



PRO2150™ Portable Radio

User Guide

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Product Safety and RF Exposure Compliance



Caution

Before using this product, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with your radio.

ATTENTION!

This radio is restricted to occupational use only to satisfy FCC RF energy exposure requirements. Before using this product, read the RF energy awareness information and operating instructions in the Product Safety and RF Exposure booklet enclosed with your radio (Motorola Publication part number 68P81095C98) to ensure compliance with RF energy exposure limits.

For a list of Motorola-approved antennas, batteries, and other accessories, visit the following web site which lists approved accessories: <http://www.motorola.com/cgiss/index.shtml>

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Radio Overview

Parts of the PRO2150 Portable Radio

LED Indicators		
LED Color	State	Indication
Red	Illuminated	Radio is transmitting.
Red	Blinking	Battery voltage is low.
Green	Illuminated	Radio is receiving.

On/Off and Volume Knob

- If the radio is off, turn this knob clockwise to turn the radio on.
- If the radio is on, turn this knob counter-clockwise to turn the radio off.
- Turn this knob clockwise to increase the volume.
- Turn this knob counter-clockwise to decrease the volume.

Monitor Button

- Used to monitor the channel for any activity; squelch is disabled.

Display

- Displays selected channel, programming parameters, status, error or information messages.

Push-to-Talk (PTT) Button

- Press and speak to microphone to send message.
- Release and listen to receive messages.

NOTE: If a channel is programmed with the Busy Channel Lockout feature, you can only transmit on that channel if it is free.

Microphone

- Speak into the microphone when sending a message.

+/- Button

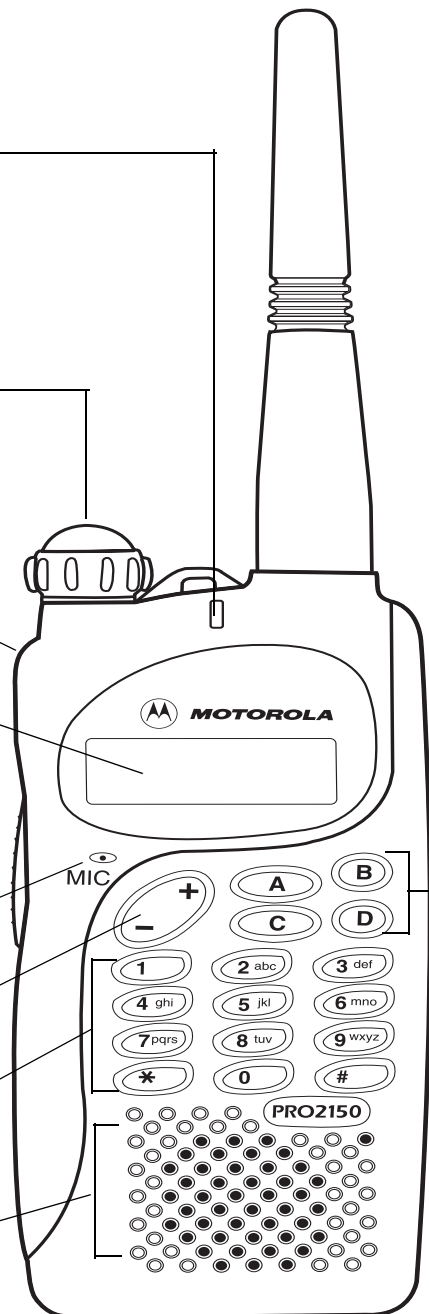
- Used to select a channel in Normal Mode.
- Used to select a parameter in Programming Mode.
- Used to change the scanning direction.

DTMF Keypad

- During DTMF dialing, keypad keys represent DTMF digits '0' to '9', '*', and '#'.

Speaker

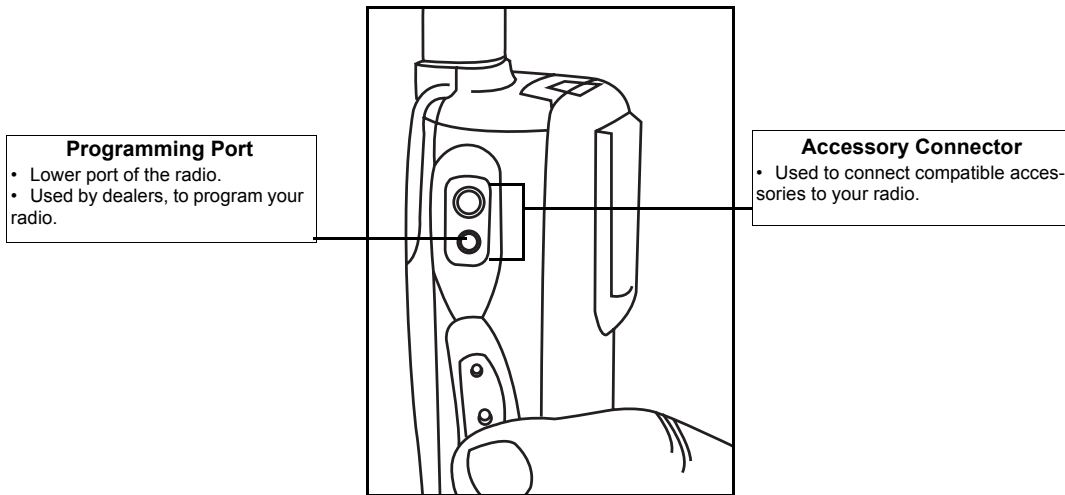
- You will hear received messages through the speaker.



Programmable Buttons (A, B, C, D)

- Used to select various functions (see table on next page).

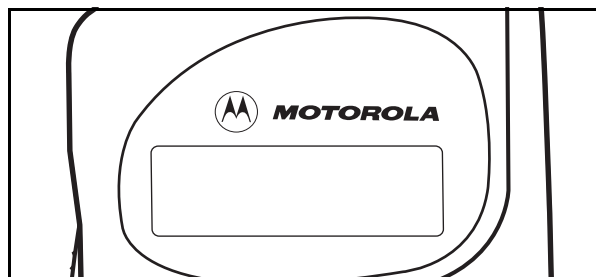
Side of Radio



Display

- Displays selected channel, programming parameters, status messages and any error or information messages.

LCD Indicator	Description	Function
	Keypad lock indicator	Illuminates when your keypad is locked.
	Talkaround indicator	Illuminates when you are not transmitting through the repeater. Not visible when you are transmitting using the repeater offset/user-defined Transmit frequency.
	Battery level indicator	Shows remaining charge in battery based on how many bars are displayed.
	Power level indicator	"L" illuminates to indicate radio transmits in low power; "H" illuminates to indicate radio transmits in high power; "E" illuminates to indicate radio is on economy low power.
	Monitor indicator	Illuminates when monitoring a selected channel.
	Programming Mode indicator	Illuminates when in Programming Mode.
	Scan indicator	Blinks, without the dot, when scan is activated. Illuminates when there is some activity on a non-priority channel. Illuminates, with dot blinking, indicates that there is some activity on the priority channel.
	Signal Strength Indicator	Shows the signal strength. Six bars indicate the strongest signal.



Programmable Buttons (A, B, C, D)

- The following functions can be assigned as short press (press and release) or long press (press and hold for 1 second):

Button	Function
Channel Alias ¹	Toggles display between <i>Channel Number</i> and <i>Channel Alias</i> .
Backlight	Toggles backlight display between <i>On</i> and <i>Off</i> .
Keypad Lock ¹	Locks or unlocks all buttons except PTT , <i>Monitor</i> and <i>On/Off/Volume Knob</i> .
Nuisance Channel Delete	Removes unwanted channel(s) temporarily from scan list during scan.
Phone Mode	Activates Phone Mode. User sends DTMF digit(s) by pressing DTMF keypad button(s) without pressing the PTT in Phone Mode.
PTT ID Enable ²	Enables or disables PTT ID sent on PTT press.
PL/DPL Enable ²	Enables or disables radio from requiring matching PL/DPL to unsquelch.
Prime Channel	Quick move to the selected Prime Channel.
Power Select ¹	Selects required power level.
Scan ¹	Starts or stops channel scan.
Squelch Level ¹	Selects desired squelch level. Use the +/- button to choose the desired level (Level 0 will unsquelch radio unconditionally whereas Level 15 will set tightest squelch).
Talkaround	Enables or disables radio to transmit in Talkaround mode.
No Operation	No function is programmed to this button.

1. Parameter values are preserved even after the radio is turned off.

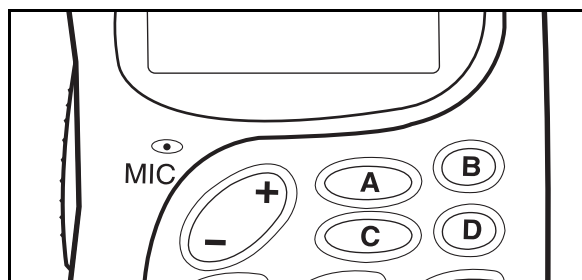
2. Turning off the radio or changing the channel restores this setting to the default value of the active channel.

- The default functions programmed to your radio are described below:

Press Type	Button A	Button B	Button C	Button D
Short Press	Power Select	Squelch Level	PL/DPL Enable	Scan
Long Press	PTT ID Enable	Phone Mode	Keypad Lock	Nuisance Channel Delete

- If your dealer has re-programmed your radio's programmable buttons, write down the new functions below:


Press Type	Button A	Button B	Button C	Button D
Short Press				
Long Press				



Programming Mode

This mode allows you to change feature parameters to enhance the use of your radio.

Entering Programming Mode

If your radio is turned on, turn it off. Press and hold the *Monitor* button, and turn on your radio. You will hear a ringing tone which indicates that your radio has entered Programming Mode. The  indicator illuminates and *RW* is displayed.

Exiting Programming Mode

Turn off the radio to exit Programming Mode.

Accessing Programming Mode Parameters

Press the **PTT** or the *Monitor* button to scroll through the features available in Programming Mode.

Press the +/- button to scroll through the parameters for each feature.

Feature	Range	Remarks
Squelch Level (SQL-XX)	SQL-00, ..., SQL-15	Select low level when you need to receive very weak signals and high level when the communication does not have to travel far.
Scan List 1 (SCANLST1)	1-01-XXX, ..., 1-16-XXX, (XXX denotes channel number.)	Up to 16 members per scan list. First member is assigned as Priority Channel, if Priority Scan is started. When scanning is started, only these 16 members will be scanned. Each channel can choose to use Scan List 1, 2 or 3. By default, all your channels select Scan List 1. If there is special need to use the other two scan lists for some of your channels, consult your dealer. Press the + or - button to move from one scan list member to another. To include a channel into the scan list, enter the desired channel number using the keypad. To erase a channel number from the scan list, press #.
Scan List 2 (SCANLST2)	2-01-XXX, ..., 2-16-XXX	Consult your dealer.
Scan List 3 (SCANLST3)	3-01-XXX, ..., 3-16--XXX	Consult your dealer.
Time Out Timer (TOT-XXX)	TOT-OFF, TOT-001, ..., TOT-010	This determines the maximum duration (in minutes) that you can transmit continuously.
Battery Saver (BS-XXXX)	BS-OFF, BS-NORM, BS-ENH	Battery Saver helps to extend battery life. When enabled, it turns off the radio receiver circuitry periodically if no activity is detected. BS-NORM (Normal) turns off the radio less frequently; select this if you want to save battery, but expect a Selective Call. BS-ENH (Enhanced) turns off the receiver for a longer duration; select this if you want to maximize battery power and do not expect to receive a Selective Call.
Battery Type (BT-XXXX)	BT-NIMH	Selects the type of battery that your radio uses: NiMH (Nickel Metal Hydride).
Alert Tone Volume (BEEP-X)	BEEP-OFF, BEEP-1, BEEP-2, BEEP-3	Selects the alert tone volume needed. Select BEEP-OFF if you require quiet operation, or BEEP-3 if working in a noisy environment.
Prime Channel Select (PRM-XXX)	PRM-OFF, PRM-001, ..., PRM-XXX, XXX denotes the highest channel number supported by your model.	The Prime Channel is the channel that you wish to spend most of your time monitoring. The radio will always switch back to the Prime Channel if it is idle for more than the pre-programmed hang-time in other channels.

Feature	Range	Remarks
Backlight Select (LGT-XXXX)	LGT-AUTO, LGT-TOGL	Selecting LGT-TOGL makes the <i>Backlight</i> button a toggle to control the ON/OFF status of the display backlight. Selecting LGT-AUTO causes the backlight to automatically extinguish if there is no keypress for more than five seconds. Pressing the <i>Backlight</i> button prolongs illumination time.
Access Code ¹ (AC CODE)	16 characters consisting of 1,2, ..., 9, 0, A, B, C, D, *, # and Pause.	Dial the Access Code when you want to access a land-line telephone network. Once it is programmed, send the code by pressing the PTT , and then + followed by *. You can enter a <i>Pause</i> by pressing * and then #. To completely erase numbers already entered, enter # 16 times.
De-access ¹ (DA CODE)	16 characters consisting of 1,2, ..., 9, 0, A, B, C, D, *, # and Pause.	Dial the De-access Code when you want to disconnect from a land-line telephone network. Once it is programmed, send the code by pressing the PTT , followed by + and then #. You can enter a <i>Pause</i> by pressing * and then #. To completely erase numbers already entered, enter # 16 times.
Telephone Number ¹ (TELNO-X)	16 characters consisting of 1,2, ..., 9, 0, A, B, C, D, *, # and Pause.	Up to nine telephone numbers can be programmed. The phone numbers can be recalled using the speed dial feature by pressing the PTT , and then + followed by the telephone number location in the phone list. You can enter a <i>Pause</i> by pressing * and then #. To completely erase numbers already entered, enter # 16 times.

1. Each Pause entered shortens the code/number length by one digit.

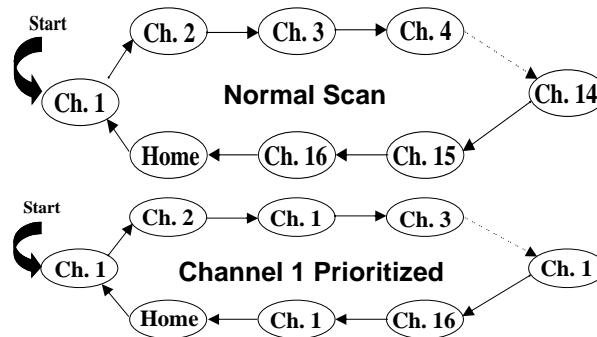
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Radio Features

Scan

Scan allows you to monitor multiple channels and receive calls that are transmitted on them. Two types of scan are supported: *Normal Scan* and *Priority Scan*.


Normal Scan searches all channels sequentially in the radio's scan list, whereas *Priority Scan* allocates 50% of the scanning time to the Priority Channel (the first channel in the designated scan list).



During scan, when activity is detected that meets the unsquelch condition, the radio stops scanning and switches to that channel; the indicator is illuminated, and the channel number is displayed. When no activity is detected for a pre-set time, the radio resumes scanning.

If your radio has switched to a non-priority channel during priority scan, it still checks for activity on the priority channel. If activity is detected there, the radio switches to the priority channel.

The radio transmits on the Home Channel, if **PTT** is pressed during scanning. If the radio has stopped scanning, and changed to a particular channel, all transmit and receive activity is performed on that channel.

- Press the *Scan* button to begin channel scanning. The  indicator blinks to indicate that the radio is scanning. The display shows the Home Channel where the scan began.
- Press the + button to scan the channels in incremental order, and the - button to scan in the opposite order.
- Press the *Scan* button to stop scanning.

Deleting a Nuisance Scan Channel

A channel with unwanted activity is called a Nuisance Channel. You can remove a Nuisance Channel from the scan list temporarily. To remove a Nuisance Channel, press the *Nuisance Channel Delete* button when your radio stops on a Nuisance Channel. You will hear a high-pitched tone.

You cannot remove the *Home* or *Priority* Channel from the scan list. If you try to, you will hear a low-pitched tone.

To reinstate the deleted channel(s) into the scan list, restart scan, or simply turn off your radio and turn it on again.

Entering Phone Mode

Phone Mode allows you to dial DTMF digits without having to press and hold the **PTT**.

- Press the *Phone Mode* button to enter Phone Mode. You can now press the keypad buttons to send out DTMF digits.
- Press the - button to exit Phone Mode.

Connecting to a Telephone

You can use your radio to connect to a phone line and make a phone call. To do this, your radio must send an *Access Code* to a station that connects it to a phone line. After completing a call, your radio must send a *De-access Code* to hang up. Contact your dealer for details.

When dialing Access/De-Access codes and phone numbers, you need to press and hold the **PTT**. Alternatively, you can use Phone Mode.

Sending the Access Code

If your radio is pre-programmed with the Access Code, press + followed by *. Alternatively, dial the Access Code using the keypad.

Sending the Phone Number

After sending the Access Code, wait for a dial tone before sending the phone number. You can send the phone number using one of the following methods:

Method	Steps
Speed Dial	Press + followed by the key (1 to 9) corresponding to the number you want to call.
Live Dial	Enter the phone number using the keypad. The radio transmits each number as you enter it.

The Phone Conversation

After the call is connected, speak as you would normally do on your radio. Press the **PTT** to speak and release the **PTT** to listen.

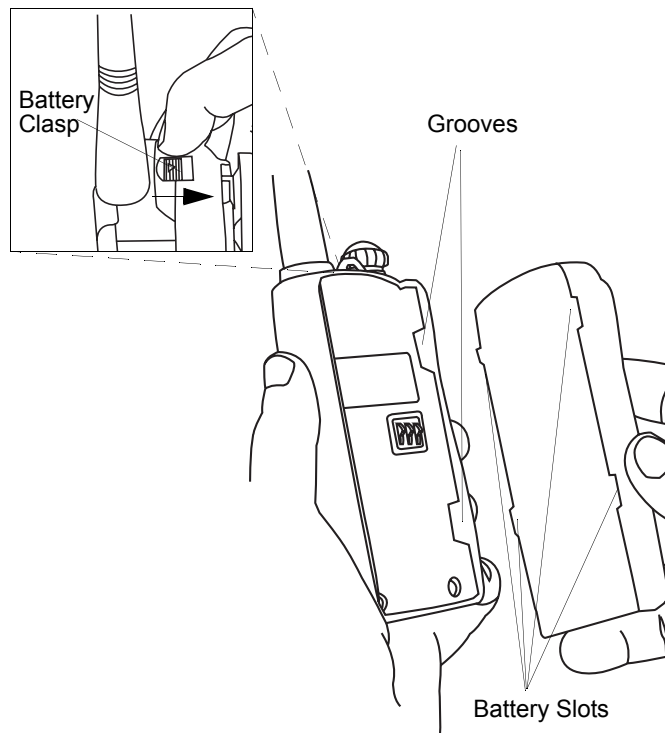
Ending the Phone Call

Your radio must send the De-access Code to end the call.

- If your radio is pre-programmed with the De-access Code, press + followed by #. Alternatively, dial the De-access Code using the keypad.

Radio Assembly

Attaching and Removing the Battery



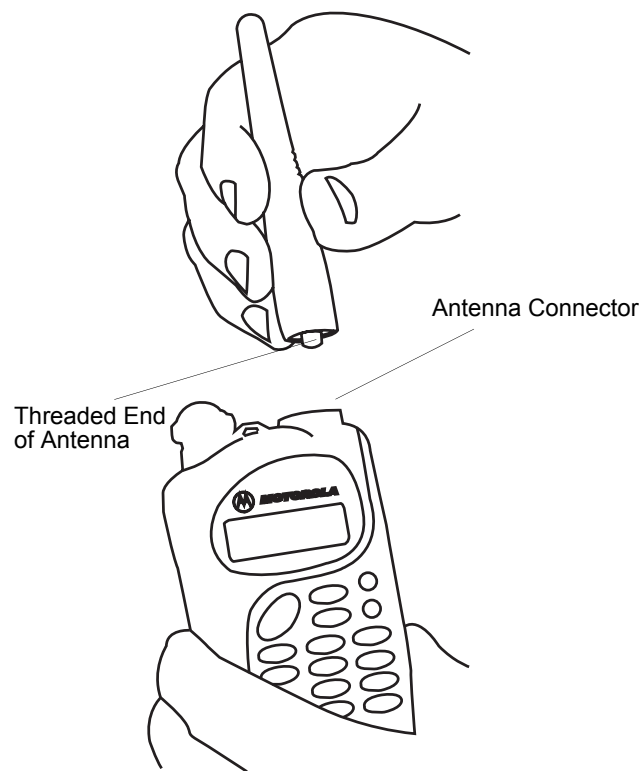
Removing the Battery

1. Slide the battery clasp away from the radio.
2. Slide the battery downward.
3. Pull the battery away from the radio.

Attaching the Battery

1. Fit the battery slots with the grooves on the radio.
2. Slide the battery upwards until a click is heard.

Attaching and Removing the Antenna



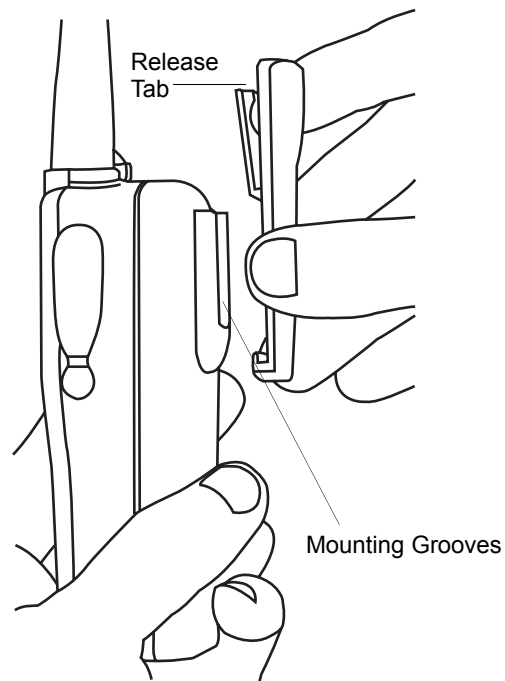
Removing the Antenna

1. Turn the antenna in a counter-clockwise direction until it disengages from the radio.

Attaching the Antenna

1. Fasten the antenna to the radio by placing the threaded end of the antenna into the Antenna Connector.
2. Rotate the antenna clockwise until tight.

Attaching and Removing the Belt Clip



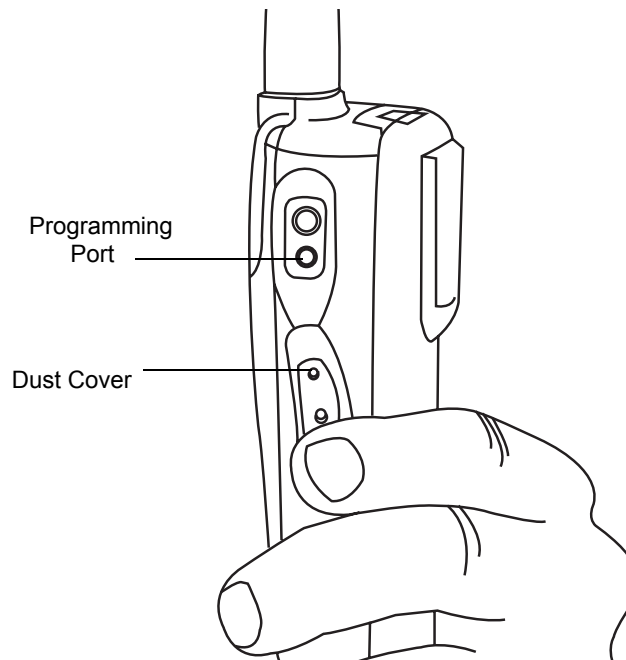
Removing the Belt Clip

1. Insert the end of a key between the release tab and the back surface of the radio.
2. Lift the release tab.
3. Slide the belt clip upward.

Attaching the Belt Clip

1. Align mounting rails of the radio with the grooves of the belt clip.
2. Slide the belt clip downwards until it clicks into place.

Charging the Battery



1. Turn off your radio, if it is turned on. It is highly recommended that the radio be turned off while charging.
2. Lift the Dust Cover covering the Accessory Connector (A/C).
3. Insert the charging connection of the charger into the Programming Port.
4. Plug in the charger to the wall outlet.
5. Charge your radio for at least 16 hours.
6. Turn on your radio when charging is complete; you should see all 3 bars of the Battery Level Indicator illuminated.

NOTE: Do not operate the radio while it is connected to the charger.

Warranty

Limited Warranty

MOTOROLA Communication Products

I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:

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

PRO2150 Portable Units	Two (2) Years
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Product Accessories	One (1) Year
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Motorola, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the warranty period provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the balance of the original applicable warranty period. All replaced parts of Product shall become the property of MOTOROLA.

This express limited warranty is extended by MOTOROLA to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by MOTOROLA. MOTOROLA assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of MOTOROLA. Unless made in a separate agreement between MOTOROLA and the original end user purchaser, MOTOROLA does not warrant the installation, maintenance or service of the Product.

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

II. GENERAL PROVISIONS:

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

III. STATE LAW RIGHTS:

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY.

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

IV. HOW TO GET WARRANTY SERVICE:

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

V. WHAT THIS WARRANTY DOES NOT COVER:

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

VI. PATENT AND SOFTWARE PROVISIONS:

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

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

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

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VII. GOVERNING LAW:

This Warranty is governed by the laws of the State of Illinois, USA.

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Motorola, Inc.
8000 West Sunrise Boulevard
Ft. Lauderdale, FL 33322

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