



Equipment Maintenance/Calibration SOP 1 (E-1): Current Meters

Cleaning the Sensors

The sensor for Marsh-McBirney, Inc. Model 201D and 2000 Current Meters may need to be cleaned throughout the sampling season. The sensor should be cleaned with mild soap and water to keep the carbon electrodes free of non-conductive grease or oils. If problem persists after cleaning with soap and water, clean the electrodes with a very fine grit (600) sandpaper. Hydrocarbon solvents should not be used on the sensor as they damage the sensor.

Zero Check

After cleaning the sensor, place sensor in five-gallon plastic bucket of water. Kepp it at least three inches away from the sides and bottom of the bucket. To make sure that water is not moving, wait 10 to 15 minutes after you have positioned the sensor before taking any zero readings. Use a filter value of 5 seconds. Zero stability is ± 0.05 feet/second.

Zero Adjust

NOTE: The following applies only to the Marsh-McBirney, Inc. Flo-Mate Model 2000 Portable Flow Meter. The Marsh-McBirney, Inc. Model 201D Portable Water Flow Meter can not be field calibrated. If problems with the Model 201D occur during the Zero Check, the equipment must be sent to the factory for repairs.

- Position the sensor as described in the zero check procedure.
- To initiate the zero start sequence, press the STO and RCL keys at the same time. You will see the number 3 on the display.
- Decrement to zero with the \downarrow key.
- The number 32 will be displayed.
- The unit will decrement itself to zero and turn off. the unit is now zero

Comment: Each key in the zero adjust sequence must be pressed within 5 seconds of the previous key. If the time between the key entries exceeds 5 seconds or if a wrong key is pressed, the unit will display an *ERR 3*. Turn the unit *OFF* and then back *ON* and try again.



Changing the Batteries

This battery changing SOP is applicable to the Marsh-McBirney, Inc. 201/201D and 2000 models. Six (6) 1.5v (size D) **alkaline** batteries will be needed.

- Remove the flow meter from its protective carrying case
- Remove the cover plate to the battery compartment (located on the bottom of the unit) by rotating the four (4) screws in a counter clockwise direction using a flat head screwdriver
- Open package of alkaline batteries. Before extricating the exhausted batteries, note the orientation of the positive and negative terminals, taking care to place the new batteries in the same orientation. Note: The positive terminals of the flow meter unit are identified with red plastic terminal covers
- When all the exhausted batteries have been replaced, place the battery compartment cover plate on the flow meter unit, aligning the screw holes. Rotate screws in a clockwise direction until the screw head seats firmly against the compartment cover plate

Adapted from the following Instruction Manuals.

Marsh-McBirney, Inc. *Instruction Manual Model 201/201D Portable Water Flow Meter.*

Marsh-McBirney, Inc. (1990). *Model 2000 Installation and Operations Manual*