

MODIFICATION OF TMC RECEIVER TYPE FFR  
RCAF Receiver Sub-assy R-5007/FFR-502

PURPOSE: The purpose of this specification is to describe the circuit changes which permit:-

- (a) reduction of hum level in the TMC Model FFR Receiver (RCAF R-5007/FFR-502)
- (b) reduces current drain
- (c) reduces noise
- (d) allows VR regulated tube to operate within its rated tolerances.

COMPONENTS REQUIRED:

1	in number	5000 ohms	20-watt Resistor, RW-110-30
1	" "	33K	1/2-watt Resistor, RC20GF333K
1	" "	510 ohm	1-watt Resistor, RC30GF511K
1	" "	1.5 k	2-watt Resistor, RC42GF152K

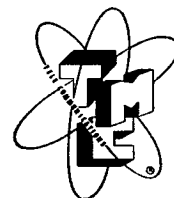
MODIFICATION NO. 1

PROCEDURE:

Refer to Schematic Diagram Model FFR - CK - 185

- (1) Move connection Z now connected between the chokes L100 and L101 to the load side of L101.
- (2) Replace R148 (2750 ohm 20-watt resistor) with the 5000 ohm 20-watt resistor RW-110-30.
- (3) Replace P124 (68K resistor) with the 33K 1/2-watt resistor RC20GF333K.
- (4) Replace R126 (As modified by Specification S223 which called for 240 ohm resistor) with the original 510 ohm 1-watt resistor RC30GF511K.
- (5) Specification S223 called for the removal of R127. R127 should be replaced using a 1.5 k 2-watt resistor RC42GF152K.
- (6) Disconnect Connection No.2 of Transformer T104 from the screen of V105 and connect to the plate supply end of R127 which is connected to Z. This connects the plate of V105 direct to the HT and allows screen voltage to be dropped through R127.

.....2



MODIFICATION OF TMC RECEIVER TYPE FFR  
(continued)

**RESULTS OF MODIFICATION:** The drive to the final tube 6AQ5 (V105) is cut down by reducing the value of R124 which greatly lessens the noise in the output. In order to bring the bias of V105 above the driving voltage, the cathode resistor R126 is increased to 510 ohms and by connecting the high tension direct to the plate voltage rather than through the dropping resistor R127 V105 is allowed to operate in its normal current range. By replacing R148 with a 5000 ohm 20-watt resistor, the VR tube (V109) operates within its current rating and acts more effectively as a regulator for the 150 volt positive line.

The following average voltages and currents can be expected after the above modification, with the RF gain on full:-

6AQ5 Screen Voltage	- 250 volts
DC voltage	- 260 volts
VR Tube voltage	- 150 volts
6AQ5 Plate voltage	- 260 volts
6AQ5 Cathode Voltage	- 165 volts
Total DC drain	- 85 milliamps
Output	- 3.0 watts
Noise	- 40 db below 0 dbm
Current through R148	- 23.2 milliamps
Current through 6AQ5	- 32 milliamps.

MODIFICATION NO. 2

**PURPOSE:** To provide further filtering of H.T. line to Audio-Limiter tube V104 and reduce Noise fed into Output tube V105.

**COMPONENTS REQUIRED:** Nil

**PROCEDURE:** Refer to Schematic Drawing CK185 and Drawing No.ID113.

Remove R123 (120K 1/2 watt Resistor). Connect a wire from the junction of R124 and C120B on Audio Terminal Board (Detail A Drawing ID113) to the terminal carrying the RED-WHITE lead on L102. on the Detector Terminal Board (Detail B Drawing ID113).

RESULTS OF MODIFICATION:

This modification provides further filtering of the H.T. by supplying the plate of V104 from the + 150V line through L102. By removing R123 the correct H.T. to the plate of V104 is maintained.