

## **Dismantling & Reassembling Pump End**

The Redi-Flo2® pump can be dismantled and reassembled quickly and easily by referring to the diagram on page 27 and following these steps:

### **DISMANTLING**

1. Shut the pump off by placing the Redi-Flo VFD RSR switch in the stop position.
2. Disconnect Redi-Flo VFD from power supply or generator.
3. Disconnect the motor lead from the Redi-Flo VFD.
4. Remove the pipe or tubing connected to the pump (OPTIONAL).
5. Remove the Set Screw (position 12 in the diagram on page 27). Grasp the Inlet Screen (position 1) and slowly but forcefully pull it up over the Pump Housing (position 2).

**DO NOT ALLOW THE INLET SCREEN TO SCRAPE  
THE INSULATION FROM THE MOTOR LEAD.**

6. Unscrew and remove the Pump Housing (counterclockwise when viewed from the top). This will expose the impeller assembly (guide vanes, wear rings, etc.), which can now be removed by hand for extended cleaning or replacement.

### **REASSEMBLY**

To reassemble the Redi-Flo2® pump, refer to the diagram on page 27 and:

1. Make sure the motor lead is not connected to the Redi-Flo VFD.
2. Return the impeller assembly components (guide vanes, wear rings, etc.) to the shaft in the proper order per impeller assembly diagram.
3. Screw the Pump Housing (position 2) back onto the top of the pump. If all of the impellers and chambers were replaced correctly, the Pump Housing should screw on easily. Hand tighten.
4. Slip the Inlet Screen (position 1) back over the Pump Housing. Screw the Set Screw (position 12) back into the Inlet Screen.

**MAKE SURE YOU LINE UP THE  
MOTOR LEAD WITH THE RECESSED AREA  
IN THE PUMP HOUSING TO AVOID  
SCRAPING THE INSULATION FROM THE LEAD**

## Dismantling & Reassembling Motor

If the pump is moved from well to well, it should be thoroughly decontaminated prior to being installed in the next well. In addition to cleaning the individual components inside and outside, the water in the pump motor should be replaced using the syringe that came with your pump. This can be accomplished through the following steps:

1. Shut the pump off by placing the Redi-Flo VFD RSR switch in the stop position.
2. Disconnect Redi-Flo VFD from power supply or generator.
3. Disconnect the motor lead from the Redi-Flo VFD.
4. Remove the discharge tubing and the pump end (follow dismantling procedure page 19).
5. Turn the pump and motor upside down.



6. Use a flat blade screwdriver to remove the filling screw on the bottom of the motor.

7. Remove the three Allen head set screws at the bottom of the motor with 2.5 mm Allen wrench.

8. Push gently on the motor shaft to move bearing housing out of the stator housing.

9. Continue to remove bearing housing and motor shaft from stator housing.

10. Clean motor shaft with a brush.

11. Empty the water from the motor.

12. Clean inside of stator housing with a brush.

13. Replace motor shaft into stator housing.

14. Refill motor using contaminant-free deionized water using the syringe that came with your Redi-Flo2® pump.



15. Replace bearing housing and tighten Allen screws.

16. Continue to add water until the level is even with the bottom edge of the screw hole.

17. Replace and tighten the filling screw.

18. Turn the pump over several times, then remove the filling screw again to let any trapped air escape (if air is left inside the motor, the life of the motor will be shortened). Add more water, as necessary. Fluid should overflow when the fill cap is screwed back on the motor cavity.

19. Replace and tighten the filling screw.

20. Replace pump end and piping (see reassembly page 19).



# Replacing the Motor Lead

To replace the motor lead, refer to the diagram on page 27 and follow these steps:

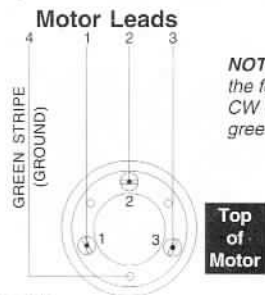
## REMOVING THE OLD MOTOR LEAD

1. Make sure the power is turned **OFF**, the Redi-Flo VFD is turned **OFF**, and the motor lead is not connected to the Redi-Flo VFD.
2. Loosen and remove the Set Screw (position 12) from the Inlet Screen (position 1).
3. Slide the Inlet Screen off the pump. If you plan to use this motor lead again, be careful not to scrape insulation from it as the Inlet Screen is removed.
4. Loosen and remove the Pump Housing (position 2). Remove the impeller assembly (impellers, guide vanes, etc.).
5. Refer to the illustration on page 27. Use the special Motor Lead Screwdriver (shown at right) that came with your new motor lead to loosen and remove the Motor Lead Screw (position 14) for the ground lead (green/yellow wire).
6. Pull up on the ground lead to remove it. Using a small screwdriver and precision electronics pliers, pry up and remove the Teflon® Washer (position 15) and Brass Washers (position 16 ) from inside the enlarged Ground Motor Screw (position 13). Remove the Ground Motor Screw.
7. Use an allen wrench (2.5 mm) to remove the two Motor Screws (position 19) holding the Suction Interconnector (position 10) in place. Remove the Suction Interconnector but be very careful to note which of its slots is lined up with which motor lead -- this will be very helpful during reassembly. You may wish to scratch a mark on both the Suction Interconnector and the motor to aid in matching them up later.
8. Refer to the illustration at the bottom of this page. Use the special Motor Lead Screwdriver to loosen and remove the remaining Motor Lead Screws (position 14).
9. Pull up on each of the leads to remove them. Make a note which lead comes out of each hole -- **this is a MUST** when installing the new motor lead. Using a small screwdriver and precision electronics pliers, unscrew and remove the Teflon® Washer (position 15) and the Grommet (position 17).

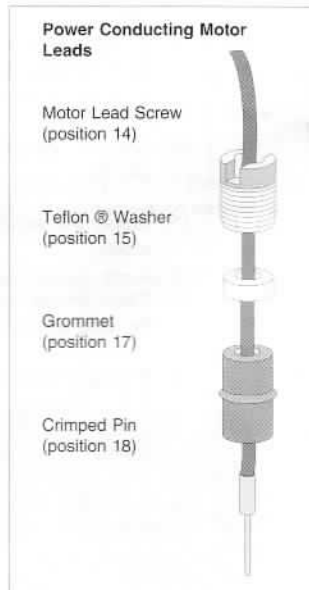


## INSTALLING THE NEW MOTOR LEAD

10. Ensure the motor lead holes are clean and free of moisture.
11. String the Inlet Screen (position 1) onto the motor lead.
12. String the motor lead components (shown at right) onto the end of each motor lead wire (except the striped green ground wire).
13. For each wire, place the Crimped Pin (position 18) down into the motor lead hole. Press the Grommet (position 17) and Teflon® Washer (position 15) down around the lead. Be sure to reconnect the lead wires in their previous pattern shown at left and described below.



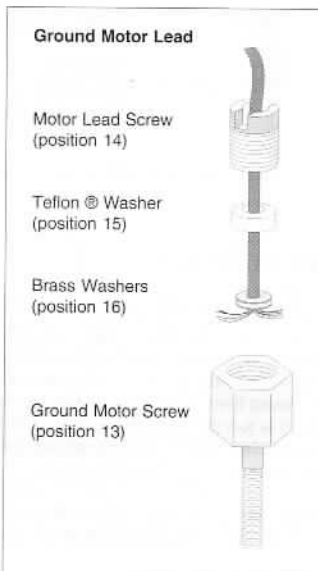
**NOTE:** For Tefzel motor lead, use the following wiring pattern: 1, 2, 3 CW from ground terminal (striped green).



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14. While pushing the lead down into the motor lead hole, use the special Motor Lead Screwdriver to tighten the Motor Lead Screw (position 14) into place. Repeat for the other two lead wires.
15. Replace the Suction Interconnector (position 10). Replace the Ground Motor Screw (position 13). Since the ground wire will be attached to this screw, you will want to put it into the hole that will cause the least amount of twisting to the wire.
16. Replace and tighten the two Motor Screws (position 19) with an allen wrench.
17. Repeat steps 12-14 for the ground motor lead. Note on the illustration (at right) that the ground lead uses two Brass Washers (position 16) instead of a Grommet and Crimped Pin.
18. Return the impeller assembly to the top of the Suction Interconnector (position 10). Refer to the diagram on page 25 for the proper sequence.
19. Screw the Pump Housing (position 2) back onto the Suction Interconnector.
20. Position the motor lead in the recessed area of the Pump Housing.
21. Carefully push the Inlet Screen (position 1) over the Pump Housing and the Suction Interconnector.

**BE VERY CAREFUL TO AVOID SCRAPING THE INSULATION FROM THE MOTOR LEAD AS THE INLET SCREEN IS FITTED.**



22. Line up the screw hole in the Inlet Screen with the screw hole in the Pump Housing. Fit and tighten the Set Screw (position 12).
23. Connect the motor lead to the Redi-Flo VFD and test the rotation of the pump. Submerge the pump in water, start it at its slowest speed and make sure the pump shaft is turning counterclockwise (when viewed from the top). If the rotation is incorrect, switching any two power leads (with POWER OFF) will correct the problem.
24. Reconnect the tubing or pipe.



## Periodic Motor Inspection

If the pump is operating at a decreased capacity and the impeller assembly components (impellers, guide vanes, etc.) do not appear to be the cause, the motor should be checked. A checklist of things to examine includes:

- Check the fluid level inside the motor (refer to page 20). Replace and refill as necessary.
- Inspect the outside of the motor for cracks, dents, etc.
- Remove the Inlet Screen (position 1), Pump Housing (position 2), and the impeller assembly (guide vanes, wear rings, etc.). Try to spin the motor shaft by hand. It should spin freely. If it does not, the motor must be replaced.
- Check the winding and insulation resistance of the motor and lead as described on page 23.

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## Winding Resistance



Turn the power off and disconnect the motor lead from the converter. Using an ohmmeter, set the scale to R X 1. Zero-adjust the meter and measure the resistance between any two power conducting leads (prongs on the motor lead plug).

If the ohm value is too low, the motor may be shorted. If too high, the motor windings or the leads may be open.

Lead Length	Ohm Value
0 ft .....	3.0 - 3.5 Ω
50 ft .....	3.6 - 4.1 Ω
75 ft .....	3.9 - 4.4 Ω
100 ft .....	4.2 - 4.7 Ω
125 ft .....	4.5 - 5.0 Ω
150 ft .....	4.8 - 5.3 Ω
175 ft .....	5.1 - 5.6 Ω
200 ft .....	5.4 - 5.9 Ω
250 ft .....	6.0 - 6.5 Ω
300 ft .....	6.6 - 7.1 Ω

## Insulation Resistance

Turn the power off and disconnect the motor lead from the converter. Use a 500V megohmmeter or megger (1 Meg = 1 M = 1 million). Zero-adjust the meter and measure the resistance between any power conducting leads (prongs on the motor lead plug) and ground. If the pump has been removed from the well, a good way to test this (as shown at right) is to submerge the motor lead and Redi-Flo2® pump in a bucket of water. Touch one lead of the megohmmeter to the pump and one to a motor lead.



If the ohm value is lower than 1.5M Ω on any lead other than ground, the motor or lead is defective and must be replaced.

## Checking Components For Wear

The pump components should be periodically checked to ensure they are still within their minimum operating tolerances (illustrated below).

- Impeller** (position 5) ..... The impellers should show no visible wear.
- Guide Vane** (position 3) ..... The guide vanes should show no visible wear.
- Wear Ring** (position 4) ..... The minimum thickness ("A" in the illustration) should never be less than 1.0 mm.



In addition, visually check all components for cracks, corrosion, or wear.

## Storage Requirements

The pump should be thoroughly cleaned before storage to ensure no contamination is present. Both the pump and the converter should be stored in a clean and dry area in the following temperature range:

1°C to +50°C  
or  
34°F to 120°F