# *Installation Manual*

*MM101984V1*
*Rev. C, Nov-05*


# Hand Held Controller

tyco Electronics

MA-COM

## MANUAL REVISION HISTORY

| REV | DATE | REASON FOR CHANGE |
|---|---|---|
| C | Sept. 2005 | Added P5100, P7100, and M7100. |

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# INTRODUCTION

The purpose of this manual is to provide instructions for the installation of the Hand Held Controller with M7100, Orion™ and JAGUAR™ 725M mobile radios and vehicular chargers for P7100IP, P5100, JAGUAR 700P/Pi and M-RK™ radios.

The Hand Held Controller was designed to attach in the same manner as the Orion Remote Mount Control Head using an Interface Cable that connects the Hand Held Controller to the radio cables.

# RELATED DOCUMENTS

In addition to Hand Held Controller documentation, access to radio documentation is required to aid in the installation and proper operation of the Hand Held Controller. In most cases, the radio documentation is shipped with the radio equipment. A listing of related documents is provided to assist in verifying that you have the correct manuals for your application.

| PUBLICATION NUMBER | TITLE |
|---|---|
| LBI-39134 | Orion Mobile Radio and Control Unit – Motorcycle Installation |
| LBI-38901 | Orion Mobile Radio Installation Manual |
| LBI-39167 | EDACS® Orion Test Unit for Non-Simulcast Applications |
| MM102342V1 | M7100 Mobile Radio Installation Manual |
| MM102343V1 | M7100 Mobile Radio and Control Unit – Motorcycle Installation |
| MM101259V1 | JAGUAR 725M Mobile Radio Installation Manual |
| MM101013V1 | JAGUAR 725M Mobile Radio and Control Unit – Motorcycle Installation |
| AE/LZT 123 3257/1 | Enhanced Vehicular Charger Operator/Installation Manual |
| MM101813V1 | Hand Held Controller Operator's Manual |
| MM101985V1 | Hand Held Controller Maintenance Manual |

# HARDWARE AND SOFTWARE OPTIONS

## HARDWARE OPTIONS

The hardware options required for the Hand Held Controller will vary depending upon the radio equipment and configuration. Other variables such as the use of a siren or the level of transmission power may require a unique option.

| HHC EQUIPMENT | CONNECTED TO | OPTION/ PART NUMBER |
|---|---|---|
| Accessory Kit (without Siren), for remote mount, 50W TX or less | JAGUAR 725M | HBZN3M |
| | Orion | D2ZN5A |
| | M7100 | MAHG-ZN5Z |
| Accessory Kit (with Siren), for remote mount, 50W TX or less | JAGUAR 725M | HBZN3P |
| | Orion | D2ZN5C |
| | M7100 | MAHG-ZN6B |
| Control Unit for Dual Control (without Siren) | JAGUAR 725M | HBZN3V |
| | Orion | D2ZN5R |
| | M7100 (long package) | MAHG-ZN6L |
| | M7100 (short package) | MAHG-ZN6U |

| HHC EQUIPMENT | CONNECTED TO | OPTION/ PART NUMBER |
|---|---|---|
| Control Unit for Dual Control (with Siren) | JAGUAR 725M | HBZN3W |
| | Orion | D2ZN5S |
| | M7100 (long package) | MAHG-ZN6M |
| | M7100 (short package) | MAHG-ZN6V |
| Accessory Kit (without Siren), for remote mount, 60W TX and more | Orion | D2ZN5B |
| | M7100 | MAHG-ZN6A |
| Accessory Kit (with Siren), for remote mount, 60W TX and more | Orion | D2ZN5D |
| | M7100 | MAHG-ZN6C |
| Accessory Kit (without Siren) for remote mount, Lowband | Orion | D2ZN5E |
| Accessory Kit (without Siren) for remote mount, motorcycle | M7100 | MAHG-ZN6F |
| Accessory Kit (without Siren) for remote mount, motorcycle (no accessory cable) | M7100 | MAHG-ZN6G |

| HHC EQUIPMENT | CONNECTED TO | OPTION/ PART NUMBER |
|---|---|---|
| Accessory Kit (with Siren) for remote mount, motorcycle | M7100 | MAHG-ZN6H |
| Accessory Kit (with Siren) for remote mount, Lowband | Orion | D2ZNSF |
| Accessory Kit (without Siren) for remote mount, Euro | Orion | D2ZN5G |
| Accessory Kit (with Siren) for remote mount, Euro | Orion | D2ZN5H |
| Interface Cable (without Siren) | As Required | CA101619V1 |
| Interface Cable (with Siren) | As Required | CA101619V5 |
| Mounting Bracket | As Required | CU101239V51 |

## SOFTWARE OPTIONS

The following table shows the minimum software version required for use with the Hand Held Controller.

| EQUIPMENT | SOFTWARE VERSION |
|---|---|
| Orion Mobile | LZY 213 773/1 R41A |
| Orion Test Unit | LZY 213 774/3 R32B<br>LZY 213 774/4 R32B |
| JAGUAR 725M and M7100 | SK101638V1 R1B |
| Vehicular Charger for P7100, P5100, JAGUAR 700P/Pi | LZY 213 740/4 R4A<br>SK101638V1 R1B |
| MRK 256K | LZY 213 805/1 R32B<br>LZY 213 803/1 R40A |
| ProGrammer™ | LZY 213 766/11 R10A<br>LZY 213 766/15 R10A |

# CONNECTION DRAWINGS

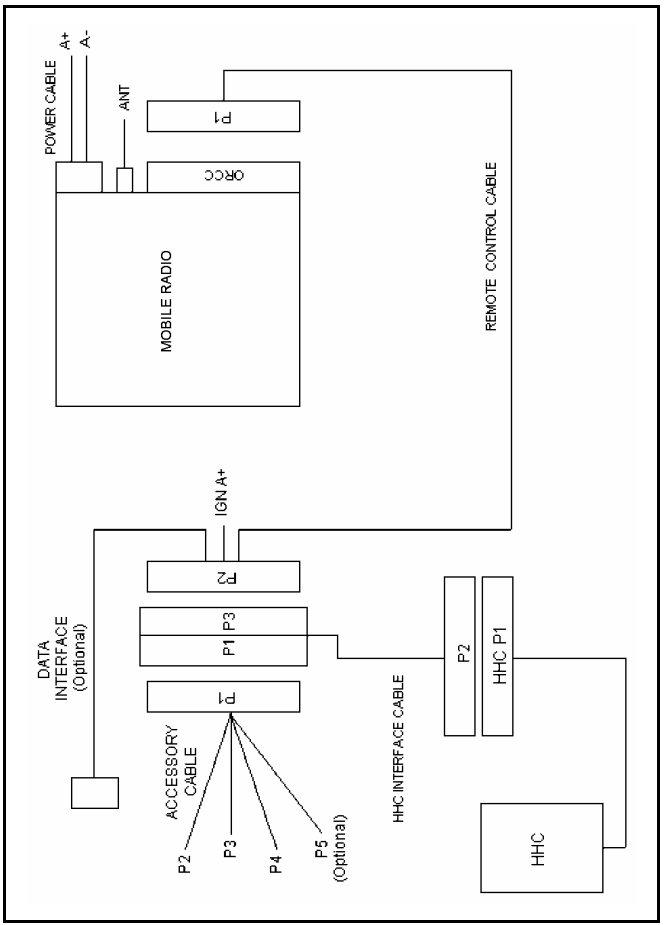



**Figure 1: Typical HHC/Radio Connection Diagram**

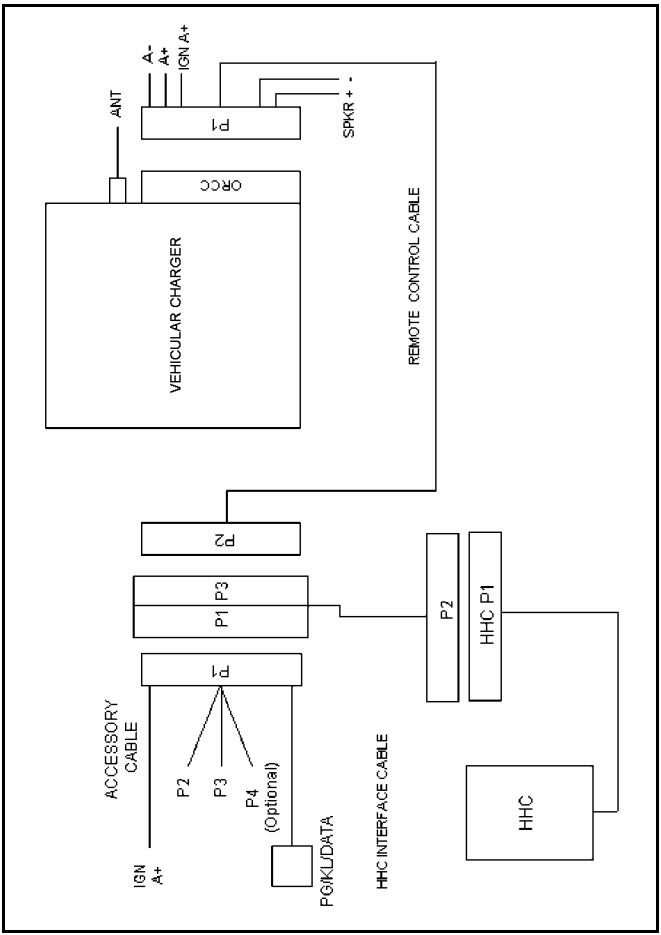



**Figure 2: Typical HHC/Vehicular Charger Connection Diagram**

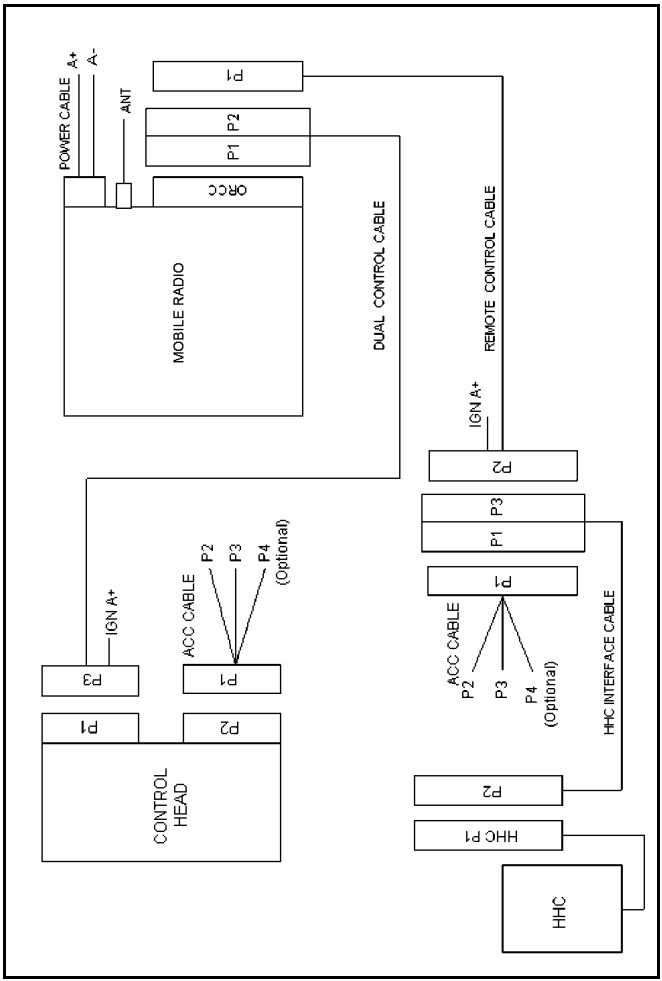



**Figure 3: Typical Dual Control Connection Diagram**

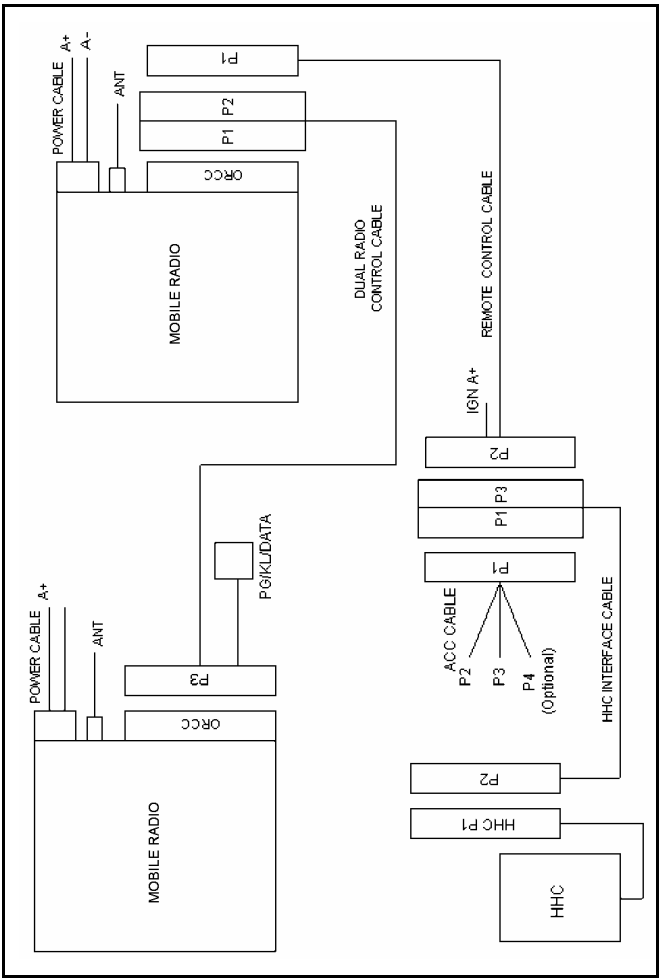



**Figure 4: Typical Dual Radio Connection Diagram**

# INSTALLATION INSTRUCTIONS

## CABLES

Two versions of the cable are available: one for Siren/light control (via the HHC) and one without. One version will be required in each installation. See Hardware Options chart on page 6 for part numbers for these cables. Additional cables required for your installation will vary depending on the type of equipment and installation, transmitter voltage, and use of siren. Consult the installation manual for your radio for information on specific cable requirements.

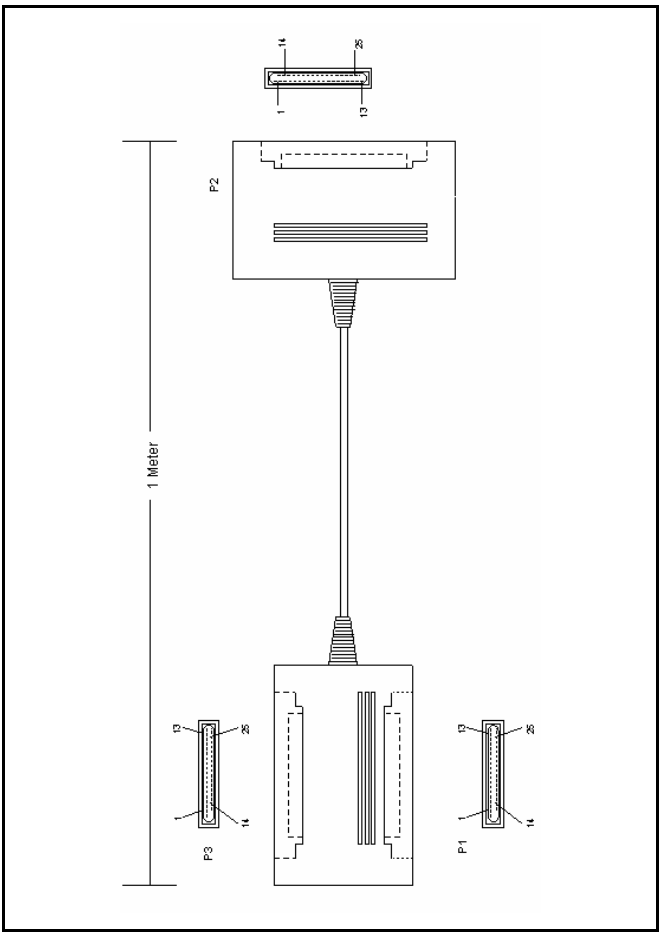



**Figure 5: Handheld Controller Interface Cable (CA101619V1 & CA101619V5)**

## TOOLS REQUIRED

- Small flat head screwdriver
- Small Phillips head screwdriver

## CABLE CONNECTIONS

The Hand Held Controller Interface Cable connects to the Remote Control Cable in radio and charger applications. An optional accessories cable can also be connected to the Hand Held Controller Interface cable for the addition of a speaker or other accessories.

Refer to the Connection drawings on page 10 for cable connections for your application.

## POWER

The power for the Hand Held Controller comes from the radio.

Range: 12VDC ±20%
Current: <500mA

# PROGRAMMING AND TESTING

## RADIO PROGRAMMING

The Hand Held Controller is shipped with the latest software. No programming of the HHC is necessary at the time of installation.

To control the radio using the Hand Held Controller, the Hand Held Controller must be set up through radio programming software. ProGrammer, TQS3385, used to program the radio personality is also used to set up the Hand Held Controller interface. If any of the keys on the Hand Held Controller are remapped, record the keypad changes on the blank keypad form in the Keypad Remapping section of the Operator's Manual, MM101813V1.

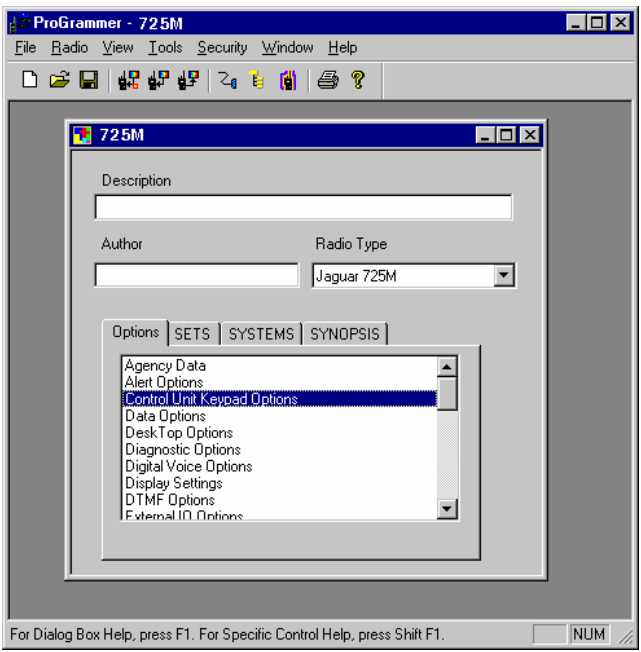
This section details the Hand Held Controller set up. Refer to On-Line Help for ProGrammer for assistance in setting up the Hand Held Controller.

### Mobile Radio Programming

1. Hook up a mobile radio that is compatible with the HHC according to the Programming Hookup diagram found in the radio or charger Installation Manual, Maintenance Manual or diagram found in the Programming the Radio section of the ProGrammer On-Line Help System.
2. Hook up the Hand Held Controller to the mobile radio according to the applicable connection diagram on page 10.

## To Read the Personality from the Mobile

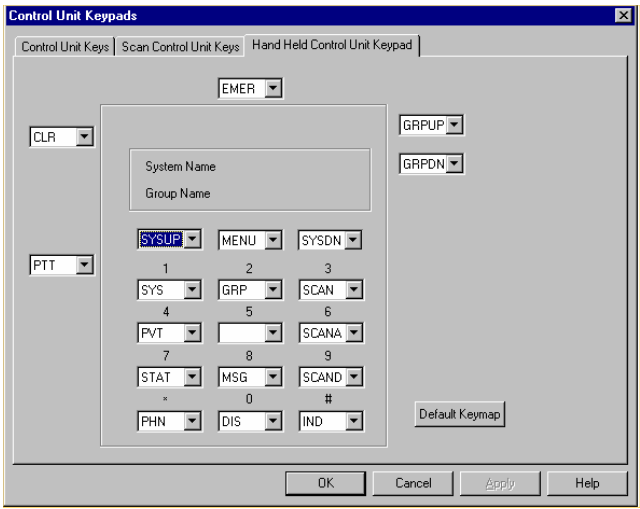
1. Open ProGrammer (TQS3385 R10A or later).
2. Select the Read toolbar button or select the Radio → Read menu item.
3. In the Radio Type dialog box, select the applicable mobile type in the New Radio Type control.




4. Select the OK push button. ProGrammer will read the current personality from the mobile and display the personality in the main window.

## To Change the Keymap

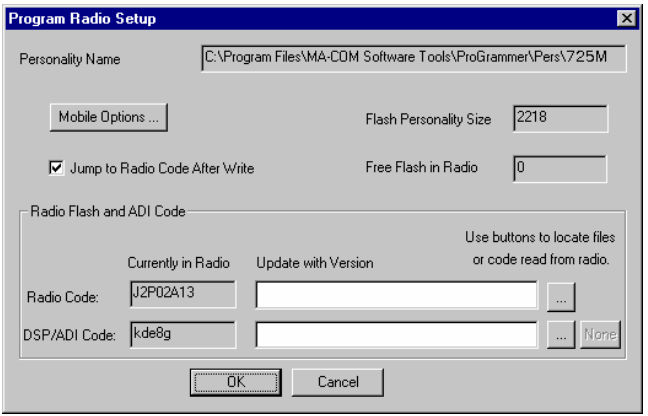
1. Select the Options tab.
2. Double-click Control Unit Keypads Options listed in the Options tab list box.




3. Select the Hand Held Control Unit tab in the Control Unit Keypads dialog box.
4. Configure the keypad as desired for the Hand Held Controller.
5. Select the Save toolbar button or select the File → Save As menu item.
6. Designate the personality with an identifying name and select the Save push button to save the personality to the PC hard drive.

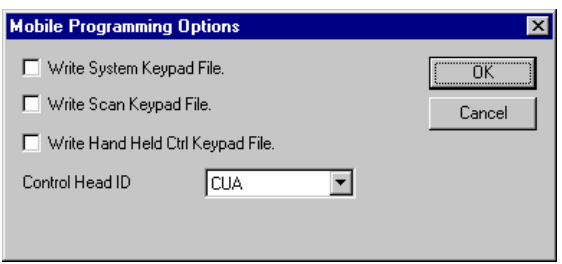
7. Select the Program toolbar button or select the Radio → Program menu item.

8. In the Program Radio Setup dialog box, select the Mobile Options… push button.




## To Write the Keymap

1. In the Mobile Programming Options dialog box, enable (check mark) the Write Hand Held Ctrl Keypad File control.



2. Select OK in the Mobile Programming Options dialog box.
3. Select OK in the Program Radio Setup dialog box.
4. Power OFF the radio.
5. Unhook the Hand Held Controller.

### To Attach to Vehicular Charger

1. Power OFF the applicable portable radio.
2. Attach the Hand Held Controller according to connection drawings on page 10.
3. Power ON the applicable portable radio.

### To Alter Compatible Personality Saved on the Hard Drive

1. Open ProGrammer (TQS3385 R10A or later).
2. Select the Open toolbar button or the File → Open menu item.
3. Select an appropriate personality compatible with the mobile in the programming setup.
4. Select the OK push button. ProGrammer displays the selected personality in the main window.
5. Select the Options tab.
6. Double-click Control Unit Keypads Options listed in the Options tab list box.
7. Select the Hand Held Control Unit tab in the Control Unit Keypads dialog box.

8. Configure the keypad as desired for the Hand Held Controller.
9. Select the Save toolbar button or select the File → Save As menu item.
10. Designate the personality with an identifying name and select the Save push button to save the personality to the PC hard drive.
11. Select the Program toolbar button or select the Radio → Program menu item.
12. In the Program Radio Setup dialog box, select the Mobile Options… push button.
13. In the Mobile Programming Options dialog box, enable (check mark) the Write Hand Held Ctrl Keypad File control.
14. Select OK in the Mobile Programming Options dialog box.
15. Select OK in the Program Radio Setup dialog box.
16. Power OFF the radio.
17. Unhook the Hand Held Controller.

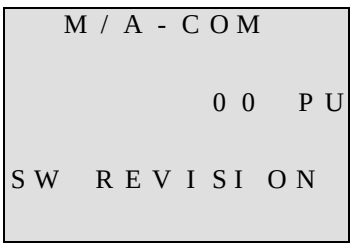
## Portable Radio Programming

The Hand Held Controller setup cannot be accessed within the portable radio programming screens. Hand Held Controllers for use with portable radios must be configured using a mobile radio.

## TESTING

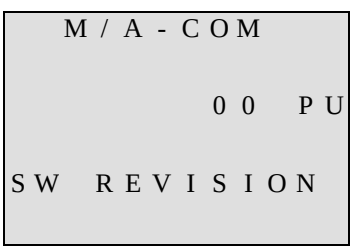
### Power Up HHC in Self–Test Mode

Connect HHC to radio and ensure that radio has HHC proper test personality programmed into it (see page 17). Hold down the EMER and MENU keys while powering up the radio. The HHC should come up in Self-Test Mode and show the following on the screen:



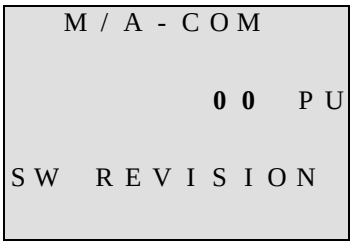

### Revision Code Test

Ensure that the software revision displayed on the screen is the proper software.

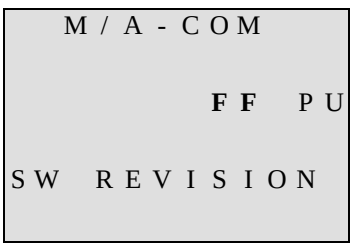


## Volume Knob Test

Ensure that the volume knob adjust from 0x00 (full CCW – but not into the OFF detent) to 0xFF (full CW). The display will look similar to the pictures below:

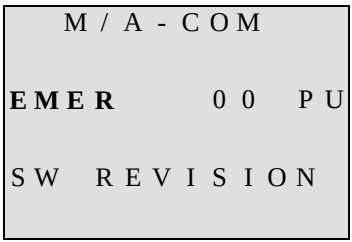



Through



## Button Tests

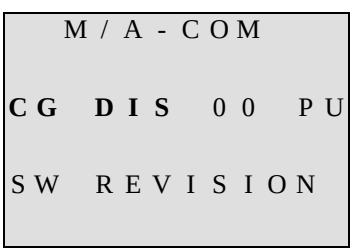
Ensure that each button is working by pressing it and verifying the corresponding button ID is shown in the display. For example, pressing the EMER button will show the following on the display:




Be sure to test all buttons; ⇑, ⇓, M, 1, 2, 3, 4, 5, 6, 7, 8, 9, *, 0, #, CLR, PTT, GRUP, GRDN

## HHC Clip Test

Hang the Hand Held Controller on a clip and ensure that "CG DIS" is displayed. When the Hand Held Controller is removed from the clip, "CG DIS" will remain on the display until another button is pushed.



## Back Light Test

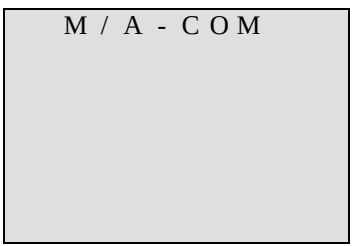
Press the 0 key and ensure that the display and keypad are evenly lit, and that you can step through different intensities, plus OFF. The intensity levels should cycle through a total of 6 steps: OFF, LOW, MEDIUM, HIGH, HIGH, and HIGH.

## HHC Audio Test

Key the Hand Held Controller and ensure microphone audio is passed properly.

## Power Up the Radio in Normal Operation Mode

This can be accomplished by simply turning off the HHC and cycling power. The HHC will come up in normal mode, and show the following:



**NOTES**

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