USERS INFORMATION MANUAL

For Installation In: **1. Manufactured (Mobile) Home, 2. Modular Homes & Buildings, 3. Residential Homes**

MODELS: E40 SERIES WEATHERIZED AIR HANDLER

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CONTACT INFORMATION

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SECTION I: GENERAL

The following list includes important facts and information regarding the electric furnace and its inclusions.

1. Furnace is rated at 240 volts AC at 60 Hertz
2. Furnace is the same cabinet size for all models
3. All furnaces are equipped with a blower for A/C or Heat Pump operation.
4. This furnace is designed for downflow and horizontal application.
5. This furnace must not be operated without furnace door installed.

NOTE: This furnace and its components listed on the A/C and Heat Pump equipment sticker were listed in combination as a system by ETL for the United States.

INTRODUCTION

The air handler / furnace is designed for installation alongside a home, building or on a rooftop. Air from the air handler / furnace is delivered throughout the conditioned (Living) space using existing ductwork system. Return air is drawn through the return duct system, where it is filtered and pulled through the air handler by the blower. The air is conditioned in the air handler by the heaters or the cooling coil then distributed to the conditioned (Living) space via the supply air duct system.

⚠WARNING

FIRE OR ELECTRICAL HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death, or property damage.

A fire or electrical hazard may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance

USERS MUST READ ALL INSTRUCTIONS IN THIS MANUAL AND THIS MANUAL MUST BE SAVED FOR FUTURE REFERENCE

SECTION II: SAFETY


This is a safety alert symbol. When you see this symbol on labels or in manuals; be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER, WARNING,** or **CAUTION.**

DANGER: indicates an **imminently** hazardous situation, which if not avoided, **will result in death or serious injury.**

WARNING: indicates a **potentially** hazardous situation, which if not avoided, **could result in death or serious injury.**

CAUTION: indicated a **potentially** hazardous situation, which if not avoided, **may result in minor or moderate injury.** It is also used to alert against unsafe practices and hazards involving property damage.

⚠WARNING

Any adjustment, service or maintenance by the home owner and/or user may create a condition where the operation of the product could cause personal injury or property damage.

Only qualified service personnel, a contractor, or an installer may refer to the service and maintenance section of this manual for assistance or for additional information on this appliance.

⚠ CAUTION

This product requires periodic routine maintenance and cleaning of the exterior surfaces by the homeowner or user to remove dust and debris. Any additional service must be performed by qualified personnel. This appliance must be serviced and maintained as specified in these instructions and/or to any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

⚠WARNING

FIRE OR ELECTRICAL HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death, or property damage.
A fire or electrical hazard may result causing property damage, personal injury or loss of life.

SAFETY REQUIREMENTS

1. This electric furnace must be kept clear and free of combustible materials, gasoline and other flammable vapors and liquids.
2. Insulating materials may be combustible. The air handler must be kept free and clear of insulating materials. Do not store insulating materials around the air handler. If the is installed under a mobile home keep insulating materials away from the electric heat compartment of the air handler.
3. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly Startup or Shutdown this appliance.
4. If overheating occurs, turn off the power to the furnace and contact a qualified contractor, installer, or service agency.

⚠DANGER

Do not use this furnace if any part has been under water. A flood damaged furnace is extremely dangerous. Attempts to use the furnace can result in a fire.

A qualified contractor, installer, or service agency must be contacted to inspect the furnace for any water damage and replace all components, control system parts, or electrical parts that have been damaged. If enough damage is present, the furnace may need to be replaced

5. NEVER - Store flammable materials of any kind near your air handler / furnace. Gasoline, solvents and other volatile liquids should be stored only in approved containers outside the home. These materials vaporize easily and are extremely dangerous.
6. NEVER – Store cleaning materials such as bleaches, detergents, powder cleaners, etc. near the furnace. These chemicals can cause corrosion of the furnace sheet metal and the electric heaters, the blower and the electrical controls.
7. NEVER – Use the area around the furnace as a storage area for items which could block or obstruct the normal air flow to the air handler / furnace or the space around the air handler / furnace. The flow of air is required for safe and proper operation. Never block or obstruct air openings used for ventilation and cooling of the air handler / furnace electrical components.
8. Refer to the furnace rating plate for the air handler model number, for the operating specifications for safe operation.
9. Provide clearances for servicing ensuring service access is allowed for the control box, electric elements and the blower. Refer to clearances section of this manual.
10. Failure to carefully read and follow all instructions in this manual can result in malfunction of the furnace, death, personal injury, and/or property damage.
11. If the air handler is installed in a residential garage it must be installed so that the electric heaters are located not less than 18 inches above the floor and the air handler must be located or protected to avoid physical damage by vehicles.

⚠WARNING

FIRE OR ELECTRICAL HAZARD

Servicing heating/cooling equipment can be hazardous due to electrical components.

Only trained and qualified personnel can service or repair heating/cooling equipment. The home owner **must never** try to perform service, repair or maintenance on this appliance.

Untrained service personnel can perform only basic maintenance functions such as cleaning of exterior surfaces and replacing the air filters.

Observe all precautions in the manuals and on the attached labels when working on this appliance

12. These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances these instructions exceed certain local codes and ordinances, especially those who have not kept up with changing mobile home, modular home and HUD construction practices. These instructions are to be followed and are the minimum requirement to perform service or repairs on this appliance.

SECTION III: OWNERS INFORMATION AND SEASONAL INFORMATION

How The Furnace Works

This furnace may be installed in the horizontal position. Figure 1 shows a typical model in the horizontal position. The furnace is equipped with a relay(s), time delay relay, transformer, circuit breakers, and a blower assembly. The transformer provides 24 VAC to the thermostat. When the thermostat calls for heat the relay(s) energize sending 240 VAC thru the limit switches to the electric heaters causing them to get hot. The indoor fan motor is then energized on the low speed tap and the circulating blower draws cool air from the living space(s), passes it across the heater coils and circulates the warmed air through the duct work to the living space(s). When the thermostat is satisfied the electric heaters are de-energized. The blower is also de-energized and the heating cycle has ended and the furnace is ready for the next call for heat to start the next cycle.

The furnace is equipped with the controls necessary for proper and safe operation. Circuit breaker location is shown in Figure 1.

Examination of the furnace

The home owner should perform a visual examine the furnace every month for any defects or problems. The items to be inspected are:

1. The physical support of the furnace is sound without sagging cracks, gaps, etc. around the base so as to provide a seal between the support and the base.
2. The furnace casing for any obvious signs of deterioration from rust or corrosion.
3. The return and supply duct connections are physically sound and are sealed to the furnace casing.
4. The furnace must be serviced by qualified personnel annually, preferably at the start of each heating season.

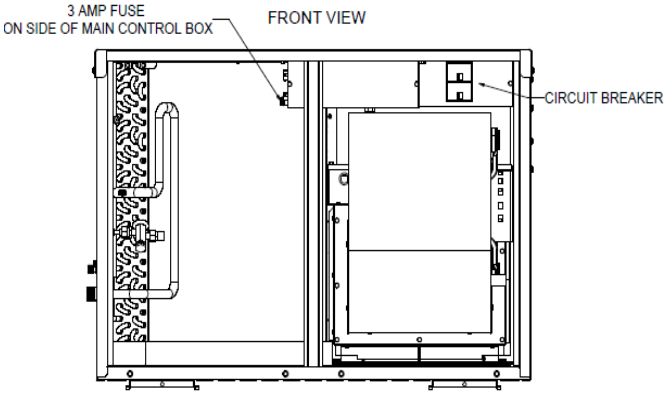


Figure 1: Circuit Breaker Locations and Typical Horizontal Position.

The Service Technician

The furnace's best friend is a qualified service technician. If the unit gives any indication of improper operation, call the service technician. The service technician is allowed to perform the normal routine care of your furnace. He can detect potential problems and make corrections before trouble develops. Preventative maintenance of this type will allow the furnace to operate with minimal concerns to the homeowner and will add years of comfort.

Warranty and Responsibilities

It is the sole responsibility of the homeowner to make certain the furnace has been properly installed and adjusted to operate properly.

The manufacturer warrants the furnace to be free from defects in material or workmanship for a stated time in the warranty agreement. The manufacturer will not be responsible for any repair costs to correct problems due to improper setup, improper installation, improper furnace adjustments, adding parts that are not listed for use with this furnace, improper operating procedures by the user or repairs performed by the user / owner.

Some specific examples of service calls which will be excluded from warranty reimbursement are:

1. Correcting faulty duct work in the home. This can be due to not enough ducts or ducts are too small to provide proper air flow through the furnace.
2. Correcting wiring problems in the electrical circuit to the furnace.
3. Resetting circuit breakers or on/off switches used for servicing.
4. Furnace problems caused by installation and operation of any air conditioning unit, heat pump, or other air quality devise which is not approved for use with this furnace.
5. Adjusting or calibrating the thermostat.
6. Problems caused by construction debris which has fallen into the furnace.
7. Replacement of fuses.
8. Problems caused by dirty air filters.
9. Problems caused by restrictions in the return or supply air flow causing low air flow.

The home owner should establish a firm understanding of these responsibilities with the installer or service company so there no misunderstanding at a later time.

While you are away
The furnace is equipped with safety shutoff devices which will shut off the electric heaters in case of a malfunction. For this reason it is never practical to assume the furnace will operate unattended for a long period of time.

If you are planning to be away from home for a long period of time have someone check on your home everyday, especially when the outside temperatures will be below 35°F to ensure the furnace is operating properly. This may prevent water pipes from freezing.

The Furnace Fails to Operate Properly
If any abnormalities are observed while the furnace is operating normally, perform the following checks:

1. Check the setting on the thermostat to make sure the thermostat is set above the room temperature.
2. Check to see if the electrical power is turned on at the circuit breakers at the main service circuit breaker box or check any on/off switches that may be used for service disconnect switches.
3. Check the 3 amp fuse on the inside of the control box to determine if it has blown. A replacement fuse can be purchased at where automotive fuses are sold.
4. Make sure the air filters are clean, return grilles are not obstructed, and supply air registers are open.

If the cause of the malfunction is not obvious do not attempt to service the furnace yourself. Call a qualified service agency/company to repair the furnace.

⚠WARNING

Should overheating occur turn the circuit breakers on the control box and the main electrical service entrance (Circuit Breaker Box) to the off position. Call qualified service personnel to troubleshoot and repair the furnace. DO NOT allow the furnace to continue to cycle on the limit controls.

When to Call For Service Assistance
Very often time can be saved if you give a service agency the information about the furnace ahead of time. This will enable the service agency to determine the specific components used and possibly indentify the problem, thus arriving with the parts to fix the problem.

SERVICE AGENCY INFORMATION
Fill in Below
COMPANY:_____
ADDRESS:_____
TELEPHONE (DAYTIME):_____
TELEPHONE (EMERGENCY)_____
NOTES: _____

SECTION IV: STARTUP AND SHUTDOWN INSTRUCTIONS

Read the instructions below before trying to start the furnace.

⚠WARNING

If you do not follow these instructions exactly, a fire may result causing property damage, personal injury, and/or loss of life.

A. BEFORE OPERATING; check around perimeter of the furnace to make sure there are no flammable materials in the area. If you smell vapors of any kind, DO NOT turn on the power to the furnace until vapors have been ventilated and removed from the area of the furnace.
B. CHECK THE FURNACE; visually check the furnace for loose screws and/or panels that may be missing or have fallen off.
C. CHECK DUCT CONNECTIONS; visually check the connections of the ducts to the furnace to make sure there are no gaps or holes and ducts are securely fastened to the furnace.

⚠WARNING

TURN OFF ELECTRICAL POWER BEFORE SERVICING TO PREVENT POSSIBLE EQUIPMENT DAMAGE AND POSSIBLE PERSONAL INJURY

Make sure service disconnect has been turned off or fuses have been removed and disconnect has been locked out prior to servicing.

Turn On / Start the Appliance

1. STOP! Read the safety information above before proceeding.
2. Set the thermostat to the lowest setting.
3. Turn off all electrical power to the appliance at the main service disconnect box.
4. Remove the upper and lower furnace door.
5. Turn off the circuit breakers on the appliance control box.
6. Remove the control box door.
7. Visually check the control box for loose wire connections and faulty or loose components.
8. Visually check the blower compartment for obstructions or loose debris.
9. Replace the control box door.
10. Turn the circuit breakers to the on position.
11. Replace the upper and lower furnace door.
12. Turn the circuit breakers in the main service disconnect box to the on position.
13. Set the thermostat to the desired setting.

Shutting Down or Turning Off the Appliance

1. Set the thermostat to the lowest setting.
2. Turn off all electrical power to the appliance at the main service disconnect box.
3. Remove the lower furnace door.
4. Turn off the circuit breakers on the appliance control box.
5. Replace the lower furnace door.

SECTION V: OWNER MAINTENANCE

All appliances need maintenance at the beginning of each heating season in order to operate properly. The annual service must be preformed by qualified service personnel. The homeowner is expected to perform general cleaning of the exterior surfaces, clean dust from the louvers in the return air filter grille and replacement of the air filters. Air filters must be checked every month and replaced as needed. Figures 2 and 3 indicate the location of the air filters if you have a louvered return filter grille.

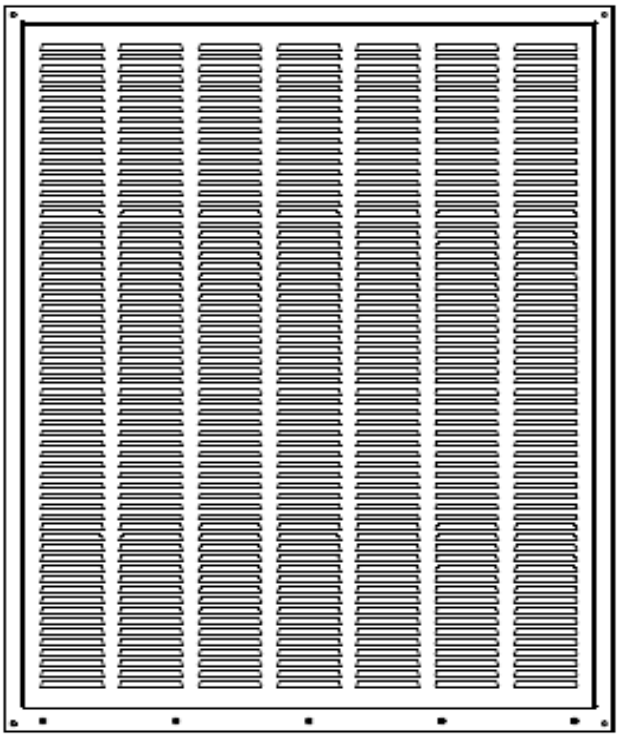


Figure 2: Return Air Filter Grille - Air Filter Location
Air Filters are behind the louvered grille

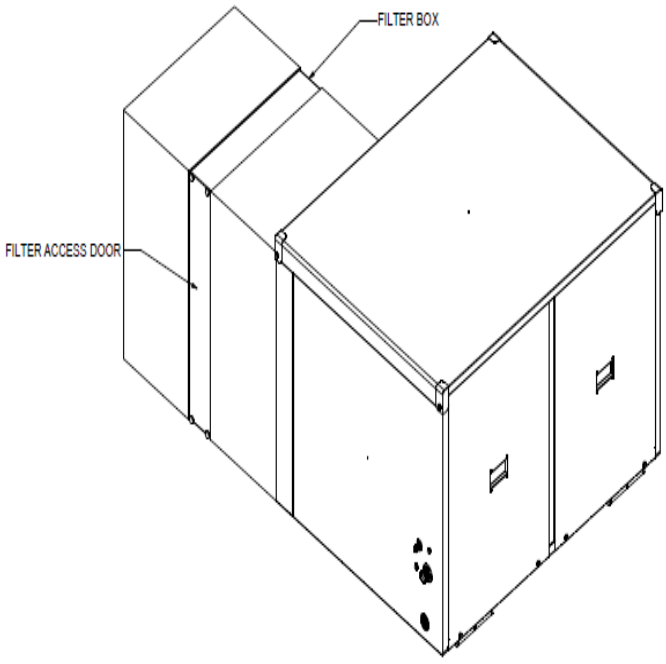


Figure 3: Return Air Duct Air Filters

Air Filters

Dirty air filter are the most common cause if inadequate heating / or cooling performance. Filter inspection should be made at least every month depending on local conditions and usage

Dirty throwaway filters must be discarded and replaced with a new, clean filter. Dirty permanent filters should be washed with water, thoroughly dried before being reinstalled. Permanent filters should last for several years; however, should a permanent filter become torn, damaged or unclean able, it must be replaced.

Many stores sell high efficient filters. Many times they are sold as longer lasting filters; however this type filter may restrict the air flow, especially when they become dirty. Ask your installing dealer if you can use this type of filter on your system. If allowed by your dealer you may be required to replace filters more often than is stated on the filter or the filter package.

If your indoor evaporator coil becomes dirty for whatever reason, you should call your dealer or qualified service representative to clean the coil for peak performance during cooling or heat pump operation.

Return Air Grille Air Filters

Follow these easy steps to replace the filters located in the return air grille:

1. Follow the procedure "**To Turn Off the Appliance"** in the Startup and Shutdown Instructions section of these instructions.
2. Unlatch on the filter grille door and swing the door open.
3. Remove the air filters. These filters are disposable filters. DO NOT attempt to clean the filters and reuse them.
4. Remove the new air filters from the plastic wrap they come in.
5. Slide the air filters in place in the grille so the air filters are installed as shown in Figure 2.
6. Clean the louvers on the door making sure all dust and dirt have been removed..
7. Swing the door closed and push the two latches down to secure the door to the grille assembly.
8. Follow the instructions to "**Turn On / Start the Appliance"** in the Startup and Shutdown section of these instructions.
9. Follow the instructions to "**Turn On / Start the Appliance"** in the Startup and Shutdown section of these instructions.

Return Duct Air Filters

Follow these easy steps to replace the filters located in the return air duct:

1. Follow the procedure "**To Turn Off the Appliance"** in the Startup and Shutdown Instructions section of these instructions.
2. Remove or open the access panel in the skirting next to the air handler to get to the air filter assembly.
3. Once you have accessed the air filter assembly look for a set screw to remove the cover in order to access the air filter.
4. Once the cover has been removed, remove the air filter from the air filter assembly and replace it with the same size and type filter that was removed. This filer is a

disposable filter. DO NOT attempt to clean the filter and reuse it. Refer to Figure 3 for possible filter location.

5. Remove the new air filter from the plastic wrap they come in.
6. Slide the air filter into the filter assembly the same way you removed it. Be sure the filter slides in smooth and is not binding or catching on anything.
7. Place the cover back on the filter assembly and secure with the screw you removed in Step 3.
8. Replace or close the access panel you removed or opened in Step 2.
9. Follow the "**Turn On / Start the Appliance"** in the Startup and Shutdown Instructions section of these instructions.

Blower Speed Selection

The blower assembly is set from the factory to run at high speed during cooling operation or when the thermostat fan switch has been set to the "ON" position.
The blower assembly is set from the factory to run at the low speed during heating operation only.
If less air volume is desired in the cooling mode, the speed tap wire that is connected to terminal #2 of the ISO relay can be removed and another speed tap wire can be connected to the relay. This will change the speed of the motor, thus the airflow in the cooling mode.
If less air volume is desired in the heating mode, the speed tap wire that is connected to terminal #6 of the ISO relay can be removed and another speed tap wire can be connected to the relay. This will change the speed of the motor, thus the airflow in the heating mode.

⚠WARNING

TURN OFF ELECTRICAL POWER BEFORE SERVICING TO PREVENT POSSIBLE EQUIPMENT DAM\AGE AND POSSIBLE PERSONAL INJURY

Make sure to follow the procedure to in SECTION V "STARTUP AND SHUTDOWN INSTRUCTIONS" to properly shut down the air handler prior to changing the blower motor speed taps. Failure to turn off the power before changing the speed taps may result in electric shock, personal injury, property damage and/or damage to the motor. NEVER CHANGE MOTOR SPEED TAPS WITH THE POWER TURNED ON!!

Air Handler Maintenance

Use a fine grade automotive wax on the cabinet finish to maintain the finish's original high luster. Using automotive wax is especially important in areas with high ultraviolet radiation.

⚠WARNING

SHARP SHEET METAL EDGES CAN CAUSE POSSIBLE PERSONAL INJURY

When waxing or dusting the air handlers outer surfaces and/or casing try to avoid running you fingers across any edges or flanges on the unit as they may be very sharp and cause injury to your fingers and/or hands.

Evaporator motor bearings are permanently lubricated. No additional lubrication is required.
Refer to Repair part list to get the correct part number when ordering parts.

SERVICE AND MAINTENANCE MANUAL

SECTION I: SAFETY

THE HOME OWNERS AND / OR APPLIANCE USERS MUST STOP HERE!

This section has been designed to assist a **qualified service agency** in performing service and maintenance on this appliance.

The homeowners and/or the appliance user must never attempt to perform any service or maintenance on the appliance especially when it involves the removal or adjustment of any parts and/or components.

⚠WARNING

The manufacturer, distributor, supplier or service professional will not be responsible for any repairs due to improper parts changes, improper maintenance, improper furnace adjustments or improper modifications made by the homeowner and/or the appliance user.

The manufacturer will not be responsible if the homeowner and/or appliance user use this section of the instructions in an attempt to perform maintenance or repairs to the furnace. This practice is very dangerous and may result in a fire causing property damage, personal injury, loss of life and/or will void the appliance warranty.

The following safety rules must be followed when servicing this furnace.


This is a safety alert symbol. When you see this symbol on labels or in manuals; be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER, WARNING,** or **CAUTION.**

DANGER: indicates an **imminently** hazardous situation, which if not avoided, **will result in death or serious injury.**

WARNING: indicates a **potentially** hazardous situation, which if not avoided, **could result in death or serious injury.**

CAUTION: indicated a **potentially** hazardous situation, which if not avoided, **may result in minor or moderate injury.** It is also used to alert against unsafe practices and hazards involving property damage.

⚠WARNING

Improper adjustment, service or maintenance may create a condition where the operation of the product could cause personal injury or property damage.

Refer to this manual for assistance or for additional information consult the Technical Support Group.

⚠ CAUTION

This product must be serviced and maintained as specified in these instructions and/or to any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

⚠WARNING

FIRE OR ELECTRICAL HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death, or property damage.
A fire or electrical hazard may result causing property damage, personal injury or loss of life.

SAFETY REQUIREMENTS

1. This electric heating appliance may have a dual electrical supply circuit. Make sure you check each electrical circuit with a meter to be sure the power has been disconnected.
2. Insulating materials may be combustible. The electric heat compartment must be kept free and clear of insulating materials.
3. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly Startup or Shutdown this appliance.
4. Make sure all moving parts have come to a complete stop before attempting to perform any work once the furnace door has been removed. Moving parts can cause serious injury if clothing or body parts get caught in the moving part.

⚠WARNING

ELECTRICAL SHOCK, FIRE HAZARD

Failure to follow the safety warnings exactly or improper servicing could result in dangerous operation, serious injury, property damage, and/or death.

- Before servicing, disconnect all electrical power to the furnace. Make sure you disconnect both power supplies if the furnace has a dual power supply circuit. Dual circuits may be used on the 15kW and 20kW furnaces.
- When servicing controls, label all wires prior to disconnecting to aid in proper reconnection of wires.
- Verify proper operation after servicing by turning the thermostat above the room temperature for a brief period of time to ensure future furnace operation

⚠WARNING

FIRE HAZARD

NEVER PLACE A JUMPER BETWEEN "R" & "W"

Placing jumper wire between the RED and WHITE thermostat wires at the furnace in order to override the thermostat and energize the heater elements is an extremely dangerous practice that can result in damage to the thermostat, dangerous operation, serious injury, property damage and/or death.

SECTION II: FURNACE MAINTENANCE

The interior sections of the furnace must be cleaned and adjusted by a qualified service contractor once a year or before the start of each heating season. The following items must be checked:

1. The blower wheel and motor for excessive dirt.
2. The electric heaters for wear, damage or corrosion.
3. The electrical components for excessive dust, dirt, wear, or deterioration.
4. The supply air duct system for excessive dust, dirt or debris
5. The return air duct system for excessive dust, dirt or debris
6. All electrical wiring for wear, insulation cracks and/or damage.
7. Check the air conditioning evaporator coil for dust, debris or damage.
8. Check the evaporator coil drain pan for proper drainage to prevent water backup into the air handler.
9. The furnace casing and all interior sheet metal panels or dividers.

Furnace Cleaning Procedure

1. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly shutdown this appliance.
2. Remove the lower access door on the front of the furnace.
3. Remove the upper access door on the front of the evaporator coil compartment.
4. Remove the screw on the right side of the control box cover and remove the control box cover.
5. Remove the two screws on front flange of the blower mounting plate and slide the blower out of the furnace on the track. Refer to Figures 5 and 11.
6. Use a vacuum cleaner and a small brush to remove any dirt and debris from the blower compartment.
7. Check in the area below the blower compartment where the heater elements are located and remove any dust, dirt or debris from around the heater elements. Be careful not to damage the heater elements with the vacuum hose or the brush.

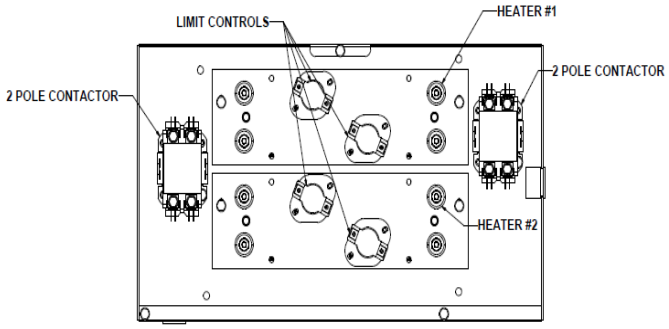


Figure 4: Electric Heat Control Box Component Locations

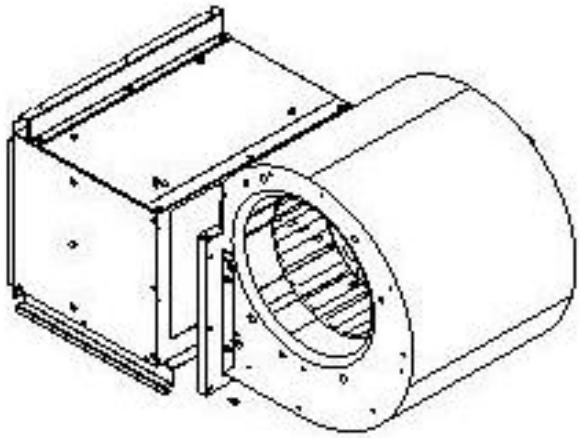


Figure 5: Blower Assembly and Mounting Screw Location

8. Check the blower wheel for dust and debris. Use the brush and the vacuum cleaner to remove any dust or debris from the wheel. Be careful not the move or accidentally remove the blower wheel balance weight located on the wheel blades. If it is moved or removed it will cause the blower wheel to vibrate. If the wheel is vibrating, you must replace it.
9. Check the blower motor for dust and debris. Be sure to clean the openings on the motor housing as these openings are used to cool the motor. If the dust, dirt or debris has not been removed from these openings it will cause the motor to run hotter than normal and will shorten the life of the motor.
10. Check and clean with the brush and vacuum cleaner any dust in the supply and return ducts as far as you can reach. If these ducts look like they have an excessive amount of dust, dirt or debris you should recommend to the home owner or user to call a professional to properly clean the duct system.
11. Check and clean any dust, dirt, or debris from all of the controls and all of the surfaces in the control box. If dust or dirt is left on the components they will operate at a much hotter temperature causing premature component failure.
12. Check the evaporator coil compartment for dirt, dust or debris and remove any that exists.

13. Check the evaporator condensate drain pan for any debris and ensure the pan is properly draining by pouring water into the drain to check it.
14. Remove any excess water that may have spilled from checking the evaporator condensate drain.
15. Reinstall the blower assembly and secure the assembly using the screws that was removed in step 5.
16. Reinstall the control box cover and secure it to the control box with the screw that was removed in step 4.
17. Reinstall the lower access door on the air handler.
18. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly startup this appliance.

SECTION III: FURNACE CONTROLS

This section discusses the furnace controls and how they operate. Refer to Figures 4 and 6 for component locations.

1. **The Limit Controls** – Each electric heater element has a limit control directly in front of it to sense overheating of the element and open if the temperature gets above the set point of the limit control.
2. **The Heater Contactors** – The electric heater contactors simply turn the heater elements on and off. The contactors are controlled by the thermostat. On a call for heat 24 VAC is sent to the relay(s) 24 VAC coil energizing the contactor. When the call for heat has been satisfied the 24 VAC is removed from the contactors coil and the contactor is de-energized..
3. **Cooling Time Delay Relay (TDR)** – The cooling relay is used only when 24 VAC is on the "G" terminal from the thermostat. The relay controls the blower on time delay and is adjustable from 0 – 30 seconds. The factory setting is approximately 13 seconds.
4. **Circuit breakers** – The circuit breakers are designed as over-current protection for the electric heaters only. The circuit breakers MUST NEVER be used for over-current protection for the transformer, 24 VAC circuit, or the blower motor.
5. **3 Amp Fuse** – This fuse is used for over-current protection of the 24 VAC circuit.
6. **Transformer** – The transformer is used to step down voltage from 240 VAC to 24 VAC. The transformer provides the required 24 VAC for the system control circuit.
7. **Blower Motor Isolation Relay** - This relay is used to load the TDR when using an Constant Torque motor or for isolation between the high and low speeds of a PSC motor. The wiring has been designed so that the normally closed contacts are used for heating and the normally open contacts are used for cooling. The relay coil is energized after the thermostat has a call from the "G" terminal starting the time delay cycle on the time delay relay. Once the time delay relay has reached the delay setting the relay contacts close energizing the isolation relay coil. The normally closed contacts on the isolation relay open and the normally open contacts close, energizing the motor on the selected cooling speed.

Constant Torque Motor Isolation Relay - This relay is used on the constant torque motor as a load for the time delay relay so the relay will operate properly. The wiring has been designed so that the normally closed contacts are used for heating and the normally open contacts are used for cooling. The relay coil is energized after the thermostat has a call from the "G" terminal starting the time delay cycle on the time delay relay. Once the time delay relay has reached the delay setting the relay contacts close energizing the isolation relay coil. The normally closed contacts on the isolation relay open and the normally open contacts close, energizing the motor on the selected cooling speed.

SECTION IV: SEQUENCE OF OPERATION

Continuous Blower

The thermostat has a manual fan switch that can be moved to the "**On"** position or it can be programmed for **continuous** fan operation. This setting causes the thermostat to complete the circuit between "R" and "G" terminals causing the time delay relay to start the time delay cycle. Once the time delay relay has completed the on-delay cycle the contacts will close sending voltage to the isolation relay coil. The isolation relay will close the normally open contacts (Terminals #2 and #4) sending voltage to selected indoor blower motor speed tap connected to terminal #4. The normally closed contacts (Terminals #5 and #6) will open.

The indoor blower will operate continuously until the fan switch on the thermostat has been switched from on to auto.

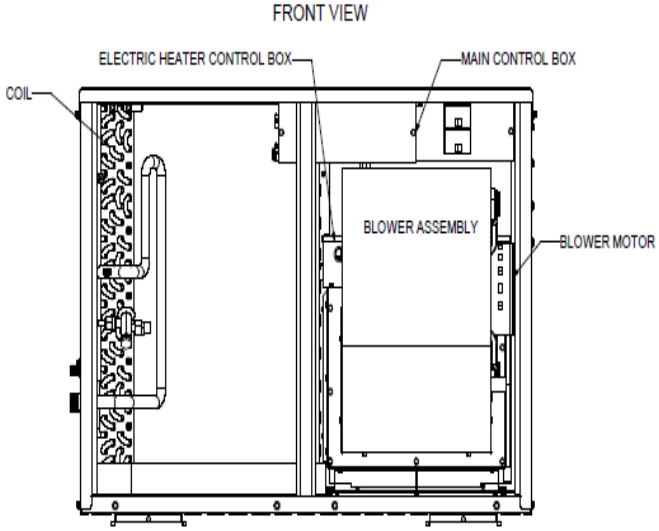


Figure 6: Component Locations

Intermittent Blower - Cooling

The thermostat has a manual fan switch that can be moved to the "**Auto"** position or it can be programmed for **auto** fan operation. When the thermostat calls for cooling, a circuit is completed between the "R", "Y" and "G" Terminals. The indoor fan motor is energized from the "G" terminal on the thermostat causing the time delay relay to start the on-time delay. The time delay relay contacts will close the circuit to the isolation relay coil after the on- delay is complete. The isolation relay normally open contacts (Terminals #2 and #4)

will close and the motor will operate on the selected speed tap that has been placed on terminal #4.
When the thermostat is satisfied the circuit between “R”, “Y” and “G” will open. The time delay relay will open the circuit to the isolation relay and the PSC blower motor will turn off. The constant torque blower motor will have a 13 second off-delay. The blower is now in the standby mode waiting for the next cooling cycle

The Heating Cycle
When the thermostat is in the HEAT mode and the fan switch on the thermostat is set to AUTO. The call for heat closes the thermostat circuit between the “R” and “W” terminals. 24 VAC is sent from the “W” terminal, through the white thermostat wire to the white pigtail wire on the furnace. 24 VAC is sent through the white pigtail wire through the limit control to the 24 VAC coil on the first heater contactor. This signal energizes the heater contactor closing the contacts to the heaters. The blower low speed wire is also connected to the first heater relay so the blower is energized at the same time as the heater. The blower will continue to operate until the thermostat is satisfied. When the call for heat has been removed the “W” terminal is de-energized and the heater contactor opens turning off the heater and the PSC blower motor. The constant torque blower motor will have a 13 second off-delay. The furnace is now in standby mode waiting for the next heating cycle. One heater contactor can operate a 3kW, 5 kW 6kW, 8kW or 10 kW heater element.
If a 5 kW element is used the “W” signal will go through one limit then to the contactor coil. .
If a 8 kW or 10 kW element is used the “W” signal will go through two limit controls in series then to the contactor coil.
If a 15 kW element is used you will have a 10 kW element where the “W” signal will go through top two limit controls in series then to the first contactor coil and the 5 kW element will have the “W” signal will go through the bottom limit then to the second contactor coil.
If a 20 kW element is used you will have a 10 kW element where the “W” signal will go through top two limit controls in series then to the first contactor coil and the second 10 kW element where the “W” signal will go through bottom two limit controls in series then to the second contactor coil

Some models have a black pigtail wire that is connected to the 24 VAC coil on the second heater relay. This pigtail wire is to be used for second stage heat. It is connected to the thermostat “W2” terminal. You must have a thermostat that has the second stage heating feature “W2”. The second stage heat cycle is enabled when the room temperature typically falls more than 3 degrees below the thermostat set point. The thermostat energizes the second heater to aid in heating the room back to the thermostat set point. Once the room is within 1 degree of the thermostat set point the second stage heater is de-energized until the thermostat calls for second stage heat “W2” again.

The Cooling Cycle

When the thermostat calls for cooling
The thermostat closes the circuit between the “R”, “Y” and “G” terminals. 24 VAC is sent from the “Y” terminal through the yellow thermostat wire to the 24 VAC coil terminal on the condenser contactor; energizing the contactor and starting the compressor and outdoor fan motor. At the same time the “G” terminal is sending 24 VAC through the green pigtail wire to the indoor blower time delay relay. The time delay relay goes through an 0-30 second on-delay, and then closes the contacts sending 24 VAC to the isolation relay coil (Terminals #1 and #3). The isolation relay coil is energized closing the normally open contacts (Terminals #2 and #4) and opening the normally closed contacts (Terminals #5 and #6) sending 24 VAC to the selected constant torque motor speed tap wire connected to isolation relay terminal #4 or for PSC motors; sending 240 VAC to the selected speed tap wire connected to isolation relay terminal #4.
When the thermostat call for cooling has been satisfied the thermostat opens the circuit between the “R”, “Y” and “G” terminals. The 24 VAC signal is removed from the thermostat “Y” terminal de-energizing condenser contactor. At the same time the “G” terminal 24 VAC is removed from the green pigtail wire de-energizing the TDR. The constant torque motor goes through a 13 second off delay; then stops. The PSC motor does not have a delay; so it stops. The cooling cycle is complete, and the cooling unit is ready for the start of the next cooling cycle.

The Motor Isolation Relay
This relay is used in conjunction with the motors to prevent the possibility of the motors being energized on two speed taps at the same time. This condition would burn out the motor windings.

A black wire is connected from the circuit breaker to the supply side of the normally open terminals on the relay. The blower motor high speed tap wire is connected to the load side (Terminal #4) normally open terminal on relay.

A red wire is connected from the heat relay to the normally closed terminal on the relay. The load side (Terminal #6) of the normally closed terminal is connected to the low speed tap blower motor.

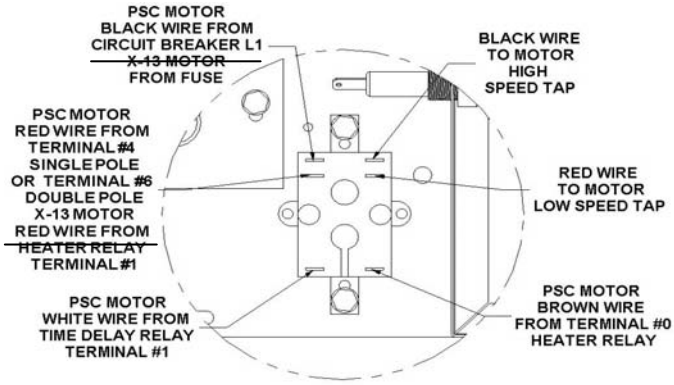


Figure 7: Motor Speed Tap Isolation Relay

⚠WARNING

For personal safety be sure to turn the electrical power "OFF" at the main entrance (Circuit Breaker Box) and at the control box circuit breakers before attempting any service or maintenance operations. Home owners should never attempt to perform any maintenance which requires opening the furnace control box door.

SECTION V: TROUBLE SHOOTING

The following checks should be made before trouble shooting the furnace controls for a no heat issue.

1. Check all of the circuit breakers. Make sure they are turned to the "ON" position and have not tripped.
2. Check all fuses, especially the 3 amp fuse on the top right side of the control box. If the fuse is blown, check the wiring with an OHM meter for a short to ground. If shorted, repair the short, and then replace the fuse.
3. Check any electrical switches that are external to the furnace to make sure they are turned on.
4. Check all wiring connections, especially on any of the components, to ensure they are securely fastened.

If you have 240 VAC coming out of the control box circuit breakers and you have 24 VAC between the load side if the 3 amp fuse and ground, then continue on through the rest of the checks.

Constant Torque Motor Check – Heating Mode

1. If the motor is not running, check for 240 VAC and 24 VAC at the motor terminals. If the 240 VAC and 24 VAC is present at the motor terminals but the motor is not operating, then replace the motor. Refer to Figure 9 and Table 1 for terminal locations and definitions.
   - A. If 240 VAC is not present at the motor check for a broken wire between the circuit breaker and the motor.
   - B. If 240 VAC is present at the motor terminals continue to the next check.
2. If 24 VAC is not present at the motor check for 24 VAC across the heater relay coil.
   - A. If 24 VAC is present at the heater relay coil, the wire going to the motor is bad and needs to be replaced.
   - B. If 24 VAC is not present at the heater relay coil check the thermostat "W" circuit wire connections and the thermostat.

Constant Torque Motor Check – Cooling Mode

1. If the motor is not running, check for 240 VAC and 24 VAC at the motor terminals.
   - A. If the 240 VAC and 24 VAC is present at the motor terminals but the motor is not operating, then replace the motor. Refer to Figure 9 and Table 1 for terminal locations and definitions.
   - B. If 240 VAC is not present at the motor check for a broken wire between the circuit breaker number one and the motor.
   - C. If 240 VAC is present at the motor terminals continue to the next check.
3. If 24 VAC is not present at the motor speed tap terminals; check for 24 VAC at terminal #1 on the TDR
   - A. If 24 VAC is present at terminal #1, the wire going to the motor is bad and needs to be replaced.
   - B. If 24 VAC is not present at terminal #1 check terminal #3.
   - C. If 24 VAC is present at the terminal #3 replace the TDR.

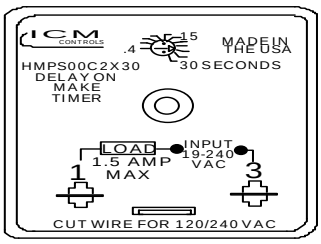


Figure 8: Time Delay Relay (TDR) Terminals

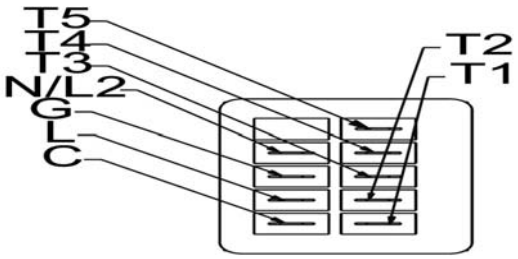


Figure 9: Constant Torque Motor Terminals

⚠WARNING

To avoid personal injury or property damage, make certain that the motor leads cannot come into contact with non-insulated metal components of the unit.

Terminal	Connection
C	Speed Tap Common - 24 VAC Common
L	Supply Voltage to Motor - 240 VAC Line 1
G	Ground Connection
N	Supply Voltage to Motor - 240 VAC Line 2
1	Low Speed Tap - 24 VAC
2	Med-Low Speed Tap - 24 VAC
3	Medium Speed Tap - 24 VAC
4	Med-High Speed Tap - 24 VAC
5	High Speed Tap - 24 VAC

Table 1: Constant Torque Motor Terminal Connections

Heater Element Is Not On

Check for 240 VAC between each of the heater elements. If 240 VAC is present, check the current draw on each heater. If there is 200 – 250 VAC across the heaters but a heater is not drawing the proper current or is showing almost no current draw check the limit for that heater. If the limit is good but

there still is no current flow then, check to see if the heater is defective.
The heater amps are as follows:

3kW Heater = 12.5 amps
4 kW Heater = 16.7 amps
5 kW Heater = 20.8 amps
6 kW Heater = 25.0 amps

The heater design is as follows:
The 3 kW model has one 3 kW heater element.
The 5 kW model has one 5 kW heater element.
The 6 kW model has one 6 kW heater element.
The 8 kW model has one heater with two 4 kW elements.
The 10 kW model has one heater with two 5 kW elements
The 15 kW model has one heater with two 5 kW elements (top heater) and one heater with one 5 kW element (bottom heater).
The 20 kW model has one heater with two 5 kW elements (top heater) and one heater with two 5 kW elements (bottom heater).
If 240 VAC is not present at the heater element but there is 240 VAC present between the load terminal of the heater relay and L2 then check the limit control for an open limit and replace the open limit control.
If 240 VAC is not present at the heater element or between the load terminal of the heater relay and L2 but is present between the line terminal of the heater relay and L2; then, replace the heater relay.
DP - Double Pole Contactor

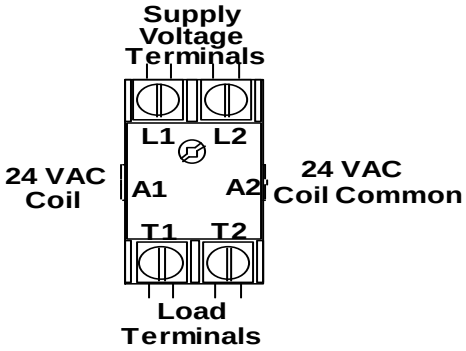


Figure 10: Heater Contactor Terminal Designations

Blower Motor FLA

1/3 HP Constant Torque Motor – 2.0
1/2 HP Constant Torque Motor – 4.1
3/4 HP Constant Torque Motor – 6.0

Replacing the Blower

1. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly shutdown this appliance.
2. Remove the right side access door and switch furnace circuit breaker(s) to “OFF”.
3. Disconnect the plastic wire plug that has the wires that goes to the motor terminals from the top left side of the main control box.
4. Remove the two screws on the front of the blower mounting plate flange.
5. Slide the blower assembly all the way back till it is out of the track and set the blower assembly on the floor.
6. Remove the wires from the terminals. Be sure to write down the motor terminal identifier and wire color so the wires do not get mistakenly placed on the wrong terminals.
7. Remove the blower housing from the mount assembly by removing the screws on the sides of the blower that secure the blower to the mount assembly
8. Loosen the blower wheel set screw located on the wheel hub.
9. Remove blower motor by removing the 4 screws on the right side of the housing that secure the motor to the housing..
10. Insert the new blower housing into the blower mounting bracket and secure to the bracket with the screws.
11. Reinstall the blower motor by you removed in Step 8.
12. Center the blower wheel in the housing and tighten the set screw on the flat of the motor shaft.
13. Connect the wires to the motor terminals so the wires are connected to the same terminals on the new motor as they were on the previous motor.
14. Slide the blower assembly into the track assembly and slide the blower back in place.
15. Insert the two screws on the front mount bracket flange to secure the blower assembly.
16. Connect the pin plug to the pin plug on the left side of the main control box.
17. Switch the circuit breakers to ON and replace furnace front door.
18. Follow the instructions exactly as shown in Startup and Shutdown Section in this manual to properly startup this appliance.
19. Set the thermostat to the desired temperature.

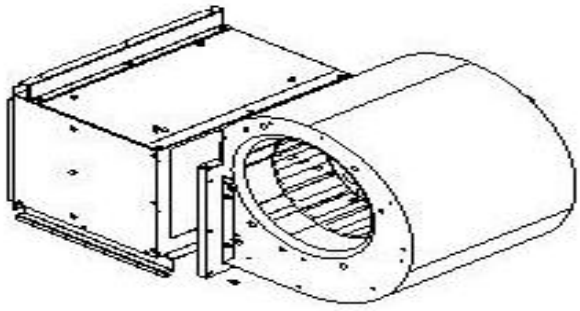


Figure 11: Blower Mounting Plate Screw Locations

⚠WARNING

To avoid personal injury take precautions not come into contact with non-insulated electrical components.

Avoid wearing loose clothing or any items that can come in contact with moving parts, such as the blower wheel. .This can cause serious personal injury

SECTION VI: BLOWER PERFORMANCE

Motor HP	Blower Package	Speed Tap	0.10" CFM	0.20" CFM	0.30" CFM	0.40" CFM	0.50" CFM
0.33	9 X 7T	1	726	683	647	599	558
		2	750	717	674	638	599
		3	804	766	734	687	619
		4	844	812	774	722	633
		5	929	880	829	758	643
0.50	10 X 7T	1	772	731	668	620	551
		2	870	819	780	739	687
		3	1097	1063	1021	984	939
		4	1169	1136	1103	1063	1015
		5	1279	1250	1209	1168	1108
0.75	10 X 10T	1	1426	1390	1359	1308	1270
		2	1485	1450	1408	1371	1334
		3	1553	1519	1485	1444	1414
		4	1654	1623	1596	1553	1514
		5	1816	1778	1729	1639	1575
0.75	12 X 10T	1	1362	1316	1267	1217	1160
		2	1429	1376	1334	1292	1238
		3	1629	1582	1538	1489	1451
		4	1796	1754	1714	1666	1629
		5	1894	1854	1810	1775	1729

Table 2: Blower Performance -5 SPD Constant Torque(CT) Motor (Without Air Filters)

Motor HP	Blower Package	Speed Tap	0.10" CFM	0.20" CFM	0.30" CFM	0.40" CFM	0.50" CFM
0.33	9 X 7T	Low	723	689	620	548	
		Med-Lo	821	760	693	620	543
		Med-Hi	877	817	744	662	580
		High	937	875	800	726	601
0.50	10 X 7T	Low	1121	1099	1059	1010	960
		Med-Lo	1267	1232	1176	1121	1047
		Med-Hi	1362	1311	1257	1191	1121
		High	1442	1385	1320	1252	1181
0.50	10 X 10T	Low	1092	1065	1011	962	892
		Med-Lo	1421	1259	1199	1135	1068
		Med-Hi	1472	1412	1340	1259	1178
		High	1601	1534	1451	1372	1279
0.75	12 X 10T	Low	1093	1076	1058	1034	998
		Med-Lo	1351	1340	1318	1307	1273
		Med-Hi	1741	1716	1664	1610	1563
		High	2037	1971	1918	1840	1767

Table 3: Blower Performance – 4 Speed PSC Motor – PEP Motor (Without Air Filters)

SECTION VII: REPLACEMENT PARTS LIST

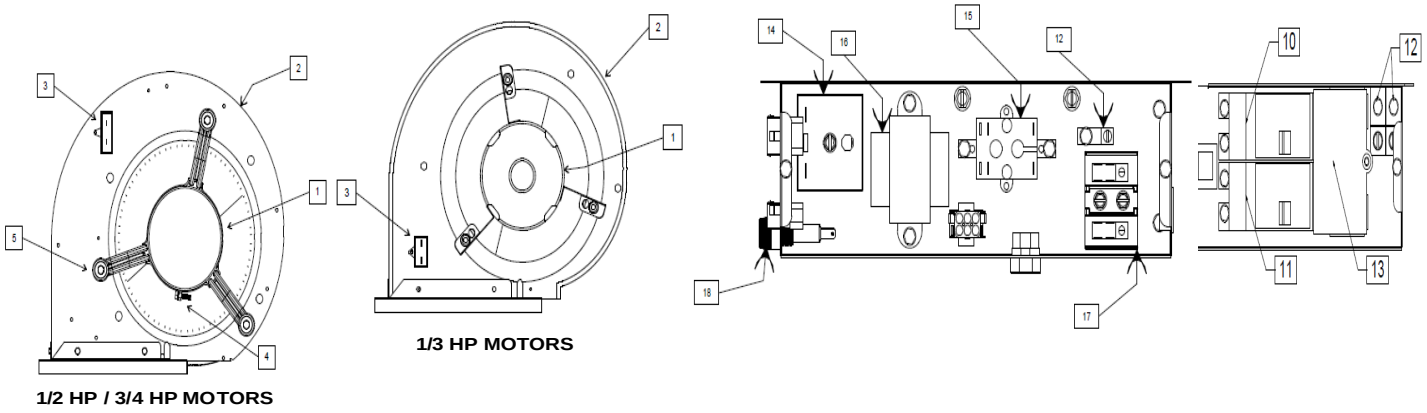


Figure 12: Replacement Parts Item Identification for No Heat Models with PSC Blower Motor except 12 x 10 Blowers.

		MODELS							
ITEM	DESCRIPTION	E40A100XXXXXXA	QTY	E40A200XXXXXXA	QTY	E40A300XXXXXXA	QTY	E40A400XXXXXXA	QTY
1	PSC BLOWER MOTOR	R65BP0022	1	R65BP0020	1	R65BP0020	1	R65BP0021	1
2	BLOWER HOUSING & WHEEL	R69AD0025	1	R69AD0027	1	R69AD0026	1	R69AD0026	1
3	CAPACITOR	R68DE0006	1	R68DE0008	1	R68DE0008	1	R68DE0009	1
4	3 LEG MOTOR MOUNT BAND			R66AB0009	1	R66AB0009	1	R66AB0009	1
5	MTR MT ARM & GROMMET			R66AB0059	3	R66AB0059	3	R66AB0059	3
12	GROUND LUG	R68DC0001	1	R68DC0001	1	R68DC0001	1	R68DC0001	1
14	TIME DELAY RELAY	R68CHR001	1	R68CHR001	1	R68CHR001	1	R68CHR001	1
15	BLOWER RELAY	R68AB0001	1	R68AB0001	1	R68AB0001	1	R68AB0001	1
16	TRANSFORMER	R68AA0003	1	R68AA0003	1	R68AA0003	1	R68AA0003	1
17	2 POLE TERMINAL BLOCK	R68DC0018	1	R68DC0018	1	R68DC0018	1	R68DC0018	1
18	3 AMP FUSE	R73MHA001	1	R73MHA001	1	R73MHA001	1	R73MHA001	1

Table 4: Replacement Parts for No Heat Models with a PSC Blower Motor except 12 x 10 Blowers.

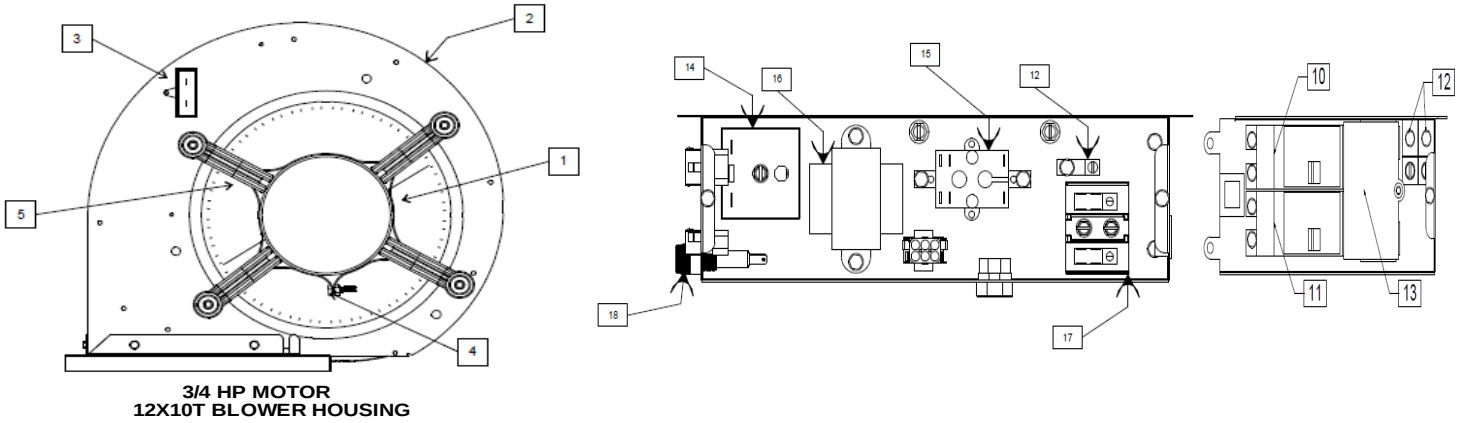


Figure 13: Replacement Parts Item Identification for No Heat Models with PSC Blower Motor and 12 x 10 Blowers.

		MODELS	
ITEM	DESCRIPTION	E40A500XXXXXXA	QTY
1	PSC BLOWER MOTOR	R65BP0021	1
2	BLOWER HOUSING & WHEEL	R69AD0024	1
3	CAPACITOR	R68DE0009	1
4	MOTOR MOUNT BAND	R66AB0058	1
5	MTR MT ARM & GROMMET	R66AB0059	4
12	GROUND LUG	R68DC0001	1
14	TIME DELAY RELAY	R68CHR001	1
15	BLOWER RELAY	R68AB0001	1
16	TRANSFORMER	R68AA0003	1
17	2 POLE TERMINAL BLOCK	R68DC0018	1
18	3 AMP FUSE	R73MHA001	1

Table 5: Replacement Parts for No Heat Models with a PSC Blower Motor and 12 x 10 Blowers.

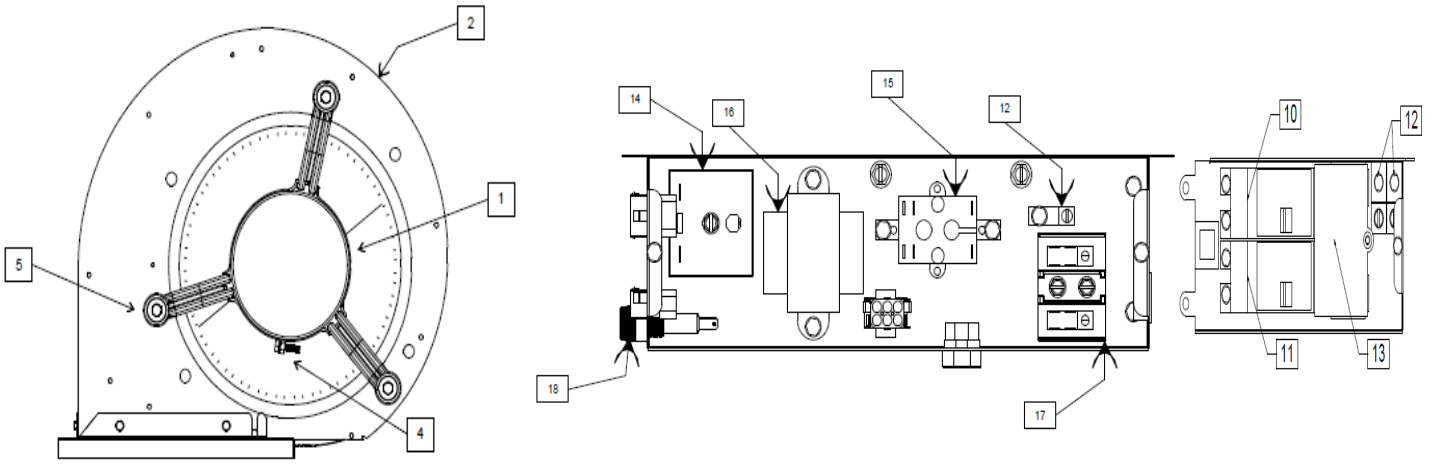
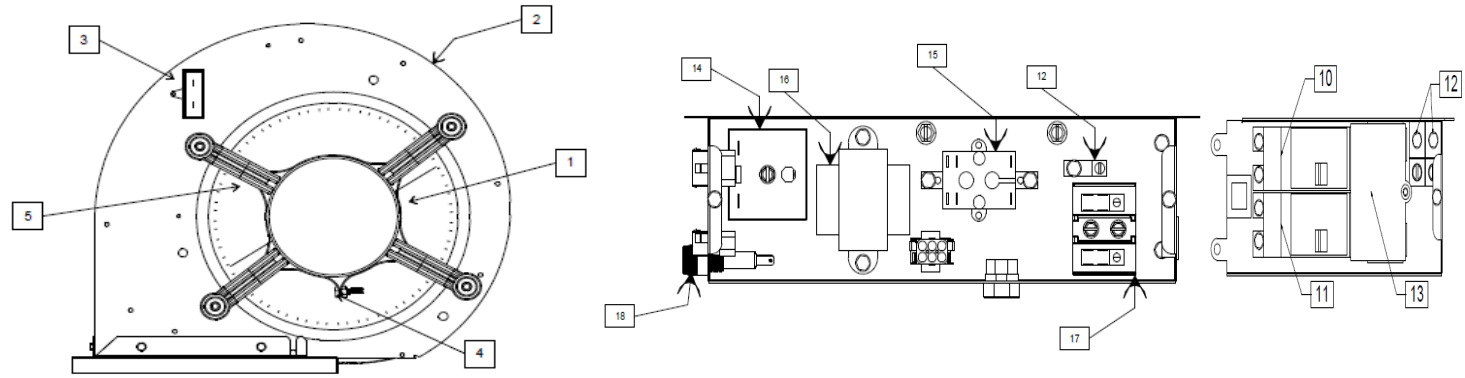


Figure 14: Replacement Parts Item Identification for No Heat Models with CT Blower Motor Except for 12 x 10 Blowers.

		MODELS							
ITEM	DESCRIPTION	E40A100XXXXXXA	QTY	E40A200XXXXXXA	QTY	E40A300XXXXXXA	QTY	E40A400XXXXXXA	QTY
1	CONSTANT TORQUE BLOWER MOTOR	R65BV0025	1	R65BV0026	1	R65BV0026	1	R65BV0027	1
2	BLOWER HOUSING & WHEEL	R69AD0025	1	R69AD0027	1	R69AD0026	1	R69AD0026	1
3	3 LEG MOTOR MOUNT BAND	R66AB0009	1	R66AB0009	1	R66AB0009	1	R66AB0009	1
4	MTR MT ARM & GROMMET	R66AB0059	3	R66AB0059	3	R66AB0059	3	R66AB0059	3
12	GROUND LUG	R68DC0001	1	R68DC0001	1	R68DC0001	1	R68DC0001	1
14	TIME DELAY RELAY	R68CHR001	1	R68CHR001	1	R68CHR001	1	R68CHR001	1
15	BLOWER RELAY	R68AB0001	1	R68AB0001	1	R68AB0001	1	R68AB0001	1
16	TRANSFORMER	R68AA0003	1	R68AA0003	1	R68AA0003	1	R68AA0003	1
17	2 POLE TERMINAL BLOCK	R68DC0018	1	R68DC0018	1	R68DC0018	1	R68DC0018	1
18	3 AMP FUSE	R73MHA001	1	R73MHA001	1	R73MHA001	1	R73MHA001	1

Table 6: Replacement Parts for No Heat Models with a Constant Torque (CT) Blower Motors Except for 12 x 10 Blowers.



3/4 HP MOTOR
12X10T BLOWER HOUSING

Figure 15: Replacement Parts Item Identification for No Heat Models w/ Constant Torque Blower Motors and 12 x 10 Blowers

		MODELS	
ITEM	DESCRIPTION	E40B500XXXXXXA	QTY
1	CONSTANT TORQUE BLOWER MOTOR	R65BV0027	1
2	BLOWER HOUSING & WHEEL	R69AD0024	1
3	MOTOR MOUNT BAND	R66AB0058	1
4	MTR MT ARM & GROMMET	R66AB0059	4
12	GROUND LUG	R68DC0001	1
14	TIME DELAY RELAY	R68CHR001	1
15	BLOWER RELAY	R68AB0001	1
16	TRANSFORMER	R68AA0003	1
17	2 POLE TERMINAL BLOCK	R68DC0018	1
18	3 AMP FUSE	R73MHA001	1

Table 7: Replacement Parts for No Heat Models with a Constant Torque (CT) Blower Motors and 12 x 10 Blowers.

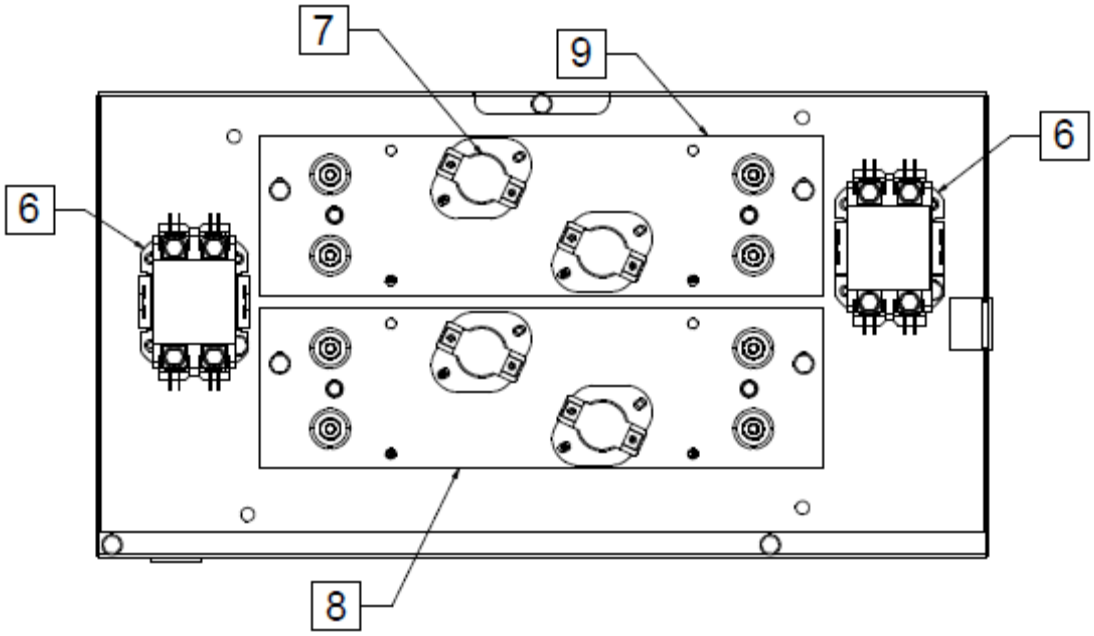


Figure 16: Replacement Parts Item Identification for Single and Two Stage Electric Heat Assemblies

		MODELS									
ITEM	DESCRIPTION	E40X103XXXXXXA	QTY	E40X105XXXXXXA	QTY	E40X106XXXXXXA	QTY	E40X108XXXXXXA	QTY	E40X110XXXXXXA	QTY
6	ELECTRIC HEAT CONTACTORS	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1
7	LIMIT CONTROLS - 130 DEGF	R68CA0002	1	R68CA0002	1	R68CA0002	1	R68CA0002	2	R68CA0002	2
8	SECOND STAGE ELECTRIC HEATER ELEMEN	N/A		N/A		N/A		N/A		N/A	
9	FIRST STAGE ELECTRIC HEATER ELEMENT	R67AB0023	1	R67AB0015	1	R67AB0022	1	R67AB0016	1	R67AB0017	1
10	SECOND STAGE CIRCUIT BREAKER	N/A		N/A		N/A		N/A		N/A	
11	FIRST STAGE CIRCUIT BREAKER	R68BAD013	1	R68BAD013	1	R68BAD013	1	R68BAD015	1	R68BAD018	1
12	GROUND LUGS	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1
13	JUMPER BAR ASSEMBLY	N/A		N/A		N/A		N/A		N/A	

Table 8: Replacement Parts for Electric Heat Models with 9 x 7T Blower and 1/3 HP PSC & CT Blower Motor

		MODELS													
ITEM	DESCRIPTION	E40X203XXXXXXA	QTY	E40X205XXXXXXA	QTY	E40X206XXXXXXA	QTY	E40X208XXXXXXA	QTY	E40X210XXXXXXA	QTY	E40X212XXXXXXA	QTY	E40X215XXXXXXA	QTY
6	ELECTRIC HEAT CONTACTORS	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	2	R68AB0019	2
7	LIMIT CONTROLS	R68CA0002	1	R68CA0002	1	R68CA0002	1	R68CA0002	2	R68CA0002	2	R68CA0002	2	R68CA0002	3
8	SECOND STAGE ELECTRIC HEATER ELEMEN	N/A		N/A		N/A		N/A		N/A		R67AB0022		R67AB0015	1
9	FIRST STAGE ELECTRIC HEATER ELEMENT	R67AB0023	1	R67AB0015	1	R67AB0022	1	R67AB0016	1	R67AB0017	1	R67AB0022	1	R67AB0017	1
10	SECOND STAGE CIRCUIT BREAKER	N/A		N/A		N/A		N/A		N/A		R68BAD014	1	R68BAD013	1
11	FIRST STAGE CIRCUIT BREAKER	R68BAD013	1	R68BAD013	1	R68BAD013	1	R68BAD015	1	R68BAD018	1	R68BAD014	1	R68BAD018	1
12	GROUND LUGS	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	2
13	JUMPER BAR ASSEMBLY	N/A		N/A		N/A		N/A		N/A		N/A		R68AA0003	1

Table 9: Replacement Parts for Electric Heat Models with 10 x 7T Blower and 1/2 HP PSC & CT Blower Motor

		MODELS																	
ITEM	DESCRIPTION	E40X303XXXXXXA	QTY	E40X305XXXXXXA	QTY	E40X308XXXXXXA	QTY	E40X308XXXXXXA	QTY	E40X310XXXXXXA	QTY	E40X312XXXXXXA	QTY	E40X315XXXXXXA	QTY	E40X320XXXXXXA	QTY
6	ELECTRIC HEAT CONTACTORS	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	2	R68AB0019	2	R68AB0019	2
7	LIMIT CONTROLS	R68CA0002	1	R68CA0002	1	R68CA0002	1	R68CA0002	2	R68CA0002	2	R68CA0002	2	R68CA0002	3	R68CA0002	4
8	SECOND STAGE ELECTRIC HEATER ELEMEN	N/A		N/A		N/A		N/A		N/A		R67AB0022		R67AB0015	1	R67AB0017	1
9	FIRST STAGE ELECTRIC HEATER ELEMENT	R67AB0023	1	R67AB0015	1	R67AB0022	1	R67AB0016	1	R67AB0017	1	R67AB0022	1	R67AB0017	1	R67AB0017	1
10	SECOND STAGE CIRCUIT BREAKER	N/A		N/A		N/A		N/A		N/A		R68BAD014	1	R68BAD013	1	R68BAD018	1
11	FIRST STAGE CIRCUIT BREAKER	R68BAD013	1	R68BAD013	1	R68BAD013	1	R68BAD015	1	R68BAD018	1	R68BAD014	1	R68BAD018	1	R68BAD018	1
12	GROUND LUGS	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	2	R66GF0022	2
13	JUMPER BAR ASSEMBLY	N/A		N/A		N/A		N/A		N/A		N/A		R68AA0003	1	R68AA0003	1

Table 10: Replacement Parts for Electric Heat Models with 10 x 10T Blower and 1/2 HP PSC Blower Motor

		MODELS																	
ITEM	DESCRIPTION	E40X403XXXXXXA	QTY	E40X405XXXXXXA	QTY	E40X408XXXXXXA	QTY	E40X408XXXXXXA	QTY	E40X410XXXXXXA	QTY	E40X412XXXXXXA	QTY	E40X415XXXXXXA	QTY	E40X420XXXXXXA	QTY
6	ELECTRIC HEAT CONTACTORS	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	2	R68AB0019	2	R68AB0019	2
7	LIMIT CONTROLS	R68CA0002	1	R68CA0002	1	R68CA0002	1	R68CA0002	2	R68CA0002	2	R68CA0002	2	R68CA0002	3	R68CA0002	4
8	SECOND STAGE ELECTRIC HEATER ELEMEN	N/A		N/A		N/A		N/A		N/A		R67AB0022		R67AB0015	1	R67AB0017	1
9	FIRST STAGE ELECTRIC HEATER ELEMENT	R67AB0023	1	R67AB0015	1	R67AB0022	1	R67AB0016	1	R67AB0017	1	R67AB0022	1	R67AB0017	1	R67AB0017	1
10	SECOND STAGE CIRCUIT BREAKER	N/A		N/A		N/A		N/A		N/A		R68BAD014	1	R68BAD013	1	R68BAD018	1
11	FIRST STAGE CIRCUIT BREAKER	R68BAD013	1	R68BAD013	1	R68BAD013	1	R68BAD015	1	R68BAD018	1	R68BAD014	1	R68BAD018	1	R68BAD018	1
12	GROUND LUGS	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	2	R66GF0022	2
13	JUMPER BAR ASSEMBLY	N/A		N/A		N/A		N/A		N/A		N/A		R68AA0003	1	R68AA0003	1

Table 11: Replacement Parts for Electric Heat Models with 10 x 10T Blower and 3/4 HP CT Blower Motor

		MODELS																	
ITEM	DESCRIPTION	E40X503XXXXXXA	QTY	E40X505XXXXXXA	QTY	E40X508XXXXXXA	QTY	E40X508XXXXXXA	QTY	E40X510XXXXXXA	QTY	E40X512XXXXXXA	QTY	E40X515XXXXXXA	QTY	E40X520XXXXXXA	QTY
6	ELECTRIC HEAT CONTACTORS	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	1	R68AB0019	2	R68AB0019	2	R68AB0019	2
7	LIMIT CONTROLS	R68CA0002	1	R68CA0002	1	R68CA0002	1	R68CA0002	2	R68CA0002	2	R68CA0002	2	R68CA0002	3	R68CA0002	4
8	SECOND STAGE ELECTRIC HEATER ELEMEN	N/A		N/A		N/A		N/A		N/A		R67AB0022		R67AB0015	1	R67AB0017	1
9	FIRST STAGE ELECTRIC HEATER ELEMENT	R67AB0023	1	R67AB0015	1	R67AB0022	1	R67AB0016	1	R67AB0017	1	R67AB0022	1	R67AB0017	1	R67AB0017	1
10	SECOND STAGE CIRCUIT BREAKER	N/A		N/A		N/A		N/A		N/A		R68BAD014	1	R68BAD013	1	R68BAD018	1
11	FIRST STAGE CIRCUIT BREAKER	R68BAD013	1	R68BAD013	1	R68BAD013	1	R68BAD015	1	R68BAD018	1	R68BAD015	1	R68BAD018	1	R68BAD018	1
12	GROUND LUGS	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	1	R66GF0022	2	R66GF0022	2
13	JUMPER BAR ASSEMBLY	N/A		N/A		N/A		N/A		N/A		N/A		R68AA0003	1	R68AA0003	1

Table 12: Replacement Parts for Electric Heat Models with 12 x 10T Blower and 3/4 HP PSC & CT Blower Motor