



With you at every step



Keep up with COVID-19 by taking the right measures for your Heating Equipment



Bringing you knowledgeable insights and information that will keep your Heating Equipment up and running during and post lockdown period. Kindly refer to the Standard Operation Procedures (SOP) for the equipment that is applicable to you.

CUSTOMER SERVICE BULLETIN	Ref:TL/HTG/SERV/CSB-2020/001
SCOPE	THERMAX OIL & GAS FIRED HEATERS AND BOILERS
SUBJECT	STANDARD OPERATING PROCEDURE FOR STARTUP OF BOILERS & HEATERS
DATE OF RELEASE	APRIL 2020

Brief Background:

Thermax Limited Heating Division has been into the manufacturing & servicing of boilers & heaters since over 50 years now. In order to support / assist the customers to have a smooth startup post the lock down period Heating Services is sharing a standard operating procedure for starting of oil & gas fired boilers and heaters. Thermax recommends this document should be referred in accordance with the operation & maintenance manuals for the respective units.

1	Ring Main Pump
1.01	Start heat tracing of FO/Oil line.
1.02	Check level of FO/Oil day tank.
1.03	Heat the FO/Oil day tank oil up to 60°C.
1.04	Open outlet valve of FO/Oil tank.
1.05	Open inlet valve of Ring Main Pump.
1.06	Open outlet valve of Ring Main Pump.
1.07	Open inlet & outlet of both Bucket filter.
1.08	Open inlet & return valve of Degasser.
1.09	Start/stop ring main pump by inching till the hot FO from tanks comes in pump suction & outlet pressure of pump reaches to set pressure. This will reduce the extra stress on Gears of pump.
2	OPH Heater
2.01	Check water level of OPH. Water level should be up to overflow point. If level is low, kindly fill it till water gets drain from overflow line.
2.02	Select electric heater in PLC. Start electric heater.
2.03	Steam heating can be used, once boiler pressure reaches 4kg/cm ²
2.04	Drain the water from steam coil of OPH through condensate trap by-pass valve.
2.05	Open the steam valve near to Boiler vent nozzle.
2.06	Check the air pressure at OPH steam valve. Set pressure after FRL unit is 4Kg/cm ² .
2.07	Open outlet valve of OPH steam valve. Check condensate trap inlet valve is open & By-pass valve is in closed condition.
3	Fuel Pump
3.01	Start electric Heater of OPH.
3.02	Open the inlet & outlet valves of selected Fuel pump.
3.03	Open the outlet & return valves of Degasser to Fuel oil pump.
3.04	Open burner inlet & outlet valves.
3.05	Start/stop Fuel pump by inching till the hot FO from Degasser comes in pump suction & outlet pressure of pump, Burner inlet & Burner return pressure reaches to set pressure. This will reduce the extra stress on Gears of pump.
3.06	Keep the circulation of FO till temperature reaches the set temperature for firing.
4	Gas Train
4.01	Ensure Required Gas pressure is available at inlet of Gas train.
4.02	Ensure Gas filters are clean.





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4.03	Open slowly inlet Ball valve of Gas train & ensure pressure is equalized.
4.04	Check main & pilot gas pressure as per setting. If required set the pressure.
4.05	Open the outlet & return valves of Degasser to Fuel oil pump.
4.06	Open burner inlet & outlet valves.
4.07	Start/stop Fuel pump by inching till the hot FO from Degasser comes in pump suction & outlet pressure of pump, Burner inlet & Burner return pressure reaches to set pressure. This will reduce the extra stress on Gears of pump.
4.08	Keep the circulation of FO till temperature reaches the set temperature for firing
5	Burner
5.01	Check inlet & outlet valves of Burner in FO line.
5.02	Check temperature of FO for firing.
5.03	Check Burner inlet & Burner return pressure.
5.04	Check the lever of Burner rod is connected to Burner solenoid valve & it is not in tension.
5.05	Check flame sensor is installed.
5.06	Check ignition rod of Oil/Gas is connected to respective spark plug cap.
5.07	Check FD fan is in healthy condition.
5.08	Start the burner. It will operate in below followed sequence.
6	Firing Sequence Start procedure:
6.01	Burner Main safety OK.
6.02	Burner Sequence ON. Modulation motor (AR63) will go to close condition. Damper Close command.
6.03	Feedback of AR63 close will allow start FD fan. Combustion Blower ON.
6.04	Modulation motor (AR63) will go to open condition. Damper Open command.
6.05	Pre-Purge start.
6.06	After Pre purging time, Modulation motor (AR63) will go to close condition. Damper Close command.
6.07	Ignition ON.
6.08	Fuel oil valve (Burner Solenoid valve) ON.
6.09	In Gas firing, Main & Pilot gas valve is ON
6.1	Flame Sensor Sense the fire. Main Flame establishes.
6.11	In Gas firing, Flame Sensor Sense the Pilot fire. Then Second solenoid valve is open & Main Flame establishes. Pilot valve gets close & Main flame gets stabilize.
6.12	Ready for Modulation.
6.13	After modulation is ON, then burner will go to High & Low flame according to pressure set point.
7	Boiler Start-up
7.01	Start Ring Main pump.
7.02	Star Fuel Pump.
7.03	In Gas firing, equalize the gas pressure in gas train. Operation of Gas train is explained above.
7.04	Start Feed water Pump. Water level is controlled by level controller depending upon the water level.
7.05	Start OPH
7.06	Check water level in Boiler
7.07	Open the vent valve. Close the Steam stop valve.
7.08	Open the Mobrey valves & Instrument valves.
7.09	Check all safeties OK. Reset & check again.
7.1	After ensuring enough water level & required FO temperature/ Gas pressure is available, then burner can be start.





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7.11	Start the burner. Before starting burner, ensure modulation OFF.
7.12	Let burner run in operation at low fire.
7.13	Once pressure reaches up to 2Kg/Cm2, close the air vent.
7.14	When steam pressure is about 4kg/cm2, then OPH heating can be change-over to Steam heating.
7.15	Once steam pressure is built up at desired point, then open the Main steam outlet valve to supply steam to process.
7.16	Put modulation ON so that burner will maintain pressure as per set point in Steam pressure PID.
7.17	Check & Monitor feed water & Boiler water parameters.
7.18	Greasing of all rotating equipment's for bearing lubrication
8	Feed water Pump
8.01	Check level of Storage tank/ Deaerator tank.
8.02	Open the valve of Storage/ Deaerator tank outlet line to inlet of Pump.
8.03	Open inlet valves of Feed water pump.
8.04	Open outlet valves of feed water pump.
8.05	Open inlet & outlet valve of Control valves.
8.06	Open shell inlet valve of feed water line.
8.07	Check strainer of pump.
8.08	Start pump to fill the water in Boiler.
9	Thermic Fluid Pump
9.01	Open the isolation valves in the TF line.
9.02	Check the strainers of the TF pumps.
9.03	Start the TF circulation pump and circulate the TF through the cooling circuit to remove the air using the vents till the pressure gauges show constant pressure reading.
9.04	Check the strainer of the pump.
9.05	Oil Level in the Deaerator Tank to be checked

Thermax Limited Heating Service recommends customer to refer the operation & maintenance guidelines get in touch with the local service points TCA / Thermax regional office team, details as below:

Region	First level	Second Level	Third Level
North India	Dev Dutta R ✉:dev.dutta@thermaxglobal.com	Ajay Goyal ✉:ajay.goel@thermaxglobal.com	Sachin Kulkarni ✉:sachin.p.kulkarni@thermaxglobal.com
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CUSTOMER RELATIONSHIP CENTER - 1800-209-0115			

For, THERMAX LIMITED – HEATING SERVICES

