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COMPILED BY
A.R.B.

TMC SPECIFICATION NO. S 205

TITLE: SP-600-J MODIFICATION JOB 197

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Purpose: The purpose of this modification is to convert existing Hammarlund SP-600-J receivers to conform with those now used in the DDR system.

Mechanical Modifications:

1. NAME PLATE

If the existing receiver had a silk screened name plate in the upper right hand corner, the new name plate should be installed. If necessary the old screening painted over. The name plates will be found in Bag No. N-1. Reference for drilling holes for name plate will be found on Dwg.# ID-105. Screws for mounting the name plate will be found in Bag No. H-1.

2. REAR CHASSIS PANEL:

References should be made to accompanying material showing existing panel and rear panel after modified.

SPARE FUSE HOLDER: The spare fuse holder is to be mounted on the rear chassis, positioned as shown in Dwg. A252A. The screws for mounting the plates will be found in Bag No. H-1.

The spare fuse cover is held to the chassis by placing a tapped 8-32 hole at the position indicated on A252A. The spare fuse plates and covers will be found in Bag No S-1 along with the spare fuses.

OPERATIONAL FUSE NAME PLATE: This name plate is to be mounted

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under the existing fuse holders. As noted on the plate, the top fuse is now used in the B- leg and connections made accordingly. One leg of the fuse going to gnd. The other leg going to terminal 11 of the power transformer after the gnd. on this terminal has been removed. See connection diagram Fig 14 in supplement A instruction book. The plates and fuses and included in Bag No. S-2.

INSTALLATION OF TERMINAL BOARD E3: Terminal board E3 is mounted directly over the audio output terminal board existing on the receiver. E3 replaces the terminal board which is now directly below the audio output terminal. The old terminal board should be removed, and the hole left by its vacancy covered by a suitable etched aluminum plate. To install the new terminal board it will be necessary to make a cutout on the chassis. The information for this cutout will be found on Dwg ~~8-169~~. The terminal board will be found in Bag No. T-1.

INSTALLATION OF HFO OUTPUT SUPPORTING BRACKET:

In the existing receiver the HFO OUTPUT jack is located on the HFO control box. To facilitate connections in a rack, the output jack is mounted on a small bracket over the rear face. A co-axial cable then connects from the HFO box to the jack. The bracket should be mounted as shown on Dwg. MS-150. The brackets have been shipped mounted on the end of the co-axial cable from the HFO control box. The old control box now existing on the receiver should be discarded. The new control box will later be wired to the new terminal board E13.

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3. LINE FILTER CONDENSER:

In the existing receiver a bathtub condenser C125 A-B is used for line filtering. This condenser is to be removed and .01 mica capacitors installed directly on the line input at the Ac receptacle. Grounding lugs are placed under each mounting screw of the receptacle. These capacitors are noted as C152 and C168 on the new connection diagram. Capacitors and hardware will be found in Bag No. C-1.

4. SCREEN DROPPING RESISTORS R72 and R73:

In the modification the screen grids of V9 and V10 will be derived from these resistors. R72 7500 ohms 20 watts and R73 108000 ohms 20 watts are mounted in the same holes previously employed to mount condenser C125A-B which was just removed. See Fig. 10 of main instruction book as to manner. The 7500 ohm resistor is mounted nearest the AC receptacle.
resistor R72 will be found in Bag No R-1
resistor R73 will be found in Bag No R-2

5. TERMINAL BOARD E13:

Carefully remove all connections to E13 (located on underside of chassis near filter chokes). Install new E13 on the same mountings of the old E13. New E13 will be found in Bag No. T-2

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6. BFO ASSEMBLY:

Since difficulty has been experienced in changing the BFO tube, due to HFO control box, a BFO assembly has been made which will facilitate tube change. The BFO assembly will be found in Bag No. B-1. It is mounted with the same screws that holds the RF deck over the turrer compartment. The assembly is mounted so that the tube of the assembly is parallel and on a plane with V1 of the RF deck. The BFO tube should be removed from its regular socket and plugged into the assembly. The pin end of the cable is th n plugged into the socket vacated by the tube. After the installation the BFO should be re-calibrated with a 455kc crystal to offset capacities introduced by the cable. Positioning of the assembly is shown on Dwg. 1-468.

9 ANTENNA INPUT CONNECTOR:

The existing receiver has an antenn input for twin lead cable, since most installations require unbalanced input the ant nna input receptacle has been changed to the S0239 type. Remove the existing plug and place a ground lug on one of the internal wires connect the other wire to the S0239 plug and install in the receiver. The ground lug may be caught with the same screw which mounts the plug. The S0239 plug and gnd.lugs will be found in Bag No. P-1

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ELECTRICAL MODIFICATIONS

While an attempt will be made to describe fully the circuit modifications involved, liberal reference should be made to the old connection diagram Fig 12 and the connection diagram in supplement A Fig 14. Additional help will be found in the general instruction book which contains many photographs .

Parts and wiring on the connection diagrams have been inscribed in red to call attention to the sections involving changes.

1. MODIFICATION OF T5 (houses L 41 and L 42)

Remove cover. refer to Eng. sketch 1-464. Relocate C126 as shown and cut jumper as indicated. Condenser C126 is supplied with a smaller case and will be found in Bag No. C-2.

2. MODIFICATION OF T2 (houses L 33 and L 34)

Remove cover. Refer to Eng sketch 1-465. Cut out resistor indicated.

3. RESISTORS R72 and R73:

Place shielded jumper between resistor terminals nearest side chassis. Ground upper terminal of R73 10,000 ohms to ground lug under mounting screw. Connect length of Red/Green wire to open terminal of R72 and lead to terminal 1 of E13. Terminal numbers are indicated on connection diagram supplement A. Remove resistors R53 and R48 which run from terminal board E17 to pin 6 of V9&V10. Connect Orang /Green jumper b twe n pin 6 V9 and pin 6 V10. Run Orange/Gr en lead from junction of R72 and R73 to pin 6 of V10.

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4. UNDER CHASSIS MODIFICATION OF T 5

Refer to old and new connection diagrams. On the old diagram the lower inboard terminal is grounded (starred in red). On the new connection diagram this terminal is ungrounded and C145 is connected to it. C145 runs between this terminal and a small terminal strip E6. From E6 a shielded microphone cable runs to pin 7 of V16. At the present time the existing C145 runs between pin 7 of V16 and pin 5 of V12, this condenser should be removed before the microphone cable is attached to pin 7 of V16.

Of course the shield of the cable is grounded at the tube socket of V16. The cable assembly will be found in Bag No. T-3.

Add R 113, 330K $\frac{1}{2}$ w. from red circled terminal on new connection diagram of T5 to ground. This resistor will be found in Bag No. R-7.

5. UNDERSIDE MODIFICATION OF T2

Refer to both connection diagrams. On the old diagram the red starred terminal has a white/blue wire on it, cut the wire at the point where it enters the cable harness and remove the portion going to the starred terminal. Then connect a white/black wire between the starred terminal and post 13 of E17 as shown on the new connection diagram. The white/blue wire which was cut as it enters the cable harness originally terminated on the R.F. gain control. Follow this white/blue wire as it leaves the gain control and runs into the cable harness near E13. This white/blue wire from the gain control should now terminate on pin 6 of E13, This will necessitate cutting the

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white/blue wire again leaving enough slack for it to reach post 6 of E13.

6. TERMINAL BOARD E 13

All the wires which originally terminated on the old E13 board still terminate on the new E13 board. A clear description will be found on Eng. sketch 2-466. In the supplement A instruction book Fig. 15 is the connection diagram for the tuning unit. This picture shows the terminal connection of the wires which come to the underside alongside the turret compartment for connection to E13. Notice that the White/black wire which terminates on post 8 of E13 does so by means of a ground lug on the end of the wire. This same practice should be followed on the modification.

7. R 34

At the present time R34 100K $\frac{1}{2}$ w. runs between posts 1 and 3 of E17. This resistor has now been changed to R53 10K $\frac{1}{2}$ w. R53 will be found in Bag No. R-3

8. WIRING TERMINAL BOARD E 3 (Diode Output- AVC)

(a) DIODE OUTPUT:

Mount E4, single terminal strip, under bracket of E 15 (just below post No. 1). In the present set R64 47K $\frac{1}{2}$ w. runs between posts 2 and 3 of E15. Remove this resistor and replace with identical resistor found in Bag No. R-4. This replacement will run from post 1 of E15 to the terminal board E 4 just installed. (see new connection diagram). Run Green/red wire from E4 to plus terminal of Diode Output on E3. Run Green/white wire from post 3 of E15

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TO minus connection of Diode Output on E3.

(b) AVC

Remove C140 1000uuf. between post 4 of E16 and ground.

Remove R61 1 meg. $\frac{1}{2}$ w. from post 2 of E16 to ground. Replace R61 from Pin 2 V14 to ground. Bag No. R-8.

Remove resistor R60 1 meg. $\frac{1}{2}$ w. from between posts 2 and 4 of E16

Remove jumper which goes from pin 2 of V14 to post 2 of E16.

Replace, R60 Bag No. R-5, between pin 2 of V14 and post 2 of E16.

In other words the jumper is replaced by R60.

Connect R111 100K $\frac{1}{2}$ w. in position previously occupied by R60 that is between posts 2 and 4 of E16. R 111 is in Bag No. R-5

Install C 140 430uuf in place previously occupied by R61, from post 2 of E16 to Ground. Bag No. C-3.

Install C 164 430 uuf. in space previously occupied by C140, from post 4 of E16 to ground. Bag No. C-3.

Run white/green wire from minus terminal AVC on E3 to post 4 of E16.

Ground G terminal of AVC on E3.

ADDENDUM

Ground pin 2 V7 Gate Tube, Add R112 390 ohms from cathode pin 7 V7 to ground