

The Museum of T&M Instruments
Collector's Assistance

**modification
instructions**

040-0195-00
Type 310

SELENIUM RECTIFIERS REPLACED WITH SILICON DIODES

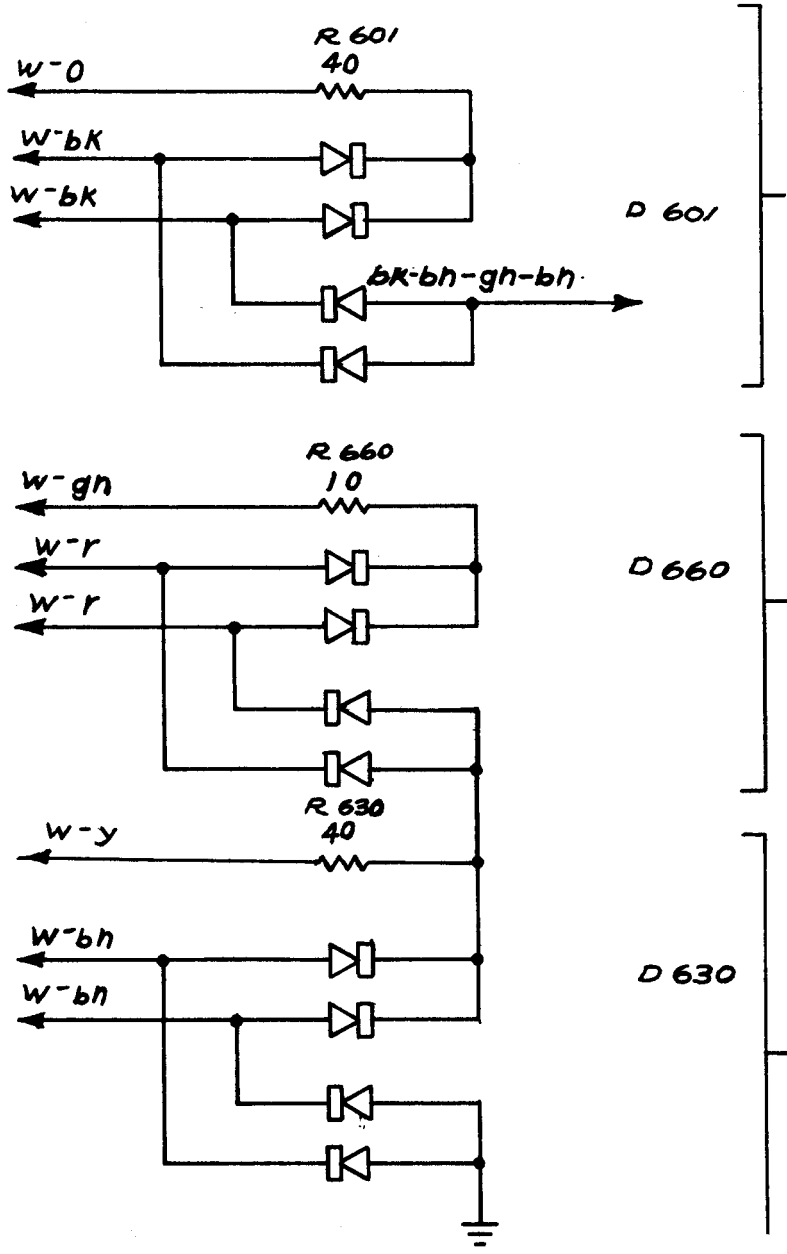
For Tektronix Type 310 Oscilloscopes
Serial Numbers 101-10000

Modification Kit, PN 040-0195-00, replaces selenium rectifiers PN 106-0020-00 or PN 106-0032-00 (SR601 and SR660), and selenium rectifier PN 106-0033-00 (SR630) with silicon rectifiers, offering more reliability and longer life.

The installation involves adding three resistors (R601, R630, and R660), which compensate for a lower voltage drop across the twelve silicon diodes. the resistors are mounted on a rectifier bracket with the silicon diodes.

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8-28-68
Supersedes: December 1965



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PARTS INCLUDED IN MODIFICATION KIT:

Quantity	Part Number	Description
(1 ea)		Assembly, silicon rectifier, consisting of:
6 ea	124-0088-00	Strip, cer, 3/4 x 4-notch, clip-mounted
12 ea	152-0066-00	Diode, silicon, 500-750mA 400PIV
1 ea	210-0202-00	Lug, solder, SE-6 w/2 wire holes
1 ea	210-0407-00	Nut, hex, 6-32 x 1/4
3 ea	210-0478-00	Nut, hex, 6-32 x 5/16
3 ea	210-0601-00	Eyelet
1 ea	211-0504-00	Screw, 6-32 x 1/4 PHS, Phillips
3 ea	211-0507-00	Screw, 6-32 x 5/16 PHS, Phillips
3 ea	211-0553-00	Screw, 6-32 x 1-1/2 RHS, Phillips
2 ea	308-0012-00	Resistor, WW, 40Ω 10W 5%
1 ea	308-0175-00	Resistor, WW, 10Ω 10W 5%
12 ea	361-0009-00	Spacer, nylon molded, 0.313
1 ea	386-0835-00	Plate, rectifier
1 ea	214-0210-00	Spool, w/3ft. silver-bearing solder
1 ea	(1-910D)	Tag, MODIFIED INSTRUMENT, gummed back
1 ea	175-0522-00	Wire, #22 solid, white-yellow, 5-1/2"
1 ea	175-0522-00	Wire, #22 solid, white-orange, 4"
1 ea	175-0522-00	Wire, #22 solid, white-green, 6"

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INSTRUCTIONS (cont)

IMPORTANT: When soldering to the ceramic strips, use the silver-bearing solder supplied with this kit.

STEPS 1 THROUGH 10 ARE FOR INSTRUMENTS BELOW SN 1381

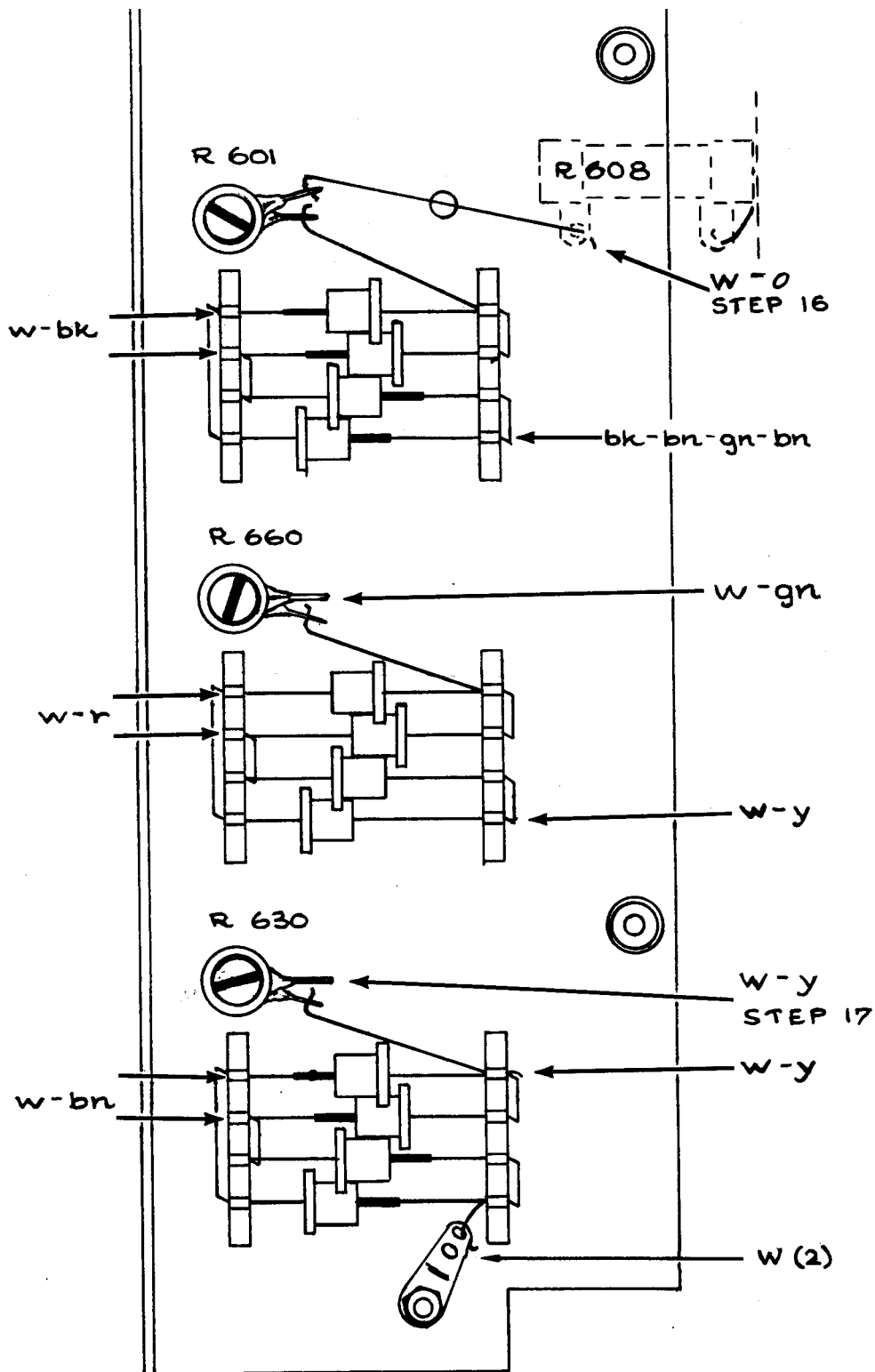
- ()1. Remove the four rectifier bracket screws
- ()2. Position the rectifier bracket back and unsolder all lead connections to the selenium rectifiers and the thermal cut-out disc

NOTE: Temporarily remove V520, V602, V613, V631, and V661 to facilitate selenium bracket removal.

- ()3. Remove the rectifier bracket assembly.
- ()4. Drill a 3/16" hole, 11/16" below the R668 mounting nut.
- ()5. Remove R608 from the rectifier bracket assembly and mount it, using the hole just drilled. Align the terminals in the same direction as R668 and leave the ground lug connected to the bottom terminal.
- ()6. Locate the white-orange wire soldered to the positive terminal of C601 and dressed through the grommet to the old rectifier bracket.
- ()7. Locate the white-green wire soldered to the positive terminal of C660 and dressed through the grommet near the corner of the power transformer. Remove this wire and replace it with the white-orange wire from the kit.
- ()8. Locate the white-yellow wire soldered to the negative terminal of C660 and dressed through the grommet near the corner of the power transformer. Remove this wire and replace it with the white-yellow wire from the kit.
- ()9. Remove the thermal cut-off from the old bracket and mount it on the new bracket.

NOTE: If the mounting holes on the inside of the chassis do not line up with the holes in the bracket, it will be necessary to drill new 5-32" mounting holes. Use bracket as a template to locate the new holes.

- ()10. Mount the new rectifier bracket in the instrument.



INSTRUCTIONS (cont)

STEPS 11 THROUGH 14 ARE FOR INSTRUMENTS ABOVE SN 1382 (with exceptions=

NOTE: these instruments have selenium rectifiers mounted directly on the Power chassis.

- ()11. Remove the two thermal cut-off mounting screws, the four rectifier bracket mounting screws, and the selenium rectifier mounting nuts located on the inside of the chassis.
- ()13. Remove the old rectifier bracket and mount the new silicon rectifier bracket (from kit) in its place.
- ()14. Remove the thermal cut-off on the new bracket.

FOR ALL INSTRUMENTS

- ()15. Solder two yellow-brown-brown wires to the thermal cut-off.
- ()16. Solder the white-orange wire from C601, and the strap from R601, to R608 (see Fig. 2, step 16).
- ()17. Solder the white-yellow wire from C660 to the top terminal of R630 (see Fig. 2, step 17).
- ()18. Solder the remaining wires to the points indicated in Fig. 2.
- ()19. Reinstall V520, V602, V613, and V661 (if removed in step 3).

THIS COMPLETES THE INSTALLATION.

- () Check wiring for accuracy.
- () Turn the instrument on and check for proper voltages and regulation of the power supply as outlined in your Instruction Manual. (If you make any adjustments in the power supply, you will have to check the calibration of the rest of the instrument.)
- () Moisten the back of the MODIFIED INSTRUMENT tag (from kit) and place it on the Manual schematic page affected by this modification.

