

SPARTON RADIO SERVICE MANUAL

(ORIGINAL) EFFECTIVE JUNE 1, 1936

MANUAL 1 BULLETIN 11-1

SPARTON MODEL 930

SCHEMATIC DIAGRAM AND VOLTAGE ANALYSIS

VOLTAGE ANALYSIS

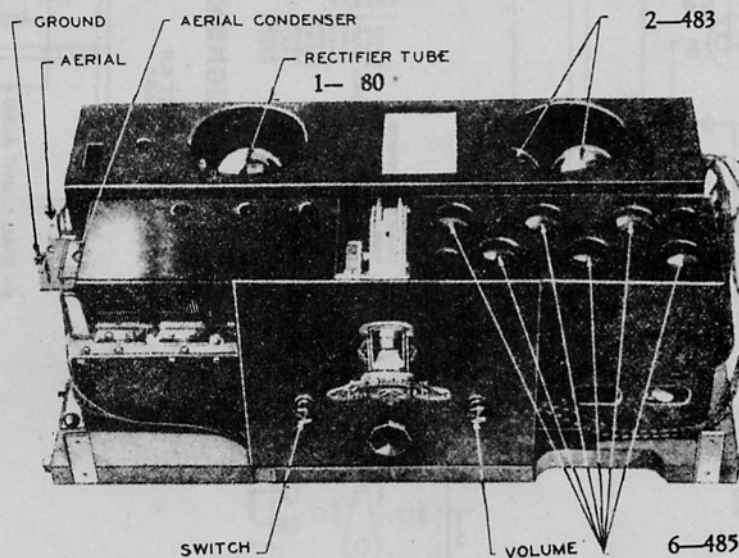
	Line Voltage <u>115</u> Position of Voltage Compensator <u>100-115</u>	Position of Volume Control <u>Full</u> With Antenna disconnected			
TUBE	LOCATION	HEATER OR FILAMENT	PLATE	CONTROL GRID —	PLATE CURRENT (ma.)
485	1st. R. F.	2.9 - 3.0	90 - 135	3.0 - 5.0	5.0 - 7.0
485	2nd. R. F.	2.9 - 3.0	90 - 135	3.0 - 5.0	5.0 - 7.0
485	3rd. R. F.	2.9 - 3.0	90 - 135	3.0 - 5.0	5.0 - 7.0
485	4th. R. F.	2.9 - 3.0	90 - 135	3.0 - 5.0	5.0 - 7.0
485	5th. R. F.	2.9 - 3.0	90 - 135	3.0 - 5.0	5.0 - 7.0
485	Detector	2.9 - 3.0	150 - 250*	14 - 20†	1.0 - 2.0
483	Power	4.5 - 5.0	145 - 225	38 - 52	40 - 60
483	Power	4.5 - 5.0	145 - 225	38 - 52	40 - 60
80	Rectifier	4.5 - 5.0	250 - 290	----	30 - 40

(per plate)

* With phonograph pick-up plugged in 90-140 volts

† With phonograph pick-up plugged in 3.0-5.0 volts

TOP VIEW MODEL 930 CHASSIS

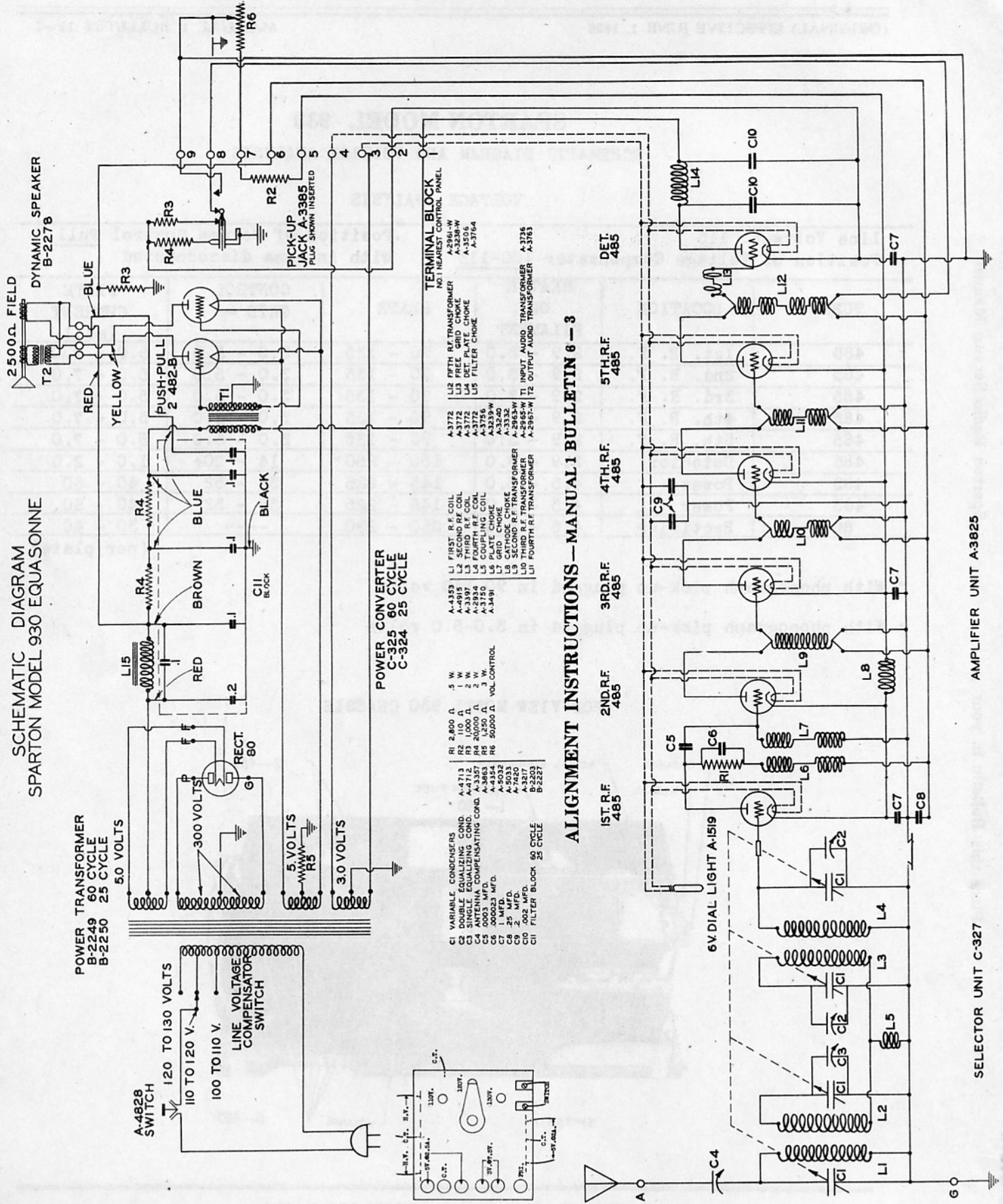


Sparton Radio Service Manual

Place this Bulletin in your

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SCHEMATIC DIAGRAM
SPARTON MODEL 930 EQUASSONNE



POWER TRANSFORMER
B-2249 60 CYCLE
B-2250 25 CYCLE
5.0 VOLTS

A-4828 SWITCH
120 TO 130 VOLTS
100 TO 120 V.
100 TO 110 V.
LINE VOLTAGE COMPENSATOR SWITCH

POWER CONVERTER
C-325 60 CYCLE
C-324 25 CYCLE

- C1 VARIABLE CONDENSERS
- C2 SINGLE EQUALIZING COND.
- C3 ANTENNA COMPENSATING COND.
- C4 00002 MFD.
- C5 00002 MFD.
- C6 1 MFD.
- C7 25 MFD.
- C8 25 MFD.
- C9 2002 MFD.
- C10 2002 MFD.
- C11 FILTER BLOCK 50 CYCLE
- R1 2,800 Ω
- R2 100 Ω
- R3 1,000 Ω
- R4 20,000 Ω
- R5 50,000 Ω
- R6 50,000 Ω
- 5 W
- 2 W
- 2 W
- 2 W
- 50,000 Ω
- 50,000 Ω
- VOL. CONTROL
- A-4383 L1 FIRST R.F. COIL
- A-4915 L2 SECOND R.F. COIL
- A-3397 L3 THIRD R.F. COIL
- A-2934 L4 FOURTH R.F. COIL
- A-3130 L5 FIFTH R.F. COIL
- A-3491 L6 PLATE CHOKES
- A-5032 L7 GRID CHOKES
- A-5033 L8 SCREENING CHOKES
- A-3217 L9 DET. CHOKES
- B-2203 L10 THIRD R.F. TRANSFORMER
- B-2202 L11 FOURTH R.F. TRANSFORMER
- B-2227 L12 INPUT AUDIO TRANSFORMER
- A-3763 L13 FIFTH R.F. TRANSFORMER
- A-3284-W L14 DET. GRID CHOKES
- A-3506 L15 DET. PLATE CHOKES
- A-3764 L16 FILTER CHOKES
- A-3239-W L17 GRID CHOKES
- A-3240 L18 SCREENING CHOKES
- A-2933-W L19 THIRD R.F. TRANSFORMER
- A-2967-W L20 FOURTH R.F. TRANSFORMER
- T1 INPUT AUDIO TRANSFORMER
- T2 OUTPUT AUDIO TRANSFORMER

ALIGNMENT INSTRUCTIONS — MANUAL 1 BULLETIN 6-3

- 1ST R.F. 485
- 2ND R.F. 485
- 3RD R.F. 485
- 4TH R.F. 485
- 5TH R.F. 485
- DET. 485

SELECTOR UNIT C-327

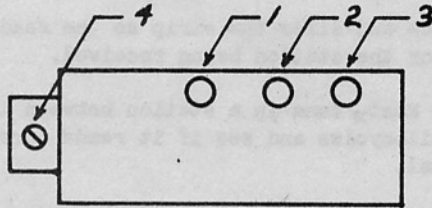
AMPLIFIER UNIT A-3825

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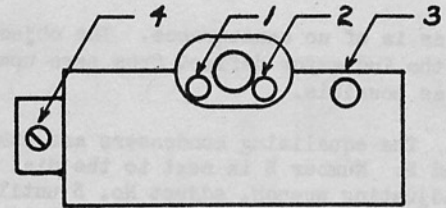
MANUAL 1 BULLETIN 6-3

ALIGNMENT INSTRUCTIONS



TYPE 1
WITHOUT R.F. TUBE

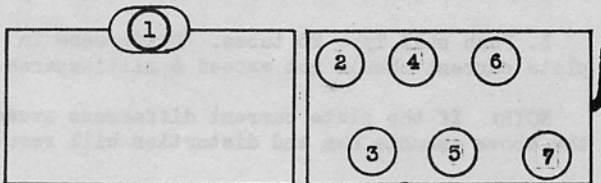
39	99	591
49	101	595
69.	109	930
79	110	931
79A	111	931D.C.
89	301	
89A	301D.C.	



TYPE 2
WITH R.F. TUBE

103	589	737
111A	600	740
235	610	740D.C.
564	620	750
570	600D.C.	750D.C.
574	610D.C.	870
578	620D.C.	

A. MATCHING TUBES IN R.F. AMPLIFIER.



1. Check tubes in a reliable tube tester.
2. Place tubes in selector and amplifier in the following manner:

Best reading tube - Socket #1
 Second best tube - Socket #2
 Third best tube - Socket #3
 Fourth best tube - Socket #7
 Fifth best tube - Socket #4
 Sixth best tube - Socket #5
 Seventh best tube - Socket #6

NOTE: If selector does not have an R.F. tube place best tube in socket #2, second best in socket #3, third best in socket #7, etc.

B. ALIGNMENT OF SELECTOR.

After the aerial and ground have been inspected and found to be in good order, and all tubes have been tested and placed in their proper sockets, the final operation in the installation of a SPARTON Radio Receiving Set is adjustment of the antenna compensating and equalizing condensers. This adjustment should ALWAYS be made with the use

of a High Resistance Voltmeter as a resonance indicator. Using the ear as a resonance indicator should be resorted to only when it is impossible to employ a Voltmeter. Any 1,000 ohm per volt 0-60, 75 or 100 scale D.C. Voltmeter will serve the purpose.

Connect two leads to the binding posts of the Voltmeter to be used, and terminate them in a phone plug which is then inserted in the phonograph pick-up jack just far enough to touch the first inside contact. (see Figure 2.) (DO NOT PLUG ALL THE WAY INTO THE JACK, as this will short out the detector tube biasing resistor, and cause inaccurate readings.) Be sure that no Analyzer Adapters are connected to the end of the Analyzer Cord, or plugged into the Analyzer Socket, as this will short-circuit the Voltmeter.

NOTE: When aligning Models 235 and 103, two small battery clips instead of a phone plug are fastened to the Voltmeter leads. On the Model 235 the leads are connected to terminals No. 11 and No. 13 of the terminal block located on the left-hand side of the cabinet. On the Model 103 the leads are connected to terminals No. 14 and No. 17 on the terminal strip.

1. With aerial and ground wires permanently used, tune in a DISTANT STATION at 1200 kilocycles or at a higher frequency.

2. Turn Volume Control on FULL for this entire adjustment.

3. Adjust Antenna Compensating condenser screw No. 4 with insulated handle Screw Driver until indicator reaches highest point on Voltmeter scale.

NOTE: The numerical value that the indicator

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MANUAL 1 BULLETIN 6-4

ALIGNMENT INSTRUCTIONS(Continued)

reaches is of no consequence. The object is to have the indicator deflect from zero upward as high as possible.

4. The equalizing condensers are numbered 1, 2, and 3. Number 3 is next to the dial drum. With the adjusting wrench, adjust No. 3 until the indicator reaches highest point on the Voltmeter scale.

5. Next adjust No. 1 and No. 2 in the same manner.

6. Tune in a station between 550 and 650 kilocycles.

7. Readjust the Antenna compensating condenser and the Equalizing condensers No. 3, No. 1, and No. 2 in exactly the same manner as they were adjusted at the 1200 or higher kilocycle setting of the dial. The purpose of this adjustment is to check the "tracking" of the four variable condensers. The voltmeter reading should decrease if any of the four original adjustments are changed. That is, the four tuned circuits must show alignment between 550 and 650 kilocycles on the ADJUSTMENT made at 1200 or higher kilocycle setting.

8. After the check at 550 kilocycles it will be necessary to again readjust the condensers as explained in No. 1 to No. 5 inclusive. This is necessary, due to the adjustments being slightly thrown off in the checking process.

CALIBRATION OF DIAL STRIP ON SPARTON
MODELS 103, 235, 420, 564, 570, 574,
578, 589, 591, 593, 600, 610, 620,
740, 750 AND 870.

9. Note carefully whether or not a station around 600 kilocycles indicates correctly on the dial when tuned to the loudest volume.

10. If station reads off its proper setting, loosen the screws which hold the celluloid strip

in place and slide the strip so the reading is correct for the station being received.

11. Next, tune in a station between 1100 and 1300 kilocycles and see if it reads correctly on the dial.

12. If stations tune in to maximum volume at a setting different from station's correct kilocycle reading, turn dial to the reading the station should come in on according to its log-book reading. Then readjust the Condensers as explained in No. 1 to No. 5

13. This final adjustment will scarcely affect the calibration of the stations around 600 kilocycles and will properly align the Selector Unit to its highest efficiency, and will cause the dial to read correctly over the entire broadcast spectrum.

C. MATCHING TUBES IN AUDIO AMPLIFIER.

1. Push pull Type 50 tubes. Difference in plate current should not exceed 5 milliamperes.

2. Push pull Type 182, 183, 182-B. Difference in plate current should not exceed 3 milliamperes.

3. Push pull Type 26 tubes. Difference in plate current should not exceed 5 milliamperes.

NOTE: If the plate current difference exceeds the above amounts hum and distortion will result.

IMPORTANT:

Type 182 and 183 tubes have the same characteristics and are interchangeable. One Type 182-B and one Type 182 or 183 should never be used together.

Type 182-B tubes should be used with sets having 1250 ohm Bias Resistor, Type 182 or 183 tubes should be used with 1700 ohm Bias Resistor.