

TEKTRONIX®

5B44

DUAL TIME BASE

INSTRUCTION MANUAL

Tektronix, Inc.
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Serial Number _____



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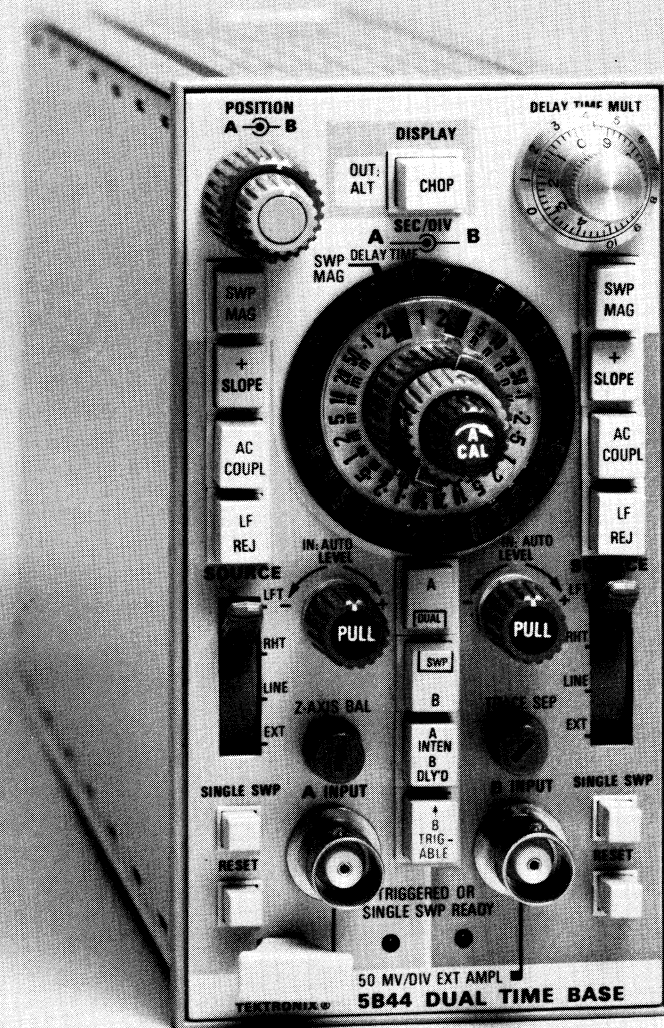
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TABLE OF CONTENTS

SECTION 1	OPERATING INSTRUCTIONS	Page	SECTION 3	REPLACEABLE ELECTRICAL PARTS LIST	
	Instrument Description	1-1			
	Preparation for Use	1-1			
	BASIC OPERATION	1-2	SECTION 4	SERVICE INFORMATION	
	Introduction	1-2		Symbols and Reference	
	A and B Sweeps	1-2		Designators	4-1
	Alternate vs Chopped Operation	1-3		Services Available	4-2
	Sweep Magnification	1-3		General Maintenance	4-2
	Single Sweep and Reset	1-3		Circuit Board Removal	4-2
	Trigger Coupling	1-3		Internal Adjustment Procedure	
	External Inputs	1-3		A Board Parts Location Grid	
	Intensified and Delayed Operation	1-3		Controls and Connectors	
	APPLICATIONS	1-5		Block Diagram	
	Sweep Magnification Using the			B Board Parts Location Grid	
	Delayed Sweep	1-5		A and B Sweep Waveform	
	Delayed Sweep Time			Diagrams	
	Measurements	1-5		C Board Parts Location Grid	
	SPECIFICATIONS	1-6		Waveform Diagrams, 5B44 in	
				Single Beam Mainframe	
SECTION 2	THEORY OF OPERATION			Input, Attenuators, & Trigger	
	Introduction	2-1		Generator Schematics	
	External Input Circuitry	2-1		A Sweep Schematic	
	External Horizontal Amplifier	2-1		B Sweep Schematic	
	Trigger Comparator	2-1		External Horizontal & Sweep	
	Trigger Generator	2-1		Amplifiers Schematic	
	Sweep Control	2-1		Channel Switching & Sweep	
	Sweep Generator	2-2		Output Schematics	
	Output Amplifier	2-2		Z Axis Switching Schematic	
	Delay Pickoff	2-3		Readout Switching Schematic	
	Channel Switch Driver	2-3		Switch Details Schematic	
	Lockout Comparator	2-3		Voltage Distribution Schematic	
	Lockout Deactivator	2-3	SECTION 5	REPLACEABLE MECHANICAL PARTS LIST	
	Trace Separation Circuitry	2-4			
	Sweep Channel Switch	2-4		Fig. 1. Exploded View	
	Z Axis Channel Switching	2-4			
	Z Axis Intensify Circuitry	2-5			
	Alternate Pulse Generator	2-5			
	Sweep Time Neon Circuitry	2-5			
	Readout Circuitry	2-5			
				CHANGE INFORMATION	



OPERATING INSTRUCTIONS

Instrument Description

The 5B44 Dual Time Base provides two independent sweeps for the 5400-series oscilloscopes. Both sweeps are fully triggerable. For delayed sweep operation, A sweep serves as the delaying sweep and B sweep becomes the delayed sweep. The 5B44 features an edge lighted SEC/DIV selector switch as well as crt readout. While intended for use in the right hand compartment of the oscilloscope, it may be operated with external triggering in any compartment.

Preparation For Use

Your 5B44 is calibrated and ready for use when received. Fig. 1-1 shows installation and removal procedures. Refer to the Front Panel Controls illustration in the foldout pages at the rear of this manual for a complete description of the front panel. Color patterns

printed on the front panel help to identify functionally grouped controls. The left side of the front panel, done in light green, has the A sweep controls and the right side, dark green, the B sweep. The blue outline indicates a display mode control. The white area indicates controls related to both sweeps. Table 1-1 shows mainframe and sweep combinations using the 5B44.

NOTE

The 5B44, when used with a 5403 before S/N B052400 and any display module, may cause the -30 V supply in the 5403 to go out of regulation. This causes display jitter, gain change or other undesirable effects. The problem may be corrected by changing resistor R940 in the 5403 to Tektronix Part No. 308-0703-00, RES., FXD, WW: 1.8 OHM, 5%, 2W, and R944 to Tektronix Part No. 308-0110-00, RES., FXD, WW: 100 OHM, 5%, 8W.

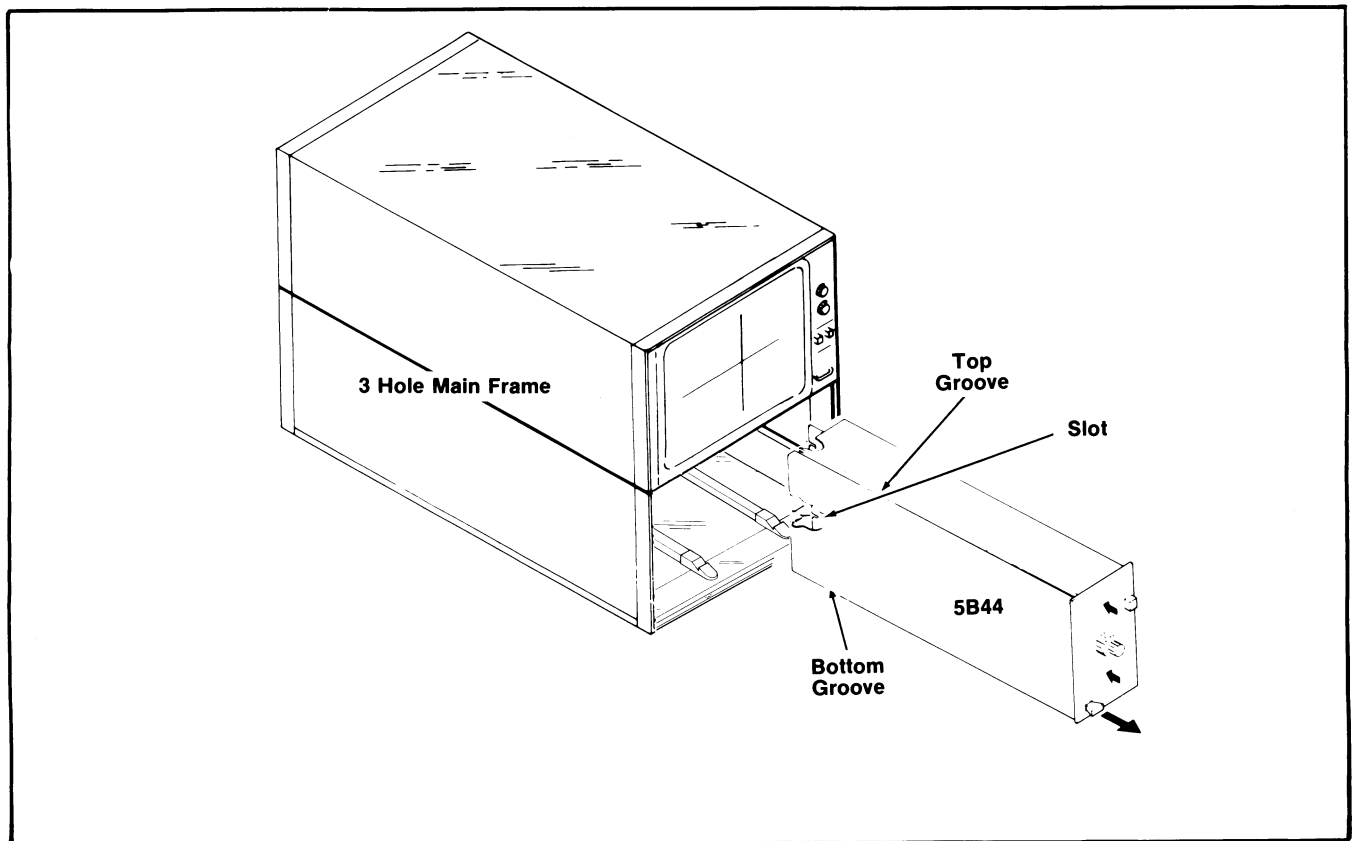


Fig. 1-1. 5B44 Installation-Removal Procedure.

BASIC OPERATION

Introduction

The following paragraphs will help you become familiar with the operation of your 5B44. Follow through these operations on your 5B44.

A and B Sweeps

See Table 1-1 for the various sweep, mainframe and 5B44 combinations available. Place the lever-type SOURCE switches in the LINE positions. Push the buttons labeled A DUAL SWP B and CHOP. Set the SEC/DIV

switches to the 1 m positions. Make certain the LEVEL controls are pushed in and centered. Ground the input(s) of the vertical plug-in(s) used. Adjust the INTENSITY control(s) on the display module if necessary. Notice one or more horizontal traces. Center the trace(s) in the graticule by using the POSITION controls. In single beam mainframes only, turn the TRACE SEP control to obtain two traces if only one is visible; after obtaining the separate traces, balance their intensity if necessary by using the Z-AXIS BAL control. Also notice the TRIGGERED OR SINGLE SWP READY lights are visible. (The sweeps are triggered by the power line voltage).

TABLE 1-1
SINGLE BEAM MAINFRAME

LEFT VERTICAL COMPARTMENT	CENTER VERTICAL COMPARTMENT	A SWEEP	B SWEEP	A DUAL SWEEP B
Single or multi-trace plug-in	Empty	Single or multi-trace, A sweep displaying left compartment	Single or multi-trace, B sweep displaying left compartment	Multi-trace, A and B sweeps displaying left compartment
Empty	Single or multi-trace plug-in	Single or multi-trace, A sweep displaying center compartment	Single or multi-trace, B sweep displaying center compartment	Multi-trace, A and B sweeps displaying center compartment
Single or multi-trace plug-in	Single or multi-trace plug-in	Multi-trace, A sweep displaying left and center compartments	Multi-trace, B sweep displaying left and center compartments	Multi-trace, A sweep displaying left compartment and B sweep displaying center compartment

DUAL BEAM MAINFRAME

Single or multi-trace plug-in	Empty	Single or multi-trace, A sweep displaying left compartment on left beam	Single or multi-trace, B sweep displaying left compartment on left beam	Single or multi-trace, A sweep displaying left compartment on left beam
Empty	Single or multi-trace plug-in	Single or multi-trace, A sweep displaying center compartment on right beam	Single or multi-trace, B sweep displaying center compartment on right beam	Single or multi-trace, B sweep displaying center compartment on right beam
Single or multi-trace plug-in	Single or multi-trace plug-in	Multi-trace, A sweep displaying left compartment on left beam and center compartment on right beam	Multi-trace, B sweep displaying left compartment on left beam and center compartment on right beam	Multi-trace, A sweep displaying left compartment on left beam and B sweep displaying center compartment on right beam

Table 1-1. Display capabilities using the 5B44 plug-in in the right compartment of the single and dual beam mainframes. Applies also to A INTEN B DLY'D and B TRIG-ABLE modes.

Apply the calibrator signal from the mainframe to the vertical plug-in(s) used. Set the display amplitude for about two major divisions. Unground the vertical input(s) and notice the square-wave displays on the crt. In the single beam mainframe the lower display is the A sweep and the upper display is the B sweep. It may be necessary to adjust the appropriate LEVEL control(s) to stabilize the trace(s). The calibrator waveform triggers in the LINE mode as it is line frequency related.

Switch the SOURCE switches from the LINE positions to the LFT or RHT positions for the vertical compartment(s) used. Now pull and turn the appropriate LEVEL control(s) until the display is properly triggered as indicated by trace stability and the TRIGGERED light(s). (In the AUTO mode a trace is visible and free runs even though the display is not triggered.) Position the start of the trace(s) to the right of the left-most graticule line. Notice that the display starts after the negative-going portion of the calibrator waveform. Now push either or both + SLOPE buttons. Notice that the waveforms now start after their positive-going portion.

Turn the red A CAL knob fully counterclockwise and notice the speed of only the A sweep is decreased. Return the A CAL switch to the detent position, fully clockwise, and re-center the sweep(s) horizontally in the graticule.

Alternate vs Chopped Operation

Reduce the SEC/DIV switch settings to the 10 m positions. Obtain a display of both A and B sweeps. It may be necessary to readjust the LEVEL controls to obtain a stable display. Release the CHOP pushbutton in the blue DISPLAY area. The display is now switching in the alternate mode i.e. two A sweeps and then two B sweeps. Use this mode for faster sweep speeds. When the 5B44 is used in the single beam mainframe, use the chopped mode for large differences in sweep speeds when operating in the dual sweep mode; when one or both channels are in the external horizontal mode, or when one channel is in the single sweep mode and the remaining channel is in the normal sweep mode. (If the SEC/DIV switches are moved to the .1 m position with the CHOP button in, the chopping waveform can be seen on the visible traces.)

Sweep Magnification

With a SEC/DIV switch in the 10 m position, press A SWP MAG button. Notice the sweep speed increases by a factor of ten. Release the SWP MAG pushbutton.

Single Sweep and Reset

Remove the calibrator signal and push the desired SINGLE SWP and the CHOP pushbuttons. If the proper

READY light is not lit, push the RESET button. The READY light indicates the sweep is armed and ready to accept a trigger. It may be necessary to slightly readjust the LEVEL control to prevent noise from triggering the sweep. Attach the jumper from the calibrator to the proper vertical input while watching the crt. A single waveform will sweep across the crt. The READY light will extinguish and the sweep is locked out until the RESET button is pressed. Release the SINGLE SWP pushbutton, reconnect the calibrator, and obtain stable displays.

Trigger Coupling

The AC COUPL and LF REJ pushbuttons modify the triggering signal. AC COUPL connects a capacitor in series with the triggering signal from the vertical plug-in. This allows triggering on such signals as an ac waveform superimposed on a dc voltage. The LF REJ button rejects dc and the lower frequencies. A capacitor is inserted in series with the triggering signal in a later trigger amplifier stage. Refer to the specifications at the end of this section for more detail.

External Inputs

When a SEC/DIV switch is in the extreme counter clockwise position (AMP) and the SOURCE switch is in the EXT position, a signal applied to the appropriate bnc connector (labeled A INPUT or B INPUT) is displayed horizontally on the crt. The sensitivity is 50 mV/div. If the SEC/DIV switch is not in the AMP position, a signal applied to these connectors can be used as an external trigger for the sweeps. When a SEC/DIV switch is in the AMP position, the horizontal deflection voltage will be the signal applied as a triggering signal in the various positions of the SOURCE switches i.e. LFT, RHT, LINE or EXT.

Intensified and Delayed Operation

Make certain the CHOP and A and B DUAL SWP buttons are pushed in. Return the SOURCE switches to the correct position for the vertical plug-in compartment used. Set the A SEC/DIV switch to the 5 m position and B SEC/DIV switch to the 1 m position. Center the sweeps horizontally in the graticule area. Adjust both LEVEL controls so that both traces are triggered on the calibrator waveform applied to the vertical plug-in. Now push the A INTEN B DLY'D pushbutton. Adjust the intensity control(s) until a portion of the A sweep is obviously brighter than the rest of the trace. See Fig. 1-2A. As the DELAY TIME MULT dial is turned, the brightened portion will move across the graticule. The B sweep is now displaying, across the entire graticule, the intensified portion of the A sweep. The calibration on the DELAY TIME MULT control can be used to make accurate time increment measurements (see the paragraphs under "Applications" later in this section).

Operating Instructions—5B44

Now press the B TRIG-ABLE button. It may be necessary to adjust the B LEVEL control to trigger the B sweep. The A sweep shows an intensified portion and the B sweep shows a magnification of the portion that is intensified on the A sweep. Now rotate the DELAY TIME MULT dial and notice that the intensified portion jumps from leading edge to leading edge of the calibrator waveform. The B sweep now requires a trigger to start it. See Fig. 1-2B. In other words, the B sweep is locked out

until the delay circuitry (at the time set by the DELAY TIME MULT dial) unlocks the B sweep. The next acceptable waveform (depending on the settings of the trigger controls for the B sweep) will start the B sweep. After the B sweep has run, it is locked out until the delay circuitry again unlocks the B sweep. This feature is useful when observing highly magnified sweeps where any jitter from the delay circuitry becomes objectionable.

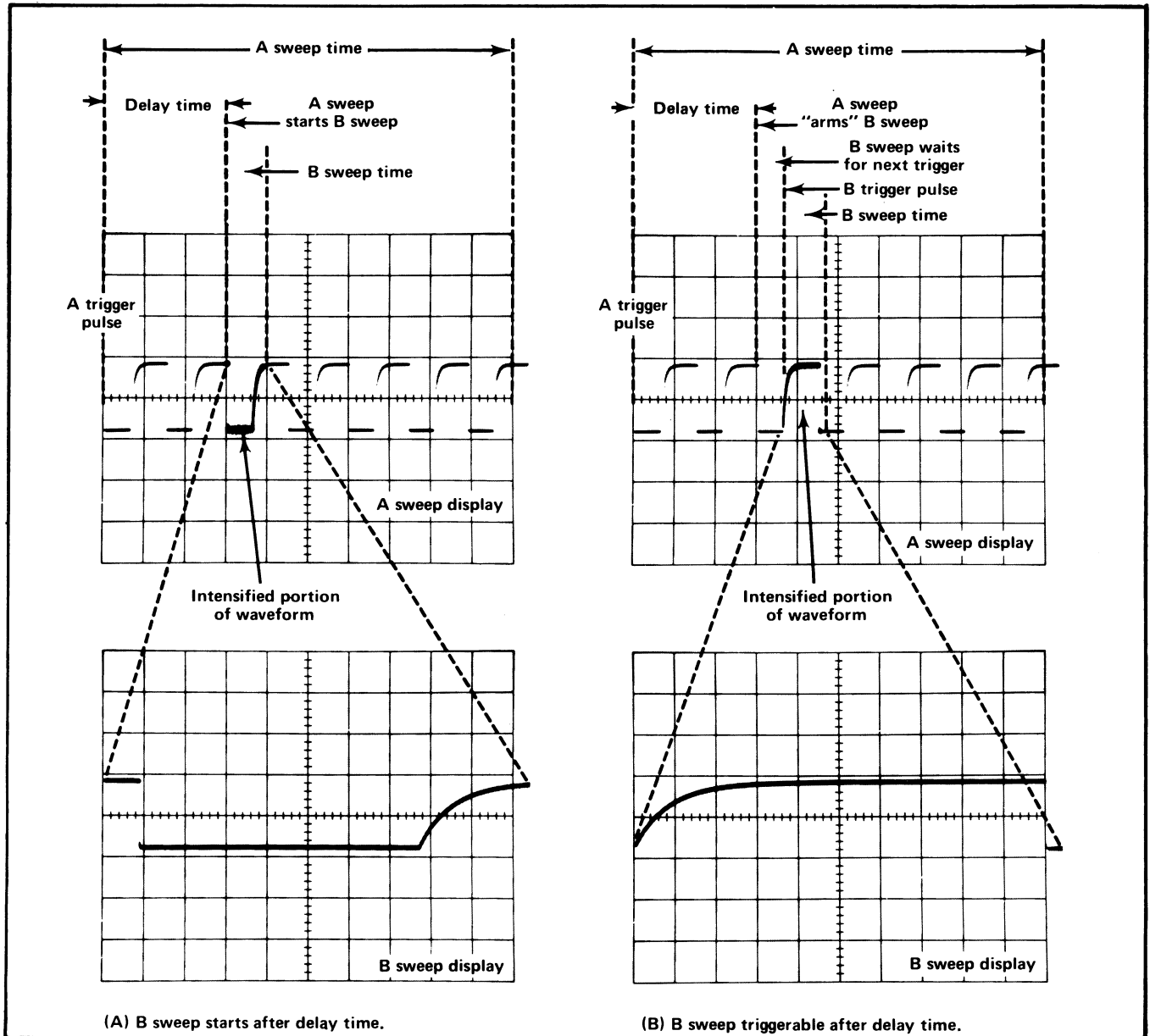


Fig. 1-2. Comparison of the delayed-sweep mode. In each display, the B sweep is delayed a selected amount of time by the A sweep.

APPLICATIONS

Sweep Magnification Using the Delayed Sweep

This feature may be used to give greater apparent sweep magnification than using the SWP MAG feature. Apply the signal to be magnified to the vertical plug-in. Establish a stable, triggered dual-trace display. Adjust the A sweep speed to conveniently display the portion of the waveform to be magnified. Push the A INTEN B DLY'D button and adjust the DELAY TIME MULT dial and the B SEC/DIV switch so the intensified portion of the A sweep covers the area of the waveform to be magnified. The B sweep displays the intensified portion of the A sweep across the entire crt. The amount of apparent magnification may be obtained by dividing the A SEC/DIV sweep speed by the B SEC/DIV sweep speed. Should jitter reduce the usefulness of the magnified portion of the waveform, push the B TRIG-ABLE pushbutton and adjust the B LEVEL control for a stable display. The intensified portion of the A sweep shows the area of magnification; however, the B sweep is now triggered by the viewed waveform *after* the delay circuitry enables the B sweep trigger.

Delayed Sweep Time Measurements

To make accurate time measurements with the delayed sweep, use the following procedure. Connect the desired waveform to the vertical plug-in. Push the A DUAL SWP B and the A INTEN B DLY'D pushbuttons. Adjust the A sweep trigger controls for a stable display. Set the A SEC/DIV switch to a sweep speed that easily displays the time interval to be measured. Now set the B SEC/DIV switch to a sweep speed 100 times faster than the A sweep. Adjust the INTENSITY control so that the intensified portion of the A and the entire B sweep are easily visible. Now adjust the DELAY TIME MULT dial to position the intensified portion at the start of the interval to be measured. Continue to adjust the dial until the magnified portion of the interval start appears at a convenient graticule line. Note the delay time multiplier reading. Position the intensified portion of the A sweep to the end of the measured interval. Continue to adjust the DELAY TIME MULT dial until the magnified portion of the interval end is at the same graticule line used during the initial measurement. Note the DELAY TIME MULT reading.

Subtract the first reading from the second reading and multiply the result by the A sweep SEC/DIV switch setting. For example, assume the first dial setting is 1.31 and the second dial setting is 8.81, with the A SEC/DIV switch set at the .2 m position. The time difference is: $(8.81 - 1.31) \times 0.2 \text{ ms} = 1.5 \text{ milliseconds}$. See Fig. 1-3.

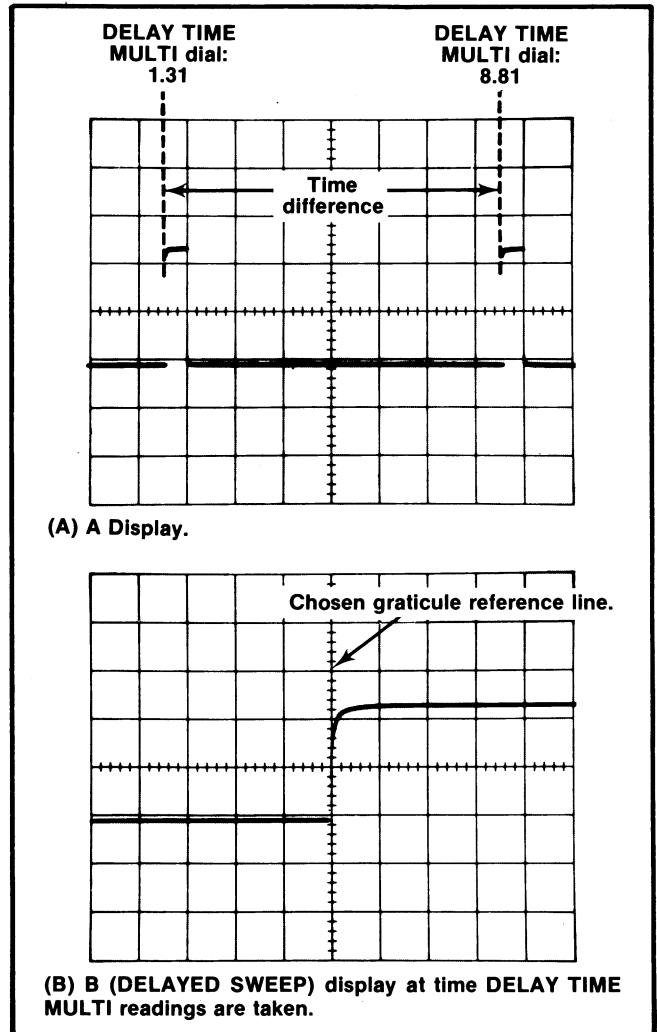


Fig. 1-3. Measuring time difference using delayed sweep.

SPECIFICATIONS

A and B Sweeps

ACCURACY: Measured in a 5400 series oscilloscope over the center 8 graticule divisions. Exclude the first 30 ns and the last 10 div of the magnified sweep. Within:

	+15°C to +35°C		0°C to +50°C	
	Unmag	Mag	Unmag	Mag
1 s/div to 0.5 μs/div	3%	4%	4%	5.5%
2 s/div and 0.2 μs/div to 100 ns/div	4%	5%	5%	6.5%
50 ns/div	4%	6%	5%	7%
Any two divisions within center 8 divisions	6.5%	6.5%	8%	8%

VARIABLE RANGE (A sweep only): Continuously variable between calibrated sweep rates. Extends sweep rate to at least 12.5 s/div.

TRIGGERING:

Coupling	Frequency Range*	Minimum Signal Required	
		Int.	Ext.
DC	dc to 10 MHz	0.4 div	100 mV
	10 MHz to 60 MHz	1.0 div	400 mV
AC	Requirements increase below 50 Hz.		
LF REJ	Requirements increase below 7.5 kHz.		

INTERNAL TRIGGER LEVEL RANGE: At least ±8 div.

*On internal triggering only, frequency range is limited to the specified bandwidth of the vertical amplifier plug-in used.

SINGLE SWEEP: Same requirements as main sweeps.

EXTERNAL TRIGGER INPUT:

Maximum input voltage: 350 V dc + peak ac, 350 V peak-to-peak ac at ≤1 kHz.

Input R and C: 1 MΩ ±2% paralleled by ≈26 pF. 750 kΩ in internal mode.

Trigger Level Range: At least ±2.0 V.

EXTERNAL HORIZONTAL INPUT:

Deflection Factor: 50 mV/div ±3%.

Input R and C: 1 MΩ ±2% paralleled by ≈26 pF.

Bandwidth:

Dc Coupled: Dc to ≥2 MHz.

Ac Coupled: ≤50 Hz to ≥2 MHz.

Maximum Input Voltage: 350 V dc + peak ac, 350 V peak-to-peak ac at ≤1 kHz.

Sweep Delaying Characteristics

DELAY TIME MULTIPLIER RANGE: 0.2 to 10 times the A sweep SEC/DIV setting.

INHERENT DELAY TO START OF DELAYED SWEEP: <100 ns.

DIFFERENTIAL TIME MEASUREMENT ACCURACY:

A sweep SEC/DIV switch setting:	Delay time accuracy using DELAY TIME MULT dial and viewing delayed sweep:
1 μs to 1 s:	≤1% +0.2% of full dial scale.
2 s:	≤2% +0.2% of full dial scale.

JITTER

<0.05% of the delaying sweep time per division.

THEORY OF OPERATION

Introduction

Use the block diagram and the schematic diagrams, all located in the pull-out pages in the rear of this manual and this discussion to help understand the operation of the 5B44. As the A and B sweep circuits are similar, the A sweep circuit with component numbers is discussed and the corresponding B sweep circuit numbers are shown in parentheses.

External Input Circuitry

External horizontal input signals and external triggering signals, applied through the A and B INPUT connectors, pass to the EXT switch through R12 (R112). C15 (C115) compensates the input attenuator. When the 5B44 is not operating in the external mode, signals applied to these connectors are grounded through R12 (R112). The appropriate triggering signals, from the left or right vertical plug-in compartments, or the line frequency for line triggering, pass through the rear interface connector. The triggering signals then pass through their appropriate switches to the AC switch. Q30 (Q130) operates as a source follower. CR35, CR36, VR35, and VR36 (CR135, CR136, VR135, and VR136) provide over-voltage protection. R40 (R140) sets the current through Q30 (Q130) so the level at the base of Q45 (Q145) is about zero volts with no signal input.

External Horizontal Amplifier

When the SEC/DIV switch is in the AMPL position, switch S250-1 (S450-20) opens. This removes +30 V connected through R607 (R707) to the emitters of Q600 and Q620 (Q700, Q720) allowing these transistors to operate. In the AMPL mode, Q635 (Q735) passes the current that is carried by Q665 (Q765) in the sweep modes. In the sweep modes the collector of Q600 (Q700) clamps at +8.8 V, disabling Q630 (Q730). The external horizontal signal passes from the source of Q30 (Q130) to the base of Q600 (Q620). R610 (R710) sets the gain by varying the feedback at the base of Q620 (Q720). The base of Q620 (Q720) remains at about 0 V.

The POSITION control is connected through R613 (R713) to the base of Q620 (Q720). This control varies the current distribution between Q600 (Q700) and Q620 (Q720) changing the position of the display in the external mode. The collector of Q600 (Q700) drives the base of Q630 (Q730). The signal flows from the collector of Q630 (Q730) to the emitter of U900C (U930C) in the channel switch.

Trigger Comparator

The trigger signals from the source of Q30 (Q130) are applied to the base of Q45 (Q145). Q45 (Q145) operates as an emitter follower driving the base of Q60 (Q160). Q60 (Q160) and Q62 (Q162) comprise a comparator. The LEVEL control sets the dc voltage at the base of Q70 (Q170). If the base of Q62 (Q162) is more positive than the base of Q60 (Q160), pin 13 of U90 (U190) is low and pin 14 high. As the trigger signal at the base of Q60 (Q160) goes more positive than the base of Q62 (Q162) pin 14 of U90 (U190) goes low and pin 13 high.

C45 (C145) acts as a high pass filter for the trigger signals in the LF REJ mode.

Trigger Generator

An Integrated circuit, U90 (U190) converts the trigger signal from the trigger comparator to a gate waveform used for sweep control. With pin 1 connected to ground (+ SLOPE), a positive-going waveform on the input (pin 13) causes pin 3 (output) to rise to about 4.1 V and pin 4 (output) to drop to about 3.2 V. Pin 14 is negative going under the above conditions. The output gate occurs when pin 13 and 14 are within about 40 mV of each other. Opening pin 1 (− SLOPE) creates an output gate at pins 3 and 4 when pin 13 is negative going and pin 14 positive going. After completion of the sweep, during holdoff time, pins 6 and 10 are high (about +4.2 V). This action inhibits the trigger generator until these pins drop to about 3.2 V, which occurs after holdoff time.

Sweep Control

Integrated circuit U200 (U400) and its associated external circuitry controls the sweep generator. In the automatic triggering mode, pin 19 of U200 (U400) is connected to ground. If pin 1 of U200 (U400) receives no trigger pulses from the main trigger generator for a period of time determined by R201 (R401) and C201 (C401) connected to pin 6, U200 (U400) outputs a positive-going square-wave at pin 4. This gate or the positive gate from pin 3 of U90 (U190) starts the sweep and remains during sweep time.

The sweep ramp is fed (via Q320A and Q520A) to the base of Q345 (Q545). As the ramp rises Q345 (Q545) comes into conduction and Q340 (Q540) turns off. The collector of Q340 (Q540) rises, causing pin 16 of U200 (U400) to go high. Internal action in U200 (U400) causes

Theory Of Operation—5B44

pin 10 to go low, increasing the turn off speed of Q340 (Q540). This terminates the sweep and starts the holdoff. The sweep stops when pin 16 of U200 (U400) reaches about 2.4 V. Immediately pin 17 of U200 (U400) goes to about +1.7 V which inhibits the trigger generator U90 (U190) from outputting additional sweep gates from pin 3.

Holdoff time is necessary to allow the timing capacitors to discharge to their quiescent levels before starting the next sweep. Pin 8 of U200 (U400) starts going positive from ground at the end of sweep time. The time it takes for this voltage to reach about 4 to 5 V is the holdoff time. The particular capacitors switched by S250-11, -12, and -13 (S450-16, -17, and -18) into the circuit determine this time. CR247 (CR447) is a protective diode. When the voltage at pin 8 reaches its peak, pin 4 goes low, allowing normal triggering. In the absence of a triggering signal, the auto circuitry commences the sweep as described previously. When the plug-in is operating in the external horizontal amplifier mode, pin 18 of U200 (U400) is connected to +5 V through CR224 (CR424). This locks out the sweep until switch S250-14 (S450-19) is opened.

In the single sweep mode, the automatic trigger capability is removed by ungrounding pin 19 of U200 (U400). Pin 12 is also connected to +5 V. The next trigger operates the sweep in the normal manner through pin 10 of U245D (U455D). After holdoff however, the gate at pin 17 remains high. This action locks out further triggers until pin 15 of U200 (U400) is connected to +5 V through the spring-loaded RESET button. The sweep may also be reset by an external +5 V pulse through CR215 (CR415) and contact B17 of the rear interface connector. As soon as the RESET button is pressed, and before the next trigger is applied from U90 (U190), pin 11 goes low, lighting the READY light. Pin 11 is also low when the sweep is triggered. Q235 (Q435) provides regulated -5 V from -15 V for U200 (U400).

In the B sweep, pin 13 of U400 is connected to +5 V in the B delayed mode. When pin 13 of U400 is high, U400 operates similar to the single sweep mode, with the automatic gate inhibited by +5 V on pin 13, but without the READY light. U400 is reset after each sweep by a positive-going pulse at pin 18. The purpose of these actions is to allow triggering of the B sweep by a delay gate (low) from U245B.

In the B sweep, pin 13 of U400 is connected to +5 V in the B delayed mode. When pin 13 of U400 is high, U400 operates similar to the single sweep mode, with the automatic gate inhibited by +5 V on pin 13, but without the READY light. U400 is reset after each sweep by a positive-going pulse at pin 18. The purpose of these actions is to allow triggering of the B sweep by a delay gate (low) from U245B.

Q220 (Q240) serves a special purpose in the alternate mode of sweep switching. For example, pin 18 of U200 in the A sweep is high (+2.5 V) with the lockout pulse during the B sweep time. As the lockout generator circuitry switches to the A sweep, the lockout pulse drops and is differentiated through C218 to Q220. This positive pulse at the collector of Q220 looks like an end of sweep pulse at pin 16 of U200 and an A sweep holdoff cycle is initiated before the A sweep starts. The same action occurs in the B sweep when switching from A to B sweep. (In the alternate mode two sweeps occur before switching to the other sweep.) This allows all circuitry to return to quiescent conditions before the start of the sweep. Also, the anodes of CR227 and CR228 (CR427 and CR428) are connected together, allowing external sweep lockout through the rear interface connector A17 (A16).

Sweep Generator

The sweep ramp is generated by charging the sweep timing capacitors with a constant current. Q310 (Q510) is the constant current source. The resistors switched by S250-2 through 7 (S450-1 through 6) set the current available to the current source. U275B (U475B) compensates for different base to emitter voltages due to different timing currents. The timing currents range from 5 μ A to 2 mA. R307 (R507) provides bias current for U275B (U475B). Operational amplifier U275A (U475A) provides a ripple free reference level, (about -15 V) to ensure that the ramp always starts at the same point, about -15 V, for each SEC/DIV setting.

A high level on either pin 10 or pin 11 of U245D (U445D) causes the sweep to start. Pin 14 goes low, increasing conduction in Q280 (Q480). The collector of Q290 (Q490) goes positive and turns Q290 (Q490) off. The selected timing capacitor starts to charge to a positive voltage through Q310 (Q510) and the timing resistors. The ramp is applied to the gate of Q320A (Q520A), a source follower. Transistor Q320B (Q520B) serves as a constant current source for Q320A (Q520A). The ramp passes to the base of Q330 (Q530) with Q335 (Q535) serving as its constant current source. The output finally drives the base of Q695 (Q795) through emitter-follower Q690 (Q790).

Output Amplifier

In all sweep modes, switch S250-1 (S450-20) is closed. This provides current to the emitters of Q665 (Q765) and Q695 (Q795). In the external horizontal amplifier mode, S250-1 (S450-20) is open, disabling the two transistors. The gain of these common-emitter pairs is determined by the amount of resistance between their emitters. When the MAG switch is closed, the gain is increased by a factor of ten. R672 (R772) and R670 (R770) set the gain for this pair. Q650 (Q750), with the position control connected to its base, varies the current through Q665 (Q765), positioning the trace on the screen. Q660 (Q760) serves as a current

source and Q635 (Q735) provides clamping action in the positive direction when the magnifier is used. The sweep is taken from the collector of Q665 (Q765) and passed to the channel switching circuitry.

Delay Pickoff

The A sweep ramp at the emitter of Q330 is also applied to the base of Q365B. Q365A and B form a voltage comparator. Q370 is their constant current source. The base of Q365A is connected to the wiper of the DELAY TIME MULT control. This is a precision potentiometer. R387, R375, their associated series resistors, and U380 precisely set the voltages at each end of the DELAY TIME MULT control so that the dial calibrations are accurate throughout the control range. U380 provides a ripple free voltage (about -15 V) at pin 6 to help reduce delay jitter. As the DELAY TIME MULT dial reading is increased (B sweep to start later) the voltage at the base of Q365A goes more positive. When the sweep ramp at the base of Q365B reaches the level on the base of Q365A, the collector of Q365B goes negative and the collector of Q365A goes positive. These signals pass through Q360 and Q362 to the bases of Q350 and Q355 respectively. This common emitter differential pair outputs a positive pulse at the collector of Q350 when the pickoff point on the A sweep is reached.

In the A sweep intensified and B sweep delayed mode, the voltage at pins 4 and 6 of U245A and B respectively, changes from $+4.4$ V to an open circuit (low). (With these pins high U245A and B are disabled). As pin 5 of U245A goes high, pin 2 goes low. This high-to-low transition at pin 12 of U245C causes pin 9 to also go low. Pin 9 represents a gain of about four from pin 12. The voltage at pin 9 is fed back to pin 12 through R393, ensuring a fast transition. This circuit operates as a Schmitt trigger. Pin 15 of U245C goes high, causing pin 3 of U245B to go low. This is the delay gate, which is applied to pin 12 of U445C. U445C is now enabled and the B sweep is under control of the delaying gate.

Channel Switch Driver

U840A and U840B, an emitter-coupled switch, make up the channel switch driver. These transistors operate in all mainframe and sweep combinations except in the dual beam mainframe when using the dual sweep mode.

In the A sweep only mode the base of U840B is at about -18 V. This voltage is set by R880, R882, and R874, through the combined action of S840A-4 and S840B-3. U840B is now off and U840A is on irrespective of the gating voltage at the base of U840A. This action locks the channel switch in the A sweep only mode. Depressing S840B-3 changes the voltage at the base of U840B to about -12 V. This turns U840B on and U840A off, locking the channel switch in the B sweep only mode. In the dual

sweep mode the voltage at the base of U840B is about -15 V. The alternate or chopped switching waveform, at the base of U840A, now switches U840A and U840B. This mainframe-generated waveform at the input junction of R840 and C840 is about 4.2 V for the A sweep and 0.4 V for the B sweep.

In the dual beam mainframe, the A or B sweep only modes operate as previously described. However, in the dual sweep mode U840A and U840B are disabled. The dual beam mainframe does not supply -30 V to the cathode of CR875. Under these conditions depressing S840A and S840B raises the voltage at the gate of Q875 from -30 V to about -16.5 V. This turns fet Q875 on and Q870 off, removing emitter current from U840A and B.

Lockout Comparator

Transistor U840D, C, E, and Q860 serve as the lockout comparator. U840E supplies emitter current for U840D and C. Voltages at the bases of U840D and C are approximately the same as those on the bases of U840A and B for the various sweep operating modes. See the previous discussion on the channel switch driver.

When the channel switch driver is set to display A sweep, the collector of U840D places the junction of CR852 and R856 at about 0 V, and the collector of U840C at about 3.2 V. This locks out the B sweep and permits the A sweep to operate. When the collector of U840D is about 3.2 V and the collector of U840C is about 0 V the B sweep is unlocked.

When the plug-in is operated in the A intensified B delayed mode or the dual sweep chopped mode, Q860 turns on. This action lowers the junction of R864 and R865 to about 0 V unlocking both A and B sweeps.

In the A intensified B delayed mode the B sweep is controlled by the A sweep through the delay pickoff circuitry. In the dual sweep chopped mode in the single beam mainframe, both sweeps run independently at their set rates.

In the dual beam mainframe the chopped or alternate switching waveforms are always present at the bases of U840A and D as long as a sweep is running. These switching waveforms are not used in the dual beam mainframe (channel switch driver and lockout comparator disabled) as each sweep is locked to a separate beam.

Lockout Deactivator

The source and drain of fet Q800 are connected to two poles of the DISPLAY switch. (The other two poles of the

Theory Of Operation—5B44

DISPLAY switch operate the chop clock in the mainframe.) When the 5B44 is in the single beam mainframe, -30 V is applied to the cathode of CR802. In the dual sweep mode $+15\text{ V}$ is applied to the anode of CR800. When the DISPLAY switch is in the CHOP mode, this voltage at the anode of CR800 is connected through R862 and R860 to the base of Q860 disabling the lockout comparator as previously described.

When the 5B44 is used in the dual beam mainframe, -30 V is removed from the cathode of CR802. This allows the gate of fet Q800 to go positive turning Q860 on disabling the lockout comparator.

Trace Separation Circuitry

The chopped or alternate signal from the mainframe is applied to the base of Q810. From the emitter of Q810, these waveforms pass to the channel switch driver and the emitter of Q815. The collector of Q815 connects to the emitter of Q830. Q830 is made inoperative by removing $+15\text{ V}$ from the anode of CR815 or -30 V from the cathode of CR829 in all mainframes and sweep modes except the single beam dual sweep combination. In the single beam mainframe, dual sweep mode, the alternate or chopped waveforms pass to the base of Q835, and from its emitter, to the mainframe through contact B16 on the rear interface connector. The TRACE SEP control, R825, varies the gain of Q830, consequently the amplitude of the waveforms at the emitter of Q835. The vertical separation of the traces is proportional to the amplitude of the waveforms at the emitter of Q835.

Sweep Channel Switch

The A sweep ramp is fed to the emitter of U900C (B ramp to U930C). The ramp passes to the collectors of common-base amplifiers U900A and B (U930A and B). These in turn pass the ramp to the emitters of U900D and E (U930D and E). The switch is controlled by Q900 and Q920 (Q930 and Q950) through the action of U840A and U840B. When the A sweep is displayed the collector of U840A is low and U840B high (1.2 V and 4.2 V). Consequently, the bases of Q900 and Q920 are high with the bases of Q930 and Q950 low. Q900 and Q920 are off with Q930 and Q950 on. With Q930 and Q950 on, the voltage at the anodes of CR930 and CR950 causes them to conduct ($\approx +0.6\text{ V}$), shorting the B sweep ramp to ground. Q900 and Q920 are off and the voltage at the anodes of CR900 and CR920 is below their turn-on level (-2.7 V). The A sweep ramp then passes to the emitters of U900D and E, then to their collectors and on to the amplifiers in the mainframe. During B sweep time CR900 and CR920 conduct, shorting the A sweep to ground. The B ramp passes through U930D and E to the mainframe. A special case occurs in the dual beam mainframe when both A and B sweeps are displayed. The A sweep must appear on one output line and the B sweep on the other at the same time. The drain of Q875 is low causing Q960 to increase conduction and

Q962 to turn off. Q900 and Q950 increase conduction and Q920 and Q930 are turned off. This action passes the A sweep through U900D and the B sweep through U930D and shorts the B sweep through CR950 and the A sweep through CR900.

Z Axis Channel Switching

And gates U1030B and C (U1030A and D for the B sweep) are the input gates for the Z axis channel switch. (All of the gates in this circuitry use emitter coupled logic and operate with a low level of about 3.0 V and a high level of about 4.0 V .) Pins 10 and 7 of U1030B and C (pins 5 and 12 of U1030A and D) are connected to load resistors R891 (R890) and through R886 and R887 to the collectors of U840A and B. Unless locked at about 3.0 V by removing $+5\text{ V}$ at the anode of CR893 (in the dual beam mainframe) pins 10 and 7 of U1030C and B are low, and pins 5 and 12 of U1030A and D are high for displaying the A sweep. Pins 10 and 7 of U1030B and C are low for displaying the A sweep. Pins 5 and 12 of U1030A and D are low and pins 10 and 7 of U1030B and C are high to display the B sweep.

A high on pins 14 of U1030C or 3 of U1030B (pins 2 of U1030A or 15 of U1030D) is necessary to display the A (B) sweep. This high occurs either by lows occurring on both pins 10 and 11 of U1030C or pins 7 and 6 of U1030B (pins 12 and 13 of U1030D or 4 and 5 of U1030A for the B sweep). Gate U1030B (U1030A) is used in the external horizontal amplifier mode by placing a low on pin 6 (pin 4). In the external horizontal amplifier mode, Z axis switching occurs in the chopped mode only. The highs from U1030C or B (U1030A or D) are applied to pins 5 and 6 of U1050A and B (pins 11 and 12 of U1050C and D for the B sweep). Pin 4 of U1050A is high in the A sweep only mode. Pin 10 of U1050C is high in the B sweep only mode. A high on pins 4 and 5 of U1050A now causes pin 2 to go high. A high on pins 11 and 10 of U1050C causes pin 14 to go high. These highs are applied to the bases of Q1055 and Q1075 which cause lows at their collectors. If the collector of Q1055 is low, the A sweep is unblanked. If the collector of Q1075 is low, the B sweep is unblanked.

When the 5B44 is used in the dual beam mainframe, the junction of R1038 and R1040 is at $\approx +4\text{ V}$ ($<3\text{ V}$ in the single beam mainframe). If the A sweep only is displayed, pin 7 of U1050B is connected to this voltage. A high, during A sweep time, at pin 6 of U1050B causes a high at pin 3. This lowers the collector of Q1075 and both sweeps are unblanked during A sweep time. Pin 13 of U1050D is also raised to $\approx +4\text{ V}$ if the B sweep is selected and U1050D unblanks the left beam while U1050C unblanks the right beam.

In the single beam oscilloscope, R1065 connected between the emitters of Q1055 and Q1075 provides trace intensity balance by varying the current through the two

transistors. In the dual beam mainframe, the wiper of R1065 is no longer connected to -30 V and the balance circuitry becomes inoperative.

Z Axis Intensify Circuitry

The B $\overline{\text{gate}}$ also operates Q1020, which is activated in the A intensified B delayed mode. When the base of Q1020 is lowered, Q1025 conducts and its collector goes low. This lowers the intensify line to the mainframe, causing brightening of the A sweep trace during the B sweep time.

Alternate Pulse Generator

The A $\overline{\text{gate}}$ and B $\overline{\text{gate}}$ are connected to the bases of Q1010 and Q1005 respectively. As each sweep ends, a negative pulse occurs at the base of Q1015. The mainframe counts two of these pulses through CR1017, then switches to the other trace if it is selected for display. In the A intensified B delayed mode, R1005 is disconnected from $+5$ V. This disables Q1005. The alternate pulses now occur only at the end of the A sweeps.

Sweep Time Neon Circuitry

Transistor Q1225 drives the times one sweep neon for the A sweep and Q1220 drives the times ten sweep neon. Q1245 drives the times one neon for the B sweep and Q1240 the times ten neon. When the 5B44 is operating in the A sweep, 5 V is applied to the junction of R1245 and R1247. This causes Q1245 to conduct preventing ignition of the times one B neon. The times ten B neon driver is already conducting because of $+5$ V on the base of Q1240 through S125A. The junction of R1225 and R1227 is about 0 V causing the collector of Q1225 to rise toward $+200$ V.

This action causes the times one neon for the A sweep to ignite. When the magnified mode of operation is selected, $+5$ V is removed from the cathode of CR1227. This causes the collector of Q1220 to rise, igniting the times ten neon. The times ten neon current causes current to flow in the base of Q1225, extinguishing the times one neon for the A sweep. The neons for the B sweep operate in a similar manner.

$+5$ V is also applied to the anodes of CR1210 or the anode of CR1240 when the appropriate sweep is in the external horizontal amplifier mode. This ensures ignition of the times one neon with extinction of the times ten neon.

Readout Circuitry

The A and B SEC/DIV, CAL, MAG, and A DUAL SWP B switches have contacts wired into the readout circuitry. A zero to -15 V pulse (approximately 125 μs in length) is applied at different times to the time slot lines. The remaining four column and row lines are the output lines. The readout circuitry in the 5B44 sets the correct amount of current to the appropriate channel row and column lines during the pulse time for the particular character desired. See the mainframe manual for more details on the time slot and currents required for each character. Closing S250-14 (S450-19) in the AMPL mode disables the crt readout by connecting the column lines to $+5$ V through R1218 (R1238). When the MAG button is depressed, the readout shows the time per division reduced by an order of magnitude. When the CAL knob is not in its detent position, the uncalibrated sign $>$ appears in front of the A sweep rate information. When the unit is operating in one sweep only, the column line for the unused sweep is connected to $+5$ V through R1225 or R1245, thereby disabling the readout for that sweep.

REPLACEABLE ELECTRICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

SPECIAL NOTES AND SYMBOLS

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

ITEM NAME

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

ABBREVIATIONS

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

CROSS INDEX MFR. CODE NUMBER TO MANUFACTURER

MFR.CODE	MANUFACTURER	ADDRESS	CITY,STATE,ZIP
00853	SANGAMO ELECTRIC CO., S. CAROLINA DIV.	P. O. BOX 128	PICKENS, SC 29671
01121	ALLEN-BRADLEY CO.	1201 2ND ST. SOUTH	MILWAUKEE, WI 53204
04713	MOTOROLA, INC., SEMICONDUCTOR PRODUCTS DIV.	5005 E. MCDOWELL RD.	PHOENIX, AZ 85036
07263	FAIRCHILD SEMICONDUCTOR, A DIV. OF FAIRCHILD CAMERA AND INSTRUMENT CORP.	464 ELLIS ST.	MOUNTAIN VIEW, CA 94042
07910	TELEDYNE SEMICONDUCTOR	12515 CHADRON AVE.	HAWTHORNE, CA 90250
08806	GENERAL ELECTRIC CO., MINIATURE LAMP PRODUCTS DEPT.	NELA PK.	CLEVELAND, OH 44112
12697	CLAROSTAT MFG. CO., INC.	LOWER WASHINGTON ST.	DOVER, NH 03820
13715	FAIRCHILD SEMICONDUCTOR, A DIV. OF FAIRCHILD CAMERA AND INSTRUMENT CORP.	4300 REDWOOD HWY.	SAN RAFAEL, CA 94903
14936	GENERAL INSTRUMENT CORP., SEMICONDUCTOR PRODUCTS GROUP	600 W. JOHN ST.	HICKSVILLE, NY 11802
15818	TELEDYNE SEMICONDUCTOR	1300 TERRA BELLA AVE.	MOUNTAIN VIEW, CA 94040
24931	SPECIALTY CONNECTOR CO., INC.	3560 MADISON AVE.	INDIANAPOLIS, IN 46227
34553	AMPEREX ELECTRONIC CORP., COMPONENT DIV.	35 HOFFMAN AVE.	HAPPAUGE, NY 11787
56289	SPRAGUE ELECTRIC CO.		NORTH ADAMS, MA 01247
71590	CENTRALAB ELECTRONICS, DIV. OF GLOBE-UNION, INC.	5757 N. GREEN BAY AVE.	MILWAUKEE, WI 53201
72982	ERIE TECHNOLOGICAL PRODUCTS, INC.	644 W. 12TH ST.	ERIE, PA 16512
73138	BECKMAN INSTRUMENTS, INC., HELIPOT DIV.	2500 HARBOR BLVD.	FULLERTON, CA 92634
75042	TRW ELECTRONIC COMPONENTS, IRC FIXED RESISTORS, PHILADELPHIA DIVISION	401 N. BROAD ST.	PHILADELPHIA, PA 19108
80009	TEKTRONIX, INC.	P. O. BOX 500	BEAVERTON, OR 97077
80294	BOURNS, INC., INSTRUMENT DIV.	6135 MAGNOLIA AVE.	RIVERSIDE, CA 92506
81483	INTERNATIONAL RECTIFIER CORP.	9220 SUNSET BLVD.	LOS ANGELES, CA 90069
86684	RCA CORP., ELECTRONIC COMPONENTS	415 S. 5TH ST.	HARRISON, NJ 07029
90201	MALLORY CAPACITOR CO., DIV. OF P. R. MALLORY CO., INC.	3029 E. WASHINGTON ST.	INDIANAPOLIS, IN 46206
91637	DALE ELECTRONICS, INC.	P. O. BOX 609	COLUMBUS, NB 68601

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
A1	670-3202-00		CKT BOARD ASSY:B	80009	670-3202-00
A2	670-3201-00		CKT BOARD ASSY:A	80009	670-3201-00
A3	670-3203-00		CKT BOARD ASSY:C	80009	670-3203-00
C5	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C10	281-0504-00		CAP.,FXD,CER DI:10PF,+/-1PF,500V	72982	301-000C0G0100F
C12	281-0500-00		CAP.,FXD,CER DI:2.2PF,+/-0.5PF,500V	72982	301-000C0J0229D
C15	281-0184-00		CAP.,VAR,PLSTC:2-18PF,500VDC	34553	2222-809-05003
C25	283-0002-00		CAP.,FXD,CER DI:0.01UF,+80-20%,500V	72982	811-546E103Z
C30	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C42	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C45	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C52	281-0549-00		CAP.,FXD,CER DI:68PF,10%,500V	72982	301-000U2J0680K
C70	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C80	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C82	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C105	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C110	281-0505-00		CAP.,FXD,CER DI:12PF,+/-1.2PF,500V	72982	301-002C0G0120K
C115	281-0184-00		CAP.,VAR,PLSTC:2-18PF,500VDC	34553	2222-809-05003
C125	283-0002-00		CAP.,FXD,CER DI:0.01UF,+80-20%,500V	72982	811-546E103Z
C130	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C142	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C145	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C152	281-0549-00		CAP.,FXD,CER DI:68PF,10%,500V	72982	301-000U2J0680K
C170	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C180	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C182	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C200	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C201	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C212	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C214	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C215	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C218	281-0516-00		CAP.,FXD,CER DI:39PF,+/-3.9PF,500V	72982	301-000U2J0390K
C235	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C245	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C247	281-0523-00		CAP.,FXD,CER DI:100PF,+/-20PF,350V	72982	301-000U2M0101M
C252	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C253	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C254	283-0080-00		CAP.,FXD,CER DI:0.022UF,+80-20%,25V	56289	19C611
C255	281-0525-00		CAP.,FXD,CER DI:470PF,+/-94PF,500V	72982	301-000X5U0471M
C260	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C275	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C285	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C298	290-0517-00		CAP.,FXD,ELCTLT:6.8UF,20%,35V	56289	196D685X0035KAL
C300	283-0003-00		CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-547E103Z
C315	295-0180-00		CAP.SET,MTCHD:0.1UF,900UF,10UF	80009	295-0180-00
C316					
C317					
C318	283-0647-00		CAP.,FXD,MICA D:70PF,1%,100V	00853	D151E700F0
C320	281-0184-00		CAP.,VAR,PLSTC:2-18PF,500VDC	34553	2222-809-05003
C322	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL
C329	290-0522-00		CAP.,FXD,ELCTLT:1UF,20%,50V	56289	196D105X0050HAL

¹Individual timing capacitors in this assembly must be ordered by the 9-digit part number, letter suffix and tolerance printed on the timing capacitor to be replaced. The letter suffix and tolerance should be same for all of the timing capacitors in the assembly.

EXAMPLE: 285-XXXX-XX F-

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Discont	Name & Description	Mfr Code	Mfr Part Number
C346	281-0628-00			CAP., FXD, CER DI:15PF, 5%, 600V	72982	301-000C0G0150G
C358	290-0512-00			CAP., FXD, ELCTLT:22UF, 20%, 15V	56289	196D226X0015KA1
C362	283-0059-00			CAP., FXD, CER DI:1UF, +80-20%, 25V	72982	8141N038651105Z
C377	290-0517-00			CAP., FXD, ELCTLT:6.8UF, 20%, 35V	56289	196D685X0035KA1
C400	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C401	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C412	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C414	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C415	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C418	281-0516-00			CAP., FXD, CER DI:39PF, +/-3.9PF, 500V	72982	301-000U2J0390K
C435	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C445	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C447	281-0523-00			CAP., FXD, CER DI:100PF, +/-20PF, 350V	72982	301-000U2M0101M
C452	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C453	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C454	283-0080-00			CAP., FXD, CER DI:0.022UF, +80-20%, 25V	56289	19C611
C455	281-0525-00			CAP., FXD, CER DI:470PF, +/-94PF, 500V	72982	301-000X5U0471M
C460	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C475	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C485	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C498	290-0517-00			CAP., FXD, ELCTLT:6.8UF, 20%, 35V	56289	196D685X0035KA1
C500	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C515	295-0180-00			CAP. SET, MTCMD:0.1UF, 900UF, 10UF	80009	295-0180-00
C516						
C517						
C518	283-0639-00			CAP., FXD, MICA D:56PF, 1%, 100V	00853	D151E560F0
C520	281-0184-00			CAP., VAR, PLSTC:2-18PF, 500VDC	34553	2222-809-05003
C522	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C529	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C546	281-0509-00			CAP., FXD, CER DI:15PF, +/-1.5PF, 500V	72982	301-000C0G0150K
C669	281-0550-00			CAP., FXD, CER DI:120PF, 10%, 500V	72982	301-000X5P0121K
C690	281-0628-00			CAP., FXD, CER DI:15PF, 5%, 600V	72982	301-000C0G0150G
C697	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C769	281-0550-00			CAP., FXD, CER DI:120PF, 10%, 500V	72982	301-000X5P0121K
C790	281-0578-00			CAP., FXD, CER DI:18PF, 5%, 500V	72982	301-000C0G0180J
C797	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C800	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C812	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C834	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C840	281-0509-00			CAP., FXD, CER DI:15PF, +/-1.5PF, 500V	72982	301-000C0G0150K
C880	283-0000-00			CAP., FXD, CER DI:0.001UF, +100-0%, 500V	72982	831-516E102P
C900	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C902	290-0534-00			CAP., FXD, ELCTLT:1UF, 20%, 35V	56289	196D105X0035HA1
C916	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C920	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C930	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C946	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C1005	283-0000-00			CAP., FXD, CER DI:0.001UF, +100-0%, 500V	72982	831-516E102P
C1013	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C1015	281-0546-00			CAP., FXD, CER DI:330PF, 10%, 500V	72982	301-000X5P0331K
C1028	290-0527-00			CAP., FXD, ELCTLT:15UF, 20%, 20V	90201	TDC156M020NLF
C1030	290-0534-00			CAP., FXD, ELCTLT:1UF, 20%, 35V	56289	196D105X0035HA1
C1050	290-0534-00			CAP., FXD, ELCTLT:1UF, 20%, 35V	56289	196D105X0035HA1

¹Individual timing capacitors in this assembly must be ordered by the 9-digit part number, letter suffix and tolerance printed on the timing capacitor to be replaced. The letter suffix and tolerance should be the same for all of the timing capacitors in the assembly.

EXAMPLE:

285-XXXX-XX F-

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
C1057	290-0527-00			CAP., FXD, ELCTLT:15UF, 20%, 20V	90201	TDC156M020NLF
C1062	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C1077	290-0527-00			CAP., FXD, ELCTLT:15UF, 20%, 20V	90201	TDC156M020NLF
C1082	283-0003-00			CAP., FXD, CER DI:0.01UF, +80-20%, 150V	72982	855-547E103Z
C1090	290-0534-00			CAP., FXD, ELCTLT:1UF, 20%, 35V	56289	196D105X0035HA1
C1300	283-0002-00			CAP., FXD, CER DI:0.01UF, +80-20%, 500V	72982	811-546E103Z
C1310	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C1312	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C1314	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C1316	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
C1318	290-0522-00			CAP., FXD, ELCTLT:1UF, 20%, 50V	56289	196D105X0050HA1
CR35	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR36	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR48	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR135	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR136	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR148	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR215	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR224	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR225	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR227	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR228	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR247	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR300	152-0245-00			SEMICONV DEVICE :SILICON, 10NA, 5V	07910	CD61165
CR302	152-0245-00			SEMICONV DEVICE :SILICON, 10NA, 5V	07910	CD61165
CR310	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR326	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR335	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR338	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR350	152-0075-00			SEMICONV DEVICE :GE, 25V, 40MA	14936	GD238
CR357	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR358	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR365	152-0307-00			SEMICONV DEVICE :SILICON, 300V, 3A	04713	SSD1150
CR415	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR424	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR425	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR427	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR428	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR447	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR500	152-0245-00			SEMICONV DEVICE :SILICON, 10NA, 5V	07910	CD61165
CR502	152-0245-00			SEMICONV DEVICE :SILICON, 10NA, 5V	07910	CD61165
CR510	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR526	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR535	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR538	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR560	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR606	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR607	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR625	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR630	152-0153-00			SEMICONV DEVICE :SILICON, 15V, 5MA	13715	FD7003
CR680	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR684	152-0141-02			SEMICONV DEVICE :SILICON, 30V, 150MA	07910	1N4152

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
CR706	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR707	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR725	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR730	152-0153-00			SEMICON D DEVICE :SILICON, 15V, 50MA	13715	FD7003
CR780	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR784	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR800	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR802	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR815	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR829	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR830	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR850	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR852	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR862	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR875	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR886	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR887	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR890	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR891	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR893	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR894	152-0075-00			SEMICON D DEVICE :GE, 25V, 40MA	14936	GD238
CR900	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR920	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR930	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR950	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1000	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1005	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1017	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1020	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1036	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1040	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1042	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1060	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1062	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1080	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1082	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1101	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1102	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1104	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1105	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1106	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1107	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1108	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1109	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1201	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1202	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1204	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1205	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1207	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1208	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1209	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1218	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152
CR1220	152-0141-02			SEMICON D DEVICE :SILICON, 30V, 150MA	07910	1N4152

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
CRL225	152-0075-00			SEMICON D VC SE:25V,40MA	14936	GD238
CRL227	152-0141-02			SEMICON D VC SE:SILICON,30V,150MA	07910	1N4152
CRL238	152-0141-02			SEMICON D VC SE:SILICON,30V,150MA	07910	1N4152
CRL240	152-0141-02			SEMICON D VC SE:SILICON,30V,150MA	07910	1N4152
CRL245	152-0075-00			SEMICON D VC SE:GE,25V,40MA	14936	GD238
CRL247	152-0141-02			SEMICON D VC SE:SILICON,30V,150MA	07910	1N4152
CRL248	152-0141-02			SEMICON D VC SE:SILICON,30V,150MA	07910	1N4152
DS200	150-1004-00			LAMP,LED:RED,2.5V,15MA	08806	SSL-12
DS400	150-1004-00			LAMP,LED:RED,2.5V,15MA	08806	SSL-12
DS1220	150-0111-00			LAMP,GLOW:NEON,1.2MA	08806	2AC-AT
DS1225	150-0111-00			LAMP,GLOW:NEON,1.2MA	08806	2AC-AT
DS1240	150-0111-00			LAMP,GLOW:NEON,1.2MA	08806	2AC-AT
DS1245	150-0111-00			LAMP,GLOW:NEON,1.2MA	08806	2AC-AT
J10	131-0955-00			CONNECTOR,RCPT,:BNC,FEMALE	24931	28JR200-1
J110	131-0955-00			CONNECTOR,RCPT,:BNC,FEMALE	24931	28JR200-1
LR5	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR82	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR105	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR182	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR200	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR245	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR260	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR275	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR285	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR400	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR445	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR460	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR475	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR485	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1030	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1050	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1090	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1310	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1312	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1314	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1316	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
LR1318	108-0245-00			COIL,RF:3.9UH	80009	108-0245-00
Q30	151-1042-00			SEMICON D VC SE:MATCHED PAIR FET	80009	151-1042-00
Q40						
Q45	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q60	151-0225-00			TRANSISTOR:SILICON,NPN	07910	CS23365
Q62	151-0225-00			TRANSISTOR:SILICON,NPN	07910	CS23365
Q70	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q130	151-1042-00			SEMICON D VC SE:MATCHED PAIR FET	80009	151-1042-00
Q140						
Q145	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q160	151-0225-00			TRANSISTOR:SILICON,NPN	07910	CS23365
Q162	151-0225-00			TRANSISTOR:SILICON,NPN	07910	CS23365
Q170	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q220	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q280	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906

Electrical Parts List—5B44

Ckt No.	Tektronix	Serial/Model No.		Name & Description	Mfr	Mfr Part Number
	Part No.	Eff	Dscont		Code	
Q290	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q300	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q310	151-0219-00			TRANSISTOR:SILICON,NPN	07263	SS22650
Q320A,B	153-0559-00			SEMICON DVC SE:MATCHED PAIR FET	80009	153-0559-00
Q330	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q335	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q340	151-0192-00			TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q345	151-0192-00			TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q350	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q360	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q362	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q365	151-0353-00			TRANSISTOR:SILICON,NPN,DUAL MONOLITH	80009	151-0353-00
Q370	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q420	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q480	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q490	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q500	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q510	151-0219-00			TRANSISTOR:SILICON,NPN	07263	SS22650
Q520A,B	153-0559-00			SEMICON DVC SE:MATCHED PAIR FET	80009	153-0559-00
Q530	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q535	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q540	151-0192-00			TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q545	151-0192-00			TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q555	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q560	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q600	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q620	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q630	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q635	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q650	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q660	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q665	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q680	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q690	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q695	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q700	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q720	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q730	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q735	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q750	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q760	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q765	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q780	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q790	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q795	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q800	151-1005-00			TRANSISTOR:SILICON,JFE,N-CHANNEL	15818	U1490
Q810	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q815	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q830	151-0188-00			TRANSISTOR:SILICON,PNP	04713	2N3906
Q835	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q860	151-0341-00			TRANSISTOR:SILICON,NPN	07263	2N3565
Q870	151-1042-00			SEMICON DVC SE:MATCHED PAIR FET	80009	151-1042-00
Q875						

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
Q900	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q920	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q930	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q950	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q960	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q962	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q1005	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q1010	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q1015	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q1020	151-0188-00		TRANSISTOR:SILICON,PNP	04713	2N3906
Q1025	151-0192-00		TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q1055 ¹	153-0547-00		SEMICON DVC SE:SILICON,NPN,MATCHED	80009	153-0547-00
Q1075 ¹					
Q1220	151-0347-00		TRANSISTOR:SILICON,NPN	80009	151-0347-00
Q1225	151-0347-00		TRANSISTOR:SILICON,NPN	80009	151-0347-00
Q1240	151-0347-00		TRANSISTOR:SILICON,NPN	80009	151-0347-00
Q1245	151-0347-00		TRANSISTOR:SILICON,NPN	80009	151-0347-00
R10	315-0330-00		RES.,FXD,CMPSN:33 OHM,5%,0.25W	01121	CB3305
R12	323-0469-00		RES.,FXD,FILM:750K OHM,1%,0.50W	75042	CECTO-7503F
R18	321-0106-00		RES.,FXD,FILM:124 OHM,1%,0.125W	75042	CEAT0-1240F
R20	321-0106-00		RES.,FXD,FILM:124 OHM,1%,0.125W	75042	CEAT0-1240F
R25	321-0423-00		RES.,FXD,FILM:249K OHM,1%,0.125W	75042	CEAT0-2493F
R27	315-0270-00		RES.,FXD,CMPSN:27 OHM,5%,0.25W	01121	CB2705
R30	315-0101-00		RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R35	315-0220-00		RES.,FXD,CMPSN:22 OHM,5%,0.25W	01121	CB2205
R40	311-1568-00		RES.,VAR,NONWIR:50 OHM,20%,0.50W	73138	91A50R00M
R42	315-0101-00		RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R45	315-0153-00		RES.,FXD,CMPSN:15K OHM,5%,0.25W	01121	CB1535
R46	315-0680-00		RES.,FXD,CMPSN:68 OHM,5%,0.25W	01121	CB6805
R48	315-0222-00		RES.,FXD,CMPSN:2.2K OHM,5%,0.25W	01121	CB2225
R50	315-0153-00		RES.,FXD,CMPSN:15K OHM,5%,0.25W	01121	CB1535
R52	315-0240-00		RES.,FXD,CMPSN:24 OHM,5%,0.25W	01121	CB2405
R53	322-0205-00		RES.,FXD,FILM:1.33K OHM,1%,0.25W	75042	CEBTO-1331F
R54	315-0240-00		RES.,FXD,CMPSN:24 OHM,5%,0.25W	01121	CB2405
R60	321-0097-00		RES.,FXD,FILM:100 OHM,1%,0.125W	75042	CEAT0-1000F
R62	321-0097-00		RES.,FXD,FILM:100 OHM,1%,0.125W	75042	CEAT0-1000F
R63	315-0680-00		RES.,FXD,CMPSN:68 OHM,5%,0.25W	01121	CB6805
R65	315-0680-00		RES.,FXD,CMPSN:68 OHM,5%,0.25W	01121	CB6805
R67	315-0153-00		RES.,FXD,CMPSN:15K OHM,5%,0.25W	01121	CB1535
R70	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R72	315-0243-00		RES.,FXD,CMPSN:24K OHM,5%,0.25W	01121	CB2435
R75 ¹	311-1310-00		RES.,VAR,NONWIR:20K OHM,20%,1W	01121	10M654
R80	315-0561-00		RES.,FXD,CMPSN:560 OHM,5%,0.25W	01121	CB5615
R85	315-0200-00		RES.,FXD,CMPSN:20 OHM,5%,0.25W	01121	CB2005
R86	315-0200-00		RES.,FXD,CMPSN:20 OHM,5%,0.25W	01121	CB2005
R90	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R92	315-0302-00		RES.,FXD,CMPSN:3K OHM,5%,0.25W	01121	CB3025
R94	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R95	315-0302-00		RES.,FXD,CMPSN:3K OHM,5%,0.25W	01121	CB3025
R97	315-0133-00		RES.,FXD,CMPSN:13K OHM,5%,0.25W	01121	CB1335
R98	315-0302-00		RES.,FXD,CMPSN:3K OHM,5%,0.25W	01121	CB3025
R110	315-0330-00		RES.,FXD,CMPSN:33 OHM,5%,0.25W	01121	CB3305

¹Furnished with S75 as a unit.

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R112	323-0469-00			RES., FXD, FILM:750K OHM, 1%, 0.50W	75042	CECT0-7503F
R118	321-0106-00			RES., FXD, FILM:124 OHM, 1%, 0.125W	75042	CEAT0-1240F
R120	321-0106-00			RES., FXD, FILM:124 OHM, 1%, 0.125W	75042	CEAT0-1240F
R122	321-0222-00			RES., FXD, FILM:2K OHM, 1%, 0.125W	75042	CEAT0-2001F
R125	321-0423-00			RES., FXD, FILM:249K OHM, 1%, 0.125W	75042	CEAT0-2493F
R127	315-0270-00			RES., FXD, CMPSN:27 OHM, 5%, 0.25W	01121	CB2705
R130	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R135	315-0220-00			RES., FXD, CMPSN:22 OHM, 5%, 0.25W	01121	CB2205
R140	311-1568-00			RES., VAR, NONWIR:50 OHM, 20%, 0.50W	73138	91A50R00M
R142	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1005
R145	315-0153-00			RES., FXD, CMPSN:15K OHM, 5%, 0.25W	01121	CB1535
R146	315-0680-00			RES., FXD, CMPSN:68 OHM, 5%, 0.25W	01121	CB6805
R148	315-0222-00			RES., FXD, CMPSN:2.2K OHM, 5%, 0.25W	01121	CB2225
R150	315-0153-00			RES., FXD, CMPSN:15K OHM, 5%, 0.25W	01121	CB1535
R152	315-0240-00			RES., FXD, CMPSN:24 OHM, 5%, 0.25W	01121	CB2405
R153	322-0205-00			RES., FXD, FILM:1.33K OHM, 1%, 0.25W	75042	CEBT0-1331F
R154	315-0240-00			RES., FXD, CMPSN:24 OHM, 5%, 0.25W	01121	CB2405
R160	321-0097-00			RES., FXD, FILM:100 OHM, 1%, 0.125W	75042	CEAT0-1000F
R162	321-0097-00			RES., FXD, FILM:100 OHM, 1%, 0.125W	75042	CEAT0-1000F
R163	315-0680-00			RES., FXD, CMPSN:68 OHM, 5%, 0.25W	01121	CB6805
R165	315-0680-00			RES., FXD, CMPSN:68 OHM, 5%, 0.25W	01121	CB6805
R167	315-0153-00			RES., FXD, CMPSN:15K OHM, 5%, 0.25W	01121	CB1535
R170	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R172	315-0243-00			RES., FXD, CMPSN:24K OHM, 5%, 0.25W	01121	CB2435
R175 ¹	311-1310-00			RES., VAR, NONWIR:20K OHM, 20%, 1W	01121	10M654
R180	315-0561-00			RES., FXD, CMPSN:560 OHM, 5%, 0.25W	01121	CB5615
R185	315-0200-00			RES., FXD, CMPSN:20 OHM, 5%, 0.25W	01121	CB2005
R186	315-0200-00			RES., FXD, CMPSN:20 OHM, 5%, 0.25W	01121	CB2005
R190	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R192	315-0302-00			RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R194	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R195	315-0302-00			RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R197	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R201	315-0334-00			RES., FXD, CMPSN:330K OHM, 5%, 0.25W	01121	CB3345
R202	321-0298-00			RES., FXD, FILM:12.4K OHM, 1%, 0.125W	75042	CEAT0-1242F
R204	321-0298-00			RES., FXD, FILM:12.4K OHM, 1%, 0.125W	75042	CEAT0-1242F
R206	315-0181-00			RES., FXD, CMPSN:180 OHM, 5%, 0.25W	01121	CB1815
R210	315-0301-00			RES., FXD, CMPSN:300 OHM, 5%, 0.25W	01121	CB3015
R212	315-0301-00			RES., FXD, CMPSN:300 OHM, 5%, 0.25W	01121	CB3015
R215	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R218	315-0203-00			RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035
R220	315-0332-00			RES., FXD, CMPSN:3.3K OHM, 5%, 0.25W	01121	CB3325
R230	315-0512-00			RES., FXD, CMPSN:5.1K OHM, 5%, 0.25W	01121	CB5125
R235	301-0391-00			RES., FXD, CMPSN:390 OHM, 5%, 0.50W	01121	EB3915
R238	315-0103-00			RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R242	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R244	315-0182-00			RES., FXD, CMPSN:1.8K OHM, 5%, 0.25W	01121	CB1825
R245	315-0391-00			RES., FXD, CMPSN:390 OHM, 5%, 0.25W	01121	CB3915
R247	315-0680-00			RES., FXD, CMPSN:68 OHM, 5%, 0.25W	01121	CB6805
R250	315-0154-00			RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R252	315-0470-00			RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705
R255	315-0163-00			RES., FXD, CMPSN:16K OHM, 5%, 0.25W	01121	CB1635
R260	311-1537-00			RES., VAR, NONWIR:20K OHM, 1W, W/SW	12697	381-CM40064

¹Furnished as a unit with S175

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R262	315-0104-00		RES., FXD, CMPSN:100K OHM, 5%, 0.25W	01121	CB1045
R263	321-0162-00		RES., FXD, FILM:475 OHM, 1%, 0.125W	75042	CEATO-4750F
R265	321-0234-03		RES., FXD, FILM:2.67K OHM, 0.25%, 0.125W	91637	MFF1816D26700C
R266	321-0268-03		RES., FXD, FILM:6.04K OHM, 0.25%, 0.125W	75042	CEAT2-6041C
R267	321-0239-03		RES., FXD, FILM:3.01K OHM, 0.25%, 0.125W	91637	MFF1816D30100C
R268	321-0239-03		RES., FXD, FILM:3.01K OHM, 0.25%, 0.125W	91637	MFF1816D30100C
R269	321-1645-03		RES., FXD, FILM:841 OHM, 0.25%, 0.125W	91637	MFF18160841ROC
R270	323-0498-03		RES., FXD, FILM:1.5M OHM, 0.25%, 0.5W	75042	CBCT21.5MC
R271	321-0401-03		RES., FXD, FILM:147K OHM, 0.25%, 0.125W	91637	MFF1816D14702C
R272	321-1646-03		RES., FXD, FILM:11.87K OHM, 0.25%, 0.125W	91637	MFF18160841ROC
R280	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R282	315-0820-00		RES., FXD, CMPSN:82 OHM, 5%, 0.25W	01121	CB8205
R285	315-0911-00		RES., FXD, CMPSN:910 OHM, 5%, 0.25W	01121	CB9115
R287	315-0681-00		RES., FXD, CMPSN:680 OHM, 5%, 0.25W	01121	CB6815
R290	315-0242-00		RES., FXD, CMPSN:2.4K OHM, 5%, 0.25W	01121	CB2425
R292	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R295	321-0304-00		RES., FXD, FILM:14.3K OHM, 1%, 0.125W	75042	CEATO-1432F
R297	321-0304-00		RES., FXD, FILM:14.3K OHM, 1%, 0.125W	75042	CEATO-1432F
R298	321-0310-00		RES., FXD, FILM:16.5K OHM, 1%, 0.125W	75042	CEATO-1652C
R300	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R302	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R305	315-0220-00		RES., FXD, CMPSN:22 OHM, 5%, 0.25W	01121	CB2205
R307	315-0625-00		RES., FXD, CMPSN:6.2M OHM, 5%, 0.25W	01121	CB6255
R310	315-0472-00		RES., FXD, CMPSN:4.7K OHM, 5%, 0.25W	01121	CB4725
R320	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R322	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R324	321-0114-00		RES., FXD, FILM:150 OHM, 1%, 0.125W	75042	CEATO-1500F
R326	321-0114-00		RES., FXD, CMPSN:150 OHM, 1%, 0.125W	75042	CEATO-1500F
R329	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R332	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R335	315-0362-00		RES., FXD, CMPSN:3.6K OHM, 5%, 0.25W	01121	CB3625
R338	315-0202-00		RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R340	321-0261-00		RES., FXD, FILM:5.11K OHM, 1%, 0.125W	75042	CEATO-5111F
R341	321-0299-00		RES., FXD, FILM:12.7K OHM, 1%, 0.125W	75042	CEATO-1272F
R344	321-0291-00		RES., FXD, FILM:10.5K OHM, 1%, 0.125W	75042	CEATO-1052F
R346	321-0357-00		RES., FXD, FILM:51.1K OHM, 1%, 0.125W	75042	CEATO-5112F
R347	321-0357-00		RES., FXD, FILM:51.1K OHM, 1%, 0.125W	75042	CEATO-5112F
R350	315-0152-00		RES., FXD, CMPSN:1.5K OHM, 5%, 0.25W	01121	CB1525
R352	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R355	315-0562-00		RES., FXD, CMPSN:5.6K OHM, 5%, 0.25W	01121	CB5625
R356	315-0562-00		RES., FXD, CMPSN:5.6K OHM, 5%, 0.25W	01121	CB5625
R358	315-0470-00		RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705
R360	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R362	315-0222-00		RES., FXD, CMPSN:2.2K OHM, 5%, 0.25W	01121	CB2225
R365	315-0820-00		RES., FXD, CMPSN:82 OHM, 5%, 0.25W	01121	CB8205
R366	315-0820-00		RES., FXD, CMPSN:82 OHM, 5%, 0.25W	01121	CB8205
R368	315-0183-00		RES., FXD, CMPSN:18K OHM, 5%, 0.25W	01121	CB1835
R369	315-0123-00		RES., FXD, CMPSN:12K OHM, 5%, 0.25W	01121	CB1235
R372	321-0266-00		RES., FXD, FILM:5.76K OHM, 1%, 0.125W	75042	CEATO-5761F
R375	311-1562-00		RES., VAR, NONWIR:2K OHM, 20%, 0.50W	73138	91A-20000M
R377	321-0306-00		RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F
R378	321-0306-00		RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F
R380	321-0306-00		RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R385	311-0838-00		RES.,VAR,WW:10K OHM,5%,1W	80294	3707-425-103
R387	311-1267-00		RES.,VAR,NONWIR:5K OHM,10%,0.50W	73138	62PT-3500-502K
R388	321-0680-03		RES.,FXD,FILM:35.3K OHM,0.25%,0.125W	91637	MFF1816D35301C
R390	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R391	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R393	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R394	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R396	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R398	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R401	315-0334-00		RES.,FXD,CMPSN:330K OHM,5%,0.25W	01121	CB3345
R402	321-0298-00		RES.,FXD,FILM:12.4K OHM,1%,0.125W	75042	CEATO-1242F
R404	321-0298-00		RES.,FXD,FILM:12.4K OHM,1%,0.125W	75042	CEATO-1242F
R406	315-0181-00		RES.,FXD,CMPSN:180 OHM,5%,0.25W	01121	CB1815
R410	315-0301-00		RES.,FXD,CMPSN:300 OHM,5%,0.25W	01121	CB3015
R412	315-0301-00		RES.,FXD,CMPSN:300 OHM,5%,0.25W	01121	CB3015
R415	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R418	315-0203-00		RES.,FXD,CMPSN:20K OHM,5%,0.25W	01121	CB2035
R420	315-0332-00		RES.,FXD,CMPSN:3.3K OHM,5%,0.25W	01121	CB3325
R430	315-0512-00		RES.,FXD,CMPSN:5.1K OHM,5%,0.25W	01121	CB5125
R431	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R435	301-0391-00		RES.,FXD,CMPSN:390 OHM,5%,0.50W	01121	EB3915
R438	315-0103-00		RES.,FXD,CMPSN:10K OHM,5%,0.25W	01121	CB1035
R439	315-0302-00		RES.,FXD,CMPSN:3K OHM,5%,0.25W	01121	CB3025
R440	315-0133-00		RES.,FXD,CMPSN:13K OHM,5%,0.25W	01121	CB1335
R442	321-0222-00		RES.,FXD,FILM:2K OHM,1%,0.125W	75042	CEATO-2001F
R444	315-0182-00		RES.,FXD,CMPSN:1.8K OHM,5%,0.25W	01121	CB1825
R445	315-0391-00		RES.,FXD,CMPSN:390 OHM,5%,0.25W	01121	CB3915
R447	315-0680-00		RES.,FXD,CMPSN:68 OHM,5%,0.25W	01121	CB6805
R450	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R451	321-0299-00		RES.,FXD,FILM:12.7K OHM,1%,0.125W	75042	CEATO-1272F
R452	315-0470-00		RES.,FXD,CMPSN:47 OHM,5%,0.25W	01121	CB4705
R455	315-0163-00		RES.,FXD,CMPSN:16K OHM,5%,0.25W	01121	CB1635
R463	321-0162-00		RES.,FXD,FILM:475 OHM,1%,0.125W	75042	CEATO-4750F
R465	321-0234-03		RES.,FXD,CMPSN:2.67K OHM,0.25%,0.125W	91637	MFF1816D26700C
R466	321-0268-03		RES.,FXD,FILM:6.04K OHM,0.25%,0.125W	75042	CEAT2-6041C
R467	321-0239-03		RES.,FXD,FILM:3.01K OHM,0.25%,0.125W	91637	MFF1816D30100C
R468	321-0239-03		RES.,FXD,FILM:3.01K OHM,0.25%,0.125W	91637	MFF1816D30100C
R469	321-1645-03		RES.,FXD,FILM:841 OHM,0.25%,0.125W	91637	MFF18160841ROC
R470	323-0498-03		RES.,FXD,FILM:1.5M OHM,0.25%,0.5W	75042	CECT21.5MC
R471	321-0401-03		RES.,FXD,FILM:147K OHM,0.25%,0.125W	91637	MFF1816D14702C
R472	321-1646-03		RES.,FXD,FILM:11.87K OHM,0.25%,0.125W	91637	MFF181601187IC
R480	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R482	315-0820-00		RES.,FXD,CMPSN:82 OHM,5%,0.25W	01121	CB8205
R485	315-0911-00		RES.,FXD,CMPSN:910 OHM,5%,0.25W	01121	CB9115
R487	315-0681-00		RES.,FXD,CMPSN:680 OHM,5%,0.25W	01121	CB6815
R490	315-0242-00		RES.,FXD,CMPSN:2.4K OHM,5%,0.25W	01121	CB2425
R492	315-0101-00		RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R495	321-0304-00		RES.,FXD,FILM:14.3K OHM,1%,0.125W	75042	CEATO-1432F
R497	321-0304-00		RES.,FXD,FILM:14.3K OHM,1%,0.125W	75042	CEATO-1432F
R498	321-0310-00		RES.,FXD,FILM:16.5K OHM,1%,0.125W	75042	CEATO-1652C
R500	315-0103-00		RES.,FXD,CMPSN:10K OHM,5%,0.25W	01121	CB1035
R502	315-0101-00		RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R505	315-0220-00		RES.,FXD,CMPSN:22 OHM,5%,0.25W	01121	CB2205

Electrical Parts List—5B44

Kct No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R507	315-0625-00		RES., FXD, CMPSN:6.2M OHM, 5%, 0.25W	01121	CB6255
R510	315-0472-00		RES., FXD, CMPSN:4.7K OHM, 5%, 0.25W	01121	CB4725
R520	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R522	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R524	321-0114-00		RES., FXD, FILM:150 OHM, 1%, 0.125W	75042	CEATO-1500F
R526	321-0114-00		RES., FXD, FILM:150 OHM, 1%, 0.125W	75042	CEATO-1500F
R529	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R532	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R535	315-0362-00		RES., FXD, CMPSN:3.6K OHM, 5%, 0.25W	01121	CB3625
R538	315-0202-00		RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R540	321-0261-00		RES., FXD, FILM:5.11K OHM, 1%, 0.125W	75042	CEATO-5111F
R541	321-0299-00		RES., FXD, FILM:12.7K OHM, 1%, 0.125W	75042	CEATO-1272F
R544	321-0291-00		RES., FXD, FILM:10.5K OHM, 1%, 0.125W	75042	CEATO-1052F
R546	321-0357-00		RES., FXD, FILM:51.1K OHM, 1%, 0.125W	75042	CEATO-5112F
R547	321-0357-00		RES., FXD, FILM:51.1K OHM, 1%, 0.125W	75042	CEATO-5112F
R560	315-0182-00		RES., FXD, CMPSN:1.8K OHM, 5%, 0.25W	01121	CB1825
R561	315-0302-00		RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R563	315-0681-00		RES., FXD, CMPSN:680 OHM, 5%, 0.25W	01121	CB6815
R565	315-0201-00		RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015
R600	321-0246-00		RES., FXD, FILM:3.57K OHM, 1%, 0.125W	75042	CEATO-3571F
R605	321-0229-00		RES., FXD, FILM:2.37K OHM, 1%, 0.125W	75042	CEATO-2371F
R607	321-0243-00		RES., FXD, FILM:3.32K OHM, 1%, 0.125W	75042	CEATO-3321F
R610	311-1566-00		RES., VAR, NONWIR:200 OHM, 20%, 0.50W	73138	91A-200ROM
R611	321-0175-00		RES., FXD, FILM:649 OHM, 1%, 0.125W	75042	CEATO-6490F
R613	315-0333-00		RES., FXD, CMPSN:33K OHM, 5%, 0.25W	01121	CB3335
R615	315-0333-00		RES., FXD, CMPSN:33K OHM, 5%, 0.25W	01121	CB3335
R616	321-0275-00		RES., FXD, FILM:7.15K OHM, 1%, 0.125W	75042	CEATO-7151F
R620	321-0275-00		RES., FXD, FILM:7.15K OHM, 1%, 0.125W	75042	CEATO-7151F
R625	321-0222-00		RES., FXD, FILM:2K OHM, 1%, 0.125W	75042	CEATO-2001F
R628	321-0168-00		RES., FXD, FILM:549 OHM, 1%, 0.125W	75042	CEATO-5490F
R630	321-0208-00		RES., FXD, FILM:1.43K OHM, 1%, 0.125W	75042	CEATO-1431F
R635	315-0133-00		RES., FXD, CMPSN:13K OHM, 5%, 0.25W	01121	CB1335
R636	315-0182-00		RES., FXD, CMPSN:1.8K OHM, 5%, 0.25W	01121	CB1825
R640A,B	311-1781-00		RES., VAR, NONWIR:10K OHM, 10%, 0.5W	12697	388CM40913
R642	315-0133-00		RES., FXD, CMPSN:13K OHM, 5%, 0.25W	01121	CB1335
R644	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R645	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R648	315-0203-00		RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035
R650	315-0101-00		RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R653	321-0306-00		RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F
R654	321-0306-00		RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F
R660	322-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.25W	75042	CEBTO-1001F
R665	321-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F
R667	321-0247-00		RES., FXD, FILM:3.65K OHM, 1%, 0.125W	75042	CEATO-3651F
R669	321-0105-00		RES., FXD, FILM:121 OHM, 1%, 0.125W	75042	CEATO-1210F
R670	311-1568-00		RES., VAR, NONWIR:50 OHM, 20%, 0.50W	73138	91A50R00M
R672	311-1562-00		RES., VAR, NONWIR:2K OHM, 20%, 0.50W	73138	91A-20000M
R675	321-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F
R680	315-0330-00		RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R684	322-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.25W	75042	CEBTO-1001F
R685	311-1566-00		RES., VAR, NONWIR:200 OHM, 20%, 0.50W	73138	91A-200ROM
R690	321-0231-00		RES., FXD, FILM:2.49K OHM, 1%, 0.125W	75042	CEATO-2491F
R691	321-0231-00		RES., FXD, FILM:2.49K OHM, 1%, 0.125W	75042	CEATO-2491F

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr Code	Mfr Part Number	
		Eff	Dscont				
R693	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015	
R695	315-0203-00			RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035	
R697	315-0330-00			RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305	
R700	321-0246-00			RES., FXD, FILM:3.57K OHM, 1%, 0.125W	75042	CEATO-3571F	
R705	321-0229-00			RES., FXD, FILM:2.37K OHM, 1%, 0.125W	75042	CEATO-2371F	
R707	321-0243-00			RES., FXD, FILM:3.32K OHM, 1%, 0.125W	75042	CEATO-3321F	
R710	311-1566-00			RES., VAR, NONWIR:200 OHM, 20%, 0.50W	73138	91A-200ROM	
R711	321-0175-00			RES., FXD, FILM:649 OHM, 1%, 0.125W	75042	CEATO-6490F	
R713	315-0333-00			RES., FXD, CMPSN:33K OHM, 5%, 0.25W	01121	CB3335	
R715	315-0333-00			RES., FXD, CMPSN:33K OHM, 5%, 0.25W	01121	CB3335	
R716	321-0275-00			RES., FXD, FILM:7.15K OHM, 1%, 0.125W	75042	CEATO-7151F	
R720	321-0275-00			RES., FXD, FILM:7.15K OHM, 1%, 0.125W	75042	CEATO-7151F	
R725	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025	
R728	321-0168-00			RES., FXD, FILM:549 OHM, 1%, 0.125W	75042	CEATO-5490F	
R730	321-0208-00			RES., FXD, FILM:1.43K OHM, 1%, 0.125W	75042	CEATO-1431F	
R735	315-0133-00			RES., FXD, CMPSN:13K OHM, 5%, 0.25W	01121	CB1335	
R736	315-0182-00			RES., FXD, CMPSN:1.8K OHM, 5%, 0.25W	01121	CB1825	
R742	315-0133-00			RES., FXD, CMPSN:13K OHM, 5%, 0.25W	01121	CB1335	
R744	315-0103-00			RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035	
R745	315-0103-00			RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035	
R748	315-0203-00			RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035	
R750	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015	
R753	321-0306-00			RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F	
R754	321-0306-00			RES., FXD, FILM:15K OHM, 1%, 0.125W	75042	CEATO-1502F	
R760	322-0193-00			RES., FXD, FILM:1K OHM, 1%, 0.25W	75042	CEBT0-1001F	
R765	321-0193-00			RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F	
R767	321-0247-00			RES., FXD, FILM:3.65K OHM, 1%, 0.125W	75042	CEATO-3651F	
R769	321-0105-00			RES., FXD, FILM:121 OHM, 1%, 0.125W	75042	CEATO-1210F	
R770	311-1568-00			RES., VAR, NONWIR:50 OHM, 20%, 0.50W	73138	91A50ROOM	
R772	311-1562-00			RES., VAR, NONWIR:2K OHM, 20%, 0.50W	73138	91A-20000M	
R775	321-0193-00			RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F	
R780	315-0330-00			RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305	
R784	322-0193-00			RES., FXD, FILM:1K OHM, 1%, 0.25W	75042	CEBT0-1001F	
R785	311-1566-00			RES., VAR, NONWIR:200 OHM, 20%, 0.50W	73138	91A-200ROM	
R790	321-0231-00			RES., FXD, FILM:2.49K OHM, 1%, 0.125W	75042	CEATO-2491F	
R791	321-0231-00			RES., FXD, FILM:2.49K OHM, 1%, 0.125W	75042	CEATO-2491F	
R793	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015	
R795	315-0203-00			RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035	
R797	315-0330-00			RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305	
R800	315-0511-00			RES., FXD, CMPSN:510 OHM, 5%, 0.25W	01121	CB5115	
R810	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015	
R812	315-0470-00			RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705	
R814	315-0470-00			RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705	
R816	321-0254-00			RES., FXD, FILM:4.32K OHM, 1%, 0.125W	75042	CEATO-4321F	
R819	315-0302-00			RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025	
R820	315-0752-00			RES., FXD, CMPSN:7.5K OHM, 5%, 0.25W	01121	CB7525	
R825	311-1068-00			RES., VAR, NONWIR:5K OHM, 10%, 0.50W	01121	W-7682	
R826	321-0254-00			RES., FXD, FILM:4.32K OHM, 1%, 0.125W	75042	CEATO-4321F	
R828	321-0213-00			RES., FXD, FILM:1.62K OHM, 1%, 0.125W	75042	CEATO-1621F	
R829	321-0346-00			RES., FXD, FILM:39.2K OHM, 1%, 0.125W	75042	CEATO-3922F	
R832	321-0289-00			RES., FXD, FILM:10K OHM, 1%, 0.125W	75042	CEATO-1002F	
R834	315-0470-00			RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705	
R836	315-0103-00			RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035	

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R840	321-0265-00		RES., FXD, FILM:5.62K OHM, 1%, 0.125W	75042	CEATO-5621F
R842	315-0222-00		RES., FXD, CMPSN:2.2K OHM, 5%, 0.25W	01121	CB2225
R844	315-0203-00		RES., FXD, CMPSN:20K OHM, 5%, 0.25W	01121	CB2035
R845	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R847	321-0225-00		RES., FXD, FILM:2.15K OHM, 1%, 0.125W	75042	CEATO-2151F
R850	315-0222-00		RES., FXD, CMPSN:2.2K OHM, 5%, 0.25W	01121	CB2225
R852	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R854	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R856	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R860	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R862	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R864	315-0182-00		RES., FXD, CMPSN:1.8K OHM, 5%, 0.25W	01121	CB1825
R865	315-0202-00		RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R870	321-0414-00		RES., FXD, FILM:200K OHM, 1%, 0.125W	75042	CEATO-2003F
R871	321-0385-00		RES., FXD, FILM:100K OHM, 1%, 0.125W	75042	CEATO-1003F
R872	321-0228-00		RES., FXD, FILM:2.32K OHM, 1%, 0.125W	75042	CEATO-2321F
R873	315-0106-00		RES., FXD, CMPSN:10M OHM, 5%, 0.25W	01121	CB1065
R874	315-0105-00		RES., FXD, CMPSN:1M OHM, 5%, 0.25W	01121	CB1055
R875	315-0105-00		RES., FXD, CMPSN:1M OHM, 5%, 0.25W	01121	CB1055
R877	315-0201-00		RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015
R880	321-0260-00		RES., FXD, FILM:4.99K OHM, 1%, 0.125W	75042	CEATO-4991F
R882	321-0260-00		RES., FXD, FILM:4.99K OHM, 1%, 0.125W	75042	CEATO-4991F
R884	321-0260-00		RES., FXD, FILM:4.99K OHM, 1%, 0.125W	75042	CEATO-4991F
R886	315-0331-00		RES., FXD, CMPSN:330 OHM, 5%, 0.25W	01121	CB3315
R887	315-0331-00		RES., FXD, CMPSN:330 OHM, 5%, 0.25W	01121	CB3315
R890	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R891	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R893	315-0472-00		RES., FXD, CMPSN:4.7K OHM, 5%, 0.25W	01121	CB4725
R900	321-0213-00		RES., FXD, FILM:1.62K OHM, 1%, 0.125W	75042	CEATO-1621F
R902	315-0681-00		RES., FXD, CMPSN:680 OHM, 5%, 0.25W	01121	CB6815
R905	321-0770-03		RES., FXD, FILM:4.204K OHM, 0.25%, 0.125W	75042	CEAT2-4204OC
R906	321-0147-00		RES., FXD, FILM:332 OHM, 1%, 0.125W	75042	CEATO-3320F
R910	315-0392-00		RES., FXD, CMPSN:3.9K OHM, 5%, 0.25W	01121	CB3925
R912	321-0808-03		RES., FXD, FILM:300 OHM, 0.25%, 0.125W	75042	CEATO-3000C
R913	321-0808-03		RES., FXD, FILM:300 OHM, 0.25%, 0.125W	75042	CEATO-3000C
R915	315-0822-00		RES., FXD, CMPSN:8.2K OHM, 5%, 0.25W	01121	CB8225
R916	315-0302-00		RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R918	315-0200-00		RES., FXD, CMPSN:20 OHM, 5%, 0.25W	01121	CB2005
R925	321-0770-03		RES., FXD, FILM:4.204K OHM, 0.25%, 0.125W	75042	CEAT2-4204OC
R926	321-0147-00		RES., FXD, FILM:332 OHM, 1%, 0.125W	75042	CEAT0-3320F
R930	315-0470-00		RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705
R940	315-0392-00		RES., FXD, CMPSN:3.9K OHM, 5%, 0.25W	01121	CB3925
R942	321-0808-03		RES., FXD, FILM:300 OHM, 0.25%, 0.125W	75042	CEAT0-3000C
R943	321-0808-03		RES., FXD, FILM:300 OHM, 0.25%, 0.125W	75042	CEAT0-3000C
R945	315-0822-00		RES., FXD, CMPSN:8.2K OHM, 5%, 0.25W	01121	CB8225
R946	315-0302-00		RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R948	315-0200-00		RES., FXD, CMPSN:20 OHM, 5%, 0.25W	01121	CB2005
R954	315-0432-00		RES., FXD, CMPSN:4.3K OHM, 5%, 0.25W	01121	CB4325
R960	321-0202-00		RES., FXD, FILM:1.24K OHM, 1%, 0.125W	75042	CEAT0-1241F
R962	315-0471-00		RES., FXD, CMPSN:470 OHM, 5%, 0.25W	01121	CB4715
R963	315-0432-00		RES., FXD, CMPSN:4.3K OHM, 5%, 0.25W	01121	CB4325
R1005	315-0361-00		RES., FXD, CMPSN:360 OHM, 5%, 0.25W	01121	CB3615
R1010	315-0361-00		RES., FXD, CMPSN:360 OHM, 5%, 0.25W	01121	CB3615

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R1012	315-0152-00		RES., FXD, CMPSN:1.5K OHM, 5%, 0.25W	01121	CB1525
R1013	315-0470-00		RES., FXD, CMPSN:47 OHM, 5%, 0.25W	01121	CB4705
R1015	315-0242-00		RES., FXD, CMPSN:2.4K OHM, 5%, 0.25W	01121	CB2425
R1017	315-0152-00		RES., FXD, CMPSN:1.5K OHM, 5%, 0.25W	01121	CB1525
R1020	315-0681-00		RES., FXD, CMPSN:680 OHM, 5%, 0.25W	01121	CB6815
R1022	315-0271-00		RES., FXD, CMPSN:270 OHM, 5%, 0.25W	01121	CB2715
R1023	315-0751-00		RES., FXD, CMPSN:750 OHM, 5%, 0.25W	01121	CB7515
R1027	315-0202-00		RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R1028	315-0100-00		RES., FXD, CMPSN:10 OHM, 5%, 0.25W	01121	CB1005
R1030	315-0243-00		RES., FXD, CMPSN:24K OHM, 5%, 0.25W	01121	CB2435
R1031	315-0432-00		RES., FXD, CMPSN:4.3K OHM, 5%, 0.25W	01121	CB4325
R1035	315-0472-00		RES., FXD, CMPSN:4.7K OHM, 5%, 0.25W	01121	CB4725
R1036	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R1038	315-0301-00		RES., FXD, CMPSN:300 OHM, 5%, 0.25W	01121	CB3015
R1040	321-0264-00		RES., FXD, FILM:5.49K OHM, 1%, 0.125W	75042	CEATO-5491F
R1042	315-0103-00		RES., FXD, CMPSN:10K OHM, 5%, 0.25W	01121	CB1035
R1043	315-0472-00		RES., FXD, CMPSN:4.7K OHM, 5%, 0.25W	01121	CB4725
R1045	315-0243-00		RES., FXD, CMPSN:24K OHM, 5%, 0.25W	01121	CB2435
R1046	315-0432-00		RES., FXD, CMPSN:4.3K OHM, 5%, 0.25W	01121	CB4325
R1050	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R1052	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R1054	321-0201-00		RES., FXD, FILM:1.21K OHM, 1%, 0.125W	75042	CEATO-1211F
R1055	321-0261-00		RES., FXD, FILM:5.11K OHM, 1%, 0.125W	75042	CEATO-5111F
R1057	315-0100-00		RES., FXD, CMPSN:10 OHM, 5%, 0.25W	01121	CB1005
R1058	321-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F
R1060	321-0242-00		RES., FXD, FILM:3.24K OHM, 1%, 0.125W	75042	CEATO-3241F
R1062	321-0263-00		RES., FXD, FILM:5.36K OHM, 1%, 0.125W	75042	CEATO-5361F
R1064	321-0222-00		RES., FXD, FILM:2K OHM, 1%, 0.125W	75042	CEATO-2001F
R1065	311-1068-00		RES., VAR, NONWIR:5K OHM, 10%, 0.50W	01121	W-7682
R1070	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R1072	315-0102-00		RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R1074	321-0201-00		RES., FXD, FILM:1.21K OHM, 1%, 0.125W	75042	CEATO-1211F
R1075	321-0261-00		RES., FXD, FILM:5.11K OHM, 1%, 0.125W	75042	CEATO-5111F
R1077	315-0100-00		RES., FXD, CMPSN:10 OHM, 5%, 0.25W	01121	CB1005
R1078	321-0193-00		RES., FXD, FILM:1K OHM, 1%, 0.125W	75042	CEATO-1001F
R1080	321-0242-00		RES., FXD, FILM:3.24K OHM, 1%, 0.125W	75042	CEATO-3241F
R1082	321-0263-00		RES., FXD, FILM:5.36K OHM, 1%, 0.125W	75042	CEATO-5361F
R1084	321-0222-00		RES., FXD, FILM:2K OHM, 1%, 0.125W	75042	CEATO-2001F
R1100	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1101	315-0753-00		RES., FXD, CMPSN:75K OHM, 5%, 0.25W	01121	CB7535
R1102	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1103	315-0753-00		RES., FXD, CMPSN:75K OHM, 5%, 0.25W	01121	CB7535
R1104	321-0344-00		RES., FXD, FILM:37.4K OHM, 1%, 0.125W	75042	CEATO-3742F
R1105	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1106	321-0305-00		RES., FXD, FILM:14.7K OHM, 1%, 0.125W	75042	CEATO-1472F
R1107	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1108	315-0753-00		RES., FXD, CMPSN:75K OHM, 5%, 0.25W	01121	CB7535
R1109	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1110	315-0513-00		RES., FXD, CMPSN:51K OHM, 5%, 0.25W	01121	CB5135
R1111	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545
R1112	315-0753-00		RES., FXD, CMPSN:75K OHM, 5%, 0.25W	01121	CB7535
R1116	315-0301-00		RES., FXD, CMPSN:300 OHM, 5%, 0.25W	01121	CB3015
R1200	315-0154-00		RES., FXD, CMPSN:150K OHM, 5%, 0.25W	01121	CB1545

Electrical Parts List—5B44

Kct No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Name & Description	Mfr Code	Mfr Part Number
R1201	315-0753-00		RES.,FXD,CMPSN:75K OHM,5%,0.25W	01121	CB7535
R1202	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1203	315-0753-00		RES.,FXD,CMPSN:75K OHM,5%,0.25W	01121	CB7535
R1204	321-0344-00		RES.,FXD,FILM:37.4K OHM,1%,0.125W	75042	CEATO-3742F
R1205	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1207	315-0753-00		RES.,FXD,CMPSN:75K OHM,5%,0.25W	01121	CB7535
R1208	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1209	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1210	315-0513-00		RES.,FXD,CMPSN:51K OHM,5%,0.25W	01121	CB5135
R1211	315-0753-00		RES.,FXD,CMPSN:75K OHM,5%,0.25W	01121	CB7535
R1212	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1213	321-0344-00		RES.,FXD,FILM:37.4K OHM,1%,0.125W	75042	CEATO-3742F
R1214	321-0344-00		RES.,FXD,FILM:37.4K OHM,1%,0.125W	75042	CEATO-3742F
R1215	315-0154-00		RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R1216	315-0301-00		RES.,FXD,CMPSN:300 OHM,5%,0.25W	01121	CB3015
R1217	315-0301-00		RES.,FXD,CMPSN:300 OHM,5%,0.25W	01121	CB3015
R1218	315-0332-00		RES.,FXD,CMPSN:3.3K OHM,5%,0.25W	01121	CB3325
R1220	315-0393-00		RES.,FXD,CMPSN:39K OHM,5%,0.25W	01121	CB3935
R1222	315-0913-00		RES.,FXD,CMPSN:91K OHM,5%,0.25W	01121	CB9135
R1225	315-0222-00		RES.,FXD,CMPSN:2.2K OHM,5%,0.25W	01121	CB2225
R1227	315-0393-00		RES.,FXD,CMPSN:39K OHM,5%,0.25W	01121	CB3935
R1230	315-0913-00		RES.,FXD,CMPSN:91K OHM,5%,0.25W	01121	CB9135
R1238	315-0332-00		RES.,FXD,CMPSN:3.3K OHM,5%,0.25W	01121	CB3325
R1240	315-0393-00		RES.,FXD,CMPSN:39K OHM,5%,0.25W	01121	CB3935
R1242	315-0913-00		RES.,FXD,CMPSN:91K OHM,5%,0.25W	01121	CB9135
R1245	315-0222-00		RES.,FXD,CMPSN:2.2K OHM,5%,0.25W	01121	CB2225
R1247	315-0393-00		RES.,FXD,CMPSN:39K OHM,5%,0.25W	01121	CB3935
R1250	315-0913-00		RES.,FXD,CMPSN:91K OHM,5%,0.25W	01121	CB9135
R1300	315-0102-00		RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
S10	105-0625-01		ACTUATOR,SL SW:	80009	105-0625-01
S25	260-1734-00		SWITCH,PUSH:"A" TRIGGER	80009	260-1734-00
S75 ¹	311-1310-00		RES.,VAR,NONWIR:20K OHM,20%,1W	01121	10M654
S110	105-0625-01		ACTUATOR,SL SW:	80009	105-0625-01
S125	260-1735-00		SWITCH,PUSH:"B" TRIGGER	80009	260-1735-00
S175 ²	311-1310-00		RES.,VAR,NONWIR:20K OHM,20%,1W	01121	10M654
S200	260-1737-00		SWITCH,PUSH:SS/RESET	80009	260-1737-00
S250	263-1079-00		ACTR ASSY,CAM S:	80009	263-1079-00
S400	260-1465-00		SWITCH,PUSH:	80009	160-1465-00
S450	263-1078-00		ACTUATOR,ASSY:	80009	263-1078-00
S800	260-1211-00		SWITCH,PUSH:DPDT,PUSH-PUSH	71590	2KAB010000-357
S840	260-1736-00		SWITCH,PUSH:MODE	80009	260-1736-00
U90	155-0109-00		MICROCIRCUIT,LI:MONOLITHIC,TRTG,M-120	80009	155-0109-00
U190	155-0109-00		MICROCIRCUIT,LI:MONOLITHIC,TRTG,M-120	80009	155-0109-00
U200	155-0049-01		MICROCIRCUIT,DI:MONOLITHIC,SWEEP CONTROL	80009	155-0049-01
U245	156-0205-00		MICROCIRCUIT,DI:QUAD 2-INPUT NOR GATE	04713	MC10102L
U275	156-0158-02		MICROCIRCUIT,LI:DUAL OPNL AMP	80009	156-0158-02
U380	156-0067-00		MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U400	155-0049-01		MICROCIRCUIT,DI:MONOLITHIC,SWEEP CONTROL	80009	155-0049-01
U445	156-0205-00		MICROCIRCUIT,DI:QUAD 2-INPUT NOR GATE	04713	MC10102L
U475	156-0158-02		MICROCIRCUIT,LI:DUAL OPERATIONAL AMPLIFIER	80009	156-0158-02
U840	156-0048-00		MICROCIRCUIT,LI:FIVE NPN TRANSISTOR	86684	CA3046
U900	156-0259-00		MICROCIRCUIT,LI:5 TRANSISTOR ARRAY	86684	CA3083

¹Furnished as a unit with R75.
²Furnished as a unit with R175.

Electrical Parts List—5B44

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
U930	156-0259-00			MICROCIRCUIT,LI:5 TRANSISTOR ARRAY	86684	CA3083
U1030	156-0205-00			MICROCIRCUIT,DI:QUAD 2-INPUT NOR GATE	04713	MC10102L
U1050	156-0458-00			MICROCIRCUIT,DI:ECL 10K QUAD AND GATE	04713	MC10104L
VR35	152-0278-00			SEMICONV DEVICE:ZENER,0.4W,3V,5%	07910	1N4372A
VR36	152-0278-00			SEMICONV DEVICE:ZENER,0.4W,3V,5%	07910	1N4372A
VR80	152-0226-00			SEMICONV DEVICE:ZENER,0.4W,5.1V,5%	81483	69-6584
VR135	152-0278-00			SEMICONV DEVICE:ZENER,0.4W,3V,5%	07910	1N4372A
VR136	152-0278-00			SEMICONV DEVICE:ZENER,0.4W,3V,5%	07910	1N4372A
VR180	152-0226-00			SEMICONV DEVICE:ZENER,0.4W,5.1V,5%	81483	69-6584
VR235	153-0059-00			SEMICONV DEVICE:4.75V,5% AT 5MA	80009	153-0059-00
VR290	152-0226-00			SEMICONV DEVICE:ZENER,0.4W,5.1V,5%	81483	69-6584
VR435	153-0059-00			SEMICONV DEVICE:4.75V,5% AT 5MA	80009	153-0059-00
VR490	152-0226-00			SEMICONV DEVICE:ZENER,0.4W,5.1V,5%	81483	69-6584
VR800	152-0147-00			SEMICONV DEVICE:ZENER,0.4W,27V,5%	81483	1N971B

SERVICE INFORMATION

SYMBOLS AND REFERENCE DESIGNATORS

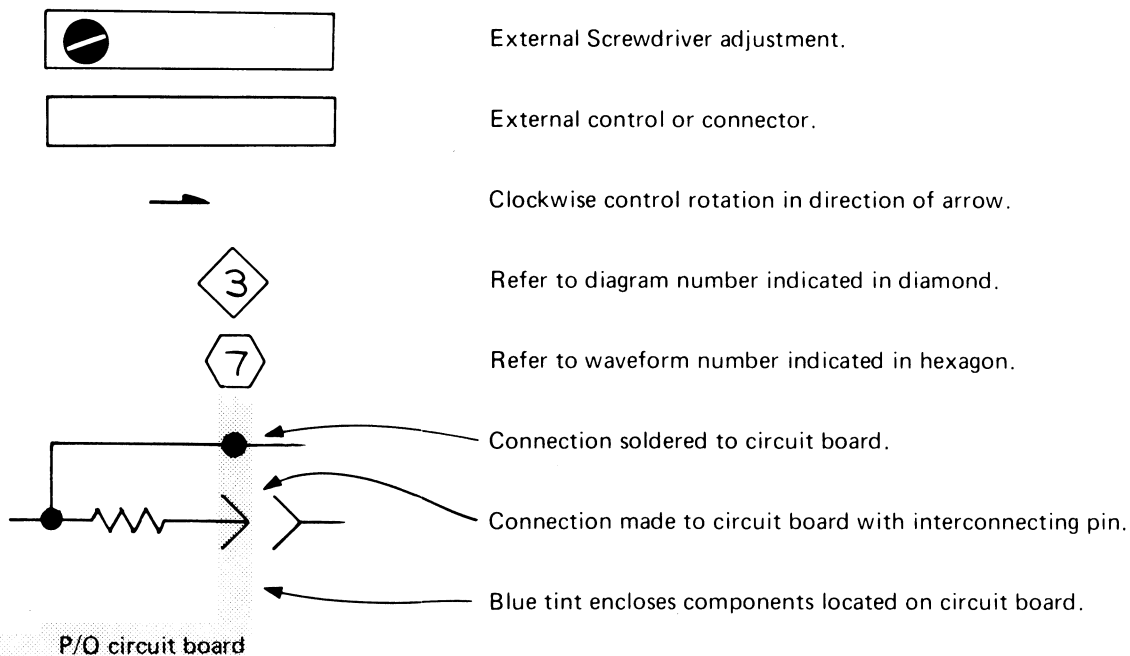
Electrical components shown on the diagrams are in the following units unless noted otherwise:

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

Symbols used on the diagrams are based on ANSI Y32.2 – 1970.

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 following special symbols are used on the diagrams:



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.

General Maintenance

Refer to the Maintenance section of the Power Supply/Amplifier manual for general service information.

Circuit Board Removal

The A circuit board is on the left when facing the front of the 5B44. The B board is on the right and the C board is between the two. If the 5B44 is to be operated with the A board removed for servicing, place the A SOURCE switch in the LINE position and the SEC/DIV switch in the 1 m position. Remove the actuating rod from the A SOURCE switch by pulling the ball from the switch socket and the rod end from the front panel lever. Remove the SINGLE SWP and RESET pushbuttons with a screwdriver as shown in Fig. 4-1. Pull to remove the Z-AXIS BAL knob.

Refer to the illustration on the Adjustments foldout page in the rear of this manual. Remove plugs P 3, A external horizontal input; P 2, A POSITION control and DELAY TIME MULT connections; and P 1, connections to the A LEVEL control, AUTO switch and the TRIGGERED light. The A CAL knob must be in the CAL position (fully cw). Loosen the hex screw accessible through the hole indicated using a 0.050 inch wrench. Pull the A CAL and A SEC/DIV knobs and shafts forward from the front panel. Remove the four screws on the B board. Finally remove the five screws from the A board. Notice the two spacers between the A, C and B boards and the chassis mounting

tab. These spacers are on the screw located at the lower rear of the A board. Carefully lift out the rear of the A board. Move the board to the rear until the Z-axis control clears the source actuating lever. Now tilt the board backwards. Components on the C board are now readily accessible.

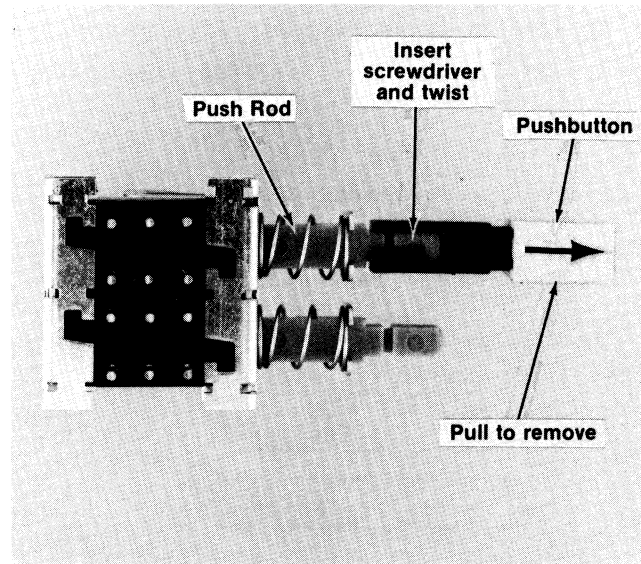


Fig. 4-1. Switch actuating mechanism removal.

When the unit is operated for troubleshooting as described above, the triggering will be line, there is no LEVEL or POSITION control, the sweep will be at 1 m, and the TRIGGERED light will not operate.

To operate the plug-in removed from the mainframe, use the plug-in extender, Tektronix Part No. 067-0645-00.

Test Equipment

To calibrate the 5B44, the following equipment is required:

Tektronix TG 501 Time Mark Generator or equivalent.

Tektronix PG 506 Calibration Generator or equivalent.

Tektronix 5400-Series Oscilloscope.

Vertical plug-in for the 5400-series oscilloscope.

50 Ω coaxial cable with BNC connectors, Tektronix Part No. 021-0057-01 or equivalent.

50 Ω Termination, Tektronix Part No. 011-0049-01 or equivalent.

Plug-In Extender, Tektronix Part No. 067-0645-00.

Preparation

Remove the covers from the 5B44 and the cabinet panels from the 5400-series oscilloscope. Insert the 5B44 in the right hand plug-in compartment. Connect the plug-in extender to the left hand vertical plug-in interface connector. Connect the vertical plug-in to the extender. Make certain the vertical plug-in is oriented properly: top of the plug-in to the top of the extender, and to the top of the oscilloscope interface connector. (Use of the extender on the vertical plug-in is necessary to gain access to adjustments on the A board. See the accompanying illustration for the adjustment locations.)

Make adjustments at an ambient temperature between +20°C and +30°C (+68°F and +86°F) for best accuracy. Allow fifteen minutes warmup before recalibration. Suggested recalibration interval is 2000 hours of operation or six months, whichever occurs first.

1. Adjust External Horizontal Balance

Set the A and B SEC/DIV switches to 1 m, the trigger SOURCE to EXT, and push the CHOP and A and B pushbuttons. Leave all other buttons out. Make certain the LEVEL controls are also pushed in (AUTO positions).

Bring the free-running trace for the A sweep into view by adjusting the horizontal and vertical POSITION controls and the display module intensity control. Position the start of the trace at the extreme left vertical graticule line. Switch the A SEC/DIV switch to the AMP position (the free-running trace becomes a spot). Reduce the INTENSITY control, if necessary, to prevent burning the phosphor. Now move the spot horizontally to the graticule center line by adjusting R 40, Ext Hor. Repeat the procedure for the B sweep, adjusting R 140, Ext Hor Cent, for the B sweep.

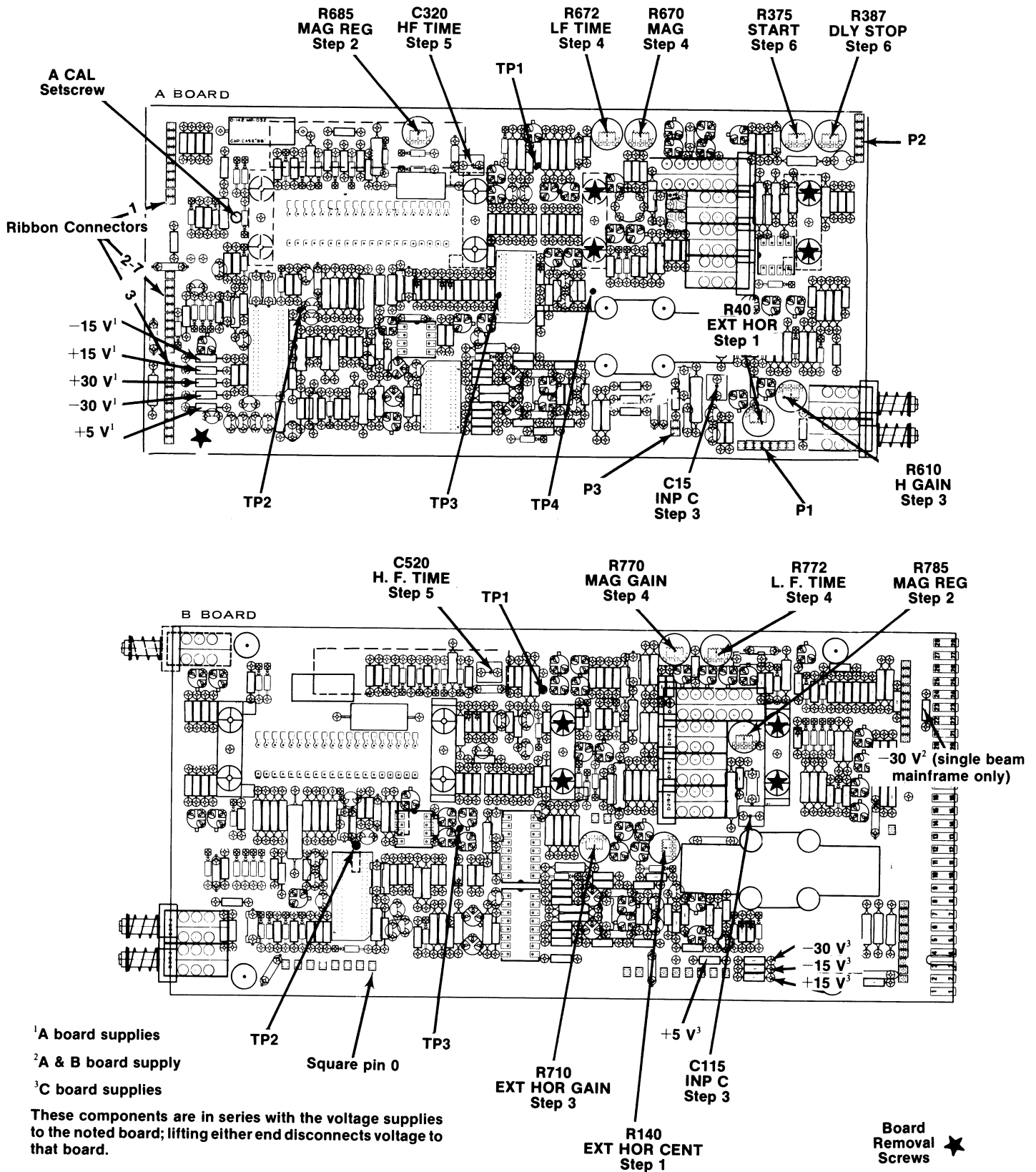
2. Adjust Magnifier Registration

Make certain the A and B SEC/DIV switches are in the 1 m positions. Connect the time mark generator through the 50 Ω cable and termination to the vertical plug-in. Set the generator for 5 ms markers and press the SWP MAG buttons. Obtain a triggered time mark display in the A sweep. Use the POSITION control to place the center time mark on the center graticule line. Now release the A SWP MAG button and adjust R685, Mag Reg, so the center time mark is again aligned with the center graticule line. Repeat this procedure until the time marks in both modes are properly aligned. Now select the B sweep for display. Repeat the above procedure using the B sweep controls. Adjust R785, Mag Reg, until both time marks are properly aligned.

3. Adjust External Horizontal Gain and Attenuator Compensation

Apply a 0.5 V, 1 kHz square-wave from the fast rise square-wave generator through the coaxial cable and termination to the A INPUT connector. Adjust R610, H Gain, for 10 divisions of horizontal deflection. Use the POSITION control to position the dots to the extreme right and left vertical graticule lines while making this adjustment. Now adjust C15, Inp C, for minimum overshoot or undershoot on the two dots. Move the coaxial cable to the B INPUT connector and repeat the procedure, adjusting R710, Ext Hor Gain, and Inp C capacitor C115, for the B channel.

INTERNAL ADJUSTMENT PROCEDURE



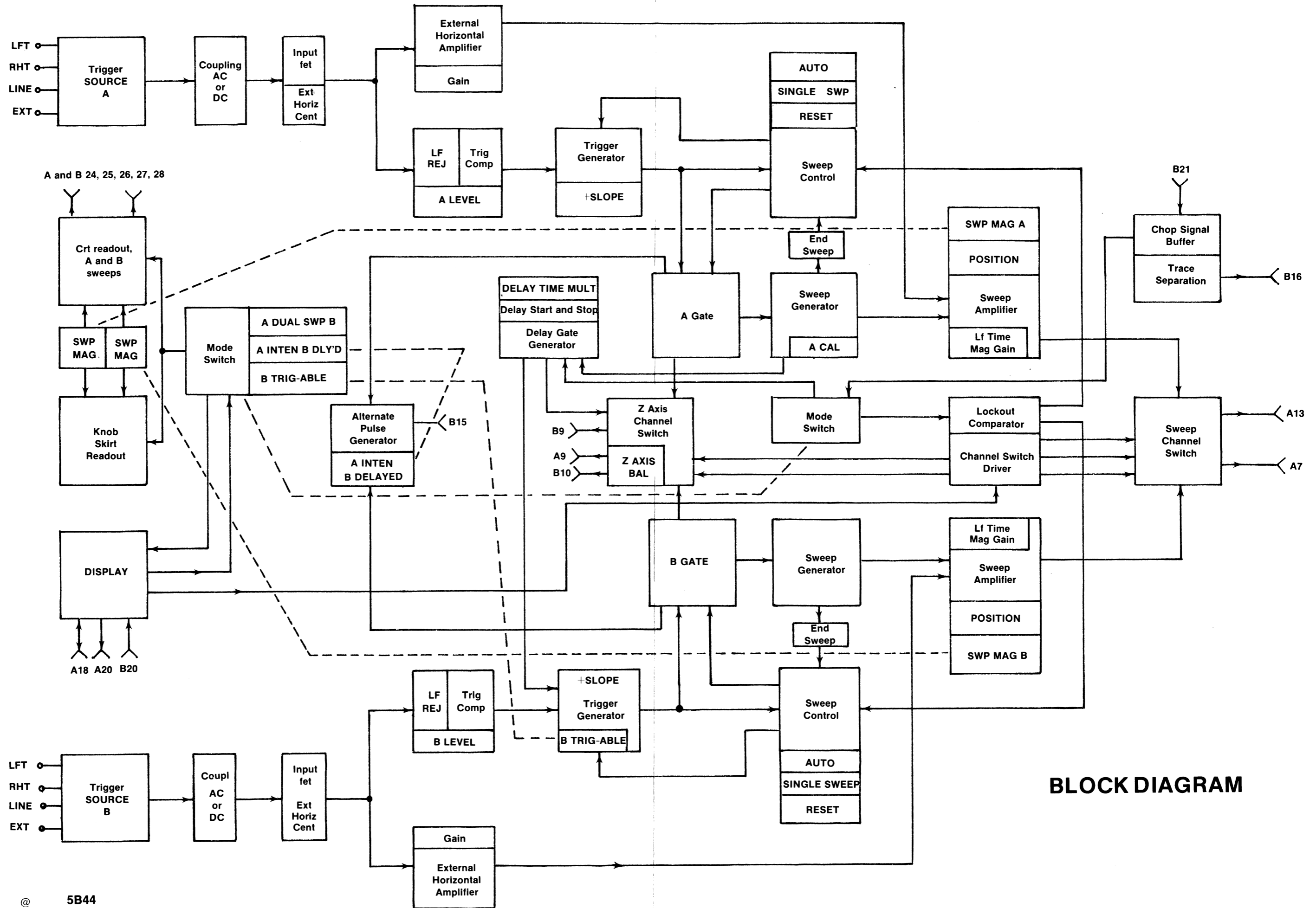
- ¹A board supplies
- ²A & B board supply
- ³C board supplies

These components are in series with the voltage supplies to the noted board; lifting either end disconnects voltage to that board.

Board Removal Screws ★

Fig. 4

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C5	G6	CR350	F3	Q680	F1	R280	F4	R645	K2
C10	I5	CR357	H3	Q690	H2	R282	E4	R648	H2
C12	I5	CR358	H3	Q695	I1	R285	E3	R650	I2
C15	I5	CR365	H2			R287	E3	R653	J2
C25	I4	CR606	J4	R10	H5	R290	E3	R654	J2
C30	I5	CR607	C3	R12	I5	R292	E3	R660	J2
C42	I6	CR625	J4	R18	G5	R295	D4	R665	F2
C45	F5	CR630	J3	R20	G5	R297	C5	R667	G2
C52	F5	CR680	E2	R25	I4	R298	A5	R669	G2
C70	F5	CR684	E2	R27	I4	R300	D5	R670	H1
C80	G6	CR1101	A2	R30	I6	R302	E3	R672	G1
C82	E5	CR1102	B2	R35	J5	R305	D4	R675	G2
C200	B5	CR1104	C2	R40	J5	R307	F6	R680	D2
C201	C4	CR1105	C2	R42	I6	R310	F6	R684	D2
C212	H5	CR1106	B2	R45	G5	R320	F3	R685	E1
C214	B4	CR1107	C2	R46	F5	R322	F3	R690	H2
C215	H5	CR1108	D2	R48	F4	R324	F2	R691	H3
C218	B4	CR1109	D2	R50	F5	R326	F2	R693	H3
C235	C4	CR1218	C2	R52	F5	R329	F3	R695	H3
C245	G4	CR1220	B2	R53	F4	R332	F2	R697	J1
C247	C4			R54	F5	R335	F3	R1065	K4
C252	B3	LR5	G5	R60	F5	R338	D5	R1100	A1
C253	C3	LR82	E5	R62	F5	R340	D5	R1101	A2
C254	C3	LR200	C5	R63	F5	R341	D5	R1102	B2
C255	B3	LR245	G4	R65	F5	R344	D5	R1103	A1
C260	A3	LR260	A4	R67	G5	R346	D3	R1104	C2
C275	F4	LR275	E4	R70	G5	R347	E5	R1105	C2
C285	D5	LR285	D5	R72	H5	R350	G3	R1106	B2
C298	C6	LR1310	B5	R80	H5	R352	F3	R1107	D2
C300	E4	LR1312	B5	R85	F5	R355	G3	R1108	D2
C315	E1	LR1314	B5	R86	F5	R356	G3	R1109	D1
C316	B1	LR1316	B5	R90	D4	R358	G3	R1110	B1
C317	E2	LR1318	B5	R92	C4	R360	H3	R1111	B2
C318	E2			R94	D4	R362	G1	R1112	A1
C320	E2	P1	J6	R95	C4	R365	H2	R1116	C2
C322	F2	P2	K1	R97	D5	R366	H2	R1218	C2
C329	F2	P3	H5	R98	D5	R368	I3		
C346	E3			R201	C3	R369	H3	S10	H4
C358	G3	Q30	I5	R202	C4	R372	H3	S25A	I2
C362	G1	Q40	J5	R204	C4	R375	J1	S25B	I2
C377	K2	Q45	G5	R206	B5	R377	J2	S25C	I3
C669	I1	Q60	F5	R210	J5	R378	J2	S25D	I3
C690	H2	Q62	F5	R212	H5	R380	J2	S200A	K5
C697	J1	Q70	G5	R215	B5	R387	K1	S200B	K6
C1062	A3	Q220	B4	R218	B4	R388	K2	S250	D3
C1082	A4	Q280	F4	R220	C5	R390	G3		
C1310	B5	Q290	E4	R230	A3	R391	G3	U90	E5
C1312	C5	Q300	D4	R235	C4	R393	F3	U200	C4
C1314	B5	Q310	D5	R238	C5	R394	F3	U245	F3
C1316	B5	Q320	F2	R242	C5	R396	F3	U275	E4
C1318	B5	Q330	G2	R244	F3	R398	G3	U380	J3
		Q335	G2	R245	F3	R600	J4		
CR35	J4	Q340	D5	R247	C4	R605	J4	VR35	J4
CR36	I4	Q345	D5	R250	C3	R607	J4	VR36	I4
CR48	F4	Q350	G3	R252	B3	R610	J5	VR80	G5
CR215	B4	Q355	G3	R255	B3	R611	J4	VR235	C5
CR224	B2	Q360	H3	R260	A2	R613	K4	VR290	E4
CR225	A4	Q362	H3	R262	B4	R615	J4		
CR227	A4	Q365	H2	R263	B4	R616	K4		
CR228	B4	Q370	H2	R265	D4	R620	K4		
CR247	B3	Q600	J4	R266	D4	R625	K4		
CR300	E4	Q620	J4	R267	D4	R628	J4		
CR302	E3	Q630	I4	R268	C4	R630	J4		
CR310	F6	Q635	I1	R269	C4	R635	I1		
CR326	F1	Q650	H1	R270	D4	R636	J1		
CR335	G3	Q660	I1	R271	D4	R642	K2		
CR338	C5	Q665	H1	R272	D4	R644	K2		



BLOCK DIAGRAM

CONTROLS AND CONNECTORS

A SEC/DIV B
Outer knob selects B sweep rate; middle knob selects A sweep rate.

POSITION
Outer knob controls horizontal position of B sweep, inner knob A sweep.

SWP MAG
Buttons in increase sweep speeds ten times.

AC COUPL
Buttons in ac couples triggering signals and external-horizontal amplifier. Buttons out select dc coupling.

SOURCE
Lever switch selects trigger source: left or right vertical compartments, external or line.

Z AXIS
Balances trace brightness in dual sweep operation, single beam mainframe only.

SINGLE SWP
Buttons in permits one sweep. Then sweep is locked out until reset.

INPUT
Bnc connectors for external trigger or external horizontal input.

LATCH
Lift up and pull to remove plug-in.

A DUAL SWEEP B
A button in selects A sweep. B button in selects B sweep. Both buttons in for dual sweep operation.

DISPLAY
Selects multiple trace switching mode.

DELAY TIME MULT
Sets time, based on main sweep, when delayed sweep starts. Calibrated in horizontal crt divisions.

A CAL
Continuously varies A sweep rate between steps by at least 2.5 times.

+SLOPE
With buttons in, sweeps trigger on positive-going portion of triggering waveforms; buttons out negative going portion.

LF REJ
Buttons in attenuate triggering signals below 7.5 kHz.

LEVEL
Selects level on triggering waveform where sweep starts. Push knobs in for AUTO triggering (sweep free runs when not triggered).

TRACE SEP
Adjust vertical trace separation for the single beam mainframe, dual sweep mode.

A INTEN B DLY'D
Button in intensifies A sweep during delayed B sweep time. Operates only in dual sweep mode.

RESET
Push to re-arm sweeps in single sweep mode.

B TRIG-ABLE
Button in permits delayed sweep start only by trigger after selected delay interval.

TRIGGERED OR SINGLE SWP READY
Indicators lit when sweeps are triggered or in single sweep mode when sweeps are armed.

50 MV/DIV EXT AMPL

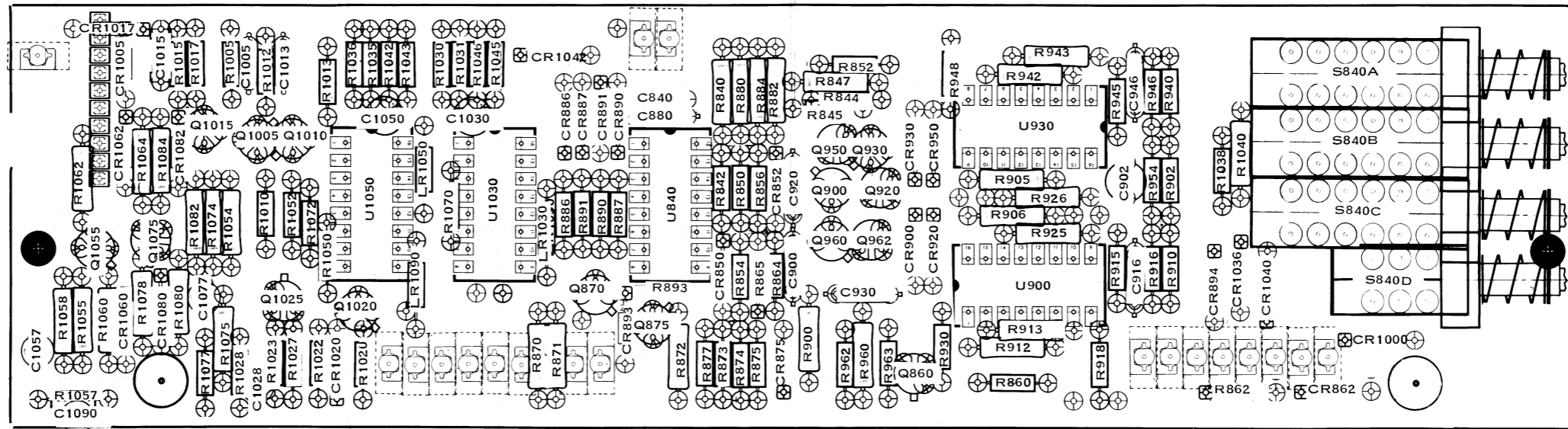
TEKTRONIX 5B44 DUAL TIME BASE

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C105	I5	CR802	K2	R122	L5	R498	F2	R829	K3
C110	J3	CR815	K2	R125	J5	R500	E4	R832	K2
C115	J4	CR829	K2	R127	I5	R502	F3	R834	K3
C125	J4	CR830	K3	R130	J5	R505	E4	R836	L3
C130	J5	CR1201	E2	R135	I5	R507	C4	R1200	K2
C142	I5	CR1202	E2	R140	I4	R510	B5	R1201	E2
C145	H5	CR1204	F2	R142	I5	R520	F2	R1202	E2
C152	H5	CR1205	F2	R145	I5	R522	G2	R1203	L2
C170	H5	CR1207	E2	R146	H5	R524	G2	R1204	F1
C180	I5	CR1208	E2	R148	H4	R526	G2	R1205	F2
C182	F5	CR1209	K2	R150	G5	R529	G2	R1207	E2
C400	E5	CR1225	C2	R152	G5	R532	G2	R1208	E2
C401	E5	CR1227	C4	R153	G4	R535	H2	R1209	L2
C412	B4	CR1238	K2	R154	G5	R538	F5	R1210	L2
C414	D5	CR1240	C4	R160	G5	R540	F5	R1211	L2
C415	C6	CR1245	C2	R162	G5	R541	E5	R1212	K2
C418	C5	CR1247	C4	R163	G5	R544	F5	R1213	L2
C435	E5			R165	H5	R546	F4	R1214	L2
C445	G3	LR105	I5	R167	I5	R547	F5	R1215	K2
C447	E5	LR182	F5	R170	H5	R560	F3	R1216	D2
C452	D4	LR400	E5	R172	B4	R561	F3	R1217	K1
C453	D4	LR445	G3	R180	I5	R563	F3	R1220	B3
C454	D4	LR460	C4	R185	G5	R565	G2	R1222	B3
C455	D4	LR475	F3	R186	G5	R700	I3	R1225	C4
C460	D5	LR485	G2	R190	E4	R705	H3	R1227	B3
C475	F3			R192	E4	R707	G4	R1230	B3
C485	G2	Q130	I5	R194	F4	R710	H4	R1238	K2
C498	D3	Q140	I5	R195	E4	R711	G4	R1240	B2
C500	E4	Q145	H5	R197	F4	R713	H2	R1242	B2
C515	D1	Q160	H5	R401	E4	R715	H2	R1245	C2
C516	D2	Q162	H5	R402	E5	R716	G4	R1247	B2
C517	E2	Q170	H5	R404	E4	R720	G4	R1250	B2
C518	F2	Q420	C5	R406	D5	R725	I4	R1300	L6
C520	F1	Q480	F4	R410	C5	R728	H3		
C522	F2	Q490	F4	R412	C5	R730	H3	S40A	B5
C529	G3	Q500	E3	R415	C5	R735	H3	S40B	B6
C546	F4	Q510	F4	R418	D4	R736	H2	S110	J4
C769	J1	Q520A	G1	R420	E5	R742	H2	S125A	J2
C790	H1	Q520B	G2	R430	C5	R744	H2	S125B	I2
C797	J1	Q530	H1	R431	D5	R745	H2	S125C	I3
C800	I6	Q535	H2	R435	E5	R748	H2	S125D	I3
C812	L3	Q540	F5	R438	D5	R750	I1	S400A	B5
C834	L4	Q545	F5	R439	F4	R753	I3	S400B	B6
C1300	L6	Q560	F4	R440	F4	R754	H3	S800	B1
		Q700	H4	R442	E4	R760	H3		
CR135	J5	Q720	H4	R444	G3	R765	I1	U190	G5
CR136	J5	Q730	H4	R445	G3	R767	H2	U400	D5
CR148	G4	Q735	H3	R447	D4	R769	I2	U445	G4
CR415	D5	Q750	I1	R450	D3	R770	I1	U475	E4
CR424	C4	Q760	H4	R452	D4	R772	J1		
CR425	C5	Q765	H3	R455	D3	R775	I1	VR135	J5
CR427	C5	Q780	J1	R463	D4	R780	J2	VR136	J5
CR428	C5	Q790	I1	R465	D4	R784	K1	VR180	J5
CR447	D4	Q795	J1	R466	C4	R785	J2	VR435	D6
CR500	F2	Q800	K1	R467	C4	R790	H2	VR490	F4
CR502	F2	Q810	L2	R468	C4	R791	H2	VR800	K2
CR510	B4	Q815	L3	R469	C4	R793	I2		
CR526	G2	Q830	L3	R470	C4	R795	I2		
CR535	H2	Q835	L3	R471	D4	R797	J2		
CR538	E5	Q1220	B4	R472	D4	R800	K2		
CR560	C4	Q1225	B4	R480	G6	R810	L3		
CR706	H3	Q1240	B2	R482	F3	R812	L3		
CR707	H3	Q1245	B2	R485	F2	R814	L3		
CR725	I4			R487	F3	R816	K3		
CR730	H2	R110	J3	R490	G3	R819	K3		
CR780	J2	R112	J3	R492	G3	R820	L3		
CR784	H3	R118	L5	R495	E4	R826	K3		
CR800	K2	R120	L5	R497	E4	R828	K3		

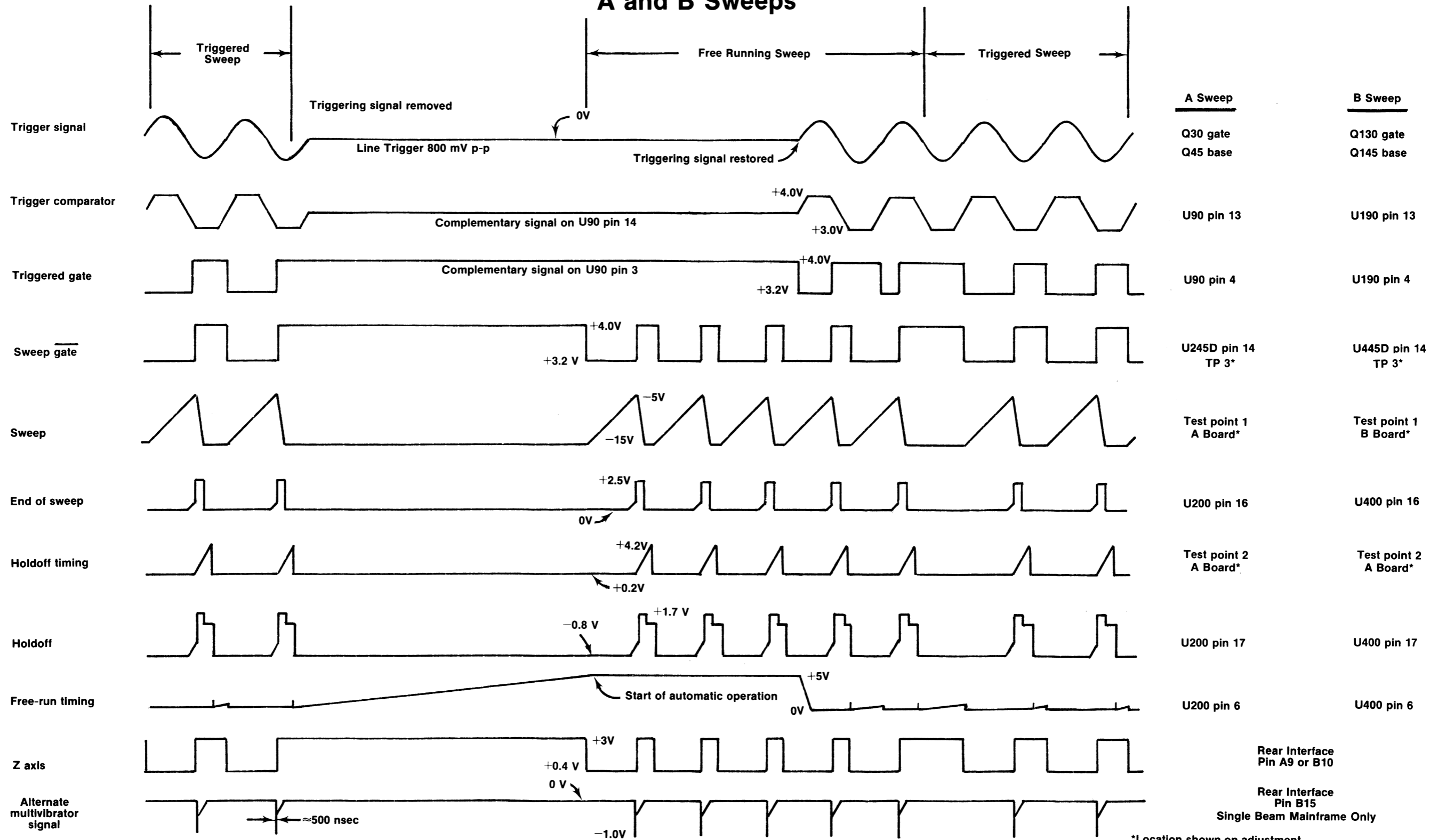
CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C840	F2	R840	F2	R1035	D1
C880	F2	R842	F2	R1036	D1
C900	G3	R844	G2	R1038	I2
C902	I2	R845	G2	R1040	J2
C916	I3	R847	G1	R1042	D1
C920	G2	R850	F2	R1043	D1
C930	G3	R852	G1	R1045	D1
C946	I1	R854	F3	R1046	D1
C1005	C1	R856	F2	R1050	C3
C1013	C1	R860	H4	R1052	C2
C1015	B1	R862	J4	R1054	C2
C1028	C4	R864	F3	R1055	B3
C1030	D2	R865	F3	R1057	B4
C1050	D2	R870	E3	R1058	B3
C1057	A3	R871	E3	R1060	B3
C1077	B3	R872	F3	R1062	B2
C1090	B4	R873	F3	R1064	B2
		R874	F3	R1070	D2
CR850	F3	R875	F3	R1072	C2
CR852	F2	R877	F3	R1074	C2
CR862	J4	R880	F3	R1075	C3
CR875	F3	R882	F2	R1077	C3
CR886	E2	R884	F2	R1078	B3
CR887	E2	R886	E2	R1080	B3
CR890	E2	R887	E2	R1082	B2
CR891	E2	R890	E2	R1084	B2
CR893	E3	R891	E2		
CR894	I3	R893	F3	S840A	J1
CR900	G3	R900	G3	S840B	J2
CR920	G3	R902	I2	S840C	J2
CR930	G2	R905	H2	S840D	K3
CR950	G2	R906	H2		
CR1000	K3	R910	I3	U840	F2
CR1005	B1	R912	H3	U900	H3
CR1017	B1	R913	H3	U930	H2
CR1020	C3	R915	I3	U1030	D2
CR1036	J3	R916	I3	U1050	D2
CR1040	J3	R918	I3		
CR1042	E1	R925	H3		
CR1060	B3	R926	H2		
CR1062	B2	R930	H3		
CR1080	B3	R940	I2		
CR1082	B2	R942	H1		
		R943	H1		
LR1030	E2	R945	I2		
LR1050	D2	R946	I2		
LR1090	D3	R948	H1		
		R954	I2		
Q860	G3	R960	G3		
Q870	E3	R962	G3		
Q875	F3	R963	G3		
Q900	G2	R1005	C1		
Q920	G2	R1010	C2		
Q930	G2	R1012	C1		
Q950	G2	R1013	C1		
Q960	G3	R1015	B1		
Q962	G3	R1017	B1		
Q1005	C2	R1020	D3		
Q1010	C2	R1022	C3		
Q1015	C2	R1023	C3		
Q1020	D3	R1027	C3		
Q1025	C3	R1028	C3		
Q1055	B3	R1030	D1		
Q1075	B3	R1031	D1		

PARTS LOCATION GRID

C BOARD



WAVEFORM DIAGRAMS A and B Sweeps

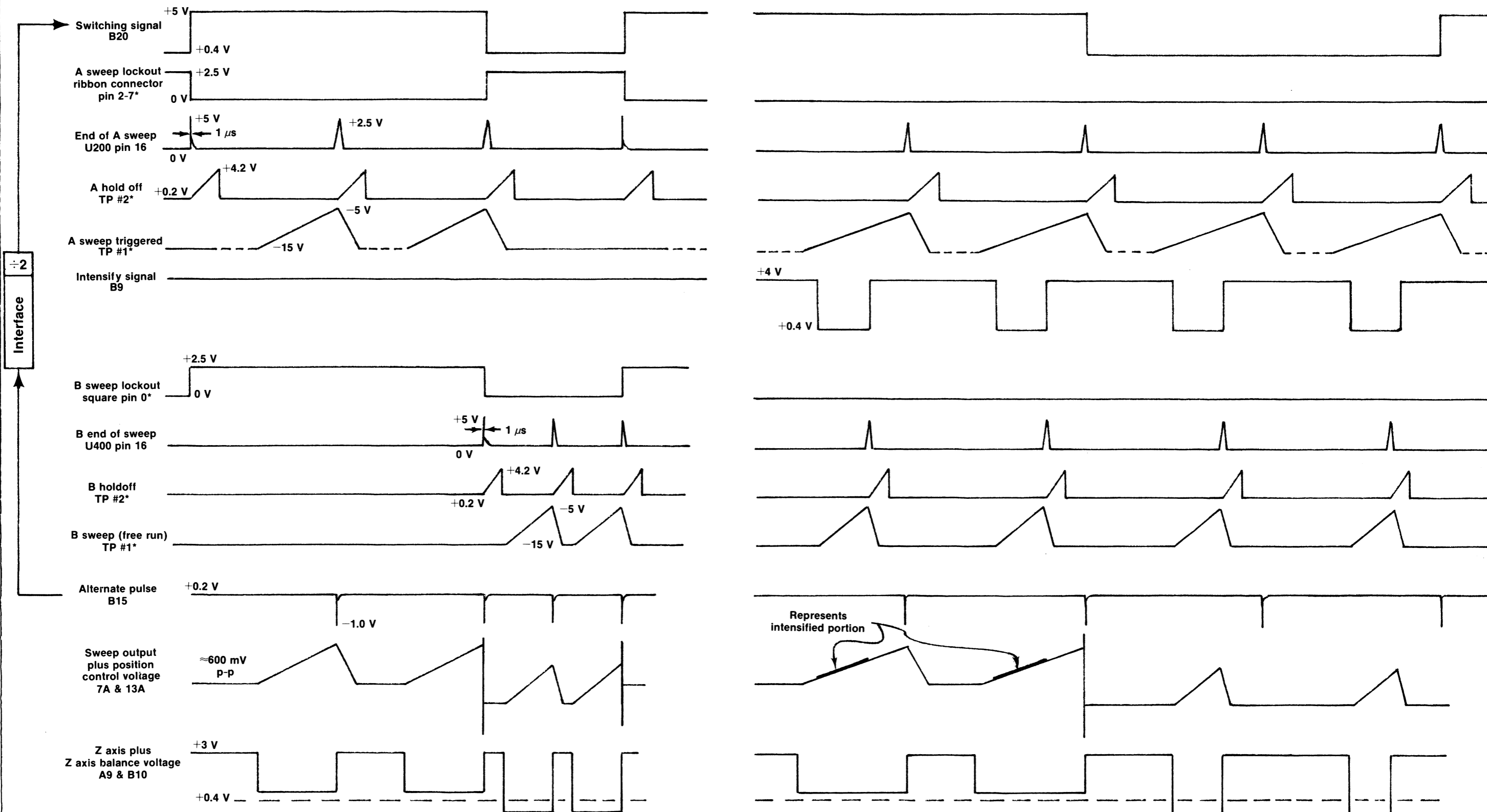


*Location shown on adjustment location illustration.

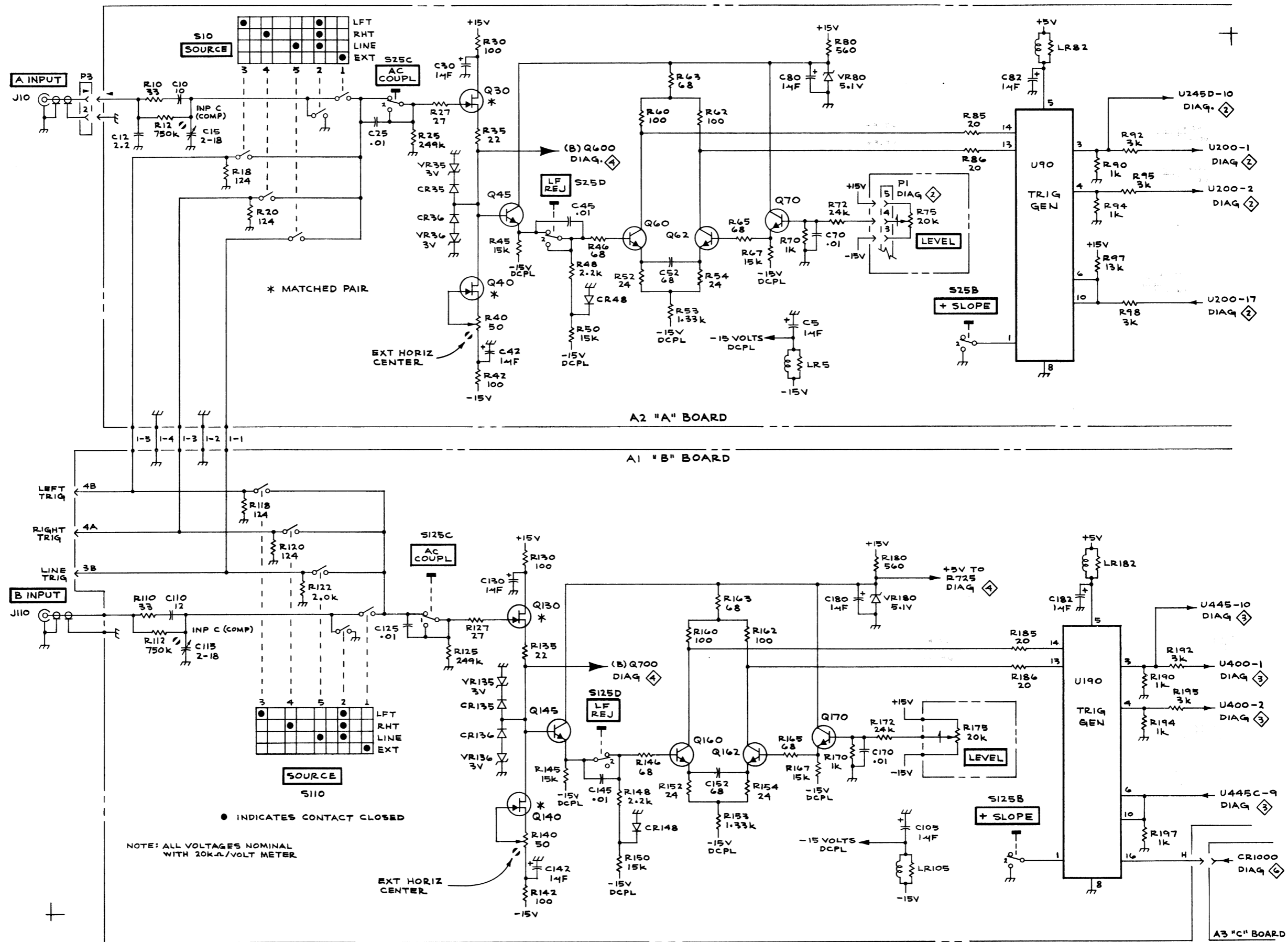
WAVEFORM DIAGRAMS 5B44 Used In Single Beam Mainframe

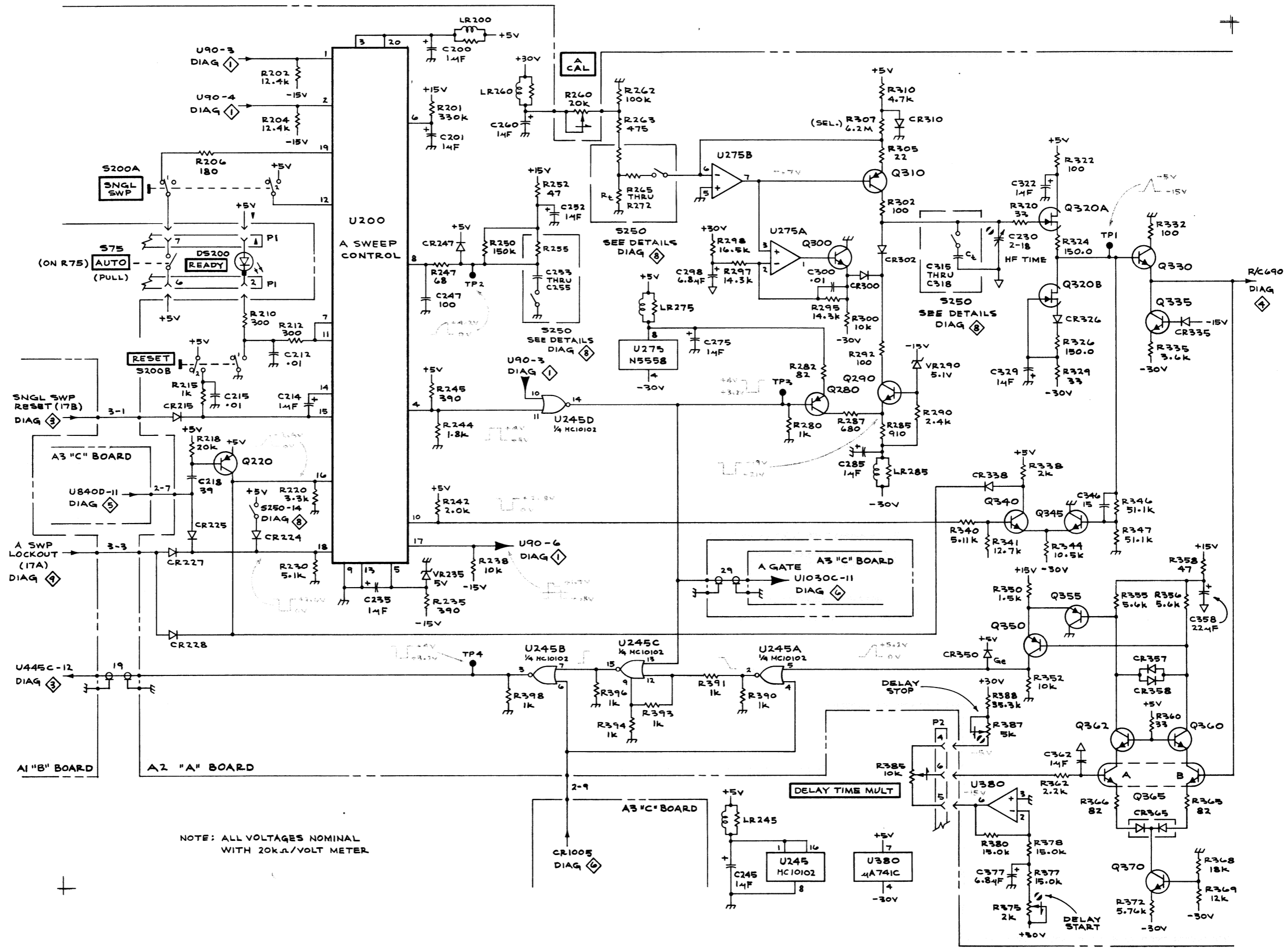
A & B DUAL SWEEP IN ALTERNATE MODE

A & B DUAL SWEEP IN ALTERNATE A INTEN, B DLY'D MODE



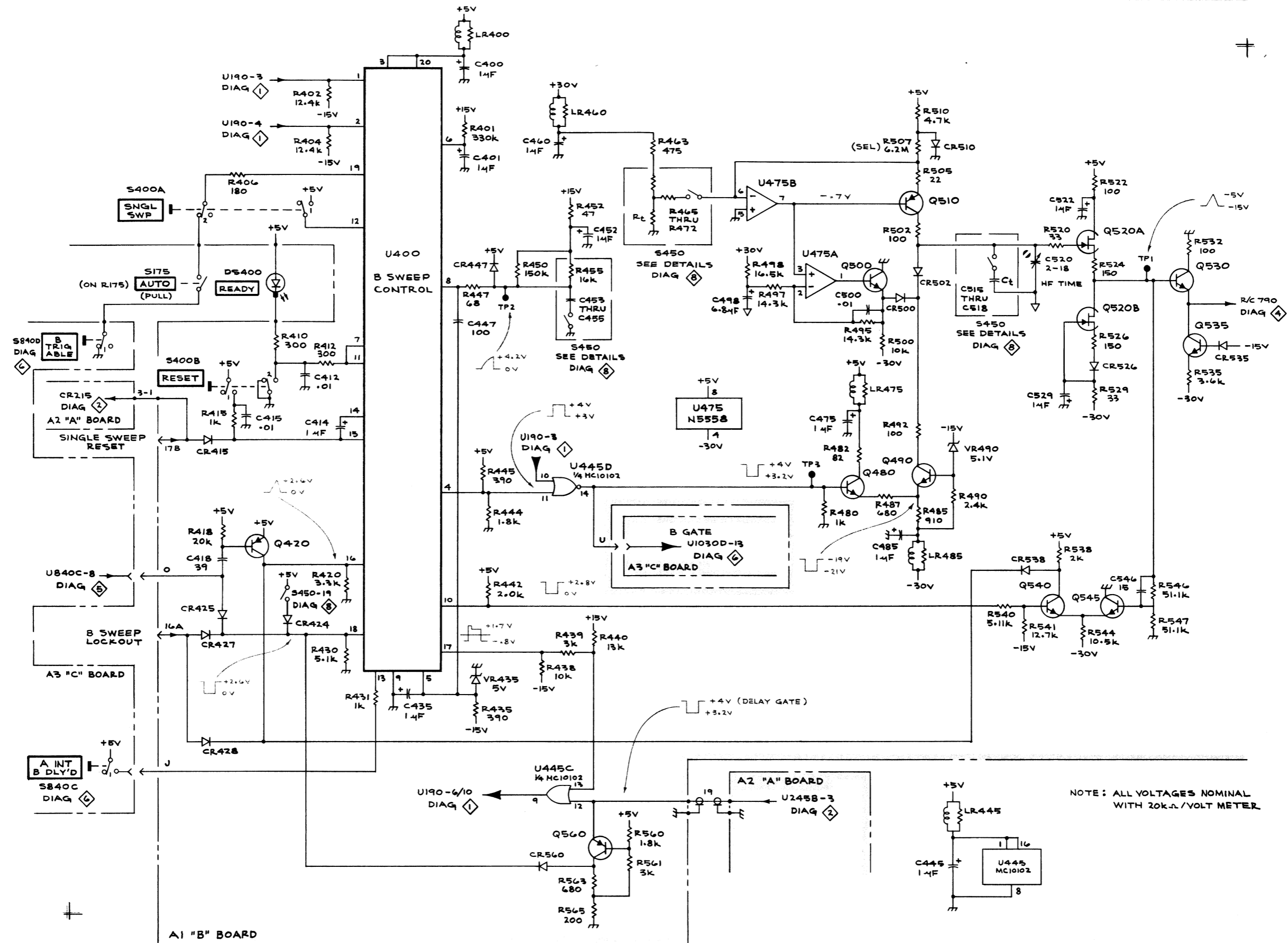
*Location shown on adjustment location illustration.

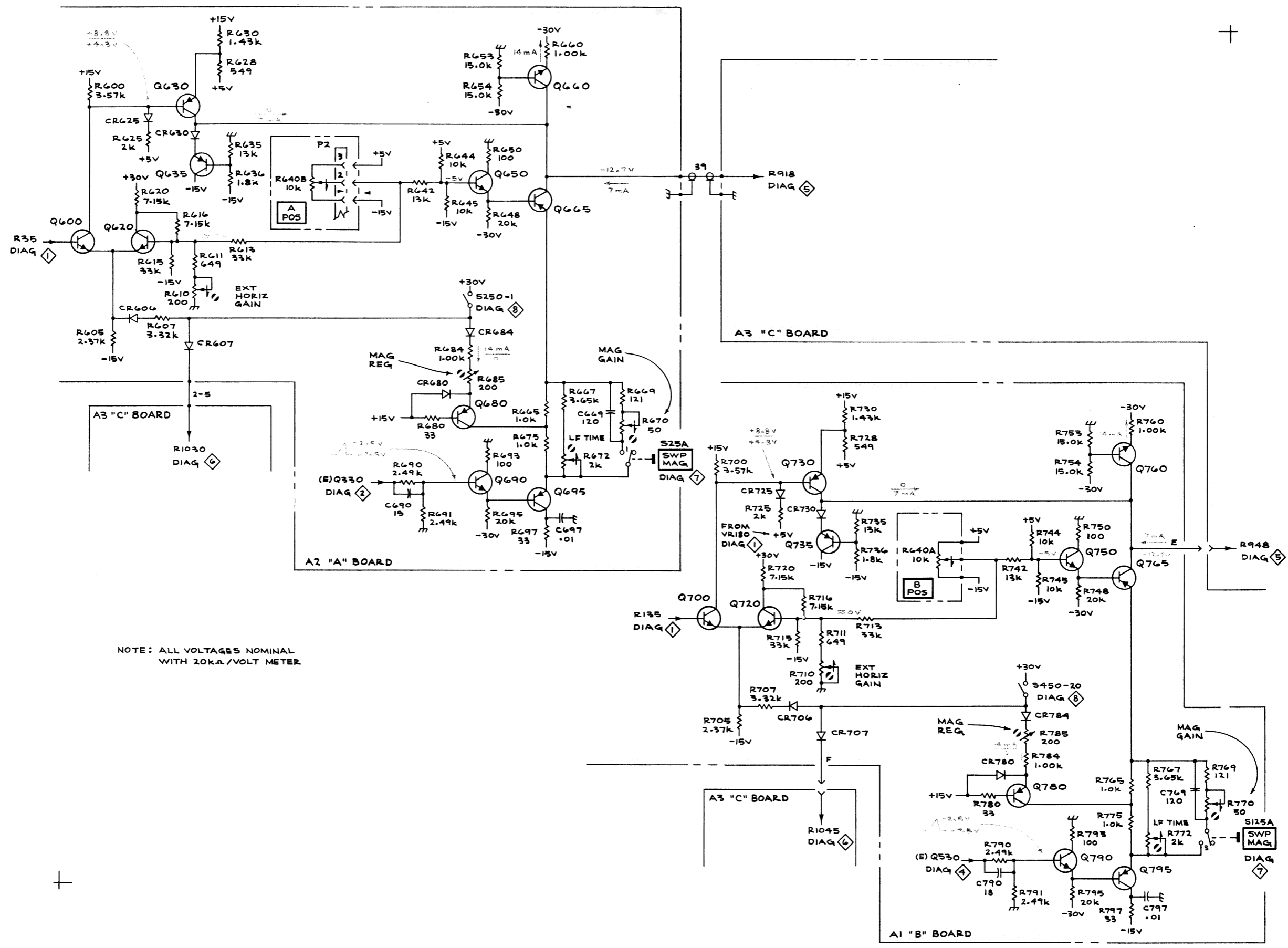




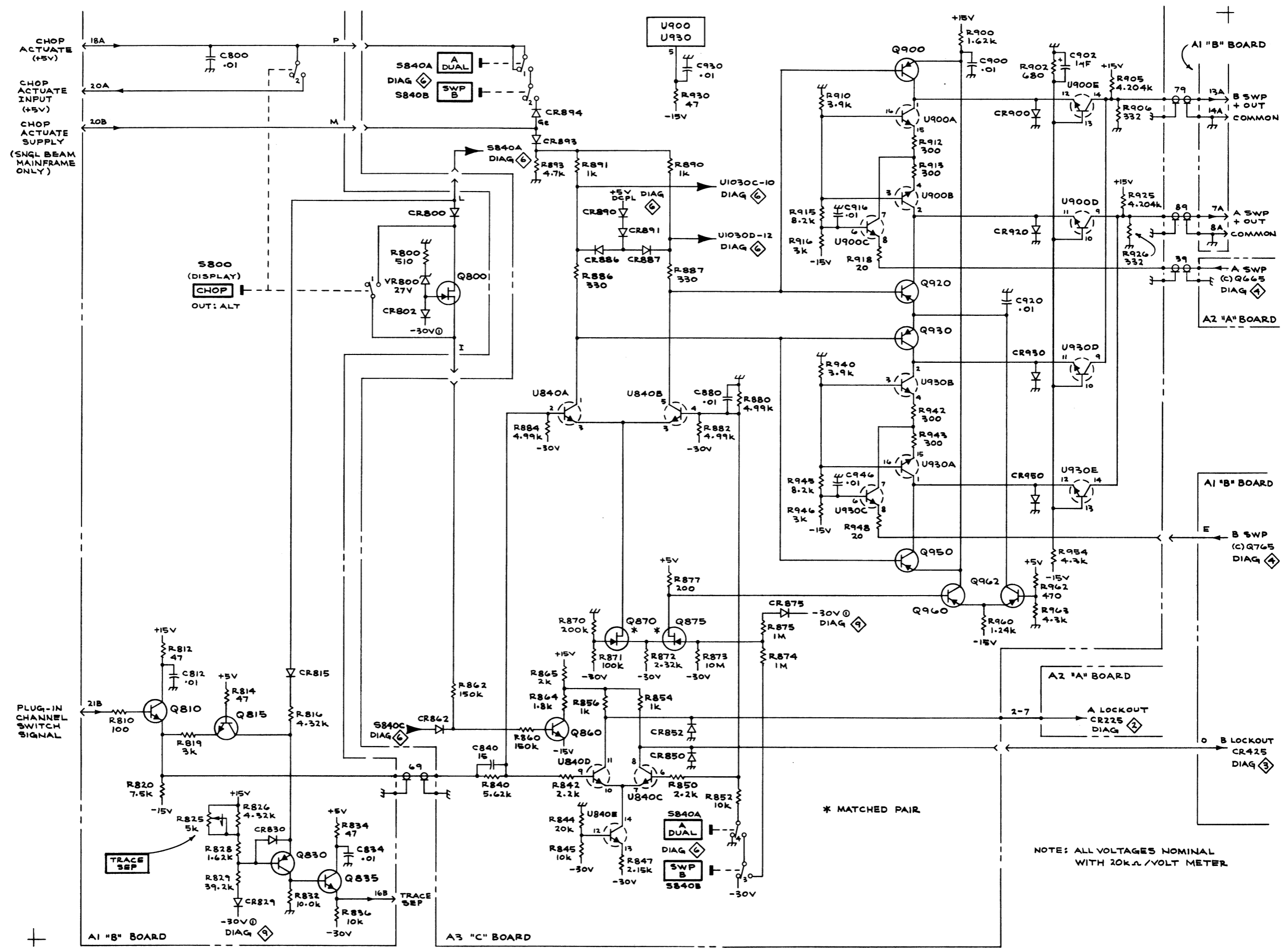
NOTE: ALL VOLTAGES NOMINAL
WITH 20k Ω /VOLT METER.

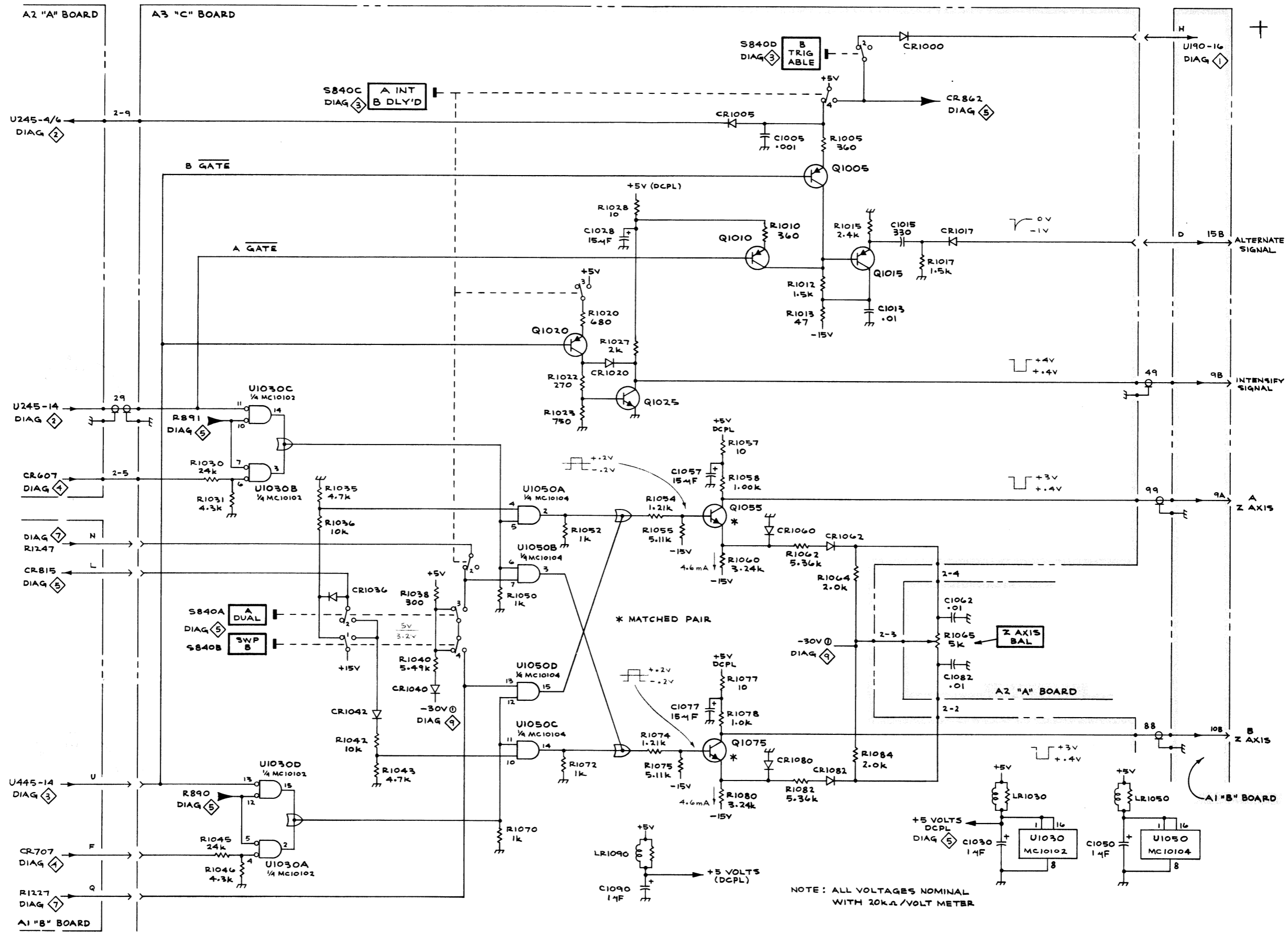
A SWEEP CONTROL & DELAY PICK-OFF





NOTE: ALL VOLTAGES NOMINAL
WITH 20k Ω /VOLT METER





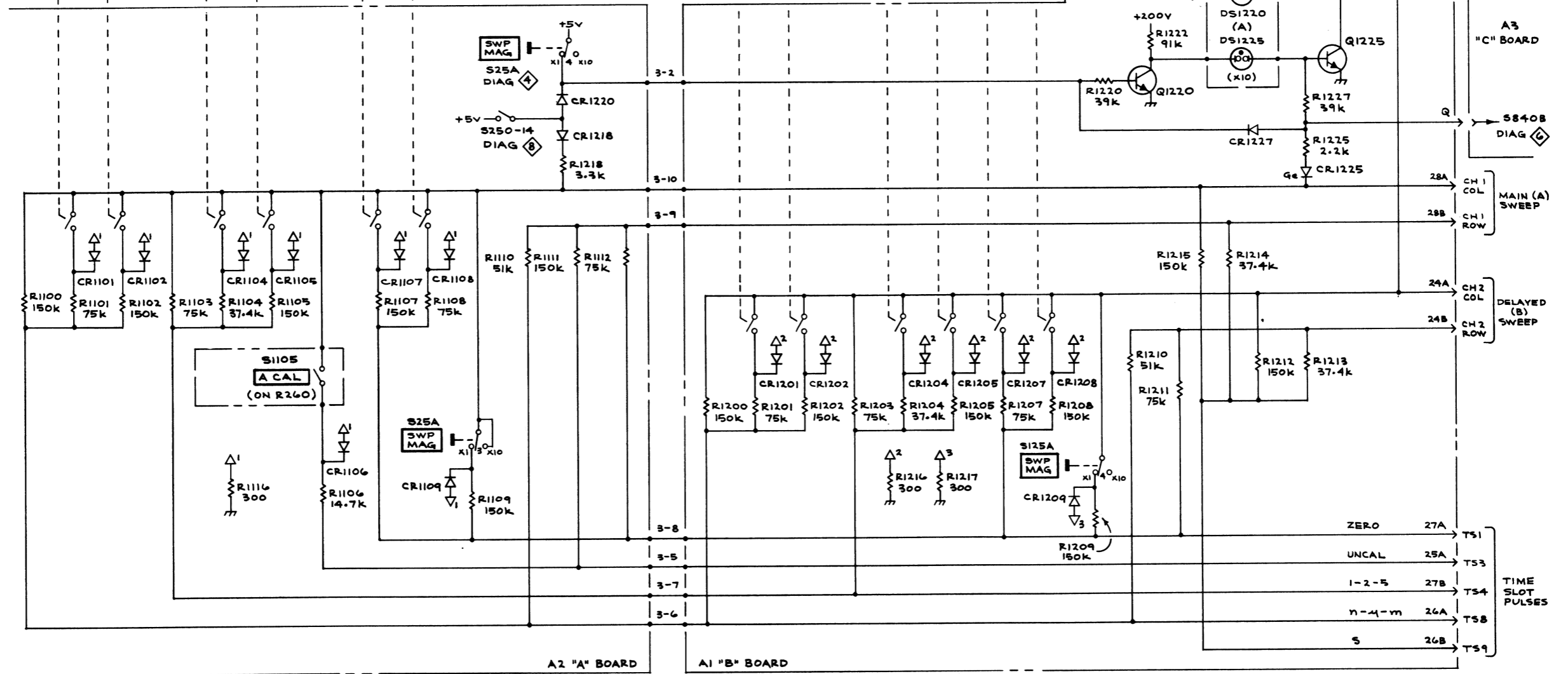
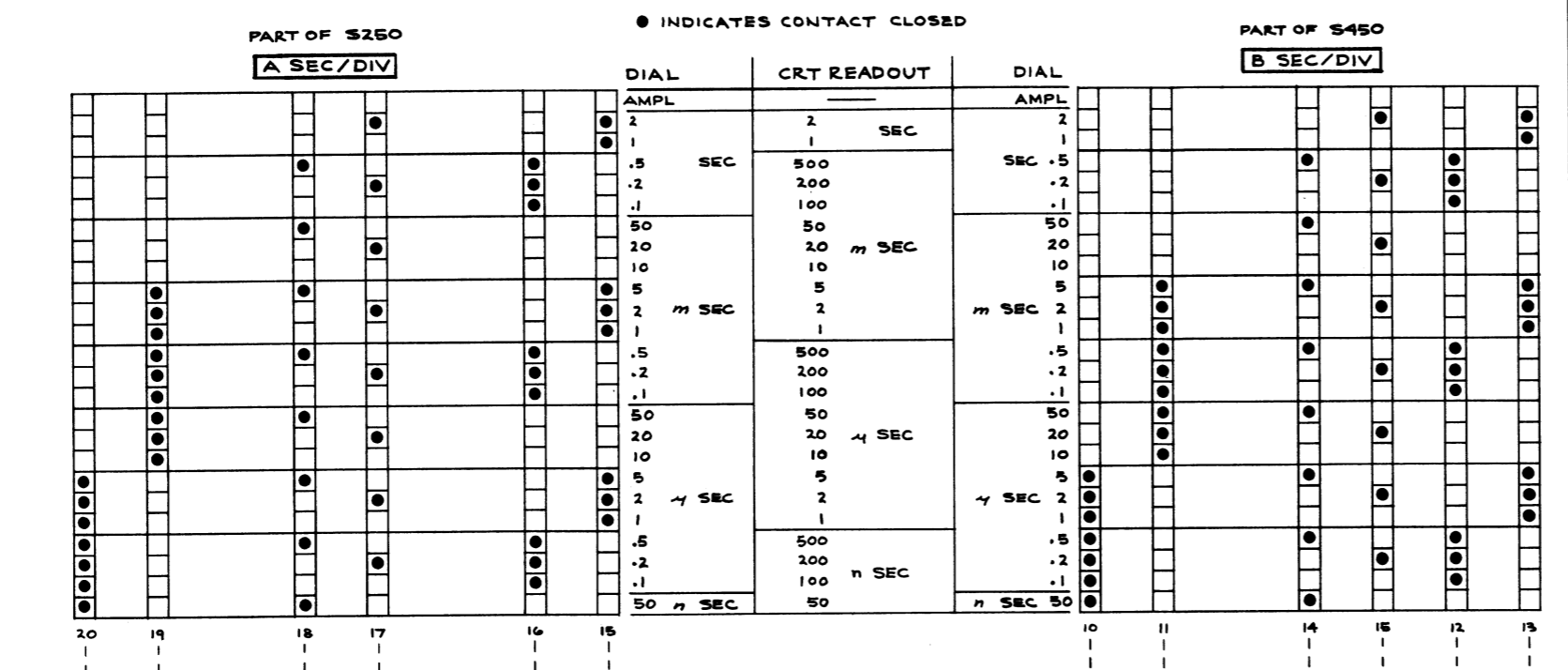
NOTE: ALL VOLTAGES NOMINAL WITH 20kΩ/VOLT METER

Z AXIS SWITCHING

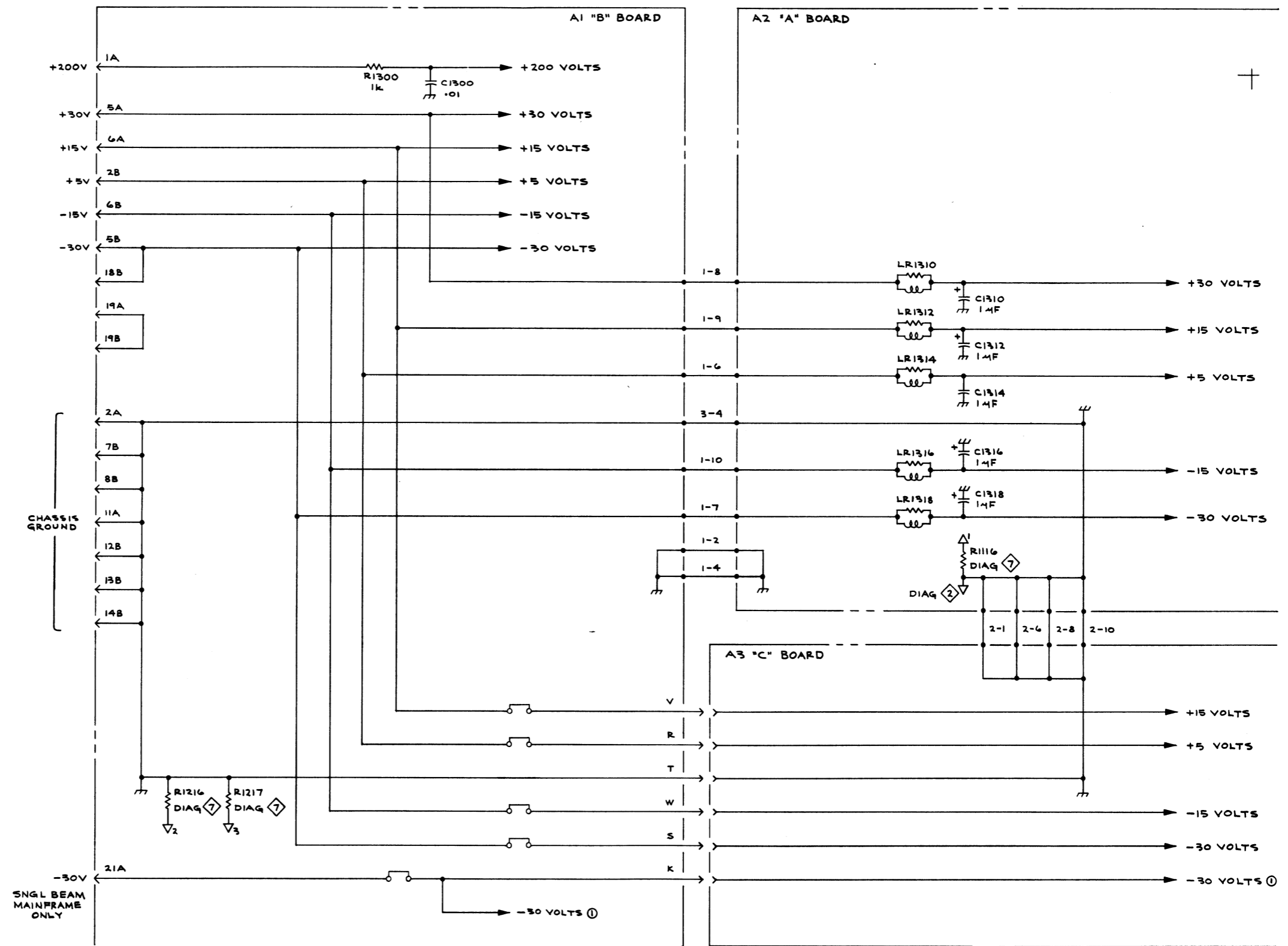
5B44

DEH 0275

Z AXIS SWITCHING



READOUT SWITCHING



VOLTAGE DISTRIBUTION

9

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

CROSS INDEX MFR. CODE NUMBER TO MANUFACTURER

MFR.CODE	MANUFACTURER	ADDRESS	CITY,STATE,ZIP
0000C	GETTIG ENGINEERING AND MANUFACTURING CO.		SPRINGMILL, PA 16875
00779	AMP, INC.	P. O. BOX 3608	HARRISBURG, PA 17105
01295	TEXAS INSTRUMENTS, INC., SEMICONDUCTOR GROUP	P. O. BOX 5012	DALLAS, TX 75222
05129	KILO ENGINEERING CO.	2015 D	LA VERNE, CA 91750
05820	WAKEFIELD ENGINEERING, INC.	AUDUBON ROAD	WAKEFIELD, MA 01880
15912	ANSLEY ELECTRONICS CORP., A SUB OF THOMAS AND BETTS CORP.	2828 N. FIGUEROA AT.	LOS ANGELES, CA 90065
22526	BERG ELECTRONICS, INC.	YORK EXPRESSWAY	NEW CUMBERLAND, PA 17070
24931	SPECIALTY CONNECTOR CO., INC.	3560 MADISON AVE.	INDIANAPOLIS, IN 46227
42838	NATIONAL RIVET AND MFG. CO.	1-21 EAST JEFFERSON ST.	WAUPUN, WI 53963
45722	USM CORP., PARKER-KALON FASTENER DIV.	1 PEEKAY DRIVE	CLIFTON, NJ 07014
71590	CENTRALAB ELECTRONICS, DIV. OF GLOBE-UNION, INC.	5757 N. GREEN BAY AVE.	MILWAUKEE, WI 53201
71785	TRW ELECTRONIC COMPONENTS, CINCH CONNECTOR OPERATIONS	1501 MORSE AVE.	ELK GROVE VILLAGE, IL 60007
73743	FISCHER SPECIAL MFG. CO.	446 MORGAN ST.	CINCINNATI, OH 45206
73803	TEXAS INSTRUMENTS, INC., METALLURGICAL MATERIALS DIV.		ATTLEBORO, MA 02703
74445	HOLO-KROME CO.	31 BROOK ST. WEST	HARTFORD, CT 06110
78189	ILLINOIS TOOL WORKS, INC. SHAKEPROOF DIVISION	ST. CHARLES ROAD	ELGIN, IL 60120
78471	TILLEY MFG. CO.	900 INDUSTRIAL RD.	SAN CARLOS, CA 94070
79807	WROUGHT WASHER MFG. CO.	2100 S. O BAY ST.	MILWAUKEE, WI 53207
80009	TEKTRONIX, INC.	P. O. BOX 500	BEAVERTON, OR 97077
82647	TEXAS INSTRUMENTS, INC., CONTROL PRODUCTS DIV.	34 FOREST ST.	ATTLEBORO, MA 02703
83385	CENTRAL SCREW CO.	2530 CRESCENT DR.	BROADVIEW, IL 60153
97464	INDUSTRIAL RETAINING RING CO.	57 CORDIER ST.	IRVINGTON, NJ 07111

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscnt	Qty	1 2 3 4 5	Name & Description	Mfr	
							Code	Mfr Part Number
-1	337-1399-00			2		SHLD,ELECTRICAL:SIDE	80009	337-1399-00
-2	366-1346-00			1		KNOB:CAL	80009	366-1346-00
	213-0048-00			1		. SETSCREW:4-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-3	358-0414-00			1		BUSHING,SLEEVE:0.25 OD X 0.21 INCH LONG	80009	358-0414-00
-4	366-1532-00			1		KNOB:	80009	366-1532-00
	213-0153-00			2		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-5	366-1533-00			1		KNOB:SEC/DIV	80009	366-1533-00
	213-0153-00			2		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-6	366-1327-00			1		KNOB:GRAY	80009	366-1327-00
	213-0048-00			1		. SETSCREW:4-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-7	366-1326-00			1		KNOB:GRAY	80009	366-1326-00
	213-0048-00			1		. SETSCREW:4-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-8	366-1023-03			2		KNOB:GRAY--PULL	80009	366-1023-03
	-----					EACH KNOB INCLUDES:		
	213-0153-00			1		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-9	366-1564-00			2		KNOB:GRAY,PRESS MT	80009	366-1564-00
-10	366-1286-02			1		KNOB:LATCH	80009	366-1286-02
						(ATTACHING PARTS)		
-11	214-1840-00			1		PIN,KNOB SECRG:	80009	214-1840-00
						- - - * - - -		
-12	366-1257-31			1		PUSH BUTTON:CHOP	80009	366-1257-31
-13	366-1257-25			2		PUSH BUTTON:SWP MAG	80009	366-1257-25
-14	366-1257-28			2		PUSH BUTTON:GRAY---+SLOPE	80009	366-1257-28
-15	366-1257-27			2		PUSH BUTTON:--AC COUPL	80009	366-1257-27
-16	366-1402-75			2		PUSH BUTTON:LF REJ	80009	366-1402-75
-17	366-1257-33			1		PUSH BUTTON:A DUAL	80009	366-1257-33
-18	366-1257-59			1		PUSH BUTTON:SWP B	80009	366-1257-59
-19	366-1257-35			1		PUSH BUTTON:A INTEN B DLY'D	80009	366-1257-35
-20	366-1489-69			1		PUSH BUTTON:B TRIG-ABLE	80009	366-1489-69
-21	366-1559-00			4		PUSH BUTTON:GRAY,SNAP ON MT.	80009	366-1559-00
-22	331-0291-00			1		DIAL,CONTROL:KILODIAL	05129	781-S3
-23	-----			1		RESISTOR,VARIABLE:(SEE R385 EPL)		
-24	-----			1		RESISTOR,VARIABLE:(SEE R640A,B EPL)		
						(ATTACHING PARTS)		
-25	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20319-402
-26	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
						- - - * - - -		
-27	358-0029-00			1		BSHG,MACH. THD:HEX,0.375-32 X 0.438" LONG	80009	358-0029-00
						(ATTACHING PARTS)		
-28	210-0590-00			1		NUT,PLAIN,HEX.:0.375 X 0.438 INCH,STL	73743	2X28269-402
-29	210-0978-00			1		WASHER,FLAT:0.375 ID X 0.50 INCH OD,STL	78471	OBD
-30	210-0013-00			1		WASHER,LOCK:INTL,0.375 ID X 0.688" OD,STL	78189	1220-00-00-0541C
						- - - * - - -		
-31	-----			2		RESISTOR,VARIABLE:(SEE R70,R175 EPL)		
						(ATTACHING PARTS FOR EACH)		
-32	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20319-402
-33	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
						- - - * - - -		
-34	131-0955-00			2		CONNECTOR,RCPT,:BNC,FEMALE	24931	28JR200-1
-35	210-0590-00			2		NUT,PLAIN,HEX.:0.375 X 0.438 INCH,STL	73743	2X28269-402
-36	214-1989-00			2		LEVER,SLIDE SW:	80009	214-1989-00
						(ATTACHING PARTS FOR EACH)		
-37	384-1306-00			1		SHAFT,SW LEVER:0.156 OD X 0.285 L AL W/HEX	80009	384-1306-00
-38	210-0994-00			1		WASHER,FLAT:0.125 ID X 0.25" OD,STL	83385	OBD
						- - - * - - -		
-39	384-1304-01			1		EXTENSION SHAFT:LEVER SWITCH,4.81" OA L AL	80009	384-1304-01
-40	384-1304-00			1		EXTENSION SHAFT:LEVER SWITCH,7.91" OA L AL	80009	384-1304-00
-41	426-0681-00			13		FR,PUSH BUTTON:GRAY PLASTIC	80009	426-0681-00
-42	426-1072-00			4		FR PUSH BUTTON:GRAY PLASTIC	80009	426-1072-00
-43	333-1891-00			1		PANEL,FRONT:	80009	333-1891-00
-44	200-0935-00			2		BASE,LAMPHOLDER:0.29 OD X 0.19 CASE	80009	200-0935-00
-45	-----			2		LAMP,LED:(SEE DS200,DS400 EPL)		
-46	352-0157-00			2		LAMPHOLDER:WHITE PLASTIC	80009	352-0157-00

Mechanical Parts List—5B44

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Qty	1 2 3 4 5					Name & Description	Mfr Code	Mfr Part Number
1-47	200-1483-00		1					COVER, LAMP: LEFT	80009	200-1483-00	
	200-1482-00		1					COVER, LAMP: RIGHT	80009	200-1482-00	
-48	378-0729-00		4					LENS, LIGHT:	80009	378-0729-00	
-49	214-1513-01		1					LCH, PLUG-IN RET: (ATTACHING PARTS)	80009	214-1513-01	
-50	213-0254-00		1					SCR, TPG, THD CTG: 2-56X0.25"100 DEG, FLH STL - - - * - - -	45722	OBD	
-51	386-3041-00		1					SUBPANEL, FRONT: (ATTACHING PARTS)	80009	386-3041-00	
-52	213-0229-00		4					SCR, TPG, THD FOR: 6-20 X0.375"100 DEG, FLH STL - - - * - - -	83385	OBD	
-53	337-2027-00		1					SHIELD, ELEC:	80009	337-2027-00	
-54	384-1292-00		4					EXTENSION SHAFT: CRL SW 2.417 L	80009	384-1292-00	
-55	384-1136-00		5					EXTENSION SHAFT: 0.95 INCH LONG	80009	384-1136-00	
-56	384-1099-00		4					EXTENSION SHAFT: PUSH BUTTON, 1.54 INCH LONG	80009	384-1099-00	
-57	384-1059-00		4					EXTENSION SHAFT: 6.58 INCH LONG	80009	384-1059-00	
-58	175-1405-00		3					CA SSSY, SP, ELEC:	15912	.100F40152410	
	672-0440-00		1					CKT BOARD ASSY: TIME/DIV, REAR (ATTACHING PARTS)	80009	670-0440-00	
-59	211-0116-00		8					SCR, ASSEM WSHR: 4-40 X 0.312 INCH, PNH BRS	83385	OBD	
-60	213-0336-00		1					SCR, TPG, THD FOR: 6-32 X 1.25 INCH, PNH STL - - - * - - -	83385	OBD	
-61	166-0107-00		1					SPACER, SLEEVE: 0.219 L X 0.18 ID ALUMINUM	80009	166-0107-00	
-62	361-0169-00		1					SPACER, SLEEVE: 0.88 L X 0.18 ID ALUMINUM	80009	361-0169-00	
-63	376-0050-00		1					. CPLG, SHAFT, FLEX:	80009	376-0050-00	
	213-0022-00		4					. SETSCREW: 4-40 X 0.188 INCH, HEX SOC STL	74445	OBD	
-64	384-0883-00		1					. SHAFT, CAM SW:	80009	384-0883-00	
-65	384-1116-00		1					. EXTENSION SHAFT: 10.456 L X 0.081 OD SST	80009	384-1116-00	
-66	-----		1					. RESISTOR, VARIABLE: (SEE R260 EPL) (ATTACHING PARTS)			
-67	210-0583-00		1					. NUT, PLAIN, HEX.: 0.25-32 X 0.312 INCH, BRS	73743	2X20319-402	
-68	210-0046-00		1					. WASHER, LOCK: INTL, 0.26 ID X 0.40" OD, STL	78189	1214-05-00-0541C	
-69	210-0940-00		1					. WASHER, FLAT: 0.25 ID X 0.375 INCH OD, STL - - - * - - -	79807	OBD	
-70	407-0803-00		1					. BRKT, COMPONENT:	80009	407-0803-00	
	263-1079-00		1					. ACTR ASSY CAM S: (ATTACHING PARTS)	80009	263-1079-00	
-71	211-0116-00		4					. SCR, ASSEM WSHR: 4-40 X 0.312 INCH, PNH BRS - - - * - - -	83385	OBD	
-72	210-0406-00		4					. NUT, PLAIN, HEX.: 4-40 X 0.188 INCH, BRS	73743	2X12161-402	
-73	214-1139-02		1					. SPRING, FLAT: GREEN COLORED	80009	214-1139-02	
	214-1139-03		1					. SPRING, FLAT: RED COLORED	80009	214-1139-03	
-74	214-1127-00		2					. ROLLER, DETENT: 0.125 DIA X 0.125 INCH L	80009	214-1127-00	
-75	401-0081-02		1					. BEARING, CAM SW: FRONT (ATTACHING PARTS)	80009	401-0081-02	
-76	354-0391-00		1					. RING, RETAINING: 0.395" FREE ID X 0.025" STL - - - * - - -	97464	3100-43-CD	
-77	105-0594-00		1					. ACTUATOR, CAM SW:	80009	105-0594-00	
-78	210-0406-00		4					. NUT, PLAIN, HEX.: 4-40 X 0.188 INCH, BRS	73743	2X12161-402	
-79	401-0115-00		1					. BEARING, CAM SW: CENTER	80009	401-0115-00	
-80	-----		1					. CKT BOARD ASSY: (SEE A2 EPL)			
	105-0625-01		1					. ACTR ASSEMBLY: SLIDE SW	80009	105-0625-01	
-81	376-0142-00		2					. ADPT, SHAFT, CPLG: SLIDE TO SHAFT	80009	376-0142-00	
	213-0048-00		1					. SETSCREW: 4-40 X 0.125 INCH, HEX SOC STL	74445	OBD	
-82	214-1126-01		2					. SPRING, FLAT: GREEN COLORED	80009	214-1126-01	
-83	214-1127-00		2					. ROLLER, DETENT: 0.125 DIA X 0.125 INCH L	80009	214-1127-00	
-84	351-0355-00		1					. GUIDE, SW SLIDE:	80009	351-0355-00	
-85	105-0625-00		1					. ACTUATOR, SWITCH:	80009	105-0625-00	
-86	131-1031-00		5					. CONTACT ASSY, EL: CAM SWITCH, TOP (ATTACHING PARTS FOR EACH)	80009	131-1031-00	
-87	210-0779-00		1					. RIVET, TUBULAR: 0.051 OD X 0.115 INCH LONG - - - * - - -	42838	RA-29952715	
-88	131-0604-00		20					. CONTACT, ELEC: 0.025 SQ X 0.365 INCH LONG	80009	131-0604-00	
-89	136-0220-00		2					. SOCKET, PLUG-IN: 3 PIN	71785	133-23-11-034	

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Qty	Name & Description					Mfr Code	Mfr Part Number
				1	2	3	4	5		
1-90	136-0235-00		1	.	.	.	SOCKET, PLUG-IN:6 CONTACT, ROUND	71785	133-96-12-062	
-91	214-0579-00		4	.	.	.	TERM., TEST PT:0.40 INCH LONG	80009	214-0579-00	
-92	200-1167-00		1	.	.	.	COVER, XSTR:TEMP STAB FOR 2 TO-18 CS STYLE	05820	259-18-40	
-93	136-0260-02		2	.	.	.	SOCKET, PLUG-IN:16 CONTACT, LOW CLEARANCE	01295	C931602	
-94	136-0350-00		4	.	.	.	SOCKET, PLUG-IN:3 PIN, LOW PROFILE	80009	136-0350-00	
-95	136-0514-00		1	.	.	.	SOCKET, PLUG-IN:MICROCIRCUIT, 8 CONTACT	82647	C930802	
-96	136-0252-00		5	.	.	.	CONTACT, ELEC:0.145 INCH LONG	00779	2-330808-7	
	136-0634-00		1	.	.	.	SOCKET, PLUG-IN:LEAD DIP	73803	C932002	
-97	131-0608-00		15	.	.	.	CONTACT, ELEC:0.365 INCH LONG	22526	47357	
-98	260-1737-00		1	.	.	.	SWITCH, PUSH:SS/RESET	80009	260-1737-00	
-99	361-0382-00		4	.	.	.	SPACER, PB SW:BROWN, 0.275 INCH LONG	80009	361-0382-00	
-100	260-1734-00		1	.	.	.	SWITCH, PUSH:A TRIGGER	80009	260-1734-00	
-101	361-0382-00		4	.	.	.	SPACER, PB SW:BROWN, 0.275 INCH LONG	80009	361-0382-00	
-102	-----		1	.	.	.	RESISTOR, VARIABLE: (SEE R1065 EPL)			
-103	-----		1	.	.	.	CKT BOARD ASSEMBLY: (SEE A3 EPL)			
							(ATTACHING PARTS)			
-104	213-0183-00		1	SCR, TPG, THD FOR:6-32 X 0.25 INCH, PNH STL				83385	OBD	
							- - - * - - -			
-105	166-0107-00		1	SPACER, SLEEVE:0.219 L X 0.18 ID ALUMINUM				80009	166-0107-00	
-106	136-0263-04		19	CONTACT, ELEC:FOR 0.025 INCH SQUARE PIN				22526	75377-001	
-107	136-0269-02		1	SOCKET, PLUG-IN:14 CONTACT, LOW CLEARANCE				01295	C931402	
-108	136-0260-02		4	SOCKET, PLUG-IN:16 CONTACT, LOW CLEARANCE				01295	C931602	
-109	214-0579-00		2	TERM., TEST PT:0.40 INCH LONG				80009	214-0579-00	
-110	260-1736-00		1	SWITCH, PUSH:MODE				80009	260-1736-00	
	672-0439-00		1	CKT BOARD ASSY:TIME/DIV, FRONT				80009	672-0439-00	
							(ATTACHING PARTS)			
-111	213-0146-00		2	SCR, TPG, THD FOR:6-20 X 0.313 INCH, PNH STL				83385	OBD	
							- - - * - - -			
	263-1078-00		1	ACTR ASSY CAM S:				80009	263-1078-00	
							(ATTACHING PARTS)			
-112	211-0116-00		4	SCR, ASSEM WSHR:4-40 X 0.312 INCH, PNH BRS				83385	OBD	
							- - - * - - -			
-113	210-0406-00		4	NUT, PLAIN, HEX.:4-40 X 0.188 INCH, BRS				73743	2X12161-402	
-114	401-0081-02		1	BEARING, CAM SW:FRONT				80009	401-0081-02	
							(ATTACHING PARTS)			
-115	354-0391-00		1	RING, RETAINING:0.395" FREE ID X 0.025" STL				97464	3100-43-CD	
							- - - * - - -			
-116	105-0595-00		1	ACTUATOR, CAM SW:				80009	105-0595-00	
-117	210-0406-00		4	NUT, PLAIN, HEX.:4-40 X 0.188 INCH, BRS				73743	2X12161-402	
-118	214-1139-02		1	SPRING, FLAT:GREEN COLORED				80009	214-1139-02	
	214-1139-03		1	SPRING, FLAT:RED COLORED				80009	214-1139-03	
-119	214-1127-00		2	ROLLER, DETENT:0.125 DIA X 0.125 INCH L				80009	214-1127-00	
-120	401-0115-00		1	BEARING, CAM SW:CENTER				80009	401-0115-00	
-121	-----		1	CKT BOARD ASSY: (SEE A1 EPL)						
-122	260-1211-00		1	SWITCH, PUSH:DPDT, PUSH-PUSH				71590	2KAB010000-357	
-123	361-0383-00		2	SPACER, PB SW:CHARCOAL, 0.33 INCH LONG				80009	361-0383-00	
-124	131-0590-00		19	CONTACT, ELEC:0.71 INCH LONG				22526	47351	
-125	131-0604-00		20	CONTACT, ELEC:0.025 SQ X 0.365 INCH LONG				80009	131-0604-00	
-126	386-1556-00		3	SPACER, CKT BD:				80009	386-1556-00	
-127	260-1735-00		1	SWITCH, PUSH:B TRIGGER				80009	260-1735-00	
-128	361-0382-00		4	SPACER, PB SW:BROWN, 0.275 INCH LONG				80009	361-0382-00	
-129	260-1465-00		1	SWITCH, PUSH:				80009	260-1465-00	
-130	361-0382-00		4	SPACER, PB SW:BROWN, 0.275 INCH LONG				80009	361-0382-00	
-131	-----		1	RESISTOR, VARIABLE: (SEE R825 EPL)						
-132	136-0220-00		4	SOCKET, PLUG-IN:3 PIN				71785	133-23-11-034	
-133	214-0579-00		3	TERM., TEST PT:0.40 INCH LONG				80009	214-0579-00	
-134	136-0634-00		1	SOCKET, PLUG-IN:20 LEAD DIP				73803	C932002	
-135	200-1167-00		1	COVER, XSTR:TEMP STAB FOR 2 TO-18 CS STYLE				05820	259-18-40	
-136	136-0260-02		2	SOCKET, PLUG-IN:16 CONTACT, LOW CLEARANCE				01295	C931602	
-137	136-0514-00		1	SOCKET, PLUG-IN:MICROCIRCUIT, 8 CONTACT				82647	C930802	
-138	131-0566-00		5	LINK, TERM.CONNE:0.086 DIA X 2.375 INCH L				0000C	L-2007-1	
	105-0625-01		1	ACTUATOR ASSEMBLY:SLIDE SW				80009	105-0625-01	
-139	376-0142-00		1	ADPT, SHAFT, CPLG:SLIDE TO SHAFT				80009	376-0142-00	
	213-0048-00		1	SETScrew:4-40 X 0.125 INCH, HEX SOC STL				74445	OBD	

Mechanical Parts List—5B44

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Qty						Name & Description	Mfr	
				1	2	3	4	5		Code	Mfr Part Number
1-140	214-1126-01		2	.	.	.	.	.	SPRING,FLAT:GREEN COLORED	80009	214-1126-01
-141	214-1127-00		2	.	.	.	.	.	ROLLER,DETENT:0.125 DIA X 0.125 INCH L	80009	214-1127-00
-142	351-0355-00		1	.	.	.	.	.	GUIDE,SW SLIDE:	80009	351-0355-00
-143	105-0625-00		1	.	.	.	.	.	ACTUATOR SWITCH:	80009	105-0625-00
-144	131-1031-00		5	.	.	.	.	.	CONTACT ASSY,EL:CAM SWITCH,TOP (ATTACHING PARTS)	80009	131-1031-00
-145	210-0779-00		1	.	.	.	.	.	RIVET,TUBULAR:0.051 OD X 0.115 INCH LONG	42838	RA-29952715
-146	337-2074-00		1	.	.	.	.	.	SHIELD,ELEC:	80009	337-2074-00
-147	131-1372-00		2	.	.	.	.	.	CONTACT,ELEC:	80009	131-1372-00
-148	426-0725-08		1	.	.	.	.	.	FR SECT,PLUG-IN:TOP	80009	426-0725-08
-149	334-2360-00		1	MARKER,IDENT:WARNING	80009	334-2360-00
-150	426-0724-10		1	FR SECT,PLUG-IN:BOTTOM	80009	426-0724-10

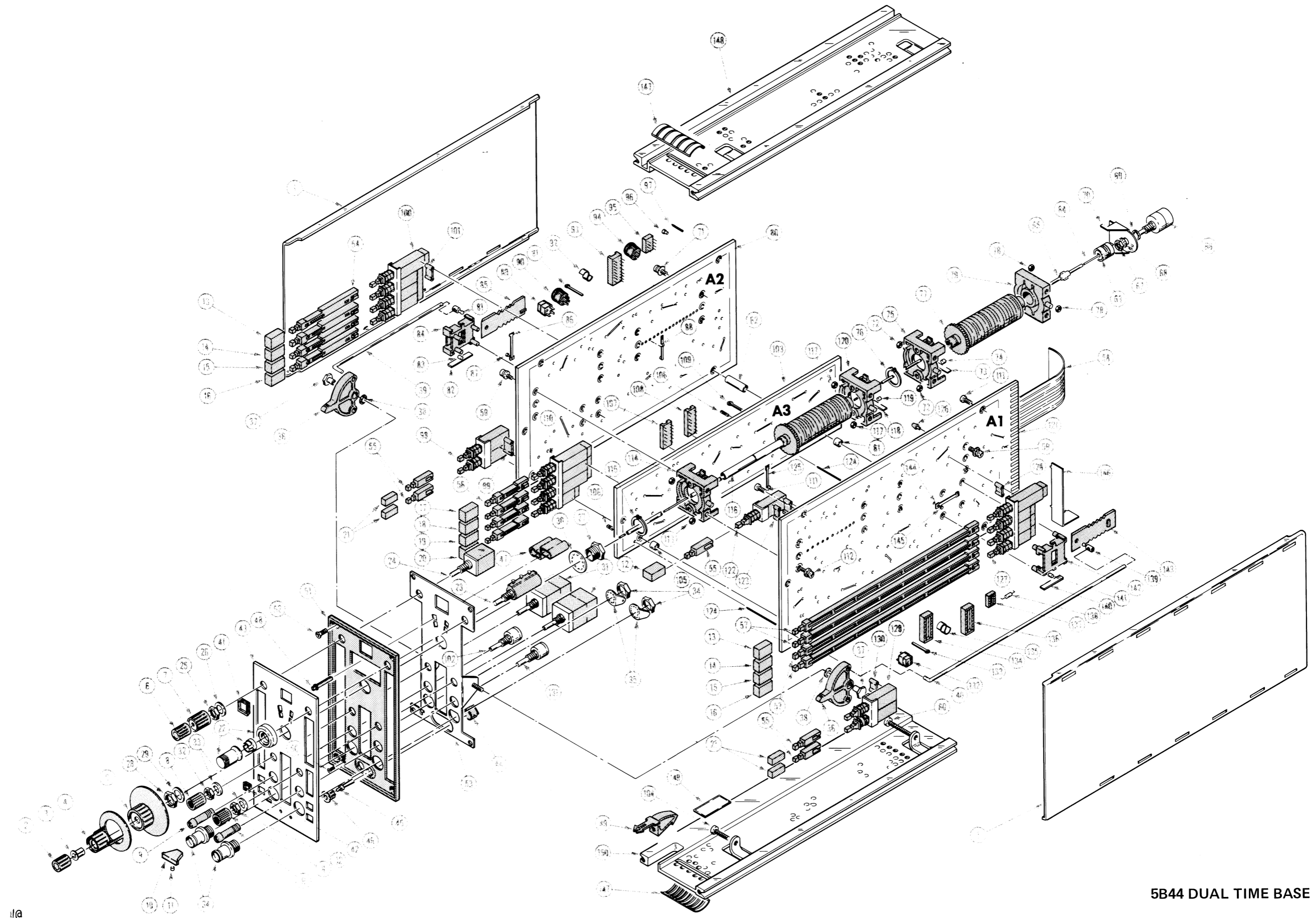
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ACCESSORIES

070-1863-00			1	MANUAL,TECH:INSTRUCTION (NOT SHOWN)	80009	070-1863-00
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REPACKAGING

065-0151-00			1	SHPNG CTN KIT:	80009	065-0151-00
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5B44 DUAL TIME BASE