

Challenger Blower Replacement Kit



Kit Part Numbers:

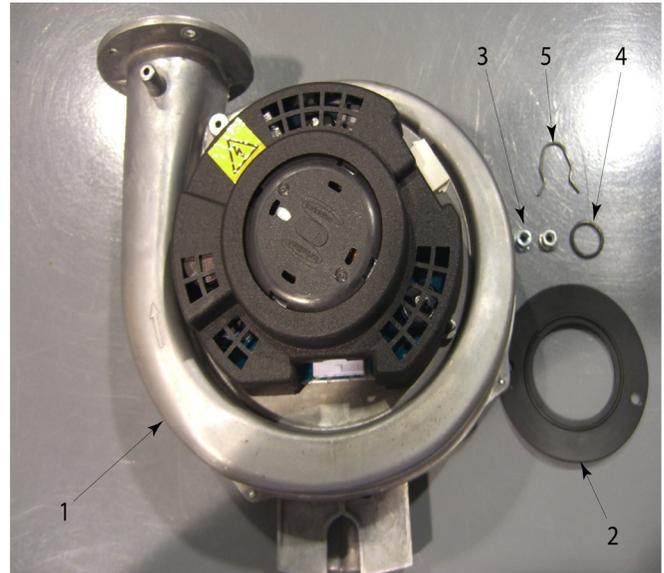
- CCRKIT32: Challenger Blower Kit

Kit Includes:

1. Blower
2. Blower Outlet Gasket
3. (2) M5 Flange Nuts
4. Gas Pipe O-ring
5. Venturi Clip

Recommended Tools:

- Phillips screwdriver
- 8 mm socket and/or 8 mm wrench
- Adjustable wrench
- Pliers
- Flat putty knife
- Combustion Analyzer



WARNING

Indicates a potentially hazardous situation which, if ignored, can result in substantial property damage, serious injury, or death.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to equipment but not related to personal injury hazards.

WARNING

For your safety, turn off electrical power supply at service panel before proceeding to avoid possible electrical shock hazard. Failure to do so can cause severe personal injury or death.

WARNING

Failure to follow instructions below can result in severe personal injury or damage if ignored.

- Instructions are for a qualified installer/ service technician only.
- Read all instructions before proceeding.
- Follow instructions in proper order.

WARNING

For your safety, the boiler may be extremely hot. Ensure the boiler has properly cooled prior to servicing. Failure to do so can cause severe personal injury.

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1. Removal of Blower

1. Turn off power to the unit at the main service switch.
2. Close the external gas shut off valve to the appliance.
3. Remove the front panel by flipping down the display cover and loosening the (2) Phillips head screws at the control panel as per Fig. 1. Pull bottom of front panel forward to remove.

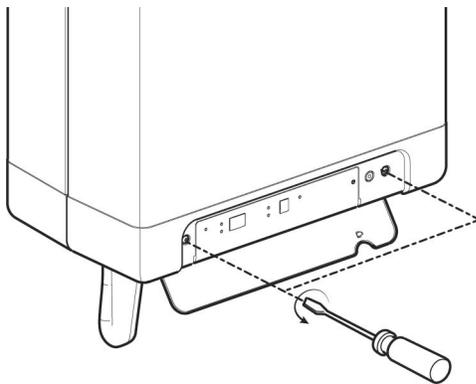


Fig. 1: Control Panel Screws

4. Disconnect the two wire harness plugs from the blower motor.

BEST PRACTICE

For ease of service, remove the vent pipe between the vent adapter and the condensate drain pan before removing the blower. To remove the vent pipe, loosen the vent pipe retaining ring attaching it to the condensate pan then slide the pipe up and out of the condensate pan. Pull the vent pipe out and down to remove.

5. Loosen the gas pipe brass nut at the gas valve. Set aside the orifice and o-ring for reinstallation. See Fig. 2

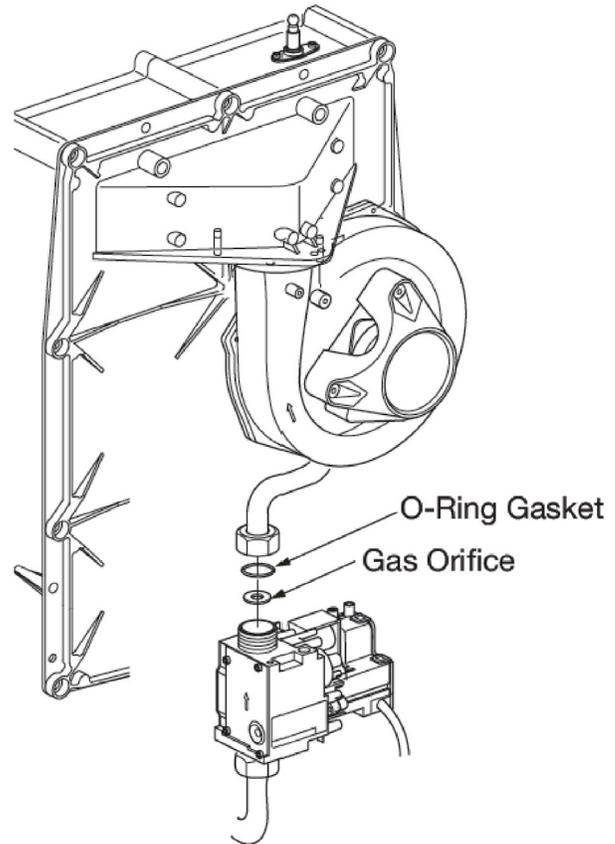


Fig. 2: Gas Orifice location

NOTICE

Do not discard the gas orifice and gasket as they will be re-used.

6. Remove the (2) M5 flange nuts attaching the blower to the burner assembly with an 8 mm socket or wrench.
7. Remove the blower assembly from the Challenger by pulling downward and out.

NOTICE

If the blower gasket sticks to the burner assembly, use a flat blade putty knife to remove any gasket material. Make sure not to scratch the mating surface on the burner assembly.

8. For Challenger models 85 and 105 only, remove the blower orifice and save to be reinstalled. See Fig. 3.

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NOTICE

Do not discard the blower orifice as it will be reused.

9. Once the blower is taken out, remove the venturi clip on the back of the blower using pliers.
10. Remove the gas pipe & venturi assembly from the blower inlet, See Fig. 3.

NOTICE

Note the orientation of the gas pipe and venturi before removal for reassembly.

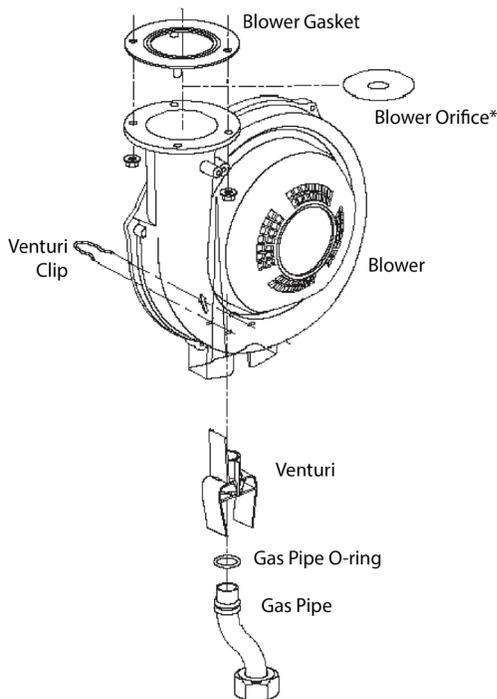


Fig. 3: Blower Assembly

* Blower orifice installed in 85 and 105 only

2. Installation of Blower

1. Prior to reassembling the gas pipe and venturi into the new blower, replace the gas pipe o-ring at the end of the gas pipe.
2. Insert the venturi and gas pipe into the blower housing in the proper orientation, see Fig. 4. Ensure the venturi and gas pipe are properly seated.
3. Insert the venturi clip into the blower housing. Ensure the venturi clip is holding the venturi and gas pipe in place by lightly pulling on the gas pipe.

NOTICE

Do NOT force the clip into a flush fit with the blower surface.

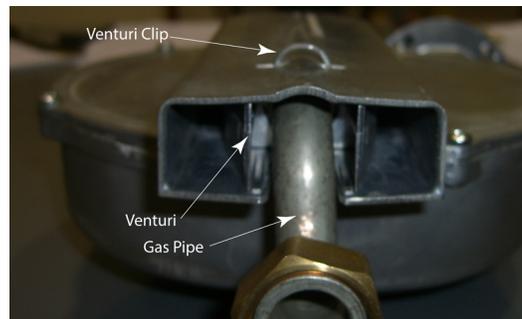


Fig. 4: Venturi assembly installation

4. Seat the blower orifice (if required) and blower outlet gasket onto the blower flange. Position the gasket so it will allow alignment with the mounting studs of the burner assembly.

NOTICE

Do not use any adhesive on the gasket surface during assembly.

5. Install the new blower on the burner assembly using (2) M5 flange nuts.



Failure to insert the gas orifice before reassembling the gas pipe to the gas valve can result in the production of carbon monoxide due to incomplete combustion and may result in substantial property damage, serious injury, or death.

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- With the gas orifice in place, reconnect the gas pipe brass nut to the gas valve. See Fig. 2.
- If previously removed, reinstall the vent pipe.



When reassembling the vent pipe, ensure all gaskets are in place and correctly installed. Ensure all associated internal joints are complete, tight and secure. Failure to comply can result in flue gas leakage resulting in severe personal injury.

- Reattach the wire harness plugs to the blower motor.
- Replace the front jacket panel and secure with the two Phillips head mounting screws at the control panel.
- Open the main shutoff valve to the gas supply piping. Before placing the Challenger back into service check and test all gas piping connections for leaks. Repair leaks if found.



If any gas leaks are found or suspected, shut down the appliance immediately. Use a gas detection device or bubble test to locate the source of the gas leak and repair at once. Do not operate the appliance until the leak is corrected. Failure to comply with this procedure can result in substantial property damage, serious injury, or death.

- Turn on power at the main service switch and return to service.
- Perform a combustion analysis by measuring CO₂ or O₂ and CO during both low and high firing rates. The combustion readings must be within the range listed in Table 1. The CO level must not exceed 100 ppm for natural gas and 150 ppm for propane gas when combustion is correct.

Perform the following procedure to manually place the burner into high fire. Press both the "↖" and "+" buttons simultaneously once until the operating

display shows "h" or twice until the operating display shows "H" for high fire.

Perform the following procedure to manually place the burner into low fire. Press both the "↗" and "-" buttons simultaneously until operating display shows "L".

Table 1: Acceptable Combustion levels

Combustion Levels		Natural Gas	Propane Gas
High Fire DOOR OFF*	CO ₂ Range	9% - 10.1%	10.5% - 11.1%
	CO ₂ Target	9.0%	10.8%
	O ₂ Range	3.0% - 5%	4.1% - 5.0%
	O ₂ Target	5.0%	4.5%
Low Fire	CO ₂ Range	0% - 0.4% <H.F. 9%	0% - 0.4% <H.F. 10.5% min.
	O ₂ Range	0% - 0.6% > H.F. 5.0% max.	0% - 0.6% > H.F. 5.0% max.
	CO Max.	100 ppm	150 ppm

* Door On can raise the maximum allowable CO₂ by 0.4 or lower the minimum O₂ by 0.6



If the combustion levels are not within the range given in Table 1, shut the appliance down and contact Triangle Tube Technical Support. Failure to comply with this requirement can result in substantial property damage, serious injury, or death.