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Boiler water level too low / Low Water Cut Off tripped

(Indicates a failure in the water level control system. See “Water Level Control” for more detail on this system.)

- Check for signs of poor boiler water quality and boil over (water streaks in bales, sudden steam pressure drops, etc.)
 - See [Bad Boiler Water quality](#)

How high is the water level in the sight glass on the top right side of the boiler?

More than 1 in. from the bottom

Less than 1 in. from the bottom

Check the boiler water level reading on the C-more touch screen controller

Less than 2

More than 2

- Check that Low Water Probes are intact by disconnecting the wires from the probe that is tripped and grounding it out to the sensor base. If the low water cut off resets with the wires grounded out, then the probe is most likely bad. **Note:** Low Water 2 will require a reset from the C-more touch screen controller.
- Check the Low Water Cut Off Relays in the burner panel. The relays are interchangeable so they can be swapped to see if the problem follows the relay.
- Check the Safety Relays for Low Water 1 and Low Water 2.
- Check the “Low Water 1 Test” and “Low Water 2 Reset” relays.
- Check Chrome colored plug going into Panel 1.
- Check Wiring

- Check the Supply Water Shut Off Valve. It should be open
- Check that the screen in the Supply Water T-Strainer is not plugged
- Check that there is water inside the Supply Water Tanks
- Check that the Feed Water Pump is running (water system must be active for Feed Water Pump to run)
- Check that the Feed Water Valve is opening properly (See [“Feed Water Valve Not Opening”](#))
- Check that the PLC is telling the Feed Water Valve to open (Menu→Outputs→Analog Outputs→look at Feed Water Valve. It should read 30 or greater)

- Check that the Boiler Water Level Sensor is functioning correctly. **Depressurize boiler before removing Boiler Water Level Sensor.**

Pilot Flame Fail

Can you see a flame during pilot ignition?

Yes

- Check that sensor is aiming straight down the tube to the fire.
- Check that sensor is tight (no wobble)
- Check that tip is clean (no smoke, dust or other obstructions)
- Check that sight tube is clear of any obstructions (spider webs, dust, etc.)
- Check that sensor is working properly(*2)

No

Can you see a spark during pilot ignition (*1)

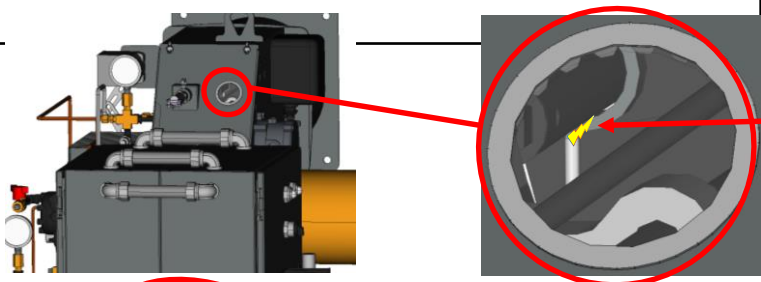
Yes

- Check that air louver closes completely (if it sticks open or is set too far open, air flow may overpower fuel flow and burner will not light)
- Check that the valve on the propane tank is open
- Check that the propane tank is not empty
- Check that propane pressure is reaching the regulator and valve on the burner (*3)
- Check that propane is reaching the gun assembly during pilot ignition(*4)
- Check that propane valve is opening (*5)
- Check that oil gun assembly is clean
- Increase the pressure setting on the burner pressure regulator slightly

No

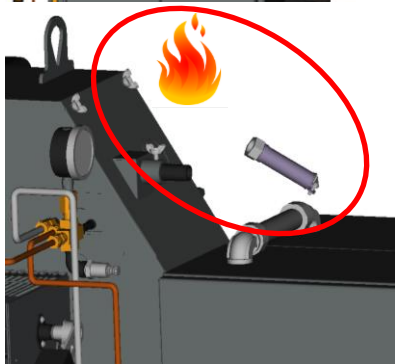
- Clean gun assembly
- Check that electrode tip is centered in the hole (*6)
- Check electrode wire connection to electrode and transformer
- Check condition of electrode wire
- Check condition of electrode
- Check that electrode and/or electrode wire are not contacting anything that would ground them out
- Check transformer output (*7)

*1

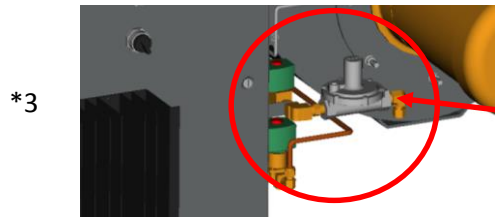


To see if the ignitor is creating a spark, look through the sight glass on the front of the burner. Look carefully the spark is small and difficult to see.

*2



To check that sensor is working, disconnect the sensor from the sensor from the sight tube and aim toward the sun, a torch or other good source of heat. On the touch screen controller go to **somewhere** and check the voltage. When the sensor is aiming at the heat source the voltage should read **XXXX** volts. When the sensor is aiming away from the heat source the voltage should drop down below **XXXX**.



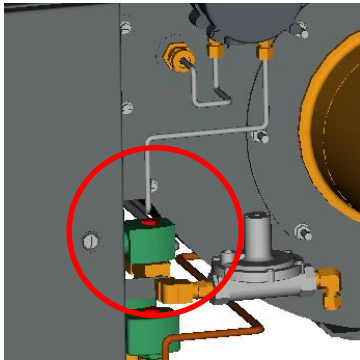
*3

To check that propane pressure is reaching the regulator and valve, disconnect the propane hose from the regulator and turn on the valve on the propane tank. the flow of propane out of the hose will be regulated to 10 psi so there should be a good gentle flow of propane out of the hose.



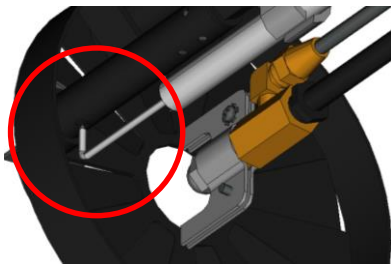
*4

To check that propane is reaching the gun assembly during pilot ignition, disconnect the propane line from the gun assembly, Start the burner, when the burner status reaches pilot ignition, you should feel a slow flow of gas coming out of the line. This will only last for about 10 seconds.



*5

To check that propane valve is opening, start the burner and wait for pilot ignition to initiate. Hold your hand on the propane valve solenoid. When pilot ignition initiates you should hear and feel the solenoid click open. If you do not hear/feel a click or if your hear/feel a hum or vibration the solenoid is likely not opening. Compare this with (*3) above to confirm that the solenoid is not opening.



*6

To check that propane valve is opening, start the burner and wait for pilot ignition to initiate. Hold your hand on the propane valve solenoid. When pilot ignition initiates you should hear and feel the solenoid click open. If you do not hear/feel a click or if your hear/feel a hum or vibration the solenoid is likely not opening. Compare this with (*3) above to confirm that the solenoid is not opening.

*5



To check the transformer output by disconnecting the ignition wire and holding the end of the wire about 3/8 in. from the terminal on the transformer. You should see an arch from the transformer to the wire during pilot ignition.

Generator Over Speed

(Indicates that the generator engine has quit running)

***First, clear the error by holding down the “off” button on the generator controller.**

Is fuel being pumped to the engine fuel filter?

(To check this, first, clear the error by holding down the “off” button on the generator controller. Disconnect the hose that comes from the water separator to the engine fuel filter. Make sure to have a small container to catch the fuel. Put generator in auto and press manual start. The fuel pump should turn on and pump fuel into your container. **NOTE:** Engine will begin cranking after about 5 sec., use the off button to stop start-up before cranking begins.)

Yes

- Check that all hose clamps on fuel lines are tight and that no air can be sucked into the fuel system.
- Check that engine fuel filter and inline fuel filter have been replaced within the recommended interval (250 hrs)
- Check the fuel shut off solenoid (symptoms of solenoid failure: engine cranks but never attempts to start)
 - Check the plug connection first then replace solenoid
- Check wire connections on the black and white wires on the back of the Dyna Gen Controller. **(IF ENGINE IS RUNNING, USE CAUTION WHEN CHECKING THESE WIRES. THEY ARE HIGH VOLTAGE)**
 - If the over speed was caused by a bad wire connection, the engine can be restarted but the starter will reengage after a few seconds because it will not receive a signal that the engine is running. This will cause starter damage. Repair immediately.

No

- Check that the main fuel valve under the frame on the main fuel manifold is turned on
- Check that the fuel valve on the water separator is turned on
- Check that all hose clamps on fuel lines are tight and that no air can be sucked into the fuel system
- Replace the inline fuel filter located just before the generator fuel lift pump.
- Check fuel lift pump

*** ONCE THE GENERATOR IS RUNNING NORMAL AGAIN, DON'T FORGET TO PUT IT BACK IN “AUTO” AND RESTART THE MACHINE.**

Back

Boiler not filling with water

(Indicates a failure in the water level control system. See “Water Level Control” for more detail on this system.)

[See Boiler water level too low / Low Water Cut Off tripped](#)

Back

Boiler water level higher than set point / Boiler overflowing

(Indicates a failure in the water level control system. See “Water Level Control” for more detail on this system.)

Does water level in boiler sight glass match the boiler water level on the C-more screen boiler water level indicator?

Yes

- Check water level setting
- Check that the feed water valve actuator is working correctly by going to **Operations**→**Manual Mode**→ and manually opening and closing the feed water valve while you watch the indicator on the top of the actuator
- If the actuator is working make sure it is coupled to the valve correctly and that it is actually opening/closing the valve

No

- Check that the water level sensor is working correctly
 - Unplug the yellow, red and black wires and the purple and red wires from the signal conditioner on the inside of the door on the control box on the right hand side of the burner then plug them back in. This will reset the conditioner
 - Check the wire nut connections on the top of the Boiler Water Level Sensor
 - Pull the sensor and check the function of the sensor by manually moving the float up and down the stem. The gauge on the C-more touch screen controller should follow what you do with the float without having any dead spots. **(RELEASE ALL BOILER PRESSURE BEFORE REMOVING BOILER WATER LEVEL SENSOR)**
 - If the sensor is working correctly, check that the float is not getting stuck on the stem or getting stuck on the side of the still well inside the boiler
 - If the sensor is not working correctly, replace sensor or refer to

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Work lights will not turn on

The two work lights on the back fenders run off the tractor lights. The work lights on the side and top rear of the machine run off the generator battery

Lights on back fenders

- Check that light harness is Plugged into the tractor
- Check tractor fuses
- Check wiring connections in light harness

Lights on side and top rear of machine

- Turn lights on by touching the  icon so that it turns green.
- Check / replace the 12 VDC control relay located on the inside of the right post of the generator mounting stand. (There is a spare relay inside the right control box on panel 3)
- Check Fuse (F1) in panel 3
- Check the light card relay in the bottom right corner of panel 2 (when lights are turned on the LED indicator on the relay should be illuminated)
- Check the inline fuse on the light power harness coming from the generator battery. It is located on the lower right hand side of the engine.
 - If the fuse is good and power is still not reaching pin (30) on the 12 VDC control relay, check for a break in the wire where the inline fuse is spliced in.
- *See 12 VDC Control Relay Diagram for more detail about how the relay is wired.*

Feed Water and Boiler Water Temp. Differential Exceeded

(Indicates a failure in the Circulation System. See “Water Level Control” for more detail on this system.)

- Flush the Y-Strainer located on the front left of the boiler and make sure it is not plugged.
- Check that the Circulation Water Pump is running. (If the Circulation Water Pump is not running see “[Circulation Water Pump not running](#)” in the trouble shooting guide.)
- Check that the hand valves on the inlet and outlet sides of the Circulation Water Pump are both open.
- Check the alarm set point by going to **Menu→Settings→Alarm Settings→Water Temp. Differential Alarm Limit**. (Default 150 F)
- Check for a bad temperature sensor
 - Turn the water system off by going to **Operations→Systems Start→**and press Water System to turn the water system off. Wait for several minutes and check if the Boiler Water and Feed Water readings equalize so that they are both giving a reading very close to the same (if the boiler has steam pressure they should read somewhere near 210 – 230 deg. F). If they don’t equalize, replace the sensor that is giving a false reading.
 - **CAUTION! If a sensor must be replaced, wait for the boiler water to cool down or drain the boiler water to avoid being burned.**

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C-more touch screen controller will not turn on

Does the red rocker switch on the screen light up when it is turned on?

Yes

- Refer to "C-more Touch Screen Power Diagram" for more information on the following steps.
- Check the 12 VDC control relay in panel 3 (A spare relay is available in panel 3)
- Check fuses F4, F5, and F10 in panel 3
- Check the 24 VDC power converter (the Indicator light at the bottom should be illuminated green)
- Check wire connections in the panel
- Check wire connections in the C-more panel enclosure
- Check wire connections in the wire harness and plugs
- Replace C-more touch screen controller after confirming that all other circuits are intact and that power is reaching the controller.

No

- Refer to "C-more Touch Screen Power Diagram" for more information
- Check battery connections and voltage.
- Check fuse F12 in panel 3
- Check inline fuse on wire coming from battery located on the lower right side of the engine.
- Check the power coming into the panel from the battery and trace it through to the switch. (especially check that the connections where the inline fuse was spliced in have not been broken)

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Steam is coming out of front water tanks

- Close all **five** pig tail valves on the top front of the boiler (**don't forget the valve behind the manual pressure gauge**)
- Check the check valve on the Boiler Water Level Sight Glass.

Back

Operating Pressure Limit Switch (OPLS) is tripped

If the OPLS is tripped it indicates that there has been a malfunction in the steam pressure control system and that the steam pressure is at the upper limit of the safe operating range.

- Check that all 5 pigtail valves on the top front of the boiler are closed (don't forget the valve behind the manual gauge)
- Check that manual pressure gauge is giving an accurate reading of boiler pressure
- Check that the readings from the two steam pressure transducers match the manual gauge. To check the readings from the pressure transducers go to [Menu→inputs,outputs→analog inputs→](#) and check steam pressure 1 & 2
 - If the readings from one or both pressure transducers do not match the gauge, see "[Steam pressure sensors 1 and 2 readings do not match](#)" for more detail on troubleshooting pressure transducers.

Is steam pressure greater than 14 psi or less than 14 psi

Greater than 14 psi

- Set the trip point to 14 – 14.5 psi
 - Lower the pressure in the boiler until the OPLS resets. Then use compressed air to raise the pressure in the boiler until it trips again.
 - Adjust the trip point so that the OPLS trips at 14 – 14.5 psi
- Call technical support

Less than 14 psi

- Set the trip point to 14 – 14.5 psi
 - Lower the pressure in the boiler until the OPLS resets. Then use compressed air to raise the pressure in the boiler until it trips again.
 - Adjust the trip point so that the OPLS trips at 14 – 14.5 psi
- If OPLS trips and resets at the recommended set points, Check the safety relay for the OPLS (SR 5 in panel 1) there is a spare relay in the panel.
- Check wiring connections

High Pressure Limit Switch (HPLS) is tripped

If the HPLS is tripped it indicates that there has been a malfunction in the steam pressure control system and the High Pressure Limit Switch and that the steam pressure has reached the maximum rated psi (15 psi).

- **It is normal for the HPLS to be tripped after a wet lay up or any time the boiler has filled completely with water.** Drain water below 5 inches in Boiler Sight Glass and reset the switch by pressing firmly on the reset button on top of the switch
- Check that all **5** pigtail valves on the top front of the boiler are closed (don't forget the valve behind the manual gauge)
- Check that the steam pressure in the Boiler is not high enough to trip the switch.
 - Check that manual pressure gauge is giving an accurate reading of boiler pressure. (If the boiler water is below 180 deg. F the pressure should be 0)
 - Check that the readings from the two steam pressure transducers match the manual gauge. To check the readings from the pressure transducers go to **Menu→inputs,outputs→analog inputs→steam** pressure 1 & 2
 - If the readings from one or both pressure transducers do not match the gauge, see "[Steam pressure sensors 1 and 2 readings do not match](#)" for more detail on troubleshooting pressure transducers.

Is steam pressure greater than 15 psi or less than 15 psi

Greater than 15 psi

- Call technical support
- NOTE: If HPLS trips during operation please check the OPLS for proper setting of 14-14.5 psi and be sure it is functioning correctly

Less than 15 psi

- Check that the safety relay for the HPLS is working properly by going to **Operations→Systems Start→look** at the start up sequence on the right side of the screen. If the HPLS is red and the OPLS is green the relay is not sending a signal to the PLC. A spare relay is available in panel 1. Set the trip point to 15 psi
 - Lower the pressure in the boiler until the HPLS can be reset (usually 2 – 5 psi below the trip point). Then use compressed air to raise the pressure in the boiler until it trips again.
 - Adjust the trip point so that the HPLS trips at 15 Check Wiring Connections

Pressure Differential Alarm

- Check that all 5 pigtail valves on the top front of the boiler are closed
- Check that both sensors are plugged in securely
- Check the readings from the two steam pressure transducers
 - If you have replacement sensors, replace sensor/sensors that do not match the gauge.
 - To temporarily run on one sensor, select the sensor, if any, that matches the manual gauge on the C-more screen. You can select the sensor directly from the alarm message or go to **Menu**→**Settings**→**Boiler Pressure**→ **Pressure Sensor Selection**→**Select** the sensor if any that match the gauge.
- Replace the sensor/sensors that do not match the gauge as soon as possible. **Do not run for an extended time on one sensor. Depressurize boiler before replacing pressure sensors.**

Back

Burner Smoking on High Fire

- Clean the fan using the red air hose (if still smoking, remove front cover and clean really well with and air wand)

Is Air Louver opening?

Yes

- Adjust pump pressure to between 240 -300 psi to clear smoke
 - If pressure will not hold steady, Check fuel filter and fuel supply
- Check that nozzle pressure is between 150 – 185 psi when pump pressure is between 240-300 psi. If nozzle pressure is outside this range it may indicate a bad nozzle
- Change nozzle
- Check for any fuel leaks in the Gun Assembly
- Clean the fire tubes and remove the diffusers in the top set of tubes

No

Is the Fuel Cylinder on the back of the Air Louver Box popping up when the burner switches to high fire?

Yes

- Check the push tab for the Fuel Cylinder and the linkage to the louvers are intact and properly adjusted

No

- Check the High Fire Relay (10 R)
- Check that the 3 way oil valve is opening

Back

Burner Smoking on Low Fire

Is the Fan clean?

Yes

- Adjust pump pressure to between 240 – 300 psi. (This will effect high fire so make sure high fire is burning clean with this setting.)
 - If pressure will not hold steady, Check fuel filter and fuel supply
- Adjust the nozzle pressure on low fire using the brass pressure regulator to between 70 – 90 psi. (usually 80 psi is a good low fire setting.)
- Adjust the Air Louver opening on Low Fire using the set screw on top of the Air Louver Box to clear the smoke.
 - White smoke is too much air
 - Black smoke is not enough air
- Replace nozzle
- Check for any leaks in gun assembly

No

- Clean the fan using the red air hose (if still smoking, remove front cover and clean really well with and air wand)

Back

Steam Valves not opening


- If in field work mode, check that manual mode is off (**Operations**→**Manual Mode**)
- Check that the small toggle switch on the bottom right corner of the PLC is set to the “Run” position.

Are all steam valves not working or is just one steam valve not working?

All	One	
<ul style="list-style-type: none"> • Start the generator to make sure there is enough 12 VDC power to operate the valves. • Check fuse (F1) in panel 3 • Check Analog Output 1 card. (Feed Water, Blow Down, and Louver actuator all run off this card. If all or most of these are not working, the output card has likely failed.) 	<ul style="list-style-type: none"> • Check the corresponding fuse in panel two. 	
	plug a functioning actuator into the plug that the bad actuator is plugged into. Test whether the functioning actuator still works.	
	Yes	No
	<ul style="list-style-type: none"> • Remove the bad actuator from the valve and check that the valve is not stuck <ul style="list-style-type: none"> • Manually open and close valve • Plug bad actuator back in and check if it works when not connected to a valve • Attach a functioning actuator to the valve and check if it will open and close valve • Replace actuator 	<ul style="list-style-type: none"> • Trace the wiring

Steam Purge Valve not opening

The Steam Purge valve opens to release pressure when turning around or stopping briefly. This prevents the burner from shutting off and steam pressure dropping while the burner goes through the start up sequence.

- If in field work mode:
 - Check that manual mode is off (Operations→Manual Mode)
 - Check that steam purge valve is not disabled ( this icon in bottom right corner of screen should be green)
 - Make sure the machine is in “Field” mode (The Steam Purge Valve is disabled in “Hold” mode)
- Check that the small toggle switch on the bottom right corner of the PLC is set to the “Run” position.
- Start the generator to make sure there is enough 12 VDC power to operate the valve.
- Check fuse (F1) in panel
- Check the corresponding fuse in panel two.
- Remove the bad actuator from the valve and check that the valve is not stuck
 - Manually open and close valve
 - Cycle actuator while not connected to a valve
- Check that the Water Purge Valve Actuator will work when plugged into the Steam Purge plug. (This helps narrow down the problem to the wiring/controls or the actuator)
 - If the Water Purge Valve works, replace actuator.
 - If Water Purge Valve does **not** work, trace wiring.

Water Purge Valve not opening

- If in field work mode:
 - Check that manual mode is off (**Operations**→**Manual Mode**)
 - Check the water purge valve setting by going to **Menu**→**Settings**→**Water System**→**Open Time**→ **Default is 50%**
- Check that the small toggle switch on the bottom right corner of the PLC is set to the “Run” position.
- Start the generator to make sure there is enough 12 VDC power to operate the valve.
- Check fuse (F1) in panel 3
- Check the corresponding fuse in panel two. (*See “6210 Panel 2&3 labels” for fuse locations*)
- Remove the actuator from the valve and check that the valve is not stuck
 - Manually open and close valve
 - Cycle actuator while not connected to a valve
- Check that the Steam Purge Valve Actuator will work when plugged into the Water Purge plug. (This helps narrow down the problem to the wiring/controls or the actuator)
 - If the Steam Purge Valve works, replace actuator.
 - If Steam Purge Valve does **not** work, trace wiring.

Blow Down Valve not opening

- If in field work mode:
 - check that manual mode is off (**Operations**→**Manual Mode**)
 - Check water quality settings by going to **Menu**→**Settings**→**Water Quality**→**Blow** down mode should be set to “Auto” and PPM should be set between 250 - 600
- Check that the small toggle switch on the bottom right corner of the PLC is set to the “Run” position.
- Start the generator to make sure there is enough 12 VDC power to operate the valve.
- Check fuse (F1) in panel 3 (*See “6210 Panel 2&3 labels” for fuse locations*)
- Check the corresponding fuse in panel two. (*See “6210 Panel 2&3 labels” for fuse locations*)
- Check Analog Output 1 card. (All 4 Steam Valves, Feed Water Valve, and Louver actuator all run off this card. If all or most of these are not working, the output card has likely failed.)
- Remove the bad actuator from the valve and check that the valve is not stuck
 - Manually open and close valve
 - Cycle actuator while not connected to a valve
- Check that the Feed Water Valve Actuator will work when plugged into the Blow Down Valve plug. (This helps narrow down the problem to the wiring/controls or the actuator)
 - If the Feed Water Valve works, replace actuator.
 - If Feed Water Valve does **not** work, trace wiring.

Feed Water Valve not opening

- If in field work mode, check that manual mode is off (**Operations**→**Manual Mode**)
- Check that the small toggle switch on the bottom right corner of the PLC is set to the “Run” position.
- Start the generator to make sure there is enough 12 VDC power to operate the valve.
- Check fuse (F1) in panel 3 (*See “6210 Panel 2&3 labels” for fuse locations*)
- Check the corresponding fuse in panel two. (*See “6210 Panel 2&3 labels” for fuse locations*)
- Check Analog Output 1 card. (All 4 Steam Valves, Blow Down Valve, and Louver actuator all run off this card. If all or most of these are not working, the output card has likely failed.)
- Remove the bad actuator from the valve and check that the valve is not stuck
 - Manually open and close valve
 - Cycle actuator while not connected to a valve
- Check that the Blow Down Valve Actuator will work when plugged into the Feed Water Valve plug. (This helps narrow down the problem to the wiring/controls or the actuator)
 - If the Blow Down Valve works, replace actuator.
 - If Blow Down Valve does **not** work, trace wiring.

Loss of steam pressure during operation

Several different conditions can cause a loss of steam pressure during operation. Below, several of these conditions are listed with the common symptoms of each. See the associated troubleshooting guides for each of these conditions for more information.

Did the burner turn off when the steam pressure dropped?

Yes

- **Steam Purge Valve not opening** (See [“Steam Purge Valve not opening”](#))
 - Large pressure fluctuation (from 4 psi – 12 psi).
 - Drops in pressure coincide with the burner turning off
 - Drops in pressure and burner shutting off happens most often after turning around and/or stopping briefly.
 - No steam coming out of the Steam Purge Valve when turning around
- **Low Water Cut Off tripped** (See [Boiler water level too low/Low Water Cut Off tripped](#))
 - Controller screen switches back to “Systems Start”
 - Low Water 1 and/or Low Water 2 are red
- **Hold AC Error** (See [Initiate Hold AC](#))

No

- **Circulation Pump has quit running** (See [Circulation Pump not running](#))
 - The machine starts and builds pressure normally
 - The machine runs normally until steam is turned on and enough water is consumed that the feed water valve turns on and allows new water to flow into the boiler
 - Once the feed water valve opens the boiler water temperature drops quickly below 180 degrees and forces the burner back to low fire. (This happens because cold water flows backward through the circulation pump to the boiler water temp. sensor.)

Mod Bus Connection Lost

The Mod Bus connection is the way that the Honeywell Burner Controller communicates with the PLC. If the connection is lost, the burner will not function properly

- Check that the address on the Mod Bus Module is set to 78. If the address is already at 78, reset the address by turning both pots to 99 and then resetting them to 78.
- Check the Mod Bus Cable
 - Check that both ends of the cable are securely plugged in
 - Open up the 9 pin connector on the PLC and check that none of the wires are touching each other.
- Check the Mod Bus Module on the Honeywell Burner Controller. (If another module is available, switch it out and check if it works)

Back

Feed Water Pump not running

The Feed Water Pump is used to pump the supply water from the water tanks to the boiler. The Feed Water Pump runs anytime the water system is active.

Is pump contactor in Panel 2 pulled in?

Yes	No	
<ul style="list-style-type: none"> Check that the yellow plug behind the control box is plugged in and locked. Check the wire connections at the pump <ul style="list-style-type: none"> Check that 240 volt power is reaching the pump Check that wire nuts are secure Check that there is no corrosion on wire connections Repair / Replace pump as needed 	Is the PLC telling the pump to start? (on the C-more touch screen controller, look for the green light next to the Feed Water Pump or go to Menu→Diagnostics→Inputs Outputs→Discrete Outputs→Look for green(yes) or red(no) next to Feed Water Pump output)	
	Yes	No
	<ul style="list-style-type: none"> Check circuit breaker in Panel 1 Check Card Relay in Panel 2 Check the Overload Relay on the Pump Contactor <ul style="list-style-type: none"> Reset the Overload and restart the machine Check wiring connections to Overload Replace if needed 	<ul style="list-style-type: none"> Check that water system is active (water system button on systems start screen should be green) Check that the C-more screen is registering water in the supply water tanks. (When the PLC detects that the supply water is empty, it shuts the water system off to avoid pump damage.) <ul style="list-style-type: none"> Tanks may be empty or the water level sensor may be bad.

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Circulation Pump not running

The Circulation Pump is used to pull hot water out of the boiler and circulate it back through the feed water pipe. The circulation pump runs any time the water system is active and Low Water 2 is closed

Is pump contactor pulled in?

Yes	No	
<ul style="list-style-type: none"> • Check that the yellow plug behind the control box is plugged in and locked. • Check the wire connections at the pump <ul style="list-style-type: none"> • Check that 240 volt power is reaching the pump • Check that wire nuts are secure • Check that there is no corrosion on wire connections • Repair / Replace pump as needed 	<p>Is the PLC telling the pump to start? (on the C-more touch screen controller, look for the green light next to the Feed Water Pump or go to Menu→Diagnostics→Inputs Outputs→Discrete Outputs→Look for green(yes) or red(no) on (Y5) next to Circulation Pump output. You can also look for the red indicator lights on Y5 on the PLC and on the Circulation pump relay in Panel 2.</p>	
	Yes	No
	<ul style="list-style-type: none"> • Check circuit breaker in Panel 1 • Check Card Relay in Panel 2 • Check the Overload Relay on the Pump Contactor <ul style="list-style-type: none"> • Reset the Overload and restart the machine • Check wiring connections to Overload • Replace if needed 	<ul style="list-style-type: none"> • Check that water system is active (water system button on systems start screen should be green) • Check that Low Water 2 is closed (Low Water 2 should be green on systems start screen) • Check that the C-more screen is registering water in the supply water tanks. (When the PLC detects that the supply water is empty, it shuts the water system off to avoid pump damage.) <ul style="list-style-type: none"> • Tanks may be empty or the water level sensor may be bad.

Controller screen switched back to system start screen during field operation

Is there an error message displayed on the systems start screen

Yes

Refer to troubleshooting guide for displayed message.

No

- **Circulation Pump has quit running** (See [Circulation Pump not running](#))
 - The machine starts and builds pressure normally
 - The machine runs normally until steam is turned on and enough water is consumed that the feed water valve turns on and allows new water to flow into the boiler
 - Once the feed water valve opens the boiler water temperature drops quickly below 180 degrees and forces the burner back to low fire. (This happens because cold water flows backward through the circulation pump to the boiler water temp. sensor.)

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Bad Boiler Water quality

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Water in steam

Water in steam		

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Burner Stuck in Low Fire

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Initiate Hold AC

Initiate Hold AC		

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