USER'S INFORMATION, MAINTENANCE AND SERVICE MANUAL

HIGH EFFICIENCY SEALED COMBUSTION DRUM HEAT EXCHANGER SERIES

MODEL: DFAA/DFAH
(Oil and Gas Conversion Burner/ Single Stage Downflow Only)

ISO 9001 Certified Quality Management System

For Installation In:

1. Manufactured (Mobile) Homes
2. Recreational Vehicles & Park Models
3. Modular Homes & Buildings

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- Go to website at www.york.com click on "contact", then click on "contact form" and follow the instructions.
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The manufacturer recommends that the user read all sections of this manual and keep the manual for future reference.

SECTION I: OIL-FIRED FURNACE

⚠WARNING

FIRE OR EXPLOSION HAZARD - Failure to follow safety warnings exactly could result in serious injury, death, or property damage.

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

— **WHAT TO DO IF YOU SMELL FUEL OIL:**

- *Do not try to light any appliance.*
- *Turn off the electric switch.*
- *Immediately call your service technician. DO NOT start the furnace.*
- *If the control reset button has been pushed more than one time, the chamber may be flooded with oil. Turn off the power to the furnace.*

— Installation and service must be performed by a qualified installer, service agency or the fuel supplier.

FOR YOUR SAFETY

1. The furnace area must be kept clear and free of combustible materials, gasoline and other flammable vapors and liquids.
2. Insulating materials may be combustible. The furnace must be kept free and clear of insulating materials. The furnace area must be examined when installed in an attic or other insulated space or when insulation is added to be sure that the insulation material has been kept away from the furnace.
3. Follow the instructions exactly as shown on the OPERATING INSTRUCTION LABEL or the Start-up and Shutdown Instructions on Page 4 of this manual when lighting the furnace or turning the furnace off.
4. Should the oil supply fail to shut off or if overheating occurs, shut off the fuel pump manual valve to the furnace before shutting off the electrical supply.
5. 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 fire or explosion. A qualified service agency should be contacted to inspect the furnace and replace all oil controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.
6. NEVER…Store flammable materials of any kind near your furnace. Gasoline, solvents, and other volatile liquids should be stored only in approved containers outside your home. These materials vaporize easily and are extremely dangerous.

7. NEVER**...**Store cleaning materials near your furnace. Materials such as bleaches, detergents, powdered cleansers, etc., can cause corrosion of the heat exchangers.
8. NEVER**...**Use the area around your furnace as a storage area for items which could block the normal flow of air. This flow of air is required for ventilation of the various furnace components.

⚠DANGER

FIRE OR EXPLOSION HAZARD - Failure to follow safety warnings exactly could result in serious injury, death, or property damage.

This furnace is designed and approved for use with #1 or #2 FUEL OILS ONLY. DO NOT BURN ANY LIQUID FUEL OTHER THAN #1 OR #2 FUEL OILS OR ANY SOLID FUEL IN THIS FURNACE.

- Never attempt to use gasoline in your heating appliance.
- Never attempt to burn garbage or refuse in your appliance.
- Never attempt to light the burner / appliance by throwing burning material into the appliance.
- Never attempt to use crankcase or waste oil or material other than the approved fuel oils in this burner.

Burning any unapproved fuel will result in damage to the furnace heat exchanger, which could result in fire, personal Injury, and/or property damage.

HOW YOUR OIL-FIRED FURNACE WORKS

This furnace must be installed in the downflow position only. Figure 1 shows a typical model in the downflow position. The furnace is equipped with a forced-draft oil burner combustion air blower and burner. Combustion air is drawn through a 2" PVC pipe; then pushed through a 2" flexible hose into the burner box. Flue gas is pushed through the heat exchanger by the oil burner combustion air blower and discharged through the vent pipe to the outside atmosphere.

The furnace circulating air blower draws cool air from the house, passes it over the hot furnace heat exchanger and circulates the warmed air through the ductwork to the house.

The furnace is equipped with the controls necessary for proper operation. The various components referred to in this manual and on the furnace rating plate are identified in Figure 1.

Your furnace is a very easy appliance to take for granted. Season after season, it sits there in your home, keeping you warm and comfortable. For this reason, you may never have given much thought to the way your furnace operates. In order to get the safest and most efficient operation from your furnace, you should understand how your furnace does its job.

When you set your thermostat to provide more heat in your home, you are starting the heating cycle of the furnace. First, the burner motor starts to purge the heat exchanger of any remaining gases. Next, the direct spark ignition starts and the solenoid valve on the oil pump opens and ignition occurs. A short time later, the blower starts and distributes the warm air throughout the home. When the temperature setting on your thermostat is reached, the solenoid valve closes, the oil burner is turned off, and the blower continues to run until the remaining warm air in the system is distributed. when the blower stops, the heating cycle has ended.

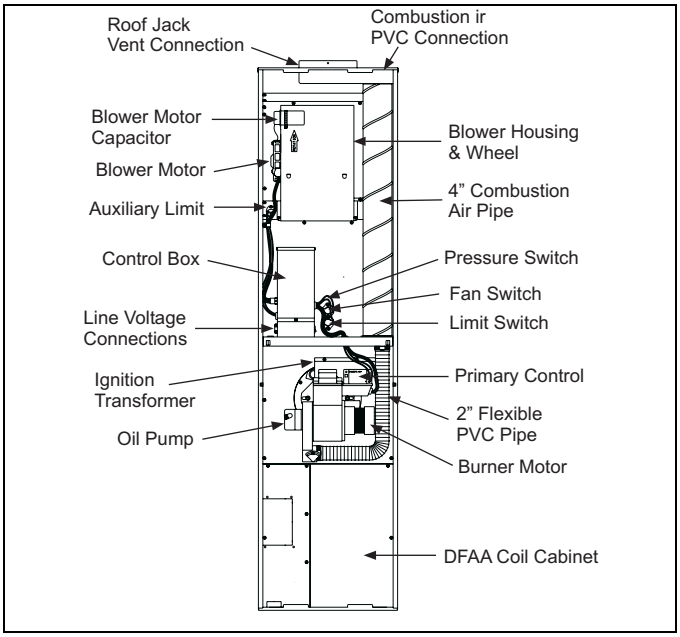


FIGURE 1: Component Locations

INSTRUCTIONS FOR EXAMINING THE FURNACE

It is the owner's responsibility to ensure that an annual inspection of the entire heating portion of the unit is made by **a qualified service agency**. Examine the furnace as outlined below in steps "1 - 6" before each heating season. Use Figures 2 and 3 for visual reference.

1. Examine the heat exchanger, through **a field installed access panel** located on the supply air plenum. Visually examine the exterior sections of the vent/combustion air piping and the connectors to be sure that they are physically sound without holes or excessive corrosion.
2. Examine the outside vent/combustion air pipe making sure it is firmly in place, is physically sound without holes, and all of the connections are secure.
3. Examine the return air filter rack connections on the blower door to make sure they are physically sound, and secured to the furnace casing.
4. Examine the furnace casing making sure the physical support is sound without sagging, cracks or gaps.
5. Examine the furnace base and coil panels making sure it is physically sound without cracks, gaps or sagging and has a good seal.
6. Examine the burner flames to make sure the burner look is like it is operating properly. The burner flames for fuel oil should appear yellow without smoking at the tips. The flame should appear cylindrical in shape and should extend from the end of the burner into the heat exchanger chamber. Refer to the pictorial sketch shown in Figure 2 as a comparison to the actual flame.

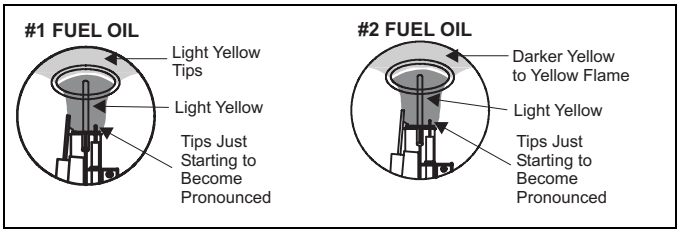


FIGURE 2: Oil Burner Flame Drawing

⚠WARNING

- Installation and adjustment of the burner requires technical and efficient knowledge and the use of combustion test instruments. Do not tamper with the unit or controls. Call your qualified service agency.
- Incorrect operation of the burner could result in severe personal injury, death, or substantial property damage.

7. Examine burner door for signs of deterioration.
8. Examine the furnace as outlined above in steps 1 - 7 before each heating season. Use Figure 2 for visual reference.

If, during the inspection of your furnace, you find any of the following conditions:

- Excessive amounts of dust and lint on components.
- Damaged or deteriorated components or surfaces.
- Leaks or blockage in the vent pipe passages.
- Water on any surface inside or outside of the furnace.

Do not operate the furnace, call a certified dealer / servicing contractor to check and / or clean your furnace, or for more information if you have questions about the operation of your furnace.

If all components appear to be in good operating condition, replace the front panels. Turn ON the oil and electrical power supplies to the furnace, and set thermostat to the desired temperature.

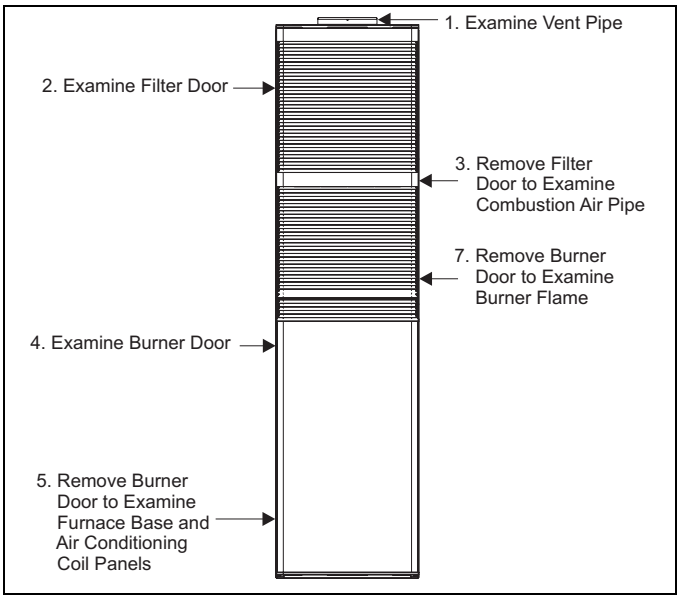


FIGURE 3: Furnace Examination Checkpoints

OWNER SERVICE AND MAINTENANCE

Properly installed and maintained, your AF burner will provide years of efficient, trouble-free operation. Please take care of your equipment by following the warnings provided and by doing the following (notify your qualified service agency if you find anything wrong):

ANNUALLY

- Have your burner serviced annually by your qualified service agency, as noted above.
- Refer to the appliance manufacturer's instructions for recommended appliance servicing and cleaning interval.

DAILY

Check the room in which your burner / appliance is installed. Make sure:

- Air ventilation openings are clean and unobstructed
- Nothing is blocking the burner inlet air openings
- No combustible materials are stored near the heating appliance, and
- There are no signs of oil or water leakage around the burner or appliance.

WEEKLY

- Check your oil tank level. Always keep your oil tank full, especially during the summer, in order to prevent condensation of moisture on the inside surface of the tank.

START-UP AND SHUTDOWN INSTRUCTIONS

Read the Instructions Below Before Trying to Start the Furnace

⚠WARNING

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

1. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
2. BEFORE OPERATING; smell all around the appliance area for fuel oil. Be sure to smell next to the floor because fuel oil is heavier than air and will settle on the base of the chamber. Look for any oil leaks around the base of the furnace.
3. Use only your hand to turn the manual oil line valve attached the pump to the "on" position. Never use tools. If the valve will not operate by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
4. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any oil burner control, which has been under water.

Operating Instructions:

1. STOP! Read the safety information above.
2. Set the thermostat to the lowest setting.
3. Turn off all electric power to the appliance.
4. Remove burner door.
5. Turn the valve on the oil pump to the closed position. Do not force.
6. If you then smell fuel oil, STOP! Follow "B" in the safety information above. If you don't smell fuel oil, go to next step.
7. Turn the valve attached to the oil pump to the open position. Do not force.
8. Replace burner door.
9. Turn on all electric power to the appliance.
10. Set thermostat to the desired setting. Burner will light, which may take 10-15 seconds.
11. After one (1) trial for ignition, if the appliance will not operate follow the instructions, "TO TURN OFF THE APPLIANCE" and call your service technician or fuel supplier.

To Turn Off the Appliance:

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove burner access panel.
4. Turn the valve attached to the oil pump to the closed position.
5. Replace burner access panel.

NOTE: When opening valve attached to the oil pump. turn handle until valve opens to a snug stop. DO NOT torque down handle as this will strip threads and valve will need to be replaced.

⚠WARNING

Should overheating occur, or the oil burner fail to shut off, turn the external manual valve on the oil pump or oil line at the oil tank to the off position and let the furnace cool off before shutting off the electrical power supply. Refer to Figures 4, 5, and 6.

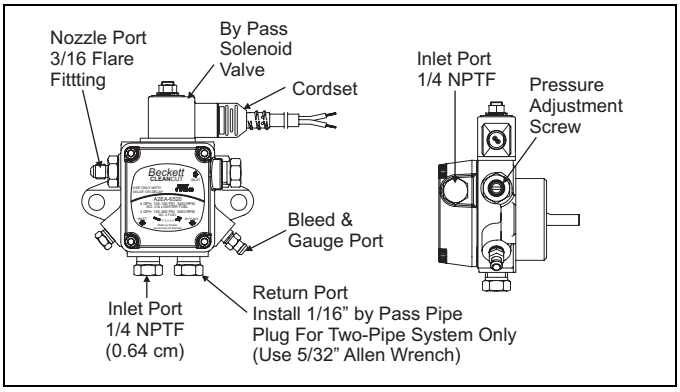


FIGURE 4: Oil Pump

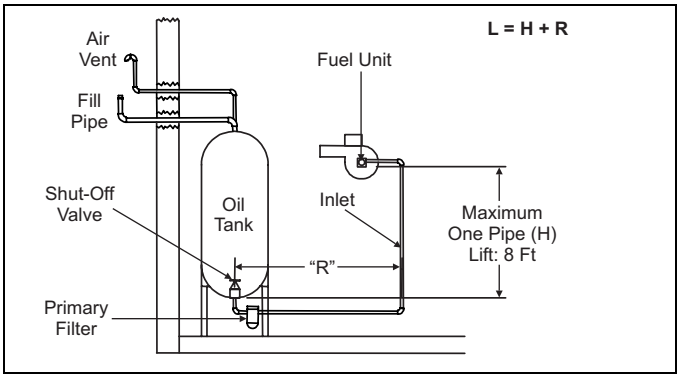


FIGURE 5: One-Pipe System

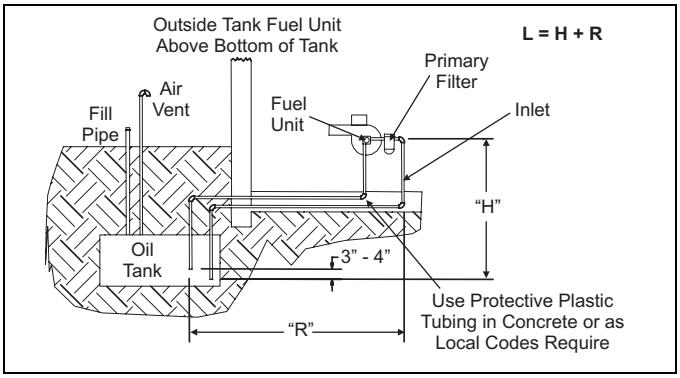


FIGURE 6: Two-Pipe System

FURNACE USER MAINTENANCE

⚠WARNING

Before proceeding, be sure the area is well ventilated. Turn the thermostat OFF. If the blower is running, wait until it stops automatically. Turn OFF the oil and electrical power supplies to the furnace. Check all metal parts and surfaces to be sure they have cooled to room temperature before you begin.

Air Filters

Dirty filters greatly restrict the flow of air and may cause damage to the moving parts of the furnace. If the filters become clogged the heat exchangers and blower motor could overheat resulting in a potentially dangerous situation.

The filters should be checked every 3 months. On new construction, check the filters every week for the first four weeks and every three weeks after that, especially if the indoor fan is running continuously. When replacing the filter(s) you must use filters that are the same size as those recommended in Table 1. Never operate your furnace without a suitable air filter. NEVER use PLEATED MEDIA or HOGS HAIR air filters in this furnace.

Every time the filters are changed the following items should be visually inspected:

- Check vent pipe for blockage or leakage.
- Check all components to be sure they are in good condition and that there are no obvious signs of deterioration.
- Check for dirt or lint on any surfaces or on components. Do not try to clean any of the surfaces or components. Cleaning of the furnace and its components must be done by a qualified service professional.

Removing Filters

Internally Mounted Air Filters

The air filter is in a rack that is attached to the inside of the louvered blower door. Refer to Figure 7 for air filter location.

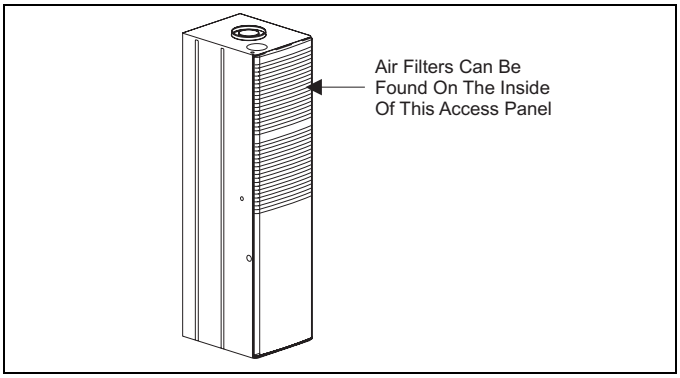


FIGURE 7: Furnace Air Filters

To remove the filter you must do the following:

1. Before proceeding, be sure the area is well ventilated. Follow instruction "To turn off the appliance". Check all metal parts and surfaces to be sure they have cooled to room temperature before you begin.
2. Remove the louvered blower door by pulling on the indentated handles on both sides of the bottom of the door.
3. Remove the air filter by sliding them down. The air filter will slide out of the rack.
4. Replace throw away filter(s) with the same size new filter(s) and the same type air filter(s). DO NOT use pleated media, hogs hair, or cleanable air filters.

TABLE 1: Filter Sizes

Blower Door Return	
inches	**cm**
(2) 16 x 20	(2) 41 x 51

Blower Care

Even with good filters properly in place, blower wheels and motors will become dust laden after long months of operation. The entire blower assembly should be inspected annually. If the motor and wheel are heavily coated with dust, they can be brushed and cleaned with a vacuum cleaner. If the blower cannot be properly cleaned without removing it from the furnace, then call a qualified service agency. Only a qualified service agency can perform this service.

⚠WARNING

Make sure you DO NOT move the clip-on weight on the indoor fan wheel when cleaning the wheel. This weight is used to balance the wheel. Moving the weight will cause the fan wheel to vibrate.

Motor Lubrication

The motors in these furnaces are permanently lubricated, and do not require periodic oiling.

SECTION II: SERVICE AND MAINTENANCE MANUAL

SAFETY SECTION

This section has been designed to assist a qualified service agency in performing service and maintenance on this appliance. The homeowners and/or end 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.

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

⚠WARNING

CARBON MONOXIDE POISONING HAZARD - *Carbon Monoxide is a colorless, odorless gas than can kill. Follow these rules to control carbon monoxide.*

- *Do not use this burner if in an unvented, enclosed area. Carbon monoxide may accumulate.*
- *Check flue gases for carbon monoxide. This check requires specialized equipment.*
- *Allow only qualified burner service persons to adjust the burner. Special instruments and training are required*
- *Read the owner's manual before using.*

⚠WARNING

ELECTRIC SHOCK, FIRE OR EXPLOSION HAZARD

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

Improper servicing could result in dangerous operation, serious injury, and death or property damage.

- *Before servicing, disconnect all electrical power to the furnace.*
- *When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.*
- *Verify proper operation after servicing.*

⚠WARNING

This burner must be installed, adjusted, and started only by a qualified service agency - an individual or agency, licensed and experienced with all codes and ordinances, who is responsible for the installation and adjustment of the equipment.

The Oil Heat Manufacturers' Association supports the use of low sulfur fuels as defined by ASTM D396, Grades Number 1 Low Sulfur and Number 2 Low Sulfur, as the preferred heating fuel for the following reasons:

- Low sulfur fuels reduce deposits on heat exchanger surfaces, which may extend the service interval between cleanings.
- The reduced deposits increase the efficiency of the appliance.
- Low sulfur fuels reduce particulate emissions.
- Low sulfur fuels reduce oxides of nitrogen emissions.

SERVICE AND MAINTAIN BURNER

Perform Annual Maintenance

⚠WARNING

This equipment must be serviced only by a qualified service agency. The appropriate test instruments must be used. Failure to do so could result in burner or appliance failure, causing potential severe personal injury, death, or substantial property damage.

- Replace the oil supply line filter. The line filter cartridge must be replaced to avoid contamination of the fuel unit and nozzle.
- Inspect the oil supply system. All fittings should be leak-tight. The supply lines should be free of water, sludge, and other restrictions.
- Remove and clean the pump strainer, if applicable. Replace the cover gasket (or O-ring seal).
- Replace the nozzle with an equivalent nozzle.
- Clean and inspect the electrodes for damage, replacing any that are cracked or chipped.
- Check electrode tip settings. Replace electrodes if tips are rounded.
- Inspect the igniter spring contacts.
- Clean the cad cell grid surface, if necessary.
- Inspect all gaskets. Replace any that are damaged or would fail to seal adequately.
- Clean the blower wheel, air inlet, retention head, and static plate of any lint or foreign material.
- Check motor current. The Amp draw should not exceed the nameplate rating by more than 10%.
- Check all wiring for secure connections or insulation breaks.
- Check the pump pressure and cut-off function.
- Check primary control safety lockout timing.
- Check ignition system for proper operation.
- Inspect the vent system for soot accumulation or other restriction.
- Clean the appliance thoroughly according to the manufacturer's recommendations.

- Check the burner performance. Refer to the section “Set combustion with instruments.”

It is good practice to make a record of the service performed and the combustion test results.

FURNACE MAINTENANCE

The furnace should be cleaned and adjusted by a certified dealer or qualified service contractor once a year or before the start of every heating season. The following items must be cleaned and serviced or replaced if there are signs of deterioration.

1. The furnace vent and combustion air intake passageways. Should it be necessary to service the vent/air intake system, the manufacturer recommends this service be conducted by a qualified service agency. The operation of this appliance requires the reassembly and resealing of the vent/air intake system.
2. The furnace burners, igniter and flame sensor.
3. Ignition transformer, electrodes, and electrode insulators.
4. Cad cell flame detector.
5. Oil burner nozzle.
6. Oil line filter (if applicable).

Direct Spark Ignition System

⚠WARNING

DIRECT SPARK IGNITION SYSEM
Do not attempt to light this furnace by hand (with a match or any other means). There may be a potential shock hazard from the components of the ignition system. The furnace can only be lit automatically by its direct spark ignition system.

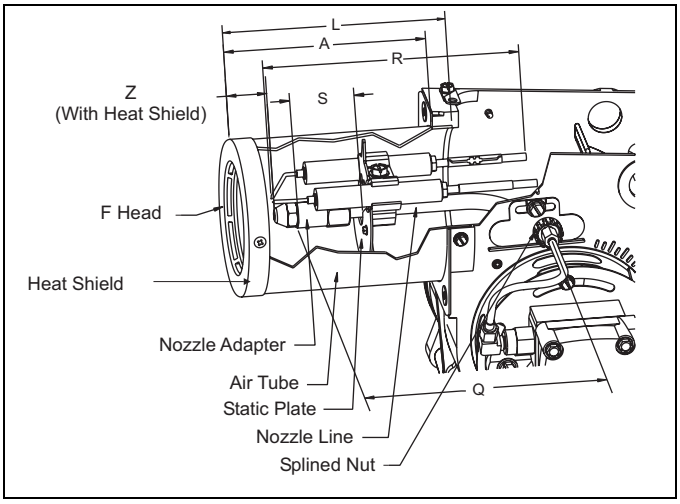


FIGURE 8: Oil Burner Assembly

TABLE 2: Oil Burner Assembly Dimensions

DIMENSION	INCHES
A (Usable Tube Length)	3-5/8
L (Total Tube Length)	4-1/8
R (Electrode Length ± 1/4)	6
S (Adapter to Static Plate ± 1/4)	1-5/8
Q (Nozzle Line Length)	4-11/16
Z (F Head - With Heat Shield)	1-3/8

FURNACE CLEANING

NOTE: The cleaning operations listed below must be performed only by a qualified service agency.

Servicing Nozzle Line Assembly

⚠WARNING

Make certain the nozzle is selected for the fuel unit pressure used. For applications with fuel unit pressure above 100 psig, the nozzle rated capacity will be less than the appliance firing rate. Use only the specified spray pattern unless combustion test results indicate the need for a change. Failure to use the correct nozzle size and type can result in unacceptable combustion, possibly causing severe personal injury, death, or substantial property damage.

Remove the nozzle line assembly to verify that the nozzle size and spray pattern are correct for the application. See Table 3. Verify that the electrode tip settings comply with Figure 10.

TABLE 3: Burner Specifications

Furnace Model	DFAA084BBTA DFAH084BBSA	DFAA066BBTA DFAH066BBSA
Burner Spec	EVC - 201	EVC - 201
ATC	AF35YHHS	AF35YHHS
Head	F3	F3
Static Plate	3 - 3/8 U	3 - 3/8 U
Nozzle	0.65 x 70° A Delavan	0.50 x 70° A Delavan
Pump Pressure	100 psi	100 psi
Air Boot Setting	4.0	3.0

Burner Removal/Cleaning

The oil burner should be checked annually for dirt accumulation and the nozzle must be changed. If cleaning is required, follow this procedure:

1. Turn off the electrical power to the unit.
2. Turn off the oil supply at the external manual shut-off valve on the oil pump on the oil burner and/or at the oil tank.
3. Remove the lower access panel.
4. Loosen the screws and move the retaining clips at the front of the transformer. Pull up and back on the transformer and let it rest on the burner assembly. The nozzle assembly will now be visible.
5. Remove the flare nut from the nozzle line on the connector tube assembly.
6. Push the nozzle assembly in at the flare fitting end until the assembly is inside the burner housing. Be sure to keep the flare end at a slight angle upwards to avoid dripping oil on the combustion air fan below.
7. Slide the nozzle assembly up and out of the burner assembly. Take extra precautions with the electrodes when removing the nozzle assembly so the insulators do not get broken or cracked.
8. Clean the assembly with a degreaser and wipe dry with a cloth.
9. Change the nozzle. Be sure to place a wrench on the nozzle adapter before attempting to loosen the nozzle. After the nozzle has been removed, dump the remaining fuel oil into a bucket. This will remove any dirt or sludge that fell off the nozzle screen when you were removing it.

⚠ CAUTION

Use care when removing and installing oil nozzles.

- Inspect the nozzle adapter before installing nozzle. If it is grooved or scratched on the sealing surface, replace the nozzle line assembly. Otherwise, oil could leak at the nozzle adapter joint, causing serious combustion problems.
- Protect the nozzle orifice and strainer when installing. If the orifice gets dirt in it or is scratched, the nozzle will not function properly.
- Do not over torque the nozzle when installing. This will create deep grooves in the nozzle adapter, preventing a seal when a new nozzle is installed.
- Use a wrench or vise to hold the nozzle adapter. **DO NOT** attempt to remove or replace the nozzle without holding the adapter. The nozzle alignment could be seriously damaged. Use a nozzle wrench that secures the adapter or use 3/4" and 5/8" open-end wrenches.
- Do not squeeze the electrodes too tightly when handling the nozzle line assembly. This could change the electrode tip settings or damage the ceramic electrode insulators.
- Carefully check and realign electrode tips after replacing nozzle, ensuring the electrode settings comply with Figure 10.

NOTE: Be extra careful not to hit the electrodes with the wrench when removing the nozzle. This could cause the insulators to crack or break.

10. Replace the new nozzle with an equivalent nozzle.
11. Clean and inspect the electrodes for damage, replacing any that are cracked or chipped.
12. Check the electrode tip settings. Replace electrodes if tips are rounded.
13. Brush and vacuum any soot, lint, or foreign material out of the air tube.
14. Remove fuel pump.
15. Remove and clean the pump strainer, if applicable. Replace the cover gasket (or O-ring seal).
16. Use vacuum and a small brush to clean combustion air blower wheel and vacuum any debris from the blower wheel area.
17. Clean cad cell grid surface, if necessary.
18. Visibly check the heat shield, burner head, and air tube for signs of deterioration or damage.
19. Check all gaskets. Replace any that are damaged or would fail to seal adequately.
20. Check the pump coupling for signs of wear or cracks. The coupling should not be loose when placed on the motor shaft or the pump shaft. If the coupling appears loose, worn, or has cracks, replace the coupling.
21. Reinstall the pump coupling on the motor shaft and install the pump. Rotate the pump until the flat spot on the shaft lines up with the flat spot on the coupling. Do not force the pump shaft on to the coupling.
22. Reinstall the nozzle assembly and tighten the assembly to the burner housing with the splined nut.
23. Reconnect the connector tube assembly and tighten the flare fitting.
24. Check the transformer spring contacts. If worn, replace.
25. Push the transformer up and forward checking to make sure the springs are touching the electrode rods.
26. Put the transformer retaining clips in place and tighten the screws.

Cleaning the Heat Exchanger

Lower Heat Exchanger Access

1. Turn off the electrical power to the unit and turn off oil supply at the shut-off valve.
2. Remove the blower and burner compartment access doors. Disconnect the oil piping at the valve on the oil pump to permit removal of the entire burner from the vestibule panel.
3. Disconnect the black and white wires at the terminals before the electrical junction box. Remove the red and grey wires from the T and T terminals on the right side of the control. Identify and note the location of all leads for ease of reinstallation.
4. Remove the screws holding the burner assembly to the vestibule panel and remove this assembly. Handle the assembly carefully since it contains the igniter which is fragile and easily broken. The lower portion of the heat exchanger and chamber will now be exposed. Using a vacuum cleaner, carefully clean bottom of the chamber, if needed. Be careful not to damage the chamber when vacuuming. Keep vacuum hose at an angle and slightly above surface. Never touch the chamber with the vacuum hose.
5. After cleaning is complete, replace all components in reverse order. Re-gasket all surfaces which required a gasket. Reconnect all wiring. Reattach vent pipe and oil lines before restoring service to furnace. Restore electrical power, check oil piping for leaks, and then verify furnace operation.

REPLACING THE OIL PUMP

To install a CleanCut fuel unit on chassis with existing shutter tab see Figure 9 and follow these steps:

1. Remove existing fuel unit and solenoid valves, if applicable, and appropriately dispose of them.
2. Install the new oil pump and solenoid valve. Adjust the air damper to the original air setting and tighten screw securely.

NOTE: Do not install the top shutter screw, it will interfere with the solenoid on the fuel unit.

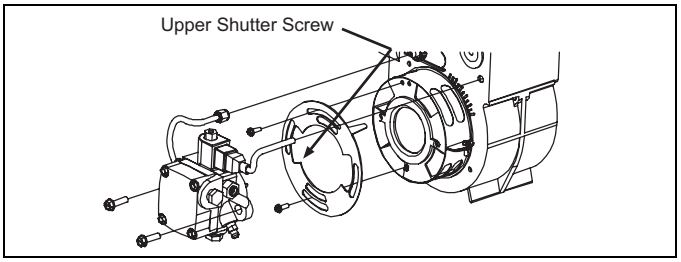
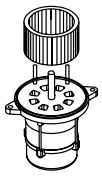


FIGURE 9: Mounting Pump

To install a CleanCut fuel unit on a housing with two upper mounting screw holes, make sure the upper screw is installed in the hole closest to the front of the burner (air tube side). See Figure 9.

To Replace Blower Wheel:



1. Turn off all power to the burner before servicing.
2. Disconnect the burner motor wires.
3. Remove the bolts securing the blower motor to the housing.
4. Remove the blower motor and wheel.
5. Remove the existing wheel.
6. As shown at right, slide the new blower wheel onto the shaft.
   - Slide blower wheel toward motor until the bottom rim is 1/8” from the motor face.
   - Rotate the wheel until the set screw is centered on the flat of the motor shaft.
   - Tighten the set screw to secure the wheel.
7. Install the motor on the burner housing. Tighten the bolts. Reconnect the motor wires.
8. Restore power, start the burner, and perform combustion tests. Refer to “Set combustion with instruments.”

Check / Adjust Electrodes

Check the electrode tip settings. Adjust if necessary to comply with the dimensions shown in Figure 10. To adjust, loosen the electrode clamp screw and slide / rotate the electrodes as necessary. Securely tighten the clamp screw when finished.

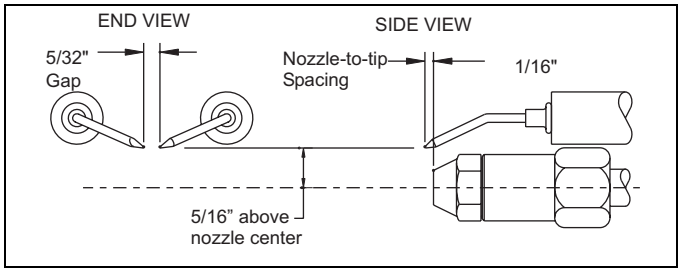


FIGURE 10: Electrode Settings

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

OIL FURNACE SEQUENCE OF OPERATION

The following describes the sequence of operation of the furnace. Refer to Figure 1 for component location.

Continuous Blower

DFAA cooling/heating thermostats have a fan switch that has an ON and AUTO position. In the ON position the thermostat circuit is completed between terminals R and G. The motor will operate continuously.

DFAH models are heating only.

Intermittent Blower - Cooling

Cooling/heating thermostats have a fan switch that has an ON and AUTO position. In the AUTO position the thermostat circuit is completed between terminals R and G when there is a call for cooling. The motor will operate until the call for cooling is removed by the thermostat.

Heating Cycle

When the thermostat switch on a DFAA is set on HEAT and the fan is set on AUTO, (DFAH has no manual fan operation), and there is a call for heat, a circuit is completed between terminals R and W of the thermostat. There is a 10 second delay to allow the burner motor to come up to speed at which time the primary control provides power to the ignition transformer, the solenoid valve on the oil pump opens and fuel oil starts to flow to the nozzle, ignition occurs and the flame sensor begins its sensing function. The blower motor will energize after the air temperature at the fan control is above 110° F, if a flame is detected. Normal furnace operation will continue until the thermostat circuit between R and W is opened, which causes the ignition system and oil pump solenoid valve to de-energize and the burner flames to be extinguished. The blower motor will operate until the fan switch is below 90° F. The heating cycle is complete and ready for the start of the next cycle.

If the flame is not detected within 15 seconds of the primary control, it will turn off the oil burner. There will be 3 retries before the primary control will lockout. If the flame is lost for 2 seconds during the 15 second stabilization period, the ignition transformer is energized and a retry operation begins. If flame is not detected within 15 seconds during the retry, the primary control will go into recycle mode. Once the primary control locks out the reset button must be pressed before an ignition retry occurs.

A momentary loss of fuel oil, flame blowout, or a faulty cad-cell detector will result in a disruption in the flame and be sensed within 1.0 seconds. The oil pump solenoid valve will de-energize and the primary control will begin a recycle operation. A normal ignition sequence will begin after a 15 second inter-purge. If during the three recycles the fuel oil supply does not return, or the fault condition is not corrected the primary control will lock out.

During burner operation, a momentary loss of power for 50 milliseconds or longer will de-energize the primary control. When the power is restored, the primary control will remain de-energized and the ignition sequence will immediately restart.

TYPICAL PRIMARY CONTROL SEQUENCE OF OPERATION

1. **STANDBY -** The burner is idle, waiting for a call for heat. When a call for heat is initiated, there is a 2-6 second delay while the control performs a safe start check.
2. **VALVE-ON DELAY -** If applicable, the ignition and motor are turned on for a 15 second valve-on delay.
3. **TRAIL FOR IGNITION (TFI) -** The fuel valve is opened, if applicable. A flame should be established within the 15 second lockout time (30 seconds on some models).
4. **LOCKOUT -** If flame is not seen at the end of the TFI or is seen during valve-on delay or postpurge, the control shuts down on safety lockout and must be reset. If the control locks out three times in a row, the control enters restricted lockout. Follow the instructions on the front to reset it.
5. IGNITION CARRYOVER - Once flame is established, the ignition remains on for an additional 10 seconds to ensure flame stability. If the control is wired for intermittent duty ignition, the ignition unit stays on the entire time the motor is running.
6. RUN - The burner runs until the call for heat is satisfied. The signal is then sent to burner motor-off delay, if applicable, and it is shut down and sent to standby.
7. RECYCLE - If the flame is lost while the burner is firing, the control shuts down the burner, enters a 60 second recycle delay, and then repeats the above ignition sequence. If flame is lost three times in a row, the control locks out to prevent cycling with repetitious flame loss due to poor combustion.

8. BURNER MOTOR-OFF DELAY (Postpurge) - If applicable, the fuel valve is de-energized and the burner motor is kept on for the selected postpurge time before the control returns to standby.

START UP AND SAFETY CHECK PROCEDURE

⚠WARNING

Fire or Explosion Hazard - *Can cause severe injury, death or property damage. Make sure the combustion chamber is free of oil and/or oil vapor before starting system.*

Burner Start-up

1. Open hand valve in oil supply line.
2. Make sure system is powered. Check circuit breaker or fuse and close system switch located on the right side of the control box.
3. Set thermostat to call for heat.
4. Make sure burner lights and operates until call for heat ends.
5. Verify that burner turns off when thermostat call for heat is satisfied.

Safe Start:

1. Place a jumper across cad cell terminals
2. Follow burner start-up. Burner must not start, indicator light turns on and control remains in Idle Mode.
3. If burner starts, replace control.

Simulate Flame Failure:

1. Follow burner start-up.
2. Close hand valve in oil supply line.
3. Device enters recycle mode.
4. Device tries to restart system after approximately 60 seconds.
5. Safety switch locks out approximately in the selected time indicated on label. Indicator light flashes 1/2 second on, 1/2 second off. Ignition and motor stop and oil valve closes.

Lockout Mode

The R7184 Primary Control will enter the lockout mode when:

- Flame is detected during valve-on delay.
- When flame is not established during Trial for Ignition.
- When flame is lost three times in one call for heat.
- When flame is detected during burner motor-off delay period.

Diagnostic LED

The diagnostic LED has four states:

- On - Flame present.
- Off - No Flame.
- Two seconds on, two seconds off - Recycle.
- 1/2 second on, 1/2 second off - Lockout.

Cad Cell Resistance

Cad cell resistance can be checked without using an ohmmeter. During the run mode, press and release the reset button. The resulting flashes indicate the resistance. See Table 4.

Valve-on Delays / Blower Motor-off Delays

Select models may have fixed or selective delays for valve open or blower motor off. The safety circuits will check for flame during these delays and, if a flame is present, will switch the control to lockout.

Simulate Ignition Failure:

1. Follow burner start-up, but do not open oil supply hand valve.
2. Observe that safety switch locks out approximately within the selected time as indicated on the label. Indicator light flashes 1/2 second on, 1/2 second off. Ignition and motor stop and oil valve closes.

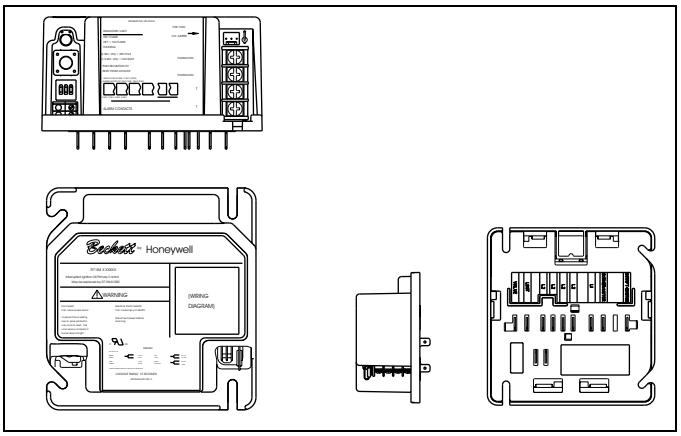


FIGURE 11: Interrupted Electronic Oil Primary Control

⚠WARNING

DIRECT SPARK IGNITION SYSTEM

Do not attempt to light this furnace by hand (with a match or any other means). There may be a potential shock hazard from the components of the Ignition Transformer. The furnace can only be lit automatically by its direct spark ignition system.

TROUBLESHOOTING AND MAINTENANCE

IMPORTANT: Due to the potential hazard of line voltage, only a trained, experienced service technician should perform the troubleshooting procedures.

IMPORTANT: This control contains no field-serviceable parts. Do not attempt to take it apart. Replace entire control if operation is not as described.

To completely troubleshoot an oil burner installation, check the burner and oil primary control for proper operation and condition.

The indicator light on the oil primary control provides lockout, recycle and cad cell indications as follows:

1. Flashing at 1/2 second on, 1/2 second off: system is locked out or in restricted mode.
2. Flashing at 2 seconds on, 2 seconds off: control is in recycle mode.
3. On: cad cell is sensing flame.
4. Off: cad cell is not sensing flame.

Cad Cell Resistance Check

For proper operation, it is important that the cad cell resistance is below 1600 ohms. During a normal call for heat, once the control has entered the run mode, press and release the reset button. See Table 4 for equivalent cad cell resistance and Figure 12 for an example of the cad cell resistance reading.

TABLE 4: Cad Cell Resistance When Sensing Flame

Flashes	Cad Cell Resistance in Ohms
1	Less than 400
2	More than 400 and less than 800
3	More than 800 and less than 1600
4	More than 1600 and less than 5000

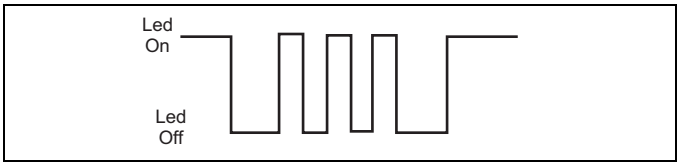


FIGURE 12: Example of 800 to 1600 Ohm Cad Cell Resistance Reading (3 Flashes)

Preliminary Steps

1. Check wiring connections and power supply.
2. Make sure power is on to controls.
3. Make sure limit control is closed.
4. Check contacts between igniter and the electrodes.
5. Check the oil pump pressure.
6. Check the piping to the oil tank.
7. Check the oil nozzle, oil supply and oil filter.

Resetting from Restricted Lockout

If the control locks out three times in a row, without a complete heat cycle between attempts, the lockout becomes restricted in order to prevent repetitious resetting by the homeowner. To reset, hold down the reset button for 30 seconds (until the LED flashes).

DIAGNOSTIC INDICATOR KEY	
LED	STATUS
On	Flame sensed
Off	Flame not sensed
Flashing (1/2 sec. on, 1/2 sec. off)	Lockout / Restricted lockout
Flashing (2 sec. on, 2 sec. off)	Recycle

Check Oil Primary Control

If the trouble is not in the burner or ignition hardware, check the oil primary control by using the following equipment:

1. Screwdriver
2. Voltmeter (0 to 150 VAC range)
3. Insulated jumper wire with both ends stripped.
4. Follow the oil burner operation and oil burner control troubleshooting steps in Tables 5 and 6.

⚠WARNING

Electrical Shock Hazard. Can cause severe injury, death, or property damage. Observe all precautions to prevent electrical shock or equipment damage. After troubleshooting the system, follow the procedure "To Turn off Appliance before Servicing.

TABLE 5: Oil Burner Operation

EXTERNAL ACTION	R7184 PRIMARY CONTROL ACTION
Power applied to control	Internal safety check conducted. If no light or flame is detected and all internal conditions are correct, control enters Idle Mode.
Thermostat calls for heat	1. Shorts across T - T terminals (on a call for heat) in warm air system and/or provides power to limit terminals. Systems with EnviraCOM™ network may receive a call for heat on network connections 1, 2, 3. 2. Safety period (5 seconds) internal and external check for flame or light. If flame or light is detected, control remains in the Idle Mode. 3. When flame or light is not present: a. R7184B,P,U (if valve-on delay is enabled) will apply power to the burner motor and igniter, enter/complete valve-on delay period and then apply power to the valve. 4. Control enters trial for ignition period. a. Monitors burner for flame. b. When flame is not detected: • Enters lockout mode (after lockout time of 15, 30, or 45 seconds). • Shuts off valve, igniter and burner motor. • Flashes indicator light at 1/2 second on, 1/2 second off. • Depress reset button to return to power-up sequence. c. When flame is detected, Carry-Over period begins. 5. Control enters Ignition Carry-Over period (continues to spark for 10 to 30 seconds). a. Turns on indicator light. b. If flame is lost and lockout time has not expired, R7184 returns to Trial for Ignition period. c. If flame is lost and lockout time has expired, R7184 enters Recycle Mode. 6. Carry-Over time expires: igniter turns off. 7. Enters Run Mode: a. Flame is monitored until call for heat ends or flame is lost. If flame is lost: • Control enters Recycle Mode. • Recycle time starts (60 seconds). • Burner and valve are turned off. • Indicator light flashes at 2 seconds on, 2 seconds off. • Returns to Idle Mode at end of Recycle Mode.
Call for heat is satisfied	1. R7184B,P,U (if burner motor-off delay is enabled): a. Oil valve shuts off. b. Burner motor runs for selected burner motor-off delay time. c. Burner motor turns off. d. Device returns to Idle Mode.
Reset Button pushed two times without device completing a call for heat	1. R7184 enters Restricted Mode. 2. Indicator light flashes and 1/2 second on, 1/2 second off. 3. Reset device by pressing and holding reset button for a minimum of 30 seconds.

TABLE 6: Oil Burner Control Troubleshooting

PROCEDURE	STATUS	CORRECTIVE ACTIONS[a]
1. Check that limit switches are closed and contacts are clean.	—	—
2. Check for line voltage power at the oil primary control. Voltage should be 120 VAC	—	—
3. Check indicator light with burner off, no call for heat (no flame).	Indicator light is on.	Cad cell or controller is defective, sees external light or connections are shorted. Go to step 4.
4. Shield cad cell from external light.	Indicator light turns off	• Eliminate external light source or permanently shield cad cell.
	Indicator light stays on.	• Replace cad cell with new cad cell and recheck. • If indicator light does not turn off, remove cad cell lead wires from R7184 and recheck. • If indicator light turns off, replace cad cell bracket assembly. Refer to TRADELINE ® Catalog for bracket part numbers. • If indicator light does not turn off, replace controller.
5. On warm air systems, jumper thermostat terminals (T to T) on R7184.	Burner starts.	Trouble in thermostat or limit circuit. Check thermostat or limit wiring connections.
	Burner does not start	• Disconnect line voltage power and open line switch. • Check all wiring connections. • Tighten any loose connections and recheck. • If burner does not start, replace R7184.
Condition: Burner starts, then locks out on safety with indicator light flashing at 1/2 second on, 1/2 second off.		
1. Check that limit switches are closed and contacts are clean.	—	—
2. Check for line voltage at the oil primary control. Voltage should be 120 VAC.	—	—
3. Check indicator light with burner off, no call for heat (no flame).	Indicator light is on.	Cad cell or controller is defective, sees external light or connections are shorted. Go to step 4.
	Indicator light is off.	Go to step 5
4. Shield cad cell from external light.	Indicator light turns off	Eliminate external light source or permanently shield cad cell.
	Indicator light stays on	• Replace cad cell with new cad cell and recheck • If indicator light does not turn off, remove cad cell lead wires from R7184 and recheck. • If indicator light turns off, replace cad cell bracket assembly. Refer to TRADELINE ® Catalog for bracket part numbers. • If indicator light does not turn off, replace controller.
5. On applications with “valve-on delay”, verify that oil valve is closed during the “valve-on delay” period by opening view port and verifying that no flame is present during 15-second “valve-on delay”.	Indicator light is on	If flame is present, replace valve.
6. On warm air systems, jumper thermostat terminals (T to T) on R7184.	Burner starts	Trouble is in thermostat or limit circuit. Check thermostat or limit wiring connections.
	Burner does not start	• Disconnect line voltage power and open line switch • Check all wiring connections • Tighten any loose connections and recheck • If burner does not start, replace R7184.
Condition: Burner starts then locks out on safety with indicator light flashing at 1/2 second on, 1/2 second off.		
7. Reset oil primary control by pushing in and releasing red reset button.	Indicator light stops flashing	Go to Step 8.
	Indicator light continues to flash at 1/2 second on, 1/2 second off	Verify that control is not in restricted mode. If not in restricted mode, replace R7184

TABLE 6: Oil Burner Control Troubleshooting (Continued)

PROCEDURE	STATUS	CORRECTIVE ACTIONS[a]
8. Listen for spark after burner turns on (after a 2-second delay).	Ignition is off.	Spark ignitor could be defective. Check for line voltage at ignitor terminals. If line voltage is present, replace R7184.
	Ignition is on.	Go to Step 9.
	Ignition is on, but no oil is being sprayed into the combustion chamber.	Wait for valve-on delay to complete (R7184B, P, and U). Check oil valve, oil valve wiring, pump and oil supply.
9. Check indicator light after flame is established, but before oil primary control locks out.	Indicator light is on until the control locks out and starts flashing during lockout.	Replace R7184.
	Indicator light stays off.	Go to Step 10.
10. Check cad cell sighting for view of flame. a. Disconnect line voltage power and open line switch. b. Unplug cad cell and clean cad cell face with soft cloth. Check sighting for clear view of flame. c. Reconnect line voltage power and close line switch. d. Start burner.	Burner locks out.	Go to Step 11
	Burner keeps running.	System is okay.
11. Check cad cell. a. Disconnect line voltage power and open line switch. b. Remove existing cad cell and replace with new cad cell. c. Disconnect all wires from thermostat terminals to be sure there is no call for heat. d. Reconnect line voltage power and close line switch. e. Expose new cad cell to bright light, such as a flashlight.	Indicator light is on.	ce control back on burner. Go to Step 6.
	Indicator light is off.	Go to Step 12.
12. Check cad cell bracket assembly. a. Disconnect line voltage power and open line switch. b. Remove cad cell wires from quick-connect connectors on the R7184 and leave control lead wires open. c. Apply power to the device. d. Place jumper across cad cell terminals after burner motor turns on.	Indicator light is on.	Replace cad cell bracket assembly. Refer to TRADELINE® Catalog for bracket part numbers.
	Indicator light is off.	Replace R7184.

SECTION III: WIRING DIAGRAM - OIL-FIRED FURNACE

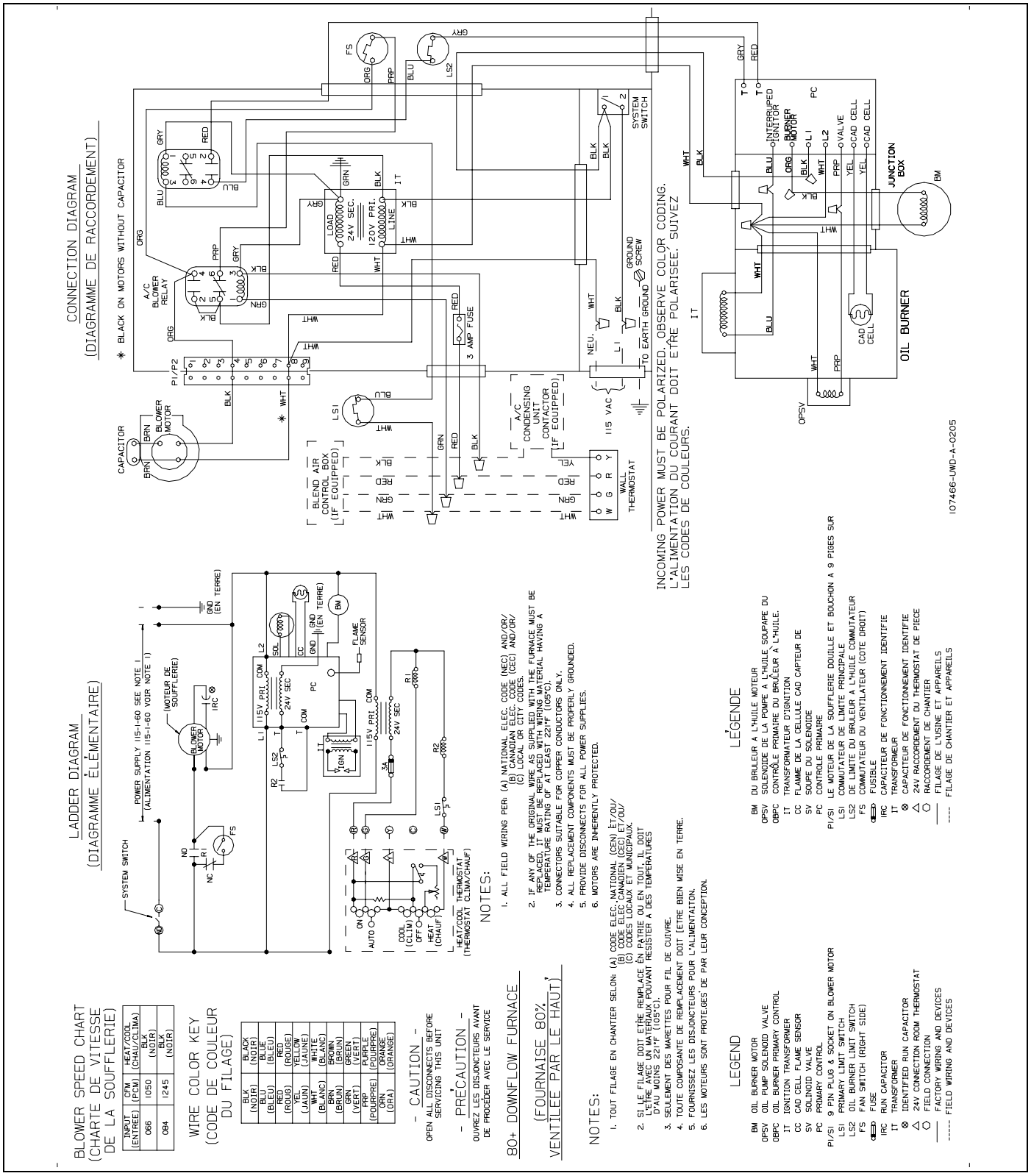


FIGURE 13: Wiring Diagram for DFAA - Oil-Fired Furnace

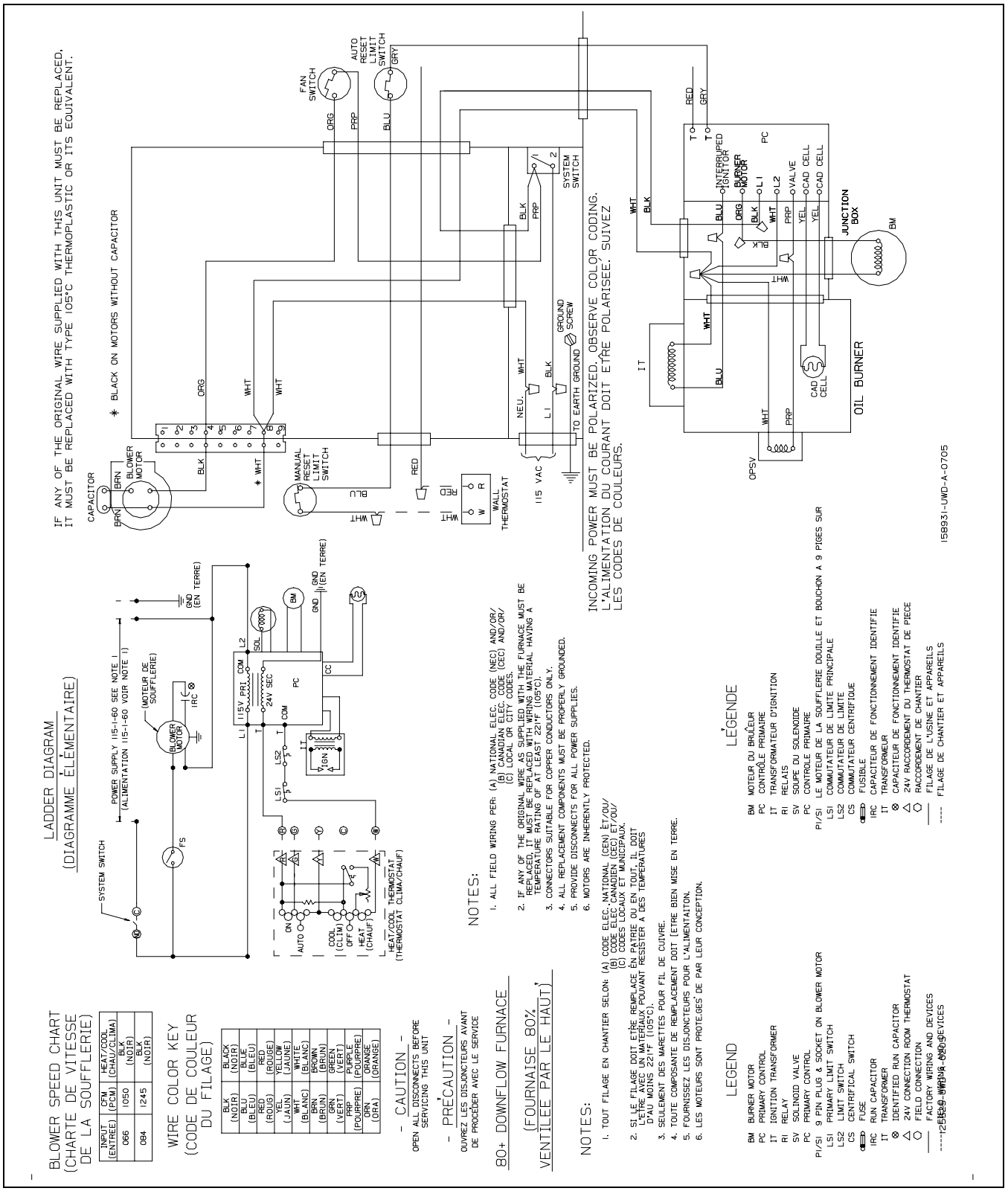


FIGURE 14: Wiring Diagram for DFAH - Oil-Fired Furnace

SECTION IV: GAS CONVERSION BURNER

⚠WARNING

FIRE OR EXPLOSION HAZARD - Failure to follow safety warnings exactly could result in serious injury, death, or property damage.

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

— **WHAT TO DO IF YOU SMELL GAS:**

- *Do not try to light any appliance.*
- *Do not touch any electrical switch; do not use any phone (including cell phone) in your building.*
- *Leave the building immediately.*
- *Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.*
- *If you cannot reach your gas supplier, call the fire department.*

— Installation and service must be performed by a qualified installer, service agency or the gas supplier. Warranty is voided if not installed by qualified service person.

FOR YOUR SAFETY

1. The furnace area must be kept clear and free of combustible materials, gasoline and other flammable vapors and liquids.
2. Insulating materials may be combustible. The furnace must be kept free and clear of insulating materials. The furnace area must be examined when installed in an attic or other insulated space or when insulation is added to be sure that the insulation material has been kept away from the furnace.
3. Follow the instructions exactly as shown on the OPERATING INSTRUCTION LABEL or the Start-up and Shutdown Instructions on Page 18 of this manual when lighting the furnace or turning the furnace off.
4. Should the gas supply fail to shut off or if overheating occurs, shut off the gas valve to the furnace before shutting off the electrical supply.
5. 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 fire or explosion. A qualified service agency should be contacted to inspect the furnace and replace all gas controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.
6. NEVER**...**Store flammable materials of any kind near your furnace. Gasoline, solvents, and other volatile liquids should be stored only in approved containers outside your home. These materials vaporize easily and are extremely dangerous.
7. NEVER**...**Store cleaning materials near your furnace. Materials such as bleaches, detergents, powdered cleansers, etc., can cause corrosion of the heat exchangers.
8. NEVER**...**Use the area around your furnace as a storage area for items which could block the normal flow of air. This flow of air is required for ventilation of the various furnace components.

⚠WARNING

OVERHEATING HAZARD

Should overheating occur:

- *Shut off the manual gas valve to the appliance.*
- *Do not shut off the control switch to the pump or blower.*

⚠WARNING

***CARBON MONOXIDE POISONING HAZARD -** Carbon Monoxide is a colorless, odorless gas than can kill. Follow these rules to control carbon monoxide.*

- *Do not use this burner if in an unvented, enclosed area. Carbon monoxide may accumulate.*
- *Check flue gases for carbon monoxide. This check requires specialized equipment.*
- *Allow only qualified burner service persons to adjust the burner. Special instruments and training are required.*
- *Read the owner's manual before using.*

⚠WARNING

***ELECTRIC SHOCK HAZARD -** High voltages are present in this equipment. Follow these rules to avoid electric shock.*

- *Use only a properly grounded circuit. A ground fault interrupter is recommended.*
- *Do not spray water directly on burner.*
- *Turn off power before servicing.*
- *Read the owner's manual before using.*

⚠NOTICE

These instructions should be affixed to the burner or adjacent to the heating appliance.

HOW YOUR GAS FURNACE WORKS

The furnace heating cycle is started when you set your thermostat to provide more heat in your home or the temperature in the living space dropped below the thermostat set point. First, the burner motor starts to purge the heat exchanger of any remaining gases. Next, the ignition transformer sends a spark through the electrode and after a 38 second prepurge the gas valve opens and ignition occurs. A short time later, the blower starts and distributes the warm air throughout the home. When the temperature setting on your thermostat is reached, the gas valve closes, the main burner is turned off, and the blower continues to run until the remaining warm air in the system is distributed to the living space. When the blower stops, the heating cycle has ended.

While you are away

Your furnace is equipped with a safety device which will shut off the supply of gas to the burner in case of malfunction. For this reason it is never practical to assume that the furnace will operate unattended for a long period of time, especially if there is a possibility of damage to your property because of freezing. So, if you plan to be away from home, arrange for someone to check your house every day.

DESCRIPTION

This furnace shall be installed in the downflow position. Figure 17 shows a typical model in the downflow position. The furnace is equipped with an forced-draft combustion air and vent blower and atmospheric burners. Combustion air is taken from a 2" pipe and forced down the air tube and into the burner. Flue gas is forced from the heat exchanger by the combustion air and vent blower and discharged through the flue pipe to the outside atmosphere.

This is a forced air furnace. The furnace circulating air blower draws cool air from the house, passes it over the hot furnace heat exchanger and circulates the warmed air through the ductwork to the living space.

The furnace is equipped with the controls necessary for proper operation. The various components referred to in this manual and on the furnace rating plate are identified in Figure 15.

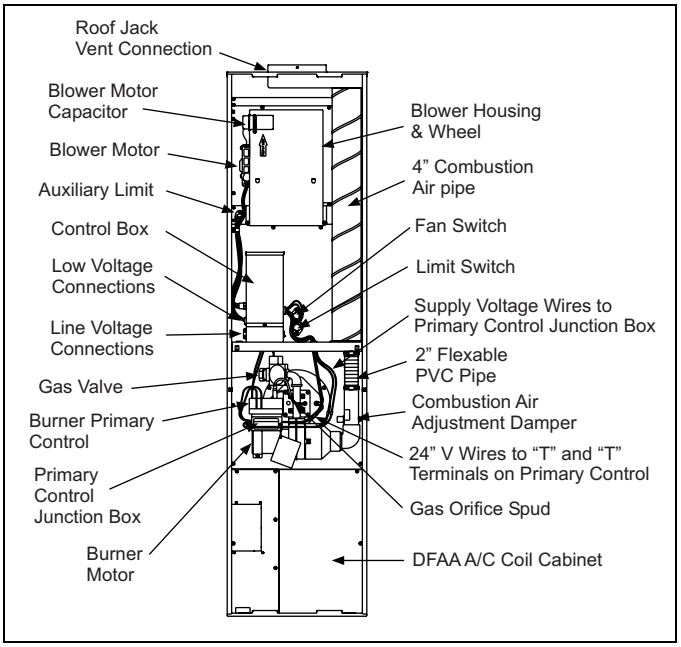


FIGURE 15: Component Locations

INSTRUCTIONS FOR EXAMINING THE FURNACE

It is the owner's responsibility to ensure that an annual inspection of the entire heating portion of the unit is made by **a qualified service agency**. Examine the furnace as outlined below in steps "1 - 6" before each heating season. Use Figures 15 and 16 for visual reference.

1. Examine the heat exchanger, through **a field installed access panel** located on the supply air plenum. Visually examine the exterior sections of the vent/combustion air piping and the connectors to be sure that they are physically sound without holes or excessive corrosion.
2. Examine the outside vent/combustion air pipe making sure it is firmly in place, is physically sound without holes, and all of the connections are secure.
3. Examine the return air filter rack connections on the blower door to make sure they are physically sound, and secured to the furnace casing.
4. Examine the furnace casing making sure the physical support is sound without sagging, cracks or gaps. Examine the furnace base making sure it is physically sound without cracks, gaps or sagging and has a good seal.
5. Examine the furnace casing for obvious signs of deterioration.
6. Examine the burner flames to make sure the burners look like they are operating properly. The burner flames for natural gas should appear blue without smoking at the tips. LP is blue with yellow tips and no smoking. The flame should appear cylindrical in shape and should extend from the end of the burner into the heat exchanger chamber. Refer to the pictorial sketch shown in Figure 16 as a comparison to the actual flame.

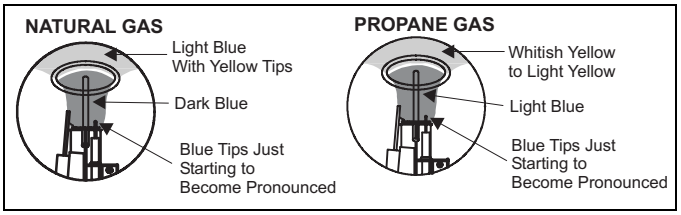


FIGURE 16: Burner Flame Drawing

If, during the inspection of your furnace, you find any of the following conditions:

- Excessive amounts of dust and lint on components.
- Damaged or deteriorated components or surfaces.
- Leaks or blockage in the vent pipe passages.
- Water on any surface inside or outside of the furnace.

Do not operate the furnace, call a certified dealer / servicing contractor to check and / or clean your furnace, or for more information if you have questions about the operation of your furnace.

If all components appear to be in good operating condition, replace the front panels. Follow the operating instructions to place the furnace in operation.

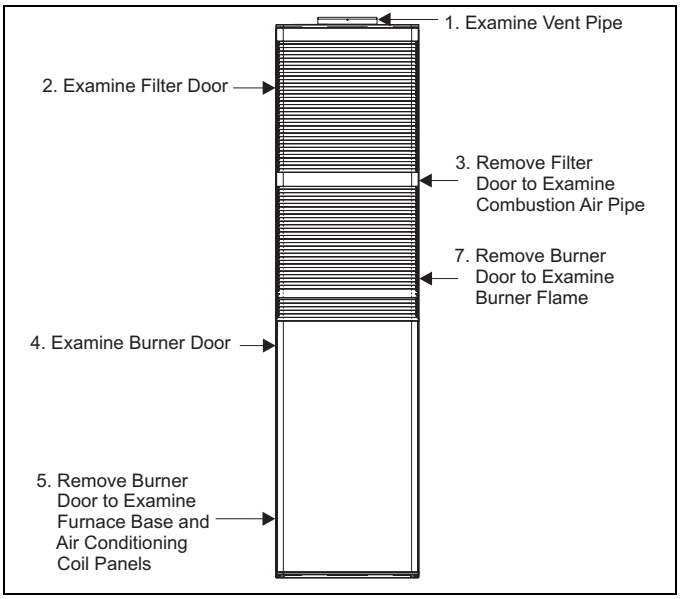


FIGURE 17: Furnace Examination Checkpoints

Observing Burner Operation

1. Observe burner to make sure it ignites. Observe color of flame. On natural gas the flame will burn blue with appreciably yellow tips. On Propane gas a yellow flame may be expected. If flame is not the proper color call a qualified service technician for service.
2. Let furnace heat until blower cycles on.
3. Turn thermostat down.
4. Observe burner to make sure it shuts off.
5. Let the furnace cool and blower cycle off.

If any abnormalities are observed when checking for correct operation, such as burner failing to ignite or to turn off, sooty flame, etc., call your nearest authorized service technician as shown in the Service Center List included in the home owner envelope with the furnace.

SEASONAL SERVICE INFORMATION

During extreme cold weather, ice may form on the furnace roof jack crown. Small amounts of ice forming on the roof jack will present no problem to proper furnace operation. However, excessive ice formation could restrict the combustion air supply to the burner causing inefficient burner operation.

When the temperature is very cold, near zero or below, it is recommended that the roof jack be inspected every day or more frequently if required. If ice has started to collect on the roof jack crown, it should be carefully broken off.

Your Service Technician

Your furnace's best friend is your qualified service technician. If the unit gives any indication of improper operation, call your service technician. If the service technician is allowed to perform the normal routine care of your furnace, he can many times detect potential difficulties and make corrections before trouble develops. Preventative maintenance of this type will allow you to operate the unit with a minimum of concern, and at the same time will pay for itself in added years of comfort.

When You Call For Service Assistance

Very often time can be saved if you will give the service agency the MODEL and SERIAL NUMBER of your furnace. This will enable him to determine the specific components used, and perhaps to better identify the possible problem and be better prepared if a service call is required.

To Contact Your Serviceman (fill in)

COMPANY:_____

ADDRESS: _____

TELPHONE:_____

If Furnace Fails to Operate Properly

1. Check setting of thermostat - and position of HEAT/COOL switch if air conditioning is installed. If a set-back type thermostat is employed be sure that the thermostat is in the correct operating mode.
2. Check to see that electrical power is ON.
3. Check to see that the knob or switch on the gas control valve is in the full ON position.
4. Make sure filters are clean, return grilles are not obstructed, and supply registers are open.
5. Be sure that furnace flue piping is open and unobstructed.

If the cause for the failure to operate is not obvious, do not attempt to service the furnace yourself. Call a qualified service agency or your gas supplier.

START-UP AND SHUTDOWN INSTRUCTIONS

Read the Instructions Below Before Trying to Start the Furnace

⚠WARNING

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

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING; smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

C. Use only your hand to push the gas control switch to the “on” position. Never use tools. If the switch will not operate by hand, don’t try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control, which has been under water.

Operating Instructions:

1. STOP! Read the safety information above.
2. Set the thermostat to the lowest setting.
3. Turn off all electric power to the appliance.
4. Remove furnace door.
5. Move gas control switch to the “OFF” position. Do not force. See Figure 18.
6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow “B” in the safety information above. If you don’t smell gas, go to next step.
7. Move gas control switch to the “ON” position. Do not force. See Figure 18.
8. Replace burner door.
9. Turn on all electric power to the appliance.
10. Set thermostat to the desired setting. Burner will light, which may take 30-60 seconds.
11. After three (3) trials for ignition, if the appliance will not operate follow the instructions, “TO TURN OFF THE APPLIANCE” and call your service technician or gas supplier.

To Turn Off the Appliance:

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove burner access panel.
4. Move gas control switch to the “OFF” position. See Figure 18.
5. Replace burner access panel.

⚠WARNING

Should overheating occur, or the gas valve fail to shut off, turn the external manual gas valve in the gas supply line to the furnace to the “off” position and let the furnace cool off before shutting off the electrical power supply. Refer to Figure 19.

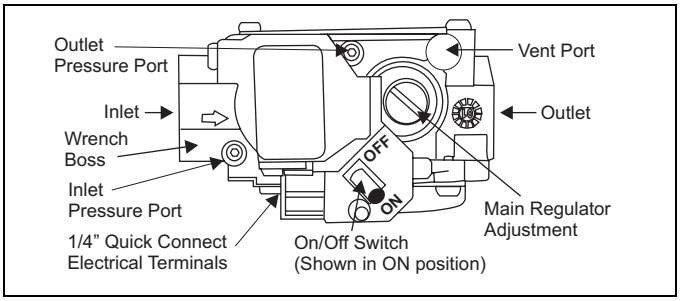


FIGURE 18: Gas Valve

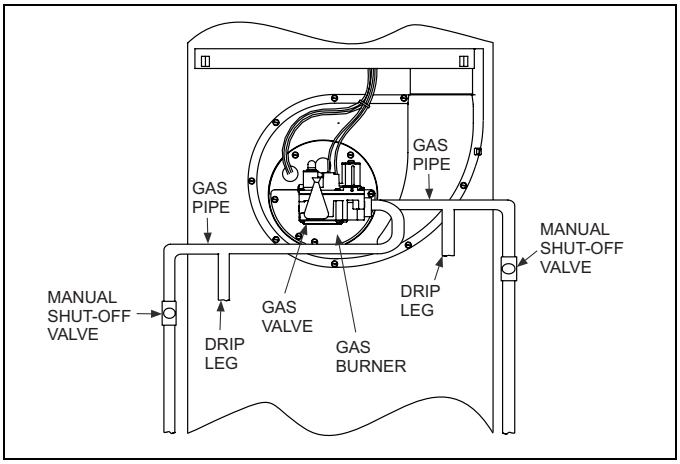


FIGURE 19: Gas Piping

FURNACE USER MAINTENANCE

⚠WARNING

Before proceeding, be sure the area is well ventilated. Turn the thermostat OFF. If the blower is running, wait until it stops automatically. Turn OFF the gas and electrical power supplies to the furnace. Check all metal parts and surfaces to be sure they have cooled to room temperature before you begin.

Air Filters

Dirty filters greatly restrict the flow of air and may cause damage to the moving parts of the furnace. If the filters become clogged the heat exchangers and blower motor could overheat resulting in a potentially dangerous situation.

The filters should be checked every 3 months (DO NOT USE PLEATED FILTER in this furnace). On new construction, check the filters every week for the first four weeks and every three weeks after that, especially if the indoor fan is running continuously. When replacing the filter(s) you must use filters that are the same size and type as those in the furnace (2 - 16 x 20 x1).

Every time the filters are changed the following items should be visually inspected:

- Check combustion air and vent pipe for blockage or leakage.
- Check all components to be sure they are in good condition and that there are no obvious signs of deterioration.
- Check for dirt or lint on any surfaces or on components. Do not try to clean any of the surfaces or components. Cleaning of the furnace and its components must be done by a qualified service professional.

Removing Filters

Internally Mounted Air Filters

The air filter is in a rack that is attached to the door of the furnace.

To remove the filter you must do the following:

1. Before proceeding, be sure the area is well ventilated. Follow instruction “To turn off the appliance”. Check all metal parts and surfaces to be sure they have cooled to room temperature before you begin.
2. Remove the filter door.
3. Remove the air filter by sliding it down the track. The air filter will slide out of the rack.
4. Replace throw away filter(s)) with the same size new filter(s). Throw away filter(s)) may be replaced with cleanable filter(s) at this time. Cleanable filter(s) may be cleaned as described in the manufacturer instructions or as described in these instructions.

To replace the filter after cleaning you must do the following:

1. Slide filter into place. If the filter has been cleaned, make sure it is dry before re-installing it.
2. Replace the door or cover panel.
3. Make sure the door snaps into the retaining clips.
4. Follow the Operating Instructions to place the furnace back in operation.

How to Clean your Filter

High-velocity or cleanable filters may not be used in this furnace.

Blower Care

Even with good filters properly in place, blower wheels and motors will become dust laden after long months of operation. The entire blower assembly should be inspected annually. If the motor and wheel are heavily coated with dust, they can be brushed and cleaned with a vacuum cleaner. If the blower cannot be properly cleaned without removing it from the furnace, then call a qualified service agency. Only a qualified service agency can perform this service.

⚠WARNING

Make sure you DO NOT move the clip on weight on the indoor fan wheel when cleaning the wheel. This weight is used to balance the wheel. Moving the weight will cause the fan wheel to vibrate.

Motor Lubrication

The motors in these furnaces are permanently lubricated, and do not require periodic oiling.

WARRANTY AND RESPONSIBILITIES

It is the sole responsibility of the home owner to make certain that the gas conversion furnace has been correctly set up and converted to the proper fuel (Propane or Natural gas) and adjusted to operate properly.

The manufacturer warrants the furnace to be free from defects in material or workmanship for the stated time in the warranty agreement (see warranty certificate packed with the furnace).

However, the manufacturer will not be responsible for any repair costs to correct problems due to improper set-up, improper installation, furnace adjustments, improper operating procedure by the user, etc.

Some specific examples of service calls which cannot be included in warranty payments are:

1. Converting the furnace to use another type of gas.
2. Correcting faulty duct work in the home.
3. Correcting wiring problems in the electrical circuit to the furnace.
4. Resetting circuit breakers or other switches.
5. Adjusting the burner air shutter or service calls made to correct problems caused by improper air adjustment.
6. Correcting problems caused by improper gas supply pressure to the furnace.
7. Instructional training on how to light and operate furnace.
8. Furnace problems caused by installation of air conditioner, heat pump, or other air quality device which is not approved.
9. Problems caused by improper installation of the furnace flue assembly (roof jack).
10. Adding a roof jack extension because of unusual wind conditions or snow conditions.
11. Adjusting or calibrating the thermostat.
12. Problems caused by construction debris which has fallen into the flue or combustion air openings.
13. Replacement of fuses.
14. Problems caused by orifice plugged or restricted by spider webs.

You should establish a firm understanding of these responsibilities with your manufactured housing dealer, service company or gas supplier so there will be no misunderstanding at a later time.

SECTION V: SERVICE AND MAINTENANCE MANUAL

SAFETY SECTION

This section has been designed to assist a qualified service agency in performing service and maintenance on this appliance. The homeowners and/or end 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.

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

⚠WARNING

ELECTRIC SHOCK, FIRE OR EXPLOSION HAZARD

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

Improper servicing could result in dangerous operation, serious injury, and death or property damage.

- Before servicing, disconnect all electrical power to the furnace.
- When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
- Verify proper operation after servicing.

FURNACE MAINTENANCE

The furnace should be cleaned and adjusted by a certified dealer or qualified service contractor once a year or before the start of every heating season. The following items must be cleaned and serviced or replaced if there are signs of deterioration.

1. The vent terminal screen (if applicable).
2. The furnace vent and combustion air intake passageways. Should it be necessary to service the vent/air intake system, the manufacturer recommends this service be conducted by a qualified service agency. The operation of this appliance requires the reassembly and resealing of the vent/air intake system.
3. The furnace burners, ignitor and flame sensor.

FURNACE CLEANING

NOTE: The cleaning operations listed below must be performed only by a qualified service agency.

Burner Removal/Cleaning

The main burner should be checked periodically for dirt accumulation. If cleaning is required, follow this procedure:

1. Turn off the electrical power to the unit.
2. Turn off the gas supply at the external manual shut-off valve and loosen the ground union joint.
3. Remove the upper access panel.
4. Disconnect wires from flame sensor, rollout switch and direct spark igniter (DSI). Remove igniter carefully, as it is easily broken.
5. Remove the screws that hold the burner box assembly to the vestibule panel and remove the assembly.
6. Remove burners from the burner assembly.
7. Rinsing in hot water may clean burners.
8. Reassemble in the reverse order.

Cleaning the Heat Exchanger

NOTE: It is recommended that replacement gaskets be available before removing vent motor.

Lower Heat Exchanger Access

1. Turn off the electrical power to the unit and turn off gas supply at the shut-off valve.
2. Remove the blower and burner compartment access doors. Disconnect the gas supply piping at the union to permit removal of the entire burner and gas control assembly from the vestibule panel. Use the wrench boss on the gas valve when removing or installing this piping. Refer to Figure 18.
3. Unplug the black and white line voltage wires at the quick connector terminals. Identify and note the location of all leads for ease of reinstallation.
4. Unplug the red and black wires that are connected to the T & T terminals on the primary control. These wires can be disconnected at the quick connect terminals.
5. Remove the screws securing the chamber to the vestibule panel and very carefully remove it.
6. Remove the screws holding the burner assembly to the vestibule panel and remove this assembly. Handle the assembly carefully since it contains the igniter, which is fragile and easily broken. The lower portion of the heat exchanger will now be exposed. Remove any soot and scale. Vacuum loose soot, scale and dirt from the heat exchanger.
7. After cleaning is complete, replace all components in reverse order. Re-gasket all surfaces which required a gasket. Reconnect all wiring. Reattach vent pipe and gas supply lines before restoring service to furnace. Restore electrical power, check gas supply piping for leaks, and then verify furnace operation.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

THE FURNACE CONTROLS AND THEIR FUNCTION

1. **Limit Control -** This furnace is protected by two (2) high temperature limit switches. The lower limit switch is an automatic reset type.
2. **Upper Limit Control -** The upper limit switch near left side of blower is a manual reset type limit switch. If burner does not function, turn system switch to “OFF” and push reset button in center of limit switch.
3. **Gas Valve -** The gas valve is 100% shut-off type and will fail safe if for some reason the gas is turned off or the pilot goes out. It is also of the step-open type which means they open to a low fire position and after a few seconds step-open to high fire.
4. **Fan Switch -** Turns the blower on upon temperature increase in the heat exchanger compartment and turns blower off when heat exchanger compartment temperature is below 90°.

SECTION VI: WIRING DIAGRAM - GAS CONVERSION BURNER

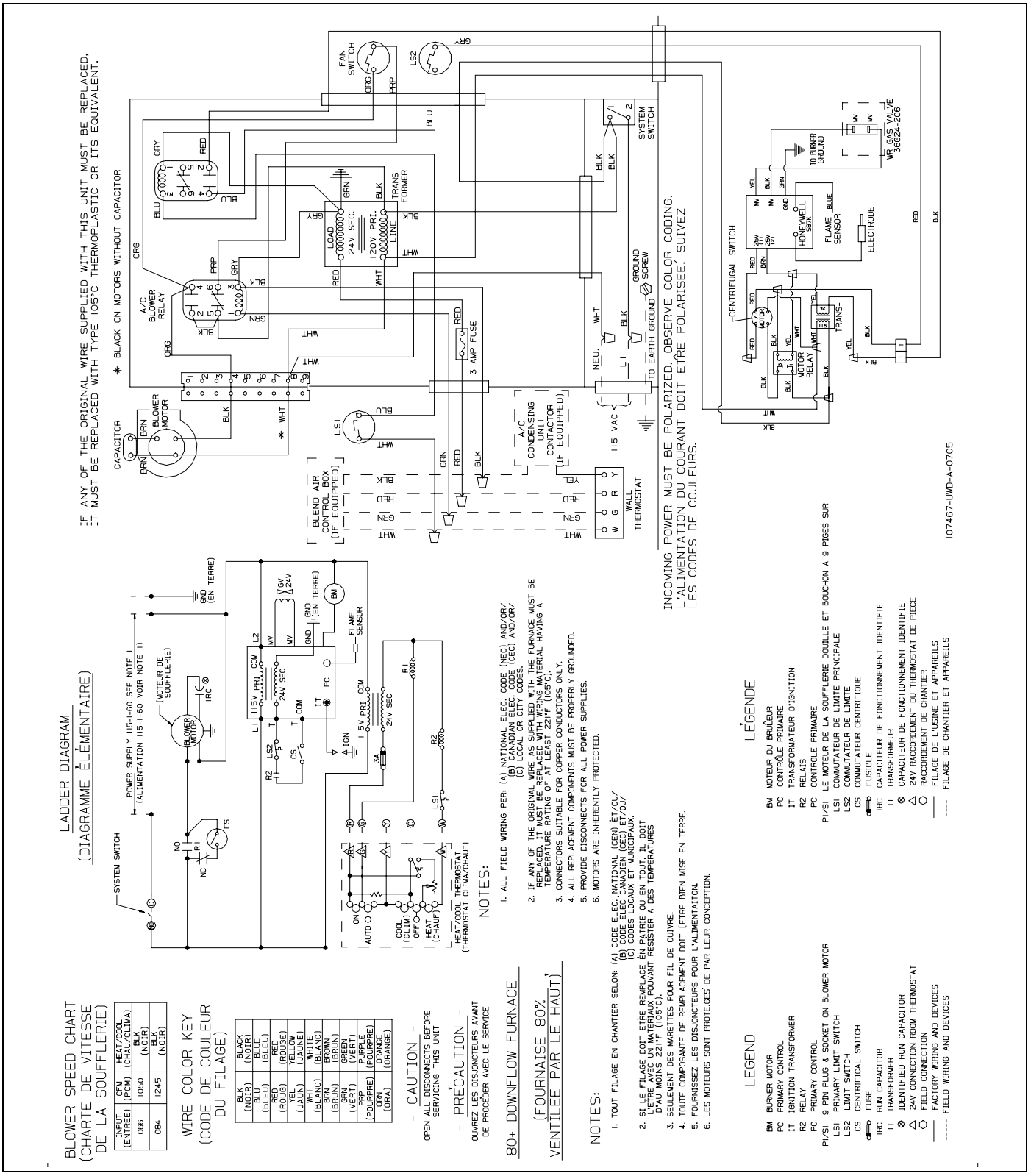


FIGURE 20: Wiring Diagram for DFAA - Gas Conversion Burner

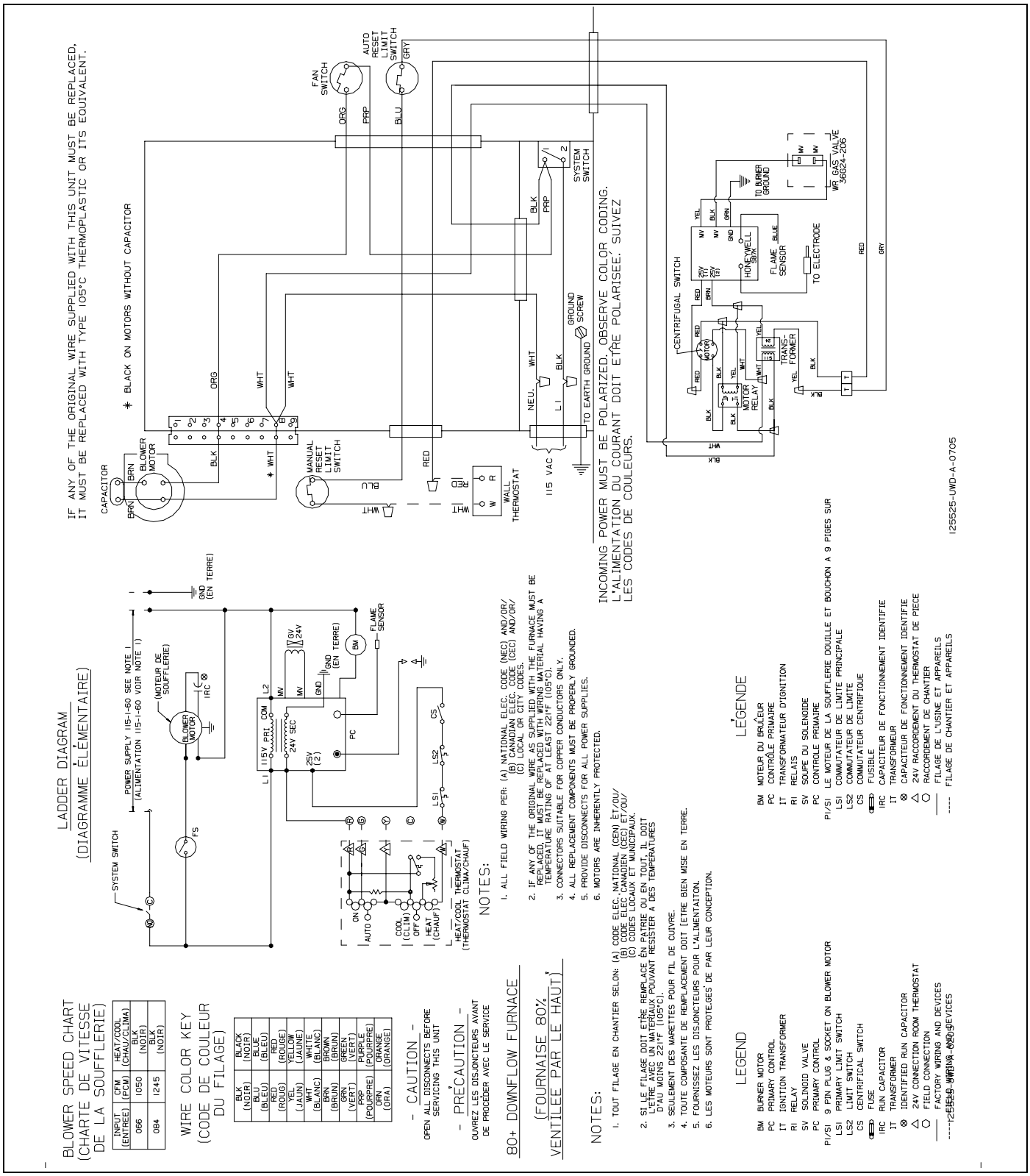
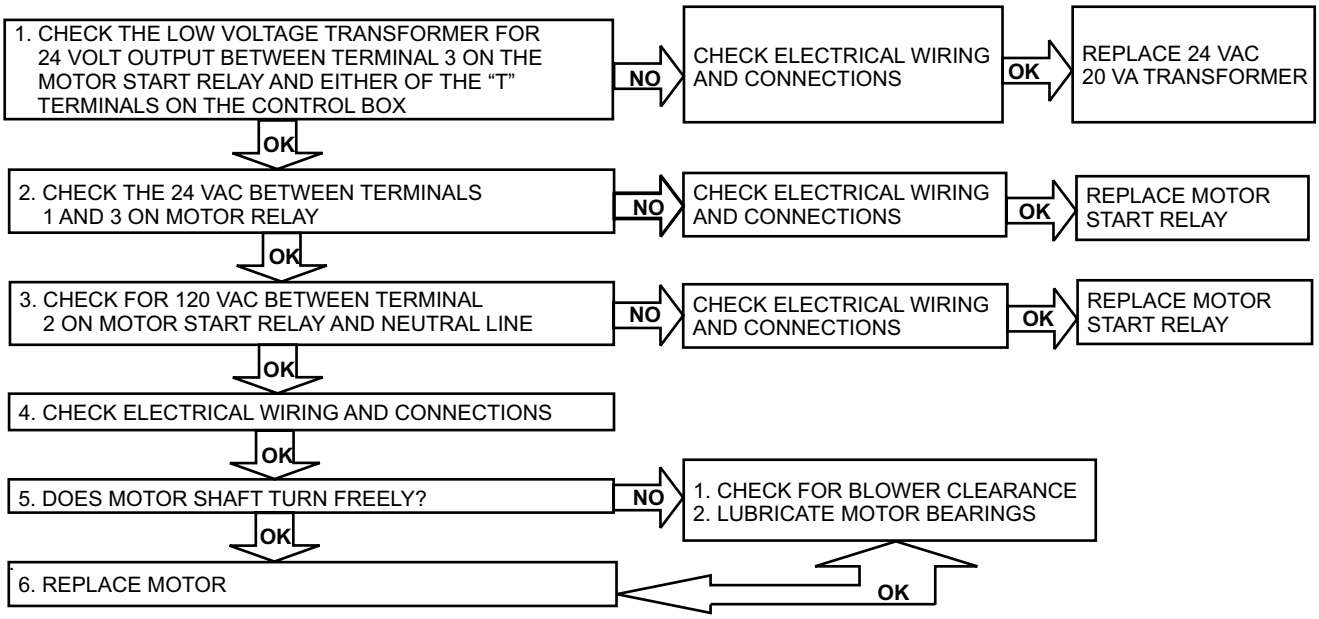


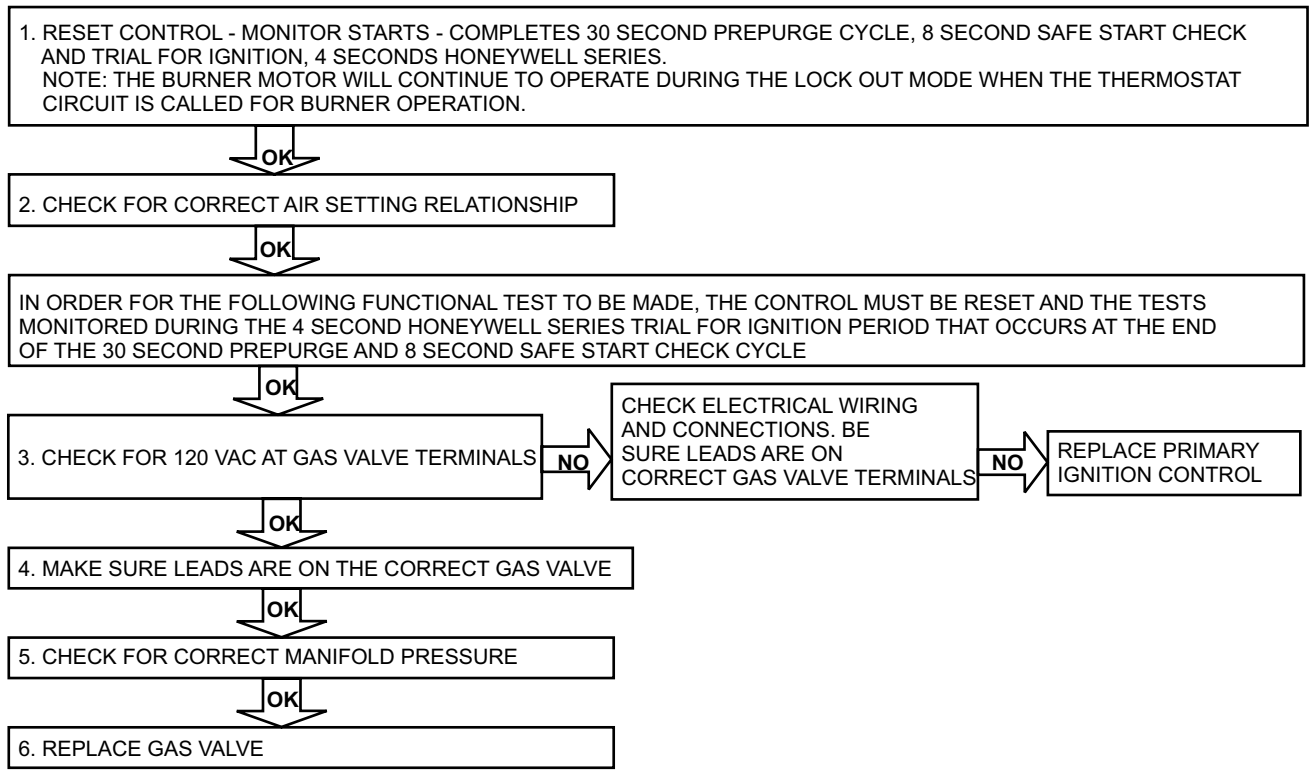
FIGURE 21: Wiring Diagram for DFAH - Gas Conversion Burner

HONEYWELL S87K PRIMARY IGNITION CONTROL TROUBLESHOOTING GUIDE

MOTOR DOES NOT RUN



IGNITION ARC ESTABLISHED - NO FLAME



NO IGNITION ARC ESTABLISHED

1. RESET CONTROL: - MOTOR STARTS - COMPLETES 30 SECOND PREPURGE CYCLE, 8 SECOND SAFE START CHECK SERIES
   - GAS VALVE OPENS, REGULATING ADEQUATE GAS PRESSURE.
   - NO FLAME ESTABLISHED - PRIMARY CONTROL LOCKS OUT AFTER 4 SECOND HONEYWELL SERIES TRIAL FOR IGNITION PERIODS

IN ORDER FOR THE FOLLOWING FUNCTIONAL TEST TO BE MADE, THE CONTROL MUST BE RESET AND THE TESTS MONITORED DURING THE 4 SECOND HONEYWELL SERIES TRIAL FOR IGNITION THAT OCCURS AT THE END OF THE 30 SECOND PREPURGE CYCLE, AND THE 8 SECOND SAFE START CHECK.

2. CHECK FOR 120 VAC BETWEEN TWO LEADS OF TRANSFORMER

OK → CHECK ELECTRICAL WIRING AND CONNECTIONS PER WIRING DIAGRAM

OK → CHECK THE FLAME SENSING CIRCUIT FOR:
1. GROUNDED FLAMEROD
2. DAMAGE TO FLAMEROD LEAD INSULATION

NOTE: MAKE SURE THE FLAMEROD CIRCUIT AND/OR PRIMARY CONTROL IS MOISTURE FREE

OK → REPLACE PRIMARY IGNITION CONTROL

OK → 3. CHECK ELECTRICAL WIRING AND CONNECTIONS

OK → 4. CHECK HIGH VOLTAGE LEAD AND CONNECTION TO IGNITION ELECTRODE ROD

OK → 5. INSPECT IGNITION ELECTRODE FOR CRACKED INSULATOR AND CORRECT GAP

OK → 6. REPLACE PRIMARY IGNITION CONTROL

NO IGNITION - NO GAS VALVE

1. RESET CONTROL - MOTOR STARTS - AFTER 30 SECOND PREPURGE CYCLE AND 8 SECOND SAFE START CHECK MOTOR CONTINUES TO RUN BUT FLAME IS NOT ESTABLISHED

IN ORDER FOR THE FOLLOWING FUNCTIONAL TEST TO BE MADE, THE CONTROL MUST BE RESET AND THE TESTS MONITORED DURING THE 4 SECOND HONEYWELL SERIES TRIAL FOR IGNITION THAT OCCURS AT THE END OF THE 30 SECOND PREPURGE CYCLE, AND THE 8 SECOND SAFE START CHECK

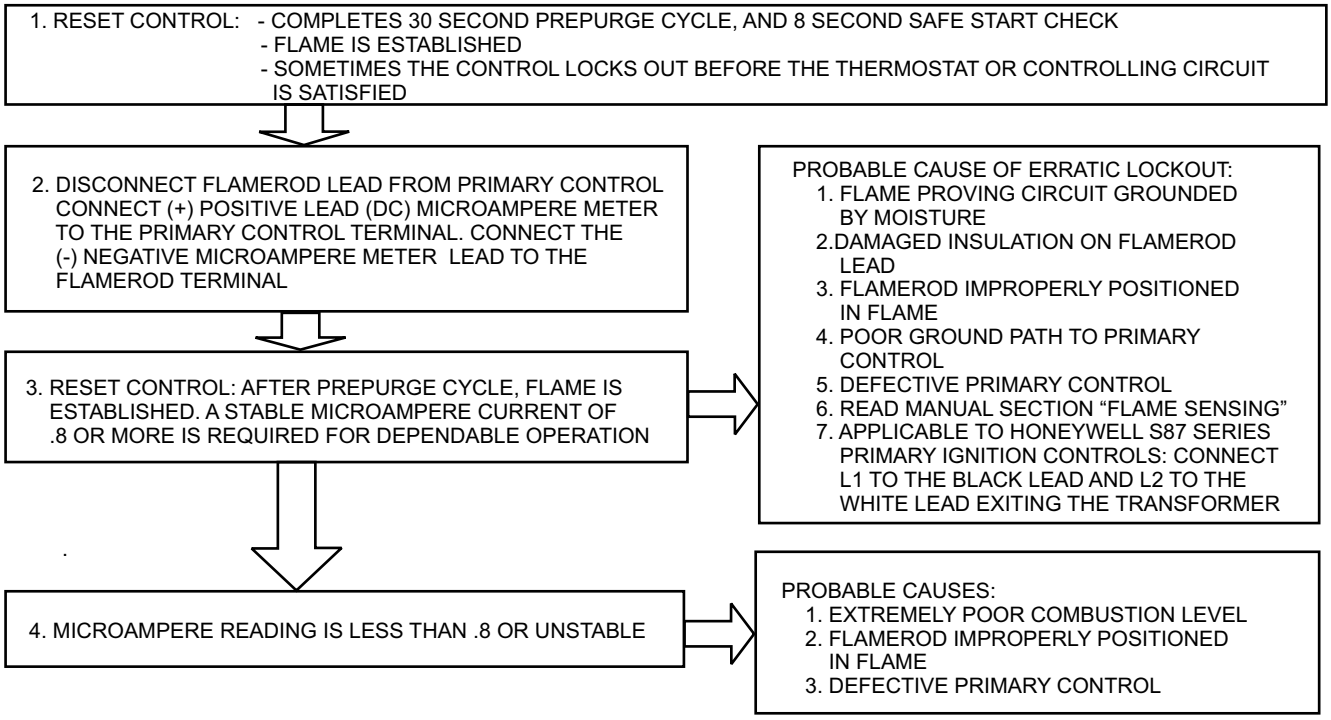
2. CHECK FOR 24 VAC AT THE 24 V PRIMARY CONTROL INPUT TERMINALS LABELED YELLOW AND BROWN

OK → REPLACE PRIMARY IGNITION CONTROL

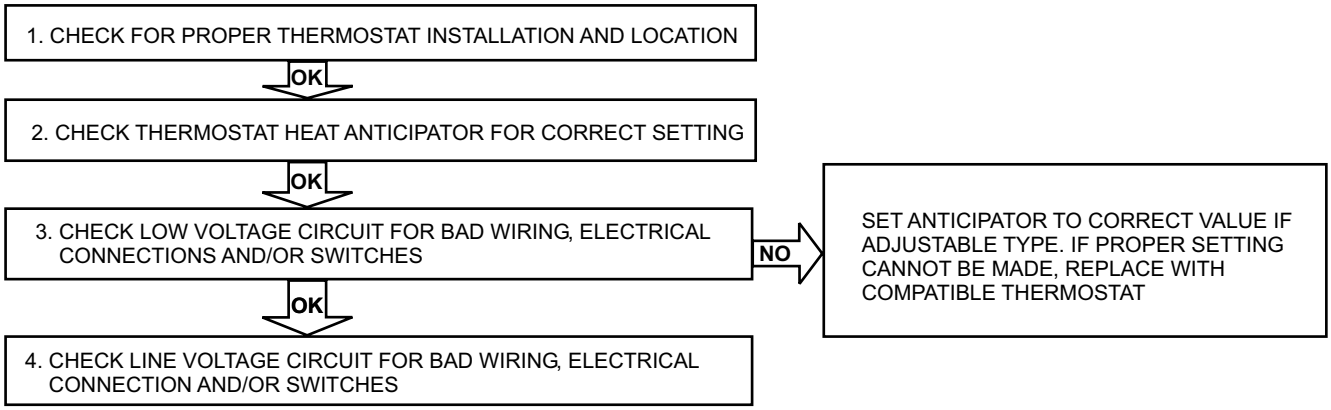
OK → 3. CHECK AIR PROVING SWITCH FOR:
A. ANY IMPAIRMENT THAT WOULD KEEP IT FROM CLOSING OR OPENING
B. ELECTRICAL CONTINUITY; SWITCH IS NORMALLY OPEN
C. REPLACE SWITCH AS NECESSARY

OK → 4. CHECK (WHEN APPLICABLE) EXTERNAL 60 SECOND PREPURGE TIMER (JUMPER AROUND TIMER FROM AIR SWITCH). SHOULD PRIMARY IGNITION CONTROL BECOME ENERGIZED. REPLACE TIMER

LOSES FLAME DURING CYCLE - CONTROL LOCKS OUT ON SAFETY

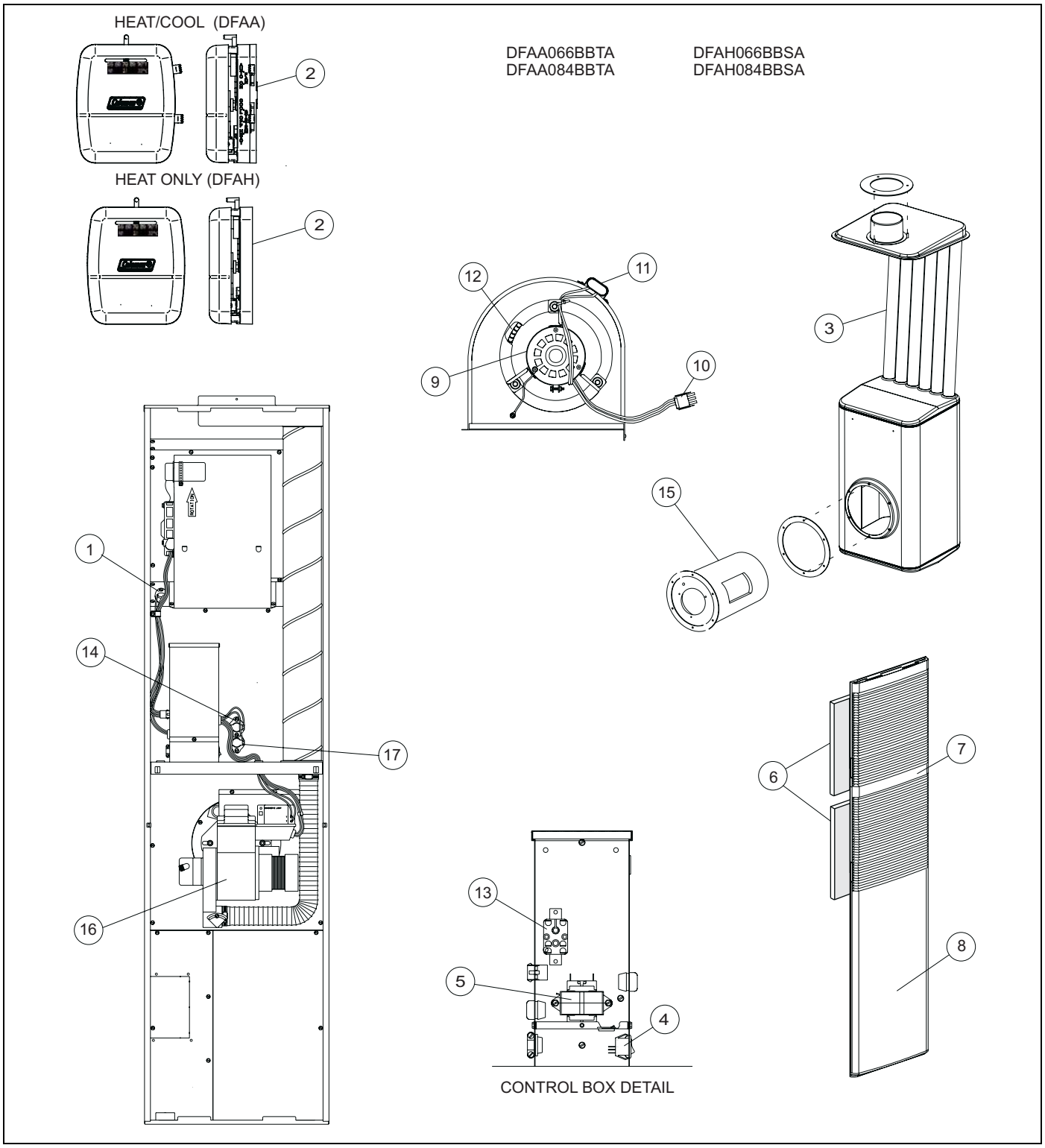


BURNER CYCLES ERRATICALLY



NOTE: YOU MUST DETERMINE WHAT THE CORRECT ANTICIPATOR SETTING IS BY INSPECTING THE CONTROLLING DEVICE AT THE POINT WHERE THE THERMOSTAT WIRES TERMINATE. TYPICALLY, THIS INFORMATION CAN BE FOUND ON THE BODY OR COVER OF THE CONTROLLING DEVICE. WHEN DETERMINING THE CURRENT DRAW OF THE DUAL HEAD GAS VALVE, BE SURE TO CONSIDER THE SEPARATE AMPERE VALUES FOR EACH VALVE. THESE USUALLY ARE STENCILED ON THE VALVE BODY AND MUST BE ADDED TOGETHER TO OBTAIN THE CORRECT SUM. (EXAMPLE .4 + .2 = .6). WHEN THE CURRENT DRAW CANNOT BE DETERMINED ACCURATELY BY THE ABOVE METHOD, MEASURE THE CURRENT WITH AN AMPERE METER USING THE 1 AMP SCALE. CONNECT THE METER LEADS IN SERIES WITH ONE OF THE THERMOSTAT LEADS FOR THE ACCURATE READING.

SECTION VII: OIL BURNER REPAIR PARTS LIST



DFAA				
FIG	ITEM	DESCRIPTION	DFAA066BBTA	DFAA084BBTA
1	1	Limit Switch, Manual (Upper)	025-35358-000	025-35358-000
1	2	Thermostat (Heat /Cool)	025-38746-000	025-38746-000
1	3	Exchanger, Heat (w/Gaskets)	373-19806-651	373-19806-651
1	4	Switch, Rocker (System)	7681-3301	7681-3301
1	5	Transformer (115-24V, 40 VA)	2940A3541	2940A3541
1	6	Filter (16x20x1) (2 Req'd)	1214-2511	1214-2511
1	7	Panel, Door (Upper)	7900-7631	7900-7631
1	8	Panel, Door (Lower, Tall)	7900-7611	7900-7611
1	9	Motor	024-31948-000	024-31949-000
1	10	Plug, Connector	025-21192-000	025-21192-000
1	11	Capacitor, Run (7.5MFD/370V)	---	024-20045-000
1	12	Wheel, Blower	026-19654-003	026-19654-003
1	13	Fan Relay (Blower)	3110-3301	3110-3301
1	14	Switch, Fan	7975-3281	7975-3281
1	15	Combustion Chamber Assembly	373-19802-150	373-19802-150
1	16	Oil Burner Assembly (See Page 4)	026-37356-000	026-37357-000
1	17	Switch, Limit (Open 140 - Close 110)	025-35380-000	025-35380-000
*	18	Fastener, Door Latch (2 Req'd)	021-18365-000	021-18365-000
*	19	Diagram, Wiring	107466 107467	107466 107467
*	20	Plug Hole, Window Clear (.875)	025-30899-000	025-30899-000
*	21	Gasket (Burner Transition Hose)	028-14802-000	028-14802-000
*	22	Flue Shield	4084A1601	4084A1601
1	23	Burner Relay	3110-3301	3110-3301
*	24	Fan Relay	2940A3541	2940A3541

<

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DFAH				
FIG	ITEM	DESCRIPTION	DFAH066BBSA	DFAH084BBSA
1	1	Limit Switch, Manual (Upper)	025-35358-000	025-35358-000
1	2	Thermostat (Heat Only)	025-38746-000	025-38746-000
1	3	Exchanger, Heat (w/Gaskets)	373-19806-651	373-19806-651
1	4	Switch, System	7681-3301	7681-3301
1	5	Transformer (115-24V, 40 VA)	---	---
1	6	Filter (16x20x1) (2 Req'd)	1214-2511	1214-2511
1	7	Panel, Door (Upper)	7900-7631	7900-7631
1	8	Panel, Door (Lower, Short)	7900-7671	7900-7671
1	9	Motor	024-31948-000	024-31949-000
1	10	Plug, Connector	025-21192-000	025-21192-000
1	11	Capacitor, Run (7.5MFD?370V)	---	024-20045-000
1	12	Wheel, Blower	026-19654-003	026-19654-003
1	13	Fan Relay (Blower)	---	---
1	14	Switch, Fan	7975-3281	7975-3281
1	15	Combustion Chamber Assembly	373-19802-150	373-19802-150
1	16	Oil Burner Assembly (See Page 4)	026-37356-000	026-37357-000
1	17	Switch, Limit (Open 140 - Close 110)	025-35380-000	025-35380-000
*	18	Fastener, Door Latch (2 Req'd)	021-18365-000	021-18365-000
*	19	Diagram, Wiring	125525 158931	125525 158931
*	20	Plug Hole, Window Clear (.875)	025-30899-000	025-30899-000
*	21	Gasket (Burner Transition Hose)	028-14802-000	028-14802-000
*	22	Flue Shield	4084A1601	4084A1601
1	23	Burner Relay	---	---

<

NOTE: *Not Shown

New replacement parts shown in **bold** face type at the first printing of parts list dated 6/05.

Major components and suggested stocking items are shown with shaded item number.

"<" Across from row indicates a change in that row.

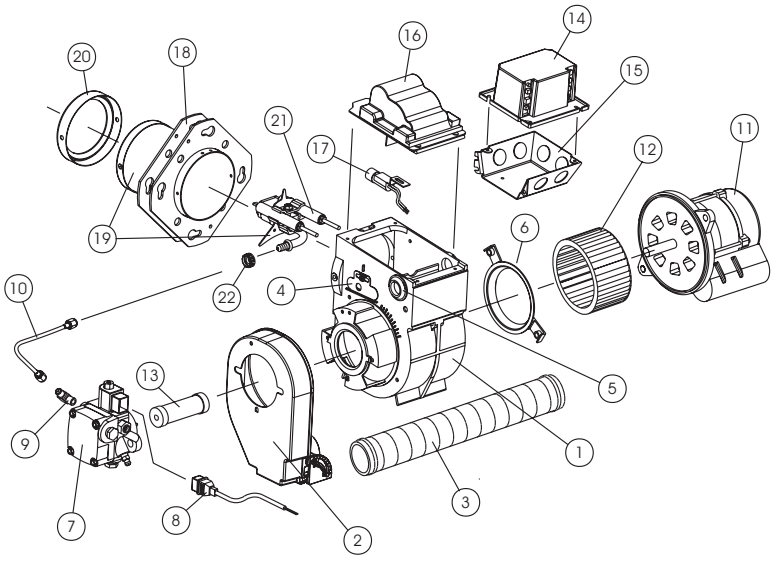
--- Not applicable to specified model.

REPLACEMENT PART CONTACT INFORMATION

This is a generic parts list. To request a complete parts list, refer to the contact information below:

- Visit our website at www.source1parts.com for the following information:
  1. Search for a part or browse the catalog.
  2. Find a dealer or distributor.
  3. Customer Service contact information.
     a. Click on the "Brand Links" button
     b. Click on the "Customer Service" button
- You can contact us by mail. Just send a written request to:

York International
Consumer Relations
5005 York Drive
Norman, OK 73069



OIL BURNER ASSEMBLY			026-37356-000	026-37357-000
FIG	**ITEM**	**DESCRIPTION**	**PART NO.**	
2	1	Burner Housing Assembly	026-39203-000	026-39203-000
2	2	Air Boot Kit	026-39204-000	026-39204-000
2	3	Inlet Air Hose	026-39205-000	026-39205-000
*	3A	Hose Clamps (2 Req'd)	026-39206-000	026-39206-000
2	4	Escutcheion Plate	026-39207-000	026-39207-000
2	5	Hole Plug (Included as part of Housing, Item #1)	026-39226-000	026-39226-000
2	6	Air Inlet Bell (Factory Installed, **Do Not Remove from Burner**)	026-39208-000	026-39208-000
2	7	Oil Pump	026-39209-000	026-39209-000
2	8	Valve Cordset	026-39210-000	026-39210-000
2	9	Pump Elbow	026-39211-000	026-39211-000
2	10	Connector Tube Assembly - 8"	026-39212-000	026-39212-000
2	11	Motor, Oil Burner	026-39213-000	026-39213-000
2	12	Blower Wheel	026-39214-000	026-39214-000
2	13	Coupling	026-33072-000	026-33072-000
2	14	Primary Ignition Control, Valve-On Delay	026-39215-000	026-39215-000
2	15	Electrical Box	026-39216-000	026-39216-000
2	16	Igniter	026-39217-000	026-39217-000
2	17	Cad Cell Detector	026-39218-000	026-39218-000
2	18	Flange Gasket	026-39219-000	026-39219-000
2	19	Air Tube Combination	026-39225-000	026-39225-000
2	20	Heat Shield Kit	026-39220-000	026-39220-000
2	21	Electrode Kits	026-33069-000	026-33069-000
2	22	Splined Nut	026-39221-000	026-39221-000
*	23	Nozzle, Delavan 0.65/70 Deg. A	---	026-39222-000
*	24	Nozzle, Delavan 0.50/70 Deg. A	026-39223-000	---

NOTE: *Not Shown

New replacement parts shown in **bold** face type at the first printing of parts list dated 6/05.

Major components and suggested stocking items are shown with shaded item number.

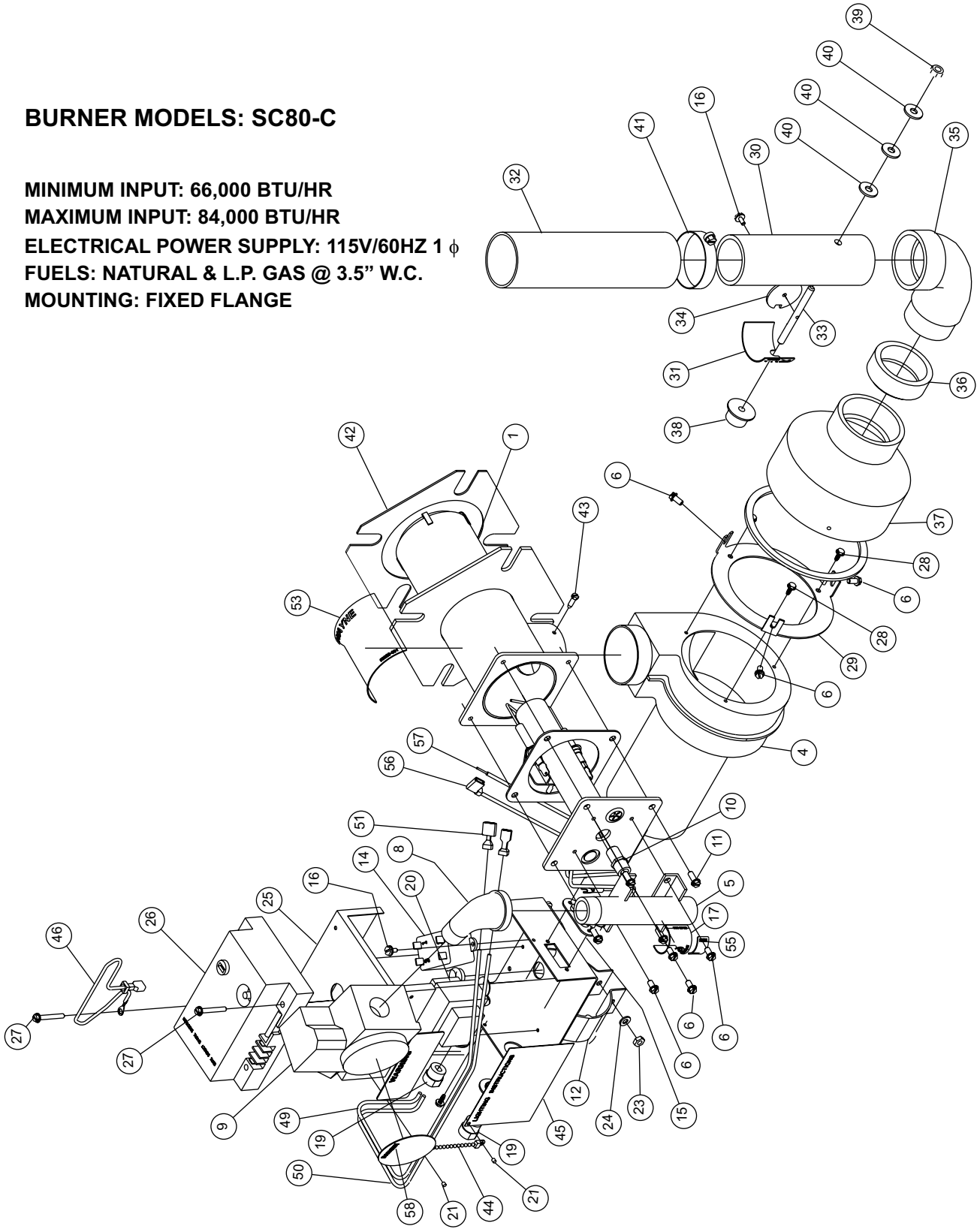
"<" Across from row indicates a change in that row.

--- Not applicable to specified model.

SECTION VIII: GAS CONVERSION BURNER REPAIR PARTS LIST

BURNER MODELS: SC80-C

MINIMUM INPUT: 66,000 BTU/HR
MAXIMUM INPUT: 84,000 BTU/HR
ELECTRICAL POWER SUPPLY: 115V/60HZ 1 ϕ
FUELS: NATURAL & L.P. GAS @ 3.5" W.C.
MOUNTING: FIXED FLANGE



PARTS LIST				
ITEM	**PART NUMBER**	**DESCRIPTION**	**QTY**	**TYPE**
1	63879-001	WELDMENT, BURNER TUBE - PAINTED	1	M
2	63610-001	ASSEMBLY, VENTURI - SC80 YORK	1	M
3	63620-001	GASKET, END CAP	1	P
4	60172-002	MOTOR/BLOWER ASSEMBLY 115V / 50 - 60 HZ	1	P
5	63617-001	MANIFOLD, SC80 / 200 / SC200M	1	P
6	12697-002	SCREW, HXSLT 23 10 - 24 X .375	7	P
7	15766	PLUG, PIPE - 1/8 NPT	1	P
8	60022	ELBOW, 3/4 FNPT X 1/2 MNPT - REDUCING	1	P
9	63878-001	GAS VALVE 120V / 50 - 60 HZ WR 36G24 - 206	1	P
10	62815-142	ORIFICE, .142”	1	P
11	12697	SCREW, HXSLT 23 10 - 24 X .5	4	P
12	62903-001	CONTROL BOX W / STRAP - PLATED	1	P
13	60183-004	TRANSFORMER, 120V / 24V 50 / 60 HZ	1	P
14	62406-002	RELAY, 24V 50 / 60 HZ	1	P
15	60178-002	T - T TERMINAL	1	P
16	15731	SCREW, 6 -32 X .312 HEXSLT	5	P
17	62460-001	DECAL, GAS TYPE - NATURAL	1	M
18	60226	BUSHING, METAL 7/8 HOLE ADAPTER	2	P
19	13026	BUSHING, STRAIN RELIEF .562 HOLE	2	P
20	60177	SNAP BUSHING INSULATING .50”	1	P
21	61684	POP RIVET .12 X .28	4	P
22	61755	SCREW, RDPLMC 10 - 32 X 1.25”	1	P
23	60054	NUT, HEX 10 - 32	1	P
24	16635-002	WASHER, FLAT #8	1	P
25	62899-003	LID, CONTROL BOX PLATED - THERMO CYCLER	1	P
26	101243-001	CONTROL, IGN - H S87K1008 DI	1	P
27	100603-008	SCREW, HXSLT 8 - 18 X 1.25	2	P
28	100603-001	SCREW, 6 - 20 X .375	4	P
29	101154-001	RING, BLOWER MOUNTING	1	P
30	63888-001	TUBE, AIR INLET - YORK	1	M
31	63887-001	DECAL, AIR SETTING - YORK	1	P
32	63892-001	TUBE, DUCT - OUTSIDE AIR - 7 1/2” LG	1	P
33	63885-001	SHAFT, BUTTERFLY DISC - AIR	1	P
34	63884-001	DISC, BUTTERFLY - AIR	1	P
35	63883-001	ELBOW, 1 1/2” STREET	1	P
36	63882-001	BUSHING, PVC - 2” TO 1 1/2”	1	P
37	63881-001	REDUCER, PVC - 4” TO 2”	1	M
38	101046-001	KNOB, AIR KIT - STEALTH	1	P
39	13313	NUT, 1/4 X 20 X .50	1	P
40	18005	WASHER, FLAT 1/4”	3	P
41	63889-001	CLAMP, HOSE - YORK	1	P
42	63041-001	GASKET, FLANGE	1	P
43	18007	SCREW, HEXSLT #8 X 1/2” SELF DRILL	3	P
44	61759	CHAIN, BEAD - TYPE	1	P
45	61843	PLATE, INSTRUCTION - LIGHTING	1	P
46	62411-079	WIRE, ASSEMBLY - GREEN - 9”	1	P
47*	63912-001	WIRE HARNESS - 3 WIRE ASSEMBLY - YORK	1	P
48	63895-001	GASKET, OUTSIDE AIR KIT - YORK	1	P
49	62411-002	WIRE, BLACK - 15” LONG	1	P
50	62411-001	WIRE, WHITE - 15” LONG	1	P
51	63897-001	TERMINAL, MALE - .250 BLUE	1	P
52	63012-001	TERMINAL, FEMALE - .250”	1	P
53	63920-001	DECAL, RATING - SC80 - C	1	P
54	62960-001	DECAL, CARBON DIOXIDE WARNING	1	P
55	16201	DECAL, DATE CODE	1	M
56	62411-099	WIRE ASSEMBLY, GRAY - 26” LONG	1	P
57	62411-100	WIRE ASSEMBLY, RED - 40” LONG	1	P
58	035-20667-001	LABEL, DANGER - GAS VALVE	1	P

* Not Shown

NOTES

Limited Warranty

Manufactured Housing Furnace

UPG warrants this product to be free from defects in factory workmanship and material under normal use and service and will replace parts that prove to have such defects according to the terms outlined below.

FURNACE MODELS			
Furnace Model	**Heat Exchanger**	**Parts Coverage**	**Labor and Trip Charges***
DFAA, DFAH	10 years	2 years	2 years

*Thermostat labor coverage for 30 days only, no trip allowance.

The warranty period for any replacement heat exchanger or part provided here under shall not extend beyond the warranty period stated above. The heat exchanger warranty is on a parts only basis: no labor, freight or other service charges are allowed.

The warranty period will begin on the purchase date of the residence when the product is installed as original equipment, or the installation date when installed in a residence previously purchased by the consumer. Return the Warranty Registration Card to UPG promptly after product installation or purchase for your benefit and protection. The warranty period will begin upon product shipment from UPG in the absence of a recorded Warranty Registration Card.

This warranty applies to the original consumer/purchaser and any subsequent purchaser. The warranty does not apply if the furnace is removed from the original residence, or if the residence has been moved from the original location where the furnace was placed in service.

This warranty applies only to products installed: (1) in the United States of America or Canada; (2) in accordance with UPG recommendations and specifications outlined in the Installation Manual provided with the product; (3) in accordance with all national, state/provincial, and local codes; and (4) in the original residence.

Exclusions

1. Shipping/freight, or material charges.
2. Damages resulting from transportation, mishandling, improper application, installation or servicing.
3. Damages resulting from accident, abuse, fire, flood, or other acts of nature.
4. Use of the product in a corrosive atmosphere.
5. Alteration, tampering, defacing or removing the product serial number will serve to void the warranty.
6. Damages resulting from inadequacy or interruption of electrical service, improper energy supply, blown fuses, improper wiring external to the unit or other like damages.
7. Damages resulting from the use of components not approved by UPG.
8. This warranty does not cover consequential damages, incidental damages or incidental expenses including damages to property.
9. Damages caused by failure to perform normal or routine maintenance as set out in the operation and service instructions.
10. Cleaning, replacement of filters, or any other routine maintenance as set out in the User's Information, Maintenance and Service Manual.
11. Replacement or cleaning of nozzles or orifices.
12. Fuses either internal or external to the product.
13. Excessive fuel or electricity consumption.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW THE DISCLAIMER OF IMPLIED WARRANTY, SO THAT THE ABOVE DISCLAIMER MAY NOT APPLY TO YOU.

SOME STATES ALLOW ONLY A PARTIAL LIMITATION ON IMPLIED WARRANTIES, OR LIMIT THE DURATION OF IMPLIED WARRANTIES TO THE DURATION OF THE EXPRESS WARRANTY. IN SUCH STATES, THE DURATION OF IMPLIED WARRANTIES IS HEREBY EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY ON THE FACE HEREOF. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF WARRANTY OR CONTRACT TORT (INCLUDING NEGLIGENCE) STRICT LIABILITY OR OTHERWISE, SHALL UPG BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE OF THE EQUIPMENT OR ASSOCIATED EQUIPMENT, LOST REVENUES OR PROFITS, COST OF SUBSTITUTE EQUIPMENT. THIS WARRANTY DOES NOT COVER CONSEQUENTIAL DAMAGES. THE ABOVE LIMITATIONS SHALL INURE TO THE BENEFIT OF UPG SUPPLIERS AND SUBCONTRACTORS. THE ABOVE LIMITATION ON CONSEQUENTIAL DAMAGES SHALL NOT APPLY TO INJURIES TO PERSONS IN THE CASE OF CONSUMER GOODS.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, OR FOR STRICT LIABILITY IN TORT, SO THAT THE ABOVE EXCLUSIONS AND LIMITATIONS MAY NOT APPLY TO YOU. UPG DOES NOT ASSUME, OR AUTHORIZE ANY PERSON TO ASSUME FOR UPG ANY LIABILITY FOR THE SALE OF THIS PRODUCT. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

TO OBTAIN WARRANTY SERVICE

Consult the Authorized Service Center list packed with furnace installed in the manufactured home or contact your installing or servicing dealer.

Or, look in the Yellow Pages of the telephone book under Mobile Homes-or Manufactured Housing-Repair and Service for the name and telephone number of the nearest authorized manufactured housing service center. If local authorized service cannot be obtained, or you are unable to contact your installing contractor, contact the authorized distributor in your area. If there is no distributor in your area, and you cannot obtain proper service under the terms of the warranty, please write: Unitary Products Group (UPG) Customer Relations Department, PO Box 19014, Wichita, KS 67204-9014.

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