



Wulfsberg *Service Bulletin*

BULLETIN NO: RT-5000-15
RT-5000 Transceiver

EFFECTIVITY

Any RT-5000, P/N 400-015525, all flavors and serial numbers.

REASON

To disable carrier detect operation, and thereby eliminate excessive squelch indications when operating the RT-5000 in high-RF-field-strength environments.

DESCRIPTION

This modification consists of removing a resistor from the receiver board.

COMPLIANCE

Customer option at operator's convenience.

WARRANTY INFORMATION

Warranty credit or payment will be issued for this modification if the unit is still under the original new product warranty and the modification is completed by an appropriately rated BENDIX/KING Service Center. A properly completed warranty claim for two (2.0) hours labor plus parts may be submitted.

APPROVAL

This modification does not affect the original approval.

MANPOWER

Two (2.0) hours labor including testing.

REFERENCES

See attached Drawing and Test Procedure.

Date: Nov/96

SB RT-5000-15

P/N: 620-00010-0150

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MODIFICATION PROCEDURE

1. Remove bottom cover by removing twelve screws on the sides and bottom of the unit.
2. Remove two RX/SX Module screws from the Heatsink Assembly.
3. Remove eleven side and front screws, and open out the Wrap-around Assembly.
4. Disconnect three SMB connectors from the bottom of the RX/SX Module (connected through holes in the Mother Board).
5. Pull the RX/SX Module out from the Wrap-around Assembly.
6. Remove the Receiver Board cover. (The one on the same side as the four jacks and the 32-pin connector.)
7. Locate and remove R133 from the Receiver Board.
8. Reinstall the Receiver Board cover, and reassemble the unit.

IDENTIFICATION PROCEDURE

Mark the Modification Label to indicate that Mod 15 is complete.

TESTING PROCEDURE

Perform a complete functional test of the unit in accordance with the enclosed Test Procedure.

MATERIAL INFORMATION

N/A

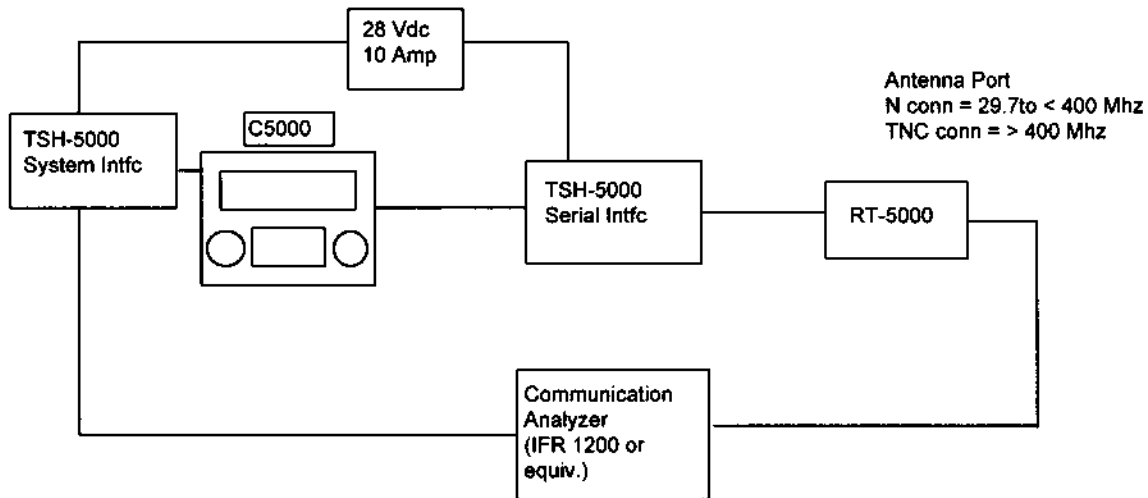


Wulfsberg Electronics Division
Prescott, AZ 86301 U. S. A.

RT-5000
29.7 Mhz to 960 Mhz AM/FM Tranceiver

TEST PROCEDURE

Using the TSH-5000 system interface box (P/N 311-014971) and the TSH-5000 serial interface box (P/N 311-017802-01), set up the configuration as pictured below.



All tests are configured assuming the use of a TSH-5000 harness, and a C-5000 Control Unit for channeling and feature control. For frequencies below 400 Mhz, use the N-type antenna port of the transceiver, and for frequencies equal to or above 400 Mhz, use the TNC-type antenna port. All voltage measurements should be made with respect to chassis ground. The power supply should be 28 Volts +/- 2 volts DC, capable of supplying 10 amps. All transmit tests should be performed with the transmitter output terminated with a 50-ohm load. Audio tests involving the headset ports should be performed with headset ports terminated with a 600-ohm load.

To simplify the testing procedure, channels with test frequencies can be preprogrammed into the C-5000; otherwise, use the manual channel to select all frequencies and features of the testing process. When performing sensitivity tests, it may be necessary to push the *TEST* button to disable the squelch operation.

If a Communications Analyzer such as an IFR 1200 is not available, individual pieces of equipment can be substituted. This will require a RF Signal Generator capable of 29.7 Mhz to 960 Mhz, a Modulation Analyzer, and Sinad Meter.

RT-5000 Transceiver TEST DATA SHEET

GWS Part Number: _____
Mod Status: _____

Serial Number: _____

1. Main Receiver Tests

1.1 Receiver Audio Output - FM standard

Connect an RMS voltmeter between J33 and J34 on the TSH-5000 Serial Interface Test Box.
Input a 1000uV, 3.0Khz dev., 1.0Khz tone standard test signal into the unit.

Audio output:	39.000 Mhz	_____	NLT 2.0Vrms
	560.000 Mhz	_____	NLT 2.0Vrms

1.2 Sensitivity - FM standard

Input a .6uV, 3.0Khz dev, 1.0Khz standard test signal into the unit.

Sinad:	39.000 Mhz	_____	NLT 12dB
	70.000 Mhz	_____	NLT 12dB
	129.000 Mhz	_____	NLT 12dB
	310.000 Mhz	_____	NLT 12dB
	560.000 Mhz	_____	NLT 12dB
	830.000 Mhz	_____	NLT 12dB

1.3 Receiver Squelch Setting - FM standard

Input a .1uV, 3.0Khz dev, 1.0Khz standard test signal into the unit. Increase the RF level until the signal to noise squelch opens. Measure the Sinad. The actual value is user-selectable; however, the suggested setting is 16dB.

FM Squelch	39.000 Mhz	_____	NGT 20dB
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1.4 Receiver Audio Output - AM standard

Connect the RMS voltmeter between J33 and J34 on the TSH-5000 Serial Interface Test Box.

Input a 1000uV, 90% mod, 1.0Khz tone standard test signal into the unit.

Audio output: 129.00 Mhz _____ NLT 2.0Vrms
 310.00 Mhz _____ NLT 2.0Vrms

1.5 Sensitivity - AM Standard

Input a 1.7uV, 30% mod, 1kHz tone standard test signal into the unit.

Sinad 70.000 Mhz _____ NLT 10dB
 129.000 Mhz _____ NLT 10dB
 310.000 Mhz _____ NLT 10dB

1.6 Receiver Squelch Setting - AM standard

Input a .1uV, 90% Mod, 1.0Khz standard test signal into the unit. Increase the RF level until the signal-to-noise squelch opens. Measure the Sinad. The actual value is user-selectable; however, the suggested setting is 16dB.

AM Squelch 129.000 Mhz _____ NGT 20dB

2. Crystal Guard Receiver Tests (Req. for -0201, -0301, -0401 versions only)

2.1 Receiver Audio Output - FM only

Connect an RMS voltmeter between J33 and J34 on the TSH-5000 Serial Interface Test Box.

Input a 1000uV, 3.0Khz dev, 1.0Khz tone standard test signal into the unit.

Audio output: At Crystal Frequency _____ NLT 2.0Vrms

2.2 Sensitivity - FM only

Input a .6uV, 3.0Khz dev, 1.0Khz standard test signal into the unit.

Sinad: At Crystal Frequency _____ NLT 12dB



3.5 Sensitivity - AM standard

Input a 1.7uV, 30% mod, 1kHz tone standard test signal into the unit.

Sinad	129.000 Mhz	_____	NLT 10dB
	310.000 Mhz	_____	NLT 10dB

3.6 Receiver Squelch Setting - AM standard

Input a .1uV, 90% Mod, 1.0Khz standard test signal into the unit. Increase the RF level until the signal-to-noise squelch opens. Measure the Sinad. The actual value is user-selectable; however, the suggested setting is 16dB.

AM Squelch	129.000 Mhz	_____	NGT 20dB
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4.0 Transmitter Tests (Required for all versions)

Initiate transmit condition by selecting the proper transmit frequency on the C-5000, and then toggling the Primary Carbon Mic PTT Switch on the System Interface Test Box.

4.1 Transmit power output - FM High Power

Tx power	39.000 Mhz	_____	8 to 12 watts
	70.000 Mhz	_____	8 to 12 watts
	129.000 Mhz	_____	8 to 12 watts
	310.000 Mhz	_____	8 to 12 watts
	560.000 Mhz	_____	8 to 12 watts
	830.000 Mhz	_____	8 to 12 watts

4.2 Transmit deviation - FM standard

Input a .25Vrms 1Khz audio tone into the banana jacks on the System Interface Test Box labeled *PRI HI* and *COM*.

Tx Deviation	39.000 Mhz	_____	2.7Khz to 3.3Khz
	70.000 Mhz	_____	2.7Khz to 3.3Khz
	129.000 Mhz	_____	2.7Khz to 3.3Khz
	310.000 Mhz	_____	2.7Khz to 3.3Khz
	560.000 Mhz	_____	2.7Khz to 3.3Khz
	830.000 Mhz	_____	2.7Khz to 3.3Khz



4.3 Transmit Deviation Limiter - FM standard

Input a 2.5Vrms 1Khz audio tone into the banana jacks on the System Interface Test Box labeled *PRI HI* and *COM*.

Tx Deviation Limit 39.000 Mhz _____ NGT 5.0Khz

4.4 Transmit CTCSS Deviation - FM standard

Select tone 11 with the control head. Transmit with no microphone modulation.

Tx CTCSS Deviation 39.000 Mhz _____ 550 to 950 Hz Dev.

4.5 Transmit power output - AM High Power

Tx power	39.000 Mhz	_____	12 to 18 watts
	70.000 Mhz	_____	12 to 18 watts
	129.000 Mhz	_____	12 to 18 watts
	310.000 Mhz	_____	12 to 18 watts

4.6 Transmit Modulation - AM High Power

Input a .25Vrms 1Khz audio tone into the banana jacks on the System Interface Test Box labeled *PRI HI* and *COM*.

Tx Modulation	39.000 Mhz	_____	NLT 70%
	70.000 Mhz	_____	NLT 70%
	129.000 Mhz	_____	NLT 70%
	310.000 Mhz	_____	NLT 70%



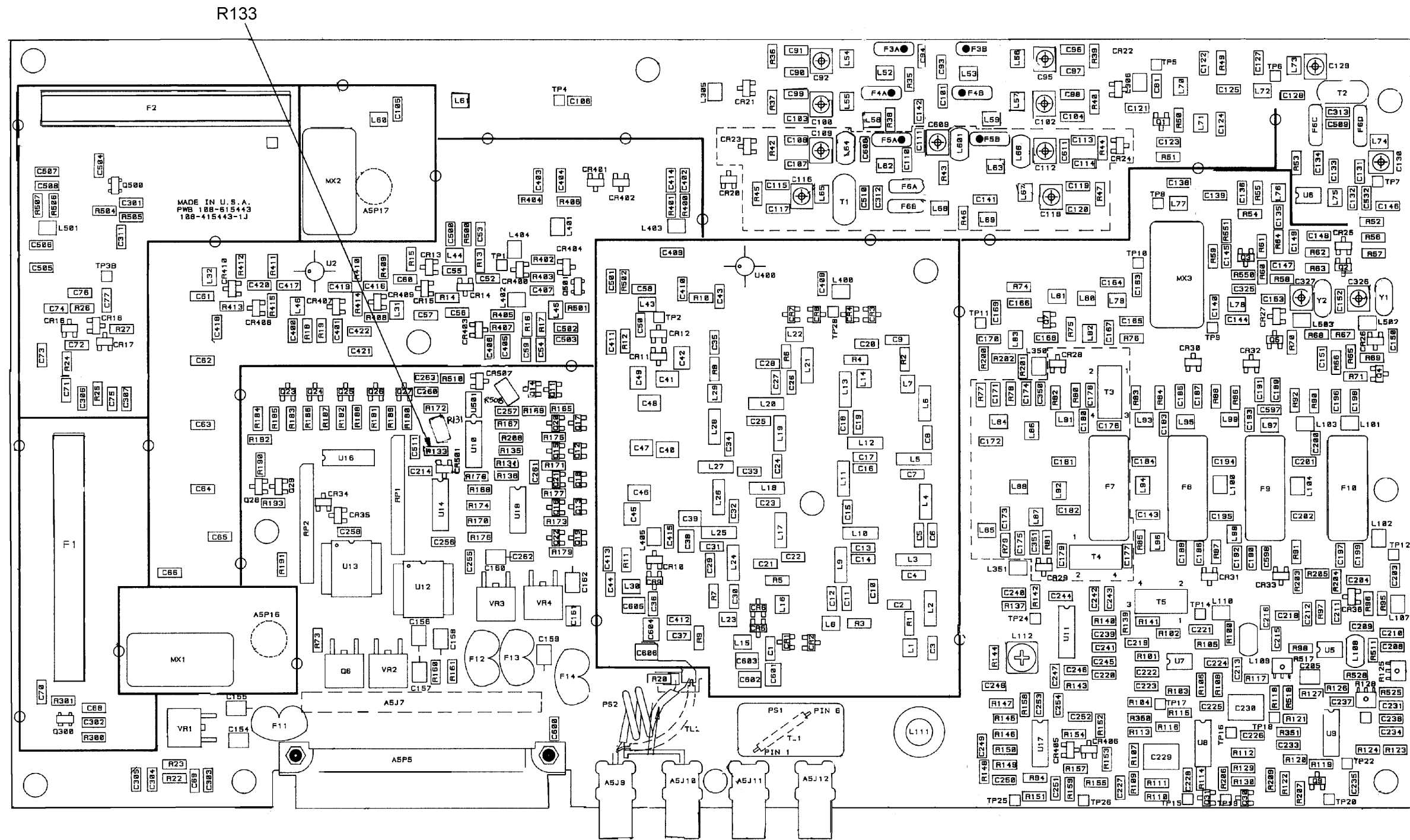


Figure 1
 RT-5000 Receiver Board
 300-015443 Rev-5