

DATE 9/2/53
SH. 1 OF 7
COMPILED BY
A.R.B.

TMC SPECIFICATION NO. S-175

TITLE:

JOB

APPROVED

TEST INSTRUCTIONS FOR MODIFIED
HAMMARLUND RECEIVERS

DATE 9/2/53
SH. 2 OF 7
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TMC SPECIFICATION NO. S-175

TITLE:

INDEX

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TITLE	PAGE
PURPOSE AND DESCRIPTION	3
TEST EQUIPMENT REQUIRED	4
INSTRUMENT LAYOUT	4
TEST SEQUENCE AND PROCEEDURE	5
TEST REPORT SHEET FORM DMK* TRS	7

DATE <u>9/2/53</u>	TMC SPECIFICATION NO. S-175	
SH. <u>3</u> OF <u>7</u>		
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The TMC MODEL BMK-4 is a modified Hammarlund Communications Receiver covering the frequency range .54-54 mc. in 6 bands. The purpose of the modification is to permit the use of a pair of Receivers in Diversity Reception; either in conjunction with other TMC units or in simple combination.

Basically the modification permits each receiver to be driven by external HFB, IFO and BFO signal voltages, such as by the TMC VOX unit. Under this condition both receivers are operating as "SLAVE" units. In addition one receiver (MASTER) may supply these signal voltages to the other receiver (SLAVE) in diversity operation. Terminal arrangements on the rear chassis provide for diode load combination and a common AVC buss to all receivers not providing intelligence.

A complete description of the modification is contained in TMC Specification No. S-167A

DATE 9/2/53
SH. 4 OF 7
COMPILED BY
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TMC SPECIFICATION NO. S-175

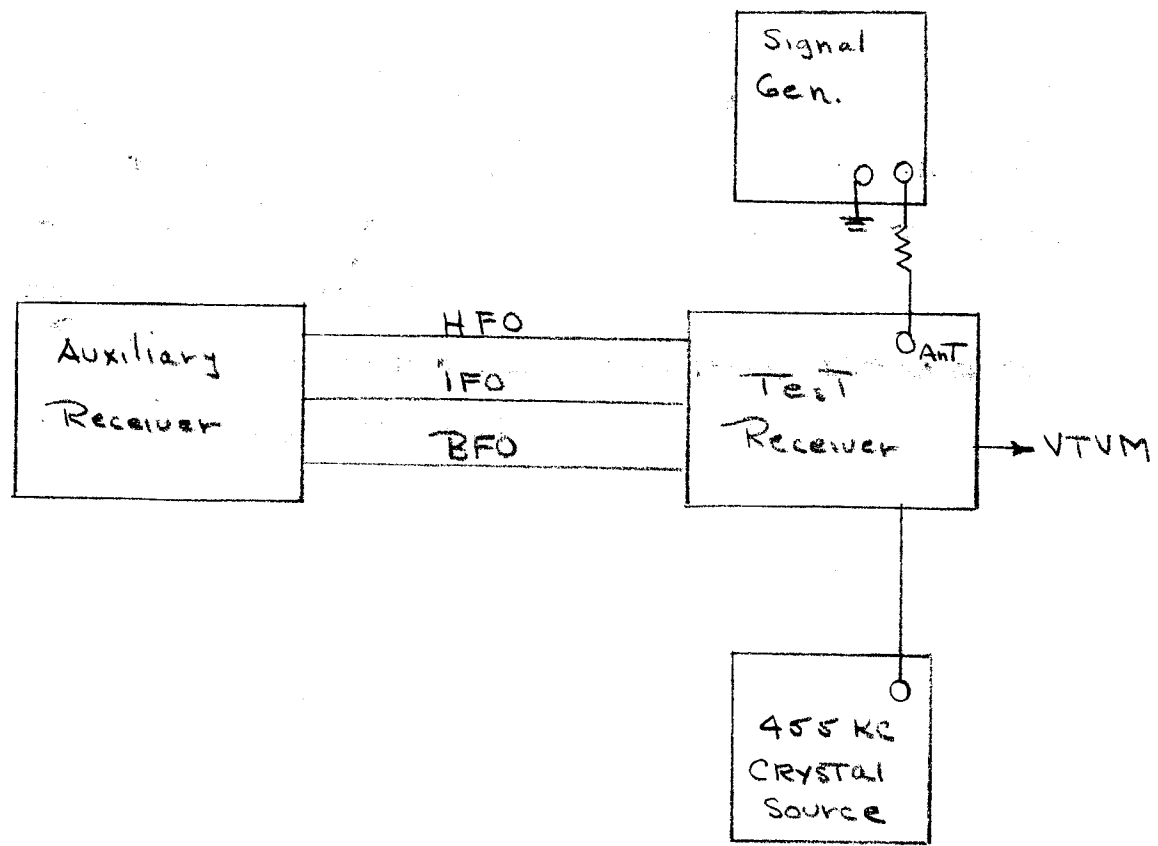
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1. R.F. & D.C. V.T.V.M. (Hewlett Packard 410B or Heath V6)
2. R.F. Signal Generator (2-5mc)
3. I.F. Freq. source. 455kc crystal controlled source.
4. HFO, IFO and BFO interconnecting cables.
5. Ear phones.
6. Previously tested receiver.

INSTRUMENT LAYOUT



DATE 9/2/53
 SH. 5 OF 7

TMC SPECIFICATION NO. S-175

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TITLE: TEST SEQUENCE AND PROCEEDURE

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1. GENERAL:

When the set is first turned on it should be observed closely for a few seconds to ascertain that there is no major wiring error to cause burn-out of components. To prevent burn-out of audio output transformer the audio output terminal on the receiver rear should be terminated in a 600 ohm load.

- 2. (a) Set receiver to 9 mc.
- (b) Feed 455 kc signal to pin 1 of V10(at 100 & 100K resistors)
- (c) Mod-CW sw. on Mod.
- (d) On phones a beat note will be heard between the fed signal and the internal bfo of the receiver. Set the BFO dial to zero and adjust BFO slug for zero beat.
- (e) Set HFO sw. to MASTER
- (f) With VTVM record R.F. voltages at HFO, IFO & IF output.

- 3. (a) Install interconnecting cables between receiver under test and auxiliary receiver, joining the HFO, IFO & BFO of each receiver.
- (b) Connect signal generator to antenna input with suitable terminating resistor.
- (c) Set auxiliary receiver to SLAVE.
- (d) Controls on test receiver as follows:
 - 1. Selectivity control at 3 kc.
 - 2. R.F. gain. Maximum
 - 3. Avc-Man Man.
 - 4. Mod-CW Mod.
 - 5. Master-Slave sw. to MASTER.
 - 6. Limiter off
 - 7. Send-Rec. Sw. to REC.
 - 8. Set BFO dial to zero.
 - 9. Connect VTVM across diode load terminals on rear of chassis. neg.

4. Osc. and R.F. Alignment.

- (a) Modulate signal generator with 400 cycles 30%
- (b) Proceed to align receiver in accordance with the following table. The receiver is to meet the specification of a sensitivity of 2.3 uv or better for a signal to noise ratio of 10 to 1 on all bands.
- (c) Table

Freq. Band Mc.	.54-1.35	1.35-3.45	3.45-7.4	7.4-14.8	14.8-29.7	29.7-54.0
RF & OSC ADJ L	.56	1.4	3.75	7.5	15.0	30.0
RF & OSC ADJ C	1.3	3.4	7.15	14.5	29.0	54.0

(d) Record on Form ~~ERS~~ 132

DATE 9/2/53
SH. 6 OF 7
COMPILED BY
ARB

TMC SPECIFICATION NO. S-175

TITLE: TEST SEQUENCE AND PROCEDURE

JOB

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5. DIVERSITY OPERATION

- (a) In this test the receiver under test will derive all the control voltages namely the HFO, FFO & BFO from the auxiliary receiver.
- (b) Tune in a signal at 9mc. on the receiver under test.
- (c) Place the M/S switches on the auxiliary receiver on MASTER the MOD-CW sw. on CW
- (d) Place the M/S switches on the receiver under test to SLAVE the MOD-CW sw. to MOD.
- (e) Tune the Auxiliary receiver to 9 mc. the receiver under test should retain its sensitivity in all respects. Vary BFO on auxiliary receiver and note a change of beat on the receiver under test.
- (f) Note that it may be necessary to re-tune the receiver under test slightly when used as Slave to obtain maximum sensitivity.
- (g) Signify proper operation on form ~~FORM~~ 132

THE TECHNICAL MATERIEL CORPORATION

Mamaroneck, New York

TEST DATA SHEET

*5-11 4/22/56
AMP*

Spec. No. S-~~111~~
Sheet 7 of 7

175

MODEL DMK _____

SERIAL NO. _____

HAMMARLUND SERIAL NO. _____

- TEST 2 (f)
1. BFO Calibration _____ OK
 2. HFO Output 9 mc. _____ volts R.F.
 3. IFO Output 9 mc. _____ volts R.F.
 4. IF Output _____ volts R.F.

TEST 4 (c) Sensitivity Table:

BAND	1		2		3		4	
FREQ. MC.	.56	1.3	1.4	3.4	3.75	7.15	7.5	14.5
UV.								

BAND	5		6	
FREQ. MC.	15.0	29.0	30.0	54.0
UV.				

- TEST 5. Diversity Operation
1. BFO _____ OK.
 2. Sensitivity _____ OK.

DATE _____

TESTED BY _____