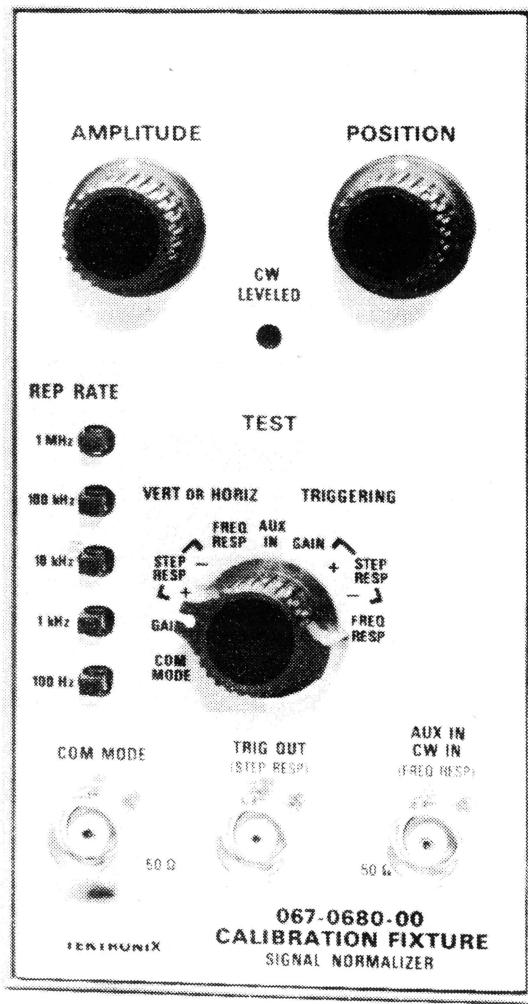


067-0680-00 CALIBRATION FIXTURE

Normalizer



The 067-0680-00 Calibration Fixture is a calibration aid for 5400-series mainframes. The unit is designed to calibrate all 5400-series mainframes for all 5-series plug-in units both vertical and horizontal. Test Functions permit calibration of deflection factor, step response and DC shift. Bandwidth measurements of mainframe alone can be made by applying a frequency standard to the CW IN connector. Operational functions of the mainframe triggers may be checked by setting TEST switch to TRIGGERING mode.

CONTENTS

Section 1	Characteristics
	Electrical
	Mechanical
	Environmental
	Front Panel Controls and Connectors
Section 2	Operating Instructions
Section 3	Circuit Description
Section 4	Schematic Diagrams
Section 5	Electrical Parts List
Section 6	Mechanical Parts List
	Mechanical Parts List Illustrations

NOTE

The 067-0680-00 signal normalizer plug-in is not expected to require re-calibration. In the event of component failure it may become necessary to re-calibrate a portion of the circuitry. If re-calibration techniques are not completely evident from the Circuit Description, a complete calibration procedure will be supplied on demand. However it is recommended that complete re-calibration and servicing be conducted by the Tektronix field or factory service centers. Contact your local field representative or write Tektronix Inc. with your request.

SECTION 1
CHARACTERISTICS

Characteristics	Performance Requirement
ELECTRICAL	
VERT or HORIZ Mode	
STEP RESPONSE	
Risetime	600 ps or less into display channel
Amplitude	At least 6 div of display with AMPLITUDE control fully cw
GAIN Steps	
Accuracy	Within 0.3% with no ± 30 V, supply error
FREQUENCY RESPONSE (CW IN)	
Response	Leveled 3 MHz to 100 MHz sinewave input
Input Impedance	Approximately 50 Ω
Auxiliary Input (AUX IN)	
Input Impedance	Approximately 50 Ω
REPETITION RATE	
Accuracy	Within 20% of rate selected
*TRIGGERING MODE	
STEP RESPONSE	
Amplitude	Approximately 300 mV with amplitude control fully cw
Risetime	1 ns or less
GAIN Steps	
Amplitude	Approximately 25 mV
FREQUENCY RESPONSE (CW IN)	
Response	Leveled 3 MHz to 100 MHz sinewave input
Input Impedance	Approximately 50 Ω
REPETITION RATE	
Accuracy	Within 20% of rate selected

*Measured at pin 4A at plug-in connectors, into 5K Ω or greater.

MECHANICAL

Characteristics	Requirement	Supplemental Information
Overall Dimensions		
Height	= 5 inches	
Width	= 2-5/8 inches	
Depth	= 11-5/8 inches	
Weight	= 1.7 pounds	

ENVIRONMENTAL

Characteristics	Requirement	Supplemental Information
Temperature		
Operating Range	20°C to 30°C	Calibrated at 25°C to 30° C
Warmup Time	5 minutes at 25°C	

FRONT PANEL CONTROLS AND CONNECTORS

AMPLITUDE

Adjusts amplitude of signal applied to AUX IN and CW IN connector as well as the amplitude of the VERT or HORIZ Step Response and TRIGGERING Step Response.

POSITION Control

Positions display vertically or horizontally.

CW Leveled Indicator

When lit, indicates that a constant amplitude signal is applied to the signal out or trigger out while in FREQ RESP mode.

TEST Switch

VERT OR HORIZ

AUX IN

Displays signal applied to AUX IN connector.

FREQ RESP

Displays signal applied to CW IN connector.

- STEP RESP

Displays negative-going step.

+ STEP RESP

Displays positive-going step.

GAIN

Applies staircase waveform to signal channel.

COM MODE

Applies the signal from the COM MODE connector to both the + signal out and - signal out.

TRIGGERING

GAIN

Applies staircase waveform to trigger channel.

+ STEP RESP

Applies a positive-going step to trigger channel.

FRONT PANEL CONTROLS AND CONNECTORS (cont)

- STEP RESP

Applies a negative-going step to trigger channel.

FREQ RESP

Applies signal from CW IN connector to trigger channel.

REP RATE

Selects repetition rate for VERT or HORIZONTAL and TRIGGERING Step Response, also selects the repetition rate for the staircase waveform produced in the GAIN position.

TRIG OUT Connector

Provides a trigger signal that is matched to the VERT or HORIZONTAL and TRIGGERING Step Response.

SECTION 2

OPERATING INSTRUCTIONS

The following procedure describes the basic functions of the Signal Normalizer when operated in a 5400-Series Oscilloscope. Detailed information for calibrating or testing the oscilloscope is described in the Instruction Manual supplied with the Instrument.

The Signal Normalizer is installed in one of the vertical, or the horizontal compartments of the oscilloscope. To measure the step response of the display channel or trigger channel, the TEST switch is set at the appropriate STEP RESP position, + or - polarity. In this mode of operation, a pulser circuit contained within the Signal Normalizer provides a series of fast-rise pulses for checking the risetime of the selected compartment. AN AMPLITUDE control adjusts the display size and pushbuttons select the REP RATE desired.

When the TEST switch is in one of the GAIN positions, the Signal Normalizer generates a series of amplitude steps for checking the gain of the display channels or trigger channel. At slow sweep speeds, with the time-base triggering set to free-run, the gain steps appear as solid lines across the screen. The position of these lines, in relationship to the graticule lines, is used to denote the gain. The lines are also used to check or set either vertical or horizontal linearity and geometry. The REP RATE of the gain-step signal can be selected, however, the 1 KHz rate is used for most applications.

The FREQ RESP positions of the TEST switch are used to measure the frequency response of the display channels on CRT screen or trigger-amplifiers when monitored at interface board. In this mode of operation, external sinewaves are applied at the CW IN connector.

An internal amplifier limits the CW IN signal to provide a constant amplitude output. This circuit is operating properly when the CW LEVELED indicator is lit.

To check frequency response proceed as follows:

1. Rotate AMPLITUDE control fully clockwise.
2. Connect a sinewave generator to the CW IN connector and set it to the reference frequency specified in the oscilloscope mainframe manual.
3. Set TEST switch to FREQ RESP and adjust sinewave generator for a CRT display of approximately 10 divisions (approximately 0.5 V, P-P)
4. Rotate the AMPLITUDE control counterclockwise to obtain the desired display amplitude. The CW LEVELED indicator should be lit.
5. Proceed with frequency response check. If CW LEVELED indicator goes off, increase amplitude of the sinewave generator until light just comes on.

The AUX IN position of the TEST switch is used to check horizontal timing and linearity of the oscilloscope. The Signal Normalizer is installed in a vertical compartment, and a time-base unit installed in a horizontal compartment, of the oscilloscope. A Time-Mark Generator such as a Tektronix TM501 (requires a TM500-series power module) is connected to the AUX IN connector.

The COM MODE switch position connects the signal applied to the COM MODE connector to the + signal and - signal lines through 50 Ω resistors.

SECTION 3

CIRCUIT DESCRIPTION

Clock Generator

The clock generator consists of an astable multivibrator, two buffers and switchable timing capacitors. The frequency of the multivibrator, Q134 and Q140, is selected by switching one of five emitter coupled timing capacitors into the circuit. This is done by the REP RATE switch, S150.

External TRIG OUT is coupled directly from the multivibrator to the front panel connector.

Buffer Q118 provides a clock signal to the Trigger Amplifier and Staircase Generator.

The output of buffer Q122 passes thru a differentiating circuit consisting of R124 and C125. The output of the differentiator is used as a trigger for the Pulse Generator.

Trigger Amplifier

The Trigger Amplifier provides the oscilloscope mainframe with a triggering signal which in turn is used in the horizontal time base amplifier. The circuit consists of the Clock Generator signal and Q164. A positive transition at the base of Q164 causes a negative transition at the collector of Q164.

Pulse Generator

The pulse generator consists of a number of current switches that are controlled by the tunnel diode CR280. A positive pulse from the Clock Generator causes CR280 to turn on. This causes Q282 to turn on shutting Q292 off. This turns the complementary transistor switches Q296 and Q298 on which reverse biases the disconnect diodes CR300, CR301, CR305 and CR306. The complementary transistor switches Q310 and Q312, turn off the disconnect diodes CR318, CR320, CR323, and CR325 therefore, removing the minus voltage from R326 and the positive voltage from R321. The amplitude of this voltage is set by the AMPLITUDE control. R314 is a balance control used mainly to correct for tracking errors in the AMPLITUDE control.

Pulse Generator (cont)

R314 is normally adjusted to obtain equal amplitude plus and minus output pulses (with each pulse set to approximately 2.5 div). A negative going pulse from the Clock Generator turns the tunnel diode off again returning the transistor switches to their original states. C319 and C324 are both adjusted to obtain a square front corner on the rising portion of the output pulse.

Stair Case Generator

The Stair Case Generator consists of a series of logic switched current generators, decoding logic, and a sequencing generator.

Sequencing Generator

The Sequencing Generator is a Binary Coded decimal decoder (U185) driven by a 4 bit counter, V180. A continuous train of pulses is supplied from the Clock Generator to the input of U180. These pulses allow the counter to cycle through a count of 0 to 15 at a rate determined by the REP RATE switch setting. The BCD 4 line output of U180 is connected to the input of the 4 line to 16 line decoder, U185. The logic levels of the 16 output lines are therefore sequenced in order from 0 to 15.

Decoding Logic

Ten of the sixteen output lines are connected to the decoding logic circuitry, U190A,B and U195A,B,C,D. The decoding logic provides logic levels for switching a pair of current generators or several pairs of current generators. Six of the sixteen output lines are not connected to provide spaces between the positive going staircase and negative going staircase.

Logic Switch Current Generator

There are basically two types of logic switched current generators used in this instrument. These are the positive current generator and negative current generator. An example of a positive current generator is CR200, CR202, CR204, R201 and R203. By applying a logical low to CR200, CR202 will be forward biased and CR204 will be reversed biased, therefore, turning the current generator off. By applying a logical high to CR200, CR202 will be clamped off allowing current to flow through CR204. The amount of current is limited by precision resistor R203.

Logic Switched Current Generator (cont)

An example of a negative current generator is U200E, CR266, CR268, CR270 and R296. A logical low applied to U200E causes CR266 and CR268 to turn on forcing CR270 off which effectively turns the current generator off. A logical high into U200E causes the cathode of CR266 to drop, thus clamping CR268 off which in turn allows current to flow through CR270. With the TEST switch in the GAIN position, the current generators are connected to the oscilloscope's trigger or signal input. These inputs have an input resistance of 50 ohms to ground, therefore, the voltage produced across the 50 ohm resistor is directly related to the current through it.

CW Leveled

The single ended signal applied to the AUX IN, CW IN connector is connected to a high frequency push-pull amplifier U30. Minimum gain is set by R31. R31 is set so that a 10 division input signal will produce approximately a 2 division display when the AMPLITUDE control is fully counterclockwise.

The signal from U30 is connected through T60 to the differential amplifier Q64 and Q74. The output of this amplifier is connected to the TEST switch to await mode selection. The relative DC level (position) of this signal is controlled by the voltage dividers formed by R335A, and R335B.

In the FREQ RESP mode the gain of U30 is controlled by the automatic leveling circuit. CR80, C81, CR84 and C83 form a peak to peak detector giving a DC representation of the output signal amplitude. The output of the peak to peak detector is connected to a comparator amplifier, U94, through the balanced to single ended converter, U90. A DC level corresponding to the desired signal output is set at the input of the comparator amplifier by the Amplitude Control, R330B. The resultant output of the comparator amplifier is connected to U30 to control the gain. This output is also connected to the leveling light circuit Q98 and Q102. R25 provides DC balance and is adjusted for minimum trace shift while varying the input signal from approximately 0.3 volts peak to peak to approximately 0.7 volts peak to peak (CW LEVELED light should be lit).

Trigger Pickoff

Triggering for the mainframe is provided by the amplifier, 042 and Q52.

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

Replaceable Electrical Parts—Type 067-0680-00

CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
01002	GENERAL ELECTRIC COMPANY, INDUSTRIAL AND POWER CAPACITOR PRODUCTS DEPARTMENT	JOHN STREET 1201 2ND STREET SOUTH	HUDSON FALLS, NY 12839
01121	ALLEN-BRADLEY COMPANY		MILWAUKEE, WI 53204
01295	TEXAS INSTRUMENTS, INC., SEMICONDUCTOR GROUP	P O BOX 5012, 13500 N CENTRAL EXPRESSWAY 5005 E McDOWELL RD, PO BOX 20923	DALLAS, TX 75222 PHOENIX, AZ 85036
04713	MOTOROLA, INC., SEMICONDUCTOR PROD. DIV.	11901 MADISON AVENUE	CLEVELAND, OH 44101
05397	UNION CARBIDE CORPORATION, MATERIALS SYSTEMS DIVISION	12515 CHADRON AVE.	HAWTHORNE, CA 90250
07910	TELEDYNE SEMICONDUCTOR		
08806	GENERAL ELECTRIC CO., MINIATURE LAMP PRODUCTS DEPARTMENT	NELA PARK 406 PARR RD.	CLEVELAND, OH 44112
11236	CTS OF BERNE, INC.	1200 COLUMBIA AVE.	BERNE, IN 46711
32997	BOURNS, INC., TRIMPOT PRODUCTS DIV.		RIVERSIDE, CA 92507
56289	SPRAGUE ELECTRIC CO.		NORTH ADAMS, MA 01247
71590	CENTRALAB ELECTRONICS, DIV. OF GLOBE-UNION, INC.	P O BOX 858 644 W. 12TH ST.	FORT DODGE, IA 50501
72982	ERIE TECHNOLOGICAL PRODUCTS, INC.		ERIE, PA 16512
75042	TRW ELECTRONIC COMPONENTS, IRC FIXED RESISTORS, PHILADELPHIA DIVISION	401 N. BROAD ST.	PHILADELPHIA, PA 19108
78488	STACKPOLE CARBON CO.		ST. MARYS, PA 15857
80009	TEKTRONIX, INC.	P O BOX 500 9220 SUNSET BLVD.	BEAVERTON, OR 97077
81483	INTERNATIONAL RECTIFIER CORP.		LOS ANGELES, CA 90069
90201	MALLORY CAPACITOR CO., DIV. OF P. R. MALLORY AND CO., INC.	3029 E WASHINGTON STREET P O BOX 372 P. O. BOX 609	INDIANAPOLIS, IN 46206
91637	DALE ELECTRONICS, INC.		COLUMBUS, NE 68601
91836	KINGS ELECTRONICS CO., INC.	40 MARBLEDALE ROAD	TUCKAHOE, NY 10707

Ckt No.	Tektronix Part No.	Serial/Model No.. Eff	Descont	Name & Description	Mfr Code	Mfr Part Number
A1	670-2969-00	B010100	B019999	CKT BOARD ASSY:PULSER	80009	670-2969-00
A1	670-2969-01	B020000		CKT BOARD ASSY:PULSER	80009	670-2969-01
A2	670-2968-00			CKT BOARD ASSY:CAM SWITCH	80009	670-2968-00
C4 ¹						
C6 ¹						
C17	283-0051-00			CAP.,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145 A 332J
C44	281-0618-00			CAP.,FXD,CER DI:4.7PF,+/-0.5PF,200V	72982	374-001COH0479D
C51	281-0618-00			CAP.,FXD,CER DI:4.7PF,+/-0.5PF,200V	72982	374-001COH0479D
C55	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C71	283-0069-00			CAP.,FXD,CER DI:15PF,20%,50V	72982	811-059COG0150M
C76	283-0253-00			CAP.,FXD,CER DI:10UF,10%,50V	72982	A15BF9A4LW5R103K
C79	283-0253-00			CAP.,FXD,CER DI:10UF,10%,50V	72982	A15BF9A4LW5R103K
C81	283-0253-00			CAP.,FXD,CER DI:10UF,10%,50V	72982	A15BF9A4LW5R103K
C83	283-0253-00			CAP.,FXD,CER DI:10UF,10%,50V	72982	A15BF9A4LW5R103K
C86	283-0253-00			CAP.,FXD,CER DI:10UF,10%,50V	72982	A15BF9A4LW5R103K
C90	281-0651-00			CAP.,FXD,CER DI:47PF,5%,200V	72982	374-001T2H0470J
C94	283-0051-00			CAP.,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145 A 332J
C125	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C150	290-0616-00			CAP.,FXD,ELCLTLT:10UF,10%,20V	05397	T111C106K020AS
C152	285-0576-00			CAP.,FXD,PLSTC:1UF,10%,100V	56289	410P10591
C154	285-0703-00			CAP.,FXD,PLSTC:0.1UF,5%,100V	56289	410P112
C156	285-0598-00			CAP.,FXD,PLSTC:0.01UF,5%,100V	01002	61F10AC103
C158	281-0633-00			CAP.,FXD,CER DI:910PF,5%,500V	72982	302000Y5D911F
C283	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C286	281-0612-00			CAP.,FXD,CER DI:5.6PF,+/-0.5PF,500V	72982	374-001COH0569D
C289	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C290	283-0003-00			CAP.,FXD,CER DI:0.01UF,+80-20%,150V	72982	855-558Z5U-103Z
C293	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C300	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C305	283-0213-00			CAP.,FXD,CER DI:300PF,5%,100V	72982	8121N130A301J
C315	281-0661-00			CAP.,FXD,CER DI:0.8PF,+/-0.1PF,500V	72982	301-000COK0808B
C316	281-0627-00			CAP.,FXD,CER DI:1PF,+/-0.25PF,500V	72982	301-000COK0109C
C319	281-0064-00			CAP.,VAR,PLSTC:0.25-1.5PF,600V	72982	530-002
C324	281-0064-00			CAP.,VAR,PLSTC:0.25-1.5PF,600V	72982	530-002
C362	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C364	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C367	283-0110-00			CAP.,FXD,CER DI:0.005UF,+80-20%,150V	56289	19C242B
C368	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C370	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C371	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C372	290-0527-00			CAP.,FXD,ELCLTLT:15UF,20%,20V	90201	TDC156M020FL
C376	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
C378	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145 E 104Z
CR75	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR77	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR78	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR79	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR80	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR84	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR85	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR96	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR99	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR100	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152

¹Furnished as a unit with the pulser board.

Replaceable Electrical Parts—Type 067-0680-00

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	DScont	Name & Description	Mfr Code	Mfr Part Number
CR200	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR202	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR204	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR206	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR208	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR210	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR212	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR214	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR216	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR218	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR220	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR222	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR224	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR226	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR228	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR230	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR232	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR234	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR236	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR238	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR240	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR242	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR244	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR246	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR248	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR250	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR252	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR254	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR256	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR258	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR260	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR262	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR264	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR266	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR268	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR270	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR280	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR300	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR301	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
CR305	152-0442-01			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-01
CR306	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
CR318	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
CR320	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
CR323	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
CR325	152-0442-00			SEMICOND DEVICE:SILICON,MATCHED PAIR	80009	152-0442-00
DS102	150-0048-00			LAMP, INCAND:5V, 60MA	08806	683
J1	131-0818-00			CONNECTOR,RCPT,:BNC,FEMALE	91836	KC19-153BNC
J110	131-0818-00			CONNECTOR,RCPT,:BNC,FEMALE	91836	KC19-153BNC
J340	131-0818-00			CONNECTOR,RCPT,:BNC,FEMALE	91836	KC19-153BNC
L55	276-0507-00			SHIELDING BEAD,:0.6UH	78488	57-0180-7D 500B
L146	276-0507-00			SHIELDING BEAD,:0.6UH	78488	57-0180-7D 500B
L149	276-0507-00			SHIELDING BEAD,:0.6UH	78488	57-0180-7D 500B

Ckt No.	Tektronix Part No.	Serial/Model No.	Mfr Code	Mfr Part Number
	Eff	Dscont	Name & Description	
L159	276-0507-00		SHIELDING BEAD,:0.6UH	78488 57-0180-7D 500B
L320	108-0728-00		COIL,RF:116UH	80009 108-0728-00
L322	108-0723-00		COIL,RF:1.12UH	80009 108-0723-00
L372	108-0395-00		COIL,RF:64UH	80009 108-0395-00
LR346	108-0325-00	XB020000	COIL,RF:0.5UH	80009 108-0325-00
LR362	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
LR364	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
LR368	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
LR370	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
LR376	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
LR378	108-0183-00		COIL,RF:FIXED,1.33UH	80009 108-0183-00
Q42	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
Q52	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
Q64	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
Q74	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
Q98	151-0190-01		TRANSISTOR:SILICON,NPN	80009 151-0190-01
Q102	151-0190-01		TRANSISTOR:SILICON,NPN	80009 151-0190-01
Q118	151-0223-00		TRANSISTOR:SILICON,NPN	80009 151-0223-00
Q122	151-0223-00		TRANSISTOR:SILICON,NPN	80009 151-0223-00
Q134	151-0223-00		TRANSISTOR:SILICON,NPN	80009 151-0223-00
Q140	151-0223-00		TRANSISTOR:SILICON,NPN	80009 151-0223-00
Q164	151-0325-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0325-00
Q282	151-0293-00		TRANSISTOR:SILICON,NPN	04713 SMT1050
Q292	151-0293-00		TRANSISTOR:SILICON,NPN	04713 SMT1050
Q296	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
Q298	151-0293-00		TRANSISTOR:SILICON,NPN	04713 SMT1050
Q310	151-0293-00		TRANSISTOR:SILICON,NPN	04713 SMT1050
Q312	151-0362-00		TRANSISTOR:SILICON,PNP,SEL FROM 2N4258	80009 151-0362-00
R2	321-0097-00		RES.,FxD,Film:100 OHM,1%,0.125W	91637 MFF1816G100R0F
R9	321-0097-00		RES.,FxD,Film:100 OHM,1%,0.125W	91637 MFF1816G100R0F
R15	315-0221-00		RES.,FxD,CMPSN:220 OHM,5%,0.25W	01121 CB2215
R16	315-0181-00		RES.,FxD,CMPSN:180 OHM,5%,0.25W	01121 CB1815
R17	315-0103-00		RES.,FxD,CMPSN:10K OHM,5%,0.25W	01121 CB1035
R19	321-0191-00		RES.,FxD,Film:953 OHM,1%,0.125W	91637 MFF1816G953R0F
R20	317-0101-00		RES.,FxD,CMPSN:100 OHM,5%,0.125W	01121 BB1015
R21	321-0191-00		RES.,FxD,Film:953 OHM,1%,0.125W	91637 MFF1816G953R0F
R23	315-0472-00		RES.,FxD,CMPSN:4.7K OHM,5%,0.25W	01121 CB4725
R25	311-1227-00		RES.,VAR,NONWIR:5K OHM,20%,0.50W	32997 3386F-T04-502
R26	315-0103-00		RES.,FxD,CMPSN:10K OHM,5%,0.25W	01121 CB1035
R31	311-1227-00		RES.,VAR,NONWIR:5K OHM,20%,0.50W	32997 3386F-T04-502
R32	315-0103-00		RES.,FxD,CMPSN:10K OHM,5%,0.25W	01121 CB1035
R35	315-0202-00		RES.,FxD,CMPSN:2K OHM,5%,0.25W	01121 CB2025
R39.	317-0101-00		RES.,FxD,CMPSN:100 OHM,5%,0.125W	01121 BB1015
R41	321-0212-00		RES.,FxD,Film:1.58K OHM,1%,0.125W	91637 MFF1816G1580OF
R42	321-0070-00		RES.,FxD,Film:52.3 OHM,1%,0.125W	91637 MFF1816G52R3OF
R44	317-0151-00		RES.,FxD,CMPSN:150 OHM,5%,0.125W	01121 BB1515
R46	321-0612-01		RES.,FxD,Film:500 OHM,0.5%,0.125W	91637 MFF1816G500R0D
R51	317-0151-00		RES.,FxD,CMPSN:150 OHM,5%,0.125W	01121 BB1515
R54	321-0212-00		RES.,FxD,Film:1.58K OHM,1%,0.125W	91637 MFF1816G1580OF
R60	315-0510-00		RES.,FxD,CMPSN:51 OHM,5%,0.25W	01121 CB5105
R62	315-0510-00		RES.,FxD,CMPSN:51 OHM,5%,0.25W	01121 CB5105
R64	321-0212-00		RES.,FxD,Film:1.58K OHM,1%,0.125W	91637 MFF1816G1580OF

Replaceable Electrical Parts—Type 067-0680-00

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Dscont	Name & Description	Mfr Code	Mfr Part Number
R65	321-0068-00			RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R67	317-0160-00			RES.,FXD,CMPSN:16 OHM,5%,0.125W	01121	BB1605
R68	321-0163-00			RES.,FXD,FILM:487 OHM,1%,0.125W	91637	MFF1816G487ROF
R69	317-0160-00			RES.,FXD,CMPSN:16 OHM,5%,0.125W	01121	BB1605
R71	317-0180-00			RES.,FXD,CMPSN:18 OHM,5%,0.125W	01121	BB1805
R73	321-0212-00			RES.,FXD,FILM:1.58K OHM,1%,0.125W	91637	MFF1816G15800F
R74	321-0068-00			RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R76	321-0139-00			RES.,FXD,FILM:274 OHM,1%,0.125W	91637	MFF1816G274ROF
R78	321-0397-00			RES.,FXD,FILM:133K OHM,1%,0.125W	91637	MFF1816G13302F
R82	315-0153-00			RES.,FXD,CMPSN:15K OHM,5%,0.25W	01121	CB1535
R83	315-0512-00			RES.,FXD,CMPSN:5.1K OHM,5%,0.25W	01121	CB5125
R86	321-0139-00			RES.,FXD,FILM:274 OHM,1%,0.125W	91637	MFF1816G274ROF
R88	321-0417-00			RES.,FXD,FILM:215K OHM,1%,0.125W	91637	MFF1816G21502F
R90	315-0154-00			RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R93	315-0222-00			RES.,FXD,CMPSN:2.2K OHM,5%,0.25W	01121	CB2225
R96	315-0202-00			RES.,FXD,CMPSN:2K OHM,5%,0.25W	01121	CB2025
R98	315-0472-00			RES.,FXD,CMPSN:4.7K OHM,5%,0.25W	01121	CB4725
R99	315-0202-00			RES.,FXD,CMPSN:2K OHM,5%,0.25W	01121	CB2025
R104	321-0068-00			RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R105	315-0202-00			RES.,FXD,CMPSN:2K OHM,5%,0.25W	01121	CB2025
R108	321-0068-00			RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R109	315-0202-00			RES.,FXD,CMPSN:2K OHM,5%,0.25W	01121	CB2025
R112	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R113	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R114	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R116	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R120	315-0152-00			RES.,FXD,CMPSN:1.5K OHM,5%,0.25W	01121	CB1525
R123	315-0511-00			RES.,FXD,CMPSN:510 OHM,5%,0.25W	01121	CB5115
R124	315-0151-00			RES.,FXD,CMPSN:150 OHM,5%,0.25W	01121	CB1515
R126	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R128	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R129	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R130	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R132	315-0161-00			RES.,FXD,CMPSN:160 OHM,5%,0.25W	01121	CB1615
R137	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R139	315-0161-00			RES.,FXD,CMPSN:160 OHM,5%,0.25W	01121	CB1615
R142	315-0123-00			RES.,FXD,CMPSN:12K OHM,5%,0.25W	01121	CB1235
R144	315-0123-00			RES.,FXD,CMPSN:12K OHM,5%,0.25W	01121	CB1235
R148	301-0362-00			RES.,FXD,CMPSN:3.6K OHM,5%,0.50W	01121	EB3625
R158	301-0362-00			RES.,FXD,CMPSN:3.6K OHM,5%,0.50W	01121	EB3625
R161	315-0751-00			RES.,FXD,CMPSN:750 OHM,5%,0.25W	01121	CB7515
R163	315-0391-00			RES.,FXD,CMPSN:390 OHM,5%,0.25W	01121	CB3915
R165	315-0752-00			RES.,FXD,CMPSN:7.5K OHM,5%,0.25W	01121	CB7525
R166	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R168	315-0391-00			RES.,FXD,CMPSN:390 OHM,5%,0.25W	01121	CB3915
R169	315-0512-00			RES.,FXD,CMPSN:5.1K OHM,5%,0.25W	01121	CB5125
R201	315-0273-00			RES.,FXD,CMPSN:27K OHM,5%,0.25W	01121	CB2735
R203	321-1601-04			RES.,FXD,FILM:58.59K OHM,0.1%,0.125W	91637	MFF1816D58591B
R207	315-0183-00			RES.,FXD,CMPSN:18K OHM,5%,0.25W	01121	CB1835
R209	321-1602-04			RES.,FXD,FILM:29.27K OHM,0.1%,0.125W	91637	MFF1816D29271B
R213	315-0103-00			RES.,FXD,CMPSN:10K OHM,5%,0.25W	01121	CB1035
R215	321-1603-04			RES.,FXD,FILM:14.61 OHM,0.1%,0.125W	91637	MFF1816D14611B
R219	315-0823-00			RES.,FXD,CMPSN:82K OHM,5%,0.25W	01121	CB8235

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Serial/Model No. Dscont	Name & Description	Mfr Code	Mfr Part Number
R221	321-1603-04			RES., FXD, FILM: 14.61K OHM, 0.1%, 0.125W	91637	MFF1816D14611B
R225	315-0823-00			RES., FXD, CMPSN: 82K OHM, 5%, 0.25W	01121	CB8235
R227	321-1602-04			RES., FXD, FILM: 29.27K OHM, 0.1%, 0.125W	91637	MFF1816D29271B
R231	315-0823-00			RES., FXD, CMPSN: 82K OHM, 5%, 0.25W	01121	CB8235
R233	321-1601-04			RES., FXD, FILM: 58.59K OHM, 0.1%, 0.125W	91637	MFF1816D58591B
R237	315-0273-00			RES., FXD, CMPSN: 27K OHM, 5%, 0.25W	01121	CB2735
R239	321-1601-04			RES., FXD, FILM: 58.59K OHM, 0.1%, 0.125W	91637	MFF1816D58591B
R243	315-0183-00			RES., FXD, CMPSN: 18K OHM, 5%, 0.25W	01121	CB1835
R245	321-1602-04			RES., FXD, FILM: 29.27K OHM, 0.1%, 0.125W	91637	MFF1816D29271B
R249	315-0103-00			RES., FXD, CMPSN: 10K OHM, 5%, 0.25W	01121	CB1035
R251	321-1603-04			RES., FXD, FILM: 14.61K OHM, 0.1%, 0.125W	91637	MFF1816D4611B
R255	315-0823-00			RES., FXD, CMPSN: 82K OHM, 5%, 0.25W	01121	CB8235
R257	321-1603-04			RES., FXD, FILM: 14.61K OHM, 0.1%, 0.125W	91637	MFF1816D14611B
R261	315-0823-00			RES., FXD, CMPSN: 82K OHM, 5%, 0.25W	01121	CB8235
R263	321-1602-04			RES., FXD, FILM: 29.27K OHM, 0.1%, 0.125W	91637	MFF1816D29271B
R267	315-0823-00			RES., FXD, CMPSN: 82K OHM, 5%, 0.25W	01121	CB8235
R269	321-1601-04			RES., FXD, FILM: 58.59K OHM, 0.1%, 0.125W	91637	MFF1816D58591B
R276	315-0433-00			RES., FXD, CMPSN: 43K OHM, 5%, 0.25W	01121	CB4335
R278	315-0433-00			RES., FXD, CMPSN: 43K OHM, 5%, 0.25W	01121	CB4335
R280	321-0231-00			RES., FXD, FILM: 2.49K OHM, 1%, 0.125W	91637	MFF1816G24900F
R282	317-0101-00			RES., FXD, CMPSN: 100 OHM, 5%, 0.125W	01121	BB1015
R284	315-0182-00			RES., FXD, CMPSN: 1.8K OHM, 5%, 0.25W	01121	CB1825
R286	317-0510-00			RES., FXD, CMPSN: 51 OHM, 5%, 0.125W	01121	BB5105
R287	322-0193-09			RES., FXD, FILM: 1K OHM, 1%, 0.25W	75042	CEBT9-1001F
R288	317-0153-00			RES., FXD, CMPSN: 15K OHM, 5%, 0.125W	01121	BB1535
R289	317-0431-00			RES., FXD, CMPSN: 430 OHM, 5%, 0.125W	01121	BB4315
R290	322-0145-00			RES., FXD, FILM: 316 OHM, 1%, 0.25W	75042	CEBT0-3160F
R292	317-0101-00			RES., FXD, CMPSN: 100 OHM, 5%, 0.125W	01121	BB1015
R294	315-0182-00			RES., FXD, CMPSN: 1.8K OHM, 5%, 0.25W	01121	CB1825
R296	301-0821-00			RES., FXD, CMPSN: 820 OHM, 5%, 0.50W	01121	EB8215
R299	301-0821-00			RES., FXD, CMPSN: 820 OHM, 5%, 0.50W	01121	EB8215
R300	317-0101-00			RES., FXD, CMPSN: 100 OHM, 5%, 0.125W	01121	BB1015
R302	301-0821-00			RES., FXD, CMPSN: 820 OHM, 5%, 0.50W	01121	EB8215
R303	315-0131-00			RES., FXD, CMPSN: 130 OHM, 5%, 0.25W	01121	CB1315
R305	317-0101-00			RES., FXD, CMPSN: 100 OHM, 5%, 0.125W	01121	BB1015
R307	315-0131-00			RES., FXD, CMPSN: 130 OHM, 5%, 0.25W	01121	CB1315
R308	301-0821-00			RES., FXD, CMPSN: 820 OHM, 5%, 0.50W	01121	EB8215
R310	301-0132-00			RES., FXD, CMPSN: 1.3K OHM, 5%, 0.50W	01121	EB1325
R313	301-0821-00			RES., FXD, CMPSN: 820 OHM, 5%, 0.50W	01121	EB8215
R314	311-1225-00			RES., VAR, NONWIR: 1K OHM, 20%, 0.50W	32997	3386F-T04-102
R319	317-0510-00			RES., FXD, CMPSN: 51 OHM, 5%, 0.125W	01121	BB5105
R320	317-0751-00			RES., FXD, CMPSN: 750 OHM, 5%, 0.125W	01121	BB7515
R321	321-1068-01			RES., FXD, FILM: 50.5 OHM, 0.5%, 0.125W	91637	MFF1816G50R50D
R322	317-0301-00			RES., FXD, CMPSN: 300 OHM, 5%, 0.125W	01121	BB3015
R324	317-0510-00			RES., FXD, CMPSN: 51 OHM, 5%, 0.125W	01121	BB5105
R325	317-0751-00			RES., FXD, CMPSN: 750 OHM, 5%, 0.125W	01121	BB7515
R326	321-1068-01			RES., FXD, FILM: 50.5 OHM, 0.5%, 0.125W	91637	MFF1816G50R50D
R327	317-0301-00			RES., FXD, CMPSN: 300 OHM, 5%, 0.125W	01121	BB3015
R328	315-0162-00			RES., FXD, CMPSN: 1.6K OHM, 5%, 0.25W	01121	CB1625
R329	315-0162-00			RES., FXD, CMPSN: 1.6K OHM, 5%, 0.25W	01121	CB1625
R330	311-0948-00			RES., VAR, NONWIR: TRMR, 3X1K OHM, 2W	11236	17486
R335	311-0389-00			RES., VAR, NONWIR: 2.10K OHM, 0.5W	71590	BA149-024
R343	321-0771-03			RES., FXD, FILM: 50 OHM, 0.25%, 0.125W	91637	MFF1816D50R00C

Replaceable Electrical Parts—Type 067-0680-00

Ckt No.	Tektronix Part No.	Serial/Model No.	Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R344	321-0771-03				RES.,FXD,FILM:50 OHM,0.25%,0.125W	91637	MFF1816D50R00C
R345	321-0068-00	B010100	B05293		RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R345	321-0771-03	B05294			RES.,FXD,FILM:50 OHM,0.25%,0.125W	91637	MFF1816D50R00C
R346	321-0068-00	B010100	B05293		RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R346	321-0771-03	B05294			RES.,FXD,FILM:50 OHM,0.25%,0.125W	91637	MFF1816D50R00C
R347	321-0068-00				RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
R348	321-0068-00				RES.,FXD,FILM:49.9 OHM,1%,0.125W	91637	MFF1816G49R90F
S150 ¹	670-1178-01				CKT BOARD ASSY:REP RATE SW	80009	670-1178-01
U30	155-0078-00				MICROCIRCUIT,LI:ML,VERT AMPL	80009	155-0078-00
U90	156-0067-00				MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U94	156-0067-00				MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U180	156-0032-00				MICROCIRCUIT,DI:4-BIT BINARY COUNTER	01295	SN7493AN
U185	156-0078-00				MICROCIRCUIT,DI:4 TO 16 LINE DECODER	01295	SN74154N
U190	156-0047-00				MICROCIRCUIT,DI:TPL 3-INPUT POS NAND GATE	80009	156-0047-00
U195	156-0030-00				MICROCIRCUIT,DI:QUAD 2-INPUT POS NAND GATE	01295	SN7400N
U200	156-0058-00				MICROCIRCUIT,DI:HEX. INVERTER	01295	SN7404N
VR96	152-0217-00				SEMICOND DEVICE:ZENER,0.4W,8.2V,5%	80009	152-0217-00
VR133	152-0195-00				SEMICOND DEVICE:ZENER,0.4W,5.1V,5%	80009	152-0195-00
VR135	152-0195-00				SEMICOND DEVICE:ZENER,0.4W,5.1V,5%	80009	152-0195-00
VR145	152-0243-00				SEMICOND DEVICE:ZENER,0.4W,15V,5%	81483	1N965B
VR147	152-0243-00				SEMICOND DEVICE:ZENER,0.4W,15V,5%	81483	1N965B
VR283	152-0395-00				SEMICOND DEVICE:ZENER,0.4W,4.3V,5%	04713	1N749A
VR293	152-0278-00				SEMICOND DEVICE:ZENER,0.4W,3V,5%	07910	1N4372A

¹For replacement parts see Mechanical Parts List.

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	<i>Name & Description</i>
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	ELCLTLT	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	SFLKG	SELF-LOCKING
ATTEN	ATTENUATOR	FLEX	FLEXIBLE	NIP	NIPPLE	SLVG	SLEEVING
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	OVH	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	IDENT	IDENTIFICATION	SCOPE	OSCILLOSCOPE	XFMR	TRANSFORMER
DWR	DRAWER	IMPLR	IMPELLER	SCR	SCREW	XSTR	TRANSISTOR

Replaceable Mechanical Parts—Type 067-0680-00

CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
00779	AMP, INC.	P O BOX 3608	HARRISBURG, PA 17105
22526	BERG ELECTRONICS, INC.	YOUK EXPRESSWAY	NEW CUMBERLAND, PA 17070
23499	GAVITT WIRE AND CABLE, DIVISION OF RSC INDUSTRIES, INC.	455 N. QUINCE ST.	ESCONDIDO, CA 92025
45722	USM CORP., PARKER-KALON FASTENER DIV.	P. O. DRAWER 570	CAMPBELLSVILLE, KY 42718
70276	ALLEN MFG. CO.	446 MORGAN ST.	HARTFORD, CT 06101
73743	FISCHER SPECIAL MFG. CO.	31 BROOK ST. WEST	CINCINNATI, OH 45206
74445	HOLO-KROME CO.		HARTFORD, CT 06110
77250	PHEOLL MANUFACTURING CO., DIVISION OF ALLIED PRODUCTS CORP.	5700 W. ROOSEVELT RD.	CHICAGO, IL 60650
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
83385	CENTRAL SCREW CO.	2530 CRESCENT DR.	BROADVIEW, IL 60153
91836	KINGS ELECTRONICS CO., INC.	40 MARBLEDALE ROAD	TUCKAHOE, NY 10707
97464	INDUSTRIAL RETAINING RING CO.	57 CORDIER ST.	IRVINGTON, NJ 07111

Replaceable Mechanical Parts—Type 067-0680-00

Fig. &
Index
No.Tektronix
Part No.
Eff
Serial/Model No.
Dscont

Qty 1 2 3 4 5

Name & Description

Mfr
Code Mfr Part Number

-1	366-0497-00		1 KNOB:GRAY	80009	366-0497-00
	213-0153-00		1 . SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-2	366-1028-00		1 KNOB:GRAY	80009	366-1028-00
	213-0153-00		1 . SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-3	366-1024-00		1 KNOB:GRAY	80009	366-1024-00
	213-0153-00		1 . SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-4	-----		1 RES.,NONWIR:(SEE R330 EPL) (ATTACHING PARTS)		
-5	210-0255-00		1 TERMINAL,LUG:0.391" ID INT TOOTH	80009	210-0255-00
-6	210-0978-00		1 WASHER,FLAT:0.375 ID X 0.50 INCH OD,STL	78471	OBD
-7	210-0590-00		1 NUT,PLAIN,HEX.:0.375 X 0.438 INCH,STL ----- * -----	73743	2X28269-402
-8	-----		1 RES.,NONWIR:(SEE R335 EPL) (ATTACHING PARTS)		
-9	210-0940-00		1 WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
-10	210-0583-00		1 NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS ----- * -----	73743	2X20224-402
-11	333-1769-00		1 PANEL,FRONT:	80009	333-1769-00
-12	131-0818-00		3 CONNECTOR,RCPT,:BNC,FEMALE	91836	KC19-153BNC
-13	358-0216-00		1 BUSHING,PLASTIC:0.257 ID X 0.412 INCH OD	80009	358-0216-00
-14	352-0157-00		1 LAMPHOLDER:WHITE PLASTIC	80009	352-0157-00
-15	378-0602-00		1 LENS,LIGHT:GREEN	80009	378-0602-00
-16	200-0935-00		1 BASE,LAMPHOLDER:0.29 OD X 0.19 CASE	80009	200-0935-00
-17	131-1372-00	B010100 B020380	2 CONTACT,ELEC:PLUG-IN GND,CU BE BRT DIP	80009	131-1372-00
	131-1372-01	B020381	2 CONTACT,ELEC:PLUG-IN GND,CU BE BRT DIP	80009	131-1372-01
-18	386-2402-01		1 SUBPANEL,FRONT:	80009	386-2402-01
-19	366-1286-02	B010100 B020310	1 KNOB:LATCH	80009	366-1286-02
	366-1690-00	B020311	1 KNOB,LATCH:	80009	366-1690-00
	214-1840-00	B010100 B020310	1 PIN,KNOB SECRG:0.094 OD X 0.120 INCH LONG	80009	214-1840-00
	214-1513-01	B010100 B020310	1 LCH,PLUG-IN RET:	80009	214-1513-01
-20	105-0719-00	B020311	1 LATCH,RETAINING:PLUG-IN (ATTACHING PARTS)	80009	105-0719-00
-21	213-0254-00		1 SCR,TPG,THD CTG:2-32 X 0.250,100 DEG,FLH ----- * -----	45722	OBD
-22	105-0718-00	B020311	1 RELEASE,LATCH:	80009	105-0718-00
-23	337-1852-00		1 SHIELD,ELEC:REAR SUBPANEL	80009	337-1852-00
-24	426-0725-02		1 FR SECT,PLUG-IN:TOP (ATTACHING PARTS)	80009	426-0725-02
-25	213-0229-00		2 SCR,TPG,THD FOR:6-20 X0.375"100 DEG,FLH STL ----- * -----	83385	OBD
-26	426-0724-02		1 FR SECT,PLUG-IN:BOTTOM (ATTACHING PARTS)	80009	426-0724-02
	213-0229-00		1 SCR,TPG,THD FOR:6-20 X0.375"100 DEG,FLH STL ----- * -----	83385	OBD
-27	-----		1 CIRCUIT BOARD ASSY:SWITCH--REP RATE(S150 EPL)		
-28	131-0589-00		9 . CONTACT,ELEC:0.46 INCH LONG (ATTACHING PARTS)	22526	47350
	380-0156-02		1 . HOUSING,LIGHT:		
-29	211-0156-00		2 . SCREW,MACHINE:1-72 X 0.25",82 DEG,FLH STL ----- * -----	77250	OBD
-30	337-1399-00		2 SHLD,ELECTRICAL:SIDE	80009	337-1399-00
	672-0064-00		1 CIRCUIT BOARD ASSY:--FUNCTION	80009	672-0064-00
-31	200-1416-00		2 . COVER,CONTACTS:3.875 CLEAR PLASTIC	80009	200-1416-00
-32	352-0336-00		4 . HOLDER,COVER: (ATTACHING PARTS FOR EACH)	80009	352-0336-00
-33	211-0116-00		2 . SCR,ASSEM WSHR:4-40 X 0.312 INCH,PNH BRS ----- * -----	83385	OBD
-34	200-1362-00		2 . COVER,CAM SW:BLACK PLASTIC (ATTACHING PARTS FOR EACH)	80009	200-1362-00
-35	211-0116-00		3 . SCR,ASSEM WSHR:4-40 X 0.312 INCH,PNH BRS	83385	OBD
-36	210-0406-00		3 . NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS ----- * -----	73743	2X12161-402

Replaceable Mechanical Parts—Type 067-0680-00

Fig. &

Index No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
-37	214-1127-00		2	.	ROLLER,DETENT:0.125 DIA X 0.125 INCH L	80009	214-1127-00
-38	214-1139-02 ¹		2	.	SPRING,FLAT:GREEN COLORED	80009	214-1139-02
	214-1139-03 ¹		2	.	SPRING,FLAT:RED COLORED	80009	214-1139-03
-39	401-0115-00		1	.	BEARING,CAM SW:CENTER (ATTACHING PARTS)	80009	401-0115-00
-40	211-0116-00		2	.	SCR,ASSEM WSHR:4-40 X 0.312 INCH,PNH BRS	83385	OBD
-41	210-0406-00		2	.	NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS ----- * -----	73743	2X12161-402
-42	354-0391-00		1	.	RING,RETAINING:0.395"FREE ID X 0.025" STL	97464	3100-43-CD
-43	401-0081-00		1	.	BEARING,CAM SW:FRONT (ATTACHING PARTS)	80009	401-0081-00
-44	211-0116-00		2	.	SCR,ASSEM WSHR:4-40 X 0.312 INCH,PNH BRS	83385	OBD
-45	210-0406-00		2	.	NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS ----- * -----	73743	2X12161-402
-46	105-0337-00		1	.	ACTUATOR,CAM SW:	80009	105-0337-00
-47	----- -----		1	CKT BOARD ASSY:SW(SEE A2 EPL)			
-48	131-0608-00		6	.	CONTACT,ELEC:0.365 L X 0.25	22526	47357
-49	131-1031-00		22	.	CONTACT ASSY,EL:CAM SWITCH,TOP	80009	131-1031-00
-50	131-1030-00		22	.	CONTACT ASSY,EL:CAM SWITCH,BOTTOM	80009	131-1030-00
-51	136-0327-01		4	.	SOCKET,PIN TERM:0.067 INCH DIA (ATTACHING PARTS FOR CKT BD)	00779	86281-2
-52	211-0116-00		7	SCR,ASSEM WSHR:4-40 X 0.312 INCH,PNH BRS	83385	OBD	
-53	210-0406-00		7	NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS ----- * -----	73743	2X12161-402	
-54	----- -----		1	CKT BOARD ASSY:PULSER(SEE A1 EPL)			
-55	131-0589-00		15	.	CONTACT,ELEC:0.46 INCH LONG	22526	47350
-56	131-0595-00		4	.	CONTACT,ELEC:1.37 INCH LONG	22526	47355
-57	131-0608-00		6	.	CONTACT,ELEC:0.365 L X 0.25 PH BRZ GOLD PL	22526	47357
-58	352-0274-00		1	.	HOLDER,TERMINAL:FOR 8 SQUARE PINS	80009	352-0274-00
-59	131-1003-00		4	.	CONNECTOR BODY,:CKT CD MT,3 PRONG	80009	131-1003-00
-60	136-0252-04		142	.	SOCKET,PIN TERM:0.188 INCH LONG	22526	75060
-61	344-0061-00		12	.	CLIP,ELECTRICAL: (ATTACHING PARTS FOR CKT BD ASSY)	80009	344-0061-00
-62	213-0146-00		4	SCR,TPG,THD FOR:6-20 X 0.313 INCH,PNH STL ----- * -----	83385	OBD	
-63	376-0060-00		1	CLPG,SHAFT,FLEX:0.125 DIA SHAFT,PLASTIC	80009	376-0060-00	
	213-0075-00		4	.	SETSCREW:4-40 X 0.50 INCH,HEX SOC STL	70276	OBD
-64	384-0086-00		1	EXTENSION SHAFT:5.188 L X 0.25 OD AL	80009	384-0086-00	
-65	179-2040-00		1	WIRING HARNESS:MAIN	80009	179-2040-00	
-66	131-0621-00		3	.	CONTACT,ELEC:0.577" L,22-26 AWG WIRE	22526	46233
	131-0707-00		11	.	CONTACT,ELEC:0.48" L,22-26 AWG WIRE	22526	75691-005
	131-0708-00		1	.	CONTACT,ELEC:0.48" L,28-32 AWG WIRE	22526	47437
-67	352-0162-00		2	.	CONN BODY,PL,EL:4 WIRE BLACK	80009	352-0162-00
-68	352-0169-00		2	.	CONN BODY,PL,EL:2 WIRE BLACK	80009	352-0169-00
-69	175-0859-00		FT	WIRE,ELECTRICAL:6 WIRE RIBBON,0.375 FT L	23499	TEK-175-0859-00	
-70	352-0165-00		1	CONN BODY,PL,EL:7 WIRE BLACK	80009	352-0165-00	
-71	352-0205-00		1	CONN BODY,PL,EL:9 WIRE BLACK	80009	352-0205-00	
-72	352-0198-00		1	CONN BODY,PL,EL:2 WIRE BLACK	80009	352-0198-00	
-73	210-0774-00		2	EYELET,METALLIC:0.152 OD X 0.245 INCH L,BRS	80009	210-0774-00	
-74	210-0775-00		2	EYELET,METALLIC:0.126 OD X 0.23 INCH L,BRS	80009	210-0775-00	

STANDARD ACCESSORIES

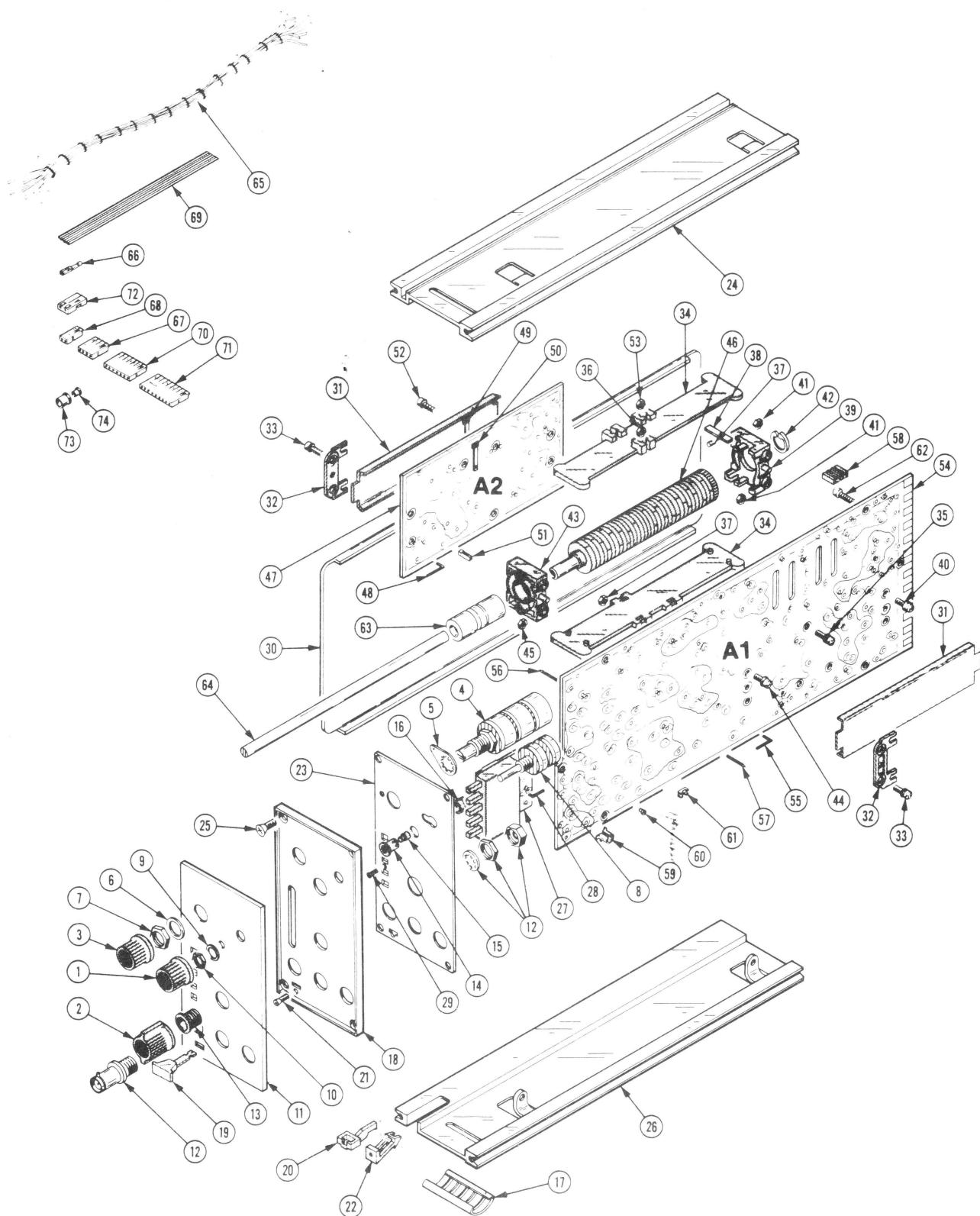
062-1587-01

1 MANUAL,TECH:INSTRUMENT

80009 062-1587-01

¹Replace only with part bearing the same color as original part in your instrument.

EXPLODED





TEKTRONIX®
committed to
technical excellence

MANUAL CHANGE INFORMATION

PRODUCT 067-0680-00 CHANGE REFERENCE C1/178
 062-1587-01 DATE 1-4-78

CHANGE:

DESCRIPTION

EFF ALL SN

CHARACTERISTICS CHANGE

Page 1-1

CHANGE TO:

VERT or HORIZ Mode

STEP RESPONSE

Risetime 800 ps or less displayed on 50 Ω
 sampling equipment

ELECTRICAL PARTS LIST CORRECTION

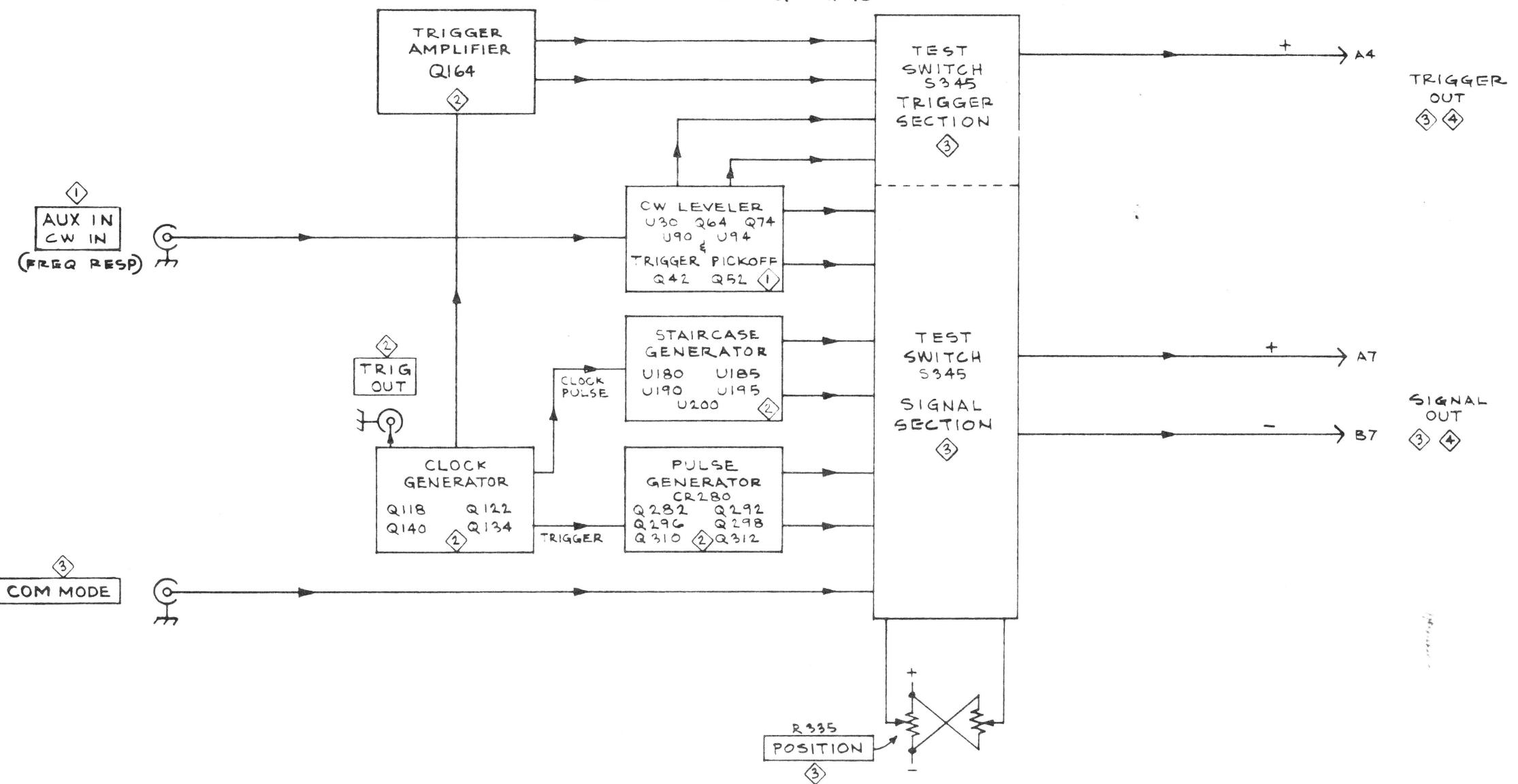
CHANGE TO:

CR280 152-0177-01 SEMICOND DEVICE:TUNNEL,10MA,4PF 80009 152-0177-C1

ADD:

DS150 150-0048-00 LAMP ,INCAND:5V,60MA 08806 683

SECTION 4
SCHEMATIC DIAGRAMS

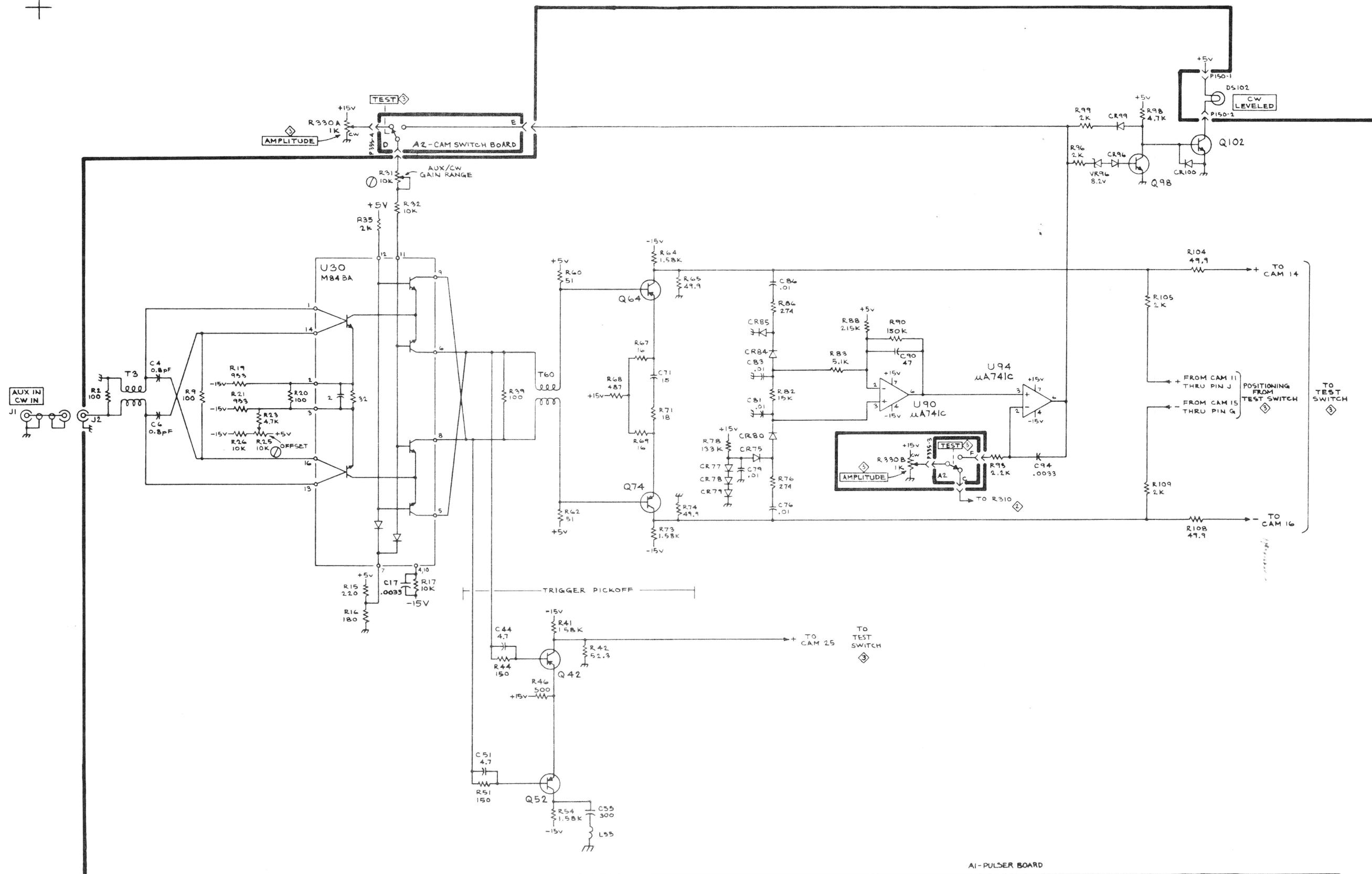


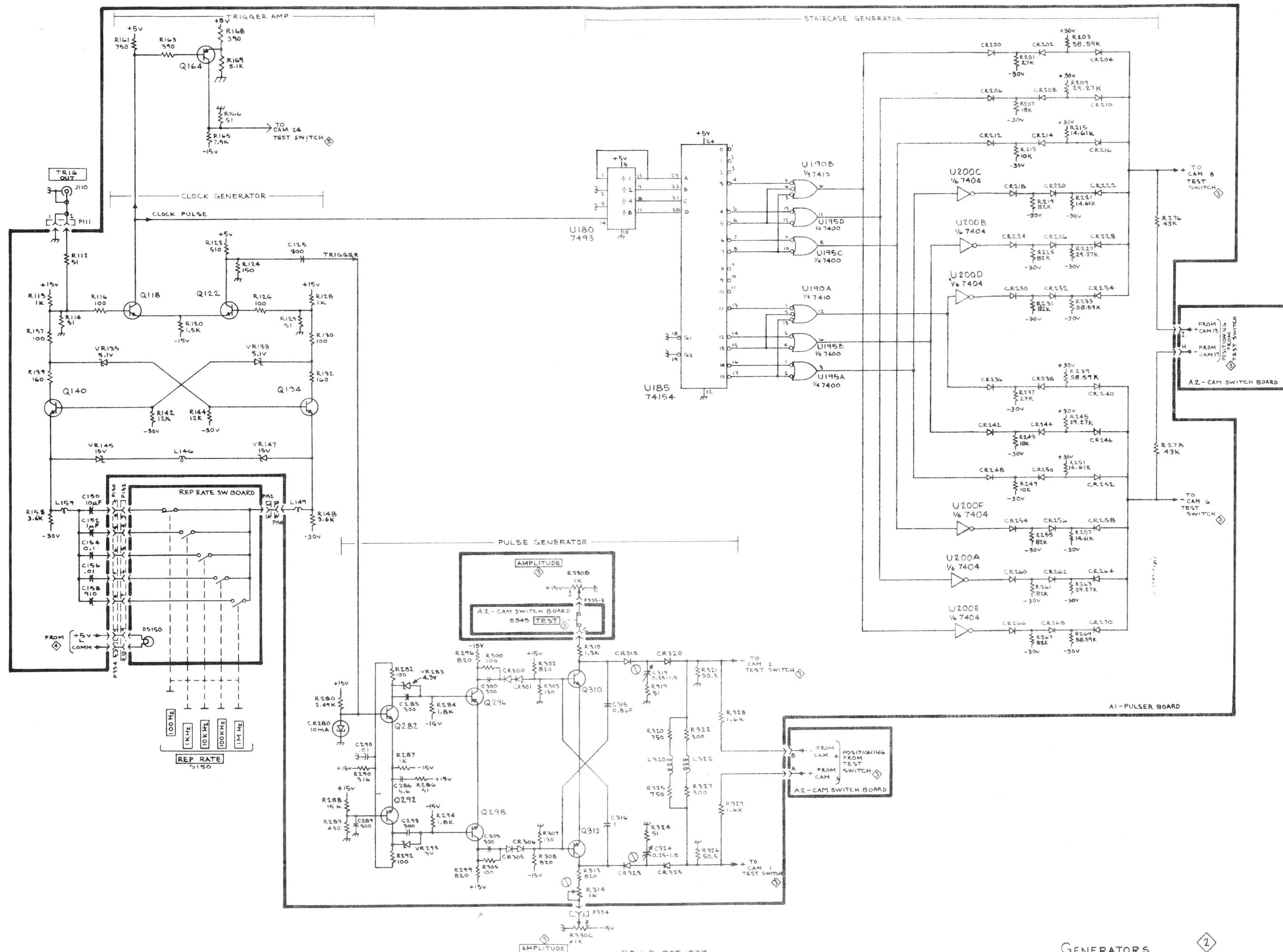
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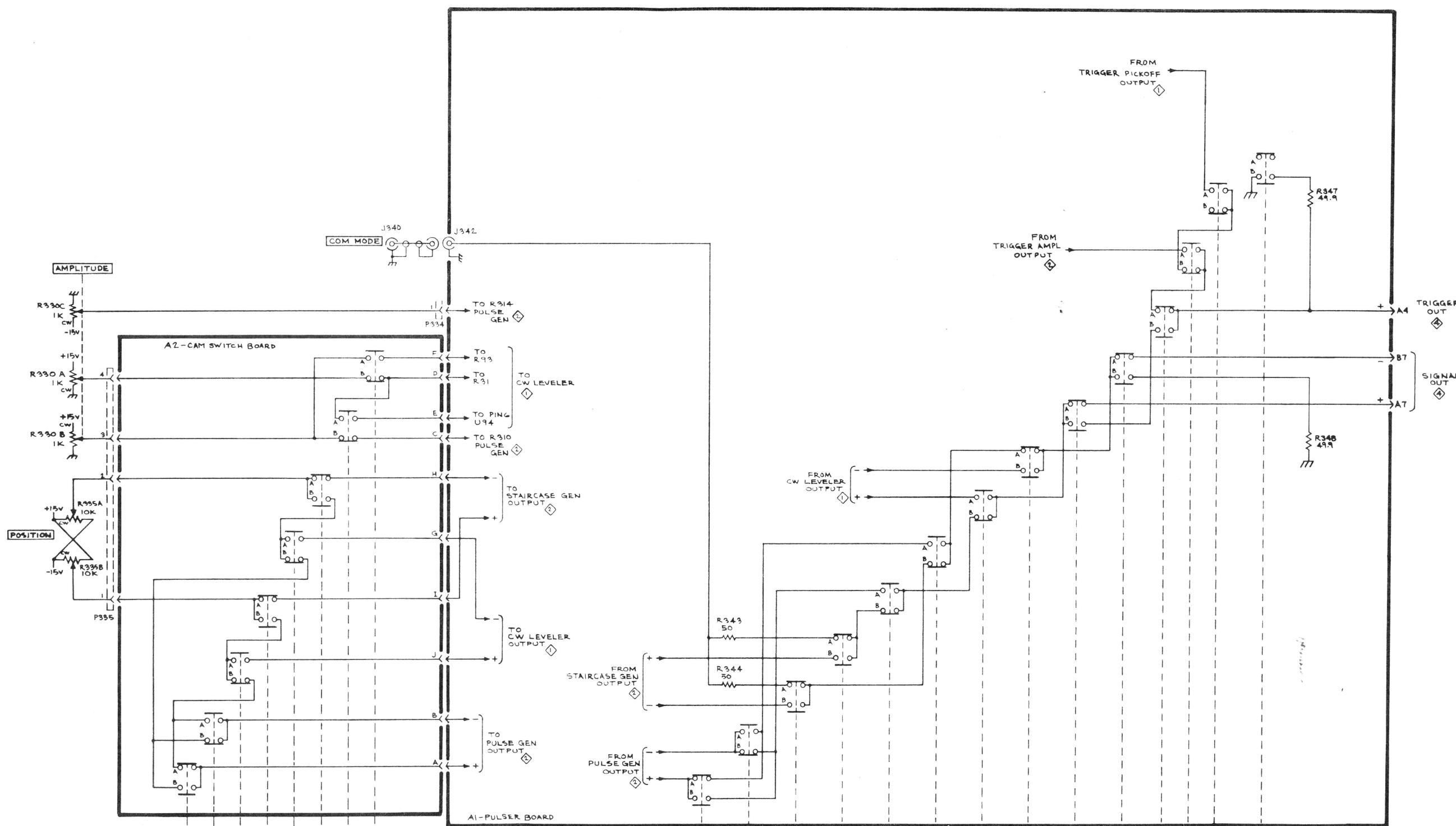
REV. A, OCT. 1977

BLOCK DIAGRAM

067-0680-00







	3	4	11	13	15	17	19	21
VERT OR HORIZ	COM MODE	●	●		●	●	●	
	GAIN	●	●		●	●	●	
	+ STEP	●	●		●	●	●	
	- STEP	●	●		●	●	●	
FREQ RESP		●	●		●	●	●	
AUX IN		●	●		●	●	●	
GAIN		●	●		●	●	●	
+ STEP		●	●		●	●	●	
- STEP		●	●		●	●	●	
FREQ RESP		●	●		●	●	●	

	1	2	6	8	9	12	14	16	18	20	23	24	25	17	CCW
COM MODE	●				●		●		●		●	●			
GAIN	●				●		●		●		●	●			
+ STEP		●			●		●		●		●	●			
- STEP		●			●		●		●		●	●			
FREQ RESP		●			●		●		●		●	●			
AUX IN		●			●		●		●		●	●			
GAIN		●			●		●		●		●	●			
+ STEP		●			●		●		●		●	●			
- STEP		●			●		●		●		●	●			
FREQ RESP		●			●		●		●		●	●			

NOTES: SWITCH IS SHOWN IN COM MODE POSITION.

CLOSURE CHART IS KEYED TO B SWITCH CONTACTS.

B SWITCH CONTACTS ARE ON CAM SIDE OF BOARDS.

REV. B, OCT 1977

