Mag One

DIGITAL TWO-WAY RADIO

A8 DMR Basic Service Manual

JUNE 2023

MN007773A01-AC

Contents

List of Figures

List of Tables

Intellectual Property and Regulatory Notices

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The European Union's WEEE directive and the UK's WEEE regulation require that products sold into EU countries and the UK must have the crossed-out wheelie bin label on the product (or the package in some cases). As defined by the WEEE directive, this crossed-out wheelie bin label means that customers and end-users in EU and UK countries should not dispose of electronic and electrical equipment or accessories in household waste.

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

Disclaimer

Please note that certain features, facilities, and capabilities described in this document may not be applicable to or licensed for use on a specific system, or may be dependent upon the characteristics of a specific mobile subscriber unit or configuration of certain parameters. Please refer to your Motorola Solutions contact for further information.

Document History

The following major changes have been implemented in this manual since the previous edition:

Table 1: Document History

Edition	Description	Date
MN007773A01-AA	Initial edition	June 2021
MN007773A01-AB	Added Self-Quieter Frequency table.	October 2021
MN007773A01-AC	Updated inclusive languages (Master and Slave)	June 2023

Scope of this Manual

This manual is intended for use by service technicians familiar with similar types of equipment.

It contains service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date may be incorporated by a complete Manual revision or alternatively as additions.

Notations Used in This Manual

Throughout the text in this publication, you will notice the use of warning, caution, and notice notations. These notations are used to emphasize that safety hazards exist, and due care must be taken and observed.

WARNING: WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or injury.

CAUTION: CAUTION indicates a potentially hazardous situation, which, if not avoided, might result in equipment damage.

NOTE: NOTICE indicates an operational procedure, practice, or condition that is essential to emphasize.

Related Publications

Table 2: Related Publications

Part Number	Description
MN007539A01	A8 DMR Quick Reference Guide
MN007472A01	A8 DMR User Guide
MN004534A01	Safety Manual
MN003037A01	CMM Leaflet

Safety Information

This chapter is an extract of the multilingual safety booklet publication. For the latest safety information, refer to the separate safety booklet delivered with your radio.

RF Energy Exposure and Product Safety Guide

CAUTION: Before using this radio, read the guide enclosed with your radio which contains important operating instructions for safe usage and RF energy awareness and control information and operational instructions for compliance with RF energy exposure limits in applicable national and international standards and regulations.

Compliance with RF Exposure Standards

Your Motorola Solutions two-way radio is designed and tested to comply with various national and international standards and guidelines for human exposure to radio frequency electromagnetic energy.

Your Motorola Solutions two-way radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission (FCC), Code of Federal Regulations; 47 CFR part 2 sub-part J
- American National Standards (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications Standard (Electromagnetic Radiation – Human Exposure) Standard, 2003
- ANATEL ANNEX to Resolution No. 303 of July 2, 2002 "Regulation of limitation of exposure to electrical, magnetic and electromagnetic fields in the radio frequency range between 9 KHz and 300 GHz" and "Attachment to resolution # 303 from July 2, 2002" "Additional Requirements for SMR, Cellular and PCS Product Certification"

NOTE: The approved batteries, supplied with this radio, are rated for a 5-5-90 duty factor (5 % talk–5 % listen–90 % standby), even though this radio complies with FCC occupational exposure limits at usage factors of up to 50 % talk.

In terms of measuring RF energy for compliance with these exposure guidelines, your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

RF Energy Exposure Awareness, Control Information, and Operational Instructions for Occupational Use

NOTE: This radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in FCC/ICNIRP and International standards. This radio device is not authorized for general population consumer use.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses radio frequency (RF) energy

or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, sunlight and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which when used improperly, can cause biological damage. High levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards for safe exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection.

All Motorola Solutions two-way radios are designed, manufactured, and tested to ensure that they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:

http://www.fcc.gov/oet/rfsafety/rf-faqs.html

http://www.osha.gov/SLTC/radiofrequencyradiation/index.html

RF Exposure Compliance and Control Guidelines

Always adhere to the following procedures to control RF exposure to yourself and others and also to comply to the occupational/controlled environment exposure limits.

- Do not remove the RF Exposure Label from the device.
- User awareness instructions should accompany device when transferred to other users.
- Do not use this device if it does not meet the operational requirements.

Operating Instructions

- Transmit no more than the rated duty factor of 50 % of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. It is important to transmit 50 % of the time or less, because this radio generates measurable RF energy exposure only when transmitting.
- Hold the radio in a vertical position in front of the face with the microphone (and other parts of the radio including the antenna) at least 2.5 cm (one inch) away from the nose or lips. Keep the antenna away from the eye. Keeping the radio at a proper distance is important as RF exposure decreases with increasing distance from the antenna.
- When worn on the body, always place the radio in a Motorola Solutions-approved clip, holder, holster, case, or body harness. The use of non-Motorola Solutions-approved accessories may result in exposure levels exceeding the FCC occupational/controlled environment RF exposure limits.
- When no accessory worn on the body, and the radio is not intended to use in front of the face position, keep the antenna and the radio at least 2.5 cm (one inch) from the body when transmitting. Keeping the radio at a proper distance is important as RF exposure decreases with increasing distance from the antenna.

Approved Accessories

Use only Motorola Solutions-approved supplied or replacement antennas, batteries, and accessories. Use of non-Motorola Solutions-approved antennas, batteries, and accessories may exceed the FCC (IEEE) and ICNIRP RF exposure guidelines.

For a list of Motorola Solutions-approved accessories, visit http://www.motorolasolutions.com.

Additional Information

For additional information on exposure requirements or other training information, visit http://responsibility.motorolasolutions.com/index.php/downloads/dow07-rfexposureassessmentstand/

Electromagnetic Interference/Compatibility

If inadequately shielded, designed, or otherwise configured for electromagnetic compatibility, nearly every electronic device is susceptible to Electromagnetic Interference (EMI).

Facilities

To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Aircraft

When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

Pacemakers

The Advanced Medical Technology Association (AdvaMed) recommends that a minimum separation of 15 cm (6 in.) be maintained between a hand-held wireless radio and a pacemaker. These recommendations are consistent with those of the U.S. Food and Drug Administration. Persons with pacemakers should:

- Always keep the radio more than 15 cm from their pacemaker when the radio is turned On.
- Not carry the radio in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential of interference.
- Turn the radio Off immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

Use of Communication Devices While Driving

Always obey the laws and regulations on the use of radios in the area where you drive.

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call if driving conditions or regulations so require.

Operational Warnings

WARNING:

For vehicles with an air bag, refer to the manual of the vehicle manufacturer before installation of electronic equipment to avoid interference with air bag wiring.

Do not mount or place a radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

Potentially Explosive Atmospheres (explosive atmospheres refers to hazard classified locations that may contain hazardous gas, vapors, or dusts)

Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

The areas with potentially explosive atmospheres include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust, or metal powders. Areas with potentially explosive atmospheres are often but not always posted.

Blasting Caps And Blasting Areas

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn Off Two-way Radio". Obey all signs and instructions.

Operational Cautions

Antennas

Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

Batteries

If a conductive material such as jewelry, keys, or beaded chains touch exposed battery terminals, it can cause property damage and/or bodily injury such as burns. The conductive material may complete an electrical circuit (short circuit) and become hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Warranty, Service Information, and Replacement Parts

Warranty

Motorola Solutions offers long term support for its products. This support includes full exchange and/or repair of the product during the warranty period, and service/repair or spare parts support out of warranty.

Any “return for exchange” or “return for repair” at an authorized Motorola Solutions service location must be accompanied by a Warranty Claim Form. Warranty Claim Forms are obtained by contacting an authorized Motorola Solutions service location.

Warranty Period and Return Instructions

The terms and conditions of warranty are defined fully in the Motorola Solutions Dealer or Distributor or Reseller contract. These conditions may change from time to time and the following notes are for guidance purposes only.

In instances where the product is covered under a "return for replacement" or "return for repair" warranty, a check of the product should be performed prior to shipping the unit back to Motorola Solutions. This is to ensure that the product has been correctly programmed or has not been subjected to damage outside the terms of the warranty.

After Warranty Period

After the Warranty period, Motorola Solutions continues to support its products.

- Motorola Solutions Managed Technical Services (MTS) offer a repair service to both end users and dealers at competitive prices.
- MTS supplies individual parts and modules that can be purchased by dealers who are technically capable of performing fault analysis and repair.

Piece Parts

Some replacement parts, spare parts, and/or product information can be ordered directly.

If a complete Motorola Solutions part number is assigned to the part, it is available from Motorola Solutions Managed Technical Services (MTS). If the part number is appended with an asterisk, the part is serviceable by Motorola Solutions Depot only. If a parts list is not included, this generally means that no user-serviceable parts are available for that kit or assembly. Some parts may have become obsolete, and no longer available in the market due to cancellations by the supplier.

NOTE: Before operating or testing the unit, read Safety Information on page 11.

Warranty, Service Support, and Replacement Parts: Warranty B-2

All orders for parts or information should include the complete Motorola Solutions identification number. All part orders should be directed to your local MTS office. Please refer to your latest price pages.

Technical Support

Technical support is available to assist the dealer or distributor in resolving any malfunction encountered. Initial contact should be by telephone wherever possible.

When contacting Motorola Solutions Technical Support, be prepared to provide the product model number.

Further Assistance from Motorola Solutions

To find out more about Motorola Solutions products and services or to contact Customer Help Desk, visit https://www.motorolasolutions.com.

NOTE: Only approved Motorola Solutions service locations can perform service support. Any tampering by non-authorized Motorola Solutions service locations voids the warranty of your radio.

Chapter 1

Model Charts and Test Specifications

This sections provides the radio model, charts and test specifications.

1.1 Radio Model Information

The model number and serial number are located on a label attached to the back of the radio. You can determine the RF output power, frequency band, protocols, and physical packages.

Table 3: Model Numbering Scheme

Typical Model Number	AZ	H	8	4	K	D	C	8	A	A	6	A	N
Position	0	1	2	3	4	5	6	7	8	9	10	11	12

Table 4: Sales Models – Description of Positions

Position	Description	Value
0	2 Character Regional Prefix	AA = North America (NA) AZ = Asia Pacific (APAC) CM = China LA = Latin America (LA) MD = Europe, Middle East, and Africa (EMEA)
1	Type of Unit	P = Portable
2	Model Series	AlphaL Family
3		
4	Frequency Band	J = 136–150 MHz K = 150–174 MHz Q = 403–425 MHz R = 450–470 MHz
5	Power Level	B = 1 W/2 W Fixed C = 1 W/4 W D = 1 W/5 W
6	Physical Packages	C: APAC Grill, Black, 16 channel J: NA Grill, Navy, 16 channel S: NA Grill, Navy, 8 channel
7	Channel Spacing	4 = 12.5 K Fixed 6 = 25 K Fixed

Position	Description	Value
		8 = 12.5/25 K
8	Primary Operation	A = Conventional
9	Primary System Type	A = Conventional
10	Feature Level	1 to 9
11	Version Letter	Major Change to the radio will have an up-revision
12	Unique Model Variations	N = Standard Package

Examples:

- AZH84RCC8AA1AN: APAC region, UHF2, APAC grill, 16 channel, GP4848, English UG.
- CMH84RCC8AA1AN: China region, UHF2, APAC grill, 16 channel, GP4848, Chinese UG.
- AZH84RCC8AA2AC: APAC region, UHF2, APAC grill, 16 channel, GP2888, Chinese UG.
- AAAH84RCJ8AA1AN: USA customer1, UHF2, NA grill, 16 channel, CustModelName1, English UG.
- AAH84RCJ8AA2AN: Canada customer, UHF2, NA grill, 16 channel, CustModelName2, English UG.
- AAH84RCS8AA1AN: USA customer1, UHF2, NA grill, 8 channel, CustModelName1, English UG.
- AAH84RCJ8AA3AA: USA customer1, UHF2, NA grill, 16 channel, CustmodelName2, English/Spanish UG.

1.2 Model Specifications

Table 5: General Specifications

General	
Channels	32
Frequency	403-470 MHz
Radio Dimensions (H x W x D)	125 mm x 58 mm x 38 mm (With 2400 mAh Battery)
Weight	350 g (With 2400 mAh Battery, Antenna, and Belt Clip)
Battery Voltage	7.4V DC±10%
Battery Life	>10 hours with 5/5/90 Duty Cycle

Table 6: Receiver Specifications

Receiver	
Sensitivity 12dB SINAD	-121 dBm
Sensitivity 1% BER	-119 dBm
Adjacent Channel	60 dB (Digital), 60 dB (12.5 kHz) / 70 dB (25 kHz)

Receiver	
Spurious Response Rejection	70 dB
Hum & Noise	45 dB (12.5 kHz) / 50 dB (25 kHz)
Audio Output	500 mW @ 24 Ω
Audio Distortion	< 4 %
Conducted Spur Emission	-57 dBm [≤ 1 GHz], -47 dBm [> 1 GHz]

Table 7: Transmitter Specifications

Transmitter	
Output Power	4 W (High), 1 W (Low)
Modulation Limiting	±5.0 kHz [25 kHz] / ±2.5 kHz [12.5 kHz]
Conducted Spur Emission	-36 dBm [≤ 1 GHz], -30 dBm [> 1 GHz]

Table 8: Self-Quieter Specifications

Self-Quieter Frequencies	
403.20000	440.06500
404.73500	442.36250
405.50000	442.36500
405.50500	442.36875
405.50625	442.37000
407.80625	445.43750
409.34375	445.44000
414.71875	445.44500
414.72000	446.44375
417.78750	446.45000
417.79000	446.44500
417.79375	449.28000
417.79500	450.81500
422.40000	454.65625
430.07500	460.80000
430.08000	466.94375
430.08125	

Table 9: Environmental Specifications

Transmitter	
Radio Operating Temperature	-30 ℃ to +60 ℃
Radio Storage Temperature	-40 ℃ to +85 ℃
Dust and Humidity	IP54

Chapter 2

Service Aids and Service Tools

Use the service aids and recommended service tools when servicing the radio. The recommended service tools are generic, and are not specialized Motorola Solutions tools. You may purchase the tools from any supplier.

Table 10: Service Aids

Motorola Solutions Part Number	Description	Application
PMDN44038_R	Chassis Opener	To dissemble the radio.
PMDN44040_R	Test Box	Enables connection to the audio/accessory jack.
PMDN44041_R	RF Adapter	Adapts radio antenna port to BNC cabling of test equipment.
PMDN44077_R	Programming/Test Cable	Connects radio to computer.
PMDN44060_R	Cloning Cable	Allows a radio to be duplicated from a source radio by transferring programmed data from the source radio to the other.
PMDN44042_R	Battery Eliminator	Interconnects radio to power supply (red-and-black power cable included).
PMDN44054_R	Antenna Ground Plate	To improve grounding while conducting tuning and measurement.
PMDN44044_R	T-Head Ceramic Tuning Tool	To tune the variable resistor for audio and sub-audio modulation adjustment; tuning points accessible via battery-chassis area.
PMDN44026_R	Flat Ceramic Tuning Tool (1.8mm)	To tune the variable resistor for audio and sub-audio modulation adjustment; requires disassembly of PCB from chassis to get access to tuning point.
PMDN44053_R	Flat Ceramic Tuning Tool (0.9mm)	
–	Philips Head Screwdriver	To remove M2 and M2.6 Philips screws.
–	Flat Head Screwdriver	To remove speaker from speaker felt.
–	Tweezer	To remove smaller components. For example, latch pad and speaker connector.

Motorola Solutions Part Number	Description	Application
TT907A National Service Technical Guide	Repairing Leadless Component Assembles	Guide on how to successfully remove and replace surface mount devices.

Chapter 3

Maintenance

3.1
Preventive Maintenance

Periodic visual inspection and cleaning are recommended.

Inspection

Check that the external surfaces of your radio are clean, and that all external controls and switches are functional. It is not recommended to inspect the interior electronic circuitry.

Cleaning Procedures

The following procedures describe the recommended cleaning agents and the methods to clean the external and internal surfaces of your radio.

External surfaces include the front cover, housing assembly, and battery. These surfaces should be cleaned whenever a periodic visual inspection reveals the presence of smudges, grease, and/or grime.

CAUTION: Use all chemicals as prescribed by the manufacturer. Follow all safety precautions as defined on the label or material safety data sheet.

The effects of certain chemicals and their vapors can have harmful results on certain plastics. Avoid using aerosol sprays, tuner cleaners, and other chemicals.

NOTE:
Only clean internal surfaces when your radio is disassembled for service or repair.

Cleaning External Plastic Surfaces

IMPORTANT: The only recommended agent for cleaning the external radio surfaces is a 0.5% solution of a mild dish-washing detergent in water.

Apply the 0.5% detergent-water solution sparingly with a stiff, non-metallic, short-bristled brush to work all loose dirt away from your radio. Use a soft, absorbent, lint-less cloth, or tissue to remove the solution and dry your radio. Make sure that no water remains entrapped near the connectors, cracks, or crevices.

Cleaning Internal Circuit Boards and Components

IMPORTANT:
The only factory recommended liquid for cleaning the printed circuit boards and their components is isopropyl alcohol (100% by volume).

Always use fresh supply of alcohol and a clean container to prevent contamination by dissolved material (from previous usage).

Apply Isopropyl alcohol (100%) with a stiff, non-metallic, short-bristled brush to dislodge embedded or caked materials located in hard-to-reach areas. The brush stroke should direct the dislodged material out and away from the inside of your radio. Make sure that controls or tunable components are not soaked with alcohol. Do not use high-pressure air to hasten the drying process since it can cause the liquid to collect in unwanted places. After completing of the cleaning process, use a soft, absorbent, lint-less cloth to dry the area. Do not brush or apply any isopropyl alcohol to the frame, front cover, or back cover.

Vent Port Handling Precaution

The portable device has a vent port that allows for pressure equalization in the device. The pressure equalization vent is located at the battery compartment area. Never touch the equalization vent. Ensure that no oily substances come in contact with this vent. Never poke this vent with any objects, such as needles, tweezers, or screwdrivers. This create a leak path into the device and lost the submersibility of the device.

Care After Submersion

The radio (device with antenna and battery assembled) is IP67 compliant. It is fully protected from dust, and can withstand being submerged up to 30 minutes in one meter of static water.

If the device has been submerged in water, shake the device to remove any water that is trapped inside the speaker grille and microphone port. Otherwise, the water will decrease the audio quality and connectivity performance of the device.

Ensure that no water has penetrated the seal. Check the interface if any accessory or the Universal Connector Dust Cover is covering the Universal Connector and Bottom Connector. Water left in this interface can degrade the performance of the accessories.

High Debris Environment

For high debris environments, additional cleaning steps are needed to maintain optimal radio performance.

Speaker Grill: In high debris environments, the speaker grill may trap dirt and debris, resulting in degraded audio quality and clarity. Motorola Solutions recommends vacuuming the speaker grill to maintain optimal audio performance. Attach a crevice nozzle to a vacuum cleaner, and vacuum the speaker grill. Avoid covering all the grill openings at once with the nozzle. Move the nozzle back and forth several times horizontally across the grill. Perform a “Talk and Listen” test to confirm audio performance has returned to normal. If audio issues persist, radio should be sent in for servicing.

Control Top: In high debris environments, the control top may trap dirt and debris, resulting in reduced tactile feel in the buttons, switches and knobs. Motorola Solutions recommends vacuuming the control top to maintain optimal tactile performance. Attach a crevice nozzle to a vacuum cleaner, and vacuum all the radio surfaces, especially the control top, to remove dirt and debris from crevices. For submersible radios (“R”, “I” or “XE” designators): Turn the radio upside down and place the top of the radio into the water. With the control top submerged, shake the radio vigorously to loosen dirt and debris. Vacuum again to remove dirt, debris, and water.

Radio Decontamination

If there is a risk that the radio and its attached accessories may have been exposed to harmful pathogens or carcinogens, the following cleaners have been approved for use on A8 DMR series radios. For maximum efficacy, perform a General Cleaning on the radio.

- For pathogen decontamination, apply Zep DZ-7 according to the instructions from the manufacturer.
- For carcinogen decontamination, wipe down the radio with either Hygenall FieldWipes or Enspire Fire Wipes according to the instructions from the manufacturer.

Motorola Solutions is unable to, and does not, determine whether any particular cleaning product is effective in removing specific foreign substances from the radios. However, these cleaners and processes have been approved for use by Motorola Solutions with regard to their less degrading effect on the physical radio.

NOTE: Refer to the product documentation for specifics on the cleaning efficacy.

3.2 Safe Handling of CMOS and LDMOS Devices

Complementary Metal Oxide Semiconductor (CMOS) and Laterally Diffused Metal Oxide Semiconductor (LDMOS) devices are used in this family of radios, and are susceptible to damage by electrostatic or high-voltage charges.

Damage can be latent, resulting in failures occurring weeks or months later. Therefore, special precautions must be taken to prevent device damage during disassembly, troubleshooting, and repair.

Handling precautions are mandatory for CMOS/LDMOS circuits and are especially important in low humidity conditions. Do not attempt to disassemble your radio without referring to the following caution statement.

CAUTION:
This radio contains static-sensitive devices. Do not open your radio unless you are properly grounded. Take the following precautions when working on this unit:

- Store and transport all CMOS/LDMOS devices in conductive material so that all exposed leads are shorted together. Do not insert CMOS/LDMOS devices into conventional plastic "snow" trays used for storage and transportation of other semiconductor devices.
- Ground the working surface of the service bench to protect the CMOS/LDMOS device. It is recommended that you use a wrist strap, two ground cords, a table mat, a floor mat, electrostatic discharge (ESD) shoes, and an ESD chair.
- Wear a conductive wrist strap in series with a 100k resistor to ground. Replacement wrist straps that connect to the bench top covering are Motorola Solutions part number 4280385A59.
- Do not wear nylon clothing while handling CMOS/LDMOS devices.
- Do not insert or remove CMOS/LDMOS devices with power applied. Check all power supplies used for testing CMOS/LDMOS devices to be certain that there are no voltage transients present.
- When straightening CMOS/LDMOS pins, provide ground straps for the apparatus used.
- When soldering, use a grounded soldering iron.
- Handle CMOS/LDMOS devices by the package and not by the leads. Before touching the unit, touch an electrical ground to remove any static charge that you may have accumulated. The package and substrate may be electrically common. If so, the reaction of a discharge to the case would cause the same damage as touching the leads.

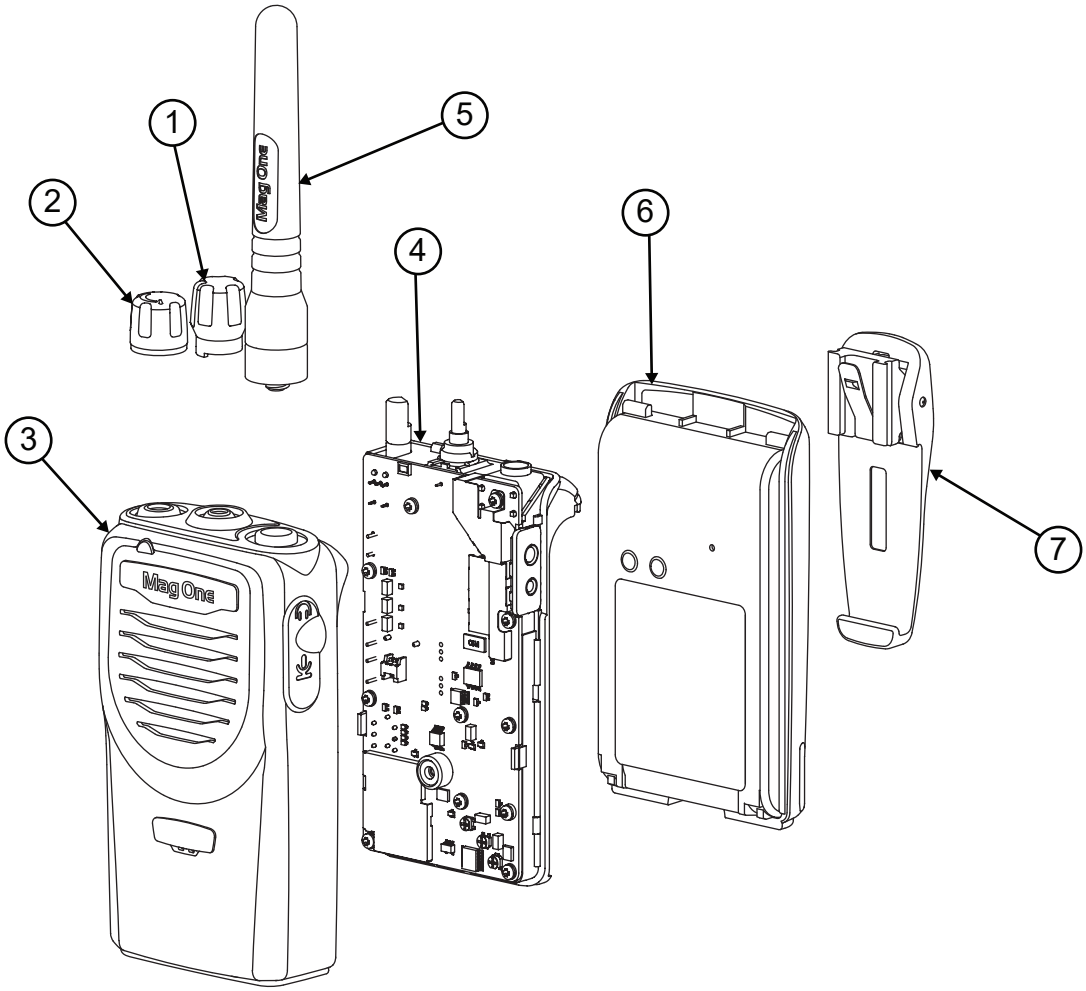
3.3 Radio Parts

This chapter provides the information on radio parts, radio disassembly, reassembly, and radio verification test.

3.3.1

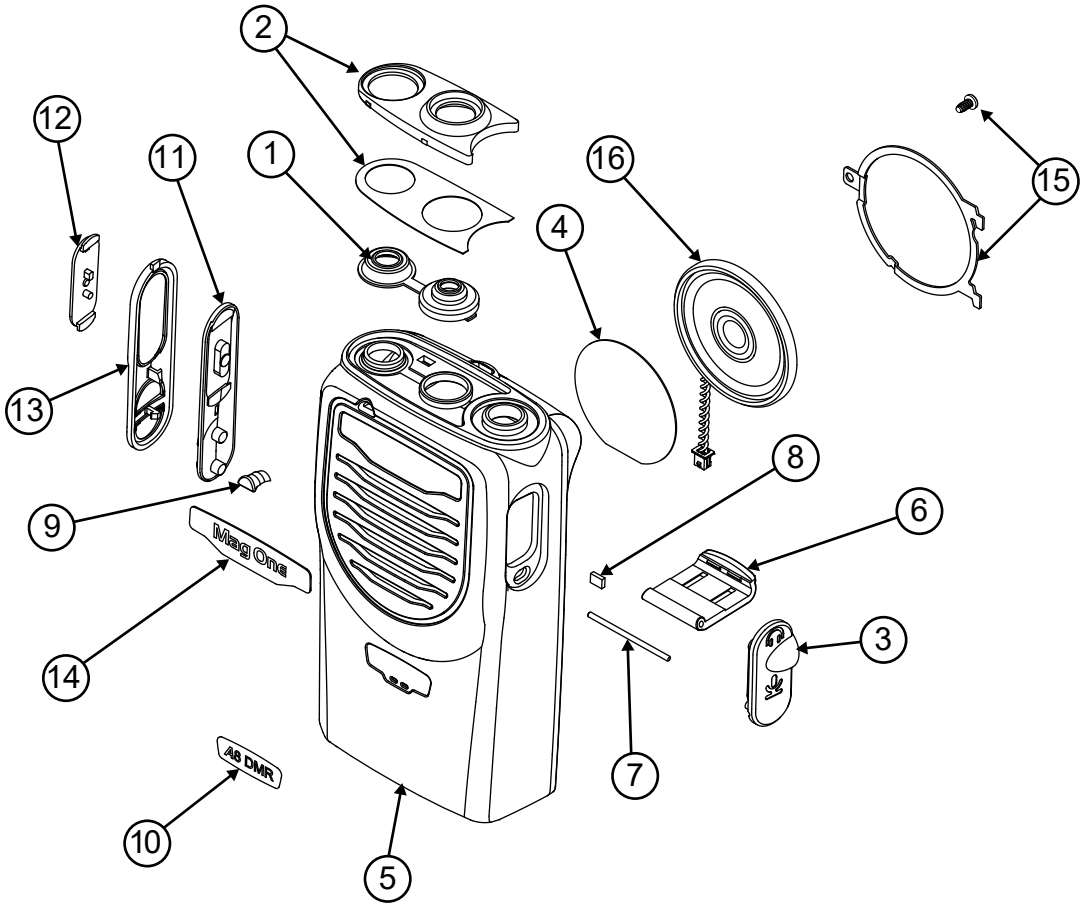
Exploded Views and Replacement Parts List

Figure 1: Radio Exploded View



Number	MSI Part Number	Description
1	PMDN4015AR	Channel Knob and Clip
2	PMDN4208AR	Volume Knob Kit
3	PMLN8290A	A8 DMR Front Housing Kit
4	PMLN8289A	A8 DMR Back Kit
5	PMAE4104A	Mag One Wideband Antenna
6	PMNN4534A	Batt Mag One Li-Ion 2400T
7	PMLN4743A	Mag One Spring Belt Clip

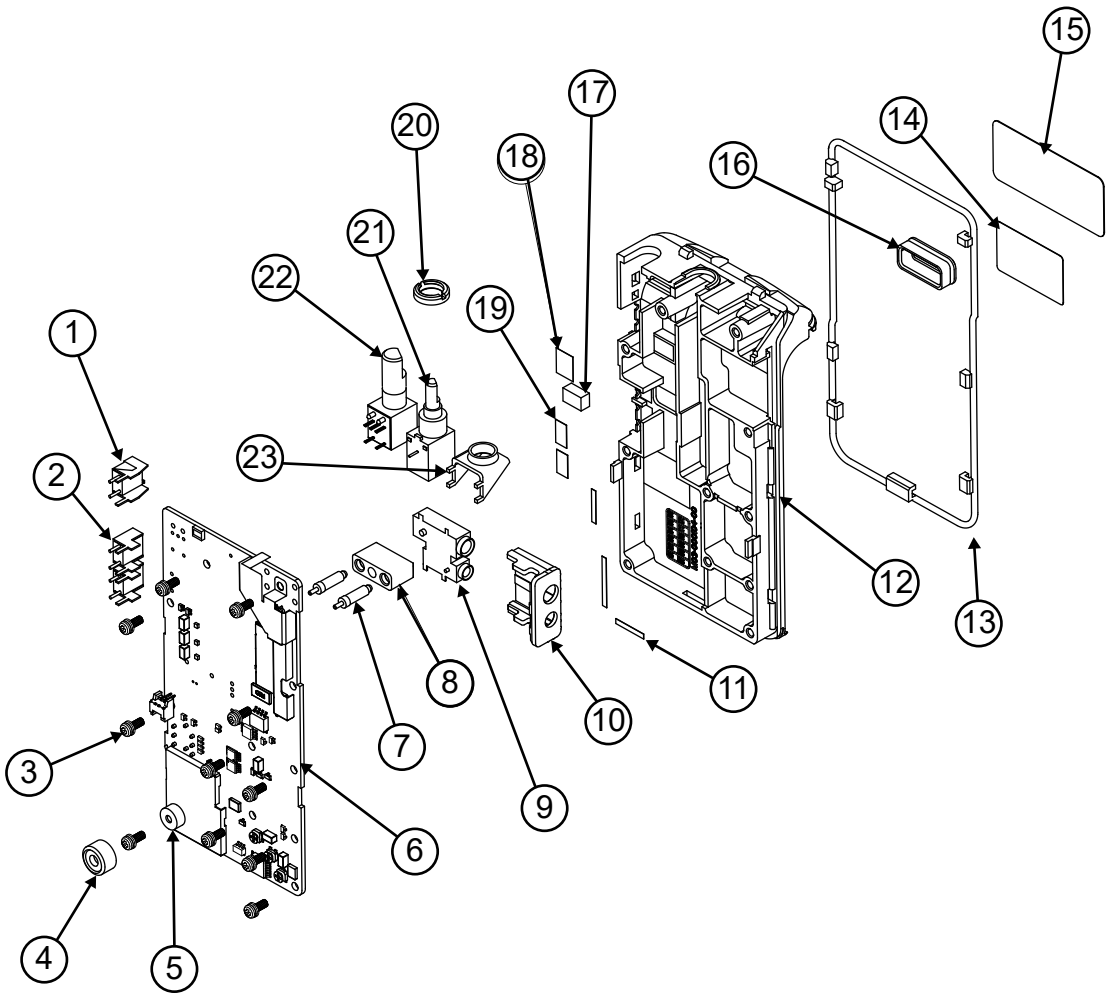
Figure 2: Front Housing (PMLN8290A)



Number	MSI Part Number	Description
1	PMDN4018AR	Channel and Volume Top Seal
2	PMDN4019AR	Top Escutcheon Blk 16CH with Adhesive
3	PMDN4030AR	Dust Cover
4	PMDN4202AR	Speaker Felt
5	PMDN4001BR	Front Housing
6	PMDN4023AR	Battery Latch
7		Battery Latch Shaft
8		Battery Latch Tape
9	N/A	Light pipe
10	LB001485A01	Product Number Label
11	PMDN4007AR	PTT Rubber
12	PMDN4010AR	PTT Bezel

Number	MSI Part Number	Description
13	PMDN4009AR	PTT Escutcheon
14	PMDN4209AR	Branding label
15	PMDN4012AR	Speaker Bracket and Screw
16	PMDN4067BR	Speaker and Cable

Figure 3: Back Kit (PMLN8289A) Exploded View



Number	MSI Part Number	Description
1	PMDN4035AR	PTT Tact Switch
2	PMDN4056AR	Programming Button Tact Switch
3	PMDN4027AR	PCB Screw (11 pcs)
4	PMDN4033AR	Microphone boot
5		Microphone
6	N/A	PC Board

Number	MSI Part Number	Description
7	PMDN4037AR	Pogo Pin
8		Pogo Pin Housing and Seal
9	N/A	Audio Jack
10	N/A	Audio Jack Shroud
11	PMDN4058AR	PCB-Chassis Tape
12	N/A	Radio Chassis
13	PMDN4025AR	O-Ring
14	N/A	Antenna Bracket
15	N/A	Tanapa label
16	N/A	Pogo Pin Seal
17	N/A	Thermal Pad
18	N/A	PTT Insulation Tape
19	N/A	Insulation Tape
20	PMDN4015AR	Crab-Eye Knob Nut
21		Channel Potentiometer
22	PMDN4017AR	Volume Potentiometer
23	PMDN4034AR	Antenna Bracket

NOTE: Contact Penang Distribution Center for Motorola Solutions Service or Repair team to order the replacement parts of the radio.

Figure 4: Replacement Parts

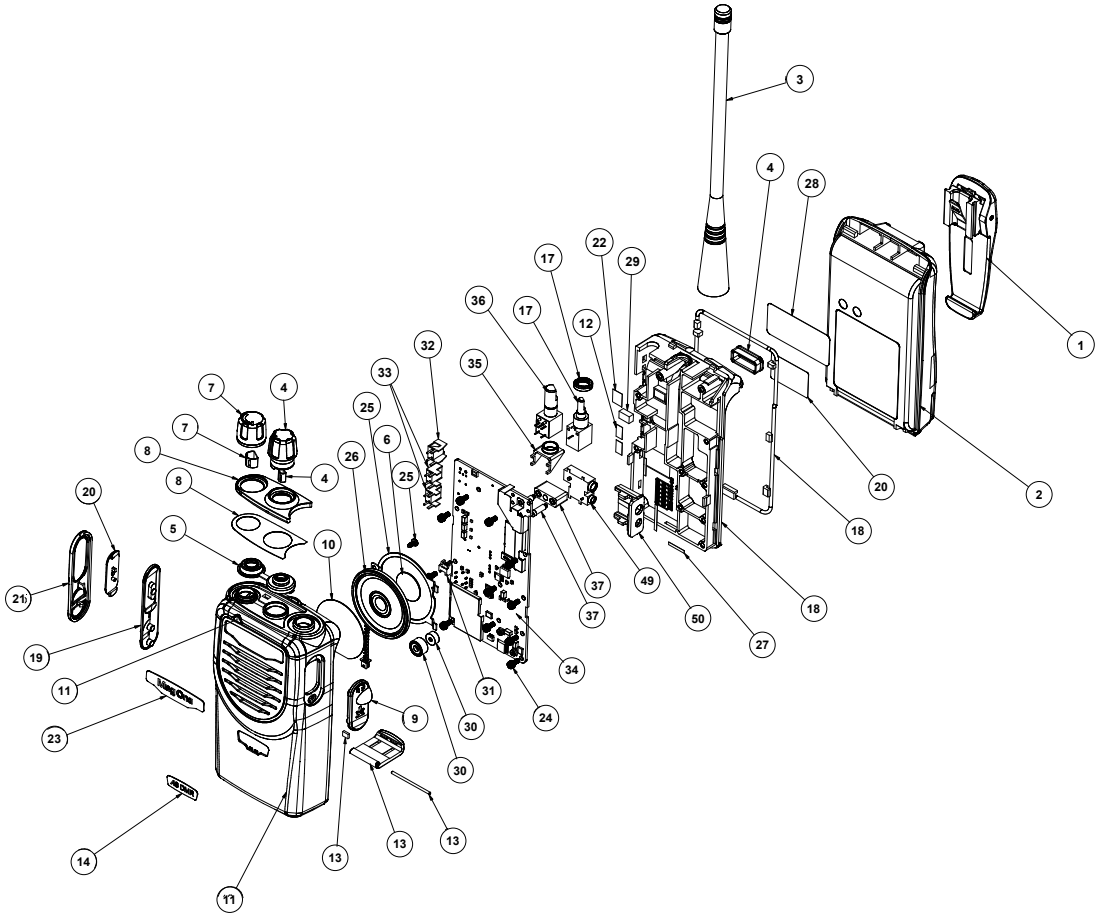


Table 11: Replacement Parts List

Number	Part Number	Description
1	PMLN4743A	Mag One Spring Belt Clip
2	PMNN4534A	Batt Mag One Li-Ion 2400T
3	PMAE4104A	Mag One Wideband UHF Antenna
4	PMDN4015AR	Channel Knob and Clip
5	PMDN4018AR	Channel and Volume Top Seal
6	PMDN4013AR	Speaker Poron Pad
7	PMDN4208AR	Volume Knob and Clip
8	PMDN4019AR	Top Escutcheaon with Adhesive
9	PMDN4030AR	Dust Cover
10	PMDN4202AR	Speaker Felt
11	PMDN4001BR	Front Housing with Light Pipe
12	N/A	Insulation Tape
13	PMDN4023R	Battery Latch, Shaft, and Tape

Number	Part Number	Description
14	N/A	Radio Chassis
15	LB001485A01	Product Number Label
16	N/A	Moto Caution Label
17	PMDN4015AR	Crab-Eye Knob Nut and Channel Potentiometer
18	PMDN4025AR	O-Ring
19	PMDN4007AR	PTT Rubber
20	PMDN4010AR	PTT Bezel
21	PMDN4009AR	PTT Escutcheon
22	N/A	PTT Insulation Tape
23	PMDN4209AR	Branding Label
24	PMDN4027AR	PCB Screw x 11
25	PMDN4012AR	Speaker Bracket and Screw
26	PMDN4067BR	Speaker and Cable
27	PMDN4058AR	PCB Chassis Tape
28	N/A	Tanapa Label
29	N/A	Thermal Pad
30	PMDN4033AR	Microphone and Microphone Boot
31	N/A	Speaker Connector
32	PMDN4035AR	PTT Tact Switch
33	PMDN4036AR	Programming Button Tact Switch
34	N/A	PC Board
35	PMDN4034AR	Antenna Bracket
36	PMDN4017AR	Volume Potentiometer
37	PMDN4037AR	Pogo Pin and Pogo Pin Housing
38	N/A	Audio Jack
39	N/A	Audio Jack Shroud

3.4 Radio Disassembly and Reassembly

This chapter provides detailed procedures for disassembling and reassembling of the radio.

NOTE: If a unit requires further testing or service than is customarily performed at the basic level, send your radio to Motorola Solutions Service Center.

3.4.1 Disassembling the Radio

This section contains instructions for disassembling the radio front housing and PC board.

3.4.1.1

Disassembling the Front Cover from Chassis

Prerequisites: Turn off the radio before disassembling.

Procedure:

1. Unlatch the battery latch at the bottom of the radio.
2. To remove the battery, lift the hilt of the battery, nearest to the battery latch, away from the housing.

   Figure 5: Unlatch the Battery

3. To remove the battery, slide the battery downwards.

Figure 6: Battery Removal

4 To remove the antenna, turn the antenna counterclockwise, then remove it from the receptacle.

Figure 7: Antenna Removal

5 Remove the **On/Off** and **Volume Control Knob** from the shafts using the chassis opener.

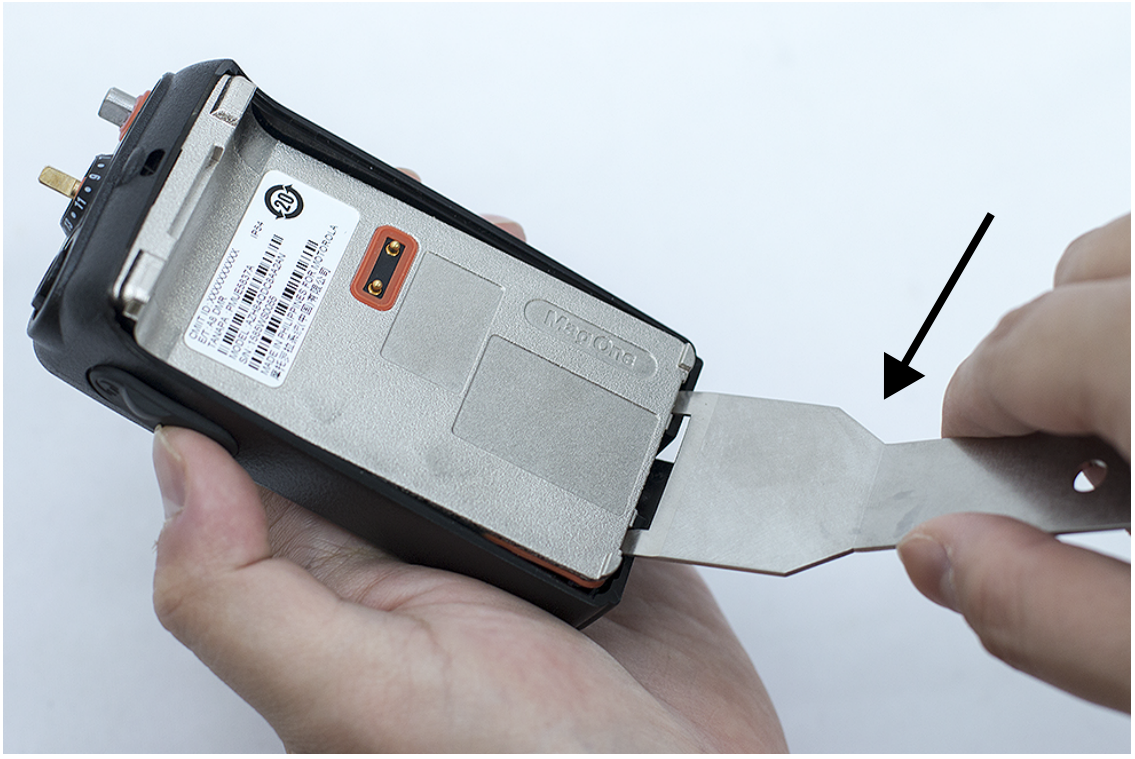
Figure 8: On/Off/Volume Control Knob Removal

Figure 9: On/Off/Volume Control Knob Removal

6 To lift the chassis, insert the chassis opener at the bottom of the radio, between the chassis and housing.

NOTE: Be careful not to damage the housing or the O-ring underneath.

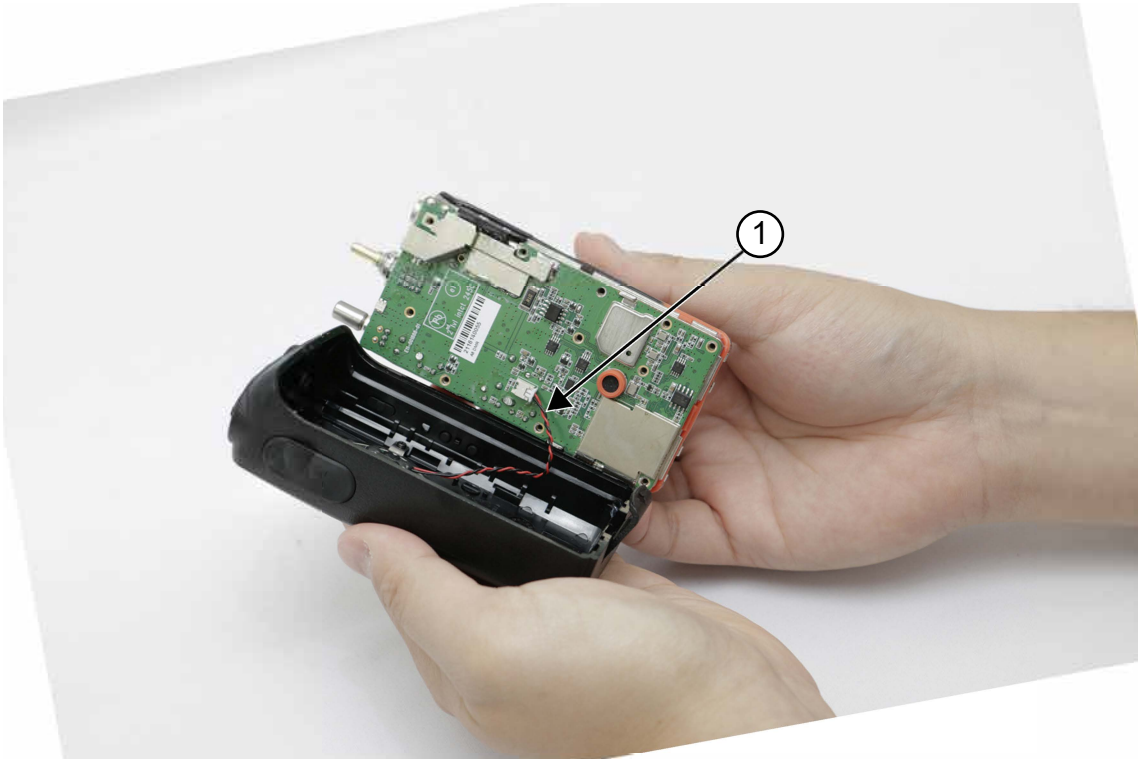
Figure 10: Lifting the Chassis



7 Lift rear chassis away from the front cover.

NOTE: Be careful not to damage the speaker wire underneath.

Figure 11: Chassis Disassembly

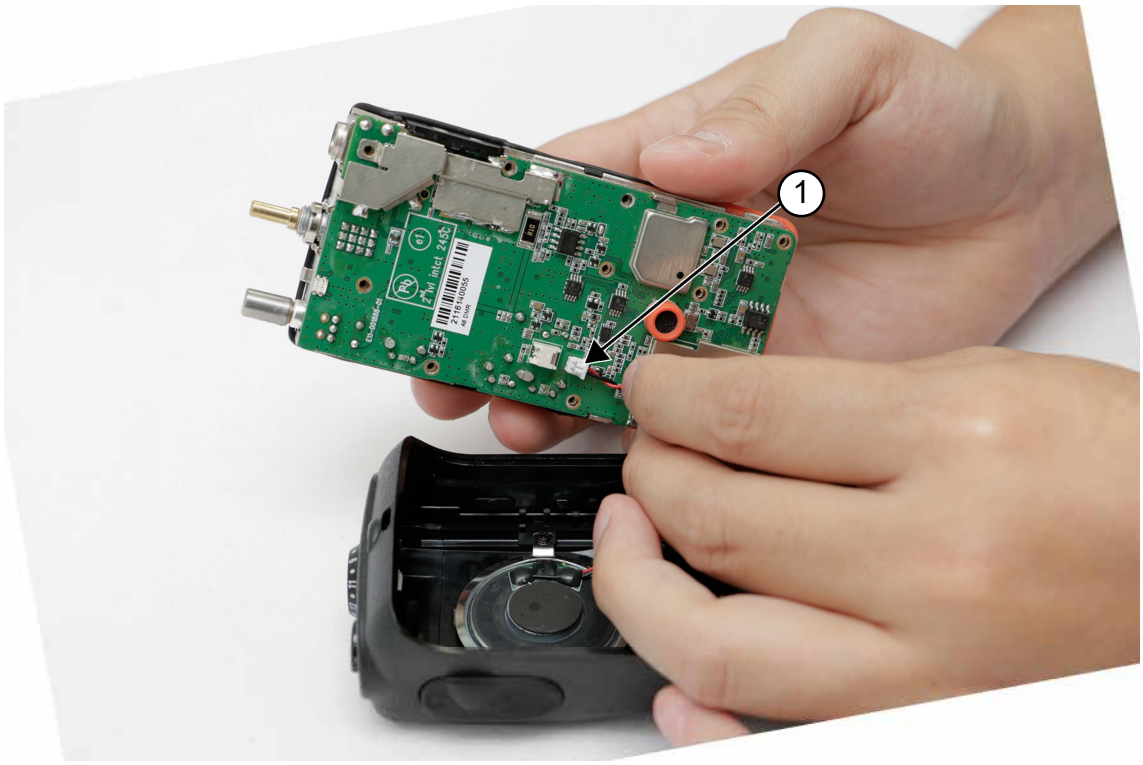


1	Speaker wire

8 Slide the rear chassis downwards, and away from the front cover.

9 Remove the speaker connector, which connects between the PC Board and the internal speaker on front cover.

Figure 12: Speaker Connector Disassembly



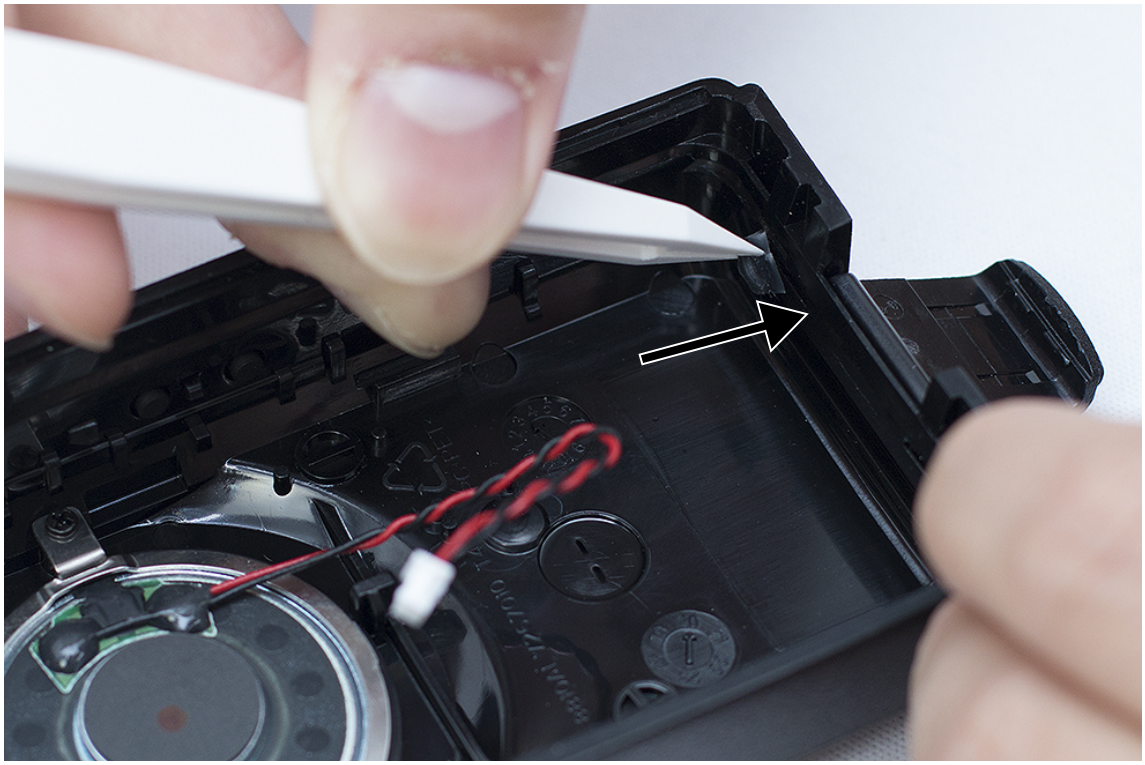
1	Speaker Connector

NOTE: Perform step 10 and step 11 only if there is a need to replace the latch.

10 Remove the latch pad from right slot space.

11 With the battery latch on the housing, push the shaft in the housing slot to the right and slide the battery latch shaft out from the latch.

Figure 13: Removing the Battery Latch



NOTE: Perform step 12 and step 13 only if there is a need to replace the latch.

12 Remove the speaker from on top of the speaker felt.

13 Remove the speaker felt from the grille area.

Figure 14: Removing Speaker Felt

3.4.1.2
Disassembling the PC Board

Prerequisites:

Procedure:

1. Remove the audio jack seal.
2. Remove the 10 screws which hold the PC board to the diecast.
3. Remove the two nuts on the **On/Off** and **Volume Channel knobs** with the Crab Eye Nut Opener.
4. Remove the PC board from the rear diecast.

3.4.2
Reassembling the Radio

This section contains instructions for reassembling the radio front housing and PC board.

3.4.2.1
Reassembling the Chassis and Front Cover

Prerequisites:

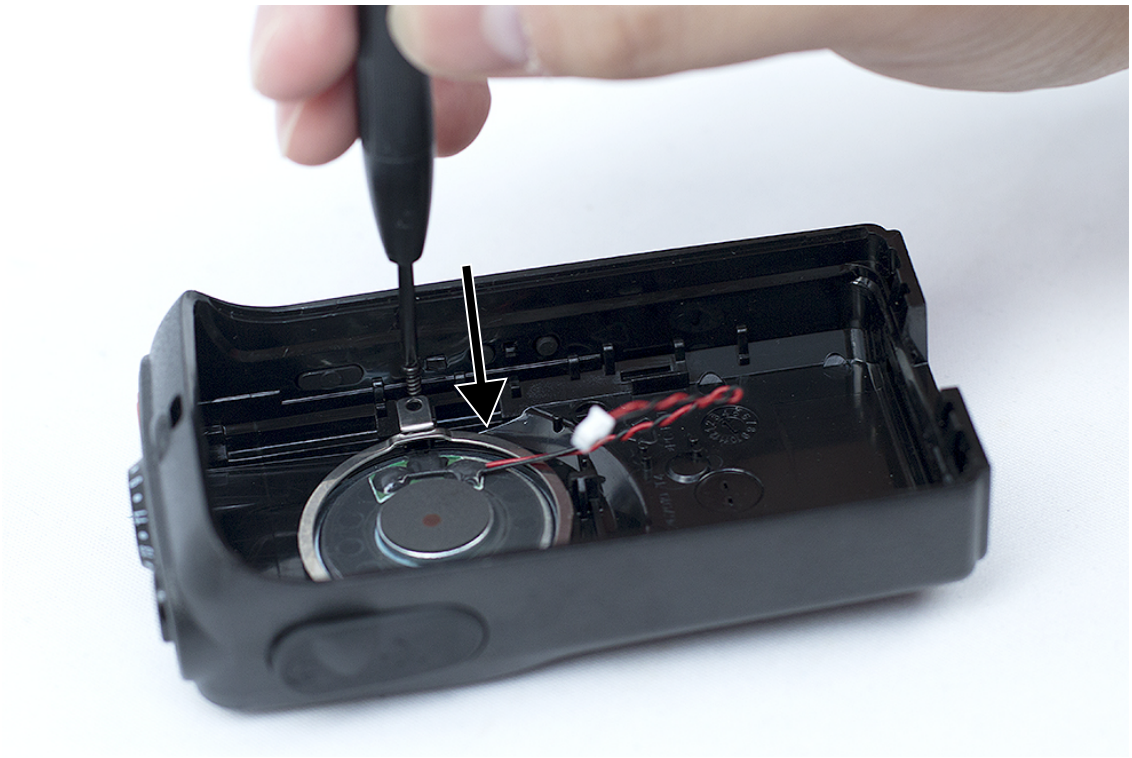
NOTE: Perform step 1 to step 4 only if there is a need to replace the speaker, speaker bracket or speaker felt.

Procedure:

1. Place the speaker felt onto the grille area.

2 Place the speaker on top of the felt.

Figure 15: Speaker assembly



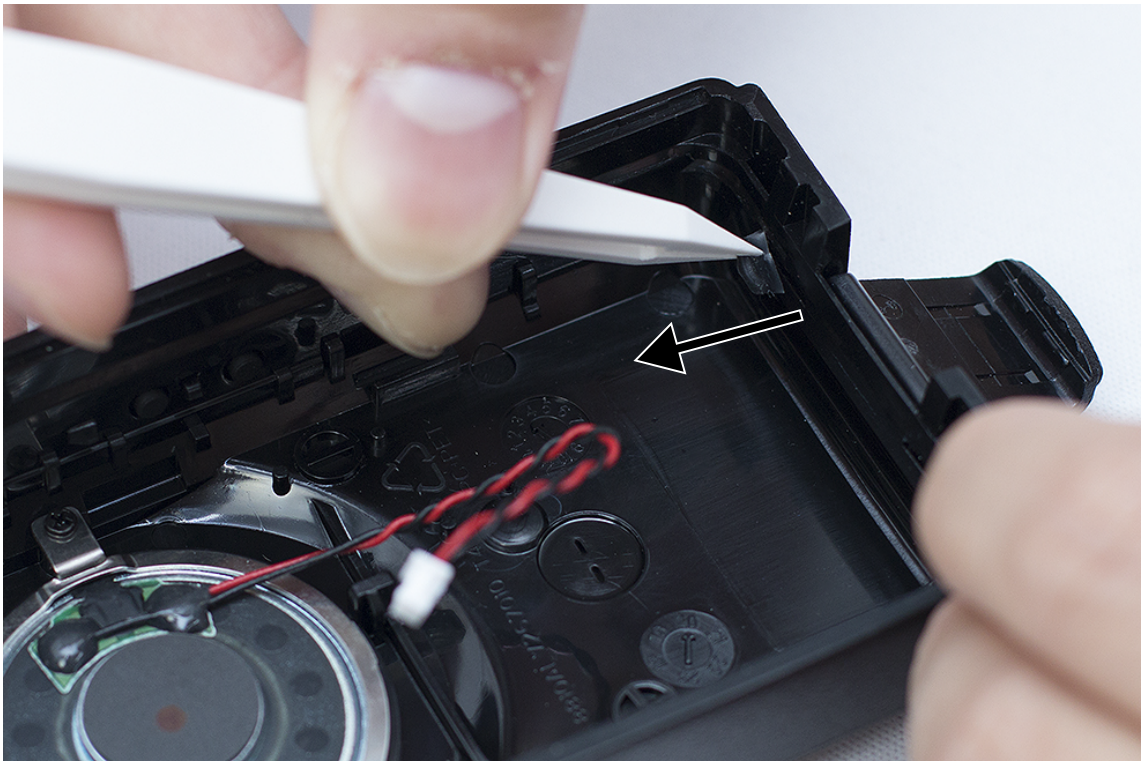
3 Stick the speaker poron pad onto the back of speaker magnet.

4 Place the speaker bracket and screw the bracket to the housing.

NOTE: Perform step 5 to step 8 only if there is a need to replace the latch.

5 Slot the battery latch shaft into the latch.

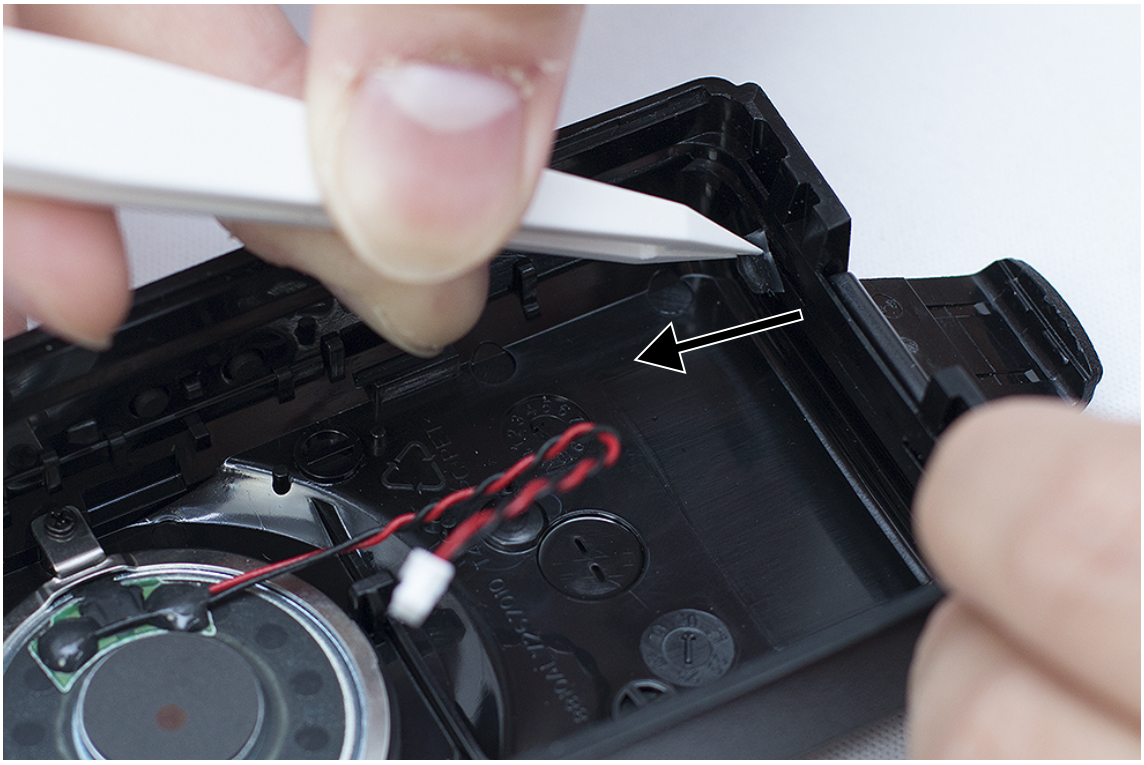
Figure 16: Battery Latch Assembly



6 Place the latch onto the housing, with the shaft protruding on the right side of the latch.

7 With the battery latch placed on the housing, push the shaft in the housing slot to the left.

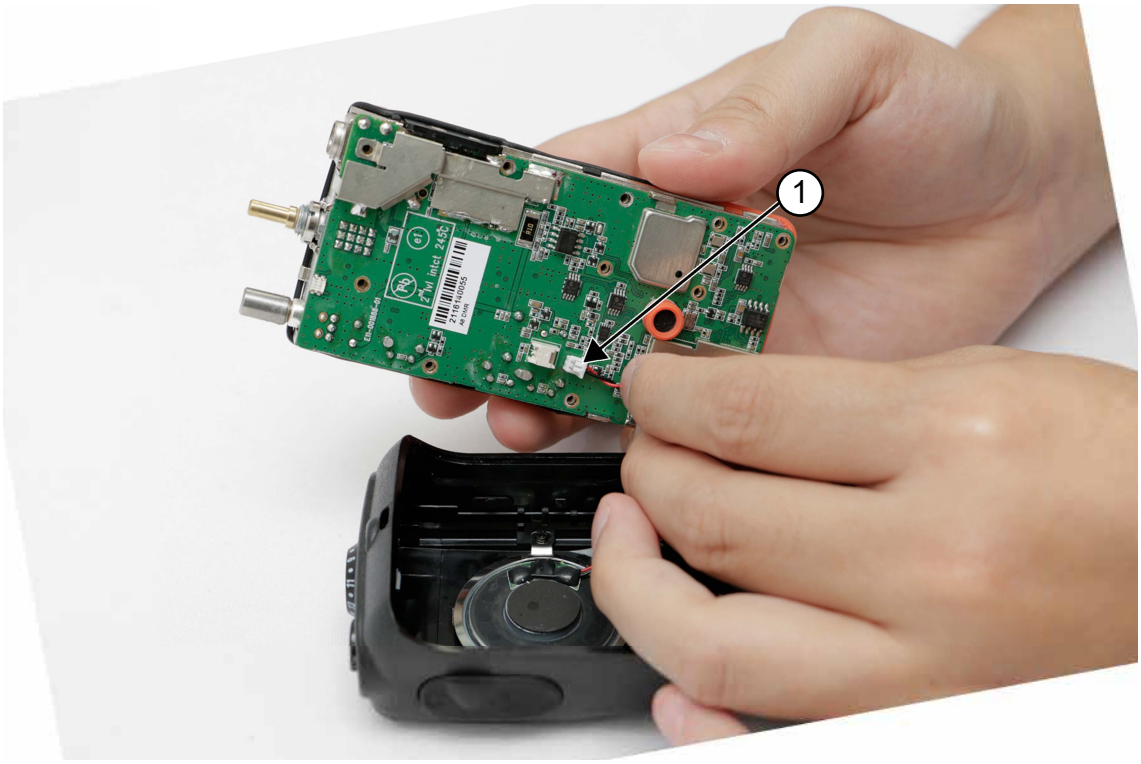
Figure 17: Battery Latch - Shaft Assembly



8 Place the small latch pad onto the right slot space.

9 Connect the internal speaker connector to the PC board.

Figure 18: Speaker Connector Assembly



1	Speaker Connector

10 Place the diecast into the front housing.

11 Snap the front housing cover firmly into place on the rear diecast.

12 Attach the battery.

13 Attach the **On/Off**, **Volume** knob, **Channel** knob, and antenna.

3.4.2.2
Reassembling the PC Board

Procedure:

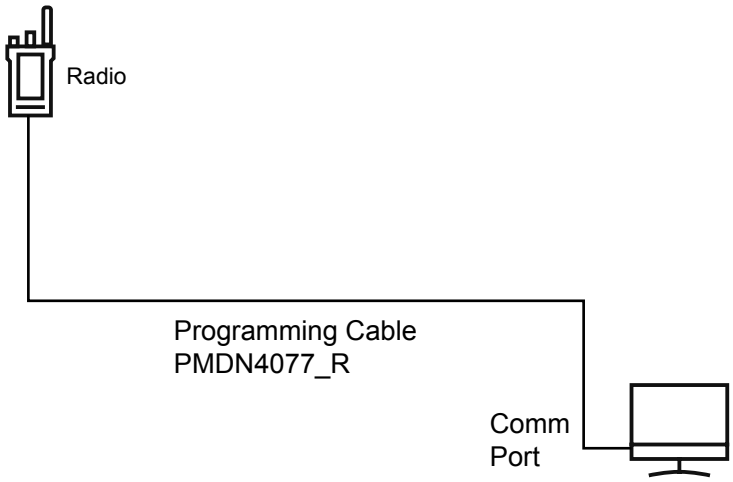
1 Place the PC board on the rear diecast.

2 Tighten the screws and the nuts on the two knobs.

Chapter 4

Customer Programming Software

You can program user configuration, radio settings, and function keys into the radio using Customer Programming Software (CPS). To start CPS, refer to the diagram below for the programming setup:



4.1 Reading Data to the Computer

Procedure:

1. Connect the programming cable to radio and PC or laptop.
2. Turn on the radio.
3. Click **Read** on the Customer Programming Software (CPS).

The radio beeps once after the data is written to the radio successfully.

4.2 Writing Data to the Radio

Procedure:

1. Connect the programming cable to radio and computer.
2. Turn on the radio.
3. Click on **Write** on the Customer Programming Software (CPS).

A tone sounds once after the data from the radio is read successfully.

Chapter 5

Replacement Parts Ordering

Some replacement parts, spare parts, and/or product information can be ordered directly from the Motorola Solutions local distribution organization or through Motorola Online.

Basic Ordering Information

While parts may be assigned with a Motorola Solutions part number, they may not be available from the Motorola Solutions Radio Products and Solutions Organization[1] (RPSO). Some parts may have become obsolete and are no longer available in the market due to cancellations by the supplier. If no Motorola Solutions part number is assigned, the part is normally not available from Motorola Solutions, or is not a user-serviceable part. Part numbers appended with an asterisk are serviceable by Motorola Solutions Depot only.

Place orders for replacement parts, kits, and assemblies directly on Motorola Solutions local distribution organization or through Motorola Online. When ordering replacement parts or equipment information, include the complete identification number. This applies to all components, kits, and chassis. If the component part number is not known, the order should include the number of the chassis or kit of which it is a part of, and sufficient description of the desired component to identify it.

To identify non-referenced spare parts, request for help from the Customer Care organization of a Motorola Solutions local area representative.

Motorola Online

The product catalog is available on the Motorola Online website. To register for login access, sign up at https://asiaonline.mot-solutions.com.

[1] Radio Products and Solutions Organization (RPSO) was formerly known as the Radio Products Services Division (RPSD) and/or the Accessories and Aftermarket Division (AAD).

Chapter 6

Authorized Accessories List

Table 12: Antennas

Part Number	Description
PMAE4104_	Mag One, UHF, 403–470 MHz, Wideband Antenna

Table 13: Battery

Part Number	Description
PMNN4534_	Mag One Li-Ion, 2400 mAH Battery

Table 14: Cable

Part Number	Description
PMDN4077_	Programming Cable

Table 15: Carry Device

Part Number	Description
PMLN4743_	Mag One Spring Belt Clip

Table 16: Charger

Part Number	Description
PMPN4203_	Mag One Charger Desktop Single Unit INT PS 240V China

Table 17: Earbuds and Earpieces

Part Number	Description
PMLN6534_	Mag One Earbud with In-Line Microphone/PTT/VOX Switch
PMLN6531_	Mag One Ear Receiver with In-Line Microphone/PTT/VOX Switch
PMLN6536A	2-Wire with Transparent Tube, Black

Table 18: Headset and Headset Accessory

Part Number	Description
PMLN6542_	Mag One Ultra-Lightweight Headset with Boom Microphone and In-Line PTT Switch

Table 19: Remote Speaker Microphone

Part Number	Description
PMMN4092_	Mag One Remote Speaker Microphone

目录

图列表

表列表

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本产品可能包含经许可使用的开源软件。请参阅产品安装介质，了解完整的“开源法律声明和归属”内容。

欧盟 (EU) 和英国 (UK) 废弃电子电气设备 (WEEE) 指令

欧盟的 WEEE 指令和英国的 WEEE 法规要求销售到欧盟国家/地区和英国的产品必须在产品上（有时是在包装上）张贴带交叉号的垃圾箱标签。根据 WEEE 指令的定义，此带叉号的带轮垃圾箱标签表示欧盟国家/地区和英国的客户和最终用户不得将此电子电气设备或附件作为生活垃圾处置。

欧盟国家/地区和英国的客户或最终用户应联系当地的设备供应商代表或服务中心，以了解有关所在国家/地区废物收集系统的相关信息。

免责声明

请注意，本文档中介绍的某些特性、设备和功能可能不适用于或未授权给特定系统使用，或者取决于特定移动订阅用户设备的特性或特定参数的配置。请联系 Motorola Solutions 联系人获取详细信息。

文档历史

自上一个版本以来，本手册已实施以下主要更改：

表 1： 文档历史

版本	说明	日期
MN007773A01-AA	原始版本	2021 年 6 月
MN007773A01-AB	添加了自静频率表。	2021 年 10 月
MN007773A01-AC	更新了包容语言（主和从属）	2023 年 6 月

本手册的范围

本手册的使用对象是熟悉同类设备的有经验的维修技术人员。

其中包含所描述设备的维修信息，信息的最后修订日期以印刷日期为准。在印刷日期之后对信息进行的修改可能会编入修订版的维修手册，或者以补充资料的形式提供。

本手册中使用的注解

在本手册的全文中，您会注意到我们使用了一些警告、小心和注意注解。这些注解用于强调存在的安全隐患，提示您操作时应小心谨慎。

警告: “警告”表示若不避免可能造成死亡或人身伤害的潜在危险处境。

小心: “小心”表示存在若不加以避免则有可能导致设备损坏的潜在危险处境。

注释: “注意”表示需要强调的操作过程、举措或状况。

相关出版物

表 2： 相关出版物

部件号	说明
MN007539A01	A8 DMR 快速参考指南
MN007472A01	A8 DMR 用户指南
MN004534A01	安全手册
MN003037A01	CMM 手册

安全信息

本章是多语言安全手册出版物的摘录。有关最新的安全信息，请参阅对讲机随附的单独的安全手册。

射频能量辐射和产品安全指南

小心: 在使用本对讲机之前，请阅读对讲机随附的指南，其中包含有关设备安全使用和射频能量须知的重要操作说明，以及有关遵守适用的国内和国际标准中的射频能量辐射限制的控制信息和操作说明。

遵守射频辐射标准

无论是在设计上还是在测试中，Motorola Solutions 双向对讲机都符合国内和国际的各种人体射频电磁能量辐射的相关标准和规定。

您拥有的 Motorola Solutions 双向对讲机符合以下射频能量辐射标准和准则：

- 美国联邦通信委员会 (FCC)，联邦政府行政法规汇编第 47 卷第 2 部分 J 子部分
- 美国国家标准学会 (ANSI)/电气电子工程师协会 (IEEE) C95.1-1992
- 电气和电子工程师协会标准 (IEEE) C95.1-1999 版
- 国际非电离辐射防护委员会 (ICNIRP) 1998
- 卫生署（加拿大）安全规范 6.关于人体暴露在频率范围为 3 kHz-300 GHz 的射频电磁场的限制，1999 年
- 澳洲通讯局的无线电通讯标准（电磁辐射 - 人体暴露标准），2003 年
- 巴西国家通讯管理局 (ANATEL) 2002 年 7 月 2 日第 303 号附件决议《有关人体暴露在无线电频率范围为 9 KHz-300 GHz 的电场、磁场和电磁场的限制规定》和《2002 年 7 月 2 日第 303 号决议附件》《SMR、蜂窝和 PCS 产品认证的附加要求》

注释: 尽管此对讲机在讲话使用率达到 50% 时符合 FCC 的职业辐射限值规定，但此对讲机随附的标准电池的额定效率系数为 5-5-90（即讲话占 5%，接收占 5%，待机时间占 90%）。

在检测对讲机的射频能量是否符合这些辐射标准时，只有在对讲机发送信号（即讲话）时，对讲机才会放射出可测量的射频能量，而非对讲机在接收通讯（即收听）或处于待机状态时。

职业使用要求的射频能量辐射常识、控制信息及操作说明

注释: 本对讲机是为某些职业/受控环境的应用而设计，在这种情况下，使用者完全了解产生辐射的可能性，而且能够采取措施来控制辐射，以满足 FCC/ICNIRP 和国际标准中的有关职业规定。本对讲机设备并未获得可供普通人群、消费者使用的授权。

本双向无线对讲机利用射频谱的电磁能量，可以为一段距离内的两个或多个用户之间提供通讯服务通过射频能量或无线电波接收或发送呼叫。射频能量是一种电磁能量形式，其他形式还包括但不限于：太阳能和 X 射线。然而，不应将射频能量与其他形式的电磁能量混淆，其他形式的电磁能量使用不当时，会造成生物损伤。例如，高强度的 X 射线会损坏组织和基因材料。

科学、工程、医药、健康和工业领域的专家们与相关组织共同研究射频能量的安全辐射标准，这些标准介绍了职业工作者和大众的射频辐射安全推荐级别。建议的射频辐射级别包括实际的保护极限。

所有 Motorola Solutions 双向无线对讲机的设计、制造和测试均确保其射频辐射完全符合政府制定的射频辐射级别。此外，厂家也为双向无线对讲机用户提供明确的操作说明。这些操作说明非常重要，因为这些内容提醒用户对讲机产生的射频能辐射，并提供控制射频辐射的简单步骤。

请参阅以下网站获得更多的资讯，如什么是射频能辐射，以及如何控制射频能辐射，使其符合现行的射频能辐射限制：

http://www.fcc.gov/oet/rfsafety/rf-faqs.html

http://www.osha.gov/SLTC/radiofrequencyradiation/index.html

射频辐射合规性和控制准则

务必遵守以下程序以控制您和他人所受到的射频辐射，确保符合职业/受控环境中的辐射限制。

- 请不要将射频辐射标签从对讲机上撕下。
- 用户须知应当在对讲机移交其他使用者使用时随对讲机一并移交。
- 如果不符合操作要求，请勿使用本设备。

操作说明

- 传输量不得大于使用时间 50% 的额定效率系数。传输（即讲话）时按下通话按键 (PTT) 按钮。接听时松开 PTT 按钮。传输时间占比不高于 50% 非常重要，因为此对讲机仅在传输时会产生可测量的射频能量辐射。
- 将对讲机竖直放在面前，保持麦克风（以及包括天线在内的其他对讲机部件）至少距离鼻子或嘴唇 2.5 厘米（1 英寸）。确保天线远离眼睛。与对讲机保持合适的距离非常重要，因为离天线的距离越远，射频辐射越小。
- 对于随身携带的对讲机而言，务必将对讲机放在 Motorola Solutions 认可的夹具、固定装置、皮套、盒子或其他套具中。使用未经 Motorola Solutions 认可的附件可能导致暴露水平超过 FCC 职业/受控环境射频辐射限制范围。
- 如果人体没有佩戴任何附件，且不打算在面部位置前使用对讲机，则在发射时，天线和对讲机应与身体保持至少 2.5 厘米（1 英寸）的距离。与对讲机保持合适的距离非常重要，因为离天线的距离越远，射频辐射越小。

认可的附件

请仅使用 Motorola Solutions 认可的供应天线或替换天线、电池和附件。使用非 Motorola Solutions 认可的天线、电池和附件，可能会导致其辐射超过联邦通信委员会 FCC (IEEE) 和国际非电离辐射防护委员会 (ICNIRP) 所确定的射频辐射标准。

如需查看 Motorola Solutions 认可的附件列表，请访问 http://www.motorolasolutions.com。

其他信息

有关暴露要求的附加信息或其它培训信息，请访问 http://responsibility.motorolasolutions.com/index.php/downloads/dow07-rfexposureassessmentstand/

电磁干扰/兼容性

如果防避不够、设计不当或电磁相容性配置不正确，几乎每台电子设备都容易产生电磁干扰 (EMI)。

场所

为了避免电磁干扰和/或兼容性冲突，在任何明文要求关闭对讲机的场所，请关闭您的对讲机。医院或医疗机构可能会使用对外部射频能量敏感的设备。

飞机

如有相关指示，请在乘机期间关闭您的对讲机。对讲机要根据航班司乘人员的指示，遵照适用条例使用。

医疗设备

起搏器

美国先进医疗技术协会 (AdvaMed) 建议手持式无线对讲机与起搏器之间至少应保持 15 厘米（6 英寸）的距离。这些建议同美国食品和药品管理局的规定相一致。携带起搏器的人应注意下列事项：

- 当对讲机开机时，起博器与对讲机之间始终保持 15 厘米的距离。
- 切勿将对讲机放在胸前的口袋里。
- 使用起搏器另一侧的耳朵接听，以尽量减少潜在干扰发生。
- 如果您有理由怀疑对讲机干扰到了起博器，立即关闭对讲机。

助听器

某些数字无线对讲机可能会干扰某些助听器。当出现此类干扰时，您可以向助听器生产厂家咨询，讨论替代方案。

其他医疗设备

如果您使用其他个人医疗设备，请向设备生产厂家咨询，确定这些设备是否能够有效屏蔽射频能量。您的医生可能也可帮您确认此类信息。

驾驶过程中使用通信设备

查询当地关于开车时使用对讲机的相关法律法规，并遵照规定执行。

- 全神贯注开车，注意路面上的情况。
- 如果可能的话，用免提方式操作对讲机。
- 如果驾驶条件需要或相关法规要求的话，在讲话或回答之前要先将车驶离行车道并停好。

操作警告

警告:

对于配备安全气囊的车辆，在安装电子设备之前，请参阅车辆制造商的手册，以避免干扰安全气囊接线。

请勿将对讲机安装或放置在气囊上方或气囊展开时占用的区域内，因为气囊膨胀时会产生很大的力量。如果对讲机安装在气囊展开时占用的区域内，当气囊展开时，对讲机可能会被其产生的巨大力量所弹起，从而导致车辆内的乘客受重伤。

可能会发生爆炸的环境（可能会发生爆炸的环境指一些可能含有危险气体、烟雾或粉尘的危险场所。）

切勿在这些区域拆装电池或为电池充电。可能会发生爆炸的环境中产生的火花会引起爆炸或火灾，从而造成人身伤害或甚至死亡。

具有可能爆炸气体的区域包括：燃料区，如船甲板下面的区域以及燃料或化学制剂的传送或贮存场所；空气中含有化学物质或诸如微粒、粉尘或金属粉末等颗粒物的地点。可能会发生爆炸的环境的区域通常会张贴告示说明，但是也有例外。

引信和爆破区域

为了避免对爆破操作可能造成的干扰，请您在爆破区域内靠近电引信时关掉您的对讲机：在那些贴有“关掉双向对讲机”字样的地方，您也要关掉对讲机。请严格遵守所有标志和说明。

操作注意事项

天线

请勿使用天线已经损坏的便携式对讲机。如果损坏的天线与您的皮肤接触，会引起轻度灼伤。

电池

如果导电材料（如珠宝、钥匙或珠状项链）接触暴露的电池端子，可能会导致财产损失和/或人身伤害（如烧伤）。这些导电材料可能会与电池形成回路（造成短路），并变热。所以在处理任何充电后的电池时必须加倍小心，尤其是放在衣袋内、钱包内或者具有金属物体的其他容器内时。

保修、服务信息和更换部件

保修

Motorola Solutions 对其产品提供长期支持。这一支持包括产品在保修期内的全部更换和/或维修，以及保修期外的检修/维修或备件支持。

在授权的 Motorola Solutions 维修地点申请的任何“返回更换”或“返回修理”的产品均需附有“保修申请表”。“保修申请表”可通过联系授权的 Motorola Solutions 维修地点取得。

保修期与返修说明

保修条款与条件在“Motorola Solutions 经销商、分销商或转销商”合同里有完整规定。具体条件会随时有所变化，以下内容仅供参考。

对于享有“返回更换”或“返回修理”保证的产品，在将设备返回至 Motorola Solutions 之前应先对该产品进行检测。这样做是为了确认产品已进行正确预设还是属于保修条款以外的损坏。

保修期外服务

在保修期外，Motorola Solutions 可以继续对其产品提供支持。

- Motorola Solutions 管理型技术服务部 (MTS) 负责以优惠价格向最终用户和经销商提供维修服务。
- Motorola Solutions 管理型技术服务部 (MTS) 提供具体的部件和模块供能够进行技术故障分析与维修的代理商购买。

零件

某些可更换的部件、备件和/或产品信息可直接订购。

如果某部件有一个指定的完整 Motorola Solutions 编号，则该部件可从 Motorola Solutions 管理型技术服务部 (MTS) 处订购。如果部件号带有一个星号，则该部件只能由 Motorola Solutions 维修点维修。如果未随附一份部件列表，一般情况下则说明该部件不具备维修或装配的条件。一些部件可能已废弃，且由于供应商取消供应而无法在市场上找到。

注释: 在操作或测试设备之前，请阅读安全信息页号 11。

订购所有部件或信息时均应提供完整的 Motorola Solutions 识别编号。对于所有部件，请直接向当地的 MTS 办事处订购。请参阅您最新的价格表。

技术支持

技术支持随时恭候，协助代理商/运营商解决出现的任何故障。在可能的情况下，请首先通过电话与技术支持取得联系。

在联系 Motorola Solutions 技术支持时，请准备好提供产品的型号。

Motorola Solutions 更进一步的帮助

要了解有关 Motorola Solutions 产品和服务的更多信息或联系客户服务台，请访问 https://www.motorolasolutions.com。

注释: 只有经批准的 Motorola Solutions 服务地点才能执行服务支持。由未经授权的 Motorola Solutions 维修地点进行的任何改动都会使对讲机的保修失效。

章节 1

型号、图表和测试规格

本节提供对讲机型号、图表和测试规格。

1.1 对讲机型号信息

对讲机的型号和序列号标注在对讲机背面的标签上，您可以按其型号确定射频输出功率、频率波段、通信协议和物理包装。

表 3： 机型编号方案

典型型号	AZ	H	8	4	K	D	C	8	A	A	6	A	N
位置	0	1	2	3	4	5	6	7	8	9	10	11	12

表 4： 销售型号 – 位置说明

位置	说明	值
0	2 个字符的区域前缀	AA = 北美 (NA) AZ = 亚太地区 (APAC) CM = 中国 LA = 拉丁美洲 (LA) MD = 欧洲、中东和非洲 (EMEA)
1	设备类型	P = 便携式
2	型号系列	AlphaL 系列
3		
4	频段	J = 136–150 MHz K = 150–174 MHz Q = 403–425 MHz R = 450–470 MHz
5	功率级别	B = 1 W/2 W 固定 C = 1 W/4 W D = 1 W/5 W
6	物理包装	C：APAC 网，黑色，16 信道 J：NA 网，深蓝，16 信道 S：NA 网，深蓝，8 信道
7	信道间隔	4 = 12.5 K 固定 6 = 25 K 固定 8 = 12.5/25 K

位置	说明	值
8	主要操作	A = 传统
9	主要系统类型	A = 传统
10	功能级别	1 至 9
11	版本字母	对讲机如有重大更改，将提供新的修订版本
12	唯一型号变体	N = 标准包装

例如：

- AZH84RCC8AA1AN：APAC 地区，UHF2，APAC 网，16 信道，GP4848，英语 UG。
- CMH84RCC8AA1AN：中国地区，UHF2，APAC 网，16 信道，GP4848，中文 UG。
- AZH84RCC8AA2AC：APAC 地区，UHF2，APAC 网，16 信道，GP2888，中文 UG。
- AAAH84RCJ8AA1AN：美国客户 1，UHF2，NA 网，16 信道，CustModelName1，英语 UG。
- AAH84RCJ8AA2AN：加拿大客户，UHF2，NA 网，16 信道，CustModelName2，英语 UG。
- AAH84RCS8AA1AN：美国客户 1，UHF2，NA 网，8 信道，CustModelName1，英语 UG。
- AAH84RCJ8AA3AA：美国客户 1，UHF2，NA 网，16 信道，CustmodelName2，英语/西班牙语 UG。

1.2 型号规格

表 5： 一般规格

常规	
信道	32
频率	403-470 MHz
对讲机尺寸（高 x 宽 x 厚）	125 mm x 58 mm x 38 mm（含 2400 mAh 电池）
重量	350 g（含 2400 mAh 电池、天线和皮带夹）
电池电压	7.4V DC±10%
电池续航时间	工作周期 5/5/90 时 >10 小时

表 6： 接收器规格

接收器	
灵敏度 12dB SINAD	-121 dBm
灵敏度 1% BER	-119 dBm
相邻信道	60 dB（数字），60 dB (12.5 kHz) / 70dB (25 kHz)
杂散响应抑制	70 dB
杂音	45 dB (12.5 kHz) / 50 dB (25 kHz)
音频输出	500 mW @ 24 Ω
音频失真	< 4 %

接收器	
传导杂散发射	-57 dBm [≤ 1 GHz]，-47 dBm [> 1 GHz]

表 7： 发射器规格

发射器	
输出功率	4 W（高），1 W（低）
调制限制	±5.0 kHz [25 kHz] / ±2.5 kHz [12.5 kHz]
传导杂散发射	-36 dBm [≤ 1 GHz]，-30 dBm [> 1 GHz]

表 8： 自静规格

自静频率	
403.20000	440.06500
404.73500	442.36250
405.50000	442.36500
405.50500	442.36875
405.50625	442.37000
407.80625	445.43750
409.34375	445.44000
414.71875	445.44500
414.72000	446.44375
417.78750	446.45000
417.79000	446.44500
417.79375	449.28000
417.79500	450.81500
422.40000	454.65625
430.07500	460.80000
430.08000	466.94375
430.08125	

表 9： 环境指标

发射器	
对讲机工作温度	-30 °C 至 +60 °C
对讲机存储温度	-40 °C 至 +85 °C
防尘和防潮	IP54

章节 2

维修辅助工具和维修工具

维修对讲机时，请使用维修辅助工具和推荐的维修工具。推荐的维修工具为通用工具，不是专用的 Motorola Solutions 工具。您可以从任何供应商处购买这些工具。

表 10： 维修辅助工具

Motorola Solutions 部件号	说明	应用
PMDN44038_R	机壳开启器	拆卸对讲机。
PMDN44040_R	测试箱	支持连接到音频/附件插孔。
PMDN44041_R	RF 适配器	使对讲机的天线端口与测试设备的 BNC 电缆相匹配。
PMDN44077_R	编程/测试电缆	将对讲机连接到计算机。
PMDN44060_R	克隆电缆	允许通过源对讲机复制对讲机，方法是将编程数据从源对讲机传送到其他对讲机。
PMDN44042_R	等效电池	连接对讲机和电源（包含红黑电源线）。
PMDN44054_R	天线接地片	在进行调整和测量时改进接地。
PMDN44044_R	T 形陶瓷调整工具	调整音频和亚音频调制调整的可变电阻；可通过电池机壳区域接触到调整点。
PMDN44026_R	扁平陶瓷调整工具（1.8 毫米）	调整音频和亚音频调制调整的可变电阻；需要从机壳上拆下 PCB 以便可以接触到调整点。
PMDN44053_R	扁平陶瓷调整工具（0.9 毫米）	
–	十字头螺丝刀	取下 M2 和 M2.6 十字头螺丝。
–	平头螺丝刀	从扬声器垫上取下扬声器。
–	镊子	取出较小的组件。例如，锁扣板和扬声器线连接头。
TT907A 国家维修技术指南	修复无铅组件	指导如何成功拆卸和更换表面贴装设备。

章节 3

维修

3.1
预防性维护

我们建议定期进行目视检查和清洁。

检查

检查对讲机的外表面是否干净以及所有外部控制器和开关是否正常工作。不建议检查内部电路。

清洁过程

以下步骤介绍了清洁对讲机内外表面时推荐的清洁剂以及方法。

外表面包括前壳、外壳组件及电池。进行定期目视检查时，一旦发现表面有污点、油脂和/或尘垢，应立即进行清洁。

小心: 所有化学制品的使用都应遵循制造商的规定。遵照标签或材料安全数据表上规定的所有安全注意事项。一些化学物质及其蒸气对某些塑料可能有害。避免使用气雾喷雾器、调谐器洗涤剂及其他化学产品。

注释:
仅在拆卸对讲机以进行检修或维修时清洁内表面。

清洁塑料外表面

重要说明: 建议清洁对讲机外表时使用的清洁剂是 0.5% 的温和型餐具洗涤剂溶液。

使用短毛非金属硬刷及 0.5% 洗涤剂溶液慢慢地刷掉对讲机上的浮尘。用不掉毛且吸湿的软布或纸巾擦掉溶液并擦干对讲机。确保连接器、缝隙或缺口附近没有积水。

清洁内部电路板及组件

重要说明:
厂家推荐用于清洁印刷电路板及其组件的唯一清洁剂是浓度为 100% 的异丙醇溶液。

务必使用新鲜的酒精和干净的容器，以防止溶解物料（以前使用产生）造成污染。

用 100% 含量的异丙醇溶液及短毛非金属硬刷刷掉难触及区域的嵌入或结块物质。必须用刷子直接将沉积物从对讲机内部刷出。确保控件或可调组件没有被酒精浸湿。切勿使用高压空气加快烘干处理，防止液体聚集在想不到的地方。清洁完毕后，用不掉毛且吸湿的软布擦干相关区域。切勿用刷子或异丙醇溶液清理框架和前后盖。

通风口操作预防措施

本便携式设备设有一个通风口，用于均衡设备中的压力。压力均衡通风口位于电池舱处。切勿触摸均衡通风口。确保不让油质物接触到该通风口。切勿使用任何物体（如针、镊子或螺丝刀）刺穿该通风口。这会产生裂缝，破坏设备密封性，并导致设备不再具有防水性。

浸没后注意事项

对讲机（装有天线和电池的设备）符合 IP67 标准。这部分完全防尘，可承受在 1 米的静水中浸没长达 30 分钟。

如果设备曾被浸没在水中，请用力挥动设备，将积留在扬声器网罩和麦克风端口内的水分甩出。否则，积留的水分会降低设备的音频质量和连接性能。

确保没有水渗入密封件。检查通用接口和底部接口是否有任何附件或通用接口防尘罩覆盖。此接口中留下的水分可能会降低附件的性能。

碎屑含量高的环境

对于碎屑含量高的环境，需要使用额外的清洁步骤使对讲机保持最佳性能。

扬声器网罩：在碎屑较多的环境中，扬声器网罩可能会吸附灰尘和碎屑，导致音频质量和清晰度下降。Motorola Solutions 建议对扬声器网罩进行吸尘，以保持最佳音频性能。将缝隙喷嘴连接到真空吸尘器，然后用真空吸尘器清洁扬声器网罩。避免喷嘴一次性覆盖所有网罩孔。在整个网罩上水平地前后移动喷嘴几次。执行“通话和接听”测试，确认音频性能已恢复正常。如果音频问题仍然存在，则应将对讲机送修。

控件顶部：在碎屑含量高的环境中，控件顶部可能会吸附灰尘和碎屑，从而降低按钮、开关和旋钮的触感。Motorola Solutions 建议对控件顶部进行吸尘，以保持最佳触觉性能。将缝隙吸嘴连接到真空吸尘器，并对所有控件顶部（尤其是控制面）进行吸尘，以清除缝隙中的灰尘和碎屑。对于可在水下使用的对讲机（“R”、“I”或“XE”指示符）：将对讲机翻转过来，然后将对讲机顶部放入水中。将控件顶部浸入水中，用力摇晃对讲机以疏松灰尘和碎屑。再次用进行吸尘以清除灰尘、碎屑和水。

对讲机净化

如果对讲机及其连接的附件可能接触了有害病原体或致癌物，以下清洁剂已获准用于 DMR A8 系列对讲机。为获得最大功效，请对讲机执行常规清洁。

- 对于去除病原体污染，请按照制造商的说明涂抹 Zep DZ-7。
- 对于去除致癌物污染，请按照制造商的说明用 Hygenall FieldWipes 或 Enspire Fire Wipes 擦拭对讲机。

Motorola Solutions 尚未确定（也无法确定）任何特定清洁产品是否能够有效清除对讲机上的特定异物。但是，Motorola Solutions 已批准使用这些清洁剂和流程，因为它们对实体对讲机的降解效果较小。

注释: 有关清洁效果的详细信息，请参阅产品文档。

3.2 CMOS 及 LDMOS 设备的安全处理

此对讲机系列中使用了互补金属氧化物半导体 (CMOS) 和横向扩散式金属氧化物半导体 (LDMOS) 装置，容易因为静电或高电压电荷而受到损坏。

而且损坏可能潜伏几周或几个月后才出现故障。因此，在拆卸、故障分析及维修时，必须采取专门的预防措施来防止损坏装置。

尤其是在低湿度环境下使用 CMOS/LDMOS 电路时必须采取操作预防措施。尝试拆卸对讲机时，请务必参考下面的“小心”陈述。

小心:
对讲机内有静电敏感装置，只有当正确接地放电后才能打开对讲机。处理此设备时必须采取下面的预防措施：

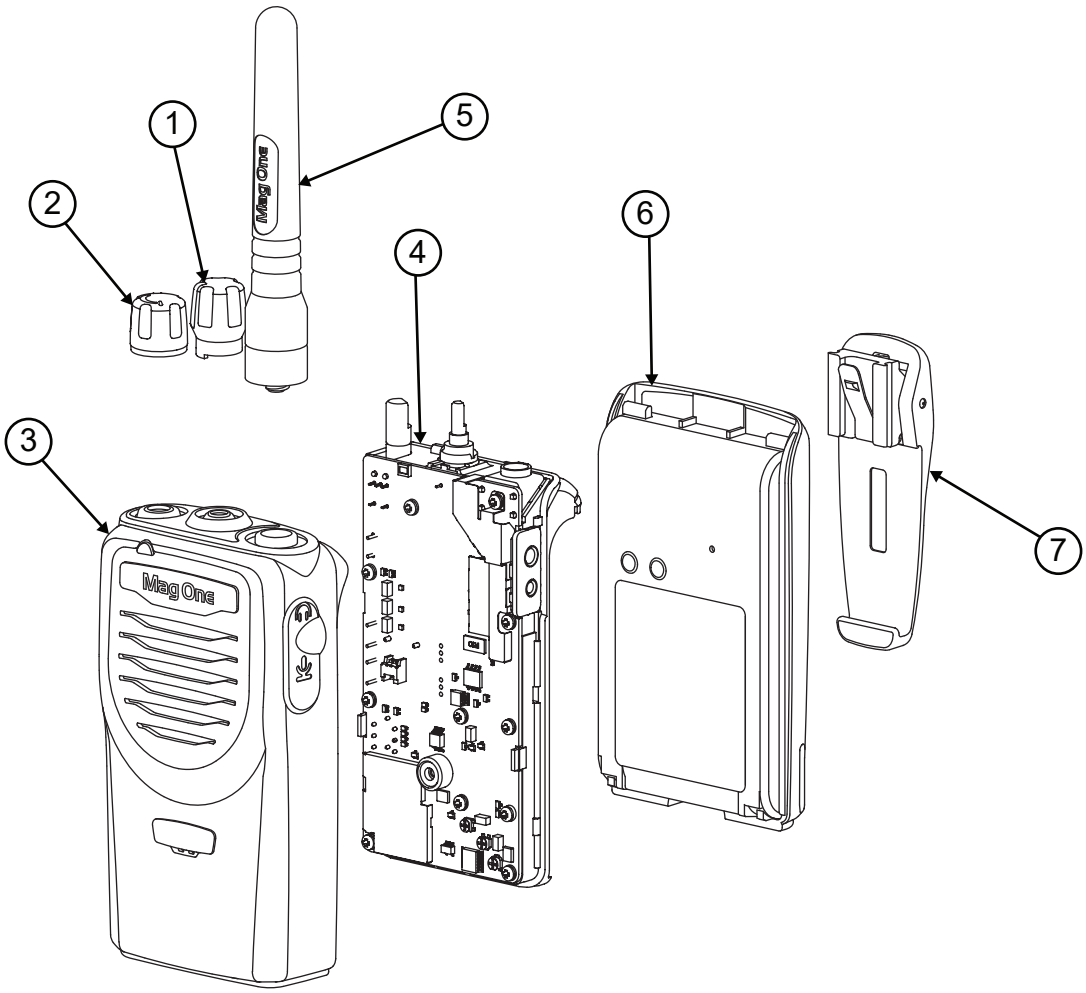
- 存储及运输 CMOS/LDMOS 装置时，请使用导电材料包装，使外露引线一起短接。切勿将 CMOS/LDMOS 装置放到用于存储及运输其它半导体器件的传统塑料盒内。
- 将修理台的工作面接地以保护 CMOS/LDMOS 装置。建议您使用一根腕带、两根接地线、一个桌垫、一个地板垫、防静电放电 (ESD) 鞋和一个 ESD 椅。
- 带上导电腕带与 100k 的电阻器串联接地。与维修台覆盖物连接的更换腕带的 Motorola Solutions 部件号为 4280385A59。
- 处理 CMOS/LDMOS 装置时切勿穿尼龙衣服。
- 切勿带电插拔 CMOS/LDMOS 装置。检查所有用于测试 CMOS/LDMOS 装置的电源，以确保不出现瞬时电压。
- 拉平 CMOS/LDMOS 管脚时，提供所使用装置的接地母线。
- 焊接时，请使用接地烙铁。
- 通过操作包装而不是捏住引脚操作 CMOS/LDMOS 装置。在触摸设备之前，请先触摸电气接地以释放掉您身体积累的静电。电子封装及基片很常用。如果不放电，在碰到管脚时机壳的放电反应会引起同样的损坏。

3.3
对讲机部件

本章提供有关对讲机部件、对讲机拆卸、重新组装和对讲机验证测试的信息。

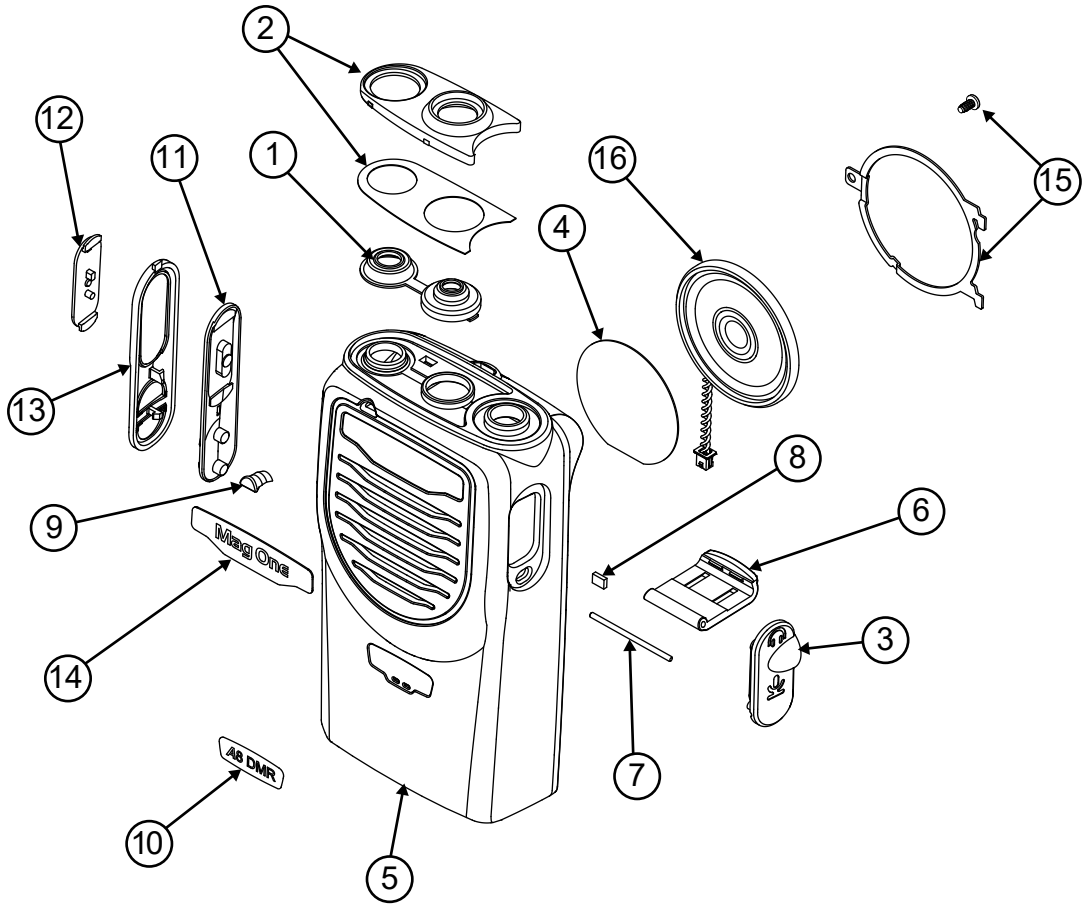
3.3.1
分解图和可更换部件列表

图 1： 对讲机分解图



编号	MSI 部件号	说明
1	PMDN4015AR	信道旋钮和夹具
2	PMDN4208AR	音量旋钮套件
3	PMLN8290A	A8 DMR 前盖套件
4	PMLN8289A	A8 DMR 背板套件
5	PMAE4104A	Mag One 宽带天线
6	PMNN4534A	Mag One 锂离子电池 2400T
7	PMLN4743A	Mag One 弹簧皮带夹

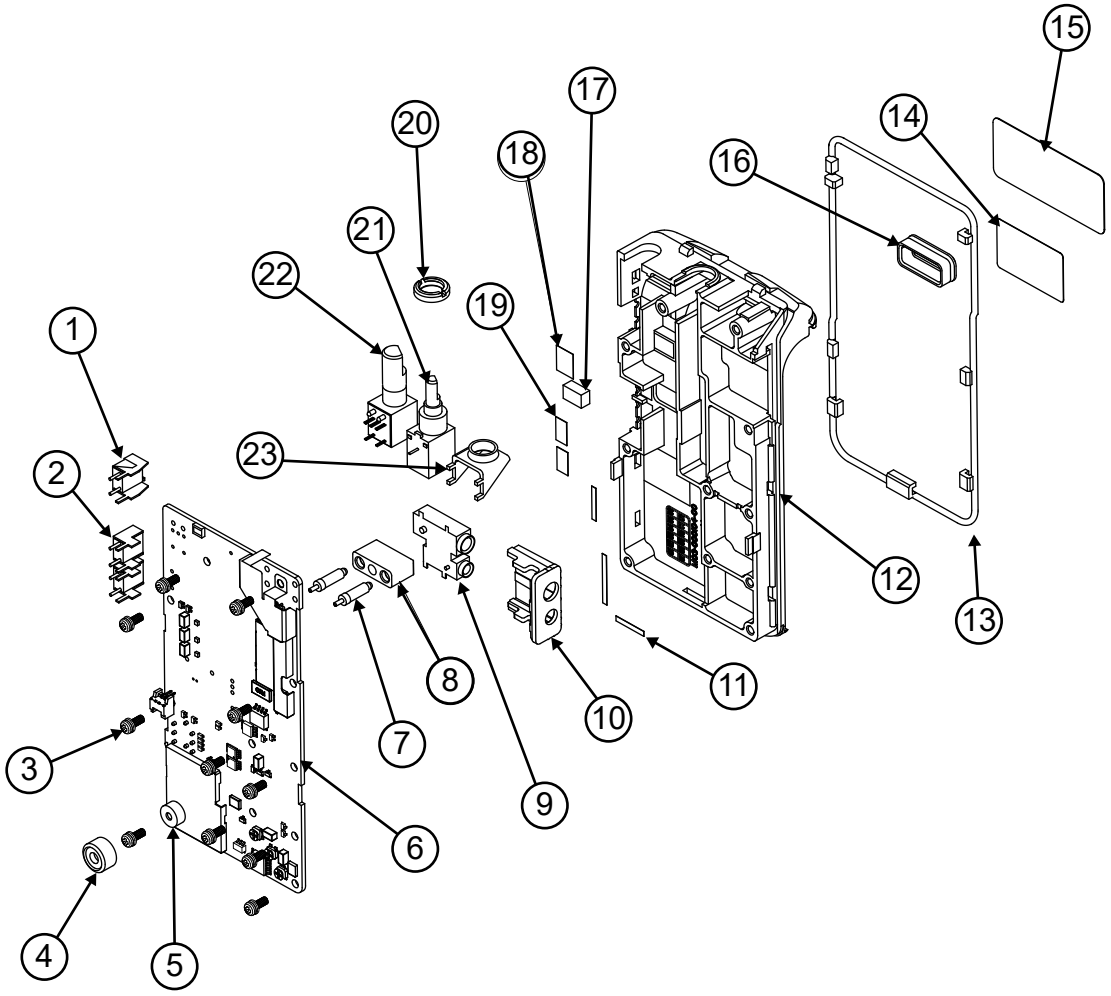
图 2： 前盖 (PMLN8290A)



编号	MSI 部件号	说明
1	PMDN4018AR	信道和音量顶部密封件
2	PMDN4019AR	粘性顶部孔盖，黑色 16CH
3	PMDN4030AR	防尘罩

编号	MSI 部件号	说明
4	PMDN4202AR	扬声器垫
5	PMDN4001BR	前盖
6	PMDN4023AR	电池锁
7		电池锁轴
8		电池锁带条
9	无	灯管
10	LB001485A01	产品编号标签
11	PMDN4007AR	PTT 橡胶垫
12	PMDN4010AR	PTT 面板
13	PMDN4009AR	PTT 孔盖
14	PMDN4209AR	品牌标签
15	PMDN4012AR	扬声器支架和螺丝
16	PMDN4067BR	扬声器和电缆

图 3： 背板套件 (PMLN8289A) 分解图



编号	MSI 部件号	说明
1	PMDN4035AR	PTT 触动开关
2	PMDN4056AR	编程按键触动开关
3	PMDN4027AR	印刷电路板螺丝（11 颗）
4	PMDN4033AR	麦克风套
5		麦克风
6	无	PC 板
7	PMDN4037AR	弹簧针
8		弹簧针外壳和密封件
9	无	音频插孔
10	无	音频插孔护罩
11	PMDN4058AR	PCB 底板带
12	无	对讲机机壳

编号	MSI 部件号	说明
13	PMDN4025AR	O 形圈
14	无	天线支架
15	无	Tanapa 标签
16	无	弹簧针密封件
17	无	导热垫
18	无	PTT 绝缘带
19	无	绝缘带
20	PMDN4015AR	平头旋钮螺母
21		信道电位器
22	PMDN4017AR	音量电位器
23	PMDN4034AR	天线支架

注释: 请联系 Motorola Solutions 服务的槟城物流中心或维修团队以订购对讲机的可更换部件。

图 4： 可更换部件

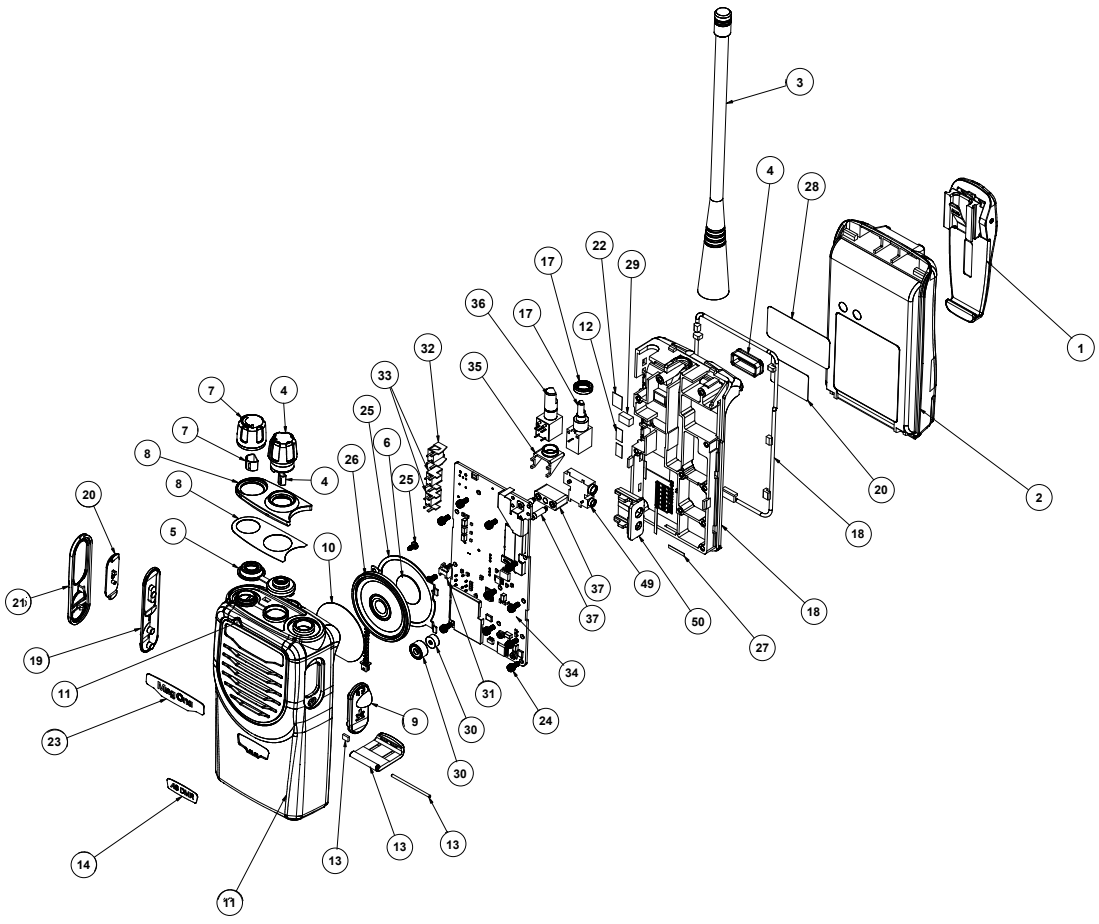


表 11： 可更换部件列表

编号	部件号	说明
1	PMLN4743A	Mag One 弹簧皮带夹
2	PMNN4534A	Mag One 锂离子电池 2400T
3	PMAE4104A	Mag One 宽带 UHF 天线
4	PMDN4015AR	信道旋钮和夹具
5	PMDN4018AR	信道和音量顶部密封件
6	PMDN4013AR	扬声器泡棉垫
7	PMDN4208AR	音量旋钮和夹具
8	PMDN4019AR	粘性顶部孔盖
9	PMDN4030AR	防尘罩
10	PMDN4202AR	扬声器垫
11	PMDN4001BR	带灯管的前盖
12	无	绝缘带
13	PMDN4023R	电池锁、轴和带条
14	无	对讲机机壳
15	LB001485A01	产品编号标签
16	无	Moto 警告标签
17	PMDN4015AR	平头旋钮螺母和信道电位器
18	PMDN4025AR	O 形圈
19	PMDN4007AR	PTT 橡胶垫
20	PMDN4010AR	PTT 面板
21	PMDN4009AR	PTT 孔盖
22	无	PTT 绝缘带
23	PMDN4209AR	品牌标签
24	PMDN4027AR	印刷电路板螺丝 11 枚
25	PMDN4012AR	扬声器支架和螺丝
26	PMDN4067BR	扬声器和电缆
27	PMDN4058AR	PCB 底板带
28	无	Tanapa 标签
29	无	导热垫
30	PMDN4033AR	麦克风和麦克风套
31	无	扬声器线连接头
32	PMDN4035AR	PTT 触动开关
33	PMDN4036AR	编程按键触动开关
34	无	PC 板
35	PMDN4034AR	天线支架
36	PMDN4017AR	音量电位器

编号	部件号	说明
37	PMDN4037AR	弹簧针和弹簧针外壳
38	无	音频插孔
39	无	音频插孔护罩

3.4
对讲机拆卸和重新组装

本章提供拆卸和重新组装对讲机的详细步骤。

注释: 如果设备需要比传统的基本性能测试更进一步的测试或维修，请将您的对讲机送至 Motorola Solutions 服务中心。

3.4.1
拆卸对讲机

本节包含有关拆卸对讲机前盖和 PC 板的说明。

3.4.1.1
将前盖从机壳上拆下

前提条件： 先关闭对讲机，再进行拆卸。

步骤：

1 松开对讲机底部的电池锁。

2 要取出电池，请提起电池柄（紧挨电池锁），提离外壳。

图 5： 松开电池锁

3 要取下电池，请将电池向下滑动。

图 6： 取下电池

4 要取下天线，请逆时针转动天线，然后将它从插座中取下。

图 7： 取下天线

5 使用机壳开启器从轴上拆下**开/关**和**音量控制旋钮**。

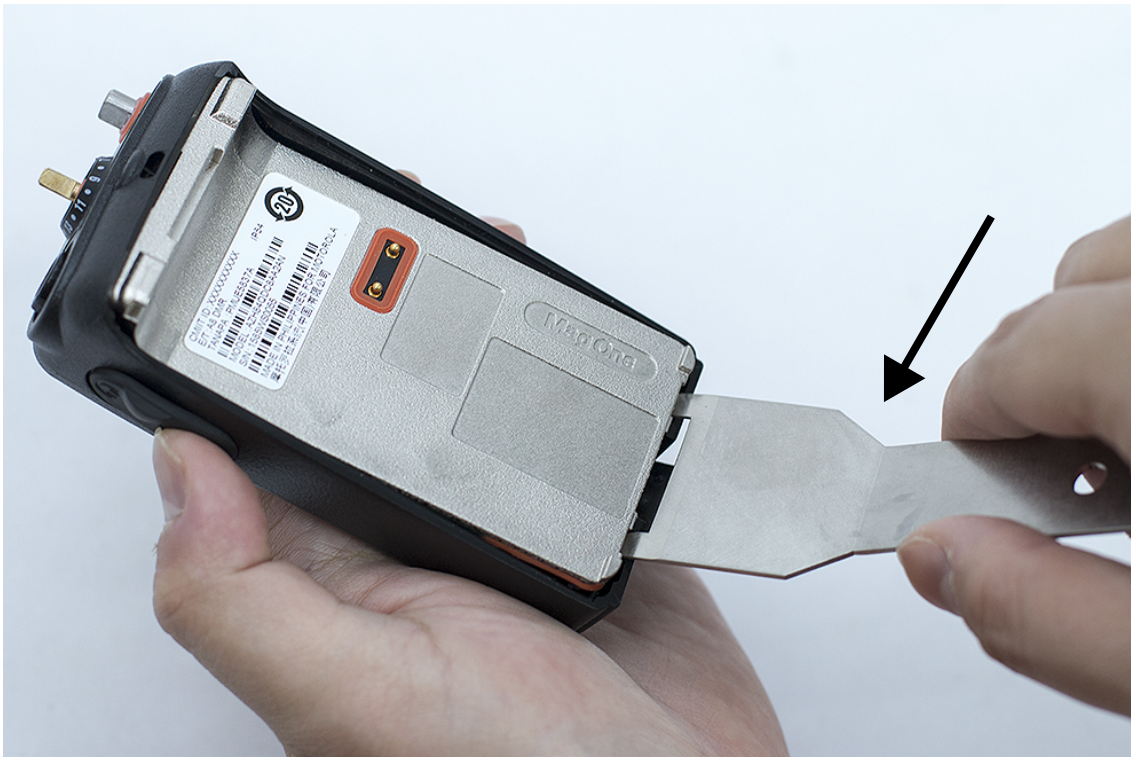
图 8： 取下开/关/音量控制旋钮

图 9： 取下开/关/音量控制旋钮

6 要提起机壳，请将机壳开启器插入对讲机底部的机壳和外壳之间。

注释: 小心不要损坏外壳或位于下方的 O 型防水圈。

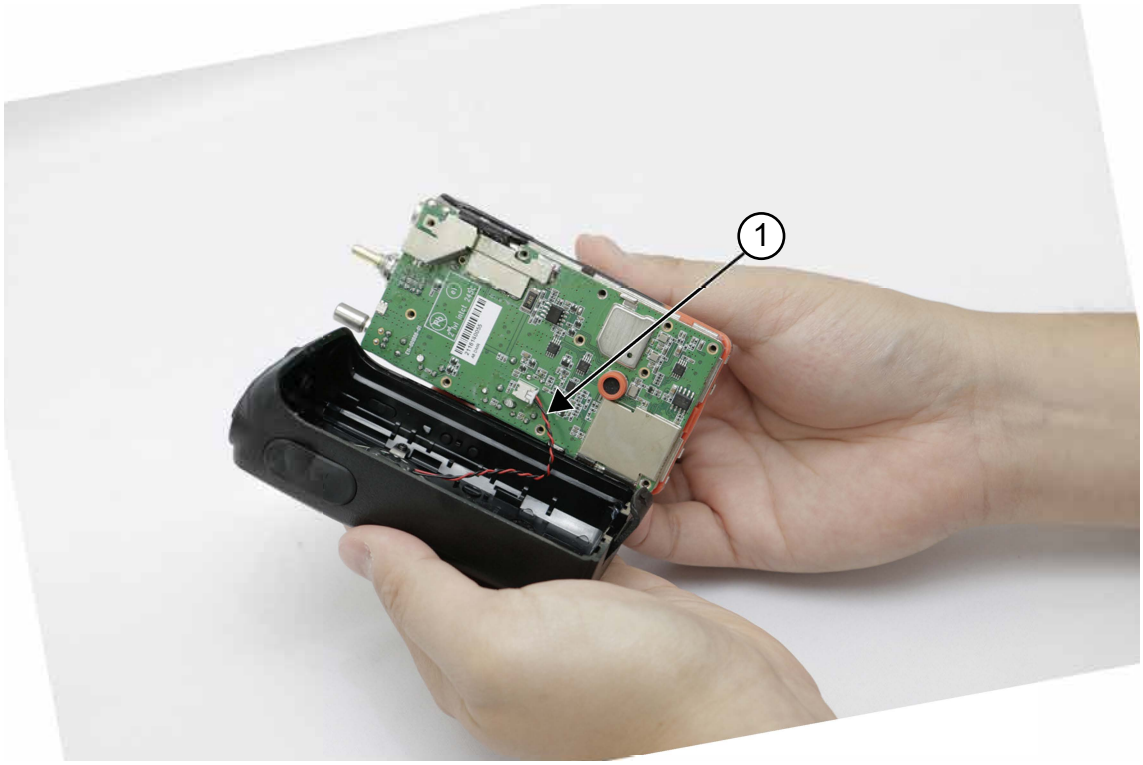
图 10： 提起机壳



7 将后盖抬起，离开前盖。

注释: 小心不要损坏位于下方的扬声器线。

图 11： 机壳拆卸

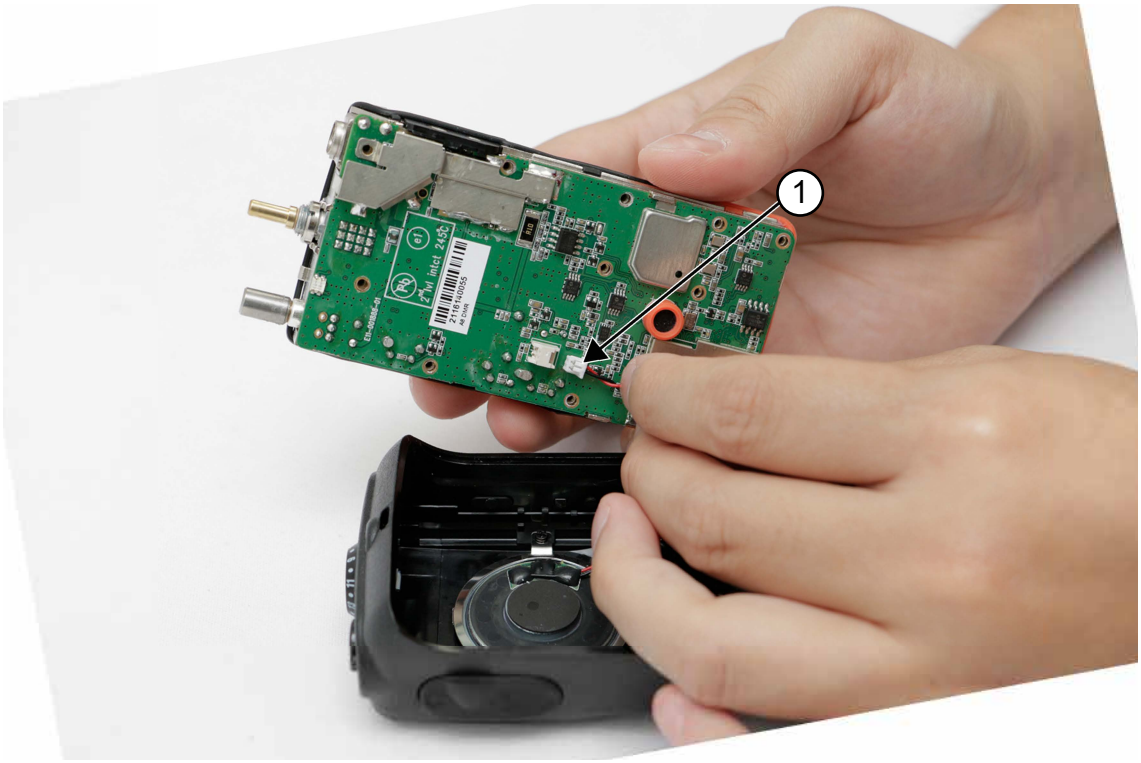


1	扬声器线

8 向下滑动后壳，并与前盖脱离。

9 拆下连接在 PC 板和前盖上内部扬声器线之间的扬声器线连接头。

图 12： 扬声器线连接头拆卸



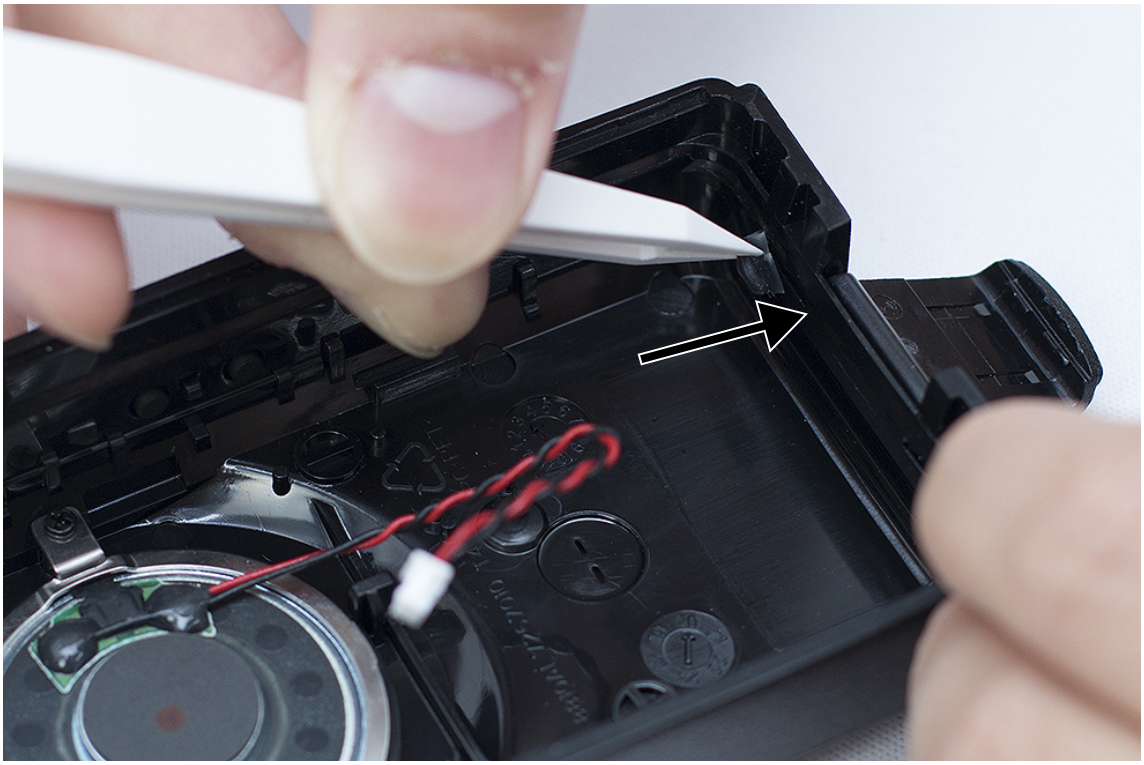
1	扬声器线连接头

注释: 仅当需要更换锁扣时执行 步骤 10 和 步骤 11。

10 从右槽口处取下锁扣板。

11 将电池锁置于外壳上，将壳体插槽中的轴向右推，然后将电池锁轴从锁扣中滑出。

图 13： 取下电池锁



注释: 仅当需要更换锁扣时执行 步骤 12 和 步骤 13。

12 取下扬声器垫上的扬声器。

13 取下网罩上的扬声器垫。

图 14： 取下扬声器垫

3.4.1.2
拆卸 PC 板

前提条件：

步骤：

1. 取下音频插孔密封件。
2. 拧下将 PC 板固定到后壳的 10 个螺丝。
3. 用平头螺母开启器取下**开/关**旋钮和**音量/信道**旋钮。
4. 从后壳中取下 PC 板。

3.4.2
重新组装对讲机

本节包含有关重新组装对讲机前盖和 PC 板的说明。

3.4.2.1
重新组装机壳和前盖

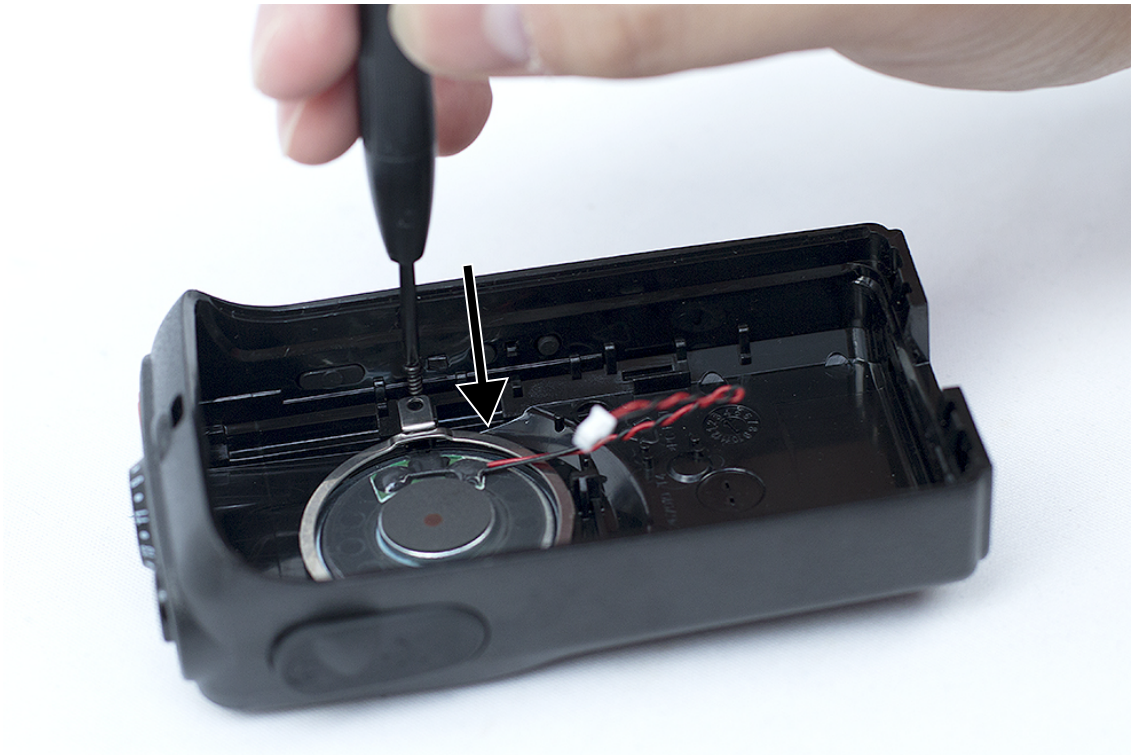
前提条件：

注释: 仅在需要更换扬声器、扬声器支架或扬声器垫时执行至步骤 1 至步骤 4。

步骤：

1. 将扬声器垫放在网罩上。
2. 将扬声器放在扬声器垫的上方。

图 15： 装配扬声器



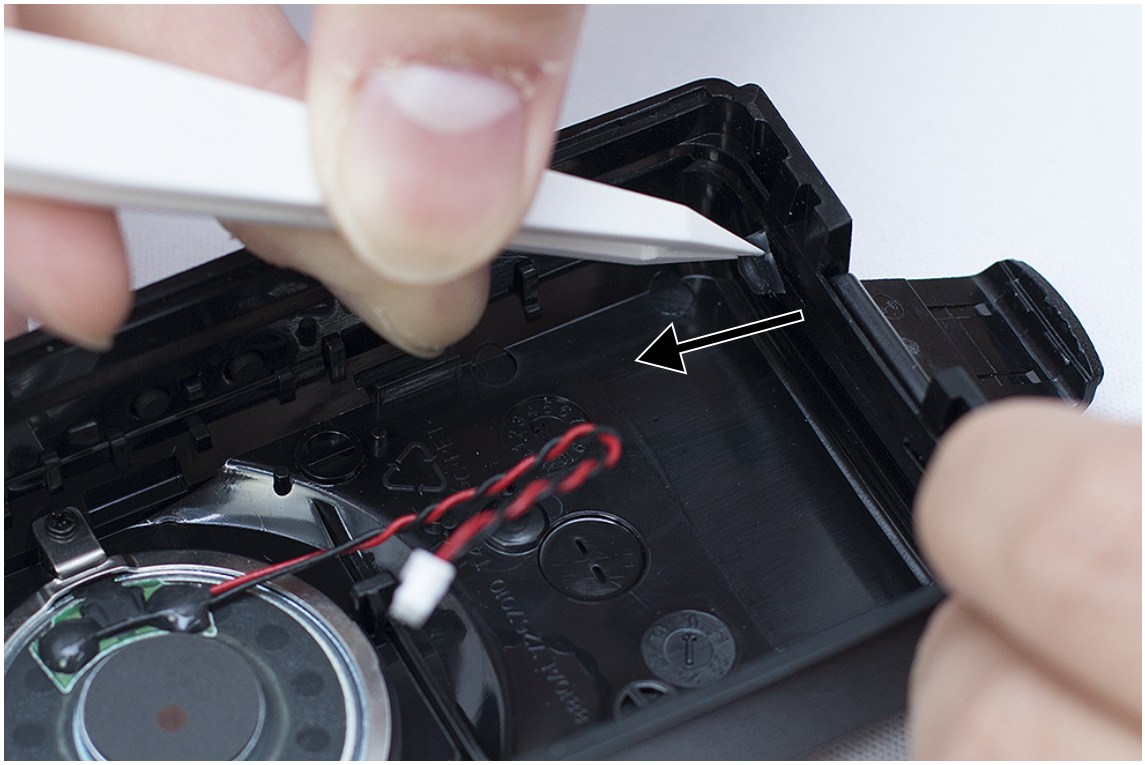
3 将扬声器的泡棉垫粘到扬声器磁铁的后侧。

4 安放扬声器支架，并将支架拧到外壳上。

注释: 仅当需要更换锁扣时执行步骤 5 到步骤 8。

5 将电池锁轴沿槽推入锁扣。

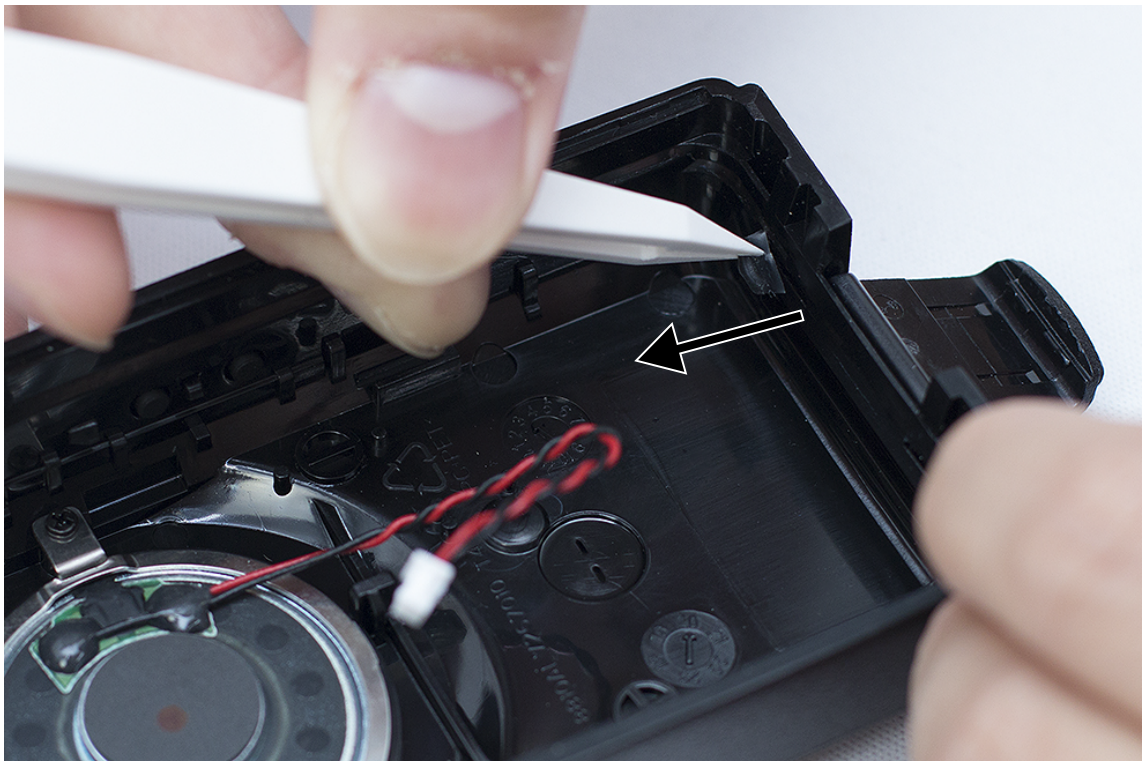
图 16： 电池锁组件



6 将锁扣装到外壳上，此时轴伸出锁扣右侧。

7 将电池锁已装到外壳上后，再将外壳槽中的轴推向左侧。

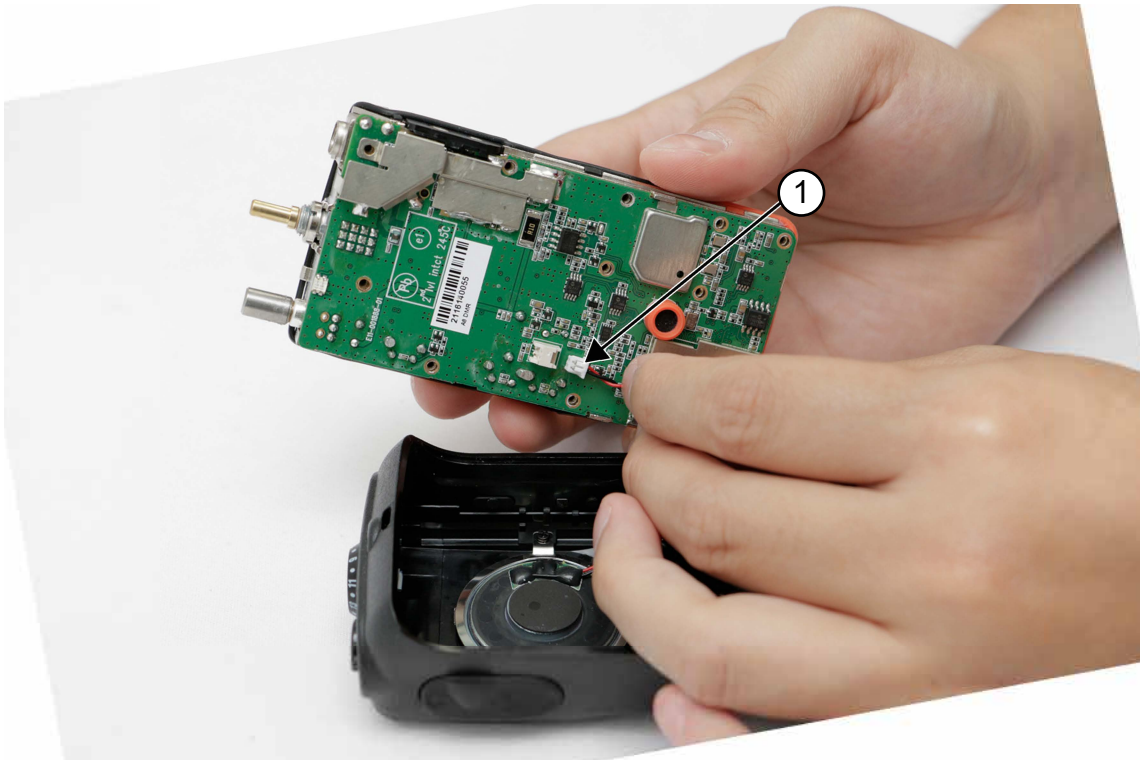
图 17： 电池锁 - 轴组件



8 将小号锁扣板装到右侧槽口中。

9 将内部扬声器线连接头连接到 PC 板上。

图 18： 扬声器线连接头组件



1	扬声器线连接头

10 将后壳装入前盖。

11 将前盖紧紧压入后壳直到固定为止。

12 装上电池。

13 装上**开/关**、**音量**旋钮、**信道**旋钮和天线。

3.4.2.2 重新组装 PC 板

步骤：

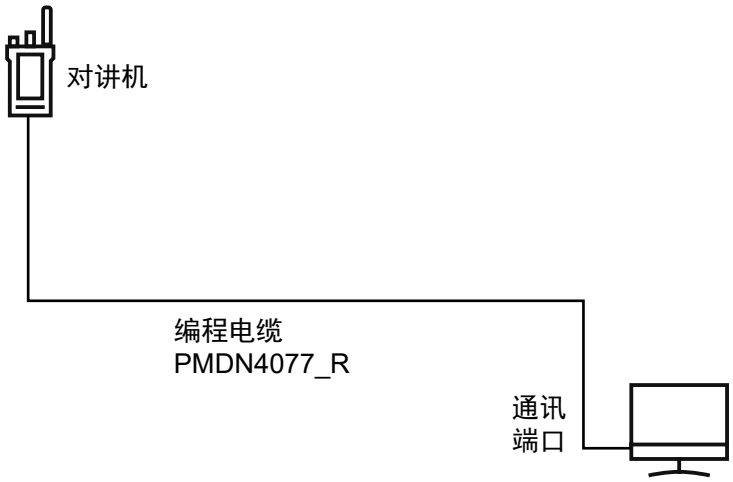
1 将 PC 板放在后壳上。

2 拧紧两个旋钮上的螺丝和螺母。

章节 4

客户编程软件

您可以使用客户编程软件 (CPS) 将用户配置、对讲机设置和功能键编程到对讲机中。要启动 CPS，请参阅下图了解编程设置：



4.1 将数据读取到计算机

步骤：

1. 使用编程电缆连接对讲机和 PC 或笔记本电脑。
2. 打开对讲机。
3. 单击客户编程软件 (CPS) 上的**读取**。

数据成功写入对讲机后，对讲机会发出一声蜂鸣音。

4.2 将数据写入对讲机

步骤：

1. 将编程电缆连接到对讲机和计算机。
2. 打开对讲机。
3. 单击客户编程软件 (CPS) 上的**写入**。

从对讲机中读取数据成功后，系统将发出一声提示音。

章节 5

订购更换部件

某些可更换部件、备件和/或产品信息可直接从 Motorola Solutions 本地分销机构或通过 Motorola 在线订购。

基本订购信息

虽然部件可能有指定的 Motorola Solutions 部件号，不过可能无法从 Motorola Solutions 对讲机产品和解决方案机构获得 [1](RPSO)。一些部件可能已废弃，且由于供应商取消供应而无法在市场上找到。如果部件没有指定的 Motorola Solutions 部件号，通常无法从 Motorola Solutions 获得，或者属于用户不可维修的部件。部件号附加有星号的部件只能由 Motorola Solutions 维修点维修。

如需订购更换部件、套件或组件，可直接向 Motorola Solutions 本地分销机构购买或通过 Motorola 在线订购。订购可更换部件或设备信息时，请提供完整的识别编号。这适用于所有组件、套件以及机壳。如果不知道组件的部件号，订购时应提供部件所属的机壳或套件的编号以及所需组件的详细描述，以进行确定。

要识别无参考信息的备件，请向 Motorola Solutions 当地代表所在的客户服务组织寻求帮助。

Motorola Online

产品目录可在 Motorola Online 网站上找到。要注册以获得登录访问权限，请前往 https://asiaonline.mot-solutions.com 注册。

[1] 对讲机产品和解决方案机构 (RPSO) 过去称为对讲机产品服务部门 (RPSD) 和/或附件及售后部门 (AAD)。

章节 6

认可的附件列表

表 12： 天线

部件号	说明
PMAE4104_	Mag One、UHF、403–470 MHz，宽带天线

表 13： 电池

部件号	说明
PMNN4534_	Mag One 2400 mAH 锂离子电池

表 14： 电缆

部件号	说明
PMDN4077_	编程电缆

表 15： 携带设备

部件号	说明
PMLN4743_	Mag One 弹簧皮带夹

表 16： 充电器

部件号	说明
PMPN4203_	Mag One 充电器桌面用单座 INT PS 240V 中国

表 17： 耳塞和耳机

部件号	说明
PMLN6534_	带线控麦克风/PTT/声控发射开关的 Mag One 耳塞
PMLN6531_	带线控麦克风/PTT/声控发射开关的 Mag One 耳塞听筒
PMLN6536A	双线，带透明管，黑色

表 18： 耳机和耳机附件

部件号	说明
PMLN6542_	带悬臂式麦克风和线控 PTT 开关的 Mag One 超轻型耳机

表 19： 远程扬声器麦克风

部件号	说明
PMMN4092_	Mag One 远程扬声器麦克风