



# TROUBLESHOOTING GUIDES

*Updated Oct 21, 2020*

# TROUBLESHOOTING GUIDE

MODEL E1.5



## NORMAL OPERATION

Fan should only run while element is on, and will cycle on and off as the temperature goes above and below the thermostat setting.

<b>No Fan + No Heat</b>	<b>Check Power Supply Voltage and Terminal Block Connections</b>
	<b>Check Thermostat</b> (RT / 20220) Ensure thermostat is turned above ambient temperature. Check for continuity.
	<b>Check Overheat Limit Switch</b> (TO / 21200) Check for continuity (switch should be closed)
<b>Heat Turns, No Fan</b>	<b>Replace Fan Motor</b> (M / 14040)
<b>Fan Turns On, No Heat</b>	<b>Check Heating Elements</b> (R / 42256) Visually check for burns and cracks. Check resistance of element (approx 9 Ohms)

# TROUBLESHOOTING GUIDE

MODEL E3



## NORMAL OPERATION

Fan should only run while element is on, and will cycle on and off as the temperature goes above and below the thermostat setting.

<b>No Fan + No Heat</b>	<b>Check Power Supply Voltage and Terminal Block Connections</b>
	<b>Check Thermostat (S2 / 20405)</b> Ensure thermostat is turned above ambient temperature. Check for continuity.
	<b>Check Overheat Limit Switch (S3 / 21200)</b> Check for continuity (switch should be closed)
<b>Heat Turns, No Fan</b>	<b>Replace Fan Motor (M / 14104)</b>
<b>Fan Turns On, No Heat</b>	<b>Check Heating Elements (R / 42800)</b> Visually check for burns and cracks. Check resistance of element (approx 20 Ohms)

# TROUBLESHOOTING GUIDE

MODEL E6



## NORMAL OPERATION

Fan should always be running (providing Toggle Switch is in "On" position)

<b>No Fan + No Heat</b> <i>(With toggle switch on)</i>	<b>Check Power Supply and Terminal Block Connections</b> Check for proper voltage between L1 + L2 Ensure tight connections on terminal block
	<b>Check Toggle Switch (S1 / 26900)</b> Check for continuity when switch is on "on" position
	<b>Check Overheat Limit Switch (S3 / 21201)</b> Check for continuity (switch should be closed)
<b>Heat Turns, No Fan</b>	<b>Replace Fan Motor (M / 14145)</b>
<b>Fan Turns On, No Heat</b>	<b>Check Thermostat (S2 / 20220)</b> Ensure thermostat is turned above ambient temperature. Check for continuity.
	<b>Check Overheat Limit Switch (S4 / 21206)</b> Check for continuity (switch should be closed)
	<b>Check Contactor (C / 22670)</b> Ensure all connections are clean and tight. Ensure contactor pulls in when voltage is applied.
	<b>Check Heating Elements (R1-2 / 42800)</b> Visually check for burns and cracks. Check resistance of each individual element (approx 20 Ohms)

# TROUBLESHOOTING GUIDE

MODEL E9



## NORMAL OPERATION

Fan should always be running (providing Toggle Switch is in "On" position)

<b>No Fan + No Heat</b> <i>(With toggle switch on)</i>	<b>Check Power Supply and Terminal Block Connections</b> Check for proper voltage between L1 + L2 Ensure tight connections on terminal block
	<b>Check Toggle Switch (S1 / 26902)</b> Check for continuity when switch is on "on" position
	<b>Check Overheat Limit Switch (S3 / 21200)</b> Check for continuity (switch should be closed)
<b>Heat Turns, No Fan</b>	<b>Replace Fan Motor (M / 14201)</b>
<b>Fan Turns On, No Heat</b>	<b>Check Thermostat (S2 / 20220)</b> Ensure thermostat is turned above ambient temperature. Check for continuity.
	<b>Check Contactor (C / 22670)</b> Ensure all connections are clean and tight. Ensure contactor pulls in when voltage is applied.
	<b>Check Heating Elements (R1-3 / 42800)</b> Visually check for burns and cracks. Check resistance of each individual element (approx 20 Ohms)

# TROUBLESHOOTING GUIDE

MODELS 18E-1 / 18E-3



## Switch Position “1” (Ventilation Only)

Fan does not turn on	<b>Check Power Supply and Terminal Block Connections</b> Check for proper voltage between L1 + L2 (and L3 on 3-PH Model) Ensure tight connections on terminal block
	<b>Check Main Switch (S1 / 26605)</b> Ensure continuity when switch is in pos. 1
	<b>Check Overheat Limit Switches (TO1 + TO2)</b> Ensure continuity
	<b>Check/Replace Fan Motor (M / 14201)</b>

## Switch Position “2/3” (Heating Modes)

Unit heats up, fan does not turn on	<b>WARNING</b> The fan will only turn on once the internal temperature of the heater reaches a certain point. Let the heater warm up and within several minutes the fan will turn on. If not, proceed to next steps below.
	<b>Check/Replace Cooldown Thermostat (TC / 21100)</b>
	<b>Check/Replace Fan Motor (M / 14201)</b>
No Fan, No Heat	<b>Check Power Supply and Terminal Block Connections</b> Check for proper voltage between L1 + L2 Ensure tight connections on terminal block
	<b>Inspect unit for loose or damaged wiring</b>
	<b>Check Circuit Protectors (F1...6 / 38500) ← <i>Single Phase Model Only</i></b>
	<b>Check Thermostat (TA)</b> Ensure thermostat is turned above ambient temperature. Check for continuity.
	<b>Check Main Switch (S1 / 26605)</b> Ensure continuity when switch is in pos. 2 or 3
	<b>Check Contactors C1/C2/C3 (22663)</b> Ensure all connections are clean and tight. Ensure contactor pulls in when voltage is applied. <i>*C3 is only used on switch setting “3”</i>
	<b>Check Overheat Limit Switches (TO1 + TO2)</b> Ensure continuity
	<b>Check Heating Elements (R1-9 / 42320)</b> Visually check for burns and cracks. Check resistance of each individual element (approx 27 Ohms)

# TROUBLESHOOTING GUIDE

MODELS 40E / 40ECA / 60E



## NORMAL OPERATION

Fan should always be running (providing Switch 1 is on, and thermostat is above ambient)

Switch S1 must be “on” in order for S2 and S3 to operate.

After turning switches off, the fan will continue to run until the unit cools down internally.

<b>No Fan + No Heat</b> <i>(With thermostat up, and Switch S1 on)</i>	<b>Check Power Supply</b> Check for proper voltage between L1 + L2, L2 + L3, L1 + L3
	<b>Check Transformer (TR / 28400)</b> Ensure 24V coming out of transformer
	<b>Check Fuse (F1 / 38111)</b> Remove Fuse from back of unit and check
	<b>Check Overheat Limit Switch (Inner) (TO1 / 21200)</b> Check for continuity. Switch should be closed
	<b>Check Main Switch (S1 / 26900)</b> Check for continuity
	<b>Check Contactor C1 (22560)</b> Ensure 24V going into Contactor C1 Ensure contactor pulls in
<b>Heat Turns On, No Fan</b>	<b>Check Contactor C4 (22669)</b> Ensure connections are clean and tight Ensure contactor pulls in when 24V is applied to it
	<b>Check/Replace Fan Motor</b>
<b>Fan Motor Starts, but air comes out the inlet</b>	<b>Switch any two hot wires at terminal block</b>
<b>Fan Turns On, No Heat</b>	<b>Check Heating Elements</b> Visually check for burns and cracks. Check resistance of each individual element. <u>Model 40E:</u> 80-90 Ohms <u>Model 60E:</u> 55-65 Ohms
<b>Fan turns off when thermostat is satisfied, and turns back on when elements turn back on</b>	<b>Check Cooldown Thermostat (TC / 21100)</b> Check for resistance and proper wiring
	<b>It's possible that the heating elements are turning off along with the fan. In this case it would be Overheat Limit Switch "TO1" tripping.</b>
<b>High limit switch tripping</b> <i>Fan + Heat cycling on/off mid-use</i>	<b>Ensure No Airflow Restrictions (ie Ducting, blockages, etc)</b>
	<b>Replace Overheat Limit Switch (TO1 / 21200)</b>