

TMC SPECIFICATION

NO. S 896

REV: 0A

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APPD: *[Signature]*

SHEET COVER / OF /

TITLE:

Typed 4/1/65 by ss.

VLRB

TEST PROCEDURE

TMC SPECIFICATION

NO. S 896

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SHEET 1

OF 18

TITLE: VLRB TEST PROCEDURE

Typed 12/1/04 by ES.

PART 1

IF, RF, AGC AND POWER SUPPLY ALIGNMENT

TEST	6.5 oscillator	A 3055 <i>OK</i>
	6.37 - 6.8 MC	IF 102

EQUIPMENT USED

Hewlett-Packard Counter or equivalent.
Hewlett-Packard Signal Generator or equivalent.
TekTronic Scope or equivalent.
Hewlett-Packard VTVM.
Ballentine Meter or equivalent.

CONTROL SETTINGS

Band Selector	50 - 55 KC
Tuning Knob	30 KC
Noise Silencer	OFF
Meter Switch	DEM
BFO Switch	CCW
RF Gain	CW
AGC Decay	Manual
Mode Switch	AM
Synth Switch	OFF
IF Selector	4.0 KC
Line Level	CW
AF Gain	CCW

PRELIMINARY CHECK

1. With voltage OFF, check with an ohm meter for 2+ shorts at Pin 1 and 2 of all the P.C. connectors on the main chassis.
2. With AC cord disconnected, check all Pin 1 and 3 to ground. Reading should be infinity. Pin 2 should be grounded.
3. Turn voltage on (AC) and check for AC voltage at J 111. (Should be approximately 120 volts).
4. Plug in card A 3035.
5. Check for +10 volts DC on Pin 1 of all the P.C. connector sockets.
6. Check for -10 volts DC on Pin 2 of all the P.C. connector sockets.

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TITLE: VLRB TEST PROCEDURE

Typed 3/30/65 by mtp

TEST PROCEDURE

1. Place extender card in A3655 position. (A3655 card is IF102)
2. Place IF102 Board in extender card.
3. Turn power to ON.
4. Connect Ballantine to Test Point 1. (Counter to AMP out).
5. Adjust variable capacitor C 502, which is the crystal oscillator, to exactly 6.5 mc. Monitor the 6.5 mc output at TP-1.
6. Tune L501 for a dip (minimum signal 6.5 mc). The peak-to-peak signal should be approximately 14 mv. (Ballantine-to-meter position.)
7. Check output signal at Pin 22 of IF102. Board should read approximately 9 mv RMS with Ballantine.
8. Short TP-1 of RF section (100 modules) to ground. Connect a scope to the collector of Q507 or open pad between C543 and Q507.
9. With scope on TP-5, adjust R513 for minimum 6.5 mc signal on scope.
10. Align C529 and C539 for minimum response of 6.5 mc signal.
11. Disconnect short from Test Point on oscillator module (100). Connect a scope across R527 of IF Board 102. Switch bandswitch to band 5, and tune to highest frequency (600 kc). Tune T501 and L506 for maximum signal on scope. Switch bandswitch to band 1 and do not touch tuning knob. Tune T502 and T503 for maximum signal on scope. Return bandswitch to band 1 and retune T502 and T503 for maximum signal. Continue this process until no further tuning is required.
12. Set band switch to band 4 with tuner at 300 kc position. Put scope across 5527 and tune T504 for maximum signal.
13. Check the 5.8 to 6.37 mc pass band by monitoring J118 at the rear of set. The signal should be from 12 to 18.5 mv if properly aligned.

IF OUTPUT OF RECEIVER TO SYNTH.

1. Connect a scope to Test Point 1 of the phase detector board of the synthesizer unit.
2. Retune C529 and C539 for minimum 6.5 mc response at Test Point 1 of phase detector card.
3. Take IF 102 module out of extender card, and insert into chassis. Tune R513 for minimum response of 6.5 mc signal at Test Point 1 of the phase detector module of synthesizer unit. This completes the tuning for proper rejection of 0.5 mc in the 5.8 to 6.37 mc pass band.
4. Do not retune C502, C529, C539 or R513 after this adjustment.

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Typed 12/1/44 by SS.

TUNING PROCEDURE IF 101 A-3653 A4603

1. Connect a high frequency scope across C 441. Adjust L 407 for maximum 6.5 MC signal. Be sure that the IF 102 module is in the chassis to insure 6.5 MC signal at Test Point 6.
2. Short Test Point 6 to ground and connect a signal generator to Test Point 1 that will allow a variable 100 KC signal using Hewlett-Packard Counter. Short Test Point 3 to ground. Adjust L 401 for a maximum signal at Test Point 2. Disconnect short from Test Point 2 and tune L 402 for a minimum signal at Test point 2. The double-tuned stage should be properly tuned.
3. Bandwidth Check - Set selectivity switch to 4.0 KC position. Connect signal generator to Test point 1 and set frequency to 100 KC using a counter. Adjust input signal level such that there is a 50 milli-volt signal at Test Point 6. Adjust R 421 for a 4.0 KC bandwidth with voltmeter at 2 test points. Turn selectivity switch to 2.0 KC position. Adjust R 441 for a 2.0 KC bandwidth at Test Point 5. Turn selectivity switch to 4.0 KC position. Adjust R 443 for a 4.0 KC bandwidth at Test point 5. Check output level in the 4 positions. If there is more than 10% variation, the gain of the offending channel may be adjusted by changing the series emitter resistor at Q 41, Q 404, Q 403, or Q 402. With 50 MV of 100 KC signal at Test Point 6 there should be approximately 1.0 MV of 100 KC signal at Pin 17 or at 100 KC BNC connector at rear of set.
5. After the system is completely aligned there should be approximately 50 to 60 millivolts at Test Point 6 for a 0.3 microvolt signal at the antenna.

RF OPERATION A-3638

1. Turn the front panel BFO control completely counterclockwise. Switch Mode switch to the C.W. position. Short Test Point 1 to ground and tune L 304 for a 97 KC signal on counter at Test Point 2. Turn front panel BFO control completely clockwise. The frequency should read 100 KC **minimum**.
2. With both RF section and IF section completely aligned turn mode switch to C.W. position. Insert 100 KC signal at Test Point 1. adjust BFO for 1 KC signal at line output terminals. Connect a 600 ohm load to line output. Adjust 100 KC signal for 3 DBM output into 600 ohm load.

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VIBR TEST PROCEDURE

Typed 10/1/68 by SS.

AGC A-3681 MODULE

To be tested with RF Unit in a t.

1. Adjust R637 for 0.95 volts at test point 5, with the noise attenuator switch (front panel) on. This sets the noise attenuator threshold and is the only adjustment necessary.
2. Connect an accurate 6.4 MC signal generator or timing signal generator and counter. Insert 100 K Ω of signal. Adjust R637 for a maximum response at test point 4 using full range meter to monitor signal response at test point 4.
3. AGC threshold level adjustment. The receiver should be completely aligned. For a 1.5 microvolt RF signal you should have approximately 29 millivolts at test point 5 of the IF 101 module. With this A3653 condition, switch the AGC levers to the fast position and adjust R646 on the AGC module until the signal at test point 5 located on the IF 101 module just begins to drop from the full RF gain position. For a quick comparison, switch the AGC levers control back and forth from manual to fast position. After setting the threshold level, check the output variation at test point 5 on the IF 101 module as the RF input is varied from 0.1 micro volts to 1.0 volt. Maximum variation of the test point voltage should be about 0.5 db.

POWER SUPPLY MODULE A-3634

1. No tuning is necessary on this card.
2. Check for +10 and -10 volts $\pm 10\%$ on pins 1 and 2 of the power supply.

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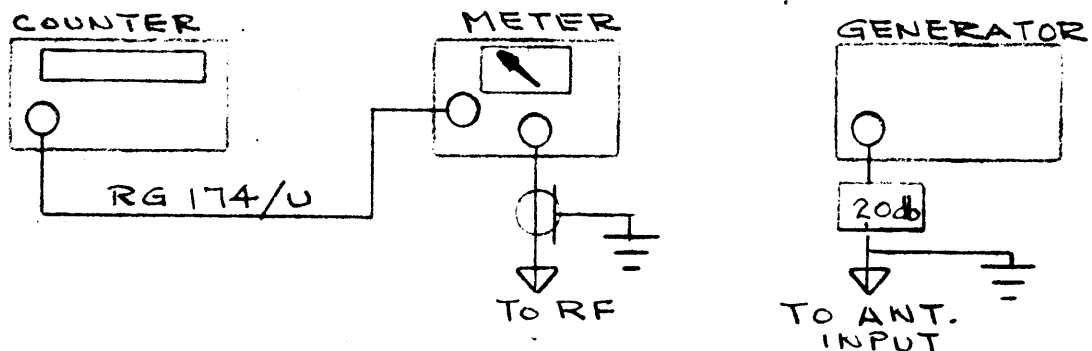
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PART II A RF ALIGNMENT

EQUIPMENT NEEDED

1. Meter, Ballantine Model 861-5 or equivalent.
2. Counter, Hewlett-Packard Model 5245L or equivalent.
3. Signal Generator, Marconie TF144H or equivalent.

I. EQUIPMENT HOOKUPS



- a. Input of meter through probe to TP 2 at RF, or to RF output cable.
- b. Output of meter is connected to input of counter.

II. RF ALIGNMENT BAND 2

1. Alignment

- a. Plug in card A 3662. Band 1 & 2.
- b. Connect RF signal generator to antenna input through a 20 db pad.
- c. Connect meter to RF output cable marked Pin 5.
- d. Tune receiver to the middle of the band (75 Kc).
- e. Tune generator to 75 Kc and monitor with counter.
- f. Adjust T701, T702, T703 for maximum output on meter.
- g. Tune receiver and generator to 100 Kc.
- h. Tune L701, L702, L703 for maximum output.
- i. Tune receiver and generator to 55 Kc.
- j. Tune C711, C705, C718 for maximum output.
- k. Repeat steps d. thru j. until receiver is tuned to maximum output.

2. 8 Kc Bandwidth Test

- a. Set receiver to high end of band (100 Kc).
- b. Set generator to (100 Kc).
- c. Center frequency check.
 - 1) Adjust generator output so that meter reads 10 db on the 0.1 volt scale.
 - 2) Decrease generator frequency so that meter drops off 3 db. Record f.
 - 3) Increase generator frequency so that meter returns to 10 db and then drop off 3 db. Record f.2.

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- 4) Subtract f. from f.2 and record bandwidth.
- 5) Divide bandwidth by 2 and add quotient to f.1. Record true center frequency. This frequency must be 100 Kc \pm 300 cps.

EXAMPLE:

f.	730	94.57
f.1 and f.2	f.1 = 100.00	
	f.2 = 175.00	
	f.2 - f.1	105.00
		- 94.57
		10.43
	f.2 - f.1	10.43
		2
		5.215
	f. center =	f.2 - f.1 + f.1 = 5.215 + 94.57 = 99.785

- d. Tune receiver to low end (55 Kc).
- e. Tune generator to (55 Kc).
- f. Follow same procedure as paragraph II 2.C. Record f.1, f.2, bandwidth, and center f. Frequency must be 55 Kc 300 cps.
- g. Repeat above procedure for the following frequencies: 67 Kc, 78 Kc, and 88 Kc
- h. All bandwidths must be 8 Kc or greater.
- i. If any bandwidth is smaller than 8 Kc add R28 10K resistor.
- j. All frequencies except those mentioned above must be within 1.5 Kc.

3. Output Test

- a. Set generator and receiver to 100 Kc.
- b. Feed in a signal of 3 μ v.
- c. Output should be 60 db or greater. A signal input of 3 μ v is equal to an output signal of 3 mv.
- d. If output is too low, and there is no wrong or defective components, reduce the value of R26.

III. RF ALIGNMENT BAND 1

1. Alignment

- a. Tune receiver to low end (30 Kc).
- b. Tune generator to 31 Kc.
NOTE: Band 1 RF will be tuned to cover from 31 Kc to 56 Kc, while the oscillator will be tuned to cover from 130 Kc to 155 Kc. This tuning arrangement allows reception of the carrier or upper single sideband signals having a 2 Kc bandwidth.
- c. Adjust C9A, C8A and C20A for maximum indication on meter.
- d. Tune receiver to high end (55 Kc).
- e. Tune generator to (56 Kc).
- f. Set output of generator so that a reading of 10 db 0.1 volt scale is obtained.
- g. Check the 3 db points as in paragraph 4.c. Bandwidth should be 3 Kc or greater. Frequency should be 56 Kc \pm 150 cps.

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VLRB TEST PROCEDURE

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- h. Tune receiver to low end of band (30 Kc).
- i. Tune generator to 31 Kc.
- j. Tune generator output so that a reading of 10 db 0.1 volts scale is obtained.
- k. Check the 3 db points as in paragraph II.2c. Bandwidth should be 3 Kc or greater. Frequency should be 31 Kc \pm 150 cps. Check 3 db points at 37 Kc, 44Kc, and 50 Kc, all should be greater than 3 Kc. All frequencies should be \pm 500 cps.
- l. If 3 Kc bandwidth is not obtained and R28 was not added for Band 2, add R28, 10K resistor.
- m. Check overall bandsread. This bandsread should be 25 Kc \pm 300 cps.
- n. If the frequency or the bandsread is not correct, see that C10, C7, and C19 are correct values.

IV. RF ALIGNMENT BAND 3

1. Alignment

- a. Plug in card A3662. Band 3
- b. Connect meter to RF output cable marked pin 6.
- c. Tune receiver to the middle of the band (145 Kc).
- d. Tune generator (145 Kc).

- e. Adjust T704, T705, and T706 for maximum output.
- f. Tune generator and receiver to 180 Kc.
- g. Adjust L701, L702, and L703 for maximum output.
- h. Tune generator and receiver to 100 Kc.
- i. Tune C711, C705, and C718 for maximum output.
- j. Repeat steps c. thru i. until maximum output is obtained.

2. Bandwidth Test

- a. Tune receiver and generator to 180 Kc.
- b. Check 3 db points as in paragraph II 2.c. Bandwidth should be 8 Kc or greater. Frequency should be 180 Kc \pm 300 cps.
- c. Tune receiver and generator to 100 Kc.
- d. Check 3 db points as in paragraph II. 2.c. Bandwidth should be 8 Kc or greater. Frequency should be 100 Kc \pm 300 cps.
- e. Check 3 db points at following frequencies: 120 Kc, 140 Kc, and 160 Kc. All bandwidths should be 8 Kc or greater.
(See NOTE 1) All frequencies must be \pm 1.5 Kc.
- f. If bandwidth of any of the above frequencies is less than 8 Kc, add R28 5K resistor.

V. RF ALIGNMENT BAND 4

1. Alignment

- a. Plug in card A3662 Band 4.
- b. Connect meter to RF output cabl marked pin 7.
- c. Tune receiver to the middle of the band 260 Kc.
- d. Tune generator to 260 Kc.

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- e. Adjust T707, T708 and T709 for maximum output.
- f. Tune the receiver and generator to 330 Kc.
- g. Adjust L701, L702, and L703 for maximum output.
- h. Tune the receiver and the generator to 180 Kc.
- i. Adjust C711, C705, C718 for maximum output.
- j. Repeat steps c. thru i. until maximum output is obtained.

2. Bandwidth Test

- a. Tune receiver and generator to 330 Kc.
- b. Check 3 db points as in paragraph II. 2.c. Bandwidth should be 8 Kc or greater. Frequency should be $600 \text{ Kc} \pm 300 \text{ cps}$.
- c. Tune receiver and generator to 330 Kc.
- d. Check 3 db points as in paragraph II.2.c. Bandwidth should be 8 Kc or greater. Frequency should be $330 \text{ Kc} \pm 300 \text{ cps}$.
- e. Check 3 db points as in paragraph II.2.c. for the following frequencies: 390 Kc, 460 Kc, and 530 Kc. All 3 db points should be 8 Kc or greater. (See NOTE 1) All frequencies must be $\pm 1.5 \text{ Kc}$.
- f. If any 3 db point is smaller than 8 Kc change R28 from 3.9 K to a 3.3K resistor.

3. Output Test

- a. Same as II.3.

NOTE 1: CENTER FREQUENCIES

- a. All center frequencies stated in these sections are in reference to the dial. That is:

- 1) The dial is set to the frequencies mentioned.
- 2) The 3 db points are then taken and the center frequency is then recorded with respect to the dial setting.

- b. EXAMPLE: Band 5 - 460 Kc
 Dial Setting f center
 460 Kc 460.500 Kc

- c. The frequency is then recorded and when the oscillator is tested, the two are compared. Further steps are continued in the oscillator test procedure.

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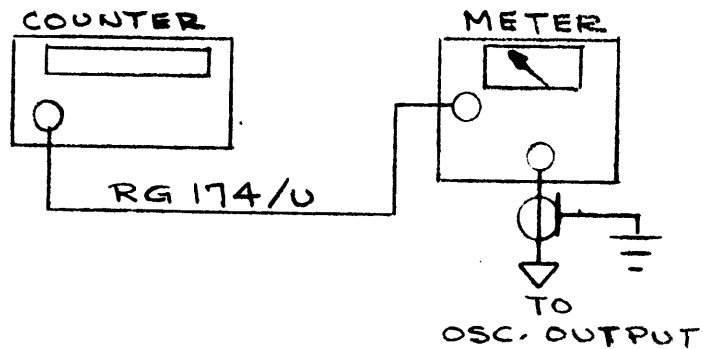
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PART II OSCILLATOR ALIGNMENT

EQUIPMENT NEEDED

1. Meter, Ballantine Model 861-5 or equivalent.
2. Counter, Hewlett-Packard model 5245L or equivalent.

I. EQUIPMENT HOOKUP



- a. Meter input through probe to oscillator output cable marked pin 9.
- b. Counter input connected to meter output.

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TITLE: VORR TEST PROCEDURE

Typed 12/1/55 by SS.

II. Oscillator Alignment Band (1).

- a. Set the band selector switch to Band (1)
- b. Set the mode switch to AM.
- c. Connect the scope to TP-1.
- d. Tune the receiver to the high end of the band (55 KC), and set (C9-1) to about center capacitance.
- e. Adjust 1903 for 155 KC, read directly from the counter.
NOTE: The output from TP-1 is a low level output of about 5 MV. The counter might seem erratic, and the oscillator might seem unstable, which is not so. Because the input to the scope is low level noise will trigger the counter, so take an average reading and use the counter readings which appear most frequently.
- f. Tune receiver to the low end of the band 30 KC.
- g. Set C9-1 for a reading of 155 KC).
- h. Tune receiver to high end of band 155 KC).
- i. Tune 1902 for a reading of 155 KC.
- j. Tune receiver to low end of band (30 KC).
- k. Tune C9-1 for a reading of 155 KC.
- l. Repeat steps g. thru k. until the end points track.

III. Tracking Test. Band 1

- a. Subtract from f center RF ± KI.
- b. Check oscillator frequencies at RF center frequencies.
- c. Subtract 100 KC from the oscillator frequency.
- d. Subtract the RF center frequencies from the oscillator frequencies and record these values.
NOTE: 1) If the oscillator frequency is greater than the RF frequency then the answer will be called positive.
2) If the oscillator frequency is smaller than the RF frequency then the answer will be called negative.
- e. The maximum error tolerance is ± 200 cps. This error must be equal and opposite at both ends of the dial. That is, the tracking error must be on a curve.

Example:

RF fc - 1 KC	osc. - 100 KC	Error
30.04 KC	30.04	- 40 cps.
38.00 KC	38.00	+ 100 cps.
44.15 KC	44.76	+ 60 cps.
52.73 KC	52.55	- 17 cps.
55.13 KC	55.00	+ 130 cps.

- f. If it is found that the entire error is positive, follow the following procedure:

For example - if the error is +130 cps. at one end of the band and about +70 cps. at the other end of the band. Tune the receiver to the high end of the band. (55 KC)

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- 2) Increase 1903 until the frequency decreases 1/2 cps. or the counter reads 194.8 KC.
 - 3) Decrease 1902 until a frequency reading of 195 KC is obtained.
 - 4) Tune receiver to the low end of the band (195 KC).
 - 5) Repeat steps II. g. thru l.
 - 6) When end point tracking is obtained check the test frequency indicated in step III. e.
 - 7) Repeat III. e. thru l. until center tracking and end point tracking is obtained.
- g. If it is found that the entire error is negative, follow the following procedure:
- 1) Tune the receiver to the high end of the band.
 - 2) Decrease 1905 until the frequency increases a small amount (dependent on how far it would be desirable to shift the curve above the zero line).
 - 3) Increase 1904 until counter reads 195 KC.
 - 4) Tune receiver to the low end of the band (195 KC).
 - 5) Repeat steps II. g. thru l.
 - 6) When the end point tracking is obtained check the test frequency indicated in step III. e.
 - 7) Repeat III. e. thru l. until center tracking and end point tracking is obtained.
- h. Check the oscillator with respect to the dial frequency.
- i. Again, if the oscillator is negative with respect to the zero pointer, repeat step h.
- j. If the oscillator is positive with respect to the zero pointer, repeat step h.

IV. Band 2 Oscillator Alignment.

- a. Set band selector switch to band 2.
- b. Tune receiver to the high end of the band (195 KC), and set 1902 to about center particulate.
- c. Adjust 1904 for 195 KC reading on counter.
- d. Tune receiver to low end of band (195 KC).
- e. Adjust 1902 to read 195 KC on counter.
- f. Tune receiver to the high end of the band (195 KC).
- g. Adjust 1904 for a reading of 195 KC on counter.
- h. Tune receiver to the low end of the band (195 KC).
- i. Tune 1902 for a reading of 195 KC.
- j. Repeat steps IV. a. thru i. until the end point tracks.

V. Tracking Test. Band 2

- a. Check oscillator frequencies at RF center frequencies for this band.
- b. Subtract 190 KC from the oscillator frequency.
- c. Subtract the RF center frequencies from the oscillator frequencies and record these values.
- d. The maximum error tolerated is ± 100 cps. This error must be equal and opposite at both ends of the band.

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that is, the tracking error must be an S curve. For example, step III e.

- e. If it is found that the entire error is positive follow the procedure (III f.), using 200 KC as the high end of the band and 100 at the low end of the band. If the entire error is negative use procedure III g.

VI Band 3 Oscillator Alignment.

- a. Set band selector switch to band 3.
- b. Tune receiver to the high end of the band (100 KC) and set C943 to center capacity.
- c. Adjust L909 for a reading of 200 KC on the counter.
- d. Tune receiver to the low end of the band 100 KC.
- e. Adjust C943 to read 200 KC on the counter.
- f. Tune receiver to the high end of the band 100 KC.
- g. Adjust L909 for a reading of 200 KC on the counter.
- h. Tune receiver to the low end of the band 100 KC.
- i. Adjust C943 for a reading of 200 KC.
- j. Repeat steps g. thru i. until end point tracking is obtained.

VII Tracking Test, Band 3

- a. Check oscillator frequencies at 25 center frequencies for this band.
- b. Subtract 100 KC from the oscillator frequency.
- c. Subtract the 25 center frequencies from the oscillator frequencies and record these values.
- d. The maximum error tolerated is ± 500 cps. This error must be equal and opposite at both ends of the band, that is, the tracking error must be an S curve as in step III. e.
- e. If it is found that the entire error is positive, follow the procedure (III f.), using 200 KC as the high end of the band and 100 KC at the low end of the band. If the entire error is negative use procedure III g.

VIII. Band 4 Oscillator Alignment.

- a. Set the band selector switch to band 4.
- b. Tune receiver to the high end of the band (100 KC) and set C944 to center capacity.
- c. Adjust L917 for a reading of 100 KC on the counter.
- d. Tune receiver to the low end of the band 100 KC.
- e. Adjust C944 to read 100 KC on the counter.
- f. Tune receiver to the high end of the band 100 KC.
- g. Adjust L917 for a reading of 100 KC.
- h. Tune receiver to the low end of the band 100 KC.
- i. Adjust C944 for a reading of 100 KC.
- j. Repeat steps g. thru i. until end point tracking is obtained.

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IX. Band 4

- a. Check the receiver for proper operation.
- b. Adjust the receiver for proper operation.
- c. The maximum error tolerance is 1.0%.
- d. The maximum error tolerance is 1.0%.
- e. The maximum error tolerance is 1.0%.
- f. The maximum error tolerance is 1.0%.
- g. The maximum error tolerance is 1.0%.
- h. The maximum error tolerance is 1.0%.
- i. The maximum error tolerance is 1.0%.
- j. The maximum error tolerance is 1.0%.
- k. The maximum error tolerance is 1.0%.
- l. The maximum error tolerance is 1.0%.
- m. The maximum error tolerance is 1.0%.
- n. The maximum error tolerance is 1.0%.
- o. The maximum error tolerance is 1.0%.
- p. The maximum error tolerance is 1.0%.
- q. The maximum error tolerance is 1.0%.
- r. The maximum error tolerance is 1.0%.
- s. The maximum error tolerance is 1.0%.
- t. The maximum error tolerance is 1.0%.
- u. The maximum error tolerance is 1.0%.
- v. The maximum error tolerance is 1.0%.
- w. The maximum error tolerance is 1.0%.
- x. The maximum error tolerance is 1.0%.
- y. The maximum error tolerance is 1.0%.
- z. The maximum error tolerance is 1.0%.

X. Band 4 Receiver Adjustment

- a. Adjust the receiver for proper operation.
- b. Adjust the receiver for proper operation.
- c. Adjust the receiver for proper operation.
- d. Adjust the receiver for proper operation.
- e. Adjust the receiver for proper operation.
- f. Adjust the receiver for proper operation.
- g. Adjust the receiver for proper operation.
- h. Adjust the receiver for proper operation.
- i. Adjust the receiver for proper operation.
- j. Adjust the receiver for proper operation.
- k. Adjust the receiver for proper operation.
- l. Adjust the receiver for proper operation.
- m. Adjust the receiver for proper operation.
- n. Adjust the receiver for proper operation.
- o. Adjust the receiver for proper operation.
- p. Adjust the receiver for proper operation.
- q. Adjust the receiver for proper operation.
- r. Adjust the receiver for proper operation.
- s. Adjust the receiver for proper operation.
- t. Adjust the receiver for proper operation.
- u. Adjust the receiver for proper operation.
- v. Adjust the receiver for proper operation.
- w. Adjust the receiver for proper operation.
- x. Adjust the receiver for proper operation.
- y. Adjust the receiver for proper operation.
- z. Adjust the receiver for proper operation.

XI. Tracking Test. Band 5

- a. Check the receiver for proper operation.
- b. Adjust the receiver for proper operation.
- c. The maximum error tolerance is 1.0%.
- d. The maximum error tolerance is 1.0%.
- e. The maximum error tolerance is 1.0%.
- f. The maximum error tolerance is 1.0%.
- g. The maximum error tolerance is 1.0%.
- h. The maximum error tolerance is 1.0%.
- i. The maximum error tolerance is 1.0%.
- j. The maximum error tolerance is 1.0%.
- k. The maximum error tolerance is 1.0%.
- l. The maximum error tolerance is 1.0%.
- m. The maximum error tolerance is 1.0%.
- n. The maximum error tolerance is 1.0%.
- o. The maximum error tolerance is 1.0%.
- p. The maximum error tolerance is 1.0%.
- q. The maximum error tolerance is 1.0%.
- r. The maximum error tolerance is 1.0%.
- s. The maximum error tolerance is 1.0%.
- t. The maximum error tolerance is 1.0%.
- u. The maximum error tolerance is 1.0%.
- v. The maximum error tolerance is 1.0%.
- w. The maximum error tolerance is 1.0%.
- x. The maximum error tolerance is 1.0%.
- y. The maximum error tolerance is 1.0%.
- z. The maximum error tolerance is 1.0%.

XII. Calibration Test

- a. Connect the Ballantine Model 141-1 meter to the receiver output on 1-1.

TMC SPECIFICATION

NO. S 896

REV:

QA

COMPILED:

JZ

CHECKED:

APPD:

SHEET 11

OF 15

TITLE:

VLRB TEST PROCEDURE

Typed 4/1/65 by ss.

- b. Check oscillator output voltage at the high, middle and low end of the dial for each band.
- c. Voltage should be $5 \text{ MV} + 3 \text{ db}$ or $- 2 \text{ db}$.
- d. If any band has a voltage greater than $5 \text{ MV} + 3 \text{ db}$, increase the resistance of the resistors in step e. in steps of approximately 2K . If any band has a voltage lower than $5 \text{ MV} - 2 \text{ db}$ decrease these resistors in steps of about 2K .
- e. Resistors:

Band	Resistor	Value
1	R 910	10K
2	R 916	8.2K
3	R 922	5.6K
4	R 928	4.7K
5	R 934	4.7K

12. Synthesizer Check

- a. Connect a variable 1.5 volt source to the synthesizer input cable pin 21 to ground.
- b. Vary the voltage in a positive direction and observe a frequency change of about 350 cps at band 5. The change of frequency will be less at the lower bands.
Then vary the voltage in a negative direction and observe a frequency change in the opposite direction as before.

TMC SPECIFICATION

NO. S 896

REV: QA

COMPILED: RB & JZ

CHECKED:

APPD:

SHEET 15 OF 17

TITLE: VLRB TEST PROCEDURE

Typed 4/6/65 by ss.

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK

VLRB TEST DATA SHEET (OVERALL TEST)

SERIAL NO. _____

MFG. NO. _____

MECHANICAL _____ OK

WIRING _____ OK

POWER SUPPLY CHECK

POWER LAMP LIGHTS WITH POWER APPLIED _____ OK
 BATTERY LAMP ON: POWER LAMP OFF WITH BATTERY POWER APPLIED _____ OK
 BATTERY LAMP OUT WITH BATTERY SWITCH "OUT" _____ OK
 B+VOLTAGE (+12V $\pm 10\%$) _____ V
 B-VOLTAGE (-12V $\pm 10\%$) _____ V

SENSITIVITY CHECK	S+N/N AT 0.3 UV INPUT (15DB OR BETTER)	AGC DYNAMIC RANGE (+ 3DB OUTPUT FOR 100DB INPUT CHANGE)
BAND 1 40KC .	DB	DB
BAND 2 80KC	DB	DB
BAND 3 140KC	DB	DB
BAND 4 260KC	DB	DB
BAND 5 470KC	DB	DB

AGC ACTION

FAST, MED AND SLOW POSITIONS _____ OK
 MANUAL R.F. POSITION _____ OK

IMAGE RATIO (-80DB WITH 0.1 UV INPUT) _____ DB

NOISE SILENCER OPERATION _____ OK

AF-RF METER CALIBRATION _____ OK

AUDIO OUTPUT

600 OHM LINE (ODBM FOR 0.3 UV INPUT) _____ V

4 OHM OUTPUT _____ OK

HEADPHONE MONITOR _____ OK

DATE: _____

TESTER: _____

TMC SPECIFICATION

NO. S 896

REV: 0A

COMPILED: RB & JZ

CHECKED:

APPD:

SHEET 16 OF 17

TITLE: **VLRB TEST PROCEDURE**

Typed 4/6/65 by ss.

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK

VLRB TEST DATA SHEET
(R.F. AND OSC. TEST)

SERIAL NO. _____

MFG. NO. _____

R.F. ALIGNMENT

	TRACKING CHECK OK	BANDWIDTH (GREATER THAN 8KC BANDS 2 THRU 5) (GREATER THAN 3KC BAND 1)	GAIN (GREATER THAN 60DB WITH 220 OHMS ACROSS OUTPUT)
BAND 1		KC	DB
BAND 2		KC	DB
BAND 3		KC	DB
BAND 4		KC	DB
BAND 5		KC	DB

OSC. ALIGNMENT

	TRACKING ERROR NO GREATER THAN:		OUTPUT VOLTAGE (5MV + 3DB OR -2DB WITH 47 OHM ACROSS OUTPUT)
BAND 1	+200 CPS	CPS	MV
BAND 2	+400 CPS	CPS	MV
BAND 3	+500 CPS	CPS	MV
BAND 4	+600 CPS	CPS	MV
BAND 5	+1.5 KC	CPS	MV

DATE: _____

TESTER: _____

TMC SPECIFICATION

NO. S 896

REV: 0 A

COMPILED: RB & JZ

CHECKED:

APPD:

SHEET 17 OF 17

TITLE: VLRB TEST PROCEDURE

Typed 4/6/65

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK

VLRB TEST DATA SHEET
(I.F. AND BFO TEST)

SERIAL NO. _____

MFG. NO. _____

I.F. ALIGNMENT

I.F. SELECTIVITY SWITCH POSITION	BANDWIDTH (WITHIN 10% AT 3DB POINTS, AND 15% AT THE 0.5 KC POSITION)	OUTPUT (NO GREATER THAN 3DB VARIATION)
8KC	KC	DB
4KC	KC	DB
2KC	KC	DB
0.5KC	KC	DB

BFO ALIGNMENT

(FREQUENCY GREATER THAN +3KC)

MAX. C.W. ROTATION _____ KC

MAX. C.C.W. ROTATION _____ KC

DATE: _____

TESTER: _____

