

Trouble Shooting

DT Platinum Pasteurizers

This guide is intended for use as a troubleshooting directive. All electrical tests and diagnostics should be performed only by those skilled in the electrical profession

All electrical testing and repairs should be performed by an experienced professional or technician trained in the electrical trade

Serious injury or death may result from improperly testing or handling this equipment

This unit contains HIGH VOLTAGE electricity that can cause serious harm or death



1. No power to the control panel
 - a. Check to be certain unit is plugged into 120vac outlet and that there is power at the outlet.
 - b. Be certain that breakers in panel box or ground fault receptacle are not tripped
 - i. If the breakers are being tripped, the system is likely being shorted to ground. Look for any blown fuses to indicate trouble areas and consult the fuse layout for more detail. Have the system checked by a certified electrician before operating.
 - c. Check the 15amp fuse (F1). Make sure there is 115vac to and through the fuse. If not, replace with appropriate fuse. **DO NOT REPLACE WITH OVERSIZED FUSES. (Part # AE-Fuse15)**
 - d. Make certain that the float valve in the water heater tank is floating and that there is water in the tank. To protect the heating elements this float switch behaves as a shut-off in case the unit runs dry. It is wired through the transformer 24vac output. If the float is damaged or sticking, replace with **(Part # AE-Float)**.
 - e. Check the rocker switch to see if it is lit when switched on. This should indicate that power is getting to the switch. If there is not 115vac leaving the switch through the black/yellow wire when switched on, the switch may need replaced **(Part# AE-Rocker)**
 - f. Check the transformer (TX1) for proper voltages. The purple and grey wires should carry a 24-32VAC signal to the control. The black/brown and white/brown wires carry the 115VAC supply to the transformer. **(Part# AE-TXFR)**

- c. Check the bottom of the milk tank to make certain that it is being cleaned properly after each use. If there is milk build up or significant sticking, the unit is not being cleaned properly and heat transfer will be decreased, but more importantly, this is a prime opportunity for pathogens to grow.
 - d. Milk level is not high enough. The thermocouple needs to be fully covered in milk as it measures milk temperature at the tip. Also, too little milk will not allow optimal stirring which will decrease heat transfer and give false temperature readings.
 - e. Cold water is coming into the system. If there is a leak in the system, such as a leaking cold water solenoid valve, or the refrigerant coolant is pumping through the system during the heating cycle, the heater cannot keep up and the milk will not heat properly. Repair the leak or replace the valve (Part #AP-Valve)
4. Milk will not cool
- a. At the end of the heating and time-out cycle, the cooling solenoid valve should automatically open and allow water to drain from the machine.
 - i. Make certain the discharge drain is not blocked, kinked or obstructed with back pressure of any kind
 - ii. Make certain the cold water supply to the unit is always on ... it is common to find that someone has shut the valve not knowing its importance.
 - iii. Make certain that the user did not initiate a “Heat Only” cycle after which the unit does not cool the milk automatically. Use the “Start” button to initiate full cycles.
 - b. Check the cooling solenoid valve. The thermocouple temperature must be above 100F or above your coolT setting in the control for the cycle to initiate.
 - i. Is there power to the valve on the top receptacle? If so, and it is not opening, replace the valve. (Part# AP-Valve)
 - ii. No power to the valve: Check the fuse marked Refrigeration-Circulation (F5). Replace if necessary and check for power to the fuse from the cube relay K3 via the black wire. There should be 115vac power supply to the top of the K3 through the brown wire. The 115vac signal from the control comes through the blue wire to open the relay. If the relay is powered, replace the relay or the base of the relay. (Part# AE-relay8 or AE-relaybase)
 - iii. If there is no 115vac signal to the relay from the blue wire, check the cold control fuse (F2) or the output from the control may be malfunctioning (Part# E-control)
 - c. Check the pressure relief valve to make certain water is flowing through. This is extremely important to prevent excessive pressures in the cooling jacket and requires replacement before further use if is not working. (Part# AP-ValRed)
 - d. Refrigeration system does not seem to be working

- i. Circulation pump may not be working. Look in the rear of the unit for pink coolant to flow through the clear fittings to see if the pump is working.
 1. Check for power to the pump top receptacle. If no power to the receptacle during the cooling cycle, trouble-shoot the same electrical issues at K3 as 4.b.ii above.
 2. The pump can be removed and tested by lowering the intake port into a bucket of water to see if it pumps. If it is powered but will not pump, replace with (Part# AP-Pump)
 3. The coolant level may be too low for the pump to self prime or to continue to stay primed once it starts. Check the levels of coolant and add if necessary.
 - ii. The refrigeration units for DT10R and DT30R have a temperature control that is dialed in to keep the coolant temperature low. Check for power to the control which is located under the unit on the inside of the grill cover. If the unit is not on, check for power at the receptacle, check the refrigeration fuse F4 (Part# AE-Fuse10amp), and check the display on the temperature control (Part# AE-tempctrl).
 - iii. If there is no power to the fuse F4, check the cube relay K4. The power supply is through the brown wire. Power out is through the brown/white wire. The signal from the control is through the white/blue wire at position 8. If properly signaled but no power out, replace the relay (Part# AE-Relay8) or base (Part# AE-relaybase). If no signal, the control output may be damaged. (Part# E-control)
 - iv. If the compressor is running, the coolant level is adequate and the pump is circulating the coolant but still no cooling, call a certified refrigeration repair to investigate the compressor/condenser unit. (Part# AE-Condenser)
5. Error message appears: The display is on but is flashing an Error message.
 - a. If it shows only "ERROR" without a number, the unit has exceeded the set amount of time it thinks is required to complete the cycle and is indicating that the process should be monitored for problems. This setting is labeled "terr" in the E-type submenu of the controller and will likely be set for 3-5 hours depending on the unit size and whether refrigerated or not.
 - b. Check to make certain that the thermocouple terminal strip is plugged into the back of the controller inside of the control box. There may also be corrosion at a terminal, or a break in continuity of the thermocouple system that is causing the error.
 - c. Error codes
 - i. Error 1, Error 2 or Error 3: controller malfunction. Cycle the power off and then back on. The system may be too cold to operate. If the

error persists, return the controller for replacement. (Part# E-Control)

- ii. Error 4: calibration error in the controller. Return the controller for recalibration or replacement.
- iii. Error 5 and Error 7: temperature sensor input 1 (milk) is incompatible with the controller, has lead wires improperly terminated (leads switched at the terminal) or is measuring a condition below the normal temperature range. Check the lead wires for t/c 1 and check the controller for proper t/c selection and parameters. Check all t/c connections to make certain they are making a good connection. See thermocouple diagnostics below for more information and troubleshooting procedures.
 - 1. This is the thermocouple that travels from the positions 1&2 on the back of the control down to the milk tank where it enters into the milk well that protrudes up into the tank.
- iv. Error 6 and Error 8: temperature sensor input 1 (milk) is incompatible with the controller, has lead wires improperly terminated (leads switched at the terminal) or is measuring a condition above the normal temperature range. Check the lead wires for t/c 1 and check the controller for proper t/c selection and parameters. Check all t/c connections to make certain they are making a good connection. See thermocouple diagnostics below for more information and troubleshooting procedures.
 - 1. This is the thermocouple that travels from the positions 1&2 on the back of the control down to the milk tank where it enters into the milk well that protrudes up into the tank.
- v. Error 9 and Error 11: temperature sensor input 2 (heater) is incompatible with the controller, has lead wires improperly terminated (leads switched at the terminal) or is measuring a condition below the normal temperature range. Check the lead wires for t/c 2 and check the controller for proper t/c selection and parameters. Check all t/c connections to make certain they are making a good connection. The system may be too cold to operate.
 - 1. This is the thermocouple that travels from positions 4&5 on the back of the control down into the cabinet where it enters into the hot water heater to monitor water temperature. Located in the front or rear of the machine between the heating elements.
- vi. Error 10 and Error 12: temperature sensor input 2 (heater) is incompatible with the controller, has lead wires improperly terminated (leads switched at the terminal) or is measuring a condition above the normal temperature range. Check the lead wires for t/c 2 and check the controller for proper t/c selection and parameters. Check all t/c connections to make certain they are making a good connection.

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 - vii. Error 13: ambient temperature around the equipment is too high or too low.
 - viii. Error 14: Real time clock error. Not a fatal error but may require replacement if the clock is not able to be used properly for delayed start function. (Part# E-control)
6. Temperature Display is erratic or incorrect.
 - a. Troubleshooting the thermocouple system
 - b. The thermocouples are polar sensitive and will yield erratic numbers or even move down in temp when the process is heating if they are wired in reverse. The unit may also flash an unusually high number and then immediately indicate END or begin to countdown because the unit thinks it has reached temperature. Make certain that purple or white leads are positive (+) and red leads are negative (-) at all junctions.
 - c. The thermocouple rod itself could be damaged or kinked. To test this, unplug the thermocouple from the black plug on the back of the control. Make a u-shaped jumper with a paperclip and insert it into the plug. If the error goes away, the problem is in the respective thermocouple (Part # AE-tc-HTTC66-E-14U-2).
 - d. The milk thermocouple occupies positions 1&2 on the back of the control. The water heater thermocouple occupies positions 4&5.
 - e. The controller may be programmed to read the wrong type of thermocouple. (This condition may allow the unit to operate but at temperatures that are different than what is displayed ... cross reference with a second thermometer if concerned about this rare occurrence and contact your dealer immediately to reprogram the control).
7. Milk is separated or congealed
 - a. The most common cause for milk or colostrum to separate or congeal is acidification of the milk caused by two processes:
 - i. Fermentation of the milk by bacteria will cause the release of lactic acid and other acidic by-products resulting in a lower pH of the milk. This in turn allows it to separate. The heat of pasteurization will exacerbate this problem. To control this, cool the milk during holding stages or pasteurize the milk sooner after collection to prevent the start of fermentation.
 - ii. Acidic cleaners are not being rinsed from the system. Rinse properly before each use. Do not use acids to clean the aluminum parts as this can cause severe damage to the tanks and pose a safety risk for the employees.
 - b. Thickened milk or colostrum that is stuck to the tank may be due to:
 - i. Improper stirring (make certain the propeller is moving during heating, time out and cooling cycles)

- ii. Temperatures that are too high (rarely a problem since our units cannot superheat water).
- 8. Stir motor is not turning
 - a. Check the fuse for the motor F7 (Part# AE-fuse2)
 - b. If the fuse is good, make certain that the wire to the motor has not been damaged or pulled out of the unit going to the control box motor housing or on the rear of the motor.
 - c. If there is power to the motor and it will not turn, replace the motor (Part# AE-motor)
 - d. If there is no power to the motor and the fuse is good, check the solid state relay K1. During heating, timing or cooling cycles, the red LED should be on at this relay indicating power from the controller. If this light is not on, check for a DC signal from the controller through the red and black wires and check fuses to the control. The output from the control may be malfunctioning, replace the control (Part# E-control).
 - e. If 115VAC power comes into the SS relay K1 through the brown wire but does not go out through the black/red wire when the LED is on, replace the relay (Part # AE-RelaySS)
- 9. Delay start does not come on automatically
 - a. Check the clock settings to make certain that the time of day is set correctly
 - b. Make certain that the steps for using the delay start are being followed exactly. The start button should be pushed 3 times to set the delay start mode.
 - c. The control output could be damaged. (Part# E-control)
- 10. Cycle starts automatically when toggle is switched on
 - a. Your pasteurizer is equipped with a security feature that reminds it to come back on to its last unfinished cycle once power is restored after a power failure. This will also occur if someone shuts the unit off prior to completion of its assigned cycles, and the unit will automatically restart when the toggle switch or power is restored. To reset to IDLE, hold the START, HEAT ONLY, or COOL ONLY (whichever button is lit) button in for 3 seconds ... let it go to pause and continue to hold in until back to IDLE.
- 11. Cooling solenoid valve will not stop running
 - a. Shut off cold water supply and remove the 4 bolts into the body of the solenoid valve. Check for debris that may be preventing the diaphragm of the valve from reseating properly.
 - b. The valve may need to be replaced if it is powering properly but not closing when the solenoid closes (Part # AP-valve)
- 12. Fuse and electrical schematic:
 - a. DT10W and DT10R
 - i. F1 Main power supply 115vac 20A Part# E-fuse20F
 - ii. F2 Control protection 1A Part# E-fuse1
 - iii. F3 Cold valve or circ pump 2A Part# E-fuse2
 - iv. F4 Refrigeration 15A Part# E-fuse15

v.	F5	Relay Fuse	1A	Part# E-fuse1
vi.	F6	Heater	20A	Part# E-fuse20slo
vii.	F7	Stir motor	2A	Part# E-fuse2
b. DT30W and DT30R				
i.	F1	Main power supply 115vac	15A	Part# E-fuse15
ii.	F2	Transformer	1A	Part# E-fuse1
iii.	F3	Cold valve/pump	2A	Part# E-fuse2
iv.	F4	Refrig/Accessory	10A	Part# E-fuse10
v.	F5	Ctrl/Refrig	1A	Part# E-fuse1
vi.	F6	Ctrl/Valve or pump	1A	Part# E-fuse1
vii.	F7	Stir motor	2A	Part# E-fuse2

13. Water or coolant is leaking from the cabinet

- a. Minor dripping may simply be due to condensation, especially in refrigerated units.
- b. A small leak may exist in the internal plumbing or around the edges of the water jacket. Call for advice in repairing leaks.
- c. The coolant tank in DT10R and DT30R is not sealed at the top; therefore, tipping of the unit or overfilling may cause coolant leaks to appear. This is not a major concern unless the coolant continues to leak and levels drop below operable cooling levels. Call for advice.

14. Milk tank is becoming pitted.

- a. Some of the tanks used in the Platinum Series are food grade aluminum tanks. These are the same quality found in all commercial kitchens. Exposure to milk acids or other harsh chemicals can result in eventual erosion of the tank. Do not use milk cleaning acids in the tanks. Like in a kitchen, mild detergents such as DAWN® dish soap and a scouring pad are adequate for all cleaning purposes if it is done after each use of the equipment.

15. List of components and respective relays:

K1 solid state relay	stirring motor	AE-relaySS
K2 solid state relay	Heater or heater contactor	AE-relaySS
K3 cube relay	cold water valve or circ pump	AE-relay8
K4 cube relay	refrigeration unit	AE-relay8
K5 contactor	220vac heater contactor	AE-contact
Receptacle top	cold water valve or circ pump	AE-recept
Receptacle bottom	refrigeration unit	AE-recept
Cube relay base	K3 and K4 relays	AE-relaybase

for parts list and ordering visit www.dairytechinc.com

