



product modification

050-0655-00

M8930

M19494

Type 647, RM647

HIGH VOLTAGE TRANSFORMER REPLACEMENT

For TEKTRONIX® Type 647, RM647

Type 647 Serial Numbers 100 - 683

Type RM647 Serial Numbers 100 - 293

Parts Replacement Kit, 050-0655-00, replaces High Voltage transformer, PN 120-0332-00.

The kit provides an improved transformer, PN 120-0846-00, and five silicon diodes to replace vacuum tubes V822, V832, V842, V852 and V862. These changes were made to improve reliability under high humidity and/or high temperature conditions.

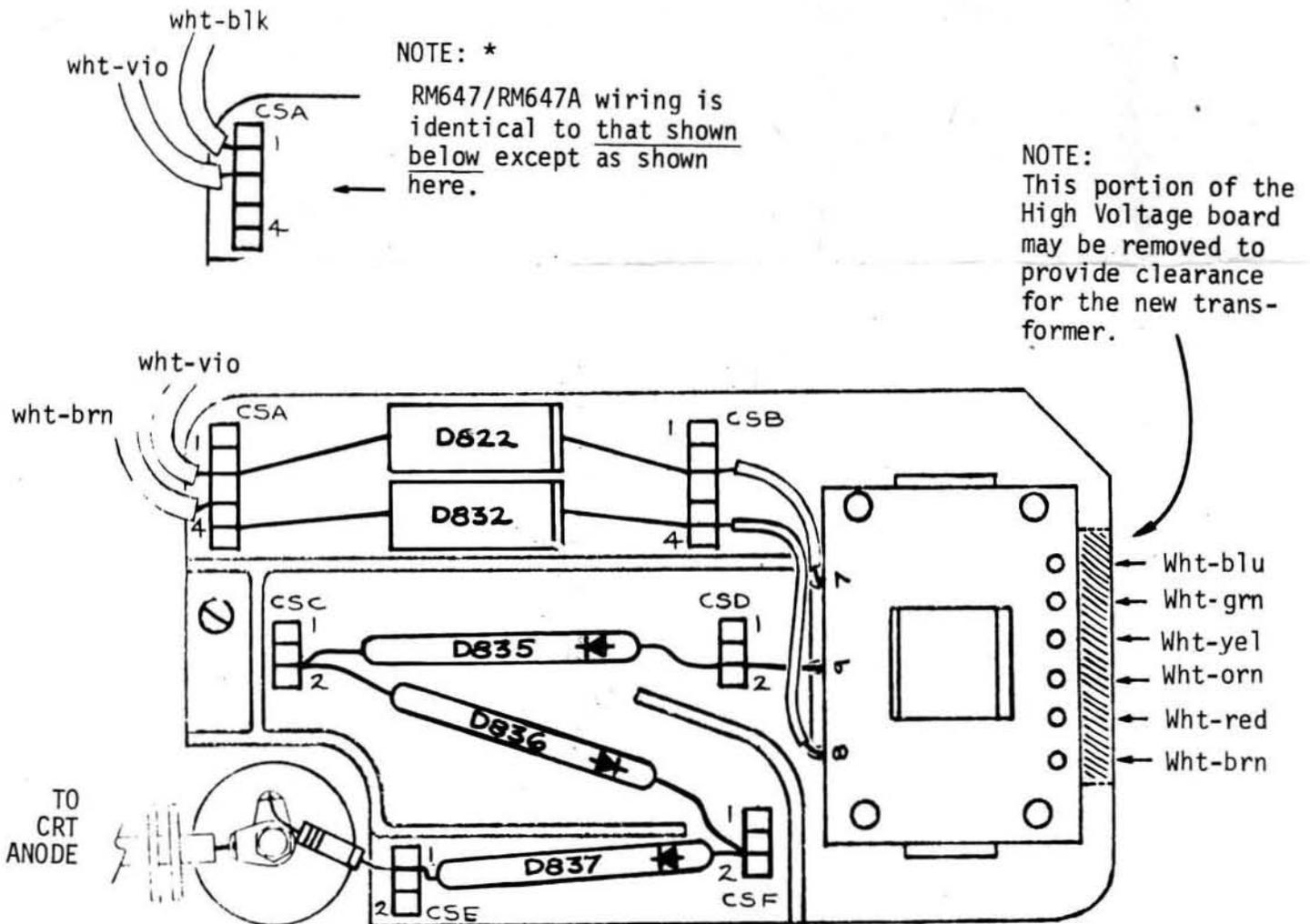
NOTE: If the serial number of your instrument is above those listed, or if this kit has been installed, disregard these instructions as PN 120-0846-00 is a direct replacement.

PARTS INCLUDED IN REPLACEMENT KIT:

| Ckt. Number | Quantity | Part Number | Description |
|-------------|----------|-------------|-------------------------|
| T820 | 1 ea | 120-0846-00 | Transformer, HV Power |
| D822 | 2 ea | 152-0192-00 | Diode, Silicon 5KV 50mA |
| D832 | | | |
| D835 | 3 ea | 152-0408-00 | Diode, Silicon 10KV 5mA |
| D836 | | | |
| D837 | | | |

INSTRUCTIONS:

Refer to Fig. 1 for ceramic strip locations and installation detail.



Top view of 647, RM647*, 647A and RM647A* HV board with new transformer, 120-0846-00 installed.

FIG. 1

INSTRUCTIONS: (continued)

- () 1. Disconnect power cord.
- () 2. Remove right cabinet side and position instrument on left side.
- () 3. Remove the metal High Voltage shield.
- () 4. Remove the two screws securing the plastic H.V. cover and remove cover.
- () 5. Discharge the HV capacitors.
- () 6. Unsolder the insulated primary wires () at the HV transformer.
- () 7. Unsolder the transformer secondary wires (3) at the ceramic strips.
- () 8. Unsolder and remove V822, V832, V842, V852 and V862 vacuum rectifiers.
- () 9. Unsolder the $1M\Omega$ resistor (from CSE-1) at the solder lug.
- () 10. Unsolder the two insulated wires from ceramic strip CSA.
- () 11. Remove the transformer mounting screws together with the insulator bushings.
- () 12. Remove the HV board mounting screw adjacent to ceramic strip CSC.
- () 13. Lift HV board just far enough to clear HV housing and turn board over.
- () 14. Unsolder and remove the white Teflon* covered filament wires which loop around the transformer core and connect to ceramic strips.
- () 15. Remove the HV transformer.
- () 16. Turn HV board over and install D822, D832, D835, D836 and D837, HV silicon diodes from the kit, as shown in Fig. 1.
- () 17. Bend terminal lugs 7, 8 and 9 on the new transformer towards the transformer terminal board to provide mounting clearance with the HV board.

*Teflon - Trade mark of E.I. du Pont de Nemours & Co., Inc.

INSTRUCTIONS: (continued)

- () 18. Check transformer fit into HV board.
NOTE: In some cases it may be necessary to remove a portion of the HV board (shaded part shown in Fig. 1) to provide clearance with the new transformer.
- () 19. Install HV board and secure with mounting screw adjacent to ceramic strip CSC.
- () 20. Install the new transformer with the mounting bushings. Secure the transformer with the two front mounting screws and their respective insulator bushings. Make sure the aluminum oxide heat sink block is positioned between the chassis and the HV transformer core.
- () 21. Solder an insulated wire from transformer terminal lug 7 to CSB-2 and from terminal lug 8 to CSB-4.
- () 22. Solder a bare wire from transformer terminal lug 9 to CSD-2.
- () 23. Solder all remaining wires and connections as shown in Fig. 1.
- () 24. Replace the plastic HV cover and the metal HV shield.
- () 25. Turn instrument power on and check the HV power supply and adjust if necessary. Refer to Instruction Manual calibration procedure for instructions.
- () 26. Replace cabinet side.
- () Fasten the Manual Modification Insert pages in your Instruction Manual and correct the Electrical Parts List in the Manual as follows:

| | | | |
|------|---|----------------------------|-----------|
| T820 | changes to 120-0846-00 transformer, HV. | | |
| V822 | becomes D822 | 152-0192-00 diode, silicon | 5KV 50mA. |
| V832 | becomes D832 | 152-0192-00 diode, silicon | 5KV 50mA |
| V842 | becomes D835 | 152-0408-00 diode, silicon | 10KV 5mA |
| V852 | becomes D836 | 152-0408-00 diode, silicon | 10KV 5mA |
| V862 | becomes D837 | 152-0408-00 diode, silicon | 10KV 5mA |

INSTRUCTION MANUAL

MODIFICATION INSERT

HIGH VOLTAGE TRANSFORMER REPLACEMENT

Type 647 -- SN 100-683
Type RM647 -- SN 100-293

Installed in Type _____ SN _____ Date _____

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

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GENERAL INFORMATION

High Voltage Transformer PN 120-0846-00 replaces High Voltage Transformer PN 120-0332-00. Use of the new Transformer improves reliability under high humidity and/or temperature conditions. This change requires that the vacuum rectifier diodes, V822, V832, V842, V852 and V862, be replaced with silicon diodes.

ELECTRICAL PARTS LIST:

| | | | |
|------|-------------|----------|---------|
| D822 | 152-0192-00 | Silicon | 7701-5X |
| D832 | 152-0192-00 | Silicon | 7701-5X |
| D835 | 152-0408-00 | Silicon | VG-12X |
| D836 | 152-0408-00 | Silicon | VG-12X |
| D837 | 152-0408-00 | Silicon | VR-12X |
| T820 | 120-0846-00 | HV Power | |
| V822 | Delete | | |
| V832 | Delete | | |
| V842 | Delete | | |
| V852 | Delete | | |
| V862 | Delete | | |

