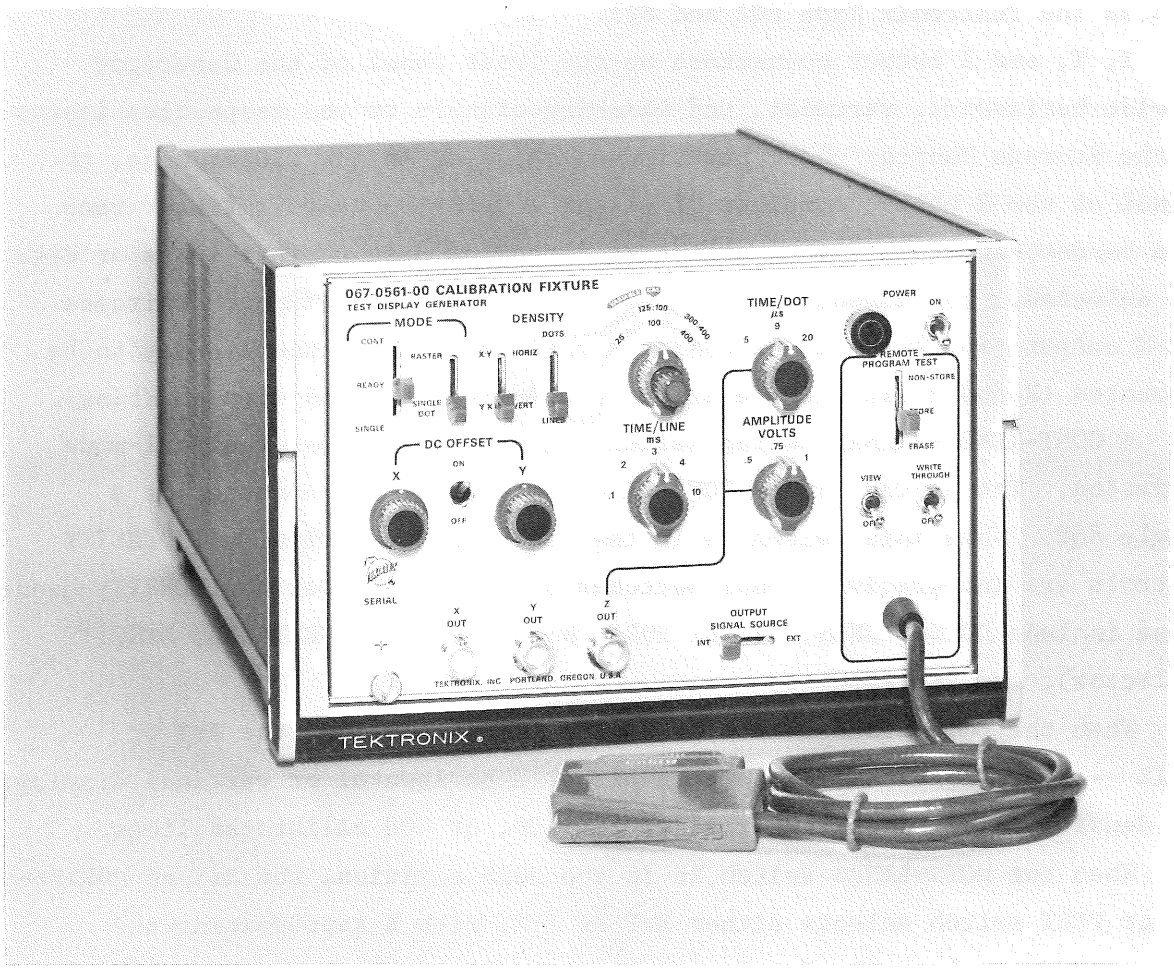
067-0561-00 CALIBRATION FIXTURE

Test Display Generator



INTRODUCTION

The TEKTRONIX Type 067-0561-00 CALIBRATION FIXTURE TEST DISPLAY GENERATOR is a ramp/staircase generator used for testing storage monitors such as the Tektronix Type 601 and 611.

X, Y, and Z output connectors on the front panel of the Generator provide horizontal, vertical, and blanking signals to the respective inputs of the Storage Monitor under test. When operated in the raster mode, the signal at the X output consists of either a zero-to-one-volt linear ramp or a zero-to-one-volt linear staircase depending upon whether lines or dots are selected. The signal at the Y output consists of a linear staircase. The Z output provides the unblanking signal that allows the display to be presented (X and Y signals are blanked during retrace and step shifting).

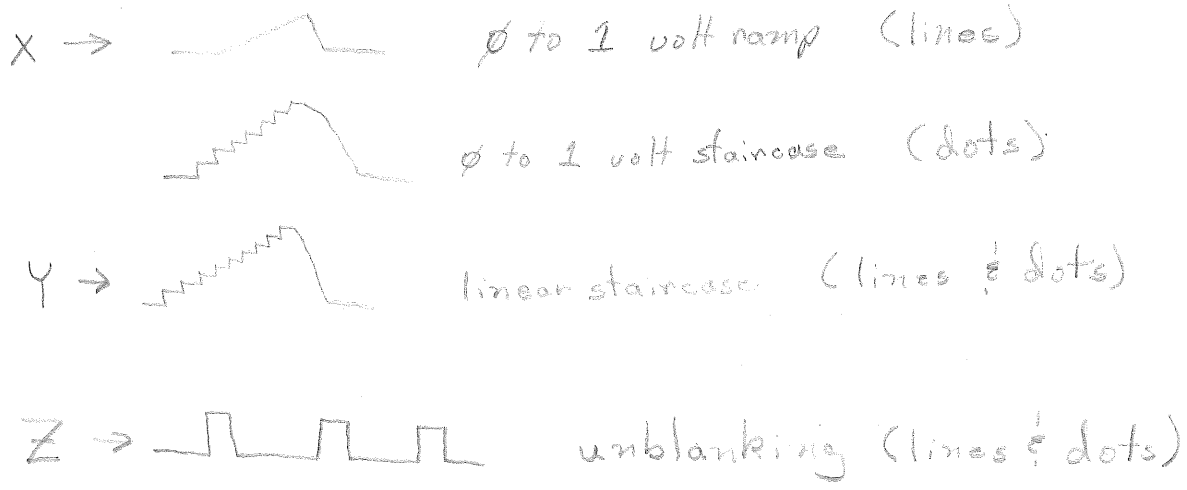
A CONT-READY-SIGNAL switch selects either continuous or signal-mode operation. The RASTER-SINGLE DOT switch selects either a raster or a single dot. When this switch is in the SINGLE DOT position, all DENSITY controls are inoperative. Four switches are grouped under the DENSITY heading. These include DOTS--LINES, X:Y or HORIZONTAL -- Y:X or VERTICAL, DENSITY (selector), and VARIABLE.

When the DOTS-LINES switch is in the LINES position, the X:Y or HORIZ -- Y:X or VERT switch selects either a horizontal or vertical display. The density selector switch provides 25, 100, or 400 calibrated lines.

When the DOTS-LINES switch is in the DOTS position, the X:Y or HORIZ-- Y:X or VERT switch selects either X:Y or Y:X, with X representing the number of dots along the X axis and Y representing the number of dots along the Y axis. The density selector switch provides either 125 by 100 or 300 by 400 calibrated dots. A VARIABLE control continously varies the number of dots or lines to less than 60% of their calibrated value. Continuously variable DC offset signals of -1 volt to +1 volt are added to the X and Y signal independently when the DC OFFSET switch is on.

When the DOTS-LINES switch is in the DOTS position, Z-output pulse widths of 5, 9, or 20 μs/dot can be selected using the TIME/DOT switch. Pulse amplitudes of 0.5, 0.75, or 1.0 volt are selected using the AMPLITUDE switch. When the DOTS-LINES switch is in the LINES position, a TIME/LINE switch provides 0.1, 2, 3, 4, or 10 ms/line.

Internal or External signals are selected using the OUTPUT SIGNAL SOURCE switch. In the Internal position, the switch couples the internally generated X, Y and Z signals to the appropriate output connectors on the front panel. In the External position, the output connectors are coupled to X, Y, and Z auxiliary input connectors on the rear panel of the instrument. STORE, ERASE, VIEW, and WRITE THROUGH signals for testing the remote control functions of the Storage Monitor are connected to a 25-pin male connector at the end of a 4-foot cable attached to the front panel. This cable also supplies the same X, Y, and Z signals available at the front panel output connectors. A 115/230 VAC switch on the rear panel selects either 115 VAC or 230 VAC line operation.



CHARACTERISTICS

Y (Vertical) and X (Horizontal) Outputs

Characteristic	Performance Requirement	Supplemental Information
Number of Dots per Line		
Calibrated	Within 2% of selected value	
Variable	Continuously variable to less than 60% of calibrated value	
First Step Level	0 volts within 20 mV	
Last Step Level	1 volt within 20 mV	
DC Offset	At least +1 V to -1 V, continuously variable	
Time per line	Within 10% of indicated value	

Z (Blanking) Output

Characteristic	Performance Requirement	Supplemental Information
Time per dot	Within 10% of indicated value	
Amplitude	Within 5% of indicated value	

Power Requirements

Characterisitc	Performance Requirement	Supplemental Information
Line voltage		Selector switch on rear panel
115 VAC	103.5 to 126.5 volts, RMS AC line voltage	
230 VAC	207 to 253 volts, RMS AC line voltage	
Fuse	115 VAC: 1/2 A Fast Blo 230 VAC: 1/4 A Fast Blo	
Line Frequency	55 to 65 Hz	
Power Consumption	4 watts maximum	

Mechanical

Characteristic	Information	
Construction		
Chassis	Aluminum Alloy	
Cabinet	Aluminum Alloy with Blue-vinyl finish	
Panel	Aluminum Alloy with anodized finish	
Circuit Board	Glass-Epoxy Laminate	
Overall Dimensions		
Height	6 inches	
Width	9 inches	
Depth	14-3/4 inches	
Weight	≈10 pounds	
Connectors		
Front & Rear Panel BNC		
Remote Program Cable	4 feet, 25 pin Cannon connector	

Environmental

Characteristic	Performance Requirement	Supplemental Information
Temperature	The performance requirements listed apply over a temperature range of 25°C ± 10°C	
Warm Up Time	5 min at 25°C	

OPERATING INSTRUCTIONS

FRONT PANEL CONTROLS, CONNECTORS, AND SWITCHES

MODE

CONT/READY/SINGLE
Selects either a continuous or a single display.

RASTER/SINGLE DOT
Selects either a raster or a single dot.

DENSITY

HORIZ/VERT or X:Y/Y:X
Selects either a horizontal or a vertical display.

DOTS/LINES

Selects either dots or lines.

DENSITY (Switch)

Selects the number of lines when DOTS/LINES switch is at LINES.
Selects the X:Y number of dots when DOTS/LINES switch is at DOTS.

DENSITY (Variable)
Varies the number of dots or lines to less than 60% of the calibrated value.

TIME/DOT
Varies the Z output unblanking pulse width when the DOTS/LINES switch is at DOTS.

AMPLITUDE
Varies the Z output unblanking pulse amplitude when the DOTS/LINES switch is at DOTS.

TIME/LINE
Varies the time per line when the DOTS/LINES switch is at LINES.

DC OFFSET
Applies a continuously variable -1 volt to +1 volt DC level to the X and Y output when the DC offset switch is ON.

X OUT, Y OUT, Z OUT
BNC connectors for the X, Y, and Z output signals.

OUTPUT SIGNAL SOURCE

Selects either the internally generated signals or external signals connected to the X, Y, and Z inputs on the rear panel.

REMOTE PROGRAM TEST

An auxiliary provision for testing the remote controls on the Type 611 and Type 601 Storage Monitors.

NON-STORE/STORE/ERASE

Selects either the store mode or the non-store mode of operation. When in the store position, the remaining spring loaded position of the switch allows erasing.

VIEW/OFF

Selects either view or non-view.

WRITE THROUGH/OFF

Selects either write-through or write-through off.

A 25-pin male connector at the end of a 4-foot cable connects the REMOTE PROGRAM TEST signals to the Storage Monitor. It may also be used to connect to the X, Y, and Z output signals, thus eliminating the need to connect the X out, Y out, and Z out to the corresponding inputs on the Storage Monitor.

REAR PANEL CONNECTORS AND SWITCHES

GATE OUTPUT

BNC connector for the gate output signal. Used to calibrate and trouble shoot the Test Display Generator.

FAST/SLOW

Selects the gate signals generated after every line when at fast, or the gate signal generated after every frame when at slow.

X IN, Y IN, Z IN

BNC connectors on the rear panel for applying external X, Y, and Z input signals. The signals appear at the front panel X, Y, and Z output connectors when the "OUTPUT SIGNAL SOURCE" switch is at EXTERNAL.

Fuse Data: Silk screened on rear panel.

115 VAC operation: 1/2 A

230 VAC operation: 1/4 A

Power Switch

Connects the AC line voltage to the Display Generator power supply when positioned to ON.

115-230 V Switch
Selects the proper internal wiring configuration for either 115 or 230 VAC line operation.

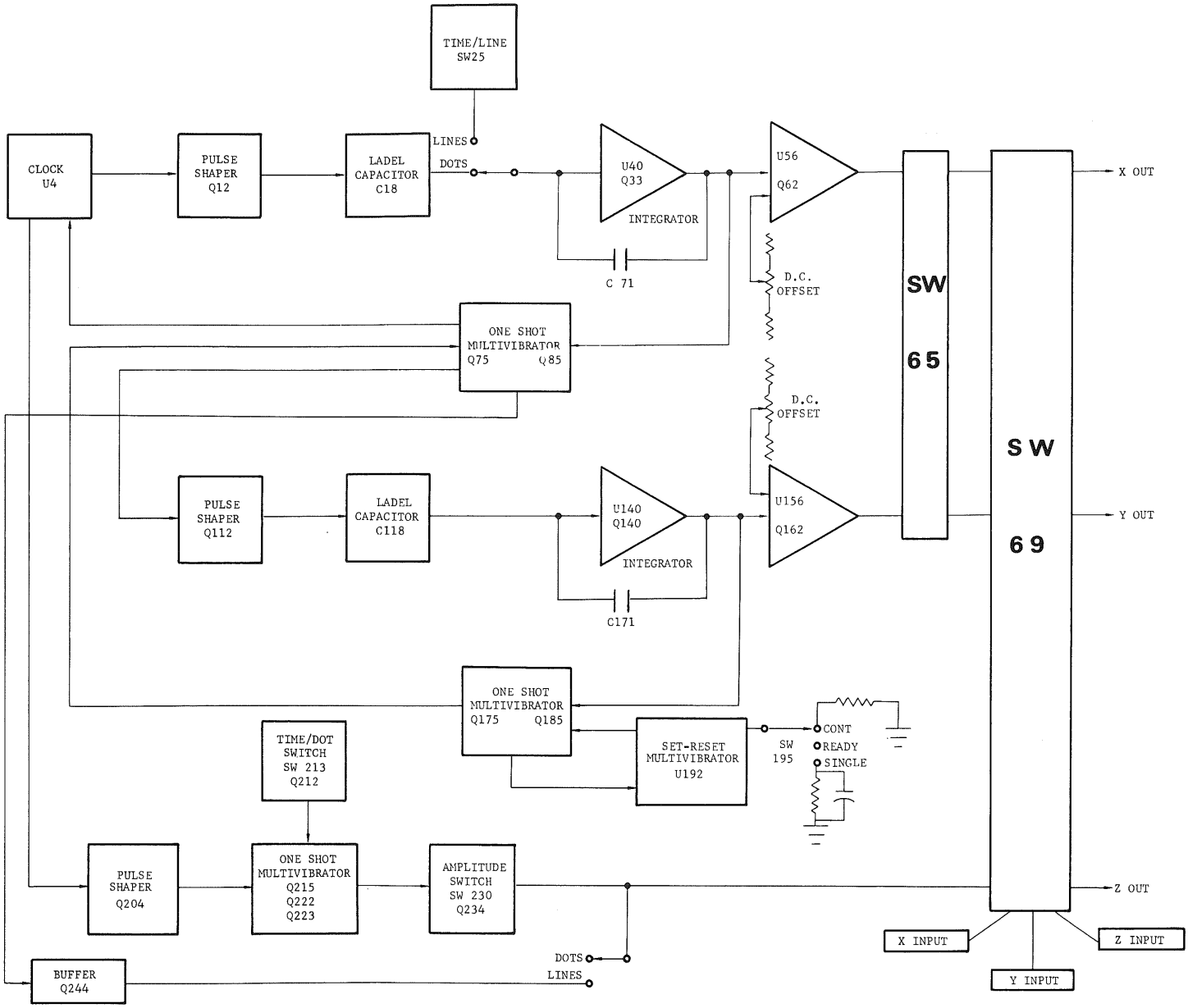
To operate the Test Display Generator, connect the instrument to a suitable power source.

CAUTION:

Before turning the instrument on, make sure the rear-panel line selector switch is in the correct position for the line voltage used. The instrument is shipped from the factory with the switch in the 115 VAC position, unless otherwise requested.

Turn power switch to ON and allow the unit approximately five minutes to warm up. The instrument is now ready for use.

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

The three signals provided by the Test Display Generator consist of a zero-to-one-volt linear ramp or zero-to-one-volt linear staircase at the X output and the Y output, and an unblanking signal at the Z output.

The staircase signal is generated in the following manner. Clock U4, a slaved multivibrator, generates a train of pulses which are fed through a pulse shaper, Q12. Each pulse then charges the ladel capacitor C18 through the bucket capacitor, C71. Diode D22 provides the discharge path for C18, with diode D23 preventing the discharge of capacitor C71. The high input impedance of Q33 and high gain of U40 are combined to provide a very linear integrator circuit. Each time C18 charges through C71, the output of U40 changes by the amount of charge stored in C71. When the output of U40 reaches the negative potential determined by an internal adjustment R85, Q85 of the one shot multivibrator is turned off and Q75 turns on for a duration determined by the time constant of capacitor C74 and resistor R75. During this duration, the bucket capacitor C71 is discharged through diodes D71 and D72, and the clock U4 is disabled so it wil sychronize with the start of the next staircase. The output of U40 is fed through U56 and Q62 where it is inverted and reduced to a 1 V, low-impedance output signal.

An identical group of signal processing blocks consisting of a pulse shaper Q112, a ladel capacitor C118, an integrator Q140, U140, C171, and a gain stage U156, Q162, perform the same functions described above. However, in this case the pulse shaper gets its signal from the collector of Q75, and not from a clock as before. Again, every pulse charges a ladel capacitor, C118 through a bucket capacitor C171. When the output of U140 reaches the negative potential determined by R185, Q185 turns off and Q175 on for a duration determined by the value of C174 and R175. When this happens, the bucket capacitor C171 is discharged through D171. D172, and Q85 is turned off through D86, D87. Q75 is now on, disabling the clock.

This entire sequence is continually repeated whenever the CONT-READY-SINGLE switch is at CONT. When the switch is in the READY position, the output of the set-reset multivibrator U192 is low, biasing Q185 of the one-shot multivibrator off. This turns Q175 on, turning Q85 off. Q75 is now on, disabling the clock, and no signal is generated. When the CONT-READY-SINGLE control is momentarily switched to SINGLE, the set-reset multivibrator U192 is set, freeing Q185, and one complete sequence takes place. At the end of the sequence, Q185 is turned off resetting U192 through C189. This keeps Q185 off and no signal is generated.

The unblanking signal is generated from the clock pulse. The pulse is fed through a pulse shaper Q204 to a one-shot multivibrator Q215, Q222 and Q225. The unblanking duration is selected by the TIME/DOT SWITCH. The amplitude of this signal is determined by the value of resistor R230 as selected by the AMPLITUDE switch.

The linear ramp used to display lines is generated in the following manner. When the DOTS-LINES switch is at LINES, the bucket capacitor C71 is charged continuously through R25 rather than being charged in steps as noted previously for the staircase generator. In addition, the clock is disabled and the Z OUT unblanking signal is taken from the collector of Q85 instead for the clock.

MAINTENANCE AND CALIBRATION

MAINTENANCE

VISUAL INSPECTION

The instrument should be visually inspected occasionally for such defects as poor connections, broken or damaged ceramic strips, improperly seated transistors, and heat damaged parts. The remedy for most of these defects is obvious. But a heat damaged part is usually the symptom of some defect that is not obvious. The cause of overheating should be determined and corrected before the part is replaced, otherwise the damage may be repeated.

TRANSISTOR CHECKS

Periodic preventive maintenance checks on the transistors in the Type 067-0561-00 Calibration Fixture are not recommended. Satisfactory operation of the instrument in all respects is adequate assurance that the transistors are performing properly.

RECALIBRATION

To insure that the 067-0561-00 maintains its accuracy, check the calibration after each 500 hours of operation or every six months if used intermittently. Complete calibration instructions appear later in this section.

The calibration procedure can also be helpful in isolating troubles in the instrument. Also, minor troubles in the instrument that may not be apparent during normal operation may be revealed and corrected during calibration.

ORDERING PARTS

Many of the components in the Type 067-0561-00 Calibration Fixture are standard electronic parts that may be purchased locally. However, all standard parts in the instrument can be obtained from Tektronix through your local Tektronix Field Engineer or Field Office. Before ordering, consult the parts list of this manual to determine the value, tolerance, and rating required. Some of the parts used in the Type 067-0561-00 Calibration Fixture are not standard parts and may or may not be available for replacement. Consult any particular replacement with your local Tektronix Field Engineer or Field Office.

NOTES

CALIBRATION

INTRODUCTION

This portion of the manual contains a complete calibration procedure for the 067-0561-00 Calibration Fixture. The instrument will not often require a complete, start-from-scratch calibration, but will need occasional adjustments as components age or are replaced.

Calibration is a valuable part of preventive maintenance, since many types of minor troubles may be discovered and corrected before they become serious enough to disable the instrument. Also, certain troubles can be easily isolated to a particular section of the instrument by attempting calibration.

This section includes a list of all instruments required to calibrate the Type 067-0561-00 Calibration Fixture, a check out list, and a step-by-step calibration procedure.

It will be assumed in this manual that appropriate interconnections and necessary adapters are available.

It will also be assumed that a control will be left in the position indicated on the previous step unless otherwise indicated.

All front-panel control labels of the 067-0561-00 Calibration Fixture or test instruments are in capital letters (TIME/LINE), etc. Internal adjustment labels are identified by an R or C number (R335).

Equipment Required

1 Calibrated Tektronix Type 547 Oscilloscope

1 Calibrated Tektronix Type W Plug-In Unit

2 50 Ω BNC Cables, Tektronix PN 012-0057-01

1 Tektronix P6006 10X Passive Probe, PN 010-0128-00

1 Universal Counter-Timer, Computer Measurements Company Model 226BN or equivalent

1 Adjustable Autotransformer, General Radio Model W20MT3A or equivalent

1 20,000 Ω/V Multimeter, Triplett 630A or equivalent

CHECK OUT LIST

☐ 1. Check Power Supply Resistance to ground.

Supply	Approx. Resistance
+12 V	130 Ω
-12 V	80 Ω
+3.6 V	1 kΩ
-3.6 V	95 kΩ

☐ 2. (a) Check Accuracy, Regulation and Ripple of power supplies:

Supply	Accuracy and Regulation	Ripple
+12 V	1%	5 mV
+12 V	3%	5 mV
+3.6 V	5%	5 mV
-3.6 V	5%	5 mV

(b) Check Line Voltage Selector Switch for 230 V operation.

☐ 3. (a) Check the Dots/Line settings to within 2% of the selected value.

(b) Check the VARIABLE control for at least 60% of the calibrated Dots/Line setting.

☐ 4. Check the X:Y Staircase Levels

(a) Check the First Step Level for 0 V, within 20 mV.

(b) Check the Last Step Level for 1 V, within 20 mV.

CHECK OUT LIST (CONT)

- [ ] 5. Check the DOT-LINE Density to within 2%.
- [ ] 6. Check the X:Y HORIZ-Y:X VERT switching for proper operation.
- [ ] 7. Check the DC OFFSET range for at least +1 V to -1 V.
- [ ] 8. Check the TIME/LINE settings for the indicated time, within 10%.
- [ ] 9. Check the TIME/DOT settings for the indicated time, within 10%.
- [ ] 10. Check the AMPLITUDE settings for the indicated voltage, within 5%.
- [ ] 11. Check the Remote Program Test circuit for correct resistance and continuity.

CALIBRATION PROCEDURE

☐ 1. PRESET THE CONTROLS

a. Set the Test Display Generator controls as follows:

MODE	
CONT-READY-SINGLE	CONT
RASTER-SINGLE DOT	RASTER
DENSITY	
X:Y HORIZ - Y:X VERT	X:Y HORIZ
DOTS-LINES	DOTS 300:400
VARIABLE	CAL
TIME/DOT μs	20
AMPLITUDE VOLTS	1
TIME/LINE ms	3
DC OFFSET	OFF
OUTPUT SIGNAL SOURCE	INT
REMOTE PROGRAM TEST	
NON STORE-STORE-ERASE	NON STORE
VIEW	OFF
WRITE THROUGH	OFF
GATE OUTPUT (at rear)	
FAST-SLOW	FAST
Line Voltage Selector	115 V
SW7 (internal switch)	611 position (slide toward rear)

b. Set the Type 547 Oscilloscope controls as follows:

HORIZONTAL DISPLAY	B
MAIN TIME BASE	
TRIGGERING LEVEL	cw
TRIGGERING MODE	AUTO
TRIGGERING SLOPE	+
TRIGGERING COUPLING	AC
TRIGGERING SOURCE	NORM
TIME/CM	1 mSEC

c. With the Type W Plug-In Unit installed in the Type 547 Oscilloscope, set the controls as follows:

Vc RANGE	0
COMPARISION VOLTAGE	1.20
INPUT ATTEN	1
DISPLAY	A-Vc
MILLIVOLTS/CM	2
VARIABLE	CALIB

☐ 2. POWER SUPPLIES

a. Resistance

Check power supply resistance to ground (-polarity meter lead grounded)

Supply	Approx Resistance
+12	130 Ω
-12	80 Ω
+3.6	1 kΩ
-3.6	96 Ω

b. +12 V Supply

Connect the X10 probe to the TYPE W A input. Connect the probe to the +12 V supply and set the TYPE W Vc control to +11. Adjust R335 for 12 V (within 1%).

c. Supply Accuracy, Regulation and Ripple

Using the Type W at appropriate settings, check accuracy, regulation and ripple of supplies as indicated below while varying the Autotransformer from 104 VAC to 126 VAC.

Supply	Accuracy & Regulation	Ripple
+12	±1%	5 mV
-12	±3%	5 mV
+3.6	±5%	5 mV
-3.6	±5%	5 mV

d. Line Voltage Selector Switch

Connect a multimeter across pins 6 and 7 of the power transformer and note meter reading (approx 16 VAC with Autotransformer set at 115 VAC). Set the Line Voltage Selector switch to 230 V. The meter reading should be approximately half of that noted previously. Return the Line Voltage Selector to 115 V.

☐ 3. CLOCK PERIOD

a. Setup

Set the TYPE W Vc RANGE to 0, Input ATTEN to 10, MILLIVOLTS/CM to 50. Set the test scope B TIME/CM to μSEC. Connect the X10 probe to the collector of Q12, set the test scope B TRIGGERING MODE to TRIG and adjust the TRIGGERING LEVEL for a stable display.

b. Adjust clock for a period of 35 μs (within 10%)

While observing the test scope display adjust R5 for a period of 35 μs (3.5 cm). Set the B TIME/CM to 2 μSEC and note the pulse width. Set SW7 to the 601 position. The pulse width should be approximately half. Return SW7 to the 611 position. Remove the probe.

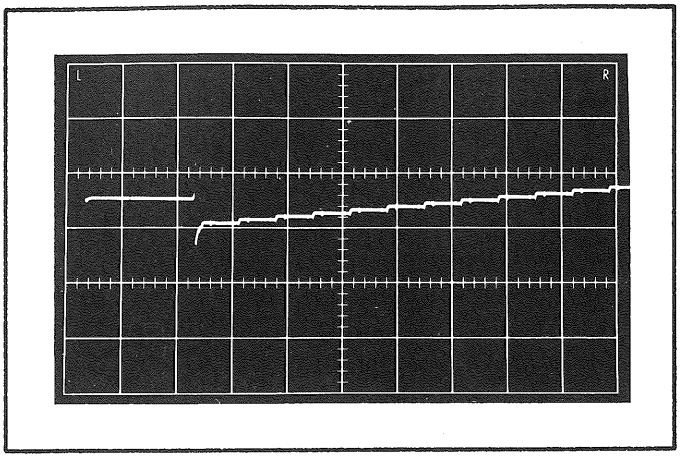


Fig. 6a

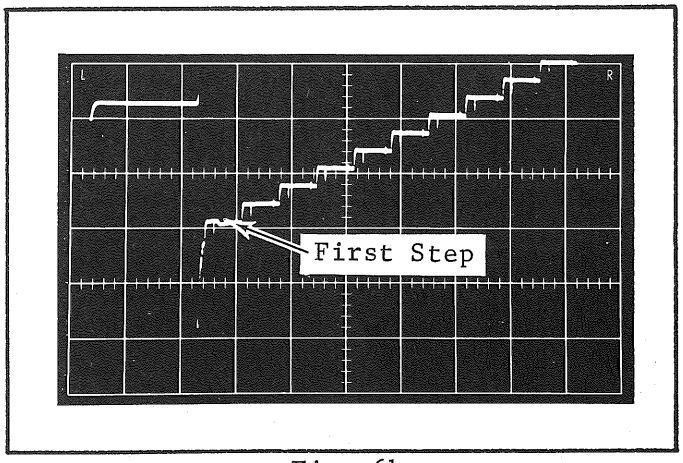


Fig. 6b

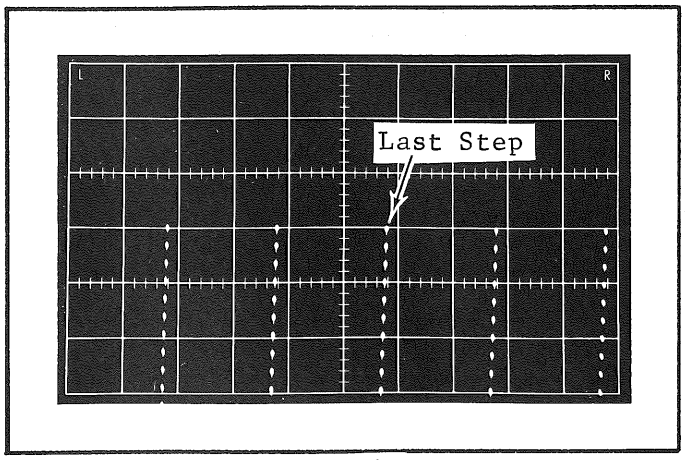


Fig. 6c

☐ 4. X:Y STAIRCASE LEVELS

a. Setup

Remove the X10 probe from the TYPE W A input. Connect a 50 Ω cable from the A input to the X OUT connector on the Test Display Generator. Set the INPUT ATTEN to 1. Connect a 50 Ω cable from the test scope B TRIGGER INPUT to the Test Display Generator GATE OUTPUT. Set the B TRIGGERING SOURCE to EXT and set TIME/CM to 50 μsec. A staircase display like that shown in Fig. 6a should be obtained. (R39 and R85 may have to be adjusted to bring the display on screen).

b. Adjust First Step Level to 0 V (within 20 mV)

Set the TYPE W A AC-DC-GND to GND and set MILLIVOLTS/CM to 10. Position the trace to center graticule line. Return the switch to DC. Adjusting R39, place the first step of the staircase to the center graticule line (see Fig. 6b).

c. Adjust Last Step Level to 1 V (within 20 mV)

Set the TYPE W COMPARISON VOLTAGE control to 1.00 and the Vc RANGE to +11. Set B TIME/CM to 5 mSEC. Adjust R85 to place the last step to the center graticule line as shown in Fig. 6c.

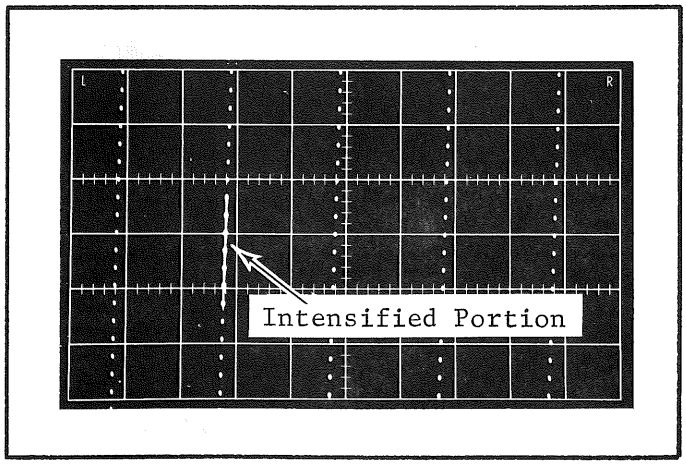


Fig. 7a The display will vary slightly depending upon the preset settings of the frequency compensations.

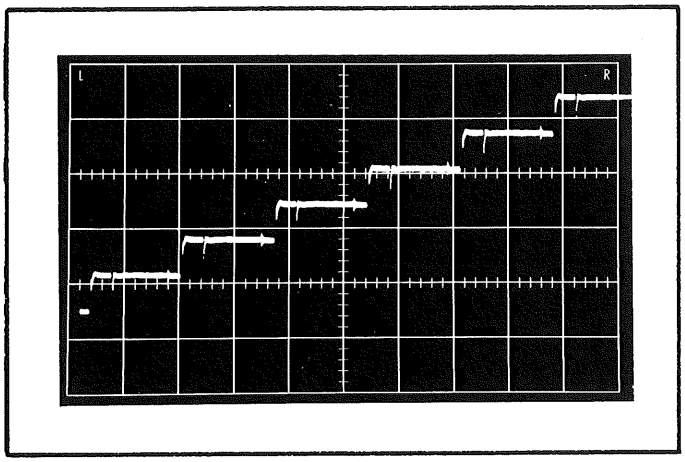


Fig. 7b

☐ 5. X:Y STAIRCASE FREQUENCY COMPENSATION

a. Setup

Set the TYPE W COMPARISION VOLTAGE to 0.50. Set the test scope HORIZONTAL DISPLAY to B INTENS by "A".

Set the A TRIGGERING MODE to AUTO STABILITY and A TIME/CM to 20 μSEC. Adjust the DELAY TIME MULTIPLIER to obtain an intensified portion of the display (see figure 7a). Set the HORIZONTAL DISPLAY to A DLY'D and the TYPE W MILLIVOLTS/CM to 5 to obtain a display as shown in figure 7b.

b. Adjust X:Y Frequency Compensation

Adjust C43, C57 and C58 for minimum aberration of the leading edge of the step waveform. See figure 7b.

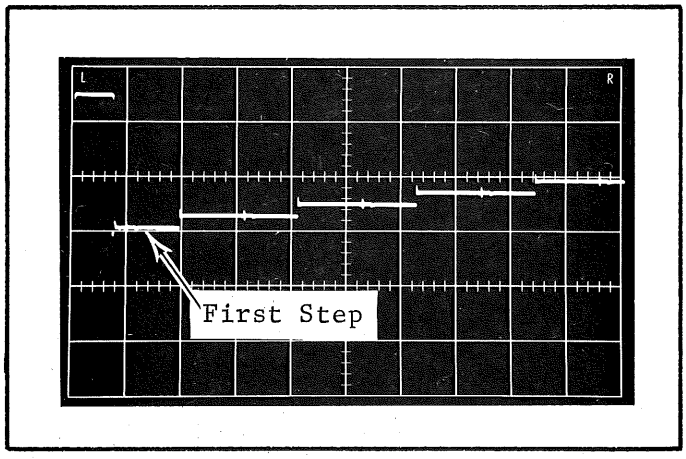


Fig. 8a

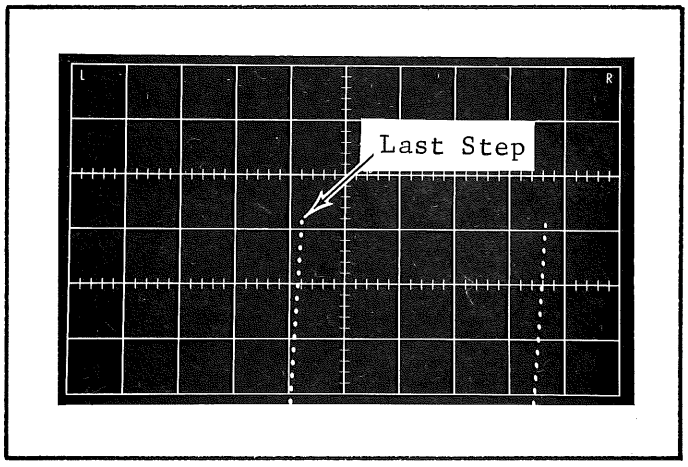


Fig. 8c

☐ 6. Y:X STAIRCASE LEVEL

a. Setup

Set the scope HORIZONTAL DISPLAY to B and the B TIME/CM to 0.1 mSEC. Set the TYPE W Vc RANGE to 0 and COMPARISON VOLTAGE to 1.00. Set MILLIVOLTS/CM to 10. Set the Test Display Generator X:Y HORIZ - Y:X VERT to Y:X VERT and the GATE OUTPUT (in rear) to SLOW. Set DOT/LINES to LINES and TIME/LINE ms to 0.1. A display like that shown in Fig. 8a should be obtained (R139 may have to be adjusted to bring the display on screen).

b. Adjust First Step Level to 0 V (within 20 mV)

Set the TYPE W A AC-DC-GND switch to GND and position the

b. Adjust First Step Level to 0 V (within 20 mV) (cont)

trace to the center graticule line. Return the switch to DC. Adjust R139 to place the first step of the staircase to the center graticule line (see Fig. 8a).

c. Adjust Last Step Level to 1 V (within 20 mV)

Set the Type W Vc RANGE to +11 and the scope B TIME/CM to 20 mSEC. Adjust R185 to place the last step to the center graticule line (see Fig. 8c).

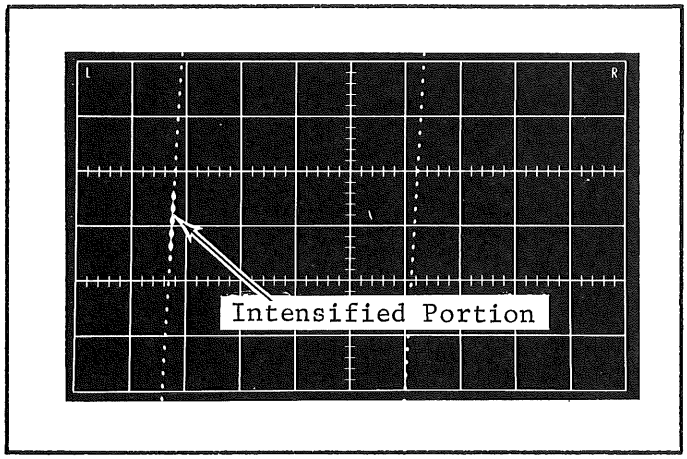


Fig. 9a

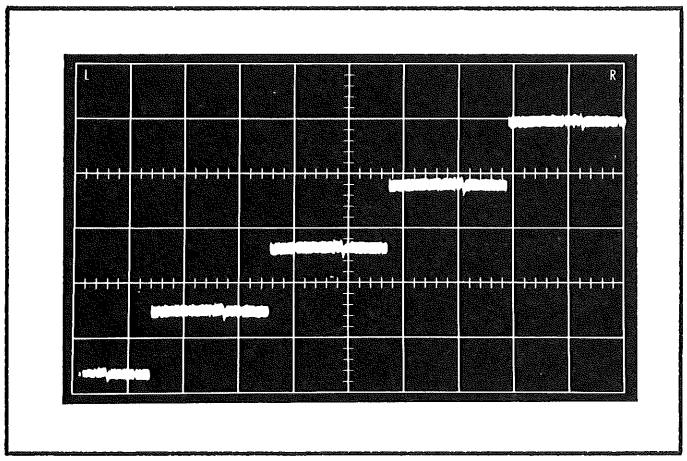


Fig. 9b

☐ 7. Y:X FREQUENCY COMPENSATION

a. Setup

Set the TYPE W COMPARISON VOLTAGE to 0.50. Set the scope HORIZONTAL DISPLAY to B INTENS by "A". Set the A TIME/CM to 0.1 mSEC. Adjust the DELAY-TIME MULTIPLIER to obtain an intensified portion of the display (see Fig. 9a). Set the HORIZONTAL DISPLAY to A DLY'D and the TYPE W MILLIVOLTS/CM to 2 to obtain a display as shown in Fig. 9b.

b. Adjust Y:X Frequency Compensations

Adjust C143, C157 and C158 for minimum aberration of the leading edge of the step waveform (see Fig. 9b). Remove the 50 Ω cable from the TYPE W and Test Display Generator X OUT connector. Remove the GATE OUTPUT from the scope TRIGGER INPUT. Set TIME/LINE ms to 3.

☐ 8. DOTS-LINES DENSITY

a. Setup

Connect a 50 Ω cable from the Test Display Generator Z OUT to the A connector on the Universal Counter-Timer. Connect a 50 Ω cable from the GATE OUTPUT to the B connector. Set DOTS-LINES to LINES and X:Y HORIZ-Y:X VERT to X:Y HORIZ. Set TIME/LINE ms to 3 and DENSITY to 100.

Set the counter controls as follows: TRIGGER LEVEL controls, ccw; START B, -50; FREQ A, -50; B SLOPE +-, to -; GATE ON - AUTOMATIC, GATE ON; DISPLAY, midrange; FUNCTION, $\frac{A}{B}$. Rotate the A TRIGGER LEVEL cw until the counter starts counting and note the setting. Continue rotating cw until the counter stops counting. Set the control half-way between the two levels. Set GATE ON - AUTOMATIC TO AUTOMATIC. The counter should stop counting. Rotate the B TRIGGER LEVEL cw until the counter again begins to count. The counter should now count, display for a short duration, reset and repeat.

b. Adjust Dot-Line Density (within 2%)

Adjust C118F for a counter indication of 100. Set DOTS-LINES to DOTS and GATE OUTPUT to FAST. Adjust C18D for an indication of 125. Set DOTS-LINES to LINES, DENSITY to 400 and GATE OUTPUT to SLOW. Adjust C118C for an indication of 400. Set DOTS-LINES to DOTS, GATE OUTPUT to FAST and adjust C18A for an indication of 300.

Set DOTS-LINES to LINES, DENSITY to 25 and GATE OUTPUT to SLOW. Check for an indication of 25 ±2 counts.

c. Check Variable Density Control

Rotate the VARIABLE DENSITY control full ccw. Check the counter for an indication of equal to or less than 15. Set DENSITY to 100 and check for 60 or less. Set DENSITY to 400 and check for 240 or less. Set DOTS-LINES to DOTS and GATE OUTPUT to FAST. Check for an indication of 180 or less. Set DENSITY to 125:100 and check for 75 or less. Return VARIABLE DENSITY to CAL. Remove the Z OUT and GATE OUTPUT cable from the counter.

☐ 9. TIME/DOT μs and TIME/LINE ms.

a. Setup

Set the TYPE W Vc RANGE to 0, INPUT ATTEN to 10 amd MILLIVOLTS/CM to 50. Connect a 50 Ω cable from the Test Display Generator Z OUT to the TYPE W A input. Set the scope B TIME/CM to 10 μSEC, TRIGGERING SOURCE to NORM and adjust TRIGGERING LEVEL for a stable display.

b. Check TIME/DOT μs (within 10%)

Check the displayed pulse width to be 20 μs (2 cm) ±10%. Set TIME/DOT μs to 9 and the scope B TIME/CM to 5 μSEC. Check the pulse width to be 9 μs (1.8 cm) ±10%. Set TIME/DOT μs to 5 and the scope B TIME/CM to 1 μSEC. Check The pulse width to be 1 μs (5 cm) ±5%. Set TIME/DOT μs to 20.

c. Check TIME/LINE ms (within 10%)

Set the Test Display Generator DOTS-LINES to LINES and the test scope B TIME/CM to 1 mSEC. Check for a pulse width of 3 ms (3 cm) ±5%. Set TIME/LINE ms to 4 and check for a pulse width of 4 ms (4 cm) ±10%.

Set TIME/LINE ms to 10 and check for a pulse width of 10 ms to 2 and test scope B TIME/CM to 0.5 mSEC. Check for a pulse width of 2 ms (4 cm) ±10%. Set TIME/LINE ms to 0.1 and test scope B TIME/CM to 20 μSEC. Check for a pulse width of 0.1 ms (5 cm) ±10%. Set TIME/LINE ms to 3.

d. Check Single Sweep

Set RASTER-SINGLE DOT to SINGLE DOT and CONT-READY-SINGLE to READY. Depress to SINGLE and note that display consists of a single positive pulse of approximately 20 μs. Set RASTER-SINGLE DOT to RASTER and CONT-READY-SINGLE to CONT.

☐ 10. AMPLITUDE VOLTS

Set DOTS-LINES to DOTS and adjust test scope TRIGGERING LEVEL for a stable display. Using the TYPE W POSITION control, place the bottom of the display to the center graticule line. Set Vc RANGE to +11 and COMPARISON VOLTAGE to 1.00. Set the INPUT ATTEN to 1 and check that top of waveform is within 1 cm of center graticule line.

Set Vc RANGE to 0, COMPARISON VOLTAGE to 0.75 and INPUT ATTEN to 10. Set the Test Display Generator AMPLITUDE VOLTS to 0.75. Set the bottom of the waveform to the center graticule line. Set Vc RANGE to +11 and INPUT ATTEN to 1. Check that top of waveform is within 0.75 cm of graticule center. Set Vc RANGE to 0, COMPARISON VOLTAGE to 0.50, INPUT ATTEN to 10. Set the Test Display Generator AMPLITUDE VOLTS to 0.5. Set the bottom of the waveform to the graticule center. Set Vc RANGE to +11, INPUT ATTEN to 1 and MILLIVOLTS/CM to 10. Check that top of waveform is within 2.5 cm of graticule center. Set Vc RANGE to 0 and AMPLITUDE VOLTS to 1. Remove the cable from the TYPE W and Z OUT connector.

☐ 11. X:Y HORIZ - Y:X VERT SWITCHING

a. Setup

Connect a 50 Ω cable from the TYPE W A input to the Test Display Generator X OUT. Set the TYPE W INPUT ATTEN to 10 and MILLIVOLTS/CM to 1 mSEC. Adjust TRIGGERING LEVEL for a stable display.

b. Check X:Y Horiz - Y:X Vert Switching

Note several cycles of a 1 volt sawtooth display. Set X:Y HORIZ - Y:X VERT to Y:X VERT and set the test scope B TIME/CM to 0.1 SEC. Again note several cycles of a 1 volt sawtooth display.

Connect the 50 Ω cable to the Y OUT connector and repeat.

c. Check Single Sweep

Set X:Y HORIZ - Y:X VERT to X:Y HORIZ and CONT-READY-SINGLE to READY. Set scope B TIME/CM to 0.2 SEC and TRIGGERING MODE to AUTO Depress to SINGLE and note a single sawtooth display.

☐ 12. DC OFFSET

a. Setup

Set the test scope B TIME/CM to 1 mSEC and free-run the sweep. Set the TYPE W A AC-DC-GND switch to GND and position the trace to the center graticule line.

b. Check DC Offset Range (at least + and -1 V)

Set the TYPE W AC-DC-GND switch to DC. Rotate the Y DC OFFSET control full cw and note that the trace moves in the positive direction a minimum of 2 cm from the graticule center. Rotate the control fully ccw and note that trace moves in the negative direction a minimum of 2 cm from the graticule center.

Connect the 50 Ω cable to the X OUT connector and repeat using the X DC OFFSET control. Remove the 50 Ω cable from the X OUT connector.

13. REMOTE PROGRAM TEST

Using the multimeter, check for continuity between pin 4 of the Remote Program Test connector and Z OUT. Check continuity between pin 15 and Y OUT. Check continuity between pin 1 and X OUT. Check continuity between ground and pins 2, 3, 5, 14, 16, and 17.

Connect the negative meter lead to ground and positive lead to pin 6. Check for approximately 1500 Ω. Set the NON STORE-STORE-ERASE switch to STORE and note that the meter reads infinity. Connect the positive lead to pin 18, depress the switch to ERASE and again note a meter reading of approximately 1500 Ω. Return the switch to NON STORE.

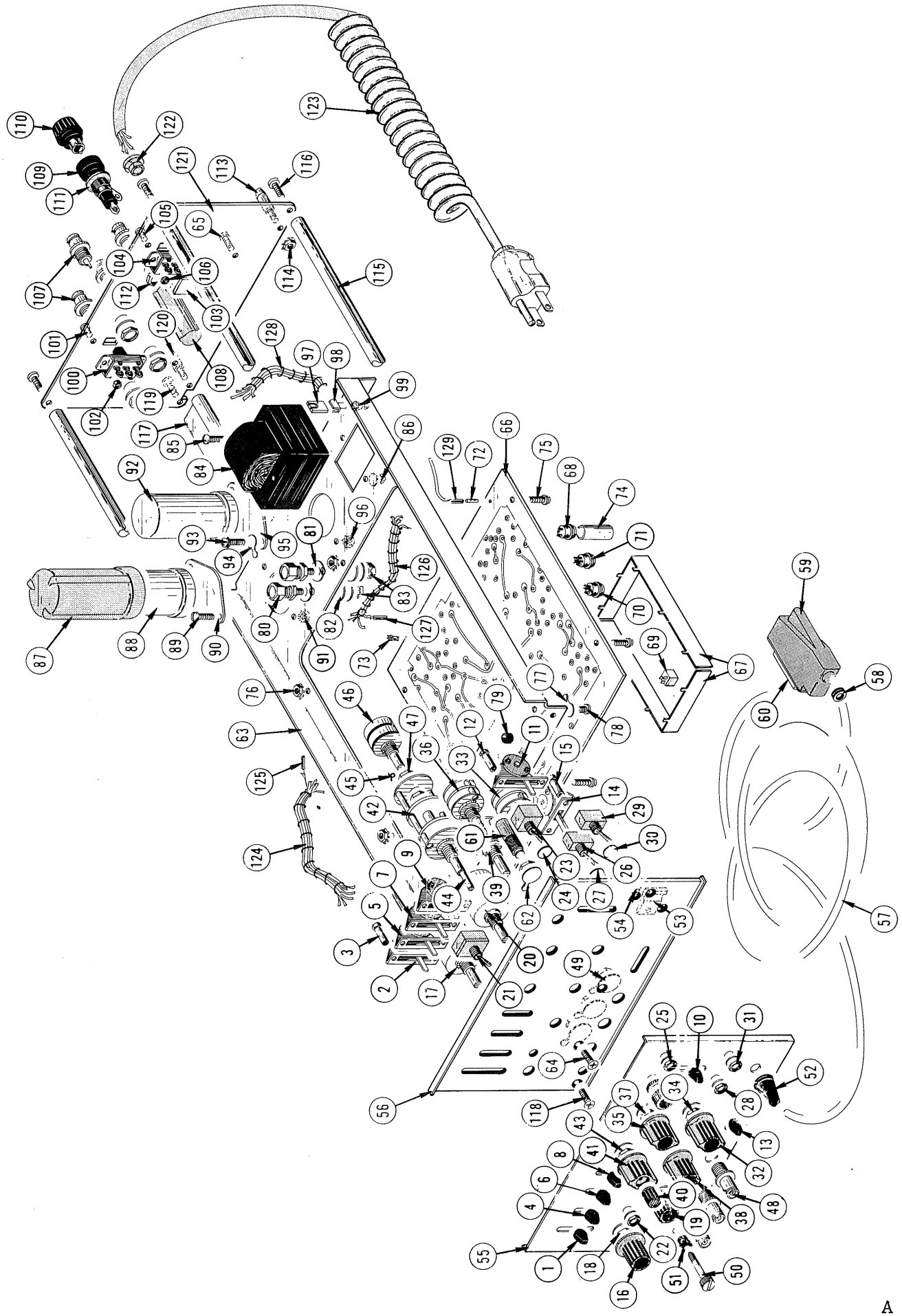
Connect the meter lead to pin 8. The meter should indicate infinity. Set the WRITE THROUGH-OFF switch to WRITE THROUGH. The meter should indicate approximately 1500 Ω. Set WRITE THROUGH-OFF to OFF.

Connect the meter lead to pin 20. The meter should indicate infinity. Set the VIEW-OFF switch to VIEW. The meter should indicate approximately 1500 Ω. Set VIEW-OFF to OFF.

14. OUTPUT SIGNAL SOURCE

Shut the Test Display Generator power off. Set the OUTPUT SIGNAL SOURCE switch to EXT. With the multimeter, check continuity between X OUT, Y OUT, Z OUT and the X IN, Y IN, and Y IN connectors. Set the OUTPUT SIGNAL SOURCE switch to INT and check for loss of continuity.

FIG. 1 EXPLODED



MECHANICAL PARTS LIST TYPE 067-0561-00

FIG. 1 EXPLODED

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty 1 2 3 4 5	Description
1-1	366-0215-02			1	KNOB, lever -- CONT READY SINGLE
-2	260-1057-00			1	SWITCH, lever -- CONT READY SINGLE
	- - - - - -			-	mounting hardware: (not included w/switch)
-3	220-0413-00			2	NUT, switch mounting
-4	366-0215-02			1	KNOB, lever -- RASTER SINGLE DOT
-5	260-0711-00			1	SWITCH, lever -- RASTER SINGLE DOT
	- - - - - -			-	mounting hardware: (not included w/switch)
	220-0413-00			2	NUT, switch mounting
-6	366-0215-02			1	KNOB, lever -- X:Y HORIZ Y:X VERT
-7	260-0472-00			1	SWITCH, lever -- X:Y HORIZ Y:X VERT
	- - - - - -			-	mounting hardware: (not included w/switch)
	220-0413-00			2	NUT, switch mounting
-8	366-0215-02			1	KNOB, lever -- DOTS LINES
-9	260-0711-00			1	SWITCH, lever -- DOTS LINES
	- - - - - -			-	mounting hardware: (not included w/switch)
	220-0413-00			2	NUT, switch mounting
-10	366-0215-02			1	KNOB, lever, -- NON-STORE STORE ERASE
-11	260-0501-00			1	SWITCH, lever -- NON-STORE STORE ERASE
	- - - - - -			-	mounting hardware: (not included w/switch)
-12	220-0413-00			2	NUT, switch mounting
-13	366-0215-02			1	KNOB, lever -- OUTPUT SIGNAL SOURCE
-14	260-0711-00			1	SWITCH, lever -- OUTPUT SIGNAL SOURCE
	- - - - - -			-	mounting hardware: (not included w/switch)
-15	220-0413-00			2	NUT, switch mounting
-16	366-1024-00			1	KNOB, gray -- DC OFFSET X
	- - - - - -			-	knob includes:
	213-0153-00			2	SCREW, set, 5-40 x 0.125 inch, HSS

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-17	- - - - - -			1		RESISTOR, variable
	- - - - - -			-		mounting hardware: (not included w/resisto)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
-18	210-0590-00			1		NUT, hex., 3/8-32 x 7/16 inch
-19	366-1024-00			1		KNOB, gray -- DC OFFSET Y
	- - - - - -			-		knob includes:
	213-0153-00			2		SCREW, set, 5-40 x 0.125 inch, HSS
-20	- - - - - -			1		RESISTOR, variable
	- - - - - -			-		mounting hardware: (not included w/resistor)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
	210-0590-00			1		NUT, hex., 3/8-32 x 7/16 inch
-21	260-0511-00			1		SWITCH, toggle -- DC OFFSET ON OFF
	- - - - - -			-		mounting hardware: (not included w/switch)
	210-0940-00			1		WASHER, flat, 1/4 ID x 3/8 inch OD
-22	210-0583-00			1		NUT, hex., 1/4-32 x 5/16 inch
-23	260-0834-00			1		SWITCH, toggle -- POWER
	- - - - - -			-		mounting hardware: (not included switch)
-24	210-0046-00			1		LOCKWASHER, internal, 0.261 ID
	- - - - - -			-		x 0.400 inch OD
	210-0940-00			1		WASHER, flat, 1/4 ID x 3/8 inch OD
-25	210-0583-00			1		NUT, hex., 1/4-32 x 5/16 inch
-26	260-0613-00			1		SWITCH, toggle -- VIEW OFF
	- - - - - -			-		mounting hardware: (not included w/switch)
-27	210-0046-00			1		LOCKWASHER, internal, 0.261 ID
	- - - - - -			-		x 0.400 inch OD
	210-0940-00			1		WASHER, flat, 1/4 ID x 3/8 inch OD
-28	210-0583-00			1		NUT, hex., 1/4-32 x 5/16 inch
-29	260-0613-00			1		SWITCH, toggle -- WRITE THROUGH OFF
	- - - - - -			-		mounting hardware: (not included w/switch)
-30	210-0046-00			1		LOCKWASHER, internal, 0.261 ID
	- - - - - -			-		x 0.400 inch OD
	210-0940-00			1		WASHER, flat, 1/4 ID x 3/8 inch OD
-31	210-0583-00			1		NUT, hex., 1/4-32 x 5/16 inch

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-32	366-1028-00			1		KNOB, gray -- AMPLITUDE VOLTS
	- - - - - -			-		knob includes:
	213-0153-00			2		SCREW, set, 5-40 x 0.125 inch, HSS
-33	260-1059-00			1		SWITCH, unwired -- AMPLITUDE VOLTS
	- - - - - -			-		mounting hardware: (not included w/switch)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
-34	210-0413-00			1		NUT, hex., 3/8-32 x 1/2 inch
-35	366-1028-00			1		KNOB, gray -- TIME/DOT μs
	- - - - - -			-		knob includes:
	213-0153-00			2		SCREW, set, 5-40 x 0.125 inch, HSS
-36	260-1059-00			1		SWITCH, unwired -- TIME/DOT μs
	- - - - - -			-		mounting hardware: (not included w/switch)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
-37	210-0413-00			1		NUT, hex., 3/8-32 x 1/2 inch
-38	366-1028-00			1		KNOB, gray -- TIME/LINE ms
	- - - - - -			-		knob includes:
	213-0153-00			2		SCREW, set, 5-40 x 0.125 inch, HSS
-39	260-1058-00			1		SWITCH, unwired -- TIME/LINE ms
	- - - - - -			-		mounting hardware: (not included w/switch)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
	210-0413-00			1		NUT, hex., 3/8-32 x 1/2 inch
-40	366-1031-00			1		KNOB, red -- CAL
	- - - - - -			-		knob includes:
	213-0153-00			1		SCREW, set, 5-40 x 0.125 inch, HSS
-41	366-1029-00			1		KNOB, gray -- DENSITY
	- - - - - -			-		knob includes:
	213-0153-00			2		SCREW, set, 5-40 x 0.125 inch, HSS
-42	260-1056-00			1		SWITCH, unwired -- DENSITY
	- - - - - -			-		mounting hardware: (not included w/switch)
	210-0840-00			1		WASHER, flat, 0.390 ID x 9/16 inch OD
-43	210-0413-00			1		NUT, hex., 3/8-32 x 1/2 inch

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-44	384-0464-00			1		SHAFT, extension, 3 1/8 inches long
-45	376-0014-00			1		COUPLING
-46	- - - - - -			1		RESISTOR, variable
	- - - - - -			-		mounting hardware: (not included w/resistor)
-47	210-0590-00			2		NUT, hex., 3/8-32 x 7/16 inch
-48	131-0106-00			3		CONNECTOR, coaxial, 1 contact, BNC
	- - - - - -			-		w/hardware
	- - - - - -			-		mounting hardware for each: (not included
	- - - - - -			-		w/connector)
-49	210-0255-00			1		LUG, solder, 3/8 inch diameter
-50	214-0553-00			1		LATCH SCREW
-51	358-0255-00			1		BUSHING, latch screw
-52	358-0314-00			1		BUSHING, strain relief
-53	343-0081-00			1		CLAMP, cable
	- - - - - -			-		mounting hardware: (not included w/clamp)
-54	210-0407-00			1		NUT, hex., 6-32 x 1/4 inch
-55	333-1103-01			1		PANEL, front
-56	386-1461-00			1		SUB-PANEL, front
-57	175-1030-00			FT		CABLE, special purpose, 4 feet long
-58	348-0003-00			1		GROMMET, rubber, 5/16 inch diameter
-59	200-0821-00			1		COVER, connector
-60	131-0570-00			1		CONNECTOR, receptacle, 25 pin w/hardware
-61	136-0164-00			1		SOCKET, light, w/hardware
	- - - - - -			-		mounting hardware: (not included w/socket)
-62	210-0255-00			1		LUG, solder, 3/8 inch diameter
-63	441-0809-00			1		CHASSIS
	- - - - - -			-		mounting hardware: (not included w/chassis)
-64	211-0559-00			3		SCREW, 6-32 x 3/8 inch, 100° csk, FHS
-65	211-0504-00			3		SCREW, 6-32 x 1/4 inch, PHS

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-66	670-0612-00			1		ASSEMBLY, circuit board
	- - - - - -			-		assembly includes:
	388-1038-00			1		BOARD, circuit
-67	337-1090-01			2		SHIELD
-68	136-0183-00			4		SOCKET, transistor, 3 pin
-69	136-0220-00			22		SOCKET, transistor, 3 pin
-70	136-0235-00			1		SOCKET, transistor, 6 pin
-71	136-0237-00			6		SOCKET, transistor, 8 pin
-72	131-0633-00			62		TERMINAL, pin
-73	131-0639-00			6		CONTACT, electrical
-74	214-0269-00			1		HEAT SINK
	- - - - - -			-		mounting hardware: (not included w/assembly)
-75	211-0602-00			6		SCREW, sems, 6-32 x 0.438 inch, PHB
-76	210-0457-00			6		NUT, keps, 6-32 x 5/16 inch
-77	210-0201-00			1		LUG, solder, SE #4
	- - - - - -			-		mounting hardware: (not included w/lug)
-78	213-0044-00			1		SCREW, thread forming, 5-32 x 3/16 inch, PHS
-79	348-0055-00			2		GROMMET, plastic, 1/4 inch diameter
-80	214-0289-00			2		HEAT SINK
	- - - - - -			-		mounting hardware for each:
	- - - - - -			-		(not included w/heat sink)
-81	210-0909-00			1		WASHER, mica, 0.196 ID x 0.625 inch OD
-82	210-0813-00			1		WASHER, fiber, shouldered, #10
	210-0805-00			1		WASHER, flat, #10
-83	220-0410-00			1		NUT, keps, 10-32 x 3/8 inch
-84	- - - - - -			1		TRANSFORMER
	- - - - - -			-		mounting hardware: (not included
	- - - - - -			-		w/transformer)
-85	211-0021-00			2		SCREW, 4-40 x 1 1/4 inches, PHS
	210-0004-00			2		LOCKWASHER, internal, #4
-86	210-0406-00			2		NUT, hex., 4-40 x 3/16 inch

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-87	200-0293-00			1		COVER, capacitor, plastic, 1.365 ID
	- - - - - -			-		x 2 9/16 inches long
-88	- - - - - -			1		CAPACITOR
	- - - - - -			-		mounting hardware: (not included
	- - - - - -			-		w/capacitor)
-89	211-0543-00			2		SCREW, 6-32 x 5/16 inch, RHS
-90	386-0254-00			1		PLATE, fiber, large
-91	210-0457-00			2		NUT, keps, 6-32 x 5/16 inch
-92	- - - - - -			1		CAPACITOR
	- - - - - -			-		mounting hardware: (not included
	- - - - - -			-		w/capacitor)
-93	211-0534-00			2		SCREW, sems, 6-32 x 5/16 inch, PHS
-94	210-0202-00			1		LUG, solder, SE #6
-95	386-0255-00			1		PLATE, metal, large
-96	210-0457-00			2		NUT, keps, 6-32 x 5/16 inch
-97	124-0118-00			1		STRIP, ceramic, 7/16 inch h, w/ 1 notch
	- - - - - -			-		strip includes:
-98	355-0046-00			1		STUD, plastic
	- - - - - -			-		mounting hardware: (not included w/strip)
-99	361-0007-00			1		SPACER, plastic, 5/32 inch long
-100	260-0449-00			1		SWITCH, slide -- FAST SLOW
	- - - - - -			-		mounting hardware: (not included w/switch)
-101	211-0007-00			2		SCREW, 4-40 x 3/16 inch, PHS
-102	210-0406-00			2		NUT, hex., 4-40 x 3/16 inch
-103	337-1036-00			1		SHIELD, switch
-104	260-0675-00			1		SWITCH, slide -- 115V 230V
	- - - - - -			-		mounting hardware: (not included w/switch)
-105	211-0007-00			2		SCREW, 4-40 x 3/16 inch, PHS
-106	210-0406-00			2		NUT, hex., 4-40 x 3/16 inch
-107	131-0106-00			4		CONNECTOR, coaxial, 1 contact, BNC,
	- - - - - -			-		w/hardware
-108	200-0582-00			1		COVER, fuse holder

FIG. 1 EXPLODED (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
1-	352-0002-00			1		ASSEMBLY, fuse holder
	- - - - - -			-		assembly includes:
-109	352-0010-00			1		HOLDER, fuse
-110	200-0582-00			1		CAP, fuse, black
-111	210-0873-00			1		WASHER, rubber, 1/2 ID x 11/16 inch OD
-112	- - - - - -			1		NUT
-113	214-0860-00			1		PIN, guide
	- - - - - -			-		mounting hardware: (not included w/pin)
-114	210-0458-00			1		NUT, keps, 8-32 x 11/32 inch
-115	384-0615-00			3		ROD, spacer
	- - - - - -			-		mounting hardware for each: (not included
	- - - - - -			-		w/rod)
-116	212-0023-00			1		SCREW, 8-32 x 3/8 inch, PHS
-117	351-0096-00			1		GUIDE, rail
	- - - - - -			-		mounting hardware: (not included w/guide)
-118	211-0538-00			2		SCREW, 6-32 x 5/16 inch, 100° csk, FHS
-119	212-0023-00			1		SCREW, 8-32 x 3/8 inch, PHS
-120	214-0680-00			1		PIN, guide
-121	386-1462-00			1		PANEL, rear
-122	358-0161-00			1		BUSHING, strain relief
-123	161-0046-00			1		CABLE ASSEMBLY, power, coiled
-124	179-1347-00			1		CABLE HARNESS, chassis
	- - - - - -			-		cable harness includes:
-125	131-0371-00			23		CONNECTOR, single contact
-126	179-1348-00			1		CABLE HARNESS, capacitor
	- - - - - -			-		cable harness includes:
-127	131-0371-00			27		CONNECTOR, single contact
-128	179-1349-00			1		CABLE HARNESS, power
-129	131-0371-00			8		CONNECTOR, single contact

FIG. 2 CABINET

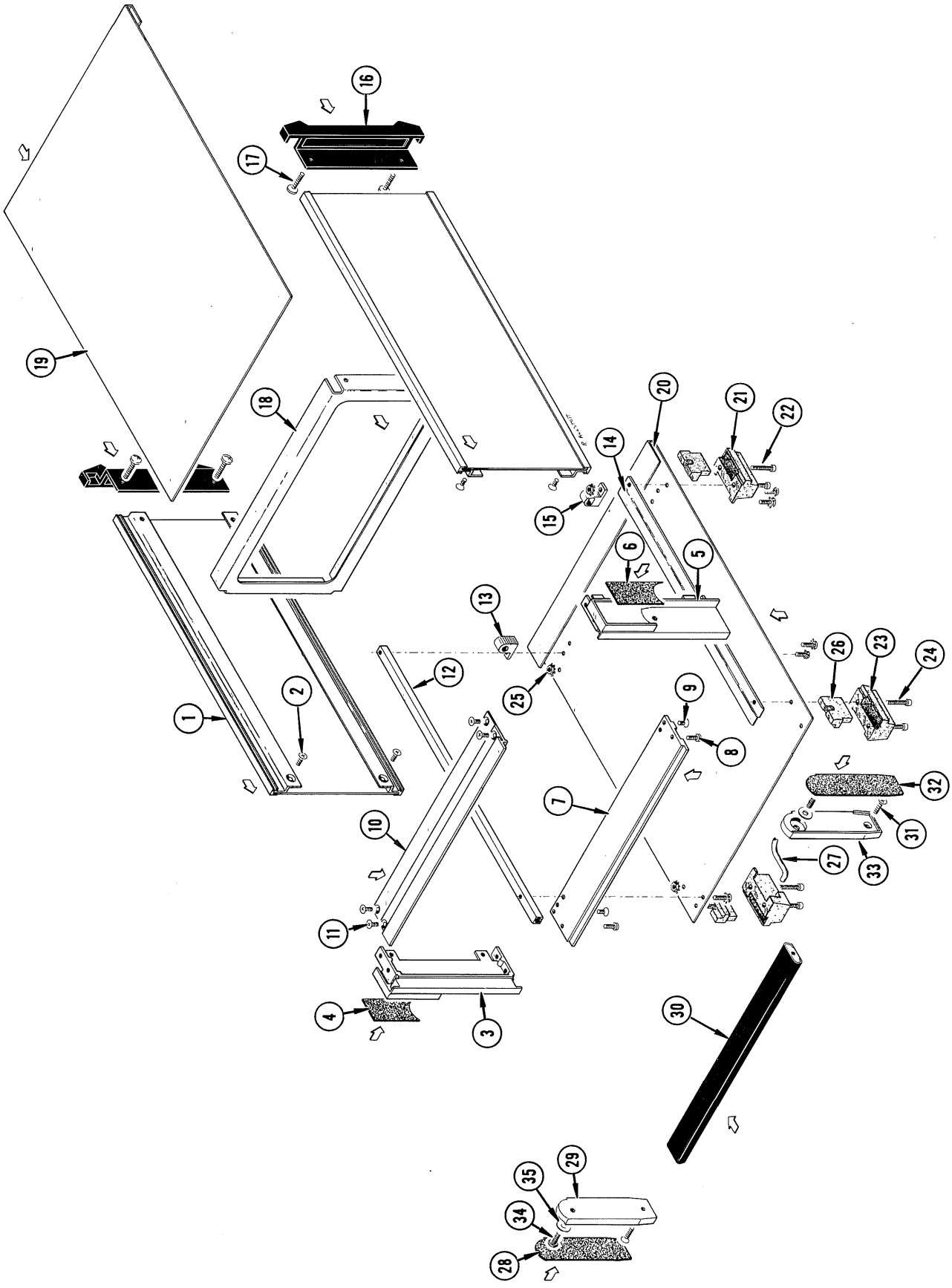


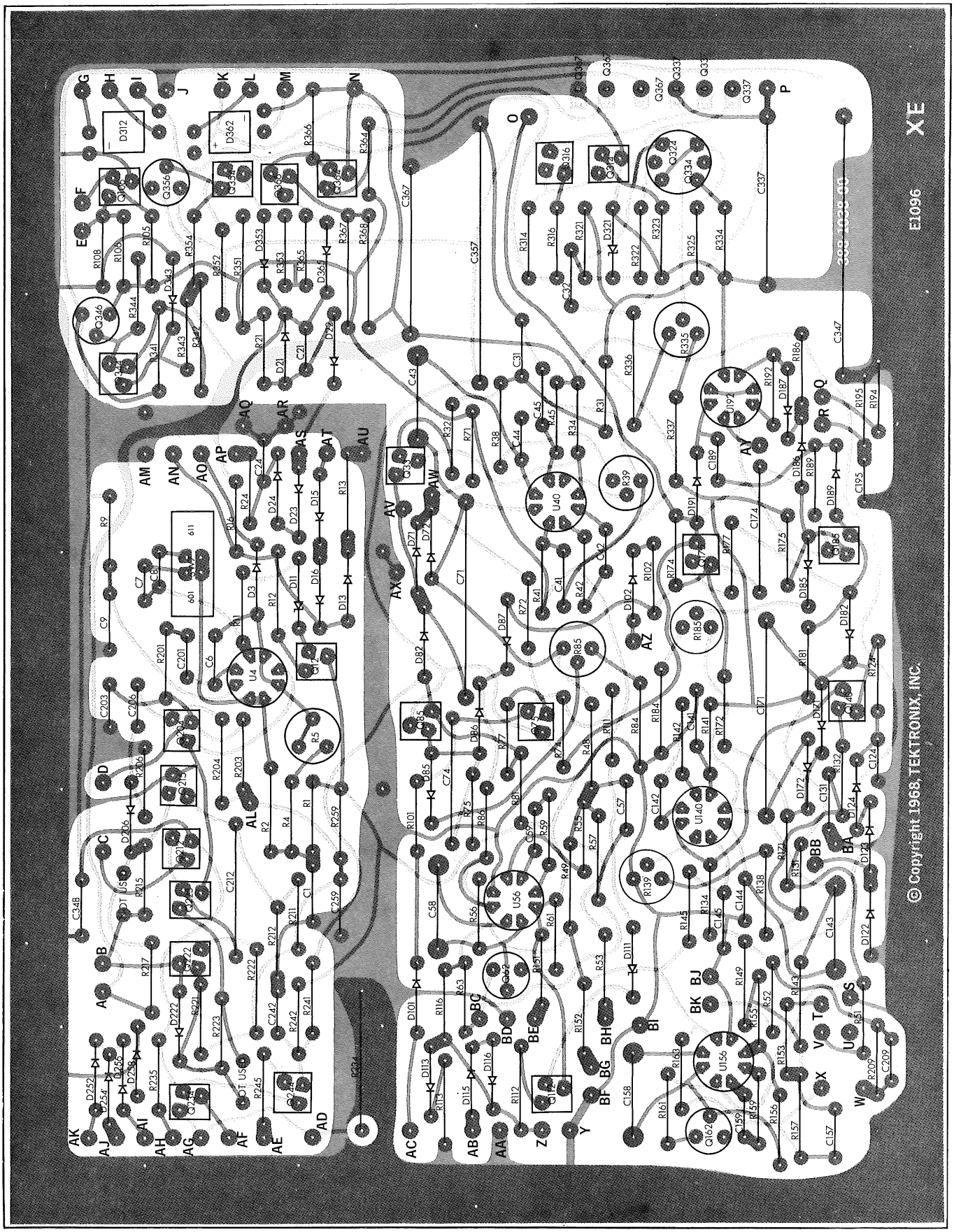
FIG. 2 CABINET

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
2-	437-0078-00			1		CABINET
	- - - - - -			-		cabinet includes:
-1	386-0141-00			2		PLATE, side
	- - - - - -			-		mounting hardware for each:
	- - - - - -			-		(not included w/plate)
-2	212-0002-00			2		SCREW, 8-32 x 1/4 inch, FHS
-3	426-0253-00			1		FRAME, front, left
-4	377-0121-00			1		INSERT, frame, left
-5	426-0252-00			1		FRAME, front, right
-6	377-0120-00			1		INSERT, frame, right
-7	426-0254-00			1		FRAME, front, bottom
	- - - - - -			-		mounting hardware: (not included w/frame)
-8	212-0004-00			2		SCREW, 8-32 x 5/16 inch, PHS
-9	212-0002-00			2		SCREW, 8-32 x 1/4 inch, FHS
-10	426-0255-00			1		FRAME, front, top
	- - - - - -			-		mounting hardware: (not included w/frame)
-11	212-0002-00			4		SCREW, 8-32 x 1/4 inch, FHS
-12	351-0093-00			1		GUIDE, left
	- - - - - -			-		mounting hardware: (not included w/guide)
	212-0023-00			1		SCREW, 8-32 x 3/8 inch, PHS
-13	358-0293-01			1		BUSHING, plug-in securing, left
	- - - - - -			-		mounting hardware:
	- - - - - -			-		(not included w/bushing)
	211-0510-00			1		SCREW, 6-32 x 3/8 inch, PHS
	210-0005-00			1		LOCKWASHER, external, #6
	212-0001-00			1		SCREW, 8-32 x 1/4 inch, PHS
	210-0007-00			1		LOCKWASHER, external, #8
-14	351-0092-00			1		GUIDE, right
-15	358-0294-01			1		BUSHING, plug-in securing, right
	- - - - - -			-		mounting hardware:
	- - - - - -			-		(not included w/bushing)
	212-0001-00			1		SCREW, 8-32 x 1/4 inch, PHS
	210-0007-00			1		LOCKWASHER, external, #8
	211-0510-00			1		SCREW, 6-32 x 3/8 inch, PHS
	210-0005-00			1		LOCKWASHER, external, #6
	210-0457-00			1		NUT, keps, 6-32 x 5/16 inch

FIG. 2 CABINET (CONT)

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Disc	Qty	1 2 3 4 5	Description
2-16	348-0075-00			2		FOOT, rear guard, left and right
	- - - - - -			-		mounting hardware for each:
	- - - - - -			-		(not included w/foot)
-17	212-0004-00			2		SCREW, 8-32 x 5/16 inch, PHS
-18	386-0139-00			1		PLATE, rear
-19	386-0138-00			1		PLATE, top
-20	386-0140-00			1		PLATE, bottom
-21	348-0073-00			2		FOOT, left front and right rear
	- - - - - -			-		mounting hardware for each:
	- - - - - -			-		(not included w/foot)
-22	211-0532-00			2		SCREW, 6-32 x 3/4 inch, FIL HS
-23	348-0074-00			2		FOOT, right front and left rear
	- - - - - -			-		mounting hardware for each:
	- - - - - -			-		(not included w/foot)
-24	211-0532-00			2		SCREW, 6-32 x 3/4 inch, FIL HS
-25	210-0457-00			2		NUT, keps, 6-32 x 5/16 inch
-26	377-0119-00			4		INSERT, foot
-27	348-0072-00			1		FOOT, flip-stand bail
-28	377-0123-00			1		INSERT, pivot, left
-29	367-0051-00			1		PIVOT, handle, left
-30	367-0052-00			1		HANDLE
	- - - - - -			-		mounting hardware: (not included w/handle
-31	212-0040-00			2		SCREW, 8-32 x 3/8 inch, FHS
-32	377-0122-00			1		INSERT, pivot, right
-33	367-0050-00			1		PIVOT, handle, right
-34	214-0054-00			2		BOLT, hinge
-35	214-0558-00			2		WASHER, thrust, 5/16 ID x 1/2 inch OD

CIRCUIT BOARD WIRING DIAGRAM



ELECTRICAL PARTS LIST-067-0561-00

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
				BULB		
B301	150-0065-00			Incandescent, 10 V, 40 mA, green lens		
				CAPACITORS		
Tolerance ±20% unless otherwise indicated.						
C1	283-0059-00		1 μF	Cer	25 V	+80%-20%
C6	283-0626-00		1800 pF	Mica		5%
C7	283-0604-00		304 pF	Mica	300 V	2%
C8	283-0605-00		678 pF	Mica	300 V	1%
C9	283-0059-00		1 μF	Cer	25 V	+80%-20%
C18A	281-0121-00		0.85-7 pF, Var			
C18B	283-0633-00		77 pF	Mica	100 V	1%
C18C	283-0641-00		180 pF	Mica	100 V	1%
C18D	281-0061-00		5.5-18 pF, Var	Cer		
C18E	283-0623-00		1200 pF	Mica	100 V	1%
C21	283-0000-00		0.001 μF	Cer	500 V	
C24	283-0000-00		0.001 μF	Cer	500 V	
C31	283-0059-00		1 μF	Cer	25 V	+80%-20%
C41	283-0059-00		1 μF	Cer	25 V	+80%-20%
C42	283-0000-00		0.001 μF	Cer	500 V	
C43	281-0118-00		8-90 pF, Var	Mica		
C44	281-0523-00		100 pF	Cer	350 V	
C45	283-0059-00		1 μF	Cer	25 V	+80%-20%
C57	281-0093-00		5.5-18 pF, Var	Cer		
C58	281-0118-00		8-90 pF, Var	Mica		
C59	283-0000-00		0.001 μF	Cer	500 V	
C71	*285-0689-00		0.05 μF	MT	25 V	3 1/2%
C74	285-0624-00		0.027 μF	PTM	100 V	10%
C118A	283-0639-00		56 pF	Mica	100 V	1%
C118C	281-0121-00		0.85-7 pF, Var			

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
				CAPACITORS (CONT)		
C118D	283-0635-00			51 pF Mica	100 V	1%
C118E	283-0641-00			180 pF Mica	100 V	1%
C118F	281-0061-00			5.5-18 pF, Var Cer		
C118G	283-0594-00			0.001 µF Mica	100 V	1%
C124	283-0000-00			0.001 µF Cer	500 V	
C131	283-0059-00			1 µF Cer	25 V	+80%-20%
C141	283-0059-00			1 µF Cer	25 V	+80%-20%
C142	283-0000-00			0.001 µF Cer	500 V	
C143	281-0118-00			8-90 pF, Var Mica		
C144	281-0523-00			100 pF Cer	350 V	
C145	283-0059-00			1 µF Cer	25 V	+80%-20%
C157	281-0093-00			5.5-18 pF, Var Cer		
C158	281-0118-00			8-90 pF, Var Mica		
C159	283-0000-00			0.001 µF Cer	500 V	
C171	*285-0689-00			0.05 µF MT	25 V	3 1/2%
C174	285-0624-00			0.027 µF PTM	100 V	10%
C189	283-0115-00			47 µF Cer	200 V	5%
C195	281-0523-00			100 pF Cer	350 V	
C201	281-0605-00			200 pF Cer	500 V	
C203	281-0523-00			100 pF Cer	350 V	
C206	281-0523-00			100 pF Cer	350 V	
C209	283-0115-00			47 pF Cer	200 V	5%
C212	285-0597-00			0.001 µF PTM	100 V	1%
C242	283-0000-00			0.001 µF Cer	500 V	
C259	283-0059-00			1 µF Cer	25 V	+80%-20%
C261	283-0072-01			0.01 µF Cer		
C312	290-0086-00			2000 µF Elect.	30 V	
C321	283-0059-00			1 µF Cer	25 V	+80%-20%
C337	290-0215-00			100 µF Elect.	25 V	
C347	290-0217-00			250 µF Elect.	12 V	

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			CAPACITORS (CONT)			
C348	283-0059-00		1 μF	Cer	25 V	+80%-20%
C357	290-0217-00		250 μF	Elect.	12 V	
C362	290-0086-00		2000 μF	Elect.	30 V	
C367	290-0215-00		100 μF	Elect.	25 V	
			SEMICONDUCTOR DEVICE, DIODES			
D3	*152-0185-01		Silicon	Replaceable by 1N4152		
D11	152-0149-00		Zener	1N961B 400 mW, 10 V, 5%		
D15	*152-0185-01		Silicon	Replaceable by 1N4152		
D16	*152-0185-01		Silicon	Replaceable by 1N4152		
D21	*152-0185-01		Silicon	Replaceable by 1N4152		
D22	*152-0185-01		Silicon	Replaceable by 1N4152		
D23	*152-0185-01		Silicon	Replaceable by 1N4152		
D24	*152-0165-00		Silicon	Tek Spec		
D71	*152-0165-00		Silicon	Tek Spec		
D72	*152-0185-01		Silicon	Replaeable by 1N4152		
D82	*152-0165-00		Silicon	Tek Spec		
D85	*152-0185-01		Silicon	Replaceable by 1N4152		
D86	*152-0185-01		Silicon	Replaceable by 1N4152		
D87	*152-0185-01		Silicon	Replaceable by 1N4152		
D101	*152-0185-01		Silicon	Replaceable by 1N4152		
D102	*152-0185-01		Silicon	Replaceable by 1N4152		
D111	152-0149-00		Zener	1N961B 400 mW, 10 V, 5%		
D113	*152-0185-01		Silicon	Replaceable by 1N4152		
D115	*152-0185-01		Silicon	Replaceable by 1N4152		
D116	*152-0185-01		Silicon	Replaceable by 1N4152		
D122	*152-0185-01		Silicon	Replaceable by 1N4152		
D123	*152-0185-01		Silicon	Replaceable by 1N4152		
D124	*152-0165-00		Silicon	Tek Spec		
D171	*152-0165-00		Silicon	Tek Spec		
D172	*152-0165-00		Silicon	Tek Spec		

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description
		SEMICONDUCTOR DEVICE, DIODES (CONT)		
D182	*152-0165-00		Silicon	Tek Spec
D185	*152-0185-01		Silicon	Replaceable by 1N4152
D186	*152-0185-01		Silicon	Replaceable by 1N4152
D187	*152-0185-01		Silicon	Replaceable by 1N4152
D189	*152-0185-01		Silicon	Replaceable by 1N4152
D191	*152-0185-01		Silicon	Replaceable by 1N4152
D206	*152-0185-01		Silicon	Replaceable by 1N4152
D222	*152-0185-01		Silicon	Replaceable by 1N4152
D252	*152-0185-01		Silicon	Replaceable by 1N4152
D254	*152-0185-01		Silicon	Replaceable by 1N4152
D256	*152-0185-01		Silicon	Replaceable by 1N4152
D258	*152-0185-01		Silicon	Replaceable by 1N4152
D312	*152-0260-00		Silicon	Tek Spec
D321	152-0124-00		Zener	1N938A 500 mW, 9.1 V, 5%, TC
D343	*152-0185-01		Silicon	Replaceable by 1N4152
D353	*152-0185-01		Silicon	Replaceable by 1N4152
D362	*152-0260-00		Silicon	Tek Spec
D365	*152-0185-01		Silicon	Replaceable by 1N4152
		FUSE		
F301	159-0025-00		1/2 A	3AG Fast-Blo
		CONNECTORS		
J65	131-0106-00			Coax, 1 contact, female
J69	131-0106-00			Coax, 1 contact, female
J109	131-0106-00			Coax, 1 contact, female
J165	131-0106-00			Coax, 1 contact, female
J169	131-0106-00			Coax, 1 contact, female
J248	131-0106-00			Coax, 1 contact, female
J249	131-0106-00			Coax, 1 contact, female
P340	131-0570-00			Receptacle, electrical

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description
		INDUCTORS		
L337	276-0507-00			Core, ferramic suppressor
L367	276-0507-00			Core, ferramic suppressor
		TRANSISTORS		
Q12	151-0188-00		Silicon	2N3906
Q33	*151-1026-00		FET	Tek Spec
Q62	*151-0136-00		Silicon	Replaceable by 2N3053
Q75	151-0190-00		Silicon	2N3904
Q85	151-0190-00		Silicon	2N3904
Q106	151-0190-00		Silicon	2N3904
Q112	151-0188-00		Silicon	2N3906
Q140	*151-1026-00		FET	Tek Spec
Q162	*151-0136-00		Silicon	Replaceable by 2N3053
Q175	151-0190-00		Silicon	2N3904
Q185	151-0190-00		Silicon	2N3904
Q204	151-0190-00		Silicon	2N3904
Q212	151-0188-00		Silicon	2N3906
Q215	*151-0127-00		Silicon	Selected from 2N2369
Q222	*151-0127-00		Silicon	Selected from 2N2369
Q225	*151-0127-00		Silicon	Selected from 2N2369
Q234	151-0188-00		Silicon	2N3906
Q244	151-0188-00		Silicon	2N3906
Q314	151-0190-00		Silicon	2N3904
Q316	151-0190-00		Silicon	2N3904
Q324	151-0188-00		Silicon	2N3906
Q334	151-0188-00		Silicon	2N3906
Q337	*151-0136-00		Silicon	Replaceable by 2N3053
Q344	151-0190-00		Silicon	2N3904
Q346	*151-0136-00		Silicon	Replaceable by 2N3053

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			TRANSISTORS (CONT)			
Q354	151-0188-00			Silicon	2N3906	
Q356	*151-0134-00			Silicon	Selected from 2N2905	
Q364	151-0190-00			Silicon	2N3904	
Q366	151-0188-00			Silicon	2N3906	
Q367	*151-0136-00			Silicon	Replaceable by 2N3053	
			RESISTORS			
Resistors are fixed, composition, ±10% unless otherwise indicated.						
R1	315-0100-00			10 Ω	1/4 W	5%
R2	321-0356-00			49.9 kΩ	1/8 W Prec	1%
R4	315-0203-00			20 kΩ	1/4 W	5%
R5	311-0497-00			50 kΩ, Var		
R9	315-0100-00			10 Ω	1/4 W	5%
R11	315-0102-00			1 kΩ	1/4 W	5%
R12	321-0097-00			100 Ω	1/8 W Prec	1%
R13	321-0162-00			475 Ω	1/8 W Prec	1%
R15A,B[1]	311-0876-00			2 X 1 kΩ, Var		
R16	315-0432-00			4.3 kΩ	1/4 W	5%
R21	315-0302-00			3 kΩ	1/4 W	5%
R24	315-0201-00			200 Ω	1/4 W	5%
R25A	321-0452-00			499 kΩ	1/8 W Prec	1%
R25B	321-0415-00			205 kΩ	1/8 W Prec	1%
R25C	321-0402-00			150 kΩ	1/8 W Prec	1%
R25D	321-0385-00			100 kΩ	1/8 W Prec	1%
R25E	321-0261-00			5.11 kΩ	1/8 W Prec	1%
R31	315-0101-00			100 Ω	1/4 W	5%
R32	315-0101-00			100 Ω	1/4 W	5%
R34	315-0103-00			10 kΩ	1/4 W	5%

[1] Furnished as a unit with SW15.

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			RESISTORS (CONT)			
R38	321-0289-00		10 kΩ	1/8 W	Prec	1%
R39	311-0601-00		5 kΩ, Var			
R41	315-0100-00		10 Ω	1/4 W		5%
R42	315-0162-00		1.6 kΩ	1/4 W		5%
R45	315-0100-00		10 kΩ	1/4 W		5%
R48	321-0352-00		45.3 kΩ	1/8 W	Prec	1%
R49	321-0481-00		1 MΩ	1/8 W	Prec	1%
R50	311-0332-00		500 Ω, Var			
R51	315-0202-00		2 kΩ	1/4 W		5%
R52	315-0202-00		2 kΩ	1/4 W		5%
R53	315-0103-00		10 kΩ	1/4 W		5%
R55	315-0102-00		1 kΩ	1/4 W		5%
R56	315-0105-00		1 MΩ	1/4 W		5%
R57	321-0289-00		10 kΩ	1/8 W	Prec	1%
R59	315-0152-00		1.5 kΩ	1/4 W		5%
R61	315-0101-00		100 Ω	1/4 W		5%
R63	315-0123-00		12 kΩ	1/4 W		5%
R71	315-0182-00		1.8 kΩ	1/4 W		5%
R72	315-0101-00		100 Ω	1/4 W		5%
R74	315-0162-00		1.6 kΩ	1/4 W		5%
R75	315-0123-00		12 kΩ	1/4 W		5%
R77	315-0202-00		2 kΩ	1/4 W		5%
R81	315-0102-00		1 kΩ	1/4 W		5%
R84	321-0239-00		3.01 kΩ	1/8 W	Prec	1%
R85	311-0658-00		500 Ω, Var			
R86	315-0622-00		6.2 kΩ	1/4 W		5%
R101	315-0912-00		9.1 kΩ	1/4 W		5%
R102	315-0912-00		9.1 kΩ	1/4 W		5%
R105	315-0393-00		39 kΩ	1/4 W		5%
R106	315-0122-00		1.2 kΩ	1/4 W		5%

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			RESISTORS (CONT)			
R108	315-0122-00		1.2 kΩ	1/4 W		5%
R111	315-0272-00		2.7 kΩ	1/4 W		5%
R112	321-0097-00		100 Ω	1/8 W	Prec	1%
R113	321-0162-00		475 Ω	1/8 W	Prec	1%
R116	315-0432-00		4.3 kΩ	1/4 W		5%
R124	315-0201-00		200 Ω	1/4 W		5%
R131	315-0101-00		100 Ω	1/4 W		5%
R132	315-0101-00		100 Ω	1/4 W		5%
R134	315-0103-00		10 kΩ	1/4 W		5%
R138	321-0289-00		10 kΩ	1/8 W	Prec	1%
R139	311-0601-00		5 kΩ, Var			
R141	315-0100-00		10 Ω	1/4 W		5%
R142	315-0162-00		1.6 kΩ	1/4 W		5%
R145	315-0100-00		10 Ω	1/4 W		5%
R148	321-0352-00		45.3 kΩ	1/8 W	Prec	1%
R149	321-0481-00		1 MΩ	1/8 W	Prec	1%
R150	311-0332-00		500 Ω, Var			
R151	315-0202-00		2 kΩ	1/4 W		5%
R152	315-0202-00		2 kΩ	1/4 W		5%
R153	315-0103-00		10 kΩ	1/4 W		5%
R155	315-0102-00		1 kΩ	1/4 W		5%
R156	315-0105-00		1 MΩ	1/4 W		5%
R157	321-0289-00		10 kΩ	1/8 W	Prec	1%
R159	315-0152-00		1.5 kΩ	1/4 W		5%
R161	315-0101-00		100 Ω	1/4 W		5%
R163	315-0123-00		12 kΩ	1/4 W		5%
R171	315-0182-00		1.8 kΩ	1/4 W		5%
R172	315-0101-00		100 Ω	1/4 W		5%
R174	315-0162-00		1.6 kΩ	1/4 W		5%
R175	315-0123-00		12 kΩ	1/4 W		5%

Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			RESISTORS (CONT)			
R177	315-0202-00		2 kΩ	1/4 W		5%
R181	315-0102-00		1 kΩ	1/4 W		5%
R184	321-0239-00		3.01 kΩ	1/8 W	Prec	1%
R185	311-0658-00		500 Ω; Var			
R186	315-0622-00		6.2 kΩ	1/4 W		5%
R189	315-0105-00		1 MΩ	1/4 W		5%
R192	315-0202-00		2 kΩ	1/4 W		5%
R194	315-0472-00		4.7 kΩ	1/4 W		5%
R195	315-0205-00		2 MΩ	1/4 W		5%
R201	315-0332-00		3.3 kΩ	1/4 W		5%
R203	315-0303-00		30 kΩ	1/4 W		5%
R204	301-0511-00		510 Ω	1/2 W		5%
R206	315-0511-00		510 Ω	1/4 W		5%
R209	315-0106-00		10 MΩ	1/4 W		5%
R211	315-0102-00		1 kΩ	1/4 W		5%
R212	315-0511-00		510 Ω	1/4 W		5%
R213A	321-0349-00		42.2 kΩ	1/8 W	Prec	1%
R213B	321-0314-00		18.2 kΩ	1/8 W	Prec	1%
R213C	321-0289-00		10 kΩ	1/8 W	Prec	1%
R215	315-0103-00		10 kΩ	1/4 W		5%
R217	315-0303-00		30 kΩ	1/4 W		5%
R221	315-0821-00		820 Ω	1/4 W		5%
R222	307-0093-00		1.2 Ω	1/2 W		5%
R223	315-0361-00		360 Ω	1/4 W		5%
R230A	321-0142-00		294 Ω	1/8 W	Prec	1%
R230B	321-0155-00		402 Ω	1/8 W	Prec	1%
R230C	321-0174-00		634 Ω	1/8 W	Prec	1%
R234	323-0068-00		49.9 Ω	1/2 W	Prec	1%
R235	315-0111-00		110 Ω	1/4 W		5%
R241	315-0562-00		5.6 kΩ	1/4 W		5%

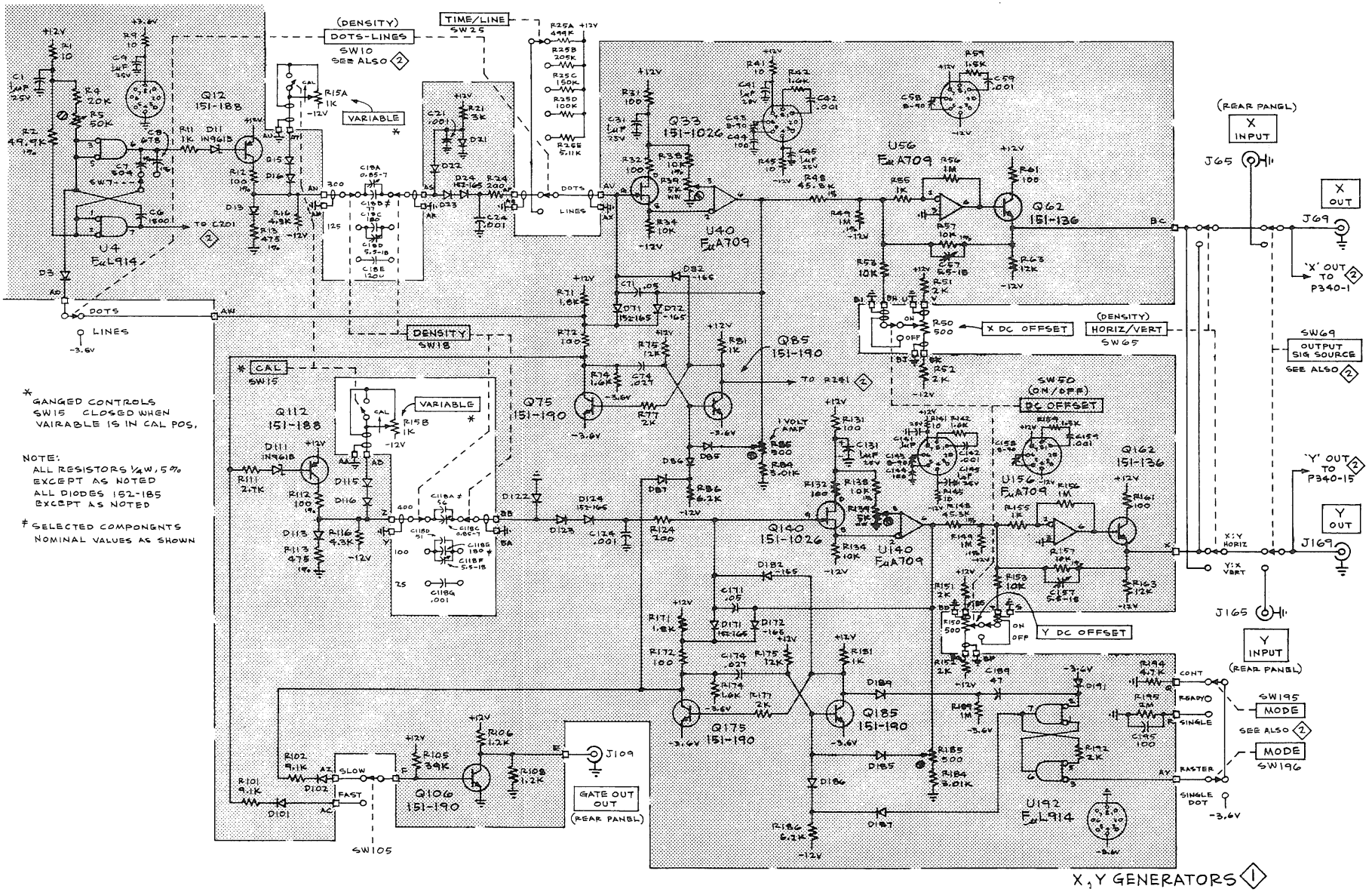
Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description		
			RESISTORS (CONT)			
R242	315-0123-00		12 kΩ	1/4 W		5%
R245	315-0111-00		110 Ω	1/4 W		5%
R259	315-0100-00		10 Ω	1/4 W		5%
R301	315-0510-00		51 Ω	1/4 W		5%
R314	315-0272-00		2.7 kΩ	1/4 W		5%
R316	315-0100-00		10 Ω	1/4 W		5%
R321	315-0102-00		1 kΩ	1/4 W		5%
R322	315-0101-00		100 Ω	1/4 W		5%
R323	315-0103-00		10 kΩ	1/4 W		5%
R325	315-0242-00		2.4 kΩ	1/4 W		5%
R334	315-0101-00		100 Ω	1/4 W		5%
R335	311-0515-00		250 Ω, Var			
R336	322-0181-00		750 Ω	1/4 W	Prec	1%
R337	321-0101-00		110 Ω	1/8 W	Prec	1%
R341	321-0150-00		357 Ω	1/8 W	Prec	1%
R342	322-0201-00		1.21 kΩ	1/4 W	Prec	1%
R343	315-0302-00		3 kΩ	1/4 W		5%
R344	315-0302-00		3 kΩ	1/4 W		5%
R352	321-0150-00		357 Ω	1/8 W	Prec	1%
R353	315-0302-00		3 kΩ	1/4 W		5%
R354	315-0302-00		3 kΩ	1/4 W		5%
R364	315-0182-00		1.8 kΩ	1/4 W		5%
R365	315-0622-00		6.2 kΩ	1/4 W		5%
R366	315-0103-00		10 kΩ	1/4 W		5%
R367	322-0193-00		1 kΩ	1/4 W	Prec	1%
R368	322-0193-00		1 kΩ	1/4 W	Prec	1%
			SWITCHES			
	Wired or Unwired					
SW7	260-0960-00		Slide			
SW10	260-0711-00		Lever	DOTS-LINES		
SW15[a]	311-0876-00					
SW18	260-1056-00		Rotary	DENSITY		
SW25	260-1058-00		Rotary	TIME/LINE		

[a] Furnished as a unit with R15A,B.

Values are fixed unless marked Variable.

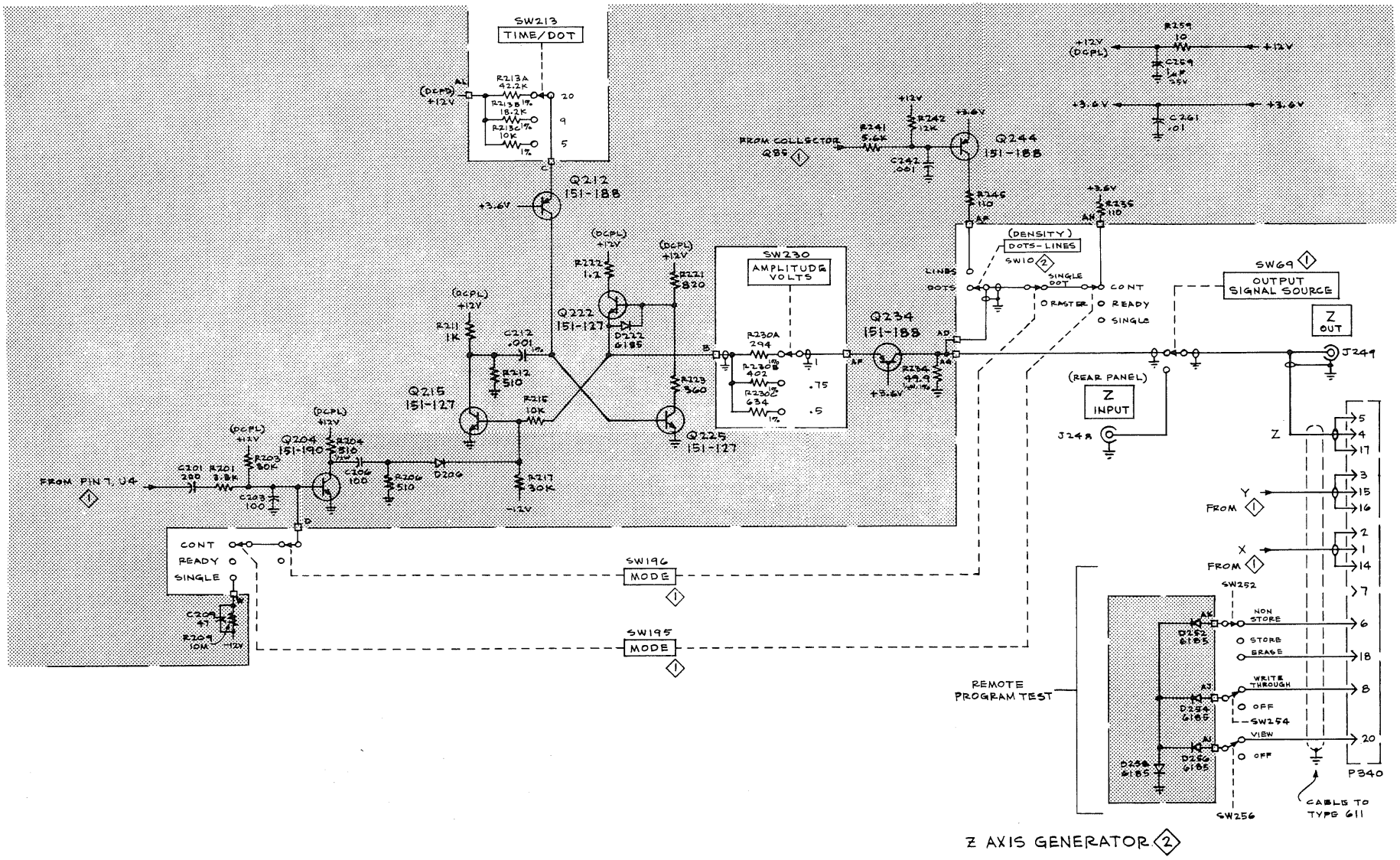
Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description
		SWITCHES (CONT)		
SW50	260-0511-00		Toggle	ON-OFF
SW65	260-0472-00		Lever	HORIZ/VERT
SW69	260-0711-00		Lever	OUTPUT SIGNAL SOURCE
SW105	260-0449-00		Slide	FAST-SLOW
SW195	260-1057-00		Lever	MODE-CONT READY SINGLE
SW196	260-0711-00		Lever	MODE-RASTER SINGLE DOT
SW213	260-1059-00		Rotary	TIME/DOT
SW230	260-1059-00		Rotary	AMPLITUDE VOLTS
SW252	260-0501-00		Lever	NON STORE-STORE-ERASE
SW254	260-0613-00		Toggle	WRITE THROUGH-OFF
SW256	260-0613-00		Toggle	VIEW-OFF
SW301	260-0834-00		Toggle	POWER ON
SW302	260-0675-00		Slide	115V-230V
		TRANSFORMER		
T301	*120-0592-00		Power	
		INTEGRATED CIRCUITS		
U4	156-0011-00		Dual 2-Input NAND/ NOR Gate	Replaceable by Fairchild μL914
U40	156-0015-00		Oper. Ampl. μA709	
U56	156-0015-00		Oper. Ampl. μA709	
U140	156-0015-00		Oper. Ampl. μA709	
U156	156-0015-00		Oper. Ampl. μA709	
U192	156-0011-00		Dual 2-Input NAND/ NOR Gate	Replaceable by Fairchild μL914

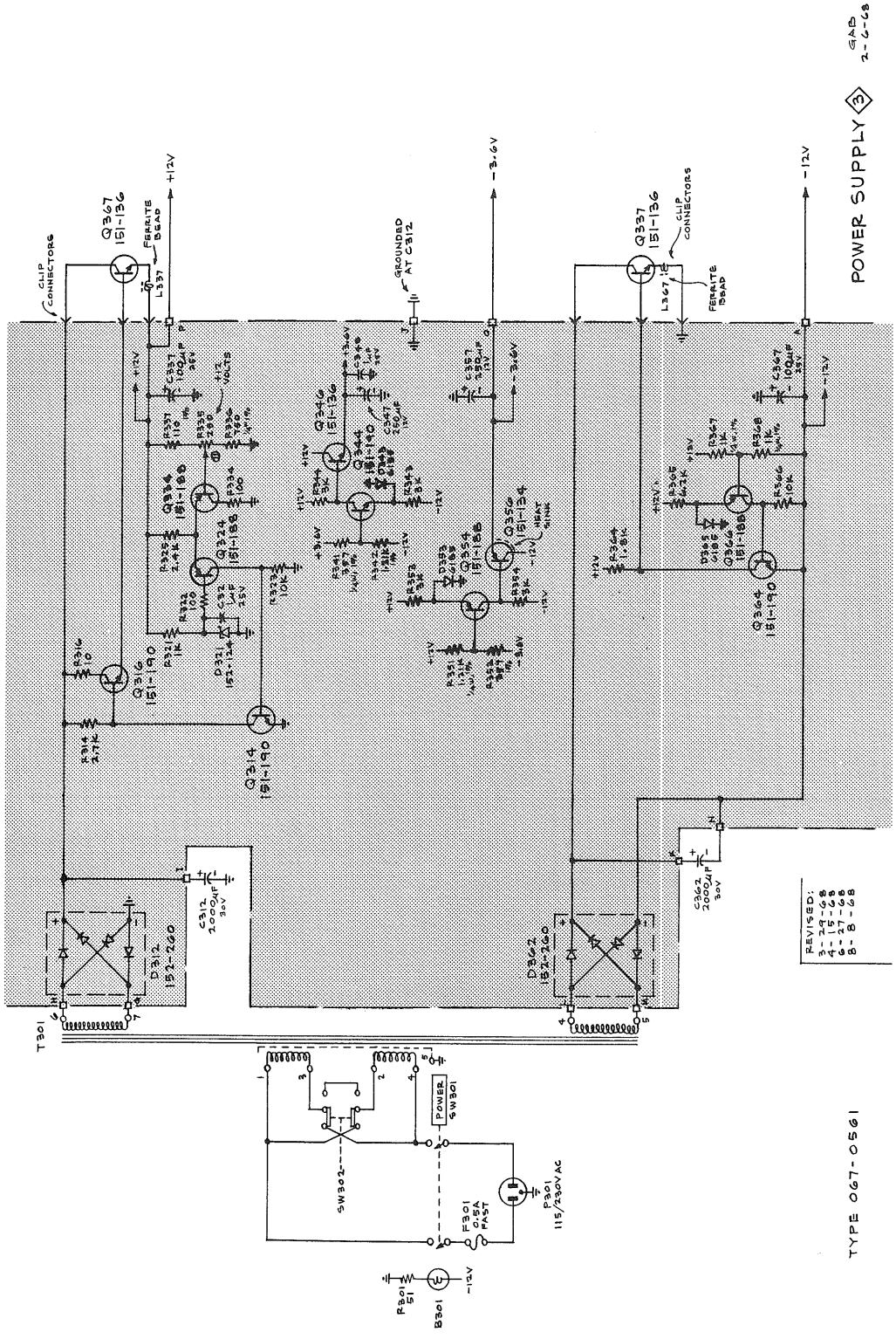


* GANGED CONTROLS SW15 CLOSED WHEN VAIRABLE IS IN CAL POS.

NOTE:
ALL RESISTORS ¼W, 5%
EXCEPT AS NOTED
ALL DIODES 152-185
EXCEPT AS NOTED

SELECTED COMPONENTS NOMINAL VALUES AS SHOWN


SW213
TIME/DOT
R213A 42.2K
R213B 18.2K 1%
R213C 10K 1%
20
9
5
(DCPL) +12V
Q212 151-188
+3.6V
FROM COLLECTOR Q86
R241 5.6K
R242 12K
Q244 151-188
C242 .001
R245 110
R236 110
+12V (DCPL)
R259 10
C259 1µF 25V
+3.6V
C261 .01
(DENSITY)
DOTS-LINES
SW10
LINES
DOTS
SINGLE DOT
CONT
RASTER
READY
SINGLE
SW69
OUTPUT SIGNAL SOURCE
Z OUT
J249
(REAR PANEL)
Z INPUT
J248
Q234 151-188
R234 49.9 1%
SW230
AMPLITUDE VOLTS
R230A 294
R230B 402
R230C 634 1%
.75
.5
R222 1.2
R221 820
Q222 151-127
D222 6185
R211 1K
C212 .001
R212 510
R223 360
Q215 151-127
R215 10K
Q225 151-127
Q204 151-190
R204 510
R202 80K
C201 220
R201 3.3K
C203 100
C206 100
R206 510
D206
R217 30K
-12V
FROM PIN 7, J4
CONT
READY
SINGLE
C209 47
R209 10M
SW196
MODE
SW195
MODE
Z
Y FROM
X FROM
5
4
17
3
15
16
2
1
14
7
6
18
8
20
P340
SW252
NON STORE
STORE
ERASE
WRITE THROUGH
OFF
VIEW
OFF
D252 6185
D254 6185
D256 6185
D258 6185
SW254
SW256
REMOTE PROGRAM TEST
CABLE TO TYPE 611
Z AXIS GENERATOR 2


POWER SUPPLY ③
SAB 2-6-68
TYPE 067-0561
REVISED:
3-29-68
4-15-68
6-8-68
CLIP CONNECTORS
FERRITE BEAD
GROUNDED AT C312
+12V
-12V
-3.6V
Q367 151-136
Q337 151-136
Q316 151-190
Q314 151-190
Q334 151-136
Q344 151-190
Q324 151-188
Q354 151-188
Q356 151-134
Q364 151-190
Q365 151-188
C312 2000μF 30V
C362 2000μF 30V
D312 152-260
D362 152-260
T301
SW302
POWER SW301
F301 .05A FAST
P301 115/230VAC
R301 51
B301 -12V