



## **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.

**PLEASE CHECK FOR CHANGE INFORMATION  
AT THE REAR OF THIS MANUAL.**

# **468 DIGITAL STORAGE OSCILLOSCOPE SERVICE VOLUME II**

## **INSTRUCTION MANUAL**

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

070-3516-00  
Product Group 40

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

# VOLUME II

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# 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

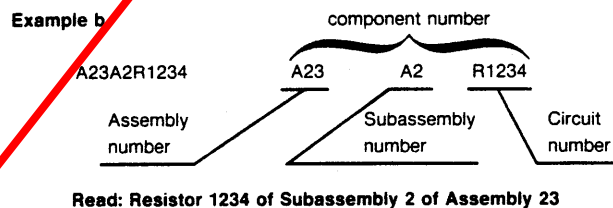
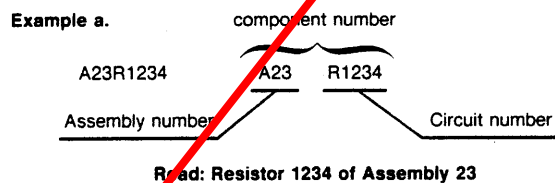
The Mfr. Code Number to Manufacturer index for the Electrical Parts List is located immediately after this page. The Cross Index provides codes, names and addresses of manufacturers of components listed in the Electrical Parts List.

### 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, sub-assemblies 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.

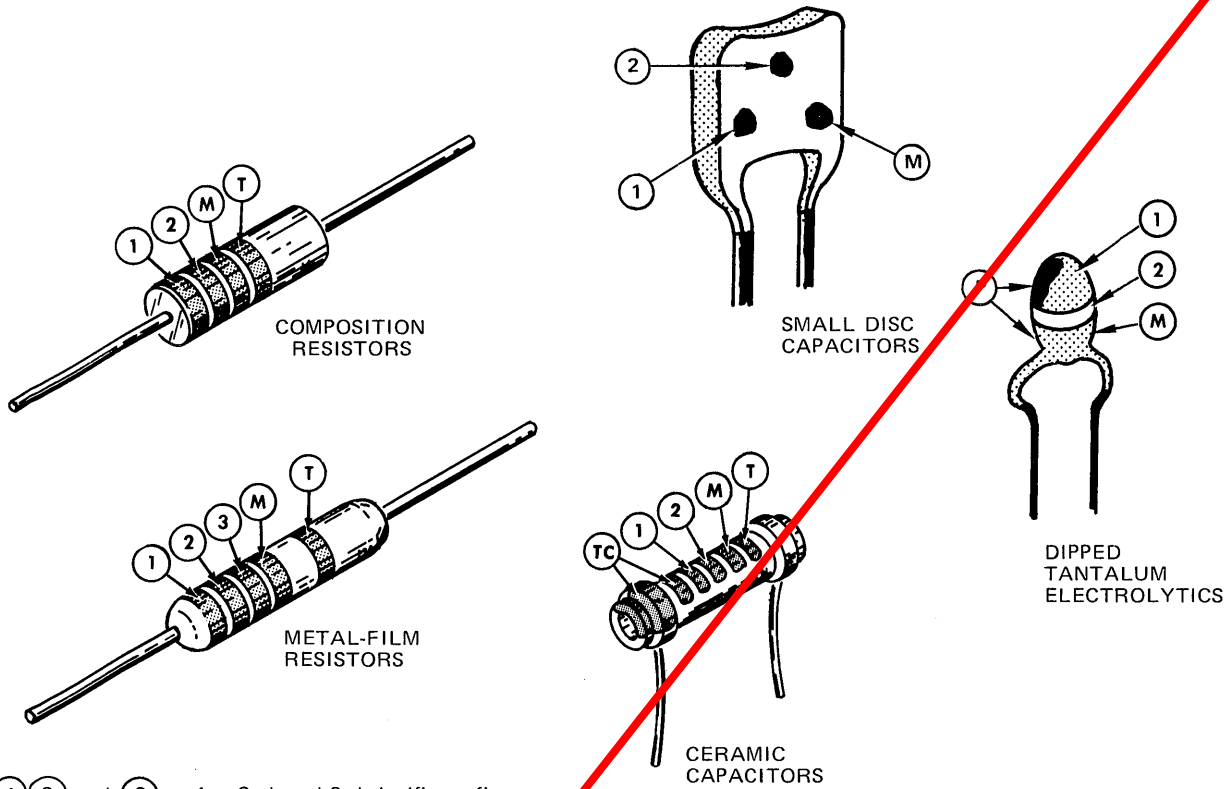
### MFR. CODE (column six of the Electrical Parts List)

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 manufacturers part number.

COLOR CODE



- ① ② and ③ – 1st, 2nd, and 3rd significant figures
- Ⓜ – multiplier      Ⓣ – tolerance
- ⓉⓈ – temperature coefficient
- Ⓟ – polarity and voltage rating
- Ⓣ and/or ⓉⓈ color code may not be present on some capacitors

| COLOR  | SIGNIFICANT FIGURES | RESISTORS                |           | CAPACITORS                   |            |             | DIPPED TANTALUM VOLTAGE RATING |
|--------|---------------------|--------------------------|-----------|------------------------------|------------|-------------|--------------------------------|
|        |                     | MULTIPLIER               | TOLERANCE | MULTIPLIER                   | TOLERANCE  |             |                                |
|        |                     |                          |           |                              | over 10 pF | under 10 pF |                                |
| BLACK  | 0                   | 1                        | ----      | 1                            | ±20%       | ±2 pF       | 4 VDC                          |
| BROWN  | 1                   | 10                       | ±1%       | 10                           | ±1%        | ±0.1 pF     | 6 VDC                          |
| RED    | 2                   | 10 <sup>2</sup> or 100   | ±2%       | 10 <sup>2</sup> or 100       | ±2%        | ----        | 10 VDC                         |
| ORANGE | 3                   | 10 <sup>3</sup> or 1 K   | ±3%       | 10 <sup>3</sup> or 1000      | ±3%        | ----        | 15 VDC                         |
| YELLOW | 4                   | 10 <sup>4</sup> or 10 K  | ±4%       | 10 <sup>4</sup> or 10,000    | +100% -9%  | ----        | 20 VDC                         |
| GREEN  | 5                   | 10 <sup>5</sup> or 100 K | ±½%       | 10 <sup>5</sup> or 100,000   | ±5%        | ±0.5 pF     | 25 VDC                         |
| BLUE   | 6                   | 10 <sup>6</sup> or 1 M   | ±½%       | 10 <sup>6</sup> or 1,000,000 | ----       | ----        | 35 VDC                         |
| VIOLET | 7                   | ----                     | ±1/10%    | ----                         | ----       | ----        | 50 VDC                         |
| GRAY   | 8                   | ----                     | ----      | 10 <sup>-2</sup> or 0.01     | +80% -20%  | ±0.25 pF    | ----                           |
| WHITE  | 9                   | ----                     | ----      | 10 <sup>-1</sup> or 0.1      | ±10%       | ±1 pF       | 3 VDC                          |
| GOLD   | -                   | 10 <sup>-1</sup> or 0.1  | ±5%       | ----                         | ----       | ----        | ----                           |
| SILVER | -                   | 10 <sup>-2</sup> or 0.01 | ±10%      | ----                         | ----       | ----        | ----                           |
| NONE   | -                   | ----                     | ±20%      | ----                         | ±10%       | ±1 pF       | ----                           |

Figure 8-1. Color codes for resistors and capacitors.

# REPLACEABLE MECHANICAL PARTS

## PARTS ORDERING INFORMATION

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

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

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

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

## SPECIAL NOTES AND SYMBOLS

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

## FIGURE AND INDEX NUMBERS

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

## INDENTATION SYSTEM

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

```

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

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

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

## ITEM NAME

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

## ABBREVIATIONS

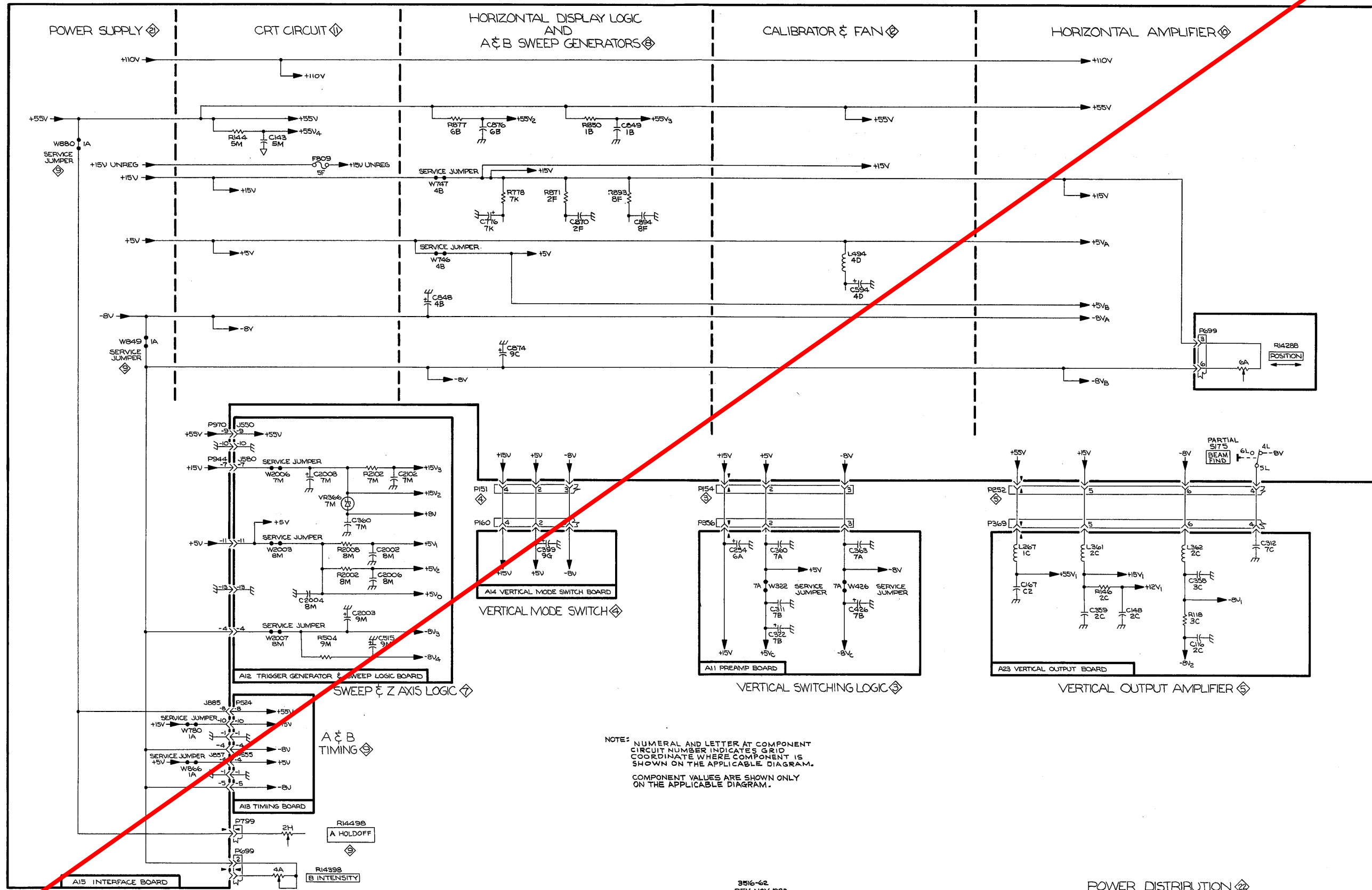
|       |                    |         |                       |          |                      |          |                 |
|-------|--------------------|---------|-----------------------|----------|----------------------|----------|-----------------|
| "     | INCH               | ELCTRN  | ELECTRON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

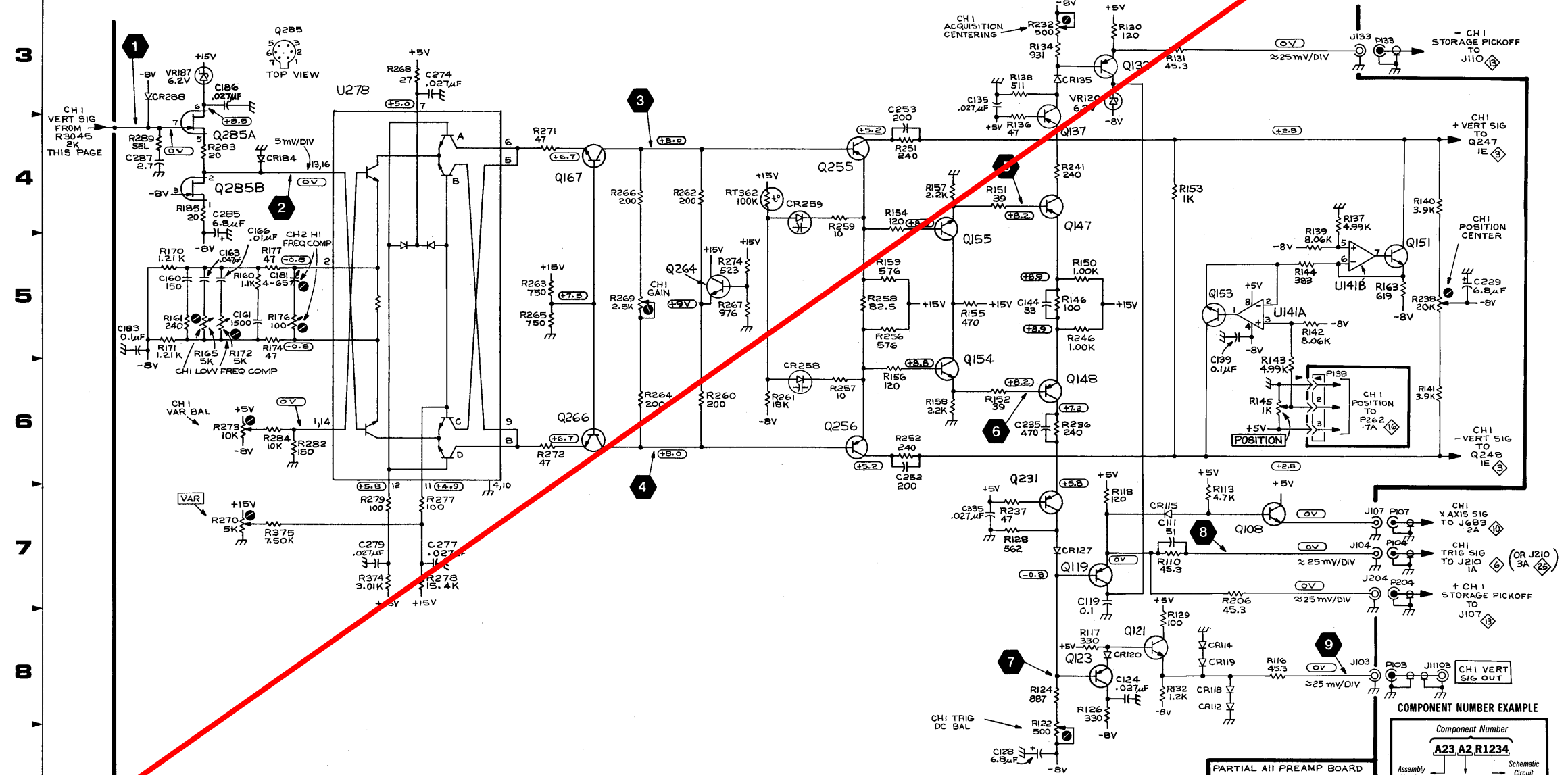
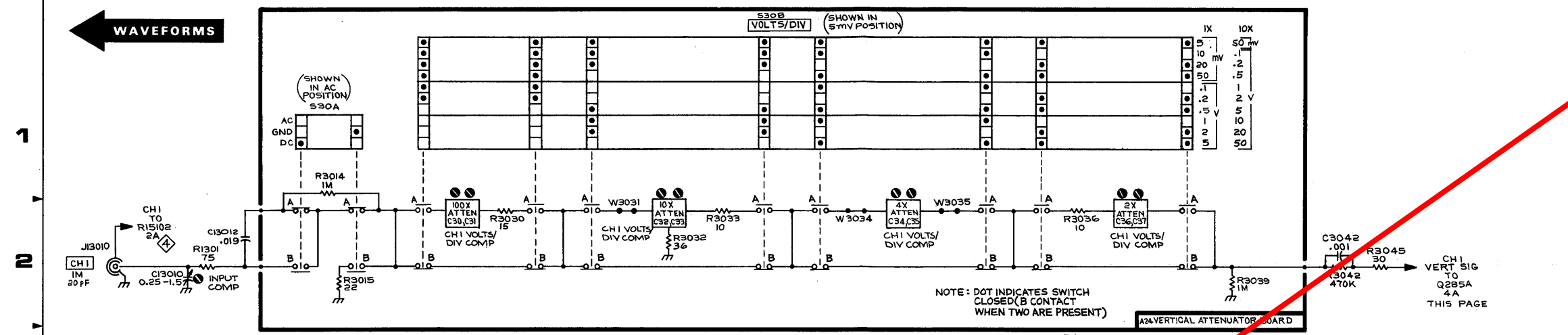
Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

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.



NOTE: NUMERAL AND LETTER AT COMPONENT CIRCUIT NUMBER INDICATES GRID COORDINATE WHERE COMPONENT IS SHOWN ON THE APPLICABLE DIAGRAM. COMPONENT VALUES ARE SHOWN ONLY ON THE APPLICABLE DIAGRAM.

A B C D E F G H I J K



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(3516-4) 3516-108  
ADD JUN 1983

CHI VERTICAL PREAMP (SN B040000 & UP)

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

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

Static Sensitive Devices  
See Maintenance Section

NUMERAL AND LETTER AT SIGNAL LINES TO OR FROM OTHER DIAGRAMS INDICATES THE GRID COORDINATE ON ANOTHER SCHEMATIC (FOR EXAMPLE: 4E)