EB30E 480 volts. Field Assist Troubleshooting Guide

Welcome to the Campo **"Field Assist Troubleshooting Guides".**

These guides were developed to assist the working technicians in the field. We've supplied issues and solutions to the most common problems encountered in the field. If you need assistance while troubleshooting on the job, they are easy to store in your smart phone, tablet or computer.

Getting Started is easy! Just click on Page #

for the problem you are encountering

Be sure 480 Volts 3 Phase. Field Assist Troubleshooting Guide

- Check the power supply line into the fuses, check voltage between all phases and "NOT to ground." Check voltage you must have, F1 to F2, 480 volts, F2 to F3, 480 volts, F1 to F3, 480 volts. Check voltage… F4 to F5, 480 volts, F4 to F6, 480 volts, F5 to F6, 480 volts.

Line into fuses
F1-F2-F3-F4-F5-F6

- No voltage on one of the phases indicates…
  - ✓ Issue with power from land line or generator.
  - ✓ Lose wire connection.

- If voltage into the line heater is good…Page 3

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Be sure 480 Volts 3 Phase. Field Assist Troubleshooting Guide

Check the power supply load out of the fuses. Check voltage between all phases and "NOT to ground." Check voltage you must have, F1 to F2, 480 volts, F2 to F3, 480 volts, F1 to F3 ,480 volts. Check voltage… F4 to F5, 480 volts, F4 to F6, 480 volts, F5 to F6,480 volts.

F1-F2-F3-F4-F5-F6
Load out of fuses

- No voltage on one of the phases indicates…
- ✓ Burnt fuse.
- ✓ loose connection.

- If voltage is good on load of the fuses…Page 4

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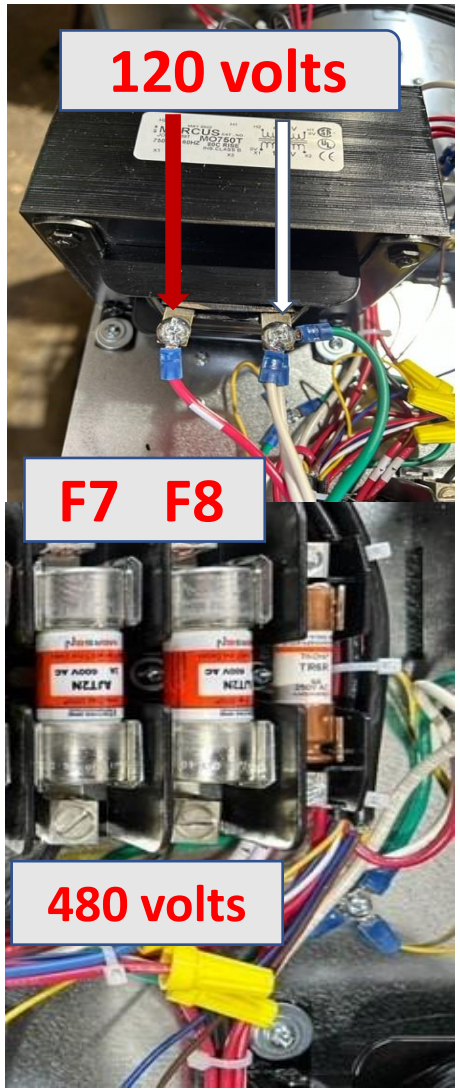
You have no fan and no heat. Field Assist Troubleshooting Guide



- Check for 120 volts between the Red and White wires of the transformer.
- If 120 volts not present, check for 480 volts on F7 and F8 on 2-Amp fuses.

✓ If 480 volts is present, defective transformer.

✓ If 480 volts not present, burnt fuse.

- If 120 volts is present on Red and White wire on transformer…Page 5

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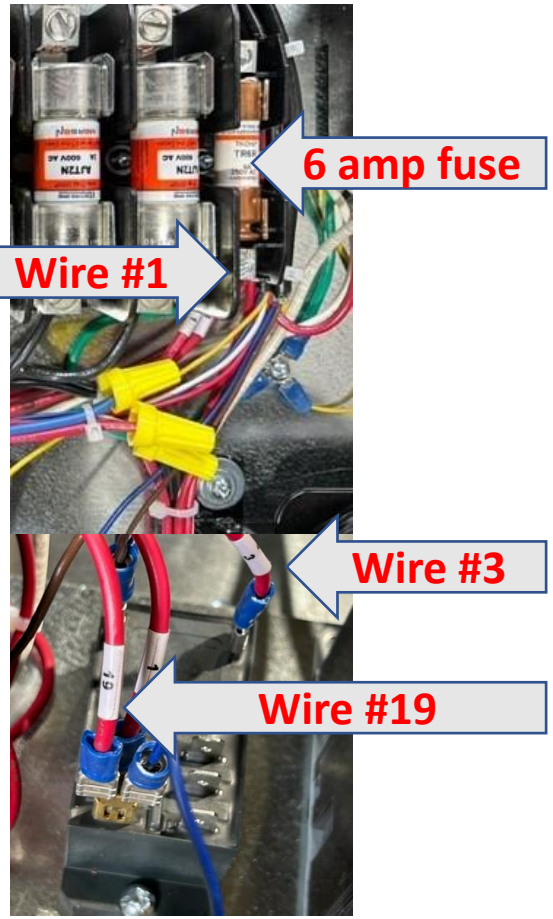
You have no fan and no heat. Field Assist Troubleshooting Guide



- Check for 120 volts on 6-amp fuse F9 wire # 1.

✓ If 120 volts is not present, burnt 6-amp fuse.
- If 120 volts is present, check for 120 volts on relay Red wire # 3 and
- white neutral wire on transformer.

✓ If 120 volts not present, defective Bypass switch.
- If 120 volts is present, check on relay wire # 19.

✓ If 120 volts is not present, defective R relay.

Problem solved

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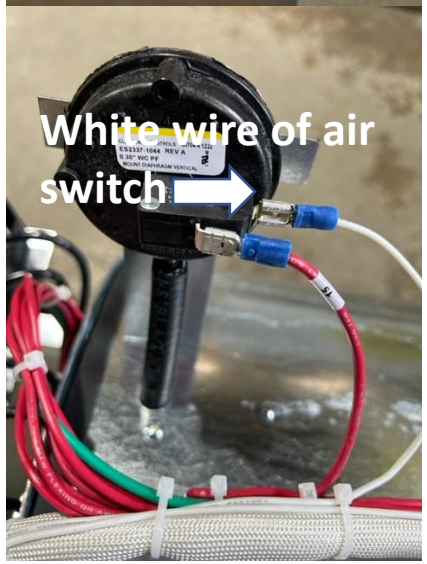
The fan starts but no Heat. Field Assist Troubleshooting Guide



- Check for 120 volts wire # 14 on Hi limit disc and white neutral of the transformer.

✓ If 120 volts not present, defective bypass switch.

- If 120 volts is present, check for 120 volts wire # 15 on Hi Limit disc and neutral of the transformer.

✓ If 120 volts not present, defective Hi Limit disc.

- Check for 120 volts on white wire of air proving switch.

✓ If 120 volts not present, defective air proving switch.

- If 120 volts is present…Page 7

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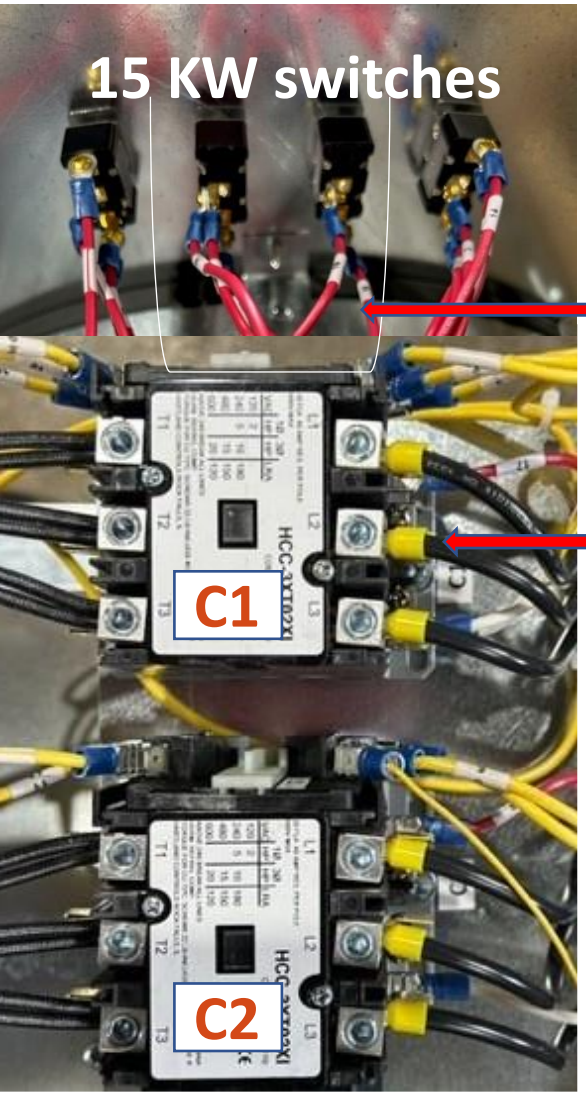
The fan starts but no Heat. Field Assist Troubleshooting Guide



- Check for 120 volts on wire # 16 on 15KW switch.

✓ If 120 volts not present, defective fan motor thermostat.
Wires on switches are numbered.

- If 120 volts is present, check wire # 17 on C1 coil.
- If 120 volts is not present, defective toggle switch 1.
- If 120 volts is present, check for 480 volts between T1-T2 and between T1-T3 and between T2-T3 all phases should have 480 volts.

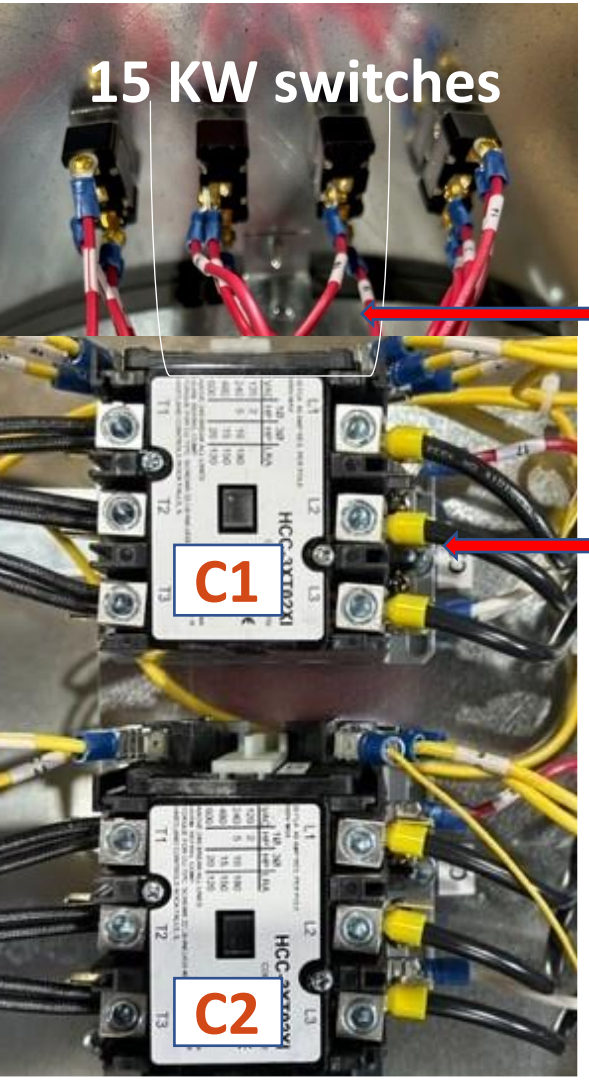
✓ If 480 volts not present on one of the phases, defective contactor.

✓ If 480 volts is present on all phases, defective elements.

Repeat the same test for C2 contactor…Page 8

The fan starts but no Heat.

Field Assist Troubleshooting Guide



- Check for 120 volts on wire # 18 on C2.

If 120 volts is not present, defective toggle switch 2.

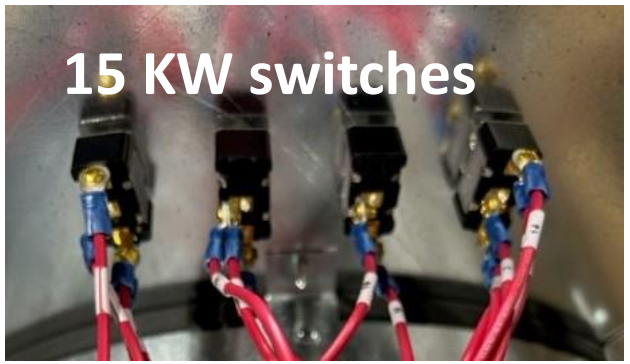
✓ If 120 volts is present, check for 480 volts between T1-T2 and between T1-T3 and between T2-T3 all phases should have 480 volts.

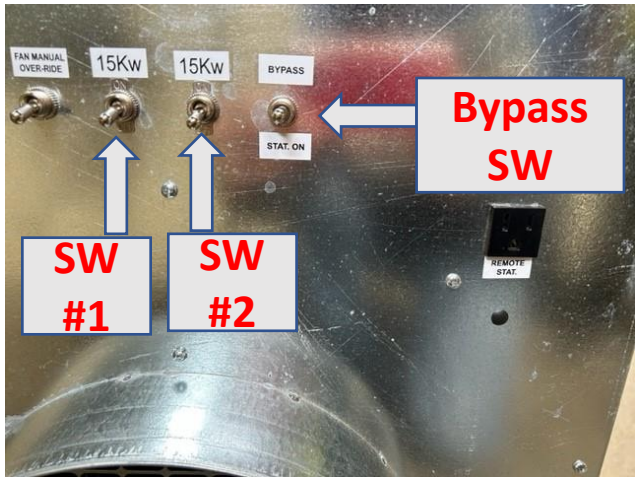
✓ f 480 volts not present on one of the phases, defective contactor.

✓ If 480 volts is present on all phases, defective elements.

Problem Solved

The heater only heats on 15 KW.





- Note: when the two 15 KW switches are calling for heat but only one bank of elements is on.
  - Possible issue.
  - ✓ Defective 15 KW Switch # 1 or 15-KW switch # 2.
  - ✓ Defective contactor C1 or C2
  - ✓ Defective bank of elements.
- With the bypass switch in the on position, turn on # 1 (15 KW) switch. check to see if the fan is blowing out cold air.

✓ If it is, that bank of elements is not working.

✓ If is blowing hot air, the # 2 (15 KW) bank is not working.

✓ Continue…Page 10

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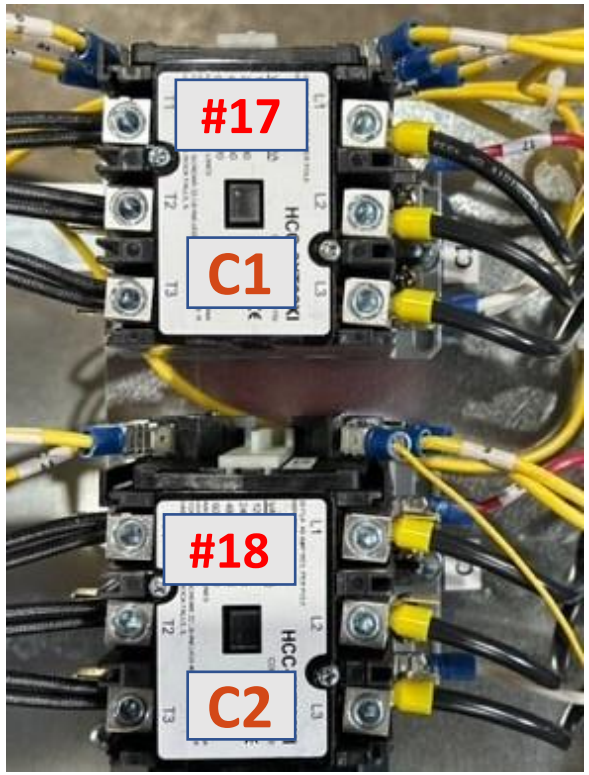
The heater only heats on 15 KW.

- Check on the back of the 15 KW switch that is not working, see what number wire is leading to the contactor coil. It is either # 17 or # 18 .



- # 17, powers the coil of contactor C1.
- # 18, powers the coil of contactor C2

- Check for 120 volts on the corresponding contactor.

✓ If 120 volts not present the 15 KW switch is defective.

- If 120 volts is present, check the corresponding contactor for 480 volts between T1-T2 and between T1-T3 and between T2-T3 all phases should have 480 volts.

✓ If 480 volts not present on one of the phases, defective contactor.

✓ If 480 volts is present on all phases, defective elements.

Problem Solved

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Control of fan speed high, low.

- Checking bank 1 of interlocks C1
- The fan starts on one of the 15KW switches and not the other.
  - Check for 10 volts DC between wire # 5 and red wire # 4 on interlock C1.
  - ✓ If 10 volts DC is not present, defective fan motor CPU.
  - If 10 volts DC is present, check between red wire # 4 and yellow wire # 11 on interlock C1.
  - ✓ If 10 volts DC is not present, defective interlock C1
  - If 10 volts DC is present, check between red wire # 4 and yellow wire # 10.
  - ✓ If 10 volts DC is not present, defective C2 interlock.

Problem Solved

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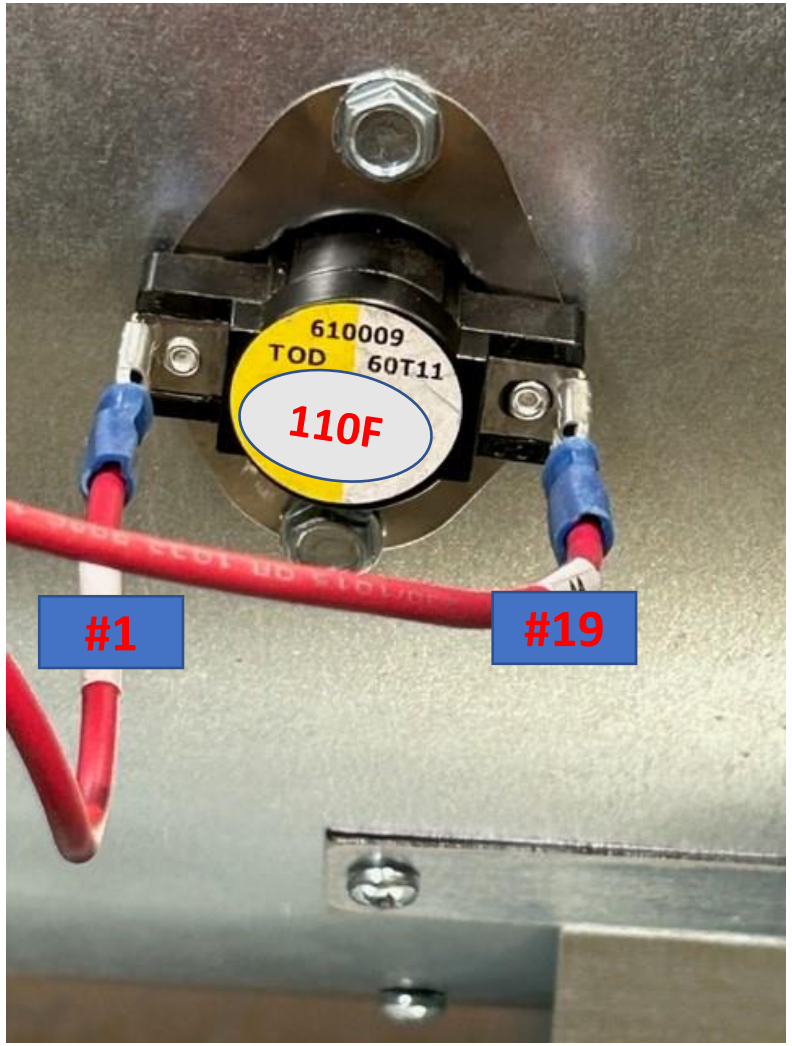
The fan shuts off before cooling down.



- If the fan shuts off before the heater cools down.

✓ Defective fan 110F° disc, contact stuck.

Problem Solved

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The fan won't shut off.

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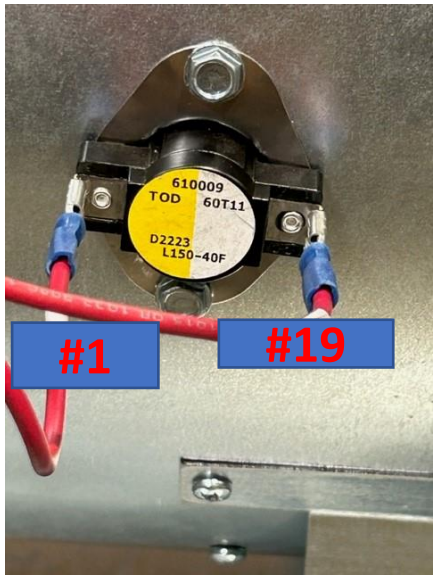

- Check for 120 volts on # 19 wire of fan 110F^{o} disc.

✓ If 120 volts is present, fan disc or R relay is defective.
✓ Remove wire # 19 from the fan 110 disc.
✓ If the fan stops, defective 110 disc.
✓ If the fan continues to run, defective R relay.

- . Problem Solved

The fan only runs on one speed.

The blower fan on the EB30 E operates at two speeds. When heating on 15KW (1 bank of elements) the fan runs on a slower speed. When heating on 30KW (2 bank of elements) the fan runs on a faster speed (more rotations per minute RPM).

In order to accomplish the 2 different speeds, we use a series of interlocks and resistors to control the electronic card (CPU) inside the fan motor. The voltage to control the card is DC. The high speed is controlled by sending a signal of 10 volts DC and the low speed is lesser voltage. The resistors decrease or increase the voltage to the CPU located in fan motor. The yellow wires on the interlocks are 10-volt DC .
If you are not sure the problem is the interlock or the fan motor, contact us at1-866-323-0042 and we can help you.

- Note: the CPU is in the fan motor, it is not field serviceable

Annual Maintenance Check List.

- ✓ Inspect all wiring for broken wires or loose connections.
- ✓ Tighten all high voltage connections replace if necessary.
- ✓ Using compressed air blow off all dust from interlocks.
- ✓ Using compressed air blow off all dust from electrical components.
- ✓ Using compressed air blow off all dust from elements.
- ✓ Check all fuses.
- ✓ Inspect heater casing for dents or damage repair or replace if necessary
- ✓ Store in clean dry enviorment.
- ✓ Tag ready to put into service, after maintanace has been completed.

EB30E 480 volt set up. Field Assist Troubleshooting Guide

- ✓ Ensure proper voltage is supplied to the heater (480 volts 3 Phase)
- ✓ Ensure proper wiring size is used for amperage draw.
- ✓ Install on noncombustible base (material).
- ✓ Ensure the heater is not placed in an area where combustible gases are circulating.

- Starting the heater…
- Select the desired heat capacity (15KW or 30 KW)
- Turn the bypass switch to on.

➢ Note: **If power is being supplied by a generator, start the generator first and check the voltage being supplied before starting the heater.**

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