
SERVICE BULLETIN

No. 1-E

SERVICE DATA MEASUREMENTS FOR RADIO SIDE SPARKS ENSEMBLE MODEL No. 101

In order that the results and indications derived from these tests may be relied upon, it is important that the meters used have a fair degree of accuracy.

Master switch contacts are numbered from right rear side to the front, the numbers being 1 - 2 - 3 - 4 numbers 5 - 6 - 7 - 8 are found on left side beginning at front and proceeding to rear.

TESTS ON TERMINAL BLOCK A MADE WITH A. C. VOLTMETER.

Numbers on this terminal block are arranged from bottom to top, and between terminals A-1 and A-3 there should appear the line voltage. If this is not present, fuses or fuse block beneath cabinet is at fault. However, a constant indicator for the fuse is the dome light in the phonograph compartment, which is on whenever the door of this compartment is open. After measuring the line voltage, the adjuster located under power tube socket shield should be placed on the proper tap, depending on the line voltage.

Between terminals A-2 and A-5 there should be a voltage equal to the line voltage. No voltage between these two points indicates contacts No. 3 on Master Switch not closed. A voltage measurement between the terminal of the black and white wire on the variable resistance, which is used as a speed control, and terminal A-4 should show some value between 0 and 55. If motor fails to run and this resistor is open, the reading here will be the same as the line voltage.

Between terminals A-4 and A-5 there should be zero voltage unless pick-up arm switch and clutch switch are defective and have failed to close.

TESTS ON BLOCK "B".

Between terminals B-1 and B-5 there should be the voltage that is applied to the power converter, which is the line voltage.

TESTS MADE WITH D. C. VOLTMETER AND VOLUME CONTROL ON FULL.

Between terminals 6 and 14 there should be 145 volts; limits 130 and 160 volts. A variation above this amount indicates a defective 20,000 ohm resistor in series with the voltage divider at the terminal of the filter system. This is the plate voltage on the 227, which is used as the first stage audio on the phonograph side. B-7 and B-14 should be 240 volts. Limits are 220 and 255 and a variation of more or less than this indicates a defective voltage divider system.

Between terminals B-9 and B-10 there should be 240 volts; limits 215 and 265 volts. More or less than this amount indicates a defective 20,000 ohm resistor which is in series with the filtered power output to center tap of intermediate transformer.

Between points B-17 and B-18 should be 180 volts; this is the speaker field and its limits are 170 and 220.

TEST ON BLOCK "C"

Between terminals C-1 and C-6 should be 240 volts with a variation the same as between terminals B-9 and B-10. This is merely a check test on the measurement made on the B blocks.

Between terminals C-6 and C-7 should be 1.4 volts A. C.; limits here 1.5 maximum, 1.25 minimum. A voltage less than the lower limit signifies a high resistance connection somewhere in this wiring.

Between terminals C-6 and C-9 should be 18 volts D. C. This is a bias on the 226 tubes, and a discrepancy from this indicates a defective 1000 ohm biasing resistor, located in the power converter; limits 20 and 16 volts.

TESTS MADE ON BLOCK "D"

Set will have to be switched to the radio side before these measurements are made.

Between terminals D-1 and D-2 should be 120 volts D. C. This is the detector plate voltage and its limits are 135 and 110 volts. Less than this amount indicates poor connection between contacts No. 6 on Master Switch.

Between terminals D-2 and D-9 is the detector bias and should be 8 volts; limits 9 and 7 volts. More or less than this indicates a defective 20,000 ohm resistor in the Audio Connector Unit.

Between terminals D-5 and D-6 should be 135 volts. This is the R. F. plate voltage and less than this indicates trouble with the Master Switch contacts No. 7 or voltage divider in power converter; limits here 150 and 120 volts.

Between terminals D-5 and D-9 is the R. F. biasing voltage and should be 4 volts. More than this will result in a loss in volume. Less than this amount indicates a defective 110 ohm resistor. Limits here are 3.6 to 6 volts. Note— Be sure volume control is turned on FULL.

MEASUREMENTS ON TUBES IN POWER CONVERTER.

Plate voltages on 585 tubes as measured between plate and filament should be 415 volts; limits 440 and 365. More or less than this indicates voltage adjuster, in set, not on proper tap. The grid voltage on these tubes should be 86 volts with limits from 78 to 95. A variation in this quantity indicates a defective 900 ohm resistor in the power converter. Filament voltage on this tube should be 7.3 with an upper limit of 7.5 and lower limit of 6.8.

The same amount of filament voltage should appear on the 281 tube as on the 585. Plate current through 281 should be 75 milliamperes for normal tube.

If motor is removed and another substituted, make sure that the red and green wires in motor cable are connected to proper points on starting switch.