

1241 LOGIC ANALYZER SERVICE MANUAL ADDENDUM

TO THE 1240/1241 LOGIC ANALYZER SERVICE MANUAL

This addendum contains service information for the 1241 Logic Analyzer. It is designed to be used with the *1240/1241 Logic Analyzer Service Manual* (packaged as 062-7124-02) and contains only information that pertains exclusively to 1241 instruments. Most of the information in the *1240/1241 Logic Analyzer Service Manual* applies to both types of instruments. The major differences between the 1240 and the 1241 are in the Display and CRT Drive circuits.

How To Use This Addendum. This addendum is designed similarly to the *1240/1241 Logic Analyzer Service Manual*. Information within the addendum corresponds to sections in the service manual. You can place the addendum at the back of the service manual, or you can insert the pages into the corresponding service manual sections.

WARNING

The following servicing instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

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Tektronix, Inc.
Walker Road Industrial Park
P.O. Box 4600
Beaverton, Or. 97076

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TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	i
LIST OF ILLUSTRATIONS	v
LIST OF TABLES	vi
OPERATOR'S SAFETY SUMMARY	vii
SERVICE SAFETY SUMMARY	ix
Section 1 GENERAL INFORMATION	
INTRODUCTION	1-1
1241 INSTRUMENT RECONFIGURATION	1-2
Section 2 SPECIFICATIONS	
INTRODUCTION	2-1
PERFORMANCE CONDITIONS	2-1
Section 3 OPERATING INFORMATION	
INTRODUCTION	3-1
POWER REQUIREMENTS	3-1
FUSES	3-2
1240 POWER SWITCHES	3-2
POWER-UP DIAGNOSTICS	3-2
Section 4 THEORY OF OPERATION	
OVERVIEW	4-1
LOGIC CONVENTIONS	4-1
GENERAL SYSTEM DESCRIPTION	4-2
Overview	4-2
POWER SUPPLY BOARD THEORY	4-6
CRT DRIVE BOARD THEORY	4-7
Overview	4-7
Vertical Sweep Circuit	4-8
Horizontal Sweep Circuit	4-8
High Voltage/Grid Voltage Generation	4-9
Feedback Control Loop	4-9
Cathode Z-Axis Amplifier/Brightness Control	4-9
Liquid Crystal Color Shutter and Driver	4-9
COMM Pack Power Supply	4-10
Trig In Level Shift And Buffer	4-10
Trig Out Level Shift And Buffer	4-10

TABLE OF CONTENTS (cont.)

	Page
DISPLAY BOARD THEORY	4-12
Overview	4-12
Clock Divider	4-12
I/OP Select Logic	4-13
I/OP R/W Control	4-13
Wait Circuit	4-13
I/OP-Display RAM Interface	4-13
Sync Signal Generation	4-13
Raster Counter And Vertical Scrolling Control	4-13
Horizontal Scrolling Control	4-14
Display RAM And Address Multiplexing	4-15
Display Mode Control	4-16
Parallel-to-Serial Converter	4-16
Timing Diagram Vertical Expand	4-16
 Section 5 VERIFICATION AND ADJUSTMENT PROCEDURES	
INTRODUCTION	5-1
USING THE 1240 EXTENDER BOARDS	5-4
OPERATING THE 1241 IN THE SERVICE POSITION	5-4
Proper Cooling Of The 1241	5-4
Timing Limitations	5-5
FUNCTIONAL CHECK PROCEDURES	5-5
PERFORMANCE VERIFICATION PROCEDURES	5-5
Introduction	5-5
Part 1: Supply And TPG Performance Checks	5-5
Procedure 1A-B: Power Supply Performance Check	5-7
Procedure 2: Display High Voltage Performance Check	5-9
Procedures 3A-E: Test Pattern Generator Performance Check ..	5-10
Part 2: Functionality Checks	5-10
Part 3: Acquisition and System Performance Checks	5-10
ADJUSTMENT PROCEDURES	5-10
Introduction	5-10
Limits And Tolerances	5-10
Equipment Required	5-10
Equipment Alternatives	5-11
Adjustment Interval	5-11
Test Sequence	5-11
Pre-Adjustment Procedure	5-11
1A. CRT: Alignment Adjust	5-13
5. Display Board: Counter/Timer Adjust	5-16
6. CRT Drive Board: External Trigger Adjust	5-18

TABLE OF CONTENTS (cont.)

		Page
Section 6	DISASSEMBLY AND INSTALLATION PROCEDURES	
	OVERVIEW	6-1
	GENERAL DISASSEMBLY/INSTALLATION PRECAUTIONS	6-2
	TOOLS REQUIRED	6-2
	PROCEDURE #7: 1241 LED/PHOTOTRANSISTOR BOARDS	6-3
	Disassembly	6-3
	PROCEDURE #8: 1241 CRT DRIVE BOARD REMOVAL	6-3
	Disassembly	6-3
	Installation Hints	6-4
	PROCEDURE #9: 1241 CRT & COLOR SHUTTER REMOVAL	6-5
	Disassembly	6-5
	Installation Hints	6-5
Section 7	MAINTENANCE	
	INTRODUCTION	7-1
	TOOLS REQUIRED FOR MAINTENANCE	7-1
	MAINTENANCE PRECAUTIONS	7-2
	Soldering	7-2
	Light-Emitting Diodes (LEDs)	7-2
	Static Precautions	7-2
	PREVENTIVE MAINTENANCE	7-3
	Exterior Cleaning	7-3
	Interior Cleaning	7-4
	Cleaning Guidelines	7-4
	Inspection	7-5
	CORRECTIVE MAINTENANCE	7-5
Section 8	TROUBLESHOOTING AND REPAIR	
	OVERVIEW	8-1
	TROUBLESHOOTING EQUIPMENT	8-2
	USING THE 1240 EXTENDER BOARDS	8-2
	REPLACING DEFECTIVE PARTS	8-2
	LIST OF ASSEMBLIES	8-2
	TROUBLESHOOTING PRECAUTIONS	8-2
	Discharging The CRT	8-3
	Static Discharge Damage (Special Handling Required)	8-3
	Operating The 1241 With The Cabinet Removed	8-4

TABLE OF CONTENTS (cont.)

	Page
1241 TROUBLESHOOTING WITHOUT ERROR INDEXES	8-5
Damage Resulting From Incorrect Board Installation	8-5
Power Supply Troubleshooting	8-6
1241 Thermal Fuse	8-6
1241 Power Supply Troubleshooting Trees	8-6
CRT Drive Board Troubleshooting	8-11
Processor LEDs	8-25
Kernel Signature Analysis	8-25
I/O Processor Kernel Troubleshooting	8-25
Control Processor Kernel Troubleshooting	8-25
TROUBLESHOOTING USING DIAGNOSTICS ERROR INFORMATION	8-30
Diagnostics Overview	8-30
Error Index Overview	8-31
I/O PROCESSOR KERNEL LED ERROR INDEXES	8-33
Power-Up - Stage 0	8-38
RAM - Stage 1	8-41
ROM Pack - Stage 2	8-43
COMM Pack - Stage 3	8-48
3XXX DISPLAY ERROR INDEXES	8-49
31XX-RAM, AREA 1	8-52
32XX-VERTICAL SCROLLING, AREA 2	8-56
33XX-HORIZONTAL SCROLLING, AREA 3	8-59
34XX-REVERSE VIDEO, AREA 4	8-64
35XX-HIGHLIGHTING, AREA 5	8-66
36XX-WAVEFORM (GENERATION), AREA 6	8-69
 Section 9	 REPLACEABLE ELECTRICAL PARTS
 Section 10	 DIAGRAMS
 Section 11	 REPLACEABLE MECHANICAL PARTS
 Section 12	 GLOSSARY

LIST OF ILLUSTRATIONS

Figure		Page
2-1	External Trigger in acceptance window	2-6
2-2	TPG clock and data outputs	2-6
2-3	1241 dimensions	2-15
3-1	1241 rear panel	3-1
4-1	1241 system block diagram	4-2
4-2	1241 mainframe board locations	4-3
4-3	1241 card-cage board locations	4-4
4-4	1241 cables and connections	4-5
4-5	Power Supply Board functional block diagram	4-6
4-6	CRT Drive Board functional block diagram	4-7
4-7	Display Board functional block diagram	4-11
4-8	An example of 1241 display screen memory	4-12
4-9	Display RAM memory map	4-14
4-10	Display memory access times	4-15
5-1	Expanded view of the Interface Board shows power supply measurement pins	5-8
5-2	1241 CRT Drive Board adjustment holes	5-13
5-3	Soft key adjustment pattern	5-15
5-4	Expanded view of the Display Board shows components used in the Counter- /Timer Adjust	5-16
5-5	Expanded view of the CRT Drive Board shows components used in the External Trigger Adjust	5-18
6-1	Location of screws for CRT Board bracket removal	6-4
6-2	Discharging a CRT using a flat-blade screwdriver	6-6
8-1	1241 Power Supply troubleshooting tree	8-7
8-2	1241 CRT Drive Board troubleshooting tree	8-11
8-3	A13TP225 HDRIVE(L); A13TP456 horizontal flyback	8-21
8-4	A13TP340 Q534 gate drive; A13TP456 horizontal flyback	8-21
8-5	A13TP340 Q534 gate drive; A13TP534 transformer flyback	8-21
8-6	A13TP344 Q334 gate drive; A13TP340 Q534 gate drive	8-22
8-7	A13U218-4 sawtooth input; A13TP225 HDRIVE(L)	8-22
8-8	A13TP223 horizontal oscillator; A13TP225 HDRIVE(L)	8-22
8-9	A13TP650 cathode Z-axis amplifier; A13TP225 HDRIVE(L)	8-23
8-10	A13J200-1 and J200-2 color shutter drive; A13TP148 vertical flyback	8-23
8-11	A13J200-3 color shutter drive; A13TP148 vertical flyback	8-23
8-12	A13J200-4 color shutter drive; A13TP148 vertical flyback	8-24
8-13	A13U138-11 VDRIVE-GREEN(H); A13U138-12 VDRIVE(H)	8-24
8-14	A13U138-12 VDRIVE(H); A13TP148 vertical drive	8-24
8-15	1241 error index format	8-31
8-16	I/O Processor Kernel Stage 0 block diagram.	8-34
8-17	I/O Processor Board component location	8-35

LIST OF ILLUSTRATIONS (cont.)

Figure		Page
8-18	I/O Processor Kernel Stage 1 block diagram	8-40
8-19	I/O Processor Kernel Stage 2 block diagram	8-42
8-20	I/O Processor Kernel Stage 3 block diagram	8-47
8-21	Display RAM block diagram	8-50
8-22	Display Board component location	8-51
8-23	Display VERTICAL SCROLLING block diagram	8-55
8-24	Display HORIZONTAL SCROLLING block diagram	8-58
8-25	Display REVERSE VIDEO block diagram	8-63
8-26	Display HIGHLIGHTING block diagram	8-65
8-27	Display WAVEFORM block diagram	8-68

LIST OF TABLES

Table		Page
2-1	1241 Electrical Specifications	2-2
2-2	1240D1 Electrical Specifications	2-9
2-3	1240D2 Electrical Specifications	2-11
2-4	Extender Limitations	2-13
2-5	1241 Environmental Specifications	2-14
2-6	1241 Physical Specifications	2-14
4-1	Display Mode Truth Table	4-16
5-1	Required Test Equipment	5-1
5-2	Specifications Tested in the Part 1 Performance Checks	5-6
5-3	Power Supply Readings	5-9
5-4	Power Supply Readings	5-12
8-1	Recommended Servicing Approach	8-1
8-2	Static Damage Table	8-4
8-3	Possible Components Damaged When a Board is Installed Incorrectly	8-5
8-4	I/O P Signatures: CPU, Buffers, and Decoders	8-27
8-5	I/O P Signatures: Decoders and Buffers Outputs	8-28
8-6	I/O P Signatures: ROM Data Lines	8-28
8-7	Con P Signatures: CPU, Buffers, Decoders, and ROM	8-29
8-8	Diagnostics Version 9-0 Con P Signatures: ROM Data Lines	8-30
8-9	Diagnostic Code Location	8-31

OPERATOR'S SAFETY SUMMARY

The general safety information in this summary is for both operator and service personnel. Specific cautions and warnings are found throughout the manual where they apply, but may not appear in this summary.

TERMS IN THIS MANUAL

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

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

TERMS AS MARKED ON EQUIPMENT

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

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

SYMBOLS AS MARKED ON EQUIPMENT

 DANGER — High voltage.

 Protective ground (earth) terminal.

 ATTENTION — refer to manual.

GROUNDING THE PRODUCT

This product is intended to operate from a power source that does not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground.

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

DANGER ARISING FROM LOSS OF GROUND

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

USE THE PROPER POWER CORD

Use only the power cord and connector specified for your product, and be sure it is in good condition.

Refer to the *Operating Information* section of the *1240/1241 Service Manual* for information on power cords and connectors.

USE THE PROPER FUSE

To avoid fire hazard, use only a fuse of the correct type, voltage rating, and current rating as specified in the parts list for this product. Also, ensure that the line selector switch is in the proper position for the power source being used.

DO NOT OPERATE IN EXPLOSIVE ATMOSPHERES

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

SERVICE SAFETY SUMMARY

FOR QUALIFIED SERVICE PERSONNEL ONLY
Refer also to the Operator's Safety Summary.

DO NOT SERVICE ALONE

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

USE CARE WHEN SERVICING WITH POWER ON

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

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

USE CAUTION WHEN SERVICING THE CRT

The CRT should be serviced only by qualified personnel familiar with CRT servicing procedures and precautions.

CRTs retain hazardous voltages for long periods of time after power-down. Before attempting any work inside the monitor, discharge the CRT by shorting the anode to chassis ground. When discharging the CRT, connect the discharge path to ground and then the anode.

Use extreme caution when handling the CRT. Rough handling may cause it to implode. Do not nick or scratch the glass or subject it to undue pressure during removal or installation. When handling the CRT, wear safety goggles and heavy gloves for protection.

REMOVE THE LOOSE OBJECTS

During disassembly or installation procedures, screws or other small objects may fall to the bottom of the mainframe. To avoid shorting out the power supply, do not power up the instrument until such objects have been removed.

SECTION 1 GENERAL INFORMATION

SECTION 1 GENERAL INFORMATION

INTRODUCTION	1-1
1241 INSTRUMENT RECONFIGURATION	1-2

GENERAL INFORMATION

INTRODUCTION

The Tektronix 1241 Logic Analyzer is a portable, general-purpose digital design and troubleshooting tool that offers a feature set very similar to that of the 1240 Logic Analyzer. Two types of acquisition cards can be combined in different configurations up to a maximum of four cards. The 1240D1 card supports high-speed hardware analysis with 9 acquisition channels at 100 MHz (10ns) and 6 ns glitch detection. The 1240D2 has 18 acquisition channels at 50 MHz and includes a bus demultiplexing feature. Total channel width varies from 9 channels (one 1240D1) to 72 channels (four 1240D2s).

The 1241 displays information on a 7-inch (diagonal) screen in three colors: red, green, and yellow. The color display system consists of two basic elements: a high resolution monochrome CRT and a liquid crystal color shutter. With resolution based on that of the CRT, the 1241 display provides very high resolution color.

The 1241 Logic Analyzer provides the following features:

- dual, independent timebases that allow correlation of synchronous and asynchronous data
- nonvolatile memory that retains patterns of instrument setup parameters after power-down
- powerful triggering with two event recognizers that can be used independently or together
- data display in state table or timing diagram formats
- simple menu-oriented user interface with a front-panel keyboard and a display screen with touch-sensitive, on-screen soft keys
- auto-acquisition mode, for repeated acquisitions without manual restart of the instrument
- expandable acquisition memory depth with a memory chaining feature
- vertical expand feature that doubles the height of displayed timing diagram traces
- data search and compare functions
- remote operation with the GPIB or RS232C interface
- self-test diagnostic routines that provide troubleshooting failure information

A keyboard consisting of numeric entry keys, menu selection keys, and other controls is located on the 1241's front panel. Acquisition probes and ROM/RAM packs are connected on the right side, while connections for external triggers and communication packs are made on the rear panel of the instrument.

Refer to the *General Information* section of the *1240/1241 Service Manual* for a full keyboard description and a menu overview.

1241 INSTRUMENT RECONFIGURATION

If the specific application for which your 1241 Logic Analyzer was configured changes, it may be necessary to change the combination of 1240D1 and 1240D2 acquisition cards installed in the instrument. To order additional acquisition cards and probes, contact your local Tektronix representative.

NOTE

If you change the 1241 acquisition card configuration, a qualified service technician should check the power supply jumper A07J444 to ensure that the 1241 is configured to supply the correct amount of power for the current number of installed acquisition cards. To determine the need for a power supply jumper change, refer to the Maintenance section of the 1240/1241 Logic Analyzer Service Manual.

SECTION 2 SPECIFICATIONS

SECTION 2 SPECIFICATIONS

INTRODUCTION	2-1
PERFORMANCE CONDITIONS	2-1

SPECIFICATIONS

INTRODUCTION

This section contains the following 1241 instrument specifications.

Table	Specification
2-1	1241 Electrical Specifications
2-2	1241 Environmental Specifications
2-3	1241 Physical Specifications

Electrical Specifications for 1240D1 and 1240D2 Acquisition Cards and for Extender Board Limitations are located in the *1240/1241 Service Manual*.

Items listed in the Performance Requirements column are product specifications that can be verified. If verification of the listed electrical characteristics is required for incoming inspection or other purposes, *Section 5, Verification and Adjustment Procedures*, lists the test equipment and necessary steps.

Items listed in the Supplemental Information columns are either explanatory notes or performance characteristics for which no limits are specified. They cannot be verified by the verification and adjustment procedures listed in this manual.

PERFORMANCE CONDITIONS

The performance characteristics in this section are valid under the following conditions:

1. The 1241 Logic Analyzer must be in an operating environment whose limits are listed in Table 2-2, 1241 Environmental Specifications.
2. The 1241 Logic Analyzer must have been calibrated at an ambient temperature between +20°C and +30°C, after a 30-minute warm-up.
3. All specifications whose measurement involves the use of a Data Acquisition Probe have been based on the P6460 probe. Any applicable conditions not listed above but unique to a particular characteristic, are stated as part of that characteristic.

Table 2-1
1241 ELECTRICAL SPECIFICATIONS

Characteristic	Performance Requirements	Supplemental Information
<p>SAFETY</p> <p>General</p> <p>CRT</p>		<p>Complies with the requirements of UL 1244, IEC 348, and CSA 556B.</p> <p>UL, VDE (German X-radiation law), and TEK standard 062-1860-00 (Product Safety Standard for X-Radiation).</p>
<p>GLOBAL EVENT</p> <p>Filter, global event UNLOCKED</p> <p>Separate 1240D1 and 1240D2 events</p> <p>When N = 1: Min. guaranteed event accepted</p> <p>When N = 2-16: Max. guaranteed event rejected Min. guaranteed event accepted</p> <p>Mixed 1240D1 and 1240D2 events</p> <p>Max. guaranteed event rejected Min. guaranteed event accepted</p>	<p>Timebase period + 6 ns</p> <p>$(N - 1) \times T - 8 \text{ ns}$</p> <p>$(N \times T) + 2 \text{ ns}$</p> <p>$(N - 1) \times T - 8 \text{ ns}$</p> <p>$(N \times T) + 20 \text{ ns}$</p>	<p>Event consists of inputs from all groups.</p> <p>An event is not recognized unless it is accepted by the global filter. These specifications are based on a 1241 equipped with P6460 Data Acquisition Probes.</p> <p>N is value of FILTER field; selections are 1-16. T is value of ON field (filter timebase); selections are T1 (when T1 active), T2 (when T2 active), and 10NS.</p> <p>N = 2-16</p> <p>N = 1-16</p>
<p>Filter, global event CLOCKED</p> <p>Accept 1240D1 and/or 1240D2 clocked events</p>	<p>$N \times T$</p>	<p>N is value of FILTER field; selections are 1-16. T is value of ON field (filter timebase) and selection (T1, T2, 10NS) is same as sample clock. Filtered event becomes valid on Nth contiguous valid acquisition event.</p> <p>Combined 1240D1 and 1240D2 ASYNC acquisition requires additional 2 ns word width.</p>
<p>STORE ON (ON NOT) action</p> <p>T1 event or T2 event</p> <p>T1 event and T2 event</p>	<p>global event clocked:</p> <p>Store data if event true for 20 ns or more.</p> <p>Store data for a timebase if both events meet indiv. timebase spec. and the other timebase event is valid for 10 ns after the storage clock.</p>	<p>global event unlocked:</p> <p>Data valid $\pm 12 \text{ ns} - 20 \text{ ns}$ with respect to data clock.</p> <p>Data valid $\pm 12 \text{ ns} - 20 \text{ ns}$ with respect to data clock.</p>

**Table 2-1 (cont.)
1241 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
SEQUENTIAL EVENT		Event may consist only of groups assigned the same timebase.
Filter, accept event	N x T	N is the value of the FILTER field; selections are 1-16. T is the period of the active timebase for that level.
Sequence level execution rate	30 ns	Time after sequential event occurs before next level is allowed.
RESET action	40 ns	Reset from a sequential event to the timer is not guaranteed if sequential event has a SYNC timebase. Reset from a sequential event to the counter is only guaranteed if both sequential and global events use the same filter clock.
Storage qualification	30 ns	Maximum rate for enable/disable.
TO OCCUR nnnn TIMES	One count per valid event	Iteration counter; count of valid events before sequential event is satisfied. Range is 1 - 9,999 event occurrences.
Delay (nnnn CLOCKS)	1 - 9,999 system clocks	Count of clocks before sequential event is satisfied.
RESET	40 ns	Counter/timer reset takes 100 ns prior to restart.
TRIGGER		Trigger position is within one stored clock of event causing trigger. If reset and trigger occur together, a trigger occurs. When AFTER MEMORY FULL is the trigger position selection, a trigger before memory is full causes a reset. If the counter/timer causes a trigger at the same time that the sequential event causes a reset, the counter/timer will be set to 0 and the 1241 will trigger.
COUNTER/TIMER		
COUNT mode INCR CNTR	One count per valid event (must satisfy filter)	Range is 1 to 99,999,999,999 events.
TIME mode START TIMER TIME WHILE	Accuracy, start to stop: ± 20 ns	Timer value truncated to 4 digits. Filter clock must equal the sample clock.

**Table 2-1 (cont.)
1241 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
T2 DEMUX CONTROL Phase delay between first phase (T2 F) and last phase (T2 L)	10 ns min.	Only first occurrence of next phase is valid. Successive clocks without an intervening alternate phase are ignored.
Phase delay between last phase (T2 L) and first phase (T2 F)	20 ns min.	
ASYNCH TIMEBASE		10 ns to 1 s in 1-2-5 increments (0.01% average accuracy).
TWO TIMEBASE CORRELATION Resolution of precedence between timebases	10 ns	The 1241 can resolve the difference between a T1 and a T2 event if they occur 10 ns or more apart. If they occur less than 10 ns from each other, the timebase that was previously indicated as occurring first will now be indicated as occurring last.
EXT TRIG OUT V _{out} high (open) V _{out} high (50 Ω) V _{out} low (either)		50 Ω source Z 3.8 V min. 1.9 V min. 0.6 V max., at 7 mA
Pulse width		70 ns min., 120 ns max.
Delay: probe tip clock to trigger out		65 ns min., 90 ns max.
EXT TRIG IN Input resistance Input capacitance V-input, max. Acceptance window		1 MΩ ± 1% 37 pF ± 5 pF ± 20 V See Figure 2-1. Window length = 100 ns; window starts 50 ns after clock that causes trigger.
x1 PROBES AND 50 Ω TERMINATED COAX. Input threshold Minimum pulse amplitude Minimum pulse width		1.4 V ± 100 mV 1.8 V high, 1.0 V low 20 ns
x10 PROBES Input threshold Minimum pulse amplitude Minimum pulse width Minimum slew rate		1.4V ± 500 mV 2.4 V high, 0.6 V low 30 ns 5 V/μs
TIME BETWEEN TRIGGERS FOR LINKED 1240/1241s		Slave trigger located within 60 ns of master trigger

**Table 2-1 (cont.)
1241 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
TEST PATTERN GENERATOR		
Clock period mode 0 (no glitches) mode 1 (with glitches) mode 2 (no glitches) mode 3 (with glitches)	83.3 ns \pm 2% (12 MHz) 166.7 ns \pm 2% (or 6 MHz) T1 T1 x 2	See Figure 2-2. Timebase T1 is specified in the Timebase menu. The TPG clock output is only valid when T1 is \leq 50 MHz.
Pulse width	8 or 12 ns \pm 0.5 ns	8 or 12 ns depending on strap A14J510 (12 ns - pins 1,2 or 8 ns - pins 2,3)
V _{out}	\pm 350 mV min. about V _{th}	V _{th} = +5 V (measured) - 1.30 V. Nominal V _{th} = 3.70 V.
Skew, channel - channel		\pm 1.5 ns
Delay, clock - data	1 ns \pm 1.50 ns max.	
Glitch modes (1 or 3) Clock period Glitch width Glitch amplitude	166.7 ns \pm 2% or T x 2 6.5 ns \pm 1.0 ns \pm 300 mV min. about V _{th}	See Figure 2-2. V _{th} = +5 V (measured) - 1.30 V. Nominal V _{th} = 3.70 V.
POWER		
AC power input requirements power frequency 115 Vac operation 230 Vac operation		500 VA max., 7 A max. 48 Hz to 63 Hz (single phase) 90 V to 132 V 180 V to 250 V
+12 V supply regulation ripple rated current limit point	\pm 5% (11.4 V min., 12.6 V max.) 1 V p-p max.	This supply is used by all of the instrument except the CRT Drive and the COMM Pack port. Measured on the Interface Bd. Measured on the Interface Bd. 0 A min., 1 A max. (each) 1.0 A min., 2.5 A max.
+16 V supply regulation ripple rated current limit point	15.0 V min., 17.75 V max.) 1.0 V p-p max.	This supply is used by the CRT Drive. Measured on the Interface Bd. Measured on the Interface Bd. 0 A min., 3.5 A max. Supply is fused on the CRT Drive Bd. with a 5 A, fast blow fuse.

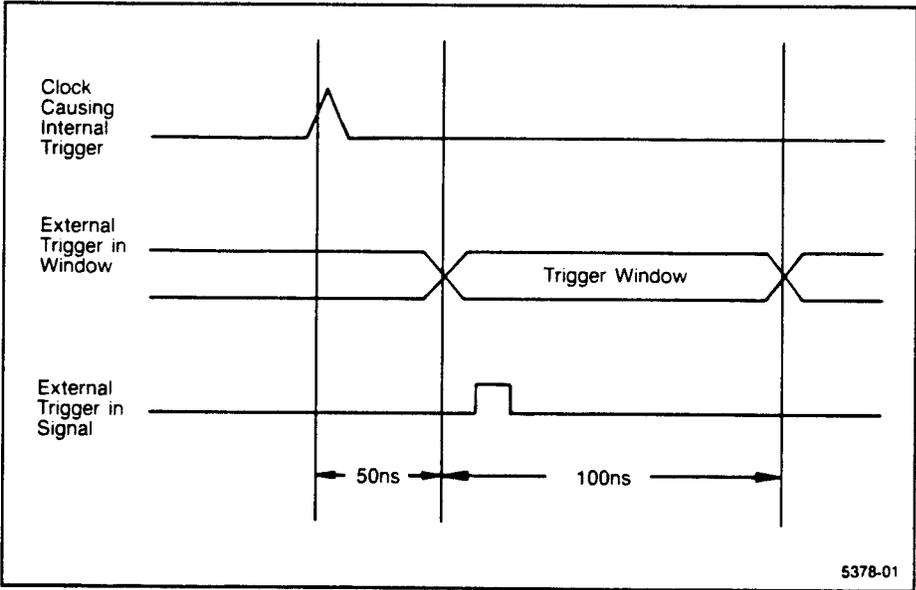


Figure 2-1. External Trigger In acceptance window.

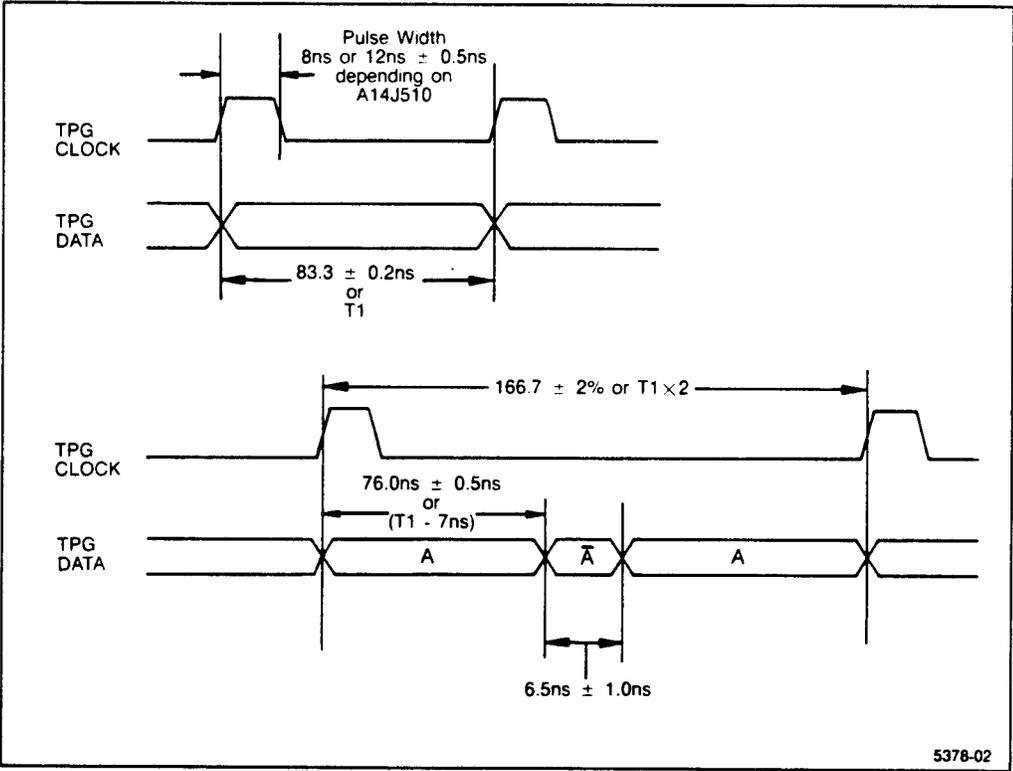


Figure 2-2. TPG clock and data outputs.

**Table 2-1 (cont.)
1241 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
POWER (cont.) + 5 V supply regulation ripple rated current: 1 or 2 acquisition cards 3 or 4 acquisition cards current limit @ 90 V line 1 or 2 acquisition cards 3 or 4 acquisition cards over-voltage protection point	$\pm 3\%$ (4.85 V min., 5.15 V max.) 100 mV max.	Measured at any point on the Interface Bd. $\pm 1\%$ measured at the voltage sense point on the Interface Bd. Low load setup: 11.6 A min. 29.0 A max. High load setup: 30.0 A min. 45.0 A max. Includes +3 V supply current. Measured w/max. specified load on all other supplies, fan running low speed. Low load setup: 29 A min. 34 A max. High load setup: 46 A min. 52 A max. 6.2 V \pm 10%
+ 3 V supply regulation ripple rated current current limit point	-1.90 to -2.10 V (below +5 V) 100 mV max.	Measured at voltage sense point on Interface Bd. Measured on Interface Bd. 0 A min., 8.0 A max. 8.0 A min., 9.0 A max.
-5 V supply regulation ripple rated current current limit point	$\pm 5\%$ (4.75 V min., 5.25 V max.) 100 mV max.	Measured on Interface Bd. Measured on Interface Bd. 0 A min., 0.8 A max. 0.8 A min., 2.2 A max.
-12 V supply regulation ripple rated current current limit point	$\pm 5\%$ (11.4 V min., 12.6 V max.) 1 V max.	Measured on Interface Bd. 0 A min., 0.28 A max. 0.3 A min., 1.0 A max.
COMM PACK SUPPLY + 12 V	+ 11.64 to + 12.36 V.	Measured on COMM Pack Port, pin B17.

**Table 2-1 (cont.)
1241 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
DISPLAY (cont.)		
Power requirements		+16.5 V dc at 3.0 A
Signal inputs		Vert.: high = green screen Horiz.: Negative at connector Video: Positive at connector
Input levels		Standard TTL
Video Response		30 V in 50 ns with < 10% aberration
High voltage	12 ± 0.6 kV	At maximum contrast
Scanning Frequency		Horiz.: 30,720 Hz ± 500 Hz Vert.: 120 Hz ± 6 Hz
Contrast ratio		Adjustable from -5 V to -50 V, thus varying the intensity from max. to blank screen.
FAN CONTROL		
Fan Speed		With 4 1240D2's installed, fan switches between low and high speeds at approx. 30 deg. C room ambient. More lightly loaded inst. will switch at higher temp.
Low Speed Voltage		9.5 V to 11.5 V
High Speed Voltage		13.0 V to 15.0 V

**Table 2-2
1240D1 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
MEMORY CONFIGURATION		
Width		9 stored data channels; 1 non-stored clock/-qualifier channel
Depth		Glitches On / Glitches Off
no chaining		257 513
2 1240D1s chained		513 1025
3 1240D1s chained		769 1537
4 1240D1s chained		1025 2049
TIMEBASE GENERATION		
Clock input		
pulse width	8 ns min.	
period	20 ns min.	
amplitude	± 350 mV min. above and below programmed threshold	Min. time between OR'd clocks is 25 ns.
Qualifier input		
setup time	11 ns max.	Values based on a 1240D1 with a P6460 acquisition probe.
hold time	0 ns max.	Single selected qualifier driven.
SYNCHRONOUS OPERATION		
Data, all channels		Uses signals specified by the operator in the Timebase menu. Can be used with all timebases. Data word width = 14 ns min. Setup and hold values based on a 1240D1 with a P6460 acquisition probe.
Setup time	7 ns	4 ns setup time for single channel driven.
Hold time	0.5 ns (T1 sourced from same 1240D1)	Hold time is 2 ns if data is acquired on one acq. card and the clock source is on another acq. card.
Amplitude	± 350 mV min. above and below programmed threshold	
SYNC events		
global event for all channels		At max. SYNC rate, any input event meeting setup and hold times and minimum word width.
sequential event for all channels		At max. SYNC rate, recognize any input event meeting setup and hold times and minimum word width. Up to 14 different events, one per sequence level.
ASYNCHRONOUS OPERATION		
Data min. word width guaranteed to be sampled	Timebase period + 6 ns	Timebase period selectable from 10 ns to 1 s in 1-2-5 increments. Timebase period + 8ns with 1240D2 N samples of word requires (N×T) + 6ns min. word width (or N×T + 8ns with 1240D2).

**Table 2-2 (cont.)
1240D1 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
Glitch capture glitch width glitch amplitude	± 350 mV above and below programmed threshold	6 ns at threshold (single channel) at max. glitch/data transition rate of 30 ns. A glitch may be detected as both glitch and data if the transition occurs within 2 ns of the sample clock.
ASYNC events Global event for all channels, min. data word width guaranteed to be sampled: clocked (1,0,X) unclocked (1,0,X)	Timebase period + 6 ns 16 ns min.	Timebase period + 8 ns with 1240D2 Minimum width of valid event when global filter = 1 at 10NS and no 1240D2 channels specified.
Sequential event (1,0,X)	Timebase + 6 ns	Up to 14 different events, one per sequence level. Timebase period + 8ns with 1240D2 For both global and sequential events, N samples of word requires $(N \times T) + 6$ ns min. word width (or $N \times T + 8$ ns with 1240D2).
PROBE THRESHOLD Threshold range		Selectable from +6.35 to -6.35 V in 50 mV increments; also includes preset values for TTL (+1.4 V), TPG (+3.70 V), -ECL (-1.30 V).
Threshold accuracy with probe	$\pm 0.5\% \pm 65$ mV	
Threshold accuracy on card only		$\pm .25\%$ of TH $\div 4 \pm 8$ mV (measured at probe connector, with offset sense connected to GND sense and 10.5K (0.1%) between J620-16 and -13)

**Table 2-3
1240D2 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
MEMORY CONFIGURATION Width		18 stored data channels; 2 non-stored clock/qualifier channels
Depth no chaining 2 1240D2s chained 3 1240D2s chained 4 1240D2s chained		513 1025 1537 2049
TIMEBASE GENERATION Clock input pulse width period amplitude	8 ns min. 20 ns min. ± 350 mV min. above and below programmed threshold	Min. time between OR'd clocks is 25 ns.
Qualifier input setup time hold time	11 ns max. 0 ns max.	Values based on 1240D2 with P6460 acquisition probes. Single selected qualifier driven.
SYNCHRONOUS OPERATION Data, all channels		Uses signals specified by the operator in the Timebase menu. Can be used with all timebases. Setup and hold values based on 1240D2 with P6460 acquisition probes.
Setup time	12 ns	
Hold time	0 ns	
Amplitude	± 350 mV min., above and below programmed threshold	
SYNC events global event for all channels sequential event for all channels		At max. SYNC rate, any input event meeting setup and hold times. At max. SYNC rate, recognize any input event meeting setup and hold times. Up to 14 different events, one per sequence level.
ASYNCHRONOUS OPERATION Data min. word width guaranteed to be sampled	Timebase period + 6 ns	Timebase period selectable from 20 ns to 1 s in 1-2-5 increments. Timebase period + 8ns with 1240D1 N samples of word requires $(N \times T) + 6$ ns min. word width (or $N \times T + 8$ ns with 1240D1).

**Table 2-3 (cont.)
1240D2 ELECTRICAL SPECIFICATIONS**

Characteristic	Performance Requirements	Supplemental Information
ASYNC events Global event for all channels clocked (1,0,X) unclocked (1,0,X)	Timebase period + 6 ns 16 ns min.	Data stored may be different than that recognized by event recognizer. Timebase period + 8ns with 1240D1 Minimum width of valid event when global filter = 1 at 10NS and no 1240D1 channels specified.
Sequential event (1,0,X)	Timebase period + 6 ns	Up to 14 different events, one per sequence level. Timebase period + 8ns with 1240D1
PROBE THRESHOLD Threshold range		Selectable from +6.35 to -6.35 V in 50 mV increments; also includes preset values for TTL (+1.4 V), TPG (+3.70 V), -ECL (-1.30 V).
Threshold accuracy with probe Threshold accuracy on card only	$\pm 0.5\% \pm 65 \text{ mV}$	$\pm .25\%$ of TH $\div 4 \pm 8\text{mV}$ (measured at probe connector, with offset sense connected to GND sense and 10.5K (0.1%) between threshold sense and threshold out.)

**Table 2-4
EXTENDER LIMITATIONS***

Characteristic	Description
1240D1 OR 1240D2 ON EXTENDER	
Sequence Level Execution Rate	Changes from 30 ns to 35 ns
Maximum Clock Rate	1240D1, GLITCHES OFF: 20 ns 1240D1, GLITCHES ON: 22 ns
Data Hold Time	Increases vary with configuration. Maximum increases are: 1240D1 data hold time increases from 2 ns to 4 ns. 1240D2 data hold time increases from 0 ns to 2 ns.
Qualifier Setup/Hold Times	Increases vary with configuration. Maximum increases are: Qualifier setup time increases from 11 ns to 15 ns. Qualifier hold time increases from 0 ns to 2 ns.
Two-Timebase Resolution	Increases from 10 ns to 12 ns
T2 DEMUX Control	Extender adds 5 ns to both minimum delays between phases. T2F-T2L phase delay increases from 10 ns to 15 ns. T2L-T2F phase delay increases from 20 ns to 25 ns.
Triggering	Global and sequential trigger are guaranteed only if the clock source and event recognizer source are both from the extended board or both from non-extended boards. Two-timebase sequential triggering is not guaranteed for timebases that are asynchronous to each other.
DISPLAY BOARD ON EXTENDER	
Counter/Timer	Counter/timer output is delayed. Position of counter/timer trigger is within one stored clock of event causing trigger.
TRIGGER BOARD ON EXTENDER	
Sequence Level Execution Rate	Changes from 30 ns to 35 ns
Maximum Clock Rate	1240D1, GLITCHES OFF: 20 ns 1240D1, GLITCHES ON: 22 ns
T2 DEMUX Control	Extender adds 5 ns to both minimum delays between phases. T2F-T2L phase delay increases from 10 ns to 15 ns. T2L-T2F phase delay increases from 20 ns to 25 ns.
Triggering	Two-timebase sequential triggering is not guaranteed for timebases that are asynchronous to each other.

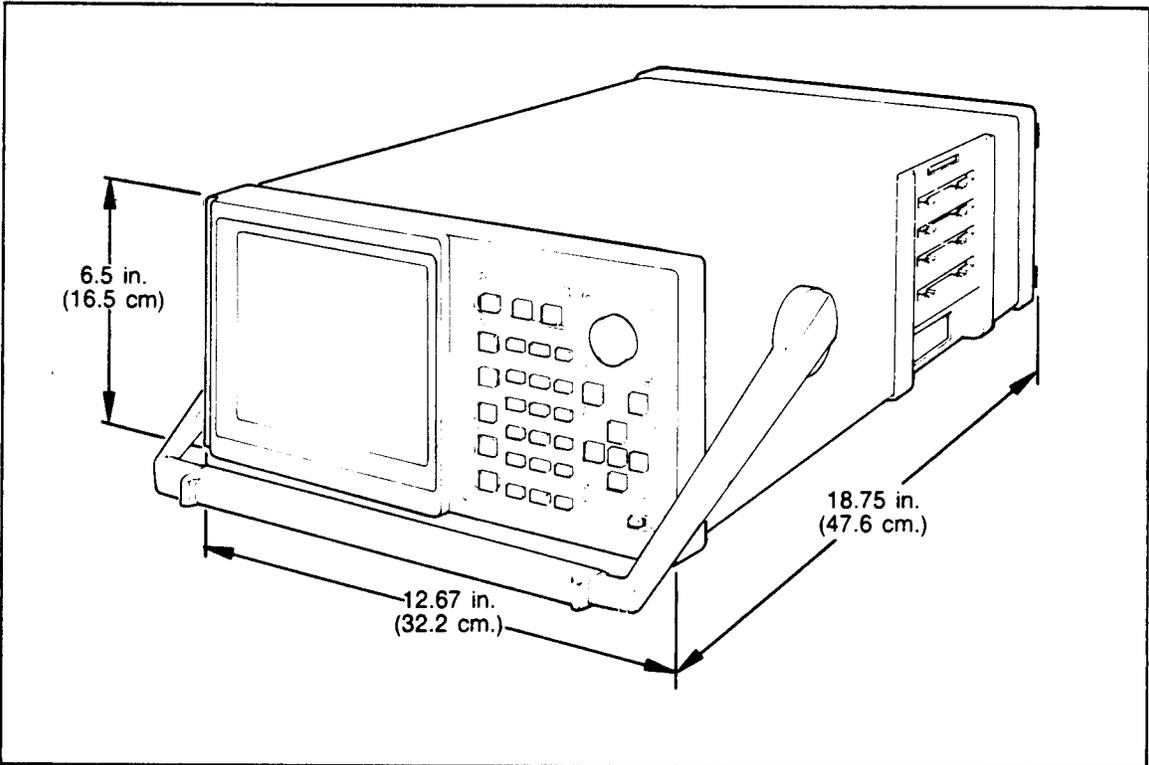
* Refer to the extender board instructions in *Section 5* for more information.

**Table 2-5
1241 ENVIRONMENTAL SPECIFICATIONS**

Characteristic	Description
TEMPERATURE	
Maximum operating	+50°C (122°F)
Minimum operating	0°C (32°F)
Non-operating	-55°C to +75°C (-67°F to +167°F)
TPG calibrated operating	20°C to 30°C (68°F to 86°F)
HUMIDITY	90% to 95% relative humidity (Five 24 hr. cycles at 30°C to 60°C, instrument must reside in ≤ 70% relative humidity for two hours before and during operation)
ALTITUDE	
Operating	4.5 km (15,000 ft.)
Non-operating	15 km (50,000 ft.)
VIBRATION, operating	
Displacement	0.64 mm (0.025 inch)
Frequency range	10 to 55 Hz
SHOCK	30 Gs, halfsine, 11 ms duration, 18 shocks total, 3 on each face

**Table 2-6
1241 PHYSICAL SPECIFICATIONS**

Characteristic	Description
WEIGHT	12.7 kg (28.0 lbs.)
OVERALL DIMENSIONS	See also Figure 2-3.
Height (handle folded back)	19.7 cm (7.8 inches)
Width (including handle)	36.8 cm (14.5 inches)
Length (including protective front cover)	49.8 cm (19.6 inches)
Length (handle extended)	57.6 cm (22.7 inches)



4342-08

Figure 2-3. 1241 dimensions.

SECTION **3** OPERATING
INFORMATION

SECTION 3 OPERATING INFORMATION

POWER REQUIREMENTS	3-1
FUSES	3-2
1241 POWER SWITCHES	3-2
POWER-UP DIAGNOSTICS	3-2

OPERATING INFORMATION

INTRODUCTION

With the exception of the vertical expand feature, operation of the 1241 Logic Analyzer is identical to that of the 1240. When the vertical expand field is set to *2, the height of the timing traces is doubled. To make room for the expanded display, the soft keys and some select and information fields are removed from the screen. Restoring the vertical expand field to *1 returns the timing traces to their original height and replaces the soft keys on the screen. Refer to the *1240/1241 Operator's Manual* or to the *1240/1241 Service Manual* for operating information.

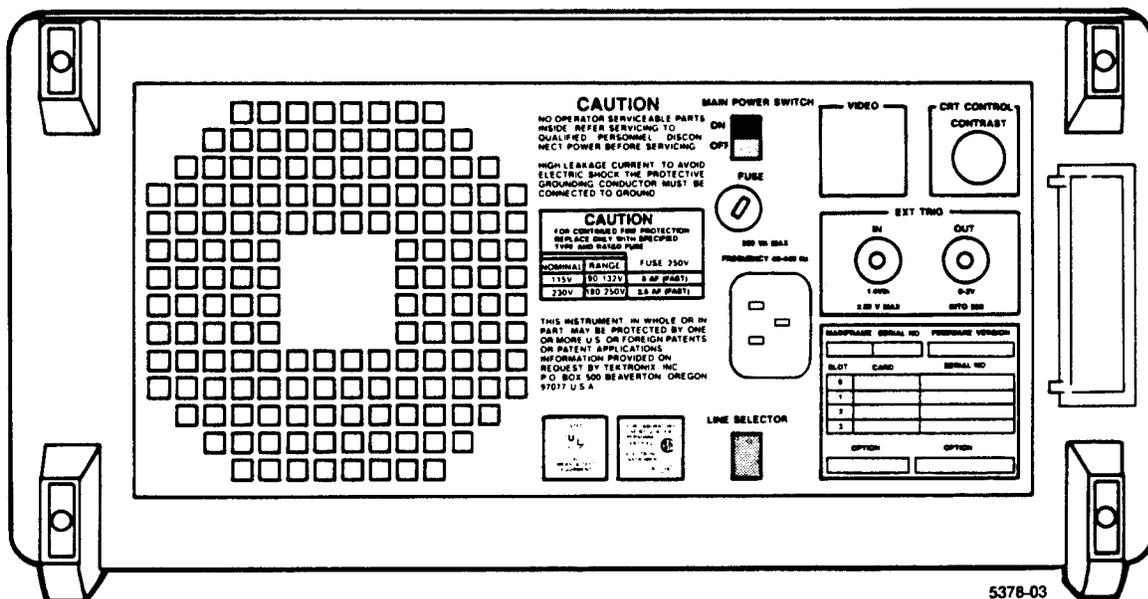
POWER REQUIREMENTS

The 1241 Logic Analyzer operates from a nominal 115 or 230 V, 48 to 63 Hz, single-phase power source. Before connecting the mainframe to a power source, verify that the LINE SELECTOR on the mainframe's rear panel shows the correct nominal voltage for the power source being used. Figure 3-1 shows the location of the LINE SELECTOR.

If the selector shows the wrong voltage for the power source being used, push the LINE SELECTOR switch to the appropriate position. Also, change the line voltage fuse located in the holder labeled FUSE, positioned above the LINE SELECTOR (refer to Figure 3-1). To access the fuse, twist the spring-loaded fuse holder counterclockwise. A label listing the fuse requirements is located beside the LINE SELECTOR. Refer to the *Replaceable Electrical Parts* section for a list of fuse part numbers.



Before applying power to the mainframe, verify that the LINE SELECTOR, the line voltage fuse, and the power cord are compatible with the power source being used.



5378-03

Figure 3-1. 1241 rear panel.

FUSES

The 1241 uses the following fuses:

FUSE	APPLICATION
7AF/250 V (3AG)	115 V line select
4AF/250 V (3AG)	230 V line select

Refer to the *Replaceable Electrical Parts* section for a list of fuse part numbers. Refer to the *Replaceable Mechanical Parts* section for a list of the fuse cap part numbers.

1241 POWER SWITCHES

The 1241 has two power switches available: the front-panel POWER DC ON/OFF switch and the rear-panel MAIN POWER SWITCH (refer to Figure 3-1). Both switches must be in the ON position to power up the instrument. The front-panel power switch controls dc power from the power supply circuitry. This switch is normally used by the operator for powering the instrument ON and OFF. The rear-panel MAIN POWER SWITCH controls the incoming ac line voltage to the 1241 power supply. The nonvolatile memory is unaffected by these switches; it has a separate battery power source on the Control Processor Board.

CAUTION

To prolong the life of the 1241 Power Supply components, it is recommended that the following guidelines be observed:

- *If possible, power the 1241 ON and OFF using the front-panel DC ON/OFF POWER switch.*
- *If it is necessary to power up the instrument using the rear-panel MAIN POWER SWITCH, do so only if the instrument has been powered down for several minutes. This allows the internal power supply circuitry to handle current surges.*

POWER-UP DIAGNOSTICS

To power up the 1241, set the rear-panel MAIN POWER SWITCH to ON, then push the front-panel dc power switch.

The 1241 internal diagnostic tests run automatically at power-up. These tests check out major components and operating firmware. When power-up diagnostics are successfully completed, most processor, acquisition, trigger, and display functions are verified.

If all tests pass, the Operation Level menu (Config menu group) is automatically displayed. If diagnostics fail, the Main Diagnostic menu is automatically displayed. The menu lists the functional modules tested and a corresponding PASS/FAIL message for each module.

Some error conditions only inhibit a portion of the 1241 functions. Refer to the *1240/1241 Service Manual* for a description of power-up error conditions.

SECTION 4 THEORY OF OPERATION

SECTION 4 THEORY OF OPERATION

SECTION OVERVIEW	4-1
LOGIC CONVENTIONS	4-1
GENERAL SYSTEM DESCRIPTION	4-2
Overview	4-2
POWER SUPPLY BOARD THEORY	4-6
CRT DRIVE BOARD THEORY	4-7
Overview	4-7
Vertical Sweep Circuit	4-8
Horizontal Sweep Circuit	4-8
High Voltage/Grid Voltage Generation	4-9
Feedback Control Loop	4-9
Cathode Z-Axis Amplifier/Brightness Control	4-9
Liquid Color Shutter and Driver	4-9
COMM Pack Power Supply	4-10
Trig In Level Shift And Buffer	4-10
Trig Out Level Shift And Buffer	4-10
DISPLAY BOARD THEORY	4-12
Overview	4-12
Clock Divider	4-12
I/OP Select Logic	4-13
I/OP R/W Control	4-13
Wait Circuit	4-13
I/OP-Display RAM Interface	4-13
Sync Signal Generation	4-13
Raster Counter And Vertical Scrolling Control	4-13
Horizontal Scrolling Control	4-14
Display RAM And Address Multiplexing	4-15
Display Mode Control	4-16
Parallel-To-Serial Converter	4-16
Timing Diagram Vertical Expand	4-16

THEORY OF OPERATION

OVERVIEW

This section provides information on the 1241 Logic Analyzer circuitry. Much of the 1241 circuitry is identical to that of the 1240 Logic Analyzer. This section is limited to describing circuitry that is unique to the 1241 (CRT Drive, Display, and some Power Supply circuitry). Refer to *Theory of Operation* in the *1240/1241 Logic Analyzer Service Manual* for other circuit descriptions.

The descriptions in this section divide each board into functional blocks. When reading these descriptions, refer to the system block diagram, the functional block diagram, and the schematics. The circuit descriptions also provide schematic diamond numbers that reference the appropriate schematic.

LOGIC CONVENTIONS

Digital logic techniques are used to perform most functions within this instrument. Function and operation of the logic circuits are represented by standard logic symbols and terms. All logic functions are described using the positive logic convention. Positive logic is a system of notation whereby the more positive of two levels is the true, or 1 state; and the more negative level is the false, or 0 state.

In logic descriptions, the more positive of the two logic voltages is referred to as high, and the more negative state as low. The specific voltages that constitute a high or low state vary between different electronic devices (e.g., ECL logic and TTL logic).

Active-low signals are indicated by an (L) following the signal name or by a horizontal line above the signal name (e.g., \overline{IRQ}). Signal names without indicators are considered active-high. Some active-high signals are indicated by an (H) following the signal name.

GENERAL SYSTEM DESCRIPTION

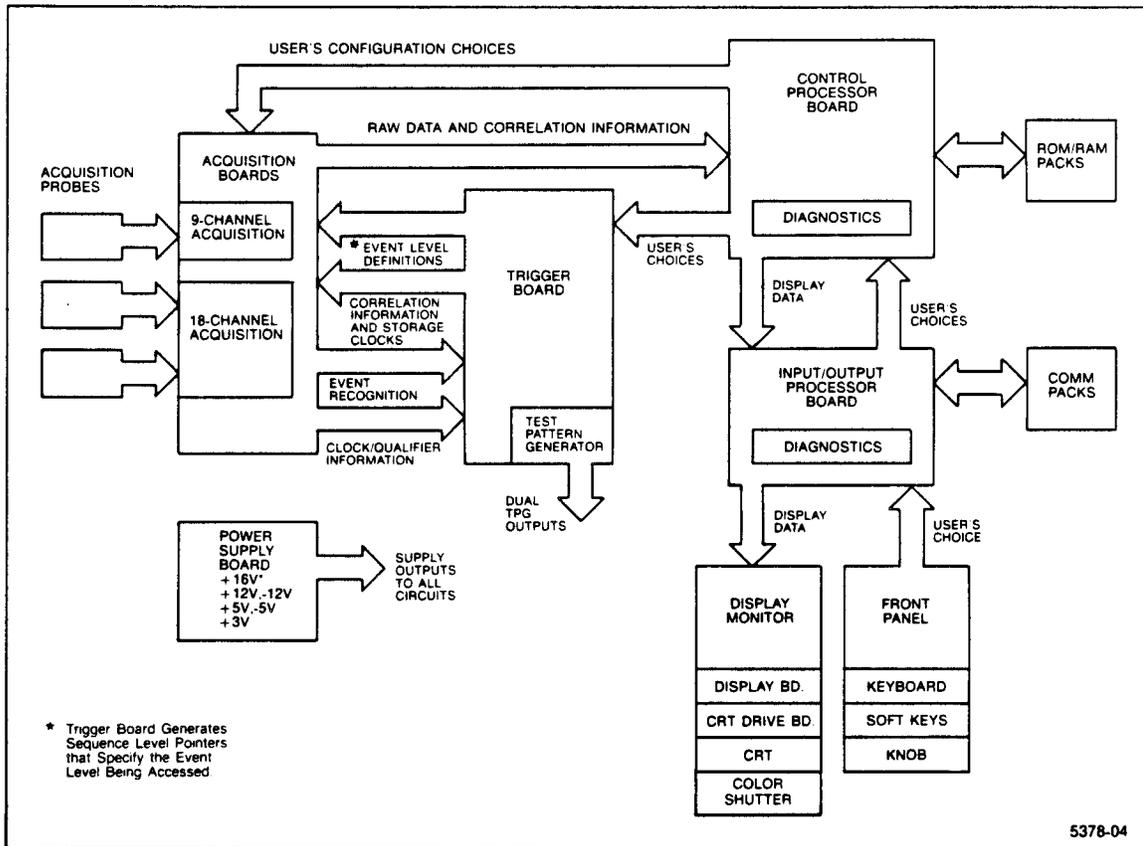


Figure 4-1. 1241 system block diagram.

OVERVIEW

The 1241 is a menu-driven logic analyzer. The menus are displayed on a monitor screen and are accessible from the keyboard. Selections made in the menus control the 1241 during data acquisitions, triggering, and data display.

The Control Processor and I/O Processor Boards are the main controllers for all instrument operations. The I/O Processor Board accepts the keyboard and on-screen soft key information and passes these user menu choices to the Control Processor. The Control Processor sends these instructions to the Trigger Board and Acquisition Boards, specifying the configuration and conditions surrounding the data acquisition. When conditions are met, the data is stored and the Control Processor performs any necessary data manipulation. Data that is ready for display is read by the I/O Processor and passed to the Display Board. The Display Board generates the screen-display image on the CRT. Figures 4-2 and 4-3 illustrate the 1241 mainframe board locations. Figure 4-4 shows the board connections.

The display system consists of a 7-inch CRT, a Liquid Crystal Color Shutter (LCCS), a CRT Drive Board, and a Display Board. The CRT Drive Board generates the high voltage for the CRT, the vertical and horizontal sweep signals, the Z-axis signal, and the LCCS drive signals. The Display Board logic outputs character and timing diagram symbols according to the information it receives from the I/O Processor. The logic also controls the positioning of characters on the screen, thus supporting text and timing diagram scrolling features.

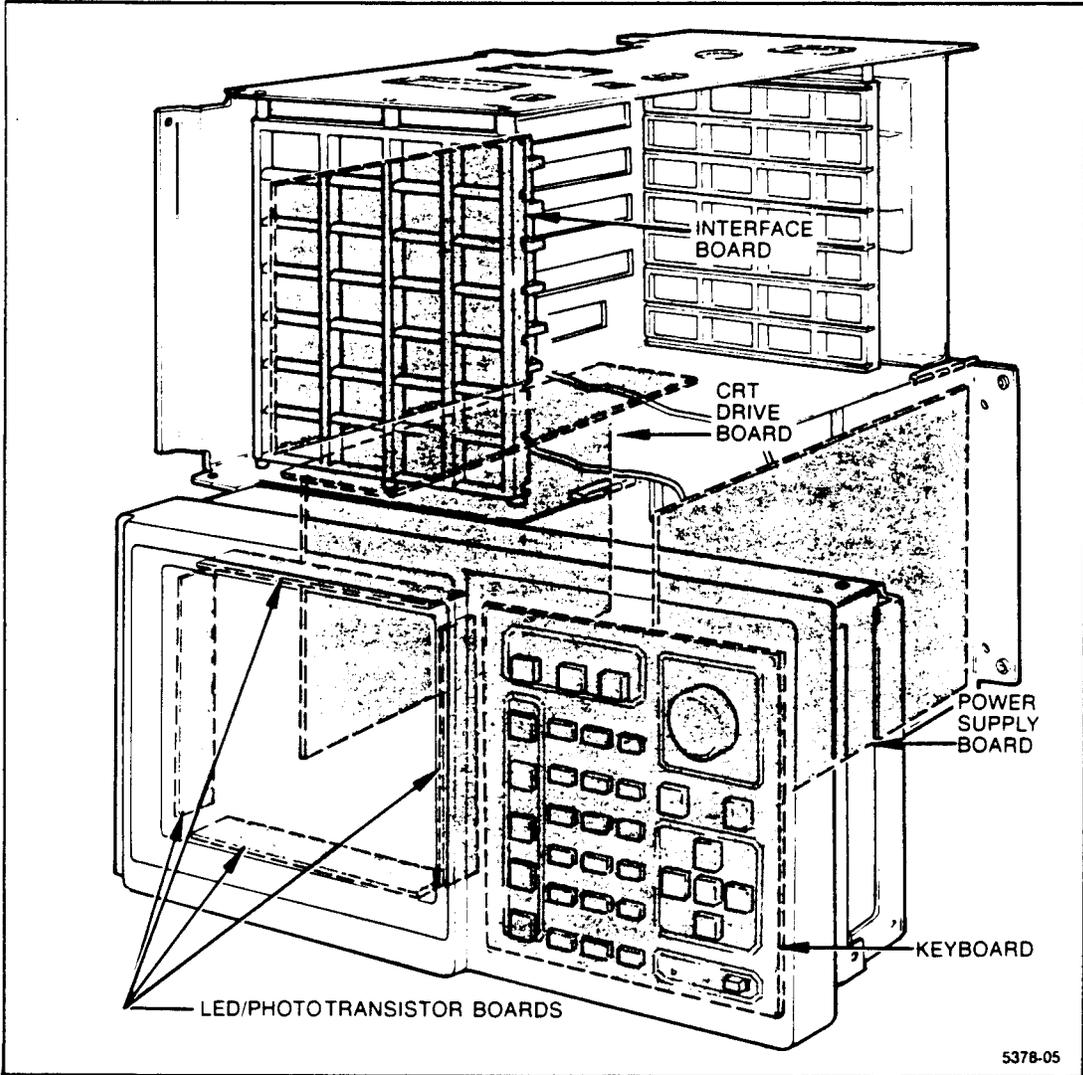


Figure 4-2. 1241 mainframe board locations.

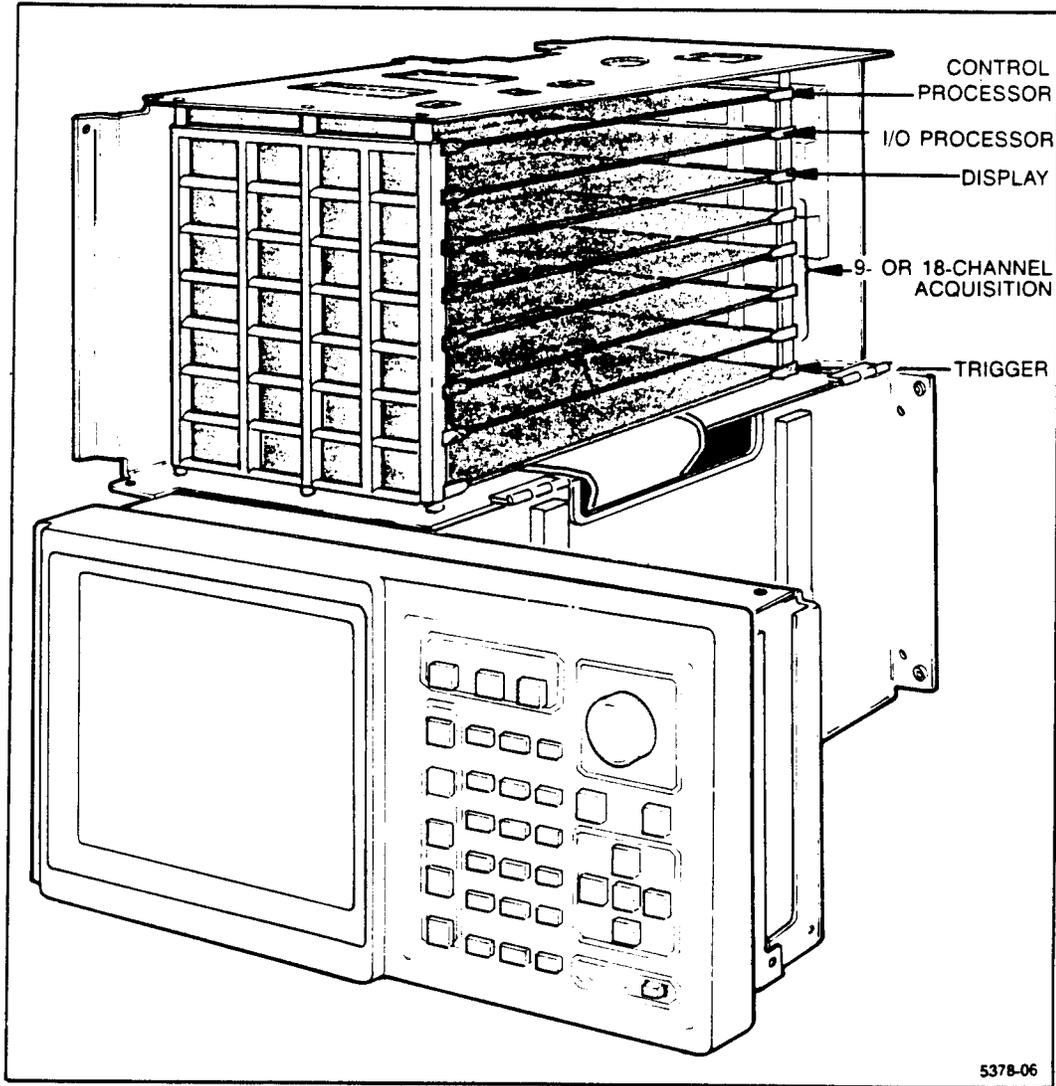
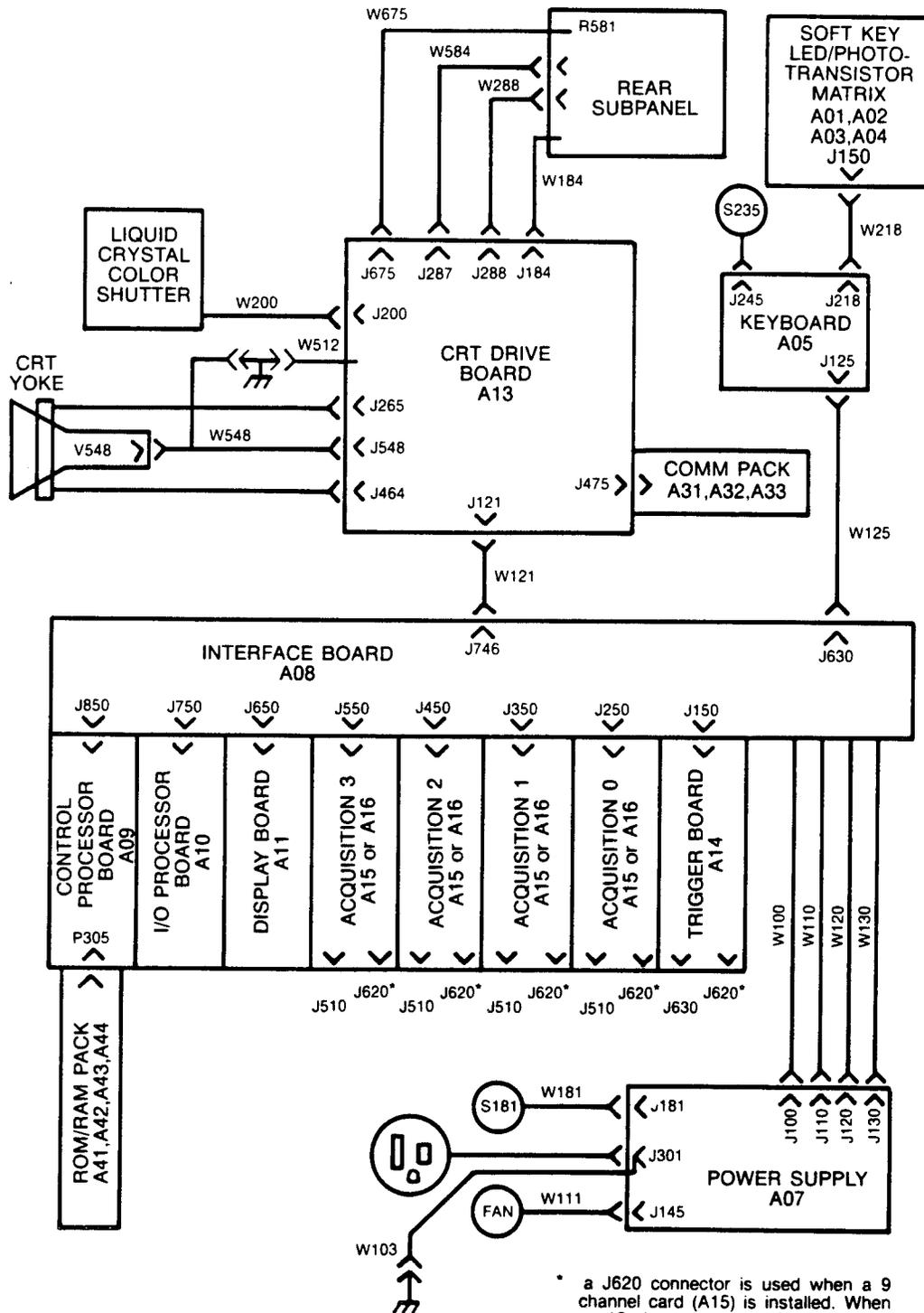


Figure 4-3. 1241 card-cage board locations.

1241 CABLES AND CONNECTIONS

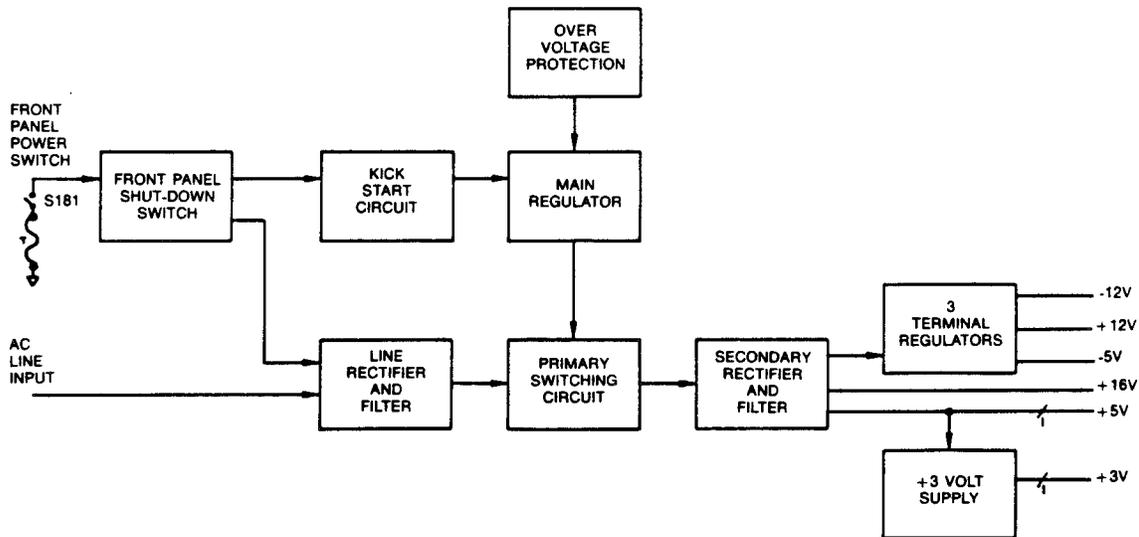


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Figure 4-4. 1241 cables and connections.

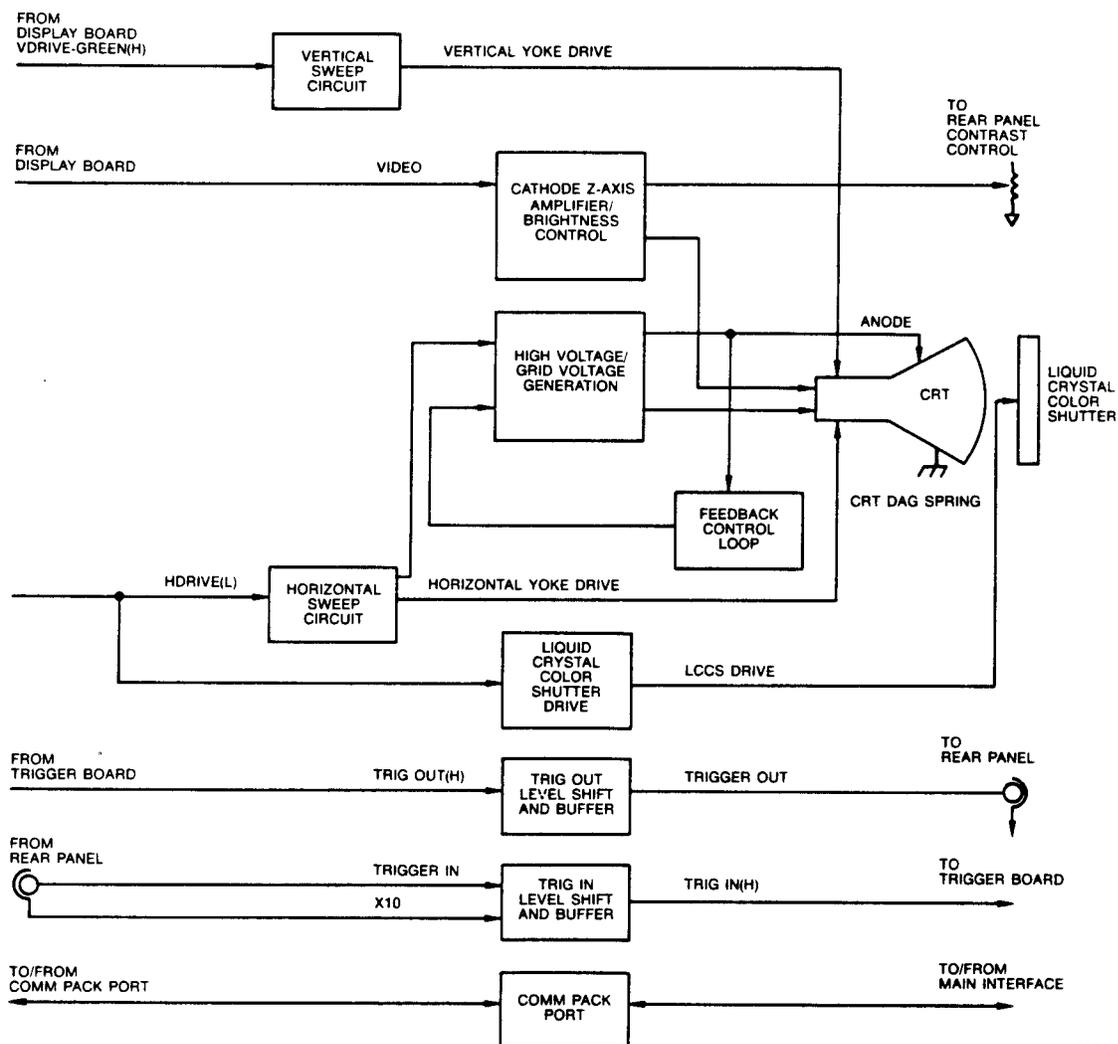
POWER SUPPLY THEORY

The 1241 power supply is similar to the 670-7534-06 version of the 1240 power supply. The only difference between the two is that the +13 volt line in the 1240 supply is an unregulated +16 volts in the 1241 supply. The physical difference between the power supply boards is that the following components are not present in the 1241 supply: U472, VR489, and R488. Refer to *670-7534-06 Power Supply Theory* in the *1240/1241 Service Manual*.



5378-08

Figure 4-5. 1241 Power Supply Board functional block diagram.



5378-09

Figure 4-6. CRT Drive Board functional block diagram.

CRT DRIVE BOARD THEORY

OVERVIEW

The CRT Drive Board holds circuitry necessary for driving the raster scan CRT and the Liquid Crystal Color Shutter (LCCS). Video and sync signals from the Display Board are used in generating the Z-Axis and sweep signals, the LCCS driver signals, and the grid bias voltages for the CRT. In addition to these basic monitor functions, the CRT Drive Board circuitry supports rear panel functions such as trigger in/out buffering, contrast control, and a COMM (communication) pack interface.

VERTICAL SWEEP CIRCUIT

The vertical processor, A13U241, generates the sweep current for the vertical deflection yoke. The vertical processor includes an oscillator, a voltage ramp generator, a high-gain amplifier, and a flyback generator. This processor and associated circuitry provide vertical sweep synchronization, vertical height deflection, and vertical linearity.

A13U138 uses the signal VDRIVE-GREEN(H) from the Display Board to generate the 120 Hz, TTL-level signal VDRIVE(H). The vertical processor A13U241 synchronizes to VDRIVE. The amplifier output at A13U241-4 provides the vertical yoke sweep current. During the vertical sweep, capacitor A13C247 charges to approximately +16 volts. When the sweep reaches the bottom of the screen, the stored charge is internally added to the +16 volt power supply. This produces a +32 volt flyback signal that causes the vertical deflection beam to return to the top of the screen.

The vertical size control, A13R160, adjusts the sweep current magnitude, thereby setting the amount of vertical deflection. The vertical sync control, AR161, is part of an RC timing circuit that produces an exponential voltage at the oscillator input, A13U241-9. Adjusting the frequency rate to 120 Hz causes vertical synchronization to occur.

Vertical linearity is achieved by changing the gain of the power amplifier at the top and the bottom of the screen. A13R146 and R151 are used to fine tune the vertical linearity.

HORIZONTAL SWEEP CIRCUIT

The major parts of the horizontal sweep circuit are the horizontal processor A13U218, the horizontal deflection yoke, the S-shaping capacitor A13C560, the retrace capacitor A13C447, and the horizontal switching transistor A13Q455 and driver A13U336. These components work together to produce a horizontal deflection current that sweeps the video beam from left to right across the CRT. This circuit also produces a flyback signal to the flyback transformer A13T512.

The horizontal processor A13U218 provides the drive signal for the horizontal sweep circuit. The drive signal, a 5 volt square-wave output at A13U218 pin 1, is applied to the power MOS-FET driver A13U336. The 12 volt output signal from A13U336 is applied to the gate of the horizontal switching transistor Q455. The transistor's output is synchronized to the HDRIVE(L) signal by means of a phase-lock loop internal to the horizontal processor.

During the first half of the horizontal sweep, current flows out of A13Q455. Current flows into A13Q455 during the second half of the sweep. When the video beam is at its maximum deflection, the drive signal turns Q455 off, causing Q455's drain to fly up to approximately 350 volts. This is the horizontal flyback signal. The current in the horizontal deflection coils quickly ramps, thus causing the horizontal deflection beam to return to the left side of the screen.

Horizontal linearity is controlled by a fixed capacitor, A13C560, and by a current-controlled, variable inductor, A13L453. The horizontal width control (mounted on the deflection yoke) controls the amount of horizontal deflection by varying the magnitude of the sweep current. The horizontal sync control A13R220 is part of an RC timing circuit that produces an exponential voltage at pin 7 of the horizontal processor A13U218. Adjusting the horizontal frequency to approximately 31.5 KHz causes horizontal synchronization to occur. The horizontal position control A13R222 causes a phase shift between the HDRIVE(L) and the horizontal flyback signals, thus changing the horizontal position of the display.

HIGH VOLTAGE/GRID VOLTAGE GENERATION

The 12 kV CRT anode voltage and the grid bias voltages are generated by the flyback transformer A13T512. When transistor A13Q534 is turned off, the primary of the flyback transformer flies up to a nominal 400 volts. The anode and grid voltages are generated through transformer action. The drive signal to Q534 is the same signal that is applied to the horizontal switch A13Q455, thus causing the flyback on the transformer to occur at the same time that flyback on the horizontal switch occurs.

The input voltage to T512 is variable, thus allowing the anode and grid voltages to be controlled. By sensing the anode voltage, the input voltage to T512 is varied by the feedback control loop. This keeps the CRT anode voltage constant as T512 secondary loads (i.e., the intensity of the display, the amount of information on the CRT, etc.) change.

FEEDBACK CONTROL LOOP

The feedback control loop regulates the voltage on the CRT anode. The high voltage adjustment A13R325 adjusts the anode voltage to approximately 12 kV. The AC voltage from the anode passes through the high voltage potted assembly A13T411 and is sensed by A13U420A. The variation in the AC voltage is amplified and filtered by A13U420A, U207A, and U207B. A13R232 and R226 form a voltage divider that limits the magnitude of the signal. The pulse width is modulated by A13U236. The output from A13U236 is applied to the power MOS-FET driver A13U336. The output signal from A13U336 is applied to the gate of the transformer switch Q334, thus controlling the voltage fed back to the beginning of the feedback loop at A13UT411. A13U420B and U4331 form a loop that filters out the high frequency portion of the anode voltage.

CATHODE Z-AXIS AMPLIFIER/BRIGHTNESS CONTROL

The video signal from the Display Board is amplified by transistors A13Q563 and Q564. Transistor Q564 is cascoded on to Q563, which operates in a common emitter configuration. The bandwidth, approximately 20 MHz, is set by A13C556 and L662.

The screen contrast adjustment on the rear panel controls the bias voltage on grid 1 of the CRT. This allows variation in the potential difference between the cathode and grid 1, thus changing the screen brightness.

LIQUID CRYSTAL COLOR SHUTTER AND DRIVER

The Liquid Crystal Color Shutter (LCCS), when placed in front of a monochrome CRT, creates a 3-color display. The LCCS consists of a liquid-crystal optical switch that is sandwiched between a neutral polarizer and two color polarizers. The monochrome CRT mounted behind the LCCS emits a combination of red and green light. The LCCS transmits green light when a voltage is applied and red light when the voltage is removed. Color images are generated by switching the LCCS so that only one image field (red or green) is transmitted at a time. The CRT's display is synchronized with the LCCS switching so that only information to be displayed in a particular color appears on the CRT when the LCCS is set to transmit that color. Any information displayed by the CRT during both the LCCS's green and red periods appears yellow. Because switching takes place rapidly and repetitively, only a single-color image is perceived.

The TTL-level inputs HDRIVE(L) and VDRIVE-GREEN(H) are used by counter A13U134 and PAL A13U138 to generate timing signals required to drive the Liquid Crystal Color Shutter (LCCS). The signals are buffered by A13U123 and U117, then applied to transistors A13U100 and U112. These transistors amplify and combine the timing signals to generate the AC signals required by the LCCS.

COMM PACK POWER SUPPLY

A small power supply circuit, located on the CRT Drive Board provides +12 volts to the COMM Pack Port. A13U465 takes the +16 volts from the instrument power supply and regulates it down to +12 volts. This voltage is used by the CRT drive circuitry and COMM Packs.

TRIG IN LEVEL SHIFT AND BUFFER

This level-shifting buffer accepts TTL-level trigger in signals from the rear panel TRIG IN BNC connector and converts them to buffered, ECL-level signals. The trigger in signal is used to externally trigger or enable the 1241.

Transistor A13Q275B acts as a buffer for the trigger in signal, supplying the necessary current drive for transmission to the Trigger Board. A13Q176, Q177, and Q178 are TTL- to ECL- level shifting components. If an X10 attenuation trigger input probe is used at the rear panel, the probe connector contacts the outer ring of the TRIG IN BNC. This activates the threshold switch comprised of A13Q188 and Q175, effectively reducing the base drive to A13Q176 by a factor of 10.

TRIG OUT LEVEL SHIFT AND BUFFER

This level-shifting buffer accepts ECL-level trigger out signals from the Trigger Board and converts them to buffered, TTL-level signals available at the rear panel TRIG OUT BNC. The latched or pulsing trigger out signal to the Trigger Board is useful in triggering or enabling other external instruments.

A13Q273 and Q277 act together as a differential comparator. Components A13Q267 and A13CR272 control saturation of the comparator to maintain fast switching rates. A13Q276 supplies the necessary pull-down for the TTL-level output at the rear panel TRIG OUT BNC.

DISPLAY BOARD THEORY

OVERVIEW

The Display Board contains circuitry that performs the following functions:

- positions characters and timing diagrams on the display screen
- controls vertical smooth scrolling
- controls horizontal smooth scrolling
- controls reverse video and highlighting for characters
- produces three intensified timing diagram cursors
- expands timing diagrams vertically

The display circuitry produces three types of display screens: basic text; text and a state table (with state table vertical scrolling); and text and timing diagrams (with timing diagram horizontal scrolling). Figure 4-8 illustrates the relationship between 1241's display memory and its screen lines.

The display board theory of operation discussion is limited to display circuitry, even though some trigger circuitry resides on the Display Board. Trigger circuitry is discussed in *Trigger Board Theory* in the *1240/1241 Service Manual*.

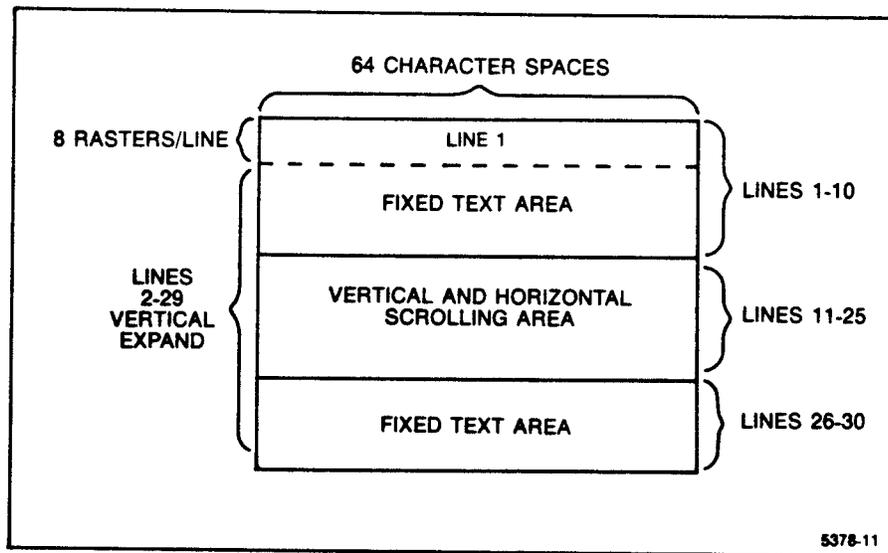


Figure 4-8. An example of 1241 display screen memory.

CLOCK DIVIDER

A 19.6 MHz crystal oscillator (A12YG490) generates a basic clock frequency that is divided by a 4-bit counter (A12U485) into the following Display Board clock rates: 9.8 MHz(H), 4.8 MHz(H), 2.4 MHz(H), and 1.2 MHz(H). The 4.8 MHz(H) and the 2.4 MHz(H) signals are inverted to produce 4.8 MHz(L) and 2.4 MHz(L) signals.

I/OP SELECT LOGIC 

Memory locations C000_{hex} - FFFF_{hex} are bank-switched between the COMM Pack and Display circuitries. The I/O Processor uses the CROM(L) signal to access these locations. The bank-switching is controlled by the I/OP data bit ID3, input to the Control Register A12U420. If ID3 is low, the display circuitry will be accessed. If ID3 is high, the CSYNC-CROM(L) signal will be active and the COMM Pack will be accessed.

I/OP R/W CONTROL 

The I/O Processor Control circuitry generates control signals for several operations. BUF(L), OE(L), LOE(L), LCP(H), and IOP LOCKOUT(H) control data transmission between the Display RAMs (A12U145 and U245) and the I/OP-Display RAM Interface (A12U155 and U255). VSEL(L) enables the Vertical Scrolling Registers (A12U185 and U285). HSEL(L) enables the Horizontal Scrolling Registers (A12U195 and U295).

WAIT CIRCUIT 

The Wait Circuit monitors the I/O Processor's IRD(L) read signal, IWR(L) write signal, and DRAM(H) display memory signals in combination with the Display Board's 2.4 MHz(L) signal to determine when the I/O Processor should access Display RAM. (For more information on accessing Display RAM, refer to *Display RAM and Address Multiplexing*.) The circuit produces LCP(L) and LOE(L) to control the I/OP-Display RAM Interface. It also generates the IWAIT(L) signal which forces the I/O Processor's Z80 to wait for its appropriate access time.

I/OP-DISPLAY RAM INTERFACE 

The interface, formed by buffer A12U255 and latch U155, provides the communication link between the I/O Processor's ID data bus and the Display Board's Y data bus. The I/O Processor uses this link when transferring a screen image to the Display RAMs, A12U145 and U245. The interface is also used during diagnostics when the I/O Processor reads back data from the Display RAMs.

SYNC SIGNAL GENERATION 

Counter A12U560 and latches U220, U480, and U415 generate the signals that synchronize the raster counter operations on the Display Board with the display monitor operations on the CRT Drive Board. Counter U560 causes a bit in latch U220 to change states at the end of each raster, thus generating HDrive(H). Latch U480 causes a bit in U220 and a bit in U415 to change states at the end of each frame, thus generating VDRIVE-GREEN(H).

RASTER COUNTER AND VERTICAL SCROLLING CONTROL 

The raster counter, A12U280, tracks the output of the display screen's 240 raster lines (30 character lines of 8 rasters each). The dual 4-bit counter is clocked by HDRIVE(L). The R0(H)-R7(H) raster count signals are latched by A12U480, which outputs signals RA and RB to the Vertical Scrolling Registers (A12U185 and U285). RA and RB are used to indicate the top (line 11) and the bottom (line 25) of the display screen's scrolling area, thus defining the vertical scrolling window.

The High Address Adder (A12U190 and U290) combines any offset value latched by the Vertical Scrolling Registers with the current raster count to form an 8-bit word. The upper five bits (U6-U10) are the Display RAM's A6-A10 address bits. The three least significant bits (L0-L2) indicate which of the eight raster lines of a character row is being displayed. The output of the High Address Adder shifts the information on display lines 11 through 25 up or down to produce vertical scrolling.

The A12U480 output signal RGLATCH(H) is used by A12U105 to produce VLATCH(H).

The I/O Processor uses VLATCH(H) during diagnostics when it reads back from the diagnostic window.

HORIZONTAL SCROLLING CONTROL 48

Horizontal scrolling is performed only in timing or graticule mode. The Display RAM's A0-A5 address bits determine which of the 64 characters comprising a screen line is being accessed in memory. The value of these bits is determined by the offset value contained in the Horizontal Scrolling Registers (A12U195 and U295) and by the Character Counter (formed by A12U198 and U298). While in timing or graticule mode, the information on any line may be shifted left or right by changing the values in the Horizontal Scrolling Registers. Only information on lines 11-25 can be horizontally scrolled because system software allows the display to enter timing or graticule mode only when these lines are being output.

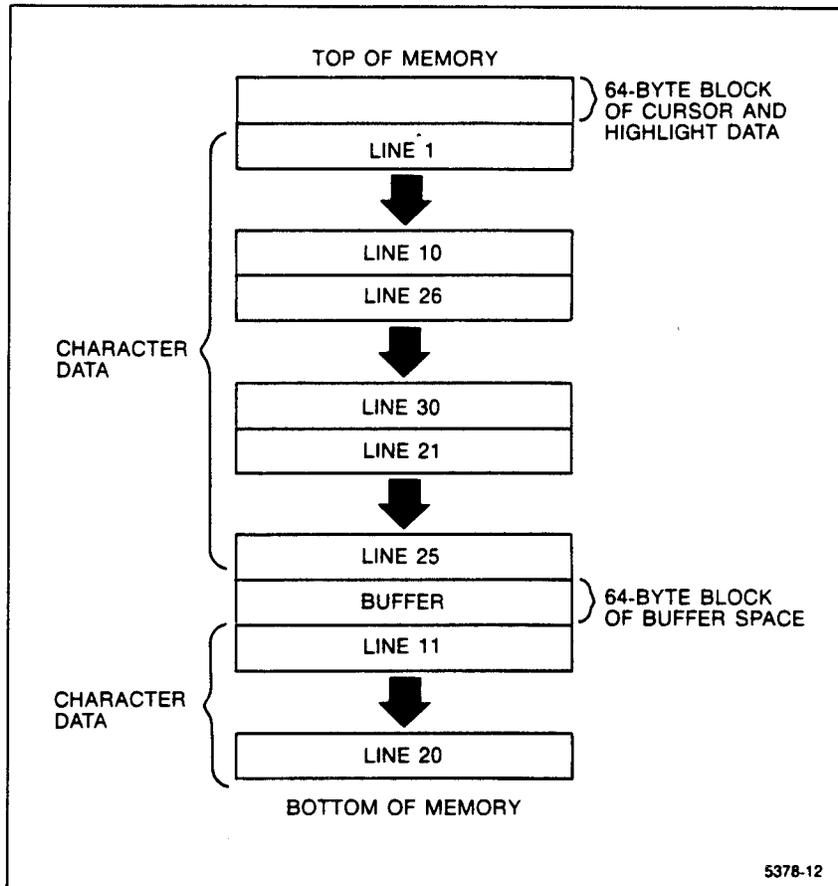


Figure 4-9. Display RAM memory map.

DISPLAY RAM AND ADDRESS MULTIPLEXING 48

The Display RAM consists of two 2K X 8-bit, 6116-type RAMs. One RAM (A12U245) contains information to be displayed in red. The other RAM (A12U145) contains information to be displayed in green. Information to be displayed in yellow is stored at the same location in both the red and the green RAMs. The state of the signal VDRIVE-GREEN(H) determines whether the green or the red RAM is selected. When VDRIVE-GREEN(H) is high, the green RAM is selected. Red RAM is selected when the signal is low.

The Display RAM provides temporary storage for five types of data: character data, timing/glitch data, timing mode highlighting data, timing cursor position data, and graticule data. Each of the 30 screen lines can be referenced to one 64-byte block of Display RAM (refer to Figure 4-9). The two remaining 64-byte blocks are used during scrolling operations and cursor/highlighting operations.

The Display RAM is accessed according to a 400 ns-per-character cycle time, depending on whether the display is in character or timing mode (refer to Figure 4-10). When the display is in character mode, the address multiplexers A12U160, U165, and U260 allow the High Address Adder and the Character Counter to address the Display RAMs. When the 2.4 MHz(L) clock goes low, the multiplexers allow the I/O Processor to address the Display RAMs.

When the display is in timing or graticule mode, the IOP LOCKOUT(H) signal prevents the I/O Processor from accessing Display RAM. When the 2.4 MHz(L) signal goes low, addresses generated by the High Address Adder and by the Character Counter are used to access timing information. The timing information is then latched by A12U240 on the next rising edge of 2.4 MHz(L). When 2.4 MHz(L) goes high, cursor and highlight information is accessed by forcing the five most significant bits of the multiplexer outputs to a low state. The cursor and highlight information is then latched in A12U1240 on the next falling edge of 2.4 MHz(L).

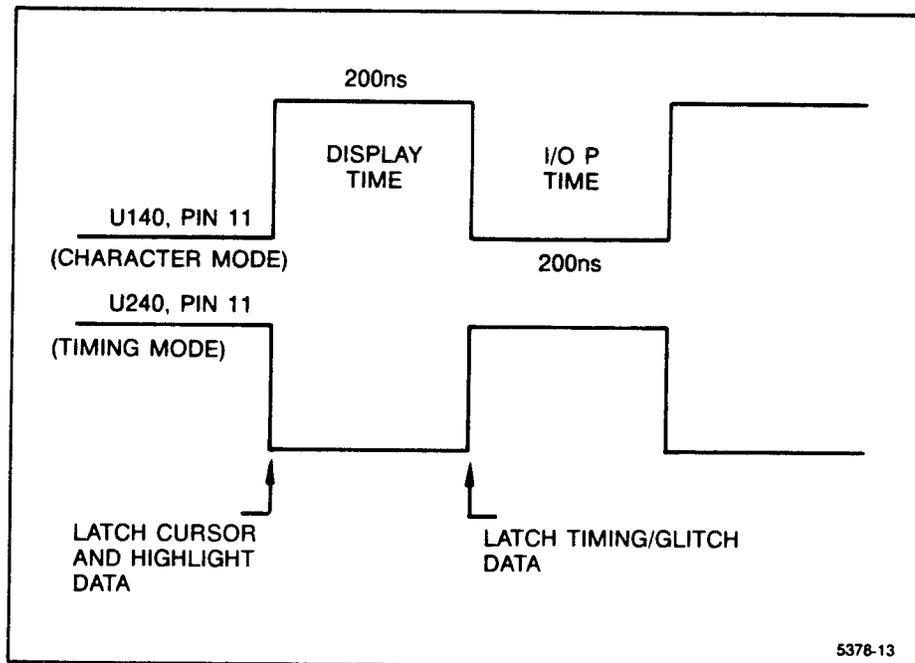


Figure 4-10. Display memory access times.

DISPLAY MODE CONTROL 

Two special characters are used to control the display mode. If FF_{hex} is detected on the Y data bus while the display is in character mode, the TMODE(H) signal goes active. When TMODE(H) is active, the PALs interpret all data presented to them as timing, cursor, and highlight information. If FD_{hex} is detected while the display is in character mode, the C1(H) and TMODE(H) signals take on the appropriate values (refer to Table 4-1) to enter graticule mode. This mode is used to draw the graticule used in the timing diagram display. The display is reset to character mode after each raster.

Table 4-1
DISPLAY MODE TRUTH TABLE

C1(H)	TMODE(H)	DISPLAY MODE
0	0	Character Mode
0	1	Red Timing Mode
1	0	Graticule Mode
1	1	Green Timing Mode

The Character ROM, A12U130, is a 4K X 8-bit EPROM. The ROM is divided into two halves. The lower half (locations 000_{hex} - $7FF_{hex}$) contains a 128 word character set. The upper half (locations 800_{hex} - FFF_{hex}) contains encoded cursor and highlight information.

When the display is in timing mode, timing diagram data from the Display RAMs bypasses the Character ROM and is presented directly to the PALs on the falling edge of the 2.4 MHz(L) clock. Data presented to the Character ROM on the rising edge of the 2.4 MHz(L) clock is interpreted as cursor and highlighting information. The Character ROM decodes cursor and timing information for the PALs. Cursor information is presented to the Character ROM during the time frame when red information is being written to the screen. Highlighting information is presented during the green frame. The PALs further decode the timing, cursor, and highlighting information to generate the display pixel signals. The 8-bit word output from the Pals is latched by A12U225 on the next rising edge of the 2.4 MHz(L) clock.

When the display is in character mode, data from the Display RAMs is presented to the Character ROM on the rising edge of the 2.4 MHz(L) clock. The Character ROM decodes the information to generate the character pixels. The 8-bit pixel word is inverted through the PALs and is latched by A12U225 on the next rising edge of of the 2.4 MHz(L) clock. The signal is inverted again by A12U415.

PARALLEL-TO-SERIAL CONVERTER 

When the signal LOADC(L) becomes active, the parallel-in/serial-out shift register A12U425 loads the parallel 8-bit pixel word from latch U225. To accomplish horizontal scrolling in timing diagram displays, the timing of LOADC(L) with respect to the 2.4 MHz(L) clock is shifted by changing the off-set values in the horizontal scrolling registers. The data is then converted to a serial stream that is clocked by 19.6 MHz(H).

TIMING DIAGRAM VERTICAL EXPAND 

Vertical expand mode is selected when I/OP data bit ID2 is set high at the Control Register A12U420. This bit controls the select line of the Expand Multiplexer A12U120. The height of the timing diagram traces is doubled by causing each of the eight raster lines in a character row to be scanned twice. Only timing diagrams can be vertically expanded. When the display enters vertical expand mode, the soft keys are removed from the screen and disabled.

SECTION 5 VERIFICATION AND ADJUSTMENT PROCEDURES

SECTION 5 VERIFICATION AND ADJUSTMENT PROCEDURES

INTRODUCTION	5-1
USING THE 1241 EXTENDER BOARDS	5-4
OPERATING THE 1241 IN THE SERVICE POSITION	5-4
Proper Cooling Of The 1241	5-4
Timing Limitations	5-5
FUNCTIONAL CHECK PROCEDURES	5-5
PERFORMANCE VERIFICATION PROCEDURES	5-5
Introduction	5-5
Part 1: Supply And TPG Performance Checks	5-5
Procedure 1A-B: Power Supply Performance Check	5-8
Procedure 2: Display High Voltage Performance Check	5-9
Procedures 3A-E: Test Pattern Generator Performance Check ..	5-10
Part 2: Functionality Checks	5-10
Part 3: Acquisition And System Performance Checks	5-10
ADJUSTMENT PROCEDURES	5-10
Introduction	5-10
Limits And Tolerances	5-10
Equipment Required	5-10
Equipment Alternatives	5-11
Adjustment Interval	5-11
Test Sequence	5-11
Pre-Adjustment Procedure	5-11
1A. CRT: Alignment Adjust	5-13
5. Display Board: Counter/Timer Adjust	5-16
6. CRT Drive Board: External Trigger Adjust	5-18

VERIFICATION AND ADJUSTMENT PROCEDURES

INTRODUCTION

There are three types of verification and adjustment procedures: *Functional Check Procedures*, *Performance Verification Procedures*, and *Adjustment Procedures*. These procedures, along with the setup information supplied in the beginning of this section, should allow a qualified technician to adjust and verify proper operation for any configuration of the 1241.

Many of the verification and adjustment procedures apply to both 1240 and 1241 instruments. Only those procedures that are different for the 1241 are given in this section. They are numbered the same as the corresponding 1240 procedure that they replace. Refer to the *1240/1241 Service Manual* for procedures that are common to both instruments.

Functional Check Procedures. These procedures may be used as a form of incoming inspection to verify that the instrument is operational. They are identical for both 1240 and 1241 instruments. Refer to the *1240/1241 Logic Analyzer Service Manual*.

Performance Verification Procedures. These procedures verify all the specifications listed in the performance requirements column of the *Specifications* section. They should be performed by a service technician for a detailed check of the product characteristics. These checks may be extensive and time consuming. Under normal circumstances, the *Functionality Checks* within these *Performance Verification Procedures* provide an adequate test of product performance in a less costly, less time-consuming manner.

Adjustment Procedures. These procedures describe the steps used by a technician for adjusting the 1241 to meet product specifications. If the instrument does not meet the product specifications, repair is necessary.

**Table 5-1
REQUIRED TEST EQUIPMENT**

Equipment	Specification	Equivalent Tektronix Instrument Or Part
2-channel oscilloscope with two 1-meter probes	300 MHz	485 with two P6106's
Acquisition Probes with 2 short lead sets, 2 grounds		P6460
High Voltage Probe	20 kV max.	P6015
Universal Counter/Timer with 5X probe	200 MHz	DC 5010 w/P6125
Digital Multimeter	4.5 digit, 0.05% dc volts accuracy	DM 501A
Pulse Generator	250 MHz pulse rate, variable output levels	PG 502
Mainframe (optional) for TM5000 equipment	6 plug-in compartments	TM 5006

**Table 5-1 (cont.)
REQUIRED TEST EQUIPMENT**

Equipment	Specification	Equivalent Tektronix Instrument Or Part
Variable Transformer	500 VA, 5A sec., 50 - 117%	
Service Maintenance Kit		Tektronix P/N 067-1103-03
Setup/Hold Time Test Fixture w/ lead sets; 8-inch cable		Tektronix P/N 067-1037-00
Coaxial Cables, 50 Ω	8 inch 10 inch 20 inch 3 foot	Tektronix P/N 012-0118-00 Tektronix P/N 012-0208-00 Tektronix P/N 012-0076-00 Tektronix P/N 012-0482-00
50 Ω Termination		Tektronix P/N 011-0049-01
BNC DC Block		Tektronix P/N 015-0221-00
BNC Probe Adapter		Tektronix P/N 013-0084-00
BNC T-Connector		Tektronix P/N 103-0030-00
BNC Female-to-Female		Tektronix P/N 103-0028-00
Adjustment Tool (hex and slot heads)		Tektronix P/N 003-0301-00
Dual Lead Adaptor (scope probe accessory)		Tektronix P/N 015-0325-00
Acquisition Threshold Fixture	See V & A section for quantities; consists of: Terminal Conn. Holder Mini PV Female Conn. resistor, 10.5 K ohm, 1% 26-gauge wire	Tektronix P/N 352-0484-00 Tektronix P/N 131-0707-00 Tektronix P/N 321-0291-00

**Table 5-1 (cont.)
REQUIRED TEST EQUIPMENT**

Equipment	Specification	Equivalent Tektronix Instrument Or Part
Threshold Accuracy Fixture	Consists of: BNC Connector (one) Terminal Lugs (two) BNC Nut (one) 1 μ f ceramic cap. (one) 12 square pin set; 2 rows, 6 pins per row	Tektronix P/N 131-0602-00 Tektronix P/N 210-0255-00 Tektronix P/N 210-0413-00 Tektronix P/N 283-0177-00 Tektronix P/N 131-2230-00
C/Q Connection Fixture	Consists of: BNC Connector (one) Terminal Lugs (one) BNC Nut (one) 5 square pin set (one)	Tektronix P/N 131-1847-00 Tektronix P/N 210-0255-00 Tektronix P/N 210-0413-00 Tektronix P/N 131-1614-00
Data Communications Tester (For testing RS232 COMM packs)		Tektronix 834
Self-Test Adapter (For testing RS-232 COMM packs)		Tektronix P/N 013-0173-01
Graphics Terminal (For testing GPIB COMM packs)		Tektronix 4051
Spare GPIB COMM Pack (For testing GPIB COMM packs)		Tektronix 1200C02 GPIB COMM Pack

USING THE 1240 EXTENDER BOARDS

The 1240 Service Maintenance Kit is used with both 1241 and 1240 Logic Analyzers. It contains two extender boards that are used during troubleshooting, adjustment, and performance verification procedures. The first board, assembly A21, should be used when working with the trigger, display, and both processor boards. The second board, assembly A22, should be used with the 9- and 18-channel acquisition boards. Both extenders allow a board under test to be at a convenient position away from the other boards so that the signal test points and components are accessible.

NOTE

In some instances, extender boards will degrade system performance. For complete details, refer to the timing limitations in the Specifications section of this manual and to the instruction sheet that accompanies each extender board.

OPERATING THE 1241 IN THE SERVICE POSITION

When operating the 1241 in the service position (the card cage rolled up to expose plug-in boards), some guidelines should be observed. The following subsections deal with concerns that arise during 1241 servicing procedures.

WARNING

After removal of the rear panel, the cooling fan blades are not completely shielded. Guard against injury by keeping fingers and loose objects away from the moving fan blades.

PROPER COOLING OF THE 1241

CAUTION

DO NOT operate the instrument with the cabinet removed for extended periods of time unless it is raised off the working surface at least one-half inch.

If it is necessary to run the 1241 for extended periods of time, raise the instrument off the working surface in order to admit air to the power supply for cooling purposes. Additionally, another fan should be positioned to blow air onto the instrument bulkhead just below the card cage (when the card cage is rolled into the service position). This additional air supply should be aimed at the power supply heat sink, located on the bottom of the bulkhead.

When operating the 1241 in the service position, the rear panel fan does not provide adequate cooling for some boards installed on an extender board. To circumvent this problem, a fan should be positioned to blow air across these extended boards. The boards that require additional cooling are:

- any 9-Channel Acquisition Boards
- any 18-Channel Acquisition Boards
- the Trigger Board

When operating the 1241 with the Power Supply/CRT Drive compartment open, the rear panel fan does not provide adequate cooling for the Power Supply and CRT Drive Boards. An extra fan should be positioned to blow air across these two boards.

TIMING LIMITATIONS

In some instances, extender boards will degrade system performance. For complete details, refer to the timing limitations in the *Specifications* section of this manual and the instruction sheet that accompanies each extender board.

FUNCTIONAL CHECK PROCEDURES

The Functional Check Procedures are a limited number of quick tests that an operator can perform as an incoming inspection. The Functional Check Procedures for the 1241 are identical to those of the 1240. Refer to *Section 5* in the *1240/1241 Service Manual*.

PERFORMANCE VERIFICATION PROCEDURES

INTRODUCTION

Many of the 1241 performance verification procedures are identical to those used for 1240 verification. This section contains only those procedures that are unique to the 1241. The 1241 procedures in this section are replacements for similar procedures in the *1240/1241 Logic Analyzer Service Manual*. Refer to the *1240/1241 Logic Analyzer Service Manual* for procedures not given here.

The procedures given in this section contain checks on specifications listed in the performance requirements column of the *Specifications* section. Items listed in the performance requirements columns are specifications that the instrument must meet. If verification of the listed electrical specifications is required for incoming inspection or other purposes, perform the performance verification procedures outlined in this portion of the *Verification and Adjustments* section.

The Performance Verification Procedures consist of: *Part 1: Supply And TPG Checks*, *Part 2: Functionality Checks*, and *Part 3: Acquisition And System Performance Checks*. Parts 1 and 3 do not require a Diagnostic ROM pack to be available for use during the performance tests. Use both of these parts for verification of specifications listed in the Performance Requirements column. If, however, the Diagnostic ROM pack is available, *Part 2: Functionality Checks* should be performed in addition to these checks. These Functionality Checks instruct the user to run diagnostic tests that reside externally in the Diagnostic ROM pack. These diagnostic tests, along with other tests, provide a functional verification of approximately 95% of the 1241 circuitry. The test results aid in showing the operational status of the instrument as a system.

PART 1: SUPPLY AND TPG PERFORMANCE CHECKS

The checks outlined in Table 5-2 provide testing of performance specifications listed in the performance requirements column of the *Specifications* section. The tests do not require the use of the Diagnostic ROM pack. If a thorough check of all specifications is necessary, also complete, in order, the *Part 2: Functionality Checks* (a Diagnostic ROM pack is required) and *Part 3: Acquisition And System Performance Checks* (no ROM pack required). If a procedure has more than one part (e.g., 1A and 1B), perform all parts of the procedure.

NOTE

The specifications tested during these Part 1 checks must be within tolerance for this instrument to operate properly. It is therefore recommended that the part 1 checks be performed before the Part 2: Functionality Checks and the Part 3: Acquisition And System Performance Checks.

**Table 5-2
SPECIFICATIONS TESTED IN THE PART 1 PERFORMANCE CHECKS**

NAME	VALUE	T.P. #	CHECK #
POWER			
+16V	+15.0 V to +17.75 V 1.0 V p-p max.	A8J658-1	Procedure 1
+12 V	+11.4 V to +12.6 V 1 V p-p max.	A8J658-2	Procedure 1
+5 V	+4.85 V to +5.15 V 100 mV p-p max.	A8J658-3	Procedure 1
+3 V	-1.90 V to -2.10 V (ref. to +5 V) 100 mV p-p max.	A8J658-4	Procedure 1
-5 V	-4.75 V to -5.25 V 200 mV p-p max.	A8J658-5	Procedure 1
-12 V	-11.40 V to -12.60 V 1 V p-p max.	A8J658-6	Procedure 1
GND	0.00 V	A8J658-7	Procedure 1A
COMM PACK POWER SUPPLY			
+12 V	+11.64 V to +12.36 V 1 V p-p max.	A13J470-B17	Procedure 1B
DISPLAY			
High Voltage	12 kV ± 0.24 kV	Anode cup	Procedure 2

Table 5-2 (cont.)
 SPECIFICATIONS TESTED IN THE PART 1 PERFORMANCE CHECKS

NAME	VALUE	T.P. #	CHECK #
TEST PATTERN GEN.			
Clock Period	83.3 ns ± 2%	A14J620-1	Procedure 3A
Pulse Width	12 ns ± 0.5 ns	A14J620-1	Procedure 3B
Amplitude (Vout)	± 350 mV min. about V th. Vth = +5V (meas) - 1.30V Nominal V th = 3.70 V.	TPG data pins	Procedure 3C
Glitch Width	6.5 ns ± 1.0 ns	TPG data pins	Procedure 3D
Delay, clock - data	1 ns ± 1.50 ns max.	TPG data pins	Procedure 3D

PROCEDURE 1A - 1B: POWER SUPPLY PERFORMANCE CHECKS

Equipment Required

- digital multimeter
- test oscilloscope
- variable transformer

Procedure 1A: Power Supply Check Procedure
Test Point Locations

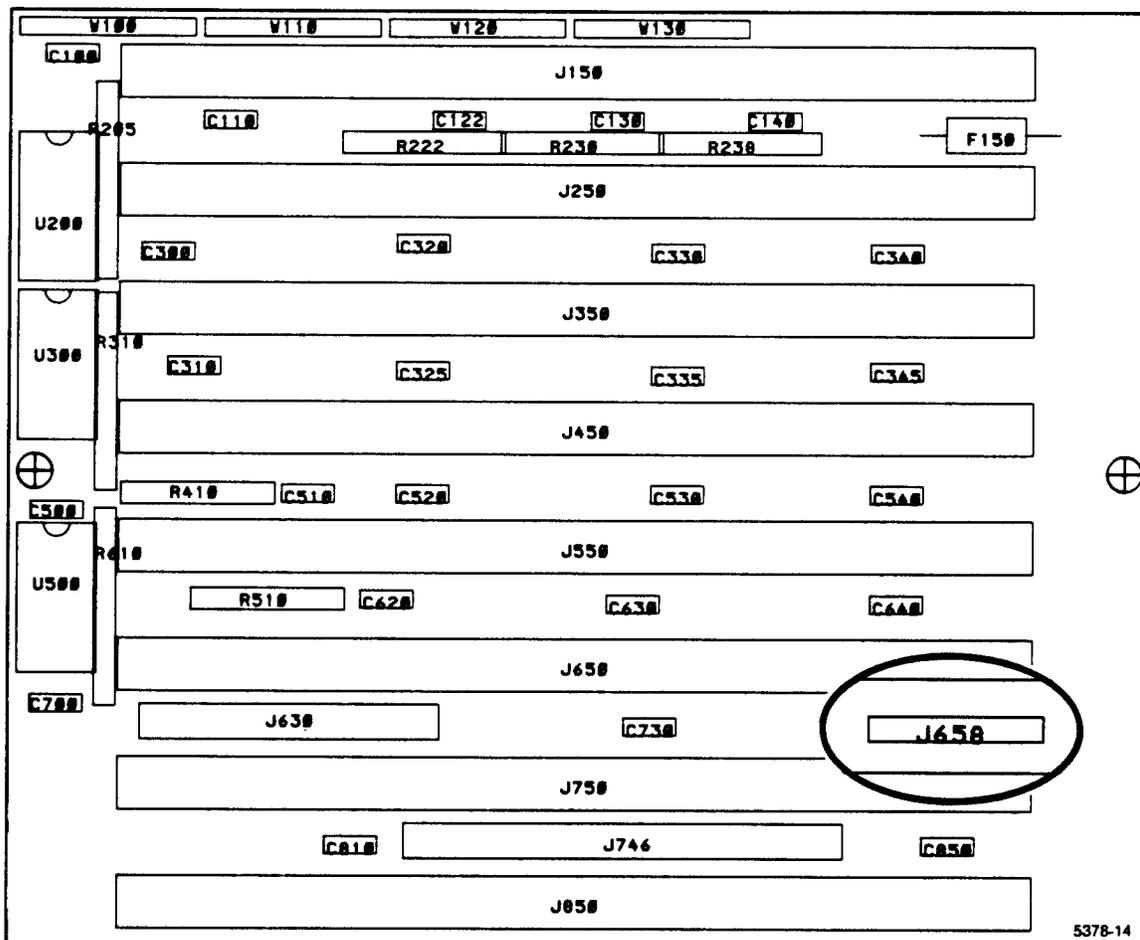


Figure 5-1. Expanded view of the Interface Board shows power supply measurement pins.

1. Perform procedure #1 (cabinet removal) of the *Disassembly and Installation Procedures* section of the *1240/1241 Service Manual*.
2. Locate the set of square pins labeled J658 on the Interface Board (Figure 5-1). This set of supply pins should be used as the reference point for all power supply measurements.
3. Set the variable transformer for the appropriate low-line voltage setting (90 volts when Line Select is set to 115 V; 180 volts when Line Select is set to 230 V).
4. Check all power supplies for correct voltages using a DMM on the appropriate dc volts scale. The power supply may be in either the low-load setup (A07J444 pin 1 shorted to pin 2) or the high-load setup (A07J444 pin 2 shorted to pin 3). Refer to Table 5-3 for tolerances.

NOTE

The +3 volt supply should be measured with reference to the +5 volt supply.

5. Check all power supplies for ripple using an oscilloscope set at 0.1 V/Div, 5 ms/Div, AC input coupling, and 20 MHz bandwidth limit ON. Refer to Table 5-3 for tolerances.
6. Reset the variable transformer output for the appropriate high-line voltage setting (132 volts when Line Select is set to 115 V; 250 volts when Line Select is set to 230 V). Re-check the supplies for the high-line setting.

**Table 5-3
POWER SUPPLY READINGS**

SUPPLY	dcV	ripple
+16 V	+15.0 V to 17.75 V	1.0 V p-p max.
+12 V	+11.40 V to 12.60 V	1 V p-p max.
+5 V	+4.85 V to +5.15 V	100 mV p-p max.
+3 V	-1.90 V to -2.10 V (ref. to + 5 V)	100 mV p-p max.
-5 V	-4.75 V to -5.25 V	100 mV p-p max.
-12 V	-11.40 V to -12.60 V	1 V p-p max.

Procedure 1B: COMM Pack Power Supply Check

1. Remove the CRT Drive Board bracket. Refer to procedure #8 (CRT removal) of the *Disassembly and Installation Procedures* section of this addendum for specific instructions.
2. Check the CRT supply voltage on the COMM Pack connector A13J470-B17. It should be in the range of +11.64 V to +12.36 V.

PROCEDURE 2: DISPLAY HIGH VOLTAGE PERFORMANCE CHECK

Equipment Required

- P6015 High-Voltage Probe
- test oscilloscope

Check Procedure

1. Perform Procedure #1 (cabinet removal), #2 (rear panel removal) of the *Disassembly and Installation Procedures* section of this manual.
2. Connect the High-Voltage Probe to the oscilloscope and set the range scale to 2 volts/div.
3. Access the CRT module by removing the CRT Drive Board bracket. Refer to the *Disassembly and Installation Procedures* section for specific removal procedures.
4. With the instrument power OFF, connect the probe ground lead to the chassis.
5. Touch the probe tip to the anode connector located under the anode cup (on the back of the CRT). Make sure that the connector still fits tightly in the hole.
6. Power ON the 1241 and check that the high voltage is 12 V ± 0.6 V (1000x attenuation).
7. Power OFF the 1241 and remove the probe. Re-install the CRT Drive Board bracket.

Procedures 3A - 3E: TEST PATTERN GENERATOR PERFORMANCE CHECKS

Refer to the *1240/1241 Logic Analyzer Service Manual*. These procedures are the same for both 1240 and 1241 Logic Analyzers.

PART 2: FUNCTIONALITY CHECKS

The Functionality Checks for the 1241 Logic Analyzer are identical to those for the 1240. Refer to the *1240/1241 Logic Analyzer Service Manual* for functionality check procedures.

PART 3: ACQUISITION AND SYSTEM PERFORMANCE CHECKS

The Acquisition and System Performance Checks for the 1241 Logic Analyzer are identical to those for the 1240. Refer to the *1240/1241 Logic Analyzer Service Manual* for these procedures.

Part 3: Acquisition And System Performance Checks, when used with the *Part 1: Supply And TPG Performance Checks*, provide the test setups necessary to verify specifications listed in the Performance Requirements column of the *Specifications* section. These checks do not use the Diagnostic ROM pack, and therefore may be extensive and time consuming. Under normal circumstances, the *Part 2: Functionality Checks* provide an adequate test of product performance in a less costly or time-consuming manner.

ADJUSTMENT PROCEDURES

INTRODUCTION

The Adjustment Procedures provide instructions for adjusting instrument variables so that the instrument meets or exceeds the specifications listed in the performance requirements column of the *Specifications* section. If the product cannot be made to meet or exceed the listed specifications by following these procedures, repair is necessary.

With the exception of pre-adjustment procedures and adjustments made on the CRT Drive Board, the adjustments for the 1240 and 1241 Logic Analyzers are identical. Refer to the *1240/1241 Logic Analyzer Service Manual* for adjustments not given in this section.

LIMITS AND TOLERANCES

All limits and tolerances given in the following procedures are adjustment guides. They should not be interpreted as instrument specifications unless they are also found in the performance requirements column of the *Specifications* section.

Tolerances given are for the instrument and do not include test equipment error.

EQUIPMENT REQUIRED

To complete all of the adjustment procedures, equipment equivalent to that listed at the beginning of this *Verification and Adjustment Procedures* section is required. A list of equipment needed for each individual check and adjustment is provided at the beginning of each procedure.

The performance requirements given in tables of the *Specifications* section are the minimum necessary to produce accurate results. Therefore, the related equipment must meet or exceed the listed specifications. Detailed instructions for operating the test equipment are not offered in this manual. If operating instructions are required, refer to the specific test equipment manual.

Equipment Alternatives

When substituting equipment for the recommended test equipment, control settings or adjustment setups may need to be altered. If the exact equipment listed in Table 5-1 is not available, check the minimum specification column carefully to see if other equipment will suffice.

ADJUSTMENT INTERVAL

To ensure correct instrument operation, adjustment should be checked every 5000 hours of operation or once every year if used infrequently. Before performing the adjustment procedures, perform preventive maintenance as outlined in the *Maintenance* section.

TEST SEQUENCE

Before starting any of the 1241 adjustment procedures, perform the Pre-Adjustment Procedure. Once complete, perform the subsequent adjustment procedures in any order. (Sequential order is recommended when performing all the adjustment procedures.) If an adjustment procedure has more than one part (e.g., 1A and 1B), perform all parts of the procedure.

PRE-ADJUSTMENT PROCEDURE

Equipment Required

- digital multimeter
- test oscilloscope
- variable transformer

Check Procedure

1. Perform procedures #1 and #3 (cabinet removal and card cage roll) of the *Disassembly and Installation Procedures* section of this manual.
2. Locate the set of square pins labeled J658 on the Interface Board (Figure 5-1). This set of supply pins should be used as the reference point for all power supply measurements.
3. Set the variable transformer for the appropriate low-line voltage setting (90 volts when Line Select is set to 115 V; 180 volts when Line Select is set to 230 V).
4. Check all power supplies for correct voltages using a DMM on the appropriate dc volts scale. The power supply may be in either the high-load setup (A07J444 pin 1 shorted to pin 2) or the low-load setup (A07J444 pin 2 shorted to pin 3). The jumper should be positioned in the low-load setup when two acquisition cards, either 9-channel or 18-channel, are installed. If more than two 9- or 18-channel cards are installed, the jumper should be positioned in the high-load setup. Refer to Table 5-4 for tolerances.

NOTE

The +3 volt supply should be measured with reference to the +5 volt supply.

5. Check all power supplies for ripple using an oscilloscope set at 0.1 V/Div, 5 ms/Div, AC input coupling, and 20 MHz bandwidth limit ON. Refer to Table 5-4 for tolerances.
6. Reset the variable transformer output for the appropriate high-line voltage setting (132 volts when Line Select is set to 115 V; 250 volts when Line Select is set to 230 V). Re-check the supplies for the high-line setting.

NOTE

If the 1241 power supply does not meet the listed tolerances, repair is necessary before starting any adjustment procedures.

**Table 5-4
POWER SUPPLY READINGS**

SUPPLY	dcV	ripple
+16 V	+15.0 V to 17.75 V	1.0 V p-p max.
+12.1 V	+11.40 V to 12.60 V	1 V p-p max.
+12 V	+11.40 V to 12.60 V	1 V p-p max.
+5 V	+4.85 V to +5.15 V	100 mV p-p max.
+3 V	-1.90 V to -2.10 V (ref. to + 5 V)	100 mV p-p max.
-5 V	-4.75 V to -5.25 V	200 mV p-p max.
-12 V	-11.40 V to -12.60 V	1 V p-p max.

1A. CRT: ALIGNMENT ADJUST

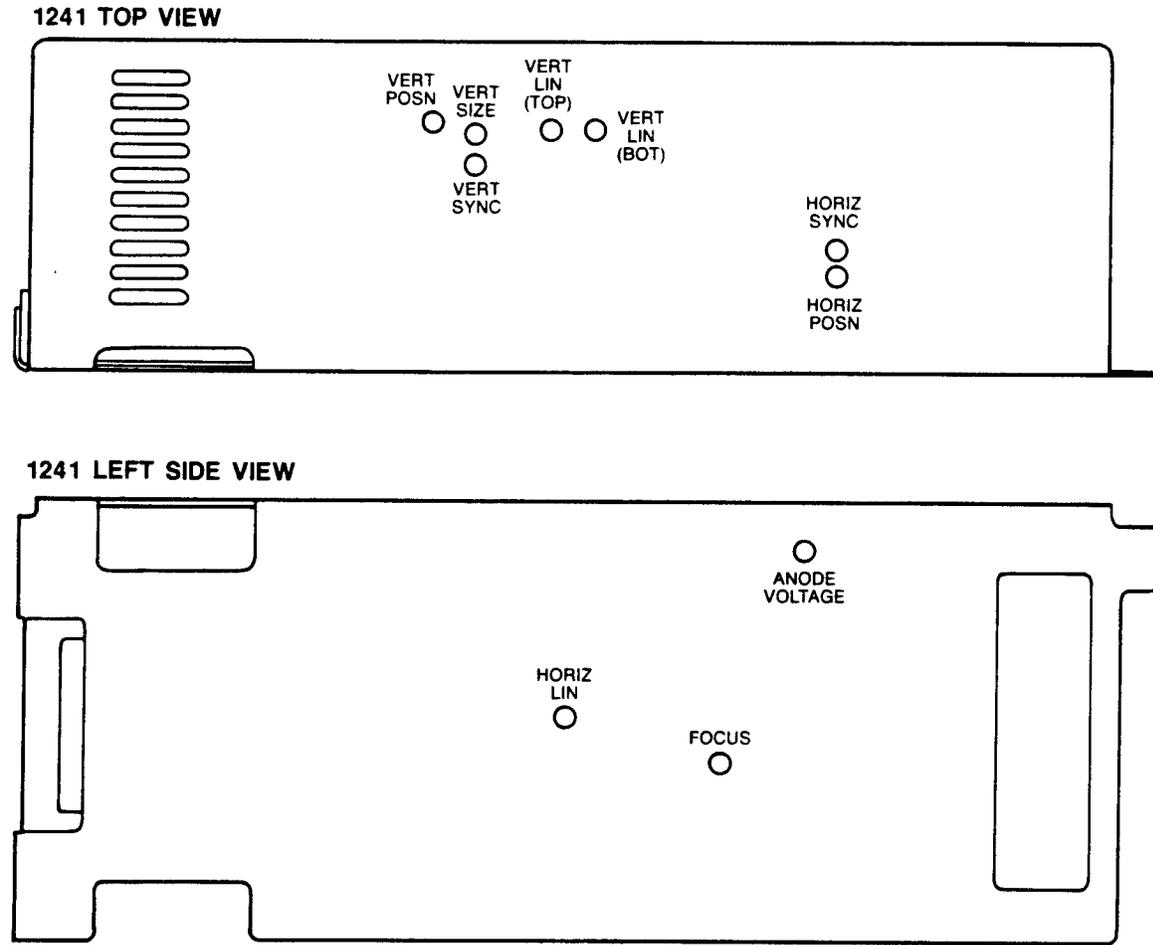


Figure 5-2. 1241 CRT Drive Board adjustment holes.

5378-15

Equipment Required

- adjustment tool
- oscilloscope
- P6015 high voltage probe

Adjustment Procedure

Because it affects the screen size, the high voltage adjustment should be performed before any other CRT adjustments. Refer to Figure 5-2 during the adjustment procedure.

1. Connect the high-voltage probe to the oscilloscope and set the range to 2 V/Div.
2. Access the CRT Drive Board by removing the CRT drive board bracket. Refer to the *Dissassembly and Installation Procedures* section of this addendum for specific instructions.
3. With the instrument power OFF, connect the probe ground to the chassis.

4. Touch the probe tip to the anode connector located under the anode cup (on the back of the CRT). Make sure that the anode connector still fits tightly in the hole.
5. Power up the 1241 and check that the high voltage is $+12\text{ V} \pm 0.6\text{ V}$ (1000x attenuation). If necessary, adjust the Anode Voltage Adjustment, A13R325, to bring the high voltage into specified limits.
6. Power down the 1241, remove the probe, and replace the CRT drive board bracket.
7. Access the diagnostic tests by holding down any front panel key while powering up the 1241. The tests initially indicate a keyboard failure due to the key being held down. Adjust the Contrast control on the rear panel to a desired brightness level.
8. While in the Main Diagnostic menu, select the FRONT PANEL module. Touch the Module Diagnostic soft key and select the FP VERIFY area. Touch the Area Diagnostic soft key and select routine number 2. Press the START key. The pattern shown in Figure 5-3 will be displayed.
9. If necessary, adjust the Horizontal Sync, A13R220, and/or the Vertical Sync, A13R161, to get a stable display.
10. Allow 15 minutes for CRT warm-up. If the pattern on the screen does not look square, perform the remainder of the steps in this procedure. If the pattern on the screen looks square, continue with *1B: CRT Soft Key Sensitivity Adjust located in the 1240/1241 Logic Analyzer Service Manual*.
11. Adjust the Horizontal Position, A13R222, and the Vertical Position, A13R165, until the cross is in the center of the screen.
12. Adjust the Horizontal Linearity, A13L453, to make the corner soft keys match; all soft key widths should be within 0.02 inches of each other.

NOTE

The soft key boxes in the middle of the screen are normally narrower than the ones at the outer edges.

13. Adjust the Horizontal Width Coil, located on the deflection yoke of the CRT, until the picture is 5.1 inches wide.

NOTE

The horizontal linearity and size controls interact. For proper adjustment, repeat both adjustments until the display is correct.

14. Set the Vertical Linearity-Bottom, A13R146, at mid-range. Adjust the Vertical Linearity-Top, A13R151, to make the top and bottom soft keys match. The soft key heights should be within 0.02 inches of each other.
15. Adjust the Vertical Size, A13R160, until the picture height is 3.7 inches.

NOTE

The Vertical Linearity and size controls interact. For proper adjustment, repeat both adjustments until the display is correct.

16. Continue with adjustment *1B: CRT Soft Key Sensitivity Adjust* in the *1240/1241 Logic Analyzer Service Manual*.

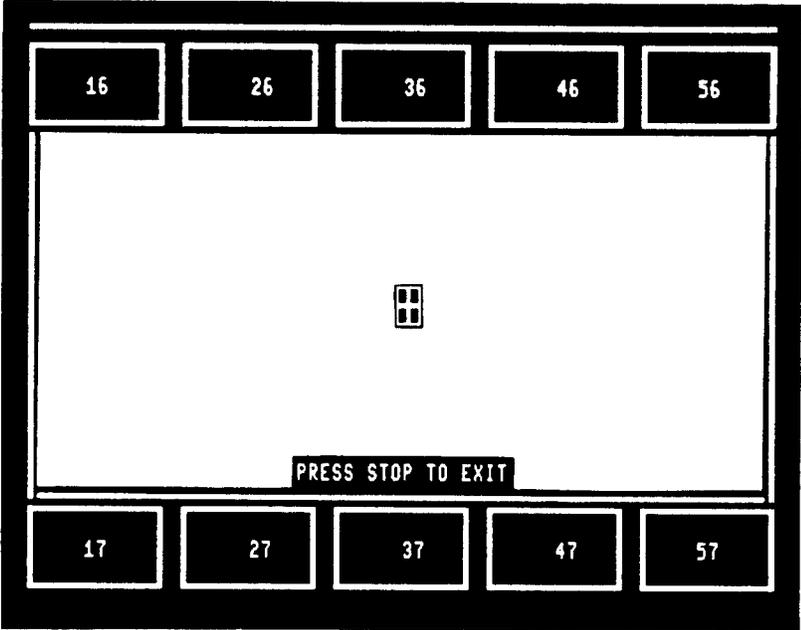
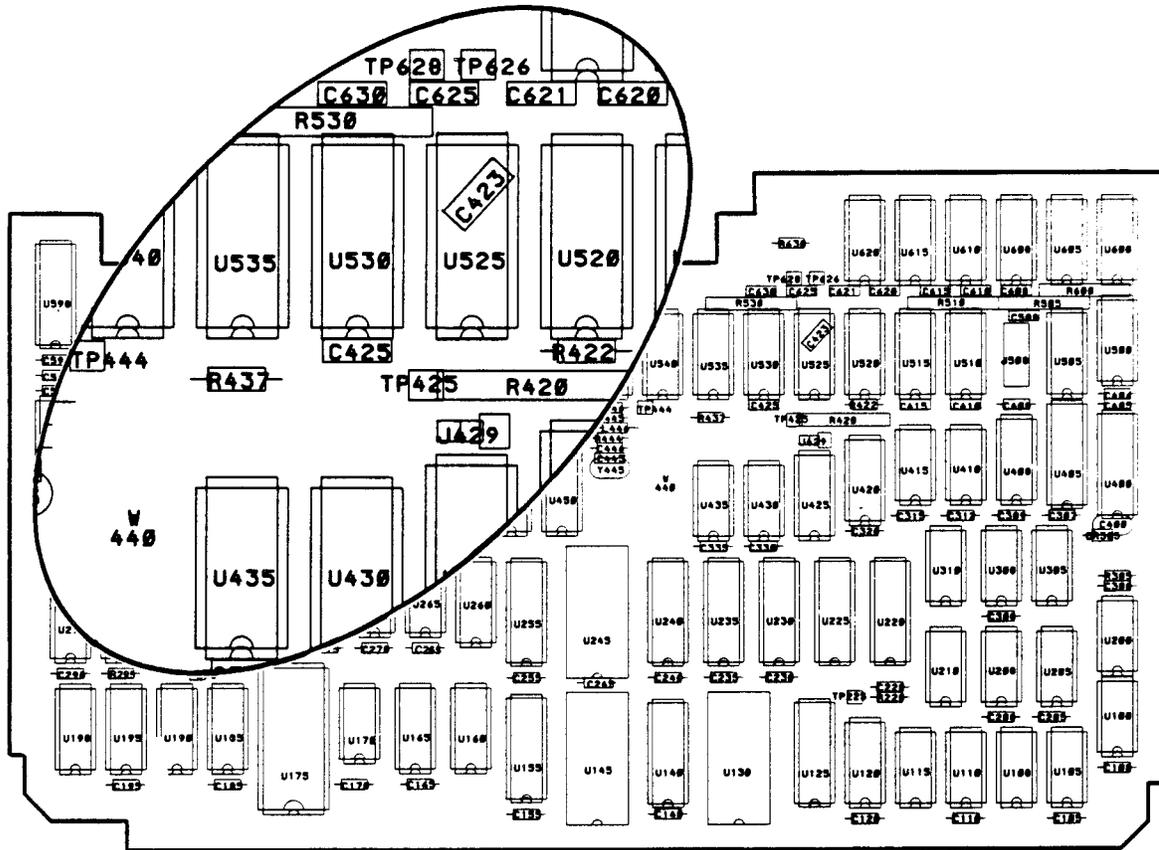


Figure 5-3. Soft key adjustment pattern.

5378-16

5. DISPLAY BOARD: COUNTER/TIMER ADJUST



5378-17

Figure 5-4. Expanded view of the Display Board shows components used in the Counter/Timer Adjust.

Equipment Required

- test oscilloscope
- P6106 probe

Adjustment Procedure

1. Power down the 1241 and remove the Display Board.
2. Replace the Display Board on the appropriate extender board (assembly A21) and power up the 1241 in NORMAL OPERATION mode.
3. Press the front panel TRIGGER menu key and set the following parameters:
 - GLOBAL EVENT: START TIMER ON XX X
DO NOTHING
 - SEQUENTIAL EVENT: (all steps deleted using the DELETE LEVEL soft key)
4. Press the START key and set the oscilloscope timebase to 1 ns/div.

5. Connect the CH1 oscilloscope probe to the Display Board at TP626, ground at TP628 (refer to Figure 5-4). Connect the CH2 probe to the Display Board at TP425, ground at TP444.

NOTE

Because probe loading affects the measurement, use only P6106 probes.

6. Check that the rising edge of the CH2 signal occurs $2.5 \text{ ns} \pm 0.5 \text{ ns}$ before the signal transition on CH1. Record the measurement. If the measurement is not out of tolerance, continue to adjustment #6 for the CRT Drive Board. If it is out of tolerance, the amount of delay through A12W440 should be changed by restrapping W440.
7. Before restrapping, power-down the instrument. Note the current delay strapping on A12W440. If no restrapping has been previously performed, W440 will have circuit-board runs that strap for a nominal 2.0 ns of added delay. If W440 has been previously restrapped, compare the strapping connections to those shown in the table to find the current delay setting.

ADDED DELAY	W440 STRAPPING
0.0 ns	1-8
0.5 ns	1-4 & 5-8
1.0 ns	1-6 & 7-8
1.5 ns	1-2 & 3-8
2.0 ns (nominal set)	1-2 & 3-4 & 5-8
2.5 ns	1-2 & 3-6 & 7-8
3.0 ns	1-2 & 3-4 & 5-6 & 7-8

8. If the delay measured in step 6 was less than 2.0 ns, restrap W440 from the current setting to increase the delay by 0.5 ns. If the delay measured in step 6 was more than 3.0 ns, restrap W440 from the current setting to decrease the delay by 0.5 ns. Find the desired delay value and corresponding strapping information in the strapping table.
9. To restrap, first disconnect the undesired current strapping connections by unsoldering W440 strapping wires or cutting circuit-board runs on W440. Then use 26-gauge wire to restrap W440 for the desired new delay setting determined in step 8.
10. After restrapping is complete, repeat step 6 to verify that the delay is within tolerance.

6. CRT DRIVE BOARD: EXTERNAL TRIGGER ADJUST

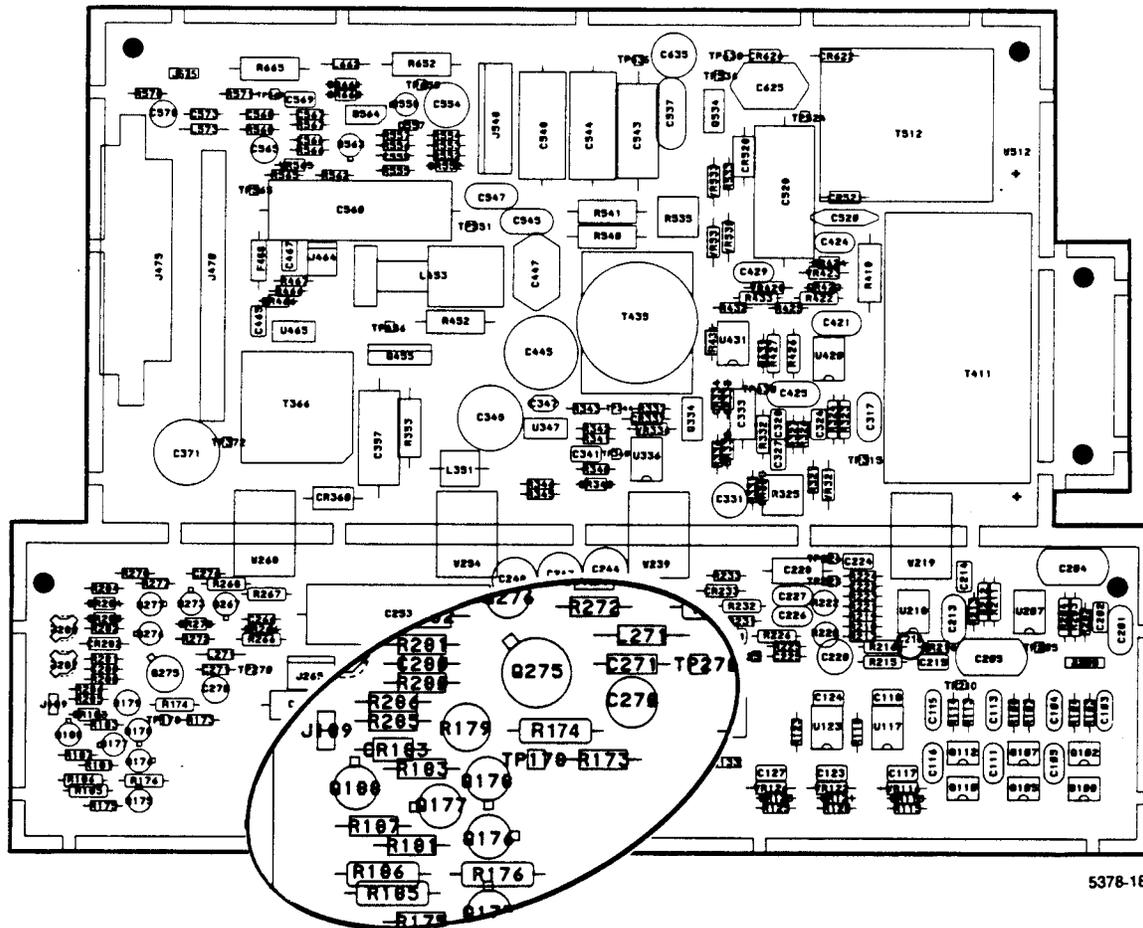


Figure 5-5. Expanded view of the CRT Drive Board shows components used in the External Trigger Adjust.

Equipment Required

- digital multimeter
- adjustment tool

Adjustment Procedure

1. Access the CRT module by removing the CRT Drive Board bracket. Refer to the *Disassembly And Installation Procedures* section in this addendum for specific removal procedures.
2. Set the DMM to the 200 mV range. Connect the DMM high lead to TP178 and the low lead to TP270 (GND). Refer to Figure 5-5.
3. Adjust R179 for a reading of 0.000 V (± 2 mV).

SECTION 6 DISASSEMBLY AND INSTALLATION PROCEDURES

SECTION 6 DISASSEMBLY AND INSTALLATION PROCEDURES

OVERVIEW	6-1
GENERAL DISASSEMBLY/INSTALLATION PRECAUTIONS	6-2
TOOLS REQUIRED	6-2
PROCEDURE #7: LED/PHOTOTRANSISTOR BOARDS	6-3
Disassembly	6-3
PROCEDURE #8: 1241 CRT DRIVE BOARD REMOVAL	6-3
Disassembly	6-3
Installation Hints	6-4
PROCEDURE #9: 1241 CRT & COLOR SHUTTER REMOVAL	6-5
Disassembly	6-5
Installation Hints	6-5

DISASSEMBLY AND INSTALLATION PROCEDURES

OVERVIEW

The disassembly/installation procedures given in this section are replacements for procedures #7, #8, and #9 in the *1240/1241 Logic Analyzer Service Manual*. With the exception of these procedures, the disassembly/installation procedures for the 1241 are identical to those for the 1240.

In the following procedures, directional terms (top, bottom, left, right, etc.) are based on the assumption that your 1241 is in a normal, upright position and that you are facing the front of the instrument.

Installation or reassembly procedures are the reverse of the disassembly procedures unless otherwise noted. In some cases, installation hints are provided to aid in reassembly.

CAUTION

Dangerous electric-shock hazards inside the mainframe may be exposed when the covers are removed. Be sure both front and rear panel power switches are off and the power cord is disconnected before removing the covers. Disassembly procedures should only be attempted by qualified service personnel.

WARNING

A lighted or blinking neon lamp on the power supply board, visible through a hole on the power supply cover adjacent to the warning label, indicates that a lethal voltage is present on that board. Wait for at least 15 minutes after power-down before accessing the power supply or related assemblies.

GENERAL DISASSEMBLY/INSTALLATION PRECAUTIONS

- DO NOT attempt any disassembly or installation procedures if power is ON.
- DO NOT operate the 1241 with the cabinet removed or the card cage in the service position (rolled out) unless additional instrument cooling is provided. Refer to *Proper Cooling of the 1241* in section 5 of this addendum.
- DO NOT place the 1241 onto its front face with the front panel removed. Damage may result due to excessive force on boards and components.
- DO NOT place the instrument onto its front face without covering the emblem; abrasion may wear off the coloring. To protect the front face, install the front panel cover.
- DO NOT exceed the following torque values when re-assembling any 1241 plastic parts:

PLASTIC AREA	MAX. TORQUE (in./lbs.)
Mainframe	4.5
Card cage	4.5
Power supply	3.0
Control Processor Board	4.5
COMM packs	4.5
ROM or RAM packs	4.5

- DO NOT disconnect probes from the side of the 1241 by pulling on the cables; pull only on the plastic cable holders.
- DO NOT press or pull on components when manipulating circuit boards.
- GUARD against static discharge damage by following the precautions listed in the *Maintenance* section.

TOOLS REQUIRED

- magnetic screwdriver, 1/4 inch drive
- POZIDRIV-type bit #1
- POZIDRIV-type bit #2
- Phillips-type bit #0
- Allen wrench, 1/16 inch
- flat-blade screwdriver
- 5/16 inch nut driver (for CRT Drive groundstrap nut)

PROCEDURE #7: 1241 LED/PHOTOTRANSISTOR BOARDS

DISASSEMBLY

1. Refer to *section 6* of the *1240/1241 Logic Analyzer Service Manual*. Perform Procedures #1, #3, and #5.
2. Disconnect the cable at A4P150 on the LED-2 Board.

WARNING

USE EXTREME CAUTION WHEN WORKING AROUND THE CRT. Do not nick or scratch the glass or subject it to undue pressures. Rough handling may cause it to violently implode. Always replace the color shutter assembly before powering up the instrument ; the shutter acts as an implosion shield.

3. Unsnap the four boards from their mounting posts.

PROCEDURE #8: 1241 CRT DRIVE BOARD REMOVAL

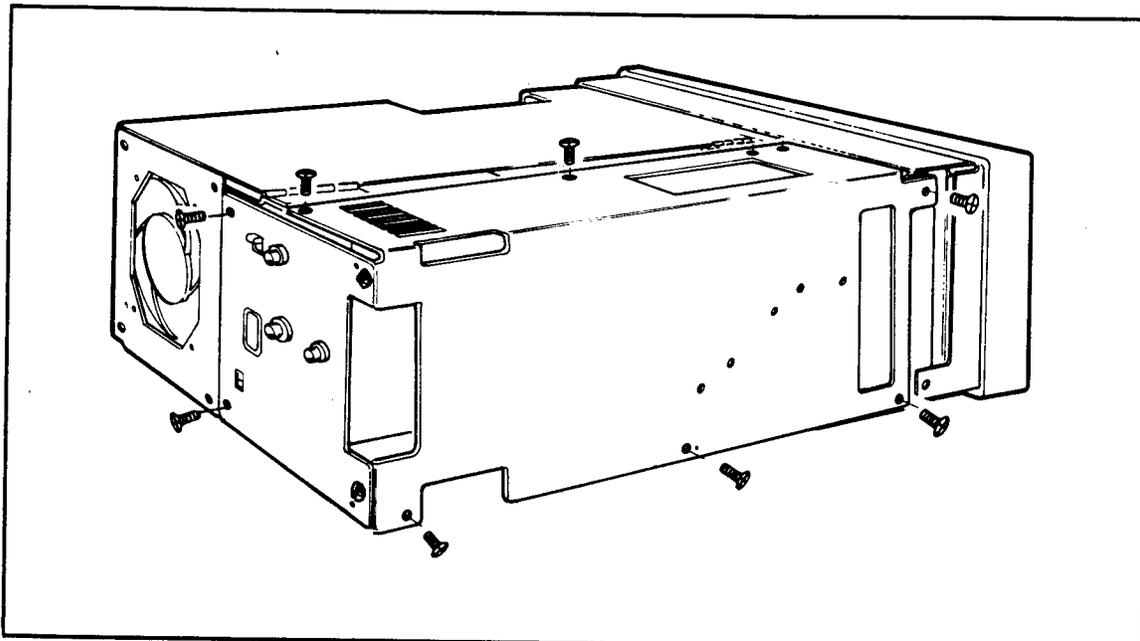
DISASSEMBLY

1. Perform Procedures #1 and #2 (given in the *1240/1241 Logic Analyzer Service Manual*).
2. Remove the 10 #4 flat-head screws holding the CRT Drive Board bracket and the Rear Panel to the mainframe. Refer to Figure 6-1.
3. If necessary, unplug the cabling from the CRT, the rear panel, and the Interface Board to the CRT Drive Board to facilitate removal of the bracket from the mainframe.
4. If necessary, remove the 14 #4 pan-head screws holding the CRT Drive Board to the CRT Drive Board bracket.
5. Remove the 5/16 inch nuts which connects the CRT Drive groundstrap to the chassis.
6. Use the installation hints on the following page when replacing the CRT Drive Board bracket.

CAUTION

Always re-install the CRT Drive Board bracket as soon as possible to remove exposed voltages from the work environment.

Figure 6-1. Location of screws for CRT Drive Board bracket removal.



5378-19

Figure 6-1. Location of screws for CRT Drive Board bracket removal.

INSTALLATION HINTS

If the wires to the CRT Drive Board were disconnected, reconnect as follows:

1. six multi-colored wires from the CRT socket to J548
2. one wire from the CRT socket to the ground lug
3. flat laminated cable from the Interface Board to J470
4. three-wire cable from rear panel to J675
5. wire cable from the rear panel to A13U189
6. 1-N (Brown) wire from the CRT Drive Board to the ground lug
7. 9-4 (White/Yellow) wire from EXT TRIG IN to J187
8. 9-N (White) wire from EXT TRIG OUT to J288
9. two-wire cable from the CRT Yoke to J464
10. two-wire cable from the CRT Yoke to J265
11. four-wire cable from the Color Shutter to J200

PROCEDURE #9: 1241 CRT & COLOR SHUTTER REMOVAL DISASSEMBLY

WARNING

CRTs RETAIN HAZARDOUS VOLTAGES FOR LONG PERIODS OF TIME AFTER POWER-DOWN. The CRT should be serviced only by qualified personnel familiar with CRT servicing procedures and precautions.

USE EXTREME CAUTION WHEN HANDLING THE CRT. Do not nick or scratch the glass or subject it to undue pressures during removal or installation. Rough handling may cause it to violently implode. When handling the CRT, wear safety goggles and heavy gloves for protection.

1. Perform Procedure #8, then #5 (given in the *1240/1241 Logic Analyzer Service Manual*).

WARNING

*BEFORE ATTEMPTING ANY WORK ON THE CRT, discharge the CRT by touching the blade of a plastic handled screwdriver **simultaneously** to the anode connection and to chassis ground. When discharging, place the screwdriver against the chassis, then slip the screwdriver tip under the CRT anode cup.*

2. Discharge the CRT by simultaneously touching the chassis ground with the plastic-handle screwdriver shank and slipping the screwdriver tip under the CRT anode cup (see Figure 6-2).
3. Unplug the LED/PT Board cable and remove the assembly. Unplug the anode, CRT end cap, and the color shutter cable.
4. Remove four #6 screws holding the color shutter assembly and remove the shutter.
5. Remove the CRT from the front side of the instrument.

INSTALLATION HINTS

- If previously removed, re-install the DAG spring across the back side of the CRT to ensure proper grounding.

WARNING

The CRT anode forms a capacitor with the external CRT DAG coating. If the DAG spring is not present to ground the CRT, hazardous voltages may exist on the outside of the CRT.

Always replace the color shutter assembly before powering up the instrument; it acts as an implosion shield.

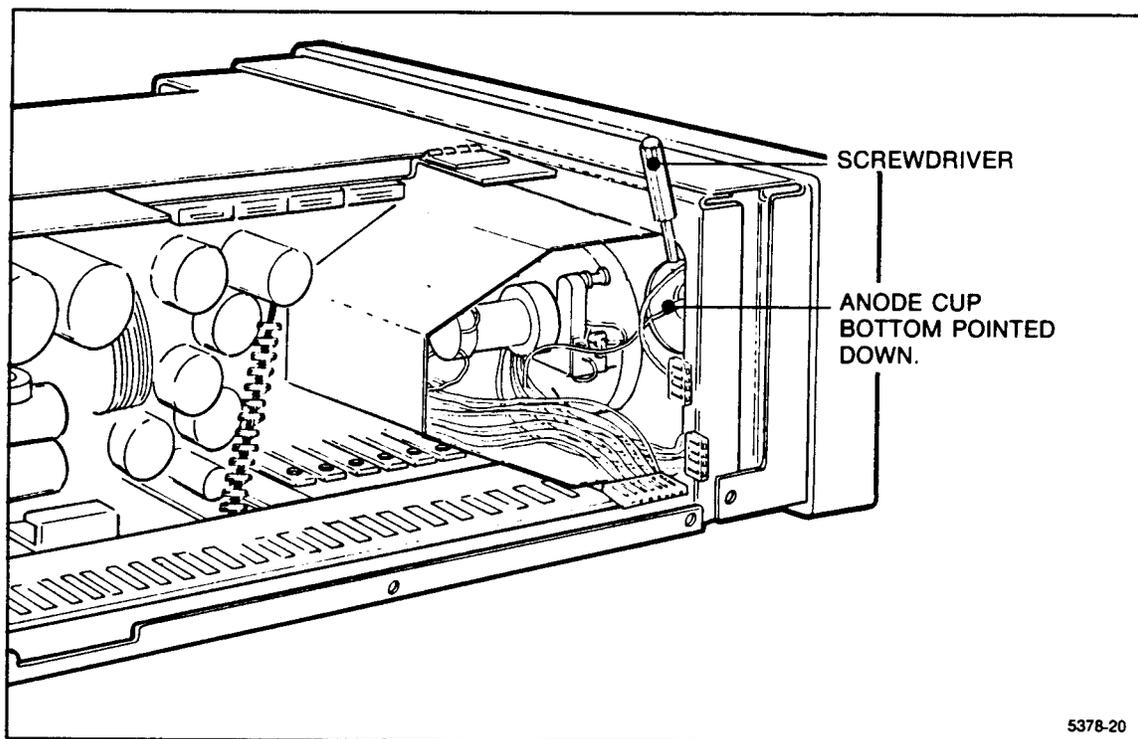


Figure 6-2. Discharging a CRT using a flat-blade screwdriver.

- Push the CRT anode cup back onto the CRT, ensuring that the connector prongs are secured in the CRT anode cavity.
- If previously removed, re-connect the wires to the CRT Drive Board as follows:
 1. six multi-colored wires from the CRT socket to J548
 2. one wire from the CRT socket to the ground lug
 3. flat laminated cable from the Interface Board to J470
 4. three-wire cable from rear panel to J675
 5. wire cable from the Rear Panel to A13U189
 6. 1-N (Brown) wire from the CRT Drive Board to the ground lug
 7. 9-4 (White/Yellow) wire from EXT TRIG IN to J187
 8. 9-N (White) wire from EXT TRIG OUT to J288
 9. two-wire cable from the CRT Yoke to J464
 10. two-wire cable from the CRT Yoke to J265
 11. four-wire cable from the Color Shutter to J200

SECTION 7 MAINTENANCE

SECTION 7 MAINTENANCE

- INTRODUCTION** 7-1
- TOOLS REQUIRED FOR MAINTENANCE** 7-1
- MAINTENANCE PRECAUTIONS** 7-2
 - Soldering 7-2
 - Light-Emitting Diodes (LEDs) 7-2
 - Static Precautions 7-2
- PREVENTIVE MAINTENANCE** 7-3
 - Exterior Cleaning 7-3
 - Interior Cleaning 7-4
 - Cleaning Guidelines 7-4
 - Inspection 7-5
- CORRECTIVE MAINTENANCE** 7-5

MAINTENANCE

INTRODUCTION

This section contains preventive maintenance instructions for the 1241 Logic Analyzer. Corrective maintenance for the 1241 is identical to that of the 1240 (refer to the *1240/1241 Logic Analyzer Service Manual*).

Tektronix maintains repair and recalibration facilities at its local Field Service Centers and the Factory Service Center. For further information or assistance, contact your local Tektronix Field Office or representative.

TOOLS REQUIRED FOR MAINTENANCE

The following tools are those most often needed when servicing the 1241 Logic Analyzer.

- soldering iron (15 W)
- rosin core solder 60/40
- isopropyl alcohol
- lint-free dust cloth
- soft-bristle brush
- IC extractor
- desolder tool
- solder wick
- slotted screwdriver
- magnetic screwdriver (1/4 inch drive)
- POZIDRIV-type bit #1
- POZIDRIV-type bit #2
- Phillips-type bit #0
- TORX-type magnetic bit, size T-20 (Tek P/N 003-0866-00)
- angled tweezers (6 inch)
- long-nose pliers
- 1/4, 5/16, 1/2, and 9/16 inch combination wrenches
- Allen wrench (1/16 inch)

MAINTENANCE PRECAUTIONS

WARNING

Dangerous electric-shock hazards outside and inside the mainframe may be exposed when the cabinet is removed. Be sure both front and rear panel power switches are off and the power cord is disconnected before removing the cabinet. Disassembly procedures should only be attempted by qualified service personnel.

A lighted or blinking neon lamp on the power supply board, visible through a hole on the power supply cover adjacent to the warning label, indicates that a lethal voltage is present on that board. Wait for at least 15 minutes after powering down before accessing the power supply or related assemblies.

SOLDERING

Most of the components in the instrument are soldered in place. If it is necessary to replace a soldered part, use a 15 W soldering iron to prevent heat damage to the circuit board or components. Excessive heat will lift circuit runs on the circuit board.

The flux in solder may leave a residue on the circuit board that can provide a high-resistance leakage path and affect instrument operation. Be sure to clean off this residue. Isopropyl alcohol is recommended.

LIGHT-EMITTING DIODES (LEDs)

To avoid damage to the LEDs, always keep soldering time and temperature to a minimum. Do not bend the leads or apply force when inserting them into circuit board holes. Clean the circuit board holes of all excess solder before attempting to install a new LED.

NOTE

Damage to the LEDs may not be immediately apparent. Always follow the precautionary measures described when handling the LEDs.

STATIC PRECAUTIONS

CAUTION

Static discharge can damage any semiconductor in this instrument.

Observe the following precautions to avoid damage:

- Minimize handling of static-sensitive components.
- Transport and store static-sensitive components or assemblies in their original containers, on a metal rail, or on conductive foam. Label any package that contains static-sensitive components or assemblies.
- Discharge the static voltage from your body by wearing a wrist strap while handling these components. Servicing static-sensitive assemblies should be performed only in a static-free work station by qualified service personnel.

- Nothing capable of generating or holding a static charge should be allowed on the work station surface.
- Keep the component leads shorted together whenever possible.
- Pick up components by the body, never by the leads.
- Do not slide the components over any surface.
- Avoid handling components in areas that have a floor or work-surface covering capable of generating a static charge.
- Use a soldering iron that is connected to earth ground.
- Use only special anti-static suction-type or wick-type desoldering tools.

NOTE

Damage to electrical components may not be immediately apparent. Always follow the precautionary measures described when handling static-sensitive components.

PREVENTIVE MAINTENANCE

Preventive maintenance consists of periodic cleaning and inspection. Accumulation of dust on electrical components acts as an insulating blanket and prevents efficient heat dissipation. This condition can cause overheating and component breakdown within the instrument. Dust accumulated on parts around the display screen can render the on-screen soft keys inoperative; refer to *Soft Key LED Cleaning* later in this section. Periodic cleaning and inspection will reduce instrument breakdown and increase instrument reliability.

This instrument should be cleaned as often as the operating environment requires. A convenient and appropriate time to perform these procedures is immediately prior to instrument adjustment.

EXTERIOR CLEANING

Dust the exterior surfaces with a dry, lint-free cloth or a soft-bristle brush. If hard dirt remains, use a cloth or swab dampened with 5% mild detergent and warm water solution. The swab is also useful for cleaning in narrow spaces around the controls. Do not use abrasive compounds on any part of the instrument.

The glass front of the color shutter may be cleaned with any commercial glass cleaner. To avoid getting moisture inside the instrument, do not spray cleaner directly on the display screen. Dampen a cloth with glass cleaner and gently wipe the screen.

CAUTION

To prevent getting water inside the instrument during external cleaning, use only enough water to dampen the cloth or swab.

DO NOT use chemical cleaning agents as they may damage the plastics used in the instrument. In particular, avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

INTERIOR CLEANING

To gain access to internal portions of the instrument, refer to the instructions in the *Disassembly and Installation Procedures* section of this manual.

Use a dry, low-velocity stream of air to clean the interior of the instrument. A soft-bristle brush is useful for cleaning around components. If a liquid must be used for minor internal cleaning, use isopropyl alcohol, denatured ethyl alcohol, or a solution of 1% mild detergent and 99% de-ionized water.

Should the interior of the instrument require a thorough cleaning, wash according to the following cautionary *Cleaning Guidelines*.

CLEANING GUIDELINES



DO NOT wash the front or rear panel power switches. The power switches must be covered during washing procedures.

Spray-wash dirty parts with a cleaning solution listed under Interior Cleaning, then use de-ionized water to THOROUGHLY RINSE all parts. IMMEDIATELY DRY all parts with low air pressure.

When washing near unsealed electromechanical components, use as little washing action as possible. This prevents washing the lubricant out of the components and getting an excess of detergent into the contact areas of the switches. DETERGENT RESIDUE WILL CAUSE CORROSION which may degrade instrument performance.

DO NOT immerse the front panel rotary encoder for cleaning purposes. Because the shaft is lubricated, clean it by only wiping it externally with a damp cloth.

DO NOT use a freon-based cleaner for cleaning the circuit boards. Freon will damage aluminum capacitors.

DO NOT use fluorocarbon-based spray cleaners or silicon spray lubricants on switches or switch contacts. These sprays may damage the circuit board material or plastic parts, and leave a dust-collecting residue. If necessary, Tektronix, Contact Lubricant and Cleaner (006-0442-00) may be used as a lubricant.*

To prevent damage from electrical arcing, ensure that all circuit boards, switches, and board interface connectors are completely dry. Do this by heating the board or switch in an oven at 75 degrees Celsius (167 degrees Fahrenheit) for 15 minutes before applying power.

INSPECTION

Inspect the instrument for broken connections, frayed wires, poorly seated components, leaking capacitors, damaged hardware, and heat-damaged components.

Repair any obvious problems. However, take particular care if you find any heat-damaged parts. Overheating usually indicates other circuit problems. To prevent recurrence of the damage, find and correct the cause of the overheating. Note that replacement of instrument electrical components may necessitate readjustment of the affected circuitry. Refer to the *Replaceable Electrical Parts* section for a list of part and component descriptions.

SOFT KEY LED CLEANING

The 1241 soft keys are displayed along the top and bottom of the screen. Sensing of keystrokes on these keys is done using a combination of LEDs and phototransistors attached to a frame surrounding the screen. Dust may accumulate on the LEDs, phototransistors, or other parts, resulting in diagnostic failures. To avoid these diagnostic failures, perform the soft key LED cleaning procedure. Depending on the environment, it may be necessary to clean the interior of the 1240/1241 periodically. Under very dusty conditions, cleaning every six months or less may be required.

The steps listed in the following are LED cleaning procedures for the 1241 Logic Analyzer; for 1240 LED cleaning procedures, refer to the *1240/1241 Logic Analyzer Service Manual*.

1. Section 6 of this manual contains disassembly procedures; read *Overview* and *General Disassembly/Installation Precautions* in that section before attempting any disassembly.
2. Also in Section 6, follow disassembly procedure #7 to remove the 1241 LED/Phototransistor Boards from the front of the instrument; it is not necessary to remove the boards from their mounting posts.
3. Clean all surfaces of the mounting frame, the circuit boards, and the components on those boards by following the instructions provided under *Interior Cleaning* in this section.

NOTE

It is recommended that you also clean all of the surfaces surrounding the LED/Phototransistor Boards to prevent the rapid re-accumulation of dust on the soft key components.

4. Reassemble the 1241 by reversing the steps for disassembly.
5. Power ON the 1241 and verify that the diagnostics pass. If the soft key test fails, perform procedure 1B. *CRT: Soft Key Sensitivity Adjust* in Section 5 of the *1240/1241 Service Manual*. If the soft key diagnostics continue to fail (or other diagnostic tests fail), refer to the troubleshooting information in Section 8 of the *1240/1241 Service Manual* or contact your local Tektronix Service Center.

CORRECTIVE MAINTENANCE

Corrective maintenance for the 1241 Logic Analyzer is the same as that for the 1240. Refer to the *1240/1241 Service Manual* for corrective maintenance instructions.

8 TROUBLESHOOTING AND REPAIR

SECTION 8

SECTION 8 TROUBLESHOOTING AND REPAIR

OVERVIEW	8-1
TROUBLESHOOTING EQUIPMENT	8-2
USING THE 1240 EXTENDER BOARDS	8-2
REPLACING DEFECTIVE PARTS	8-2
LIST OF ASSEMBLIES	8-2
TROUBLESHOOTING PRECAUTIONS	8-2
Discharging The CRT	8-3
Static Discharge Damage (Special Handling Required)	8-3
Operating The 1241 With The Cabinet Removed	8-4
1241 TROUBLESHOOTING WITHOUT ERROR INDEXES	8-5
Damage Resulting From Incorrect Board Installation	8-5
Power Supply Troubleshooting	8-6
1241 Thermal Fuse	8-6
1241 Power Supply Troubleshooting Trees	8-6
CRT Drive Board Troubleshooting	8-11
Processor LEDs	8-25
Kernel Signature Analysis	8-25
I/O Processor Kernel Troubleshooting	8-25
Control Processor Kernel Troubleshooting	8-26
TROUBLESHOOTING USING DIAGNOSTICS ERROR INFORMATION ..	8-30
Diagnostics Overview	8-30
Error Index Overview	8-31
I/O PROCESSOR KERNEL LED ERROR INDEXES	8-33
Power-Up - Stage 0	8-38
RAM - Stage 1	8-41
ROM - Stage 2	8-43
COMM Pack - Stage 3	8-48
3XXX DISPLAY ERROR INDEXES	8-49
31XX-RAM, AREA 1	8-52
32XX-VERTICAL SCROLLING, AREA 2	8-56
33XX-HORIZONTAL SCROLLING, AREA 3	8-59
34XX-REVERSE VIDEO, AREA 4	8-64
35XX-HIGHLIGHTING, AREA 5	8-66
36XX-WAVEFORM (GENERATION), AREA 6	8-69

TROUBLESHOOTING AND REPAIR

OVERVIEW

This section contains procedures a technician should use to troubleshoot and repair a faulty 1241 Logic Analyzer. Only troubleshooting information that is unique to the 1241 is covered in this addendum. For failures not discussed in this section, refer to the *1240/1241 Logic Analyzer Service Manual*.

Depending on the conditions of the failure, various troubleshooting strategies may be used to locate the specific problem. Table 8-1 lists categories of fault conditions and related troubleshooting information sources that should be used to repair the faults.

Table 8-1
RECOMMENDED SERVICING APPROACH

Fault Condition	Servicing Approach
1. No power-up	1. Refer to: <ul style="list-style-type: none"> • Power Supply Troubleshooting • Damage Resulting From Incorrect Board Installation
2. Power-up failure (display may not be useable)	2. Refer to: <ul style="list-style-type: none"> • Processor LEDs • CRT Drive Board Troubleshooting • Soft Key Troubleshooting • Kernel Signature Analysis • Theory of Operation
3. Power-up failure (with error indexes)	3. Refer to: <ul style="list-style-type: none"> • Diagnostic Error Indexes • Extended Diagnostics (with diagnostic ROM pack) • Diagnostic Block Diagrams
4. General failure (problems not detected during power-up diagnostics)	4. Refer to: <ul style="list-style-type: none"> • Extended Diagnostics (with diagnostic ROM pack) • Theory of Operation • Troubleshooting Intermittent Failures • 1240 Manual Tests

TROUBLESHOOTING EQUIPMENT

The following equipment, or equivalent, is recommended for troubleshooting the 1241 Logic Analyzer.

- SONY/TEK 308 Data Analyzer
- 1240 Service Maintenance Kit
- TEKTRONIX 485 Oscilloscope with two P6106 probes

USING THE 1240 EXTENDER BOARDS

The 1240 Service Maintenance Kit may be used with both 1240 and 1241 Logic Analyzers. It contains two extender boards that are used in troubleshooting, adjustment, and verification procedures. The first board, assembly A21, should be used when working with the trigger, display, and both processor boards. The second board, assembly A22, should be used with the 9- and 18-channel acquisition boards. Both extenders allow a board under test to be at a convenient position away from the other boards so that the signal test points and components are accessible.

NOTE

In some instances, extender boards degrade system performance. For complete details, refer to Table 2-4 in the Specifications section of this manual and to the instruction sheet that accompanies each extender board.

REPLACING DEFECTIVE PARTS

If it becomes necessary to replace defective parts found during troubleshooting procedures, refer to the *Maintenance* section of this manual for cautionary guidelines and recommended practices. Note that replacement of instrument electrical components may necessitate readjustment of the affected circuitry. Refer to the *Verification and Adjustment Procedures* section for readjustment procedures.

LIST OF ASSEMBLIES

A list of assemblies and subassemblies can be found at the beginning of the *Replaceable Electrical Parts* section. The assemblies are listed in numerical order. A complete component number is useful for identifying the assembly where the part resides and the circuit number being referenced.

TROUBLESHOOTING PRECAUTIONS

To gain access to the interior of the instrument, use the directions provided in the *Disassembly and Installation Procedures* section.

WARNING

Electric shock hazards inside the instrument may be exposed when certain covers are removed. Servicing should be performed only by qualified service personnel.

DISCHARGING THE CRT

The following precautions should be observed when working on the CRT:

WARNING

CRTs RETAIN HAZARDOUS VOLTAGES FOR LONG PERIODS OF TIME AFTER POWER-DOWN. The CRT should be serviced only by qualified personnel familiar with CRT servicing procedures and precautions.

ENSURE that both front and rear panel power switches are in the OFF position before attempting servicing procedures.

USE EXTREME CAUTION WHEN HANDLING THE CRT. Rough handling may cause it to violently implode. Do not nick or scratch the glass or subject it to undue pressures during removal or installation. When handling the CRT, wear safety goggles and heavy gloves for protection.

BEFORE ATTEMPTING ANY WORK ON THE CRT, discharge the CRT by shorting the anode connection to chassis ground using a plastic-handle screwdriver. When discharging, place the screwdriver against the chassis, then slip the screwdriver tip under the CRT anode cup.

STATIC DISCHARGE DAMAGE (Special Handling Required)

CAUTION

All semiconductor devices in the instrument are susceptible to damage by static discharge.

Most of the devices used in the 1241 are static-sensitive and may be damaged by improper handling. See Table 8-2 for the relative susceptibility of various classes of semiconductors. Static voltages of 1 to 30 kV are common in unprotected environments.

**Table 8-2
STATIC DAMAGE TABLE**

Semiconductor Class	Danger Voltage*
MOS or CMOS	100 - 500 V
ECL	200 - 500 V
Schottky signal diodes	250 V
Schottky TTL	500 V
High-frequency bipolar transistors	400 - 600 V
JFETs	600 - 800 V
Linear microcircuits	400 - 1000 V
Low-power Schottky TTL	1200 V

* voltage discharged from a 100 pF capacitor through 100 ohms resistance

OPERATING THE 1241 WITH THE CABINET REMOVED

CAUTION

DO NOT operate the instrument with the cabinet removed for extended periods of time unless it is raised off the working surface at least one-half inch.

If it is necessary to run the 1241 for extended periods of time, raise the instrument off the working surface in order to admit air to the power supply for cooling purposes. Additionally, another fan should be positioned to blow air onto the instrument bulkhead just below the card cage (when the card cage is rolled into the service position). This additional air supply should be aimed at the power supply heat sink, located on the bottom of the bulkhead.

When operating the 1241 in the service position, the rear panel fan does not provide adequate cooling for some boards installed on the Extender board. To avoid this problem, a fan should be positioned to blow air across these extended boards. The boards that require additional cooling are:

- any 9-Channel Acquisition Boards
- any 18-Channel Acquisition Boards
- the Trigger Board

When operating the 1241 with the Power Supply/CRT Drive compartment open, the rear panel fan does not provide adequate cooling for the Power Supply and CRT Drive Boards. An extra fan should be positioned to blow air across these two boards.

1241 TROUBLESHOOTING WITHOUT ERROR INDEXES

If the 1241 fails and some part of either the I/O Processor or the Control Processor is non-functional, the 1241 may be unable to produce on-screen error messages. If this occurs, the service technician has available alternative courses for troubleshooting the failure. Table 8-1 outlines the troubleshooting procedures available.

DAMAGE RESULTING FROM INCORRECT BOARD INSTALLATION

The following table lists the components that could be damaged when a 1241 board is installed in an incorrect card-cage slot. In some cases, components may not display failure symptoms for some time.

NOTE

If only one board was placed in the wrong slot, you need only find component information for that board/slot combination. However, if two boards were incorrectly installed (i.e., two boards placed in each others slots), you must find component information for both board/slot combinations.

**Table 8-3
POSSIBLE COMPONENTS DAMAGED WHEN A BOARD IS INSTALLED INCORRECTLY**

Board \ Slot	Control or I/O Processor Slot	Display Slot	Acquisition Slots	Trigger Slot
Control Processor Board	correct slot	A09U261, U264 A14U150	A09U261 A14U150, U635 A14U640	A09U261, U264 A14U150
I/O Processor Board	correct slot	no problems	A14U635 A14U640	no problems
Display Board	A09U264	correct slot	A10U295, U385 A15U390, CR678 A16U261, CR259	no problems
18-Channel Board	no problems	won't fit	correct slot	won't fit
9-Channel Board	may disable power switch; use rear panel power switch	won't fit	correct slot	won't fit
Trigger Board	instrument may not power up	won't fit	A10U295, U385 A11U405, U495 A15U390, CR678 *A15U565 A16U261, CR259 *A16U538	correct slot

* only the acquisition board immediately below the Trigger Board.

POWER SUPPLY TROUBLESHOOTING

Troubleshooting of the 1241 power supply should only be performed by qualified service personnel. If a power supply is suspected of being faulty, check the following areas before continuing with troubleshooting procedures:

- ac line cord properly installed
- rear panel MAIN POWER SWITCH in proper position
- rear panel line selector switched to the proper position
- rear panel ac line fuse in good condition
- thermal fuse on the Interface Board not blown due to excessive instrument temperature
- power supply load jumper in proper position (refer to the *Maintenance* section)



When troubleshooting the 1241 power supply, do not circumvent the operation of any voltage or current protection circuitry. If protection circuitry is disconnected, damage may occur to the power supply and other boards.

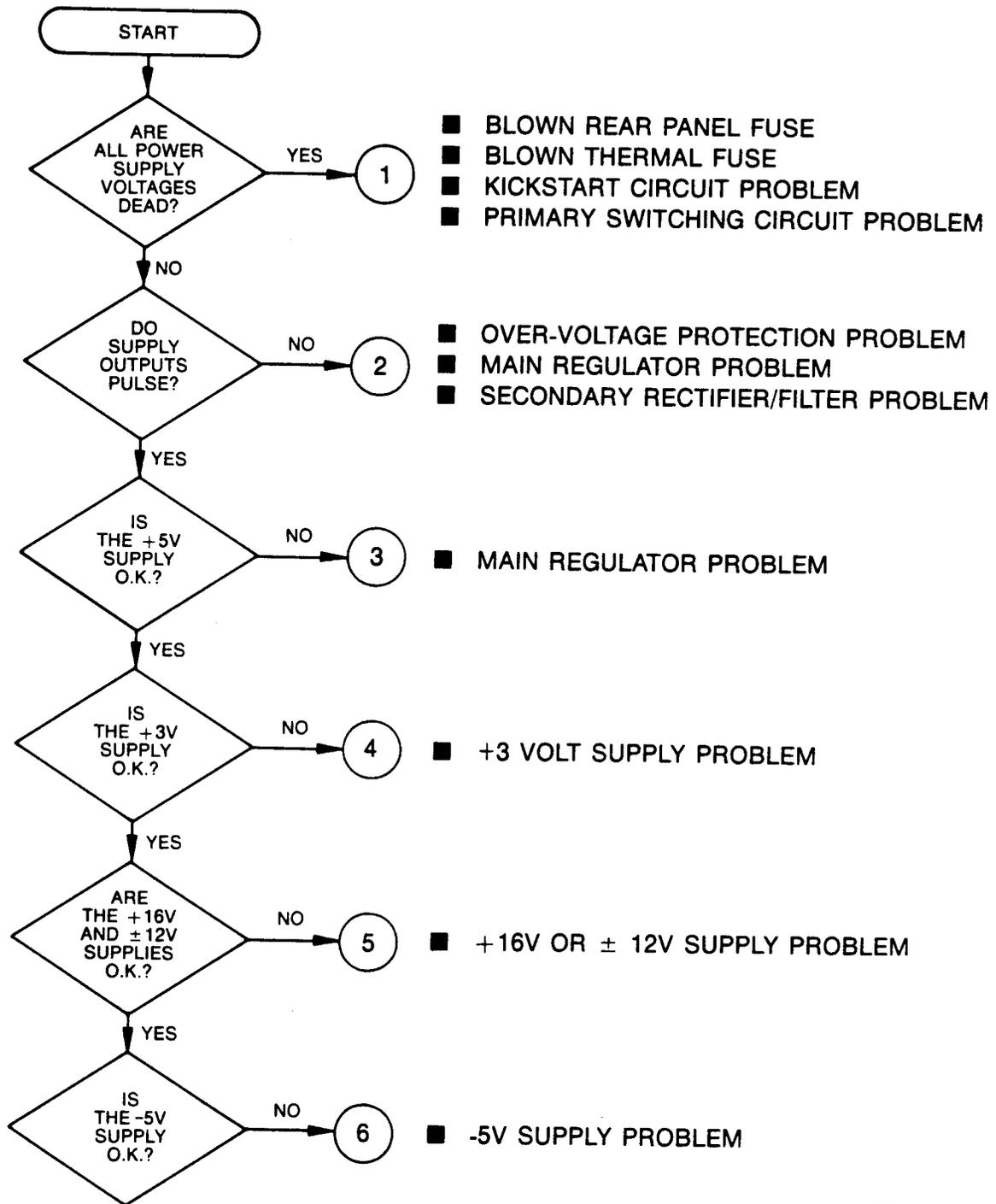
1241 Thermal Fuse

The 1241 is equipped with an over-temperature fuse that opens when the internal temperature of the instrument reaches 100° C (212° F). If the fuse (located on the Interface Board) should open, instrument operation will not be possible until the fuse is replaced. For replacement part numbers, refer to the *Replaceable Electrical Parts* section.

1241 Power Supply Troubleshooting Trees

The 1241 power supply troubleshooting trees should be used when troubleshooting a 1241 power supply. The first tree (Figure 8-1) points the technician to the correct troubleshooting trees that follow. Each of these trees (corresponding to the six failure areas) then guide the technician to the problem source.

The 1241 power supply is similar to the 670-7534-06 version of the 1240 power supply. The difference between the two is that the +13 volt line in the 1240 supply is an unregulated, +16 volt line in the 1241.



5378-63

Figure 8-1. 1241 power supply troubleshooting tree.

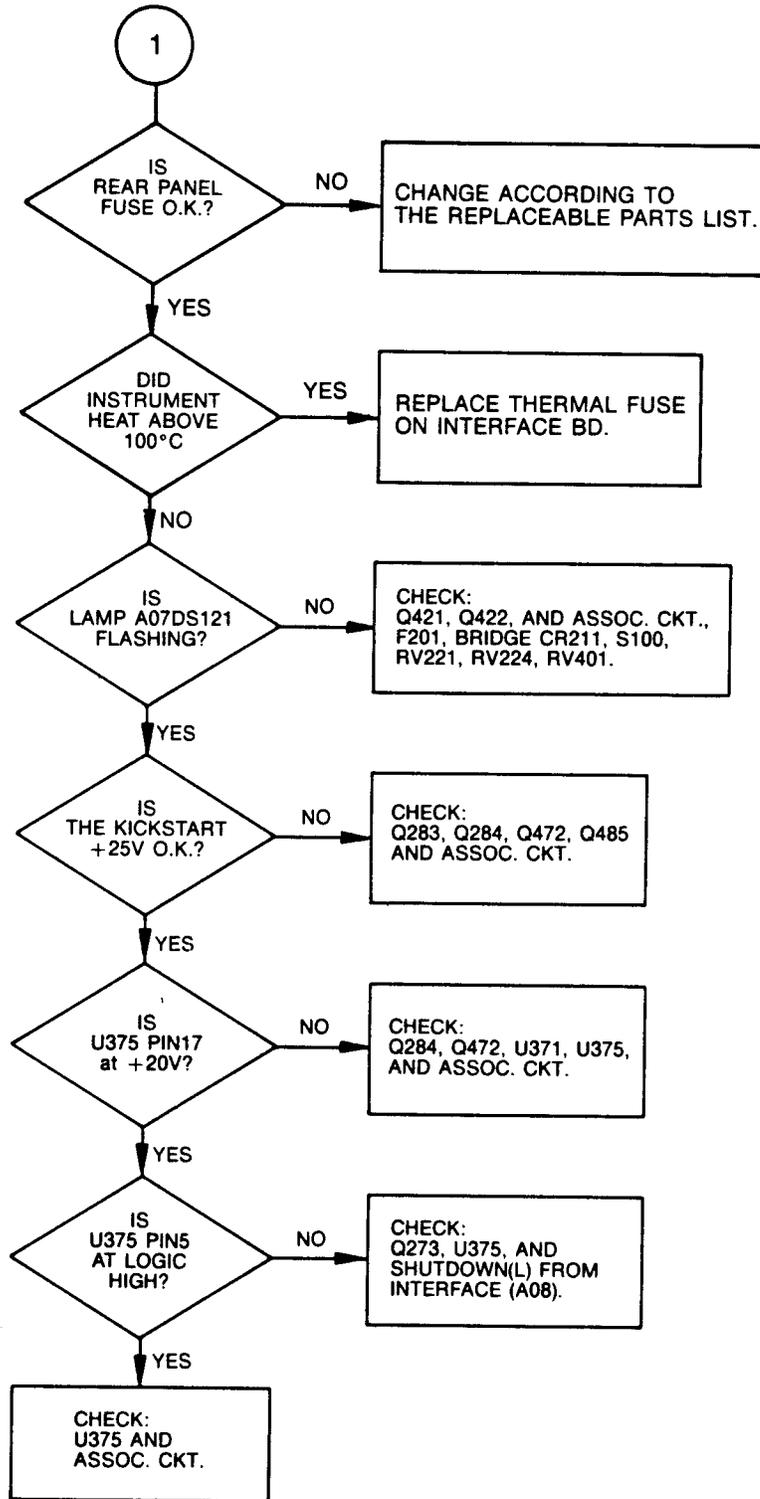


Figure 8-1. 1241 power supply troubleshooting tree (cont.).

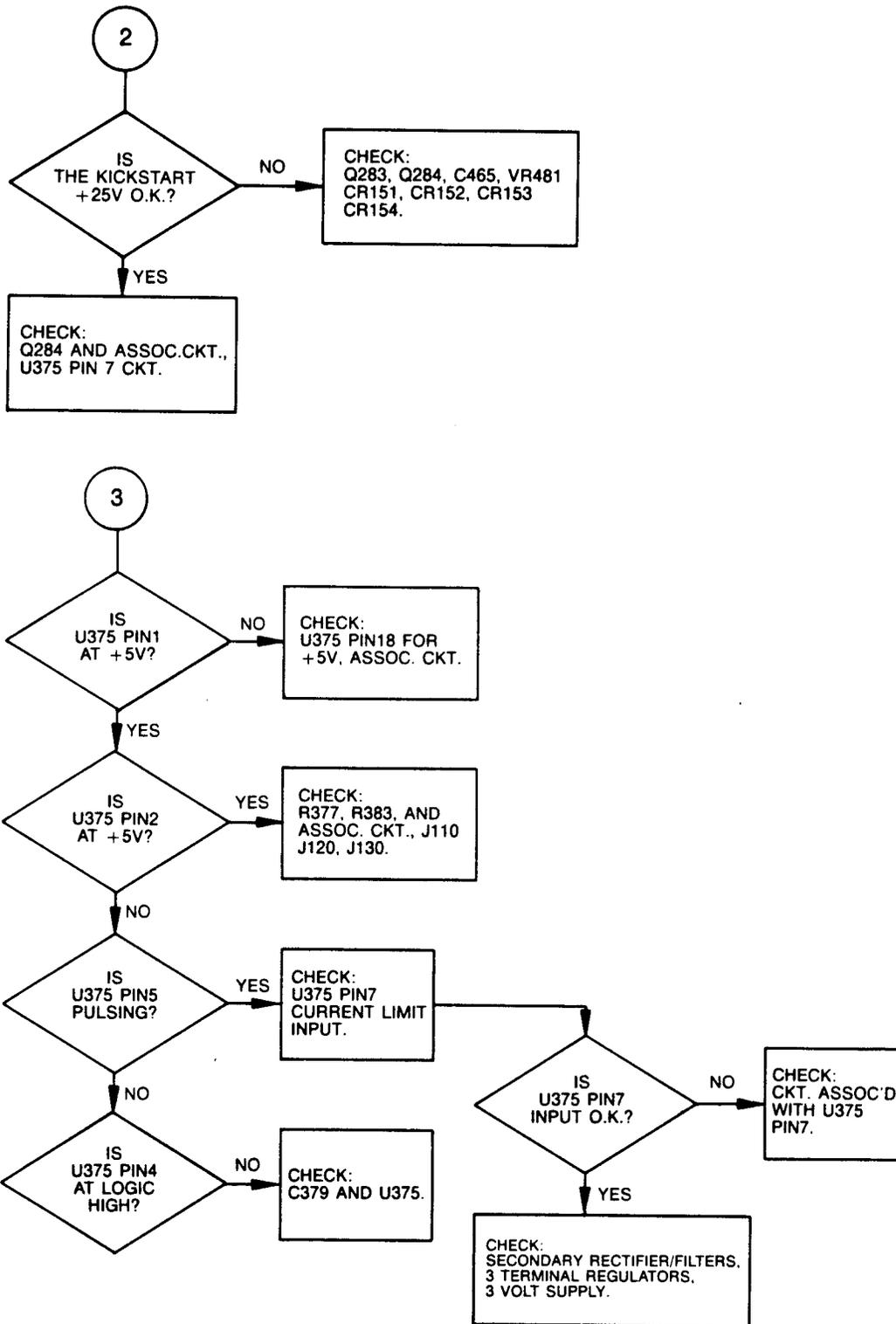


Figure 8-1. 1241 power supply troubleshooting tree (cont.).

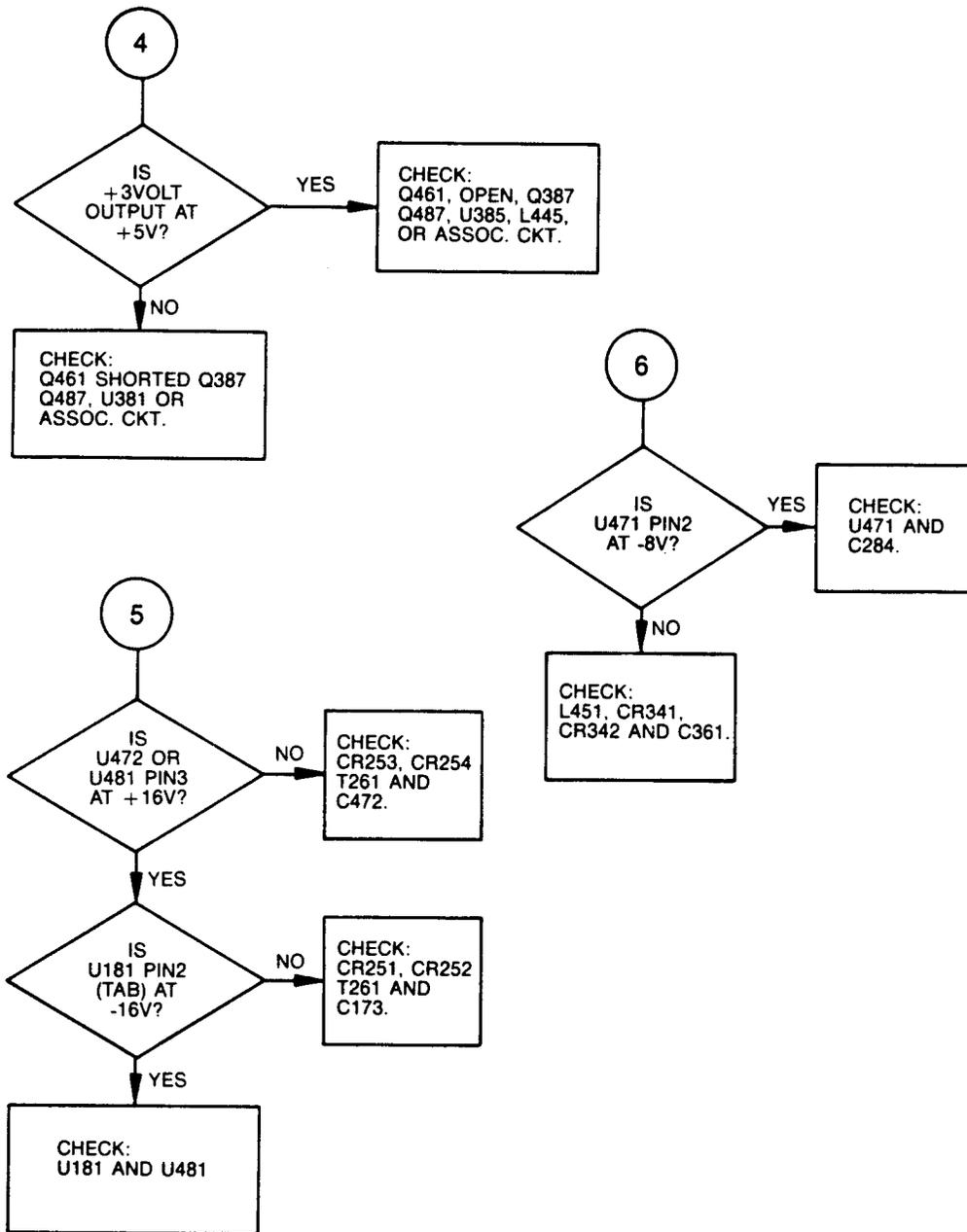
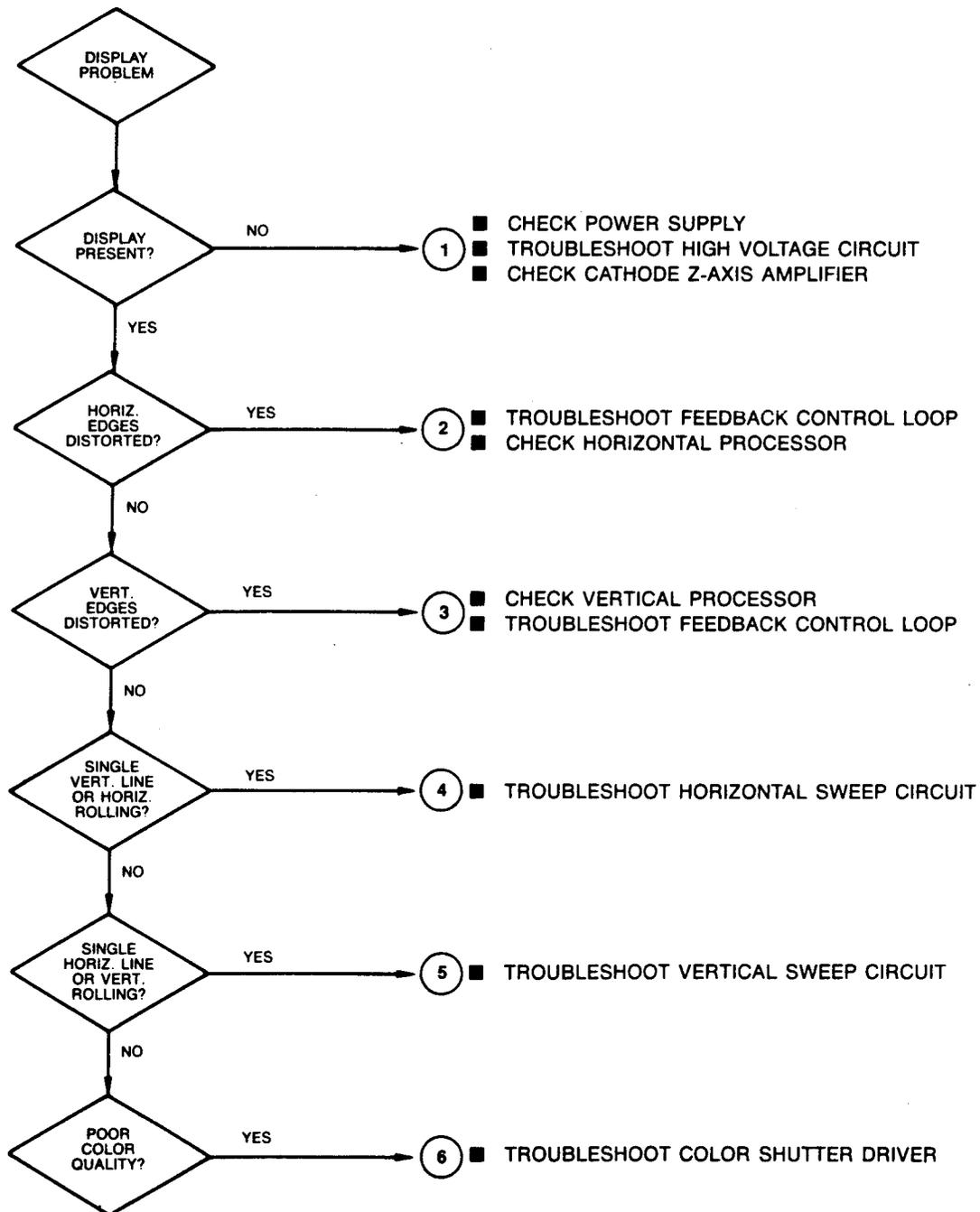


Figure 8-1. 1241 power supply troubleshooting tree (cont.).

CRT DRIVE BOARD TROUBLESHOOTING

Troubleshooting trees and circuit waveforms are provided for 1241 CRT Drive Board troubleshooting. The first tree points the technician to the correct troubleshooting trees that follow. Each of these trees (corresponding to the major CRT function blocks) then guide the technician to the problem source. The circuit waveforms, referenced in the troubleshooting trees, are used for signal comparison during troubleshooting.



5378-64

Figure 8-2. 1241 CRT Drive Board troubleshooting tree.

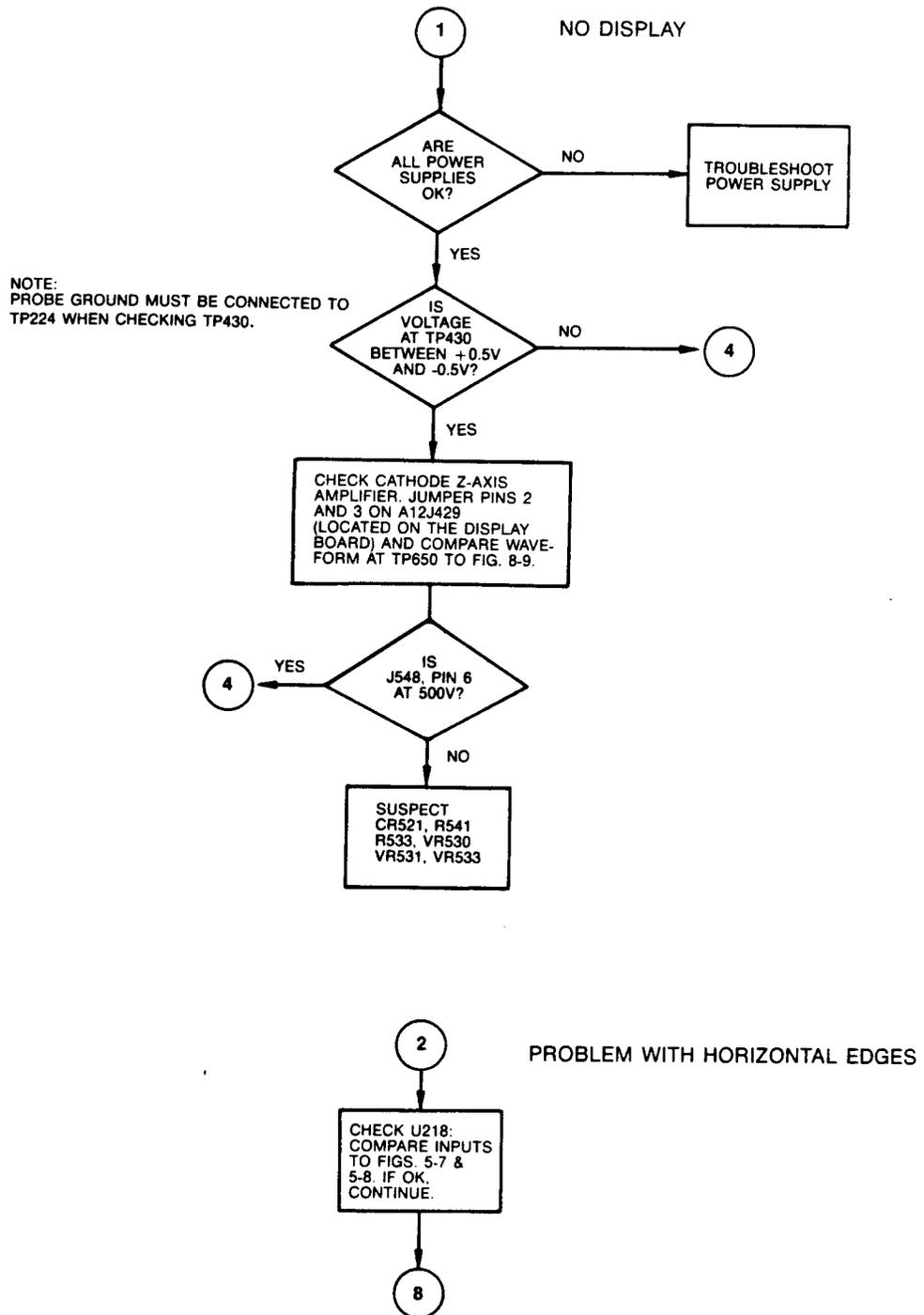


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

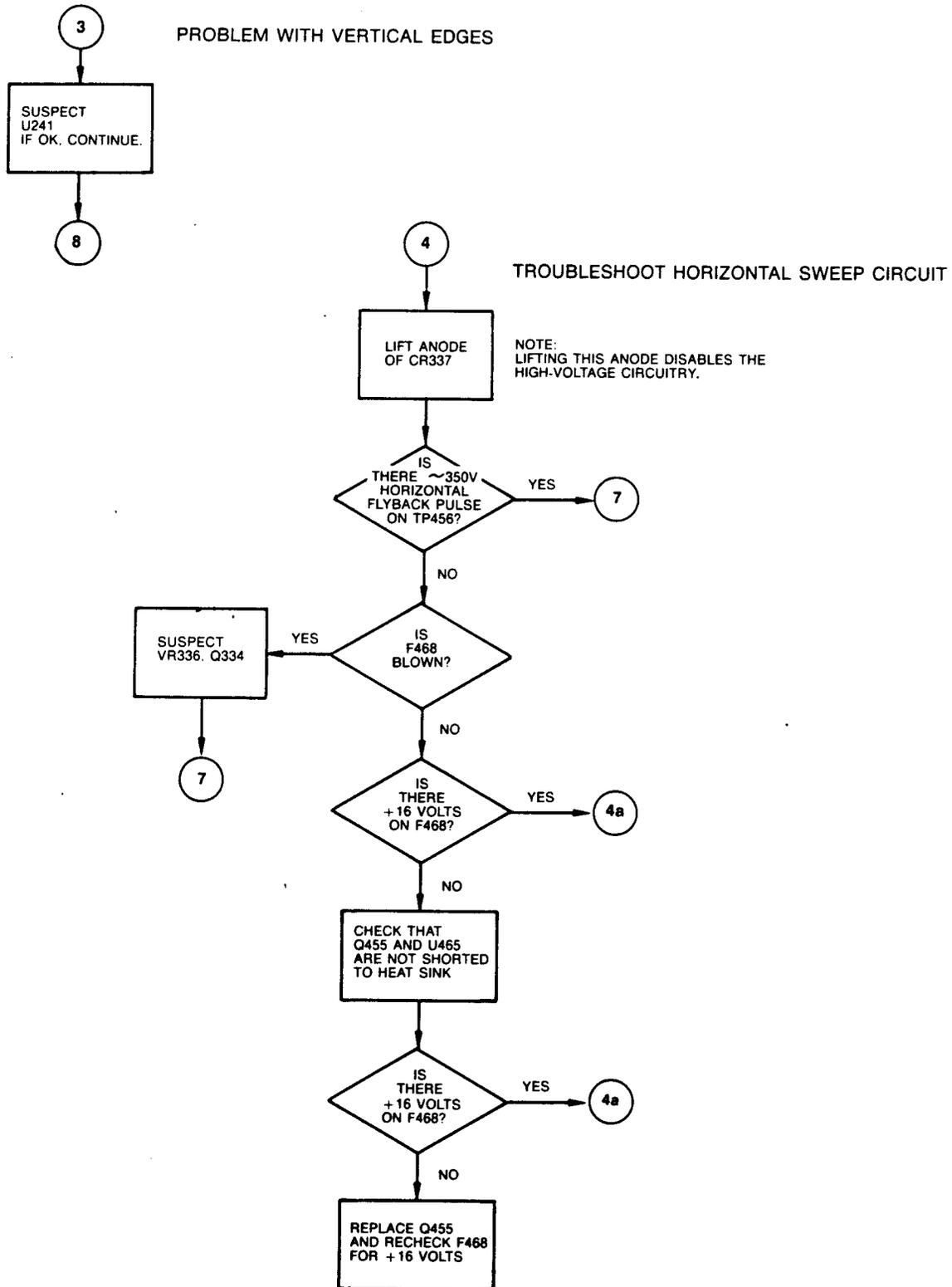


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

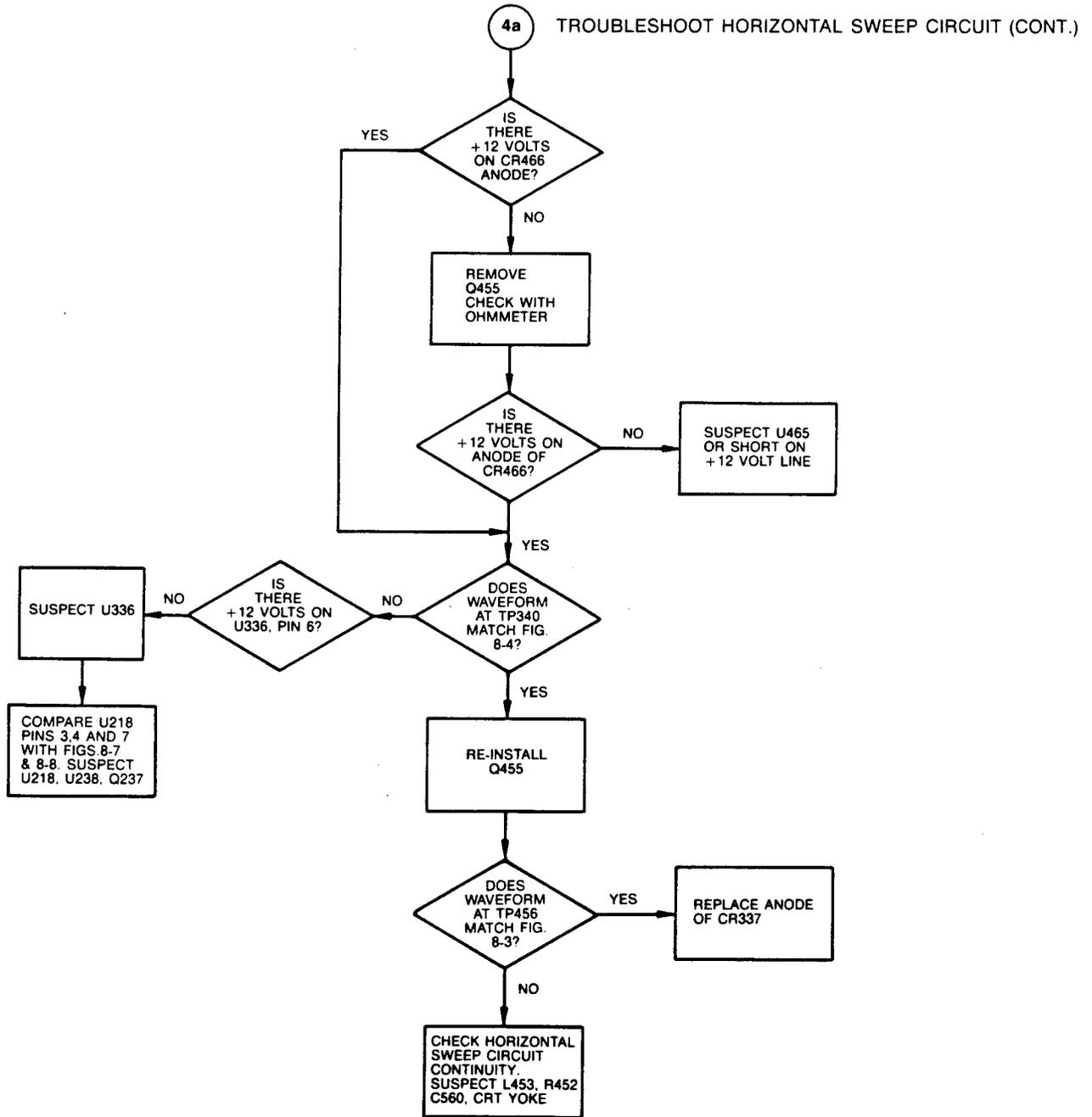


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

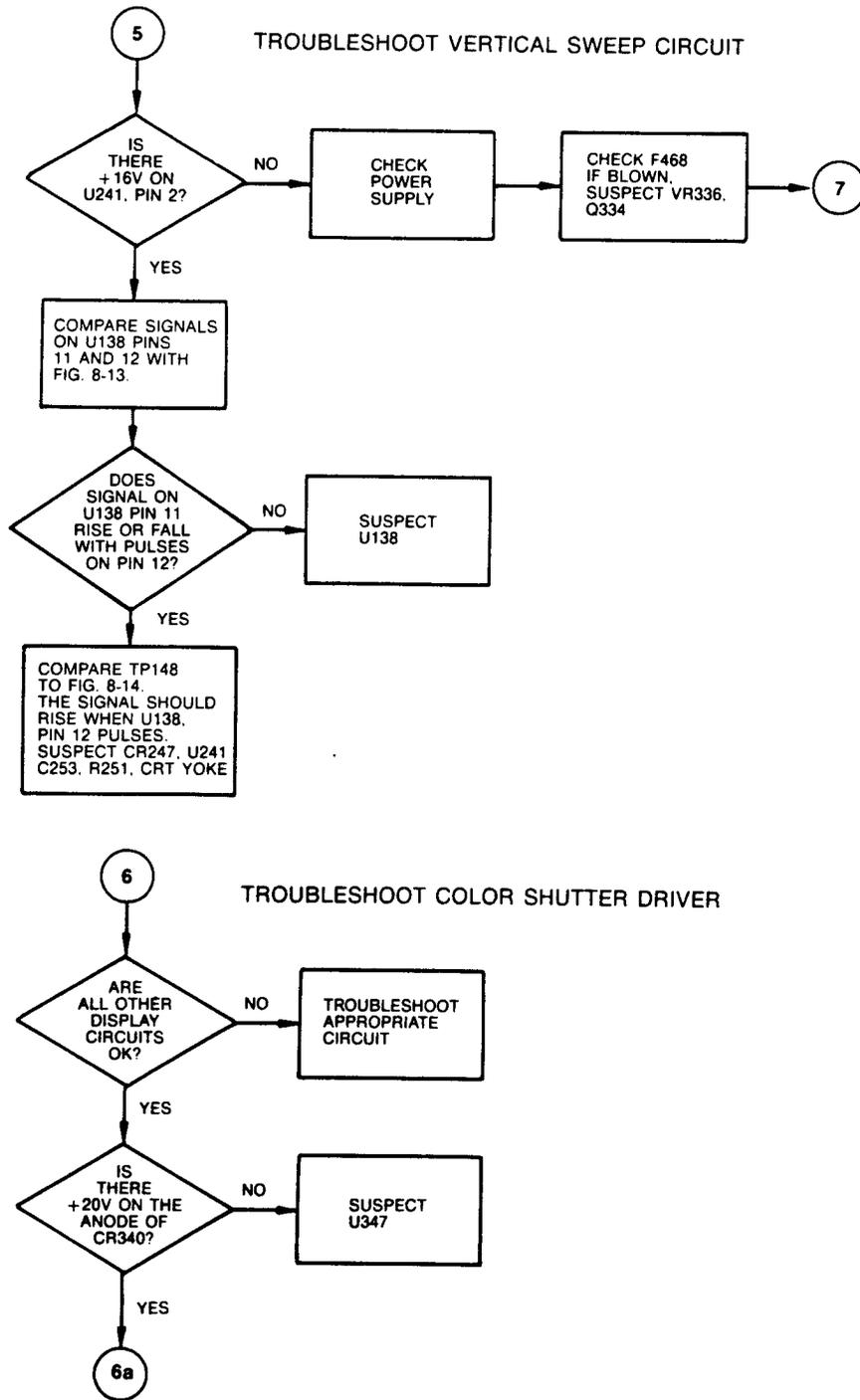


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

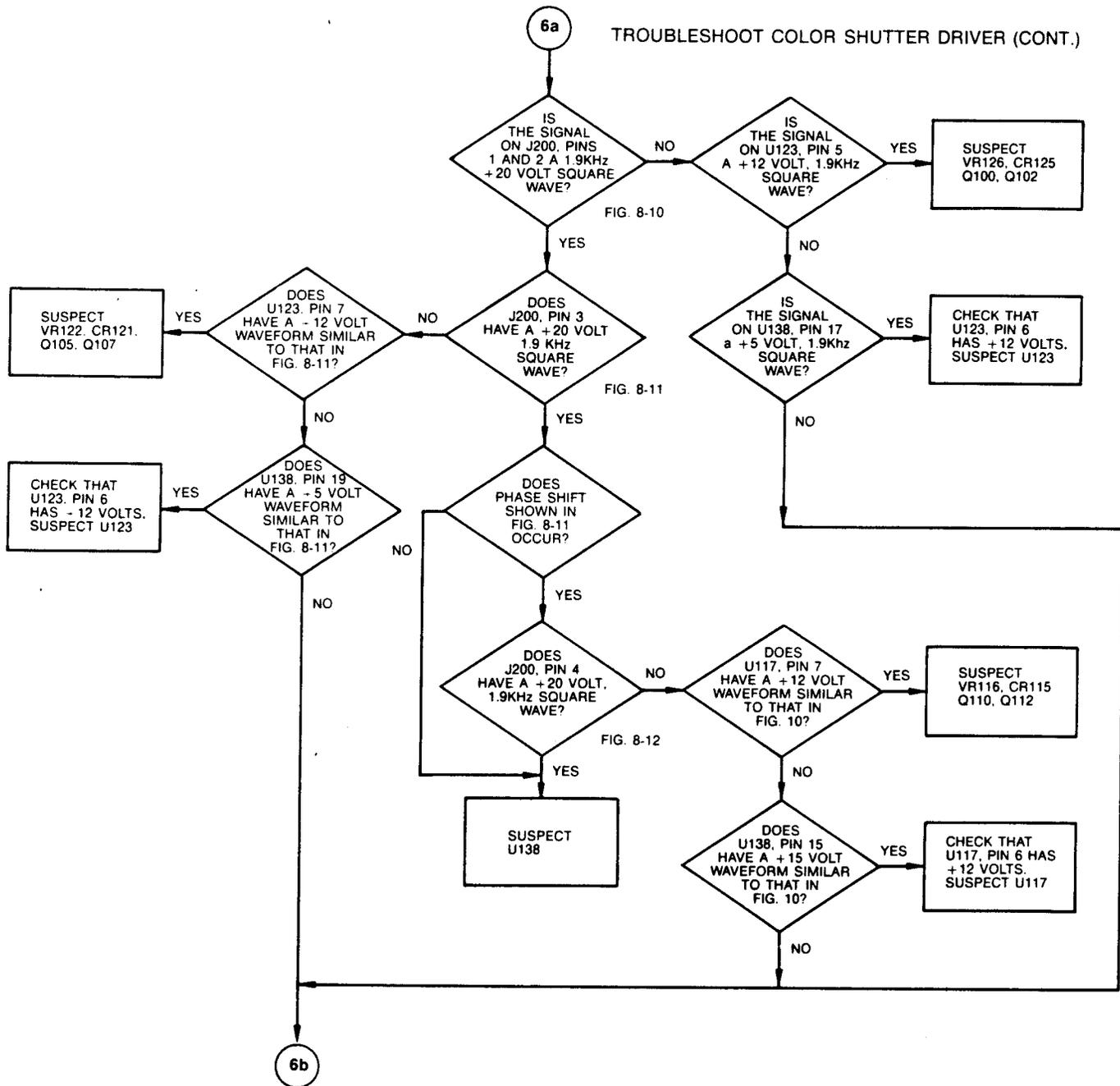


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

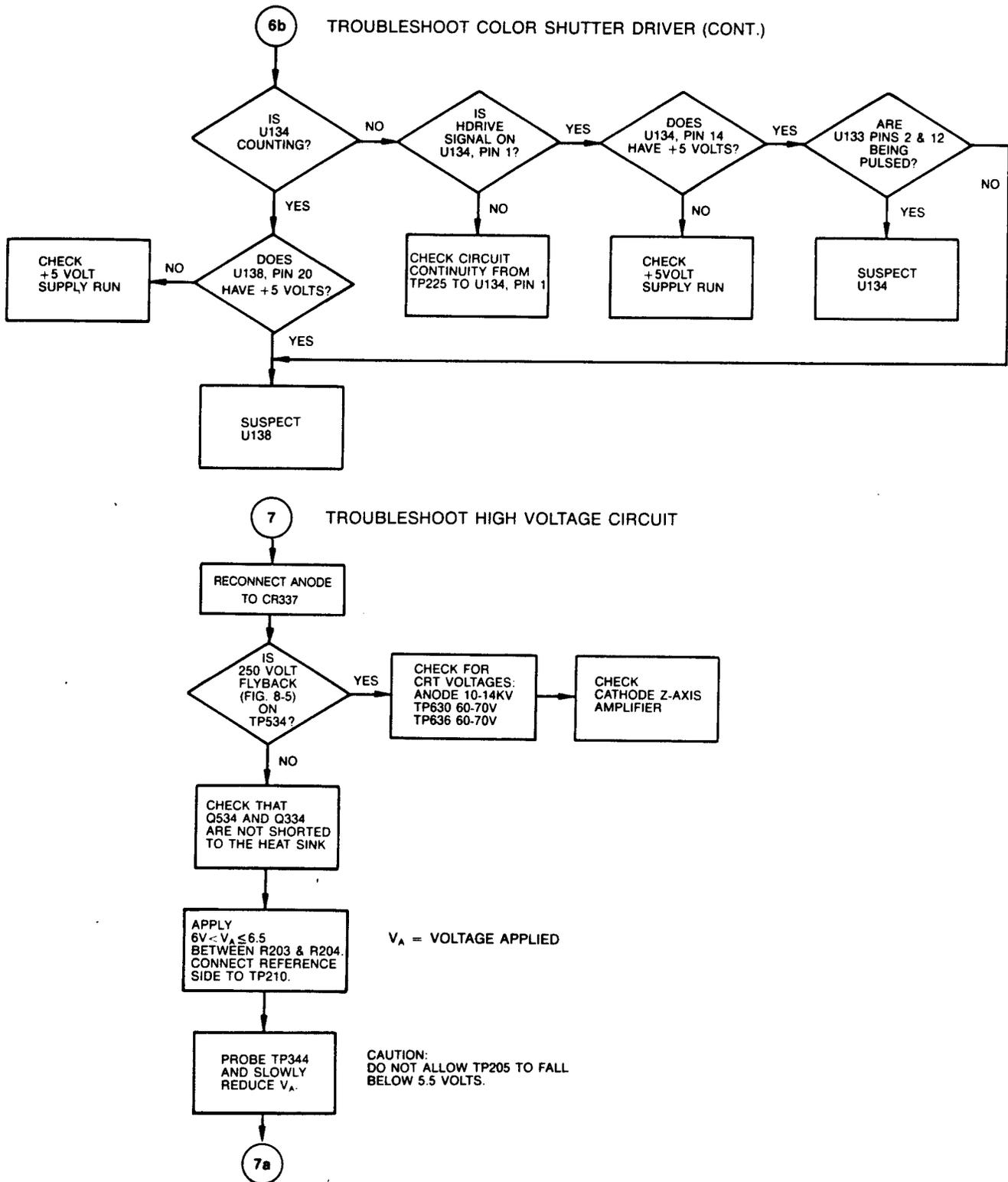


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

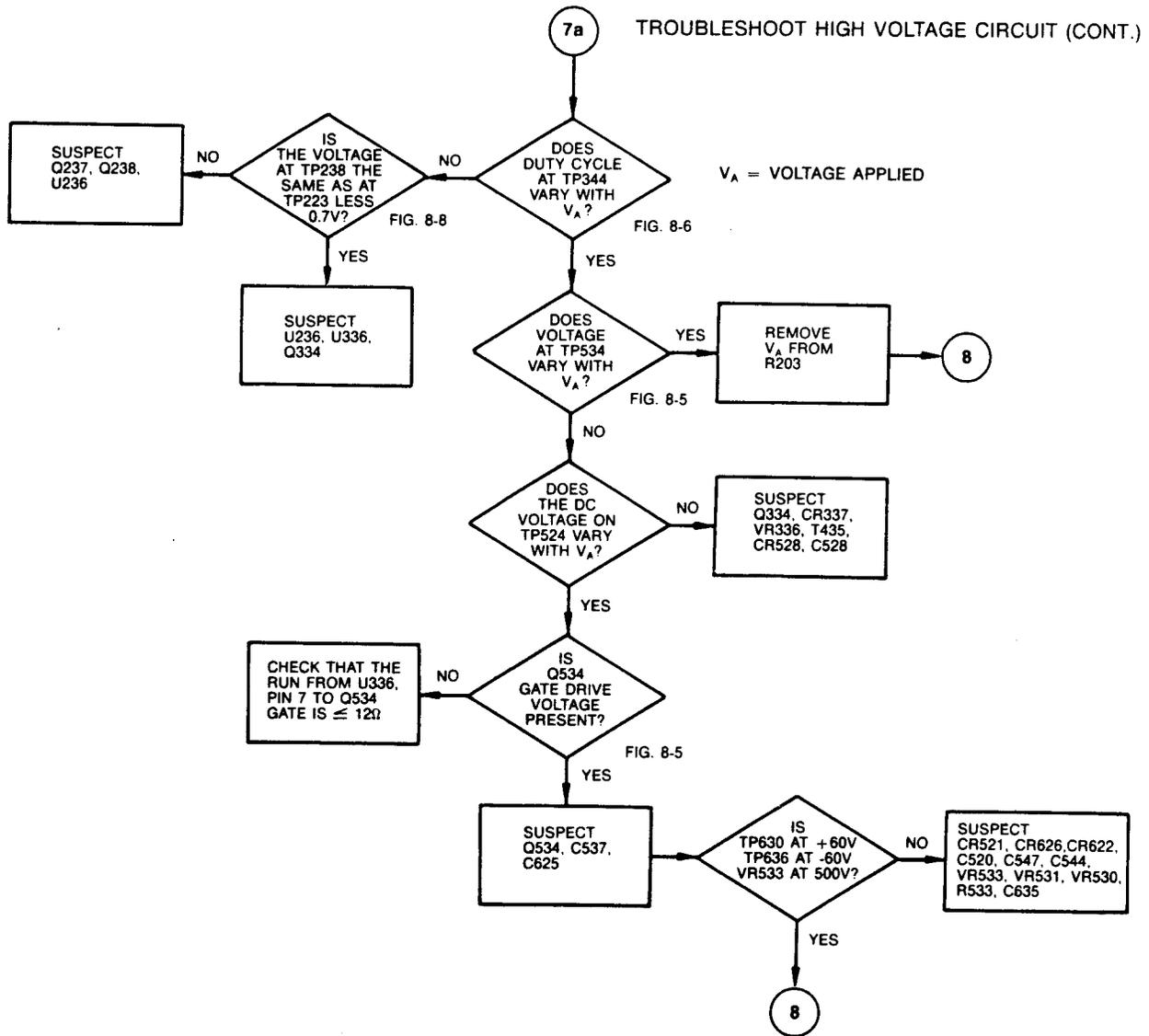


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

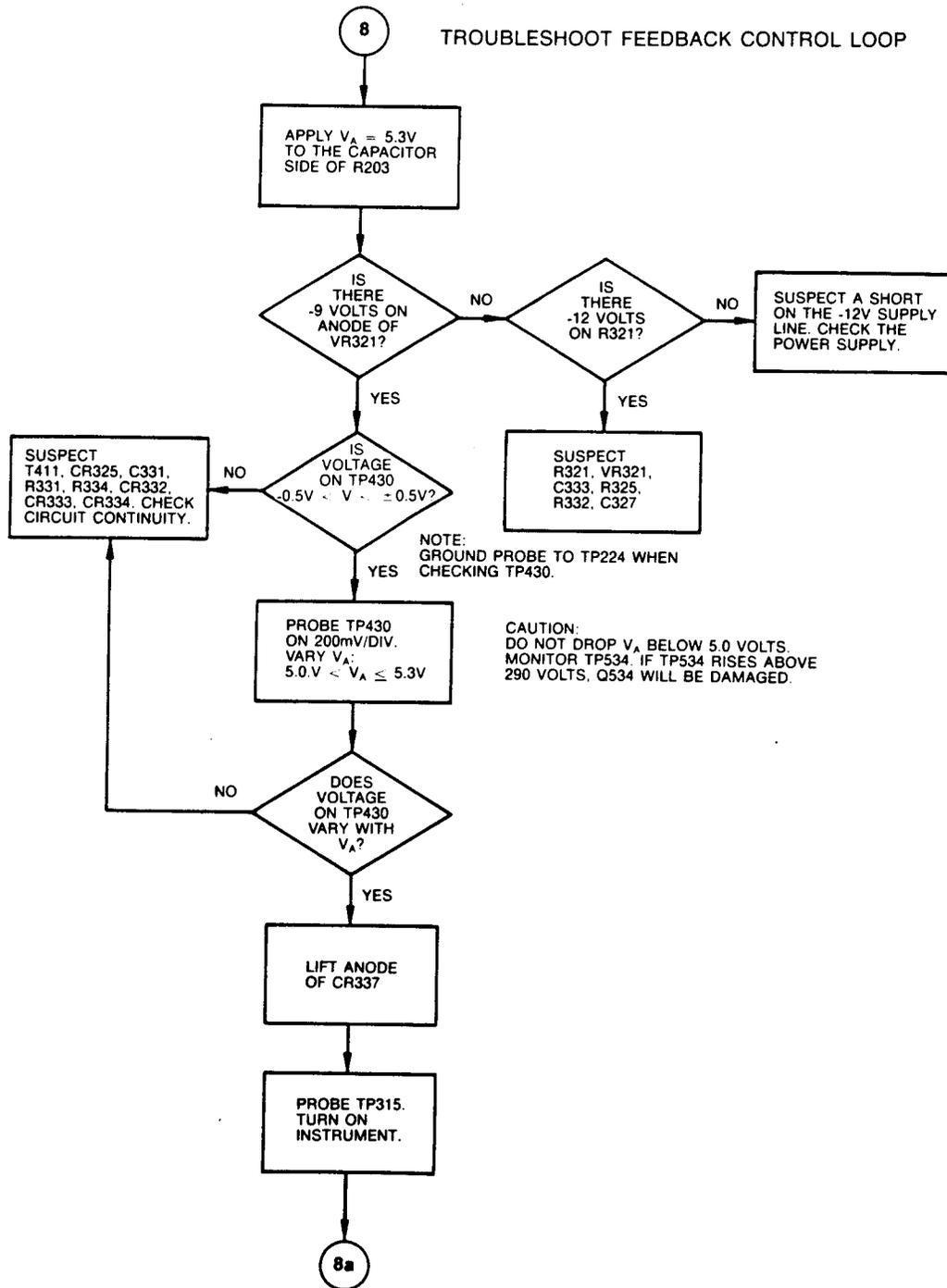


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

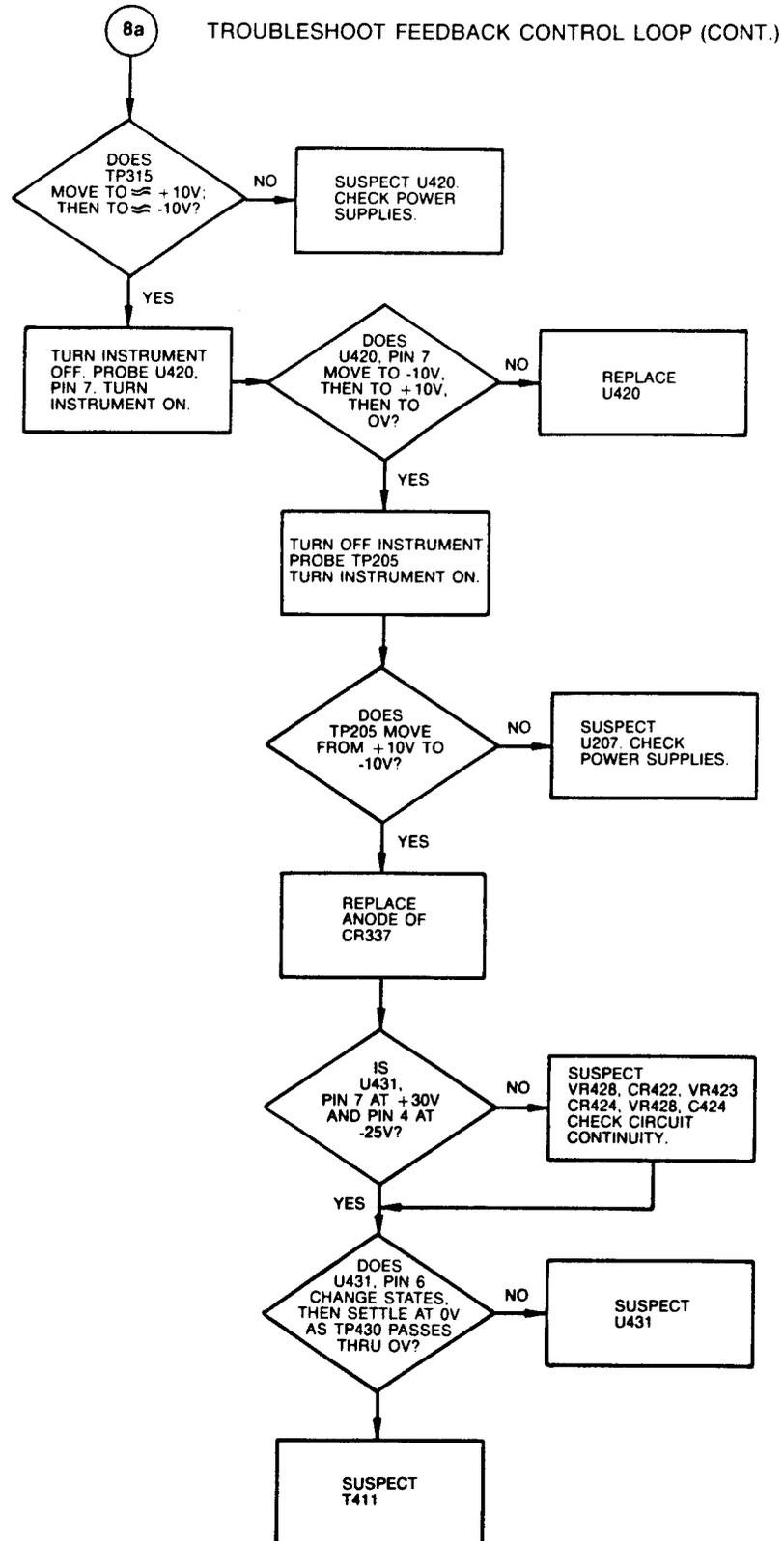


Figure 8-2. 1241 CRT Drive Board troubleshooting tree (cont.).

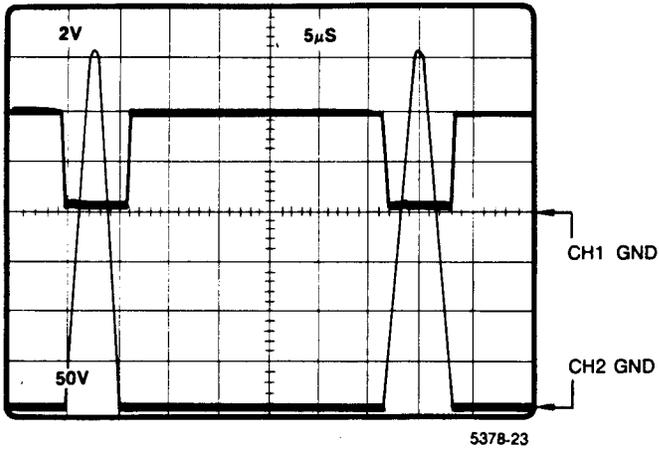


Figure 8-3. A13TP225 HDRIVE(L); A13TP456 horizontal flyback.

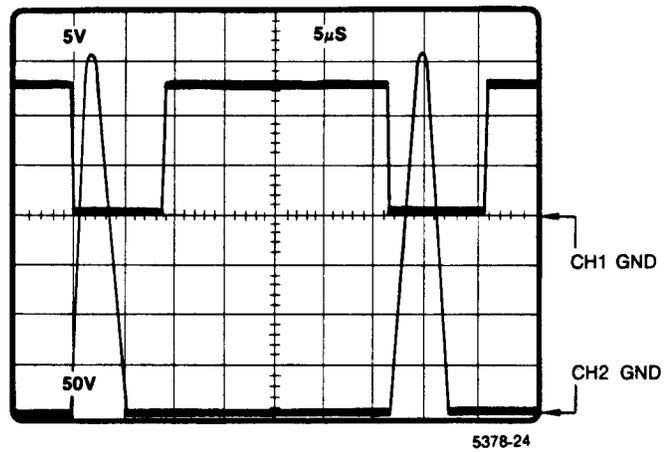


Figure 8-4 A13TP340 Q534 gate drive; A13TP456 horizontal flyback.

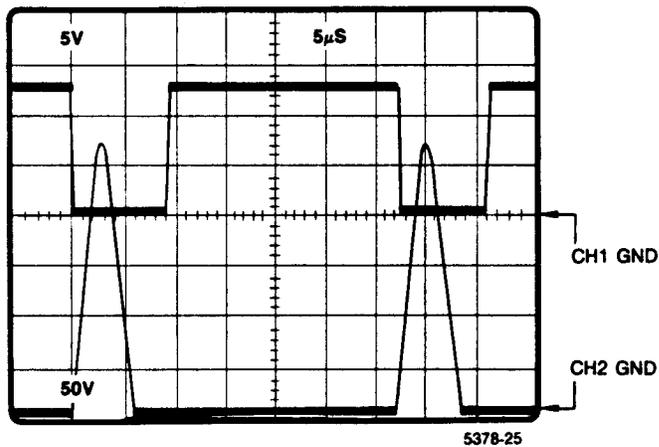


Figure 8-5. A13TP340 Q534 gate drive; A13TP534 transformer flyback.

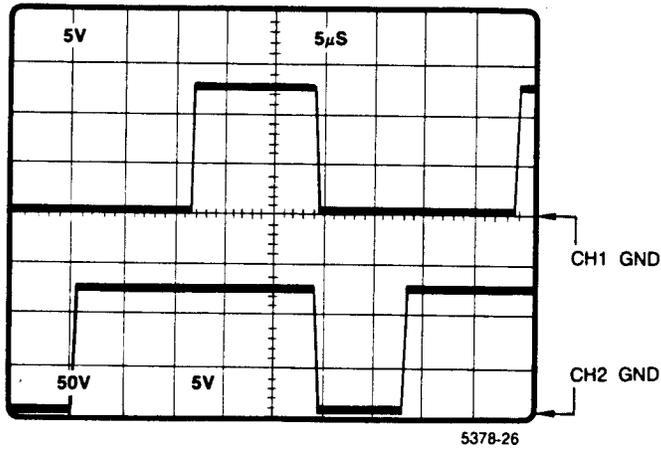


Figure 8-6. A13TP344 Q334 gate drive;
A13TP340 Q534 gate drive.

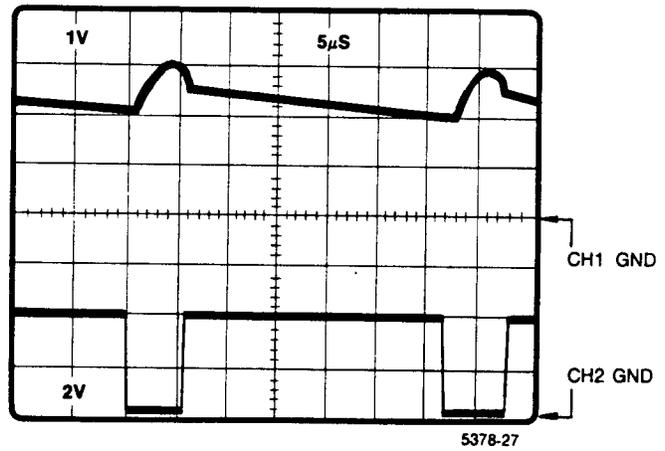


Figure 8-7. A13U218-4 sawtooth input;
A13TP225 HDRIVE(L).

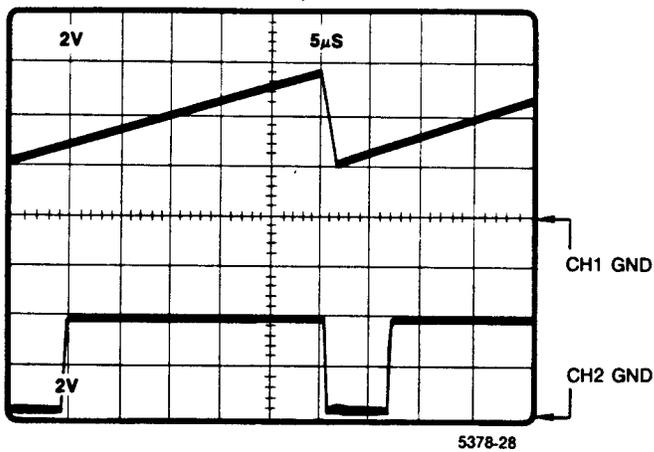
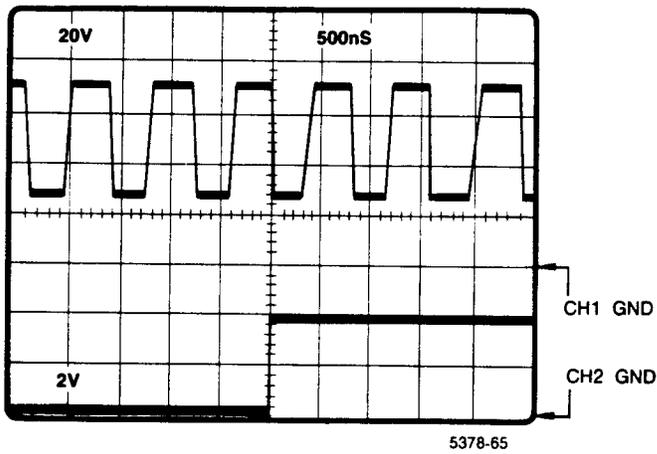
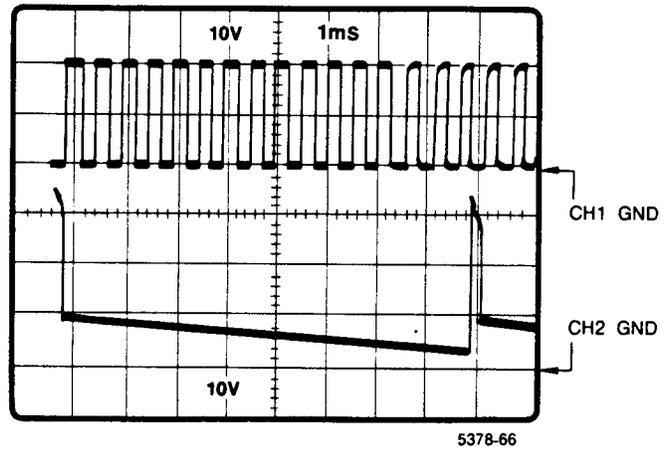


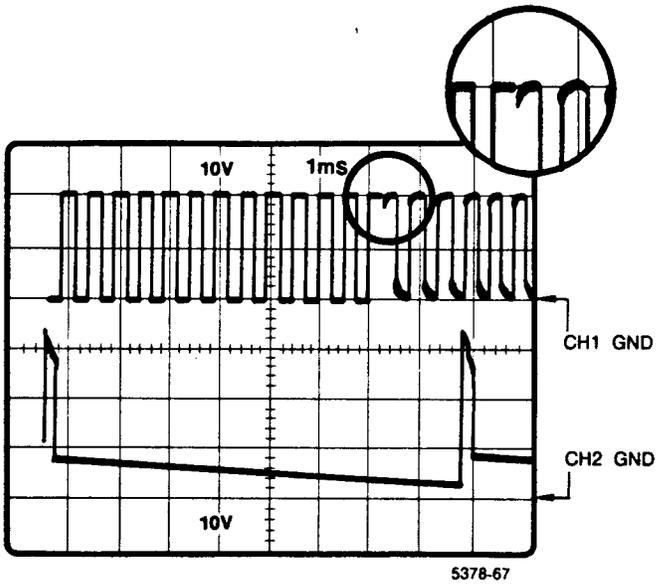
Figure 8-8. A13TP223 horizontal oscillator;
A13TP225 HDRIVE(L).



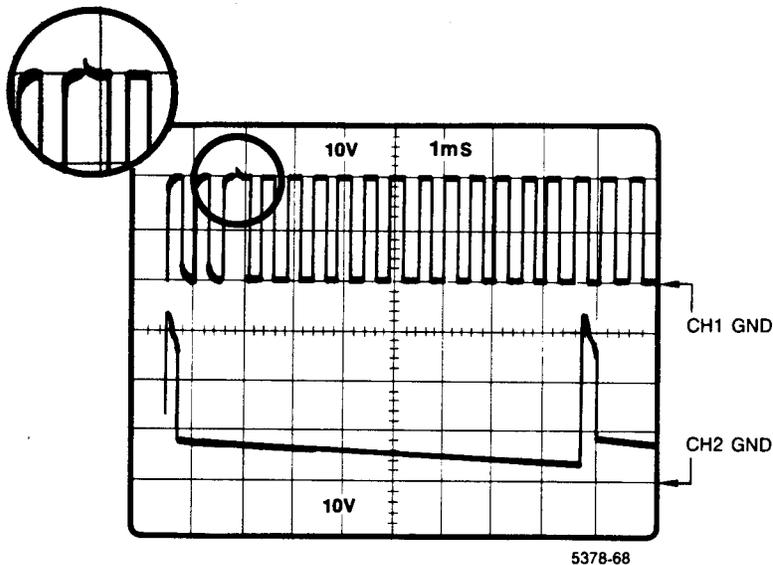
5378-65
Figure 8-9. A13TP650 cathode Z-axis amplifier; A13TP225 HDRIVE(L).



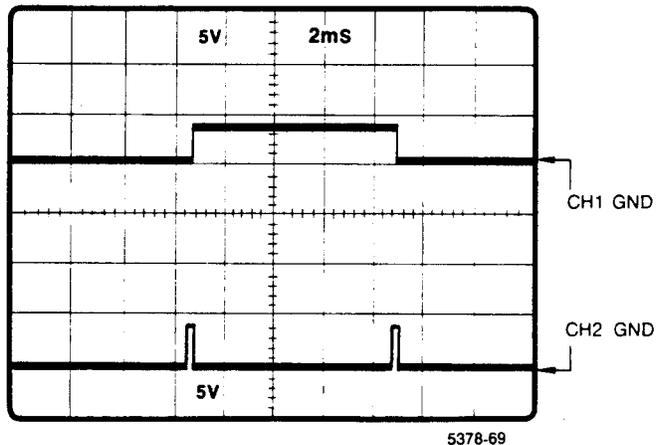
5378-66
Figure 8-10. A13J200-1 and J200-2 color shutter drive; A13TP148 vertical flyback.



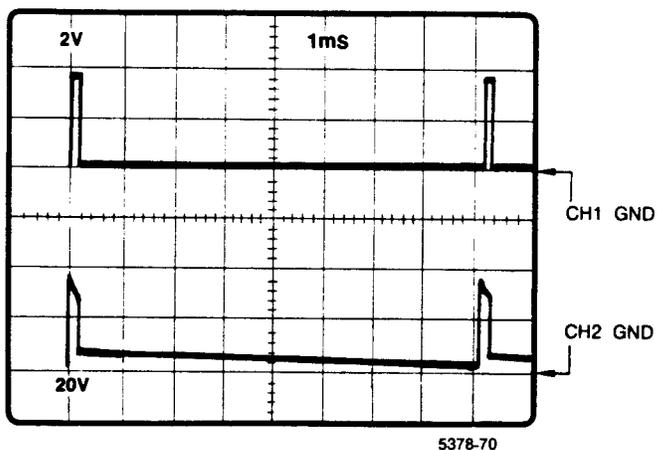
5378-67
Figure 8-11. A13J200-3 color shutter drive; A13TP148 vertical flyback.



5378-68
**Figure 8-12. A13J200-4 color shutter drive;
 A13TP148 vertical flyback.**



5378-69
**Figure 8-13. A13U138-11 VDRIVE-GREEN(H);
 A13U138-12 VDRIVE(H).**



5378-70
**Figure 8-14. A13U138-12 VDRIVE(H);
 A13TP148 vertical flyback.**

PROCESSOR LEDS

Four LEDs on the I/O Processor Board (board assembly A10) and six LEDs on the Control Processor Board (board assembly A9) track the progress of the power-up diagnostic tests. When the 1241 is powered on, the kernel circuit verification tests begin to run simultaneously on the I/O and Control Processors. As each step of the kernel verification tests successfully proceed, the status is recorded in these LEDs. When a failure is detected, the step at which the failure occurred remains displayed on the LEDs.

For more specific troubleshooting information, refer to the appropriate processor's LED error index in this *Troubleshooting and Repair* section.

KERNEL SIGNATURE ANALYSIS

If neither the 1241 display nor the processor LEDs are operational, the technician has available an additional troubleshooting aid. By removing the hardware strap and associated resistor pack on either processor board, he may isolate the CPU (Central Processing Unit) from the ROM and RAM. This operation places the CPU in a forced NOP (no operation) loop that increments the address lines each time the CPU executes an instruction cycle. Using a signature analyzer, the technician may take signatures from the processor kernel circuitry and compare them to predetermined signature values contained in Tables 8-4 through 8-8. In this manner, the technician should be able to determine the source of the problem.

Use the appropriate processor's schematic during kernel troubleshooting to help locate the problem circuitry. Start troubleshooting the kernel circuitry by checking the clock, Vcc supply, and reset line to the microprocessor. After placing the processor in a forced NOP loop, check the microprocessor address lines to verify that the lines are incrementing (indicated by correct signatures). After checking CPU signatures, continue by verifying address buffer signatures, then decoder, and finally ROM signatures.

I/O Processor Kernel Troubleshooting

Before starting any troubleshooting procedures, ensure that the Z80 CPU on the I/O Processor Board is receiving the necessary +5 volts Vcc at A10U445-11 and 4 MHZ clock at U445-6. The following steps outline the setup procedure necessary for taking signatures on the I/O Processor kernel circuitry:

1. With the 1241 powered down, remove the I/O Processor Board and replace it on Extender Board assembly A21.
2. Remove the resistor pack A10R455, remove the jumper A10J315, and place jumper A10J450 to the TEST position. (This puts the processor into a NOP loop.) Power up the 1241.
3. Remove the P6451 and P6107 probes from the top compartment of the TEKTRONIX 308 Data Analyzer. Remove the probe tip (P/N 206-0252-00) from the top compartment and place it on the P6107 probe. Connect the clip lead to +5 V (the Vcc pin of a close by TTL I.C.).
4. Set the 308 analyzer's TTL VAR switch to TTL. Connect the probes to the signature analyzer and power it on. Select the 308's standard signature mode and connect the P6451's Clock, Start, and Stop leads as indicated by the table.
5. Tables 8-4 through 8-6 contain Clock, Start, and Stop polarity settings, and signatures for the I/O Processor kernel circuitry. The polarity settings are taken from test points located on the I/O Processor Board.

NOTE

To ensure a proper signature analyzer setup, check the +5 volt and ground signatures against the table being used.

Control Processor Kernel Troubleshooting

Before starting any troubleshooting procedures, ensure that the 8088 CPU on the Control Processor Board is receiving the necessary +5 volts Vcc at A9U347-40 and 5 MHz clock at U347-19. The following steps outline the setup procedure necessary for taking signatures on the Control Processor kernel circuitry:

1. With the 1241 powered down, remove the Control Processor Board and replace it on Extender Board assembly A21.
2. Remove the resistor pack A9R461 and place jumper A9J467 to the TEST position. (This puts the processor into a NOP loop.) Power up the 1241.
3. Remove the P6451 and P6107 probes from the top compartment of the TEKTRONIX 308 Data Analyzer. Remove the probe tip (P/N 206-0252-00) from the top compartment and place it on the P6107 probe. Connect the clip lead to +5 V (the Vcc pin of a close by TTL I.C.).
4. Set the 308 analyzer's TTL VAR switch to TTL. Connect the probes to the signature analyzer and power it on. Select the 308's standard signature mode and connect the P6451's Clock, Start, and Stop leads as indicated by the table.
5. Tables 8-7 and 8-8 contain Clock, Start, and Stop polarity settings, and signatures for the Control Processor kernel circuitry. The polarity settings are taken from test points located on the Control Processor Board.

NOTE

To ensure a proper signature analyzer setup, check +5 volt and ground signatures against the table being used.

Table 8-4
I/O P SIGNATURES: CPU, BUFFERS, AND DECODERS

Clock	┌	J280-1	+5 Volts	0001
Start	┌	J280-9	GND	0000
Stop	┌	J280-9	Indeterminate	----

Location	Signature	Location	Signature	Location	Signature	Location	Signature
A10U445		A10U340		11	29A6	12	4231
1	1293	2	HAP7	12	F2A6	13	4231
2	HAP7	3	3C96	13	PC01	14	0001
3	3C96	4	----	14	0001	A10U120	
4	3827	6	3827	A10U350		1	52F8
5	755P	7	755P	1	0000	2	HC89
6	0001	A10U130		2	----	3	2H70
7	0000*	1	12U3	4	----	4	9840
8	0000*	2	1293	6	0001	5	0000
9	0000*	3	HAP7	8	5H21	6	HPP1
10	0000*	4	8P4P	10	0000	7	4814
11	0001	5	9840	11	UUUU	8	0000
12	0000*	6	A277	13	5555	9	4869
13	0000*	7	A68C	15	CCCC	10	1P7P
14	0000*	8	0000	17	7F7F	11	A5U0
15	0000*	16	0001	19	0000	12	2H75
16	0000	A10U345		20	0001	13	3P95
17	0001	1	0000	A10U360		14	F388
18	0001	2	1293	1	HPP0	15	1603
19	0000	4	52F8	2	HPP1	16	0001
20	0001	6	UPFH	3	9840	A10U125	
21	----	8	0AFA	4	9841	1	52F8
22	0001	9	0001	5	0000	2	HC89
23	0001	10	0000	6	0001	3	2H70
24	0001	11	----	7	0000	4	9840
25	0001	13	HC89	8	0000	5	9840
26	0001	15	2H70	9	0001	6	HPP0
27	---	17	HPP0	10	3P94	7	8A03
28	0001	19	0000	11	3P95	8	0000
29	0000	20	0001	12	----	9	A305
30	UUUU	A10U270		13	----	10	CFP2
31	5555	1	0001	14	0001	11	4FU3
32	CCCC	2	0001	A10U365		12	7C4A
33	7F7F	3	0001	4	FF7U	13	6351
34	5H21	4	29A6	5	8P4P	14	8A6F
35	0AFA	5	P5H8	6	4231	15	APC9
36	UPFH	6	FF7U	7	0000	16	0001
37	52F8	7	0000	8	P5H8		
38	HC89	8	4814	9	9841		
39	2H70	9	0001	10	HPP0		
40	HPP0	10	4814	11	4230		

* Indicates that the Probe Tip (206-0252-00) was not connected to the P6107 probe when the signature was taken.

Table 8-5
I/O P SIGNATURES: DECODERS AND BUFFERS OUTPUTS

Clock ┘ J280-1 +5Volts 0001
 Start ┘ J280-9 GND 0000
 Stop ┘ J280-9

Location	Signature	Location	Signature
A10U380		A10U340	
1	3C96	9	755P
2	3827	10	3827
3	755P	15	3C96
4	0000	16	HAP7
5	0000	A10U345	
6	0001	3	HPP0
7	F2A6	5	2H70
8	0000	7	HC89
9	PC01	12	0AFA
10	12U3	14	UPFH
11	4P0A	16	52F8
12	P255	18	1293
13	U3H5	A10U350	
14	0996	3	7F7F
15	6H49	5	CCCC
16	0001	7	5555
		9	UUUU
		12	5H21
		14	0001
		16	0000
		18	0000

Table 8-6
I/O P SIGNATURES: ROM DATA LINES

Clock ┘ J280-1 +5 Volts P254
 Start ┘ UXXX-20* GND 0000
 Stop ┘ UXXX-20*

Location	Signature	Location	Signature	Location	Signature
A10U160		A10U170		A10U185	
11	813P	11	P2H0	11	C6AP
12	F9U4	12	U171	12	H8A4
13	02A8	13	A653	13	0P31
15	P38A	15	8704	15	8321
16	268C	16	4306	16	7F8A
17	2790	17	6AU8	17	U0A8
18	48P5	18	P497	18	HU18
19	3913	19	7678	19	C750
A10U165		A10U180			
11	1636	11	9784		
12	C2UU	12	9H14		
13	62U5	13	41CU		
15	1513	15	C3A1		
16	7FH3	16	4905		
17	74UC	17	2218		
18	30A1	18	9F2H		
19	P1F2	19	7PAH		

* Where XXX denotes ROM under test.

Table 8-7
CON P SIGNATURES: CPU, BUFFERS, DECODERS, AND ROM

Clock └ J100-1 GND 0000
Start └ J100-10 +5 Volts 000U
Stop └ J100-10 Indeterminate ----

Location	Signature	Location	Signature	Location	Signature	Location	Signature
A9U347		13	PUA7	A9U451		9	9696
1	0000	14	H389	1	0000	10	UUUU
2	0005	15	H389	2	2A3U	20	258F
3	P064	16	69F8	3	9643	21	H389
4	69F8	17	69F8	4	U668	22	0009
5	7P50	18	000F	5	0P0P	23	7P50
6	H389	19	000F	6	9696	24	P962
7	P962	20	000U	7	----	25	PUA7
8	PUA7	A9U361		8	HHHA	26	P064
9	6C82	1	000U	9	UUUU	A9U233	
10	HF4A	2	000U	10	0000	1	258C
11	9643	3	000U	11	0008	2	0005
12	U668	4	000U	12	7APF	3	000F
13	5655	5	0008	13	P90H	4	FFF2
14	P90H	6	0008	14	5655	5	6669
15	----	7	0000	15	6225	6	3338
16	HHHA	8	0009	16	HPU1	7	CF17
17	0000	9	0009	17	HF4A	8	0000
18	0000	10	000U	18	6C82	9	258F
19	----	11	8953	19	----	10	000U
20	0000	12	7P50	20	000U	11	000U
21	0000	13	4601	A9U255		12	000U
22	000U	14	000U	1	0008	13	000F
23	0000	A9U354		2	9F31	14	0005
24	000U	1	C9C2	3	9F31	15	258F
25	0008	2	9F3P	4	258C	16	000U
26	000H	3	9F31	5	000U	A9U357	
27	0000	4	0008	6	000U	1	000U
28	0000	5	9F31	7	258F	2	HPU1
29	000U	6	9F3P	8	0000	3	A9H6
30	0000	7	C9C2	9	000U	4	000U
31	0000	8	0000	10	000U	5	000U
32	0009	9	C9C2	11	000U	6	000U
33	000U	10	9F3P	12	000U	7	000U
34	0000	11	9F31	13	8953	8	0000
35	C9C2	12	0008	14	892U	9	000U
36	C9C2	13	9F31	15	000U	10	000U
37	C9C5	14	9F3P	16	000U	11	000U
38	C9C2	15	C9C5	A9U257		12	000U
39	000F	16	000U	7	0000	13	2A3U
40	000U	A9U258		8	000U	14	0P0P
A9U351		1	000F	9	000H	15	000U
1	0000	2	0005	10	000U	16	000U
2	0005	3	000U	11	000U	A9U201	
3	0005	4	P064	12	000U	1	0000
4	P064	5	69F8	13	8951	2	000U
5	P064	6	4601	14	000U	3	9F31
6	7P50	7	0000	A9U135		4	000U
7	7P50	8	485H	2	69F8	5	000U
8	P962	9	H389	3	----	6	9F31
9	P962	10	4P15	4	HPU1	7	000U
10	0000	11	000U	5	2A3U	8	0000
11	0008	12	PUA7	6	0P0P	15	0000
12	PUA7	13	P962	7	6225	16	000U
		14	000U	8	7APF		

Table 8-8
DIAGNOSTICS VERSION 9-0
CON P SIGNATURES: ROM DATA LINES

Clock	┌	J101-11	+5 Volts	UP73
Start	└	U233-9	GND	0000
Stop	┌	U233-9		

	Location	Signature
	A9U135	
	11	07U8
	12	P676
	13	6712
	15	A6H0
	16	2UAH
	17	FP33
	18	AP86
	19	PP30

TROUBLESHOOTING USING DIAGNOSTICS ERROR INFORMATION

DIAGNOSTICS OVERVIEW

With the exception of I/O Processor Kernel LED Error Indexes and Display Error Indexes, the 1241 diagnostic tests are identical to those of the 1240. Refer to the *1240/1241 Logic Analyzer Service Manual* for error indexes not discussed in this section.

The 1241 diagnostic tests provide information describing the operational status of the 1241. Diagnostics performed automatically at power-up check out major 1241 circuitry and firmware functions. When power-up diagnostics are successfully completed, the 1241 defaults to the Operation Level menu. If failures are detected during power-up diagnostics, the operator may choose to continue with additional diagnostic tests or bypass the diagnostics (if failures are acceptable, e.g., failures in acquisition boards not being used). If the 1241 is not able to produce a screen display to summarize power-up failure information, the service technician must use other methods to troubleshoot the malfunction. Table 8-1 outlines the troubleshooting procedures available in this *Troubleshooting and Repair* section.

Diagnostic test results are reported using three different menu displays which, in hierarchical order, are: Main Diagnostic (automatically displayed at power-up if a failure is detected), Module Diagnostic, and Area Diagnostic. Refer to *Diagnostic Menu Overview* in Section 1 of the *1240/1241 Logic Analyzer Service Manual* for menu details. These diagnostic test menus supply the technician with specific error indexes (and sometimes test results) that point to 1241 troubleshooting information. In the event the 1241 does not detect a failure during power-up, access the diagnostics by holding down any front panel key during power-up to induce a failure.

Some of the tests within the menus reside in the Diagnostic ROM pack, found in the 1240 Service Maintenance Kit. The Diagnostic ROM pack also contains manual diagnostic tests (described later in this section) and calibration routines. The calibration routines are discussed in the *Verification and Adjustment* section in their respective adjustment procedures.

Table 8-9 indicates the location of the diagnostic code for each 1241 module.

Table 8-9
DIAGNOSTIC CODE LOCATION

Module	Code Location
I/O Processor	I/O Processor
Frontpanel	I/O Processor
Display	I/O Processor
Comm pack	I/O Processor, COMM pack
Control Processor	Control Processor
Trigger	Control Processor, ROM pack
9-Channel Acq.	Control Processor, ROM pack
18-Channel Acq.	Control Processor, ROM pack
ROM pack	Control Processor
RAM pack	Control Processor

ERROR INDEX OVERVIEW

Diagnostic troubleshooting of the 1241 is based on the use of screen-displayed four-digit error index numbers. Each number position in the four-digit sequence describes different information about the circuitry being tested. Figure 8-15 shows the error-index format and gives a description of the information indicated by each of the four digit positions.

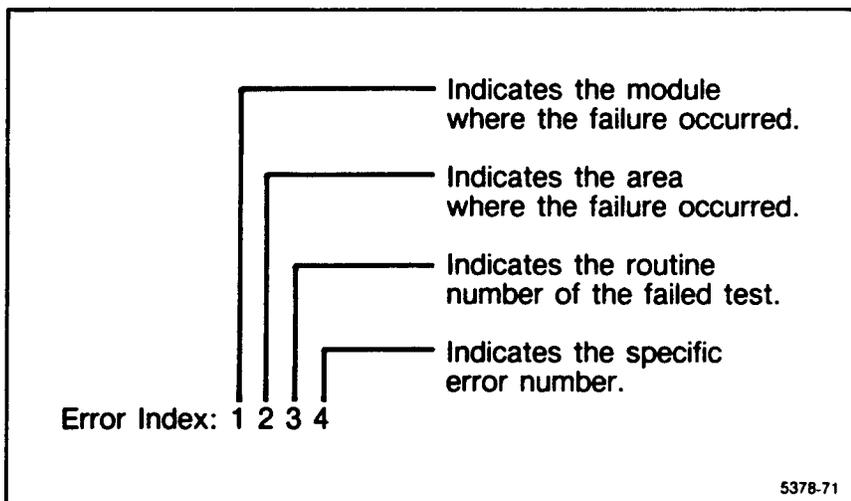


Figure 8-15. 1241 error index format.

Various troubleshooting information sources may be accessed by using the four-digit error index. The following list outlines some of these diagnostic troubleshooting aids:

- page-edge tabs for quick location of error indexes
- area block diagrams showing the involved circuit blocks
- component locators showing the board locations of involved parts
- test descriptions that state the nature of the diagnostic test
- lists of probable causes and recommended actions for repair

Since each error index is linked to many types of diagnostic information sources, it is important to understand the connection between all of these informational areas. *Troubleshooting An Example Failure* in the *1240/1241 Logic Analyzer Service Manual* develops a procedure showing how to access all available troubleshooting information for a sample error index.

I/O PROCESSOR KERNEL LED ERROR INDEXES

LED Status	Test Name	Stage Number
0000 1111 1110	Power-Up	Stage 0
1101 11F1 11FF	RAM	Stage 1
1011 1F11 1010 1F1F 1001 1FF1 1000 1FFF F111 F11F	ROM	Stage 2
0101 F1F1 FFFF	COMM Pack	Stage 3

(0 = OFF, 1 = ON, F = flashing)

	MSB			LSB
LED Position	o	o	o	o
LED Number	A10DS538	536	534	532

KERNEL AREA – CIRCUIT OVERVIEW

The I/O Processor kernel circuitry is indicated by the shaded path on the block diagram. (The shading indicates circuitry exercised for the first time during diagnostic testing.) This circuitry is comprised of a Z80 microprocessor and the associated ROM and RAM circuitry, plus the diagnostic LEDs and their latch. The microprocessor addresses the RAM through buffers A10U350, U345, and U340, and decoders A10U380 and U130. The microprocessor addresses the ROM through the same buffers and decoder A10U380. The microprocessor reads from the RAM and the ROM via bidirectional buffer A10U550.

KERNEL AREA – TEST DESCRIPTION

The I/O Processor Board has four LEDs that are used for fault analysis in the event of a kernel failure. If the kernel should fail at any point in the initial diagnostics, the LEDs will indicate at what stage the fault occurred. The following table summarizes the LED error conditions. For more specific information, refer to the error index descriptions later in this section.

I/O PROCESSOR KERNEL LED ERROR SUMMARY

Led Status	Probable Cause
0000	No instrument power-up. Bad power supply, Reset circuit, LED latch A10U335, or decoder U365.
1111	Kernel failure. Unable to execute diagnostics. Bad processor A10U445, or bad ROM A10U160.
1110	Began executing diagnostics code, but could not get to RAM tests. Bad ROM A10U160.
1101	Entered RAM test, but did not finish. Bad ROM A12U175 (located on Display Board).
11F1	RAM test failed. The 1241 is looping on a bad address. Bad RAM A10U150.
11FF	RAM test failed. The 1241 is looping on a bad address. Bad RAM A10U145.
1011	Began byte complement test on ROM A10U160, but did not finish. Bad ROM A10U160.
1F11	ROM A10U160 failed byte complement test. Bad ROM A10U160.
1010	Began checksum test on ROM A10U160, but did not finish. Bad ROM A10U160.
1F1F	ROM A10U160 failed checksum test. Bad ROM A10U160.
1001	Began complementary byte test on A10U165, but did not finish. Bad ROM A10U160
1FF1	ROM A10U165 failed byte complement test. Bad ROM A10U165.
1000	Began checksum test on ROM A10U165, but did not finish. Bad ROM A10U160.

I/O PROCESSOR KERNEL LED ERROR SUMMARY

Led Status	Probable Cause
1FFF	ROM A10U165 failed checksum test. Bad ROM A10U165.
F111	ROM A12U175 on the Display Board failed byte complement test. Bad ROM A12U175.
F11F	ROM A12U175 on the Display Board failed checksum test. Bad ROM A12U175.
0101	COMM pack cannot be accessed. Bad COMM pack ROM.
F1F1	COMM pack ROM failed checksum test. Bad COMM pack ROM.
FFFF	All LEDs are flashing in a circular (rotating) pattern. This indicates a communication failure between the I/O Processor and the Control Processor. Suspect A10U485, U580, U585, U590, U575, and U595.

(0 = off, 1 = on, F = flashing)

	MSB			LSB
LED Position	o	o	o	o
LED Number	A10DS538	536	534	532

Initially the instrument has no power applied (0000). When the instrument power is turned on, the LEDs are also turned on (1111). The Z80 microprocessor is vectored to ROM A10U160 (1110). The display registers A11U280 and U285 are initialized, the display screen is cleared, and the message DIAGNOSTICS IN PROGRESS is printed on the screen. As each test runs, the kernel is expanded and the LEDs are turned off in succession.

The code for the RAM test is stored on the Display Board in ROM A12U175. If the RAM test detects a failure, it loops on the failed address (11F1 or 11FF). If no error is detected, the microprocessor is vectored back to A10U160 and the ROM complementary byte test is entered (1011). If the complementary byte test detects a failure, it exits to an error routine (1F11). If the ROM complementary byte test passes, the ROM checksum test is entered (1010).

If the checksum test detects a failure, the LEDs display a failure (1F1F). If no failure is detected, the complementary byte test for ROM A10U165 is entered (1001). If the complementary byte test detects a failure, it exits to a failure routine (1FF1). If the complementary byte check for A10U165 passes, the ROM checksum test is entered (1000). If the ROM checksum test detects a failure, it exits to an error routine (1FFF).

After completing the tests on A10U165, the same tests are performed on A12U175. First, a byte complement test is run on A12U175. If a failure is detected, the LEDs display a failure (F11F). If no failure is detected, a checksum test is entered (F11F). If the checksum passes, an attempt is made to access the COMM Pack. If access is not possible, an error routine is entered (0101). Next, a checksum test is run on the COMM Pack ROM. If an error is detected, it exits to an error routine (1FFF).

If the ROM checksum test passes, the I/O Processor attempts communication with the Control Processor. If a failure occurs during this attempt, the LEDs are set to a circular (rotating) pattern (FFFF). If all of the tests have been successfully completed and communication with the Control Processor is achieved, the LEDs begin indicating the operating modes of the 1241.

KERNEL AREA – POWER-UP ROUTINE DESCRIPTION

Power-up resets the Z80 microprocessor and the LED/Buzzer Latch A10U335 to initial conditions. The microprocessor is vectored to address 0000_{hex} of the diagnostic ROM (A10U160). The display registers A12U145 and U245 are initialized and the display is cleared. The message DIAGNOSTICS IN PROGRESS is printed on the display screen.

0000 LED Error Index (with no screen display)

Explanation: All LEDs should be reset ON at power-up, but a malfunction prevents the LEDs from being lighted.

Probable Cause	Action
No power to the 1241.	Check the power source and the main fuse.
Power supply failure.	Check all power supply voltages.
LED failure.	Check all LEDs with an ohmmeter.
LED latch failure.	Suspect A10U335.
Decoder failure.	Suspect A10U365.
RESET line defective.	Check RESET line by pressing the RESET switch, A10S538, and observing pin 26 of U445.

1111 LED Error Index

Explanation: All LEDs will be reset ON when the 1241 is powered up, or when the manual reset is pressed. If this test is not completed, the LEDs will remain on.

Probable Cause	Action
Kernel failure.	Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .
Wrong data in ROM or diagnostic ROM failure.	Suspect diagnostic ROM A10U160.
Bad data buffer.	Suspect U550.
Bad address decoder.	Suspect U380.

1110 LED Error Index

Explanation: The LED DS532 will be turned off when the diagnostic ROM is entered. The code that follows this action will initialize the display registers A12U145 and U245, clear the screen, and print DIAGNOSTICS IN PROGRESS on the screen.

Probable Cause	Action
Kernel failure.	Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .
Diagnostic ROM failure.	Suspect the diagnostic ROM A10U160.

I/O PROCESSOR KERNEL BLOCK DIAGRAM
RAM - STAGE 1

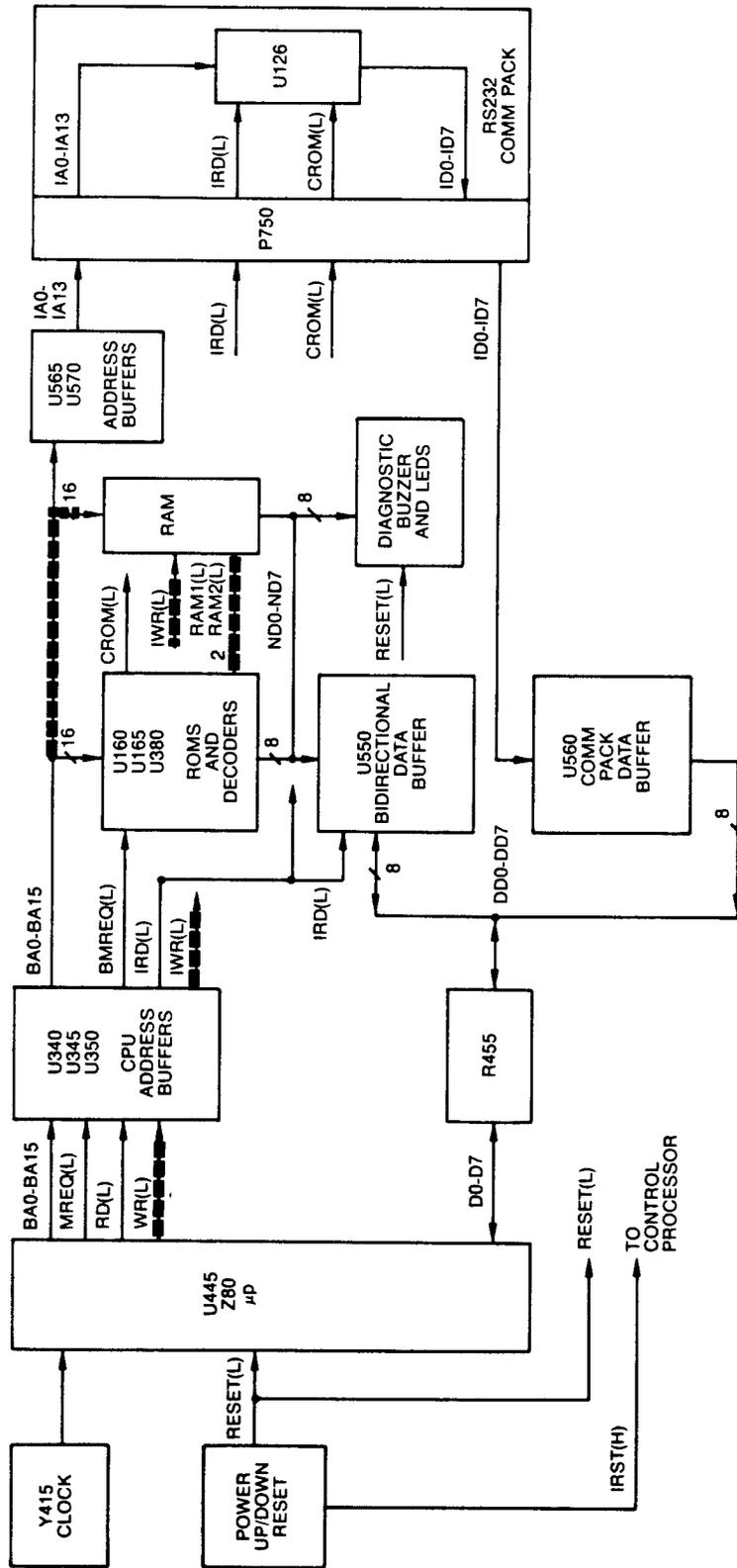


Figure 8-18. I/O Processor Kernel Stage 1 block diagram.

5378-73

KERNEL AREA – RAM ROUTINE DESCRIPTION

The first RAM routine tests the 2K (B000_{hex}–B7FF_{hex}) of A10U150.

1101 LED Error Index

Explanation: The LED DS534 will be turned off after the message DIAGNOSTICS IN PROGRESS is written to the screen and the RAM test is entered.

Probable Cause	Action
RAM Test failed to run or finish.	Suspect the diagnostic ROM A12U175, located on the Display Board.
Kernel failure.	Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .
Bad address decoder.	Suspect A10U380.

11F1 LED Error Index

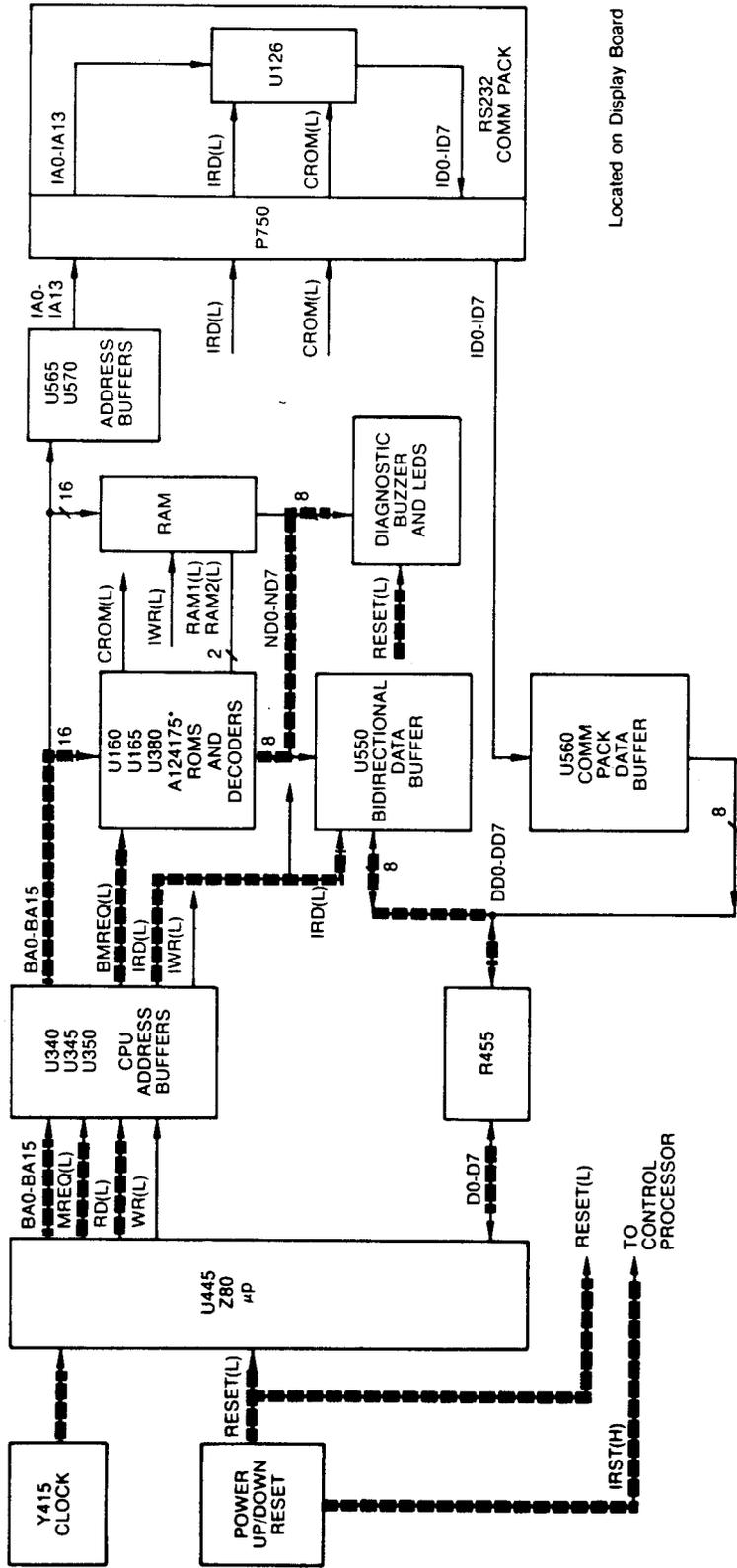
11FF LED Error Index

Explanation: This test checks both RAMs A10U150 and U145 for independence of all address and data lines, as well as the ability to set and clear each bit within the RAMs. The appropriate LED error index indicates the failed RAM. LED A10DS534 flashes for a failure in RAM A10U150, however both A10DS534 and DS532 flash for a failure in RAM A10U145.

First, all locations in both RAMs are filled with AA_{hex}, then the first location is checked for that AA_{hex} value. If the value is present, it is replaced with CC_{hex} and successive locations are checked and changed until the end of memory. When the RAMs are filled with the CC_{hex} value, the check and replace process is repeated using F0_{hex} as the replacement value. Finally, the value OF_{hex} is used in the check and replacement process. When the check and replace process is complete, each RAM memory location is again checked for the F0_{hex} value.

Probable Cause	Action
Error Index 11F1: Bad RAM A10U150.	Suspect RAM A10U150.
Error Index 11FF: Bad RAM A10U145.	Suspect RAM A10U145.

I/O PROCESSOR KERNEL BLOCK DIAGRAM
ROM - STAGE 2



Located on Display Board

Figure 8-19. I/O Processor Kernel Stage 2 block diagram.

KERNEL AREA – ROM ROUTINE DESCRIPTION

The kernel ROM routine tests for complementary bytes and a correct checksum in the diagnostic ROM, A10U160.

1011 LED Error Index

Explanation: The complementary byte test for ROM A10U160 began, but did not finish.

Probable Cause	Action
Diagnostic ROM failure.	Suspect the diagnostic ROM, A10U160.

1F11 LED Error Index

Explanation: ROM A10U160 failed the complementary byte test. This test checks the bytes at 1FFC_{hex} and 1FFD_{hex} to see if they are complementary.

Probable Cause	Action
Diagnostic ROM failure. Kernel failure.	Suspect the diagnostic ROM, A10U160. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

1010 LED Error Index

Explanation: The ROM checksum test for ROM A10U160 began, but did not finish.

Probable Cause	Action
Diagnostic ROM failure. Kernel failure.	Suspect diagnostic ROM A10U160. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

1F1F LED Error Index

Explanation: ROM A10U160 failed the ROM checksum test.

Probable Cause	Action
Diagnostic ROM failure. Kernel failure.	Suspect diagnostic ROM A10U160. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

1001 LED Error Index

Explanation: A complementary byte test on ROM A10U165 began, but did not finish.

Probable Cause	Action
Bad ROM A10U160.	Suspect diagnostic ROM A10U160.

1FF1 LED Error Index

Explanation: ROM A10U165 failed the complementary byte test. This test checks the bytes at 3FFC_{hex} and 3FFD_{hex} to see if they are complementary.

Probable Cause	Action
Bad ROM A10U165. Kernel failure.	Suspect A10U165. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

1000 LED Error Index

Explanation: A checksum test on ROM A10U165 began, but did not finish.

Probable Cause	Action
Bad ROM A10U160.	Suspect ROM A10U160.

1FFF LED Error Index

Explanation: ROM A10U165 failed the checksum test.

Probable Cause	Action
Bad ROM A10U165. Kernel failure.	Suspect ROM A10U165. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

F111 LED Error Index

Explanation: ROM A12U175 failed the complementary byte test. This test checks the bytes at $FFFC_{hex}$ and $FFFD_{hex}$ to see if they are complementary.

Probable Cause	Action
Diagnostic ROM Failure. Kernel failure.	Suspect the diagnostic ROM A12U175 located on the Display Board. Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

F11F LED Error Index

Explanation: ROM A12U175 failed the checksum test.

Probable Cause	Action
Diagnostic ROM Failure.	Suspect the diagnostic ROM A12U175 located on the Display Board.
Kernel failure.	Move NOP jumper A10J450 to the TEST position (pin 2 to 3). Remove the resistor pack A10R455 and buzzer disable jumper A10J315. Check the Z80 microprocessor address, data, and control lines with a logic analyzer or signature analyzer and verify values listed in <i>Kernel Signature Analysis</i> .

KERNEL AREA – COMM PACK ROUTINE DESCRIPTION

The COMM pack routine tests for a correct ROM checksum in the installed COMM pack (GPIB: A32U245, RS232: A32U126). The COMM pack is not a normal part of the processor kernel circuitry. However, it is checked because proper operation is necessary for diagnostic testing.

0101 LED Error Index

Explanation: A COMM pack was detected, but was inaccessible.

Probable Cause	Action
Bad COMM pack ROM.	Suspect COMM pack ROM.

F1F1 LED Error Index

Explanation: A checksum test on COMM pack ROM failed.

Probable Cause	Action
Bad COMM pack ROM.	Suspect COMM pack ROM.

FFFF LED Error Index

Explanation: After completing the kernel diagnostics, the I/O Processor attempted to communicate with the Control Processor, but was unsuccessful. The LEDs are then set to a circular (rotating) pattern to indicate this failure condition.

Probable Cause	Action
Control Processor kernel failure.	Check the LEDs on the Control Processor Board for the rotating LED pattern. If LEDs indicate a problem other than the kernel, repair the problem and repeat the tests.
Interprocessor communication queue failure.	If the LEDs on the Control Processor Board are also in a rotating pattern, suspect the interprocessor communication queue consisting of A10U485, U580, U585, U590, U575, and U595.

3XXX DISPLAY ERROR INDEXES

Error Index	Area Name	Area Number
31XX	RAM	AREA 1
32XX	VSCROLL	AREA 2
33XX	HSCROLL	AREA 3
34XX	RVIDEO	AREA 4
35XX	HIGHLIGHT	AREA 5
36XX	WAVEFORM	AREA 6

DISPLAY BOARD - COMPONENT LOCATION

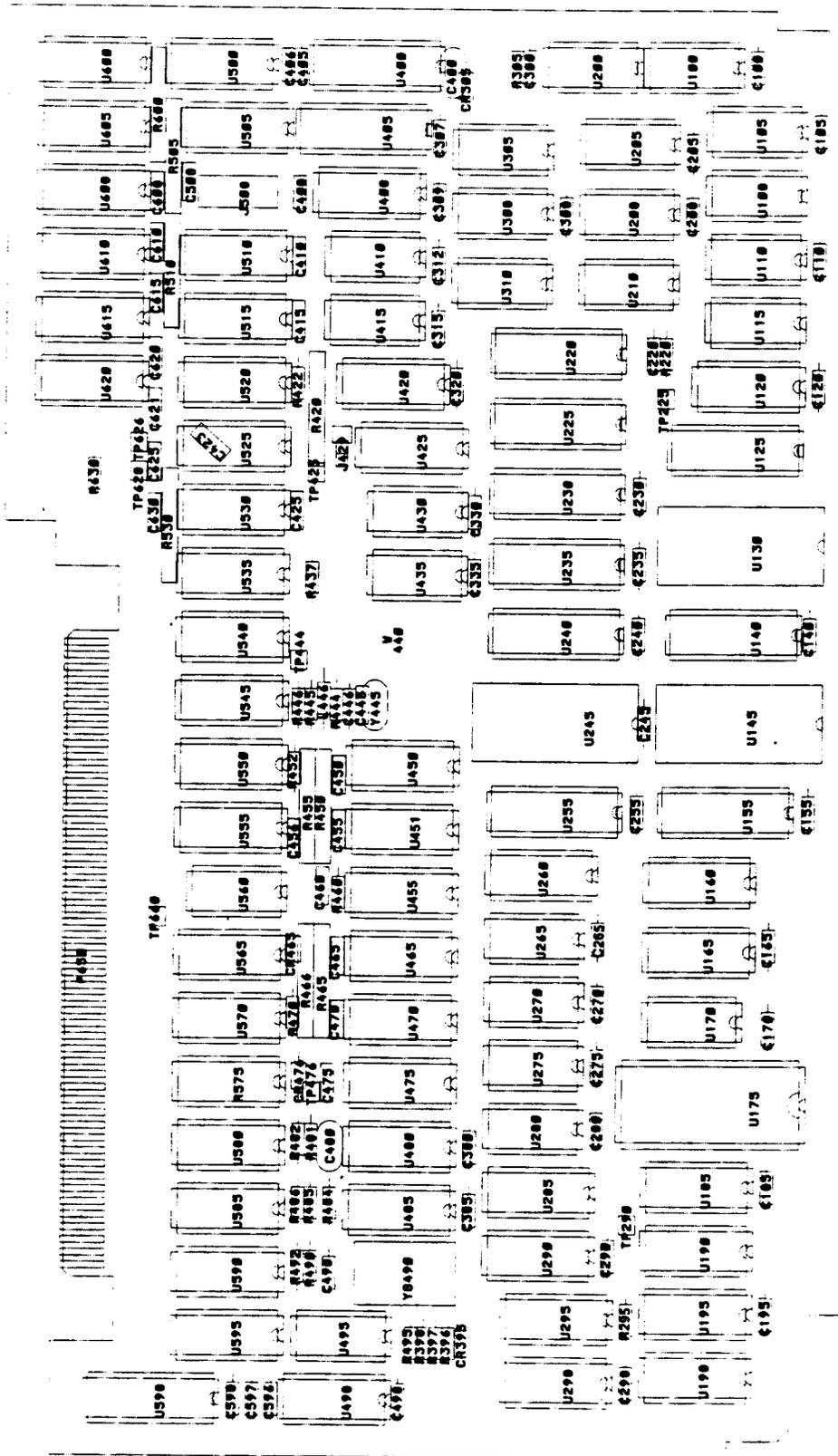


Figure 8-22. 1241 Display Board component locations.

module: DISPLAY area: RAM
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DISPLAY RAM AREA – TEST DESCRIPTION

Since the display RAM has all of the current screen data in it, its contents must be saved before the RAM test is run. The 4K of display RAM is set up in two parts: the Green RAM (A12U245) and the Red RAM (A12U145). The Green RAM contains all the data displayed in green, and the red RAM contains all the data displayed in red. Data that will be displayed in yellow is stored in both the Red and Green RAMs. All the Green RAM is saved in system RAM locations B350_{hex} through BB50_{hex}. Not all of the data stored in the Red RAM is saved; there is not enough room in the system RAM to accommodate all of the Red RAM data. Only the first line and the area where test results reside are saved. The first line of the Red RAM (D000_{hex} — D035_{hex}) is saved in system RAM at locations B000_{hex} through B03_{hex}. The test result area (D2C0_{hex} — D57F_{hex}) is saved in system RAM locations B040_{hex} through B300_{hex}. The Green RAM is tested first, then the Red RAM is tested. If a failure is detected in the Green RAM, the test is aborted and the failure is reported. The Red RAM will not be tested until the Green RAM is repaired.

The pattern AA_{hex} is written to all locations being tested (A000_{hex} — A7FF_{hex}). The first location is read and checked for AA_{hex}. If it contains AA_{hex}, it is filled with CC_{hex}. If it does not contain AA_{hex}, the value read is reported as an error and the test is aborted. This sequence is repeated for each RAM location under test. After the first read/write pass has been completed, all of the RAM under test should contain CC_{hex}.

The first location is now read and checked for CC_{hex}. If it contains CC_{hex}, it is filled with F0_{hex}. If it does not contain CC_{hex}, the value read is reported as an error and the test is aborted. This sequence is repeated for each RAM location under test. After this read/write pass has been completed, all of the RAM under test should contain F0_{hex}.

In the next pass, the first location is read and checked for F0_{hex}. If it contains F0_{hex}, it is filled with 0F_{hex}. If it doesn't contain 0F_{hex}, the value read is reported as an error and the test is aborted. This sequence is repeated for each RAM location under test. After this pass, all of the RAM under test should contain 0F_{hex}.

The last pass of the test reads each location of the RAM under test in reverse order, starting with the last location. If any location does not contain 0F_{hex}, the value read is reported as an error and the test is aborted.

Before exiting the test, the screen data that was saved in system RAM is restored to the display RAMs.

3111 Error Index

Explanation: The data read back was not correct.

Probable Cause	Action
The direct memory access synchronizing circuitry is not working correctly.	<p>Loop on the RAM test and verify that the WAIT(L) signal is being generated when the I/O Processor accesses the Display RAM. Check that the Write Enable signal BUF(L) and the RAM data output latch control signals LCP and LOE(L) are occurring. If any of the signals are not occurring, suspect A12U408, U205, U265, U410, U105, U200, U110, U405, U305, or U108.</p> <p>Observe the screen with no diagnostic test running. If it appears normal (i.e., the soft keys are correctly displayed), then the RAM is being written to but cannot be read by the processor. If the screen display is garbled and the RAM test is failing, the RAM is not being correctly written to.</p>
The 19.6 MHz clock or clock divider is not working correctly.	Check the duty cycle of the 19.6 MHz clock (A12U495, pin 4). It should be between 40% and 60%. Check 4.8 MHz(L) and 2.4 MHz(L), also. All should be square waves.
Bad Green Display RAM.	Suspect the Green Display RAM A12U245.
The Display RAM Read Buffer or the Write Latch is defective.	Suspect A12U155 or U255.
The Display RAM Address Multiplexer is not working correctly.	Suspect A12U160, U165, U260, U170, or U125.
One or more of the 8 data lines from the Green Display RAM to the Display RAM Read/Write Latch may be open or shorted together.	Power down the instrument. Using an ohmmeter, check the continuity of the data lines between the two points.
One or more of the 11 address lines from the Display RAM Address Multiplexer to the Green Display RAM may be open or shorted together.	Power down the instrument. Using an ohmmeter, check the continuity of the address lines between the two points.

3112 Error Index

Explanation: The data read back was not correct.

Probable Cause	Action
<p>Bad Red Display RAM.</p> <p>One or more of the 8 data lines from the Red Display RAM to the Display RAM Read Buffer and/or the Write Latch may be open or shorted together.</p> <p>One or more of the 11 address lines from the Display RAM Address Multiplexer to the Red Display RAM may be open or shorted together.</p>	<p>Suspect A12U145.</p> <p>Power down the instrument. Using an ohmmeter, check the continuity of the data lines.</p> <p>Power down the instrument. Using an ohmmeter, check the continuity of the address lines.</p>

module: DISPLAY area: VSCROLL
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VERTICAL SCROLL AREA – TEST DESCRIPTION

The vertical scrolling circuitry is verified by scrolling a diagnostic character vertically through the diagnostic window, A10U295 and U190. The I/O Processor then reads back a portion of the displayed video from the diagnostic window to verify that it is correct.

The diagnostic window register is latched by raster 200 (the bottom pixel row of line 25). The diagnostic window register then contains every other one of the last eight pixels that were sent to the video monitor before raster 200 occurred. Therefore, if no vertical or horizontal scrolling is performed, the register contains four pixels from each of the last two characters on line 25.

The character scrolled through the window is a special diagnostic character. It was selected because it supplies information that identifies which data line is bad in the character generation circuitry, or which bit is bad in the scrolling circuitry. A graphic representation of the diagnostic character being scrolled on an 8 X 8 matrix is shown below:

```

X . . . . .
. X . . . . .
. . X . . . . .
. . . X . . . . .
. . . . X . . . .
. . . . . X . . .
. . . . . . X . .
. . . . . . . X .
. . . . . . . . X
    
```

The diagnostic character is scrolled upward by writing an incrementing count to the VSCROLL and VWRAP registers in the Vertical Scrolling circuitry. As the character is scrolled, the value read back through the diagnostic window register appears to be shifted right after each pixel is scrolled up two rasters.

Verifying all the pixels requires two scrolling passes of the diagnostic character through the window. On the first pass, 02_{hex} is written to location AC00_{hex}, thus inverting the 9.8 MHz clock. The diagnostic character is scrolled once and read. Then, the diagnostic character is scrolled twice and read. This last sequence is repeated three times, to give a total of four reads. The values from the four reads are checked against the expected pattern. If an error is detected, the test aborts and the error is reported. If no errors are detected, the second pass of the test begins.

On the second pass, the 9.8 MHz clock is inverted by writing 03_{hex} to location AC00_{hex}. The diagnostic character is scrolled twice, then read. This sequence is repeated three times to give a total of four reads. The four values read are checked against the expected pattern. If an error is detected, it is reported and the test is aborted.

3210 Error Index

Explanation: Before each read of the diagnostic window register, a 60 Hz interrupt must occur. In this case, the 60 Hz interrupt did not occur and the diagnostic test was not run.

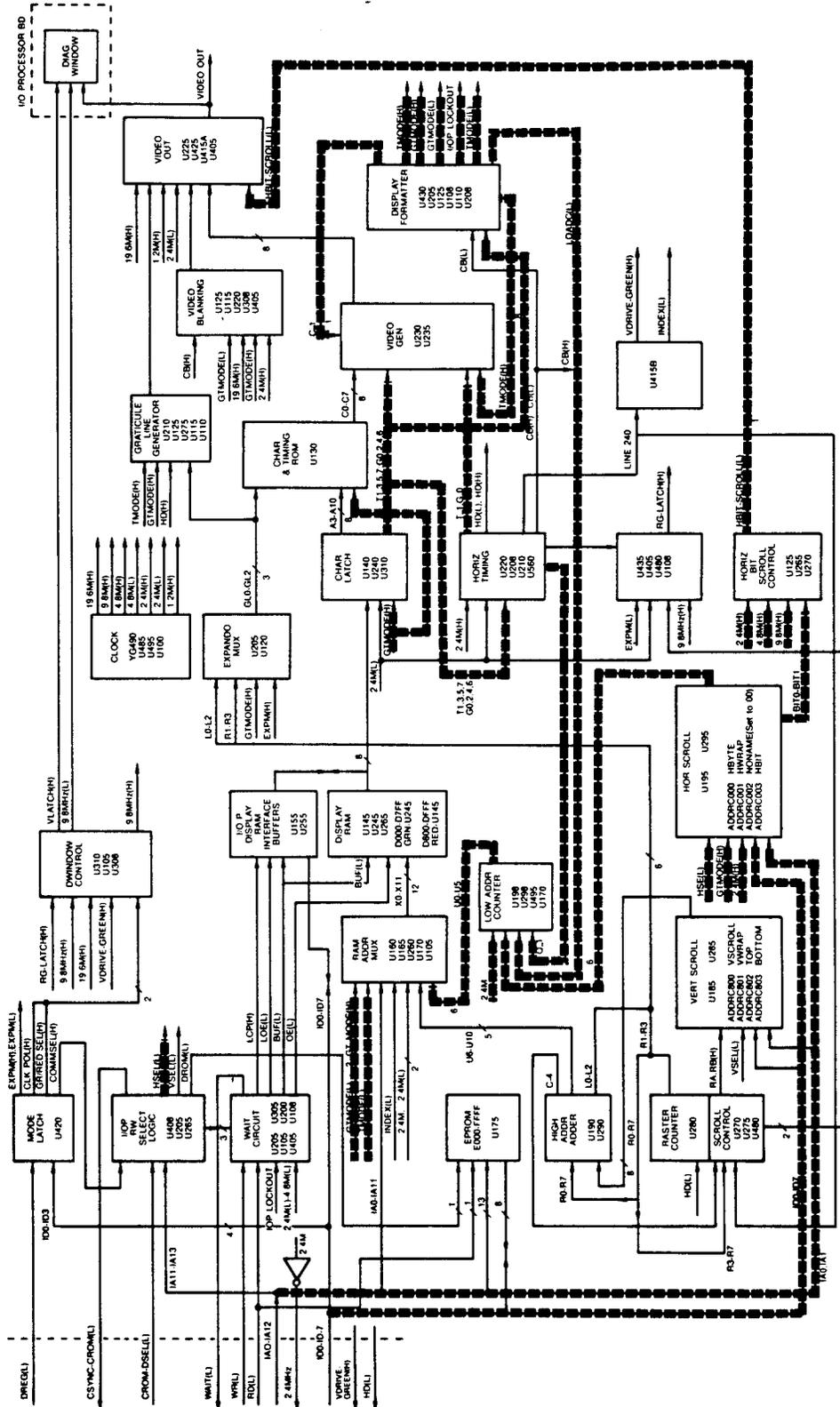
Probable Cause	Action
The 60 Hz interrupt is not working correctly.	Press the processor RESET switch to cause the I/O interrupt diagnostic to run again. This will establish that the default 60 Hz interrupt is working. Since the I/O Processor's INTERRUPT test has already been run, the failure is probably caused by writing different values to A12U420. If the I/O interrupt test passes, loop on the VSCROLL test and check A12U420, U310, and U105.
The 9.8 MHz clock circuitry is not working.	Loop on the VSCROLL test and check the 9.8 MHz(L) signal at A12P650. Suspect A12U308, U310, or U420.
The RG-LATCH signal is invalid.	Loop on the VSCROLL test and check for 9.8 MHz at pin 8 on A12U405. Check for RG-LATCH at pin 1 on A12U105. Suspect A12U308, U310, U405, or U480.

3211–3214 Error Indexes

Explanation: While vertically scrolling the diagnostic character, an incorrect pattern was read back. The last digit of the error index (1 through F) represents the number of read operations that were performed before the error (1 through F) was detected.

Probable Cause	Action
The Vertical Scrolling Registers are defective.	Suspect the Vertical Scrolling Registers A12U185 and U285.
The High Address Adder is defective.	Suspect the High Address Adder, A12U190 and U290.
The Character Generator, the Input Latch, or the Output Latch is defective.	Suspect the Character ROM A12U130, the Character Generators A12U230 and U235, the Input Latch A12U140, or the Output Latch A12U225.
The Character Parallel-To-Serial Converter is defective.	Suspect the Character Parallel-To-Serial Converter A12U425.

DISPLAY BLOCK SCROLLING - AREA 3



5378-78

Figure 8-24. 1241 Horizontal Scrolling block diagram.

module: **DISPLAY**
 area: **HSCROLL**

HORIZONTAL SCROLL AREA – TEST DESCRIPTION

The horizontal scrolling circuitry is verified by scrolling a diagnostic character horizontally through the diagnostic window, A10U295 and U190. The I/O Processor then reads back a portion of the displayed video from the diagnostic window to verify that it is correct.

The diagnostic window register is clocked by raster 200. Since it is an 8-bit shift register, it will contain the last eight pixels that were sent to the video monitor before raster 200 occurred. Raster 200 is the bottom pixel row of line 25. The character scrolled through the window is a special diagnostic character. It was selected because it supplies information that identifies which data line is bad in the character generation circuitry, or which bit is bad in the scrolling circuitry. A graphic representation of the diagnostic character being scrolled horizontally (causing a waveform bottom-bar character to be formed) on an 8 X 8 matrix is shown below:

```

    . . . . .
    . . . . .
    . . . . .
    . . . . .
    . . . . .
    . . . . .
    . X X X X X X X
    . . . . .
    
```

Since the test uses line 26 in the Display RAM, the contents of the Display RAM are saved in system RAM at location B000_{hex}. After saving the contents of the Display RAM, line 26 is filled with FF_{hex}. This causes the Display Board to select the timing character mode. When raster 200 occurs, the character location on line 25 is clocked into the diagnostic window. The bottom-bar character (shown above) is written to the character location on line 26 that is directly below the character location on line 25.

Because the bottom-bar character is on character-pixel row 2, it is not positioned over raster 200 (character line 25). To position it over the correct raster row, the character is written to line 26 and vertically scrolled up by seven raster rows. The second pixel row of the horizontal bar character is then positioned over the last eight columns of raster row 200.

The diagnostic character is scrolled left by writing a sequence of values to the HBIT register (at location C803_{hex}) in the horizontal scrolling circuitry. As the character is scrolled left, the value read back in the diagnostic window will appear to be shifted left by two after each scroll operation.

To make the verification algorithm as simple as possible, the character is scrolled once horizontally before it is read the first time. The data sequence expected from the diagnostic window register is: F1_{hex}, C7_{hex}, E3_{hex}, 8F_{hex}.

When the test has been completed, the original contents of the Display RAM are restored.

3310 Error Index

Explanation: Before each read of the diagnostic window register, a 60 Hz interrupt must occur. In this case, the 60 Hz interrupt did not occur and the diagnostic test was not run.

Probable Cause	Action
The 60 Hz interrupt is not working correctly.	<p>Press the processor RESET switch to cause the power up diagnostics to run. This will establish that the default 60 Hz interrupt is working.</p> <p>Since the I/O Processor INTERRUPT test has already been run before reaching this point, the failure is probably caused by writing different values to A12U420. If the I/O INTERRUPT test passes, loop on the VSCROLL test and check A12U420, U310, and U105.</p>

3311 Error Index

Explanation: While horizontally scrolling the diagnostic character, an incorrect pattern was read back. The pattern expected was F1_{hex}.

Probable Cause	Action
The Horizontal Scrolling Registers are defective.	Suspect the Horizontal Scrolling Registers A12U195 and U295.
The Low Address Counter is defective.	Suspect the Low Address Counter, A12U198 and U298.
The Display Formatter Latch is defective.	Suspect the Display Formatter Latch A12U125.
The Character Generator is defective.	Suspect the Character Generator, A12U235 and U230.
The signal VLATCH is in the wrong phase.	Check A12U420 pin 7 for a high. Check that the VLATCH pulse (A12P650, A47) occurs while the VDRIVE GREEN signal (A12U310 pin 13) is high. If it does not, suspect A12U310 and/or U420.

3312 Error Index

Explanation: While scrolling horizontally, an incorrect pattern was read back. The pattern expected was C7_{hex}.

Probable Cause	Action
The Horizontal Scrolling Registers are defective.	Suspect the Horizontal Scrolling Registers A12U195 and U295.
The Low Address Counter is defective.	Suspect the Low Address Counter, A12U198 and U298.
The Display Formatter Latch is defective.	Suspect the Display Formatter Latch A12U125.
The GO TO TIMING circuitry is not working.	<p>Check that the TMODE (pin 16 on A12U230 and U235) and the GTMODE (pin 1 on A12U310, pin 5 on U170, and pin 5 on U295) signals are going high for character line 25.</p> <p>Check the TMODE(L) signal at pin 12 on A12U100 and the GTMODE(L) signal at pin 2 on A12U208 to see that they are going low. Check that the LOADC(L) signal at pin 8 on A12U430 is pulsing low. Suspect A12U430, U100, U108, U110, U125, U205, U208, U310, U170, or U105.</p>
The Video Generator is defective.	Suspect the Video Generator, A12U235 and U230.
The circuitry that inverts the 9.8 MHz clock is not working.	Check the 9.8 MHz clock at pin 6 on A12U305. Check pin 2 on A12U420 for a low. Suspect A12U305 or U420.
The INDEX signal is inverted.	Check pin 7 on A12U420 for a high. Suspect A12U420.

3313 Error Index

Explanation: While scrolling horizontally, an incorrect pattern was read back. The pattern expected was E3_{hex}.

Probable Cause	Action
The 9.8 MHz clock was not inverted.	Check the 9.8 MHz clock at pin 6 on A112U305. Check pin 2 on A12U420 for a high. Suspect A12U305 or U420.

3314 Error Index

Explanation: While scrolling horizontally, an incorrect pattern was read back. The expected pattern was 8F_{hex}.

Probable Cause	Action
The 9.8 MHz clock was not inverted.	Check the 9.8 MHz clock at pin 6 on A12305. Check pin 2 on A12U420 for a high. Suspect A12U305 or U420.

module: DISPLAY area: RVIDEO

REVERSE VIDEO AREA – TEST DESCRIPTION

The reverse video circuitry is verified using the diagnostic window, A10U295 and U190. When the I/O Processor reads a standard video pixel from the diagnostic window, it has a binary value of 1. A reverse video pixel is read as a binary value of 0.

First, a reverse video space character is written to the character position in Display RAM that contains raster 200 (character line 25). Next, the test waits for one 60 Hz interrupt prior to reading the diagnostic window. This synchronizes the reading of the diagnostic window register with the updating of the register by hardware. When the interrupt occurs, the diagnostic window register is read, expecting a value of F0_{hex}. Next, the 9.8 MHz clock is inverted and the diagnostic window register is read again. It should contain F0_{hex}.

3410 Error Index

Explanation: Before each read of the diagnostic window, a 60 Hz interrupt must occur. In this case, the 60 Hz interrupt did not occur and the diagnostic test was not run.

Probable Cause	Action
The 60 Hz interrupt is not working correctly.	Run the I/O Processor's INTERRUPT area diagnostic test to determine why the interrupt is not working. Since the I/O INTERRUPT has already been run before reaching this point, the failure is probably intermittent. Looping on the interrupt test may help in finding the error.

3421 Error Index

Explanation: The reverse video space character could not be read back.

Probable Cause	Action
The 19.6 MHz clock or the Clock Divider is not working.	Check the 19.6 MHz clock at pin 4 on A12U495. Check the output frequencies of the Clock Divider A12U485. Suspect A12U495 or U485.
The generated character was not correct.	Suspect the Video Generator (A12U235 and U230).
The 9.8 MHz inversion circuitry is not working.	Suspect A12U305 or U420.

3422 Error Index

Explanation: The reverse video space character could not be read back.

Probable Cause	Action
The 9.8 MHz inversion circuitry is not working.	Suspect A12U305 or U420.

DISPLAY BLOCK DIAGRAM HIGHLIGHTING - AREA 5

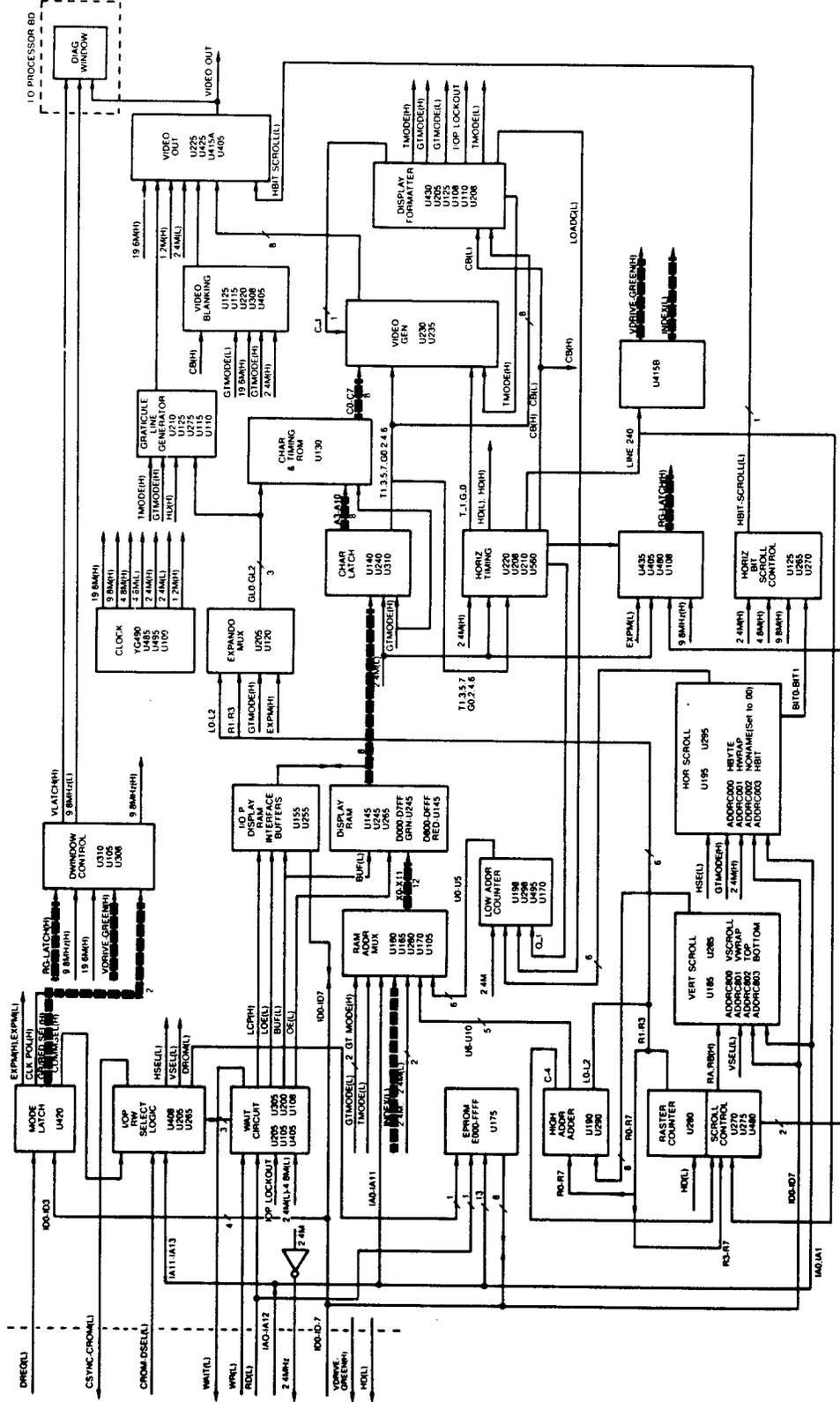


Figure 8-26. 1241 Highlighting block diagram.

5378-80

module: DISPLAY area: HIGHLIGHTING

HIGHLIGHTING AREA – TEST DESCRIPTION

The highlighting circuitry is verified using the diagnostic window, A10U295 and U190. Prior to reading the diagnostic window, it is necessary to wait for a 60 Hz interrupt. This synchronizes the reading of the diagnostic window register with the updating of the register.

The test first writes a highlighting space character to the diagnostic window location in Display RAM (A12U145 and U245). The value 01_{hex} is written to AC00_{hex}; this allows the Red RAM A12U145 to be read with the 9.8 MHz clock inverted. The contents of the diagnostic window is checked for F0_{hex}. Next, 02_{hex} is written to AC00_{hex}; this allows the Green RAM A12U245 to be read with the 9.8 MHz clock inverted. The contents of the diagnostic window is read and should contain F0_{hex}. The value 03_{hex} is written to AC00_{hex}; this allows the Green RAM to be read with the 9.8 MHz clock not inverted. The contents of the diagnostic window is read and should be F0_{hex}. Finally, 04 is written to AC00_{hex}; this allows the Red RAM to be read with the 9.8 MHz clock not inverted. The contents of the diagnostic window register is checked for F0_{hex}.

3510 Error Index

Explanation: Before each read of the diagnostic window register, a 60 Hz interrupt must occur. In this case, the 60 Hz interrupt did not occur and the diagnostic test was not run.

Probable Cause	Action
The 60 Hz interrupt is not working correctly.	Run the I/O Processor's INTERRUPT area diagnostic test to determine why the interrupt is not working. Since the I/O INTERRUPT test has already been run before reaching this point, the failure is probably an intermittent one. Looping on the interrupt test may help in finding the error.

3511 Error Index

Explanation: The highlight space character could not be read back from the Red RAM with the normal 9.8 MHz(H) clock.

Probable Cause	Action
The 19.6 MHz clock or the Clock Divider circuitry is not working.	Check the 19.6 MHz clock at A12U495, pin 4. Check the output frequencies of the Clock Divider A12U485.
The generated character was not correct.	Suspect the Video Generator (A12U235 and U230).
The circuitry to invert the 9.8 MHz(H) clock is not working.	Suspect the 9.8 MHz(H) inversion circuitry (A12U420 or U305).
The INDEX signal inversion circuitry is not working.	Suspect the INDEX inversion circuitry (A12U420 and U305).

3512 Error Index

Explanation: The highlight space character could not be read back from the Green RAM with the 9.8 MHz(H) clock inverted.

Probable Cause	Action
The 9.8 MHz clock inversion circuitry is not working.	Suspect the 9.8 MHz inversion circuitry (A12U420 and U305).
The circuitry to invert the INDEX signal is not working.	Suspect the INDEX inversion circuitry (A12U420 and U305).

3513 Error Index

Explanation: The highlight space character could not be read back from the Green RAM with the normal 9.8 MHz(H) clock.

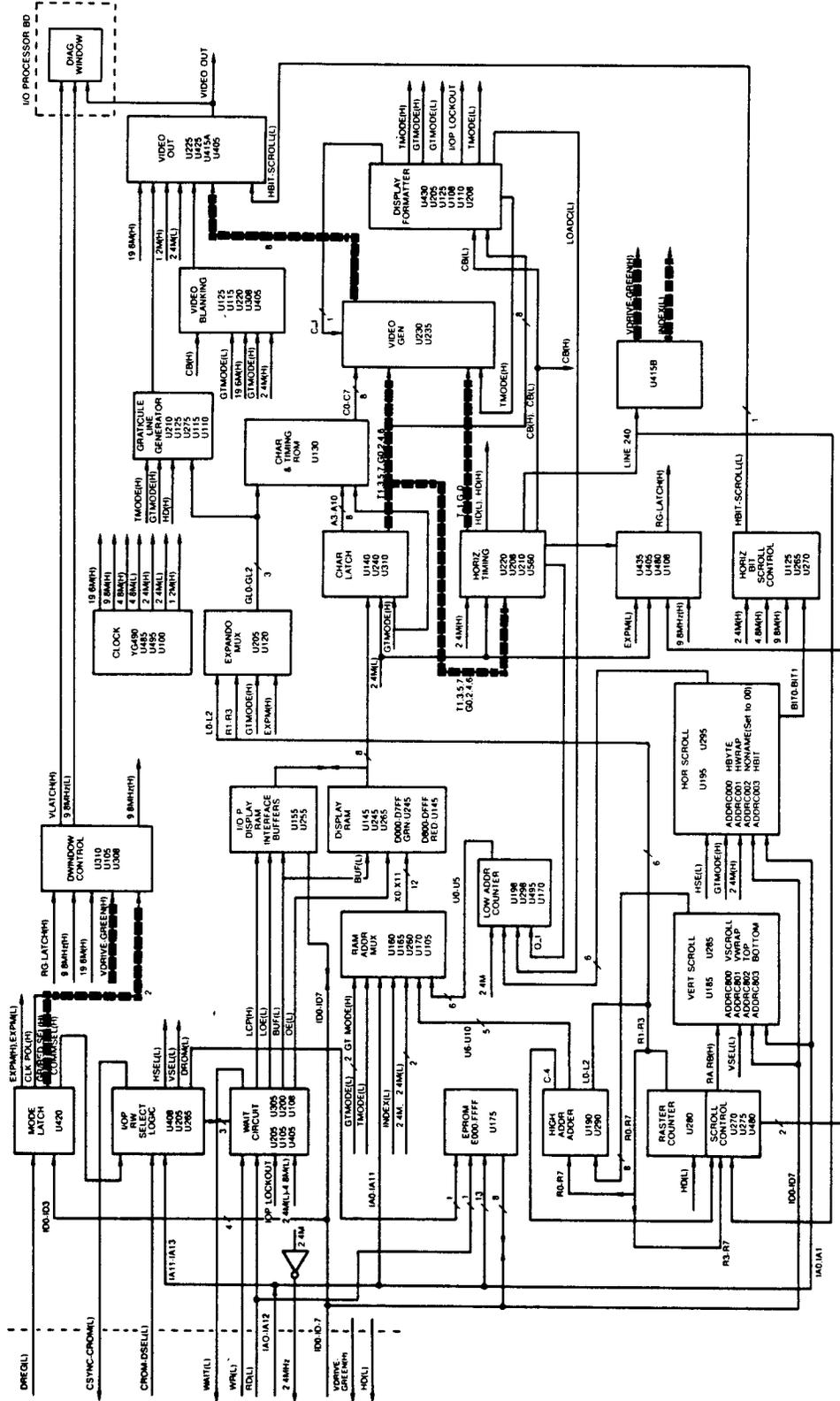
Probable Cause	Action
The 9.8 MHz clock inversion circuitry is not working.	Suspect the 9.8 MHz inversion circuitry (A12U420 and U305).
The circuitry to invert the INDEX signal is not working.	Suspect the INDEX inversion circuitry (A12U420 and U305).

3514 Error Index

Explanation: The highlight space character could not be read back from the Red RAM with the 9.8 MHz clock inverted.

Probable Cause	Action
The circuitry that inverts the 9.8 MHz clock is not working.	Suspect the 9.8 MHz inversion circuitry (A12U420 and U305).
The circuitry that inverts the INDEX signal is not working.	Suspect the INDEX inversion circuitry (A12U420 and U305).

DISPLAY BLOCK DIAGRAM WAVEFORM (GENERATION) - AREA 6



5378.81

Figure 8-27. 1241 Waveform block diagram.

module: **DISPLAY**
 area: **WAVEFORM**

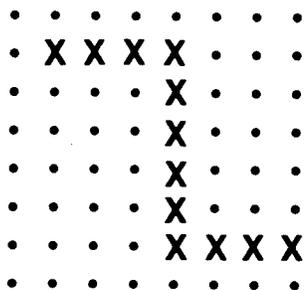
WAVEFORM (GENERATION) AREA – TEST DESCRIPTION

The timing and glitch waveform generation circuitry is verified by writing timing and glitch characters to the Display RAM. The characters are then scrolled through the diagnostic window, A10U295 and U190. The I/O Processor reads back a portion of the displayed video from the diagnostic window to verify that it is correct.

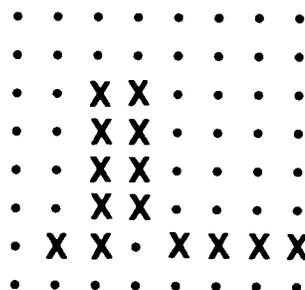
The test starts by saving the contents of the Display RAMs in system RAM. Then, a timing waveform character (graphically shown below) is written to the Display RAM. The display is scrolled vertically one raster line to align the top raster row of the character with the diagnostic window (raster 200). Timing character mode is selected by writing FF_{hex} to the first character position of line 25. (Actually, line 25 is filled with FF_{hex}.) The timing waveform character is scrolled vertically eight rasters. The I/O Processor reads the diagnostic window each time the display is scrolled. If a failure is detected, the test ends and the failure is reported. If no failure is detected, the 9.8 MHz clock is inverted and the timing waveform character is checked again. Verification with one phase of the 9.8 MHz clock checks the even-numbered pixels and the other checks the odd-numbered pixels.

When the timing waveform character has been successfully scrolled and read back, the test writes the glitch waveform character (graphically represented below) to the Display RAM. This time the display is scrolled vertically two rasters to align the top raster row of the character with the diagnostic window. The glitch waveform character is scrolled vertically eight rasters. The I/O Processor reads back from the diagnostic window after each scroll operation. This sequence is performed twice: once with the 9.8 MHz clock non-inverted and once with it inverted. If a failure is detected, the test ends and the failure is reported.

A graphic representation of the timing and glitch waveform characters on an 8 X 8 matrix is shown in the following:



**Timing Waveform
Character**



**Glitch Waveform
Character**

3610 Error Index

Explanation: Before each read of the diagnostic window register, a 60 Hz interrupt must occur. In this case, the 60 Hz interrupt did not occur and the diagnostic test was not run.

Probable Cause	Action
The 60 Hz interrupt is not working correctly.	Run the I/O Processor INTERRUPT area diagnostic test to determine why the interrupt is not working. Since the I/O INTERRUPT test has already been run before reaching this point, the failure is probably intermittent. Looping on the interrupt test may help in finding the error.

3611 Error Index

Explanation: While vertically scrolling the timing waveform character, an incorrect pattern was read back.

Probable Cause	Action
The circuitry to invert the 9.8 MHz clock is not working.	Check that pin 2 on A12U420 goes low. Suspect A12U420 or U310.
The Glitch/Timing Character Latch is defective.	Suspect the Glitch/Timing Character Latch A12U125.
The Timing Character Parallel-To-Serial Converter is defective.	Suspect the Timing Character Parallel-To-Serial Converter A12U425.
The Parallel-To-Serial Converter Output Latch is not working.	Suspect Latch A12U200.
The Video Generator is defective.	Suspect the Video Generator A12U230 and U235.

3612 Error Index

Explanation: While vertically scrolling the timing character, an incorrect pattern was read back.

Probable Cause	Action
The circuitry that inverts the 9.8 MHz clock is not working.	Check that pin 2 on A12U420 goes high. Suspect A12U420 or U310.

3613–3614 Error Indexes

Explanation: While vertically scrolling the glitch waveform character, an incorrect pattern was read back.

Probable Cause	Action
The Video Generator is defective.	Suspect the Video Generator A12U230 and U235.

SECTION

9

REPLACEABLE
ELECTRICAL
PARTS

REPLACEABLE ELECTRICAL PARTS

PARTS ORDERING INFORMATION

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

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

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

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

LIST OF ASSEMBLIES

A list of assemblies can be found at the beginning of the Electrical Parts List. The assemblies are listed in numerical order. When the complete component number of a part is known, this list will identify the assembly in which the part is located.

CROSS INDEX-MFR. CODE NUMBER TO MANUFACTURER

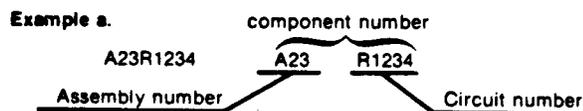
The Mfr. Code Number to Manufacturer index for the Electrical Parts List is located immediately after this page. The Cross Index provides codes, names and addresses of manufacturers of components listed in the Electrical Parts List.

ABBREVIATIONS

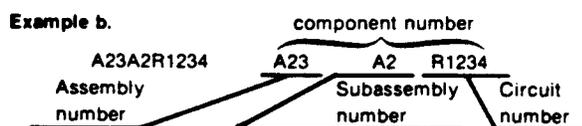
Abbreviations conform to American National Standard Y1.1.

COMPONENT NUMBER (column one of the Electrical Parts List)

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



Read: Resistor 1234 of Assembly 23



Read: Resistor 1234 of Subassembly 2 of Assembly 23

Only the circuit number will appear on the diagrams and circuit board illustrations. Each diagram and circuit board illustration is clearly marked with the assembly number. Assembly numbers are also marked on the mechanical exploded views located in the Mechanical Parts List. The component number is obtained by adding the assembly number prefix to the circuit number.

The Electrical Parts List is divided and arranged by assemblies in numerical sequence (e.g., assembly A1 with its subassemblies and parts, precedes assembly A2 with its subassemblies and parts).

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

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

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

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

Column three (3) indicates the serial number at which the part was first used. Column four (4) indicates the serial number at which the part was removed. No serial number entered indicates part is good for all serial numbers.

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

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

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

Indicates the code number of the actual manufacturer of the part. (Code to name and address cross reference can be found immediately after this page.)

MFR. PART NUMBER (column seven of the Electrical Parts List)

Indicates actual manufacturers part number.

Replaceable Electrical Parts—1241 Addendum

CROSS INDEX – MFR CODE NUMBER TO MANUFACTURER

Mfr Code	Manufacturer	Address	City, State, Zip Code
00681	MINE SAFETY APPLIANCE CO	1421 CLARKVIEW RD	BALTIMORE MD 21209-2103
00779	AMP INC	2800 FULLING MILL	HARRISBURG PA 17105
00853	SANGAMO WESTON INC COMPONENTS DIV	SANGAMO RD PO BOX 128	PICKENS SC 29671-9716
01121	ALLEN-BRADLEY CO	1201 S 2ND ST	MILWAUKEE WI 53204-2410
01295	TEXAS INSTRUMENTS INC SEMICONDUCTOR GROUP	13500 N CENTRAL EXPY PO BOX 655012	DALLAS TX 75265
01537	MOTOROLA	2553 N EDGINGTON ST	FRANKLIN PARK IL 60131-3401
01807	PETERSEN RADIO CO INC PULSE ENGINEERING SUBSIDIARY	2800 WEST BROADWAY P O BOX 12235	COUNCIL BLUFFS IA 51501-3412
01961	VARIAN ASSOCIATES INC	7250 CONVOY CT	SAN DIEGO CA 92112
02113	COILCRAFT INC	1102 SILVER LAKE RD	CARY IL 60013-1658
03508	GENERAL ELECTRIC CO	W GENESEE ST	AUBURN NY 13021
04072	BELL INDUSTRIES		COMPTON CA 94539
04099	CAPCO INC DIV OF AVX CORP	1328 WINTERS AVE P O BOX 867	GRAND JUNCTION CO 81502
04222	AVX CERAMICS	19TH AVE SOUTH	MYRTLE BEACH SC 29577
04426	ITW SWITCHES	6615 W IRVING PARK RD	CHICAGO IL 60634-2410
04713	MOTOROLA INC	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
05574	VIKING CONNECTORS INC	21001 NORDHOFF ST	CHATSWORTH CA 91311-5911
05828	GENERAL INSTRUMENT CORP	600 W JOHN ST	HICKSVILLE NY 11802
07263	FAIRCHILD SEMICONDUCTOR CORP	10400 RIDGEVIEW CT	CUPERTINO CA 95014
09023	CORNELL-DUBILIER ELECTRONICS	2652 DALRYMPLE ST	SANFORD NC 27330
12697	CLAROSTAT MFG CO INC	LOWER WASHINGTON ST	DOVER NH 03820
12954	MICROSEMI CORP - SCOTTSDALE	8700 E THOMAS RD	SCOTTSDALE AZ 85252
12969	UNITRODE CORP	5 FORBES RD	LEXINGTON MA 02173-7305
14099	SEMTECH CORP	652 MITCHELL ROAD	NEWBURY PARK CA 91320-2211
14301	ANDERSON ELECTRONICS INC	310 PENN ST	HOLLIDAYSBURG PA 16648-2009
14752	ELECTRO CUBE INC	1710 S DEL MAR AVE	SAN GABRIEL CA 91776-3825
15454	KETMA	2900 BLUE STAR STREET	ANAHEIM CA 92806-2591
15818	TELEDYNE SEMICONDUCTOR	1300 TERRA BELLA AVE	MOUNTAIN VIEW CA 94043-1836
17856	SILICONIX INC	2201 LAURELWOOD RD	SANTA CLARA CA 95054-1516
18324	SIGNETICS CORP	4130 S MARKET COURT	SACRAMENTO CA 95834-1222
18796	MURATA ERIE NORTH AMERICAN INC	1900 W COLLEGE AVE	STATE COLLEGE PA 16801-2723
19396	ILLINOIS TOOL WORKS INC PAKTRON DIV	1205 MCCONVILLE RD PO BOX 4539	LYNCHBURG VA 24502-4535
19701	MEPCO/CENTRALAB	PO BOX 760	MINERAL WELLS TX 76067-0760
20932	KYOCERA INTERNATIONAL INC	11620 SORRENTO VALLEY RD	SAN DIEGO CA 92121
22526	DU PONT E I DE NEMOURS AND CO INC	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
24546	CORNING GLASS WORKS	550 HIGH ST	BRADFORD PA 16701-3737
27012	MICRO DEVICES CORP SUB OF EMERSON ELECTRIC CO	1320 S MAIN ST PO BOX 3538	MANSFIELD OH 44907-2516
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
27264	MOLEX INC	2222 WELLINGTON COURT	LISLE IL 60532-1613
31433	KEMET ELECTRONICS CORP	PO BOX 5928	GREENVILLE SC 29606
31781	EDAC INC	20 RAILSIDE RD	DON MILLS ONT CAN M3A 1A4
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
32159	WEST-CAP ARIZONA	2201 E ELVIRA ROAD	TUCSON AZ 85706-7026
32293	INTERSIL INC	10600 RIDGEVIEW COURT	CUPERTINO CA 95014-0704
32997	BOURNS INC	1200 COLUMBIA AVE	RIVERSIDE CA 92507-2114
33096	COLORADO CRYSTAL CORP	2303 W 8TH ST	LOVELAND CO 80537-5268
34333	SILICON GENERAL INC	11651 MONARCH ST	GARDEN GROVE CA 92641-1816

CROSS INDEX – MFR CODE NUMBER TO MANUFACTURER

Mfr Code	Manufacturer	Address	City, State, Zip Code
34335	ADVANCED MICRO DEVICES	901 THOMPSON PL	SUNNYVALE CA 94086-4518
34649	INTEL CORP	3065 BOWERS AVE	SANTA CLARA CA 95051
50434	HEWLETT-PACKARD CO	370 W TRIMBLE RD	SAN JOSE CA 95131
50579	SIEMENS COMPONENTS INC	19000 HOMESTEAD RD	CUPERTINO CA 95014-0712
54422	NORTHWEST TECHNOLOGY INC	1600 NW WASHINGTON BLVD	GRANDS PASS OR 97526-1052
54473	MATSUSHITA ELECTRIC CORP OF AMERICA	ONE PANASONIC WAY	SECAUCUS NJ 07094-2917
54937	DEYOUNG MANUFACTURING INC	12920 NE 125TH WAY	KIRKLAND WA 98034-7716
55680	NICHICON /AMERICA/ CORP	927 E STATE PKY	SCHAUMBURG IL 60195-4526
55289	SPRAGUE ELECTRIC CO	92 HAYDEN AVE	LEXINGTON MA 02173-7929
57034	ADVANCED CIRCUIT TECHNOLOGY INC	118 NORTHEASTERN BLVD	NASHUA NH 03061
57668	ROHM CORP	8 WHATNEY	IRVINE CA 92713
58361	QUALITY TECHNOLOGIES CORP	3400 HILLVIEW AVE	PALO ALTO CA 94304-1319
59660	TUSONIX INC	7741 N BUSINESS PARK DR	TUCSON AZ 85740-7144
60705	CERA-MITE CORPORATION PANASONIC INDUSTRIAL CO DIV	1327 6TH AVE PO BOX 1502	GRAFTON WI 53024-1831
61058	MATSUSHITA ELECTRIC CORP OF AMERICA	ONE PANASONIC WAY	SECAUCUS NJ 07094-2917
61772	INTEGRATED DEVICE TECHNOLOGY	3236 SCOTT BLVD	SANTA CLARA CA 95051
61857	SAN-O INDUSTRIAL CORP	85 ORVILLE DR	BOHEMIA LONG ISLAND NY 11716-2501
61892	NEC ELECTRONICS USA INC MICROCOMPUTER DIVISION ADVANCED CIRCUITS ENGINEERING	1 NATICK EXECUTIVE PARK	NATICK MA 01760
64155	LINEAR TECHNOLOGY CORP	1630 MCCARTHY BLVD	MILPITAS CA 95035-7417
66891	BKC INTERNATIONAL ELECTRONIC INC	6 LAKE ST	LAWRENCE MA 01841-3011
66958	SGS SEMICONDUCTOR CORP	1000 E BELL RD	PHOENIX AZ 85022-2649
73138	BECKMAN INDUSTRIAL CORP	4141 PALM ST	FULLERTON CA 92635
75042	IRC ELECTRONIC COMPONENTS	401 N BROAD ST	PHILADELPHIA PA 19108-1001
75498	MULTICOMP INC	3005 SW 154TH TERRACE #3	BEAVERTON OR 97006
75915	LITTELFUSE INC JW MILLER DIV	800 E NORTHWEST HWY PO BOX 5825	DES PLAINES IL 60016-3049
76493	BELL INDUSTRIES INC	19070 REYES AVE	COMPTON CA 90224-5825
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR	BEAVERTON OR 97077-0001
81483	INTERNATIONAL RECTIFIER	9220 SUNSET BLVD	LOS ANGELES CA 90069-3501
82389	SWITCHCRAFT INC	5555 N ELSTRON AVE	CHICAGO IL 60630-1314
83003	VARO INC	2203 W WALNUT ST	GARLAND TX 75042
84411	AMERICAN SHIZUKI CORP	301 WEST O ST	OGALLALA NE 69153-1844
91637	DALE ELECTRONICS INC	2064 12TH AVE	COLUMBUS NE 68601-3632
TK0213	TOPTRON CORP		TOKYO JAPAN
TK0515	EVOX-RIFA INC	100 TRI-STATE INTERNATIONAL	LINCOLNSHIRE IL 60015
TK0858	STAUFFER SUPPLY CO (DIST)	810 SE SHERMAN	PORTLAND OR 97214
TK0900	UNITED CHEMI-CON INC	9801 W HIGGINS	ROSEMONT IL 60018-4704
TK1016	TOSHIBA AMERICA INC	2692 DOW AVE	TUSTIN CA 92680
TK1345	ZMAN AND ASSOCIATES	7633 S 180TH	KENT WA 98032
TK1375	ESAM	PO BOX 376	GRANTS PASS OR 97526
TK1386	PYRAMID ELECTRONICS SUPPLY INC	9757 JUANITA DRIVE NE	KIRKLAND WA 98034
TK1456	PAPST MECHATRONIC CORP	AQUIDNECK INDUSTRIAL PK	NEWPORT RI 02840
TK1483	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907
TK2156	ACACIA/DEANCO	7763 SW CIRRRUS RD	BEAVERTON OR 97005-6452
TK2209	MICRON TECHNOLOGY INC	2805 E COLUMBIA RD	BOISE ID 83706

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A01	-----			CIRCUIT BD ASSY:PT-1 (NOT AVAIAABLE,ORDER 672-1130-00)		
A02	-----			CIRCUIT BD ASSY:PT-2 (NOT AVAIAABLE,ORDER 672-1130-00)		
A03	-----			CIRCUIT BD ASSY:LED-1 (NOT AVAIAABLE,ORDER 672-1130-00)		
A04	-----			CIRCUIT BD ASSY:LED-2 (NOT AVAIAABLE,ORDER 672-1130-00)		
A05	670-7529-00			CIRCUIT BD ASSY:KEYBOARD	80009	670-7529-00
A07	670-7534-15			CIRCUIT BD ASSY:PWR SPLY	80009	670-7534-15
A08	670-7528-07			CIRCUIT BD ASSY:INTERFACE	80009	670-7528-07
A09	670-7527-15			CIRCUIT BD ASSY:CONTROL PROCESSOR	80009	670-7527-15
A10	670-7526-15	B010100	B010323	CIRCUIT BD ASSY:I/O PROCESSOR	80009	670-7526-15
A10	670-7526-16	B010324		CIRCUIT BD ASSY:I/O PROCESSOR	80009	670-7526-16
A12	670-8689-00	B010100	B010483	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-00
A12	670-8689-01	B010484	B011626	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-01
A12	670-8689-02	B011627		CIRCUIT BD ASSY:DISPLAY	80009	670-8689-02
A13	670-8688-00	B010100	B010127	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-00
A13	670-8688-01	B010128	B010182	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-01
A13	670-8688-02	B010183	B010540	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-02
A13	670-8688-03	B010541		CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-03
A14	670-7523-10	B010100	B010883	CIRCUIT BD ASSY:TRIGGER	80009	670-7523-10
A14	670-7523-11	B010884		CIRCUIT BD ASSY:TRIGGER	80009	670-7523-11
A15	670-7524-09			CIRCUIT BD ASSY:9 CHAN ACQ (124001 ONLY)	80009	670-7524-09
A16	670-7703-07			CIRCUIT BD ASSY:18 CHANNEL ACQUISITION (124002 ONLY)	80009	670-7703-07
A21	670-7539-02			CIRCUIT BD ASSY:MAIN EXTENDER (067-1103-02 OPTIONAL ACCESSORY)	80009	670-7539-02
A22	670-8567-00			CIRCUIT BD ASSY:ACQUISITION EXTENDER (067-1103-03 OPTIONAL ACCESSORY)	80009	670-8567-00
A31	670-7696-00			CIRCUIT BD ASSY:RS232 (1200C01 OPTIONAL ACCESSORY)	80009	670-7696-00
A32	670-7697-01	B020170	B021276	CIRCUIT BD ASSY:GPIB (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-01
A32	670-7697-02	B021277	B021374	CIRCUIT BD ASSY:GPIB (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-02
A32	670-7697-03	B021375		CIRCUIT BD ASSY:GPIB (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-03
A41	670-7620-00	B010100	B013917	CIRCUIT BD ASSY:8K RAM PACK (12RS01 ONLY,OPTIONAL ACCESSORY)	80009	670-7620-00
A41	670-7620-01	B013918		CIRCUIT BD ASSY:8K RAM PACK (12RS01 ONLY,OPTIONAL ACCESSORY)	80009	670-7620-01
A42	670-7538-00			CIRCUIT BD ASSY:32K ROM PACK (067-1103-03,12RD01,12RS11,12RS12,OPTIONAL ACCESSORIES)	80009	670-7538-00
A01	-----			CIRCUIT BD ASSY:PT-1 (NOT AVAIAABLE,ORDER 672-1130-00)		
A01Q110	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A01Q130	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A01Q150	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A01Q170	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A01Q190	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A01R110	317-0105-00			RES,FXD,CMPNSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A01R130	317-0105-00			RES,FXD,CMPNSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A01R150	317-0105-00			RES,FXD,CMPNSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A01R170	317-0105-00			RES,FXD,CMPNSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A01R190	317-0105-00			RES,FXD,CMPNSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A02	-----			CIRCUIT BD ASSY:PT-2 (NOT AVAIAABLE,ORDER 672-1130-00)		

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A020110	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A020170	151-0252-01			SEMICON DVC,PH:NPN,SI,100MW,TO-18	50579	LPT 100B
A02R110	317-0105-00			RES,FXD,CMPSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A02R170	317-0105-00			RES,FXD,CMPSN:1M OHM,5%,0.125W	01121	1M 5% 0.125w
A03	-----			CIRCUIT BD ASSY:LED-1 (NOT AVAIALE,ORDER 672-1130-00)		
A03DS110	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A03DS130	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A03DS150	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A03DS170	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A03DS190	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A04	-----			CIRCUIT BD ASSY:LED-2 (NOT AVAIALE,ORDER 672-1130-00)		
A04DS110	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A04DS170	152-0621-00			SEMICON DVC,DI:LED,GAAS,1.5MW,IF=100MA	03508	LED56
A05	670-7529-00			CIRCUIT BD ASSY:KEYBOARD	80009	670-7529-00
A05C109	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C114	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C118	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C119	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C121	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C122	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C127	290-0943-00			CAP,FXD,ELCTLT:47UF,+50-20%,25V	55680	UVX1V470MPA
A05C128	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C133	290-0943-00			CAP,FXD,ELCTLT:47UF,+50-20%,25V	55680	UVX1V470MPA
A05C203	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C213	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C248	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C344	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05C539	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A05DS204	150-1043-00			LT EMITTING DIO:ORANGE,635NM,35MA MAX	58361	MV5774C
A05DS303	150-1043-00			LT EMITTING DIO:ORANGE,635NM,35MA MAX	58361	MV5774C
A05DS401	150-1043-00			LT EMITTING DIO:ORANGE,635NM,35MA MAX	58361	MV5774C
A05DS404	150-1043-00			LT EMITTING DIO:ORANGE,635NM,35MA MAX	58361	MV5774C
A05DS503	150-1043-00			LT EMITTING DIO:ORANGE,635NM,35MA MAX	58361	MV5774C
A05LR129	108-0520-00			COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A05LR134	108-0520-00			COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A05R105	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R106	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R107	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R115	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R116	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R117	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R120	301-0561-00			RES,FXD,FILM:560 OHM,5%,0.5W	01121	560 5% 0.5w
A05R200	307-0696-00			RES NTWK,FXD,FI:7.10K OHM,2%,0.15W EACH	91637	CSC08A01103G
A05R215	303-0150-00			RES,FXD,CMPSN:15 OHM,5%,1W	91637	15 5% 1.0w
A05R302	307-0790-00			RES NTWK,FXD,FI:5.220 OHM 2%,0.15W EA	91637	MSP06A01221G OR CSCO
A05R331	307-0650-00			RES NTWK,FXD,FI:9.2.7K OHM,5%,0.150W	91637	MSP10A01-272J (OR) G
A05R348	307-0540-00			RES NTWK,FXD,FI:(5)1K OHM,10%,0.7W	91637	MSP06A-01-102 G,J OR
A05R527	307-0540-00			RES NTWK,FXD,FI:(5)1K OHM,10%,0.7W	91637	MSP06A-01-102 G,J OR
A05S108	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S118	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S124	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S214	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S219	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S229	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A05S300	263-0019-39			SWITCH PB ASSY:MOMENTARY	80009	263-0019-39
A05S304	263-0019-39			SWITCH PB ASSY:MOMENTARY	80009	263-0019-39
A05S313	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S318	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S328	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S332	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S342	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S402	263-0019-39			SWITCH PB ASSY:MOMENTARY	80009	263-0019-39
A05S410	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S414	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S415	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S419	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S425	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S429	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S433	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S435	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S438	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S444	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S500	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S500	263-0019-39			SWITCH PB ASSY:MOMENTARY	80009	263-0019-39
A05S504	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S504	263-0019-39			SWITCH PB ASSY:MOMENTARY	80009	263-0019-39
A05S511	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S514	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S516	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S519	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S526	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S528	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05S536	263-0019-09			SWITCH PB ASSY:MOMENTARY	80009	263-0019-09
A05U135	156-0140-00			IC,DIGITAL:TTL,BUFFER/DRIVER;HEX BUFFER, OC	01295	7417
A05U135	156-0140-02			IC,DIGITAL:TTL,BUFFER/DRIVER;HEX BUFFER, OC	01295	7417
A05U205	156-0513-00			IC,MISC:CMOS,ANALOG MUX;8 CHANNEL;CD4051	04713	CD4051
A05U205	156-0513-02			MICROCKT,DGTL:CMOS,ANALOG MUX/DEMUX	04713	MC14051BCLD
A05U239	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A05U338	156-0738-04			IC,DIGITAL:STTL,FLIP FLOP;HEX D-TYPE, CLEAR	01295	SN74S174N3
A05U525	156-1245-00			MICROCKT,LINEAR:7 XSTR,NPN,S1,HV/HIGH CUR	04713	MC1413P
A05U529	156-0756-00			IC,DIGITAL:CMOS,DEMUX/DECODER;BCD TO	04713	4028
A05U529	156-0756-01			IC,DITITAL:CMOS,DEMUX;BINARY DECODER,SCRN	04713	4028
A07	670-7534-15			CIRCUIT BD ASSY:PWR SPLY	80009	670-7534-15
A07C101	285-1302-00			CAP,FXD,PLASTIC:0.22UF,20%,250V	61058	ECQ-E2A224M
A07C121	290-1015-00			CAP,FXD,ELCTLT:1000UF,+100-10%,200V	00853	DM102W200AA2PC
A07C122	283-0178-00			CAP,FXD,CER DI:0.1UF,20%,100V	04222	SR211C104MAA
A07C131	290-1015-00			CAP,FXD,ELCTLT:1000UF,+100-10%,200V	00853	DM102W200AA2PC
A07C161	290-0901-00			CAP,FXD,ELCTLT:800UF,+50-10%,50V	56289	674D807H050JJ5A
A07C165	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C171	290-0800-00			CAP,FXD,ELCTLT:250UF,+100-10%,20V	56289	672D257H020DM5C
A07C172	290-0932-00			CAP,FXD,ELCTLT:390UF,+100-10%,15VDC	56289	672D676
A07C173	290-0845-00			CAP,FXD,ELCTLT:330UF,+50-10%,25V	54473	ECE-A25V330L
A07C181	290-0944-00			CAP,FXD,ELCTLT:220UF,+50-20%,10V	55680	UVX1C221MPA
A07C187	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C188	290-0943-00			CAP,FXD,ELCTLT:47UF,+50-20%,25V	55680	UVX1V470MPA
A07C189	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C210	285-1302-00			CAP,FXD,PLASTIC:0.22UF,20%,250V	61058	ECQ-E2A224M
A07C211	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V	TK0515	PME 265 MB 510
A07C212	285-1196-00			CAP,FXD,PPR DI:0.01UF,20%,250V	TK0515	PME 265 MB 510
A07C274	283-0204-00			CAP,FXD,CER DI:0.1UF,20%,50V	18796	RPE110Z5U103M50V
A07C276	283-0203-00			CAP,FXD,CER DI:0.47UF,20%,50V	18796	RPE113X7R474M050V
A07C278	290-0804-00			CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C279	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discnt	Part Name & Description	Mfr Code	Mfr Part Number
A07C281	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A07C282	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A07C284	290-0804-00		CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C285	290-0804-00		CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C321	285-1203-00		CAP,FXD,PLASTIC:4UF,10%,200V	14752	C2551
A07C322	285-1203-00		CAP,FXD,PLASTIC:4UF,10%,200V	14752	C2551
A07C325	283-0696-00		CAP,FXD,MICA DI:2300PF,1%,500V	09023	CD19FD232F03
A07C341	281-0812-00		CAP,FXD,CER DI:1000PF,10%,100V	04222	SA101C102KAA
A07C361	290-0844-00		CAP,FXD,ELCTLT:100UF,+75-20%,35WVDC	54473	ECE-A35V100L
A07C362	283-0198-00		CAP,FXD,CER DI:0.22UF,20%,50V	18796	RPE122X7R224M050V
A07C364	281-0865-00		CAP,FXD,CER DI:1000PF,5%,100V	04222	SA201A102JAA
A07C371	283-0178-00		CAP,FXD,CER DI:0.1UF,20%,100V	04222	SR211C104MAA
A07C372	281-0773-00		CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A07C378	281-0865-00		CAP,FXD,CER DI:1000PF,5%,100V	04222	SA201A102JAA
A07C379	290-0891-00		CAP,FXD,ELCTLT:1UF,+75-10%,50V	55680	UVX1H010MAA
A07C383	283-0198-00		CAP,FXD,CER DI:0.22UF,20%,50V	18796	RPE122X7R224M050V
A07C384	290-0804-00		CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A07C385	290-0845-00		CAP,FXD,ELCTLT:330UF,+50-10%,25V	54473	ECE-A25V330L
A07C386	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A07C387	281-0773-00		CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A07C408	285-1302-00		CAP,FXD,PLASTIC:0.22UF,20%,250V	61058	ECQ-E2A224MW
A07C410	285-1302-00		CAP,FXD,PLASTIC:0.22UF,20%,250V	61058	ECQ-E2A224MW
A07C411	290-0944-00		CAP,FXD,ELCTLT:220UF,+50-20%,10V	55680	UVX1C221MPA
A07C427	290-0944-00		CAP,FXD,ELCTLT:220UF,+50-20%,10V	55680	UVX1C221MPA
A07C445	281-0812-00		CAP,FXD,CER DI:1000PF,10%,100V	04222	SA101C102KAA
A07C451	290-0818-01		CAP,FXD,ELCTLT:390UF,+100-10%,40V	00853	301ER391U040B2
A07C460	290-0877-00		CAP,FXD,ELCTLT:1200UF,+100-10%,6.3V	56289	6720371
A07C465	290-0844-00		CAP,FXD,ELCTLT:100UF,+75-20%,35WVDC	54473	ECE-A35V100L
A07C472	290-0845-00		CAP,FXD,ELCTLT:330UF,+50-10%,25V	54473	ECE-A25V330L
A07C487	290-0944-00		CAP,FXD,ELCTLT:220UF,+50-20%,10V	55680	UVX1C221MPA
A07CR151	152-0333-00		SEMICON DVC,DI:SW,SI,55V,200MA,DO-35	07263	FDH-6012
A07CR152	152-0333-00		SEMICON DVC,DI:SW,SI,55V,200MA,DO-35	07263	FDH-6012
A07CR153	152-0333-00		SEMICON DVC,DI:SW,SI,55V,200MA,DO-35	07263	FDH-6012
A07CR154	152-0333-00		SEMICON DVC,DI:SW,SI,55V,200MA,DO-35	07263	FDH-6012
A07CR211	152-0750-00		SEMICON DVC,DI:RECT,SI,600V,3A	83003	PB66F/PPR60
A07CR251	152-0398-00		DIODE,RECT:,FAST RCVRV;200V,1A,200NS;1N4935	04713	1N4935
A07CR252	152-0398-00		DIODE,RECT:,FAST RCVRV;200V,1A,200NS;1N4935	04713	1N4935
A07CR253	152-0655-00		SEMICON DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A07CR254	152-0655-00		SEMICON DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A07CR255	152-0398-00		DIODE,RECT:,FAST RCVRV;200V,1A,200NS;1N4935	04713	1N4935
A07CR262	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR266	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR267	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR271	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR276	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR281	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR282	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR285	152-0333-00		SEMICON DVC,DI:SW,SI,55V,200MA,DO-35	07263	FDH-6012
A07CR341	152-0398-00		DIODE,RECT:,FAST RCVRV;200V,1A,200NS;1N4935	04713	1N4935
A07CR342	152-0398-00		DIODE,RECT:,FAST RCVRV;200V,1A,200NS;1N4935	04713	1N4935
A07CR372	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR381	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR382	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR411	152-0066-00		SEMICON DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A07CR421	152-0655-00		SEMICON DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A07CR424	152-0655-00		SEMICON DVC,DI:RECT,SI,100V,3A	03508	A115AX39
A07CR431	152-0066-00		SEMICON DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A07CR445	152-0793-00		SEMICON DVC,DI:DUAL RECT,SI,40V,25A	81483	95-4564
A07CR451	152-0793-00		SEMICON DVC,DI:DUAL RECT,SI,40V,25A	81483	95-4564

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A07CR461	152-0794-00			SEMICON DVC,DI:RECT,SI,10A,30V,TO-220	81483	12CT0030
A07CR471	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR472	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07CR481	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A07DS121	150-0035-00			LAMP,GLOW:90V MAX,0.3MA,AID-T,WIRE LD	TK0213	JHD05/3011JA
A07J100	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J110	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J120	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J130	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J145	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J181	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07J301	131-2663-00			CONN,RCPT,ELEC:PWR,3 MALE,250VAC,6A	82389	EAC 303
A07J444	131-0589-00			TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
A07L115	108-0708-00			COIL,RF:FIXED,75NH	TK1345	108-0708-00
A07L151	108-0911-00			COIL,RF:FIXED,65UH	TK1345	108-0911-00
A07L171	108-1146-00			COIL,RF:FXD,18UH	TK1345	108-1146-00
A07L232	108-0808-00			COIL,RF:FIXED,500UH	TK1345	108-0808-00
A07L351	108-0911-00			COIL,RF:FIXED,65UH	TK1345	108-0911-00
A07L362	108-0585-00			COIL,RF:FIXED,116UH	TK1345	108-0585-00
A07L363	108-0317-00			COIL,RF:FIXED,15 UH	32159	71501M +- 10PERCENT
A07L445	108-1147-00			COIL,RF:FXD,122UH	TK1345	108-1147-00
A07L451	108-0909-00			COIL,RF:FIXED,1.6MH	TK1345	108-0909-00
A07L461	108-1137-00			COIL,RF:FIXED,3.2MH	TK1345	108-1137-00
A07P444	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A07Q273	151-0192-00			TRANSISTOR:NPN,SI,TO-92	04713	MPS6521_FMLY
A07Q283	151-0453-00			TRANSISTOR:PNP,SI,TO-92	27014	2N5087_FAMILY
A07Q284	151-0432-00			TRANSISTOR:NPN,SI,625MW,TO-92	04713	MPS8099_FMLY
A07Q341	151-0710-00			TRANSISTOR:NPN,SI,TO-92 PLUS	04713	2N6715A_FMLY
A07Q371	151-0503-00			SCR:SI,TO-92	04713	2N5060
A07Q379	151-0190-00			TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A07Q385	151-0710-00			TRANSISTOR:NPN,SI,TO-92 PLUS	04713	2N6715A_FMLY
A07Q387	151-0622-00			TRANSISTOR:PNP,SI,40V,1A,TO-226AE/237	04713	2N6727
A07Q421	151-0679-00			TRANSISTOR:NPN,SI,TO-220	04713	MJE13009
A07Q422	151-0679-00			TRANSISTOR:NPN,SI,TO-220	04713	MJE13009
A07Q441	151-0622-00			TRANSISTOR:PNP,SI,40V,1A,TO-226AE/237	04713	2N6727
A07Q445	151-0710-00			TRANSISTOR:NPN,SI,TO-92 PLUS	04713	2N6715A_FMLY
A07Q446	151-0622-00			TRANSISTOR:PNP,SI,40V,1A,TO-226AE/237	04713	2N6727
A07Q461	151-0621-00			TRANSISTOR:NPN,SI,T-220	04713	D44HB
A07Q471	151-0464-00			TRANSISTOR:NPN,SI,TO-220	04713	TIP29
A07Q472	151-0301-00			TRANSISTOR:PNP,SI,TO-18	04713	2N2907A
A07Q485	151-0273-00			TRANSISTOR:SELECTED	04713	2N5249_FMLY
A07Q487	151-0496-00			TRANSISTOR:NPN,SI	03508	D40K2
A07R121	315-0106-00			RES,FXD,FILM:10M OHM,5%,0.25W	01121	10M 5% 0.25w
A07R172	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A07R173	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A07R174	315-0223-00			RES,FXD,FILM:22K OHM,5%,0.25W	19701	22K 5% 0.25w
A07R175	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A07R182	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
A07R184	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A07R186	315-0242-00			RES,FXD,FILM:2.4K OHM,5%,0.25W	57668	2400 5% 0.25w
A07R221	302-0224-00			RES,FXD,CMPSN:220K OHM,10%,0.5W MI	01121	220K 10% 0.5w
A07R222	302-0224-00			RES,FXD,CMPSN:220K OHM,10%,0.5W MI	01121	220K 10% 0.5w
A07R234	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A07R245	308-0161-00			RES,FXD,WW:3 OHM,5%,8W	91637	HL-12-02Z-8
A07R261	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R263	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R264	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=TO	91637	CMF55116G10000F
A07R265	321-0193-00			RES,FXD,FILM:1K OHM,1%,0.125W,TC=TO	91637	CMF55116G10000F

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A07R271	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A07R273	315-0562-00			RES,FXD,FILM:5.6K OHM,5%,0.25W	57668	5600 5% 0.25w
A07R274	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A07R276	321-0691-00			RES,FXD,FILM:42.7K OHM,0.5%,0.125W,TC=TO	91637	CMF55116G42701D
A07R277	315-0203-00			RES,FXD,FILM:20K OHM,5%,0.25W	57668	20K 5% 0.25w
A07R282	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	19701	1M 5% 0.25w
A07R283	315-0822-00			RES,FXD,FILM:8.2K OHM,5%,0.25W	19701	8200 5% 0.25w
A07R284	321-0435-00			RES,FXD,FILM:332K OHM,1%,0.125W,TC=TO	91637	CMF55116G33202F
A07R285	315-0224-00			RES,FXD,FILM:220K OHM,5%,0.25W	57668	220K 5% 0.25w
A07R286	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
A07R287	321-0238-00			RES,FXD,FILM:2.94K OHM,1%,0.125W,TC=TO	91637	CMF55116G29400F
A07R288	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
A07R289	321-0222-00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=TO	91637	CMF55116G20000F
A07R290	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
A07R291	315-0334-00			RES,FXD,FILM:330K OHM,5%,0.25W	57668	330K 5% 0.25w
A07R301	308-0237-00			RES,FXD,WW:8.2K OHM,5%,5W	91637	CW5-82000J T/R
A07R311	308-0336-00			RES,FXD,WW:7K OHM,5%,5W	91637	CW5-2-7000J T/R
A07R321	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	57668	1500 5% 0.25w
A07R331	308-0079-00			RES,FXD,WW:117 OHM,5%,5W	91637	CW5-117R0J T/R
A07R365	315-0750-00			RES,FXD,FILM:75 OHM,5%,0.25W	57668	75 5% 0.25w
A07R366	315-0203-00			RES,FXD,FILM:20K OHM,5%,0.25W	57668	20K 5% 0.25w
A07R367	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R368	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R369	321-0222-00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=TO	91637	CMF55116G20000F
A07R370	321-0222-00			RES,FXD,FILM:2.00K OHM,1%,0.125W,TC=TO	91637	CMF55116G20000F
A07R371	317-0564-00			RES,FXD,CMPSN:560K OHM,5%,0.125W	01121	560K 5% 0.125w
A07R372	321-0661-00			RES,FXD,FILM:600 OHM,1%,0.125W,TC=TO	91637	CMF55116G600R0F
A07R373	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A07R374	301-0751-00			RES,FXD,FILM:750 OHM,5%,0.5W	19701	750 5% 0.5w
A07R375	321-0344-00			RES,FXD,FILM:37.4K OHM,1%,0.125W,TC=TO	91637	CMF55116G37401F
A07R376	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R377	315-0751-00			RES,FXD,FILM:750 OHM,5%,0.25W	57668	750 5% 0.25w
A07R378	315-0391-00			RES,FXD,FILM:390 OHM,5%,0.25W	57668	390 5% 0.25w
A07R381	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
A07R383	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R384	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R385	321-0443-00			RES,FXD,FILM:402K OHM,1%,0.125W,TC=TO	91637	CMF55116G40202F
A07R386	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	4700 5% 0.25w
A07R387	321-0134-00			RES,FXD,FILM:243 OHM,1%,0.125W,TC=TO	91637	CMF55116G243R0F
A07R388	315-0241-00			RES,FXD,FILM:240 OHM,5%,0.25W	19701	240 5% 0.25w
A07R389	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R390	307-0051-00			RES,FXD,CMPSN:2.7 OHM,5%,0.5W	01121	EB27G5
A07R440	321-0020-00			RES,FXD,FILM:15.8 OHM,1%,0.125W,TC=TO	91637	CMF55116G15R80F
A07R441	321-0041-00			RES,FXD,FILM:26.1 OHM,1%,0.125W,TC=TO	91637	CMF55116G26R10F
A07R461	308-0757-00			RES,FXD,WW:0.025 OHM,3%,5W	91637	LVR5-GR0250H
A07R462	308-0710-00			RES,FXD,WW:0.27 OHM,5%,1W	75042	BW-20-R2700J
A07R471	307-0056-00			RES,FXD,CMPSN:4.3 OHM,5%,0.5W	01121	EB43G5
A07R472	303-0242-00			RES,FXD,CMPSN:2.4K OHM,5%,1W	91637	2400 5% 1.0w
A07R473	321-0473-00			RES,FXD,FILM:825K OHM,1%,0.125W,TC=TO	91637	CMF55116G82502F
A07R474	315-0474-00			RES,FXD,FILM:470K OHM,5%,0.25W	19701	470K 5% 0.25w
A07R481	321-0469-04			RES,FXD,FILM:750K OHM,1%,.125W,TC=T2	91637	CMF55116D75002B
A07R483	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	57668	1200 5% 0.25w
A07R484	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A07R485	308-0399-01			RES,FXD,WW:10 OHM,5%,5W	91637	CW5-10R0J-BULK
A07R487	315-0152-00			RES,FXD,FILM:1.5K OHM,5%,0.25W	57668	1500 5% 0.25w
A07RT271	307-0751-00			RES,THERMAL:20K OHM,5%	91637	C1-298
A07RT311	307-0350-00			RES,THERMAL:7.5 OHM,10%,3.9%/DEG C	15454	75DJ7R5R0220SS-SIL
A07RV221	307-0663-00			RES,V SENSITIVE:330 V,0.25 W	03508	2504
A07RV224	307-0415-00			RES,V SENSITIVE:DISC	03508	V130LA10A

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discont	Part Name & Description	Mfr Code	Mfr Part Number
A07RV401	307-0415-00		RES,V SENSITIVE:DISC	03508	V130LA10A
A07S100	260-2116-01		SWITCH,SLIDE:DPDT,10A,125VAC,POWER	04426	18-100-0007
A07S401	260-2116-00		SWITCH,SLIDE:DPDT,10A,125VAC,LINE SEL	04426	18-000-0019
A07T111	120-1507-00		TRANSFORMER,RF:TOROID	TK1345	120-1507-00
A07T141	120-1354-00		XFMR,PWR,STPDN:TRIGGER,LF	75498	120-1354-00
A07T211	120-1460-00		TRANSFORMER,RF:COMMON MODE	TK1345	120-1460-00
A07T241	120-1438-00		XFMR,PWR,STPDN:CONVERTER HIGH FREQUENCY	75498	120-1438-00
A07T261	120-1266-00		TRANSFORMER,RF:TOROID	TK1345	120-1266-00
A07T431	120-1415-00		TRANSFORMER,RF:HF DRIVER,CONVERTER	75498	120-1415-00
A07T432	120-0747-00		XFMR,TOROID:	TK1345	120-0747-00
A07TP161	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP162	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP171	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP172	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP173	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP181	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP182	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP183	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP184	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP185	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP411	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP421	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07TP422	214-0579-00		TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A07U181	156-1264-00		IC,LINER:BIPOLAR,VOLTAGE REGULATOR:NEG 12V	27014	79M12
A07U275	156-0495-00		MICROCKT,LINER:OPNL AMPL	01295	LM324N
A07U371	156-1261-00		IC,LINER:BIPOLAR,VOLTAGE REGULATOR:POS 15V	04713	78115
A07U375	156-1585-02		IC,LINER:BIPOLAR,SW-REGULATOR;:3526	34333	3526
A07U385	156-1225-01		MICROCKT,LINER:DUAL COMPARATOR,SCREENED	01295	LM393P3
A07U471	156-0846-00		IC,LINER:BIPOLAR,VOLTAGE REGULATOR:NEG 5V	01295	7905C
A07U481	156-0285-02		MICROCKT,LINER:VOLTAGE RGLTR	04713	LM340T-12
A07VR271	152-0175-00		SEMICONDC,DV,DI:ZEN,SI,5.6V,5%,0.5W,DO-7	04713	SZG35008 (1N752ARL)
A07VR375	152-0217-00		DIODE,ZENER:;,8.2V,5%,0.4W,1N756A FMLY	04713	1N756A FMLY
A07VR481	153-0058-00		SEMICONDC,DV,DI:SELECTED	04713	SZG231-1
A07W301	196-1157-01		LEAD,ELECTRICAL:18 AWG,5.5 L,5-4	TK1386	ORDER BY DESCRIPTION
A07W421	195-1033-00		LEAD,ELECTRICAL:26 AWG,2.0 L,9-2	80009	195-1033-00
A07W432	175-3114-00		WIRE,ELECTRICAL:STRD,18 AWG,GRAY,PVC	80009	175-3114-00
A08	670-7528-07		CIRCUIT BD ASSY:INTERFACE	80009	670-7528-07
A08C100	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C110	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C122	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C130	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C140	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C300	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C310	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C320	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C325	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C330	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C335	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C340	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C345	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C500	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C510	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C520	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C530	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C540	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C620	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C630	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A08C640	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C700	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C730	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C810	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08C850	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A08F150	159-0169-00			FUSE,THERMAL:15A,1200V,104 DEG C	27012	4218A1
A08J150	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J250	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J350	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J450	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J550	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J630	131-2401-00			CONN,RCPT,ELEC:2 X 25,MALE	TK1483	082-2543-SD10
A08J650	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J658	131-1857-00			TERM SET,PIN:36/0.025 SQ PIN,ON 0.1 CTRS	TK1483	082-3643-SS10
A08J746	131-2401-00			CONN,RCPT,ELEC:2 X 25,MALE	TK1483	082-2543-SD10
A08J750	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08J850	131-2570-01			CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058
A08R205	307-0545-00			RES NTWK,FXD,FI:9,75 OHM,5%,0.15W	91637	MSP10A01-750J OR CSC
A08R222	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A08R230	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A08R238	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A08R310	307-0545-00			RES NTWK,FXD,FI:9,75 OHM,5%,0.15W	91637	MSP10A01-750J OR CSC
A08R410	307-0501-00			RES NTWK,FXD,FI:(5) 50 OHM,5%,0.125W	91637	MSP06A01-500J OR CSC
A08R510	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSP0
A08R511	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSP0
A08R610	307-0545-00			RES NTWK,FXD,FI:9,75 OHM,5%,0.15W	91637	MSP10A01-750J OR CSC
A08U200	156-1682-00			IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109
A08U300	156-1682-00			IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109
A08U500	156-1682-00			IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109
A08W100	175-9256-01			CA ASSY,SP,ELEC:10,22 AWG,10.0 L,RIBBON	54422	PER TEKTRONIX SPECS
A08W110	175-9256-01			CA ASSY,SP,ELEC:10,22 AWG,10.0 L,RIBBON	54422	PER TEKTRONIX SPECS
A08W120	175-9256-01			CA ASSY,SP,ELEC:10,22 AWG,10.0 L,RIBBON	54422	PER TEKTRONIX SPECS
A08W130	175-9256-01			CA ASSY,SP,ELEC:10,22 AWG,10.0 L,RIBBON	54422	PER TEKTRONIX SPECS
A09	670-7527-15			CIRCUIT BD ASSY:CONTROL PROCESSOR	80009	670-7527-15
A09BT150	146-0041-00	B010100	B010444	BATTERY,DRY:2.8,0.65AH,LITHIUM	00681	3440LP
A09BT150	146-0041-01	B010445		BATTERY,DRY:2.8,0.65AH,LITHIUM	00681	3440DE OR B-600
A09C105	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C110	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C115	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C120	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C125	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C130	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C135	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C140	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C145	290-0367-00			CAP,FXD,ELCTLT:70UF,20%,6V NONPOLARIZED	56289	30D1802
A09C160	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C167	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C200	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C207	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C214	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C217	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C220	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C224	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C236	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C243	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C248	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C252	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A09C257	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C267	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C330	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C333	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C336	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C339	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C343	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C351	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C357	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C425	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09C433	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C436	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C439	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C443	283-0423-00			CAP,FXD,CER DI:0.22UF,+80-20%,50V	04222	MD015E224ZAA
A09C467	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A09CR138	152-0075-00			SEMICON DVC,DI:SW,GE,22V,80MW,DO-7	66891	G866
A09DS321	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09DS322	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09DS323	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09DS324	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09DS421	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09DS422	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A09J100	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A09J101	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A09J242	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A09J467	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A09P305	131-2849-00			CONN,RCPT,ELEC:EDGE CARD,RTANG,2 X 18,0.1	31781	345-036-559-212
A09P467	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A09Q140	151-0190-00			TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A09Q141	151-0188-00			TRANSISTOR:PNP,SI,TO-92	04713	2N3906
A09Q221	151-0190-00			TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A09Q249	151-0188-00			TRANSISTOR:PNP,SI,TO-92	04713	2N3906
A09R138	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A09R139	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A09R140	321-0290-00			RES,FXD,FILM:10.2K OHM,1%,0.125W,TC=TO	91637	CMF55116G10201F
A09R141	321-0292-00			RES,FXD,FILM:10.7K OHM,1%,0.125W,TC=TO	91637	CMF55116G10701F
A09R142	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A09R145	315-0201-00			RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
A09R201	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R207	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R212	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	91637	MSP10A01-103M OR G
A09R214	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A09R217	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R223	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A09R228	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	680 5% 0.25w
A09R239	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
A09R246	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A09R248	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R249	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A09R250	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R251	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R252	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R253	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A09R361	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A09R363	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A09R422	307-0503-00			RES NTWK,FXD,FI:(9) 510 OHM,20%,0.125W	91637	MSP10A01-511G OR CSC
A09R423	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A09R446	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A09R449	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	91637	MSP10A01-103M OR G
A09R459	307-0446-00			RES NTWK,FXD,FI:10K OHM,20%,(9)RES	91637	MSP10A01-103M OR G
A09R461	307-1137-00			RES NTWK,FXD,FI:8,0.005 OHM,+150-50%,0.125W	00779	435704-8
A09R467	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A09TP117	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A09U105	160-3079-00			MICROCKT,DGTL:NMOS,16384 X 8 EPROM W/3	80009	160-3079-00
A09U110	160-3080-00			MICROCKT,DGTL:NMOS,16384 X 8 EPROM W/3	80009	160-3080-00
A09U115	160-3081-00			MICROCKT,DGTL:NMOS,16384 X 8 EPROM W/3	80009	160-3081-00
A09U120	160-3082-00			MICROCKT,DGTL:NMOS,16384 X 8 EPROM W/3	80009	160-3082-00
A09U125	160-3342-00			MICROCKT,DGTL:NMOS,16138 X 8 EPROM W/THREE	80009	160-3342-00
A09U130	160-3343-00			MICROCKT,DGTL:NMOS,16138 X 8 EPROM W/THREE	80009	160-3343-00
A09U135	160-1581-04			MICROCKT,DGTL:16384 X 8 EPROM,PRGM	80009	160-1581-04
A09U140	156-1225-01			MICROCKT,LINEAR:DUAL COMPARATOR,SCREENED	01295	LM393P3
A09U156	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U160	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U164	156-0422-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT	01295	SN74LS191N3
A09U201	156-0530-02			IC,DIGITAL:LSTTL,MUX;QUAD 2-TO-1, DATA	01295	SN74LS157N3
A09U204	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U207	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U211	156-1111-02			IC,DIGITAL:LSTTL,BUS TRANSCEIVER;OCTAL,	01295	SN74LS245N3
A09U214	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;DUAL 2-TO-4	01295	SN74LS139N3
A09U217	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U220	156-0865-02			IC,DIGITAL:LSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS273
A09U224	160-3083-00			MICROCKT,DGTL:NMOS,16384 X 8 EPROM W/3	80009	160-3083-00
A09U229	156-1632-00	B010100	B012878	IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A09U229	156-1632-00	B012879		IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A09U233	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;DUAL 2-TO-4	01295	SN74LS139N3
A09U236	156-0382-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT NAND	01295	74LS00
A09U239	156-1065-01			IC,DIGITAL:LSTTL,LATCH;OCTAL D-TYPE	01295	74LS373
A09U246	156-1428-02			IC,PROCESSOR:NMOS,PERIPHERAL;CLOCK	34649	8284
A09U254	156-0323-02			IC,DIGITAL:STTL,GATE;HEX INV;74S04,DIP14.3	01295	74S04
A09U255	156-0693-02			IC,DIGITAL:STTL,DEMUX/DECODER;DUAL 2-TO-4	01295	74S139
A09U257	156-0739-02			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT OR;74S32	01295	SN74S32N3
A09U258	156-0478-02			IC,DIGITAL:LSTTL,MUX;DUAL 4-INPUT AND	01295	SN74LS21N3
A09U261	156-0422-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT	01295	SN74LS191N3
A09U262	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A09U264	156-0422-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT	01295	SN74LS191N3
A09U267	156-0422-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT	01295	SN74LS191N3
A09U329	156-1697-00			IC,PROCESSOR:STTL,CONTROLLER;64K DRAM	34649	8203-3
A09U333	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U336	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U339	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U343	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U347	156-1609-00			IC,PROCESSOR:H MOS,MICROPROCESSOR;8-BIT	34649	8088
A09U351	156-1065-01			IC,DIGITAL:LSTTL,LATCH;OCTAL D-TYPE	01295	74LS373
A09U354	156-1318-00			IC,DIGITAL:LSTTL,LATCH;4-BIT BISTABLE	01295	74LS375
A09U357	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;DUAL 2-TO-4	01295	SN74LS139N3
A09U361	156-0459-02			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT AND	01295	74S08
A09U367	156-1273-01			IC,DIGITAL:LSTTL,COMPARATOR;8-BIT EQUAL TO	34335	25LS2521
A09U433	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U436	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U439	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U443	156-1626-00			MICROCKT,DGTL:NMOS,65536 X 1 DRAM	TK2209	4864
A09U451	156-1065-01			IC,DIGITAL:LSTTL,LATCH;OCTAL D-TYPE	01295	74LS373
A09U454	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A09U457	156-1111-02			IC,DIGITAL:LSTTL,BUS TRANSCEIVER;OCTAL,	01295	SN74LS245N3
A09U467	156-1273-01			IC,DIGITAL:LSTTL,COMPARATOR;8-BIT EQUAL TO	34335	25LS2521
A09VR142	152-0689-00			SEMICON DVC,DI:ZEN,SI,3.9 V,5 %,0.4W,DO-35	04713	1N748ARL

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A09VR217	152-0689-00			SEMICON DVC,DI:ZEN,SI,3.9 V,5 %,0.4W,DO-35	04713	1N748ARL
A09Y225	158-0244-00			XTAL UNIT,QTZ:24MHZ 0.01%,SERIES RESONANT	33096	CCAT101405
A09Y250	158-0135-00			XTAL UNIT,QTZ:14.7456 MHZ 0.01%,SERIES	01807	ORDER BY DESCRIPTION
A10	670-7526-15	B010100	B010323	circuit bd assy:I/O PROCESSOR	80009	670-7526-15
A10	670-7526-16	B010324		CIRCUIT BD ASSY:I/O PROCESSOR	80009	670-7526-16
A10C211	285-0862-00			CAP,FXD,PLASTIC:0.001,10%,100V	19396	DU490/74-28219
A10C323	281-0819-00			CAP,FXD,CER DI:33 PF,5%,50V	04222	SA102A330JAA
A10CR220	152-0075-00			SEMICON DVC,DI:SW,GE,22V,80MM,DO-7	66891	G866
A10R110	315-0301-00			RES,FXD,FILM:300 OHM,5%,0.25W	57668	300 5% 0.25w
A10R220	315-0562-00			RES,FXD,FILM:5.6K OHM,5%,0.25W	57668	5600 5% 0.25w
A10R222	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R223	315-0303-00			RES,FXD,FILM:30K OHM,5%,0.25W	19701	30K 5% 0.25w
A10R226	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R255	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R275	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R284	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R285	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R295	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R313	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R314	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A10R315	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
A10R321	315-0512-00			RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
A10R322	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
A10R323	315-0122-00			RES,FXD,FILM:1.2K OHM,5%,0.25W	57668	1200 5% 0.25w
A10R324	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A10R325	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A10R327	315-0220-00			RES,FXD,FILM:22 OHM,5%,0.25W	19701	22 5% 0.25w
A10R328	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R329	315-0513-00			RES,FXD,FILM:51K OHM,5%,0.25W	57668	51K 5% 0.25w
A10R338	321-0305-00			RES,FXD,FILM:14.7K OHM,1%,0.125W,TC=TO	91637	CMF55116G 14701F
A10R340	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A10R350	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A10R418	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R423	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R427	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R428	321-0414-00			RES,FXD,FILM:200K OHM,1%,0.125W,TC=TO	91637	CMF55116G20002F
A10R429	315-0332-00			RES,FXD,FILM:3.3K OHM,5%,0.25W	57668	3300 5% 0.25w
A10R430	321-0334-00			RES,FXD,FILM:29.4K OHM,1%,0.125W,TC=TO	91637	CMF55116G29401F
A10R432	321-0363-00			RES,FXD,FILM:59.0K OHM,1%,0.125W,TC=TO	91637	CMF55116G59001F
A10R435	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R436	321-0293-00			RES,FXD,FILM:11.0K OHM,1%,0.125W,TC=TO	91637	CMF55116G11001F
A10R437	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A10R480	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A10R495	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A10R520	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R522	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A10R545	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R575	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A10R650	315-0563-00			RES,FXD,FILM:56K OHM,5%,0.25W	19701	56K 5% 0.25w
A10R652	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A10R655	315-0563-00			RES,FXD,FILM:56K OHM,5%,0.25W	19701	56K 5% 0.25w
A10U160	160-3072-00			MICROCKT,DGTL:NMOS,8192 X 8,EPROM,W/THREE	80009	160-3072-00
A10U165	160-3073-00			MICROCKT,DGTL:NMOS,8192 X 8,EPROM,W/THREE	80009	160-3073-00
A10U170	160-3074-00			MICROCKT,DGTL:NMOS,8192 X 8,EPROM,W/THREE	80009	160-3074-00
A10U180	160-3075-00			MICROCKT,DGTL:NMOS,8192 X 8,EPROM,W/THREE	80009	160-3075-00
A10U185	160-3076-00			MICROCKT,DGTL:NMOS,8192 X 8,EPROM,W/THREE	80009	160-3076-00
A10VR417	152-0243-00			SEMICON DVC,DI:ZEN,SI,15V,5%,0.4W,DO-7	04713	SZ13203 (1N965BRL)

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A12	670-8689-00	B010100	B010483	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-00
A12	670-8689-01	B010484	B011626	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-01
A12	670-8689-02	B011627		CIRCUIT BD ASSY:DISPLAY	80009	670-8689-02
A12C100	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C105	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C110	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C120	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C140	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C155	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C165	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C170	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C185	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C195	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C205	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C208	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C220	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C230	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C235	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C240	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C245	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C255	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C265	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C270	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C275	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C280	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C290	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C298	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C300	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C307	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C308	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C309	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C312	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C315	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C320	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C330	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C335	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C380	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C385	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C400	283-0178-00			CAP,FXD,CER DI:0.1UF,20%,100V	04222	SR211C104MAA
A12C405	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C406	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C408	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C410	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C415	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C423	283-0775-00			CAP,FXD,MICA DI:1764 PF,1%,500V	09023	CD19FD(1764)F03
A12C425	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C445	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C446	281-0811-00			CAP,FXD,CER DI:10PF,10%,100V	04222	SA101A100KAA
A12C450	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C455	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C456	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C460	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C465	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C470	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C475	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A12C480	283-0637-00			CAP,FXD,MICA DI:20PF,2.5%,500V	09023	CD15ED200003
A12C490	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C498	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A12C508	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
AI2C526	283-0775-00			CAP,FXD,MICA DI:1764 PF,1%,500V	09023	CD19FD(1764)F03
AI2C596	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
AI2C597	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
AI2C598	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
AI2C608	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C610	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C615	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C620	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C621	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C625	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2C630	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI2CR305	152-0322-00			SEMICON DVC,DI:SCHOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
AI2CR395	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
AI2CR465	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
AI2CR476	152-0322-00			SEMICON DVC,DI:SCHOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
AI2J429	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2J508	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2L446	108-0182-00			COIL,RF:FIXED,293MH	TK1345	108-0182-00
AI2P429	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
AI2R220	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI2R295	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI2R305	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI2R396	315-0391-00			RES,FXD,FILM:390 OHM,5%,0.25W	57668	390 5% 0.25w
AI2R397	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
AI2R398	315-0272-00			RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	2700 5% 0.125w
AI2R420	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R422	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R437	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R444	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R445	315-0512-00			RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
AI2R446	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI2R450	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R452	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R455	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R460	315-0201-00			RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
AI2R465	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R466	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R470	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI2R481	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R482	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI2R484	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	57668	1800 5% 0.25w
AI2R485	315-0181-00			RES,FXD,FILM:180 OHM,5%,0.25W	57668	180 5% 0.25w
AI2R486	315-0271-00			RES,FXD,FILM:270 OHM,5%,0.25W	57668	270 5% 0.25w
AI2R490	315-0821-00			RES,FXD,FILM:820 OHM,5%,0.25W	19701	820 5% 0.25w
AI2R492	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI2R495	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI2R505	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R510	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R530	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R575	307-0811-00			RES NTWK,FXD,FI:6,180 OHM,6,270 OHM	91637	MDP-16-45
AI2R600	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI2R630	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
AI2TP225	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2TP290	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2TP425	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2TP444	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
AI2TP476	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discnt	Part Name & Description	Mfr Code	Mfr Part Number
A12TP626	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A12TP628	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A12TP660	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A12U100	156-0323-02			IC,DIGITAL:STTL,GATE;HEX INV;74S04,DIP14.3	01295	74S04
A12U105	156-0739-02			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT OR;74S32	01295	SN74S32N3
A12U108	156-0480-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT AND	01295	74LS08
A12U110	156-0479-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT OR	01295	SN74LS32N3
A12U115	156-0479-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT OR	01295	SN74LS32N3
A12U120	156-0530-02			IC,DIGITAL:LSTTL,MUX;QUAD 2-TO-1, DATA	01295	SN74LS157N3
A12U125	156-0865-02			IC,DIGITAL:LSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS273
A12U130	160-3078-00	B010100	B010717	MICROCKT,DGTL	80009	160-3078-00
A12U130	160-3078-01	B010718		MICROCKT,DGTL:NMOS,4K X 8 EPROM W/3 STATE	80009	160-3078-01
A12U140	156-0865-02			IC,DIGITAL:LSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS273
A12U145	156-2012-00	B010100	B012878	IC, MEMORY:NMOS,SRAM;2K X 8,120NS;,DIP28.6	61772	6116-120
A12U145	156-1594-00	B012879		IC, MEMORY:NMOS,SRAM;2K X 8,150NS;,DIP24.6	61772	IDT6116SA45P
A12U155	156-0982-03	B010100	B010483	IC,DIGITAL:STTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS374
A12U155	156-1704-00	B010484		IC,DIGITAL:FTTL,FLIP FLOP;OCTAL D-TYPE,	04713	74F374
A12U160	156-0530-02			IC,DIGITAL:LSTTL,MUX;QUAD 2-TO-1, DATA	01295	SN74LS157N3
A12U165	156-0530-02			IC,DIGITAL:LSTTL,MUX;QUAD 2-TO-1, DATA	01295	SN74LS157N3
A12U170	156-0459-02			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT AND	01295	74S08
A12U175	160-3077-00			MICROCKT,DGTL:HMOS,8K X 8 EPROM,PRGM	80009	160-3077-00
A12U185	156-0989-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4X4	01295	74LS670
A12U190	156-0679-01			MICROCKT,DGTL:4-BIT BINARY ADDER,SCRN	01295	74LS283
A12U195	156-0989-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4X4	01295	74LS670
A12U198	156-0784-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT BINARY	01295	SN74LS163AN P3
A12U200	156-0331-03			IC,DIGITAL:STTL,FLIP FLOP;DUAL D-TYPE;74S74	01295	SN74S74NP3
A12U205	156-0382-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT NAND	01295	74LS00
A12U208	156-0385-02	B010100	B011626	IC,DIGITAL:STTL,GATES;HEX INV;74LS04	01295	SN74LS04N3
A12U208	156-1722-00	B011627		IC,DIGITAL:FTTL,GATES;HEX INV;74F04,DIP14.3	04713	74F04
A12U210	156-0480-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT AND	01295	74LS08
A12U220	156-1998-00			IC,DIGITAL:ALSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74ALS273
A12U225	156-0865-02			IC,DIGITAL:LSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS273
A12U230	160-3558-00			MICROCKT,DGTL:STTL,OCTAL 16-IN AOI GATE	80009	160-3558-00
A12U235	160-3558-00			MICROCKT,DGTL:STTL,OCTAL 16-IN AOI GATE	80009	160-3558-00
A12U240	156-0865-02			IC,DIGITAL:LSTTL,FLIP FLOP;OCTAL D-TYPE,	01295	74LS273
A12U245	156-2012-00	B010100	B012878	IC, MEMORY:NMOS,SRAM;2K X 8,120NS;,DIP28.6	61772	6116-120
A12U245	156-1594-00	B012879		IC, MEMORY:NMOS,SRAM;2K X 8,150NS;,DIP24.6	61772	IDT6116SA45P
A12U255	156-0956-02			IC,DIGITAL:LSTTL,BUFFER;NONINV OCTAL, LINE	01295	SN74LS244N3
A12U260	156-0530-02			IC,DIGITAL:LSTTL,MUX;QUAD 2-TO-1, DATA	01295	SN74LS157N3
A12U265	156-0707-03			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT XOR GATE	01295	SN74S86(NP3 OR JP4)
A12U270	156-0321-02			IC,DIGITAL:STTL,GATE;TRIPLE 3-INPUT NAND	01295	74S10
A12U275	156-0382-02			IC,DIGITAL:LSTTL,GATES;QUAD 2-INPUT NAND	01295	74LS00
A12U280	156-1172-01			IC,DIGITAL:LSTTL,COUNTER;DUAL 4-BIT BINARY	01295	SN74LS393N3
A12U285	156-0989-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4X4	01295	74LS670
A12U290	156-0679-01			MICROCKT,DGTL:4-BIT BINARY ADDER,SCRN	01295	74LS283
A12U295	156-0989-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4X4	01295	74LS670
A12U298	156-0784-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT BINARY	01295	SN74LS163AN P3
A12U305	156-0331-03			IC,DIGITAL:STTL,FLIP FLOP;DUAL D-TYPE;74S74	01295	SN74S74NP3
A12U308	156-0331-03			IC,DIGITAL:STTL,FLIP FLOP;DUAL D-TYPE;74S74	01295	SN74S74NP3
A12U310	156-0707-03			IC,DIGITAL:STTL,GATES;QUAD 2-INPUT XOR GATE	01295	SN74S86(NP3 OR JP4)
A12U400	156-1327-00			IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A12U405	156-2158-00			IC,DIGITAL:ASTTL,GATE;HEX 2-INPUT OR DRIVER	01295	74AS832A
A12U408	156-0541-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;DUAL 2-TO-4	01295	SN74LS139N3
A12U410	156-0385-02			IC,DIGITAL:STTL,GATES;HEX INV;74LS04	01295	SN74LS04N3
A12U415	156-0331-03			IC,DIGITAL:STTL,FLIP FLOP;DUAL D-TYPE;74S74	01295	SN74S74NP3
A12U420	156-0392-03			IC,DIGITAL:LSTTL,FLIP FLOP;QUAD D-TYPE,	01295	SN74LS175N3
A12U425	156-1313-00			IC,DIGITAL:LSTTL,SHIFT REGISTER;8-BIT PISO	01295	SN74LS166AN
A12U430	156-0465-02			IC,DIGITAL:LSTTL,GATES;8-INPUT NAND;74LS30	01295	74LS30
A12U435	156-0331-03			IC,DIGITAL:STTL,FLIP FLOP;DUAL D-TYPE;74S74	01295	SN74S74NP3

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A12U450	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U455	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U460	156-1038-01			IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A12U465	156-1667-00			IC,DIGITAL:ECL,MUX;8 TO 1, SCRN;10H164	04713	10H164
A12U470	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U475	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A12U480	156-0508-02			IC,DIGITAL:TTL,LATCH;QUAD S-R LATCH;74279	01295	74279
A12U485	156-1198-01			IC,DIGITAL:STTL,COUNTER;SYNCH 4-BIT BINARY	01295	SN74S163N3
A12U495	156-0323-02			IC,DIGITAL:STTL,GATE;HEX INV;74S04,DIP14.3	01295	74S04
A12U498	156-1647-00			IC,LINEAR:BIPOLAR,COMPARATOR;QUAD;3431/3651	04713	3431/3651
A12U500	156-1647-00			IC,LINEAR:BIPOLAR,COMPARATOR;QUAD;3431/3651	04713	3431/3651
A12U505	156-0543-01			IC,DIGITAL:ECL,BUFFER/DRIVER;HEX, WITH	04713	10188
A12U510	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A12U515	156-2019-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT NOR	04713	10H100
A12U520	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A12U525	156-1700-00			IC,MEMORY:ECL,SRAM;16 X 4,6NS; ,DIP16.3	27014	10402
A12U530	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A12U535	156-1038-01			IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A12U540	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U545	156-0205-03			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT OR;10102	04713	10102
A12U550	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A12U555	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A12U560	156-1172-01			IC,DIGITAL:LSSTL,COUNTER;DUAL 4-BIT BINARY	01295	SN74LS393N3
A12U565	156-1038-01			IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A12U570	156-1667-00			IC,DIGITAL:ECL,MUX;8 TO 1, SCRN;10H164	04713	10H164
A12U580	156-0910-02			IC,DIGITAL:LSSTL,COUNTER;DUAL 4-BIT DECADE	01295	74LS390
A12U585	156-0910-02			IC,DIGITAL:LSSTL,COUNTER;DUAL 4-BIT DECADE	01295	74LS390
A12U590	156-0910-02			IC,DIGITAL:LSSTL,COUNTER;DUAL 4-BIT DECADE	01295	74LS390
A12U595	156-0390-02			IC,DIGITAL:LSSTL,DEMUX/DECODER;DUAL 2-TO-4	01295	74LS155
A12U598	156-1327-00			IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A12U600	156-1647-00			IC,LINEAR:BIPOLAR,COMPARATOR;QUAD;3431/3651	04713	3431/3651
A12U605	156-1647-00			IC,LINEAR:BIPOLAR,COMPARATOR;QUAD;3431/3651	04713	3431/3651
A12U608	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U610	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A12U615	156-1676-00			IC,DIGITAL:ECL,GATE;TRIPLE 2-INPUT EXOR/NOR	04713	10H107
A12U620	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A12Y445	158-0106-00			XTAL UNIT,QTZ;100MHZ,+/-0.0025%,SERIES	33096	CCAT505029
A12YG490	119-1502-00			OSCILLATOR,RF;19.6608MHZ,14 DIP PKG	01537	RASCO 2 @ 19.6608MH
A13	670-8688-00	B010100	B010127	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-00
A13	670-8688-01	B010128	B010182	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-01
A13	670-8688-02	B010183	B010540	CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-02
A13	670-8688-03	B010541		CIRCUIT BD ASSY:CRT DRIVE	80009	670-8688-03
A13C103	283-0067-00			CAP,FXD,CER DI:0.001UF,10%,200V	18796	DD09B10 Y5F 102K 200
A13C104	283-0067-00			CAP,FXD,CER DI:0.001UF,10%,200V	18796	DD09B10 Y5F 102K 200
A13C105	283-0212-00			CAP,FXD,CER DI:2UF,20%,50V	18796	RPE114 Z5U 205M50V
A13C111	283-0212-00			CAP,FXD,CER DI:2UF,20%,50V	18796	RPE114 Z5U 205M50V
A13C113	283-0067-00			CAP,FXD,CER DI:0.001UF,10%,200V	18796	DD09B10 Y5F 102K 200
A13C115	283-0067-00			CAP,FXD,CER DI:0.001UF,10%,200V	18796	DD09B10 Y5F 102K 200
A13C116	283-0212-00			CAP,FXD,CER DI:2UF,20%,50V	18796	RPE114 Z5U 205M50V
A13C117	283-0100-00			CAP,FXD,CER DI:0.0047UF,10%,200V	04222	SR302A472KAA
A13C118	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C123	283-0100-00			CAP,FXD,CER DI:0.0047UF,10%,200V	04222	SR302A472KAA
A13C124	283-0177-00			CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C127	283-0100-00			CAP,FXD,CER DI:0.0047UF,10%,200V	04222	SR302A472KAA
A13C133	283-0479-00			CAP,FXD,CER DI:0.47UF,+80-20%,25V	20932	501ES25DP474Z
A13C138	283-0479-00			CAP,FXD,CER DI:0.47UF,+80-20%,25V	20932	501ES25DP474Z
A13C139	290-0301-00			CAP,FXD,ELCTL:10UF,10%,20V	31433	T110B106K020AS
A13C147	281-0812-00			CAP,FXD,CER DI:1000PF,10%,100V	04222	SA101C102KAA

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discont	Part Name & Description	Mfr Code	Mfr Part Number
A13C148	281-0819-00		CAP,FXD,CER DI:33 PF,5%,50V	04222	SA102A330JAA
A13C152	285-0808-00		CAP,FXD,PLASTIC:0.1UF,10%,50V	04099	EK13-16
A13C153	285-0808-00		CAP,FXD,PLASTIC:0.1UF,10%,50V	04099	EK13-16
A13C168	285-0808-00		CAP,FXD,PLASTIC:0.1UF,10%,50V	04099	EK13-16
A13C201	283-0789-00		CAP,FXD,MICA DI:600PF,1%,500V	09023	CD15FC601F03
A13C202	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C204	283-0555-00		CAP,FXD,MICA DI:2000PF,1%,500V	09023	CD19FD202F03
A13C205	283-0555-00		CAP,FXD,MICA DI:2000PF,1%,500V	09023	CD19FD202F03
A13C213	283-0789-00		CAP,FXD,MICA DI:600PF,1%,500V	09023	CD15FC601F03
A13C214	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C215	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C216	290-0973-00		CAP,FXD,ELCTLT:100UF,20%,25VDC	55680	UVX1V101MPA
A13C220	290-0746-00		CAP,FXD,ELCTLT:47UF,+50-20%,16V	TK0900	SM35VB47RMBX11LL
A13C223	281-0772-00		CAP,FXD,CER DI:4700PF,10%,100V	04222	SA201C472KAA
A13C224	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C225	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C226	283-0057-00		CAP,FXD,CER DI:0.1UF,+80-20%,200V	04222	SR302E105ZAA
A13C227	283-0057-00		CAP,FXD,CER DI:0.1UF,+80-20%,200V	04222	SR302E105ZAA
A13C228	285-0627-00		CAP,FXD,PLASTIC:0.0033UF,5%,100V	19396	DJ490/74-28227
A13C231	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C242	290-0804-00		CAP,FXD,ELCTLT:10UF,+50-20%,25V	55680	UVX1E100MAA
A13C243	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C244	290-0950-00		CAP,FXD,ELCTLT:100UF,+50-20%,50WVDC	55680	ULB1H101MPA
A13C247	290-0844-00		CAP,FXD,ELCTLT:100UF,+75-20%,35WVDC	54473	ECE-A35V100L
A13C248	290-0942-00		CAP,FXD,ELCTLT:100UF,+100-10%,25V	55680	UPA1E101MPH
A13C250	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C253	290-0751-00		CAP,FXD,ELCTLT:2200UF,+50-10%,16V	56289	D76245
A13C266	281-0813-00		CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A13C270	290-0782-00		CAP,FXD,ELCTLT:4.7UF,+75-20%,35VDC	55680	UVX1V4R7MAA
A13C271	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C274	281-0813-00		CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
A13C280	281-0785-00		CAP,FXD,CER DI:68PF,10%,100V	04222	SA101A680KAA
A13C317	283-0784-00		CAP,FXD,MICA DI:40PF,2%,500V	09023	CD15ED400G03
A13C324	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C327	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C328	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C331	290-0746-00		CAP,FXD,ELCTLT:47UF,+50-20%,16V	TK0900	SM35VB47RMBX11LL
A13C333	285-1100-00		CAP,FXD,PLASTIC:0.022UF,5%,200V	19396	223J02PT485
A13C341	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C347	283-0065-00		CAP,FXD,CER DI:0.001UF,5%,50V	59660	0835-591-Y5E0-102J
A13C348	290-0922-00		CAP,FXD,ELCTLT:1000UF,20%,50V	TK0900	SM50VB102M16X30LL
A13C357	290-0966-00		CAP,FXD,ELCTLT:220UF,+50-20%,25V	55680	TLB1E221MAA
A13C371	290-0922-00		CAP,FXD,ELCTLT:1000UF,20%,50V	TK0900	SM50VB102M16X30LL
A13C421	283-0781-00		CAP,FXD,MICA DI:27PF,5%,500V	09023	CD15ED27QJ03
A13C424	283-0212-00		CAP,FXD,CER DI:2UF,20%,50V	18796	RPE114 Z5U 205M50V
A13C425	283-0194-00		CAP,FXD,CER DI:4.7UF,20%,50V	18796	RPE117-Z5U-47M050V
A13C429	283-0212-00		CAP,FXD,CER DI:2UF,20%,50V	18796	RPE114 Z5U 205M50V
A13C445	290-0916-00		CAP,FXD,ELCTLT:2200UF,+50-20%,35WVDC	TK0900	SM35VB222M18X35LL
A13C447	285-1262-00		CAP,FXD,PLASTIC:0.015UF,5%,400VDC	84411	TEK 264 .015 5 400
A13C460	290-0973-00		CAP,FXD,ELCTLT:100UF,20%,25VDC	55680	UVX1V101MPA
A13C465	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C467	283-0177-00		CAP,FXD,CER DI:1UF,+80-20%,25V	18796	RPE113Z5U0105Z50V
A13C520	283-0105-00		CAP,FXD,CER DI:0.01UF,+80-20%,2000V	60705	564CBA202IP203ZA02
A13C528	285-0893-00		CAP,FXD,PLASTIC:1UF,10%,200V	04099	TEK13-7
A13C537	283-0624-00		CAP,FXD,MICA DI:1300PF,2%,500V	09023	CD19FD132G03
A13C543	290-0975-00		CAP,FXD,ELCTLT:33UF,20%,100VDC	55680	TLB2A330MCA
A13C544	290-0408-01		CAP,FXD,ELCTLT:100UF,+50-20%,100WVDC	55680	TLB2A101MCA
A13C545	283-0279-00		CAP,FXD,CER DI:0.001UF,20%,3000V	18796	DHR12Y5S102M3KV
A13C547	283-0279-00		CAP,FXD,CER DI:0.001UF,20%,3000V	18796	DHR12Y5S102M3KV
A13C548	290-0408-01		CAP,FXD,ELCTLT:100UF,+50-20%,100WVDC	55680	TLB2A101MCA

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix		Serial Number		Part Name & Description	Mfr Code	Mfr Part Number
	Part Number	Effect	Discont				
A13C554	290-0950-00				CAP,FXD,ELCTLT:100UF,+50-20%,50WVDC	55680	ULB1H101MPA
A13C555	281-0809-00				CAP,FXD,CER DI:200 PF,5%,100V	04222	SA101A201JAA
A13C557	283-0107-00				CAP,FXD,CER DI:51PF,5%,200V	18796	RPE110-COG-510J-200V
A13C560	285-0924-00				CAP,FXD,PLASTIC:1.7UF,10%,200V	84411	TEK120 1.7 10 200
A13C565	290-0782-00				CAP,FXD,ELCTLT:4.7UF,+75-20%,35VDC	55680	UVX1V4R7MAA
A13C566	281-0820-00				CAP,FXD,CER DI:680 PF,10%,50V	04222	SA101C681KAA
A13C567	281-0775-00				CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C568	281-0775-00				CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C569	283-0198-00				CAP,FXD,CER DI:0.22UF,20%,50V	18796	RPE122X7R224M050V
A13C573	281-0775-00				CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A13C578	290-0782-00				CAP,FXD,ELCTLT:4.7UF,+75-20%,35VDC	55680	UVX1V4R7MAA
A13C625	285-1262-00				CAP,FXD,PLASTIC:0.015UF,5%,400VDC	84411	TEK 264 .015 5 400
A13C635	290-0880-00				CAP,FXD,ELCTLT:10UF,+50-10%,160V	TK0900	SL160VB10RT10X20LL
A13CR115	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR121	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR125	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR183	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR233	152-0581-00				SEMICON DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A13CR247	152-0581-00				SEMICON DVC,DI:RECT,SI,20V,1A,A59	04713	1N5817
A13CR266	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR273	152-0322-00				SEMICON DVC,DI:SCHOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
A13CR282	152-0323-00				SEMICON DVC,DI:SW,SI,35V,0.1A,DO-7	12954	MT5282
A13CR283	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR284	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR325	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR332	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR333	152-0400-00				DIODE,RECT: ,FAST RCVRY;400V,1A,200NS;1N4936	04713	SR1977KRL
A13CR334	152-0400-00				DIODE,RECT: ,FAST RCVRY;400V,1A,200NS;1N4936	04713	SR1977KRL
A13CR337	152-0400-00				DIODE,RECT: ,FAST RCVRY;400V,1A,200NS;1N4936	04713	SR1977KRL
A13CR340	152-0066-00				SEMICON DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A13CR360	152-0661-00				DIODE,RECT: ,FAST RCVRY;600V,3A,200NS;MR856,	04713	MR856 SEE NOTES
A13CR422	152-0400-00				DIODE,RECT: ,FAST RCVRY;400V,1A,200NS;1N4936	04713	SR1977KRL
A13CR424	152-0400-00				DIODE,RECT: ,FAST RCVRY;400V,1A,200NS;1N4936	04713	SR1977KRL
A13CR466	152-0066-00				SEMICON DVC,DI:RECT,SI,400V,1A,DO-41	05828	GP10G-020
A13CR521	152-0752-00				SEMICON DVC,DI:RECT,SI,1A,1500V,A59,MED	TK1016	1R5TH61
A13CR528	152-0661-00				DIODE,RECT: ,FAST RCVRY;600V,3A,200NS;MR856,	04713	MR856 SEE NOTES
A13CR552	152-0141-02				SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A13CR622	152-0353-00				SEMICON DVC,DI:RECT,SI,800V,1W	14099	GP10K-014
A13CR626	152-0353-00				SEMICON DVC,DI:RECT,SI,800V,1W	14099	GP10K-014
A13CR660	152-0061-00				SEMICON DVC,DI:SW,SI,175V,0.1A,DO-35	07263	FDH2161
A13CR661	152-0574-00				SEMICON DVC,DI:SW,SI,120V,0.150MA,4NS,D035	12969	NDP566
A13F468	159-0059-00				FUSE,WIRE LEAD:5A,125V	61857	SPI-5A
A13J187	131-1003-00				CONN,RCPT,ELEC:CKT BD MT,3 PRONG	80009	131-1003-00
A13J189	131-0608-00				TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13J200	131-0608-00				TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13J265	131-2247-00				TERM,FEEDTHRU:3 PIN,INSULATED	27264	09-61-1031
A13J288	131-1003-00				CONN,RCPT,ELEC:CKT BD MT,3 PRONG	80009	131-1003-00
A13J464	131-2485-00				TERM SET,PIN:2 PIN,INSULATED	27264	09-60-1021
A13J475	131-1262-00				CONN,RCPT,ELEC:EDGE CARD,20/40 CONT,0.1 SP	05574	000201-4338
A13J548	131-2527-00				TERM SET,PIN:HEADER,1 X 7,0.156 CTR	27264	26-51-2073
A13J675	131-0608-00				TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13L271	108-0245-00				CHOKE,RF:FIXED,3.9UH, +/- 10 %, Q 35, DCR	76493	B6310-1
A13L351	108-0324-00				COIL,RF:FIXED,10MH	76493	B6387
A13L453	108-1165-01				COIL,LINERITY:60 OHM	02113	G6391A
A13L573	108-0245-00				CHOKE,RF:FIXED,3.9UH, +/- 10 %, Q 35, DCR	76493	B6310-1
A13L662	108-0249-00				CHOKE,RF:FIXED,12MF	04072	B-4992
A13Q100	151-1183-00				TRANSISTOR,PWR:MOS,P-CH;60V,0.6A,1.6 OHM	81483	IRFD-9113

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A13Q102	151-1063-00			TRANSISTOR, PWR: MOS, N-CH; 60V, 0.8A, 0.8 OHM	04713	IRFD113
A13Q105	151-1183-00			TRANSISTOR, PWR: MOS, P-CH; 60V, 0.6A, 1.6 OHM	81483	IRFD-9113
A13Q107	151-1063-00			TRANSISTOR, PWR: MOS, N-CH; 60V, 0.8A, 0.8 OHM	04713	IRFD113
A13Q110	151-1183-00			TRANSISTOR, PWR: MOS, P-CH; 60V, 0.6A, 1.6 OHM	81483	IRFD-9113
A13Q112	151-1063-00			TRANSISTOR, PWR: MOS, N-CH; 60V, 0.8A, 0.8 OHM	04713	IRFD113
A13Q175	151-0188-00			TRANSISTOR: PNP, SI, TO-92	04713	2N3906
A13Q176	151-0127-00			TRANSISTOR: NPN, SI, TO-18	04713	2N2369 FMLY
A13Q176	151-0367-00			TRANSISTOR, SIG: BIPOLAR, NPN; 25V, 30MA, 1.0GHZ	04713	SPS8811 SPECIAL
A13Q177	151-0127-00			TRANSISTOR: NPN, SI, TO-18	04713	2N2369 FMLY
A13Q178	151-0367-00			TRANSISTOR, SIG: BIPOLAR, NPN; 25V, 30MA, 1.0GHZ	04713	SPS8811 SPECIAL
A13Q188	151-0254-00			TRANSISTOR: DARLINGTON, NPN, SI, 625MM, TO-92	04713	MPSA14
A13Q237	151-0190-00			TRANSISTOR: NPN, SI, TO-92	04713	2N3904
A13Q238	151-0435-00			TRANSISTOR: DARLINGTON, PNP, SI, TO-92	04713	MPSA65
A13Q267	151-0221-00			TRANSISTOR, SIG: BIPOLAR, PNP; 12V, 80MA	04713	PN4258
A13Q273	151-0220-00			TRANSISTOR: PNP, SI, TO-92	07263	2N3906_FAMILY
A13Q275	151-1090-00			TRANSISTOR: FET, DUAL, N CHANNEL, SI	17856	2N5911_FAMILY
A13Q277	151-0220-00			TRANSISTOR: PNP, SI, TO-92	07263	2N3906_FAMILY
A13Q334	151-1191-00			TRANSISTOR, PWR: MOS, N-CH; 150V, 5.0A, 0.8 OHM	04713	STP7012
A13Q455	151-1186-00			TRANSISTOR, PWR: MOS, N-CH; 400V, 8.0A, 0.55 OHM	04713	MTH8N40
A13Q534	151-1147-00			TRANSISTOR, PWR: MOS, N-CH; 350V, 5.5A, 1.0 OHM	04713	IRF731
A13Q558	151-0190-00			TRANSISTOR: NPN, SI, TO-92	04713	2N3904
A13Q563	151-0711-00			TRANSISTOR: NPN, SI, TO-92B	04713	MPSH10 FMLY
A13Q564	151-0439-00			TRANSISTOR: NPN, SI, X-51C	27014	D40E7
A13R103	315-0220-00			RES, FXD, FILM: 22 OHM, 5%, 0.25W	19701	22 5% 0.25w
A13R104	315-0220-00			RES, FXD, FILM: 22 OHM, 5%, 0.25W	19701	22 5% 0.25w
A13R107	315-0220-00			RES, FXD, FILM: 22 OHM, 5%, 0.25W	19701	22 5% 0.25w
A13R108	315-0153-00			RES, FXD, FILM: 15K OHM, 5%, 0.25W	19701	15K 5% 0.25w
A13R113	315-0220-00			RES, FXD, FILM: 22 OHM, 5%, 0.25W	19701	22 5% 0.25w
A13R114	315-0153-00			RES, FXD, FILM: 15K OHM, 5%, 0.25W	19701	15K 5% 0.25w
A13R115	315-0303-00			RES, FXD, FILM: 30K OHM, 5%, 0.25W	19701	30K 5% 0.25w
A13R118	315-0510-00			RES, FXD, FILM: 51 OHM, 5%, 0.25W	19701	51 5% 0.25w
A13R120	315-0303-00			RES, FXD, FILM: 30K OHM, 5%, 0.25W	19701	30K 5% 0.25w
A13R123	315-0510-00			RES, FXD, FILM: 51 OHM, 5%, 0.25W	19701	51 5% 0.25w
A13R125	315-0303-00			RES, FXD, FILM: 30K OHM, 5%, 0.25W	19701	30K 5% 0.25w
A13R138	307-0542-00			RES NETWORK, FXD, FI: (5) 10K OHM, 5%, 0.125W	91637	CSC06A01-103J (OR) G
A13R140	315-0103-00			RES, FXD, FILM: 10K OHM, 5%, 0.25W	19701	10K 5% 0.25w
A13R141	315-0103-00			RES, FXD, FILM: 10K OHM, 5%, 0.25W	19701	10K 5% 0.25w
A13R142	315-0153-00			RES, FXD, FILM: 15K OHM, 5%, 0.25W	19701	15K 5% 0.25w
A13R143	315-0474-00			RES, FXD, FILM: 470K OHM, 5%, 0.25W	19701	470K 5% 0.25w
A13R144	315-0243-00			RES, FXD, FILM: 24K OHM, 5%, 0.25W	57668	24K 5% 0.25w
A13R146	311-1270-01			RES, VAR, NONNW: TRMR, 25K OHM, 0.5W	73138	82P R25K
A13R147	315-0224-00			RES, FXD, FILM: 220K OHM, 5%, 0.25W	57668	220K 5% 0.25w
A13R151	311-0613-00			RES, VAR, NONNW: TRMR, 100K OHM, 0.5W	32997	3329H-G48-104
A13R154	307-0023-00			RES, FXD, CMPSN: 4.7 OHM, 10%, 0.5W	01121	EB47G1
A13R156	315-0114-00			RES, FXD, FILM: 110K OHM, 5%, 0.25W	19701	110K 5% 0.25w
A13R157	315-0474-00			RES, FXD, FILM: 470K OHM, 5%, 0.25W	19701	470K 5% 0.25w
A13R160	311-0613-00			RES, VAR, NONNW: TRMR, 100K OHM, 0.5W	32997	3329H-G48-104
A13R161	311-0613-00			RES, VAR, NONNW: TRMR, 100K OHM, 0.5W	32997	3329H-G48-104
A13R165	311-0605-00	B010100	B010182	RES, VAR, NONNW: TRMR, 200 OHM, 0.5W	32997	3329H-G48-201
A13R165	311-0635-00	B010183		RES, VAR, NONNW: TRMR, 1K OHM, 0.5W	32997	3329H-L58-102
A13R166	315-0101-00	B010100	B010182	RES, FXD, FILM: 100 OHM, 5%, 0.25W	57668	100 5% 0.25w
A13R166	315-0201-00	B010183		RES, FXD, FILM: 200 OHM, 5%, 0.25W	57668	200 5% 0.25w
A13R173	315-0202-00			RES, FXD, FILM: 2K OHM, 5%, 0.25W	57668	2000 5% 0.25w
A13R174	321-0030-00			RES, FXD, FILM: 20.0 OHM, 1%, 0.125W, TC=TO	91637	CMF55116620R0CF
A13R175	315-0103-00			RES, FXD, FILM: 10K OHM, 5%, 0.25W	19701	10K 5% 0.25w
A13R176	321-0147-00			RES, FXD, FILM: 332 OHM, 1%, 0.125W, TC=TO	91637	CMF551166332R0F
A13R179	311-0643-03			RES, VAR, NONNW: TRMR, 50 OHM, 0.5W	73138	82PR50-381B
A13R181	315-0241-00			RES, FXD, FILM: 240 OHM, 5%, 0.25W	19701	240 5% 0.25w
A13R183	315-0151-00			RES, FXD, FILM: 150 OHM, 5%, 0.25W	57668	150 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix		Serial Number		Part Name & Description	Mfr Code	Mfr Part Number
	Part Number	Effect	Discont				
AI3R185	321-0108-00				RES,FXD,FILM:130 OHM 1%,0.125W,TC=TO	91637	CMF55116G130ROF
AI3R186	321-0774-00				RES,FXD,FILM:4.5K OHM,1%,0.125 TC=TO	91637	CMF55116G45000F
AI3R187	315-0222-00				RES,FXD,FILM:2.2K OHM,5%,0.25W	57668	2200 5% 0.25w
AI3R202	315-0300-00				RES,FXD,FILM:30 OHM,5%,0.25W	19701	30 5% 0.25w
AI3R203	321-0273-00				RES,FXD,FILM:6.81K OHM,1%,0.125W,TC=TO	91637	CMF55116G68100F
AI3R204	321-0335-00				RES,FXD,FILM:30.1K OHM,1%,0.125W,TC=TO	91637	CMF55116G30101F
AI3R211	321-0273-00				RES,FXD,FILM:6.81K OHM,1%,0.125W,TC=TO	91637	CMF55116G68100F
AI3R212	321-0335-00				RES,FXD,FILM:30.1K OHM,1%,0.125W,TC=TO	91637	CMF55116G30101F
AI3R213	315-0300-00				RES,FXD,FILM:30 OHM,5%,0.25W	19701	30 5% 0.25w
AI3R214	315-0102-00				RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI3R215	321-0215-00				RES,FXD,FILM:1.69K OHM,1%,0.125W,TC=TO	91637	CMF55116G16900F
AI3R216	321-0235-00				RES,FXD,FILM:2.74K OHM,1%,0.125W,TC=TO	91637	CMF55116G27400F
AI3R217	315-0102-00				RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI3R218	315-0123-00				RES,FXD,FILM:12K OHM,5%,0.25W	57668	12K 5% 0.25w
AI3R219	315-0680-00				RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI3R220	311-1862-00				RES,VAR,NONMW:TRMR,5K OHM,0.5W	73138	82PR5K-102C
AI3R221	315-0680-00				RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI3R222	311-0643-03				RES,VAR,NONMW:TRMR,50 OHM,0.5W	73138	82PR50-381B
AI3R223	315-0154-00				RES,FXD,FILM:150K OHM,5%,0.25W	57668	150K 5% 0.25w
AI3R224	315-0243-00				RES,FXD,FILM:24K OHM,5%,0.25W	57668	24K 5% 0.25w
AI3R225	315-0302-00				RES,FXD,FILM:3K OHM,5%,0.25W	57668	3000 5% 0.25w
AI3R226	321-0234-00				RES,FXD,FILM:2.67K OHM,1%,0.125W,TC=TO	91637	CMF55116G26700F
AI3R231	315-0101-00				RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
AI3R232	321-0215-00				RES,FXD,FILM:1.69K OHM,1%,0.125W,TC=TO	91637	CMF55116G16900F
AI3R233	315-0394-00				RES,FXD,FILM:390K OHM,5%,0.25W	57668	390K 5% 0.25w
AI3R235	315-0512-00				RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
AI3R237	315-0513-00				RES,FXD,FILM:51K OHM,5%,0.25W	57668	51K 5% 0.25w
AI3R238	315-0513-00				RES,FXD,FILM:51K OHM,5%,0.25W	57668	51K 5% 0.25w
AI3R245	315-0104-00				RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
AI3R246	315-0100-00				RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
AI3R250	315-0124-00				RES,FXD,FILM:120K OHM,5%,0.25W	19701	120K 5% 0.25w
AI3R251	308-0365-00				RES,FXD,WW:1.5 OHM,5%,3W	91637	CM2B-1R500J T/R
AI3R266	321-0108-00				RES,FXD,FILM:130 OHM 1%,0.125W,TC=TO	91637	CMF55116G130ROF
AI3R267	321-0176-00				RES,FXD,FILM:665 OHM,1%,0.125W,TC=TO	91637	CMF55116G665ROF
AI3R268	321-0607-00				RES,FXD,FILM:80 OHM,1%,0.125W,TC=TO	91637	CMF55116G80ROOF
AI3R272	315-0220-00				RES,FXD,FILM:22 OHM,5%,0.25W	19701	22 5% 0.25w
AI3R277	315-0241-00				RES,FXD,FILM:240 OHM,5%,0.25W	19701	240 5% 0.25w
AI3R278	315-0100-00				RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
AI3R280	315-0104-00				RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
AI3R281	315-0105-00				RES,FXD,FILM:1M OHM,5%,0.25W	19701	1M 5% 0.25w
AI3R282	315-0470-00				RES,FXD,FILM:47 OHM,5%,0.25W	57668	47 5% 0.25w
AI3R284	315-0161-00				RES,FXD,FILM:160 OHM,5%,0.25W	19701	160 5% 0.25w
AI3R285	315-0105-00				RES,FXD,FILM:1M OHM,5%,0.25W	19701	1M 5% 0.25w
AI3R286	315-0103-00				RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
AI3R321	315-0391-00				RES,FXD,FILM:390 OHM,5%,0.25W	57668	390 5% 0.25w
AI3R323	321-0204-00				RES,FXD,FILM:1.30K OHM,1%,0.125W,TC=TO	91637	CMF55116G13000F
AI3R324	321-0388-00				RES,FXD,FILM:107K OHM,1%,0.125W,TC=TO	91637	MFF1816G10702F
AI3R325	311-1232-00				RES,VAR,NONMW:TRMR,50K OHM,0.5W	32997	3386F-1-503
AI3R326	315-0300-00				RES,FXD,FILM:30 OHM,5%,0.25W	19701	30 5% 0.25w
AI3R327	315-0300-00				RES,FXD,FILM:30 OHM,5%,0.25W	19701	30 5% 0.25w
AI3R331	315-0475-00				RES,FXD,FILM:4.7M OHM,5%,0.25W	01121	4.7M 5% 0.25w
AI3R332	321-0414-00				RES,FXD,FILM:200K OHM,1%,0.125W,TC=TO	91637	CMF55116G200002F
AI3R334	315-0513-00				RES,FXD,FILM:51K OHM,5%,0.25W	57668	51K 5% 0.25w
AI3R337	315-0100-00				RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
AI3R340	315-0510-00				RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
AI3R341	315-0100-00				RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
AI3R342	315-0100-00				RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
AI3R343	315-0561-00				RES,FXD,FILM:560 OHM,5%,0.25W	19701	560 5% 0.25w
AI3R345	315-0223-00				RES,FXD,FILM:22K OHM,5%,0.25W	19701	22K 5% 0.25w
AI3R346	315-0162-00				RES,FXD,FILM:1.6K OHM,5%,0.25W	19701	1600 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A13R353	303-0243-00			RES,FXD,CMPSN:24K OHM,5%,1W	91637	24K 5% 1.0w
A13R418	308-0677-00			RES,FXD,WW:1 OHM,5%,2W	75042	SPH 1 OHM 5 PERCENT
A13R422	321-0385-00			RES,FXD,FILM:100K OHM,1%,0.125W,TC=TO	91637	CMF55116G1000ZF
A13R425	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	4700 5% 0.25w
A13R426	321-0412-00			RES,FXD,FILM:191K OHM,1%,0.125W,TC=TO	91637	CMF55116G1910ZF
A13R427	321-0756-00			RES,FXD,FILM:50K OHM,1%,0.125W,TC=TO	91637	CMF55116G50001F
A13R431	315-0912-00			RES,FXD,FILM:9.1K OHM,5%,0.25W	57668	9100 5% 0.25w
A13R432	315-0472-00			RES,FXD,FILM:4.7K OHM,5%,0.25W	57668	4700 5% 0.25w
A13R433	321-0289-00			RES,FXD,FILM:10.0K OHM,1%,0.125W,TC=TO	91637	CMF55116G10001F
A13R435	317-0102-00			RES,FXD,CMPSN:1K OHM,5%,0.125W	01121	1000 5% 0.125w
A13R452	303-0201-00			RES,FXD,CMPSN:200 OHM,5%,1W	01121	200 5% 1.0w
A13R466	321-0109-00			RES,FXD,FILM:133 OHM,1%,0.125W,TC=TO	91637	CMF55116G133R0F
A13R467	321-0199-00			RES,FXD,FILM:1.15K OHM,1%,0.125W,TC=TO	91637	CMF55116G11500F
A13R533	315-0474-00			RES,FXD,FILM:470K OHM,5%,0.25W	19701	470K 5% 0.25w
A13R535	311-2296-00			RES,VAR,WW:TRIMMER,2.5 MEGOHMS,0.5W	32997	3386N-HV2-255
A13R540	325-0399-00			RES,FXD,FILM:470K,5%,1W	91637	CMF65-42G474J
A13R541	325-0399-00			RES,FXD,FILM:470K,5%,1W	91637	CMF65-42G474J
A13R552	315-0682-00			RES,FXD,FILM:6.8K OHM,5%,0.25W	57668	6800 5% 0.25w
A13R553	315-0100-00			RES,FXD,FILM:10 OHM,5%,0.25W	19701	10 5% 0.25w
A13R555	315-0274-00			RES,FXD,FILM:270K OHM,5%,0.25W	57668	270K 5% 0.25w
A13R556	315-0104-00			RES,FXD,FILM:100K OHM,5%,0.25W	57668	100K 5% 0.25w
A13R557	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	3900 5% 0.25w
A13R562	315-0430-00			RES,FXD,FILM:43 OHM,5%,0.25W	19701	43 5% 0.25w
A13R565	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
A13R566	315-0560-00			RES,FXD,FILM:56 OHM,5%,0.25W	57668	56 5% 0.25w
A13R567	315-0153-00			RES,FXD,FILM:15K OHM,5%,0.25W	19701	15K 5% 0.25w
A13R571	315-0334-00			RES,FXD,FILM:330K OHM,5%,0.25W	57668	330K 5% 0.25w
A13R578	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A13R652	303-0101-00			RES,FXD,CMPSN:100 OHM,5%,1W	91637	100 5% 1.0w
A13R665	308-0406-00			RES,FXD,WW:1.2K OHM,1%,3W	91637	RS2B-B12000F
A13T366	120-1652-00			TRANSFORMER,PWR:AUTO	54937	120-1652-00
A13T411	119-2066-00	B010100	B010127	XFMR ASSEMBLY	80009	119-2066-00
A13T411	119-2066-01	B010128		XFMR ASSEMBLY:HIGH VOLTAGE	75498	119-2066-01
A13T435	120-1653-00			TRANSFORMER,RF:WESSLE	54937	120-1653-00
A13TP148	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP178	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP205	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP210	214-0579-00			TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
A13TP223	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP224	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP238	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP242	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP270	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP315	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP340	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP344	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP372	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP430	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP456	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP470	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP524	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP534	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP551	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP565	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP569	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP630	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP636	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13TP650	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A13U117	156-2458-00			IC,DIGITAL:CMOS,BUFFER;DUAL INVERTER;426	15818	426

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discnt	Part Name & Description	Mfr Code	Mfr Part Number
A13U123	156-2458-00			IC,DIGITAL:CMOS,BUFFER;DUAL INVERTER;426	15818	426
A13U134	156-1172-01			IC,DIGITAL:LSTTL,COUNTER;DUAL 4-BIT BINARY	01295	SN74LS393N3
A13U138	160-3557-00			MICROCKT,DGTL:STTL,OCTAL 16-IN AOI GATE	80009	160-3557-00
A13U207	156-1191-01			MICROCKT,LINER:BIFET,DUAL OPNL AMPL,SCRN	01295	TL072C/LF353
A13U218	156-1147-02			IC,MISC:BIPOLAR,PLL;:1391,DIP8.3	27014	1391
A13U236	156-1408-00			MICROCKT,LINER:TIMER,LOW POWER	32293	ITS9217
A13U241	156-1693-03			IC,MISC:BIPOLAR,VIDEO SUBSYSTEM;VERTICAL	66958	TD1170S
A13U336	156-2458-00			IC,DIGITAL:CMOS,BUFFER;DUAL INVERTER;426	15818	426
A13U347	156-1161-00			MICROCKT,LINER:VOLTAGE REGULATOR,POS,ADJ	04713	LM317T
A13U420	156-1191-01			MICROCKT,LINER:BIFET,DUAL OPNL AMPL,SCRN	01295	TL072C/LF353
A13U431	156-2514-00			IC,LINER:BIPOLAR,OP-AMP;HIGH VOLTAGE;1436	04713	MC1436
A13U465	156-1967-00			IC,LINER:BIPOLAR,VOLTAGE REGULATOR;POS	27014	350
A13VR116	152-0055-00			SEMICON DVC,DI:ZEN,SI,11V,5%,0.4W,DO-7	04713	SZG35009K1 (1N962B)
A13VR122	152-0055-00			SEMICON DVC,DI:ZEN,SI,11V,5%,0.4W,DO-7	04713	SZG35009K1 (1N962B)
A13VR126	152-0055-00			SEMICON DVC,DI:ZEN,SI,11V,5%,0.4W,DO-7	04713	SZG35009K1 (1N962B)
A13VR321	152-0611-00			SEMICON DVC,DI:ZEN,SI,9V,2%,0.4W,DO-7	04713	1N960_FMLY
A13VR336	152-0749-00			SEMICON DVC,DI:ZEN,SI,82V,5%,5W,A-LEE	04713	1N5375B
A13VR423	152-0022-00			SEMICON DVC,DI:ZEN,SI,25V,5%,1W,A31A	04713	SZ12815RL
A13VR428	152-0282-00			DIODE,ZENER: :30V,2%,0.4W;1N972C,DO-35 OR 7	04713	1N972C
A13VR510	152-0824-00			SEMICON DVC,DI:BI DIR TRANSIENT SUPPR,SI	04713	P6KE51CA
A13VR530	152-0247-00			SEMICON DVC,DI:ZEN,SI,150V,5%,0.4W,DO-7	04713	SZG275K1RL
A13VR531	152-0289-00			DIODE,ZENER: :180V,5%,0.4W;1N991B,DO-35 OR	04713	1N991B
A13VR533	152-0289-00			DIODE,ZENER: :180V,5%,0.4W;1N991B,DO-35 OR	04713	1N991B
A13VR565	152-0667-00			SEMICON DVC,DI:ZEN,SI,3.0 V # 2% AT 2MA	04713	SZG30025RL
A13W219	175-6420-00			CA ASSY,SP,ELEC:10,24 AWG,0.50 L,RIBBON	57034	CSJ-050-10-.5KCT
A13W239	175-6420-00			CA ASSY,SP,ELEC:10,24 AWG,0.50 L,RIBBON	57034	CSJ-050-10-.5KCT
A13W254	175-6420-00			CA ASSY,SP,ELEC:10,24 AWG,0.50 L,RIBBON	57034	CSJ-050-10-.5KCT
A13W268	175-6420-00			CA ASSY,SP,ELEC:10,24 AWG,0.50 L,RIBBON	57034	CSJ-050-10-.5KCT
A13W512	174-0081-00			BRAID ASSY,WIRE:7.0 L	TK2156	61952
A13W568	131-0566-00			BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	24546	OMA 07
A14	670-7523-10	B010100	B010883	CIRCUIT BD ASSY:TRIGGER	80009	670-7523-10
A14	670-7523-11	B010884		CIRCUIT BD ASSY:TRIGGER	80009	670-7523-11
A14C115	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C120	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C125	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C130	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C132	281-0809-00			CAP,FXD,CER DI:200 PF,5%,100V	04222	SA101A201JAA
A14C133	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C135	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C150	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C160	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C175	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C178	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C180	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C185	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C190	290-0891-00			CAP,FXD,ELCTLT:1UF,+75 -10%,50V	55680	UVX1H010MAA
A14C210	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C235	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C236	281-0767-00			CAP,FXD,CER DI:330PF,20%,100V	04222	SA102C331MAA
A14C330	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C333	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C375	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A14C382	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A14C410	281-0811-00			CAP,FXD,CER DI:10PF,10%,100V	04222	SA101A100KAA
A14C462	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A14C516	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C525	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A14C527	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A14C533	281-0819-00			CAP,FXD,CER DI:33 PF,5%,50V	04222	SA102A330JAA
A14C535	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C550	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
A14C560	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C610	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C612	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A14C618	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C638	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C650	281-0811-00	B010884		CAP,FXD,CER DI:10PF,10%,100V	04222	SA101A100KAA
A14C652	281-0763-00			CAP,FXD,CER DI:47PF,10%,100V	04222	SA101A470KAA
A14C660	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C665	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A14C675	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A14CR165	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A14CR295	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A14CR340	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A14CR585	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A14DL355	119-1088-00	B010100	B010444	DELAY LINE,ELEC:4NS,100 OHM	01961	PE-20943
A14DL355	119-1088-01	B010445		DELAY LINE,ELEC:4NS,100 OHM	01961	PE-20943
A14DL356	119-1088-00	B010100	B010444	DELAY LINE,ELEC:4NS,100 OHM	01961	PE-20943
A14DL356	119-1088-01	B010445		DELAY LINE,ELEC:4NS,100 OHM	01961	PE-20943
A14DL366	119-1380-00			DELAY LINE,ELEC:10NS,100 OHM,TAPPED,7 SIP	01961	PE 20662
A14DL368	119-1380-00			DELAY LINE,ELEC:10NS,100 OHM,TAPPED,7 SIP	01961	PE 20662
A14DL456	119-1380-00			DELAY LINE,ELEC:10NS,100 OHM,TAPPED,7 SIP	01961	PE 20662
A14DL480	119-1416-00			DELAY LINE,ELEC:5NS,100 OHM,TAPPED	01961	PE 20661-001
A14DL510	119-1380-00			DELAY LINE,ELEC:10NS,100 OHM,TAPPED,7 SIP	01961	PE 20662
A14DL575	119-1380-00			DELAY LINE,ELEC:10NS,100 OHM,TAPPED,7 SIP	01961	PE 20662
A14J148	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J246	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J255	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J310	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J365	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J372	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J375	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J385	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J452	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J460	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J510	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J514	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J550	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J615	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14J620	131-2221-00			CONN,RCPT,ELEC:CKT BD,50 CONT,MALE	22526	65626-150
A14J630	131-2221-00			CONN,RCPT,ELEC:CKT BD,50 CONT,MALE	22526	65626-150
A14J633	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14P148	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P246	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P255	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P365	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P372	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P375	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P452	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P460	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P510	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P514	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P550	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14P615	131-0993-00			BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
A14R110	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R133	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
A14R136	315-0561-00			RES,FXD,FILM:560 OHM,5%,0.25W	19701	560 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A14R140	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R147	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R155	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R186	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R215	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R220	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R225	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R230	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R240	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R250	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R265	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R275	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R285	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R295	307-0598-00			RES NTWK,FXD,FI:7,330 OHM,2%,1.0W	91637	MSPO8A01331G OR CSCO
A14R310	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R312	315-0120-00			RES,FXD,FILM:12 OHM,5%,0.25W	19701	12 5% 0.25w
A14R314	315-0911-00			RES,FXD,FILM:910 OHM,5%,0.25W	57668	910 5% 0.25w
A14R320	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R325	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R333	315-0271-00			RES,FXD,FILM:270 OHM,5%,0.25W	57668	270 5% 0.25w
A14R334	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
A14R335	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R345	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R348	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R358	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R365	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R366	311-0605-00			RES,VAR,NONMW:TRMR,200 OHM,0.5W	32997	3329H-G48-201
A14R370	317-0101-00			RES,FXD,CMPSN:100 OHM,5%,0.125W	01121	100 5% 0.125w
A14R371	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A14R373	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R374	311-0605-00			RES,VAR,NONMW:TRMR,200 OHM,0.5W	32997	3329H-G48-201
A14R375	315-0222-00			RES,FXD,FILM:2.2K OHM,5%,0.25W	57668	2200 5% 0.25w
A14R378	315-0621-00			RES,FXD,FILM:620 OHM,5%,0.25W	57668	620 5% 0.25w
A14R385	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A14R388	315-0131-00			RES,FXD,FILM:130 OHM,5%,0.25W	19701	130 5% 0.25w
A14R395	307-0598-00			RES NTWK,FXD,FI:7,330 OHM,2%,1.0W	91637	MSPO8A01331G OR CSCO
A14R410	315-0111-00			RES,FXD,FILM:110 OHM,5%,0.25W	57668	110 5% 0.25w
A14R412	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A14R414	311-2082-00			RES,VAR,NONMW:TRMR,200 OHM,10%,0.5W	32997	3386F-T04-201
A14R420	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R424	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A14R428	315-0201-00			RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
A14R430	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R433	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R435	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R442	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R445	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R456	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R461	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R462	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	57668	1800 5% 0.25w
A14R465	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R470	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R476	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R480	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R485	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R495	307-0598-00			RES NTWK,FXD,FI:7,330 OHM,2%,1.0W	91637	MSPO8A01331G OR CSCO
A14R510	311-2082-00			RES,VAR,NONMW:TRMR,200 OHM,10%,0.5W	32997	3386F-T04-201
A14R515	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R520	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A14R521	315-0681-00			RES,FXD,FILM:680 OHM,5%,0.25W	57668	680 5% 0.25w
A14R524	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R525	317-0561-00			RES,FXD,CMPSN:560 OHM,5%,0.125W	01121	560 5% 0.125w
A14R526	315-0272-00			RES,FXD,FILM:2.7K OHM,5%,0.25W	57668	2700 5% 0.125w
A14R530	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R533	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R538	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R541	317-0101-00			RES,FXD,CMPSN:100 OHM,5%,0.125W	01121	100 5% 0.125w
A14R542	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R544	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R545	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R550	317-0101-00			RES,FXD,CMPSN:100 OHM,5%,0.125W	01121	100 5% 0.125w
A14R551	311-0605-00			RES,VAR,NONWM:TRMR,200 OHM,0.5W	32997	3329H-G48-201
A14R552	317-0221-00			RES,FXD,CMPSN:220 OHM,5%,0.125W	01121	220 5% 0.125w
A14R554	317-0101-00			RES,FXD,CMPSN:100 OHM,5%,0.125W	01121	100 5% 0.125w
A14R555	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R565	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R570	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R585	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R586	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A14R610	311-2082-00			RES,VAR,NONWM:TRMR,200 OHM,10%,0.5W	32997	3386F-T04-201
A14R611	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A14R612	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
A14R613	315-0470-00			RES,FXD,FILM:47 OHM,5%,0.25W	57668	47 5% 0.25w
A14R614	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R615	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R616	307-0721-00			RES NTWK,FXD,FI:5.68 OHM,2%,1.5 W	91637	CSC10A03680G OR MSP1
A14R617	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
A14R618	307-0721-00			RES NTWK,FXD,FI:5.68 OHM,2%,1.5 W	91637	CSC10A03680G OR MSP1
A14R620	307-0594-00			RES NTWK,FXD,FI:(8)220 OHM,2%,0.125W	91637	CSC08A01-221G OR MSP
A14R622	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A14R624	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A14R625	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R626	307-0721-00			RES NTWK,FXD,FI:5.68 OHM,2%,1.5 W	91637	CSC10A03680G OR MSP1
A14R628	307-0721-00			RES NTWK,FXD,FI:5.68 OHM,2%,1.5 W	91637	CSC10A03680G OR MSP1
A14R635	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R640	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R652	317-0680-00			RES,FXD,CMPSN:68 OHM,5%,0.125W	01121	68 5% 0.125w
A14R653	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R655	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R656	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A14R657	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A14R658	317-0101-00	B010884		RES,FXD,CMPSN:100 OHM,5%,0.125W	01121	100 5% 0.125w
A14R670	307-0811-00			RES NTWK,FXD,FI:6,180 OHM,6,270 OHM	91637	MDP-16-45
A14R672	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R676	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14R679	315-0181-00			RES,FXD,FILM:180 OHM,5%,0.25W	57668	180 5% 0.25w
A14R680	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A14R681	315-0201-00			RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
A14R684	317-0680-00			RES,FXD,CMPSN:68 OHM,5%,0.125W	01121	68 5% 0.125w
A14R685	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A14TP118	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP160	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP180	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP248	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP260	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP262	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP343	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP344	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discnt	Part Name & Description	Mfr Code	Mfr Part Number
A14TP358	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP516	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP520	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP534	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP535	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP536	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP538	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP563	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP645	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP646	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP648	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP649	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP654	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP660	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14TP695	131-0608-00		TERMINAL, PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A14U110	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U115	156-0760-01		IC, DIGITAL: ECL, LATCH; QUINT D-TYPE; 10175	04713	10175
A14U120	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U125	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U130	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U133	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U135	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U140	156-1733-00		IC, DIGITAL: ECL, GATE; QUAD OR/NOR, SCRN	04713	10H101
A14U145	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U150	156-1339-00		MICROCKT, LINEAR: HIGH SPEED DUAL DIFF COMPTR	18324	NE521N/SUPRII-B
A14U155	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U160	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U165	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U170	156-1327-00		IC, DIGITAL: CMOS, FLIP FLOP; OCTAL D-TYPE,	27014	74C374
A14U175	156-1327-00		IC, DIGITAL: CMOS, FLIP FLOP; OCTAL D-TYPE,	27014	74C374
A14U180	156-1327-00		IC, DIGITAL: CMOS, FLIP FLOP; OCTAL D-TYPE,	27014	74C374
A14U185	156-1327-00		IC, DIGITAL: CMOS, FLIP FLOP; OCTAL D-TYPE,	27014	74C374
A14U190	156-1327-00		IC, DIGITAL: CMOS, FLIP FLOP; OCTAL D-TYPE,	27014	74C374
A14U210	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U215	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U220	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U223	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U225	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U230	156-2142-00		IC, DIGITAL: ECL, COUNTER; 4-BIT BINARY; 10H016	04713	10H016
A14U235	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U240	156-1642-01		IC, DIGITAL: ECL, GATES; TRIPLE 2-3-2 INPUT	04713	10H105
A14U245	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U250	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U255	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U260	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U265	156-1641-01		IC, DIGITAL: ECL, GATES; QUAD 2-INPUT NOR	04713	10H102
A14U270	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U275	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U280	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U285	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U290	156-1647-00		IC, LINEAR: BIPOLAR, COMPARATOR; QUAD; 3431/3651	04713	3431/3651
A14U295	156-1111-02		IC, DIGITAL: LSTTL, BUS TRANSCEIVER; OCTAL,	01295	SN74LS245N3
A14U315	156-1639-01		IC, DIGITAL: ECL, FLIP FLOP; DUAL D-TYPE MASTER	04713	10H131
A14U320	156-1642-01		IC, DIGITAL: ECL, GATES; TRIPLE 2-3-2 INPUT	04713	10H105
A14U325	156-1682-00		IC, DIGITAL: ECL, GATE; DUAL 4-5-INPUT OR/NOR	04713	10H109
A14U330	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U333	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U335	156-1700-01		IC, MEMORY: ECL, SRAM; 16 X 4, 6NS; , DIP16.3	04713	10H145
A14U340	156-1733-00		IC, DIGITAL: ECL, GATE; QUAD OR/NOR, SCRN	04713	10H101

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A14U345	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U350	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A14U360	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U395	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A14U415	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A14U420	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A14U425	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U430	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A14U433	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U435	156-1038-01			IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A14U440	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U445	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A14U450	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A14U460	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U465	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A14U470	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A14U475	156-1733-00			IC,DIGITAL:ECL,GATE;QUAD OR/NOR, SCRN	04713	10H101
A14U480	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A14U485	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U490	156-2142-00			IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10H016	04713	10H016
A14U495	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A14U515	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U520	156-1795-00			IC,DIGITAL:ECL,MUX;DUAL 4-TO-1;10H174	04713	10H174
A14U525	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U530	156-1682-00			IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109
A14U533	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A14U535	156-1676-00			IC,DIGITAL:ECL,GATE;TRIPLE 2-INPUT EXOR/NOR	04713	10H107
A14U540	156-1700-01			IC,MEMORY:ECL,SRAM;16 X 4,6NS;,DIP16.3	04713	10H145
A14U545	156-1849-00			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT OR;10H103	04713	10H103
A14U555	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U560	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A14U565	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U570	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U575	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U580	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U585	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U590	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U595	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A14U615	156-0205-02			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT OR;10102	04713	10102
A14U620	156-0743-01			MICROCKT,DGTL;HEX D MA SLAVE FF W/RESET	04713	10186
A14U625	156-0630-01			IC,DIGITAL:ECL,BUFFER/DRIVER;HEX INVERTER	04713	10195
A14U630	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U633	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U635	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U640	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U645	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U650	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A14U655	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U660	156-1676-00			IC,DIGITAL:ECL,GATE;TRIPLE 2-INPUT EXOR/NOR	04713	10H107
A14U665	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A14U675	156-1794-00			IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A14U680	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A14U685	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U690	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A14U695	156-1676-00			IC,DIGITAL:ECL,GATE;TRIPLE 2-INPUT EXOR/NOR	04713	10H107
A14Y614	158-0255-00			XTAL UNIT,QTZ;12.0MHZ 0.015%,SER	14301	011-008-02407
A15	670-7524-09			CIRCUIT BD ASSY;9 CHAN ACQ (D1 ONLY)	80009	670-7524-09

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
AI5C100	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C115	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C125	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C135	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C152	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C155	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C160	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C170	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C188	281-0792-00			CAP,FXD,CER DI:82PF,10%,100V	04222	SA102A820KAA
AI5C190	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
AI5C192	281-0809-00			CAP,FXD,CER DI:200 PF,5%,100V	04222	SA101A201JAA
AI5C262	281-0814-00			CAP,FXD,CER DI:100 PF,10%,100V	04222	SA101A101KAA
AI5C270	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C275	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C280	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
AI5C281	290-0778-00			CAP,FXD,ELCTL:1UF,20%,50V,NPLZD	TK0900	SM BP(D)50VB1R0 M 5
AI5C282	290-0778-00			CAP,FXD,ELCTL:1UF,20%,50V,NPLZD	TK0900	SM BP(D)50VB1R0 M 5
AI5C285	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C290	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C294	283-0204-00			CAP,FXD,CER DI:0.01UF,20%,50V	18796	RPE110Z5U103M50V
AI5C295	281-0813-00			CAP,FXD,CER DI:0.047UF,20%,50V	04222	SA105E473MAA
AI5C310	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C315	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C320	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C330	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C335	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C341	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C345	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C347	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C352	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C355	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C365	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C375	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C380	290-0778-00			CAP,FXD,ELCTL:1UF,20%,50V,NPLZD	TK0900	SM BP(D)50VB1R0 M 5
AI5C385	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C400	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C410	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C414	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C420	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C430	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C447	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C455	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
AI5C456	281-0765-00			CAP,FXD,CER DI:100PF,5%,100V	04222	SA102A101JAA
AI5C457	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C460	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C470	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C475	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C480	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C490	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C510	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C515	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C535	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C538	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C565	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C575	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C608	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C618	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5C695	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
AI5CR250	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A15CR270	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR271	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR286	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR291	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR293	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR294	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR295	152-0141-02			SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A15CR678	152-0322-00			SEMICON DVC,DI:SCHOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
A15DL360	119-1088-00			DELAY LINE,ELEC:4NS,100 OHM	01961	PE-20943
A15L294	108-0520-00			COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A15L295	108-0520-00			COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A150475	151-0341-00			TRANSISTOR:PNP,SI,TO-106	04713	MPS3565_FAMILY
A150600	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150605	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150608	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150610	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150615	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150618	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150620	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150625	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A150628	151-0342-00			TRANSISTOR:PNP,SI,TO-92	04713	2N4249_FAMILY
A15R100	307-0640-00			RES NTWK,FXD,FI:9.50 OHM,5%,0.125 W	91637	MSP10A-01500J/G OR C
A15R115	307-0489-00			RES NTWK,FXD,FI:7.100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A15R120	307-0489-00			RES NTWK,FXD,FI:7.100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A15R135	307-0486-00			RES NTWK,FXD,FI:100 OHM,20%,1.125W	91637	MSP10A01-101J OR G C
A15R150	307-0489-00			RES NTWK,FXD,FI:7.100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A15R165	307-0503-00			RES NTWK,FXD,FI:(9) 510 OHM,20%,0.125W	91637	MSP10A01-511G OR CSC
A15R180	311-1245-00			RES,VAR,NONNW:TRMR,10K OHM,0.5W	32997	3386X-DY6-103
A15R181	311-1248-00			RES,VAR,NONNW:TRMR,500 OHM,0.5W	32997	3386X-1-501
A15R182	315-0105-00			RES,FXD,FILM:1M OHM,5%,0.25W	19701	1M 5% 0.25w
A15R183	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A15R184	321-0260-09			RES,FXD,FILM:4.99K OHM,1%,.125W,TC=T9	91637	CMF55116C49900F
A15R185	315-0203-00			RES,FXD,FILM:20K OHM,5%,0.25W	57668	20K 5% 0.25w
A15R186	321-0159-08			RES,FXD,FILM:442 OHM,1%,0.125W,TC=T2	91637	CMF55116D442R0F
A15R190	321-0414-04			RES,FXD,FILM:200K OHM,0.1%,0.125W,TC=T2	91637	CMF55116D20002B
A15R191	321-0924-07			RES,FXD,FILM:40K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C40001B
A15R257	307-0489-00			RES NTWK,FXD,FI:7.100 OHM,20%,1.0W	91637	MSP08A-01-101J OR G
A15R280	321-0318-07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
A15R281	321-0318-07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
A15R282	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A15R290	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A15R291	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	3900 5% 0.25w
A15R295	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A15R300	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R305	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R315	307-0486-00			RES NTWK,FXD,FI:100 OHM,20%,1.125W	91637	MSP10A01-101J OR G C
A15R322	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A15R325	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A15R330	307-0486-00			RES NTWK,FXD,FI:100 OHM,20%,1.125W	91637	MSP10A01-101J OR G C
A15R331	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A15R338	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A15R342	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-101G OR CSC
A15R346	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-101G OR CSC
A15R350	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R352	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-101G OR CSC
A15R376	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A15R377	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R378	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R379	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A15R380	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R381	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R382	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R383	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R384	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A15R385	307-0539-00			RES NTWK,FXD,FI:(7)510 OHM,10%,1W	91637	MSPO8A01-511K OR G O
A15R395	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R397	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R400	307-0486-00			RES NTWK,FXD,FI:100 OHM,20%,1.125W	91637	MSP10A01-101J OR G C
A15R401	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A15R415	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A15R430	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSPO8A-01-101J OR G
A15R437	317-0151-00			RES,FXD,CMPNSN:150 OHM,5%,0.125W	01121	150 5% 0.125w
A15R442	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-1D1G OR CSC
A15R456	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-1D1G OR CSC
A15R475	307-0503-00			RES NTWK,FXD,FI:(9) 510 OHM,20%,0.125W	91637	MSP10A01-511G OR CSC
A15R480	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R482	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R485	307-0503-00			RES NTWK,FXD,FI:(9) 510 OHM,20%,0.125W	91637	MSP10A01-511G OR CSC
A15R490	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R530	315-0620-00			RES,FXD,FILM:62 OHM,5%,0.25W	19701	62 5% 0.25w
A15R531	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
A15R532	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
A15R533	315-0620-00			RES,FXD,FILM:62 OHM,5%,0.25W	19701	62 5% 0.25w
A15R534	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R535	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A15R536	315-0200-00			RES,FXD,FILM:20 OHM,5%,0.25W	19701	20 5% 0.25w
A15R538	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-1D1G OR CSC
A15R546	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-1D1G OR CSC
A15R556	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-1D1G OR CSC
A15R565	307-0486-00			RES NTWK,FXD,FI:100 OHM,20%,1.125W	91637	MSP10A01-101J OR G C
A15R570	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSPO8A-01-101J OR G
A15R575	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSPO8A-01-101J OR G
A15R600	307-0445-00			RES NTWK,FXD,FI:4.7K OHM,20%,(9)RES	91637	MSP10A-01-472G,J,K O
A15R630	307-0489-00			RES NTWK,FXD,FI:7,100 OHM,20%,1.0W	91637	MSPO8A-01-101J OR G
A15TP185	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A15TP250	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A15TP291	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A15TP325	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A15TP665	131-0608-00			TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A15U100	156-2172-00			IC, MEMORY:ECL, SRAM;256 X 4,13NS, ,DIP24.4	27014	10422
A15U115	156-2172-00			IC, MEMORY:ECL, SRAM;256 X 4,13NS, ,DIP24.4	27014	10422
A15U120	156-2172-00			IC, MEMORY:ECL, SRAM;256 X 4,13NS, ,DIP24.4	27014	10422
A15U125	156-2172-00			IC, MEMORY:ECL, SRAM;256 X 4,13NS, ,DIP24.4	27014	10422
A15U135	156-2172-00			IC, MEMORY:ECL, SRAM;256 X 4,13NS, ,DIP24.4	27014	10422
A15U140	156-1642-01			IC, DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A15U145	156-1647-00			IC, LINEAR:BIPOLAR, COMPARATOR;QUAD;3431/3651	04713	3431/3651
A15U150	156-1038-01			IC, DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A15U155	156-0295-02			IC, DIGITAL:ECL,GATE;TRIPLE 2-INPUT XOR OR	04713	10107
A15U160	156-1226-00			MICROCKT, LINEAR:DUAL COMPARATOR	64155	LM319N
A15U165	156-1647-00			IC, LINEAR:BIPOLAR, COMPARATOR;QUAD;3431/3651	04713	3431/3651
A15U170	156-1327-00			IC, DIGITAL:CMOS, FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A15U175	156-1311-01			IC, CONVERTER:BIPOLAR, D/A;8-BIT;5018, DIP22.4	18324	5018
A15U245	156-1647-00			IC, LINEAR:BIPOLAR, COMPARATOR;QUAD;3431/3651	04713	3431/3651
A15U250	156-1038-01			IC, DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A15U255	156-1038-01			IC, DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A15U260	156-1641-01			IC, DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A15U265	156-1647-00			IC, LINEAR:BIPOLAR, COMPARATOR;QUAD;3431/3651	04713	3431/3651
A15U270	156-1327-00			IC, DIGITAL:CMOS, FLIP FLOP;OCTAL D-TYPE,	27014	74C374

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Discont	Part Name & Description	Mfr Code	Mfr Part Number
A15U275	156-1327-00			IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A15U290	156-0385-02			IC,DIGITAL:LSTTL,GATES;HEX INV;74LS04	01295	SN74LS04N3
A15U295	156-1191-01			MICROCKT,LINEAR:BIFET,DUAL OPNL AMPL,SCRN	01295	TL072C/LF353
A15U300	156-0579-02			IC,DIGITAL:CMOS,COUNTER;DUAL 4-BIT BINARY	04713	4520
A15U310	156-1712-00			IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A15U315	156-0543-01			IC,DIGITAL:ECL,BUFFER/DRIVER;HEX, WITH	04713	10188
A15U320	156-1712-00			IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A15U330	156-1712-00			IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A15U335	156-1712-00			IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A15U340	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A15U345	156-1674-00			IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A15U350	156-1641-01			IC,DIGITAL:ECL,GATES;QUAD 2-INPUT NOR	04713	10H102
A15U355	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A15U390	156-0784-02			IC,DIGITAL:LSTTL,COUNTER;SYNCH 4-BIT BINARY	01295	SN74LS163AN P3
A15U410	156-1685-00			IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A15U415	156-1685-00			IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A15U420	156-0543-01			IC,DIGITAL:ECL,BUFFER/DRIVER;HEX, WITH	04713	10188
A15U425	156-1685-00			IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A15U430	156-0543-01			IC,DIGITAL:ECL,BUFFER/DRIVER;HEX, WITH	04713	10188
A15U435	156-1685-00			IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A15U440	156-1642-01			IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A15U445	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A15U450	156-1733-00			IC,DIGITAL:ECL,GATE;QUAD OR/NOR, SCRN	04713	10H101
A15U455	156-1795-00			IC,DIGITAL:ECL,MUX;DUAL 4-TO-1;10H174	04713	10H174
A15U475	156-1327-00			IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A15U480	156-1277-00			MICROCKT,DGTL:LSTTL,3-STATE OCTAL BFR,SCRN	27014	81LS95
A15U490	156-0734-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4-BIT,	01295	74LS259
A15U495	156-0734-02			IC,DIGITAL:LSTTL,SHIFT REGISTER;4-BIT,	01295	74LS259
A15U500	155-0270-00			MICROCKT,DGTL:FRONT END CIRCUIT	80009	155-0270-00
A15U510	155-0270-00			MICROCKT,DGTL:FRONT END CIRCUIT	80009	155-0270-00
A15U520	155-0270-00			MICROCKT,DGTL:FRONT END CIRCUIT	80009	155-0270-00
A15U535	156-1733-00			IC,DIGITAL:ECL,GATE;QUAD OR/NOR, SCRN	04713	10H101
A15U540	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A15U545	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A15U550	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A15U555	156-1710-00			IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A15U560	156-1639-01			IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A15U565	156-0743-01			MICROCKT,DGTL:HEX D MA SLAVE FF W/RESET	04713	10186
A15U570	156-0743-01			MICROCKT,DGTL:HEX D MA SLAVE FF W/RESET	04713	10186
A15U575	156-0743-01			MICROCKT,DGTL:HEX D MA SLAVE FF W/RESET	04713	10186
A15U580	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A15U590	156-0469-02			IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A15U595	156-1111-02			IC,DIGITAL:LSTTL,BUS TRANSCEIVER;OCTAL,	01295	SN74LS245N3
A15U630	156-1682-00			IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109
A15U635	156-1640-01			IC,DIGITAL:ECL,MISC;TRIPLE LINE RECEIVER	04713	10H116
A16	670-7703-07			CIRCUIT BD ASSY:18 CHANNEL ACQUISITION (D2 ONLY)	80009	670-7703-07
A16C101	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C102	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C103	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C110	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C117	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C129	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C136	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C142	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C143	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C144	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C145	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C146	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix	Serial Number		Part Name & Description	Mfr Code	Mfr Part Number
	Part Number	Effect	Discont			
A16C152	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A16C162	290-0177-00			CAP,FXD,ELCTLT:1UF,20%,50V	31433	T322B105M050AS
A16C163	290-0177-00			CAP,FXD,ELCTLT:1UF,20%,50V	31433	T322B105M050AS
A16C164	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A16C165	281-0792-00			CAP,FXD,CER DI:82PF,10%,100V	04222	SA102A820KAA
A16C203	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C207	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C210	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C215	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C220	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C222	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C223	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C234	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C243	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C244	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C245	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C246	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A16C247	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C252	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A16C254	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C263	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C264	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C267	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C303	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C308	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C311	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C312	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C315	283-0182-00			CAP,FXD,CER DI:51PF,5%,400V	04222	SR208A310JAA
A16C316	283-0182-00			CAP,FXD,CER DI:51PF,5%,400V	04222	SR208A310JAA
A16C320	283-0154-00			CAP,FXD,CER DI:22PF,5%,50V	18796	RPE110C0G220J050V
A16C321	283-0154-00			CAP,FXD,CER DI:22PF,5%,50V	18796	RPE110C0G220J050V
A16C329	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C333	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C339	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C340	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C347	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C354	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C359	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C364	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C402	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C404	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C410	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C418	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C423	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C429	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C430	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C453	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C455	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C463	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C501	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA
A16C502	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C507	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C510	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C512	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C517	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C520	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A16C521	281-0759-00			CAP,FXD,CER DI:22PF,10%,100V	04222	SA101A220KAA
A16C522	283-0422-00			CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MD015E473ZAB
A16C523	281-0773-00			CAP,FXD,CER DI:0.01UF,10%,100V	04222	SA201C103KAA

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discont	Part Name & Description	Mfr Code	Mfr Part Number
A16C524	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C534	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C540	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C546	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C555	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C559	283-0422-00		CAP,FXD,CER DI:0.047UF,+80-20%,50V	04222	MDO15E473ZAB
A16C567	290-0284-00		CAP,FXD,ELCTLT:4.7UF,10%,35V	12954	D4R7B35K1
A16CR113	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR144	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR145	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR148	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR149	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR166	152-0322-00		SEMICON DVC,DI:SCOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
A16CR244	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR245	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR248	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR249	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16CR259	152-0322-00		SEMICON DVC,DI:SCOTTKY,SI,15V,1.2PF,DO-35	50434	5082-2811
A16CR567	152-0141-02		SEMICON DVC,DI:SW,SI,30V,150MA,30V,DO-35	07263	1N4152
A16L160	108-0520-00		COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A16L161	108-0520-00		COIL,RF:FIXED,2.2UH	TK1345	108-0520-00
A16Q352	151-0190-00		TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A16Q353	151-0188-00		TRANSISTOR:PNP,SI,TO-92	04713	2N3906
A16R102	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R103	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R104	315-0512-00		RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
A16R112	315-0512-00		RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
A16R142	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R144	321-0924-07		RES,FXD,FILM:40K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C40001B
A16R145	321-0414-00		RES,FXD,FILM:200K OHM,1%,0.125W,TC=TO	91637	CMF55116G20002F
A16R146	321-0924-07		RES,FXD,FILM:40K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C40001B
A16R147	315-0392-00		RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	3900 5% 0.25w
A16R148	321-0318-07		RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
A16R149	321-0318-07		RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
A16R150	315-0103-00		RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A16R151	315-0103-00		RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A16R152	321-0318-07		RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
A16R153	311-1248-00		RES,VAR,NONWV:TRMR,500 OHM,0.5W	32997	3386X-1-501
A16R154	315-0510-00		RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A16R156	321-0260-09		RES,FXD,FILM:4.99K OHM,1%,.125W,TC=T9	91637	CMF55116C49900F
A16R157	321-0159-08		RES,FXD,FILM:442 OHM,1%,0.125W,TC=T2	91637	CMF55116D442R0F
A16R158	315-0105-00		RES,FXD,FILM:1M OHM,5%,0.25W	19701	1M 5% 0.25w
A16R161	311-1245-00		RES,VAR,NONWV:TRMR,10K OHM,0.5W	32997	3386X-DY6-103
A16R167	315-0103-00		RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A16R201	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R203	315-0301-00		RES,FXD,FILM:300 OHM,5%,0.25W	57668	300 5% 0.25w
A16R204	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R209	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R212	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R216	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R220	315-0680-00		RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A16R221	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R225	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R229	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R234	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R237	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R242	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
A16R243	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix	Serial Number		Part Name & Description	Mfr	Mfr Part Number
	Part Number	Effect	Discont		Code	
AI6R244	321-0414-00			RES,FXD,FILM:200K OHM,1%,0.125W,TC=T0	91637	CMF55116G2000ZF
AI6R247	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	3900 5% 0.25w
AI6R248	321-0318-07			RES,FXD,FILM:20.0K OHM,0.1%,0.125W,TC=T9	91637	CMF55116C20001B
AI6R249	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
AI6R250	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
AI6R252	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
AI6R253	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	57668	1800 5% 0.25w
AI6R255	315-0182-00			RES,FXD,FILM:1.8K OHM,5%,0.25W	57668	1800 5% 0.25w
AI6R256	315-0471-00			RES,FXD,FILM:470 OHM,5%,0.25W	57668	470 5% 0.25w
AI6R258	315-0392-00			RES,FXD,FILM:3.9K OHM,5%,0.25W	57668	3900 5% 0.25w
AI6R261	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI6R300	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R301	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R302	315-0301-00			RES,FXD,FILM:300 OHM,5%,0.25W	57668	300 5% 0.25w
AI6R304	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R318	307-0896-00				80009	307-0896-00
AI6R320	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R323	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R326	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R330	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R332	315-0132-00			RES,FXD,FILM:1.3K OHM,5%,0.25W	57668	1300 5% 0.25w
AI6R333	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R335	315-0132-00			RES,FXD,FILM:1.3K OHM,5%,0.25W	57668	1300 5% 0.25w
AI6R344	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R351	307-0598-00			RES NTWK,FXD,FI:7,330 OHM,2%,1.0W	91637	MSP08A01331G OR CSC0
AI6R353	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI6R355	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
AI6R356	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
AI6R361	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI6R362	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
AI6R363	307-0598-00			RES NTWK,FXD,FI:7,330 OHM,2%,1.0W	91637	MSP08A01331G OR CSC0
AI6R364	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
AI6R365	315-0331-00			RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
AI6R366	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI6R367	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
AI6R368	315-0101-00			RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
AI6R418	307-0819-00			RES NTWK,FXD,FI:9,62 OHM,2%,0.15W EACH	91637	MSP10A01-620G OR CSC
AI6R419	307-0824-00			RES NTWK,FXD,FI:4,150 OHM,2%,0.3W EACH	91637	MSP08A03151G
AI6R420	307-0943-00			RES NTWK,FXD,FI:(2)510 OHM,2%,0.25W	91637	CSC04A03-511G
AI6R421	307-0942-00			RES NTWK,FXD,FI:(2)330 OHM,2%,0.25W	91637	CSC04A03-331G
AI6R422	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
AI6R429	315-0510-00			RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
AI6R433	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R437	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R440	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R444	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R446	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R450	307-0587-00			RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC08A01-680 OR MSPO
AI6R501	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R503	315-0680-00			RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
AI6R504	307-0819-00			RES NTWK,FXD,FI:9,62 OHM,2%,0.15W EACH	91637	MSP10A01-620G OR CSC
AI6R505	307-0819-00			RES NTWK,FXD,FI:9,62 OHM,2%,0.15W EACH	91637	MSP10A01-620G OR CSC
AI6R512	307-0819-00			RES NTWK,FXD,FI:9,62 OHM,2%,0.15W EACH	91637	MSP10A01-620G OR CSC
AI6R517	307-0819-00			RES NTWK,FXD,FI:9,62 OHM,2%,0.15W EACH	91637	MSP10A01-620G OR CSC
AI6R519	307-0824-00			RES NTWK,FXD,FI:4,150 OHM,2%,0.3W EACH	91637	MSP08A03151G
AI6R520	307-0942-00			RES NTWK,FXD,FI:(2)330 OHM,2%,0.25W	91637	CSC04A03-331G
AI6R521	307-0943-00			RES NTWK,FXD,FI:(2)510 OHM,2%,0.25W	91637	CSC04A03-511G
AI6R522	315-0151-00			RES,FXD,FILM:150 OHM,5%,0.25W	57668	150 5% 0.25w
AI6R523	315-0511-00			RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discont	Part Name & Description	Mfr Code	Mfr Part Number
A16R523	317-0331-00		RES,FXD,CMPSN:330 OHM,5%,0.125W	01121	330 5% 0.125w
A16R524	315-0511-00		RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A16R529	315-0510-00		RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A16R530	315-0510-00		RES,FXD,FILM:51 OHM,5%,0.25W	19701	51 5% 0.25w
A16R532	315-0680-00		RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A16R533	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R535	315-0680-00		RES,FXD,FILM:68 OHM,5%,0.25W	57668	68 5% 0.25w
A16R537	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R540	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R544	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R546	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R547	315-0101-00		RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A16R550	307-0587-00		RES NTWK,FXD,FI:(7)68 OHM,20%,0.125W	91637	CSC0BA01-680 OR MSP0
A16R551	315-0101-00		RES,FXD,FILM:100 OHM,5%,0.25W	57668	100 5% 0.25w
A16R555	307-0897-00		RES NTWK,FXD,FI:9,330 OHM,2%,1.2W	91637	CSC10B-01-331G/MSP10
A16R564	315-0512-00		RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
A16R565	315-0512-00		RES,FXD,FILM:5.1K OHM,5%,0.25W	57668	5100 5% 0.25w
A16R566	315-0331-00		RES,FXD,FILM:330 OHM,5%,0.25W	57668	330 5% 0.25w
A16TP257	131-0608-00		TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A16TP268	131-0608-00		TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD PL	22526	48283-036
A16U105	156-0759-02		IC,DIGITAL:ECL,GATES;QUAD 2-INPUT OR;10103	04713	10103
A16U108	156-1642-01		IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A16U111	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U116	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U119	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U122	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U124	156-0687-01		IC,DIGITAL:ECL,GATE;QUAD EXOR;10113,DIP16.3	04713	10113
A16U127	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U134	156-1038-01		IC,DIGITAL:ECL,COUNTER;4-BIT BINARY;10016	07263	10016
A16U137	156-1642-01		IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A16U140	156-0759-02		IC,DIGITAL:ECL,GATES;QUAD 2-INPUT OR;10103	04713	10103
A16U153	156-1699-00		MICROCKT,LINEAR:DUAL BI-FET,OPNL AMPL,LOW	27014	LF412CN
A16U153	317-0510-00		RES,FXD,CMPSN:51 OHM,5%,0.125W	01121	51 5% 0.125w
A16U154	156-1699-00		MICROCKT,LINEAR:DUAL BI-FET,OPNL AMPL,LOW	27014	LF412CN
A16U154	317-0510-00		RES,FXD,CMPSN:51 OHM,5%,0.125W	01121	51 5% 0.125w
A16U156	156-1311-01		IC,CONVERTER:BIPOLAR,D/A;8-BIT;5018,DIP22.4	18324	5018
A16U203	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U207	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U211	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U215	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U219	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U224	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U228	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U232	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U236	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U240	156-2172-00		IC,MEMORY:ECL,SRAM;256 X 4,13NS;,DIP24.4	27014	10422
A16U246	156-0513-02		MICROCKT,DGTL:CMOS,ANALOG MUX/DEMUX	04713	MC14051BCLD
A16U248	156-0513-02		MICROCKT,DGTL:CMOS,ANALOG MUX/DEMUX	04713	MC14051BCLD
A16U253	156-0513-02		MICROCKT,DGTL:CMOS,ANALOG MUX/DEMUX	04713	MC14051BCLD
A16U257	156-0766-02		IC,DIGITAL:CMOS,GATE;QUAD 2-INPUT OR;74C32	27014	74C32
A16U261	156-0644-02		IC,DIGITAL:LS TTL,COUNTER;SYNCH 4-BIT BINARY	01295	SN74LS161AN3
A16U266	156-1647-00		IC,LINEAR:BIPOLAR,COMPARATOR;QUAD;3431/3651	04713	3431/3651
A16U303	156-1733-00		IC,DIGITAL:ECL,GATE;QUAD OR/NOR, SCRN	04713	10H101
A16U307	156-1685-00		IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A16U310	156-1685-00		IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A16U313	156-1685-00		IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A16U317	156-1685-00		IC,MEMORY:ECL,SRAM;1K X 1,100NS;,DIP16.3	80009	2112-1
A16U320	156-1642-01		IC,DIGITAL:ECL,GATES;TRIPLE 2-3-2 INPUT	04713	10H105
A16U324	156-1682-00		IC,DIGITAL:ECL,GATE;DUAL 4-5-INPUT OR/NOR	04713	10H109

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect Discont	Part Name & Description	Mfr Code	Mfr Part Number
A16J328	156-1733-00		IC,DIGITAL:ECL,GATE;QUAD OR/NOR, SCRN	04713	10H101
A16J332	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J335	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J338	156-1710-00		IC,DIGITAL:ECL,GATE;DUAL 2-WIDE 2-3-INPUT	04713	10H117
A16J346	156-1674-00		IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A16J348	156-0541-02		IC,DIGITAL:LSTTL,DEMUX/DECODER;DUAL 2-TO-4	01295	SN74LS139N3
A16J357	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A16J361	156-0975-02		IC,DIGITAL:LSTTL,SHIFT REGISTER;8-BIT	01295	74LS299
A16J402	160-1917-00		MICROCKT,DGTL:MICROCELL,GATE ARRAY,PRGM	01537	MCA600/32205-02
A16J407	160-1917-00		MICROCKT,DGTL:MICROCELL,GATE ARRAY,PRGM	01537	MCA600/32205-02
A16J412	160-1917-00		MICROCKT,DGTL:MICROCELL,GATE ARRAY,PRGM	01537	MCA600/32205-02
A16J417	156-1640-01		IC,DIGITAL:ECL,MISC;TRIPLE LINE RECEIVER	04713	10H116
A16J421	156-1674-00		IC,DIGITAL:ECL,GATE;QUAD 2-INPUT AND, SCRN	04713	10H104
A16J425	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J428	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J432	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J435	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J438	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J442	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J445	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J448	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J453	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A16J457	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A16J461	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A16J466	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A16J517	156-1640-01		IC,DIGITAL:ECL,MISC;TRIPLE LINE RECEIVER	04713	10H116
A16J521	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J525	156-1639-01		IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A16J528	156-1639-01		IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A16J532	156-1794-00		IC,DIGITAL:ECL,GATE;4 WIDE	04713	10H121
A16J535	156-1639-01		IC,DIGITAL:ECL,FLIP FLOP;DUAL D-TYPE MASTER	04713	10H131
A16J538	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J542	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J545	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J548	156-1712-00		IC,DIGITAL:ECL,FLIP FLOP;HEX D-TYPE MASTER	04713	10H176
A16J553	156-0469-02		IC,DIGITAL:LSTTL,DEMUX/DECODER;3-TO-8	01295	SN74LS138N3
A16J557	156-1111-02		IC,DIGITAL:LSTTL,BUS TRANSCEIVER;OCTAL,	01295	SN74LS245N3
A16J561	156-1277-00		MICROCKT,DGTL:LSTTL,3-STATE OCTAL BFR,SCRN	27014	81LS95
A16J566	156-1327-00		IC,DIGITAL:CMOS,FLIP FLOP;OCTAL D-TYPE,	27014	74C374
A21	670-7539-02		CIRCUIT BD ASSY:MAIN EXTENDER (067-1103-02.OPTIONAL ACCESSORY)	80009	670-7539-02
A21C100	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C101	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C115	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C120	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C125	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C130	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C150	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C900	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C915	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C920	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C923	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C925	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21C950	281-0775-00		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A21R100	315-0332-00		RES,FXD,FILM:3.3K OHM,5%,0.25W	57668	3300 5% 0.25w
A21R101	315-0202-00		RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A21R104	307-0488-00		RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSPO6A01-1D1G OR CSC
A21R105	307-0488-00		RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSPO6A01-1D1G OR CSC
A21R115	307-0487-00		RES NTWK,FXD,FI:100 OHM,20%,0.5W	91637	CSC04801-101J

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A21R116	307-0487-00			RES NTWK,FXD,FI:100 OHM,20%,0.5W	91637	CSC04B01-101J
A21U100	156-1338-02			MICROCKT,LINER:OPERATIONAL AMPLIFIER,SCRN	01295	5534
A22	670-8567-00			CIRCUIT BD ASSY:ACQUISITION EXTENDER (067-1103-03.OPTIONAL ACCESSORY)	80009	670-8567-00
A22C100	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C105	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C116	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C120	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C125	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C130	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C140	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C150	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C900	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C905	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C915	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C916	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C920	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C923	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C925	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22C950	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A22R104	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-101G OR CSC
A22R105	307-0488-00			RES NTWK,FXD,FI:5 100 OHM,20%,0.75W	91637	MSP06A01-101G OR CSC
A22R115	307-0487-00			RES NTWK,FXD,FI:100 OHM,20%,0.5W	91637	CSC04B01-101J
A22R116	307-0487-00			RES NTWK,FXD,FI:100 OHM,20%,0.5W	91637	CSC04B01-101J
A22R230	307-0492-00			RES NTWK,FXD,FI:(3) 50 OHM,5%,0.125W RES	91637	CSC04A01-500J/OR G
A22R925	307-0492-00			RES NTWK,FXD,FI:(3) 50 OHM,5%,0.125W RES	91637	CSC04A01-500J/OR G
A22U200	156-1733-00			IC,DIGITAL:ECL,GATE:QUAD OR/NOR, SCRN	04713	10H101
A22U230	156-1733-00			IC,DIGITAL:ECL,GATE:QUAD OR/NOR, SCRN	04713	10H101
A22U830	156-1733-00			IC,DIGITAL:ECL,GATE:QUAD OR/NOR, SCRN	04713	10H101
A31	670-7696-00	B010100	B019999	CIRCUIT BD ASSY:RS232C (1200C01 ONLY,OPTIONAL ACCESSORY)	80009	670-7696-00
A31	670-7696-01	B020000		CIRCUIT BD ASSY:RS232C (1200C01 ONLY,OPTIONAL ACCESSORY)	80009	670-7696-01
A31C100	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C101	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C103	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C104	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31C105	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C106	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C108	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31C109	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C111	290-0743-00	B020000		CAP,FXD,ELCTLT:100UF,+50%-20%,16WVDC	54473	ECE-B16V100L
A31C116	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31C118	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31C120	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31C130	290-0847-00			CAP,FXD,ELCTLT:47UF,+50%-20%,10WVDC	55680	TVX1A470MAA2
A31C206	281-0823-00			CAP,FXD,CER DI:470PF,10%,50V	04222	SA101A471KAA
A31C208	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A31R100	317-0103-00			RES,FXD,CMPSN:10K OHM,5%,0125W	01121	10K 5% 0.125w
A31U110	156-0878-01			IC,DIGITAL:TTL,RECEIVER;QUAD,RS-232C;1489	04713	1489
A31U116	156-0479-02			IC,DIGITAL:LSTTL,GATES:QUAD 2-INPUT OR	01295	SN74LS32N3
A31U120	156-0879-01			IC,DIGITAL:TTL,DRIVER;QUAD,RS-232C;1488	04713	1488
A31U126	160-1915-00	B010100	B019999	MICROCKT,DGTL:16384 X 8 EPROM,PRGM	80009	160-1915-00
A31U126	160-1915-01	B020000		MICROCKT,DGTL:16384 X 8 EPROM,PRGM	80009	160-1915-01
A31U220	156-1336-01			IC,DIGITAL:NMOS,PERIPHERAL;USART;8250B	27014	8250B
A32	670-7697-01	B020170	B021276	CIRCUIT BD ASSY:GP1B (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-01

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A32	670-7697-02	B021277	B021374	CIRCUIT BD ASSY:GPIB (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-02
A32	670-7697-03	B021375		CIRCUIT BD ASSY:GPIB (1200C02 OPTIONAL ACCESSORY)	80009	670-7697-03
A32C135	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A32C146	290-0847-00			CAP,FXD,ELCTLT:47UF,+50-20%,10WVDC	55680	TVX1A470MAA2
A32C149	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A32C245	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A32C338	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A32DS100	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A32DS300	150-1061-00			LT EMITTING DIO:RED,660NM,50MA MAX	50434	HLMP-1301
A32Q225	151-0190-00			TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A32Q338	151-0190-00			TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A32Q345	151-1119-00			TRANSISTOR,PWR:MOS,N-CH;100V,5.0A,0.4 OHM	04713	IRFF122
A32R100	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A32R149	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A32R300	315-0221-00			RES,FXD,FILM:220 OHM,5%,0.25W	57668	220 5% 0.25w
A32R310	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A32R325	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A32R336	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A32R337	315-0103-00			RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A32R345	315-0202-00			RES,FXD,FILM:2K OHM,5%,0.25W	57668	2000 5% 0.25w
A32U135	156-1444-01			IC,PROCESSOR:NMOS,CONTROLLER:GPIB ADAPTER	01295	9914
A32U145	156-0323-02			IC,DIGITAL:STTL,GATE:HEX INV;74S04,DIP14.3	01295	74S04
A32U210	156-1415-00	B010100	B020499	IC,DIGITAL:LSTTL,TRANSCEIVER:OCTAL IEEE-488	01295	75161
A32U210	156-1415-01	B020500		MICROCKT,DGTL:OCTAL GPIB XCVR-MANAGEMENT	27014	75161
A32U245	160-1916-01			MICROCKT,DGTL:16384 X 8 EPROM,PROGRAMMED	80009	160-1916-01
A32U310	156-1414-02			MICROCKT,DGTL:OCTAL GPIB BUS XCVR,SCRN	27014	75160
A32U310	156-1414-01	B010100	B020499	IC,DIGITAL:TTL,BUFFER:OCTAL GPIB RECEIVER	01295	75160
A32U310	156-1414-02	B020500		MICROCKT,DGTL:OCTAL GPIB BUS XCVR,SCRN	27014	75160
A41	670-7620-00	B010100	B013917	CIRCUIT BD ASSY:8K RAM PACK (12RS01 ONLY,OPTIONAL ACCESSORY)	80009	670-7620-00
A41	670-7620-01	B013918		CIRCUIT BD ASSY:8K RAM PACK (12RS01 ONLY,OPTIONAL ACCESSORY)	80009	670-7620-01
A41BT110	146-0041-01	B013918		BATTERY,DRY:2.8,0.65AH,LITHIUM	00681	3440DE OR B-600
A41BT115	146-0041-00	B010100	B013917	BATTERY,DRY:2.8,0.65AH,LITHIUM	00681	3440LP
A41C114	281-0775-00	B010100	B013917	CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A41C128	290-0743-00	B010100	B013917	CAP,FXD,ELCTLT:100UF,+50%-20%,16WVDC	54473	ECE-B16V100L
A41C210	290-0847-00	B013918		CAP,FXD,ELCTLT:47UF,+50-20%,10WVDC	55680	TVX1A470MAA2
A41C211	281-0775-00	B013918		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A41C214	281-0775-00	B010100	B013917	CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A41C310	281-0775-00	B013918		CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A41CR115	152-0075-00	B010100	B013917	SEMICON DVC,DI:SW,GE,22V,80MM,DO-7	66891	G866
A41CR330	152-0075-00	B013918		SEMICON DVC,DI:SW,GE,22V,80MM,DO-7	66891	G866
A41Q110	151-0188-00	B013918		TRANSISTOR:PNP,SI,TO-92	04713	2N3906
A41Q204	151-0190-00	B010100	B013917	TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A41Q206	151-0188-00	B010100	B013917	TRANSISTOR:PNP,SI,TO-92	04713	2N3906
A41Q210	151-0190-00	B013918		TRANSISTOR:NPN,SI,TO-92	04713	2N3904
A41R100	307-0446-00	B010100	B013917	RES NTWK,FXD,FI:10K OHM,20%,(9)RES	91637	MSP10A01-103M OR G
A41R1Q2	315-0103-00	B010100	B013917	RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A41R106	307-0542-00	B010100	B013917	RES NTWK,FXD,FI:(5)10K OHM,5%,0.125W	91637	CSC06A01-103J (OR) G
A41R113	315-0102-00	B010100	B013917	RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A41R116	315-0201-00	B010100	B013917	RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
A41R121	315-0511-00	B013918		RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A41R122	315-0102-00			RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A41R123	315-0103-00	B013918		RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A41R124	315-0102-00	B010100	B013917	RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Part Name & Description	Mfr Code	Mfr Part Number
A41R126	315-0102-00	B010100	B013917	RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A41R130	131-0566-00	B013918		BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	24546	OMA 07
A41R132	307-0696-00	B013918		RES NTWK,FXD,FI:7,10K OHM,2%,0.15W EACH	91637	CSC08A01103G
A41R133	307-0446-00	B013918		RES NTWK,FXD,FI:10K OHM,20%,(9)RES	91637	MSP10A01-103M OR G
A41R134	315-0103-00	B013918		RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A41R200	315-0103-00	B010100	B013917	RES,FXD,FILM:10K OHM,5%,0.25W	19701	10K 5% 0.25w
A41R202	315-0511-00	B010100	B013917	RES,FXD,FILM:510 OHM,5%,0.25W	19701	510 5% 0.25w
A41R213	315-0102-00	B010100	B013917	RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A41R215	307-0542-00	B010100	B013917	RES NTWK,FXD,FI:(5)10K OHM,5%,0.125W	91637	CSC06A01-103J (OR) G
A41R216	315-0102-00	B010100	B013917	RES,FXD,FILM:1K OHM,5%,0.25W	57668	1000 5% 0.25w
A41R231	131-0566-00	B013918		BUS,CONDUCTOR:DUMMY RES,0.094 OD X 0.225 L	24546	OMA 07
A41R232	307-0696-00	B013918		RES NTWK,FXD,FI:7,10K OHM,2%,0.15W EACH	91637	CSC08A01103G
A41R233	307-0540-00	B013918		RES NTWK,FXD,FI:(5)1K OHM,10%,0.7W	91637	MSPO6A-01-102 G,J OR
A41R330	315-0201-00	B013918		RES,FXD,FILM:200 OHM,5%,0.25W	57668	200 5% 0.25w
A41U110	156-1632-00	B010100	B013917	IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A41U120	156-1632-00	B010100	B013917	IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A41U120	156-3061-00	B013918		IC,DGTL:HCMOS,GATE,QUAD 2-INP XOR,DIP14.3	01295	SN 74HC86N
A41U210	156-1632-00	B010100	B013917	IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A41U210	156-3348-00	B013918		IC,MEMORY:CMOS,SRAM,32K X 8,150NS,DIP28.6	61892	UPD43256AC-15L
A41U220	156-1632-00	B010100	B013917	IC,MEMORY:CMOS,SRAM;2K X 8,250NS;,DIP24.6	61772	6116LP
A41U310	156-3348-00	B013918		IC,MEMORY:CMOS,SRAM,32K X 8,150NS,DIP28.6	61892	UPD43256AC-15L
A41VR104	152-0744-00	B010100	B013917	SEMICON DVC,DI:ZEN,SI,3.6V,5%,0.4W,DO-7	04713	SZC30619RL (1N747A F
A41VR110	152-0744-00	B013918		SEMICON DVC,DI:ZEN,SI,3.6V,5%,0.4W,DO-7	04713	SZC30619RL (1N747A F
A42	670-7538-00			CIRCUIT BD ASSY:32K ROM PACK (067-1103-03,12RD01,12RS11,12RS12,	80009	670-7538-00
A42C100	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
A42C200	281-0775-00			CAP,FXD,CER DI:0.1UF,20%,50V	04222	SA105E104MAA
CHASSIS PARTS						
B111	119-1725-01			FAN,TUBEAXIAL:8 14.5VDC,6W,3200RPM,106CFM	TK1456	4112 KX
F201	159-0151-00			FUSE,CARTRIDGE:7A,250V,MEDIUM BLOW (STANDARD ONLY)	75915	314007
F201	159-0017-00			FUSE,CARTRIDGE:3AG,4A,250V,FAST BLOW (OPTIONS A1,A2,A3,A4 & A5 ONLY)	75915	312 004
R675	311-0604-00			RES,VAR,NONMM:PNL,250K OHM,0.5W	12697	381-CM40258
S181	260-1849-02			SWITCH,PUSH:DPDT,4A,250VAC,W/BRACKET	31918	601005
S235	311-2193-00			ENCODER,DIGITAL:INCREMENTAL,2 CHAN,50PPR/CH	61058	EWT-XAK01950B
U100	156-1610-00			MICROCKT,DGTL:NMOS,8192 X 8 EPROM (12RS12 ONLY)	80009	68766
U100	160-2001-02			IC,MEMORY:CMOS,PROM;8K X 8,PRGM 156-4003-00 (12RD01 ONLY)	80009	160-2001-02
U102	156-1610-00			MICROCKT,DGTL:NMOS,8192 X 8 EPROM (12RS12 ONLY)	80009	68766
U102	160-2028-02			IC,MEMORY:CMOS,PROM;8K X 8,PRGM 156-4003-00 (12RD01 ONLY)	80009	160-2028-02
U200	156-1610-00			MICROCKT,DGTL:NMOS,8192 X 8 EPROM (12RS12 ONLY)	80009	68766
U200	160-1574-02			IC,MEMORY:CMOS,PROM;8K X 8,PRGM 156-4003-00 (12RD01 ONLY)	80009	160-1574-02
U202	156-1610-00			MICROCKT,DGTL:NMOS,8192 X 8 EPROM (12RS12 ONLY)	80009	68766
U202	160-2002-02			IC,MEMORY:CMOS,PROM;8K X 8,PRGM 156-4003-00 (12RD01 ONLY)	80009	160-2002-02
V230	154-0885-01			ELECTRON TUBE:W/YOKE	80009	154-0885-01
W111	175-9077-00			CA ASSY,SP,ELEC:2,26 AWG,TW PR,2-T,0-N,12.0	TK1375	175-9077-00
W121	175-8228-00			CA ASSY,SP,ELEC:50,28 AWG,25.0 L,RIBBON	80009	175-8228-00
W125	175-8371-00			CA ASSY,SP,ELEC:34,28 AWG,27.0 L,RIBBON	22526	80610-002

Replaceable Electrical Parts—1241 Addendum

Component No.	Tektronix Part Number	Serial Number		Part Name & Description	Mfr Code	Mfr Part Number
		Effect	Discont			
W181	175-3232-00			CA ASSY, SP, ELEC:2,26 AWG,12.0 L,RIBBON	80009	175-3232-00
W187	175-2423-00			CABLE ASSY, RF:50 OHM COAX,5.0 L	80009	175-2423-00
W189	196-3060-00			LEAD, ELECTRICAL:26 AWG,5.5 L,2-M	80009	196-3060-00
W245	175-2632-00			CA ASSY, SP, ELEC:3,26 AWG,3.0 L	TK1375	ORDER BY DESCRIPTION
W288	175-5113-00			CABLE ASSY, RF:50 OHM COAX,5.5 L,9-4	80009	175-5113-00
W548	136-0842-00			SOCKET ASSEMBLY:CRT	54422	ORDER BY DESCRIPTION
W675	174-0003-00			CA ASSY, SP, ELEC:3,26 AWG,6.5 L,RIBBON	TK2156	61640

SECTION **10** DIAGRAMS

DIAGRAMS AND CIRCUIT BOARD ILLUSTRATIONS

Symbols

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

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

Active low signals are indicated by an (L) following the signal name or by a horizontal line above the signal name (e.g., \overline{TRQ}). Signal names without indicators are considered active-high. Some active-high signals are indicated by an (H) following the signal name.

Abbreviations are based on ANSI Y1.1-1972.

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

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

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

Component Values

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

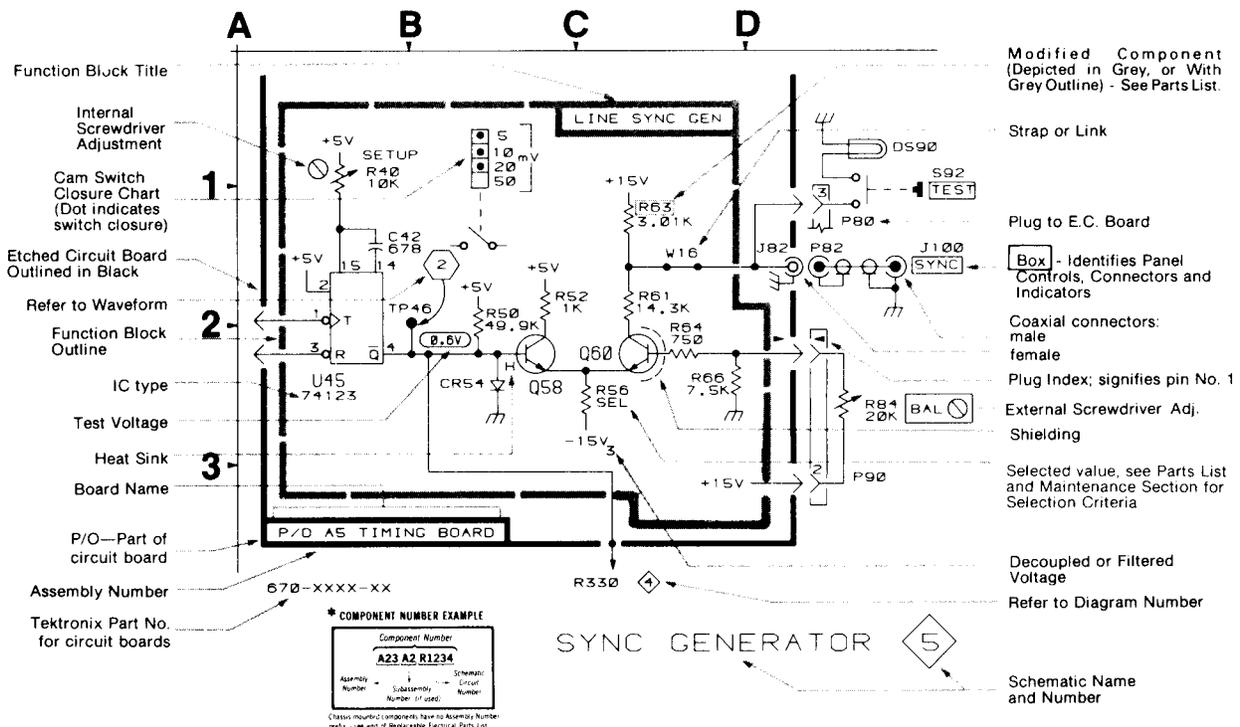
- Capacitors = Values one or greater are in picofarads (pF).
Values less than one are in microfarads (μ F).
- Resistors = Ohms (Ω).

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

Assembly Numbers and Grid Coordinates

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

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



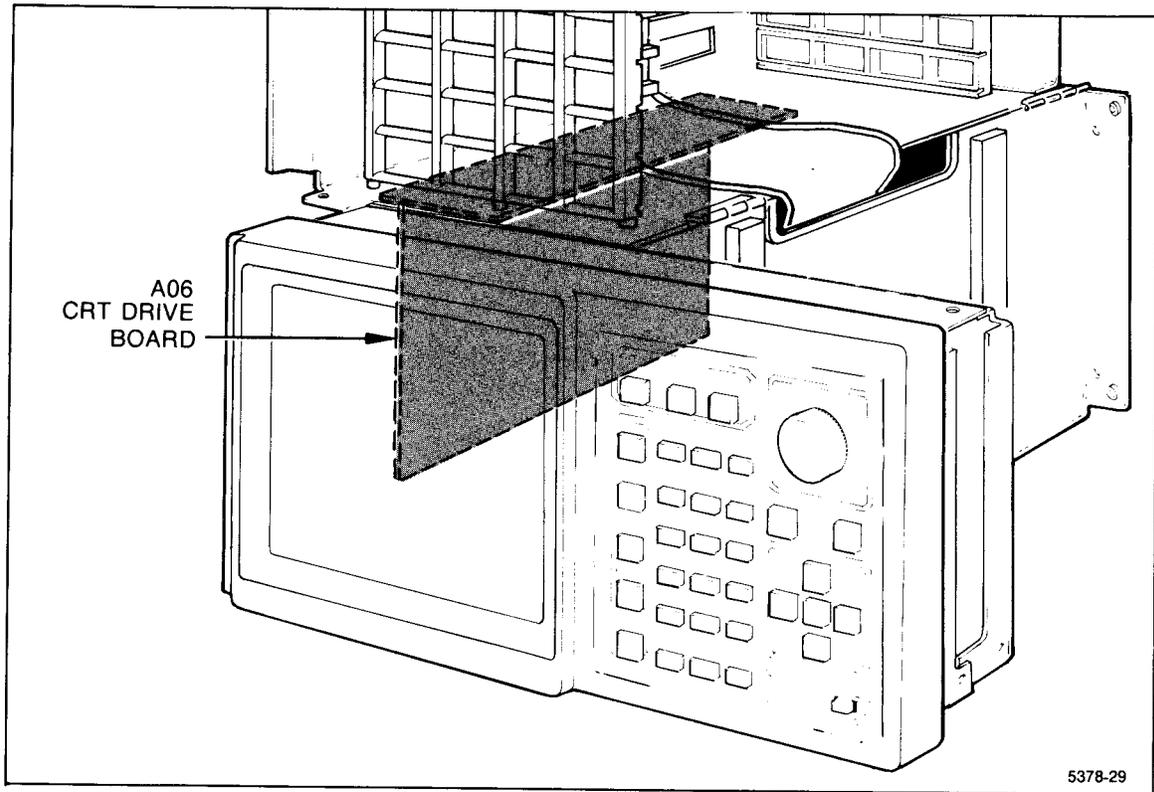


Figure 10-2. A13 1241 CRT Drive Board Mainframe Location.

Table 10-1
IC PIN INFORMATION

Device Type	V _{CC} or V _{DD}	GND
10016	1,16	8
10H100	1,16	8
10H101	1,16	8
10102(H)	1,16	8
10103	1,16	8
10104(H)	1,16	8
10H105	1,16	8
10H107	1,16	8
10117	1,16	8
10H131	1,16	8
10H164	1,16	8
10188	1,16	8
10402	16	8
6116P-2	24	12
74LS00	14	7
74S04(LS)	14	7
74S08(LS)	14	7
74S10	14	7
74LS30	14	7
74S32(LS)	14	7
74S74	14	7
74S86	14	7
74LS139	16	8
74LS155	16	8
74LS157	16	8
74S163(LS)	16	8
74LS166	16	8
74LS175	16	8
74LS244	20	10
74ALS273(LS)	20	10
74279	16	8
74LS283	16	8
74C374(LS)	20	10
74LS390	16	8
74LS393	14	7
74LS670	16	8
74AS832A	20	10
7555	8	1
7812	—	2
78L15	—	2
79M12	—	1
LM324	4	11
MC1436U	7	4
MC3431	16	8
MC393N	8	4
MC7905	—	1
PAL16L8A	20	10
TDA1170S	2	TABS
TL702	8	4
TSC426 MJA	6	3
UG3526N	17	15

Table 10-2
CRT/LCCS DRIVER  **— CRT DRIVE BOARD, ASSEMBLY A13**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C103	F2	E4	CR528	E4	D1	R341	D4	C3
C104	F2	E4	CR552	D5	C1	R342	D3	C3
C105	F2	E4	CR622	E3	D1	R343	E4	C2
C111	F1	E4	CR626	E3	D1	R345	F1	C3
C113	F2	E4	CR660	E5	B1	R346	F1	C3
C115	F3	E4	CR661	E4	B1	R353	C3	B3
C116	F2	E4	F468	A1	B2	R418	B4	D2
C117	E3	D4	J200	F2	E4	R422	B5	D2
C118	E3	D4	J265	F1	B4	R425	B5	D2
C123	E2	D4	J464	A3	B2	R426	B4	D2
C124	E2	D4	J548	F3	C1	R427	B4	D2
C127	E2	D4	J675	F5	A1	R431	B4	D2
C133	D2	D4	L351	F1	C3	R432	B4	D2
C138	D2	C4	L453	A3	C2	R433	B4	D2
C139	C1	C4	L662	E4	B1	R435	C4	D2
C147	B1	C4	Q100	F2	E4	R452	A3	C2
C148	C1	C4	Q102	F2	E4	R466	A2	B2
C152	B3	C4	Q105	F1	E4	R467	A2	B2
C153	B3	C4	Q107	F2	E4	R533	E3	D1
C168	C2	B4	Q110	F3	E4	R535	F3	D2
C201	B5	E3	Q112	F3	E4	R540	F3	C2
C202	B5	E3	Q237	D5	C3	R541	F3	C2
C204	B5	E3	Q238	D5	C3	R552	D5	C1
C205	B5	E4	Q334	E4	D3	R553	E5	C1
C213	B5	E3	Q455	D4	B2	R554	E5	C1
C214	B5	E3	Q534	E3	D1	R555	E5	B1
C215	C5	E4	Q558	E5	B1	R556	E5	B1
C216	C5	D4	Q563	F5	B1	R557	E5	B1
C220	C5	D4	Q564	F5	B1	R562	E5	B1
C223	D5	D3	R103	F2	E4	R565	E5	B1
C224	D5	D3	R104	F2	E4	R566	F5	B1
C225	C4	D4	R107	F2	E4	R567	F5	B1
C226	C3	D3	R108	F2	E4	R568	F5	B1
C227	C3	D3	R113	F3	E4	R571	F5	B1
C228	D5	D3	R114	F2	E4	R578	F5	A1
C231	C4	D3	R115	E2	D4	R652	F4	B1
C242	B1	C3	R118	E3	D4	R665	E4	B1
C243	D4	C3	R120	E1	D4	T366	E5	B2
C244	F1	C3	R123	E1	D4	T411	B4	E2
C247	B2	C3	R125	E2	D4	T435	E4	C2
C248	B1	C3	R138	E2	C4	T512	E3	D1
C250	C1	C4	R140	C2	C4	TP148	C1	C4
C253	C1	B3	R141	C1	C4	TP205	B5	E4
C317	B4	D3	R142	C2	C4	TP210	B5	E4
C324	B5	D3	R143	B2	C4	TP223	C5	D3
C327	A5	D3	R144	B2	C4	TP224	C4	D3
C328	B4	D3	R146	C2	C4	TP225	C4	D4
C331	A4	D3	R147	C1	C4	TP238	C4	C3
C333	A5	D2	R151	B2	C4	TP242	B1	C4
C341	D4	C3	R154	C1	C4	TP315	B4	D3
C347	E4	C2	R156	B2	B4	TP340	D4	C3
C348	F1	C3	R157	B3	B4	TP344	E4	C2
C357	E5	B3	R160	B2	B4	TP372	E5	B3
C371	E5	B3	R161	C1	B4	TP430	A5	D2
C421	B5	D2	*R165	C1	B4	TP456	D3	B2
C424	B4	D2	*R166	C1	B4	TP524	E4	D1
C425	B4	D2	R202	B5	E3	TP534	E3	D1
C429	B4	D2	R203	B5	E3	TP551	A4	C2
C445	E4	C2	R204	B5	E3	TP565	A3	B2
C447	E5	C2	R211	B5	E3	TP569	F4	B1
C460	A2	B2	R212	B5	E3	TP630	E4	D1
C465	A2	B2	R213	B5	E3	TP636	E4	C1
C467	A2	B2	R214	C5	E4	TP650	F4	B1
C520	E3	D2	R215	C4	D4	U117	E3	D4
C528	E4	D1	R216	C5	D4	U123A	E2	D4
C537	E3	C1	R217	C4	D3	U123B	E2	D4
C543	E4	C1	R218	C5	D3	U134	D2	D4
C544	E4	C1	R219	C5	D3	U138	D2	C4
C545	F3	C2	R220	C5	D3	U207A	B5	E3
C547	F3	C2	R221	C5	D3	U207B	B5	E3
C548	E4	C1	R222	C3	D3	U218	C4	E3
C554	E5	C1	R223	C5	D3	U236	D4	D3
C555	E5	B1	R224	D5	D3	U241	B1	C4
C557	E5	B1	R225	C4	D4	U336	D4	C3
C560	A3	B2	R226	C5	D3	U347	F1	C3
C566	F5	B1	R231	C3	D3	U420A	B5	D2
C567	E5	B1	R232	B5	D3	U420B	B4	D2
C569	E5	B1	R233	C4	D3	U431	B4	D2
C625	E3	D1	R235	B1	C4	U465	A2	B2
C635	E4	C1	R237	D5	C4	VR116	E3	D4
CR115	E2	D4	R238	D5	C3	VR122	E2	D4
CR121	E1	D4	R245	C1	C4	VR126	E2	D4
CR125	E2	D4	R246	B1	C3	VR321	A5	D3
CR233	B5	D3	R250	C2	C4	VR336	E4	C3
CR247	B1	C3	R251	C2	C4	VR423	B5	D2
CR325	A4	D3	R321	A5	D3	VR428	B4	D2
CR332	A5	D3	R323	A4	D3	*VR510	B4	Back of Bd
CR333	A5	D2	R324	B4	D3	VR530	E4	D2
CR334	A5	D2	R325	A5	D3	VR531	E3	D2
CR337	E4	C3	R326	B5	D3	VR533	E3	D1
CR340	F1	C3	R327	B4	D3	VR565	E5	B1
CR360	E5	B3	R331	A4	D3	W219	not shown	E1
CR422	B4	D2	R332	A5	D3	W239	not shown	E1
CR424	B4	D2	R334	A4	D3	W254	not shown	E1
CR466	A2	B2	R337	E4	C2	W268	not shown	E1
CR521	E3	D2	R340	D4	C3	W512	C3	E1

***SEE PARTS LIST FOR SERIAL NUMBER RANGES.**

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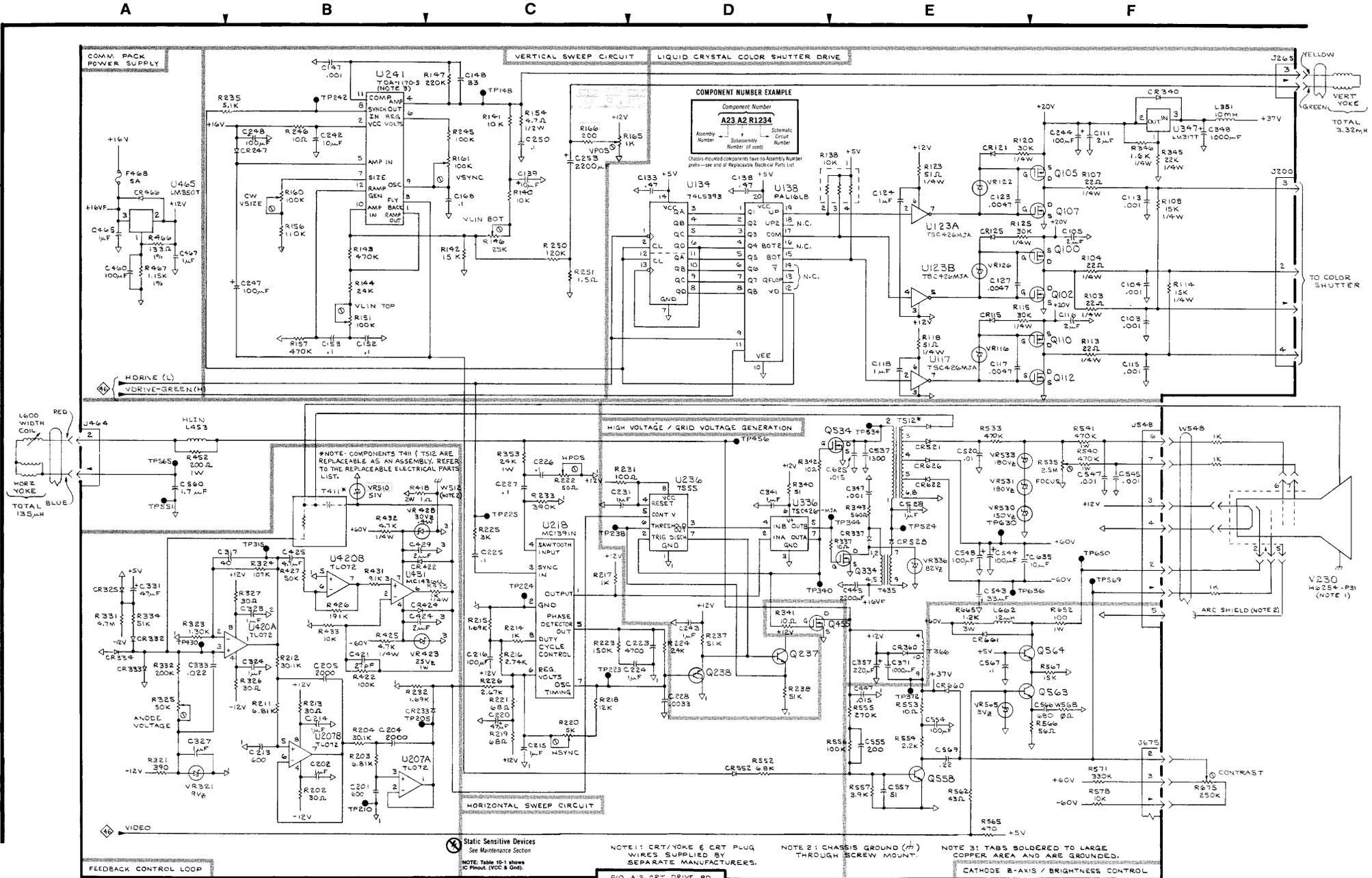
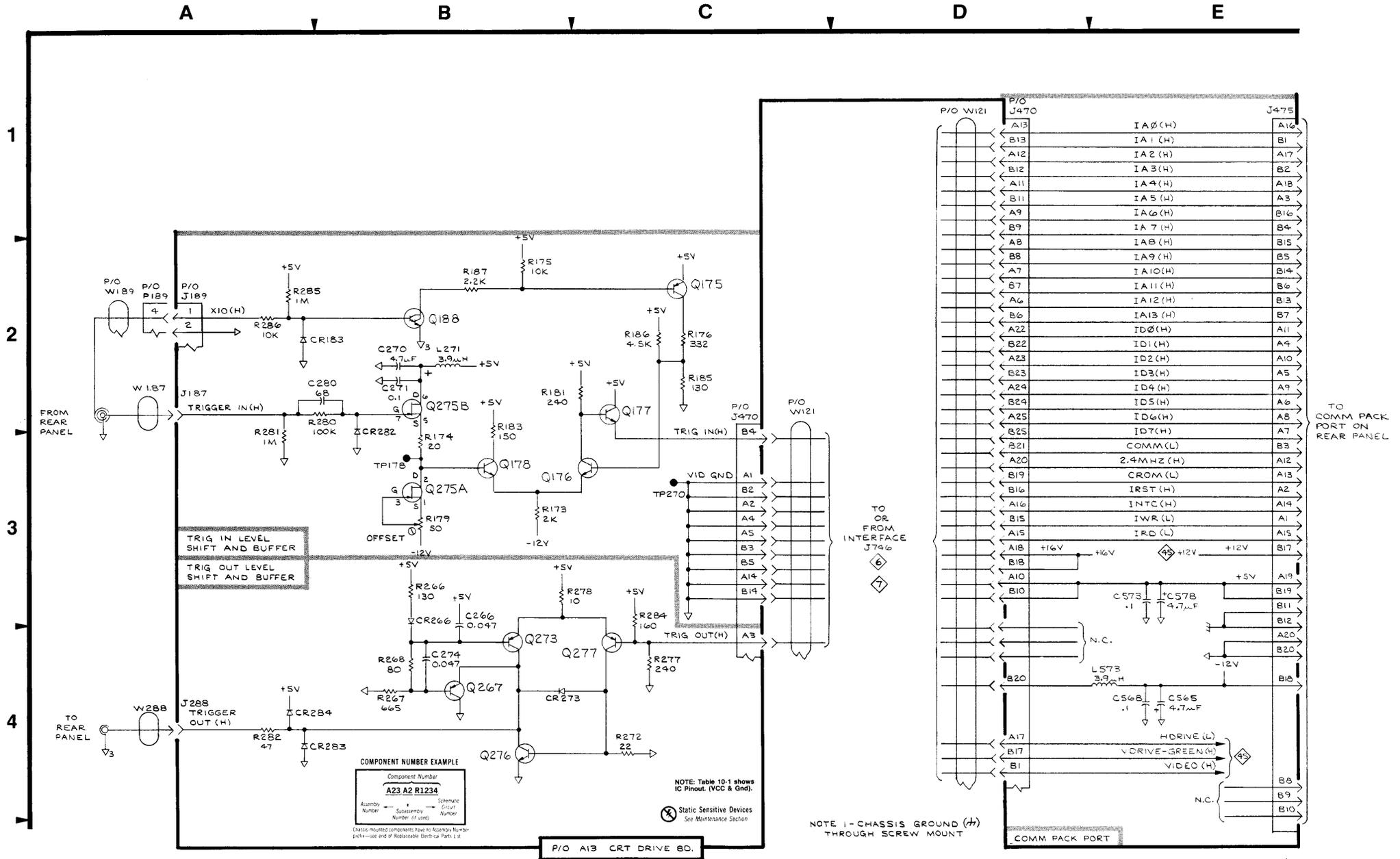


Table 10-3
 REAR PANEL CIRCUITS 46 — CRT BOARD, ASSEMBLY A13

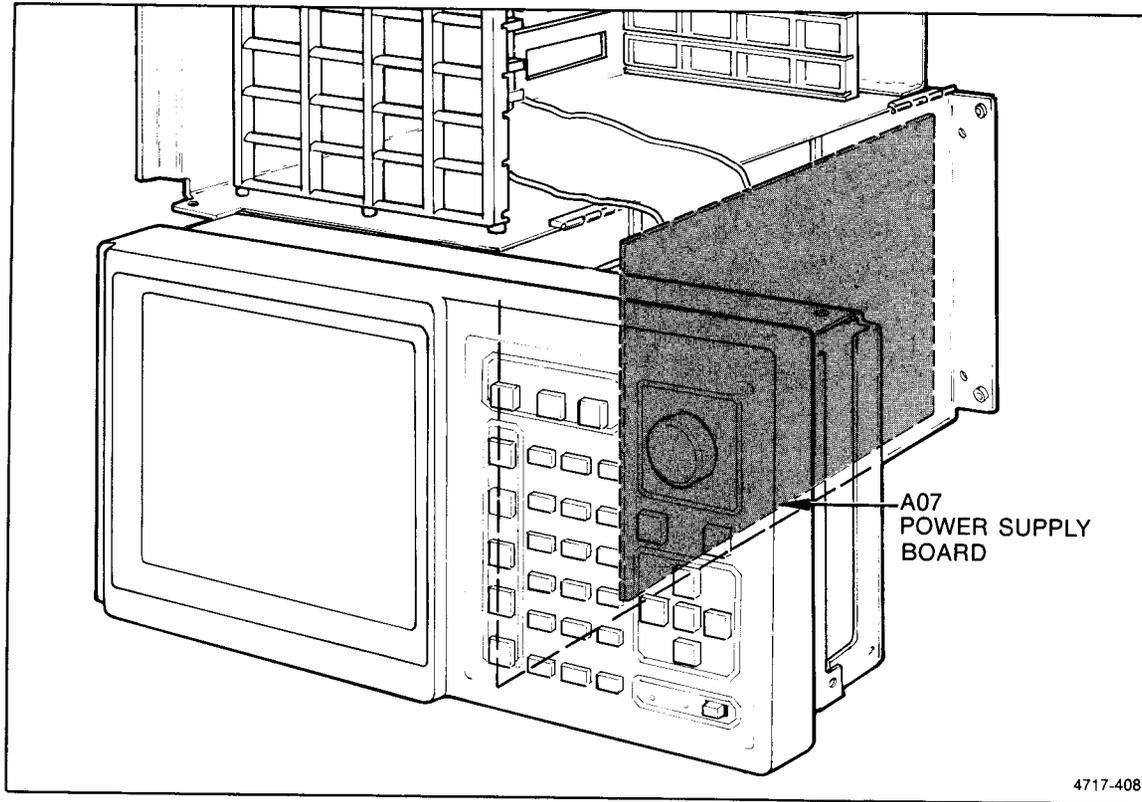
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C266	B3	B3	Q275B	B2	A4
C270	B2	B4	Q276	B4	A3
C271	B2	B4	Q277	C4	A3
C274	B4	B3	R173	B3	B4
C280	B2	A4	R174	B3	A4
C565	E4	B1	R175	B2	A4
C568	E4	B1	R176	C2	A4
C573	E3	B1	R179	B3	A4
C578	E3	A1	R181	C2	A4
CR183	A2	A4	R183	B2	A4
CR266	B3	B3	R185	C2	A4
CR273	B4	B3	R186	C2	A4
CR282	B2	A4	R187	B2	A4
CR283	A4	A3	R266	B3	B4
CR284	A4	A3	R267	B4	B3
J187	A2	A4	R268	B4	B3
J189	A2	A4	R272	C4	B4
J288	A4	A3	R277	C4	A3
J470	D1	B2	R278	B3	A3
J470	C3	B2	R280	B2	A4
J475	E1	A2	R281	A3	A4
L271	B2	B4	R282	A4	A3
L573	E4	B1	R284	C3	A3
P189	A2	harmonica	R285	A2	A4
Q175	C2	A4	R286	A2	A4
Q176	C3	A4	TP178	B3	A4
Q177	C2	A4	TP270	C3	B4
Q178	B3	A4	W121	C3	Off Bd.
Q188	B2	A4	W121	D1	Off Bd.
Q267	B4	B3	W187	A2	Off Bd.
Q273	B4	B3	W189	A2	Off Bd.
Q275A	B3	A4	W288	A4	Off Bd.



1241 SERVICE

5378-52
REV. MAY 86

REAR PANEL CIRCUITS 40



4717-408

Figure 10-4. A07 1241 Power Supply Board Mainframe Location.

Table 10-4
1241 POWER SUPPLY 47 — ASSEMBLY A07

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C101	A1	A1	F201	A1	A2	R372	C3	E3
C121	C2	B1	J100	F3	D1	R373	C4	E3
C122	C2	B1	J110	F3	E1	R374	C2	F3
C131	C2	C1	J110	F5	E1	R375	C4	F3
C161	F3	E1	J120	F4	E1	R376	C3	E3
C165	E5	E2	J130	A4	F1	R377	C4	E3
C171	E4	E1	J130	F1	F1	R378	E3	E3
C172	E5	E1	J130	F5	F1	R381	B3	F3
C173	E1	E2	J130	F4	F1	R383	C4	F3
C181	F3	F1	J145	F1	D1	R384	E4	F3
C187	F2	F1	J181	A3	F1	R385	C3	F3
C188	F2	F1	J301	A1	A3	R386	D5	F3
C189	A3	F2	J444	D2	C4	R387	D5	F3
C210	A1	A2	L115	A2	B1	R388	D5	F3
C211	B2	A2	L151	E2	D1	R389	D5	F3
C212	C2	A2	L171	E5	E1	R390	D5	F3
C274	D4	F2	L232	C1	C2	R440	D2	C3
C276	D3	F2	L351	E2	D3	R441	D2	C3
C278	D3	E3	L362	D4	D3	R461	D5	E4
C279	D3	F3	L363	E3	E3	R462	D4	E3
C281	B4	F2	L445	E5	D4	R471	C2	E4
C282	B3	F2	L451	E2	D3	R472	C2	E4
C284	F2	F2	L461	E4	E4	R473	C3	E3
C285	F1	F2	Q273	A3	E2	R474	B3	F4
C321	D2	B3	Q283	B3	F2	R481	C3	F3
C322	D2	B3	Q284	B3	F2	R483	B3	F4
C325	D2	B3	Q341	C2	C3	R484	F2	F4
C361	E2	D3	Q371	B4	E3	R485	E4	F4
C362	E3	E3	Q379	E4	F3	R487	C4	F3
C364	C4	E3	Q385	E4	F3	RT271	D4	E2
C371	B4	E3	Q387	C5	F3	RT311	A2	B3
C372	C3	E3	Q421	D2	B4	RV221	B2	B2
C378	C3	F3	Q422	D1	B4	RV224	A1	B1
C379	C4	E3	Q441	C2	C3	RV401	B1	A4
C383	C3	F3	Q445	C3	C4	S100	A2	A1
C384	C4	F3	Q446	C3	C4	S401	B1	A3
C385	E4	F3	Q461	D5	D4	T111	A1	B1
C386	B5	F3	Q471	C2	E4	T141	B2	C1
C387	D5	F3	Q472	B3	E4	T211	C2	B2
C408	B1	A4	Q485	B3	F3	T241	D2	C2
C410	B2	A4	Q487	C5	F3	T261	E2	D2
C411	D2	B4	R121	C2	B2	T431	D2	C4
C427	D1	B4	R172	A3	E1	T432	D2	C3
C451	E3	D4	R173	E5	F1	TP161	F3	D1
C460	D4	E3	R174	A3	F2	TP162	F4	E1
C465	B2	E4	R175	F4	F2	TP171	E4	E1
C472	E2	E4	R182	E3	F1	TP172	B4	F1
C487	D5	F4	R184	B3	F2	TP173	E5	F1
CR151	B2	D1	R186	F1	F2	TP181	E3	F1
CR152	A2	D1	R221	C2	B2	TP182	F2	F1
CR153	B2	D1	R222	C2	B2	TP183	F1	F1
CR154	A2	D1	R234	C2	C2	TP184	F2	F1
CR211	B1	B2	R245	F1	D2	TP185	F2	F1
CR251	E1	D2	R261	D3	E2	TP411	C2	B4
CR252	E1	D2	R263	D3	E2	TP421	D1	B4
CR253	E2	D2	R264	D3	E2	TP422	D1	B4
CR254	E2	D2	R265	D3	E2	U181	F1	F2
CR255	E3	D2	R271	B4	E2	U275A	D4	E2
CR262	D3	E2	R273	D3	F2	U275B	D3	E2
CR266	D3	E2	R274	E3	F2	U275C	D3	E2
CR267	D3	E2	R275	D3	F2	U275D	D3	E2
CR271	D3	E2	R276	D3	F2	U371	C3	E3
CR276	D3	F2	R277	D4	F2	U375	C2	E3
CR281	B4	F2	R282	B3	F2	U385A	E5	F3
CR282	B4	F2	R283	D4	F2	U385B	C5	F3
CR285	B3	F2	R284	D4	F2	U471	F2	E4
CR341	E2	D3	R285	B3	F2	U481	F2	F4
CR342	E2	D3	R286	B3	F2	VR271	B4	E2
CR372	B3	E3	R287	B5	F2	VR375	E4	E3
CR381	B3	F3	R288	E5	F2	VR481	B4	F3
CR382	B3	F3	R289	B4	F2	W100	F3	Off Bd.
CR411	D2	B4	R290	B5	F2	W110	F3	Off Bd.
CR412	D2	B4	R291	C5	F2	W110	F5	Off Bd.
CR421	D1	B4	R301	B1	A3	W111	F1	Off Bd.
CR423	D1	B4	R311	B1	A3	W120	F4	Off Bd.
CR424	D2	B4	R321	C1	B3	W130	A4	Off Bd.
CR431	D1	C4	R331	D2	C3	W130	F1	Off Bd.
CR445	E2	D4	R365	C4	E3	W130	F4	Off Bd.
CR451	E2	D4	R366	D4	E3	W130	F5	Off Bd.
CR461	D5	E4	R367	D4	E3	W181	A3	Off Bd.
CR471	C2	E4	R368	B4	E3	W301	A1	Off Bd.
CR472	C2	E4	R369	D4	E2	W421	Not Shown	B4
CR481	B3	F4	R370	D4	E2 Back	W432	D2	C3
DS121	C2	B1	R371	D4	E2 Back	W472	E2	E3

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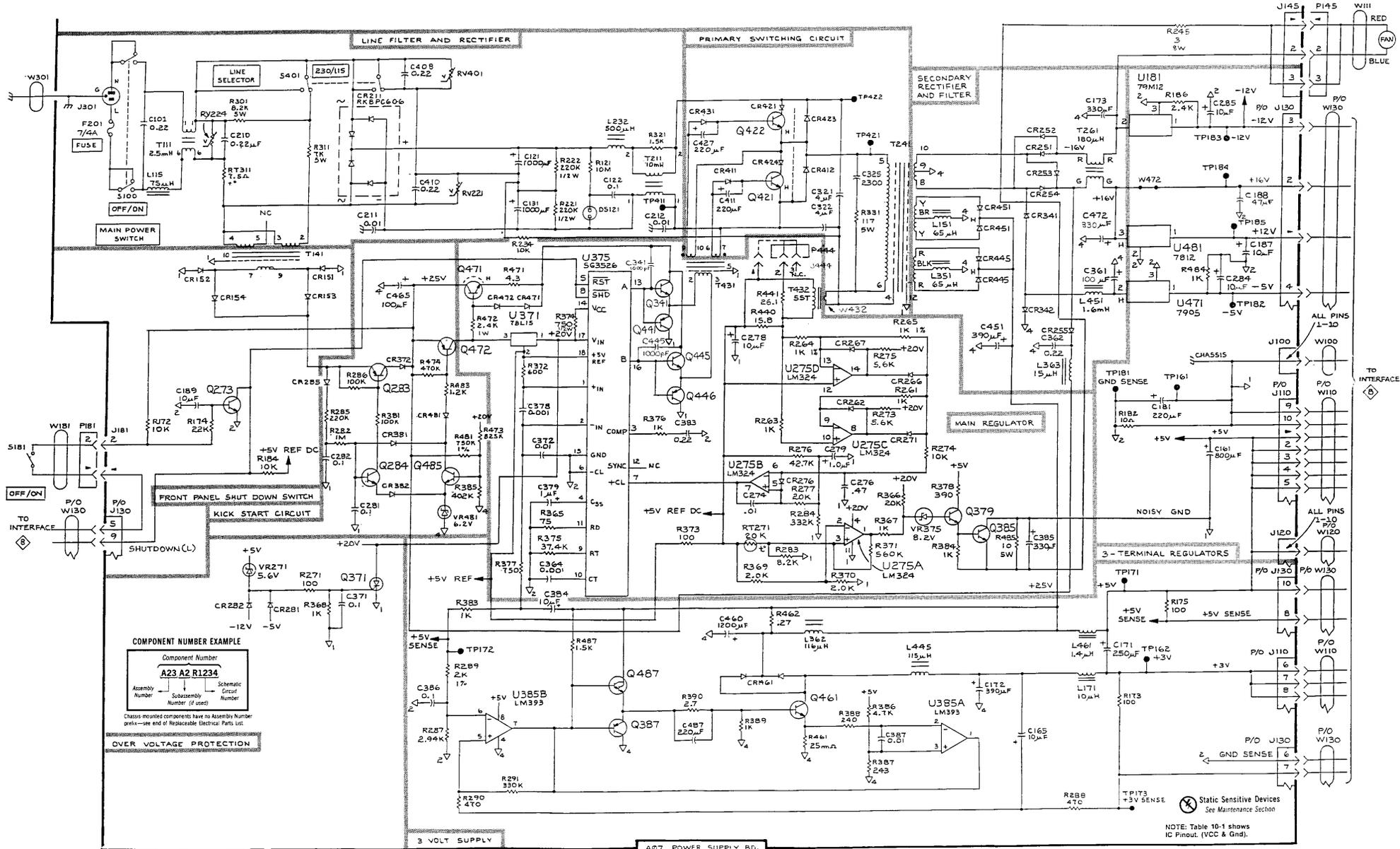
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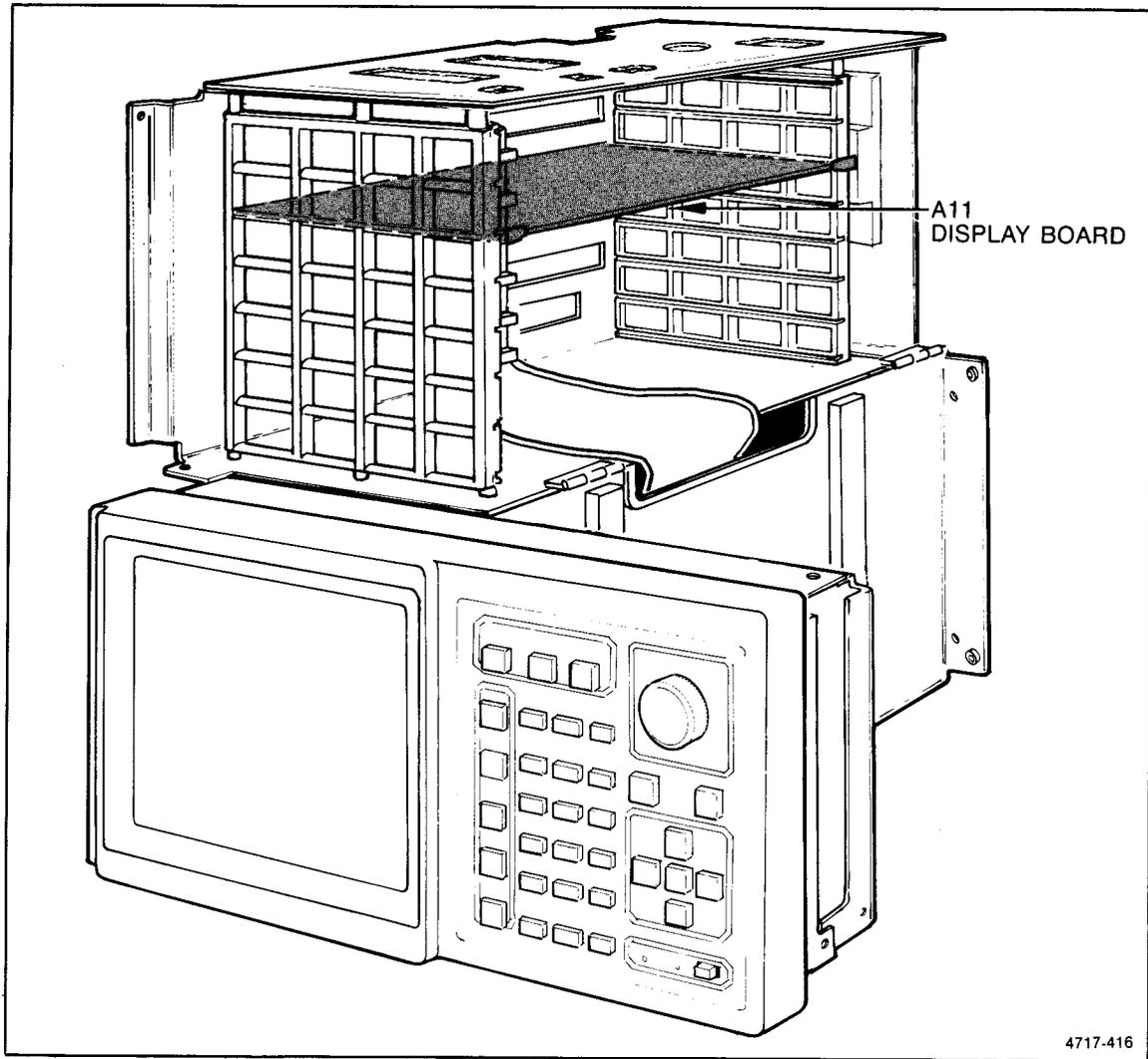


Figure 10-6. A12 1241 Display Board Mainframe Location.

Table 10-5

DISPLAY RAM/SCROLLING CONTROL  — DISPLAY BOARD, ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P650	A1	E4	U255	F5	D2
R295	D5	F1	U260	B5	D2
U105D	B4	A1	U265A	C5	D2
U145	E5	C1	U270C	C1	D2
U155	F5	D1	U275B	E1	E2
U160	C5	D1	U275D	C2	E2
U165	C5	D1	U280	B1	E2
U170A	B4	E1	U285	D3	E2
U170B	C4	E1	U290	E3	E2
U170C	D3	E1	U295	B3	F2
U170D	C4	E1	U298	B3	F2
U175	F1	E1	U480A	E1	E2
U185	F3	E1	U480B	D1	E2
U190	F3	E1	U480C	D1	E2
U195	C3	F1	U495E	D3	F3
U198	C3	F1	U495F	B2	F3
U245	D5	C2			

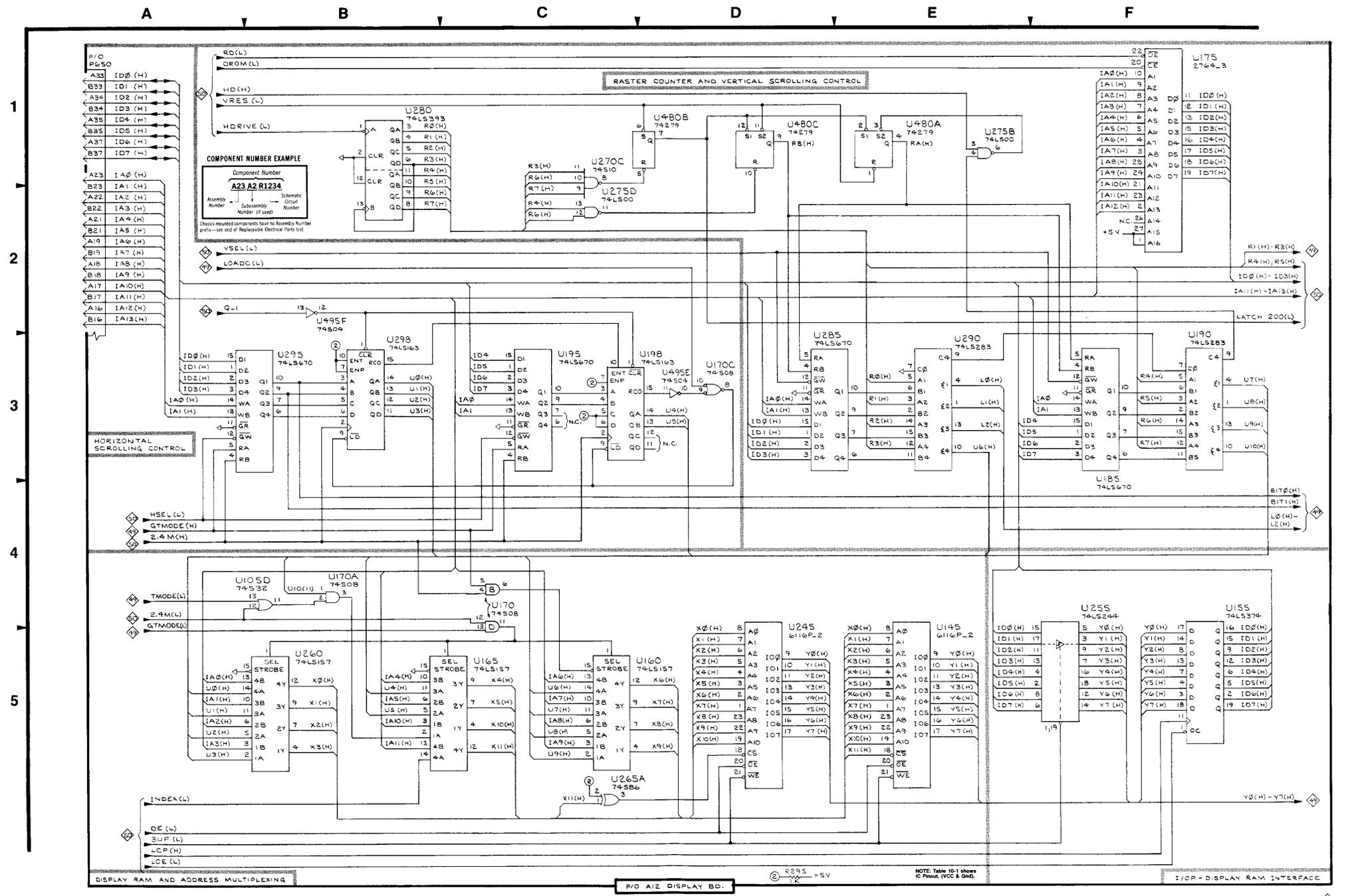


Table 10-6
VIDEO GENERATION 49 **— DISPLAY BOARD, ASSEMBLY A12**

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C100	F2	A1	C608	F1	A3
C105	F2	A1	C610	F2	A3
C110	F2	A1	C615	F1	B3
C120	F2	B1	C620	F2	B3
C140	F2	C1	C621	F1	B3
C155	F3	D1	C625	F2	B3
C165	F3	D1	C630	F1	C3
C170	F3	E1	J429	F3	B3
C185	F3	E1	P429	F3	harmonica
C195	F3	F1	P650	F1	E4
C205	F3	A1	R220	E5	B1
C208	F3	A1	R295	E5	F1
C220	F3	B1	TP225	F2	B1
C230	F3	B1	TP290	F2	E1
C235	F3	C1	TP444	F2	C3
C240	F2	C1	TP476	F2	E3
C245	F2	C1	TP628	F2	B4
C255	F2	D1	TP660	F2	D3
C265	F2	D2	U100A	C5	A1
C270	F2	D2	U100F	D5	A1
C275	F3	E2	U105C	E5	A1
C280	F3	E2	U108A	C5	A1
C290	F3	E1	U108D	D5	A1
C298	F3	F1	U110C	C3	A1
C300	F3	A2	U110F	C5	A1
C307	F3	A2	U115A	E5	B1
C308	F3	A2	U115C	C3	B1
C309	F3	A2	U115D	C3	B1
C312	F3	A2	U120	B3	B1
C315	F2	B2	U125	D5	B1
C320	F2	B2	U130	C1	C1
C330	F2	C2	U140	B1	C1
C335	F2	C2	U205A	A3	A1
C380	F2	E2	U205D	C5	A1
C385	F3	E2	*U208A	D5	A1
C408	F3	A3	U210A	D5	B1
C410	F1	A3	U225	D3	B2
C415	F1	B3	U230	D1	B2
C425	F3	C3	U235	E1	C2
C450	F1	D3	U240	C1	C2
C455	F3	D3	U265C	D4	D2
C456	F1	D3	U265D	D4	D2
C460	F1	D3	U270B	D4	D2
C465	F1	D3	U275A	B3	E2
C470	F3	E3	U310A	C2	B2
C475	F3	E3	U405A	B4	A3
C490	F3	F3	U405F	E3	A3
C498	F3	F2	U415B	E3	B2
C508	F1	A3	U425	E3	B2
C598	F3	F3	U430	B5	C2

***SEE PARTS LIST FOR SERIAL NUMBER RANGES**

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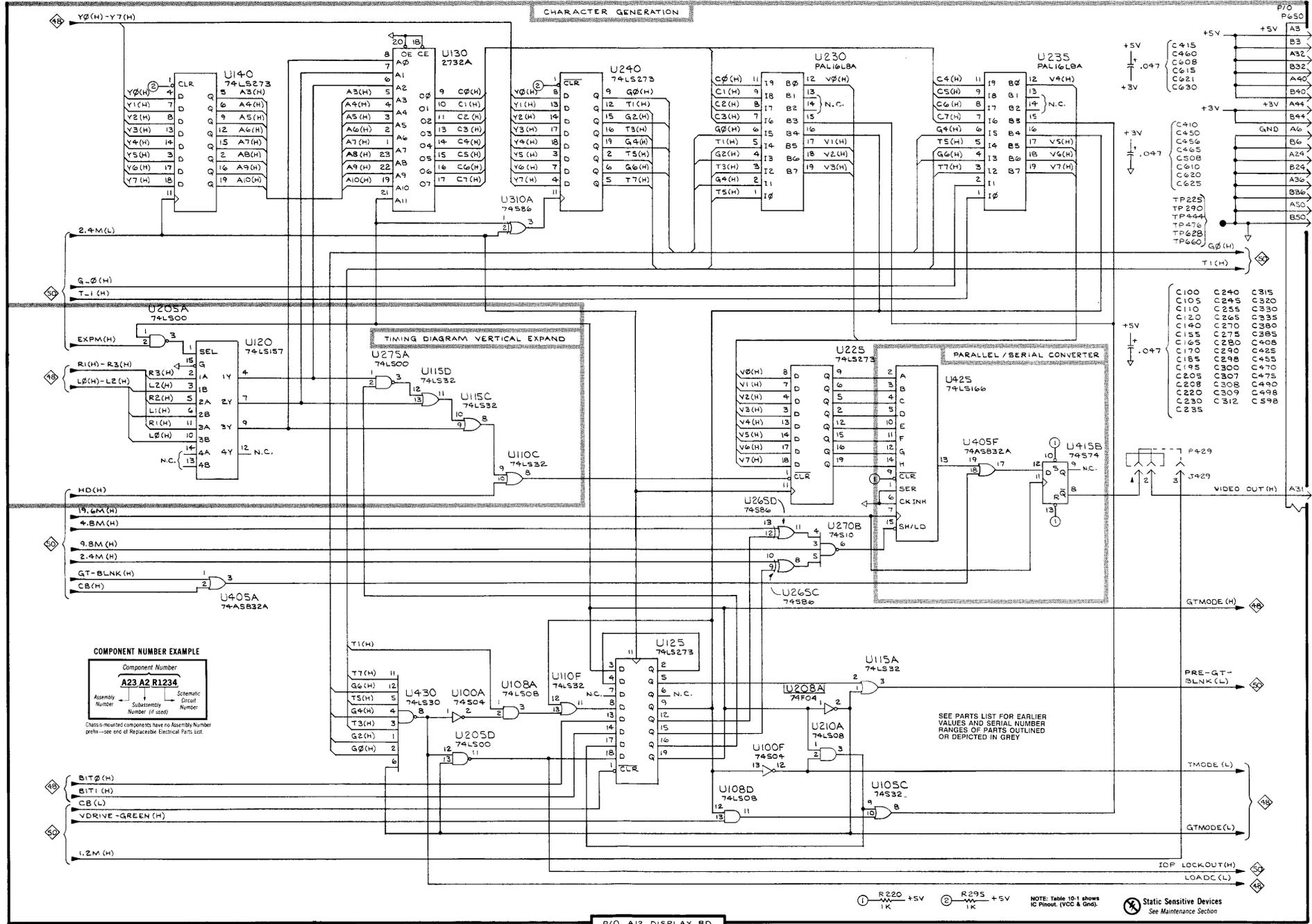
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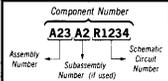
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CHARACTER GENERATION

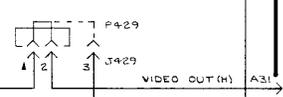
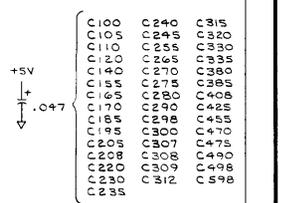
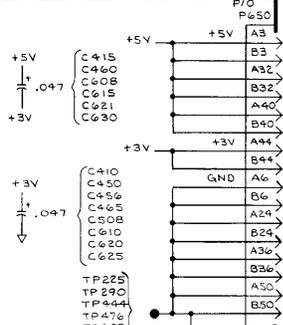


COMPONENT NUMBER EXAMPLE



Chassis-mounted components have no Assembly Number prefix—see end of Replaceable Electrical Parts List.

SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS OUTLINED OR DEPICTED IN GREY



GTMODE (H)

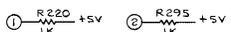
PRE-GT-BLNK (L)

TMODE (L)

GTMODE (L)

IDF LOCK-OUT (H)

LOADC (L)



NOTE: Table 10-1 shows IC Pinout. (VCC & Gnd).

Static Sensitive Devices See Maintenance Section

P/O A12 DISPLAY BD.

Table 10-7

I/OP R/W CONTROL/SYNC GENERATION  — DISPLAY BD, ASSEMBLY A12

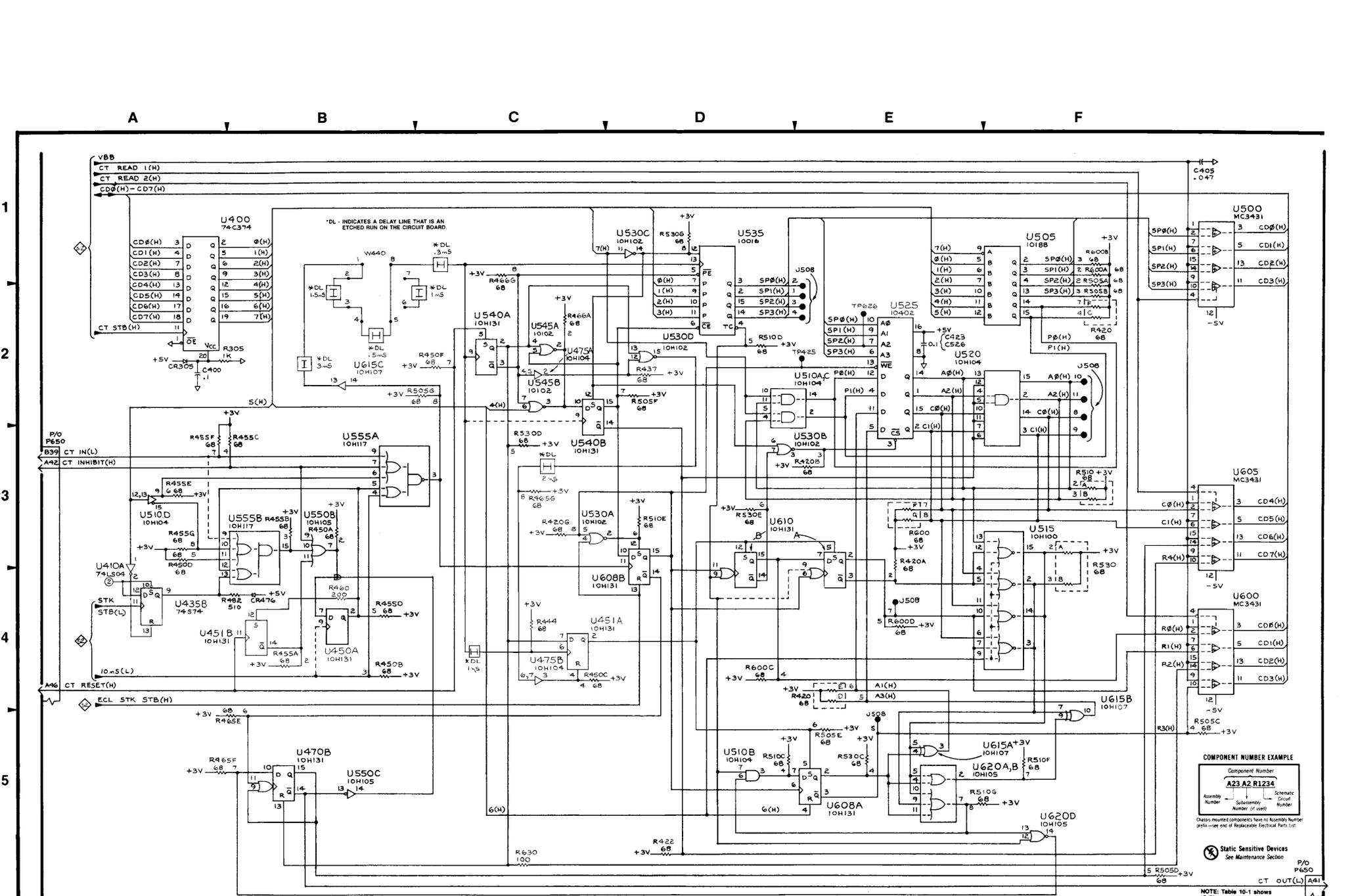
CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
P650	F1	E4	U305A	D4	A2
P650	A3	E4	U305B	C4	A2
R220	D5	B1	U308A	E3	A2
R295	D5	B1	U308B	E4	A2
U100B	C1	A1	U310B	F4	B2
U100C	E4	A1	U310C	B4	B2
U105A	E4	A1	U310D	C4	B2
U105B	D5	A1	U405B	D5	A3
U108B	B3	A1	U405C	D3	A3
U108C	E2	A1	U405D	D5	A3
U110A	D5	A1	U405E	B3	A3
U115B	B3	B1	U408	B5	A3
U200A	D4	A2	U410C	C5	A3
U200B	E4	A2	U410E	B3	A3
U205B	C5	A1	U410F	B2	A3
U205C	C5	A1	U415A	F3	B2
*U208C	E1	A1	U420	B4	B2
*U208D	D1	A1	U435A	D3	C2
*U208F	E2	A1	U480D	E2	E2
U210B	D1	B1	U485	B1	E2
U210C	C1	B1	U495A	B2	F3
U220	E1	B2	U495B	B2	F3
U265B	C5	D2	U495C	C2	F3
U270A	B2	D2	U560	C1	D3
U275C	F2	E2	YG490	A2	F2

*SEE PARTS LIST FOR SERIAL NUMBER RANGES

Table 10-8

COUNTER/TIMER  — DISPLAY BOARD, ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C400	A2	A2	R530C	E5	C3
C405	F1	A3	R530D	C3	C3
C423	E2	B3	R530E	D3	C3
C526	E2	Back Bd.	R530G	D1	C3
CR305	A2	A2	R600A	F1	A3
CR476	B4	E3	R600B	F1	A3
J508	F2	A3	R600C	D4	A3
J508	E2	A3	R600D	E4	A3
J508	E4	A3	R600F	E3	A3
J508	E5	A3	R600G	E3	A3
P650	F5	E4	R630	C5	B4
P650	A3	E4	TP425	E2	B3
R305	A2	A2	TP626	E2	B4
R420A	E3	B3	U400	A1	A3
R420B	E3	B3	U410A	A4	A3
R420C	F2	B3	U435B	A4	C2
R420D	E4	B3	U450A	B4	D2
R420E	E4	B3	U451A	C4	D2
R420F	F2	B3	U451B	B4	D2
R420G	C3	B3	U470B	B5	E2
R422	D5	B3	U475A	C2	E2
R437	D2	C3	U475B	C4	E2
R444	C4	C3	U500	F1	A3
R450A	B3	D3	U505	F1	A3
R450B	B4	D3	U510A	E2	A3
R450C	C4	D3	U510B	D5	A3
R450D	A3	D3	U510C	E2	A3
R450F	C2	D3	U510D	A3	A3
R455A	B4	D3	U515	F3	B3
R455B	B3	D3	U520	F2	B3
R455C	B3	D3	U525	E2	B3
R455D	B4	D3	U530A	C3	C3
R455E	A3	D3	U530B	E3	C3
R455F	A3	D3	U530C	D1	C3
R455G	A3	D3	U530D	D2	C3
R460	B4	D3	U535	D1	C3
R465E	B5	D3	U540A	C2	C3
R465F	A5	D3	U540B	C3	C3
R465G	C3	D3	U545A	C2	C3
R466A	C2	D3	U545B	C2	C3
R466G	C1	D3	U550B	B3	D3
R482	B4	E3	U550C	B5	D3
R505A	F2	A3	U555A	B3	D3
R505B	F2	A3	U555B	B3	D3
R505C	F5	A3	U600	F4	A4
R505D	F5	A3	U605	F3	A4
R505E	E5	A3	U608A	E5	A4
R505F	D2	A3	U608B	D4	A4
R505G	C2	A3	U610A	E3	B4
R510A	F3	B3	U610B	D3	B4
R510B	F3	B3	U615A	E5	B4
R510C	D5	B3	U615B	F5	B4
R510D	D2	B3	U615C	B2	B4
R510E	D3	B3	U620A	E5	B4
R510F	F5	B3	U620B	E5	B4
R510G	E5	B3	U620D	F5	B4
R530A	F3	C3	W440	B1	C2
R530B	F3	C3			



COMPONENT NUMBER EXAMPLE

Component Number		
A23 A2 R1234		
Assembly Number	Subassembly Number	Schematic Circuit Number
		Number (if used)

Chassis mounted components have no Assembly Number
 2018-08-01 end of Release/Revised Electrical Parts List

Static Sensitive Devices
 See Maintenance Section

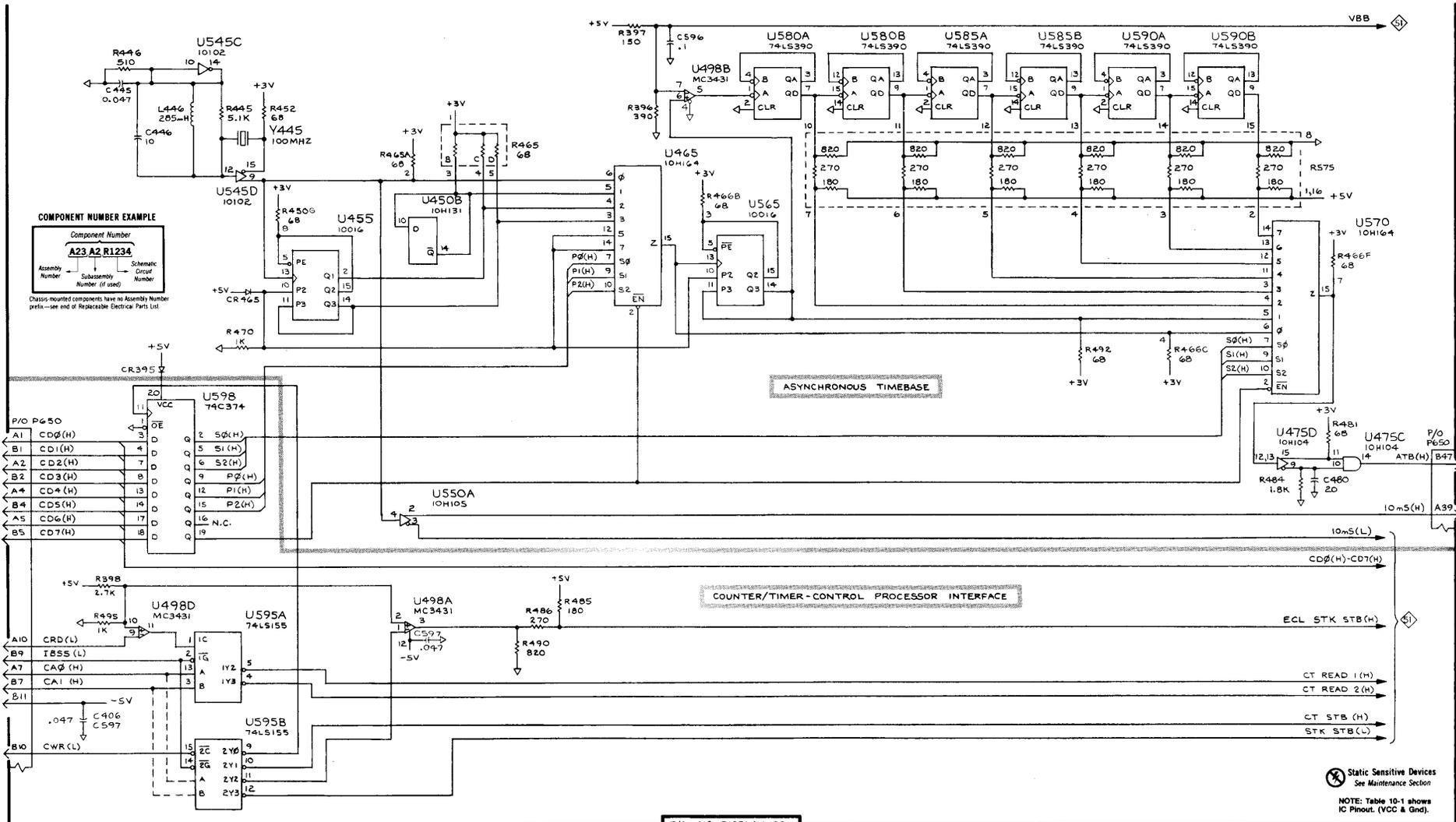
NOTE: Table 10-1 shows IC Pinouts. (VCC & Gnd.)

Table 10-9
ASYNCHRONOUS TIMEBASE  — DISPLAY BOARD, ASSEMBLY A12

CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION	CIRCUIT NUMBER	SCHEMATIC LOCATION	BOARD LOCATION
C406	A5	A3	R486	C4	E3
C445	A1	C3	R490	C4	F3
C446	A1	C3	R492	E3	F3
C480	F3	E3	R495	A4	F2
C596	C1	F3	R575	F2	E3
C597	B4	F3	U450B	B2	D2
CR395	A3	F2	U455	B2	D2
CR465	B2	D3	U465	C2	D2
L446	A1	C3	U475C	F3	E2
P650	F3	E4	U475D	F3	E2
P650	A3	E4	U498A	B4	F3
R396	C1	F2	U498B	C1	F3
R397	C1	F2	U498D	A4	F3
R398	A4	F2	U545C	B1	C3
R445	B1	C3	U545D	B2	C3
R446	A1	C3	U550A	B3	D3
R450G	B2	D3	U565	D2	D3
R452	B1	D3	U570	F2	E3
R465A	B2	D3	U580A	D1	E3
R465B	C1	D3	U580B	D1	E3
R465C	C1	D3	U585A	E1	E3
R465D	C1	D3	U585B	E1	E3
R466B	D2	D3	U590A	E1	F3
R466C	E3	D3	U590B	F1	F3
R466F	F2	D3	U595A	B4	F3
R470	B3	E3	U595B	B5	F3
R481	F3	E3	U598	A3	F3
R484	F3	E3	Y445	B1	C3
R485	C4	E3			

A B C D E F

1
2
3
4
5



⚡ Static Sensitive Devices
See Maintenance Section
NOTE: Table 10-1 shows
IC Pinout. (VCC & Gnd).

SECTION **11** REPLACEABLE
MECHANICAL
PARTS

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.

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.

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
**** END ATTACHING PARTS ****
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
**** END ATTACHING PARTS ****
Parts of Detail Part
Attaching parts for Parts of Detail Part
**** END ATTACHING PARTS ****

```

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.

Attaching parts must be purchased separately, unless otherwise specified.

ABBREVIATIONS

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

Replaceable Mechanical Parts—1241 Addendum

CROSS INDEX – MFR CODE NUMBER TO MANUFACTURER

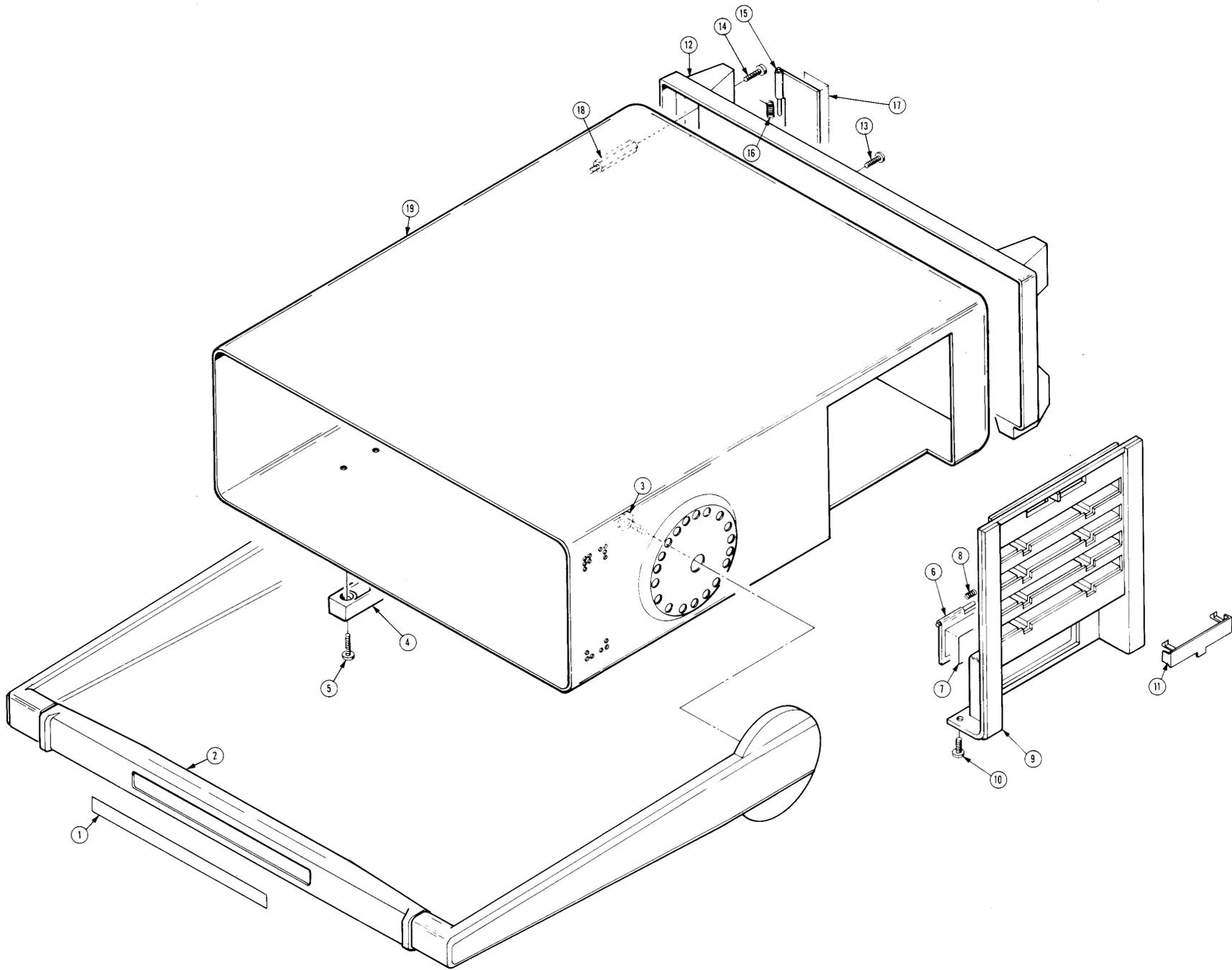
Mfr Code	Manufacturer	Address	City, State, Zip Code
00779	AMP INC SEMICONDUCTOR GROUP	2800 FULLING MILL PO BOX 655012	HARRISBURG PA 17105
01295	TEXAS INSTRUMENTS INC	13500 N CENTRAL EXPY	DALLAS TX 75265
01536	TEXTRON INC CAMCAR DIV	1818 CHRISTINA ST	ROCKFORD IL 61108
02660	AMPHENOL CORP	4300 COMMERCE CT	LISLE IL 60532
04713	MOTOROLA INC	5005 E MCDOWELL RD	PHOENIX AZ 85008-4229
04919	COMPONENT MFG SERVICE INC	1 COMPONENT PARK	WEST BRIDGEWATER MA 02379
05574	VIKING CONNECTORS INC	21001 NORDHOFF ST	CHATSWORTH CA 91311-5911
05383	PANDUIT CORP	17301 RIDGELAND	TINLEY PARK IL 07094-2917
05540	MITE CORP	446 BLAKE ST	NEW HAVEN CT 06515-1238
07416	NELSON NAME PLATE CO	3191 CASITAS	LOS ANGELES CA 90039-2410
08530	RELIANCE MICA CORP	341-39TH ST	BROOKLYN NY 11212-2903
09922	BURNDY CORP	RICHARDS AVE	NORWALK CT 06852
12327	FREEWAY CORP	9301 ALLEN DR	CLEVELAND OH 44125-4632
12697	CLAROSTAT MFG CO INC	LOWER WASHINGTON ST	DOVER NH 03820
13103	THERMALLOY CO INC	2021 W VALLEY VIEW LN	DALLAS TX 75381
16428	COOPER BELDEN ELECTRONIC WIRE AND CABLE	NW N ST	RICHMOND IN 47374
18680	HIGHLAND MFG CO THE	1240 WOLCOTT ST	WATERBURY CT 06720
22526	DU PONT E I DE NEMOURS AND CO INC	515 FISHING CREEK RD	NEW CUMBERLAND PA 17070-3007
22670	G M NAMEPLATE INC	2040 15TH AVE WEST	SEATTLE WA 98119-2728
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR	FRANKLIN IN 46131
27014	NATIONAL SEMICONDUCTOR CORP	2900 SEMICONDUCTOR DR	SANTA CLARA CA 95051-0606
27238	BRISTOL INDUSTRIES	630 E LAMBERT RD	BREA CA 92621-4112
27264	MOLEX INC	2222 WELLINGTON COURT	LISLE IL 60532-1613
31781	EDAC INC	20 RAILSIDE RD	DON MILLS ONT CAN M3A 1A4
31918	ITT SCHADOW INC	8081 WALLACE RD	EDEN PRAIRIE MN 55344-2224
54422	NORTHWEST TECHNOLOGY INC	1600 NW WASHINGTON BLVD	GRANDS PASS OR 97526-1052
57034	ADVANCED CIRCUIT TECHNOLOGY INC	118 NORTHEASTERN BLVD	NASHUA NH 03061
61058	MATSUSHITA ELECTRIC CORP OF AMERICA	ONE PANASONIC WAY	SECAUCUS NJ 07094-2917
70903	COOPER BELDEN ELECTRONICS WIRE AND CABLE	2000 S BATAVIA AVE	GENEVA IL 60134-3325
71468	ITT CANNON SUB OF HOUSEHOLD INTERNATIONAL CORP	666 E DYER RD PO BOX 1209	SANTA ANA CA 92702
72653	GC ELECTRONICS CO	1801 MARGAN ST	ROCKFORD IL 61105-1209
73743	FISCHER SPECIAL MFG CO	111 INDUSTRIAL RD	COLD SPRING KY 41076-9749
74868	AMPHENOL CORP	1 KENNEDY AVE	DANBURY CT 06810-5803
78189	ILLINOIS TOOL WORKS INC	ST CHARLES ROAD	ELGIN IL 60120
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR	BEAVERTON OR 97077-0001
81483	INTERNATIONAL RECTIFIER	9220 SUNSET BLVD	LOS ANGELES CA 90069-3501
82389	SWITCHCRAFT INC	5555 N ELSTRON AVE	CHICAGO IL 60630-1314
85471	BOYD CORP	13885 RAMONA AVE	CHINO CA 91710
85044	CALIFORNIA GASKET CORP	1601 W 134 ST	GARDENA CA 90249-2013
85928	SEASTROM MFG CO INC	701 SONORA AVE	GLENDAL CA 91201-2431
91500	ASHEVILLE-SCHOONMAKER MICA CO	910 JEFFERSON AVE	NEWPORT NEWS VA 23607-6120
91637	DALE ELECTRONICS INC	2064 12TH AVE	COLUMBUS NE 68601-3632
93907	TEXTRON INC	600 18TH AVE	ROCKFORD IL 61108-5181
93978	INTERNATIONAL ELECTRONIC RESEARCH CORP	135 W MAGNOLIA BLVD PO BOX 7704	BURBANK CA 91502
S3109	FELLER	72 Veronica Ave	Summerset NJ 08873
S3629	SCHURTER AG H	2015 SECOND STREET	BERKELEY CA 94170
TK0060	WRIGHT ENGINEERED PLASTICS INC	10350 OLD REDWOOD HWY	WINDSOR CA 95492-9208

CROSS INDEX – MFR CODE NUMBER TO MANUFACTURER

Mfr Code	Manufacturer	Address	City, State, Zip Code
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK0508	NORTHWEST SPRING AND MFG CO	5858 WILLOW LANE	LAKE OSWEGO OR 97034-5343
TK0858	STAUFFER SUPPLY CO (DIST)	810 SE SHERMAN	PORTLAND OR 97214
TK1316	BOYD CORP	6136 NE 87TH AVE	PORTLAND OR 97220
TK1386	PYRAMID ELECTRONICS SUPPLY INC	9757 JUANITA DRIVE NE	KIRKLAND WA 98034
TK1456	PAPST MECHATRONIC CORP	AQUIDNECK INDUSTRIAL PK	NEWPORT RI 02840
TK1483	TEKA PRODUCTS INC	45 SALEM ST	PROVIDENCE RI 02907
TK1610	BESTCO INC	2046 SE BROOKWOOD AVE	HILLSBORO OR 97123
TK1650	AMP INC	19200 STEVENS CREEK BLVD	CUPERTINO CA 95014
TK2156	ACACIA/DEANCO	7763 SW CIRRIUS RD	BEAVERTON OR 97005-6452
TK2165	TRIQUEST CORP	3000 LEWIS AND CLARK HWY	VANCOUVER WA 98661-2999
TK2278	COMTEK MANUFACTURING OF OREGON	PO BOX 4200	BEAVERTON OR 97076-4200

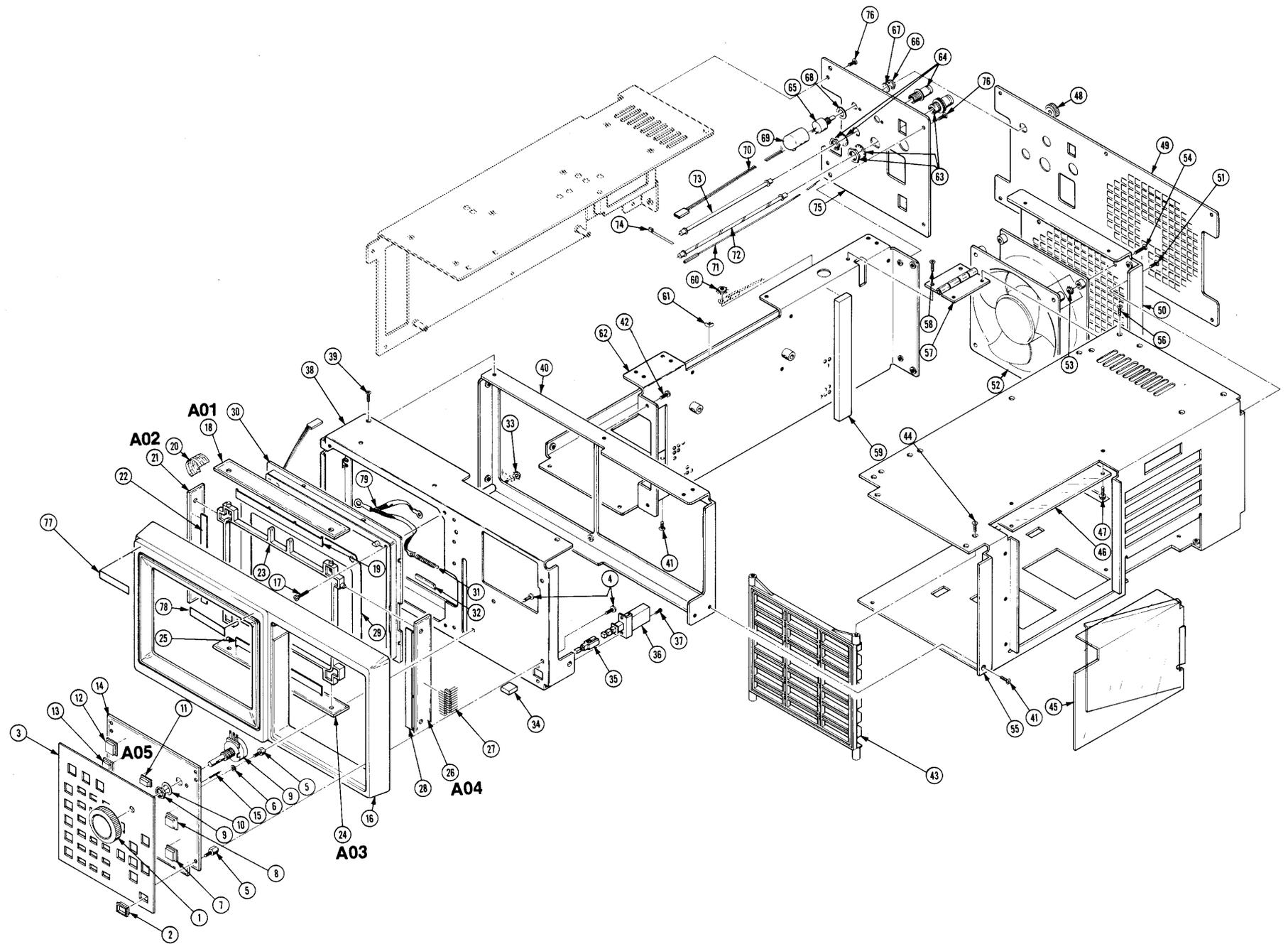
Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number		Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
		Effect	Discont				
1-1	334-4896-01			1	MARKER, IDENT:MKD 1241 HANDLE	80009	334-4896-01
-2	367-0322-00			1	HANDLE, CARRYING:13.800 L, SST (ATTACHING PARTS)	80009	367-0322-00
-3	212-0144-00			2	SCREW, TPG, TF:8-16 X 0.562 L, PLASTITE, SPCL (END ATTACHING PARTS)	93907	225-38131-012
-4	348-0770-00			2	FOOT, CABINET:BLACK POLYURETHANE (ATTACHING PARTS)	80009	348-0770-00
-5	211-0504-00			4	SCREW, MACHINE:6-32 X 0.250, PNH, STL (END ATTACHING PARTS)	TK0435	ORDER BY DESCRIPTION
-6	200-2815-00			2	DOOR, ROM PACK:POLYCARBONATE	80009	200-2815-00
-7	334-4754-00			1	MARKER, IDENT:MKD RECEPTACLE, ROM PACK	80009	334-4754-00
-8	214-1906-00			2	SPR, HLCL, TRSN:0.108 OD X 1.25, MUSIC WIRE	TK0508	ORDER BY DESCRIPTION
-9	351-0696-00			1	GUIDE, PROBE:POLYCARBONATE, SMOKE TAN (ATTACHING PARTS)	80009	351-0696-00
-10	211-0504-00			2	SCREW, MACHINE:6-32 X 0.250, PNH, STL (END ATTACHING PARTS)	TK0435	ORDER BY DESCRIPTION
-11	200-2782-00			1	COVER, HOLE:	80009	200-2782-00
-12	426-1914-00			1	FRAME PNL, CAB.:REAR (ATTACHING PARTS)	80009	426-1914-00
-13	211-0504-00			4	SCREW, MACHINE:6-32 X 0.250, PNH, STL	TK0435	ORDER BY DESCRIPTION
-14	211-0510-00			2	SCREW, MACHINE:6-32 X 0.375, PNH, STL (END ATTACHING PARTS)	TK0435	ORDER BY DESCRIPTION
-15	200-2815-00			1	DOOR, ROM PACK:POLYCARBONATE	80009	200-2815-00
-16	214-1906-00			1	SPR, HLCL, TRSN:0.108 OD X 1.25, MUSIC WIRE	TK0508	ORDER BY DESCRIPTION
-17	334-4757-00			1	MARKER, IDENT:MKD COMMUNICATION PACK	80009	334-4757-00
-18	129-1006-00			4	SPACER, POST:0.95 L, 6-32 EXT/INT, BRS, ZN PL	06540	9743-61-B-0632
-19	437-0295-00			1	CAB., LGC ANALY:	80009	437-0295-00



REV OCT 1986

1241 Service



Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number		Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
		Effect	Discont				
2-1	366-2159-00			1	KNOB:IVORY GRAY,SCROLL,1.243 ID X 1.4 OD X	80009	366-2159-00
	213-0153-00			1	.SETSCREW:5-40 X 0.125,STL	27238	ORDER BY DESCRIPTION
-2	426-0785-00			1	FRAME,PUSH BTN:	80009	426-0785-00
-3	333-2924-00			1	PANEL,FRONT: (ATTACHING PARTS)	80009	333-2924-00
-4	211-0504-00			4	SCREW,MACHINE:6-32 X 0.250,PNH,STL	TK0435	ORDER BY DESCRIPTION
-5	129-0208-00			4	SPACER,POST:0.312 L,6-32 STUD,BRS,ALBALOY (END ATTACHING PARTS)	80009	129-0208-00
-6	210-1092-00			1	WASHER,FLAT:0.147 ID X 0.312 OD X 0.028,BRS	12327	ORDER BY DESCRIPTION
-7	366-2033-01			4	PUSH BUTTON:DOVE GRAY,UP ARROW	TK0060	ORDER BY DESCRIPTION
	366-2033-03			1	PUSH BUTTON:DOVE GRAY,NEXT	TK0060	ORDER BY DESCRIPTION
-8	366-2030-23			2	PUSH BUTTON:IVORY GRAY,0.4 SQ X 0.175 H	TK0060	ORDER BY DESCRIPTION
-9	311-2193-00			1	ENCODER,DIGITAL:INCREMENTAL,2 CHAN,50PPR/CH	61058	EW7-XAK01950B
-10	210-1091-00			1	WASHER,FLAT:0.266 ID X 0.437 OD X 0.03,STL	12327	ORDER BY DESCRIPTION
-11	366-2032-01			1	PUSH BUTTON:IVORY GRAY,1	TK0060	ORDER BY DESCRIPTION
	366-2032-02			1	PUSH BUTTON:IVORY GRAY,2	TK0060	ORDER BY DESCRIPTION
	366-2032-03			1	PUSH BUTTON:IVORY GRAY,3	TK0060	ORDER BY DESCRIPTION
	366-2032-04			1	PUSH BUTTON:IVORY GRAY,4	TK0060	ORDER BY DESCRIPTION
	366-2032-05			1	PUSH BUTTON:IVORY GRAY,5	TK0060	ORDER BY DESCRIPTION
	366-2032-06			1	PUSH BUTTON:IVORY GRAY,6	TK0060	ORDER BY DESCRIPTION
	366-2032-07			1	PUSH BUTTON:IVORY GRAY,7	TK0060	ORDER BY DESCRIPTION
	366-2032-08			1	PUSH BUTTON:IVORY GRAY,8	TK0060	ORDER BY DESCRIPTION
	366-2032-09			1	PUSH BUTTON:IVORY GRAY,9	TK0060	ORDER BY DESCRIPTION
	366-2032-10			1	PUSH BUTTON:IVORY GRAY,0	TK0060	ORDER BY DESCRIPTION
	366-2032-11			1	PUSH BUTTON:IVORY GRAY,A	TK0060	ORDER BY DESCRIPTION
	366-2032-12			1	PUSH BUTTON:IVORY GRAY,B	TK0060	ORDER BY DESCRIPTION
	366-2032-13			1	PUSH BUTTON:IVORY GRAY,C	TK0060	ORDER BY DESCRIPTION
	366-2032-14			1	PUSH BUTTON:IVORY GRAY,D	TK0060	ORDER BY DESCRIPTION
	366-2032-15			1	PUSH BUTTON:IVORY GRAY,E	TK0060	ORDER BY DESCRIPTION
	366-2032-16			1	PUSH BUTTON:IVORY GRAY,F	TK0060	ORDER BY DESCRIPTION
	366-2032-17			1	PUSH BUTTON:IVORY GRAY,X	TK0060	ORDER BY DESCRIPTION
	366-2032-18			1	PUSH BUTTON:IVORY GRAY,DIAMOND	TK0060	ORDER BY DESCRIPTION
-12	366-2030-00			3	PUSH BUTTON:IVORY GRAY,0.4SQ X 0.175	TK0060	ORDER BY DESCRIPTION
-13	366-2045-00			5	PUSH BUTTON:SLATE GRAY,0.4 SQ X 0.24 H	TK0060	ORDER BY DESCRIPTION
-14	670-7529-00			1	CIRCUIT BD ASSY:KEYBOARD	80009	670-7529-00
-15	131-0608-00			57	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-16	426-1913-01			1	FRAME PNL,CAB.:FRONT,FINISHED	80009	426-1913-01
	672-1130-00			1	CIRCUIT BD ASSY:LED/PT (ATTACHING PARTS)	80009	672-1130-00
-17	211-0513-00			4	SCREW,MACHINE:6-32 X 0.625,PNH,STL (END ATTACHING PARTS)	93907	B80-00032-003
-18	-----			1	.CIRCUIT BD ASSY:PT-1 (NOT AVAILABLE,ORDER 672-1130-00)		
-19	337-3072-00			1	..SHIELD,CKT BD:STATIC	80009	337-3072-00
-20	-----			3	.CABLE ASSY:SP,ELEC (NOT AVAILABLE,ORDER 672-1130-00)		
-21	-----			1	.CIRCUIT BD ASSY:PT-2 (NOT AVAILABLE,ORDER 672-1130-00)		
-22	337-3072-00			1	..SHIELD,CKT BD:STATIC	80009	337-3072-00
-23	378-0200-00			1	.FILTER,LIGHT:LIGHT EMITTING DIODE	80009	378-0200-00
-24	-----			1	.CIRCUIT BD ASSY:LED-1 (NOT AVAILABLE,ORDER 672-1130-00)		
-25	337-3072-00			1	..SHIELD,CKT BD:STATIC	80009	337-3072-00
-26	-----			1	.CIRCUIT BD ASSY:LED-2 (NOT AVAILABLE,ORDER 672-1130-00)		
-27	131-2221-00			1	..CONN,RCPT,ELEC:CKT BD,50 CONT,MALE	22526	65626-150
-28	337-3072-00			1	..SHIELD,CKT BD:STATIC	80009	337-3072-00
-29	331-0486-00			1	MASK,CRT:BLACK VINYL	07416	331-0486-00
-30	119-2027-00	B010100	B010770	1	SHUTTER ASSY:119-2077-00 LCS IN 1241 FRAME	80009	ORDER BY DESCRIPTION
	119-2027-01	B010771	B011190	1	SHUTTER ASSY	80009	119-2027-01
	119-2027-00	B011191		1	SHUTTER ASSY:119-2077-00 LCS IN 1241 FRAME	80009	ORDER BY DESCRIPTION
-31	214-3103-00			1	SPRING,HILEXT:0.187 OD X 0.94 L,MJW	80009	214-3103-00
-32	252-0571-00			AR	NEOPRENE EXTR:CHAN,0.234 X 0.156	85471	ORDER BY DESCRIPTION
-33	210-0586-00			1	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
-34	366-1381-01			1	PUSH BUTTON:BLK,POWER OFF	80009	366-1381-01
-35	384-1136-00			1	EXTENSION SHAFT:0.95 INCH LONG	TK2165	ORDER BY DESCRIPTION
-36	260-1849-02			1	SWITCH,PUSH:DPDT,4A,250VAC,W/BRACKET	31918	601005

Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number Effect	Discont	Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
2-37	211-0022-00			2	(ATTACHING PARTS) SCREW,MACHINE:2-56 X 0.188,PNH,STL	TK0435	ORDER BY DESCRIPTION
-38	386-4831-02			1	(END ATTACHING PARTS) SUBPANEL,FRONT:	80009	386-4831-02
-39	211-0101-00			4	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-40	426-1901-01			1	(END ATTACHING PARTS) FRAME PNL,CHAS:FRONT,ALUMINUM	80009	426-1901-01
-41	211-0101-00			6	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-42	211-0504-00			2	SCREW,MACHINE:6-32 X 0.250,PNH,STL	TK0435	ORDER BY DESCRIPTION
-43	351-0697-00			2	(END ATTACHING PARTS) GUIDE,CKT BOARD:PLASTIC,5.745 L	80009	351-0697-00
-44	211-0101-00			10	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-45	337-3127-00			1	(END ATTACHING PARTS) SHIELD,CKT BD:LEXAN	85471	ORDER BY DESCRIPTION
-46	337-3095-00			1	SHIELD,ELEC:CABLE	80009	337-3095-00
-47	211-0661-00			4	(ATTACHING PARTS) SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,POZ	01536	821-01655-024
-48	366-1264-00			1	(END ATTACHING PARTS) KNOB:GY,0.127 ID X 0.6 OD X 0.375 H	80009	366-1264-00
-49	213-0153-00			1	.SETSCREW:5-40 X 0.125,STL	27238	ORDER BY DESCRIPTION
-49	333-2919-01			1	PANEL,REAR:	80009	333-2919-01
-50	407-2893-01			1	BRACKET,FAN:ALUMINUM	80009	407-2893-01
-51	211-0101-00			6	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-52	119-1725-01			1	(END ATTACHING PARTS) FAN,TUBEAXIAL:14.5VDC,6W,3200RPM,106CFM	TK1456	4112 KX
-53	210-0586-00			4	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
-54	211-0106-00			4	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.625,FLH,100 DEG,STL	TK0435	ORDER BY DESCRIPTION
-55	352-0668-00			1	(END ATTACHING PARTS) HOLDER,CKT BD:ALUMINUM	80009	352-0668-00
-56	211-0101-00			4	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-57	214-3378-01			2	(END ATTACHING PARTS) HINGE,BUTT:2.0 L X 1.5 W,ALUMINUM	80009	214-3378-01
-58	211-0101-00			4	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
-59	348-0102-00			2	(END ATTACHING PARTS) PAD,CUSHIONING:13.76 X 0.67 X 0.188,RUBBER	TK1316	ORDER BY DESCRIPTION
-60	210-0586-00			1	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL	78189	211-041800-00
-61	334-3379-01			1	MARKER,IDENT:MARKED GROUND SYMBOL	22670	ORDER BY DESCRIPTION
-62	441-1643-03			1	CHAS,LGC ANALY:	80009	441-1643-03
-63	131-1171-00			1	CONN,RCPT,ELEC:BNC,FEMALE	24931	28JR364-1
-64	131-1315-01			1	CONN,RCPT,ELEC:BNC,FEMALE	24931	28JR306-1
-65	311-0604-00			1	RES,VAR,NONMW:PNL,250K OHM,0.5W	12697	381-CM40258
-66	210-0583-00			1	NUT,PLAIN,HEX:0.25-32 X 0.312,BRS CD PL	73743	2X-20319-402
-67	210-0046-00			1	WASHER,LOCK:0.261 ID,INTL,0.018 THK,STL	78189	1214-05-00-0541C
-68	210-0853-00			1	WASHER,FLAT:0.25 ID X 0.5 OD X 0.063,AL	86044	ORDER BY DESCRIPTION
-69	-----			1	(END ATTACHING PARTS) POT COVER:		
-70	174-0003-00			1	CABLE ASSY,SP,ELEC:3,26 AWG,6.5L,RIBBON	TK1148	174-0003-00
-71	196-3060-00			1	(FROM A13 TO R675) LEAD,ELECTRICAL:26 AWG,5.5 L,2-M	80009	196-3060-00
-72	175-2423-00			1	(FROM A13 TO REAR PANEL BNC) CABLE ASSY,RF:50 OHM COAX,5.0 L	80009	175-2423-00
-73	175-5113-00			1	(FROM A13 TO REAR PANEL BNC) CABLE ASSY,RF:50 OHM COAX,5.5 L,9-4	TK1148	174-0003-00
-74	343-0549-00			1	(FROM A13 TO REAR PANEL BNC) STRAP,TIEDOWN,E:0.091 W X 4.0 L	06383	PLT1M
-75	134-0026-00			1	BUTTON,PLUG:U/W 0.375 HOLE	72653	11-352
-75	386-4865-00			1	SUBPANEL,REAR:	80009	386-4865-00
-76	211-0101-00			6	(ATTACHING PARTS) SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL	93907	ORDER BY DESCRIPTION
					(END ATTACHING PARTS)		

Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number		Qty	1241 Part Name & Description	Mfr	
		Effect	Discont			Code	Part Number
2-77	334-5013-01	B010100	B010150	1	EMBLEM:SMOKE TAN	80009	334-5013-01
	334-0094-00	B010151		1	EMBLEM:SMOKE TAN W/O STUD	TK1610	ORDER BY DESCRIPTION
-78	334-4785-01			1	MARKER, IDENT: MKD INSTRUMENT NUMBER	80009	334-4785-01
-79	174-0086-00			1	BRAID ASSY, WIRE: 4.75 L	TK2156	61953

Replaceable Mechanical Parts—1241 Addendum

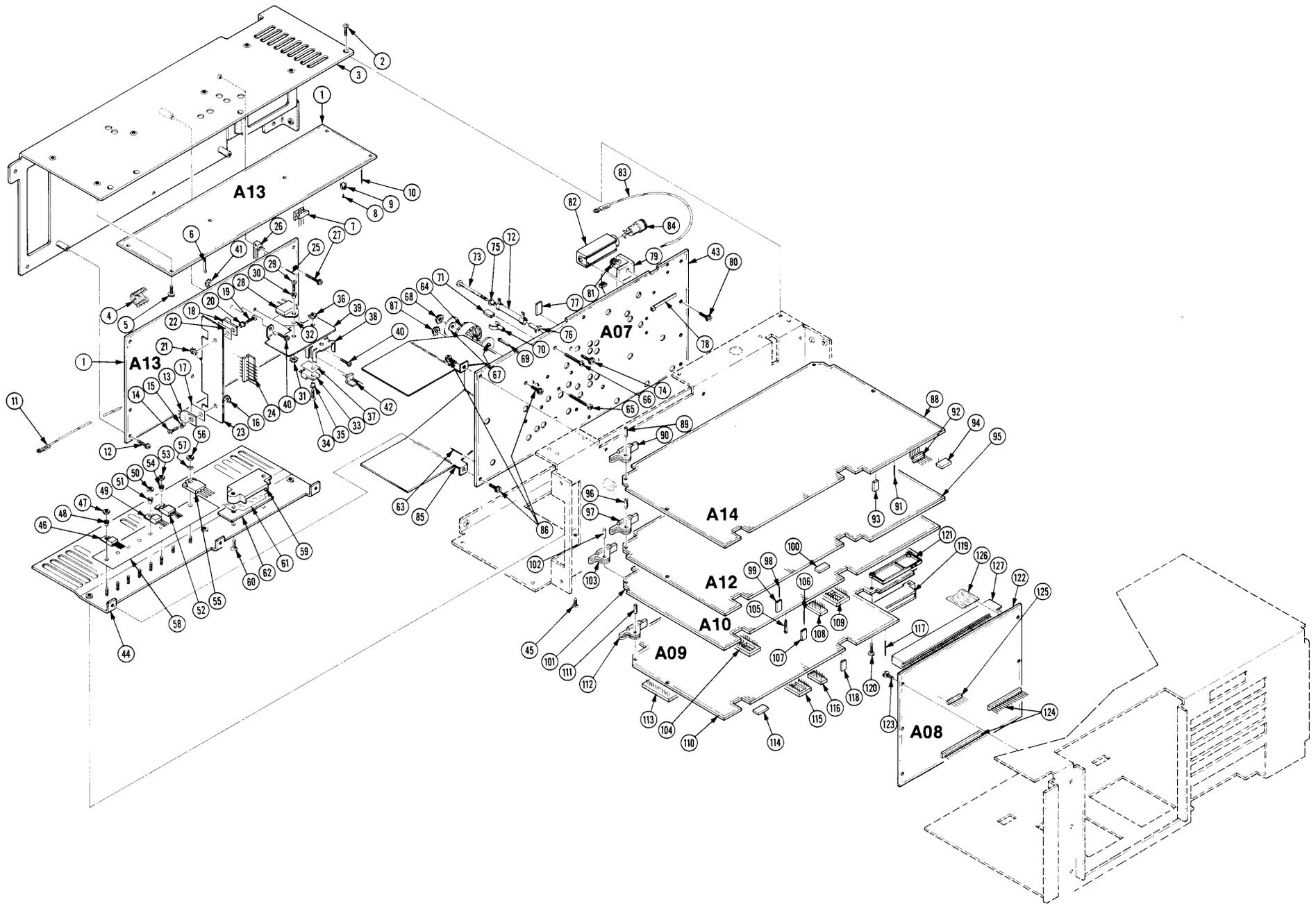
Fig. & Index No.	Tektronix Part Number	Serial Number Effect	Discont	Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
3-1	670-8688-03			1	CIRCUIT BD ASSY:CRT DRIVE (ATTACHING PARTS)	80009	670-8688-03
-2	211-0101-00			6	SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-3	407-2892-01			1	.BRACKET,CKT BD:ALUMINUM	80009	407-2892-01
-4	175-6420-00			4	.CA ASSY,SP,ELEC:10,24 AWG,0.50 L RIBBON	57034	CSJ-505-10-.5KCT
-5	211-0661-00			6	.SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,POZ	01536	821-01655-024
-6	214-0579-00			1	.TERM,TEST POINT:BRS CD PL	80009	214-0579-00
-7	131-2247-00			1	.TERM,FEEDTHRU;3 PIN,INSULATED	26742	3CLF-24602-0325
-8	136-0252-07			2	.SOCKET,PIN CONN:W/O DIMPLE	22526	75060-012
-9	131-1003-00			2	.CONN,RCPT,ELEC:CKT BD MT,3 PRONG	80009	131-1003-00
-10	131-0608-00			17	.TERMINAL,PIN:0.365 L X 0.025 BRZ GOLD PL	22526	48283-036
-11	174-0081-00			1	.BRAID ASSY,WIRE:7.0 L	80009	174-0081-00
-12	211-0246-00			6	.SCR,ASSEM WSHR:4-40 X 0.625,PNH,STL,POZ	01536	ORDER BY DESCRIPTION
-13	151-1147-00			1	.TRANSISTOR:FE,N-CHANNEL,SI,TO-220 (ATTACHING PARTS)	04713	STP3001
-14	211-0097-00			1	.SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCRIPTION
-15	210-1178-00			1	.WASHER,SHLDR:	13103	7721-7PPS
-16	210-0586-00			1	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-17	342-0202-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	91500	10-21-023-106
-18	151-1191-00			1	.TRANSISTOR:FET,MOS,PWR (ATTACHING PARTS)	81483	IRF641 (94-156)
-19	211-0097-00			1	.SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCRIPTION
-20	210-1178-00			1	.WASHER,SHLDR:	13103	7721-7PPS
-21	210-0586-00			1	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-22	342-0202-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	91500	10-21-023-106
-23	337-3204-00			1	.SHLD,HEAT SINK:EMI	80009	337-3204-00
-24	131-2527-00			1	.TERM SET,PIN:HEADER,1 X 7,0.156 CTR	27264	26-51-2073
-25	131-0608-00			82	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-26	131-1262-00			1	.CONN,RCPT,ELEC:EDGE CARD,20/40 CONT,0.1 SP (ATTACHING PARTS)	05574	000201-4338
-27	211-0246-00			2	.SCR,ASSEM WSHR:4-40 X 0.625,PNH,STL,POZ (END ATTACHING PARTS)	01536	ORDER BY DESCRIPTION
-28	151-1186-00			1	.TRANSISTOR,PWR:MOS,N-CH;400V,8.0A,0.55 OHM (ATTACHING PARTS)	04713	MTH8N40
-29	211-0097-00			1	.SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCRIPTION
-30	210-1178-00			1	.WASHER,SHLDR:	13103	7721-7PPS
-31	210-0586-00			1	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-32	342-0311-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	01295	64-21-023-212
-33	156-1967-00			1	.IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;POS (ATTACHING PARTS)	27014	350
-34	211-0097-00			1	.SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCRIPTION
-35	210-1178-00			1	.WASHER,SHLDR:	13103	7721-7PPS
-36	210-0586-00			1	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-37	342-0202-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	91500	10-21-023-106
-38	214-1914-00			1	.HEAT SINK,DIODE:(2)0.15 DIA HOLES,AL	98978	P81-2CB
-39	214-3798-00			1	.HEAT SINK,XSTR:ALUMINUM (ATTACHING PARTS)	80009	214-3798-00
-40	211-0097-00			2	.SCREW,MACHINE:4-40 X 0.312,PNH,STL	93907	ORDER BY DESCRIPTION
-41	210-0586-00			2	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-42	131-2485-00			1	.TERM SET,PIN:2 PIN,INSULATED	27264	09-60-1021
-43	670-7534-15			1	CIRCUIT BD ASSY:PWR SPLY	80009	670-7534-15
-44	214-3379-00			1	.HEAT SINK,XSTR:(7)TO-220,(4)TO-218,AL (ATTACHING PARTS)	80009	214-3379-00
-45	211-0101-00			2	.SCREW,MACHINE:4-40 X 0.25,FLH,100 DEG,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-46	156-0846-00			1	.IC,LINEAR:BIPOLAR,VOLTAGE REGULATOR;NEG 5V (ATTACHING PARTS)	01295	7905C
-47	210-0406-00			1	.NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
-48	210-1178-00			1	.WASHER,SHLDR: (END ATTACHING PARTS)	13103	7721-7PPS
-49	152-0794-00			1	.SEMICONDC DVC,DI:RECT,SI,10A,30V,TO-220	81483	12CT0030

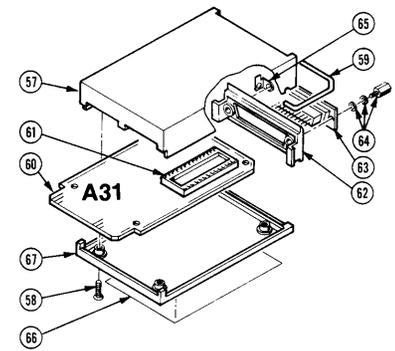
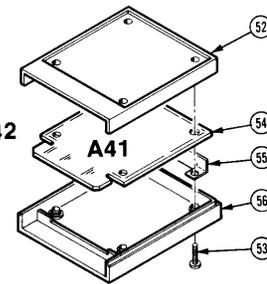
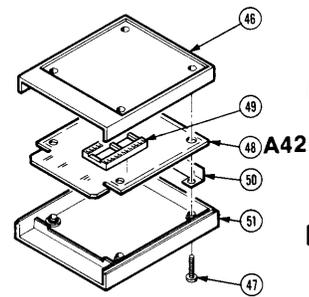
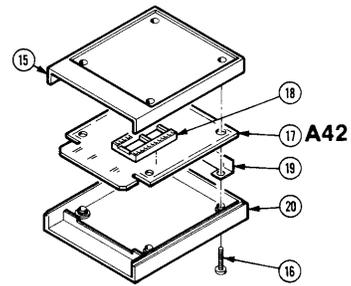
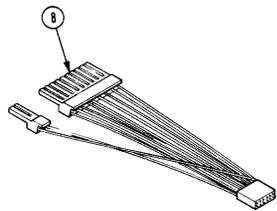
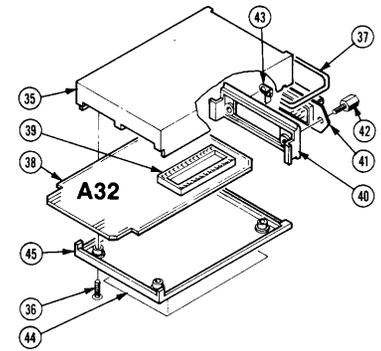
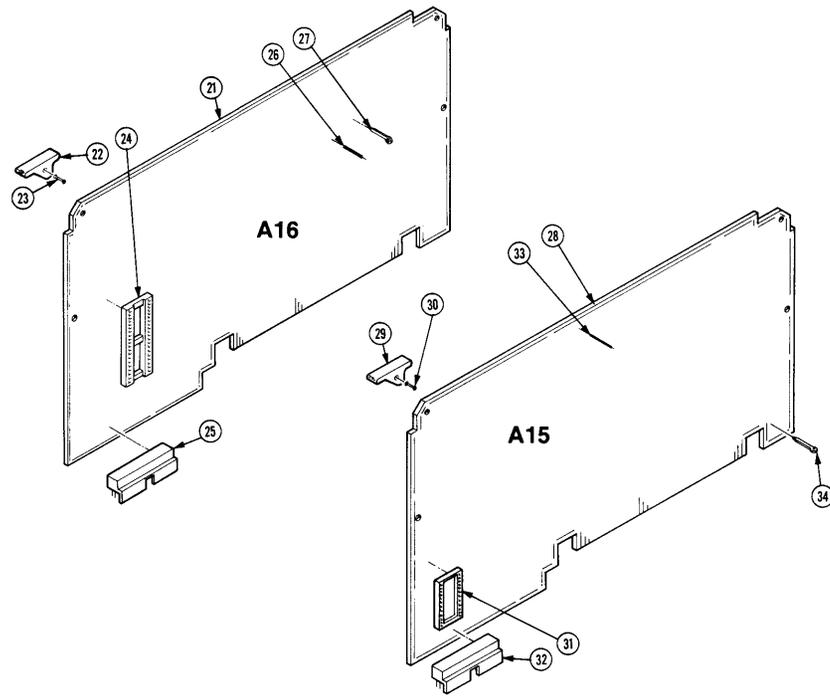
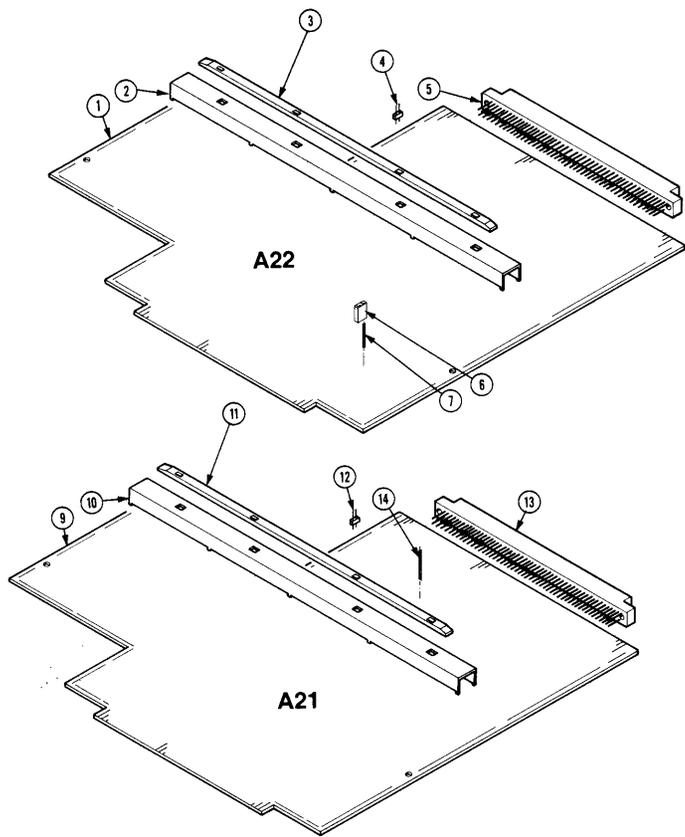
Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number Effect	Discont	Qty	12345 Part Name & Description	Mfr Code	Mfr Part Number
					(ATTACHING PARTS)		
3-50	210-0406-00			1	.NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
-51	210-1178-00			1	.WASHER,SHLDR: (END ATTACHING PARTS)	13103	7721-7PPS
-52	151-0621-00			2	.TRANSISTOR:NPN,SI,T-220 (ATTACHING PARTS)	04713	D44H3
-53	210-0406-00			2	.NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
-54	210-1178-00			2	.WASHER,SHLDR: (END ATTACHING PARTS)	13103	7721-7PPS
-55	152-0793-00			2	.SEMICONDC DVC,DI:DUAL RECT,SI,40V,25A (ATTACHING PARTS)	81483	95-4564
-56	210-0406-00			2	.NUT,PLAIN,HEX:4-40 X 0.188,BRS CD PL	73743	12161-50
-57	210-1122-00			2	.WASHER,LOCK:0.12 ID,DISHED,0.025 THK,STL (END ATTACHING PARTS)	86928	210-1122-00
-58	342-0613-00			1	.INSULATOR,FILM:TRANSISTORS,MICA	80009	342-0613-00
-59	200-2269-00			1	.COVER,XSTR: (ATTACHING PARTS)	TK2165	ORDER BY DESCRIPTION
-60	211-0512-00			2	.SCREW,MACHINE:6-32 X 0.5,FLH,100 DEG,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESCRIPTION
-61	342-0458-00			1	.INSULATOR,PLATE:TRANSISTOR,MICA	08530	ADVISE
-62	342-0449-01			1	.INSULATOR,PLATE:TRANSISTOR,ALUMINA	80009	342-0449-01
-63	131-0589-00			48	.TERMINAL,PIN:0.46 L X 0.025 SQ PH BRZ GLD	22526	48283-029
-64	-----			5	.COIL/XFMR:(SEE A07L151,L351,L445,L451,T261 REPL) (ATTACHING PARTS)		
-65	211-0020-00			4	.SCREW,MACHINE:4-40 X 1.125,PNH,STL	TK0435	ORDER BY DESCRIPTION
-66	211-0021-00			1	.SCREW,MACHINE:4-40 X 1.25,PNH,STL	TK0435	ORDER BY DESCRIPTION
-67	352-0725-00			8	.HOLDER,TOROID:PLASTIC	80009	352-0725-00
-68	210-0586-00			5	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-69	214-0579-00			13	.TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
-70	352-0086-00			1	.HOLDER,TOROID:0.5 DIA,DELTRIN	80009	352-0086-00
-71	131-0993-00			1	.BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-005
-72	308-0161-00			1	.RES,FXD,WW:3 OHM,5%,8W (ATTACHING PARTS)	91637	HL-12-022-8
-73	211-0529-00			1	.SCREW,MACHINE:6-32 X 1.250,PNH,STL	93907	ORDER BY DESCRIPTION
-74	211-0658-00			1	.SCR,ASSEM WSHR:6-32 X 0.312,PNH,STL,POZ	78189	S51-060545-0X
-75	210-0601-00			1	.EYELET,METALLIC:0.183 OD X 0.192 L,BRASS	18680	77362
-76	210-0478-00			1	.SPACER,POST:0.66 L W/6-32 THD THRU,AL, HEX (END ATTACHING PARTS)	TK2278	ORDER BY DESCRIPTION
-77	253-0135-01				.PLASTIC STRIP:VINYL FOAM,0.062 X 0.5 X	80009	253-0135-01
-78	343-0549-00			4	.STRAP,TIEDOWN,E:0.091 W X 4.0 L	06383	PLTIM
-79	131-2663-00			1	.CONN,RCPT,ELEC:PWR,3 MALE,250VAC,6A (ATTACHING PARTS)	82389	EAC 303
-80	211-0244-00			2	.SCR,ASSEM WSHR:4-40 X 0.312,PNH STL CD PL	01536	821-02775
-81	210-0586-00			2	.NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-82	204-0906-00			1	.BODY,FUSEHOLDER:3AG & 5 X 20MM FUSES	S3629	TYPE FAU 031.3577
-83	196-1157-01			1	.LEAD,ELECTRICAL:18 AWG,5.5 L,5-4	TK1386	ORDER BY DESCRIPTION
-84	200-2264-00			1	CAP,FUSEHOLDER:3AG FUSES	S3629	FEK 031 1666
-85	337-3097-00			1	SHIELD,ELEC:YOKE (ATTACHING PARTS)	80009	337-3097-00
-86	211-0661-00			3	SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,POZ	01536	821-01655-024
-87	210-0586-00			2	NUT,PL,ASSEM WA:4-40 X 0.25,STL CD PL (END ATTACHING PARTS)	78189	211-041800-00
-88	670-7523-10	B010100	B010883	1	CIRCUIT BD ASSY:TRIGGER	80009	670-7523-10
	670-7523-11	B010884		1	CIRCUIT BD ASSY:TRIGGER	80009	670-7523-11
-89	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-90	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04
-91	131-0608-00			100	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-92	131-2221-00			1	.CONN,RCPT,ELEC:CKT BD,50 CONT,MALE	22526	65626-150
-93	131-0993-00			13	.BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
-94	253-0135-01			1	.PLASTIC STRIP:VINYL FOAM,0.062 X 0.5 X	80009	253-0135-01
-95	670-8689-00	B010100	B010483	1	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-00
	670-8689-01	B010484	B011626	1	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-01
	670-8689-02	B011627		1	CIRCUIT BD ASSY:DISPLAY	80009	670-8689-02
-96	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-97	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04

Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number		Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
		Effect	Discont				
3-98	131-0608-00			23	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-99	131-0993-00			1	.BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
-100	253-0135-01			1	.PLASTIC STRIP:VINYL FOAM,0.062 X 0.5 X	80009	253-0135-01
-101	670-7526-15	B010100	B010323	1	CIRCUIT BD ASSY:I/O PROCESSOR	80009	670-7526-15
	670-7526-16	B010324		1	CIRCUIT BD ASSY:I/O PROCESSOR	80009	670-7526-16
-102	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-103	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04
-104	136-0757-00			1	.SKT,PL-IN ELEK:MICROCIRCUIT,40 DIP	09922	DILB40P-108
-105	214-0579-00			14	.TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
-106	131-0608-00			53	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-107	131-0993-00			2	.BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
-108	136-0729-00			1	.SKT,PL-IN ELEK:MICROCKT,16 CONTACT	09922	DILB16P-108T
-109	136-0755-00			5	.SKT,PL-IN ELEK:MICROCIRCUIT,28 DIP	09922	DILB28P-108
-110	670-7527-15			1	CIRCUIT BD ASSY:CONTROL PROCESSOR	80009	670-7527-15
-111	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-112	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04
-113	136-0757-00			1	.SKT,PL-IN ELEK:MICROCIRCUIT,40 DIP	09922	DILB40P-108
-114	253-0135-01			2	.PLASTIC STRIP:VINYL FOAM,0.062 X 0.5 X	80009	253-0135-01
-115	136-0755-00			8	.SKT,PL-IN ELEK:MICROCIRCUIT,28 DIP	09922	DILB28P-108
-116	136-0729-00			1	.SKT,PL-IN ELEK:MICROCKT,16 CONTACT	09922	DILB16P-108T
-117	131-0608-00			41	.TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD P	22526	48283-036
-118	131-0993-00			1	.BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-006
-119	131-2849-00			1	.CONN,RCPT,ELEC:EDGE CARD,RTANG,2 X 18,0.1 (ATTACHING PARTS)	31781	345-036-559-212
-120	211-0016-00			2	.SCREW,MACHINE:4-40 X 0.625,PNH,STL (END ATTACHING PARTS)	TK0435	ORDER BY DESCRIPTION
-121	351-0695-00			1	.GUIDE,ROM PACK:POLYCARBONATE,TEK BLACK	80009	351-0695-00
-122	670-7528-07			1	CIRCUIT BD ASSY:INTERFACE (ATTACHING PARTS)	80009	670-7528-07
-123	211-0661-00			4	SCR,ASSEM WSHR:4-40 X 0.25,PNH,STL,POZ (END ATTACHING PARTS)	01536	821-01655-024
-124	131-2401-00			2	.CONN,RCPT,ELEC:2 X 25,MALE	TK1483	082-2543-SD10
-125	131-1857-00			1	.TERM SET,PIN:36/0.025 SQ PIN,ON 0.1 CTRS	TK1483	082-3643-SS10
-126	175-9256-01			4	.CA ASSY,SP,ELEC:10,22 AWG,10.0 L,RIBBON	54422	PER TEKTRONIX SPECS
-127	131-2570-01			8	.CONN,RCPT,ELEC:CKT BD,50/100 CONT,FEMALE	05574	000264-0058





Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number Effect	Serial Number Discont	Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
4-	067-1103-03			1	FIXTURE,CAL	80009	067-1103-03
-1	670-8567-00			1	.CIRCUIT BD ASSY:ACQUISITION EXTENDER	80009	670-8567-00
-2	386-4950-00			1	..STIF,CIRCUIT BD:10.025 L,BRASS	80009	386-4950-00
-3	351-0058-00			1	...SLIDE,GUIDE:PLUG-IN	80009	351-0058-00
-4	131-2401-00			3	..CONN,RCPT,ELEC:2 X 25,MALE	TK1483	082-2543-SD10
-5	131-1263-00			1	..CONN,RCPT,ELEC:EDGE CARD,50/100 CONT,0.1 S	05574	600201-3208
-6	131-0993-00			4	..BUS,CONDUCTOR:SHUNT ASSEMBLY,BLACK	22526	65474-005
-7	131-0608-00			21	..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD	22526	48283-036
-8	012-0556-00			2	.LEAD SET,ELEC:DIAGNOSTIC	TK2156	61500
-9	670-7539-02			1	.CIRCUIT BD ASSY:MAIN EXTENDER	80009	670-7539-02
-10	386-4950-00			1	..STIF,CIRCUIT BD:10.025 L,BRASS	80009	386-4950-00
-11	351-0058-00			1	...SLIDE,GUIDE:PLUG-IN	80009	351-0058-00
-12	131-1263-00			1	..CONN,RCPT,ELEC:EDGE CARD,50/100 CONT,0.1 S	05574	600201-3208
-13	131-2401-00			1	..CONN,RCPT,ELEC:2 X 25,MALE	TK1483	082-2543-SD10
-14	131-0608-00			12	..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD	22526	48283-036
					COMPONENT KIT:DIAGNOSTIC ROM PACK		
-15	200-2503-01			1	..COVER,ROM PACK:TOP,ABS,SMOKE TAN (ATTACHING PARTS)	80009	200-2503-01
-16	211-0012-00			4	..SCREW,MACHINE:4-40 X 0.375,PNH,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-18	136-0751-00			4	...SKT,PL-IN ELEK:DIP,24 PIN,2 X 12,0.6 X 0	09922	D1LB24P108
-19	337-3122-00			1	..SHIELD,ELEC:STATIC	80009	337-3122-00
-20	200-2504-01			1	..COVER,ROM PACK:BOTTOM,ABS,SMOKE TAN	80009	200-2504-01
-21	670-7703-07			1	CIRCUIT BD ASSY:18 CHANNEL ACQUISITION (124002 ONLY)	80009	670-7703-07
-22	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04
-23	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-24	136-0757-00			3	.SKT,PL-IN ELEK:MICROCIRCUIT,40 DIP	09922	D1LB40P-108
-25	131-2567-00			2	..CONN,RCPT,ELEC:CKT BD,RTANG,17/34 CONT	22526	65461-006
-26	131-0608-00			50	..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD	22526	48283-036
-27	214-0579-00			3	.TERM,TEST POINT:BRS CD PL	TK0858	ORDER BY DESCRIPTION
	010-6460-01			2	PROBE,DATA ACQ:P6460 (SEE 070-4345-00 MANUAL FOR PARTS BRKDN)	80009	010-6460-01
-28	670-7524-09			1	CIRCUIT BD ASSY:9 CHAN ACQ (124001 ONLY)	80009	670-7524-09
-29	105-0160-04			2	.EJECTOR,CKT BD:YELLOW PLASTIC	80009	105-0160-04
-30	214-1337-00			2	.PIN,SPRING:0.25 L X 0.103 OD,STL CD PL	TK0858	ORDER BY DESCRIPTION
-31	136-0751-00			3	.SKT,PL-IN ELEK:DIP,24 PIN,2 X 12,0.6 X 0	09922	D1LB24P108
-32	131-2567-00			1	..CONN,RCPT,ELEC:CKT BD,RTANG,17/34 CONT	22526	65461-005
-33	131-0608-00			54	..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD	22526	48283-036
-34	131-0608-00			5	..TERMINAL,PIN:0.365 L X 0.025 PH BRZ GOLD	22526	48283-036
	010-6460-01			1	PROBE,DATA ACQ:P6460 (SEE 070-4345-00 MANUAL FOR PARTS BRKDN)	80009	010-6460-01
1200C02 GPIB COMM PACK							
-35	380-0343-09			1	HSG HALF,ROM PK:INNER,ABS (ATTACHING PARTS)	80009	380-0343-09
-36	211-0102-00			4	SCREW,MACHINE:4-40 X 0.5,FLH,100 DEG,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-37	367-0328-00			1	.ANGLE,BOW:2.9 L,SST	80009	367-0328-00
-38	670-7697-01	B020170	B021276	1	CIRCUIT BD ASSY:GPIB	80009	670-7697-01
	670-7697-02	B021277	B021374	1	CIRCUIT BD ASSY:GPIB	80009	670-7697-02
	670-7697-03	B021375		1	CIRCUIT BD ASSY:GPIB	80009	670-7697-03
-39	136-0755-00			1	.SKT,PL-IN ELEK:MICROCIRCUIT,28 DIP	09922	D1LB28P-108
-40	386-4972-00			1	.PLATE,MOUNTING:GPIB	80009	386-4972-00
-41	131-2895-00			1	..CONN,RCPT,ELEC:CKT BD,RTANG,24 CONTACT	02660	57-92248-12-02
-42	214-2871-00			1	.HARDWARE KIT:STANDOFF ,STUD MOUNT W/NUT	TK1650	552633-3
-43	131-0099-00			1	.CONTACT,ELEC:PHOSPHOR BRONZE,CU-SN-ZN	80009	131-0099-00
-44	334-4879-00	B010100	B020499	1	MARKER,IDENT	80009	334-4879-00
	334-4879-01	B020500		1	MARKER,IDENT	80009	334-4879-01
-45	380-0384-04			1	HSG HALF,ROM PK:LID,ABS	80009	380-0384-04
12RS11 or 12RS12 32K ROM PACK							
-46	200-2503-01			2	COVER,ROM PACK:TOP,ABS,SMOKE TAN (ATTACHING PARTS)	80009	200-2503-01
-47	211-0012-00			8	SCREW,MACHINE:4-40 X 0.375,PNH,STL	93907	ORDER BY DESCRIPTION

Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number		Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
		Effect	Discont				
					(END ATTACHING PARTS)		
4-48	670-7538-00			1	CIRCUIT BD ASSY:32K ROM PACK	80009	670-7538-00
-49	136-0751-00			8	.SKT,PL-IN ELEK:DIP,24 PIN,2 X 12,0.6 X 0.	09922	DILB24P108
-50	337-3122-00			2	SHIELD,ELEC:STATIC	80009	337-3122-00
-51	200-2504-01			2	COVER,ROM PACK:BOTTOM,ABS,SMOKE TAN	80009	200-2504-01
					12RS01 8K RAM PACK		
-52	200-2503-01			1	COVER,ROM PACK:TOP,ABS,SMOKE TAN (ATTACHING PARTS)	80009	200-2503-01
-53	211-0012-00			4	SCREW,MACHINE:4-40 X 0.375,PNH,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-54	670-7620-00	B010100	B013917	1	CIRCUIT BD ASSY:8K RAM PACK	80009	670-7620-00
	670-7620-01	B013918		1	CIRCUIT BD ASSY:8K RAM PACK	80009	670-7620-01
-55	337-3122-00			1	SHIELD,ELEC:STATIC	80009	337-3122-00
-56	200-2504-01			1	COVER,ROM PACK:BOTTOM,ABS,SMOKE TAN	80009	200-2504-01
					1200C01 RS232 COMM PACK		
-57	380-0343-09			1	HSG HALF,ROM PK:INNER,ABS (ATTACHING PARTS)	80009	380-0343-09
-58	211-0102-00			4	SCREW,MACHINE:4-40 X 0.5,FLH,100 DEG,STL (END ATTACHING PARTS)	93907	ORDER BY DESCRIPTION
-59	367-0328-00			1	HANDLE,BOW:2.9 L,SST	80009	367-0328-00
-60	670-7696-00			1	CIRCUIT BD ASSY:RS232	80009	670-7696-00
-61	136-0755-00			1	.SKT,PL-IN ELEK:MICROCIRCUIT,28 DIP	09922	DILB28P-108
-62	386-4972-01			1	.PLATE,MOUNTING:RS232	80009	386-4972-01
-63	131-2897-00			1	.CONN,RCPT,ELEC:D SUBMINIATURE,25 MALE,PCB	00779	747023-1
-64	131-0890-00			2	.LOCK,CONNECTOR:4-40 X 0.312 L HEX HD,STL	71468	D20418-2
-65	131-0099-00			1	.CONTACT,ELEC:PHOSPHOR BRONZE,CU-SN-ZN	80009	131-0099-00
-66	334-4877-00			1	MARKER,IDENT	80009	334-4877-00
-67	380-0384-03			1	HSG HALF,ROM PK:LID,ABS	80009	380-0384-03

Replaceable Mechanical Parts—1241 Addendum

Fig. & Index No.	Tektronix Part Number	Serial Number Effect Discnt	Qty	1245 Part Name & Description	Mfr Code	Mfr Part Number
STANDARD ACCESSORIES						
5-1	200-2780-00		1	COVER,FRONT PNL:	80009	200-2780-00
-2	016-0707-00		1	CASE,CARRYING:MANUALS	80009	016-0707-00
-3	161-0104-00		1	CABLE ASSY,PWR,:3 WIRE,98.0 L,W/RTANG CONN (STANDARD ONLY)	16428	CH8352, FH-8352
-4	161-0104-06		1	CABLE ASSY,PWR,:3 X 0.75MM SQ,220V,98.0 L (OPTION A1 EUROPEAN)	S3109	VIIGSOP0-H05VVF3G0,
-5	161-0104-07		1	CABLE ASSY,PWR,:3 X 0.75MM SQ,240V,98.0 L (OPTION A2 UNITED KINGDOM)	S3109	ORDER BY DESCRIPTION
-6	161-0104-05		1	CABLE ASSY,PWR,:3,18 AWG,240V,98.0 L (OPTION A3 AUSTRALIAN)	S3109	SAA/3-0D3CCFC3X0, 75
-7	161-0104-08		1	CABLE ASSY,PWR,:3,18 AWG,240V,98.0 L (OPTION A4 NORTH AMERICAN)	70903	ORDER BY DESCRIPTION
-8	161-0154-00		1	CABLE ASSY,PWR,:3,1.00MM SQ,250V,10A (OPTION A5 SWISS)	S3109	12-H05VVF3G 00-5 0
-9	012-0556-00		2	LEAD SET,ELEC:DIAGNOSTIC	TK2156	61500
	062-6926-00		1	MANUAL,TECH:1240 SEMINAR WORKBOOK	80009	062-6926-00
	070-4340-01		1	MANUAL,TECH:OPERATORS,1240/1241	80009	070-4340-01
	070-4641-01		5	MANUAL,TECH:OPERATORS REFERENCE GUIDE,	80009	070-4641-01
OPTIONAL ACCESSORIES						
	010-6101-11		1	PROBE,VOLTAGE:P6101,1X,2 METER W/ACCESS	80009	010-6101-11
	010-6105-11		1	PROBE,VOLTAGE:P6105,2 METER,10X W/ACCESS	80009	010-6105-11
	012-0630-01		1	CABLE,INTCON:2.0M L	04919	2024-2
	012-0630-04		1	CABLE,INTCON:4.0M L	74868	C156327-C
	012-0815-00		1	CABLE,INTCON:2.0 METERS	04919	ORDER BY DESCRIPTION
	012-0991-00		1	CABLE,GPIB:LOW EMI,2 METER	00779	553577-3
	012-0997-00		1	CABLE,INTCON:2 METER	80009	012-0997-00
	062-6927-00		1	BINDER:1240 OPERATORS ACCESSORIES PACKAGE	80009	062-6927-00
	062-7470-00		1	MANUAL,TECH: INSTR,1240	80009	062-7470-00
	067-1103-02		1	FIXTURE,CAL	80009	067-1103-02
				1200C01 RS232 COMM PACK		
				1200C02 GPIB COMM PACK		
				1200C11 PARALLEL PRINTER COMM PACK		
				1240D1 9-CHANNEL DATA ACQUISITION MODULE		
				1240D2 18-CHANNEL DATA ACQUISITION MODULE		
				12RD01 DIAGNOSTIC ROM PACK		
				12RS01 8K RAM PACK		
				12RS02 64K RAM PACK		
				12RS11 32K EPROM PACK		
				12RS12 32K EPROM PACK		
				P6460 9-CHANNEL DATA ACQUISITION PROBE		
				P6460 9-CHANNEL DATA ACQUISITION PROBE,TTL ONLY		

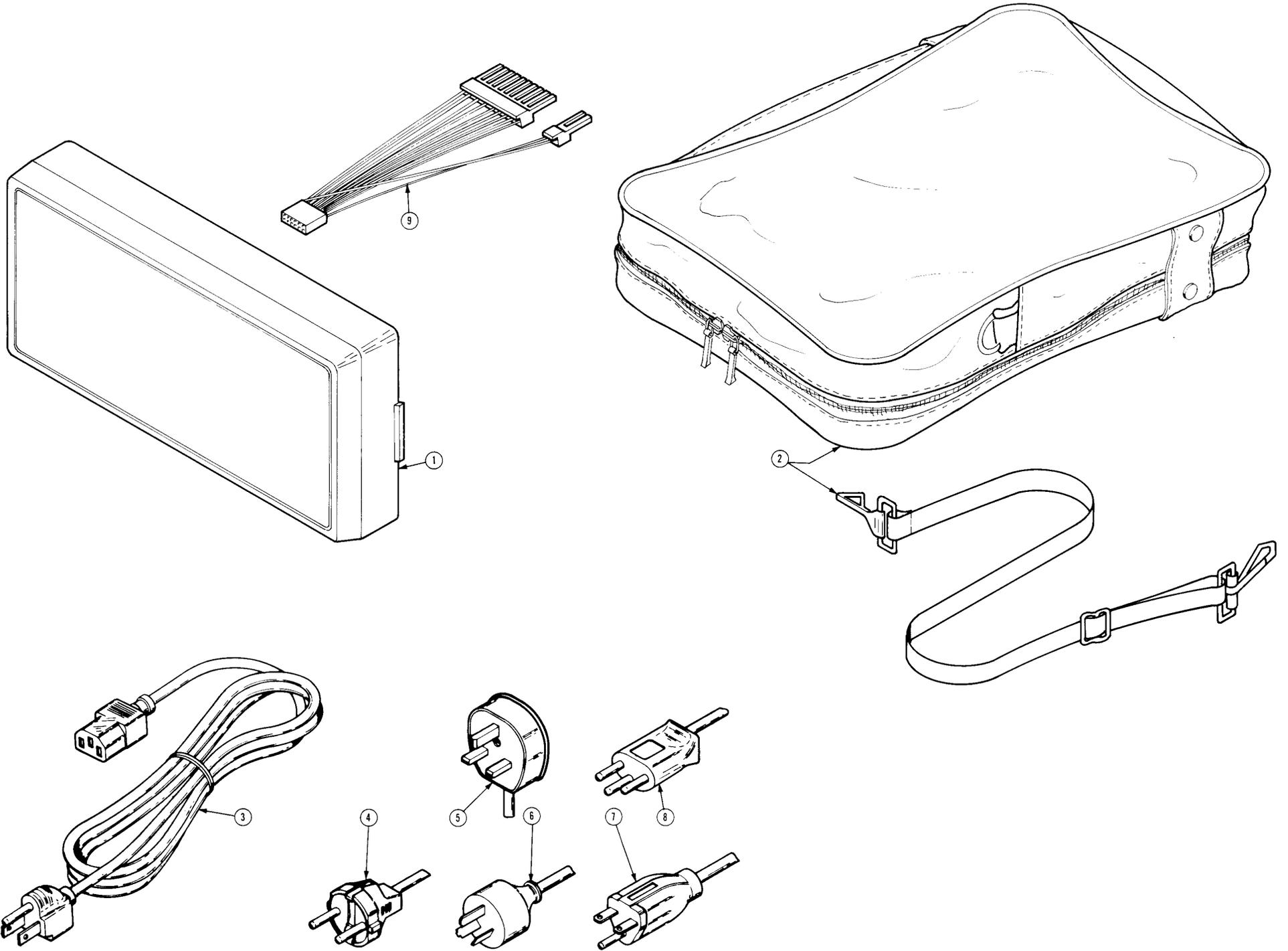


FIG. 5 ACCESSORIES

SECTION **12** GLOSSARY

GLOSSARY

With the exception of the following signals, the 1241 uses the same signal names as the 1240. Refer to *section 12* in the *1240/1241 Logic Analyzer Service Manual*.

Signal Name	Description
HDRIVE(L)	Horizontal drive signal from the Display Board to the CRT Drive Board; used to synchronize the raster counter operations on the Display Board with the display monitor operations on the CRT Drive Board.
VDRIVE-GREEN(H)	Video drive signal from the Display Board to the CRT Drive Board; used to synchronize the display monitor's vertical sweep.