DATE [redacted] 13, 1962	TMC SPECIFICATION NO. S - 736	
WRITTEN [redacted] BY [redacted]		
WTH COMPILED	CHECKED	TITLE: DDR-5B FINAL TEST PROCEDURE
APPROVED		

DDR-5B FINAL TEST PROCEDURE

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A. (1) TEST EQUIPMENT REQUIRED

a) Frequency Counter: H.P. Model 524C or equivalent.

b) Signal Generators: Measurements Corp. Model 82, or equivalent (2 required).

c) AC VTVM: Ballentine Model 314, or equivalent.

d) Spectrum Analyzer (TMC Model PTE-3).

e) 30 DB mixing pad. (described in Two-Tone Test)

f) 20 DB attenuator pad.

g) Simpson Model 260 VOM, or equivalent.

(2) PRELIMINARY - It is assumed that individual units have been tested and installed in the cabinet; that all cables have been connected, and that all inter-connections have been made.

(3) Remove the cover from the line filter located at the rear, left of the cabinet. Connect a three-wire power cable as follows:

a) WHITE lead to line lug.

b) GREEN lead to grounding screw.

c) BLACK lead to line lug.

* d) With a Simpson Model 260 VOM, check the voltage at the front panel convenience outlets; it should be 117 volts A-C. ±10%.

(4) Place switches and controls in the following positions:

* a) HFP-1: STANDBY switch at the rear to STANDBY. The blowers should commence to operate.

b) HAF-1: All switches to the OUT position.

c) HFA-1: (applies to Channel A and Channel B)

1. DETECTION switches: CW position

2. BFO controls: "0"

3. STANDBY - OPERATE switch: STANDBY

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4. LINE LEVEL controls: mid-position

d) HNF-1:

1. ON-OFF switch: OFF

2. NOTCH ADJUST: "0"

e) HFI-1: (applies to Channel A and Channel B)

1. MANUAL GAIN: Fully CCW, switch OFF

2. AGC DECAY: Fully CCW

3. IF BANDWIDTH selectors: 6 KC DSB

4. AFC ON - OFF: OFF

f) HSP-2: (only RCVR #1 position is effective for a single unit installation)

1. RCVR #1 SPEAKER CHANNEL selector: Channel A

2. RCVR #1 VOLUME control: fully CW

g) AFC-3:

1. SENSITIVITY: fully CW

2. TUNING KCS control: "0"

3. CARRIER SELECTOR switch: OSC

h) HFR-1:

1. BAND: Band 1 (2-3 mcs)

2. TUNE: 2.0 mcs

3. NOISE SILENCER - OFF - ALIGNMENT SIGNAL switch: OFF

4. TUNE - SYNC - OPERATE switch: OPERATE

B. CHECKOUT PROCEDURE

* (1) On HFA-1, place STANDBY - OPERATE switch to OPERATE. On HFP-1, the GREEN standby indicator will go out, and the YELLOW time delay indicator will come on. After time delay, approximately 60 seconds, the YELLOW indicator will go out and the RED operate indicator will come on. At the same time, the NIXIE lights on the HFS-1 will indicate.

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* (2) Pull out the HFP-1; with a Simpson Model 260 VOM, measure the voltage at test points TP-8001 and TP-8002. It should be 200 volts. If it is not, adjust the appropriate potentiomenters, R-8014 and/or R-8025, and lock the adjustments.

* (3) Check of Synthesizer, HFO Circuits and Stability:

This procedure consists of checking the synthesizer and the HFO tracking simultaneously, for all positions of the NIXIE selector switches. Faulty crystals in the HFS-1 will show up during this check.

a) Remove the 47 ohm termination from J-1313 on the HFR-1, and connect a frequency counter to this jack.

b) With the NIXIE selectors set at 0 2 . 0 0 0 0, and the RF tuner set for 2.0 mcs, place the TUNE - SYNC - OPERATE switch to the SYNC position.

c) Move the TUNE control around 2.0 mcs until the SYNC tone is heard; adjust the TUNE control for zero beat. The SYNC light may chatter during this operation. Place the TUNE - SYNC - OPERATE switch to OPERATE. the sync light will come on. The counter should read 3.75 mcs. Return the TUNE- SYNC - OPERATE switch to the SYNC position.

d) Place the 100 KC NIXIE selector in position 1; move the TUNE control until a zero beat is obtained at 2.1 mcs. Place the TUNE - SYNC - OPERATE switch to OPERATE. The counter should read 3.85 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

e) Continue this procedure through the remaining positions of the 100 KC selector switch. For each position, move the TUNE control to obtain a zero beat as follows:

100 KC SELECTOR	TUNE CONTROL	FREQ. COUNTER
2	2.2 mcs	3.95 mcs
3	2.3 mcs	4.05 mcs
4	2.4 mcs	4.15 mcs
5	2.5 mcs	4.25 mcs
6	2.6 mcs	4.35 mcs
7	2.7 mcs	4.45 mcs
8	2.8 mcs	4.55 mcs
9	2.9 mcs	4.65 mcs

f) Place the 10 KC selector switch to position 1; move the TUNE control to obtain a zero beat at 2.91 mcs. Place the TUNE - SYNC - OPERATE switch to OPERATE. The counter should read 4.66 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

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g) Continue this procedure through the remaining positions of the 10KC selector switch. For each position, move the TUNE control to obtain a zero beat as follows:

10 KC SELECTOR	TUNE CONTROL	FREQ. COUNTER
2	2.92 mcs	4.67 mcs
3	2.93 mcs	4.68 mcs
4	2.94 mcs	4.69 mcs
5	2.95 mcs	4.70 mcs
6	2.96 mcs	4.71 mcs
7	2.97 mcs	4.72 mcs
8	2.98 mcs	4.73 mcs
9	2.99 mcs	4.74 mcs

h) Place the 1 KC selector switch to position 1; move the TUNE control until a zero beat is obtained at 2.991 mcs. Place the TUNE - SYNC - OPERATE switch to the OPERATE position. The counter should read 4.741 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

i) Continue this procedure through the remaining positions of the 1 KC selector switch. For each position, move the TUNE control to obtain a zero beat as follows:

1 KC SELECTOR	TUNE CONTROL	FREQ. COUNTER
2	2.992 mcs	4.742 mcs
3	2.993 mcs	4.743 mcs
4	2.994 mcs	4.744 mcs
5	2.995 mcs	4.745 mcs
6	2.996 mcs	4.746 mcs
7	2.997 mcs	4.747 mcs
8	2.998 mcs	4.748 mcs
9	2.999 mcs	4.749 mcs

j) Place the .1 KC selector switch in position 1; move the TUNE control until a zero beat is obtained at 2.9991 mcs. Place the TUNE - SYNC - OPERATE switch to the OPERATE position. The counter should read 4.7491 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

k) Continue this procedure for the remaining positions of the .1 KC selector switch. For each position, move the TUNE control to obtain a zero beat as follows:

.1 KC SELECTOR	TUNE CONTROL	FREQ. COUNTER
2	2.9992 mcs	4.7492 mcs
3	2.9993 mcs	4.7493 mcs
4	2.9994 mcs	4.7494 mcs
5	2.9995 mcs	4.7495 mcs
6	2.9996 mcs	4.7496 mcs
7	2.9997 mcs	4.7497 mcs
8	2.9998 mcs	4.7498 mcs
9	2.9999 mcs	4.7499 mcs

1) Place the NIXIE selectors to 0 3 . 0 0 0 0. Move the TUNE control to obtain a zero beat at 3.0 mcs. Place the TUNE - SYNC - OPERATE switch to the OPERATE position. The counter should read 4.75 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

m) Place the BAND control to Band 2 (3-4 mc). Move the TUNE control to obtain a zero beat at 3.0 mcs. Place the TUNE - SYNC - OPERATE switch to the OPERATE position. The counter should read 4.75 mcs. Return the TUNE - SYNC - OPERATE switch to the SYNC position.

n) Continue this procedure for the remaining positions of the MC selector switch, conducting the check at the high and low ends of each band. In each case, the counter should read 1.75 mc above the selected RF frequency when the TUNE - SYNC - OPERATE switch is placed in the OPERATE position.

MC SELECTOR	BAND	TUNE CONTROL	COUNTER
4	2	4 mcs	5.75 mcs
4	3	4 mcs	5.75 mcs
5	3	5 mcs	6.75 mcs
6	3	6 mcs	7.75 mcs
6	4	6 mcs	7.75 mcs
7	4	7 mcs	8.75 mcs
8	4	8 mcs	9.75 mcs
8	5	8 mcs	9.75 mcs
9	5	9 mcs	10.75 mcs
10	5	10 mcs	11.75 mcs
11	5	11 mcs	12.75 mcs
12	5	12 mcs	13.75 mcs
12	6	12 mcs	13.75 mcs
13	6	13 mcs	14.75 mcs
14	6	14 mcs	15.75 mcs
15	6	15 mcs	16.75 mcs
16	6	16 mcs	17.75 mcs
16	7	16 mcs	17.75 mcs
17	7	17 mcs	18.75 mcs
18	7	18 mcs	19.75 mcs
19	7	19 mcs	20.75 mcs
20	7	20 mcs	21.75 mcs
21	7	21 mcs	22.75 mcs
22	7	22 mcs	23.75 mcs
23	7	23 mcs	24.75 mcs
24	7	24 mcs	25.75 mcs
24	8	24 mcs	25.75 mcs
25	8	25 mcs	26.75 mcs
26	8	26 mcs	27.75 mcs
27	8	27 mcs	28.75 mcs
28	8	28 mcs	29.75 mcs

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MC SELECTOR	BAND	TUNE CONTROL	COUNTER
29	8	29 mcs	30.75 mcs
30	8	30 mcs	31.75 mcs
31	8	31 mcs	32.75 mcs

* o) Place the NIXIE selectors to 1 5 . 0 0 0 0, the BAND control to Band 6 (12-16mc), and the TUNE control to 15 mcs. With the TUNE - SYNC - OPERATE switch at SYNC, obtain a zero beat. Place the TUNE - SYNC - OPERATE switch to OPERATE. Carefully move the TUNE control in both directions, checking for sy-metrical swing of the SYNC meter from 0 to either side. If the swing is not symmetrical, adjust R-3442 on the 3400 deck of the HFS-1 until a symmetrical swing is achieved.

p) Remove the counter from J-1313; replace the 47 ohm termination.

4. Check of the AFC-3 Unit:

a) Place the AFC ON OFF switch on the HFI-1 to ON.

b) Place the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to ALIGNMENT SIGNAL.

* c) Depress and hold down the RESET button on the AFC-3; adjust the TUNING KCS control for maximum indication on the CARRIER LEVEL meter, and zero center scale on the DRIFT METER. The CARRIER LEVEL meter should read approximately in the center of the GREEN. Release the RESET button.

* d) Check the FADE and DRIFT ALARM lamps; they should be extinguished. The DRIFT METER should remain at zero center scale.

* e) Place the CARRIER SELECTOR switch to RCC. There should be no change in indications.

* f) Place the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF. The CARRIER LEVEL meter should fall, and the FADE alarm should light. Return the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to the ALIGNMENT SIGNAL position. Move the SENSITIVITY control fully CCW. The Fade indicator should light and the Carrier Level meter should fall. Return the SENSITIVITY control fully CW.

g) Return the CARRIER SELECTOR switch to OSC.

h) Place the AFC ON OFF switch on the HFI-1 to OFF.

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5. Check of the HFI-1 Unit:

Note: This procedure also checks the HFA-1 in the SSB mode of operation, and checks the tuning of the AFC-3.

a) Check the MANUAL GAIN control. It should be OFF (CCW).

b) Place the Channel A IF BANDWIDTH selector switch to 1 KC DSB position.

c) Place the Channel B IF BANDWIDTH selector to a BLANK position.

d) Pull out the HFI-1; lock in position and remove the top cover.

* e) Note the markings on the input filters or RF XFRMR can; from left to right with the operator facing the front panel, these should read: 1 KC SYM; 6 KC SYM; T-101; 3.5 KC USB; 3.5 KC LSB; 7.5 KC USB; and 7.5 KC LSB.

* f) Adjust R-116 on the 1 KC SYM strip for a reading of 1.0 volt on the Channel A IF level meter; this corresponds to a level of .707 volts RMS into a 50 ohm load at J-102 on the IF strip. Lock the adjustment.

* g) Place the Channel B IF BANDWIDTH selector to the 1 KC SYM position. Both IF output level meters should read 1 volt ±10%. Place the Channel B IF BANDWIDTH selector to a BLANK position.

* h) Place the Channel A IF BANDWIDTH selector to the 6 KC DSB position. Adjust R-116 on the 6 KC SYM strip for the 1 volt reading on the Channel A IF level meter. Lock the adjustment.

* i) Place the Channel B IF BANDWIDTH selector to the 6 KC DSB position. Both IF level meters should read 1 volt ±10%. Place the Channel B IF BANDWIDTH selector to a BLANK position.

* j) Place the Channel A IF BANDWIDTH selector to the 15 KC DSB position. Adjust R-116 on the 15 KC SYM strip for the 1 volt reading. Lock the adjustment.

* k) Place the Channel B IF BANDWIDTH selector to the 15 KC DSB position. Both IF level meters should indicate 1 volt ±10%.

l) Place the AFC ON OFF switch to ON.

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m) Place the Channel A and B DETECTION switches on the HFA-1 to the SSB position.

* n) On the AFC-3, depress the RESET button for about 6 seconds; then move the TUNING KCS control midway between the "0" and "-3KC" positions. The CARRIER LEVEL meter will fall and the FADE indicator will light.

* o) Place the Channel A IF BANDWIDTH selector to the 3.5 KC USB position. Place the Channel B IF BANDWIDTH selector to a BLANK position. Adjust R-116 on the 3.5 KC USB strip for the 1 volt reading. Place the Channel B IF BANDWIDTH selector to the 3.5 KC USB position. Both IF level meters should indicate 1 volt.±10%. Return the Channel B IF BANDWIDTH selector to a BLANK position. Lock the adjustment.

* p) Place the Channel A IF BANDWIDTH selector to the 7.5 KC USB position. Adjust R-116 on the 7.5 KC USB strip for the 1 volt reading. Place the Channel B IF BANDWIDTH selector to the 7.5 KC USB position. Both IF level meters should indicate 1 volt.±10%. Return the Channel B IF BANDWIDTH selector to a BLANK position. Lock the adjustment.

q) Move the TUNING KCS control on the AFC-3 midway between the "0" and plus 3 KC positions.

* r) Place the Channel A IF BANDWIDTH selector to the 3.5 KC LSB position. Adjust R-116 on the on the 3.5 KC LSB strip for the 1 volt reading. Lock the adjustment. Place the Channel B IF BANDWIDTH selector to the 3.5 KC LSB position. Both IF level meters should indicate 1 volt.±10%. Return the Channel B IF BANDWIDTH selector to a BLANK position.

* s) Place the Channel A IF BANDWIDTH selector to the 7.5 KC LSB position. Adjust R-116 on the 7.5 KC LSB strip for the 1 volt reading. Lock the adjustment. Place the Channel B IF BANDWIDTH selector to the 7.5 KC LSB position. Both IF level meters should indicate 1 volt.±10%.

t) Place the AFC ON OFF switch to OFF. Return the TUNING KCS control to the "0" position. Turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF. Replace the cover on the HFI-1, and slide in the unit.

* 6. Chek of AGC DECAY Circuits:

a) Check that the following controls on the HFI-1 are in the indicated positions:

1. AGC DECAY: (both channels) fully CCW.

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2. MANUAL GAIN: OFF (fully CCW)

b) Move the MANUAL GAIN control slightly clockwise, until the switch clicks on. Note the RF LEVEL meter on the HFR-1; it should indicate maximum, and may be pegged.

c) Rotate the MANUAL GAIN control slowly clockwise to the full clockwise position; the RF LEVEL meter should follow to zero. Return the MANUAL GAIN control to the "just on" position. This is the point just before the switch clicks off. The RF LEVEL meter should again read maximum.

d) Turn both Channel A and Channel B AGC DECAY controls fully CW. Turn the MANUAL GAIN to OFF (fully CCW). The RF LEVEL meter should decay to zero in between 15 to 20 seconds.

7. Check of the HFA-1 Unit:

a) Check that the following controls on the HFA-1 are in the indicated positions:

1. LEVEL ADJUST controls: (both channels) mid-position.

2. LOAD switches: (both channels) OUT when HSP-2. These switches are on top, rear, inside HFA-1.

3. DETECTION switches: (both channels) CW position.

b) Place the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to the ALIGNMENT SIGNAL position.

c) Adjust both BFO controls for maximum indication on their respective LINE LEVEL meters.

* d) Adjust both LEVEL ADJUST controls for "0 VU" on their respective LINE LEVEL meters.

e) Turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF.

f) Place both DETECTION switches to the AM position.

g) Place both IF BANDWIDTH selector switches on the HFI-1 to the 15 KC DSB position.

h) Connect a signal generator to J-1001 on the HFR-1. Adjust the generator to a frequency of 15 mcs, modulated 30% with 1 KC. Adjust the signal generator output to 10 uv.

i) Adjust the BAND and TUNE controls on the HFR-1 to receive a frequency of 15 mcs.

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* j) Place the RCVR #1 SPEAKER SELECTOR on the HSP-2 to Channel A. Adjust the signal generator until a 1 KC tone is heard. Note the RF LEVEL meter on the HFR-1; it will indicate about 20 DB above 1 uv, which is 10 uv.

* k) Plug headphones into the Channel A PHONE jack on the HFA-1; note that the Channel A MONITOR control varies the volume of the 1 KC tone in the phones.

* l) Place the RCVR #1 SPEAKER SELECTOR on the HSP-2 to Channel B. A 1 KC tone should be heard. Plug headphones into the Channel B PHONE jack; note that the Channel B MONITOR varies the volume of the 1 KC tone in the phones.

m) Remove the signal generator from J-1001 on the HFR-1.

* 8. Check of the HAF-1:

a) With the RF head operating at any frequency, turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to ALIGNMENT SIGNAL.

b) Place both Channel A and Channel B DETECTION switches on the HFA-1 to the CW position.

c) Place both Channel A and Channel B IF BANDWIDTH selector switches on the HFI-1 to the 15 KC DSB position.

d) Place the RCVR #1 SPEAKER SELECTOR on the HSP-2 to Channel A.

e) Place the Channel A HIGH and LOW CUTOFF switches on the HAF-1 to the 5 KC position.

f) Adjust the Channel A BFO control for a peak on the Channel A LINE LEVEL meter on the HFA-1; the peak should occur with the BFO control at approximately plus AND minus 5 KCS.

g) Place the Channel A HIGH and LOW CUTOFF switches on the HAF-1 to 2.5 KC.

h) Adjust the Channel A BFO control for a peak on the Channel A LINE LEVEL meter on the HFA-1; the peak should occur with the BFO control at plus and minus 2.5 KC.

i) Continue this procedure for the 1 KC, 500 cycle, 250 cycle and 100 cycle positions of the Channel A CUTOFF switches. The adjustment of the BFO in the 250 cycle and 100 cycle positions will be critical, but sufficient indication to check out the filter will be obtained. Upon completion, return the Channel A HIGH and LOW CUTOFF switches to the OUT position.

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j) Place the RCVR #1 SPEAKER SELECTOR switch on the HSP-2 to Channel B.

k) Repeat the HAF-1 check for Channel B, using the Channel B HIGH and LOW CUTOFF switches, and the Channel B BFO control and LINE LEVEL meter.

l) Upon completion:

1. Return the Channel B CUTOFF switches to OUT.

2. Turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF.

3. Place the RCVR #1 SPEAKER SELECTOR to Channel A.

4. Place both AGC DECAY controls fully CCW.

5. Place the MANUAL GAIN control OFF (fully CCW).

9. Receiver Sensitivity and AGC Check:

a) Set the HFR-1 controls to the following positions:

1. BAND: Band 1 (2-3 mcs)

2. TUNE: 2.5 mcs.

b) Set the NIXIE selectors to 0 2 . 5 0 0 0

c) Set the Channel A IF BANDWIDTH selector on the HFI-1 to the 6 KC DSB position, Channel B to BLANK position.

d) Set the Channel A DETECTION switch on the HFA-1 to CW.

e) Place the TUNE SYNC OPERATE switch on the HFR-1 to SYNC.

f) Obtain a zero beat at 2.5 mcs; place the TUNE SYNC OPERATE switch to OPERATE.

g) Place the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to the ALIGNMENT SIGNAL position. With Channel A BFO control, obtain a zero beat; then turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF.

h) Connect a 20 db pad to the signal generator output; connect the other arm of the pad to J-1001 on the HFR-1.

i) Adjust the signal generator to 2.5 mcs, at 100,000 uv output level. Vernier tune the signal generator for a zero beat in the loudspeaker. The RF LEVEL meter on the HFR-1 should read approx. 60 to 80 db above 1 uv.

j) Reduce the signal generator output to 1 uv. RF LEVEL meter should fall to zero.

* k) Slowly increase the signal generator output toward 10 uv, carefully watching the RF LEVEL meter. THE INSTANT THE METER DEFLECTS FROM ZERO, READ THE SIGNAL GENERATOR OUTPUT. The deflection should occur at approximately 10 uv output from the signal generator; this corresponds to an actual sensitivity of 1 uv due to the 20 db pad. (Actual sensitivity equals generator output divided by 10).

l) Return the signal generator output to 1 Volt. Adjust the Channel A BFO control for maximum indication on the Channel A LINE LEVEL meter. Adjust the LEVEL ADJUST control for "0 VU".

* m) Decrease the signal generator output to 10 uv, observing carefully the LINE LEVEL meter. It should not change more than 3 db from the 0 VU level.

n) Repeat the sensitivity and AGC check (a) thru (m), at the following frequencies:

3.5 mc, 5 mc, 7 mc, 10 mc, 14 mc, 20 mc, and 28 mc.

10. Signal Plus Noise/Noise Check:

a) Tune the RF Head to 2.5 mcs; set the NIXIE selectors to 2.5 mcs; with the TUNE SYNC OPERATE switch in SYNC, obtain a zero beat; place the TUNE SYNC OPERATE switch to OPERATE.

b) Set the Channel A IF BANDWIDTH selector on the HFI-1 to the 15 KC DSB position.

c) Set the Channel A DETECTION switch on the HFA-1 to the CW position.

d) Slide out the HFA-1 drawer. Connect a Ballantine Model 314 AC VTVM to terminals 5 and 7 of Channel A terminal strip, E-7000.

e) Adjust the signal generator connected at the antenna input through the 20 db pad to 2.5 mcs, at 10 uv output.

f) Turn the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to ALIGNMENT SIGNAL.

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g) Adjust the Channel A BFO control for a zero beat in the loudspeaker.

h) Place the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to OFF.

i) Adjust the signal generator output frequency to obtain, approximately, a 500 cycle tone in the loudspeaker.

j) Adjust the Channel A LEVEL ADJUSTMENT control to obtain an 0 VU reading on the Channel A LINE LEVEL meter.

k) Set the Ballantine Meter at 10 volt full scale range.

l) Set the MANUAL GAIN control on the HFI-1 for full scale reading on the Ballantine Meter.

m) Disconnect the output of the signal generator.

* n) Note the decrease in the reading on the Ballantine meter; it should be down at least 15 db.

* o) Repeat the Signal-Plus-Noise-to-Noise check at 14 mc and 28 mcs.

p) Upon completion, remove the signal generator and the Ballantine meter. Return the MANUAL GAIN control to the extreme CCW position.

11. Final Noise Silencer Check:

a) Check that the following controls and switches are in the indicated positions:

BAND: 6 (12-16 mcs)
TUNE: 15 mcs
NIXIE SELECTORS: 1 5 . 0 0 0 0
TUNE SYNC OPERATE: SYNC
NOISE SILENCER OFF ALIGNMENT SIGNAL: NOISE SILENCER
RCVR #1 SPEAKER SELECTOR: Channel A
RCVR #1 VOLUME control: fully CW
CHANNEL A IF BANDWIDTH selector: 15 KC DSB position
CHANNEL A DETECTION switch: CW position
CHANNEL A LEVEL ADJUST: fully CW
CHANNEL A BFO control: Off "0" position, either side, to obtain tone, if any.

b) Obtain a zero beat at 15 mcs; place the TUNE SYNC OPERATE switch to OPERATE.

* c) Pull out the HFR-1 drawer; loosen the locknut on L-1203; adjust L-1203 for minimum background noise and zero indication on the RF LEVEL meter. The background noise will increase on either side of the correct adjustment. Lock L-1203. R-1210 may also have some effect.

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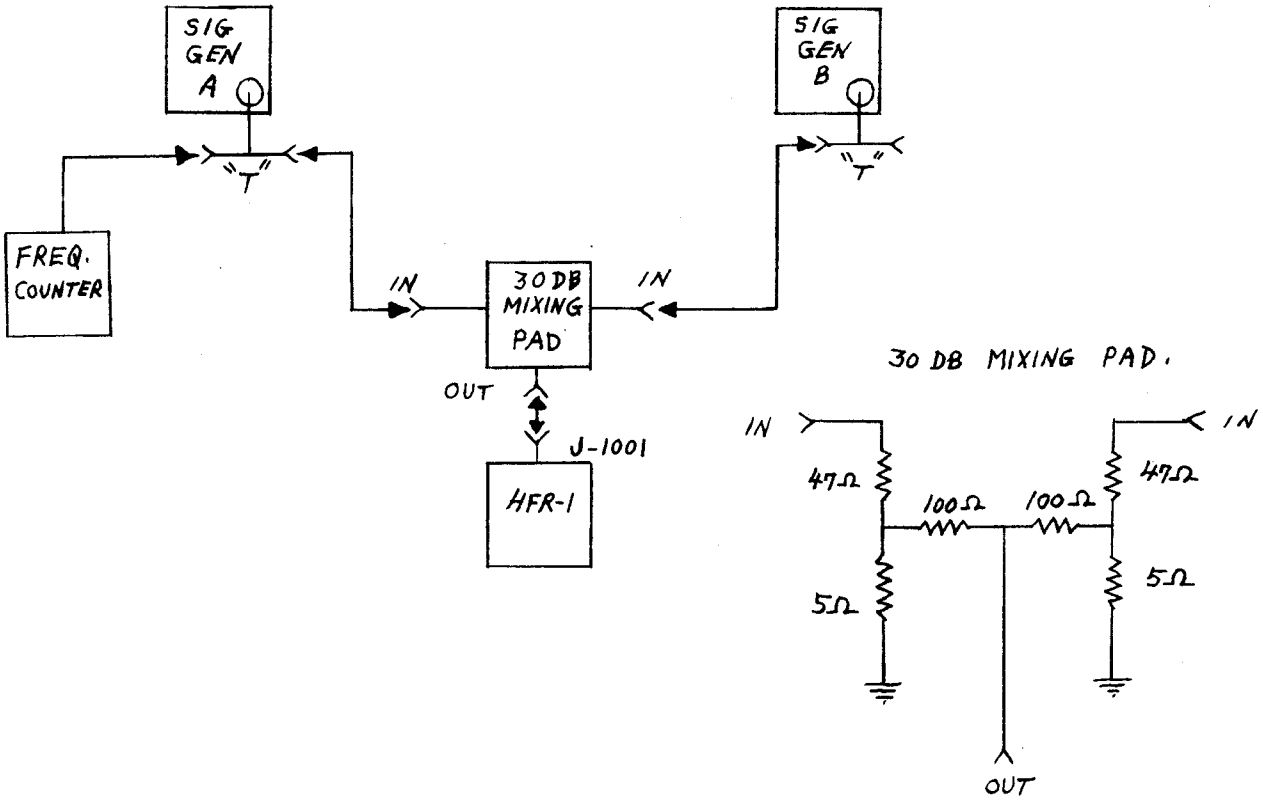
d) Return the NOISE SILENCER OFF ALIGNMENT SIGNAL switch to the OFF position.

12. Two-Tone Test:

a) Set up the test equipment as shown below. As an alternate method, a Sideband Generator System, with Mode CBE Sideband Exciter, may be used in place of the two signal generators.



b) Set both AGC DECAY controls on the HFI-1 fully CW.

c) Set signal generator "A" to 2.501 mcs, .3 volts output.

d) Connect the frequency counter to the "T" at signal generator "B". Adjust signal generator "B" for .3 volts output at 2.501575 mcs.

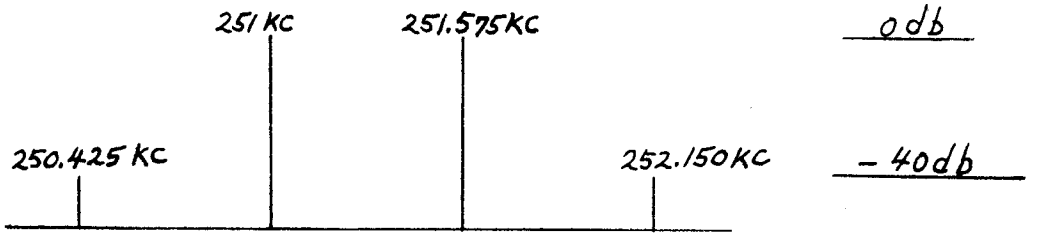
e) Adjust controls, selectors and switches on the HFS-1 and HFR-1 to synthesize the receiver at 2.5 mcs. When the system is synchronized, place the TUNE SYNC OPERATE switch to OPERATE.

f) Connect the Channel A IF output of the HFI-1 at J-6203 to the signal input jack of a spectrum analyzer.

g) Place the Channel A IF BANDWIDTH selector to the 3.5 KC USB position.

h) Adjust the spectrum analyzer controls for an oscilloscope presentation.

* i) Measure the amplitude of the third order products; these should be down at least 40 db, as shown on the sketch below:



j) Upon completion of the two tone test, leave the equipment set up for the HNF-1 check.

* 13. HNF-1 Checkout:

a) Place the ON OFF switch on the HNF-1 to ON.

b) Slowly and carefully move the NOTCH ADJUST control to eliminate each tone in succession. This may be observed on the spectrum analyzer.

c) Place the ON OFF switch on the HNF-1 to OFF and remove test equipment.

* 14. ANT. BOX ASS'Y.

a) Connect antenna to connector on rear terminal box.

b) Tune in WWV on the receiver.

c) Adjust for channel A operation and switch channel B off.

d) Set channel A, LINE LEVEL ADJUST to 0 VU on meter.

e) Connect AC VTVM to terminal strip marked REC.1, CHAN. A. The meter will indicate the signal received.

f) Switch channel A off. Adjust for channel B operation and set LINE LEVEL ADJUST to 0 VU on meter.

g) Move AC VTVM to CHAN. B terminals. The meter will indicate the signal received. Remove antenna, the signal will drop in amplitude.

* RECORD ON TEST DATA SHEET

DATE December 14, 1962	TMC SPECIFICATION NO. S - 736	C
SHEET 17 OF 19		
WPH COMPILED / NP CHECKED	TITLE: DDR-5B FINAL TEST PROCEDURE	
APPROVED		

THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y.

DDR-5B TEST DATA SHEET #1

SERIAL NO.: _____

MFG. NO.: _____

A-3d	Line voltage at convenience outlets is 117 VAC ±10%	_____ volts
A-4a	Blowers operate	_____ OK
B-1	Standby, Time delay and operate indicators function, with proper timing sequence.	_____ OK
B-2	Voltage at TP-8001 and TP-8002 is exactly 200 volts	_____ OK
B-3	Synthesizer, HFO and Stability check	_____ OK
B-3o	Summetrical swing of SYNC meter	_____ OK
B-4c	Carrier Level meter reads near center of GREEN	_____ OK
B-4d	Drift Meter remains at zero center scale. Fade and Drift Alarm lamps extinguished.	_____ OK
B-4e	No change of indications in RCC position	_____ OK
B-4f	Carrier Level meter falls, and Fade indicator lights with SENSITIVITY control fully CCW.	_____ OK
B-5e	IF strips properly installed.	_____ OK
B-5f-k	1 volt reading obtained on symmetrical strips; both channels read 1 volt ±10%; R-116 on symmetrical strips locked.	_____ OK
B-5n	AFC-3 FADE indicator light	_____ OK
B-5o-s	1 volt ±10% reading obtained on USB and LSB strips; HFA-1 operates in SSB mode; R-116 on USB and LSB strips locked.	_____ OK
B-6	AGC check	_____ OK
B-7d	0 VU level obtained in CW mode	_____ OK

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TMC SPECIFICATION NO. S - 736

WPH COMPILED | N.P. CHECKED

TITLE: DDR-5B FINAL TEST PROCEDURE

APPROVED

DDR-5B TEST DATA SHEET #2

B-7j-1	HFA-1 operates in AM mode. Monitor circuits operate correctly.	_____ OK
B-8	HAF-1 check	_____ OK
B-9k	Sensitivity 2.5 mcs (1 uv or better)	_____ uv
B-9m	AGC check 2.5 mcs (3 db or less)	_____ DB
	Sensitivity 3.5 mcs (1uv or better)	_____ uv
	AGC check 3.5 mcs (3 db or less)	_____ DB
	Sensitivity 5 mcs (1 uv or better)	_____ uv
	AGC check 5 mcs (3 db or less)	_____ DB
	Sensitivity 7 mcs (1 uv or better)	_____ uv
	AGC check 7 mcs (3 db or less)	_____ DB
	Sensitivity 10 mcs (1 uv or better)	_____ uv
	AGC check 10 mcs (3 db or less)	_____ DB
	Sensitivity 14 mcs (1 uv or better)	_____ uv
	AGC check 10 mcs (3 db or less)	_____ DB
	Sensitivity 20 mcs (1 uv or better)	_____ uv
	AGC check 20 mcs (3 db or less)	_____ DB
	Sensitivity 28 mcs (1 uv or better)	_____ uv
	AGC check 28 mcs (3 db or less)	_____ DB
B-10n	Signal plus noise/noise 2.5 mcs (15 db or better)	_____ DB
B-10o	Signal plus noise/noise 14 mcs (15 db or better)	_____ DB
B-10o	Signal plus noise/noise 28 mcs (15 db or better)	_____ DB
B-11c	Noise silencer check and final trap adjustment	_____ OK
B-12i	Two Tone Test 2.5 mcs (record level of 3rd order products)	_____ DB
	14 mcs (40 db down or better)	_____ DB
	28 mcs	_____ DB
B-13	HNF-1 checkout	_____ OK
B-14e,g	ANT. BOX ASS'Y.	_____ OK

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DATE December 14, 1962 SHEET 19 OF 19	TMC SPECIFICATION NO. S -736	
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APPROVED		

DDR-5B TEST DATA SHEET #3

The manufacturing and serial numbers of the units contained in this cabinet are listed below.

	MFG #	SERIAL #
HFR-1	_____	_____
HFS-1	_____	_____
AFC-3	_____	_____
HSP-2	_____	_____
HFI-1	_____	_____
HNF-1	_____	_____
HFA-1	_____	_____
HAF-1	_____	_____
HFP-1	_____	_____
HSS-1	_____	_____
HPP-1	_____	_____

DATE _____

TESTER _____

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 459M

REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S-736

MODEL DDR-5B PROJECT NO. 1

DATE	REV.	PAGE	EMN #	DESCRIPTION	CHK.	APP.
1/14/63	A	16	8022	On item #13 c) add "and remove test equipment."		
				Delete d)		
				Delete, *RECORD ON TEST DATA SHEET		
				Add item #14, "ANTENNA BOX ASS'Y."		LG
		18		Add item B-14e.g. "ANTENNA BOX ASS'Y." OK		
				Delete, " Date & Tester		
		19		Add page 19 and renumber accordingly		
9-18-63	B	13	10,010	Revised Sheet 13 per EMN		LG
11/15/63	C	13	10416	Revised Sheet 13 per EMN.		LG