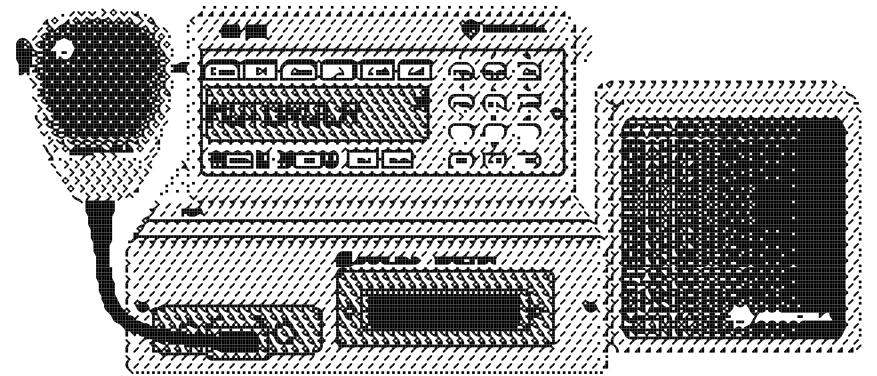


Spectra® 9000 Radio System

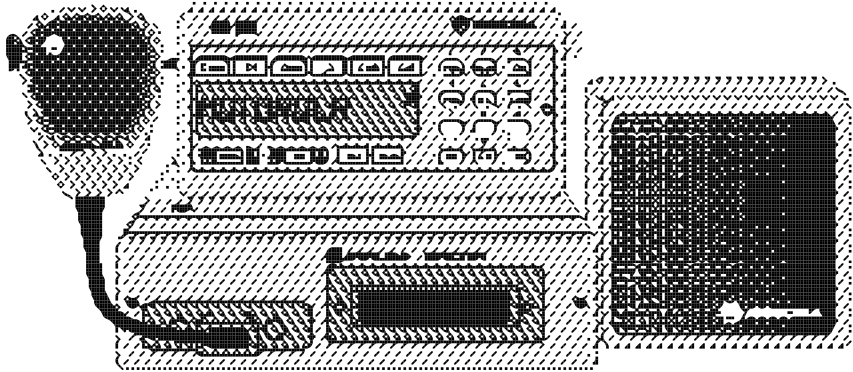


68P80102W80-A

Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322



MOTOROLA



The FCC (Federal Communications Commission) requires you to obtain a station license for your radio equipment before you transmit on it, but it does not require an operating license or permit. The station licensee is responsible for ensuring that the transmitter power, frequency, and deviation are within the maximum limits allowed by the station license.

The licensee of the station is at all times responsible for the proper operation and maintenance of the equipment. No FCC license is required for personally maintaining the equipment. The frequency and deviation of the transmitter must be checked upon installation, and at least once yearly.

IMPORTANT

FCC regulations state that:

1. The grantee of a license has the responsibility of ensuring that all equipment operated under that license conforms to the specifications of the license.
2. The rf power output of a radio transmitter shall be no more than that required for satisfactory technical operation, considering the area to be covered and local conditions.
3. The frequency, deviation, and power of a radio transmitter must be maintained within specified limits. It is recommended, therefore, that these three parameters be checked before the station is placed in service.

REMEMBER

The efficiency of the equipment depends upon a good installation. Motorola recommends that adjustments to this equipment be made *ONLY* by a certified technician.

Service

To buy a service contract for your Motorola equipment:

Motorola Communications Group
1301 E. Algonquin Road
Schaumburg, Illinois 60196

Service Manuals

Motorola instruction manuals contain complete testing and servicing instructions. You can buy one of these from:

Motorola
Worldwide System and Aftermarket Products Division
1313 E. Algonquin Road
Schaumburg, Illinois 60196
1-800-422-4210

Motorola radio communications products are warranted to be free from defects in material and workmanship for a period of ONE (1) YEAR, (except for crystals and channel elements which are warranted for a period of ten [10] years) from the date of shipment. Parts, including crystals and channel elements, will be replaced free of charge for the full warranty period, but the labor to replace defective parts will only be provided for one-hundred-twenty (120) days from the date of shipment. Thereafter, purchaser must pay for the labor involved in repairing the product or replacing the parts at the prevailing rates together with any transportation charges to or from the place where warranty service is provided. This express warranty is extended by Motorola Communications and Electronics, Inc., 1301 E. Algonquin Road, Schaumburg, Illinois 60196, to the original purchaser only, and only to those purchasing for purpose of leasing or solely for commercial, industrial, or governmental use.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

In the event of a defect, malfunction, or failure to conform to specifications established by seller, or if appropriate, to specifications accepted by seller in writing, during the period shown, Motorola, at its option, will either repair or replace the product or refund the purchase price thereof, and such action on the part of Motorola shall be the full extent of Motorola's liability hereunder.

This warranty is void if:

- a. the product is used in other than its normal and customary manner;
- b. the product has been subject to misuse, accident, neglect, or damage;
- c. unauthorized alterations or repairs have been made, or unapproved parts used in the equipment.

This warranty extends only to individual products, batteries are excluded, but carry their own separate limited warranty. Because each radio system is unique, Motorola disclaims liability for range, coverage, or operation of the system as a whole under this warranty except by a separate written agreement signed by an officer of Motorola.

Non-Motorola manufactured products are excluded from this warranty, but subject to the warranty provided by their manufacturers, a copy of which will be supplied to you on specific written request.

In order to obtain performance of this warranty, purchaser must contact its Motorola salesperson or Motorola at the address first above shown, attention Quality Assurance Department.


This warranty applies only within the United States.

FCC Requirements

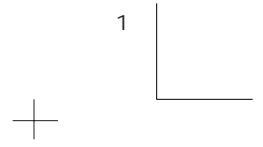
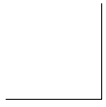
Commercial Warranty (Standard)

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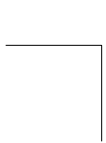
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 , Motorola, MDC-1200, Spectra, SMARTNET, Single Tone, Private-Line, Digital Private-Line, Privacy Plus, Call Alert, Private Conversation, SmartZone, and SECURENET are trademarks of Motorola. IBM, PC-XT™, PC-AT® are trademarks of International Business Machines, Inc.

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Radio Products Group
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Spectra® 9000 Radio System



The Federal Communications Commission (FCC), with its action in General Docket 79-144, March 13, 1985, has adopted a safety standard for the human exposure to radio frequency (rf) electromagnetic energy emitted by FCC-regulated equipment. Proper operation of this radio will result in user exposure substantially below the FCC recommended limits.

DO NOT operate the transmitter of a mobile radio when someone outside the vehicle is within two feet (0.6 meter) of the antenna.

DO NOT operate the transmitter of a fixed radio (base station, microwave, and rural telephone rf equipment) or marine radio when someone is within two feet (0.6 meter) of the antenna.

DO NOT operate the transmitter of any radio unless all rf connectors are secure and any open connectors are properly terminated.

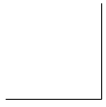
In addition,

Under certain conditions, radios can interfere with blasting operations. When you are in the vicinity of construction work, look for, and observe, signs cautioning against radio transmissions. If radio transmission is prohibited, you must not transmit until you are out of the area. To avoid accidental transmission near electrical blasting caps or in an explosive atmosphere, *you must turn off this equipment.*

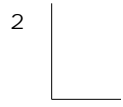
All equipment must be properly grounded according to Motorola installation instructions for safe operation.

All equipment should be serviced only by a qualified technician.

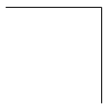
Refer to the appropriate section of the product service manual for additional pertinent safety information.



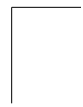
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General Safety Information



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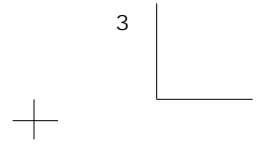
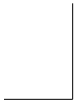
The following will help you understand how your Spectra radio operates in a Motorola trunked radio system.

Communication trunking improves operating efficiency by sharing system resources among the users. Trunking techniques are well established in the communications industry and are used by telephone companies to support the millions of calls they service. Motorola has adapted similar trunking methods to the two-way radio industry.

A trunked radio system allows many users to share a relatively few number of frequencies. When you want to communicate with someone else in the system, a repeater or communications path is assigned to you. When your conversation has ended, the repeater is freed for other users. Frequency-sharing, an automatic feature of the Motorola trunked radio system, uses multiple repeaters and a central controller. Trunking simultaneously pools all of the repeater air time to maximize the air time available to any one mobile unit and minimize channel congestion.

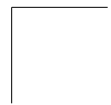
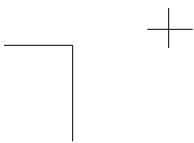
Some of the key benefits of the Motorola trunked radio system are:

- No channel monitoring required prior to transmission
- Fast system access
- Automatic channel selection
- Privacy among members of the same group
- Uninterrupted conversations



Trunked Radio Systems - B9, C9, and E9 Models Only

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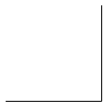


Call Priority

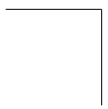
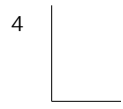
Your radio includes more than one type of trunked call capability. Table 1 shows the types of calls which may be received during each of these call states.

Table 1. Types of Trunked Operation/Received Calls

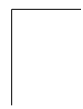
Type of Operation	Additional Calls Which Can be Received
Subfleet Operation (Mode switch set to trunked subfleet mode)	Private Conversation Calls Fleetwide Calls Systemwide Calls Call Alerts Land-to-Mobile Telephone Calls
Fleetwide Operation (Mode switch set to a fleetwide mode)	All Subfleet Calls Fleetwide Calls Systemwide Calls Call Alerts Private Conversation Calls Land-to-Mobile Telephone Calls
Private Conversation Operation (Call in process)	Fleetwide Calls (B9 model only) Systemwide Calls
Telephone Interconnect Operation (Call in process)	None
Dynamic Reprogramming Mode	Private Conversation Calls Call Alerts Fleetwide Calls Systemwide Calls Land-to-Mobile Telephone Calls
Emergency Alarm Mode	All Subfleet Calls Fleetwide Calls Systemwide Calls
Emergency Call Mode	All Subfleet Calls Fleetwide Calls Systemwide Calls



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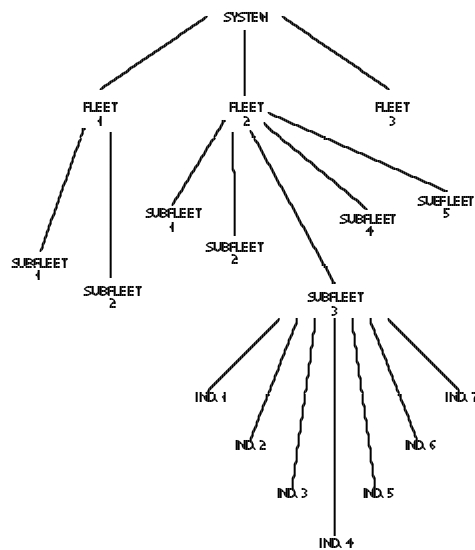
Subfleet/Fleetwide Call Capabilities

In a trunked radio system, a mobile fleet can be segmented into different subfleets. Each subfleet can operate independent of all other subfleets. Subfleet segmentation allows the fleet to be organized into predetermined groups according to function. Members of a specific subfleet hear only those messages intended for them. You select fleet/subfleet combinations with the **Mode** rocker switch on the radio's front panel.

A radio can receive only one subfleet message at a time. Consequently, if the **Mode** rocker switch is set to one subfleet, calls originating from another subfleet are not heard.

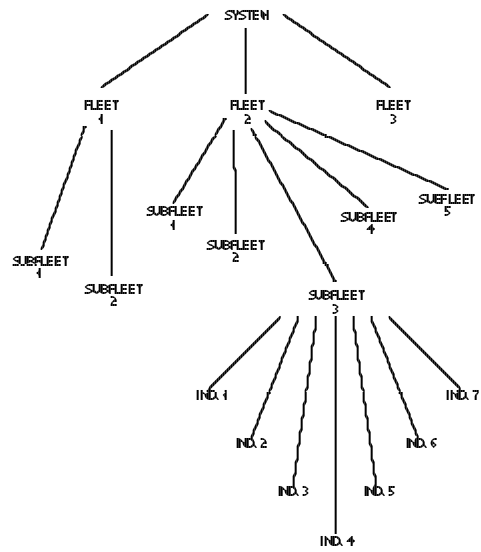
With a radio equipped with fleetwide announcement capability, you can make announcements to the entire fleet. Figure 1 illustrates a typical subfleet configuration. Refer to the trunked fleetwide announcement page for more information.

In addition to fleetwide announcement, on some SMARTNET™ systems the dispatcher can temporarily “patch” two or more subfleets together. This operation, however, is simply handled as another subfleet call and has no effect on the way you operate the radio.



IND. = Individual

Figure 1. Typical Fleet/Subfleet Configuration



The following will help you understand how your Spectra radio operates in a conventional radio system:

In a conventional radio system, a fixed frequency or set of frequencies is shared with other users. Therefore, each user must monitor the channel before attempting to transmit to ensure that standard two-way radio transmission protocol is observed by not "talking over" someone who is transmitting.

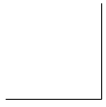
Coded squelch (Private-Line® [PL] or Digital Private-Line™ [DPL]) may be used on conventional channels to make sure the user hears only the messages intended for him by other users in his talk group who share the same coded squelch. Coded squelch is also used to prevent unauthorized use of a conventional repeater.

Your radio has one or more conventional types of operation. Table 2 indicates the types of calls which may be received during each of these call states.

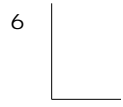
Table 2. Types of Conventional Operation

Operation	Channel Activity Heard
Carrier Squelch	All channel activity that exceeds the preset level of your radio's squelch circuit.
Coded Squelch	All channel activity that has the correct Private-Line (PL) or Digital Private-Line (DPL) code.

When operating in a coded squelch mode, the radio's amber busy indicator will light to indicate when a signal is received, regardless of squelch code. (The channel is busy; don't try to use it.)

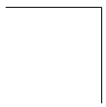


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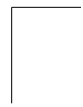


Conventional Radio Systems

Note:



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- Two high-pitched tones indicate that a private call has been received.

- Four high-pitched tones every six seconds indicate that a Call Alert page has been received.

- A single high-pitched tone indicates that a Call Alert, emergency alarm, reprogram request, or status/message transmission has been received by the system's central controller.

- Four high-pitched tones indicate that a Call Alert page has been received by the intended unit, or the emergency alarm, reprogram request, or status/message transmission has been acknowledged by the intended dispatcher.

- A sound similar to a telephone busy signal, when you press the microphone's PTT button, indicates that you cannot transmit because all system radio channels are in use. Release the PTT button and wait for call back.

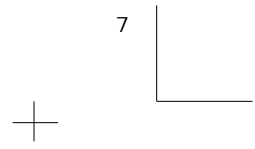
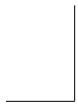
- A series of three, short, high-pitched tones indicate that a channel is now available for your previously requested transmission.

- A series of three, short, high-pitched tones (same as automatic call back), when you press the microphone's PTT button, indicate that the system is accepting your transmission.

- Four telephone-type busy tones (after you initiate a phone call) indicate that all interconnect repeaters are busy. If you do not press the **Home** button (to exit phone mode), a dial tone sounds when an interconnect repeater becomes available.

- A continuous, low-pitched tone, when you press the microphone's PTT button, indicates that either you are out of the range of the trunked radio system, or the system is out of service.

- A single high-pitched beep every ten seconds, in an unmuted receive condition, indicates a system central controller failure. The radio reverts from trunked operation to a system similar to conventional radio repeater operation. Other system users may be heard sharing the channel.



Alert Tones

Private Conversation™/Selective Call

Call Alert™

Central Acknowledge

Mobile Unit Acknowledge

System Busy

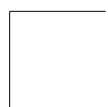
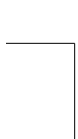
Automatic Call Back

Talk Permit (optional)

Telephone Interconnect Busy

Talk Prohibit/Out-of-Range

Failsoft



- A continuous low-pitched tone indicates that you have entered a mode where normal system traffic will be missed, or you are attempting something which is not allowed. Examples include: you forget to exit the telephone interconnect mode after a call ends (fleet and subfleet calls cannot be received); you attempt to transmit on a receive-only conventional mode; you attempt to select a dynamic mode where no dynamic ID assignment has been made.

- Sounds to indicate the volume level when you press the **Vol** rocker button on a quiet channel.

- A continuous low-pitched tone indicates that your present transmission will soon be disabled.

- A single, short, high-pitched tone indicates that you pressed a valid key, or you entered a feature configuration state.

- A single, low-pitched tone indicates either that you tried to make an invalid key press, or that a Call Alert, emergency alarm, reprogram request, or status/message was not acknowledged.

- A high-pitched tone, when you press the microphone's PTT button, indicates that a Unit ID, Single Tone™, or MDC RAC (repeater access control) is being sent.

- A unique "chirp" indicates that a dynamic ID is assigned.

Alert Tones (cont.)

Illegal Mode

Volume Set Tone

Time-Out Timer

Valid Key

Invalid Key

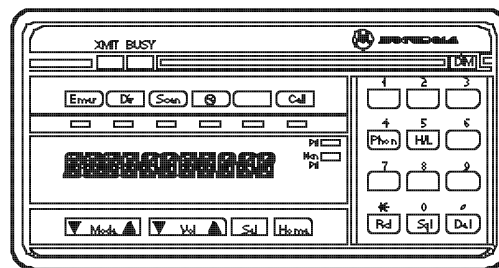
Conventional Sidetone

Dynamic Reprogramming

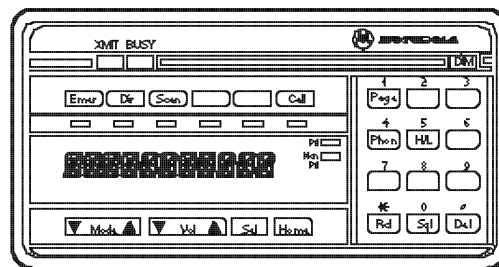
Spectra radios are smaller, lighter in weight, yet more rugged than comparable radios. Its many features give powerful communications capabilities that can enhance the efficiency of any operation. Such features add up to better, more cost-effective two-way radio communications.

Identifying Your Spectra Radio

The Spectra radio's capabilities and the operation of its features are different with each model. Your radio is one of the following models (see illustrations):

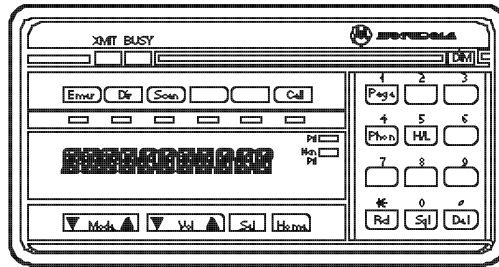
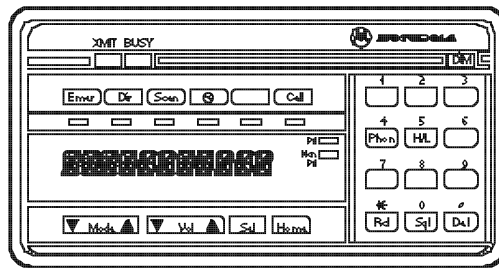


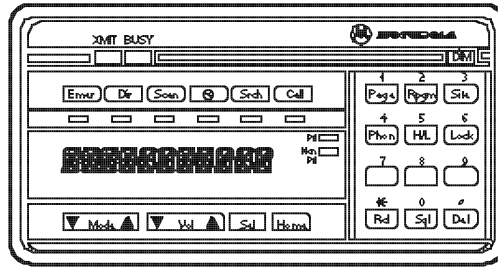
Model A9: Conventional operation only.



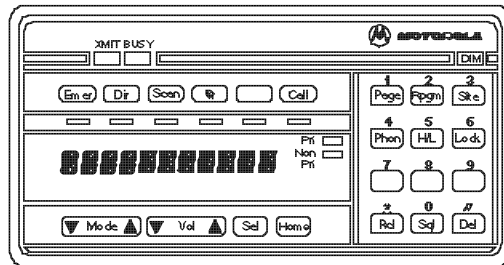
Model B9: Conventional and Privacy Plus® trunking operation.

Introduction

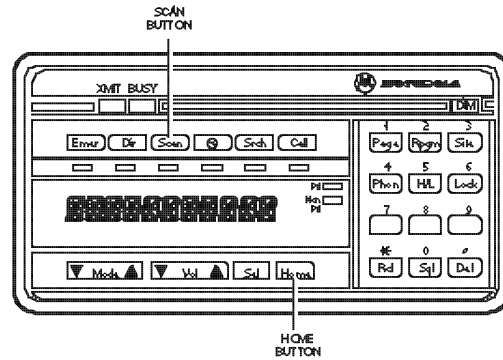




Model C9: Conventional and SMARTNET™ trunking operation.



Model E9: Conventional and SmartZone™ trunking operation.



Your Spectra advanced control head is designed for ease of use and flexibility of feature control. Before operating the radio, familiarize yourself with the various operating controls, indicators, and alert tones.

You can select trunked talkgroups (system/fleet/subfleet) or conventional channels on your Spectra radio by selecting the desired "mode," which is a preprogrammed combination of operating parameters. For trunked modes, this consists of the system/fleet/subfleet combination and a time-out timer value. For conventional channels, a mode consists of a transmit and receive frequency pair, an associated squelch code pair, and a time-out timer value.

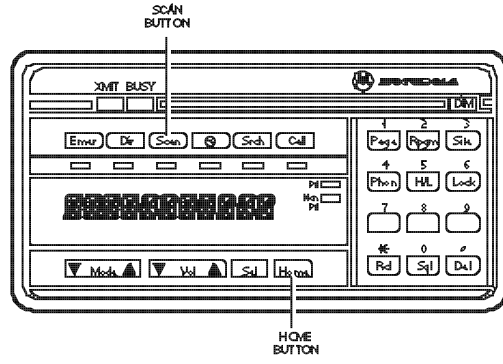
To further simplify operation, other radio features may be "slaved" to the selected mode via field programming. This "mode-slaving" means that the radio is preprogrammed to automatically give you the proper operation for each mode you select.

Through field programming, the Spectra control head allows you to program your own mode names. The names you assign are clearly shown in the eight-character, alphanumeric display. At a glance, you can see all the key operating information, including the mode selected or being scanned, and the on/off status of various features. The operating conditions are shown either by the display or by indicators.

Operator-Selectable Operation

Some radio features are "operator selectable," depending on which model you have. "Operator selectable" means that you can choose or configure the feature to meet your specific needs, independent of the selected mode. With operator-selectable scan, for example, this means that you can select the scan list members you need. The display shows the programming inputs during configuration of these features, guiding you through the selection process.

Control Head Operation

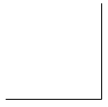


Normal State

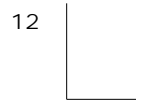
At all times, the Spectra control head operates in essentially one of two states: "normal" or "configuration." In the normal state, the control head display indicates your selected mode, or the currently active receive mode when scan is on. You can turn the various radio features on or off, change modes, and adjust volume.

Configuration State

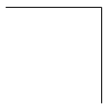
On models with operator-selectable features, you can enter the configuration state and change those features (for example, the scan list) by holding the **Scan** button until the radio responds by changing the display and beeping. Then, after making changes, press the **Home** button to exit the configuration state. Details of the selection procedure are covered under the appropriate feature.



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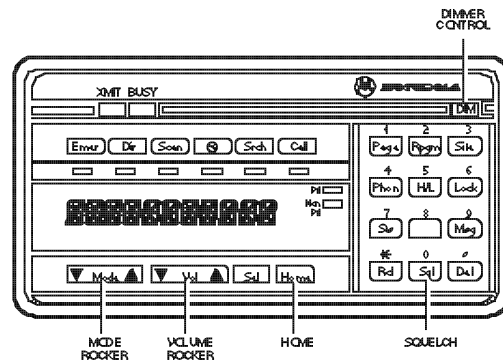
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Basic operation is the same for all radio models. Models with additional features are noted.



To Turn On the Radio

1. Slide the power switch to the left.
2. When the radio is first turned on, "*SELF CHECK*" appears in the display as the radio checks itself for problems.

If "*FAIL ##/##*" appears in the display when the radio is turned on, the radio will not function until the condition is corrected. If "*ERROR ##/##*" appears, some non-critical data has been changed. If either of these displays appear, if the display goes blank, or if the unit appears to be "locked-up," refer to the Proper Connections and Operational Problems Troubleshooting page.

To Set Volume for Receiving Calls

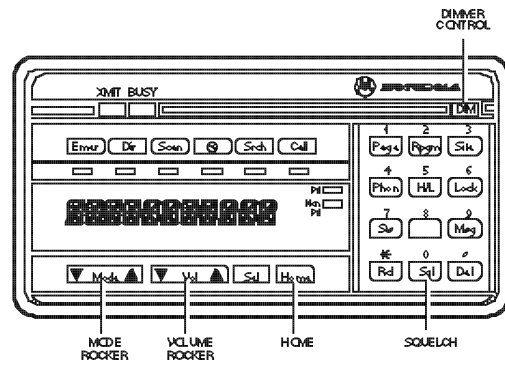
Press and hold the **Vol** rocker switch until the sound level increases (or decreases) to the desired level. A volume indication appears on the display; for example, "*VOLUME 10.*"

To Change Modes

1. Use the **Mode** rocker switch to scroll forward or backward through the list of modes programmed in the radio. The radio will display mode numbers as shipped, or mode names which have been field programmed.
2. For fast access to a single pre-programmed home mode, press the **Home** button momentarily; the radio will immediately go to that mode.

If you know the desired mode number, press and hold the **Home** button until a beep sounds. Use the numeric keypad to enter the new mode number, then press **Home** to go to that mode.

Basic Operating Procedure



Note:

To Transmit

Trunked Modes

Lift the microphone off-hook and press the microphone's PTT button, then:

If you hear three quick tones, or if you hear no tone and the red transmit indicator lights steadily, hold the microphone about two inches from your lips and speak slowly into the microphone in a normal voice. State your FCC call sign and proceed with your message. Release the PTT button to receive.

If you hear a busy tone, all trunked channels are in use. Release the PTT button and wait for three, quick, call-back tones. When a call back is received, your radio will automatically "key up" for three seconds so that you can begin talking. During this time, press and hold the PTT button, state your FCC call sign, and proceed with your message. Release the PTT button to receive.

If you hear a continuous low-pitched tone, you are out of the system's range. The red **XMIT** (transmit) indicator may flash several times as the radio tries to access the system. Release the PTT button and try again when the vehicle is driven within range of the system.

Conventional Modes

Lift the microphone off-hook and listen for activity on that mode. If you hear no activity, press and hold the microphone's PTT button.

If you hear a continuous tone when you press the PTT button, the radio is sending your unit ID number. Continue to hold down the PTT button and wait until the tone stops before talking.

To Adjust Display Brightness

Press the **DIM** button to change the display brightness to one of four levels: from off to high, high to medium, medium to low, or low to off. In off, both display and backlight are off (used for surveillance operations). When the radio is turned on, the dimmer automatically resets to high to ensure that the display will be visible. The backlight is off at the high level.

To Monitor Conventional Mode Activity

To monitor channel traffic in conventional modes, either take the microphone off hook or press the **Sql** button momentarily. "**MONITOR ON**" display indicates the radio is monitoring. In coded squelch modes, this turns off receive coded squelch operation and allows monitoring of all activity on the channel. The **BUSY** indicator will also be illuminated when channel activity is present and the radio is unsquelched.

To Adjust Conventional Mode Squelch Level

Press and hold the **Sql** button until a beep sounds and the display indicates the current squelch setting; for example, "**SQUELCH 10.**" Press the **Mode** rocker switch to scroll to the desired squelch level (0-15). Press **Home** to enter the new selection and return to normal operation.



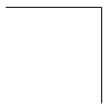
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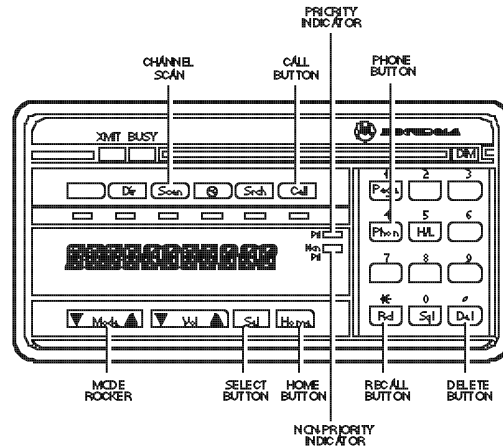
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Note:



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Spectra 9000 radios feature operator-selectable talkgroup scan. The scan list can be changed from the control head as many times as desired.

B9, C9 and E9 model radios can include two different types of scan, depending upon how the radio was ordered or field programmed. These two scan types can be mixed within a radio via field programming according to personality or conventional mode basis. If multiple types are enabled in the radio, the type of scan that is activated depends on the mode selected when the **Scan** button is pressed. For both types of scan, the selected mode will always be a member of its own scan list and cannot be deleted.

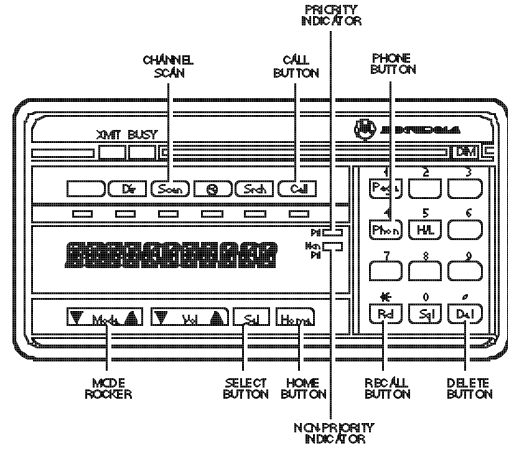
Fixed- and operator-selectable scan lists stay in memory when you turn scan off, or turn the radio off, or disconnect the radio from the battery.

CHANNEL SCAN (A9 Models Only)

This feature allows monitoring (scanning) of up to 16 conventional modes. The list can include a priority-one mode and a priority-two mode. A first-priority message is heard regardless of activity on the second-priority or non-priority mode. Activity on the second-priority mode is heard over all but first-priority activity.

A9 models with operator-selectable priority talkgroup scan have one scan list for each radio. Models with fixed-list scan have a different scan list for each mode.

Scan



PRIORITY TALKGROUP SCAN (C9 and E9 Models Only)

This feature allows monitoring (scanning) of up to 16 type II trunked modes in the same system, or up to 8 type I trunked modes in the same system, or 16 conventional modes. The list can include a priority-one and a priority-two mode. A first-priority message is heard, regardless of activity on the second-priority or non-priority mode. Activity on the second-priority mode is heard over all but first-priority activity. The trunk system must be properly equipped for priority talkgroup scan.

C9 and E9 model radios with operator-selectable priority talkgroup scan have one scan list for each trunked system and one scan list for all the conventional modes. Fixed-list scan has one priority talkgroup scan list for each trunked personality (a single system may contain multiple trunked personalities), and one list for each conventional mode.

TALKGROUP SCAN (B9, C9, and E9 Models Only)

B9, C9 and E9 model radios can also be ordered with, or field programmed for, talkgroup scan, which allows up to 16 modes (any in the radio) to be scanned. Trunked modes from different systems, and conventional modes, can be included in the list. Only eight type I trunked modes from the same system are allowed in the list. No priorities can be assigned to any of the modes. The trunked systems to be scanned require no special programming for this feature to function.

On C9 and E9 models with operator-selectable talkgroup scan, there is one scan list for each radio. With fixed-list talkgroup scan, there is one list for each trunked personality (B9, C9 and E9 models only), and one list for each conventional mode.

To Turn Scan On

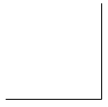
Press the **Scan** button momentarily to start scanning. The **Scan** indicator lights and a list of modes is scanned for activity.

If no activity exists, the display shows your selected mode. When a scanned mode becomes active, the display changes to show the active mode name, the appropriate priority indicator lights, and the radio unmutes. The radio will not begin scanning again for a predetermined "hang time" after the call ends, giving you time to respond. (The hang time is typically five seconds, but can be changed by field programming.)

A lit **Non Pri** (non-priority) indicator means that the active mode is a non-priority mode (for all scan types).

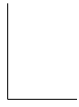
A solidly-lit **Pri** (priority) indicator means that the active mode is the second-priority mode (priority talkgroup scan only).

A blinking **Pri** indicator means that the active mode is the first-priority mode (priority talkgroup scan only).



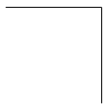
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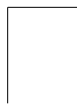


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(Conventional Modes Only) To scan without regard to squelch code, press the **Sql** button momentarily while scan is on.

If, when scanning in coded-squelch, another user with a different squelch code is active on your priority mode's frequency, your unit will lock onto the priority mode and not unmute (because your squelch code is different) for the duration of the activity. Non-priority mode activity will be missed. Avoid this situation by designating all scan list members as non-priority status.

While scanning for activity, fleetwide, systemwide, dynamic regrouping, incoming telephone interconnect and Private Conversation/Call Alert calls are received. Respond to these types of calls as you would normally.

(B9, C9, and E9 Models Only) When scanning different trunked systems while in talkgroup scan, incoming Private Conversation™/Call Alert™ calls may be missed.

To Review a Scan List

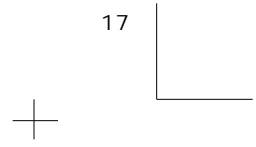
1. Press and hold the **Scan** button until the **Scan** indicator blinks and a beep sounds. The radio neither scans nor receives calls while a list is being reviewed.
2. Press the **Mode** rocker switch to scroll up or down through the programmed modes. Displayed modes which are in the scan list are indicated by a **Non Pri**, **Pri**, or blinking **Pri** indicator (which indicate the mode's assigned priority as explained above). Press the **Rcl** button to review only the modes that are already in the scan list.
3. Press the **Home** button momentarily to return to normal operation. A beep sounds and the radio resumes scanning.

To Transmit While Scan is On

If the radio is programmed for talkback scan, press the microphone's PTT button to transmit on the mode indicated by the display. The radio will not begin scanning again for a predetermined "hang time" (also field programmable; typically five seconds) after you release the PTT button, allowing the other party to respond. If the other party responds within the hang time, scanning will not resume until five seconds after they have finished speaking, allowing the conversation to be completed.

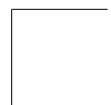
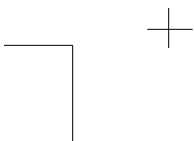
To transmit on the selected mode if another mode is active, turn scan off first by pressing the **Scan** button momentarily.

To make a telephone interconnect, Call Alert page, or Private Conversation call while scanning, press the **Phon**, **Page**, or **Call** button respectively. The call will be entered on the active mode (or selected mode if there is no activity), and scanning will be halted until the call is exited by pressing **Home**.



Note:

Note:



If the radio is programmed for non-talkback scan, press the microphone's PTT button at any time to transmit on the selected mode.

To make a telephone interconnect, Call Alert page, or Private Conversation call while scanning, press the **Phon**, **Page**, or **Call** button respectively. The call will be entered on the selected mode and scanning will be halted until the call is exited by pressing **Home**.

To Select a Scan List

1. The select state may be entered with scan on or off. Press and hold the **Scan** button until its indicator blinks and a beep sounds. You may now enter, modify, or review your existing scan list. (The radio is *NOT* receiving calls or scanning while you are selecting or reviewing the list.)
2. The display shows "**SEL MODE**" or a mode name. If the mode is already in the list, one of the priority indicators lights. The selected mode, shown as "**SEL MODE**," is automatically included in the list.
3. To enter or modify a list, press the **Mode** rocker switch to scroll to the desired mode, or you can enter the mode number directly from the keypad.
4. To add the desired mode to the list, press the **Sel** button once. The **Non Pri** indicator lights to indicate that the displayed mode has been added to the list as a non-priority mode.

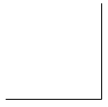
Priority Scan (A9, C9, and E9 models only): Press the **Sel** button again to designate the mode as second-priority status, causing the **Pri** indicator to light solidly. Press **Sel** a third time to designate first-priority status; the **Pri** indicator will blink.

If there are already 16 modes in the list or 8 modes from the same type I system, and you try to add another mode from that system, a low-pitched beep sounds and the display shows "**LIST FULL**." One of the modes already in the list must be deleted before another mode can be added (see step 5).

5. To delete a mode from the list, scroll to the mode to be deleted and press the **Del** button. The **Non Pri** or **Pri** indicator turns off, indicating the mode is no longer in the scan list. The selected mode cannot be deleted from the list.

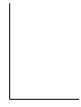
(B9, C9, and E9 models only) Fleetwide announcement calls for selected talkgroups will also be received. It is not necessary to add the fleetwide mode to the scan list to receive fleetwide calls.

6. When you have finished modifying your scan list, press the **Home** button. A beep sounds and the radio resumes scanning.



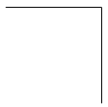
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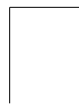


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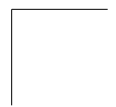
To Delete a Nuisance Mode While Scan is On

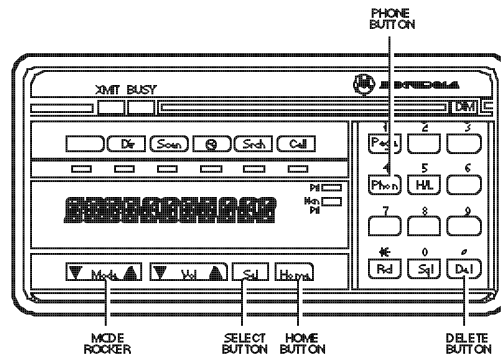
1. To temporarily delete an undesirable mode (nuisance mode), press **Del** once while the mode is active (indicated by the display). Only one mode is deleted at a time. If a second mode is deleted, the first mode returns to the scan list. The selected mode and/or priority modes cannot be deleted.
2. To restore the original list, either:
 - a. press the **Rcl** button,
 - b. turn scan off, then on,
 - c. change modes, or
 - d. turn the radio off, then on.

This feature may be disabled via field programming.

To Change Priorities While Scan is On (A9, C9, and E9 Models Only)

1. *Priority Scan Only:* This dynamic priority feature allows the priority of a non-priority mode in the scan list to be increased, when active, by pressing the **Sel** button. A non-priority mode becomes second priority, and the previous second priority becomes non-priority. The first-priority mode remains unchanged.
2. To restore the original list, either:
 - a. turn scan off, then on,
 - b. change modes, or
 - c. turn the radio off, then on.





With any model, you may initiate and receive telephone calls if your system is properly equipped. The centralized telephone interconnect functions through the system's central controller and all calls between the mobile operator and the land line are private regardless of who initiates the call. You may initiate telephone calls on conventional modes if the conventional system is properly equipped.

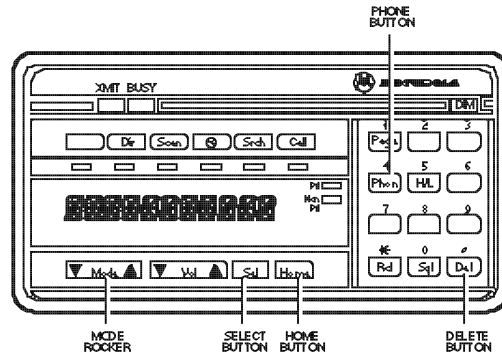
The Spectra 9000 radios feature phone list capability through a list of up to nine preprogrammed phone numbers. With field programming, a name may be assigned to each number in the list for your convenience. In addition to the nine preprogrammed phone numbers, the radio features unlimited dialing capability with its full 12-button telephone keypad.

To Receive a Phone Call (B9, C9, and E9 Models) – Trunked Modes Only

1. When a phone call is received, telephone-type ringing sounds and the display shows "**PHONE CALL.**"
2. Press the **Phon** button; the phone conversation may begin.
3. When the call is completed, press **Home** to hang up and return to normal operation.

If the unit is equipped with the external alarms feature, see that section for details about its operation.

Telephone Interconnect List



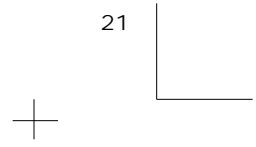
Note:

To Initiate a Telephone Call From the List

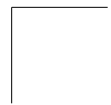
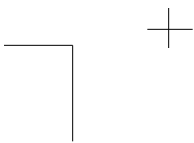
1. Press the **Phon** button momentarily to select the phone function. If the **Phon** button is located above an indicator, the **Phone** indicator lights.
2. The display will show the last number dialed.
3. Use the **Mode** rocker switch to scroll to the number you wish to call. If a name has been programmed, the display will first show the name, then display the associated number.
4. Press the **Sel** button and the displayed number will be automatically dialed.

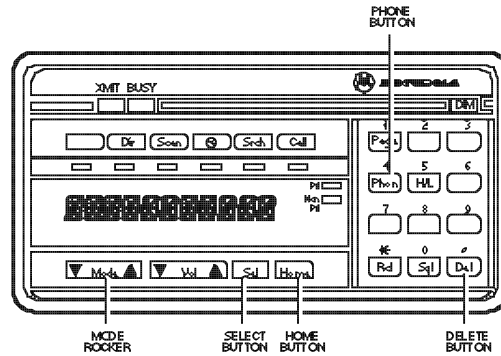
*In conventional modes, when initiating a phone call, an access code is usually required. Press **Sel** and the radio automatically sends a pre-stored access code. After the access code is sent, the radio automatically pauses. When you get a dial tone, press the **Sel** button again to dial the displayed number. If no dial tone sounds, press the **Home** button to hang up.*

5. If the number contains a programmed pause, the dialing will stop when "**P**" is displayed. After the desired pause, press **Sel** to continue dialing.
6. If you are out of range of the trunked system, "**NO SYSTEM**" will be displayed, and a continuous low-pitched tone will sound. Press **Home** to resume normal operation.
7. If the trunked phone interconnect is in use or the phone interconnect is out of service, a busy tone sounds and the display shows "**PHONE BUSY.**" Your number will be automatically dialed when the phone interconnect becomes available. If you hang up, you will lose your place in line.
8. When the call is completed, press the **Home** button to hang up and return to normal operation.



Note:



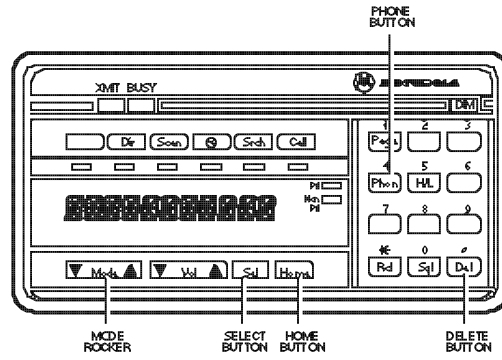


To Dial A Phone Number Not in the List

1. To dial a number not in the pre-stored list, press the **Phon** button momentarily to select the phone function. If the **Phon** button is located above an indicator, the **Phone** indicator lights.
2. The display shows "**SCRATCH PAD**," then shows the last number dialed.
- 3a. *To autodial*, enter the desired phone number from the keypad. The display will be updated as the numbers are entered. Then:
 - (1) After you get a dial tone, press the **Sel** button to automatically dial the displayed number.

In conventional modes, when initiating a phone call, an access code is usually required. Press the **Sel** button and the radio automatically sends a pre-stored access code. After the access code is sent, the radio automatically pauses. When you get a dial tone, press the **Sel** button again to automatically dial the displayed number. If no dial tone sounds, press the **Home** button to hang up.
 - (2) When the call is completed, press the **Home** button to hang up and return to normal radio operation.
- 3b. *To direct dial*, press the **Mode** rocker switch to scroll to the "**KEYPAD DIAL**" display. Then:
 - (1) *In trunked modes*, press the **Sel** button to enable the keypad. The display shows "**OK TO DIAL**."
 - (2) Enter the desired number from the keypad or the DTMF microphone. The numbers will be dialed as they are entered.

Unlimited Telephone Interconnect



Note:

In conventional modes, to use the pre-stored access code, before entering the desired number from the keypad, press the **Sel** button and wait for a dial tone. After you hear a dial tone, enter the desired number from the keypad (or DTMF microphone). The numbers will be dialed as they are entered.

If a different access code is required, do not press the **Sel** button. Instead, enter the access code directly from the keypad, wait for a dial tone, then continue dialing.

- (3) When the call is completed, press the **Home** button to hang up and return to normal radio operation.

Additional dialing can be performed during the course of the call by:

- (a) using the **Mode** rocker switch to scroll to the "**SCRATCH PAD**" display, then entering the number from the keypad, then pressing **Sel** to autodial; or,
- (b) using the **Mode** rocker switch to scroll to the "**KEYPAD DIAL**" display, then pressing **Sel** to enable the keypad, then direct-dialing the digits.

To Store a Phone Number in the List

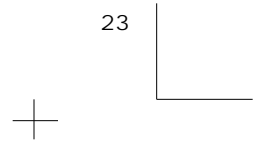
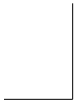
1. Press the **Phon** button momentarily to select the phone function. If the **Phon** button is located above an indicator, the **Phone** indicator lights.
2. Press the **Mode** rocker switch to scroll to the "**STORE PHONE**" display.
3. Press the **Sel** button to select the phone number storage function. The first number in the pre-stored list is displayed.
4. Press the **Mode** rocker switch to scroll to the number you wish to change.
5. Enter the new phone number on the keypad.

If you make an error, press the **#** button twice to backspace over (erase) each incorrect digit. Enter a pause by pressing the ***** button, then the **#** button.

6. When the complete number has been entered, press the **Sel** button to store the new number.

If you press the **Mode** rocker switch before pressing the **Sel** button, the number just entered will not be stored.

7. Press the **Home** button to return to normal radio operation.



Note:

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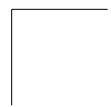
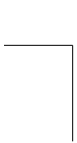
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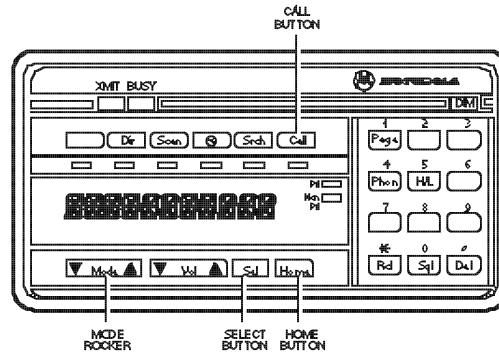
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The enhanced Private Conversation feature not only allows you to carry on a conversation that is heard only by the two parties involved, but also enables you to determine whether the unit you are calling is in service. The unit being called can also view the calling unit's ID before answering. You can then choose whether or not to leave your unit ID number (with a Call Alert page) with the unit you are calling so that you may be called back. Enhanced Private Conversation operation is similar to that of telephone interconnect.

All models are capable of responding to a Private Conversation call initiated by another radio, or of initiating calls to other radios using a list of pre-programmed ID numbers (eight for each personality). You may also call units (other than those in the pre-programmed lists) by entering in unit's ID numbers with the 12-digit keypad.

To Receive a Private Conversation Call

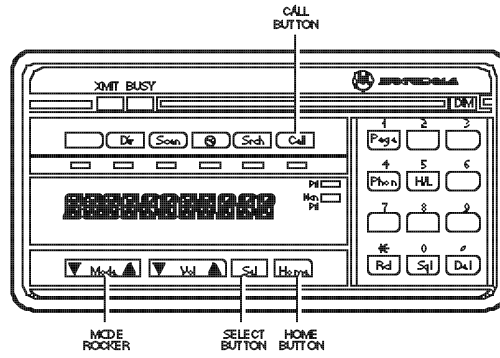
1. When a Private Conversation call is received, two alert tones sound and the display shows "**CALL.**"
2. To answer the call, press the **Call** button within 20 seconds of receiving the call. The display shows "**ID RCVD,**" then shows the ID number of the calling unit. To respond to the call, press the microphone's PTT button and talk.

If you do not press the **Call** button before pressing the PTT button, your conversation will be heard by all members of the talk group.

3. If 20 seconds pass before you press the **Call** button, you will not respond privately to the call just received. Instead, when you press **Call**, you enter the "Initiate a Private Conversation Call" state, as described on the following pages.
4. If the system is busy when you attempt to answer the call, a busy tone sounds and your radio's **BUSY** indicator lights. When a channel becomes available, you will receive a call back and your radio will automatically key up for three seconds so that you can begin talking.
5. After completing the Private Conversation, press the **Home** button to hang up.

- 24 | Trunked Enhanced Private Conversation – 900 MHz and UHF
(B9, C9, and E9 Models Only)
To Receive a Private Conversation Call

Trunked Enhanced Private Conversation – 900 MHz and UHF (B9, C9, and E9 Models Only)



Note:

To Initiate an Enhanced Private Conversation Call

Select a Unit to Call

1. Press the **Call** button; the **Call** indicator lights. The display shows "**SCRATCH PAD**," then shows the last selected unit ID number.
If a Private Conversation or Call Alert page has been received, the display shows "**ID RCVD**," then shows the unit ID of the caller.
2. To select a unit, do nothing if you wish to call the presently displayed unit ID; or use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call; or use unlimited call capability by entering a new unit ID with the keypad.

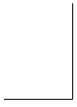
Place the Call

1. Press the **Sel** button. A telephone-type ringing sounds if the unit you are calling is in service.
2. If the called unit is not in service, no ringing will sound. After six seconds, the display shows "**CALL NO ACK**" and a momentary, low-pitched tone sounds. Try again or press the **Home** button to return to normal operation.
3. If you are out of the system's range, the display shows "**NO SYSTEM**," and a low-pitched tone sounds. Try again or press **Home** to return to normal operation.
4. If the system is busy when the called unit attempts to answer your call, the called unit will hear a telephone-type busy tone and both radios' **BUSY** indicators will light. When a channel becomes available, the called radio will receive a call back, and will automatically key up for three seconds so that conversation can begin.
5. If the receiving unit answers, identify yourself and begin your Private Conversation.
6. When the conversation is completed, press the **Home** button to hang up.

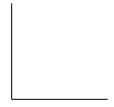
If you do not press **Home** to hang up, your unit will remain in the Private Conversation state with the other unit. You will miss all subfleet traffic and incoming phone calls.

To Send a Call Alert Page

If the called unit is in service, but fails to respond within 20 seconds, the display shows "**NO ANSWER**," the ringing stops, and a low-pitched tone sounds. If you do not wish to "leave your number," press **Home** to return to normal operation; otherwise, press the **Sel** button again to send a Call Alert page. This leaves a "**PAGE**" display and your ID on the called unit, indicating that you called. It also triggers external alarms (if enabled) on the called unit. See the Call Alert Page section for more details about its operation.

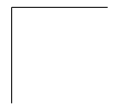
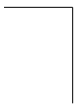


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Note:

Note:



To See Your Own ID

1. Press the **Call** button momentarily to select the Private Conversation feature; the **Call** indicator lights. If no call has been received, the display shows "**SCRATCH PAD**," then shows the last selected unit ID number.
2. If a call has been received, the display shows "**ID RCVD**," then shows the ID of the calling unit.
3. To see your ID, press the **Mode** rocker switch to scroll to the "**THIS UNIT**" display, which will alternate with your ID number.

Your ID can be viewed at any time during an enhanced Private Conversation simply by pressing the **Mode** rocker switch to scroll to the "**THIS UNIT**" display.

To Store a Unit ID Number in the List

1. Press the **Call** button momentarily to select the Private Conversation feature; the **Call** indicator lights.
2. Press the **Mode** rocker switch to scroll to the "**STORE ID**" display.
3. Press the **Sel** button to select the unit ID store function.
4. Press the **Mode** rocker switch to scroll to the ID you wish to change.
5. Enter the new unit ID number on the keypad.

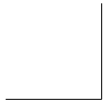
If you make an error, press the **Del** button to erase each incorrect digit.

6. When digits of the ID are entered, press **Sel** to store the new ID or press **Home** to store the ID and exit.

If you press **Mode** before **Sel**, you will advance to the next number, but will not store the number just entered.

7. Repeat steps 4, 5, and 6 until all the desired IDs have been entered. Press **Home** to exit to normal operation. You must exit the ID storage function and press **Call** again to initiate a Private Conversation call.

The Private Conversation and Call Alert page features share the same pre-stored list of units' IDs.



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Note:



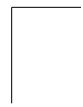
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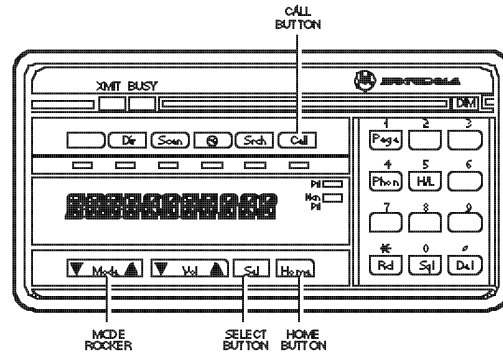
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The Private Conversation feature allows you to carry on a conversation that is heard only by the two parties involved. With Private Conversation II, the unit being called can view the calling unit's ID before answering.

All models are capable of responding to a Private Conversation call initiated by another radio, or of initiating calls to other radios using a list of preprogrammed ID numbers (eight for each personality). You may also call units (other than those in the pre-programmed lists) by entering in units' ID numbers with the 12-button keypad.

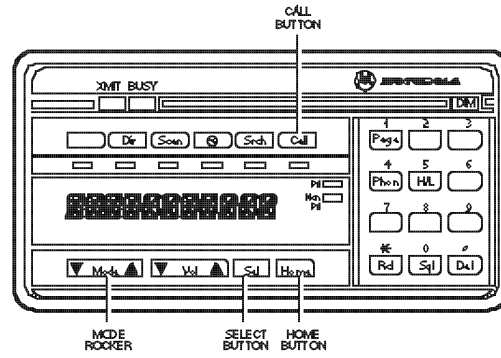
To Receive a Private Conversation Call

1. When a Private Conversation call is received, two alert tones sound, the display shows "**CALL**," and you will hear the caller. If your external alarms are enabled, they will be triggered.
2. To answer the call, press the **Call** button. The display shows "**ID RCVD**," then shows the ID number of the calling unit. To respond to the call, press the microphone's PTT button and talk.

If you do not press the **Call** button before pressing the PTT button, your conversation will be heard by all members of the talk group.

3. If the system is busy when you attempt to answer the call, a busy tone sounds and your radio's **BUSY** indicator lights. When a channel becomes available, you will receive a call back and your radio will automatically key up for three seconds so that you can begin talking.
4. After completing the Private Conversation, press the **Home** button to hang up.

Trunked Private Conversation I and II – 800 MHz (B9, C9, and E9 Models Only)



Note:

To Initiate a Private Conversation Call

Select a Unit to Call

1. Press the **Call** button; the **Call** indicator lights. The display shows "**SCRATCH PAD**," then shows the last selected unit ID number.

If a unit ID has been received from a Private Conversation or Call Alert page, the display shows "**ID RCVD**." With trunking type II, the display then shows the unit ID of the caller.

2. To select a unit, do nothing if you wish to call the presently displayed unit ID; use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call; or use unlimited call capability by entering a new unit ID with the keypad.

Place the Call

1. Press the PTT button to initiate the call. Pause for a second to allow the alert tone to sound in the receiving unit, then begin the conversation.
2. When the conversation is completed or the unit does not respond, press the **Home** button to hang up.

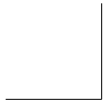
If you do not press **Home** to hang up, your unit will remain in the Private Conversation state with the other unit. You will miss all subfleet traffic and incoming phone calls.

3. If the unit does not respond, then the **Sel** button may be pressed to send a Call Alert page to the called unit. See the Call Alert page section for details about its operation.

To See Your Own ID

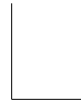
1. Press the **Call** button momentarily to select the Private Conversation feature. If no unit ID has been received, the display shows "**SCRATCH PAD**," then shows the last selected unit ID number.
2. If a unit ID has been received from a Private Conversation or Call Alert page, the display shows "**ID RCVD**," then shows the ID of the calling unit.
3. To see your ID, press the **Mode** rocker switch to scroll to the "**THIS UNIT**" display, which will alternate with your ID number.

With Private Conversation I, the unit ID shown is the unit's Call Alert page ID, not its Private Conversation ID.



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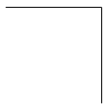


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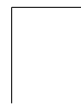
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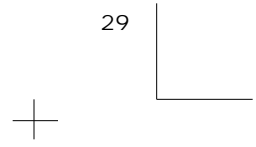
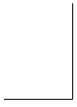
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To Store a Unit ID Number in the List

1. Press the **Call** button momentarily to select the Private Conversation feature.
2. Press the **Mode** rocker switch to scroll to the "**STORE ID**" display.
3. Press the **Sel** button to select the unit ID store function.
4. Press the **Mode** rocker switch to scroll to the ID you wish to change.
5. Enter the new unit ID number on the keypad.
If you make an error, press the **Del** button to erase each incorrect digit.
6. When all digits of the ID are entered, press **Sel** to store the new ID or press **Home** to store it and exit.
If you press **Mode** before **Sel**, you will advance to the next number, but will not store the number just entered.
7. Repeat steps 4, 5, and 6 until all the desired IDs have been entered. Press **Home** to exit to normal operation. You must exit the ID storage function and press **Call** again to initiate a Private Conversation call.

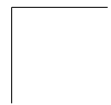
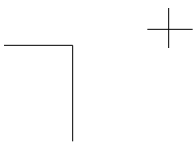
The Private Conversation and Call Alert page features share the same pre-stored list of unit IDs.

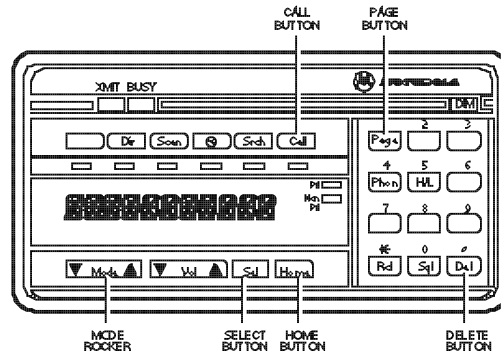


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The Call Alert feature allows a unit to selectively alert another unit and to determine whether or not that unit received the alert. A Call Alert page can be initiated after an unsuccessful Private Conversation call, or as a separate feature.

All models are capable of responding to a Call Alert initiated by another radio. They also feature a unique list of up to eight preprogrammed ID numbers for each trunked personality, plus unlimited Call Alert page capability using a full 12-button keypad. With field programming, a name may be assigned to each ID in the list for your convenience.

To Send a Call Alert Page

Select a Unit to Call

1. Press the **Call** or **Page** button; the **Call** indicator lights. The display shows "**SCRATCH PAD**," then shows the last-selected unit ID number.

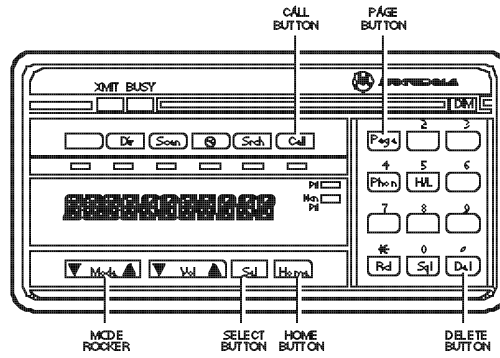
If a unit ID has been received from a Private Conversation or Call Alert page, the display shows "**ID RCVD**." With trunking type II, the display then shows the unit ID of the caller.

2. Do nothing if you wish to call the presently-displayed unit ID; or use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call; or use unlimited call capability by entering a new unit ID with the keypad.

Place the Call Alert Page

1. Press the **Sel** button; the display changes to "**PLEASE WAIT**."
2. If you are out of the range of the system, the display shows "**NO SYSTEM**," and a low-pitched tone sounds. Try again or press **Home** to return to normal operation.

Trunked Call Alert Page (B9, C9, and E9 Models Only)



Note:

If the Call Alert page feature was entered from the **Call** button and the radio is equipped with enhanced Private Conversation, the **Sel** button must be pressed twice. The first press initiates an enhanced Private Conversation; the second press sends the Call Alert page.

3. If you are in the range of the system, a single beep sounds when the page is received by the trunked central controller.
4. When the called unit acknowledges the page, four additional beeps sound and the display changes to "**ID PAGED.**" The radio returns to normal operation.
5. If, after six seconds, the called unit fails to acknowledge the alert, a low-pitched tone sounds and the display changes, first to "**PAGE NO ACK,**" then to the selected ID. Try again or press **Home** to exit.

To Respond to a Call Alert Page

If you have been out of your vehicle, a caller may have sent you a Call Alert page to leave a "**PAGE**" message and his ID, and triggered any external alarms you enabled before you left your vehicle. If so, your radio display will show "**PAGE,**" and four beeps will repeat every five seconds.

To respond with a normal dispatch call, press the PTT button and inquire about the page.

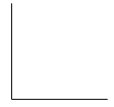
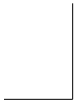
With trunking type II, you may instead respond with a Private Conversation. Press **Call**. The display changes to "**ID RCVD,**" followed by the unit ID of the caller. Press the **Sel** button to initiate an enhanced Private Conversation (900MHz) or the PTT button to initiate a Private Conversation II call (800MHz only) to the caller.

Pressing the PTT button, changing systems, or pressing **Call** or **Page** clears the "**PAGE**" display. The original "**ID RCVD**" is retained until another Call Alert or Private Conversation call is received.

To See Your Own ID

Press the **Call** or **Page** button momentarily to select the Private Conversation or Call Alert page feature.

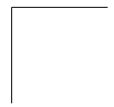
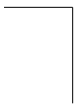
To see your ID, press the **Mode** rocker switch to scroll to the "**THIS UNIT**" display, which will alternate with your ID number.



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To Store a Unit ID Number in the List

1. Press the **Call** or **Page** button momentarily to select the Private Conversation or Call Alert page feature.
2. Press the **Mode** rocker switch to scroll to the "**STORE ID**" display.
3. Press the **Sel** button to select the unit ID store function.
4. Press the **Mode** rocker switch to scroll to the ID you wish to change.
5. Enter the new unit ID number on the keypad.

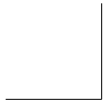
If you make an error, press the **Del** button to erase each incorrect digit.

6. When all digits of the ID are entered, press the **Sel** button to store the new ID or press **Home** to store it and exit.

If you press **Mode** before **Sel**, you will advance to the next number, but will not store the number just entered.

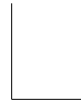
7. Repeat steps 4, 5, and 6 until all the desired IDs have been entered. Press **Home** to exit to normal operation. You must exit the ID storage function and press **Call** or **Page** again to initiate a Call Alert page.

The Private Conversation and Call Alert page features share the same pre-stored list of unit IDs.



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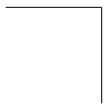
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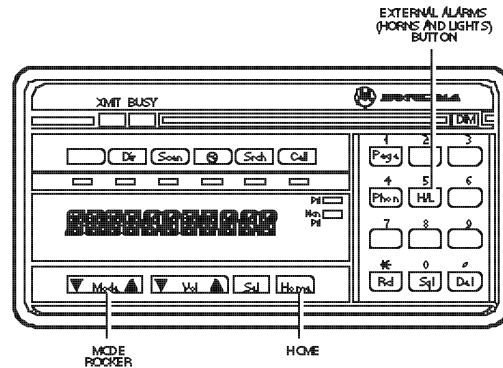
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All models can be equipped for external alarms (horn and lights) that are activated by received telephone interconnect calls, Call Alert pages, or Private Conversation I or II calls. These features are useful when you must leave the vehicle, but need to receive any incoming messages. See the Spectra service and installation manuals for the optional relays needed for these features.

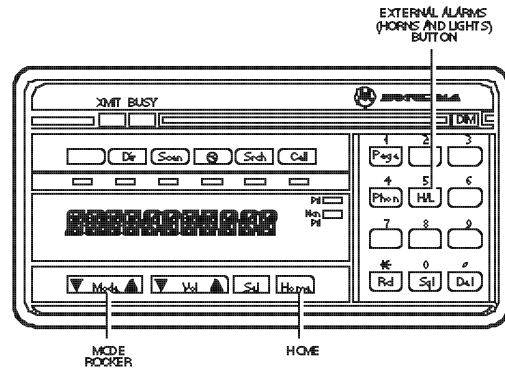
To Turn External Alarm(s) On

Press the **H/L** button momentarily. The last selected alarm(s) are enabled, and the display alternately shows the enabled alarm(s), then the selected mode. Press the **H/L** button a second time to turn off the alarm(s).

To Change the Selected Alarms

1. Press and hold the **H/L** button until a beep sounds and the display indicates the currently selected alarm.
2. Press the **Mode** rocker switch to scroll through the choices: "**HORN ON**," "**LIGHTS ON**," and "**HRN/LTS ON**" (both horn and lights) until the desired alarm is displayed.
3. Press the **Home** button to select the desired alarm and return to normal operation.

Optional External Alarms (Horn and Lights)

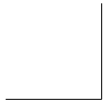


When a Call Alert is Received While Alarms are Turned On

When a call has been received, the vehicle's horn sounds for four seconds, and/or the car lights turn on for sixty seconds. (This time interval may be changed with the field programmer.) The display alternates between the type of call received ("**CALL**" or "**PHONE CALL**") and the selected mode name.

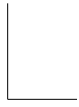
To turn the alarm(s) off, press the **H/L** button or any other control head button.

Note: After returning to the vehicle, disable the external alarms feature by pressing the **H/L** button momentarily. To reactivate the alarms, press the **H/L** button a second time. Responding to a call also automatically disables the alarms; press the **H/L** button again to reactivate them.

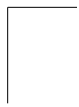


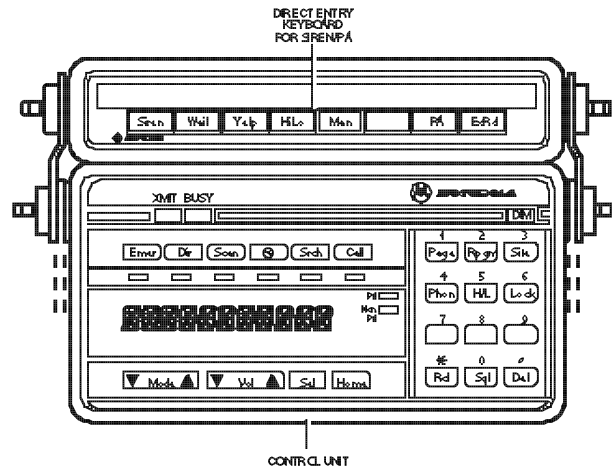
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The siren and public address (PA) function buttons are in a direct entry keyboard housing that mounts to the control unit. Indicators are above each button to show which function is selected.

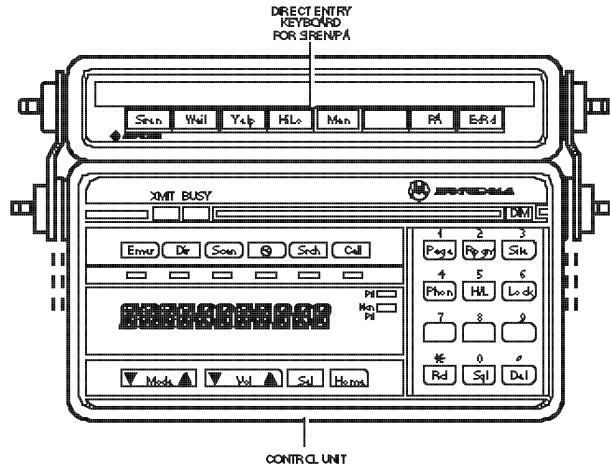
To Turn Public Address On

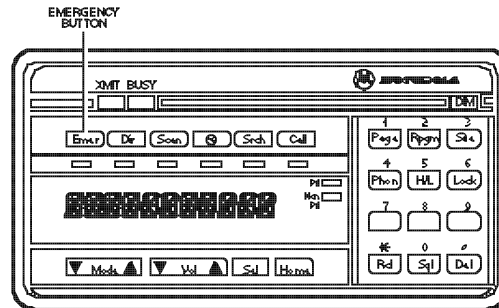
Press the **PA** button to select the public address option. The microphone's PTT switch controls the public address without keying the radio. Use the **Vol** rocker switch to control PA volume, indicated on the display by "**PA VOL**". Changing the PA volume setting does not affect the radio volume. The public address option overrides all siren functions when PTT is pressed, if both siren and PA are selected.

Siren Operation

Pressing the **ExRd** button routes radio receiver audio to the siren speaker. When the siren is on and the **ExRd** button is pressed, the **Vol** rocker switch controls the PA speaker volume. Changing the volume setting does not affect the radio volume setting or siren intensity. When the radio is turned on, the siren function remembers the last selected function.

Optional Siren and Public Address





The emergency alarm feature allows you to send an emergency data transmission to the dispatcher in an emergency situation. The emergency call feature (C9 and E9 models only) allows you to have priority channel access for voice communication. The “emergency” state may be accessed by momentarily activating an optional footswitch, hidden pushbutton, or field-installed **Emer** button. (See the Spectra service and installation manuals for more information on the switches.)

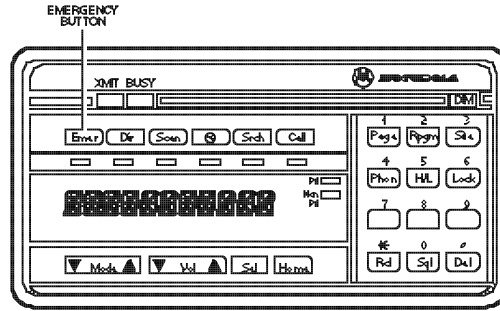
The C9 and E9 models are capable of using the emergency feature on trunked modes. All modes are capable of MDC emergency on conventional modes. The desired type of trunked emergency feature (call, alarm, call and alarm, or silent alarm) may be specified at the time of order or may be field programmed. MDC emergency, for conventional channels, must be field programmed to be operational.

Emergency Call (C9 and E9 Models Only)

Emergency call gives you priority access to a voice channel for all subsequent transmissions after you press the emergency button. The level of priority access is determined by the system manager (that is, ruthless preemption, top of queue, etc.).

1. Press the emergency button; an alert tone (beep) sounds and the display flashes “**EMERGENCY**.”
2. Press the PTT button to initiate the emergency call.
3. After completing the emergency call, press and hold the emergency button until an alert tone sounds. The flashing “**EMERGENCY**” display goes away and the radio returns to normal operation.

Emergency Call and Alarm



Emergency Alarm

The emergency alarm feature sends a data transmission on the trunked control channel or designated conventional channel to alert the dispatcher of your emergency condition and identify your unit ID.

1. Press the emergency button; an alert tone (beep) sounds and the display flashes "**EMERGENCY.**"
2. A "central acknowledgement" (beep) indicates that the alarm was received by the system's central controller. A "dispatcher acknowledgement" (four beeps) and an "**ACK RCVD**" display follow. The radio then automatically returns to normal operation. No further action is required.

Silent Emergency Alarm

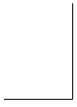
Press the emergency button to activate the silent alarm feature. During a silent emergency alarm, there are no display changes and the receiver audio mutes so that no indication is given that an emergency alarm has been sent.

To exit the silent alarm mode, press the PTT button or press and hold the emergency button until an alert tone sounds.

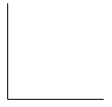
Emergency Call and Alarm (C9 and E9 Models Only)

If the radio has both the emergency call and alarm features, it automatically proceeds to the call mode after the alarm is acknowledged.

1. Press the emergency button to activate the emergency call/alarm feature. A central acknowledgment (beep) sounds, indicating that the alarm has been received by the system's central controller. A dispatcher acknowledgement (four beeps) follows, accompanied by an "**ACK RCVD**" display. The display then begins flashing "**EMERGENCY.**"
2. Press the PTT button to initiate the emergency call.
If silent emergency alarm is used with emergency call, pressing PTT exits the silent mode.
3. To exit from the emergency state altogether, press and hold the emergency button until an alert tone sounds. The flashing "**EMERGENCY**" display goes away and the radio returns to normal operation.

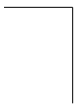


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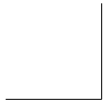
Special Considerations

If you press the emergency button while in a mode which has no emergency capability, an "invalid key" tone sounds.

If the unit is out of the range of the system and/or the emergency alarm is not acknowledged, a tone sounds and the display shows "**NO SYSTEM**" or "**NO ACK.**"

If you press the emergency button, then change to a mode which has no emergency capability, a "**NO EMERG**" display alternates with the mode name display until a valid emergency mode is selected or until the emergency is cancelled.

When an emergency is active, changing to another mode where emergency is enabled (trunked or conventional) will cause an emergency alarm to be present and/or emergency call to be active on the new mode.



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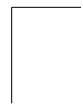
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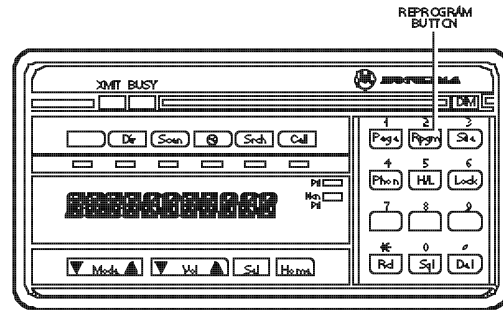
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The dynamic regrouping feature allows the dispatcher to temporarily reassign selected individuals, operating in separate trunked fleets and/or talkgroups, into a single group so that they can communicate.

Receiving a Dynamic Regrouping ID Assignment

When your unit receives a dynamic regrouping ID assignment, a unique "chirp" sounds to alert you that your unit has been dynamically regrouped. The display shows the new dynamic mode name assignment. Examples of the field-programmable dynamic mode names include "16 DYNAMIC," "8 TACTICAL," etc.

When you press the PTT button, the radio transmits on the dynamically assigned mode.

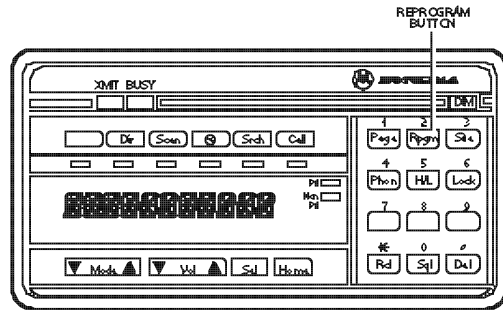
After the dispatcher releases your mobile from the dynamic ID assignment, your radio returns to the last selected, non-dynamic regrouping mode.

If no dynamic regrouping assignment has been made, an illegal-mode tone sounds if you attempt to select a dynamic mode. This means that the selection is not valid.

Select Enable and Disable

The dispatcher may classify regrouped units into one of two categories: "select enabled" or "select disabled." *Select-enabled* units are free to make mode changes to any of the available talkgroups, including the dynamic group. *Select-disabled* units cannot change modes, because the dispatcher has specifically chosen to force the unit to remain in the dynamic mode.

Dynamic Regrouping (C9 and E9 Models Only)



To View the Dynamic Regrouping Status

1. Momentarily press the **Rpgm** button to see if the radio has a dynamic ID assignment.

If you press the **Rpgm** button on a mode where dynamic regrouping is not enabled, an invalid-key tone sounds.

2. If the radio *has been* dynamically regrouped and the unit has not been released from that dynamic ID assignment, the display shows "**DYN REG ON**"

If the radio *has not been* regrouped, the display shows "**DYN REG OFF**," indicating that the dynamic mode is invalid.

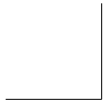
Requesting a Dynamic Regrouping

1. Press and hold the **Rpgm** button to request regrouping.

A central-acknowledgment (beep) sounds, indicating your request was received by the system's central controller. The display changes to "**PLEASE WAIT**" while the request is being processed.

2. When the regroup request *is acknowledged*, a dispatcher-acknowledge sounds (four beeps) and the display shows "**ACK RCVD**," then returns to normal operation. These signals indicate that the dispatcher terminal has logged the regroup request.

If the regrouping request *is not acknowledged* within six to eight seconds, the display shows "**RQST NO ACK**," an invalid-key tone sounds, and the radio returns to normal operation.

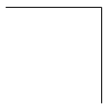


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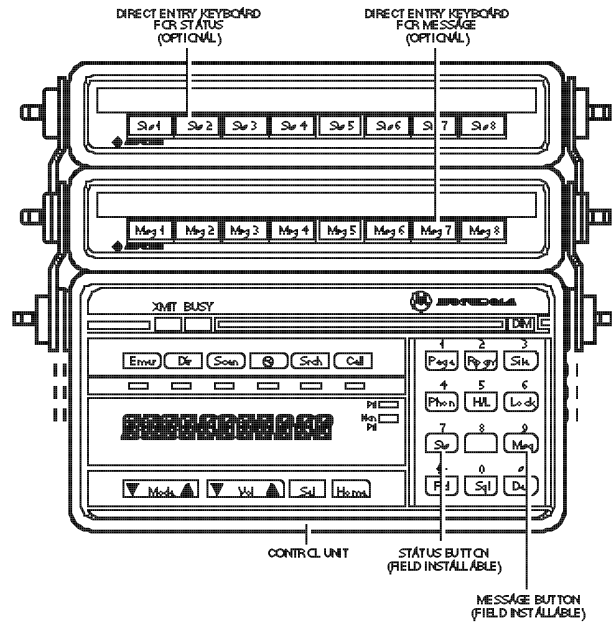


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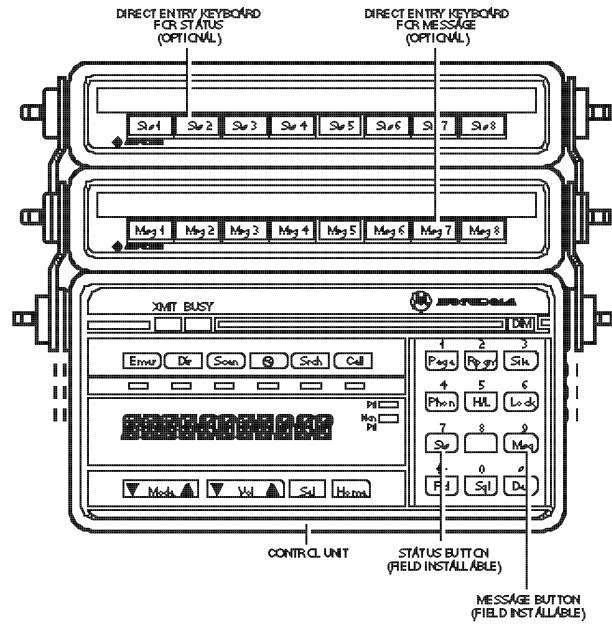




Radio *status* transmissions are used to inform the dispatcher of the present state of the mobile unit, while *message* transmissions indicate a temporary condition and/or a response to a dispatcher's query. A status/message transmission can be sent in any properly equipped conventional or trunked system. For example, a status might be "**ENROUTE**" or "**AT SITE**," and a message might be "**PLEASE CALL**" or "**10-4**." Status and message names are field programmable. Each radio can have up to eight separate statuses and eight separate messages.

C9 and E9 models are capable of sending status and messages on both trunked and conventional modes. A9 models are capable of status and message on conventional modes. Both models include field installable **Sts** and **Msg** keypad buttons. Direct entry keyboards are available for status and message entry (factory or add-on option).

Status/Message Transmissions (A9, C9, and E9 Models Only)



To Send a Status or Message Transmission (with Control Head Keypad)

1. Press the **Sts** or **Msg** button. The last-acknowledged status or message name is displayed. To send a new status or message, begin by pressing and holding the **Sts** or **Msg** button until a beep is heard.
2. Use the **Mode** button to scroll through the list of status or message names, or use the keypad to enter the number of the status or message you wish to send. If a keypad numeric button is pressed, the display will change to "**STATUS_X**" OR "**MESSAGE_X**," where "**X**" is the number you pressed.

*Alternatively, use the **Rcl** button to recall the last acknowledged status/message.*

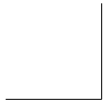
3. With the desired status/message name or number displayed, press the **Sel** button to send the transmission.

The radio displays "**PLEASE WAIT**" until the transmission is received and acknowledged. A central-acknowledge tone (beep) sounds when the status/message is received by the trunked central controller. When the dispatcher acknowledges the status/message, a dispatcher-acknowledge (four beeps) sounds and the display shows "**STATUS RCVD**" or "**MSG RCVD**." The radio then returns to normal operation.

If no acknowledgement is received, the display shows "**STS NO ACK**," "**MSG NO ACK**" or "**NO SYSTEM**" and an illegal-key tone sounds. The display changes back to the last-acknowledged status/message. You now have the choice of either sending the desired status/message again by pressing the **Sel** button, or exiting by pressing **Home** or **Del** to exit.

To Send Direct-Entry Keyboard Status or Message

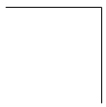
1. Press the **Sts** or **Msg** button.
The red indicator blinks while waiting for an acknowledgement. The control head will momentarily display the selected status or message.
2. When an acknowledgement *is received*, an acknowledgement (four beeps) sounds and the status or message indicator lights solid and stays on to show the last status/message acknowledged by the dispatch terminal.
3. If an acknowledgement *is not received*, the red indicator continues to flash and the display shows "**STS NO ACK**," "**MSG NO ACK**," or "**NO SYSTEM**." At the same time, the indicator above the last acknowledged status/message lights. Press the **Del** button to clear the "**NO ACK**" condition; then resend the status/message as previously described.



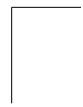
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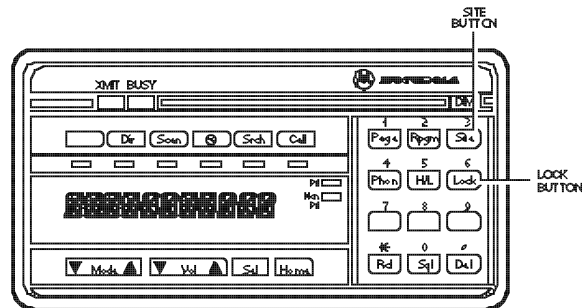
Every radio model includes data communications capability, providing automatic PTT unit identification in properly equipped conventional and trunked systems. Trunked PTT-ID can be either specified when the unit is ordered or field-programmed. Field programming is required for PTT-ID to be operational on conventional systems.

To Send Your Unit Identification

Each time you press the microphone's PTT button while in a mode that has PTT-ID enabled, the radio automatically sends your radio's unit identification code to your dispatcher. In conventional modes, you will hear a continuous alert tone when you press the PTT button. Continue to hold down the PTT button and wait until the tone stops before you begin talking.

Push-To-Talk Identification (PTT-ID)

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Communications are extended beyond the reach of a single trunked site (antenna location) by the automatic multiple site switching (AMSS) feature. In a system where wide-area coverage is required, multiple trunking sites are used.

AMSS automatically switches the radio to a different site when the current-site signal becomes too weak. Typically, this happens when the vehicle in which the radio is located is driven out of the range of one site, and into the range of another.

Under normal conditions, an AMSS-enabled radio functions invisibly to the operator. However, on the C9 and E9 models, the operator does have manual controls: the **Site** and **Lock** buttons. These buttons can be used to check, or change, the AMSS operation as described below.

Operator-Initiated AMSS

Check which site the radio has currently selected by pressing the **Site** button momentarily. The current site name (field programmable) is displayed for three seconds. If the radio is not locked onto a site, but is scanning for a new site, "**SITE SCAN**" is displayed.

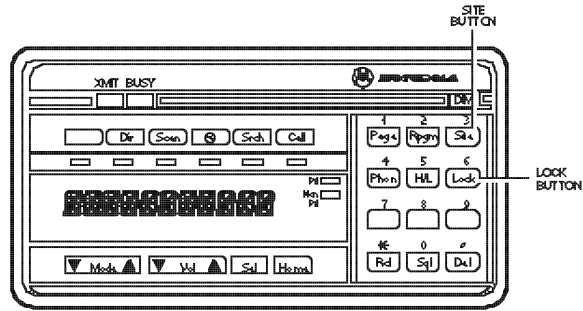
Manually initiate a scan to another site during weak signal conditions by pressing and holding the **Site** button until an alert tone sounds. The display then shows "**SITE SCAN**."

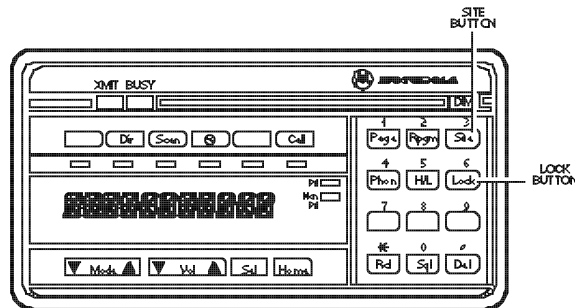
Locking Onto a Site

If you are aware that weak signals are common to particular areas, use the AMSS lock function to prevent the radio from automatically scanning for a new site.

1. Press the **Lock** button momentarily to display the current lock status: either "**SITE LOCK**" or "**SITE UNLOCK**."
2. To change the locked or unlocked condition, press and hold the **Lock** button until a beep is heard and the display changes. After temporarily displaying the new condition, the radio returns to normal operation.

Automatic Multiple Site Select Switching (AMSS) (C9 and E9 Models Only)





Communications are extended beyond the reach of a single-trunked site (antenna location) by the SmartZone feature when operating in a SmartZone system. SmartZone unit provides expanded wide-area coverage.

SmartZone automatically switches to a different site when the current site signal becomes unacceptable. Typically, this happens when the vehicle in which the radio is located is driven out of the range of one site, and into the range of another.

Under normal conditions, a SmartZone-enabled radio functions invisibly to the operator. However, the operator does have some manual controls: the **Site** and **Lock** buttons. These buttons can be used to check, or change, the SmartZone operation as described below.

Site Button Operation in SmartZone

Check which site the radio has currently selected by pressing the **Site** button momentarily. The current site name (field programmable) displays for three seconds. If the radio is not locked onto a site but is scanning for a new site, "**SCANNING**" is displayed. If the radio has not yet received site ID information for the current site, the radio will display "**SITE XX**."

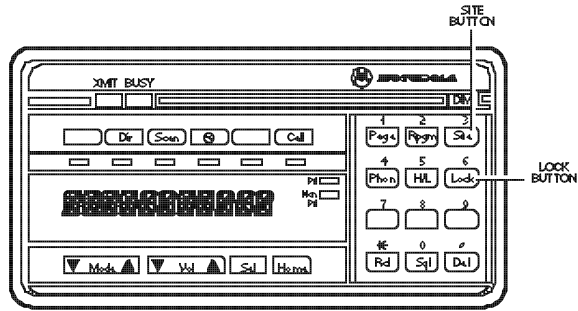
Manually initiate a scan to another site during weak signal conditions by pressing and holding the **Site** button until an alert tone sounds. The display then shows "**SCANNING**."

Locking Onto a Site

If you are aware that weak signals are common to particular areas, use the SmartZone lock function to prevent the radio from automatically scanning for a new site.

1. Press the **Lock** button momentarily to display the current lock status: either "**SITE LOCK**" or "**SITE UNLOCK**."
2. To change the locked or unlocked condition, press and hold the **Lock** button until a beep is heard and the display changes. After temporarily displaying the new condition, the radio returns to normal operation.

SmartZone™
(E9 Model Only)



Busy Override

In a SmartZone system, it may be possible for a site to have all available repeaters in use. If an operator at another site tries to make a call, and members of his talkgroup are present at the busy site, the operator will receive a busy.

The busy override feature allows the operator making the call to rekey the radio during the busy and bring up available repeaters for his talkgroup. Note that this means that not everyone in your group will hear the call.

After receiving a busy, release and then press and hold the PTT button. After the programmable busy override time expires (three seconds nominal), the radio will resend its call request, and the controller will either send a reject, a grant, or another busy to the radio. Note that the busy tone will sound while PTT is pressed before resending the call request. The radio can be programmed to sound a short tone when the call request is present to alert the user that PTT can be released.

Busy overrides are allowed in dispatch operation, multi-group, patch, emergency and talkgroup scan.

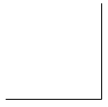
Site Trunking

In a SmartZone system, if the zone controller for a particular site fails, the site will enter into a site-trunking mode of operation. When operating in site trunking, the user will be allowed to make normal trunking calls, however, the user will only be able to communicate with other units at the same site.

Radios in a SmartZone system may be programmed to display "**SITE TRUNK**" when site trunking becomes active. The display will alternate with the current mode display as long as the radio remains in site trunking. The radio will also sound a valid-key chirp when it first detects site trunking.

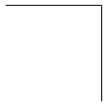
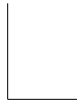
Emergency Call Receive Operation

A radio configured for SmartZone operation will display "**EMER RCV**" whenever it receives an emergency call. The display will alternate with the selected-mode display as long as the radio is unmuted to the emergency call.

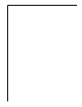


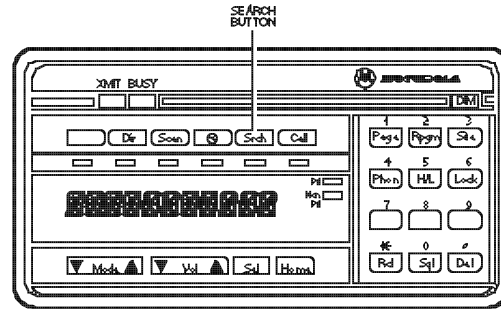
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The system search and lock feature allows you to communicate beyond the reach of a single conventional repeater or trunked system. When your vehicle moves out of range of a repeater or system, the radio automatically searches through a predetermined list of alternate repeaters/systems and locks onto one that is in the current coverage area. Periodically, the radio “looks back” for the original system and, when in range, locks onto it.

To Turn On System Search and Lock

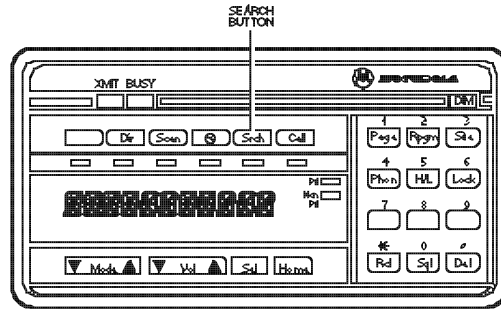
Press the **Srch** button momentarily to start the search. The **Search** indicator (below the button) lights solidly if your radio is in the range of the currently selected repeater/system. However, if your radio is outside that range, the **Search** indicator flashes while the radio looks for a repeater/system that is in range. Also, any time the radio is searching for a new repeater/system (or looking back for the original repeater/system), the mode name being looked for is displayed and the **Search** indicator flashes.

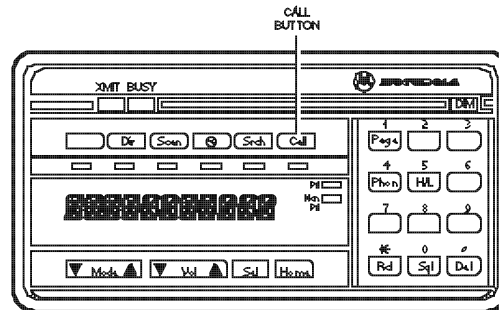
When a new repeater/system has been locked onto, the **Search** indicator lights solidly and the new mode name is displayed.

To Manually Force a System Search

Press and hold the **Srch** button to initiate a scan. A beep sounds and the **Search** indicator flashes as the radio looks for a new repeater/system. When a new repeater/system is found, the **Search** indicator lights solidly and the display shows the new mode name.

System Search and Lock (C9 Model Only)





MDC-1200™ selective calling is a set of conventional features that allows the dispatcher, or a mobile radio unit, to communicate with one or more mobile radio units with a certain degree of privacy. The different types of selective calling features currently available are: enhanced selective call, automatic selective call, and Call Alert.

Enhanced select call (private call) allows one mobile unit to selectively place a call to one other mobile unit. Groupwide and fleetwide enhanced selective calls are not allowed. This type of selective calling is termed “polite” because the target unit has the option of accepting or cancelling the incoming call.

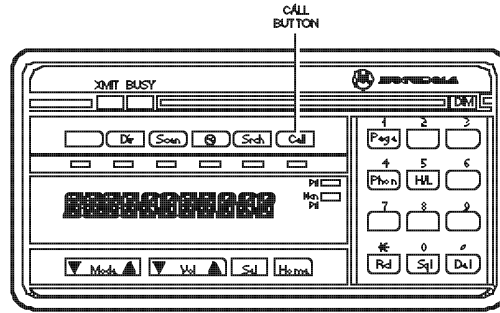
Automatic selective call allows one mobile unit to selectively direct communications to one other mobile unit, or to a group or fleet of mobile units. The target unit(s) automatically unmute to the automatic selective call. This type of selective calling is termed “impolite” because the target unit cannot disregard the incoming call.

Call Alert (also known as “page”) allows one mobile unit to leave its ID with one other mobile unit. Groupwide and fleetwide Call Alerts are not allowed. Upon receiving the initiating unit’s ID, the target unit will begin sounding alert tones, and its display will indicate that a Call Alert has been received. The target unit will also activate external alarms (horn and/or lights) if they are enabled. The operator can then cancel the display and alarms and retrieve the ID if desired.

To Receive an Enhanced Selective Call

When an enhanced selective call is received from the dispatcher, two alert tones sound and the display shows “CALL” for two seconds. To respond to the call, first press the **Call** button, then press the microphone’s PTT button and talk.

MDC Selective Calling



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To Initiate an Enhanced Selective Call

Select a Unit to Call

1. Press the **Call** button; the **Call** indicator lights. The display shows:

(If "list only/response only" is enabled) "**THIS UNIT**," then shows your unit ID.

(If "unlimited calling" is enabled) "**SCRATCH PAD**," then shows the last selected unit ID number.

If an enhanced selective call or Call Alert page has been received, the display shows "**ID RCVD**," then shows the unit ID of the caller. Units programmed for "response only" can only call "**ID RCVD**."

2. Select a unit to call as follows:

Select "**ID RCVD**" if you wish to call the person with whom you last had an enhanced selective call, or the person who last Call Alert paged you.

If "list only" is enabled, use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call. (You cannot send a call to "**THIS UNIT**".)

If "unlimited calling" is enabled, do nothing if you wish to call the presently displayed unit ID; or use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call; or use "unlimited call" capability by entering a new unit from the keypad.

To Place the Call

1. Press the **Sel** button; the display shows "**PLEASE WAIT**" while the radio is attempting to call the selected unit.

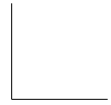
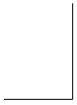
If the unit you are calling is in service, a telephone-type ringing sounds and the display shows "**ACK RCVD**" for two seconds, followed by the ID of the unit you are calling.

If the called unit *is not in service*, no ringing sounds. After 20 seconds, the display shows "**CALL NO ACK**" or "**PAGE NO ACK**" and a momentary low-pitched tone sounds. Try again or press the **Home** button to return to normal radio operation.

If the called unit *is in service*, but the operator does not answer within 20 seconds, the ringing stops and the display shows "**NO ANSWER**."

2. If the receiving unit answers, identify yourself and begin your enhanced selective call.
3. When the conversation is completed, press the **Home** button to hang up.

If you do not press the **Home** button to hang up, your unit will remain in the enhanced selective call state with the other unit.



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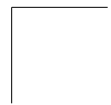
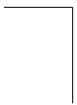
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To Receive an Automatic Selective Call

When an automatic selective call is received from the dispatcher, two alert tones sound and the display shows "**CALL**" for two seconds. To respond to the call, press the microphone's PTT button and talk.

To Initiate an Automatic Selective Call

Select a Unit to Call

1. Press the **Call** button; the **Call** indicator lights. The display shows:
 (If "list only" is enabled) "**THIS UNIT**," then shows your unit ID.
 (If "unlimited calling" is enabled) "**SCRATCH PAD**," then shows the last selected unit ID number.

If an automatic selective call or Call Alert page has been received, the display shows "**ID RCVD**," then shows the unit ID of the caller.

2. Select a unit to call as follows:

Select "**ID RCVD**" if you wish to call the person with whom you last had an automatic selective call or the person who last Call Alert paged you.

If "list only" is enabled, use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call. (You cannot send a call to "**THIS UNIT**.")

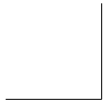
If "unlimited calling" is enabled, do nothing if you wish to call the presently displayed unit ID; or use the pre-stored list by pressing the **Mode** rocker switch to scroll to the name/ID you wish to call; or use "unlimited call" capability by entering a new unit from the keypad.

"**GRP CALL**" and "**FLT CALL**" are available with automatic selective call to allow you to call multiple units at the same time.

Place the Call

1. Press the PTT button.
2. Identify yourself and begin your conversation.
3. When the conversation is completed, press the **Home** button.

Until you press the **Home** button after a conversation has been completed, your unit remains in the automatic selective call state with the other unit(s).



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To Receive a Call Alert

When a Call Alert is received, four alert tones sound and the display alternates between "**CALL**" and the normal radio display until you clear the Call Alert state. If you enabled external alarms before leaving your vehicle, those alarms will engage when the alert is received (see the "Optional External Alarms [Horn and Lights]" section). Press either the microphone's PTT button or the **Call** button to clear the Call Alert state.

To Send a Call Alert

Select a Unit to Call

Select a unit to call by following *Select a Unit to Call* steps 1 and 2 of either the "enhanced selective call" or "automatic selective call" sections, above.

Place the Call Alert

1. Place the Call Alert in one of three ways:

With "enhanced selective call" enabled, press the **Sel** button once to send the enhanced selective call; press the **Sel** button again to send the alert.

With "automatic selective call" enabled, press the **Sel** button once to send the alert.

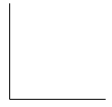
With "Call Alert only" enabled, press the **Sel** button once to send the alert.

2. The display will show "**PLEASE WAIT**" while the radio is attempting to Call Alert the selected unit.
3. *If the called unit responds*, your display will show "**ACK RCVD**," and five alert tones will sound, indicating that the called unit successfully received your Call Alert. After sending a successful alert, your unit automatically exits the Call Alert mode; you need not press the **Home** button to exit this state.

If the called unit does not respond after about 20 seconds, your display will show "**CALL NO ACK**" or "**PAGE NO ACK**" and a momentary low-pitched tone will sound. Try again, or press the **Home** button to return to normal radio operation.



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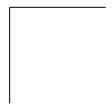
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To See Your Own ID

1. Press the **Call** button momentarily; the **Call** indicator lights.
2. To see your ID, press the **Mode** rocker switch to scroll to the "**THIS UNIT**" display, which will alternate with your ID number.

Your ID can be viewed at any time while in the call state simply by pressing the **Mode** rocker switch to scroll to the "**THIS UNIT**" display.

To Store a Unit ID Number In the List ("Unlimited Calling" Enabled)

1. Press the **Call** button momentarily; the **Call** indicator lights.
2. Press the **Mode** rocker switch to scroll to the "**STORE ID**" display.
3. Press the **Sel** button to select the "unit ID store" function.
4. Press the **Mode** rocker switch to scroll to the ID you wish to change.
5. Enter the new unit ID number on the keypad.

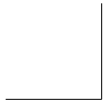
If you make an error, press the **Del** button to erase each incorrect digit.

6. When digits of the ID are entered, press the **Sel** button to store the new ID, or press the **Home** button to store the ID and exit.

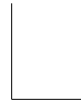
If you press the **Mode** rocker switch before pressing the **Sel** button, you will advance to the next number, but will not store the number just entered.

7. Repeat steps 4, 5, and 6 until all desired IDs have been entered. Press the **Home** button to exit to normal radio operation. You must exit the ID storage function and press the **Call** button again to initiate a call to another unit.

There is only one list of unit IDs that is shared by all MDC-1200 selective calling features.



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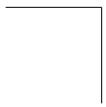


Note:

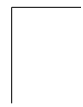
Note:

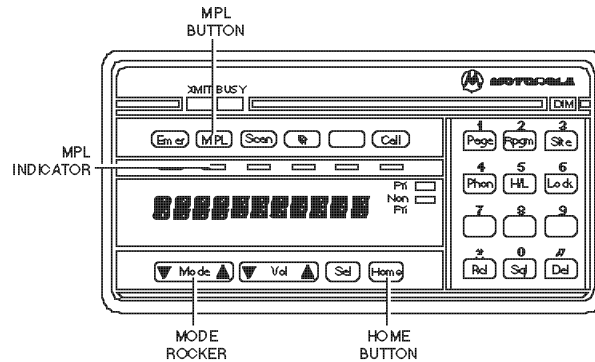
Note:

Note:



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This option adds an **MPL** (multiple coded squelch) button to the control head; this button will enable the operator to override mode-slaved coded squelch. Up to 16 selections are allowed; each selection can be programmed with a user-defined name.

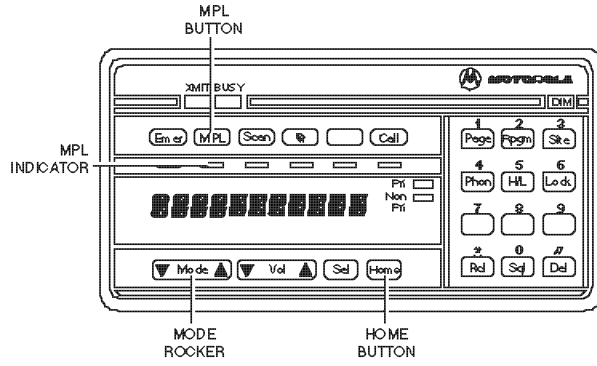
Repeater access and other system users are enhanced by allowing a single radio to operate on many combinations of operator-selected Private-Line™ (PL), Digital Private-Line™ (DPL), and carrier squelched systems.

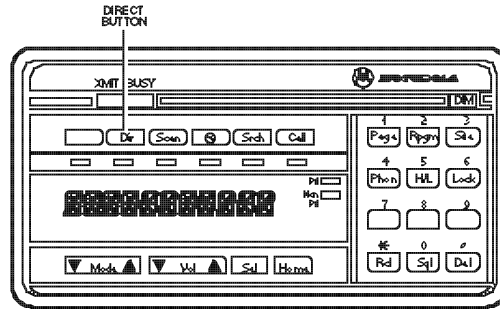
Through programming, this option can be restricted, by mode, to operate on transmit-only or receive-only, or it can be disabled.

To Activate Multiple Coded Squelch (MPL)

1. Press the **MPL** button; the **MPL** indicator lights and the last operator-selected value is activated and momentarily displayed.
2. To select another squelch, hold the **MPL** button down; a beep sounds and the **MPL** indicator flashes. The radio is now in a "configuration" state.
3. To select a new value, use the **Mode** rocker switch to scroll through the selections, or use the keypad to directly enter the value.
4. Press the **Home** button. This stores and activates the new selection, and returns the radio to normal operation.

Conventional Operator-Selectable Multiple Coded Squelch



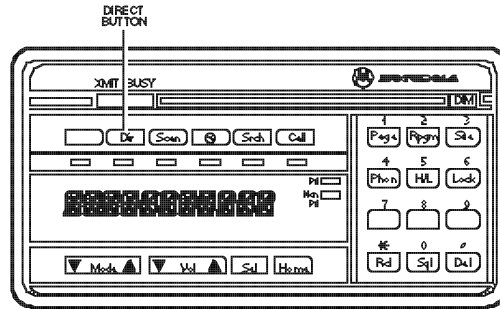


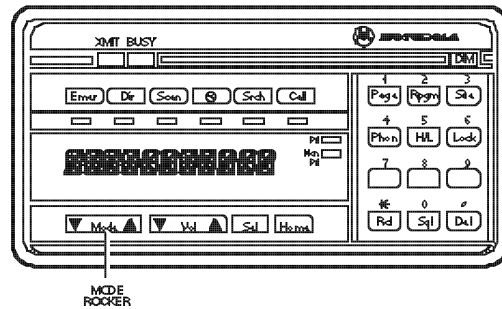
To Talk Direct (Mobile-To-Mobile)

Press the **Dir** button momentarily; the **Dir** indicator lights, indicating that the radio will now transmit directly to another unit without going through the conventional repeater system. This is useful when you are close to other mobiles with whom you wish to talk, or are outside the range of your repeater system.

To return to repeater operation, press the **Dir** button a second time; the **Dir** indicator goes out.

Conventional Talkaround





Fleetwide announcement capability allows the user to make announcements to the entire fleet, as well as monitor subfleet calls and other fleetwide announcements.

To Initiate a Fleetwide Announcement

If your radio has been programmed to allow fleetwide announcement calls, press the **Mode** rocker switch to scroll to the fleetwide mode.

Press the microphone's PTT button to initiate the announcement. Announcement calls are handled in two different ways, depending on the trunked central controller configuration. The two types are called "ruthless" and "non-ruthless" preemption.

Ruthless Preemption

When this type of announcement call is initiated, the requesting radio begins transmitting immediately. All associated subfleet calls taking place on other channels are immediately halted, and the radios are steered to the announcement call. Transmitting radios will continue to transmit until the PTT button is released, at which time they will also unmute for the announcement call. Individual calls (Private Conversation and telephone interconnect) are not affected.

Non-Ruthless Preemption

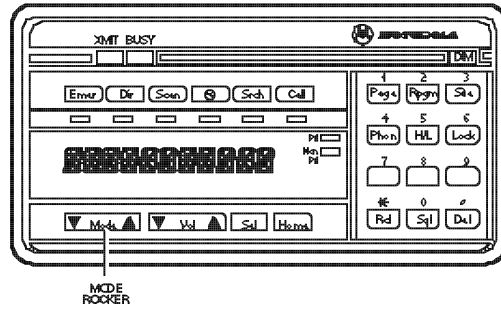
When this type of announcement is initiated, the initiating unit will receive a busy tone, followed by a call back when all associated subfleet conversations end. Once a fleetwide announcement call is pending, any attempts by other users to initiate a subfleet call will result in a busy tone. These users will not receive a call back until the fleetwide announcement call is complete.

Fleetwide Monitoring

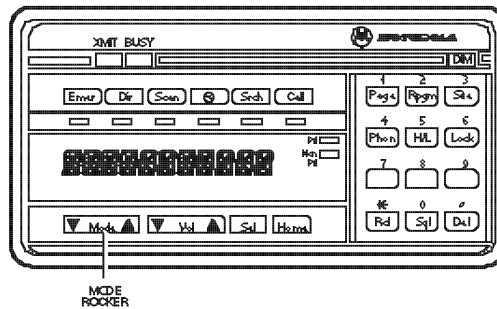
While receiving in the fleetwide mode, subfleet and fleetwide traffic (for that fleet) will be heard on a first-come, first-served basis.

For *type II personalities*, up to 15 subfleets for each fleet can be monitored. The list of subfleets can be changed by field programming; the default list (as shipped from the factory) will be up to the first 15 subfleets associated with the fleet, including the fleetwide talkgroup (but not dynamic modes).

Trunked Fleetwide Announcement (B9, C9, and E9 Models Only)



MODE
ROCKER



If the trunked system's central controller fails for any reason, the radio goes into "failsoft." In this condition, the radio transmits and receives on a pre-determined frequency in a conventional (although conventional features such as Private-Line are not available), as opposed to trunked, type of operation. Failsoft ensures that you will have communications capability at all times. Radios may be programmed so that units which normally communicate on the same trunked mode will be assigned to the same failsoft repeater frequency.

The **Mode** rocker switch can be used to change to different repeater frequencies during failsoft in order to communicate with other talkgroups.

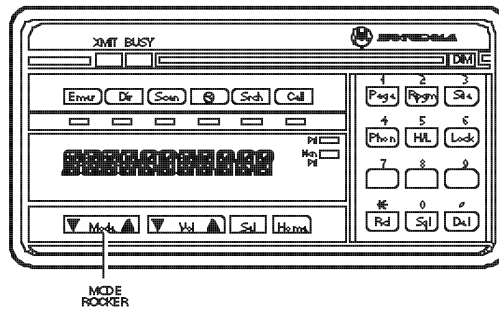
The failsoft condition is indicated by a faint beeping tone every ten seconds (radio unscelched). When the trunking system returns to normal operation, that beeping stops.

Since the normal trunking features do not operate during failsoft, much of the privacy of trunked systems is lost. You will have to share the channel with other users until the failure is corrected.

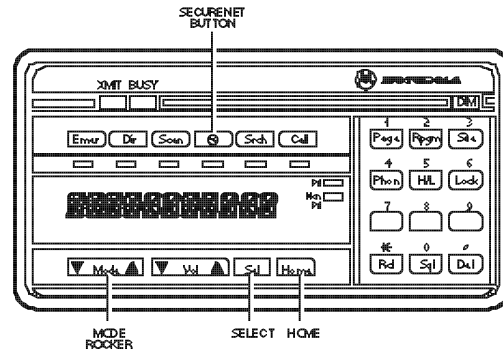
Press PTT button to talk; release the button to listen.

If a system which is in failsoft is accessed while in scan, the radio freezes scan and remains on the failsoft frequency for a period of six seconds (this time can be changed through field programming). This allows the operator to monitor the failsoft frequency for activity before resuming scanning. The nuisance-delete feature can be used to temporarily delete the system in failsoft from the scan list, if desired.

**Failsoft – Trunking Only
(B9, C9, and E9 Models Only)**



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To Receive

1. Select a mode with the **Mode** rocker switch. Adjust the volume to a comfortable listening level.
2. In conventional modes, when the radio is receiving a private message, the **BUSY** light blinks and the radio unmutes.

Private messages encrypted with a different key will unmute the radio, but will only produce noise in the speaker (the "proper code" option eliminates this noise). In PL modes and on models equipped with the "proper code" option, you can monitor the channel continuously by removing the microphone from the hang-up box or turning the monitor on. An alert tone can be enabled to sound at the beginning of a clear reception.

The SECURENET on/off state does not affect received messages. The radio will automatically receive coded or clear messages.

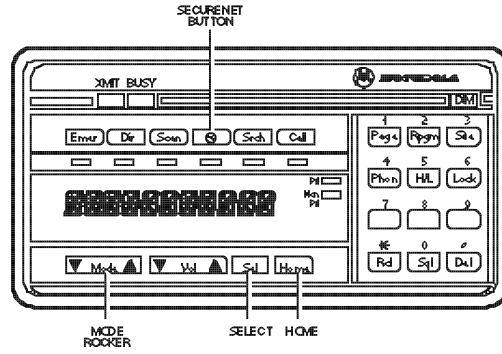
To Transmit

1. Press the **SECURENET** button to turn on SECURENET. The current code is displayed if "dual code" and/or "dual hybrid" has been enabled.

If private (encrypted) mode is selected, the **SECURENET** indicator is *on*. If standard (clear) mode is selected, the **SECURENET** indicator is *off*. An alert tone sounds when transmitting in the standard mode.

2. Monitor the mode to be sure it is not in use. Then, press and hold the PTT button to transmit. The **XMIT** indicator lights, and the display shows the current code selected when transmitting in private mode, if "dual code" or "dual hybrid" has been enabled.
3. Hold the microphone about two inches from your lips and speak slowly and clearly. Proceed with your message.

SECURENET™ Operation (A9, C9, and E9 Models)



Note:

Note:

To Select Code Type

The “dual code” or the “dual hybrid” option must be enabled, to enter the code configuration state.

1. Press and hold the **Q** button to enter the configuration state. A valid-key alert will sound.
2. Use the **Mode** rocker switch to scroll through all available codes, and stop on the desired code.
3. Press the **Home** button to exit the configuration, and save only the changes that may have been made.

Key Insertion

Perform the following steps to load an encryption key into your radio system:

1. Turn on the radio and set the volume. The position of the **Q** button is not important.
2. Connect the cable from the key variable loader to the microphone connector on the radio.
3. Push the push-to-transfer switch on the side of the key variable loader. When the transfer is complete, a pure tone sounds in the speaker and the message “**PASS**” appears on the inserter’s display. If the key transfer was unsuccessful, “**FAIL**” appears on the display and the key variable loader emits a series of short beeps.

Loss Indication

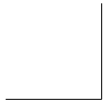
If you press the PTT button while in the private mode with SECURENET on and the encryption hybrid *does not* contain a valid key, bursts of alert tones sound in the speaker until you release the PTT button. The display shows “**NO KEY**” for approximately three seconds after the PTT button is pressed.

Multiple Key Selection (Advanced SECURENET Option Only)

Advanced SECURENET radios are capable of multiple-key operation. Up to 16 keys are possible. A default key, “**DEF KEY**,” is included and is associated with the current mode. The keys are strapped to a given mode, or operator-selectable, and may be indexed into groups of keys (for example, 16 keys may be indexed into two groups of eight keys).

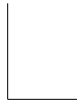
To Change the SECURENET Index

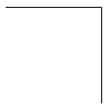
1. Press and hold down the **Q** button until a beep sounds. If indexing has been enabled, the radio will display the key index that the radio is currently operating with.



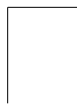
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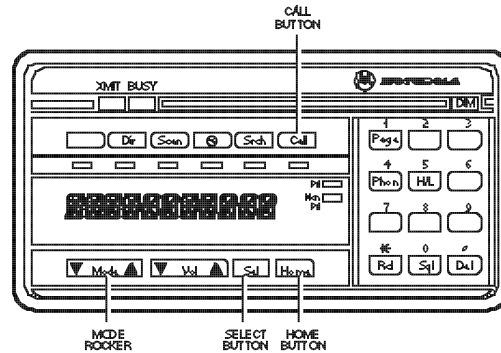
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2. Use the **Mode** rocker switch to scroll to the desired key index.
3. Press the **Sel** button to enter the desired index. The display shows the currently selected key.
4. Press **Home** to return to normal radio operation.

To Change the SECURENET Keys

1. Press and hold down the  button until a beep sounds.
 - a. If indexing has been *disabled*, the radio will display the key that the radio is currently operating with. Go directly to step 2.
 - b. If indexing has been *enabled*, the radio will display the key index that the radio is currently operating with. Use the **Mode** rocker switch to scroll to the desired key index, then press the **Sel** button.
2. Use the **Mode** rocker switch to scroll to the desired key.
3. Press the **Sel** button to enter the selected key.
4. Press **Home** to return to normal radio operation.



Dual-tone, multiple-frequency (DTMF) selective call allows you to direct a conversation to another distinct unit.

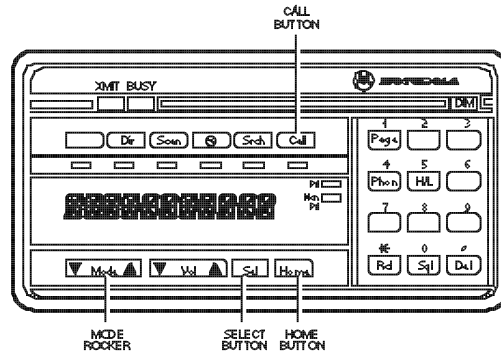
To Make a DTMF Selective Call From a Pre-Stored List

1. Use the **Mode** rocker switch to scroll to a mode which has DTMF selective call enabled.
2. Press the **Call** button to enter the call mode.
3. Use the **Mode** rocker switch to scroll through the pre-stored list. (If you scroll through the list at a slow enough rate, the ID number alternates with the associated name.)
4. When the ID you want to call is displayed, monitor for channel activity. Press the **Sel** button to call this unit when a channel is free.

Note: If the called unit does not answer, you may send your unit ID as a "call-back number," which will appear on the called unit's display. If you wish to leave your number, go to step 5; if not, go to step 6.

5. Press the **Sel** button to send your call-back number.
6. Press the **Home** button to exit the call mode and go back to normal operation.

DTMF Selective Call Encode



To Make a DTMF Selective Call From the Scratchpad

1. Use the **Mode** rocker switch to scroll to a mode which has DTMF selective call enabled.
2. Press the **Call** button to enter the call mode. The display will show "**SCRATCH PAD.**"
3. Use the keypad buttons to enter the unit ID of the mobile radio to be called. The digits entered are shown on the display.
4. When the ID you want to call is displayed, monitor for channel activity. Press the **Sel** button to call this unit when a channel is free.
5. Press the **Home** button to exit the call mode and go back to normal operation.

To Make a DTMF Selective Call From the Keypad

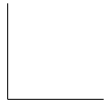
1. Use the **Mode** rocker switch to scroll to a mode which has DTMF selective call enabled.
2. Press the **Call** button to enter the call mode.
3. Press the **Mode** rocker switch until the display shows "**KEYPAD DIAL.**"
4. Monitor for channel activity, then press the appropriate keypad buttons to send out the desired ID. (In this mode, each digit is transmitted as the keypad button is pressed.)
5. If you receive no acknowledgement, press the **Sel** button to send your call-back number, or press the **Home** button to exit the call mode and go back to normal operation.

To Store a DTMF Selective Call ID

1. Use the **Mode** rocker switch to scroll to a mode that has DTMF selective call enabled.
2. Press the **Call** button to enter the call mode.
3. Press the **Mode** rocker switch until the display shows "**STORE ID.**"
4. Press the **Sel** button to enter the store mode.
5. Press the **Mode** rocker switch to scroll to the unit ID to be changed.
6. Use the keypad to enter the desired ID number. Press **Sel** when the number is complete.
7. Press **Home** to save this number, exit the call mode, and go back to normal radio operation.



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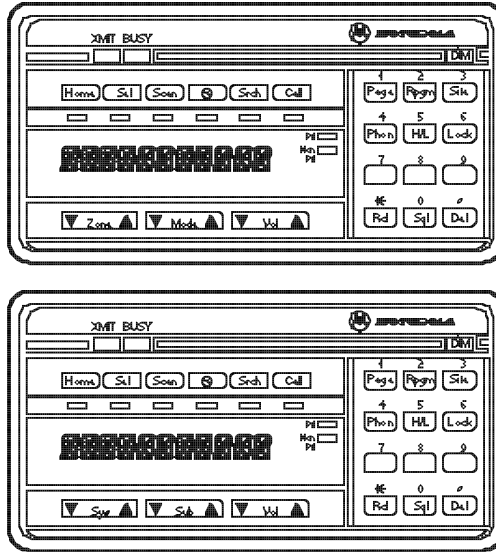


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Zone/mode and system/subfleet are terms describing the same operation; “zone” relates to “system” and “mode” relates to “subfleet.” Spectra 9000 radios can have up to 25 zones. A zone is a grouping of modes. A mode is a group of characteristics such as transmit/receive frequencies, Private-Line codes, radio parameters, and an alphanumeric name.

Spectra 9000 radios with the zone/mode feature will have either a **Zone** rocker switch or a **Sys** rocker switch to select the zones (systems) and a **Mode** rocker switch or **Sub** rocker switch to select the mode (subfleet).

To Select or Change Zones

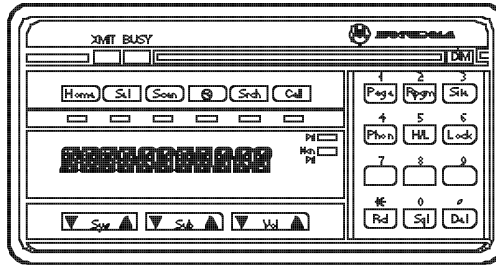
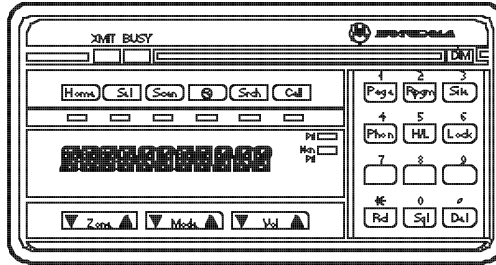
To change zones in a radio programmed for zone/mode operation, press the **Zone (Sys)** rocker switch.

The radio will always temporarily display the name of the new zone as the zone changes.

The radio can be programmed to temporarily display the current zone's name when the **Zone (Sys)** rocker switch is momentarily pressed. If the **Zone (Sys)** rocker switch is pressed again while the zone name is displayed, the zone will change.

The Spectra radio is factory programmed (default setting) to change zones on ANY press (momentary or continuous) of the **Zone (Sys)** rocker switch.

Zone/Mode and System/Subfleet Operation



Note:

Note:

To Select or Change Modes

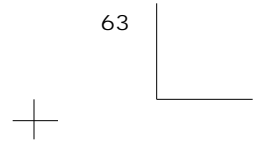
1. To access a mode within the current zone, press the **Mode (Sub)** rocker switch until the desired mode name is displayed.
2. To access a mode that is not in the current zone, press the **Zone (Sys)** rocker switch to move to the zone containing the mode. Then use the **Mode (Sub)** rocker switch to select the desired mode.

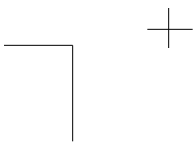
Scan Lists in Radios with Zone/Mode

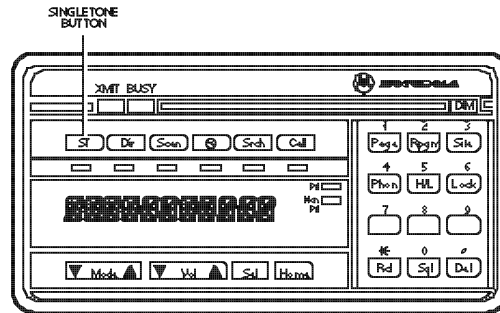
In a radio with zone/mode operation enabled, each zone will have its own scan list. Programming of the scan lists is exactly the same as programming a scan list in a non-zone/mode radio.

To Select the Home Mode

The **Home** button can be used to select the home mode, contained within the home zone, from any other zone and mode in the radio.







The Single Tone option is a transmit-only feature. Radios with this option enabled will send a Single Tone frequency automatically. This option adds a **ST** (Single Tone) button to the control head. This button will allow the operator to enable or disable the Single Tone option and enter the Single Tone selection mode. Up to 16 selections are allowed; each selection can be programmed with a unique user-defined name.

Repeater access and other system uses are enhanced by allowing a single radio to operate on many combinations of operator-selected Single Tones.

Through programming, this option can be restricted, by radio, to operate automatically on transmit (only when the user has enabled the Single Tone option), or it can be disabled.

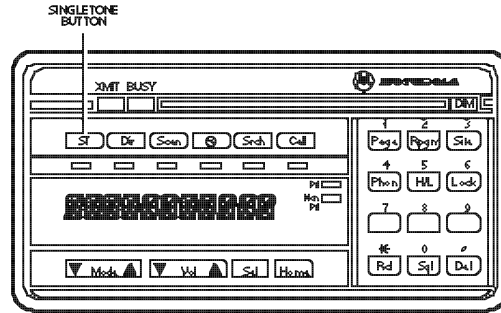
A Single Tone is normally transmitted with a sidetone. The sidetone is programmable and may be enabled or disabled. When a Single Tone is being transmitted, its (programmable) name is displayed.

To Activate Single Tone (ST)

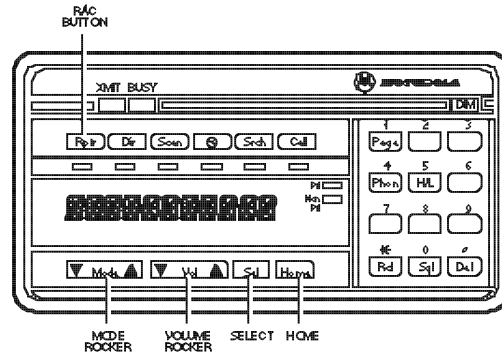
1. Press the **ST** button; the **ST** indicator lights and the last operator-selected value is activated.
2. To select another Single Tone, hold the **ST** button down; a beep sounds and the **ST** indicator flashes. The radio is now in a "configuration state."
3. To select a new value, use the **Mode** rocker switch to scroll through the selections.
4. Press the **Home** button. This stores and activates the new selection and returns the radio to normal operation.

When a transmission is initiated with Single Tone, a short tone burst is sent at the beginning of the transmission.

Conventional Operator-Selectable Single Tone™



Note:



With the repeater access controller (RAC) feature enabled, your mobile radio is capable of selectively keying-up a desired repeater if the conventional system is properly equipped. If the RAC is enabled, the repeater access data, with the selected or mode-slaved repeater ID will be transmitted on PTT and other data transmissions.

Each time that you press the microphone's PTT button, while the RAC is enabled, the radio automatically sends repeater access data with the selected or mode-slaved repeater ID. When you press the PTT button, an alert tone is emitted. Continue to press the PTT and wait until the alert tone stops before speaking. The repeater access data will also be sent with other data transmissions.

If your mobile radio is equipped with operator-selectable repeater access code, you can enable or disable RAC operation. You can also select the repeater that you wish to key-up, selected from a pre-stored list of up to 63 repeater ID's.

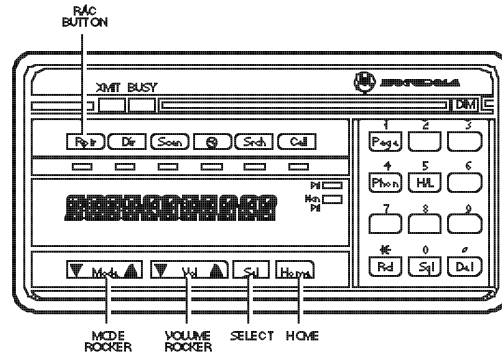
To Enable RAC

Press the **Rptr** button momentarily. The **Rptr** indicator will light when RAC has been enabled. Also, the control head will display the selected repeater's alias name or ID for two seconds, and then revert back to displaying the mode name.

To Disable RAC

Press the **Rptr** button momentarily again. The **Rptr** indicator will turn off when RAC has been disabled.

Conventional MDC-1200™ Repeater Access Controller (RAC)



To Select a Repeater ID in the Pre-Stored List

If the RAC ID type is "list" or "unlimited," you can select the desired repeater ID from the pre-stored list.

1. Press and hold the **Rptr** button until a beep sounds and the **Rptr** indicator flashes.
2. Use the **Mode** rocker switch to scroll through the list until the desired repeater ID is found.
3. Press either the **Home** button to select and exit from the RAC configuration or the **Sel** button to select the new repeater ID without exiting the RAC configuration. When the RAC configuration is exited, the RAC feature will be enabled and the Rptr indicator will be lit.

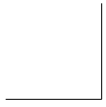
To Select a Repeater ID Not in the Pre-Stored List

(available only if "unlimited" is chosen from the RAC ID type)

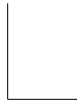
1. Press and hold the **Rptr** button until a beep sounds and the **Rptr** indicator flashes.
2. Use the **Mode** rocker switch to scroll through the list until the term "**SCRATCH PAD**" is displayed, alternating with the last selected repeater ID.
3. Enter the new repeater ID number on the keypad.

If you make an error, press the **Del** button to erase each incorrect digit.

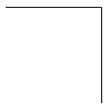
4. Press either the **Home** button to select and exit from the RAC configuration or the **Sel** button to select the new repeater ID without exiting the RAC configuration. When the RAC configuration is exited, the RAC feature will be enabled and the Rptr indicator will be lit.



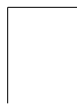
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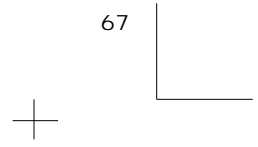
Note:



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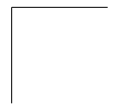
All Spectra models provide a time-out timer function to prevent locking up a repeater or channel by prolonged keying of the transmitter. You may not transmit longer than the preset timer setting; if you attempt to do so, the radio automatically stops your transmission. You will hear a low-pitched, continuous, warning tone four seconds before the transmission times-out. As shipped from the factory, this timer is programmed for 60 seconds, but it may be field reprogrammed for 30, 60, 90, 120, 150, 180, or 210 seconds (or be disabled entirely) for each radio mode.



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Time-Out Timer



The following are suggestions to assist you in making proper electrical connections to your Spectra radio and troubleshooting possible operating problems.

When connecting the cables to the radio, always plug in the large multi-pin connector first. Otherwise, the radio may begin transmitting an emergency alarm (even if the unit is turned off).

If your radio is "locked up" or the display shows "*FL 01/90*," turn it off and then back on. If this does not correct the condition, check both power line fuses, then turn the radio off and carefully remove and reconnect the cables at the rear of the unit in the sequence specified above.

If radio operation is intermittent, check with others using the system for similar problems before taking the radio in for service. Similar problems would indicate a system malfunction rather than a radio failure.

If symptoms persist or if your unit exhibits other problems, contact service personnel.

Proper Connections and Operating Problem Troubleshooting

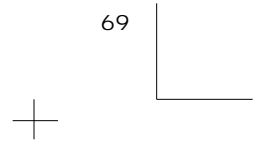
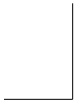
CAUTION: The cables which connect to the rear of the radio may have live voltage on some of their pins. Be careful not to short the pins to a grounded surface during installation. A blown fuse could result.

The Spectra radio uses an electrically erasable, programmable read-only memory (EEPROM) device to store information on frequencies, squelch codes, signalling codes, time-out timer durations, and other parameters.

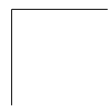
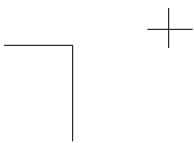
The Spectra radio can be programmed in the field any number of times without ever removing the EEPROM from the radio. To program, an IBM PC®, PC-XT®, or PC-AT® computer is connected to the radio through the rear accessory connector. Once the computer is connected to the radio, the prompts provided by the user-friendly software can be followed.

The following items, available through Worldwide System and Aftermarket Products Division, are required when programming a Spectra radio.

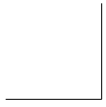
Description	Type or Part Number
Computer	IBM PC, PC-XT, or PC-AT
Radio Interface Box (RIB)	01_80353A74
Cable—Radio to RIB	30_80369B73
Cable—IBM Computer to RIB:	
IBM PC or PC-XT	30_80369B71
IBM PC-AT	30_80369B72
Software Programming Package (Includes Manual):	
5-1/4" Floppy Disk	RVN4001
3-1/2" Floppy Disk	RVN4000



Field Programming



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