

EB30E 600 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

There is No fan, No heat...[Page 2](#)

Control of fan speed high, low ...[Page11](#)

The fan starts but no Heat...[Page 6](#)

The fan shuts off before cooling down...[Page 12](#)

only heats on 15 KW...[Page 9](#)

The fan won't shut off...[Page 13](#)

Annual Maintenance...[Page 15](#)

The fan runs only on one speed...[Page 14](#)

Heater set up...[Page 16](#)

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Contact us...[Page 17](#)

Be sure 600 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, **600 volts**, F2 to F3, **600 volts**, F1 to F3, **600 volts**. Check voltage... F4 to F5, **6000 volts**, F4 to F6, **600 volts**, F5 to F6, **600 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](#)

Be sure 600 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, **600 volts**, F2 to F3, **600 volts**, F1 to F3, **600 volts**. Check voltage... F4 to F5, **600 volts**, F4 to F6, **600 volts**, F5 to F6, **600 volts**.

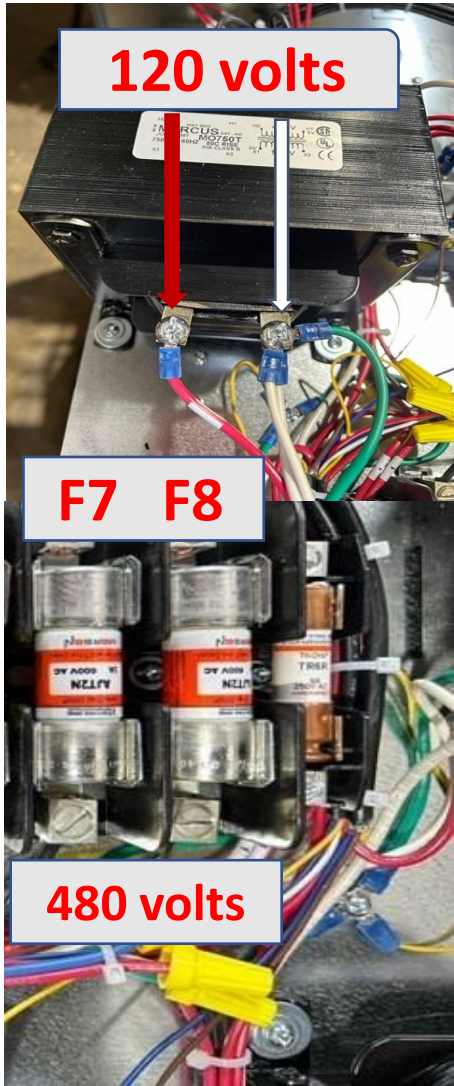
F1-F2-F3-F4-F5-F6

Load out of fuses



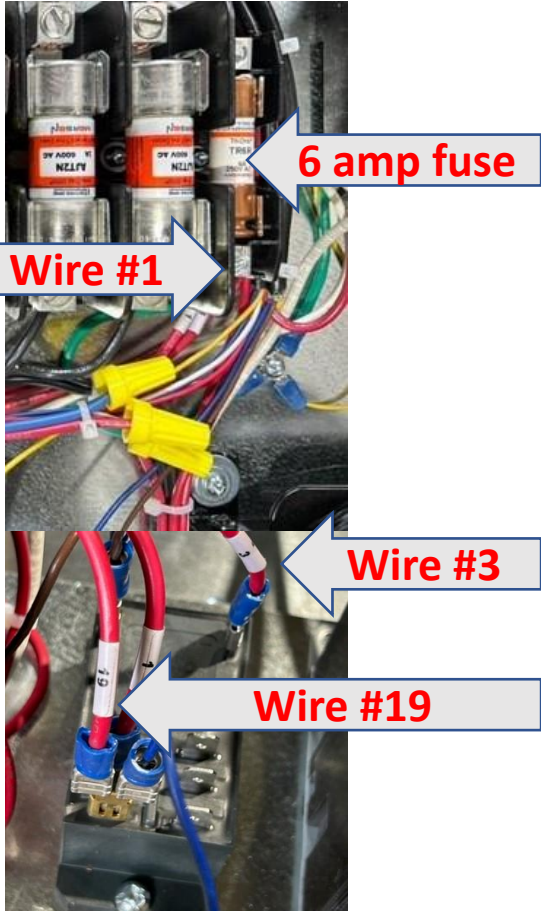
- No voltage on one of the phases indicates...
 - ✓ Burnt fuse.
 - ✓ loose connection.
- If voltage is good on load of the fuses... [Page 4](#)

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 **600 volts** **is** present, defective transformer.
- ✓ If **600 volts** **not** present, burnt fuse.
- If 120 volts is present on Red and White wire on transformer...[Page 5](#)

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.

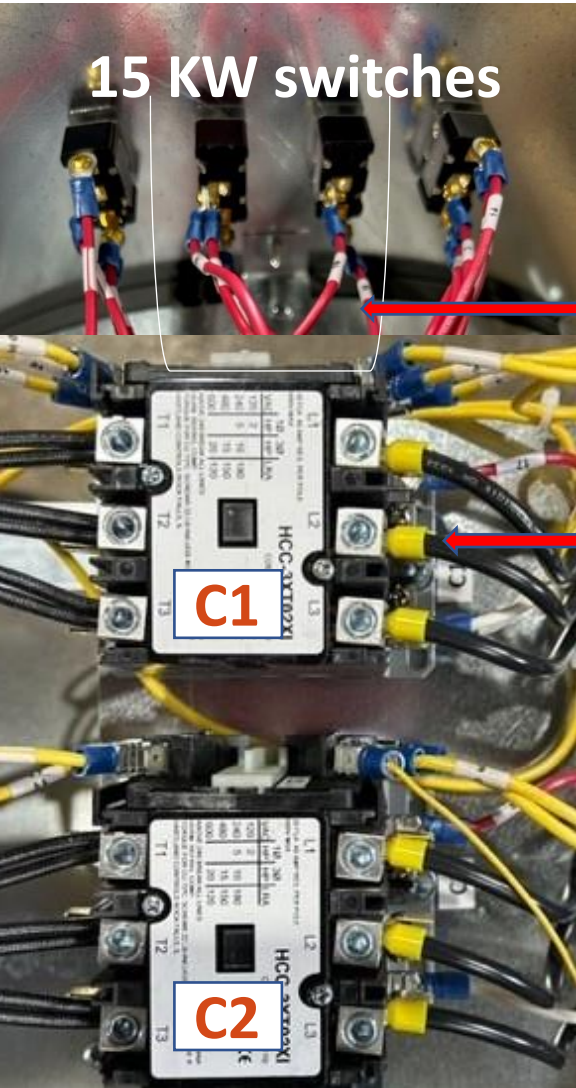
Problem solved

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](#)

The fan starts but no Heat. Field Assist Troubleshooting Guide

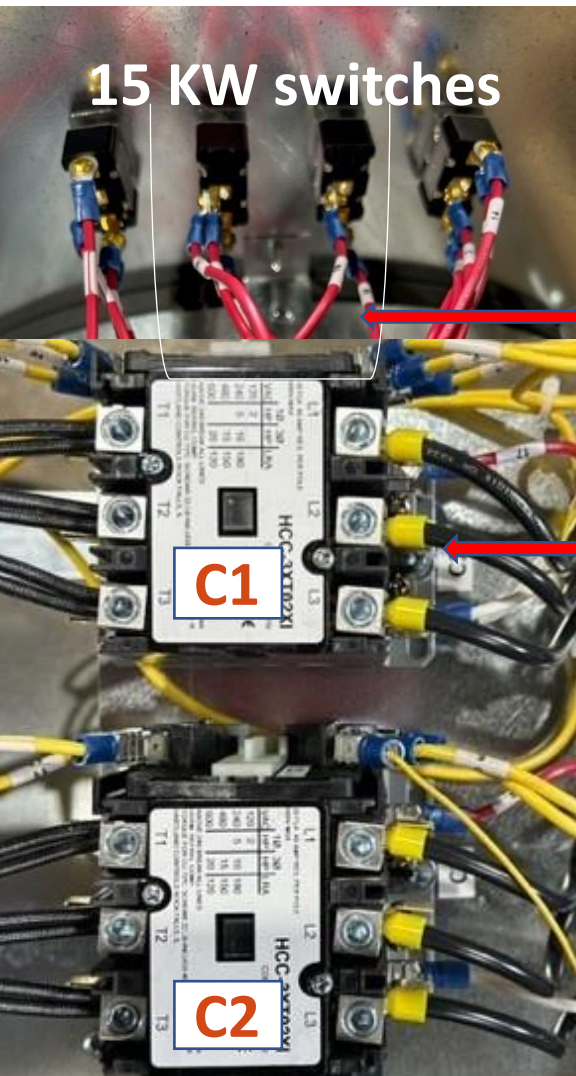


- Check for **120 volts** on wire # 16 on 15KW switch.
- ✓ If **120 volts not** present, defective fan motor thermostat. Wires on switches are numbered.
- If **120 volts is** present, check wire # 17 on C1 coil.
- If 120 volts is not present, defective toggle switch 1.
- If **120 volts is** present, check for **600 volts** between T1-T2 and between T1-T3 and between T2-T3 all phases should have **600 volts**.
- ✓ If **600 volts not** present on one of the phases, defective contactor.
- ✓ If **600 volts is** present on all phases, defective elements.

Repeat the same test for C2 contactor...[Page 8](#)

The fan starts but no Heat.

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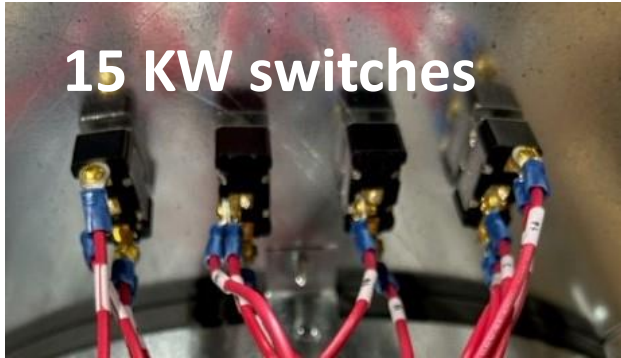


- Check for **120 volts** on wire # 18 on C2.
If 120 volts is not present, defective toggle switch 2.
- ✓ If **120 volts** is present, check for **600 volts** between T1-T2 and between T1-T3 and between T2-T3 all phases should have **600 volts**.
- ✓ If **600 volts** not present on one of the phases, defective contactor.
- ✓ If **600 volts** is present on all phases, defective elements.

Problem Solved

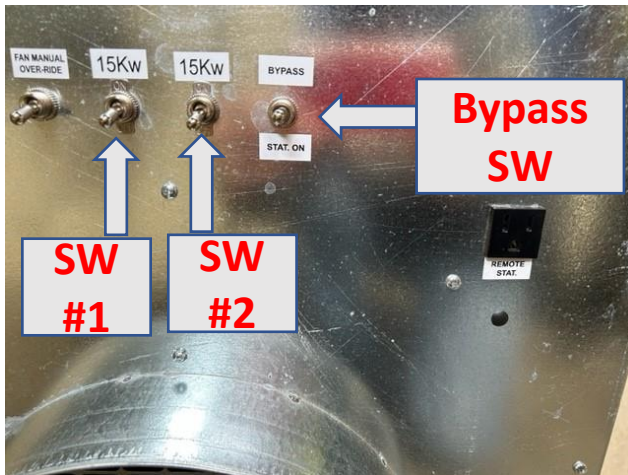
The heater only heats on 15 KW.

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➤ **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.



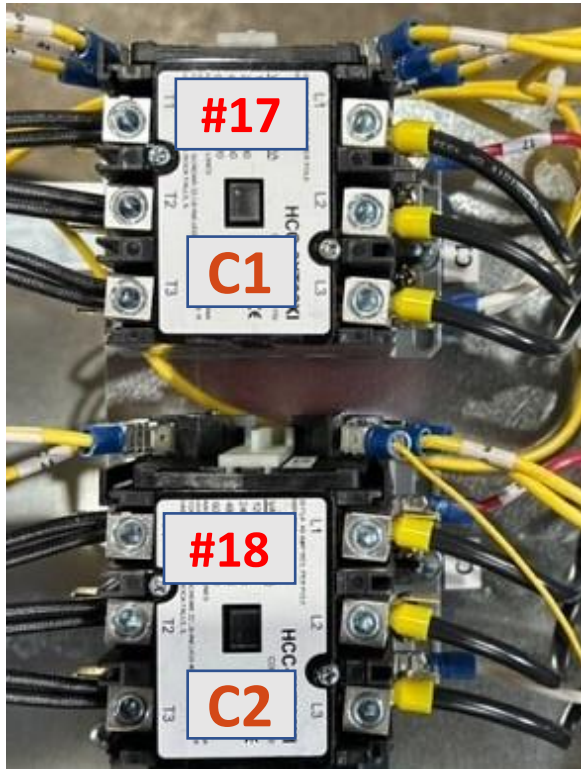
- With the bypass switch in the on position, turn on # 1 (15 KW) switch. check to see if the fan is blowing out cold air.
 - ✓ If it **is**, that bank of elements is **not** working.
 - ✓ If is blowing hot air, the # 2 (15 KW) bank is not working.
 - ✓ Continue...[Page 10](#)

The heater only heats on 15 KW.

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- 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 .

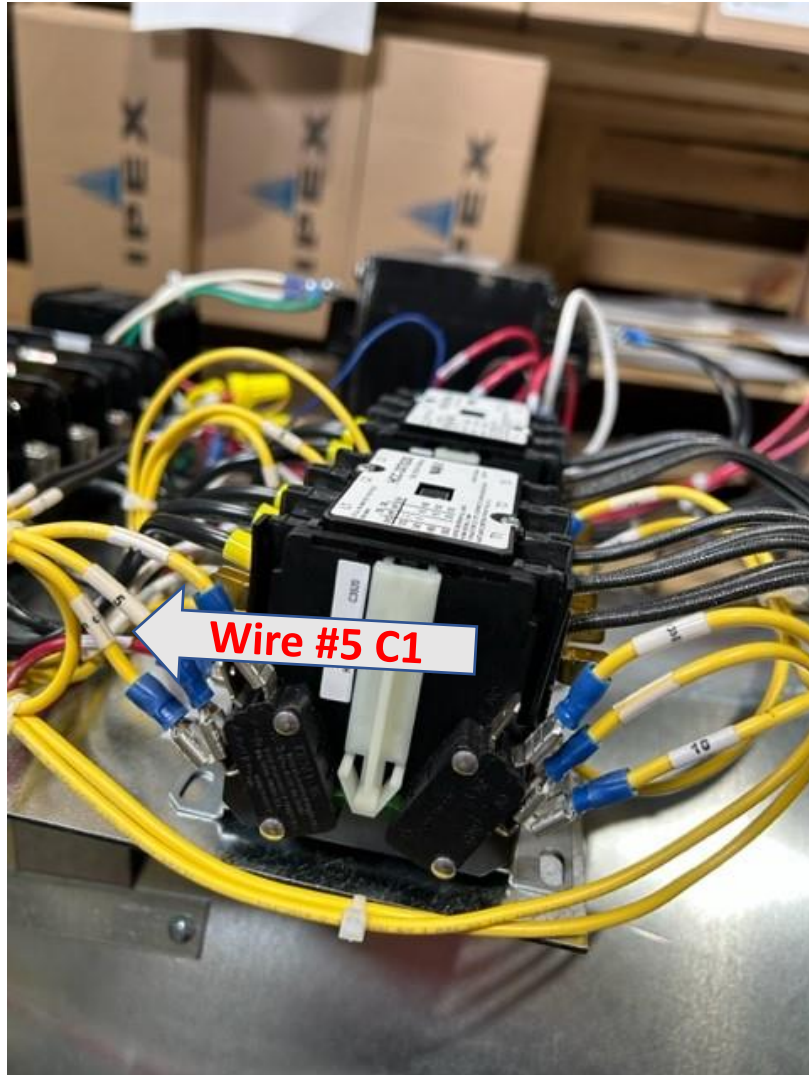


- # 17, powers the coil of contactor C1.
- # 18, powers the coil of contactor C2
- Check for **120 volts** on the corresponding contactor.
- ✓ If **120 volts not** present the 15 KW switch is defective.
- If **120 volts is** present, check the corresponding contactor for **600 volts** between T1-T2 and between T1-T3 and between T2-T3 all phases should have **600 volts**.
- ✓ If **600 volts not** present on one of the phases, defective contactor.
- ✓ If **600 volts is** present on all phases, defective elements.

Problem Solved

Control of fan speed high, low.

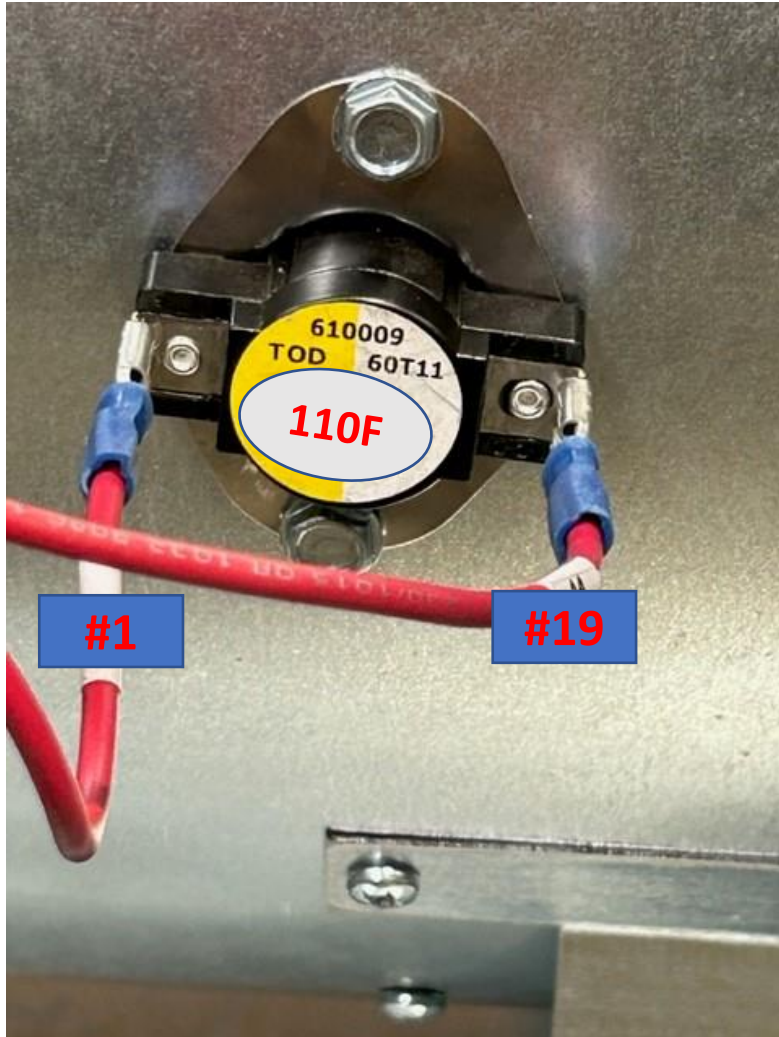
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- Checking bank 1 of interlocks C1
- The fan starts on one of the 15KW switches and not the other.
 - Check for **10 volts DC** between wire # 5 and **red** wire # 4 on interlock C1.
 - ✓ If **10 volts DC** is not present, defective fan motor CPU.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

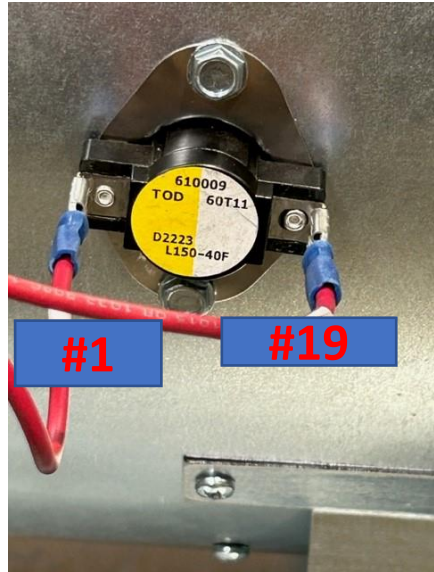
Problem Solved

The fan shuts off before cooling down.



- If the fan shuts off before the heater cools down.
- ✓ Defective fan 110F⁰ disc, contact stuck.

Problem Solved



- Check for **120 volts** on # 19 wire of fan 110F⁰ 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 at 1-866-323-0042 and we can help you.

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



- ✓ 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 environment.
- ✓ Tag ready to put into service, after maintenance has been completed.



- ✓ Ensure proper voltage is supplied to the heater (**600 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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1-866-323-0042