



# product modification

050-1558-00

M41184, M46379

## U3165 REPLACEMENT<sup>1</sup>

For the following TEKTRONIX® Instruments:

464DM44	Serial Numbers	B010100 - B049019
465B44	Serial Numbers	B010100 - B043399
466DM44	Serial Numbers	B010100 - B049019
475DM44	Serial Numbers	B010100 - B050839
475A44	Serial Numbers	B010100 - B047079
475A44 PG	Serial Numbers	B010100 - B050774

A/D converter microcircuit, pn 156-1268-01, replaced microcircuit, pn 156-0477-00, which is no longer available. Use of the new microcircuit necessitates removal of a zener diode (VR3149, DM44 or VR2412, DM43 or DM40). Two clamp diodes are added to the input circuitry of the DM44 to prevent latchup of the replacement microcircuit when greater than +300V is applied (range selector in 200mV or 2V position).

### NOTE

If the serial number of your instrument is greater than those listed above, or if this kit has been installed, disregard the instructions and install pn 156-1268-01 as a direct replacement for U3165 (DM44) or U2406 (DM43 or DM40).

<sup>1</sup>Also applicable for U2406 replacement (DM43 or DM40).

PARTS INCLUDED IN PARTS REPLACEMENT KIT:

Ckt. No.	Quantity	Part Number	Description
CR3013,CR3014	2 ea	152-0323-00	SEMICONV DEVICE DI:SI, 35V, 0.1A
U3165,U2406	1 ea	156-1268-01	MICROCIRCUIT, LI:A/D CONVERTER
	0.354 ft	175-0736-00	WIRE, ELECTRICAL
	1 ea	-----	LABEL,050-KIT

INSTRUCTIONS:

**WARNING**

Disconnect the instrument from all other electrical equipment and the power source before proceeding.

The following instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any of the following procedures unless you are qualified to do so.

- ( ) 1. Loosen the screw at the back of the accessory pouch and then slide the pouch off.
- ( ) 2. Remove two screws from the rear of the multimeter cover and then slide the cover to the rear.

NOTE

Refer to Figure 1 and 2 for locations of components mentioned in the following procedure.

- ( ) 3. Remove U3165 (DM44) or U2406 (DM43 or DM40) from its socket on the Main circuit board (A1). Install the replacement microcircuit from the kit.

**CAUTION**

Use care when handling static sensitive devices.

- ( ) 4. Unsolder and remove VR3149 (DM44) or VR2412 (DM43 or DM40).

- ( ) 5. DM44 only. Solder the anode lead of CR3013 (from the kit) to R3153 (-12V) and the cathode lead of CR3014 (from the kit) to R3118 (+12V). Refer to Figure 1.
- ( ) 6. DM44 only. Solder together the other end of CR3013, CR3014 and the insulated wire from the kit.
- ( ) 7. DM44 only. Solder the other end of the insulated wire (from the kit) to the junction of R3010 and R3011.
- ( ) 8. Install and secure the multimeter cover and panels, reversing the order of removal.
- ( ) 9. Remove the protective backing from the 050-kit label, provided in the kit, and affix the label to the cover in a conspicuous location. The label indicates this kit has been installed.
- ( ) 10. For future reference, fasten the Manual Modification Insert in your Instruction Manual.

DCL:ct

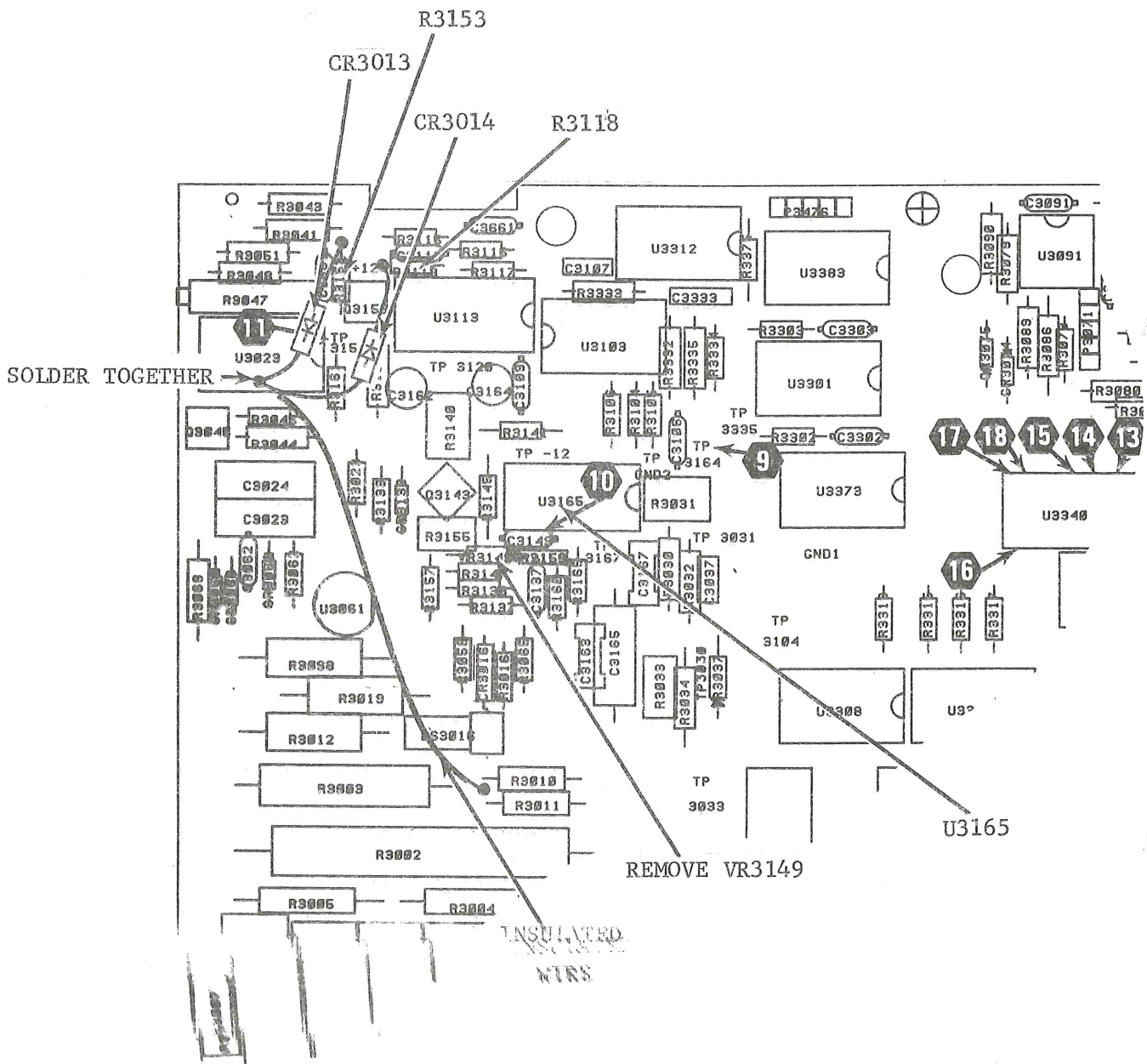


Figure 1. (DM44) Partial Main circuit board (A1) showing locations of added and removed parts.

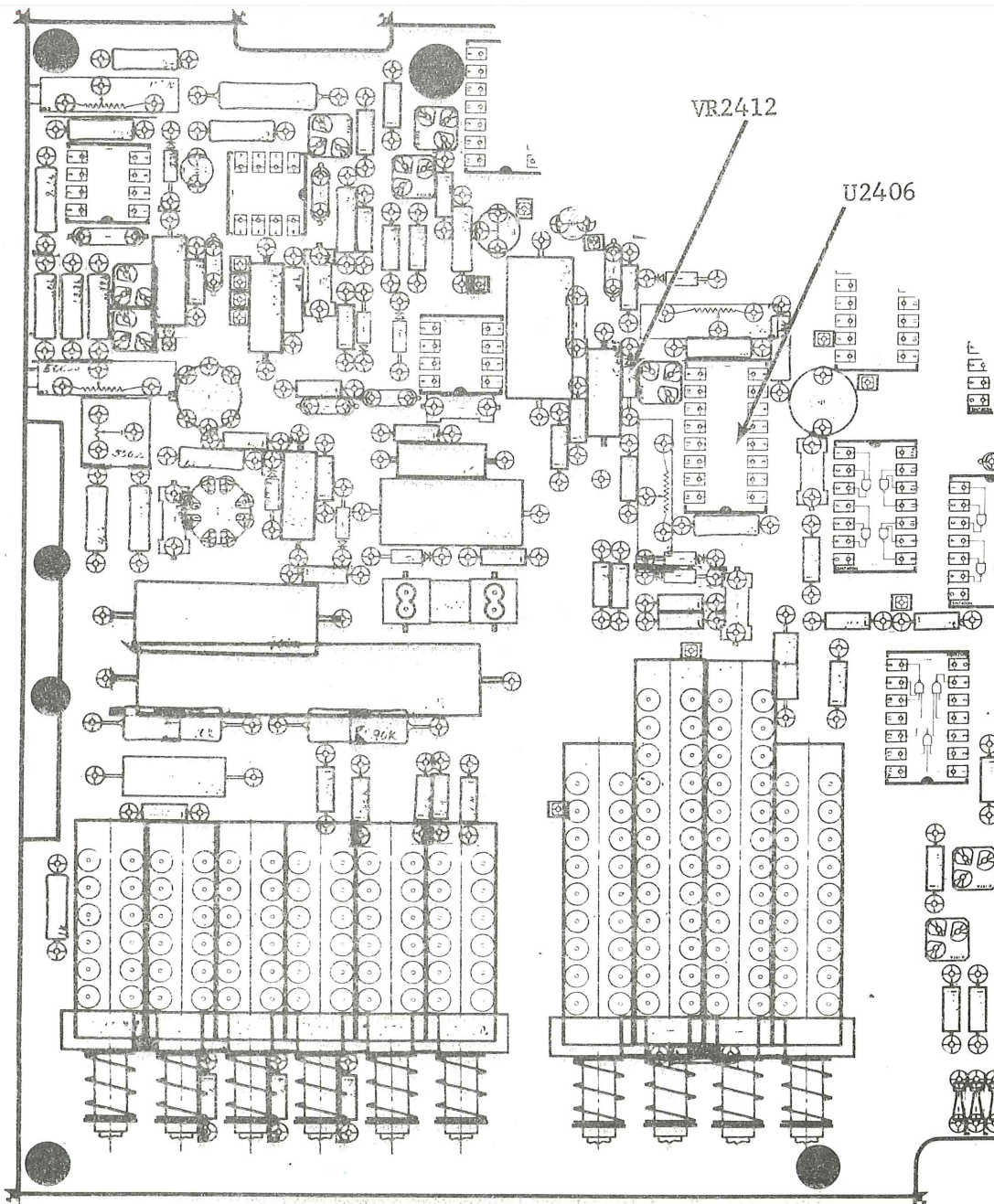


Figure 2. (DM43 or DM40) Partial Main circuit board (A1) showing locations of changed and removed components.





# Product Modification Kit SUGGESTION/CORRECTION FORM

DATE \_\_\_\_\_

KIT NUMBER \_\_\_\_\_ STEP/PAGE \_\_\_\_\_

FIGURE NUMBER \_\_\_\_\_ PUBLICATION DATE \_\_\_\_\_

DISCREPANCY \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SUGGESTED CORRECTION / COMMENTS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SUGGESTED BY: NAME / ORGANIZATION \_\_\_\_\_

REPLY REQUESTED

RETURN TO LOCAL FIELD OFFICE / SERVICE CENTER

FIELD OFFICE / SERVICE CENTER / DEL. STA. \_\_\_\_\_

SERVICE CENTER: RETURN TO FIELD MODS 73-860

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## REPLY

WILL MAKE CHANGE IMMEDIATELY

WILL MAKE CHANGE AT NEXT PRINTING

OTHER \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_





# INSTRUCTION MANUAL

MODIFICATION INSERT

## U3165 REPLACEMENT<sup>1</sup>

for

464DM44	Serial Numbers	B010100 - B049019
465B44	Serial Numbers	B010100 - B043399
466DM44	Serial Numbers	B010100 - B049019
475DM44	Serial Numbers	B010100 - B050839
475A44	Serial Numbers	B010100 - B047079
475A44 PG	Serial Numbers	B010100 - B050774

Installed in \_\_\_\_\_ SN \_\_\_\_\_ Date \_\_\_\_\_

This modification insert is provided to supplement the Instruction Manual for the above listed product(s). The information given in this insert supersedes that given in the Manual.

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### GENERAL INFORMATION

A/D converter microcircuit, pn 156-1268-01, replaced microcircuit, pn 156-0477-00, which is no longer available. Use of the new microcircuit necessitated removing a zener diode and adding two clamp diodes (DM44 only).

<sup>1</sup>Also applicable for U2406 replacement (DM43 or DM40).

REPLACEABLE ELECTRICAL PARTS:

DM44

Ckt. No.	Part Number	Description
CR3013	152-0323-00	SEMICOND DEVICE IND:SI, 35V
CR3014	152-0323-00	SEMICOND DEVICE IND:SI, 35V
U3165	156-1268-01	MICROCIRCUIT, LI:A/D CONVERTER
VR3149	DELETE	

DM43 - DM40

Ckt. No.	Part Number	Description
U2406	156-1268-01	MICROCIRCUIT, LI:A/D CONVERTER
VR2412	DELETE	

SCHEMATIC CHANGES

DM44

DIAGRAM 1 INPUT ATTENUATOR & OHMS CONVERTER  
ADD:

CR3013 (anode end) to the connection of R3010 and R3011. Connect cathode end to +12V.

CR3014 (cathode end) to the connection of R3010 and R3011. Connect anode end to -12V.

DIAGRAM 4 A/D CONVERTER  
REMOVE:

VR3149 (a 9.1V zener diode).

DM43 - DM40

DIAGRAM 2 DIGITAL MULTIMETER  
REMOVE:

VR2412 (a 9.1V zener diode).