

494/494P

SPECTRUM ANALYZER

OPTIONS INCLUDED
VOLUME 2

WARNING

THE FOLLOWING SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL ONLY. TO AVOID PERSONAL INJURY, DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO. REFER TO OPERATORS SAFETY SUMMARY AND SERVICE SAFETY SUMMARY PRIOR TO PERFORMING ANY SERVICE.

*Please Check for
CHANGE INFORMATION
at the Rear of This Manual*

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VOLUME 2

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SERVICING SAFETY SUMMARY

FOR QUALIFIED SERVICE PERSONNEL ONLY

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.

Do Not Wear Jewelry

Remove jewelry prior to servicing. Rings, necklaces, and other metallic objects could come into contact with dangerous voltages and currents.

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.

Power Source

This product is intended to operate from a power source that will not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

X-Radiation

X-ray emission generated within this instrument has been sufficiently shielded. Do not modify or otherwise alter the high voltage circuitry or the CRT enclosure.

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.

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

In This Manual



This symbol indicates where applicable cautionary or other information is to be found.

As Marked On Equipment



DANGER—High Voltage.



Protective ground (earth) terminal.



ATTENTION—Refer to manual.



Refer to manual.

Grounding the Product

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 input or output terminals. 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.

Use only a power cord that is in good condition.

For detailed information on power cords and connectors, see the General Information and Specifications section in Volume 1 of the 494/494P Service manual.

Refer cord and connector changes to qualified service personnel.

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

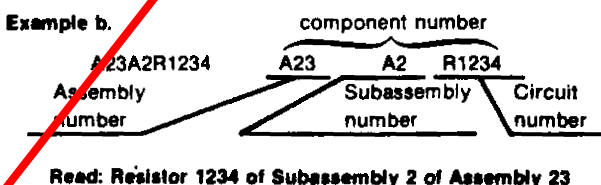
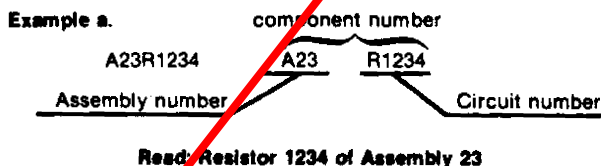
The Mfr. Code Number to Manufacturer index for the Electrical Parts List is located immediately after this page. The Cross Index provides codes, names and addresses of manufacturers of components listed in the Electrical Parts List.

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:



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 manufacturer's part number.

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	Assembly No.	Diagram Title & No.
Block Diagrams (2nd Level)	1	Functional
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	3	2nd Converter
	4	3rd Converter
	5	IF Section
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	7	Frequency Control
	8	Phase Lock System
	9	Digital Control Section
	10	Power Supply
Schematic Diagrams	11	RF Interconnect
	12	1st Converter and 2072 MHz
	13	2182 MHz Phase Lock 2nd LO
	14	2182 MHz Phase Lock 2nd LO
	15	829 MHz 2nd Converter (LO)
	16	829 MHz 2nd Converter (IF)
	17	110 MHz IF & 3rd Converter
	18	Reference Lock
	19	VR No. 1
	20	VR No. 2
	21	VR No. 2
	22	Log & Video Ampl.
	23	Log & Video Ampl.
	24	Video Processor
	25	Digital Storage, Vert.
	26	Digital Storage, Horiz.
	27	Deflection Amplifier
	28	Z-Axis & RF Interface
	29	High Voltage Supply
	30	CRT Readout
	31	Sweep
	32	Span Attenuator
	33	1st LO Driver
	34	Preselector Driver
	35	Center Frequency Driver
	36	Phase Gate & Harmonic Mixer
	37	Auxiliary Synthesizer
	38	Counter
	39	Phase Lock Synthesizer
	40	Phase Lock Synthesizer
	41	Processor
	42	Memory
	43	Front Panel
	44	GPIB & GPIB Interface
	45	Accessories Interface
	46	Main Power Supply
	47	Main Power Supply
	48	Mother Board (Front)
	49	Mother Board (Rear)

Qservice ----- This Document is a complete scan from the Original Tektronix Manual ----- Qservice

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
-----
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
-----
Parts of Detail Part
Attaching parts for Parts of Detail Part
-----

```

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

Attaching parts must be purchased separately, unless otherwise specified.

ABBREVIATIONS

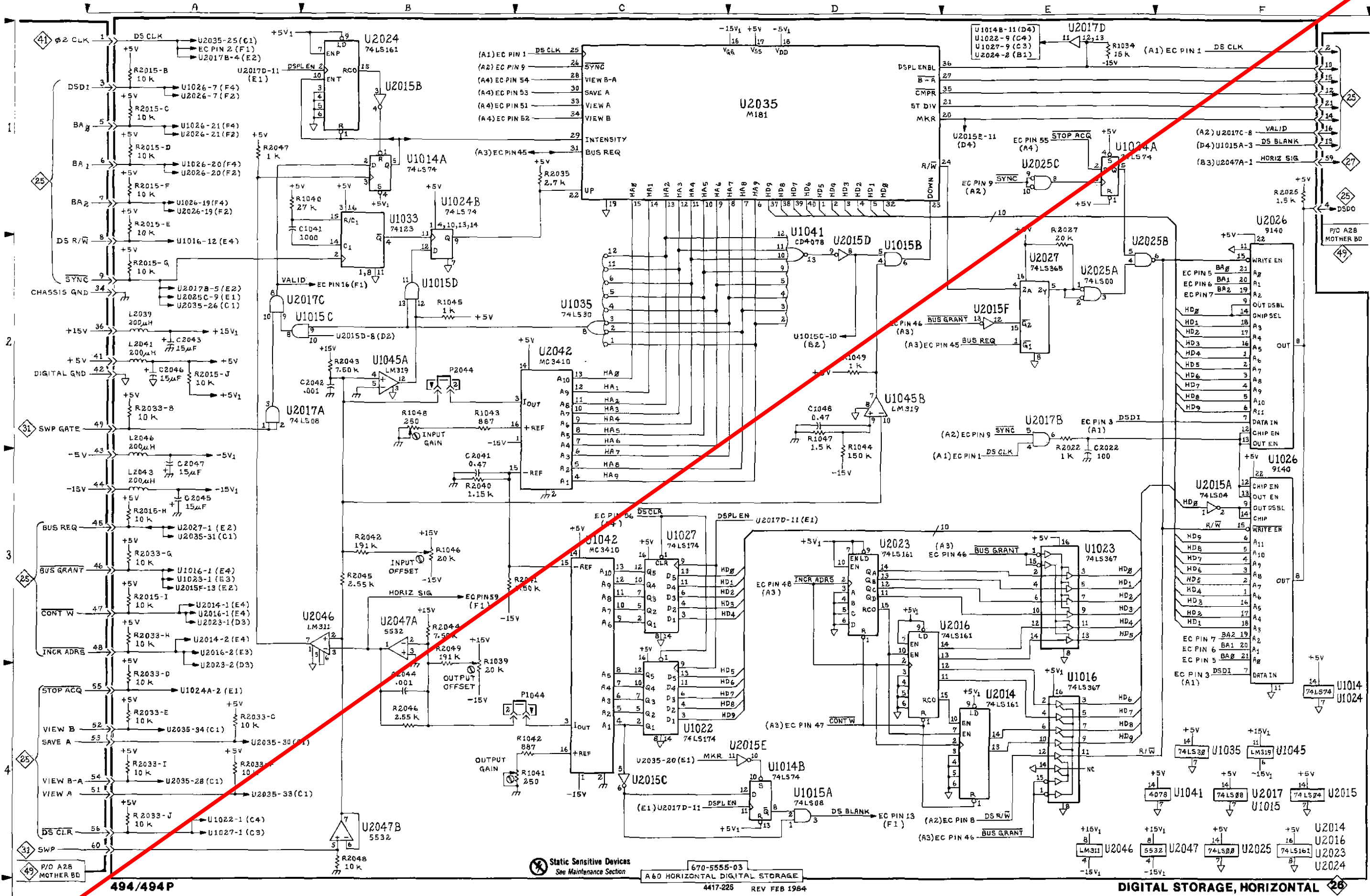
ACTR	NUMBER SIZE	ELECTR	ELECTRON	IN	INCH	SE	SINGLE END
ADPTR	ACTUATOR	ELEC	ELECTRICAL	INCAND	INCANDESCENT	SECT	SECTION
ALIGN	ADAPTER	ELECTLT	ELECTROLYTIC	INSUL	INSULATOR	SEMICOND	SEMICONDUCTOR
AL	ALIGNMENT	ELEM	ELEMENT	INTL	INTERNAL	SHLD	SHIELD
ASSEM	ALUMINUM	EPL	ELECTRICAL PARTS LIST	LPHLDR	LAMPHOLDER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

MANUAL CHANGE INFORMATION

At Tektronix, we continually strive to keep up with latest electronic developments by adding circuit and component improvements to our instruments as soon as they are developed and tested.

Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

A single change may affect several sections. Since the change information sheets are carried in the manual until all changes are permanently entered, some duplication may occur. If no such change pages appear following this page, your manual is correct as printed.

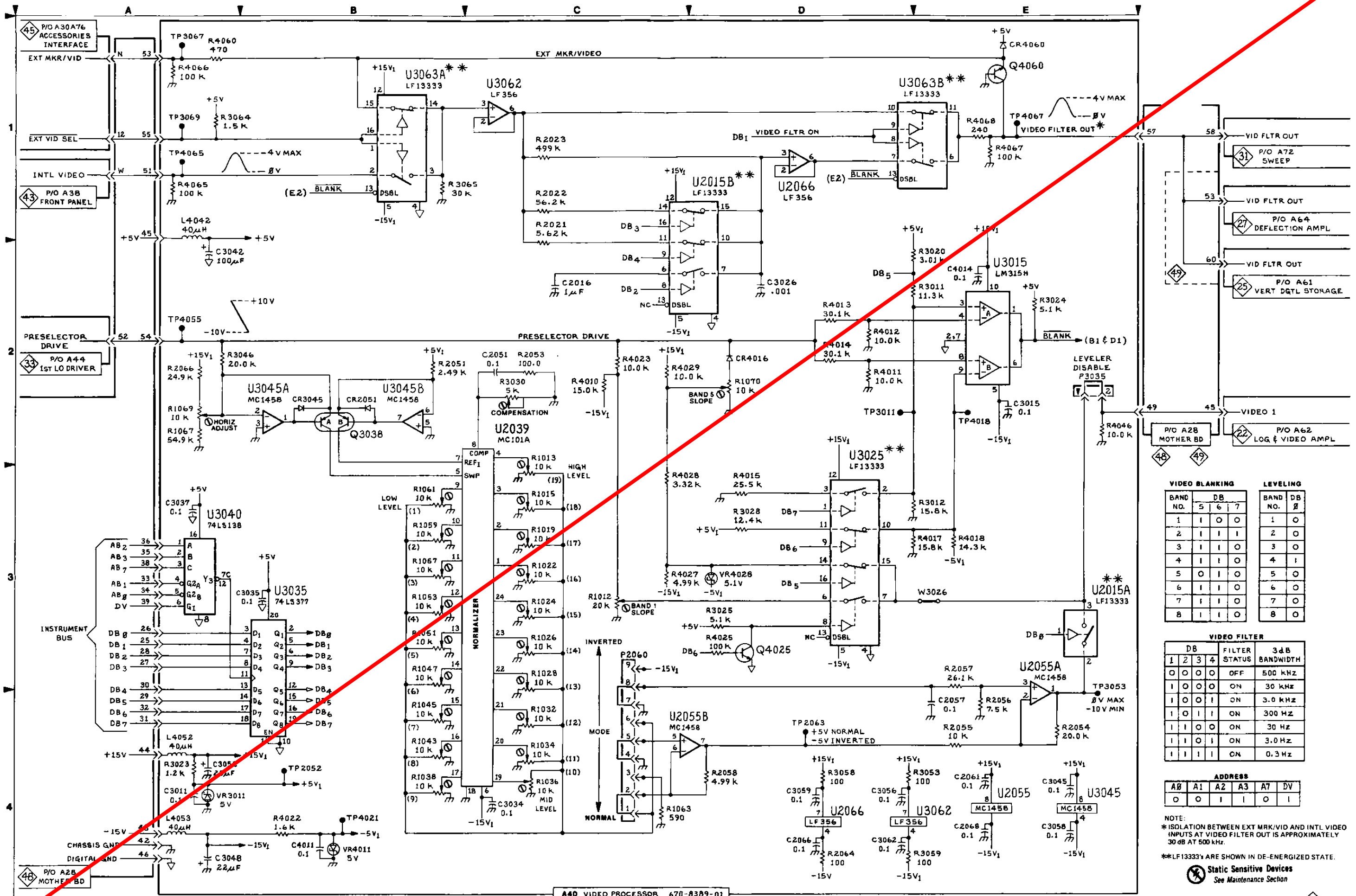


494/494P

Static Sensitive Devices
See Maintenance Section

670-5555-03
A 60 HORIZONTAL DIGITAL STORAGE
4417-225 REV FEB 1984

DIGITAL STORAGE, HORIZONTAL 26



VIDEO BLANKING				LEVELING			
BAND NO.	5	6	7	BAND NO.	DB	dB	dB
1	1	0	0	1		0	
2	1	1	1	2		0	
3	1	1	0	3		0	
4	1	1	0	4		1	
5	0	1	0	5		0	
6	1	1	0	6		0	
7	1	1	0	7		0	
8	1	1	0	8		0	

VIDEO FILTER				3dB BANDWIDTH		
DB	1	2	3	4	STATUS	BANDWIDTH
0	0	0	0	0	OFF	500 KHZ
1	0	0	0	ON		30 KHZ
1	0	0	1	ON		3.0 KHZ
1	0	1	1	ON		300 HZ
1	1	0	0	ON		30 Hz
1	1	0	1	ON		3.0 Hz
1	1	1	1	ON		0.3 Hz

ADDRESS						
AB	A1	A2	A3	A7	DV	
0	0	1	1	0	1	

NOTE:
* ISOLATION BETWEEN EXT MKR/VID AND INTL VIDEO INPUTS AT VIDEO FILTER OUT IS APPROXIMATELY 30 dB AT 500 KHZ.
** LF13333'S ARE SHOWN IN DE-ENERGIZED STATE.

Static Sensitive Devices
See Maintenance Section