

DATATRACE® FIELD REPLACEABLE BATTERY PROCEDURES

The Field Replaceable Battery for Micropack III Tracers allows the user to change the Lithium battery of the unit without the necessity of sending the Tracer to the factory.

This document describes the disassembly, battery installation, and reassembly for the FRB Micropack. Also included, is a “QUICK-START” procedure which can be used by experienced users as a quick review of the detailed procedures.

While the procedures for changing the battery is simple and straight forward, adherence to these procedures is necessary to protect the Tracer from damage.

Please note that replacement of the battery does not automatically recalibrate the Tracer. Normal calibration procedures should be instituted to have each Tracer factory calibrated at least once each year or in conformance with your in-house procedures.

CAUTION:

Caution needs to be paid to the handling, storage, and disposal procedures of Lithium batteries. The appropriate procedures are described in this chapter. Follow these instructions completely. Variations to this procedure could damage the battery, or DATATRACE® equipment, and/or cause operator injury. Note carefully the battery warning labels on the batteries or battery trays and disposal of spent batteries must comply with local regulations.

NOTE:

The batteries used in the DATATRACE® equipment are specially designed for this application. USE ONLY BATTERIES SUPPLIED BY DATATRACE®. Trying to use any other lithium battery will void the DATATRACE® equipment warranty and could damage DATATRACE® equipment.

FRB MICROPACK TRACER QUICK-START BATTERY CHANGE:

Use this “Quick-Start” procedure if you are already familiar with the DATATRACE® Battery changing procedure. While the fundamentals are reviewed here, it is strongly recommended that you read the entire procedure in this chapter before attempting to change a battery or disassemble and reassemble your Tracers for the first time. Refer to Figure 2.

1. Starting with a clean and dry Tracer, loosen the battery cover with the Tracer Grippers by twisting the cover counterclockwise.
2. Lift off the battery cover.
3. Remove the old battery by lifting straight out. Dispose of the battery appropriately.
4. Examine the battery compartment and threads.
5. Replace the O-ring and repair any damaged components before reassembly.
6. Place a fresh, preconditioned battery in the battery compartment, taking care to put the “+” battery terminal into the “+” socket. Press the battery into the sockets until seated. Do not twist or turn the battery as it is installed.
7. Apply silicone grease to the O-ring and threads.
8. Install the battery cover by rotating it in a clockwise direction. Only tighten finger tight. Wipe away any excess silicone grease that may have been pressed out during closure.
9. **Perform the Test Tracer procedure to assure the battery is functioning properly, the electronics are reset correctly, and the Tracer is initialized.**

Your Tracer is now ready for continued use.

FRB MICROPACK BATTERY REPLACEMENT PROCEDURE:

Materials Needed

- DATATRACE® Micropack Tracer FRB Model(s)
- Lithium Battery(ies)
- Maintenance Kit
- Tracer Grippers
- A Supply of Clean, Dry Cloths

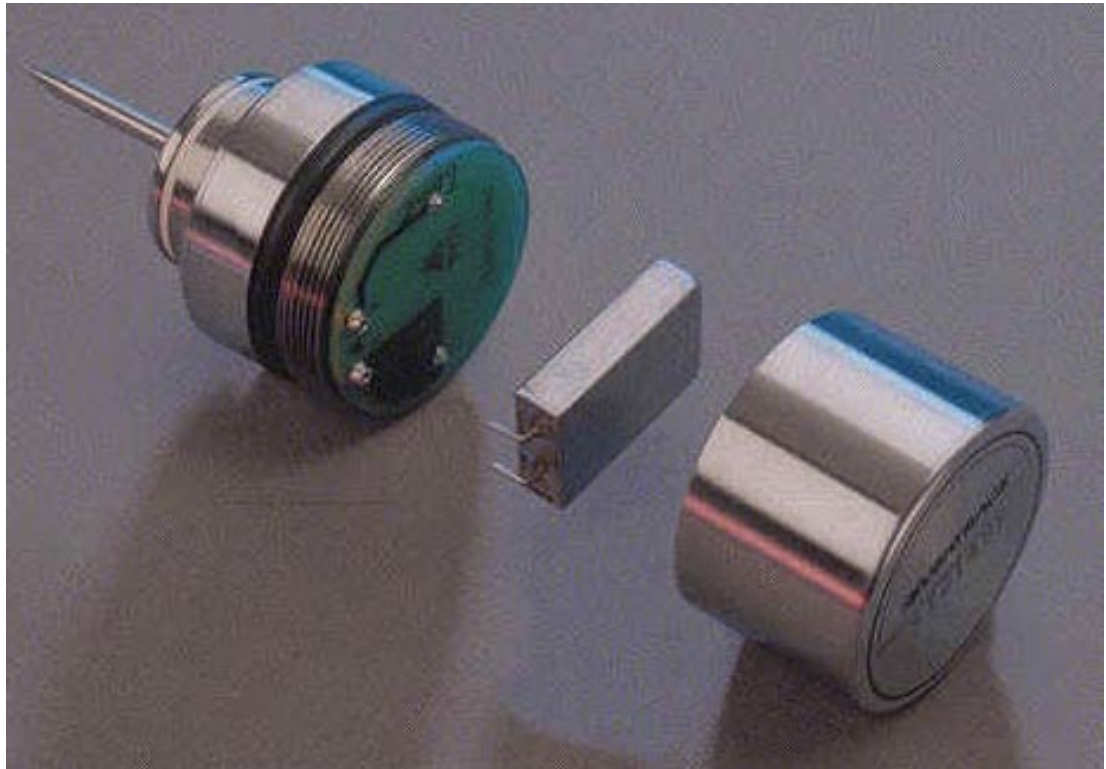
Disassembly of the FRB model Micropack for battery change is a simple and straight forward procedure. However, care must be taken that these procedures are followed completely to avoid equipment damage or personal injury. Refer to Figure 2.

We recommend that the disassembly of the DATATRACE® Tracers take place in a dry, well-lit workstation. The best place for this activity would be close to the location that Tracers are stored and programmed and that Tracer batteries are stored and conditioned.

DO NOT USE ANY WRENCHES, PLIERS, VICES, OR ANY OTHER MECHANICAL MEANS TO LOOSEN OR UNSCREW THE TRACER BATTERY COVER. THE TRACER GRIPPER IS ADEQUATE TO OPEN THE BATTERY COMPARTMENT. USING ANY OTHER DEVICE MAY DAMAGE THE TRACER AND MAY MAKE REASSEMBLY IMPOSSIBLE.

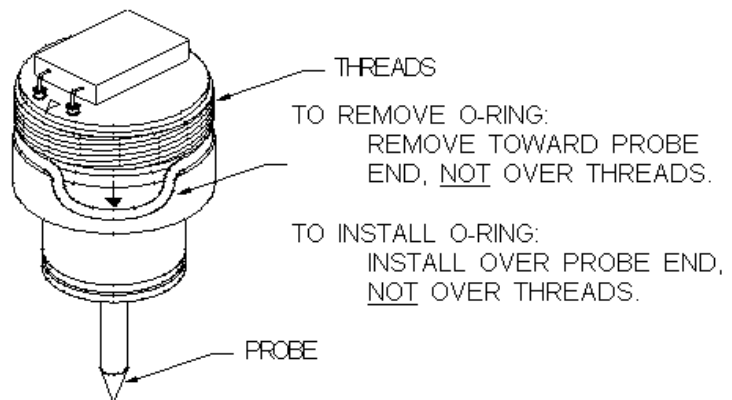
1. Clean and dry the Tracer body completely. Make sure no process residue remains on the Tracer body that could cause the Tracer to slip from the your grasp during disassembly or could contaminate the battery compartment during battery replacement.
2. Grasp the Tracer with the Tracer Gripper in one hand, clasping the base (probe end) firmly. With your other hand, using the other Gripper, twist the battery cover counter-clockwise.
3. Once loosened, remove the Grippers and the battery cover will unscrew easily.
4. Remove the old battery by lifting straight out. Do not twist or turn the battery while removing.
5. Dispose of the battery appropriately per local regulations. **DO NOT TRY TO RECHARGE, DISASSEMBLE, OR INCINERATE THE BATTERY.**
6. Examine the battery compartment for any signs of contamination, pay particular attention to the battery socket area. If any contamination is found, remove it, and clean the area with a dry cloth.
7. Examine the threads of both the battery cover and Tracer body for damage and cleanliness. If the threads show any damage (e.g., cross threading or “burrs”), do not continue with this procedure. Loosely reassemble the Tracer and return it to the factory for repair.

Figure 1
Exploded View of Micropack III



8. Remove the old O-Ring. Refer to Figure 3. DO NOT USE O-RINGS THAT APPEAR DAMAGED. LEAKS COULD RESULT THAT MIGHT DAMAGE THE TRACER AND/OR SHORTEN BATTERY LIFE.

Figure 2
FRB O-Ring Removal and Installation



NOTE: DO NOT USE SHARP TOOLS TO REMOVE O-RING!

9. Clean any residue and grease from the threads and adjacent areas including the O-Ring groove on the Tracer body with a clean, lint-free cloth.

You are now ready to reassemble the Tracer with a new battery.

We strongly recommended that you do **NOT** leave Tracers unassembled. Damage to components could occur making your Tracers unusable.

Battery installation and assembly of the FRB model Micropack after battery change is simple and straightforward. However, care must be taken that the procedure is followed completely to avoid equipment damage.

DO NOT USE ANY WRENCHES, PLIERS, VICES, OR ANY OTHER MECHANICAL MEANS TO SCREW ON OR TIGHTEN THE TRACER BATTERY COVER. THE TRACER GRIPPER IS ADEQUATE TO CLOSE AND SEAL THE BATTERY COMPARTMENT IF ALL PROCEDURES ARE FOLLOWED. USING ANY OTHER DEVICE MAY DAMAGE THE TRACER AND MAY MAKE IT UNUSABLE.

1. Obtain a fresh, conditioned battery. (See conditioning procedure in the next section.) Verify that the temperature range of the FRB Tracer and battery you plan to install are matched. Standard Temp batteries are rectangular and can be used in FRB Tracers with a **WHITE** or **RED** ring. LoTemp batteries are disk-shaped and should only be used in Tracers with a **BLUE** ring.

NOTE:

Standard Temp batteries (rectangular) and LoTemp batteries (round) have different pin configurations. The FRB Tracer sockets for Standard Temp and LoTemp Tracers are designed to accommodate only the appropriate batteries. So mixing up batteries and sockets is unlikely.

2. Holding the Tracer in one hand and the battery in the other, align the battery pins in the sockets on the Tracer.
3. Press the battery into the sockets until seated. This does not take much pressure. Do not twist or turn the battery as it is installed, as damage to the battery pins or Tracer sockets could result.

Your battery installation is now complete. All that remains for you to do is reassemble the Tracer. The reassembly procedure, if followed completely, will seal the battery compartment, maintaining the waterproof and pressure-tight seal, as well as the intrinsically safe rating. **Always replace the O-ring when the Tracer battery compartment has been opened.**

1. Before you replace the O-Ring, apply a thin coat of silicone vacuum grease (in Maintenance Kit) to the O-Ring.
 - Use a **very small** amount of grease on your thumb and index finger.
 - Place the O-Ring between these two fingers and gently pull the O-Ring through the grease until a light coating of grease completely covers the surface of the O-Ring.

2. Carefully place the O-Ring in the O-Ring groove at the bottom of the Tracer body threads. Refer to Figure 3. Avoid dragging the O-Ring across the threads, they could cut or nick the O-Ring, compromising its sealing capability.

The best method of O-Ring installation is to start from the probe side and place one part of the O-Ring in the O-Ring groove. **Slightly** stretch the O-Ring with your fingers to position it completely over the O-Ring groove, then release it. **DO NOT STRETCH THE O-RING ANY MORE THAN NECESSARY. DO NOT DEFORM THE O-RING.**

3. When the O-Ring is seated in the O-Ring groove, use the O-Ring Tool from the O-Ring Kit to make sure it is not twisted or has become damaged during installation. Do not use any sharp tools with O-Rings.
4. Place the battery cover squarely over the Tracer body threads. Begin to screw the cover in a clockwise direction. Be careful to not cross thread the cover on the Tracer body threads. The cover should screw on smoothly and easily until the O-Ring becomes engaged.
5. Grasp your Tracer in one hand, clasping the base (probe end) firmly. With your other hand, twist the battery cover clockwise until the O-Ring seems to disappear.

Never tighten the battery cover more than finger tight. Never use anything to tighten the Tracer Battery Cover except the Tracer Gripper. Over tightening can cause damage to your Tracer cover threads resulting in possible leakage which may damage your Tracer. The design of the Tracer seal is not dependent on high torque to provide an effective seal.

6. With a clean, dry cloth, wipe away any excess Silicone Vacuum Grease that may have been pressed out during closure. Silicone can become extremely slippery in combination with water and could cause the Tracer to slip from your hand and be damaged.

The reassembly process is now complete and your Tracer(s) is now ready for use in your process.

Following reassembly, always perform the Test Tracer procedure. This will assure that the battery is functioning properly, the electronics are reset correctly, and the Tracer is initialized.

FRB MICROPACK BATTERY PRECONDITIONING:

Materials Needed

- DATATRACE® Modified Battery Clip Connectors
- Lithium Battery(ies)

Battery conditioning is a simple, straightforward procedure. We recommend that conditioning of DATATRACE® Batteries take place at a dry, well-lit workstation, just prior to installation in your Tracer. The best place for this activity would be close to the location that Tracers are stored and programmed, Tracer batteries are replaced, and Tracers are assembled and disassembled.

Each set of DATATRACE® Modified Battery Clip Connectors can prepare one battery at a time for installation into your Tracers. It is best to have as many Battery Clip Connectors available for the conditioning process as the number of batteries needed for replacement.

Batteries should be installed into Tracers within eight (8) hours of the conditioning procedure. Prepare only enough batteries for the current session of battery replacements.

Remember that replacement of the battery does not automatically recalibrate the Tracer. Normal calibration procedures should be instituted to have each Tracer factory calibrated at least once each year or in conformance with your in-house procedures.

NOTE:

The batteries used in the DATATRACE® equipment are specially designed for this application. USE ONLY BATTERIES SUPPLIED BY DATATRACE®. Using any other lithium battery will void the DATATRACE® equipment warranty and could damage DATATRACE® equipment.

We recommend that you do not try to condition batteries at the same time you are disassembling and reassembling your Tracers. It is very easy to confuse old batteries with new ones and you might reinstall an old battery into your Tracer by mistake.

1. Clear an area at your workstation to accommodate your DATATRACE® Batteries you will need to prepare. Do not take any more batteries from their container than you intend to use at this session.

Do not allow the battery pins of one battery to contact those of another. This will cause a short which could damage the battery.

2. Connect the Battery Clip Connectors to the battery terminals as indicated in Figure 4. It makes no difference which connector is attached to which of the indicated terminals.
3. The normal conditioning process takes 3 to 3.5 minutes. Allow the battery to lie undisturbed during this period.
4. Remove the Battery Clip Connectors from each battery and allow the battery to “sit” for approximately one (1) minute before installation into a Tracer.

The batteries are now ready for installation into your Tracers.

Figure 4
FRB Battery Clip Connections
For Battery Conditioning

