9.5.5 Nozzle Line Assembly Cleaning

How often?
Once per year or if the nozzle becomes blocked with debris (if blocked, a higher operating fuel pressure will be seen on the pump pressure gauge).

Tools Required:
7/16 in., 1/2 in., 3/4 in. and 17mm (boxed end/12-pt.) wrenches, 5/8 in. socket/ratchet, 5/8 in. wrench, 1/4 in. nut driver, hex wrench, vise, flat-blade screwdriver, small wire brush or pipe cleaner (from optional maintenance accessory brush kit), parts washer fluid, shop air gun, safety glasses, rubber gloves.

Replacement Parts:
Nozzle O-ring (PN 20213152) or Nozzle (PN 20210123 for EL140/200, 20210124 for EL340)

⚠ DANGER *Personally verify that the main power is turned off and locked out at the circuit breaker.*

Procedure - All Models (Refer to figures 54 - 59):

1. Wear all safety equipment.

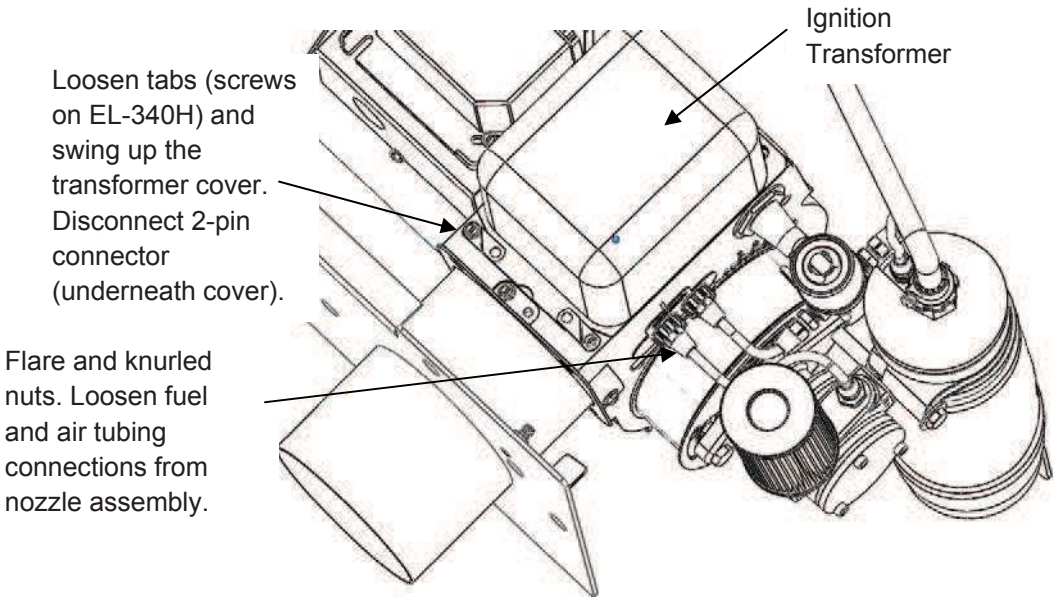

Figure 54 Disconnecting Nozzle Block

2. Remove the preheater and burner from the furnace (refer to previous sections).
3. Using a 7/16" wrench, disconnect the fuel and air tubing from the Nozzle Block.
4. Using a 17mm boxed-end/12-pt.wrench, remove the knurled nuts from the Nozzle Block (refer to figure 54).
5. Using a flat-blade screwdriver, loosen the Ignition Transformer screws. Rotate tabs out of the way and lift the Ignition Transformer back on its hinge.

6. Disconnect nozzle heater Two-Pin Connector.

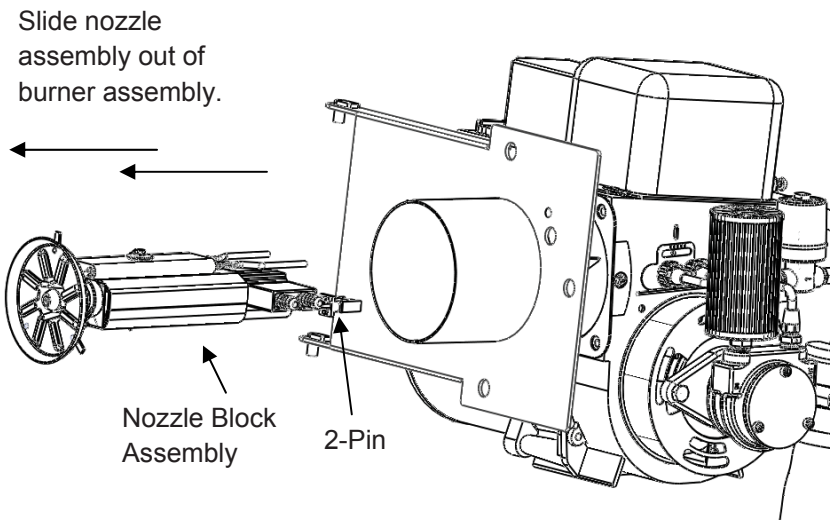

Figure 55 Removing Nozzle Block

7. Slide Nozzle Block Assembly out through the air tube.

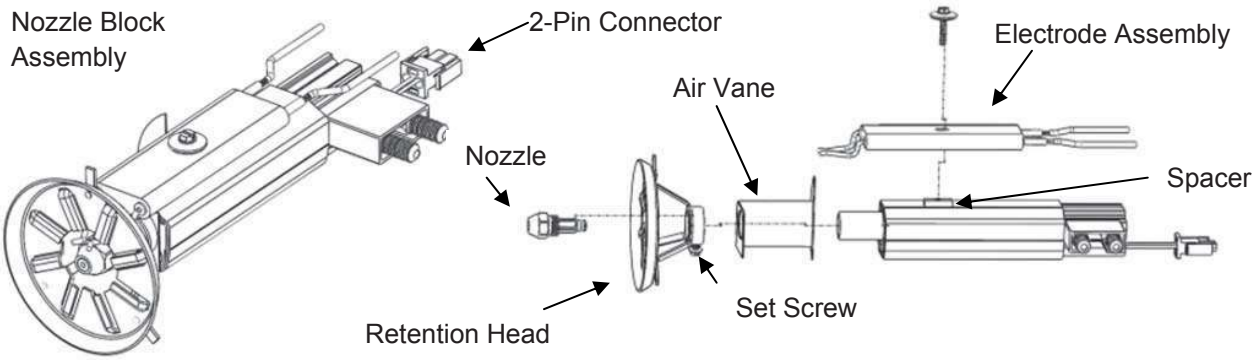

Figure 56 Disassemble Nozzle Block

8. Unscrew the Electrode Screw and remove the Electrode from the Nozzle Assembly.
9. Inspect the electrode wire for excessive wear and the porcelain for cracks - replace as necessary.

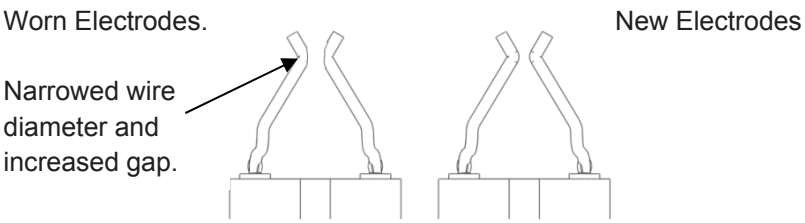

Figure 57 Inspect Electrodes for Wear

10. Remove the Retention Head by loosening the collar set screw.
11. Slide the Air Vane off the Nozzle Line Assembly.
12. Using a 5/8 in. socket/ratchet, remove the Nozzle from the Nozzle Block Assembly.

13. Using a pair of pliers and a towel, gently clamp the stem of the Nozzle (a small spinner is loosely contained inside the Nozzle) and spin (counter-clockwise) the cap from the stem. *Skip steps13-17 if installing new nozzle.
14. Clean all the parts with parts washing fluid.
15. Replace the stem o-ring.
16. Holding the stem vertically, place the spinner on top of the stem. Then, thread the nozzle Cap onto the stem.
17. Tighten the nozzle Cap to the stem.

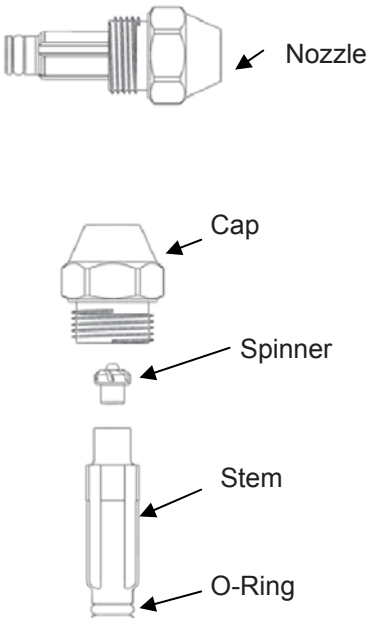

Figure 59 Disassemble Nozzle

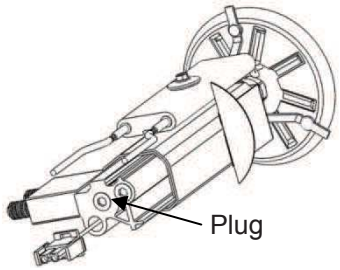

Figure 58 Passage Plug

18. The passage through the nozzle block for the nozzle has a plug at the opposite end of the nozzle which must be removed for complete cleaning of the Passage - use thread sealer during reinstallation (refer to figure 59).
19. ***IMPORTANT!***—Being careful not to apply parts washer fluid to the heater wiring harness, clean the nozzle passage of the Nozzle Block. Make sure parts are clean and dry prior to reassembly.
20. Refer to the following section (9.5.6) for Flame Retention Head and Electrode Settings and reassemble the Nozzle Line Assembly. **CAUTION** Be sure to re-install the air vane (shown in figure 56) in the proper location – opposite side of bulkhead fitting). Failure to install this component properly will result in an off-center flame, which may damage the heat exchanger and void the heat exchanger warranty.
21. **⚠ WARNING** Make sure to perform start up (8.4.3) and system checks (8.4.4) after every maintenance cycle. Record the checks, maintenance performed, and gauge readings in the maintenance log.