

# Installation Manual

ST150, ST200, ST300



**Save These Instructions !**

The ST Series indirect-fired water heaters are factory assembled with the exception of the screw-on feet, piping accessories and relief valve (furnished and included in packaging) and a tank aquastat (not furnished) to be installed in the field.

This manual contains information regarding installation and maintenance of the ST Series indirect-fired water heaters, installation of its piping accessories and placement of aquastats or sensors for temperature control.

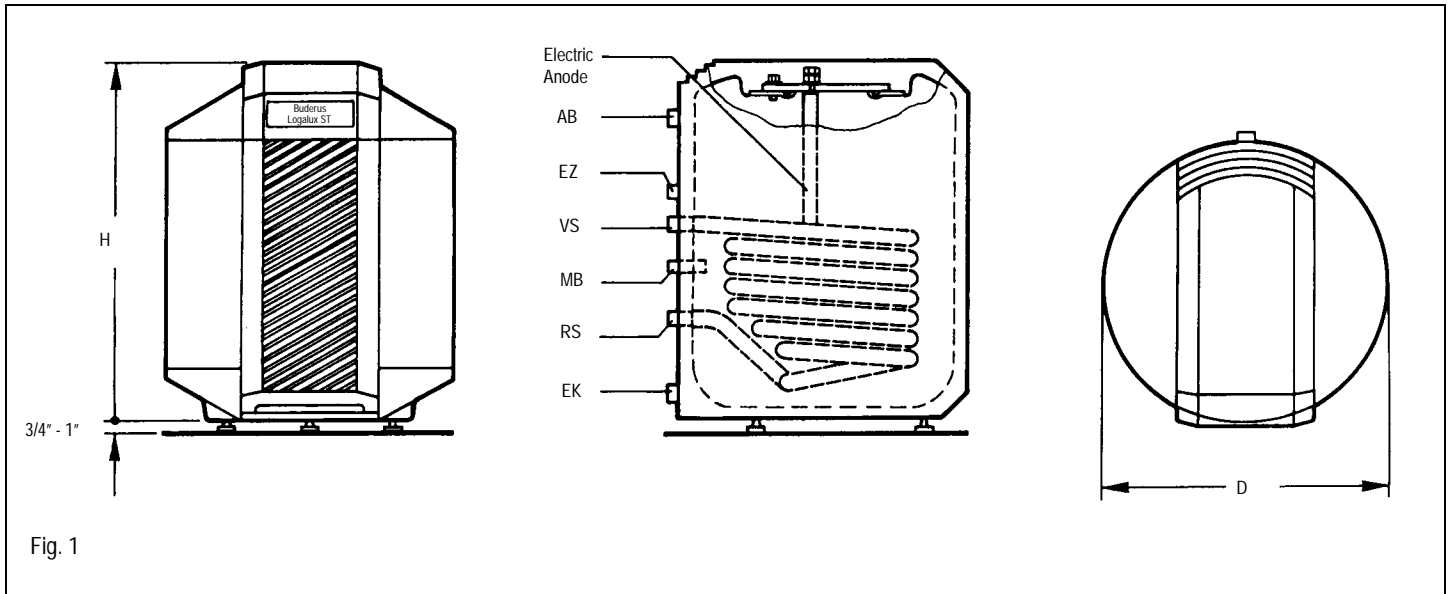
**NOTE:** This manual is for reference only. The manual does NOT attempt to address all design, installation and safety considerations. It is the responsibility of the installer to determine the applicability and safety of each individual application and ensure its compliance with local building codes.

It is expected that the installer is a licensed heating contractor with knowledge of accepted industry practices for the installation and maintenance of the equipment and various applications of the equipment involved.

**NOTE:** The ST Tank is equipped with a built-in electric anode rod. Keep the power supply (furnished) plugged into the control module for corrosion protection and warranty of the tank.

A flashing red light on the control module indicates improper operation of the electric anode rod. Check the states of the electric anode rod. A steady green light on the control module indicates proper operation of the electric anode rod. Resolve anode rod problems as soon as possible by contacting your Installer or Service company.

## 2 Technical Data and Tank Connections



Tank Model	D (In.)	Height (In.)	Weight (Lbs.)	Volume (Gal.)	AB	EZ	VS/RS	EK
ST150	27 <sup>1/4</sup>	34 <sup>3/4</sup>	245	40	1"	3/4"	1"/1"	1 <sup>1/4</sup> "
ST200	27 <sup>1/4</sup>	42 <sup>1/4</sup>	286	53	1"	3/4"	1"/1"	1 <sup>1/4</sup> "
ST300	27 <sup>1/4</sup>	57 <sup>3/4</sup>	371	79	1"	3/4"	1"/1"	1 <sup>1/4</sup> "

### KEY

- AB = DHW Outlet/Relief Valve connection
- EZ = DHW Recirculation return/Honeywell aquastat sensing point
- VS = Boiler water supply
- RS = Boiler water return
- EK = Cold water feed/drain connection
- MB = Immersion well for Ecomatic DHW sensor/SP30D sensor

The storage tank can be moved in the original packaging or unpacked and moved with a Buderus hand cart\* (Fig. 2).

\* must be ordered separately.

**NOTE:** *The tank can be moved using the carry hooks (supplied) and a screw-in pipe nipple (not supplied) (fig. 4).*

- Remove plastic film.
- Remove screw-on feet and other accessories from packaging.
- Remove tank top cover. Tilt tank and lay on its side on the packaging lid (Fig. 3).
- Remove tank cover and disconnect anode cable from IMP module located in tank cover (See Fig. 10).
- Remove bottom tank pallet.
- Screw the three feet into the tank bottom. Extend them 3/4" (fig. 3)..
- To carry tank, place the carry hooks over the two screw-in feet and lift up at the smaller thread of the tank feet (Fig. 4).
- Use a threaded nipple (not supplied) to lift the tank at the top clean-out cover (Fig. 4).
- Reconnect the anode cable to the IMP module (Fig. 10).
- Place tank cover on top of tank and secure with screws.

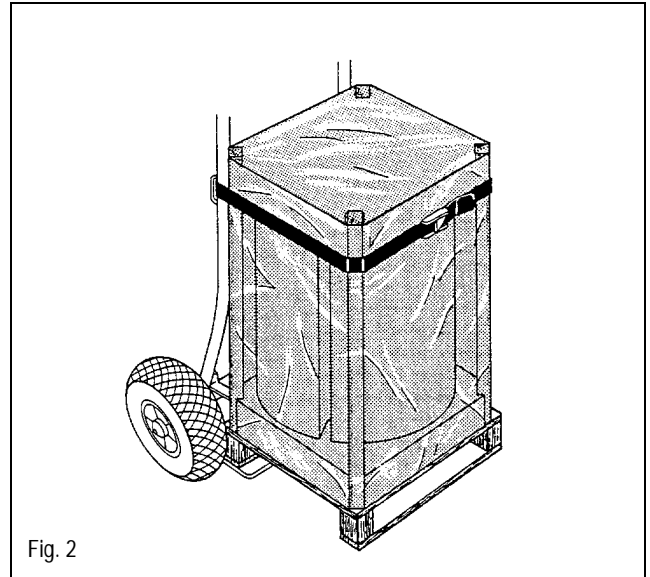


Fig. 2

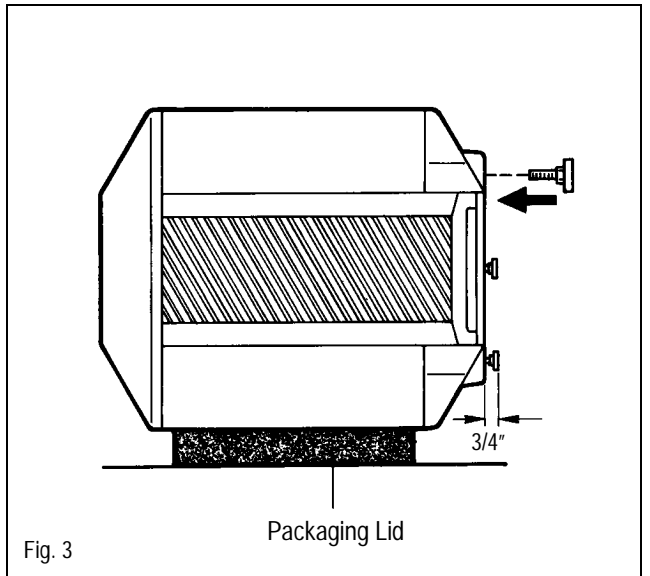


Fig. 3

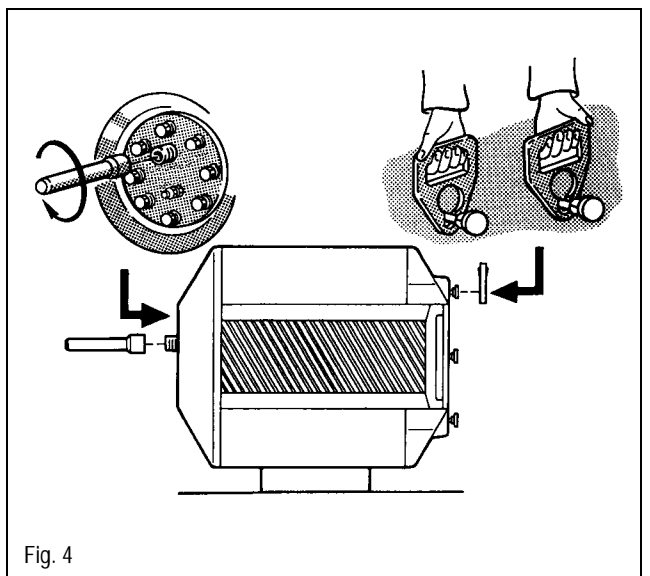


Fig. 4

### 3 Transportation and Placement

- Place the water heater on a level and sufficiently strong surface.
- Adjust the screw-in feet to level the tank (Fig. 5).
- The indirect fired tank must be placed indoors in a location kept at a minimum temperature of 32°F.
- Drain the tank if it is not used for an extended time period and a freezing condition could occur.
- Refer to recommended clearances for adequate access for piping, pumps and service (Fig. 6).

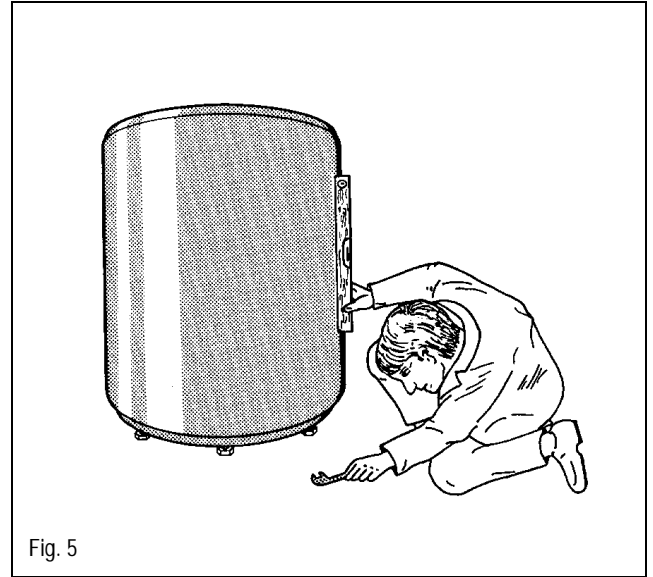


Fig. 5

**NOTE:** *Maintain 2" clearance between hot water piping and combustible surfaces.*

**NOTE:** *The tank can be installed on combustible surfaces provided the screw-in feet are used. Do not install on carpeting.*

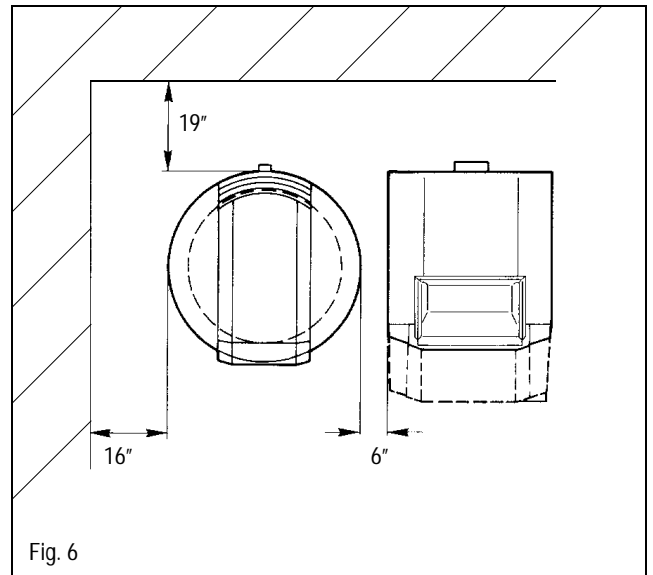


Fig. 6

The installation of the indirect-fired domestic hot water tank and all associated piping must be in accordance with all applicable codes and regulations. All work must be performed by a licensed contractor.

- Install an approved and properly sized pressure and temperature relief valve (Fig. 7).
- Pipe the P & T relief valve discharge pipe directly to a drain without any shutoff valves or restrictions. Maintain same size piping as on the P & T discharge.

**NOTE:** *It is advised to periodically check the operation of the P & T valve.*

- Installation of a properly sized thermal expansion tank on the domestic hot water line is required when a backflow preventer is installed on the cold water feed.

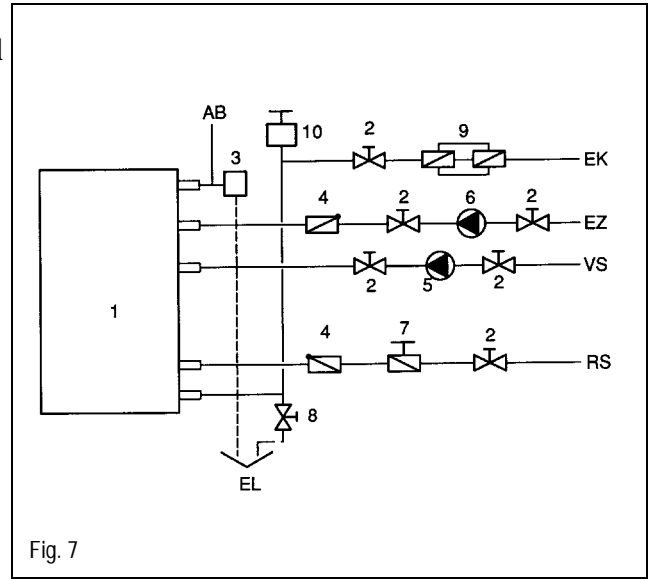


Fig. 7

1	Indirect-fired hot water tank
2	Service valve
3	P & T relief valve
4	Flow check
5	Tank charging pump
6	Optional recirc pump
7	Air purge valve
8	Drain valve
9	Backflow preventer
10	Vacuum relief

### Tank safety limits:

Heating water temperature:	max 160°C (320°F)
Heating water oper. pressure:	max 25 bar (362 psi)
DHW temperature:	max 95°C (203°F)
DHW oper. pressure:	max 10 bar (145 psi)*
	<i>* 100 psi max in Massachusetts</i>

### Installation of furnished accessories

**NOTE:** *All tank tappings are metric, the supplied accessories permit conversion to NPT piping. Follow instructions supplied with the tank fittings for sealing of all tank connections.*

**Cold feed/drain:** Install the fittings per enclosed instruction sheet.

**Boiler supply/return:** Use 1" x 1" couplings.

**Recirculation tapping:** Use 3/4" x 3/4" coupling.

This tapping can be used for several purposes.

**Option 1:** DHW recirculation. Pipe DHW recirc line to this tapping. If not used, install 3/4" brass plug (not furnished).

## 4 Installation

**Option 2:** A Honeywell L4006 aquastat (not furnished) or equivalent can be used by installing the furnished well into the 3/4" coupling. A recirculation line is now to be piped into the cold feed/drain connection external to the tank.

**DHW outlet:** Install the fittings per enclosed instruction sheet.

Install the P & T valve in a 3/4" tapping of a tee at the DHW outlet.

### Installation of temperature sensor/aquastat

**NOTE:** *The ST Series tanks are NOT supplied with an aquastat or temperature control. Guidelines below indicate proper installation procedures for different temperature controls. Buderus Hydronic Systems, Inc. can provide the Ecomatic DHW or SP30D controls.*

#### Case 1: Buderus Ecomatic DHW control

- Fully insert the Ecomatic DHW sensor together with spacers and compensating spring into the immersion well (MB) (Fig. 8).
- Slide the fastening clip on the head of the immersion well (Fig. 9).

#### Case 2: Goldline SP30D priority DHW control

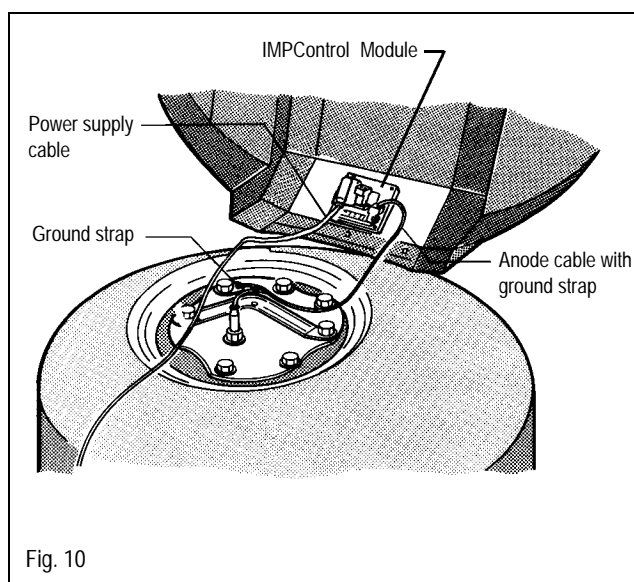
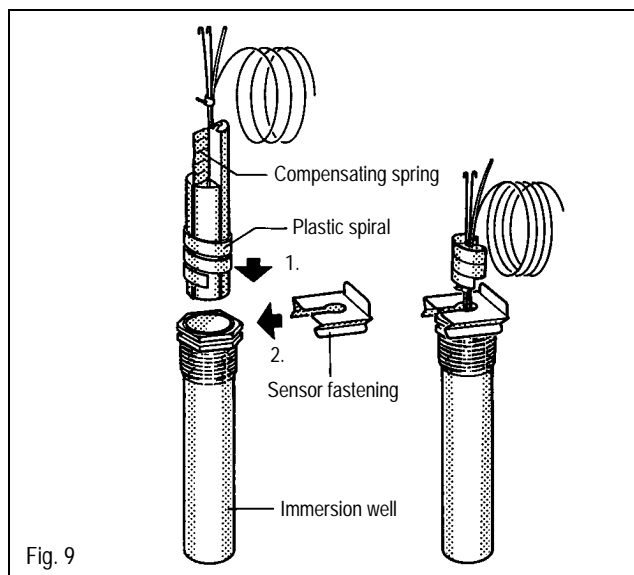
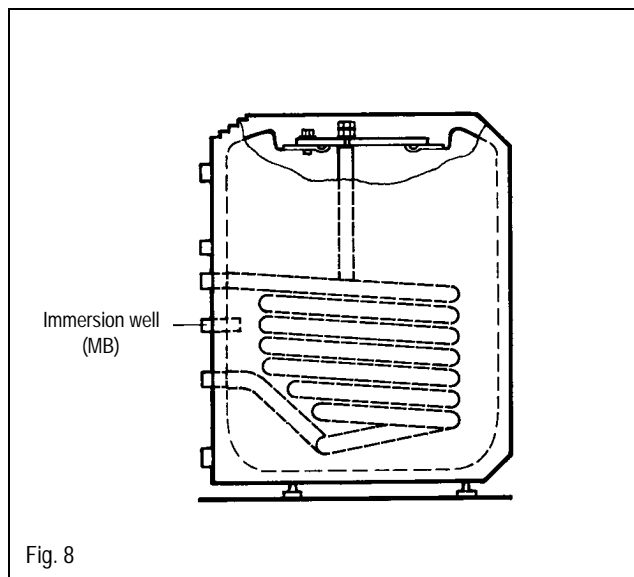
- Fully insert the SP30D probe together with the furnished spacers and compensating spring into the immersion well (MB) (Fig. 8).
- Mount the Goldline SP30D remotely. The probe leads can be extended with 18 gauge wire.

#### Case 3: Honeywell L4006A aquastat (or equivalent) control

- Install the furnished Honeywell immersion well into the 3/4" coupling installed on the recirculation tapping (EZ).
- Mount a L4006A or equivalent to this immersion well.

### Electric anode rod

- Plug the furnished power supply into a nearby 120V outlet and connect the lead to the IMP control module (Fig. 10).
- Verify that the white plug is attached to the control module; the lead labeled "ground" connects to the electric anode, the other lead connects to ground on a tank bolt.



- Prior to initial start-up, verify that the indirect-fired water heater is filled with water and that cold water can flow into the tank.
- Check all pipes and connections for leaks.
- Verify that the electric anode rod is connected and functions properly.

The electric anode rod protects the tank from corrosion. A green light signals proper operation of the electric anode rod. A blinking red light indicates improper functioning of the anode.

Ensure continuous supply of electricity to the IMP control module for corrosion protection. Do not damage the surface of the anode rod, and maintain its surface free of oil and grease. In case of a blinking red light, check:

- all wiring connections.
- status of electric anode rod.
- contact your installer or service company to rectify the problem.
- Verify proper operation of tank operating controls (furnished separately).

**NOTE:**

*The installation must initially be put into operation by the installing contractor in the presence of the owner of the installation.*



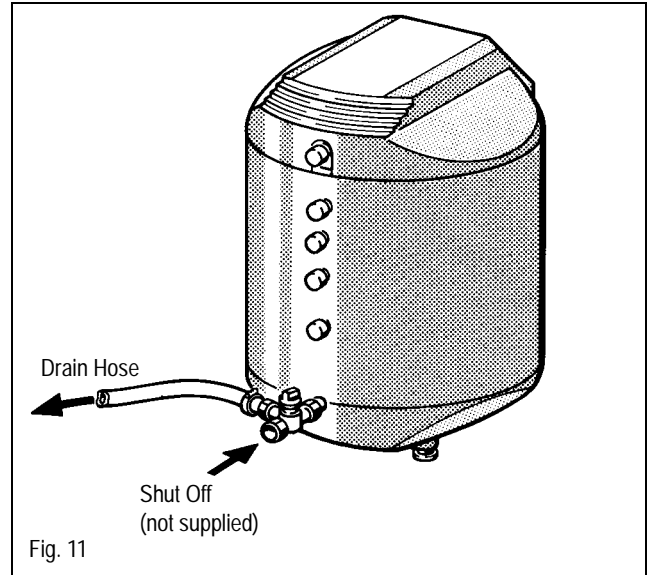
# 6 Maintenance Procedures

## Recommendations

**NOTE:** *The indirect-fired water heater may only be filled with drinking water, unless there is a written agreement to the contrary.*

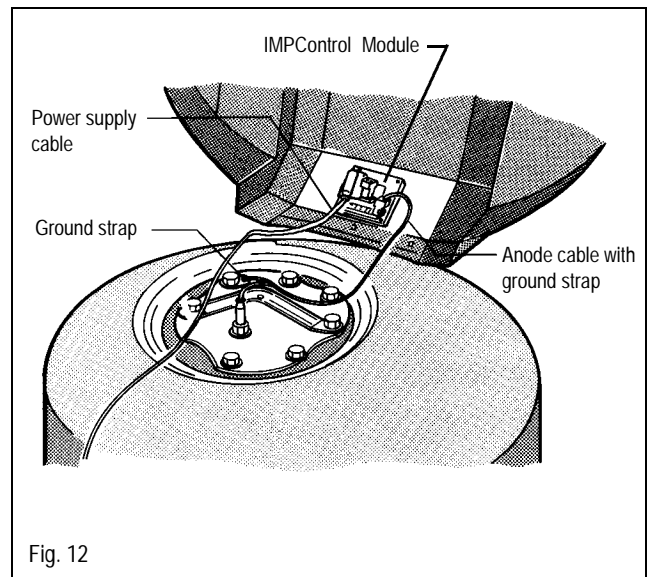
It is recommended that a licensed contractor or maintenance company checks and cleans the indirect-fired water heater at least once every 2 years.

For unfavorable water conditions (hard or very hard), extreme high usage and/or high temperature load, more frequent inspections and cleanings may be necessary.



## Tank Cleaning Procedure

- Shut off the power to the heating installation before cleaning.
- Shut off the cold water feed, open the tank drain. To vent air, open a faucet at a higher location.
- Drain the tank and remove the tank top cover and insulation (Fig. 11).
- Disconnect the white plug and power lead from the IMP control module.
- Unscrew the hexagonal head bolts from the inspection port lid (Fig. 12).



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

**NOTE:** *Do not damage the surface of the electric anode rod and ensure an oil or grease free surface.*

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.
- Reinstall the electric anode and the inspection port cover after cleaning. Replace gasket if necessary.

**NOTE:** *Recommended torque for anode rod: 5ft-lb.*

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

- Check the inspection port and electric anode rod for leaks.
- Reconnect white plug and power lead to the IMP control module.
- Reinstall inspection port insulation and cover.
- Secure tank cover with 4 sheet metal screws.
- Place the system into operation.