	D4	C1
R36	F3	C1
R37	F4	C2
R38	E4	D2
R39	D4	D2
R40	E4	D2
R41	E4	D2
R45	D5	E2
R46	D5	D1
R47	F4	D1
R48	F5	E2
R97	C5	E1
R100	F4	D2
R103	F3	D1
R104	F2	C1
R105	F1	A2
R106	F1	B2
R107	F2	C1
R108	F3	D1
R109	F4	D1
U1C	E3	A2
U1D	E1	A2
U2	E1	A2
U3	E2	B1
U4	E3	C1
U5	E4	D2
U6C	E5	E2
U6D	E4	E2
A4A1 Board (Front)		
P1	B5	E2
P2	B1	D2
P3	B4	A2
P6	B3	B2
P7	B3	B2
P8	B2	C2
P9	B2	C2
P11	B1	C2
P16	B5	A2
P20	B5	D2
A4A1 Board (Back)		
J2	A5	A2
J3	A3	B2
J4	A4	B2
J5	A2	C1
J6	A2	C2
J7	A1	D1
J8	A1	D2
J17	A5	D2
J18	A5	D2
J100	A4	A1

CHANNEL A INPUTS <1>

INPUT AMPLIFIERS

PART OF A4 INPUT BOARD

PART OF A4A1 BNC BOARD

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

* TEST SELECTABLE RANGES AS NEEDED = 1PF–3.9PF
672–1396–02 AND BELOW

EXTERNAL REFERENCE INPUT

INPUTS

A1 A2 A3 EXT REF

A DCREST_ON SLOW/FAST AC/DC_SEL

CLAMP_PLS

VREF_A VIDEO_A

U1D DG444 U1C DG444 U6D DG444 U6C DG444

EL2090

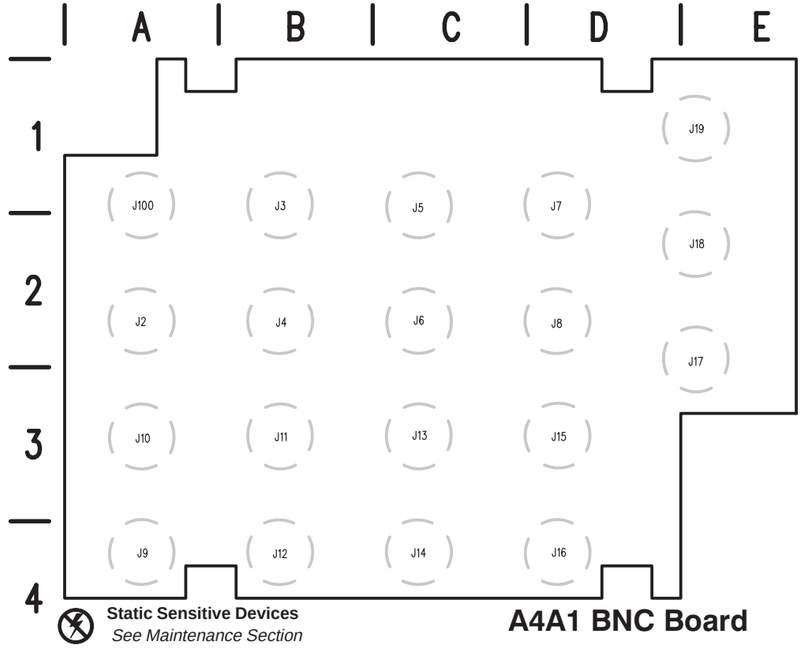
Q1 Q2 Q5 Q6 Q7 Q9 Q4 Q8

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A4A1 BNC Board Component Locator Chart

(with cross-references to schematic diagrams 1 and 2)

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc
Front of Board				**Back of Board**			
P1	1	B5	E2	J2	1	A5	A2
P2	1	B1	D2	J3	1	A3	B2
P3	1	B4	A2	J4	1	A4	B2
P4	2	B1	C3	J5	1	A2	C1
P5	2	B5	E1	J6	1	A2	C2
P6	1	B3	B2	J7	1	A1	D1
P7	1	B3	B2	J8	1	A1	D2
P8	1	B2	C2	J9	2	A4	A4
P9	1	B2	C2	J10	2	A5	A3
P10	2	B3	B3	J11	2	A3	B3
P11	1	B1	C2	J12	2	A4	B4
P12	2	B5	E1	J13	2	A2	C3
P13	2	B5	A4	J14	2	A2	C4
P14	2	B4	A4	J15	2	A1	D3
P15	2	B3	B3	J16	2	A1	D4
P16	1	B5	A2	J17	1	A5	D2
P17	2	B2	C3	J18	1	A5	D2
P18	2	B2	C3	J19	2	A5	D1
P19	2	B1	D3	J100	1	A4	A1
P20	1	B5	D2				



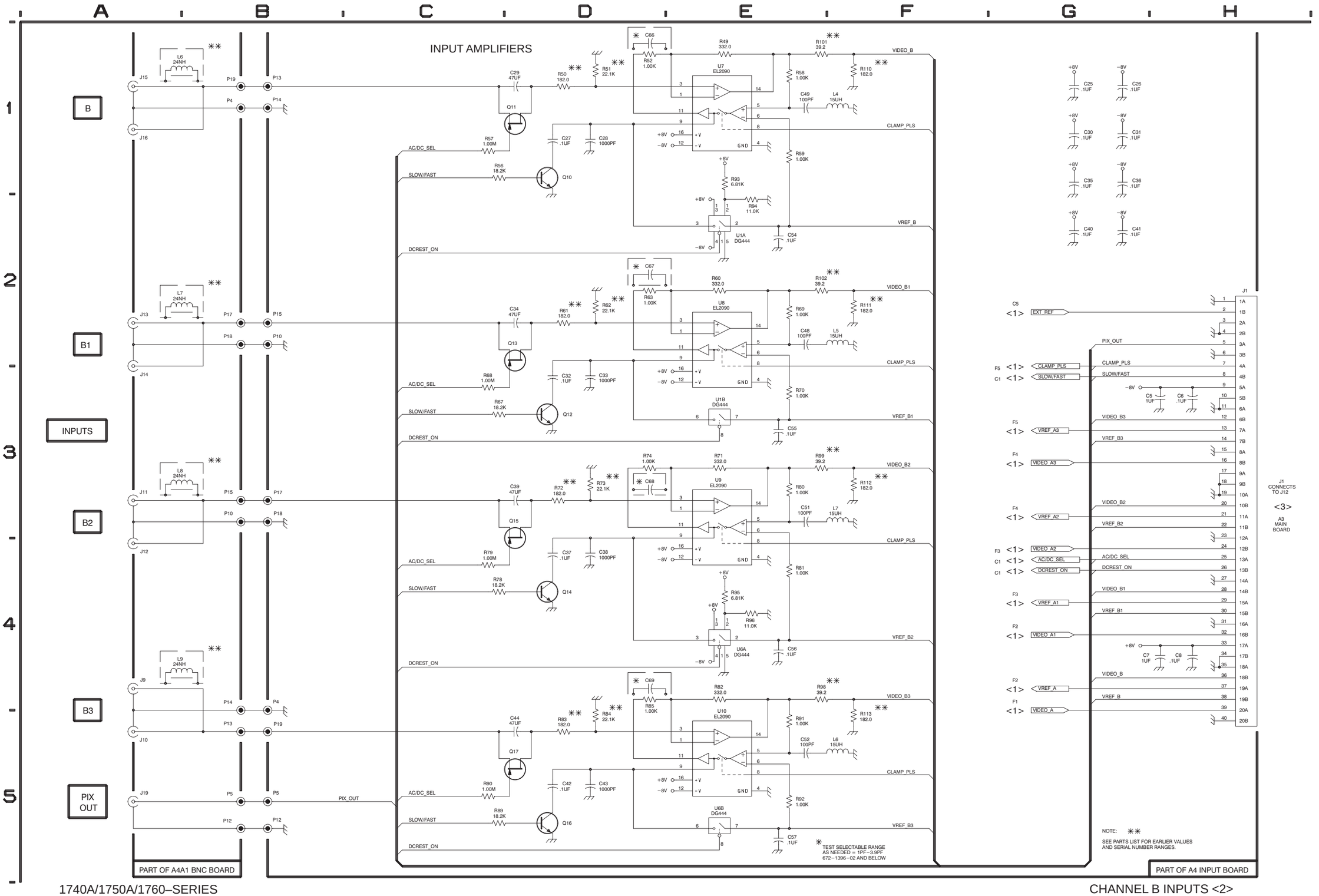
Schematic Diagram <2> Component Locator Chart

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

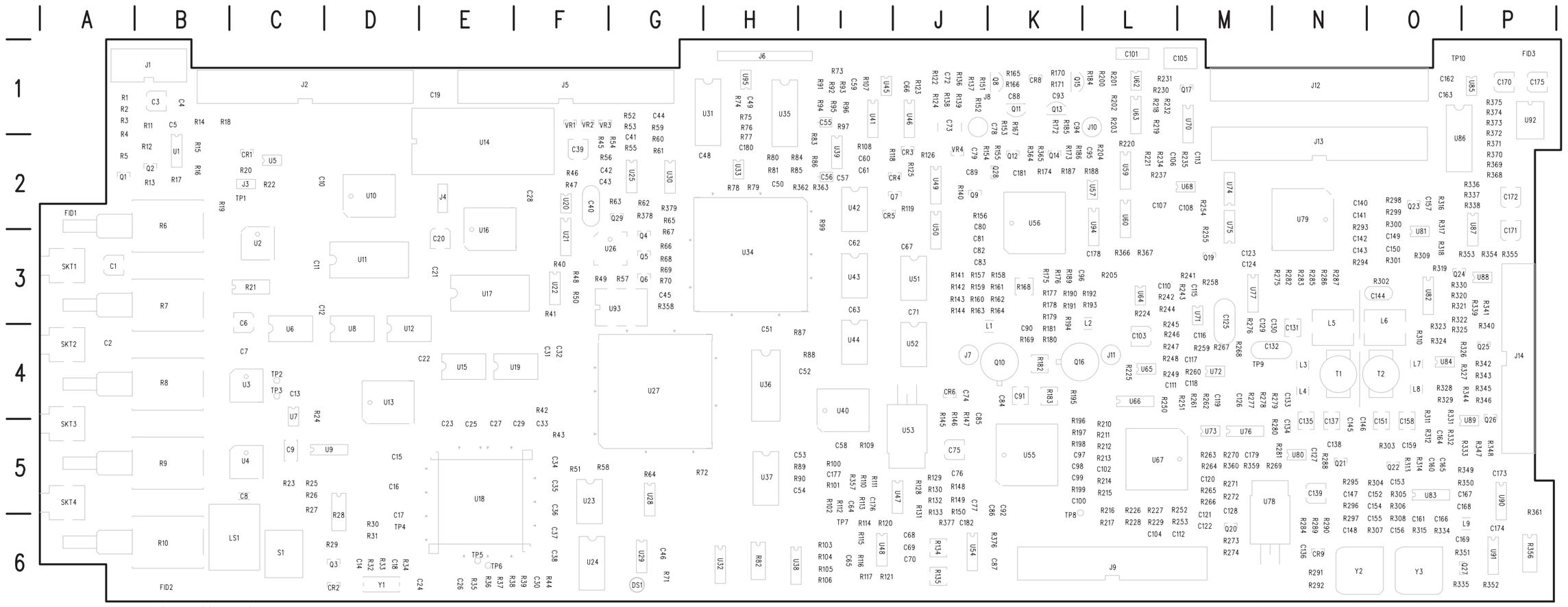
Assembly A4. Partial Assembly A4 also shown on Schematic 1.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
A4 Board			J1	H2	C2	R61	D2	B3	R111	F2	B3
C5	H3	C2							R112	F3	C3
C6	H3	C2	L4	E1	A4	R62	D2	B3	R113	F4	D3
C7	H4	B2	L5	E2	B4	R63	D2	B3			
C8	H4	B2	L6	E5	E3	R67	C3	B4	U1A	E2	A2
C25	G1	A4	L7	E3	C4	R68	C3	B3	U1B	E3	A2
						R69	E2	B3	U6A	E4	E2
C26	G1	A4	P4	B4	C3				U6B	E5	E2
C27	D1	A3	P5	B5	E1	R70	E3	B3			
C28	D1	A4	P10	B2	B3	R71	E3	C3	U7	E1	A3
C29	D1	A4	P12	B5	E1	R72	D3	C3	U8	E2	B3
C30	G1	B4	P13	B1	A4	R73	D3	C3	U9	E3	C3
						R74	D3	C3	U10	E5	D3
C31	G1	B4	P14	B1	A3						
C32	D3	B3	P15	B2	B3	R78	C4	C4	**A4A1 Board (Front)**		
C33	D3	B3	P17	B3	C3	R79	C4	C3	P4	B1	C3
C34	D2	B3	P18	B3	C4	R80	E3	C3	P5	B5	E1
C35	G1	C4	P19	B5	D3	R81	E4	C3	P10	B3	B3
						R82	E4	D3	P12	B5	E1
C36	G1	C4	Q10	D1	A4				P13	B5	A4
C37	D4	C4	Q11	C1	A4	R83	D5	D3	P14	B4	A4
C38	D4	C4	Q12	D3	B4	R84	D4	D3	P15	B3	B3
C39	D3	C3	Q13	C2	B3	R85	D4	D3	P17	B2	C3
C40	G2	C4				R89	C5	D3	P18	B2	C3
			Q14	D4	C4	R90	C5	D3	P19	B1	D3
C41	G2	D4	Q15	C3	C3						
C42	D5	D3	Q16	D5	D4	R91	E5	E3	**A4A1 Board (Back)**		
C43	D5	D3	Q17	C5	D3	R92	E5	D3	J9	A4	A4
C44	D5	C4				R93	E1	A2	J10	A5	A3
C48	E2	B4	R49	E1	A3	R94	E2	A2	J11	A3	B3
			R50	D1	A3	R95	E4	E2	J12	A4	B4
C49	E1	B4	R51	D1	A3				J13	A2	C3
C51	E3	C3	R52	D1	A3	R96	E4	E2	J14	A2	C4
C52	E5	D3	R56	C1	A4	R98	E4	D3	J15	A1	D3
C54	E2	A3				R99	E3	C3	J16	A1	D4
C55	E3	A3	R57	C1	A3	R101	E1	A3	J19	A5	D1
			R58	E1	A3	R102	E2	B3			
C56	E4	C4	R59	E1	A4						
C57	E5	E2	R60	E2	B3	R110	F1	A3			

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Static Sensitive Devices
See Maintenance Section

Board locator chart is on the back of Schematic 3.

A3 Main Board

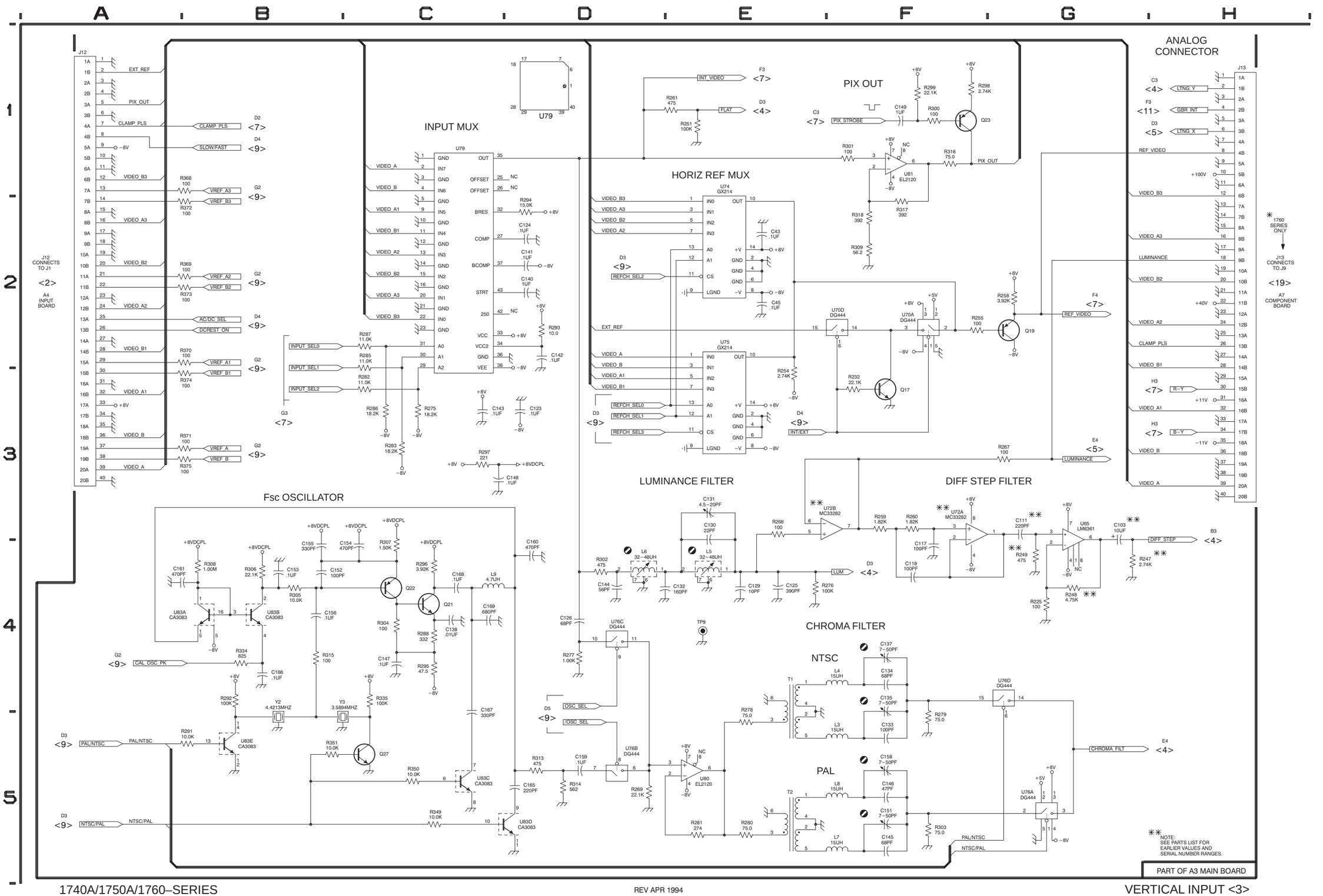
Schematic Diagram <3> Component Locator Chart

The schematic diagram has an alpha-numeric grid to assist in locating parts within that diagram.

Assembly A3. Partial Assembly A3 also shown on Schematics 4, 5, 6, 7, 8, 9, 10, and 11.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C43	E2	F2				C156	B4	O6	L7	E5	O4	R258	G2	M3	R286	C3	N3	R305	B4	O5	R369	A2	P2	U74	E2	M2
C45	E2	G3	C138	C4	N5	C158	F5	O5	L8	E5	O4	R259	F3	M4	R287	C2	N3	R306	B4	O5						
C103	G3	L4	C140	D2	N2				L9	C4	P6	R260	F3	M4	R288	C4	N5	R307	C3	O6	R370	A2	P2	U75	E2	M3
C111	G3	L4	C141	D2	N2	C159	D5	O5				R261	D1	M4	R291	A5	N6	R308	B4	O6	R371	A3	P2	U76A	G5	M5
C117	F4	M4	C142	D2	N3	C160	D4	O5	Q17	F3	M1				R292	B4	N6	R309	F2	O3	R372	A2	P2	U76B	D5	M5
C118	F4	M4	C143	C3	N3	C161	A4	O6	Q19	G2	M3	R267	G3	M4				R313	D5	O5	R373	A2	P1	U76C	D4	M5
			C144	D4	O3	C165	D5	O5	Q21	C4	N5	R268	E3	M4	R293	D2	N3				R374	A3	P1	U76D	G4	M5
C123	D3	M3							Q22	C4	O5	R269	D5	M5	R294	D2	N3	R314	D5	O5	R375	A3	P1	U79	C1	N2
C124	D2	M3				C166	B4	O6	Q23	F1	O2	R275	C3	N3	R295	C4	N5	R315	B4	O6						
C125	E4	M3	C145	F5	N4	C167	C4	O5	Q27	C5	O6	R276	E4	M3	R296	C4	N5	R316	F1	O2	T1	E4	N4	U80	E5	N5
C126	D4	M4	C146	F5	N4	C168	C4	O5				R277	D4	M4	R297	C3	N6	R317	F2	O2	T2	E5	O4	U81	F1	O2
C129	E4	M3	C147	C4	N5	C169	C4	O6	R225	G4	L4				R298	F1	O2	R318	F2	O3				U83A	B4	O5
C130	E3	M3	C148	C3	N6				R232	F3	L1	R278	E5	M4				R334	B4	O6	TP9	E4	M4	U83B	B4	O5
			C149	F1	O3	J12	A1	M1	R247	G4	L4	R279	F4	N4	R299	F1	O2							U83C	C5	O5
C131	E3	N4	C151	F5	O5	J13	H1	M2	R248	G4	L4	R280	E5	N5	R300	F1	O2	R335	C4	O6	U65	G3	L4	U83D	C5	O5
C132	D4	M4							R249	G4	L4	R281	E5	N5	R301	F1	O3	R349	C5	O5	U70A	F2	M1	U83E	B5	O5
C133	F5	N4	C152	B4	O5	L3	E5	N4	R251	E1	M4	R282	C3	N3	R302	D4	O3	R350	C5	O5	U70D	E2	M1			
C134	F4	N5	C153	B4	O5	L4	E4	N4				R283	C3	N3	R303	F5	O5	R351	B5	O6	U72A	F3	M4	Y2	B5	N6
C135	F4	N5	C154	C4	O5	L5	E4	N4	R254	E2	M2				R304	C4	O5	R368	A1	P2	U72B	E3	M4	Y3	B5	O6
C137	F4	N5	C155	B4	O6	L6	D4	O3	R255	F2	M2	R285	C2	N3												

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A3 Main Board Component Locator Chart

(with cross-references to schematic 3, 4, 5, 6, 7, 8, 9, 10, and 11)

Comp No	Diag No	Diag Loc	Bd Loc
C1	11	A5	A3
C2	11	A5	A4
C3	11	G1	B1
C4	11	E2	B1
C5	11	F2	B1
C6	6	B1	C4
C7	11	D5	C4
C8	11	D4	C5
C9	6	A4	C5
C10	6	H1	C2
C11	6	G2	C3
C12	6	D3	C3
C13	6	A4	C4
C14	6	C4	D6
C15	6	A4	D5
C16	6	A4	D5
C17	6	A4	D6
C18	6	C4	D6
C19	6	F2	E1
C20	6	H2	E3
C21	6	G3	E3
C22	6	E2	E4
C23	6	B4	E5
C24	6	C4	D6
C25	6	A5	E5
C26	6	A3	E6
C27	6	A5	E5
C28	6	E3	F2
C29	6	A5	F5
C30	6	B5	F6
C31	8	C4	F4
C32	8	C4	F4
C33	6	A5	F5
C34	6	A5	F5
C35	6	A5	F5
C36	6	B5	F5
C37	6	A5	F6
C38	6	A5	F6
C39	11	C2	F2
C40	7	C5	F2
C41	9	E5	G2
C42	11	B2	F2
C43	3	E2	F2
C44	9	F5	G1
C45	3	E2	G3
C46	9	B5	G6
C48	9	F3	G2
C49	9	E3	H1
C50	7	D2	H2
C51	7	C4	H4
C52	7	C4	I4
C53	8	E4	H5
C54	8	E4	H5
C55	5	B1	I1
C56	5	B2	I2
C57	7	G2	I2
C58	7	E2	I5
C59	9	G3	I1
C60	9	G1	I2
C61	9	G4	I2
C62	7	G1	I3
C63	7	G4	I3
C64	5	D5	I5
C65	8	F4	I6
C66	9	G2	J1
C67	7	G3	J3
C68	8	H4	J6
C69	8	F5	J6
C70	8	H3	J6
C71	7	G5	J3
C72	5	F1	J1
C73	5	G1	J1
C74	11	C1	J4
C75	11	D1	J5
C76	4	E4	J5
C77	8	G3	J5
C78	5	F2	K1
C79	5	F2	J2
C80	5	F5	J3
C81	5	F4	J3
C82	5	E4	J3
C83	5	E4	J3
C84	4	G3	K4
C85	4	G3	J4
C86	4	F3	K5
C87	8	G3	K6
C88	5	G2	K1
C89	5	F4	J2
C90	4	G1	K4
C91	4	G3	K4
C92	4	E3	K5

Comp No	Diag No	Diag Loc	Bd Loc
C93	5	F2	K1
C94	5	G2	K1
C95	5	G3	L2
C96	5	F4	K3
C97	4	F3	K5
C98	4	E3	K5
C99	4	G4	K5
C100	4	D3	K5
C101	5	C1	L1
C102	4	G4	L5
C103	3	G3	L4
C104	4	D4	L6
C105	5	B2	L1
C106	7	E4	L2
C107	11	E1	L2
C108	7	E4	M2
C110	7	E3	L3
C111	3	G3	L4
C112	4	E4	L6
C113	7	E4	M2
C115	7	E3	M3
C116	7	E3	M4
C117	3	F4	M4
C118	3	F4	M4
C119	4	E5	M4
C120	4	D3	M5
C121	4	D3	M6
C122	4	E4	M6
C123	3	D3	M3
C124	3	D2	M3
C125	3	E4	M3
C126	3	D4	M4
C127	4	F5	N5
C128	4	C2	M5
C129	3	E4	M3
C130	3	E3	M3
C131	3	E3	N4
C132	3	D4	M4
C133	3	F5	N4
C134	3	F4	N5
C135	3	F4	N5
C136	11	B1	N6
C137	3	F4	N5
C138	3	C4	N5
C139	11	C1	N5
C140	3	D2	N2
C141	3	D2	N2
C142	3	D2	N3
C143	3	C3	N3
C144	3	D4	O3
C145	3	F5	N4
C146	3	F5	N4
C147	3	C4	N5
C148	3	C3	N6
C149	3	F1	O3
C150	4	F5	O3
C151	3	F5	O5
C152	3	B4	O5
C153	3	B4	O5
C154	3	C4	O5
C155	3	B4	O6
C156	3	B4	O6
C157	4	E5	O2
C158	3	F5	O5
C159	3	D5	O5
C160	3	D4	O5
C161	3	A4	O6
C162	9	F2	O1
C163	9	F2	O1
C164	4	B4	O5
C165	3	D5	O5
C166	3	B4	O6
C167	3	C4	O5
C168	3	C4	O5
C169	3	C4	O6
C170	10	C1	P1
C171	10	B1	P3
C172	10	C1	P2
C173	10	D5	P5
C174	10	E5	P6
C175	10	B1	P1
C176	5	G5	I5
C177	4	B1	I5
C178	5	E4	L3
C179	4	G4	M5
C180	9	E3	H2
C181	5	F3	K2
C182	8	D5	J6
CR1	11	G4	C2
CR2	6	A1	D6

Comp No	Diag No	Diag Loc	Bd Loc
CR3	11	G3	J2
CR4	11	F3	I2
CR5	11	F4	I2
CR6	11	D1	J4
CR8	5	F2	K1
CR9	11	B1	N6
DS1	6	A2	G6
DS2	11	H1	A5
DS3	11	H1	A5
DS4	11	H2	A4
DS5	11	H2	A3
J1	11	H3	A1
J2	10	F2	B1
J3	11	H4	B2
J4	11	C2	E2
J5	10	G2	E1
J6	11	H3	H1
J7	4	H2	J4
J8	5	H2	J1
J9	7	H2	K6
J10	5	H2	L1
J11	4	H2	L4
J12	3	A1	M1
J13	3	H1	M2
J14	10	B2	P3
L1	4	F2	J4
L2	4	G2	L4
L3	3	E5	N4
L4	3	E4	N4
L5	3	E4	N4
L6	3	D4	O3
L7	3	E5	O4
L8	3	E5	O4
L9	3	C4	P6
LS1	6	A1	C6
P4	11	C2	
Q1	11	G2	A2
Q2	11	G1	B2
Q3	6	A1	D6
Q4	7	B5	G3
Q5	7	B5	G3
Q6	7	C5	G3
Q7	11	G4	I2
Q8	5	F1	J1
Q9	5	G4	J2
Q10	4	F2	K4
Q11	5	F3	K1
Q12	5	F3	K2
Q13	5	G3	K1
Q14	5	G3	K2
Q15	5	G1	L1
Q16	4	G2	K4
Q17	3	F3	M1
Q19	3	G2	M3
Q20	4	B2	M6
Q21	3	C4	N5
Q22	3	C4	O5
Q23	3	F1	O2
Q24	9	D4	O3
Q25	10	C4	P4
Q26	10	C4	P5
Q27	3	C5	O6
Q28	5	F3	K2
Q29	7	B5	G2
R1	11	G1	A1
R2	11	G1	A1
R3	11	G1	A1
R4	11	H1	A2
R5	11	G2	A2
R6	11	B3	B2
R7	11	B5	B3
R8	11	B4	B4
R9	11	B4	B5
R10	11	B3	B6
R11	11	G1	B1
R12	11	G2	B2
R13	11	G2	B2
R14	11	E2	B1
R15	11	E2	B2
R16	11	F2	B2
R17	11	F2	B2
R18	11	E2	B1
R19	11	A5	B2
R20	11	H5	C2

Comp No	Diag No	Diag Loc	Bd Loc
R21	6	E3	C3
R22	11	H5	C2
R23	9	B5	C5
R24	6	B4	C4
R25	9	B5	C5
R26	9	B5	C5
R27	9	B5	C5
R28	9	A4	D6
R29	6	A1	D6
R30	6	B2	D6
R31	6	B3	D6
R32	6	C4	D6
R33	6	C4	D6
R34	6	C3	D6
R35	6	A3	E6
R36	6	A2	E6
R37	6	E5	E6
R38	6	D5	E6
R39	6	A2	F6
R40	6	B5	F3
R41	6	C5	F3
R42	6	B1	F4
R43	10	H3	F5
R44	6	A1	F6
R45	11	A2	F2
R46	11	B2	F2
R47	11	B2	F2
R48	6	B4	F3
R49	6	C4	F3
R50	6	B5	F3
R51	10	H3	F5
R52	9	F4	G1
R53	9	F5	G1
R54	11	A2	G2
R55	9	E4	G2
R56	11	A2	F2
R57	7	B4	G3
R58	8	C4	F5
R59	9	E3	G1
R60	9	F2	G2
R61	9	F4	G2
R62	7	C5	G2
R63	7	B5	G2
R64	6	G4	G5
R65	7	B5	G2
R66	7	C4	G3
R67	7	B4	G3
R68	7	C5	G3
R69	7	C4	G3
R70	7	C5	G3
R71	11	F3	G6
R72	8	B4	G5
R73	11	G3	I1
R74	11	E4	H1
R75	11	E4	H1
R76	11	E4	H1
R77	11	E4	H2
R78	7	D2	H2
R79	7	D2	H2
R80	9	G3	H2
R81	9	G3	H2
R82	9	C2	H6
R83	5	B1	I1
R84	9	G2	H2
R85	9	G3	H2
R86	5	B2	I2
R87	7	C4	H4
R88	7	C2	I4
R89	8	E4	H5
R90	8	E4	H5
R91	9	G4	I1
R92	9	G4	I1
R93	9	G4	I1
R94	9	G3	I1
R95	9	G3	I1
R96	9	G3	I1
R97	9	G5	I1
R99	7	A4	I2
R100	4	B2	I5
R101	4	B1	I5
R102	5	D4	I5
R103	8	F4	I6
R104	8	F5	I6
R105	8	F3	I6
R106	8	F3	I6
R107	9	G3	I1
R108	9	G1	I2
R109	7	C2	I5
R110	5	G5	I5
R111	5	G5	I5
R112	5	D5	I5

Comp No	Diag No	Diag Loc	Bd Loc
R113	5	G5	I5
R114	8	F5	I6
R115	8	F4	I6
R116	8	F3	I6
R117	8	F3	I6
R118	11	F3	I2
R119	11	G4	J2
R120	8	G5	I6
R121	8	G3	I6
R122	5	G1	J1
R123	9	G2	J1
R124	5	F1	J1
R125	11	G3	J2
R126	11	G3	J2
R128	5	D4	J5
R129	5	D4	J5
R130	5	D4	J5
R131	4	D5	J5
R132	4	D5	J5
R133	4	E5	J6
R134	8	G4	J6
R135	8	G3	J6
R136	5	F1	J1
R137	5	F1	J1
R138	5	F1	J1
R139	5	F1	J1
R140	5	G4	J2
R141	4	F1	J3
R142	4	F1	J3
R143	4	F2	J3
R144	4	F2	J3
R145	11	C1	J4
R146	11	C1	J4
R147	11	C2	J4
R148	5	D4	J5
R149	4	D5	J5
R150	4	D4	J6
R151	5	F1	J1
R152	5	G2	J1
R153	5	F2	K1
R154	5	F3	J2
R155	5	F3	K2
R156	5	D4	J2
R157	4	F1	J3
R158	4	F1	K3
R159	4	F1	J3
R160	4	F1	J3
R161	4	F1	K3
R162	4	F1	K3
R163	4	F1	J3
R164	4	F1	K3
R165	5	F1	K1
R166	5	F2	K1
R167	5	F2	K1
R168	4	G2	K3
R169	4	F2	K4
R170	5	G1	K1
R171	5	G2	K1
R172	5	G2	K1
R173	5	G3	K2
R174	5	G4	K2
R175	4	G1	K3
R176	4	G1	K3
R177	4	G1	K3
R178	4	G1	K3
R179	4	G1	K3
R180	4	G2	K4
R181	4	G1	K4
R182	4	G3	K4
R183	4	G3	K4
R184	5	G1	L1
R185	5	G2	K1
R186	5	F3	K2
R187	5	G4	K2
R188	5	G4	L2
R189	4	G1	K3
R190	4	G1	K3
R191	4	G1	K3
R192	4	G2	L3
R193	4	G2	L3
R194	4	G1	K3
R195	4	G3	K4
R196	4	G3	K5
R197	4	G3	K5
R198	4	H3	K5
R199	4	G4	K5
R200	5	G1	L1
R201	5	C1	L1
R202	5	C2	L1
R203	5	G4	L1
R204	5	G4	L2

Comp No	Diag No	Diag Loc	Bd Loc
R205	4	F2	L3
R210	4	H3	L5
R211	4	C3	L5
R212	4	D3	L5
R213	4	C3	L5
R214	4	G5	L5
R215	4	H4	L5
R216	4	D4	L5
R217	4	C4	L6
R218	5	C2	L1
R219	5	C2	L1
R220	5	D4	L2
R221	5	D4	L2
R224	4	E2	L3
R225	3	G4	L4
R226	4	D4	L5
R227	4	D4	L5
R228	4	C4	L6
R229	4	C4	L6
R230	5	B2	L1
R231	5	C1	L1
R232	3	F3	L1
R234	7	E3	L2
R235	7	E4	M2
R237	5	D3	L2
R241	7	E3	M3
R242	4	E2	L3
R243	7	E3	M3
R244	4	E2	L3
R245	4	E2	L4
R246	4	E2	L4
R247	3	G4	L4
R248	3	G4	L4
R249	3	G4	L4
R250	4	C3	L4
R251	3	E1	M4
R252	4	E4	L5
R253	4	D3	L6
R254	3	E2	M2
R255	3	F2	M2
R258	3	G2	M3
R259	3	F3	M4
R260	3	F3	M4
R261	3	D1	M4
R262	7	H2	M4
R263	4	G4	M5
R264	4	G4	M5
R265	4	C2	M5
R266	4	C2	M5
R267	3	G3	M4
R268	3	E3	M4
R269	3	D5	M5
R270	4	G4	M5
R271	4	C2	M5
R272	4	B2	M5
R273	4	C2	M6
R274	4	B2	M6
R275	3	C3	N3
R276	3	E4	M3
R277	3	D4	M4
R278	3	E5	M4
R279	3	F4	N4
R280	3	E5	N5
R281	3	E5	N5
R282	3	C3	N3
R283	3	C3	N3
R284	11	B1	N6
R285	3	C2	N3
R286	3	C3	N3
R287	3	C2	N3
R288	3	C4	N5
R289	11	B1	N6
R290	11	B1	N6
R291	3	A5	N6
R292	3	B4	N6
R293	3	D2	N3
R294	3	D2	N3
R295	3	C4	N5
R296	3	C4	N5
R297	3	C3	N6
R298	3	F1	O2
R299	3	F1	O2
R300	3	F1	O2
R301	3	F1	O3
R302	3	D4	O3
R303	3	F5	O5
R304	3	C4	O5
R305	3	B4	O5
R306	3	B4	O5
R307	3	C3	O6
R308	3	B4	O6

Comp No	Diag No	Diag Loc	Bd Loc
R309	3	F2	O3
R310	10	C4	O4
R311	4	B4	O4
R312	4	B4	O5
R313	3	D5	O5
R314	3	D5	O5
R315	3	B4	O6
R316	3	F1	O2
R317	3	F2	O2
R318	3	F2	O3
R319	9	D4	O3
R320	9	D4	O3
R321	5	B3	O3
R322	10	C4	O3
R323	5	B3	O4
R324	5	B3	O4
R325	10	C4	O4
R326	5	B3	O4
R327	4	A4	P4
R328	4	A3	O4
R329	4	B3	O4
R330	4	A4	O3
R331	4	B5	O4
R332	4	B5	O5
R333	4	B5	P5
R334	3	B4	O6
R335	3	C4	O6
R336	9	F2	P2
R337	9	E1	P2
R338	9	F1	P2
R339	5	B4	P3
R340	5	B4	P4
R341	5	B4	P3
R342	5	B3	P4
R343	5	B3	P4
R344	4	B3	P4
R345	4	A3	P4
R346	4	A3	P4
R347	4	B4	P5
R348	10	C4	P5
R349	3	C5	O5
R350	3	C5	O5
R351	3	B5	O6
R352	10	D3	P6
R353	4	A4	O3
R354	4	A4	P3
R355	4	A4	P3
R356	10	D1	P6
R357	5	G5	I5
R358	7	A3	G3
R359	4	G4	M5
R360	4	G4	M5
R361	7	C3	P6
R362	9	E3	H2
R363	9	E4	I2
R364	5	F3	K2
R365	5	G3	K2
R366	5	F3	L3
R367	5	F3	L3
R368	3	A1	P2
R369	3	A2	P2
R370	3	A2	P2
R371	3	A3	P2
R372	3	A2	P2
R373	3	A2	P1
R374	3	A3	P1
R375	3	A3	P1
R376	8	G3	K6
R377	8	D4	J6
R378	7	B5	G2
R379	7	B5	G2
S1	9	A5	C6
SKT1	11	H2	A3
SKT2	11	H2	A4
SKT3	11	H1	A5
SKT4	11	H1	A5
T1	3	E4	N4
T2	3	E5	O4
TP1	6	E4	C2
TP2	6	A4	C4
TP3	6	A4	C4
TP4	6	B1	D6
TP5	6	A3	E6
TP6	6	A3	E6
TP7	8	G4	I6
TP8	4	E3	K6

Comp No	Diag No	Diag Loc	Bd Loc
TP9	3	E4	M4
TP10	9	E2	O1
U1A	11	F1	B2
U1B	11	F2	B2
U1C	11	F2	B2
U1D	11	E2	B2
U2	6	E4	C2
U3	11	C4	C4
U4	11	C3	C5
U5A	11	G4	C2
U5B	11	G5	C2
U6	6	D4	C4
U7	6	A4	C4
U8	6	D3	D4
U9	9	B4	C5
U10	6	H1	D2
U11	6	G1	C3
U12	6	D3	D4
U13	6	D1	D4
U14	6	F1	D2
U15	6	E1	E4
U16	6	H2	E3
U17	6	G3	E3
U18	6	B1	F5
U19	6	E2	E4
U20	11	B2	F2
U21	6	E3	F3
U22A	6	C5	F3
U22B	6	C2	F3
U22C	6	C5	F3
U22D	6	C4	F3
U23	6	G5	F5
U24	9	A1	F6
U25A	9	E4	G2
U25B	9	C4	G2
U25C	9	E4	G2
U25D	9	E4	G2
U26A	7	A5	F3
U26B	7	A5	F3
U26C	7	B5	F3
U26D	7	A5	F3
U27	8	B1	F4
U28A	6	G5	G5
U28B	6	H3	G5
U28C	6	H4	G5
U28D	6	H4	G5
U28E	6	H4	G5
U28F	6	C2	G5
U29A	6	B3	G6
U29B	6	A2	G6
U29C	11	F3	G6
U29D	9	C3	G6
U30A	9	E2	G2
U30B	9	E2	G2
U30C	9	C1	G2
U30D	9	E3	G2
U31	9	F4	G1
U32	9	B2	H6
U33	9	E5	H2
U34	7	B1	I2
U35	9	F3	H1
U36	8	D2	H4
U37	8	E3	H5
U38	9	B1	H6
U39A	5	B1	I2
U39B	5	B2	I2
U39C	9	G4	I2
U39D	9	G1	I2
U40	7	E1	I4
U41A	9	H3	I1
U41B	9	G5	I1
U41C	9	H5	I1
U42	7	F1	I2
U43	7	F2	I3
U44	7	F3	I3
U45A	9	G3	I1
U45B	9	G2	I1
U46A	9	G4	I1
U46B	9	H3	I1
U46C	9	G3	I1
U47A	4	B2	J5
U47B	5	G5	J5
U47C	4	D5	J5
U47D	5	D5	J5
U48A	8	F4	J6
U48B	8	F3	J6
U48C	8	H3	J6
U48D	8	H5	J6
U49A	11	E3	J2

Comp No	Diag No	Diag Loc	Bd Loc
U49B	11	E4	J2
U49C	11	E4	J2
U49D	11	E5	J2
U50A	9	H2	J2
U50B	9	G1	J2
U50C	9	H1	J2
U51	7	F3	I3
U52	7	F4	I3
U53	11	C1	I4
U54A	8	G3	J6
U54B	8	D4	J6
U54C	8	G5	J6
U54D	8	D5	J6
U55	4	F3	J5
U56	5	F4	K3
U57A	4	E2	K2
U57B	4	E2	K2
U59A	5	D2	L2
U59B	5	D3	L2
U59C	5	D2	L2
U59D	5	D4	L2
U60	5	C3	L3
U62A	5	C1	L1
U62B	5	B2	L1
U63A	5	D1	L2
U63B	5	C1	L2
U63C	5	B2	L2
U63D	5	D2	L2
U64B	4	E2	L3
U65	3	G3	L4
U66A	4	B2	L4
U66B	4	B4	L4
U66C	4	B3	L4
U66D	4	B3	L4
U67	4	D3	L5
U68	7	E4	M2
U70A	3	F2	M1
U70B	5	D3	M1
U70C	5	D3	M1
U70D	3	E2	M1
U71	7	E3	M3
U72A	3	F3	M4
U72B	3	E3	M4
U73	4	G4	M5
U74	3	E2	M2
U75	3	E2	M3
U76A	3	G5	M5
U76B	3	D5	M5
U76C	3	D4	M5
U76D	3	G4	M5
U77	9	C3	M3
U78	11	B1	M6
U79	3	C1	N2
U80	3	E5	N5
U81	3	F1	O2
U82	9	C4	O3
U83A	3	B4	O5
U83B	3	B4	O5
U83C	3	C5	O5
U83D	3	C5	O5
U83E	3	B5	O5
U84A	4	A3	O4
U84B	5	B3	O4
U85	9	E2	O1
U86	9	F1	O1
U87A	9	E1	O2
U87B	9	E1	O2
U87C	9	E1	O2
U87D	10	E3	O2
U88A	5	B4	P3
U88B	4	A4	P3
U89	4	B5	P5
U90	10	D3	P5
U91	10	D2	P6
U92	10	C1	P1
U93	7	A3	G3
U94A	5	E2	K2
U94B	9	H4	K2
U94C	5	E2	K2
U95	9	E3	H1
VR1	11	A2	F1
VR2	11	A2	F1
VR3	11	A2	F1
VR4	5	F2	J2
Y1	6	C4	D6
Y2	3	B5	N6
Y3	3	B5	O6

Schematic Diagram <4> Component Locator Chart

The schematic diagram has an alpha-numeric grid to assist in locating parts within that diagram.

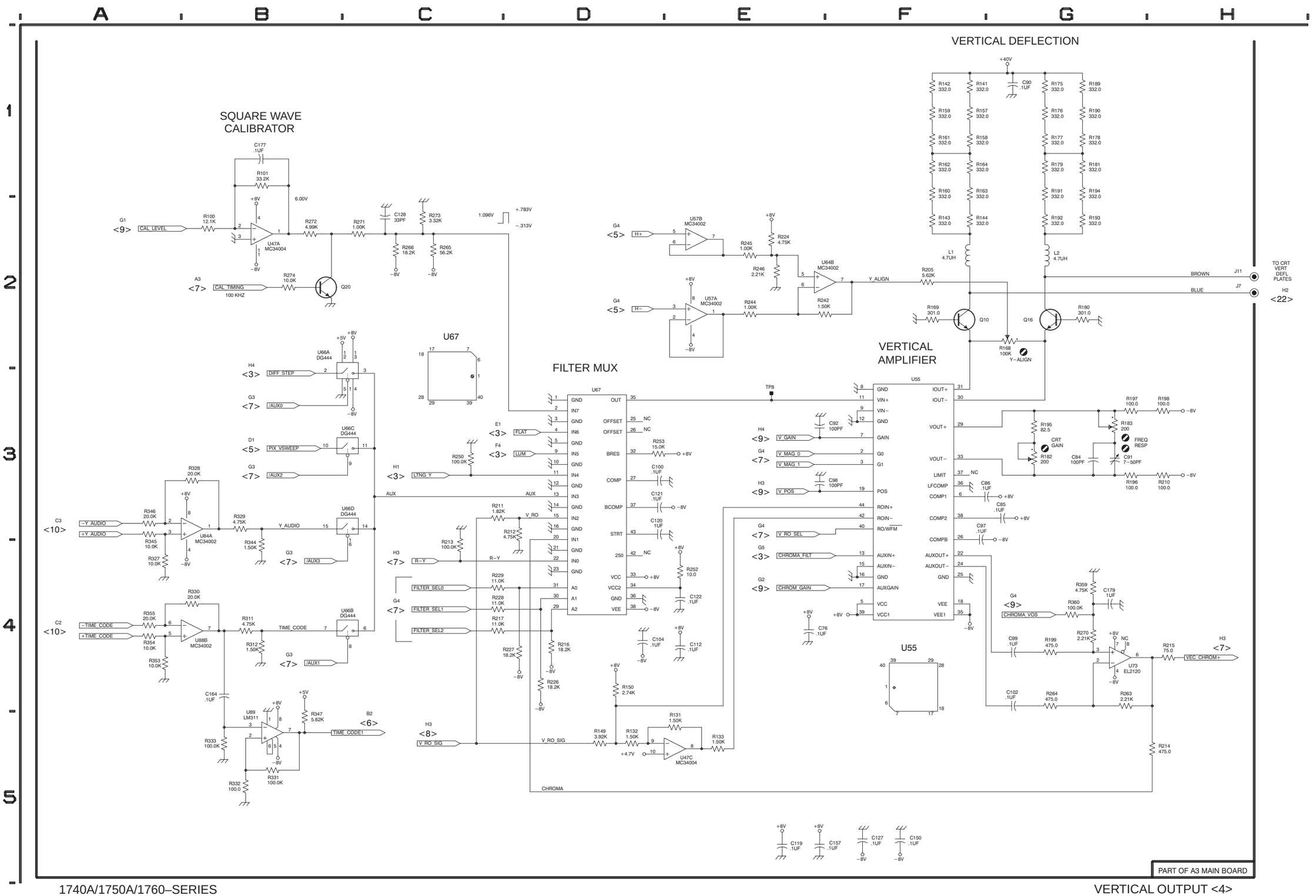
Assembly A3. Partial Assembly A3 also shown on Schematics 3, 5, 6, 7, 8, 9, 10, and 11.

Comp No	Diag Loc	Bd Loc
C76	E4	J5
C84	G3	K4
C85	G3	J4
C86	F3	K5
C90	G1	K4
C91	G3	K4
C92	E3	K5
C97	F3	K5
C98	E3	K5
C99	G4	K5
C100	D3	K5
C102	G4	L5
C104	D4	L6
C112	E4	L6
C119	E5	M4
C120	D3	M5
C121	D3	M6
C122	E4	M6
C127	F5	N5
C128	C2	M5
C150	F5	O3
C157	E5	O2
C164	B4	O5
C177	B1	I5
C179	G4	M5
J7	H2	J4
J11	H2	L4
L1	F2	J4
L2	G2	L4
Q10	F2	K4
Q16	G2	K4
Q20	B2	M6
R100	B2	I5
R101	B1	I5
R131	D5	J5
R132	D5	J5
R133	E5	J6
R141	F1	J3
R142	F1	J3
R143	F2	J3
R144	F2	J3
R149	D5	J5
R150	D4	J6
R157	F1	J3
R158	F1	K3
R159	F1	J3
R160	F1	J3
R161	F1	K3
R162	F1	K3
R163	F1	J3
R164	F1	K3
R168	G2	K3
R169	F2	K4
R175	G1	K3
R176	G1	K3
R177	G1	K3
R178	G1	K3
R179	G1	K3
R180	G2	K4
R181	G1	K4
R182	G3	K4
R183	G3	K4
R189	G1	K3
R190	G1	K3
R191	G1	K3
R192	G2	L3
R193	G2	L3
R194	G1	K3

Comp No	Diag Loc	Bd Loc
R195	G3	K4
R196	G3	K5
R197	G3	K5
R198	H3	K5
R199	G4	K5
R205	F2	L3
R210	H3	L5
R211	C3	L5
R212	D3	L5
R213	C3	L5
R214	G5	L5
R215	H4	L5
R216	D4	L5
R217	C4	L6
R224	E2	L3
R226	D4	L5
R227	D4	L5
R228	C4	L6
R229	C4	L6
R242	E2	L3
R244	E2	L3
R245	E2	L4
R246	E2	L4
R250	C3	L4
R252	E4	L5
R253	D3	L6
R263	G4	M5
R264	G4	M5
R265	C2	M5
R266	C2	M5
R270	G4	M5
R271	C2	M5
R272	B2	M5
R273	C2	M6
R274	B2	M6
R311	B4	O4
R312	B4	O5
R327	A4	P4
R328	A3	O4
R329	B3	O4
R330	A4	O3
R331	B5	O4
R332	B5	O5
R333	B5	P5
R344	B3	P4
R345	A3	P4
R346	A3	P4
R347	B4	P5
R353	A4	O3
R354	A4	P3
R355	A4	P3
R359	G4	M5
R360	G4	M5
TP8	E3	K6
U47A	B2	J5
U47C	D5	J5
U55	F3	J5
U57A	E2	K2
U57B	E2	K2
U64B	E2	L3
U66A	B2	L4
U66B	B4	L4
U66C	B3	L4
U66D	B3	L4
U67	D3	L5
U73	G4	M5
U84A	A3	O4
U88B	A4	P3
U89	B5	P5

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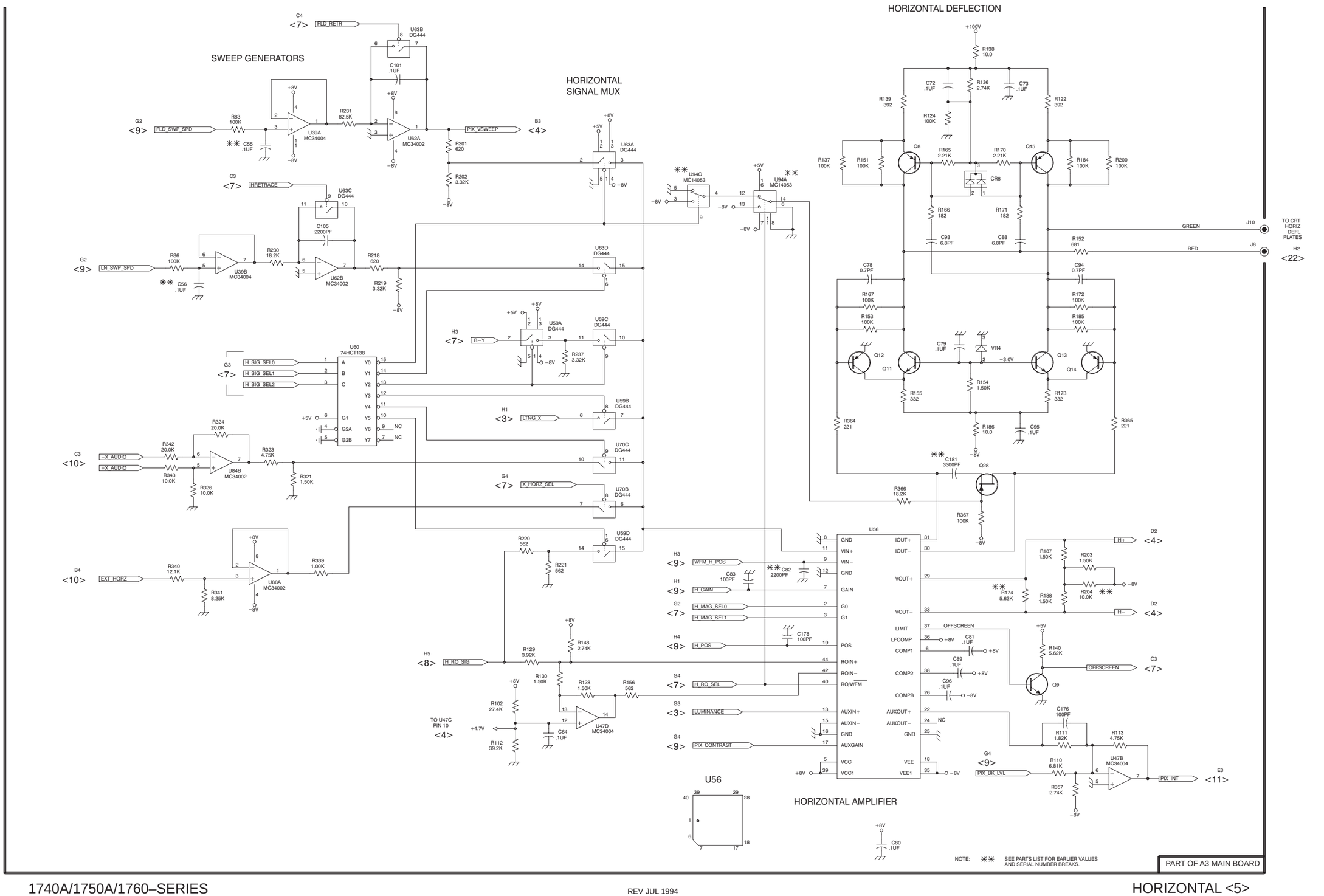
Schematic Diagram <5> Component Locator Chart

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

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 6, 7, 8, 9, 10, and 11.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C55	B1	I1	R113	G5	I5	R231	C1	L1
C56	B2	I2	R122	G1	J1	R237	D3	L2
C64	D5	I5	R124	F1	J1	R321	B3	O3
C72	F1	J1	R128	D4	J5			
C73	G1	J1				R323	B3	O4
			R129	D4	J5	R324	B3	O4
C78	F2	K1	R130	D4	J5	R326	B3	O4
C79	F2	J2	R136	F1	J1	R339	B4	P3
C80	F5	J3	R137	F1	J1	R340	B4	P4
C81	F4	J3	R138	F1	J1			
C82	E4	J3				R341	B4	P3
			R139	F1	J1	R342	B3	P4
C83	E4	J3	R140	G4	J2	R343	B3	P4
C88	G2	K1	R148	D4	J5	R357	G5	I5
C89	F4	J2	R151	F1	J1	R364	F3	K2
C93	F2	K1	R152	G2	J1			
C94	G2	K1				R365	G3	K2
			R153	F2	K1	R366	F3	L3
C95	G3	L2	R154	F3	J2	R367	F3	L3
C96	F4	K3	R155	F3	K2			
C101	C1	L1	R156	D4	J2	U39A	B1	I2
C105	B2	L1	R165	F1	K1	U39B	B2	I2
C176	G5	I5				U47B	G5	J5
			R166	F2	K1	U47D	D5	J5
C178	E4	L3	R167	F2	K1	U56	F4	K3
C181	F3	K2	R170	G1	K1			
			R171	G2	K1	U59A	D2	L2
CR8	F2	K1	R172	G2	K1	U59B	D3	L2
						U59C	D2	L2
J8	H2	J1	R173	G3	K2	U59D	D4	L2
			R174	G4	K2	U60	C3	L3
J10	H2	L1	R184	G1	L1			
Q8	F1	J1	R185	G2	K1	U62A	C1	L1
Q9	G4	J2	R186	F3	K2	U62B	B2	L1
Q11	F3	K1				U63A	D1	L2
Q12	F3	K2	R187	G4	K2	U63B	C1	L2
			R188	G4	L2	U63C	B2	L2
Q13	G3	K1	R200	G1	L1			
Q14	G3	K2	R201	C1	L1	U63D	D2	L2
Q15	G1	L1	R202	C2	L1	U70B	D3	M1
Q28	F3	K2				U70C	D3	M1
			R203	G4	L1	U84B	B3	O4
R83	B1	I1	R204	G4	L2	U88A	B4	P3
R86	B2	I2	R218	C2	L1			
R102	D4	I5	R219	C2	L1	U94A	E2	K2
R110	G5	I5	R220	D4	L2	U94C	E2	K2
R111	G5	I5						
			R221	D4	L2	VR4	F2	J2
R112	D5	I5	R230	B2	L1			

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Schematic Diagram <6> Component Locator Chart

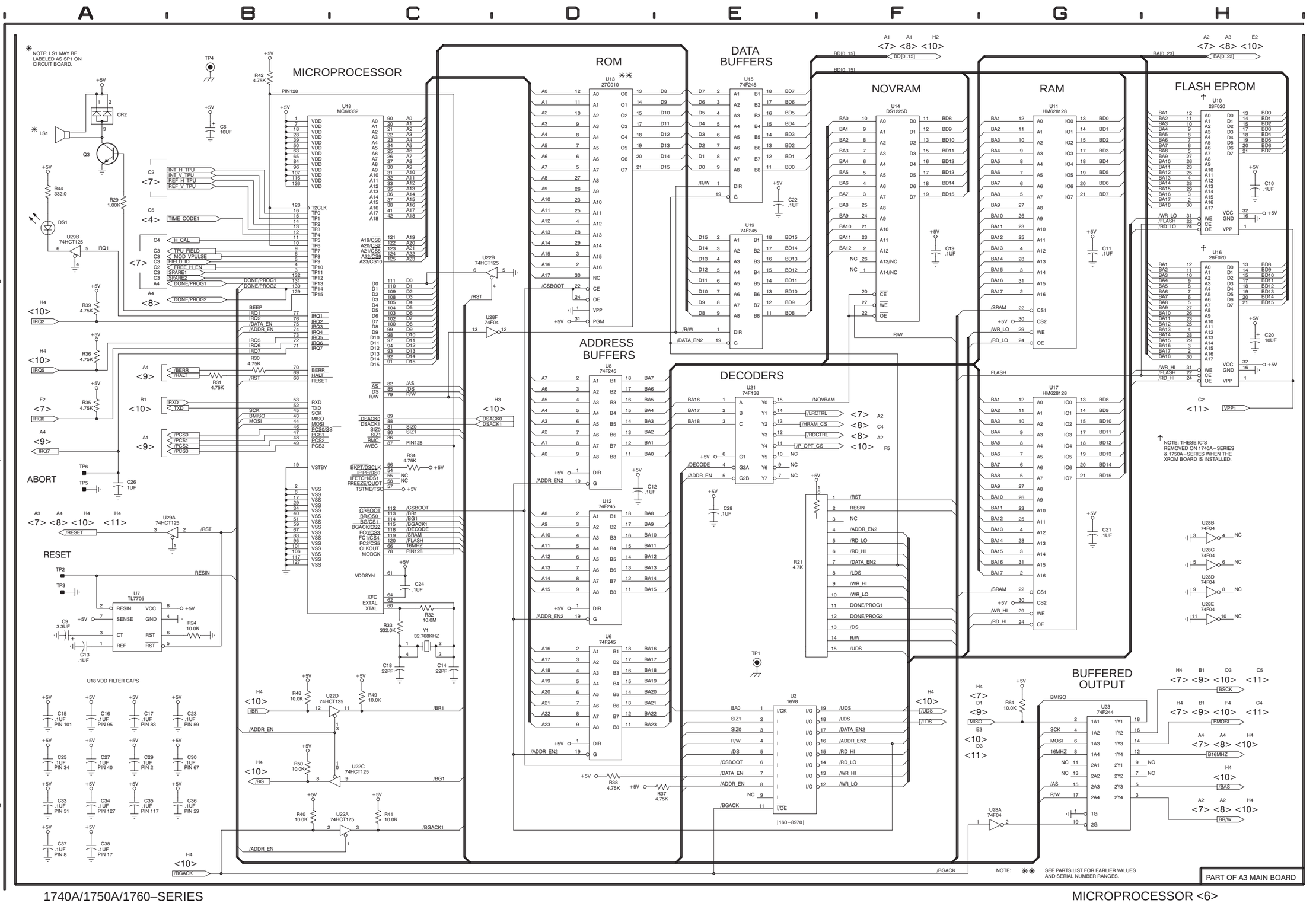
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 7, 8, 9, 10, and 11.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C6	B1	C4	LS1	A1	C6	U7	A4	C4
C9	A4	C5				U8	D3	D4
C10	H1	C2	Q3	A1	D6	U10	H1	D2
C11	G2	C3						
C12	D3	C3	R21	E3	C3	U11	G1	C3
			R24	B4	C4	U12	D3	D4
C13	A4	C4	R29	A1	D6	U13	D1	D4
C14	C4	D6	R30	B2	D6	U14	F1	D2
C15	A4	D5	R31	B3	D6	U15	E1	E4
C16	A4	D5						
C17	A4	D6	R32	C4	D6	U16	H2	E3
			R33	C4	D6	U17	G3	E3
C18	C4	D6	R34	C3	D6	U18	B1	F5
C19	F2	E1	R35	A3	E6	U19	E2	E4
C20	H2	E3	R36	A2	E6	U21	E3	F3
C21	G3	E3						
C22	E2	E4	R37	E5	E6	U22A	C5	F3
			R38	D5	E6	U22B	C2	F3
C23	B4	E5	R39	A2	F6	U22C	C5	F3
C24	C4	D6	R40	B5	F3	U22D	C4	F3
C25	A5	E5	R41	C5	F3	U23	G5	F5
C26	A3	E6						
C27	A5	E5	R42	B1	F4	U28A	G5	G5
			R44	A1	F6	U28B	H3	G5
C28	E3	F2	R48	B4	F3	U28C	H4	G5
C29	A5	F5	R49	C4	F3	U28D	H4	G5
C30	B5	F6	R50	B5	F3	U28E	H4	G5
C33	A5	F5	R64	G4	G5			
C34	A5	F5				U28F	C2	G5
			TP1	E4	C2	U29A	B3	G6
C35	A5	F5	TP2	A4	C4	U29B	A2	G6
C36	B5	F5	TP3	A4	C4			
C37	A5	F6	TP4	B1	D6	Y1	C4	D6
C38	A5	F6	TP5	A3	E6			
			TP6	A3	E6			
CR2	A1	D6						
			U2	E4	C2			
DS1	A2	G6	U6	D4	C4			

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Schematic Diagram <7> Component Locator Chart

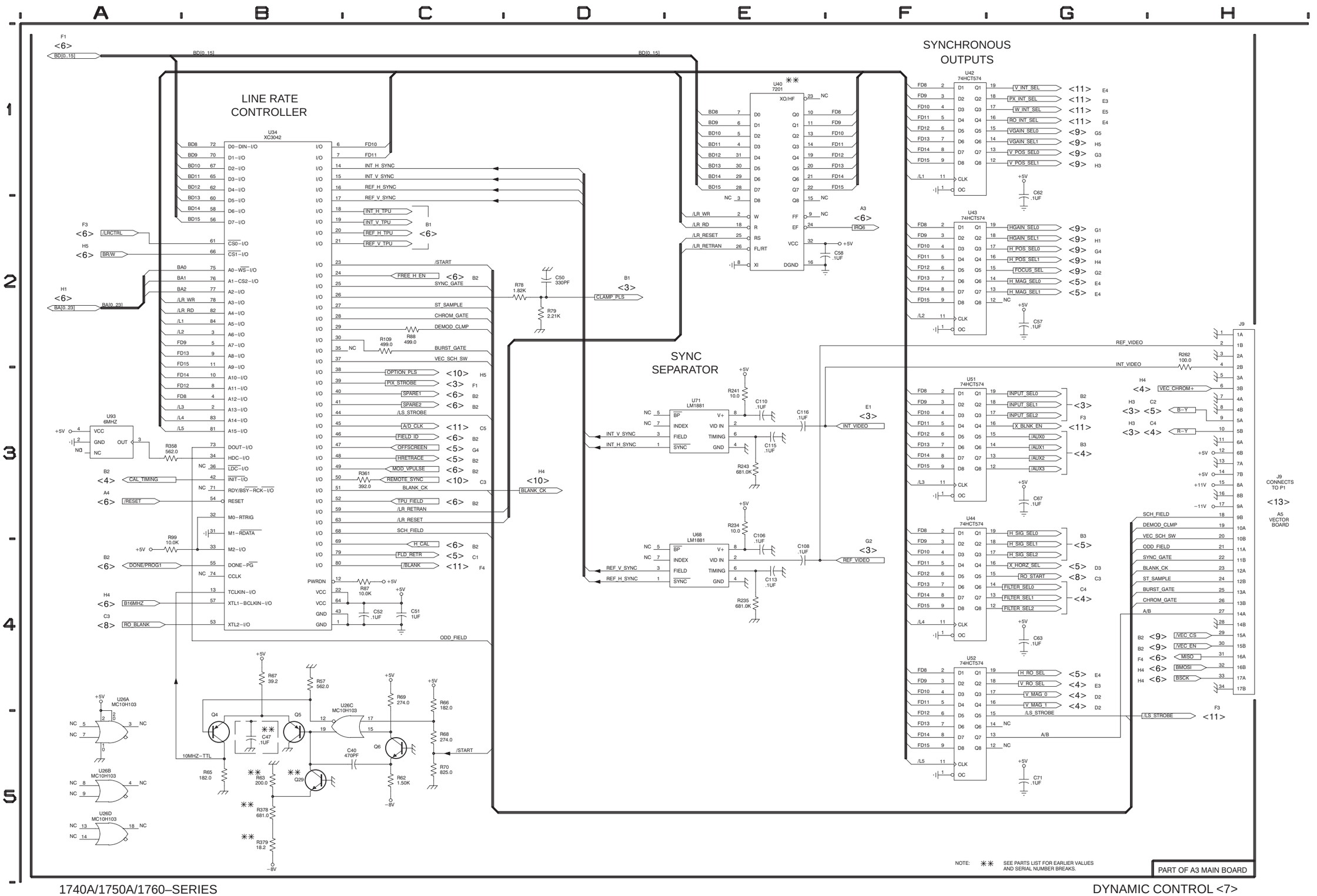
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 6, 8, 9, 10, and 11.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C40	C5	F2	Q29	B5	G2	R262	H2	M4
C50	D2	H2						
C51	C4	H4	R57	B4	G3	R358	A3	G3
C52	C4	I4	R62	C5	G2	R361	C3	P6
			R63	B5	G2	R378	B5	G2
C57	G2	I2	R65	B5	G2	R379	B5	G2
C58	E2	I5						
C62	G1	I3	R66	C4	G3	U26A	A5	F3
C63	G4	I3	R67	B4	G3	U26B	A5	F3
			R68	C5	G3	U26C	B5	F3
C67	G3	J3	R69	C4	G3	U26D	A5	F3
C71	G5	J3						
C106	E4	L2	R70	C5	G3	U34	B1	I2
C108	E4	M2	R78	D2	H2	U40	E1	I4
			R79	D2	H2	U42	F1	I2
C110	E3	L3	R87	C4	H4	U43	F2	I3
C113	E4	M2						
C115	E3	M3	R88	C2	I4	U44	F3	I3
C116	E3	M4	R99	A4	I2	U51	F3	I3
			R109	C2	I5	U52	F4	I3
J9	H2	K6	R234	E3	L2	U68	E4	M2
Q4	B5	G3	R235	E4	M2	U71	E3	M3
Q5	B5	G3	R241	E3	M3	U93	A3	G3
Q6	C5	G3	R243	E3	M3			

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Schematic Diagram <8> Component Locator Chart

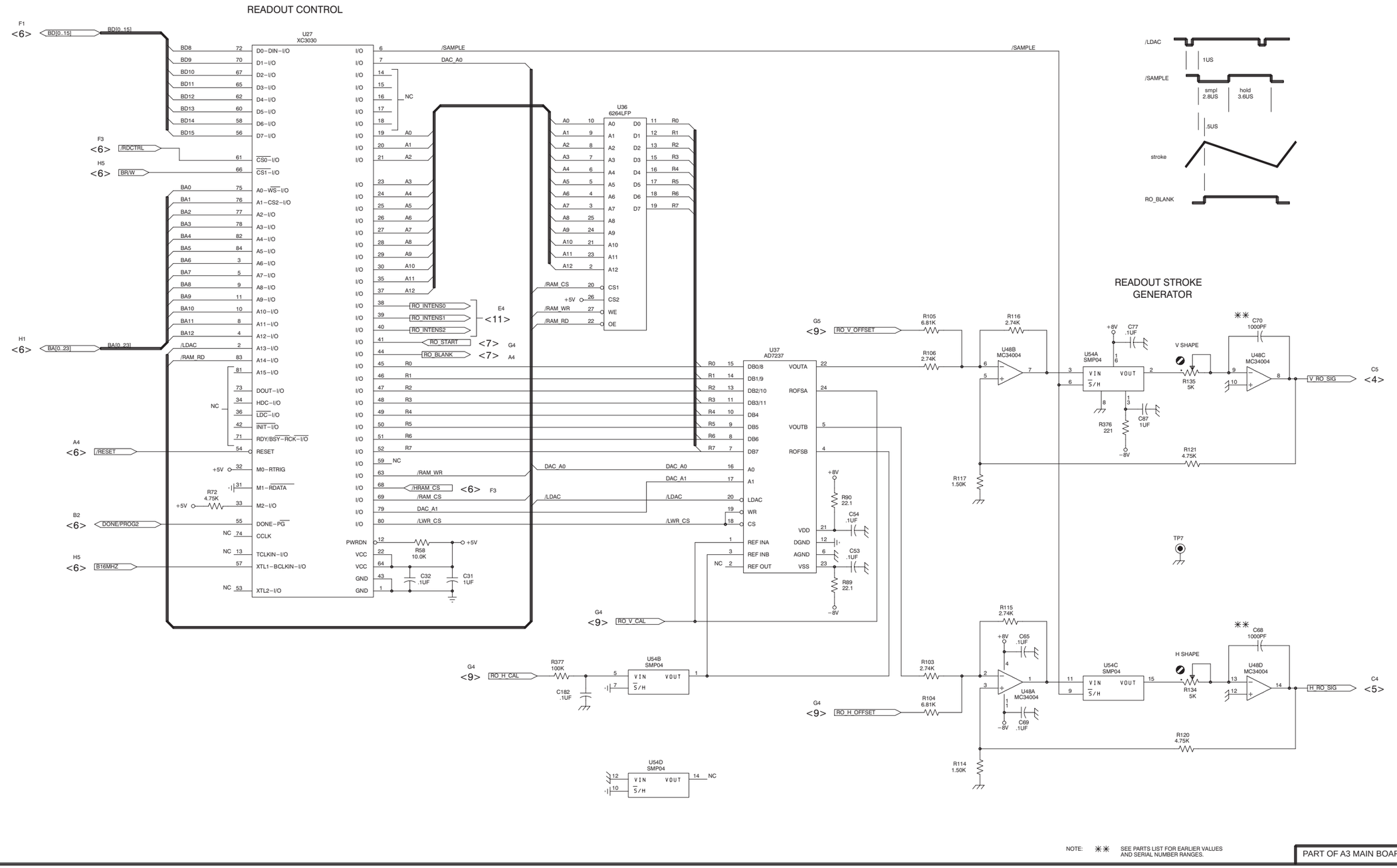
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 6, 7, 9, 10, and 11.

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

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Schematic Diagram <9> Component Locator Chart

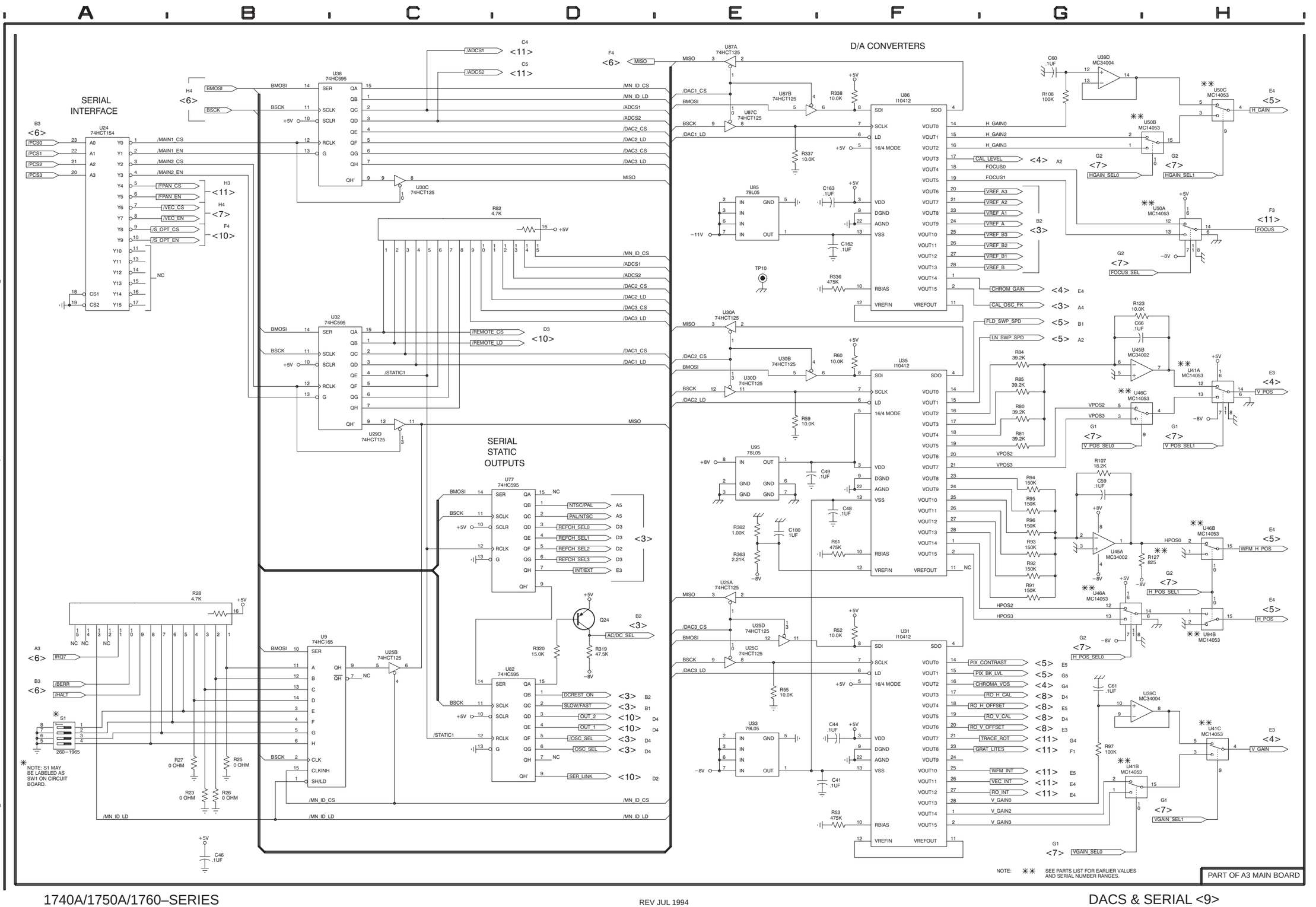
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 6, 7, 8, 10, and 11.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C41	E5	G2	R91	G4	I1	U30C	C1	G2
C44	F5	G1	R92	G4	I1	U30D	E3	G2
C46	B5	G6	R93	G4	I1	U31	F4	G1
C48	F3	G2	R94	G3	I1			
						U32	B2	H6
C49	E3	H1	R95	G3	I1	U33	E5	H2
C59	G3	I1	R96	G3	I1	U35	F3	H1
C60	G1	I2	R97	G5	I1	U38	B1	H6
C61	G4	I2	R107	G3	I1			
						U39C	G4	I2
C66	G2	J1	R108	G1	I2	U39D	G1	I2
C162	F2	O1	R123	G2	J1	U41A	H3	I1
C163	F2	O1	R127 *	H4	H2	U41B	G5	I1
C180	E3	H2	R319	D4	O3			
			R320	D4	O3	U41C	H5	I1
Q24	D4	O3				U45A	G3	I1
			R336	F2	P2	U45B	G2	I1
R23	B5	C5	R337	E1	P2	U46A	G4	I1
R25	B5	C5	R338	F1	P2			
R26	B5	C5	R362	E3	H2	U46B	H3	I1
R27	B5	C5	R363	E4	I2	U46C	G3	I1
						U50A	H2	J2
R28	A4	D6	S1	A5	C6	U50B	G1	J2
R52	F4	G1						
R53	F5	G1	TP10	E2	O1	U50C	H1	J2
R55	E4	G2				U77	C3	M3
			U9	B4	C5	U82	C4	O3
R59	E3	G1	U24	A1	F6	U85	E2	O1
R60	F2	G2	U25A	E4	G2			
R61	F4	G2	U25B	C4	G2	U86	F1	O1
R80	G3	H2				U87A	E1	O2
			U25C	E4	G2	U87B	E1	O2
R81	G3	H2	U25D	E4	G2	U87C	E1	O2
R82	C2	H6	U29D	C3	G6			
R84	G2	H2	U30A	E2	G2	U94B	H4	K2
R85	G3	H2				U95	E3	H1
			U30B	E2	G2			

* See Parts List for earlier serial number ranges.

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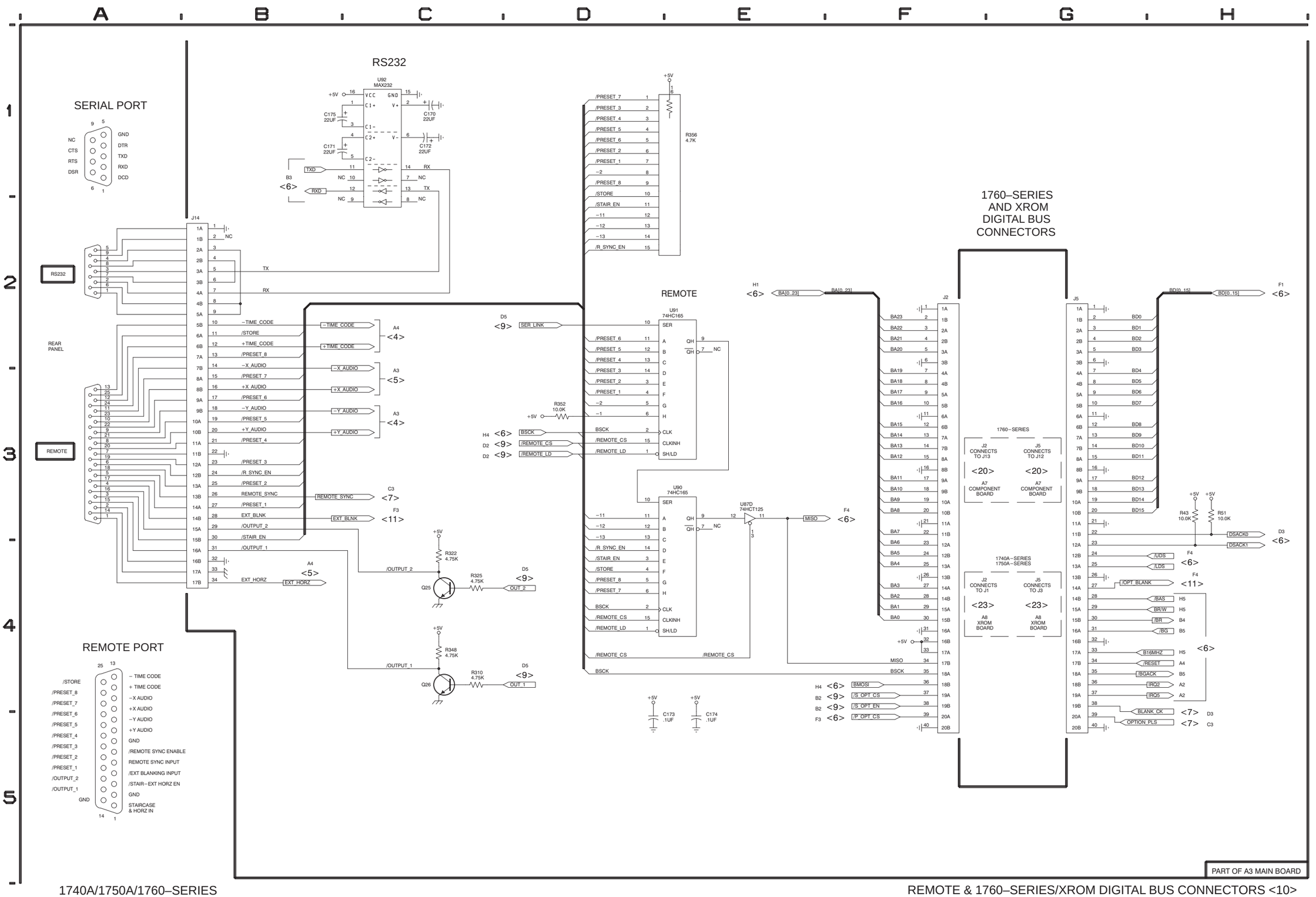
Schematic Diagram <10> Component Locator Chart

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

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 6, 7, 8, 9, and 11.

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

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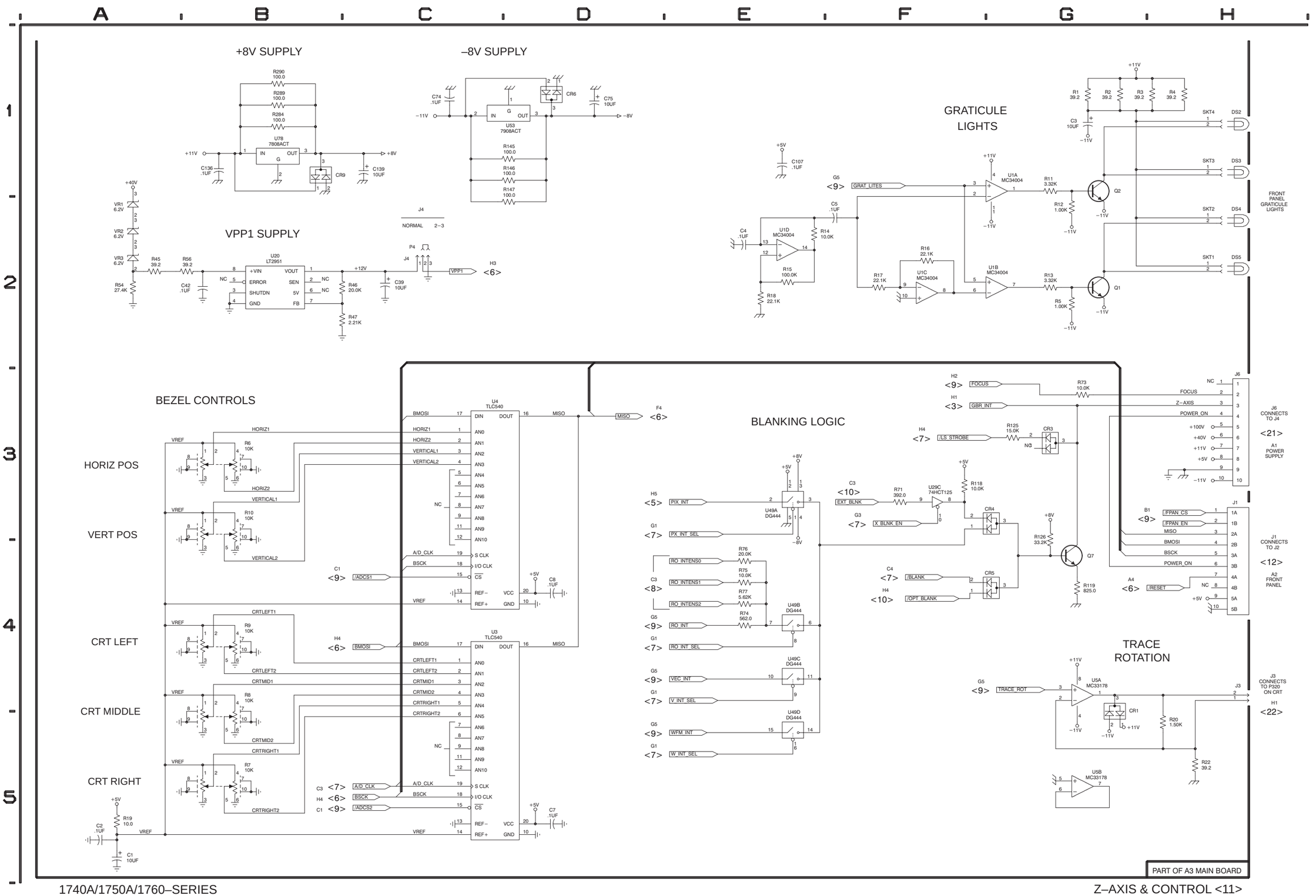
Schematic Diagram <11> Component Locator Chart

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

Assembly A3. Partial Assembly A3 also shown on Schematics 3, 4, 5, 6, 7, 8, 9, and 10.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	A5	A3	R1	G1	A1	R119	G4	J2
C2	A5	A4	R2	G1	A1	R125	G3	J2
C3	G1	B1	R3	G1	A1			
C4	E2	B1	R4	H1	A2	R126	G3	J2
C5	F2	B1	R5	G2	A2	R145	C1	J4
						R146	C1	J4
C7	D5	C4	R6	B3	B2	R147	C2	J4
C8	D4	C5	R7	B5	B3	R284	B1	N6
C39	C2	F2	R8	B4	B4			
C42	B2	F2	R9	B4	B5	R289	B1	N6
C74	C1	J4	R10	B3	B6	R290	B1	N6
C75	D1	J5	R11	G1	B1	SKT1	H2	A3
C107	E1	L2	R12	G2	B2	SKT2	H2	A4
C136	B1	N6	R13	G2	B2	SKT3	H1	A5
C139	C1	N5	R14	E2	B1	SKT4	H1	A5
			R15	E2	B2			
CR1	G4	C2				U1A	F1	B2
CR3	G3	J2	R16	F2	B2	U1B	F2	B2
CR4	F3	I2	R17	F2	B2	U1C	F2	B2
CR5	F4	I2	R18	E2	B1	U1D	E2	B2
CR6	D1	J4	R19	A5	B2	U3	C4	C4
CR9	B1	N6	R20	H5	C2			
						U4	C3	C5
DS2	H1	A5	R22	H5	C2	U5A	G4	C2
DS3	H1	A5	R45	A2	F2	U5B	G5	C2
DS4	H2	A4	R46	B2	F2	U20	B2	F2
DS5	H2	A3	R47	B2	F2	U29C	F3	G6
			R54	A2	G2			
J1	H3	A1				U49A	E3	J2
J3	H4	B2	R56	A2	F2	U49B	E4	J2
J4	C2	E2	R71	F3	G6	U49C	E4	J2
J6	H3	H1	R73	G3	I1	U49D	E5	J2
			R74	E4	H1	U53	C1	I4
P4	C2		R75	E4	H1	U78	B1	M6
Q1	G2	A2	R76	E4	H1	VR1	A2	F1
Q2	G1	B2	R77	E4	H2	VR2	A2	F1
Q7	G4	I2	R118	F3	I2	VR3	A2	F1

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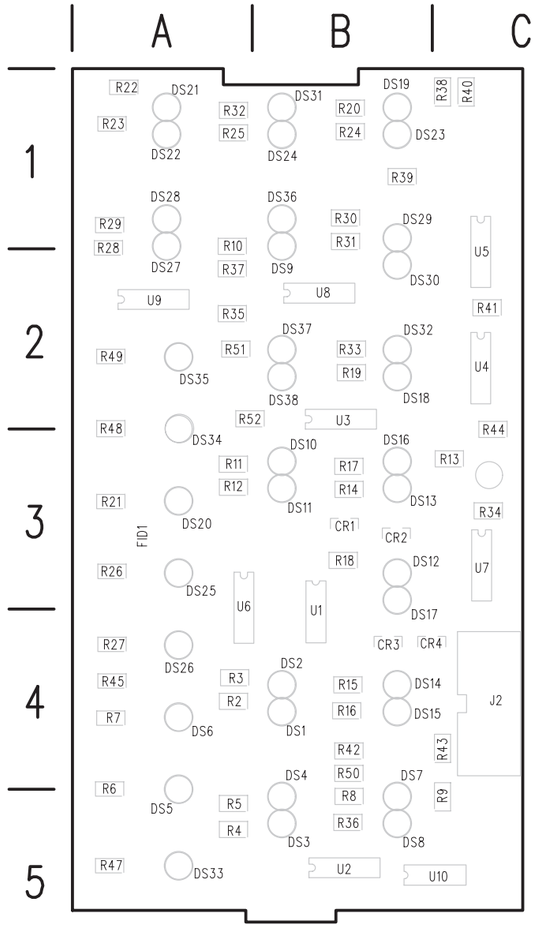


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A2 Front Panel Board and Schematic Diagram <12> Component Locator Chart

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

Assembly A2.

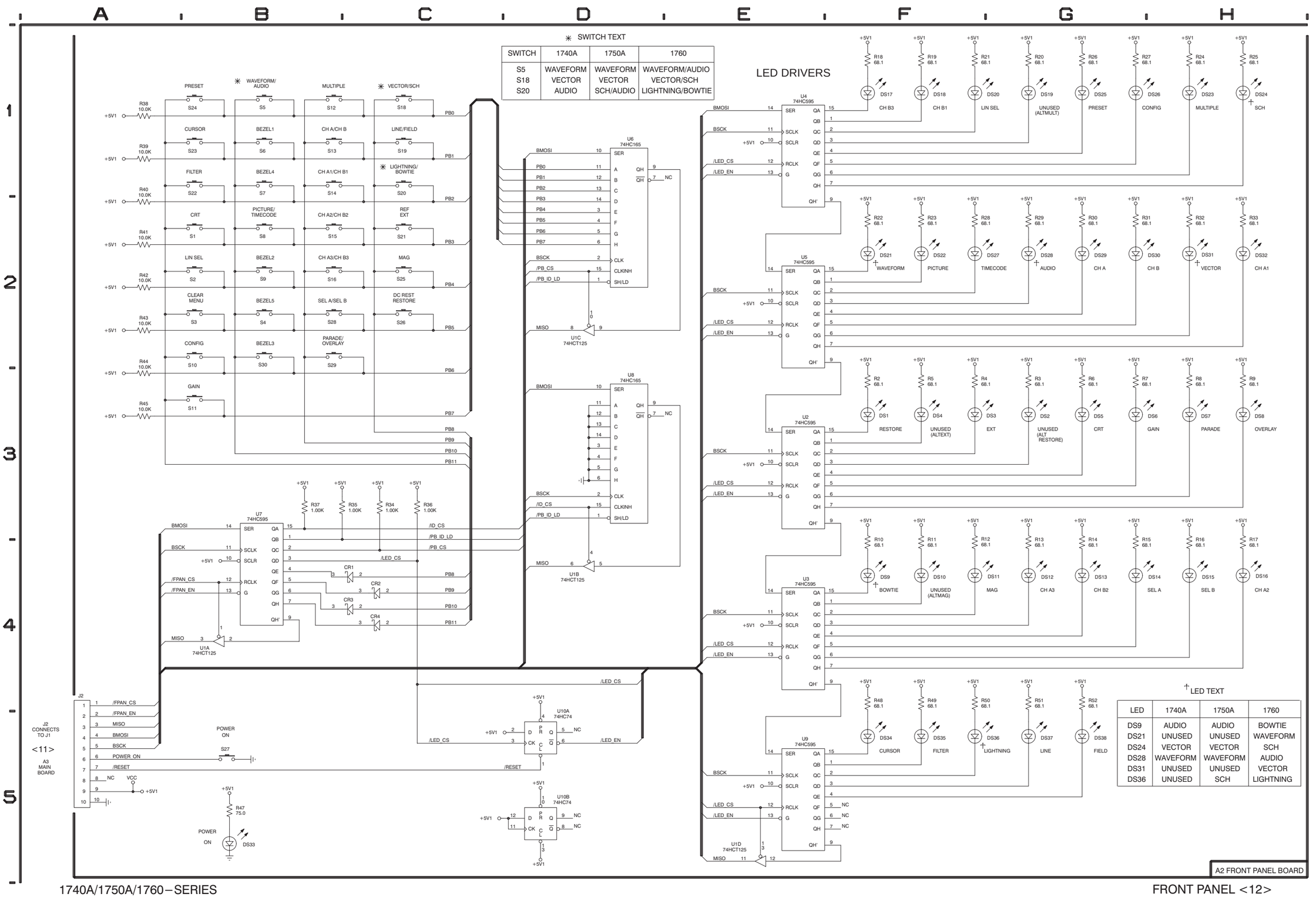


A2 Front Panel Board

Static Sensitive Devices
See Maintenance Section

Comp No	Diag Loc	Bd Loc
Front of Board		
CR1	C4	B3
CR2	C4	B3
CR3	C4	B4
CR4	C4	B4
DS1	F3	B4
DS2	G3	B4
DS3	F3	B5
DS4	F3	B4
DS5	G3	A5
DS6	G3	A4
DS7	H3	B4
DS8	H3	B5
DS9	F4	A2
DS10	F4	B3
DS11	F4	B3
DS12	G4	B3
DS13	G4	B3
DS14	G4	B4
DS15	H4	B4
DS16	H4	B3
DS17	F1	B4
DS18	F1	B2
DS19	G1	B1
DS20	F1	A3
DS21	F2	A1
DS22	F2	A1
DS23	H1	B1
DS24	H1	B1
DS25	G1	A3
DS26	G1	A4
DS27	F2	A2
DS28	G2	A1
DS29	G2	B1
DS30	G2	B2
DS31	H2	B1
DS32	H2	B2
DS33	B5	A5
DS34	F5	A3
DS35	F5	A2
DS36	F5	B1
DS37	G5	B2
DS38	G5	B2
J2	A4	C4
R2	F3	A4
R3	G3	A4
R4	F3	A5
R5	F3	A5
R6	G3	A5
R7	G3	A4
R8	H3	B5
R9	H3	B4
R10	F3	A1
R11	F3	A3
R12	F3	A3
R13	G3	C3
R14	G3	B3
R15	G3	B4
R16	H3	B4
R17	H3	B3
R18	F1	B3
R19	F1	B2
R20	G1	B1
R21	F1	A3
R22	F2	A1
R23	F2	A1
R24	H1	B1
R25	H1	A1
R26	G1	A3
R27	G1	A4
R28	F2	A2
R29	G2	A1
R30	G2	B1
R31	G2	B2
R32	H2	A1
R33	H2	B2
R34	C3	C3
R35	B3	B2
R36	C3	B5
R37	B3	A2
R38	A1	B1
R39	A1	B1
R40	A2	C1
R41	A2	C2
R42	A2	B4
R43	A2	B4
R44	A3	C3
R45	A3	A4
R47	B5	A5
R48	F4	A3
R49	F4	A2
R50	F4	B4
R51	G4	A2
R52	G4	A2
U1A	B4	B3
U1B	D4	B3
U1C	D2	B3
U1D	E5	B3
U2	E3	B5
U3	E4	B2
U4	E1	C2
U5	E2	C1
U6	D1	A3
U7	B3	C3
U8	D3	B2
U9	E5	A2
U10A	D5	C5
U10B	D5	C5
Back of Board		
S1	B2	A5
S2	B2	A3
S3	B2	C5
S4	B2	C3
S5	B1	A1
S6	B1	C1
S7	B1	C3
S8	B2	A2
S9	B2	C2
S10	B2	A4
S11	B3	A4
S12	B1	B1
S13	B1	B2
S14	B1	B2
S15	B2	B3
S16	B2	B4
S18	C1	B1
S19	C1	A2
S20	C1	B2
S21	C2	B5
S22	B1	A2
S23	B1	A3
S24	B1	A3
S25	C2	A3
S26	C2	B4
S27	B5	A5
S28	B2	B4
S29	B2	B5
S30	B2	C2

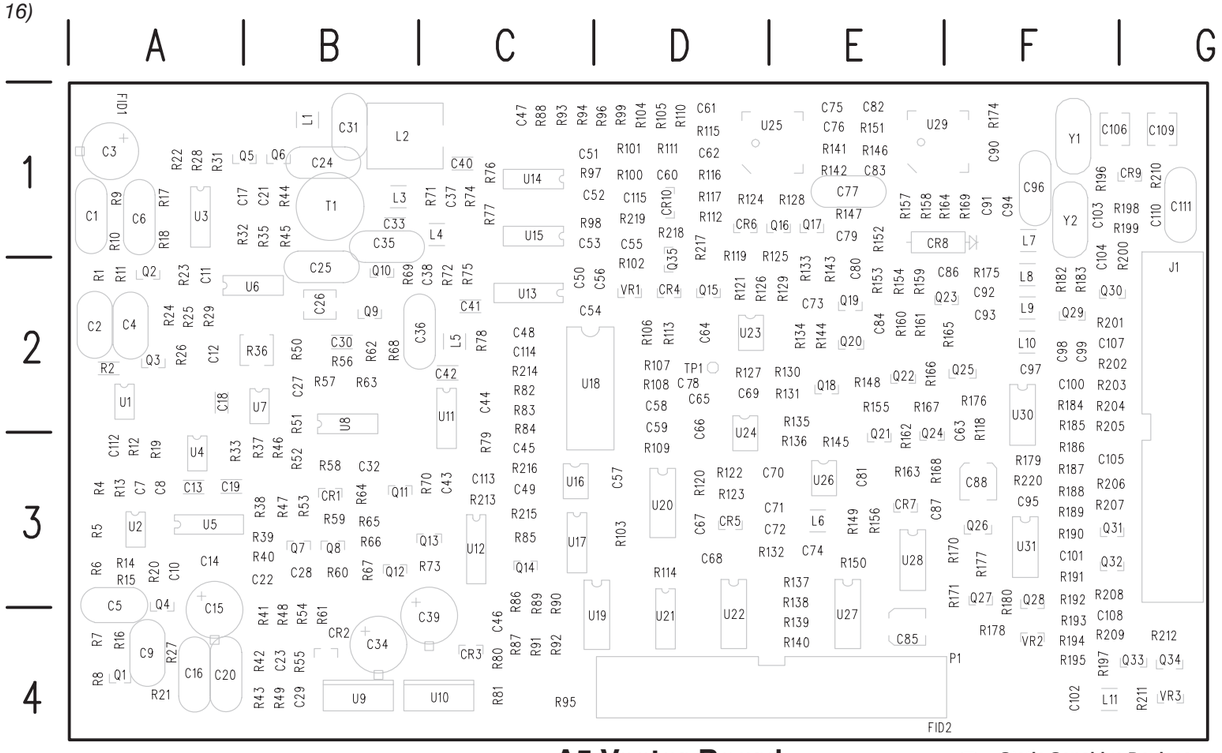
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A5 Vector Board Component Locator Chart *(with cross-references to Schematics 13, 14, 15, and 16)*

Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc	Comp No	Diag No	Diag Loc	Bd Loc
C1	16	E2	A1	C96	15	B4	F1	R12	16	G2	A3	R108 *	14	G4	D2	R205	14	B4	F2
C2	16	F2	A2	C97	14	C3	F2	R13	16	G2	A3	R109	14	G4	D3	R206	14	C5	F3
C3	16	E1	A1	C98	14	B4	F2	R14	16	G4	A3	R110	15	E3	D1	R207	14	C5	F3
C4	16	F2	A2	C99	14	B4	F2	R15	16	G4	A3	R111	15	E2	D1	R208	14	C4	F3
C5	16	F4	A4	C100	14	B4	F2	R16	16	F3	A4	R112	15	E2	D1	R209	13	C2	F4
C6	16	E2	A1	C101	14	C4	F3	R17	16	E1	A1	R113	14	E2	D2	R210	15	B5	G1
C7	16	G2	A3	C102	13	B2	F4	R18	16	E1	A1	R114	13	D4	D3	R211	13	B1	G4
C8	16	D5	A3	C103	15	B4	F1	R19	16	F2	A3	R115	15	D1	D1	R212	13	C2	G4
C9	16	F4	A4	C104	14	A4	F2	R20	16	F4	A3	R116	15	E1	D1	R213	13	H1	C3
C10	16	G4	A3	C105	14	B3	F3	R21	16	E3	A4	R117	15	E2	D1	R214	13	H1	C2
C11	16	D2	A2	C106	15	B4	F1	R22	16	E1	A1	R118	14	G1	F3	R215	13	G1	C3
C12	16	F3	A2	C107	14	B3	F2	R23	16	E2	A2	R119	14	F2	D2	R216	13	G1	C3
C13	16	D5	A3	C108	14	C5	F4	R24	16	F2	A2	R120	14	G4	D3	R217	14	D1	D2
C14	16	F4	A3	C109	15	B4	G1	R25	16	F2	A2	R121	14	F2	D2	R218	14	E1	D1
C15	16	E3	A4	C110	15	B5	G1	R26	16	F2	A2	R122	14	G3	D3	R219	14	E1	D1
C16	16	E4	A4	C111	15	B5	G1	R27	16	F3	A4	R123	14	G3	D3	R220	14	E5	F3
C17	16	C3	B1	C112	16	G2	A3	R28	16	C3	A1	R124	14	D1	D1				
C18	16	F5	A2	C113	13	H1	C3	R29	16	E2	A2	R125	14	D1	D2	T1	16	A1	B1
C19	16	F3	A3	C114	13	H1	C2	R31	16	C2	A1	R126	14	F2	D2				
C20	16	E3	A4	C115	14	F1	D1	R32	16	D2	B1	R127	14	E2	D2	TP1	14	H3	D2
C21	16	C2	B1					R33	16	F4	A3	R128	14	D1	E1				
C22	16	C4	B3	CR1	16	C4	B3	R35	16	D2	B1	R129	14	F3	E2	U1	16	G2	A2
C23	16	C4	B4	CR2	15	F5	B4	R36	16	D2	B2	R130	14	E3	E2	U2	16	G4	A3
C24	16	B2	B1	CR3	15	E5	C4	R37	16	D2	B3	R131	14	D2	E2	U3A	16	C5	A1
C25	15	H2	B2	CR4	14	F2	D2	R38	16	D4	B3	R132	14	F4	D3	U3B	16	C2	A1
C26	16	B3	B2	CR5	14	G3	D3	R39	16	D4	B3	R133	14	D1	E2	U4A	16	F2	A2
C27	16	E4	B2	CR6	14	F2	D1	R40	16	D4	B3	R134	14	E3	E2	U4B	16	G2	A2
C28	16	C4	B3	CR7	14	G2	E3	R41	16	E3	B4	R135	14	G4	E2	U5A	16	D5	A3
C29	15	F5	B4	CR8	15	B2	E1	R42	16	E4	B4	R136	14	D2	E3	U5B	16	G4	A3
C30	16	D3	B2	CR9	15	C4	G1	R43	16	E3	B4	R137	13	E4	E3	U5C	16	E5	A3
C31	16	B1	B1	CR10	14	E1	D1	R44	16	C2	B1	R138	13	F4	E3	U5D	16	G2	A3
C32	13	D2	B3					R45	16	C2	B1	R139	13	F4	E4	U6	16	D1	A2
C33	15	H2	B1	J1	13	H3	G1	R46	16	D2	B3	R140	13	F4	E4	U7A	16	F4	A2
C34	15	G5	B4					R47	16	D4	B3	R141	15	C2	E1	U7B	16	G4	A2
C35	15	H2	B1	L1	16	B2	B1	R48	16	E3	B4	R142	15	B3	E1	U8	16	D3	B3
C36	15	G2	C2	L2	16	B2	C1	R49	16	C4	B4	R143	14	D2	E2	U9	15	F5	B4
C37	15	G2	C1	L3	15	H2	B1	R50	16	D2	B2	R144	14	E3	E2	U10	15	D5	B4
C38	15	G2	C2	L4	15	G2	C1	R51	16	E3	B2	R145	14	G4	E3	U11A	15	D3	B2
C39	15	E5	C4	L5	15	F1	C2	R52	16	D4	B3	R146	15	C4	E1	U11B	13	A4	B2
C40	15	G2	C1	L6	14	E4	E3	R53	16	C4	B3	R147	14	D1	E1	U11C	13	A4	B2
C41	15	F1	C2	L7	14	A4	F1	R54	16	C4	B4	R148	14	C2	E2	U11D	13	C3	B2
C42	13	F1	C2	L8	14	A4	F2	R55	15	F5	B4	R149	14	F4	E3	U11E	13	A5	B2
C43	13	D2	C3	L9	14	C2	F2	R56	16	D3	B2	R150	13	C4	E3	U11F	13	B3	B2
C44	15	F1	C2	L10	14	B5	F2	R57	16	D3	B2	R151	15	B3	E1	U12A	13	D2	C3
C45	13	F2	C3	L11	13	B2	F4	R58	16	E4	B3	R152	14	D2	E1	U12B	13	C2	C3
C46	15	D5	C4					R59	16	B5	B3	R153	14	E3	E2	U12C	13	C3	C3
C47	15	F3	C1	P1	13	A2	F4	R60	16	B4	B3	R154	15	A1	E2	U12D	13	D3	C3
C48	15	D3	C2					R61	15	F5	B4	R155	14	F4	E2	U13A	15	E4	C2
C49	13	E2	C3	Q1	16	F3	A4	R62	16	A3	B2	R156	14	H2	E3	U13B	15	E2	C2
C50	15	E4	C2	Q2	16	F1	A2	R63	16	D3	B2	R157	15	C3	E1	U13C	15	E2	C2
C51	15	F3	C1	Q3	16	F2	A2	R64	16	B4	B3	R158	15	B2	E1	U13D	15	E3	C2
C52	15	E3	C1	Q4	16	F3	A4	R65	16	B4	B3	R159	15	A2	E2	U14	15	F3	C1
C53	15	F2	C1	Q5	16	C3	A1	R66	16	B5	B3	R160	14	E3	E2	U15	15	F2	C1
C54	15	E3	C2	Q6	16	C2	B1	R67	16	B4	B3	R161	14	E3	E2	U16	13	E1	C3
C55	14	G1	D1	Q7	16	C5	B3	R68	16	A4	B2	R162	14	B2	E3	U17A	13	E1	C3
C56	15	F1	D2	Q8	16	B4	B3	R69	15	G2	B2	R163	14	D3	E3	U17B	13	E1	C3
C57	14	G2	D3	Q9	16	A4	B2	R70	16	B4	C3	R164	15	B2	F1	U17C	13	E5	C3
C58	14	G4	D2	Q10	15	G2	B2	R71	15	G2	C1	R165	15	A2	F2	U17D	13	E5	C3
C59	14	G4	D2	Q11	16	B4	B3	R72	15	G2	C2	R166	14	C2	E2	U18	13	F1	D2
C60	15	E2	D1	Q12	16	B4	B3	R73	13	C2	C3	R167	14	B2	E2	U19	13	B4	D3
C61	15	D2	D1	Q13	13	C2	B3	R74	15	G1	C1	R168	14	D4	E3	U20A	14	G2	D3
C62	15	D1	D1	Q14	13	C3	C3	R75	15	G2	C2	R169	15	C2	F1	U20B	14	G4	D3
C63	14	G1	F3	Q15	14	F2	D2	R76	15	E2	C1	R170	14	H3	F3	U20C	14	G5	D3
C64	14	E2	D2	Q16	14	D1	D1	R77	15	E2	C1	R171	14	G2	F3	U20D	14	F5	D3
C65	14	H5	D2	Q17	14	D1	E1	R78	15	F1	C2	R174	15	B2	F1	U21A	13	E3	D3
C66	14	H4	D3	Q18	14	E3	E2	R79	15	F1	C3	R175	15	A2	F2	U21B	13	F5	D3
C67	14	G2	D3	Q19	14	E3	E2	R80	15	D5	C4	R176	14	B3	F2	U21C	13	E4	D3
C68	13	B3	D3	Q20	14	E3	E2	R81	15	D5	C4	R177	14	D5	F3	U21D	13	B5	D3
C69	14	E2	D2	Q21	14	F4	E3	R82	13	F1	C2	R178	14	D4	F4	U22	13	E2	D3
C70	14	G4	D3	Q22	14	C2	E2	R83	13	F2	C2	R179	14	B3	F3	U23A	14	E2	D2
C71	14	E4	D3	Q23	15	A1	E2	R84	13	F2	C3	R180	14	B4	F4	U23B	14	E3	D2
C72	14	F4	D3	Q24	14	B2	E3	R85	13	C3	C3	R182	14	B5	F2	U24A	14	G3	D2
C73	14	F2	E2	Q25	14	C2	F2	R86	13	C4	C4	R183	14	A4	F2	U24B	14	E2	D2
C74	14	E4	E3	Q26	14	D4	F3	R87	13	D4	C4	R184	14	B4	F2	U25A	15	C2	D1
C75	15	B2	E1	Q27	14	D4	F4	R88	15	E3	C1	R185	14	B3	F2	U25B	15	C3	D1
C76	15	B3	E1	Q28	14	E4	F3	R89	13	C4	C4	R186	14	B3	F3	U26	14	F4	E3
C77	15	C3	E1	Q29	14	B4	F2	R90	13	C4	C4	R187	14	B3	F3	U27	13	F4	E3
C78 *	14	G4	D2	Q30	14	A3	G2	R91	13	D4	C4	R188	14	B5	F3	U28A	14	G2	E3
C79	14	D2	E1	Q31	14	C5	G3	R92	13	D4	C4	R189	14	B5	F3	U28B	14	G3	E3
C80	14	F3	E2	Q32	14	C4	G3	R93	15	E3	C1	R190	14	D4	F3	U29A	15	B3	E1
C81	14	F4	E3	Q33	13	B1	G4	R94	15	F3	C1	R191	14	D4	F3	U29B	15	B2	E1
C82	15	B3	E1	Q34	13	C1	G4	R95	13	B4	C4	R192	14	C4	F3	U29C	15	B2	E1
C83	15	B3	E1	Q35	14	E1	D1	R96	15	E3	D1	R193	14	C5	F4	U30	14	C3	F2
C84	14	E3	E2					R97	15	F2	C1	R194	14	C5	F4	U31	14	D4	F3
C85	13	A3	E4	R1	16	F2	A2	R98	15	E3	C1	R195	13	B2	F4				
C86	14	C3	E2	R2	16	G2	A2	R99	15	E3	D1	R196	15	B4	F1	VR1	14	G1	D2
C87	14	H3	E3	R4	16	G2	A3	R100	15	E2	D1	R197	13	B2	F4	VR2	14	G1	F4
C88	14	C3	F3	R5	16	G3	A3	R101	15	E2	D1	R198	15	B4	F1	VR3	13	C1	G4
C90	15	B2	F1	R6	16	G4	A3	R102	14	G1	D2	R199	15	B5	F1				
C91	15	B2	F1	R7	16	F3	A4	R103	14	G5	D3	R200	14	A3	G2	Y1	15	B4	F1
C92	14	C2	F2	R8	16	F4	A4	R104	15	E3	D1	R201	14	A3	F2	Y2	15	B5	F2
C93	14	C2	F2	R9	16	E2	A1	R105	15	E3	D1	R202	14	B3	F2				
C94	14	A4	F1	R10	16	E1	A1	R106	14	E2	D2	R203	14	B3	F2				
C95	14	E5	F3	R11	16	F2	A2	R107	14	G5	D2	R204	14	B4	F2				



A5 Vector Board

Static Sensitive Devices
See Maintenance Section

*See Parts List for earlier serial number ranges.

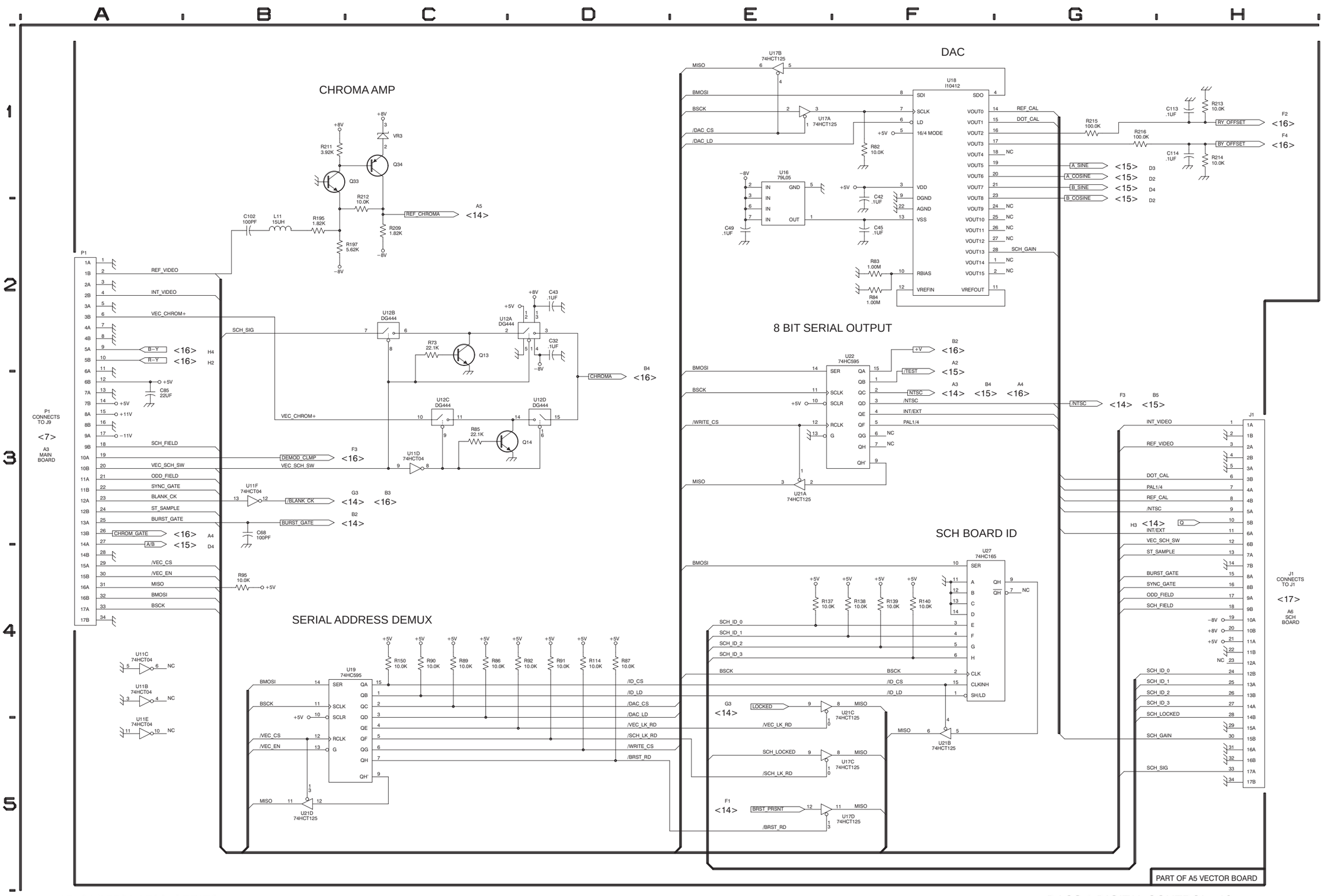
Schematic Diagram <13> Component Locator Chart

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

Assembly A5. Partial Assembly A5 also shown on Schematics 14, 15, and 16.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C32	D2	B3	Q13	C2	B3	R95	B4	C4	R215	G1	C3	U17C	E5	C3
C42	F1	C2	Q14	C3	C3				R216	G1	C3	U17D	E5	C3
C43	D2	C3	Q33	B1	G4	R114	D4	D3				U18	F1	D2
C45	F2	C3	Q34	C1	G4	R137	E4	E3	U11B	A4	B2	U19	B4	D3
C49	E2	C3				R138	F4	E3	U11C	A4	B2	U21A	E3	D3
			R73	C2	C3	R139	F4	E4	U11D	C3	B2	U21B	F5	D3
C68	B3	D3	R82	F1	C2	R140	F4	E4	U11E	A5	B2	U21C	E4	D3
C85	A3	E4	R83	F2	C2	R150	C4	E3	U11F	B3	B2	U21D	B5	D3
C102	B2	F4	R84	F2	C3				U12A	D2	C3			
C113	H1	C3	R85	C3	C3	R195	B2	F4				U22	E2	D3
C114	H1	C2	R86	C4	C4	R197	B2	F4	U12B	C2	C3	U27	F4	E3
						R209	C2	F4	U12C	C3	C3			
J1	H3	G1	R87	D4	C4	R211	B1	G4	U12D	D3	C3	VR3	C1	G4
			R89	C4	C4	R212	C2	G4	U16	E1	C3			
L11	B2	F4	R90	C4	C4	R213	H1	C3	U17A	E1	C3			
			R91	D4	C4				U17B	E1	C3			
P1	A2	F4	R92	D4	C4	R214	H1	C2						

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Schematic Diagram <14> Component Locator Chart

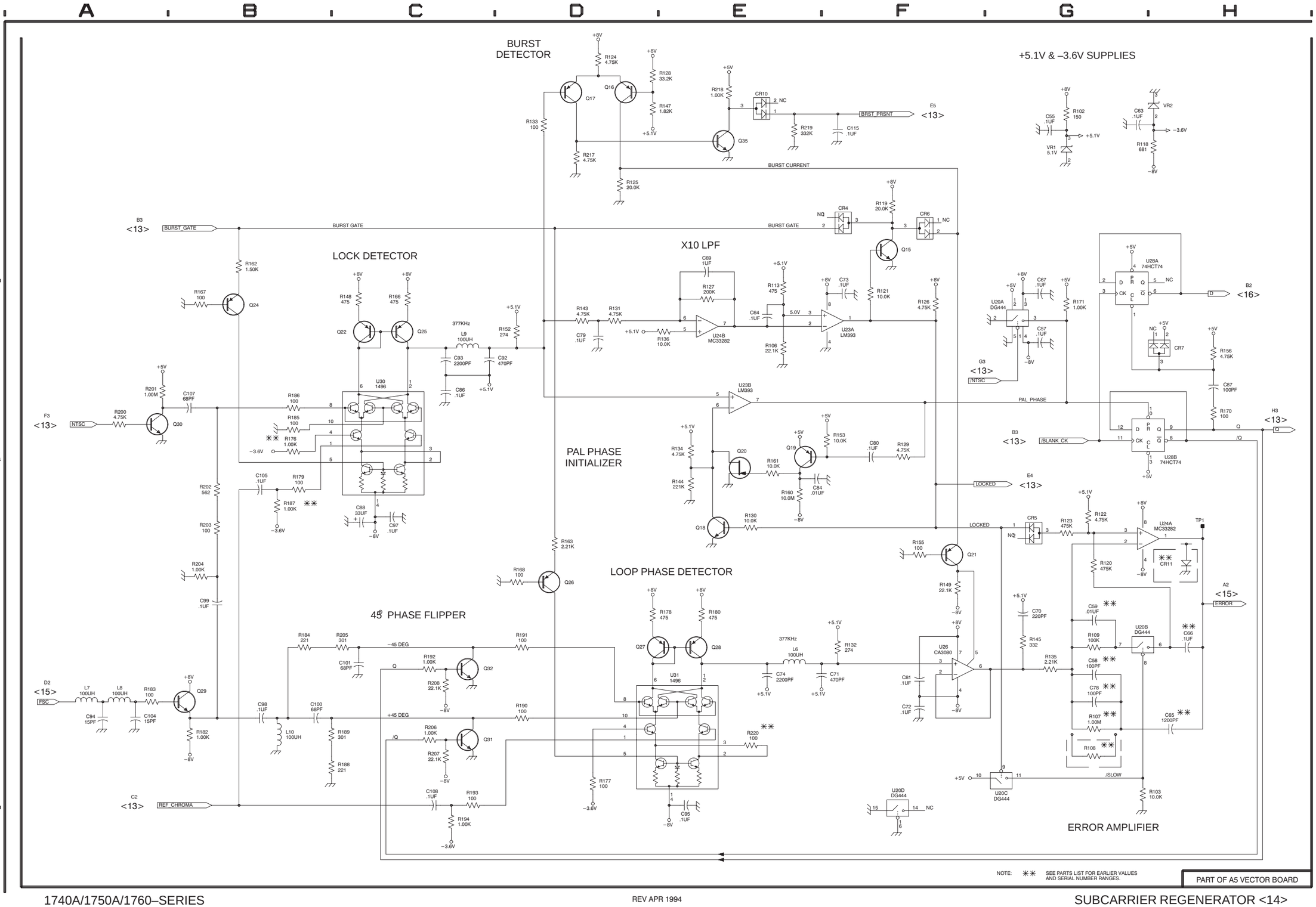
The schematic diagram has an alphanumeric grid to assist in locating parts within that diagram.

Assembly A5. Partial Assembly A5 also shown on Schematics 13, 15, and 16.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C55	G1	D1	Q21	F4	E3	R166	C2	E2
C57	G2	D3	Q22	C2	E2	R167	B2	E2
C58	G4	D2	Q24	B2	E3	R168	D4	E3
C59	G4	D2	Q25	C2	F2	R170	H3	F3
C63	G1	F3				R171	G2	F3
			Q26	D4	F3			
C64	E2	D2	Q27	D4	F4	R176	B3	F2
C65	H5	D2	Q28	E4	F3	R177	D5	F3
C66	H4	D3	Q29	B4	F2	R178	D4	F4
C67	G2	D3	Q30	A3	G2	R179	B3	F3
C69	E2	D2				R180	E4	F4
			Q31	C5	G3			
C70	G4	D3	Q32	C4	G3	R182	B5	F2
C71	E4	D3	Q35	E1	D1	R183	A4	F2
C72	F4	D3				R184	B4	F2
C73	F2	E2	R102	G1	D2	R185	B3	F2
C74	E4	E3	R103	G5	D3	R186	B3	F3
			R106	E2	D2			
C78 *	G4	D2	R107	G5	D2	R187	B3	F3
C79	D2	E1	R108 *	G4	D2	R188	B5	F3
C80	F3	E2				R189	B5	F3
C81	F4	E3	R109	G4	D3	R190	D4	F3
C84	E3	E2	R113	E2	D2	R191	D4	F3
			R118	G1	F3			
C86	C3	E2	R119	F2	D2	R192	C4	F3
C87	H3	E3	R120	G4	D3	R193	C5	F4
C88	C3	F3				R194	C5	F4
C92	C2	F2	R121	F2	D2	R200	A3	G2
C93	C2	F2	R122	G3	D3	R201	A3	F2
			R123	G3	D3			
C94	A4	F1	R124	D1	D1	R202	B3	F2
C95	E5	F3	R125	D1	D2	R203	B3	F2
C97	C3	F2				R204	B4	F2
C98	B4	F2	R126	F2	D2	R205	B4	F2
C99	B4	F2	R127	E2	D2	R206	C5	F3
			R128	D1	E1			
C100	B4	F2	R129	F3	E2	R207	C5	F3
C101	C4	F3	R130	E3	E2	R208	C4	F3
C104	A4	F2				R217	D1	D2
C105	B3	F3	R131	D2	E2	R218	E1	D1
C107	B3	F2	R132	F4	D3	R219	E1	D1
			R133	D1	E2	R220	E5	F3
C108	C5	F4	R134	E3	E2			
C115	F1	D1	R135	G4	E2	TP1	H3	D2
CR4	F2	D2	R136	D2	E3	U20A	G2	D3
CR5	G3	D3	R143	D2	E2	U20B	G4	D3
CR6	F2	D1	R144	E3	E2	U20C	G5	D3
CR7	G2	E3	R145	G4	E3	U20D	F5	D3
CR10	E1	D1	R147	D1	E1	U23A	E2	D2
L6	E4	E3	R148	C2	E2	U23B	E3	D2
L7	A4	F1	R149	F4	E3	U24A	G3	D2
L8	A4	F2	R152	D2	E1	U24B	E2	D2
L9	C2	F2	R153	E3	E2	U26	F4	E3
L10	B5	F2	R155	F4	E2	U28A	G2	E3
Q15	F2	D2	R156	H2	E3	U28B	G3	E3
Q16	D1	D1	R160	E3	E2	U30	C3	F2
Q17	D1	E1	R161	E3	E2	U31	D4	F3
Q18	E3	E2	R162	B2	E3			
Q19	E3	E2	R163	D3	E3	VR1	G1	D2
						VR2	G1	F4
Q20	E3	E2						

* See Parts List for earlier serial number ranges.

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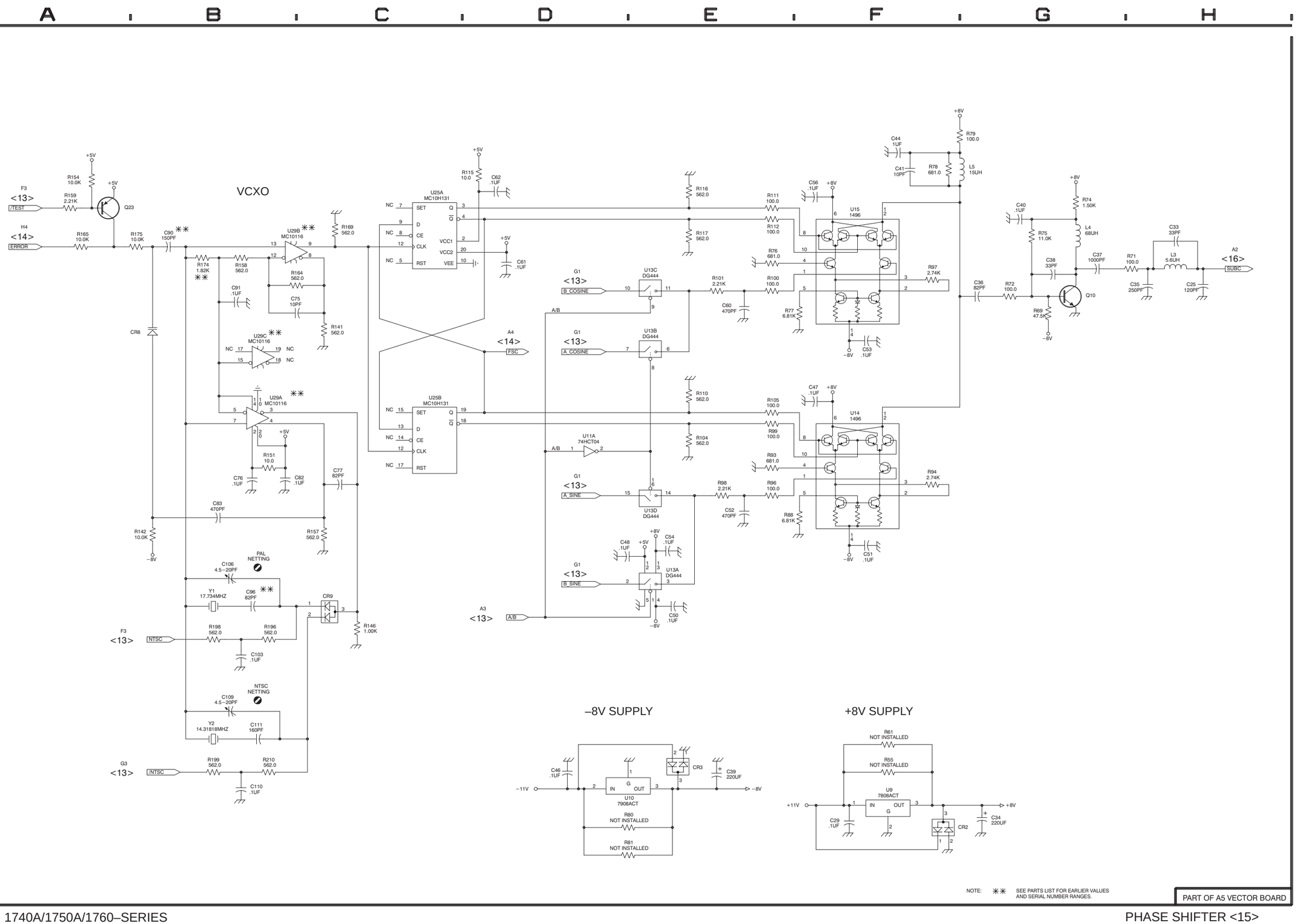
Schematic Diagram <15> Component Locator Chart

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

Assembly A5. Partial Assembly A5 also shown on Schematics 13, 14, and 16.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C25	H2	B2	CR2	F5	B4	R115	D1	D1
C29	F5	B4	CR3	E5	C4	R116	E1	D1
C33	H2	B1	CR8	B2	E1	R117	E2	D1
C34	G5	B4	CR9	C4	G1			
C35	H2	B1				R141	C2	E1
			L3	H2	B1	R142	B3	E1
C36	G2	C2	L4	G2	C1	R146	C4	E1
C37	G2	C1	L5	F1	C2	R151	B3	E1
C38	G2	C2				R154	A1	E2
C39	E5	C4	Q10	G2	B2			
C40	G2	C1	Q23	A1	E2	R157	C3	E1
						R158	B2	E1
C41	F1	C2	R55	F5	B4	R159	A2	E2
C44	F1	C2	R61	F5	B4	R164	B2	F1
C46	D5	C4	R69	G2	B2	R165	A2	F2
C47	F3	C1	R71	G2	C1			
C48	D3	C2	R72	G2	C2	R169	C2	F1
						R174	B2	F1
C50	E4	C2	R74	G1	C1	R175	A2	F2
C51	F3	C1	R75	G2	C2	R196	B4	F1
C52	E3	C1	R76	E2	C1	R198	B4	F1
C53	F2	C1	R77	E2	C1			
C54	E3	C2	R78	F1	C2	R199	B5	F1
						R210	B5	G1
C56	F1	D2	R79	F1	C3			
C60	E2	D1	R80	D5	C4	U9	F5	B4
C61	D2	D1	R81	D5	C4	U10	D5	B4
C62	D1	D1	R88	E3	C1	U11A	D3	B2
C75	B2	E1	R93	E3	C1	U13A	E4	C2
						U13B	E2	C2
C76	B3	E1	R94	F3	C1			
C77	C3	E1	R96	E3	D1	U13C	E2	C2
C82	B3	E1	R97	F2	C1	U13D	E3	C2
C83	B3	E1	R98	E3	C1	U14	F3	C1
C90	B2	F1	R99	E3	D1	U15	F2	C1
						U25A	C2	D1
C91	B2	F1	R100	E2	D1			
C96	B4	F1	R101	E2	D1	U25B	C3	D1
C103	B4	F1	R104	E3	D1	U29A	B3	E1
C106	B4	F1	R105	E3	D1	U29B	B2	E1
C109	B4	G1	R110	E3	D1	U29C	B2	E1
C110	B5	G1	R111	E2	D1	Y1	B4	F1
C111	B5	G1	R112	E2	D1	Y2	B5	F2

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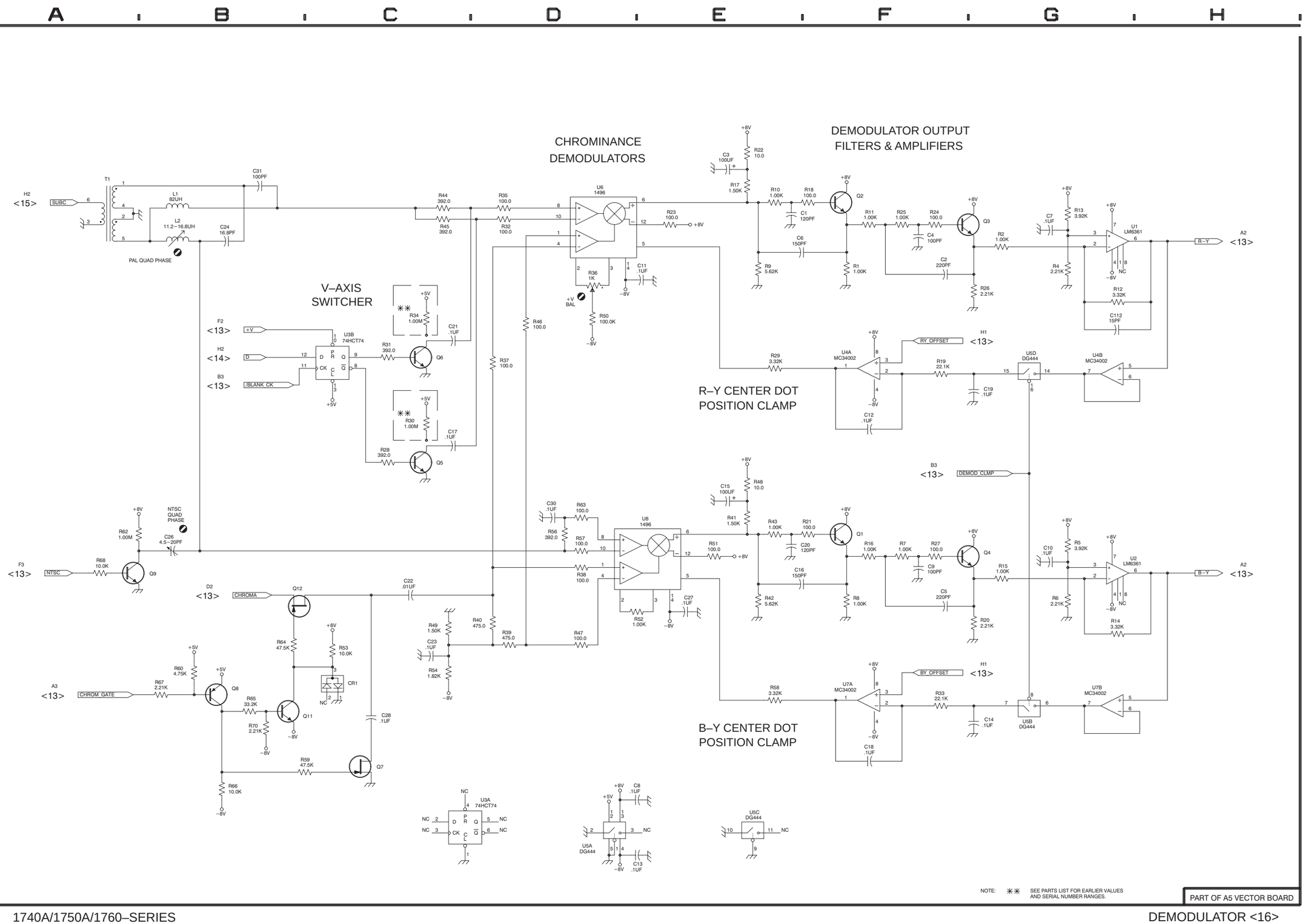
Schematic Diagram <16> Component Locator Chart

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

Assembly A5. Partial Assembly A5 also shown on Schematics 13, 14, and 15.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	E2	A1	Q9	A4	B2	R43	E3	B4
C2	F2	A2	Q11	B4	B3			
C3	E1	A1	Q12	B4	B3	R44	C2	B1
C4	F2	A2				R45	C2	B1
C5	F4	A4	R1	F2	A2	R46	D2	B3
			R2	G2	A2	R47	D4	B3
C6	E2	A1	R4	G2	A3	R48	E3	B4
C7	G2	A3	R5	G3	A3			
C8	D5	A3	R6	G4	A3	R49	C4	B4
C9	F4	A4				R50	D2	B2
C10	G4	A3	R7	F3	A4	R51	E3	B2
			R8	F4	A4	R52	D4	B3
C11	D2	A2	R9	E2	A1	R53	C4	B3
C12	F3	A2	R10	E1	A1			
C13	D5	A3	R11	F2	A2	R54	C4	B4
C14	F4	A3				R56	D3	B2
C15	E3	A4	R12	G2	A3	R57	D3	B2
			R13	G2	A3	R58	E4	B3
C16	E4	A4	R14	G4	A3	R59	B5	B3
C17	C3	B1	R15	G4	A3			
C18	F5	A2	R16	F3	A4	R60	B4	B3
C19	F3	A3				R62	A3	B2
C20	E3	A4	R17	E1	A1	R63	D3	B2
			R18	E1	A1	R64	B4	B3
C21	C2	B1	R19	F2	A3	R65	B4	B3
C22	C4	B3	R20	F4	A3			
C23	C4	B4	R21	E3	A4	R66	B5	B3
C24	B2	B1				R67	B4	B3
C26	B3	B2	R22	E1	A1	R68	A4	B2
			R23	E2	A2	R70	B4	C3
C27	E4	B2	R24	F2	A2			
C28	C4	B3	R25	F2	A2	T1	A1	B1
C30	D3	B2	R26	F2	A2			
C31	B1	B1				U1	G2	A2
C112	G2	A3	R27	F3	A4	U2	G4	A3
			R28	C3	A1	U3A	C5	A1
CR1	C4	B3	R29	E2	A2	U3B	C2	A1
			R31	C2	A1	U4A	F2	A2
L1	B2	B1	R32	D2	B1			
L2	B2	C1				U4B	G2	A2
			R33	F4	A3	U5A	D5	A3
Q1	F3	A4	R35	D2	B1	U5B	G4	A3
Q2	F1	A2	R36	D2	B2	U5C	E5	A3
Q3	F2	A2	R37	D2	B3	U5D	G2	A3
Q4	F3	A4	R38	D4	B3			
Q5	C3	A1				U6	D1	A2
			R39	D4	B3	U7A	F4	A2
Q6	C2	B1	R40	D4	B3	U7B	G4	A2
Q7	C5	B3	R41	E3	B4	U8	D3	B3
Q8	B4	B3	R42	E4	B4			

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A6 SCH Board Component Locator Chart *(with cross-references to Schematics 17 and 18)*

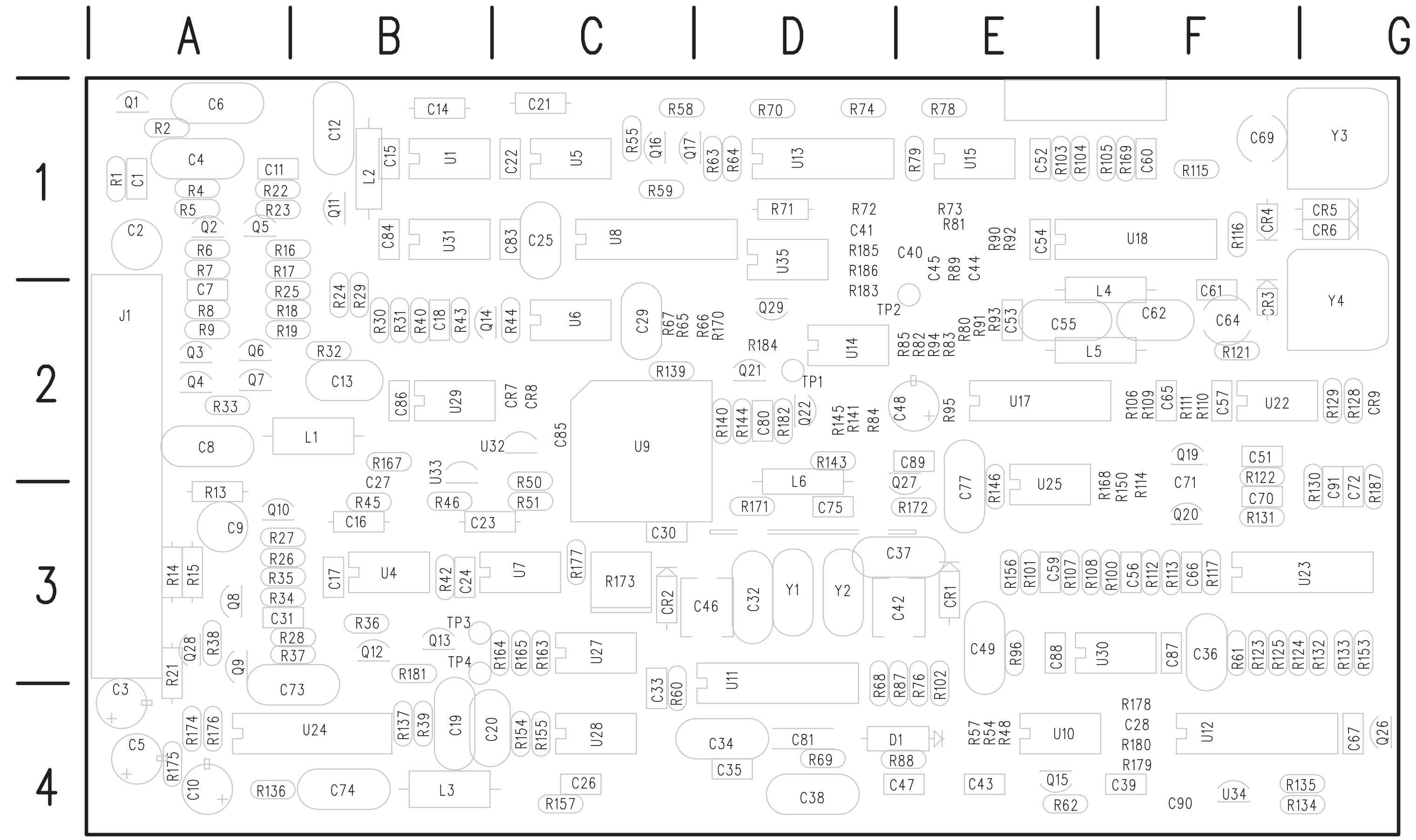
Comp No	Diag No	Diag Loc	Bd Loc
C1	18	A1	A1
C2	18	A5	A1
C3	17	D1	A4
C4	18	C1	A1
C5	17	E1	A4
C6	18	C1	A1
C7	18	C4	A2
C8	18	B5	A2
C9	17	A2	A3
C10	17	D1	A4
C11	18	B1	A1
C12	18	C1	B1
C13	18	B5	B2
C14	18	C4	B1
C15	18	B2	B1
C16	17	B1	B3
C17	17	E1	B3
C18	18	C3	B2
C19	17	B3	B4
C20	17	B3	B4
C21	18	C4	C1
C22	18	B2	C1
C23	17	B2	B3
C24	17	E1	B3
C25	18	E4	C1
C26	17	E1	C4
C27	17	B1	B3
C28	17	B4	F4
C29	18	D4	C2
C30	17	D1	C3
C31	17	A2	A3
C32	17	D3	D3
C33	17	E3	C4
C34	17	E3	D4
C35	17	E3	D4
C36	17	F4	F3
C37	17	D3	D3
C38	17	E3	D4
C39	17	D4	F4
C40	18	E3	E1
C41	18	E4	D1
C42	17	D3	D3
C43	18	B2	E4
C44	18	F2	E2
C45	18	F2	E2
C46	17	D3	D3
C47	17	E2	D4
C48	18	G2	E2
C49	17	D3	E3
C51	18	B2	F2
C52	18	D1	E1
C53	18	D2	E2
C54	18	C2	E1
C55	18	D2	E2
C56	17	C3	F3
C57	17	E1	F2
C59	17	C3	E3
C60	18	D2	F1
C61	18	E2	F2
C62	18	D2	F2
C64	18	E2	F2
C65	18	G1	F2
C66	17	E1	F3
C67	17	E1	G4
C69	18	E2	F1
C70	17	E4	F3
C71	17	E4	F3
C72	18	H1	G3

Comp No	Diag No	Diag Loc	Bd Loc
C73	18	G3	A4
C74	18	H3	B4
C75	17	G1	D3
C77	17	H1	E3
C80	17	H1	D2
C81	17	F5	D4
C83	18	D5	C1
C84	18	D5	B1
C85	17	D1	C2
C86	17	E1	B2
C87	17	D1	F3
C88	17	E1	E3
C89	17	H1	E2
C90	17	D4	F4
C91	18	G4	G3
CR1	17	D3	E3
CR2	17	D3	C3
CR3	18	E2	F2
CR4	18	E2	F1
CR5	18	F2	G1
CR6	18	F2	G1
CR7	17	C2	C2
CR8	17	C2	C2
CR9	18	F4	G2
CR10(D1)	17	D3	D4
J1	17	A3	A1
L1	18	B5	B2
L2	18	C1	B1
L3	17	B2	B4
L4	18	D1	F2
L5	18	D1	E2
L6	17	H1	D3
Q1	18	C2	A1
Q2	18	B1	A1
Q3	18	B4	A2
Q4	18	A4	A2
Q5	18	B1	B1
Q6	18	B5	A2
Q7	18	B5	A2
Q8	17	A2	A3
Q9	17	A1	A4
Q10	17	A1	B3
Q11	18	B4	B1
Q12	17	B1	B3
Q13	17	B3	B3
Q14	18	D3	B2
Q15	17	C4	E4
Q16	18	F3	C1
Q17	18	E3	D1
Q19	17	G3	F2
Q20	17	F3	F3
Q21	17	G1	D2
Q22	17	G1	D2
Q26	17	F5	G4
Q27	17	G2	D3
Q28	17	B1	A4
Q29	17	H2	D2
R1	18	B2	A1
R2	18	A1	A1
R4	18	B1	A1
R5	18	B1	A1
R6	18	B4	A1
R7	18	B4	A1
R8	18	A5	A2
R9	18	A4	A2
R13	17	B4	A3

Comp No	Diag No	Diag Loc	Bd Loc
R14	17	B4	A3
R15	17	B4	A3
R16	18	B4	A1
R17	18	C4	A1
R18	18	B5	A2
R19	18	B5	A2
R21	17	B4	A4
R22	18	B1	A1
R23	18	B1	A1
R24	18	B1	B2
R25	18	C4	A2
R26	17	A2	A3
R27	17	A1	A3
R28	17	B1	A3
R29	18	C4	B2
R30	18	B5	B2
R31	18	B5	B2
R32	18	C4	B2
R33	18	A5	A2
R34	17	A2	A3
R35	17	A2	A3
R36	17	B2	B3
R37	17	A1	A3
R38	17	A1	A3
R39	17	B3	B4
R40	18	C3	B2
R42	17	B2	B3
R43	18	D3	B2
R44	18	D3	C2
R45	17	C1	B3
R46	17	C1	B3
R48	17	B4	E4
R50	17	C2	C3
R51	17	C2	C3
R54	17	C4	E4
R55	18	F3	C1
R57	17	D2	E4
R58	18	E3	C1
R59	18	E4	C1
R60	17	E3	C4
R61	17	F4	F3
R62	17	D4	E4
R63	18	E4	D1
R64	18	E5	D1
R65	18	E3	C2
R66	18	E4	D2
R67	18	E4	C2
R68	17	E2	D4
R69	17	E3	D4
R70	18	F5	D1
R71	18	F4	D1
R72	18	F4	D1
R73	18	E4	E1
R74	18	E5	D1
R76	17	E3	E4
R78	18	E4	E1
R79	18	D3	E1
R80	18	F2	E2
R81	18	F3	E1
R82	18	F2	E2
R83	18	G2	E2
R84	18	F1	D2
R85	18	F2	E2
R87	17	D3	E4
R88	17	E3	D4
R89	18	F1	E2
R90	18	E3	E1

Comp No	Diag No	Diag Loc	Bd Loc
R91	18	G1	E2
R92	18	E3	E1
R93	18	G1	E2
R94	18	G1	E2
R95	18	G2	E2
R96	17	D3	E3
R100	17	D3	F3
R101	17	D3	E3
R102	17	E3	E4
R103	18	D1	E1
R104	18	D2	E1
R105	18	C2	F1
R106	18	G2	F2
R107	17	C3	E3
R108	17	C3	F3
R109	18	G2	F2
R110	18	H1	F2
R111	18	H1	F2
R112	17	F3	F3
R113	17	G3	F3
R114	17	B2	F3
R115	18	F2	F1
R116	18	D2	F1
R117	17	G4	F3
R121	18	E2	F2
R122	17	E4	F3
R123	17	G4	F3
R124	17	G4	G3
R125	17	G4	F3
R128	18	H1	G2
R129	18	H1	G2
R130	18	H2	G3
R131	17	G5	F3
R132	17	F4	G3
R133	17	F4	G3
R134	17	G5	F4
R135	17	G5	F4
R136	18	G2	A4
R137	18	H3	B4
R139	17	G1	C2
R140	17	G2	D2
R141	17	G2	D2
R143	17	G1	D2
R144	17	H1	D2
R145	17	G2	D2
R146	17	H1	E3
R150	17	H3	F3
R153	17	G5	G3
R154	17	F5	C4
R155	17	F5	C4
R156	17	D4	E3
R157	17	E5	C4
R163	17	E5	C3
R164	17	D5	C3
R165	17	D5	C3
R167	17	G1	B2
R168	17	H1	F3
R169	18	C2	F1
R170	17	H2	D2
R171	17	G3	D3
R172	17	F2	E3
R173	17	C1	C3
R174	17	B1	A4
R175	17	B2	A4
R176	17	A2	A4
R177	17	C1	C3
R178	17	B4	F4

Comp No	Diag No	Diag Loc	Bd Loc
R179	17	C4	F4
R180	17	C4	F4
R181	17	B2	B3
R182	17	H1	D2
R183	17	H2	D2
R184	17	H2	D2
R185	17	D2	D1
R186	17	D2	D1
R187	18	G4	G3
TP1	17	E5	D2
TP2	18	E3	D2
TP3	18	H3	B3
TP4	18	H3	B3
U1	18	C4	B1
U4	17	B1	B3
U5	18	C5	C1
U6A	18	D3	C2
U6B	18	D3	C2
U7	17	B2	B3
U8A	18	D4	C1
U8B	18	E4	C1
U9	17	G1	C2
U10A	17	C4	E4
U10B	17	C4	E4
U11A	17	E3	C4
U11B	17	E3	C4
U11C	17	E2	C4
U12A	17	D4	F4
U12B	17	F4	F4
U13A	18	F4	D1
U13B	18	F4	D1
U13C	17	H3	D1
U13D	18	E4	D1
U14A	17	E5	E2
U14B	18	E3	E2
U15A	18	D3	E1
U15B	18	D2	E1
U17	18	G1	E2
U18A	18	D2	F1
U18B	18	E2	F1
U18C	18	G4	F1
U22A	18	H1	F2
U22B	18	G3	F2
U23A	17	G4	G3
U23B	17	G4	G3
U23C	17	H4	G3
U23D	17	G4	G3
U24A	18	G3	B4
U24B	18	H3	B4
U25	17	H1	E3
U27A	17	C3	C3
U27B	17	C3	C3
U28A	17	E5	C4
U28B	17	E5	C4
U29	17	C1	B2
U30	17	F3	E3
U31	18	D4	B2
U32	17	B5	B2
U33	17	B5	B3
U34	17	C5	F4
U35A	17	G2	D2
U35B	17	C2	D2
Y1	17	D3	D3
Y2	17	D3	D3
Y3	18	E2	G1
Y4	18	E2	G1



Static Sensitive Devices
See Maintenance Section

A6 SCH Board

Schematic Diagram <17> Component Locator Chart

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

Assembly A6. Partial Assembly A6 also shown on Schematic 18.

Comp No	Diag Loc	Bd Loc
C3	D1	A4
C5	E1	A4
C9	A2	A3
C10	D1	A4
C16	B1	B3
C17	E1	B3
C19	B3	B4
C20	B3	B4
C23	B2	B3
C24	E1	B3
C26	E1	C4
C27	B1	B3
C28	B4	F4
C30	D1	C3
C31	A2	A3
C32	D3	D3
C33	E3	C4
C34	E3	D4
C35	E3	D4
C36	F4	F3
C37	D3	D3
C38	E3	D4
C39	D4	F4
C42	D3	D3
C46	D3	D3
C47	E2	D4
C49	D3	E3
C56	C3	F3
C57	E1	F2
C59	C3	E3
C66	E1	F3

Comp No	Diag Loc	Bd Loc
C67	E1	G4
C70	E4	F3
C71	E4	F3
C75	G1	D3
C77	H1	E3
C80	H1	D2
C81	F5	D4
C85	D1	C2
C86	E1	B2
C87	D1	F3
C88	E1	E3
C89	H1	E2
C90 *	D4	F4
CR1	D3	E3
CR2	D3	C3
CR7	C2	C2
CR8	C2	C2
CR10(D1)	D3	D4
J1	A3	A1
L3	B2	B4
L6	H1	D3
Q8	A2	A3
Q9	A1	A4
Q10	A1	B3
Q12	B1	B3
Q13	B3	B3
Q15	C4	E4
Q19	G3	F2
Q20	F3	F3
Q21	G1	D2

Comp No	Diag Loc	Bd Loc
Q22	G1	D2
Q26	F5	G4
Q27	G2	D3
Q28	B1	A4
Q29	H2	D2
R13	B4	A3
R14	B4	A3
R15	B4	A3
R21	B4	A4
R26	A2	A3
R27	A1	A3
R28	B1	A3
R34	A2	A3
R35	A2	A3
R36	B2	B3
R37	A1	A3
R38	A1	A3
R39	B3	B4
R42	B2	B3
R45	C1	B3
R46	C1	B3
R48	B4	E4
R50	C2	C3
R51	C2	C3
R54	C4	E4
R57	D2	E4
R60	E3	C4
R61	F4	F3
R62	D4	E4
R68	E2	D4
R69	E3	D4

Comp No	Diag Loc	Bd Loc
R76	E3	E4
R87	D3	E4
R88	E3	D4
R96	D3	E3
R100	D3	F3
R101	D3	E3
R102	E3	E4
R107	C3	E3
R108	C3	F3
R112	F3	F3
R113	G3	F3
R114	B2	F3
R117	G4	F3
R122	E4	F3
R123	G4	F3
R124	G4	G3
R125	G4	F3
R131	G5	F3
R132	F4	G3
R133	F4	G3
R134	G5	F4
R135	G5	F4
R139	G1	C2
R140	G2	D2
R141	G2	D2
R143	G1	D2
R144	H1	D2
R145	G2	D2
R146	H1	E3
R150	H3	F3
R153	G5	G3

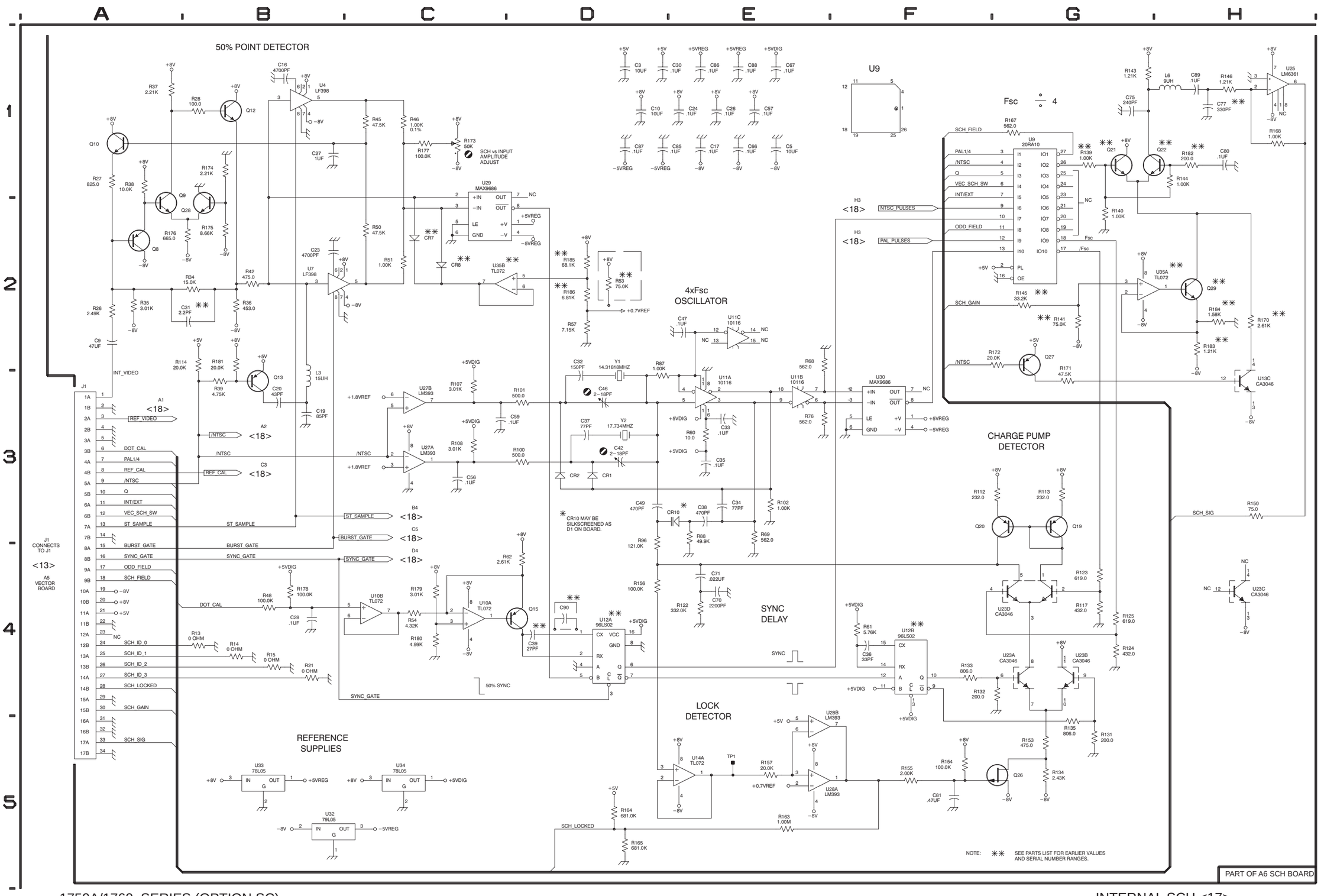
Comp No	Diag Loc	Bd Loc
R154	F5	C4
R155	F5	C4
R156	D4	E3
R157	E5	C4
R163	E5	C3
R164	D5	C3
R165	D5	C3
R167	G1	B2
R168	H1	F3
R170	H2	D2
R171	G3	D3
R172	F2	E3
R173	C1	C3
R174	B1	A4
R175	B2	A4
R176	A2	A4
R177	C1	C3
R178	B4	F4
R179	C4	F4
R180	C4	F4
R181	B2	B3
R182	H1	D2
R183	H2	D2
R184	H2	D2
R185	D2	D1
R186	D2	D1
TP1	E5	D2
U4	B1	B3
U7	B2	B3
U9	G1	C2

Comp No	Diag Loc	Bd Loc
U10A	C4	E4
U10B	C4	E4
U11A	E3	C4
U11B	E3	C4
U11C	E2	C4
U12A	D4	F4
U12B	F4	F4
U13C	H3	D1
U14A	E5	E2
U23A	G4	G3
U23B	G4	G3
U23C	H4	G3
U23D	G4	G3
U25	H1	E3
U27A	C3	C3
U27B	C3	C3
U28A	E5	C4
U28B	E5	C4
U29	C1	B2
U30	F3	E3
U32	B5	B2
U33	B5	B3
U34	C5	F4
U35A	G2	D2
U35B	C2	D2
Y1	D3	D3
Y2	D3	D3

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

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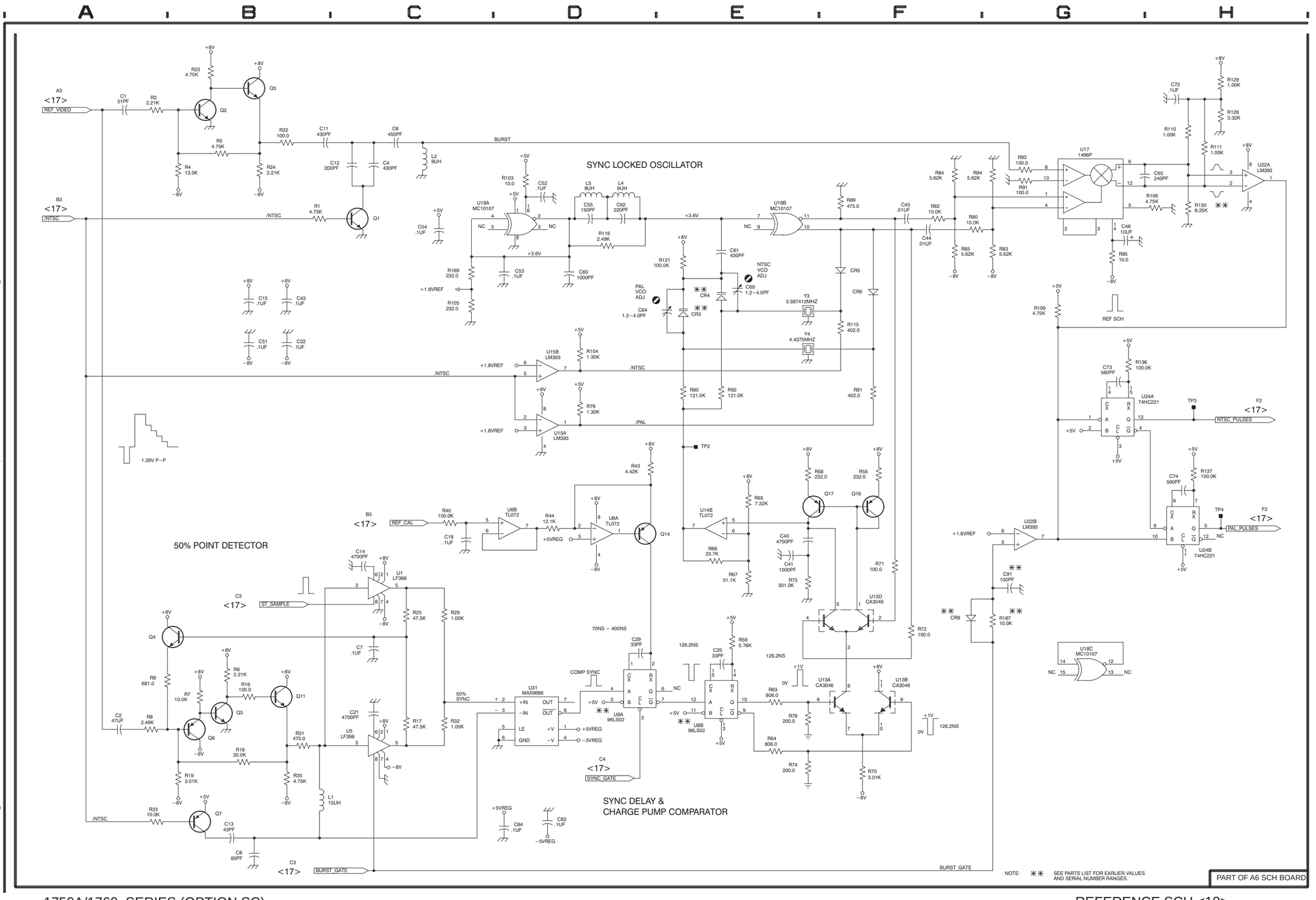
Schematic Diagram <18> Component Locator Chart

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

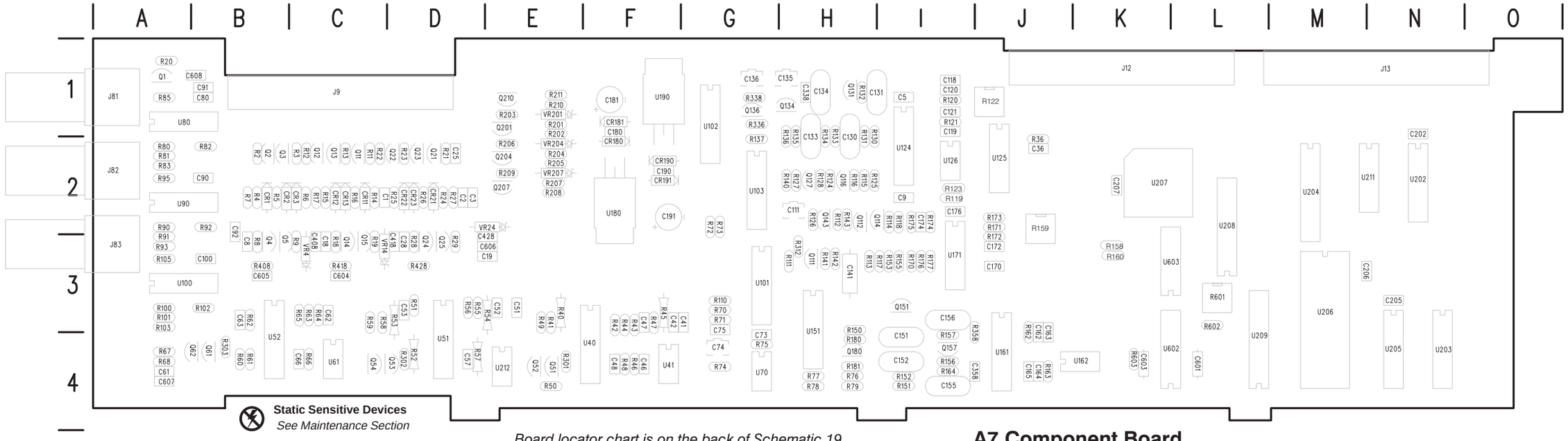
Assembly A6. Partial Assembly A6 also shown on Schematic 17.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	A1	A1	Q5	B1	B1			
C2	A5	A1				R89	F1	E2
C4	C1	A1	Q6	B5	A2	R90	E3	E1
C6	C1	A1	Q7	B5	A2	R91	G1	E2
C7	C4	A2	Q11	B4	B1	R92	E3	E1
			Q14	D3	B2	R93	G1	E2
C8	B5	A2	Q16	F3	C1			
C11	B1	A1	Q17	E3	D1	R94	G1	E2
C12	C1	B1				R95	G2	E2
C13	B5	B2	R1	B2	A1	R103	D1	E1
C14	C4	B1	R2	A1	A1	R104	D2	E1
			R4	B1	A1	R105	C2	F1
C15	B2	B1	R5	B1	A1			
C18	C3	B2	R6	B4	A1	R106	G2	F2
C21	C4	C1				R109	G2	F2
C22	B2	C1	R7	B4	A1	R110	H1	F2
C25	E4	C1	R8	A5	A2	R111	H1	F2
			R9	A4	A2	R115	F2	F1
C29	D4	C2	R16	B4	A1			
C40	E3	E1	R17	C4	A1	R116	D2	F1
C41	E4	D1				R121	E2	F2
C43	B2	E4	R18	B5	A2	R128	H1	G2
C44	F2	E2	R19	B5	A2	R129	H1	G2
			R22	B1	A1	R130	H2	G3
C45	F2	E2	R23	B1	A1			
C48	G2	E2	R24	B1	B2	R136	G2	A4
C51	B2	F2				R137	H3	B4
C52	D1	E1	R25	C4	A2	R169	C2	F1
C53	D2	E2	R29	C4	B2	R187	G4	G3
			R30	B5	B2			
C54	C2	E1	R31	B5	B2	TP2	E3	D2
C55	D2	E2	R32	C4	B2	TP3	H3	B3
C60	D2	F1				TP4	H3	B3
C61	E2	F2	R33	A5	A2			
C62	D2	F2	R40	C3	B2	U1	C4	B1
			R43	D3	B2	U5	C5	C1
C64	E2	F2	R44	D3	C2	U6A	D3	C2
C65	G1	F2	R55	F3	C1	U6B	D3	C2
C69	E2	F1				U8A	D4	C1
C72	H1	G3	R58	E3	C1			
C73	G3	A4	R59	E4	C1	U8B	E4	C1
			R63	E4	D1	U13A	F4	D1
C74	H3	B4	R64	E5	D1	U13B	F4	D1
C83	D5	C1	R65	E3	C2	U13D	E4	D1
C84	D5	B1				U14B	E3	E2
C91	G4	G3	R66	E4	D2			
			R67	E4	C2	U15A	D3	E1
CR3	E2	F2	R70	F5	D1	U15B	D2	E1
CR4	E2	F1	R71	F4	D1	U17	G1	E2
CR5	F2	G1	R72	F4	D1	U18A	D2	F1
CR6	F2	G1				U18B	E2	F1
CR9	F4	G2	R73	E4	E1			
			R74	E5	D1	U18C	G4	F1
L1	B5	B2	R78	E4	E1	U22A	H1	F2
L2	C1	B1	R79	D3	E1	U22B	G3	F2
L4	D1	F2	R80	F2	E2	U24A	G3	B4
L5	D1	E2				U24B	H3	B4
			R81	F3	E1	U31	D4	B2
Q1	C2	A1	R82	F2	E2			
Q2	B1	A1	R83	G2	E2	Y3	E2	G1
Q3	B4	A2	R84	F1	D2	Y4	E2	G1
Q4	A4	A2	R85	F2	E2			

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Board locator chart is on the back of Schematic 19.

A7 Component Board

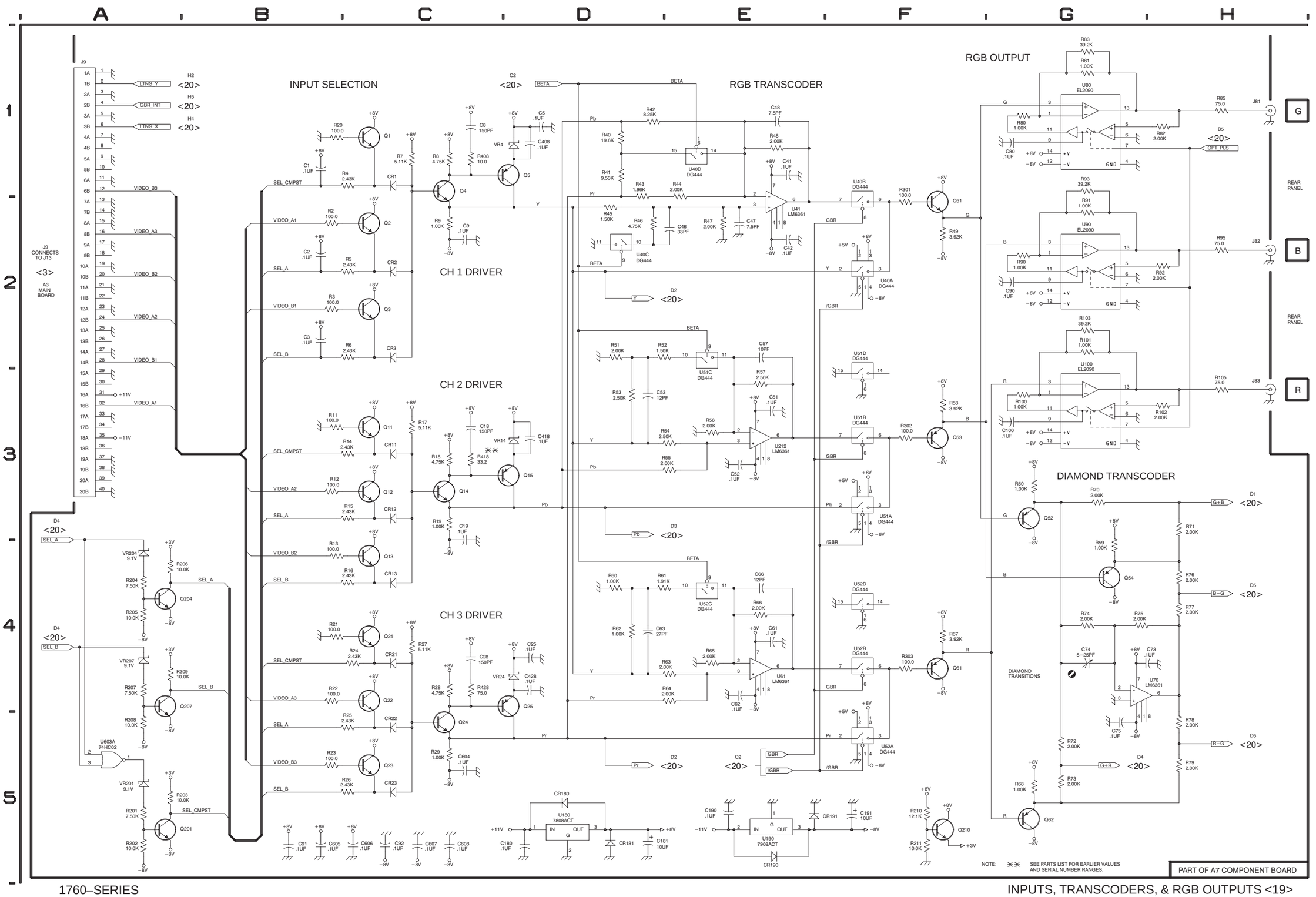
Schematic Diagram <19> Component Locator Chart

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

Assembly A7. Partial Assembly A7 also shown on Schematic 20.

Comp No	Diag Loc	Bd Loc
C1	B1	C2
C2	B2	D2
C3	B2	D2
C5	D1	I1
C8	C1	B3
C9	C2	I2
C18	C3	C3
C19	C3	D3
C25	D4	D2
C28	C4	D3
C41	E1	G3
C42	E2	F3
C46	D2	F4
C47	E2	F3
C48	E1	F4
C51	E3	E3
C52	E3	E3
C53	D3	D3
C57	E2	D4
C61	E4	A4
C62	E4	C3
C63	D4	B3
C66	E4	C4
C73	G4	G4
C74	G4	G4
C75	G5	G4
C80	G1	B1
C90	G2	B2
C91	B5	B1
C92	C5	B2
C100	G3	B3
C180	D5	F1
C181	D5	F1
C190	E5	F2
C191	F5	F2
C408	D1	C2
C418	D3	D2
C428	D4	D3
C604	C5	C3
C605	B5	B3
C606	C5	D3
C607	C5	A4
C608	C5	A1
CR1	C1	B2
CR2	C2	B2
CR3	C2	C2
CR11	C3	C2
CR12	C3	C2
CR13	C4	C2
CR21	C4	D2
CR22	C5	D2
CR23	C5	D2
CR180	D5	F2
CR181	D5	F1
CR190	E5	F2
CR191	E5	F2
J9	A1	D1
J81	H1	A1
J82	H2	A1
J83	H3	A2
Q1	C1	A1
Q2	C2	B2
Q3	C2	B2
Q4	C1	B2
Q5	C1	B2
Q11	C3	C2
Q12	C3	C2
Q13	C4	C2
Q14	C3	C2
Q15	C3	C2
Q21	C4	D2
Q22	C4	D2
Q23	C5	D2
Q24	C5	D2
Q25	C4	D2
Q51	F1	E4
Q52	G3	E4
Q53	F3	C4
Q54	G4	C4
Q61	F4	B4
Q62	G5	A4
Q201	A5	E1
Q204	A4	E2
Q207	A4	E2
Q210	F5	E1
R2	B2	B2
R3	B2	C2
R4	B1	B2
R5	B2	B2
R6	B2	C2
R7	C1	B2
R8	C1	B3
R9	C2	C3
R11	B3	C2
R12	B3	C2
R13	B4	C2
R14	B3	C2
R15	B3	C2
R16	B4	C2
R17	C3	C2
R18	C3	C3
R19	C3	C3
R20	B1	A1
R21	B4	D2
R22	B4	C2
R23	B5	D2
R24	B4	D2
R25	B5	D2
R26	B5	D2
R27	C4	D2
R28	C4	D3
R29	C5	D3
R40	D1	E3
R41	D1	E3
R42	D1	F3
R43	D1	F3
R44	E1	F3
R45	D2	F3
R46	D2	F4
R47	E2	F3
R48	E1	F4
R49	F2	E3
R50	G3	E4
R51	D2	D3
R52	D2	D4
R53	D3	D3
R54	D3	E3
R55	D3	D3
R56	E3	D3
R57	E3	D4
R58	F3	C3
R59	G3	C3
R60	D4	B4
R61	D4	B4
R62	D4	B3
R63	D4	C3
R64	D4	C3
R65	E4	C3
R66	E4	C4
R67	F4	A4
R68	G5	A4
R70	G3	G3
R71	H3	G3
R72	G5	G2
R73	G5	G2
R74	G4	G4
R75	G4	G4
R76	H4	H4
R77	H4	H4
R78	H5	H4
R79	H5	H4
R80	G1	A2
R81	G1	A2
R82	H1	B2
R83	G1	A2
R85	H1	A1
R90	G2	A2
R91	G2	A3
R92	H2	B2
R93	G1	A3
R95	H2	A2
R100	G3	A3
R101	G2	A3
R102	H3	B3
R103	G2	A3
R105	H3	A3
R201	A5	E1
R202	A5	E2
R203	A5	E1
R204	A4	E2
R205	A4	E2
R206	A4	E2
R207	A4	E2
R209	A4	E2
R210	F5	E1
R211	F5	E1
R301	F2	E4
R302	F3	D4
R303	F4	B4
R408	C1	B3
R418	C3	C3
R428	C4	D3
U40A	F2	F3
U40B	F1	F3
U40C	D2	F3
U40D	E1	F3
U41	E1	F4
U51A	F3	D3
U51B	F3	D3
U51C	E2	D3
U51D	F2	D3
U52A	F5	B3
U52B	F4	B3
U52C	E4	B3
U52D	F4	B3
U61	E4	C4
U70	G4	G4
U80	G1	A1
U90	G2	A2
U100	G3	A3
U180	D5	F2
U190	E5	F1
U212	E3	E4
U603A	A5	L3
VR4	D1	C3
VR14	D3	C3
VR24	D4	D2
VR201	A5	E1
VR204	A4	E2
VR207	A4	E2

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A7 Component Board Component Locator Chart

(with cross-references to Schematics 19 and 20)

Comp No	Diag No	Diag Loc	Bd Loc
C1	19	B1	C2
C2	19	B2	D2
C3	19	B2	D2
C5	19	D1	I1
C8	19	C1	B3
C9	19	C2	I2
C18	19	C3	C3
C19	19	C3	D3
C25	19	D4	D2
C28	19	C4	D3
C36	20	A5	J2
C41	19	E1	G3
C42	19	E2	F3
C46	19	D2	F4
C47	19	E2	F3
C48	19	E1	F4
C51	19	E3	E3
C52	19	E3	E3
C53	19	D3	D3
C57	19	E2	D4
C61	19	E4	A4
C62	19	E4	C3
C63	19	D4	B3
C66	19	E4	C4
C73	19	G4	G4
C74	19	G4	G4
C75	19	G5	G4
C80	19	G1	B1
C90	19	G2	B2
C91	19	B5	B1
C92	19	C5	B2
C100	19	G3	B3
C111	20	E2	H2
C118	20	G1	I1
C119	20	G2	I1
C120	20	G1	I1
C121	20	G2	I1
C130	20	F3	H1
C131	20	F2	H1
C133	20	G2	H1
C134	20	G3	H1
C135	20	G3	H1
C136	20	G3	G1
C141	20	E4	H3
C151	20	F4	I4
C152	20	G4	I4
C155	20	G4	I4
C156	20	G5	I3
C162	20	G4	J3
C163	20	G3	J3
C164	20	G3	J4
C165	20	G4	J4
C170	20	G5	J3
C172	20	G5	J3
C174	20	G5	I2
C176	20	H5	I2
C180	19	D5	F1
C181	19	D5	F1
C190	19	E5	F2
C191	19	F5	F2
C202	20	B3	N2
C205	20	C4	N3
C206	20	C4	M3
C207	20	C4	K2
C338	20	G2	H1
C358	20	H4	J4
C408	19	D1	C2
C418	19	D3	D2
C428	19	D4	D3
C601	20	C5	L4
C603	20	D5	K4
C604	19	C5	C3
C605	19	B5	B3
C606	19	C5	D3
C607	19	C5	A4
C608	19	C5	A1
CR1	19	C1	B2
CR2	19	C2	B2
CR3	19	C2	C2
CR11	19	C3	C2
CR12	19	C3	C2
CR13	19	C4	C2
CR21	19	C4	D2
CR22	19	C5	D2
CR23	19	C5	D2
CR180	19	D5	F2
CR181	19	D5	F1
CR190	19	E5	F2
CR191	19	E5	F2
J9	19	A1	D1
J12	20	A3	L1
J13	20	A1	O1
J81	19	H1	A1
J82	19	H2	A1
J83	19	H3	A2
Q1	19	C1	A1
Q2	19	C2	B2
Q3	19	C2	B2
Q4	19	C1	B2
Q5	19	C1	B2
Q11	19	C3	C2
Q12	19	C3	C2
Q13	19	C4	C2
Q14	19	C3	C2
Q15	19	C3	C2
Q21	19	C4	D2
Q22	19	C4	D2
Q23	19	C5	D2
Q24	19	C5	D2
Q25	19	C4	D2
Q51	19	F1	E4
Q52	19	G3	E4
Q53	19	F3	C4
Q54	19	G4	C4
Q61	19	F4	B4
Q62	19	G5	A4
Q111	20	E2	H3
Q112	20	F1	H2
Q114	20	F1	H2
Q116	20	F2	H2
Q127	20	E3	H2
Q131	20	F2	H1
Q134	20	G2	H1
Q136	20	G2	G1
Q143	20	E4	H2
Q151	20	G4	I3
Q157	20	G4	I4
Q180	20	E4	H4
Q201	19	A5	E1
Q204	19	A4	E2
Q207	19	A4	E2
Q210	19	F5	E1
R2	19	B2	B2
R3	19	B2	C2
R4	19	B1	B2
R5	19	B2	B2
R6	19	B2	C2
R7	19	C1	B2
R8	19	C1	B3
R9	19	C2	C3
R11	19	B3	C2
R12	19	B3	C2
R13	19	B4	C2
R14	19	B3	C2
R15	19	B3	C2
R16	19	B4	C2
R17	19	C3	C2
R18	19	C3	C3
R19	19	C3	C3
R20	19	B1	A1
R21	19	B4	D2
R22	19	B4	C2
R23	19	B5	D2
R24	19	B4	D2
R25	19	B5	D2
R26	19	B5	D2
R27	19	C4	D2
R28	19	C4	D3
R29	19	C5	D3
R36	20	A5	J2
R40	19	D1	E3
R41	19	D1	E3
R42	19	D1	F3
R43	19	D1	F3
R44	19	E1	F3
R45	19	D2	F3
R46	19	D2	F4
R47	19	E2	F3
R48	19	E1	F4
R49	19	F2	E3
R50	19	G3	E4
R51	19	D2	D3
R52	19	D2	D4
R53	19	D3	D3
R54	19	D3	E3
R55	19	D3	D3
R56	19	E3	D3
R57	19	E3	D4
R58	19	F3	C3
R59	19	G3	C3
R60	19	D4	B4
R61	19	D4	B4
R62	19	D4	B3
R63	19	D4	C3
R64	19	D4	C3
R65	19	E4	C3
R66	19	E4	C4
R67	19	F4	A4
R68	19	G5	A4
R70	19	G3	G3
R71	19	H3	G3
R72	19	G5	G2
R73	19	G5	G2
R74	19	G4	G4
R75	19	G4	G4
R76	19	H4	H4
R77	19	H4	H4
R78	19	H5	H4
R79	19	H5	H4
R80	19	G1	A2
R81	19	G1	A2
R82	19	H1	B2
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R85	19	H1	A1
R90	19	G2	A2
R91	19	G2	A3
R92	19	H2	B2
R93	19	G1	A3
R95	19	H2	A2
R100	19	G3	A3
R101	19	G2	A3
R102	19	H3	B3
R103	19	G2	A3
R105	19	H3	A3
R110	20	E2	G3
R111	20	E2	H3
R112	20	F1	H2
R113	20	F1	H3
R114	20	F1	I2
R115	20	F2	H2
R116	20	F2	H2
R117	20	F1	I3
R118	20	F1	I2
R119	20	G1	I2
R120	20	G1	I1
R121	20	G2	I1
R122	20	H1	I2
R123	20	G1	I2
R124	20	F2	H2
R125	20	F2	H2
R126	20	F3	H2
R127	20	E3	H2
R128	20	E3	H2
R130	20	F2	H1
R131	20	F2	H1
R132	20	F3	H1
R133	20	F3	H1
R134	20	G3	H1
R135	20	G2	H1
R136	20	G2	H1
R137	20	G3	G2
R140	20	E4	H2
R141	20	E3	H3
R142	20	E4	H3
R143	20	F4	H2
R150	20	E5	H4
R151	20	F4	I4
R152	20	F4	I4
R153	20	G5	I3
R155	20	G4	I3
R156	20	G4	I4
R157	20	H4	I4
R158	20	H3	J4
R159	20	H3	J4
R160	20	G3	J4
R162	20	G4	J3
R163	20	G3	J4
R164	20	F4	I4
R165	20	F5	I3
R167	20	F5	J2
R172	20	F5	J3
R173	20	G5	J2
R174	20	G5	I2
R175	20	G5	I2
R176	20	H5	I3
R177	20	H5	I3
R180	20	E4	H4
R181	20	E4	H4
R201	19	A5	E1
R202	19	A5	E2
R203	19	A5	E1
R204	19	A4	E2
R205	19	A4	E2
R206	19	A4	E2
R207	19	A4	E2
R208	19	A5	E2
R209	19	A4	E2
R210	19	F5	E1
R211	19	F5	E1
R301	19	F2	E4
R302	19	F3	D4
R303	19	F4	B4
R312	20	E2	H3
R336	20	G2	G1
R338	20	H2	G1
R358	20	H4	J4
R408	19	C1	B3
R418	19	C3	C3
R428	19	C4	D3
R601	20	C4	L3
R602	20	C5	L3
R603	20	D5	K4
U40A	19	F2	F3
U40B	19	F1	F3
U40C	19	D2	F3
U40D	19	E1	F3
U41	19	E1	F4
U51A	19	F3	D3
U51B	19	F3	D3
U51C	19	E2	D3
U51D	19	F2	D3
U52A	19	F5	B3
U52B	19	F4	B3
U52C	19	E4	B3
U52D	19	F4	B3
U61	19	E4	C4
U70	19	G4	G4
U80	19	G1	A1
U90	19	G2	A2
U100	19	G3	A3
U101A	20	E2	G3
U101B	20	E1	G3
U101C	20	E1	G3
U101D	20	E2	G3
U102A	20	H2	G1
U102B	20	H3	G1
U102C	20	E4	G1
U102D	20	H2	G1
U103A	20	E3	G2
U103B	20	E3	G2
U103C	20	E4	G2
U103D	20	E3	G2
U124A	20	G1	H2
U124B	20	G1	H2
U124C	20	G1	H2
U124D	20	G1	H2
U125A	20	G1	J1
U125B	20	G2	J1
U125C	20	G2	J1
U125D	20	G2	J1
U126A	20	G1	I2
U126B	20	G1	I2
U151A	20	E4	H3
U151B	20	E5	H3
U151C	20	E5	H3
U151D	20	E5	H3
U161A	20	H4	J3
U161B	20	F3	J3
U161C	20	F4	J3
U161D	20	H3	J3
U162A	20	G3	J4
U162B	20	G4	J4
U171	20	G5	I3
U180	19	D5	F2
U190	19	E5	F1
U202	20	B2	N2
U203	20	C1	N3
U204	20	B4	M2
U205	20	C2	N3
U206	20	B3	M3
U207	20	C4	K2
U208	20	C3	L2
U209	20	C3	L3
U211A	20	C1	M2
U211B	20	C2	M2
U212	19	E3	E4
U602A	20	C5	L4
U602B	20	D5	L4
U603A	19	A5	L3
U603B	20	E5	L3
U603C	20	E5	L3
U603D	20	E5	L3
VR4	19	D1	C3
VR14	19	D3	C3
VR24	19	D4	D2
VR201	19	A5	E1
VR204	19	A4	E2
VR207	19	A4	E2

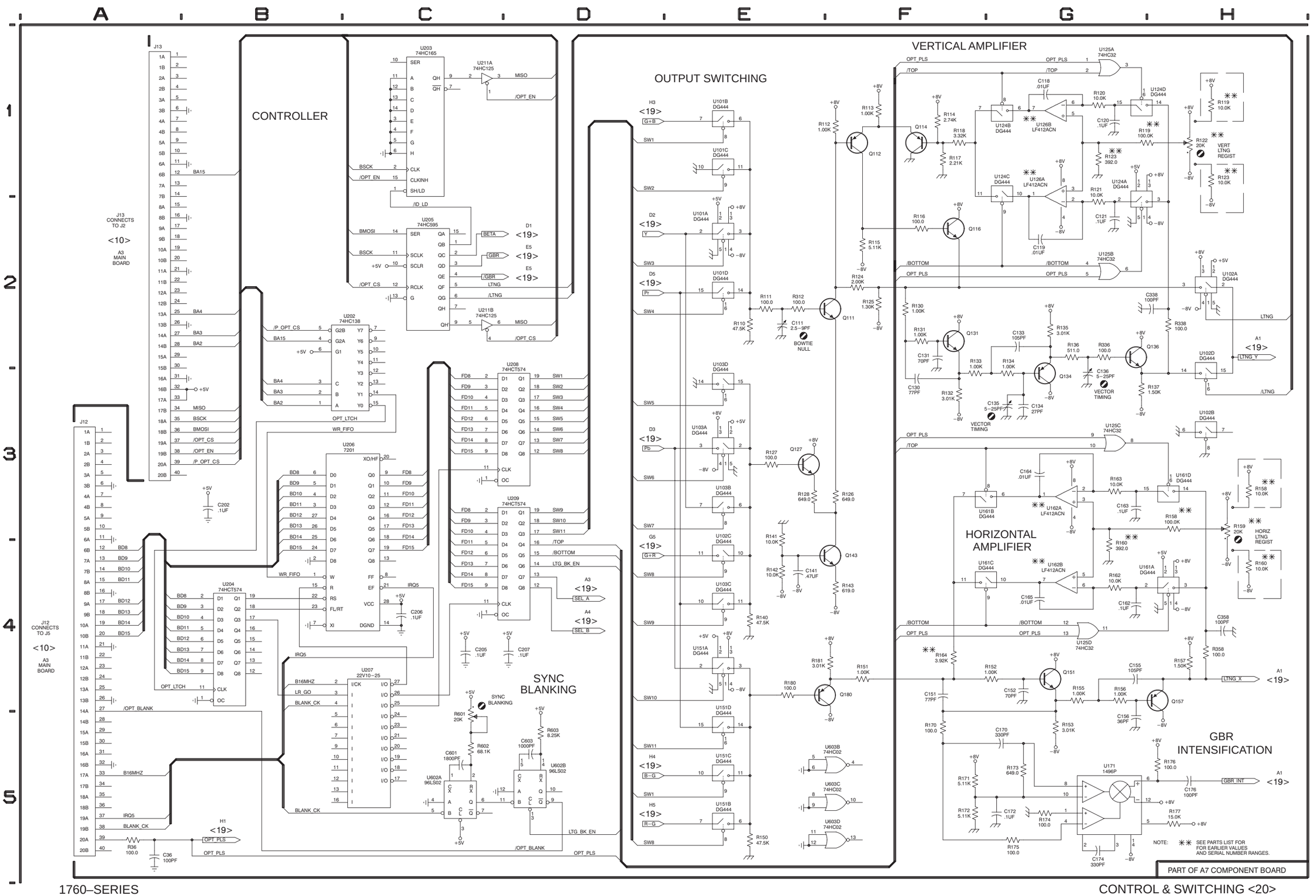
Schematic Diagram <20> Component Locator Chart

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

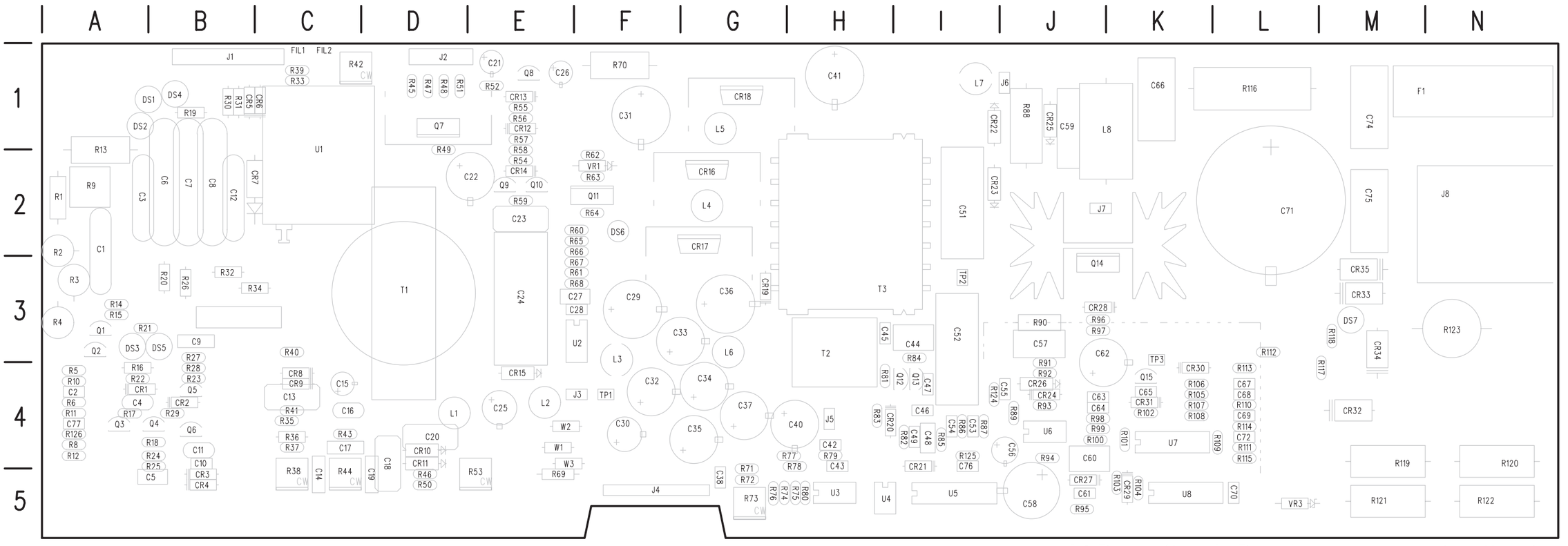
Assembly A7. Partial Assembly A7 also shown on Schematic 19.

Comp No	Diag Loc	Bd Loc
C36	A5	J2
C111	E2	H2
C118	G1	I1
C119	G2	I1
C120	G1	I1
C121	G2	I1
C130	F3	H1
C131	F2	H1
C133	G2	H1
C134	G3	H1
C135	G3	H1
C136	G3	G1
C141	E4	H3
C151	F4	I4
C152	G4	I4
C155	G4	I4
C156	G5	I3
C162	G4	J3
C163	G3	J3
C164	G3	J4
C165	G4	J4
C170	G5	J3
C172	G5	J3
C174	G5	I2
C176	H5	I2
C202	B3	N2
C205	C4	N3
C206	C4	M3
C207	C4	K2
C338	G2	H1
C358	H4	J4
C601	C5	L4
C603	D5	K4
J12	A3	L1
J13	A1	O1
Q111	E2	H3
Q112	F1	H2
Q114	F1	H2
Q116	F2	H2
Q127	E3	H2
Q131	F2	H1
Q134	G2	H1
Q136	G2	G1
Q143	E4	H2
Q151	G4	I3
Q157	G4	I4
Q180	E4	H4
R36	A5	J2
R110	E2	G3
R111	E2	H3
R112	F1	H2
R113	F1	H3
R114	F1	I2
R115	F2	H2
R116	F2	H2
R117	F1	I3
R118	F1	I2
R119	G1	I2
R120	G1	I1
R121	G2	I1
R122	H1	I2
R123	G1	I2
R124	F2	H2
R125	F2	H2
R126	F3	H2
R127	E3	H2
R128	E3	H2
R130	F2	H1
R131	F2	H1
R132	F3	H1
R133	F3	H1
R134	G3	H1
R135	G2	H1
R136	G2	H1
R137	G3	G2
R140	E4	H2
R141	E3	H3
R142	E4	H3
R143	F4	H2
R150	E5	H4
R151	F4	I4
R152	F4	I4
R153	G5	I3
R155	G4	I3
R156	G4	I4
R157	H4	I4
R158	H3	J4
R159	H3	J4
R160	G3	J4
R162	G4	J3
R163	G3	J4
R164	F4	I4
R165	F5	I3
R167	F5	J2
R172	F5	J3
R173	G5	J2
R174	G5	I2
R175	G5	I2
R176	H5	I3
R177	H5	I3
R180	E4	H4
R181	E4	H4
R312	E2	H3
R336	G2	G1
R338	H2	G1
R358	H4	J4
R601	C4	L3
R602	C5	L3
R603	D5	K4
U101A	E2	G3
U101B	E1	G3
U101C	E1	G3
U101D	E2	G3
U102A	H2	G1
U102B	H3	G1
U102C	E4	G1
U102D	H2	G1
U103A	E3	G2
U103B	E3	G2
U103C	E4	G2
U103D	E3	G2
U124A	G1	H2
U124B	G1	H2
U124C	G1	H2
U124D	G1	H2
U125A	G1	J1
U125B	G2	J1
U125C	G3	J1
U125D	G4	J1
U126A	G1	I2
U126B	G1	I2
U151A	E4	H3
U151B	E5	H3
U151C	E5	H3
U151D	E5	H3
U161A	H4	J3
U161B	F3	J3
U161C	F4	J3
U161D	H3	J3
U162A	G3	J4
U162B	G4	J4
U171	G5	I3
U202	B2	N2
U203	C1	N3
U204	B4	M2
U205	C2	N3
U206	B3	M3
U207	C4	K2
U208	C3	L2
U209	C3	L3
U211A	C1	M2
U211B	C2	M2
U602A	C5	L4
U602B	D5	L4
U603B	E5	L3
U603C	E5	L3
U603D	E5	L3

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A1 Power Supply Board

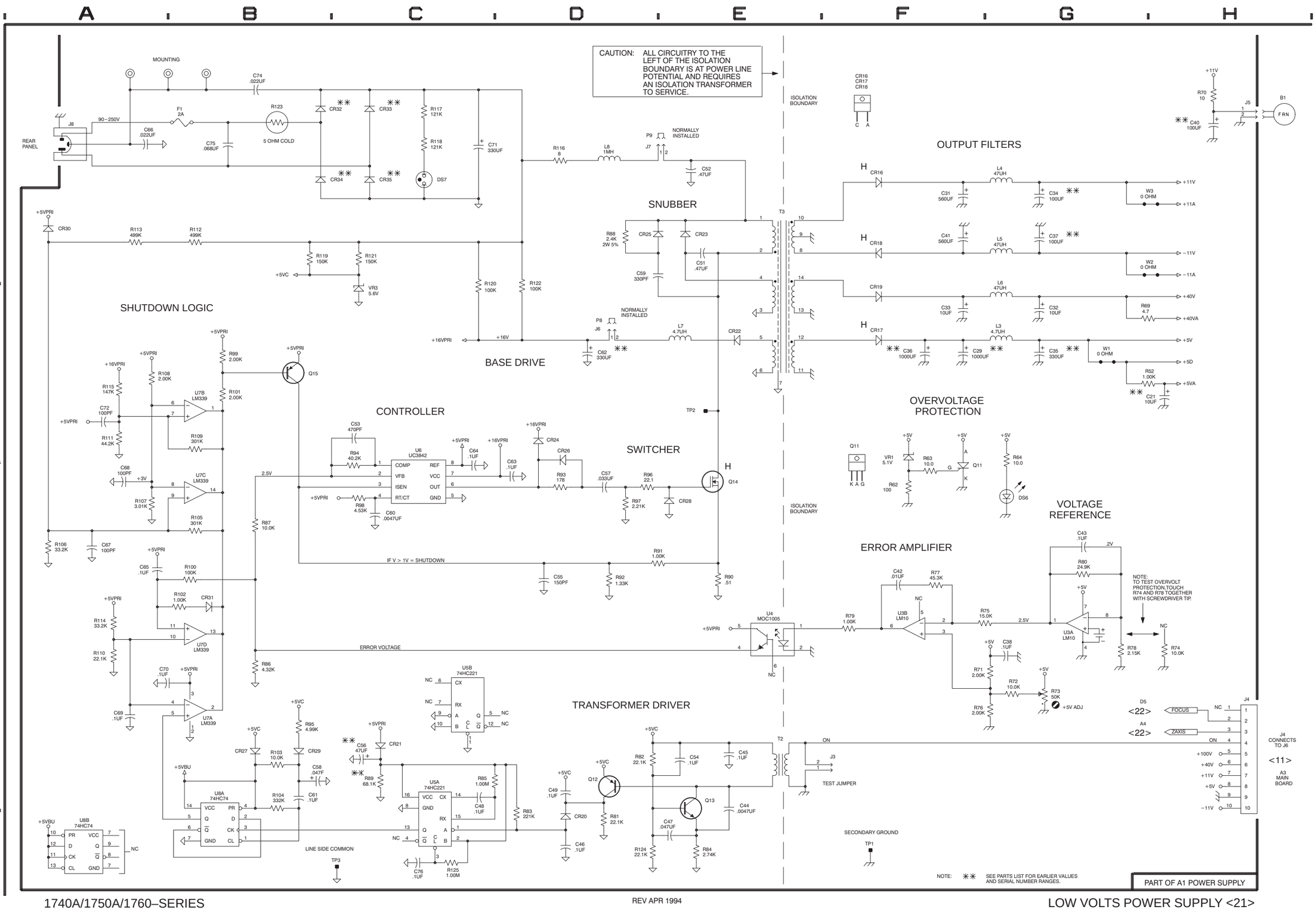
Static Sensitive Devices
See Maintenance Section

A1 Power Supply Board Component Locator Chart

(with cross-references to Schematics 21 and 22)

Comp No	Diag No	Diag Loc	Bd Loc
C1	22	F4	A2
C2	22	B4	A4
C3	22	D3	A2
C4	22	B5	A4
C5	22	C5	A5
C6	22	D3	B2
C7	22	D3	B2
C8	22	E2	B2
C9	22	D4	B3
C10	22	C4	B4
C11	22	C4	B4
C12	22	E2	B2
C13	22	D2	C4
C14	22	F2	C5
C15	22	C2	C4
C16	22	D2	C4
C17	22	F3	C4
C18	22	D2	D4
C19	22	F2	D5
C20	22	C2	D4
C21	21	H3	E1
C22	22	B2	D2
C23	22	B3	E2
C24	22	B2	E3
C25	22	D1	E4
C26	22	A2	E1
C27	22	B1	E3
C28	22	B1	E3
C29	21	F2	F3
C30	22	D1	F4
C31	21	F1	F1
C32	21	G2	F4
C33	21	F2	F3
C34	21	G1	G4
C35	21	G2	G4
C36	21	G4	G5
C37	21	C1	L2
C38	21	H1	H4
C41	21	F2	H1
C42	21	F4	H4
C43	21	G3	H5
C44	21	E5	I3
C45	21	E5	H3
C46	21	D5	I4
C47	21	E5	I4
C48	21	C5	I4
C49	21	D5	I4
C51	21	E2	I2
C52	21	E1	I3
C53	21	C3	I4
C54	21	E5	I4
C55	21	D4	J4
C56	21	C5	J4
C57	21	D3	J3
C58	21	B5	J5
C59	21	D2	J1
C60	21	C3	J4
C61	21	B5	J5
C62	21	D2	J3
C63	21	D3	J4
C64	21	C3	J4
C65	21	A4	K4
C66	21	A1	K1
C67	21	A3	L4
C68	21	A3	L4
C69	21	A4	L4
C70	21	A4	L5
C71	21	C1	L2
C72	21	A3	L4
C74	21	B1	M1
C75	21	B1	M2
C76	21	C5	I5
C77	22	C5	A4
CR1	22	C4	A4
CR2	22	D4	B4
CR3	22	C4	B5
CR4	22	D5	B5
CR5	22	E2	B1
CR6	22	E2	C1
CR7	22	D3	B2
CR8	22	D2	C4
CR9	22	E2	C4
CR10	22	D2	D4
CR11	22	D2	D4
CR12	22	A2	E1
CR13	22	A2	E1
CR14	22	B2	E2
CR15	22	C1	E4
CR16	21	F1	F2
CR17	21	F2	G3
CR18	21	F2	G1
CR19	21	F2	G3
CR20	21	D5	H4
CR21	21	C5	I5
CR22	21	E2	I1
CR23	21	E2	I2
CR24	21	D3	J4
CR25	21	D2	J1
CR26	21	D3	J4
CR27	21	B5	J5
CR28	21	E3	J3
CR29	21	B5	K5
CR30	21	A2	K4
CR31	21	B4	K4
CR32	21	B1	M4
CR33	21	C1	M3
CR34	21	B1	M3
CR35	21	C1	M3
DS1	22	E2	A1
DS2	22	E3	A1
DS3	22	E4	A3
DS4	22	D3	B1
DS5	22	E4	B3
DS6	21	G3	F2
DS7	21	C1	M3
F1	21	B1	M1
FIL1	22	C3	C1
FIL2	22	C3	C1
J1	22	F3	B1
J2	22	F2	D1
J3	21	F5	F4
J4	21	H4	F5
J5	21	H1	H4
J6	21	D2	J1
J7	21	D1	K2
J8	21	A1	N2
J1	22	B2	D4
L2	22	D1	E4
L3	21	G2	F3
L4	21	G1	G2
L5	21	G2	G1
L6	21	G2	G3
L7	21	E2	I1
L8	21	D1	J1
P8	21	D2	
P9	21	D1	
Q1	22	E5	A3
Q2	22	E5	A3
Q3	22	C4	A4
Q4	22	D4	B4
Q5	22	D4	B4
Q6	22	D4	B4
Q7	22	B2	D1
Q8	22	A2	E1
Q9	22	A2	E2
Q10	22	B2	E2
Q11	21	F3	E2
Q12	21	D5	I4
Q13	21	E5	I4
Q14	21	E3	J3
Q15	21	B2	K4
R1	22	E4	A2
R2	22	E4	A2
R3	22	E4	A3
R4	22	E4	A3
R5	22	D5	A4
R6	22	B4	A4
R8	22	A4	A4
R9	22	F4	A2
R10	22	B4	A4
R11	22	B4	A4
R12	22	D5	A4
R13	22	E3	A2
R14	22	E5	A3
R15	22	E5	A3
R16	22	C4	A4
R17	22	C5	A4
R18	22	D3	B1
R19	22	D3	B3
R21	22	E5	A3
R22	22	B5	A4
R23	22	C4	B4
R24	22	C4	A4
R25	22	C5	A5
R26	22	D3	B3
R27	22	D4	B3
R28	22	C4	B4
R29	22	D4	B4
R30	22	E2	B1
R31	22	E3	B1
R32	22	E2	B3
R33	22	E3	C1
R34	22	D2	B3
R35	22	F3	C4
R36	22	F1	C4
R37	22	F2	C4
R38	22	F2	C5
R39	22	E3	C1
R40	22	E2	C3
R41	22	D2	C4
R42	22	E3	D1
R43	22	F3	C4
R44	22	F2	C5
R45	22	F2	D1
R46	22	D2	D5
R47	22	F2	D1
R48	22	F3	D1
R49	22	B3	D2
R50	22	D2	D5
R51	22	F3	D1
R52	21	G3	E1
R53	22	D2	E5
R54	22	B2	E2
R55	22	A2	E1
R56	22	A2	E1
R57	22	B2	E1
R58	22	B2	E1
R59	22	A2	E1
R60	22	B1	E2
R61	22	C2	E3
R62	21	F3	F2
R63	21	F3	F2
R64	21	G3	F2
R65	22	B2	E2
R66	22	C2	E2
R67	22	C1	E3
R68	22	B1	E3
R69	21	E4	J3
R70	21	D4	J4
R71	21	H1	F1
R72	21	F4	G5
R73	21	G4	G5
R74	21	G4	G5
R75	21	F4	H5
R76	21	F4	G5
R77	21	F4	G4
R78	21	G4	H5
R79	21	F4	H4
R80	21	G4	H5
R81	21	D5	H4
R82	21	D5	I4
R83	21	D5	H4
R84	21	E5	I3
R85	21	C5	I4
R86	21	B4	I4
R87	21	B3	I4
R88	21	D2	J1
R89	21	C5	J4
R90	21	E4	J3
R91	21	D4	J4
R92	21	D4	J4
R93	21	D3	J4
R94	21	C3	J4
R95	21	B4	J5
R96	21	D3	J3
R97	21	D3	J3
R98	21	C1	E3
R99	21	B2	J4
R100	21	B4	J4
R101	21	B3	K4
R102	21	A4	K4
R103	21	B5	K5
R104	21	B5	K5
R105	21	B3	K4
R106	21	A3	K4
R107	21	A3	K4
R108	21	A2	K4
R109	21	B3	L4
R110	21	A4	L4
R111	21	A3	L4
R112	21	B2	L3
R113	21	A2	L4
R114	21	A4	L4
R115	21	A3	L4
R116	21	D1	L1
R117	21	C1	L3
R118	21	C1	M3
R119	21	B2	M4
R120	21	C2	N4
R121	21	C2	M5
R122	21	D2	N5
R123	21	B1	N4
R124	21	D5	I4
R125	21	C5	I4
R126	22	C5	A4
T1	22	C2	D3
T2	21	E5	H3
T3	21	E2	H3
TP1	21	F5	F4
TP2	21	E3	I3
TP3	21	B5	K4
U1	22	D1	C2
U2	22	B2	F4
U3A	21	G4	H5
U3B	21	F4	H5
U4	21	E4	H5
U5A	21	C5	I5
U5B	21	C4	I5
U6	21	C3	J4
U7A	21	B4	K5
U7B	21	B3	K5
U7C	21	B3	K5
U7D	21	B4	K5
U8A	21	B5	K5
U8B	21	A5	K5
VR1	21	F3	F2
VR3	21	C2	L5
W1	21	G2	E4
W2	21	G2	E4
W3	21	G2	E4

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Schematic Diagram <21> Component Locator Chart

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

Assembly A1. Partial Assembly A1 also shown on Schematic 22.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C21	H3	E1	C67	A3	L4	J5	H1	H4	R82	D5	I4	R117	C1	L3
C29	F2	F3	C68	A3	L4	J6	D2	J1	R83	D5	H4	R118	C1	M3
C31	F1	F1	C69	A4	L4	J7	D1	K2	R84	E5	I3	R119	B2	M4
C32	G2	F4	C70	A4	L5	J8	A1	N2				R120	C2	N4
C33	F2	F3	C71	C1	L2				R85	C5	I4	R121	C2	M5
C34	G1	G4	C72	A3	L4	L3	G2	F3	R86	B4	I4	R122	D2	N5
C35	G2	G4	C74	B1	M1	L4	G1	G2	R87	B3	I4	R123	B1	N4
C36	F2	G3	C75	B1	M2	L5	G2	G1	R88	D2	J1	R124	D5	I4
C37	G2	G4	C76	C5	I5	L6	G2	G3	R89	C5	J4	R125	C5	I4
C38	G4	G5				L7	E2	I1	R90	E4	J3			
			CR16	F1	F2	L8	D1	J1	R91	D4	J4	T2	E5	H3
C40	H1	H4	CR17	F2	G3				R92	D4	J4	T3	E2	H3
C41	F2	H1	CR18	F2	G1	P8	D2		R93	D3	J4			
C42	F4	H4	CR19	F2	G3	P9	D1		R94	C3	J4	TP1	F5	F4
C43	G3	H5	CR20	D5	H4							TP2	E3	I3
C44	E5	I3	CR21	C5	I5	Q11	F3	E2	R95	B4	J5	TP3	B5	K4
C45	E5	H3	CR22	E2	I1	Q12	D5	I4	R96	D3	J3			
C46	D5	I4	CR23	E2	I2	Q13	E5	I4	R97	D3	J3	U3A	G4	H5
C47	E5	I4	CR24	D3	J4	Q14	E3	J3	R98	C3	J4	U3B	F4	H5
C48	C5	I4	CR25	D2	J1	Q15	B2	K4	R99	B2	J4	U4	E4	H5
C49	D5	I4							R100	B4	J4	U5A	C5	I5
			CR26	D3	J4	R52	G3	E1	R101	B3	K4	U5B	C4	I5
C51	E2	I2	CR27	B5	J5	R62	F3	F2	R102	A4	K4	U6	C3	J4
C52	E1	I3	CR28	E3	J3	R63	F3	F2	R103	B5	K5	U7A	B4	K5
C53	C3	I4	CR29	B5	K5	R64	G3	F2	R104	B5	K5	U7B	B3	K5
C54	E5	I4	CR30	A2	K4	R69	G2	E5				U7C	B3	K5
C55	D4	J4	CR31	B4	K4	R70	H1	F1	R105	B3	K4	U7D	B4	K5
C56	C5	J4	CR32	B1	M4	R71	F4	G5	R106	A3	K4	U8A	B5	K5
C57	D3	J3	CR33	C1	M3	R72	G4	G5	R107	A3	K4	U8B	A5	K5
C58	B5	J5	CR34	B1	M3	R73	G4	G5	R108	A2	K4			
C59	D2	J1	CR35	C1	M3	R74	H4	G5	R109	B3	L4	VR1	F3	F2
C60	C3	J4							R110	A4	L4	VR3	C2	L5
			DS6	G3	F2	R75	F4	H5	R111	A3	L4			
C61	B5	J5	DS7	C1	M3	R76	F4	G5	R112	B2	L3	W1	G2	E4
C62	D2	J3				R77	F4	G4	R113	A2	L4	W2	G2	E4
C63	D3	J4	F1	B1	M1	R78	G4	H5	R114	A4	L4	W3	G2	E4
C64	C3	J4				R79	F4	H4						
C65	A4	K4	J3	F5	F4	R80	G4	H5	R115	A3	L4			
C66	A1	K1	J4	H4	F5	R81	D5	H4	R116	D1	L1			

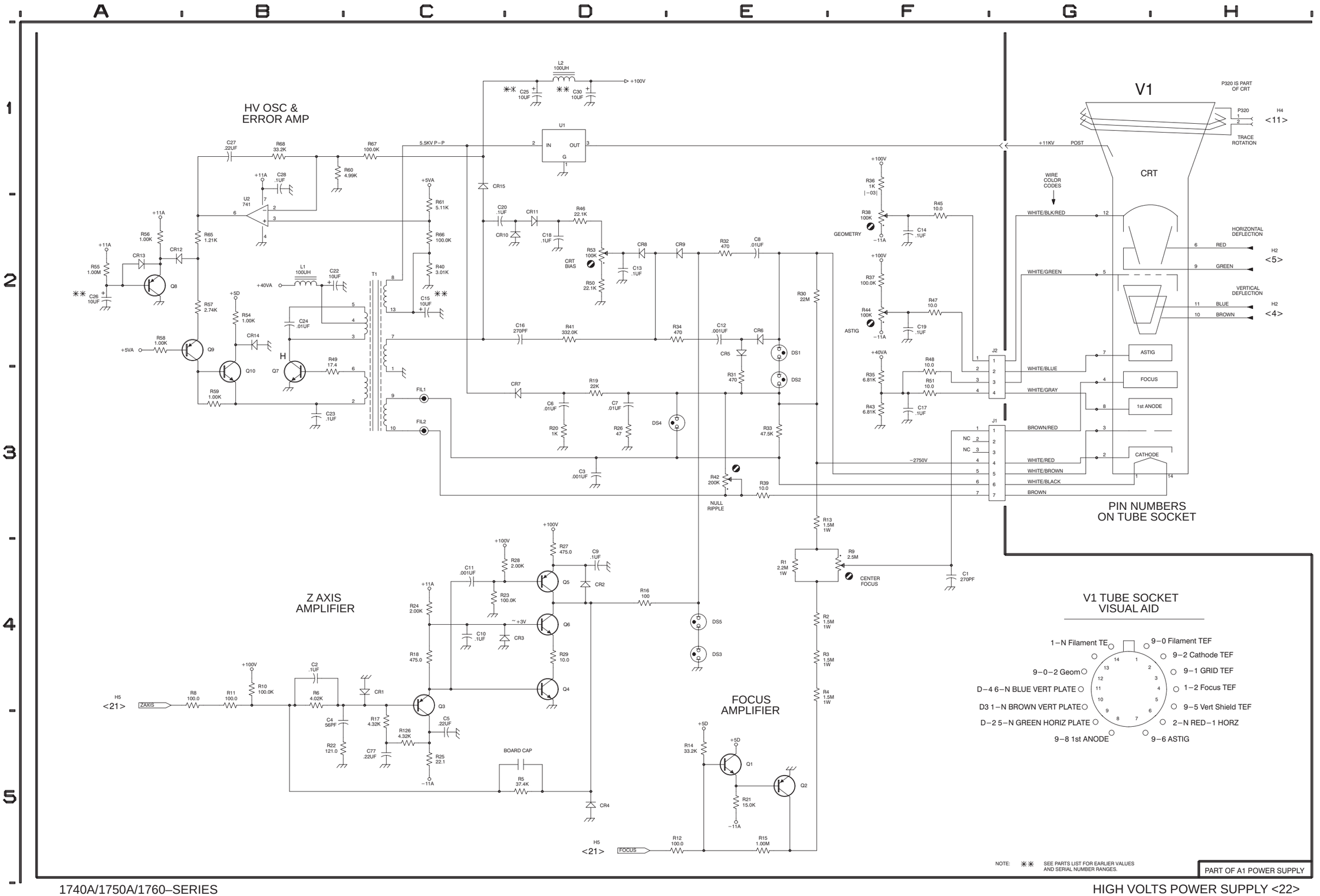
Schematic Diagram <22> Component Locator Chart

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

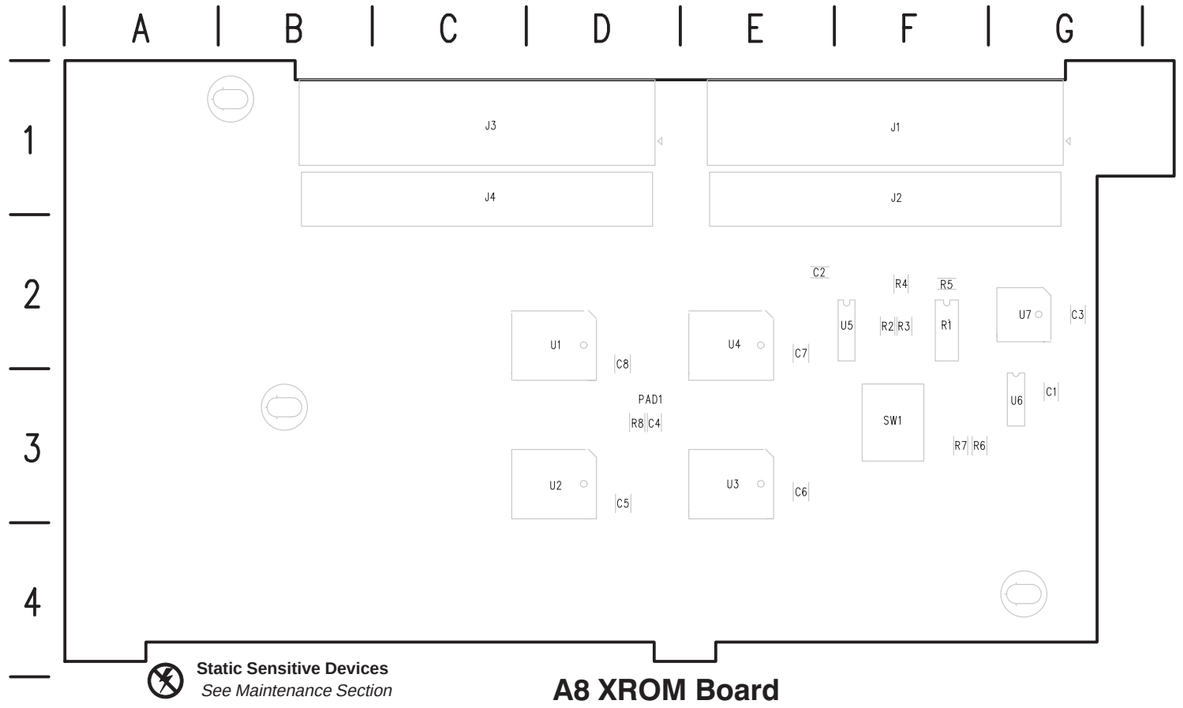
Assembly A1. Partial Assembly A1 also shown on Schematic 21.

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

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A8 XROM Board

A8 XROM Board and Schematic Diagram <23> Component Locator Chart

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

Assembly A8.

Comp No	Diag Loc	Bd Loc	Comp No	Diag Loc	Bd Loc
C1	E3	G3	R3	C2	F2
C2	D3	E2	R4	D2	F2
C3	C5	G2			
C4	F5	D3	R5	C2	F2
			R6	C5	F3
C5	F4	D3	R7	C5	F3
C6	F4	E3	R8	F5	D3
C7	F3	E2			
C8	F2	D2	S1(SW1)	C3	F3
J1	A2	G1	U1	F1	D2
J2	B2	G1	U2	F4	D3
J3	H2	D1	U3	F2	E3
J4	G2	D1	U4	F3	E2
J5(PAD1)	F5	D3			
			U5	D2	F2
R1	C2	F2	U6A	E2	G3
R2	C2	F2	U7	C4	G2

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THIS BOARD ONLY INSTALLED ON 1740A–SERIES & 1750A–SERIES

A8<23

FLASH EPROM

DIAGNOSTICS & CIRCUIT BOARD ID

J1 CONNECTS TO J2 <10> A3 MAIN BOARD

J3 CONNECTS TO J5 <10> A3 MAIN BOARD

FOR TEST & UPGRADE ONLY

FOR TEST & UPGRADE ONLY

BD[0..15]

NOTE: S1 MAY BE SILKSCREENED AS SW1 ON BOARD.

NOTE: J5 MAY BE SILKSCREENED AS PAD1 ON BOARD.

A8 XROM BOARD

1740A/1750A–SERIES

XROM <23>

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FIG. 1 EXPLODED VIEW

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