

## Replacement Burner Tube Insulator and Combustion Chamber Liner Kit for Models RAB 140, 235, 350, and 500

### Description/ Application

**WARNING: Do not operate the boiler without a liner in the combustion chamber or a burner tube insulator. Inspect regularly and replace deteriorated liner and/or burner tube insulator.**

This replacement packages contains a circular piece of formed insulation for the burner tube and a moldable “wet” ceramic fiber liner designed to replace the combustion chamber liner in a Model RAB boiler. When the liner in the combustion chamber is deteriorated, replace it with the liner kit designed for that model and size. Depending on the size of boiler, the liner kit has either two or three separate pieces. Do not open the plastic bag until ready to install the liner.

The package includes:

Model RAB	140/235	350/500
<b>Burner Tube Insulator and Liner Kit</b>	<b>175994</b>	<b>175995</b>
Consisting of:		
Combustion Chamber Back Plate Liner	174682	
Combustion Chamber Liner	174701	174700
Combustion Opening Liner	--	174702
Burner Tube Insulator	174703	
Liner Support Band	(3) 176299	

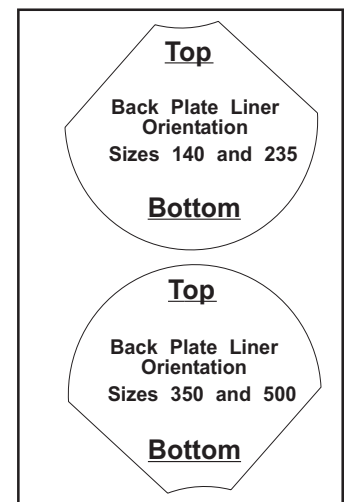
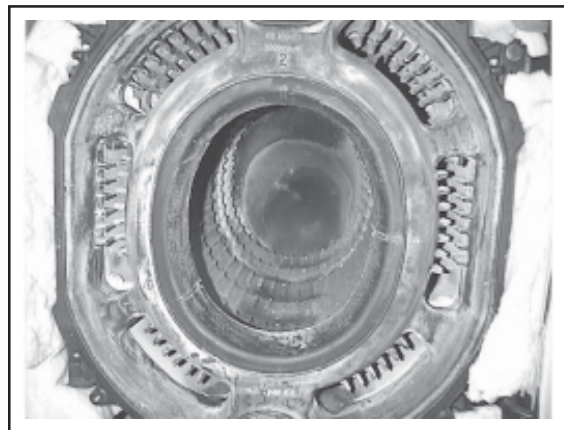
### Instructions

**TOOLS:** socket (Sizes 140 & 235, 16mm; Sizes 350 & 500, 18mm); latex gloves; extension tool to reach to the back of the combustion chamber

1. Turn off all the power to the boiler and disconnect the combustion air tubing from the compressor. Allow the boiler to cool.
2. Remove the outer cover on the front of the boiler. Slightly pick up the panel, tilt it toward you, and slide up to clear the burner.

Remove the bolts that hold the combustion chamber door (2 on Sizes 140 & 235; 4 on Sizes 350 & 500). Open the combustion chamber door. Remove the old liner and vacuum the combustion chamber. See **FIGURE 1**.

**FIGURE 1 - Remove the old liner and vacuum the combustion chamber.**



**FIGURE 2 - Back Plate Liner Orientation**

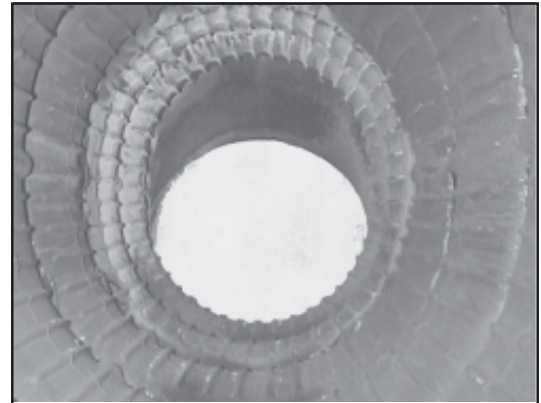
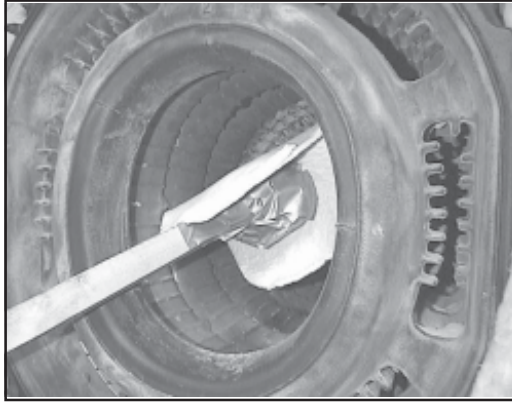
3. **Install the Back Plate Liner** - Open the plastic bag and identify the flat liner section for the back plate (See **FIGURE 2**). Refer to the illustration and position the back plate liner in the orientation that is required for the size of boiler.

Keeping that orientation, put the liner in the chamber covering the back of the combustion chamber. On Sizes 350 and 500 (and possibly on Sizes 140 and 235, depending on the installer), a tool is needed to reach the back of the chamber. Use any type of extension tool that does not have edges that could cut through or damage the liner (the illustration in **FIGURE 3** shows the installer using a rag taped to a wooden pole).

## Instructions for Installing Replacement Liner (cont'd)

Starting at the bottom and working up, apply pressure to the liner to mold it to the back plate.

**FIGURE 3 - Working from the bottom up, mold the liner to the back plate.**



**FIGURE 4 - Back plate liner installed**

### 4. Install the Chamber Liner (Refer to FIGURES 5 and 6.)

#### NOTES:

Sizes 235 and 500 - A portion of the rear section of the chamber is not covered.

Sizes 140 and 235 - The liner is a sleeve that goes around the entire chamber.

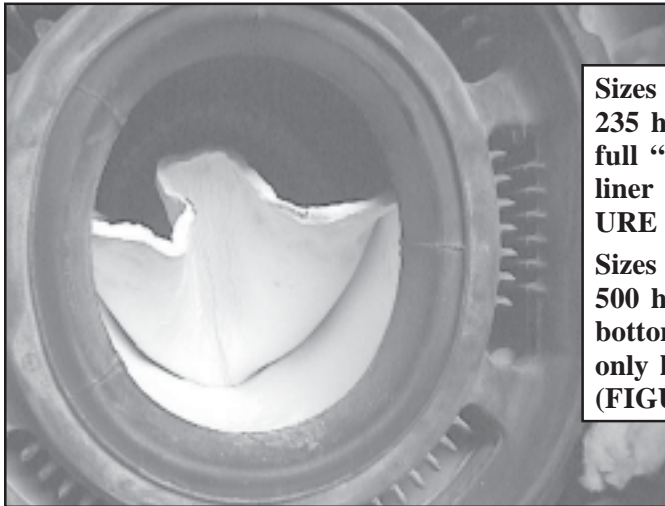
Sizes 350 and 500 - The liner goes only on the bottom half of the chamber and a second liner sleeve will fill in the “gap” between the chamber opening and the door.

Position the liner into the chamber with the front edge as close as possible to the front edge of the chamber.

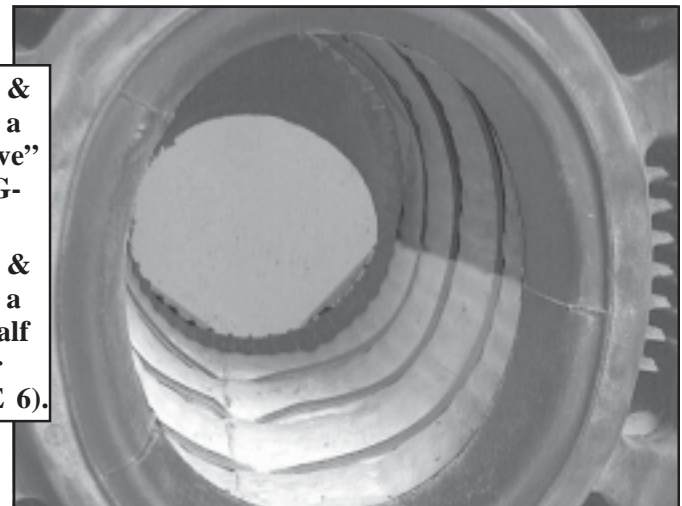
Starting at the bottom and working up, mold the liner to the chamber. After the entire liner is molded to the chamber, work upwards again applying more pressure.

When the liner is molded properly, the shape of each boiler section will be apparent through the liner. Use the narrow bands of steel supplied with the boiler to support the liner until it has been heated and dried. Being careful not to cut through, push the ends of the bands into the liner to keep them in place.

**FIGURE 5 - Position the liner so that the front edge is as close as possible to the front edge of the chamber. Working from the bottom up, mold the liner to the combustion chamber.**



**Sizes 140 & 235 have a full “sleeve” liner (FIGURE 5).  
Sizes 350 & 500 have a bottom half only liner (FIGURE 6).**



**FIGURE 6 - The back plate liner and the chamber liner are installed. Use the metal bands in the kit to hold the liner in place.**

**If the unit is a Size 350 or 500, proceed to Step 5. If the unit is a Size 140 or 235, the liner is ready to dry; skip Step 5 and go directly to Step 6.**

### 5. Install the “Opening” Liner Sleeve - Sizes 350 and 500 only (See FIGURES 7 and 8)

- Position the liner so that it is flush with the front opening. Mold the liner starting at the bottom and working from front to back. Keep the outer edge even with the opening and mold any excess liner material toward the chamber liner.

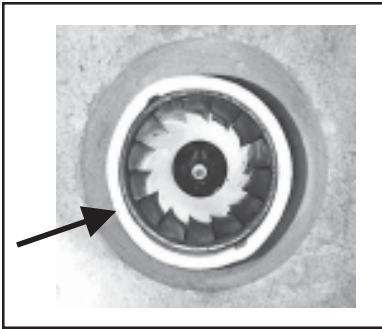


**FIGURE 7 - Sizes 350 and 500, position the “opening” liner sleeve with the outer edge even with the front opening.**



**FIGURE 8 - Mold the liner starting at the bottom and working from the front toward the back. Keep the outer edge even with the opening; mold any excess at the bottom half over the edge of the chamber liner.**

**FIGURE 9 - Slide the burner insulator over the end cone until it is flush; rotate to lock.**



**6. Install the Burner Tube Insulator (See FIGURE 9.)**

- a) Rotate the old burner tube insulator until the screws line up with the slots in the insulator. Slide the insulator off of the burner tube and discard.
- b) Clean the end cone being careful not to move or damage the burner parts. Vacuum any particles.
- c) Align the slots in the inside of the new insulator to the screw heads on the end cone. Slide the insulator over the end cone until it is flush with the opening. Rotate the insulator approximately 1” (25mm) to lock it in place.

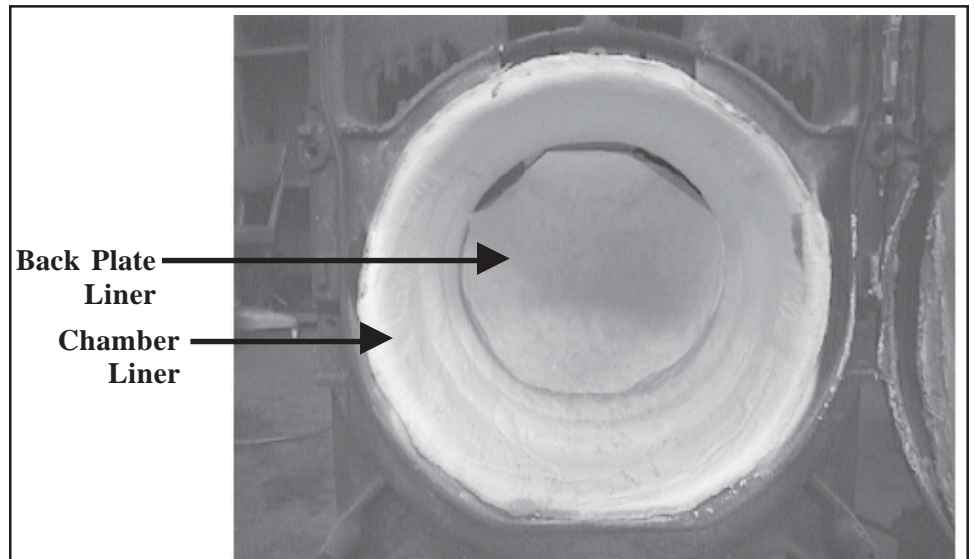
**7. Dry the Liner** - Close the chamber access door and bolt it shut. Turn on the power and reconnect the compressed air. Start up the unit (NOTE: A ten-minute delay may occur before firing depending on the preheated oil temperature.) and fire it for at least ten minutes to completely dry the liner.

Turn down the thermostat until the unit shuts down; turn off all power to the unit; disconnect the compressed air hose; allow the boiler to cool down; and open the access door.

Inspect the liner. The liner must be rigid. If the liner is not hardened, repeat the drying procedure.

When the combustion chamber replacement liner is rigid, remove the metal bands.

**FIGURE 10A - Replacement liner installed on a Model RAB 140 or 235**

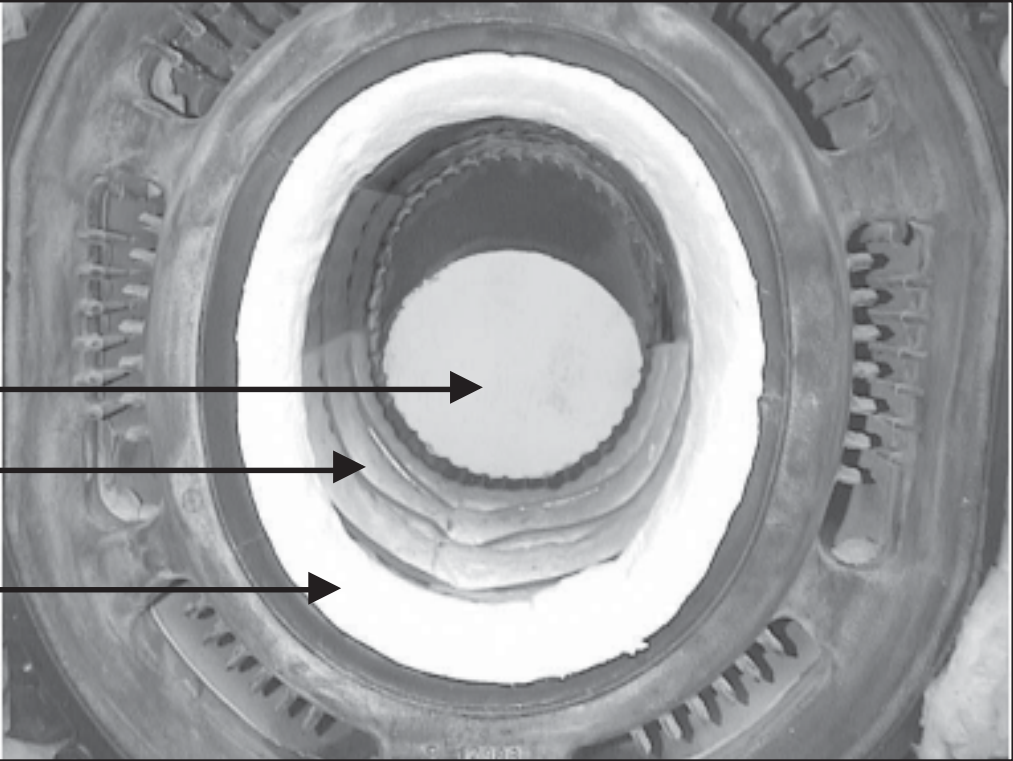




## Instructions for Installing Replacement Liner (cont'd)

**FIGURE 10B -  
Replacement liner  
installed on a Model  
RAB 350 or 500**

**Remove bands before  
operating the heater.**

- 
- 1) Back Plate Liner
  - 2) Chamber Liner  
(bottom half of  
chamber only)
  - 3) Opening Liner

### **Installation of the replacement kit is complete.**

- Verify that the liner is rigid. Be sure bands have been removed.
- Close and bolt the door. Replace the outer cover..
- Reconnect the compressed air hose.
- Turn on the power.
- Turn the thermostat up to start the circulating pump.
- Check for proper operation.