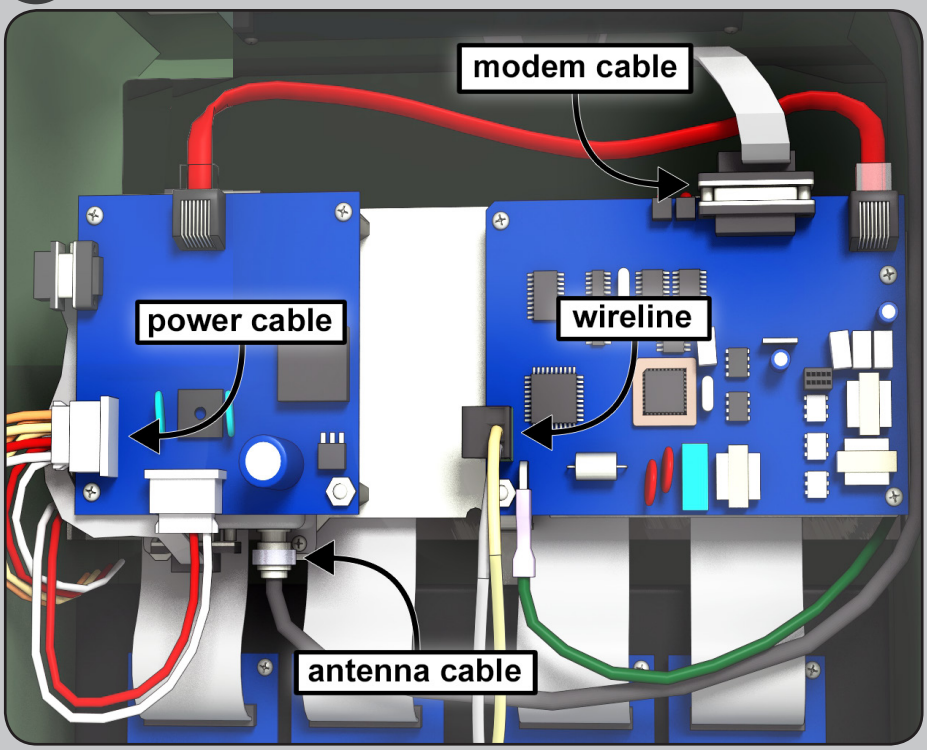
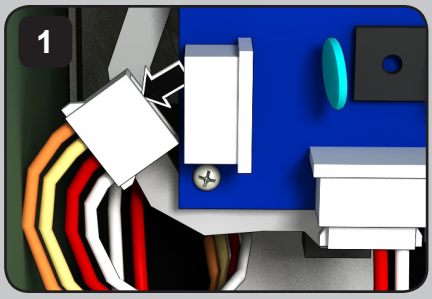
TORO Count on it.

Later VP Raveon Radio Kit
Installation Instructions

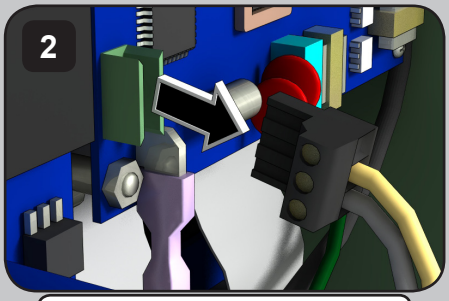
RISK OF ELECTRIC SHOCK.
Before replacing the radio, be sure to disconnect power to the pedestal.

A Old Radio Removal

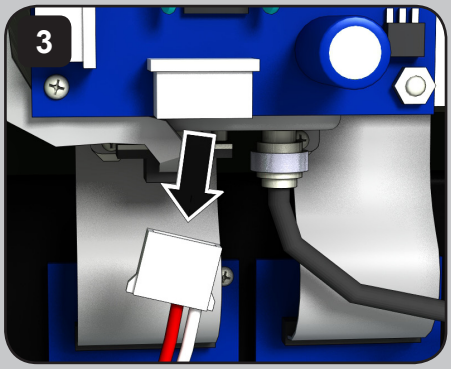




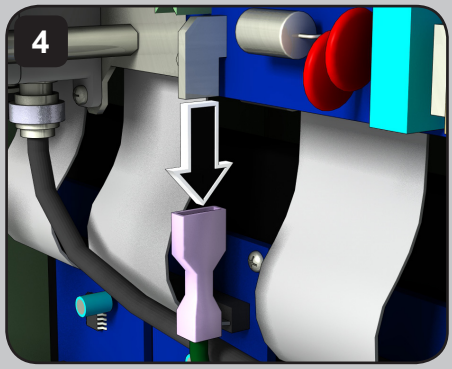
Disconnect power from radio interface board.



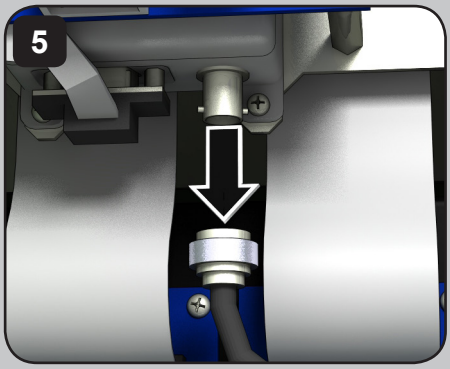
Disconnect wireline connection from modem.



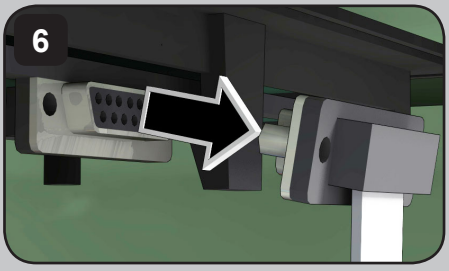
Disconnect power passthru.



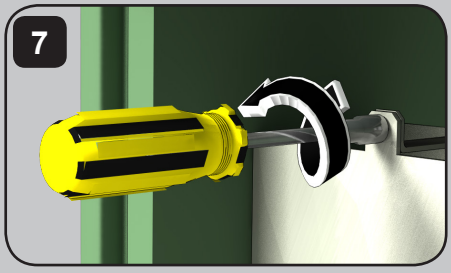
Disconnect ground.



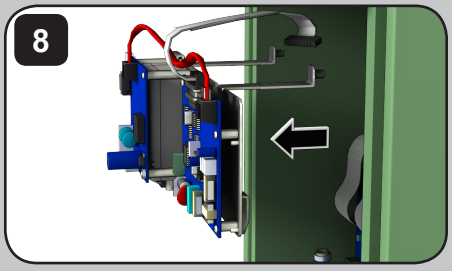
Disconnect antenna cable.



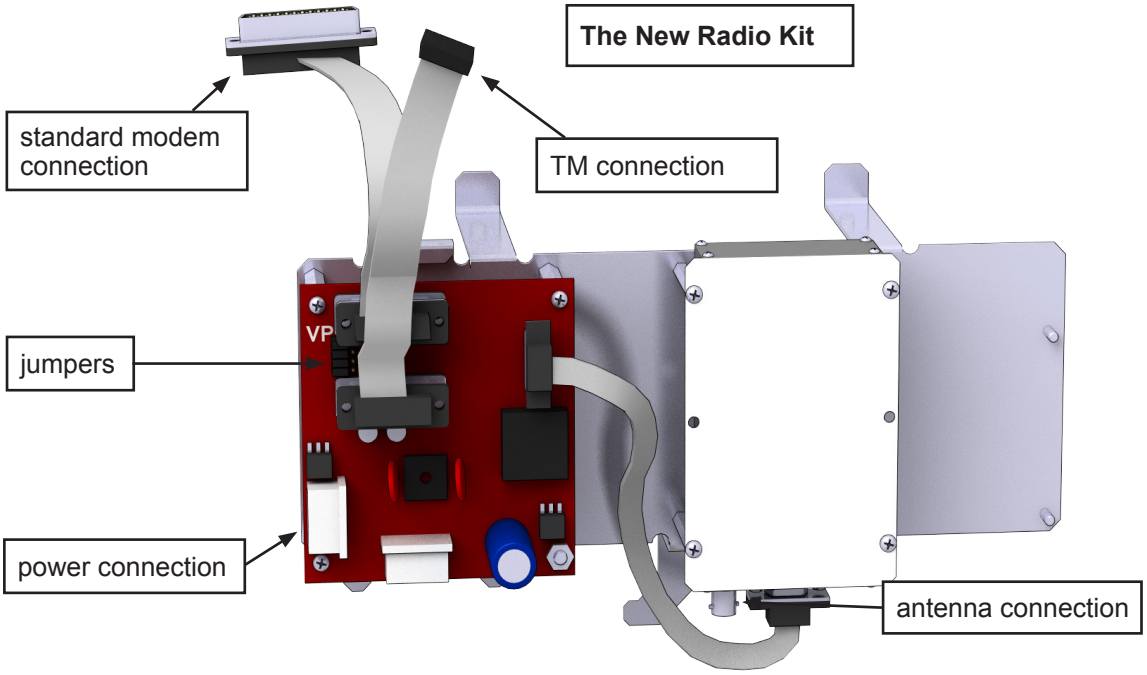
Disconnect modem from timing mechanism.



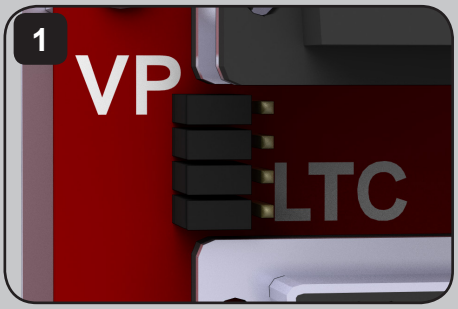
From opposite side, remove mounting nuts.



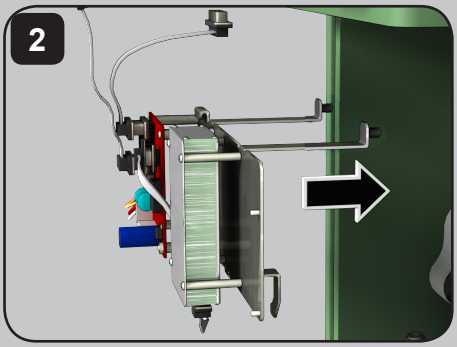
Remove radio assembly.



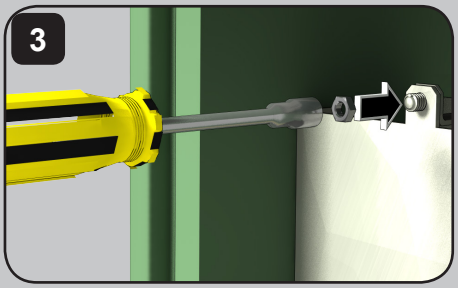
B New Radio Installation



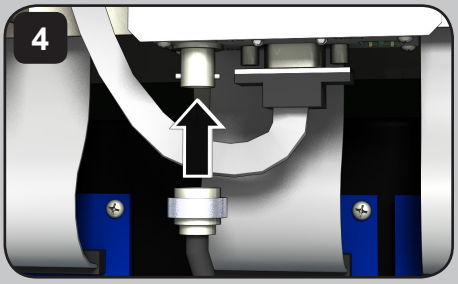
For VP controller, all four jumpers should be to the left.



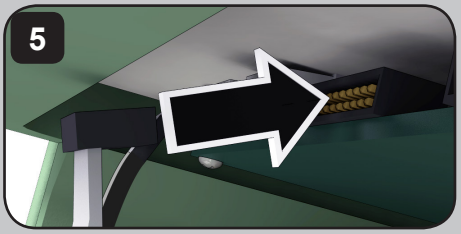
Insert radio assembly.



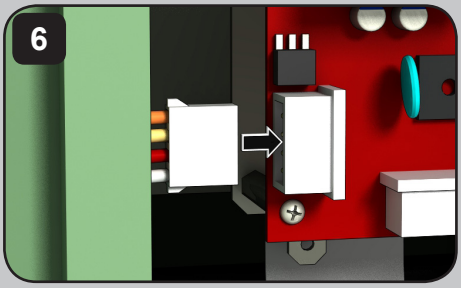
From opposite side, secure with nuts.



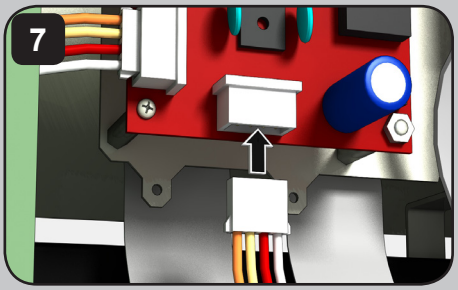
Connect antenna cable.



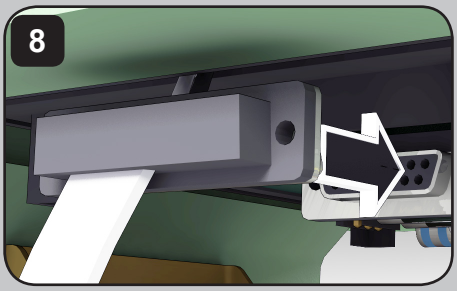
Connect to timing mechanism.



Connect power to radio interface board.



Connect power passthru too.



(optional) Connect standard modem.

An optional standard modem is only required if any wireline satellites are connected to the radio satellite.

For Systems with Maxon Radios

The VP satellite with Raveon radio requires a Field Interface Unit (FIU) with a Raveon radio (P/N FIU-2011DR) to communicate. If your current system, along with the FIUs, employs the (older) Maxon radios, the Raveon radio must be put into "bell202" mode for successful communication.

Required Items:

- Radio Manager software from Raveon
- USB to Serial (DB9) cable with included drivers
- 12V Phoenix power connector (from authorized Toro distributor)
- 12V power supply for radio (from authorized Toro distributor)

To put the Raveon radio into bell202 mode:

1. Disconnect all power to the controller. Remove the radio. Place it next to the Lynx computer on a static-free surface.
2. At the computer running Lynx, install the drivers for the USB to Serial (DB9) cable. Reboot computer.
3. Plug USB cable into a USB port and Serial port on radio (**Figure 1**).
4. Connect Phoenix power cable into 12V power supply. Plug other end into DC IN port on radio (**Figure 2**).
5. Plug in 12V power supply.
6. Launch Radio Manager. See **Figure 3**.
7. Select appropriate COM port (**Figure 3, A**).
8. Change the baud rate to 1200 (**Figure 3, B**)
9. Press 'Discover Radio' button (**Figure 3, C**). The radio should be discoverd (**Figure 4**).
10. At the command line, issue the following commands to the Raveon radio:
    ATMT 4
    ATR2 15
    ATBP 1
    ATIO 7
    TXTOT 60
11. To exit a Raveon radio from bell202 mode (to recommunicate with other Raveon radios, for example), issue the following commands:
    ATMT 0
    ATR2 3
    ATBP 0
    ATIO 0
12. All interface board jumpers (both the satellite and FIU) must be set to the left, to the 'VP' side (see frame 1 on previous page).

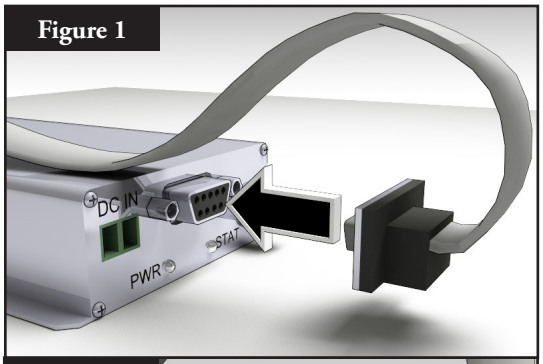


Figure 1

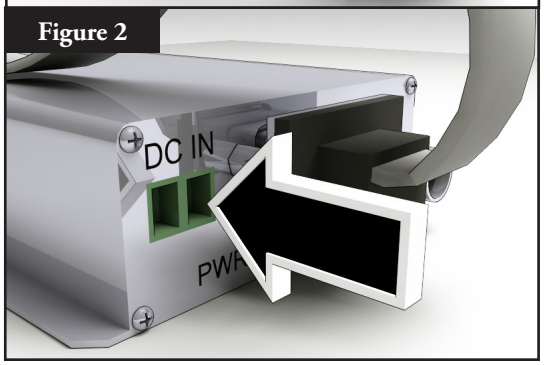


Figure 2

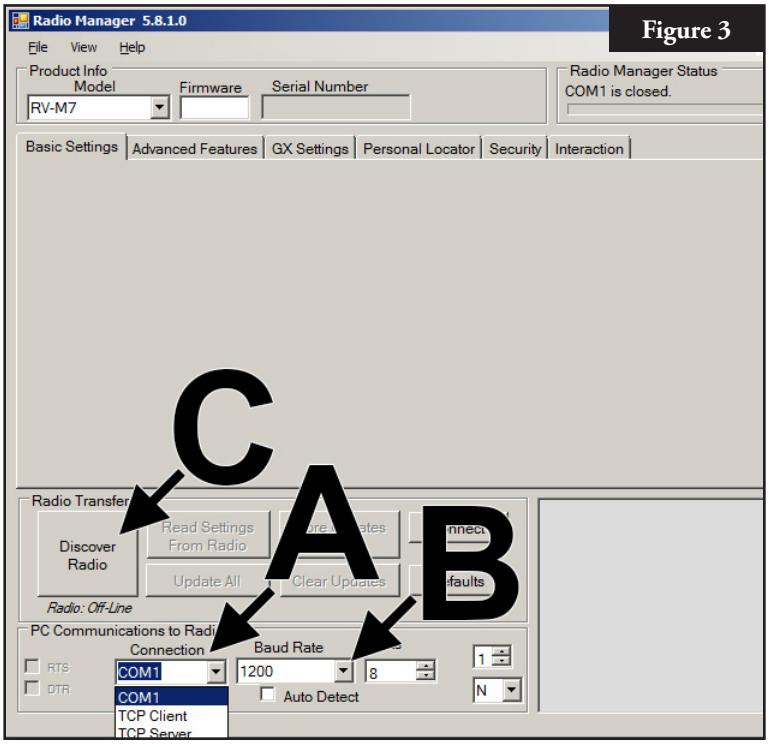


Figure 3

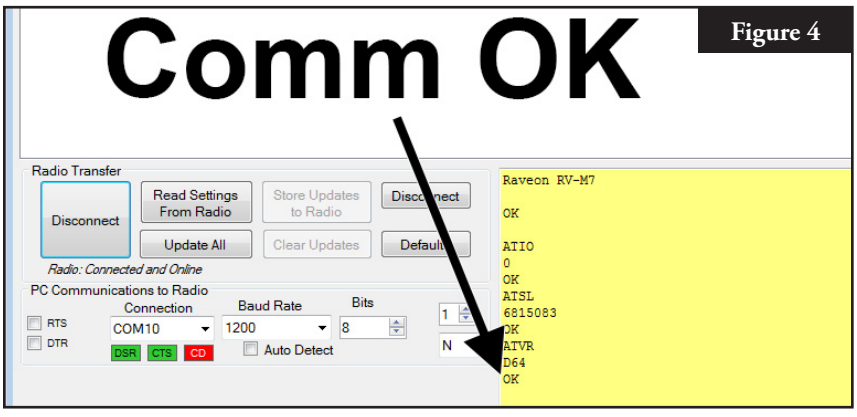


Figure 4

Changing the Frequency of the Radio

At the time of installation, your authorized Toro installer should configure the radio to work properly. In the future, if it becomes necessary to change the radio frequency, follow the steps below.

See **Required Items**, previous page.

Steps

1. Follow steps 1-9 on the previous page.
2. To see current radio frequency, enter **ATFX** into the command line (**Figure 5**).
3. To change the frequency, simply add an appropriate frequency number to that command. Example: **ATFX 460.5**

UHF frequency range is from 450 to 470 MHz. Frequency number specified must be between those numbers.

4. Software will confirm the change (**Figure 6**). It is possible to manually confirm the change by simply typing in **ATFX** again.
5. Power down power supply and disconnect power line and serial cable.
6. Install radio back into controller.

An FCC license is required to operate on any given UHF frequency. Frequency coordination (selection) is handled through the Personal Communications Industry Association (PCIA) (800-759-0300) and an application must be submitted to the FCC. There is a PCIA fee and FCC license fee that must be paid as well.

Figure 5

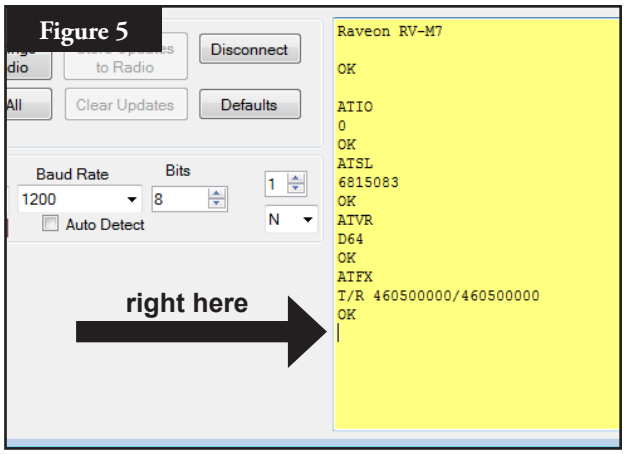
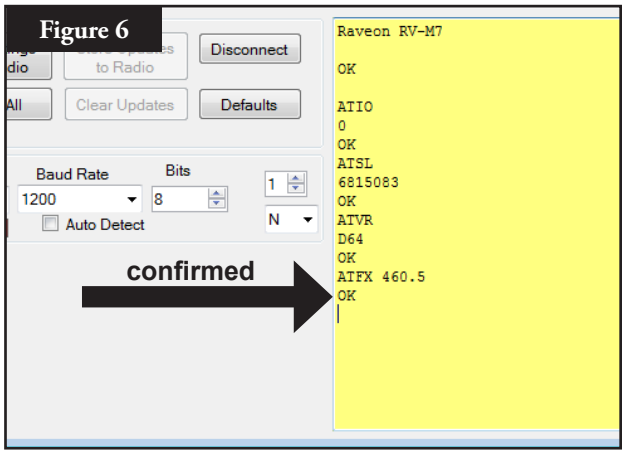


Figure 6



Warranty and FCC Notice

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrants to the owner each new piece of irrigation equipment (featured in the current catalog at date of installation) against defects in material and workmanship for a period described below, provided they are used for irrigation purposes under manufacturer's recommended specifications.

During the warranty period, we will repair or replace, at our option, any part found to be defective. Your remedy is limited solely to the replacement or repair of defective parts.

This warranty does not apply (i) to Acts of God (e.g., lightning, flooding, etc.); or (ii) to products not manufactured by Toro when used in conjunction with Toro products, or (iii) where equipment is used, or installation is performed in any manner contrary to Toro's specifications and instructions, nor where equipment is altered or modified.

Return the defective part to your irrigation contractor or installer, or your local Golf Irrigation Distributor, or contact The Toro Company, 5825 Jasmine St., Riverside, California, 92504, (800) 664-4740, for the location of your nearest Toro distributor, or outside the United States, call (951) 688-9221.

Neither Toro nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of equipment, including but not limited to vegetation loss, the cost of substitute equipment or services required during periods of malfunction, or resulting non-use, property damage or personal injury resulting from installer's actions, whether negligent or otherwise. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

All implied warranties, including those of merchantability and fitness for use, are limited to the duration of this express warranty.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state-to-state.

All Toro golf control systems (central controls, field satellite controllers, GDC, CDS and Turf Guard), unless covered by a Toro NSN Support Plan, are covered by this warranty for one year from date of installation.

FCC Part 22 and Part 90 of the FCC Rules

Domestic: This equipment has been tested and found to comply with the limits for a FCC 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. The 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 the radio communications. Operation 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.

International: This is a CISPR 22 Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.Each stations can activate up to two solenoids.

This product, utilizing a Class 2 transformer tested to UL1585, satisfies the requirements of a Class 2 Power Source as defined in the NFPA 70 (NEC), Article 725.121(A)(3).