

PROFESSIONAL DIGITAL TWO-WAY RADIO



MOTOTRBO™

**SL SERIES SL300 NON-DISPLAY PORTABLE
RADIOS**

USER GUIDE

NOVEMBER 2016

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MN000897A01-AD

Declaration of Conformity

This declaration is applicable to your radio only if your radio is labeled with the FCC logo shown below.

Declaration of Conformity

Per FCC CFR 47 Part 2 Section 2.1077(a)



Responsible Party

Name: Motorola Solutions, Inc.

Address: 1303 East Algonquin Road, Schaumburg, IL 60196-1078, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: **SL300**

conforms to the following regulations:

FCC Part 15, subpart B, section 15.107(a), 15.107(d) and section 15.109(a)

Table continued...

Class B Digital Device

As a personal computer peripheral, this device complies with Part 15 of the FCC Rules. This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference, and
- 2 This device must accept any interference received, including interference that may cause undesired operation.

**NOTICE:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

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Important Safety Information

ATTENTION!

This radio is restricted to Occupational use only. Before using the radio, read the RF Energy Exposure and Product Safety Guide for Portable Two-Way Radios which contains important operating instructions for safe usage and RF energy awareness and control for Compliance with applicable standards and Regulations.

For a list of Motorola-approved antennas and other accessories, visit the following website:

<http://www.motorolasolutions.com>

Any modification to this device, not expressly authorized by Motorola, may void the user's authority to operate this device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is

not more than that necessary for successful communication.

This radio transmitter has been approved by Industry Canada to operate with Motorola-approved antenna with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

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Notice to Users (FCC and Industry Canada)

This device complies with Part 15 of the FCC rules and Industry Canada's license-exempt RSS's per the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications made to this device, not expressly approved by Motorola, could void the authority of the user to operate this equipment.

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Software Version

All the features described in the following sections are supported by the software version **R01.01.10.0000** or later.

Check with your dealer or system administrator for more information.

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European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive



■ The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trash bin label on the product (or the package in some cases).

As defined by the WEEE directive, this cross-out trash bin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste.

Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.

Computer Software Copyrights

The Motorola products described in this manual may include copyrighted Motorola computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted computer programs including, but not limited to, the exclusive right to copy or reproduce in any form the copyrighted computer program. Accordingly, any copyrighted Motorola computer programs contained in the Motorola products described in this manual may not be copied, reproduced, modified, reverse-engineered, or distributed in any manner without the express written permission of Motorola. Furthermore, the purchase of Motorola products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents or patent applications of Motorola, except for the normal non-exclusive license to use that arises by operation of law in the sale of a product.

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including

patent rights, copyrights and trade secrets of Digital Voice Systems, Inc.

This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form.

U.S. Pat. Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

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Handling Precautions

The MOTOTRBO Series Digital Portable radio meets IP67 specifications, allowing the radio to withstand adverse field conditions such as being submersed in water. This section describes some basic handling precautions.



CAUTION:

Do not disassemble the radio. This could damage radio seals and result in leak paths into the radio. Radio maintenance should only be done in service depot that is equipped to test and replace the seal on the radio.

- If the radio has been submersed in water, shake the radio well to remove any water that may be trapped inside the speaker grille and microphone port. Trapped water could cause decreased audio performance.
- If the radio's battery contact area has been exposed to water, clean and dry battery contacts on both the radio and the battery before attaching the battery to the radio. The residual water could short-circuit the radio.
- If the radio has been submersed in a corrosive substance (e.g. saltwater), rinse the radio and battery in fresh water then dry the radio and battery.
- To clean the exterior surfaces of the radio, use a diluted solution of mild dishwashing detergent and fresh water (i.e. one teaspoon of detergent to one gallon of water).
- Never poke the vent (hole) located on the radio chassis below the battery contact. This vent allows for pressure equalization in the radio. Doing so may create a leak path into the radio and the radio's submersibility may be lost.
- Never obstruct or cover the vent, even with a label.
- Ensure that no oily substances come in contact with the vent.
- The radio with antenna attached properly is designed to be submersible to a maximum depth of 1 meter (3.28 feet) and a maximum submersion time of 30 minutes. Exceeding either maximum limit or use without antenna may result in damage to the radio.
- When cleaning the radio, do not use a high pressure jet spray on the radio as this will exceed the 1 meter depth pressure and may cause water to leak into the radio.

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Introduction

This user guide covers the operation of the MOTOTRBO radios.

Your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

You can consult your dealer or system administrator about the following:

- Is your radio programmed with any preset conventional channels?
- Which buttons have been programmed to access other features?
- What optional accessories may suit your needs?
- What are the best radio usage practices for effective communication?
- What maintenance procedures will help promote longer radio life?

Icon Information

Throughout this publication, the icons described are used to indicate features supported in either the conventional analog or conventional digital mode.



Indicates a conventional **Analog Mode-Only** feature.



Indicates a conventional **Digital Mode-Only** feature.

For features that are available in **both** conventional analog and digital modes, both icons are **not** shown.

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Basic Operations

This chapter explains the operations to get you started on using the radio.

Charging the Battery

Your radio is powered by a Nickel Metal-Hydrate (NiMH) or Lithium-Ion (Li-Ion) battery.

- To avoid damage and comply with warranty terms, charge the battery using a Motorola charger exactly as described in the charger user guide.

All chargers can charge only Motorola authorized batteries. Other batteries may not charge. It is recommended your radio remains powered off while charging.

- Charge your IMPRES battery with an IMPRES charger for optimized battery life and valuable battery data. IMPRES batteries charged exclusively with IMPRES chargers receive a 6-month capacity warranty extension over the standard Motorola Premium battery warranty duration.
- Charge a new battery 14 to 16 hours before initial use for best performance.

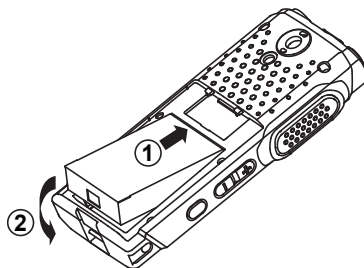
- Short press the **On/Off/Information** button when the radio is powered off while charging.

The radio plays the battery strength announcement voice message. The LED indicator indicates the battery strength.

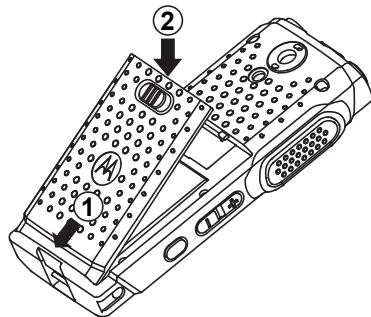
Attaching the Battery

Follow the procedure to attach the battery to your radio.

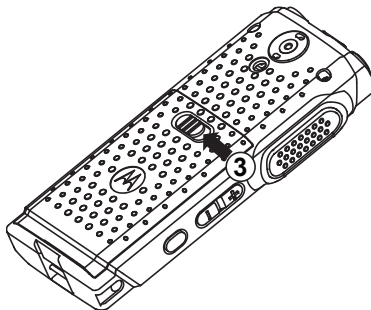
- 1 Align the battery contacts with the contacts inside the battery compartment. Insert the contact side of the battery first. Gently push the battery into place.



- 2 To attach battery cover, align it in place and slide the battery latch until it snaps into place.



-
- 3 Slide battery latch into lock position.

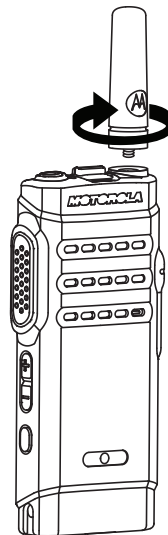


Attaching the Antenna

Follow the procedure to attach the antenna to your radio.

Ensure that the radio is turned off.

- 1 Set the antenna in its receptacle and turn clockwise.



- 2 To remove the antenna, turn the antenna counterclockwise.

**CAUTION:**

If antenna needs to be replaced, ensure that only MOTOTRBO antennas are used. Neglecting this will damage your radio.

Attaching the Earpiece/Audio Accessory

The audio accessory connector is located on the antenna side of the radio. Follow the procedure to attach accessories to your radio.

- 1 Lift the flap of the Audio Jack cover.
- 2 Align the indicators on both the connector and housing, then push until it fits in properly.

Powering Up the Radio

Follow the procedure to power up your radio.

- 1 Press the **On/Off/Information** button to power up the radio.

- 2 Press and hold the **On/Off/Information** button to power up the radio when the radio is charging.

- A tone sounds.
- The green LED lights up.

When the radio is idle, the LED displays a blinking green light to indicate that the radio is on. The blinking green light turns off in the presence of other LED activity and resumes when radio returns to idle mode.

**NOTICE:**

There is no tone upon powering up if the Tones/ Alerts function is disabled. See [Turning Radio Tones/Alerts On or Off on page 56](#) for more information.

Check your battery if your radio does not power up. Make sure that it is charged and properly attached. Contact your dealer if your radio still does not power up.

Turning Off the Radio

Follow the procedure to turn off your radio.

Press and hold the **On/Off/Information** button.

Adjusting the Volume

Follow the procedure to change the volume level of your radio.

Do one of the following:

- Press the **Volume Up** button to increase the volume.
- Press the **Volume Down** button to decrease the volume.

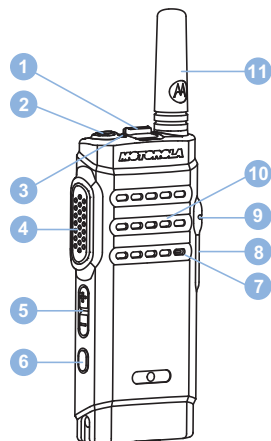


NOTICE:

Your radio can be programmed to have a minimum volume offset where the volume level cannot be lowered past the programmed minimum volume. Check with your dealer or system administrator for more information.

Radio Controls

This chapter explains the buttons and functions to control the radio.



- 1 Channel Selector Switch
- 2 On/Off Button
- 3 LED Indicator
- 4 Push-to-Talk (PTT) Button

- 5 Volume Button
- 6 Side Button 1¹
- 7 Microphone
- 8 USB Connector
- 9 Accessory Connector
- 10 Speaker
- 11 Antenna

¹ This button is programmable.

Programmable Buttons

Depending on the duration of a button press, your dealer can program the programmable buttons as shortcuts to radio functions.

Short press

Pressing and releasing rapidly.

Long press

Pressing and holding for the programmed duration.



NOTICE:

See [Emergency Operation on page 47](#) for more information on the programmed duration of the *Emergency* button.

Assignable Radio Functions

The following radio functions can be assigned to the programmable buttons.

Actions

Provides access to the programmable action list of a Customer Programming Software (CPS).

Analog Scrambling

Toggles analog scrambling on or off.

Channel Announcement

Plays zone and channel announcement voice messages for the current channel.

Flexible Receive List

Creates and assigns members on the receive talkgroup list.

Emergency

Depending on the programming, initiates or cancels an emergency.

Manual Site Roam ²

Starts the manual site search.

Mic AGC

Toggles the internal microphone automatic gain control (AGC) on or off.

Monitor

Monitors a selected channel for activity.

Nuisance Channel Delete ²

Temporarily removes an unwanted channel, except for the Selected Channel, from the scan list. The Selected Channel refers to the selected zone or channel combination of the user from which scan is initiated.

One Touch Access

Directly initiates a predefined Private, Phone or Group Call, or a Call Alert.

Permanent Monitor ²

Monitors a selected channel for all radio traffic until function is disabled.

Privacy

Toggles privacy on or off.

Repeater/Talkaround ²

Toggles between using a repeater and communicating directly with another radio.

² Not applicable in Capacity Plus.

Scan ³

Toggles scan on or off.

Site Lock ²

When toggled on, the radio searches the current site only. When toggled off, the radio searches other sites in addition to the current site.

Trill Enhancement

Toggles trill enhancement on or off.

Voice Announcement

Toggles voice announcement on or off.

Voice Operating Transmission (VOX)

Toggles VOX on or off.

Assignable Settings or Utility Functions

The following radio settings or utility functions can be assigned to the programmable buttons.

Tones/Alerts

Toggles all tones and alerts on or off.

Power Level

Toggles transmit power level between high and low.

Accessing the Programmed Action List

Follow the procedure to access the CPS programmable action list by using the programmed Actions button.

- 1 Press the programmed **Actions** button.
 - A tone sounds.
 - The radio plays the item announcement voice message.
-
- 2 Press the programmed **Actions** button again to navigate to the next item in the action list.
-
- 3 Press the **Volume Button** up or down to toggle on or off, or change the status of the item.
 - A tone sounds.

³ Not applicable in Capacity Plus—Single-Site.

- The radio plays the item announcement voice message.

Push-To-Talk (PTT) Button

The **PTT** button serves two basic purposes.

- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call. The microphone is activated when the **PTT** button is pressed.
- While a call is not in progress, the **PTT** button is used to make a new call.

 If the Channel Free Indication feature is enabled on your radio (programmed by your dealer), you will hear a short alert tone the moment the target radio (the radio that is receiving your call) releases the **PTT** button, indicating the channel is free for you to respond.

You hear a continuous Talk Prohibit Tone if your call is interrupted, for example when the radio receives an Emergency call. You should release the **PTT** button.

On/Off/Information Button

The **On/Off/Information** button at the top of the radio serves three basic purposes:

- to power the radio on or off.
- to check the battery strength.
- to check the Received Signal Strength Indicator (RSSI) signal strength when the radio is powered on.

Conventional Analog and Digital Modes

Each channel in your radio can be configured as a conventional analog or conventional digital channel.

Certain features are unavailable when switching from digital to analog mode.

Your radio also has features available in both analog and digital modes. The minor differences in the way each feature works do **not** affect the performance of your radio.



NOTICE:

Your radio also switches between digital and analog modes during a dual mode scan. See [Scan on page 44](#) for more information.

Capacity Plus–Single-Site

Capacity Plus–Single-Site is a single-site trunking configuration of the MOTOTRBO radio system, which uses a pool of channels to support hundreds of users and up to 254 Groups. This feature allows your radio to efficiently utilize the available number of programmed channels while in Repeater Mode.

You hear a negative indicator tone if you try to access a feature not applicable to Capacity Plus–Single-Site via a programmable button press.

Your radio also has features that are available in conventional digital mode, IP Site Connect, and Capacity Plus. However, the minor differences in the way each feature works does **not** affect the performance of your radio.

Check with your dealer or system administrator for more information on this configuration.

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Status Indicators

This chapter explains the status indicators and audio tones used in the radio.

LED Indicators

LED indicators show the operational status of your radio.

Solid Red

Radio is charging.

Blinking Red

Radio has failed the self-test upon powering up.

Radio is receiving or sending an emergency transmission.

Radio is transmitting in low battery state.

Radio has moved out of range if Auto-Range Transponder System is configured.

Radio encounters charging errors.

Indicates low battery capacity when the **On/Off/Information** button is pressed.

Solid Green

Radio is powering up.

Radio is transmitting.

Indicates that battery is charged to full capacity when radio is turned on as well as turned off.

Indicates full battery capacity when the **On/Off/Information** button is pressed.

Blinking Green

Radio is receiving a non-privacy-enabled call or data.

Radio is receiving a call or data.

Radio is detecting activity over the air.

Radio is turned on and idle.



NOTICE:

This activity may or may not affect the programmed channel of the radio due to the nature of the digital protocol.

Double Blinking Green

Radio is receiving a privacy-enabled call or data.

Solid Yellow

Radio is monitoring a conventional channel.

Indicates fair battery capacity when the **On/Off/Information** button is pressed.

Blinking Yellow

Radio is scanning for activity.

Radio is receiving a Call Alert.

Double Blinking Yellow

Radio has Auto Roaming enabled.

Radio is actively searching for a new site.

Radio has yet to respond to a Group Call Alert.

Radio is locked.

Radio is not connected to the repeater while in Capacity Plus.

All Capacity Plus channels are busy.

Audio Tones

Audio tones provide you with audible indications of the status, or response to data received on the radio.



Continuous Tone

A monotone sound. Sounds continuously until termination.



Periodic Tone

Sounds periodically depending on the duration set by the radio. Tone starts, stops, and repeats itself.



Repetitive Tone

A single tone that repeats itself until it is terminated by the user.



Momentary Tone

Sounds only once for a duration set by the radio.

Indicator Tones

Indicator tones provide you with audible indications of the status after an action to perform a task is taken.



Positive Indicator Tone



Negative Indicator Tone

Zone and Channel Selections

This chapter explains the operations to select a zone or channel on your radio.

A zone is a group of channels. Your radio supports up to 2 channels and 1 zones, with a maximum of 2 channels per zone.

Transmissions are sent and received on a channel. Each channel may have been programmed differently to support different groups of users or supplied with different features.

Selecting Channels

Follow the procedure to select the required channel on your radio after you have selected a zone.

Push the **Channel Selector Switch** to select the channel.

The radio plays the channel announcement voice message.

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Calls

This chapter explains the operations to receive, respond to, make, and stop calls.

You can select a subscriber alias or ID, or group alias or ID after you have selected a channel by using one of these features:

Programmed One Touch Access Button

This method is used for Group, Private, and Phone Calls only.



NOTICE:

You can only have one ID assigned to a **One Touch Access** button with a short or long programmable button press.

Group Calls

Your radio must be configured as part of a group to receive a call from or make a call to the group of users.

Responding to Group Calls

Follow the procedure to respond to Group Calls on your radio.

When you receive a Group Call:

- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

1 Do one of the following:

-  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.
-  If the Voice Interrupt feature is enabled, press the **PTT** button to interrupt the audio from the transmitting radio and free the channel for you to respond.

The green LED lights up.

2 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.

3 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

Making Group Calls

Follow the procedure to make Group Calls on your radio.

1 Do one of the following:

- Select a channel with the active group alias or ID.
 - Press the programmed **One Touch Access** button.
-

2 Press the **PTT** button to make the call.

The green LED lights up.

3 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
 -  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.
-

4 Release the **PTT** button to listen.

The green LED lights up when the target radio responds.

- 5**  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

Private Calls

A Private Call is a call from an individual radio to another individual radio.

There are two ways to set up a Private Call. The first type sets up the call after performing a radio presence check, while the second type sets up the call immediately. Only one of these types can be programmed to your radio by your dealer.

Responding to Private Calls

Follow the procedure to respond to Private Calls on your radio.

When you receive a Private Call:

- The green LED blinks.
 - Your radio unmutes and the incoming call sounds through the speaker.
- 1 Do one of the following:
 -  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.
 -  If the Transmit Interrupt Remote Dekey feature is enabled, press the **PTT** button to stop an ongoing interruptible call and free the channel for you to respond.

The green LED lights up.

- 2 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-

- 3 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period.

Making Private Calls

Your radio must be programmed for you to initiate a Private Call. You hear a negative indicator tone when you initiate the call when this feature is not enabled. Follow the procedure to make Private Calls on your radio.

- 1 Do one of the following:
 - Select a channel with the active subscriber alias or ID.
 - Press the programmed **One Touch Access** button.
-

- 2 Press the **PTT** button to make the call.

The green LED lights up.

- 3 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-

- 4 Release the **PTT** button to listen.

The green LED blinks when the target radio responds.

- 5  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

All Calls

An All Call is a call from an individual radio to every radio on the channel. An All Call is used to make important announcements, requiring full attention from the user. The users on the channel cannot respond to an All Call.

Receiving All Calls

When you receive an All Call:

- A tone sounds.
- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

An All Call does not wait for a predetermined period before ending.

 If the Channel Free Indication feature is enabled, you hear a short alert tone when the transmitting radio releases the **PTT** button, indicating the channel is free for you to use. You cannot respond to an All Call.



NOTICE:

The radio stops receiving the All Call if you switch to a different channel while receiving the call.

Making All Calls

Your radio must be programmed for you to make an All Call. Follow the procedure to make All Calls on your radio.

- 1 Select a channel with the active All Call group alias or ID.
-

- 2 Press the **PTT** button to make the call.

The green LED lights up.

Selective Calls

A Selective Call is a call from an individual radio to another individual radio. It is a Private Call on an analog system.

Responding to Selective Calls

Follow the procedure to respond to Selective Calls on your radio.

When you receive a Selective Call:

- The green LED blinks.
- Your radio unmutes and the incoming call sounds through the speaker.

- 1 Press the **PTT** button to respond to the call.

The green LED lights up.

- 2 Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-

- 3 Release the **PTT** button to listen.

The call ends when there is no voice activity for a predetermined period. A tone sounds.

Making Selective Calls

Your radio must be programmed for you to initiate a Selective Call. Follow the procedure to make Selective Calls on your radio.

- 1 Select a channel with the active subscriber alias or ID.
-

- 2 Press the **PTT** button to make the call.

The green LED lights up.

- 3 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
 -  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.
-

- 4 Release the **PTT** button to listen.

The green LED lights up when the target radio responds.

- 5  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.

The call ends when there is no voice activity for a predetermined period.

Advanced Features

This chapter explains the operations of the features available in your radio.

**NOTICE:**

Your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

Talkaround

This feature allows you to continue communication when your repeater is not operating, or when your radio is out of range from the repeater but within talking range of other radios.

The talkaround setting is retained even after powering down.

Toggling Between Repeater and Talkaround Modes

Follow the procedure to toggle between Repeater and Talkaround modes on your radio.

Press the programmed **Repeater/Talkaround** button.

One of the following tones sounds:

Positive Indicator Tone

Radio is in talkaround mode.

Negative Indicator Tone

Radio is in repeater mode.

Scan Lists

Scan lists are created and assigned to individual channels or groups. Your radio scans for voice activity by cycling through the channel or group sequence specified in the scan list for the current channel or group.

Your radio can support up to 64 scan lists, with a maximum of 16 members in a list.

**NOTICE:**

This feature is not applicable in Capacity Plus.

Scan

Your radio cycles through the programmed scan list for the current channel looking for voice activity when you start a scan.

The LED blinks yellow.

There are two ways of initiating scan:

Main Channel Scan (Manual)

Your radio scans all the channels or groups in your scan list. On entering scan, your radio may, depending on the settings, automatically start on the last scanned active channel or group, or on the channel where scan was initiated.

Auto Scan (Automatic)

Your radio automatically starts scanning when you select a channel or group that has Auto Scan enabled.

Turning Scan On or Off

Follow the procedure to turn scan on or off on your radio.

Do one of the following:

- Press the programmed **Scan** button to start or stop Scan.

- Turn the **Channel Selector Switch** to select a channel programmed with Auto Scan enabled.
- Turn the **Channel Selector Knob** to select a channel programmed with Auto Scan enabled.

If scan is enabled:

- The yellow LED blinks.
- A positive indicator tone sounds.

If scan is disabled:

- The LED turns off.
- A negative indicator tone sounds.

Responding to Transmissions During Scanning

During scanning, your radio stops on a channel or group where activity is detected. The radio stays on that channel for a programmed duration known as hang time. Follow the procedure to respond to transmissions during scanning on your radio.

- 1  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the

transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button during hang time.

The green LED lights up.

2 Do one of the following:

- Wait for the Talk Permit Tone to end and speak clearly into the microphone if enabled.
-  Wait for the **PTT** Sidetone to end and speak clearly into the microphone if enabled.

3 Release the **PTT** button to listen.

The radio returns to scanning other channels or groups if you do not respond within the hang time.

Deleting Nuisance Channels

If a channel continually generates unwanted calls or noise, termed as Nuisance Channel, you can temporarily remove the unwanted channel from the scan list. This capability does not apply to the channel designated as the Selected Channel. Follow the procedure to delete nuisance channels on your radio.

- 1** When your radio locks on to an unwanted or nuisance channel, press the programmed **Nuisance Channel Delete** button until you hear a tone.
-

- 2** Release the **Nuisance Channel Delete** button.
The nuisance channel is deleted.
-

Restoring Nuisance Channels

Follow the procedure to restore nuisance channels on your radio.

Do one of the following:

- Turn the radio off and then power it on again.
 - Change the channel using the **Channel Selector Switch**.
-

Vote Scan

Vote Scan provides you with wide area coverage in areas where there are multiple base stations transmitting identical information on different analog channels.

Your radio scans analog channels of multiple base stations and performs a voting process to select the strongest received signal. Once that is established, your radio unmutes to transmissions from that base station.

During a vote scan, the yellow LED blinks.

Follow the same procedures as [Responding to Transmissions During Scanning on page 44](#) to respond to a transmission during a vote scan.

Call Indicator Settings

Alarm Tone Volume Escalation

Your radio can be programmed by your dealer to continually alert you when a radio call remains unanswered.

This is done by automatically increasing the alarm tone volume over time. This feature is known as Escalate.

Call Alert Operation

Call Alert paging enables you to alert a specific radio user to call you back when they are able to do so.

This feature is accessible via a programmed **One Touch Access** button.

Responding to Call Alerts

Follow the procedure to respond to Call Alerts on your radio.

When you receive a Call Alert:

- A repetitive tone sounds.
- The yellow LED blinks.

Press the **PTT** button within four seconds to respond with a Private Call.

Making Call Alerts

Follow the procedure to make Call Alerts on your radio.

- 1 Press the programmed **One Touch Access** button.

The green LED lights up.

2 Wait for acknowledgment.

If the Call Alert acknowledgment is received, a positive indicator tone sounds.

If the Call Alert acknowledgment is not received, a negative indicator tone sounds.

Emergency Operation

An Emergency Alarm is used to indicate a critical situation. You are able to initiate an Emergency at any time even when there is activity on the current channel.

Your dealer can set the duration of a button press for the programmed **Emergency** button, except for long press, which is similar with all other buttons:

Short Press

Duration between 0.05 seconds and 0.75 seconds.

Long Press

Duration between 1.00 second and 3.75 seconds.

The **Emergency** button is assigned with the Emergency On/Off feature. Check with your dealer for the assigned operation of the **Emergency** button.



NOTICE:

If short press the **Emergency** button is assigned to turn on the Emergency mode, then long press the **Emergency** button is assigned to exit the Emergency mode.

If long press the **Emergency** button is assigned to turn on the Emergency mode, then short press the **Emergency** button is assigned to exit the Emergency mode.

Your radio supports three Emergency Alarms:

- Emergency Alarm
- Emergency Alarm with Call
- Emergency Alarm with Voice to Follow

In addition, each alarm has the following types:

Regular

Radio transmits an alarm signal and shows audio and/or visual indicators.

Silent

Radio transmits an alarm signal without any audio or visual indicators. Radio receives calls without any sound through the speaker, until you press the **PTT** button.

Silent with Voice

Radio transmits an alarm signal without any audio or visual indicators, but allow incoming calls to sound through the speaker.



NOTICE:

Only one of the Emergency Alarms above can be assigned to the programmed **Emergency** button.

Sending Emergency Alarms

This feature allows you to send an Emergency Alarm, a non-voice signal, which triggers an alert indication on a group of radios. Follow the procedure to send Emergency Alarms on your radio.

Your radio does not display any audio or visual indicators during Emergency mode when it is set to Silent.

- 1 Press the programmed **Emergency On** button.

- 2 Wait for acknowledgment.

If successful:

- The Emergency tone sounds.
- The green LED blinks.

If unsuccessful after all retries have been exhausted:

- A tone sounds.

The radio exits the Emergency Alarm mode.

Sending Emergency Alarms with Call

This feature allows you to send an Emergency Alarm with Call to a group of radios. Upon acknowledgement by a radio within the group, the group of radios can communicate over a programmed Emergency channel. Follow the procedure to send Emergency Alarms with call on your radio.

- 1 Press the programmed **Emergency On** button.

The green LED lights up.

- 2 Wait for acknowledgment.

If successful:

- The Emergency tone sounds.
- The green LED blinks.

- 3 Press the **PTT** button to make the call.

The green LED lights up.

- 4 Release the **PTT** button to listen.
-

- 5  If the Channel Free Indication feature is enabled, you hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond to the call.
-

- 6 Press the **Emergency Off** button to exit the Emergency mode.
-

Sending Emergency Alarms with Voice to Follow

This feature allows you to send an Emergency Alarm with Voice to Follow to a group of radios. Your radio microphone is automatically activated, allowing you to communicate with the group of radios without pressing the **PTT** button. This activated microphone state is also known as *hot mic*.

If your radio has Emergency Cycle Mode enabled, repetitions of *hot mic* and receiving period are made for a

programmed duration. During Emergency Cycle Mode, received calls sound through the speaker.

If you press the **PTT** button during the programmed receiving period, you hear a prohibit tone, indicating that you should release the **PTT** button. The radio ignores the **PTT** button press and remains in Emergency mode.

If you press the **PTT** button during *hot mic*, and continue to press it after the *hot mic* duration expires, the radio continues to transmit until you release the **PTT** button.

If the Emergency Alarm request fails, the radio does not retry to send the request, and enters the *hot mic* state directly.



NOTICE:

Some accessories may not support *hot mic*. Check with your dealer or system administrator for more information.

Follow the procedure to send Emergency Alarms with voice to follow on your radio.

- 1 Press the programmed **Emergency On** button.

The green LED lights up.

- 2 Once the Emergency tone sounds, speak clearly into the microphone.

The radio automatically stops transmitting when:

- The cycling duration between *hot mic* and receiving calls expires, if Emergency Cycle Mode is enabled.
- The *hot mic* duration expires, if Emergency Cycle Mode is disabled.

Reinitiating Emergency Mode

This feature is only applicable to the radio sending the Emergency Alarm. Follow the procedure to reinitiate Emergency mode on your radio.

Do one of the following:

- Change the channel while the radio is in Emergency mode.
The radio exits the Emergency mode, and reinitiates Emergency, if Emergency Alarm is enabled on the new channel.

- Press the programmed **Emergency On** button during an Emergency initiation or transmission state.
The radio exits this state, and reinitiates Emergency.

Exiting Emergency Mode After Sending the Emergency Alarm

This feature is only applicable to the radio sending the Emergency Alarm.

Your radio exits Emergency mode when:

- An acknowledgment is received (for Emergency Alarm only).
- All retries to send the alarm have been exhausted.
- Your radio is turned off.



NOTICE:

Your radio does not reinitiate the Emergency mode automatically when it is powered up again.

Follow the procedure to exit Emergency mode on your radio.

Press the programmed **Emergency Off** button.

Privacy

This feature helps to prevent eavesdropping by unauthorized users on a channel by the use of a software-based scrambling solution. The signaling and user identification portions of a transmission are not scrambled.

Your radio must have privacy enabled on the channel to send a privacy-enabled transmission, although this is not a necessary requirement for receiving a transmission. While on a privacy-enabled channel, the radio is still able to receive clear or unscrambled transmissions.

To unscramble a privacy-enabled call or data transmission, your radio must be programmed to have the same Privacy Key for Basic Privacy, or the same Key Value and Key ID for Enhanced Privacy as the transmitting radio.

If your radio receives a scrambled call that is of a different Privacy Key, or different Key Value and Key ID, you will either hear a garbled transmission for Basic Privacy or nothing at all for Enhanced Privacy.

On a privacy-enabled channel, your radio is able to receive clear or unscrambled calls, depending on how your radio is programmed. In addition, your radio may play a warning tone or not, depending on how it is programmed.

The green LED lights up when the radio is transmitting, and blinks rapidly when the radio is receiving an ongoing privacy-enabled transmission.



NOTICE:

Some radio models may not offer this Privacy feature, or may have a different configuration. Check with your dealer or system administrator for more information.

Site Lock On/Off

When toggled on, the radio searches the current site only. When toggled off, the radio searches other sites in addition to the current site.

Press the programmed **Site Lock** button.

If the **Site Lock** function is toggled on:

- You hear a positive indicator tone, indicating the radio has locked to the current site.

If the **Site Lock** function is toggled off:

- You hear a negative indicator tone, indicating the radio is unlocked.

Analog Scrambling

This is an analog-only feature designed to prevent eavesdropping by unauthorized users on a channel by the use of a software-based scrambling solution. The signaling and user identification portions of a transmission are not scrambled.

Your radio must have analog scrambling enabled on the channel to send and receive an analog scrambling-enabled transmission. While on an analog scrambling-enabled channel, the radio is not able to receive clear or unscrambled transmissions.

Your radio supports two analog scrambling codes that can be toggled via the programmable button.

Lone Worker

This feature prompts an emergency to be raised if there is no user activity, such as any radio button press or activation of the channel selector, for a predefined time.

Following no user activity for a programmed duration, the radio pre-warns the user via an audio indicator once the inactivity timer expires.

If there is still no acknowledgment by the user before the predefined reminder timer expires, the radio initiates an Emergency Alarm.

Only one of the following Emergency Alarms is assigned to this feature:

- Emergency Alarm
- Emergency Alarm with Call
- Emergency Alarm with Voice to Follow 

The radio remains in the emergency state, allowing voice messages to proceed until action is taken. See [Emergency Operation on page 47](#) for more information on ways to exit Emergency.



NOTICE:

Check with your dealer or system administrator for more information.

Flexible Receive List

Flexible Receive List is a feature that allows you to create and assign members on the receive talkgroup list. Your radio can support a maximum of 16 members in the list. This feature is supported in Capacity Plus.

Turning Flexible Receive List On or Off

Follow the procedure to turn Flexible Receive List on or off.

Press the programmed **Flexible Receive List** button. Press the **Volume Button** up or down to toggle on or off.

- If **Flexible Receive List** function is toggled on:
 - A positive indicator tone sounds.
 - If **Flexible Receive List** function is toggled off:
 - A negative indicator tone sounds.
-

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Utilities

This chapter explains the operations of the utility functions available in your radio.

Squelch Levels

You can adjust the squelch level to filter out unwanted calls with low signal strength or channels with a higher than normal background noise.

Normal

This is the default setting.

Tight

This setting filters out unwanted calls and/or background noise. Calls from remote locations may also be filtered out.

Power Levels

You can customize the power setting to high or low for each channel.

High

This enables communication with radios located at a considerable distance from you.

Low

This enables communication with radios in closer proximity.

Voice Operating Transmission

The Voice Operating Transmission (VOX) allows you to initiate a hands-free voice-activated call on a programmed channel. The radio automatically transmits, for a programmed period, whenever the microphone on the VOX-capable accessory detects voice.

You can enable or disable VOX by doing one of the following:

- Press the **PTT** button during radio operation to disable VOX.
- Turn the radio off and then power it on again to enable VOX.



NOTICE:

Turning this feature on or off is limited to radios with this function enabled. Check with your dealer or system administrator for more information.

Turning Voice Operating Transmission On or Off

Follow the procedure to turn Voice Operating Transmission (VOX) on or off on your radio.

Press the programmed **VOX** button to toggle the feature on or off.

Turning Radio Tones/Alerts On or Off

You can enable and disable all radio tones and alerts, if needed, except for incoming Emergency alert tone. Follow the procedure to turn tones and alerts on or off on your radio.

Press the programmed **All Tones/Alerts** button.

One of the following tone sounds:

Positive Indicator Tone

All tones and alerts are turned on.

Negative Indicator Tone

All tones and alerts are turned off.

Checking Battery Strength

Follow the procedure to check the battery level of your radio.

Press the **On/Off** button.

One of the following occurs:

- The LED lights up solid yellow indicating fair battery capacity.
- The LED lights up solid green indicating full battery capacity.
- The LED blinks red indicating low battery capacity.

Turning Voice Announcement On or Off

This feature enables the radio to audibly indicate the current zone or channel the user has just assigned, or the programmable button the user has just pressed. This audio indicator can be customized according to customer requirements. Follow the procedure to turn Voice Announcement on or off on your radio.

Press the programmed **Voice Announcement** button.

One of the following tone sounds:

Positive Indicator Tone

All tones and alerts are turned on.

Negative Indicator Tone

All tones and alerts are turned off.

Turning Trill Enhancement On or Off

You can enable this feature when you are speaking in a language that contains many words with alveolar trill (rolling “R”) pronunciations. Follow the procedure to turn Trill Enhancement on or off on your radio.

Press the programmed **Trill Enhancement** button.

Press the **Volume Button** up or down to toggle on or off.

- If **Trill Enhancement** function is toggled on:
 - A positive indicator tone sounds.
 - If **Trill Enhancement** function is toggled off:
 - A negative indicator tone sounds.
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Authorized Accessories List

Antennas

- UHF, 403–425 MHz, 4.5 cm, Stubby Antenna (PMAE4093_)
- UHF, 420–445 MHz, 4.5 cm, Stubby Antenna (PMAE4094_)
- UHF, 435–470 MHz, 4.5 cm, Stubby Antenna (PMAE4095_)
- VHF, 136–144 MHz, 5.0 cm, Stubby Antenna (PMAD4144_)
- VHF, 144–156 MHz, 5.0 cm, Stubby Antenna (PMAD4145_)
- VHF, 156–174 MHz, 5.0 cm, Stubby Antenna (PMAD4146_)

Batteries

- Li-Ion 2300 mAh Battery (PMNN4468_)

Carry Devices

- Nylon Wrist Strap (PMLN6074_)
- Flexible Quick Release Hand Strap (PMLN7076_)
- Heavy-Duty Swivel Belt Clip (PMLN7128_)
- Swivel Carry Holster (PMLN7190_)

Chargers

- Standard Multi-Unit Charger, US/NA Plug (PMLN7101_)
- Standard Single Unit Charger, US/NA Plug (PMLN7109_)
- Micro USB Power Supply, 5 V 1 A, US/NA Plug (25009298001)

Earbuds and Earpieces

- Earbud with In-line Mic/PTT, MagOne (PMLN7156_)
- 2-Wire with Transparent Tube, Black (PMLN7157_)
- 1-Wire Surveillance Earpiece, In-Line Mic and PTT (PMLN7158_)
- Swivel Earpiece, In-line Mic and PTT (PMLN7189_)
- Transparent Acoustic Tube (RLN6242_)

- High Noise Yellow Foam Earpieces (5080384F72)

Miscellaneous Accessories

- Battery Door (PMLN7074_)

Batteries and Chargers Warranty

The Workmanship Warranty

The workmanship warranty guarantees against defects in workmanship under normal use and service.

SL Series Batteries	12 Months
Chargers (Single-Unit and Multi-Unit, Non-Display)	12 Months

The Capacity Warranty

The capacity warranty guarantees 80% of the rated capacity for the warranty duration.

Lithium-Ion (Li-Ion) Batteries	12 Months
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Limited Warranty

MOTOROLA COMMUNICATION PRODUCTS

I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:

MOTOROLA SOLUTIONS, INC. (“MOTOROLA”) warrants the MOTOROLA manufactured Communication Products listed below (“Product”) against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

Digital Radios	24 Months
Product Accessories	12 Months

MOTOROLA, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the warranty period provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the

balance of the original applicable warranty period. All replaced parts of Product shall become the property of MOTOROLA.

This express limited warranty is extended by MOTOROLA to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by MOTOROLA. MOTOROLA assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of MOTOROLA.

Unless made in a separate agreement between MOTOROLA and the original end user purchaser, MOTOROLA does not warrant the installation, maintenance or service of the Product.

MOTOROLA cannot be responsible in any way for any ancillary equipment not furnished by MOTOROLA which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system which may use the Product is unique, MOTOROLA disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

II. GENERAL PROVISIONS

This warranty sets forth the full extent of MOTOROLA'S responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at MOTOROLA's option, is the exclusive remedy. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

III. STATE LAW RIGHTS:

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATION ON HOW LONG AN IMPLIED

WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY.

This warranty gives specific legal rights, and there may be other rights which may vary from state to state.

IV. HOW TO GET WARRANTY SERVICE

You must provide proof of purchase (bearing the date of purchase and Product item serial number) in order to receive warranty service and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service will be provided by MOTOROLA through one of its authorized warranty service locations. If you first contact the company which sold you the Product (e.g., dealer or communication service provider), it can facilitate your obtaining warranty service. You can also call MOTOROLA at 1-800-927-2744 US/Canada.

V. WHAT THIS WARRANTY DOES NOT COVER

- 1 Defects or damage resulting from use of the Product in other than its normal and customary manner.

- 2 Defects or damage from misuse, accident, water, or neglect.
- 3 Defects or damage from improper testing, operation, maintenance, installation, alteration, modification, or adjustment.
- 4 Breakage or damage to antennas unless caused directly by defects in material workmanship.
- 5 A Product subjected to unauthorized Product modifications, disassembles or repairs (including, without limitation, the addition to the Product of non-MOTOROLA supplied equipment) which adversely affect performance of the Product or interfere with MOTOROLA's normal warranty inspection and testing of the Product to verify any warranty claim.
- 6 Product which has had the serial number removed or made illegible.
- 7 Rechargeable batteries if:
 - any of the seals on the battery enclosure of cells are broken or show evidence of tampering.
 - the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.
- 8 Freight costs to the repair depot.
- 9 A Product which, due to illegal or unauthorized alteration of the software/firmware in the Product, does not function in accordance with MOTOROLA's published specifications or the FCC certification labeling in effect for the Product at the time the Product was initially distributed from MOTOROLA.
- 10 Scratches or other cosmetic damage to Product surfaces that does not affect the operation of the Product.
- 11 Normal and customary wear and tear.

VI. PATENT AND SOFTWARE PROVISIONS

MOTOROLA will defend, at its own expense, any suit brought against the end user purchaser to the extent that it is based on a claim that the Product or parts infringe a United States patent, and MOTOROLA will pay those costs and damages finally awarded against the end user purchaser in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:

- 1 MOTOROLA will be notified promptly in writing by such purchaser of any notice of such claim,

- 2 MOTOROLA will have sole control of the defense of such suit and all negotiations for its settlement or compromise, and
- 3 Should the Product or parts become, or in MOTOROLA's opinion be likely to become, the subject of a claim of infringement of a United States patent, that such purchaser will permit MOTOROLA, at its option and expense, either to procure for such purchaser the right to continue using the Product or parts or to replace or modify the same so that it becomes non-infringing or to grant such purchaser a credit for the Product or parts as depreciated and accept its return. The depreciation will be an equal amount per year over the lifetime of the Product or parts as established by MOTOROLA.

MOTOROLA will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or parts furnished hereunder with software, apparatus or devices not furnished by MOTOROLA, nor will MOTOROLA have any liability for the use of ancillary equipment or software not furnished by MOTOROLA which is attached to or used in connection with the Product. The foregoing states the entire liability of MOTOROLA with respect to infringement of patents by the Product or any parts thereof.

Laws in the United States and other countries preserve for MOTOROLA certain exclusive rights for copyrighted MOTOROLA software such as the exclusive rights to reproduce in copies and distribute copies of such MOTOROLA software. MOTOROLA software may be used in only the Product in which the software was originally embodied and such software in such Product may not be replaced, copied, distributed, modified in any way, or used to produce any derivative thereof. No other use including, without limitation, alteration, modification, reproduction, distribution, or reverse engineering of such MOTOROLA software or exercise of rights in such MOTOROLA software is permitted. No license is granted by implication, estoppel or otherwise under MOTOROLA patent rights or copyrights.

VII. GOVERNING LAW

This Warranty is governed by the laws of the State of Illinois, U.S.A.