

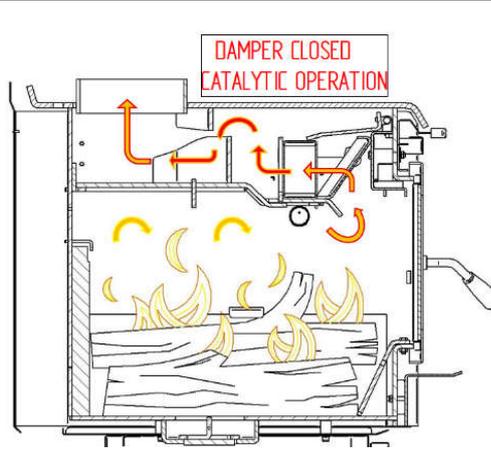
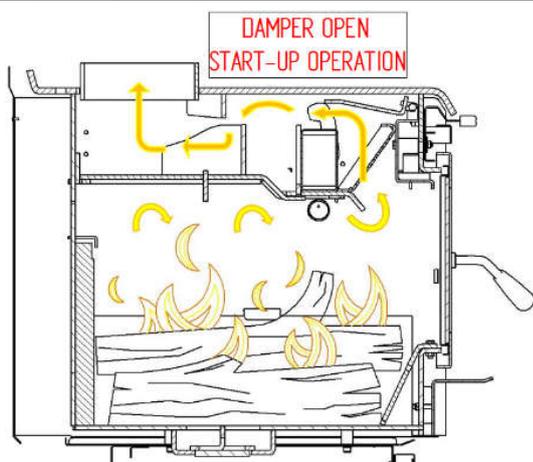


Rakaia & Waimakariri Catalytic Combustor Care & Maintenance Guide for User

The Rakaia & Waimakariri ULEB model uses a catalytic combustor to improve efficiency and reduce emissions. A catalytic combustor helps you create a controlled flame that allows a more even burn rate enabling you to minimize over-heating of the room, give an extended burn period, and prolong the life of your firebox. It is important to understand how it works and take regular and periodic care of this critical part of your appliance.

How it works

This combustor is fitted in the front top portion of the firebox, above the front baffle. This combustor is made of thin high-grade stainless steel sheets formed into triangular shapes to increase the contact and has a hi-tech coating. The hi-tech coating triggers the chemical reaction, converting smoke into water vapour, carbon dioxide, and HEAT. This additional heat further helps to incinerate the fine particles in the combustion gases while passing through this coated combustor.



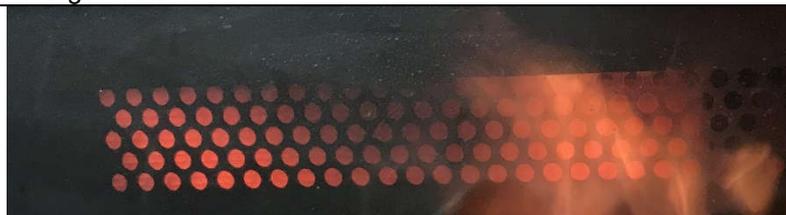
Day-to-day operational precautions

- **Always use well-seasoned natural firewood.** Never burn coal, driftwood, treated or painted wood, highly resinous wood-like "Old Man's Pine," plastic, laminated plastics, plywood, chipboard, garbage, flammable fluids such as gasoline, naphtha, engine oil, milk cartons, coloured or printed paper. The use of such materials is damaging to the burner and the environment both.
- **Always ensure the stainless steel flame arrester plate is installed in front of the combustor.** The flame arrester stops the direct exposure of flames, damaging the coated combustor.
- **Keep the damper open until the catalytic combustor becomes sufficiently hot** (approximately 20~25 mins). During the start-up phase, a large volume of unburnt particles gets created. These particles can stick to the catalyst during this phase but will generally burn off as the catalyst begins to work. If the heater is not operated correctly, these particles can block the catalyst causing it to be inefficient or possibly damage the catalyst
- **Avoid leaving the door open for a long period during refuelling.** Too much air can cool the combustion process and the flue, which could result in the combustion gases spilling out of the door. Always refuel as promptly as possible to minimise the chance of smoke spillage.

How to check if the combustor is working?

- **Inspect visually while running the fire.** After 40-60 min during regular operation, when the main load is fully alight, and the damper is closed, a glowing combustor can be seen through the perforated flame arrester plate. To avoid exposure to radiating heat from the door window, be sure not to get too close. Alternatively, use a mirror from a lower level to view the glowing combustor. A glowing combustor is a sign of a working combustor in a good state.

Glowing combustor inside the firebox – Note that the combustor does not have to be glowing uniformly or fully to be operating efficiently.



If the combustor does not glow during normal operation - Check the combustor to ensure it is not blocked or not damaged.

- Carry out a periodic hot burn
- It is important to have a periodic hot burn after prolonged low control burns; this will burn off any built-up/unburnt particle on the combustor. It is recommended to have a high burn cycle once daily or if the combustor is not visibly glowing.

***** Carry out in-situ inspection and cleaning only when the burner is cold. *****

Removal of Flame Arrester Plate

- Gently lift the damper handle to the "OPEN" position and leave it in that position
- Use a special tool supplied with your burner or a small-size flat screwdriver. Insert the tool into the holes at the center of the arrester plate and push the plate upwards.
- Slowly push the plate upwards, disengaging from its locating tabs on the front baffle and dangling vertically on the tool's tip.
- Gently take it down out of the firebox and keep it in a safe place.

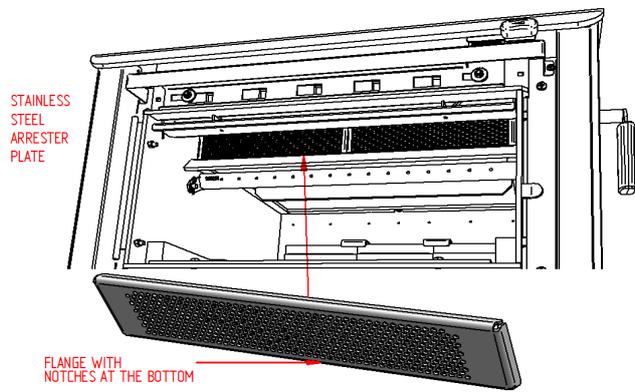
Tool provided
For removal
of arrester plate and
position to insert the
tool into flame
arrester plate



In-situ inspection and Cleaning of combustor

- Use a small torch to inspect the combustor without removing it from the burner.
- If the surface of the combustor is clean without any signs of clogging with fly ash or creosotes. If the combustor looks ok, put back the flame arrester plate, continue using the burner, and look for other signs.
- If there are signs of clogging, i.e., the combustor plates are covered or filled with fly ash, remove the combustor using a paint-brush or soft-bristled brush and dust the combustor.
- Never use a wire brush or anything abrasive. Never use high-pressure air or solvents to clean as this may damage the fine plates of the combustor.
- If the combustor mesh is damaged severely, replace it with the help of an authorised Masport dealer and an experienced service technician.

- Ensure the flame arrester plate is re-installed correctly before lighting the fire again.
- Take the stainless steel flame arrester and orient it so that the flange with the slots is at the bottom. Hold it vertical. Lift in the front of the firebox, between the gap of the front air deflector and front baffle.
- Lift it until it hits the top of the firebox, then tilt the bottom flange and slide it on the front flange of the front baffle until the slots lock into small tabs on the front baffle.
- Allow the top of the arrester to rest on the air deflector



The photographs below show a portion of combustor pictures in different states.

New Combustor



Combustor fitted inside the firebox



Clogged combustor



Damaged combustor



Contact your Masport dealer or experienced service technician if you face further performance issues with your catalytic ULEB