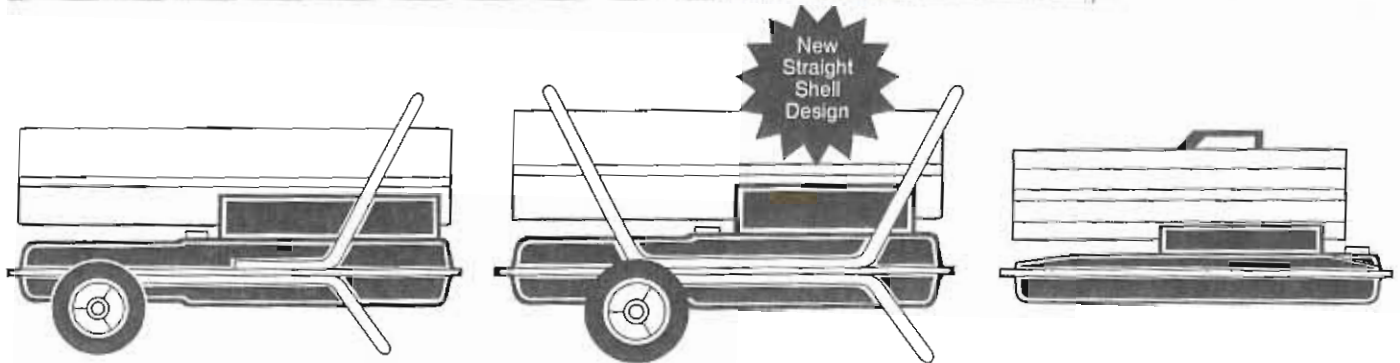


DESATM

HEATING PRODUCTS

KEROSENE/DIESEL PORTABLE FORCED AIR HEATERS OWNER'S MANUAL

For more information, visit www.desatech.com



**Heater Sizes: 40,000 55,000 60,000 70,000 110,000 115,000
155,000 165,000 and 200,000 Btu/Hr Models**

H.S.I. Series

IMPORTANT: Read and understand this manual before assembling, starting or servicing heater. Improper use of heater can cause serious injury. Keep this manual for future reference.

TABLE OF CONTENTS

SAFETY INFORMATION	2	TROUBLESHOOTING	7
PRODUCT IDENTIFICATION	3	SERVICE PROCEDURES	8
UNPACKING	3	TECHNICAL SERVICE	15
THEORY OF OPERATION	4	REPLACEMENT PARTS	15
FUELS	4	SPECIFICATIONS	16
VENTILATION	4	WIRING DIAGRAMS	16
ASSEMBLY	5	ILLUSTRATED PARTS BREAKDOWN AND PARTS LIST	18
OPERATION	5	WHEELS AND HANDLES	24
OPERATION WITH PORTABLE GENERATOR	6	ACCESSORIES	25
STORING, TRANSPORTING, OR SHIPPING	6	OWNER'S REGISTRATION FORM	27
PREVENTATIVE MAINTENANCE SCHEDULE	6	WARRANTY AND REPAIR SERVICE	Back Cover

Fill In For Your Records

Model No. _____
(Located on side panel)

Serial No. _____
(Located on fuel tank)

Date of Purchase: _____



Save this manual for future reference.



SAFETY INFORMATION

⚠ WARNINGS

⚠ WARNING: This product contains and/or generates chemicals known to the State of California to cause cancer or birth defects, or other reproductive harm.

IMPORTANT: Read this owner's manual carefully and completely before trying to assemble, operate, or service this heater. Improper use of this heater can cause serious injury or death from burns, fire, explosion, electrical shock, and carbon monoxide poisoning.

⚠ DANGER: Carbon monoxide poisoning may lead to death!

Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, and/or nausea. If you have these signs, the heater may not be working properly. **Get fresh air at once!** Have heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, persons with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.

Make certain you read and understand all warnings. Keep this manual for reference. It is your guide to safe and proper operation of this heater.

- Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels to avoid risk of fire or explosion. Never use gasoline, naphtha, paint thinners, alcohol, or other highly flammable fuels.
- Fueling
 - a) Personnel involved with fueling shall be qualified and thoroughly familiar with the manufacturer's instructions and applicable regulations regarding the safe fueling of heating units.
 - b) Only the type of fuel specified on the heater's data plate shall be used.
 - c) All flame, including the pilot light, if any, shall be extinguished and the heater allowed to cool, prior to fueling.
 - d) During fueling, all fuel lines and fuel-line connections shall be inspected for leaks. Any leaks shall be repaired prior to returning the heater to service.
 - e) At no time shall more than one day's supply of heater fuel be stored inside a building in the vicinity of the heater. Bulk fuel storage shall be outside the structure.
 - f) All fuel storage shall be located a minimum of 762cm (25 feet) from heaters, torches, welding equipment, and similar sources of ignition (exception: the fuel reservoir integral with the heater unit).
 - g) Whenever possible, fuel storage shall be confined to areas where floor penetrations do not permit fuel to drip onto or be ignited by a fire at lower elevation.

h) Fuel storage shall be in accordance with the authority having jurisdiction.

- Use only the electrical voltage and frequency specified on model plate.
- Heater must be grounded. Use only a properly grounded three-wire extension cord. Plug into grounded outlet only.
- Use only in areas free of flammable vapors or high dust content.
- Minimum clearance from any combustible materials: 8 feet (244 cm) from hot air outlet; 4 feet (122 cm) from top; and 4 feet (122 cm) from sides and inlet.
- Locate heater on a stable and level surface while hot or operating or a fire may occur.
- Use only in well-vented areas. Before using heater, provide at least a 2800 square cm (three-square-foot) opening of fresh outside air for each 30 kw (100,000 Btu/Hr) of rating.
- Keep children and animals away from heater at all times.
- Never start heater when combustion chamber is hot or if fuel has accumulated in combustion chamber.
- When used with thermostat, heater may start at anytime.
- When heater is moved or stored, it must be in a level position or fuel spillage may occur.
- Use heater only in accordance with local ordinances and codes.
- Never use gasoline, crankcase drainings, naphtha, paint thinners, alcohol, or other highly flammable fuels.
- Never use heater where gasoline, paint thinner, or other highly flammable vapors are present.
- Never use heater in living or sleeping areas.
- Never leave a heater plugged in without adult supervision if children or animals are likely to be present.
- Never move, handle, refuel, or service a hot, operating, or plugged-in heater.
- Never attach duct work to front or rear of heater.
- Never attach heater to external fuel tank.
- Heaters used in the vicinity of tarpaulins, canvas, or similar enclosure materials shall be located a safe distance from such materials. The recommended minimum safe distance is 304.8cm (10 feet). It is further recommended that these enclosure materials be of a fire retardant nature. These enclosure materials shall be securely fastened to prevent them from igniting or from upsetting the heater due to wind action.
- Unplug heater when not in use.
- Never block air inlet (rear) or air outlet (front) of heater.
- **Warning to New York City Residents**
For Use Only At Construction Sites in accordance with applicable NYC codes under NYCFD certificate of approval #4803, #4899, #4908, #4909, or #4934.

ASSEMBLY

(FOR 110/115/155/165/200 MODELS ONLY)

These models are furnished with wheels and a rear handle. Some models are furnished with a front handle also. Wheels, handle(s), and the mounting hardware are found in the shipping carton.

Tools Needed

- Medium Phillips Screwdriver
- 3/8" Open or Adjustable Wrench
- Hammer

1. Slide axle through wheel support frame. Install wheels on axle.
IMPORTANT: When installing wheels, point extended hub of wheels toward wheel support frame (see Figure 5).
2. Place cap nuts on axle ends. Gently tap with hammer to secure.
3. Place heater on wheel support frame. Make sure hot air outlet end (front) of heater is over wheels. Line up holes on fuel tank flange with holes on wheel support frame.
4. Place rear handle (and front handle if provided) on top of fuel tank flange. Insert screws through handle(s), fuel tank flange, and wheel support frame. Attach nut finger tight after each screw is inserted.
5. After all screws are inserted, tighten nuts firmly.

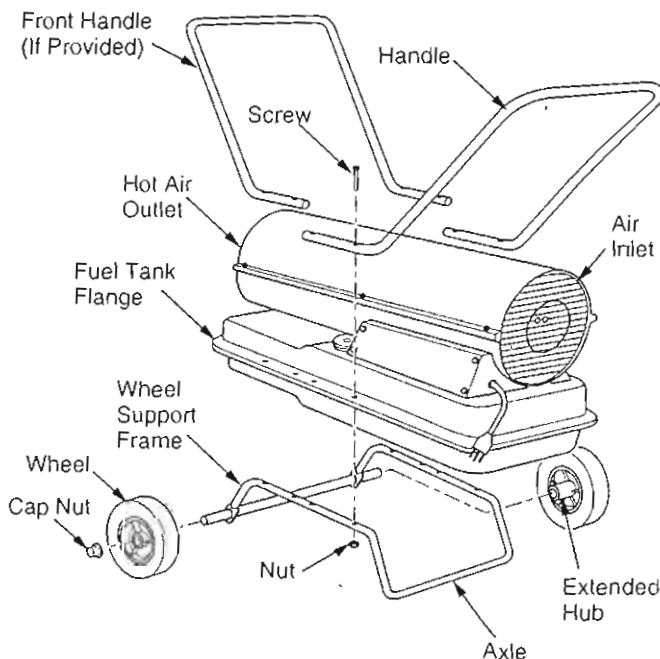


Figure 5 - Wheel and Handle Assembly, 110/115/155/165/200 Models Only

OPERATION

IMPORTANT: Review and understand the warnings in the *Safety Information* section, page 2. They are needed to safely operate this heater. Follow all local ordinances and codes when using this heater.

TO START HEATER

1. Follow all ventilation and safety information.
2. Locate heater to provide maximum circulation of the heated air. Follow all location requirements noted in *Safety Information*, page 2.
3. Fill fuel tank with kerosene, #1#2 diesel/fuel oil, JET A or JP-8 fuel.
4. Attach fuel cap.
5. For thermostat models, turn thermostat knob clockwise to the high position.
6. Plug heater's power cord into approved, grounded, three-wire extension cord. Extension cord must be at least six feet (1.8 meters) long.

Extension Cord Size Requirement

6 to 10 feet (1.8 to 3 meters) long, use 18 AWG (0.75 mm²) rated cord

11 to 100 feet (3.3 to 30.5 meters) long, use 16 AWG (1.0 mm²) rated cord

101 to 200 feet (30.8 to 61 meters) long, use 14 AWG (1.5 mm²) rated cord

7. Plug extension cord into standard 120 volt/60 hertz, 3-prong grounded outlet. *Note:* Ignitor will preheat for five seconds, then heater will start.
8. For thermostat models, adjust thermostat knob to the desired setting. *Note:* A cold heater may affect the thermostat setting. This thermostat is a general-heating control. It is not intended for precise temperature control. Adjust thermostat until heater cycles at the desired setting.

TO STOP HEATER

Unplug extension cord from outlet.

TO RESTART HEATER

1. Unplug extension cord from outlet and wait 10 seconds. (Wait two minutes if heater has been running.)
2. Repeat steps under *To Start Heater*.

TROUBLESHOOTING

⚠ WARNING: Never service heater while it is plugged in, operating, or hot. Severe burns and electrical shock can occur.

FAULT CONDITION	POSSIBLE CAUSE	REMEDY
Motor does not start five seconds after heater is plugged in	<ol style="list-style-type: none"> 1. No power to heater 2. If equipped, thermostat setting is too low 	<ol style="list-style-type: none"> 1. Check circuit breaker in electrical panel 2. Turn thermostat knob to a higher setting
	⚠ WARNING: High voltage!	
	<ol style="list-style-type: none"> 3. Bad electrical connection between motor and ignition control assembly or ignition control assembly and power cord 4. Binding pump rotor 5. Defective ignition control assembly 6. Defective motor 7. Blown fuse or ignitor control assembly 	<ol style="list-style-type: none"> 3. Check all electrical connections. See <i>Wiring Diagrams</i>, pages 16 and 17 4. If fan does not turn freely, see <i>Pump Rotor</i>, page 14 5. Replace ignition control assembly 6. Replace motor 7. See <i>Ignition Control Assembly</i>, page 15
Motor starts and runs but heater does not ignite	<ol style="list-style-type: none"> 1. No fuel in tank 2. Pump pressure incorrect 3. Dirty fuel filter 4. Obstruction in nozzle 5. Water in fuel tank 	<ol style="list-style-type: none"> 1. Fill tank with kerosene 2. See <i>Pump Pressure Adjustment</i>, page 9 3. See <i>Fuel Filter</i>, pages 9 and 10 4. See <i>Nozzle Assembly</i>, pages 12 and 13 5. Drain and flush fuel tank with clean kerosene. See <i>Storing, Transporting, or Shipping</i>, page 6
	⚠ WARNING: High voltage!	
	<ol style="list-style-type: none"> 6. Bad electrical connection between ignitor and ignition control assembly 7. Defective ignitor 8. Defective ignition control assembly 9. 200 Model Only: Defective fuel valve (Models equipped with fuel valve only) 	<ol style="list-style-type: none"> 6. Check electrical connections. See <i>Wiring Diagrams</i>, pages 16 and 17 7. Replace ignitor, see page 11 8. Replace ignition control assembly 9. See <i>Fuel Valve</i>, page 10
Heater ignites but ignition control assembly shuts heater off after a short period of time	<ol style="list-style-type: none"> 1. Pump pressure incorrect 2. Dirty air intake, air output, and/or lint filter 3. Dirty fuel filter 4. Obstruction in nozzle 5. Photocell assembly not properly installed (not seeing the flame) 6. Dirty photocell lens 	<ol style="list-style-type: none"> 1. See <i>Pump Pressure Adjustment</i>, page 9 2. See <i>Air Output, Air Intake, and Lint Filters</i>, page 8 3. See <i>Fuel Filter</i>, pages 9 and 10 4. See <i>Nozzle Assembly</i>, pages 12 and 13 5. Make sure photocell boot is properly seated in bracket 6. Clean photocell lens
	⚠ WARNING: High voltage!	
	<ol style="list-style-type: none"> 7. Bad electrical connection between photocell and ignition control assembly 8. Defective photocell 9. Defective ignition control assembly 	<ol style="list-style-type: none"> 7. Check electrical connections. See <i>Wiring Diagrams</i>, pages 16 and 17 8. Replace photocell 9. Replace ignition control assembly