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DATE: 15 May 1953

ADDENDA

TO THE

INSTRUCTION BOOK FOR RADIO STATION RS-6

The following information augments the instruction book for Radio Station RS-6. The radio stations covered in this addenda have serial numbers which are included in the following group.

Radio Station RS-6

Serial Numbers: 33 and higher

Personnel using this equipment and having custody of the instruction book will revise the instruction book by one of the following methods:

1. Copy this supplementary information in ink into the instruction book where indicated.
2. Enter suitable notation beside each affected paragraph and figure in the instruction book to indicate the presence of this supplementary information.

Page V. TABLE OF CONTENTS. LIST OF ILLUSTRATIONS. Add the following after Figure 18:

Figure 18.1 Antenna impedance matching switch for Transmitter RT-6 serial Nos. 2001 to 2614.

Figure 18.2 Transmitter RT-6 Neutralization circuit, Simplified Diagram.

Page 1. Section II. Par. 5b(1)
Change "40 to 400 cps", to read: 42 to 400 cps.

Page 1. Section II. Par. 5e(1)
Change "40 cps - 60", to read: 42 cps - 60.

Page 1. Section II. After Par. 5c(4) add:
(5) Battery Charging. 6 vdc at 3.5 amperes.

Page 3. Section II. Par. 6d.
Add after "1 Earset and cord"; - (see Note 1)

Page 3. Section II. Par. 6d.
Add the following at the end of the paragraph; 2 Protective sockets

Page 3. Section II. Par. 6d.
Add the following "Note" at the end of the paragraph:
NOTE 1: When shipped from factory the Earset and cord will be packed in the plastic pouch with the additional accessories.

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Page 3. Section II. Par. 7.

Add the following at the end of paragraph 7.

1 Female socket connector to adapt hand generator to filter accessory unit. (Original connector must be unsoldered from generator cable and new connector substituted.)

Page 4. Section I. Par. 8c(2). Line 4.

Change "40 and 400 cycles per second" to read:
42 and 400 cycles per second.

Page 7. Section I. Par. 11c(7). Line 4.

Change "40 and 400 cps" to read: 42 and 400 cps.

Page 14. Fig. 12. Change the value of C13 from "100" to read: 56.

Page 16. Section I. RECEIVER RR-6 TROUBLE SHOOTING CHART. Add the following at the end of the chart:

SYMPTOM	PROBABLE CAUSE	REMEDY
Low sensitivity, break in operation only.	Shielded lead open in transmitter.	Repair or replace.
High noise, break in operation only.	Shielded lead open in transmitter.	Repair or replace.

Page 22. Section I. Fig. 16. Change "*SEE FIGURE 14" to read:
*SEE FIGURE 15.

Page 24. Section II. Par. 28. Change "28. CIRCUIT DESCRIPTION - (See Schematic, Figure 18)", to read: 28. CIRCUIT DESCRIPTION - (See Figures 18 and 18.2).

Page 24. Section II. Par. 28b. Change Paragraph 28b to read:

- b. A keying relay is employed in the RT-6 to switch the necessary circuits for break-in operation. Closing the key removes the blocking bias from the cathode of V101 (6AG5), causing oscillations to develop in the modified Pierce electron-coupled oscillator stage. A keying filter, consisting of LR101 (125uh, 560 ohms) in the oscillator circuit and C116 (5uf) and the cathode circuit resistance in the RF power amplifier stage, properly shapes the keyed characters to eliminate "clicks". Cathode current from the RF power amplifier (V102, 2E26) flows through the relay coil. The relay armature is held when the transmitter is not keyed. The added resistance of the relay coil is sufficient to increase the cathode bias of the 2E26 to prevent excessive power from being dissipated in the RF power amplifier when

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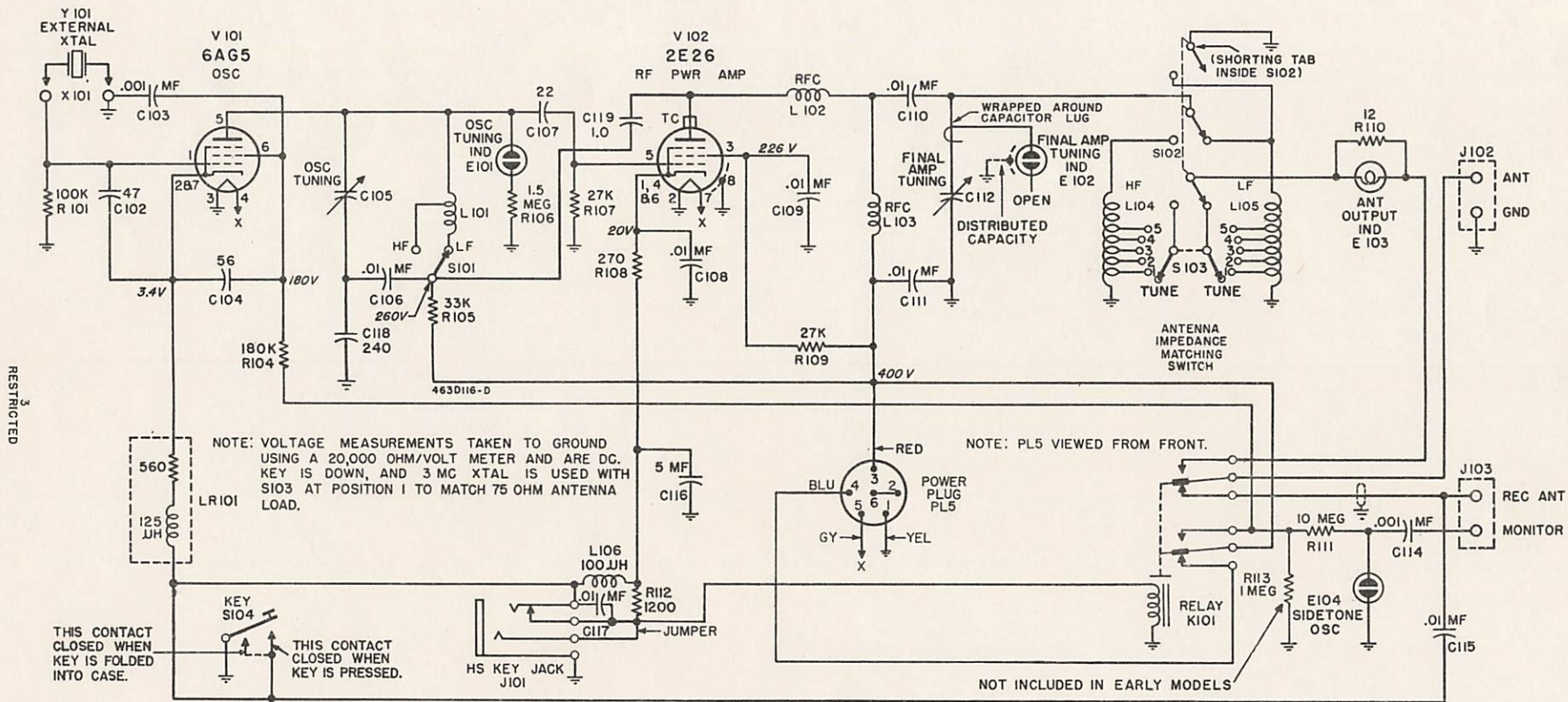


FIGURE 18. TRANSMITTER RT-6 SCHEMATIC DIAGRAM

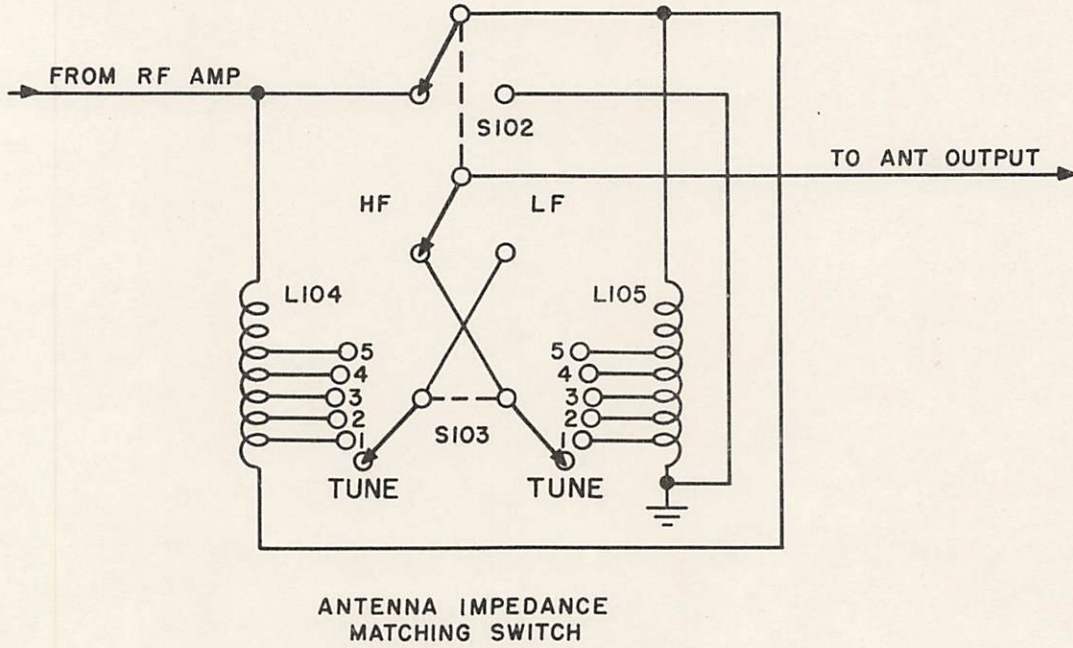


FIG. 18.1 ANTENNA IMPEDANCE MATCHING SWITCH FOR TRANSMITTER RT-6 SERIAL NOS. 2001 TO 2614.

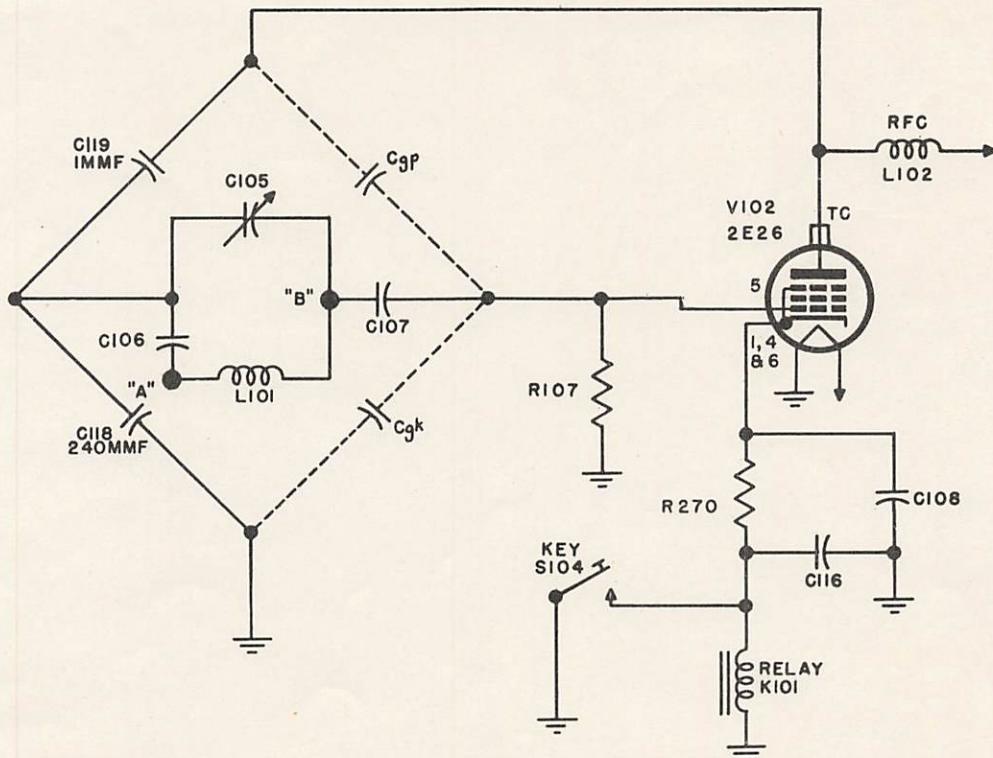


FIG. 18.2 TRANSMITTER RT-6 NEUTRALIZATION CIRCUIT SIMPLIFIED DIAGRAM

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no grid drive is applied. Closing the key shorts the relay coil, bypassing the 2E26 cathode current to ground, and releases the relay armature. This switches B+ power from the receiver and applies the B+ power to the 6AG5 oscillator screen grid and to the neon bulb relaxation oscillator (E104) which develops the sidetone for monitoring the transmitter. When the key is closed, the terminal labeled REC ANT is grounded through C115 (.01uf) to prevent the transmitted signal from paralyzing the receiver. R113 (1 megohm), by providing a discharge path for C103 (.001uf) and C114 (.001uf), effectively removes any accumulated charge and improves the sidetone oscillator operation. Releasing the relay armature also switches the antenna from the receiver to the transmitter. A bug key when inserted half-way into the KEY JACK will operate the relay the same as the attached sending key. An automatic tape keyer when inserted all the way into the KEY JACK shorts out the relay and adds into the 2E26 cathode circuit R112 (1200 ohms) which holds the plate current to a safe value in the key up position. L106 (100uh) and C117 (.01uf connected across R112) aid in eliminating "clicks" when the transmitter is automatically keyed.

Page 24. Section II. Par. 28c. Change Paragraph 28c to read:

- c. C118 and C119 are part of a grid neutralization network as shown in Fig. 18.2; Cgp represents the grid to plate capacitance and Cgk the grid to cathode capacitance of V102 (2E26). The "bridge" circuit is in balance when $\frac{C119}{C118} = \frac{Cgp}{Cgk}$.

This condition is approximated by the values of 240uuf for C118 and 1.0uuf for C119. This circuit is effective in the reduction of parasitic oscillation originating in the grid circuit of the final RF amplifier, and it normally is not frequency selective. C106 (.01uf) does not affect the parallel tuned circuit C105 and L101. The primary function of C106 is to keep B plus off the rotor of C105 and still provide a low impedance path for RF current. The oscillator plate voltage is applied to point "A". The plate of V101 (6AG5) connects to point "B" of Fig. 18.1. Radio frequency choke L102, in the plate circuit of V102 (2E26) is a parasitic suppressor. Regenerative feedback is further reduced by the use of a shielded lead from the REC ANT terminal on J103 to the relay K101. This shielded lead also prevents some of the transmitter noise from entering the receiver during break-in operation.

Page 24. Section II. Par. 28d. Change Paragraph 28d to read:

- d. A five position rotary switch (S103) provides a range of output impedances for maximum antenna output. Each position doubles the impedance of the previous position from 75 ohms on position 1 to 1200 ohms on position 5. S102, a slide switch (DPDT) shorts out coil L105 when in the HF (7.0 to 16.5 mc.) position. An incandescent bulb, E103, serves as an antenna current indicator.

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Page 24. Section II. Par. 28e. Change Paragraph 28e to read:

- e. Resonance of the oscillator and final amplifier plate tanks is indicated by the maximum glow of two neon bulbs, E101 and E102, respectively. CAUTION: Tune for maximum glow of the neon bulbs at the desired operating frequency indicated on the oscillator and final amplifier tuning controls.

Page 25. Fig. 19. Center view. Delete callouts: C101 and R102.

Page 25. Fig. 19. Bottom view. Delete callouts: C101 and R102.

Page 26. TRANSMITTER RT-6 TROUBLE-SHOOTING CHART. In the Probable Cause column, change line 9 "Open C101 or C116" to read: Open C116.

Page 26. TRANSMITTER RT-6 TROUBLE-SHOOTING CHART. Add the following at the end of the chart:

SYMPTOM	PROBABLE CAUSE	REMEDY
Spurious oscillations.	C119 open or shorted	Replace
	C118 shorted to ground	Replace

Page 33. REPLACEMENT PARTS LISTS. Section I. Change Ref. No. .C13 to read:

Ref. No.	Contractor's Drawing & Part Number	JAN Type	Description
C13	921R123	CC30SL560K	CAPACITOR, FIXED, CERAMIC DIELECTRIC; tubular type; 56uuf <u>+10%</u> ; 500 vdcw

Page 35. REPLACEMENT PARTS LISTS. Section I. Change Ref. Nos. C50, I2, I3 and PL6 to read:

C50	921R727	CM20BZ415	CAPACITOR, FIXED, CERAMIC DIELECTRIC; tubular type; 100uuf <u>+5%</u> ; 500 vdcw
I2	434C101		DIAL TUNING

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Ref. No.	Contractor's Drawing & Part Number	JAN Type	Description
I3	401V757		INDICATOR, FREQUENCY CHANNEL: with red and blue windows and rack gear
PL6	428B132		CONNECTOR, PLUG: 4 male contacts; plug only

Page 37. REPLACEMENT PARTS LISTS. Section I. Change Ref. Nos. T7, T8 and T9 to read:

T7	424B121		TRANSFORMER, INTERMEDIATE FREQUENCY: 455 kc; input; iron core; double tuned; with shield; includes two capacitors
T8	424B121		TRANSFORMER, INTERMEDIATE FREQUENCY: 455 kc, interstage; iron core; double tuned; with shield; includes two capacitors
T9	424B121		TRANSFORMER, INTERMEDIATE FREQUENCY: 455 kc, output; iron core; double tuned; with shield; includes two capacitors

Page 38. REPLACEMENT PARTS LISTS. Section II. Delete Ref. No. C101.

Page 38. REPLACEMENT PARTS LISTS. Section II. Change Ref. Nos. C102 and C104 to read:

C102	921R121	CC20SL470K	CAPACITOR, FIXED, CERAMIC DIELECTRIC: tubular type; 47uuf <u>+10%</u> ; 500 vdcw
C104	921R123	CC30SL560K	CAPACITOR, FIXED, CERAMIC DIELECTRIC: tubular type; 56uuf <u>+10%</u> ; 500 vdcw

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Page 38. REPLACEMENT PARTS LISTS. Section II. Add the following Ref. Nos. after Ref. No. C116:

Ref. No.	Contractor's Drawing & Part Number	JAN Type	Description
C117	921R152		CAPACITOR, FIXED, CERAMIC DIELECTRIC: disc type; .01uf -20% +80%; 450 vdcw
C118	921R227	CM20241J	CAPACITOR, FIXED, MICA DIELECTRIC: molded type; 240uuf +5%; 500 vdcw
C119	921R621	CC20CK101C	CAPACITOR, FIXED, CERAMIC DIELECTRIC: tubular type; 1uuf +0.25uuf; 500 vdcw

Page 38. REPLACEMENT PARTS LISTS. Section II. Change Ref. Nos. E101, E102 and E104 to read:

E101	465A121		LAMP, GLOW: neon; 1/25W; ionizing potential 47-55v rms (contractor's color code red or blue)
E102	465A121		LAMP, GLOW: neon; 1/25W; ionizing potential 47-55v rms (contractor's color code red or blue)
E104	465A121		LAMP, GLOW: neon; 1/25W; ionizing potential 47-69v rms (contractor's color code red, blue, yellow or green)

Page 39. REPLACEMENT PARTS LISTS. Section II. Change Ref. Nos. LR101 and PL5 to read:

LR101	424A156		COIL, RADIO FREQUENCY: 125uh; wound on 560-ohm +10% $\frac{1}{2}$ w fixed composition resistor
PL5	428B131		CONNECTOR, PLUG: 6 male contacts

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Page 39. REPLACEMENT PARTS LISTS. Section II. Delete Ref. No. R102

Page 39. REPLACEMENT PARTS LISTS. Section II. Add the following Ref. No. after Ref. No. R112:

Ref. No.	Contractor's Drawing & Part Number	JAN Type	Description
R113	906R578	RC20BF105K	RESISTOR, FIXED, COMPOSITION: 1 meg-ohm $\pm 10\%$; $\frac{1}{2}W$.

Page 40. REPLACEMENT PARTS LISTS. Section III. Change Ref. Nos. G205 and E201 to read:

G205	408K107		CAPACITOR, FIXED, CERAMIC DIELECTRIC: disc type; .5uf $\pm 5\%$; 100 vdcw
E201	465A121		LAMP, GLOW: neon 1/25W; ionizing potential 55-59v rms (contractor's color code yellow)

Page 41. REPLACEMENT PARTS LISTS. Section III. Change Ref. No. S03 to read:

S03	409B175		SOCKET, CABLE: 6 female contacts
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Page 41. REPLACEMENT PARTS LISTS. Section IV. Change Ref. Nos. PL3, S05 and S06 to read:

PL3	428B133		CONNECTOR, PLUG: 6 male contacts
S05	409B174		CONNECTOR, SOCKET: 6 female contacts
S06	409B160		CONNECTOR, SOCKET: 4 female contacts

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Page 42. REPLACEMENT PARTS LISTS. Section V. Add the following Ref. No. at the end of Section V:

Ref. No.	Contractor's Drawing & Part Number	JAN Type	Description
S08	409A122		CONNECTOR, PLUG: 6 female contacts

468P111

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