Add ndum N . 1

MODIFICATION OF RECEIVER SUB-ASSEMBLY R5007/FRR-502 FOR SQUELCH OPERATION

PURPOSE:

1. This modification provides for automatic muting of the audio output until th receiver is tuned to a R.F. Signal of pre determined amplitude.

THEORY OF OPERATION:

2. A control tube is introduced into the first audio frequency amplifier grid circuit, to control the bias of this stage. The control tube is operated by the amplitude of the negative D.C. voltage developed across the second det ctor load resistance. With signals below a pre determined and adjustable level, th first audio tube is maintained in a current "cut off" condition, and in cons quence, th re is no audio output from the receiver. With signal levels in excess of the pre determined level, the excess bias is removed from the first audio amplifier, which then operates in a normal manner.

CIRCUIT DESCRIPTION:

3. Reference should be made to Fig. 1 for schematic diagram. The Squelch control tube V110 introduced by this modification is controlled by the rectified voltag appearing across the second detector load resistance R118. This negative voltage is filtered by R157, C161 to remove the audio frequency components of the signal, and applied than to the grid of V110 a 6AB4 tube.

With applied signal of amplitude less than threshold, V110 is in a conducting condition as the cathode voltage is negative with respect to the grid, and the plate current causes a voltage drop across the plate load resistor R153, this causes th grid of V104 to fall below its cathode voltage sufficiently to cut the tub off.

As input signal level is increased, the negative voltage applied to th grid of the control tube increases, and the plate current decreases, allowing th grid of V104 to approach normal operating condition.

CIRCUIT DESCRIPTION: (Cont'd)

With V110 in the "cut off" condition the plat voltage ris s to its maximum at which point the diode section of V104 limits and prevents its grid from b ing driven positive. V104 operating bias voltage is developed in the grid circuit resistors R160, R158.

In operation the rate of change of bias of V104 is such that a 3 db change in signal level is sufficient to change the audio output level from-30 dbm to +30 dbm, its full rated power.

To maintain the overall fidelity of the audio frequency section of the receiver, aft r incorporation of this modification the following changes are made:

(a) V104 plate load resistor, R124 is changed in value.

(b) C125 audio coupling capacitor is changed in value.

(c) C126, V105 cathode resistor by pass capacitor is deleted.

(d) C127 high frequency by pass is deleted.

PARTS RENDERED REDUNDANT BY THIS MODIFICATION:

4.(a) R124, 33,000 ohms 1/2 watt

(b) C126 50 uf 150 V.D.C.W., electrolytic

(c) C127 .005 500 V.D.C.W.

5. Parts required for this modification (See Table 1. Parts List ML-10032).

6. Refer to: Drawing CK 10095 D

Specification S10008B