
PORTABLE FM TRANSIVER

HD-1000V2

TECHNICAL MANUAL/ 技术手册



GENERAL/概述

INTRODUCTION

SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication date. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts: components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

PERSONAL SAFETY

The following precautions are recommended for personal safety:

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive
- This equipment should be serviced by a qualified technician only.

SERVICE

This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

Number of channels	RF Power Output
199	0.5W/1W

引言

本手册的范围

本手册是提供给熟悉通信专业并且具有维修经验的技术人员使用的。它包括了维修该设备所需要的全部资料和现行公布的数据。在出版后可能发生变动，如果需要，可以使用《维修通报》或《手册修订本》进行补充。

替换零件的订购

当订购替换零件或设备信息时，应注明完整的零件识别号码。所有的零件均有识别号码：元件、组件或机壳。如果不知道零件的号码，为了正确地识别，必须注明此元件所属的机壳或组件的号码，并对元件进行充分的说明。

个人安全

为了个人的安全，请注意下列事项：

- 在没有认真核实所有射频插头之前或有任何一个打开的插头没有连接到响应端子上的情况下，均不要发射。
- 在电爆管附近或在易燃性气体环境中，必须关掉电源，不要操作本设备
- 本设备只应该由有资格的技术人员来维修。

维修服务

为了便于维修本设备，建立了完整的维修服务体系，提供了包括原理图、印刷线路图和调整步骤在内的资料供参考。

信道数量	射频输出功率
199	0.5W/1W

SAFETY TRAINING INFORMATION



Your 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.

This radio has been tested and complies with the FCC RF exposure limits for “Occupational Use Only”. In addition, your 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.
- The following accessories are authorized for use with this product. Use of accessories other than those (listed in the instruction) specified may result in RF exposure levels exceeding the FCC requirements for wireless RF exposure.



To ensure that your 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 you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or antenna specifically authorized by the manufacturer 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” lights red. You can cause the radio to transmit by pressing the “PTT” switch.

- **ALWAYS** keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting and only use the belt-clip which is listed in instructions when attaching the radio to your belt, etc., to ensure FCC RF exposure compliance requirements are not exceeded. To provide the recipients of your transmission the best sound quality, hold the antenna at least 5 cm (2 inches) from your mouth, and slightly off to one side.

The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to assure that this radio operates with the FCC RF exposure limits of this radio.

Electromagnetic Interference/Compatibility

During transmissions, your 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.

Occupational/Controlled Use

The radio transmitter is used in situations in which persons are exposed as consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver

SAVE THIS INSTRUCTION MANUAL- This instruction manual contains important operating instructions for the Two-Way Radio

EXPLICIT DEFINITIONS

WORD	DEFINITION
WARNING	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

OPERATING NOTES

- When transmitting with a portable radio, hold the radio in a vertical position with its microphone 5 to 10 cm (2 to 4 inches) away from your mouth. Keep the antenna at least 2.5 cm (1 inch) from your head and body.
- If you wear a portable two-way radio on your body, ensure that the antenna is at least 2.5 centimeters (1 inch) from your body when transmitting.

PRECAUTIONS

WARNING! NEVER hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical.

WARNING! NEVER operate the transceiver with a headset or other audio accessories at high volume levels.

CAUTION! NEVER short the terminals of the battery pack.

NEVER connect the transceiver to a power source other than the Battery listed below. Such a connection will ruin the transceiver.

DO NOT push the PTT when not actually desiring to transmit.

AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below -30°C (-22°F) or above $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$).

DO NOT modify the transceiver for any reason.

MAKE SURE the flexible antenna and battery pack are securely attached to the transceiver, and that the antenna and battery pack are dry before attachment. Exposing the inside of the transceiver to water will result in serious damage to the transceiver.

BE CAREFUL! The series transceivers employ waterproof construction, which corresponds to IPX7 of the international standard IEC 60529 (2001), 1 m depth for 30 minutes. However, once the transceiver has been dropped, waterproofing cannot be guaranteed due to the fact that the transceiver may be cracked, or the waterproof seal damaged, etc.

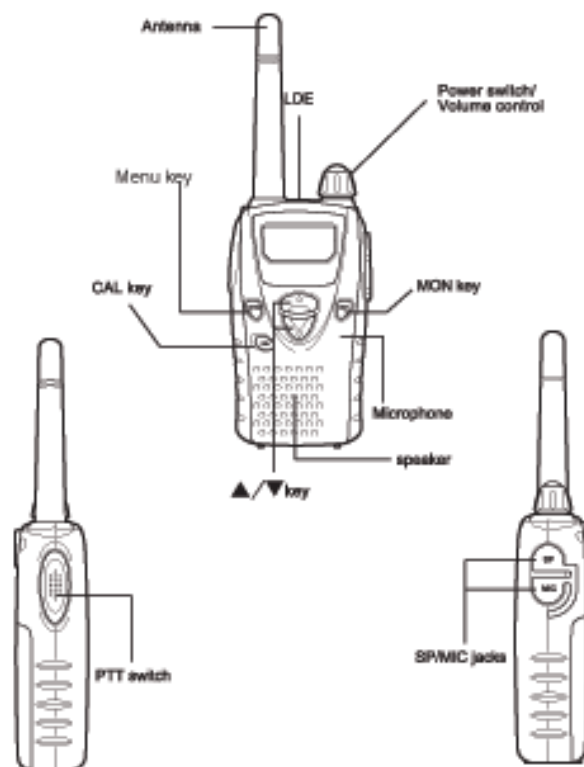
The use of **non-Advanced** battery packs/chargers may impair transceiver performance and invalidate the warranty.

FCC CAUTION:

Changes or modifications to this device, not expressly approved by **Manufacturer**, could void your authority to operate this transceiver under FCC regulations.

REALIGNMENT/模式组合

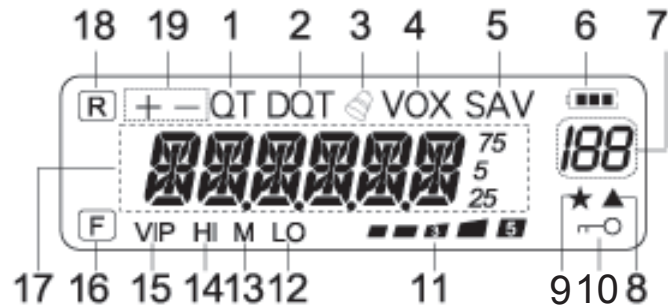
GETTING ACQUAINTED/各部分介绍



1. Antenna
2. LED indicator
Lights red while transmitting. Lights green while receiving a signal. Flashes red when the battery voltage is low while transmitting.
3. PWR/VOL knob
Turn clockwise to switch ON the transceiver. To switch OFF the transceiver, turn counterclockwise until a click sounds. Rotate to adjust the volume level.
4. LCD display
For displaying operation status and other function.
5. Keypad
For entering specified frequencies and other functional data.
6. Speaker/Microphone
Acts as a speaker and microphone.
7. MIC jack
For connecting the hand free microphone set.
8. SP jack
For connecting the hand free microphone set.
9. PTT key
Press and then speak into the microphone to call a station. Release to receive.
10. CALL
Press and hold to turn the squelch OFF, you will hear background noise. Release to turn the squelch

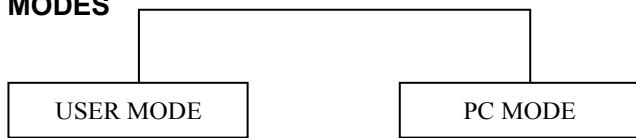
1. 天线 (ANT)
2. 状态指示灯 (LED) 在传送中点亮红灯。在接收信号中点亮绿灯。在传送中电池电压变化时闪烁红灯。
3. 电源开关/音量控制器 (POWER/VOL) 按顺时针方向转动时打开对讲机的电源。在关闭对讲机的电源时，按逆时针方向转动到卡啒声响起。转动时可调节音量电平。
4. 液晶屏 (LCD)
5. 按键 (KEYPAD)
6. 扬声器/麦克风 (SPEAKER/MICROPHONE)
7. 麦克风插孔 (SP JACK)
8. 扬声器插孔 (MIC JACK)
9. 发射开关 (PTT) 按下后对着麦克风讲话来呼叫对方。放开则进行接收。
10. 呼叫键 (CALL)
11. 监听键 (MON/MR/VFO) 按住3秒时，静噪电路关闭。您将听到背景噪声。放开则重新打开静噪电路。

DISPLAY



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Appears when the CTCSS function is activated 2. Appears when the DCS function is activated 3. Appears when the calling function is activated 4. Appears when the VOX function is activated 5. Appears when set the unit in saving mode 6. Displays the battery power remaining 7. Display the MENU No. and various No. for function setting 8. Appears when press 【MON】 key 9. Appears when the memory channel lockout function is ON 10. Appears when the lock function is ON 11. S-meter (RX) and TX Power Output indicator when the transceiver transmits. 12. Appears when low power is selected 13. Appears when medium power is selected 14. Appears when high power transmission is selected, 15. Appears when the vibration function is ON. 16. Appears when setting shortcut function. 17. Display the frequencies, Menu setting, Memory name and other information. 18. Appears when the reverse function is activated. 19. Appears when the offset frequency is ON. | <ol style="list-style-type: none"> 1. 当CTCSS功能启动时出现。 2. 当DCS功能启动时出现。 3. 当发出振铃时出现 4. 当VOX功能打开时出现。 5. 当设定节电模式时出现 6. 电池电量指示 7. 显示菜单编号和其它功能信息。 8. 当按监听键时出现 9. 当“存储信道锁定”功能打开时出现。 10. 当“锁定”功能打开时出现。 11. S-meter (RX) 信号强度表指示器 (TX)。当对讲机发射时作为输出功率指示器。 12. 当选择低功率时出现 13. 当选择中功率时出现 14. 当选择高功率发射时出现 15. 当震动功能打开时出现 16. 当按下功能键时出现。 17. 显示频率 菜单 存储通道编号和状态。 18. 当“倒频”功能启动时出现。 19. 当差频打开时出现 |
|---|---|

MODES



MODES	FUNCTION
User mode	For normal use.
PC mode	Used for communication between the radio and a PC

How to enter each mode

MODES	PROCEDURE
User mode	Power ON
PC mode	Receiver commands from PC

PC MODE

Preface

The HD-1000 transceiver can be programmed using a personal computer, A programming interface cable and programming software. The programming software can be used on an IBM PC or compatible. Fig-1 shows the setup of a PC for programming.

Caution:

When removing or installing the programming cable, first switch off the radio power.

Additionally, be sure to disable the VOX function, if it's enabled, as it can sometimes activate from connection noise.

Connection procedure

1. Connect the HD-1000 to the personal Computer using the interface cable.
2. When the POWER is switched ON, you can enter user mode.

Programming software description

The software allows a user to program the HD-1000 radios via the programming interface cable.

• Programming with IBM PC

If data is transferred to the transceiver from a PC with the software, the destination data (basic radio information) for each set can be modified.

模式



模式类型	功能
用户模式	用于普通操作
计算机模式	Used for communication between the radio and a PC

模式类型	操作步骤
用户模式	打开电源开关
计算机模式	从计算机接收命令

计算机模式

前言

通过个人电脑，使用编程电缆和编程软件，对对讲机HD-1000进行编程设置。图1表示一台IBM计算机的编程设置过程。

注意

当拔除或者插入编程电缆首先关闭对讲机电源。另外，确保声控功能已关闭，如果声控被激活，可能有时会开启连接噪音。

连接步骤

1. 使用接口电缆将HD-1000与个人电脑连接。
2. 当电源开关打开，可以进入用户模式。

编程软件说明

该软件允许用户经由编程接口电缆对HD-1000进行编程设定。

使用IBM计算机编程

如果从使用软件的IBM计算机将数据发送到手持机，设定的数据（基本通信参数）均可被修改。

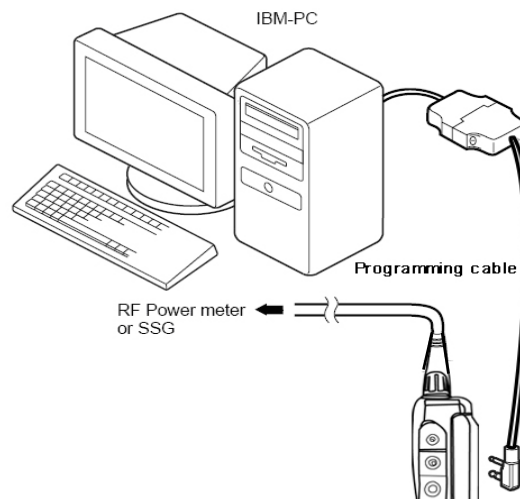


Fig. 1

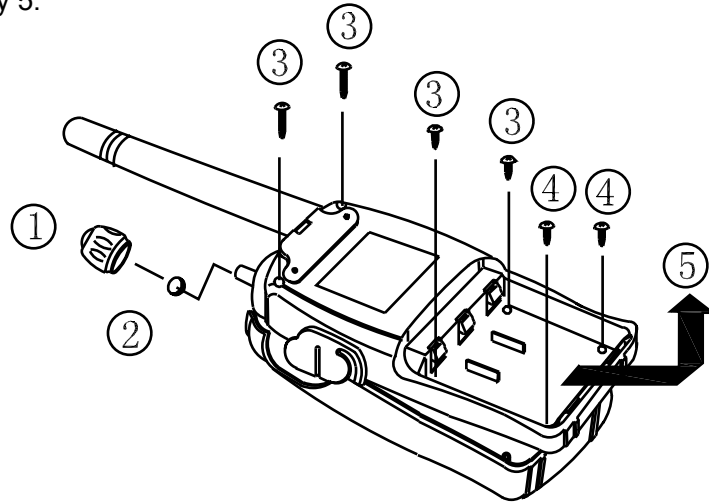
DISASSEMBLY FOR REPAIR/维修时拆卸部分

Separating the case assembly from the chassis

1. Remove the knob 1 and the round nut 2
2. Remove the six screws 3 and 4
3. Expand the right and left sides of the bottom of the case assembly, lift the chassis, and remove it from the case assembly 5.

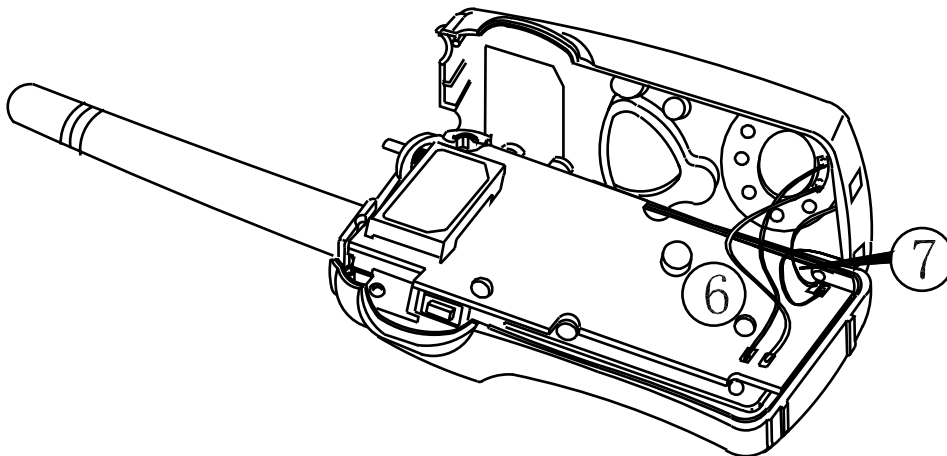
从底座上分离外壳

1. 取下旋钮①和环形螺母②
2. 取下六颗螺钉③和④
3. 掀开外壳底部的左右两侧，取下底座，并外壳中取出⑤



4. Taking care not to cut the speaker lead 7, open the chassis and case assembly.

4. 小心不要折断扬声器引线⑦，拆下底座和外壳。

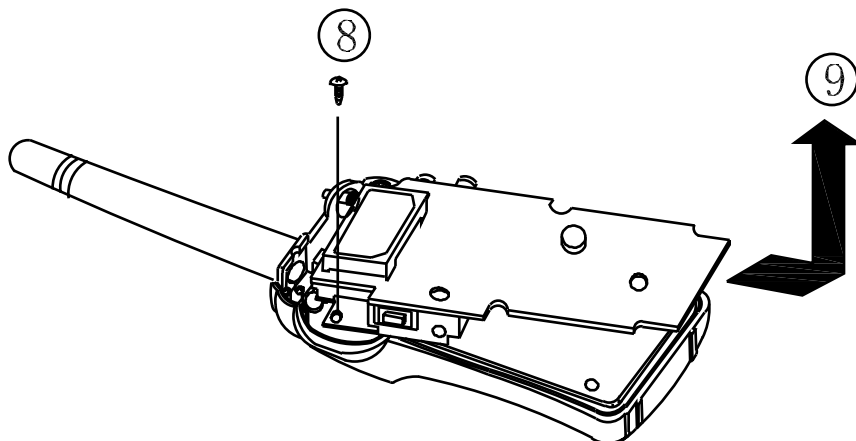


Separating the chassis from the unit

Remove the screws 8 and drop-out line, and lift the first unit off.

底座从主板上分离

取下螺钉⑧，然后取下主板。



FCC ID: Q9SHD-1000V2

IC: 4651A-HD1000V2

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.