



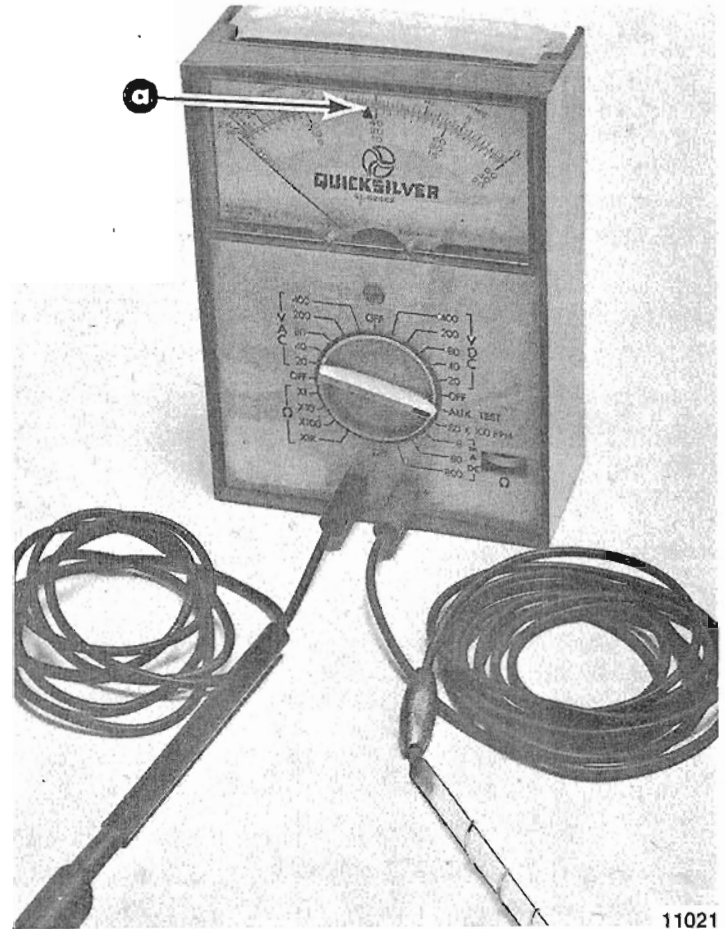
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## Checking for Galvanic Corrosion REFERENCE ELECTRODE ASSEMBLY

(Attach Bulletin Reference Sticker to P. 7E-2 of Your Service Manual.)

Whenever dissimilar metals (such as stainless steel or bronze propellers) are used in conjunction with aluminum on either outboard or stern drive equipped boats, damaging galvanic corrosion can result. This is especially true in salt water, but corrosion can occur in fresh water also.

A new service tool, Reference Electrode Assembly (C-76675A1, Figure 1), is available to perform a simple check and determine: 1) if corrosion protection may be required for a particular boat, and 2) if an existing MerCathode System is functioning properly and providing adequate cathodic protection. The Reference Electrode Assembly is designed for use with Quicksilver VOA Meter C-91-62562A1. (Quicksilver VOA meter also is part of Quicksilver Thunderbolt Ignition Analyzer C-91-62563A1.)



a - Red Arrow at 9.4

**Figure 1. Reference Electrode  
Assembly Plugged into  
VOA Meter**

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### OPERATING INSTRUCTIONS

1. Plug Reference Electrode lead into POSITIVE (+) receptacle of VOA meter.
2. Plug negative lead into NEGATIVE (-) receptacle of VOA meter and connect lead to negative battery terminal or other convenient ground.
3. Set meter dial on "AUX. TEST" position.
4. Immerse Reference Electrode in water near drive.
5. Read 0-20 (bottom) scale:

(OVER)

**IMPORTANT: NEW** boats, just placed in service (with or without MerCathode), almost always will produce a reading higher than 9.4 (940 millivolts). This is because the drive is protected by a good finish paint job and new sacrificial zinc anodes. To obtain an accurate diagnosis, the reading should be taken sometime after the boat has been in service for anywhere from one to 2 weeks. After this time, the paint has had a chance to "soak", and minor abrasions and scratches in the finish will have appeared, thus a more accurate reading.

- a. A reading between 9.4 (940 millivolts) and 10.5 (1050 millivolts) indicates that the drive and hull are cathodically protected.

*NOTE: Future Quicksilver VOA Meters will have a RED ARROW positioned on the scale at 9.4 (940 millivolts - optimum reading) for quick and easy reference. (If desired, place a reference mark on the face of your existing VOA Meter, as shown in Figure 1.)*

- b. A reading of 9.0 (900 millivolts) is acceptable, if the drive is equipped with a stainless steel or bronze propeller.

### **WITHOUT MERCATHODE SYSTEM**

If the boat is not equipped with MerCathode and the reading is BELOW 9.4 (940 millivolts), except in "b" preceding, galvanic corrosion is occurring.

The corrosion is a result of an electrical current generated by either a fault in the electrical system (which must be corrected) and/or dissimilar metals immersed in water. In the latter case, the MerCathode System should be installed to prevent inevitable and costly corrosion damage.

### **WITH MERCATHODE SYSTEM**

If the boat is equipped with MerCathode, and the reading is BELOW 9.4 (940 millivolts), except in "b" preceding, check the following:

- Connectors to MerCathode anode and/or electrode may have lost continuity. Remove connectors, solder wires and adequately seal soldered joint. (Position and/or insulate connectors and leads to protect them from bilge water.)
- The drive and/or aluminum hull may require additional paint -- or the aluminum hull size may be beyond the protection capacity of a single MerCathode System.
- If boat is connected to a dockside power source, disconnect power and note if reading increases. If an increase is noted, it may be necessary to install a Quicksilver Isolator (C-76664A1) to receive adequate cathodic protection from the MerCathode System under such conditions.

*NOTE: A limited quantity of MerCathode Testers, C-91-46802A1 and C-91-46802A2, (refer to MerCruiser Service Bulletin, 76-11, dated 6/1/76) are still available. When present stock is depleted, however, they will be no longer available (NLA) and the Reference Electrode Assembly (C-76675A1), used in conjunction with VOA Meter (C-91-62562A1), will replace them.*

Pick up additional accessory profits by showing and selling your customers on the extraordinary benefits provided by MerCathode System C-66632A3 -- They'll thank you for it.