

**TEKTRONIX®**

**P7001  
SAMPLE & HOLD**

**670-2382-00**

INSTRUCTION MANUAL

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

Serial Number \_\_\_\_\_

## **WARRANTY**

**All TEKTRONIX instruments are warranted against defective materials and workmanship for one year. Any questions with respect to the warranty should be taken up with your TEKTRONIX Field Engineer or representative.**

**All requests for repairs and replacement parts should be directed to the TEKTRONIX Field Office or representative in your area. This will assure you the fastest possible service. Please include the instrument Type Number or Part Number and Serial Number with all requests for parts or service.**

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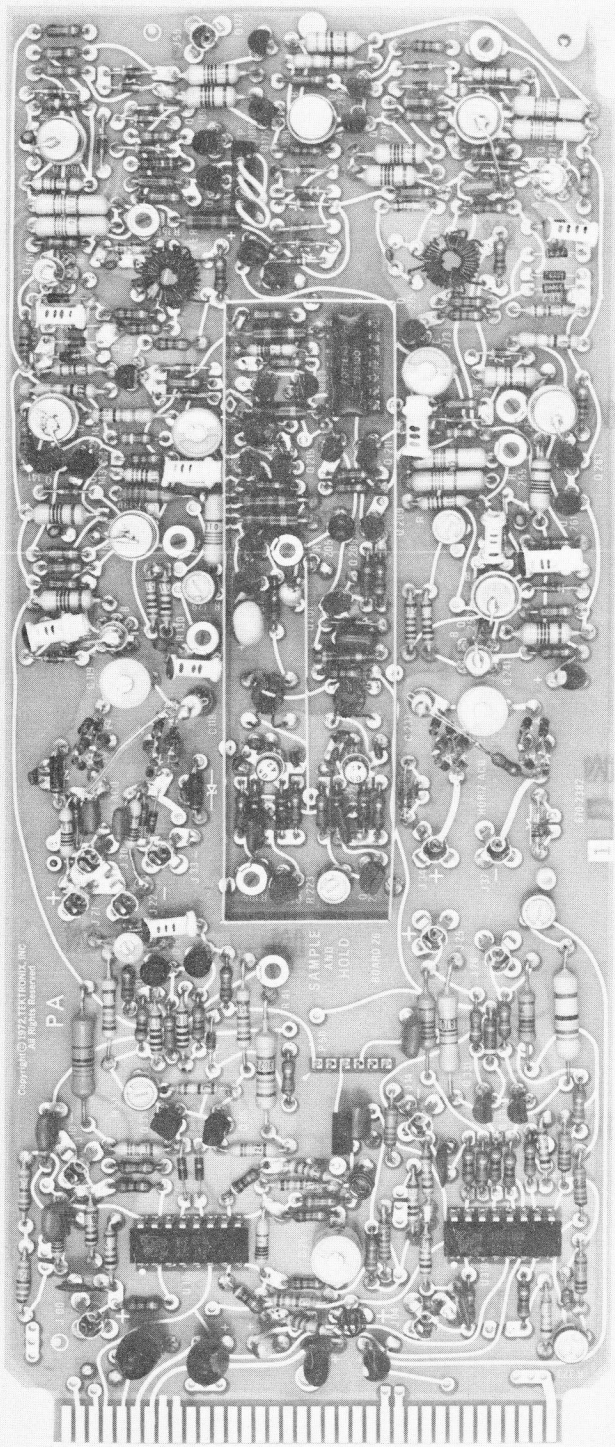
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# P7001 SAMPLE AND HOLD

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PA

SAMPLE  
AND  
HOLD

BOARD 21

1810-01

SAMPLE AND HOLD CARD.

SECTION 1

Introduction

The Sample and Hold Card in the P7001 obtains samples of waveforms generated by the Acquisition Unit of the 7704A. The A-D Converter converts the horizontal sample to a binary word of 9 bits (512 points), and the vertical sample to a binary word of 10 bits (1024 points). The horizontal sample determines the address in Memory at which the vertical sample is stored.

Working directly with the A-D Converter Card, which determines sampling rate, the Sample and Hold takes a horizontal and a vertical sample every 6.5 microseconds, regardless of sweep speeds. For sweeps slower than 0.5 milliseconds/division, all 512 horizontal locations are filled in one sweep. Sampling of repetitive waveforms at sweep speeds faster than 0.5 milliseconds/division is thus done on an equivalent basis. That is, when repetitive waveforms are sampled, subsequent sweeps provide new and/or updated samples until the A-D Converter is commanded into the HOLD mode. The combination of new and old samples in Memory provides a complete waveform.

The Sample and Hold circuit card consists of a display switching circuit, sampler circuits, and multiplexing circuits. The display switching circuits determine which waveform (real time or stored) is sent to the Display Unit for presentation. The sampler circuits generate replicas of the input vertical and horizontal signals from the Acquisition plug-in units. The multiplexing circuits switch the sampled signals at the sampling repetition rate for conversion to digital data by the A-D Converter. Fig. 1-1 illustrates the relationship

of the Sample and Hold circuits to the other P7001 circuit cards and the Digital Processing Oscilloscope (DPO). Fig. 1-2 is an overall block diagram of the Sample and Hold circuits.

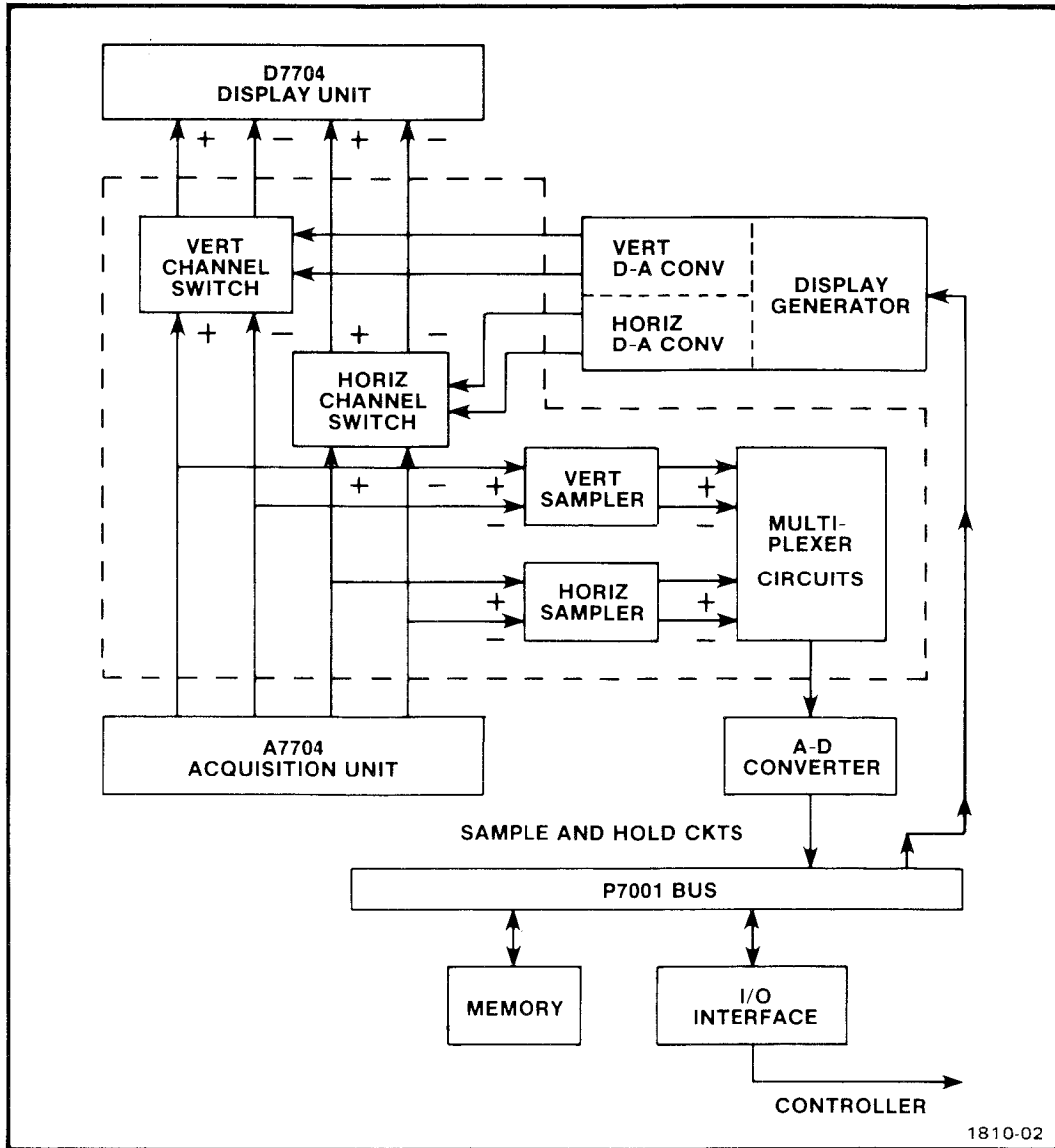
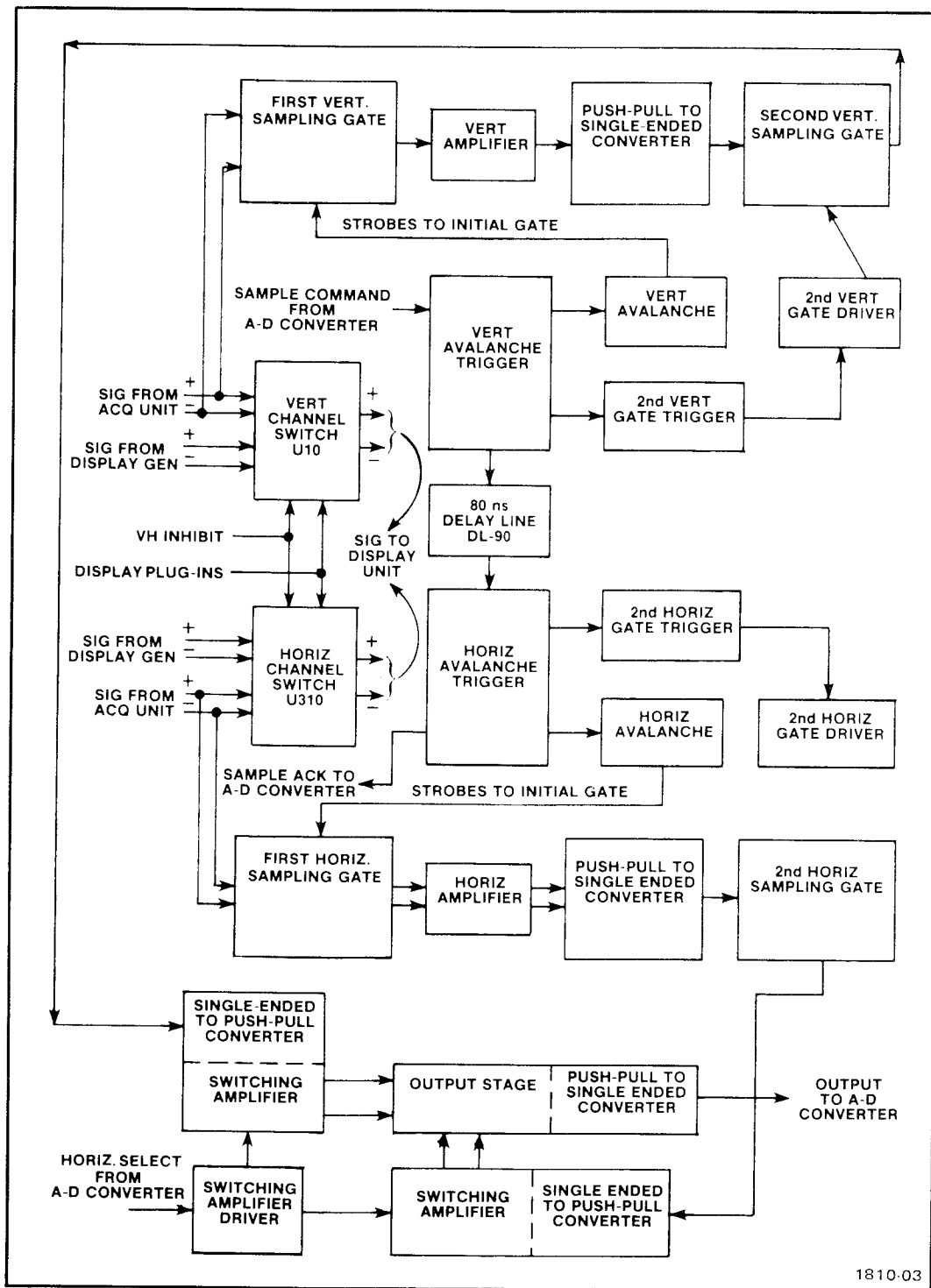


Fig. 1-1. Sample and Hold Circuits in the DPO.



1810-03

Fig. 1-2. Block Diagram of Sample and Hold Circuitry.





SECTION 2

Circuit Description

This section describes the Sample and Hold card in three basic parts: 1) Signal Interface, 2) Samplers, and 3) Multiplexing circuits.

Signal Interface

The signal interface circuits consist of the Vertical and Horizontal Channel Switches. Deflection signals for the CRT in the Display Unit are controlled by these switches. Each switch can be looked at as if it were a double-pole-triple-throw switch. That is, the input to the Display Unit can be switched to the output of the Plug-ins in the Acquisition Unit or the output of the Display Generator in the P7001 Processor, or turned off for display of Readout Characters.

The operation of each switch (vertical or horizontal) is identical; therefore, only the Vertical Switching portions will be described here.

Vertical Channel Switch. U10 (Diag. 6A) determines whether the Display Unit will receive vertical signals from the Acquisition Unit, the Display Generator Card, or both, alternately (chopped). Switching is controlled by a command signal from the Z-Axis/Front Panel Card. See Fig. 2-1 for input/output logic of U10. A VH INHIBIT signal from the Acquisition Unit turns U10 off during the time that readout information is being displayed.

The push-pull output of U10 drives the Vertical Interface Amplifier, Q35, Q45, Q61, and Q67. Signal current balance for U10 is achieved by setting the current into pins 1 and 16, 8 and 9. This is accomplished by adjusting the P7001 front panel Fine Position Display controls (Diag. 4B Front Panel/Z-Axis). The Vertical Interface Amplifier provides a push-pull 50 millivolt/div output signal to the vertical amplifier in the Display Unit.

CHOP COMMAND Pin 4	READOUT X-Y OFF Pin 6	OUTPUT SIGNAL Pins 12-13
LOW	LOW	DISPLAY GENERATOR
HIGH	LOW	SIGNAL FROM ASQUISITION
Pin 6 OVER-RIDES Pin 4	HIGH	NO OUTPUT

1810-04

Fig. 2-1. Input/Output Logic for U10.

### Samplers

The sampling circuits consist of a First Sampling Gate, Amplifier and Push-Pull to Single-Ended converter, and a Second Sampling Gate. The process of sampling is initiated by SAMPLE COMMAND generated by the A-D Converter. This signal is sent when the A-D Converter is ready to accept another sample to be digitized.

Again, we will discuss the Vertical portion of the Sample circuits, since the Horizontal portion is identical in operation except where noted.

Vertical Avalanche Trigger and Avalanche. Comparator Q81 and Q83 (Diag. 6A) receive the SAMPLE COMMAND signal from the A-D Converter and cause Q85 and Q87 to switch. Switching Q85 on brings the avalanche transistor (Q101) into conduction. The generated short-interval strobe pulse is coupled through T110 to the First Sampling Gate bridges.

Horizontal Avalanche Trigger. Q205, Q209, Q211, and Q215 (Diag. 6B) generate the switching signal to drive the Horizontal Avalanche and the Sample Acknowledge stage (Q201). Operation is the same as the Vertical Avalanche Trigger except it is triggered by VERT SAMPLE ENABLE instead of SAMPLE COMMAND.

First Vertical Sampling Gate. The First Vertical Sampling Gate includes eight low-leakage, hot-carrier diodes, CR111, CR112, CR113, CR114, CR116, CR117, CR118, and CR119 (Diag. 6A). The diodes are connected as two four-diode bridges to maintain the push-pull nature of the input signal from the Acquisition Unit.

In the static state, the diodes are reverse biased. Strobe pulses generated by the Vertical Avalanche circuit periodically forward bias the diodes for a very brief interval (900 picoseconds). At that time, the signal level at the input to the bridge is coupled through the bridge and impressed as a voltage on the memory capacitor, which again forward-biases the bridge and allows the capacitor to

charge to the level of the input signal. The sampled signal is coupled through Q121A and Q121B to the Vertical Amplifier stage.

Vertical Amplifier and Push-Pull to Singl-Ended Converter.

The Vertical Amplifier (Q130A and Q130B) converts the push-pull signal voltage to a push-pull current. R137 sets the gain of the stage. The differential signal current is coupled through Q141, Q143, Q145A, and Q145B, which serve to convert the push-pull signal to a single-ended current driving the Second Vertical Sampling Gate. R130 is a Vertical frequency compensation adjustment.

Second Vertical Sampling Gate Driver. Upon SAMPLE COMMAND,

Q97 and Q99 switch and bring Q155 into conduction. The strobe pulse thus generated is coupled through T155 to the second sampling gate.

Second Vertical Sampling Gate. The Second Vertical Sampling

Gate includes four matched low-leakage, hot-carrier diodes, CR156, CR157, CR158, and CR159, connected in a bridge configuration. Operation of the bridge is the same as described for the First Sampling Gate, except that the strobe pulse width for the second gate is approximately 140 nanoseconds. The gate output signal is stored on the memory capacitor, C159. The sampled signal is coupled through Q161A and Q161B to the Single-Ended to Push-Pull Converter and Switching Amplifier.

### Multiplexing Circuits

The two separately sampled vertical and horizontal signals are

time-multiplexed to provide one high impedance output to the A-D Converter. This multiplexing is controlled by the A-D Converter by the state of HORIZ SELECT which comes into Diag. 6B in the lower right corner. HORIZ SELECT is high during output of the Horizontal sample and low during output of the Vertical sample. The generation of HORIZ SELECT and SAMPLE COMMAND are timed by the A-D Converter to insure that the correct signal is sampled and sent to the A-D Converter at the correct time.

Single-Ended to Push-Pull Converter and Switching Amplifier.

The Second Sampling Gate output signal is coupled to Q167A and Q167B (Diag. 6A). Here the signal is reconverted to push-pull current in order to permit high-isolation current switching through CR175 and CR177.

Output Stage. Q175 and Q177 couple the push-pull signal current to Q191A and Q191B (Diag. 6B), which reconverts to a single-ended signal for driving about a 10-ohm virtual ground point on the A-D Converter Card.



## SECTION 3

### Maintenance and Calibration

#### Maintenance

The maintenance and service procedures for the Sample and Hold card are the same as given in the P7001 Processor Service manual, 070-1882-00.

#### Troubleshooting

Troubleshooting of the Sample and Hold card is best accomplished by going through the calibration procedure. When a calibration procedure step cannot be accomplished, that stage should be investigated.

#### Calibration

Calibration of the Sample and Hold card should only be attempted if the Vertical and Horizontal deflection adjustments in the 7704A are correct. Balance, Gain, and Compensation controls on the Sample and Hold card interact with the Balance, Gain, and Compensation controls of the 7704A. For this reason, no procedures for calibration are listed here. Instead, refer to the DPO Specifications and Calibration manual (070-1600-00) for correct procedures.

#### Cable Color Codes

Fig. 3-1 shows the cables (with color codes) coming to the Sample and Hold card from the Display Generator and the APD Interconnect card.

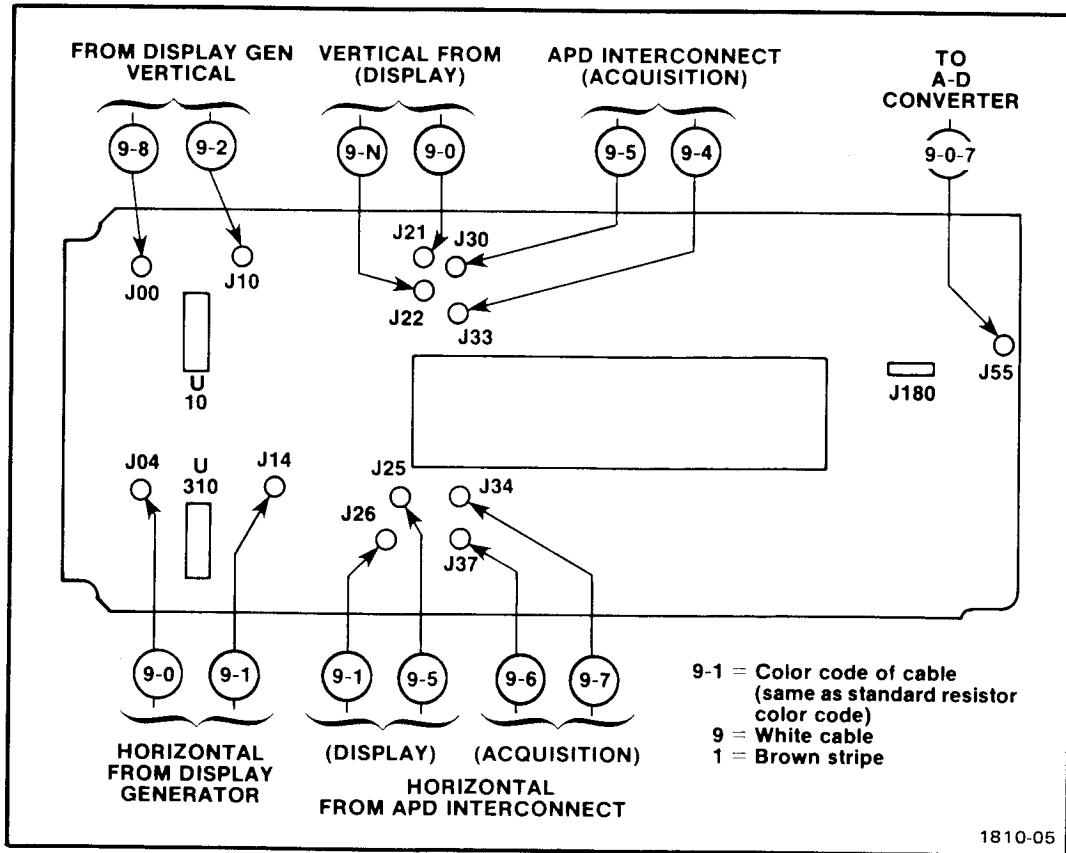


Fig. 3-1. Sample and Hold Coaxial-cable Connection.



# REPLACEABLE PARTS LIST

## PARTS ORDERING INFORMATION

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

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

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

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

## SPECIAL NOTES AND SYMBOLS

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

## FIGURE AND INDEX NUMBERS

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

## INDENTATION SYSTEM

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

```

1 2 3 4 5           Name & Description
Assembly and/or Component
Attaching parts for Assembly and/or Component
  --- * ---
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
  --- * ---
Parts of Detail Part
Attaching parts for Parts of Detail Part
  --- * ---

```

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

**Attaching parts must be purchased separately, unless otherwise specified.**

## ITEM NAME

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

## ABBREVIATIONS

#	INCH	ELCTRN	ELECTRON	IN	INCH	SE	SINGLE END
#	NUMBER SIZE	ELEC	ELECTRICAL	INCAND	INCANDESCENT	SECT	SECTION
ACTR	ACTUATOR	ELECTL	ELECTROLYTIC	INSUL	INSULATOR	SEMICON	SEMICONDUCTOR
ADPTR	ADAPTER	ELEM	ELEMENT	INTL	INTERNAL	SHLD	SHIELD
ALIGN	ALIGNMENT	EPL	ELECTRICAL PARTS LIST	LPHLDR	LAMPHOLDER	SHLDR	SHOULDERED
AL	ALUMINUM	EOPT	EQUIPMENT	MACH	MACHINE	SKT	SOCKET
ASSEM	ASSEMBLED	EXT	EXTERNAL	MECH	MECHANICAL	SL	SLIDE
ASSY	ASSEMBLY	FIL	FILLISTER HEAD	MTG	MOUNTING	SLFLKG	SELF-LOCKING
ATTEN	ATTENUATOR	FLEX	FLEXIBLE	NIP	NIPPLE	SLVG	SLEEVING
AWG	AMERICAN WIRE GAGE	FLH	FLAT HEAD	NON WIRE	NOT WIRE WOUND	SPR	SPRING
BD	BOARD	FLTR	FILTER	ORD	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

## CROSS INDEX MFR. CODE NUMBER TO MANUFACTURER

MFR.CODE	MANUFACTURER	ADDRESS	CITY,STATE,ZIP
01121	ALLEN-BRADLEY CO.	1201 2ND ST. SOUTH	MILWAUKEE, WI 53204
01295	TEXAS INSTRUMENTS, INC., SEMICONDUCTOR GROUP	P. O. BOX 5012	DALLAS, TX 75222
04222	AVX CERAMIC CORP.	P.O. BOX 867	MURTL BEACH, SC 29577
07263	FAIRCHILD SEMICONDUCTOR, A DIV. OF FAIRCHILD CAMERA AND INSTRUMENT CORP.	464 ELLIS ST.	MOUNTAIN VIEW, CA 94042
07910	TELEDYNE SEMICONDUCTOR	12515 CHADRON AVE.	HAWTHORNE, CA 90250
12040	NATIONAL SEMICONDUCTOR CORP.	COMMERCE DRIVE	DANBURY, CT 06810
13103	THERMALLOY CO.	2021 W. VALLEY VIEW LANE	DALLAS, TX 75234
14158	AVX CERAMICS CORP., WESTERN OPERATIONS	10441 ROSELLE ST.	SAN DIEGO, CA 92121
18677	SCANBE MFG. CORP.	3445 FLETCHER AVE.	EL MONTE, CA 91731
22526	BERG ELECTRONICS, INC.	YOUK EXPRESSWAY	NEW CUMBERLAND, PA 17070
28480	HEWLETT-PACKARD CO., CORPORATE HQ.	1501 PAGE MILL RD.	PALO ALTO, CA 94304
50157	N. L. INDUSTRIES, INC., ELECTRONICS DEPT.	P. O. BOX 787	MUSKEGON, MI 49443
56289	SPRAGUE ELECTRIC CO.		NORTH ADAMS, MA 01247
72982	ERIE TECHNOLOGICAL PRODUCTS, INC.	644 W. 12TH ST.	ERIE, PA 16512
73138	BECKMAN INSTRUMENTS, INC., HELIPOT DIV.	2500 HARBOR BLVD.	FULLERTON, CA 92634
75042	TRW ELECTRONIC COMPONENTS, IRC FIXED RESISTORS, PHILADELPHIA DIVISION	401 N. BROAD ST.	PHILADELPHIA, PA 19108
80009	TEKTRONIX, INC.	P. O. BOX 500	BEAVERTON, OR 97077
80294	BOURNS, INC., INSTRUMENT DIV.	6135 MAGNOLIA AVE.	RIVERSIDE, CA 92506
80740	BECKMAN INSTRUMENTS, INC.	2500 HARBOR BLVD.	FULLERTON, CA 92634
81483	INTERNATIONAL RECTIFIER CORP.	9220 SUNSET BLVD.	LOS ANGELES, CA 90069
90201	MALLORY CAPACITOR CO., DIV. OF P. R. MALLORY CO., INC.	3029 E. WASHINGTON ST.	INDIANAPOLIS, IN 46206

# ELECTRICAL

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
	670-2382-00	B010100	B059999	CKT CARD ASSY:SAMPLE AND HOLD	80009	670-2382-00
	670-2382-01	B060000		CKT CARD ASSY:SAMPLE AND HOLD	80009	670-2382-01
C01	283-0051-00			CAP.,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145COG332J
C05	283-0051-00			CAP.,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145COG332J
C08	283-0187-00			CAP.,FXD,CER DI:0.047UF,10%,400V	72982	8131N401X5R473K
C18	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C19	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C21	281-0091-00			CAP.,VAR,CER DI:2-8PF	72982	538-011-89A
C56	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C71	281-0161-00			CAP.,VAR,CER DI:5-15PF,350V	72982	518-000A5-15
C73	281-0504-00			CAP.,FXD,CER DI:10PF,+/-1PF,500V	72982	301-055COG0100F
C85	290-0529-00			CAP.,FXD,ELCTLT:47UF,20%,20V	56289	196D476X0020LA3
C94	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C101	283-0140-00			CAP.,FXD,CER DI:4.7PF,5%,50V	72982	8101E003A479C
C103	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C105	283-0260-00			CAP.,FXD,CER DI:5.6PF,5%,200V	72982	8111B500COG569J
C107	283-0260-00			CAP.,FXD,CER DI:5.6PF,5%,200V	72982	8111B500COG569J
C111	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C113	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C118	281-0064-00			CAP.,VAR,PLSTC:0.25-1.5PF,600V	72982	530-002
C119	281-0091-00			CAP.,VAR,CER DI:2-8PF	72982	538-011-89A
C120	283-0187-00			CAP.,FXD,CER DI:0.047UF,10%,400V	72982	8131N401X5R473K
C130	281-0580-00			CAP.,FXD,CER DI:470PF,10%,500V	04222	7001-1374
C136	281-0600-00			CAP.,FXD,CER DI:35PF,10%,500V	72982	308-000COG0350K
C151	281-0600-00			CAP.,FXD,CER DI:35PF,10%,500V	72982	308-000COG0350K
C154	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C155	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C157	281-0092-00			CAP.,VAR,CER DI:9-35PF	72982	538-011E2P094R
C159	281-0523-00			CAP.,FXD,CER DI:100PF,+/-20PF,500V	72982	301-000U2M0101M
C191	290-0528-00			CAP.,FXD,ELCTLT:15UF,20%,50V	90201	TDC156M05OWLC
C193	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C195	290-0524-00			CAP.,FXD,ELCTLT:4.7UF,20%,10V	90201	TDC475M010EL
C197	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C199	290-0528-00			CAP.,FXD,ELCTLT:15UF,20%,50V	90201	TDC156M05OWLC
C201	283-0177-00			CAP.,FXD,CER DI:1UF,+80-20%,25V	72982	8131N039651105Z
C215	290-0524-00	B010100	B059999	CAP.,FXD,ELCTLT:4.7UF,20%,10V	90201	TDC475M010EL
C215	283-0194-00	B060000		CAP.,FXD,CER DI:4.7UF,20%,50V	72982	8151N080651475M
C223	283-0178-00			CAP.,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C225	283-0140-00			CAP.,FXD,CER DI:4.7PF,5%,50V	72982	8101E003A479C
C227	283-0260-00			CAP.,FXD,CER DI:5.6PF,5%,200V	72982	8111B500COG569J
C229	283-0260-00			CAP.,FXD,CER DI:5.6PF,5%,200V	72982	8111B500COG569J
C230	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C235	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C236	281-0091-00			CAP.,VAR,CER DI:2-8PF	72982	538-011-89A
C237	281-0064-00			CAP.,VAR,PLSTC:0.25-1.5PF,600V	72982	530-002
C241	290-0527-00			CAP.,FXD,ELCTLT:15UF,20%,20V	90201	TDC156M02ONLF
C250	281-0580-00			CAP.,FXD,CER DI:470PF,10%,500V	04222	7001-1374
C256	281-0600-00			CAP.,FXD,CER DI:35PF,10%,500V	72982	308-000COG0350K
C271	281-0600-00			CAP.,FXD,CER DI:35PF,10%,500V	72982	308-000COG0350K
C273	281-0092-00			CAP.,VAR,CER DI:9-35PF	72982	538-011E2P094R
C275	283-0156-00			CAP.,FXD,CER DI:1000PF,+100-0%,200V	72982	8111A208E102Z
C279	281-0523-00			CAP.,FXD,CER DI:100PF,+/-20PF,500V	72982	301-000U2M0101M

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
C281	283-0178-00			CAP. ,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C301	283-0051-00			CAP. ,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145COG332J
C305	283-0051-00			CAP. ,FXD,CER DI:0.0033UF,5%,100V	72982	8131N145COG332J
C318	283-0178-00			CAP. ,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C319	283-0178-00			CAP. ,FXD,CER DI:0.1UF,+80-20%,100V	72982	8131N145651104Z
C322	283-0140-00			CAP. ,FXD,CER DI:4.7PF,5%,50V	72982	8101E003A479C
CR37	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR111	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR112	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR113	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR114	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR116	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR117	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR118	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR119	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR130	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR131	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR151	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR153	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR156 } CR157 } CR158 } CR159 }	153-0053-00			SEMICOND DEVICE:MATCHED SET		
CR165	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR167	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR168	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR169	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR171	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR173	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR175	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR177	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR187	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR201	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR231	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR232	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR233	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR234	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR236	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR237	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR238	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR239	152-0322-00			SEMICOND DEVICE:SILICON,15V	28480	5082-2672
CR250	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR251	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR271	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR273	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR276 } CR277 } CR278 } CR279 }	153-0053-00			SEMICOND DEVICE:MATCHED SET		
CR285	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR287	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR288	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Model No. Dscont	Name & Description	Mfr Code	Mfr Part Number
CR289	152-0141-02			SEMICON D DEVICE:SILICON,30V,150MA	07910	1N4152
CR291	152-0141-02			SEMICON D DEVICE:SILICON,30V,150MA	07910	1N4152
CR293	152-0141-02			SEMICON D DEVICE:SILICON,30V,150MA	07910	1N4152
CR295	152-0141-02			SEMICON D DEVICE:SILICON,30V,150MA	07910	1N4152
CR297	152-0141-02			SEMICON D DEVICE:SILICON,30V,150MA	07910	1N4152
DL90	119-0400-00			DELAY LINE,ELEC:100 OHM,14LD,DIP	14158	7531-100
L02	108-0420-00			COIL,RF:60NH	80009	108-0420-00
L04	108-0420-00			COIL,RF:60NH	80009	108-0420-00
Q35	151-0271-00			TRANSISTOR:SILICON,PNP	80009	151-0271-00
Q45	151-0271-00			TRANSISTOR:SILICON,PNP	80009	151-0271-00
Q61	151-0269-00			TRANSISTOR:SILICON,NPN,SEL FROM SE3005	80009	151-0269-00
Q67	151-0269-00			TRANSISTOR:SILICON,NPN,SEL FROM SE3005	80009	151-0269-00
Q81	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q83	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q85	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q87	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q97	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q99	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q101	153-0542-00			TRANSISTOR:SILICON,NPN,CHECKED	80009	153-0542-00
Q105	151-0292-00			TRANSISTOR:SILICON,NPN	01295	TIS100
Q121A,B	151-1047-00			TRANSISTOR:SILICON,JFE	80009	151-1047-00
Q130A,B	151-0309-00			TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q141	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q143	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q145A,B	151-0232-00	B010100	B059999	TRANSISTOR:SILICON,NPN,DUAL	12040	NS7348
Q145A,B	151-0309-00	B060000		TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q155	151-0188-00			TRANSISTOR:SILICON,PNP	01295	2N3906
Q161A,B	151-1047-00			TRANSISTOR:SILICON,JFE	80009	151-1047-00
Q167A,B	151-0309-00			TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q175	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q177	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q183	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q189	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q191A,B	151-0232-00	B010100	B059999	TRANSISTOR:SILICON,NPN,DUAL	12040	NS7348
Q191A,B	151-0309-00	B060000		TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q201	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q205	151-0190-00	B010100	B059999	TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q205	151-0192-00	B060000		TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q209	151-0190-00	B010100	B059999	TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q209	151-0192-00	B060000		TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q211	151-0190-00	B010100	B059999	TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q211	151-0192-00	B060000		TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q215	151-0190-00	B010100	B059999	TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q215	151-0192-00	B060000		TRANSISTOR:SILICON,NPN,SEL FROM MPS6521	80009	151-0192-00
Q221	151-0292-00			TRANSISTOR:SILICON,NPN	01295	TIS100
Q225	153-0542-00			TRANSISTOR:SILICON,NPN,CHECKED	80009	153-0542-00
Q241A,B	151-1047-00			TRANSISTOR:SILICON,JFE	80009	151-1047-00
Q250A,B	151-0309-00			TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q261	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q263	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
Q265A,B	151-0232-00	B010100	B059999	TRANSISTOR:SILICON,NPN,DUAL	12040	NS7348
Q265A,B	151-0309-00	B060000		TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q275	151-0188-00			TRANSISTOR:SILICON,PNP	01295	2N3906
Q281A,B	151-1047-00			TRANSISTOR:SILICON,JFE	80009	151-1047-00
Q287A,B	151-0309-00			TRANSISTOR:SILICON,NPN,DUAL	07263	SP13378
Q295	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q297	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q331	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
Q333	151-0220-00			TRANSISTOR:SILICON,PNP	80009	151-0220-00
R01	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEAT0-50R50D
R02	321-0094-00			RES.,FXD,FILM:93.1 OHM,1%,0.125W	75042	CEAT0-93R10F
R03	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R04	321-0094-00			RES.,FXD,FILM:93.1 OHM,1%,0.125W	75042	CEAT0-93R10F
R05	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEAT0-50R50D
R07	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R08	317-0027-00			RES.,FXD,COMP:2.7 OHM,5%,0.125W	01121	BB2R705
R09	315-0152-00			RES.,FXD,CMPSN:1.5K OHM,5%,0.25W	01121	CB1525
R10	317-0027-00			RES.,FXD,COMP:2.7 OHM,5%,0.125W		
R11	321-0098-01			RES.,FXD,FILM:102 OHM,0.5%,0.125W	75042	CEAT0-1020D
R12	321-0098-01			RES.,FXD,FILM:102 OHM,0.5%,0.125W	75042	CEAT0-1020D
R13	315-0910-00			RES.,FXD,CMPSN:91 OHM,5%,0.25W	01121	CB9105
R15	315-0910-00			RES.,FXD,CMPSN:91 OHM,5%,0.25W	01121	CB9105
R17	321-0219-02			RES.,FXD,FILM:1.87K OHM,0.5%,0.125W	75042	CEAT2-1871D
R18	315-0333-00			RES.,FXD,CMPSN:33K OHM,5%,0.25W	01121	CB3335
R19	321-0219-02			RES.,FXD,FILM:1.87K OHM,0.5%,0.125W	75042	CEAT2-1871D
R21	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R22	321-0097-00			RES.,FXD,FILM:100 OHM,1%,0.125W	75042	CEAT0-1000F
R24	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R27	321-0219-02			RES.,FXD,FILM:1.87K OHM,0.5%,0.125W	75042	CEAT2-1871D
R28	315-0333-00			RES.,FXD,CMPSN:33K OHM,5%,0.25W	01121	CB3335
R29	321-0219-02			RES.,FXD,FILM:1.87K OHM,0.5%,0.125W	75042	CEAT2-1871D
R31	323-0151-00			RES.,FXD,FILM:365 OHM,1%,0.50W	75042	CECT0-3650F
R33	321-0054-00			RES.,FXD,FILM:35.7 OHM,1%,0.125W		
R35	317-0150-00			RES.,FXD,CMPSN:15 OHM,5%,0.125W	01121	BB1505
R37	315-0152-00			RES.,FXD,CMPSN:1.5K OHM,5%,0.25W	01121	CB1525
R41	311-0643-00			RES.,VAR,NONWIR:50 OHM,10%,0.50W	80740	62-52-3
R43	323-0149-00			RES.,FXD,FILM:348 OHM,1%,0.50W	75042	CECT0-3480F
R45	321-0056-00			RES.,FXD,FILM:37.4 OHM,1%,0.125W	75042	CEAT0-37R40F
R47	317-0150-00			RES.,FXD,CMPSN:15 OHM,5%,0.125W	01121	BB1505
R51	311-0605-00			RES.,VAR,NONWIR:200 OHM,10%,0.50W	80740	62-54-3
R55	321-0173-00			RES.,FXD,FILM:619 OHM,1%,0.125W	75042	CEAT0-6190F
R57	322-0237-00			RES.,FXD,FILM:2.87K OHM,1%,0.25W	75042	CEBT0-2871F
R59	322-0237-00			RES.,FXD,FILM:2.87K OHM,1%,0.25W	75042	CEBT0-2871F
R61	315-0300-00			RES.,FXD,CMPSN:30 OHM,5%,0.25W	01121	CB3005
R63	321-0126-00			RES.,FXD,FILM:200 OHM,1%,0.125W	75042	CEAT0-2000F
R64	315-0750-00			RES.,FXD,CMPSN:75 OHM,5%,0.25W	01121	CB7505
R65	321-0126-00			RES.,FXD,FILM:200 OHM,1%,0.125W	75042	CEAT0-2000F
R67	315-0300-00			RES.,FXD,CMPSN:30 OHM,5%,0.25W	01121	CB3005
R68	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R69	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R71	321-0067-00			RES.,FXD,FILM:48.7 OHM,1%,0.125W	75042	CEAT0-48R70F
R73	321-0067-00			RES.,FXD,FILM:48.7 OHM,1%,0.125W	75042	CEAT0-48R70F

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
R81	301-0560-00			RES., FXD, CMPSN:56 OHM, 5%, 0.50W	01121	EB5605
R82	315-0131-00			RES., FXD, CMPSN:130 OHM, 5%, 0.25W	01121	CB1315
R83	315-0361-00			RES., FXD, CMPSN:360 OHM, 5%, 0.25W	01121	CB3615
R85	315-0511-00			RES., FXD, CMPSN:510 OHM, 5%, 0.25W	01121	CB5115
R87	301-0681-00			RES., FXD, CMPSN:680 OHM, 5%, 0.50W	01121	EB6815
R93	301-0681-00			RES., FXD, CMPSN:680 OHM, 5%, 0.50W	01121	EB6815
R94	315-0330-00			RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R95	321-0097-00			RES., FXD, FILM:100 OHM, 1%, 0.125W	75042	CEATO-1000F
R97	315-0511-00			RES., FXD, CMPSN:510 OHM, 5%, 0.25W	01121	CB5115
R99	301-0681-00			RES., FXD, CMPSN:680 OHM, 5%, 0.50W	01121	EB6815
R101	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R103	315-0161-00			RES., FXD, CMPSN:160 OHM, 5%, 0.25W	01121	CB1615
R105	311-0613-00			RES., VAR, NONWIR:100K OHM, 10%, 0.50W	80740	62-63-3
R107	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R109	315-0161-00			RES., FXD, CMPSN:160 OHM, 5%, 0.25W	01121	CB1615
R111	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R112	321-0098-01			RES., FXD, FILM:102 OHM, 0.5%, 0.125W	75042	CEATO-1020D
R113	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R115	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R116	317-0027-00			RES., FXD, COMP:2.7 OHM, 5%, 0.125W	01121	BB2R705
R117	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R118	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R119	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R120	317-0027-00			RES., FXD, COMP:2.7 OHM, 5%, 0.125W	01121	BB2R705
R121	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R123	321-0239-00			RES., FXD, FILM:3.01K OHM, 1%, 0.125W	75042	CEATO-3011F
R127	321-0239-00			RES., FXD, FILM:3.01K OHM, 1%, 0.125W	75042	CEATO-3011F
R129	311-0644-01			RES., VAR, NONWIR:20 K OHM, 10%, 0.50W	80294	3329H-K28-RC
R130	311-1263-00			RES., VAR, NONWIR:1K OHM, 10%, 0.50W	73138	62PT-347-0
R131	322-0612-00			RES., FXD, FILM:500 OHM, 1%, 0.25W	75042	CEBTO-5000F
R132	315-0271-00			RES., FXD, CMPSN:270 OHM, 5%, 0.25W	01121	CB2715
R133	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R134	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R135	321-0114-00			RES., FXD, FILM:150 OHM, 1%, 0.125W	75042	CEATO-1500F
R137	311-0643-00			RES., VAR, NONWIR:50 OHM, 10%, 0.50W	80740	62-52-3
R138	315-0271-00			RES., FXD, CMPSN:270 OHM, 5%, 0.25W	01121	CB2715
R139	322-0612-00			RES., FXD, FILM:500 OHM, 1%, 0.25W	75042	CEBTO-5000F
R141	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R144	315-0201-00			RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015
R145	322-0178-00			RES., FXD, FILM:698 OHM, 1%, 0.25W	75042	CEBTO-6980F
R147	322-0178-00			RES., FXD, FILM:698 OHM, 1%, 0.25W	75042	CEBTO-6980F
R149	321-0134-00			RES., FXD, FILM:243 OHM, 1%, 0.125W	75042	CEATO-2430F
R151	315-0392-00			RES., FXD, CMPSN:3.9K OHM, 5%, 0.25W	01121	CB3925
R153	315-0752-00			RES., FXD, CMPSN:7.5K OHM, 5%, 0.25W	01121	CB7525
R155	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R156	315-0102-00			RES., FXD, CMPSN:1K OHM, 5%, 0.25W	01121	CB1025
R157	315-0201-00	B010100	B059999	RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015
R157	315-0121-00	B060000		RES., FXD, CMPSN:120 OHM, 5%, 0.25W	01121	CB1215
R158	311-1263-00			RES., VAR, NONWIR:1K OHM, 10%, 0.50W	73138	62PT-347-0
R159	315-0201-00	B010100	B059999	RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015
R159	315-0121-00	B060000		RES., FXD, CMPSN:120 OHM, 5%, 0.25W	01121	CB1215
R160	315-0392-00			RES., FXD, CMPSN:3.9K OHM, 5%, 0.25W	01121	CB3925
R161	315-0201-00			RES., FXD, CMPSN:200 OHM, 5%, 0.25W	01121	CB2015

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R162	315-0361-00			RES., FXD, CMPSN:360 OHM, 5%, 0.25W	01121	CB3615
R163	315-0330-00			RES., FXD, CMPSN:33 OHM, 5%, 0.25W	01121	CB3305
R164	315-0361-00			RES., FXD, CMPSN:360 OHM, 5%, 0.25W	01121	CB3615
R165	322-0612-00			RES., FXD, FILM:500 OHM, 1%, 0.25W	75042	CEBTO-5000F
R166	322-0612-00			RES., FXD, FILM:500 OHM, 1%, 0.25W	75042	CEBTO-5000F
R167	321-0134-00			RES., FXD, FILM:243 OHM, 1%, 0.125W	75042	CEATO-2430F
R168	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R169	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R173	315-0273-00			RES., FXD, CMPSN:27K OHM, 5%, 0.25W	01121	CB2735
R175	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R181	315-0362-00			RES., FXD, CMPSN:3.6K OHM, 5%, 0.25W	01121	CB3625
R183	315-0122-00			RES., FXD, CMPSN:1.2K OHM, 5%, 0.25W	01121	CB1225
R185	301-0621-00			RES., FXD, CMPSN:620 OHM, 5%, 0.50W	01121	EB6215
R187	315-0302-00			RES., FXD, CMPSN:3K OHM, 5%, 0.25W	01121	CB3025
R189	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R190	322-0178-00			RES., FXD, FILM:698 OHM, 1%, 0.25W	75042	CEBTO-6980F
R191	315-0271-00			RES., FXD, CMPSN:270 OHM, 5%, 0.25W	01121	CB2715
R192	322-0178-00			RES., FXD, FILM:698 OHM, 1%, 0.25W	75042	CEBTO-6980F
R201	315-0151-00			RES., FXD, CMPSN:150 OHM, 5%, 0.25W	01121	CB1515
R202	315-0101-00			RES., FXD, CMPSN:100 OHM, 5%, 0.25W	01121	CB1015
R203	301-0301-00			RES., FXD, CMPSN:300 OHM, 5%, 0.50W	01121	EB3015
R205	311-1259-00			RES., VAR, NONWIR:100 OHM, 10%, 0.50W	80294	3329P-L58-101
R206	315-0181-00	XB060000		RES., FXD, CMPSN:180 OHM, 5%, 0.25W	01121	CB1815
R207	301-0821-00	B010100	B059999	RES., FXD, CMPSN:820 OHM, 5%, 0.50W	01121	EB8215
R207	301-0561-00	B060000		RES., FXD, CMPSN:560 OHM, 5%, 0.50W	01121	EB5615
R209	303-0391-00			RES., FXD, CMPSN:390 OHM, 5%, 1W	01121	GB3915
R211	315-0511-00			RES., FXD, CMPSN:510 OHM, 5%, 0.25W	01121	CB5115
R213	301-0681-00			RES., FXD, CMPSN:680 OHM, 5%, 0.50W	01121	EB6815
R215	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R217	315-0301-00			RES., FXD, CMPSN:300 OHM, 5%, 0.25W	01121	CB3015
R221	315-0161-00			RES., FXD, CMPSN:160 OHM, 5%, 0.25W	01121	CB1615
R223	311-0613-00			RES., VAR, NONWIR:100K OHM, 10%, 0.50W	80740	62-63-3
R225	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R227	315-0202-00			RES., FXD, CMPSN:2K OHM, 5%, 0.25W	01121	CB2025
R229	315-0161-00			RES., FXD, CMPSN:160 OHM, 5%, 0.25W	01121	CB1615
R231	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R233	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R235	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R237	315-0390-00			RES., FXD, CMPSN:39 OHM, 5%, 0.25W	01121	CB3905
R238	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R239	315-0512-00			RES., FXD, CMPSN:5.1K OHM, 5%, 0.25W	01121	CB5125
R240	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R241	315-0221-00			RES., FXD, CMPSN:220 OHM, 5%, 0.25W	01121	CB2215
R243	321-0239-00			RES., FXD, FILM:3.01K OHM, 1%, 0.125W	75042	CEATO-3011F
R247	321-0239-00			RES., FXD, FILM:3.01K OHM, 1%, 0.125W	75042	CEATO-3011F
R249	311-0644-01			RES., VAR, NONWIR:20K OHM, 10%, 0.50W	80294	3329H-K28-RC
R250	311-1263-00			RES., VAR, NONWIR:1K OHM, 10%, 0.50W	73138	62PT-347-0
R251	322-0612-00			RES., FXD, FILM:500 OHM, 1%, 0.25W	75042	CEBTO-5000F
R252	315-0271-00			RES., FXD, CMPSN:270 OHM, 5%, 0.25W	01121	CB2715
R253	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R254	322-0212-00			RES., FXD, FILM:1.58K OHM, 1%, 0.25W	75042	CEBTO-1581F
R255	311-0643-00			RES., VAR, NONWIR:50 OHM, 10%, 0.50W	80740	62-52-3



Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No.		Name & Description	Mfr	
		Eff	Dscont		Code	Mfr Part Number
R257	321-0114-00			RES.,FXD,FILM:150 OHM,1%,0.125W	75042	CEATO-1500F
R258	315-0271-00			RES.,FXD,CMPSN:270 OHM,5%,0.25W	01121	CB2715
R259	322-0612-00			RES.,FXD,FILM:500 OHM,1%,0.25W	75042	CEBTO-5000F
R261	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R264	315-0201-00			RES.,FXD,CMPSN:200 OHM,5%,0.25W	01121	CB2015
R265	322-0178-00			RES.,FXD,FILM:698 OHM,1%,0.25W	75042	CEBTO-6980F
R267	322-0178-00			RES.,FXD,FILM:698 OHM,1%,0.25W	75042	CEBTO-6980F
R269	321-0134-00			RES.,FXD,FILM:243 OHM,1%,0.125W	75042	CEATO-2430F
R271	315-0392-00			RES.,FXD,CMPSN:3.9K OHM,5%,0.25W	01121	CB3925
R273	315-0752-00			RES.,FXD,CMPSN:7.5K OHM,5%,0.25W	01121	CB7525
R275	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R276	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R277	315-0201-00	B010100	B059999	RES.,FXD,CMPSN:200 OHM,5%,0.25W	01121	CB2015
R277	315-0121-00	B060000		RES.,FXD,CMPSN:120 OHM,5%,0.25W	01121	CB1215
R278	311-1263-00			RES.,VAR,NONWIR:1K OHM,10%,0.50W	73138	62PT-347-0
R279	315-0201-00	B010100	B059999	RES.,FXD,CMPSN:200 OHM,5%,0.25W	01121	CB2015
R279	315-0121-00	B060000		RES.,FXD,CMPSN:120 OHM,5%,0.25W	01121	CB1215
R280	315-0392-00			RES.,FXD,CMPSN:3.9K OHM,5%,0.25W	01121	CB3925
R281	315-0201-00			RES.,FXD,CMPSN:200 OHM,5%,0.25W	01121	CB2015
R282	315-0361-00			RES.,FXD,CMPSN:360 OHM,5%,0.25W	01121	CB3615
R283	315-0330-00			RES.,FXD,CMPSN:33 OHM,5%,0.25W	01121	CB3305
R284	315-0361-00			RES.,FXD,CMPSN:360 OHM,5%,0.25W	01121	CB3615
R285	322-0612-00			RES.,FXD,FILM:500 OHM,1%,0.25W	75042	CEBTO-5000F
R286	322-0612-00			RES.,FXD,FILM:500 OHM,1%,0.25W	75042	CEBTO-5000F
R287	321-0134-00			RES.,FXD,FILM:243 OHM,1%,0.125W	75042	CEATO-2430F
R288	322-0212-00			RES.,FXD,FILM:1.58K OHM,1%,0.25W	75042	CEBTO-1581F
R289	322-0212-00			RES.,FXD,FILM:1.58K OHM,1%,0.25W	75042	CEBTO-1581F
R293	315-0273-00			RES.,FXD,CMPSN:27K OHM,5%,0.25W	01121	CB2735
R295	315-0101-00			RES.,FXD,CMPSN:100 OHM,5%,0.25W	01121	CB1015
R301	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEATO-50R50D
R302	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEATO-50R50D
R303	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R304	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEATO-50R50D
R305	321-1068-01			RES.,FXD,FILM:50.5 OHM,0.5%,0.125W	75042	CEATO-50R50D
R306	315-0820-00			RES.,FXD,CMPSN:82 OHM,5%,0.25W	01121	CB8205
R307	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R308	315-0820-00			RES.,FXD,CMPSN:82 OHM,5%,0.25W	01121	CB8205
R309	315-0152-00			RES.,FXD,CMPSN:1.5K OHM,5%,0.25W	01121	CB1525
R311	321-0607-00			RES.,FXD,FILM:80 OHM,1%,0.125W	75042	CEATO-80R00F
R317	321-0217-03			RES.,FXD,FILM:1.78K OHM,0.25%,0.125W	75042	CEAT2-1781F
R318	315-0333-00			RES.,FXD,CMPSN:33K OHM,5%,0.25W	01121	CB3335
R319	321-0217-03			RES.,FXD,FILM:1.78K OHM,0.25%,0.125W	75042	CEAT2-1781F
R321	321-0085-00			RES.,FXD,FILM:75 OHM,1%,0.125W	75042	CEATO-75R00F
R323	311-1007-00			RES.,VAR,NONWIR:20 OHM,20%,0.50W	80294	3329HG48-200
R327	321-0217-03			RES.,FXD,FILM:1.78K OHM,0.25%,0.125W	75042	CEAT2-1781F
R328	315-0333-00			RES.,FXD,CMPSN:33K OHM,5%,0.25W	01121	CB3335
R329	321-0217-03			RES.,FXD,FILM:1.78K OHM,0.25%,0.125W	75042	CEAT2-1781F
R331	315-0200-00			RES.,FXD,CMPSN:20 OHM,5%,0.25W	01121	CB2005
R333	315-0200-00			RES.,FXD,CMPSN:20 OHM,5%,0.25W	01121	CB2005
R335	323-0149-00			RES.,FXD,FILM:348 OHM,1%,0.50W	75042	CECTO-3480F
R336	311-0643-00			RES.,VAR,NONWIR:50 OHM,10%,0.50W	80740	62-52-3
R337	323-0146-00			RES.,FXD,FILM:324 OHM,1%,0.50W	75042	CECTO-3240F
R339	315-0471-00			RES.,FXD,CMPSN:470 OHM,5%,0.25W	01121	CB4715
R341	315-0241-00			RES.,FXD,CMPSN:240 OHM,5%,0.25W	01121	CB2415

Replaceable Electrical Parts—P7001 Sample & Hold

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R343	315-0241-00			RES.,FXD,CMPNS:240 OHM,5%,0.25W	01121	CB2415
R345	322-0210-00			RES.,FXD,FILM:1.5K OHM,1%,0.25W	75042	CEBT0-1501F
R347	322-0210-00			RES.,FXD,FILM:1.5K OHM,1%,0.25W	75042	CEBT0-1501F
RT130	307-0124-00			RES.,THERMAL:5K OHM,10%	50157	1D1618
RT132	307-0125-00			RES.,THERMAL:500 OHM,10%,25 DEG C	50157	2D1595
RT160	307-0124-00			RES.,THERMAL:5K OHM,10%	50157	1D1618
RT250	307-0124-00			RES.,THERMAL:5K OHM,10%	50157	1D1618
RT252	307-0125-00			RES.,THERMAL:500 OHM,10%,25 DEG C	50157	2D1595
RT280	307-0124-00			RES.,THERMAL:5K OHM,10%	50157	1D1618
T77	120-0444-00			XFMR,TOROID:5 TURNS,BIFILAR	80009	120-0444-00
T89	120-0544-00			XFMR,TOROID:2 WINDINGS	80009	120-0544-00
T110	120-0838-00			XFMR,TOROID:5 WINDINGS	80009	120-0838-00
T155	120-0584-00			XFMR,TOROID:THREE 10 TURN WINDINGS	80009	120-0584-00
T219	120-0544-00			XFMR,TOROID:2 WINDINGS	80009	120-0544-00
T229	120-0838-00			XFMR,TOROID:5 WINDINGS	80009	120-0838-00
T275	120-0584-00			XFMR,TOROID:THREE 10 TURN WINDINGS	80009	120-0584-00
U10	155-0022-00			MICROCIRCUIT,DI:ML,CHANNEL SWITCH	80009	155-0022-00
U310	155-0022-00			MICROCIRCUIT,DI:ML,CHANNEL SWITCH	80009	155-0022-00
VR111}	153-0054-00			SEMICONV DEVICE:ZENER,0.4W,6.2V,5%,MTCHD PR	80009	153-0054-00
VR113}						
VR155}	152-0166-00			SEMICONV DEVICE:ZENER,0.4W,6.2V,5%	81483	69-9035
VR230}	153-0054-00			SEMICONV DEVICE:ZENER,0.4W,6.25V,5%,MTCH PR	80009	153-0054-00
VR235}						
VR275	152-0166-00			SEMICONV DEVICE:ZENER,0.4W,6.2V,5%	81483	69-9035

# MECHANICAL

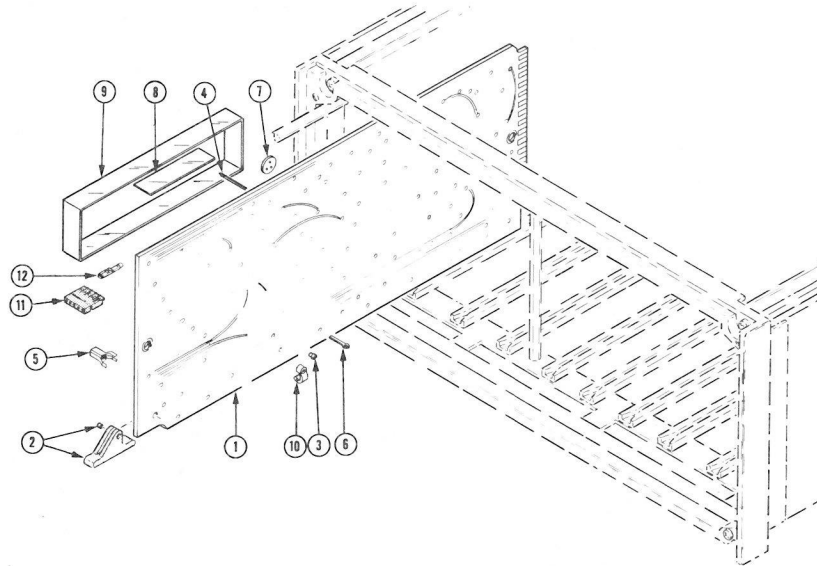
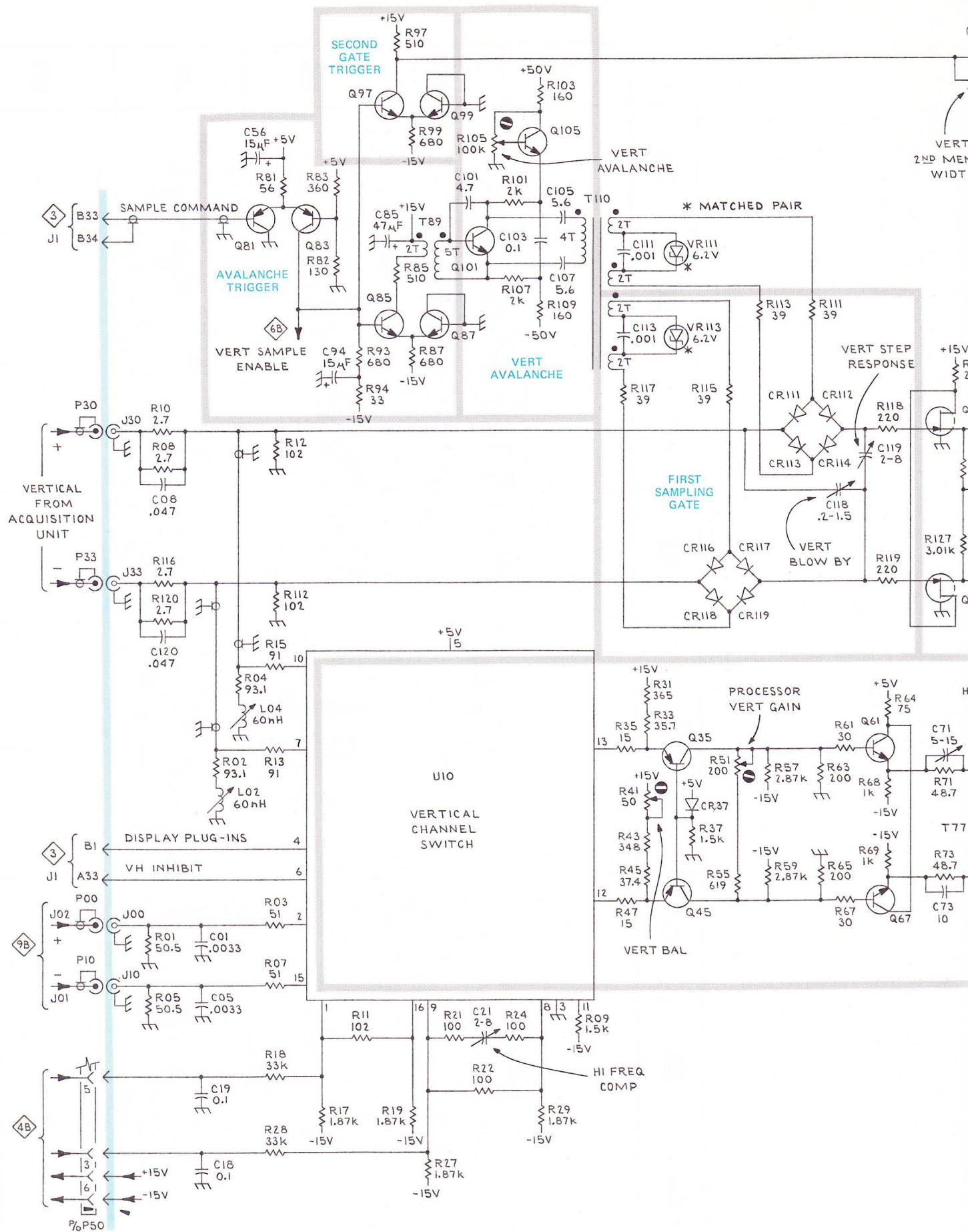


Fig. &

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscnt	Qty						Name & Description	Mfr Code	Mfr Part Number		
					1	2	3	4	5					
1-1	-----	-----		1								CKT BOARD ASSY: SAMPLE AND HOLD (SEE EPL)		
-2	105-0144-00			1								. EJECTOR, CKT CD: MOLD PLASTIC, W/ROLL PIN	18677	OBD
-3	136-0252-04			224								. CONTACT, ELEC: 0.188 INCH LONG	22526	75060
-4	131-0608-00			11								. CONTACT, ELEC: 0.365 INCH LONG	22526	47357
-5	131-1003-00			13								. CONNECTOR BODY, :CKT BD MT, 3 PRONG	80009	131-1003-00
-6	214-0579-00			2								. TERM., TEST PT: 0.40 INCH LONG	80009	214-0579-00
-7	214-0817-00			1								. HEAT SINK, XSTR: 0.36 INCH OD	13103	4004
-8	337-1697-00			1								. SHIELD, ELEC: 4.90 H X 1.700 INCH LONG	80009	337-1697-00
-9	337-1698-00			1								. SHIELD, ELEC: 0.490 H X 1.216 W X 4.460 INCH L	80009	337-1698-00
-10	343-0088-00			1								. CLAMP, LOOP: 0.062 INCH DIA	80009	343-0088-00
-11	352-0163-00			1								. CONN BODY, PL, EL: 5 WIRE BLACK	80009	352-0163-00
-12	131-0707-00			4								. CONTACT, ELEC: 0.48" L, 22-26 AWG WIRE	22526	47439

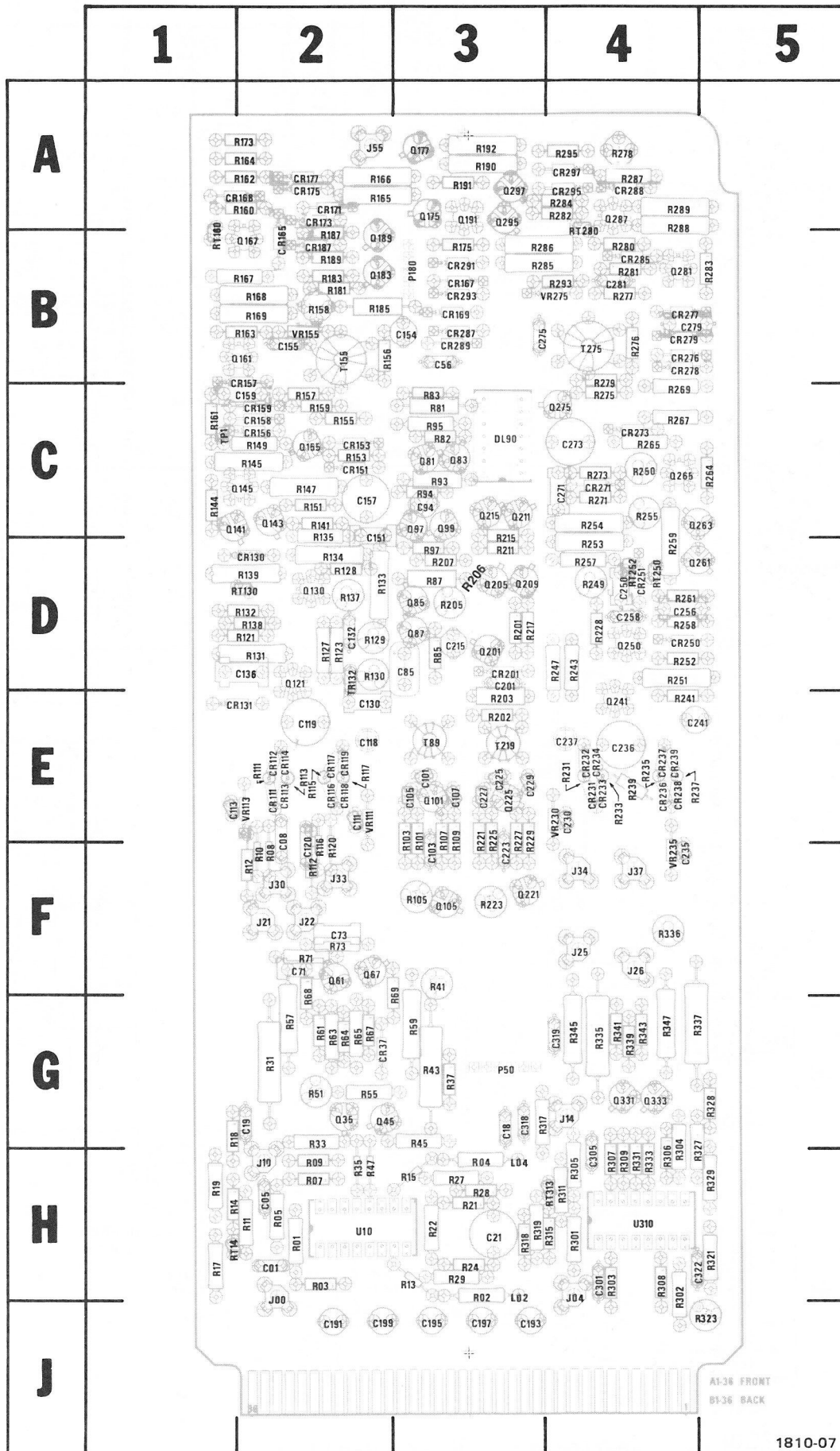


P7001

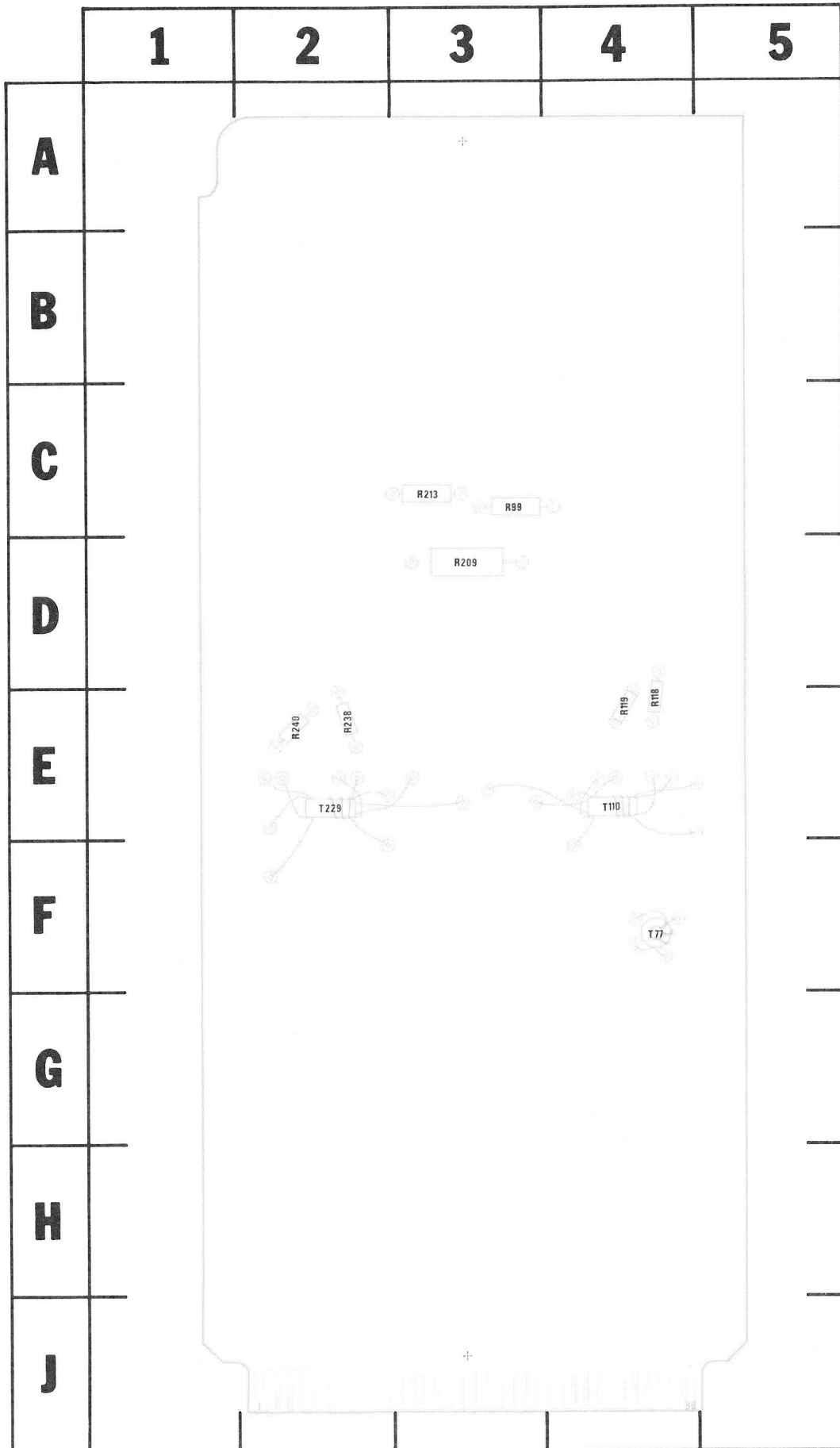




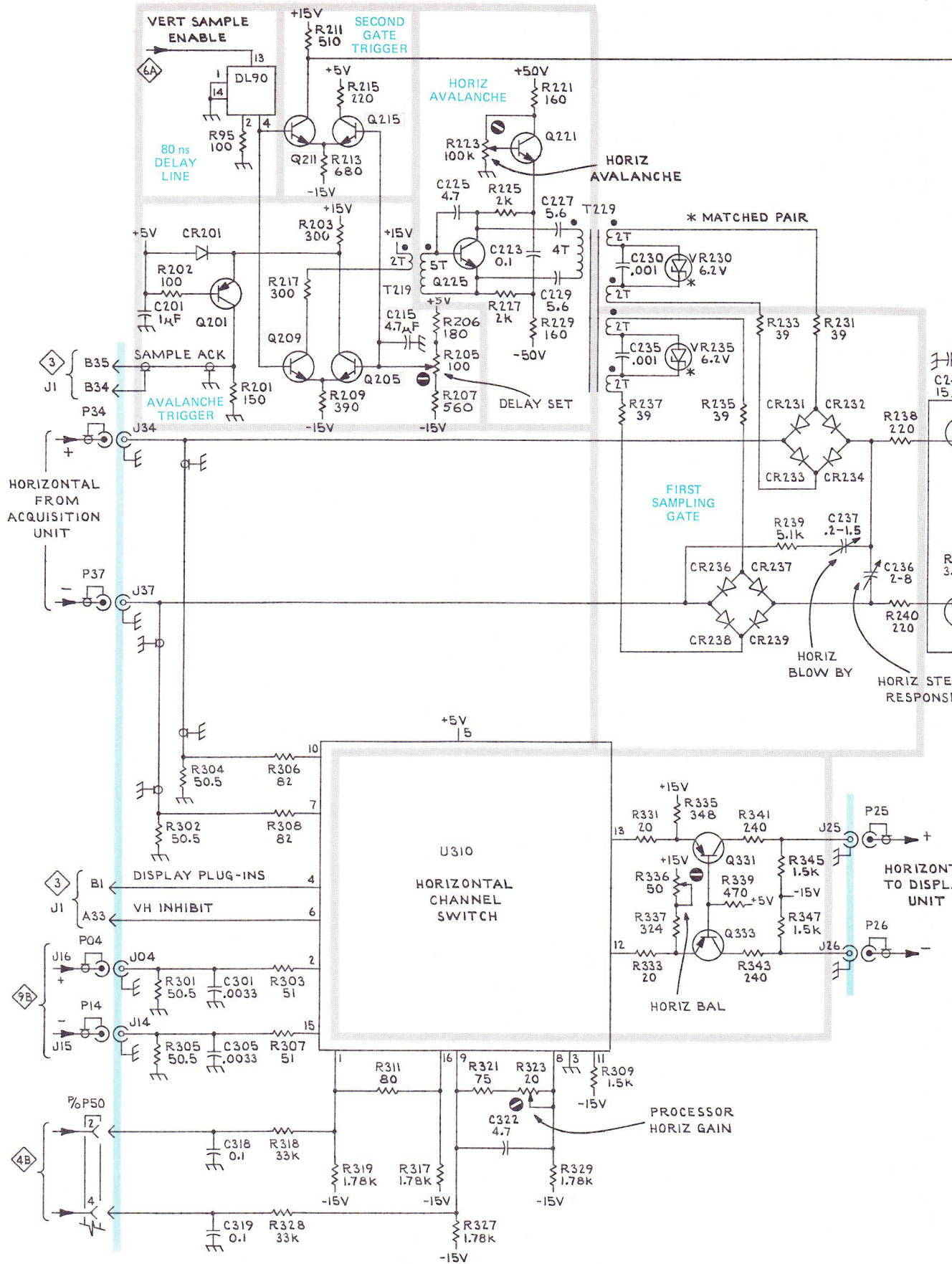
CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C01	H2	CR165	B2	Q175	A3	R101	F3	R241	E4	T89	E3
C05	H2	CR167	B3	Q177	A3	R103	F3	R243	D4	T155	B2
C08	E2	CR168	A2	Q183	B2	R105	F3	R247	D4	T219	E3
C18	G3	CR169	B3	Q189	B2	R107	F3	R249	D4	T275	B4
C19	G2	CR171	A2	Q191	A3	R109	F3	R250	C4		
C21	H3	CR173	A2	Q205	D3	R111	E2	R251	D4	TP1	C1
C56	B3	CR175	A2	Q209	D3	R112	F2	R252	D4		
C71	F2	CR177	A2	Q211	C3	R113	E2	R253	D4	TR132	D2
C73	F2	CR187	B2	Q215	C3	R115	E2	R254	C4		
C85	D3	CR201	D3	Q221	F3	R116	F2	R255	C4	U310	H4
C94	C3	CR231	E4	Q225	E3	R120	F2	R257	D4	U10	H2
C101	E3	CR232	E4	Q241	E4	R121	D2	R258	D4		
C103	F3	CR233	E4	Q250	D4	R123	D2	R259	D4	VR111	E2
C105	E3	CR234	E4	Q261	D5	R127	D2	R261	D4	VR113	E2
C107	E3	CR236	E4	Q263	C5	R128	D2	R264	C5	VR155	B2
C111	E2	CR237	E4	Q265	C4	R129	D2	R265	C4	VR230	E4
C113	E1	CR238	E4	Q275	C4	R130	D2	R267	C4	VR235	F4
C118	E2	CR239	E4	Q281	B4	R131	D2	R269	C4	VR275	B4
C119	E2	CR250	D4	Q287	A4	R132	D2	R271	C4		
C120	F2	CR251	D4	Q295	A3	R133	D2	R273	C4		
C130	E2	CR271	C4	Q297	A3	R134	D2	R275	C4		
C132	D2	CR273	C4	Q331	G4	R135	C2	R276	B4		
C136	D2	CR276	B4	Q333	G4	R137	D2	R277	B4		
C151	C2	CR277	B4			R138	D2	R278	A4		
C154	B3	CR278	B4	R01	H2	R139	D2	R279	C4		
C155	B2	CR279	B4	R02	H3	R141	C2	R280	B4		
C157	C2	CR285	B4	R03	H2	R144	C1	R281	B4		
C159	C2	CR287	B3	R04	H3	R145	C2	R287	A4		
C191	J2	CR288	A4	R05	H2	R147	C2	R282	A4		
C193	J3	CR289	B3	R07	H2	R149	C2	R283	B5		
C195	J3	CR291	B3	R08	F2	R151	C2	R284	A4		
C197	J3	CR293	B3	R09	H2	R153	C2	R285	B3		
C199	J2	CR295	A4	R10	F2	R155	C2	R286	B3		
C201	D3	CR297	A4	R11	H2	R156	B2	R288	A4		
C215	D3			R12	F2	R157	C2	R289	A4		
C223	F3	DL90	C3	R13	H3	R158	B2	R293	B4		
C225	E3			R14	H1	R159	C2	R295	A4		
C227	E3	J00	H2	R15	H3	R160	A2	R301	H4		
C229	E3	J04	H4	R17	H1	R161	C1	R302	H4		
C230	E4	J10	H2	R18	G1	R162	A2	R303	H4		
C235	F4	J14	G4	R19	H1	R163	B2	R304	H4		
C236	E4	J21	F2	R21	H3	R164	A2	R305	H4		
C237	E4	J22	F2	R22	H3	R165	A2	R306	H4		
C241	E5	J25	F4	R24	H3	R166	A2	R307	H4		
C250	D4	J26	F4	R27	H3	R167	B2	R308	H4		
C256	D4	J30	F2	R28	H3	R168	B2	R309	H4		
C258	D4	J33	F2	R29	H3	R169	B2	R311	H4		
C271	C4	J34	F4	R31	G2	R173	A2	R315	H4		
C273	C4	J37	F4	R33	G2	R175	B3	R317	G4		
C276	B3	J55	A2	R35	H2	R181	B2	R318	H3		
C279	B4			R37	G3	R183	B2	R319	H3		
C281	B4	L02	H3	R41	F3	R185	B2	R321	H5		
C301	H4	L04	H3	R43	G3	R187	B2	R323	J5		
C305	H4			R45	G3	R189	B2	R327	H5		
C318	G3	P50	G3	R47	H2	R190	A3	R328	G5		
C319	G4	P180	B3	R51	G2	R191	A3	R329	H5		
C322	H5			R55	G2	R192		R331	H4		
		Q35	G2	R57	G2	R201	D3	R333	H4		
CR37	G2	Q45	G2	R59	G3	R202	E3	R335	G4		
CR111	E2	Q61	F2	R61	G2	R203	E3	R336	F4		
CR112	E2	Q67	F2	R63	G2	R205	D3	R337	G5		
CR113	E2	Q81	C3	R64	G2	R206	D3	R339	G4		
CR114	E2	Q83	C3	R65	G2			R341	G4		
CR116	E2	Q85	D3	R67	G2	R207	D3	R343	G4		
CR117	E2	Q87	D3	R68	G2	R211	D3	R345	G4		
CR118	E2	Q97	C3	R69	G3	R215	C3	R347	G4		
CR119	E2	Q99	C3	R71	F2	R217	D3				
CR130	D2	Q101	E3	R73	F2	R221	F3	RT14	H1		
CR131	E2	Q105	F3	R81	C3	R223	F3	RT130	D2		
CR151	C2	Q121	D2	R82	C3	R225	F3	RT160	B1		
CR153	C2	Q130	D2	R83	C3	R227	F3	RT250	D4		
CR156	C2	Q141	C1	R85	D3	R228	D4	RT252	D4		
CR157	B2	Q145	C2	R87	D3	R229	F3	RT280	A4		
CR158	C2	Q155	C2	R93	C3	R231	E4	RT313	H4		
CR159	C2	Q161	B2	R94	C3	R233	E4				
		Q167	B2	R95	C3	R235	E4				
				R97	D3	R237	E4				
						R239	E4				



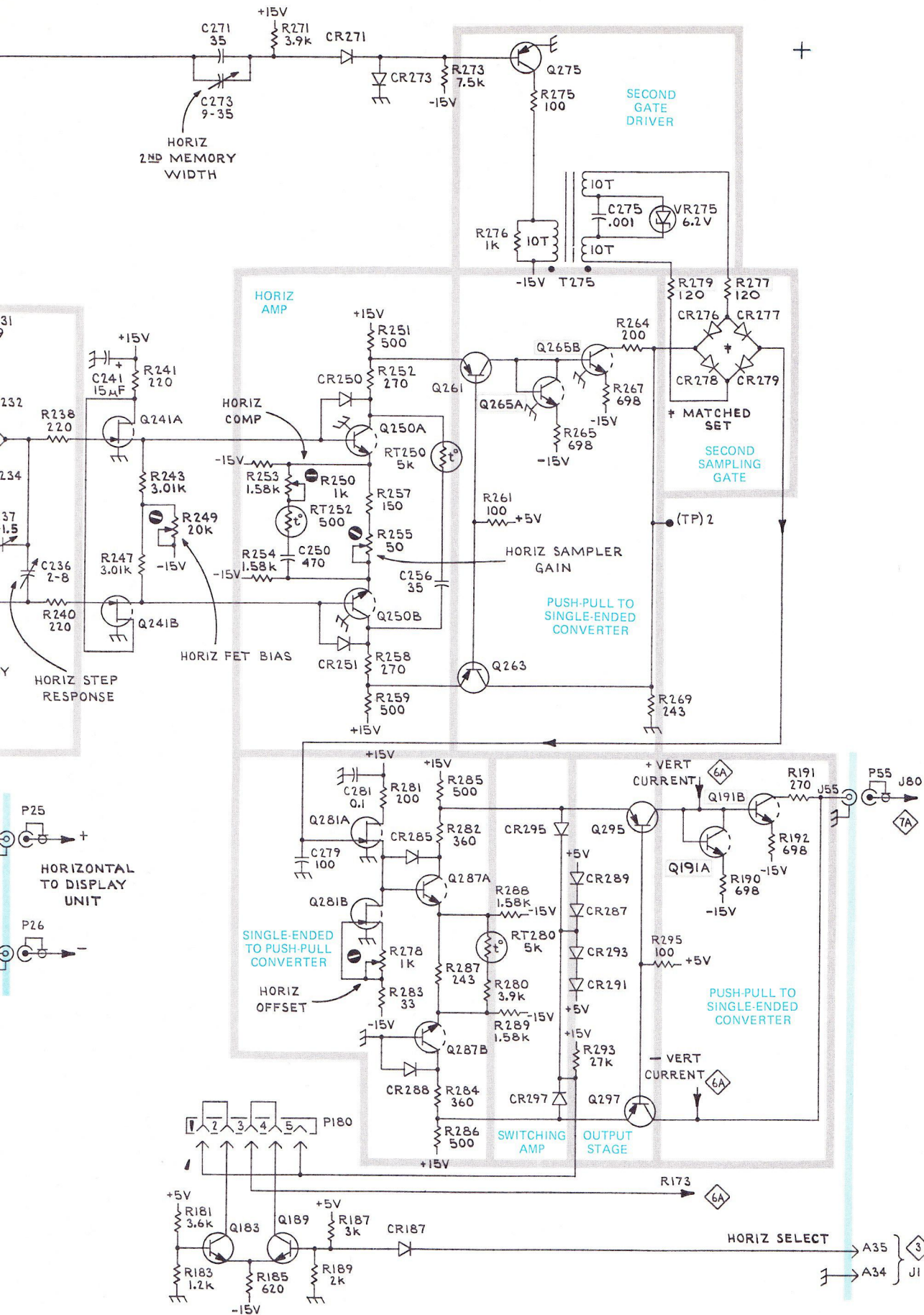
A1-36 FRONT  
B1-36 BACK







+  
P7001



HORIZONTAL SAMPLE & HOLD 6B

HORIZONTAL SAMPLE & HOLD 6B

CHANGE	DESCRIPTION
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ELECTRIAL PARTS LIST CHANGES

CHANGE TO:

- |      |             |                        |
|------|-------------|------------------------|
| Q85  | 151-0190-07 | TRANSISTOR:SILICON,NPN |
| Q87  | 151-0190-07 | TRANSISTOR:SILICON,NPN |
| Q97  | 151-0190-07 | TRANSISTOR:SILICON,NPN |
| Q99  | 151-0190-07 | TRANSISTOR:SILICON,NPN |
| Q183 | 151-0190-07 | TRANSISTOR:SILICON,NPN |
| Q189 | 151-0190-07 | TRANSISTOR:SILICON,NPN |