

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER

TO 33AA21-4-12

FIELD AND DEPOT MAINTENANCE MANUAL
TEST SETS, ELECTRON TUBE TV-2/U,
TV-2A/U, TV-2B/U, AND TV-2C/U



DEPARTMENTS OF THE ARMY AND THE AIR FORCE

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AND THE AIR FORCE

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Field and Depot Maintenance Manual

TEST SETS, ELECTRON TUBE

TV-2/U, TV-2A/U, TV-2B/U, AND TV-2C/U

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***This manual, together with TM 11-6625-316-12, supersedes TM 11-2661, 11 May 1955, including C 4, 8 November 1957; C 5, 21 April 1958; and C 6, 15 May 1959.**

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CHAPTER 1

THEORY

Section 1. GENERAL

1. Scope

a. This manual covers field and depot maintenance for Test Sets, Electron Tube TV-2/U, TV-2A/U, TV-2B/U and TV-2C/U. It includes instructions to fourth and fifth echelons for troubleshooting, testing, aligning, and repairing the equipment; replacing maintenance parts; and repairing specified maintenance parts. It also lists tools, materials, and test equipment for fourth and fifth echelon maintenance. There are 110 maintenance functions allocated to third echelon. Detailed functions of the equipment are covered in paragraphs 3 through 11.

b. The complete technical instructions for this equipment includes TM 11-6625-316-12 and TM 11-6625-316-35P.

c. Forward comments concerning this man-

ual to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N. J.

Note. For applicable forms and records, see paragraph 2, TM 11-6625-316-12.

2. Internal Differences in Models

On the TV-2B/U and the TV-2C/U, an anti-parasitic ferrite bead (fig. 1) is attached to one of the leads going to each terminal of the test sockets to prevent the tube under test from oscillating. On the TV-2/U, resistor R 1 is 250 ohms; on TV-2A/U, TV-2B/U, and TV-2C/U, R1 is 300 ohms. On the TV-2C/U, resistors, R24 and R25 are connected differently to transformer T2. Refer to figure 26. For external differences, see TM 11-6625-316-12.

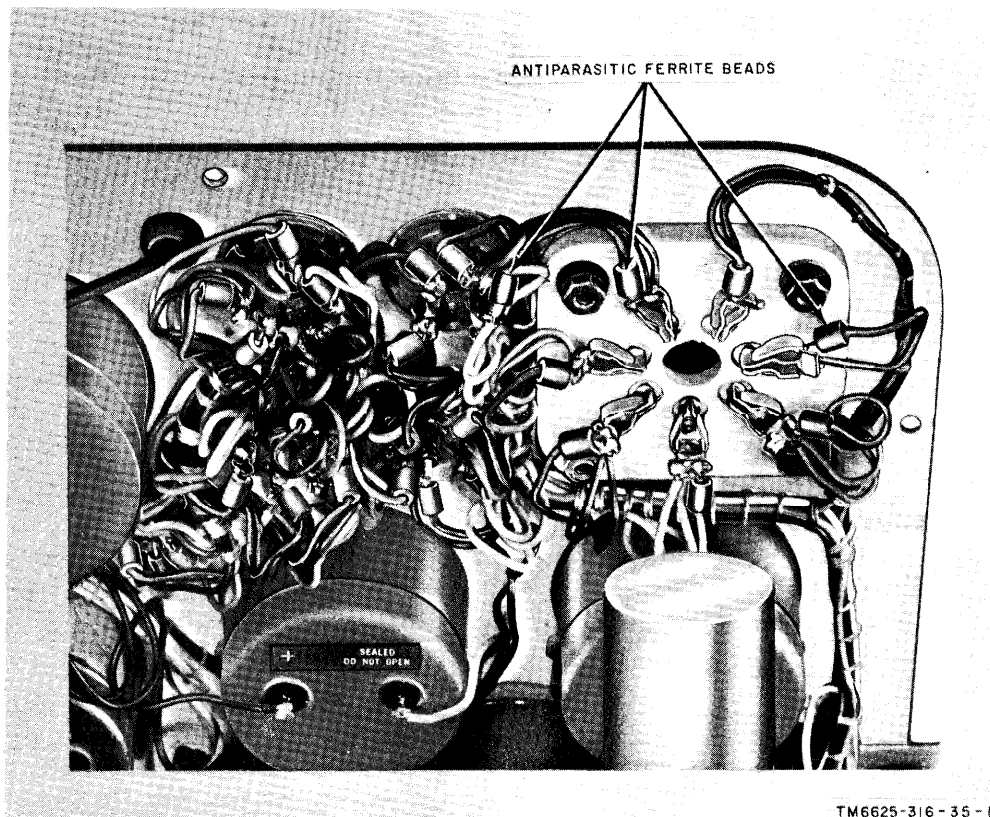


Figure 1. Antiparasitic ferrite beads (used on TV-2B/U and TV-2C/U), typical application.

Section II. UNIT THEORY

3. Block Diagram (fig. 2)

Test Set, Electron Tube TV-2(*)/U consists of a power supply for the electrodes of the tube to be tested and seven tube-testing circuits. These are a transconductance ($G_{m,}$) test circuit, an emission test circuit, a gas test circuit, a voltage-regulator tube test circuit, a filament continuity test circuit, a short test circuit, and a leakage test circuit. SELECTORS and RANGE switches permit application of proper test voltages to the tube under test. Indicating meters and an indication lamp display the test results. The functional interrelation of the principal circuits and parts of the tube tester is shown in the block diagram. A complete schematic diagram is shown in figure 26.

a. *Power Supply.* The power supply consists of five supply voltage circuits.

- (1) The filament supply provides 19 different filament voltages, that range from 0.625 to 117 volts alternating current (vat). FILAMENT VOLTS meter M1 indicates the filament voltage supplied to the tube. Full-wave rectifier tube VI provides unfiltered, pulsating direct current (de) voltage for the plate of the tube under test. Full-wave rectifier V3 furnishes filtered dc voltage for the screen of the tube under test.
- (2) PLATE meter M5 and SCREEN VOLTS meter M6 indicate the plate and screen voltages that are supplied to the tube under test.