APX 4000 (2 KNOBS) MODEL 2

Model 2

Zone A
Channel 1

Zone | Chan | Scan

Law

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: Motorola Solutions, Inc., 1303 East Algonquin Road Schaumburg, IL60196, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: **APX 4000**

conforms to the following regulations:

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

Class B Digital Device

As a personal computer peripheral, this device complies with Part 15 of the FCC Rules. 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.

DECLARATION OF CONFORMITY

Note:

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/TV technician for help.

RF Energy Exposure and Product Safety Guide
for Portable Two-Way Radios

Caution

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, batteries, and other accessories, visit the following website:
http://www.motorolasolutions.com/APX

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 the Motorola-approved antenna types with the maximum permissible gain and required antenna impedance for each antenna type indicated.
Antenna types not included, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

SOFTWARE VERSION

All the features described in the following sections are supported by the radio's software version **R13.00.00** or later.
See **Accessing Radio Information** to determine your radio's software version.
Check with your dealer or system administrator for more details of all the features supported.

Notice to Users (FCC and Industry Canada)

This device complies with Part 15 of the FCC rules and RSS 210 of the Industry Canada rules per the conditions listed below:
1 This device may not cause harmful interference.
2 This device must accept any interference received, including interference that may cause undesired operation.
3 Changes or modifications made to this device, not expressly approved by Motorola, could void the user's authority to operate this equipment.

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Antenna

16-Position Channel Knob

Volume Knob

Top (Orange) Emergency

LED

Top Light bar

Microphone

Top Side Scan (C) Secure Tx (T)

Speaker

Accessory Connector

Push-to-Talk (PTT) Button

Middle Side Zone Up

Main Display

Menu Select Buttons

Bottom Side Zone Down

Home Button

4-Way Navigation Button

Data Feature Button

	Z1	Z2	Z3	Z4	Z5	Z6
C1						
C2						
C3						
C4						
C5						
C6						
C7						
C8						
C9						
C10						
C11						
C12						
C13						
C14						
C15						
C16						

❑ Charging the Battery

> ⚠️ **WARNING**
>
> **To avoid a possible explosion:**
> • **DO NOT** replace the battery in any area labeled "hazardous atmosphere".
> • **DO NOT** discard batteries in a fire.

The Motorola-approved battery shipped with your radio is uncharged. Prior to using a new battery, charge it for a minimum of 16 hours to ensure optimum capacity and performance.

Note: When charging a battery attached to a radio, turn the radio off to ensure a full charge.

Battery Charger

To charge the battery, place the battery, with or without the radio, in a Motorola-approved charger.
The charger's LED indicates the charging progress; see your charger's user guide.

PREPARING YOUR RADIO FOR USE

❑ **Attaching/Removing the Battery**

Slide the battery into the radio's frame until the bottom latch clicks into place.

Battery

To remove the battery, turn the radio off. Lift up the latch then slide the battery down to remove the battery from the radio.

Battery Latch

Note: If your radio is preprogrammed with volatile-key retention, the encryption keys are retained for approximately 30 seconds after battery removal.

Check with your dealer or system administrator for more information. You can view the status of your IMPRES battery.

❑ Attaching/Removing the Antenna

With the radio turned off, set the antenna in its receptacle and turn clockwise to attach it to the radio.

To remove the antenna, turn the antenna counterclockwise. Make sure you turn off the radio first.

Antenna

❑ Attaching/Removing the Accessory Connector Cover

The accessory connector is located on the antenna side of the radio. It is used to connect accessories to the radio.

Note: To prevent damage to the connector, shield it with the connector cover when not in use.

Insert the hooked end of the cover into the slot above the connector.
Press downward on the cover's top to seat it in the slot.
Once in place, tighten by rotating the thumbscrew clockwise by hand.

To remove the accessory connector cover, rotate the thumbscrew counterclockwise until it disengages from the radio.

If the thumbscrew is too tight, use an Allen wrench to loosen it first.

Rotate and lift the connector cover to disengage it from the radio.

Hooked End

Accessory Connector Cover

Hex Socket Head

PREPARING YOUR RADIO FOR USE

❑ Attaching/Removing the Belt Clip

Align the grooves of the belt clip with those of the radio and press upward until you hear a click.

To remove the clip, use a flat bladed object to press the belt clip tab away from the radio.
Then, slide the clip downward and away from the radio.

Belt Clip Grooves

PREPARING YOUR RADIO FOR USE

❏ Turning on/off the Radio

Rotate the **On/Off/Volume Control Knob** clockwise until you hear a click.

If the power-up test is successful, you see the Home screen.

Note: If the power-up test is unsuccessful, you see **Error XX/YY** (**XX/YY** is an alphanumeric code).
Turn off the radio, check the battery, and turn the radio back on. If the radio fails the power-up test again, record the **Error XX/YY** code and contact your dealer.

Note: If the power-up test is successful, but you see **Hardware board absent** or **Hw Board Mismatch**.
Then, send the radio to the qualified technician to fix this error.
If the power-up test is successful, but you see, **Hw Board Failed** or **Man-Down Hw Error**, send the radio to the qualified technician to fix this error.

To turn off the radio, rotate the **On/Off/Volume Control Knob** counterclockwise untilyou hear a click.

On/Off/Volume
Control Knob

❑ Adjusting the Volume

To increase the volume, rotate the **On/Off/Volume Control Knob** clockwise.

To decrease the volume, rotate the **On/Off/Volume Control Knob** counterclockwise.

On/Off/Volume Control Knob

IDENTIFYING RADIO CONTROLS

❑ Accessing the Preprogrammed Functions

You can access various radio functions through one of the following ways:
- A short or long press of the relevant programmable buttons. **OR**
- Use the **Menu Select Buttons** (⬭•⬭ , ⬭••⬭ , and ⬭••⬭).

Using the Menu Select Buttons

The **Menu Select Buttons** allow to access the menu entries of features.

Note: Check with your dealer or system administrator for the list of features activated in your radio.

Your radio may be preprogrammed differently from the following example, but the steps for selecting a channel may appear as shown below:

- Press the **Menu Select** button (⬭••⬭) directly below **CHAN**.

Menu Select Buttons

Home Button

Data Feature Button

Zone A
Chan 1
Direct mode
Chan | Scan | Dir

Using the Navigation Buttons

Home Button

The ⌂ button returns you to the Home (default) screen. In most cases, this is the current mode.
For selected radio features, the ⌂ button is also used to save user-edited radio settings or information before returning you to the Home screen.

Note: Some features do not require you to press ⌂ to go to the Home screen. Refer to the individual feature sections in this manual for further details on saving user-edited radio settings or information.

Data Feature Button

Use this button to access data-related features, such as the Text Messaging Service (TMS) feature screen.

4-Way Navigation Button

Use this button to scroll up, down, left or right.
Press and release one of the button to scroll from one entry to the next one. Press and hold one of the button to have the radio toggles through the list automatically (release the button to stop).

❑ Push-To-Talk (PTT) Button

The **PTT** button on the side of the radio serves two basic purposes:

• While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call.
Press and hold down **PTT** button to talk. Release the **PTT** button to listen.
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.

Push-to-Talk (PTT) Button

IDENTIFYING STATUS INDICATORS

❑ Status Icons

The 160 x 90 pixel front liquid crystal display (LCD) of the radio shows radio status, text entries, and menu entries. The top display row contain color icons that indicate radio operating conditions.

The following are the icons that appear on the radio's display.

Receiving
Radio is receiving a call or data.

Transmitting
Radio is transmitting a call or data.

Battery
The number of bars (0 – 4) shown indicates the charge remaining in the battery. Blinks when the battery is low.

Received Signal Strength Indicator (RSSI)
The number of bars displayed represents the received signal strength for the current site, for trunking only. The more stripes in the icon, the stronger the signal.

Direct
• On = Radio is currently configured for direct radio-to-radio communication (during conventional operation only).
• Off = Radio is connected with other radios through a repeater.

Monitor (Carrier Squelch)
Selected channel is being monitored (during conventional operation only).

In-Call User Alert
• On = The feature is enabled. Voice muting of the affiliated trunking talkgroup or selected conventional channel is activated.
• Off = The feature is disabled. Voice muting of the affiliated trunking talkgroup or selected conventional channel is deactivated.

Power Level
• L = Radio is set at Low power.
• H = Radio is set at High power.

IDENTIFYING STATUS INDICATORS

Scan
Radio is scanning a scan list.

Vote Scan Enabled
The vote scan feature is enabled.

Priority Channel Scan
• Blinking dot = Radio detects activity on channel designated as Priority-One.
• Steady dot = Radio detects activity on channel designated as Priority-Two.

Secure Operation
• On = Secure operation.
• Off = Clear operation.
• Blinking = Receiving an encrypted voice call.

AES Secure Operation
• On = AES Secure operation.
• Off = Clear operation.
• Blinking = Receiving an encrypted voice call.

Location Signal
• On = Location feature is enabled, and location signal is available.
• Off = Location feature is disabled.
• Blinking = Location feature is enabled, but no location signal is available.

User Login Indicator (IP Packet Data)
• On = User is currently associated with the radio.
• Off = User is currently not associated with the radio.
• Blinking = Device registration or user registration with the server failed due to an invalid username or pin.

Data Activity
Data activity is present.

Hexadecimal
Indicates that the text entry is currently in hexadecimal mode.

Bluetooth On
Bluetooth is on and ready for Bluetooth connection.

Bluetooth Connected
Bluetooth is currently connected to the external Bluetooth device.

IDENTIFYING STATUS INDICATORS

❑ **Top Light bar and LED Indicators**

The Top Light bar and LED indicators show
the operational status of your radio.

Top Light bar

LED

IDENTIFYING STATUS INDICATORS

❑ **Top Light bar and LED Indicators**

LED Indications

Solid red – Radio is transmitting.

Blinking red – Radio is transmitting at low battery condition.

Rapidly blinking red – Radio has failed the self test upon powering up or encountered a fatal error.

Solid yellow (Conventional Only) – Channel is busy.

Blinking yellow – Radio is receiving a secured transmission.

Solid green – Radio is powering up, or is on a non-priority channel while in the Scan List Programming mode.

Blinking green – Radio is receiving an individual or telephone call, or is on a Priority-Two channel while in the Scan List Programming mode.

Rapidly blinking green – Radio is on a Priority-One channel while in the Scan List Programming mode.

Note: No LED indication when the radio receives a clear (non-secured) transmission in trunking Mode.

IDENTIFYING STATUS INDICATORS

❑ Top Light bar and LED Indicators

Top Light bar Indications

This feature temporarily changes the color of the Top Lightbar and adds a color bar to the main display screen to help signal that a radio event has occurred.

Note: This feature must be preprogrammed by a qualified radio technician.

Top Light bar

LED

IDENTIFYING STATUS INDICATORS

❑ Intelligent Lighting Indicators

This feature temporary changes the radio's display backlight color and the alert text background color to help signal that a radio event has occurred.

Note: This feature must be preprogrammed by a qualified radio technician.

Backlight and Bar Color	Notification	When
Orange	Emergency Alerts	The radio initiates an emergency alarm or call.
		The radio receives an emergency alarm or call.
		The radio initiates the Man Down Post-Alert timer.
		The radio initiates Fireground Evacuation alarm.
Red	Critical Alerts	The radio battery is low.
		The radio is out of range.
		The radio enters fail-soft mode.
		The radio is unable to establish a full connection with the system.
		The radio is unable to authenticate or register with the system.
		The radio lost GPS signal or GPS function fails.
Green	Call Alerts	The radio receives a private call.
		The radio receives a phone call.
		The radio receives a call alert.
		The radio receives a selective call.
		The radio lost GPS signal or GPS function fails.

IDENTIFYING STATUS INDICATORS

Orange	Red	Green
Emergency Alerts	Critical Alerts	Call Alerts

IDENTIFYING STATUS INDICATORS

❑ Alert Tones

An alert tone is a sound or group of sounds. Your radio uses alert tones to inform you of your radio's conditions.
The following table lists these tones and when they occur.

You Hear	Tone Name	Heard
Short, Low-Pitched Tone 🔊 **Play**	Radio Self Test Fail	When radio fails its power-up self test.
	Reject	When unauthorized request is made.
	Time-Out Timer Warning	Four seconds before time out.
	No ACK Received	When radio fails to receive an acknowledgment.
	Individual Call Warning Tone	When radio is in an individual call for greater than 6 seconds without any activity.
Long, Low-Pitched Tone 🔊 **Play**	Time-Out Timer Timed Out	After time out.
	Talk Prohibit/**PTT** Inhibit	(When **PTT** button is pressed) transmissions are not allowed.
	Out of Range	(When **PTT** button is pressed) the radio is out of range of the system.
	Invalid Mode	When radio is on an unpreprogrammed channel.
A Group of Low-Pitched Tones 🔊 **Play**	Busy	When system is busy.

IDENTIFYING STATUS INDICATORS

You Hear	Tone Name	Heard
Short, Medium-Pitched Tone 🔊 **Play**	Valid Key-Press	When correct key is pressed.
	Radio Self Test Pass	When radio passes its power-up self test.
	Clear Voice	At beginning of a non-coded communication.
	Priority Channel Received	When activity on a priority channel is received.
	Emergency Alarm Entry	When entering the emergency state.
	Central Echo	When central controller has received a request from a radio.
Long, Medium-Pitched Tone 🔊 **Play**	Volume Set	When volume is changed on a quiet channel.
	Emergency Exit	When exiting the emergency state.
A Group of Medium-Pitched Tones 🔊 **Play**	Fail-soft	When the trunking system fails.
	Automatic Call Back	When voice channel is available from previous request.
	Talk Permit	(When **PTT** button is pressed) verifying system accepting transmissions.
	Keyfail	When encryption key has been lost.
	Console Acknowledge	When status, emergency alarm, or reprogram request ACK is received.
	Received Individual Call	When Call Alert or Private Call is received.
	Site Trunking	When a SmartZone trunking system fails.
Short, High-Pitched Tone (Chirp)	Low-Battery Chirp	When battery is below preset threshold value.

GENERAL RADIO OPERATION

❑ Selecting a Zone

A zone is a group of channels.

Procedure:

1 ＜ or ＞ to **Zone**.

2 Press the **Menu Select** button directly below **Zone.**

3 ⌃ or ⌄ to the required zone.

5   Press the **PTT** button to transmit on the displayed zone channel.

OR

Use the **Middle Side Button** for **Zone Up**

Use the **Bottom Side Button** for **Zone Down**

❑ Selecting a Radio Channel

A channel is a group of radio characteristics, such as transmit/receive frequency pairs.

Procedure:

[16-Position Select Knob]
1 Turn the preprogrammed **16-Position Select Knob** to the desired channel.

OR
[Menu]

1 < or > to **Chan**.

2 Press the **Menu Select** button directly below **Chan.**

3 ∧ or ∨ to the required channel.

4 Press the **Menu Select** button directly below **Sel** to confirm the selected channel.

5 Press the **PTT** button to transmit on the displayed zone channel.

❑ Repeater or Direct Operation

The **REPEATER** operation increases the radio's range by connecting with other radios through a repeater.
The transmit and receive frequencies are different.

The **DIRECT** or "talkaround operation" allows you to bypass the repeater and connect directly to another radio.
The transmit and receive frequencies are the same.

Zone A
Chan 1
Direct mode
Chan | Scan | Dir

Menu Select Buttons

Data Feature Button

Home Button

4-Way Navigation Button

ADVANCED FEATURES

☐ **Scan Lists**

Scan lists are created and assigned to individual channels/groups.

Your radio scans for voice activity by cycling through the channel/group sequence specified in the scan list for the current channel/group.

Your radio supports different types of Scan Lists:
• Trunking Priority Monitor Scan List
• Conventional Scan List
• Talkgroup Scan List

ADVANCED FEATURES

❑ Scan Lists

Viewing a Scan List

Procedure:

1 ＜ or ＞ to **ScnL.**

2 Press the **Menu Select** button directly below **ScnL.**

3 ⌃ or ⌄ to view the members on the list.

4 Press ⌂ to exit the current display and return to the Home screen.

Menu Select Buttons

Home Button

Data Feature Button

4-Way Navigation Button

Edit Scan
Zone B
ASTRO 25A

Sel | Del | Rcl

ADVANCED FEATURES

☐ Scan Lists

Editing the Scan List

This feature lets you change scan list members and priorities.

Procedure:

[Preprogrammed Button]
1 Long press the preprogrammed **Scan List Programming** button (side button).

2 ∧ or ∨ to the entry you want to edit.

3 Press the **Menu Select** button directly below **Sel** to add and/ or change the priority of the currently displayed channel in the scan list.
OR
Press the **Menu Select** button directly below **Del** to delete the currently displayed channel from the scan list.
OR
Press the **Menu Select** button directly below **Rcl** to view the next member of the scan list.

4 ∧ or ∨ to select more channels to be added or deleted.

Model 3

OR
Use the keypad to go directly to additional channels to be added or deleted.

5 Press 🏠 to exit scan list programming and return to the Home screen.

OR
[Menu]
1 < or > to **ScnL**.

2 Press the **Menu Select** button directly below **ScnL**.
The display shows the lists that can be changed.

3 ∧ or ∨ to the entry you want to edit.

4 Press the **Menu Select** button directly below **Sel** to add and/ or change the priority of the currently displayed channel in the scan list.
OR
Press the **Menu Select** button directly below **Del** to delete the currently displayed channel from the scan list.

❑ Scan

Turning Scan On or Off

This feature allows you to monitor traffic on different channels by scanning a preprogrammed list of channels.

Procedure:

[Preprogrammed Button]
1 Press the preprogrammed **Scan** button to initiate or stop scan.

OR
[Menu]
1 < or > to **Scan**.

2 Press the **Menu Select** button directly below **Scan**.

*The display shows **Scan off** if scan is disabled.*
*Press the **Menu Select** button directly below **Scan** to enable scan.*
    OR
*The display shows **Scan on** and the scan status icon if scan is enabled.*
Press the **Menu Select** button directly below **Scan** to disable scan.

The radio returns to the Home screen.

Menu Select Buttons

Home Button

Data Feature Button

4-Way Navigation Button

Zone A
Chan 1
Scan on
Chan | Scan | Dir

ADVANCED FEATURES

❑ Emergency Operation

The Emergency feature is used to indicate a critical situation.

If the **Top (Orange)** button is preprogrammed to send an emergency signal, this signal overrides any other communication over the selected channel.

Your radio supports the following Emergency mode:
- Emergency Alarm with Emergency Call

ADVANCED FEATURES

☐ **Emergency Operation**

Sending an Emergency Alarm with Emergency Call

Procedure:

1 Press the preprogrammed **Emergency** button.

*The display shows **Emergency** and the current zone or channel.*
You hear a short, medium-pitched tone and the LED momentarily blinks red.
OR
*The display shows **No emergency**, if the selected channel does not support emergency.*

2 **The radio enters the Emergency Call state when:**
You receive the dispatcher's acknowledgment.
*The display shows **Ack received**.*
OR
You receive no acknowledgement.
*The display shows **No acknowledge**.*
OR
You press the **PTT** button while in the Emergency Alarm mode.

3 Press and hold the **PTT** button.
Speak clearly into the microphone.

4 Release the **PTT** button to end the transmission and wait for a response from the dispatcher.

5 Press and hold the preprogrammed **Emergency** button for about a second to exit the Emergency Call mode.

❑ **The Global Positioning System (GPS)**

This feature uses information from the Global Positioning System (GPS) satellites orbiting the Earth to determine the approximate geographical location of your radio, expressed as latitude and longitude. The availability and accuracy of this location information (and the amount of time that it takes to calculate it) varies depending on the environment in which you are using the GPS feature.

For example, GPS location fixes are very difficult to obtain indoors, in covered locations, between high buildings, or in situations where you have not established a clear broad view of the sky.

Understanding the GPS Feature

The GPS technology uses radio signals from earth orbiting satellites, to establish the location coordinates, maximizing your view of clear unobstructed sky is essential for optimum performance.

Where adequate signals from multiple satellites are not available (usually because you cannot establish a view of a wide area of the sky), the GPS feature of your radio will not work. Such situations include but are not limited to:
• In underground locations
• Inside of buildings, trains, or other covered vehicles
• Under any other metal or concrete roof or structure
• Between tall buildings or under dense tree-cover
• In temperature extremes outside the operating limits of your radio

Even where location information can be calculated in such situations, it may take longer to do so, and your location estimate may not be as accurate. Therefore, in any emergency situation, always report your location to your dispatcher.

Note: Even where adequate signals from multiple satellites are available, your GPS feature only provides an approximate location, usually within 20 meters from your actual location, but sometimes further away.
Keep in mind that the accuracy of the location information and the time it takes to obtain it varies depending upon circumstances, particularly the ability to receive signals from an adequate number of satellites.

Note: The satellites used by the GPS feature are controlled by the U.S. government and are subject to changes implemented in accordance with the Department of Defense GPS user policy and the Federal Radio Navigation Plan. These changes may affect the performance of the GPS feature on your radio.

Enhancing GPS Performance

Sometimes, the GPS feature may be unable to complete a location calculation successfully. You then see a message indicating that your radio cannot connect to enough visible satellites.

To maximize the ability of your radio to determine a fix, please note the following guidelines:
• For your initial fix, hold the radio in the face position.
• Stay in the open. The GPS feature works best where there is nothing between your radio and a large amount of open sky.

❑ The Global Positioning System (GPS)

The Outdoor Location Feature (Using GPS)

This feature allows you to determine your current location using a location menu, as well as your current distance and bearing in relation to another location. Radio location may be requested and reported over-the-air.

Your radio stores up to a maximum of sixty (60) programmable location coordinates, also known as waypoints. When the memory is full, the next waypoints automatically replaces the oldest waypoints in the radio.

Programmable Waypoints	Preprogrammed Waypoints
User-configurable location coordinates.	Fixed location coordinates: • Home • Emergency • Last Known Location • Destination
Model 3 Only the alias is editable, not the coordinates.	The Home and Destination coordinates are editable.
Coordinates can be deleted one at a time, or all at once.	Coordinates cannot be deleted.

Note: The radio automatically exits the feature, if the feature inactivity timer is enabled, when the radio is left idle and the timer expires. You will hear the Menu Inactive Exit Tone upon feature exit.

❑ The Global Positioning System (GPS)

Accessing the Outdoor Location Feature

Note: An **ON** menu key may be present on the location menu if it is preprogrammed by the dealer or system administrator.

Procedure:

[Preprogrammed Button]
1 Press the preprogrammed **GPS** button to toggle the Outdoor Location feature on or off.

OR
[Menu]
1 < or > to **Loc**.

2 Press the **Menu Select** button directly below **Loc**.
The display shows **Location off**.

3 Press the **Menu Select** button directly below **On** to obtain a location fix.
OR
Press the **Menu Select button directly below Optn.**
∧ or ∨ to **Turn On GPS** and press the **Menu Select** button directly below **Sel**.

The front display shows the latitude, longitude, time and date of the last successful location fix.

4 Press the **Menu Select** button directly below **Rfsh** to obtain a new location fix.
*The top line temporarily displays **Please wait** while the new location is being determined.*
While the new location is being determined, the location signal can be a solid or blinking icon.

Once the location coordinates are fixed, the display shows the current latitude and longitude, along with the UTC (Zulu) time and date that the location fix was obtained.

The location coordinates are updated automatically every five seconds while the location signal is present.
OR
*If the radio fails to get a location fix, the display shows **No service** and returns to the previous display.*

5 Press the **Menu Select** button directly below **Exit** to exit the feature and return to the main screen.
OR
Press 🏠 , the **PTT** button, or the preprogrammed **GPS** button to return to the Home screen.

The radio also exits the menu if the emergency button is pressed.

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Saving a Waypoint

Procedure:

While in the current location display:

1 Press the **Menu Select** button directly below **Optn.**

2 ⌃ or ⌄ to **Save as Waypt** and press the **Menu Select** button directly below **Sel**.
   OR
   ⌃ or ⌄ to **Save as Home** and press the **Menu Select** button directly below **Sel**.
   OR
   ⌃ or ⌄ to **Save as Dest**. and press the **Menu Select** button directly below **Sel**.

   Model 3

3 *A blinking cursor appears in the Save As Waypt screen.*
   Use the keypad to edit the auto-generated waypoint, if required.
   Press ❮ to move one space to the left.
   Press ❯ to move one space to the right.
   Press the **Menu Select** button directly below **Del** to delete any unwanted characters.

Press ⬚ to add a space.
Press ⬚ to toggle between mixed case mode, uppercase mode, and lowercase mode.
Press ⬚ to toggle between numeric and letter mode.
OR
Press the **Menu Select** button directly below **Cncl** to return to the Location main screen.
Press the **Menu Select** button directly below **Ok** once you are done.

4 *The display shows Current loc saved as <Waypoint name>.*
   OR
   The display shows Current loc saved as [Home].
   OR
   The display shows Current loc saved as [Destination].

5 Press the **Menu Select** button directly below **Exit** to exit the feature and return to the main screen.
   OR
   Press 🏠 , the **PTT** button, or the preprogrammed **GPS** button to return to the Home screen.

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Viewing a Saved Waypoint

Procedure:

While in the current location display:
1 Press the **Menu Select** button directly below **Optn.**

2 ∧ or ∨ to **Waypoints**.

3 Press the **Menu Select** button directly below **Sel**.
The display shows a list of waypoints.

4 ∧ or ∨ to scroll through the list.
OR
∧ or ∨ to select a waypoint to view the location information in full.

5 Press the **Menu Select** button directly below **Optn.**

6 ∧ or ∨ to **View**.

7 Press the **Menu Select** button directly below **Sel** to view the latitude, longitude, time and date of the selected waypoint.

8 Press the **Menu Select** button directly below **Back** to return to the previous screen.
OR
Press 🏠 , the **PTT** button, or the preprogrammed **GPS** button to return to the Home screen.

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Editing the Alias of a Waypoint **Model 3**

Procedure:

While in the current location display:
1 Press the **Menu Select** button directly below **Optn.**

2 ⌃ or ⌄ to **Waypoints**.

3 Press the **Menu Select** button directly below **Sel**.
The display shows a list of waypoints.

4 ⌃ or ⌄ to the required saved waypoint.

5 Press the **Menu Select** button directly below **Optn.**

6 ⌃ or ⌄ to **Edit name**.

7 Press the **Menu Select** button directly below **Sel**.

8 *A blinking cursor appears in the **Edit Name** screen.*
Use the keypad to edit the alias.
Press ⟨ to move one space to the left.
Press ⟩ to move one space to the right.
Press the **Menu Select** button directly below **Del** to delete any unwanted characters.

Press ⟨★ ⎯⟩ to add a space.
Press ⟨0 ◇⟩ to toggle between mixed case mode, uppercase mode, and lowercase mode.
Press ⟨# ↵⟩ to toggle between numeric and letter mode.
Press the **Menu Select** button directly below **Ok** once you are done.
OR
Press the **Menu Select** button directly below **Cncl** to return to the Waypoints main screen.

*The display shows **<Waypoint name> Updated** and the radio returns to the Waypoints main screen.*

9 Press the **Menu Select** button directly below **Back** to return to the previous screen.
**OR**
Press 🏠 , the **PTT** button, or the preprogrammed **GPS** button to return to the Home screen.

❏ The Global Positioning System (GPS)

Editing the Coordinates of a Waypoint **Model 3**

Procedure:

While in the current location display:

1 Press the **Menu Select** button directly below **Optn.**

2 ∧ or ∨ to **Waypoints**.

3 Press the **Menu Select** button directly below **Sel**.
The display shows a list of waypoints.

4 ∧ or ∨ to the required saved waypoint.

5 Press the **Menu Select** button directly below **Optn.**

6 ∧ or ∨ to **[Home]**.
OR
∧ or ∨ to **[Destination]**.

7 Press the **Menu Select** button directly below **Optn**.

8 ∧ or ∨ to **Edit Location**.

9 Press the **Menu Select** button directly below **Sel**.

The first number blinks.
Press < to move to the previous number/coordinates.
Press > to move back to the next number/coordinates.
Press the **Menu Select** button directly below **Edit** to change the number/coordinates.

10 A blinking cursor appears in the **Edit Location** screen.
Press < to move one space to the left.
Press > to move one space to the right.
Press the **Menu Select** button directly below **Del** to delete any unwanted characters.

11 Press the **Menu Select** button directly below **Ok** once you are done.
OR
Press the **Menu Select** button directly below **Cncl** to return to the Waypoints main screen.

*The display shows **[Home] Updated** and the radio returns to the Waypoints main screen.*
OR
*The display shows **[Destination] Updated** and the radio returns to the Waypoints main screen.*

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Deleting a Single Saved Waypoint

Procedure:

While in the current location display:

1 Press the **Menu Select** button directly below **Optn.**

2 ∧ or ∨ to **Waypoints**.

3 Press the **Menu Select** button directly below **Sel**.
The display shows a list of waypoints.

4 ∧ or ∨ to the required saved waypoint.

5 Press the **Menu Select** button directly below **Del.**
The display shows ***<Waypoint name> confirm del?***.

6 Press the **Menu Select** button directly below **Yes** to delete the waypoint.
   OR
   Press the **Menu Select** button directly below **No** to return to the Waypoints main screen.

The display momentarily shows ***<Waypoint name> deleted*** *before the radio returns to the Waypoints main screen.*

Menu Select Buttons

Home Button

Keypad

Data Feature Button

4-Way Navigation Button

45

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Deleting All Saved Waypoints

Procedure:

While in the current location display:

1 Press the **Menu Select** button directly below **Optn.**

2 ⌃ or ⌄ to **Waypoints**.

3 Press the **Menu Select** button directly below **Sel**.
   The display shows a list of waypoints.

4 ⌃ or ⌄ to a saved waypoint.

5 Press the **Menu Select** button directly below **Optn**.

6 ⌃ or ⌄ to **Delete All**.

7 Press the **Menu Select** button directly below **Sel**.
   *The display shows **All saved wayp confirm del?**.*

8 Press the **Menu Select** button directly below **Yes** to delete all waypoints.
   OR
   Press the **Menu Select** button directly below **No** to return to the Waypoints main screen.

   *The display momentarily shows **All saved wayp deleted** before the radio returns to the Waypoints main screen.*

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Measuring the Distance and Bearing from a Saved Waypoint

Procedure:

While in the current location display:
1 Press the **Menu Select** button directly below **Optn.**

2 ⌃ or ⌄ to **Dist frm here**.

3 Press the **Menu Select** button directly below **Sel**.
The display shows a list of waypoints.

4 ⌃ or ⌄ to the required waypoint.

5 Press the **Menu Select** button directly below **Sel**.
The display shows the distance and bearing from the current to the selected coordinates.

Menu Select Buttons

Data Feature Button

Home Button

4-Way Navigation Button

Keypad

ADVANCED FEATURES

❑ The Global Positioning System (GPS)

Using the Location Feature While in Emergency Mode

When the Emergency feature is activated by pressing the emergency button, the radio exits the Location menu and returns to the Home (default) screen so that you can see which channel the emergency signal is going out on.

However, you may re-enter the Location menu while still in emergency mode, provided that Silent Emergency has not been activated.

If you have turned Location off using the **ON/OFF** menu key, it automatically turns back on when Emergency is activated.

If there is a solid location signal during Emergency, the current location and the location information received is saved as Emergency and Last Known Location waypoints, respectively.

❑ The Global Positioning System (GPS)

Peer-Location on the Display (ASTRO Conventional only)

This feature is only available for radio-to-radio voice transmissions, dispatch call, emergency call and selective call in conventional ASTRO system. For radio-to-radio transmission, in order to allow the radio to show peer-location, the voice should be directly sent from one radio to another radio without passing through any infrastructure facility such as repeaters, phone or DVRS system. Both the transmitting radio and receiving radio must be configured to enable them to send and/or receive the GPS coordinates.

You can check with your nearest qualified technician for more details.

Note: If the receiving radio is operating in a Mixed Mode channel, only if its voice transmission is via conventional ASTRO system then it can receive the location coordinates of its peers.

This feature is also operable in a Scan Active channel or Scan Talkback channel. When Scan is active, the receiving radio cannot show the coordinates on the display if PTT ID Display is configure to Disabled or Dispatch. It only can show the coordinates display if the PTT ID is configure to Dispatch and Scan.

Upon receiving a voice transmission with GPS coordinates enabled on the receiving radio, the display shows the coordinates available in full or in short coordinates. There are two different formats available. Refer to the following list for the details shown in the Peer-Location quick text. Consult your agent to pick the best format to configure to your radio.

Full location coordinates	• PTT ID (This is optional.)
	• Longitude and latitude
	• Relative distance and direction.
Short location coordinates	• PTT ID (This is optional.)
	• Longitude and latitude

Note: If the transmitting radio is stale at its location after a period of time, the receiving radio display shows **ID:<PTT ID> Last Knwn Loc: <Coordinates>**.
The **ID:<PTT ID>** and **<distance>** are optional details depending on the requirements of usage.
If the transmitting radio does not have GPS or the receiving radio could not decode the GPS signal of the received signal, the receiving radio display shows **ID:<PTT ID> Unknown Loc**. The **PTT ID** is optional to be shown on the display per requirements of usage.

❑ Trunking System Controls

Using the Fail-soft System

The fail-soft system ensures continuous radio communications during a trunked system failure.

If a trunking system fails completely, the radio goes into fail-soft operation and automatically switches to its fail-soft channel.

Procedure:

1 During fail-soft operation, your radio transmits and receives in conventional operation on a predetermined frequency.

2 You hear a medium-pitched tone every 10 seconds and the display shows **Fail-soft**.

When the trunking system returns to normal operation, your radio automatically leaves fail-soft operation and returns to trunked operation.

Model 2

❑ Trunking System Controls

Going Out of Range

When your radio goes out of the range of the system, it can no longer lock onto a control channel.

Procedure:

1 *You hear a low-pitched tone.*
AND/OR
*The display shows the currently selected zone/channel combination and **Out of range**.*

Your radio remains in this out-of-range condition until:
It locks onto a control channel.
OR
It locks onto a fail-soft channel.
OR
It is turned off.

❑ Using the Time-Out Timer

This feature turns off your radio's transmitter. You cannot transmit longer than the preset timer setting.

If you attempt to do so, the radio automatically stops your transmission, and you hear a talk-prohibit tone.

The timer is defaulted at 60 seconds, but it can be preprogrammed from 3 to 120 seconds, in 15-second intervals, or it can be disabled entirely for each radio mode, by a qualified radio technician.

Note: You will hear a brief, low-pitched, warning tone four seconds before the transmission times out.

Procedure:

1 Hold down the **PTT** button longer than the preprogrammed time.
   You hear a short, low-pitched warning tone, the transmission is cut-off, and the LED goes out until you release the PTT button.

2 Release the **PTT** button.
   The timer resets.

3 Press the **PTT** button to re-transmit.
   The time-out timer restarts and the LED lights up solid red.

❑ Setting the Time and Date

You can set the time and date for your radio.

Settings:

* The default time setting is a 12-hour clock.
  The display shows **12:00AM**.
* The AM/PM selection is not available for the 24-hour clock setting.
* The default setting for the domestic date shows **MDY**.

Note: Check with your dealer or system administrator for additional programmable settings for this feature.

Procedure:

1 ∨ or ∧ to **Clck**.

2 Press the **Menu Select** button directly below **Clck**.
The display shows the current setting of the radio.

3 Press the **Menu Select** button directly below **Edit**.
The first item blinks.

4 ∧ or ∨ to change the selected item.
OR
∨ or ∧ one or more times to move to an item you wish to change.
∧ or ∨ to change the selected item.
OR
Press the **Menu Select** button directly below **Exit** to exit the screen without making any changes and return to the Home screen.

5 Press the **Menu Select** button directly below **Ok** once you have finished to save your changes and return to the Home screen.
OR
Press the **Menu Select** button directly below **Cncl** to discard all changes and return to the Home screen.

Press 🏠 at any time to return to the Home screen without saving your changes.

Note: If a call arrives while the radio is in the clock-setting menu, the radio exits clock setting and displays the call information. Any changes made before the call is NOT saved.