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# OPERATION AND INSTRUCTION MANUAL

## ELECTRIC REED VIBRATOR



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## Use of Electric Reed Vibrators

Electric Reed Vibrators are standard on Series 1000 Morehouse Proving Rings, and are an optional accessory on all other series Proving Rings. The Electric Reed Vibrator is a self-powered unit which provides a regular, steady vibration of the vibrating reed. It helps the operator achieve greater accuracy through more consistent dampening of the Proving Ring's vibrating reed.

## Installation Instructions

An Electric Reed Vibrator attaches easily to the upper internal boss of any Proving Ring. If the Electric Reed Vibrator was not ordered and installed when the Proving Ring was purchased, it can be installed at any time. The Electric Reed Vibrator can be installed without affecting the calibration of the Proving Ring. Since it is an accessory, and not an integral part of the Proving Ring, it can be removed leaving the Proving Ring completely operable and its calibration unaffected. Following are instructions for installation of Electric Reed Vibrators:

- 1-** Remove four rear cover plate screws and rear cover plate.
- 2-** Refer to Figure 4 and notice the detail of the lock set screw. The set screw has a cone end which bears on the cone end of the brass lock pin. Turning the set screw in forces the lock pin against the side of the reed holder. This action forces the Electric Reed Vibrator square with and against the reed holder.
- 3-** Remove the tape which keeps the brass lock pin from falling out of its socket. Care should be taken when removing the tape and during installation to prevent loss of the lock pin. Make sure the cone end of the lock set screw will bear on a portion of the cone on the brass lock pin. The lock pin must be able to slide forward freely when the lock set screw is turned in.
- 4-** With the switch of the Electric Reed Vibrator facing the index that will be used in reading the Proving Ring, slide the front plate assembly over the reed holder. The protruding convex screw heads on the reed holder must be aligned with the grooves on the inside of the vibrator. Push the vibrating reed to the side so the armature stem will slide past it.
- 5-** Attach the rear cover plate to the Vibrator by replacing the four screws that were previously removed. Tighten the screws and then loosen them 1/2 turn.
- 6-** Gently hold the Electric Reed Vibrator so the inside of the front cover bears against the front of the reed holder, and the top of the groove in the front vibrator plate is resting on the convex protrusions from the reed holder. While holding the Vibrator in this position tighten the lock set screw by inserting the Allen wrench through the access hole in the rear cover plate. As the screw is tightened, a slight shifting of the Vibrator will be noticed as it is squared with and brought against the opposite side of the reed holder.
- 7-** Tighten the four rear cover plate screws. Inspect the Vibrator assembly to make sure the vibrating reed is not being pushed off center by the armature stem and that the adjusting screw can be advanced as described in Step 3 of the adjustment instructions. If the vibrating reed is being pushed off center refer to step 4 of the adjustment instructions.



## Adjustment Instructions

The Electric Reed Vibrator has been adjusted at the factory prior to shipping. The electric contacts have been adjusted to have a clearance of about 0.005", when the armature is tight against the end of the coils. The armature stem has also been adjusted to the proper length.

It may be necessary to periodically adjust the Electric Reed Vibrator. A socket set screw wrench and small open end wrench of the proper size are provided. If the Electric Reed Vibrator fails to start on its own when turned on the armature stem should be adjusted as follows:

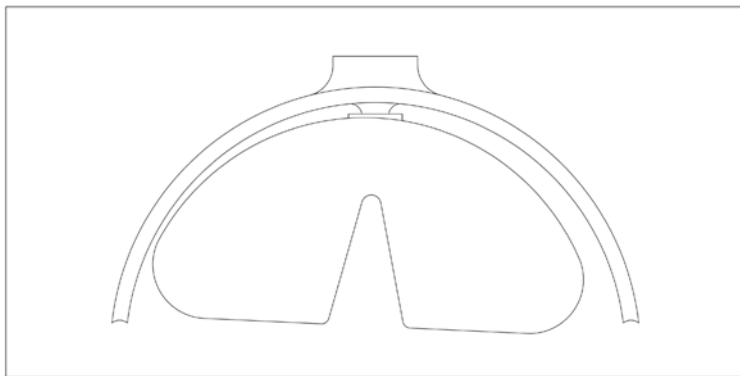
- 1-** Turn switch ON (up position).
- 2-** Insert a pin or straightened paper clip through the hole in the armature stem. This prevents it from turning while advancing (counter-clockwise) the hex head screw in the end of the stem. Use the small open end wrench provided and turn the hex head screw counter clockwise. This will advance it toward the vibrating reed.
- 3-** The hex head screw should be advanced about 1/8 turn at a time until the vibrator starts to operate.
- 4-** If the vibrating reed is pushed slightly off center (about 1/16") by the Electric Reed Vibrator, the hex head screw has been advanced too far. The hex head screw should then be turned in the opposite direction.
- 5-** Once the Vibrator starts to work, turn the switch OFF, and then ON again to make sure it will start each time the switch is turned ON. Continue to make minor adjustments until it starts when the switch is turned ON.
- 6-** In special cases, particularly in the smaller capacity Proving Rings, it is impossible to back-off the armature stem hex head screw enough to permit the Electric Reed Vibrator to start. This is usually caused by an improper clamping action of the brass lock pin which causes the Vibrator to shift out of alignment. This condition is readily noticed by observing the alignment of the front diameter of the Proving Ring (see Figure 1).
- 7-** If the condition described above is experienced, loosen the rear cover plate screws 1 full turn and loosen the lock set screw 3/4 to 1 full turn. Then, shift the Electric Reed Vibrator until the cover plate is brought into alignment with the inside diameter of the Proving Ring (see Figure 2). Alignment according to your sight is good enough. While holding the Electric Reed Vibrator in alignment, tighten the rear cover plate screws. This should give a clamping action on the reed holder. If there is no clamping action refer to Step 8.
- 8-** If no clamping action as described in step 7 is experienced, place a shim on the end of the reed holder where the rear cover plate will bear. (see Figure 3). We normally use 1, 2, or 3 thicknesses of ordinary masking tape. If more than two thicknesses are required, the additional thicknesses should be divided evenly between the front and rear of the reed holder.
- 9-** After the proper clamping action is obtained, tighten the lock set screw. Now the armature stem adjustment can be made.

Varying degrees of vibrating reed amplitude can be obtained by using adjustments on the hex head armature stem adjusting screw and the contact adjusting screw. For maximum amplitude, advance the armature stem adjusting screw as far as possible while still allowing the Electric Reed Vibrator to continue to operate. Then vary the contact adjusting screw until maximum amplitude is observed. The contact adjusting screw is extremely sensitive. Do not turn the screw more than about 1/10 of a turn at a time. It is suggested that these adjustments be made while the Electric Reed Vibrator is turned on.

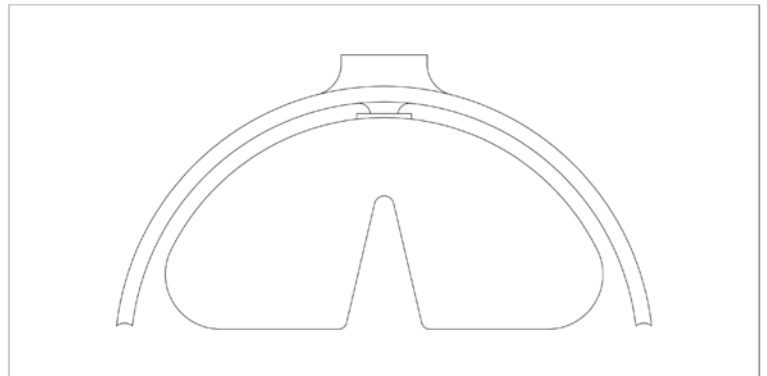


## Battery Replacement

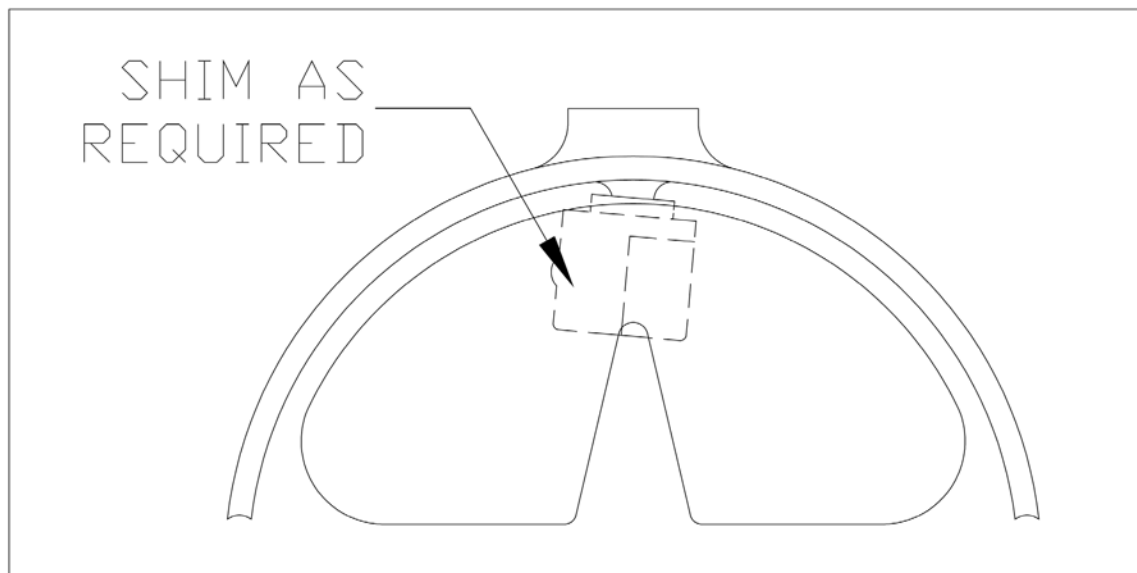
The battery is replaced by removing the two battery case screws on the front cover plate. Use a 1.5 volt "C" size battery.



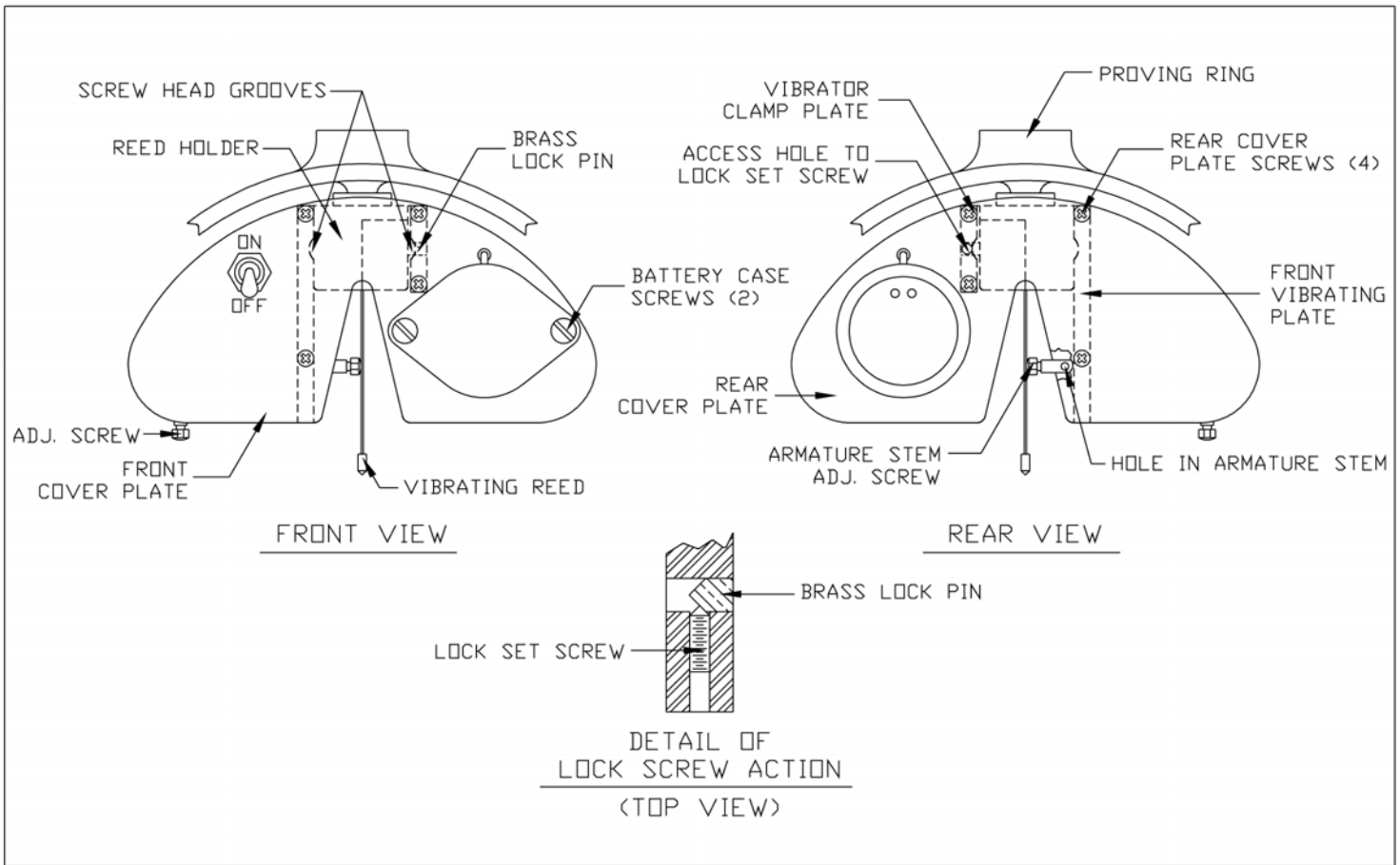
**Figure 1: Misalignment of Cover Plate of Electric Reed Vibrator with Inside Diameter of Proving Ring**



**Figure 2: Cover Plate of Electric Reed Vibrator with Inside Diameter of Proving Ring**



**Figure 3: Placement of Shim(s) for Proper Clamping Action between Cover Plates of Reed Vibrator and Reed Holder**



**Figure 4: Detail View of Electric Reed Vibrator**