

# Motorola APX Series Portable Radio Care and Troubleshooting

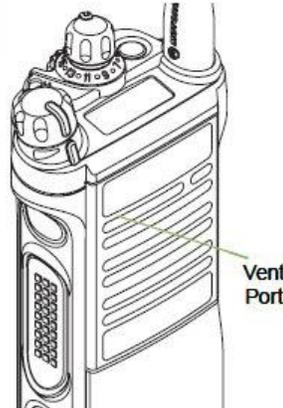
## Radio Care

- If the radio battery contact area has been submerged in water, dry and clean the radio battery contacts with a lint-free cloth before attaching a battery to the radio. Otherwise, the water could short-circuit the radio.
- If the radio has been submerged in water, shake the radio well so that any water that may be trapped inside the speaker grille and microphone port can be removed. Otherwise, the water will decrease the audio quality of the radio.
- Do not disassemble the radio. This could damage radio seals and result in leak paths into the radio. Any radio maintenance should be performed only by a qualified radio technician.



Caution

Your radio casing has a vent port that allows for pressure equalization in the radio. Never poke this vent with any objects, such as needles, tweezers, or screwdrivers. This could create leak paths into the radio and the radio's submergibility will be lost.



## Handling

- Do not pound, drop, or throw the radio unnecessarily. Never carry the radio by the antenna.
- Avoid subjecting the radio to an excess of liquids.
- Avoid subjecting the radio to corrosives, solvents or spirits.
- Do not disassemble the radio.
- Keep the accessory-connector cover in place until ready to use the connector. Replace the cover immediately once the accessory has been disconnected.

## Troubleshooting

Symptom	Possible Cause	Correction or Test
Radio Dead; Display Does Not Turn On	1. Dead Battery	Replace with charged battery.
	2. Blown Fuse	Send radio to the Radio Shop.
	3. On/Off Switch	
	4. Regulators	
Radio Will Not Turn Off	VOCON Board	Send radio to the Radio Shop.
Radio Dead; Display Turns Off	RF or VOCON Board	Send radio to the Radio Shop.
No Receive Audio or Receiver Does Not Unmute	Programming	Send radio to the Radio Shop.
Audio Distorted or Not Loud Enough	Synthesizer Not On Frequency	Send radio to the Radio Shop.
RF Sensitivity Poor – Does not receive radio traffic.	1. Synthesizer Not On Frequency	Send radio to the Radio Shop.
	2. Antenna Switch/Connector	
	3. Receiver Front-End Tuning	
No RF Power Out – Poor transmit range.	1. TX Power Level or Frequency	Send radio to the Radio Shop.
	2. No Injection To Power Amplifier	
	3. Antenna Switch/Connector	
No Modulation; Distorted Modulation	1. Programming	Send radio to the Radio Shop.
	2. VOCON Board	
Bad Microphone Sensitivity	1. Check Deviation and Compensation	Send radio to the Radio Shop.
	2. Microphone	
No/Low signaling (PL, DPL, MDC)	1. Programming	Send radio to the Radio Shop.
	2. VOCON Board	
No "KEYLOAD" on Radio Display When Keyloading Cable is Attached to the Radio Side Connector	1. Defective Keyloader Cable	Send radio to the Radio Shop.
	2. Defective Radio	
Keyloader Displays "FAIL."	1. Wrong Keyloader Type	Use correct keyloader type. Refer to Keyloader User Guide for more information.
	2. Bad Keyloader	Try another keyloader
	3. Defective Radio	Send radio to the Radio Shop.

# Battery

## Battery Life

Battery life is determined by several factors. Among the more critical are the regular overcharge of batteries and the average depth of discharge with each cycle. Typically, the greater the overcharge and the deeper the average discharge, the fewer cycles a battery will last. For example, a battery which is overcharged and discharged 100% several times a day, will last fewer cycles than a battery that receives less of an overcharge and is discharged to 50% per day. Further, a battery which receives minimal overcharging and averages only 25% discharge, will last even longer.

## Charging the Battery

Motorola batteries are designed specifically to be used with a Motorola charger and vice-versa. Charging in non-Motorola equipment may lead to battery damage and void the battery warranty. Motorola-authorized battery chargers may not charge batteries other than the ones in the user manual. The battery should be at about 77 °F (25 °C) (room temperature), whenever possible. Charging a cold battery (below 50 °F [10 °C]) may result in leakage of electrolyte and ultimately in failure of the battery. Charging a hot battery (above 95 °F [35 °C]) results in reduced discharge capacity, affecting the performance of the radio. Motorola rapid-rate battery chargers contain a temperature-sensing circuit to ensure that batteries are charged within the temperature limits stated above.

## Battery Charge Status

Your radio can indicate your battery's charge status through:

- LED and sounds
- Conventional fuel gauge symbol on the display

### LED and Sounds

When your battery is low:

- You see the LED flash red when the **PTT** button is pressed
- You hear a low-battery "chirp" (short, high-pitched tone)

### Battery Fuel Gauge Icon

Your radio can indicate the battery's charge status through:

- The LED and sounds.
- The fuel gauge icon on the display.

You can also check the battery charge status via the menu entry. See **IMPRES™ Battery Annunciator** in the user manual for more information.

A blinking fuel gauge icon (  ) is displayed only when the battery voltage drops to low level. In this case, replace the battery with a fully charged one.

Gauge	Battery Charge
 Top Display	76% to 100% full*
	
 Top Display	51% to 75%*
	
 Top Display	26% to 50%*
	

Gauge	Battery Charge
 Top Display	11% to 25%*
	
 Top Display	10% or less (at 10%, the gauge begins blinking)
	

\*These are for IMPRES battery operation only.