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MOTOROLA COMMANDSTAR LITE™ OPERATOR MANUAL

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CHAPTER 1

INTRODUCTION

ABOUT THIS MANUAL

The purpose of this manual is to help you use the CommandSTAR Lite™ operator console. It contains information to acquaint you with the console equipment and instructions for completing some of the most common tasks using this equipment. It also provides a description of the console module controls, indicators and displays, and information on using the equipment to perform basic maintenance tasks.

FINDING INFORMATION IN THIS MANUAL

This manual provides several tools to help you find information quickly:

- **Quick-Reference Tables:** Useful quick-reference figures and tables appear at the beginning of chapters describing console modules. These tables summarize module features and give cross-references to other sections for more detailed information.
- **Glossary:** a glossary provides the long forms of abbreviations and acronyms used in the manual.
- **Index:** a complete index is included at the end of the manual.

OTHER MANUAL

Consult the following manuals for more information about CommandSTAR Lite:

- *CommandSTAR Lite Installation and Troubleshooting Manual* (6880309J98).
- *CommandSTAR Lite System Database Manager Manual* (6880309K01).
- *CommandSTAR Lite System Planner* (R4-8-2000)

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CHAPTER 2

OPERATOR AND CONSOLE PANEL EQUIPMENT

This chapter provides an overview of the CommandSTAR Lite console and operator equipment.

OPERATOR EQUIPMENT

For each console, the operator position includes:

- One port to connect optional equipment (synchronized clock, serial printer, or CommandSTAR Lite System Database Manager [CSDM Lite]).
- One jackbox for the operator headset (optional) and one jackbox for the supervisor headset (optional).
- One headset for the operator and one headset for the supervisor (optional).
- One internal condenser microphone.
- One gooseneck or desk microphone (optional).
- One dual push-to-talk (PTT) foot-switch (optional).
- Operator control modules.

HEADSET JACKBOX

The operator jackbox, shown in Figure 2-1 on page 2-2, accommodates a standard dual-jack headset connector. A second jackbox is available for parallel operation by the supervisor.

FIGURE 2-1 HEADSET (LEFT) AND HEADSET JACKBOX (RIGHT)

HEADSET

The headset, shown in Figure 2-1, is used to reproduce incoming Select audio, provided the headset is connected to the jackbox.

MICROPHONES

Each console includes an internal condenser microphone, and jacks for two external microphones. Either a gooseneck or a desk microphone can be used, as shown in Figure 2-2. The Monitor button on the desk microphone is not supported if used on a digital radio channel.

FIGURE 2-2 DESK MICROPHONE (LEFT) AND GOOSENECK MICROPHONE (RIGHT)

NOTE

For best results, the gooseneck microphone should be positioned so that its head is approximately 2–3 inches from the operator's mouth.

PTT FOOT-SWITCH

The console supports a dual foot-switch, shown in Figure 2-3, that provides hand-free push-to-talk (PTT) radio operation. The right switch is used for PTT while the left is used for Continuous Tone Control Squelch System (CTCSS) channel monitoring, for systems equipped with CTCSS channel monitoring. The left switch (CTCSS) is not supported if used on a digital radio channel.

FIGURE 2-3 DUAL FOOT-SWITCH

CONSOLE PANEL

The layout of the CommandSTAR Lite console panel consists of five main modules:

- The Auxiliary Control Module (ACM).
- The Dual Channel Control Module (DCCM), each with or without a programmable display.
- The Digital Radio Control Module (DRCM).
- The Keypad module.
- The Speaker module, consisting of the Select and Unselect speakers.

The position, combination and number of control modules vary depending on the communication needs. The basic functions and characteristics of the control modules are given in the following paragraphs.

AUXILIARY CONTROL MODULE (ACM)

The ACM, shown in Figure 2-4, comprises 16 buttons. Each button enables a function when pressed and disables the function when either pressed again or released. Each button has either none, one or two indicators to show the status of the button. The ACM functions are common to the basic operation of the console and not limited to a channel. The number of ACMs used is dependent on the communications requirements.

NOTE

The ACM may be equipped with buttons that provide limited control of a base station.

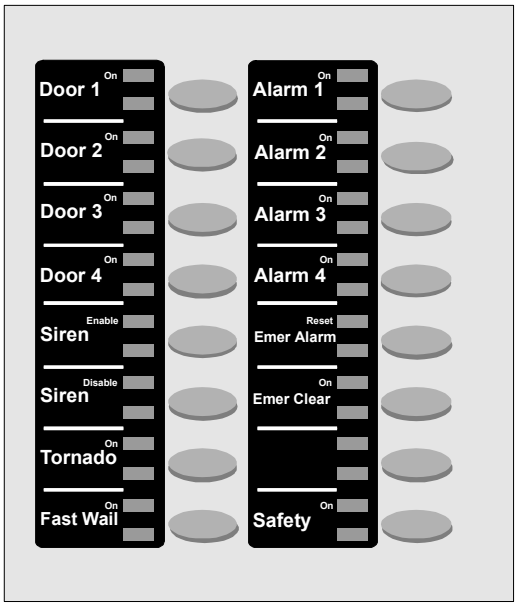


FIGURE 2-4 AUXILIARY CONTROL MODULE (ACM)

CHANNEL CONTROL MODULE (CCM)

The CCM is used to communicate with conventional base stations. There are three types of CCM, as shown in Figure 2-5, "Types of Channel Control Module (CCM)," on page 2-5.:

- The Dual Channel Control Module (DCCM) with 2 channels and displays
- The Dual Channel Control Module (DCCM) with 2 channels and no displays
- The Single Display Channel Control Module (SDCCM) with 1 channel and display

NOTE

On a CCM without displays, a label is normally affixed to the display area to indicate the use of the channel.

The **Select**, **Mute** and **Transmit** buttons are standard features of the CCM and their positions on the CCM never change. The remaining buttons are used for optional functions.

The CCM with display provides one of the following display options when an incoming transmission is received on a channel:

- Stat-Alert® ID: the display shows the Stat-Alert ID of the console initiating the transmission. The ID can be either a number or an associated code, such as a name.
- DTMF (dual tone multi-frequency) Caller ID: the display shows the DTMF ID of the console initiating the transmission. The ID can be either a number or an associated code, such as a name.
- DTMF Selective Call: The display does not show any ID. WIth Selective Call, the console itself is assigned a DTMF ID, and only receives transmissions that use this ID.

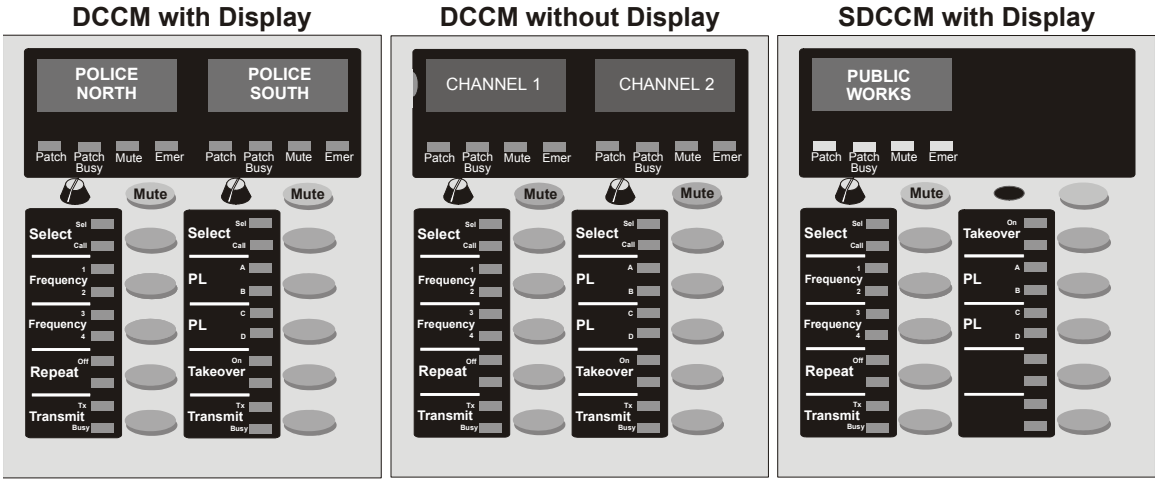


FIGURE 2-5 TYPES OF CHANNEL CONTROL MODULE (CCM)

DIGITAL RADIO CONTROL MODULE (DRCM)

The DRCM emulates the buttons and indicators on a digital remote control radio, enabling operators to control a digital radio from the CommandSTAR Lite console. Figure 2-6 on page 2-6 shows an example of a DRCM.

The **Mute**, **Shift**, **Volume**, **Select** and **Transmit** buttons are standard on all DRCMs. The other function button features vary, depending on how the digital radio's buttons are programmed.

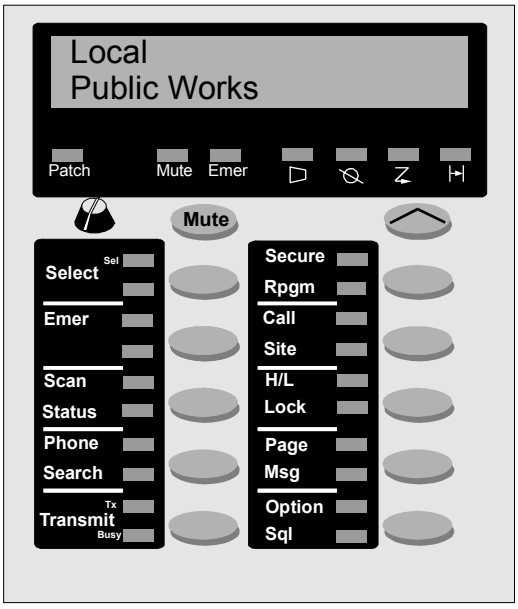


FIGURE 2-6 DIGITAL RADIO CONTROL MODULE (DRCM)

KEYPAD MODULE

The console is equipped with a Keypad module, shown in Figure 2-7 on page 2-7. The Keypad allows the operator to perform such activities as dialing a telephone number, entering a paging code, and setting the time display format. The Keypad module includes a common **Push-to-Talk** button, and buttons used to access the console tests and programing menu.

All Keypad buttons also function as extensions of the DRCM. When a DRCM is selected, these dual-purpose buttons emulate buttons on the digital radio controlled by the DRCM.

SPEAKERS AND INTERNAL MICROPHONE

Each CommandSTAR Lite console includes two built-in speakers, one Select and one Unselect, and an internal condenser microphone. Figure 2-8 on page 2-7 shows the locations of the built-in speakers, their volume controls, and the internal microphone.

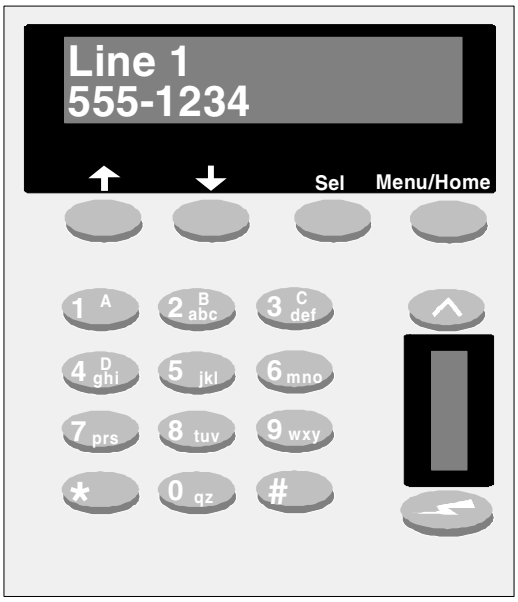


FIGURE 2-7 KEYPAD

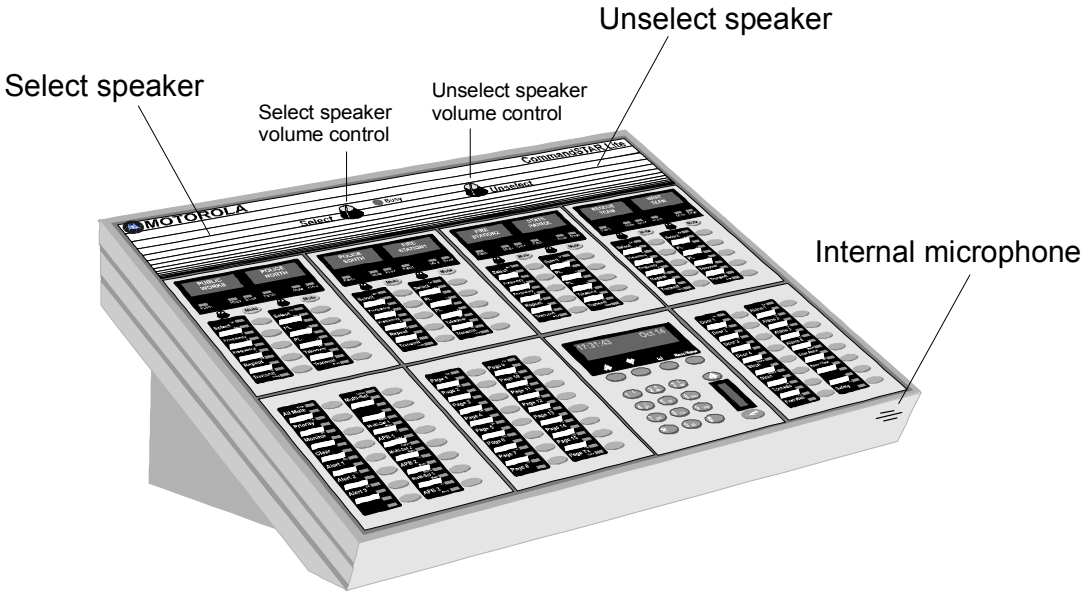


FIGURE 2-8 BUILT-IN SPEAKERS, VOLUME CONTROLS AND INTERNAL MICROPHONE

For each console:

- Each speaker has an independent volume control.
- If a headset is plugged in, the Select speaker is disconnected and the audio is heard through the headset.

NOTE

When the console is configured to use the internal microphone, to ensure proper functioning of the microphone do not obstruct or cover it in any way.

LAYOUT

Figure 2-9 shows the layout of a typical control panel installed in a console.

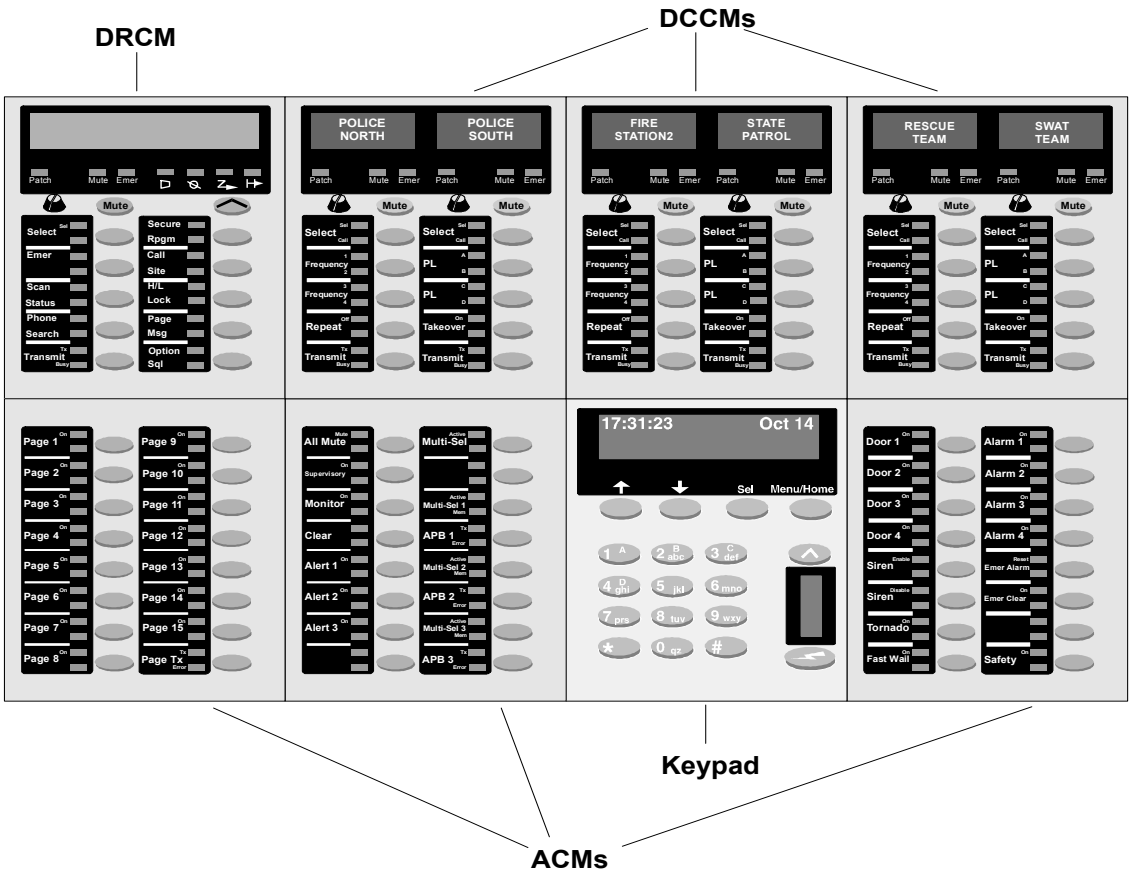


FIGURE 2-9 LAYOUT OF A TYPICAL CONSOLE CONTROL PANEL

CHAPTER 3

CHANNEL CONTROL MODULE (CCM)

This chapter describes the function buttons, indicators and displays found on Channel Control Modules. Two types of CCM are available: a Dual Channel Control Module (DCCM) available with and without display and a Single Display Channel Control Module (SDCCM). The buttons and indicators for the two types of CCM are identical.

BUTTONS AND INDICATORS

Together, Figure 3-1 on page 3-1 and Table 3-1 on page 3-2 provide a quick identification and a brief description of the buttons and indicators of the Channel Control Module. The numbered references in the figure correspond to the numbers in the figure reference column in the table.

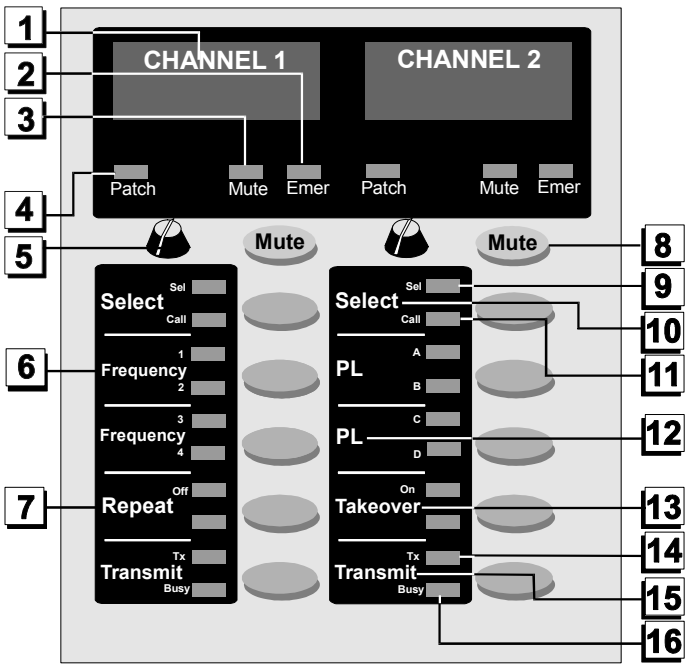


FIGURE 3-1 DUAL CHANNEL CONTROL MODULE BUTTONS

TABLE 3-1 CCM QUICK REFERENCE

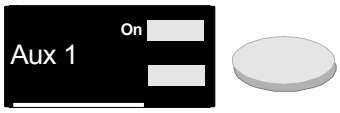
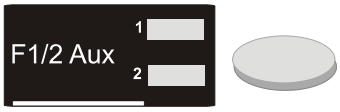
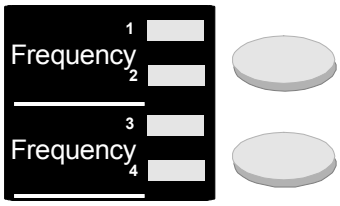
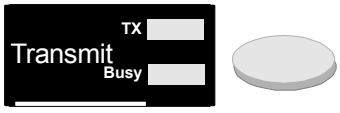
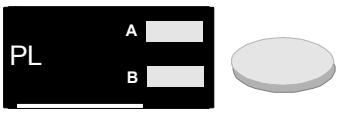
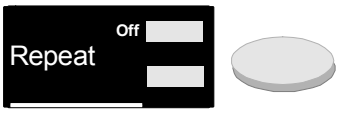
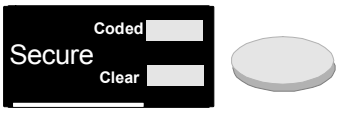
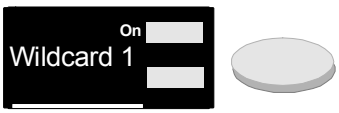
Name	Figure Ref	Descriptions	Buttons	Page
Auxiliary Output 1 and 2		Used to control an external output device.		page 3-4
Busy (indicator)	16	Lights when a operator from another console is transmitting over the channel.		page 3-10
Call (indicator)	11	Blinks when an incoming call is received over the channel.		page 3-10
Display	1	Two line by eight character alphanumeric display that shows the name of the channel. Can also display the radio caller ID.		page 3-1
Emer (indicator)	2	Informs the operator of an incoming emergency call.		page 5-13
F 1/2 Auxiliary		Controls the output relay on frequency 1 and toggles the transmit/receive frequency between frequency 1 and frequency 2.		page 3-5
Frequency	6	The CCM provides for the control of up to six base station frequencies by pressing the **Frequency** buttons. Each toggles between two frequencies.		page 3-6
Instant Transmit	15	Allows immediate access to a radio channel without using a common PTT.		page 3-5
Mute (indicator)	3	Lights when the channel is muted.		page 3-7
Mute	8	Used to mute the audio coming from a channel.		page 3-7
Mute R2		Used to mute a second receiver using tone remote control.		page 3-7
Patch (indicator)	4	Lights when the operator patches the channel.		page 5-26

TABLE 3-1 CCM QUICK REFERENCE

PL (Private Line)	12	Used to control up to six private line stations for access to specific units.		page 3-8
Repeat	7	Causes incoming audio on the channel to be retransmitted through the console.		page 3-9
Secure		Enables or disables the external voice secure interface.		page 3-9
Sel (indicator)	9	Lights when the module is selected (**Select** button is pressed). The receive audio for the channel is heard through the Select speaker.		page 3-10
Select	10	Used to select the channel. Upon selection, the incoming radio audio is routed to the Select speaker or headset. If the channel is not selected, the received audio associated with the CCM is heard through the Unselect speaker.		page 3-10
Station Main/Stby		Toggles the radio channel audio, through relays, between the main and the standby base station.		page 3-13
Takeover	13	Can be used for parallel operation or as backup units to take over when a radio console fails to transmit or receive radio messages.		page 3-14
TX (indicator)	14	Lights when transmission is in progress over the channel.		page 3-5
Volume	5	Used to adjust the incoming audio level through a range of eight adjustments in steps of 3 dB.		page 3-14
Wildcard		Used to control various radio ancillary equipment.		page 3-15

PARALLEL STATUS UPDATES

Multiple CommandSTAR Lite consoles can share access to a single radio channel. Consoles configured in this way are said to be connected in parallel to the channel. Depending on the channel's signaling type, consoles connected in parallel can be informed when one of the consoles uses the channel. When this happens, indicators on the consoles are automatically updated to reflect the channel's current status. This process is called a parallel status update.

In order for parallel status updates to occur at consoles sharing a radio channel:

- The shared radio channel must use tone signaling.
- The "Parallel Status" field for the channel must be set to ON in the CSDM Lite. The Parallel Status field is set through the "Edit Radio Channel" screen in the "Radio Channel Configuration" menu. For more information, see "Radio Channel" in Chapter 4, "Configuration Menu", of the *CommandSTAR Lite System Database Manager Manual*.

For consoles sharing a radio channel and with "Parallel Status" set to ON, parallel status updates are provided for the following events:

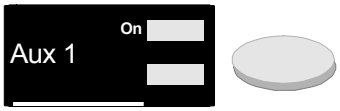
- When a console sharing the channel changes the channel frequency, the corresponding **Frequency** button indicators light at the other consoles. See "Multi-Frequency Operation" on page 3-6 for more information.
- When a console selects a private line on the channel, the corresponding **Private Line** button indicators light at the other consoles. See "PL (Private Line Operation)" on page 3-8 for more information.
- When a console enables or disables the channel's voice secure interface, the corresponding **Secure** button indicators light at the other consoles. See "Secure" on page 3-9 for more information.
- When a console sharing the channel activates or deactivates the channel's wildcard feature, the **Wildcard** button indicators change at the other consoles. See "Wildcards Selection" on page 3-15 for more information.

When a console sharing the channel activates or deactivates monitoring on the channel, the **Monitor** button indicators change at the other consoles. See "Monitor" on page 5-21 for more information.

FUNCTION BUTTONS

AUXILIARY OUTPUT 1 AND 2

The **Auxiliary Output 1** and **2** buttons are used to control an external device such as a security camera or a magnetized door. The button can be latching or non-latching.



To operate a latching **Auxiliary Output** button:

PROCEDURE 3-1 HOW TO OPERATE A LATCHING AUXILIARY OUTPUT BUTTON

1	Press the **Auxiliary Output** button corresponding to the device. **Result:** The **On** indicator lights. The external device is activated.
2	Press the **Auxiliary Output** button once more. **Result:** The **On** indicator is OFF. The external device is no longer activated.

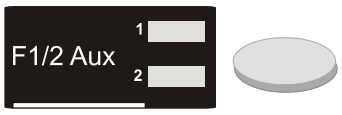
To operate a non-latching **Auxiliary Output** button:

PROCEDURE 3-2 HOW TO OPERATE A NON-LATCHING AUXILIARY OUTPUT BUTTON

1	Press and hold the **Auxiliary Output** button corresponding to the device. **Result:** The **On** indicator lights. The external device is activated.
2	Release the **Auxiliary Output 1** or **2** button. **Result:** The **On** indicator is OFF. The external device is no longer activated.

FREQUENCY 1/2 AUXILIARY

The **Frequency 1 Auxiliary** and **Frequency 2 Auxiliary** button controls the auxiliary 1 output relay on frequency 1. When the button is pressed, the relay is activated and Fr1 becomes the transmit and receive frequency. When the button is pressed again, the relay is deactivated and Fr2 becomes the transit and receive frequency.



INSTANT TRANSMIT FOR RADIO CHANNELS

Each CCM channel is supplied with an **Instant Transmit** button that shows the following characteristics:

- Allows immediate access to a radio channel without using a common PTT.
- Independent of the radio channel selection.

To initiate instant transmission:

PROCEDURE 3-3 HOW TO INITIATE AN INSTANT TRANSMISSION

1	Press and hold the **Instant Transmit** button of a radio channel. **Result:** The **TX** indicator lights and the channel is ready for a voice message. The **Operator Busy** indicator next to the select speaker lights (see Figure 3-2, "Operator busy indicator on the CommandSTAR Lite console," on page 3-11 for the location of the **Operator Busy** indicator). The operator hears a grant tone over the Select speaker or the headset. **NOTE** Before speaking, be sure to wait for the go ahead tone (grant tone).
2	Use the internal microphone, desk microphone or headset microphone to send a voice message.
3	End the instant transmission by releasing the **Instant Transmit** button. **Result:** The indicators are restored to their initial status.

MULTI-FREQUENCY OPERATION

The CCM provides for the control of multi-frequency base stations by pressing the **Frequency** buttons. Up to six frequencies can be selected. The buttons and status indicators are site dependent and are available in one of three modes on a per radio channel basis as described below:

NOTE
The button and indicator displays shown are only used as an example.

- Rx and TX are coupled.

This option provides the same buttons and status indicators for reception and transmission. For example, selecting the **Frequency** button toggles both the transmit and receive frequency from 1 to 2 and vice-versa.

When a radio channel is unselected, the buttons and indicators control the receive frequency. When a channel is selected, the buttons and indicators control the transmit frequency.

SELECTING A FREQUENCY FOR TRANSMISSION AND/OR RECEPTION

Whatever the setting might be, the selection of a multi-frequency radio channel is the same. Pressing the **Frequency** button selects the first frequency associated with the button. Pressing the button a second time selects the second frequency associated with the channel.

NOTE

Changing the frequency of a radio being used, that is, a radio showing a **Busy** or **TX** indicator lit, is not allowed. The use of the button will *not* toggle to the new frequency.

When the frequency is changed on a channel, the corresponding **Frequency** button indicator changes at all consoles sharing the channel if the channel's "Parallel Status" field is set to ON at the sharing consoles, in the CSDM Lite. See "Parallel Status Updates" on page 3-4 for more information.

MUTE RADIO CHANNELS

Each CCM channel is equipped with a **Mute** button. The audio level of the radio can either be silenced or attenuated by 24 dB. The **Mute** button is of the latching type. Successive pressing of the Mute button toggles the mode between muted and *not* muted.

NOTE

The attenuation level can be configured from the CSDM Lite position.

To mute a radio channel:

PROCEDURE 3-4 HOW TO MUTE A RADIO CHANNEL

1	Select the radio channel you want to mute.
2	Press **Mute**. **Result:** The radio audio is muted or attenuated at the speaker (select, or unselect) or headset.
3	Press **Mute** once more to remove mute from the radio channel. **Result:** The **Mute** indicator turns OFF and the radio audio is restored to its original level.

MUTE R2

The **Mute R2** feature lets you mute a second receiver using tone remote control. The second receiver option monitors the frequency of the radio.

To mute the second receiver:

PROCEDURE 3-5 HOW TO MUTE THE SECOND RECEIVER

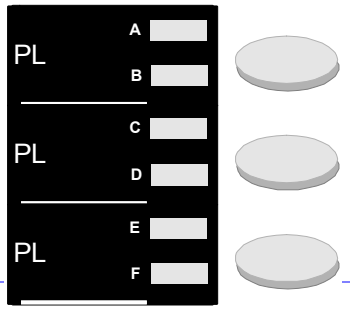
1	Select the radio channel on which you want the second receiver muted.
2	Press **Mute R2**. **Result:** The second receiver is muted.
3	Press **Mute R2** once more to remove mute from the second receiver. **Result:** The **Mute R2** indicator turns OFF and the second receiver volume is restored to its original level.

NOTE

You cannot perform this task when a transmission is in progress. Retry after the transmission is completed.

PL (PRIVATE LINE OPERATION)

The **Private Line** buttons on the CCM provide for the control of multi private line stations. The buttons allow selection of up to six private lines for access to specific units.



To select a private line:

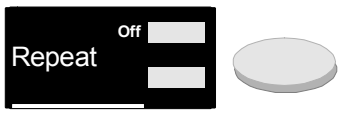
PROCEDURE 3-6 HOW TO SELECT A PRIVATE LINE

1	Press the associated **Private Line** button. **Result:** The first private line is selected and the first indicator lights on all consoles sharing the channel.
2	Press the associated **Private Line** button a second time. **Result:** The second private line is selected and the second indicator lights on all consoles sharing the channel.

NOTE

Indicators only light at consoles sharing the channel if the channel's "Parallel Status" field is set to ON at the sharing consoles, in the CSDM Lite. See "Parallel Status Updates" on page 3-4 for more information.

REPEAT



When enabled, the **Repeat** button causes incoming audio on the radio channel to be retransmitted through the CommandSTAR Lite Console. The **Repeat** button is of the latching type, and successive selections of the button toggle the repeat mode between enabled and disabled.

NOTE

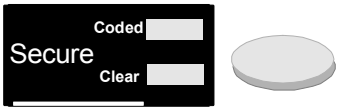
For the following procedure, the **Repeat** button is assumed to be in disabled mode and the **Off** indicator is assumed to be ON.

To enable and disable repeat:

PROCEDURE 3-7 HOW TO ENABLE AND DISABLE REPEAT

1	Press the **Repeat** button to toggle the status to enabled mode. **Result:** The **Off** indicator is OFF.
2	To toggle the status to disabled mode, press the **Repeat** button again. **Result:** The **Off** indicator is ON.

SECURE



The **Secure** button enables or disables the external voice secure interface. Pressing the **Secure** button toggles the transmit state from clear to coded (secured) or coded (secured) to clear. (This feature uses Positive Mode Control for Motorola-equipped base stations, and standard frequency control for other base stations.)

To enable and disable secure radio transmission:

PROCEDURE 3-8 HOW TO ENABLE AND DISABLE SECURE RADIO TRANSMISSION

1	Select a radio channel. **Result:** The **Sel** indicator lights.
2	Press the **Secure** button. **Result:** The **Coded** indicator lights on all consoles sharing the radio channel and the **Clear** indicator is OFF on all consoles sharing the radio channel.

PROCEDURE 3-8 HOW TO ENABLE AND DISABLE SECURE RADIO TRANSMISSION

3 Press the **PTT** to send a secure voice message.

NOTE

While transmitting on a radio channel, the operator cannot enable or disable the **Secure** function. The **Secure** indicator remains in its original state.

4 Press the **Secure** button once more to disable secure radio transmission.

Result: The **Coded** indicator is OFF indicating that the secure feature is disabled and the **Clear** indicator lights on all consoles.

NOTE

Indicators only light at consoles sharing the channel if the channel's "Parallel Status" field is set to ON at the sharing consoles, in the CSDM Lite. See "Parallel Status Updates" on page 3-4 for more information.

CROSS-MODE ALERT

The **Secure** button may be equipped with an option so that a cross-mode alert is displayed when the receive audio is coded while the transmit audio is clear, or vice-versa. Under a cross-mode alert condition, the **Coded** or **Clear** indicator will blink. Changing the button between coded and clear or transmitting over the channel will clear the alert.

SELECT

Use the **Select** button to place a radio channel in the select or unselect mode of operation. The **Select** button prepares a radio channel for radio transmission using the common **PTT** and directs the incoming audio to the **Select** speaker or the headset.

SELECTING AND TRANSMITTING ON A RADIO CHANNEL

To select and transmit on a radio channel:

PROCEDURE 3-9 HOW TO SELECT AND TRANSMIT ON A RADIO CHANNEL

1	Select a radio channel and press the **Select** button. **Result:** The **Sel** indicator lights.
2	Press and hold the **PTT** on the Keypad or the right switch on the foot switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone in the select speaker or the headset. **Result:** The **Operator Busy** indicator next to the select speaker lights (see Figure 3-2, "Operator busy indicator on the CommandSTAR Lite console," on page 3-11 for the location of the Operator Busy indicator).
3	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console and the **Operator Busy** indicator is OFF.

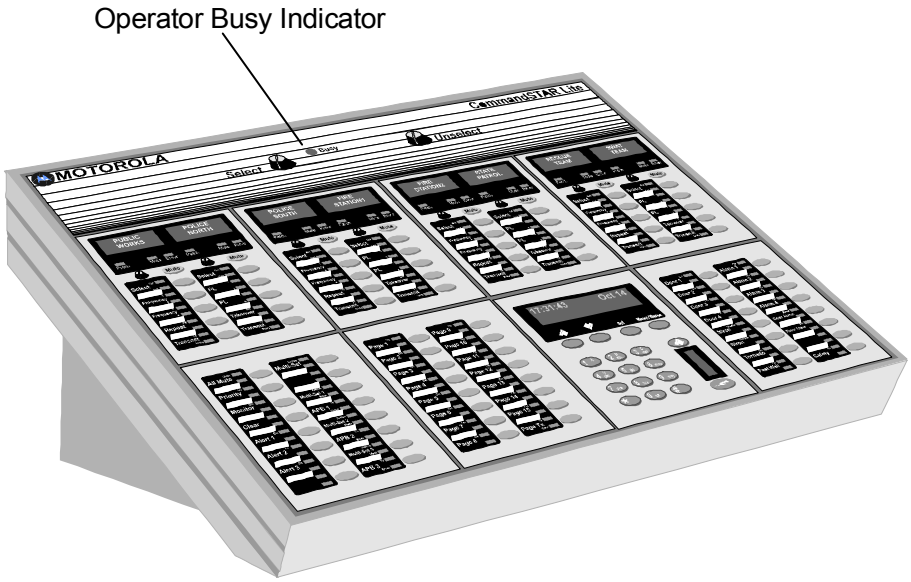


FIGURE 3-2 OPERATOR BUSY INDICATOR ON THE COMMANDSTAR LITE CONSOLE

ANSWERING AN INCOMING CALL ON A SELECTED RADIO CHANNEL

An incoming call is characterized by a blinking **Call** indicator. The call is heard over the Select Speaker or the headset and the **Operator Busy** indicator next to the select speaker lights.

To answer an incoming call on a selected radio channel:

PROCEDURE 3-10 HOW TO ANSWER AN INCOMING CALL ON A SELECTED RADIO CHANNEL

1	Wait for the end of the message. **Result:** The **Call** indicator and the **Operator Busy** indicator are OFF.
2	Press and hold the **PTT** on the Keypad or the right switch on the foot switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone in the select speaker or the headset. **Result:** The **Operator Busy** indicator next to the select speaker lights.
3	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console and the **Operator Busy** indicator is OFF.

ANSWERING AN INCOMING CALL ON AN UNSELECTED RADIO CHANNEL

An incoming call is characterized by a blinking **Call** indicator. The incoming audio is directed to the Unselect speaker.

To answer an incoming radio call on an unselected radio channel:

PROCEDURE 3-11 HOW TO ANSWER AN INCOMING CALL ON AN UNSELECTED RADIO CHANNEL

1	Press the **Select** button on the channel whose indicator is lit or blinking. **Result:** The **Sel** indicator lights. The audio is transferred to the Select speaker. If the headset is connected, the audio is transferred to the operator headset. The **Operator Busy** indicator next to the select speaker lights.
2	Wait for the enf of the message. **Result:** The **Call** indicator is OFF. The **Operator Busy** indicator next to the select speaker is OFF.
3	Press and hold the **PTT** on the Keypad or the right switch on the foot switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone in the select speaker or the headset. **Result:** The **Operator Busy** indicator next to the select speaker lights.

PROCEDURE 3-11 HOW TO ANSWER AN INCOMING CALL ON AN UNSELECTED RADIO CHANNEL

4	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
5	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console and the **Operator Busy** indicator is OFF.

DESELECTING A RADIO CHANNEL

To deselect a radio channel:

PROCEDURE 3-12 HOW TO DESELECT A RADIO CHANNEL

1	Locate the radio channel with the lit **Sel** indicator.
2	Press the **Select** button. **Result:** The selected radio channel is deselected and the **Sel** indicator is OFF.

STATION SELECTION MAIN/STBY

The CCM where the **Station** button is provided allows the operator to select one of two base stations for operation. The **Station** button toggles the radio channel audio, through relays, between the main and the standby base station.

NOTE

It is possible to toggle from Main to Stby or vice-versa even if the Busy indicator lights during a radio communication.

ACTIVATING THE STANDBY BASE STATION

To activate the standby base station:

PROCEDURE 3-13 HOW TO ACTIVATE THE STANDBY BASE STATION

1	Verify that the **Stby** indicator is ON. If the indicator is lit, proceed with radio communications.
2	If the indicator is OFF, press **Station**. **Result:** The standby base station is activated and the **Stby** indicator lights.

ACTIVATING THE MAIN BASE STATION

To activate the main base station:

PROCEDURE 3-14 HOW TO ACTIVATE THE MAIN BASE STATION

1	Verify that the **Main** indicator is ON. **Result:** If the indicator is lit, proceed with radio communications.
2	If the indicator is OFF, press **Station**. **Result:** This activates the main base station and the **Main** indicator lights.

TAKEOVER

The CommandSTAR Lite can be connected to one or more Parallel Units that can be used for parallel operation or as backup units to take over when a radio console fails to transmit or receive radio messages. A button allows the operator to enable or disable the Parallel Unit.

From the Parallel Unit, an operator can transmit over a radio channel. When a Parallel Unit transmits over a channel, the **Busy** indicator lights at all consoles. It is not possible, from the console, to override a Parallel Unit **PTT**. However, the **Takeover** button allows the operator to disable the Parallel Unit and proceed with radio communication.

To prevent and allow a Parallel Unit to transmit over a channel:

PROCEDURE 3-15 HOW TO PREVENT AND ALLOW A PARALLEL UNIT TO TRANSMIT OVER A CHANNEL

1	Press the **Takeover** button. **Result:** The **On** indicator lights. The Parallel Unit cannot transmit over the channel.
2	Press the **Takeover** button again to allow the Parallel Unit to transmit over the channel. **Result:** The **On** indicator is OFF. The Parallel Unit can transmit over the channel.

VOLUME CONTROLS

CommandSTAR Lite provides volume controls to adjust the incoming audio level. Each volume control provides a range of eight adjustments in steps of 3 dB.

Volume controls are located on the CCM as shown in Figure 3-1 on page 3-1 (reference 5).

Other volume controls are located on the Select and Unselect speakers. for the location of these speakers.

Use the volume controls to adjust the audio level at the speaker and the headset as follows:

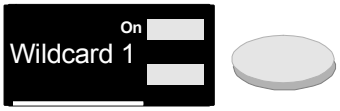
- Adjust the volume control at the Unselect speaker to adjust the overall audio level of the Unselect speaker.
- Adjust the volume control at the Select speaker to adjust the overall audio level of the Select speaker or the headset, when connected.
- Adjust the volume control at the CCM to adjust the relative audio level of the channel over the headset or the speaker.

NOTE

Several radio calls can be heard over the Unselect speaker but the CCM volume control adjusts only the audio level of the specific channel.

WILDCARDS SELECTION

A CCM can have up to two **Wildcard** buttons to allow the operator to control various radio ancillary equipment.



NOTE

For the following procedure, the wildcard function is assumed to be OFF and the **On** indicator is assumed to be OFF.

To activate and deactivate ancillary equipment

PROCEDURE 3-16 HOW TO ACTIVATING AND DEACTIVATING ANCILLARY EQUIPMENT

1	Press the **Wildcard** button to activate the ancillary function. **Result:** The On indicator lights.
2	Press the **Wildcard** button again to deactivate the ancillary function. **Result:** The On indicator is OFF.

NOTE

Indicators only light at consoles sharing the channel if the channel's "Parallel Status" field is set to ON at the sharing consoles, in the CSDM Lite. See "Parallel Status Updates" on page 3-4 for more information.

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CHAPTER

4

DIGITAL RADIO CONTROL MODULE (DRCM)

INTRODUCTION

This chapter describes the buttons, indicators and displays on the Digital Radio Control Module (DRCM). The DRCM can emulate one of three types of Motorola digital remote control radio:

- ASTRO Digital Spectra (model W9)
- MCS 2000 (model III)
- iDEN (model M470)

Each DRCM contains the following features:

- A standard set of buttons and indicators common to all DRCMs
- A set of function buttons that emulates the radio function
- A display that emulates the digital remote control radio display

STANDARD BUTTONS AND INDICATORS

All DRCMs share a standard set of indicators and buttons. Figure 4-1 on page 4-2 identifies these features by number. Table 4-1, "DRCM standard buttons and indicators quick reference," on page 4-2 gives the names and brief descriptions of these numbered features, and provides cross-references for additional information.

Some of the buttons identified in Figure 4-1 are located on the Keypad module. When a DRCM is selected, these Keypad buttons function as an extension of the DRCM and emulate buttons on the digital remote control radio.

NOTE

The Keypad display does not emulate the digital remote control radio display. All digital radio display information appears only on the DRCM.

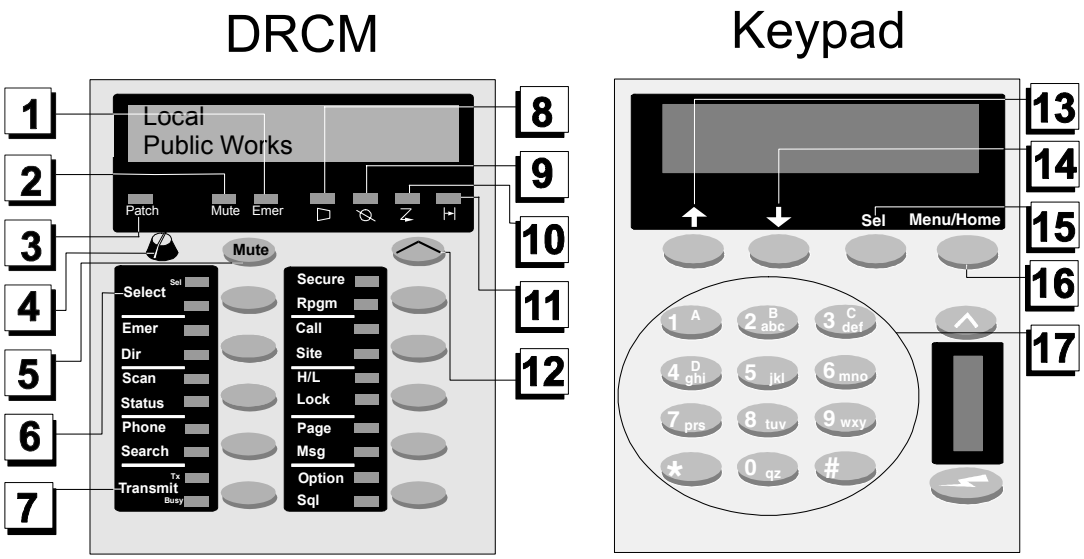

FIGURE 4-1 DIGITAL RADIO CONTROL MODULE (DRCM) STANDARD BUTTONS AND INDICATORS

TABLE 4-1 DRCM STANDARD BUTTONS AND INDICATORS QUICK REFERENCE

Figure Ref	Name	Description	Cross-Reference
1	**Emergency** (indicator)	Informs the operator of an incoming emergency call.	"Emer Clear and Alarm" on page 5-13
2	**Mute** (indicator)	Lights when the digital remote control radio is muted.	"Mute Button" on page 4-4
3	**Patch** (indicator)	Lights when the operator patches the digital remote control radio.	"Patch" on page 5-26
4	**Volume**	Used to adjust the incoming audio level.	"Volume Control" on page 4-7
5	**Mute**	Used to mute the audio coming from a digital remote control radio.	"Mute Button" on page 4-4
6	**Select**	Used to select the digital remote control radio.	"Select Button" on page 4-4
7	**Instant Transmit**	Allows immediate access to the digital remote control radio without using a common PTT.	"Instant Transmit Button" on page 4-3
8	**Monitor** (indicator)	Indicates that the operator is monitoring the digital remote control radio. (MCS/iDen only)	"Monitor" on page 5-21
9	**Secure** (indicator)	Indicates that a voice encryption system is enabled on the digital remote control radio. (MCS/iDEN only)	Consult your radio's user documentation

TABLE 4-1 DRCM STANDARD BUTTONS AND INDICATORS QUICK REFERENCE (CONTINUED)

Figure Ref	Name	Description	Cross-Reference
10	**Scanning** (indicator)	Indicates that the digital remote control radio scanning feature is activated. (MCS/iDEN only)	Consult your radio's user documentation
11	**Talkaround** (indicator)	Indicates that the digital remote control radio is communicating directly with another radio, without using a repeater. (MCS/iDEN only)	Consult your radio's user documentation
12	**Shift**	Used to access a function button's upper feature.	"Shift Button" on page 4-7
13	**Mode Up** (On Keypad when DRCM is selected)	Used to scroll up through a list of digital remote control radio modes, channels or functions that appear on the DRCM display.	Consult your radio's user documentation
14	**Mode Down** (On Keypad when DRCM is selected)	Used to scroll down through a list of digital remote control radio modes, channels or functions that appear on the DRCM display.	Consult your radio's user documentation
15	**Sel** (On Keypad when DRCM is selected)	Used to select a digital remote control radio function appearing on the DRCM display.	Consult your radio's user documentation
16	**Menu/Home** (On Keypad when DRCM is selected)	Used to enter and exit from the function selection menu on a digital remote control radio.	Consult your radio's user documentation
17	**Digit Keys** (On Keypad when DRCM is selected)	Emulate the digit keys on a digital remote control radio Keypad.	Consult your radio's user documentation

NOTE

When a DRCM is not selected, the buttons on the Keypad (buttons 13 to 17 in Figure 4-1 on page 4-2) do not function as described in Table 4-1 above. For a description of how Keypad buttons function when a DRCM is not selected, see "Buttons" on page 6-1.

INSTANT TRANSMIT BUTTON

Each DRCM is supplied with an **Instant Transmit** button that gives immediate access to the digital remote control radio without using a common **PTT**.

To initiate instant transmission:

PROCEDURE 4-1 HOW TO OPERATE AN INSTANT TRANSMISSION

1	Press and hold the DRCM **Instant Transmit** button. **Result:** The **TX** indicator lights and the channel is ready for a voice message. The **Operator Busy** indicator next to the Select speaker lights. The operator hears a grant tone over the Select speaker or the headset.
2	Use the internal microphone, desk microphone or headset microphone to send a voice message.
3	To end the instant transmission, release the **Instant Transmit** button. **Result:** The indicators are restored to their initial status.

MUTE BUTTON

Each DRCM is equipped with a **Mute** button. The incoming audio on the DRCM can either be silenced or attenuated by 24 dB. The Mute button is of the latching type. Successive pressing of the Mute button toggles the mode between muted and *not* muted.

NOTE

The attenuation level can be configured from the CSDM Lite position.

The **Mute** button mutes the audio at the console. It does not mute the audio at the digital remote control radio itself.

To mute a digital remote control radio:

PROCEDURE 4-2 HOW TO MUTE A DIGITAL REMOTE CONTROL RADIO

1	Select the DRCM for the digital remote control radio you want to mute.
2	Press **Mute**. **Result:** The **Mute** indicator lights and the radio audio is muted or attenuated at the Unselect or Select speaker or the headset.
3	Press **Mute** once more to restore the original volume levels on the speakers or headset.

SELECT BUTTON

Use the **Select** button to place a digital remote control radio in the select or unselect mode of operation. The **Select** button prepares a digital remote control radio for radio transmission using the common **PTT** and directs the incoming audio to the Select speaker or the headset.

SELECTING AND TRANSMITTING ON A DIGITAL REMOTE CONTROL RADIO

To select and transmit on a digital remote control radio:

PROCEDURE 4-3 HOW TO SELECT AND TRANSMIT ON A DIGITAL REMOTE CONTROL RADIO

1	Press the **Select** button on the appropriate DRCM. **Result:** The **Sel** indicator lights.
2	Press and hold the **PTT** on the Keypad or the right foot-switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone in the Select speaker or the headset. The Operator Busy indicator next to the Select speaker lights on the select speaker. At every console with a DRCM controlling the same digital remote control radio, the **Busy** indicator lights.
3	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console. The **Operator Busy** indicator next to the Select speaker is OFF. At all consoles sharing the same digital remote control radio, the **Busy** indicator is OFF.

ANSWERING AN INCOMING CALL ON SELECTED DIGITAL REMOTE CONTROL RADIO

An incoming call is characterized by a blinking **Call** indicator. The call is heard over the Select speaker or the headset and the Operator Busy indicator next to the Select speaker lights.

To answer an incoming call on a selected digital remote control radio:

PROCEDURE 4-4 HOW TO ANSWER AN INCOMING CALL ON A SELECTED DIGITAL REMOTE CONTROL RADIO

1	Wait for the end of the message. **Result:** The **Call** indicator is OFF. The **Operator Busy** indicator next to the Select speaker is OFF.
2	Press and hold the **PTT** on the Keypad or the right foot-switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone in the Select speaker or the headset. The **Operator Busy** indicator next to the Select speaker lights on the select speaker. At every console with a DRCM controlling the same digital remote control radio, the **Busy** indicator lights.

PROCEDURE 4-4 HOW TO ANSWER AN INCOMING CALL ON A SELECTED DIGITAL REMOTE CONTROL RADIO

3	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console. The **Operator Busy** indicator next to the Select speaker is OFF. At all consoles sharing the same digital remote control radio, the **Busy** indicator is OFF.

ANSWERING AN INCOMING CALL ON UNSELECTED DIGITAL REMOTE CONTROL RADIO

An incoming call is characterized by a blinking **Call** indicator. The incoming audio is directed to the Unselect speaker.

To answer an incoming radio call on an unselected digital remote control radio:

PROCEDURE 4-5 HOW TO ANSWER AN INCOMING CALL ON AN UNSELECTED DIGITAL REMOTE CONTROL RADIO

1	Press the **Select** button on the DRCM whose indicator is lit or blinking. **Result:** The **Sel** indicator lights. The audio is transferred to the Select speaker. If the headset is connected, the audio is transferred to the operator headset. The **Operator Busy** indicator next to the Select speaker lights.
2	Wait for the end of the message. **Result:** The **Call** indicator is OFF. The **Operator Busy** indicator next to the Select speaker is OFF.
3	Press and hold the **PTT** on the Keypad or the right switch on the foot-switch. **Result:** The **TX** indicator lights at the initiating console. The operator hears a grant tone over the Select speaker or the headset. The **Operator Busy** indicator next to the Select speaker lights. At all consoles sharing the same radio channel, the **Busy** indicator lights.
4	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
5	Release the **PTT** to end the voice transmission. **Result:** The **TX** indicator is OFF at the initiating console. The **Operator Busy** indicator next to the Select speaker is OFF. At all consoles sharing the same radio channel, the **Busy** indicator is OFF.

DESELECTING A DIGITAL REMOTE CONTROL RADIO

To deselect a digital remote control radio:

PROCEDURE 4-6 HOW TO DESELECT A DIGITAL REMOTE CONTROL RADIO

1	Locate the DRCM with the lit **Sel** indicator.
2	Press the **Select** button. **Result:** The selected digital remote control radio is deselected and the **Sel** indicator is OFF.

SHIFT BUTTON

Some DRCM function buttons control two digital remote control radio features. By default, pressing a function button activates the lower feature displayed. To activate the upper feature, you use the **Shift** button.

To activate upper features on a DRCM function button:

PROCEDURE 4-7 HOW TO ACTIVATE UPPER FEATURES ON A DRCM FUNCTION BUTTON

1	Press the **Shift** button.
2	Press the function button corresponding to the upper feature you want to activate. **Result:** You have five seconds after pressing the **Shift** button to activate the upper feature on a function button.

For example, pressing the DRCM function button shown to the right activates the digital remote control radio's status feature. Pressing **Shift** first, and then the button, activates the radio's scan feature.

VOLUME CONTROL

The DRCM provides a volume control to adjust the incoming audio level. The volume control provides a range of eight adjustments in steps of 3 dB. Other volume controls are located on the Select and Unselect speakers, as shown in "Speakers and Internal Microphone" on page 2-6.

Use the volume controls to adjust the audio level at the speaker and the headset as follows:

- Adjust the volume control at the Unselect speaker to adjust the overall audio level of the Unselect speaker.
- Adjust the volume control at the Select speaker to adjust the overall audio level of the Select speaker or the headset, when connected.

- Adjust the volume control at the DRCM to adjust the relative audio level of the digital remote control radio over the headset or the speaker.

NOTE

Several radio calls can be heard over the Unselect speaker but the DRCM volume control adjusts only the audio level of the digital remote control radio call.

NOTE

The DRCM volume control only adjusts the volume on the console speakers. It does not control the volume at the radio itself.

RADIO-SPECIFIC FEATURES

The DRCM display and function buttons emulate those on the specific model of digital remote control radio controlled by the DRCM.

DISPLAYS

The DRCM contains a single two-row display:

- For the ASTRO Digital Spectra radio, the two rows of the DRCM display show the information that appears on the radio display and whether the radio has received a priority mode when the scanning feature is activated:
  - Flashing PRI indicates a Priority 1 mode.
  - Steady PRI indicates a Priority 2 mode.
  - NPRI indicates no priority mode.

Consult your radio's documentation for more information on scanning and priority modes.

- For the MCS 2000 and iDEN radios, the two rows of the DRCM display correspond to the two rows of the radio displays.
- For the LTR radio:
  - On the top right of the display, L indicates Low Power and H indicates High Power.
  - On the bottom right of the display, C indicates Companding and O indicates Option Board.

BUTTONS

The DRCM function buttons display features that represent buttons on the digital remote control radio. Figure 4-2, “DRCM with sample radio buttons highlighted,” on page 4-9 shows a DRCM with sample radio buttons highlighted. Consult your digital remote control radio’s user documentation for instructions on using these radio-specific buttons.

By default, pressing a programmable button activates the lower feature displayed. Use the **Shift** button to activate the upper feature on a button. See “Shift Button” on page 4-7 for instructions.

NOTE

The function buttons shown in Figure 4-2 are examples only. The features that appear on each DRCM vary, depending on the type of radio (ASTRO, MCS, or iDEN). The buttons are fixed and cannot be changed. For further information on the buttons, refer to the CommandSTAR Lite Intallation and Troubleshooting Manuall

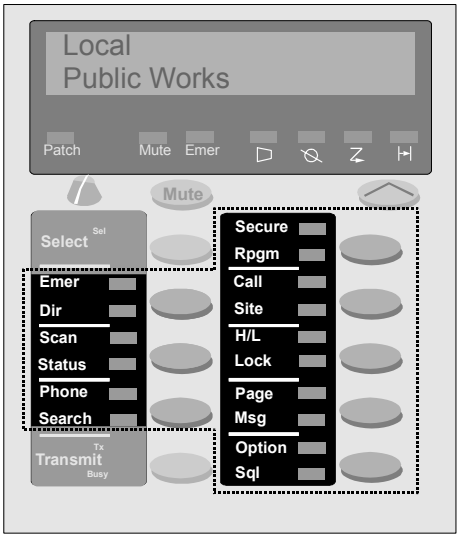

FIGURE 4-2 DRCM WITH SAMPLE RADIO BUTTONS HIGHLIGHTED

INCOMING EMERGENCY CALLS

These are the characteristics of an incoming emergency call on a digital radio channel:

- A flashing **Emer** indicator on the DRCM
- The top line of the DRCM display shows the digital radio identification (ID) and the bottom line flashes “EMER” plus the unit ID

- An alarm rings at the Select speaker (if the radio channel is selected) or at the Unselect speaker (if the radio channel is not selected)
- The channel relay activates and stays latched (if the channel relay is enabled at the CSDM Lite)
- A serial logging printer receives a time stamped activity record of the emergency call from the digital channel (if a logging printer is connected to the system)

NOTE

If another emergency call is sent from the same digital radio ID before the operator clears the first call, the above characteristics do no re-occur. However, if an emergency call comes in from a new digital radio ID before the operator clears the original emergency call, a new set of emergency indicators appear. The original emergency call is sent to the printer. The printout notes that the first emergency call was not acknowledged. The new call information is sent to the printer after it has been acknowledged by the operator.

ACKNOWLEDGING A DRCM EMERGENCY CALL

To acknowledge an emergency call on a DRCM:

PROCEDURE 4-8 HOW TO ACKNOWLEDGE AN EMERGENCY CALL ON A DRCM

1	Press and hold the **Emer Alarm** button on the ACM.
2	Press **Sel** on the DRCM. **Result:** The **Emer** indicator lights and the DRCM display shows the caller ID on the top line and the bottom line stops flashing, displaying EMER and the unit ID. The alarm ring is muted. If enabled, the channel relay resets to normal operation. If connected, a serial logging printer provides a time stamp record of when the operator pressed the **Emer Alarm** button.

CLEARING A DRCM INCOMING EMERGENCY CALL ALARM

To clear an incoming emergency call alarm on a DRCM:

PROCEDURE 4-9 HOW TO CLEAR AN INCOMING EMERGENCY CALL ALARM ON A DRCM

1	Press and hold the **Emer Clear** button on the ACM.
2	Press the **Sel** button on the DRCM. **Result:** The **Emer** indicator is off and the bottom line of the DRCM display is cleared while the top line presents the current radio status. The alarm ring stops. If enabled, the channel relay resets to normal operation. If connected, a serial logging printer provides a time stamp record of when the operator pressed the **Emer Clear** button.

NOTE

Each operator position that is connected to the digital radio that receives the emergency call must clear the emergency call at their individual consoles. The radio unit that sent the emergency call must acknowledge/clear the emergency call on their radio units.

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CHAPTER

5

AUXILIARY CONTROL MODULE (ACM)

INTRODUCTION

The Auxiliary Control Module (ACM), shown in Figure 5-1, is equipped with sixteen buttons. Each button enables or disables the function with none, one or two indicators that show the status of the function. The button functions may change with the communications requirements of each site. Different figures in this manual show sample ACMs; however, your ACM button layout may be different. The ACM buttons, indicator and functions are described in the following pages.

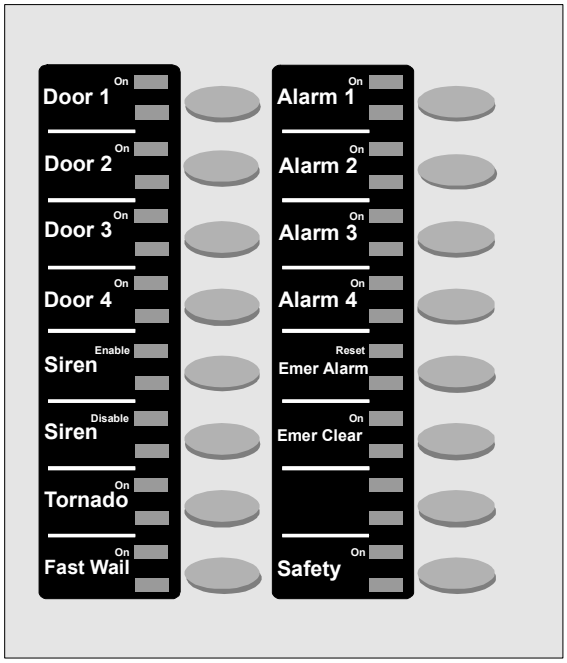


FIGURE 5-1 AUXILIARY CONTROL MODULE (ACM)

TABLE 5-1 ACM QUICK REFERENCE

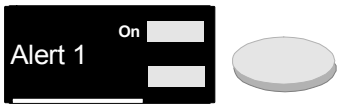
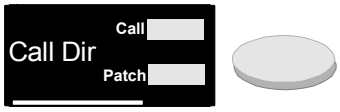
Name	Descriptions	Buttons	Page
Alarm 1 Alarm 2 Alarm 3 Alarm 4	Informs the operator of an alarm state.		page 5-6
Alert 1 Alert 2 Alert 3	Transmits an alert tone over the keyed radio channels.		page 5-7
Alias Page	Allows the operator to select a pre-programmed page code, with no digit entry.		page 5-8
All Mute	Mutes all unselected channels.		page 5-9
All Points Bulletin (APB)	Transmits over channels stored in memory.		page 5-23
Call Alert	Allows the operator to send a Stat-Alert message to a unit, causing it to provide a visual and audible indication to the called radio.		page 5-47
Call Dir TX	Transmits to a call director when the headset is not used.		page 5-10
Call Director	Allows patching a call director.		page 5-10
Clear	Used to correct, remove, or erase an entry, a function, a display or memory.		page 5-13
Digital Takeover	Allows a supervisor to take over the channel to communicate with the radio by blocking all other consoles.		page 5-13
Emergency Alarm	Acknowledges an incoming emergency call, and stops the emergency alarm at the answering console.		page 5-13

TABLE 5-1 ACM QUICK REFERENCE

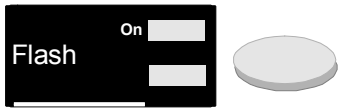
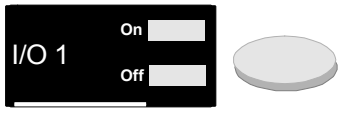
Emergency Clear	Cancels the alarm associated with an incoming emergency call at all consoles connected to the channel.		page 5-13
Enter RAC	This function allows the operator to enter a RAC on a per channel basis.		page 5-42
Flash	Performs a hook flash on a telephone line.		page 5-52
Frequency	Provides a way to select the operating frequency on multiple-frequency channels for which no dedicated frequency buttons are configured.		page 5-14
Hold	Puts active telephone or intercom call on hold.		page 5-51
I/O #	Controls an external output and monitors an external input.		page 5-16
Intercom	Establishes communication with maintenance personnel located at a base station or to the parallel units (other console using the channels).		page 5-15
Line 1 or 2	Provides direct access to telephone line 1 or 2.		page 5-49
Manual RAC	Allows the operator to send a RAC manually on a per channel basis.		page 5-43
Marker	Enables or disables a priority marker tone on a selected channel. The tone indicates that the channel is reserved for emergency use.		page 5-20
Monitor	Controls CTCSS channel monitoring.		page 5-21

TABLE 5-1 ACM QUICK REFERENCE

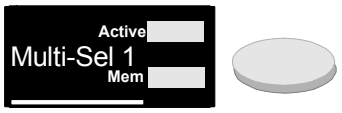
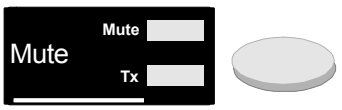
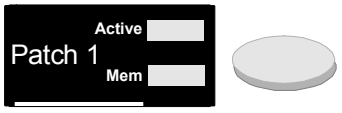
Multi Sel	Allows selection of multiple radio channels.		page 5-22
Multi-Sel with Memory	Allows selection of multiple radio channels. Stores selection in memory.		page 5-23
Mute	Enables the operator to mute the audio from a radio channel controlled from an ACM. Functions in conjunction with the **Receive** button.		page 5-31
Page	Allows manual entry of page code sequence on the Keypad module before paging transmission over the selected radio channel.		page 5-24
Page Tx	Starts transmission of page codes.		page 5-25
Patch	Patches radios/telephone circuits.		page 5-26
Patch with Memory	Patches radio/telephone circuits.		page 5-28
Patch with Memory TX	Transmits over patched radio/telephone circuits.		page 5-29
Phone Assist	Overrides patch VOX operation and provides the PTT to the phone line		page 5-30
Phone Tx	Transmits to telephone circuits when a headset is not used.		page 5-50
Queue	Allows the operator to examine the ID queue for both selected and unselected channels.		page 5-41

TABLE 5-1 ACM QUICK REFERENCE

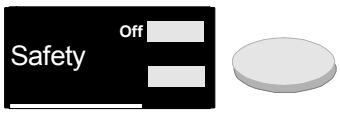
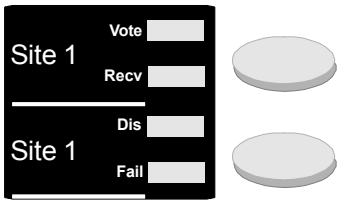
Radio Assist	Overrides patch VOX operation and provides the PTT to the radio channel.		page 5-30
Radio Check	Allows the operator to verify whether a unit is operational regardless of whether someone is able or willing to answer a voice call.		page 5-44
Radio Disable	Provides radio inhibit capability, where a operator can remotely render a radio inoperational, for instance if the radio was stolen.		page 5-45
Radio Enable	Provides radio enable capability, where a operator can remotely enable a radio that was made inoperational, for instance if the radio was stolen.		page 5-45
Receive	Enables the operator to select a radio channel controlled from an ACM. Functions in conjunction with the **Mute** button. Usually labelled with the channel name (e.g. **Security 1** for the button on the right).		page 5-31
Release	Releases active call.		page 5-51
Remote Monitor	Provides remote monitor capability, where a operator can remotely request a unit to transmit for a certain length of time.		page 5-46
Repeater Enable	Allows the operator to enable Stat-Alert repeater operation manually on a per channel basis.		page 5-42
Repeater Disable	Allows the operator to disable Stat-Alert repeater operation manually on a per channel basis.		page 5-43
Ring	Mutes incoming call ring.		page 5-50
Safety	Safety button to prevent operating errors on auxiliary switches.		page 5-36

TABLE 5-1 ACM QUICK REFERENCE

Site Control	Votes or disables a receiver connected to a voting comparator.		page 5-37
Speed Page	Queues a pre-programmed page code.		page 5-38
Status Request	Allows units to send status messages to the dispatch center to indicate, for instance, that they are on-site or out to lunch. Three types of status messages exist: User Status, Vehicle Status and User Message.		page 5-46
Voice Alert	Allows the operator to press a manual page button configured for voice alert and enter a 4-digit Stat-Alert ID to reach another unit.		page 5-48

FEATURES COMPATIBLE WITH DIGITAL RADIO

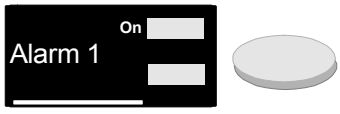
Only the following ACM features can be used in conjunction with a digital remote control radio controlled by a DRCM:

- All Mute
- Common PTT (button on Keypad)
- Digital Take Over
- Monitor
- Multi-Select
- Patch

All other ACM features are either provided by the digital radio itself, or are incompatible with digital radio operation.

ALARMS

The use of an external alarm is defined at each site. Each alarm is provided with a status indicator.



ACTIVATING AN EXTERNAL ALARM

An external alarm is initiated by an external source. The consoles *cannot* start an external alarm.

ACKNOWLEDGING AN EXTERNAL ALARM

To acknowledge an external alarm:

PROCEDURE 5-1 HOW TO ACKNOWLEDGE AN EXTERNAL ALARM

1	Press the **Alarm #** button.
2	Verify that the alarm tone is muted and the alarm status indicator lights at the console that acknowledges the alarm.

ALERT TONES

An alert function transmits a special signal over the selected radio channels and channels already keyed. The alert function allows the operator to inform the receiving end of an *urgent* radio transmission. Three tone frequencies are provided:

- Tone 1: continuous 1000 Hz tone
- Tone 2: alternating 800 and 1500 Hz tones
- Tone 3: a pulsing 1500 Hz tone

To activate an alert function:

PROCEDURE 5-2 HOW TO ACTIVATE AN ALERT FUNCTION

1	Press **Select** on a radio channel. **Result:** The **Sel** indicator lights.
2	Press and hold the **Alert #** button. **Result:** The alert function is sent to the receiving end. The alert function is heard on the Select speaker or headset. The Radio **TX** indicator lights.
3	Release the **Alert #** button. **Result:** The **Alert** indicator blinks for an interval of 5 sec, allowing the operator to send a voice message to the receiving end using the microphone, without using the **PTT**.

Approximately five seconds after you release the **Alert** button, the alert function deactivates itself and the **Transmit** and **Alert** indicators go OFF, while the **Sel** indicator remains lit. The operator may continue to communicate with the receiving end using the common **PTT**.

NOTE

The **Alert** indicator blinking interval is programmable at the CSDM Lite.

ALIAS PAGE

The alias page feature allows the selection of a preprogrammed page code. No digit entry is required. The operator only needs to scroll through a list of entries.

Note: An alias page error causes the **Error** indicator of **Page TX** to light and the Keypad displays the cause of the error. The condition remains until the **Page TX** button or the **Alias Page** button is pressed. An alias page error occurs under the following conditions:

- If no channel is selected.
- If the selected radio channel is in use and **Page TX** is pressed. The alias page call cannot be transmitted and is ended.

Table 5-2 summarizes the **Alias Page** and **Page TX** indicator states.

TABLE 5-2 ALIAS PAGE AND PAGE TX BUTTON INDICATOR STATES

Button	Indicator	State	Significance
Alias Page	On	OFF	**Alias Page** is in idle mode.
		Lit	The page code or the voice message are transmitted.
		Fast blink	Prompt for selection of the destination.
Page Tx	TX	OFF	**Page TX** is in idle mode.
		Lit	**Page TX** is transmitting the page codes.
		Fast blink	Prompts for a voice message entry using the microphone.
	Error	OFF	No error.
		Fast blink	Error.

To transmit an alias page:

PROCEDURE 5-3 HOW TO TRANSMIT AN ALIAS PAGE

1	Press the **Alias Page** button. **Result:** The **ON** indicator blinks rapidly. The Keypad displays the name of the first pre-programmed destination.
2	Use the **Up** and **Down** buttons to select the destination page. **Result:** The Keypad displays the selected destination.
3	Select the **Page TX** button. **Result:** The **On** indicator lights. The **TX** indicator lights. **Result:** The Keypad displays PAGING. After the page codes are transmitted, the Keypad displays VOICE MESSAGE. The **TX** indicator blinks fast.
4	Send a voice message using the microphone. **Result:** The **On** indicator of **Alias Page** and the **TX** indicator of **Page Rx** are deactivated, the indicators go OFF after a delay of 5 to 10 seconds.

If the common **PTT** or **Instant Transmit** is pressed during the voice message, the voice message duration is extended until the **PTT** is released.

NOTE

The interval of delay before the **On** and **TX** indicators go off is programmable at the CSDM Lite.

ALL MUTE

The **All Mute** button is used to temporarily reduce the audio volume of all unselected radio channels.

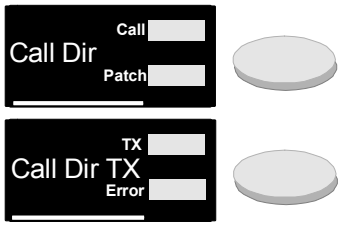
PROCEDURE: To activate the all mute function:

PROCEDURE 5-4 HOW TO ACTIVATE THE ALL MUTE FUNCTION

1	Press the **All Mute** button. **Result:** The audio from the Unselect speaker is reduced by 24 dB or entirely muted for 30 seconds. **Result:** The **Mute** indicator lights.
2	To deactivate all mute, press the **All Mute** button again. **Result:** The audio from the Unselect speaker goes back to nominal level. The **Mute** indicator goes OFF.

CALL DIRECTOR

The call director feature enables the operator to use the CommandSTAR Lite operator console to communicate with telephone calls from a separate system. When the call director feature is enabled, the operator console is connected to a call director interface that receives the separate system's calls.



Two types of call director feature are available with the CommandSTAR Lite console, basic and enhanced:

- Basic call director enables the operator to use the CommandSTAR Lite console headset, or the console speaker and microphone, to communicate with calls from the call director interface.
- Enhanced call director provides all of the basic call director functions, and also enables the operator to create a patch that includes the call director interface as well as telephone lines and/or radio channels.

NOTE

The specific operating instructions for the call director interface vary, depending on the type of interface in use. For instructions on using the call director interface, consult the original documentation provided by the manufacturer.

BASIC CALL DIRECTOR OPERATION

Basic call director operations are grouped into two categories:

- Category 1: The operator headset is in use.
- Category 2: The operator headset is not in use.

NOTE

In both categories, activating any radio **PTT** causes the operator audio to be routed to the radio channel, and causes audio to the call director interface to be muted.

NOTE

When the operator performs a call director **PTT** and the call director is *not* off-hook, the **Error** indicator lights while the **Call Director TX** button is pressed.

CATEGORY 1: OPERATOR HEADSET IN USE

To use call director, the operator selects a line on the call director interface:

- The **TX** indicator lights.

- The operator is in full duplex communication with the line.
- The call director audio is routed to the headset.
- The voice of the operator is directed from the headset microphone to the call director interface.
- The use of the **Call Director TX** button is not required.
- The select audio is routed back to the Select speaker, if configured.
- The **Operator Busy** indicator next to the Select speaker is ON.

CATEGORY 2: OPERATOR HEADSET NOT IN USE

To use call director, the operator selects a line on the call director interface:

- The call director communication is half duplex.
- The call director audio is routed to the Select speaker.
- The **Operator Busy** indicator next to the Select speaker is ON.

To speak to the receiving end, the operator uses the **Call Dir TX** button:

- The **TX** indicator lights.
- The operator audio is routed to the call director interface.
- The call director audio is muted.

EXITING A CALL DIRECTOR CALL

NOTE

This procedure is site specific.

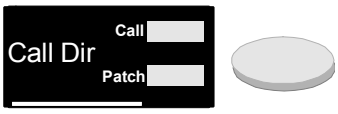
PROCEDURE: To exit a call director call:

PROCEDURE 5-5 HOW TO EXIT A CALL DIRECTOR CALL

1	Deselect the line on the call director interface.
2	Verify that the call director communication is ended.

ENHANCED CALL DIRECTOR OPERATION

If the enhanced call director feature is enabled on your console, you are able to create a patch that includes a call director interface call as well as calls on radio channels and/or telephone lines.



CREATING A PATCH WITH CALL DIRECTOR

To create a patch with the call director interface:

PROCEDURE 5-6 HOW TO CREATE A PATCH WITH THE CALL DIRECTOR INTERFACE

1	Press and hold the **Patch** button.
2	Select the **Call Director** button. **Result:** The **Call** indicator remains lit. The **Patch** indicator lights. The call director audio is routed to the Unselect speaker or the Select speaker, depending on the patch select state. The microphone of the operator is no longer live with the call director and the full duplex communication is ended.

COMMUNICATING WITH A PATCHED CALL DIRECTOR CALL

To initiate communications with a patched call director call:

PROCEDURE 5-7 HOW TO INITIATE COMMUNICATIONS WITH A PATCHED CALL DIRECTOR CALL

1	Press and hold the **Patch # TX** button or, if the patch is already selected, use the foot-swith or the keypad **PTT**. **Result:** The voice message is transmitted over the patch.

NOTE

When a call director call is patched, selecting the **Call Director TX** button causes the amber **Error** indicator to light on **Call Director TX**.

REMOVING A CALL DIRECTOR CALL FROM A PATCH

To remove a call director call from a patch:

PROCEDURE 5-8 HOW TO REMOVE A CALL DIRECTOR CALL FROM A PATCH

1	Press and hold **Patch**.
2	Select **Call Director**. **Result:** The **Patch** indicator goes OFF. If the headset is connected, the operator regains full duplex communications with the call director. If the headset is not used, the communications becomes half duplex.

CLEAR

The **Clear** button is used to correct, remove, or erase an entry, a function, a display, or memory.

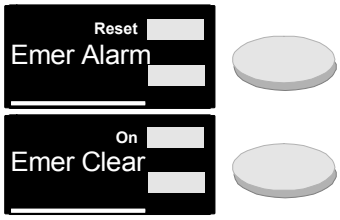
Whenever the **Clear** button is required to complete an action, it is clearly indicated in the procedures.

DIGITAL TAKEOVER

The Digital Takeover feature allows a supervisor to take over the channel to communicate with the radio by blocking all other consoles. Digital Takeover is activated when the supervisor selects a digital radio channel and then presses the DigTakOv button. To deactivate Digital Takeover and allow the other consoles to communicate
with the radio, the DigTakOv button is pressed again.

EMER CLEAR AND ALARM

The emergency clear and emergency alarm features enable an operator to acknowledge or cancel the emergency alarm associated with an incoming call:



- The **Emer Clear** button enables an operator to cancel the emergency alarm associated with an incoming emergency call. When an operator selects **Emer Clear** and answers a emergency call, the alarm stops ringing at all consoles connected to the channel.
- The **Emer Alarm** button enables an operator to acknowledge an incoming emergency call. When an operator selects **Emer Alarm** and answers an emergency call, the alarm is cleared at the operator's console, but continues to ring at other consoles connected to the channel.

INCOMING EMERGENCY CALL INDICATIONS

An incoming emergency call from a mobile radio is characterized by:

- A blinking **Emer** indicator on the DCCM.
- An alarm ring at the Select speaker, if the radio channel is selected. Otherwise, the alarm tone is routed to the Unselect Speaker.
- Caller ID and EMERGENCY alternating on the DCCM display.

ACKNOWLEDGING AN EMERGENCY CALL

To acknowledge an emergency call and clear the alarm at your console:

PROCEDURE 5-9 HOW TO ACKNOWLEDGE AN EMERGENCY CALL AND CLEAR THE ALARM AT YOUR CONSOLE

1	Press and hold the **Emer Alarm** button on the ACM.
2	Press **Select** on the DCCM. **Result:** The alarm ring is muted. The **Emer** indicator is lit, and the DCCM display shows the caller ID.

CLEARING AN INCOMING EMERGENCY CALL'S ALARM

To cancel an incoming emergency call alarm at your console:

PROCEDURE 5-10 HOW TO CANCEL AN INCOMING EMERGENCY CALL ALARM AT YOUR CONSOLE

1	Press and hold the **Emer Clear** button on the ACM.
2	Press **Select** on the DCCM. **Result:** The alarm ring stops at all consoles connected to the channel. The DCCM display shows the caller ID, and the **Emer** indicator is OFF.

FREQUENCY SELECTION

A DCCM can be equipped with dedicated frequency buttons to allow selection from two to six separate frequencies. However, on an ACM, there is a way to select the operating frequency on multiple-frequency channels for which no dedicated frequency buttons are configured. This method allows selection of 2 to 16 frequencies, depending on channel configuration.

To change a channel frequency:

PROCEDURE 5-11 HOW TO CHANGE A CHANNEL FREQUENCY

1	Press the **Select** button for the channel whose frequency will be changed. **Result:** The **Sel** indicator lights.
2	Press the **Frequency** button. **Result:** The **Select** indicator on the frequency button lights. The Keypad displays the current frequency.

PROCEDURE 5-11 HOW TO CHANGE A CHANNEL FREQUENCY

3	Use the Keypad to enter a new frequency or use the **Up** and **Down** buttons. **Result:** The Keypad displays the new frequency.
4	Press **Enter** to validate the new frequency. **Result:** The frequency is changed.The **Select** indicator on the **Frequency** button is OFF.

NOTE

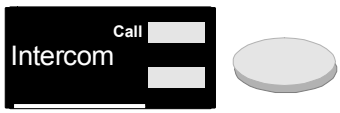
The **Frequency** button cannot be selected if no channel is selected, if more than one channel is selected, or if the selected channel does not support multiple frequency operation or has dedicated **Select** buttons.

NOTE

The **Enter** button cannot be selected to validate the frequency if a console is transmitting over the channel.

INTERCOM

The intercom feature establishes communications via selected base stations to maintenance personnel located at the base station without keying to the base station.



To initiate an intercom call:

PROCEDURE 5-12 HOW TO AN INTERCOM CALL

1	Press **Select** on a radio channel. **Result:** The radio **Sel** indicator lights.
2	Press and hold the **Intercom** button. **Result:** The **Call** indicator lights. The **Radio TX** indicator lights.
3	Use the microphone to transmit the voice message to the base station or other console user.
4	To end the intercom call, release the Intercom button. **Result:** The **Call** indicator goes OFF. The **Radio TX** indicator goes OFF.

I/O

The **I/O #** button can be used to monitor an external input and control an external output such as a security camera or a magnetized door. Different I/O button configurations and label options are offered depending on the communication needs of the site. The options are described in the following paragraphs.

OPTION A: I/O # SPARE SWITCH

This option provides a latching or non-latching button with a single indicator labelled **On** that controls a relay.

NOTE

The **Safety** button (see "Safety" on page 5-36) can be used with this function to provide a safety measure.

OPERATING A LATCHING I/O

To operate a latching I/O:

PROCEDURE 5-13 HOW TO OPERATE A LATCHING I/O (A)

1	Press the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Press **I/O #** once more. **Result:** The **On** indicator is OFF. The external device is deactivated.

OPERATING A NON-LATCHING I/O

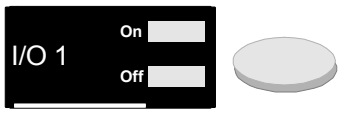
To operate a non-latching I/O:

PROCEDURE 5-14 HOW TO OPERATE A NON-LATCHING I/O (A)

1	Press and hold the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Release **I/O #**. **Result:** The **On** indicator is OFF. The external device is no longer activated.

OPTION B: I/O # SPARE BUTTON

This option is similar to Option A; however, it is equipped with an **Off** as well as an **On** indicator.



NOTE

The **Safety** button (see "Safety" on page 5-36) can be used with this function to provide a safety measure.

OPERATING A LATCHING I/O

To operate a latching **I/O #** button:

PROCEDURE 5-15 HOW TO OPERATE A LATCHING I/O # BUTTON (B)

1	Press the **I/O #** button. **Result:** The **On** indicator lights. The **Off** indicator is OFF. The external device is activated.
2	Press **I/O #** once more. **Result:** The **Off** indicator lights. The **On** indicator is OFF. The external device is no longer activated.

OPERATE A NON-LATCHING I/O

To operate a non-latching **I/O #** button:

PROCEDURE 5-16 HOW TO OPERATE A NON-LATCHING I/O # BUTTON (B)

1	Press and hold the **I/O #** button. **Result:** The **On** indicator lights. The **Off** indicator is OFF. The external device is activated.
2	Release **I/O #**. **Result:** The **Off** indicator lights. The **On** indicator is OFF. The external device is no longer activated.

OPTION C: I/O # SPARE BUTTON AND INDICATOR

This option provides a latching or non-latching button to control an external output device with a state indicator which is ON when the output is activated. The **Active** indicator is ON when external activity is detected and OFF otherwise.

NOTE

The **Safety** button (see "Safety" on page 5-36) can be used with this function to provide a safety measure.

OPERATING A LATCHING I/O

To operate a latching **I/O #** button:

PROCEDURE 5-17 HOW TO OPERATE A LATCHING I/O # BUTTON (C)

1	Press the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Press **I/O #** once more. **Result:** The **On** indicator is OFF. The external device is no longer activated.

OPERATING A NON-LATCHING I/O

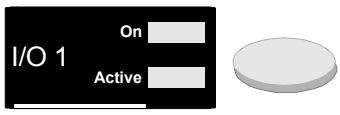
To operate a non-latching **I/O #** button:

PROCEDURE 5-18 HOW TO OPERATE A NON-LATCHING I/O # BUTTON (C)

1	Press and hold the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Release **I/O #**. **Result:** The **On** indicator is OFF. The external device is no longer activated.

OPTION D: I/O # SPARE BUTTON AND BLINKING INDICATOR

This option provides characteristics similar to Option C with an external input blinking to indicate that an external event has occurred.



NOTE

The **Safety** button (see "Safety" on page 5-36) can be used with this function to provide a safety measure.

OPERATING A LATCHING I/O

To operate a latching **I/O #** button:

PROCEDURE 5-19 HOW TO OPERATE A LATCHING I/O # BUTTON (D)

1	Press the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Press **I/O #** once more. **Result:** The **On** indicator is OFF. The external device is no longer activated.

OPERATING A NON-LATCHING I/O

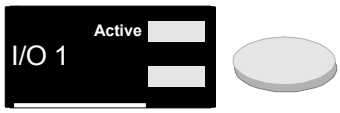
To operate a non-latching **I/O #** button:

PROCEDURE 5-20 HOW TO OPERATE A NON-LATCHING I/O # BUTTON (D)

1	Press and hold the **I/O #** button. **Result:** The **On** indicator lights. The external device is activated.
2	Release **I/O #**. **Result:** The **On** indicator is OFF. The external device is no longer activated.

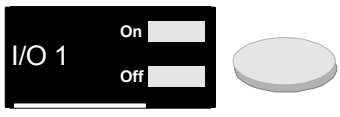
OPTION E: I/O # WITH AN EXTERNAL INPUT INDICATOR

This option does not require the use of the **I/O #** button. When the **Active** indicator lights, it informs the operator that an external event occurred, such as a door opening.



OPTION F: I/O # WITH EXTERNAL INPUT AND TWO INDICATORS

This option does not require the use of the **I/O #** button. If an event occurs, the **On** indicator lights and the **Off** indicator is OFF. If no event occurs, the **Off** indicator lights and the **On** indicator is OFF.



OPTION G: I/O # WITH TWO INPUTS

This option does not require the use of the **I/O #** button. The two **Act** indicators (**Act 1** and **Act 2**) independently indicate the status of two external events. If an event occurs, the **Act** indicator is ON, otherwise, it is OFF.

OPTION H: I/O # WITH A BUTTON AND TWO INPUTS

This option provides a latching or non-latching button to control an external output and two external indicators, independent of the button switch, to inform the operator that two independent events have occurred.

OPERATING A LATCHING I/O

To operate a latching **I/O #** button:

PROCEDURE 5-21 HOW TO OPERATE A LATCHING I/O # BUTTON (H)

1	Press **I/O #**. **Result:** This does not light any status indicator. The external device is activated.
2	Press **I/O #** once more. **Result:** The external device is no longer activated.

OPERATING A NON-LATCHING I/O

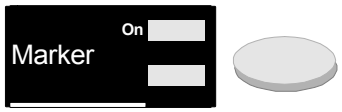
To operate a non-latching **I/O #** button:

PROCEDURE 5-22 HOW TO OPERATE A NON-LATCHING I/O # BUTTON (H)

1	Press and hold **I/O #**. **Result:** This does not light any status indicator. The external device is activated.
2	Release **I/O #**. **Result:** The external device is no longer activated.

MARKER

When activated, the **Marker** button sends a priority channel marker tone over a selected channel or channels. The tone warns other users that the channel is reserved for emergency communications. Priority channel marker tones are not audible at operators' consoles, and are not sent when a console is transmitting or receiving over the channel.



To send a priority channel marker tone over a channel or channels:

PROCEDURE 5-23 HOW TO SEND A PRIORITY CHANNEL MARKER TONE OVER A CHANNEL(S)

1 Press the **Select** button for the desired channel, or use the **Multi-Sel** button to select multiple channels (see "Multi-Sel without Memory" on page 5-22).

2 Press the **Marker** button.

Result: The **Marker** button's **On** indicator lights, if no Marker tones were previously being transmitted over any channels.

NOTE

The **Marker On** indicator remains lit as long as a marker tone is being sent over at least one channel.

Result: A marker tone begins automatically transmitting every ten seconds over the channel or channels.

3 To remove the marker tone from a channel or channels, repeat steps 1-2.

MONITOR

The **Monitor** button activates CTCSS channel monitoring for the selected channel and allows the operator to verify that the channel is idle prior to transmission.

To operate the channel monitor:

PROCEDURE 5-24 HOW TO OPERATE THE CHANNEL

1 Press and hold the **Monitor** button or press and hold the left switch of the dual foot-switch, if so equipped.

Result: The monitor feature is activated. The **On** indicator lights at all consoles sharing the radio channel, indicating that monitoring is active for the selected radio channels.

2 Release the **Monitor** button or press the left switch of the dual foot-switch.

Result: The monitor feature is disabled.

NOTE

If any attempt is made to monitor when no radio channel is selected, monitoring is disabled and there is no visual indication.

NOTE

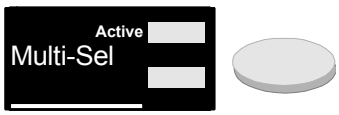
If an attempt is made to monitor a radio channel where the base station does not support monitoring, monitoring is disabled.

NOTE

The **On** indicator only lights at consoles sharing the channel if the channel's "Parallel Status" field is set to ON at the sharing consoles, in the CSDM Lite. See "Parallel Status Updates" on page 3-4 for more information.

MULTI-SEL WITHOUT MEMORY

Normally, no more than one radio channel at a time can be selected on the console. The multi-sel function provides a means to select more than one channel at a time, for the purpose of performing an all point broadcast, for instance.



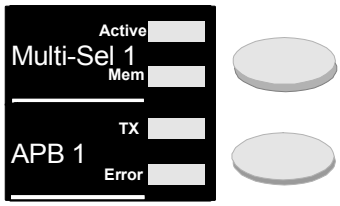
To activate the multi-sel function:

PROCEDURE 5-25 HOW TO THE MULTI-SEL FUNCTION

1	Press the **Multi-Sel** button. **Result:** The **Active** indicator lights.
2	Select the desired channel using the **Select** button. **Result:** The **Sel** indicator lights.
3	Repeat Step for each additional channel you want to select.
4	Press the common **PTT** or the foot-switch **PTT** to transmit over selected channels. **Result:** All selected channels are keyed for transmission.
5	To exit from a multi-sel, press the **Multi-Sel** button. **Result:** All channels are unselected. The **Active** indicator goes OFF.

MULTI-SEL WITH MEMORY

The multi-sel with memory function allows you to record channel selections and to transmit immediately over a set of channels regardless of the current selection.



ACTIVATING MULTI-SEL WITH MEMORY

To activate the multi-sel with memory function:

PROCEDURE 5-26 HOW TO ACTIVATE THE MULTI-SEL WITH MEMORY FUNCTION

1	Press the **Multi-Sel #** button. **Result:** The **Active** indicator lights.
2	Select the desired channel using the **Select** button. **Result:** The **Sel** indicator lights. The **Memory** indicator lights.
3	Repeat Step for each additional channel you want to select.

TRANSMITTING OVER AN ACTIVE MULTI-SEL

To transmit over an active multi-sel:

PROCEDURE 5-27 HOW TO TRANSMIT OVER AN ACTIVE MULTI-SEL

1	Press the common **PTT** button or the foot-switch **PTT** or **APB** to transmit over selected channels. **Result:** All the selected channels are keyed for transmission.
2	Press the **Multi-Sel #** button again to exit from the multi-sel. **Result:** All the channels are unselected. The **Active** indicator goes OFF. The **Memory** indicator stays ON.

TRANSMITTING OVER AN INACTIVE MULTI-SEL

To transmit over an inactive multi-sel:

PROCEDURE 5-28 HOW TO TRANSMIT OVER AN INACTIVE MULT-SEL

1	Verify that the **Multi-Sel # Memory** indicator is ON.
2	Press the **APB #** button. **Result:** All the channels in memory are keyed for transmission.

NOTE

If the Memory indicator is OFF, pressing the **APB #** button causes the **Error** indicator to remain ON as long as the button is held down.

RECALLING A MULTI-SEL

To recall a multi-sel:

PROCEDURE 5-29 HOW TO RECALL A MULTI-SEL

1	Ensure the **Multi-Sel # Memory** indicator is ON.
2	Press the **Multi-Sel #** button. **Result:** All the channels in memory are selected.

CLEARING A MULTI-SEL

To clear a multi-sel:

PROCEDURE 5-30 HOW TO CLEAR A MULTI-SEL

1	Press the **Clear** button. **Result:** All the channels in the active multi-sel are unselected. The **Memory** indicator goes OFF.
2	Press the **Multi-Sel #** button. **Result:** The **Active** indicator goes OFF.

PAGE

The **Page** feature allows the manual entry of a page code sequence on the ACM module before paging transmission over the selected radio channel.

NOTE

A **Page #** error causes the Error indicator of Page TX to light and the Keypad to display the cause of the error. This condition remains until the Page TX button or the **Page #** button is pressed. A **Page #** error occurs:

- If no channel is selected.
- If the selected radio channel is in use and **Page TX** is pressed. The **Page #** call cannot be transmitted and it is ended.

- If an invalid code is entered.

Table 5-3 summarizes the **Page #** and **Page TX** indicator states.

TABLE 5-3 PAGE # AND PAGE TX INDICATOR STATES

Button	Indicator	State	Significance
Page #	On	OFF	**Page #** is in idle mode.
		Lit	The page code or the voice message is transmitted.
		Fast blink	Prompt for digit entry.
Page Tx	Tx	OFF	**Page TX** is in idle mode.
		Lit	**Page TX** is transmitting the page codes.
		Fast blink	Prompt for a voice message entry using the microphone.
	TX Error	OFF	No error.
		Fast blink	Error.

INITIATING A PAGE TRANSMISSION

To initiate a page transmission:

PROCEDURE 5-31 HOW TO INITIATE A PAGE TRANSMISSION

1	Press the **Page #** button. **Result:** The **On** indicator blinks rapidly.
2	Enter the page code using the Keypad. **Result: A, B, C** and **D** can be entered using the **Shift** button in combination with the **1, 2, 3** and **4** buttons. The digits are displayed on the Keypad.
3	If a dialing error occurs, press **Clear** on the ACM and repeat Step 1-2.
4	Initiate transmission by pressing the **Page TX** button. **Result:** The **On** indicator lights. The **TX** indicator lights. The Keypad displays PAGING. After the page codes are transmitted, the Keypad displays VOICE MESSAGE. The **TX** indicator blinks fast.
5	Enter the voice message using the microphone. **Result:** After the **On** indicator of **Page #** and the **TX** indicator of **Page TX** are deactivated, the indicators go off after a delay of 5 to 10 seconds.

NOTE

The interval of delay before the **On** and **TX** indicators go off is programmable at the CSDM Lite.

NOTE

If the common **PTT** or **Instant Transmit** button is pressed during the voice message, the voice message duration is extended until the **PTT** is released.

EXITING A PAGE # CALL DURING TRANSMISSION

To exit a **Page #** call during transmission:

PROCEDURE 5-32 HOW TO EXIT A PAGE # CALL DURING TRANSMISSION

1	Press on the designated **Page #**. **Result:** Transmission stops, the **Page TX Error** indicator blinks and the Keypad displays PAGING ABORTED.
2	Press **Page #** a second time. **Result:** The **On** indicator of **Page #** goes OFF, then the **Page TX Error** indicator goes OFF. The Keypad displays the time.

PATCH

A patch is an operation that sets radio channels, telephone circuits and enhanced call director circuits in communication with one another without interaction from the operator. The **Patch** button provides the means to set up a patch at the console.

The patch function prohibits the following actions:

- Including an already-patched radio channel in a patch.
- Including an already-patched telephone circuit in a patch.
- Including a non-active telephone circuit in a patch.
- Including a local channel or telephone circuit in a patch.

Initiating a non-authorized patch results in a warning at the Keypad module displaying the following, where NAME is the name of a radio channel or telephone circuit:

- For the first two actions listed above: NAME PATCHED.
- For the third action: NO ACTIVE CALL.
- For the fourth action: NAME LOCAL.

CREATING A PATCH

To create a patch:

PROCEDURE 5-33 HOW TO CREATE A PATCH

1	Press and hold the **Patch** button. **Result:** The green indicator lights.
2	Use the **Select** button to select a radio channel to include in the patch. **Result:** The **Patch** indicator located on the top right corner of the radio module lights. Or Use the designated telephone circuit button to include a telephone circuit in a patch. For example, use the **Line 1, Line 2** or **Call Director** button. **Result:** The **Patch** indicator of the selected line lights.
3	Release the **Patch** button.
4	If an additional radio or telephone circuit needs to be included in a patch repeat teps 1-3.

NOTE

A patch must include at least one radio channel.

NOTE

When you have an active patch, you can press the **Transmit** button on the DCCM or DRCM to transmit.

INITIATE PATCH TRANSMISSION

Two methods are used to initiate a patch transmission, as described in the paragraphs below.

To initiate a patch transmission, method 1of 2:

PROCEDURE 5-34 HOW TO INITIATE A PATCH TRANSMISSION (1 OF 2)

1	Select a patched radio channel. **Result:** The **Sel** indicator for all the patched radio channels is ON.
2	Press and hold the common **PTT** on the Keypad, **Result:** The radio **TX** indicators light.

PROCEDURE 5-34 HOW TO INITIATE A PATCH TRANSMISSION (1 OF 2)

3	Send a voice message using the internal microphone, desk microphone or headset microphone. **Result:** The voice message is transmitted to the receiving ends.
4	Release the common **PTT**. **Result:** The radio **TX** indicators are OFF. The voice message ends.

To initiate a patch transmission, method 2 of 2:

PROCEDURE 5-35 HOW TO INITIATE A PATCH TRANSMISSION (2 OF 2)

1	Press and hold the **Transmit** button of a patched radio channel. **Result:** The radio **TX** indicators light.
2	Send a voice message using the headset or the microphone. **Result:** The voice message is transmitted to the receiving ends.
3	Release **Transmit**. **Result:** The Radio **TX** indicators are OFF. The voice message ends.

EXITING AND CLEARING A PATCH

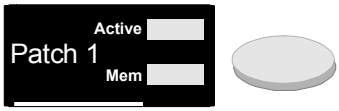
To exit and clear a patch:

PROCEDURE 5-36 HOW TO EXIT AND CLEAR A PATCH (1 OF 2)

1	Press on **Patch**. **Result:** The **Active** indicator is OFF. The **Patch** indicator of the radio and the telephone circuits are OFF.

PATCH WITH MEMORY

The patch with memory function allows the operator to initiate, memorize and recall a patch if required.



CREATING A PATCH WITH MEMORY

To create a patch with memory:

PROCEDURE 5-37 HOW TO CREATE A PATCH WITH MEMORY

1	Press and hold the **Patch #** button. **Result:** The **Active** indicator lights.
2	Use the **Select** button to select a radio channel to include in a patch. **Result:** The **Patch** indicator of the selected module lights. The **Memory** indicator lights.
3	Use the designated telephone circuit button to include a telephone circuit in a patch. or example, use the **Line 1, Line 2** or **Call Director** button. **Result:** The **Patch** indicator on the selected module lights. **NOTE** Telephone circuits and the call director interface are not stored into a patch memory.
4	Release the **Patch #** button.
5	If additional radio or telephone circuits need to be included in a patch, repeat Steps 1-2.
6	To exit from a patch with memory, press the **Patch #** button. **Result:** The **Active** indicator is OFF. The **Memory** indicator is ON. The patch is stored.

RESTORING A STORED PATCH

To restore a stored patch:

PROCEDURE 5-38 HOW TO RESTORE A STORED PATCH

1	Select and press on the **Patch #** button. **Result:** The **Active** indicator on the **Patch #** button lights. The **Patch** indicators light on the patched telephone circuit and radio. The stored patch is restored.

INITIATING A PATCH TRANSMISSION

To initiate a patch transmission:

PROCEDURE 5-39 HOW TO INITIATE A PATCH TRANSMISSION

1	Press and hold the **Patch TX** button. **Result:** The radio **TX** indicators light.
	NOTE The **Error** indicator lights, while the button is held down, if the **Patch # TX** is selected for an inactive patch.
2	Send a voice message using the internal microphone, desk microphone or headset microphone. **Result:** The voice message is transmitted to the receiving ends.
3	Release the **Patch TX** button. **Result:** The radio **TX** indicators are OFF. The voice message ends.

RCLEARING A PATCH WITH MEMORY

To clear a patch with memory:

PROCEDURE 5-40 HOW TO CLEAR A PATCH WITH MEMORY

1	Press and hold the **Patch #** button. **Result:** The **Active** indicator lights.
2	Press **Clear** on the ACM. **Result:** The radio and telephone circuit **Patch** indicators are OFF. The **Memory** indicator goes OFF.
3	Release the **Patch #** button. **Result:** The **Active** indicator goes OFF.

RADIO ASSIST AND PHONE ASSIST

During a telephone circuit/radio patch, the phone assist or radio assist feature is used to override, manually, the operation of the telephone or the radio voice detection:

- When selected, the **Radio Assist** button overrides the patched telephone circuit voice detection and gives patched transmission priority to the radio channels.

- When selected, the **Phone Assist** button overrides the patched radio voice detection and gives patched transmission priority to the telephone circuits.

NOTE

The **Radio Assist** and **Phone Assist** buttons are provided with a status indicator to indicate when the assist feature cannot be operated. If the operator presses either of these buttons while a patch is *not* selected, it yields an error and the **Error** indicator lights.

ACTIVATING AND DE-ACTIVATING RADIO ASSIST

To activate and de-activate radio assist:

PROCEDURE 5-41 HOW TO ACTIVATE AND DE-ACTIVATE RADIO ASSIST

1	Press the **Radio Assist** button. **Result:** The red **On** indicator lights. Radio assist is activated.
2	Release the **Radio Assist** button. **Result:** The red **On** indicator is OFF. Radio assist is de-activated.

ACTIVATING AND DE-ACTIVATING PHONE ASSIST

To activate and de-activate phone assist:

PROCEDURE 5-42 HOW TO ACTIVATE AND DE-ACTIVATE PHONE ASSIST

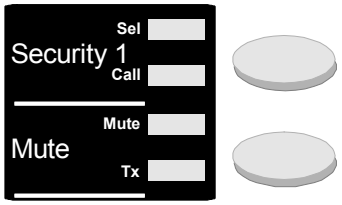
1	Press the **Phone Assist** button. **Result:** The red **On** indicator lights. Phone assist is activated.
2	Release the **Phone Assist** button. **Result:** The red **On** indicator goes OFF. Phone assist is de-activated.

RADIO CHANNEL CONTROLLED FROM ACM

Operators can control radio channels by using buttons on an ACM, rather than by using a DCCM. The ACM buttons enable operators to perform basic tasks such as transmitting and receiving over a channel, but do not provide the more advanced features available on a DCCM, such as the repeat feature.

Two buttons, **Receive** and **Mute,** provide control of a radio channel on an ACM:

- The **Receive** button functions like the **Select** button on a DCCM.



NOTE

On operator consoles, the **Receive** button is usually labelled with the name of the radio channel it represents. The **Receive** button shown on the right, for example, is labelled with the channel name **Security 1.**

- The **Mute** button functions like the **Mute** button on a DCCM. This button includes a **Mute** indicator, which corresponds to the **Mute** indicator on a DCCM, and a **Tx** indicator, which corresponds to the **Tx** indicator on the **Instant Transmit** button on a DCCM.

For a list of radio channel features on an ACM, and their corresponding DCCM features, see Table 5-4 on page 5-33.

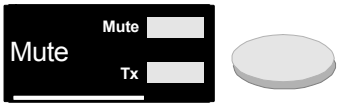
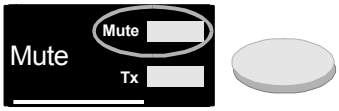
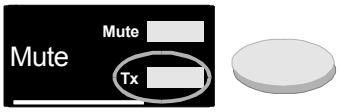
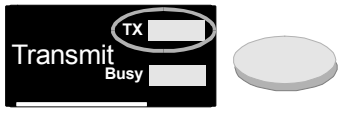
Some DCCM features are not available for radio channels controlled from an ACM:

- DCCM buttons and indicators not listed in Table 5-4, “Radio Channel on ACM and corresponding DCCM features,” on page 5-33., including the **Instant Transmit** button, are not available for radio channels on an ACM. To transmit over a radio channel on an ACM, you use the **PTT** button on the Keypad, or the foot-switch, if one is available.
- No volume button is provided for a radio channel on an ACM. Instead, you set the volume for the radio channel through a program in the console’s tests and programming mode, which is accessible on the Keypad.

NOTE

All ACM buttons and features that work in conjunction with DCCM radio channels, such as the patch feature, also work with radio channels on an ACM.

TABLE 5-4 RADIO CHANNEL ON ACM AND CORRESPONDING DCCM FEATURES

Radio Channel on ACM Feature	Corresponding DCCM Feature
Receive button: 	Select button: 
Mute button: 	**Mute** button: 
Mute indicator on **Mute** button: 	**Mute** indicator: 
Tx indicator on **Mute** button: 	**Tx** indicator on **Instant Transmit** button: 
Set Rad Vol (Set Radio Volume), program #12 in tests and programming mode (accessible from Keypad module)	**Volume** button: 

SELECTING AND TRANSMITTING ON A RADIO CHANNEL

To select and transmit on a radio channel on an ACM:

PROCEDURE 5-43 HOW TO SELECT AND TRANSMIT ON A RADIO CHANNEL ON AN ACM

1	Press the **Receive** button corresponding to the channel you want to select. **Result:** The **Sel** indicator lights.
2	Press and hold the **PTT** on the Keypad or the right switch on the foot-switch. **Result:** The **TX** indicator lights on the radio channel's **Mute** button. You hear a grant tone in the Select speaker or the headset. The **Operator Busy** indicator next to the select speaker lights.

PROCEDURE 5-43 HOW TO SELECT AND TRANSMIT ON A RADIO CHANNEL ON AN ACM

3	SSpeak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **Tx** indicator is OFF on the radio channel's **Mute** button. The **Operator Busy** indicator next to the select speaker is OFF.

ANSWERING AN INCOMING CALL ON A SELECTED RADIO CHANNEL

An incoming call is characterized by a blinking **Call** indicator. The call is heard over the Select speaker or the headset and the **Operator Busy** indicator next to the select speaker lights.

To answer an incoming call on a selected radio channel on an ACM:

PROCEDURE 5-44 HOW TO ANSWER AN INCOMING CALL ON A SELECTED RADIO CHANNEL ON AN ACM

1	Wait for the end of the message. **Result:** The **Call** indicator is OFF. The **Operator Busy** indicator next to the select speaker is OFF.
2	Press and hold the **PTT** on the Keypad or the right switch on the foot-switch. **Result:** The **Tx** indicator lights on the radio channel's **Mute** button. The operator hears a grant tone over the Select speaker or the headset. The **Operator Busy** indicator next to the select speaker lights.
3	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
4	Release the **PTT** to end the voice transmission. **Result:** The **Tx** indicator is OFF on the radio channel's **Mute** button. The **Operator Busy** indicator next to the select speaker is OFF.

ANSWERING AN INCOMING CALL ON AN UNSELECTED RADIO CHANNEL

An incoming call is characterized by a blinking **Call** indicator on the radio channel's **Receive** button. The incoming audio is directed to the Unselect speaker.

To answer an incoming radio call on an unselected radio channel on an ACM:

PROCEDURE 5-45 HOW TO AN INCOMING RADIO CALL ON AN UNSELECTED RADIO CHANNEL ON AN ACM

1	Press the **Receive** button for the channel whose **Call** indicator is blinking. **Result:** The **Sel** indicator lights. The audio is transferred to the Select speaker. If the headset is connected, the audio is transferred to the operator headset. The **Operator Busy** indicator next to the select speaker lights.
2	Wait for the end of the message. **Result:** The **Call** indicator is OFF. The **Operator Busy** indicator next to the select speaker is OFF.
3	Press and hold the **PTT** on the Keypad or the right switch on the foot-switch. **Result:** The **Tx** indicator lights on the radio channel's **Mute** button. You hear a grant tone over the Select speaker or the headset. The **Operator Busy** indicator next to the select speaker lights.
4	Speak into the internal microphone, desk microphone or headset microphone, if a headset is connected. **Result:** The voice message is sent to destination.
5	Release the **PTT** to end the voice transmission. **Result:** The **Tx** indicator on the radio channel's **Mute** button is OFF. The **Operator Busy** indicator next to the select speaker is OFF.

DESELECTING A RADIO CHANNEL

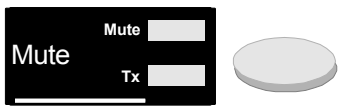
To deselect a radio channel on an ACM:

PROCEDURE 5-46 HOW TO DESELECT A RADIO CHANNEL ON AN ACM

1	Locate the radio channel with the lit **Sel** indicator.
2	Press the **Receive** button. **Result:** The selected radio channel is deselected and the **Sel** indicator is OFF.

MUTING A RADIO CHANNEL

Each radio channel on an ACM is equipped with a **Mute** button. The audio level of the radio can either be silenced or attenuated by 24 dB. The **Mute** button is of the latching type. Successive pressing of the Mute button toggles the mode between muted and *not* muted.



NOTE

The attenuation level can be configured from the CSDM Lite position.

To mute a radio channel on an ACM:

PROCEDURE 5-47 HOW TO MUTE A RADIO CHANNEL ON AN ACM

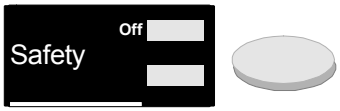
1	Select the radio channel you want to mute by pressing the corresponding **Receive** button.
2	Press **Mute**. **Result:** The **Mute** indicator lights. The radio audio is muted or attenuated at the Unselect or Select speaker or the headset.
3	Press **Mute** once more to remove mute from the radio channel. **Result:** The **Mute** indicator is OFF. The radio audio is restored to the original level over the Unselect or Select speaker or the headset.

ADJUSTING VOLUME ON A RADIO CHANNEL

To adjust the volume on a radio channel on an ACM, you need to enter tests and programming mode on the Keypad, and select program #12, Set Rad Vol (Set Radio Volume). For instructions, see "Setting the Volume of a Radio Channel Controlled from an ACM" on page 6-9.

SAFETY

The Safety button is used as a safety to prevent errors in manual keying operations by the operator on **I/O #** buttons, such as, initiating an unwanted fire alarm. **I/O #** buttons that are safety-protected require pressing of the **Safety** button along with the selected **I/O #** button as described below.



NOTE

The **Safety** button can be configured using the CSDM Lite.

To use the **Safety** button:

PROCEDURE 5-48 HOW TO USE THE SAFETY BUTTON

1	Press and release the **Safety** button. **Result:** The **Off** indicator lights.
2	Select the **I/O #** button. **Result:** The **Off** indicator goes off. If applicable, the **I/O #** button **On** indicator lights. The external device related to the **I/O #** button is activated.

NOTE

The safety feature is re-enabled when any button is pressed. It is also re-enabled automatically three seconds after pressing the **Safety** button.

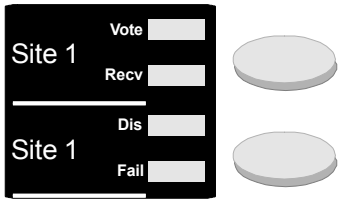
SITE CONTROL

An incoming radio signal can be received through several base station receivers and routed through a voting comparator. The receiver with the highest radio signal level is automatically directed to the console.

The site control feature allows an operator to select another base station receiver with lower radio signal level, or to disable a designated receiver. For example, a operator may select another receiver if the incoming radio signal is too noisy.

Two buttons are provided for site control:

- The **Site # Vote** button allows the operator to select a specified receiver.
- The **Site # Disable** button allows the operator to disable a specified receiver.



INCOMING RADIO CALL

Incoming audio over a designated receiver, at the site control, is characterized by a lit **Receive** indicator. The receiver selected by the voting comparator is identified by a lit **Vote** indicator.

To select another receiver the operator has two options:

- Force voting a receiver.
- Disabling a receiver.

FORCE VOTING A RECEIVER

To force vote a receiver:

PROCEDURE 5-49 HOW TO FORCE VOTE A RECEIVER

1	Press on the **Site # Vote** button for the receiver that you want to select. **Result:** This causes the voting comparator to select the designated receiver to carry the radio signal, regardless of signal strength.
2	Verify that the **Vote** indicator lights.

DISABLING A RECEIVER

To disable a receiver:

PROCEDURE 5-50 HOW TO DISABLE A RECEIVER

1	Press the **Site # Disable** button for the receiver that you want to disable. **Result:** This causes the voting comparator to disable the designated receiver regardless of signal strength.
2	Verify that the **Disable** indicator lights.

NOTE

The **Fail** indicator lights if the selected receiver is detected to be non-functional.

SPEED PAGE

The speed page feature provides access to one or several pre-programmed page codes. No digit entry is required through the Keypad module.

NOTE

A speed page error causes the **Error** indicator on the **Page TX** button to light and the Keypad to display the cause of the error. The condition remains until the **Page TX** button or the **Speed Page #** button is pressed.

A speed page error occurs under the following conditions:

- If no channel is selected.
- If the selected radio channel is in use.

Table 5-5 summarizes the **Speed Page #** and **Page TX** indicator states.

TABLE 5-5 SPEED PAGE # AND PAGE TX INDICATOR STATES

Button	Indicator	State	Significance
Speed Page #	On	OFF	**Speed Page #** is in idle mode.
		Lit	Speed page code or the voice message is transmitted.
		Slow blink	Selected **Speed Page #** is queued to **Page Tx**.
Page Tx	Tx	OFF	**Page TX** is in idle mode.
		Lit	**Page TX** is transmitting the page codes.
		Fast blink	Prompt for a voice message entry using the microphone.
	Error	OFF	No error.
		Fast blink	Error.

TRANSMITTING A SPEED PAGE

To transmit a speed page:

PROCEDURE 5-51 HOW TO TRANSMIT A SPEED PAGE

1 Press the **Speed Page #** button.

Result: The **On** indicator blinks slowly. A slow blinking **On** indicator indicates that the pre-programmed speed page is being processed and sent to the **Page TX** queue for transmission.

2 Select the **Page TX** button.

Result: The **On** indicator lights. The **TX** indicator lights. The Keypad displays PAGING. After the page codes are transmitted, the Keypad displays VOICE MESSAGE. The **TX** indicator blinks fast.

PROCEDURE 5-51 HOW TO TRANSMIT A SPEED PAGE

3	Send a voice message using the microphone. **Result:** After the **On** indicator of **Speed Page #** and the **TX** indicator of **Page TX** are deactivated, the indicators go off after a delay of 5 to 10 seconds. **NOTE** The interval of delay is programmable at the CSDM Lite. If the common **PTT** or **Instant Transmit** button is pressed during the voice message, the voice message duration is extended until the **PTT** is released.
4	If multiple speed page calls are required, repeat Step 1 and select the designated **Speed Page #** buttons in sequence. **Result:** The **On** indicators of the selected **Speed Page #** buttons blink slowly and the preprogrammed speed pages are sent to the **Page TX** queue.

DESELECTING A QUEUED SPEED PAGE CALL

A speed page that is queued is characterized by the slow blinking of the **Speed Page #** button's **On** indicator.

To deselect a queued speed page call:

PROCEDURE 5-52 HOW TO DESELECT A QUEUED SPEED PAGE CALL

1	Follow Steps 1-4 in "Transmitting a Speed Page" on page 5-39.
2	Press on the Speed Page button once more. **Result:** The **On** indicator goes OFF.

STAT-ALERT

INCOMING SIGNALING

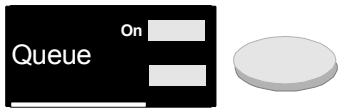
Whenever Stat-Alert signaling is received on a radio channel, that signaling is interpreted and appears on the DCCM display. Four types of incoming signaling are provided:

- A PTT ID is sent by units whenever voice transmission begins. This PTT ID is matched to an alias programmed through the CSDM Lite, if possible, and displayed on the DCCM. A PTT ID is displayed only if an incoming call condition exists on the channel (**Call** indicator is blinking). The display returns to channel ID mode when the call terminates.

- A status message is received when a subscriber activates a preset switch, or when a operator manually requests the status. Status messages are handled like PTT ID messages, except that the display will alternate between the originator ID and the received status.
- A Call Alert is received when a subscriber specifically pages a console. At that console, a momentary tone will sound and the display will alternate between Call Alert and the originator ID. The call alert condition will be cleared when the operator transmits on the channel.
- An Emergency is received when a subscriber activates the Emergency switch on his unit. A tone will be heard at the console, the **Emergency** indicator will flash and the display will alternate between Emergency and the Originator ID. The tone can be muted by using the Emer Alarm switch, which will also turn the **Emergency** indicator ON. The alarm is cleared and the display returned to Channel ID mode at all consoles by using the **Emer Clear** button.

QUEUE

The queue function is used to examine the ID queue.



EXAMINING THE QUEUE

Note: For the following procedure, the queue function is assumed to be OFF and the indicator is assumed to be OFF.

To examine the queue:

PROCEDURE 5-53 HOW TO EXAMINE THE QUEUE

1	While holding down the **Queue** button, press the select button for the channel whose queue is to be queried. **Result:** The Keypad displays the latest received ID.
2	Use the **Up** and **Down** buttons to look through the queue. **Result:** The Keypad goes through the entries for the queue.
3	Press the **Queue** button again to exit the queue display mode.

NOTE

All IDs received while the console is in queue mode are displayed on the DCCM but will not be scrolled through on the Keypad.

ENTER RAC

The Enter repeater access code (RAC) function is used to select which repeater will be accessed. The RAC is stored in memory and used each time you transmit. The **Enter RAC** button is only active when a single Stat-Alert capable channel is selected.

To enter a RAC

PROCEDURE 5-54 HOW TO ENTER THE RAC

1. Press the **Enter RAC** button.

   Result: The Keypad displays the current RAC, in alias form if an alias exists for the RAC.

   NOTE
   This button is disabled when no channel or more than one channel is selected, or when the selected channel does not support RAC.

2. Use the Keypad to enter a new RAC, either through alias scrolling or direct entry.

OUTGOING SIGNALING

All outgoing Stat-Alert signaling such as repeater enable, repeater disable, manual RAC, radio check, radio enable, radio disable, remote monitor, status request, voice alert and call alert are documented through specific page formats and operate identically to other page formats with the following exceptions:

- All Stat-Alert functions except voice alert and group call alert require an Acknowledge. In consequence, the page function will be transmitted, the system will wait for an ACK and then retry up to four times if the ACK is not received. If no ACK is received, the display will indicate No Acknowledge.
- The channel is open for voice annotation only after the ACK is received.

REPEATER ENABLE

This function allows the operator to enable the Stat-Alert repeater operation.

NOTE
It is not possible to send manual RAC, repeater disable and repeater enable functions over a channel which is not configured for Stat-Alert signaling.

To enable the Stat-Alert repeater operation:

PROCEDURE 5-55 HOW TO ENABLE THE STAT-ALERT REPEATER OPERATION

1	Press a manual **Page** button configured for repeater enable. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the repeater to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last repeater accessed over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the repeater does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

REPEATER DISABLE

This function allows the operator to disable the Stat-Alert repeater operation.

To disable the Stat-Alert repeater operation:

PROCEDURE 5-56 HOW TO DISABLE THE STAT-ALERT REPEATER OPERATION

1	Press a manual **Page** button configured for repeater disable. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the repeater to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last repeater accessed over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the repeater does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

MANUAL RAC

This function allows the operator to send a RAC manually on a per channel basis. The RAC is not stored in memory after the transmission is over and must be re-entered for the next transmission.

To send a RAC:

PROCEDURE 5-57 HOW TO SEND A RAC

1	Press a manual page button configured for manual RAC. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the repeater to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last repeater accessed over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the repeater does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

RADIO CHECK

This function button provides radio check capability, where the operator can verify whether a unit is operational regardless of whether someone is able or willing to answer a voice call.

NOTE

It is not possible to send a Stat-Alert radio check over a channel which is not configured for Stat-Alert signaling.

To transmit a Stat-Alert radio check:

PROCEDURE 5-58 HOW TO TRANSMIT A STAT-ALERT RADIO CHECK

1	Press a manual **Page** button configured for radio check. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer the radio check, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

RADIO DISABLE

This function provides radio disable capability, where a operator can remotely render a radio inoperational, for instance if the radio is stolen.

To transmit a Stat-Alert radio disable command:

PROCEDURE 5-59 HOW TO TRANSMIT A STAT-ALERT RADIO DISABLE COMMAND

1	Press a manual **Page** button configured for radio disable. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to inhibit.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer the radio inhibit, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

RADIO ENABLE

This function provides radio enable capability, where a operator can remotely enable a radio that was made inoperational.

NOTE

It is not possible to send a Stat-Alert radio inhibit or enable command over a channel which is not configured for Stat-Alert signaling.

To transmit a Stat-Alert radio enable command:

PROCEDURE 5-60 HOW TO TRANSMIT A STAT-ALERT RADIO ENABLE COMMAND

1	Press a manual **Page** button configured for radio enable. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.

PROCEDURE 5-60 HOW TO TRANSMIT A STAT-ALERT RADIO ENABLE COMMAND

2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer the radio enable, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

REMOTE MONITOR

This function provides remote monitor capability, where a operator can remotely request a unit to transmit.

NOTE

It is not possible to send a Stat-Alert remote monitor command over a channel which is not configured for Stat-Alert signaling.

To transmit a Stat-Alert remote monitor command:

PROCEDURE 5-61 HOW TO TRANSMIT A STAT-ALERT REMOTE MONITOR COMMAND

1	Press a manual **Page** button configured for remote monitoring. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

STATUS REQUEST

This function sends a vehicle status request message to a unit.

NOTE

It is not possible to send a Stat-Alert status request over a channel which is not configured for Stat-Alert signaling.

To transmit a Stat-Alert status request:

PROCEDURE 5-62 HOW TO TRANSMIT A STAT-ALERT STATUS REQUEST

1	Press a manual **Page** button configured for status request. **Result:** The Keypad prompts you to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

CALL ALERT

This function sends a Call Alert to a unit, causing it to provide a visual and audible indication to the called end.

To transmit a Stat-Alert call alert:

PROCEDURE 5-63 HOW TO TRANSMIT A STAT-ALERT CALL-ALERT

1	Press a manual **Page** button configured for call alert. **Result:** The Keypad prompts to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert-capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID. If you wish to enter a new unit ID when a previous unit ID is displayed, you must press **Clear** first.
3	Select the **Page TX** button to initiate transmission, as in a regular page. **Result:** If the unit does not answer, a paging error occurs and the Keypad displays NO ACKNOWLEDGE.

NOTE

It is also possible to configure **Speed Page** buttons with a call alert sequence. These **Speed Page** buttons will then operate like regular **Speed Page** buttons.

VOICE ALERT

This function sends a voice alert to a unit, causing it to unmute its speakers.

To Transmit a Stat-Alert voice alert:

PROCEDURE 5-64 HOW TO TRANSMIT A STAT-ALERT VOICE ALERT

1	Press a manual **Page** button configured for voice alert. **Result:** The Keypad prompts to enter the 4-digit Stat-Alert ID of the unit to alert.
2	Enter the 4-digit Stat-Alert of the unit to alert. **Result:** If a single Stat-Alert-capable channel is selected, the ID or alias of the last unit to transmit over that channel is displayed and the operator can scroll through the aliases or enter a unit ID. If you wish to enter a new unit ID when a previous unit ID is displayed, you must press **Clear** first.
3	Select the **Page TX** button to initiate transmission, as in a regular page.

NOTE

It is also possible to configure **Speed Page** buttons with a voice alert sequence. These **Speed Page** buttons will then operate like regular **Speed Page** buttons.

TELEPHONE OPERATION

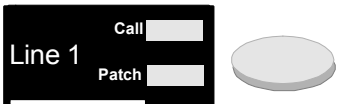
As an advanced integrated communication control system, CommandSTAR Lite provides a direct interface to telephone company CO lines and local telephone sets.

CommandSTAR Lite operates in an intrinsic conferencing mode. Whenever a call is established, all parties already involved in a call with either the called or caller party are conferenced together.

In this description, the party initiating the call is referred as the *caller party* and the party answering the call is referred as the *called party*.

PLACING A TELEPHONE CALL

A console can be configured with **Line** buttons as a one-touch way to access telephone circuits.



To place a telephone call:

PROCEDURE 5-65 HOW TO PLACE A TELEPHONE CALL

1 Press the **Line 1** or **Line 2** button to initiate the call.

Result: One of the following sets of events occurs:

- If the circuit is a CO line, at the caller console:
  - The CO provides a dial tone.
  - The Keypad displays the time.
  - The Keypad is active for dialing and placing a call through the CO.
- If the circuit is connected to a local telephone set, at the caller console:
  - The Keypad displays the time.
  - A ringback tone is heard through the headset or Select speaker until the called party goes off-hook, at which point communication is established.

2 Press the **Line** button to abort in-progress call placement.

Result: At the caller console, the **Operator Busy** indicator next to the Select speaker is OFF.

ANSWERING A TELEPHONE CALL

If a remote party attempts to call a operator at a CommandSTAR Lite console, all consoles equipped with a **Line** button for that particular circuit are provided with an incoming call indication: the **Line** button **Call** indicator blinks and a ring is heard through the Unselect speaker.

To answer a direct access telephone call:

PROCEDURE 5-66 HOW TO TANSWER A DIRECT ACCESS TELEPHONE CALL

1 Locate the **Line** button with a flashing **Call** indicator.

2 Press the **Line** button.

Result: The ring stops. The **Operator Busy** indicator next to the Select speaker is ON. The **Call** indicator blinks. Communication is established.

PHONE TRANSMIT BUTTON OPERATION

When telephone calls are placed or answered and a headset is plugged into the console, the telephone receive audio is routed to the headset and the headset microphone is routed to the remote party, establishing a two-way communication. However, if no headset is connected, the receive audio is routed to the Select speaker. If the microphone was live at the same time as the speaker, undesired feedback would occur. To prevent feedback, CommandSTAR Lite is equipped with a Phone TX button that connects the microphone to the remote party and disconnects the receive audio from the speaker. The Phone TX button is a non latching type button that is only active when a telephone call is in progress and no headset is plugged into the console. Activation of the Phone TX button when these conditions are not met result in the **Error** indicator being ON as long as the button is held down.

To use the **Phone TX** button:

PROCEDURE 5-67 HOW TO USE THE PHONE TX BUTTON

1	Press the **Phone TX** button. **Result:** The telephone receive audio is muted from the speaker. The **On** indicator lights. The microphone audio is routed to the remote party.
2	Release the **Phone TX** button. **Result:** The interphone audio is not muted anymore. The **On** indicator is OFF. The microphone audio is disconnected from the remote party.

RING DISABLE OPERATION

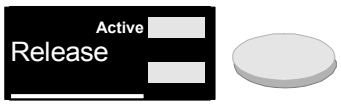
The **Ring** button is a latching button that allows the operator to mute the ring signaling an incoming call.

To mute and unmute the right of an an incoming call:

PROCEDURE 5-68 HOW TO MUTE AND UNMUE THE RING OF AN INCOMING CALL

1	Press the **Ring** button. **Result:** The **Mute** indicator is ON. Incoming call ringing is muted.
2	Press the **Ring** button again. **Result:** The **Mute** indicator is OFF. Incoming call ringing is restored.

CALL RELEASE



The **Release** button allows the operator to release any call in progress. As long as one supervised entity (console or telephone set) remains in the call after the operator releases the call, the remaining parties remain connected together.

To release an active call:

PROCEDURE 5-69 HOW TO RELEASE AN ACTIVE CALL

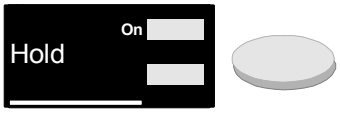
1	Press the **Release** button.
2	Verify that the **Operator Busy** indicator next to the Select speaker is OFF. **Result:** The Keypad displays the time. The operator is released from any call in-progress. A operator can release (hang up) a telephone line selectively from the active call.

To selectively hang up a telephone line

PROCEDURE 5-70 HOW TO SELECTIVELY HANG UP A TELEPHONE LINE

1	Press the **Line** button for the circuit you want to hang up. **Result:** The circuit is hung up. The console is no longer in communication with circuit.

HOLD FUNCTION



The **Hold** button allows a operator to put the active call on-hold, for the purpose of placing or answering another call. The **Hold** indicator indicates that a call is on-hold. On-hold entities are identified by a **Call** indicator that blinks fast at the same rate as the **Hold** indicator. On-hold entities continue to be conferenced together; only the operator is removed from the active call.

To put the active call on hold and take it off hold:

PROCEDURE 5-71 HOW TO PUT THE ACTIVE CALL ON HOLD AND TAKE IT OFF HOLD

1	Press the **Hold** button. **Result:** The **Operator Busy** indicator next to the Select speaker is OFF. The active call is put on hold. The **Hold** indicator blinks slowly.
2	To take the active call off hold, press the **Line** button of one entity in the call on hold. **Result:** The **Operator Busy** indicator next to the Select speaker is ON. The **Active** call is off hold. The **Hold** indicator is OFF.

FLASH FUNCTION

The flash function allows a operator to perform a hook flash on a CO line. It is active only if the last circuit selected is a CO line.

To perform a hook flash:

PROCEDURE 5-72 HOW TO PERFORM A HOOK FLASH

1	Press the **Flash** button.
2	Verify that the **On** indicator is ON. **Result:** The hook flash is sent to circuit. The **On** indicator goes OFF after flash duration has elapsed.

FUNCTION BUTTON ERROR MESSAGES

Table 5-6 lists all the error messages generated by the function buttons detailed in Chapter 3 and Chapter 5. The table shows:

- **Button Name:** the long name of the button, not the abbreviated name sometimes found on the button.
- **Error Generated:** details the error which may be generated.
- **Button Description:** shows the button as it appears on the console.

TABLE 5-6 LIST OF ERROR MESSAGES

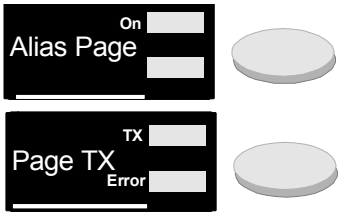
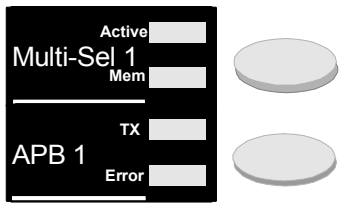
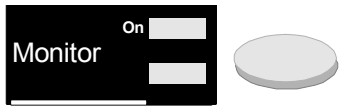
Button Name	Error Generated	Button Description
Alias Page	Causes the indicator of **Page TX** to light and the Keypad to display the cause of the error. The condition remains until the **Page TX** button or the **Alias Page** button is pressed. An **Alias Page** error occurs under the following conditions: • If no channel is selected. • If the selected radio channel is in use, pressing the Page TX results in an error. This indicates that the Alias Page call cannot be transmitted and it is ended.	
All Points Bulletin (APB)	If the **Memory** indicator is OFF, pressing the **APB #** button causes the **Error** indicator to remain ON as long as the button is held down.	
Call director	When the operator performs a call director PTT and the call director is *not* off-hook, the **Error** indicator lights while **Call Director TX** is pressed.	
Frequency	The **Frequency** button cannot be selected if no channel is selected, more than one channel is selected, or if the selected channel does not support multiple frequency operation or has dedicated select buttons. The **Menu/Home** button cannot be selected to validate the frequency if a console is transmitting over the channel.	
Monitor	If any attempt is made to monitor when no radio channel is selected, monitoring is disabled and there is no visual indication. If an attempt is made to monitor a radio channel where the base station does not support monitoring, monitoring is disabled.	

TABLE 5-6 LIST OF ERROR MESSAGES (CONTINUED)

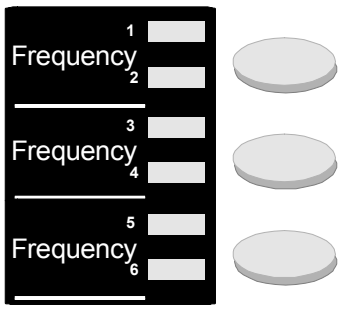
Button Name	Error Generated	Button Description
Multi-frequency operation	Changing the frequency of a radio being used, that is, a radio showing a **Busy** or **TX** indicator lit, is not allowed. The use of the button will *not* toggle to the new frequency.	
Page #	A **Page #** error causes the **Error** indicator of **Page TX** to light and the Keypad to display the cause of the error. This condition remains until the **Page TX** button or the **Page #** button is pressed. A **Page #** error occurs under the following conditions: • If no channel is selected. • If the selected radio channel is in use, pressing **Page TX** results in an error. This indicates that the **Page #** call cannot be transmitted and it is ended. • If an invalid code is entered.	
Patch	The patch function prohibits the following actions: • Including an already patched radio channel in a patch. • Including a patched telephone circuit in a patch. • Including an inactive telephone circuit in a patch. • Including a local channel or telephone circuit in a patch. Initiating a non-authorized patch results in a warning at the Keypad module, displaying the following, where NAME is the name of a radio channel or telephone circuit: • For the first two actions listed above: NAME PATCHED. • For the third action: NO ACTIVE CALL. • For the fourth action: NAME LOCAL.	
Patch Transmission	The Error indicator lights, while the button is held down, if the **Patch # TX** is selected for an inactive patch.	

TABLE 5-6 LIST OF ERROR MESSAGES (CONTINUED)

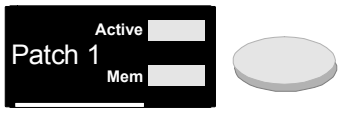
Button Name	Error Generated	Button Description
Patch with memory	Refer to **Patch**.	
Repeater enable	It is not possible to send manual RAC, repeater disable and repeater enable functions over a channel which is not configured for Stat-Alert signaling.	
Radio Assist and Phone Assist	**Radio Assist** and **Phone Assist** are provided with a status indicator to indicate that the assist feature for telephone circuit/radio cannot be operated. If the operator presses either of these buttons while a patch is *not* selected, it yields an error and the indicator lights.	 
Radio Check	It is not possible to send a Stat-Alert radio check over a channel which is not configured for Stat-Alert signaling.	
Remote Monitor	It is not possible to send a Stat-Alert remote monitor command over a channel which is not configured for Stat-Alert signaling.	
Radio Enable	It is not possible to send a Stat-Alert radio enable command over a channel which is not configured for Stat-Alert signaling.	
Radio Disable	It is not possible to send a Stat-Alert radio disable command over a channel which is not configured for Stat-Alert signaling.	
Speed Page #	A **Speed Page #** error causes the **Error** indicator of **Page TX** to light and the Keypad to display the cause of the error. The condition remains until the **Page TX** button or the **Speed Page #** button is pressed. A **Speed Page #** error occurs under the following conditions: • If no channel is selected. • If the selected radio channel is in use.	 

TABLE 5-6 LIST OF ERROR MESSAGES (CONTINUED)

Button Name	Error Generated	Button Description
Status Request	It is not possible to send a Stat-Alert status request over a channel which is not configured for Stat-Alert signaling.	
Voice Secure	While transmitting on a radio channel, the operator cannot enable or disable the secure function. The **Secure** indicator remains in its original state.	

CHAPTER 6

KEYPAD MODULE

INTRODUCTION

This chapter describes the Keypad module, and explains how to use the Keypad to program such features as the console date and time.

BUTTONS

The Keypad module is equipped with 12 buttons for dialing, 5 standard function buttons, and a console **Push-to-Talk (PTT)** button. When a DRCM is selected on the console, some Keypad buttons function as an extension of the DRCM. For more information on using Keypad buttons in conjunction with a DRCM, see , Chapter 4, “Digital Radio Control Module (DRCM).”.

Figure 6-1 “Keypad module buttons,” on page 6-2 shows a Keypad module with buttons numbered. Table 6-1 “Keypad buttons quick reference,” on page 6-2 gives the names of these numbered buttons and a brief description of their functions.

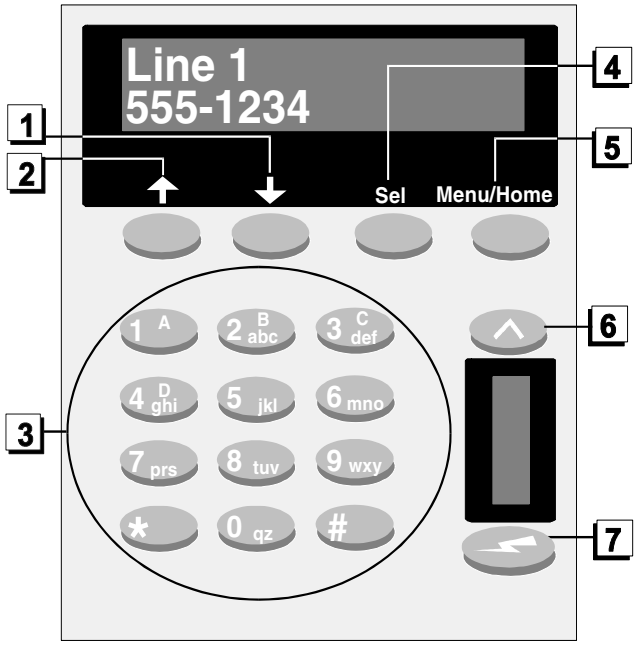


FIGURE 6-1 KEYPAD MODULE BUTTONS

TABLE 6-1 KEYPAD BUTTONS QUICK REFERENCE

Figure Ref	Button Name	Description
1	**Down**	In console tests and programming mode, used to move to the subsequent test or program on the display. Similar to Mode DOWN on the radio when DRCM is selected.
2	**Up**	In console tests and programming mode, used to move to the previous test or program on the display. Similar to Mode UP on the radio when DRCM is selected.
3	**Digits**	Used for various functions, such as entering telephone numbers and page codes, and accessing specific tests or programs. Similar to keypad of the radio when DRCM is selected.
4	**Select**	Used in combination with the **Shift** button to enter the console tests and programming mode. Similar to Select button on the radio when DRCM is selected.
5	**Menu/Home**	Validates the digits entered on the Keypad, and confirms the entries selected in console tests and programming mode. Similar to the Home button on the radio when DRCM is selected.

TABLE 6-1 KEYPAD BUTTONS QUICK REFERENCE

Figure Ref	Button Name	Description
6	**Shift**	Used in combination with the **Select** button to enter the console tests and programming mode. Also used, in conjunction with digit buttons **1** to **4**, to enter letters **A, B, C** and **D** for paging purposes.
7	**PTT**	A common hand-operated **Push-to-Talk (PTT)** button used for audio transmission.

CONSOLE PTT BUTTON

Each console is equipped with a common **PTT** button located on the Keypad. An optional dual foot-switch is available where equipped and the desk microphone is also equipped with a **PTT** button. The **PTT** is a single action non-latching button that provides two modes: transmit when pressed and idle when released.

Pressing the **PTT** button changes the mode from idle to transmit, while releasing the **PTT** button changes the mode from transmit to idle. In the transmit mode, the headset microphone or the desk microphone is used to send voice messages.

When a radio channel is selected and the **PTT** button is pressed:

- The **Tx** indicator lights at the initiating position.
- The **Tx** indicator is OFF at all sharing consoles.
- The grant tone is heard at the initiating position.
- The **Busy** indicator lights at all sharing radio consoles.
- The **Busy** indicator is OFF at the console of the operator initiating the transmission.

For more information on using the **PTT** button, see “Select,” on page 3-10**.**

CALLER ID ON THE KEYPAD DISPLAY

If you subscribe to your telephone company’s Caller ID service, the Keypad displays Caller ID information for incoming telephone calls. The Keypad displays the caller’s name or number, depending on which feature is provided by your Caller ID. If your Caller ID provides both name and number, the Keypad displays only the caller’s name.

The telephone line identification (Line 1 or Line 2) is displayed on the first status line of the Keypad module display, while the second line displays the caller’s name or number, as shown in Figure 6-1 on page 6-2.

The number or name is displayed only for lines that are ringing or off-hook at the console. If more than one line is ringing or off-hook, the display alternates between the lines.

When the console is idle, the Keypad displays the current date and time.

PROGRAMS

The Keypad enables you to enter the console's tests and programming mode. In this mode, you can gain access to programs that allow you to modify console settings, such as the current date and time displayed on the Keypad.

Table 6-2 summarizes useful programs that you can gain access to in tests and programming mode.

NOTE

You cannot gain access to tests and programs on the console when it is in transmission mode (for example, when the **PTT** button has been pressed, or when the patch or local repeat feature has been enabled).

TABLE 6-2 PROGRAMS QUICK REFERENCE TABLE

Program	Program Number	Description
Time Mode	0	Enables you to select the 12 hour (A.M. and P.M.) or the 24 hour time display format.
Set Time	1	Enables you to set the time of the console.
Set Date	2	Enables you to set the date of the console.
Disp Level	3	Enables you to increase or decrease the intensity of the displays on the control modules.
LED Level	4	Enables you to increase or decrease the intensity of the LEDs on the control modules.
Prog Page	11	Enables you to program a manual **Page #** or **Speed Page** button.
Set Rad Vol	12	Enables you to set the volume of a radio channel controlled by **Receive #** and **Mute** buttons on an ACM.
Set Dial Up	13	Enables you to set up the digital link when using the Digital Junction Box dial up modem.

ENTERING TESTS AND PROGRAMMING MODE AND SELECTING A PROGRAM

To enter tests and programming mode and select a program:

PROCEDURE 6-1 HOW TO ENTER TESTS AND PROGRAMMING MODE AND SELECT A PROGRAM

1	Press **Shift**.
2	Press **Select**. **Result:** The Keypad displays TEST/SETUP #.

PROCEDURE 6-1 HOW TO ENTER TESTS AND PROGRAMMING MODE AND SELECT A PROGRAM

3	Press **Up** or **Down** until the desired program appears on the Keypad display or enter the digits corresponding to the program number. (See Table 6-2 on page 6-4 for a list of program numbers.) **Result:** The Keypad displays the name and the corresponding number of the program.
4	Press **Menu/Home** on the Keypad. **Result:** The program is selected.

EXITING TESTS AND PROGRAMMING MODE

To exit tests and programming mode:

PROCEDURE 6-2 HOW TO EXIT TESTS AND PROGRAMMING MODE

1	Press the **Select** button.
2	Verify that the Keypad displays the time.

SETTING THE TIME MODE

The Time Mode program allows you to select the 12 hour (A.M. and P.M.) or the 24 hour time display format.

To set the time mode in use at the console:

PROCEDURE 6-3 HOW TO SET THE TIME MODE IN USE A T THE CONSOLE

1	Select Time Mode (program 0) in tests and programming mode (see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions).
2	Press digit **1** on the Keypad to select the 12 hour format or press digit **2** on the Keypad to select the 24 hour format. **Result:** The Keypad displays the desired time format.
3	Press **Menu/Home** to validate the Time Mode.

SETTING THE TIME

The Set Time program allows you to set the time at the console.

To set time at the console:

PROCEDURE 6-4 HOW TO SET TIME AT THE CONSOLE

1	Set the time mode to the desire time format (12-HOUR or 24-HOUR). see "Setting the Time Mode" on page 6-5 for instructions.
2	Select Set Time (program 1) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions.
3	If the desired time mode is set to 12-HOUR, enter the hour and minutes in 12 hour format. **Result:** The Keypad displays ?M, prompting the operator to enter A (for A.M.) or P (for P.M.). To select A, press digit **1**. To select P, press digit **2**. OR If the desired time mode is set to 24-HOUR, enter the hour and minutes in 24 hour format.
4	Press **Menu/Home** to validate the time.

NOTE

It is not possible to set the time in the 24 hour format while the Time Mode is still in the 12 hour format and vice versa.

SETTING THE DATE

The Set Date program allows you to modify or set a new date.

To set the date at the console:

PROCEDURE 6-5 HOW TO SET THE DATE AT THE CONSOLE

1	Select Set Date (program 2) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions.
2	Using the Keypad, enter the DAY/MONTH/YEAR (dd/mm/yyyy)
3	Press **Menu/Home** to validate the date.

SETTING THE DISPLAY LEVEL

The Disp Level program allows you to increase or decrease the intensity of the displays on the control modules of a console.

To change the intensity of the console module displays:

PROCEDURE 6-6 HOW TO CHANGE THE INTENSITY OF THE CONSOLE MODULE DISPLAYS

1	Select Disp Level (program 3) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions. **Result:** The Keypad displays DISPLAY UP/DOWN.
2	Press **Up** or **Down** to increase or decrease the control module display intensity.
3	Press **Menu/Home** to validate the intensity setting of the displays.

SETTING THE LED LEVEL

The LED Level program allows you to increase or decrease the intensity of the LED indicators on the control modules of a console.

To change the intensity of the console module LED indicators:

PROCEDURE 6-7 HOW TO CHANGE THE INTENSITY OF THE CONSOLE MODULE LED INDICATORS

1	Select LED Level (program 4) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions. **Result:** The Keypad displays LED UP/DOWN.
2	Press **Up** or **Down** to increase or decrease the intensity of the LED indicators on the control module.
3	Press **Menu/Home** to validate the intensity setting of the LED indicators.

PROGRAMMING A PAGE # OR SPEED PAGE BUTTON

The Prog Page program enables you to change the page format and voice annotation values associated with a manual **Page #** button, and to change the page destination associated with a **Speed Page** button.

To program a **Page #** or **Speed Page** button:

PROCEDURE 6-8 HOW TO PROGRAM A PAGE # BUTTON

1	Select Prog Page (program 11) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions. **Result:** The Keypad displays SELECT PAGE.
2	Press the **Page #** button you want to program. **Result:** The Keypad displays the current page format assigned to the button. The page format represents a specific set of frequencies that are transmitted over the channel selected for the page.
3	Press **Up** or **Down** to move through the list of page formats in the Keypad display.
4	When the desired page format appears in the Keypad display, press **Menu/Home** to select the new page format. **Result:** The new page format is assigned to the **Page #** button. The Keypad displays ANNOTATION: XX.
5	Use the **Digit** buttons to enter a new voice annotation value for the **Page #** button. **Result:** The voice annotation value, which can range from 1 to 60 seconds, specifies how much time you have to send a voice message over the channel after the page tone ends.
6	Press **Menu/Home** to select the new voice annotation value. **Result:** The new voice annotation value is assigned to the **Page #** button.

PROCEDURE 6-9 HOW TO PROGRAM A SPEED PAGE BUTTON

1	Select Prog Page (program 11) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions. **Result:** The Keypad displays SELECT PAGE.
2	Press the **Speed Page** button you want to program. **Result:** The Keypad displays the current speed page destination assigned to the button. The speed page destination is usually identified by the name of a person. This name corresponds to a specific page format, voice annotation value and page code. It can also correspond to a specific radio channel and frequency.

PROCEDURE 6-9 HOW TO PROGRAM A SPEED PAGE BUTTON

3	Press **Up** or **Down** to move through the list of speed page destinations.
4	When the desired speed page destination appears in the Keypad display, press **Menu/Home** to select the new destination. **Result:** The new speed page destination is assigned to the **Speed Page** button.

SETTING THE VOLUME OF A RADIO CHANNEL CONTROLLED FROM AN ACM

The Set Rad Vol program enables you to adjust the volume of a radio channel controlled by the **Receive** and **Mute** buttons on an ACM. The program adjusts the incoming audio level of the channel at the CommandSTAR Lite console. For more information about using an ACM to control a radio channel, see "Radio Channel Controlled from ACM" on page 5-31.

To set the volume of a radio channel controlled on an ACM:

PROCEDURE 6-10 HOW TO SET THE VOLUME OF A RADIO CHANNEL CONTROLLED ON AN ACM

1	Select Set Rad Vol (program 12) in tests and programming mode. see "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions.
2	Press the **Receive** button for the channel whose volume you want to adjust. **Result:** The **Receive** button is usually labeled with the channel name. The Keypad displays the channel name, followed by the current volume setting (in decibels).
3	Press **Up** or **Down** to change the volume setting in the Keypad display. **Result:** The volume setting changes in increments of three dB, from a maximum of 0 dB to a minimum of -21 dB.
4	When the desired volume level appears in the Keypad display, press **Menu/Home** to select the new volume setting for the channel.

SETTING UP THE DIGITAL LINK FOR THE DIGITAL JUNCTION BOX DIAL UP MODEM

The Set Dial Up program enables you to set up the digital link when using the Digital Junction Box dial up modem.

To initiate the connection for the digital radio using the dial-up modem:

PROCEDURE 6-11 HOW TO INITIATE THE CONNECTION FOR THE DIGITAL RADIO USING THE DIAL-UP MODEM

1	Select Set Dial Up (program 13) in tests and programming mode. See "Entering Tests and Programming Mode and Selecting a Program" on page 6-4 for instructions. **Result:** The Keypad displays DIAL UP CHOOSE CHANNEL.
2	Press the green **Select** button on the DRCM. **Result:** The submenus from the Keypad may now be accessed.
3	Press **Up** or **Down** to scroll through the submenus until the Keypad displays DIAL UP: VOICE. Enter the telephone number associated with the Modem Audio connections. The Shift (^) button may be used to backspace.
4	Press **Up** or **Down** to scroll through the submenus until the Keypad displays DIAL UP: DATA. Enter the telephone number associated with the Modem Data connections. The Shift (^) button may be used to backspace. **Result:** The Voice and Data telephone numbers are sent to the modem and a connection is established.
5	Press **Up** or **Down** to scroll through the submenus until the Keypad displays PRESS MENU/HOME TO CONNECT. Press **Menu/Home**.
6	To disconnect, repeat Steps 1 and 2, then press **Up** or **Down** to scroll through the submenus until the Keypad displays PRESS MENU/HOME TO DISCONNECT. Press **Menu/Home**. **Result:** The information is sent to the modem and the dial up connection is terminated.

NOTE

To connect to more than one radio, repeat the above procedure for each connection required.

NOTE

The Sel button may be used to quit a menu without taking any action.

GLOSSARY

ABS — Acrylonitrile-Butadiene-Styrene, a durable, fire-resistant plastic.

AC — See *Alternating current*.

ACO — Alarm cut off.

AGC — Automatic gain control.

AGP — Accelerated graphics port.

APB — All points bulletin.

Alternating current — Electrical current that flows in alternately in one direction then the other, such as supplied by most electrical power grids for public consumption.

CD — Call Director (local telephone); also compact disc.

Channel — The radio's channel communication is one of the following:

- transmit frequency only-for one-way communication
- receive frequency only-for one-way communication
- simplex frequency-using one frequency for two-way communication, one-way at a time
- half-duplex or two frequency simplex-using a separate transmit and receive frequency for two-way communication, one-way at a time
- full-duplex frequencies-using a separate transmit and receive frequency for two-way simultaneous communication

CO — Central office; applied to the facilities of a telephone service provider.

CO line — A normal telephone line.

COM, Com — Usually “communications” as in the COM port on a PC, a serial communications port; also “common ground” as in the Com port on an I/O module.

CommandSTAR Lite System Database Manager (CSDM Lite) — A powerful configuration and maintenance tool for CommandSTAR Lite console. The CSDM Lite is used to configure an CommandSTAR Lite push-button console, to monitor the system, and to troubleshoot console problems.

CPU — Central processing unit

CRC — See *Cyclical redundancy check (CRC)*.

CRC error — The occurrence of a received CRC code that is not identical to the corresponding locally calculated CRC code.

CSDM Lite — See *CommandSTAR Lite System Database Manager (CSDM Lite)*.

CTCSS — Continuous tone carrier squelch system.

Cyclical redundancy check (CRC) — An error-detection system in which parity bits are generated by polynomial encoding and decoding algorithms to detect errors generated during transmission.

D — Disable.

dB — Decibel; a unit used to express relative difference in power, usually between acoustic or electric signals, equal to ten times the common logarithm of the ratio of the two levels.

dBm — Decibel relative to 1 milliwatt.

DC — See *Direct current*.

Deskmic — Desktop microphone

DIP — Dual in-line package. See *DIP switch*.

DIP switch — A series of tiny on/off toggle switches built into a housing and commonly connected to a circuit board. The switches typically control the conditions under which the circuit board operates. A DIP switch usually has a black or gray housing with four to eight red switches.

Direct current — Electrical current that flows in one direction only, such as supplied by a battery

DSP — Digital signal processor.

DTMF — Dual tone multiple frequency.

Emerg — Emergency.

EMI — Electromagnetic interference.

ESD — Feedback — The return of some of the output of a system to the input of the same system. In the case of audio systems, feedback can cause speakers to emit a high-pitched squeal or an echo that severely impairs sound quality from the speakers.

Frequency Coupled — The radio channel has a fixed transmit and receive frequency pair for simplex or duplex operation. For more information, see *Radio channel*.

FV — Force vote

Hangover delay — The hangover delay is a period of time after incoming audio has stopped that the system will consider that the channel is still in use.

Hz — A measure of frequency equal to the number of cycles per second.

I/F — Interface.

I/O — Input/output.

IPM — Iterations per minute.

k — Kilo (1,000)

kHz — Kilohertz; that is, one thousand Hertz (1,000 cycles per second)

LED — Light emitting diode

mA — Milli-Amperes.

Mbps — Megabits (millions of bits) per second.

MDC — Mobile data communications.

MIC — Microphone.

ms — Millisecond (1/1000 of a second).

Multi-Sel — Multiple selection.

P/A — Public address.

PC — See *Personal computer (PC)*.

PCB — Printed circuit board.

PCM — See *Pulse code modulation (PCM)*.

Personal computer (PC) — An IBM-compatible single-user computer.

Prog — Program.

PS/2 port — A port available on most PCs that can be used to plug in a mouse or keyboard. It has a socket for a 6-pin mini-DIN plug. The PS/2 port is sometimes called the mouse port.

PSTN — See *Public switched telephone network (PSTN)*.

PTT — See *Push-to-talk (PTT)*.

Public switched telephone network (PSTN) — Commercial land-based telecommunications.

Pulse code modulation (PCM) — A data stream format; usually, 64 Kbit/second; a coding scheme for converting analog voice signals into a digital bit stream; a digitizing technique, PCM is the basis for digital communications in North America.

Push-to-talk (PTT) — The way a subscriber initiates a call. When the PTT switch on a radio is pressed (also known as keying up), this indicates that a call is being initiated by a user. Also known as press-to-talk.

Radio frequency (RF) — General term for the range of frequencies at which used in radio communication systems.

RAC — Repeater access code.

Radio channel — In radio technology, the radio's channel communication is one of the following:

- transmit frequency only—for one-way communication
- receive frequency only—for one-way communication
- simplex frequency—using one frequency for two-way communication, one-way at a time
- half-duplex or two frequency simplex—using a separate transmit and receive frequency for two-way communication, one-way at a time

- full-duplex frequencies—using a separate transmit and receive frequency for two-way simultaneous communication

RCU — Remote control unit

Resources — A general term for network infrastructure and radio channels. Also buttons that executes features related to network infrastructure and radio channels.

REN — See *Ringer equivalency number (REN)*.

RF — See *Radio frequency (RF)*.

RFI — Radio frequency interference.

Ringer equivalency number (REN) — A number determined in accordance with the Code of Federal Regulations, Title 47, Part 68, which number represents the ringer loading effect on a line. A ringer equivalency number of 1 represents the loading effect of a single traditional telephone set ringing circuit.

RMS — Root mean square.

RX, Rx — Receive/received/receiving.

SIP — See *Standard Interface Panel (SIP)*.

Standard Interface Panel (SIP) — A panel to provide interfaces between devices that use different types of standard connectors (for example, 50-pin CHAMP to RJ45).

SVGA — Super video graphics array.

Talkdown — A time interval following the transmission of paging or alert tones during which the channels are kept open for the dispatcher. The dispatcher must use the common PTT button or footswitch during that interval to make an announcement on the channels that were paged. After the paging announcement the PTT button and footswitch resume normal operations.

TIMS — See *Transmission impairment measuring set (TIMS)*.

TMGB — Terminal Main ground bus.

TMS — See *Translation matrix for signals (TMS)*.

Translation matrix for signals (TMS) — A digital signal processor.

Transmission impairment measuring set (TIMS) — A test set that performs measurements for level, frequency, circuit noise, noise-with-tone, signal-to-noise ratio, 3 level impulse, etc.

TX, Tx — Transmit/transmitted/transmitting.

TXAP — Transmitting to an associate processor. In the Motorola CommandSTAR Lite™, a COP is an associate processor. See *TXPP*.

TXPP — Transmitting to a peripheral processor. In the CommandSTAR Lite™, a DAP is a peripheral processor. See *TXAP*.

UPS — Uninterruptable power supply.

VDC — DC volts.

VIN — Input voltage.

Voice annotation delay — The time that the radio channel is held open (keyed) for the dispatcher to send a voice message; also called “voice message delay”.

Voice message delay — The time that the radio channel is held open (keyed) for the dispatcher to send a voice message; also called “voice annotation delay”.

VOL — Volume.

VOX — voice operated switch.

VU — Volume Unit; a volume meter that visually indicates the volume over time, usually by means of green, red, and amber rectangles that form a bar graph.

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