



THE PATHFINDER

For Sparton Radio Dealers

Number 2-A

Service Data Measurements for Sparton Equasonne Receiver Model 931

MAKE ALL TESTS WITH VOLUME CONTROL ON FULL AND VOLTAGE ADJUSTER ON PROPER TAP.

Test line voltage and set voltage adjuster to corresponding voltage or voltage higher. 0-160 volts A. C. voltmeter.

TEST WITH 0-300 VOLTMETER.

TEST NO. 1

Detector plate voltage.

Measure detector plate voltage between terminals one and two. Normal voltage here should be 140 volts without phonograph pickup in jack, and 135 with pickup. The limits of variation are 120 volts to 160 volts without pickup, and 110 to 150 volts with pickup. More or less than this indicates a defective plate circuit, possibly in resistance R 20,000.

TEST NO. 2

R. F. Amplifier plate voltage.

Measured between terminals five and six the radio frequency amplifier plate voltage should be 145 volts. The limits for this voltage are: 130 to 170 volts, and more or less than these values indicates that there is trouble in the plate circuit which might be caused by defective resistance R 15,000 or Speaker Field.

TEST WITH 0-75 D. C. VOLTMETER.

TEST NO. 3

Detector bias voltage.

Measure between terminals two and nine; normal bias is —12 volts. Allowable limits of variation are —10 and —17. Voltages above or below this may indicate a defective resistance R 20,000 A, or connections.

Detector bias voltage with pickup plugged in should read between 3 and 5 volts. More or less than these voltages indicate defective circuit which may be in resistance R 1,000.

TEST NO. 4

Radio frequency bias.

Measured between five and nine R. F. Bias normally —4.5 volts. The limits being —6 to —3. More or less than this, results in loss in volume and indicates defective resistance R 110 or abnormal R. F. plate current. With volume off a wide variation of the above voltage is obtained but is not of consequence.

0 TO 4 A. C. VOLTMETER.

TEST NO. 5

Heater voltages.

(A) Detector and radio frequency heater voltage measured between terminal three and four. Normal 2.97 volts and more than this is dangerous to the tubes and greatly shortens their life; however, they may be run at as low a voltage as will give satisfactory volume. The maximum voltage allowable

on these terminals is 3.1 volts, and this should never be exceeded. If the voltage is higher than normal, place voltage adjuster on next higher voltage tap.

TEST NO. 6

TEST KIT MEASUREMENTS.

Remove A. F. tube and place in test kit socket. Place test kit plug in A. F. socket.

(A) Measure filament voltage by pressing 8.0 volt button. Normal 4.75 volts. Limits 4.4 to 5.0.

(B) Measure grid bias by pressing "C" voltage button. Normal —40. Limits —30 to —52 volts. Readings greater or less than these show resistance R 1250 defective or abnormal plate current.

(C) Plate voltage. Measure plate voltage by pressing "B" voltage 300. Normal 250 volts. Limits 300 to 220.

ADJUSTMENT OF AERIAL COMPENSATING CONDENSER.

TEST NO. 7

Select a station, preferably a local and at a time when it is the only station to be heard. Remove the aerial wire and put it on the connector between the selector and amplifier. If the station is heard at nearly the same volume, the selector is in adjustment.

To adjust selector: Turn volume control to full and tune in some station of 1250 kilocycles or higher frequency. Adjust aerial compensating condenser until maximum response is obtained in speaker.

TEST OF POWER CONVERTER.

TEST NO. 8

Turn off set and remove detector tube. Connect leads to a 4.5 volt "C" battery. Place one of these leads in terminal No. 1 and touch other to terminal No. 2. If click is heard in speaker, power converter is okay, providing amplifier tube is good.

TEST NO. 9

Adjust hum control for minimum hum.