

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment.



OPTION DJ HIGH ALTITUDE

REZNOR *Thomas&Betts*

INSTALLATION FORM RGM 464-HA

APPLIES TO:

Models RA/RAD 350

Option Description/Application

This field-installed option is designed to allow for the use of Model RA/RAD 350 used oil heaters at altitudes from 3001-7000 feet above sea level.

The option package includes:

Option No.	DJ1	
Option Package P/N	131808	
Applies to Elevation Range	3001-7000	
Qty	Description	P/N
1	Gear Pump Motor	131640
1	Motor Bracket	131632
4	Motor Mounting Screws	121338
1	Air Bleed Orifice (#70)	132349
1	Rating Plate Field Modification Label	131595
1	Remote Pump Label	131597
2	Wire Nuts	16354

Installation Requirements/Procedures

DANGER: This high altitude conversion kit should be installed by a qualified service agency in accordance with these instructions and in compliance with all codes and requirements of authorities having jurisdiction. Failure to follow instructions could result in death, serious injury, and/or property damage. The qualified agency performing this work assumes responsibility for this installation.

Model RA/RAD 350 used oil heaters are factory built for operation at sea level to 3000 ft elevation. In order to operate at elevations from 3000 to 7000 feet, the gear pump motor in the remote pump assembly and the air manifold orifice on the heater must be replaced with the components in the option package. **As original parts are removed, keep all hardware to be used in attaching new parts and re-assembly.** Parts removed may not be returned for credit.

Before beginning actual installation, re-verify that the kit selected is appropriate for the elevation. Follow the instructions closely to ensure safe and proper operation.

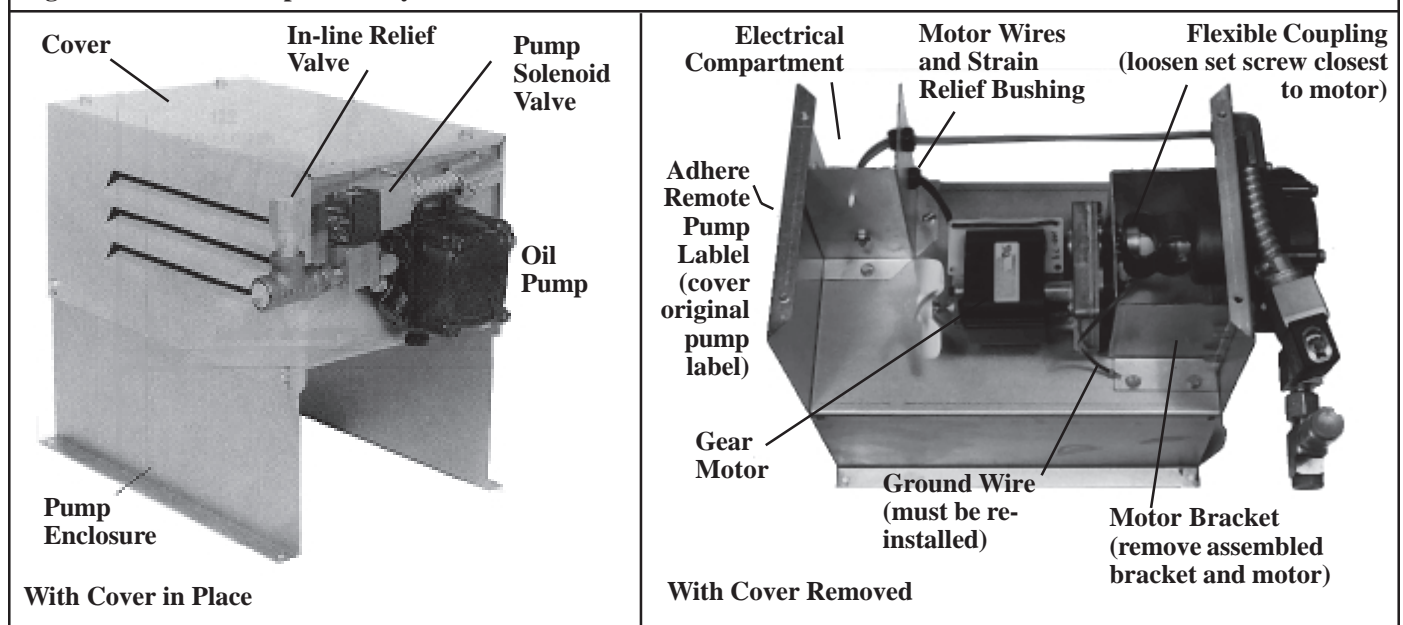
WARNING: This kit applies to Reznor® Model RA/RAD 350 only. Do not use this option package on any other heater models or at elevations outside of the specified range.

Installation Instructions

1. If the heater is installed, turn off the electrical power to both the remote pump and the heater.
2. **Remove the Factory-Installed Standard Gear Pump Motor**

Remove Remote Pump Assembly Cover - Remove the sheet metal screws that attach the remote pump assembly cover. Lift off the cover. See Figure 1.

Figure 1 - Remote Pump Assembly



Installation Instructions (cont'd)

2. Remove the Gear Pump Motor (cont'd)

Disconnect Wiring - Trace the gear pump motor leads through the bottom entrance hole of the divider into the electrical compartment of the pump enclosure. Disconnect the motor leads from the wire bundle (remove the wire nuts). Remove the strain relief bushing and pull the motor leads through the hole.

Remove the Motor and Bracket Assembly - The flexible coupling between the motor and the pump has two set screws. Using an allen wrench, loosen the set screw closest to the motor.

The motor is mounted on a bracket that is attached to the pump enclosure. Do not attempt to remove the motor from the bracket. Remove all of the screws, including the ground wire screw, that hold the **motor bracket** to the pump enclosure. Slide the motor shaft out of the coupling and remove the assembled motor and bracket.

Save the green ground wire. The motor can either be put in stock as a replacement part or discarded.

3. Assemble Motor, Bracket, and Ground Wire

Using the four screws 9#10-23 x 3/8" long, Phillips head with a lockwasher) furnished in the kit, attach the green ground wire and the new gear motor to the new bracket.

4. Install the High Altitude Gear Pump Motor and Bracket Assembly (Refer to Figure 1, page 1)

Attach the Motor/Bracket Assembly - Position the assembled motor and bracket carefully, sliding the motor shaft into the flexible coupling. **DO NOT TIGHTEN COUPLING SET SCREW.**

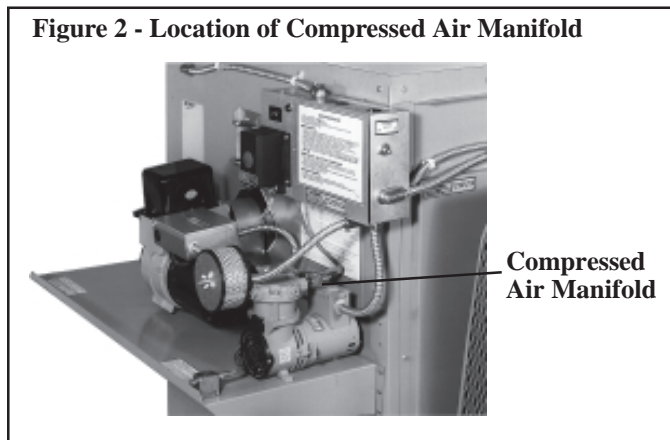
Attach the bracket to the pump enclosure by re-using the same hardware.

Apply LOCKTITE® 242 Threadlocker to the set screw and tighten to 60 in-lbs. (LOCKTITE® is a registered tradename of Locktite Corporation.)

Connect Wires - Insert the leads from the new motor through the bottom hole in the divider into the electrical compartment and re-install the strain relief bushing. Make the wire nut connections.

Replacement of the gear motor pump is now complete. Position the pump enclosure cover and secure it with the remaining sheet metal screws.

On the end of the pump enclosure locate the factory-installed pump label (See Figure 1). Wipe the surface with a clean, dry cloth. Affix the new high-altitude label so that it is covering the original label.



5. Change the Air Bleed Orifice

Mounted on the service tray is the air compressor with an integral manifold (See Figure 2). The manifold consists of a brass tee with two hose barbs and the air bleed orifice. Unscrew the orifice and discard. Install the #70 orifice furnished in the option package.

NOTE: Do not use either TEFLON® tape or sealant on orifice plug threads. (TEFLON® is a registered trade name of DuPont Chemical Corporation.)

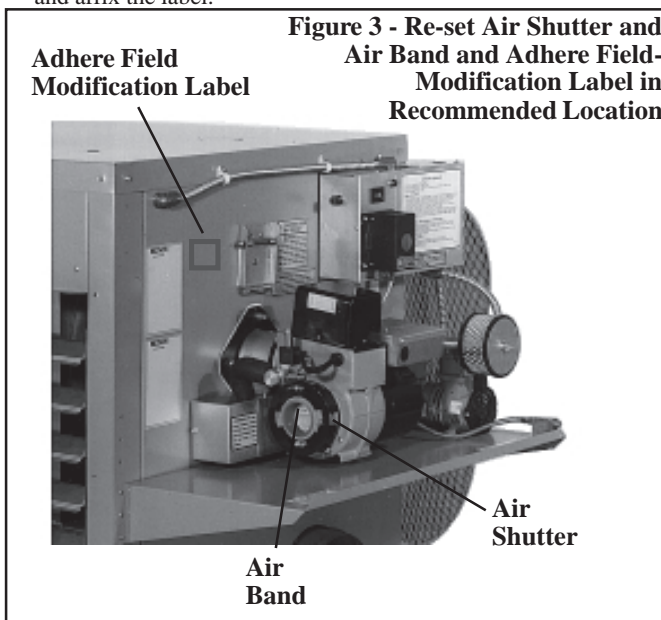
6. Re-Set Air Shutter and Air Band

Refer to Figure 3 and adjust the air shutter and air band to the settings listed in the following table. With a clean heat exchanger, these settings should result in the CO₂ range shown, a smoke rating of less than No 1 on the Bacharach smoke scale, and thermal efficiencies of approximately 80%. Follow the instructions in the "Start Up" Section of the heater manual to verify the results actually obtained. Measure CO₂ with a hot system (after unit has run about 20 minutes) with proper draft.

Model	Air Shutter	Air Band	CO ₂ Range
RAD/RAD350 with DJ1 for 3001-7000 feet elevation	#4	#2	11-1/2 - 12-1/2%

7. Affix Field Modification label

Refer to Figure 3 and determine the recommended location for this label. Be sure that the surface is clean and dry. Peel off the backing and affix the label.



8. Installation of the high altitude option package is complete. Follow the instructions in the manual supplied with the heater for installation and operation. If the heater is installed, re-connect the power and follow the start-up instructions in the manual. **CHECK FOR PROPER AND SAFE OPERATION.**

Elevation	3001-7000 Ft
Option	DJ1
Fuel Input	2.10 GPH
Heat Input	294,000 BTUH
Heat Output	235,000 BTUH