



THE PATHFINDER

For Sparton Radio Dealers

Number 15-A

Service Bulletin for Models 301 and 931 D. C. Sets

No ground to be connected to these Receivers.

Line voltage 105 to 125 volts D. C.

Throw switch for purpose to "Hi" for voltage from 115 to 125, and to "Lo" for line voltage below 115 volts.

Line fused for three amperes to protect against connecting a ground.

Dial light 3.8 volts Mazda 13 type G 3.

Selector same as in other models.

R. F. amplifier has six 484 tubes with heaters connected in series. A. F. pushpull 182 amplifier with external C battery of 22.5 volts.

The field coil is of large wire having a resistance of 5.5 ohms and is used beside producing field for the speaker in the voltage dividing circuit. The current in the filament-heater-resistor circuit is approximately 1.5 amperes at standard conditions.

Testing Instructions:

Caution: Do not change tubes under any condition while set is turned on.

The opening of one of the 484 heaters is accompanied by the burning out of the dial light—

this being something of an indicator. However, the dial light burning out of itself merely lowers the filament temperature of 182 tubes and should be taken care of immediately by putting in a new bulb.

If a 484 tubes is removed while set is operating the dial light will also burn out, of course, it is easily seen that if one 484 tube heater burns open the others will not be heated because of the series circuit. All resistors can be checked by continuity test using the circuit diagram as a guide.

Voltage Readings:

115 volt line with switch set at "Lo".	
182 plate volts—115.	
182 "C" voltage 22.5	(Across terminals)
182 filament volts 4 to 4.5.	
484 volts—18 volts (voltage across 6 tubes in series)-----	3 - 4
Detector plate volts (volume on)	
100 to 108 volts-----	1 - 2
R. F. plate volt (volume on) 105 to	
112 volts -----	5 - 6
Detector "C" volt 8 to 10 volt-----	2 - 9
R. F. "C" volts (volume on) 2 to 3 v.	5 - 9

TROUBLE	CAUSE	TEST
No filament current	(A) Open 484 heater. (B) Open field coil. (C) Open 12 ohm resistor. (D) Open in either of 15 ohm resistors. (E) Blown 3-amp. fuse.	Continuity of elements mentioned. Examine fuse first.
No plate voltage on detector.	(A) No line volts. (B) Open choke. (C) Open input audio transformer. (D) Ground in R. F. amplifier.	Measure voltage 6-9. If there is voltage here, either audio transformer primary is open or trouble exists in R. F. amplifier. Choke may be the cause of trouble if no voltage is obtained between terminals 6 and 9.
No R. F. plate voltage.	(A) No line volts. (B) Open choke. (C) Ground in R. F. amplifier.	Measure line volts. If okay measure voltage across choke. If this is higher than 10 volts, the R. F. supply terminal is grounded—either in power unit or R. F. amplifier.
No plate voltage on 182 tubes.	(A) No line voltage. (B) Open output transformers (audio)	(A) Line volts. (B) Continuity of. Output audio transformer.

All continuity tests should be made with set off line.

Voltage measurements obtain the stated values when line voltage is compensated for by having switch in proper position.