

DATE 10/31/63

SHEET 1 OF 6

TMC SPECIFICATION NO. S-803

RJE
COMPILED

NP
CHECKED

TITLE:

APPROVED *BP*

AX-467 TEST PROCEDURE (MNF-1)

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I

INTRODUCTION

A. The MNF-1 is a Variable Notch Filter. For test purposes it may be divided into three sections:

1. Variable Frequency Oscillator and Amplifier.
2. 455 KC IF and Filter.
3. 250 KC IF.

B. The Variable Frequency Oscillator and Amplifier

V6906 is a highly stable LC oscillator of the Vackar type. The output frequency is determined by L6901 (and internal components), and variable capacitor C6915. With C6915 set at half mesh, the output frequency should be approximately 205KC. The oscillator signal is then amplified by V6905A and V6905B and then stepped down to the proper impedance by T6901 and T6902 to the mixers V6903 and V6901.

C. The 455KC IF and Filter

The 250KC information signal is fed into the grid of V6901. This tube combines the information signal and the oscillator signal.

V6901 then amplifies the new frequency (455KC). The information is then into T6903 which matches the impedance into the notch filter, Z6901.

The notch filter will attenuate any signal which appears at 455KC + 82 cycles. This attenuation is approximately 50db.** All other information will pass through this filter.

A beat note or other signal which is not desired can be notched out by moving the entire passband (varying C6915) over the notch at 455KC.

The information is the fed to the grid of V6902. It is then amplified and fed to the grid of the second convertor, V6903. This convertor in turn takes the difference of the input information and the oscillator signal to produce the original input frequency of 250KC.

D. The 250 KC IF

T6904 passes the information signal and attenuates both the oscillator and the 455KC IF signals. The information is then amplified by V6904 and stepped down to 50 ohms by T6905 to produce the original input information with the exception of the notched signal.

** At + 10 cycles

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D. cont'd

When S6901 is placed in the "OFF" position, the information signal completely by passes the notch filter. When S6901 is placed in the "ON" position, power is applied to the oscillator, V6906, and the notch filter is placed in the circuit.

II TEST EQUIPMENT REQUIRED

- A. RF Voltmeter - Ballantine MO.314 or equivalent.
- B. Signal Generator - ~~TF 144H~~ Marconi Instruments Ltd. or equivalent.
- C. Power Supply - Lambda MO.25 or equivalent.
- D. Counter - Computer Measurements MO.203 BN or equivalent.
- E. 50 ohm $\frac{1}{2}$ watt Dummy Load.
- F. Test Jig(See Fig. A)

III PRELIMINARY

- A. Inspect unit for mechanical imperfections and for proper placement of components.
- B. Inspect for obvious wiring errors.
- C. Check for B+ shorts with ohmmeter.

IV. TEST OF VARIABLE FREQUENCY OSCILLATOR AND AMPLIFIER

NOTE: APPLY POWER TO ALL EQUIPMENT, INCLUDING AX-467 TURN NOTCH SWITCH TO "IN" POSITION.

Connect Frequency Counter to B2 of T6902. Turn NOTCH ADJUST to 0 position*. Turn core of L6901 to a frequency of 205KC as indicated on counter. Tighten lock-nut. Turn NOTCH ADJUST to +1.5 position. The frequency should be 203.5KC, - 250cps+0. Turn NOTCH ADJUST to -1.5 position. The frequency should be 206.5KC + 250cps-0. Record these frequencies on Test Sheet. Remove Counter from T6902. Check RF voltage at B2 of T6902 and B1 of T6901. Record these voltages on Test Sheet. This voltage should be 1.0 volt \pm 20%. This completes the oscillator and amplifier test.

NOTE: COUNTER USED TO MONITOR GENERATOR OUTPUT FOR THE REMAINDER OF TESTS
V. TEST OF 455KC IF AND FILTER

Remove V6906, Adjust Signal Generator to 455KC and connect to RF input J6901. Connect RF Voltmeter to pin 9 of V6901. Temporarily place a short jumper between the green lug of T6903 and ground.

* (C6915 plates at half mesh).

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V cont'd

NOTE: Throughout these measurements always reduce the Signal Generator output so as to produce 1.0 volt or less at the point being measured.

Adjust top core of T6903 for maximum indication on Meter. Tighten lock-nut. Remove jumper and adjust bottom core of T6903 for minimum indication on Meter. Tighten lock-nut. Connect Meter to pin 1 of V6902. Vary Signal Generator frequency VERY SLOWLY around 455KC. There should be a noticeable notch at 455KC.

Remove Generator and connect to pin 1 of V6902, frequency 455KC. Connect Meter to pin 5 of V6902. Temporary-place a short jumper cable between the green lug of T6906 and ground. Adjust top core of T6906 for maximum indication on meter. Tighten lock-nut. Remove jumper and adjust bottom core for minimum indication. Remove Generator and connect to the green lug of T6903. Adjust Generator to 2.0 volts output. Connect frequency Counter to Signal Generator. Tune Generator to 454KC.

NOTE: METER VOLTAGE.

Adjust Meter scale, as needed, while slowly bringing Generator to 455KC. *The notch depth should exceed 50DB. Record the notch depth on Test Sheet. Remove Meter, Counter, and Generator. This completes the 455KC IF and filter test.

VI TEST OF 250KC IF

Adjust Signal Generator to 250KC and connect to pin 6 of V6903. Connect Meter to pin 9 of V6903. Temporarily connect a short jumper between pin 1 of V6904 and ground. Adjust top core of T6904 for maximum indication on Meter. Tighten lock-nut. Remove jumper and adjust bottom core of T6904 for minimum indication on Meter. Tighten lock-nut. Connect Meter and dummy load at J6901 RF output. Adjust core of T6905 for maximum indication on Meter, adjusting Generator output so as not to exceed 0.5 volts at the Meter. Tighten lock-nut.

* Actual notch depth may not be possible to measure because of generator sidebands (hum).

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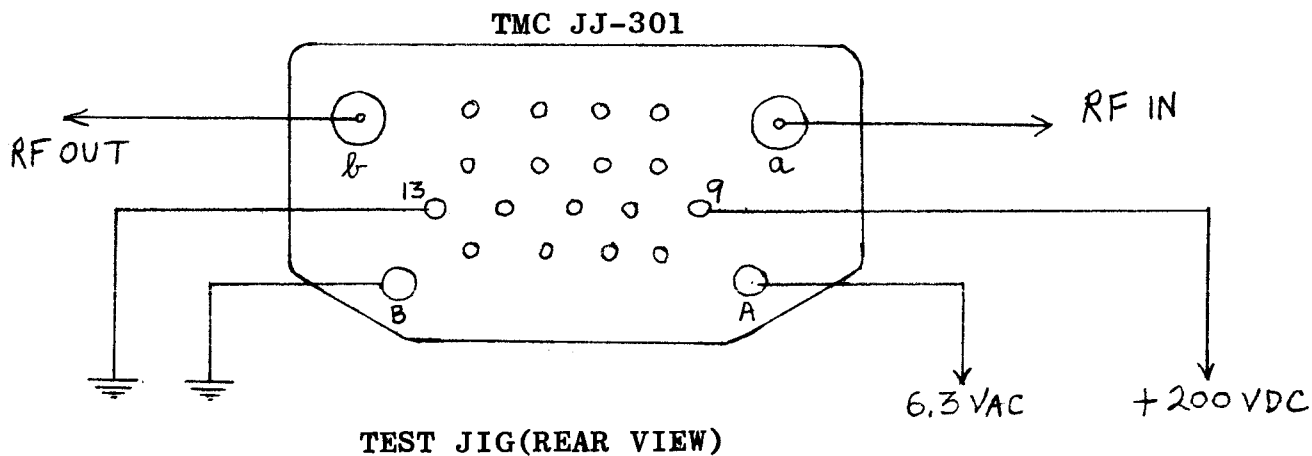
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FIG. A



VII. GAIN

1. Reinsert V6906 in socket, set S6901 to "OUT" position.
2. Connect signal generator to RF "IN" of J6901. Set at 250 KC.
3. Set generator attenuator to obtain 1 volt on AC-VTVM.
4. Set NOTCH ADJUST off zero position.
5. Check the output between the "OUT" and "IN" position of S6901. The difference should not exceed 2db. Record on test data sheet.

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THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y.

TEST DATA SHEET for AX-467(MNF-1 Module)

SERIAL NO. _____
MFG. NO. _____
MECHANICAL CHECK _____ OK
WIRING CHECK _____ OK
OSCILLATOR RANGE
From _____ KC
To _____ KC

OSCILLATOR AMPLIFIER OUTPUT

T6902 _____ VOLTS
T6901 _____ VOLTS

NOTCH DEPTH

_____ DB

GAIN

S6901 "OUT" _____ VOLTS
S6901 "IN" _____ VOLTS

DATE _____
TESTER _____