

Replacement Compressor Instructions

Replacement Kit for 230V Air Compressor on Models RA500 and RAD500

Applies to Models RA/RAD 500 manufactured prior to 1/20/2005

Description/ Application



The original 230V air compressor installed on used oil Model RA500 and Model RAD500 manufactured prior to 1/20/2005 is no longer available. Replacement Kit P/N 258223 includes a replacement 230V air compressor and other required parts. This installation should be done by a qualified service technician.

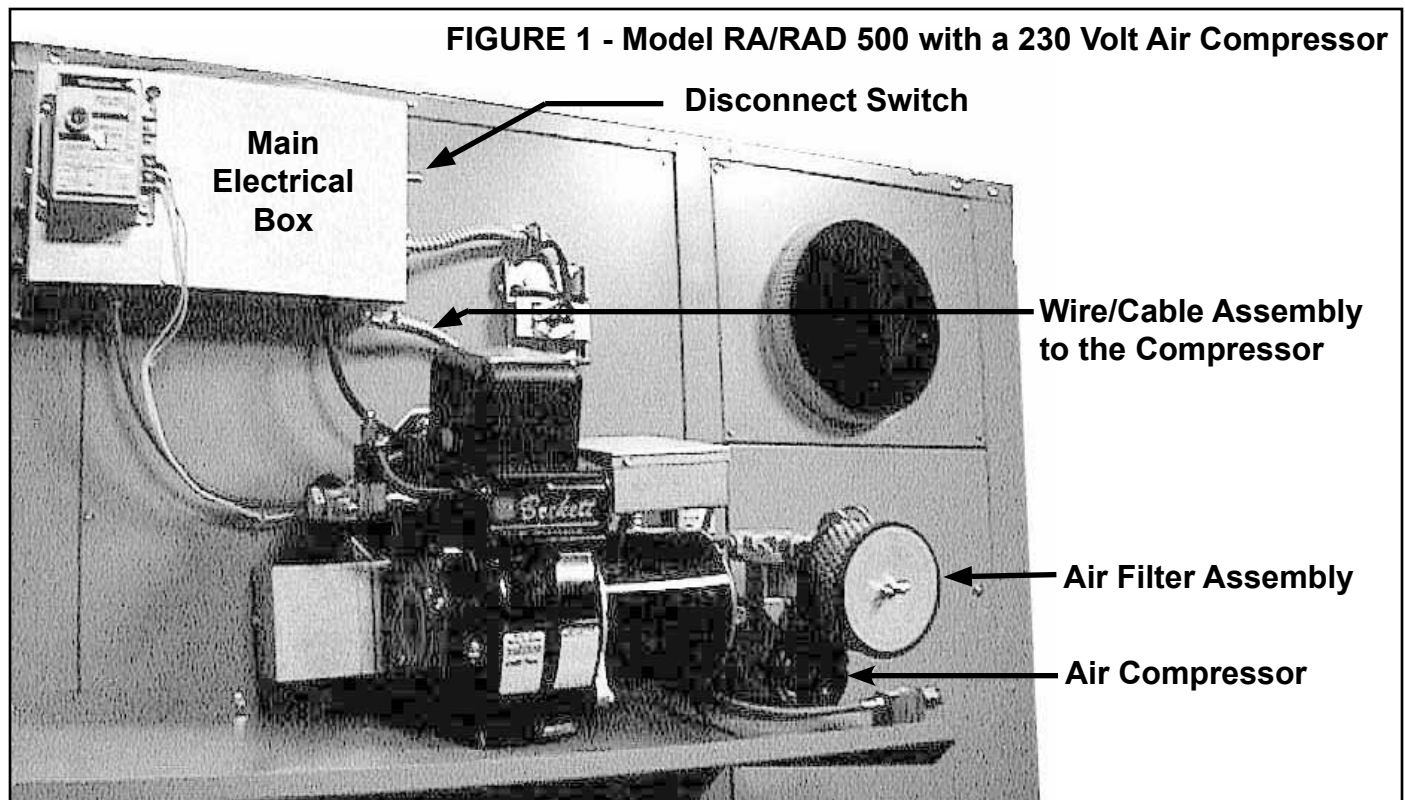
Components - Kit P/N 258223

Qty	P/N	Description
1	258222	Air Compressor, 230 volt, Gast 71R152 with modified Electrical Cover
2	36563	BX Connector T& B #266, 90°
2	16358	Anti Short Bushing
1	2873	3/8 BX Cable, 22" long
1	258305	Black Wire Assy 18 ga, 34" lg, 105°C with 90° terminal
1	258306	White Wire Assy 18 ga, 34" lg, 105°C with 90° terminal
1	258307	Green Wire Assy 18 ga, 34" lg, 105°C with ring terminal
1	16222	1/2" locknut T&B #141 (used as a spacer)
1	158207	Silicone tubing 48" long
1	63922	Bleed Off Orifice 1.15mm
1	107223	1/4" Black Street Elbow
4	16246	1/4-20 x 3/4" long Hex Head Cap Screw
4	7328	1/4-20 Hex Nut (Keps)
1	258309	Instruction Sheet

Installation Instructions

1. Verify components with the list above. If the heater is installed, turn off the electric supply at the disconnect switch.

Refer to **FIGURE 1** for item location and follow the instructions carefully.



Installation Instructions (cont'd)

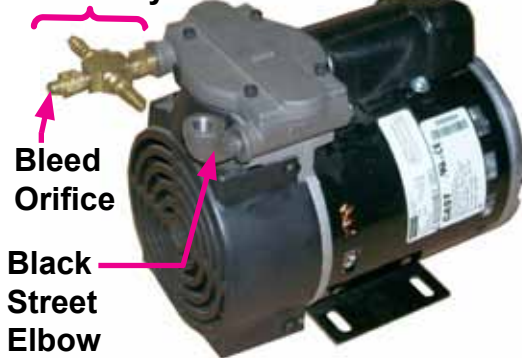
NOTE: Inspect the replaceable filter. If the filter needs replacing, use a Reznor® P/N 107216, Wix Filter 42374, or a NAPA No. 2374 air filter.

2. **Remove and Save the Air Filter Assembly** - Remove the air filter assembly, saving all components. The air filter assembly will be re-installed on the new compressor. (See **NOTE** left.)
3. **Remove the Air Compressor** - Follow the BX cable from the compressor to the electrical box (See **FIGURE 1**). Disconnect the cable at the box being sure to leave the cable connector on the box. Open the electrical box and disconnect the compressor wires. At the compressor, disconnect the silicone air tubing. Underneath the service tray, remove the three compressor mounting screws and remove the air compressor; do not discard.
4. **Prepare the Replacement Compressor (STEPS 1-4 below)**
Re-install the air manifold and filter assemblies. Use a non-Teflon based pipe thread compound on all threaded fittings. See **STEPS 1, 2 and 3**. Attach new wire and cable assembly. See **STEP 4**.

STEP 1 - Remove the air manifold assembly from the removed compressor. Remove the air bleed orifice and replace with the air bleed orifice in the kit. Install the manifold assembly on the outlet side of the compressor.

Install the elbow fitting in the inlet air opening.

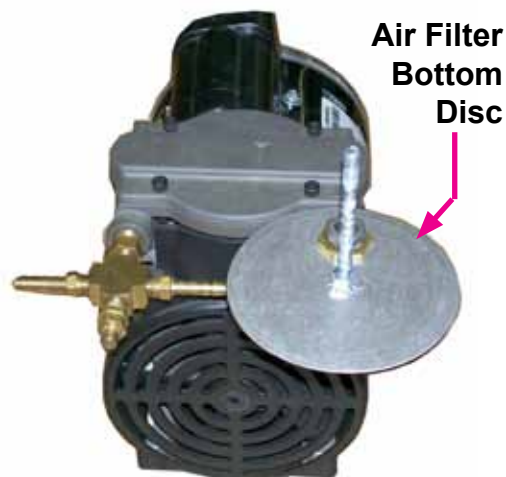
Air Manifold Assembly



Bleed Orifice

Black Street Elbow

STEP 2 - Attach the bottom disc of the air filter to the 90° elbow installed in **STEP 1**.



Air Filter Bottom Disc

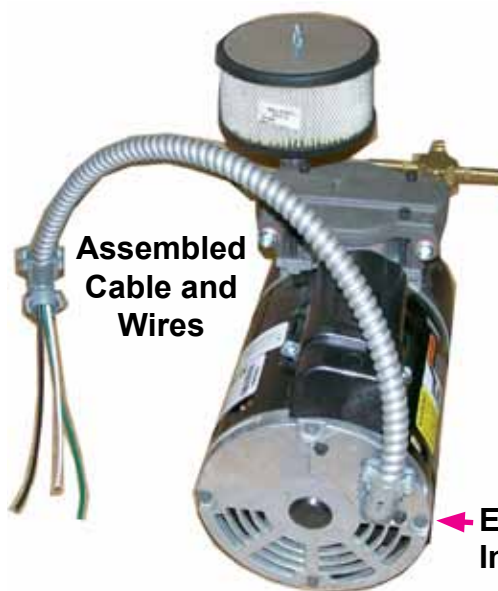
STEP 3 - Slide the filter (See **NOTE** on left above.) on the bottom disc and attach the top disc with the wing nut.

Replacement Compressor with Air Manifold and Air Filter Assemblies Installed



STEP 4 - Assemble and attach the new wire cable.

- 1) Assemble the BX cable and wires by sliding the three wires into the BX cable, installing an anti-short bushing at each end of the cable, and then attaching the 90° box connectors.
- 2) On the compressor, loosen the two screws holding the electrical cover (see illustration) and remove the cover.
- 3) On the end of the wires with terminals, slide the locknut over the wires. With the locknut acting as a spacer, attach the connector to the electrical cover.



Assembled Cable and Wires

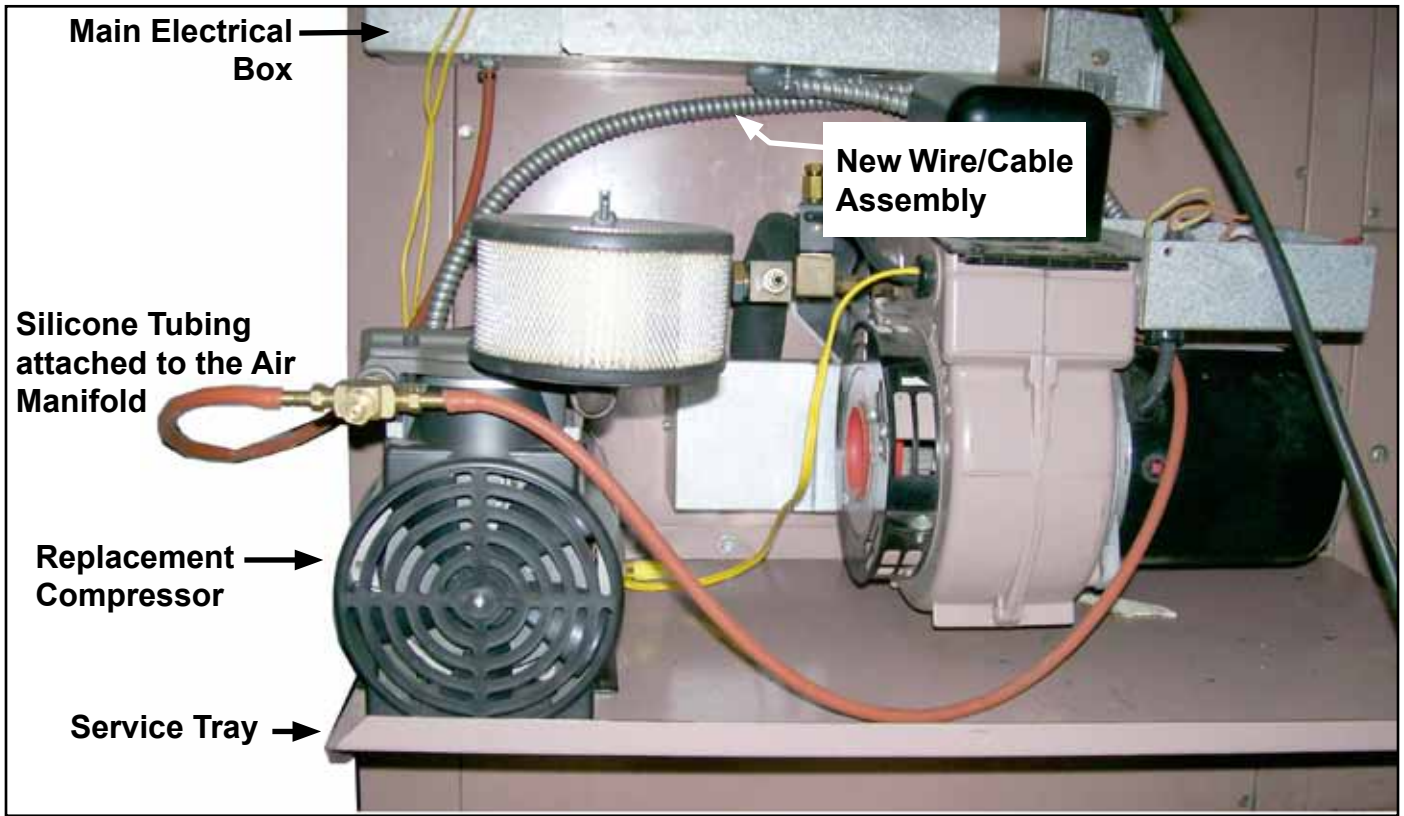
Electrical Cover Installed

- 4) Inside the compressor, connect the three wires to the compressor terminals. Connect the black wire to Terminal 1; the white wire to Terminal 2; and the green wire to the grounding screw.
- 5) Slide the electrical cover back in place and tighten the two screws.

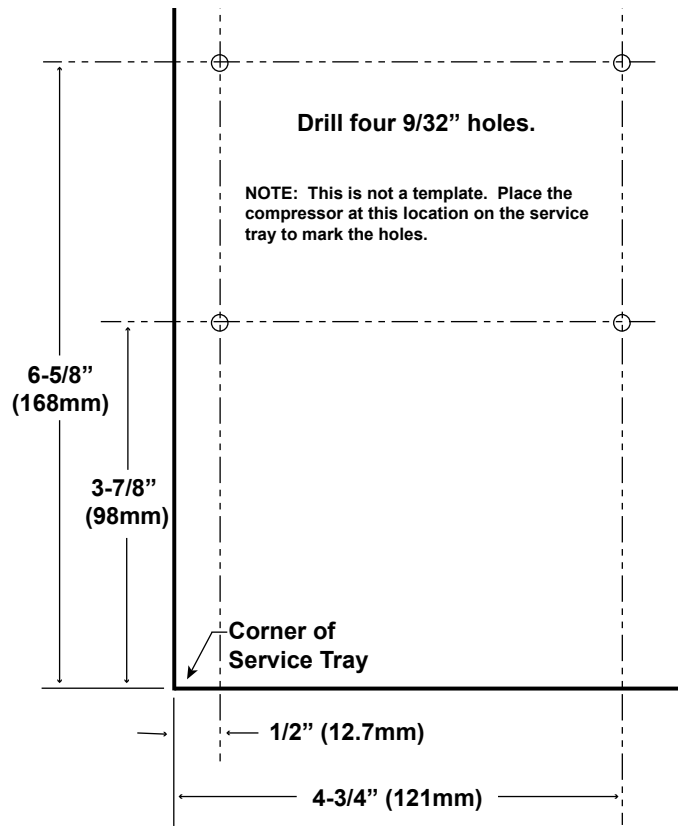
5. Install the replacement compressor (STEPS 5-8).

The compressor will be mounted on the opposite end of the service tray under the main electrical box. Refer to the illustration in **FIGURE 2** and follow the instructions.

FIGURE 2 - Replacement 230V Compressor Installed



STEP 5 - Refer to the hole pattern and drill four 9/32" holes in the service tray. .



STEP 6 - Use the four 1/4-20 x 3/4" long screws and matching hex nuts to attach the compressor.

STEP 7 - Attach the air hose coming out of the bottom of the main electrical box to the barbed fitting on the manifold assembly as shown. Use the longer air hose in the kit to connect the other barbed fitting on the manifold assembly to the fuel line. (Remove the still installed tubing and connect the new longer piece.)

STEP 8 - Run the new BX cable to the bottom of the main electrical box. Slide the wires through the hole and attach the BX cable connector to the box. Connect the new compressor wires to the same terminals as the previous compressor. Refer to the unit wiring diagram to verify connections.

6. Installation of the replacement air compressor is complete. Restore power to the heater. Set thermostat above room temperature. Check for proper operation. (**NOTE:** Startup will be delayed approximately 15 minutes to reach pre-heat temperature requirements.) See page 4 for information about checking air pressure.

Air Pressure Check

Air pressure within a specific range is required for proper atomization of the oil. The air pressure switch ensures that the minimum air pressure required for atomization is available before allowing oil to flow through the nozzle. The air bleed orifice in the manifold maintains the pressure within the range that the unit is designed to operate. The range for Model RA500 and Model RAD500 with the replacement compressor is 9-12 psig.

Under normal operating conditions, the air pressure will be in the correct range and there is no need to verify the pressure. However, in the case of a partially blocked nozzle or air line, the pressure switch will be satisfied allowing the burner to fire even though the volume of air has been reduced. When this happens, complete atomization does not occur and smoking can result. It is important to visually check the appearance of the flame after installing the new compressor. A normal flame will occupy the first 1/3 to 1/2 of the furnace length and will appear to have some spin or mixing. When a nozzle is partially blocked, the flame will lengthen and in some cases actually impinge on the large access door. The flame will lack any kind of spin and will appear soft or lazy. If you suspect that there is a problem with the nozzle, follow the instructions below and check the pressure.

Instructions to Check Air Pressure:

1. Turn power off to the heater.
2. Remove the brass plug in the air manifold assembly and insert a 0-30 psig pressure gauge.
3. Restore power, set the thermostat above room temperature, and allow the heater to run for at least five minutes. (NOTE: Startup will be delayed until the oil reaches preheat temperature requirements.)
4. **If pressure is well within the correct range (9-12psig)**, remove the gauge and re-install the brass plug.

If pressure is in the low portion of the range, check the air line connections for leaks. If leaks are found, tighten the connections and/or replace the tubing. When correct air pressure is established, remove the gauge and re-install the brass plug.

If pressure exceeds the specified range, turn off power to the unit and check the fuel nozzle and air lines for obstructions. Follow the instructions in the heater manual (Form I-RA/RAD 350/500) for removing the nozzle. Restore power and repeat the test procedure.