SECTION

2

Battery, Accessory and Disassembly Information

2.1 Battery Information

2.1.1 Battery Removal / Installation

To remove the battery from the radio for recharging or replacement, first turn the radio off. Then press the release button (see Figure 2.1) and rotate the battery upward to the approximate point shown and remove it from the radio.

Figure 2.1 Battery Removal

NEEDS TO BE REPLACED

2.1.2 Preventing Loss of Encryption Keys during Battery Change

If Infinite Key Retention is not programmed, the radio must be connected to a constant power source to preserve the encryption keys in memory. Storage capacitors maintain the supply voltage (and these keys) for approximately 3.5 minutes to allow the battery to be changed. Therefore, when changing the battery of a radio containing keys, make sure to reattach another battery within 3.5 minutes.

2.1.3 Battery Specifications

Table 2.1 contains specifications for batteries. For current advertised specifications, refer to the specification sheet available from your sales representative. Values are typical and are subject to change without notice.

Table 2.1 Viking Portable Portable Radio Battery Specifications

Battery Type	Dimensions (HxWxD)	Weight	Approximate Life (5/5/90)
Ultra-High Capacity Lithium Ion	6.5 x 2.3 x .78 inches (165.1 x 58.42 x 19.8 mm)	8.1 oz. (60.66213 kg)	12 hours

2.1.4 Battery Charging

The following considerations apply to all rechargeable batteries:

- Be sure to carefully read the instructions for operation of the battery charger, and follow all of them carefully.
- Do not charge the battery with radio power on.
- If batteries are not in service (i.e., in storage) be sure to recharge them at least every 12 months.
- Be sure, especially when using Nickel Metal-Hydride (NiMH) batteries, to put new batteries (or batteries that have been inactive for a significant time) through at least three full charge/discharge cycles initially. Otherwise the batteries may not provide the full number of operating hours for which they are rated.

⚠ CAUTION *Do not transmit in close proximity to the charger base. Do not expose the charger base to high level RF signals while a battery is being charged because this may cause a charger fuse to blow (especially in the UHF range). Radios programmed for SMARTNET/ SmartZone operation, for example, may affiliate while in the charger which causes them to key automatically. Therefore, do not leave radio power on while charging.*

2.1.4.1 Charging Li-Ion Batteries

The Li-Ion (Lithium-Ion) battery can be charged separately or while attached to the radio. When it is charged while attached to the radio, *radio power should be turned off.*

Note *The Li-P battery can only be charged in an approved battery charger. Charging lithium batteries in nickel only chargers can result in overcharging the batteries and can damage the cells through swelling.*

With radio power off, charge current begins at a set level and gradually decreases as the battery is charged. When the charge current decreases to 100Ma, all charge current is automatically turned off and the charger switches to Ready mode. This is indicated by a green Ready indication. No trickle charge current is applied.

If radio power is left on, the initial charging process is as described above. However, because the radio standby current is in excess of 100mA, the charge current never decreases to the 100 mA charge cutoff threshold. The charger continues to charge until the four-hour timeout is reached, then automatically switches to Ready mode. If the radio is left with power on, the battery will slowly discharge. If the battery discharges to a set voltage level (7.8V to 8.0V, depending upon battery type) the charger will automatically enter recharge mode, and repeat the previously described recharge process.

In summary, if the Li-Ion battery is left in the radio and charged while the radio power is left on, the following cycle s repeated: the radio charges (approximately four hours), then switches to Ready mode (approximately two to three hours), then switches back to charging to begin a new cycle.

2.1.5 Battery Care

⚠ WARNING *Do not incinerate a battery pack because of the risk of explosion. Also, do not short circuit the terminals because the battery pack and the object causing the short may become very hot. Do not disassemble or modify a battery pack.*

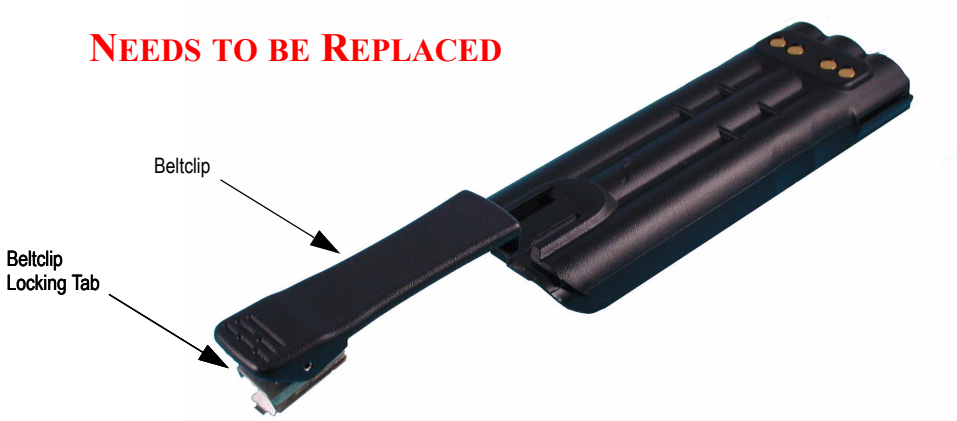
Proper battery care enhances the useful life of the battery. The battery should be recharged as soon a practical after the low battery indication appears. Follow the charging instructions in the manual included with the charger. When the battery fails to hold a charge or provides only a very short operating time, it must be replaced with a new unit.

Specified battery life is approximately 10-to-12 hours of service before recharging is required. This time assumes that 5% of the time is spent transmitting, 5% in the receive unsquelched mode, and 90% in the receive squelched mode. The operating time may be less if more time is spent in the transmit or unsquelched modes, or if the battery is not fully charged or its capacity has deteriorated. Be sure to dispose of the nickel metal-hydride (NiMH) battery pack in accordance with local waste regulations.

2.2 Belt Clip Installation

Remove the battery and slide the beltclip into the slot on the battery until it locks into place (see Figure 2.2). To remove the beltclip, squeeze the tab on the end of the beltclip and slide the beltclip out.

Figure 2.2 Belt Clip Installation



2.3 Accessory Installation

To connect an accessory such as a speaker-microphone to the radio, refer to Figure 2.3 and proceed as follows:

1. Remove the dust cover over the accessory connector on the side of the radio. The most effective way to do this is to insert a flat-blade screwdriver into the slot at the top of the dust cover, and apply a gradual lift-and-twist motion.until the cover separates.
2. Insert the hook of the accessory connector into the slot on the side of the radio.
3. Hold the latch open, press the connector against the radio, and then release the latch to lock the connector in place.

4 Install the included locking screw in the latch tab in the location shown.

Figure 2.3 Accessory Installation

2.3.1 Option Select Lines

Opt Sel 1 (pin 3) and Opt Sel 2 (pin 7) of the UDC (accessory) connector indicate to the control logic when an accessory is connected and what accessory is installed. These lines function as follows:

Opt Sel 1 and 2 High (3.3V) - This is the normal operating condition in which no accessory is connected. Both lines are pulled high (3.3V) by internal pull-up resistors.

Opt Sel 1 Low - A speaker-microphone or some other accessory is connected. Opt Sel 2 then functions as an external PTT line (low = PTT), and the radio PTT switch is also functional. The internal speaker and microphone are disabled.

Opt Sel 1 High, Opt Sel 2 Low - The encryption keyloader is connected.

2.4 Radio Disassembly

⚠ CAUTION *Always perform disassembly in a static-free environment, while using ESD Grounding straps.*

2.4.1 Separating Front Cover and Chassis

1 Remove the antenna.

2 Insert a small flat-blade screwdriver or similar tool between the plastic front cover and metal chassis as shown below. Carefully lift the chassis out of the cover with the screwdriver blade. Raise it to approximately the point shown in the next illustration.

3 Slide the chassis out of the top part of the front cover.

Note *Before reassembling the front cover and chassis, make sure the UDC (accessory) connector flex circuit is flat against the side of the front cover. If it is not, the RF Board shield clip may catch and damage it.*

4 When reassembling, examine the perimeter gasket. If it is damaged, replace with a new gasket. Make sure the perimeter gasket is in place, and then use the screwdriver blade again as a guide to prevent damage to the bottom part of the gasket as the chassis slides back in place. Firmly press the chassis and the cover together until they snap in place.

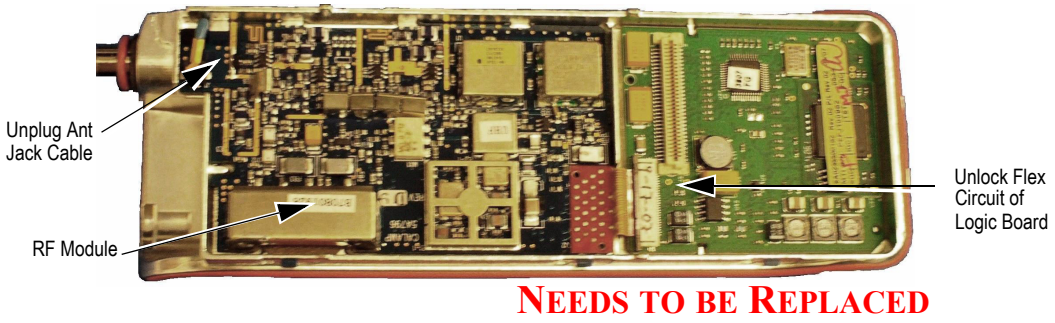
2.4.2 Removing RF and Logic Boards From Chassis

Remove the Rf and Logic Boards as follows:

1 Separate the front cover and chassis as described in the preceding section. The RF and Logic Boards are located inside the metal chassis as shown below.

2 Remove the shields over the RF and Logic Boards. These shields insert in slots on one side of the chassis and then clip to the other side of the chassis. These shields also hold the boards in place.

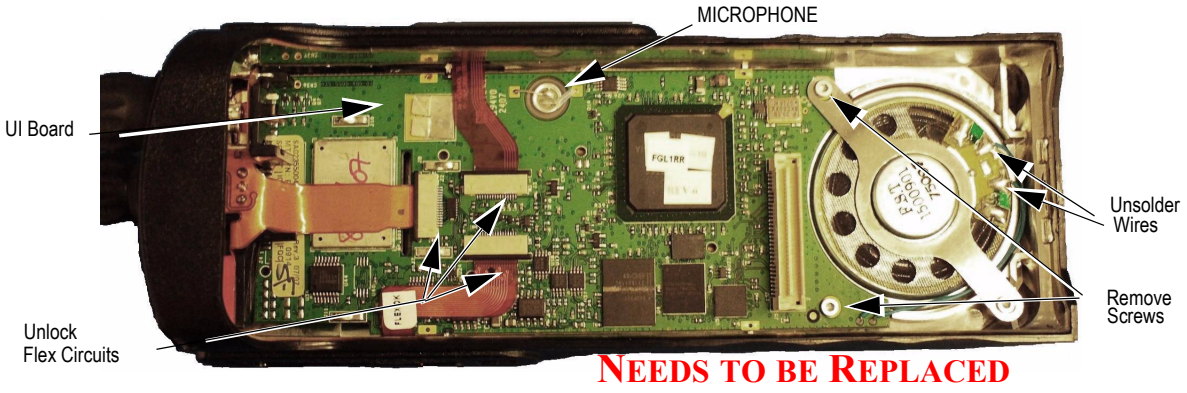
3 Unplug the antenna cable from the RF Board using pliers or a similar tool at the location shown below. Unlock the Logic Board flex circuit by sliding the tab on the connector outward. The RF and Logic Boards can now be removed.



⚠ CAUTION When handling these boards, minimize bending of the flex circuit to prevent it from being damaged.

2.4.3 Removing UI (User Interface) Board

1 Separate the front cover and chassis as described in Section 2.4.1. The UI Board is located inside the front cover as shown below.

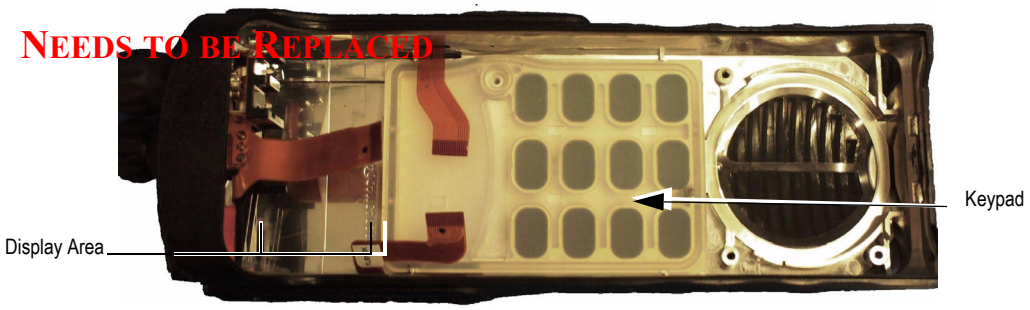


2 Unlock the three flex circuits shown above by sliding the tab on each connector outward. Carefully slide the flex circuits out of the connectors, taking care to minimize bending which could crack the traces.

3 Remove the two screws shown above. If required, also unsolder the two speaker wires.

4 Carefully lift the bottom end of the UI Board upward (guide the microphone out of its cavity). Then slide the UI Board out of the radio.

5 When reinstalling the UI Board, the display assembly on the bottom of the board must slide into the area above the keypad (see following illustration). If the UI Board does not lie flat against the keypad after it is installed, the display is probably hanging up on the keypad. Do not force it in place. Reorient the keypad and UI Board as required until the display slides into place. Also make sure that the optic fiber bundle slides under the boss on the switch assembly, and the microphone is properly positioned back in its cavity.



2.4.4 Removing Switch Assembly

6 Separate the front cover and chassis as described in Section 2.4.1. Then remove the UI Board as described in the preceding section.

7 Pull the rubber knobs and plastic channel number ring off the shafts.

8 To remove the position indicator ring under the channel knob, turn the channel switch so that the flat part of the shaft is toward one of the tangs (see below). Then insert tweezers or similar tool under both tangs and push it inward to release the tangs from the groove in the shaft.

NEEDS TO BE REPLACED

9 Remove the spanner nut on each shaft and slide the switch assembly out of the cover.