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TM 5006
POWER MODULE

INSTRUCTION MANUAL

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

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Product Group 76

Serial Number _____

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INSTRUMENT SERIAL NUMBERS

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

B000000	Tektronix, Inc., Beaverton, Oregon, USA
100000	Tektronix Guernsey, Ltd., Channel Islands
200000	Tektronix United Kingdom, Ltd., London
300000	Sony/Tektronix, Japan
700000	Tektronix Holland, NV, Heerenveen, The Netherlands

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OPERATORS SAFETY SUMMARY

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

Terms In This Manual

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

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

Terms As Marked on Equipment

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

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

Symbols In This Manual



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

Symbols As Marked on Equipment



DANGER — High voltage.



Protective ground (earth) terminal.



ATTENTION — refer to manual.

Power Source

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

Grounding the Product

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

Danger Arising From Loss of Ground

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

Use the Proper Fuse

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

Refer fuse replacement to qualified service personnel.

Do Not Operate In Explosive Atmospheres

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

Do Not Operate Without Covers

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

SERVICE SAFETY SUMMARY

FOR QUALIFIED SERVICE PERSONNEL ONLY

Refer also to the preceding Operators Safety Summary.

Do Not Service Alone

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

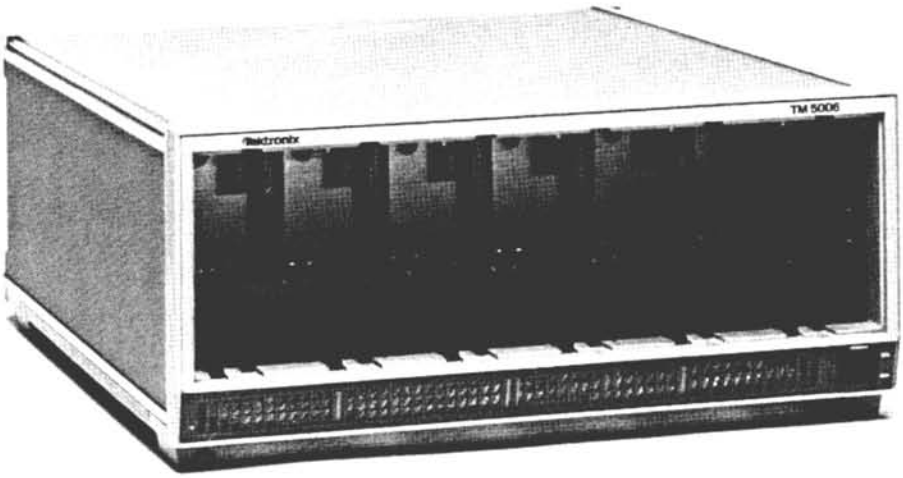
Use Care When Servicing With Power On

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

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

Power Source

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



TM 5006 Power Module.

SPECIFICATION

Instrument Description

The TM 5006 is a six-compartment power module compatible with TM 500/TM 5000-Series plug-ins. The power module features a pulse width modulated switching dc power supply. All dc voltages are regulated. The right compartment is the high power compartment. The unit has forced air cooling.

Six individual connectors, one for each compartment, provide connections to each GPIB compatible plug-in. These connectors feed to a GPIB interface board, then to a standard GPIB connector on the rear panel. All GPIB connections are separate from the board rear interface connector.

Performance Conditions

The electrical characteristics in this specification are valid only if the TM 5006 has been adjusted at an ambient temperature between +20° C and +30° C. The instrument must be in a non-condensing environment whose limits are described under the environmental part. Allow 30 minutes warm-up time for operation to specified accuracy; 60 minutes after exposure to or storage in a high humidity (condensing) environment. Any conditions that are unique to a particular characteristic are expressly stated as part of that characteristic.

The electrical and environmental performance limits, together with their related validation procedures, comprise a complete statement of the electrical and environmental performance of a calibrated instrument.

Items listed in the Performance Requirements column of the Electrical Characteristics are verified by completing the Performance Check in the Calibration section of this manual. Items listed in the Supplemental Information column are not verified in this manual.

Table 1-1

ELECTRICAL CHARACTERISTICS

Characteristics	Performance Requirements	Supplemental Information
	SUPPLIES	
+26 V dc		
Tolerance [a]	+23.7 V to +28.3 V	
PARD [b]		⩽ 2.5 V peak to peak
Maximum load		1 A per compartment
Maximum load $\frac{di}{dt}$		10 mA/μs
−26 V dc		
Tolerance [a]	−23.7 V to −28.3 V	
PARD [b]		⩽ 2.5 V peak to peak
Maximum load		1 A per compartment
Maximum load $\frac{di}{dt}$		10 mA/μs

Table 1-1 (cont)

Characteristics	Performance Requirements	Supplemental Information
+8 V dc		
Tolerance [a]	+7.6 V to +8.5 V	
PARD [b]		⩽ 600 mV peak to peak
Maximum load		
Standard compartment		3 A per compartment
High power compartment		3 A per compartment
Maximum load $\frac{di}{dt}$		20 mA/μs
25 V ac (2 each compartment)		
Range		26.0 V rms +10%, −15% floating
Maximum load		
Standard compartment		1 A rms per winding
High power compartment		2.5 A rms per winding
Maximum floating voltage		350 V peak from chassis ground
17.5 V ac		
Range		20.5 V +10%, −20% with grounded center tap
Maximum load		350 mA per compartment
Maximum plug-in power [c] draw from mainframe		
Standard compartment		30 watts dc or 50 VA ac
High power compartment		30 watts dc or 125 VA ac
Combined power draw [c] sharing limitation		
Standard compartment		VA ac +2.67 (watts dc) ⩽ 100
High power compartment		VA ac +2.67 (watts dc) ⩽ 150
	SERIES PASS TRANSISTORS	
Type		One NPN and PNP per compartment
Maximum dissipation		
Standard compartment		10 W each, 20 W total
High power compartment		30 W each, 50 W total
Maximum floating voltage		350 V peak

Table 1-1 (cont)

Characteristics	Performance Requirements	Supplemental Information
	SOURCE POWER REQUIREMENTS	
Voltage Ranges		Selectable (nominal): 100 V, 110 V, 120 V, 200 V, 220 V, and 240 V. (250 V maximum on 240 V range)
Tolerance		+7% −10%
Line Frequency		48 Hz to 66 Hz
Maximum power consumption		650 VA
Fuse Data		
100 V, 110 V, 120 V ranges		7 A, 3 AG, medium blow
200 V, 220 V, 240 V ranges		4 A, 3 AG, fast blow
	MISCELLANEOUS	
Maximum recommended plug-in power dissipation		
One-wide		15 W
Two-wide		35 W
Recommended adjustment interval		1000 hours or 6 months

[a] Worst case: Low line with full load and high line with no load. These limits include PARD.

[b] Periodic and Random Deviation. See National Electrical Manufacturers Association (NEMA) Standards Publication No. PY1-1972.

[c] At nominal line voltage.

Table 1-2

ENVIRONMENTAL CHARACTERISTICS [a]

Characteristics	Description	
Temperature		Meets MIL-T-28800B, class 5.
Operating [b]	0°C to +50°C	
Non-operating	−55°C to +75°C	
Humidity [b]	95% RH, 0°C to 30°C 75% RH, to 40°C 45% RH, to 50°C 95% RH, to 50°C Extended qualification.	Exceeds MIL-T-28800B, class 5.
Altitude		Exceeds MIL-T-28800B, class 5.
Operating [b]	4.6 Km (15,000 ft.)	
Non-operating	15 Km (50,000 ft.)	
Vibration [c]	0.38 mm (0.015") peak to peak, 5 Hz to 55 Hz, 75 minutes.	Exceeds MIL-T-28800B, class 5.
Shock [c]	30 g's (1/2 sine), 11 ms duration, 3 shocks in each direction along 3 major axes, 18 total shocks.	Meets MIL-T-28800B, class 5.
Bench Handling [c]	12 drops from 45°, 4" or equilibrium, whichever occurs first.	Meets MIL-T-28800B, class 5.
Transportation [d]	Qualified under National Safe Transit Association Preshipment Test Procedures 1A-B-1 and 1A-B-2.	
EMC	Within limits of MIL-461A tests RE02; CE01[e]; CE03; RS01; CS01, and CS02.	
Electrical Discharge	20 kV maximum charge applies to instrument case.	

[a] System environmental specifications subject to individual plug-in specifications.

[b] Electrical load in accordance with Section 2.2.1.

[c] With mechanical load of 19 lbs, ±1 lb. evenly distributed. (Three two-wide plug-ins, each weighing 6 1/3 lbs, ±3 lbs. ±1/3 lb. with two rear support pins and one rear interface ECB). Requires retainer clips.

[d] Without mechanical load (plug-ins).

[e] Increase first 3 odd power line frequency harmonic amplitudes by 10 dB.

Table 1-3

PHYSICAL CHARACTERISTICS

Characteristics	Description
Maximum recommended plug-in weight	
One wide	1.4 kg (3 lbs.)
Two wide	2.7 kg (6 lbs.)
Net weight (without plug-ins)	14.5 kg (32 lbs.)
Maximum overall dimensions	
Height	193.8 mm (7.63 inches)
Width	444.73 mm (17.509 inches)
Length	476 mm (18.74 inches)
Enclosure type and style per MIL-T-28800B	
TM 5006	
Type	III
Style	E
TM 5006 Option 10 (rackmount)	
Type	III
Style	F
Finish	
Frame	Powder coated aluminum
Covers	Vinyl clad aluminum

OPERATING INSTRUCTIONS

Introduction

The TM 5006 Power Module is calibrated and ready for use when received. A list of standard accessories (and part numbers) is located in the back of this manual.

Power Source Requirements

WARNING

AC POWER SOURCE AND CONNECTION. *This instrument operates from a single-phase power source. It has a three-wire power cord and two-pole, three-terminal grounding-type plug. The voltage to ground (earth) from either pole of the power source must not exceed the maximum rated operating voltage, 250 V.*

Before making connection to the power source, determine that the instrument is adjusted to match the voltage of the power source, and has a suitable two-pole, three-terminal grounding-type plug. Refer any changes to qualified service personnel.

GROUNDING. *This instrument is safety class I equipment (IEC designation). All accessible conductive parts are directly connected through the grounding conductor of the power cord to the grounding contact of the power plug.*

The power input plug must only be inserted in a mating receptacle with a grounding contact. Do not defeat the grounding connection. Any interruption of the grounding connection can create an electric shock hazard.

For electric shock protection, the grounding connection must be made before making connection to the instrument's input or output terminals.

See Fig. 2-1. Refer to the line voltage and fuse data label on the rear panel.

Fuse Replacement

Turn the slotted section of the line fuse holder counterclockwise and remove the fuse. Replace the fuse with the proper type as shown on the rear panel label.

Cabling

CAUTION

Remove power cord before attempting cable installation.

For convenience, cabling from the front of the power module to the rear panel may be run through the air intake and cable raceway as shown in Fig. 2-2. To install this cabling first remove the access panel on the rear of the power module. See Fig. 2-1. Next remove the two bottom panel retainer screws and the bottom panel retainers. Slide the bottom panel out from the rear of the instrument. Pass the cable through the front air intake, across the bottom of the plug-in support rails and out the access panel. Replace the power module bottom cover.

CAUTION

To ensure proper cooling, do not operate the power module with any cover removed.

Table Top Use

The power module may be operated with the front raised. To raise the front of the instrument extend the front bail as shown in Fig. 2-3.

Rackmounting Instructions

Cooling. Examine the side panels of the TM 5006, Option 10, power module. If there are no cooling holes in the side panels, at least 1-inch clearance must be maintained between the bottom of the power module and the instrument below it. This is necessary to insure proper cooling. If the side panels have cooling holes, no special precautions are necessary.

If the rack has positive internal pressure for cooling purposes, the mainframes must have all compartments filled with plug-ins or blank front panels (available from Tektronix, Inc.) must be installed in the unused plug-in openings. If greater internal air flow is desired in a relatively highly pressurized rack, the grill opening at the bottom front of the TM 5006 may also be blocked.

Rack Dimensions. The TM 5006, Option 10, is shipped from the factory ready for rack mounting. Figure 2-4 shows major dimensions. Fiture 2-5 shows the spring-latch cutout in the stationary section.

NOTE

The slide tracks supplied with the TM 5006, Option 10, have holes in the stationary sections to accomodate the spring latches. The TM 5006, Option 10, should not be mounted with rack slides that do not have the rack-latch holes.

The TM 5006, Option 10, fits the standard 19-inch side cabinet, rack or console. Spacing inside the front rails must be at least 17 3/4 inches. This allows clearance for the stationary section of the slide-out tracks to permit the assembly to slide freely on the slid-out tracks.

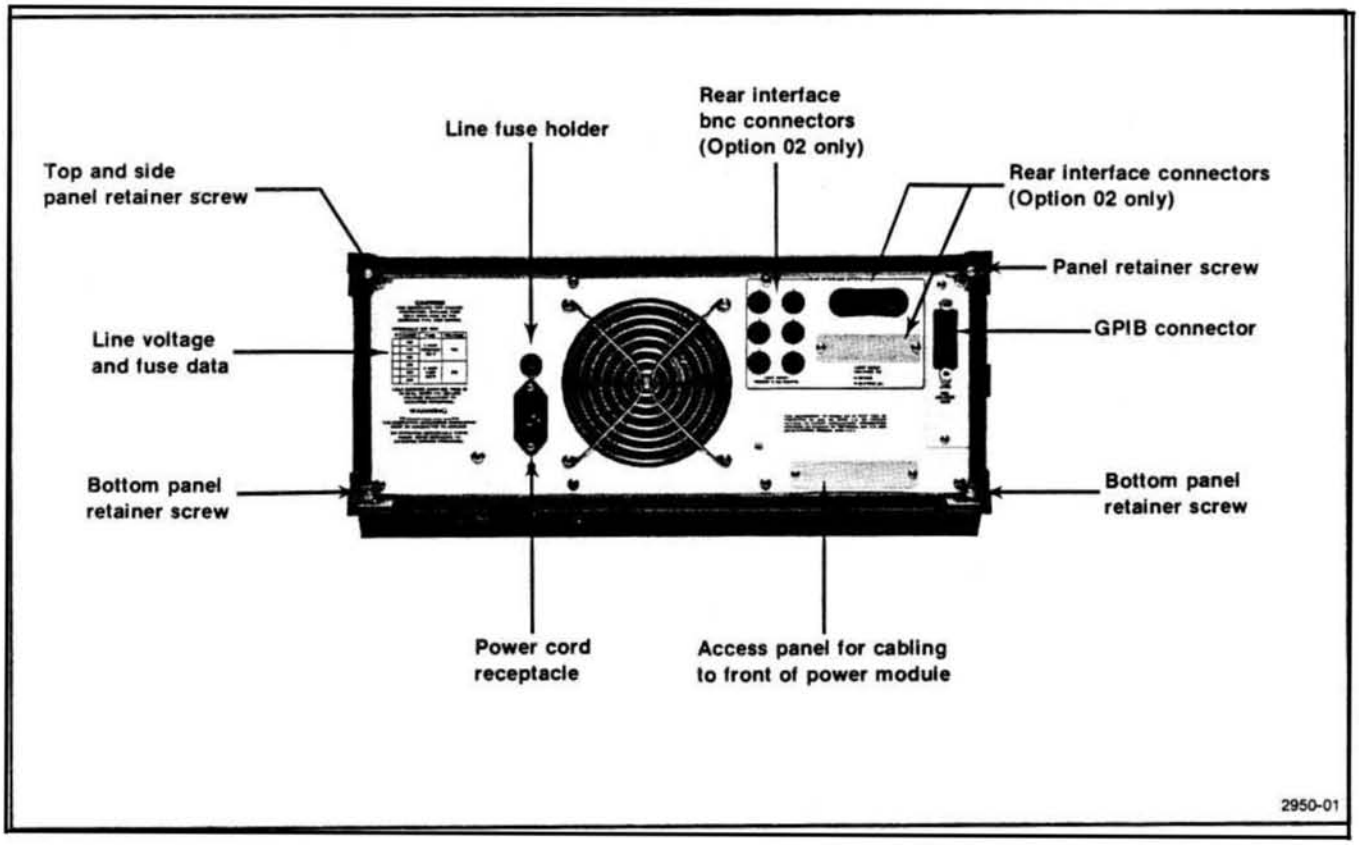


Fig. 2-1. TM 5006 rear panel.

The slide-out tracks, with existing hardware supplied, will conveniently mount in any rack with the front and rear rails spaced from 10 1/2 inches to 24 1/2 inches.

Mounting the Slide Tracks. Locate the proper rack holes for mounting as shown in Fig. 2-6. Notice that the hole spacing in the racks varies. When installing the slides in the EIA type racks, make certain the slides are attached to the 1/2-inch spaced holes. Figure 2-6 also shows details for determining position of the slides in the rack. Mount the rails using enclosed hardware as shown in Figs. 2-7 and 2-8. Figures 2-8B and C show rail-mounting details for deep and shallow racks. Make sure the stationary sections are horizontally aligned so they are level and parallel with each other.

Installing the TM 5006, Option 10, in the Rack Slides. Make certain all plug-ins are removed from the power module. Pull the slide-out track intermediate sections out as far as they will go. See Fig. 2-9. Insert the instrument chassis sections into the intermediate section and push the instrument forward until the instrument chassis section locks into the intermediate section. Now press both buttons protruding from the stop-latch holes in the intermediate sections while pushing the instrument. The instrument can now be pushed into the rack, cabinet, or console. The latches holding the intermediate sections to the stationary sections are automatically operated by the instrument as it is pushed into the rack or cabinet. The quick-release latches automatically engage the rack-latch holes in the stationary sections of the rails as the instrument is pushed fully into the rack.

Removing the Instrument. Remove all plug-ins from power module. Unscrew the two thumb screws at the top of the front panel. Pull the rectangular latches on both sides of the front panel. Using the latches pull the instrument from the enclosure until the slide intermediate sections latch with the instrument sections and the stationary sections. The instrument is firmly held in this position. To completely remove the instrument, press both release-latch buttons visible in the stop-latch holes and carefully slide the instrument from the rack or cabinet.

Rack Adjustments. After installing the instrument in the rack, binding in the rack slides may occur if the slides are not properly adjusted. Slide the instrument from the rack until the front panel is about 10 inches from the front of the rack. Slightly loosen the screws holding the right and left tracks to the front rails. Allow the tracks to seek their normal position. Retighten the screws and check the tracks for smooth operation by sliding the instrument in and out of the rack.

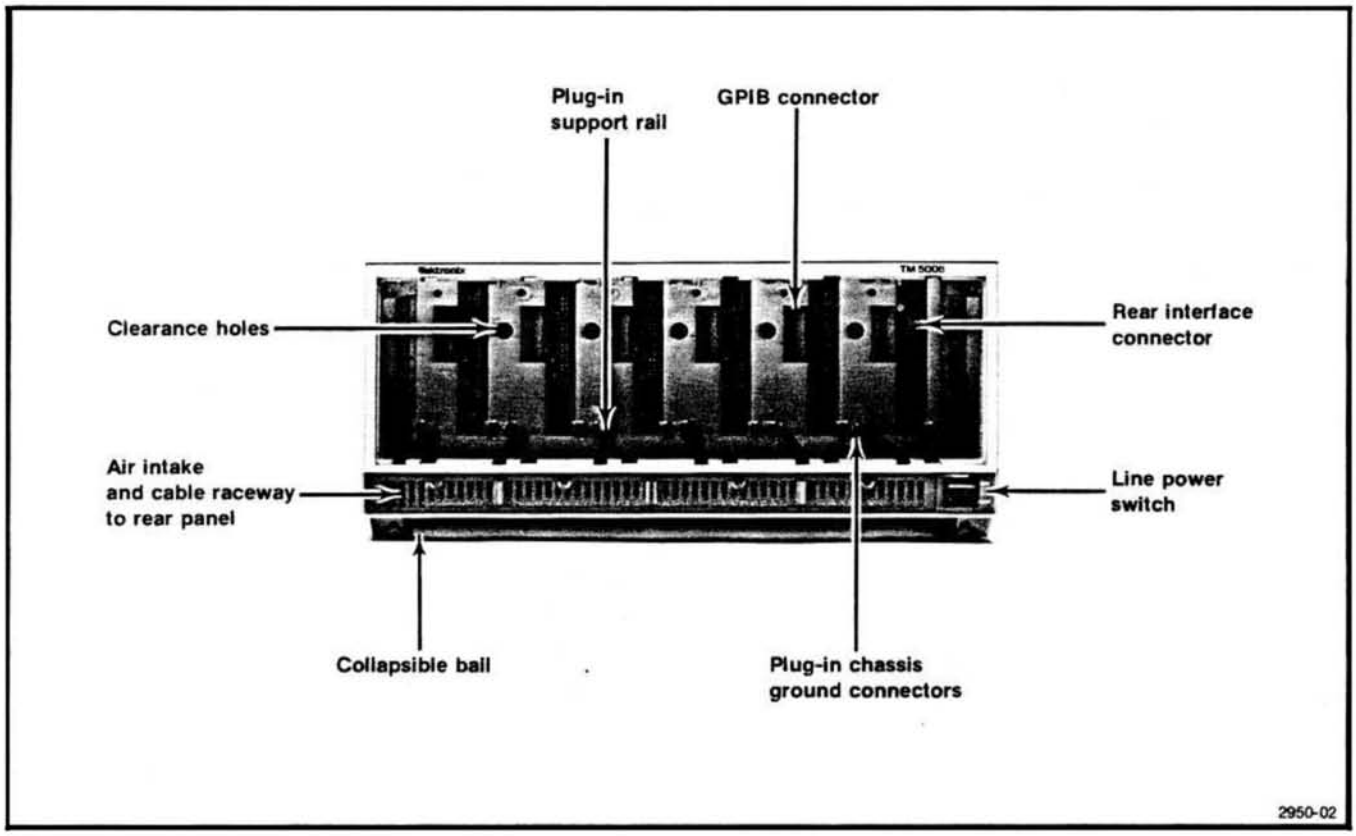


Fig. 2-2. TM 5006 front view.

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

Plug-in Installation and Removal

CAUTION

Turn the power module off before inserting or removing the plug-in; otherwise, damage may occur to the plug-in circuitry.

NOTE

The DC 505, DC 505A and LA501W plug-ins are not compatible with this power module.

Check to see that the plastic barriers on the interconnecting jack of the selected power module compartment match the cutouts in the plug-in circuit board edge connector. The right-most compartment is the high power compartment. Align the plug-in chassis with the upper and lower guides (see Fig. 2-10) of the selected compartment. Push the plug-in chassis in and press firmly to seat the circuit board edge connector in the interconnecting jack. Turn the power module on.

Family Compatibility

Mechanically, TM 5000 plug-in modules are very similar to other Tektronix product families. However, they are not electrically compatible. Therefore, the TM 5006 interface has barriers on the mating connectors between pins 6 and 7 to ensure that incompatible plug-ins cannot be inserted. See Fig. 2-11. A compatible module will have a matching slot between pins 6 and 7 of its main circuit board edge connector. This slot and barrier combination is the primary keying assignment.

Customizing the Interface

The modularity of this instrumentation system provides for many different functions to be performed by the plug-in modules. Specific functions are grouped into families or classes, of which there may be several plug-in module members. For instance, some classes are Power Supplies, Signal Sources, Measurement, and so forth. Each modular member of a functional family will have a second slot, peculiar to its family assignment, located in its edge connector. The TM 5006 user can select one or more

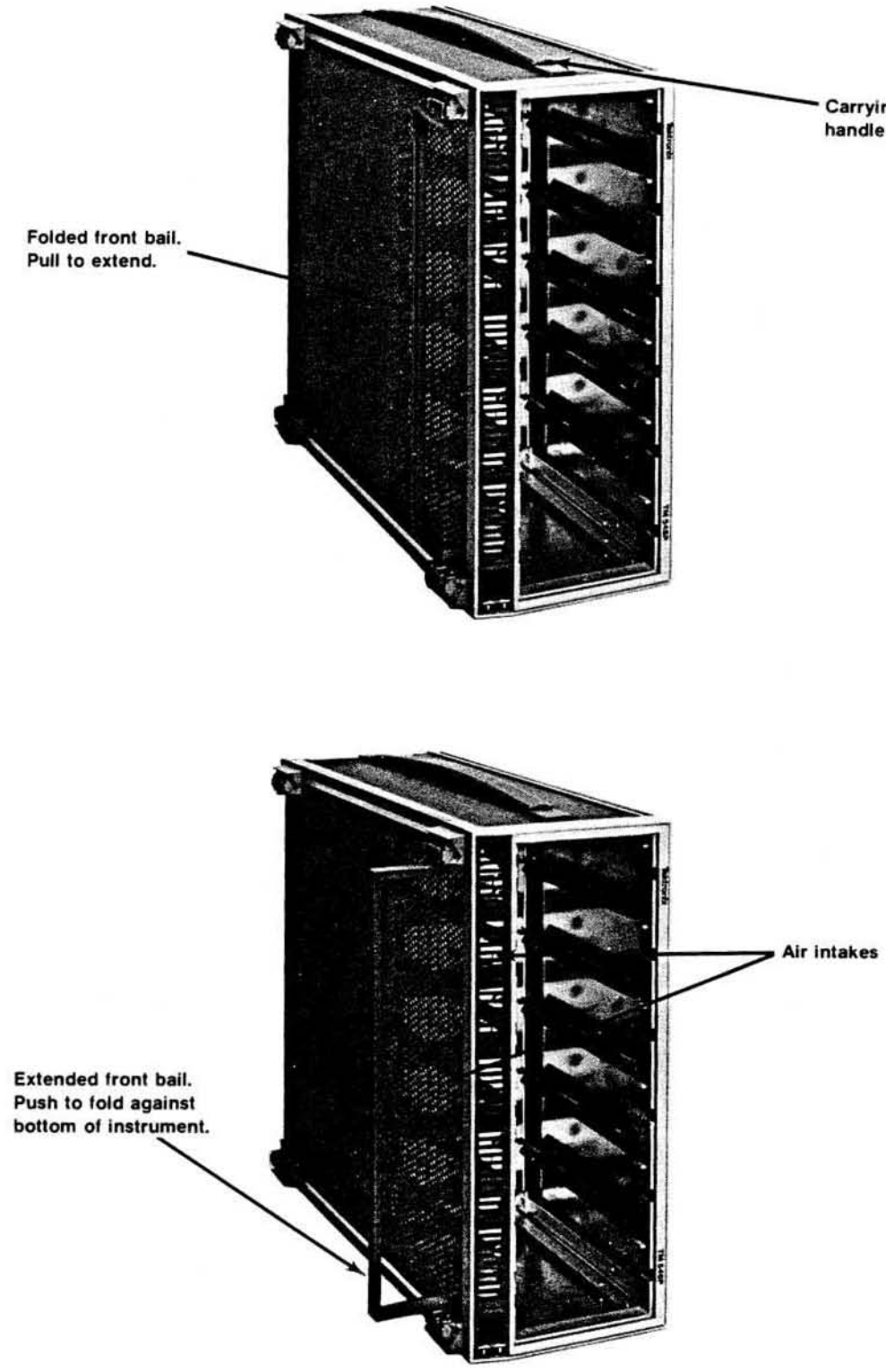


Fig. 2-3. TM 5006 bottom view.

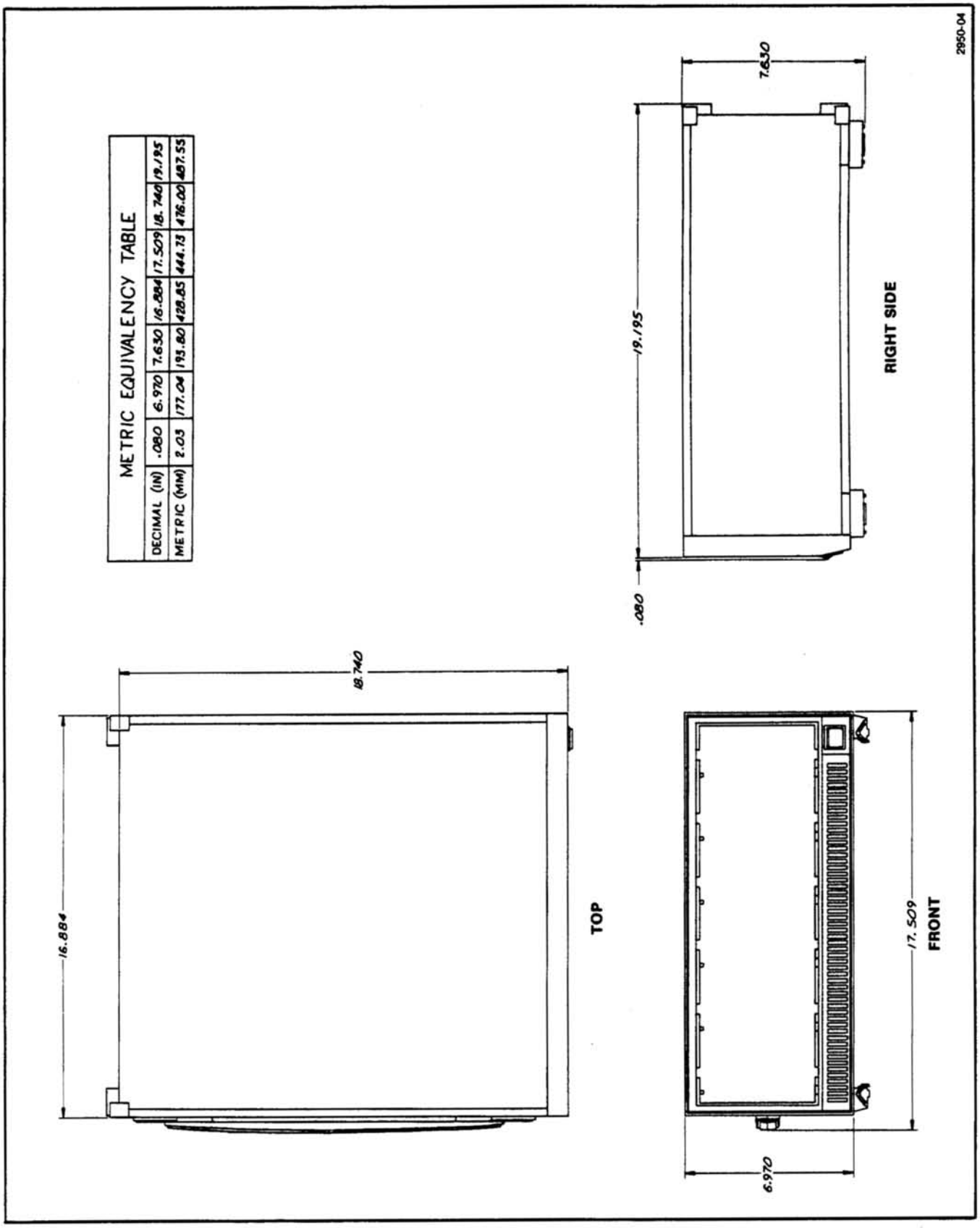


Fig. 2-4. TM 5006, overall dimensions.

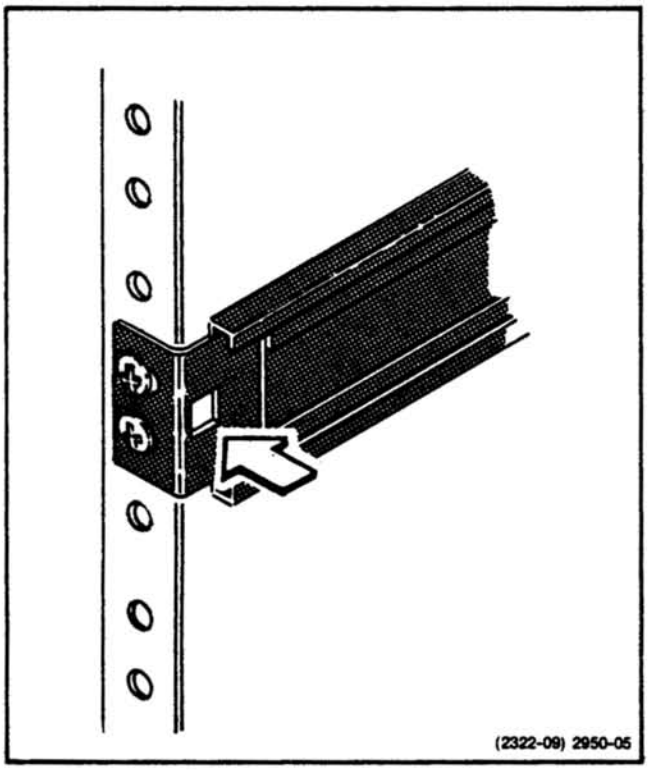


Fig. 2-5. Rack latch hole.

compartments to accept only members of that family, by installing a second barrier in the interface connector to match the module's slot location. An entire TM 5006 can be set up in this manner for specific work functions. For extra barriers, order Tektronix Part No. 214-1593-02.

Rear Panel

The rear panel has a connector mounting plate for bnc and multi-pin connector mountings. Customer or factory-installed connectors and wiring (Option 02) can provide external access to the interface. This feature makes the TM 5000-Series Modular Instrumentation System very flexible in bench-top or rackmounted systems.

Option 02

Qualified service personnel see Section 6 in the Service section of this manual for information on Option 02.

Repackaging Information

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

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

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

The carton test strength for this instrument is 350 pounds per square inch.

WARNING

During rackmount installation, interchanging the left and right slide-out track assemblies defeats the extension stop (safety latch) feature of the tracks. Equipment could, when extended, come out of the slides and fall from the rack, possibly causing personal injury and equipment damage.

When mounting the supplied slide-out tracks, inspect both assemblies to find the LH (left hand) and RH (right hand) designations to determine correct placement. Install the LH assembly to your left side as you face the front of the rack and install the RH assembly to your right side. Refer to the rackmounting instructions in this manual for complete information.

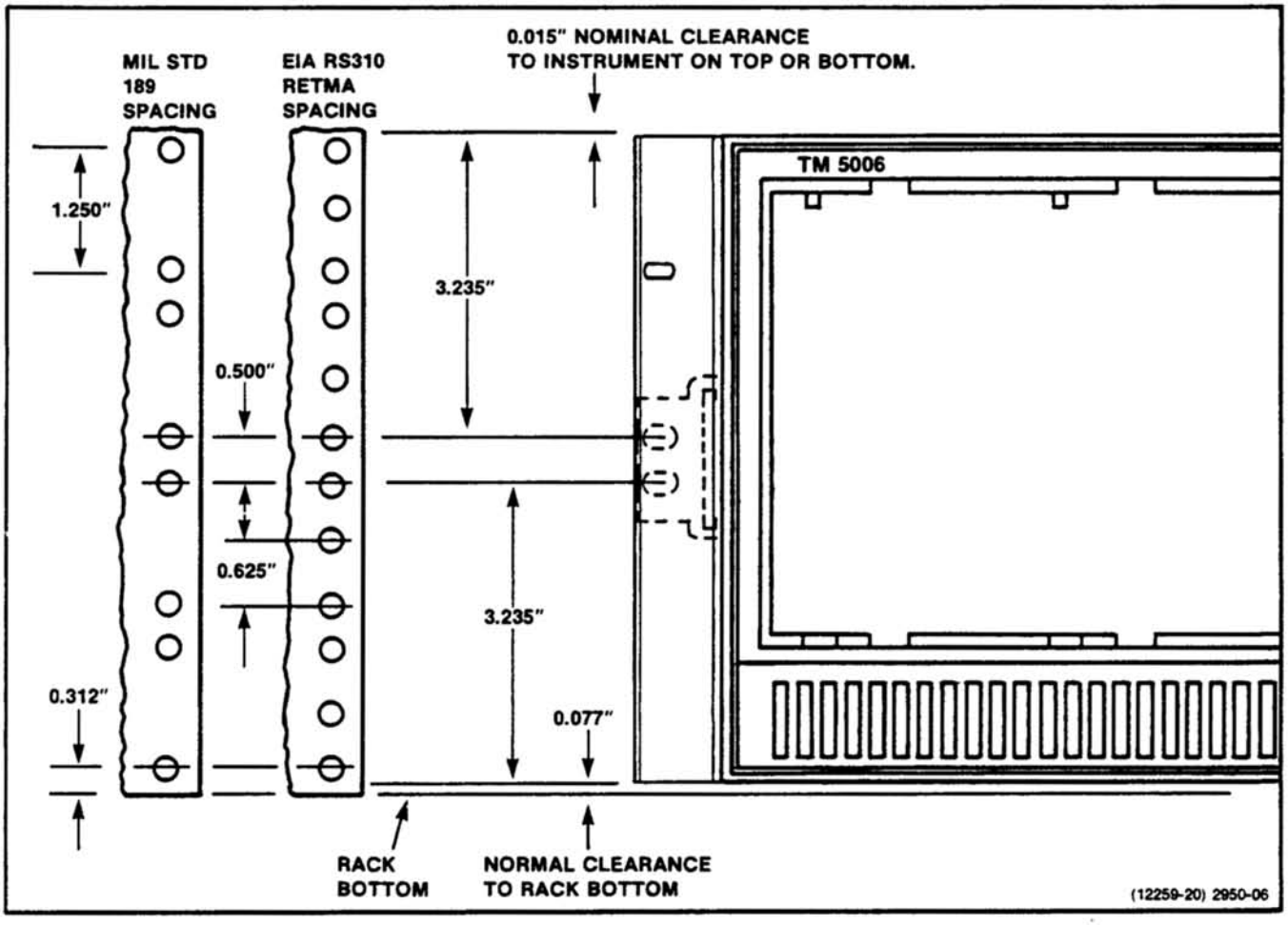


Fig. 2-6. Dimensions and positioning of TM 5006, Option 10, in standard rack.

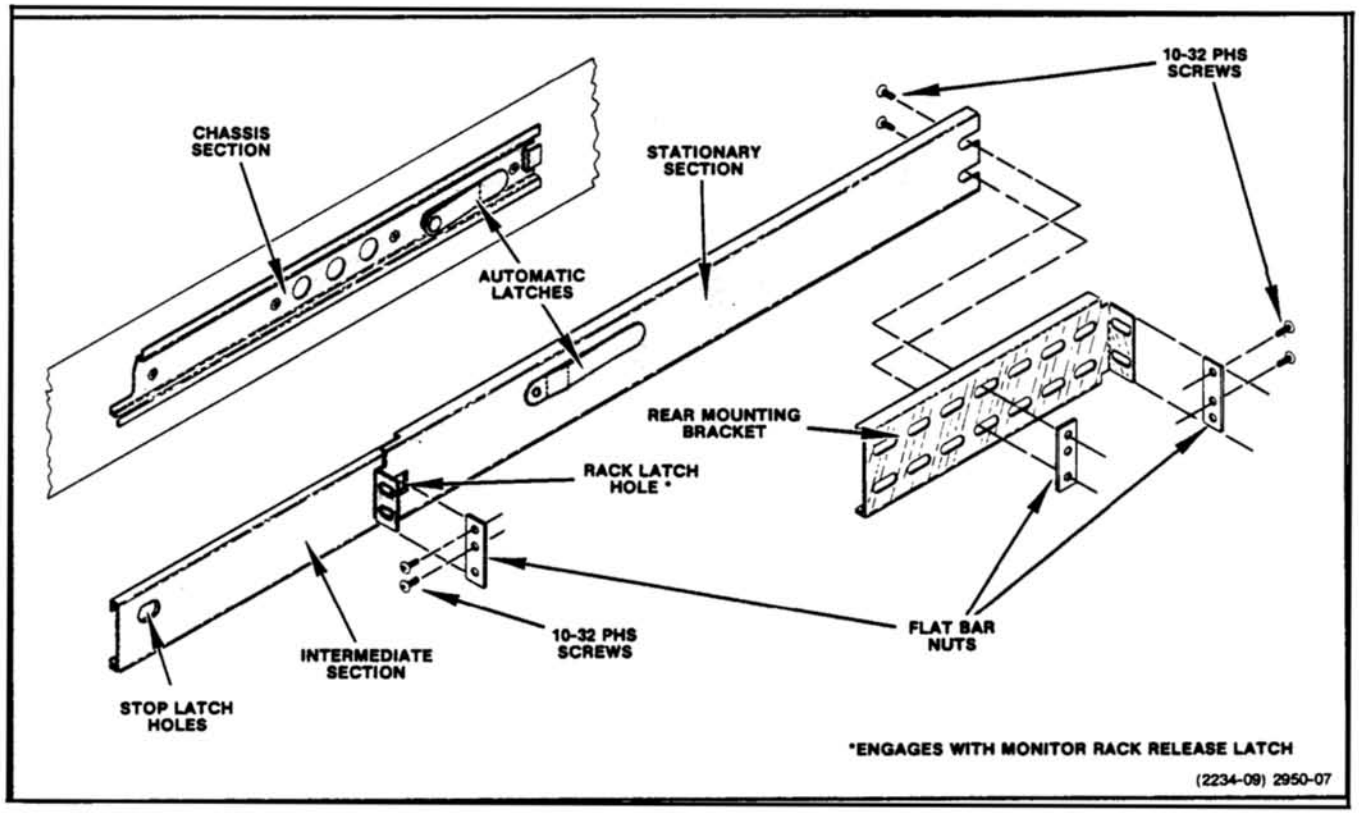


Fig. 2-7. Rackmount slide detail. If the rack has tapped holes, the bar nuts are not required.

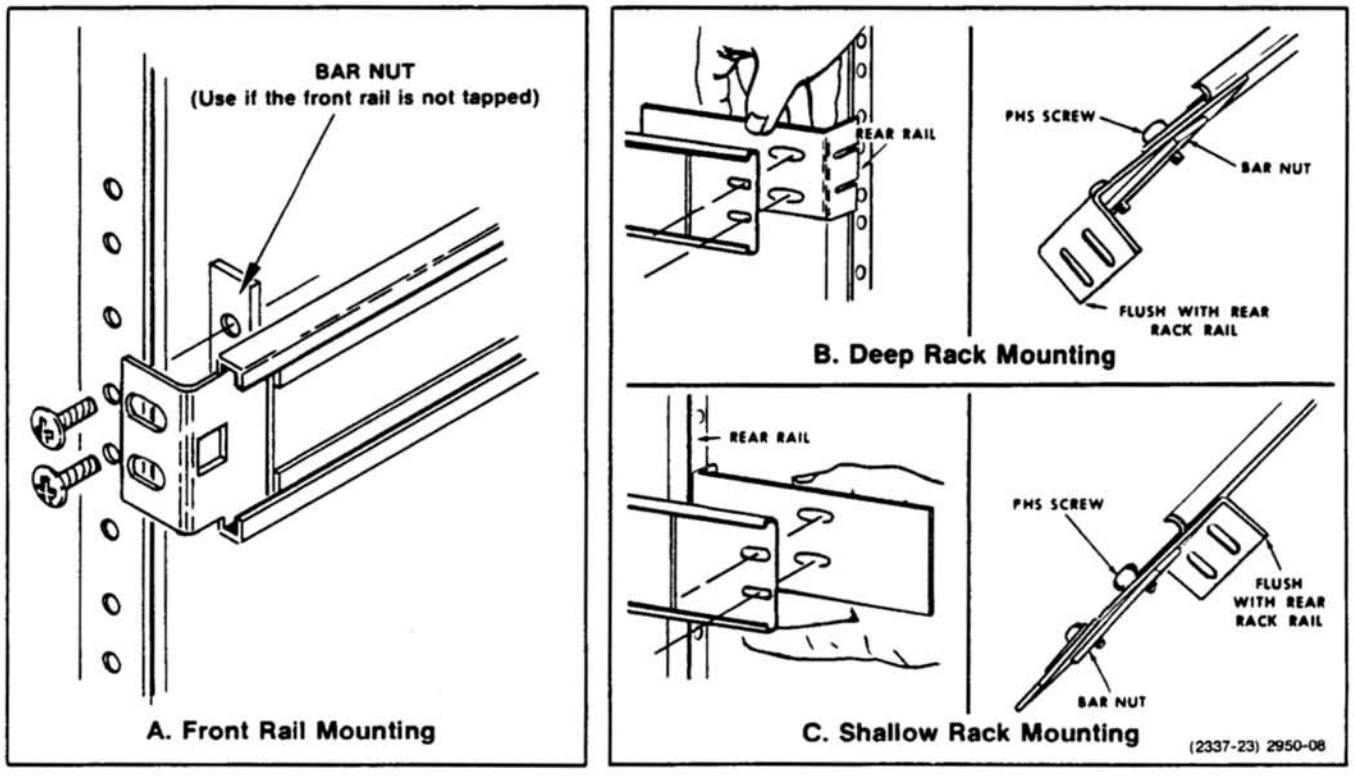


Fig. 2-8. Rackmounting slide details.

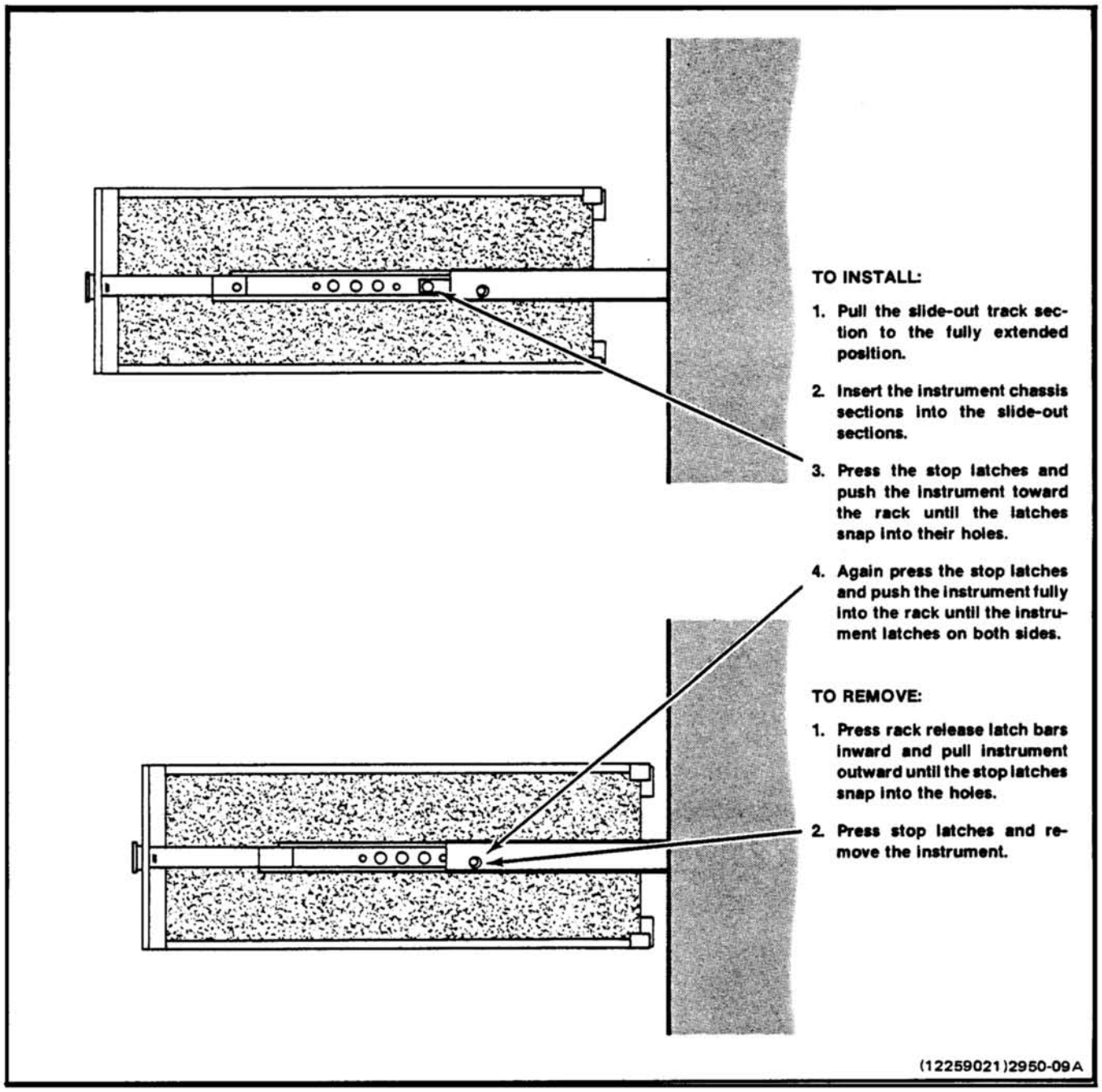


Fig. 2-9. Removing and installing TM 5006 in rack slides.

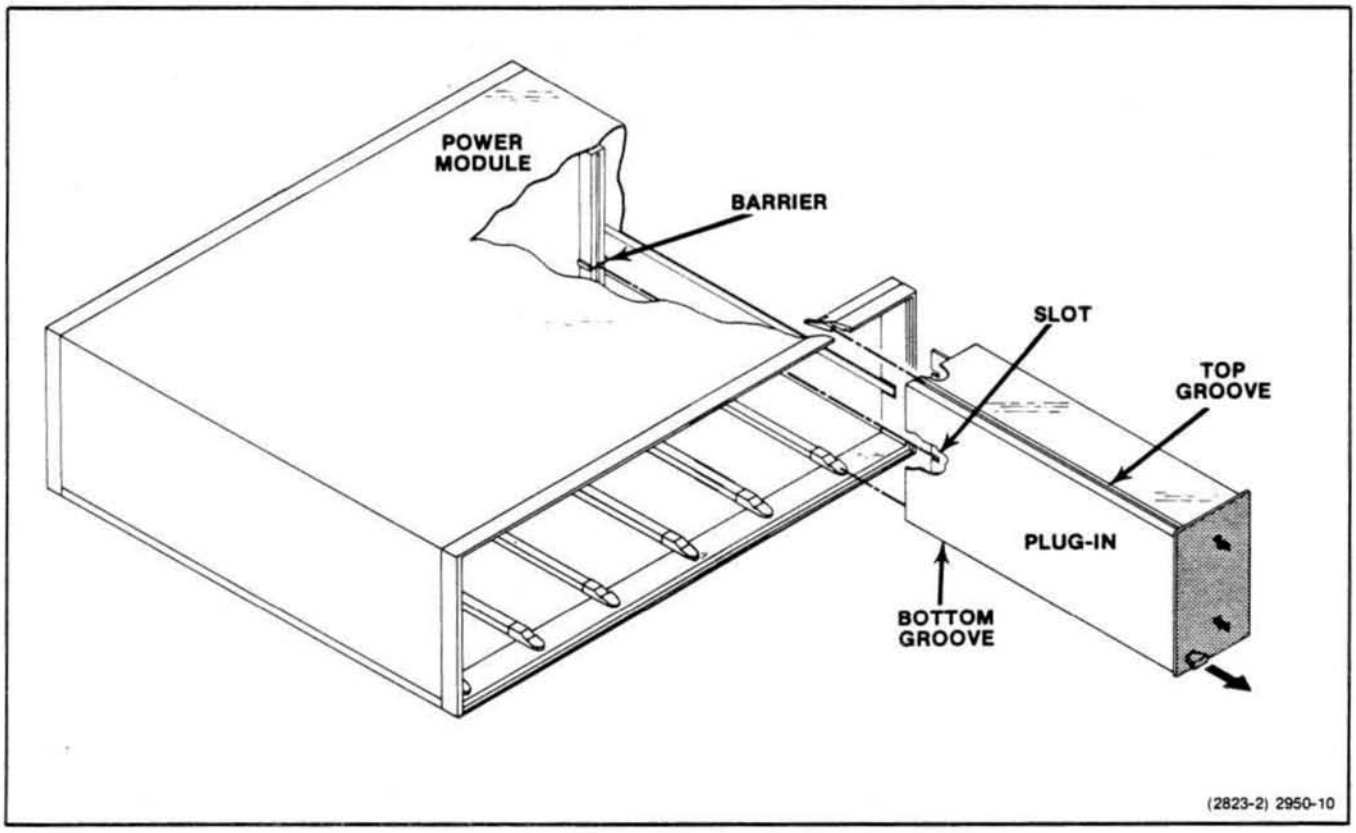


Fig. 2-10. Plug-in installation and removal.

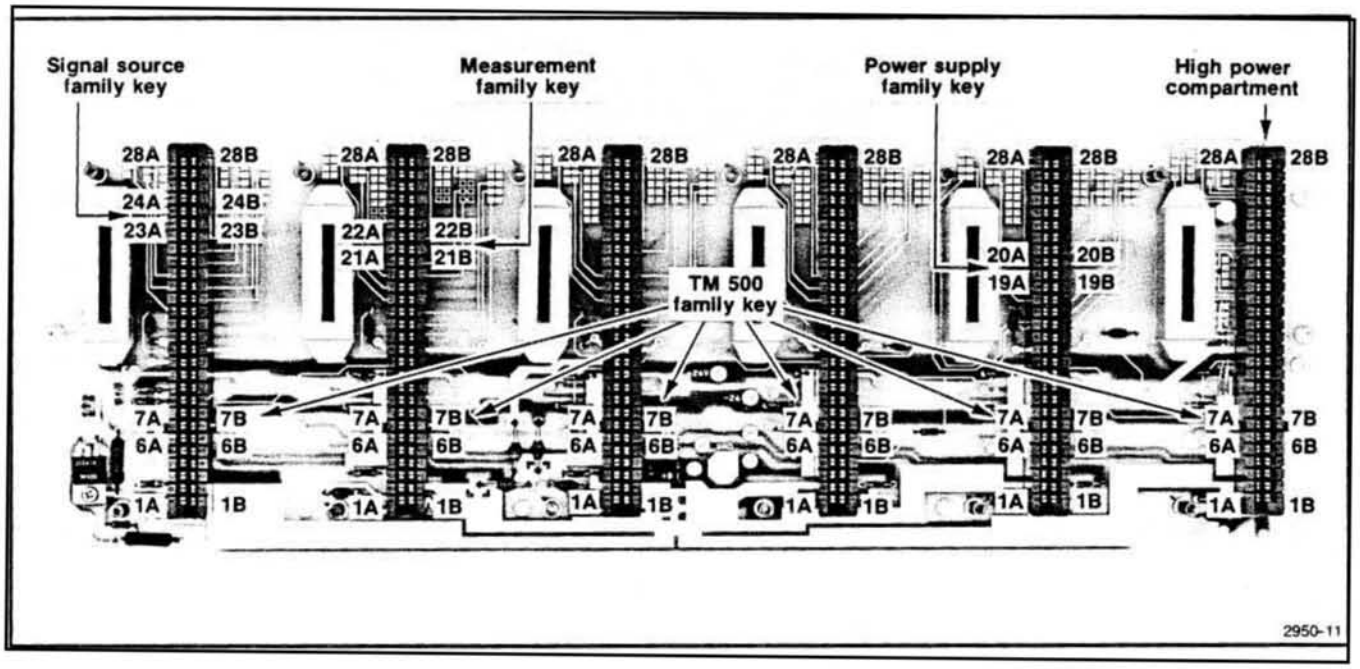


Fig. 2-11. Keying assignments for family functions. One of the many possible sequence combinations.

THEORY OF OPERATION

Introduction

For ease in understanding, this description refers to the schematics located in the pullout pages at the rear of this manual. Also refer to the block diagram located in the pullout pages and the timing diagram in Fig. 3-1. Each block in the block diagram is outlined on the schematics.

The TM 5006 uses a pulse width modulated switching supply for dc voltages. A 60 Hz transformer provides the ac voltages necessary for plug-in operation. Connections to the six plug-in compartments as well as the series pass transistors are shown on schematic 3 .

Line Selector and 60 Hz Transformer 1

Ac power is applied to the voltage select terminals through FL500 and a discrete line filter composed of T1050, L1030 and L1020. Line transients are filtered to ground through C1120 and C1140.

The two primary windings on T500 are connected in parallel for 115 V operation or in series for 230 V operation. Winding taps are provided for various line voltages around the nominal values. The secondaries provide ac voltages to the various plug-in compartments.

Rectifiers and Filters 1

The ac line voltage is applied through negative temperature coefficient resistances RT1000 and RT1200 to the rectifier diodes. As these resistances are highest when cold, the surge currents, charging the high voltage capacitors when line voltage is applied, are limited, thus preventing component failure. These resistors then self heat to a low resistance.

In 220 V operation the four diodes function as a bridge rectifier. See Fig. 3-2. When the voltage-select-circuit is set for 110 V operation, only the two series diodes operate. The circuit then becomes a voltage doubler with an output of approximately 350 V dc. The neon bulb in this circuit flashes to indicate when dc voltage is present.

The rectified and filtered dc is applied through L1320 and C1240, a low pass filter, and passes through R1430 and CR1540, to the collector of Q1640.

20 kHz Output Stage 1

The output stage is a half bridge type with proportional base drive. The turns ratios and phasing of T1740 are such that only a small amount of base drive power is needed to start conduction in either Q1640 or Q1650. Positive feedback from T1740 supplies base current for the remainder of the power cycle. When both base drive transistors, Q1730 and Q1731, (shown on schematic 2) are saturated, T1740 is essentially shorted, terminating base current for either output transistor. Output transistors Q1640 and Q1650 alternately conduct at a 20 kHz rate. Their on and off times are adjusted by the regulation circuitry. Diodes CR1550 and CR1551 prevent base to collector current flow in Q1640 and Q1650 at turn off. The base switching action of these transistors is improved by networks C1530 and R1530 for Q1640, and C1560 and R1460 for Q1650. A series resonant filter between the transistors and the output transformer, T1710, is composed of C1430 and L1440. During Q1640 and Q1650 off time, the tank current generated by L1440 and C1430 passes through CR1541 and CR1551.

The 20 kHz output voltage is stepped down to the correct levels by T1710.

Three sets of full wave diode rectifiers are provided for each of the three dc voltage outputs. Schottky diodes are used in the +8 V supply for reduced forward voltage drop. All filters are L-C pi-sections. Bleeder resistors are provided for all filter capacitors.

Control Logic and Drivers 2

U1840E and U1840F are inverting amplifiers. Their outputs control the base drive transistors Q1730 and Q1731. Collector voltage for these transistors is applied from the 10 V bus through a center tapped winding on the base drive transformer (T1740). Reverse polarities across Q1730 or Q1731 are prevented by CR1730 and CR1731. When either one or both of these transistors (Q1730, Q1731) are on, either one or both of the output transistors (Q1640, Q1650) are off. The bases of Q1730 and Q1731 are also controlled, through R1832 and R1950, by the collector of Q2240. During power up or power down, the collector of Q2240 goes positive. This action turns Q1730 and Q1731 on to turn the output transistors off. This is necessary as the control circuitry state is undefined during power up or power down.

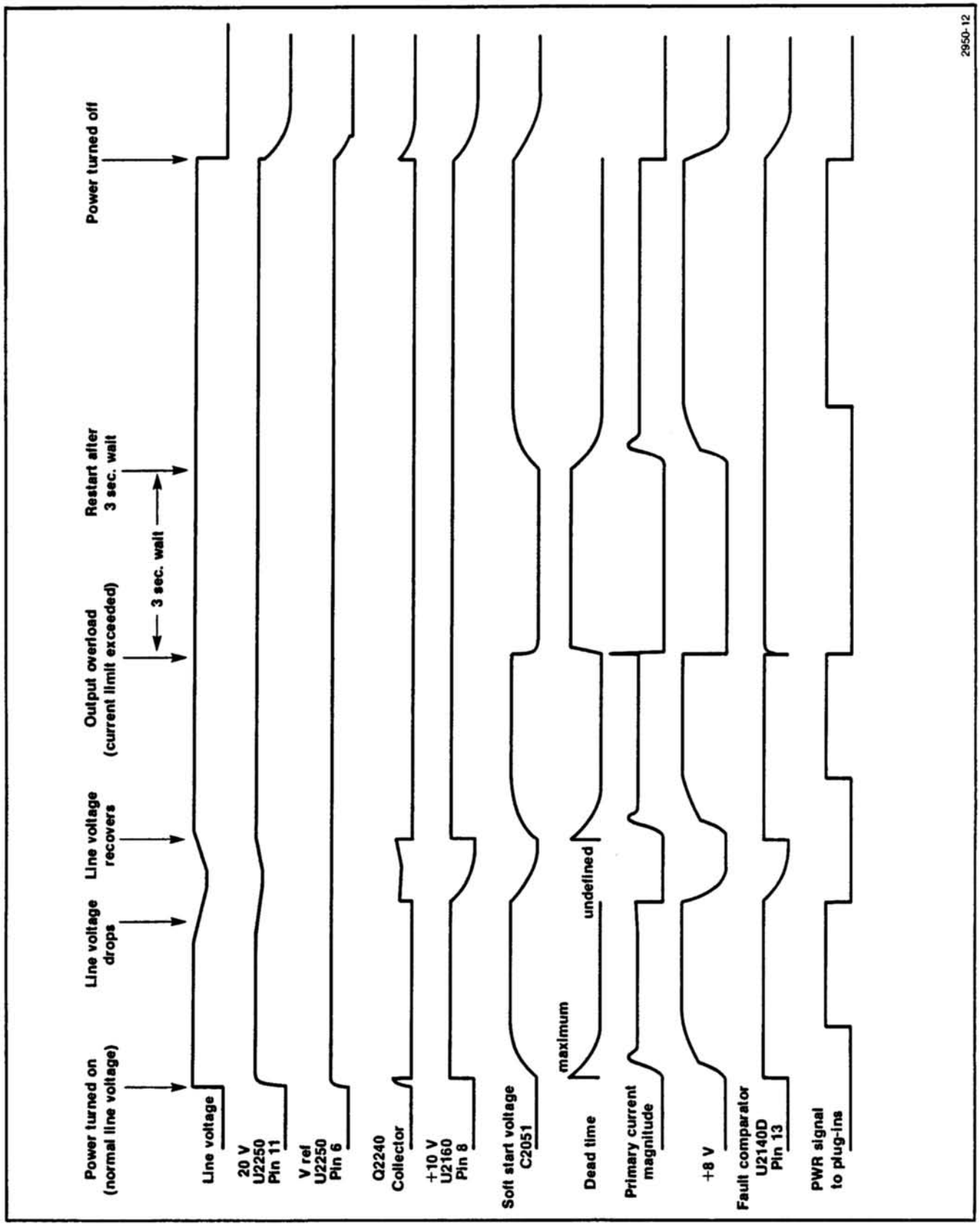


Fig. 3-1. Various waveforms and time relationships for power on, off, fault and low line.

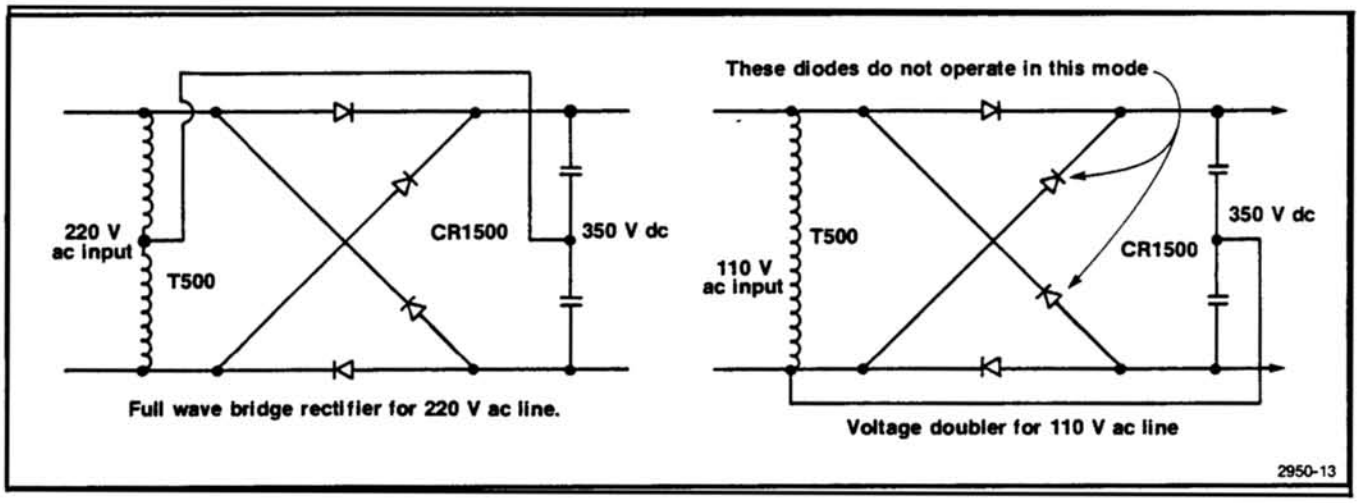


Fig. 3-2. Input line connections for 110 V and 220 V operation.

When pins 1 of U1950A and 13 of U1950B are low, no drive is applied to the output stage. With one gate output high and the other low, base drive is applied to one output transistor. Input pins 4 and 11 connect to the wait flip-flop, U1940A. Input pins 3 and 12 connect to U1940B, the dead time multivibrator. Input pins 5 and 10 connect to the output of the stop monostable, U1951A. Pins 2 and 9 connect to the complement outputs of the divide-by-2 flip-flop, U1951B. With any one or all of these inputs high, the output lines are low and no drive is applied to one or both of the output transistors.

The dead time multivibrator circuitry determines the minimum off time of the output transistors. Dead time is necessary to allow one output transistor to completely turn off before the other turns on. At start up, the A input (pin 12) of U1940B goes low. This allows U1940B to trigger on the clock signal at the B input (pin 11). The minimum timing period of U1940B, determined by R1930 and C2040, is 5 μs. This pulse width is lengthened by C2050, CR2040 and CR2043 as the voltage on C2051 and C2060 is decreased. The pulse width of the power supply output varies for soft start and power limit. When pin 10 of U1940B is high, both output transistors are off.

Dead time or output transistor off time is maximum with C2051 and C2060 discharged and minimum charged. The output power available gradually increases as these capacitors charge during soft start. The soft start keeps high input currents to capacitors from damaging circuit components. When pin 6 of the wait multivibrator U1940A goes high for any reason (fault), pin 8 of U1840D goes low discharging C2051 and C2060. Under normal operation, when power is turned on, C2051 and C2060 charge to the voltage at pin 8 of U1840D as determined by R1953 and R2060. This takes approximately 1/2 second.

The power limit control is R2060. For maximum power, this control must be in the fully clockwise position (maximum resistance). For servicing the control can be adjusted for reduced power output levels. This is accomplished by reducing the resistance of R2060, limiting the voltage across C2051 and C2060.

The purpose of flip-flop U1951A is to vary the on time of the output transistors consistent with the output voltage level. When pin 6 of U1951A goes high, pin 1 also goes high. This action shuts down the base drive circuitry, reducing power output. The length of time pin 6 remains high is controlled by the Output Regulator circuitry. The rising portion of the waveform at pin 4 of U1951A resets the flip-flop for a low condition at pin 1.

Flip-flop U1951B divides the 40 kHz output waveform from U1940B to 20 kHz. The pulse from the dead time multivibrator, U1940B, is applied to the clock terminal (pin 11) of U1951B. The Q terminal of U1951B is connected to its D input. The multivibrator U1951B toggles on the rising edges of the dead time multivibrator (U1940B) output.

Output Regulator ◇2

The 40 kHz clock oscillator, which provides the basic timing necessary for the control circuitry, is composed of U1840A, B and C. Feedback goes from pin 6 of U1840C and pin 4 of U1840B to pin 1 of U1840A. The output voltage at pin 4 of U1840B is high for about 4 μs and low about 21 μs. This non-symmetrical duty cycle is accomplished by CR1850 and is necessary for proper operation of U1940B.

The positive going output pulses from the clock oscillator charge C2150 to about 9.5 V through CR2042. When the positive pulse at pin 4 of U1840B drops to 0 V, C2150 discharges through R2050 causing a falling ramp waveform of about 50 mV peak-to-peak amplitude to appear at pin 4 of U2140A.

The +8 V from the power supply output is applied to voltage adjust potentiometer R2151. The voltage on pin 4 of U2140A is +7.15 V, the reference voltage generated in U2250. Also, on pin 4 is a negative going 40 kHz ramp, as previously described. This ramp is ac coupled to pin 4 through C2140. On the rising edge of each clock pulse, the ramp goes positive rapidly. Pin 2 of U2140A is low. At some point, during the ramp decay, the ramp voltage and the feedback voltage at pin 5 are equal. At this point, pin 2 goes high, terminating the drive pulse through the logic circuitry. The higher the output voltage, the earlier in the ramp cycle pin 2 goes high.

Overvoltage and Overcurrent Detectors ◇2◇

Pin 11 of U2140D, the negative over-voltage-detector, connects to a voltage divider between the −26 V supply and the reference +7.15 V. Should pin 11 go more negative than pin 10, pin 13 goes low shutting off the output. The input of U2140D is protected from a negative voltage by CR2130.

Primary current in output transformer T1710 flows through T1750 ◇1◇. The secondary voltage of T1750 is proportional to the primary current. The secondary voltage of T1750 is rectified by CR1860, CR1861, CR1862 and CR1863 and terminated in R1860. When the primary current in T1750 exceeds the point where the voltage at pin 6 of U2140B exceeds the 7.15 V reference at pin 7, pin 1 goes low turning off the output transistors via the wait multivibrator.

The +26 V is applied through R2231 and CR2240 to pin 8 of U2140C, the positive over voltage detector. The +8 V is also applied through R2130 and CR2230 to pin 8. Pin 9 of comparator U2140C connects to the +7.15 V reference voltage. If pin 8 of U2140C goes more positive pin 14 goes low. This action triggers U1940A the wait multivibrator, turning the supply off for about 3 seconds. The soft start cycle follows. This negative going pulse is time delayed by R2040 and C2052.

When +10 V is applied at power up, C1940 holds pin 3 (clear) of U1940A low for a short period. This over-rides the A and B inputs of U1940A, causing pin 6, the Q output, to remain low. Over-voltage or over-current causes a low at pin 4 of U1940A causing one high level pulse of about 3 seconds duration at pin 6. This 3-second pulse duration time is determined by C1930 and R1931. The clock pulse retriggers U1940A if the fault persists. The purpose of CR1950 is to discharge C1940 when ac power is removed from the supply. Noise from the limit circuitry is filtered by C2052.

Control Circuit Regulator ◇2◇

The 16 Vac winding on T500 is applied through F2340 to rectifier diode CR2341, which charges filter capacitor C2260 to approximately 20 V. The +20 V is applied to voltage regulator U2250. This regulator outputs two voltages: +10 V which is used throughout the entire supply, and +7.15 V, a reference voltage, at pin 6.

The line detector circuitry is composed of CR2340, C2350, Q2240 and associated components. When normal line voltage is applied, the voltage across C2350 is approximately 20 V. Transistor Q2240 is on and pin 2 of U2250 is about 0.2 V above ground. If about two cycles of line voltage are missed or the line voltage goes low, Q2240 no longer saturates. The collector of Q2240 rises, disabling the series pass transistor located internally in U2250. This series pass transistor is effectively connected between pins 11 and 10 of U2250. The +10 V is removed from the power supply during line drop out to prevent discharge of the main filter capacitors in the output stage. Positive feedback is provided through R2241 to the base of Q2240 to improve the switching action.

The PWR signal circuitry (U2160) provides a signal to each compartment in the power module to give power supply status information to the plug-ins. See the rear interface information part of the Maintenance section (Section 5) of this manual for timing information.

Pin 7 of U2160 goes low when the rising voltage at pins 2 and 6 reaches 2/3 of the value of the voltage connected to pin 4 (+10 V). Pin 7 of U2160 connects to the base of Q1525 ◇3◇. This transistor inverts the signal from pin 7 to the plug-in compartments.

When the line power goes low or off, pin 13 of U2250 goes low. This action raises pin 7 of U2160 turning off the PWR signal. Pin 7 of U1940A is also low during the 3 second wait state. The cathode of CR2150 is pulled low which turns off the PWR signal.

The soft start feature also controls the PWR signal. This is accomplished through R2061.

When a fault occurs, pin 6 of U1940A goes high. When the fault is removed pin 6 of U1940A goes low causing pin 8 of U1840D to go high. As the voltage at the junction of R2061 and R1953 goes high pins 6 and 2 of U2160 also go high causing the PWR signal to go high.

Main Interface ◇3◇

The various ac and dc supply voltages as specified are available at the rear interface connectors for each plug-in compartment. Each compartment has a PNP and an NPN transistor intended as series pass elements. Connecting pins to these elements are shown on the schematic.

CALIBRATION

PERFORMANCE CHECK PROCEDURE

Introduction

This procedure checks the Electrical Performance Requirements as listed in the Specification section in this manual. Perform the internal adjustment procedure if the instrument fails to meet these checks. If recalibration does not correct the discrepancy. circuit troubleshooting is indicated. Also, use this procedure to determine acceptability of performance in an incoming inspection facility.

Performance check may be done at any ambient temperature between 0° C and +50° C.

Test Equipment Required

The test equipment listed in Table 4-1, or equivalent, is suggested to perform the performance check in the adjustment procedure.

WARNING

Dangerous voltages are present inside this instrument. Exercise caution as this procedure requires removal of the power supply cover.

Test Loads for the Performance Check Procedure

To do the performance check procedure, the supplies must be loaded. Maximum load for the +8 V supply is 18A and for the 26 V supplies 6A. Maximum dissipation from these loads is 144 W and 156 W. The total power draw from any combination of the +8 V and ±26 V supplies is 180 W or 30 W per compartment. Figure 4-1 shows suggested loads. Any combinations of resistors with sufficient dissipation is satisfactory. Connect the loads to the instrument with not over 1.5 feet for each lead. Use 12 AWG for the 8 V load and 16 AWG for the 26 V load. The ground lead should not exceed 1.5 feet of #12 AWG or larger. For convenience, use quick disconnect terminals to connect the loads to the voltage buses in the instrument (Tektronix Part No. 131-1563-00).

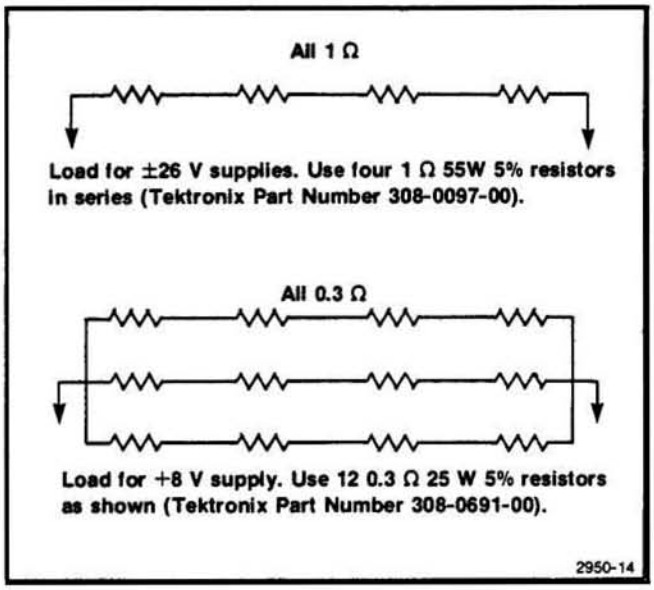


Fig. 4-1. Possible loads for use in performance check procedure. See text.

PERFORMANCE CHECK SUMMARY SHEET

This sheet may be duplicated and used as a short form performance check procedure. Perform the check and record the reading in the "Measured" column. Compare the reading with the upper and lower limits. After maintenance or adjustment again perform the procedure and compare the readings.

Date _____

Serial Number _____ Tested by _____

Step	Description	Minimum	Measured	Maximum

Table 4-1

SUGGESTED TEST EQUIPMENT

Description	Minimum Requirements	Performance Check Step	Adjustment Procedure Step	Recommended Equipment
Digital Multimeter	+8 V, −26 V, +26 V	All	1	TEKTRONIX DM 505
Test Load Unit		All		See text
Variable Voltage Transformer	1000 VA capability	All	1	VARIAC W10MT3W Autotransformer, General Radio USA

CAUTION

As considerable heat is generated in the test loads do not apply power longer than necessary to complete tests.

1. Check +26 Vdc

a. Connect the test equipment as shown in Fig. 4-2. Adjust the line voltage to the TM 5006 for 10% below the nominal line voltage. (Nominal line voltage is the line voltage the instrument is set to operate on.)

b. Set the +26 V load for maximum.

c. CHECK—that the dvm reads from +23.7 V to +28.3 V.

d. Change the line voltage to 7% above nominal.

e. Remove the load from the supply.

f. Set the +8 V load for maximum.

g. CHECK—that the +26 V supply reads from +23.7 V to +28.3 V.

h. Remove the connections to the +26 V bus for the next step.

2. Check −26 Vdc

a. Connect the test equipment as shown in Fig. 4-2. Adjust the line voltage to the TM 5006 for 10% below the nominal line voltage.

b. Set the −26 V load for maximum.

c. CHECK—that the dvm reads from −23.7 V to −28.3 V.

d. Change the line voltage to 7% above the nominal line voltage.

e. Remove the −26 V load from the supply.

f. Set the +8 V load for maximum.

g. CHECK—that the supply reads from −23.7 V to −28.3 V.

h. Remove the connections to the −26 V bus for the next step.

3. Check +8 Vdc

a. Connect the test equipment as shown in Fig. 4-2. Adjust the line voltage to the TM 5006 for 10% below the nominal line voltage.

b. Set the +8 V load for maximum.

c. CHECK—that the dvm reads from +7.6 V to +8.5 V.

d. Change the line voltage to 7% above the nominal.

e. Remove the load from the supply.

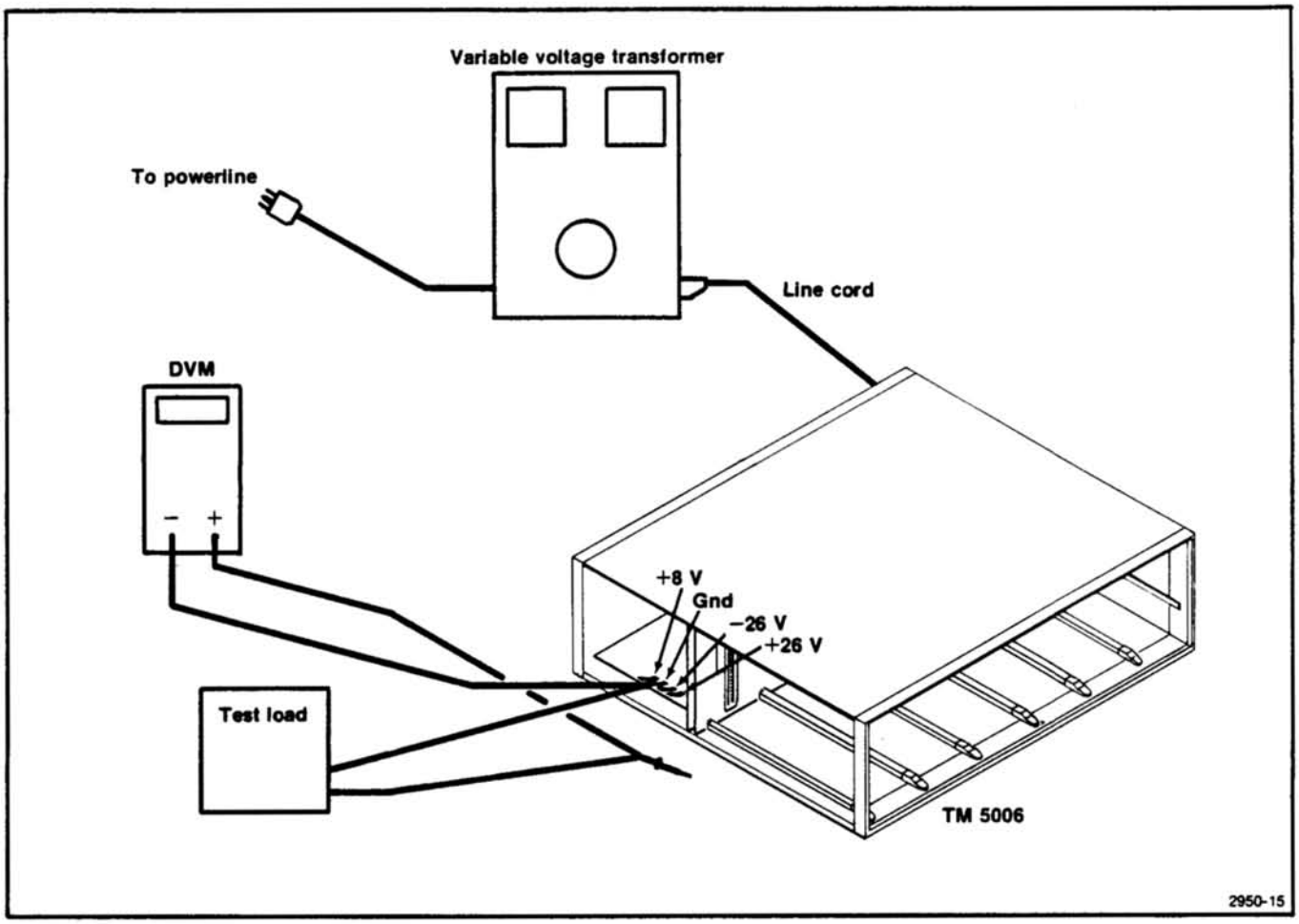


Fig. 4-2. Test setup for performance check steps 1, 2 and 3 and location of connections for adjustment step 1.

f. CHECK—that the supply reads from +7.6 V to +8.5 V.

g. Remove all connections.

h. This completes the Performance Check Procedure.

INTERNAL ADJUSTMENT PROCEDURE

Introduction

This procedure should be performed if the instrument fails to meet the performance requirements of the electrical characteristics listed in the Specification section of this manual. To ensure continued instrument accuracy, it is recommended that adjustment be performed every 1000 hours of operation or every 6 months if used infrequently. Adjustment is also recommended following instrument repair or modification. Adjustments must be made in an ambient temperature of +20° C to +30° C.

Services Available

Tektronix, Inc. provides complete instrument repair and adjustment at local field service centers and at the factory service center. Contact your local Tektronix field office or representative for further information.

Test Equipment Required

Test equipment (or equivalent) listed in Table 4-1 is required for adjustment of the TM 5006. Specifications given for the test equipment are the minimum necessary for accurate adjustment. All test equipment is assumed to be correctly calibrated and operating within specification. If other test equipment is substituted, the calibration setup may need to be altered to meet the requirements of the equipment used.

Adjustment Access

Remove the top and lift side covers to gain access to the +8 V buses, ground buses and the adjustments. Figure 4-4 shows the adjustment locations.

Power Limit Adjustment

The Pwr Lim adjustment, R2060, is used for troubleshooting only. Before beginning calibration make certain this adjustment is fully cw.

1. Adjust 8 V Adj

a. Connect the dvm to the +8 V and Gnd terminals as shown in Fig. 4-2. The voltage bus location is shown in Fig. 4-5.

b. Set the line voltage to nominal for the selected range.

c. CHECK—for a reading of 8.2 V.

d. ADJUST—R2151, 8 V Adj for a dvm reading of 8.2 V.

2. Adjust clock Oscillator (SN B021520 and above)

a. Set the line voltage to 88% of the nominal value for the selected range.

b. Connect a frequency counter to pin 1, U1950.

c. ADJUST—R1855 for a reading of 20 kHz on the counter.

d. Connect a load as described in Fig. 4-3 from +8V to ground.

e. Connect a load as described in Fig. 4-3 from +26V to ground.

f. Connect a load as described in Fig. 4-3 from -26V to ground.

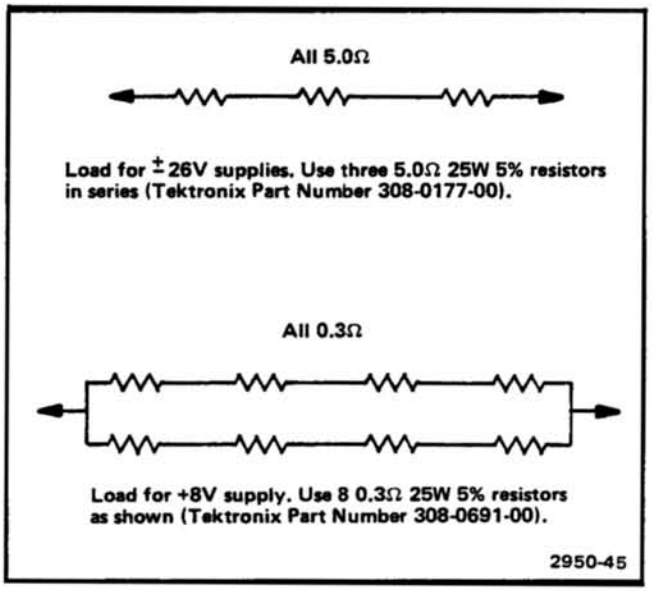


Fig. 4-3. Loads for use in internal adjustment procedure.

g. ADJUST—R1855 slowly cw until the dvm reading just begins to decrease. Note the frequency reading on the counter.

h. ADJUST—R1855 ccw for a counter reading 0.25 kHz lower than the reading noted above.

i. Remove all connections.

This completes the internal adjustment procedure.

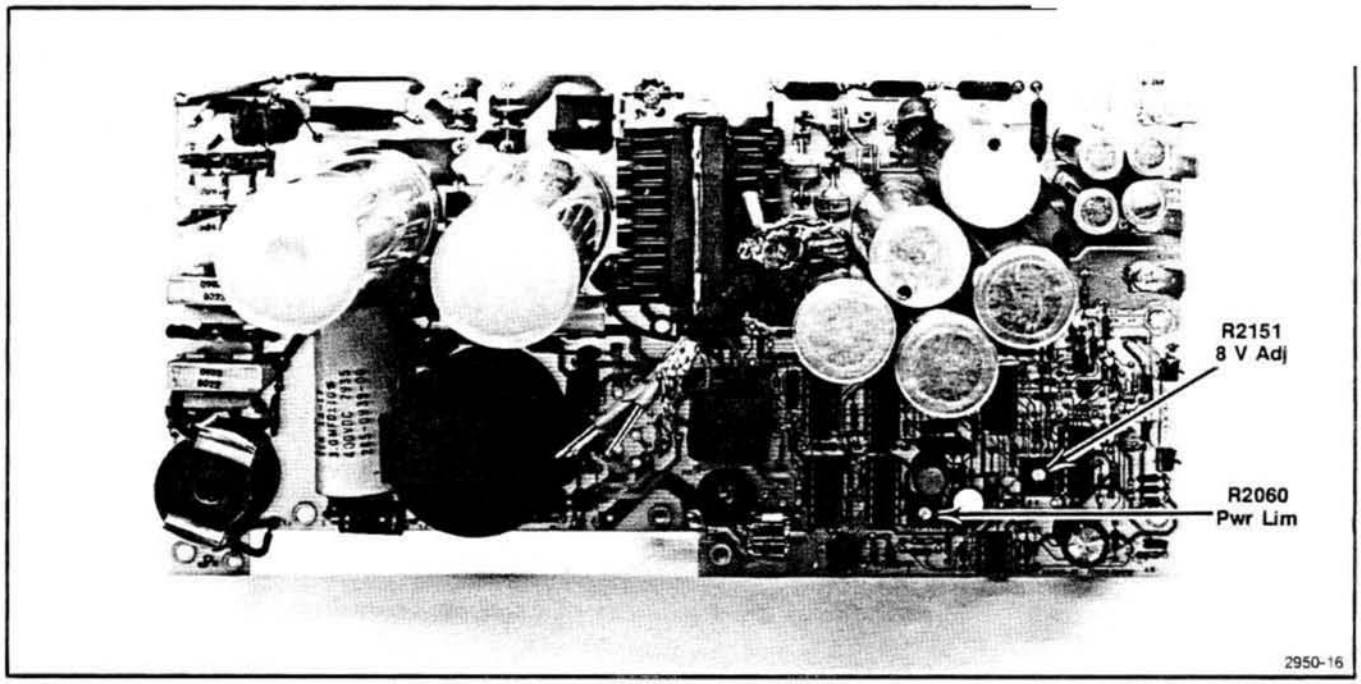


Fig. 4-4. Adjustment location illustration.

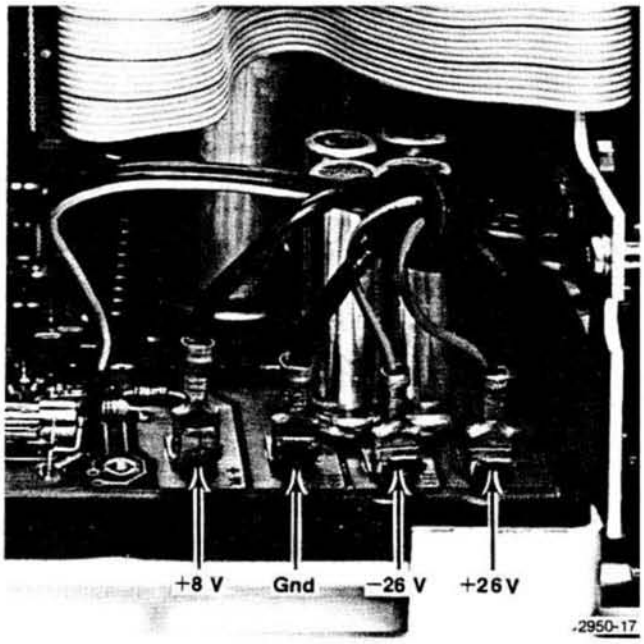


Fig. 4-5. Location of voltage buses.

MAINTENANCE

Line Voltage Selection

Figure 5-1 illustrates the line cord options available for the TM 5006. Fuse data is printed on the rear panel and in the Specification section of this manual. After determining the nominal line voltage, refer to Fig. 5-2 for proper jumper positions. Select the line voltage closest to the nominal for the range used.

Static Sensitive Components

CAUTION

Static discharge can damage any semiconductor component in this instrument.

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

Observe the following precautions to avoid damage:

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

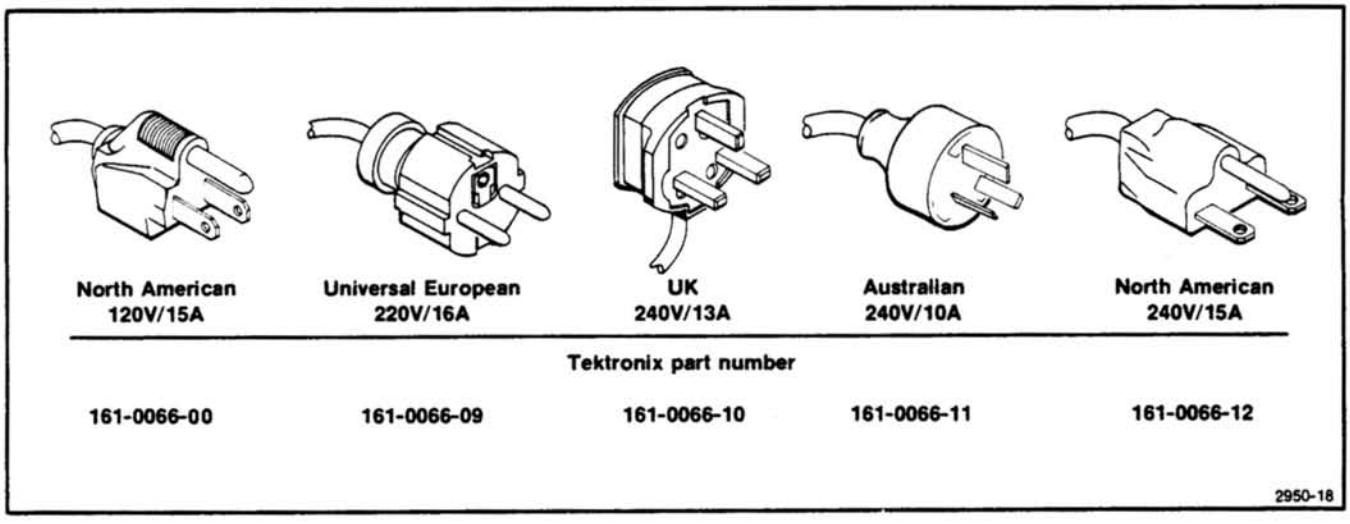


Fig. 5-1. Line cord options for the TM 5006.

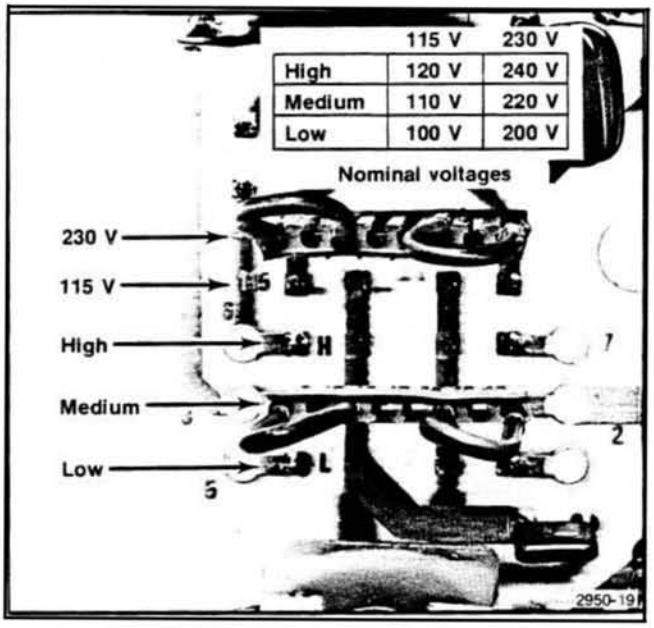


Fig. 5-2. Line voltage jumper positions.

Table 5-1

RELATIVE SUSCEPTIBILITY TO STATIC DISCHARGE DAMAGE

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

[1] Voltage equivalent for levels:

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

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

Cleaning

This instrument should be cleaned as often as operating conditions require. Loose dust accumulated on the outside of the instrument can be removed with a soft cloth or small brush. Remove dirt that remains with a soft cloth dampened in a mild detergent and water solution. Do not use abrasive cleaners.

The best way to clean the interior is to blow off the accumulated dust with dry, low-velocity air (approximately 5 lb/in^2) or use a soft brush or cloth dampened with a mild detergent and water solution.

CAUTION

Circuit boards and components must be dry before applying power.

Obtaining Replacement Parts

Electrical and mechanical parts can be obtained through your local Tektronix Field Office or representative. However, it may be possible to obtain many of the standard electronic components from a local commercial source. Before purchasing or ordering a part from a source other than Tektronix, Inc., check the Replaceable Electrical Parts list for the proper value, rating, tolerance, and description.

NOTE

When selecting replacement parts, remember that the physical size and shape of a component may affect its performance in the instrument.

Some parts are manufactured or selected by Tektronix, Inc. to satisfy particular requirements or are manufactured for Tektronix, Inc. to our specifications. Most of the mechanical parts used in this instrument have been manufactured by Tektronix, Inc. To determine the manufacturer, refer to the Replaceable Parts list and the cross reference index, Mfr. Code Number to Manufacturer.

When ordering replacement parts from Tektronix, Inc., include the following information:

1. Instrument type and option number.

2. Instrument serial number.

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

4. Tektronix part number.

Soldering Techniques

WARNING

To avoid electric shock hazard, disconnect the instrument from the power source before soldering.

The reliability and accuracy of this instrument can be maintained only if proper soldering techniques are used when repairing or replacing parts. General soldering techniques which apply to maintenance of any precision electronic equipment should be used when working on this instrument. Use only 60/40 rosin-core, electronic grade solder. The choice of soldering iron is determined by the repair to be made.

When soldering on circuit boards or small wiring, use only a 15 watt, pencil type soldering iron. A higher wattage soldering iron can cause the etched circuit wiring to separate from the board base material and melt the insulation from small wiring. Always keep the soldering iron tip properly tinned to ensure the best heat transfer to the solder joint. Apply only enough heat to remove the component or to make a good solder joint. To protect heat sensitive components, hold the component lead with a pair of long-nose pliers between the component body and the solder joint. Use a solder removing wick to remove excess solder from connections or to clean circuit board pads.

Semiconductors

To remove in-line integrated circuits use an extracting tool. This tool is available from Tektronix, Inc.; order Tektronix Part No. 003-0619-00. If an extracting tool is not available, use care to avoid damaging the pins. Pull slowly and evenly on both ends of the integrated circuit. Try to avoid disengaging one end before the other end.

Multipin Connectors

The pin connectors used to connect the wires to the interconnecting pins are clamped to the ends of the wires. To replace damaged multi-pin connectors, remove the old pin connector from the holder. Do this by inserting a scribe between the connector and the holder and prying the connector from the holder. Clamp the replacement connector to the wire. Reinstall the connector in the holder.

If the individual end lead pin connectors are removed from the plastic holder, note the order of the individual wires for correct replacement in the holder. For proper replacement see Fig. 5-3.

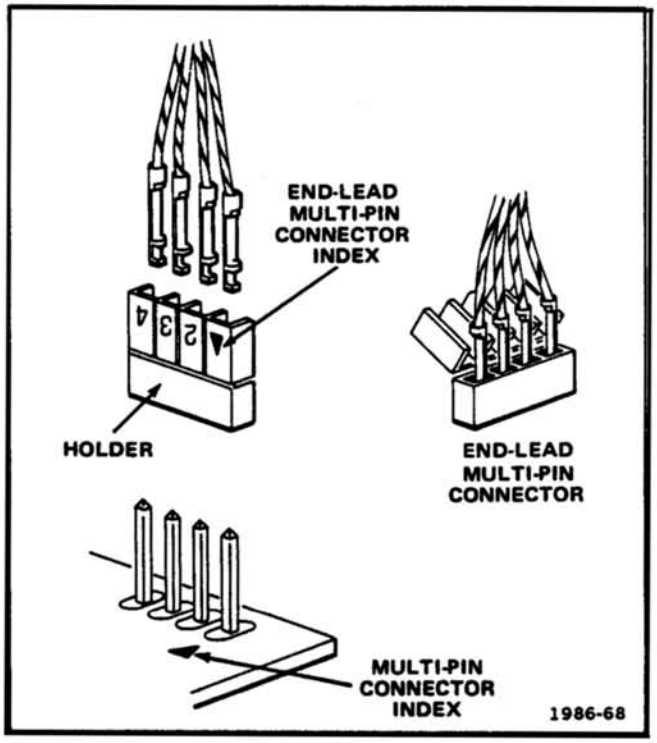


Fig. 5-3. Orientation and disassembly of multipin connector.

Instrument Disassembly

WARNING

Use caution when operating this instrument with the side panels removed as dangerous voltages are present.

To remove the top, bottom and side panels, remove the four screws attaching the feet to the rear of the instrument and slide the panels to the rear. See Fig. 5-4. To remove the interface circuit board, remove the plug-in guide rails and air baffles shown in Fig. 5-5. Next remove the interface circuit board support by removing the screws shown in Fig. 5-6 and Fig. 5-10. Before removing the main interface circuit board, make certain the connections to the board are either unplugged or unsoldered. Remove the six screws holding the board to the mainframe. See Fig. 5-7. To remove the rear panel, remove the screws shown in Fig. 5-8. After these screws are removed, the rear panel may be laid back for easier access to the dc power supply board. After removing the rear panel, the dc power supply circuit board may be removed. Remove the seven screws shown in Fig. 5-9.

WARNING

Dangerous voltages may be present on the filter capacitors on the dc power supply board for several minutes after line voltage removal.

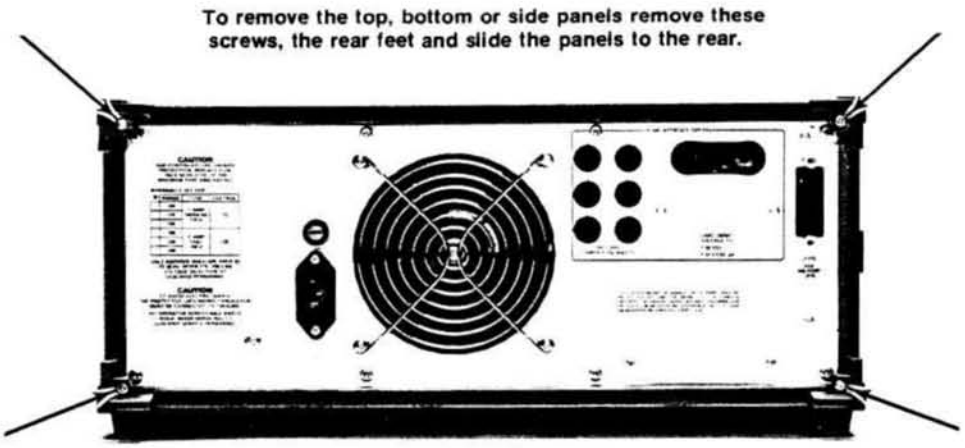


Fig. 5-4. Outer panel removal.

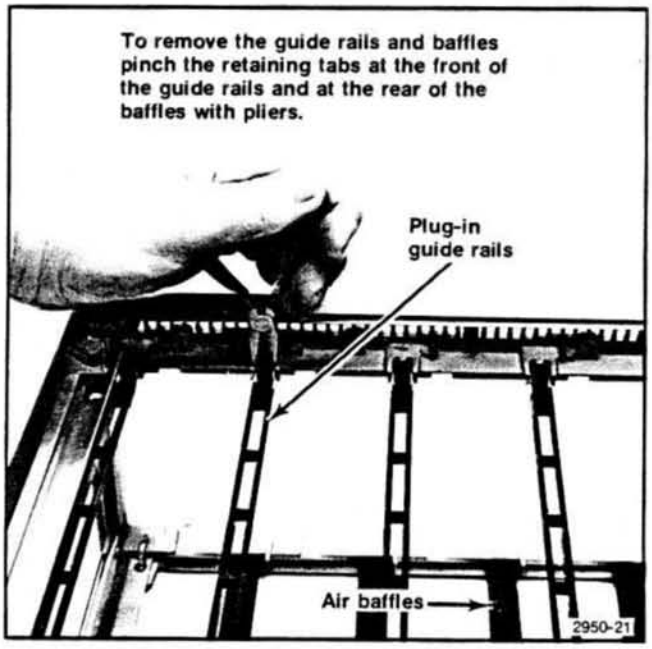


Fig. 5-5. Guide rail and air baffle removal.

To gain access to the bottom of the dc power supply boards, remove the screws as shown in Fig. 5-10. To remove the heat sink first unsolder the wires to the high power series-pass transistors, as shown in Fig. 5-11. Unplug the wires to the series-pass transistors mounted on the heat sink. The circuit numbers for the series-pass transistors are shown in Fig. 5-12. When reinstalling the connections to the series-pass transistors, make certain the connections are correct. The screws holding the heat sink to the circuit board are shown in Fig. 5-13. The heat sink can be removed from the circuit board by removing the four screws attaching the sink to the circuit board, two screws through the fan housing, and disconnecting any remaining wires.

To remove the transformer assembly, remove the screws as shown in Figs. 5-10 and 5-14.

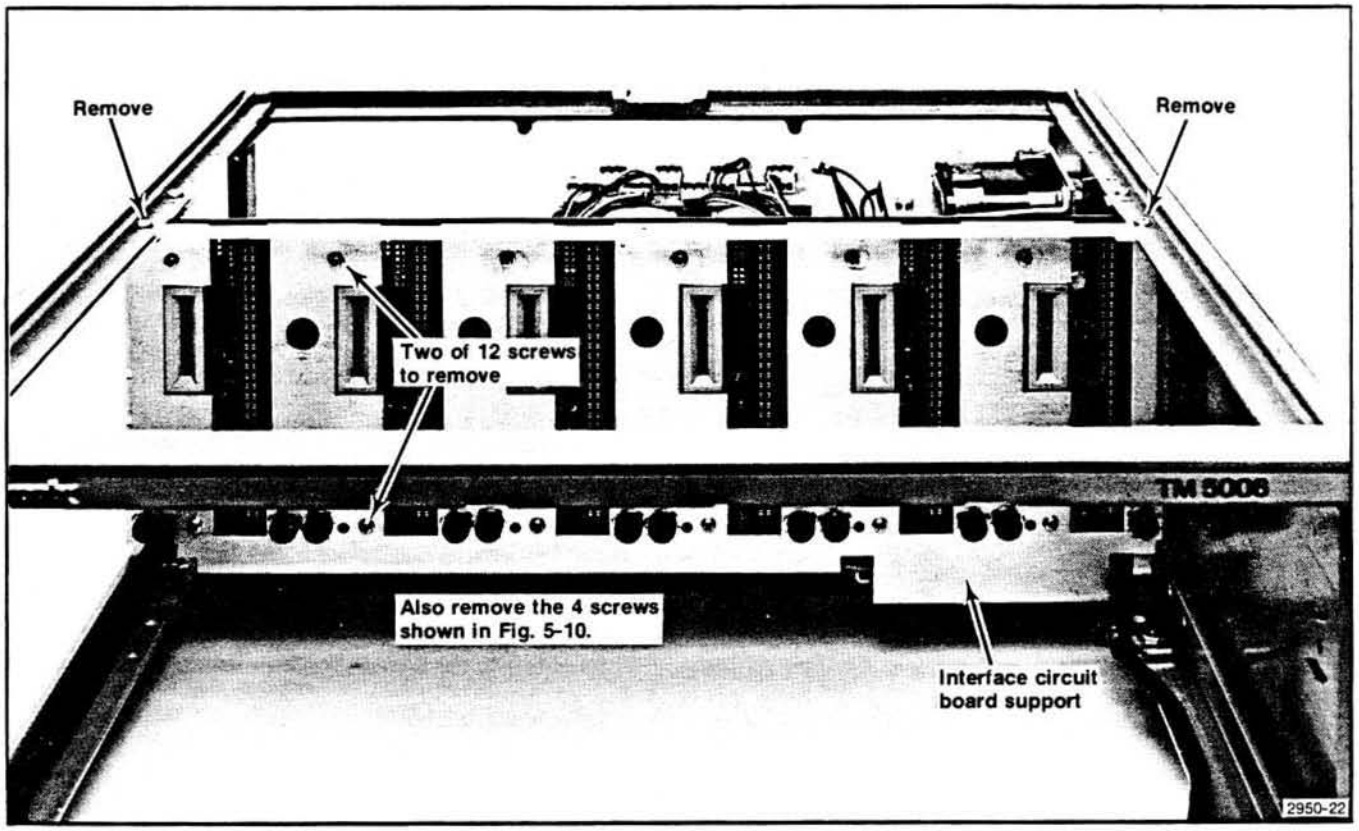


Fig. 5-6. Removal of interface circuit board support.

Circuit Troubleshooting

To help locate a fault in the dc power supply, first disconnect P2330. The location of this plug on the interface board may be determined from the parts location grids located in the pullout pages at the rear of this manual. Make certain the line selector is properly set. Connect the power module to a variable voltage transformer. Slowly apply line voltage to the power module. Observe the indicator lamp DS1600. The location of this lamp may be determined from the parts location grids, also. If the lamp flashes at a regular rate, the high voltage (≈300 Vdc) supply is probably operating properly. Turn off the line power. Turn the Pwr Lim (R2060) fully ccw. The location of this control is shown in the parts location grid. Replace P2330. Connect a dvm across the 8 V bus. Apply ac line power at the nominal line voltage to the power module. Slowly turn the Pwr Lim control R2060 cw and observe the dvm reading. The dvm should read from about 7.5 V to about 8.5 V when R2060 is fully cw. Next adjust the +8 V Adj, R2151, for exactly 8.20 V at no load with nominal line voltage. Next, check the voltage across R1860, the current sense resistor. This should be from about 0.2 V to about 0.4 V. Verify the current limit by shorting out any of the voltage buses and noting the recovery of the supply after about a 3 second delay. Check the +26 V outputs for limits within specification.

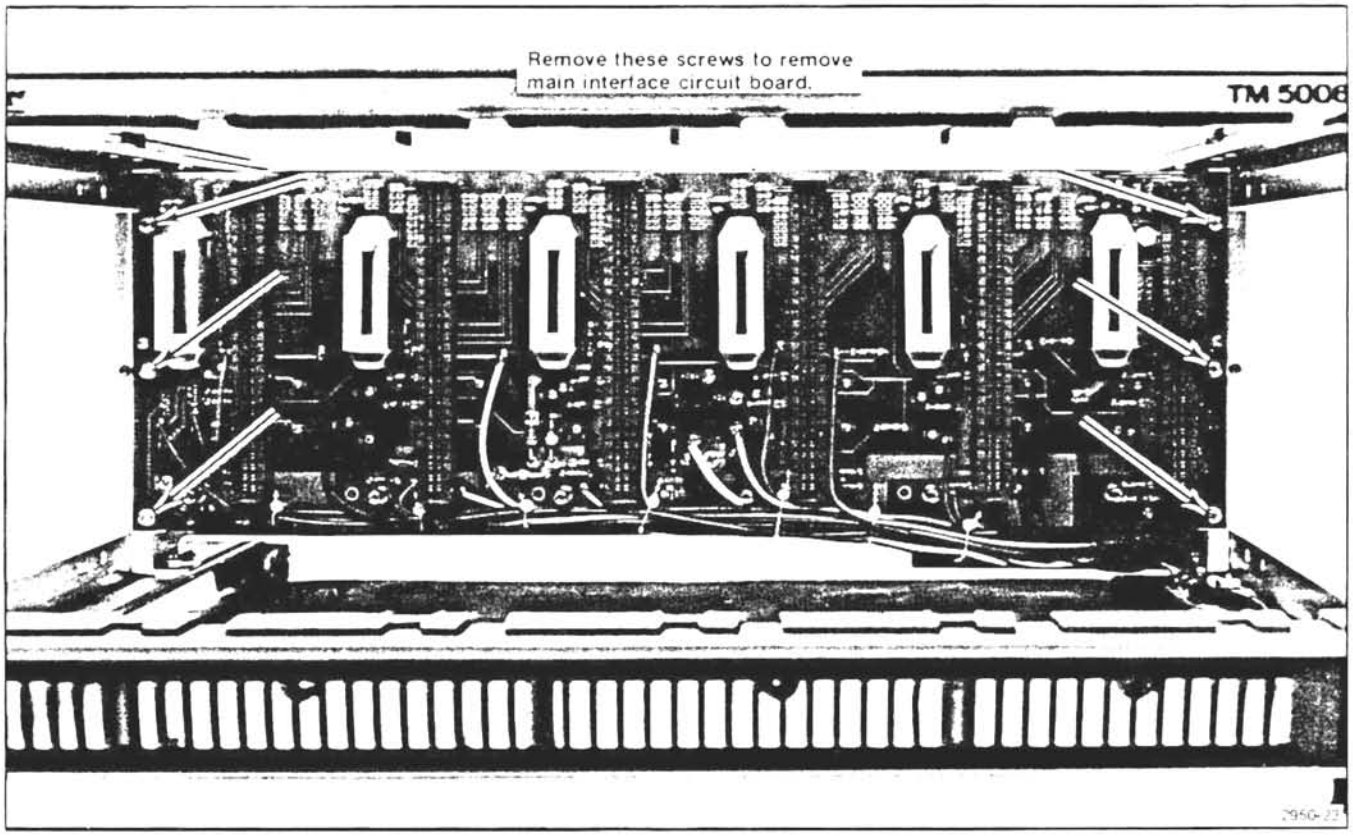


Fig. 5-7. Main interface circuit board removal.

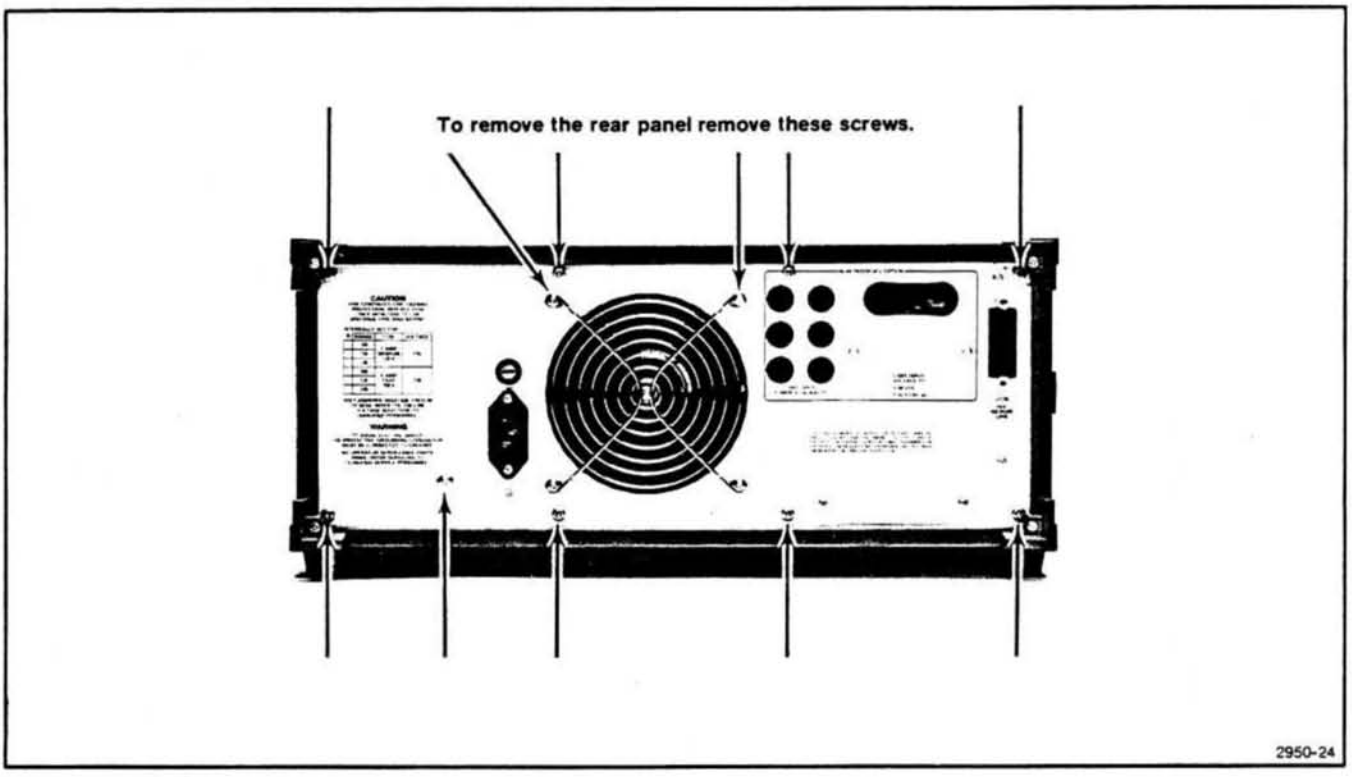


Fig. 5-8. Rear panel removal.

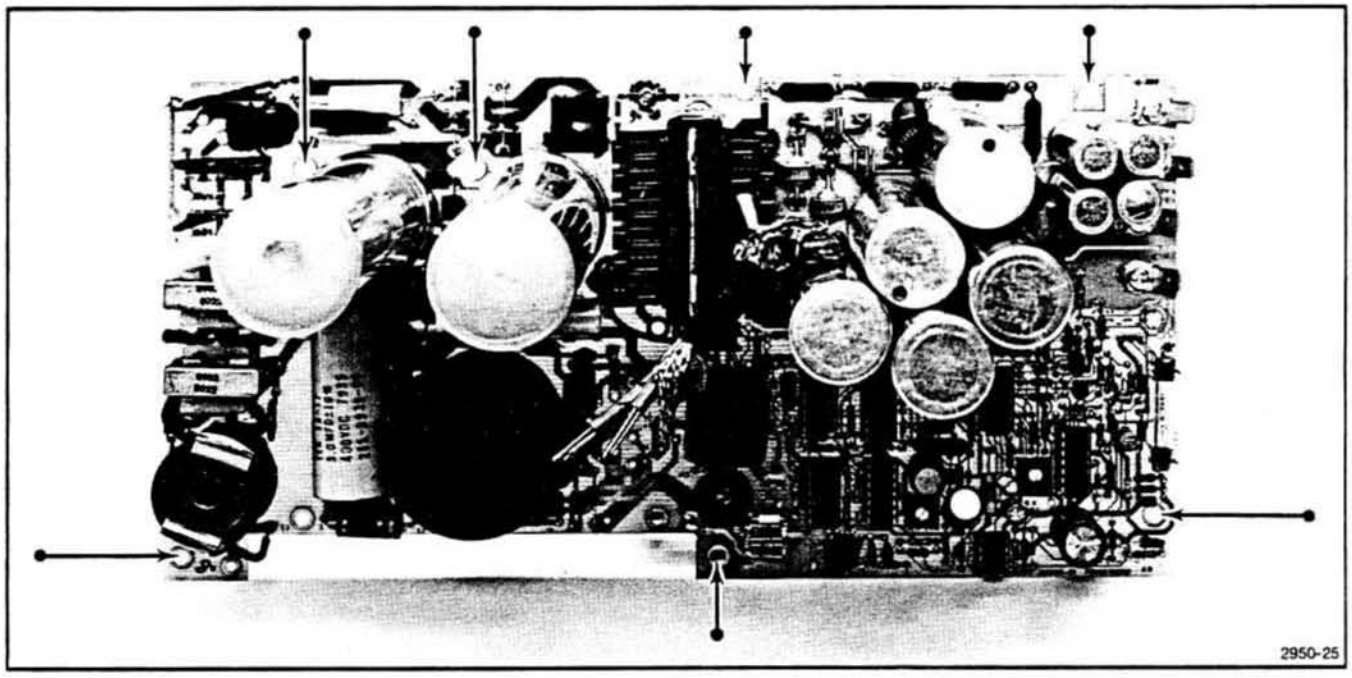


Fig. 5-9. Location of screws holding the dc power supply circuit board to the mainframe chassis.

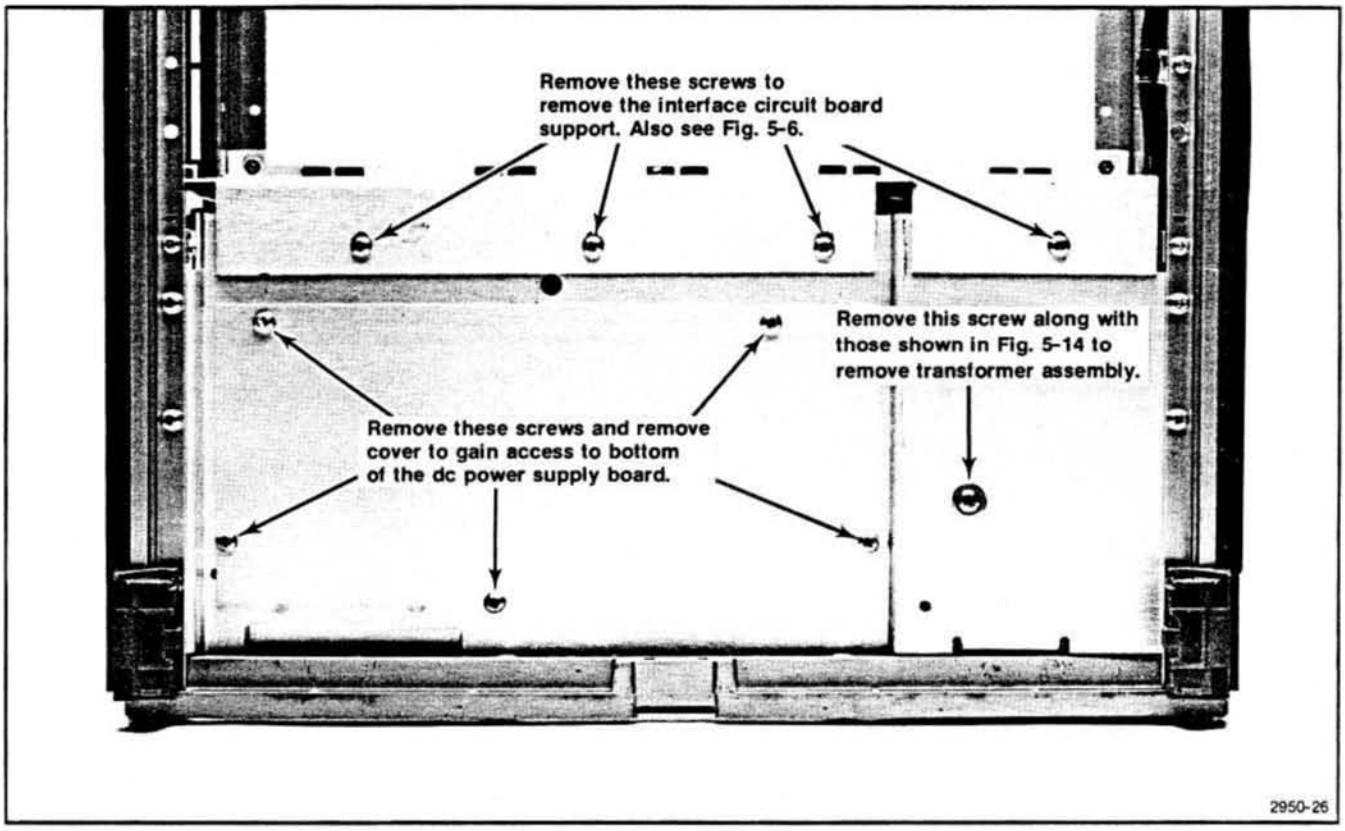


Fig. 5-10. Attaching screws on bottom of mainframe.

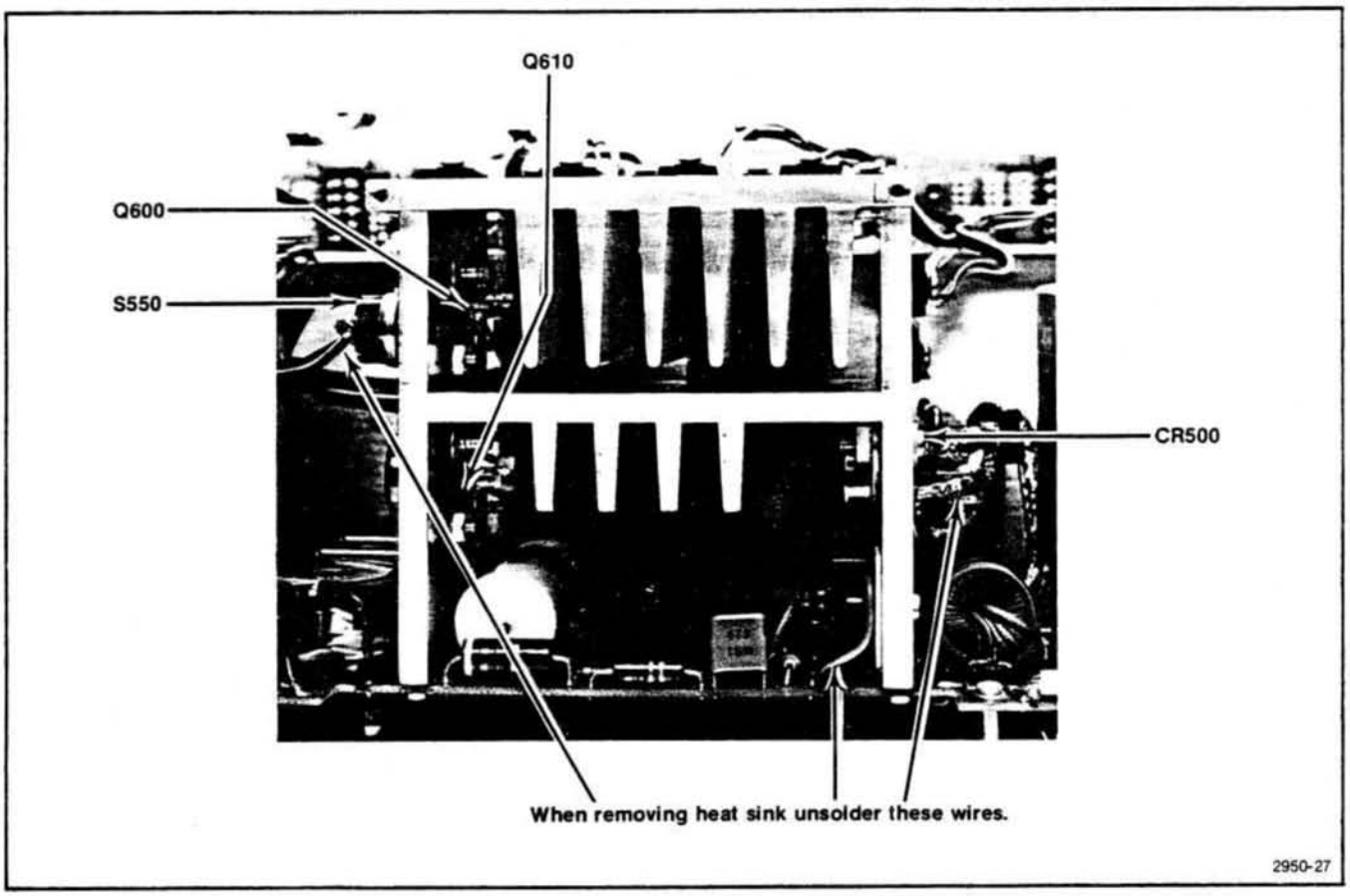


Fig. 5-11. Unsolder these wires to remove heat sink.

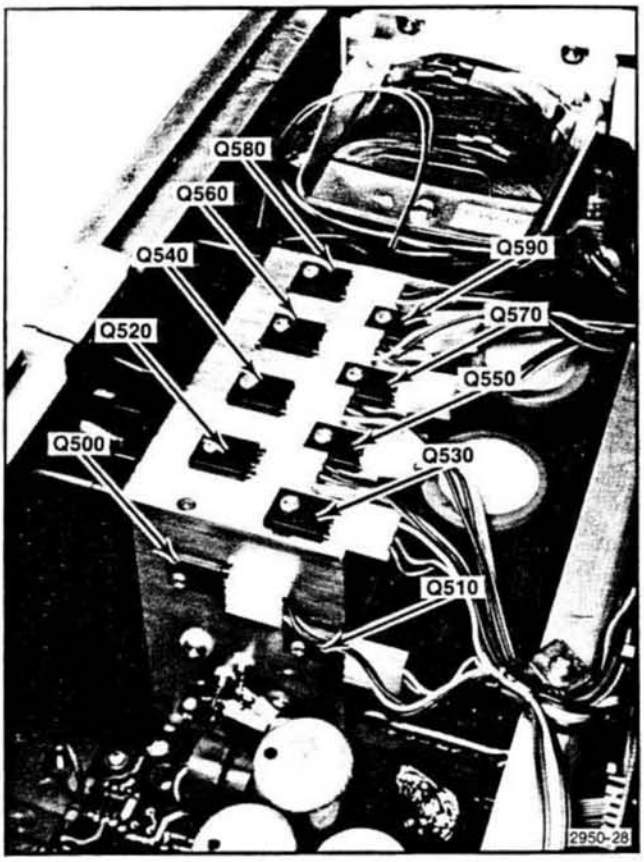


Fig. 5-12. Series pass transistor locations. The high power compartment series pass transistors Q600 and Q610 are on the right side of the heat sink. Q600 is the upper transistor.

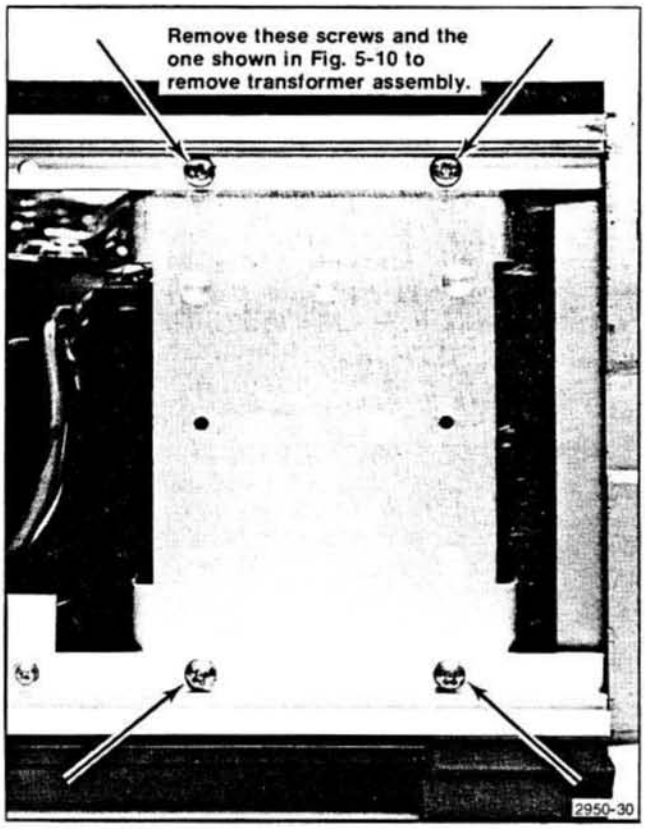


Fig. 5-14. Transformer assembly attaching screws.

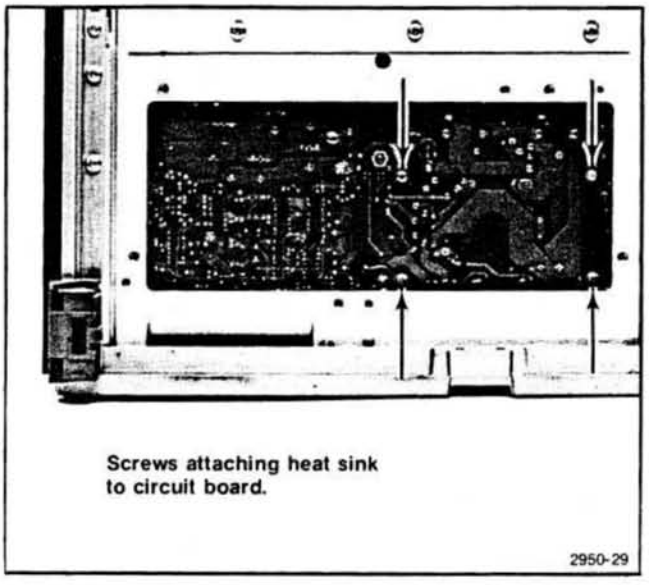


Fig. 5-13. Screws holding heat sink to circuit board.

REAR INTERFACE INFORMATION

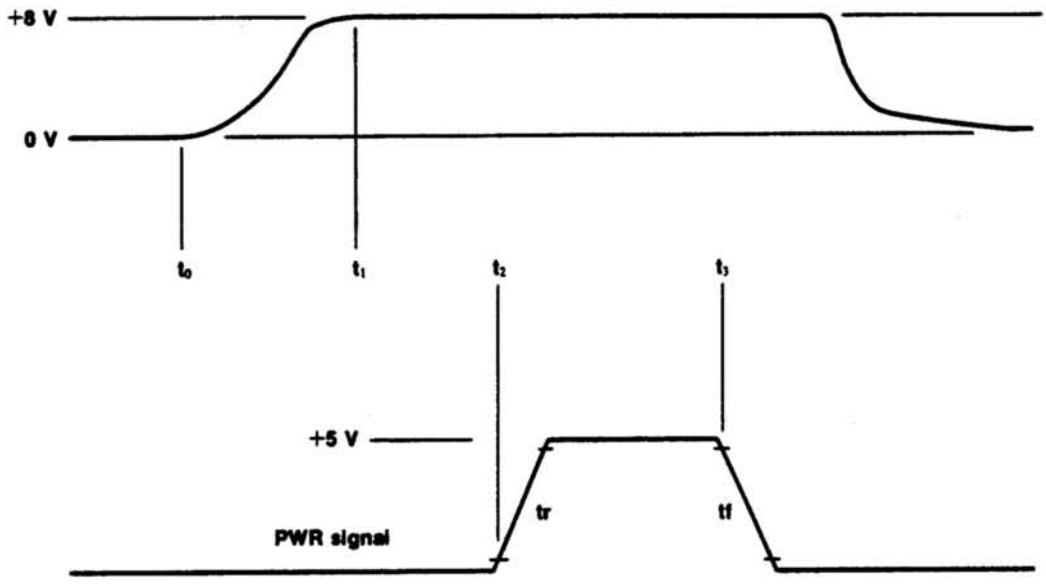
PWR Indicator

A signal out on pin 6B on the rear interface connector provides the plug-ins with power supply status information. See Fig. 5-15. This signal is TTL compatible with ≤30 Ω output impedance. The maximum plug-in load per compartment is one standard TTL load. No pull-up resistors are allowed. The maximum capacitance per compartment must not exceed 150 pF. The fall and rise time (tf and tr) is ≤20 μs.

Pin Assignments

Figure 5-16 shows the pin assignments for the power module outputs. Pins 14 through 28 are reserved for signal connections. See Sections 2 and 6 of this manual and the plug-in manuals for further information.

Figure 5-17 shows the pin assignments for the GPIB rear panel connector.



t_0 mainframe power switch is turned on.

t_1 mainframe supplies stabilize within specified limits. (t_0 to t_1 ~ 0.5 s).

t_2 PWR goes high and remains high until the mainframe power switch is turned off or a fault condition occurs. (t_1 to t_2 ~ 0.5 s).

t_3 PWR goes low. This transition will occur at least 150 μsec prior to the +8 V supply dropping below 15% of its specified value. This transition occurs either when the power switch is turned off, or when the power supply detects an overcurrent or overvoltage fault condition. The 150 μsec is not guaranteed under all fault conditions.

2950-31

Fig. 5-15. PWR signal timing diagram.

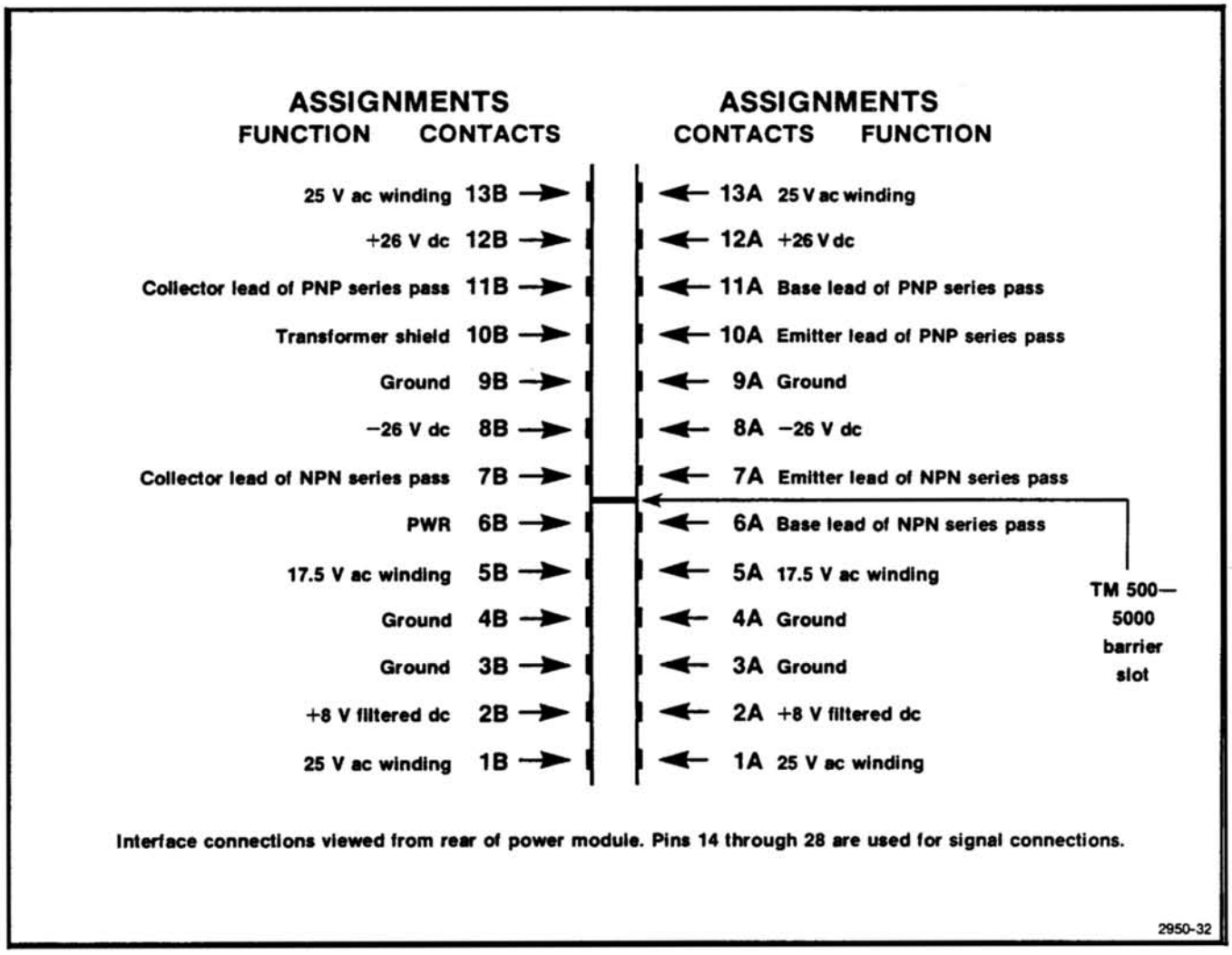


Fig. 5-16. Rear interface connector assignments.

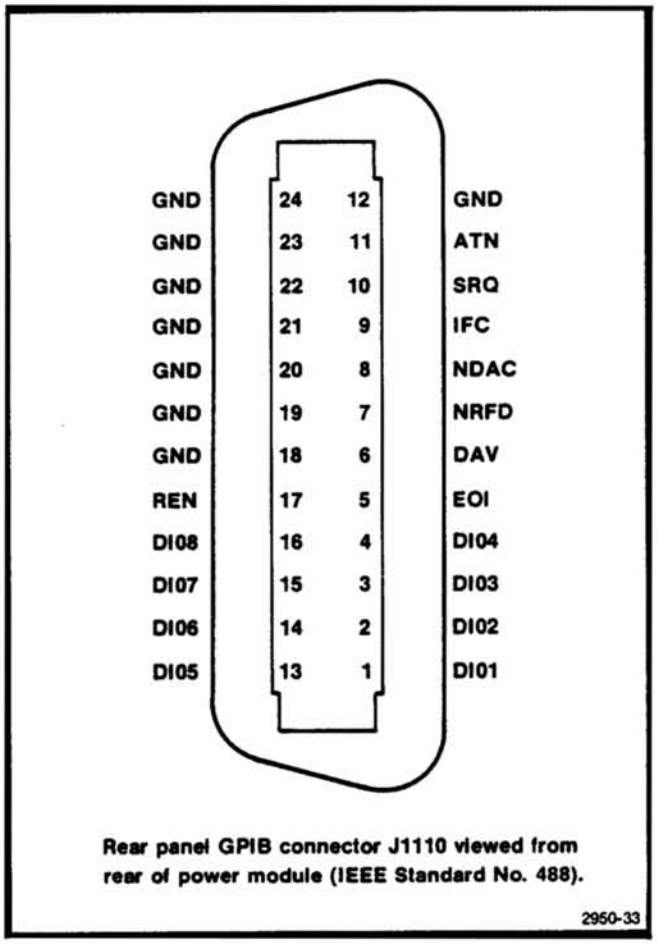


Fig. 5-17. Rear panel GPIB connector J1110 viewed from rear of power module (IEEE Standard No. 488).

OPTIONS

Introduction

Option 02 provides rear interface connections at the rear panel and Option 10 provides rack mounting capabilities. Information on Option 02 is found below as well as included in the kit. Information on Option 10 is provided in Section 2 of this manual as well as with the rackmount kit available from Tektronix, Inc.

Option 02

This factory installed option adds 25-mil square pin connectors to the rear of the interconnecting jacks at all pins from 14A and B to pins 28A and B. This option also adds six bnc connectors and one 50-pin connector to the rear panel. These connectors are not prewired in order to give as much flexibility as possible. Prepared jumpers, coaxial cables, and interconnection jack barriers are included in the kit.

System Design Directions

1. Plan the plug-in location in the mainframe based on operator convenience as well as interface connections.

2. Plan the wiring between interconnecting jacks and to the rear panel connectors before starting assembly. A mating rear panel 50-pin connector and cover are provided for external cabling.

NOTE

There are no pin assignments for the rear panel connectors, due to the great variety of possible connections.

When high frequency or fast digital signals are involved, plan the wiring to minimize crosstalk. Make allowance for possible auxiliary ground connections.

The 50-pin rear panel connector may be easier to connect it if is removed from the rear panel and remounted after connections are made. Remove the top rear cabinet piece for ease of access.

If more than 50 pins are needed, an AMP HD-22 series connector with 104 pins may be mounted in the same cut out. It is suggested that these parts be obtained directly from AMP Inc., Harrisburg, PA or their distributors. For further application information, contact Tektronix TM 500 Marketing Group.

3. Pin assignments for individual plug-ins will be found in the appropriate instruction manual.

4. Install an interconnection jack barrier at the appropriate location on the interconnection jack. Refer to operating instructions for keying assignments for family functions.

5. Select and install the wires (hook-up or coaxial cable) following the guidelines in the Wire Use part of these instructions.

6. Wires or cables which may be at large potential differences should be dressed or bundled so as to avoid contact. Keep all interface wiring away from the power module primary line wiring.

CAUTION

Maximum input voltage is ⩽ 60 Vdc or ⩽ 42.4 Vdc peak-to-peak. Limit input power to ⩽ 150 W per connection.

7. There is an empty cut out which will mount the standard IEC digital interface connector. The connector is not supplied with this option.

Wire Use

1. Hook up wire with square pin receptacles on both ends. These may be used for low frequency or dc circuits where impedance levels and crosstalk are not a problem. The wire is supplied for connection between compartments (adjacent or nonadjacent) or between a compartment and the rear panel. For connection to the rear panel, cut to length then tin and solder the end going to the rear panel connector.

2. Coaxial wire with square pin receptacles on both ends. These are used for connections which require shielding or which must maintain a 50 Ω characteristic impedance. The outer conductor should be connected to either chassis ground or circuit ground. Plug-in lines which require coaxial leads usually have a specified ground pin assignment. If necessary, establish auxiliary ground connections at the appropriate wire ends. The coaxial wire is supplied for connection between compartments (adjacent or nonadjacent) or between a compartment and the rear panel. For connection to the rear panel, cut to length then tin and solder the end going to the rear panel connector.

REPLACEABLE ELECTRICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

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.

CROSS INDEX-MFR. CODE NUMBER TO MANUFACTURER

The Mfr. Code Number to Manufacturer 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.

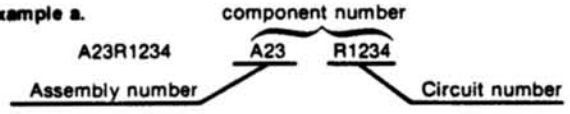
ABBREVIATIONS

Abbreviations conform to American National Standard Y1.1.

COMPONENT NUMBER (column one of the Electrical Parts List)

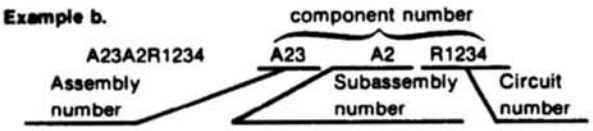
A numbering method has been used to identify assemblies, subassemblies and parts. Examples of this numbering method and typical expansions are illustrated by the following:

Example a.



Read: Resistor 1234 of Assembly 23

Example b.



Read: Resistor 1234 of Subassembly 2 of Assembly 23

Only the circuit number will appear on the diagrams and circuit board illustrations. Each diagram and circuit board illustration is clearly marked with the assembly number. Assembly numbers are also marked on the mechanical exploded views located 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 divided and arranged by assemblies in numerical sequence (e.g., assembly A1 with its subassemblies and parts, precedes assembly A2 with its subassemblies and parts).

Chassis-mounted parts have no assembly number prefix and are located at the end of the Electrical Parts List.

TEKTRONIX PART NO. (column two of the Electrical Parts List)

Indicates part number to be used when ordering replacement part from Tektronix.

SERIAL/MODEL NO. (columns three and four of the Electrical Parts List)

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.

NAME & DESCRIPTION (column five of the Electrical Parts List)

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

MFR. CODE (column six of the Electrical Parts List)

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 seven of the Electrical Parts List)

Indicates actual manufacturers part number.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
00213	NYTRONICS COMPONENTS GROUP INC SUBSIDIARY OF NYTRONICS INC	ORANGE ST	DARLINGTON SC 29532
00779	AMP INC	P O BOX 3608	HARRISBURG PA 17105
00853	SANGAMO WESTON INC SANGAMO CAPACITOR DIV	SANGAMO RD P O BOX 128	PICKENS SC 29671
01121	ALLEN-BRADLEY CO	1201 SOUTH 2ND ST	MILWAUKEE WI 53204
01281	TRW INC TRW SEMICONDUCTOR DIV	14520 AVIATION BLVD	LAWNDALE CA 90260
02735	RCA CORP SOLID STATE DIVISION	ROUTE 202	SOMERVILLE NJ 08876
02777	HOPKINS ENGINEERING CO	12900 FOOTHILL BLVD	SAN FERNANDO CA 91342
03508	GENERAL ELECTRIC CO SEMI-CONDUCTOR PRODUCTS DEPT	W GENESEE ST	AUBURN NY 13021
04099	CAPCO INC	FORESIGHT INDUSTRIAL PARK P O BOX 2164	GRAND JUNCTION CO 81501
04222	AVX CERAMICS DIV OF AVX CORP	19TH AVE SOUTH P O BOX 867	MYRTLE BEACH SC 29577
04713	MOTOROLA INC SEMICONDUCTOR GROUP	5005 E MCDOWELL RD	PHOENIX AZ 85008
05347	ULTRONIX INC	461 N 22ND ST	GRAND JUNCTION CO 81501
05397	UNION CARBIDE CORP MATERIALS SYSTEMS DIV	11901 MADISON AVE	CLEVELAND OH 44101
05828	GENERAL INSTRUMENT CORP GOVERNMENT SYSTEMS DIV	600 W JOHN ST	HICKSVILLE NY 11802
07716	TRW INC TRW ELECTRONICS COMPONENTS TRW IRC FIXED RESISTORS/BURLINGTON	2850 MT PLEASANT AVE	BURLINGTON IA 52601
12969	UNITRODE CORP	580 PLEASANT ST	WATERTOWN MA 02172
14193	CAL-R INC	1601 OLYMPIC BLVD	SANTA MONICA CA 90404
14604	ELMWOOD SENSORS INC	1655 ELMWOOD AVENUE	CRANSTON RI 02907
14752	ELECTRO CUBE INC	1710 S DEL MAR AVE	SAN GABRIEL CA 91776
19396	ILLINOIS TOOL WORKS INC PAKTRON DIVISION	900 FOLLIN LANE S E	VIENNA VA 22180
19701	MEPCO/ELECTRA INC A NORTH AMERICAN PHILIPS CO	P O BOX 760	MINERAL WELLS TX 76067
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT CONNECTOR SYSTEMS DIV MILITARY PRODUCTS GROUP	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
24546	CORNING GLASS WORKS	550 HIGH ST	BRADFORD PA 16701
25088	SIEMENS CORP	186 WOOD AVE S	ISELIN NJ 08830
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051
31781	EDAC INC	20 RAILSIDE RD	DON MILLS ONT CAN M3A 1A4
32997	BOURNS INC TRIMPOT DIV	1200 COLUMBIA AVE	RIVERSIDE CA 92507
51406	MURATA ERIE NORTH AMERICA INC GEORGIA OPERATIONS	1148 FRANKLIN RD SE	MARIETTA GA 30067
51642	CENTRE ENGINEERING INC	2820 E COLLEGE AVE	STATE COLLEGE PA 16801
54583	TDK ELECTRONICS CORP	755 EASTGATE BLVD	GARDEN CITY NY 11530
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195
56289	SPRAGUE ELECTRIC CO	87 MARSHALL ST	NORTH ADAMS MA 01247
56880	MAGNETICS INC	3218 NOBLE ST	BALTIMORE MD 21224
57668	ROHM CORP	16931 MILLIKEN AVE	IRVINE CA 92713
58224	XENELL CORP	HWY 77 S P O BOX 726	WYNNEWOOD OK 73098
59660	TUSONIX INC	2155 N FORBES BLVD	TUCSON, ARIZONA 85705
60705	CERA-MITE CORPORATION	1327 6TH AVE	GRAFTON WI 53024
71400	BUSSMANN MFG CO MCGRAW EDISION CO	114 OLD STATE RD PO BOX 14460	ST LOUIS MO 63178
75042	INTERNATIONAL RESISTIVE CO INC	401 N BROAD ST	PHILADELPHIA PA 19108
78488	STACKPOLE CARBON CO		ST MARYS PA 15857
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
82877	ROTRON INC	7-9 HASBROUCK LANE	WOODSTOCK NY 12498
TK0510	PANASONIC COMPANY DIV OF MATSUSHITA ELECTRIC CORP	ONE PANASONIC WAY	SECAUCUS NJ 07094
TK0935	MARQUARDT SWITCHES INC	MARQUARDT 67 ALBANY ST	CAZENOVIA NY 13035

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
TK1345	ZMAN AND ASSOCIATES	7633 S 180TH	KENT WA 98032

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10	670-6537-00			CIRCUIT BD ASSY:MAIN INTERCONNECT (STANDARD ONLY)	80009	670-6537-00
A10	670-6653-00			CIRCUIT BD ASSY:MAIN INTERCONNECT (OPTION 02,12 ONLY)	80009	670-6653-00
A11	670-6538-00	B010100	B021519	CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-00
A11	670-6538-01	B021520	B033969	CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-01
A11	670-6538-02	B033970		CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-02
A15	670-6991-00	B010100	B020189	CIRCUIT BD ASSY:PASSIVE GPIB INTERCONNECT	80009	670-6991-00
A16	670-7179-00	B020190		CIRCUIT BD ASSY:GPIB INTERFACE	80009	670-7179-00
A10	670-6537-00			CIRCUIT BD ASSY:MAIN INTERCONNECT (STANDARD ONLY)	80009	670-6537-00
A10	670-6653-00			CIRCUIT BD ASSY:MAIN INTERCONNECT (OPTION 02,12 ONLY)	80009	670-6653-00
A10C1010	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1011	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1012	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1020	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1021	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1110	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1111	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1112	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1120	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1121	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1210	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1211	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1212	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1220	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1221	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1222	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1223	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1310	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1311	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1312	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1320	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1321	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1410	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1411	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1412	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1420	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1421	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1510	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10C1511	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1512	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1520	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A10C1521	281-0774-00			CAP,FXD,CER DI:0.022MFD,20%,100V	04222	MA201E223MAA
A10CR1310	152-0198-00			SEMICOND DVC,DI:RECT,SI,200V,3A,A249	03508	1N5624
A10CR1311	152-0198-00			SEMICOND DVC,DI:RECT,SI,200V,3A,A249	03508	1N5624
A10CR1320	152-0198-00			SEMICOND DVC,DI:RECT,SI,200V,3A,A249	03508	1N5624
A10E500	276-0599-00			CORE,EM:TOROID,FERRITE	78488	57-1540
A10J1000	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1100	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1200	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1300	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1400	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1500	131-1078-00			CONN,RCPT,ELEC:CKT BD,28/56 CONTACT	31781	303-056-520-301
A10J1520	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 3)	22526	48283-036

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A10J1530	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 3)	22526	48283-036
A10Q1525	151-0462-00			TRANSISTOR:PNP,SI,TO-220	04713	SJE491
A10R1120	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W	19701	5043CX10RR00J
A10R1523	308-0142-00			RES,FXD,WW:30 OHM,5%,3W	00213	1240S-30-5
A10R1526	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	57668	NTR25J-E03K3
A10R1527	308-0740-00			RES,FXD,WW:20 OHM,1%,3W	00213	1200S-20-1
A11	670-6538-00	B010100	B021519	CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-00
A11	670-6538-01	B021520	B033969	CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-01
A11	670-6538-02	B033970		CIRCUIT BD ASSY:POWER SUPPLY	80009	670-6538-02
A11C1120	283-0280-00			CAP,FXD,CER DI:2200PF,10%,2000V	60705	564CBA202EH222
A11C1121	283-0417-00	B010100	B033969	CAP,FXD,CER DI:0.22UF,20%,400V	51642	500-400-Z5U-224M
A11C1121	285-1218-00	B033970		CAP,FXD,PLASTIC:0.27UF,10%,400VDC	04099	MMW274410
A11C1140	283-0280-00			CAP,FXD,CER DI:2200PF,10%,2000V	60705	564CBA202EH222
A11C1200	285-1218-00			CAP,FXD,PLASTIC:0.27UF,10%,400VDC	04099	MMW274410
A11C1210	290-0878-00			CAP,FXD,ELCTLT:1100UF,-10+75%,200 V	56289	68D11005
A11C1240	285-0939-00			CAP,FXD,PLASTIC:3UF,5%,400V	04099	TEK13-17
A11C1330	283-0044-00			CAP,FXD,CER DI:1000PF,20%,3000V	51406	DHA12Y5S102M3KV
A11C1430	285-1205-00			CAP,FXD,MTLZD:0.06UF,5%,1000V	14752	C-2658
A11C1450	283-0000-00			CAP,FXD,CER DI:0.001UF,+100-0%,500V	59660	831-610-Y5U0102P
A11C1510	290-0878-00			CAP,FXD,ELCTLT:1100UF,-10+75%,200 V	56289	68D11005
A11C1530	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	04222	SR505E475MAA
A11C1550	283-0187-00			CAP,FXD,CER DI:0.047UF,10%,400V	04222	SR308C473KAA
A11C1560	283-0194-00			CAP,FXD,CER DI:4.7UF,20%,50V	04222	SR505E475MAA
A11C1600	283-0178-00			CAP,FXD,CER DI:0.1UF,20%,100V	05397	C330C104Z1U1CA
A11C1620	283-0000-00			CAP,FXD,CER DI:0.001UF,+100-0%,500V	59660	831-610-Y5U0102P
A11C1720	283-0178-00			CAP,FXD,CER DI:0.1UF,20%,100V	05397	C330C104Z1U1CA
A11C1840	283-0680-00			CAP,FXD,MICA DI:330PF,1%,500V	00853	D155F331F0
A11C1910	290-0900-00			CAP,FXD,ELCTLT:1600UF,+100-10%,50V	56289	674D168H050JP5A
A11C1920	290-0930-00			CAP,FXD,ELCTLT:11000UF,+100-10%,12V	56289	674D119H012JS5A
A11C1930	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-10%,25V	55680	ULB1E100TAAANA
A11C1940	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	MA201C103KAA
A11C1960	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305SC474MAA
A11C1961	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305SC474MAA
A11C1965	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	05397	C412C473M5V2CA
A11C2010	290-0900-00			CAP,FXD,ELCTLT:1600UF,+100-10%,50V	56289	674D168H050JP5A
A11C2030	290-0930-00			CAP,FXD,ELCTLT:11000UF,+100-10%,12V	56289	674D119H012JS5A
A11C2040	283-0672-00			CAP,FXD,MICA DI:200PF,1%,500V	00853	D155F2010F0
A11C2050	283-0659-00			CAP,FXD,MICA DI:1160PF,2%,500V	00853	D195F1161G0
A11C2051	290-0771-00			CAP,FXD,ELCTLT:220UF,+50-10%,10VDC	55680	ULA1A221TPA2
A11C2052	281-0788-00			CAP,FXD,CER DI:470PF,10%,100V	04222	MA101C471KAA
A11C2060	290-0771-00			CAP,FXD,ELCTLT:220UF,+50-10%,10VDC	55680	ULA1A221TPA2
A11C2065	283-0142-00			CAP,FXD,CER DI:0.0027UF,5%,200V	54583	CK45YE2D272J-A
A11C2066	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	MA205E104MAA
A11C2100	290-0818-00			CAP,FXD,ELCTLT:390UF,+100-10%,40V	56289	672D397H040DS5C
A11C2120	290-0930-00			CAP,FXD,ELCTLT:11000UF,+100-10%,12V	56289	674D119H012JS5A
A11C2140	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	MA201C103KAA
A11C2150	285-0889-00			CAP,FXD,PLASTIC:0.0027UF,5%,100V	19396	DU490/74-28221
A11C2151	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-10%,25V	55680	ULB1E100TAAANA
A11C2160	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	MA201C103KAA
A11C2200	290-0818-00			CAP,FXD,ELCTLT:390UF,+100-10%,40V	56289	672D397H040DS5C
A11C2230	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305SC474MAA
A11C2231	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305SC474MAA
A11C2232	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	04222	SR305SC474MAA
A11C2240	281-0814-00			CAP,FXD,CER DI:100 PF,10%,100V	04222	MA101A101KAA
A11C2260	290-0919-00			CAP,FXD,ELCTLT:470UF,+50-10%,35V	TK0510	ECEA1VV471SC
A11C2300	290-0818-00			CAP,FXD,ELCTLT:390UF,+100-10%,40V	56289	672D397H040DS5C
A11C2310	290-0818-00			CAP,FXD,ELCTLT:390UF,+100-10%,40V	56289	672D397H040DS5C

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A11C2350	290-0891-00	B010100	B033969	CAP,FXD,ELCTLT:1UF,+75 -10%,50V	55680	ULA1H010TEA
A11C2350	290-0974-00	B033970		CAP,FXD,ELCTLT:10UF,20%,50VDC	55680	ULB1H100MAA
A11CR1500	152-0750-00			SEMICOND DVC,DI:RECT BRDG,600V,3A,FAST RCVY	05828	RKBPC606-12
A11CR1540	152-0655-00			SEMICOND DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A11CR1541	152-0400-00			SEMICOND DVC,DI:RECT,SI,400V,1A	04713	SR1977K
A11CR1550	152-0655-00			SEMICOND DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A11CR1551	152-0400-00			SEMICOND DVC,DI:RECT,SI,400V,1A	04713	SR1977K
A11CR1730	152-0107-00			SEMICOND DVC,DI:RECT,SI,400 V,400MA,A1	12969	"G727"
A11CR1731	152-0107-00			SEMICOND DVC,DI:RECT,SI,400 V,400MA,A1	12969	"G727"
A11CR1810	152-0686-00			SEMICOND DVC,DI:RECT,SI,100V,5A,A264	04713	SR3273
A11CR1850	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR1860	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR1861	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR1862	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR1863	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR1900	152-0686-00			SEMICOND DVC,DI:RECT,SI,100V,5A,A264	04713	SR3273
A11CR1910	152-0686-00			SEMICOND DVC,DI:RECT,SI,100V,5A,A264	04713	SR3273
A11CR1911	152-0686-00			SEMICOND DVC,DI:RECT,SI,100V,5A,A264	04713	SR3273
A11CR1950	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2040	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2041	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2042	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2043	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2130	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2149	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2150	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2230	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2240	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2340	152-0066-00			SEMICOND DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A11CR2341	152-0066-00			SEMICOND DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A11CR2349	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11CR2350	152-0066-00			SEMICOND DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A11CR2351	152-0066-00			SEMICOND DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A11CR2360	152-0141-02			SEMICOND DVC,DI:SW,SI,30V,150MA,30V,DO-35	03508	DA2527 (1N4152)
A11DS1600	150-0030-00			LAMP,GLOW:60-90V MAX,0.7MA,A28-T,WIRE LEADS	58224	A28-T
A11E1300	119-0181-00			ARSR,ELEC SURGE:230,GAS FILLED	25088	B1-A230
A11E1400	119-0181-00			ARSR,ELEC SURGE:230,GAS FILLED	25088	B1-A230
A11E1620	276-0640-00			CORE,EM:TOROID,FERRITE	56880	J-41005-TC
A11F2340	159-0022-00			FUSE,CARTRIDGE:3AG,1A,250V,FAST BLOW	71400	AGC-CW-1
A11J1000	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 4)	22526	48283-036
A11J1010	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 2)	22526	48283-036
A11J1011	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 4)	22526	48283-036
A11J1012	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 4)	22526	48283-036
A11J1013	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 4)	22526	48283-036
A11J1020	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 4)	22526	48283-036
A11J2220	131-1688-00			TERM,QIK DISC.:MALE,0.032 X 0.25 BL	00779	42577-4
A11J2221	131-1688-00			TERM,QIK DISC.:MALE,0.032 X 0.25 BL	00779	42577-4
A11J2320	131-1688-00			TERM,QIK DISC.:MALE,0.032 X 0.25 BL	00779	42577-4
A11J2321	131-1688-00			TERM,QIK DISC.:MALE,0.032 X 0.25 BL	00779	42577-4
A11J2330	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL (QTY 3)	22526	48283-036
A11L1020	108-0902-00			COIL,RF:FIXED,50UH	80009	108-0902-00
A11L1030	108-0902-00			COIL,RF:FIXED,50UH	80009	108-0902-00

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A11L1100	108-1037-00			COIL,RF:FXD,500UH	TK1345	108-1037-00
A11L1320	108-0973-00			COIL,RF:FIXED,140UH	80009	108-0973-00
A11L1440	108-1051-00			COIL,RF:FIXED,1MH	80009	108-1051-00
A11L2100	108-1022-00			COIL,RF:FIXED,8.85UH	TK1345	108-1022-00
A11L2130	108-0950-00			COIL,RF:FIXED,5.5UH	TK1345	108-0950-0
A11L2210	108-1022-00			COIL,RF:FIXED,8.85UH	TK1345	108-1022-00
A11Q1730	151-0302-00			TRANSISTOR:NPN,SI,TO-18	04713	ST899
A11Q1731	151-0302-00			TRANSISTOR:NPN,SI,TO-18	04713	ST899
A11Q2240	151-0190-00			TRANSISTOR:NPN,SI,TO-92	80009	151-0190-00
A11R1040	315-0561-00			RES,FXD,FILM:560 OHM,5%,0.25W	19701	5043CX560R0J
A11R1100	315-0361-00			RES,FXD,FILM:360 OHM,5%,0.25W	19701	5043CX360R0J
A11R1350	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	NTR25J-E 100E
A11R1351	308-0426-00			RES,FXD,WW:470 OHM,5%,3W	00213	1240S-470-5
A11R1352	305-0470-00			RES,FXD,CMPSN:47 OHM,5%,2W	01121	HB 4705
A11R1420	303-0104-00			RES,FXD,CMPSN:100K OHM,5%,1W	01121	GB1045
A11R1421	303-0104-00			RES,FXD,CMPSN:100K OHM,5%,1W	01121	GB1045
A11R1422	315-0240-00			RES,FXD,FILM:24 OHM,5%,0.25W	57668	NTR25J-E24E0
A11R1430	308-0499-00			RES,FXD,WW:0.5 OHM,10%,2.5W,AXIAL	14193	SA31 R500K
A11R1460	308-0686-00	B010100	B020199	RES,FXD,WW:2.2 OHM,5%,2W	75042	BWH-2R200J
A11R1460	308-0703-00	B020200		RES,FXD,WW:1.8 OHM,5%,2W	75042	BWH 1.8 OHM 5%
A11R1530	308-0686-00	B010100	B020199	RES,FXD,WW:2.2 OHM,5%,2W	75042	BWH-2R200J
A11R1530	308-0703-00	B020200		RES,FXD,WW:1.8 OHM,5%,2W	75042	BWH 1.8 OHM 5%
A11R1600	301-0685-00			RES,FXD,FILM:6.8M OHM,5%,0.5W	01121	EB6855
A11R1620	301-0331-00			RES,FXD,FILM:330 OHM,5%,0.5W	19701	5053CX330R0J
A11R1830	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	57668	NTR25J-E01K5
A11R1831	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	57668	NTR25J-E01K5
A11R1832	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R1850	321-0356-00	B010100	B021519	RES,FXD,FILM:49.9K OHM,1%,0.125W,TC=T0	19701	5033ED49K90F
A11R1850	321-0306-00	B021520		RES,FXD,FILM:15.0K OHM,1%,0.125W,TC=T0	19701	5033ED15J00F
A11R1850	321-0306-00	B021520	B033969	RES,FXD,FILM:15.0K OHM,1%,0.125W,TC=T0	19701	5033ED15J00F
A11R1850	321-0335-00	B033970		RES,FXD,FILM:30.1K OHM,1%,0.125W,TC=T0	57668	RB14FXE30K1
A11R1851	321-0279-00			RES,FXD,FILM:7.87K OHM,1%,0.125W,TC=T0	07716	CEAD78700F
A11R1852	321-0349-00	B010100	B033969	RES,FXD,FILM:42.2K OHM,1%,0.125W,TC=T0	07716	CEAD42201F
A11R1852	321-0335-00	B033970		RES,FXD,FILM:30.1K OHM,1%,0.125W,TC=T0	57668	RB14FXE30K1
A11R1855	311-1232-00	B021520	B033969	RES,VAR,NONWW:TRMR,50K OHM,0.5W	32997	3386F-T04-503
A11R1855	311-1231-00	B033970		RES,VAR,NONWW:TRMR,25K OHM,0.5W	32997	3386F-T04-253
A11R1860	323-0095-00			RES,FXD,FILM:95.3 OHM,1%,0.5W,TC=T0	75042	CECT0-95R30F
A11R1930	321-0308-00			RES,FXD,FILM:15.8K OHM,1%,0.125W,TC=T0	07716	CEAD 15801F
A11R1931	315-0224-00			RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
A11R1950	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R1951	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	NTR25J-E470E
A11R1952	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11R1953	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	NTR25JE01K0
A11R1960	315-0103-00	B010100	B010119	RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R1960	315-0332-00	B010120		RES,FXD,FILM:3.3K OHM,5%,0.25W	57668	NTR25J-E03K3
A11R1961	315-0751-00			RES,FXD,FILM:750 OHM,5%,0.25W	57668	NTR25J-E750E
A11R1962	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R1963	315-0913-00			RES,FXD,FILM:91K OHM,5%,0.25W	19701	5043CX91K00J
A11R2040	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R2041	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R2042	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	5043CX10K00J
A11R2050	315-0154-00			RES,FXD,FILM:150K OHM,5%,0.25W	57668	NTR25J-E150K
A11R2060	311-1228-00			RES,VAR,NONWW:TRMR,10K OHM,0.5W	32997	3386F-T04-103
A11R2061	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
A11R2063	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
A11R2064	315-0333-00			RES,FXD,FILM:33K OHM,5%,0.25W	57668	NTR25J-E33K0
A11R2130	321-0225-00			RES,FXD,FILM:2.15K OHM,1%,0.125W,TC=T0	19701	5033ED2K15F
A11R2132	321-0279-00			RES,FXD,FILM:7.87K OHM,1%,0.125W,TC=T0	07716	CEAD78700F

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
A11R2133	315-0224-00			RES,FXD,FILM:220K OHM,5%,0.25W	57668	NTR25J-E220K
A11R2140	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11R2141	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11R2150	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11R2151	311-1225-00			RES,VAR,NONWW:TRMR,1K OHM,0.5W	32997	3386F-T04-102
A11R2220	308-0402-00			RES,FXD,WW:30 OHM,5%,5W	05347	CS5-30R0J
A11R2230	321-0279-00			RES,FXD,FILM:7.87K OHM,1%,0.125W,TC=T0	07716	CEAD78700F
A11R2231	321-0322-00			RES,FXD,FILM:22.1K OHM,0.1%,0.125W,TC=T0	19701	5033ED22K10F
A11R2232	315-0751-00			RES,FXD,FILM:750 OHM,5%,0.25W	57668	NTR25J-E750E
A11R2233	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11R2240	321-0338-00			RES,FXD,FILM:32.4K OHM,1%,0.125W,TC=T0	19701	5033ED32K40F
A11R2241	315-0913-00	B010100	B033969	RES,FXD,FILM:91K OHM,5%,0.25W	19701	5043CX91K00J
A11R2241	315-0134-00	B033970		RES,FXD,FILM:130K OHM,5%,0.25W	57668	NTR25J-E130K
A11R2242	321-0279-00			RES,FXD,FILM:7.87K OHM,1%,0.125W,TC=T0	07716	CEAD78700F
A11R2243	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
A11R2244	321-0249-00			RES,FXD,FILM:3.83K OHM,1%,0.125W,TC=T0	19701	5033ED3K83F
A11R2250	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	57668	NTR25J-E03K3
A11R2251	321-0279-00			RES,FXD,FILM:7.87K OHM,1%,0.125W,TC=T0	07716	CEAD78700F
A11R2300	308-0426-00			RES,FXD,WW:470 OHM,5%,3W	00213	1240S-470-5
A11R2301	308-0426-00			RES,FXD,WW:470 OHM,5%,3W	00213	1240S-470-5
A11R2302	308-0426-00			RES,FXD,WW:470 OHM,5%,3W	00213	1240S-470-5
A11R2303	308-0426-00			RES,FXD,WW:470 OHM,5%,3W	00213	1240S-470-5
A11R2340	315-0822-00	B010100	B033969	RES,FXD,FILM:8.2K OHM,5%,0.25W	19701	5043CX8K200J
A11R2340	315-0821-00	B033970		RES,FXD,FILM:820 OHM,5%,0.25W	19701	5043CX820R0J
A11R2342	315-0223-00	B010100	B033969	RES,FXD,FILM:22K OHM,5%,0.25W	19701	5043CX22K00J92U
A11R2342	315-0302-00	B033970		RES,FXD,FILM:3K OHM,5%,0.25W	57668	NTR25J-E03K0
A11R2343	321-0241-00			RES,FXD,FILM:3.16K OHM,1%,0.125W,TC=T0	07716	CEAD31600F
A11R2350	315-0130-00			RES,FXD,FILM:13 OHM,5%,0.25W	01121	CB1305
A11R2351	315-0130-00			RES,FXD,FILM:13 OHM,5%,0.25W	01121	CB1305
A11R2352	315-0130-00			RES,FXD,FILM:13 OHM,5%,0.25W	01121	CB1305
A11R2360	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	NTR25J-E100K
A11RT1000	307-0350-00			RES,THERMAL:7.5 OHM,10%,3.9%/DEG C	80009	307-0350-00
A11RT1200	307-0350-00			RES,THERMAL:7.5 OHM,10%,3.9%/DEG C	80009	307-0350-00
A11T1050	120-1337-00			TRANSFORMER,RF:COMMON MODE	80009	120-1337-00
A11T1710	120-1299-00			XFMR,PWR,STPDN:HF	80009	120-1299-00
A11T1740	120-0744-00			XFMR,TOROID:5 WINDINGS	TK1345	120-0744-00
A11T1750	120-0747-00			XFMR,TOROID:	TK1345	120-0747-00
A11U1840	156-0745-01			MICROCKT,DGTL:HEX INVERTER,BURN-IN	02735	CD4069UBFX
A11U1940	156-1152-00			MICROCKT,DGTL:DUAL PRCN RETRIGGERABLE	04713	MC14538BCL
A11U1950	156-0754-02			MICROCKT,DGTL:DUAL 4-INPUT NOR GATE,SCRN	02735	CD4002BFX-98
A11U1951	156-0366-02			MICROCKT,DGTL:DUAL D FLIP-FLOP,SCREENED	02735	CD4013BFX
A11U2140	156-0411-00			MICROCKT,LINEAR:SGL SPLY COMPARATOR	04713	LM339N
A11U2160	156-0402-00			MICROCKT,LINEAR:TIMER	27014	LM555CN
A11U2250	156-0071-00			MICROCKT,LINEAR:VOLTAGE REGULATOR	04713	MC1723CL
A11VR2342	152-0243-00	B010100	B033969	SEMICOND DVC,DI:ZEN,SI,15V,5%,0.4W,DO-7	04713	SZ13203 (1N965B)
A11VR2342	152-0236-00	B033970		SEMICOND DVC,DI:ZEN,SI,12.5V,4%,0.4W,DO-7	04713	SZ13553RL
A11W1860	131-0566-00	B010100	B021519	BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	24546	OMA 07
A15	670-6991-00	B010100	B020189	CIRCUIT BD ASSY:PASSIVE GPIB INTERCONNECT	80009	670-6991-00
A15J1010	131-1789-00			CONN,RCPT,ELEC:RTANG,2/10 0.025 SQ PINS	22526	65268-008
A15J1110	131-2542-00			CONN,RCPT,ELEC:CKT BD,24 CONTACT,RIGHT	00779	552791-2
A16	670-7179-00	B020190		CIRCUIT BD ASSY:GPIB INTERFACE	80009	670-7179-00
A16J1010	131-1789-00			CONN,RCPT,ELEC:RTANG,2/10 0.025 SQ PINS	22526	65268-008
A16J1110	131-2542-00			CONN,RCPT,ELEC:CKT BD,24 CONTACT,RIGHT	00779	552791-2
B500	119-0721-00			FAN,VENTILATING:75CFM,115VAC,50/60HZ (STANDARD ONLY)	82877	WR2H1
B500	119-0147-00			FAN,VENTILATING:115V,14W,3200RPM,105CFM (OPTION 10,12 ONLY)	82877	028021

Component No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Name & Description	Mfr. Code	Mfr. Part No.
CR500	152-0762-00			SEMICOND DVC,DI:RECT,SI,30A,40V,TO-3	01281	SD-241
F500	159-0036-00			FUSE,CARTRIDGE:3AG,7A,125V,FAST BLOW (STANDARD ONLY)	71400	GLH 7
F500	159-0017-00			FUSE,CARTRIDGE:3AG,4A,250V,FAST BLOW (OPTIONS A1,A2,A3 & A4 ONLY)	71400	MTH-CW-4
FL500	119-0420-00			FILTER,RFI:6A,250VAC,400HZ	02777	F-11935-6
Q500	151-0373-00			TRANSISTOR:PNP,SI,TD-127	04713	SJE925
Q510	151-0436-00			TRANSISTOR:NPN,SI,SEL,TO-172	04713	SJE966
Q520	151-0373-00			TRANSISTOR:PNP,SI,TD-127	04713	SJE925
Q530	151-0436-00			TRANSISTOR:NPN,SI,SEL,TO-172	04713	SJE966
Q540	151-0373-00			TRANSISTOR:PNP,SI,TD-127	04713	SJE925
Q550	151-0436-00			TRANSISTOR:NPN,SI,SEL,TO-172	04713	SJE966
Q560	151-0373-00			TRANSISTOR:PNP,SI,TD-127	04713	SJE925
Q570	151-0436-00			TRANSISTOR:NPN,SI,SEL,TO-172	04713	SJE966
Q580	151-0373-00			TRANSISTOR:PNP,SI,TD-127	04713	SJE925
Q590	151-0436-00			TRANSISTOR:NPN,SI,SEL,TO-172	04713	SJE966
Q600	151-0258-00			TRANSISTOR:PNP,SI,TO-3	02735	TO BE ASSIGNED
Q610	151-0140-00			TRANSISTOR:NPN,SI,TO-3	04713	SJ7020
Q1640	151-0632-00	B010100	B020199	TRANSISTOR:NPN,SILICON,TO-220	04713	SJE1946
Q1640	151-0679-00	B020200		TRANSISTOR:NPN,SI,TO-220	04713	MJE13009
Q1650	151-0632-00	B010100	B020199	TRANSISTOR:NPN,SILICON,TO-220	04713	SJE1946
Q1650	151-0679-00	B020200		TRANSISTOR:NPN,SI,TO-220	04713	MJE13009
S500	260-1961-00			SWITCH,ROCKER:DPST,6(4)A,250V	TK0935	1802.1121
S550	260-1710-00			SWITCH,THRMSTC:OPEN 92.97,CL 80.4,10A,240V	14604	2450-47-16
T500	120-1298-00			XFMR,PWR,STPDN:LF	80009	120-1298-00

DIAGRAMS AND CIRCUIT BOARD ILLUSTRATIONS

Symbols

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

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

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

Abbreviations are based on ANSI Y1.1-1972.

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

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

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

Component Values

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

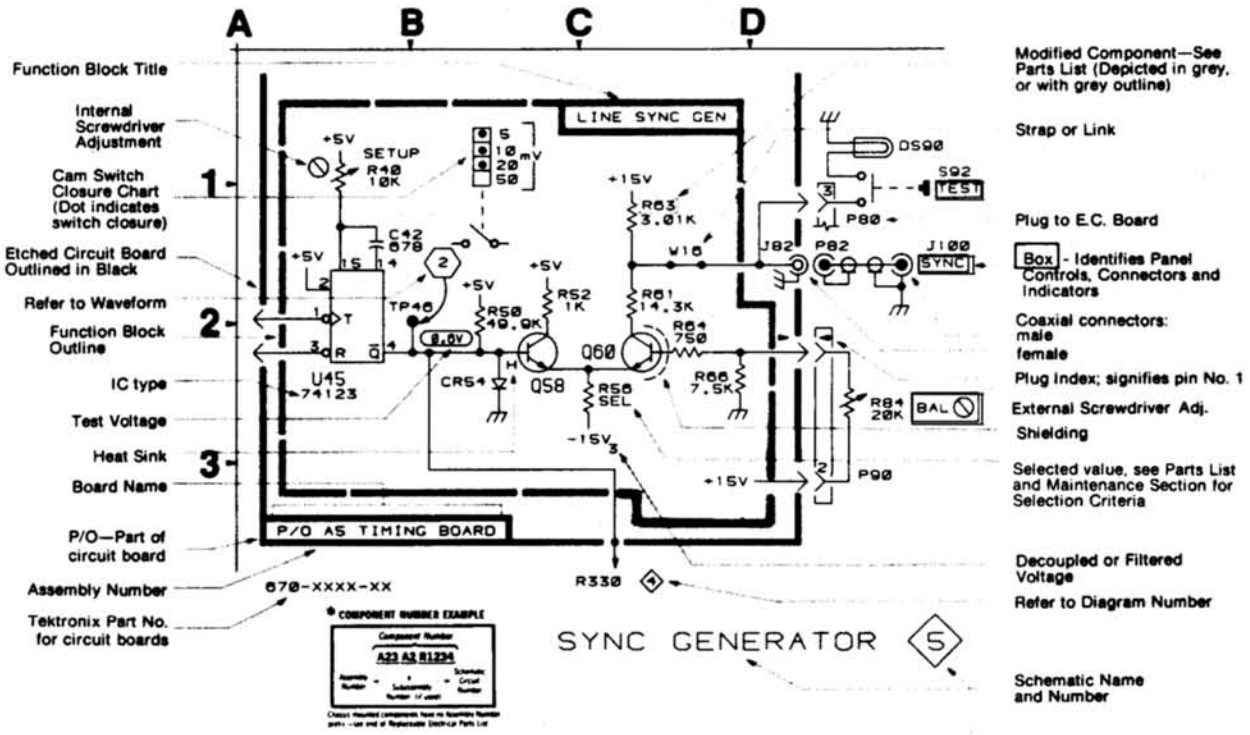
Capacitors = Values one or greater are in picofarads (pF). Values less than one are in microfarads (μF).
Resistors = Ohms (Ω).

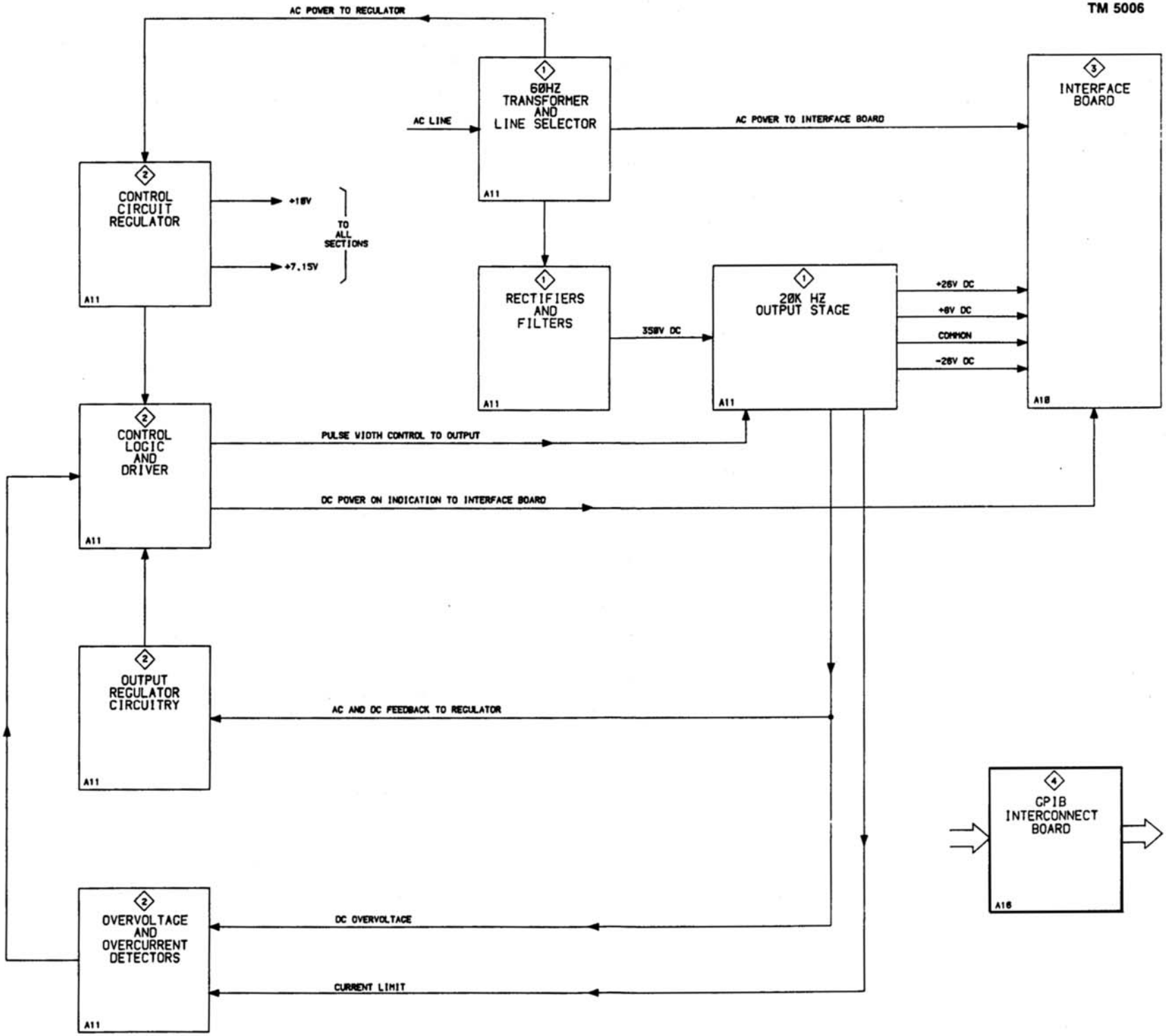
The information and special symbols below may appear in this manual.

Assembly Numbers and Grid Coordinates

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

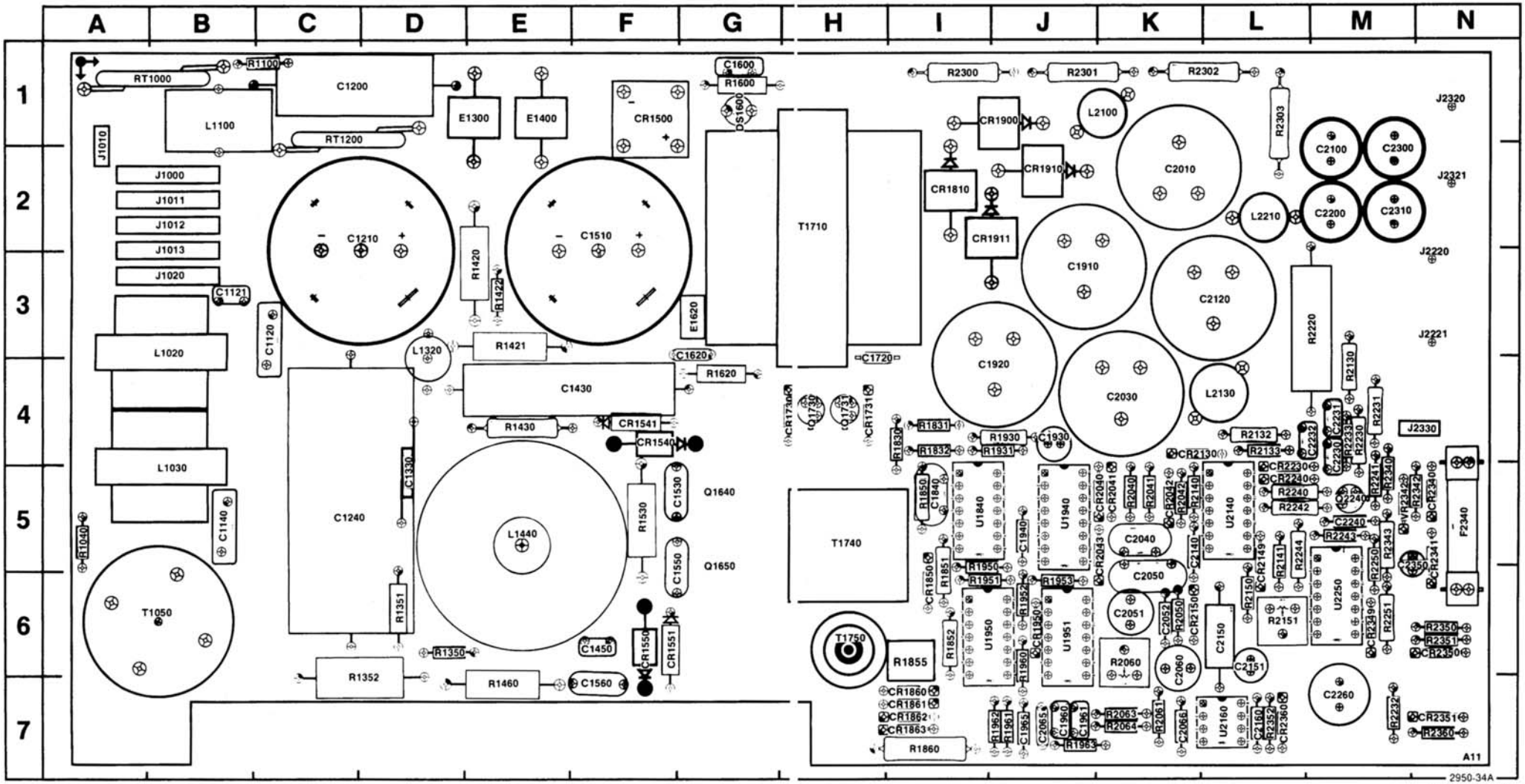
The schematic diagram and circuit board component location illustration have grids. A lookup table with the grid coordinates is provided for ease of locating the component. Only the components illustrated on the facing diagram are listed in the lookup table. When more than one schematic diagram is used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





BLOCK DIAGRAM

PARTS LOCATION GRID



2950-34A

ASSY A11

Fig. 8-1. Dc Power Suppl Board (Assy A11).

REV NOV 1984

Table 8-1
COMPONENT REFERENCE CHART

P/O A11 ASSY — DC POWER SUPPLY ◇1

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C1120	C3	C3
C1121*	D2	B3
C1140	C1	B5
C1200	B5	C1
C1210	D6	D2
C1240	F5	C5
C1330	H5	D5
C1430	H5	F4
C1450	F7	F6
C1510	D5	F2
C1530	D6	F5
C1550	F6	F5
C1560	D7	F7
C1600	E6	G1
C1620	H7	G3
C1720	L7	H4
C1910	L8	J3
C1920	L6	J4
C2010	L5	K2
C2030	L6	K4
C2100	L5	M2
C2120	L6	L3
C2200	L8	M2
C2300	L5	M2
C2310	M8	M2
CR1500	C5	F1
CR1550	F7	F6
CR1540	F6	F4
CR1541	F5	F4
CR1551	F7	F6
CR1810	K5	I2
CR1860	B8	I7
CR1861	B8	I7
CR1862	B8	I7
CR1863	B8	I7
CR1900	K5	J1
CR1910	K8	J2
CR1911	K8	J2
DS1600	E6	G1
E1300	D4	E1
E1400	D5	E1
E1620	H7	G3
J1000	D2	B2
J1010	F4	A1
J1011	C2	B2
J1012	D1	B2
J1013	E1	B2
J1020	F1	B3
J2220	M6	N3
J2221	M6	N3
J2320	M5	N1
J2321	M8	N2
L1020	C3	B3
L1030	C2	B5
L1100	C4	B1
L1320	E5	D3
L1440	H5	E5
L2100	L5	K1
L2130	L6	L4
L2210	L8	L2
P1011	C2	B2
P1013	E1	B2
P2220	M6	N3
P2221	M6	N3
P2320	M5	N1
P2321	M8	N2
Q1640	F6	G5
Q1650	F7	G5
R1040	B2	A5
R1100	C4	C1
R1350	F6	D6
R1351	H6	D6
R1352	F7	D7
R1420	D6	E3
R1421	D5	E3
R1422	E5	E3
R1430	F5	E4
R1460	D7	E7
R1530	D6	F5
R1600	E5	G1
R1620	H6	G4
R2220	M6	M3
R2300	K8	I1
R2301	L8	J1
R2302	M5	L1
R2303	M5	L1
RT1000	C4	A1
RT1200	B4	C1
T1050	B2	B6
T1710	J5	H2
T1740	C6	H5
T1750	C8	H6
B500	E4	Chassis
CR500	K6	Chassis
F500	A3	Chassis
FL500	A4	Chassis
S500	A3	Chassis
S550	A2	Chassis

P/O A11 ASSY also shown on ◇2

*See Parts List for serial number ranges.

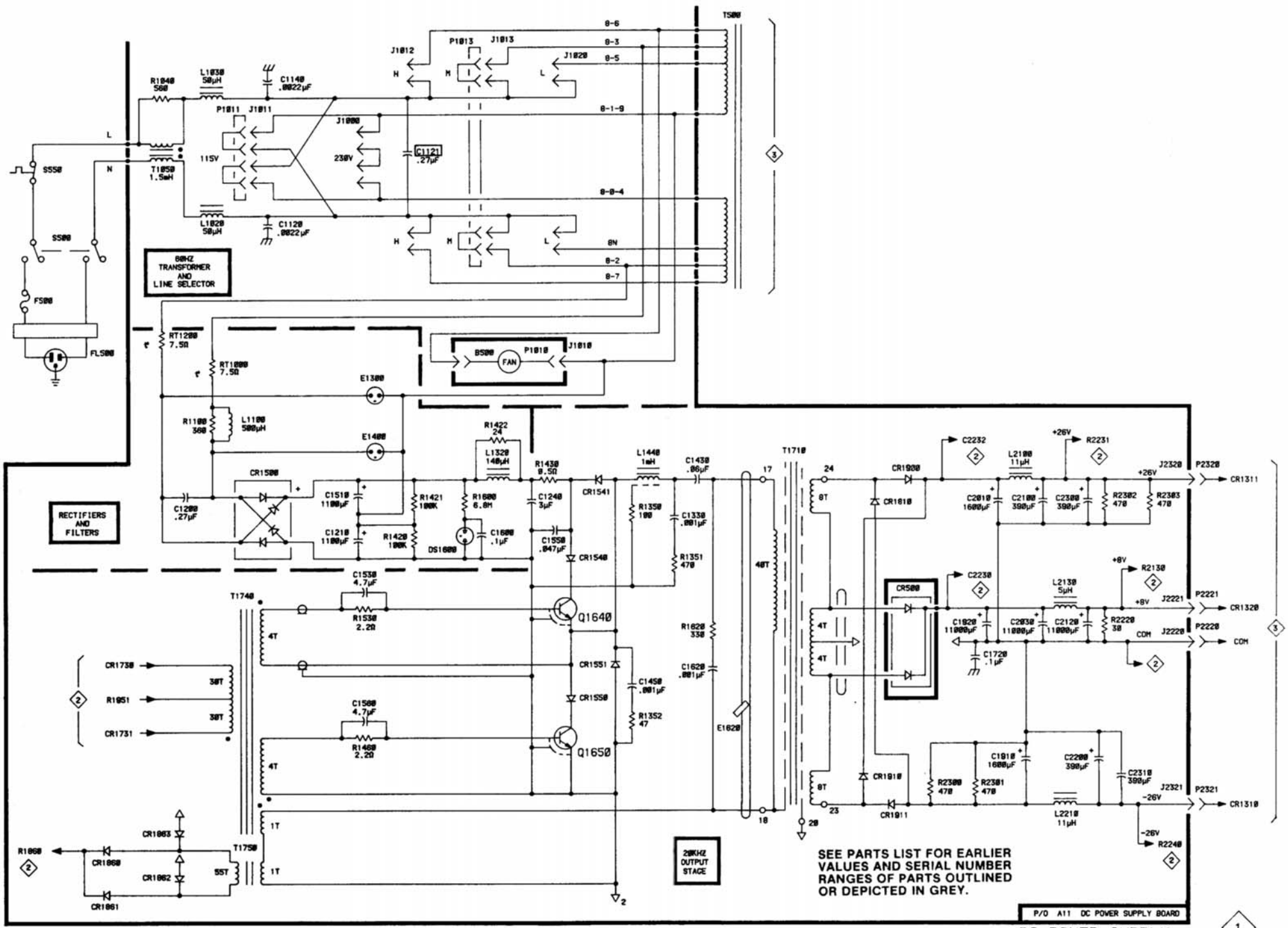

A B C D E F H J K L M
1 2 3 4 5 6 7 8
TS00
8-6
8-3
8-5
8-1-9
8-8-4
8N
8-2
8-7
J1012
P1013
J1013
J1020
P1011
J1011
J1000
115V
230V
C1121
.27µF
R1040
56Ω
L1030
50µH
C1140
.0022µF
C1120
.0022µF
L1020
50µH
T1050
1.5mH
S550
S500
FS00
FLS00
L
N
80KHZ
TRANSFORMER
AND
LINE SELECTOR
B500
FAN
P1010
J1010
RT1200
7.5Ω
RT1000
7.5Ω
E1300
E1400
R1100
36Ω
L1100
500µH
CR1500
C1200
.27µF
RECTIFIERS
AND
FILTERS
C1510
1100µF
C1210
1100µF
R1421
100K
R1420
100K
R1600
6.8M
DS1600
C1600
.1µF
R1422
24
L1320
140µH
R1430
0.5Ω
C1240
3µF
C1550
.047µF
CR1540
CR1541
L1440
1mH
C1430
.06µF
R1350
100
C1330
.001µF
R1351
470
R1620
330
C1620
.001µF
E1620
T1710
17
18
40T
T1740
C1530
4.7µF
R1530
2.2Ω
Q1640
4T
CR1738
38T
R1051
38T
CR1731
CR1551
CR1550
C1450
.001µF
R1352
47
C1560
4.7µF
R1460
2.2Ω
Q1650
4T
T1750
1T
1T
55T
CR1863
CR1860
CR1862
CR1861
R1060
2
28KHZ
OUTPUT
STAGE
24
8T
CR1930
CR1610
C2232
L2100
11µH
+26V
R2231
C2010
1600µF
C2100
390µF
C2300
390µF
R2302
470
R2303
470
J2320
P2320
CR1311
4T
4T
CR500
C2230
L2130
5µH
+8V
R2130
C1920
11000µF
C2030
11000µF
C2120
11000µF
R2220
30
COM
J2221
P2221
CR1320
J2220
P2220
COM
C1720
.1µF
8T
23
CR1911
CR1910
C1910
1600µF
C2200
390µF
C2310
390µF
R2300
470
R2301
470
L2210
11µH
-26V
J2321
P2321
CR1310
R2240
2
3
SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS OUTLINED OR DEPICTED IN GREY.
P/O A11 DC POWER SUPPLY BOARD
DC POWER SUPPLY
1
JS
TM 5006
REV NOV 1984
2950-48

Table 8-2
COMPONENT REFERENCE CHART
(see Fig. 8-1)

P/O A11 ASSY — DC POWER SUPPLY REGULATOR ◇2◇

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C1840	F7	I5
C1930	H5	J4
C1940	H6	J5
C1960	B6	J7
C1961	C6	J7
C1965	D6	J7
C2040	K5	K5
C2050	K5	K6
C2051	K6	K6
C2052	H5	K6
C2060	K6	K6
C2065	D7	J7
C2066	E6	K7
C2140	C8	K5
C2150	C8	L6
C2151	E2	L6
C2160	J2	L7
C2230	B7	M4
C2231	B7	M4
C2232	B6	M4
C2240	F2	M5
C2260	C1	M7
C2350*	B2	M5
CR1730	M3	H4
CR1731	M1	H4
CR1850	F7	I6
CR1950	F6	J6
CR2040	K5	K5
CR2041	K6	K5
CR2042	E6	K5
CR2043	K5	K5
CR2130	E3	K4
CR2149	D7	L5
CR2150	J5	K6
CR2230	C4	L5
CR2240	C4	L5
CR2340	B1	N5
CR2341	C1	N5
CR2349	F1	M6
CR2350	C3	N6
CR2351	D3	N7
CR2360	F3	L7
F2340	B2	N5
J2330	A1	N4
J2330	J2	N4
P2330	A1	N4
P2330	J2	N4
Q1730	M3	H4
Q1731	M2	H4
Q2240	D2	M5
R1830	M3	I4
R1831	M1	I4
R1832	J1	I4
R1850*	E7	I5
R1851	F7	I6
R1852*	H7	I6
R1855*	H7	I6
R1860	E5	I7
R1930	K4	J4
R1931	H4	J4
R1950	J1	I6
R1951	M2	I6
R1952	H6	J6
R1953	J6	J6
R1960	E8	J6
R1961	D6	J7
R1962	D5	J7
R1963	C6	J7
R2040	F5	K5
R2041	F5	K5
R2042	D5	K5
R2050	C6	K6
R2060	K7	K6
R2061	K5	K7
R2063	E5	K7
R2064	E6	K7
R2130	B4	M4
R2132	C4	L4
R2133	E4	L4
R2140	D7	K5
R2141	E3	L5
R2150	B8	L6
R2151	B8	L6
R2230	B4	M4
R2231	B4	M4
R2232	J2	M7
R2233	B7	M4
R2240	D4	L5
R2241*	C2	M5
R2242	E3	L5
R2243	D2	M5
R2244	B8	L5
R2250	D2	M5
R2251	F2	M6
R2340*	C2	M5
R2342*	C2	N5
R2343	F2	M5
R2350	B3	N6
R2351	C3	N6
R2352	D3	L7
R2360	H4	N7
U1840A	E7	I5
U1840B	E7	I5
U1840C	F7	I5
U1840D	J6	I5
U1840E	L3	I5
U1840F	L2	I5
U1940A	H5	J5
U1940B	L7	J5
U1950A	L1	I5
U1950B	L3	I5
U1951A	M7	J6
U1951B	M4	J6
U2140		L5
U2140A	E8	L5
U2140B	F5	L5
U2140C	E4	L5
U2140D	F4	L5
U2160	H2	L7
U2250	E2	M6
VR2342*	C2	M5
W1860*	E7	I7

P/O A11 ASSY also shown on ◇1◇

*See Parts List for serial number ranges.

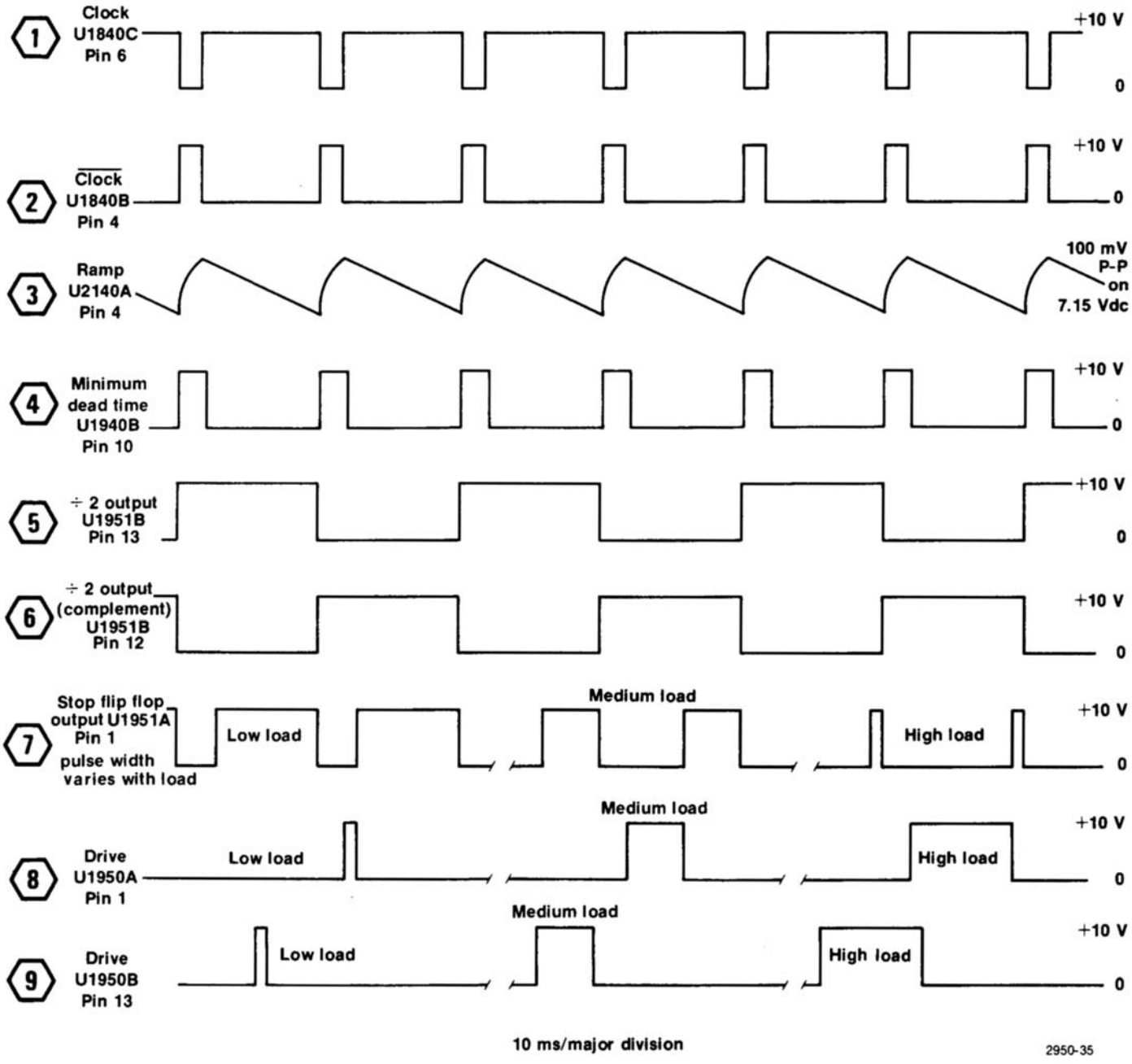
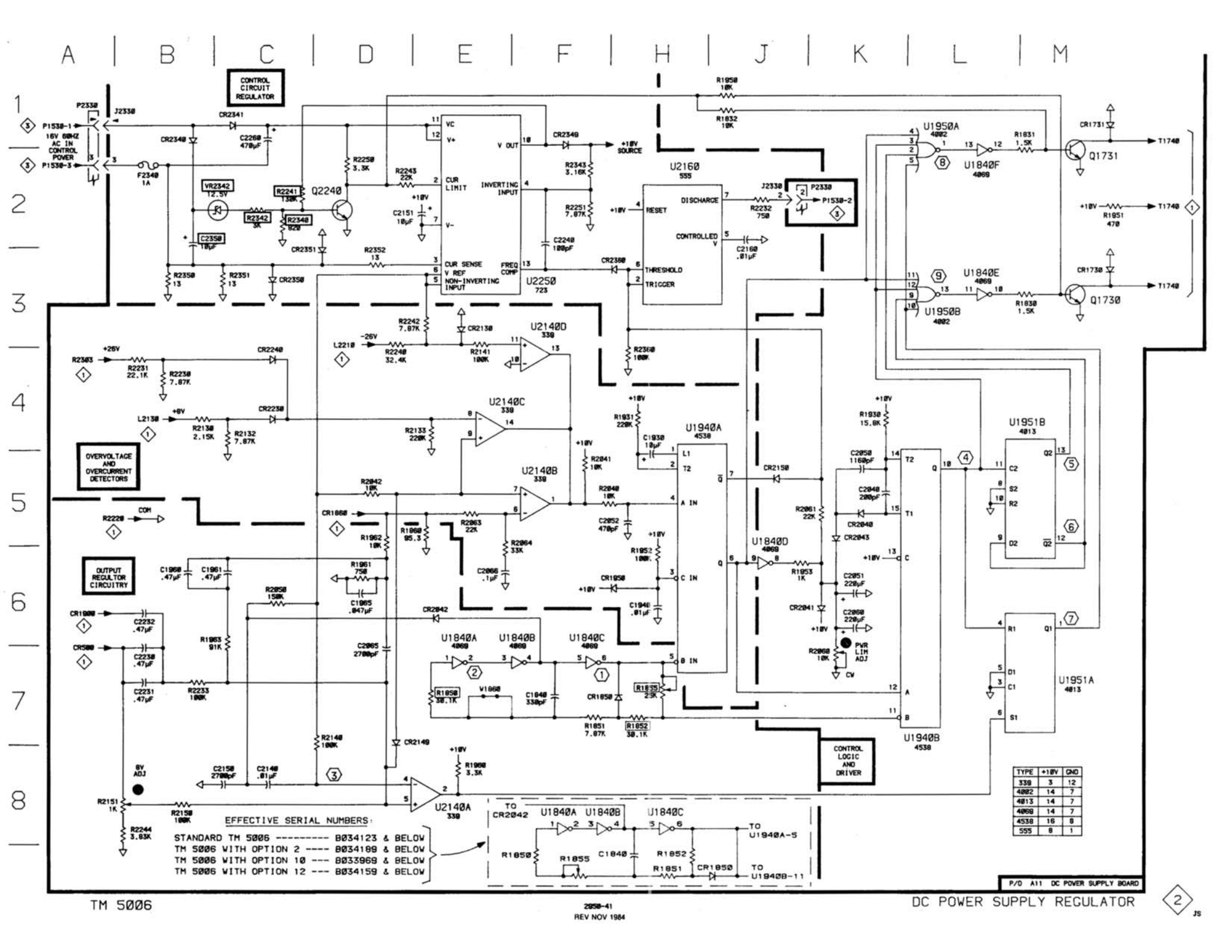
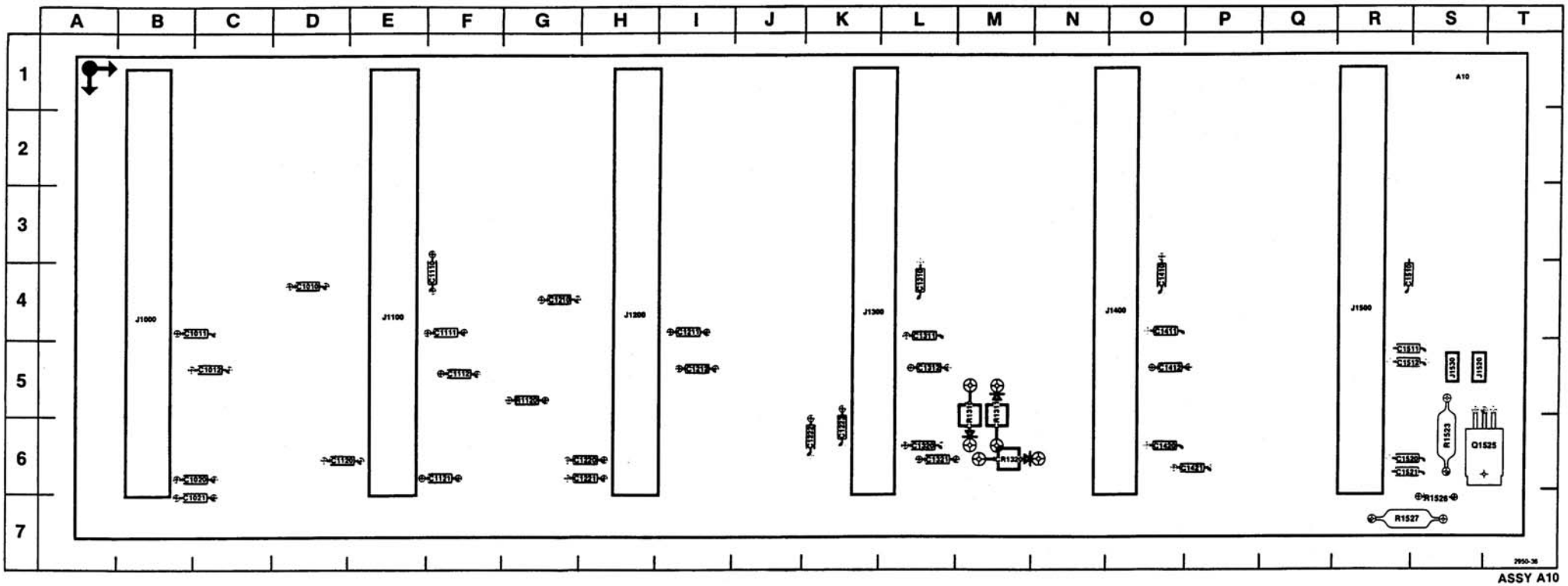


Fig. 8-2. Dc Power Supply Regulator Waveforms.


CONTROL CIRCUIT REGULATOR
OVERVOLTAGE AND OVERCURRENT DETECTORS
OUTPUT REGULTOR CIRCUITRY
CONTROL LOGIC AND DRIVER
U2250 723
U2160 555
U2140A 339
U2140B 339
U2140C 339
U2140D 339
U1940A 4538
U1940B 4538
U1840A 4069
U1840B 4069
U1840C 4069
U1840D 4069
U1840E 4069
U1840F 4069
U1950A 4002
U1950B 4002
U1951A 4013
U1951B 4013
Q2240
Q1731
Q1730
+10V SOURCE
16V 60HZ AC IN CONTROL POWER
8V ADJ
PWR LIM ADJ
CV
EFFECTIVE SERIAL NUMBERS:
STANDARD TM 5006 ---------- B034123 & BELOW
TM 5006 WITH OPTION 2 ---- B034189 & BELOW
TM 5006 WITH OPTION 10 --- B033969 & BELOW
TM 5006 WITH OPTION 12 --- B034159 & BELOW
TYPE +10V GND
339 3 12
4002 14 7
4013 14 7
4069 14 7
4538 16 8
555 8 1
P/O A11 DC POWER SUPPLY BOARD
TM 5006
2950-41
REV NOV 1984
DC POWER SUPPLY REGULATOR
JS

PARTS LOCATION GRID



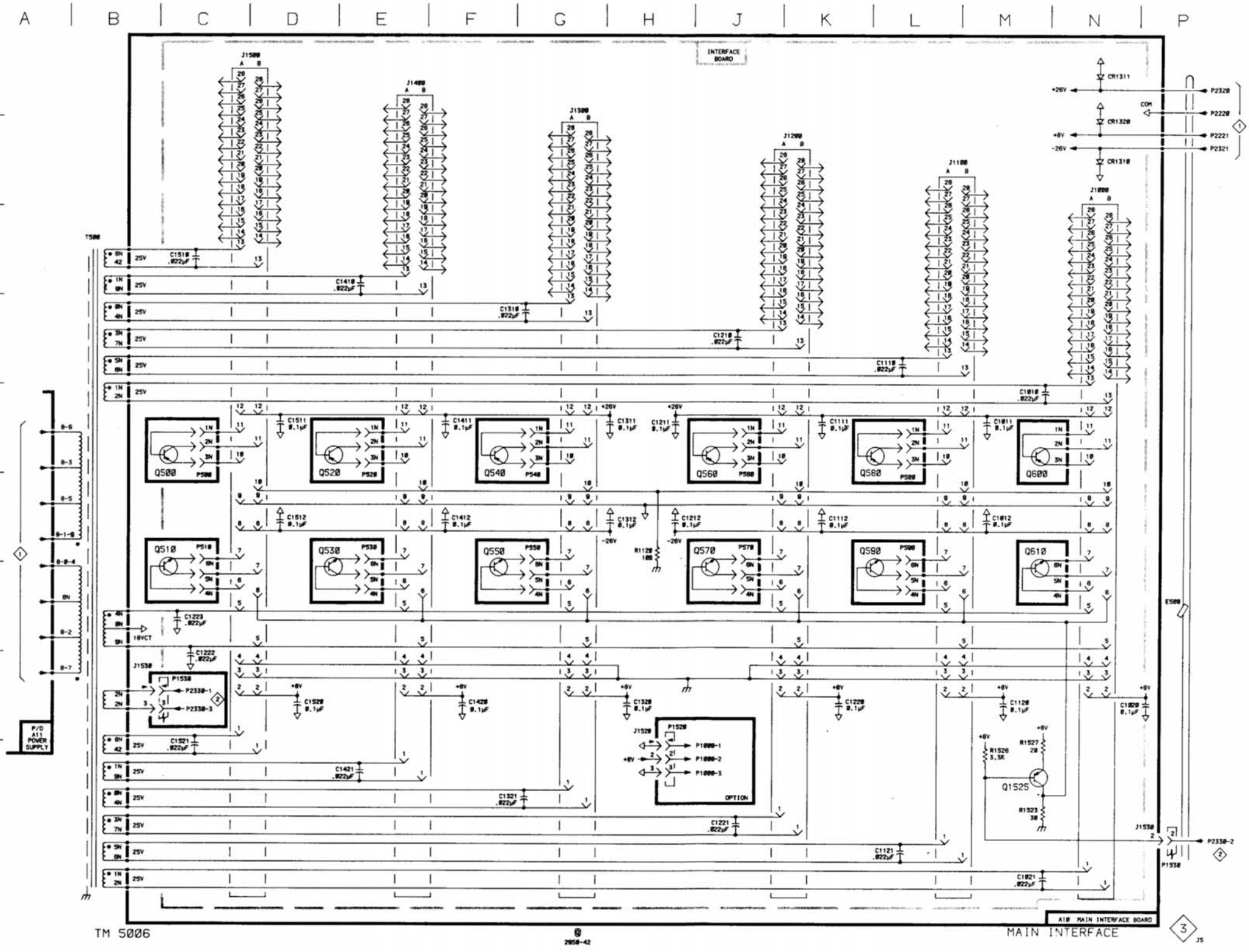
ASSY A10

Fig. 8-3. Main Interface Board (Assy A10).

Table 8-3
COMPONENT REFERENCE CHART

A10 ASSY — MAIN INTERFACE ◇3◇

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C1010	M5	D4
C1011	M5	C4
C1012	M6	C5
C1020	P8	C6
C1021	M9	C7
C1110	L4	F4
C1111	K5	F4
C1112	L6	F5
C1120	M8	D6
C1121	L9	F6
C1210	J4	G4
C1211	H5	I4
C1212	H6	I5
C1220	K8	H6
C1221	J9	H6
C1222	C8	K6
C1223	C7	K6
C1310	G4	L4
C1311	H5	L4
C1312	H6	L5
C1320	H8	L6
C1321	F9	L6
C1410	E3	O4
C1411	F5	O4
C1412	F6	O5
C1420	F8	O6
C1421	E9	P6
C1510	C3	R4
C1511	D5	R5
C1512	D6	R5
C1520	D8	R6
C1521	C9	R6
CR1310	N2	M5
CR1311	N1	M5
CR1320	N2	M6
J1000	N3	B4
J1100	L2	E4
J1200	K3	H4
J1300	G2	K4
J1400	E1	O4
J1500	C1	R4
J1520	H9	S5
J1530	P9	S5
J1530	B8	S5
P1520	H9	S5
P1530	B8	S5
P1530	P9	S5
Q1525	M9	P6
R1120	H6	G5
R1523	M9	P6
R1526	M9	P7
R1527	M9	P7
E500	P7	Chassis
P500	C5	Chassis
P510	C7	Chassis
P520	E5	Chassis
P530	E7	Chassis
P540	G5	Chassis
P550	G7	Chassis
P560	J5	Chassis
P570	J7	Chassis
P580	L5	Chassis
P590	L7	Chassis
Q500	C5	Chassis
Q510	C7	Chassis
Q520	D5	Chassis
Q530	D7	Chassis
Q540	F5	Chassis
Q550	F7	Chassis
Q560	J5	Chassis
Q570	J7	Chassis
Q580	L5	Chassis
Q590	L7	Chassis
Q600	M5	Chassis
Q610	M7	Chassis
T500	B3	Chassis


INTERFACE BOARD
A10 MAIN INTERFACE BOARD
MAIN INTERFACE
P/O A11 POWER SUPPLY
OPTION
Q500
Q520
Q540
Q560
Q580
Q600
Q510
Q530
Q550
Q570
Q590
Q610
Q1525
CR1311
CR1320
CR1310
+26V
COM
+8V
-26V
18VCT
P2320
P2220
P2221
P2321
P2330-1
P2330-3
P2330-2
P1538
J1538
P1529
J1529
P1000-1
P1000-2
P1000-3
R1120 100
R1526 3.3K
R1527 20
R1523 30
T500
E500

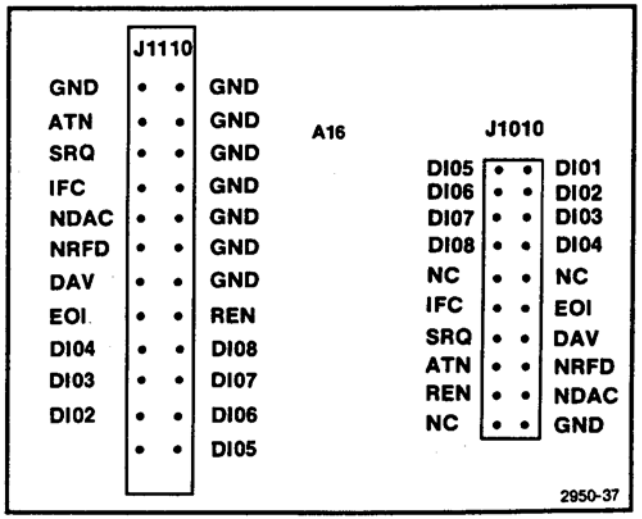
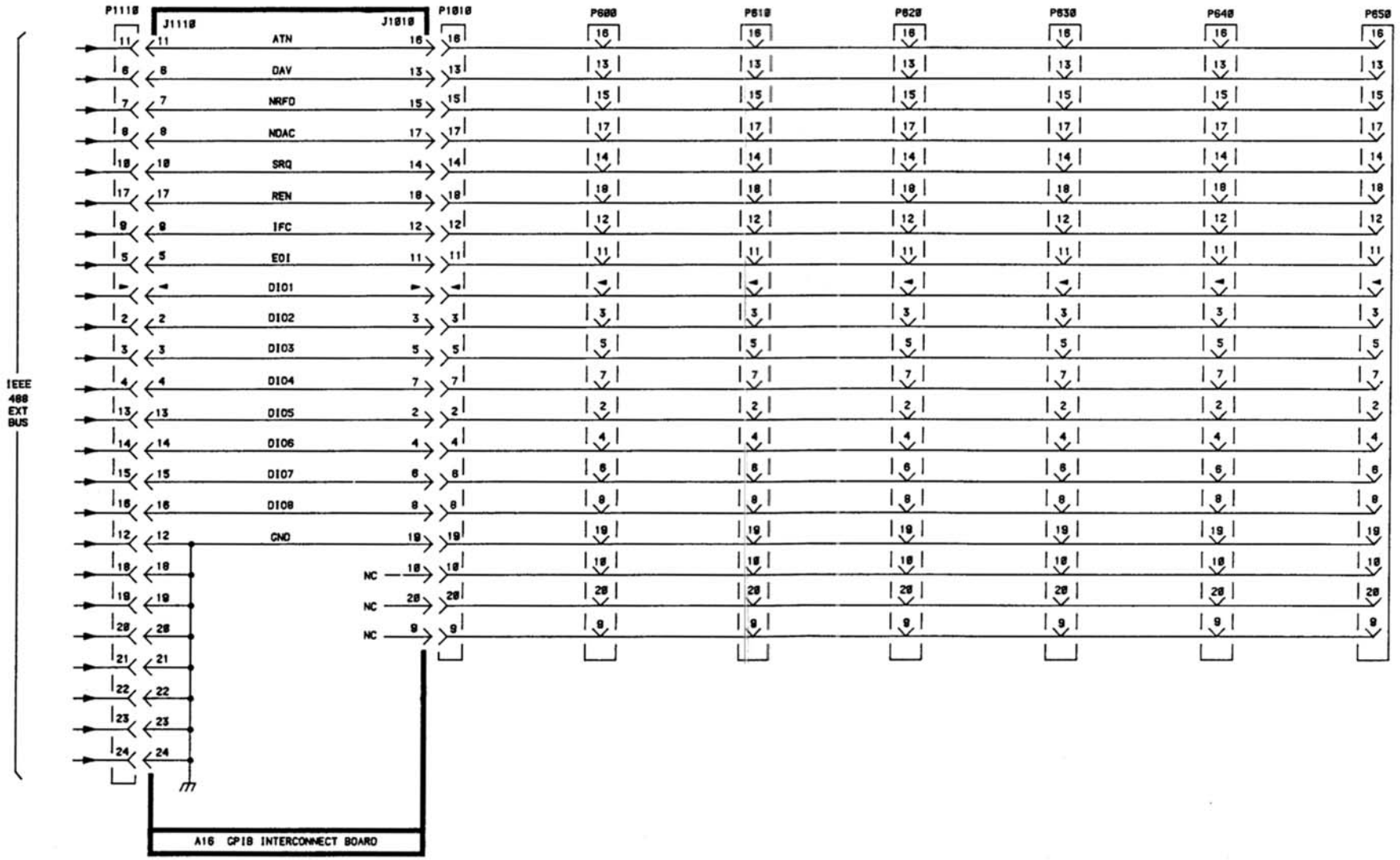


Fig. 8-4. GPIB Interconnect Board (backside) (Assy A16).



GBIP INTERCONNECT

©
2958-43

A10 MAIN INTERFACE BOARD CUSTOM INTERFACING AID

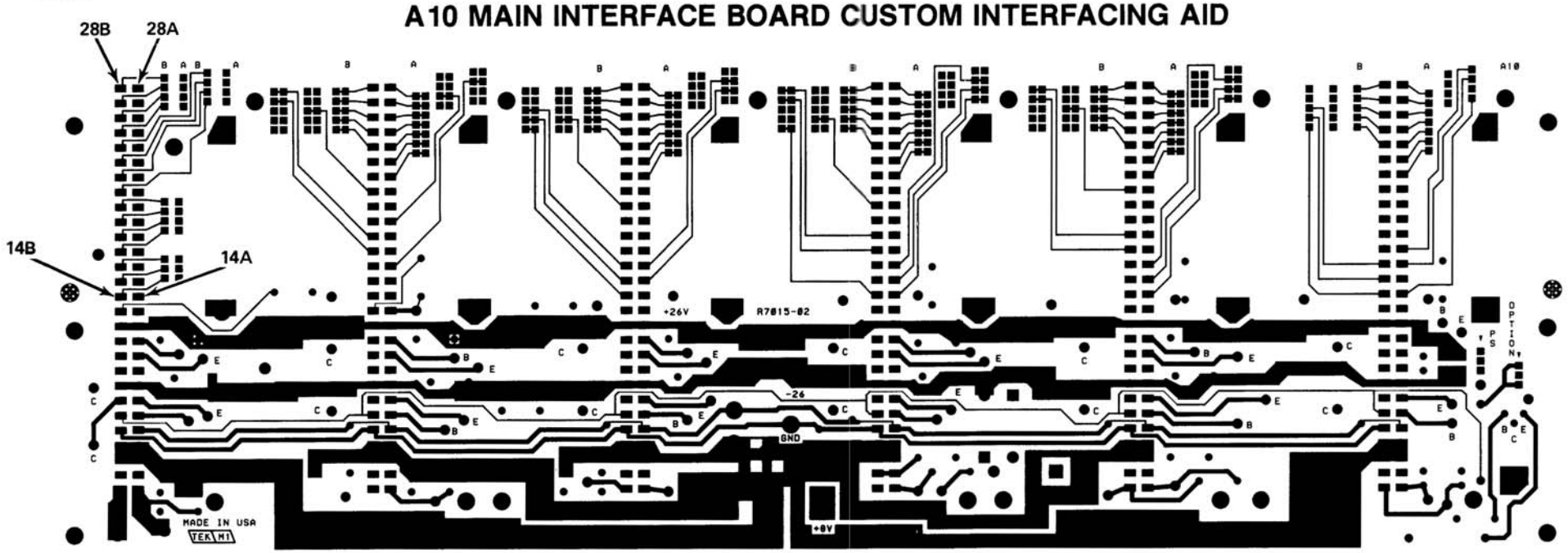


Fig. 8-5. Main Interface Board (backside, Assy A10).

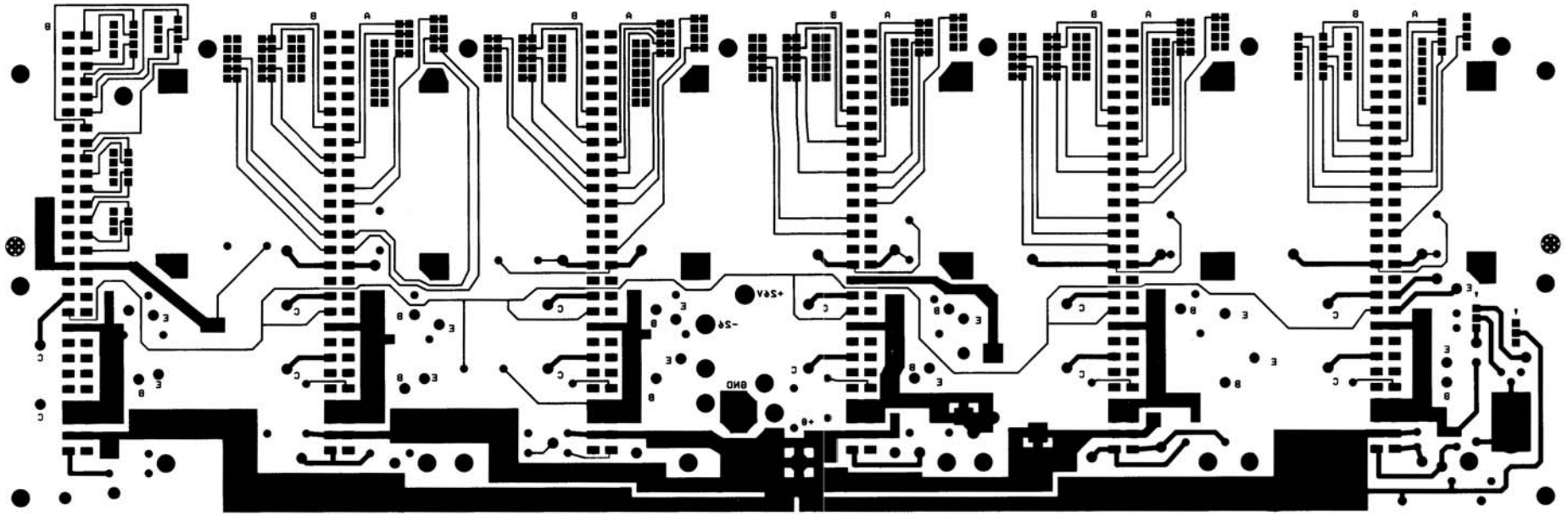


Fig. 8-6. Main Interface Board (rear view of frontside, Assy A10).

ADD NOV 1984

THIS ART IS PROVIDED AS AN AID FOR CUSTOM INTERFACE WIRING, SUCH AS OPT. 02.

REPLACEABLE MECHANICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

SPECIAL NOTES AND SYMBOLS

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

FIGURE AND INDEX NUMBERS

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

INDENTATION SYSTEM

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

1 2 3 4 5 Name & Description

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

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

Attaching parts must be purchased separately, unless otherwise specified.

ITEM NAME

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

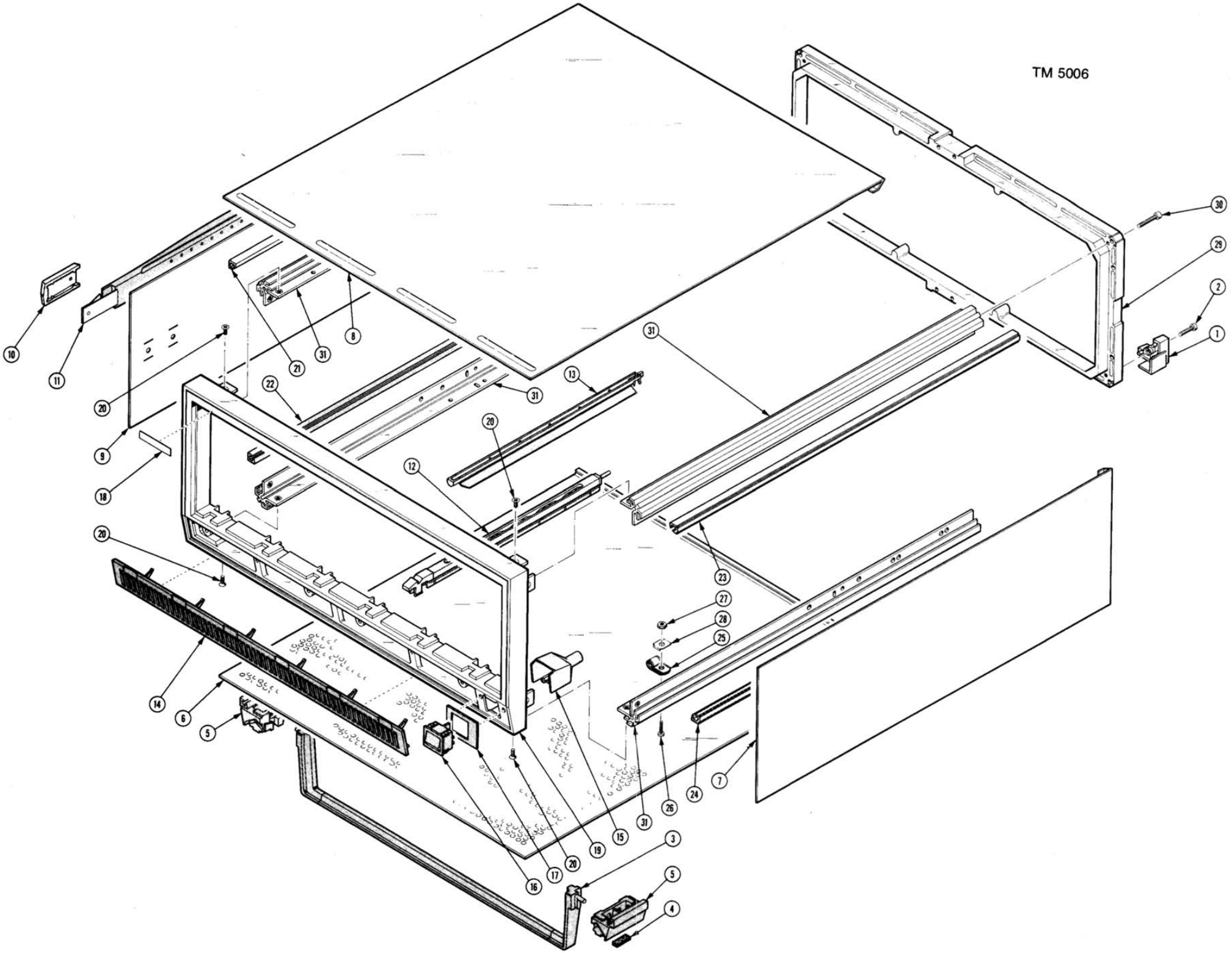
ABBREVIATIONS

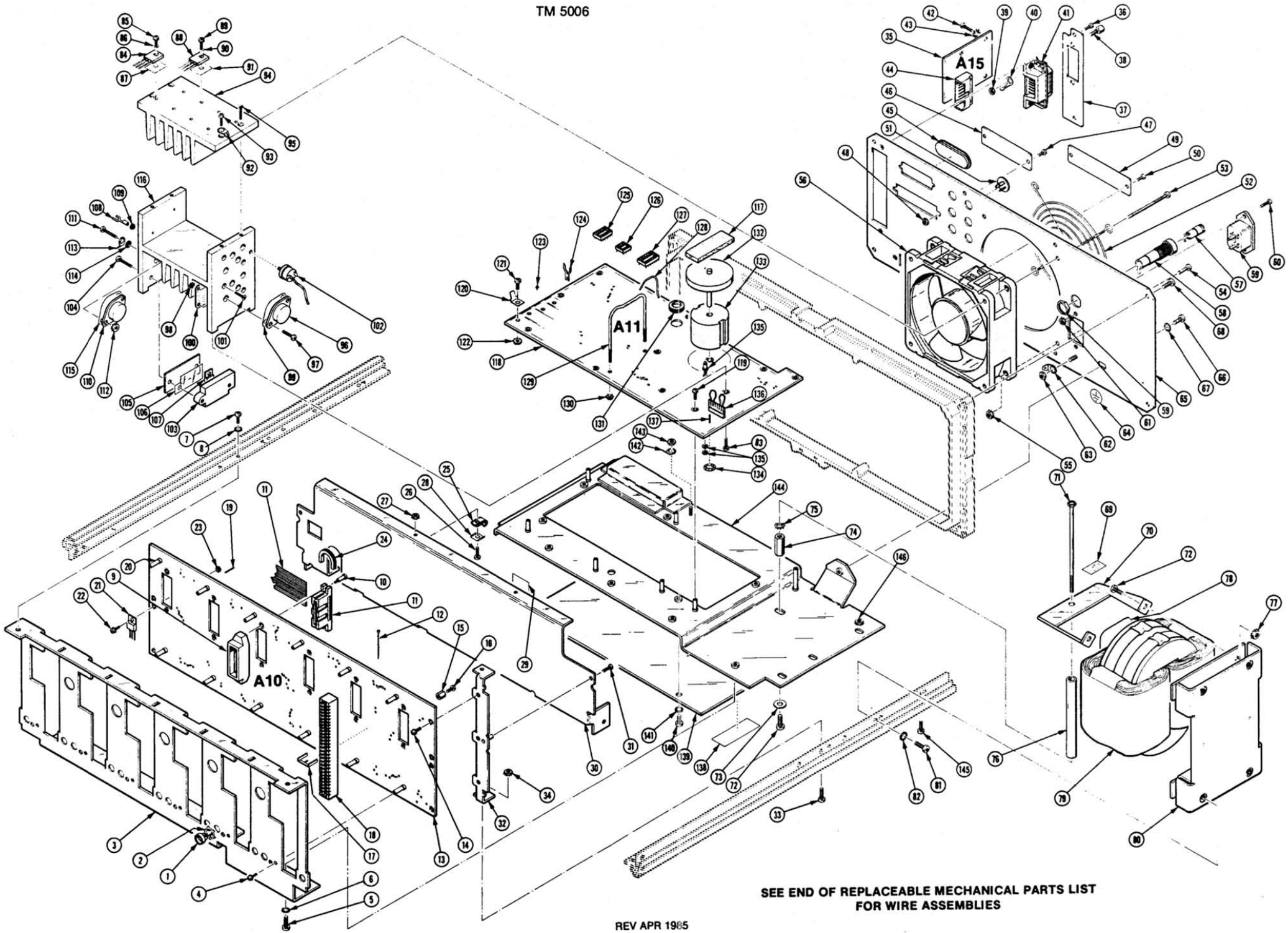
"	INCH
#	NUMBER SIZE
ACTR	ACTUATOR
ADPTR	ADAPTER
ALIGN	ALIGNMENT
AL	ALUMINUM
ASSEM	ASSEMBLED
ASSY	ASSEMBLY
ATTEN	ATTENUATOR
AWG	AMERICAN WIRE GAGE
BD	BOARD
BRKT	BRACKET
BRS	BRASS
BRZ	BRONZE
BSHG	BUSHING
CAB	CABINET
CAP	CAPACITOR
CER	CERAMIC
CHAS	CHASSIS
CKT	CIRCUIT
COMP	COMPOSITION
CONN	CONNECTOR
COV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

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
00779	AMP INC	P O BOX 3608	HARRISBURG PA 17105
02114	AMPEREX ELECTRONIC CORP FERROXCUBE DIV	5083 KINGS HWY	SAUGERTIES NY 12477
02735	RCA CORP SOLID STATE DIVISION	ROUTE 202	SOMERVILLE NJ 08876
06666	GENERAL DEVICES CO INC	1410 S POST RD P O BOX 39100	INDIANAPOLIS IN 46239
06915	RICHCO PLASTIC CO	5825 N TRIPP AVE	CHICAGO IL 60646
09922	BURNDY CORP	RICHARDS AVE	NORWALK CT 06852
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125
13511	AMPHENOL CADRE DIV BUNKER RAMO CORP		LOS GATOS CA
16037	SPRUCE PINE MICA CO.	P. O. BOX 219	SPRUCE PINE, NC 28777
16428	BELDEN CORP ELECTRONIC DIV	2200 US HWY 27 SOUTH P O BOX 1980	RICHMOND IN 47374
22526	DU PONT E I DE NEMOURS AND CO INC DU PONT CONNECTOR SYSTEMS DIV MILITARY PRODUCTS GROUP	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
24618	TRANSCON MFG. CO.	2655 PERTH ST.	DALLAS, TX 75220
27264	MOLEX INC CORPORATE HQ	2222 WELLINGTON COURT	LISLE IL 60532
70485	ATLANTIC INDIA RUBBER WORKS INC	571 W POLK ST	CHICAGO IL 60607
70903	BELDEN CORP	2000 S BATAVIA AVE	GENEVA IL 60134
71468	ITT CANNON ELECTRIC	10550 TALBERT PO BOX 8040	FOUNTAIN VALLEY CA 92728-8040
73743	FISCHER SPECIAL MFG CO	446 MORGAN ST	CINCINNATI OH 45206
77900	SHAKEPROOF DIV OF ILLINOIS TOOL WORKS	SAINT CHARLES RD	ELGIN IL 60120
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIVISION	ST CHARLES ROAD	ELGIN IL 60120
79136	WALDES KOHINOOR INC	47-16 AUSTEL PLACE	LONG ISLAND CITY NY 11101
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
81041	HOWARD INDUSTRIES DIV OF MSL INDUSTRIES INC	P O BOX 287	MILFORD IL 60953
83385	MICRODOT MANUFACTURING INC GREER-CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
83486	ELCO INDUSTRIES INC	1101 SAMUELSON RD	ROCKFORD IL 61101
85471	BOYD INDUSTRIAL RUBBER DIV OF A B BOYD CO	2527 GRANT AVE	SAN LEANDRO CA 94579
86928	SEASTROM MFG CO INC	701 SONORA AVE	GLENDALE CA 91201
88245	WINCHESTER ELECTRONICS LITTON SYSTEMS-USECO DIV	13536 SATICOY ST	VAN NUYS CA 91409
93907	TEXTRON INC CAMCAR DIV	600 18TH AVE	ROCKFORD IL 61101
95987	WECKESSER CO INC	4444 WEST IRVING PARK RD	CHICAGO IL 60641
98159	RUBBER TECK, INC.	19115 HAMILTON AVE., P O BOX 389	GARDENA, CA 90247
98410	ETC DIV OF INTERNATIONAL TELEPHONE AND TELEGRAPH CO	29000 AURORA RD	SOLON OH 44139
S3109	FELLER ASA ADOLF AG C/O PANEL COMPONENTS CORP	355 TESCONI CIRCLE	SANTA ROSA CA 95401
S3629	SCHURTER AG H C/O PANEL COMPONENTS CORP	2015 SECOND STREET	BERKELEY CA 94170
TK0433	PORTLAND SCREW CO	6520 N BASIN	PORTLAND OR 97217
TK0435	LEWIS SCREW CO	4114 S PEORIA	CHICAGO IL 60609
TK0508	NORTHWEST SPRING AND MFG CO	5858 WILLOW LANE	LAKE OSWEGO OR 97034
TK0858	STAUFFER SUPPLY CO	105 SE TAYLOR	PORTLAND OR 97214
TK0861	H SCHURTER AG DIST PANEL COMPONENTS	2015 SECOND STREET	BERKELEY CA 94170
TK1373	PATELEC-CEM (ITALY)	10156 TORINO	VAICENTALLO 62/45S ITALY
TK1569	GERHART TOOL AND DIE	1116 W ISABEL ST	BURBANK CA 91506

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-1	348-0544-05			4	RTNR,CAB.COVER:CORNER EARTH BROWN,PC	80009	348-0544-05
					(ATTACHING PARTS)		
-2	213-0782-00			4	SCREW,TPG,TF:8-32 X 0.625,FILH,STL	83486	ORDER BY DESCR
					(END ATTACHING PARTS)		
-3	348-0201-00			1	FLIP-STAND,CAB.:2.875 H,SST	TK0508	(ADVISE)
-4	348-0596-00	B010100	B022159	4	PAD,CAB.FOOT:0.69 X 0.255 X 0.06,PU	80009	348-0596-00
	348-0776-00	B022160		4	PAD,CAB.FOOT:POLYURETHANE	80009	348-0776-00
-5	348-0617-04			4	FOOT,CABINET:BOT,EARTH BROWN,POLYCARBONATE	80009	348-0617-04
-6	390-0807-00			1	CABINET BOTTOM:FULL RACK,17.956	80009	390-0807-00
-7	390-0783-03			1	CABINET SIDE:7.0 X 17.966,AL,EARTH BROWN	80009	390-0783-03
					SAFETY CONTROLLED		
-8	390-0667-03			1	CABINET TOP:FULL RACK X 17.66,AL,EARTH BROW	80009	390-0667-03
-9	390-0784-07			1	CABINET SIDE:7.0 X 17.966,W/HOLES	80009	390-0784-07
-10	200-2191-03			2	CAP,RETAINER:PLASTIC,EARTH BROWN	80009	200-2191-03
-11	367-0248-07			1	HANDLE,CARRYING:16.34 L,W/CLIP,PLASTIC	80009	367-0248-07
-12	351-0619-00			6	GUIDE,PL-IN UNI:BOTTOM	80009	351-0619-00
-13	378-0182-00			5	BAFFLE,AIR:	80009	378-0182-00
-14	378-2044-00			1	GRILLE,PLASTIC:8.04 L X 0.75 W,SILVER GRAY	80009	378-2044-00
-15	200-2576-00			1	COVER,SWITCH:	80009	200-2576-00
-16	----- -----			1	SWITCH,ROCKER:(SEE S500 REPL)		
-17	200-2565-00			1	COVER,SWITCH:PLASTIC	80009	200-2565-00
-18	334-0094-00			1	EMBLEM:SMOKE TAN W/O STUD	80009	334-0094-00
-19	426-1706-01			1	FR SECT,PLUG-IN:FRONT	80009	426-1706-01
					(ATTACHING PARTS)		
-20	211-0502-00			8	SCREW,MACHINE:6-32 X 0.188,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
					(END ATTACHING PARTS)		
-21	124-0354-03			1	STRIP,TRIM:CORNER,TOP,EARTH BROWN 17.41 L	80009	124-0354-03
-22	124-0355-03			1	STRIP,TRIM:CORNER,BOT,EARTH BROWN,13.9L	80009	124-0355-03
-23	124-0380-01			1	STRIP,TRIM:17.41 L,CORNER W/STEP,TOP,EARTH	80009	124-0380-01
					BROWN		
-24	124-0381-01			1	STRIP,TRIM:13.91 L,CORNER W/STEP,BOT,EARTH	80009	124-0381-01
					BROWN		
-25	343-0003-00			2	CLAMP,LOOP:0.25 ID,PLASTIC	06915	E4 CLEAR ROUND
					(ATTACHING PARTS)		
-26	211-0578-00			2	SCREW,MACHINE:6-32 X 0.438,PNH,STL	TK0435	ORDER BY DESCR
-27	210-0457-00			2	NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
-28	210-0863-00			2	WSHR,LOOP CLAMP:0.187 ID U/W 0.5 W CLP	95987	C191
					(END ATTACHING PARTS)		
-29	426-1480-01			1	FRAME,CABINET:REAR,7.0 X FULL RACK	80009	426-1480-01
					(ATTACHING PARTS)		
-30	213-0863-00			4	SCREW,TPG,TR:8-32 X 1.375,TAPTITE,FILH,STL	93907	ORDER BY DESCR
					(END ATTACHING PARTS)		
-31	426-1705-00			4	FR SECT,PLUG-IN:CORNER	80009	426-1705-00


TM 5006



SEE END OF REPLACEABLE MECHANICAL PARTS LIST FOR WIRE ASSEMBLIES

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2-1	348-0640-00			12	GROMMET,PLASTIC:BLACK,ROUND,0.188 ID	80009	348-0640-00
-2	214-3026-00			12	SPRING,GROUND:CU BE	TK1569	ORDER BY DESCR
	334-2380-00	B020400		1	MARKER,IDENT:MKD HIGH POWER COMPARTMENT	80009	334-2380-00
-3	386-4349-00			1	SUPPORT,CKT BD:INTERFACE,AL	80009	386-4349-00
					(ATTACHING PARTS)		
-4	211-0244-00			12	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
-5	212-0023-00			4	SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-6	210-0008-00			4	WASHER,LOCK:#8 INTL,0.02 THK,STL	77900	1208-00-00-0541C
-7	211-0504-00			2	SCREW,MACHINE:6-32 X 0.250,PNH,STL	TK0435	ORDER BY DESCR
-8	210-0006-00			2	WASHER,LOCK:#6 INTL,0.018 THK,STL	77900	1206-00-00-0541C
					(END ATTACHING PARTS)		
-9	380-0655-00			6	HOUSING,CONN:FLOATING,PLASTIC	80009	380-0655-00
					(ATTACHING PARTS)		
-10	211-0295-00			12	SCREW,SHOULDER:2-56 X 0.54,HEX HD,STL	80009	211-0295-00
					(END ATTACHING PARTS)		
-11	175-3248-00			1	CA ASSY,SP,ELEC:20,26 AWG,20.4 L	22526	80173-001
-12	006-0531-00			6	STRAP,TIEDOWN,E:BLUE PLASTIC BEADED	24618	700-3688
-13	----- -----			1	CKT BOARD ASSY:MAIN INTCON(SEE A10 REPL)		
					(ATTACHING PARTS)		
-14	211-0244-00			6	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
					CKT BOARD ASSY INCLUDES:		
-15	361-1084-00			1	.SPACER,ACTUATOR:0.33 L X 0.25 DIA,PLASTIC	80009	361-1084-00
					.(ATTACHING PARTS)		
-16	211-0244-00			1	.SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					.(END ATTACHING PARTS)		
-17	214-1593-02			6	.KEY,CONN PLZN:CKT BOARD CONN	80009	214-1593-02
-18	----- -----			6	.CONNECTOR,RCPT:(SEE A10J1000,J1100,J1200,		
					.J1300,J1400,J1500 REPL)		
-19	----- -----			6	.TERMINAL,PIN:(SEE A10J1520,J1530 REPL)		
	131-0608-00			306	.TERMINAL,PIN:0.365 L X 0.025 BRZ GLD PL	22526	48283-036
					.(OPTION 02,12 ONLY)		
-20	129-0814-00			12	.SPACER,POST:0.622L,4-40 INT,BRS,0.2880D	80009	129-0814-00
-21	----- -----			1	.TRANSISTOR:(SEE A10Q1525 REPL)		
					.(ATTACHING PARTS)		
-22	211-0244-00			1	.SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
-23	210-0586-00			1	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
					(END ATTACHING PARTS)		
-24	358-0166-00			1	GROMMET,PLASTIC:BLACK,U-SHAPE,0.656 ID	80009	358-0166-00
-25	343-0004-00			2	CLAMP,LOOP:0.312 ID,PLASTIC	06915	E5 CLEAR ROUND
					(ATTACHING PARTS)		
-26	211-0578-00			2	SCREW,MACHINE:6-32 X 0.438,PNH,STL	TK0435	ORDER BY DESCR
-27	210-0457-00			2	NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
-28	210-0863-00			2	WSHR,LOOP CLAMP:0.187 ID U/W 0.5 W CLP	95987	C191
					(END ATTACHING PARTS)		
-29	334-4126-00			2	MARKER,IDENT:MKD WARNING	80009	334-4126-00
-30	337-2903-00			1	SHIELD,ELEC:CIRCUIT BOARD	80009	337-2903-00
					(ATTACHING PARTS)		
-31	211-0244-00			4	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
-32	386-4350-00			2	SUPPORT,CKT BD:INTERFACE,AL	80009	386-4350-00
					(ATTACHING PARTS)		
-33	211-0510-00			4	SCREW,MACHINE:6-32 X 0.375,PNH,STL	83385	ORDER BY DESCR
-34	210-0457-00			4	NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
					(END ATTACHING PARTS)		
-35	----- -----			1	CKT BOARD ASSY:GPIB INTERCON(SEE A15 REPL)		
					(ATTACHING PARTS)		
-36	211-0244-00			2	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
					CKT BOARD ASSY INCLUDES:		
-37	333-2648-00			1	.PANEL,FRONT:GPIB	80009	333-2648-00
					.(ATTACHING PARTS)		
-38	214-3312-00			2	.HARDWARE KIT:JACKSOCKET FOR GPIB	00779	552633-4
-39	220-0555-00			2	.NUT,PLAIN,HEX:8-32 X 0.25 HEX,STL CD PL	TK0433	ORDER BY DESCR
-40	210-0202-00			1	.TERMINAL,LUG:0.146 ID,LOCKING,BRZ TIN PL	86928	A-373-158-2
					.(END ATTACHING PARTS)		
-41	----- -----			1	.CONN,RCPT,ELEC:(SEE A15J1110 REPL)		
					.(ATTACHING PARTS)		

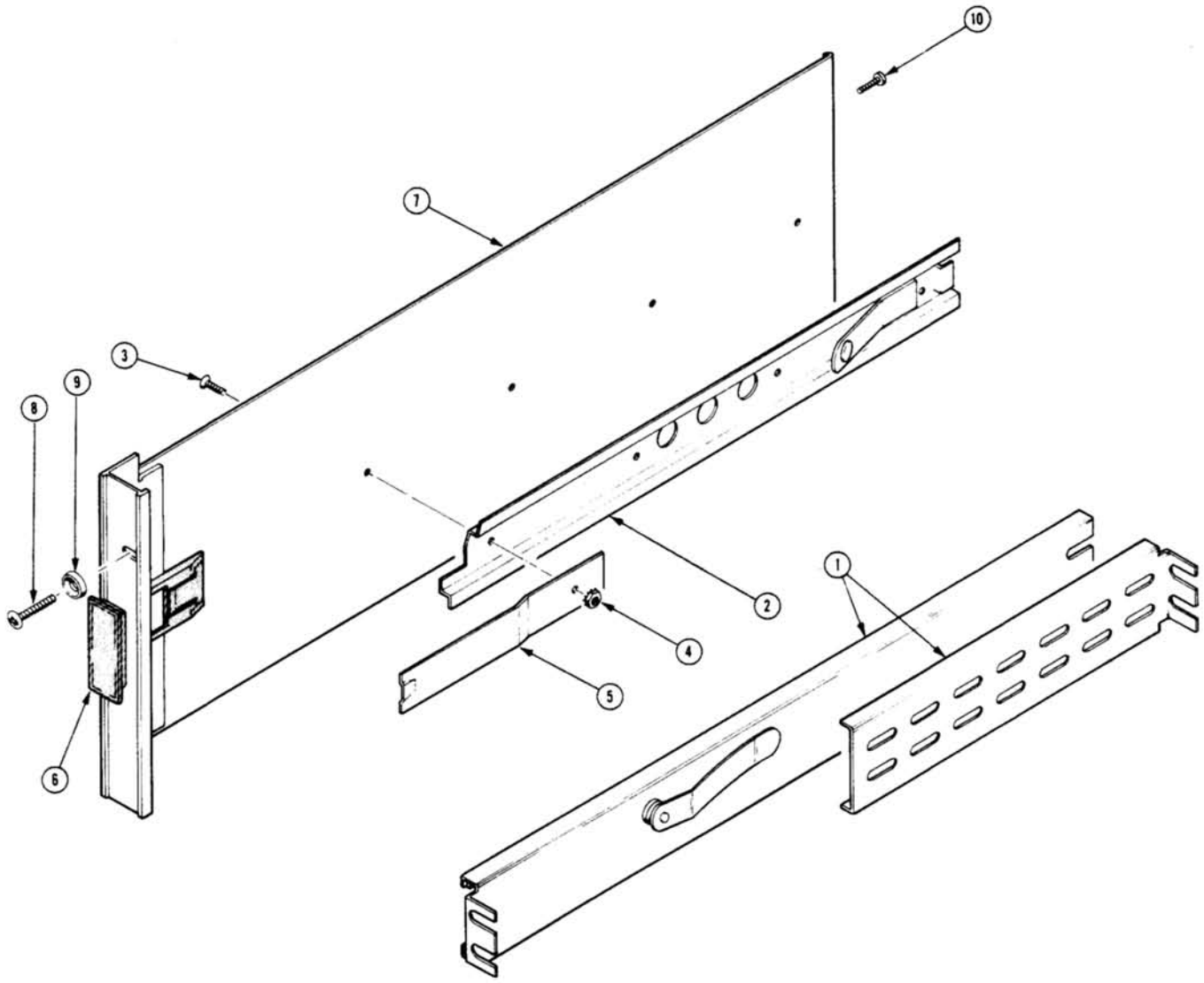
Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2-42	213-0267-00			2	.SCREW,TPG,TC:4-24 X 0.375,PAN HD,STL	83385	ORDER BY DESCR
-43	210-0003-00			2	.WASHER,LOCK:#4 EXT,0.015 THK,STL	78189	1104-00-00-0541C
					.(END ATTACHING PARTS)		
-44	----- -----			1	.CONN,RCPT,ELEC:(SEE A15J1010 REPL)		
-45	200-0814-00			1	CABLE NIP,ELEC:0.195-0.265 ID X 0.255 L,GY	80009	200-0814-00
-46	200-2467-00			1	COVER,CONNECTOR:ALUMINUM	80009	200-2467-00
					(ATTACHING PARTS)		
-47	211-0244-00			2	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
-48	210-0586-00			2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
					(END ATTACHING PARTS)		
-49	200-2465-00			1	COVER,CA INSERT:ALUMINUM	80009	200-2465-00
					(ATTACHING PARTS)		
-50	211-0244-00			2	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
-51	134-0159-00			6	BUTTON,PLUG:0.38 DIA,PLASTIC	80009	134-0159-00
-52	200-2222-00			1	GUARD,FAN:	81041	6-182-033
					(ATTACHING PARTS)		
-53	211-0552-00			2	SCREW,MACHINE:6-32 X 2.0,PNH,STL	TK0435	ORDER BY DESCR
-54	211-0513-00			2	SCREW,MACHINE:6-32 X 0.625,PNH,STL	93907	B80-00032-003
-55	210-0457-00			2	NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
	361-1194-00			2	SPACER,SLEEVE:0.965 L X 0.035 ID,AL	80009	361-1194-00
					(END ATTACHING PARTS)		
-56	----- -----			1	FAN,VENTILATING:(SEE B500 REPL)		
-57	200-2264-00			1	CAP,FUSEHOLDER:3AG FUSES	S3629	FEK 031 1666
-58	204-0832-00			1	BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	TK0861	031 1673
-59	----- -----			1	FILTER,RFI:(SEE FL500 REPL)		
					(ATTACHING PARTS)		
-60	211-0012-00			2	SCREW,MACHINE:4-40 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-61	210-0586-00			2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
					(END ATTACHING PARTS)		
-62	210-0205-00			2	TERMINAL,LUG:0.172 ID,LOCKING,BRS TIN PL	86928	5442-7
					(ATTACHING PARTS)		
-63	210-0409-00			2	NUT,PLAIN,HEX:8-32 X 0.312,BRS CD PL	73743	3046-402
					(END ATTACHING PARTS)		
-64	334-3379-03	B010100	B010134	2	MARKER,IDENT:MARKED GROUND SYMBOL	80009	334-3379-03
	334-3379-03	B010135		1	MARKER,IDENT:MARKED GROUND SYMBOL	80009	334-3379-03
-65	333-2633-00	B010100	B037063	1	PANEL,REAR:	80009	333-2633-00
	333-2633-01	B037064		1	PANEL,REAR:	80009	333-2633-01
					(ATTACHING PARTS)		
-66	212-0023-00			1	SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-67	210-0008-00			1	WASHER,LOCK:#8 INTL,0.02 THK,STL	77900	1208-00-00-0541C
-68	213-0801-00			8	SCREW,TPG,TF:8-32 X 0.312,TAPTITE,PNH,STL	83486	ORDER BY DESCR
					(END ATTACHING PARTS)		
-69	334-2332-00			1	MARKER,IDENT:DANGER:VOLTAGE IN THIS AREA	80009	334-2332-00
-70	407-2497-00			2	BRACKET,XFMR:ALUMINUM	80009	407-2497-00
					(ATTACHING PARTS)		
-71	212-0565-00			1	SCREW,MACHINE:10-32 X 4.25,HEX HD,STL	83385	ORDER BY DESCR
-72	212-0507-00			5	SCREW,MACHINE:10-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-73	210-1227-00			1	WASHER,FLAT:0.203 ID X 0.5 OD X0 0.048,STL	12327	ORDER BY DESCR
	211-0009-00			1	SCREW,MACHINE:4-40 X 0.25,OVH,STL	83385	ORDER BY DESCR
-74	129-0606-00			1	SPACER,POST:0.9 L,10-32 THRU,AL,0.375 HEX	80009	129-0606-00
-75	210-0009-00			1	WASHER,LOCK:#10 EXT,0.022 THK,STL	78189	1110-00
-76	361-1040-00			1	SPACER,SLEEVE:3.66 L X 0.245 ID,AL	80009	361-1040-00
-77	220-0410-00			4	NUT,PL,ASSEM WA:10-32 X 0.375 HEX,STL CD PL	78189	511-101800-50
					(END ATTACHING PARTS)		
-78	342-0028-00			2	INSULATOR,PLATE:TRANSFORMER,ANODIZED AL	80009	342-0028-00
-79	----- -----			1	XFMR,PWR,STPDN:(SEE T500 REPL)		
-80	386-4351-00			1	SUPPORT,XFMR:ALUMINUM	80009	386-4351-00
					(ATTACHING PARTS)		
-81	212-0023-00			4	SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-82	210-0008-00			4	WASHER,LOCK:#8 INTL,0.02 THK,STL	77900	1208-00-00-0541C
					(END ATTACHING PARTS)		
	650-0571-00			1	HEAT SINK ASSY:POWER SUPPLY	80009	650-0571-00
					(ATTACHING PARTS)		
-83	211-0244-00			4	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
-84	----- -----			5	.TRANSISTOR:(SEE Q510,Q530,Q550,Q570,		
					.Q590 REPL)		

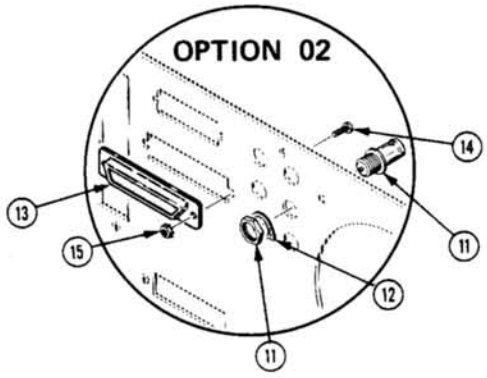
Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2-					.(ATTACHING PARTS)		
-85	211-0012-00			5	.SCREW,MACHINE:4-40 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-86	210-1122-00			5	.WASHER,LOCK:0.12 ID,DISHED,0.025 THK,STL	86928	ORDER BY DESCR
-87	342-0163-00			5	.INSULATOR,PLATE:TRANSISTOR,MICA	80009	342-0163-00
					.(END ATTACHING PARTS)		
-88	----- -----			5	.TRANSISTOR:(SEE Q500,Q520,Q540,Q560, .Q580 REPL)		
					.(ATTACHING PARTS)		
-89	211-0012-00			5	.SCREW,MACHINE:4-40 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-90	210-1122-00			5	.WASHER,LOCK:0.12 ID,DISHED,0.025 THK,STL	86928	ORDER BY DESCR
-91	342-0163-00			5	.INSULATOR,PLATE:TRANSISTOR,MICA	80009	342-0163-00
					.(END ATTACHING PARTS)		
-92	210-0202-00			1	.TERMINAL,LUG:0.146 ID,LOCKING,BRZ TIN PL	86928	A-373-158-2
					.(ATTACHING PARTS)		
-93	211-0014-00			1	.SCREW,MACHINE:4-40 X 0.5,PNH,STL	TK0435	ORDER BY DESCR
					.(END ATTACHING PARTS)		
-94	214-3126-00			1	.HEAT SINK,XSTR:(8)TO-127,TOP,AL	80009	214-3126-00
					.(ATTACHING PARTS)		
-95	211-0102-00			3	.SCREW,MACHINE:4-40 X 0.5,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
					.(END ATTACHING PARTS)		
-96	----- -----			2	.TRANSISTOR:(SEE Q600,Q610 REPL)		
					.(ATTACHING PARTS)		
-97	213-0185-00			4	.SCREW,TPG,TF:6-20 X 0.625,TYPE B,PNH,STL	TK0435	3012
-98	210-0586-00			4	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
-99	386-0978-00			2	.INSULATOR,PLATE:TRANSISTOR,MICA	16037	#130
-100	136-0280-00			2	.SKT,PL-IN ELEK:TRANSISTOR,3 CONTACT	TK0194	1003-1R
					.(END ATTACHING PARTS)		
-101	211-0102-00			4	.SCREW,MACHINE:4-40 X 0.5,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
-102	----- -----			1	.SW,THERMOSTATIC:(SEE S550 REPL)		
-103	200-2269-00			1	.COVER,XSTR:	80009	200-2269-00
					.(ATTACHING PARTS)		
-104	211-0513-00			2	.SCREW,MACHINE:6-32 X 0.625,PNH,STL	93907	B80-00032-003
					.(END ATTACHING PARTS)		
-105	342-0449-01			1	.INSULATOR,PLATE:TRANSISTOR,ALUMINA	80009	342-0449-01
-106	342-0458-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	86928	ORDER BY DESCR
-107	----- -----			2	.TRANSISTOR:(SEE Q1640,Q1650 REPL)		
-108	210-0230-00			2	.TERMINAL,LUG:#6 STUD,SOLDERLESS	98410	A-134-06
-109	129-0222-00			2	.SPACER,POST:0.27 L,4-40 THRU,PLSTC,0.25 OD	80009	129-0222-00
-110	----- -----			1	.SEMICOND DEVICE:(SEE CR500 REPL)		
					.(ATTACHING PARTS)		
-111	211-0513-00			2	.SCREW,MACHINE:6-32 X 0.625,PNH,STL	93907	B80-00032-003
-112	210-0457-00			2	.NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
-113	210-0202-00			1	.TERMINAL,LUG:0.146 ID,LOCKING,BRZ TIN PL	86928	A-373-158-2
-114	210-0967-00			2	.WASHER,SHLDR:0.156 ID X 0.375 OD X 0.094 TH .K,NYL	02735	495334-7
					.(END ATTACHING PARTS)		
-115	386-0978-00	B010100	B020399	1	.INSULATOR,PLATE:TRANSISTOR,MICA	16037	#130
	386-0786-00	B020400		1	.INSULATOR,PLATE:TRANSISTOR,MICA	28205	ORDER BY DESCR
-116	214-3052-00			1	.HEAT SINK,XSTR:BOTTOM,3,TO-3 & 8,TO-126,AL	80009	214-3052-00
-117	348-0070-01			1	PAD,CUSHIONING:2.03 X 0.69 X 0.18 SI RBR	85471	ORDER BY DESCR
-118	----- -----			1	CKT BOARD ASSY:POWER SUPPLY(SEE A11 REPL)		
					(ATTACHING PARTS)		
-119	211-0244-00			7	SCR,ASSEM WSHR:4-40 X 0.312,PNH STL	TK0858	211-0244-00
					(END ATTACHING PARTS)		
					CKT BOARD ASSY INCLUDES:		
-120	----- -----			4	.TERM,QIK DISC:(SEE A11J2220,J2221,J2320, .J2321 REPL)		
					.(ATTACHING PARTS)		
-121	211-0504-00			4	.SCREW,MACHINE:6-32 X 0.250,PNH,STL	TK0435	ORDER BY DESCR
-122	210-0457-00			4	.NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL	78189	511-061800-00
					.(END ATTACHING PARTS)		
-123	136-0252-07			9	.SOCKET,PIN CONN:W/O DIMPLE	22526	75060-012
-124	344-0154-03			2	.CLIP,ELECTRICAL:FUSE,CKT BD MT,CU BE CU-SN- .ZN PL	TK1569	ORDER BY DESCR
-125	136-0269-02	B010100	B021839	5	.SKT,PL-IN ELEK:MICROCIRCUIT,14 DIP	09922	DILB14P-108T
-126	136-0514-00	B010100	B021839	1	.SKT,PL-IN ELEK:MICROCIRCUIT,8 DIP	09922	DILB8P-108
	136-0728-00	B021840	B033969	1	.SKT,PL-IN ELEK:MICROCKT,14 CONTACT	09922	DILB14P-108
-127	136-0260-02	B010100	B021839	1	.SKT,PL-IN ELEK:MICROCKT,16 DIP,LOW CL	09922	DILB16P-108T

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2-128	346-0032-00			1	.STRAP,RETAINING:0.075 DIA X 4.0 L,MLD RBR	98159	2829-75-4
-129	214-3131-00			1	.BOLT,U:6-32 X 2.250 X 1.925,BRASS .(ATTACHING PARTS)	02114	52 U BOLT
-130	210-0457-00			2	.NUT,PL,ASSEM WA:6-32 X 0.312,STL CD PL .(END ATTACHING PARTS)	78189	511-061800-00
-131	348-0005-00			1	.GROMMET,RUBBER:BLACK,ROUND,0.375 ID	70485	230X-36017
-132	352-0526-00			1	.HOLDER,COIL:BLACK NYLON	80009	352-0526-00
-133	----- -----			1	.COIL,RF:(SEE A11L1440 REPL) .(ATTACHING PARTS)		
-134	354-0553-00			1	.RING,RETAINING:EXT CIRC PUSH-ON	79136	5115-18
-135	131-0373-00			1	.TERMINAL,STUD:0.593 L	88245	MTS-7
-136	131-1896-00			2	.BUS,CONDUCTOR:8.22 AWG,1.5 L	80009	131-1896-00
-137	----- -----			25	.TERMINAL,PIN:(SEE A11J1000,J1010,J1011,J1 .J1013,J1020,J2330 REPL)		
-138	334-3621-00	B010100		1	MARKER,IDENT:MARKED DANGER,LINE V PRESENT	80009	334-3621-00
-139	386-4563-00			1	PLATE,COVER:POWER SUPPL CHASSIS,AL (ATTACHING PARTS)	80009	386-4563-00
-140	212-0023-00			5	SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-141	210-0008-00			5	WASHER,LOCK:#8 INTL,0.02 THK,STL (END ATTACHING PARTS)	77900	1208-00-00-0541C
-142	210-0205-00			1	TERMINAL,LUG:0.172 ID,LOCKING,BRS TIN PL (ATTACHING PARTS)	86928	5442-7
-143	210-0409-00			1	NUT,PLAIN,HEX:8-32 X 0.312,BRS CD PL (END ATTACHING PARTS)	73743	3046-402
-144	441-1522-00			1	CHAS,PWR SUPPLY: (ATTACHING PARTS)	80009	441-1522-00
-145	212-0023-00			6	SCREW,MACHINE:8-32 X 0.375,PNH,STL	TK0435	ORDER BY DESCR
-146	210-0458-00			3	NUT,PL,ASSEM WA:8-32 X 0.344,STL CD PL (END ATTACHING PARTS)	78189	511-081800-00
					WIRE ASSEMBLIES		
	175-2977-00			5	CA ASSY,SP,ELEC:6,22 AWG,10.0 L (FROM A10 TO Q500,Q510) SUBPART OF A10 (FROM A10 TO Q520,Q530) SUBPART OF A10 (FROM A10 TO Q540,Q560) SUBPART OF A10 (FROM A10 TO Q550,Q570) SUBPART OF A10 (FROM A10 TO Q580,Q590) SUBPART OF A10	80009	175-2977-00
	204-0671-00			10	.CONN BODY,PLUG:1 X 3 CONTACTS	27264	09-50-7031
	175-3611-00			1	CA ASSY,SP,ELEC:3,22 AWG,7.0 L,RIBBON (FROM A10J1530 TO A11J2330 AND A10J2220, .A10J2221,A10J2320,A10J2321 TO A11) .SUBPART OF A10	80009	175-3611-00
	352-0161-00			2	.HLDR,TERM CONN:3 WIRE,BLACK	80009	352-0161-00
	195-0648-00			1	LEAD,ELECTRICAL:12,AWG,11.0 L,2-N (FROM A10 TO A11+8) SUBPART OF A10	80009	195-0648-00
	195-0649-00			1	LEAD,ELECTRICAL:12 AWG,11.0 L,0-N (FROM A10 TO A11 GRD) SUBPART OF A10	80009	195-0649-00
	195-0650-00			1	LEAD,ELECTRICAL:18 AWG,12.0 L,2-1 (FROM A10 TO A11+26) SUBPART OF A10	80009	195-0650-00
	195-0651-00			1	LEAD,ELECTRICAL:18 AWG,12.0 L,7-1 (FROM A10 TO A11-26) SUBPART OF A10	80009	195-0651-00
	195-0948-00			1	LEAD,ELECTRICAL:22 AWG,5.5 L,8-0 (FROM A11 TO A11) SUBPART OF A11	80009	195-0948-00
	175-3610-00			1	CA ASSY,SP,ELEC:6,22 AWG,10.0 L,RIBBON (FROM A11 TO Q610,Q600)	80009	175-3610-00
	195-1948-00			1	LEAD,ELECTRICAL:18 AWG,4.0 L,8-03 (FROM A11 TO S550)	80009	195-1948-00
	195-0947-00			2	LEAD,ELECTRICAL:22 AWG,1.5 L,8-0 (FROM A11 TO HEAT SINK) SUBPART OF A11	80009	195-0947-00
	175-3352-00			1	CA ASSY,SP,ELEC:4,18 AWG,24.0 L (FROM A11J500,S550 TO S500)	80009	175-3352-00
	198-4448-00			1	WIRE SET,ELEC: (FROM A11J1010 TO B500)	80009	198-4448-00
	352-0161-00			1	.HLDR,TERM CONN:3 WIRE,BLACK	80009	352-0161-00
	195-1123-00			1	LEAD,ELECTRICAL:18 AWG,2.0 L,8-0 (FROM J500 TO F500)	80009	195-1123-00
	195-0652-00			1	LEAD,ELECTRICAL:18 AWG,4.0 L,5-4 (FROM J500 TO REAR PANEL)	80009	195-0652-00

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
3-1	351-0636-00			AR	SLIDE,DWR,EXT:20.0 X 1.69,PAIR,R&L	80009	351-0636-00
-2	351-0104-03			AR	SL SECT,DWR EXT:12.625 L,W/O HARDWARE (ATTACHING PARTS)	06666	C-720-3
-3	212-0070-00			10	SCREW,MACHINE:8-32 X 0.312,FLH,100 DEG,STL	TK0435	ORDER BY DESCR
-4	210-0458-00			10	NUT,PL,ASSEM WA:8-32 X 0.344,STL CD PL (END ATTACHING PARTS)	78189	511-081800-00
-5	105-0787-00			2	LATCH,RETAINING:RACKMOUNT,SST	80009	105-0787-00
-6	105-0786-03			2	RELEASE,LATCH:PLASTIC,SMOKE TAN	80009	105-0786-03
-7	390-0809-06	B010100	B022169	1	CABINET SIDE:RIGHT,W/HANDLE (OPTION 10,12 ONLY)	80009	390-0809-06
	390-0887-02	B022170		1	CABINET SIDE:RIGHT,W/HANDLE (OPTION 10,12 ONLY)	80009	390-0887-02
	390-0809-05	B010100	B022169	1	CABINET SIDE:LEFT W/HANDLE (OPTION 10,12 ONLY)	80009	390-0809-05
	390-0887-01	B022170		1	CABINET SIDE:LEFT,W/HANDLE (OPTION 10,12 ONLY) (ATTACHING PARTS)	80009	390-0887-01
-8	212-0567-00			2	SCREW,MACHINE:10-32 X 0.875,OVH,STL	TK0435	ORDER BY DESCR
-9	210-1298-00			2	WSHR,SHLDR&RECD:0.195 ID X 0.57 OD,PLSTC	80009	210-1298-00
-10	213-0183-00			4	SCREW,TPG,TF:6-20 X 0.5,TYPE B,PNH,STL (END ATTACHING PARTS)	83385	ORDER BY DESCR
-11	124-0389-01			2	STRIP,TRIM:RACK MT HDL,VINYL TAPE (WHEN SECURING THE INSTRUMENT TO THE RACK .WITH SCREWS USE A SHARP KNIFE TO CUT SCREW .HOLE IN THE TRIM STRIP.)	80009	124-0389-01
-12	124-0354-03			2	STRIP,TRIM:CORNER,TOP,EARTH BROWN 17.41 L	80009	124-0354-03
-13	131-0955-00			6	CONN,RCPT,ELEC:BNC,FEMALE (OPTION 02,12 ONLY)	13511	31-279
-14	210-0255-00			6	TERMINAL,LUG:0.391 ID,LOCKING,BRS CD PL (OPTION 02,12 ONLY)	12327	ORDER BY DESCR
-15	131-1344-00			1	CONN,PLUG,ELEC:D SERIES,50 CONT,MALE (OPTION 02,12 ONLY)	71468	DD-50P
-16	211-0008-00			2	SCREW,MACHINE:4-40 X 0.25,PNH,STL (OPTION 02,12 ONLY)	93907	ORDER BY DESCR
-17	210-0586-00			2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (OPTION 02,12 ONLY)	78189	211-041800-00
	334-1377-00			1	MARKER,IDENT:MKD IDENTIFICATION NO. (OPTION 02,12 ONLY)	80009	334-1377-00

OPTION 10





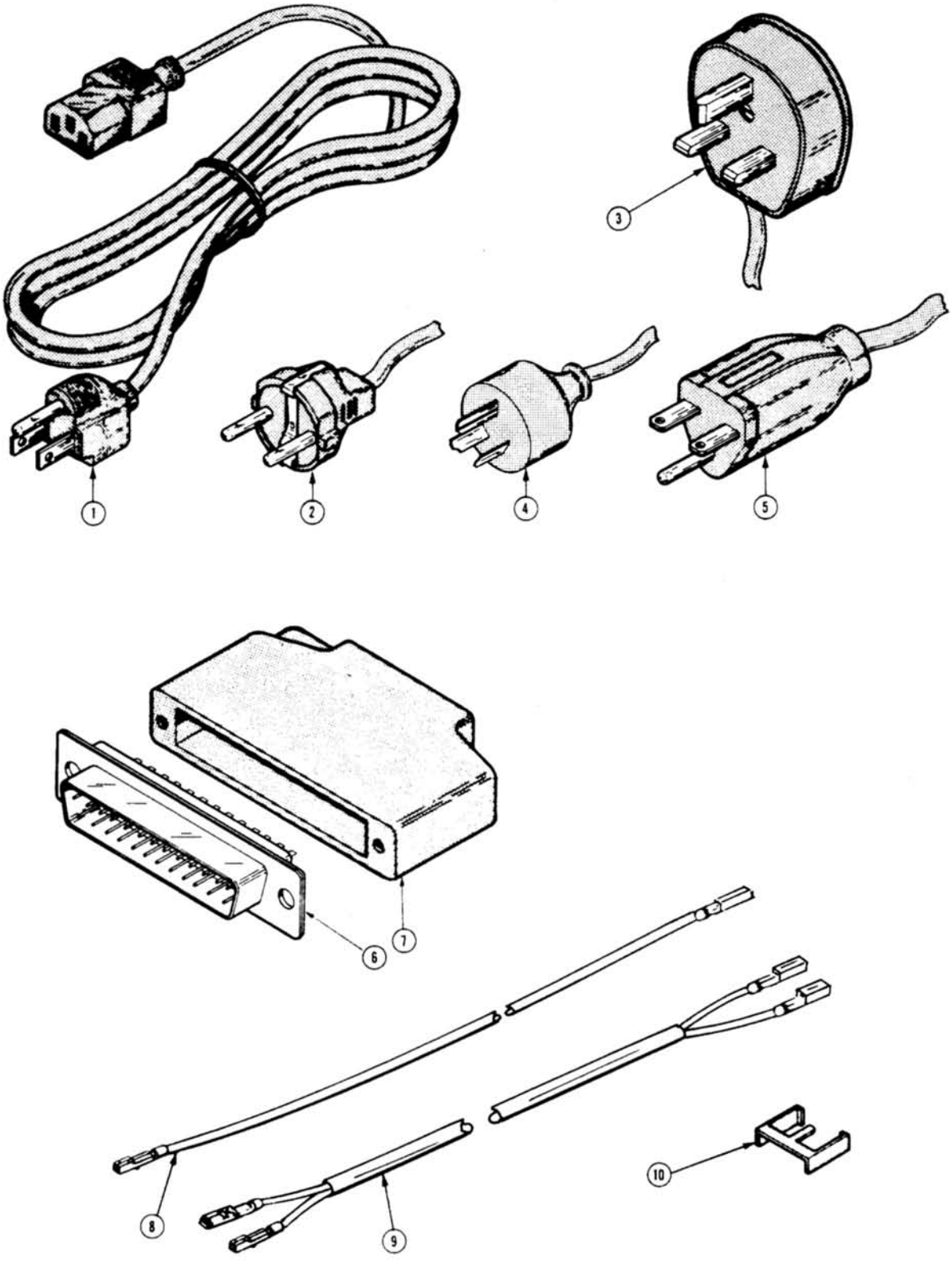

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Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4-1	----- -----			AR	STANDARD ACCESSORIES		
	070-2950-00			1	MANUAL,TECH:INSTR,TM5006	80009	070-2950-00
	161-0066-00			1	CABLE ASSY,PWR,:3,18AWG,115V,98.0 L (STANDARD ONLY)	16428	CH8481, FH8481
-2	161-0066-09			1	CABLE ASSY,PWR,:3,0.75MM SQ,220V,99.0 L (OPTION A1 EUROPEAN)	S3109	86511000
-3	161-0066-10			1	CABLE ASSY,PWR,:3,0.75MM SQ,240V,96.0 L (OPTION A2 UNITED KINGDOM)	TK1373	24230
-4	161-0066-11			1	CABLE ASSY,PWR,:3,0.75MM,240V,96.0 L (OPTION A3 AUSTRALIAN)	S3109	ORDER BY DESCR
-5	161-0066-12			1	CABLE ASSY,PWR,:3,18 AWG,250V,99.0 L (OPTION A4 NORTH AMERICAN)	70903	CH-77893
-6	131-1345-00			1	CONN,RCPT,ELEC:D SERIES,50 CONT,FEMALE (OPTION 02 ONLY)	71468	DD-50S
-7	131-1319-00			1	SHLD,ELEC CONN: (OPTION 02 ONLY)	71468	DD51216
-8	195-0993-00			6	LEAD,ELECTRICAL:22 AWG,15.0 L,9-4 (OPTION 02 ONLY)	80009	195-0993-00
-9	175-3301-00			6	CABLE ASSY,RF:50 OHM COAX,15.0 L,9-4 (OPTION 02 ONLY)	80009	175-3301-00
-10	214-1593-02			20	KEY,CONN PLZN:CKT BOARD CONN (OPTION 02 ONLY)	80009	214-1593-02

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