

Owner's Manual

Dragon 3600 Mobile Furnace

Model F535

DRI-EAZ PRODUCTS, INC.

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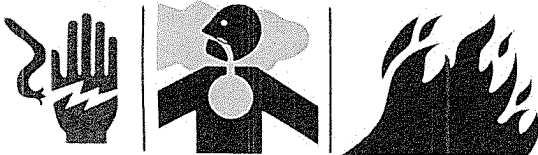
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The Dragon 3600 Mobile Furnace is an indirect fired furnace providing heated air for water damage restoration, structural drying, construction, event shelters and other temporary heating applications.

Patents: <http://www.LBpatents.com>

READ AND SAVE THESE INSTRUCTIONS

WARNING



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.

WARNING! Do not alter or modify this unit in any way. Use only replacement parts authorized by Dri-Eaz Products, Inc. Modifications or use of unapproved parts could create a hazard and will void your warranty. Contact your authorized Dri-Eaz distributor for assistance.

WARNING! Check the Dragon 3600 for proper air-to-fuel ratio before each 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. Refer to "Adjusting for Proper Combustion and Altitude," p. 5, for instructions.

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

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 8 ft. (2 m) 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, turn unit off, allow to cool and then unplug.
- Hot surfaces can ignite fuel vapors.

WARNING! Electric Shock Hazard

- Connect to 115V power supply using either a 12/3 × 50 ft. (15 m) max or 10/3 × 100 ft. (30 m) max extension cord.
- Unit must be grounded. Use only with 3-hole grounded outlet.
- Never modify plug, extension cord or use an adaptor.
- Never operate the unit in pooled or standing water. If electrical components become wet, allow to dry before using.

Product identification

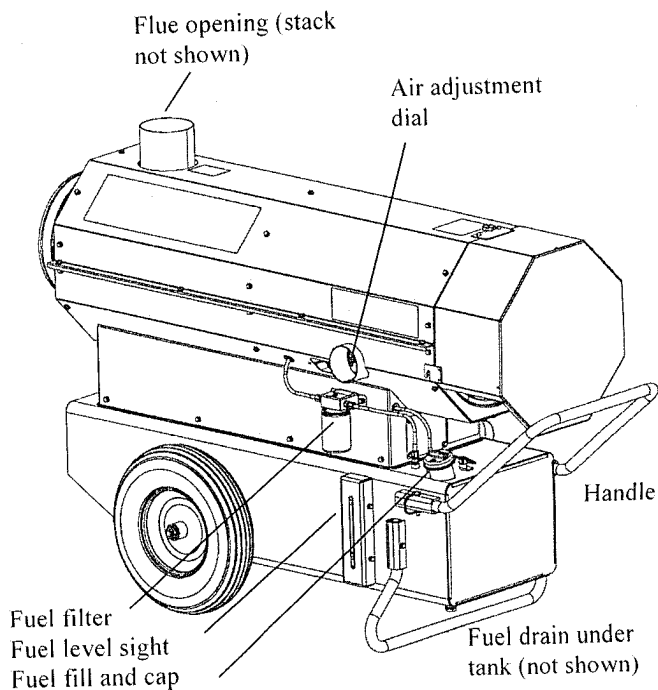
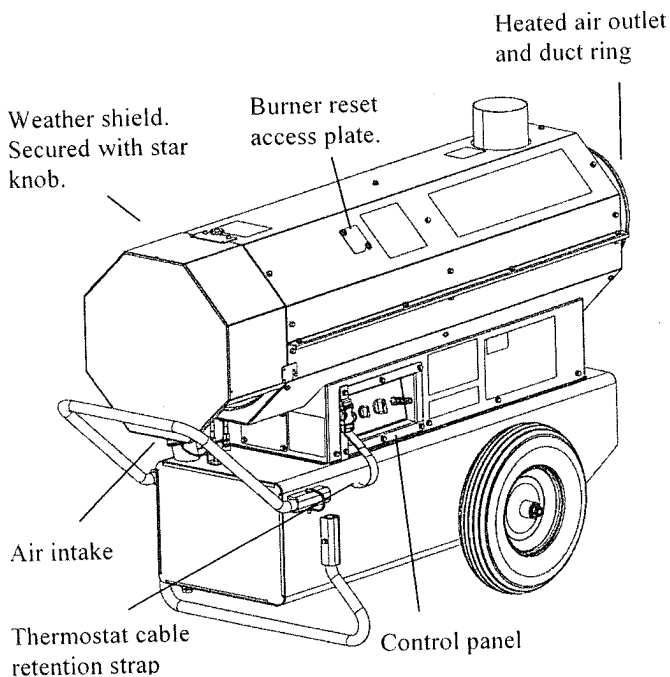
An identification plate is attached to the side of the unit. The plate shows the year of production, serial number, electrical supply requirements, airflow, fuel capacity, and a production code.

BEFORE YOU BEGIN

Warranty registration

Visit warranty.drieaz.com to register your purchase. Registration allows us to better assist you with using, maintaining or servicing your equipment and to contact you in case we have important safety information concerning your Dri-Eaz product. If you determine service is required, have your equipment model, serial number and original proof of purchase available and call your distributor for assistance with obtaining a return material authorization (RMA).

Fig. A: Parts Identification



OVERVIEW

The Dragon 3600 Mobile Furnace is an indirect fired heater. This design keeps combustion air separate from heated air and allows the Dragon to heat air without adding any moisture, fumes or smoke.

The Dragon should always be operated outdoors, and should utilize outside air for combustion. 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 target area.

Principles of Use

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

- water damage restoration
- new construction drying
- unheated jobsites
- temporary event shelters
- workshops, storage rooms, and warehouses
- greenhouses and polyurethane tunnels for agriculture
- any situation calling for clean, dry temporary heat

For use in water damage restoration and new construction drying, the Dragon can increase drying efficiency. The added heat from the Dragon will

increase the rate of evaporation by decreasing the relative humidity of the affected area. Raising the temperature of a drying area with the Dragon from 60° to 70°F can increase the evaporative potential of your existing drying system up to 45 percent.

For best results when using the Dragon for restoration, you should understand the basic principles of structural drying. You can learn these skills and more in an IICRC-certified Applied Structural Drying (ASD) course. To learn more about ASD courses, contact the Restoration Science Academy at 800-932-3030.

GROUNDING INSTRUCTIONS

The Dragon 3600 Mobile Furnace is designed to operate on a 115V/60 Hz electrical connection. The unit requires 9.2 amps. Make sure that the electrical outlet is grounded with three prongs. Use with a grounded extension cord intended for outdoor use and rated to deliver enough power to the Dragon.

WARNING! Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlets are properly grounded. Do not modify the plugs provided with the appliance – if the plugs do not fit the outlets, have proper outlets installed by a qualified electrician.

This equipment is for use on circuits with a nominal rating of no more than 120V.

This unit is intended for household and commercial use.

HANDLE THE UNIT CAREFULLY

Always operate the unit on a stable, level surface. Do not drop, throw, or place where it could fall. Rough treatment can damage the unit, and may create a hazardous condition or void the warranty.

FUEL TYPE

The Dragon is designed to operate on diesel fuel. In cold weather, add 4 oz. Diesel Guard™ for each tank of fuel. See "Cold weather recommendations" below.

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

For best results, purchase fresh fuel from a reliable fuel distributor. Keep the Dragon fuel tank full to help prevent the formation of condensation inside the tank. When not using the Dragon for extended periods of time, we recommend the addition of Diesel Guard fuel stabilizer as described below.

Cold weather recommendations

To optimize fuel quality and improve performance in cold conditions use 4 oz. Diesel Guard anti-gel deicer additive in each full tank of fuel. This product helps to prevent fuel gelling and freezing problems in cold conditions. The treatment also has anti-corrosion properties and provides additional lubricity, while detergents help to keep the burner nozzles clean and operating efficiently. Follow label instructions for proper use. Additional quantities of Diesel Guard may be purchased from your Dri-Eaz distributor.

Increasing temperature rise

In normal operating conditions (above 35°F / 2°C), the weather shield can be removed when operating the Dragon. However, when operating the Dragon in extremely low outdoor temperatures (below 35°F / 2°C) the temperature of the heated air can be increased by leaving the weather shield in place during operation. Note that removing the weather shield increases airflow by about 100 CFM but will reduce the Dragon's heat output.

BEFORE FIRST USE

ATTENTION: Installation of the unit shall be in accordance with the regulations of the authorities having jurisdiction.

Tools required

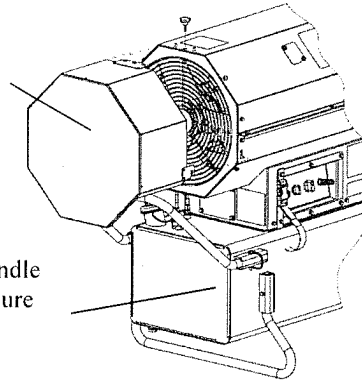
10 mm wrench or socket and handle

Fig. B: Weather Shield and Handle Installation

Weather Shield:

Place lower brackets over posts and lower into place.

Secure with star knob.



Handle: Slide handle into slots and secure with clevis pins provided.

Flat-blade screwdriver

7/8 in. wrench for drain plug

The unit is shipped with an Accessory Kit that includes the following 1) Heat outlet duct ring, 2) 25 ft. / 7.6 m of heat resistant semi-rigid ducting, 3) a handle and 2 locking clevis pins, 4) weather shield, and 5) exhaust stack and rain cap. A heat sensor cable is permanently attached to the unit and is ready for use.

Install Handle

Insert handle into slots on the sides of the fuel tank. Insert clevis pins on both sides and secure with clip. See Fig. B.

Install Heat Outlet Duct Ring

Install on the heat outlet using the 8 screws provided.

Install Weather Shield

Place shield over lower posts first, then lower into place over the the two upper pegs and tighten star knob. See Fig. B.

Setting up the Dragon

Choosing a location

WARNING! Use the Dragon outdoors only. Place the unit on a level, stable surface. Be sure to chock the wheels securely to prevent the unit from rolling. Choose a location away from high-traffic areas, children and pets, and ensure there are no obstructions to the air intake.

NOTICE: Keep air intake vents clean and clear of any obstruction. Avoid setting up unit in a location where the intake could be blocked or restricted. Blocking the air intake will cause the unit to produce sooty exhaust, potentially damaging the unit and the structure being heated.

NOTICE: Install and operate the Dragon in accordance with all local and regional regulations.

Fill the fuel tank

The Dragon is shipped with the fuel tank empty. Before operating, fill the tank with diesel. Do not overfill.

In freezing conditions, see "Cold weather recommendations," p. 3.

NOTICE: Never use gasoline or crankcase drainings for fuel.

NOTICE: Do not open the fuel cap or fill the tank while the unit is operating.

Attach exhaust stack

Before operating the Dragon, affix the provided exhaust stack with rain cap to the flue opening by slipping the stack over the flue opening (Fig. A). If the stack does not fit snugly, drive small sheet metal screws through the base of the stack into the exhaust outlet to secure the stack. To prevent damage to the unit, remove the stack when transporting the Dragon.

NOTICE: Do not operate the Dragon without the exhaust stack in place. The flue pipe must be at least two feet long and provide sufficient draft to assure safe and proper operation of the heater.

Install ducting

1. Attach the ducting on the heated air outlet (Fig. A) and secure it with the clamp provided.
2. Place the other end of the ducting into a suitable inlet in the structure.

Place thermostat sensor

Place the thermostat sensor into the space being heated. For more accurate control, we recommend placing the sensor in an area where the air is flowing freely. The burner will automatically turn off when the temperature in the monitored area reaches the setpoint, or a maximum of 105°F (41°C), in order to help operators comply with the RIA Safe Harbor clause.

Plug in unit

Use an extension cord to connect the unit to a 115V circuit rated for at least 15 amps. The cord plug will glow when electricity is present.

OPERATING THE DRAGON

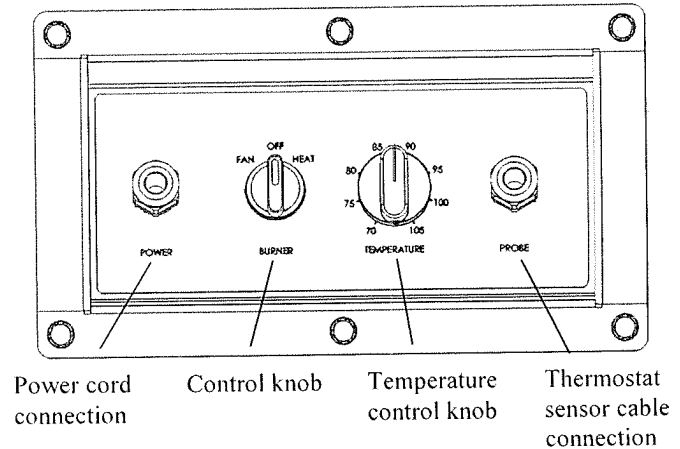
Inspect before operation

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.

Fig. C: Control Panel



Starting the Dragon

1. Check the fuel tank. See Fuel Type (see p. 3) for fuel requirements.
2. Turn the CONTROL KNOB to the Heat position (Fig. C).

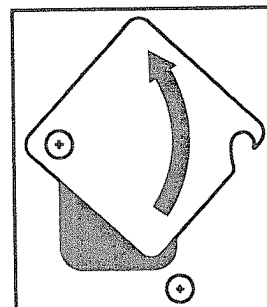
You will hear the burner ignite. The burner will operate a few minutes until the internal heat exchanger reaches operating temperature. Then the fan will turn on and the unit will begin producing heat.

NOTE: It is normal to see a small amount of smoke when starting or stopping the unit. If smoke continues for more than a few seconds, turn off the unit and see "Adjusting for proper combustion and altitude," p. 5.

NOTE: At temperatures of 35°F (2°C) or below, wait 25–30 minutes after plugging in the unit before turning the CONTROL KNOB to Heat. This allows time for the burner nozzle preheater to bring the fuel up to the correct operating temperature.

NOTICE. Monitor the settings on the Dragon and conditions in the structure at least once a day to ensure proper operation.

Fig. D: Access Cover, Burner Reset Button



Loosen both bolts and pivot cover as shown to access Burner Reset Button inside. Close cover and retighten bolts when finished.

Controlling the temperature

Set the desired temperature F on the THERMOSTAT control from a range of 70–105°F (21–41°C).

Continuous Fan-Only operation

To provide continuous unheated air, set the CONTROL KNOB to the Fan position. The burner does not operate in this mode.

NOTICE: Physically check the Dragon at least once a day during operation. Check for leaks, and observe the exhaust smoke to ensure that it is still clear. Adjust as necessary for proper operation.

Turning the unit off

Turn the CONTROL KNOB to the "Off" position.

NOTICE: Do not unplug the unit or otherwise turn off the power until the fan stops operating, as this may interrupt the cooling cycle. Failure to let the unit complete the cooling cycle could damage the heat exchanger and will not be covered under warranty.

SPECIAL INSTRUCTIONS

Unit has run out of fuel

WARNING: Replace Burner Access Cover after restarting the unit. Do not operate the unit without the hood securely in place. Serious injury could result.

1. Verify fuel tank is full.
2. Verify electrical supply is plugged in.
3. Set thermostat well above room temperature.
4. Switch burner to heat.
5. Loosen cover plate screws and pivot counterclockwise (Fig. D).
6. Press/hold button per Step A (below). If it still does not start, proceed to the next step.

Step A	Step B	Step C
Flashing light	Flashing light	Steady light
Button Click	Button Hold	Button Hold
Less than 1 second	More than 1 second	15+ seconds

7. If unit does not start after several attempts, consult burner manual for additional instructions.
8. Once unit starts, close and secure cover plate.

Adjusting for proper combustion and altitude

The combustion air intake control for the furnace is factory set for operation at altitudes ranging from sea level to about 5000 ft. (1500 m). To assure proper operation and maximum performance at higher altitudes, it may be necessary to adjust the combustion air/fuel mixture.

The best guide to proper air/fuel mixture is exhaust color. The exhaust should always be clear. Black or white smoke indicates an improper air/fuel mixture:

- a) If the exhaust is *clear*, no adjustment is needed.
- b) If the smoke is *dark* or *black*, there is not enough air in the mixture.
- c) If the smoke is *white*, there is too much air and not enough fuel in the mixture, or there is water in the fuel.

If the smoke color is either *black* or *white*, follow these steps to adjust the air/fuel ratio.

The AIR ADJUSTMENT DIAL (Figs. A, E) is located on the side of the unit above the fuel filter.

1. Loosen bolt and rotate the shutter in the appropriate direction:
 - a) A larger opening corrects for black smoke (allows more air into the combustion chamber);
 - b) A smaller opening corrects for white smoke (allows less air).
2. Tighten the dial bolt when adjustment is complete

TIP: If the exhaust remains white even after adjusting to the smallest opening, there is probably water in the fuel. You may need to replace the fuel filter and/or clean the fuel tank (see Maintenance, p. 6).

NOTE: It is normal to see a small amount of smoke when starting or stopping the unit.

Thermal overload protection

The unit is automatically protected against internal overheating. If the internal temperature of the heat exchanger exceeds a preset value, the burner will automatically turn off. The blower will continue to operate until the heat exchanger has cooled. Once the exchanger has properly cooled, the burner will automatically come back on and the Dragon will resume normal operation.

Fig. E: Air Adjustment Dial

