



Please read this first . . .

WARNING This document must be used only by a qualified service technician.

Disconnect the electrical supply to the burner before attempting any service to avoid electrical shock or possible injury from moving parts.

Burner and appliance components can be extremely hot. Allow all parts to cool before attempting to handle or service to avoid potential of severe burns.

After completing the replacement, verify all wiring is correct and securely connected, and inspect and test the burner as described in the burner manual to ensure the burner is operating correctly.

Failure to comply with the above or other requirements in this document could result in severe personal injury, death or substantial property damage.

NOTICE Make sure the burner and installation comply with all applicable state and local codes regarding installation of the burner, appliance, venting and air supply.

Installer/Serviceur

Burners with covers using outside air for combustion require a Field Controls Model CAS-1 air hood and vacuum relief valve, supplied by the installer.

Inlet air piping to the covered burner shall consist of one (1) 4" adapter at the cover backplate; a maximum of four (4) 90 degree 4" (or larger) elbows and up to forty (40) feet of straight pipe. As an alternate, up to forty (40) feet of flexible metal duct may be used.

PART **RESCVR1S (Oil)**
RESCVR5S (Gas)

Burner Cover Kit

Instructions for Installing
Burner Cover Kit on

EZ Oil Burners
EZ-LF
EZ-Pro
EZ-Gas Burners

Kit includes:

- Cover
- Reversible Backplate
- Mounting Hardware
- 8" field drilled orifice (RESCVR5S Only)



Installation Instructions for RESCVR1S (oil)

Step 1 Turn off the power to the burner and appliance. Shut off the service switch and pull the fuse or disable the breaker to prevent accidental power restoration.

Step 2 Remove electrical wiring from burner J-box.

Step 3 Mounting the backplate: The backplate is reversible to accommodate the air inlet to enter the burner on the left side (vertical or horizontal) or right side (vertical only).

Mount backplate in the desired orientation and secure to the burner using the two 5/16-18 x 5/8" bolts provided (as shown)



Step 5 Drop the cover on the tabs of backplate and secure with mounting screw.



Step 6 Restore power to the unit and test operation. **Combustion test must be performed with new cover installed and secured to burner.**

Step 4 Remove 7/8" knockout in upper right or left corner of backplate and install the rubber grommet provided in the kit. Route the power wires through the rubber grommet and reconnect them to burner.



Installation Instructions for RESCVR5S (gas)

Step 1 Turn off the power to the burner and appliance. Shut off the service switch and pull the fuse or disable the breaker to prevent accidental power restoration. Turn off the gas supply to the burner.

Step 2 Remove wiring harness connecting valve and pressure switch.



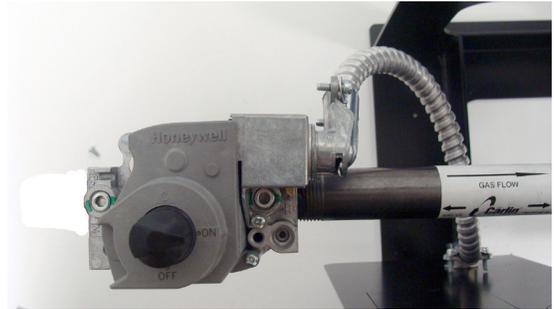
Step 3 Remove the gas valve and the 4" x 3/4" orifice nipple from the burner. Check orifice size and compare it to the new 8" x 3/4" orifice. Drill the new orifice to the same size as the old one. Re-install the gas valve and new 8" x 3/4" orifice into the burner.



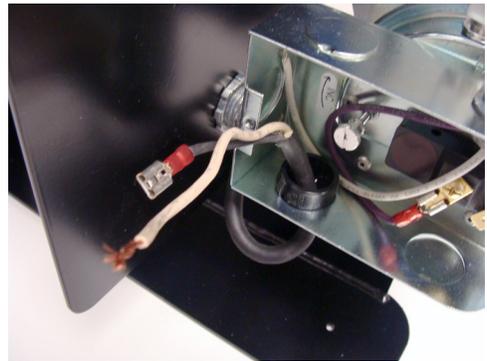
Step 4 Looking at the backplate remove one 7/8" knockout – either lower left or lower right. This is for the new gas valve harness. Mount the backplate to the burner chassis using the two 5/16-18 x 5/8" bolts and star washers provided.



Step 5 Mount the new gas valve wiring harness to the gas valve cover and connect the spade terminals to the gas valve, then mount the harness to the backplate.



Step 6 Install the plastic grommet provided in the kit into the airflow switch and route the harness wires through the grommet and attach to airflow switch.



Step 7 Remove 7/8" knockout in upper right or left corner of backplate and install the rubber grommet provided in the kit. Route the power wires through the rubber grommet and reconnect them to burner.



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Installation Instructions for RESCVR5S (continued)

Step 8 Drop cover on tabs of backplate and secure with mounting screw.



Step 8 Start burner and check operation. **Combustion test must be performed with new cover installed.**

Combustion Air Temperature

Once a burner is setup, the fan always pulls through about the same volume of air (cfm) regardless of air temperature. (Air flow will be reduced if the overfire pressure increases due to a dirty heat exchanger, or if the inlet air is blocked or the blower blades are dirty or linted.)

Air density changes with temperature. The colder the air, the more dense the air. The blower pulls in a constant volume of air. If the air density changes, weight of air (pounds) entering the burner changes. When the air is colder (heavier), more pounds of air enter. When the air is warmer (lighter), less pounds of air enter.

When combustion air comes from inside, it comes in at room temperature, so the temperature of the air doesn't change much throughout the year. But when air is ducted directly from outside, it isn't heated much before it reaches the burner. It comes in pretty close to the outside temperature. The air temperature difference between summer and winter could be 100 degrees in some areas.

The table to the right shows the change in the amount of air (cubic feet) required as the temperature of the air changes.

Take the air temperature into account when you set up a burner with ducted combustion air.

% CO₂ rises as air temperature rises.

% CO₂ drops as air temperature drops.

If you don't consider this, burner combustion can become very poor as air temperature changes.

Refer to the setup temperature chart to the right for suggested setup values based on entering air temperature.

Air Changes with Temperature

Air Temperature	Air Density (pounds per cubic foot)	Cubic feet of air per gallon of #2 oil for 19% excess air
-20°F	0.0904	1393
-10°F	0.0884	1425
0°F	0.0865	1456
10°F	0.0846	1488
20°F	0.0829	1520
30°F	0.0812	1551
40°F	0.0796	1583
50°F	0.0780	1615
60°F	0.0765	1646
70°F	0.0751	1678
80°F	0.0737	1710
90°F	0.0723	1741

These data give air flow needed for approximately 19% excess air, firing #2 fuel oil. The combustion data would be approximately 12.8% CO₂ or 2.8% O₂.

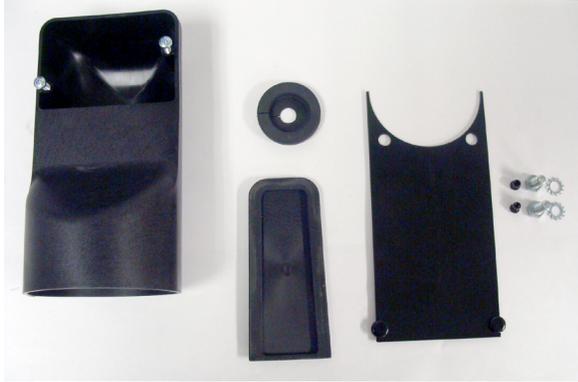
Burners with ducted combustion air – MEASURE incoming combustion air temperature and set the CO₂ (or O₂) using the following chart:

Incoming combustion air temperature during setup	CO ₂ min	CO ₂ max	O ₂ max	O ₂ min
-20°F to 0°F	10.2%	11.0%	7.0%	5.8%
5°F to 30°F	11.0%	11.5%	5.8%	5.5%
35°F to 60°F	11.5%	12.2%	5.5%	4.2%
65°F or higher	12.0%	12.5%	4.6%	3.9%

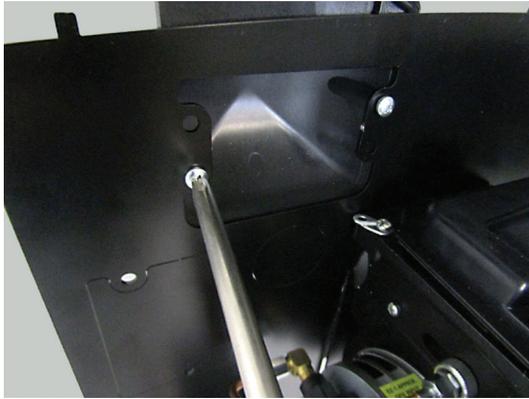
50433KIT outside air kit for use with RESCVR1S and RESCVR5S

50433KIT includes:

- 4" air intake
- Backplate filler plate with bolts and washers
- Rubber filler piece for cover
- 2 plastic plugs for unused holes in backplate
- Rubber Grommet
- 2 7/8" Hole Plugs



Step 1 Remove one of the two air inlet knockouts, then install the air inlet to backplate with screws provided.



Step 2 Fill unused 1/4" holes with plastic plugs provided.



Step 3 Install backplate filler using the two 5/16-18 x 5/8" bolts and star washers provided. Heads of plastic rivets contact both sides of backplate.



Step 4 Remove one of the three large round holes to run the power cable through. After the cable is run, install the split grommet around the cable.

Step 5 Plug any unused 7/8" holes with plugs provided in kit.

Step 6 Install rubber cover filler piece.



Step 7 Secure cover to backplate and install the 4" outside air intake system (not supplied by Carlin Combustion). Follow installation instructions from the manufacturer of air intake system.

Step 8 Put unit back into service, restore electrical power back to appliance, turn on fuel supply.

Step 9 **Combustion test must be performed with cover secured to burner.** Set up burner using the combustion air temperature chart in this manual.