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T. O. 31R2-4-18-16

HANDBOOK
PREVENTIVE MAINTENANCE
INSTRUCTIONS

HAMMARLUND RADIO RECEIVER

MODELS SP-600-JX-17 AND SP-600-JX-21

REVISION
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<i>Page No.</i>	<i>Revised</i>
i	27 January 1961
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TABLE OF CONTENTS

Number	Title	Page
1. 1(6)	Deleted	
1. 2(6)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Power Supply	11
1. 3(2)	Deleted	
1. 4(3)	Deleted	
1. 5(6)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Intermediate-Frequency Rejection Ratio	27
1. 6(6)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Image Rejection Ratio	33
1. 7(9)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Audio Power and Intermediate-Frequency Output	39
1. 8(6)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Heterodyne Interference Check	45
1. 9(15)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Automatic Volume Control Action	49
2. 1(5)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Operating Instructions	55
2. 2(5)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Alignment	59
2. 3(5)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Variable-Frequency Heterodyne Oscillator Alignment	71
2. 4(5)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Radio-Frequency Tuner Alignment	79
2. 5(5)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Tuning Meter Adjustment	89
3. 1(1)	Radio Receivers SP-600-JX-21 and SP-600-JX-17, 750-Hour Inspection	95

LIST OF ILLUSTRATIONS

Number	Title	Page
1-1	Deleted	
1-2	Deleted	
1-3	Radio Receivers SP-600-JX-21 and SP-600-JX-17, Bottom View	12
2-1	Radio Receiver SP-600-JX-17, Top View	61
2-2	Radio Receiver SP-600-JX-21, Top View of R-F Section.	64
2-3	Radio Receiver SP-600-JX-21, Top View of R-F Section.	74
2-4	Radio Receiver SP-600-JX-17, Top View.	75
2-5	Radio Receiver SP-600-JX-21, Top View of R-F Section	82
2-6	Radio Receiver SP-600-JX-17, Top View.	83

INTRODUCTION

1. PURPOSE

This handbook establishes standardized work methods and simplified step-by-step job instructions for the preventive maintenance of this equipment. The individual job instructions, in the form of "Routines," are presented simply and logically to permit their ready use by maintenance personnel. Adequate performance standards are included.

2. SCOPE

These job instructions are applicable to and will be used by all activities maintaining the equipment.

3. SPECIAL INSTRUCTIONS

This handbook will be used as a portion of the standardized communications electronics maintenance inspection system. Personnel using this handbook shall notify supervisory personnel immediately if satisfactory performance cannot be obtained.

SCHEDULE FOR ACCOMPLISHMENT OF ROUTINES

(Intervals are in days, for example "30" means "every thirty days. ")

Routine Number	CONTINUOUS OPERATION				TACTICAL OPERATION				STANDBY OPERATION			
	Temperate	Arctic	Tropic	Desert	Temperate	Arctic	Tropic	Desert	Temperate	Arctic	Tropic	Deser
1. 1(6)					Deleted							
1. 2(6)	7	7	5	5	7	7	5	5	30	30	15	10
1. 3(2)					Deleted							
1. 4(3)					Deleted							
1. 5(6)	7	7	5	5	7	7	5	5	30	30	15	10
1. 6(6)	7	7	5	5	7	7	5	5	30	30	15	10
1. 7(9)	7	7	5	5	7	7	5	5	30	30	15	10
1. 8(6)	7	7	5	5	7	7	5	5	30	30	15	10
1. 9(15)	7	7	5	5	7	7	5	5	30	30	15	10
2. 1(5)	*	*	*	*	*	*	*	*	*	*	*	*
2. 2(5)	*	*	*	*	*	*	*	*	*	*	*	*
2. 3(5)	*	*	*	*	*	*	*	*	*	*	*	*
2. 4(5)	*	*	*	*	*	*	*	*	*	*	*	*
2. 5(5)	*	*	*	*	*	*	*	*	*	*	*	*
3. 1(1)	30	30	30	30	30	30	30	30	60	60	30	30

* Accomplishment to be directed by maintenance supervisor

PERFORMANCE TEST - RADIO RECEIVERS
SP-600-JX-21 AND SP-600-JX-17

Routine 1.1(6), original pages 1 thru 10, deleted

PERFORMANCE TEST - RADIO RECEIVERS SP-600-JX-21 AND
SP-600-JX-17, POWER SUPPLY

1. GENERAL INFORMATION

- a. The purpose of this routine is to determine if the power supply of Radio Receiver SP-600-JX-21 or Radio Receiver SP-600-JX-17 is operating properly.
- b. The approximate time required to do this routine is 1-1/2 man-hours.
- c. Report all indications that are not within tolerance to the maintenance supervisor for corrective action.

2. TEST EQUIPMENT REQUIRED

- a. Multimeter AN/PSM-6

3. MATERIAL REQUIRED

- a. Screwdriver
- b. Resistor, 600-ohm, 2-watt, non-inductive

4. PROCEDURE

- a. Preliminary Procedure

- (1) Disconnect the power line plug of the radio receiver from the power source.
- (2) Disconnect the loudspeaker from the AUDIO OUTPUT terminals.
- (3) Disconnect the BFO, IFO, DIODE OUTPUT and AVC leads from their respective terminals.
- (4) Disconnect the antenna cable from the antenna input connector.
- (5) Remove the eight screws holding the radio receiver in the relay rack and remove the receiver from the rack.
- (6) Loosen the four thumb screws holding the top cover to the radio receiver and remove the cover.
- (7) Set the radio receiver on its side. Remove the seven machine screws holding the bottom plate to the radio receiver and remove the plate.
- (8) Insert the power line plug of the radio receiver into the 115-volt, 60-cycle power source.
- (9) Connect the 600-ohm, 2-watt resistor between the AUDIO OUTPUT terminals on the rear of the radio receiver.
- (10) Set the FUNCTION switch on Multimeter AN/PSM-6 to the DCV-20K Ω /V position.
- (11) Set the RANGE switch on Multimeter AN/PSM-6 to the $\Omega \times 10000/500$ position.
- (12) Insert the red test lead into the red jack of the multimeter and the black test lead into the black jack of the multimeter.
- (13) Slip a red alligator clip over the red test prod point and a black alligator clip over the black test prod point.
- (14) Connect the black test lead to the receiver chassis and the red test lead to the junction of L-51, L-52, and C-161B (figure 1-3).

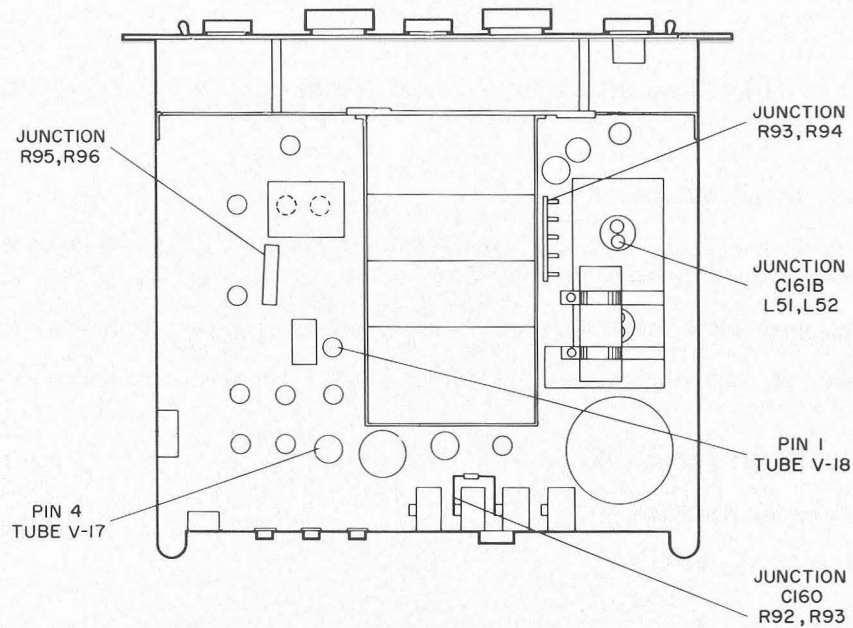


Figure 1-3. Radio Receivers SP-600-JX-21 and SP-600-JX-17, Bottom View

b. Measure the output voltages of the radio receiver power supply as follows:

- (1) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 10. The indication on the multimeter should be between 270 and 290 volts.

WARNING

When the RF GAIN control is not in the OFF position, dangerous voltages are present in the unit under test. In succeeding steps of this routine, observe all safety precautions when this control is not set to OFF.

- (2) Rotate the RF GAIN control counterclockwise to 0. The indication on the multimeter should be between 295 and 315 volts.
- (3) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.
- (4) Set the RANGE switch on the multimeter to the $\Omega \times 1000/250$ position.
- (5) Remove the red test lead from the junction of L-51, L-52, and C-161B and connect it to pin 4 of tube V-17 (figure 1-3).
- (6) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 10. The indication on the multimeter should be between 220 and 235 volts.
- (7) Set the RANGE switch on the multimeter to the $\Omega \times 10000/500$ position.
- (8) Rotate the RF GAIN control on the radio receiver counterclockwise to 0. The indication on the multimeter should be between 255 and 275 volts.
- (9) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.
- (10) Set the RANGE switch on the multimeter to the $\Omega \times 1000/250$ position.

- (11) Remove the red test lead from pin 4 of tube V-17 and connect it to pin 1 of tube V-18 (figure 1-3).
- (12) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 0. The indication on the multimeter should be between 145 and 155 volts.
- (13) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.
- (14) Remove the red test lead from pin 1 of tube V-18 and connect it to the radio receiver chassis (ground). Remove the black test lead from the radio receiver chassis (ground) and connect it to the junction of C-160, R-92, and R-93 (figure 1-3).
- (15) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 0. The indication on the multimeter should be between 50 and 53 volts.
- (16) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.
- (17) Set the RANGE switch on the multimeter to the $\Omega \times 100/50$ position.
- (18) Remove the black test lead from the junction of C-160, R-92, and R-93 and connect it to the junction of R-95 and R-96 (figure 1-3).
- (19) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 0. The indication on the multimeter should be between 9.5 and 10.5 volts.
- (20) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.
- (21) Set the RANGE switch on the multimeter to the $\Omega \times 1/25$ position.
- (22) Remove the black test lead from the junction of R-95 and R-96 and connect it to the junction of R-93 and R-94 (figure 1-3).
- (23) Rotate the RF GAIN control on the radio receiver clockwise from the OFF position to 10. Set the AVC-MAN switch on the radio receiver to the MAN position. The indication on the multimeter should be between 0.95 and 1.0 volt.
- (24) Rotate the RF GAIN control on the radio receiver counterclockwise to the OFF position.

c. Concluding Procedure

- (1) Remove the multimeter test leads from the radio receiver.
- (2) Remove the 600-ohm, 2-watt resistor from the radio receiver AUDIO OUTPUT terminals.
- (3) Disconnect the power line plug of the radio receiver from the power source.
- (4) Replace the bottom plate on the radio receiver and tighten the seven machine screws.
- (5) Replace the top cover of the radio receiver and tighten the four thumb screws.
- (6) Place the radio receiver in the relay rack and tighten the eight holding screws.
- (7) Connect all the cables and wires to their respective terminals on the rear of the radio receiver.
- (8) Insert the power line plug of the radio receiver into the 115-volt, 60-cycle power source.

PERFORMANCE TEST - RADIO RECEIVERS SP-600-JX-21 AND
SP-600-JX-17, SENSITIVITY

Routine 1.3(2), original pages 15 thru 20, deleted

PERFORMANCE TEST - RADIO RECEIVERS SP-600-JX-21 AND
SP-600-JX-17, SELECTIVITY

Routine 1.4(3), original pages 21 thru 26, deleted

