



Heat Pump Water Heater (Generation 2) Troubleshooting

No Power, Display, Fan or Compressor

Indications	Display
Nothing happens at all. No compressor motor;	There is not a display code for this problem.
no sounds; no display.	Remember, the first thing we want to check is
	for the heater to be "enabled".
Troubleshooting	Solution
1. Check for the presence of power.	1. IF the touch screen display (TSD) is on,
2. Verify 12 VDC output on the control by	then enable heater by pressing the STAND
checking for the green light in the upper	BY button.
right hand corner of the control board.	2. Set mode to Energy Saver and thermostat
3. Verify ECO NET is working by checking	to 120^{0} F.
for the blinking green light in the upper left	3. Heater may be in 'pre-warm' mode. Verify
hand corner of the control board between	240V power at the lower heating element
the two RJ45 connections.	screw terminals.

All current alarms and alarm history can be found by pressing "Service" then pressing "Alarms".



Current Alam Clear

Alarms

Control has power

Pre-Warm



ECONet is working



Remove the TSD cover panel and look at the computer board. The two LED lights below the RJ42 jack indicate the TSD has power and the TSD is communicating with the control board.

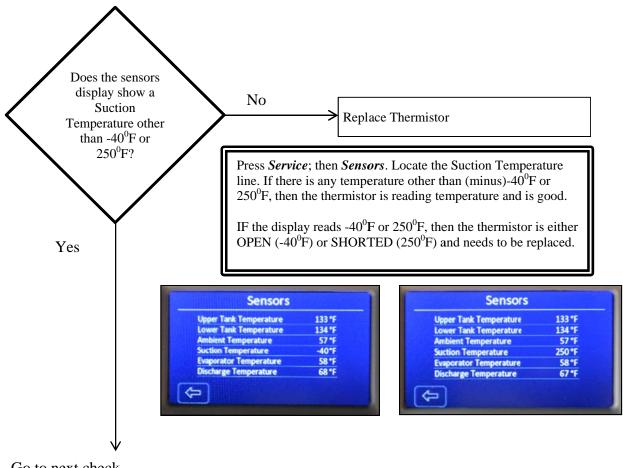




Heat Pump Water Heater (Generation 2) Troubleshooting

Error A101 Suction Temperature Thermistor Failure

Indications	Display
Compressor Shutdown – Low Suction Temperature. The	A101 Suction Temperature Thermistor Failure
control shuts compressor off if Suction Temperature is	
less than 37°F for three minutes. This prevents	Current Alarms
compressor line freeze up. The compressor remains	A101 Suction Temperature Thermistor Failure
locked out for the remainder of the heat demand. This is	Atot Suction remperature mermistor Pailure
usually caused by a lack of unconditioned air moving	
thru the evaporator.	
Troubleshooting	Solutions
1. Filter screen on top of water heater is dirty.	1. Clean filter screen on top of water heater.
2. Unit is installed with less than 1000 ft^3 of air space.	2. Increase available unconditioned air to heater.
3. Thermistor damaged.	3. Measure thermistor resistance.
4. Fan Damaged.	4. Conduct Fan Test on control board

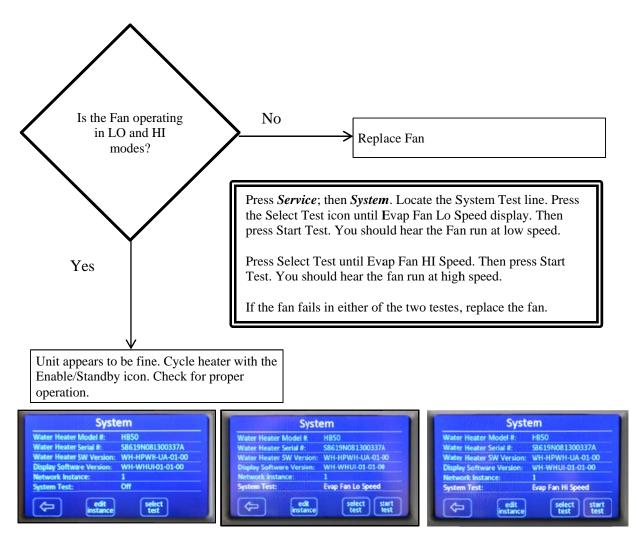


Go to next check.





Heat Pump Water Heater (Generation 2) Troubleshooting



Press the Left Arrow Icon 🖾 until you return to the home screen.





Heat Pump Water Heater (Generation 2) Troubleshooting

Error A102 Ambient Temperature Thermistor Failure

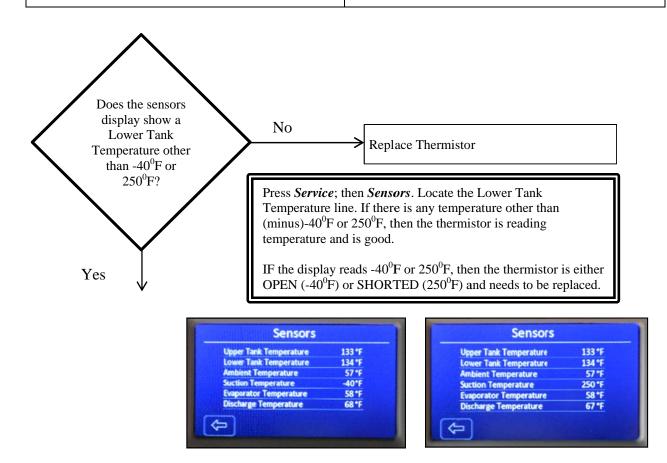
Compressor Shutdown – Low/High Ambient Temperature is less than 37°F or greater than 120°F. The compressor remains locked out for the remainder of the heat demand. To protect the compressor and heat pump functions, the unit will not operate in heat pump mode below or above these temperatures. Troubleshooting Solution 1. Ambient air temperature is too cold to effectively use the heat pump. 2. Ambient air temperature is too hot to effectively use the heat pump. 3. Thermistor damaged. 1. This is an installation location issue. Unheated basements and garages will likely cause this issue as will attics in the summertime. 3. Thermistor damaged. Select new installation location; or realize the unit defaults to Electric Heat Only until temperature greater than 37°F and less than 120°F. Select new installation location; or realize the unit defaults to electric heat only during these times. Press Service; then Sensors. Locate the Ambient Temperature line. It should read between 37°F and 120°F. IF the display reads -40°F or 250°F, then the thermistor is either OPEN (-40°F) or SHORTED (250°F) and needs to be replaced. The unit defaults into electric heat only for the balance of the heating cycle; then reverts to previous mode if ambient air temperatures are OK. Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper operation. Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensors Sensor	Indications	Display
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Enable/Standby icon. Check for proper operation. Upper Tank Temperature 113 °F Lower Tank Temperature 74 °F Ambient Temperature 29 °F Suction Temperature 14 °F Evaporator Temperature 15 °F	Press S line. It IF the o	these times. <i>Tervice</i> ; then <i>Sensors</i> . Locate the Ambient Temperature should read between 37^{0} F and 120^{0} F. display reads -40^{0} F or 250^{0} F, then the thermistor is either
	The un heating	it defaults into electric heat only for the balance of the cycle; then reverts to previous mode if ambient air
	Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper	it defaults into electric heat only for the balance of the cycle; then reverts to previous mode if ambient air atures are OK.
	Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper	it defaults into electric heat only for the balance of the cycle; then reverts to previous mode if ambient air atures are OK.
	Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper	it defaults into electric heat only for the balance of the cycle; then reverts to previous mode if ambient air atures are OK.





Error A103 Lower Heater Temp Thermistor Failure

A103 Lower Heater Temp Thermistor Failure Current Alarms A103 Lower Heater Temp Thermistor Failure
Solution

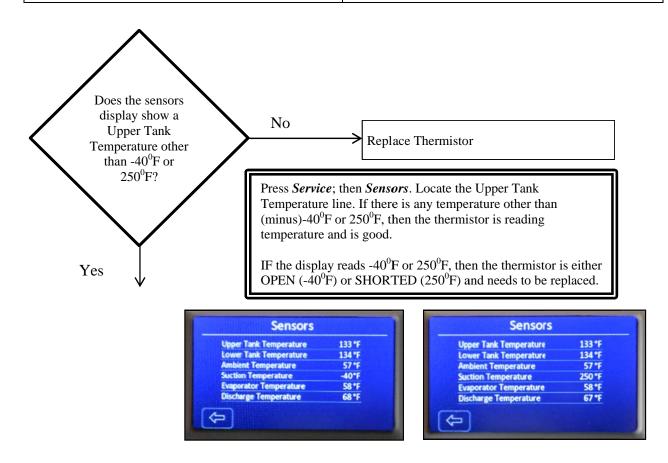






Error A104 Upper Heater Temp Thermistor Failure

Indications	Display
This thermistor is monitoring the upper tank temperature. Sensing range of 32° to 210°F with +/- 2.0°F accuracy.	A104 Upper Heater Temp Thermistor Failure Current Alarms A104 Upper Heater Temp Thermistor Failure
Troubleshooting	Solutions







Heat Pump Water Heater (Generation 2) Troubleshooting

Error A105 Evaporator Temp Thermistor Failure

Indications		Display
Compressor Shutdown – Low/ Femperature. The control shut Evaporator Temperature is les 120 ⁰ F. The compressor remain remainder of the heat demand. compressor and heat pump fur operate in heat pump mode be temperatures.	as compressor off if s than 35^{0} F or greater than as locked out for the . To protect the nections, the unit will not	A105 Evaporator Temp Thermistor Fails Current Alarms A105 Evaporator Temp Thermistor Fails
Troubleshooting		Solutions
Does the sensors display show a Evaporator Temperature other than -40 ⁰ F or 250 ⁰ F? Yes	than (minus)-40 ^c temperature and IF the display rea	Select new installation location; or realize the unit defaults to electric heat only during these times. hen <i>Sensors</i> . If there is any temperature other ⁰ F or 250 ⁰ F, then the thermistor is reading is good. eads -40 ⁰ F or 250 ⁰ F, then the thermistor is either r SHORTED (250 ⁰ F) and needs to be replaced.
	The unit defaults	s into electric heat only for the balance of the nen reverts to previous mode if evaporator
Unit appears to be fine. Cyc Enable/Standby icon. Check operation.		Sensors Upper Tank Temperature 112 °F Lower Tank Temperature 106 °F Ambient Temperature 77 °F Suction Temperature 65 °F Evaporator Temperature 55 °F Discharge Temperature 134 °F





Error A106 Discharge Temp Thermistor Failure

Indications		Display	
The control shuts compressor off if discharge temperature is above 235 ^o F. The compressor is allowed to run again after the anti-short cycle timer has expired provided the compressor has shut down less than 3 times during this demand cycle for heat.		A106 Discharge Temp Thermistor Failure Current Alarms	
Troubleshooting		Solutions	
Does the sensors display show a Discharge Temperature other than -40 ⁰ F or 250 ⁰ F? Yes	than (minus)-40 ⁰ temperature and IF the display rea OPEN (-40 ⁰ F) or The unit defaults	ads -40^{0} F or 250 ⁰ F, then the thermistor is either r SHORTED (250 ⁰ F) and needs to be replaced. s into electric heat only for the balance of the en reverts to previous mode if discharge	
Unit appears to be fine. Cycle h Enable/Standby icon. Check for operation.		SensorsUpper Tank Temperature113 °FLower Tank Temperature74 °FAmbient Temperature29 °FSuction Temperature14 °FEvaporator Temperature15 °FDischarge Temperature129 °F	





Error A200 Emergency Cut Off (ECO) Alarm

Display
A200 Emergency Cut Off (ECO) Alarm
Current Alarms
A200 Emergency Cut Off (ECO) Alarm
Solutions
Replace heating element if grounded.
Press RED reset button on the ECO

From the Home screen, press Service, then Alarms.





To check for a grounded element, turn power off to Hybrid unit. Disconnect both wires on the heating element. Measure resistance from one of the two screws to the grounded tank. The circuit should be open (no resistance). If there is, replace heating element.

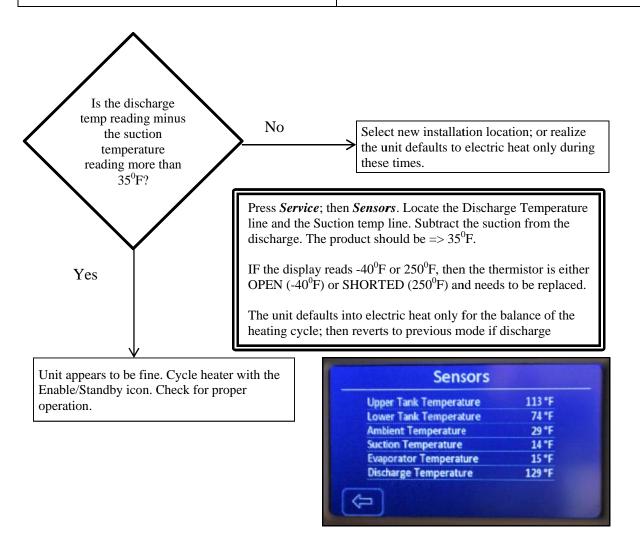




Heat Pump Water Heater (Generation 2) Troubleshooting

Error A004 Comp. Shutdown: Discharge-Suction Trip

Indications	Display	
If compressor has run at least 3 minutes, and (Discharge	A004 Comp. Shutdown: Discharge-Suction Trip	
Temp - Suction Temp) < 35 F, the control will lock the		
compressor out for the remainder of the heat demand.		
Troubleshooting	Solutions	







Error A005 Compressor Shutdown: Discharge Temp High

Indications		Display	
The control shuts compressor off if discharge		A005 Compressor Shutdown	n: Discharge Temp Hi
temperature is above 195dF. The compressor is allowed			
to run again after the anti-short cycle timer has expired			
provided the compressor has shut dow	n less than 3 times	5	
during this demand cycle for heat.			
Troubleshooting		Solutions	
Is the discharge thermistor temp	No	Select new installation loc	ation; or realize
display between 40 ⁰ F and 194 ⁰ F?	line. It should	the unit defaults to electric these times. then <i>Sensors</i> . Locate the Dischar read between 40°F and 184°F. reads -40°F or 250°F, then the the or SHORTED (250°F) and needs	heat only during ge Temperature ermistor is either
Yes	The unit defau	Its into electric heat only for the t then reverts to previous mode if c	balance of the
Unit appears to be fine. Cycle heate Enable/Standby icon. Check for pro-		Sensors	
operation.	,p • ·	Upper Tank Temperature	113 °F
		Lower Tank Temperature	74 °F
		Ambient Temperature	29 °F
		Suction Temperature Evaporator Temperature	14 °F 15 °F
		Discharge Temperature	129 °F





Error T005 Compressor Shutdown: Discharge Temp High

Indications	Display
The control shuts compressor off if discharge temperature is above 195dF. The compressor is allowed to run again after the anti-short cycle timer has expired provided the compressor has shut down less than 3 times during this demand cycle for heat.	T005 Compressor Shutdown: Discharge Temp High
Troubleshooting	Solutions
 This is a temporary alarm. After the 5 minutes anti- short cycle timer expires, the heater makes another attempt for compressor. If the temporary alarm, T005, occurs three times in one demand for heat cycle, the unit fault to A005. 	Press Clear Alarms to bypass T005 code. Unit goes int anti-short cycle for 5 minutes; then makes compressor attempt. See A005 above
Yes The unit defaul	Select new installation location; or realize the unit defaults to electric heat only during these times. hen <i>Sensors</i> . Locate the Discharge Temperature ead between 40 ^o F and 184 ^o F. eads -40 ^o F or 250 ^o F, then the thermistor is either or SHORTED (250 ^o F) and needs to be replaced. ts into electric heat only for the balance of the hen reverts to previous mode if discharge re OK.
Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper operation.	SensorsUpper Tank Temperature113 °FLower Tank Temperature74 °FAmbient Temperature29 °FSuction Temperature14 °FEvaporator Temperature15 °FDischarge Temperature129 °F

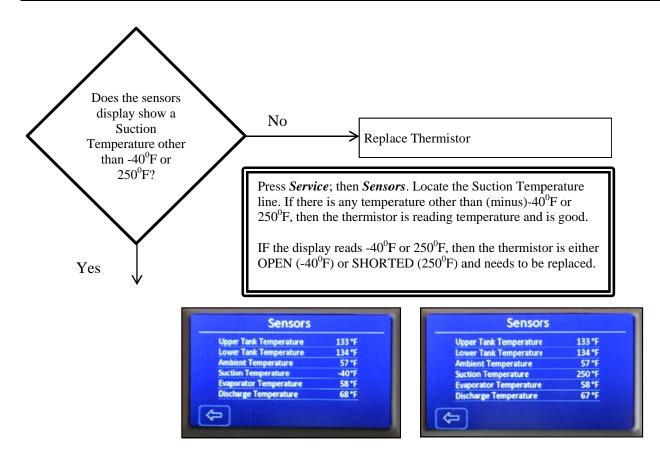




Heat Pump Water Heater (Generation 2) Troubleshooting

Error A006 Compressor Shutdown: Suction Temp Low

Indications	Display
Suction temperature below 37 ^o F for more than 3	A006 Compressor Shutdown: Suction Temp
minutes. The control ignores suction temperature for the	Low
first 90 seconds of each compressor cycle. The control	
ignores the suction temperature an additional 90 seconds	
after the evaporator fan speed has stepped up to high	
because of low suction temperature. The control shuts	
off the compressor if suction temperature remains below	
37F for 120 seconds. The compressor is allowed to run	
again after the anti-short cycle timer has expired	
provided the compressor has shut down less than 3 times	
during this demand cycle for heat.	
Troubleshooting	Solutions







Heat Pump Water Heater (Generation 2) Troubleshooting

Error T006 Compressor Shutdown: Suction Temp Low

Indications	Display
Suction temperature below 37 ⁰ F for more than 3	T006 Compressor Shutdown: Suction Tem
minutes. The control ignores suction temperature for the	
first 90 seconds of each compressor cycle. The control	
ignores the suction temperature an additional 90 second	S Current Alarms
after the evaporator fan speed has stepped up to high	T006 Compressor Shutdown: Suction Temp Low
because of low suction temperature. The control shuts	
off the compressor if suction temperature remains below	1
37F for 120 seconds. The compressor is allowed to run	
again after the anti-short cycle timer has expired	
provided the compressor has shut down less than 3 time	S
during this demand cycle for heat.	
Troubleshooting	Solutions
1. This is a temporary alarm. After the 5 minutes anti-	
short cycle timer expires, the heater makes another	anti-short cycle for 5 minutes; then makes compressor
attempt for compressor.	attempt.
2. If the temporary alarm, T005, occurs three times in	See A006 above.
one demand for heat cycle, the unit fault to A006.	
Does the sensors display show a	
display show a Suction Temperature other	Replace Thermistor
display show a Suction No Temperature other than -40° F or	Replace Thermistor
display show a Suction Temperature other than -40° F or 250° F?	
display show a Suction Temperature other than -40 ⁰ F or 250 ⁰ F? Press <i>Service</i>	; then <i>Sensors</i> . Locate the Suction Temperature
display show a Suction Temperature other than -40° F or 250° F? Press Service line. If there	<i>e</i> ; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)-40 ⁰ F or
display show a Suction Temperature other than -40 ⁰ F or 250 ⁰ F? Press <i>Service</i> line. If there	; then <i>Sensors</i> . Locate the Suction Temperature
display show a Suction Temperature other than -40° F or 250° F? Press <i>Service</i> line. If there 250° F, then t	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)-40 ⁰ F or he thermistor is reading temperature and is good.
display show a Suction Temperature other than -40^{0} F or 250^{0} F? Press <i>Service</i> line. If there 250^{0} F, then t IF the displa	<i>e</i> ; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)-40 ⁰ F or
display show a Suction Temperature other than -40°F or 250°F? Press <i>Service</i> line. If there 250°F, then t	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads - 40^{0} F or 250 ⁰ F, then the thermistor is either
display show a Suction Temperature other than -40^{0} F or 250^{0} F? Press <i>Service</i> line. If there 250^{0} F, then t IF the displa	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads - 40^{0} F or 250 ⁰ F, then the thermistor is either
display show a Suction Temperature other than -40^{0} F or 250^{0} F? Press <i>Service</i> line. If there 250^{0} F, then t IF the displa	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads - 40^{0} F or 250 ⁰ F, then the thermistor is either
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display show a Suction Temperature other than -40°F or 250°F? Yes Yes No Press <i>Service</i> line. If there 250°F, then the IF the display OPEN (-40°I	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads -40^{0} F or 250^{0} F, then the thermistor is either F) or SHORTED (250^{0} F) and needs to be replaced.
display show a Suction Temperature other than -40°F or 250°F? Yes Yes No Press <i>Service</i> line. If there 250°F, then t IF the displa OPEN (-40°I Sensors Upper Tark Temperature Lower Tank Temperature	e; then <i>Sensors</i> . Locate the Suction Temperature is any temperature other than (minus)- 40° F or he thermistor is reading temperature and is good. y reads - 40° F or 250°F, then the thermistor is either F) or SHORTED (250°F) and needs to be replaced.
display show a Suction Temperature other than -40°F or 250°F? Yes Yes No Press Service line. If there 250°F, then t IF the displa OPEN (-40°I Sensors Upper Tark Temperature	e; then Sensors. Locate the Suction Temperature is any temperature other than (minus)- 40° F or he thermistor is reading temperature and is good. y reads -40° F or 250° F, then the thermistor is either F) or SHORTED (250° F) and needs to be replaced.
display show a Suction Temperature other than -40°F or 250°F? Yes Yes Yes No Press Service line. If there 250°F, then t IF the displa OPEN (-40°I Sensors Upper Tank Temperature Lower Tank Temperature Lower Tank Temperature Support of Temperature Lower Tank Temperature Support of Temperature	e; then Sensors. Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads -40^{0} F or 250^{0} F, then the thermistor is either F) or SHORTED (250^{0} F) and needs to be replaced.
display show a Suction Temperature other than -40°F or 250°F? Yes Yes Yes No Press Service line. If there 250°F, then t IF the displa OPEN (-40°T Sensors Upper Tark Temperature Lower Tark Temperature Soction Temperature Suction Temperature Evaporator Temperature Discharge Temperature	e; then Sensors. Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads -40^{0} F or 250^{0} F, then the thermistor is either F) or SHORTED (250^{0} F) and needs to be replaced.
display show a Suction Temperature other than -40°F or 250°F? Yes Yes Yes No Press Service line. If there 250°F, then t IF the displa OPEN (-40°I Sensors Upper Tark Temperature Lower Tank Temperature Lower Tank Temperature Support of Temperature Lower Tank Temperature Support of Temperature	e; then Sensors. Locate the Suction Temperature is any temperature other than (minus)- 40^{0} F or he thermistor is reading temperature and is good. y reads -40^{0} F or 250^{0} F, then the thermistor is either F) or SHORTED (250^{0} F) and needs to be replaced.





Error A007 Compressor Shutdown: Hi Press. Switch Trip

Indications	Display
The high pressure switch is part of the HPWH system that monitors the R410a refrigerant pressure. The control de-energizes compressor if the high pressure switch is open. The compressor is allowed to run again after the anti-short cycle timer has expired provided compressor has shut down less than 3 times during this demand cycle for heat.	A007 Compressor Shutdown: Hi Press. Switch Trip Current Alarms A007 Compressor Shutdown: Hi Press. Switch Trip
Tuenhlacheeting	
Troubleshooting	Solutions
In most cases, this alarm is caused the refrigerant has not had time to transfer its heat into the water inside the tank.	Solutions Lower tank thermostat to less than 135 ⁰ F Move from High Demand Mode to Energy Saver Mode





Error T007 Compressor Shutdown: Hi Press. Switch Trip

Indications	Display
The high pressure switch is part of the HPWH system that monitors the R410a refrigerant pressure. The control de-energizes compressor if the high pressure switch is open. The compressor is allowed to run again after the anti-short cycle timer has expired provided compressor has shut down less than 3 times during this demand	T007 Compressor Shutdown: Hi Press. Switch Trip Current Alarms T007 Compressor Shutdown: Hi Press. Switch Trip
cycle for heat. Troubleshooting	Solutions
1. This is a temporary alarm. After the 5 minutes anti- short cycle timer expires, the heater makes another attempt for compressor.	Press Clear Alarms to bypass T007 code. Unit goes into anti-short cycle for 5 minutes; then makes compressor attempt.
2. If the temporary alarm, T007, occurs three times in one demand for heat cycle, the unit faults to A007.	See A007 above.





Error A008 Detected Dry Fire Condition

Indications	Display
Control senses the conditions are present to dry upper heating element and goes into alarm mod Control samples upper tank thermistor; .then tu upper element for 30 seconds; then OFF. If upp	de. urns on per tank
thermistor temp rises more than 2.5 ^o F in 45 sec then control locks out.	conds,
Troubleshooting	Solutions
None. You do need to verify the upper heating elemer been damaged with an OHMS resistance test.	Fill tank and purge all air from the storage area by running a hot water faucet for 60 seconds. This unit has a hot outlet "J" tube. Purging from the T&P valve will not work to void all air from the storage tank.
Has the upper heating element been dry fired?	Unit appears to be fine. Cycle heater with the Enable/Standby icon. Check for proper operation.
Ver Ver	ss the Enable icon on the home screen to Standby. Now there o power to the lower heating elements. Remove the two wires he upper heating element. asure the ohms resistance to the element. Your meter should d at least 12.8 ohms. If the resistance value is less than 10.0 hs, replace the element. If the element is open, replace it.
Replace upper heating element with a 4500 watt, 240 volt stainless steel element.	

Technical Competence, Product Confidence

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Error A500 Configuration Data Restore Failure

Indications	Display
This alarm means that the control board configurations were verified as faulty on a "restore". In general, the control will run on defaults but board replacement may	A500 Configuration Data Restore Failure
be advised.	
Troubleshooting	Solutions
None. This is all about software and data	Locate the 'reset' button on the control panel.
configuration. The control knows what it needs to do.	Press and hold for 3 seconds.
	Unit should return to normal operations.
Remove the control cover.	
Check for a blinking communications light between the two RJ45 connections in the upper left hand portion of the control board.	If not, replace the control.
Check the TSD board. Look for a blinking communications light directly below the RJ45 connection.	

Control board. Blinking light between the two RJ45 connectors indicate a communications attempt with TSD.







Heat Pump Water Heater (Generation 2) Troubleshooting

Error D001 Communications Error

or D001 Communications Error		
Indica	ations	Display
The di	splay has lost communications with the	D001 Communications Error
contro	l board. This is a hardware or software	
issue.	Most probably it is the communications	Current Alarms
cable	with the RJ25 jacks on both ends that	
connee	ct the control board to the TSD. This	D001 Display Communication Failure
fault is	s NOT logged in Alarm History.	
	oleshooting	Solutions
1. 2. 3.	Remove the control cover. Check for a blinking communications light between the two RJ25 connections in the upper left hand portion of the control board. Blinking light between the two RJ25 connectors indicate a communications attempt with TSD Check the TSD board. Look for a blinking communications light directly below the RJ25 connection. Blinking light directly below the RJ25 connection indicates a communications attempt. The second, stead ON, LED light indicates power to the TSD. Check LED3 and LED 4 at the botton of the TSD board. If LED3 is blinking slowly, then the board is normal. IF LED4 is steady ON, the unit has a fault. Gently wiggle the RJ25 connection wires. The problem may be a short or	Solutions 1. Locate the 'reset' button on the contropanel. Press and hold for 3 seconds. Unit should return to normal operations. 2. Replace the communications cable. Control Board: Control Board: Touch Screen Display Board
5.	open in the communications cable. Remove and reverse the RJ25. This solution may work or it may not.	
6.	Press SW1 on the TSD control board to reset the board.	
7.	If all of the above fail, then replace the communications cable.	