

Replacement Burner Assemblies for Models RA/RAD

Sizes 110/140/235 - P/N's 123918 and 123919
 Size 350 - P/N's 148253 and 148254

WARNING: Do not install these burner assemblies on any equipment other than Reznor Models RA/RAD 110/140/235/350

Description/Application

These burner assemblies are designed to assist the service person when servicing Reznor Model RA/RAD 110/140/235/350 waste oil heaters. By using this replacement burner assembly, the complete burner in need of service may be removed and replaced with this assembly. The capability of changing the complete burner assembly provides a dual benefit -- (1) the heater will continue to provide waste oil disposal and heat for the owner and (2) the required service may be performed in a more convenient surrounding.

Sizes 110/140/235 - Because there are Models RA/RAD 140/235 in the field with two different types of compressors, there are two types of replacement burner assemblies. **P/N 123918** is a complete burner assembly including burner motor for use on heaters with a piston air compressor. **P/N 123919** is a replacement burner assembly less the burner motor. This assembly is designed to be used when servicing a heater with a rotary vane compressor. The integral burner/rotary vane compressor motor must be transferred from the burner being serviced to the replacement assembly. The replacement assembly less the burner may also be used on a unit with a piston air compressor by transferring the burner motor.

Size 350 - P/N 148253 is a complete replacement burner assembly that can be transferred to the heater requiring service. **P/N 148254** is a replacement burner assembly less the burner motor. When using this replacement assembly, remove the burner motor from the burner being removed for service and install it in the replacement assembly.

These instructions apply to burner assemblies with or without a burner motor.

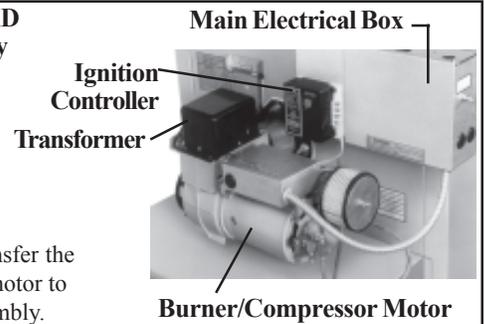
Instructions for Removing the Existing Burner and Installing the Replacement Assembly

1. Remove the Existing Burner

Disconnect the Wiring

- 1) Turn off the power to the heater at the manual disconnect switch located on the side of the main electrical box.
- 2) Locate the two yellow wires that go from the burner to the ignition controller. Disconnect these wires at the terminals marked FF (or F1-F2) on the ignition controller.
- 3) The new burner assembly is factory-wired; all field connections are at the main electrical box. Open the access cover to the main electrical box. Locate and disconnect the following wires coming from the burner junction box:
 - a) **Terminal 1** - remove yellow wire (comes from burner junction box Terminal 18)
 - b) **Terminal 8** - remove blue wire (comes from burner junction box Terminal 19)
 - c) **Terminal 2** - remove white wire (comes from burner junction box Terminal 11)
 - d) **Terminal 3** - remove black wire (comes from burner junction box Terminal 16)

Figure 1 - Models RA/RAD 110/140/235 with a rotary vane compressor



Kit Application - Figure 1

- Use Replacement Burner Assembly P/N 123919. Transfer the unified burner/compressor motor to the replacement burner assembly.

Figure 2A - Models RA/RAD 110/140/235/350 with a factory-installed piston air compressor

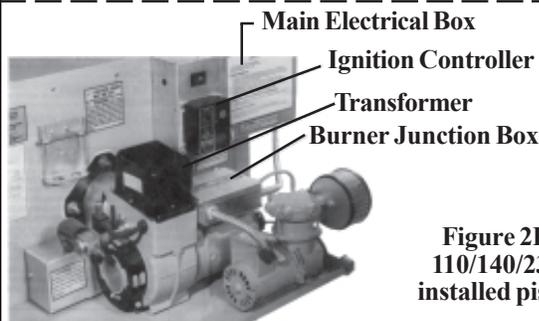
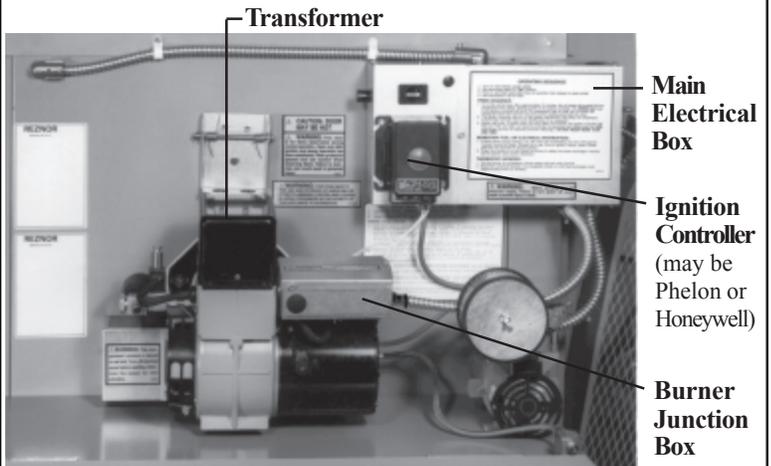


Figure 2B - Models RA/RAD 110/140/235 may have a field-installed piston air compressor as illustrated here

Kit Application - Figures 2A and 2B

Use either the kit with or without the burner motor. If the kit without the motor is used, transfer the motor to the burner being used. Use only the kit designed for the size of heater being serviced.

Size	Kit with Motor	Kit without Motor
110	P/N 123918	P/N 123919
140	P/N 123918	P/N 123919
235	P/N 123918	P/N 123919
350	P/N 148253	P/N 148254

Disconnect the Wiring (cont'd)

- e. **Terminal 19** - remove orange wire (comes from burner junction box Terminal 13)
 - f. **Terminal 7** - remove red wire (comes from burner junction box Terminal 12)
- 4) Where the disconnected wires enter the main electrical box, remove the retaining nut from the BX connector. Detach the connector and the BX cable assembly from the main electrical box. The burner assembly is no longer wired to the main electrical box.

NOTICE: If your heater was field retrofit with a "Quiet Air Compressor" (as illustrated in Figure 2B), do the following before proceeding:

- Remove the burner junction box cover
- Inside the burner junction box, locate the BLACK and WHITE wires from the air compressor.
- Disconnect the BLACK wire from Terminal #13 and the WHITE wire from Terminal #11.
- Disconnect the air compressor BX cable assembly at the burner junction box.

Disconnect Fuel and Air Lines

- 1) Remove both pieces of rubber tubing from the air compressor outlet manifold.
- 2) Disconnect the flexible metal fuel line at the oil preheater inlet.

Remove Burner

If your heater was field retrofit with a "Quiet Air Compressor" (as illustrated in Figure 2B), remove the compressor from the service tray to allow enough clearance to remove the burner assembly.

- 1) Remove the three nuts that retain the burner to the heater.
- 2) Slide the burner from the studs and carefully carry it down to floor level.

2. Prepare Replacement Burner

All P/N 123919 and 123918 replacement burner assemblies (as originally shipped) are factory ready as a direct replacement for a burner on a Size 235. To use the burner on a Size 110 or 140, the nozzle and low fire baffle will need changed. If the replacement burner has been used previously, check to be sure that it has the correct components for the heater that is currently being serviced. A Size 350 replacement burner only applies to a Size 350 heater, so the nozzle should always be the one listed in Table 1. Select the parts needed from Table 1 below and follow the installation instructions.

Table 1 - Nozzle and Low Fire Baffle

RA/RAD	Nozzle	Low Fire Baffle
350	129382	None
235	102997	None
140	102997	107028
140-H*	107310	107028
110	107310	107028

*For altitude from 3001-7000 ft

Nozzle Replacement

- 1) **Remove the End Cone** - Remove the screws that hold the end cone to the burner tube.
- 2) **Replace Nozzle** (requires both a 1" and a 5/8" open end wrench) -
 - a) To prevent the fuel line assembly from twisting, use a 1" open end wrench to hold the nozzle adapter while removing the nozzle with a 5/8" open end wrench.
 - b) Replace the burner nozzle with the appropriate nozzle from Table 1. Before installing nozzle, lubricate the O-ring with **new** oil. Do not substitute nozzles. Substitution of nozzles could cause an operational problem and/or a safety hazard.
- 3) **Re-attach the End Cone** - Replace the end cone and secure with screws removed in Step 1).

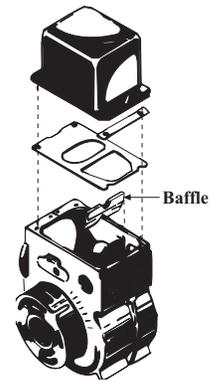
- 4) **Check Electrode Adjustment** - Refer to the heater Installation/Operation Manual, Form RZ 461 for Sizes 110/140/235 or RZ 464 for Size 350, for correct placement of electrodes.

Baffle Installation

Check Table 1 to see if a low firing rate baffle is required. If so, follow the installation instructions in Figure 3.

Figure 3 - Install Low Fire Baffle

- 1) Disconnect power source.
- 2) Open transformer.
- 3) Insert baffle firmly over front wall of internal wiring box as shown.
- 4) Close transformer.



A replacement burner that includes a motor is ready to install on the heater; skip down to Step 3, Install the Replacement Burner Assembly. If the replacement burner does not include a motor, follow the instructions below to complete preparation.

Special Preparation for Replacement Burner without a Motor

Remove the Burner (or Burner/Compressor) Motor

- 1) The BLACK and WHITE motor leads enter the burner junction box from the bottom. Locate these wires and disconnect them from Terminal #11 (WHITE) and Terminal #13 (BLACK).
- 2) Locate the two slotted hex head cap screws used to mount the motor (or motor and compressor) to the burner housing and remove.
- 3) Pull the motor (or motor and compressor) with the combustion air wheel attached out of the housing.

Install Motor on Replacement Burner

Install the motor on the burner assembly by reversing the steps above for removing the motor.

3. Install the Replacement Burner Assembly

- 1) **Attach burner.** With either a new gasket (P/N 103240) or with the old gasket intact, slide the burner on to the three studs on the rear of the heater. Tighten the nuts.
- 2) **Re-connect the fuel and air lines.**
 - a) At the oil preheater inlet, re-connect the flexible metal fuel line.
 - b) Re-attach the air lines to the compressor.
- 3) **Re-connect the wires in the main electrical box.** The burner assembly is equipped with a BX cable assembly that attaches to the main electrical box. Push the wires into the box and attach the cable connector. Follow the wiring diagram to make the connections in the main electrical box.
 - a) Yellow Wire from 18; connect to **Terminal 1**.
 - b) Blue Wire from 19; connect to **Terminal 8**.
 - c) White Wire from 11; connect to **Terminal 2**.
 - d) Black Wire from 16; connect to **Terminal 3**.
 - e) Orange Wire from 13; connect to **Terminal 19**.
 - f) Red wire from 12; connect to **Terminal 7**.
- 4) Re-attach the two yellow wires leading to the ignition controller.
- 5) Turn on the power at the manual disconnect switch located on the side of the main electrical box. **Wait approximately 15 minutes for the preheated oil to reach the temperature setpoint.** Observe the heater for proper operation.