PP30 Gasifier Clean & Check

NOTICE: See Site Specific Safety Information

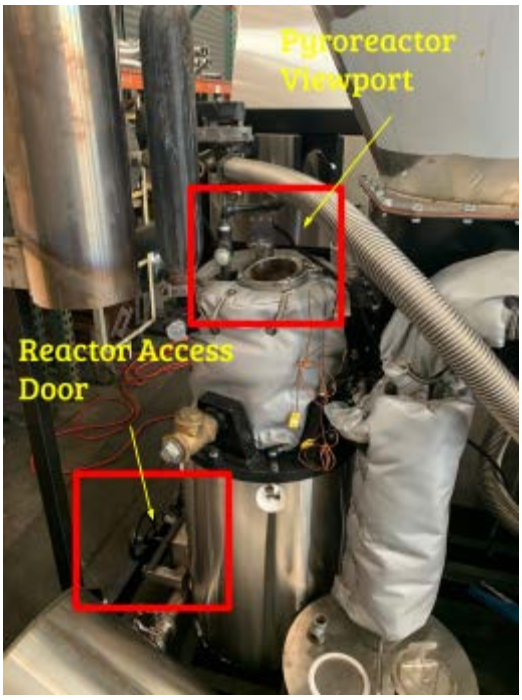
For a list of all parts of the Power Pallet including a list of parts, definitions and all other useful information see the *PP30 Component Reference* document

All tasks should be performed after every 140 run hours and must be done on a cooled reactor

Perform Airline Burnout

CAUTION Before opening up the Reactor make sure that you are in a well-ventilated area and are wearing proper PPE

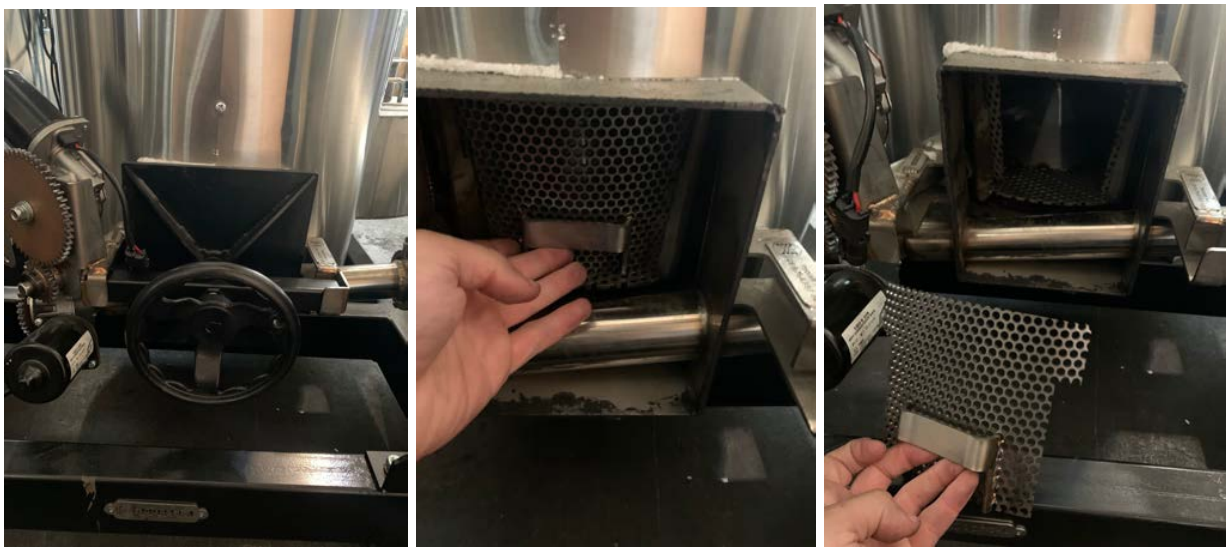
If the Preac had been reading >200 for more than 2 hours or the electrical output has been unable to reach above 20 kW, this is usually caused by high back pressure in the reactor, requiring an airline burnout. This should also be performed as routine preventative maintenance after every 140 hours of run time.



1. Unplug Fuel auger motor

2. Open Pyroreactor View port

3. Empty top of reactor of wood chips and charcoal This is most easily done using a shop vac through the viewport, but this can only be done with a cool reactor.
4. Remove the Reactor Access Door and place a fireproof pan with a capacity of at least 1 gallon below the port.



5. With the door open, rake the char out of the bottom of the grate basket bed into the pan. Keep the char to refill the reactor after the task is completed
6. Close the Pyroreactor Viewport
7. Turn gas and air to 3 or 4

8. Use a torch to light the char on the airlines

9. Hold the torch pointing above the grate basket at the airlines wrapped around the reactor above the hearth until the char that is coating the airlines (which is what is causing the airflow to be blocked) is visibly ignited and glowing. When ignited, smoke should be coming from the flare stack
10. Partially put the Reactor Access Door on, leaving it cracked open for air flow

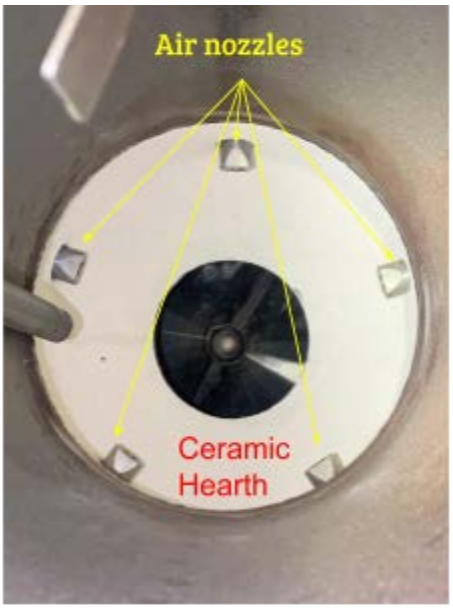
11. Tred should be getting hotter, the temperature should get as high as 300 C and then drop back down to below 100 C. This should take about 3 hours.
12. Once the temperature is cooled to below 100 C put char back into reactor
    a. If using ACV to replace the char bed make sure to screen out small particles using a screener
    b. **CAUTION: Make sure to wear a protective mask**
13. Plug in fuel auger motor
14. Let reactor fill with wood chips

Grate Basket Clinker Purge and Inspection

CAUTION Before opening up the reactor make sure that you are in a well ventilated area and are wearing proper PPE

1. Open up the Pyroreactor Viewport

2. Empty top of reactor of wood chips and charcoal until the air nozzles are visible. This is most easily done using a shop vac through the viewport. Recall that this can only be done with a cool reactor



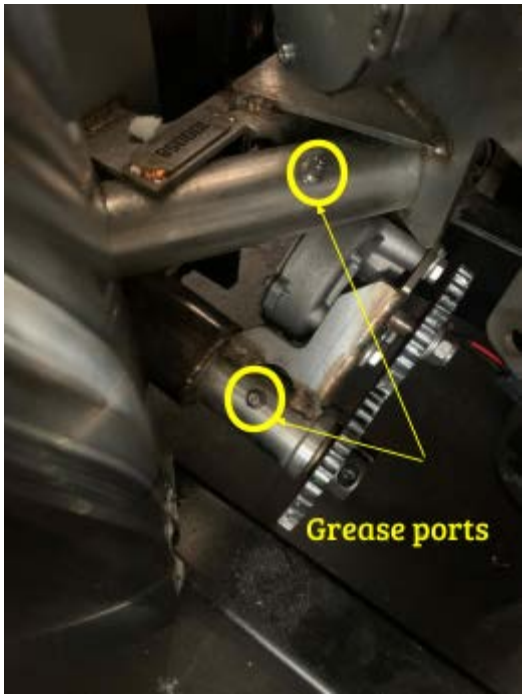
View from Pyroreactor Viewport

3. Remove the Reactor Access Door and place a fireproof pan with a capacity of at least 1 gallon below the port.

4. Remove the Grate Basket door by lifting up.

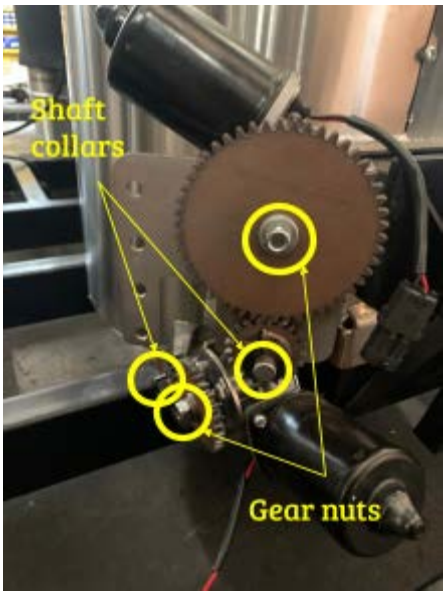
5. With the door open, rake the char out of the bottom of the grate basket bed into the pan.
6. Look for hard, rock-like pieces called clinkers.
7. Once the reactor has been emptied and purged of all visible clinkers check the inside of the reactor paying attention to the air nozzles and the ceramic hearth. The air nozzles should be free of blockage and ceramic hearth should be intact. Any major damage to the hearth would affect the gas quality.
    a. If the ceramic hearth is damaged the reactor needs to be replaced
    b. If air nozzles are blocked by ash build up, the ash can be knocked loose by carefully poking at the build up with a suitable metal rod. When looking in through Pyroreactor Viewport, all 5 air nozzles should be visible with flashlight

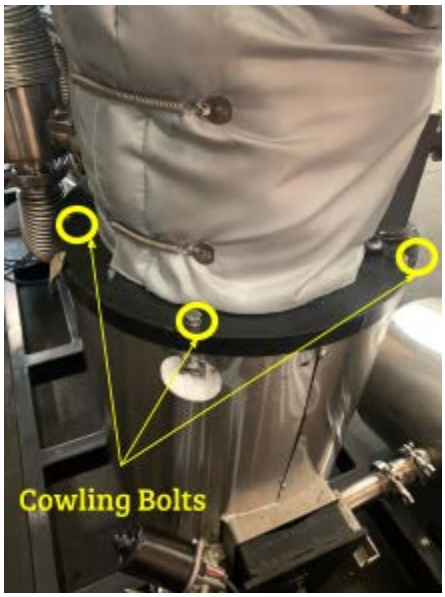
Greasing Cowling Automation



- Fill Ash Auger Tube with Grease using Grease Gun
- Fill Grate Shake Tube with Grease using Grease Gun

Tightening Bolts and Gears





- Tighten pyrocoil to cowling bolts
- Tighten shaft collar and hardware on fuel auger assembly
- Tighten grate and auger gear nuts