Understanding the Mysterious Motorola Radio in Your DCS Room

February 6, 2016

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1. Background: how these radios got into your DCS room
2. Operating the Motorola radios for DCS
3. Advantages of these Motorola radios vs. ham gear
4. How to purchase identical radios for your own use
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The Motorola radio in DCS rooms originated in 2009…but most did not get installed in DCS rooms until 2012-2014

- In 2009 the LASD acquired a group of Motorola CDM-1250 and CDM 1550 mobile radios
- Objective was placing one in each DCS room
- The radios could only be programmed by the Department
- Big advantage: Great radio, and impossible for users to accidentally “muck up”
- Delays ensued, radios not installed until starting 2012
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When the Motorola radios were installed, no guidance given on how to use them—that’s why we have this class

- Let’s take a short video tour on how to operate your Motorola radio and what its buttons do
- The radios are easy to operate and fool-proof

Note: To enable posting this presentation on the DCS website video segments shown with this slide have been omitted due to their very large file sizes.
Need a CDM 1550 Manual for your station? Download from:
Let’s review the operation basics

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
<th>Short Press</th>
<th>Long Press</th>
<th>Hold Down</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Programmable Button 1 (P1) (Interchangeable)</td>
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<td>P2</td>
<td>Programmable Button 2 (P2) (Interchangeable)</td>
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<td>P3</td>
<td>Menu Enter/Select Button (Up/Down)</td>
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<td>P4</td>
<td>Menu Exit/Escape Button</td>
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<td>Zone Selector/Editing Buttons (Left/Right)</td>
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<td>Programmable Button 3 (P3) (Interchangeable)</td>
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</table>

Red/Yellow/Green LED Indicators Display

Talkgroup/Channel Selector/Menu Navigation Buttons (Up/Down)

On/Off/Volume Control Knob
Here’s how all DCS Motorola CDM-1250/1550 radios currently have their P1-P4 front buttons programmed:

**Programmable Buttons:**

**P1 Button**
- Short: Toggle System Scan On/Off
- Long: Nuisance Delete

**P2 Button**
- Short: Monitor
- Long: Open Squelch

**P3 Button**
- Short: Toggle Repeater/Talkaround
- Long: Toggle High/Low Power

**P4 Button**
- Short: Backlight Control
- Long: Home Revert
Going forward, the DCS Tech Team plans to have your DCS Motorola radio re-programmed with common frequency set

Future directions for your Motorola CDM-1550/1250

- DCS Tech Team needs to get all DCS Districts onto TASMA-compliant simplex frequencies

- Common frequency bank for all Districts countywide will then be loaded into all Motorola CDM radios
  - One “Zone” could cover DCS County frequencies
  - Second “Zone” could cover simplex frequencies and local repeaters used by every DCS District, enabling Station to Station contact

- Tech Team trying to get special headsets for the Motorola radios

- Some of advanced features like MDC might be implemented at later date
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4. **How to purchase identical radios for your own use**
With some knowledge, these Motorola radios have many features not found on amateur units.

Building a portable repeater is easy with two Motorola CDM 1550s:

- $15 cable enables connection as repeater, safely handles 20-watts
- Use a higher-wattage model for the TX unit (left, in photo) due to larger heat sink
- UHF duplexers available for about $100
- Key to advanced features is 16-pin port on back side

440 amateur porta-peater in use for Palos Verdes Half Marathon
The 16-pin rear connection enables radio options and configurations most amateur radios cannot achieve.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>External Speaker (-)</td>
<td>9</td>
<td>Emergency Alarm</td>
</tr>
<tr>
<td>2</td>
<td>Mic Audio</td>
<td>10</td>
<td>Ignition Control</td>
</tr>
<tr>
<td>3</td>
<td>Mic “Push To Talk”</td>
<td>11</td>
<td>Receive Audio</td>
</tr>
<tr>
<td>4</td>
<td>External Alarm</td>
<td>12</td>
<td>Programmable I/O 12</td>
</tr>
<tr>
<td>5</td>
<td>Flat TX Audio</td>
<td>13</td>
<td>Switch Battery Sense (+)</td>
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<td>6</td>
<td>Programmable I/P 6</td>
<td>14</td>
<td>Programmable I/O 14</td>
</tr>
<tr>
<td>7</td>
<td>Ground</td>
<td>15</td>
<td>Internal Speaker +</td>
</tr>
<tr>
<td>8</td>
<td>Programmable I/O 8</td>
<td>16</td>
<td>External Speaker (+)</td>
</tr>
</tbody>
</table>
These Motorola radios have many other features not found on amateur units

Other aspects of CDM 1250/1550

- Excellent audio from front speaker
- Resistance to dust and dirt (no fan opening), vibration
- Great RF “front end”
- All front panel buttons programmable to many options
- 14-character front display
- Can display MDC “ID” of other radios calling
These Motorola radios have many other features not found on amateur units...but some knowledge is required

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- Resistance to dust and dirt (no fan opening), vibration
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...but there are a few downsides

- Need to use Motorola’s software ($239 for 3-year license)
- Software requires a Windows 32-bit operating system (or Win 7 64-bit Professional’s 32-bit emulation)
- Care needed when programming to avoid transmitting out of ham band
- Need to understand Motorola terms
  - “Code plug”
  - “Conventional personality”
  - “Zone”
  - A few others
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Your mysterious radio is part of Motorola’s “Professional Series”

Professional Series radios are:

- Analog FM
- Widely used by:
  - Ambulances
  - Volunteer firefighters
  - Industrial facilities
  - Public utilities
  - Trunked radio systems
- Available in many configurations
- Perfect for ham radio (usually)

PR860 PORTABLE
The Motorola PR860 Professional Series two-way radio offers rugged design in a surprisingly lightweight package. Its ergonomic design handles easily, with bigger knobs and controls that can be operated even when wearing heavy gloves.

HT SERIES PORTABLES
Motorola HT Series Professional portable radios are the right choice for users with advanced communication needs. The HT Series is composed of four robust radios tailored to meet the requirements of almost any organization. They offer unrivaled, crystal-clear audio quality even in noisy surroundings, thanks to Motorola’s X-Pand™ voice feature. In addition, they have all passed Motorola’s grueling Accelerated Life Test which simulates five years of hard use in the field.

MTX SERIES PORTABLES
Intelligent radios so advanced, they practically think for you. MTX Series portable two-way radios are the smart choice for your business—delivering everything you need for optimal business communication. Designed to operate on Motorola’s Privacy Plus™ or LTR® trunking systems, these radios can enhance your interactive resources by providing a wider calling range, faster channel access, greater privacy and higher user and talkgroup capacity.

CDM SERIES MOBILES
The CDM Series of mobile radios offer users a compact, ergonomic design with optimal mounting flexibility. These robust mobile radios are tailored to meet the requirements of almost any organization, offering crisp, clean audio even in noisy locations or vehicles, thanks to Motorola’s X-Pand™ voice feature and a large front-projecting speaker. Telephone/paging capabilities and Motorola’s precision-controlled MDC signaling features boost effectiveness by providing a wide range of calling options. In addition, customizable buttons can be programmed for quick access to favorite features.

PM1200 MOBILE
The PM1200 is an affordable high power, lowband radio for public works, utilities and transportation professionals. This mobile radio offers a full range of easy-to-use features including Emergency Alerts, Scanning, Quick-Call II and DTMF signaling.
Used Motorola Professional Radios available on ebay and elsewhere; CDM-1550 discontinued by Motorola, Dec. 2015

Motorola CDM 1550 VHF 136-174 MHz AAM25KKF9AA5AN

Item condition: Seller refurbished
“Looks and operates as good as new.”

Time left: 9d 17h 2/14, 6:54AM

Price: US $209.00

Located in United States

Shipping: $16.00 Expedited Shipping | See details
Item location: Skidmore, Texas, United States
Ships to: United States and many other countries | See details

Delivery: Estimated between Sat. Feb. 6 and Wed. Feb. 10
Payments: PayPal, VISA, MasterCard, American Express, Discover

This is a private listing. Sign in to view your status or learn more about private listings.
But, you need to determine which features are in a given “Professional” radio--be aware before you buy one...

### Motorola Professional Series Product Identification Matrix

<table>
<thead>
<tr>
<th>Internal Use</th>
<th>Radio Type</th>
<th>Model Series</th>
<th>Bandsplit</th>
<th>Power</th>
<th>Display</th>
<th>Channel Spacing</th>
<th>Protocol</th>
<th>Feature Level</th>
<th>Model Revision</th>
<th>Model Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA Internal Use</td>
<td>M Mobile</td>
<td>25 Model Series</td>
<td>B 29.7-36 MHz</td>
<td>H 1-25 W</td>
<td>A No Display, No Keypad</td>
<td>4 12.5kHz</td>
<td>AA Conventional</td>
<td>1 4 Frequency</td>
<td>A Original Revision</td>
<td>N Standard Package</td>
</tr>
<tr>
<td>LA Internal Use</td>
<td>H Handheld</td>
<td>C 36-42 MHz</td>
<td>K 25-40 W</td>
<td>C No Display, Basic Keypad</td>
<td>9 Programmable</td>
<td>DU LTR</td>
<td>2 64 Frequency</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>D 42-50 MHz</td>
<td>D 1-5</td>
<td>D 1 Line Display, Limited Keypad</td>
<td></td>
<td>DP LTR</td>
<td>5 16 (128 on AA) Frequency</td>
<td></td>
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<td></td>
<td></td>
<td>K 136-174 MHz</td>
<td></td>
<td>F 1 Line Display, Standard Keypad</td>
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<td></td>
<td>6 160 Frequency</td>
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<td></td>
<td></td>
<td>M 217-222MHz</td>
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<td>H 1 Line Display, Enhanced Keypad</td>
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<td></td>
<td>8 160 Frequency</td>
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<td></td>
<td></td>
<td>R 403-470 MHz</td>
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<td>N 4 Line Display, Enhanced Keypad</td>
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…for amateur use get Bandsplit K (2-meters) or R (for 440); Channel Spacing = 9; Protocol = AA; Feature Level 5 or 6

Example: Motorola CDM 1550 VHF 136-174 MHz

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The same programming software also programs and shares many features with the companion handheld HT-1250/1550.

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In summary, Motorola Professional radios offer a lot of value and power; for DCS use, just remember our simple buttons.

Push to turn on/off; Turn to adjust volume

Channel selector

Programmable Buttons:

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Short: Toggle System Scan On/Off
Long: Nuisance Delete

P2 Button
Short: Monitor
Long: Open Squelch

P3 Button
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Thanks for listening.