

DATE 21 May 1954

SH. 1 OF 2

COMPILED BY
GTO

TMC SPECIFICATION NO. S-209

TITLE: Modification of Tone Demodulator, Model AMD-1

JOB

APPROVED G.T.O.

(USAF)

A. PURPOSE

The purpose of this specification is to improve the linearity of the input level of the Rectified vs the Control Tone of the Tone Demodulator, Model AMD-1.

B. COMPONENTS REQUIRED

<u>SYM.</u>	<u>DESCRIPTION</u>	<u>TMC PART NUMBER</u>
R107,117	Resistor, fixed: composition; 82,000 ohms, \pm 5%, $\frac{1}{2}$ watt.	RC20GF823J

C. WIRING PROCEDURE

1. Remove R105, RESISTOR	RC20GF823J
2. Remove R107, "	RC20GF563J
3. Replace R107, with RESISTOR	RC20GF823J
4. Remove R115, RESISTOR	RC20GF154J
5. Remove R117, RESISTOR	RC20GF563J
6. Replace R117 with RESISTOR	RC20GF823J

D. TEST PROCEDURE

Mount the modified AMD to the FFR Receiver rear panel and connect power supply lead and CA-149 interconnecting cable, as before.

Connect a 400 cycle audio tone to BFO tone terminal located at rear of AMD-1; Monitor BFO DC output voltage with a DC vacuum tube voltmeter. Off-set the VTVM so that mid-scale corresponds to zero input volts. Set the input tone level to 0.36 volts (-7 dbm) and adjust the gain control R101 so that DC output equals zero. Change tone level to 0.80 volts (0 dbm), and output DC voltage should swing to -3.7 volts. A -20 dbm (0.08 volts) tone level should now cause the VTVM to indicate +3.7 volts. Similarly, if the BFO channel gain control R101 is adjusted to -27 dbm (0.036 volts) for zero DC output, then a 20 dbm dynamic input tone, i.e., -20 dbm to -40 dbm (0.08 volts to 0.008 volts) will cause the DC output to swing from -3.7 to +3.7 volts.

A similar test is performed on the HFO channel. The DC output for any 20 dbm dynamic input (0 dbm across 600 ohms reference and maximum input) will cause a symmetrical voltage change about zero volts. A nominal value of 2.5 volts magnitude will be obtained. If this nominal value is greater than 2.5 volts, it can be reduced by the DC adjust control, R120. Furthermore, with this control HFO shifts can be adjusted when desired.

(con't.)

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D. TEST PROCEDURE (con't.)

Tabulated test data taken from sample AMD-1.

INPUT TONE LEVEL		DC OUTPUT VOLTAGE	
		BFO Channel	HFO Channel
dbm	volts		
0	0.8	-2.5V	-3.7V
-7	0.36	0*	0*
-20	0.08	+2.5V	+3.7
-20	0.08	-2.5V	-3.7V
-27	0.036	0*	0*
-40	0.008	+2.5V	+3.7V
		*Channel gains adjusted for zero output voltage.	