DRI-EAZ

Owner's Manual – Dragon K85 Mobile Furnace

115-volt model F260

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The Dragon K85 Mobile Furnace is a diesel fuel- and electric-powered indirect fired heater. It provides heated air without adding moisture for a variety of applications, including water damage restoration, structural drying, construction, and temporary event shelters.

Safety Information

Read this Owner's Manual carefully to learn how to properly operate and service your Dragon K85 Mobile Furnace. This manual should be considered a permanent part of the machine and should remain with the Dragon if you sell it.

⚠WARNING

Failure to comply with the instructions and precautions provided in this Owner's Manual can result in death, serious bodily injury, and/or property loss or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock.

Electrical Connections

The Dragon K85 Mobile Furnace is designed to operate on a 115V/60 Hz electrical connection. Make sure that the electrical outlet is grounded with three prongs. When using with an extension cord, use only a grounded cord intended for outdoor use and rated to deliver enough power to the Dragon (4.4 amps@115V or 506W).

Fuel Type

The Dragon K85 Mobile Furnace is designed to operate on diesel #2 fuel oil only. The Dragon can operate for a minimum of 8 hours using the internal tank that holds 9.3 gallons (35 L). Do not run the Dragon out of fuel, as it may be difficult to restart. For longer unattended use, it is recommended that you purchase a larger, DOT-approved external fuel tank to use with the external fuel siphon.

If external tank is used, cover opening to prevent contaminants from entering tank. Place tank on flat, stable surface to prevent tipping or spilling.

Failure to use diesel fuel could cause injury and permanent damage to the unit. It may also void the Dri-Eaz warranty.

Altitude Adjustment

NOTICE: The Dragon is factory-set for use at elevations up to 2000 feet above sea level. For use above 2000 feet or for any subsequent change of elevation, higher or lower, the unit must be adjusted by a qualified HVAC technician to avoid excessive soot build-up and possible flue fire. Always have a qualified HVAC technician adjust the unit for operating at the altitude of the intended use. **Failure to adjust for altitude changes could cause injury, permanent damage to the unit and secondary damage when ducting into a structure. It may also void the Dri-Eaz warranty.** Black or gray/white smoke coming from the flue indicates an improper air to fuel ratio and that the unit must be adjusted. Call an HVAC specialist for assistance, or an authorized service center for referral to an HVAC technician. For further questions, call Dri-Eaz Service at 800-932-3030.

OVERVIEW

Introduction

The Dragon K85 Mobile Furnace is an indirect fired heater. It supplies heated air to an area without adding any moisture or fumes through the heating process. The Dragon is able to do this by using a heat exchanger so that the process air never comes into direct contact with the flame in the combustion chamber.

The Dragon operates from outside the structure. It draws in the ambient outdoor air and increases its temperature by 81°F. An electric fan directs this heated air into the structure through ducting. The remote thermostat automatically cycles the Dragon on and off to maintain a preset temperature in the affected area.

The clean, dry heat from the Dragon helps reduce drying times while maintaining stable and comfortable temperatures. The Dragon is ideal for any number of applications, including:

- water damage restoration
- new construction drying
- unheated jobsites
- temporary event shelters
- any situation calling for clean, dry heat

Principles of Use

For applications like water damage restoration and new construction drying, the Dragon can increase drying efficiency.

Areas of a structure that can benefit from the addition of heat for drying include crawlspaces, basements, or parts of a building where heat is not available.

Cold air actually impairs the evaporation of moisture from materials. Warm air from the Dragon helps airmovers and dehumidifiers evaporate more moisture from materials and remove it from the structure. For instance, raising the temperature of an area with the Dragon by just 10°F (from 60°F to 70°F) can increase the evaporative potential of your existing drying system up to 45 percent.

The specific target drying temperature will vary according to the conditions of each drying job. Determining, creating, and maintaining the optimum drying conditions on a job—including temperature and relative humidity—is your responsibility.

For best results when using the Dragon for drying, you should understand the basic principles of psychrometry—the science of drying. You should also know how to use moisture detection instruments to track the moisture content of a structure throughout the entire drying process. You can learn these skills and more in an IICRC-certified Applied Structural Drying (ASD) course. To learn more about ASD courses, contact the Dri-Eaz Education Department at 1-800-575-5152.

With this in mind, there are some general principles to keep in mind when using the Dragon. You should try to stabilize the temperature of the affected area near the ideal operating temperature of your drying equipment. Most dehumidifiers perform at their best between 70°F to 90°F. The added heat from the Dragon will increase the rate of evaporation by decreasing the relative humidity of the affected area. Be certain that your combination of airmovers and dehumidifiers is powerful enough to keep the relative humidity well below 60%RH to avoid secondary damage to the structure and contents.

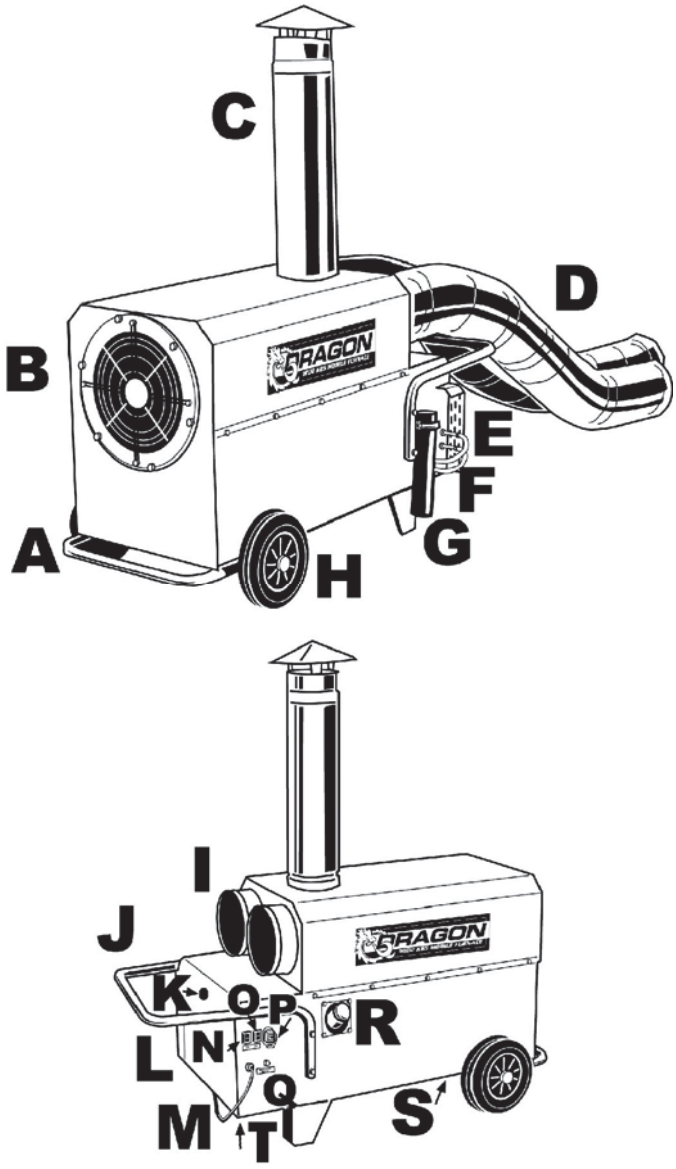
Accessories Included

The Dragon K85 Mobile Furnace includes the following parts and accessories:

1	Dragon K85 Mobile Furnace
1	Flue with cap
1	Remote thermostat
1	External fuel siphon
2	30 ft. ducting (8-in diameter)*
2	Duct clamps
2	2 ft. heat shields (10 in. diameter)

*Replacement ducting can be obtained directly from Grainger (part #3XK06). For more information, go to *www.grainger.com*

Parts Identification



A	Rear Handle
B	Air Intake Grill
C	Flue
D	Ducting
E	Fuel line guard plate
F	Internal tank fuel lines
G	External fuel siphon holder
H	Wheels
I	Duct rings
J	Front handle/cord wrap
K	Flame Control Reset Button
L	Fuel pump/blower assembly housing
M	Power cord
N	FAN switch
O	HEAT switch
P	Thermostat jack
Q	Temperature-Limiter Reset Button
R	Internal fuel tank fill neck
S	Internal fuel tank drain plug
T	Air Intake vents

OPERATING THE DRAGON

Breathing Hazard

⚠WARNING

Fuel exhaust contains deadly carbon monoxide gas. Operate Dragon only outdoors in open area. NEVER operate indoors or in enclosed spaces.

Electric Shock Hazard

⚠WARNING

Unit must be grounded. Use only with 3-hole grounded outlet.

Never modify plug or use an adaptor. If an extension cord is needed, it must have a three-prong grounding plug, be rated for outdoor use and be rated for at least 506 watts or 4.4 amps at 115 volts.

Never operate the Dragon in pooled or standing water. If electrical components become wet, allow to dry before using.

⚠WARNING

Fire and Explosion Hazard

Burner produces sparks and flame and unit becomes hot during use.

Keep away from flammable vapors, such as those from gasoline, paint thinner or solvents.

Keep away from combustible dusts, such as coal dust or sawdust.

Keep unit at least ten feet away from any combustible material.

Keep children and pets away.

Diesel fuel is flammable and can be explosive.

Do not smoke while operating, servicing, or refueling the Dragon.

Before refueling, shut off unit, allow to cool and then unplug.

Hot surfaces can ignite fuel vapors.

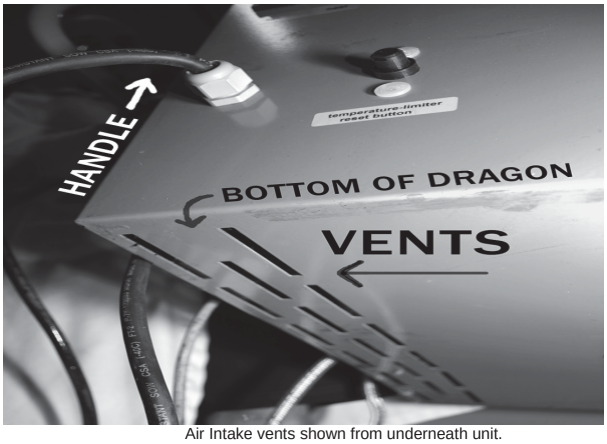
Setting up the Dragon

⚠WARNING

Choosing a location

Use the Dragon outdoors only. Place the unit on a level, stable surface. Choose an inconspicuous location away from high-traffic areas for children and/or pets. Ensure there is no obstruction in the air intake during the use of the Dragon.

NOTICE: Keep air intake vents under unit clean and clear of any obstruction. Avoid setting up unit where the intake could be blocked or restricted i.e. tall grass, deep snow, etc. Blocking the air intake will cause the unit to burn inefficiently resulting in sooty exhaust and potential damage to the unit and the structure being heated.



Air Intake vents shown from underneath unit.

Connecting the internal tank fuel lines

To connect the fuel lines, simply push the male and female adapters together until the lock rings snap into place. Note that the adapters are arranged so that you will always connect the lines properly. You must always connect both fuel lines.


Connect the internal tank fuel lines

The Dragon is shipped with the fuel lines disconnected. Before operating, make sure the fuel lines from the internal tank are properly connected.

You may also operate the Dragon with an external fuel tank (not included). See the section "Connecting an external fuel tank" for more information.

Fill the internal fuel tank

The Dragon is shipped with an empty fuel tank. Before operating, fill the internal tank with diesel #2 fuel oil

only. The internal tank has a 9.3-gallon capacity. Do not overfill.

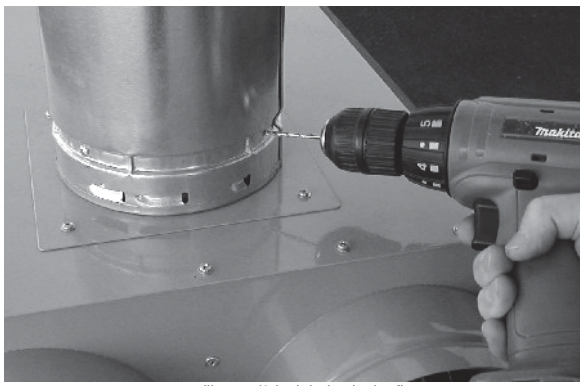
Attaching the flue to the Dragon

The Dragon is designed to operate with the flue attached to the top of the unit. Always operate the Dragon with the flue attached. In addition to preventing any water or debris from falling into the heat exchanger, the flue creates a slight draft on the Dragon exhaust that assists in preventing thermal overload.

1. To attach the flue, slide it over the pipe on top of the heat exchanger.

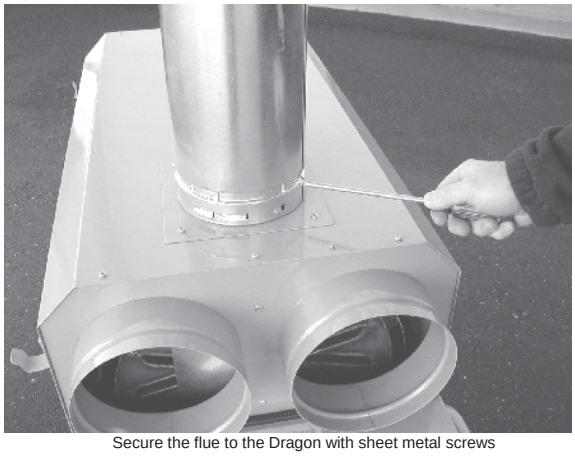
Attach the flue to the Dragon

2. Drill two 1/8-inch holes through the bottom of the flue into the heat exchanger pipe. The holes should be approximately 90 degrees apart.



Drill two 1/8-inch holes in the flue

3. Drive a sheet metal screw (#8x1) through each hole to secure the flue to the Dragon.

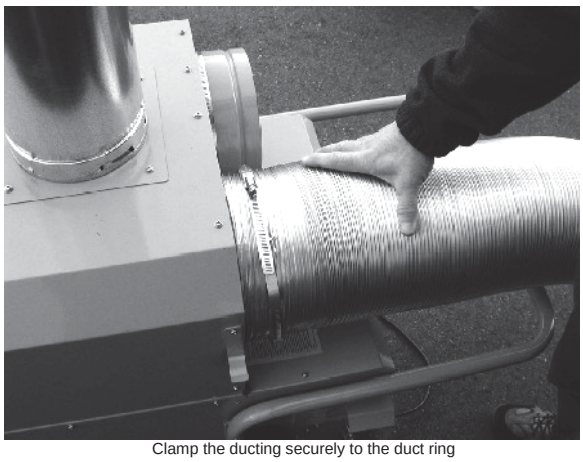


Secure the flue to the Dragon with sheet metal screws

Attaching ducting to the Dragon

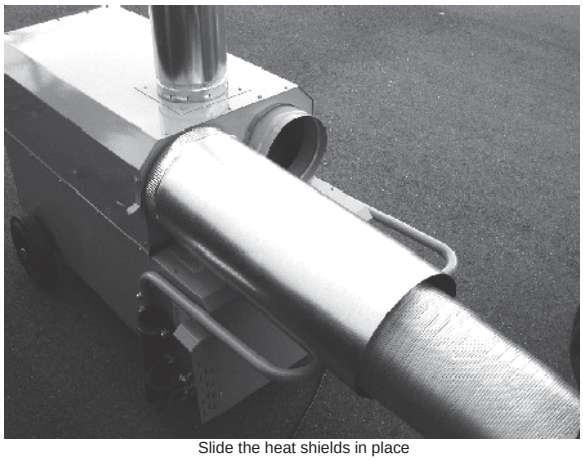
The Dragon delivers clean heat to a structure through two 30-foot lengths of 8-inch diameter aluminum ducting. You must attach both lengths of ducting to the Dragon for operation.

1. Extend a 1-foot section of ducting and slide a hose clamp over the end. Slip the ducting over one of the Dragon outlet duct rings. Secure the ducting firmly to the duct ring with the hose clamp. Make sure the clamp is tight enough to hold the ducting in place when you extend it to the structure.



Clamp the ducting securely to the duct ring

2. Slide one of the heat shields over the ducting until it rests against the Dragon housing. This will provide extra protection against burns from accidental contact with hot surfaces near the duct rings.



Slide the heat shields in place

3. Grasp the free end of the ducting and pull until it reaches the structure. Take care not to damage the aluminum ducting, as this could restrict airflow during operation and cause the unit to shut off from thermal overload.

4. Repeat steps 1 through 3 for the other length of ducting. Always connect both lengths of ducting from the Dragon to the affected area.

Securing ducting to the structure

In most drying situations you will need to attach the end of the ducting to an opening in the structure such as a basement window or crawlspace vent hole. Since each structure is unique, you will usually need to build an adapter to fit the specific opening.

To build two adapters, you will need:

2 Plywood sheets
2 Duct adapters, 8-inch diameter
2 Hose clamps
1 Jigsaw

1. Cut a sheet of plywood to fit over the opening in the structure.

2. Use a jigsaw or similar tool to cut an 8-inch diameter hole in the center of the plywood.

3. Fit an 8-inch diameter duct adapter (available at most hardware stores) into the hole in the plywood. Secure the duct adapter to the plywood.

4. Slip a hose clamp (not included) over the free end of one of the 30-foot lengths of 8-inch diameter aluminum ducting. Slide the ducting over the adapter and secure firmly with the hose clamp.

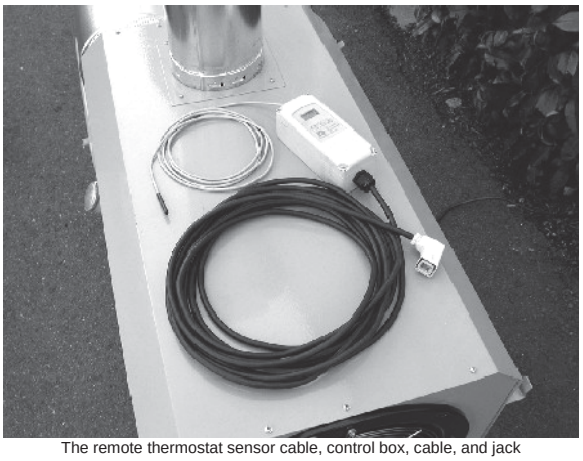
5. Secure the plywood to the structure.

6. Repeat steps 1 through 4 for the second length of aluminum ducting. Always connect both lengths of ducting from the Dragon to the affected area.

Connecting the remote thermostat

The thermostat monitors the temperature in the affected area. It turns the Dragon on and off to maintain a preset temperature in the affected area.

Always operate the Dragon with the remote thermostat connected. The HEAT switch will not function and the Dragon will not heat the air if the thermostat is not connected.



The remote thermostat sensor cable, control box, cable, and jack

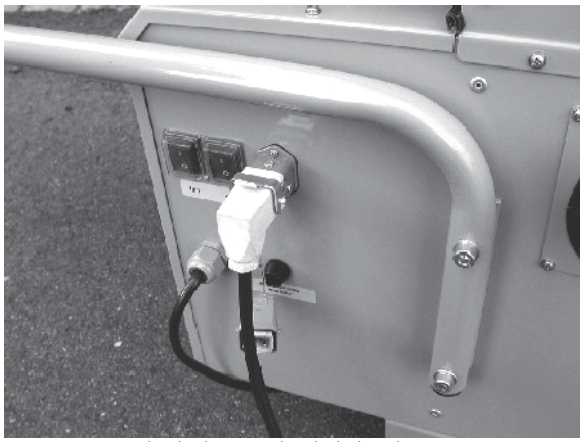
1. Run the thermostat's 8-foot sensor cable into the affected area. If necessary, drill a small hole in the plywood adapter.

2. Position the tip of the sensor cable as far away as possible from the Dragon process air—at least six feet for best results.

   Note: Only the tip of the sensor cable will read temperature.

3. Place the thermostat control box where it will be easy to monitor temperature setting. The control box is weatherproof and may be left outside.

4. Plug the thermostat into the jack on the Dragon. The jack is located next to the HEAT and FAN switches.



Plug the thermostat into the jack on the Dragon

Note: The HEAT switch will not function and the Dragon will not heat the air unless the thermostat is plugged into the jack.

For more information about operating the remote thermostat, see the section "Programming the thermostat."

Establishing negative air pressure

Always create a negative air pressure in the affected area when using the Dragon. An area has negative air pressure when the air pressure inside is lower than outside. This helps prevent odors and contaminants from spreading to unaffected areas through cracks, crevices, and openings in the structure walls.

On average, the Dragon will force in about 800 CFM. As long as you remove more than 800 CFM through an exhaust opening, more air will flow out of the affected area than will flow in from the Dragon. This differential creates the negative air pressure in the affected area—a slight vacuum effect—so that any contaminants and odors are exhausted harmlessly outdoors instead of being forced into other areas of the structure.

1. First close or block any large openings between the affected area and other parts of the structure.

2. Select an opening between the affected area and the outdoors to use as an exhaust, preferably on a side opposite the Dragon process air. A window or crawlspace vent hole will do.

3. Place a TurboDryer, Vortex Axial Fan, or other airmover so that it forces air out of the affected area to the outdoors through the selected opening. The airmover should remove at least 800 CFM from the affected area.

Starting the Dragon

Inspecting before operation

Warning! Before starting the Dragon:

☐ Check for any fuel leaks around the fuel tank or fuel lines.

☐ Check for nearby hazards like combustible materials or flammable vapor sources.

☐ Check the power cord for damage.

Correct these and any other safety hazards before starting the Dragon.

Starting the Dragon

1. Check the fuel tank. If needed, add #2 diesel fuel to the fuel tank. Do not overfill. **WARNING!** Turn off power and allow unit to cool before refueling.

2. With the ducting secured, the thermostat in place, and negative air pressure established, plug the Dragon's power cord into a nearby outlet.

3. Turn the HEAT switch to on. This provides power to the thermostat. The thermostat will only function when the HEAT switch is on.

4. While the Dragon's heat exchanger is warming up, set the desired temperature on the thermostat control box. See the next section, "Programming the thermostat," for more information.

5. Monitor the settings on the Dragon and conditions in the structure at least twice daily during operation.

Programming the thermostat

The remote thermostat controls the operation of the Dragon. Based on the settings you program, the Dragon will cycle on and off to maintain a predetermined temperature in the affected area. It can be programmed in either degrees Fahrenheit or Celsius.

1. When the Dragon is plugged in and the HEAT switch is first turned on, the thermostat will display the ambient temperature.

Before programming, the thermostat shows the current ambient temperature

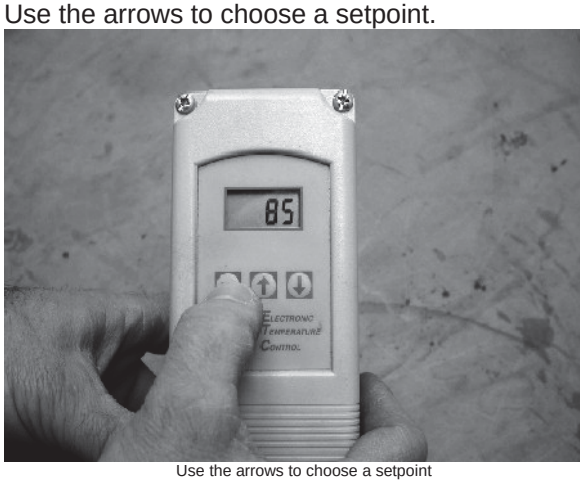
2. Press the SET key once to access the Fahrenheit/Celsius mode. The display will show the current status, either F for Fahrenheit or C for Celsius. To switch between the two, press either arrow key. Choose either F or C.

Choose either Fahrenheit (F) or Celsius (C) mode

2. Press the SET key again to access the setpoint. The display will blink "S1" and show the current setpoint in degrees. The setpoint is the maximum temperature you wish to maintain in the affected area.

For example, with a setpoint of 85°F, the Dragon will stop heating when the temperature exceeds 85°F.

Use the arrows to choose a setpoint.

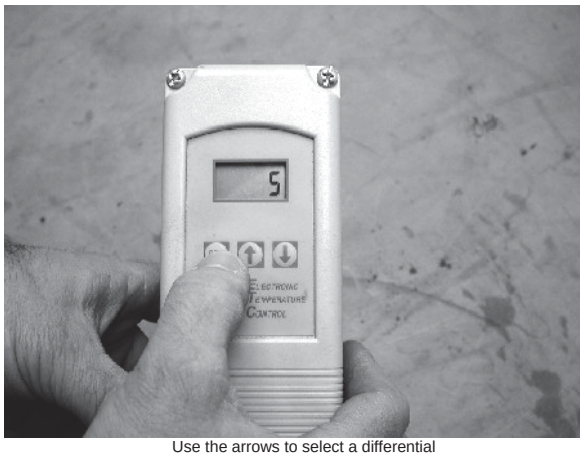


Use the arrows to choose a setpoint

3. Press the SET key again to access the differential. The display will blink "DIF 1" and show the current differential. The differential is the number of degrees the temperature will drop below the setpoint before the Dragon begins a heating cycle. In other words, the differential determines the minimum temperature of the affected area.

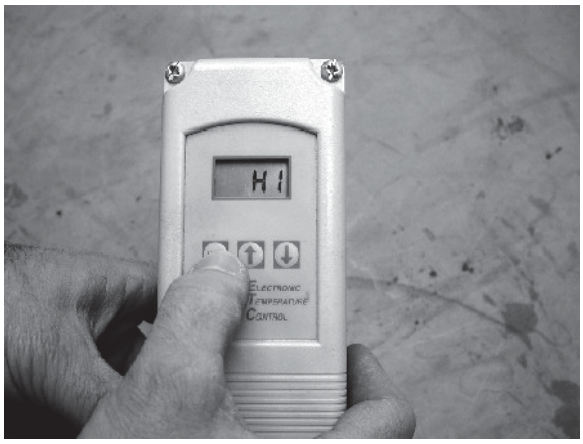
For example, with a setpoint of 85°F and a differential of 5, the Dragon will begin a heating cycle when the temperature of the affected area drops below 80°F.

Press the up or down arrow keys to select a differential. You can select a differential from 1°F to 30°F.



Use the arrows to select a differential

4. Press the SET key again to access the heating or cooling mode. The display will show the current mode, either C1 for cooling or H1 for heating. Using the arrow keys, select H1 for the heating mode.



Important! Make sure the thermostat is set to H1 for the heating mode. The Dragon will not function properly with the thermostat in cooling mode.

5. Press the SET key once more to complete the programming of the thermostat.

Shutting the Dragon Off

1. Turn the HEAT switch to "Off" but leave the unit plugged in. ***NOTICE:*** Do not turn the Dragon off by simply unplugging the unit, as this could cause thermal overload. You must allow time for the fan to cool the heat exchanger.

2. Leave the unit plugged in for at least 10 minutes while the fan cools the heat exchanger. The fan will turn off and on during the cooling cycle.

3. After a minimum 10-minute cooling period, you may unplug the unit.

Special Instructions

Preventing thermal overload

If the temperature of the heat exchanger exceeds 212°F (100°C), the Dragon will automatically shut down due to thermal overload and must be reset before it will start again. The most common cause of thermal overload is restricted airflow. To help prevent thermal overload, you should:

- Make ducting runs as straight as possible
- Keep the ducting free of debris and unobstructed
- Keep the air intake grill unobstructed

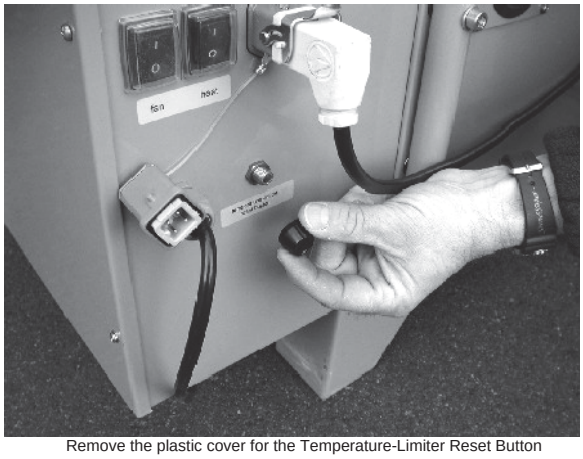
Restarting after thermal overload

If the Dragon shuts off due to thermal overload, follow these instructions for restarting.

1. Wait 10 minutes to let the Dragon cool down.

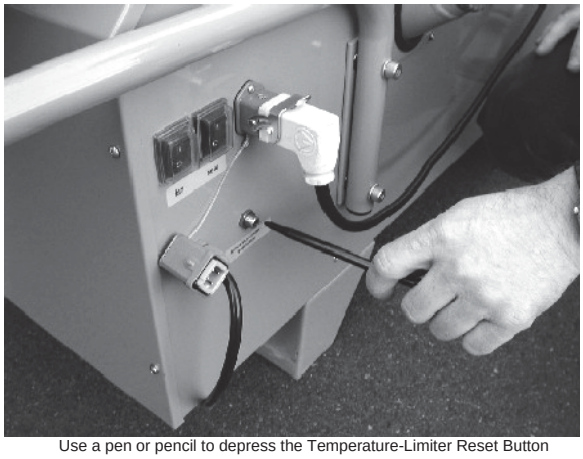
2. Make certain that ducting runs are straight and unobstructed. Make certain the air intake is unobstructed.

3. Unscrew the plastic cover for the Temperature-Limiter Reset Button located near the HEAT and FAN switches.



Remove the plastic cover for the Temperature-Limiter Reset Button

4. Using a pen or a pencil, depress the Temperature-Limiter Reset Button.



Use a pen or pencil to depress the Temperature-Limiter Reset Button

4. Replace the plastic cover on the Temperature-Limiter Reset Button.

5. Make certain the HEAT switch is turned on.

If the heater continues to shut off due to thermal overload, contact the Dri-Eaz Service Department at 888-867-3235.

Restarting after running out of fuel

If the Dragon runs out of fuel, it will automatically shut off.

NOTICE: Check internal tank fuel level at least every 8 hours to avoid running out of fuel, as the unit may require servicing to be restarted.

Follow these instructions for restarting:

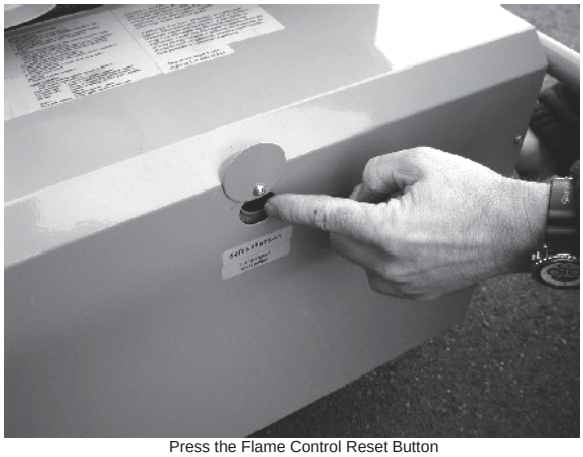
1. Turn the HEAT switch off and unplug the Dragon. **WARNING!** Allow the Dragon to cool for at least 10 minutes.

2. Refill the fuel tank with diesel #2 fuel oil only. The internal tank has a 9.3-gallon capacity. Do not overfill. Turn off power and allow unit to cool before refueling.

3. Plug the Dragon back in to a grounded outlet using an appropriately rated extension cord.

4. Turn the HEAT switch to on.

5. Press the Flame Control Reset Button once. To access the button, swivel the metal cover on the fuel pump/blower assembly housing.



Press the Flame Control Reset Button

6. The Dragon will restart after priming the fuel pump. If the Dragon does not restart immediately, wait one minute and press the Flame Control Reset Button again. Repeat until the Dragon starts. If the unit will not restart, contact Dri-Eaz Service at 888-867-3235.

Using an external fuel tank

The internal fuel tank of the Dragon K85 Mobile Furnace has a capacity of 9.3 gallons (35 L). Depending on the specific conditions and thermostat settings, the Dragon can operate anywhere from a minimum of 8 hours (firing continuously at 0.69 gal/hr) up to more than 24 hours (firing intermittently to maintain a constant temperature) on a full internal tank of fuel.

If you will be operating the unit unattended for more than 8 hours, we recommend that you purchase a larger DOT-approved external fuel tank to use with the external fuel siphon on the Dragon. This will allow you to operate the Dragon for longer periods between refueling. Even though you may not need to refuel with an external tank, you should continue to physically check the Dragon at least once a day during operation.

WARNING! Diesel fuel is flammable and potentially explosive. Place external tank on flat, stable surface to prevent spills.

NOTICE: Always use a clean fuel tank and fuel source to prevent fuel problems. Cover the opening to prevent moisture or contaminants from getting into fuel.

Connecting an external fuel tank

WARNING! Diesel fuel is flammable and potentially explosive. Always turn off and unplug the Dragon before switching between internal and external tanks. Do not smoke while connecting fuel tanks. Keep away from open flame.

1. Disconnect the two fuel lines coming from the internal fuel tank. To do this, slide the lock rings back and pull the adapters apart.

2. To prevent fuel leakage or damage to the adapters, connect the fuel lines together while not in use. Wipe any excess fuel oil from the adapters.

3. Connect the fuel lines from the external fuel siphon to the adapters on the Dragon housing. To do this, push the male and female adapters together until the lock rings snap into place. ***NOTICE:*** Be sure the lock rings snap securely to avoid diesel fuel leakage.

4. Insert the siphon into the external fuel tank. Feed the fuel lines through the plastic cover until the siphon rests on the bottom of the tank.

5. Operate the Dragon as instructed elsewhere in this manual.

Reconnecting the internal fuel tank

WARNING! Diesel fuel is flammable and potentially explosive. ***NOTICE:*** Always turn off and unplug the Dragon before switching between internal and external tanks. Do not smoke while connecting fuel tanks. Keep away from open flame.

1. Remove the external fuel siphon from the external fuel tank. Wipe the siphon and fuel lines clean of excess fuel oil.

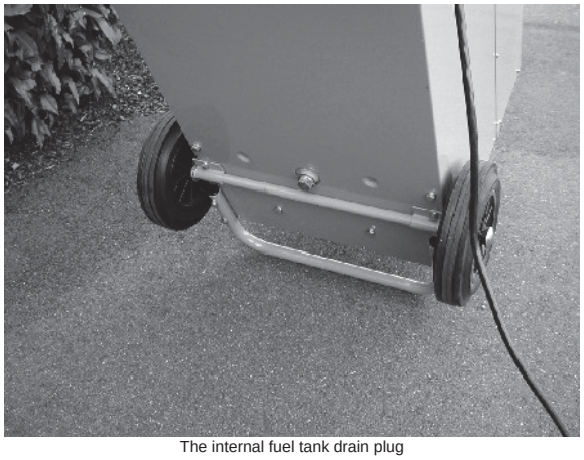
2. Disconnect the fuel lines from the external tank. To do this, slide the lock rings back on the female adapters and pull the adapters apart.

3. To prevent fuel leakage or damage to the external fuel line adapters, connect the lines together while not in use. Wipe away any excess fuel oil.

4. Connect the fuel lines from the internal fuel tank to the adapters on the Dragon housing. To do this, push the male and female adapters together until the lock rings snap into place. Note that the male and female adapters are arranged so that you will always connect the lines properly.

Draining the internal fuel tank

You may occasionally need to drain the internal fuel tank for shipping or storage. The Dragon is equipped with a fuel tank drain plug on the bottom of the unit near the wheel axle.



The internal fuel tank drain plug

WARNING! Diesel fuel is flammable and potentially explosive. Always turn off and unplug the Dragon before draining the internal fuel tank. Do not smoke while draining fuel. Keep away from open flame.

1. Place an appropriate container beneath the drain plug to catch any remaining fuel oil.

2. Remove the drain plug with a wrench.

3. Allow the internal fuel tank to drain completely.

4. Screw the drain plug back into the Dragon. Tighten with a wrench.

5. Dispose of excess fuel oil in accordance with local regulations.

Using the Dragon as a ventilator

The Dragon may also be used purely as a ventilator to deliver clean, unheated air to an affected area.

NOTICE: If you are ventilating spaces adjacent to living areas, you must still create a negative pressure in the affected area. This will help prevent contaminants from being forced into clean areas. See the section "Establishing negative air pressure" for more information.

1. Set up the Dragon as directed in the section "Setting up the Dragon." However, you do not need to add fuel, attach the flue, or connect the remote thermostat. As a ventilator the Dragon will operate on electricity alone.

2. Turn the FAN switch to “On.”

MAINTENANCE

Replacing the fuel intake filter

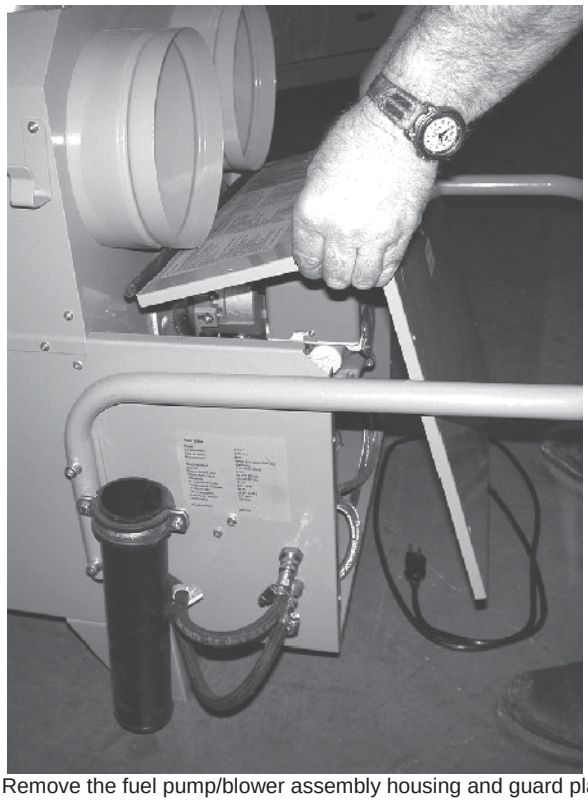
⚠WARNING

The fuel intake filter should be replaced at least once every year. Depending on the quality of fuel oil and the frequency of use, the fuel intake filter may need to be replaced more frequently.

You will need:

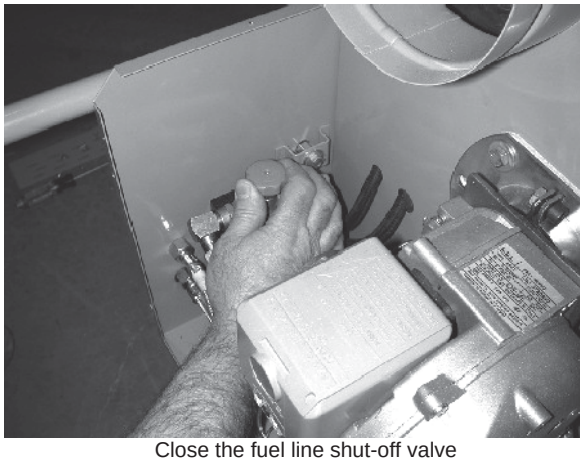
- Phillips screwdriver
- Clean shop rags

1. Remove the housing cover for the fuel pump/blower assembly and the fuel line guard plate. To do this, remove the six Phillips screws that secure the housing cover and guard plate.



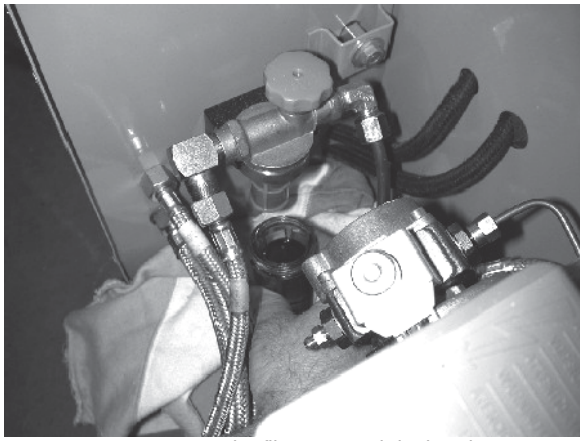
Remove the fuel pump/blower assembly housing and guard plate

2. Close the fuel line shut-off valve by turning the red knob clockwise.



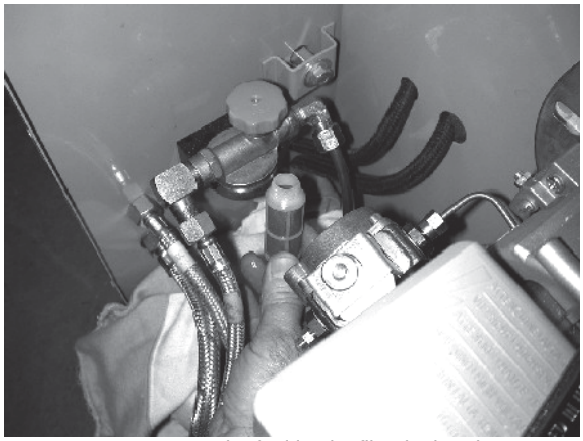
Close the fuel line shut-off valve

3. Place a shop rag beneath the filter reservoir to catch any spilled fuel, and then unscrew the reservoir by hand. Dispose of the fuel oil in the reservoir in accordance with local regulations. Wipe down the inside of the empty reservoir with a clean rag to remove any debris. Set the empty reservoir aside.



Unscrew the filter reservoir by hand

4. Unscrew the fuel intake filter by hand. Dispose of the used filter in accordance with local regulations.



Unscrew the fuel intake filter by hand

5. Insert a new fuel intake filter and gently tighten by hand. Do not reuse the old filter. Do not overtighten.

6. Replace the reservoir and gently tighten by hand. Do not overtighten. Wipe up any spilled fuel oil.

7. Reopen the fuel line shut-off valve by turning the red knob counter-clockwise.

   Note: You should also inspect the fuel pump screen whenever you replace the fuel intake filter. For more information, see the section titled, "Inspecting the fuel pump screen."

8. With the housing cover still off, check for leaks around the fuel intake filter reservoir during operation. To do this, set the Dragon up outside and allow to run in HEAT mode for several minutes. If the reservoir does not leak, proceed to step 9.

   If the reservoir leaks, turn off and unplug unit before attempting to tighten or reseal the fuel intake filter and reservoir. If the fuel intake filter and reservoir will not stop leaking, have the unit inspected at a qualified service center.

9. Reattach the fuel pump/blower assembly housing cover and guard plate.

Inspecting the fuel pump screen

You should inspect and clean the fuel pump screen at least once a year or whenever you replace the fuel intake filter. Depending on the quality of fuel oil and the frequency of use, the screen may need to be cleaned more often. If the screen is damaged, it must be replaced. Barring damage, the screen may be cleaned and reused indefinitely.

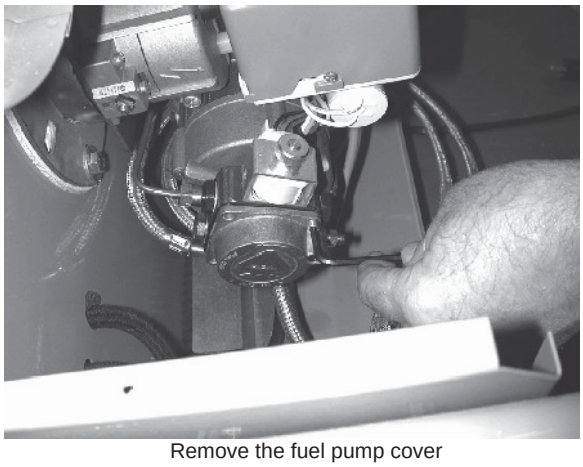
You will need:

- Phillips screwdriver
- 4-mm Allen wrench
- 1/4 cup of clean fuel oil
- Small nylon-bristled brush
- Shop rags
- New fuel pump screen (if necessary)

1. Remove the housing cover for the fuel pump/blower assembly and the guard plate for the external fuel line connections. To do this, remove the six Phillips screws that secure the housing cover and guard plate.

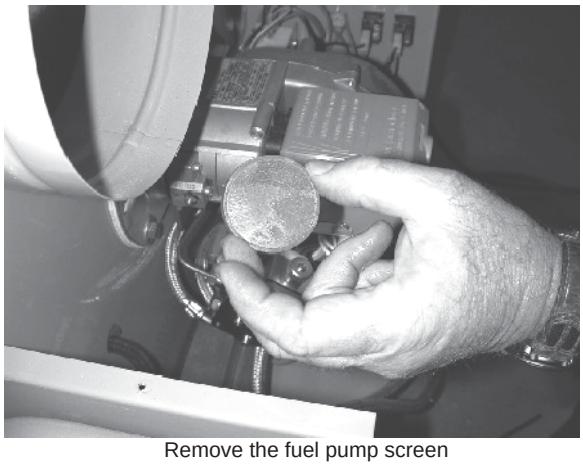
2. Close the fuel line shut-off valve by turning the red knob clockwise.

3. Place a shop rag beneath the fuel pump to catch any spilled fuel oil, and then remove the fuel pump cover. To do this, use a 4-mm Allen wrench to remove the four bolts that secure the cover to the fuel pump/blower assembly.



Remove the fuel pump cover

4. Remove the fuel pump screen.



Remove the fuel pump screen

5. Inspect the screen for damage. If the screen is not damaged, proceed to step 6. If the screen is bent, torn, cracked, or damaged in any way, discard it and skip to step 7 with a new fuel pump screen.

6. Rinse the screen in the 1/4 cup of clean fuel oil. If necessary, gently scrub the screen with the nylon-bristled brush (a toothbrush works well) to remove any debris or buildup.

7. Replace the screen and fuel pump cover. Tighten the bolts snugly. Wipe up any spilled fuel oil from the housing or fuel pump.

8. Reopen the fuel line shut-off valve by turning the red knob counter-clockwise.

9. Before replacing the housing cover, check for leaks around the pump cover during operation. To do this, set up the Dragon outside and allow to run in HEAT mode for several minutes. If the fuel pump cover does not leak, proceed to step 9.

   If the fuel pump cover leaks, turn off and unplug unit before attempting to tighten or reseal the cover. If the cover will not stop leaking, have the unit inspected at a qualified service center.

10. Reattach the housing cover and guard plate.

Cleaning the Dragon

The heat exchanger and combustion chamber should be cleaned at least once a year to remove soot buildup.
The cleaning should be performed by a qualified HVAC technician at a local service center. Contact your local distributor or the Dri-Eaz Service Department at 1-888-867-3235 for the location of a service center near you.

To clean the Dragon housing, use a cleaner with a degreasing agent similar to Simple Green®

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SPECIFICATIONS

MODEL	Dragon K85 Mobile Furnace (F260)
Model Number	F260
Dimensions – HxWxD	28" x 23" x 40" (71 x 58 x 102 cm)
Use Weight	188 lb (85 kg)
Voltage	115V
Frequency	60Hz
Power Required	4.4 amps
Fuel Consumption	0.69 gal/hr (2.6 L/hr)
Fuel Type	Diesel fuel oil #2
Fuel Tank Capacity	9.3 gal (35 L)
Rated Heat Output	85,000 BTU/hr
Process Air Rating	1,200 CFM (2,039 CMH)
Static Pressure	0.2” (0.5 cm)
Temp. Increase	+ 81°F (+ 27.2°C)
Combustion exhaust duct	6” (15.2 cm)
Ducting	8" x 30 ft (20 cm x 9.1 m)
Wheels and handle	Yes

Specifications are subject to change without notice. Some values are approximate.

TROUBLESHOOTING

In COLUMN 3, "FS" or Field Solutions can be handled by the technician in the field. Other solutions should be handled by an Authorized Service Technician, or "AST."

PROBLEM	CAUSE	See Above	SOLUTION
Burner does not start up	No power to unit	FS	Plug in the unit; check power at outlet.
	HEAT switch not turned on	FS	Turn HEAT switch to "On.
	Setpoint too low	FS	Reprogram the thermostat and raise the setpoint above ambient temperature.
	Malfunction in the automatic oil firing system (Flame Safety Control Button will illuminate)	FS	Wait one minute, and then press the illuminated Flame Safety Control Button.
	Air bubbles in fuel oil line (especially on first start up)	FS	Press the Flame Safety Control Button. The burner will try to start up. If the burner does not start after approx. 1 minute, press the Flame Safety Control Button again. Repeat until the fuel line is clear of air bubbles and the burner starts
	Thermal overload	FS	Press the Temperature-Limiter Reset Button. See section on "Preventing Thermal Overload."
	Unit was turned off by being unplugged	FS	Press the Temperature-Limiter Reset Button. See section on "Shutting the Dragon off."
Burner starts up then shuts down, Flame Control Reset Button lights up	Fuel tank empty	FS	Refill fuel tank.
	Fuel line shut-off valve closed	FS	Open fuel line shut-off valve.
	Fuel lines not connected	FS	Connect fuel lines.
	Fuel intake filter is dirty	FS	Replace the fuel intake filter.
	Fuel pump screen is dirty or damaged	FS	Clean or replace fuel pump screen.
	Burner nozzle filter is dirty	AST	Call authorized service center.
	Fuel line leaks and lets in air	AST	Call authorized service center.
	Fuel pump produces no pressure	AST	Call authorized service center.

PROBLEM	CAUSE	See Above	SOLUTION
Burner starts but does not ignite, Flame Safety Control Button lights up	No ignition spark	AST	Call authorized service center.
	Burner nozzle clogged	AST	Call authorized service center.
Flame goes out or burns unsteadily	Fuel intake filter is dirty	FS	Replace the fuel intake filter.
	Fuel pump screen is dirty or damaged	FS	Clean or replace fuel pump screen.
	Burner nozzle filter is dirty	AST	Call authorized service center.
	Fuel line leaks and lets in air	AST	Call authorized service center.
	Burner nozzle is clogged	AST	Call authorized service center.
	Combustion air mixture adjusted improperly	AST	Call authorized service center.
Burner does not switch off	Thermostat placed improperly	FS	Move thermostat so that it is not subject to cold air flow from doorways, windows, etc.
	Thermostat defective	AST	Call authorized service center.
Burner switches off too early	Thermostat placed improperly	FS	Move thermostat so that it is not subject to warm air flow or heat radiation from the sun, machines, hot water pipes, etc.
Black or gray/white smoke from flue	Improper air to fuel ratio	AST	Call authorized service center or HVAC specialist.
Black/white exhaust	Air intake vents are dirty or obstructed.	AST	Avoid setting up unit where the intake could be blocked or restricted, i.e., tall grass, deep snow, etc. Blocking the air intake will cause the unit to burn inefficiently resulting in sooty exhaust and potential damage to the unit and the structure being heated. Call authorized service center or HVAC specialist.
Black smoke/exhaust coming from unit	Bad fuel, air to fuel mix ratio, and/or improper fuel pressure setting.	AST	Black smoke is an indication that the burner is receiving more fuel than it needs to operate efficiently. Call authorized service center or HVAC specialist.
Grey or white exhaust/ smoke coming from unit	Water in the fuel and/or too much air in the fuel/air mixture.	AST	If water is present in the fuel, the fuel tank will need to be drained and the fuel filter will need to be replaced prior to attempting to operate the unit. If the fuel does not contain water, then the fuel to air ratio is the most likely cause of the grey/ white discharge. Call authorized service center or HVAC specialist.

For the location of an authorized service center for your Dragon K85 Mobile Furnace, contact your local distributor or the Dri-Eaz Service Department at 888-867-3235.

