



# ***UNITY™ XG-100P***

## ***Full-Spectrum Multiband Radio Operation Manual***

***assuredcommunications™***

***HARRIS®***



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Rev. -

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# **UNITY™ XG-100P**

# **FULL-SPECTRUM**

# **MULTIBAND RADIO**

## **OPERATIONS MANUAL**

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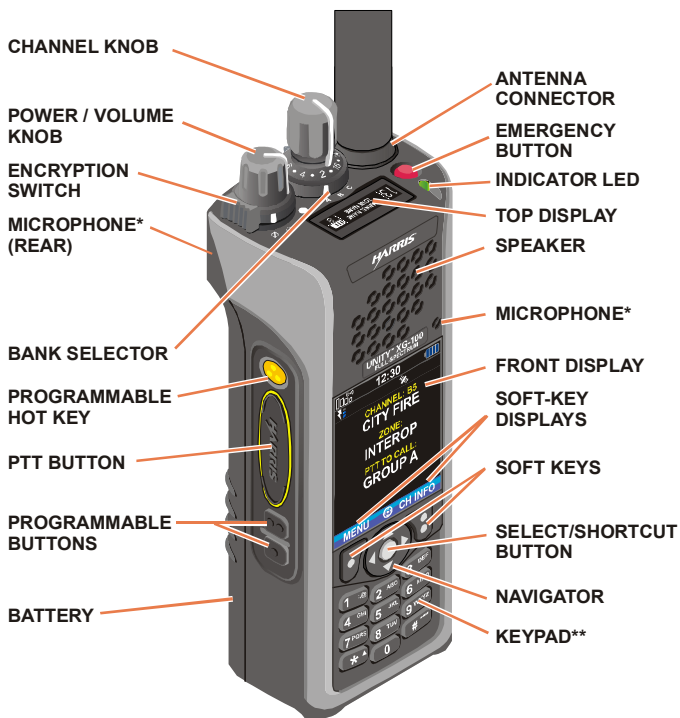




**WARNING** - Before operating the XG-100P radio, read the safety and RF exposure guidelines contained in safety booklet, 10515-0372-4000, included with your radio.

The XG-100P has been tested and complies with the Federal Communications Commission (FCC) RF exposure limits for “Occupational Use Only.” In addition, this radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

- FCC Office of Engineering and Technology (OET) Bulletin 65 Edition 97-01 Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields
- American National Standards Institute (ANSI) (C95.1 – 1992), Institute of Electrical & Electronics Engineers (IEEE) Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
- American National Standards Institute (C95.3 – 1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave



**\*DUAL MICROPHONE SYSTEM  
USED FOR NOISE CANCELLATION**

**\*\* USE  AS HOME KEY FOR  
NAVIGATION BACK TO MAIN SCREEN**

CL-0372-4200-0007B

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# XG-100

## INTRODUCTION

### 1 EQUIPMENT DESCRIPTION

Your XG-100P provides full-spectrum multiband coverage:

- 136 to 174 MHz, VHF, 1 watt, 2 watts, 3 watts, 6 watts output
- 380 to 520 MHz, UHF-Low, UHF-High, 1 watt, 2 watts, 3 watts, 5 watts output
- 762 to 870 MHz, 700/800 bands, 0.5 watt, 1 watt, 2 watts, 3 watts output

The XG-100P has the following capabilities:

- Project 25 (P25) Conventional
- P25 Trunking (Future)
- Analog FM
- Advanced Encryption Standard, 256-bit (AES-256)/Digital Encryption Standard Output Feedback (DES-OFB) Encryption
- Global Positioning System (GPS)
- Bluetooth®

For optional accessories, refer to [Accessories](#). Additional accessories may have been added since publication of this manual; contact Harris for more information.

### STORAGE GUIDELINES

Store your XG-100P and batteries in a clean, cool (not exceeding 86 °F [+30 °C]), dry and ventilated storage area.

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**ASSEMBLE THE RADIO**

2

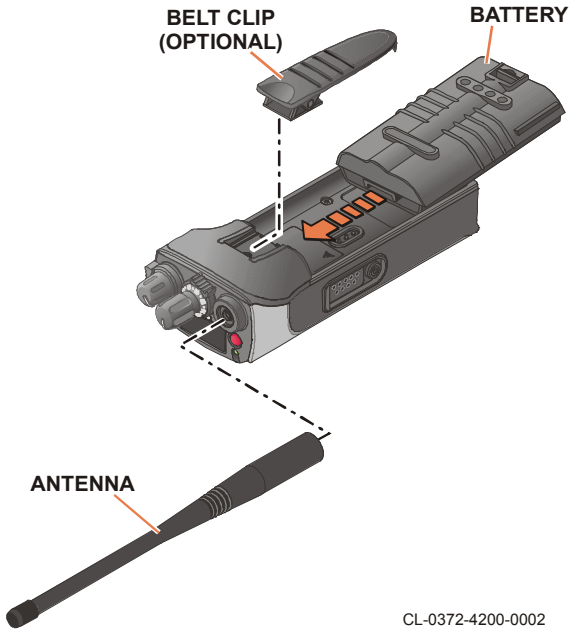


**CAUTION:** Do not overtighten the antenna as damage could result.



**WARNING:** Only use Harris charger approved for battery chemistry. Injury could occur from improper charger use.

- a. Make sure batteries are charged per the charger manual (refer to 10515-0372-4010, supplied with the charger).
- b. To attach optional clip, slide into groove in back of the radio above battery compartment.
- c. Lift clip, if installed, and slide top of battery into top of battery compartment at the rear of the radio.
- d. Press down on bottom side of battery until it snaps into place.  
Radio may need to be set for battery type ([Battery Settings](#)).



CL-0372-4200-0002

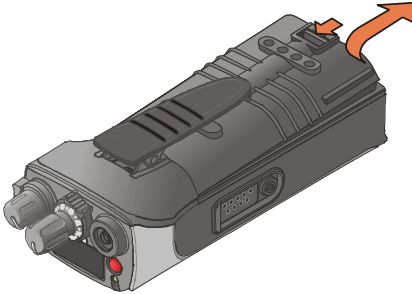
# XG-100

## BASIC SETUP

### REMOVING THE BATTERY

To remove, press and hold tab, lift battery clip, then pull battery up and out of the radio.

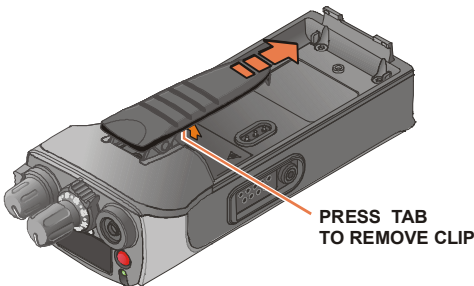
2



CL-0372-4200-0009

### REMOVING OPTIONAL BELT CLIP

Remove the battery before removing the clip. To remove belt clip, press and hold tab towards top of battery, then slide out of groove in back of the radio.



CL-0372-4200-0008

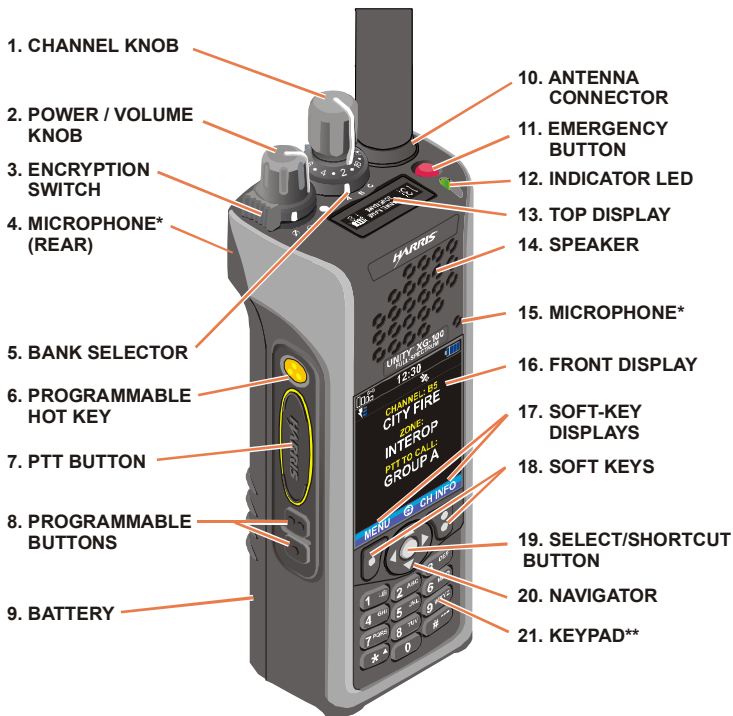


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# XG-100

## BASIC OPERATIONS

### XG-100P CONTROLS



\*DUAL MICROPHONE SYSTEM  
USED FOR NOISE CANCELLATION

\*\* USE **\*** AS HOME KEY FOR  
NAVIGATION BACK TO MAIN SCREEN

CL-0372-4200-0005B


**Table 1. XG-100P Controls, Indicators, and Connectors**

Key	Control/Indicator	Function
1	Channel Knob	Used to select one of 16 channels
2	Power/Volume Knob	Turn clockwise to power on radio and increase volume of audio heard in speaker.
3	Encryption Switch	Selects between encrypted and unencrypted operation. Ø - Encryption O - No Encryption
4	Microphone (Rear)	Used with microphone on the front of the radio to form a dual microphone system that is used for noise cancellation. Noise cancellation improves the quality of transmitted voice.
5	Bank Selector	Used to select one of three banks: A, B, or C ( <a href="#">Select Channel Bank</a> ).
6	Programmable Hot Key	Used to select a commonly used function as an alternative to navigating menus. This is configured in the Communications Planning Application (CPA).
7	Push-To-Talk (PTT) Button	Press to transmit. Make sure PTT is enabled.
8	Programmable Buttons	Used to select a commonly used function as an alternative to navigating menus. These are configured in the CPA.
9	Battery	Battery - Refer to <a href="#">Assemble the Radio</a> for battery connection and removal.
10	Antenna Connector	Provides Subminiature version A (SMA) antenna connector.
11	Emergency Button	Used to place radio in emergency mode ( <a href="#">Emergency Operation</a> ). This button can be disabled by setting to unassigned in the CPA.
12	Indicator Light Emitting Diode (LED)	Indicates radio status. Red = actively transmitting. Green = actively receiving.
13	Top Display	Top display shows summary of status such as channel, battery, and scanning. This can be configured for viewing from the front or rear of the radio ( <a href="#">Display Settings</a> ).
14	Speaker	Radio speaker which can be muted ( <a href="#">Audio Settings</a> ). Volume can be adjusted using the Power/Volume knob.
15	Microphone	Used with microphone on the rear of the radio to form a dual microphone system that is used for noise cancellation. Noise cancellation improves the quality of transmitted voice.

# XG-100

## BASIC OPERATIONS

Table 1. XG-100P Controls, Indicators, and Connectors (Continued)

Key	Control/Indicator	Function
16	Front Display	Front display shows complete status and radio menus.
17	Soft-Key Displays	These are displays of menus that are accessed by pressing a soft-key directly below text ( <a href="#">Menu Navigation</a> )
18	Soft Keys	Accesses menus labeled in text directly above button ( <a href="#">Menu Navigation</a> ).
19	Select/Shortcut Button	Used to select menu highlighted by navigator. Also used for shortcut menu from main screen ( <a href="#">Shortcut Menu</a> ).
20	Navigator	Provides up, down, left, right menu navigation. Also used for select and shortcut menu access.
21	Keypad	Used to enter text or numbers and to quickly access menus.  You can use  as a home key to quickly navigate back to the main screen.

### TOP DISPLAY

Top display can be oriented for viewing from the front or rear of the radio. Refer to [Display Settings](#) for configuration.



\*  APPEARS IN EMERGENCY

CL-0372-4200-0010A

**MAIN DISPLAY**

The main display appears after power up or after exiting from the menus.



**TIME\***

**STATUS AREA:**

- RECEIVING
- TRANSMITTING
- STANDBY
- BATTERY LEVEL
- LOW BATTERY LEVEL
- VERY LOW BATTERY LEVEL
- BATTERY EXHAUSTED
- SCANNING ENABLED
- EMERGENCY
- ALERT

- 
- TONES MUTED
  - POWER
  - RX ONLY
  - ENCRYPTION
  - BLUETOOTH ENABLED
  - BLUETOOTH PAIRED
  - TALKAROUND
  - MONITOR
  - SPEAKER MUTE
  - GPS
  - NOISE CANCEL
  - PTT DISABLED

**ACTIVITY AREA:**

- RECEIVING
- SCANNING
- EMERGENCY

**2 SOFT KEY LABELS**

\*HARRIS LOGO DISPLAYS  
IF GPS HAS NOT ACQUIRED  
AFTER POWER UP

CL-0372-4200-0003

# XG-100

## BASIC OPERATIONS

### MENU NAVIGATION

3

MAIN  
DISPLAY



PRESS FOR MENU



PRESS FOR CH INFO

MAIN  
MENU



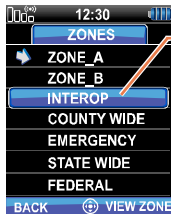
PRESS ◀ ▶ ▲ ▼



THEN SELECT

KEYPAD 1 - 9 CAN ALSO  
BE USED FOR DIRECT  
ACCESS (EXAMPLE: PRESS  
4 FOR ZONE)

SUBMENU



PRESS ▲ ▼



THEN SELECT

CL-0372-4200-0006C

### BEFORE FIRST TIME USE

Make sure XG-100P has:



- Fully charged battery
- Antenna attached
- Mission plan and radio programmed using the CPA
- Keys are loaded
- Mission plan is activated using radio menus

3

### POWER ON AND SET VOLUME

The power switch and volume control are within the same control.



1. Turn  clockwise to power on XG-100P.
2. Set  to desired volume level.

# XG-100

## BASIC OPERATIONS

3

### SELECT CHANNEL BANK

The XG-100P can be programmed with up to 1250 channels, 48 channels per zone, with 16 channels in each of the three banks:

- **Bank A** - Channel A1 - A16
- **Bank B** - Channel B1 - B16
- **Bank C** - Channel C1 - C16



1. Use  to set bank.

### SELECT CHANNEL USING KNOB






1. Use  to set channel 1 - 16.



## TURN ENCRYPTION ON OR OFF

Refer to [Create Keys](#) and [Load Keys](#).



1. Use  to set encryption:
  -  - Encryption
  -  - No encryption

Key appears when encryption is used for channel that is digital and programmed to be encrypted.

Analog channels do not show the encryption key.

**NOTE:** When encryption is turned on and you use a digital channel not configured for encryption, the radio will not allow PTT. The screen displays CLEAR TX DENIED.

When encryption is turned on and you use an analog channel not configured for encryption, the radio will PTT. The signal will be transmitted unencrypted.

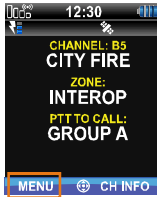
# XG-100


## BASIC OPERATIONS

### SELECT ZONE USING MENUS

A zone is a group of channels, and can be programmed by agency or geographical region. For example, a zone could be for fire, police, New York, Los Angeles, etc.

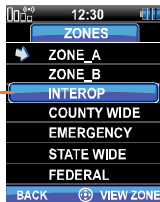
3



1. At main display, use  for main menu.



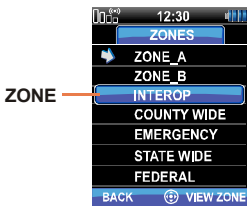
2. Use  to highlight and select **ZONE** or just press





ZONE

A mission plan could have up to 64 zones, independent of banks or channels.

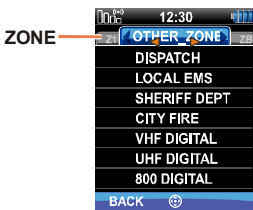
3. Use  to view zone.



ZONE



4. Use  to highlight zone.
5. Use  to select highlighted zone.

3



ZONE

If **VIEW ZONES** was selected, this screen appears allowing you to view the channels in the zone.

6. Use  to scroll through the zones.
7. Use  to select highlighted zone.



NEW ZONE

MAIN SCREEN

New zone appears.

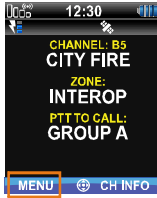
# XG-100


## BASIC OPERATIONS

### MAKE AN INDIVIDUAL CALL

An individual call is used to make a call to one radio as opposed to a group of radios. An individual call can only be made on digital channels. On the receiving radio, the calling station name will appear in the activity area.

3

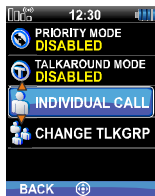


1. At main display, use  for main menu.

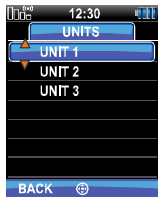


2. Use  to highlight and select **CALL** or just press





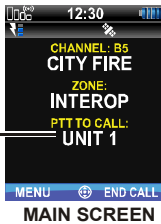
3. Use  to highlight and select **INDIVIDUAL CALL**.



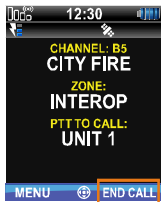
4. Use  to highlight and select individual.


3

INDIVIDUAL  
TO BE CALLED



5. Use PTT  to make the call.



6. To end call, use  to select **END CALL**.

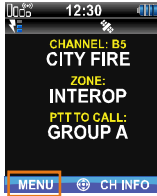
# XG-100


## BASIC OPERATIONS

### MAKE A PRIORITY CALL

A priority call is used to make a call on the priority channel. Priority calls can only be made on digital channels.

3

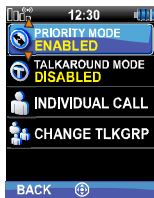


1. At main display, use  for main menu.




2. Use  to highlight and select **CALL** or just press

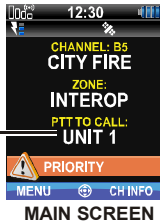




3. Use  to highlight and select **ENABLE** for **PRIORITY MODE**.

4. Use  to return to main screen.

PRIORITY CHANNEL APPEARS WHEN KEYPED



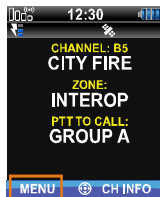
MAIN SCREEN


- Use PTT  to make the call.

3

## SELECT A NEW TALKGROUP

A talkgroup is a group of radios that you would want to have private conversations with. These groups could be divided into areas such as state, region, county, or large special events. A talkgroup call can only be made on digital channels. On the receiving radio, the calling station name will appear in the activity area.



- At main display, use  for main menu.



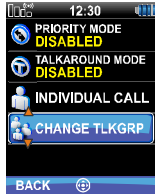
- Use  to highlight and select **CALL** or just press



# XG-100



## BASIC OPERATIONS

3



3. Use  to highlight and select **CHANGE TLKGRP**.



4. Use  to highlight and select talkgroup.
5. Use  to return to main screen.

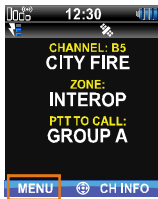



6. Use PTT  to make the call.



## USE TALKAROUND TO BYPASS REPEATER



You can bypass the repeater system to communicate directly with other radios on your current channel's receive frequency. This is useful if you are out of range of a repeater or if a repeater is busy. You will need to be in range of the other radio.

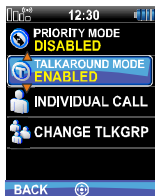


1. At main display, use  for main menu.

3



2. Use  to highlight and select **CALL** or just press .

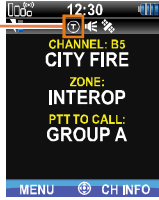


3. Use  to change **TALKAROUND MODE to ENABLED**.

# XG-100

## BASIC OPERATIONS

TALKAROUND  
ENABLED



Talkaround icon appears. Calls will now be made on the receive frequency until you disable talkaround mode.

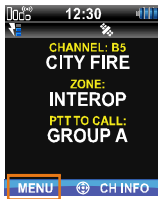
3


**START SCAN**

This procedure assumes that the scan list has been added and is not in active scan. Refer to [Set up Scan](#) or [Stop Scan](#).



**NOTE:** For shortcut method of starting scan, refer to [Start or Stop Scan \(Shortcut Menu\)](#).

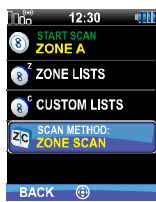
**3**





1. At main display, use  for main menu.



2. Use  to highlight and select **SCAN** or just press .

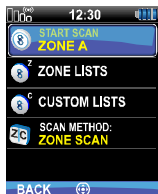


3. Use  to highlight **SCAN METHOD**.
4. Use  to select **ZONE SCAN** or **CUSTOM SCAN** for scan method ([Zone Scan vs Custom Scan](#)).

# XG-100

## BASIC OPERATIONS

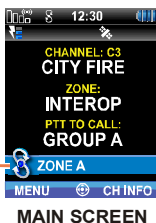
3



5. Use  to highlight **START SCAN**.

Text changes to red **STOP SCAN**. Radio is scanning at this point. Additional scanning indications can be seen in the next step.

SCANNING  
DISPLAY

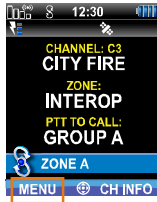



6. Use  to exit scan menu.

MAIN SCREEN

## STOP SCAN



This procedure is used to stop an active scan. Refer to [Start Scan](#).

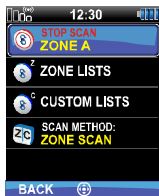


1. At main display, use  for main menu.

3



2. Use  to highlight and select **SCAN** or just press .



3. Use  to highlight **STOP SCAN**.



4. Use  to exit scan menu.

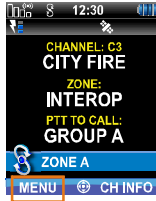
# XG-100


## BASIC OPERATIONS

### NUISANCE DELETE

A channel can temporarily be deleted from the scan list if it is not a priority channel. The radio must be scanning for nuisance delete.

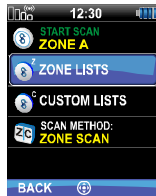
3



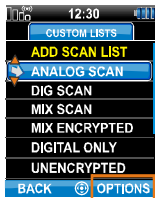
1. At main display, use  for main menu.





2. Use  to highlight and select **SCAN** or just press



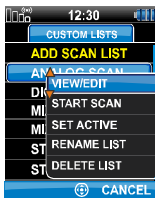
3. Use  to highlight and select **ZONE LISTS** or **CUSTOM LISTS**.



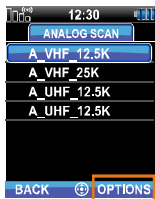
Custom scan configuration screens are shown here. Zone scan configuration is similar.

4. Use  to highlight scan list.
- indicates the active scan list.
5. Use  to select **OPTIONS**.

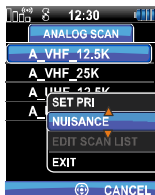
3



6. Use  to highlight and select **VIEW/EDIT**.



7. Use  to highlight channel.
8. Use  to select **OPTIONS**.



9. Use  to highlight and select **NUISANCE**.

Nuisance channel will not be scanned. Channel will return to scan list when you cycle radio power or activate mission plan.

# XG-100


## BASIC OPERATIONS

3

SCANNING  
DISPLAY



MAIN SCREEN

10. Use  to exit channel list.

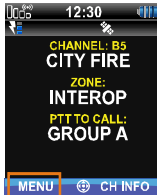
11. Use  to exit zone or custom lists display.


### VIEW GPS INFORMATION

You can use the internal Global Positioning System (GPS) receiver to view your position and satellite information. Remember, GPS:

- Signal is greatly diminished inside buildings, tunnels, heavily forested areas etc.
- Requires unobstructed view of the sky.



GPS may not work at all under some materials, especially metal.



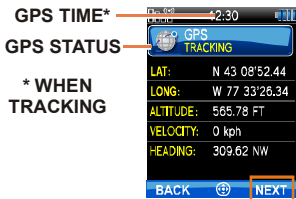
1. At main display, use  for main menu.





2. Use  to highlight and select **GPS** or just press .

3




\* WHEN TRACKING

You can observe GPS status:

- **GPS TRACKING** - GPS has acquired satellite signal. GPS time appears on top of display.
- **GPS SEARCHING** - GPS has not acquired. Harris logo appears on top of display if GPS has not tracked after last power up of the radio.
- **LAST KNOWN POS** - GPS acquired since power up has lost signal. Information displayed was from radio it was previously tracking.

3. Use  to select **NEXT**.



4. Use  to highlight and select to view satellite information.

# XG-100

## BASIC OPERATIONS

### EMERGENCY OPERATION

The XG-100P can be programmed to enable emergency mode. 'Emergency' text displays on dispatcher console if an emergency signal is received from another XG-100P on a digital channel.

### Receiving an Emergency Call

3

When receiving an Emergency Call, an alert beep is present (if tones are enabled) and an emergency indication is displayed.



When receiving an emergency on a digital channel, the Unit Identification (ID) appears in the activity area.

While the emergency display is active, you can press the PTT to respond to the emergency caller.



When receiving an emergency on an analog channel, the radio only indicates that it is receiving.

## Declaring an Emergency Call



1. Press .

3



For digital channels, the radio transmits talkgroup or radio ID to dispatch console or receiving radio.

The radio will go through transmit and receive cycles if configured.

You can speak into the microphone while the radio is transmitting or press PTT to talk.

2. To exit emergency, either power cycle the radio or select **EXIT EMERGENCY** from the call menu.

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Section	Page
Create Keys .....	46
Load Keys .....	48
Load Keygroups .....	50
Zeroize All from Radio .....	52
Zeroize Keys Using KVL 3000 Plus .....	53
Zeroize Keygroups Using KVL 3000 Plus .....	55
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Activate/View Mission Plan .....	58
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#### CREATE KEYS

Refer to the Motorola KVL 3000 Plus Key Variable Loader (KVL) User's Guide for advanced programming and setup instructions.

#### Create Key in the KVL 3000 Plus

You can generate a single Type-3 key in the KVL 3000 Plus key loading device:

- a. Turn on the KVL 3000 Plus.
- b. Select **KEYS**.
- c. Select **NEW**.
- d. Enter a number between **00001** and **04095** or between **61440** and **65535** at Common Key References (CKR) prompt. The number must be unique on the KVL 3000 Plus.
- e. Choose **DES-OFB** or **AES-256** as the algorithm.
- f. Select **ACCEPT**.
- g. Enter Key Identification (KID) from **0000** to **FFFF**. The number must be different for each key of a particular algorithm in the KVL 3000 Plus.
- h. Enter a 16-digit hexadecimal number as the Key value. DES-OFB keys are 16 digits while AES keys are 64 digits (32 bytes [256 bits]). Odd parity checks are made between every two digits for DES-OFB keys. Parity checks are not made for AES-256 keys.
- i. KVL 3000 Plus will display **SLOT FILLED**, press **ENTER**.
- j. A message is displayed when complete: **KEY WAS CREATED SUCCESSFULLY**.
- k. Refer to [Load Keys](#) for loading a key into the radio.

### Create Keygroup in the KVL 3000 Plus

You can generate a group of Type-3 keys in the KVL 3000 Plus:

- a. Turn on the KVL 3000 Plus.
- b. Select **Esc**.
- c. Select **GROUPS**.
- d. Select **NEW**.
- e. Enter a Group Name (up to seven characters).

#### NOTE

The XG-100 can store both DES-OFB and AES-256 keys, however, only one type may be loaded at a time. A keyset must contain only DES-OFB or only AES-256 keys.

- f. Select CKRs from the programmed list until all desired CKRs are selected.
- g. Select **DONE**. Refer to [Load Keys](#) for loading a keyset into the radio.

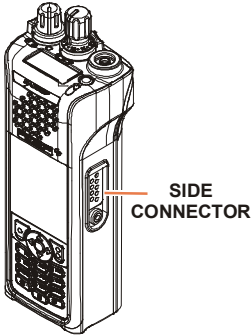
# XG-100

## ADVANCED OPERATIONS

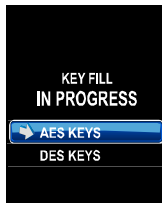
### LOAD KEYS

Type 3 Digital Encryption Standard Output Feedback (DES-OFB) and Advanced Encryption Standard, 256-bit (AES-256), encryption methods are supported. The Type 3 Encryption keys are loaded via a Motorola KVL 3000 Plus device using Telecommunications Industry Association (TIA)/Project P25 (P25) key fill device protocol. Make sure that valid keys have been created and stored in the KVL 3000 Plus before proceeding.

4



1. Power on KVL 3000 Plus.
2. Connect KVL 3000 Plus to side connector using a 12082-0400-A1 cable.



3. Use  to highlight and select:
  - **AES KEYS**
  - **DES KEYS**





At the KVL 3000 Plus:

4. Select **TARGET**.
5. Select **LOAD**.
6. Select **KEY**.
7. Using ◀ or ▶, select:
  - DES-OFB key
  - AES-256 key
8. Press **LOAD**.
9. Verify that the KVL 3000 Plus screen displays **LOADED SUCCESSFULLY OK**.
10. Select **OK** on the KVL 3000 Plus.
11. Repeat for additional keys.
12. Remove the KVL 3000 Plus cable from the radio.



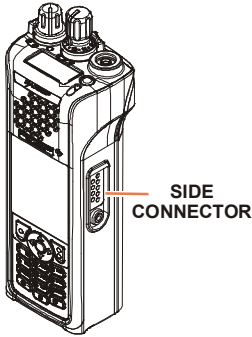
# XG-100

## ADVANCED OPERATIONS

### LOAD KEYGROUPS

Make sure that valid keygroups have been created and stored in the KVL 3000 Plus before proceeding.

4



1. Power on KVL 3000 Plus.
2. Connect KVL 3000 Plus to side connector using a 12082-0400-A1 cable.



3. Use  to highlight and select:
  - **AES KEYS**
  - **DES KEYS**



At the KVL 3000 Plus:

4. Select **TARGET**.
5. Select **LOAD**.
6. Select **GROUP**.
7. Using ◀ or ▶, select:
  - DES-OFB keygroups
  - AES-256 keygroups
8. Press **LOAD**.
9. Verify that the KVL 3000 Plus screen displays **LOADED SUCCESSFULLY OK**.
10. Select **OK** on the KVL 3000 Plus.
11. Repeat for additional groups.
12. Remove the KVL 3000 Plus cable from the radio.



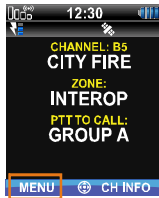
# XG-100


## ADVANCED OPERATIONS

### ZEROIZE ALL FROM RADIO

It may be necessary to remove the keys because of compromise or expiration.

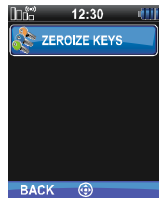
4



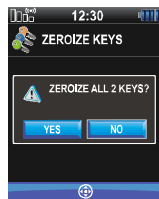
1. At main display, use  for main menu.




2. Use  to highlight and select **SECURITY** or just press .



3. Use  to highlight and select **ZEROIZE KEYS**.



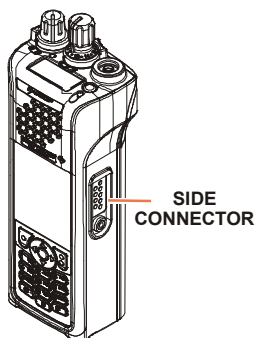
4. Use  to highlight and select **YES** if you want to remove the keys.



5. Use  to select **OK**.

### ZEROIZE KEYS USING KVL 3000 PLUS


Refer to the KVL 3000 Plus User's Guide for advanced instructions.



1. Power on KVL 3000 Plus.
2. Connect KVL 3000 Plus to side connector using a 12082-0400-A1 cable.



  
**CAUTION:** Ensure correct  
keyset is selected.

3. Use  to highlight and select:
- **AES KEYS**
  - **DES KEYS**

## XG-100

### ADVANCED OPERATIONS





4

At the KVL 3000 Plus:

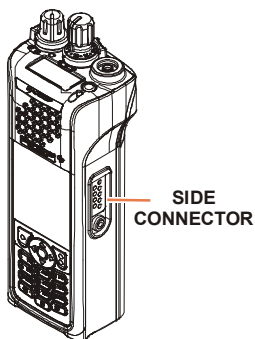
4. Select **TARGET**.
5. Select **ZERO**.
6. Select **KEY**.
7. Using ◀ or ▶, select the key to remove from the radio.
8. Press **ZERO**.
9. Verify that the KVL 3000 Plus screen displays **ZEROIZED SUCCESSFULLY OK**.
10. Select **OK** on the KVL 3000 Plus.
11. Repeat for additional keys.
12. Remove the KVL 3000 Plus cable from the radio.



13. Set  to  to remove all AES and DES keys.

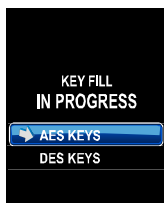
## ZEROIZE KEYGROUPS USING KVL 3000 PLUS

Refer to the Motorola KVL 3000 Plus User's Guide for advanced instructions.




1. Power on KVL 3000 Plus.
2. Connect KVL 3000 Plus to side connector using a 12082-0400-A1 cable.

4



**CAUTION:** Ensure correct keyset is selected.

3. Use  to highlight and select:
  - **AES KEYS**
  - **DES KEYS**

## XG-100

### ADVANCED OPERATIONS



4



At the KVL 3000 Plus:

4. Select **TARGET**.
5. Select **ZERO**.
6. Select **GROUP**.
7. Using ◀ or ▶, select the key to remove from the radio.
8. Press **ZERO**.
9. Verify that the KVL 3000 Plus screen displays **ZEROIZED SUCCESSFULLY OK**.
10. Select **OK** on the KVL 3000 Plus.
11. Repeat for additional keys.
12. Remove the KVL 3000 Plus cable from the radio.

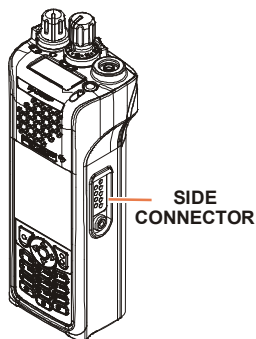


13. Set  to  to remove all AES and DES keys.



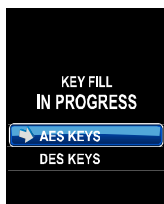
### ZEROIZE ALL FROM KVL 3000 PLUS

Refer to the KVL 3000 Plus User's Guide for advanced programming and setup instructions.



1. Power on KVL 3000 Plus.
2. Connect KVL 3000 Plus to side connector using a 12082-0400-A1 cable.

4



This appears on radio. All AES and DES keys are zeroized regardless of selection.



At the KVL 3000 Plus:

3. Select **TARGET**.
4. Select **ZERO**.
5. Select **ALL**.
6. Select **YES**.
7. Verify that the KVL 3000 Plus screen displays **ZEROIZED SUCCESSFULLY OK**.
8. Select **OK** on the KVL 3000 Plus.

# XG-100

## ADVANCED OPERATIONS

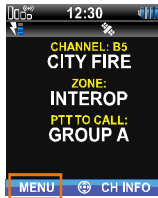
4




9. Remove the KVL 3000 Plus cable from the radio.

### ACTIVATE/VIEW MISSION PLAN

Mission plans contain radio programming information such as frequencies, channels, stations, and talkgroups. Up to 10 different mission plans can be stored in the radio, but only one can be activated at one time.





1. At main display, use  for main menu.

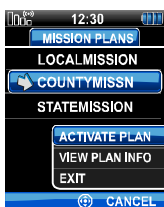




2. Use  to highlight and select **PROGRAM** or just press .

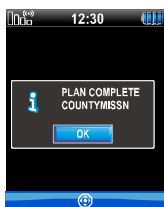


3. Use  to highlight and select mission plan.
-  indicates the active mission plan.

4



4. Use  to select **OPTIONS**.
5. Use  to highlight and select:
- **ACTIVATE PLAN** to load the plan for use by the radio.
  - **VIEW PLAN INFO** - to view mission plan information.



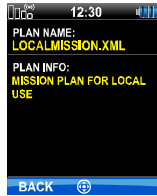
If plan is activated, radio displays series of screens indicating status, ending with a **PLAN COMPLETE** followed by name of plan.

6. Use  to select **OK**.

# XG-100

## ADVANCED OPERATIONS

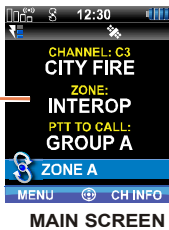
4




If plan is being viewed, radio displays the plan's filename and file size. Plan information appears if field was filled out in the CPA.

7. Use  to select **BACK**.

NEW PLAN




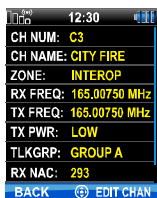
8. Repeatedly use  to exit menus.
9. New plan appears if activated.

### CH INFO MENU

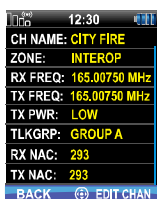
The Channel Information (CH INFO) menu displays information about the currently selected channel.



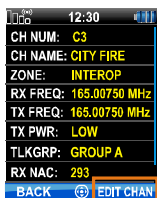
1. At main display, use  for channel information menu.



2. Use  to scroll through the programmed channel settings.



3. Additional settings can be found by scrolling down.



4. If a channel was programmed to allow editing by properly trained operator, you will be able to use the steps that follow.

5. Use  to select **EDIT CHAN.**
6. Enter password

**NOTE:** Password remains active until power cycle.  
Refer to [Edit Channel](#).

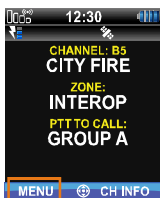
# XG-100


## ADVANCED OPERATIONS

### SETTINGS MENU

The settings menu allows you to change global radio settings such as audio, display, and clock.

4



1. At main display, use  for main menu.



2. Use  to highlight and select **SETTINGS** or just press .



3. Use  to highlight setting.



4. Additional settings can be found by scrolling down.

4

- 
5. Proceed to:
- [Audio Settings](#)
  - [Display Settings](#)
  - [GPS Settings](#)
  - [Bluetooth](#)
  - [Clock Settings](#)
  - [Battery Settings](#)

## XG-100

### ADVANCED OPERATIONS

#### Audio Settings

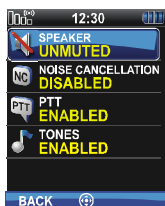
Set audio settings such as speaker mute, noise cancellation, PTT, etc.


1. Enter **Settings Menu**.



2. Use  to highlight and select **AUDIO SETTINGS**.





3. Use  to change settings as desired:
- **SPEAKER** - Speaker audio can be muted or unmuted. The radio can be used with a wired lapel microphone.
  - **NOISE CANCELLATION** - Enable or disable noise cancellation. Noise cancellation reduces background noise during transmit.
  - **PTT** - Enable or disable Push-To-Talk (PTT). Disable to prevent accidental keying, such as when radio is in holster or you are getting into a car.
  - **TONES** - Enable or disable alert tones ([Table 1](#)).

- 
4. Use  to exit menu.

**Table 1. Alert Tones**

Tone	Description	Sound/ Duration
Ready To Talk Tone Unencrypted (Analog FM or P25 digital)	After a PTT is pressed, this control enables the radio to produce an audible indication (tone) for you to begin speaking into the microphone.	Medium tone for 25 ms
Ready to Talk Tone Encrypted P25 digital	After a PTT is pressed, this control enables the radio to produce an audible indication (tone) for you to begin speaking into the microphone.	Medium tone for 25 ms
PTT Denied	PTT not possible. Momentary tone is present: <ul style="list-style-type: none"><li>• Receive only</li><li>• Key not found</li><li>• PTT button disabled</li><li>• Emergency button disabled</li><li>• Emergency not supported for current channel</li></ul>	Low tone for 75 ms

**Table 1. Alert Tones**

Tone	Description	Sound/ Duration
Maximum transmit duration expires	Maximum transmit duration is exceeded.	Low tone for 75 ms
Low Battery Alarm	Alarm sounds upon initial detection of low battery and every 30 seconds thereafter. Tone stops upon detection of a battery charging state.	Sequence of tones: <ul style="list-style-type: none"> <li>• Medium tone for 50 ms</li> <li>• Silence for 60 ms</li> <li>• High tone for 50 ms</li> </ul>
Emergency Call Received	Radio is receiving an emergency call or priority call.	Low tone for 250 ms and High tone for 250 ms

# XG-100

## ADVANCED OPERATIONS


### Display Settings

1. Enter **Settings Menu**.



2. Use  to highlight and select **DISPLAY SETTINGS**.



3. Use  to change settings as desired:
- **FRONT BACKLIGHT** - Turn front display backlight on, off, or momentary.
  - **FRONT BRIGHTNESS** - Set brightness level of front display. A level of 0 does not turn off front display.
  - **TOP ORIENTATION** - Set orientation of top display to be viewed from radio **FRONT**, **BACK** or **AUTO**.

When AUTO is used, the XG-100P changes top display to be viewed from back if an external microphone or speaker is attached. Otherwise, the display can be viewed from the front.

- **TOP BRIGHTNESS** - Set brightness level of top display. A level of 0 turns off top display and indicator (TX/RX) LED.

- 
4. Use  to exit menu.

# XG-100

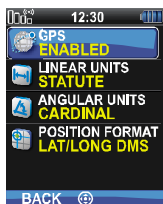
## ADVANCED OPERATIONS


### GPS Settings

1. Enter **Settings Menu**.



2. Use  to highlight and select **GPS SETTINGS**.



3. Use  to change settings as desired:
  - **GPS** - Enable or disable internal GPS.
  - **LINEAR UNITS** - Set unit of measurement of displayed linear units: **STATUTE**, **METRIC**, or **NAUTICAL**.
  - **ANGULAR UNITS** - Set unit of measurement of displayed linear units: **CARDINAL**, **DEGREES**, or **MILS**.
  - **POSITION FORMAT** - Set format of displayed position information: Latitude/Longitude Degrees Minutes Seconds (**LAT/LONG DMS**), **LAT/LONG DM**, or Universal Transverse Mercator (**UTM**).

4. Use  to exit menu.

## Bluetooth

Bluetooth settings only appear if enabled in the CPA.

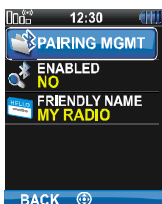
1. Enter **Settings Menu**.



2. Use  to highlight and select **BLUETOOTH**.



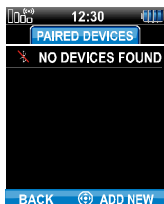
3. Use  to set **ENABLED** to **YES**.



4. Use  to select **PAIRING MGMT**. This is used to pair the radio with another bluetooth device.

## XG-100 ADVANCED OPERATIONS

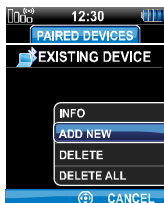
4



5. Make sure device being paired is powered on and set to pair with the XG-100P.

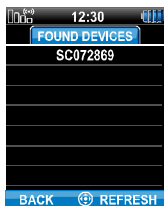
If no devices are found and bluetooth is enabled, **ADD NEW** appears in the lower right corner. Otherwise, **OPTIONS** appears.

6. Use  to **ADD NEW** or **OPTIONS**.





If **OPTIONS** was selected, the options menu appears.

7. Use  to highlight and select **ADD NEW**.



Device being paired should be displayed.

8. Use  to **REFRESH** device list if device does not appear.
9. Use  to highlight and select device.



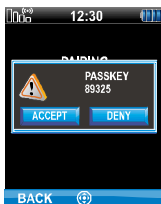


For Bluetooth® 2.0 devices, a passkey screen appears.

10. Enter unit ID.

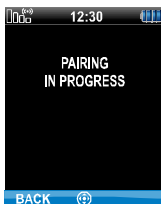
11. Use  to select **OK**.

4

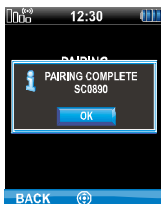


For Bluetooth® 2.1 devices, an accept/deny screen appears.

12. Use  to select **ACCEPT**.



Progress is then displayed.



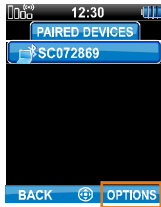
A message appears when pairing is complete.

13. Use  to select **OK**.

# XG-100

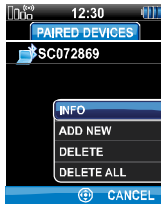
## ADVANCED OPERATIONS

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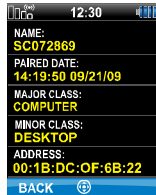


Paired device is then displayed under pair devices list.

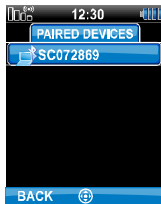
14. Use  to select **OPTIONS**.



15. Use  to highlight and select choices.




If **INFO** was selected, the paired device information screen appears.

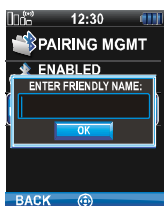



16. Use  to exit menu.



17. Use  to highlight and select **FRIENDLY NAME**. This is the name of device being paired. The friendly name used by the CPA will overwrite this setting.

4



18. Enter name for device.
19. Use  to select **OK**.

20. Use  to exit menu.

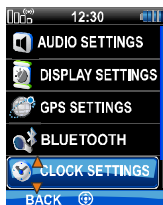
# XG-100

## ADVANCED OPERATIONS

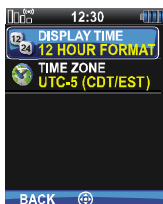
### Clock Settings


4

1. Enter **Settings Menu**.



2. Use  to highlight and select **CLOCK SETTINGS**.



3. Use  to change settings as desired:
  - **DISPLAY TIME** - Set 12 or 24 hour time display format.
  - **TIME ZONE** - Set time zone relative to Universal Time Coordinated (UTC).

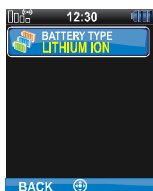
4. Use  to exit menu.

### Battery Settings


1. Enter **Settings Menu**.



2. Use  to highlight and select **BATTERY SETTINGS**.



**WARNING:** Use only Harris approved batteries. Injury could occur from using incorrect battery.

3. Use  to change settings as desired:
- **LITHIUM ION** - For accurate battery indication on front and top displays, if battery attached to rear of radio is a Lithium-ION (Li-ION) type.
  - **NIMH** - For accurate indication on front and top displays, if battery attached to rear of radio is a Nickel Metal Hydride (Ni-MH) type.
  - **PRIMARY LITHIUM** - For accurate battery indication on front and top displays, if battery attached to rear of radio is clamshell containing disposable AA lithium batteries.


- **ALKALINE** - For accurate battery indication on front and top displays, if battery attached to rear of radio is clamshell containing disposable AA alkaline batteries.

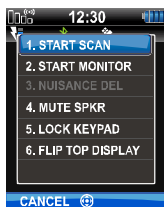
4. Use  to exit menu.







### SHORTCUT MENU

The shortcut menu provides menus for quickly accessing commonly used functions.



1. At main display, use  center button to display the shortcut menu.



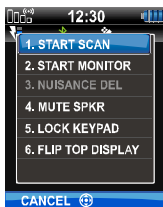
2. Use **1** , **2** , **3** , **4** , **5** , or **6**  to select task:
- **1. START/STOP SCAN** - **Start or Stop Scan (Shortcut Menu)**  
**START SCAN** appears if not scanning. **STOP SCAN** appears if scanning
  - **2. START MONITOR** - **Monitor and Squelch Types**. This is grayed out if radio is scanning.
  - **3. NUISANCE DEL** - **Nuisance Delete**. This is grayed out if not scanning
  - **4. MUTE SPKR** - **Mute/Unmute Speaker**
  - **5. LOCK KEYPAD** - **Lock Keypad**
  - **6. FLIP TOP DISPLAY** - **Flip Top Display**

You can also use  to scroll to the task.


## XG-100 ADVANCED OPERATIONS

### Start or Stop Scan (Shortcut Menu)


4



1. Enter **Shortcut Menu**.

2. To start scan, use  to highlight and select **START SCAN**.

**START SCAN** and **NUISANCE DEL** are grayed out in emergency mode. **NUISANCE DEL** is not grayed out when scanning.

3. To stop scan, use  to highlight and select **STOP SCAN**.



## Monitor and Squelch Types

The monitor function allows you to temporarily turn off selected squelch to monitor for traffic that may not normally break squelch. Squelch used depends on an analog or digital channel.

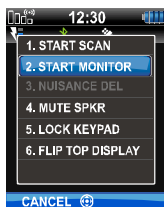
For analog channels, there is:

- Noise squelch - any received signal breaks squelch.
- Continuous Tone Coded Squelch (CTCSS) - squelch is selective based on tone code.
- Continuous Digital Coded Squelch (CDCSS) - squelch is selective based on tone code.

For digital channels, there is:

- Monitor squelch - any received digital signal breaks squelch.
- Normal squelch - Received Network Access Code (NAC) breaks squelch.
- Selective squelch - Received NAC and talkgroup Identification (ID) or unit ID breaks squelch.

1. Enter [Shortcut Menu](#).



**START MONITOR** is grayed when radio is scanning.

2. Use  to select **START MONITOR**.
3. Use  to toggle the monitor **ON** or **OFF**.

## XG-100

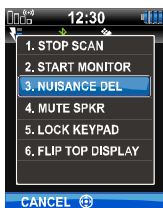
### ADVANCED OPERATIONS


#### Nuisance Delete

You can temporarily removed currently received channel from scan list. This choice is grayed out if the radio is not scanning.

1. Enter [Shortcut Menu](#).

4

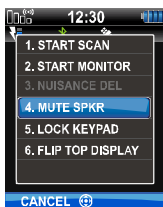



2. Use  to select **NUISANCE DEL** while receiving channel you wish to temporarily remove from scan list.

## Mute/Unmute Speaker

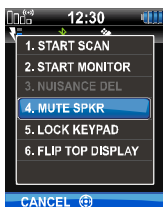
You can mute or unmute the front panel speaker.

1. Enter **Shortcut Menu**.



2. Use  to select **MUTE SPKR** if speaker is not muted.

4



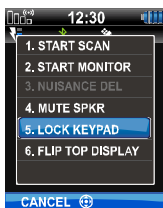
3. Use  to select **UNMUTE SPKR** if speaker is muted.

## XG-100 ADVANCED OPERATIONS

### Lock Keypad


You can lock the keypad to prevent accidental operations from incorrect keypad press.

1. Enter [Shortcut Menu](#).



2. Use  to select **LOCK KEYPAD**.



3. Use  to unlock keypad. Make sure exact sequence of ◀, ▶, ▼, and ▲ are used.

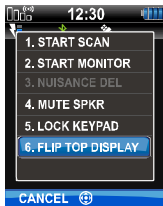
There must be no more than three seconds between key presses.

Power cycling radio will not unlock the radio.

## Flip Top Display

The top display can be flipped to suit your viewing direction.

1. Enter **Shortcut Menu**.



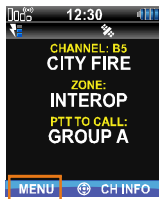
2. Use  to select **FLIP TOP DISPLAY**.


Top display toggles between front and rear display orientation.

4

## SET UP SCAN

These procedures are used to set up the scan list, home channels, and priority channels. Refer to [Start Scan](#).

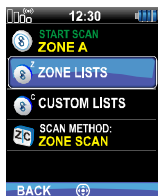


1. At main display, use  for main menu.



2. Use  to highlight and select **SCAN** or just press





3. Use  to highlight and select **ZONE LISTS** or **CUSTOM LISTS**.

4. Proceed to:
- [Add New Scan List](#)
  - [Edit Scan List](#)
  - [Priority 1 Channel](#)
  - [Rename Scan List](#)
  - [Set or Remove Priority \(PRI\)](#)
  - [Delete Scan List](#)
  - [Set Active Scan List](#)

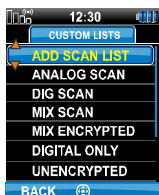
### Zone Scan vs Custom Scan

A zone scan list consists of all channels in a zone. The zone scan list is automatically created while generating a mission plan with the Communications Planning Application (CPA). A custom scan list can be created to include channels from different zones. Both zone and custom scan lists can be modified to include or exclude channels from different zones, except you cannot delete zone scan lists.

## Add New Scan List

Only a custom scan list can be added under **CUSTOM SCAN CFG.**

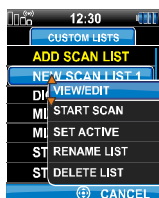
1. Enter **Set up Scan.**



2. Use  to highlight **ADD SCAN LIST.**

The radio holds a maximum of 10 scan lists at one time. **ADD SCAN LIST** option is removed once 10 scan lists are entered into the radio.

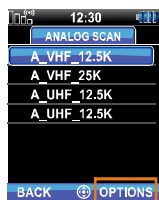
4



3. Use  to highlight new scan list.

4. Use  to select **OPTIONS.**

5. Use  to highlight and select **VIEW/EDIT.**



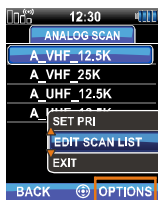
6. Use  to highlight channel.

7. Use  to select **OPTIONS.**

# XG-100

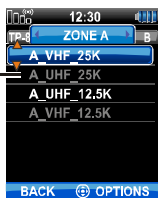
## ADVANCED OPERATIONS



4



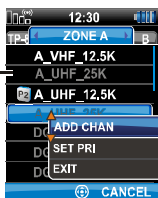
8. Use  to highlight **EDIT SCAN LIST**.



GRAYED OUT  
IS NOT IN  
SCAN LIST



9. Use  to select channel or zone.
10. Use  to toggle channel selection in scan list.

GRAYED OUT  
IS NOT IN  
SCAN LIST



11. Alternatively, use  to select **OPTIONS**.
12. Then use  to select **ADD CHAN** or **DELETE CHAN**.

13. Use  to exit channel list.

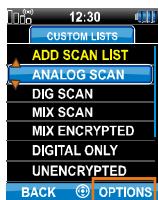
14. Use  to exit scan list.



## Edit Scan List

Custom scan configuration screens are shown here. Zone scan configuration is similar.

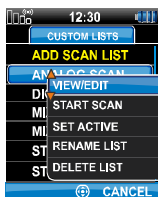
1. Enter **Set up Scan**.



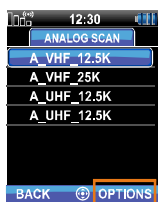
2. Use  to highlight scan list.
3. Use  to select **OPTIONS**.

4

4. Use  to highlight and select **VIEW/EDIT**.



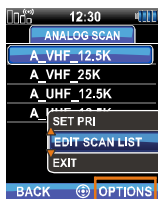
5. Use  to highlight channel.
6. Use  to select **OPTIONS**.



# XG-100

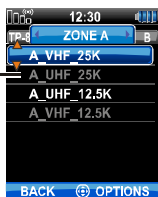
## ADVANCED OPERATIONS



4



7. Use  to highlight **EDIT SCAN LIST**.



GRAYED OUT  
IS NOT IN  
SCAN LIST



8. Use  to select channel.
9. Use  to toggle channel selection in scan list.

GRAYED OUT  
IS NOT IN  
SCAN LIST



10. Alternatively, use  to select **OPTIONS**.
11. Then use  to select **ADD CHAN** or **DELETE CHAN**.

12. Use  to exit channel list.

13. Use  to exit scan list.

### Priority 1 Channel

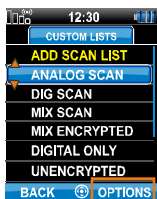
The priority 1 channel is the channel that is currently selected using the channel knob on top of the radio.



### Rename Scan List

You can rename a newly created or existing scan list. You cannot rename zone scan lists.

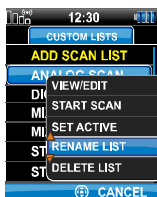
4

1. Enter **Set up Scan**.

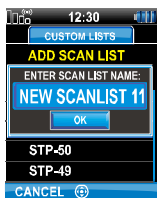


2. Use  to highlight scan list.
3. Use  to select **OPTIONS**.

4. Use  to highlight and select **RENAME LIST**.

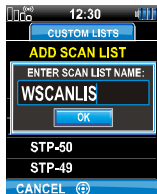





5. Use  to select **OK**.




## XG-100 ADVANCED OPERATIONS

4




6. Use  to backspace () over old name.
7. Use keypad to enter text for new name. This uses cellphone style text entry (press 2 several times for A).
8. When done, use  to select **OK**.

---

9. Use  to exit channel list.

---

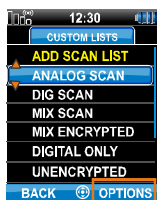
10. Use  to exit scan list.


## Set or Remove Priority (PRI)

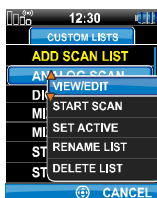
Priority (PRI) channels are scanned more often than non-priority channels. The priority 1 channel is the channel that is currently selected using the channel knob on top of the radio.

Custom scan configuration screens are shown here. Zone scan configuration is similar.

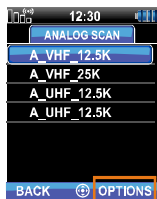
1. Enter **Set up Scan**.



2. Use  to highlight scan list.
3. Use  to select **OPTIONS**.



4. Use  to highlight and select **VIEW/EDIT**.

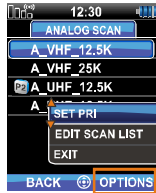


5. Use  to highlight channel.
6. Use  to select **OPTIONS**.

# XG-100

## ADVANCED OPERATIONS

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7. Use  to highlight and select **SET PRI**.

Priority channel appears with a P2.

Priority channel can also be set in the channel list. Scan list is shown here.

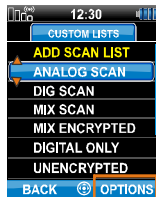
8. Use  to exit channel list.

9. Use  to exit scan list.

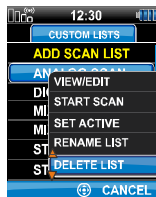
### Delete Scan List

You cannot delete zone scan lists.

1. Enter [Set up Scan](#).



2. Use  to highlight custom scan list.
3. Use  to select **OPTIONS**.



4. Use  to highlight and select **DELETE LIST**.

- Use  to exit channel list.

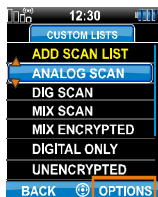
- Use  to exit scan list.

### Set Active Scan List

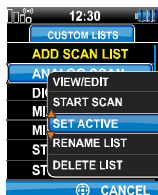
You can set custom scan list as active using the options menu.

4

- Enter **Set up Scan**.

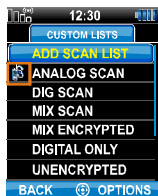


- Use  to highlight custom scan list.
- Use  to select **OPTIONS**.



- Use  to highlight and select **SET ACTIVE**.

Icon appears to left of active list.



- Use  to exit channel list.

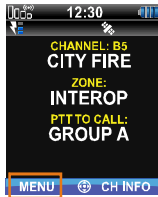
# XG-100


## ADVANCED OPERATIONS

- Use  to exit scan list.

### MESSAGE MENU

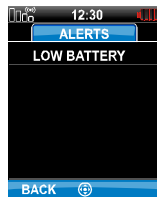
4



- At main display, use  for main menu.



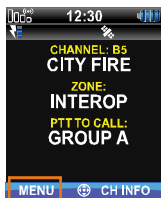
- Use  to highlight and select **MESSAGE** or just press **8 TUV**.




- Observe messages in display.
- Use  to exit back to main screen.



UTILITY MENU

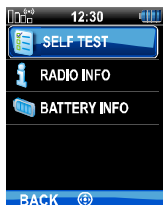


1. At main display, use  for main menu.

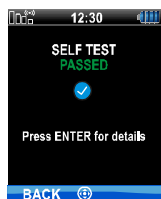
4



2. Use  to highlight and select **UTILITY** or just press .



3. Use  to highlight and select **SELF TEST** to run a series of internal radio tests.



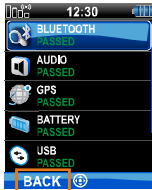
Status screen appears while testing followed by a screen with passed or failed results.



4. Use  to view details.

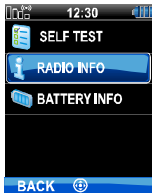
# XG-100

## ADVANCED OPERATIONS

4




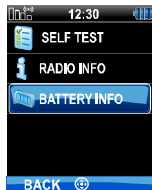
5. Use  to scroll through the test results.
6. Use  to exit screen.



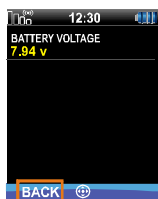
7. Use  to highlight and select **RADIO INFO** to view radio information such as software and firmware revisions.




8. Observe radio information display.
9. Use  to exit screen.



10. Use  to highlight and select **BATTERY INFO**.



11. Observe detailed information for the attached battery.
12. Use  to exit screen.

4

- 
13. Use  to exit main screen.

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Section	Page
Programming Via CPA .....	102
Edit Channel .....	102

## XG-100 PROGRAMMING

This section provides information on front panel programming. Programming can also be accomplished by creating a plan using a computer.

### PROGRAMMING VIA CPA

The Communications Planning Application (CPA) is to be used for the bulk of programming the XG-100P. Use USB cable, 10282-0410-A1.


Using the CPA you can fully program the XP-100P, including the programmable button, switches and keys.

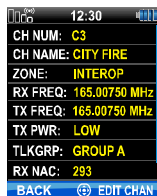
## 5 EDIT CHANNEL


Channels can be edited from the Channel Information (CH INFO) menu display, if enabled using the CPA. Many of the displayed parameters can be modified here.

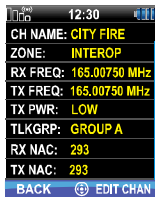
Parameters change, depending on the channel being a digital, analog or dual channel. For receive, a dual channel allows you to receive both digital or analog signals. When transmitting on a dual channel, you can only transmit either a digital or analog signal, depending on how the channel is programmed.



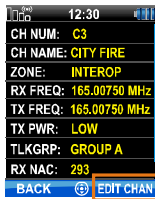
1. At main display, use  for channel information menu.



2. Use  to scroll through the programmed channel settings.



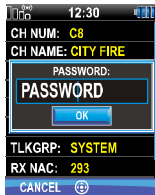
3. Additional settings can be found by scrolling down.



**CAUTION:** Only authorized users should attempt channel editing.

If the active mission plan has been programmed to allow channel editing by a properly trained operator, you will be able to use the steps that follow.

4. Use  to select **EDIT CHAN**.



Password protection is automatically enabled by default when the mission plan is programmed to allow channel editing.

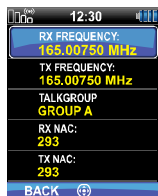
5. Enter the password programmed into the plan.

**NOTE:** Password remains active until power cycle.

6. Use  to select **OK**.

## XG-100 PROGRAMMING



5



7. Use  to highlight and select **RX FREQUENCY**.

DIGITAL CHANNEL SHOWN



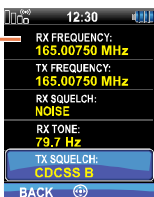
8. Enter new receive frequency.
9. Use  to select **OK**.
10. Use  to cancel.

11. For digital channel, modify remaining channel settings:

- **TX FREQUENCY** - Transmit frequency.
- **TALKGROUP** - Talkgroup name cannot be set here.
- **RX NAC** - Network Access Code (NAC) radio uses for selective squelch in receive.
- **TX NAC** - NAC radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).



**ANALOG  
CHANNEL  
SHOWN**



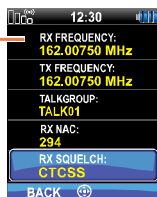
12. For analog channel, modify remaining channel settings:

- **TX FREQUENCY** - Transmit frequency.
- **RX SQUELCH** - Squelch type radio uses in receive.
- **RX TONE** - Tone radio uses to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **RX CODE** - Code radio uses to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **TX SQUELCH** - Squelch type radio uses in transmit.
- **TX TONE** - Tone radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **TX CODE** - Code radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).

Channels configured with **TX SQUELCH** type of **CDCSS A** or **CDCSS B** use **RXCODE** and **TXCODE**.

Channels configured with **TX SQUELCH** type of **CTCSS** use **RXTONE** and **TXTONE**.

DUAL  
CHANNEL  
SHOWN



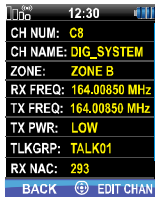
13. For dual channel, modify remaining channel settings:

- **TX FREQUENCY** - Transmit frequency.
- **TALKGROUP** - Talkgroup name cannot be set here.
- **RX NAC** - NAC radio uses for selective squelch in receive.
- **RX SQUELCH** - Squelch type radio uses in receive.
- **RXTONE** - Tone radio uses to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **RX CODE** - Code radio uses to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **TX NAC** - NAC radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **TX SQUELCH** - Squelch type radio uses in transmit.

- **TXTONE** - Tone radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).
- **TX CODE** - Code radio transmits to break selective squelch on receiving radio ([Monitor and Squelch Types](#)).

Channels configured with **TX SQUELCH** type of **CDCSS A** or **CDCSS B** use **RXCODE** and **TXCODE**.  
 Channels configured with **TX SQUELCH** type of **CTCSS** use **RXTONE** and **TXTONE**.

**NEW CHANNEL SETTINGS**



14. Use  to exit menu.



15. Use  to exit menu.

## **XG-100** **PROGRAMMING**

### **PROGRAMMABLE HOT KEY AND BUTTONS**

The programmable hot key and buttons shown in [XG-100P Controls](#) are programmed using the CPA. You can program hot key and buttons for the following:

- Backlight Toggle - Off, On, Momentary
- Scan
- Flip Top Display
- Lock Keypad
- Monitor
- Nuisance Delete
- Talkaround Mode
- Speaker Mute
- Next Zone Up
- Next Zone Down

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Marine Frequencies . . . . .	110
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## MARINE FREQUENCIES

Refer to [Table 2](#) for a list of maritime frequencies per United States Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA), and Canadian Department Fisheries and Oceans, August 2009:

- United States (US)
- International (Intl)
- Canada (CA)

**Table 2. Marine Frequencies**

7	Channel			Frequency		Channel Usage
	US	Intl	CA	Ship (MHz)	Shore (MHz)	
		1	1	T: 156.05 R: 160.65	T: 160.65 R: 156.05	International: Public Correspondence, Port Operations
	1a			T/R: 156.05	T/R: 156.05	US: Port Operations and Commercial, Vessel Traffic Service (VTS). New Orleans/Lower Mississippi area.
		2	2	T: 156.10 R: 160.70	T: 160.70 R: 156.10	International: Public Correspondence, Port Operations
		3	3	T: 156.15 R: 160.75	T: 160.75 R: 156.15	International: Public Correspondence, Port Operations
		4		T: 156.20 R: 160.80	T: 160.80 R: 156.20	International: Public Correspondence, Port Operations
			4a	T/R: 156.20	T/R: 156.20	Canada: Department Fisheries Ocean (DFO)/Canadian Coast Guard only in British Columbia coast area. Commercial fishing in east coast area
		5		T: 156.25 R: 160.85	T: 160.85 R: 156.25	International: Public Correspondence, Port Operations

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
5a		5a	T/R: 156.25	T/R: 156.25	US: Port Operations or VTS in Houston, New Orleans and Seattle areas.
6	6	6	T/R: 156.30	T/R: 156.30	US: Intership Safety International: Intership Canada: May be used for search and rescue communications between ships and aircraft.
	7		T: 156.35 R: 160.95	T: 160.95 R: 156.35	International: Public Correspondence, Port Operations
7a		7a	T/R: 156.35	T/R: 156.35	US: Commercial
8	8	8	T/R: 156.40	T/R: 156.40	US: Commercial (Intership only) International: Intership Canada: Also assigned for intership in the Lake Winnipeg area.
9	9	9	T/R: 156.45	T/R: 156.45	US: Boater Calling. Commercial and Non-Commercial. International: Intership, Port Operations Canada: Commercial - British Columbia coast area. May be used to communicate with aircraft and helicopters in predominantly maritime support operations.

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
10	10	10	T/R: 156.50	T/R: 156.50	US: Commercial International: Intership, Port Operations Canada: Commercial - British Columbia coast area. May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
11	11	11	T/R: 156.55	T/R: 156.55	US: Commercial. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
12	12	12	T/R: 156.60	T/R: 156.60	US: Port Operations. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
13	13	13	T/R: 156.65	T/R: 156.65	US: Intership Navigation Safety (Bridge-to-bridge). Ships >20m length maintain a listening watch on this channel in US waters. International: Intership, Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
14	14	14	T/R: 156.70	T/R: 156.70	US: Port Operations. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.

7



**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
15	15	15	T/R: 156.75	T/R: 156.75	US: Environmental (Receive only). Used by Class C Emergency Position-Indicating Radio Beacons (EPIRBs). International: Intership, Port Operations Canada: Port operations and Ship Movement - British Columbia coast area. All operations limited to 1-watt maximum power. May also be used for on-board communications.
16	16	16	T/R: 156.80	T/R: 156.80	US: International Distress, Safety and Calling. Ships required to carry radio, US Coast Guard (USCG), and most coast stations maintain a listening watch on this channel. International: International Distress, Safety and Calling Canada: International Distress, Safety and Calling
17	17	17	T/R: 156.85	T/R: 156.85	US: State Control International: Intership, Port Operations Canada: Port operations and Ship Movement - British Columbia coast area. All operations limited to 1 watt maximum power. May also be used for on-board communications.
	18		T: 156.90 R: 161.50	T: 161.50 R: 156.90	International: Public Correspondence, Port Operations
18a		18a	T/R: 156.90	T/R: 156.90	US: Commercial Canada: Towing - British Columbia coast area.

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
	19		T: 156.95 R: 161.55*	T: 161.55* R: 156.95	International: Public Correspondence, Port Operations
19a		19a	T/R: 156.95	T/R: 156.95	US: Commercial Canada: DFO/Canadian Coast Guard. Pacific Pilots - British Columbia coast area.
20	20	20	T: 157.00 R: 161.60	T: 161.60 R: 157.00	US: Port Operations (Duplex) International: Public Correspondence, Port Operations Canada: Port operations only with 1 watt maximum power.
20a			T/R: 157.00	T/R: 157.00	US: Port Operations
	21		T: 157.05 R: 161.65*	T: 161.65* R: 157.05	International: Public Correspondence, Port Operations
21a		21a	T/R: 157.05	T/R: 157.05	US: US Coast Guard only Canada: DFO/Canadian Coast Guard only.
		21b	--	T/R: 161.65	
	22		T: 157.10 R: 161.70	T: 161.70 R: 157.10	International: Public Correspondence, Port Operations
22a		22a	T/R: 157.10	T/R: 157.10	US: Coast Guard Liaison and Maritime Safety Information Broadcasts. Broadcasts announced on channel 16. Canada: For communications between Canadian Coast Guard and non-Canadian Coast Guard stations only.
	23	23	T: 157.15 R: 161.75	T: 161.75 R: 157.15	International: Public Correspondence, Port Operations

7

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
23a			T/R: 157.15	T/R: 157.15	US: US Coast Guard only
		23b	--	T/R: 161.75	Canada: Continuous Marine Broadcast (CMB) service.
24	24	24	T: 157.20 R: 161.80	T: 161.80 R: 157.20	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
25	25	25	T: 157.25 R: 161.85	T: 161.85 R: 157.25	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations Canada: Also assigned for operations in the Lake Winnipeg area.
		25b		T/R: 161.85	
26	26	26	T: 157.30 R: 161.90	T: 161.90 R: 157.30	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
27	27	27	T: 157.35 R: 161.95	T: 161.95 R: 157.35	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
28	28	28	T: 157.40 R: 162.00	T: 162.00 R: 157.40	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
		28b	--	T/R: 162.00	Canada: Continuous Marine Broadcast (CMB) service.
	60	60	T: 156.025 R: 160.625	T: 160.625 R: 156.025	International: Public Correspondence, Port Operations
	61		T: 156.075 R: 160.675	T: 160.675 R: 156.075	International: Public Correspondence, Port Operations

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
61a		61a	T/R: 156.075	T/R: 156.075	Canada: DFO/Canadian Coast Guard only in British Columbia coast area.
	62		T: 156.125 R: 160.725	T: 160.725 R: 156.125	International: Public Correspondence, Port Operations
		62a	T/R: 156.125	T/R: 156.125	Canada: DFO/Canadian Coast Guard only in British Columbia coast area.
	63		T: 156.175 R: 160.775	T: 160.775 R: 156.175	International: Public Correspondence, Port Operations
63a		63a	T/R: 156.175	T/R: 156.175	US: Port Operations and Commercial, VTS, New Orleans/Lower Mississippi area. Canada: Tow Boats - British Columbia coast area.
	64	64	T: 156.225 R: 160.825	T: 160.825 R: 156.225	International: Public Correspondence, Port Operations
64a		64a	T/R: 156.225	T/R: 156.225	Canada: Commercial fishing only.
	65		T: 156.275 R: 160.875	T: 160.875 R: 156.225	International: Public Correspondence, Port Operations

7

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
65a		65a	T/R: 156.275	T/R: 156.275	US: Port Operations Canada: Search and rescue and antipollution operations on the Great Lakes. Towing on the Pacific Coast. Port operations only in the St. Lawrence River areas with 1 watt maximum power. Intership in inland Manitoba, Saskatchewan, and Alberta areas.
	66		T: 156.325 R: 160.925	T: 160.925 R: 156.325	International: Public Correspondence, Port Operations
66a		66a	T/R: 156.325	T/R: 156.325	US: Port Operations Canada: Port operations only in the St. Lawrence River/Great Lakes areas with 1 watt maximum power. 1 watt marina channel - British Columbia coast area.

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
67	67	67	T/R: 156.375	T/R: 156.375	US: Commercial. Used for Bridge-to-bridge communications in lower Miss. River. Intership only. International: Intership, Port Operations Canada: May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in east coast and inland Manitoba, Saskatchewan, and Alberta areas. Pleasure craft - British Columbia coast area.
68	68	68	T/R: 156.425	T/R: 156.425	US: Non-Commercial International: Port Operations Canada: For marinas, yacht clubs and pleasure craft.
69	69	69	T/R: 156.475	T/R: 156.475	US: Non-Commercial International: Intership, Port Operations Canada: Commercial fishing only - east coast area. Pleasure craft - British Columbia coast area.
70	70	70	T/R: 156.525	T/R: 156.525	US: Digital Selective Calling (voice communications not allowed) International: Digital selective calling for distress, safety and calling Canada: Digital selective calling for distress, safety and calling
71	71	71	T/R: 156.575	T/R: 156.575	US: Non-Commercial International: Port Operations Canada: Ship Movement - British Columbia coast area. Marinas and yacht clubs - east coast and on Lake Winnipeg.

7

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
72	72	72	T/R: 156.625	T/R: 156.625	US: Non-Commercial (Intership only) International: Intership Canada: May be used to communicate with aircraft and helicopters in predominantly maritime support operations. Pleasure craft - British Columbia coast area
73	73	73	T/R: 156.675	T/R: 156.675	US: Port Operations International: Intership, Port Operations Canada: May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in east coast and inland Manitoba, Saskatchewan, and Alberta areas.
74	74	74	T/R: 156.725	T/R: 156.725	US: Port Operations International: Port Operations Canada: VTS and Ship Movement British Columbia coast area.
75	75	75	T/R: 156.775	T/R: 156.775	International: Port Operations Canada: Simplex port operation, ship movement and navigation related communication only. 1 watt maximum.

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
76	76	76	T/R: 156.825	T/R: 156.825	International: Port Operations Canada: Simplex port operation, ship movement and navigation related communication only. 1 watt maximum.
77	77	77	T/R: 156.875	T/R: 156.875	US: Port Operations (Intership only) International: Intership Canada: Pilotage - British Columbia coast area; 25 watts. Port operations only in the St. Lawrence River/Great Lakes areas with 1 watt maximum power.
	78		T: 156.925 R: 161.525	T: 161.525 R: 156.925	International: Public Correspondence, Port Operations
78a		78a	T/R: 156.925	T/R: 156.925	US: Non-Commercial Canada: Fishing Industry - British Columbia coast area.
	79		T: 156.975 R: 161.575	T: 161.575 R: 156.975	International: Public Correspondence, Port Operations
79a		79a	T/R: 156.975	T/R: 156.975	US: Commercial. Non-Commercial in Great Lakes only Canada: Fishing Industry - British Columbia coast area.
	80		T: 157.025 R: 161.625	T: 161.625 R: 157.025	International: Public Correspondence, Port Operations
80a		80a	T/R: 157.025	T/R: 157.025	US: Commercial. Non-Commercial in Great Lakes only Canada: Fishing Industry - British Columbia coast area.
	81		T: 157.075 R: 161.675	T: 161.675 R: 157.075	International: Public Correspondence, Port Operations

7



**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
81a		81a	T/R: 157.075	T/R: 157.075	US: US Government only - Environmental protection operations Canada: DFO/Canadian Coast Guard use only.
	82		T: 157.125 R: 161.725	T: 161.725 R: 157.125	International: Public Correspondence, Port Operations
82a		82a	T/R: 157.125	T/R: 157.125	US: US. Government only Canada: DFO/Canadian Coast Guard use only.
	83		T: 157.175 R: 161.775	T: 161.775 R: 157.175	International: Public Correspondence, Port Operations
83a		83a	T/R: 157.175	T/R: 157.175	US: US Coast Guard only Canada: DFO/Canadian Coast Guard and other Government agencies.
		83b	--	T/R: 161.775	
84	84	84	T: 157.225 R: 161.825	T: 161.825 R: 157.225	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
85	85	85	T: 157.275 R: 161.875	T: 161.875 R: 157.275	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
86	86	86	T: 157.325 R: 161.925	T: 161.925 R: 157.325	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
87	87	87	T: 157.375 R: 161.975	T: 161.975 R: 157.375	US: Automatic Identification System duplex repeater International: Port Operations Canada: Port operation and ship movement - east coast area. Pleasure craft - British Columbia coast area.

**Table 2. Marine Frequencies (Continued)**

Channel			Frequency		Channel Usage
US	Intl	CA	Ship (MHz)	Shore (MHz)	
87a			T/R: 157.375	T/R: 157.375	US: Public Correspondence (Marine Operator)
		87b	T/R: 161.975	T/R: 161.975	Canada: Automatic Ship Identification and Surveillance System.
	88	88	T: 157.425 R: 162.025	T: 162.025 R: 157.425	US: Commercial, Intership only. International: Port Operations Canada: Port operation and ship movement - British Columbia coast area.
88a			T/R: 157.425	T/R: 157.425	US: Commercial, Intership only. Canada: Automatic Ship Identification and Surveillance System.
		88b	T/R: 162.025	T/R: 162.025	
WX 1		WX 1		R: 162.55	
WX 2		WX 2		R: 162.4	
WX 3		WX 3		R: 162.475	
WX 4				R: 162.425	
WX 5				R: 162.45	
WX 6				R: 162.5	
WX 7				R: 162.525	

7

**ACCESSORIES**

Only use Harris approved accessories. Contact Harris for requirements not contained in this list:

**Standard Remote Speaker Microphone (RSM)** - Rugged, submersible, 6 ft. (stretch length) coil cord, swivel clip, 3.5 mm earpiece interface, high/low volume control

**1-Bay Charger** - Multi-chemistry battery charger, supports radio operation while charging

**6-Bay Charger** - Multi-chemistry, multi-bay battery charge, 12 VDC

**Leather Carry Cases** - Durable radio carry-cases selectable with swivel D-clip belt-loops or T-straps. Various styles available.

**Nylon Carry Cases** - Nylon radio carry cases available in various styles and configurations.

**USB Cable** - USB computer interface cable for use with the RF-6650P Communications Planning Application

**KVL Cable** - Adapter cable supports loading encryption keys with the Motorola KVL 3000 Plus

**AA Clamshell** - Battery pack for use with AA-sized batteries

**Lithium Battery** - Rechargeable Lithium-ION (Li-ION) battery pack (120882-0308-01)

**Antenna** - Full-Spectrum, 136-870 MHz frequency coverage

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**-A-**

<b>AES</b>	Advanced Encryption Standard
<b>AES-256</b>	Advanced Encryption Standard, 256-bit
<b>AMBE+2</b>	Advanced Multi-Band Excitation implementation 2
<b>ANSI</b>	American National Standards Institute

**-B-**

**-C-**

<b>C</b>	Celsius
<b>CA</b>	Canada
<b>CDCSS</b>	Continuous Digital Coded Squelch System
<b>CH INFO</b>	Channel Information
<b>CKR</b>	Common Key References
<b>CMB</b>	Continuous Marine Broadcast
<b>CPA</b>	Communications Planning Application
<b>CTCSS</b>	Continuous Tone Coded Squelch System

**-D-**

<b>DES</b>	Digital Encryption Standard
<b>DES-OFB</b>	Digital Encryption Standard Output Feedback
<b>DFO</b>	Department Fisheries Ocean

**-E-**

<b>EPIRB</b>	Emergency Position-Indicating Radio Beacons
--------------	---

**-F-**

<b>F</b>	Fahrenheit
<b>FCC</b>	Federal Communications Commission
<b>FM</b>	Frequency Modulation

**-G-**

<b>GHz</b>	Giga (10 <sup>9</sup> ) Hertz
<b>GPS</b>	Global Positioning System

**-H-**

**-I-**

<b>ID</b>	Identification
<b>IEEE</b>	Institute of Electrical & Electronics Engineers
<b>INTL</b>	International

**-J-**

**-K-**

<b>KHz</b>	kilo ( $10^3$ ) Hertz
<b>KID</b>	Key Identification
<b>KVL</b>	Key Variable Loader (Motorola KVL 3000 Plus)

**-L-**

<b>LAT/LONG DMS</b>	Latitude/Longitude Degrees Minutes Seconds
<b>LED</b>	Light Emitting Diode
<b>Li-ION</b>	Lithium-ION

**G**

**-M-**

<b>MHz</b>	Megahertz
<b>mm</b>	Millimeter
<b>ms</b>	milli ( $10^{-3}$ ) seconds

**-N-**

<b>NAC</b>	Network Access Code
<b>Ni-MH</b>	Nickel Metal Hydride
<b>NOAA</b>	National Oceanic and Atmospheric Administration

**-O-**

<b>OET</b>	Office of Engineering and Technology
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**-P-**

<b>P25</b>	Project 25
<b>POS</b>	Position
<b>PRI</b>	Priority (Channel)
<b>PTT</b>	Push-to-Talk

**-Q-**

# XG-100 GLOSSARY

## -R-

RSM Remote Speaker Microphone  
RX Receive

## -S-

SMA Subminiature version A

## -T-

TIA Telecommunications Industry Association  
TX Transmit

## -U-

UHF Ultra High Frequency  
US United States  
**G** USCG United States Coast Guard  
UTC Universal Time Coordinated  
UTM Universal Transverse Mercator

## -V-

VDC Volts, Direct Current  
VHF Very High Frequency  
VTS Vessel Traffic Service

## -W-

WEEE Waste from Electric and Electronic Equipment

## -X-

## -Y-

## -Z-



**Symbols**

(PRI), Set or Remove Priority ..... 93  
(Shortcut Menu), Start or Stop Scan 80

**Numerics**

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3000 Plus, Create Keygroup in  
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3000 Plus, Zeroize All from KVL ... 57  
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Using KVL ..... 55  
3000 Plus, Zeroize Keys Using  
KVL ..... 53

**A**

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