6 Maintenance Procedures

Cleaning procedure cont'd

- Remove front clean-out cover (Fig. 10).
- Remove the hexhead bolts and remove the clean-out port.
- Inspect tank interior and clean if necessary.

**NOTE:** Never break up the calcified deposits with a sharp object as it may damage the thermoglaze tank coating.

If cleaning of the coil is needed, fire the boiler and operate the tank charging pump until the coil is very hot. Now, spray cold water directly on the coil with a hose through the clean-out port. Repeat until all scale deposits are removed from the coil.

- Flush debris through the drain or remove through the clean-out port.
- Reinstall the clean-out port after cleaning. Replace gasket if necessary.

**NOTE:** Hand tighten hexhead bolts. Turn bolts 3/4 turn with a wrench (recommended torque: 30 ft-lb).

- Check the inspection port and magnesium rod for leaks.
- Reinstall inspection port insulation and cover.
- Place the system into operation.

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**Magnesium Anode Rod**

**Testing and Changing-out of the Magnesium Anode Rod**

1. **General Information**
   Magnesium anode rods must be visibly inspected at least every 2 years. Buderus Hydronic Systems, Inc. recommends an additional annual inspection using an anode tester by measuring the protective current. In contrast to the visual inspection, the use of the anode tester or a high-quality multi-meter does not require shutting down and draining the tank and removing the magnesium anode.

   Replace the magnesium anode rod if its diameter is less than 1/2" to 3/4" (original diameter = 1 1/4"). The rod removal process differs slightly for different tank models. (Options 1-3). Sectional chain-linked magnesium anodes are available for anodes listed under option 2 (See Fig. 11 and page 12). These chain-linked anodes are useful in low ceiling applications.

2. **Testing with anode tester or quality multi-meter**
   The battery-operated tester must be checked first to ensure operational readiness. The red LED must light up if the tester is turned on without being connected (less than .1 mA). Replace the battery if the light is dim. Perform the test with the anode tester or high-quality multi-meter. Follow the outlined procedure:

   1. Remove one side of the grounding lead on the tank.
   2. Set multi-meter (MM) to DcmA (milliamps).
   3. Connect black wire of MM or anode tester to grounding cable or bolt.
   4. Connect red cable of MM or anode tester to the anode.
   5. Ensure clean metallic surfaces for terminal connections.
   6. The tank must be filled with water during the test.
   7. A reading between .3 mA and 10 mA on the MM is good.
   8. Record readings each year in the Table.

   The protective function of the magnesium anode is guaranteed when one of the three green LED illuminates. A red LED indicates either an improperly installed anode rod which is shorted to the tank or a degraded anode rod. Visually check the rod, check the rod for proper installation and replace if necessary. Replace the magnesium anode rod if the diameter is less than 1/2" to 3/4". Properly reconnect the grounding cable after each test (Fig. 12).

   **Record the test date and sign off in the Table below**

<table>
<thead>
<tr>
<th>Date</th>
<th>mA Reading</th>
<th>Service Company/Signature</th>
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7 Magnesium Anode Rod

Anode Mounting Options

Option 1: Threaded 1 1/4" Design
Tank Models: SEN/SED 140-600 and ST/H/B/R 200-600 (Fig. 13).

Assembly Sequence:
1. Remove tank cover and insulation.
2. Loosen grounding cable from magnesium anode rod.
3. Unscrew the rod with a wrench and remove.
4. Wrap teflon tape around the threads of the replacement rod.
5. Install new rod and secure grounding cable.
6. Test for water tightness.
7. Install insulation and tank cover.

Note: The magnesium rod can also be installed into a removed clean-out cover. Check the rubber seal for degradation and replace if necessary.

Fig. 13

Option 2: Threaded Anode Rod Design with Lock Nut
Tank Models: ST/SE/SF/TT/LT/L/S150-300/SU300 (Fig. 14).

Assembly Sequence:
1. Remove tank cover and insulation.
2. Loosen grounding cable from magnesium anode rod.
3. Unscrew the nuts from the clean-out cover.
4. Remove clean-out cover and anode rod.
5. Replace used anode with new anode according to Fig. 14.
6. Replace sealing gasket for clean-out cover if necessary.
7. Install clean-out cover and anode; tighten nuts about 3/4 turn.
8. Secure grounding cable.
9. Test for water tightness.
10. Install insulation and tank cover.

Note: Ensure proper placement of insulation and gasket.

Fig. 14

Option 3: External Thread 1" or 1 1/2" Anode Rods
Tank Models: S120/SU160-200 (Fig. 15)

Assembly Sequence:
1. Remove tank cover.
2. Unscrew magnesium rod.
3. Place 4 or 5 wraps of high density teflon on the new anode.
4. Install new anode and test for water tightness.
5. Install tank cover.

Note: This magnesium anode rod cannot be tested with the anode tester!

Fig. 15