# HEATEC TEC-NOTE

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# MAINTENANCE

## HFP SERIES HEAVY FUEL PREHEATERS

This document provides step-by-step instructions for maintenance of HFP series preheaters. HFP models are heated by thermal fluid. These instructions are intended for use by qualified asphalt plant operators and maintenance personnel. Such persons are familiar with the burn hazards of working with thermal fluids heated to temperatures in excess of 300 degrees F.

### Lubricate thermal fluid inlet valve—monthly

The thermal fluid inlet valve *(I, Fig. 3)* has a button-head fitting for lubricant/sealant *(Fig. 1)*. This fitting can also be removed for inserting sticks of lubricant/sealant. Use Resun 104 or 104G sealant.

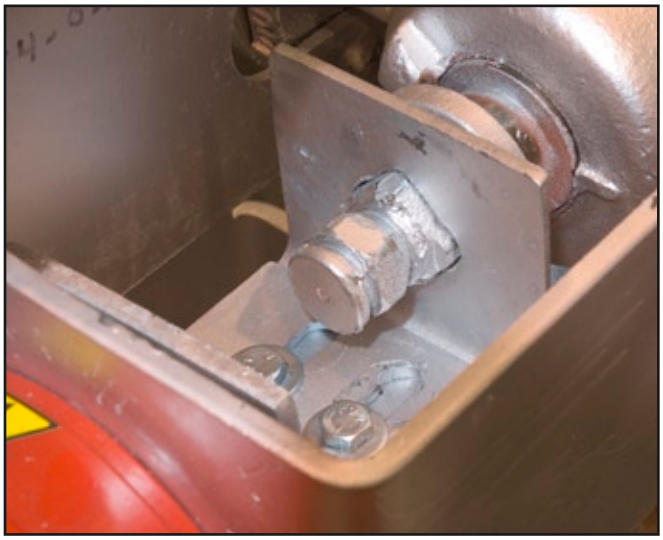


Figure 1. Button-head fitting for lubricant/sealant on thermal fluid inlet valve.

### Clean shell and heating coil assembly—yearly

1. Shut down preheater and shut off all electrical power to it.
2. Close the bypass valves to isolate the preheater from the thermal fluid circuit.
3. Close the fuel shutoff valves to and from the preheater.
4. Let preheater cool down so it is safe to touch.
5. When the preheater has cooled down, drain fuel from fuel drain *(Q, Fig. 3)*. The preheater can contain up to 54 gallons of fuel. Drain into buckets or suitable containers. Put drained fuel back into fuel tank.
6. Drain thermal fluid from thermal fluid drain pipe *(N, Fig.3)*. The prehater can contain up to 5 gallons of thermal fluid. Drain into bucket or suitable container.

   To avoid contamination of the sytem thermal fluid, return the drained fluid back into the system only if it is absolutely clean. If not, drain it into the heavy fuel tank so it will mix with the heavy fuel and be burned.
7. Remove the thermal fluid inlet pipe and outlet pipe *(J and L, Fig. 3)*.
8. Remove and discard all gaskets from thermal fluid inlet and outlet pipe flange connections.
9. Un-bolt heating coil assembly flange. Use the lifting lug on the flange to remove heating coil assembly *(Fig. 2)*.

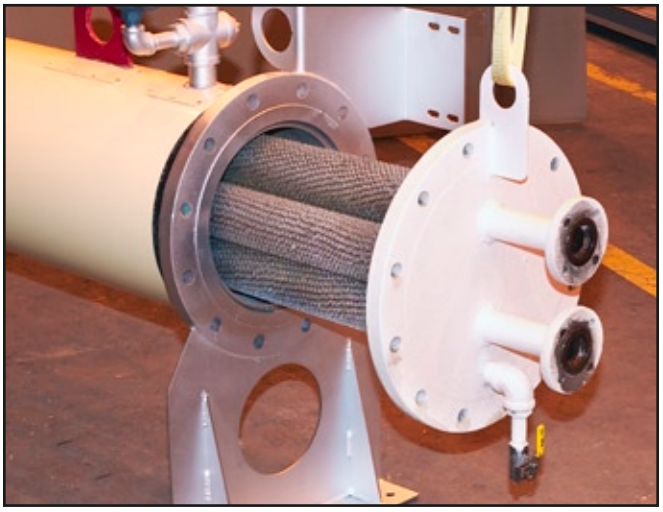
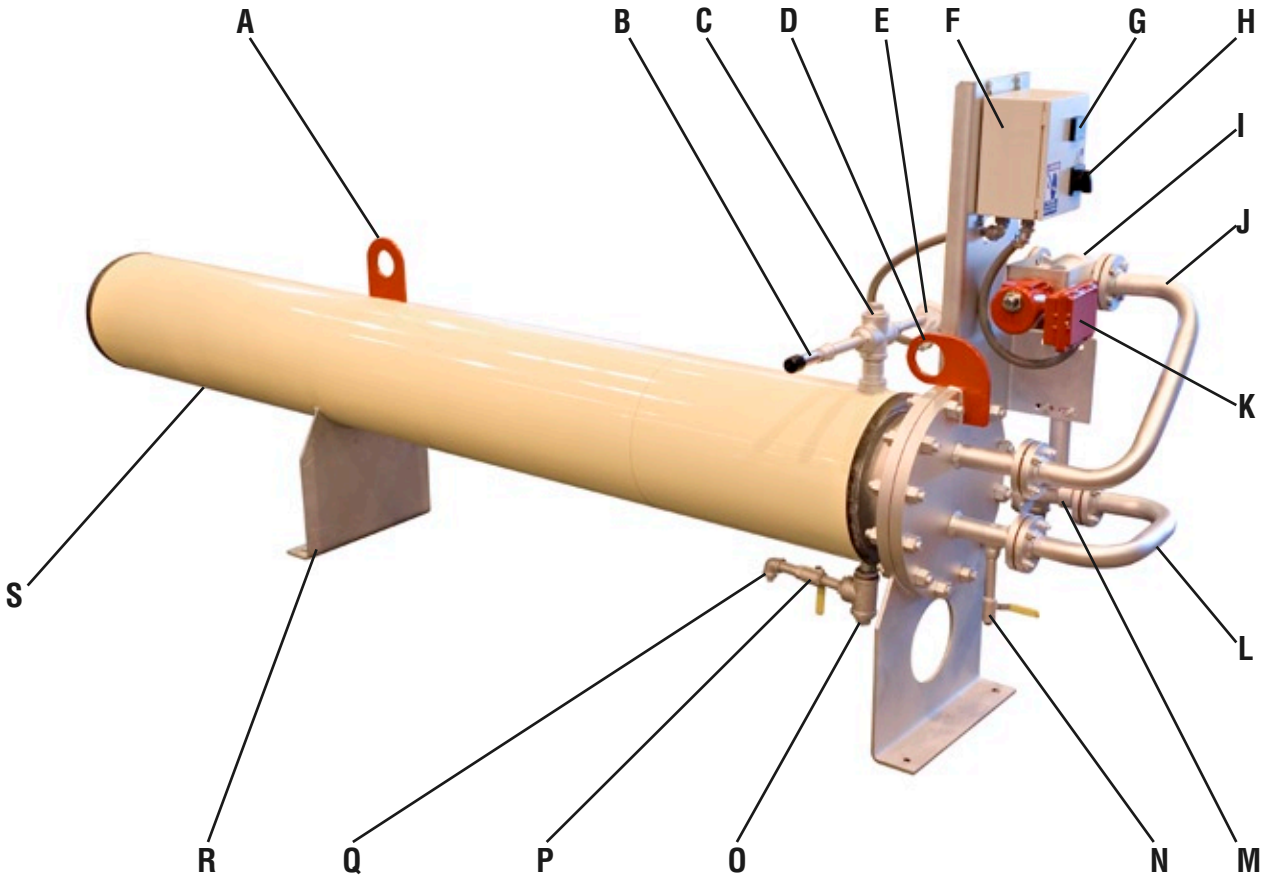


Figure 2. Removing heating coil assembly.

10. Remove and discard the gasket from the 12-inch flanges.
11. Clean heating coil assembly and inside of preheater shell with steam washer. Avoid contaminating ground with fuel residues.
12. Use mechanical tools to remove any remaining hard deposits not removed by steam.




A. Lifting lug
B. Pressure relief valve
C. Fuel outlet
D. Lifting lug
E. Thermocouple
F. Control panel
G. Controller
H. Power switch
I. Thermal fluid inlet valve
J. Thermal fluid inlet pipe
K. Modulating actuator
L. Thermal fluid outlet pipe
M. Thermal fluid outlet
N. Thermal fluid drain valve
O. Fuel inlet
P. Fuel drain shutoff valve
Q. Fuel drain pipe
R. Saddle
S. Shell

Figure 3. Major components of HFP series fuel preheater.

13. Reinstall heating coil assembly (Fig. 2), using new gasket and old 7/8-inch studs and nuts. Lubricate stud threads and tighten nuts to a torque of 400 ft-lbs according to Figures 4 and 5. **Do not use an impact wrench.**

14. Reinstall thermal fluid inlet and outlet pipes (J and L, Fig. 3), using new gaskets and old 1/2-inch bolts and nuts. Lubricate bolt threads and tighten nuts to a torque of 55 ft-lbs according to Figures 5 and 6. **Do not use an impact wrench.**

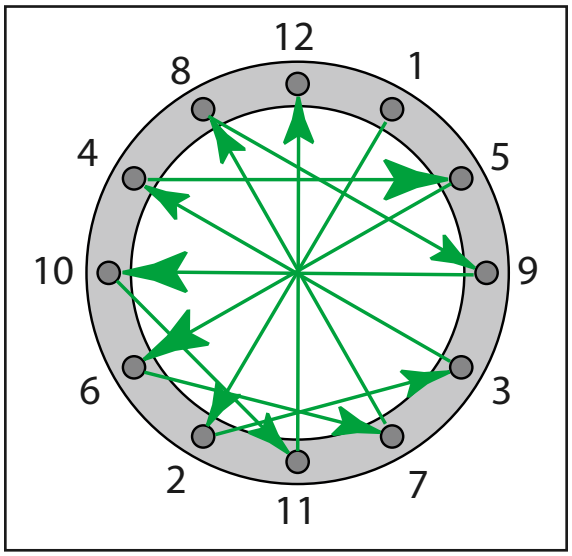



Figure 4. Tightening pattern of 7/8-inch nuts for heating coil assembly flange.

| Figure 5. Tightening procedure. | |
|---|---|
| Pass | Torque |
| 1. | 1/3 of final torque. Start at bolt number 1 and follow cross pattern |
| 2. | 2/3 of final torque following cross pattern. |
| 3. | At final torque following cross pattern |
| 4. | At final torque. Start at highest bolt number and tighten in a counterclockwise sequence. |

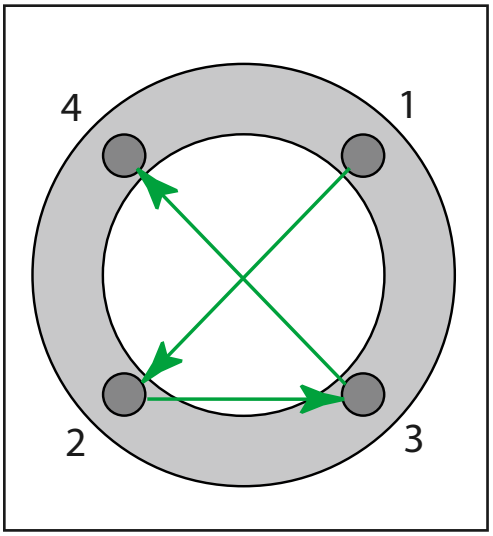



Figure 6. Tightening pattern of 1/2-inch nuts for thermal fluid inlet and outlet pipe flanges