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Model No :GMRS672

Title: **GMRS672 Test & Alignment Procedure**

Drawing No: GMRS672-TAP.

Customer : AUDIOVOX

Rev. Date: Jan. 3, 2007

# GMRS672

## Test and Alignment Procedure

Created by:

Approved by:

Rev. No: 00

For Stage : MP

Release Date : Jan. 3, 2007

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## REVISION SHEET

Rev. Code	Rev. Date	Revision	Revised By:
M-00	Jan.3,2007		

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### 1. RECOMMENDED TEST EQUIPMENT

- 1.1 HP8920A,B Radio Communication Tester or equivalent with Spectrum Analyzer option.
- 1.2 Fluke 187 Digital Voltmeter or equivalent
- 1.3 HPE3615A Power Supply or equivalent

### 2. TEST PREPARATION

- 2.1 Connect a 4.5Vdc power supply to the positive battery terminal input point and the negative battery terminal input point (GND) into the negative terminal.
- 2.3 Connect the HP8920A,B RF Output port to the ANT point.
- 2.4 **SPK (+)** should be connected to the *Audio In Hi* and **SPK (-)** should be connected to the *Audio In Lo* of the HP8920B.
- 2.5 Set the unit at CH1 (462.5625MHz)

### 3. VCO ADJUSTMENT

- 3.1 Set the unit at CH1 and connect a digital voltmeter to VT TP (R519 & C514 connect point).
- 3.2 Press and hold the PTT Button so the unit is in transmit mode.
- 3.3 *Adjust L602 until the voltmeter reads 1.2 to 1.3Vdc (without VCO Plate). L602 is located under the shieldcan.*  
*Solder VCO Plate and let temperature stabilize. Recheck TX VCO at CH1, should be 1.0~1.3 Vdc*
- 3.4 Release the PTT button so the unit will be in receive mode.
- 3.5 Observe the voltage at VT TP, the voltage should be **0.6~2.5Vdc**.
- 3.6 Set the unit at CH14.
- 3.7 Press and hold the PTT button so the unit is in transmit mode.
- 3.8 Observe the voltage at VT TP, the voltage should be **1.0~2.5Vdc**.
- 3.9 Release the PTT button so the unit will be in receive mode.
- 3.10 Observe the voltage at VT TP, the voltage should be **0.6~2.5Vdc**.

*NOTE : Above Specifications are measured with VCO Plate soldered.*

### 4. TRANSMITTER FREQUENCY ALIGNMENT

- 4.1 Set the unit at CH1. Press and hold the PTT button so the unit will be in transmit mode.
- 4.2 Adjust VC501 trimmer capacitor until such that the output frequency is equal to the channel frequency with maximum error of +/-200Hz (OQA Limit of +/-800Hz).  
Production will control as follows:
  - *PCBA Alignment* : +/-200Hz
  - *Casing Test* : +/-500Hz
  - *OQA Limit* : +/-800Hz



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## 5. TRANSMITTER OUTPUT POWER CHECK

- 5.1 Set the unit at CH1. Set the Power Supply at 4.5Vdc. Must use short cable.
- 5.2 Press and hold the PTT button so the unit is in transmit mode. Make sure Battery Voltage is at 4.5Vdc during PTT.
- 5.3 Transmit Power should be > **0.5W**.
- 5.4 Set the unit at CH14, only Power Lo condition could be checked.
- 5.5 Press and hold the PTT button so the unit is in transmit mode. Ensure the TX Power is within **0.3-0.6W**.

## 6. TRANSMITTER DEVIATION ADJUSTMENT

- 6.1 Connect an audio generator (600ohms) to the microphone terminal pads. The audio frequency should be set at 1KHz with a level of 200mVrms.
- 6.2 Connect an FM Deviation Meter (on the HP8920B) on ANT point. Set the monitor to read *(Pk to Pk)/2* deviation. Set *Filter 1* to 25Hz and *Filter 2* to 15KHz. *De-emphasis* should be set to Off.
- 6.3 Press and hold the PTT button so the unit will be in transmit mode.
- 6.4 Adjust **VR301** and observe the reading at the Deviation Meter, the reading should be between **2.2 to 2.3KHz**. Checking at all condition (w/o CTCSS) should be **2.0-2.8KHz**.
- 6.5 Decrease the audio generator level until the deviation reads +/-1.5KHz. The generator level should be between **3 to 10mV**.
- 6.6 Check that the transmit audio distortion is less than 5%.

## 7. RECEIVER OUTPUT CHECK

- 7.1 Set the RF Generator level to -47dBm. The generator should be set for 1.5KHz deviation at 1KHz modulation.
- 7.2 Set *Filter 1* to 25Hz and *Filter 2* to 15kHz.
- 7.3 Connect Audio Analyzer to SPK(+ & - Point)
- 7.4 Set the unit Volume Level to maximum.
- 7.5 Check the maximum Audio Output Level, should be >**1.5V (w/ load)**.
- 7.6 Set the Volume at **500mV** Output. Confirm that the RX Distortion is less than 5%.
- 7.7 Reduce the RF Generator signal level until a 12dB Sinad reading is achieved. The RF Generator level should be less than -120dBm (nominal -123dBm).

## 8. SQUELCH THRESHOLD AND HYSTERISIS

- 8.1 Set unit same as 7.1.
- 8.2 Set the RF Generator level to -126dBm.
- 8.3 Slowly increase the RF Signal Generator level until the unit un-squelches (RX On), confirm that the sensitivity is between **6-14dB Sinad**.

## 9. VOX TEST

- 9.1 Set the unit into VOX Mode. The VOX icon should be displayed on the LCD.

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- 9.2 Connect an audio generator into the microphone terminal. The audio frequency should be set for 1KHz frequency with a level of **1mVrms** and the output should be turned off.
- 9.3 Turn on the output of the audio generator.
- 9.4 Increase the Audio Generator level until unit goes into TX Mode.
- 9.5 Check the Generator level, it should be between **1.5~5.0mV**.

**10. LOW BATTERY LEVEL TEST**

- 10.1 Set the unit into receive mode or standby mode.
- 10.2 Set the Power Supply voltage to **4.0Vdc**.
- 10.3 Slowly decrease the Power Supply Voltage until the Low Battery icon appears and blink in the LCD Display.
- 10.4 Observe the Power Supply Level. The level must be **3.2 to 3.7Vdc**.

**11. DESKTOP CHARGING TEST ( for DESKTOP Charger Checking only)**

- 11.1 Connect a fully charged Ni-MH Battery Pack (~3.5Vdc) into the unit.
- 11.2 Mount the unit at the DESKTOP CHARGER.
- 11.3 Monitor the current on the **Charger Adaptor (+)** line.
- 11.4 Confirm the Charging Current is within **60~85mA**.

**12. FREQUENCIES & CODE TABLE**

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
1	462.5625	12	467.6625
2	462.5875	13	467.6875
3	462.6125	14	467.7125
4	462.6375	15	462.5500
5	462.6625	16	462.5750
6	462.6875	17	462.6000
7	462.7125	18	462.6250
8	467.5625	19	462.6500
9	467.5875	20	462.6750
10	467.6125	21	462.7000
11	467.6375	22	462.7250