

Owner's Manual — Phoenix FireBird Compact 20

Installation, Operation and Service Instructions

Important Instructions – Read and Save These Instructions

The FireBird Compact 20 portable electric heater features multiple power receptacles for connection to common 120VAC outlets. The Compact 20 can output up to 20,000 Btu of clean, safe heat at 250 CFM. The Compact 20's remote thermostat provides a means to control the temperature in the drying chamber, while its internal temperature cutout ensures safe operation.

The Phoenix FireBird Compact 20

- **Listed by ETL to UL Safety Standards**
- **15 Amp Operation at 120VAC up to 4 independent circuits (20,000 Btu)**
- **Remote Thermostat with 25' connecting wire (included with unit)**
- **Standard MERV-11 air filter included**
- **Multiple ducting options**
- **8" Outlet Duct, 8" Inlet Duct Optional**
- **Stainless Steel Cabinet**
- **Double-Walled, Screened Enclosure for heating elements**
- **Automatic Low-Airflow Shutoff and Internal 140°F Safety Thermal Cutout**
- **Stackable for easy storage and transportation**



Phoenix FireBird Compact 20
PN 4033450

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Serial No. _____

Purchase Date ____/____/____

Dealer's Name _____

Read the operation and maintenance instructions carefully before using this unit. Proper adherence to these instructions is essential to obtain maximum benefit from your Phoenix FireBird Compact 20.

WARNING

- Unit Intended for INDOOR USE ONLY; DO NOT USE OUT-DOORS.
- Device is HOT when in use. To prevent burns, avoid skin contact with hot surfaces.
- Use handle when moving device.
- Maintain 36" minimum clearance between device outlet and any combustible materials such as furniture, pillows, bedding, papers, clothes and curtains. Keep such items away from sides and rear of device.
- Extreme caution is necessary when device is used by or near children or invalids and whenever device is left operating unattended.
- Always unplug unit when not in use.
- DO NOT OPERATE with damaged cord, plug, or after unit malfunctions, has been dropped or damaged in any manner. Return to authorized service facility for adjustment or repair.
- Device not intended for use directly in an area where it may fall into a bathtub or other water container.
- DO NOT run cord under carpeting or other floor covering. Arrange cord away from traffic area and where it will not be tripped over.
- To disconnect device, turn controls off, then remove plug from outlet.
- Connect ONLY to properly grounded outlets.
- DO NOT insert or allow foreign objects to enter any ventilation or exhaust openings as this may cause an ELECTRIC SHOCK or FIRE, or damage the heater.
- To prevent a possible fire, do not block air intakes or exhaust in any manner. Do not use on soft surfaces, like a bed, where openings may become blocked.
- Device has hot and arcing or sparking parts inside. Do not use in areas where gasoline, paint, or flammable liquids are used or stored.
- Use device only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
- Cords used for 120V service shall be No. 12 AWG minimum size rated not less than 1440 Watts.

1 Specifications

- Part No.** 4033450
- Power** Blower Circuit: 1 Amp at 120VAC 60Hz, 1 Phase
 120VAC 60Hz, 1 Phase Heater Circuits (up to 4):
 12 Amp / circuit = 17°F temperature rise/
 circuit: 5,000 Btu
 Maximum Heat: 20,000 Btu with 70°F Maximum
 Temperature Rise at 250 CFM
- Blower** 250 CFM
- Filters** Pleated Media MERV-11
- Duct Options** Outlet - 8" Flex-Duct
- Warranty** 1 year 100% of Parts and Labor

Dimensions

	Unit	Shipping
Width	13"	17"
Height	12.5"	17"
Depth	26"	30"
Weight	35 lb	42 lb



2 Operation

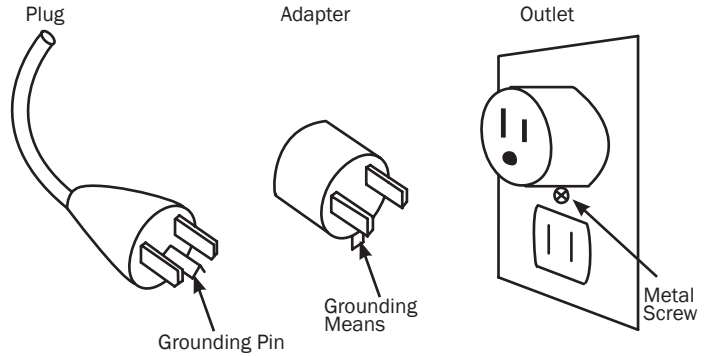
2.1 Transporting

The Phoenix FireBird Compact 20 must always be upright when transported by vehicle. The Compact 20 is equipped with rubber corners to permit stacking for storage. If units are transported, they need to be secured with restraining straps to prevent damage and possible injury.

2.2 Electrical Requirements

The Phoenix FireBird Compact 20 requires a 120VAC outlet to power the onboard blower, control and 1st heater circuit. Three additional heating elements are separately powered by additional cords and receptacles.

120VAC heating elements each require cord connection to appropriate receptacles rated at 15A or more. One cord and receptacle are required per heating element. Power cords should be appropriately sized (typically #12 minimum). Each heater cord should have a three-blade grounding-type plug as shown. An adapter is available for connecting to two-slot receptacles. The green grounding lug extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. The adapter should not be used if a three-slot grounded receptacle is available.



2.3 Ducting

The Phoenix FireBird Compact 20 can be ducted at the inlet, the outlet or both. The FireBird Compact 20 inlet and outlet duct are designed to accommodate 8" flexible duct. When selecting flexible ducting keep in mind anticipated outlet temperatures. Air temperature increase is typically 50 to 80 degrees F. Adding ducting decreases airflow which can increase outlet temperatures by up to 40 additional degrees F.

NOTE: It is strongly discouraged to use mylar ducting as this could burn and cause a fire.

2.4 Control Panel

Master Power Switch: The Master Power Switch located on the left side of the control panel can be used to turn the unit ON, OFF, or set the unit to be controlled by an external thermostat.

When set to ON, the Compact 20 will energize the blower and close the heater solenoids continuously. Depending on the connected power sources, the corresponding heater elements will be energized. In this mode, the Compact 20 is limited to 140°F incoming air temperature by an internal thermostat.

When set to THERMOSTAT, the blower will run continuously, but the heating contactors will only energize when the thermostat terminals (located under the lid) are connected by a switch, remote thermostat, timer, etc.

Heat ON/OFF Switches: These switches individually control the 120VAC/1500W heating elements. Each switch connects and disconnects the power from the receptacle below it. These switches are lighted to indicate when power is connected and the corresponding heating element is on.



2.5 Hour Meter

The digital hour meter measures the cumulative time that the unit is turned on to tenths of an hour. It stores and displays the total when the unit is unplugged. It resets to zero after 99,999.9 hours of operation.

2.6 Remote Thermostat Connection

To connect the included remote thermostat, first locate the thermostat terminals on the side of the FireBird Compact 20. There are 2 spring loaded terminals for connecting the thermostat wiring. Connect one wire to each terminal. If the FireBird Compact 20 is placed inside the space to be heated, place the thermostat on top of the unit. For applications where the FireBird Compact 20 is placed outside the space to be heated (e.g. ducting heat into a chamber), the 25' cord allows you to place the thermostat inside the heated space.

In addition to the included thermostat, any dry-contact switch or other type of control that connects the terminals together will cause the heating elements to run. The thermostat circuit is low voltage (24VAC). **DO NOT CONNECT POWER TO THE THERMOSTAT TERMINALS.** Always press terminal levers to release spring pressure before disconnecting thermostat wiring. Failure to do so will lead to excessive wear on spring loaded terminal connector.

2.7 Low Airflow indicator lamp

The low airflow indicator lamp will illuminate when the airflow in the heater is below 160 CFM. This lamp will briefly be illuminated when the machine turns on and then go out when the impeller gets up to speed. When the low airflow indicator lamp is illuminated, the heating elements will not be energized.

3 Maintenance

3.1 Air Filter

The Phoenix FireBird Compact 20 is equipped with a pleated fabric air filter that must be checked regularly. The standard filter is a MERV-11 high efficiency filter. Operating the FireBird Compact 20 with a dirty or obstructed filter will reduce airflow eventually causing the heating element to shut off. Installing a clean filter or removing the obstruction to restore airflow will allow the heating element to operate again.

The filter can generally be vacuumed clean several times before needing replacement. Replacement filters can be ordered from the factory or purchased locally if available.

WARNING

WARNING: DO NOT operate the unit without the filter or with a less effective filter as the heating coils inside the unit could become clogged and require disassembly to clean.

4 Service

WARNING

WARNING: Servicing the Phoenix FireBird Compact 20 with its high voltage circuitry presents a health hazard which could result in death, serious bodily injury, and/or property damage. Only qualified service people should service this unit.

Do not operate the unit without the front cover in place. High voltage is present, heater burnout may result.

4.1 Technical Description

The Phoenix FireBird Compact 20 uses a wound nichrome heating element to provide multiple heat settings depending on application requirements or available power. The heating elements are operated by a 24VAC control circuit and a number of relays and contactors. For safety, there is an air pressure switch that will shut the heating elements off or prevent the heating elements from coming on if airflow is restricted at either the inlet or the outlet. An additional safety switch limits the incoming air temperature to approximately 140°F. This switch shuts off the heating elements and automatically resets when the temperature falls to approximately 130°F.

4.2 Troubleshooting

Low voltage heating circuits require dedicated 15A minimum service for each circuit (up to 4 total).

Blower not running

1. Unit unplugged, no power to outlet
2. Power Switch not working
3. Wiring fault inside device
4. Defective blower or blower capacitor

Blower running but no heat when low airflow light is off

1. Power switch is set to "Thermostat" and no thermostat is connected, or thermostat is open
2. High temperature limit reached (140°F)
3. Heating relays not operating
4. Wiring fault inside device
5. Defective heating element, pressure switch, or temperature limit switch

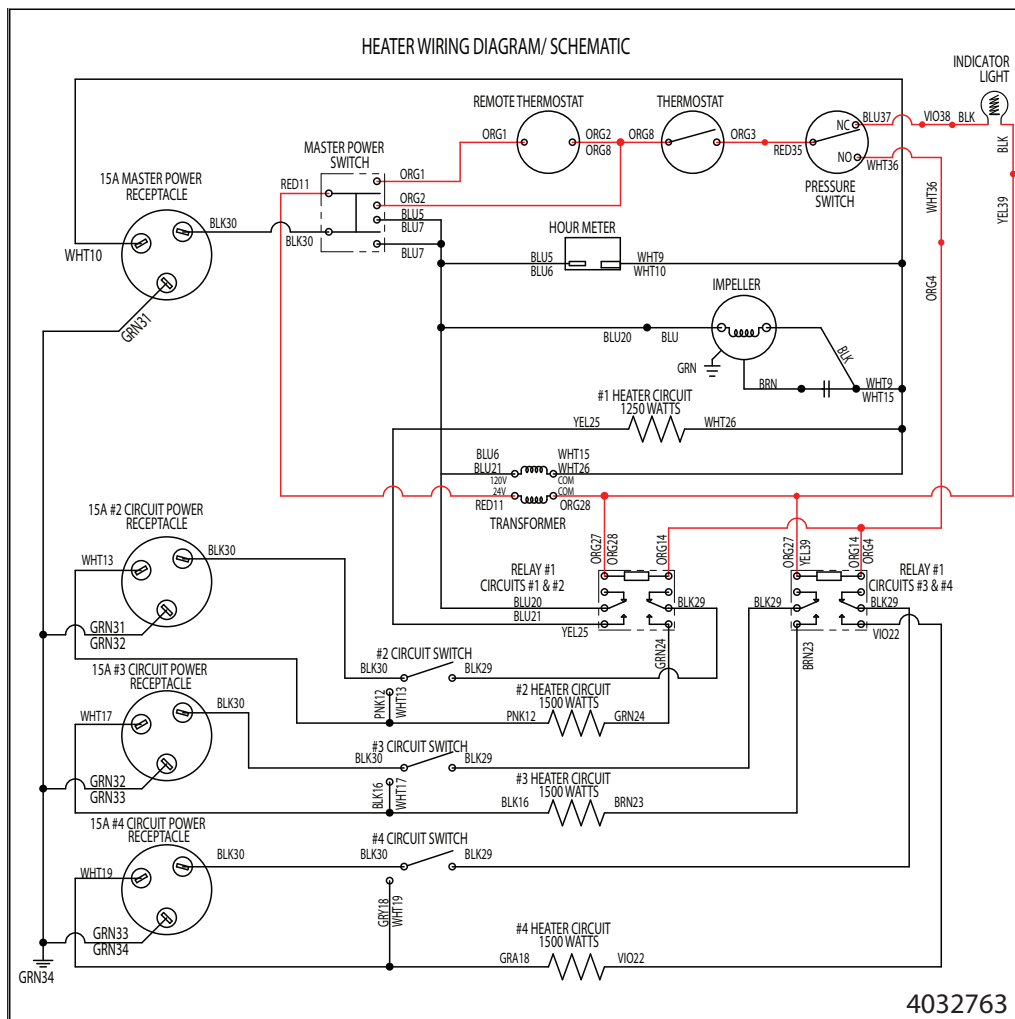
Low Airflow Indicator lamp illuminated

1. Reduce the length of inlet or outlet duct (if ducted)
2. Check duct for kinks or sharp bends
3. Impeller is obstructed or slow
4. Voltage is low
5. Create openings in heated cavities to reduce backpressure.

5 Options and Accessories

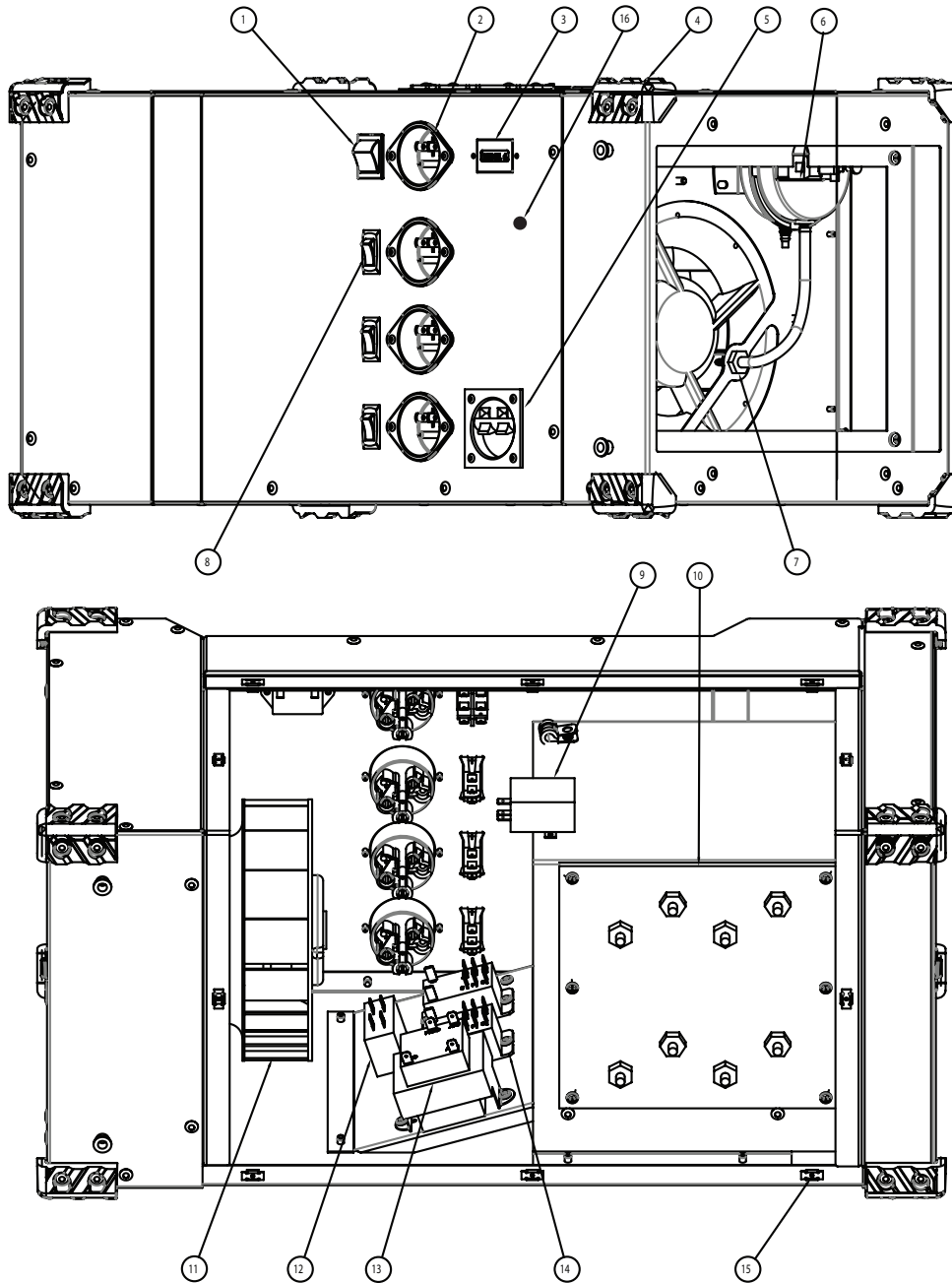
- 4033895 Duct Kit, Compact Heater, 8" inlet (no flex Duct)
- 4027415 8" x 25' Flex Duct
- 4032773 Cord Kit, (2) 25' Lighted Cords & (2) 50' Lighted Cords
- 4030671 9" x 11 3/8 x 3/4" Mini-Pleated MERV-11 Filter
- 4030733 Filter Package, 12 PK; 9" x 11 3/8 x 3/4" Mini-Pleated MERV-11 Filter
- 4033734 Filter Package, 4 PK; 9" x 11 3/8 x 3/4" Mini-Pleated MERV-11 Filter
- 4030115 Reed LM 8000 Multi-Function Meter
- 4027327 Phoenix Remote Thermostat Kit

6 Wiring Diagram



7 Service Parts

Item	Description	QTY	Part No.	Item	Description	QTY	Part No.
1	Master Power Switch	1	4030941	10	Heating Element	1	4032611
2	Flanged 120V Inlet	4	4027258	11	Blower	1	4032769
3	Hour Meter	1	4028795	12	10mfd Capacitor	1	4033031-05
4	Foot	8	4032784	13	24VAC Transformer	1	4022487
5	Spring Connector	1	4032765	14	Relay, DPDT	2	4029575
6	Pressure Switch	1	4029187	15	Tinnerman Clip	10	4032761
7	Panel Mount Hose Barb	1	4032779	16	Lamp, Low Airflow	1	4033782
8	Heat On/Off Switches	3	4021822	17	Stacking Corner	8	4032784
9	Thermostat	1	4030614		Remote Thermostat (not shown)	1	4027327



Phoenix FireBird Compact 20 Limited Warranty

Warrantor:

Therma-Stor LLC
4201 Lien Rd
Madison, WI 53704
Telephone: 1-800-533-7533

Who Is Covered: This warranty extends only to the original end-user of the Phoenix FireBird Compact 20, and may not be assigned or transferred.

Year One: Therma-Stor LLC warrants that, for one (1) year the Phoenix FireBird Compact 20 will operate free from any defects in materials and workmanship, or Therma-Stor LLC will, at its option, repair or replace the defective part(s), free of any charge.

End-User Responsibilities: Warranty service must be performed by a Servicer authorized by Therma-Stor LLC. If the end-user is unable to locate or obtain warranty service from an authorized Servicer, he should call Therma-Stor LLC at the above number and ask for the Therma-Stor Service Department, which will then arrange for covered warranty service. Warranty service will be performed during normal working hours.

The end-user must present proof of purchase (lease) upon request, by use of the warranty card or other reasonable and reliable means. The enduser is responsible for normal care. This warranty does not cover any defect, malfunction, etc. resulting from misuse, abuse, lack of normal care, corrosion, tampering, modification, unauthorized or improper repair or installation, accident, acts of nature or any other cause beyond Therma-Stor LLC's reasonable control.

Limitation and Exclusions: If any Phoenix FireBird Compact 20 part is repaired or replaced, the new part shall be warranted for only the remainder of the original warranty period applicable thereto (but all warranty periods will be extended by the period of time, if any, that the Phoenix FireBird Compact 20 is out of service while awaiting covered warranty service).

UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE PHOENIX FireBird Compact 20 OR ANY PART THEREOF, ALL OTHER WARRANTIES IMPLIED BY LAW, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL ALSO EXPIRE.

ALL WARRANTIES MADE BY THERMA-STOR LLC ARE SET FORTH HEREIN, AND NO CLAIM MAY BE MADE AGAINST THERMA-STOR LLC BASED ON ANY ORAL WARRANTY. IN NO EVENT SHALL THERMA-STOR LLC, IN CONNECTION WITH THE SALE, INSTALLATION, USE, REPAIR OR REPLACEMENT OF ANY PHOENIX FireBird Compact 20 OR PART THEREOF BE LIABLE UNDER ANY LEGAL THEORY FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION WATER DAMAGE (THE END-USER SHOULD TAKE PRECAUTIONS AGAINST SAME), LOST PROFITS, DELAY, OR LOSS OF USE OR DAMAGE TO ANY REAL OR PERSONAL PROPERTY.

Some states do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages, so one or both of these limitation may not apply to you.

Legal Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

