

This revision outlines changes that have occurred since the printing of your manual. Use this information to supplement your manual.

REVISION CHANGE:

Page	Section No.	Section Title	Paragraph	Description
iv		Table of Contents	2.6 and 6.2	Asterisk deleted from section headings.
1-2	1.2	Introduction: Siren/PA Description	Table 1-1	Asterisks deleted from rows 3 and 11 of table 1-1.
2-2	2.2	Operation: Public Address Operation	Table 2-1	Replaced 'Wail' with 'Yelp' in Hi-Lo Selected Tone row of table 2-1.
2-3	2.6	Operation: External Radio Operation	2.6	Deleted asterisk from section heading and deleted first line of text.
5-2	5	CPS Programming	Table 5.2	Deleted asterisk from Manual Tone cell (row 2) and deleted table note.
6-4	6.2	Installation, Disassembly, and Assembly: Horn-Ring Transfer Relay	6.2	Deleted asterisk from section heading and deleted first line of text.





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Table of Contents

Foreword	F-ii
Product Safety and RF Exposure Compliance	F-ii
Manual Revisions	F-ii
Computer Software Copyrights	F-ii
Document Copyrights	F-ii
Disclaimer	F-ii
Trademarks	F-ii
List of Figures	v
List of Tables	vi
Chapter 1 Introduction	1-1
1.1 Notations Used in This Manual	1-1
1.2 Siren P/A Description	1-1
1.3 Cabling Diagram	1-4
Chapter 2 Operation	2-1
2.1 Siren/PA Operation	2-1
2.1.1 Control Unit	2-1
2.2 Public Address Operation	2-2
2.2.1 Control Head/DEK-Plus	2-2
2.3 Siren Tone Operation	2-2
2.3.1 Control Head/DEK-Plus	2-2
2.4 External Radio Operation	2-3
2.4.1 Control Head/DEK-Plus	2-3
2.5 Airhorn Operation	2-3
2.6 Manual Operation	2-3
2.7 Speaker Protection Alert	2-3
2.8 Power-Up Feature	2-4
2.8.1 Siren State	2-4
2.8.2 DEK-Plus	2-4
Chapter 3 Theory of Operation	3-1
3.1 Overview	3-1
3.2 Microprocessor and Control Interface	3-1
3.2.1 Bus Interface	3-1
3.3 Low-Level Audio	3-2
3.4 High-Level Audio	3-2

3.5	Power.....	3-3
3.6	Power Control and Speaker Short Detection.....	3-3
Chapter 4	Configuration/Programming of the Siren/PA	4-1
Chapter 5	CPS Programming	5-1
Chapter 6	Installation, Disassembly, and Assembly.....	6-1
6.1	Cables.....	6-2
6.2	Horn-Ring Transfer Relay	6-4
6.3	Disassembly and Assembly	6-4
6.3.1	Disassembly.....	6-4
6.3.2	Assembly	6-5
6.4	Pushbutton Removal and Replacement	6-5
Chapter 7	Maintenance and Troubleshooting.....	7-1
7.1	Overview	7-1
7.2	Maintenance	7-1
7.2.1	Public Address Input Sensitivity Test.....	7-1
7.2.2	Frequency Response Test.....	7-1
7.2.3	Siren Output Power Test.....	7-1
7.2.5	Speaker Short Circuit Protection Test.....	7-2
7.2.6	Operating Mode Retention Test*	7-2
7.2.7	Version Display in Test Mode	7-2
Chapter 8	Siren/PA Schematics and Mechanical Drawings	8-1
Appendix A	Replacement Parts Ordering.....	A-1
A.1	Basic Ordering Information	A-1
A.2	Motorola Online.....	A-1
A.3	Mail Orders	A-1
A.4	Telephone Orders	A-2
A.5	Fax Orders	A-2
A.6	Parts Identification	A-2
A.7	Product Customer Service	A-2
Index.....	I-i

Chapter 1 Introduction

1.1 Notations Used in This Manual

Throughout the text in this publication, you will notice the use of note, caution, warning, and danger notations. These notations are used to emphasize that safety hazards exist, and due care must be taken and observed.

NOTE: An operational procedure, practice, or condition that is essential to emphasize.



Caution

CAUTION indicates a potentially hazardous situation which, if not avoided, might result in equipment damage.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or injury.



DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or injury.

1.2 Siren P/A Description

The MCS 2000 Siren/PA is an external accessory that generates siren tones and amplifies audio signals from the radio for public address (PA). It can deliver 65, 75, or 100 watts of siren power to an 11 ohm speaker, or 130 watts to dual 11 ohm speakers. In the PA mode, it can deliver 50 watts of audio power.

This accessory consists of the Siren/PA unit and the cables that connect the Siren/PA to your MCS 2000 radio system.

The Siren/PA unit is usually located in the cargo area of a vehicle. It can be operated using one of the following:

- Mobile radio control head
 - Direct Entry Keyboard (DEK-Plus).
-

Some Siren/PA features can be programmed by a qualified radio technician using the Customer Programming Software (CPS). A summary of available features for each Siren/PA configuration is shown in [Table 1-1](#).

Table 1-1. Siren/PA Features

Feature	Using the Control Head	Using the DEK-Plus
Wail/Yelp/Hi-lo tones	Yes	Yes
“Airhorn” tone	Yes	Yes
Siren manual tones	No	No
Public address	Yes	Yes
External radio	Yes	Yes
PA volume control	Yes	Yes
Siren power control	Automatic	Automatic
Speaker short protection	Yes	Yes
Programmable parameters (using the radio codeplug)	Yes	Yes
Power-up self check	Yes	Yes
Horn-Ring override	No	No
Siren State retained (while radio off)	No*	No*

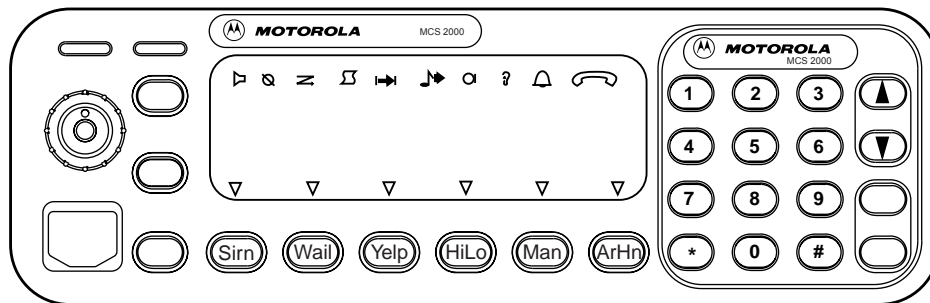
** Not available in initial offering.*

Chapter 2 Operation

2.1 Siren/PA Operation

2.1.1 Control Unit

Depending on the installed configuration, the Siren/PA may be controlled by buttons on the control head or on the DEK-Plus.



MAEPF-27515-O

Figure 2-1: Model III Control Head with Siren/PA Functions

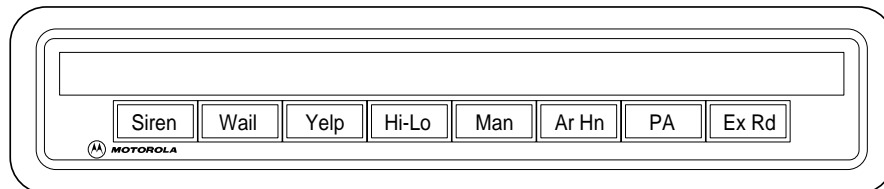


Figure 2-2: Direct Entry Keyboard (DEK-Plus)

2.2 Public Address Operation

The Public Address feature amplifies and broadcasts the user's voice over the siren speaker.

2.2.1 Control Head/DEK-Plus

To activate the Public Address function, momentarily press the **PA** button. The corresponding light-emitting diode (LED) will light up and the PA feature will be activated.

The control head display will temporarily show the current PA volume setting. To set the PA volume, rotate the radio's volume control (the rotary knob on the control head).

NOTE: If you adjust the PA volume with the rotary knob on the control head, it will change the radio's volume setting based on the position of the knob.

To use the Public Address feature, press the **Push-To-Talk (PTT)** button and speak into the microphone. Your voice will be amplified and broadcast over the siren speaker.

NOTE: The **PTT** button cannot be used to transmit while the PA feature is activated.

If the Public Address and Siren options are both activated, the Siren function will be overridden when the **PTT** is pressed. The Public Address feature will have priority, and any siren tone or incoming radio signals (if in External Radio mode) will be abruptly muted.

To turn off the Public Address, momentarily press the **PA** button again.

2.3 Siren Tone Operation

Wail, Yelp and Hi-Lo siren tones are broadcasted over the siren speaker. Use the Siren function to toggle between siren tones when broadcasting.

2.3.1 Control Head/DEK-Plus

To turn on the Siren function, press the **Siren** button momentarily. Then press the **Wail**, **Yelp**, or **Hi-Lo** buttons to broadcast the desired tone. The corresponding LEDs light up and the control head display temporarily shows the selected siren tone.

Any time the siren tone is changed, the display will briefly show the newly selected tone (even if the Siren function is off). To change the tone, press the **Siren** button on the DEK-Plus or **Sirn** button on the control head momentarily.

If the Horn-Ring accessory is connected, you can change the siren tone by pressing the vehicle's **Horn-Ring** while broadcasting a siren tone. (The operation of the Horn-Ring feature is shown in [Table 2-1.](#))

NOTE: You can change the siren tone at any time. The Siren function does not have to be activated.

Table 2-1. Horn-Ring Operation

Selected Tone	Changes to	Note
Wail	Yelp	Press and release the Horn-Ring to change to Yelp tone. Press the Horn-Ring again to return to Wail tone.
Yelp	Airhorn	Press the Horn-Ring to create the Airhorn tone. Airhorn sounds as long as the Horn-Ring is pressed. Release the Horn-Ring to return to Yelp tone.
Hi-Lo	Yelp	Press and release the Horn-Ring to change to Yelp tone. Press the Horn-Ring again to return to Hi-Lo tone.

2.4 External Radio Operation

The External Radio feature amplifies and broadcasts incoming radio messages over the siren speaker, allowing radio communications to be heard outside the vehicle.

2.4.1 Control Head/DEK-Plus

To enable the External Radio feature, turn the Siren function on by momentarily pressing the **Siren** button on the DEK-Plus or the **Sirn** button on the control head. Then, select the External Radio function by pressing the **Ex Rd** button. The corresponding LEDs will illuminate.

To adjust the External Radio volume, turn the volume control (rotary knob) on the control head.

To turn off the External Radio feature, press the **Siren** button on the DEK-Plus or the **Sirn** button on the control head again, or select a different Siren function (Wail, Yelp, etc...). Once you turn off the External Radio function, the radio's receive volume will correspond with the position of the rotary knob on the control head.

2.5 Airhorn Operation

The Airhorn feature—available with the Control Head and DEK-Plus configurations—broadcasts an airhorn tone over the Siren speaker. To broadcast the Airhorn, momentarily press the **Ar Hn** button. To turn off the Airhorn, press the **Ar Hn** button again.

2.6 Manual Operation

The Manual function—available with the Control Head and DEK-Plus configurations—allows the Horn-Ring to activate a siren tone.

To enable the siren tone to be generated via the Horn-Ring, press the **Man** and **Siren** buttons. The corresponding LEDs will illuminate. Press the **Horn-Ring** to broadcast the pre-set tone (tones are programmed in the CPS, the default tone is “Wail”). You can program the Horn-Ring to generate the following tones:

- Manual Wail: Pressing the **Horn-Ring** activates a rising Wail that peaks at 1500 Hz and continues as long as the **Horn-Ring** is held. When you release the **Horn-Ring**, the Wail tone falls until the tone is muted.
- Manual Yelp: Pressing the **Horn-Ring** activates a Yelp tone that continues as long as the **Horn-Ring** is held. When you release the **Horn-Ring**, the tone immediately mutes.
- Manual Airhorn: Pressing the **Horn-Ring** activates an airhorn sound that continues as long as the **Horn-Ring** is held. When you release the **Horn-Ring**, the tone immediately mutes.

2.7 Speaker Protection Alert

When a short exists, the system performs a routine to “protect” itself from further harm. If a speaker short occurs, any audio broadcast (Siren functions, PA audio) is terminated. The Control Head displays SPKR SHORT. When the problem is corrected, the Siren/PA returns to its previous operation.



Caution

In order for this feature to operate correctly, use only the following Motorola-approved speaker kits: TDN6251, TDN6252, TDN6253, and TDN6254. The use of any other speakers may cause unreliable operation of this feature and prevent proper operation of the Siren/PA.

2.8 Power-Up Feature

2.8.1 Siren State

The Siren/PA Accessory powers up in one of two ways:

- Warm Start (battery power was not removed)
- Cold Start (battery power was removed).

2.8.2 DEK-Plus

In a Warm Start with a DEK-Plus, the Siren will power up with the PA Volume, the siren tone, and the Siren On/Off in their previously selected state at power-down, and with the PA off.

NOTE: In a Warm Start with the DEK-Plus, the CPS may be used to program whether or not the Siren ON/OFF powers up in its previous state. This feature can be disabled, causing the Siren/PA to always power up with the Siren off.

In a Cold Start, with a DEK-Plus, the Siren will power up with the default PA Volume, the Wail tone, the PA off, and the Siren off.

Chapter 5 CPS Programming

The Customer Programming Software (CPS) stores programmed options in the radio's codeplug. The CPS is preprogrammed with default settings at the factory, but it may be modified to suit your needs. There is one primary screen in the CPS for editing the Siren/PA options. To access this screen, double-click the "Radio Wide" tab shown in [Figure 5-1](#).



Figure 5-1: "Tree View" Screen Shot

Under the "Siren Operation" field, the "Siren/PA" option must be selected in order to modify the unit's CPS options. Selecting the "PA Only" option will only allow you to modify the Public Address options.

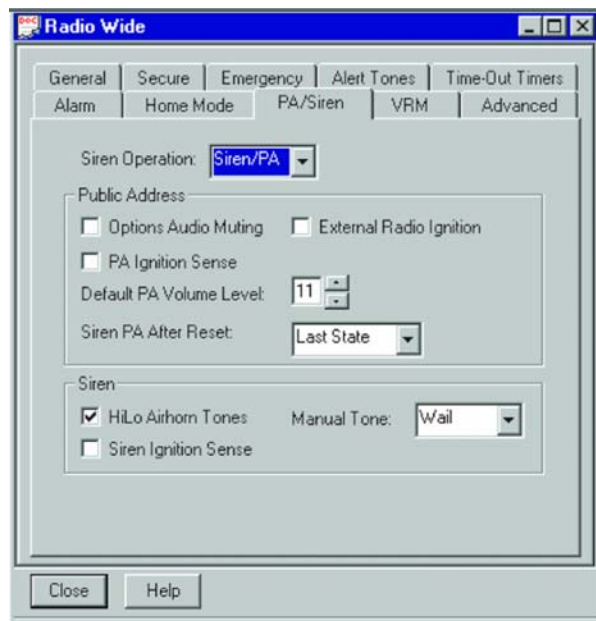


Figure 5-2: "Siren/PA Options" Screen Shot

The Siren/PA Options screen enables you to modify various Siren/PA options (default settings are indicated). The following tables describe the programmable fields and their settings:

Table 5-1. Public Address Fields

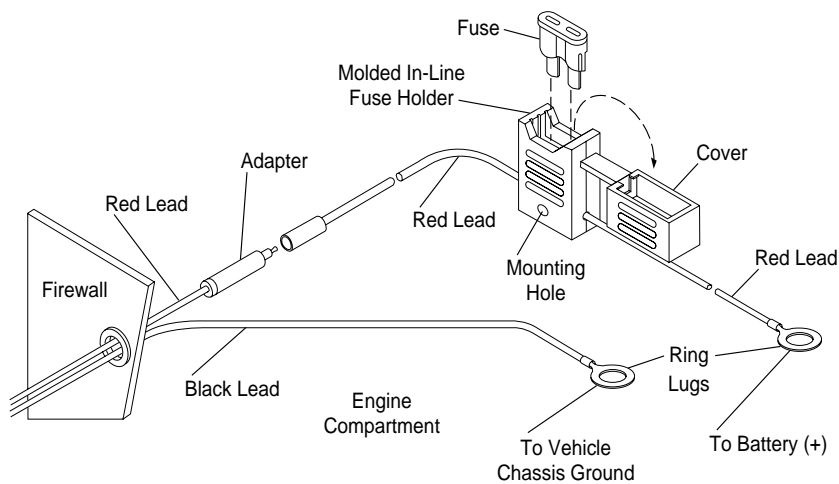
Field	Options
Options Audio Muting	<p>Disabled (default): Routes all audio to the Public Address speaker when in External Radio Mode.</p> <p>Enabled: Prevents deciphered SECURENET® audio and Mobile Voice Storage message playback from being heard over the external speaker.</p>
PA Ignition Sense	<p>Disabled (default): Public Address operable with ignition switch on or off.</p> <p>Enabled: Public Address operable only with ignition switch on.</p>
Ext Radio Ignition	<p>Disabled (default): External Radio operable with ignition switch on or off.</p> <p>Enabled: External Radio operable only with ignition switch on.</p>
Default PA Volume Level	<p>This field is programmed to set the Public Address volume level for initial power-up. If no volume level is manually selected by the operator, the volume will default to the setting in this field.</p> <p>The range is from 0 to 15 (default 11).</p>
Siren P/A After Reset	<p>LAST STATE* (default): The siren will power up in the same state, on or off, as at power-down (Warm Start).</p> <p>Off: Siren will always be off at power-up.</p>

*Not available in initial offering. See Table 1-1, "Siren/PA Features," on page 1-2.

Table 5-2. Siren Fields

Field	Options
Hi-Lo Airhorn Tones	<p>Disabled: Hi-Lo and Airhorn tones cannot be produced.</p> <p>Enabled (default): Hi-Lo and/or Airhorn tones are allowed.</p>
Manual Tone	<p>This field selects the Manual Tone that will be heard when the Horn-Ring is pressed. The choices are Ar Hn, Wail, or Yelp (default is Wail).</p>
Siren Ignition Sense	<p>Disabled: Siren tones operable with the ignition switch on or off.</p> <p>Enabled (default): Siren tones operable with ignition switch on.</p>

4. Route the red power cable to the vicinity of the battery positive terminal. Be careful to avoid areas where the cable might be subjected to abrasion or high temperatures, and use rubber grommets wherever the cable passes through a bulkhead, such as the firewall.
5. Locate the fuse holder as close to the battery as possible and away from any hot engine components.
 - a. Mount the fuse holder using the provided mounting hole and dress wires as necessary.
 - b. Connect the fuse holder red adaptor lead plug to the mating receptacle on the red power cable of the Siren/PA unit (see [Figure 6-3](#)).
6. Connect the power cable red lead from the fuse holder to the positive (+) battery terminal.
7. Plug fuse into in-line fuse holder (see [Figure 6-3](#)).



FL08302470

Figure 6-3: Power Cable Assembly

8. Route the radio cable to the radio. Observe that the radio has two connectors on its front panel. The radio control head should be connected to the left connector, and the Siren/PA should be connected to the right connector, facing the radio. (See [Figure 6-2](#).)
9. (a) Control unit cable—for units using a DEK-Plus:
 - In the Dash Mount Configuration, the HKN6137 (MCS 2000, 4 ft. DEK-Plus) cable is used.
 - In the Remote Mount Configuration, the HKN6136 (MCS 2000, 17 ft. DEK-Plus) cable is needed.
- (b) When the Siren/PA is controlled from the radio, no control unit connection is supplied.

6.2 Horn-Ring Transfer Relay

In order to make Siren operation more convenient under emergency conditions, the vehicle's Horn-Ring (or buttons) can be used to control siren functions (refer to [Chapter 2 on page 2-2](#)). This convenience allows the driver to concentrate on the road and traffic conditions.

[Figure 6-4](#) shows wiring diagrams for connecting the Horn-Ring via a transfer relay for both negative and positive ground systems. As an alternative, a simple momentary contact pushbutton (normally open) may be installed in the vehicle, in a location convenient to the driver.

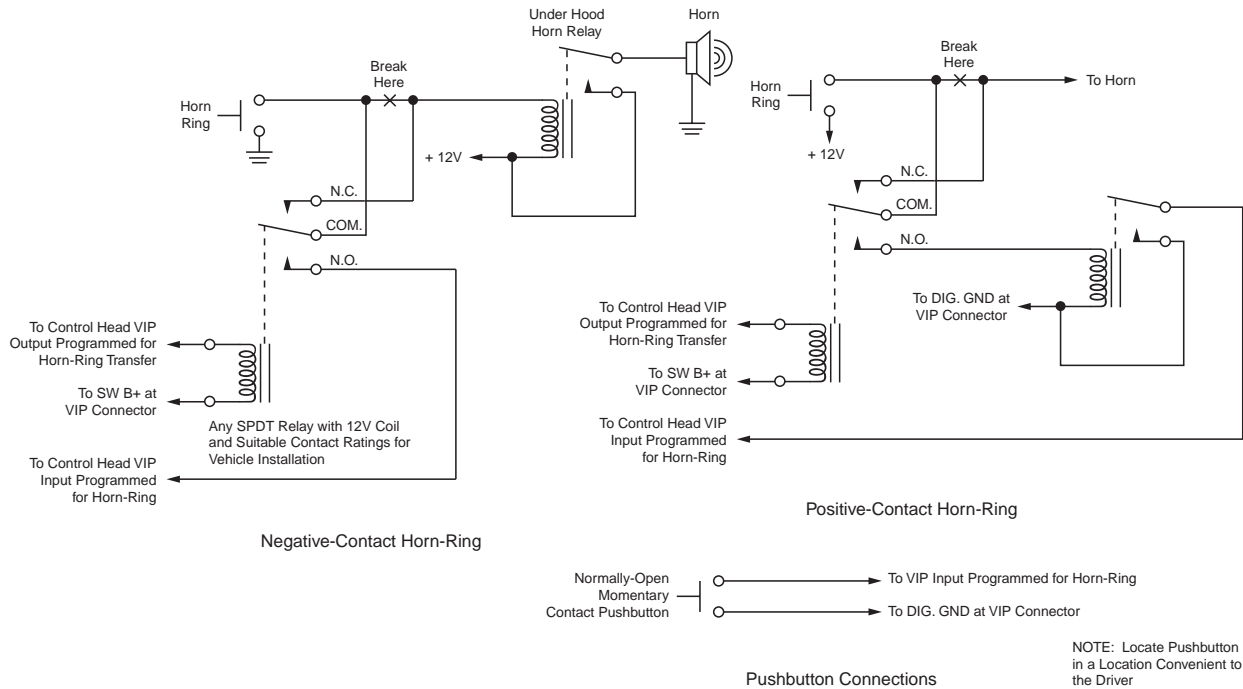


Figure 6-4: Siren/PA Horn-Ring Connections

6.3 Disassembly and Assembly

Item numbers in parentheses refer to parts identified in [Figure 8-6, on page 8-9 in Chapter 8](#) of this manual.

6.3.1 Disassembly

1. Place the Siren/PA on a workbench with the top cover (2) upward. Loosen four screws (1) and remove the top cover (2) from the chassis (8).
2. Remove the component side shield cover (27) by prying the corners from the shield fence (28) and lifting upward.
3. Remove the main PC board as follows:
 - a. Remove the screw (29) near the connector (11).
 - b. Remove the screw (12) and bracket (13) that attach the bus assembly (14).
 - c. Remove two screws (15) from either side of the PC board (16).