Appendix P: Manuals

Please refer to the following pages for the Operator's Manual and the Product Safety Manual.

HARRIS®
assuredcommunications®

Operator's Manual

14221-1800-2000
Feb/15

PRELIMINARY

XL-200P

Full-Spectrum Multiband Radio

MANUAL REVISION HISTORY

REV.	DATE	REASON FOR CHANGE
-	Feb/15	Initial release.

ACKNOWLEDGEMENT

This product was developed using GEOTRANS, a product of the National Geospatial Intelligence Agency and U.S. Army Engineering Research and Development Center. Use of this software does not indicate endorsement or approval of the product by the Secretary of Defense or the National Geospatial Intelligence Agency.

CREDITS

NOTICE!

Repairs to this equipment should be made only by an authorized service technician or facility designated by the supplier. Any repairs, alterations or substitutions of recommended parts made by the user to this equipment not approved by the manufacturer could void the user's authority to operate the equipment in addition to the manufacturer's warranty.

This product conforms to the European Union WEEE Directive 2012/19/EU. Do not dispose of this product in a public landfill. Take it to a recycling center at the end of its life.

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1. REGULATORY AND SAFETY INFORMATION

1.1 SAFETY CONVENTIONS

The following conventions are used throughout this manual to alert the user to general safety precautions that must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warning elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Harris assumes no liability for the customer's failure to comply with these standards.

The WARNING symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING symbol until the conditions identified are fully understood or met.

The **CAUTION** symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in damage to the equipment or severely degrade the equipment performance.

The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure.

1.2 SAFETY TRAINING INFORMATION

The Harris XL-200P portable radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as "Occupational Use Only," meaning it must be used only during the course of employment by individuals aware of the hazards and the ways to minimize such hazards. This radio is NOT intended for use by the "General Population" in an uncontrolled environment.

The XL-200P portable radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only." In addition, this Harris 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 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 (C95.1 – 1992), 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.

- IC Standard RSS-102, Issue 4, 2010: Spectrum Management and Telecommunications Radio Standards Specification. Radiofrequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

1.2.1 RF Exposure Guidelines

To ensure that exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause the FCC RF exposure limits to be exceeded. A proper antenna is the antenna supplied with this radio by Harris or an antenna specifically authorized by Harris for use with this radio. (Refer to Table 3-1.)
- DO NOT transmit for more than 50% of total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "TX" indicator appears in the display. The radio will transmit by pressing the "PTT" (Push-To-Talk) button.
- ALWAYS transmit using low power when possible. In addition to conserving battery charge, low power can reduce RF exposure.
- ALWAYS use Harris authorized accessories (antennas, batteries, belt clips, speaker/mics, etc). Use of unauthorized accessories may cause the FCC Occupational/Controlled Exposure RF compliance requirements to be exceeded. (Refer to Table 1-1.)
- As noted in Table 1-1, ALWAYS keep the housing of the transmitter ***AT LEAST*** 0.47 inches (1.2 cm) from the body and at least 0.98 in (2.5 cm) from the face when transmitting to ensure FCC RF exposure compliance requirements are not exceeded. However, to provide the best sound quality to the recipients of your transmission, Harris recommends you hold the microphone at least 2 in (5 cm) from mouth, and slightly off to one side.

Table 1-1: RF Exposure Compliance Testing Distances

RADIO FREQUENCY	TESTED DISTANCES *(worst case scenario)*	
	Body[1]	Face
VHF (136–174 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
UHF (378–522 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
700/800 MHz (768-776 MHz) (798-806 MHz) (806-816 MHz) (851-861 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)

[1] This is worst case based on the thinnest body mount accessory (belt clip).

The information in this section provides the information needed to make the user aware of RF exposure, and what to do to assure that this radio operates within the FCC RF exposure limits.

1.2.2 Electromagnetic Interference/Compatibility

During transmissions, this Harris radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

1.3 REGULATORY APPROVALS

1.3.1 Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

1.3.2 Industry Canada

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

1.4 OPERATING TIPS

Antenna location and condition are important when operating a portable radio. Operating the radio in low lying areas or terrain, under power lines or bridges, inside of a vehicle, or in a metal framed building can severely reduce the range of the unit. Mountains can also reduce the range of the unit.

In areas where transmission or reception is poor, some improvement may be obtained by ensuring that the antenna is vertical. Moving a few yards in another direction or moving to a higher elevation may also improve communications. Vehicular operation can be aided with the use of an externally mounted antenna.

Battery condition is another important factor in the trouble free operation of a portable radio. Always properly charge the battery.

1.4.1 Efficient Radio Operation

Keep the antenna in a vertical position when receiving or transmitting a message.

Do NOT hold onto the antenna when the radio is powered on!

1.4.1.1 Antenna Care and Replacement

Do not use the portable radio with a damaged or missing antenna. A minor burn may result if a damaged antenna comes into contact with the skin. Replace a damaged antenna immediately. Operating a portable radio with the antenna missing could cause personal injury, damage the radio, and may violate FCC regulations.

Use only the supplied or approved antenna. Unauthorized antennas, modifications, or attachments could cause damage to the radio unit and may violate FCC regulations. (Refer to Table 3-1.)

1.4.1.2 Electronic Devices

RF energy from portable radios may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc. is shielded from RF energy. However, in areas in which you are instructed to turn off two-way radio equipment, always observe the rules. If in doubt, turn it off!

1.4.1.3 Aircraft

- **Always turn off a portable radio before boarding any aircraft!**
- **Use it on the ground only with crew permission.**
- **DO NOT use while in-flight!!**

1.4.1.4 Electric Blasting Caps

To prevent accidental detonation of electric blasting caps, DO NOT use two-way radios within 1000 feet of blasting operations. Always obey the "Turn Off Two-Way Radios" signs posted where electric blasting caps are being used. (OSHA Standard: 1926.900)

1.4.1.5 Potentially Explosive Atmospheres

Areas with potentially explosive atmospheres are often, but not always, clearly marked. These may be fuelling areas, such as gas stations, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powders.

Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Turn off two-way radios when in any area with a potentially explosive atmosphere. It is rare, but not impossible that a radio or its accessories could generate sparks.

2. RENSEIGNEMENTS SUR LA RÉGLEMENTATION ET SÉCURITÉ

2.1 CONVENTIONS SUR LES SYMBOLES DE SÉCURITÉ

Les conventions suivantes sont utilisées dans le présent manuel pour avertir l'utilisateur des précautions générales de sécurité qui doivent être observées pendant toutes les phases d'opération, d'entretien et de réparation de ce produit. Le non-respect de ces précautions ou d'avertissements précisés ailleurs enfreint les normes de sécurité de la conception, de la fabrication et de l'utilisation prévue du produit. Harris n'assume aucune responsabilité pour le non-respect de ces normes par le client.

Le symbole MISE EN GARDE attire l'attention sur une procédure ou une pratique qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner une blessure personnelle. Ne pas poursuivre au-delà d'un symbole de MISE EN GARDE avant que les conditions identifiées soient complètement comprises ou satisfaites.

Le symbole **AVERTISSEMENT** attire l'attention sur une procédure ou une pratique opérationnelle qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner un bris d'équipement ou une importante baisse de rendement de l'équipement.

Le symbole **REMARQUE** attire l'attention sur des renseignements supplémentaires qui peuvent améliorer le rendement du système ou clarifier un processus ou une procédure.

2.2 RENSEIGNEMENTS SUR LA FORMATION SUR LA SÉCURITÉ

La radio portative Harris XL-200P produit de l'énergie électromagnétique des RF lorsqu'en mode de transmission. Cette radio est conçue et classée pour une « Utilisation professionnelle seulement », ce qui signifie qu'elle ne doit être utilisée que dans le cadre d'un emploi par des individus conscients des risques et des moyens de limiter ceux-ci. Cette radio N'EST PAS conçue pour une utilisation par la « Population générale » dans un environnement non contrôlé.

La radio portative XL-200P a été testée et est conforme aux limites d'exposition aux RF de la FCC pour une « Utilisation professionnelle seulement ». De plus, cette radio Harris est conforme aux normes et directives suivantes quant à l'énergie des RF et aux niveaux d'énergie électromagnétique, ainsi qu'à l'évaluation de ces niveaux pour l'exposition aux humains :

- Bulletin 65 du OET de la FCC, édition 97-01, supplément C, portant sur l'évaluation de la conformité aux directives de la FCC quant à l'exposition humaine aux champs électromagnétiques des radiofréquences.
- American National Standards Institute (C95.1 – 1992), norme de l'IEEE sur les niveaux sécuritaires d'exposition humaine aux champs électromagnétiques des radiofréquences, 3 kHz à 300 GHz.
- American National Standards Institute (C95.3 – 1992), pratique recommandée par l'IEEE pour la mesure des champs électromagnétiques potentiellement dangereux – RF et micro-ondes.

2.2.1 Directives sur l'exposition aux RF

Pour s'assurer que l'exposition à l'énergie électromagnétique des RF se situe dans les limites acceptables de la FCC pour l'utilisation professionnelle, respectez toujours les directives suivantes :

- N'utilisez PAS la radio sans qu'une antenne appropriée y soit connectée, car ceci peut endommager la radio et également causer un dépassement des limites d'exposition aux RF de la FCC. Une antenne appropriée est celle fournie par Harris avec cette radio, ou une antenne spécifiquement autorisée par Harris pour être utilisée avec cette radio. (Reportez-vous à Tableau 2-1.)
- Ne transmettez PAS pendant plus de 50 % de la durée d'utilisation totale de la radio (« cycle de service de 50 % »). La transmission pendant plus de 50 % du temps peut causer un dépassement des exigences de conformité de la FCC en matière d'exposition aux RF. La radio transmet lorsque l'indicateur « TX » apparaît sur l'affichage. La radio transmet lorsqu'on appuie sur le bouton « PTT » (bouton de microphone).
- Transmettez TOUJOURS en basse puissance lorsque possible. En plus de préserver la charge de la pile, une faible puissance réduit l'exposition aux RF.
- Utilisez TOUJOURS des accessoires autorisés Harris (antennes, piles, pinces de ceinture, haut-parleurs/micros, etc.). L'utilisation d'accessoires non autorisés peut entraîner un dépassement des exigences de conformité pour une exposition aux RF professionnelle ou contrôlée de la FCC. (Reportez-vous à Table 3-1.)
- Tel qu'indiqué dans Tableau 2-1, conservez TOUJOURS l'appareil et son antenne à ***AU MOINS*** 1,2 cm du corps, et à au moins 2,5 cm du visage pendant la transmission, pour vous assurer de ne pas dépasser les exigences de conformité de la FCC en matière d'exposition aux RF. Cependant, pour offrir la meilleure qualité sonore aux auditeurs de votre transmission, Harris recommande de tenir le microphone à au moins 5 cm (2 po) de votre bouche et légèrement déplacé sur un côté.

Tableau 2-1 : Distances de test de conformité des expositions aux RF

RADIOFRÉQUENCES	DISTANCES TESTÉES *(pire des scénarios)*	
	Corps[2]	Visage
VHF (136–174 MHz)	1,2 cm	2,5 cm
UHF (378–522 MHz)	1,2 cm	2,5 cm
700/800 MHz (768-776 MHz) (798-806 MHz) (806-816 MHz) (851-861 MHz)	1,2 cm	2,5 cm

[2] Ce est le pire des cas basée sur le corps plus mince monter accessoire (clip ceinture).

Dans cette section figurent les renseignements nécessaires pour sensibiliser l'utilisateur à l'exposition aux RF et sur ce qu'il faut faire pour s'assurer que cette radio fonctionne dans les limites d'exposition aux RF de la FCC.

2.2.2 Interférence/Compatibilité Électromagnétique

Pendant les transmissions, cette radio Harris produit de l'énergie des RF qui peut causer de l'interférence avec d'autres appareils ou systèmes. Pour éviter de telles interférences, fermez la radio dans les zones où il est indiqué de le faire. N'utilisez PAS le transmetteur dans des zones sensibles aux radiations électromagnétiques, comme les hôpitaux, les avions et les sites de détonation.

2.3 INTERFÉRENCE DES RADIOFRÉQUENCES

2.3.1 Partie 15 de la FCC

Cet appareil est conforme à la Partie 15 de la réglementation de la FCC. Le fonctionnement est soumis aux deux conditions suivantes :

1. Cet appareil ne doit pas causer une interférence nuisible; et
2. Cet appareil doit accepter toute interférence reçue, y compris une interférence qui peut causer un fonctionnement non souhaité.

2.3.2 Industrie Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.4 CONSEILS D'UTILISATION

L'emplacement et l'état de l'antenne sont importants pour l'utilisation d'une radio portative. L'utilisation de la radio dans des zones de faible élévation, sous des lignes électriques ou des ponts, à l'intérieur d'un véhicule ou dans un immeuble à ossature métallique, peut réduire la portée de l'appareil de manière considérable. Les montagnes peuvent également réduire la portée de l'unité.

Dans les zones où la transmission ou la réception est insatisfaisante, certaines améliorations peuvent être obtenues en s'assurant que l'antenne est verticale. Se déplacer de quelques mètres dans une autre direction ou à un emplacement plus élevé peut également améliorer les communications. L'utilisation d'une antenne fixée à l'extérieur peut faciliter le fonctionnement dans un véhicule.

L'état de la pile est un autre facteur important d'une utilisation sans tracas d'une radio portative. Chargez toujours correctement la pile.

2.4.1 Utilisation Efficace de la Radio

Gardez l'antenne dans une position verticale pendant la réception ou la transmission d'un message.

Ne tenez PAS l'antenne lorsque la radio est allumée!

2.4.1.1 Entretien Et Remplacement De L'antenne

N'utilisez pas la radio portative si son antenne est endommagée ou absente. Une brûlure légère peut se produire au contact d'une antenne endommagée avec la peau. Remplacez immédiatement une antenne endommagée. L'utilisation d'une radio portative alors que l'antenne est absente peut causer des blessures, endommager la radio et pourrait enfreindre la réglementation de la FCC.

Utilisez seulement l'antenne fournie ou une antenne approuvée. Des antennes non autorisées, des modifications ou des ajouts à une antenne peuvent endommager la radio et enfreindre la réglementation de la FCC. (Reportez-vous à Table 3-1.)

2.4.1.2 Appareils Électroniques

L'énergie des RF provenant de radios portatives peut affecter certains appareils électroniques. La majorité de l'équipement électronique moderne dans les voitures, les hôpitaux, les maisons, etc. est blindé contre l'énergie des RF. Cependant, dans les zones où l'on vous demande de fermer l'équipement de radio bidirectionnelle, respectez toujours les règles. En cas de doute, éteignez-le!

2.4.1.3 Avion

- **Éteignez toujours une radio portative avant d'embarquer à bord d'un avion!**
- **Ne l'utilisez au sol qu'avec la permission de l'équipage.**
- **NE l'utilisez PAS durant le vol!**

2.4.1.4 Détonateurs Électriques

Pour prévenir la détonation accidentelle des détonateurs électriques, n'utilisez PAS de radios bidirectionnelles à moins de 305 m (1 000 pi) des opérations de détonation. Respectez toujours les indications « Éteindre les radios bidirectionnelles » situées là où des détonateurs électriques sont utilisés. (Norme OSHA : 1926.900)

2.4.1.5 Atmosphère Potentiellement Explosive

Les zones ayant une atmosphère potentiellement explosive sont souvent, mais pas toujours, identifiées clairement comme telles. Il peut s'agir de zones d'alimentation en carburant, comme les postes d'essence, les installations de stockage ou de transfert de carburant ou de produits chimiques, ainsi que les zones dont l'air contient des produits chimiques ou des particules, comme des grains, de la poussière ou des poudres métalliques.

Des étincelles dans de telles zones peuvent provoquer une explosion ou un incendie, causant ainsi des blessures ou même la mort.

Éteignez les radios bidirectionnelles dans toute zone ayant une atmosphère potentiellement explosive. Il est rare, mais pas impossible qu'une radio ou ses accessoires produisent des étincelles.

3. INTRODUCTION

3.1 DESCRIPTION

The XL-200P provides users with advanced capabilities, interoperability, and ease of use in an extremely rugged radio that performs under the most adverse conditions. By supporting multiple operating modes (P25 Trunked, P25 Conventional, and Analog Conventional) across the VHF, UHF, and 700/800 MHz bands in a single radio, responders can communicate and collaborate with multiple jurisdictions and agencies operating on multiple frequencies and systems. The XL-200P is available with both a Full and Limited keypad and in black and high-visibility yellow.

XL-200P features include:

- Active Noise Cancellation using three microphones to transmit intelligible audio from users in loud environments
- AMBE+2™ Vocoder providing noise cancellation capability and optimizing audio quality for loud and clear communications
- Meets MIL-STD-810G for durability and certified for more stringent tests of 1.5-meter drop to concrete
- Easy-to-read multi-color front display and monochromatic top display to enhance communications for improved user safety
- Instant Recall allowing users to replay the last transmission received
- Built-in GPS for position tracking and rapid response for emergencies
- Wi-Fi and Bluetooth® functionality

For optional accessories, refer to Table 3-1. Additional accessories may have been added since publication of this manual; contact Harris for more information.

3.2 STORAGE GUIDELINES

Store your XL-200P and batteries in a clean, cool (not exceeding 86 °F [+30 °C]), dry, and ventilated storage area.

3.3 BASIC SETUP

3.3.1 Assemble the Radio

Only use a Harris charger approved for the battery chemistry. Injury could occur from improper charger use.

Do not over-tighten the antenna as damage could result.

1. Make sure batteries are charged per charger manual 10515-0372-4010 (supplied with the charger).

2. To attach optional belt clip, remove the existing tab from the back of the radio above the battery compartment. Slide the belt clip into the groove.
3. Lift clip, if installed, and slide top of battery into top of battery compartment at the rear of the radio.
4. Press down on bottom side of battery until it snaps into place.
5. Radio may need to be set for battery type (refer to Section 5.6.6).

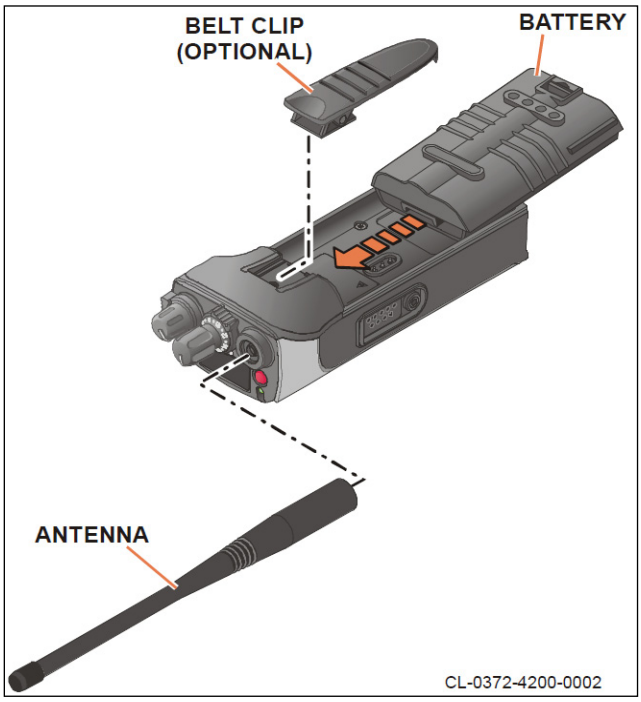


Figure 3-1: Radio Assembly

3.3.2 Removing the Battery

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

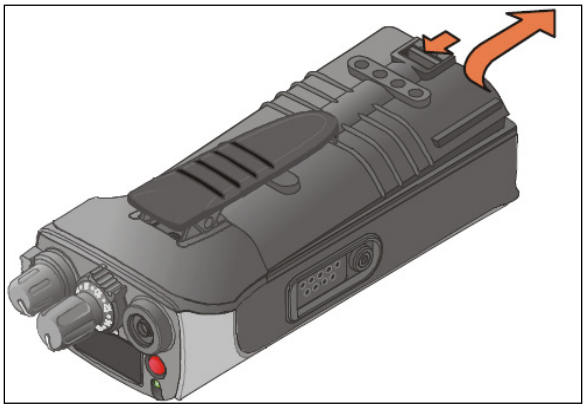


Figure 3-2: Remove the Battery

3.3.3 Removing the Optional Belt Clip

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

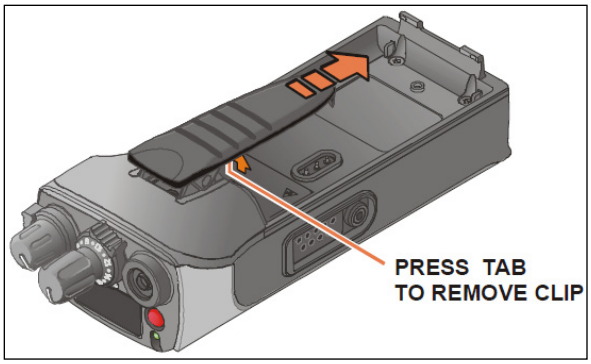


Figure 3-3: Remove Belt Clip

3.4 CLEANING

Keep the exterior of the radio, battery, antenna, and radio accessories clean.

Periodically clean using the following procedures:

1. To remove dust and dirt, clean using damp clean cloth (warm water and mild detergent soap).
2. Follow by wiping with damp (warm water) clean cloth. Wipe dry with clean cloth.
3. Remove the battery and wipe the battery and radio contacts using a soft dry cloth to remove dirt or grease. This will ensure efficient power transfer from the battery to the radio.
4. Remove any accessories and clean the accessories Universal Device Connector (UDC) contacts using a clean dry cloth. When the UDC is not in use, cover the connector with the protective dust cap to prevent the build-up of dust or water particles.
5. If the radio is used in a harsh environment (such as driving rain, salt fog, etc.), it may be necessary to periodically dry and clean the battery and radio contacts with a soft dry cloth or soft-bristle non-metallic brush.

For more rigorous cleaning, use the following procedure:

CAUTION

Do not use chemical cleaners, spray, or petroleum-based products. They may damage the radio housing. We recommend using Chemtronics® Electro-Wash® PR (ES-1603) or equivalent.

1. Apply the cleaning solution to a clean damp cloth and clean the radio.

NOTE

Do not spray cleaning solution directly on radio. To clean the radio in the speaker and microphone areas, carefully wipe these areas but prevent the cleaning solution from entering the speaker or microphone openings.

2. Wipe off the radio with clean damp cloth using mild warm soapy water.
3. Follow up by wiping off the radio with clean damp cloth using warm water only.
4. Wipe dry with clean cloth.

3.5 OPTIONS AND ACCESSORIES

Only use Harris approved accessories. Refer to Harris' Product and Services catalog for the complete list of options and accessories available. Contact Harris for requirements not contained in this list:

Always use the correct options and accessories (battery, antenna, speaker/mic, etc.) for the radio. Immersion rated options must be used with an immersion rated radio. Refer to Table 3-1.

Table 3-1: Options and Accessories

DESCRIPTION	PART NUMBER
ANTENNAS	
Antenna, 146-162 MHz, Helical	KRE1011219/2
Antenna, 806-870MHZ, Flex End-Fed Gain	KRE1011506/1
Antenna, 764-870MHz, 1/4 Wave Whip	KRE1011506/2
Antenna, Full Spectrum	14035-4000-01
BATTERIES/CHARGERS	
Battery, Lithium, Standard Capacity	14035-4010-01
Battery, Lithium, Standard Capacity, Cold Temp	14035-4040-01
Battery, Lithium, Extended Capacity	14035-4030-01
Charger, Single Bay	14035-1800-01
Charger, Multi Bay	14035-1800-02
Charger, Vehicular	14035-4100-01
AUDIO ACCESSORIES	
Speaker Microphone	12082-0600-01
Speaker Microphone, Emergency Button	12082-0600-02
Speaker Microphone, Wireless, Bluetooth	12082-0681-01
Speaker Microphone, Premium, Fire, Noise Cancelling, Hirose	12150-4001-02
Microphone, Palm, 2-Wire, Black	12082-0650-01
Microphone, Palm, 2-Wire, Beige	12082-0650-02
Microphone, Mini-Lapel, 3-Wire, Black	12082-0650-03
Microphone, Mini-Lapel, 3-Wire, Beige	12082-0650-04
Bluetooth, Covert, Earpiece/MIC/PTT, Radios	12082-0684-01
MISCELLANEOUS ACCESSORIES	
Cable, Data Interface	12082-0445-A1
Cable, MATQ-03424, Test	12082-0435-A1
Cable, USB, Key Loading/Programming	12082-0410-A1
Cable, KVL, Key Loading	12082-0400-A1
Adapter, 6-Pin Hirose	14002-0197-01
Holster, Leather, Radio, Premium	14035-4200-01
Holster, Nylon, Black, Radio, Premium	14035-4200-03

DESCRIPTION	PART NUMBER
Holster, Ring, Leather, Radio, Premium	14035-4200-04
Holster, Leather, Radio, Standard	14035-4202-01
Holster, Nylon, Black, Radio, Standard	14035-4202-03
Holster, Ring, Leather, Radio, Standard	14035-4202-04
Belt Loop, Leather, Premium	14002-0218-01
D-Swivel	12082-3230-01
Strap, Shoulder	CC103333V1
Belt Loop, Leather	KRY1011609/1

4. BASIC OPERATION

4.1 XL-200P CONTROLS

Figure 4-1: XL-200P Controls

Table 4-1: XL-200P Controls, Indicators, and Connectors

CONTROL/INDICATOR	FUNCTION
Group/Channel Knob	Used to select channels/groups.
Power/Volume Knob	Turn clockwise to power on radio and increase volume of audio heard in speaker. Minimum volume levels may be programmed into the radio to prevent missed calls due to a low volume setting.
A/B Switch	Can be programmed for multiple functions (see Section 6.5.2 for details).
Microphone (Rear)	When noise cancellation is enabled, the rear and front microphones are used together to form a dual microphone system. Noise cancellation improves the quality of transmitted voice. When noise cancellation is disabled, only the front microphone is used. See Section 4.7 for detailed information on using noise cancellation.
A/B/C/D Switch	By default, selects one of four channel banks (see Section 4.8). Can be programmed for multiple functions. See Section 6.5.3 for details.

CONTROL/INDICATOR	FUNCTION
User-Programmable Buttons	Used to select a commonly used function as an alternative to navigating menus. This is configured via programming using RPM.
Push-To-Talk (PTT) Button	Press to transmit. Make sure Push-To-Talk (PTT) is enabled (Section 5.6.1).
Battery	Battery - Refer to Section 3.3 for battery connection and removal.
Antenna Connector	Provides Subminiature version A (SMA) antenna connector.
Emergency Button	Used to place radio in emergency mode (see Section 4.31). This button can be disabled via programming using RPM. In addition, this button can be used in conjunction with a User Programmable Button to Clear Emergencies if configured to do so.
Indicator Light Emitting Diode (LED)	Indicates radio status. • Red = actively transmitting. • Green = actively receiving. • Orange = actively transmitting encrypted.
Top Display	Top display shows summary of status such as channel, battery, scanning, and emergency status. Display orientation can be configured for viewing from the front or rear of the radio (Section 5.6.2).
Speaker	Radio speaker which can be muted (Section 5.6.1). Adjust volume using the Power/Volume knob.
Microphones (Front)	When noise cancellation is enabled, the rear and front microphones are used together to form a dual microphone system. Noise cancellation improves the quality of transmitted voice. When noise cancellation is disabled, only the front microphones are used. See Section 4.7 for detailed information on using noise cancellation.
Front Display	Front display shows complete status and radio menus.
Soft-Key Displays	Displays the current function associated with the corresponding soft key located directly below each option on the keypad.
Soft Keys	Dynamic keys that have their current function labeled on the radio display directly above each button.
Select Button	Press ⬭ to display Channel Information or select a highlighted menu item.
Navigation Buttons	Press ▶ while on the idle display to access the Main Menu. Press ◀ while on the idle display to access the Shortcut Menu (see Section 4.35). Press ▼ while on the idle display to display functions for hard keys. Press ▲ and ▼ to navigate menus.
Keypad (Full Keypad Models)	Used to enter text or numbers, and to quickly access menus. The * key also acts as a home key to quickly navigate back to the main screen.

4.2 TOP DISPLAY

The top display shows a summary of status, such as channel number, channel short name, system short name, battery, scanning, and emergency mode. The display can be configured for viewing from the front or rear of the radio (see Section 5.6.2). Channel short name and zone/system short name are programmed in RPM.

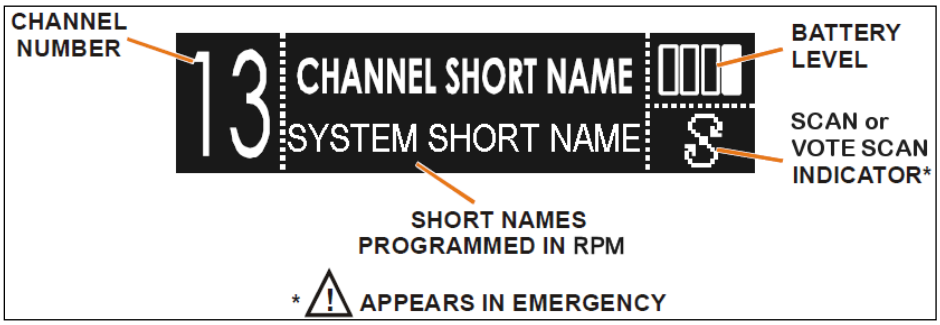


Figure 4-2: Top Display

4.3 MAIN DISPLAY

The idle display appears after power up or after exiting from the menus. The XL-200P also contains an icon glossary in the Utility Menu (see Section 5.9).

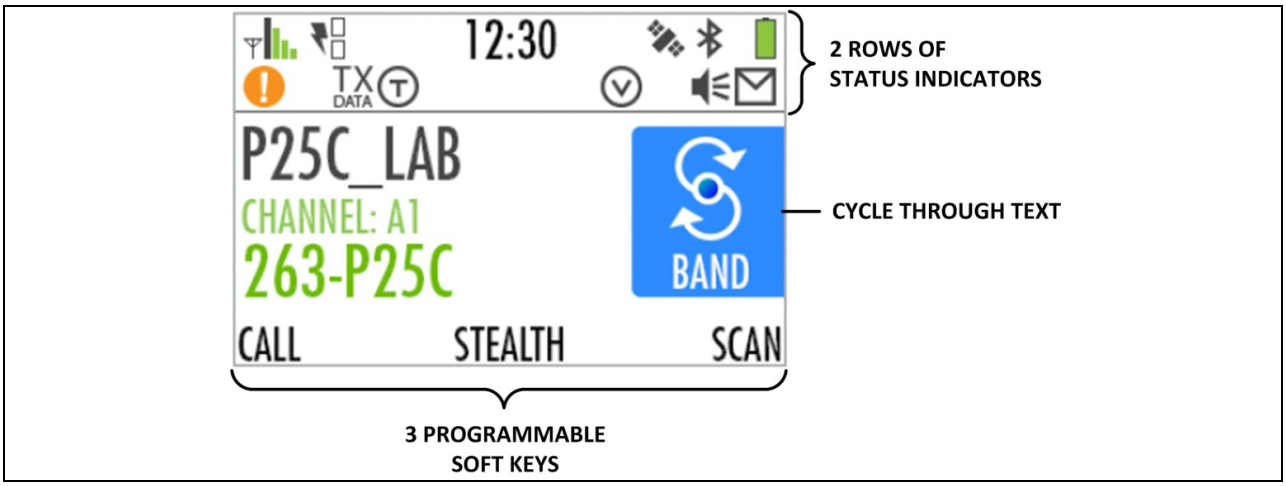


Figure 4-3: Sample Display

Table 4-2: Icons

ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	Trunked Signal Strength		Bluetooth On		Monitor On
	TX Power		Bluetooth Connected		VDOC
	Receive Signal Strength		Secure Traffic		Failsoft
	Channel Idle		Global Encryption		Receiving Data
	Transmitting Encrypted		OTAR Disabled		Transmitting Data
	TX Disabled		OTAR Registered		Virtual Site
	Tones Disabled		OTAR Registering		Alert(s) Present
	PTT Disabled		OTAR Rekeying		Vote Scanning
	Battery Level 100% Capacity		Talkaround Enabled		Scanning Enabled
	Battery Level 75% Capacity		Transmit Power Level		Emergency
	Battery Level 50% Capacity				
	Battery Level 25% Capacity		RX Only		RX Mail
	Battery Level 5% Capacity (Low Battery Audio Indicator)		GPS Tracking		Noise Cancellation Enabled
	Battery Level Battery Exhausted (RX-Only State)		Unit Unselected		Nuisance Channel
	Battery Charging**		Unit Selected		Conventional Site Unregistered
	Battery Fully Charged**		Unselected Unit in Emergency		Conventional Site Registered
	Speaker Muted		Selected Unit in Emergency		Type 99 Enabled

** Smart Battery Only

4.4 STATUS MESSAGES

During radio operation, various radio Status Messages may be displayed. The messages are described below.

Table 4-3: Status Messages

MESSAGE	DESCRIPTION
PTT DENIED	P25 Trunked only - Indicates the radio or talkgroup is not authorized to operate on the selected system and/or talkgroup.
CALL QUEUED	P25 Trunked only - Indicates the system has placed the call in a request queue.
SYSTEM BUSY	P25 Trunked only - Indicates the system is busy, no channels are currently available, the queue is full, or an individual call is being attempted to a radio that is currently transmitting.
SCANNING	Indicates the radio is scanning.
TX EMERGENCY	P25 modes only - Indicates an emergency call is being transmitted.
RX EMERGENCY	P25 modes only - Indicates an emergency call is being received. If programmed via RPM, radio will display the unit name or unit ID.
WIDE AREA SCAN	P25 Trunked only - Indicates the radio has entered the Wide Area Scan mode to search for a new system (if enabled through programming).
INVALID TALKGROUP	P25 Trunked only - Indicates the current talkgroup is not valid for the current system. This could happen if the site denies registration due to an unrecognized talkgroup ID.
INVALID UNIT	P25 Trunked only - Indicates the current unit is not valid for the current system.
REGISTERING	P25 Trunked only - Displayed when the radio is performing a registration/affiliation on a P25 trunking site.
CTRL CHANNEL SCAN	P25 Trunked only - Indicates the control channel is lost and the radio has entered the Control Channel Scan mode to search for the control channel (usually out of range indication).
BAND SCANNING	P25 Trunked only - This message is only displayed if the P25T system is configured for "EnhancedCC" mode of operation. When the radio cannot find a Control Channel in either the trunked frequency set or the list of discovered adjacencies, the radio is able to perform a full spectrum frequency scan to find a new Control Channel.
PROFILE SUCCESSFUL	P25 Trunked only - A new mission plan was written to the radio by ProFile Manager and activated.
OTAR REKEYING	OTAR Rekey operation is in progress.
OTAR REKEY COMPLETE	OTAR Rekey operation completed successfully.

4.5 BEFORE FIRST USE

Make sure XL-200P has:

- Fully charged battery
- Antenna attached
- Mission plan and radio programmed using the RPM
- Encryption keys loaded if using encrypted channels
- Mission plan activated

4.6 POWER ON AND SET VOLUME

The power switch and volume control are the same knob on top of the radio (see Figure 4-1).

Turn the Power/Volume Knob clockwise to power on XL-200P and increase the volume.

NOTE

Minimum volume levels may be programmed into the radio to prevent missed calls due to a low volume setting.

NOTE

The radio can be programmed to require the entry of a PIN in order to operate the radio. Check with your System Administrator if you forget your PIN. As the PIN is entered, an asterisk is displayed for each digit. The actual value is not displayed.

4.7 NOISE CANCELLATION

The XL-200P features Harris' proprietary noise suppression capability to provide clear and crisp voice quality in high-noise environments. This can be used in any mode, including analog and digital communications.

The XL-200P has two microphones; one located on the front (primary) and one on the rear (secondary). The primary microphone operates in exactly the same manner as a normal radio and is the one you talk into. The secondary microphone is used to pick up the surrounding noise when noise cancellation is turned on.

In the case where noise cancellation is enabled and a speaker microphone is attached to the XL-200P, talk into the speaker microphone. In this mode, XL-200P front microphone is used to pick up the surrounding noise, and the rear microphone is unused. See Section 4.7.4 for more information. If the secondary microphone is blocked, the XL-200P operates as though noise cancellation is turned off.

4.7.1 Enable Noise Cancellation

To enable Noise Cancellation:

1. Press ▶ to access the main menu.
2. Select **SETTINGS → AUDIO SETTINGS.**
3. Highlight and enable **NOISE CANCELLATION** using  .

Refer to Section 5.6.1 for more information on the Audio Settings menu.

4.7.2 Using Noise Cancellation

When using the noise cancellation feature, observe the following:

- Verify **NOISE CANCELLATION** is enabled (see Section 4.7.1).
- Ensure the primary and secondary microphones are not covered. See Section 4.7.4 for more information on the primary and secondary microphones.
- Talk within two (2) inches of primary microphone (see Figure 4-4).
- Speak clearly, loudly, and with authority.
- If possible, face the noise source when talking into the radio (see Figure 4-4).
- In very noisy environments, it is o.k. to yell into the radio. The radio can handle very loud input levels.

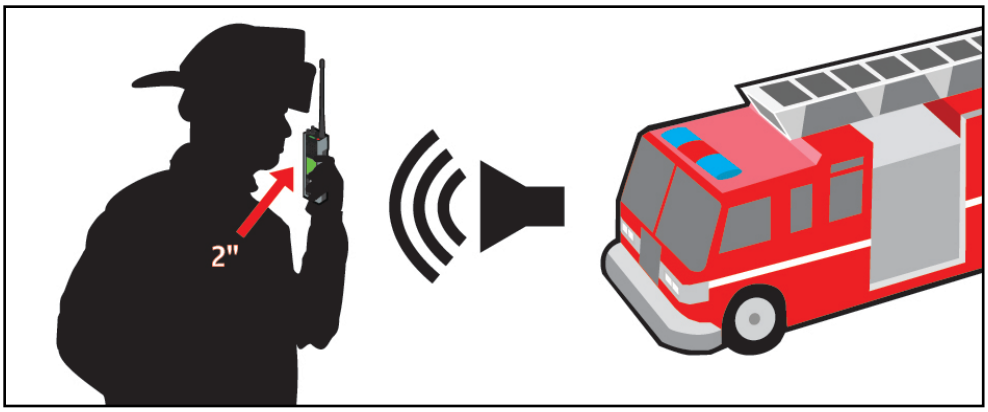


Figure 4-4: Using the Noise Cancellation Feature

4.7.3 The Effect of Distance from the Microphone

Unlike a normal microphone system, noise cancellation makes the level of your voice diminish quickly as you move away from the radio. In essence, the radio starts to see your voice as surrounding noise. Whereas, you may be comfortable speaking up to a foot away under normal operation, noise cancellation requires that you hold the radio close.

4.7.4 Primary versus Secondary Microphone

4.7.4.1 Without a Speaker Microphone Attached

The primary microphone is located on the front of the radio and the secondary is on the back of the radio. See Figure 4-5 for the location of these microphones.

INSERT GRAPHIC

Figure 4-5: Without a Speaker Microphone Attached

4.7.4.2 With a Speaker Microphone Attached

When a speaker microphone is attached, the radio electronically switches over to use the radio's front microphone as secondary. The microphone on the attached speaker microphone becomes primary (see Figure 4-6).

Figure 4-6: With a Speaker Microphone Attached

4.7.5 When using an SCBA Mask

When using the SCBA mask, the primary microphone can be held directly against the voice port. If the SCBA has a voice amplifier, the same rule applies. Ensure that the secondary microphone is uncovered. If possible, point the secondary microphone toward the noise source.

4.8 WI-FI

4.9 BLUETOOTH

4.10 PTT OPTIONS

The radio can be programmed via RPM with one of the following PTT options:

- Radio and Accessory – In this mode, when the radio is PTT'd the audio source will correspond with the PTT source.
  - If the source of PTT is radio, the audio is routed via the radio microphone.
  - If the source of PTT is an external microphone accessory, the audio is routed via the external microphone accessory.
- Accessory Only - Any PTT input will have the audio routed through the external microphone accessory.

The Bluetooth Speaker Mic is unaffected by this setting. PTTing the Bluetooth Speaker Mic always results in audio being routed via the Bluetooth Speaker Mic.

4.11 VOICE ANNUNCIATION

When enabled via programming, the Voice Annunciation feature provides audible feedback for various radio operations. The radio can be programmed to play an audio message for any or all of the following. This message can be a pre-recorded (canned) message or a user-recorded message.

- Zone changes
- Channel changes
- System changes
- Encryption On/Off
- Noise Cancellation On/Off
- Scan On/Off
- Talkaround On/Off

For more information on configuring the radio for Voice Annunciation, refer to the Voice Annunciation Feature manual 14221-7200-6110.

4.12 SELECT CHANNEL AND BANK

4.12.1 Using Group/Channel Knob

The XL-200P can be programmed with 1000 channels per system, with 16 channels in each of the three banks.

- **Bank A**: Channel A1 - A16
- **Bank B**: Channel B1 - B16
- **Bank C**: Channel C1 - C16
- **Bank D**: Channel D1 - D16

Use the Group/Channel knob to select group/channel 1 – 16. Use the A/B/C/D switch to set bank. The selected bank is indicated on the display.

NOTE

If your system has more than 64 channels, the **SEL CHAN/GRP** option available from the shortcut menu, allows you to select a channel group with channels 97-144, etc. See Section 4.35 for more information.

4.12.2 Manually Enter Channel Number

To manually enter a channel using the radio keypad:

1. Select **CHANNEL ENTRY** from the Shortcut Menu (this menu option must be programmed to the shortcut menu using RPM R10B or later).
2. Enter the channel number. You can enter raw numeric index or bank letter and channel number (e.g., B18 and 66 will both select channel 66). To enter the bank letter, press 2 ABC while the cursor is on the first digit to cycle through 2/A/B/C.

Entering a number greater than the maximum number of entries in the selected zone will select the last channel. From the radio's perspective, channels entered in this manner are not treated any differently from channels selected by the channel knob; for example, the scan list will be adjusted to add the channel (and make it P1 if applicable), emergencies will go out on the entered channel, etc.

NOTE

Physically moving the channel knob or changing the system causes the radio to select the channel indicated by the channel knob position (in other words, subsequent channel changes are not made with respect to the manually entered channel).

4.13 LOCK/UNLOCK KEYPAD

The A/B switch can be programmed to lock/unlock the keypad.

Or

Lock the keypad via the shortcut menu (see Section 4.35). Use the navigation buttons to unlock the keypad. Make sure the exact sequence of◄, ►, ▲, and ▼is used. Power cycling the radio will not unlock the keypad unless the RPM setting for Power Up Options is enabled.

NOTE

See Table 4-1 for the various options that can be programmed to the A/B switch.

4.14 TURN ENCRYPTION ON OR OFF

The A/B switch can be programmed to enable/disable encryption.

NOTE

See Table 4-1 for the various options that can be programmed to the A/B switch.

Or

Turn encryption on or off via the Security Menu:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SECURITY**.
3. Use  to highlight and enable/disable encryption. This option is grayed out if the A/B switch is programmed for encryption, or if Encryption Mode in the radio's personality is programmed "Forced On."

- If a channel is programmed to be encrypted, a key icon appears on the main display when encryption is enabled. The system must also be programmed to be encrypted.
- When encryption is turned on and you use any channel not configured for encryption, the radio allows PTT. The signal is transmitted unencrypted.
- Systems configured for Global Encryption (enabled in the Security menu) will display a Global Encryption icon instead of a key icon (Section 5.1.4).

4.15 TRANSMIT ENABLE/DISABLE

When transmit is disabled, all forms of transmission from the radio are disabled, including Bluetooth. This is designed for use in explosive atmospheres.

If enabled via programming, use the A/B switch to enable or disable transmit.

NOTE

See Table 4-1 for the various options that can be programmed to the A/B switch.

4.16 USER INTERFACE PRIVILEGE LEVEL

Depending on radio programming, some of the menu options described in this manual may not be available. The following table details the menus available for the different levels of User Interface Privilege:

Figure 4-7: User Interface Privilege

	FULL ACCESS	LIMITED ACCESS	RESTRICTED ACCESS
Audio Settings	✓		
GPS Settings	✓		
Clock Settings	✓		
Battery Setting	✓		
Bluetooth Settings	✓	✓	
View Scan List	✓	✓	
Edit Scan List	✓		
Zeroize	✓		
Keyset Changeover	✓	✓	✓
Global Encryption	✓		
Global Key	✓		
Program Menu only in Active Mission Plan	✓	✓	
Self-test on Utility Menu	✓	✓	
TCXO Tuning on Utility Menu	✓		
P25 Test Selection on Utility Menu	✓		
Command Tactical Zone	✓	✓	

4.17 SELECT ZONE/SYSTEM USING MENUS

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

1. Press ▶ to access the main menu.
2. Use  to highlight and select **ZONE**.

   A mission plan can have up to 512 systems, independent of banks or channels.
3. Use  to view zone/system.  indicates the active zone/system.
4. Use  to highlight and select zone/system.

   If **VIEW ZONE** is selected, a screen appears allowing you to view the channels in the zone/system.
5. Use  to scroll through the zones/systems.
6. Use  to select highlighted zone/system.

New zone/system appears.

4.18 CHANNEL GUARD (ANALOG CONVENTIONAL ONLY)

Channel Guard is Harris's trademark for CTCSS (tone squelch) and CDCSS (digital tone squelch).

NOTE

The Channel Guard menu is only accessible if the System is setup for CG SEL in the radio's personality.

To select the Channel Guard tone:

1. Press ▶ to access the main menu.
2. Use to highlight and select **CALL.**
3. Use to highlight and select **CHANNEL GUARD**.
4. Use to highlight and select **RECEIVE GUARD** or **TRANSMIT GUARD**.
5. Use to highlight and select the desired option from the list.
6. The Channel Guard frequency is displayed on the main display.

The Channel Info screen and Channel Edit screen will change depending on this selection. See Sections 5.5 and 6.2 for more information.

4.19 USE TALKAROUND TO BYPASS REPEATER (ANALOG AND P25 CONVENTIONAL ONLY)

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. Press ▶ to access the main menu.
2. Use to highlight and select **CALL**.
3. Use to change **TALKAROUND MODE** to **ENABLED**.
4. The Talkaround icon appears. Calls are now made on the receive frequency until you disable talkaround mode via the **CALL** menu. Power cycling the radio does not disable talkaround.

Or

If programmed for Talkaround enable/disable, use : Ø – Enables Talkaround.

O – Disables Talkaround.

NOTE

See Table 4-1 for the various options that can be programmed to the  switch.

If the Talk-Around Indication feature is enabled in RPM, the radio will play a unique grant tone when a call is placed on a simplex channel or when Talk-Around has been enabled on a duplex channel. This feature applies to both Analog and P25 Conventional systems. It optionally allows the radio to also play the same tone when it receives a call while operating in simplex or Talk-Around. ***If configured, the radio plays the tone at the selected volume level.***

NOTE

The tone will not play on systems configured with MDC.

Talk-Around Indication can be specified for each individual Analog and P25 Conventional system configured in personality. The following options can be selected, and apply only when the radio is on a simplex channel or when Talk-Around has been enabled by the user:

- Disabled: (This is the default option.) When this option is selected, the radio plays the standard grant tone when a call is placed. The radio does not play a tone when a call is received.
- Transmit Only: When this option is selected, the radio plays a different "Talk-Around" grant tone when a call is placed. The radio does not play a tone when a call is received.
- Transmit & Receive: When this option is selected, the radio plays a different "Talk-Around" grant tone when a call is placed, and at the beginning of a received call.

NOTE

In the radio personality, the "Alert Tone" parameter needs to be enabled for each channel on the Conventional Frequency Set. The "Ready To Talk Tone" parameter must also be enabled for the Talk Around Indication tone to be played when the radio is keyed.

4.20 TYPE 99 OPERATION

Type 99 is Harris' name for in-band, two-tone sequential signaling. It is a conventional signaling protocol used to control the muting and unmuting of a radio. This signaling is commonly used for selective calling of individual units or groups of units in a conventional system.

In Type 99 tone systems, calls are not heard until the radio detects the proper two-tone sequence. This, in conjunction with squelch, prevents the user from hearing noise or undesired conversations. When the radio detects the second tone, it sounds the appropriate Type 99 alert tone. After the second tone stops, the receiver audio path is opened in order for the user to receive messages.

4.20.1 Enable/Disable Type 99 from Call Menu:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **CALL**.
3. Press ⬭ to change **T99 TOGGLE** between **ENABLED** and **DISABLED**. T99 is displayed in the top of the radio display when Type 99 is enabled.

4.20.2 Disable After PTT

If this option is programmed in RPM, Type 99 is disabled after the radio user activates the PTT. This allows the radio user to monitor traffic on the channel (after a PTT action) without pressing the monitor button.

Can be used in conjunction with the "Auto Reset" option to disable Type 99 after a PTT and automatically reset, or enable, Type 99 after 30 seconds.

4.20.3 Auto Reset

If this option is programmed in RPM, Type 99 is automatically reset, or turned back on, after 30 seconds. Can be used in conjunction with the "Disable After PTT" option to disable Type 99 after a PTT and automatically reset, or enable, Type 99 after 30 seconds.

4.21 INDIVIDUAL CALLS

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 a digital channel.


NOTE

Refer to Section 4.35 to initiate an individual call from the shortcut menu.

4.21.1 Transmit an Individual Call

1. Press ▶ to access the main menu.
2. Use  to highlight and select **CALL**.
3. Use  to highlight and select **INDIVIDUAL CALL**.
4. Use  to highlight and select the unit to call or select **KEYPAD ENTRY** to enter the Unit ID.
5. Press **PTT** to make the call.
6. To end call, use  to select **END CALL**.

The amount of time the radio remains in Individual Call mode with no activity is programmable via RPM.

4.21.2 Receiving an Individual Call

1. When receiving an Individual Call, the radio displays the calling radio's name or Unit ID. If the radio is programmed for Acknowledged Individual Call, the radio displays "ICALL REQUESTED," then displays the Unit ID.
2. Press the PTT button to respond. The amount of time the radio will remain in the Individual Call mode with no activity is programmable via RPM.
3. The radio rings and indicates a missed call if you do not respond to an incoming Individual Call. The ring sounds continuously until you press PTT, select the **CLR MISSED** softkey, change channel/group/system, or power cycle the radio.
4. Select **END CALL** to end the individual call in progress.

5. If your system is configured for Acknowledged Individual Call, you have the option to **REJECT CALL** using .

4.22 GROUP CALLS

4.22.1 Change Talkgroup

A talkgroup is a group of radios that you want to have private conversations with. These groups can be divided into areas such as state, region, county, or large special events. A group call can only be made on digital channels.

P25 Trunked

Turn the Channel/Group knob to select the desired group (see Figure 4-1).

P25 Conventional

1. Press ▶ to access the main menu.
2. Use to highlight and select **CALL**.
3. Use to highlight and select **CHANGE TLKGRP**.
4. Use to highlight and select the talkgroup. After selecting the new talkgroup, the radio returns to the main screen.
5. Press PTT to make the call.

4.22.2 Receive a Group Call

When receiving a group call, the radio display toggles between the Unit Name and the Group Name of the transmitting radio. Note that if either of those names is not programmed, the corresponding ID number is displayed.

4.23 CALL ALERT (PAGE) - P25 TRUNKED ONLY

4.23.1 Send Alert

1. Press ▶ to access the main menu.
2. Use to highlight and select **CALL**.
3. Use to highlight and select **CALL ALERT**.
4. Use to highlight and select the desired unit from the list or select **KEYPAD ENTRY** to enter the Unit ID.
5. Press **PTT** to send the page.

4.23.2 Receive Alert

1. When receiving a Call Alert, the radio displays the calling radio's name or Unit ID.
2. The radio rings and indicates a missed call. The ring sounds continuously until you press **PTT**, select the **CLR MISSED** softkey, change group/system, or power cycle the radio.

4.24 TELEPHONE INTERCONNECT CALLS (P25 TRUNKED ONLY)

1. Press ▶ to access the main menu.
2. Use  to highlight and select **CALL.**
3. Use  to highlight and select **PHONE CALL**.
4. Select **SYSTEM LISTING** to select from a list of pre-programmed numbers for the active system, select **USER LISTING** to select from a list of user-defined numbers for all systems, or select **DIRECT DIAL** to enter the number directly. Direct Dial entry can have up to 31 characters (0-9, *, #, or a space; the space correlates to a pause.)
5. Press PTT to initiate the phone call.
6. Use  to select **END CALL**.

4.25 DTMF

The XL-200P supports the transmission of DTMF tones corresponding to the numbers/characters on the keypad. To overdial numbers/characters, press and hold the PTT button, and then press the corresponding keys one at a time on the keypad. Valid keys for DTMF tones are: (1, 2, 3, 4, 5, 6, 7, 8, 9, *, 0, and #).

DTMF tones will only play if the current system is programmed for DTMF (part of general System configuration).

4.26 START SCAN

This procedure assumes that the scan list has been added and the radio is not in active scan. Refer to Section 5.7 for scan setup or Section 4.27 for stopping scan. Refer to Section 5.7.1.1, Section 5.7.1.2, and Section 5.7.1.3 for home and priority channel descriptions.

Refer to Section 4.35 to start scan from the shortcut menu.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SCAN**.

3. Use  to highlight and select **START SCAN**. The green **START SCAN** text changes to red **STOP SCAN**.
4. Use  to select **BACK** and exit scan menu.

Or

The A/B switch can be programmed to start/stop scan.

If the A/B switch is programmed for start/stop scan, the other methods of starting and stopping scan are disabled.

See Table 4-1 for the various options that can be programmed to the  switch.

4.27 STOP SCAN

Stop scan from the shortcut menu (see Section 4.35).

Or

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SCAN**.
3. Use  to highlight and select **STOP SCAN**.
4. Use  to select **BACK** and exit scan menu.

Or

The A/B switch can be programmed to start/stop scan.

If the A/B switch is programmed for start/stop scan, the other methods of starting and stopping scan are disabled.

See Table 4-1 for the various options that can be programmed to the A/B switch.

4.28 MONITOR AND SQUELCH TYPES (CONVENTIONAL ONLY)

The monitor function allows you to temporarily turn off selected squelch to monitor for traffic that may not normally break squelch. The type of squelch used depends on an analog or digital channel. Start or stop Monitor via the shortcut menu (Section 4.35).

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 digital code.

For digital channels, there is:

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

NOTE

During encrypted operations, the radio only unmutes when receiving with the same key.

4.29 NUISANCE DELETE

A channel can temporarily be deleted from the scan list. The selected channel, priority 1, and priority 2 channels cannot be nuisance deleted. You can also perform a nuisance delete from the shortcut menu (Section 4.35).

NOTE

Nuisance delete can only be performed on the active scan list.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SCAN**.
3. Use  to highlight and select **SCAN LISTS**.
4. Use the navigation buttons to highlight the scan list.  indicates the active scan list.
5. Use  to select **VIEW/EDIT**.
6. Use the navigation buttons to highlight the channel.
7. Use  to select **OPTIONS**.
8. Use  to highlight and select **NUISANCE**.

The  icon appears next to the channel and it will not be scanned.

9. Use  to highlight and select **ADD BACK** to add channel back to scan list. If you do not add the channel back to the list, the channel will return to the scan list when you cycle radio power or activate a mission plan.
10. Use  to select **BACK** and exit the channel list.
11. Use  to select **BACK** and exit the scan list display.

4.30 VIEW GPS INFORMATION

You can use the internal Global Positioning System (GPS) receiver to view your position and satellite information. Remember, GPS requires an unobstructed view of the sky and the signal is greatly diminished inside buildings, tunnels, heavily forested areas, etc. GPS may not work at all under some conditions, especially in metal enclosures or buildings.

1. Press ▶ to access the main menu.
2. Use  buttons to highlight and select **GPS**.

You can observe GPS status:

- **GPS DISABLED** - GPS is disabled via programming.
- **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** - Radio was tracking and then lost GPS signal. The information displayed is from the last known position.

3. Use  to select **NEXT** to view satellite information.
4. Use  to select **BACK** and exit GPS screens.

4.31 EMERGENCY OPERATION

The XL-200P can be programmed to enable emergency mode. Unit name displays on dispatcher console if an emergency signal is received from another XL-200P on a digital channel.

4.31.1 Declaring an Emergency Call

1. Press and hold the emergency button on the radio or the speaker microphone. The length of time you need to hold the button is configured in RPM.


NOTE

Radio software R4A and later is needed to declare an emergency from the 12082-0681-01 Bluetooth speaker microphone.

- For digital channels, the radio transmits the talkgroup or radio ID to the dispatch console and receiving radio.
- The radio can be programmed to have a dedicated emergency channel, which can get activated from analog or digital channels.
- The radio can also be programmed to send an Emergency Alarm in addition to or in place of the emergency call (P25 modes).
- The radio will go through transmit and receive cycles if configured. Speak into the microphone while the radio is transmitting or press PTT to talk.

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

   If enabled via programming, you can clear an emergency by pressing the Monitor/Clear button (top side button by default) and then the emergency button.

4.31.2 Receiving an Emergency Call

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

Depending on options selected in RPM, the unit ID or unit name may be displayed.

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

4.31.3 Stealth Emergency

The radio can be programmed with the following emergency behavior:

- No audio indications when declaring an emergency.
  Or
- No visual indications when declaring an emergency.
  Or
- No audio *and* no visual indications when declaring an emergency.

During stealth mode, the radio will not receive any type of call. Once the user presses the PTT button, the radio display and audio returns to normal.

4.32 ENCRYPTION BAR

The encryption bar is shown in Table 4-4. Encryption keys must be loaded (Section 5.1.2) for these indications to be displayed.

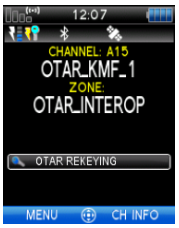
Table 4-4: Encryption Bar Indications

DISPLAY	DESCRIPTION
	This is an example of a key name of an AES and a DES key being transmitted or received.
	Encryption key assigned to channel was not found.
	This message appears on receive radios. Encryption key assigned to channel was not used on transmitting radio.

4.33 OTAR SCREENS

The OTAR screen is shown in Table 4-5. OTAR must be enabled (see Section 5.1.8).

Table 4-5: OTAR Display Messages

DISPLAY	DESCRIPTION
 	This is the main screen showing the OTAR status (receiving/transmitting, registering, and rekeying).

4.34 MDC-1200 (CONVENTIONAL ONLY)

MDC-1200 is a legacy in-band signaling protocol that provides the radio with the ability to transmit and receive a unique PTT ID. This PTT ID can be decoded by receiving radios and displayed as a hexadecimal number or an alias string. In addition, MDC-1200 provides radios with the ability to transmit emergency status to a console. Refer to the MDC-1200 Feature Manual, 14221-7200-6000, for complete instructions on configuring and using this feature.

4.34.1 Normal PTT Operation

If MDC signaling on PTT press is enabled in RPM, the radio transmits an MDC PTT ID message when PTT is pressed. If the Sidetone option is enabled in RPM, the radio plays a Ready-to-Talk (RTT) tone after the MDC pre-signaling has been transmitted.

If MDC signaling on PTT release is enabled (in RPM), the radio transmits post-call MDC signaling when PTT is released.

- IF STE is enabled (in RPM), the MDC post-call signaling is transmitted after STE is sent on PTT release only.
- MDC post-call signaling is also sent when there is a radio unkey due to Carrier Control Timeout (CCT). Normal CCT alert tones occur prior to unkey.

4.34.2 MDC PTT ID Receive Handling

When the radio receives an MDC PTT ID, it searches the MDC ID Alias List for an alias associated with the ID. If one is found, it displays the alias. If none is found, the radio displays the ID in hexadecimal.

4.34.3 Emergency Declaration

Emergency declaration is accomplished by the radio generating an MDC Emergency PTT message. An Emergency is considered acknowledged when the radio receives an "Ack To Emergency" PTT message with an ID which matches its own ID. If Emergency Audio is enabled and the PTT Sidetone option is enabled, the radio plays the Ready-to-Talk tone after the MDC Emergency PTT signaling is transmitted.

- If an MDC Alert on ACK is enabled, the radio plays an ACK tone when the MDC emergency is acknowledged.
- If audio tones are enabled, the radio plays an ACK tone if the emergency is not acknowledged within the programmed number of retries.

4.35 SHORTCUT MENU

The shortcut menu options vary depending on radio programming. Up to 16 options can be programmed.

1. At main display, press ◀ to display the shortcut menu.

2. Select an option using the keypad or use  to scroll through and select the desired option. Available options vary depending on radio programming and may include:

   - **START/STOP SCAN** - Start or stop scan shortcut menu. **START SCAN** appears if not scanning. **STOP SCAN** appears if scanning. **START SCAN** is grayed out if the radio has declared an emergency (TX EMERGENCY).
   - **START/STOP MONITOR** - (P25 Conventional and Analog Conventional) Monitor and squelch types. This is grayed out if radio is scanning. See Section 4.28 for information on monitor and squelch types.
   - **NUISANCE DEL** – Nuisance delete. This is grayed out if not scanning or if the radio has declared an emergency (TX EMERGENCY).

     NOTE

     Priority 1 and priority 2 channels cannot be nuisance deleted.

   - **LOCK KEYPAD** – Lock the keypad.
   - **TX PWR LOW/HIGH** – Toggle transmit power low or high.
   - **DISPLAY SA** – Displays the Situational Awareness screen.
   - **START ICALL** – Allows you to select a unit for an Individual Call.
   - **CHANNEL GUARD** – Allows you to select an Operator Selectable tone.
   - **OTAR REKEY** – Initiate an Over-the-Air Rekey.
   - **TALKARND ON/OFF** – Enable/Disable Talkaround mode.
   - **SEL CHAN/GRP** – Select the channel/group bank. If your system has more than 48 channels, this allows you to select a channel group with channels 49-96, 97-144, etc. (A17- A32, B17 – B32, C17 – C32, A33 – A48, etc., is displayed by the radio).
     - 1-16: Channels 1-48
     - 17-32: Channels 49-96
     - 33-48: Channels 97-144
     - 49-64: Channels 145-192, etc.

     NOTE

     This option is grayed out when the Command Tactical Zone is active. See Section 5.4.1 for more information.

   - **VOICEANNC ON/OFF** – Turns Voice Annunciation on/off. See Section 4.11 for more information.

5. ADVANCED OPERATIONS

5.1 ENCRYPTION

5.1.1 Create Keys using Harris Key Admin

Refer to the following documentation for advanced programming and setup instructions:

- Harris OTAR Overview Manual - MM-008069-001
- Network Key Manager Installation and Configuration Manual - MM-008070-001
- Harris UAS Key Management Application Manual - MM-008068-001
- Harris Key Manager Key Admin Overview and Operation Manual - MM1000019423
- Harris Key Manager Key Loader Overview and Operation Manual - MM1000019424
- Motorola® KVL 3000 Plus Key Variable Loader (KVL) User's Guide
- Motorola KVL 4000 Key Variable Loader (KVL) User's Guide


NOTE

If using Key Manager to create and load keys, ensure that you have version R5A or later installed. Versions prior to R5A do not support the XL-200P portable radio.

Harris Key Admin is part of the Harris Key Manager and is for use by the Crypto Officer (CO). The CO creates a Master Set of keys from which a Distribution Set is produced. Using the Key Admin software, the CO can save keys into Distribution key files for technicians to use in radios.

1. Select **Start → Programs → Harris Key Manager → Harris Key Admin**.
2. Select **New Master Set, Open**, or **Import from Security Device**. Refer to the Key Admin online help for more information on creating keys.
3. When finished, create a Distribution Key File. A Distribution Key File is used with the Key Loader to load key sets into the radio and cannot be edited. Refer to the Key Admin online help for more information on creating the Distribution Key File.

5.1.2 Load Keys

5.1.2.1 Load UKEKs with Key Loader and RPM (for OTAR-Enabled Systems)

UKEKs are loaded into Harris OTAR radios using the Key Loader application. Key Loader is a part of Key Manager.

To load encryption keys:

1. Obtain the UKEK file and Storage Location Number (SLN) Binding Report information from the Crypto Officer (CO).


NOTE

Both AES and DES UKEKs can be contained within the same UKEK file.

2. If not already on, power-up the PC that has RPM and the Key Loader applications installed on it, and start Windows.

3. Connect the radio to the PC using programming cable 12082-0410-A1.

NOTE

The Unity drivers must be installed before UKEKs can be loaded into the radio. If not already installed, the Unity drivers can be found on the Key Loader CD ("unity setup.exe") or on the Key Admin CD ("unity setup.exe").

4. Load the UKEK file from the Crypto Officer onto the PC.
5. Run the RPM application and setup the radio's personality according to the SLN Binding Report information.
6. Setup the talk groups and the SLN mappings (Talk Group ID to SLN). This includes mapping SLNs to the "System" keys (PSTN, All Call, etc.).
7. Select **Options → P25 OTAR Options** and set the following:
   a. The OTAR Message Number Period (MNP) as defined by the System Administrator.
   b. The radio's Individual RSI (from the SLN Bindings Report).
   c. The KMF's RSI (from the SLN Bindings Report).
8. Select **Radio → Program** or click on the **Program** icon and write the personality to the radio.
9. Run the Key Loader application.
10. Open the UKEK file loaded in step 4.
11. Select the Target Device type (Auto-Detect is preferred) and click the **Load** button.
12. When prompted, enter your user name and password and click **OK**.

    The Key Loader reads the target device's identifying information, retrieves a UKEK of the proper algorithm type from the UKEK file, and downloads the UKEK to the target device at the proper SLN and keyset with the proper key ID.
13. Click the **Finish** button to exit the Key Loader application. New UKEKs are loaded and the radio is now ready to accept TEKs via OTAR with the trunked radio network.

5.1.2.2 Load Keys using Harris Key Loader

Harris Key Loader is part of Harris Key Manager and can be used by the Crypto Officer or Technician to load the keys into the portable radio.

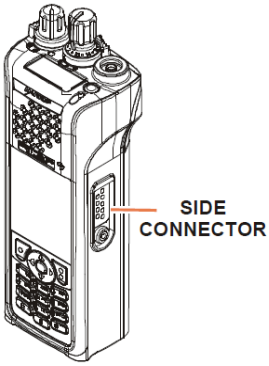
Refer to the Harris Key Loader online help if additional information is required when performing this procedure:

1. Connect the radio to the PC using the 12082-0410-A1 programming cable.
2. Power on the radio, if not already.
3. Select **Start → Programs → Harris Key Manager → Harris Key Loader**.
4. At the Key Loader Welcome screen, click **Next**.
5. Select **Load a Distribution Set into one or more devices**.
6. Click **Next.**
7. Browse to the Key File and enter the password.
8. Click **Next** to validate the password and continue. If the password is incorrect, the screen will display an error message.

9. Select **USB** from the drop-down and click **Next**.
10. Select the radio from the drop-down and click **Load**.
11. Click **Finish**.

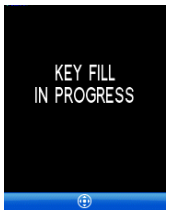
5.1.2.3 Load Keys using Motorola KVL Device

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 device using Telecommunications Industry Association (TIA)/Project 25 (P25) key fill device protocol. Make sure that valid keys have been created and stored in the KVL device before proceeding.



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

Once the Device is connected, a keyset is established whether the keys are loaded or not. You will need to zeroize to bring the XL-200P to a fully zeroized state (Section 5.1.3).



3. The key fill in progress screen will be displayed and the radio can accept keys from the KVL Device.
4. Remove the KVL Device cable from the radio.

5.1.3 Zeroize All from Radio

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

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SECURITY**.
3. Use  to highlight and select **ZEROIZE KEYS**.

Use  to highlight and select **YES** if you want to remove the keys. This will also remove the keysets.

5. Use  to select **OK**.

5.1.4 Protected keys

The Protected Keys feature transfers P25 Voice Keys, from Harris Key Loader to the radio, that have been wrapped (AES) or encrypted (DES) with Key Protection Keys (KPKs). KPKs are nothing more than unprotected Key Encryption Keys (KEKs). The KPKs need to be loaded into the radio before the

Protected Keys are loaded. Once loaded into the radio, the KPKs will be used to unwrap (AES) or decrypt (DES) the Protected Keys. Refer to Section 5.1.2.2 for key loading instructions.

5.1.5 Global Encryption

Global Encryption can be enabled when encryption keys are loaded on the radio and the selected Zone/System is encrypted. When Global Encryption is enabled on the radio, Global Key is used for all encrypted transmissions until:

- Global Encryption is disabled.
- A new mission fill is activated.
- The active keyset is changed.
- The system is changed.

Global Encryption behavior is available on all channels that support encrypted communications.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SECURITY**.
3. Use  to change **GLOBAL ENCRYPTION** to **ENABLED**.
4. Use  to highlight and select the key.
5. To change the selected global key, use  to highlight and select **GLOBAL KEY**.
6. Use  to highlight and select the global key.
   RPM allows Key Numbers to be given Key Names.
7. The global key icon is displayed on the main display.

5.1.6 Select Keyset

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SECURITY**.
3. Use  to highlight and select **ACTIVE KEYSET** to toggle to the inactive keyset.
4. Select Home Key or repeatedly press  to exit menus.

5.1.7 View Key List

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SECURITY**.
3. Use  to highlight and select **KEY LIST**.

4. The available key lists are displayed. Select the Home Key or repeatedly press to exit menus.

5.1.8 OTAR Configuration

OTAR is the over-the-air-rekeying from a KMF and must be enabled for the digital only channel using RPM. For OTAR operation, the appropriate KEKs must be loaded into the radio using the Harris Key Loader or a KVL device.

The KMF Configuration must include the RSI of the KMF and the appropriate Message Number Period.

1. Press ▶ to access the main menu.
2. Use to highlight and select **SECURITY.**
3. Use to change **OTAR** to **ENABLED** or **DISABLED**.
4. Use to select **OTAR REKEY** to request that the KMF updates the keys in the radio.

NOTE

OTAR REKEY is only enabled if the radio has successfully registered for data operations.

5. Select Home Key or repeatedly use to exit menus.

5.2 ACTIVATE/VIEW MISSION PLAN

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

1. Press ▶ to access the main menu.
2. Use to highlight and select **PROGRAM**.
3. Use to highlight and select mission plan. indicates the active mission plan.
4. Use to select **OPTIONS**.
5. Use to highlight and select:
   - **ACTIVATE PLAN** - to activate the highlighted plan. If the plan has a power-up PIN, you are prompted to enter the PIN before activation continues.
   - **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**.

You cannot activate a plan when the radio is transmitting an emergency.

A **MISSION PLAN FAILED** message may be displayed for errors such as invalid syntax in the fill or

some other invalid parameter.

7. If a plan is being viewed, radio displays the plan's filename. Plan information appears if field was filled out in RPM.
8. Use  to select **BACK**.
9. Select Home Key or repeatedly use  to exit menus.

5.3 SITUATIONAL AWARENESS (SA) – P25 CONVENTIONAL ONLY

Situational Awareness is a feature in which the XL-200P receives SA position from other units configured to send the SA packets. The SA display shows the positions of the other radios (units) relative to the XL-200P. To make use of SA, all radios need to have a uniquely programmed Unit ID. SA information can also be sent to an external application via a PPP or SLIP connection using port 18088.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **GPS**.
3. Use  to select **NEXT**.
4. Use  to select **NEXT** again.
5. Press  left and right to view location of each unit. If the selected unit is red, it is in emergency; otherwise, the selected unit is displayed in green.
6. GPS status is as follows:
   - Green – Tracking
   - Orange – Last known position
   - Red – Searching
7. Press  up and down to zoom the display distance of current unit.
8. Select **OPTIONS.** From here, select **UNIT INFO** to display details about the selected unit, select **REFRESH** to update information, or select **EXIT**.

5.4 USER-DEFINED ZONES/SYSTEMS

5.4.1 Command Tactical Zone

The Command Tactical Zone is defined "on-the-fly" at the radio.


NOTE

A Command Tactical Zone is reset when a Mission Plan is activated.

To create a Command Tactical Zone:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **ZONE.**
3. Use  to highlight <**USER-DEFINED**> and select **OPTIONS**.
4. Select **VIEW/EDIT** or select **RENAME ZONE** to rename the Command Tactical Zone (up to 16 characters are allowed).
5. From the View/Edit menu, press left or right using  to scroll through existing systems. Press up or down using  to highlight desired channel/group. Select **ADD CH/GRP** or **DEL CH/GRP** or press the select button when the channel/group is highlighted.
6. After adding all desired channels/groups, activate the Command Tactical Zone by selecting **OPTIONS → SET ACTIVE** or pressing the select button when the Command Tactical Zone is highlighted on the Zone menu.
7. After a creating a Command Tactical Zone, select **EDIT ZONE** to edit what is in the Command Tactical Zone, view details about the channel/group, and delete any channel/group.
8. Select **DETAILS** to view the system, channel or talkgroup name, and the knob position.
9. Select **OPTIONS → CLEAR ZONE** from the Zone menu to clear all channels/groups from the Command Tactical Zone.

5.4.2 Mixed System Zone

Mixed System Zones are defined in RPM and cannot be edited on the radio. If a Mixed System Zone is not configured in RPM, it will not appear on the radio. Up to 50 Mixed System Zones can be defined. You can view details about each channel/group. A user programmable button can be defined to scroll through just the mixed system zones.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **ZONE**.
3. Use  to highlight the Mixed Zone and select **VIEW ZONE**.

4. Use to highlight the desired group/channel in the list and select **DETAILS**.
5. The system, channel or talkgroup name, and the knob position are displayed.

5.5 CH INFO MENU

NOTE

The **CH INFO** softkey is only available if a Channel Edit Password has been programmed via RPM.

The Channel Information (CH INFO) menu displays information about the currently selected channel. The information displayed varies between conventional and trunked systems.

1. Press ▶ to access the main menu.
2. Use to scroll through the programmed channel settings.
3. Additional settings can be found by scrolling down.

   Channel Guard selections (see Section 4.18) are indicated by asterisks.

CONVENTIONAL ONLY:

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

Password remains active until power cycle.

Refer to Section 6.2.

5.6 SETTINGS MENU

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

1. Press ▶ to access the main menu.
2. Use to highlight and select **SETTINGS**.
3. Use to highlight setting.
4. Additional settings can be found by scrolling down.

Refer to the Sections 5.6.1 through 5.6.6 for more information on the available settings. Available menu items vary depending on radio programming.

5.6.1 Audio Settings

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

1. Enter the Settings Menu.
2. Use  to highlight and select **AUDIO SETTINGS**.
3. Use  to select and change settings as desired:
   - **SPEAKER** - Mute or Unmute the speaker audio.
   - **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 (see Table 5-1).
   - **KEYPAD TONES** - Enable or disable keypad tones. When enabled, the radio plays a tone when a button on the keypad is pressed.
4. Use  to exit menu.

Table 5-1: Alert Tones

TONE	DESCRIPTION	SOUND/DURATION
Ready To Talk Tone Unencrypted (Analog FM or P25 digital)	After a PTT is pressed, this is an audible indication (tone) for you to begin speaking into the microphone.	1000 Hz for 25 ms
Ready to Talk Tone Encrypted P25 digital	After a PTT is pressed, this is an audible indication (tone) for you to begin speaking into the microphone.	1200 Hz tone for 25 ms
PTT Denied	PTT not possible. Momentary tone is present: • Receive only • Key not found • PTT button disabled • Emergency button disabled • Emergency not supported for current channel • Clear transmit denied	544 Hz tone for 75 ms
Maximum transmit duration expires	Maximum transmit duration is exceeded.	5 beeps and then a 544 Hz 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: • 937 Hz tone for 50 ms • Silence for 60 ms • 1300 Hz tone for 50 ms
Emergency Call Received	Radio is receiving an emergency call or priority call.	600 Hz tone for 250 ms and 1800 Hz tone for 250 ms
Out of Range	Radio fails to find a local control channel.	Programmable via RPM: • Disabled (no tone) • Slow (tone every 15s)

TONE	DESCRIPTION	SOUND/DURATION
		• Medium (tone every 10s) • Fast (tone every 5s)

5.6.2 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 has same effect as turning off backlight.
   - **FRONT TIMEOUT** - Specify how long the radio needs to be inactive before the front display's backlight turns off.
   - **TOP BACKLIGHT** - Specify how long the top display's backlight will remain lit: **MOMENTARY**, **ON**, or **OFF**.
   - **TOP BRIGHTNESS** - Set the brightness level of the top display. A level of 0 turns off top display and indicator (TX/RX) LED.
   - **TOP TIMEOUT** - Specify how long the radio needs to be inactive before the top display's backlight turns off.
   - **TOP ORIENTATION** - Set orientation of top display to be viewed from radio: **FRONT**, **BACK**, or **AUTO.**

     When **AUTO** is selected, the XL-200P 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.
4. Use  to exit the menu.

5.6.3 GPS Settings

NOTE

GPS SETTINGS only appears if enabled in RPM and the feature is installed.

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 angular units: **CARDINAL**, **DEGREES**, or **MILS**.
   - **POSITION FORMAT**- Set format of displayed position information: Latitude/Longitude Degrees Minutes Seconds (**LAT/LONG DMS**), **LAT/LONG DM**, Military Grid Reference System (**MGRS**), or Universal Transverse Mercator (**UTM**).
4. Use  to exit the menu.

5.6.4 Bluetooth

NOTE

BLUETOOTH SETTINGS only appears if enabled in RPM and the feature is installed.

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.
5. Make sure device being paired is powered on and has discovery mode enabled in order to pair with the XL-200P.

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

Progress is then displayed.

For Bluetooth 2.0 devices, a pin code screen appears.

10. Enter pin code.
11. Use  to select **OK**.

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

12. Use  to select **ACCEPT**.

NOTE: You will also need to accept the passkey on the Bluetooth 2.1 device as well.

A message appears when pairing is complete.

13. Use  to select **OK**.

Paired device is then displayed under pair devices list.

14. Use  to select **OPTIONS**.

NOTE: Names containing extended ASCII characters may not display correctly.

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 Bluetooth name assigned to the radio. The friendly name configured in RPM will overwrite this setting.
18. Enter name for device.
19. Use  to select **OK**.
20. Use  to exit menu.

5.6.5 Clock Settings

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.

5.6.6 Battery Settings

1. Enter Settings Menu (see Section 5.6).
2. Use to highlight and select **BATTERY SETTINGS**.

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

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

If smart battery is detected, **SMART** is displayed and you will not be able to change the setting. Smart battery shows information such as voltage level, percent charge, chemistry, and charging state.

4. Use to exit menu.

5.7 SET UP SCAN

These procedures are used to set up the scan list, home channels, and priority channels. Refer to Section 4.23.

1. Press to access the main menu.
2. Use to highlight and select **SCAN,** or press 2 ABC.
3. Use to highlight and select **SCAN LISTS** and refer to the following sections.

When using Preemptive Priority Scan, the frequencies in the list need to be unique.

5.7.1 Home, Priority 1, and Priority 2 Channels

5.7.1.1 Home Channel

This is the channel you transmit on by default when you press PTT while the radio is actively scanning and is not responding to a just received call. Responding to a call the radio just received while scanning is called hang time. If hang time is set to 0 in RPM, the radio always transmits on the home channel in scan.

5.7.1.2 Priority 1 Channel

This channel will be scanned more often than other channels in the list and will be scanned in between every other channel in the scan list. An example scan sequence would be P1 (priority 1), C2, P1, C3, P1, C4, etc. Also, the priority channel will be scanned even while actively receiving on a non-priority channel. For example, if the radio is actively receiving on C3 and activity is detected on P1, the radio will drop C3 and switch to P1.

5.7.1.3 Priority 2 Channel

This channel will also be scanned more often than others. An example scan sequence would be P1, C2, P1, C3, P1, C4, P2, C5, P1, C6, P1, C7, P1, C8, P2, C9 etc. Also, this channel will be scanned even while actively receiving on a non-priority channel. For example, if the radio is actively receiving on C3 and activity is detected on P2, the radio will drop C3 and switch to P2. Additionally, activity on P1 can also preempt P2, but P2 cannot preempt P1.

5.7.2 Trunked/Conventional Scanning

Trunked/conventional scanning adds the ability to scan multiple conventional and P25 conventional channels while still maintaining P25 trunked radio operation. In essence, the radio is able to scan a conventional scan list while still receiving a P25 trunked control channel and receiving P25 trunked calls. Selection of which conventional scan list is associated with a given trunked system is done in RPM and cannot be changed on the radio. However, a user with sufficient UI privilege level (see Section 4.16) is allowed to edit the scan list members (both trunked groups and conventional channels on the selected Conventional Priority System). As the number of conventional channels being scanned increases, the time between scanning each channel increases (roughly 250 milliseconds per channel), with the consequent increase in the number of calls that will late-enter. In order to avoid missing calls, it is recommended to keep the number of conventional channels being scanned to eight (8) or fewer.

The trunking site must have roaming set to Enhanced CC.

5.7.3 Vote Scan (Analog and P25 Conventional Only)

If vote scan is enabled via RPM, the radio automatically selects the strongest signal ensuring that the best audio quality is delivered to the user. If vote scan is enabled, the radio is always scanning. You cannot stop scanning, start normal scanning, or monitor the channel. There is an icon in the upper status bar indicating that the radio is vote scanning.

If Talkaround is enabled, Vote Scan is turned off.

5.7.4 Edit Scan List

Depending on the scan list options selected in RPM, you may be able to add or remove channels/groups from the scan list.

1. Enter Set up Scan (see Section 5.7).
2. Use  to highlight and select the scan list. Use  to select **VIEW/EDIT**.
3. Use  to highlight channel/group.
4. Use  to select **OPTIONS**.
5. Use  to select **ADD CHAN/DELETE CHAN**, **SET PRI1**, **SET PRI2**, **REMOVE PRI**, or **NUISANCE/ADD BACK**.

When a channel is not grayed out in the list, **DELETE CHAN** appears. When a channel/group is grayed out (not in list), **ADD CHAN** appears.

6. Use  to toggle selection.
7. Use  to exit list.
8. Use  to exit scan list.

5.7.5 Set or Remove Priority 1 and Priority 2 Channels

Priority channels are scanned more often than non-priority channels. Note that P1 and P2 can only be set if configured as “Keypad” and the scan list is not set to “Fixed” in RPM.

1. Enter Set up Scan (see Section 5.7).
2. Use  to highlight scan list.
3. Use  to select **VIEW/EDIT**.
4. Use  to highlight channel/group.
5. Use  to select **OPTIONS**.
6. Use  to highlight and select **SET PRI1** or **SET PRI2**. Priority 1 channel appears with a P1 and Priority 2 channel appears with a P2.

   Select **REMOVE PRI** to remove priority.
7. Use  to exit channel/group list.
8. Use  to exit scan list.

5.7.6 Custom Scan Lists (Conventional and P25 Conventional Only)

Custom scan list can be created in RPM or on the fly at the radio. To allow the creation of custom scan lists on the radio, the RPM setting "Disable Custom Scan for Backward Compatibility" needs to be unchecked in **Custom Scan Options**.

To create a custom scan list at the radio:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SCAN**.
3. Use  to highlight and select **SCAN LISTS**.
4. Use  to scroll to the **CUSTOM LISTS** tab and select **ADD SCAN LIST**.
5. Use  to highlight the newly created scan list and select **OPTIONS → VIEW/EDIT.**
6. Use  to scroll through the available system tabs. From **OPTIONS**, you can add/delete channels and set P1 and P2 channels.

   Empty scan lists with no channels are deleted, after confirmation from the user, once the user returns to the top-level scan menu.
7. Enable the custom scan list from the scan menu, using  to change **CUSTOM SCAN** to **ENABLED.**


NOTE

When a custom scan list is selected, that list is scanned any time scanning is enabled for any conventional or P25 Conventional system. To scan only the channels assigned to a particular system, custom scanning must be turned off.

5.7.7 Wide Area System Scan (P25 Trunked Only)

Wide Area System Scan (WASCAN) causes the radio to roam across mobile systems when the currently selected system's control channel is lost. The radio will scan the control channels of other systems.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **SCAN,** or press .
3. Use  to highlight and enable **SITE ROAMING**.
4. Use  to select **BACK** and exit the scan menu.

5.8 MESSAGE MENU

5.8.1 Radio Status

The status feature is used to send a particular status condition to the site without making a voice call. There can be up to 10 status conditions programmed into the radio. For each status defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **MESSAGE**.
3. Use  to highlight and select **RADIO STATUS**.
4. Use  to highlight and select desired message. The  icon changes to an arrow to indicate active status after the status has been sent and is acknowledged by the site.

5.8.2 Radio Message

The message feature is used to send a particular message to the site without making a voice call. There can be up to 10 messages programmed into the radio. For each message defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

1. Press ▶ to access the main menu.
2. Use  to highlight and select **MESSAGE**.
3. Use  to highlight and select **RADIO MESSAGE**.
4. Use  to highlight and select the desired message. The  icon changes to an arrow to indicate active status after the message has been sent and is acknowledged by the site.

5.8.3 Radio TextLink (P25 Trunked Only)

Radio TextLink provides short text messaging functionality for radios. Because of the difficulty of entering text messages on a radio, predefined "canned" messages and predefined replies can be stored in the radio. To facilitate sending messages where information must be provided at send time, text message forms will also be stored in the radio. A form contains up to four (4) text prompts, for which the operator enters alphanumeric values before sending the message.

5.8.3.1 Radio TextLink Messages

1. Press ▶ to access the main menu.
2. Use  to highlight and select **MESSAGE**.
3. Use  to highlight and select **TEXTLINK MSGS**.

4. Use  to highlight the desired message.

5. Use  to select **OPTIONS**. From here, you can change callee, send the selected message, or view details for the selected message.

5.8.3.2 Radio TextLink Forms

Form messages are displayed and stored in the radio as a message in which each field to be filled is indicated by a question mark (?) followed by one or more asterisks(*). The number of asterisks indicates the maximum number of alphanumeric characters allowed for that field.

1. Press ▶ to access the main menu.

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

3. Use  to highlight and select **TEXTLINK FORMS**.

4. Use  to highlight and select the desired message.

5. Enter text into blank field(s) (up to 8 alpha-numeric characters).

6. Select **OPTIONS**. From here, you can change callee, send the selected message or view details of the selected message.

5.8.3.3 View Received Messages

When the  icon appears on main display, there are Radio TextLink messages waiting to be read.

1. Press ▶ to access the main menu.

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

3. Select **TEXTLINK MAILBOX**. From the mailbox, select **OPTIONS** to delete messages, view details of messages, and reply to messages.

5.8.4 Faults/Alerts

1. Press ▶ to access the main menu.

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

3. Use  to highlight and select **FAULTS/ALERTS**.

4. Observe messages in display.

The alert icon goes away when you go to the message display (unless a new fault occurs).

5. Use  to select **OPTIONS**.
6. Use  to highlight and select **DETAILS**, **DELETE**, or **DELETE ALL**.
7. If you view but do not delete the fault, the alert icon goes away.

   For **DETAILS**:
   - **BATTERY FAULT**
   - **BATTERY COMMS FAULT** - replace battery.
   - **NON-STANDARD BATTERY** - replace battery.
   - **EEPROM FAULT** - contact Harris.
   - **RF FAULT**
   - **OVERCURRENT** - Check antenna and antenna connection. Try replacing antenna.
   - **ZONE FAULT –** Feature not installed.
   - **CHANNEL FAULT –** Feature not installed.

Contact Harris for assistance diagnosing a fault.

8. Use  to exit back to main screen.

5.9 UTILITY MENU

1. Press ▶ to access the main menu.
2. Use  to highlight and select **UTILITY**.
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.
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 voltage for the attached non-smart battery.
12. Use  to scroll through smart battery status, if smart battery is attached.
13. Use  to exit screen.
14. Use  to highlight and select **ICON GLOSSARY**.

15. Observe icon glossary of terms.
16. Use  to scroll through additional pages.
17. Use  to exit screen.
18. Use  to highlight and select **FEATURE INFO**.
19. Press left or right using  to change between the **FEATURE DATA** tab and the **FEATURES** tab. From here, you can observe enabled features.
20. Use  to exit screen.
21. Use  to highlight and select **TCXO TUNING**.

This function only appears if the maintenance password is configured in RPM.

22. Enter the password.

This function is for maintenance personnel only. Improper adjustment will result in loss of communications. See Maintenance manual 14221-1100-5000 for proper usage.

23. Use  to exit screen.
24. Use  to exit main screen.
25. If a P25 channel is selected, use  to highlight and select **TESTS**. Enter the password to access the P25 tests. This function is for maintenance personnel only.
26. Use  to exit screen.
27. Use  to exit main screen.
28. Use  to highlight and select **RSSI**.
29. Enable or Disable **DISPLAY RSSI**. When enabled, RSSI is displayed on the RSSI screen and in the bottom right corner of the main display. -130 dBm is displayed when there is no received signal.

5.10 PPP/SLIP

The XL-200P can be configured to act as a Mobile Data Terminal (MDT). An MDT is essentially a portable computer capable of transmitting data messages via an RF communications link. Refer to Appendix A for instructions on how to setup PPP and SLIP connections between the radio and a Mobile Data Peripheral (MDP).

6. PROGRAMMING

This section provides information on front panel programming. Programming can also be accomplished by creating a plan using a computer with RPM version R9A or later installed.

6.1 PROGRAMMING VIA RPM

Radio Personality Manager (RPM) is used for the bulk of programming the XL-200P. With RPM, you can fully program the XL-200P using cable 12082-0410-A1.


NOTE

Ensure that the radio is turned off before connecting the programming cable. After the cable is connected, then power on the radio.

6.2 BLUETOOTH CLONING

Radios with R4A and later firmware support wireless cloning via Bluetooth. Cloning is the ability to fill the configuration or reconfiguration of one radio using another. See Section 5.6.4 for instructions on enabling Bluetooth on the radio.

STEP 1:

To clone a Mission Plan, the receiving radio must first be discoverable:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **PROGRAM**.
3. Use  to select the **CLONE PLANS** tab and select **OPTIONS**.
4. Select **RECEIVE CLONE**.
5. The radio displays “RECEIVE CLONE IN PROGRESS.”

STEP 2:

At the sending radio:

1. Press ▶ to access the main menu.
2. Use  to highlight and select **PROGRAM**.
3. On the **MISSION PLANS** tab, select the plan that you want to clone and select **OPTIONS** → **CLONE PLAN (BT)**.
4. Select the receiving radio from the list of found Bluetooth devices.
5. Accept the Passkey displayed on both radios. On completion of the clone, the transmitting and receiving radios return to the **PROGRAM** display.

6.3 EDIT CHANNEL (CONVENTIONAL ONLY)

Channels can be edited from the Channel Information (CH INFO) menu display. Most of the displayed channel parameters can be modified here. Channel edits persist across a power cycle. Loading a mission plan clears any channel edits.

Available parameters vary depending on whether the channel is a digital or analog channel. A digital channel allows you to receive digital or analog signals. When transmitting on a digital channel, you can transmit either a digital or analog signal, depending on how the channel is programmed.

1. Press ▶ to access the main menu.
2. Use  to scroll through the programmed channel settings.
3. Additional settings can be found by scrolling down.
4. Press  to select **EDIT CHAN**.

Only authorized users should attempt channel editing.

5. Enter the password programmed via RPM. You do not have to re-enter the password until you power cycle the radio.
6. Use  to select **OK**.
7. Use  to highlight and select the parameter to edit. For digital channels, modify remaining channel settings:
   - **CHANNEL NAME** - Channel name. Up to 16 alpha-numeric characters are allowed.
   - **RX FREQUENCY** - Receive frequency. Note that if the new frequency is invalid, the display reverts back to the old frequency (Table 6-1).
   - **TX FREQUENCY** - Transmit frequency.
   - **TX POWER** – Transmit power. Toggle between LOW and HIGH.
   - **TALKGROUP** – Select a talkgroup for the channel. Talkgroup name cannot be set here.
   - **RX NAC** - Network Access Code (NAC) radio uses for Normal squelch in receive.
   - **TX NAC** - NAC radio transmits to break Normal squelch on receiving radio.
   - **P25 SQUELCH** – Select type the radio uses in receive. Select NORMAL, SELECTIVE, or MONITOR.
   - **RX CHAN GUARD** – Squelch type radio uses in receive. Select Noise, CTCSS, or CDCSS. For a digital channel, the RX CHAN GUARD is used to receive from a Conventional analog channel that is on the same frequency and uses the selected Channel Guard.
     - **RX CODE** - Code radio looks to unmute the speaker on the receiving radio when CDCSS squelch is used in conventional mode.
     - **RX TONE** - Tone radio looks to unmute the speaker on the receiving radio when CTCSS squelch is used in conventional mode.

8. For analog channel, modify remaining channel settings:
   - **CHANNEL NAME** - Channel name. Up to 16 alpha-numeric characters are allowed.
   - **TX FREQUENCY** - Transmit frequency.
   - **TX POWER** – Transmit power. Toggle between HIGH and LOW.
   - **RX CHAN GUARD** – Squelch type radio uses in receive. Select Noise, CTCSS, or CDCSS.
     - **RX TONE** - Tone radio uses to break selective squelch on receiving radio. This is available when RX squelch is set to CTCSS.
     - **RX CODE** - Code radio uses to break selective squelch on receiving radio. This is available when RX squelch is set to CDCSS.


NOTE

RX CHAN GUARD is not available on this screen if it was enabled from the CALL menu as per Section 4.18.

   - **TX CHAN GUARD** – Squelch type radio uses in transmit. Select None, CTCSS, or CDCSS.
     - TX TONE - Tone sent by transmitting radio to allow receiving radio to unmute when CTCSS squelch is used in conventional mode.
     - TX CODE - Code sent by transmitting radio to allow receiving radio to unmute when CDCSS squelch is used in conventional mode.


NOTE

TX CHAN GUARD is not available on this screen if it was enabled from the CALL menu as per Section 4.18.

9. Use  to exit menu. An asterisk is displayed in front of the CHANNEL label on the main display when a channel is edited. The asterisk is NOT shown for TX Power or Talkgroup changes.


NOTE

When the only item edited is the TX or RX CHAN GUARD values, and then CHAN GUARD edit is Disabled, the asterisk goes away and the channel is no longer considered edited. This is the only editable item for which this is true.

Table 6-1: Valid Frequencies

FREQUENCY RANGE	FREQUENCY RESOLUTION
136 - 174 MHz	2500, 5000, or 6250 Hz
380 - 520 MHz	2500, 5000, or 6250 Hz
762 - 870 MHz	6250 kHz

6.4 OTAP (P25 TRUNKED ONLY)

Radios with R4A and later software support Over-the-Air-Programming (OTAP) via ProFile Manager. RPM creates, modifies and stores personality information while ProFile Manager delivers the personality over the network to the desired radios. ProFile Manager also contains the ability to read personality information over-the-air and save the files, so that RPM can modify the information if necessary.

You can interrupt the programming process, if necessary, by depressing the Push-to-Talk (PTT) button or declaring an emergency. Once a radio personality update is successfully completed, the radio automatically resets itself, switches to the new personality, and returns to normal operation.

For more information on using ProFile Manager, refer to software release notes AE/LZT 123 3263/1.

6.5 PROGRAMMABLE BUTTONS AND SWITCHES

6.5.1 Programmable Buttons

The programmable buttons are programmed using RPM. A delay of 0 to 10 seconds can be defined in RPM for the programmable buttons in R4A and later software.

You can program buttons for the following:

- Monitor Toggle – Toggles Monitor On/Off.
- Secure Clear – Toggles Encryption Mode On/Off.
- Front Backlight Toggle – Toggles front display's backlight On/Off/Momentary.
- Top Backlight Toggle - Toggles the top display's backlight On/Off/Momentary.
- Flashlight Mode – Press and hold to turn on the front and top display backlights. Release the button to turn off both displays.
- Scan – Toggles Scan On/Off.
- Flip Top Display – Toggles Top Display Front/Back.
- Lock Keypad – Locks the keypad.
- Nuisance Delete – Performs a Nuisance Delete. See Section 4.29 for more information.
- Talkaround – Toggles Talkaround On/Off. See Section 4.19.
- Speaker Mute – Toggles Speaker Muted/Unmuted.
- System Up – Scrolls up through the list of available systems, stopping at the top of the list.
- System Down – Scrolls down through the list of available systems, stopping when the end of the list is reached.
- System Up Wrap – Scrolls up through the list of available systems, wrapping to the end when the beginning of the list is reached.
- System Down Wrap – Scrolls down through the list of available systems, wrapping to the top when the bottom of the list is reached.
- Zone Up – Scrolls up through the list of available mixed system zones, stopping at the top of the list. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
- Zone Down – Scrolls down through the list of available mixed system zones, stopping when the end of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
- Zone Up Wrap – Scrolls up through the list of available mixed system zones, wrapping to the end when the beginning of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.

- Zone Down Wrap – Scrolls down through the list of available mixed system zones, wrapping to the top when the bottom of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
- Select Group Set – Select the channel/group bank. If your system has more than 48 channels, this allows you to select a channel group with channels 49-96, 97-144, etc.
- Drop Call – Drop or terminate any group call that the radio receives.
- Send Status – Sends a pre-configured status. See Section 5.8.1 for more information.
- Send Message – Sends a pre-configured message. See Section 5.8.2 for more information.
- Monitor/Clear – Temporarily turn off selected squelch to monitor for traffic that may not normally break squelch. Also, press this button followed by the emergency button to clear an emergency.

6.5.2 Programmable Ø/O Switch

The programmable Ø/O switch can be programmed for multiple functions, including:

- Switch between encrypted and unencrypted operation.

  Ø – Secure (PVT Enabled).

  O – Clear (PVT Disabled).
- TX Disable - Switches between Transmit Enable/Disable.

  Ø – Transmit is disabled.

  O – Transmit is enabled.
- Enable/Disable Talkaround.

  Ø – Talkaround is enabled.

  O – Talkaround is disabled.
- Lock/Unlock the Keypad.

  Ø – Locks the keypad.

  O – Unlocks the keypad.
- Start/Stop Scan.

  Ø – Starts Scan.

  O – Stops Scan.

6.5.3 Programmable A/B/C Switch

In XGP R3A and later, the A/B/C switch can be programmed for multiple functions using RPM R10B or later.

Single-Instance Features:

Single-instance features can only be assigned to one switch position at a time. If one of these features is programmed to the A/B/C switch, other means of accessing that feature are disabled (i.e., two-position switch, shortcut menu, programmable buttons, call menu, etc.).

- Talkaround (Conventional Systems Only) – See Section 4.19.
- Scan – Enables scanning.

- Tx Power High – Sets transmission power level to High.
  - Changing to a Tx Power High position overrides the current personality or user setting for TX Power.
  - Changing from a Tx Power High position restores the personality-configured Tx Power Level.
- Tx Power Low – Sets transmission power level to Low.
  - Changing **to** a Tx Power Low position overrides the current personality or user setting for TX Power.
  - Changing **from** a Tx Power Low position restores the personality-configured Tx Power Level.
- Keypad Lock – Locks numeric, #, * and navigation soft keys.
- Radio Lock - When set, prevents the radio software from responding to the following physical inputs on the radio:
  - Volume Knob Change (power off is **not** prevented)
  - 2-Position Switch
  - Channel Knob
  - Side User Programmable Button 1 (yellow button with 3 dots) – unless programmed for Monitor/Clear
  - Side User Buttons 2 and 3 (black buttons with 2 dots or 1 dot)
  - Keypad (numeric keys, #, * and navigation/soft keys)

Indexed features:

These features can be assigned to any number of positions as long as each index value selected for it is unique across multiple assignments of the same feature; for example, you can't assign a Zone with a particular index (e.g., "ZONE A") to both positions A and B.

- Channel Bank – Selects channels 1-16 in position A; 17-32 in position B; and 33-48 in position C.


NOTE

If Channel Bank is selected for any single position, the entire set of 3 positions (A, B, and C) will be set to Channel Bank.

- Zone Selection – Sets to the Zone index value.
  - When setting the A/B/C switch to an indexed zone assigned position, the radio sets, but does not "hold," that zone. This has the resulting effects:
    - This sets the channel knob to be zone-based system/channel selection just like selecting a zone from the main "Zone" menu.
    - If a user then changes to a different system or zone, it will override the radio's zone/system/channel selection accordingly and not require it to remain where the switch assignment set it to.
  - When changing from a Zone assigned position, no actions/changes will be taken by the radio.
- System Selection – Sets to the System index value.
  - When setting the A/B/C switch to an indexed System assigned position, the radio sets, but does not "hold," that System. This has the resulting effects:

- This sets the channel knob to be system-based channel selection, just like selecting a system from the main "Zone" menu or ramping up/down using the side user-programmable buttons.
- If a user then changes to a different system or zone, it will override the radio's zone/system/channel selection accordingly and not require it to remain where the switch assignment is set.

- When changing from a System assigned position, no actions/changes will be taken by the radio.

7. REFERENCE

7.1 MARINE FREQUENCIES

Refer to Table 7-1: Marine Frequencies 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 7-1: Marine Frequencies

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
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.

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.
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.
	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.

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
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
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
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.

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
	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
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.
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.
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

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
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.
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
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	

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
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.
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	
WX1		WX1		R: 162.55	
WX2		WX2		R: 162.4	
WX3		WX3		R: 162.475	
WX4				R: 162.425	
WX5				R: 162.45	
WX6				R: 162.5	
WX7				R: 162.525	

7.2 NARROWBANDING

The FCC has mandated that all public safety radios manufactured after January 1, 2013 comply with narrowbanding restrictions (see http://transition.fcc.gov/pshs/public-safetyspectrum/narrowbanding.html for more information). Radios manufactured after the above date will comply with these restrictions. Existing radio personalities that contain frequencies that violate the new FCC rules will cause an invalid channel error indication on the radio display. The user will need to change the radio personality to comply with the new rules. Note that there are multiple exceptions to the narrowbanding mandate, including the Marine Frequencies listed in Section 7.1.

8. GLOSSARY

-A-

AES	Advanced Encryption Standard
AES-256	Advanced Encryption Standard, 256-bit
AMBE+2	Advanced Multi-Band Excitation implementation 2
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange

-B-

-C-

C	Celsius
CA	Canada
CDCSS	Continuous Digital Coded Squelch System
CH INFO	Channel Information
CKR	Common Key References
CMB	Continuous Marine Broadcast
CTCSS	Continuous Tone Coded Squelch System

-D-

DES	Digital Encryption Standard
DES-OFB	Digital Encryption Standard Output Feedback
DFO	Department Fisheries Ocean
DMS	Degrees Minutes Seconds

-E-

EPIRB	Emergency Position-Indicating Radio Beacons

-F-

F	Fahrenheit
FCC	Federal Communications Commission
FM	Frequency Modulation

-G-

GHz	Giga (10^9) Hertz
GEOTRANS	Geographic Translator
GPS	Global Positioning System

-H-

Hz	Hertz
HKL	Harris Key Loader

-I-

ID	Identification
IEEE	Institute of Electrical & Electronics Engineers
INTL	International

-J-

-K-

KEK	Key Encryption Key
kHz	kilo (10^3) Hertz
KID	Key Identification
KMF	Key Management Facility
KMS	Key Management System
KS	Key Set
KVL	Key Variable Loader (Motorola KVL Device)

-L-

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

-M-

MHz	Megahertz
mm	Millimeter
MR	Mobile Radio
ms	milli (10^{-3}) seconds

-N-

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

-O-

OET	Office of Engineering and Technology
OTAR	Over The Air Rekey

-P-

P25	Project 25
POS	Position
PRI	Priority (Channel)
PTT	Push-to-Talk

-Q-

-R-

RF	Radio Frequency
RPM	Radio Personality Manager
RSI	Radio Set Identifier
RSM	Remote Speaker Microphone
RX	Receive

-S-

SA	Situational Awareness
SMA	Subminiature version A

-T-

TIA	Telecommunications Industry Association
TX	Transmit

-U-

UHF	Ultra High Frequency
UKEK	Unique Key Encryption Key
US	United States
USCG	United States Coast Guard
UTC	Universal Time Coordinated
UTM	Universal Transverse Mercator

-V-

VDC	Volts, Direct Current
VHF	Very High Frequency
VIDA	Voice Interoperability Data Access
VTS	Vessel Traffic Service

-W-

WEEE	Waste from Electric and Electronic Equipment

-X-

-Y-

-Z-

9. BASIC TROUBLESHOOTING

9.1 ERROR MESSAGES

This section provides a list of error messages, as well as possible causes and solutions.

SCREEN	TEXT	REASON	RESOLUTION
Top Level Display	DELETE NOT ALLOWED	Nuisance delete not allowed on current channel.	Requires new personality configuration (either Limited/Programmable scan lists or Keypad P1/P2 channels).
	EMERGENCY ACTIVE SCAN DISABLED	Cannot scan when transmitting an emergency.	Exit emergency to start scanning.
	OTAR REKEY FAILED	Self-explanatory	Attempt OTAR operation again.
	OTAR ZEROIZE FAILED		Attempt OTAR operation again.
	NO OTAR KEK LOADED		Load valid KEK before attempting OTAR.
	INVALID OTAR KEYSETS	OTAR configuration failed because keysets were improperly configured.	Zeroize keys and reload KEK(s) before attempting OTAR.
	INVALID KEYSTORE ZEROIZE NEEDED	Corrupt key database.	Zeroize database.
	SYNTH OUT OF LOCK	DSP synthesizer out of lock.	Channel will reselect automatically to attempt to obtain synth lock.
	SYNTH OUT OF LOCK POWER CYCLE RADIO	DSP synthesizer out of lock - unable to restore by reselecting channel.	Unable to obtain synthesizer lock. Power cycle radio and contact Harris if problem persists.
	TEXTLINK SEND FAILED	Failure to send a Radio TextLink message due to a data communication problem.	Troubleshoot the data connection between the radio and site. Ping the radio to verify the data connection.
Bluetooth Pairing Screen	PAIRING FAILED	Bluetooth pairing failed.	Ensure device is discoverable and attempt to re-pair the device.
	PIN CODE MUST HAVE AT LEAST 4 DIGITS	The PIN entered is too short.	Enter at least four digits.
Channel Edit Screen	EDIT FAILED	Unable to modify P25 Channel	Power cycle and try again-- contact Harris if problem persists.
	INVALID RX FREQUENCY	Entered Rx frequency is invalid.	Ensure frequency follows band spacing rules.
	INVALID TX FREQUENCY	Entered Tx frequency is invalid.	Ensure frequency follows band spacing rules.
	INVALID CODE	Code entered is not a valid CDCSS code.	Ensure code is valid.
	NAME ALREADY EXISTS	The channel name is already used.	Enter a new channel name.
Mission Plan List Screen	EMERGENCY ACTIVE FILL DISABLED	Cannot activate mission plans when transmitting an emergency.	Exit emergency to activate a new mission plan.

SCREEN	TEXT	REASON	RESOLUTION
Install Operations	INSTALL NOT ALLOWED	Error during install process.	Transfer the file again and reattempt install. Contact Harris if problem persists.
	EXTRACTION FAILED	Extraction of compressed file failed.	Transfer file again and reattempt install. Contact Harris if problem persists.
	REMOVE FAILED	Removal of existing software failed.	Attempt to install again and contact Harris if problem persists.
Mission Plan In Progress Screen	PLAN FAILED	Mission plan activation failed.	Use RPM to ensure plan validity. Contact Harris if failures persist.
Security Menu	ZEROIZE FAILED	DSP could not zeroize.	DSP problem — power cycle the radio and contact Harris if problem persists.
	NO KEYS TO ZEROIZE	Key database empty.	Nothing to zeroize.
Utilities Menu	INCORRECT PASSWORD	Maintenance password invalid.	Enter a valid maintenance password.
Channel Info Screen	INCORRECT PASSWORD	Channel edit password invalid.	Enter valid channel edit password.

9.2 OTAR ERRORS/INFORMATION

WORKAROUNDS:

1. Zeroize.
2. Load proper KEK from the Motorola KVL or Harris Key Loader.

IF RADIO INDICATES:

1. INVALID KEYSTORE ZEROIZE NEEDED:

   This occurs if the radio's keys were loaded by the Harris Key Loader followed by an attempt to load UKEKs with the Key Loader or keys with the Motorola KVL. Fix by performing workaround 1, followed by 2.

2. NO UKEK – Displayed during a zeroize performed from the radio or a zeroize initiated from the KMF.

   - Fix by performing workaround 2.

3. Zeroize Complete – KMF has zeroized the radio.

   - Fix by performing workaround 2.

4. Disabled OTAR Icon (red slash) – OTAR is disabled while in scan, talkaround, emergency, and monitor.

   - Fix by disabling these features. Icon will be corrected (no red slash).

5. Gray OTAR Icon (no red slash) – OTAR has not registered with tower (Conventional or Trunked system).

   - Fix by verifying proper frequencies.
   - If the radio is turned to the OTAR channel out of range of a conventional tower, and then comes in range after 3 minutes, fix by issuing an OTAR. Rekey, leaving and re-enter the OTAR channel.

6. Green OTAR Icon – OTAR is registered, all is well.
   - If update fails, verify you are in range of the tower and the KEK is correct.
7. Blue OTAR Icon – OTAR is attempting to rekey.
   - If rekey fails, verify you are in range of the tower and the KEK is correct.

10. TECHNICAL ASSISTANCE

The Technical Assistance Center's (TAC) resources are available to help with overall system operation, maintenance, upgrades and product support. TAC is the point of contact when answers are needed to technical questions.

Product specialists, with detailed knowledge of product operation, maintenance and repair provide technical support via a toll-free (in North America) telephone number. Support is also available through mail, fax and e-mail.

For more information about technical assistance services, contact your sales representative, or contact the Technical Assistance Center directly at:

North America:	1-800-528-7711
International:	1-434-385-2400
Fax:	1-434-455-6712
E-mail:	PSPC_tac@harris.com

11. WARRANTY

Please register this product within 10 days of purchase. Registration validates the warranty coverage, and enables Harris to contact you in case of any safety notifications issued for this product.

Registration can be made on-line at the Customer Care center webpage:

http://www.pspc.harris.com/Service/Customerservice.aspx.

While on the webpage, please review the applicable battery and/or product warranty literature.

APPENDIX A PPP/SLIP CONNECTION

A.1 OVERALL CONFIGURATION

This appendix describes how to setup PPP and SLIP connections between a Portable radio acting as a Mobile Data Terminal (MDT) and a Mobile Data Peripheral (MDP). The MDP in Figure A-1 is a Windows XP machine. This example is used throughout the configuration, but is only intended as a guide. It is important to realize that all IP addresses are site/configuration specific. Prior to configuring the MDT or the MDP, the system administrator should provide configuration specifics.

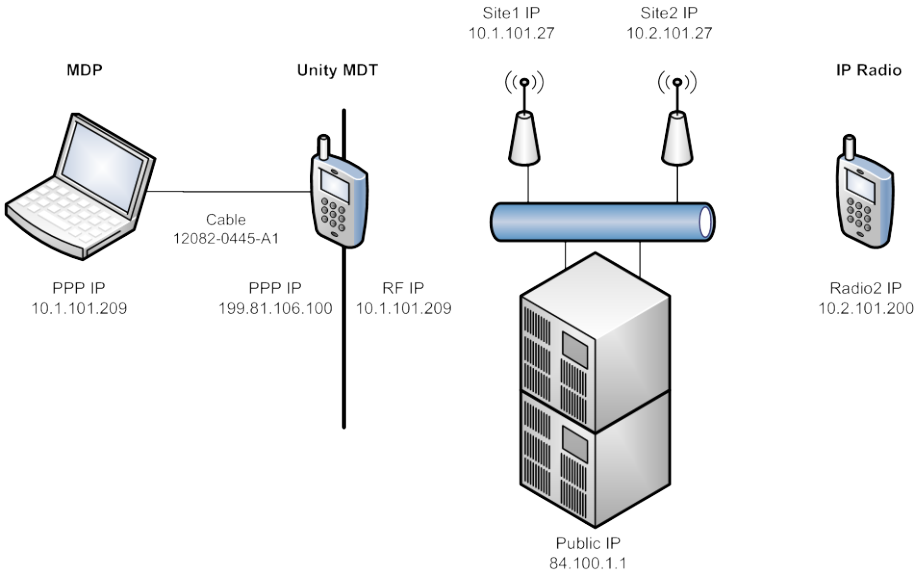


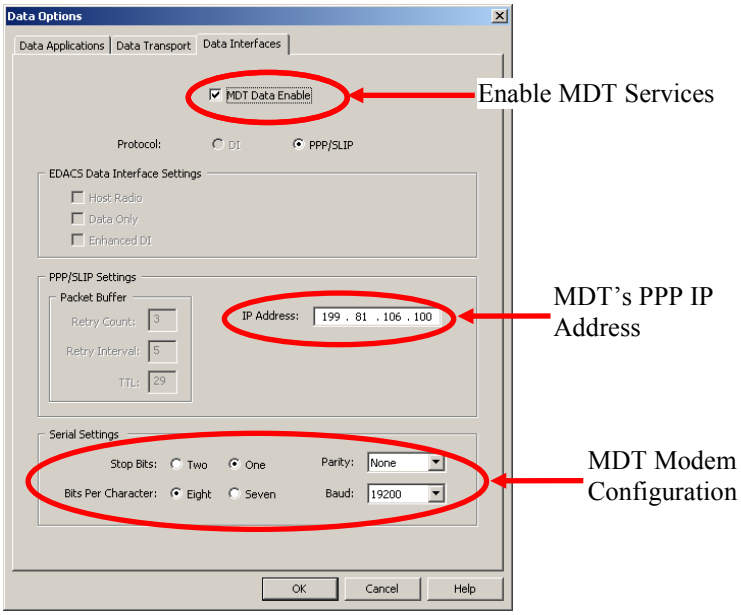
Figure A-1: Example of PPP/SLIP Configuration

- MDP PPP IP Address – There are two types of configuration for the MDP's IP address, dynamically assigned by PPP or statically assigned within the MDP's PPP configuration settings:
  - Dynamic via PPP (shown in Figure A-1) - When using PPP's dynamic IP address assignment, the radio will assign its own RF IP address to the MDP. Outbound IP data from the site will be processed by the radio if the port matches the ports within the radio's services (Radio Textlink, OTAR, OTAP, etc.). All other outbound IP data from the site is forwarded to the MDP. Inbound IP data from the MDP will be processed by the radio if the MDP uses the radio's PPP IP address; otherwise, it will be forwarded to the site.
  - Static – The MDP software allows the configuration of a static IP address to the MDP. While this provides more configurability, routing of traffic to the MDP from the site must be configured within the site's routers.
- MDT's PPP IP – This is typically a nonce IP address (shown in Figure A-1) to allow the MDP to address the radio explicitly (i.e., ping).
- MDT's RF IP – This IP address is how the site addresses the radio and must match configuration at the site.

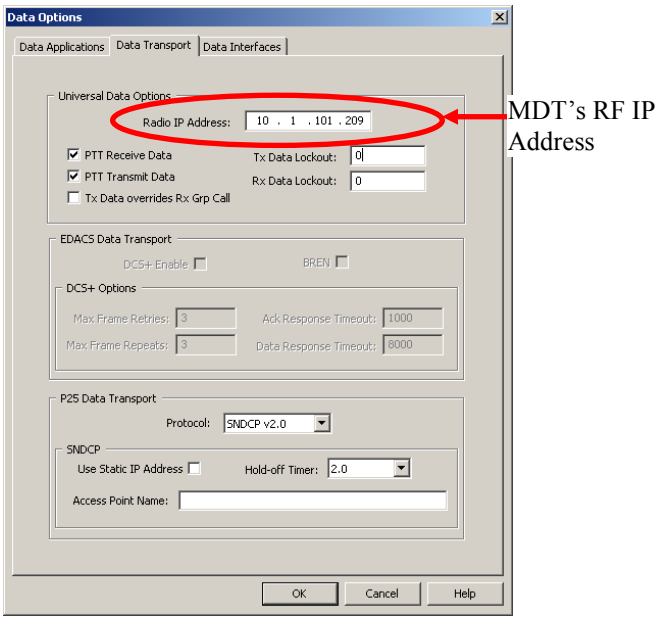
Other IP addresses in the figure above are beyond the scope of this configuration document and are provided for the purpose of the configuration example only.

A.2 RADIO CONFIGURATION

1. Use RPM to configure MDT services, PPP IP address, and RF IP address.
2. Within Data Options → Data Interfaces tab, enable MDT and configure the MDT's PPP address:



3. Within the Data Options, Data Transport tab, configure the MDT's RF IP[3].



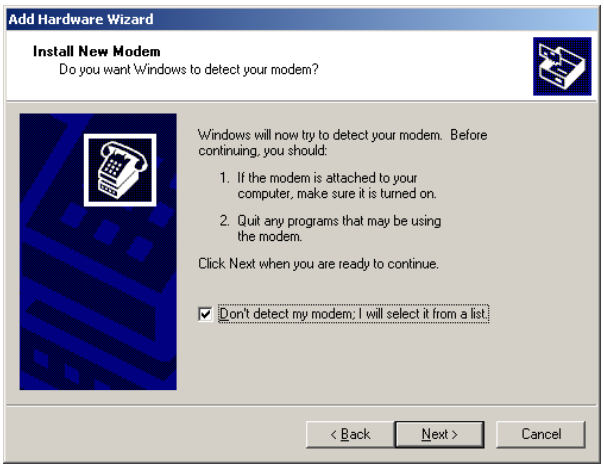
[3] If the MDP will be configured to have the radio provide the IP address (dynamic PPP IP address assignment), it is important to set the RF IP Address even if the site will dynamically assign it. Otherwise, the radio will fail PPP negotiation until the radio has registered with the site.

A.3 MDP PPP CONFIGURATION (WINDOWS XP)

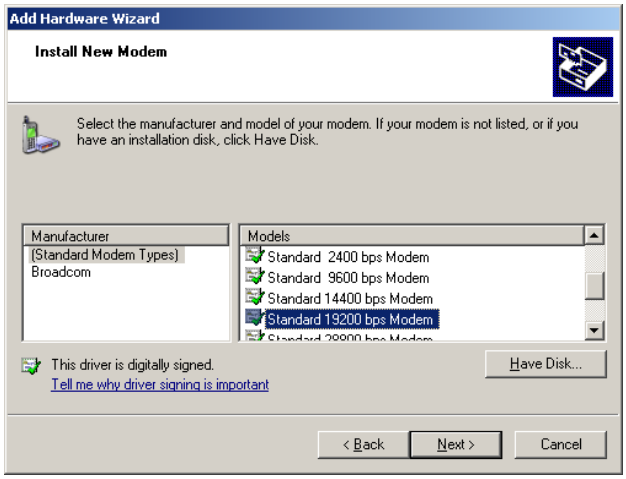
A.3.1 Windows XP Modem Configuration

The following configures a modem that will be used for the PPP connection on a Windows XP Mobile Data Peripheral.

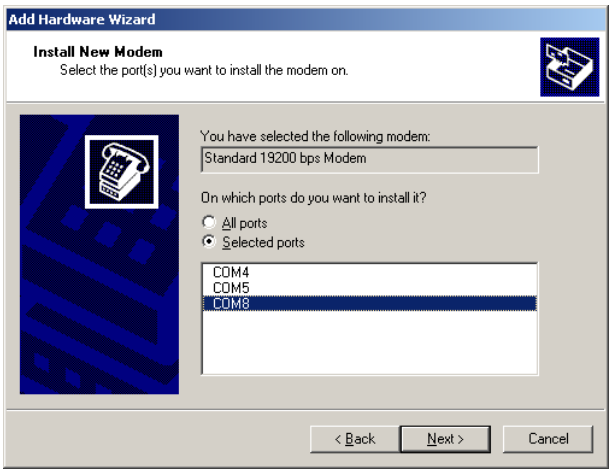
1. Open the Control Panel (**Start→Settings→Control Panel**).
2. Select **Phone and Modem Options**.
3. Choose **Modems** tab.
4. Select **Add** button.
5. Choose "Don't detect my modem; I will select it from a list."



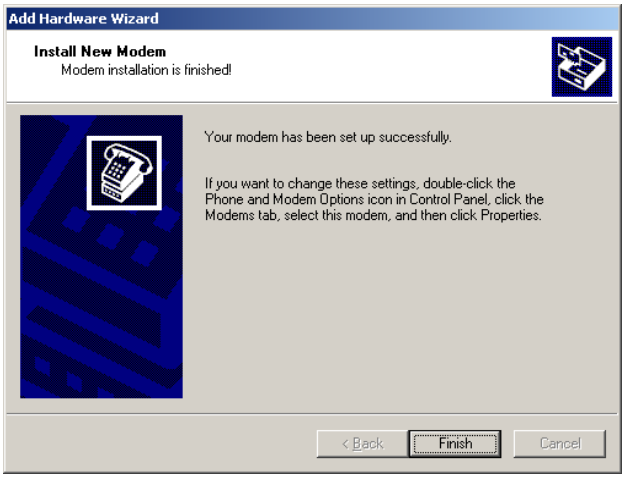
6. Choose **Next >.**
7. Choose the **[Standard Modem Types]** that corresponds the speed of the radio as configured in the RPM. For a 19200 bps connection, choose **Standard 19200 bps Modem**. Choosing a modem speed faster than the over-the-air bit rate removes the overhead incurred by PPP layer framing.



8. Choose **Next >.**
9. Choose the port the radio is connected to.



10. Choose **Next >**.
11. Windows will install the driver. Click **Finish** when completed.



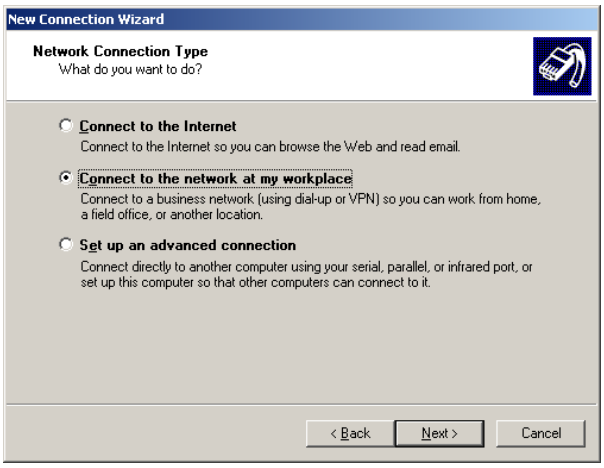
A.3.2 Windows XP Dial-Up Connection

The following configures a dial up connection to use the Windows XP Mobile Data Peripheral's modem.

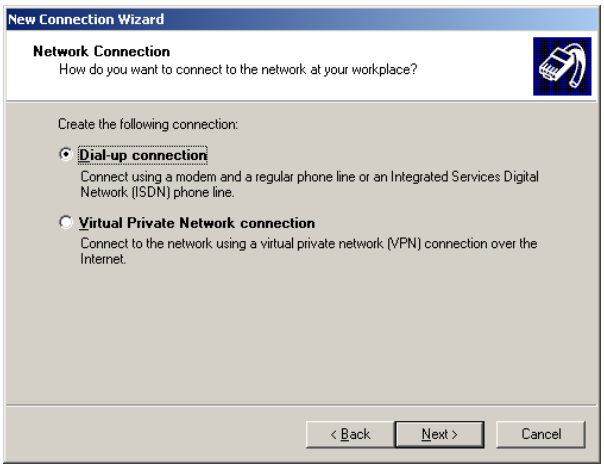
1. Open the Control Panel (**Start→Settings→Control Panel**).
2. Open **Network Connections**.
3. Choose **File→New Connection**.
4. When the wizard starts, choose **Next >**.
5. Choose **Connect to the network at my workplace**.

NOTE

If this is the only data connection for this machine, choose **Connect to the Internet** instead.

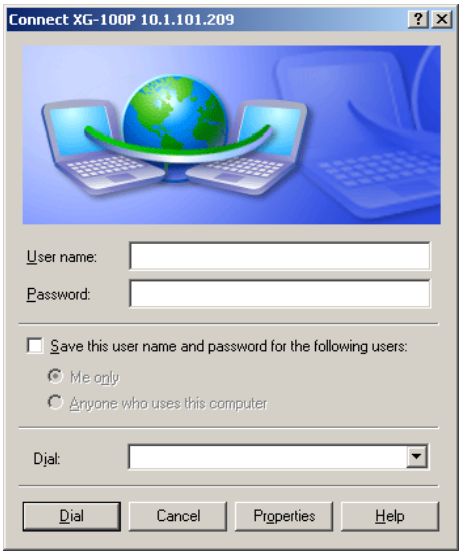


6. Choose **Next >**.
7. Choose **Dial-up connection**.



8. Choose **Next >**.
9. Choose a Name for the connection. This is for informational purposes only and is the name that the connection will use within the **Network Connection** window. In this particular case, the radio name and the IP address assigned to that radio has been chosen as an indicator (XL-200P 10.1.101.209).
10. Choose **Next >**.
11. Choose a non-empty phone number for the connection.
12. Choose **Next >**.
13. Choose **Do not use my smart card**.
14. Choose **Next >**.
15. Choose **Anyone's use**.
16. Choose **Next >**.
17. Choose **Finish**.

18. The following dialog is displayed:



19. Choose either **Cancel** or **Properties**. If **Properties** is chosen, proceed with Section A.3.3, Configuring a PPP Dial-up Connection, step 3.

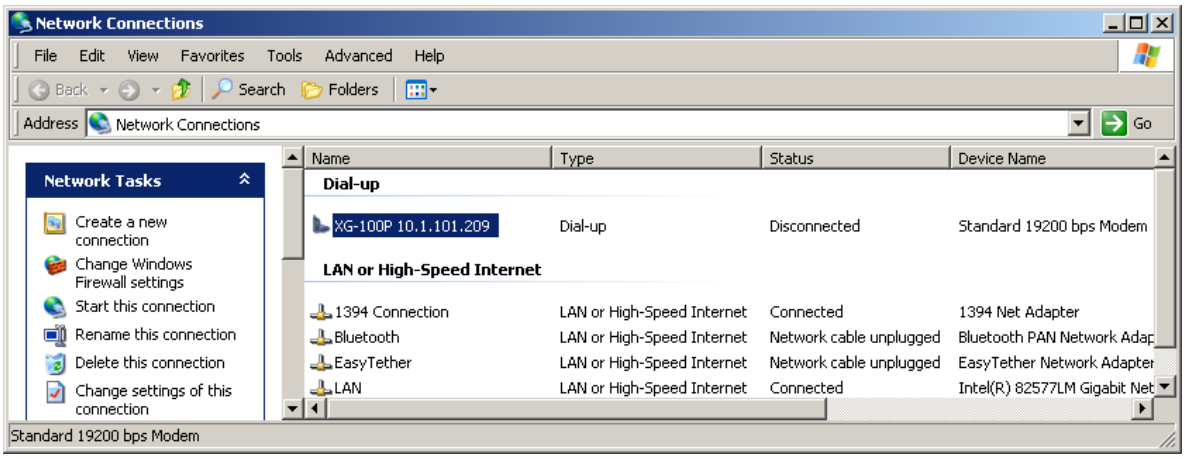
A.3.3 Windows XP PPP or SLIP Configuration

Configuring a PPP Dial-up Connection

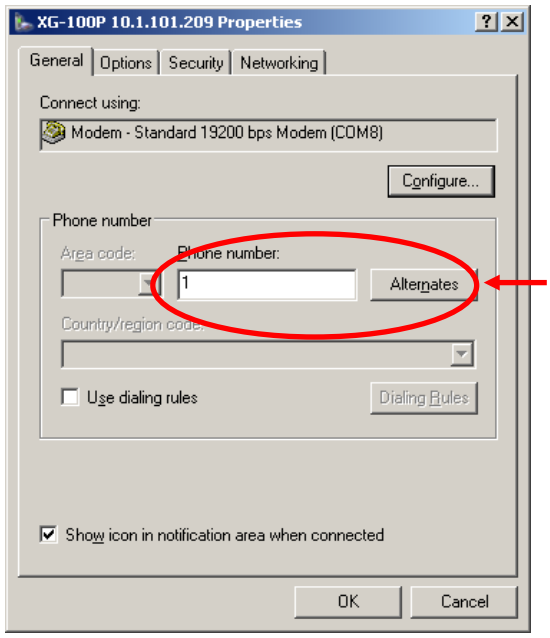
NOTE

PPP connection is preferred over SLIP in most windows configurations as it allows for dynamic address assignment from the radio as well as frame validation.

1. Open the Control Panel (**Start→Settings→Control Panel**).
2. Select the Dial-up connection that was just created.

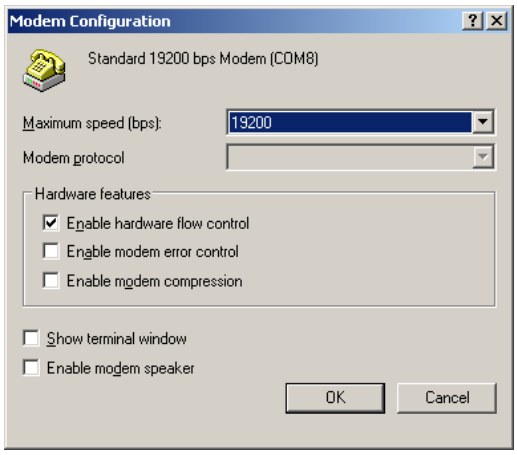


3. Select **File→Properties**, and specify any Phone number.[4]

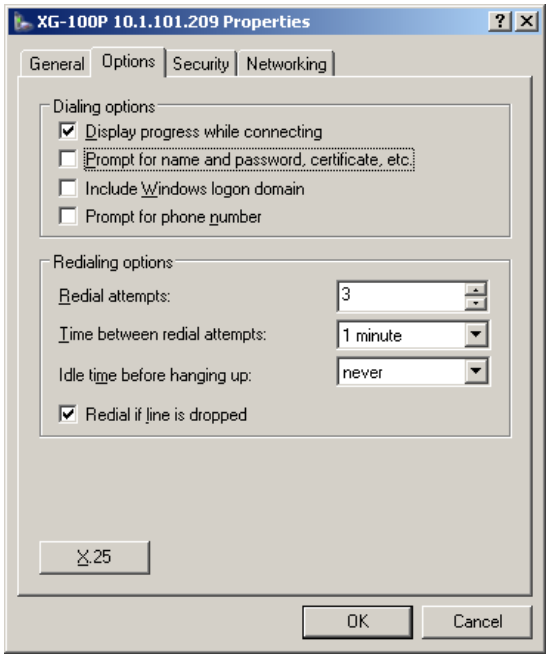


4. Choose **Configure**. Verify that settings and baud rate match the RPM configuration for the radio.

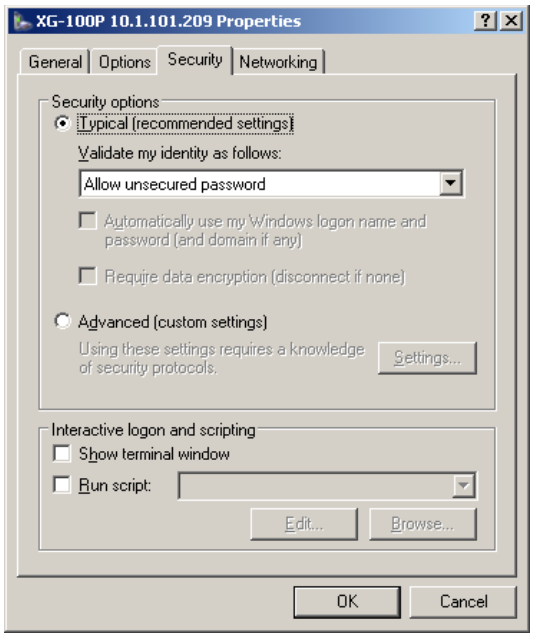
[4] It is important to specify a Phone number: or XP will not start the connection process.



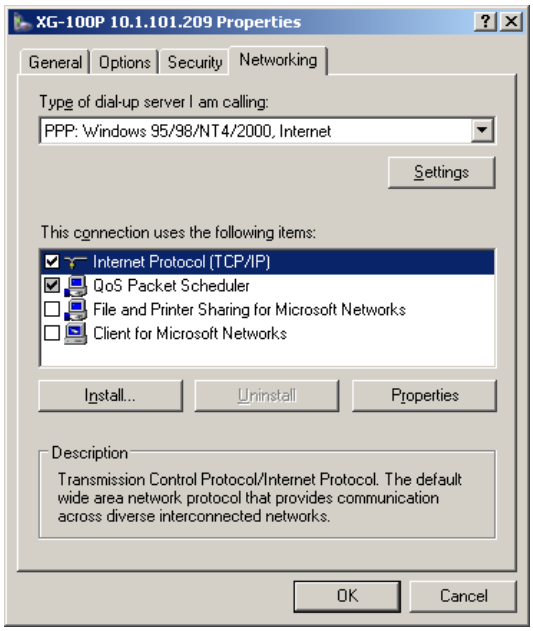
5. Choose **OK**.
6. Choose the **Options** tab.
7. Deselect **Prompt for name and password, certificate, etc**. Deselect **Prompt for phone number**. Choose **Idle time before hanging up:** to be **never**. Select **Redial if line is dropped**.



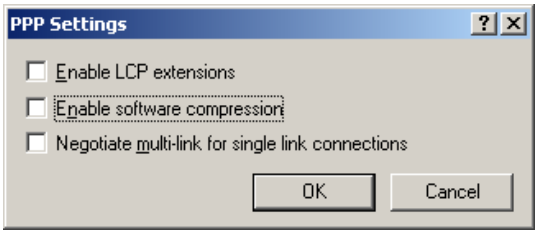
8. Choose the **Security** tab and verify the settings shown on the following screen.



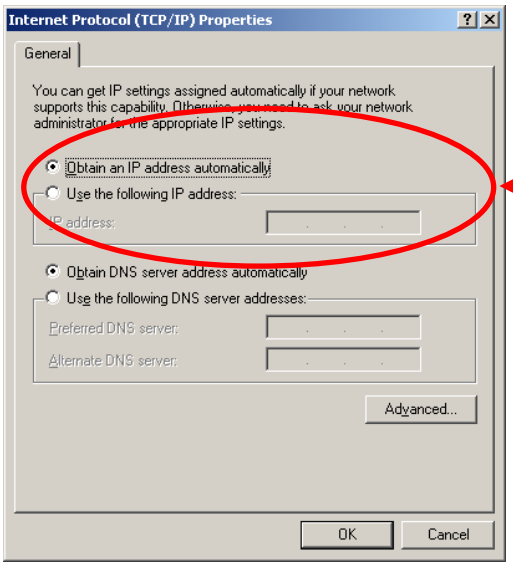
9. Choose the **Networking** tab.
10. Choose the **Type of dial-up server I am calling:** to be **PPP: Windows 95/98/NT4/2000, Internet**. Deselect **Client for Microsoft Networks**.



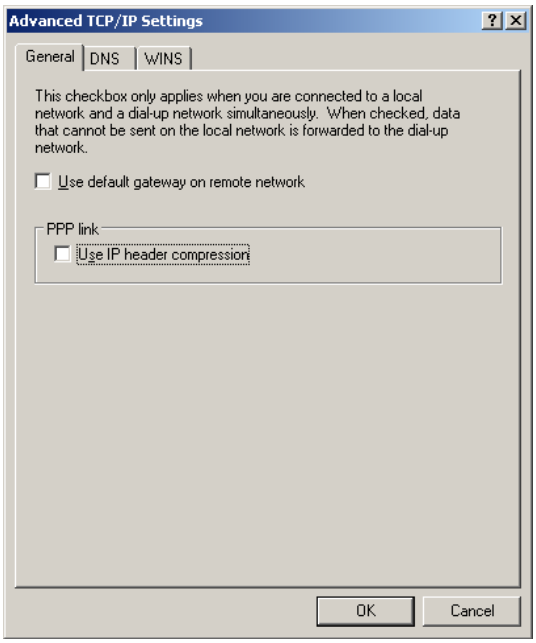
11. Choose **Settings** located beneath the **PPP:Windows 95/98/NT 4/2000, Internet** selection.
12. Uncheck all options.



13. Choose **OK**. The previous **Networking** tab properties window will be accessible again.
14. Select **Internet Protocol (TCP/IP)**.
15. Choose **Properties**.



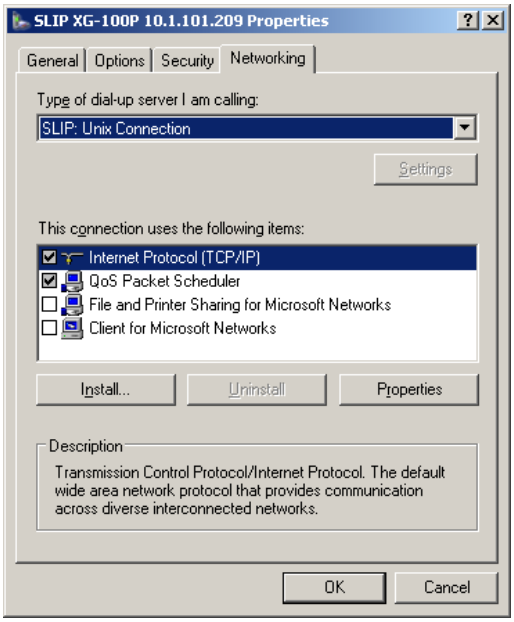
16. Select **Obtain an IP address automatically** unless the radio will be defining its own IP address. If this is specified, it must match the PPP/SLIP address within RPM (often defaulted to: 199.81.106.100). Check with the system administrator regarding specifying a static IP address.
17. Choose **Advanced**.
18. Deselect **Use default gateway on remote network** and deselect **Use IP header compression**.



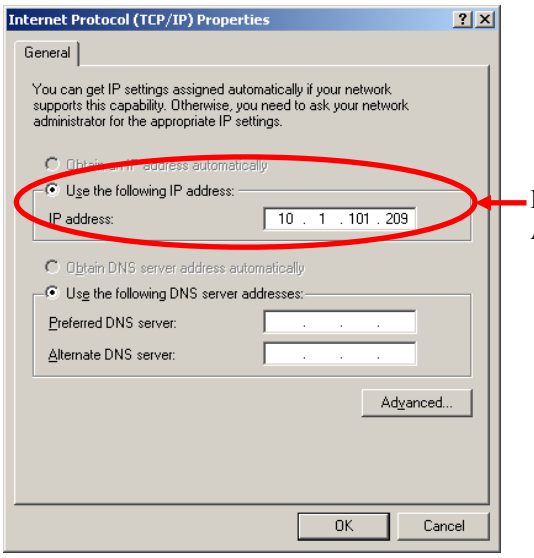
19. Choose **OK**. The DNS and WINS tabs remain unchanged.
20. Choose **OK** to accept the IP address and advanced settings.
21. Choose **OK** to accept the Network Connections Properties.

Configuring a SLIP Dial-up Connection

1. Follow PPP connection setup through step 8.
2. Choose the **Networking** tab.
3. Select "Type of dial-up server I am calling:" to be **SLIP: Unix Connection**.



4. Since SLIP does not allow dynamic address assignment, select **Internet Protocol (TCP/IP)** and choose **Properties**.



5. Specify the IP address after consulting with the system administrator.
6. Choose **OK**.
7. Choose **OK**.

A.3.4 Windows XP Route Configuration Notes

1. After the PPP has connected run the following commands:

NOTE

The *italicized* IP address (i.e., 10.1.100.209) is the radio's RF IP address as configured in RPM and the site. The **bold** IP address (i.e., 199.81.106.0) is a submask built off of the radio's PPP IP address.

   a. route add *199.81.106.0* MASK 255.255.255.0 **10.1.100.209** /p

   b. ping 199.81.106.100 -n 1

2. Description of commands:

   a. This route addition allows access to GPS over PPP. The RPM defaults to this nonce IP address. If RPM specifies something different, this will need to be updated. The "/p" makes the IP address permanent.

   b. The ping should work.

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HARRIS
assuredcommunications®

Product Safety Manual

14221-1800-2010
Feb/15

PRELIMINARY

This booklet contains important safety information regarding speeific absorption rate (SAR) and RF exposure limits included in United States and international standards. Read the information in this booklet before operating your radio.

XL-200P Series
Portable Radios

REV	DATE	DESCRIPTION
-	Feb/15	Initial release.

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1. REGULATORY AND SAFETY INFORMATION

1.1 SAFETY SYMBOL CONVENTIONS

The following conventions are used to alert the user to general safety precautions that must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere violates safety standards of design, manufacture, and intended use of the product. Harris assumes no liability for the customer's failure to comply with these standards.

The WARNING symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING symbol until the conditions identified are fully understood or met.

The **CAUTION** symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in a risk of danger, damage to the equipment, or severely degrade the equipment performance.

The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure.

1.2 SAFETY TRAINING INFORMATION

The Harris XL-200P portable radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as "Occupational Use Only," meaning it must be used only during the course of employment by individuals aware of the hazards and the ways to minimize such hazards. This radio is NOT intended for use by the "General Population" in an uncontrolled environment.

The XL-200P portable radio has been tested and complies with the 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 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 (C95.1 – 1992), 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.
- IC Standard RSS-102, Issue 4, 2010: Spectrum Management and Telecommunications Radio Standards Specification. Radio frequency Exposure Compliance of Radio communication Apparatus (All Frequency Bands).

1.2.1 RF Exposure Guidelines

To ensure that exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause the FCC RF exposure limits to be exceeded. A proper antenna is the antenna supplied with this radio by Harris or an antenna specifically authorized by Harris for use with this radio.
- DO NOT transmit for more than 50% of total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "TX" indicator appears in the display. The radio will transmit by pressing the "PTT" (Push-To-Talk) button.
- ALWAYS transmit using low power when possible. In addition to conserving battery charge, low power can reduce RF exposure.
- ALWAYS use Harris authorized accessories (antennas, batteries, belt clips, speaker/mics, etc). Use of unauthorized accessories may cause the FCC Occupational/Controlled Exposure RF compliance requirements to be exceeded. (Refer to Table 1-1.)
- As noted in Table 1-1, ALWAYS keep the housing of the transmitter ***AT LEAST*** 0.47 inches (1.2 cm) from the body and at least 0.98 inches (2.5 cm) from the face when transmitting to ensure FCC RF exposure compliance requirements are not exceeded. However, to provide the best sound quality to the recipients of your transmission, Harris recommends

you hold the microphone at least 5 cm (2 inches) from mouth, and slightly off to one side.

Table 1-1: RF Exposure Compliance Tested Distances

RADIO FREQUENCY BAND	TESTED DISTANCES *(worst case scenario)*	
	Body[1]	Face
VHF (136–174 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
UHF (378–522 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
700/800 MHz (768-776 MHz) (798-806 MHz) (806-816 MHz) (851-861 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)

The information in this section provides the information needed to make the user aware of a RF exposure, and what to do to assure that this radio operates within the FCC RF exposure limits of this radio.

1.2.2 Electromagnetic Interference/Compatibility

During transmissions, Harris radios generate RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radios in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

1.3 REGULATORY APPROVALS

1.3.1 Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

1.3.2 Industry Canada

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not

[1] This is worst case based on the thinnest body mount accessory (belt clip).

cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

1.4 OPERATING TIPS

Antenna location and condition are important when operating a portable radio. Operating the radio in low lying areas or terrain, under power lines or bridges, inside of a vehicle or in a metal framed building can severely reduce the range of the unit. Mountains can also reduce the range of the unit.

In areas where transmission or reception is poor, some improvement may be obtained by ensuring the antenna is vertical. Moving a few yards in another direction or moving to a higher elevation may also improve communications. Vehicular operation can be aided with the use of an externally mounted antenna.

Battery condition is another important factor in the trouble free operation of a portable radio. Always properly charge the batteries.

1.4.1 Efficient Radio Operation

Keep the antenna in a vertical position when receiving or transmitting a message.

Do NOT hold onto the antenna when the radio is powered on.

1.4.1.1 Antenna Care and Replacement

Always keep the antenna at least 0..47 inches (1.2 cm) away from the body and 0.98 inches (2.5 cm) from the face when transmitting to ensure FCC RF exposure compliance requirements are not exceeded.

Do not use the portable radio with a damaged or missing antenna. A minor burn may result if skin comes into contact with a damaged antenna. Replace a damaged antenna immediately. Operating a portable radio with the antenna missing could cause personal injury, damage the radio, and may violate FCC regulations.

Use only the supplied or approved antenna. Unauthorized antennas, modifications, or attachments could cause damage to the radio unit and may violate FCC regulations.

1.4.1.2 Electronic Devices

RF energy from portable radios may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc., are shielded from RF energy. However, in areas in which you are instructed to turn off two-way radio equipment, always observe the rules. ***If in doubt, turn it off!***

1.4.1.3 Aircraft

Always turn off a portable radio before boarding any aircraft!

- **Use it on the ground only with crew permission.**
- **DO NOT use while in-flight!!**

1.4.1.4 Electric Blasting Caps

To prevent accidental detonation of electric blasting caps, DO NOT use two-way radios within 1000 feet of blasting operations. Always obey the "Turn Off Two-Way Radios" signs posted where electric blasting caps are being used. (OSHA Standard: 1926.900)

1.4.1.5 Potentially Explosive Atmospheres

Areas with potentially explosive atmospheres are often, but not always, clearly marked. These may be fuelling areas, such as gas stations, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powders.
Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.
Turn OFF two-way radios when in any area with a potentially explosive atmosphere. It is rare, but not impossible that a radio or its accessories could generate sparks.

2. RENSEIGNEMENTS SUR LA RÉGLEMENTATION ET SÉCURITÉ

2.1 CONVENTIONS SUR LES SYMBOLES DE SÉCURITÉ

Les conventions suivantes sont utilisées dans le présent manuel pour avertir l'utilisateur des précautions générales de sécurité qui doivent être observées pendant toutes les phases d'opération, d'entretien et de réparation de ce produit. Le non-respect de ces précautions ou d'avertissements précisés ailleurs enfreint les normes de sécurité de la conception, de la fabrication et de l'utilisation prévue du produit. Harris n'assume aucune responsabilité pour le non-respect de ces normes par le client.

MISE EN GARDE

Le symbole MISE EN GARDE attire l'attention sur une procédure ou une pratique qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner une blessure personnelle. Ne pas poursuivre au-delà d'un symbole de MISE EN GARDE avant que les conditions identifiées soient complètement comprises ou satisfaites.

AVERTISSEMENT

Le symbole **AVERTISSEMENT** attire l'attention sur une procédure ou une pratique opérationnelle qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner un bris d'équipement ou une importante baisse de rendement de l'équipement.

REMARQUE

Le symbole **REMARQUE** attire l'attention sur des renseignements supplémentaires qui peuvent améliorer le rendement du système ou clarifier un processus ou une procédure.

2.2 RENSEIGNEMENTS SUR LA FORMATION SUR LA SÉCURITÉ

La radio portative Harris XL-200P produit de l'énergie électromagnétique des RF lorsqu'en mode de transmission. Cette radio est conçue et classée pour une « Utilisation professionnelle seulement », ce qui signifie qu'elle ne doit être utilisée que dans le cadre d'un emploi par des individus conscients des risques et des moyens de limiter ceux-ci. Cette radio N'EST PAS conçue pour une utilisation par la « Population générale » dans un environnement non contrôlé.

La radio portative XL-200P a été testée et est conforme aux limites d'exposition aux RF de la FCC pour une « Utilisation professionnelle seulement ». De plus, cette radio Harris est conforme aux normes et directives suivantes quant à l'énergie des RF et aux niveaux d'énergie électromagnétique, ainsi qu'à l'évaluation de ces niveaux pour l'exposition aux humains :

- Bulletin 65 du OET de la FCC, édition 97-01, supplément C, portant sur l'évaluation de la conformité aux directives de la FCC quant à l'exposition humaine aux champs électromagnétiques des radiofréquences.
- American National Standards Institute (C95.1 – 1992), norme de l'IEEE sur les niveaux sécuritaires d'exposition humaine aux champs électromagnétiques des radiofréquences, 3 kHz à 300 GHz.
- American National Standards Institute (C95.3 – 1992), pratique recommandée par l'IEEE pour la mesure des champs électromagnétiques potentiellement dangereux – RF et micro-ondes.

2.2.1 Directives sur l'exposition aux RF

Pour s'assurer que l'exposition à l'énergie électromagnétique des RF se situe dans les limites acceptables de la FCC pour l'utilisation professionnelle, respectez toujours les directives suivantes :

- N'utilisez PAS la radio sans qu'une antenne appropriée y soit connectée, car ceci peut endommager la radio et également causer un dépassement des limites d'exposition aux RF de la FCC. Une antenne appropriée est celle fournie par Harris avec cette radio, ou une antenne spécifiquement autorisée par Harris pour être utilisée avec cette radio.

- Ne transmettez PAS pendant plus de 50 % de la durée d'utilisation totale de la radio (« cycle de service de 50 % »). La transmission pendant plus de 50 % du temps peut causer un dépassement des exigences de conformité de la FCC en matière d'exposition aux RF. La radio transmet lorsque l'indicateur « TX » apparaît sur l'affichage. La radio transmet lorsqu'on appuie sur le bouton « PTT » (bouton de microphone).

- Transmettez TOUJOURS en basse puissance lorsque possible. En plus de préserver la charge de la pile, une faible puissance réduit l'exposition aux RF.

- Utilisez TOUJOURS des accessoires autorisés Harris (antennes, piles, pinces de ceinture, haut-parleurs/micros, etc.). L'utilisation d'accessoires non autorisés peut entraîner un dépassement des exigences de conformité pour une exposition aux RF professionnelle ou contrôlée de la FCC. (Reportez-vous à Tableau 2-1.)

- Tel qu'indiqué dans Tableau 2-1, conservez TOUJOURS l'appareil et son antenne à ***AU MOINS*** 1,2 cm (0,47 po) du corps, et à au moins 2,5 cm (0,98 po) du visage pendant la transmission, pour vous assurer de ne pas dépasser les exigences de conformité de la FCC en matière d'exposition aux RF. Cependant, pour offrir la meilleure qualité sonore aux auditeurs de votre transmission, Harris recommande de tenir le microphone à au moins 5 cm (2 po) de votre bouche et légèrement déplacé sur un côté.

Tableau 2-1 : Distances de test de conformité des expositions aux RF

RADIOFRÉQUENCES	DISTANCES TESTÉES *(pire des scénarios)*	
	Corps[2]	Visage
VHF (136–174 MHz)	1,2 cm	2,5 cm
UHF (378–522 MHz)	1,2 cm	2,5 cm
700/800 MHz (768-776 MHz) (798-806 MHz) (806-816 MHz) (851-861 MHz)	1,2 cm	2,5 cm

Dans cette section figurent les renseignements nécessaires pour sensibiliser l'utilisateur à l'exposition aux RF et sur ce qu'il faut faire pour s'assurer que cette radio fonctionne dans les limites d'exposition aux RF de la FCC.

[2] Ce est le pire des cas basée sur le corps plus mince monter accessoire (clip ceinture).

2.2.2 Interférence/Compatibilité Électromagnétique

Pendant les transmissions, cette radio Harris produit de l'énergie des RF qui peut causer de l'interférence avec d'autres appareils ou systèmes. Pour éviter de telles interférences, fermez la radio dans les zones où il est indiqué de le faire. N'utilisez PAS le transmetteur dans des zones sensibles aux radiations électromagnétiques, comme les hôpitaux, les avions et les sites de détonation.

2.3 INTERFÉRENCE DES RADIOFRÉQUENCES

2.3.1 Partie 15 de la FCC

Cet appareil est conforme à la Partie 15 de la réglementation de la FCC. Le fonctionnement est soumis aux deux conditions suivantes :

1. Cet appareil ne doit pas causer une interférence nuisible; et
2. Cet appareil doit accepter toute interférence reçue, y compris une interférence qui peut causer un fonctionnement non souhaité.

2.3.2 Industrie Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.4 CONSEILS D'UTILISATION

L'emplacement et l'état de l'antenne sont importants pour l'utilisation d'une radio portative. L'utilisation de la radio dans des zones de faible élévation, sous des lignes électriques ou des ponts, à l'intérieur d'un véhicule ou dans un immeuble à ossature métallique, peut réduire la portée de l'appareil de manière considérable. Les montagnes peuvent également réduire la portée de l'unité.

Dans les zones où la transmission ou la réception est insatisfaisante, certaines améliorations peuvent être obtenues en s'assurant que l'antenne est verticale. Se déplacer de quelques mètres dans une autre direction ou à un emplacement plus élevé peut également améliorer les communications. L'utilisation d'une antenne fixée à l'extérieur peut faciliter le fonctionnement dans un véhicule.

L'état de la pile est un autre facteur important d'une utilisation sans tracas d'une radio portative. Chargez toujours correctement la pile.

2.4.1 Utilisation Efficace de la Radio

Gardez l'antenne dans une position verticale pendant la réception ou la transmission d'un message.

MISE EN GARDE

Ne tenez PAS l'antenne lorsque la radio est allumée!

2.4.1.1 Entretien et Remplacement de l'antenne

MISE EN GARDE

Conservez TOUJOURS l'appareil et son antenne à *au moins* 1,5 cm (0,59 po) du corps, et à au moins 2,5 cm (1,0 po) du visage pendant la transmission, pour vous assurer de ne pas dépasser les exigences de conformité de la FCC en matière d'exposition aux RF.

MISE EN GARDE

N'utilisez pas la radio portative si son antenne est endommagée ou absente. Une brûlure légère peut se produire au contact d'une antenne endommagée avec la peau. Remplacez immédiatement une antenne endommagée. L'utilisation d'une radio portative alors que l'antenne est absente peut causer des blessures, endommager la radio et pourrait enfreindre la réglementation de la FCC.

AVERTISSEMENT

Utilisez seulement l'antenne fournie ou une antenne approuvée. Des antennes non autorisées, des modifications ou des ajouts à une antenne peuvent endommager la radio et enfreindre la réglementation de la FCC.

2.4.1.2 Appareils Électroniques

AVERTISSEMENT

L'énergie des RF provenant de radios portatives peut affecter certains appareils électroniques. La majorité de l'équipement électronique moderne dans les voitures, les hôpitaux, les maisons, etc. est blindé contre l'énergie des RF. Cependant, dans les zones où l'on vous demande de fermer l'équipement de radio bidirectionnelle, respectez toujours les règles. En cas de doute, éteignez-le!

2.4.1.3 Avion

- **Éteignez toujours une radio portative avant d'embarquer à bord d'un avion!**
- **Ne l'utilisez au sol qu'avec la permission de l'équipage.**
- **NE l'utilisez PAS durant le vol!**

2.4.1.4 Détonateurs électriques

Pour prévenir la détonation accidentelle des détonateurs électriques, n'utilisez PAS de radios bidirectionnelles à moins de 305 m (1 000 pi) des opérations de détonation. Respectez toujours les indications « Éteindre les radios bidirectionnelles » situées là où des détonateurs électriques sont utilisés. (Norme OSHA : 1926.900)

2.4.1.5 Atmosphère Potentiellement Explosive

Les zones ayant une atmosphère potentiellement explosive sont souvent, mais pas toujours, identifiées clairement comme telles. Il peut s'agir de zones d'alimentation en carburant, comme les postes d'essence, les installations de stockage ou de transfert de carburant ou de produits chimiques, ainsi que les zones dont l'air contient des produits chimiques ou des particules, comme des grains, de la poussière ou des poudres métalliques.

Des étincelles dans de telles zones peuvent provoquer une explosion ou un incendie, causant ainsi des blessures ou même la mort.

Éteignez les radios bidirectionnelles dans toute zone ayant une atmosphère potentiellement explosive. Il est rare, mais pas impossible qu'une radio ou ses accessoires produisent des étincelles.

3. OPTIONS AND ACCESSORIES

A complete list of Options and Accessories approved for use with the XL-200P portable radio can be found online in the Operator's Manual 14221-1800-2000 at www.pspc.harris.com. Also reference the maintenance manual or Harris' Products and Services Catalog for all available options and accessories, including those items that do not adversely affect the RF energy exposure.

Always use Harris authorized accessories (antennas, batteries, belt clips, speaker/mics, etc). Use of unauthorized accessories may cause the FCC Occupational/Controlled Exposure RF compliance requirements to be exceeded.

Always use the correct options and accessories (battery, antenna, speaker/mic, etc.) for the radio. Immersion rated options must be used with an immersion rated radio. Intrinsically safe options must be used with intrinsically safe radios.

4. BATTERY PACKS

The XL-200P series portable radios use rechargeable, recyclable Nickel Metal Hydride (NiMH), Lithium-Polymer (Li-Poly), or Lithium-Ion (Li-Ion) battery packs. Please follow the directions below to maximize the useful life of each type of battery pack.

Do not disassemble or modify Lithium battery packs. The Lithium battery packs are equipped with built-in safety and protection features. Should these features be disabled or tampered with in any way, the battery pack can leak electrolyte, overheat, emit smoke, burst, and/or ignite.

If the battery pack is ruptured or is leaking electrolyte that results in skin or eye contact with the electrolyte, immediately flush the affected area with water. If the battery electrolyte gets in the eyes, flush with water for 15 minutes and consult a physician immediately.

Always use Harris authorized chargers and conditioners. Use of unauthorized chargers and conditioners may void the warranty.

4.1 CONDITIONING NIMH BATTERY PACKS

Condition a new NiMH battery pack before putting into use. This also applies to rechargeable NiMH battery packs that have been stored for long periods (weeks, months, or longer). Conditioning requires fully charging and fully discharging the battery pack three (3) times using the tri-chemistry charger. The first time the battery pack is put into the charger, this unit will condition Nickel-based battery packs by automatically charging and discharging (cycling) the battery. Refer to the appropriate charger manual for details.

Failure to properly condition NiMH battery packs before initial use will result in shortened performance by the battery.

4.2 CONDITIONING LITHIUM BATTERY PACKS

Lithium-based battery packs do not suffer from memory effect and therefore do not require conditioning.

4.3 STORING LI-ION BATTERY PACKS

If a battery pack is expected to be idle for a month or more, it should be properly prepared. Li-Ion battery packs should not be stored fully charged. Before storing the battery pack, discharge it to 40% capacity. If the battery is not discharged prior to storage, its overall capacity may be reduced. Although all battery packs experience some capacity loss during storage, the shelf life for Li-Ion battery packs is about 3 months. However, note that any capacity drop which occurs during storage is permanent and cannot be reversed. Li-Ion battery packs should be purchased and used immediately. They should not be stock-piled without a rotating stock plan.

4.4 ADDITIONAL INFORMATION

For more information regarding the proper care of portable radio battery packs or establishing a battery maintenance program, refer to ECR-7367 which may be ordered by calling toll free 1-800-368-3277 (international - 1-434-455-6403) or via https://premier.pspc.harris.com/infocenter/.

4.5 BATTERY DISPOSAL

In no instance should a battery pack be incinerated. Disposing of a battery pack by burning will cause an explosion.

RECHARGEABLE BATTERY PACK DISPOSAL – The product you have purchased contains a rechargeable battery pack. The battery pack is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery pack into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal. Canadian and U.S. users may call Toll Free 1-800-8-BATTERY® for information and/or procedures for returning rechargeable batteries in your locality.

5. TECHNICAL ASSISTANCE

The Technical Assistance Center's (TAC's) resources are available to help with overall system operation, maintenance, upgrades and product support. TAC is your point of contact when answers are needed to technical questions.

Product specialists, with detailed knowledge of product operation, maintenance, and repair, provide technical support via a toll-free (in North America) telephone number. Support is also available through mail, fax and e-mail.

For more information about technical assistance services, contact your sales representative, or call the Technical Assistance Center directly at:

North America:	1-800-528-7711
International:	1-434-385-2400
Fax:	1-434-455-6712
E-mail:	PSPC_tac@harris.com

6. WARRANTY

If any part of the system equipment is damaged on arrival, contact the shipper to conduct an inspection and prepare a damage report. Save the shipping container and all packing materials until the inspection and the damage report are completed. In addition, contact the Customer Care center to make arrangements for replacement equipment. Do not return any part of the shipment until you receive detailed instructions from a Harris representative.

North America:

Phone Number:	1-800-368-3277
Fax Number:	1-321-409-4393
E-mail:	PSPC_CustomerFocus@harris.com

International:

Phone Number:	1-434-455-6403
Fax Number:	1-321-409-4394
E-mail:	PSPC_InternationalCustomerFocus@harris.com

Please register this product within 10 days of purchase. Registration validates the warranty coverage, and enables Harris to contact you in case of any safety notifications issued for this product. Registration can be made on-line at the Customer Care center webpage:

http://www.pspc.harris.com/Service/Customerservice.aspx.

While on the webpage, please review the applicable battery and/or product warranty literature.

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