

Operator's Manual

Indirect-Fired Air Heaters

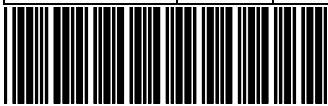
HI 110D / HI 110HD D

HI 200D / HI 200HD D

HI 300D / HI 300HD D



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notice**

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**Original
instructions**

This Operator's Manual presents the original instructions. The original language of this Operator's Manual is American English.

Foreword



This heater is designed and approved for use as a construction heater in accordance with the applicable standards of CSA. CHECK WITH YOUR LOCAL FIRE SAFETY AUTHORITY IF YOU HAVE QUESTIONS ABOUT APPLICATIONS.

Other standards govern the use of fuel gases and heat producing products in specific applications. Your local authority can advise you about these.

THE INSTALLATION OF THE UNIT SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION.

Machines covered by this manual

This manual covers machines with the following item numbers:

Machine	Item Number	Machine	Item Number
HI 110D	0620915	HI 300D	0620866
HI 110 HD	0620864	HI 300 HD D	0620867
HI 200 D	0620865		
HI 200 HD	0620916		

Machine documentation

- Keep a copy of the Operator's Manual with the machine at all times.
- Use the separate Parts Book supplied with the machine to order replacement parts.
- Refer to the separate Repair Manual for detailed instructions on servicing and repairing the machine.
- If you are missing any of these documents, please contact Wacker Neuson Corporation to order a replacement or visit www.wackerneuson.com.
- When ordering parts or requesting service information, be prepared to provide the machine model number, item number, revision number, and serial number.

Expectations for information in this manual

- This manual provides information and procedures to safely operate and maintain the above Wacker Neuson model(s). For your own safety and to reduce the risk of injury, carefully read, understand, and observe all instructions described in this manual.
- Wacker Neuson Corporation expressly reserves the right to make technical modifications, even without notice, which improve the performance or safety standards of its machines.
- The information contained in this manual is based on machines manufactured up until the time of publication. Wacker Neuson Corporation reserves the right to change any portion of this information without notice.

Foreword

Manufacturer's approval

This manual contains references to *approved* parts, attachments, and modifications. The following definitions apply:

- **Approved parts or attachments** are those either manufactured or provided by Wacker Neuson.
- **Approved modifications** are those performed by an authorized Wacker Neuson service center according to written instructions published by Wacker Neuson.
- **Unapproved parts, attachments, and modifications** are those that do not meet the approved criteria.

Unapproved parts, attachments, or modifications may have the following consequences:

- Serious injury hazards to the operator and persons in the work area
- Permanent damage to the machine which will not be covered under warranty

Contact your Wacker Neuson dealer immediately if you have questions about approved or unapproved parts, attachments, or modifications.

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1 Safety Information

1.1 Signal Words Found in this Manual

This manual contains DANGER, WARNING, CAUTION, *NOTICE*, and NOTE signal words which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.



This is the safety alert symbol. It is used to alert you to potential personal hazards.
► Obey all safety messages that follow this symbol.



DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

- To avoid death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

- To avoid possible death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



CAUTION!

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

- To avoid possible minor or moderate injury from this type of hazard, obey all safety messages that follow this signal word.

NOTICE: Used without the safety alert symbol, NOTICE indicates a situation which, if not avoided, could result in property damage.

Note: A Note contains additional information important to a procedure.

1.2 Machine Description and Intended Use

Machine description	<p>The HI Heater is an indirect-fired air heater that operates on diesel fuel. The machine consists of the following components:</p> <ul style="list-style-type: none"> ■ Stainless steel combustion chamber and heat exchanger ■ Blower ■ Single-stage burner ■ High-temperature shut-down device ■ Fuel tank <p>Fuel is consumed in a closed combustion chamber. Room air or outside air (depending on the application) is pulled into the machine where it is heated. This clean, dry, hot air is then blown into the space to be heated by the blower. Access to the blower assembly is protected by a guard fitted on the air inlet.</p>
Intended use	<p>The HI Heater is intended to provide heat on outdoor or indoor construction sites (if properly vented) and in other rugged applications.</p> <hr/> <p>This machine has been designed and built strictly for the intended use described above. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons on the work site. Machine damage caused by misuse is not covered under warranty.</p> <p>Do not use this machine indoors without proper exhaust venting designed for indoor use which meets all applicable regulations.</p> <hr/> <p>This machine has been designed and built in accordance with the latest global safety standards. It has been carefully engineered to eliminate hazards as far as practicable and to increase operator safety through protective guards and labeling. However, some risks may remain even after protective measures have been taken. They are called residual risks. On this machine, they may include exposure to:</p> <ul style="list-style-type: none"> ■ exhaust emissions ■ hot surfaces such as exhaust vents and fuel heater ■ fuel and fuel fumes when refueling ■ high voltages and arc flash <p>To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine.</p>
Optional accessories	<p>Wacker Neuson Corporation offers many optional accessories for the machine. These accessories include the following:</p> <ul style="list-style-type: none"> ■ Remote thermostat ■ Duct adapters (various sizes, available as kits, or individual ducts at lengths of 25 ft. or more). ■ Exhaust vents and elbows <p>Contact your Wacker Neuson dealer for more information.</p>

1.3 Safety Guidelines for Operating the Machine

Operator training

Before operating the machine:

- Read and understand the operating instructions contained in all manuals delivered with the machine.
- Familiarize yourself with the location and proper use of all controls and safety devices.
- Contact Wacker Neuson Corporation for additional training if necessary.

When operating this machine:

- Do not allow improperly trained people to operate the machine. People operating the machine must be familiar with the potential risks and hazards associated with it.

Machine condition

Only operate the machine when:

- All safety devices and guards are in place and in working order.
- All controls operate correctly.
- The machine is set up correctly according to the instructions in the Operator's Manual.
- The machine is clean.
- The machine's labels are legible.

When operating the machine:

- Do not modify or defeat the safety devices.
- Do not use worn electrical cords.
- Do not use faulty fuel supplies.

Guidelines for operator

When operating the machine:

- Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.
- Wear protective clothing appropriate to the job site when operating the machine.
- Wear safety glasses.

When operating the machine:

- Do not operate a machine in need of repair.
- Do not smoke near the machine.

Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while operating this machine:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

Machine installation guidelines

As a recommended installation practice, refer to the current issue of CSA B139, Installation Code for Oil Burning Equipment in Canada and NFPA 31 Standard for the Installation of Oil-Burning Equipment in the USA;

- Never operate the machine in immediate proximity to flammable materials. Minimum distances are specified in the *Operation* chapter under *Positioning the Machine*.
- A rough estimate of opening required for each gallon (US) of capacity is one square foot for indirect-fired heater

Work space

When operating the machine:

- Position the machine on a firm, noncombustible, level surface.
- Keep the area immediately surrounding and underneath the machine clean, neat, and free of debris and combustible materials.
- Keep the area above the machine clear of debris that could fall on the machine.
- Store the machine properly when it is not being used.
- Keep unauthorized personnel, children, and pets away from the machine.

When operating the machine:

- Do not connect ductwork between the exhaust outlet port and the supply air inlet port.
- Never operate the machine in areas that contain flammable objects, fuels, or products that produce flammable vapors.
- Do not position the electrical cords under the machine or over the top of the machine.

1.4 Safety Guidelines While Using Combustion Burners

When using the machine:

- Clean up any spilled fuel immediately.
- Replace the fuel tank cap after refueling the machine.
- Refill the fuel tank in a well-ventilated area.
- Make sure you have proper certification or licensing required by the locality, state, or province in which the machine is being installed to work with Liquid Petroleum (LP).

When using the machine:



DANGER

Exhaust gas from the burner contains carbon monoxide, a deadly poison. Exposure to carbon monoxide can kill you in minutes.

- Never run the machine indoors or in an enclosed area unless the machine is vented properly according to local and national codes.

- Do not fill or drain the fuel tank near an open flame, while smoking, or while the machine is running.
- Do not smoke when refueling the machine.

1.5 Safety Guidelines for Maintaining the Machine

Licensing/ training/	<ul style="list-style-type: none"> Only trained personnel should troubleshoot or repair electrical problems occurring with the machine.
Cleaning	<p>When cleaning and servicing the machine:</p> <ul style="list-style-type: none"> Keep the area around the burner free of debris such as leaves, paper, cartons, etc. Keep the machine clean and labels legible. <p>When cleaning the machine:</p> <ul style="list-style-type: none"> Do not clean the machine while it is running. Never use gasoline or other types of fuels or flammable solvents to clean parts. Fumes from fuels and solvents can become explosive.
Maintenance guidelines	<p>When maintaining the machine:</p> <ul style="list-style-type: none"> Keep the fuel lines in good condition and properly connected. Allow the burner to cool before maintaining the machine. Re-install the safety devices and guards after repairs and maintenance. Keep all electrical cords away from heat, oil, vibrating surfaces, and sharp edges. Inspect all electrical cords before each use and replace damaged cords.
Replacing parts and labels	<p>When maintaining the machine:</p> <p>When replacement parts are required for this machine, use only Wacker Neuson replacement parts or those parts equivalent to the original in all types of specifications, such as physical dimensions, type, strength, and material.</p> <ul style="list-style-type: none"> Replace worn or damaged components. Replace all missing and hard-to-read labels. Replace or repair electrical components with components that are identical in rating and performance as the original component.
Accessories, safety devices and modifications	<p>When using the machine:</p> <ul style="list-style-type: none"> Use only accessories/attachments that are recommended by Wacker Neuson Corporation. <p>When using the machine:</p> <ul style="list-style-type: none"> Never operate the machine if any safety devices or guards are missing or inoperative. Do not defeat safety devices. Do not modify the machine without the express written approval of the manufacturer.
Personal Protective Equipment (PPE)	<p>Wear the following Personal Protective Equipment (PPE) while servicing or maintaining this machine:</p> <ul style="list-style-type: none"> Close-fitting work clothes that do not hinder movement

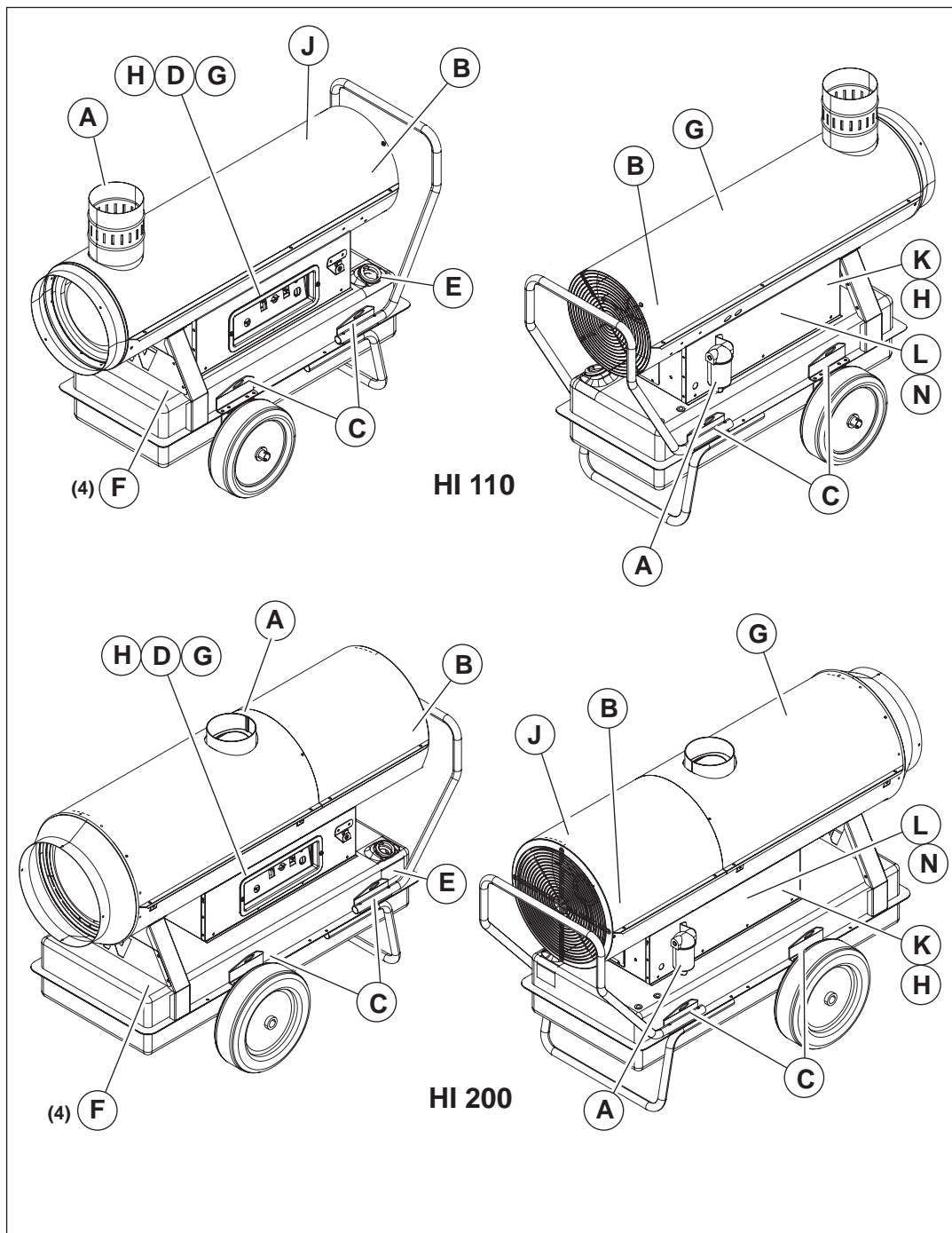
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

In addition, before servicing or maintaining the machine:

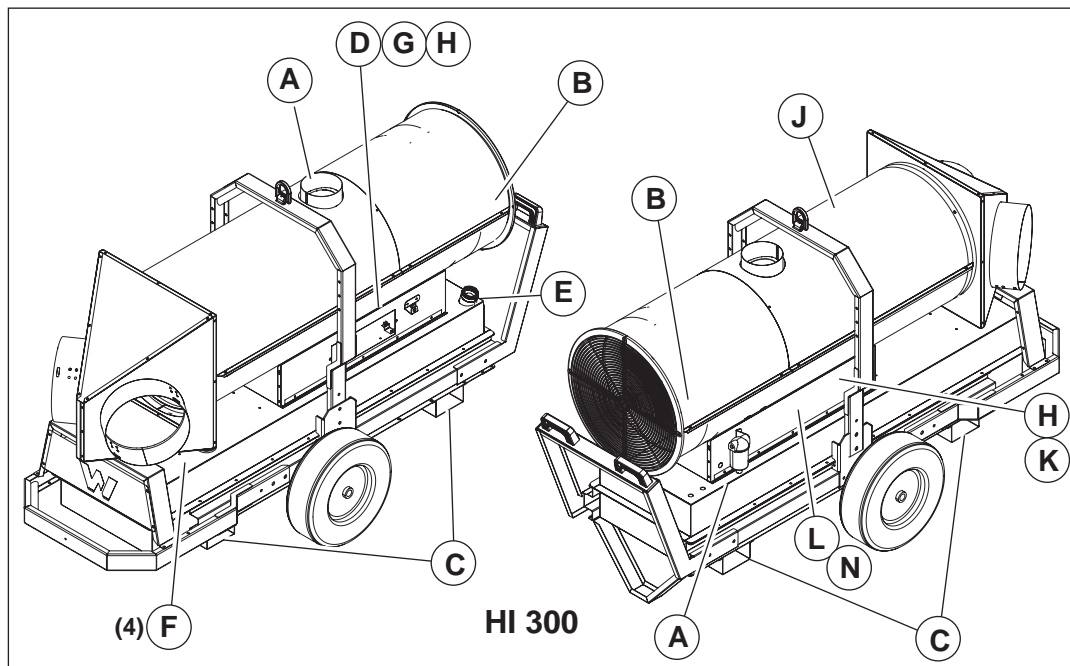
- Tie back long hair.
- Remove all jewelry (including rings).

2 Labels

2.1 Label Locations



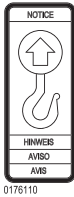







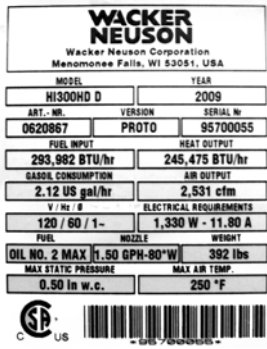

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2.2 Label Meanings

A		WARNING Hot surface hazard!
B		WARNING Entanglement hazard. Rotating machinery. Do not reach inside machine when engine is running.
C		NOTICE Lifting point.
D		WARNING! Electric shock hazard. Disconnect power before servicing. Read Operator's Manual.
E		CAUTION This machine uses diesel fuel.
F		Tie-down point

G	 <p>183237</p>	<p>DANGER</p> <p>Using a heater indoors can kill you in minutes. Heater exhaust contains carbon monoxide. This is a poison you cannot see or smell. During indoor operation, vent exhaust gas outdoors. Refer to Operator's Manual.</p>
H	<p>CAUTION: Hot while in operation. Do not touch. Keep children, clothing, and combustibles away.</p> <p>ATTENTION: Chaud si en fonction. Ne toucher pas. Tenir loin les enfants, les vêtements, et les combustibles.</p>	<p>CAUTION</p> <p>Hot while in operation. Do not touch. Keep children, clothing, and combustibles away.</p>
J		<p>Safety instruction label for diesel fuelled heaters</p>
K		<p>A nameplate listing the model number, item number, revision number, and serial number is attached to each unit. Please record the information found on this plate so it will be available should the nameplate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model number, item number, revision number, and serial number of the unit.</p>
L		<p>Heater rating plate</p>

M		<p>WARNING Licensed gas technician required.</p> <p>Natural gas / liquid propane burner setup and installation, fuel supply connection, test firing, and burner adjustment MUST be performed by a LICENSED professional gas technician and must conform to the requirements of all relevant local, state, provincial, and Federal authorities.</p> <p>Failure to heed this warning may result in an explosion and/or fire causing property damage, personal injury, or death.</p>
N		<p>Creating Green Environments</p> <p>This product may help you earn credits toward LEED® EQ 3.1 and 3.2 certification.</p>

3 Lifting and Transporting

3.1 Lifting and Transporting the Machine

- Requirements**
- Transport vehicle capable of carrying 1000 lbs (454 kg)
 - Crane or lift capable of carrying 1000 lbs (454 kg)

Background **NOTICE:** These machines are NOT designed to be towed with any vehicle.



WARNING

Crushing hazard.

- Only qualified riggers should attempt aerial lifting of this machine.
-

- Guidelines**
- Follow the guidelines below when lifting and transporting this machine.
- Remove all venting from the machine prior to lifting/transporting.
 - Cover all openings on the machine to avoid infiltration from road debris and dust.
 - Except for the HI 300HD, use all four lifting points on the sides of the machine when using an aerial lifting rig.
 - When using an aerial lifting rig on the HI 300HD, use the designated lifting point on top of the machine.
 - HI 300HD only: Use the designated fork pockets when transporting the machine with a fork lift.
 - Use the manual transport handle when relocating the machine within the job site.
 - When tying down the machine, route tie-down straps or chains through the lower frame only.

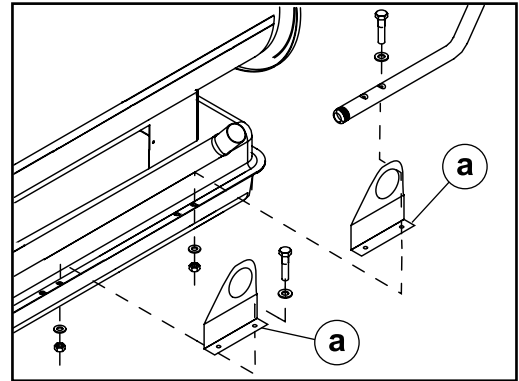
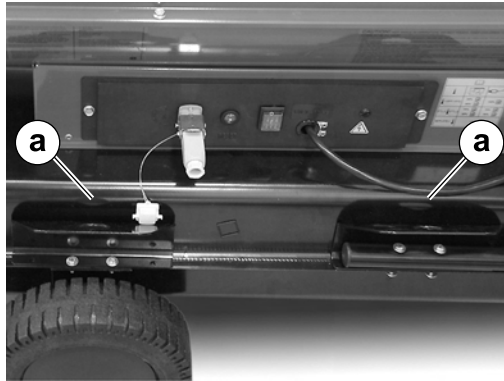
NOTICE: Do not route tie-down straps or chains over the top of the machine. Doing so will damage the machine. Use only the designated tie-down locations.

4 Operation

4.1 Installing the Lift Brackets (if equipped)

Before attempting to lift the machine, the lift brackets must be installed.

1. Remove the machine from the crate.
2. Install the four lift brackets **(a)** as shown using the supplied bolts and washers.



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4.2 Installing the Wheels and Handle

Overview

The axle, wheels, handle, and stand are shipped loose with the machine and must be assembled before operation.

There are pre-drilled holes for all of the components to be assembled. Bolts, washers, and nuts are provided.

Installing the axle and wheels

Follow the procedure below to install the axle and wheels.

1. Lift the machine using appropriate lifting gear.

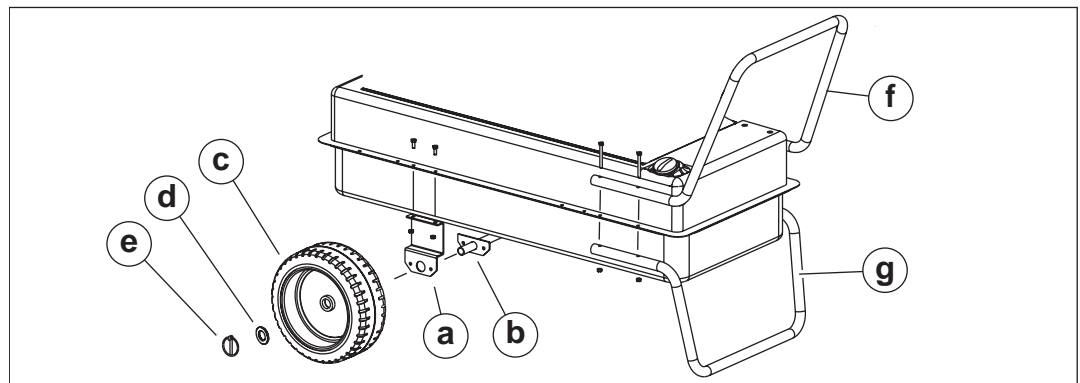


WARNING

Crushing hazard.

- Refer to chapter *Lifting the Machine* for instructions on proper lifting techniques.

2. Attach the two axle mounting brackets **(a)** to the sides of the fuel tank.



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3. Insert the ends of the axle **(b)** through the axle mounting brackets.
4. Place a wheel **(c)** and flat washer **(d)** on each end of the axle as shown.
5. Insert hitch pins **(e)** into the holes at each end of the axle to secure the wheels.

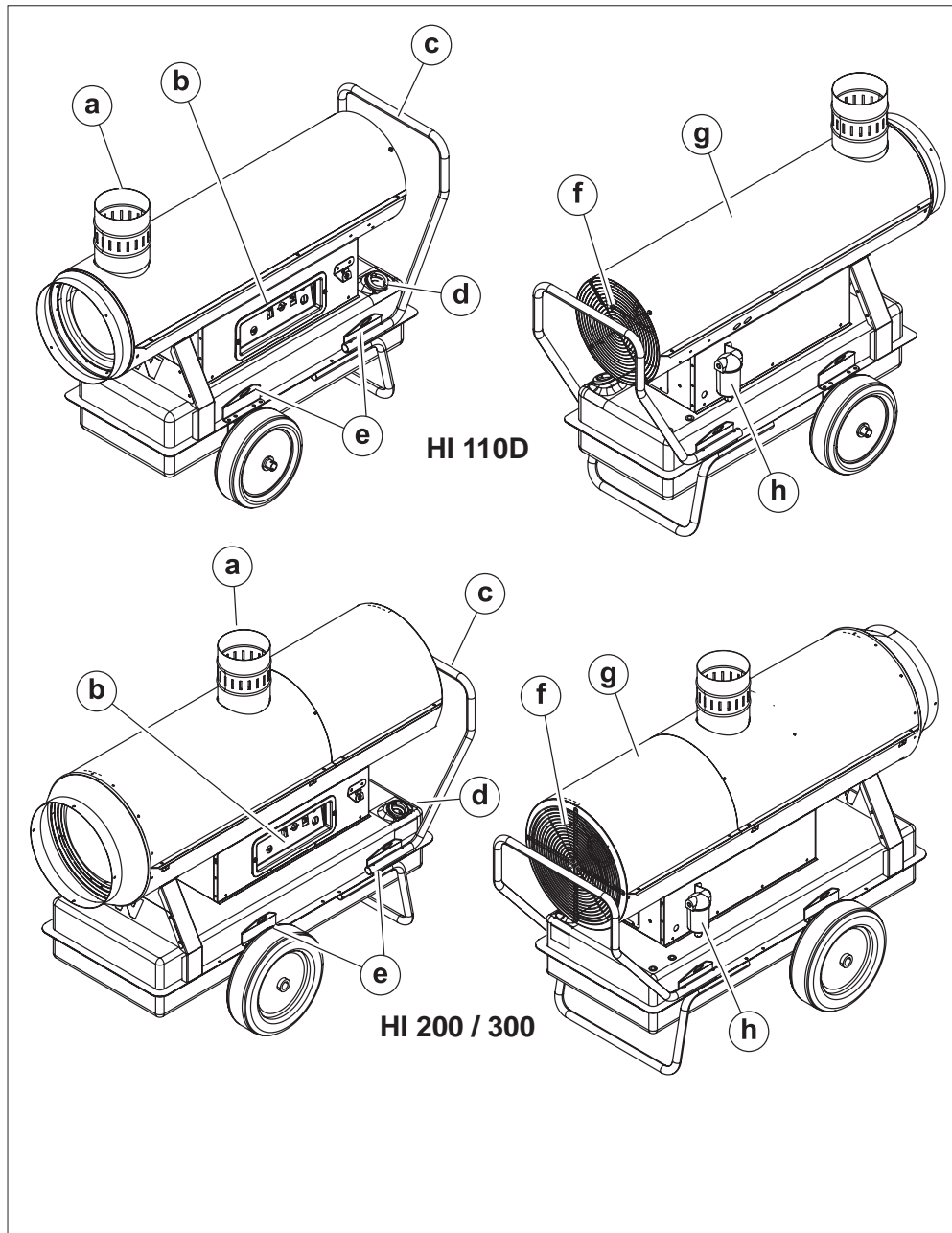
Attaching the handle and stand

6. Align the holes in the handle **(f)** and stand **(g)** with the holes on the fuel tank flange as shown.
7. Attach the handle and base support with bolts, washers, and nuts.

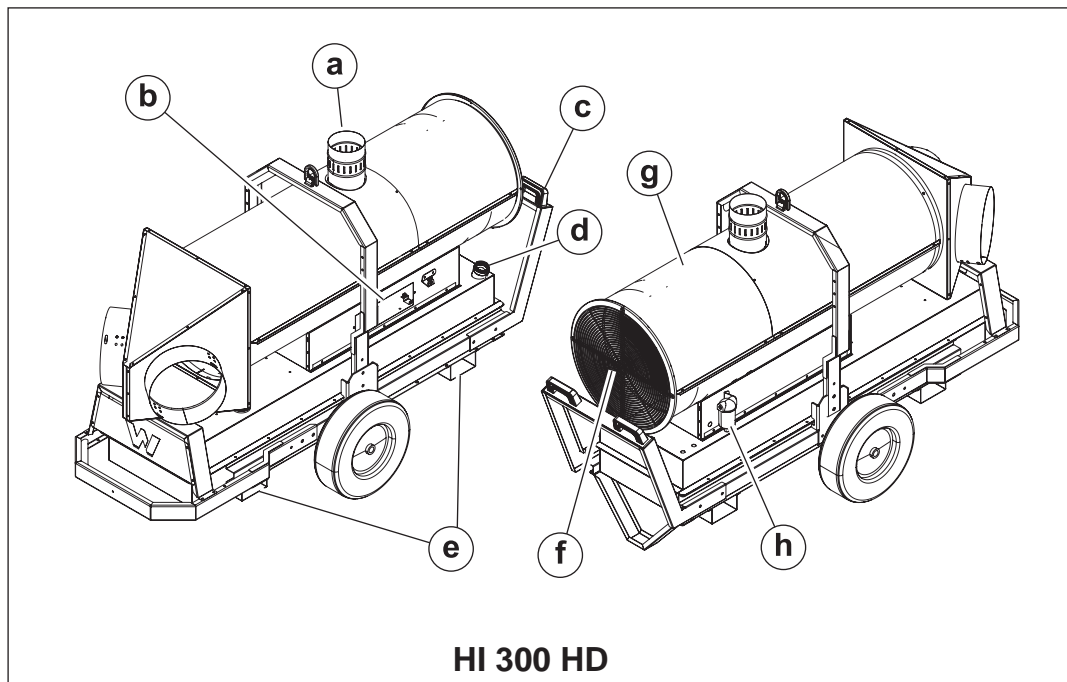
Result

The machine has now been assembled. Lower the machine and proceed.

4.3 Controls and Service Locations



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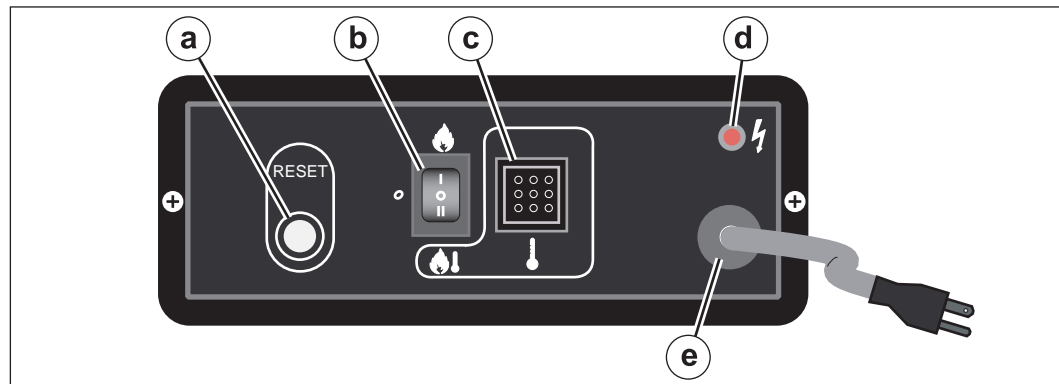


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Machine components

Ref	Description	Ref	Description
a	Exhaust flue	e	Lift brackets (if equipped)
b	Control panel	f	Air inlet and fan guard
c	Manual transport handle	g	Access panel
d	Fuel fill location	h	Fuel filter

4.4 Control Panel



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Control panel components

Ref	Description	Ref	Description
a	Burner fault lamp and reset button (dual function)	d	Power indicator
b	Mode switch (on-off-on) See topic <i>Starting the Machine</i> .	e	Power cord
c	Thermostat receptacle	—	—

Symbols and meanings

Symbol	Meaning/function	Symbol	Meaning/function
RESET	Press and hold the button to reset the machine when a burner fault has occurred.		Thermostat connection point
	On (Remote thermostat mode) See topic <i>Starting the Machine</i>		On (Continuous heat mode) See topic <i>Starting the Machine</i>
	Power indicator Illuminates when power is connected to the machine and the fuse is intact.		

4.5 Recommended Fuels

Low ambient temperatures cause diesel fuels to gel. Gelled fuels will cause burner ignition failure and/or burner fuel pump damage. Always use the proper fuel for the conditions.

Fuel Blend Guide		
Lowest expected ambient temperature °F (°C)	Generator powered	Shore powered
Below 5 (-15)	50-50 blend of #2 diesel and #1 diesel, plus additives OR 50-50 blend #2 diesel and K1 kerosene, plus additives	100% #1 diesel plus additives OR 100% K1 kerosene, plus additives
5 to 25 (-15 to -4)	70-30 blend of #2 diesel and #1 diesel, plus additives OR 70-30 blend of #2 diesel and K1 kerosene, plus additives	
Above 25 (-4)	Winter-blend diesel	

4.6 Inspecting the Fuel Hose

When Visually inspect the fuel hose assembly each time before operating the heater.



WARNING

Fire and explosion hazards. A damaged hose may leak flammable fuel.

- Do not operate the heater if the hose has excessive abrasions, wear, or cuts.

Replacement hose Replace a damaged hose assembly with an equivalent as specified on the machine label.

4.7 Positioning the Machine

**DANGER**

Exhaust gas from the burner contains carbon monoxide, a deadly poison. Exposure to carbon monoxide can kill you in minutes.

- ▶ Never run the machine indoors or in an enclosed area unless the machine is vented properly according to local and national codes.

Guidelines

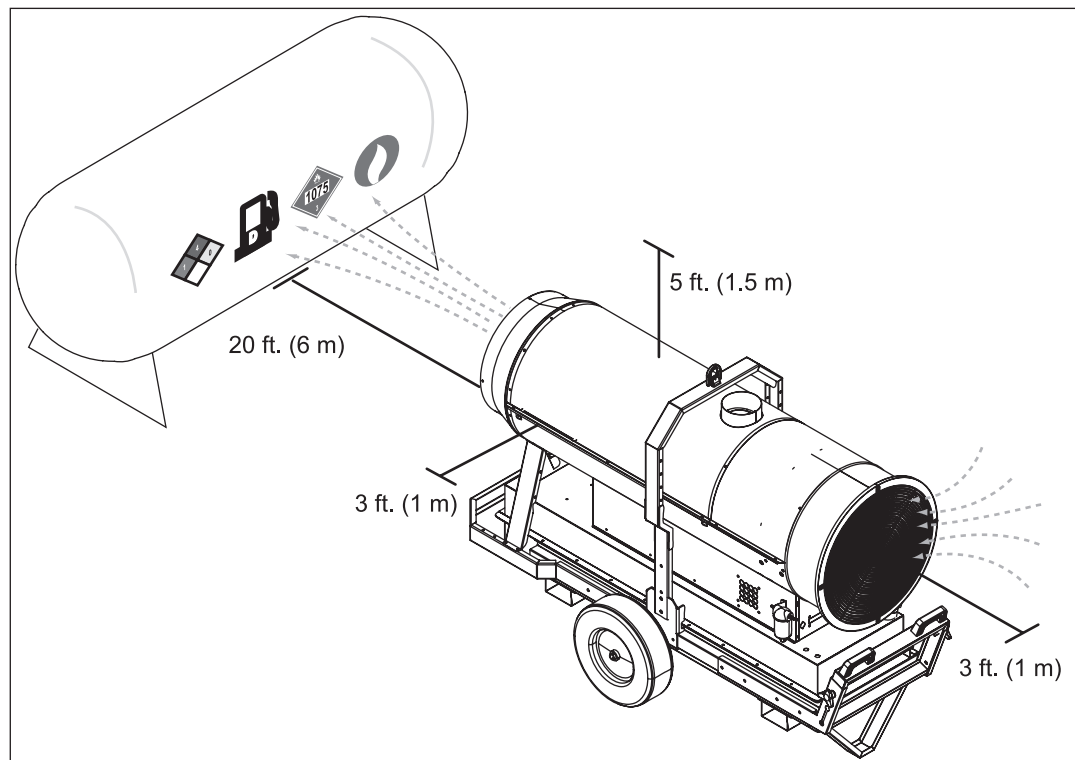
Observe the following guidelines when positioning the machine for operation.

- Installer must be familiar with all applicable laws, codes, regulations, or other restrictions regarding installation of Indirect-fired (IDF) heaters.
- Machine must be on flat, firm surface.
- Installation must adhere to proximity restrictions.
- Install wedge blocks under the wheels to prevent movement.

Proximity restrictions

The machine must be located a safe distance from any other structures, vehicles, materials or other combustible surfaces. The following proximity restrictions apply for all machine installations.

- 20 ft. (6 m) to air outlet
- 3 ft. (1 m) to air inlet and sides
- 5 ft. (1.5 m) to top
- 20 ft (6 m) from outlet to external fuel container



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Note: Graphic is representative only. Your machine may vary.

4.8 Suggested Venting

**DANGER**

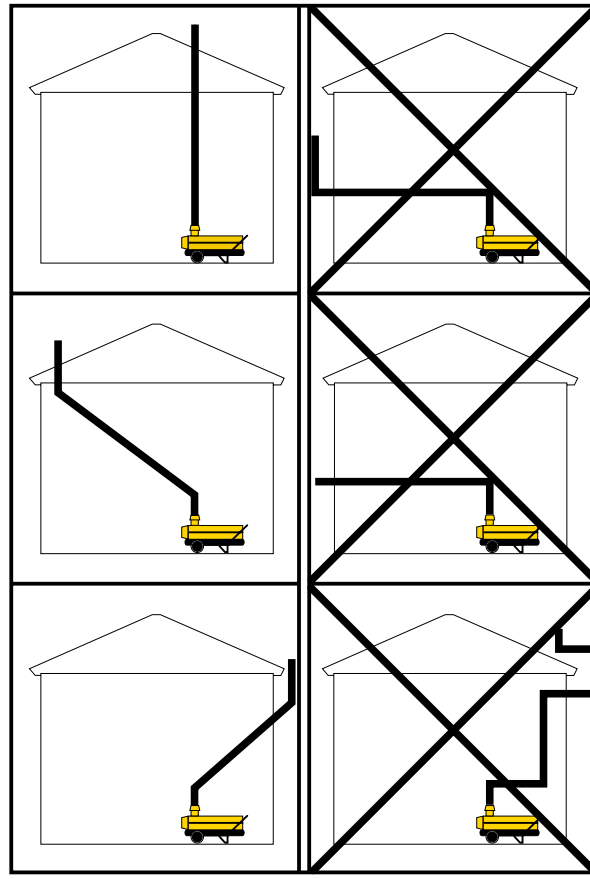
Asphyxiation hazard.

Exhaust gas from the burner contains carbon monoxide, a deadly poison. Exposure to carbon monoxide can kill you in minutes.

- ▶ Never run the machine indoors or in an enclosed area unless the machine is vented properly according to local and national codes.

When installing vents:

- Do not use B-vent exhaust pipes to vent an oil burning machine. Contact Wacker Neuson Product Support for recommended alternatives.
- Adhere to all local and national codes.
- Consult all appropriate governing bodies or local contractor for venting and fresh air requirements. Make sure that the room or building to be heated has sufficient ventilation to ensure that the machine has enough air to function properly.
- Position the machine in a manner that avoids excessive vent bends (elbows), and long horizontal runs.
- Keep air inlets and outlets free from obstruction. Ensure that there are no bulky objects or sheets/covers near or on the machine.
- Route the venting pipes in a manner that avoids flammable materials.
- Route the venting pipes in a manner that avoids contact with people.
- When the machine is connected to a flue pipe, the flue pipe shall terminate in a vertical section at least two feet long. Sufficient draft shall be created to assure safe and proper operation of the machine.



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Note: The above venting diagram shows suggested venting layouts only. Consult all appropriate governing bodies or local contractor for venting and fresh air requirements.

4.9 Installing the Heater Duct

Overview Optional ducts can be connected to the air outlet. This allows warm air to be evenly distributed throughout the heating area.

NOTICE: When using ducts, observe the static air pressure limits specified in *Technical Data*.

- Requirements**
- Machine shut down and cooled
 - Machine properly positioned



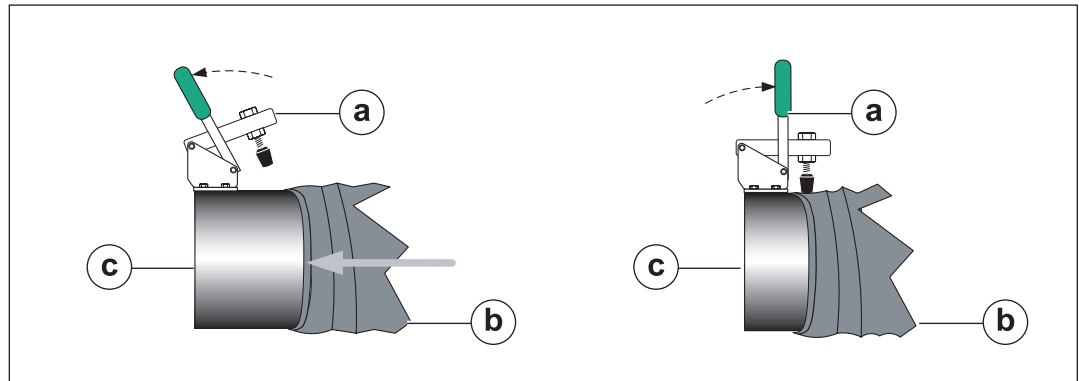
CAUTION

Hot surface hazard. The machine surfaces may be hot.

- Allow the machine to cool for a minimum of ten minutes before touching it.

Procedure To install the ducts, carry out the following procedure.

1. Open the clamps **(a)**.
2. Slide the duct **(b)** onto the duct adapter **(c)**.
3. Close the clamp to secure the duct in place.



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4.10 Connecting Power to the Machine

- Requirements**
- Power source (115VAC)
 - Machine properly positioned
 - Operation mode switch in the OFF (0) position



WARNING

Fire hazard and electric shock hazard. The use of under-sized extension cords can lead to fire and electric shock. Fire and electric shock can cause severe injury.

- ▶ Do not use under-sized extension cords.
-

**Extension
cords**

Restrictions for extension cords:

- Use only 3-wire type extension cords with heavy-duty plugs.
 - The maximum length of extension cord usage per circuit is 30 m (100 ft).
 - Use 12-gauge extension cords for lengths up to 15 m (50 ft).
 - Use 10-gauge extension cords for lengths up to 30 m (100 ft).
-

**CAUTION**

Burn hazard. The self-regulating fuel heater, located inside the fuel filter canister, will initiate when power is connected to the machine. The surface of the fuel filter canister may become very hot.

- ▶ Use caution when working with the fuel filter canister.
-

Procedure

Perform the procedure below to connect power to the machine.

1. Verify that the operation mode switch is in the OFF (0) position.
2. Connect the main power cord to a properly-rated power source.

Note: *If the ambient temperature is below freezing, wait 10–30 minutes before proceeding.*

Result

Power has now been connected. The machine is ready for pre-starting checks.

4.11 Pre-Starting Checks

- Requirements**
- Machine properly positioned
 - Power connected to the machine

Checks

Before starting the machine, check the following items:

Item	Task
Fuel sight gauge (if equipped)	Check that the fuel tank is full (if applicable).
Fuel tank cap	Check that the fuel tank cap (if applicable) is secure.
Operation mode switch	Check that the operation mode switch is in the OFF position.
Main control panel	Check that proper power supplies have been connected at the main control panel. See topic <i>Connecting Power to the Machine</i> .
Remote thermostat (if installed)	Check that the remote thermostat has been correctly installed. See topic <i>Installing the Remote Thermostat or Thermostat Receptacle Plug</i> .
Ducts and duct adapters	Check that all ducts and duct adapters have been properly installed. See topic <i>Installing the Heater Duct</i> .

Result

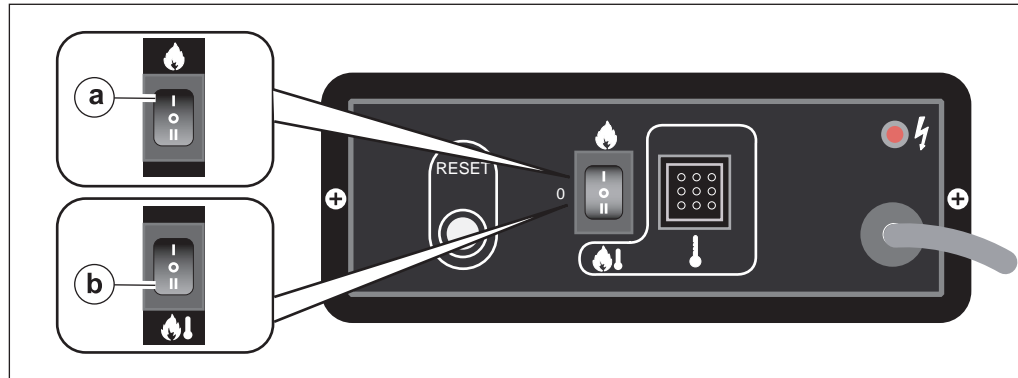
The machine is ready to turn on.

4.12 Starting the Machine

- Requirements**
- Machine properly positioned
 - Power connected
 - Pre-Starting Checks completed

Procedure To start the machine, follow the procedure below.

1. Select an operation mode.
 - a. Continuous heat mode (I)
 - b. thermostat mode (II)



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Operational sequence The following sequence of events will occur.

1. The blower will start.

Nozzle heater **Note:** The burner may not fire immediately on startup if the nozzle is cold. HI 200 HD and HI 300 HD machines are equipped with an additional heater that warms the nozzle to the required operating temperature. After you select the ON (heat) mode, the nozzle preheating sequence may cause a delay of up to 6 minutes before the burner fires.

2. The burner will start firing.
 - If a remote thermostat is not being used, the burner will fire continuously.
 - In applications in which the remote thermostat is being used, the burner will fire until the air temperature of the application area reaches the target temperature set by the remote thermostat. At that time, the burner will shut off, but the blower will continue to operate. When the air temperature of the application area falls below the target temperature set by the remote thermostat, the burner will refire. The process continues as long as there is fuel for the burner.

4.13 Starting the Machine in Extremely Cold Weather

Background In temperatures below 32°F (0°C), it may be necessary to preheat the fuel inside the fuel filter canister. The fuel filter canister is equipped with a low-wattage heating element specially designed for this purpose.

HI 200 HD and HI 300 HD machines are also equipped with a thermostatically controlled nozzle heater as described below.



WARNING

Burn hazard. The external surface of the fuel filter may be hot.

- Wear safety gloves when handling the fuel filter.
-

Note: *Excess heating may increase the need for maintenance. See topics “Replacing the Fuel Filter” and “Replacing the Burner Nozzle”.*

Preheating the fuel

To preheat the fuel, carry out the following procedure.

1. Connect power to the machine. See topic *Connecting Power to the Machine*.
2. Wait 20-30 minutes—longer for colder temperatures.
3. Start the machine. See topic *Starting the Machine*.

Note: *In extreme wind, the machine may need to be temporarily blocked from the wind in order to start.*

Troubleshooting

4. If the burner does not start on the first attempt, allow the power-on sequence to cycle again.
 5. If, after the second power-on sequence completes, the machine will not fire, move the power switch to the OFF position.
 6. Wait another 20-30 minutes and attempt to start the machine again.
-

Nozzle heater

The burner may not fire immediately on startup if the nozzle is cold. HI 200 HD and HI 300 HD machines are equipped with an additional heater that warms the nozzle to the required operating temperature.

Note: *After you select the ON (heat) mode, the nozzle preheating sequence may cause a delay of up to 6 minutes before the burner fires.*

4.14 Stopping the Machine

Procedure Follow the procedure below to stop the machine.

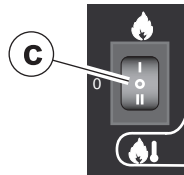


WARNING

Electric shock hazard. Electric power is still active at the blower even when the machine is turned OFF.

- Remove all electric power to the machine before servicing the machine.

1. Turn the operation mode switch to the OFF (0) position **(c)**.



Shutdown sequence

The following sequence of events will occur after turning the machine off.

1. The burner will shut down.
2. The blower will stop when the machine is sufficiently cool.

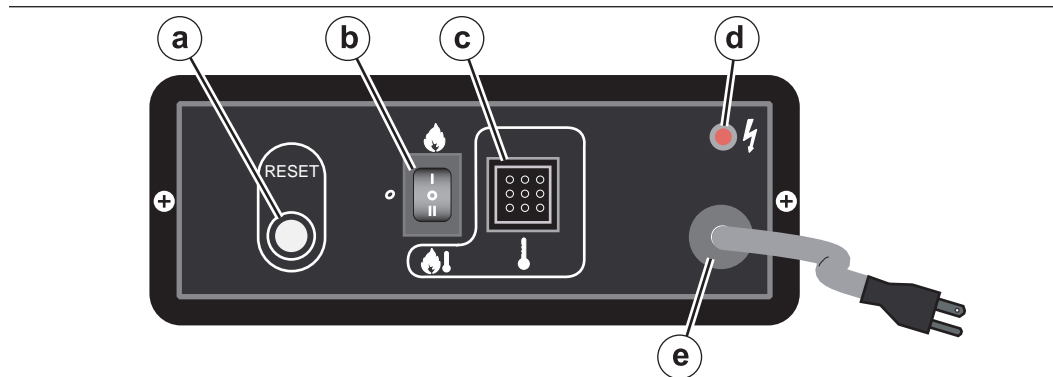
4.15 Burner Fault

The burner fault lamp / reset button **(a)** is illuminated while the machine is operating. The lamp is green during normal operation.

Burner fault

A burner fault occurs if the burner does not fire upon startup. The lamp will turn red. The lamp will also turn red if the burner goes out while the machine is operating.

- To clear a burner fault, press and hold the burner fault lamp / reset button for 2–3 seconds until the lamp goes out.
- Re-start the machine.
- If the burner fault re-occurs, see *Basic Troubleshooting*.



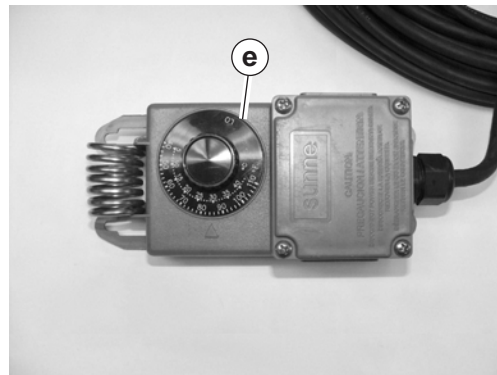
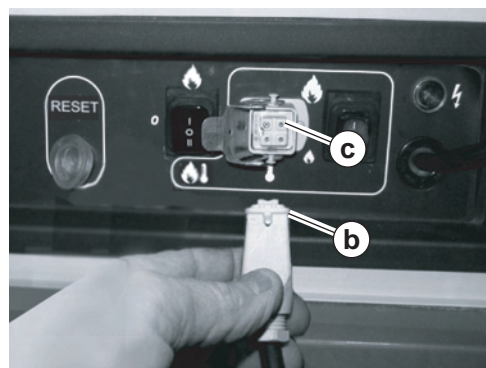
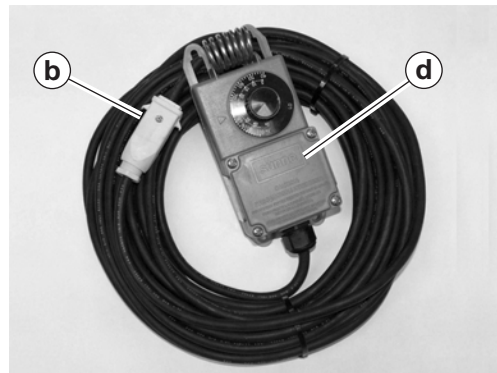
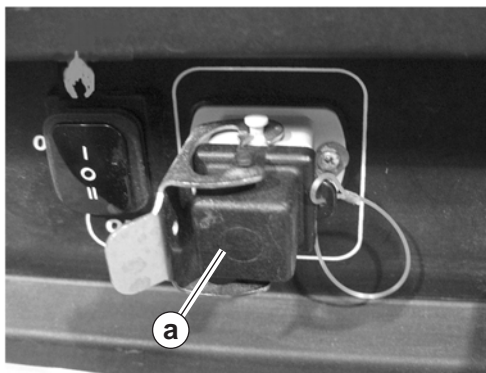
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4.16 Installing and Using the Remote Thermostat

- Requirements**
- Remote thermostat
 - Pre-starting checks complete

Procedure Follow the procedure below to install and use the remote thermostat.

1. Remove the protective cap **(a)** from the control panel receptacle.
2. Connect the remote thermostat **(b)** to the control panel receptacle **(c)**.
3. Set the sensor end **(d)** within the area to be heated.
4. Adjust the target temperature with the dial **(e)**.



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Result The machine will now be controlled by the remote thermostat.

5 Accessories

5.1 Available Accessories

Introduction Wacker Neuson Corporation offers many optional accessories for this machine. These accessories are described below. Contact your local Wacker Neuson dealer or visit www.wackerneuson.com for ordering information.

Item	Description/Purpose
Remote thermostat	Allows the user to remotely control the target temperature
Exhaust pipe	An insulated exhaust pipe that offers a method of directing exhaust away from the application area
Inlet and outlet covers	Vinyl covers that protect the interior of the machine from the elements during transport or storage
Duct adapters—various sizes	Various sizes of detachable inlet and outlet adapters
Flexible ducts—various sizes	Vinyl ducts that offer a method of directing inlet and outlet air
Exhaust support bracket	Bracket to support exhaust vents
Exhaust vent rain cap	Metal cap to protect exhaust pipes from the elements

6 Burner Setup

6.1 Removing the Access Panel

- Requirements**
- Machine shut down and cooled
 - Machine properly positioned



CAUTION

Hot surface hazard. The machine surfaces may be hot.

- Allow the machine to cool for a minimum of ten minutes before touching it.

Overview

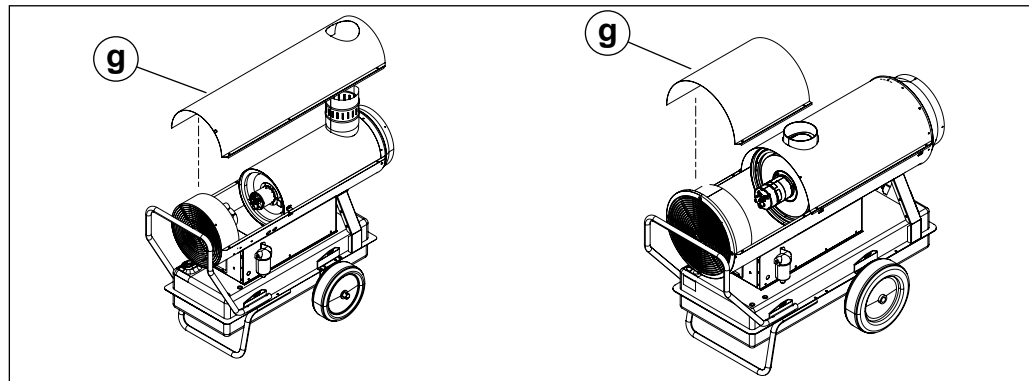
Your machine is equipped with a removable access panel. The access panel must be removed in order to maintain and repair certain machine components such as the burner, electric motor, and fuel pump.

Procedure

Follow the procedure below to remove the access panel.

1. Shut down the machine and allow it to cool.
2. Disconnect the power cord from the power source.
3. Remove the screws that fasten the access panel **(g)**.

Note: *There are six screws to remove on the HI 110; four screws to remove on the HI 200 and HI 300.*



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4. Remove the access panel and set it aside.
5. Perform the required maintenance.
6. When maintenance is complete, reinstall the access panel and fasten it with the screws.

6.2 Removing and Installing the Burner Assembly

- Requirements**
- Machine shut down and cooled
 - Machine properly positioned



CAUTION

Hot surface hazard. The machine surfaces may be hot.

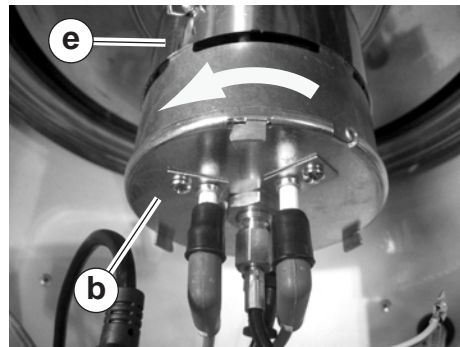
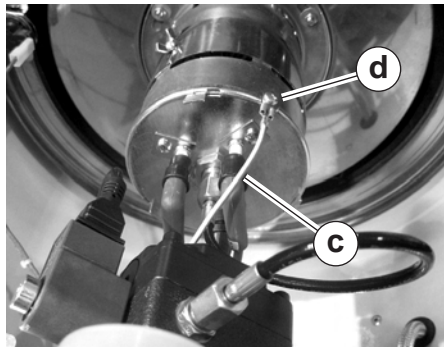
- Allow the machine to cool for a minimum of ten minutes before touching it.

Procedure

Before performing any maintenance on the burner assembly, it must be removed from the machine. To remove or install the burner assembly perform the following procedure.

Removal

1. Shut down the machine and allow it to cool.
2. Disconnect the power cord from the power source.
3. Remove the access panel. See topic *Removing the Access Panel*.



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4. Remove the screw **(d)** to disconnect the ground wire **(c)** from the burner assembly **(b)**.
5. Rotate the burner assembly counter-clockwise and remove it from the flame head and air tube assembly **(e)**.
6. Perform the required maintenance.

Note: Refer to the maintenance procedures in this manual.

7. Reinstall the burner assembly. Refer to the steps below to install the burner assembly.

Installation

1. Place the burner assembly into the flame head and air tube assembly.
2. Rotate the burner assembly clockwise to lock it into place.
3. Install the ground wire using the screw **(d)**.
4. Reinstall the access panel.

6.3 Setting Up the Burner

Factory settings

Machine	Nozzle size gph	Fuel pressure		Air band setting	
		psi	bar	Diesel	Winter blend
HI 110 D	0.55 x 80W	195.75	13.5	N/A	
HI 110 HD D	0.55 x 80W	195.75	13.5	N/A	
HI 200 D	1.10 x 80W	174	12	3.0	3.0
HI 200 HD D	1.10 x 80W	174	12	2.6	2.6
HI 300D	1.50 x 80W	174	12	3.2	3.4
HI 300HD D	1.50 x 80W	174	12	3.2	3.2

Background The burner consists of several different components and subsystems. Each of these components or subsystems must be operating correctly for the burner to function properly.

Tools required The following tools are required to adjust the burner:

- High-quality combustion analyzer
- Smoke spot tester
- Fuel pressure test gauge
- General hand tools

Mandates

- Adjustments made shall be done so that the machine conforms to the requirements of local, state, and federal codes and authorities.
- Adjustments shall be made at the job site.

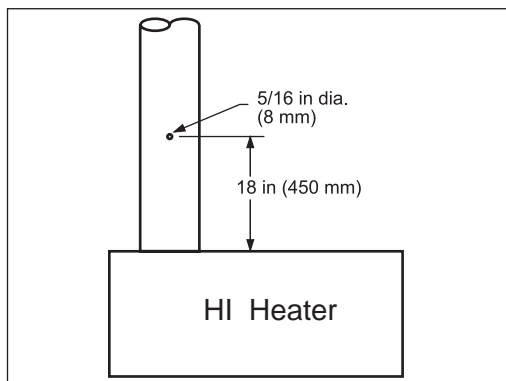
When Adjust the burner:

- Before operating the machine at elevations 305 m (1,000 ft) above or below the location of where the last adjustments were made
- Before starting at a new job site
- After any burner maintenance or repair has been performed
- If burner performance is in question

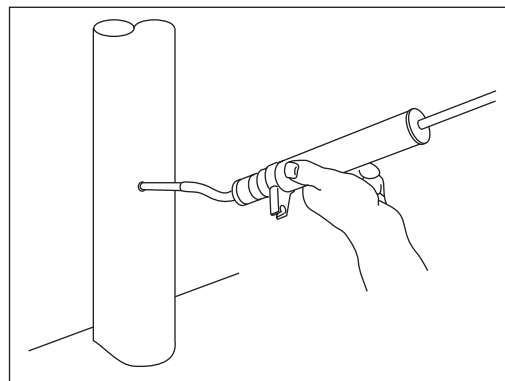
Procedure Follow the procedure below to set up the burner.

1. Shut down the machine.
2. Set the burner electrodes.
(See topic *Checking and Adjusting the Oil Burner Electrodes*.)
3. Check the burner nozzle.
(See topic *Checking/Changing the Burner Nozzle*.)
4. Set the air band.
(See topic *Setting the Air Band*.)
5. Start the machine and the burner.
6. Check/set the fuel pressure.
(See topic *Adjusting the Fuel Pressure*.)

7. Conduct a smoke spot test. Follow the smoke spot tester manufacturer's instructions and the general guidelines below.

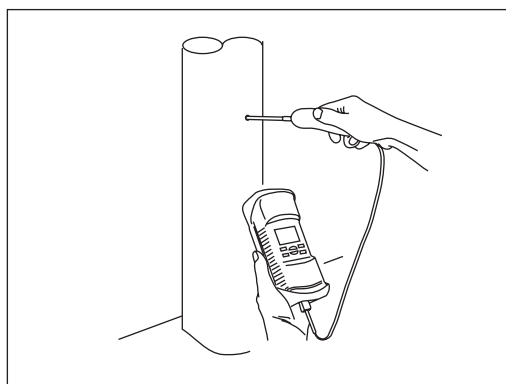


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- Use the access hole in the exhaust stack.
 - Several samples should be taken as the heater warms.
 - The final sample should be taken just before the heater reaches 71°C (160°F).
8. Analyze the combustion. Follow the combustion analyzer manufacturer's instructions and the general guidelines below.



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- Use the access hole in the exhaust stack.
 - Take several samples as the heater warms.
 - Take the final sample just before the heater reaches 71°C (160°F).
9. Re-adjust the air band, if necessary, until the smoke spot test and combustion analysis are within the following parameters:
- O₂ content: 3–5%
 - Smoke spot: less than 1

Result

The burner has now been set.

6.4 Checking the Oil Burner Electrodes

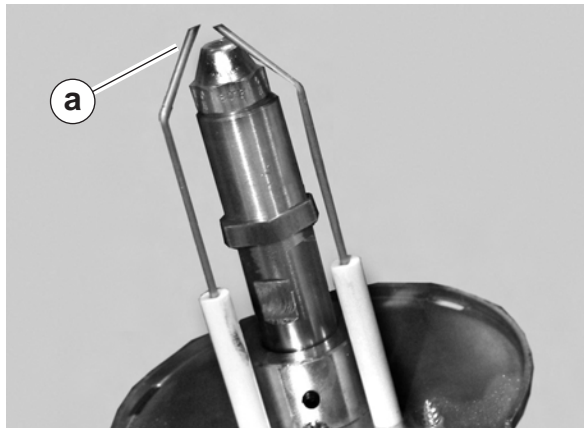
- Requirements**
- Machine shut down
 - Power disconnected
 - Burner cool

When to inspect

Inspect the electrodes on your machine every two weeks or after every 50 hours of operation. The condition of the electrodes will drastically affect your machine's ability to fire efficiently.

Procedure

Remove the burner assembly and inspect the condition of the electrode tips **(a)**. Refer to the table below to determine the condition of the electrode tips.



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Condition	Task
	None; ok as-is
	None; ok as-is
	Replace

The electrodes should be replaced if they are worn or damaged. Contact your Wacker Neuson dealer for replacement electrodes.

6.5 Checking/Changing the Burner Nozzle

- Prerequisites**
- Machine shut down and cool to the touch
 - Machine properly positioned



CAUTION

Hot surface hazard. The machine surfaces may be hot.

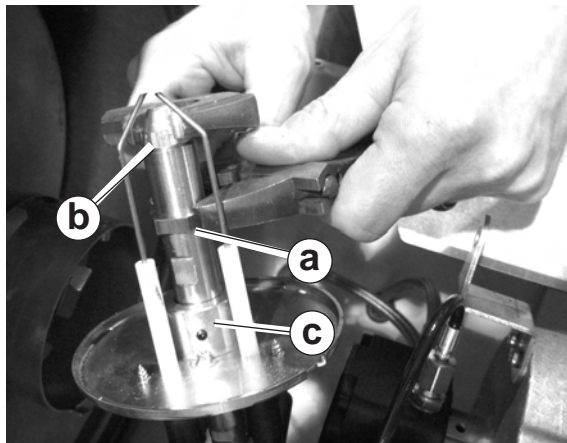
- Allow the machine to cool for a minimum of ten minutes before touching it.

When Replace the burner nozzle annually, or if it is damaged.

To replace the burner nozzle, carry out the following procedure.

- Removing the nozzle**
1. Remove the burner. See topic *Removing and Installing the Burner Assembly*.
 2. Place an adjustable wrench on the large fitting **(a)** on the nozzle base **(c)**.
 3. Place another adjustable wrench on the nozzle **(b)**.
 4. Rotate the nozzle counter-clockwise and remove it from the assembly.

- Installing the nozzle**
5. Install the new nozzle **(b)** onto the nozzle base **(c)**.
 6. Tighten the nozzle **(b)** using an adjustable wrench. Rotate the wrench clockwise.
 7. Reinstall the burner assembly. See topic *Removing and Installing the Burner Assembly*.



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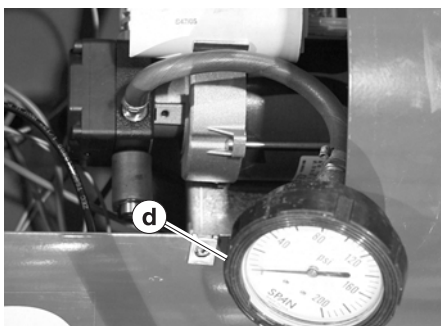
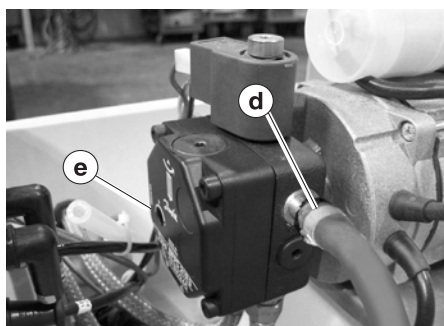
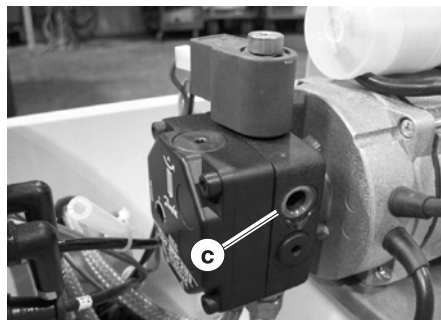
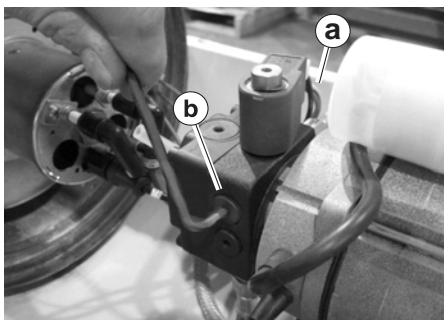
6.6 Adjusting the Fuel Pressure

- Requirements**
- Machine shut down and cool to the touch
 - Power disconnected
 - Fuel pressure gauge

Background The information below will show you how to check the fuel pressure on your machine. Incorrect fuel pressure will result in too much fuel, or too little fuel, to be supplied to the burner. This will cause the machine to smoke during operation.

When to check Check the fuel pressure if the machine emits smoke during operation.

- Procedure** To check and/or adjust the fuel pressure, carry out the following procedure.
1. Remove the access panel. See topic *Removing the Access Panel*.
 2. Disconnect one of the wires from the solenoid valve **(a)**.
 3. Remove the threaded plug **(b)** from the pressure test port **(c)** using a hex key wrench. Set the plug in a safe location to be re-installed later.



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4. Install a pressure gauge with adapter **(d)** in the pressure test port.
5. Start the machine. See topic *Starting the Machine*.
6. With the machine running, verify the fuel pressure setting during the pre-ventilation period (approximately 15 seconds). Refer to the *Technical Data* charts in this manual for the correct settings.
7. After the pre-ventilation period, the absence of a flame will cause the machine to stop in safety mode. Press the reset button to enable re-start if the fuel pressure needs adjustment.

- Adjusting fuel pressure**
- Adjust the fuel pressure if necessary using the adjusting screw **(e)** and re-check the settings. Repeat steps 4–6 to re-check the settings.

NOTICE: Do not adjust the fuel pressure to a setting outside the safe operational parameters.

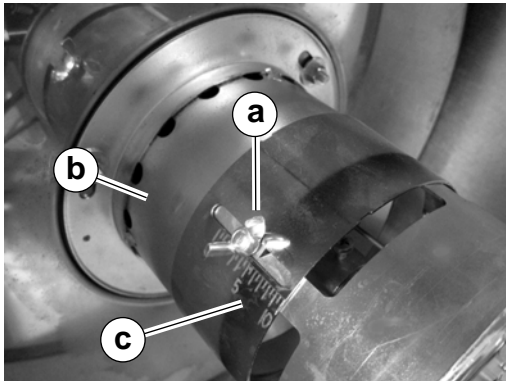
- Remove the pressure gauge **(d)** from the pressure test port **(c)**.
- Re-install the threaded plug **(b)** into the pressure test port **(c)**.
- Re-connect the solenoid wire.
- Close the access panel and re-install the two bolts **(a)** that secure the panel.

6.7 Setting the Air Band

- Requirements**
- Machine shut down
 - Power disconnected

Procedure Perform the procedure below to set the air band.

- Shut down the machine and allow it to cool.
- Disconnect the power cord from the power source.
- Remove the access panel. See topic *Removing the Access Panel*.



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- Loosen the wing nut **(a)** and slide the air band **(b)** as needed. The front edge should line up with the graduations (markings) on the flame head **(c)**.
- Tighten the wing nut.

Result The air band has now been set.

7 Maintenance

7.1 Periodic Maintenance Schedule

Task	Interval* (hours of service)			
	Daily ---	2 Weeks (50)	6 Months (1000)	Yearly (1200)
Inspect the heater.	■			■
Inspect the hose assembly.	■			
Check fuel level and pressure.	■			
Clean the machine.	■			
Clean the fuel filter.		■		
Clean the fan and the interior shell.		■		
Clean and check/adjust burner electrode settings.		■		
Inspect electrical components.			■	
Inspect the blower motor and belts. Replace the belt if necessary.			■	
Replace the burner nozzle.				■
Replace the fuel heater filter.				■
Maintain the heater weldment.				■
Inspect and test the burner.	As needed or upon changing job sites; see chapter <i>Burner Setup</i> .			
Inspect burner electrodes; replace if necessary.	As needed or upon changing job sites; see chapter <i>Burner Setup</i> .			
* Use whichever comes first, calendar time or service hours.				

7.2 Changing the Fuel Heater Filter

- Prerequisites**
- Machine shut down
 - Burner cool



CAUTION Hot surface hazard.

The external surface of the fuel filter canister may be hot.

- Allow the machine to cool before servicing.



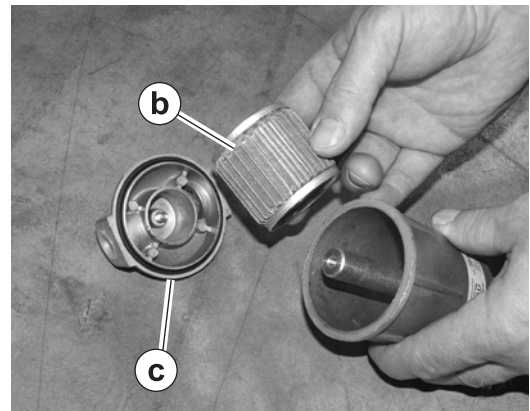
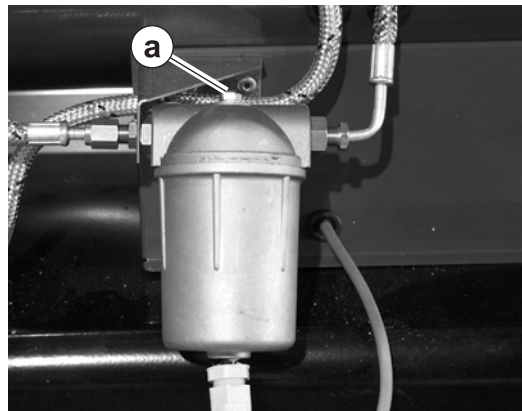
WARNING Hot fluids.

The fuel inside the fuel filter canister may be hot.

- Wear safety glasses.

Procedure Follow the procedure below to change the fuel heater filter.

1. Shut down the machine and allow it to cool.
2. Remove the screw that secures the cover to the housing **(a)**.



3. Remove the filter **(b)**.
4. Inspect the O-ring **(c)**. Replace it if it is cracked, damaged, or deformed.
5. Install the new filter.
6. Reinstall the cover.

Result The procedure to replace the fuel heater filter is now complete.

7.3 Inspecting and Cleaning the Cadmium (CAD) Cell

- Prerequisites**
- Machine shut down and cool to the touch
 - Machine properly positioned



CAUTION

Hot surface hazard. The machine surfaces may be hot.

- Allow the machine to cool for a minimum of ten minutes before touching it.

When

Inspect and clean the CAD cell as needed, or while performing other scheduled maintenance procedures.

To inspect and clean the CAD cell, carry out the following procedure.

1. Remove the access panel. See topic *Removing the Access Panel*.
2. Twist and pull out the plastic protective holder **(1)** off the base of the burner assembly. The CAD cell **(2)** is inside this plastic holder.



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3. Inspect the CAD cell for cleanliness. Be sure the cell is free of debris or soot.
4. Clean the CAD cell if necessary.

NOTICE: Do NOT use solvents or liquids to clean the CAD cell. Use a soft dry cloth to clean the CAD cell.

5. Reinstall the plastic protective holder onto the base of the burner assembly.

7.4 Cleaning the Fan Blades and Motor

- Prerequisites**
- Machine shut down and cool to the touch
 - Power source disconnected



WARNING

Electric shock hazard. Electric power is still active at the blower even when the machine is turned OFF.

- Remove all electric power to the machine before performing this procedure.



CAUTION

Hot surface hazard. The machine surfaces may be hot.

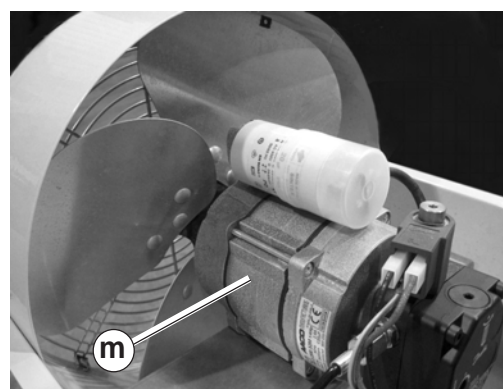
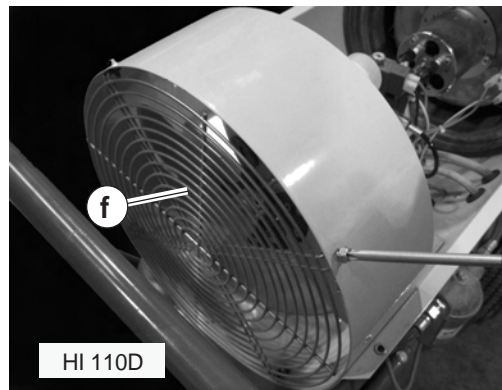
- Allow the machine to cool for a minimum of ten minutes before touching it.

When

Clean the fan blades and motor prior to the first seasonal use, every 1200 hours or annually, or as needed.

To clean the fan blades and motor, carry out the following procedure.

1. Remove the fan guard (**f**). There are four screws that secure the fan guard.



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2. Remove the the access panel (**g**). See topic *Removing the Access Panel*.

This procedure continues on the next page.

3. Inspect and, if necessary, clean the motor **(m)** using compressed air.
4. Clean the fan blades using a stiff brush.
5. Reinstall the internal access panel.
6. Reinstall the fan guard.

7.5 Cleaning the Interior Shell

- Prerequisites**
- Machine shut down and cool to the touch
 - Power source disconnected



CAUTION

Hot surface hazard. The machine surfaces may be hot.

- ▶ Allow the machine to cool for a minimum of ten minutes before touching it.
-

When

Clean the interior shell prior to the first seasonal use, every 1200 hours or annually, or as needed.

To clean the interior shell, carry out the following procedure.

1. Remove the fan guard. See topic *Cleaning the Fan Blades and Motor*.
2. Remove the internal access panel. See topic *Removing the Internal Access Panel*.



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3. Inspect and clean the interior shell using compressed air.
4. Re-install the internal access panel.
5. Re-install the fan guard.

7.6 Inspecting the Flame Head

- Prerequisites**
- Machine shut down and cool to the touch
 - Machine properly positioned



CAUTION

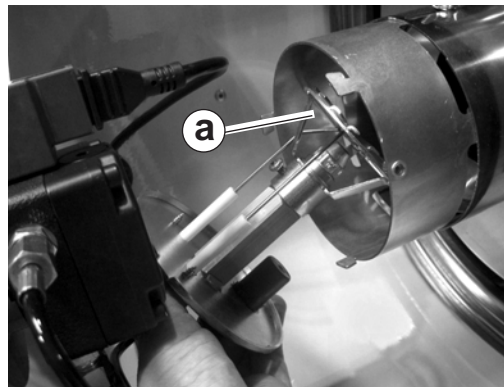
Hot surface hazard. The machine surfaces may be hot.

- Allow the machine to cool for a minimum of ten minutes before touching it.

When Inspect the flame head prior to the first seasonal use, during regular maintenance, and as needed.

Procedure To inspect the flame head **(a)**, carry out the following procedure.

1. Remove the access panel. See topic *Removing the Access Panel*.
2. Remove the burner assembly. See topic *Removing and Installing the Burner Assembly*. The flame head is attached.



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3. Inspect the flame head for the following:
 - Wear. Replace if necessary.
 - Cleanliness. Clean the flame head if necessary.
 - Thermal stress. Replace if necessary.
4. Re-install the burner assembly. See topic *Removing and Installing the Burner Assembly*.

7.7 Inspecting the Electrical Connections

After disconnecting the power cord, check all electrical connections for the following:

- Proper connections. Be sure that all connections are complete and tight.
- Corrosion. Clean or replace if necessary.
- Damaged wires/connectors. Replace if necessary.
- Proper ground.

7.8 General Cleaning Guidelines

- Prerequisites**
- Machine shut down
 - Machine cool

General cleaning

Clean the following areas to ensure proper operation.

Item	Method/task
Burner	Remove all dirt and debris. Ensure air intake area is unobstructed.
Hoses, connectors, and couplings	Wipe clean with cloth.
Trailer (if equipped)	Clean with compressed air: 50 PSI maximum.
Covers/machine exterior	Wipe clean with cloth.
Air inlets/ouputs	Remove all dirt and debris. Ensure air intake area is unobstructed.

7.9 List of Abbreviations

Amp	ampere (unit of electrical current)
asl	above sea level
BTU	British Thermal Unit
°C	Celsius (metric unit of temperature)
°F	Fahrenheit (unit of temperature)
ft ²	square foot/square feet (measurement of area)
ft.lbs.	foot pounds (unit of torque)
gph	gallons per hour (unit of liquid flow)
GFI	Ground Fault Interrupt(er) (protection device)
Hz	Hertz (unit of frequency)
ID	inner diameter
in.	inch
kg	kilogram
kilo-cal	kilo-calorie (1000 calories) (metric unit of heat energy)
kPa	kilo-Pascals (metric unit of pressure)
kW	kilo-Watt (unit of electrical power)
lb.	pound
m	meter
mm	millimeter (1/1000 of a meter)
psig	pounds per square inch gauge (unit of pressure)
VAC	Volts, Alternating Current
VDC	Volts, Direct Current
VFD	Variable Frequency Drive
HTF	Heat Transfer Fluid

Notes:



8 Basic Troubleshooting

Note: The following symptoms and remedies are some of the more common issues that have arisen during the history of these machines. These do not represent all the possibilities. If you need advanced troubleshooting assistance, please contact Wacker Neuson Product Support.

Symptom	Possible Causes	Remedy
The burner does not start	<ul style="list-style-type: none"> The remote thermostat or thermostat plug is not inserted correctly. Faulty cable or power supply The over temperature limit has tripped The burner is in lock-out mode. 	<ul style="list-style-type: none"> Insert the remote thermostat or thermostat plug. Check cable and power supply Press the reset button.
The burner starts, the flame does not ignite, the unit locks out	<ul style="list-style-type: none"> No fuel Worn burner nozzle Faulty electrodes Cad cell detecting external light. Cad cell defective Burner control defective 	<ul style="list-style-type: none"> Fill fuel tank Replace burner nozzle Replace electrodes Check the Cad cell enclosure
The burner starts, flame ignites, but the unit locks out	<ul style="list-style-type: none"> Incorrect fuel pressure Worn burner nozzle Incorrect air lock setting Cad cell defective Burner control defective 	<ul style="list-style-type: none"> Increase fuel pressure Replace burner nozzle Re-adjust air lock setting
The burner ignites but the performance is poor	<ul style="list-style-type: none"> Worn burner nozzle Clogged fuel filter Air leaks in the fuel lines Insufficient oil pressure 	<ul style="list-style-type: none"> Replace burner nozzle Replace the fuel filter Inspect the lines for leaks; replace if necessary
Black smoke from vent pipe	<ul style="list-style-type: none"> Insufficient combustion air Insufficient ventilation air 	<ul style="list-style-type: none"> Remove any obstructions from the air inlet and outlet areas.
The machine stops due to pressure switch fault	<ul style="list-style-type: none"> Overheat condition Faulty pressure switch Incorrect nozzle Wrong fuel pressure 	<ul style="list-style-type: none"> Contact Wacker Neuson Product Support

9 Technical Data

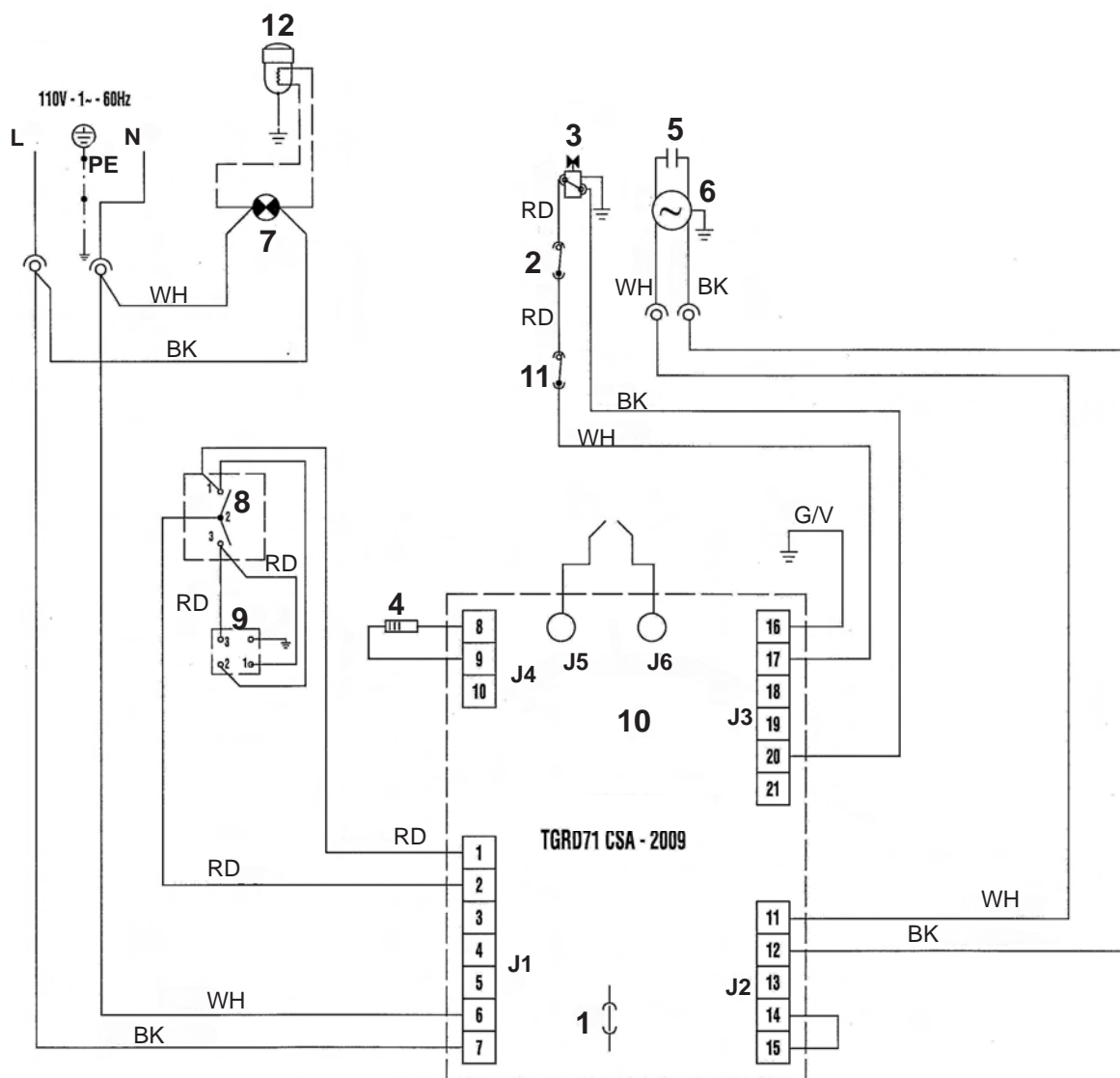
9.1 Machine Technical Data

Model		HI 110D HI 110HD D	HI 200D	HI 200HD D
Units				
Heat input	BTU/hr	112,141	205,873	
Heat output	BTU/hr	90, 273	173,117	
Air flow	cfm	1021	1530	
Fuel consumption	L (gal)/hr	3.1 (0.81)	5.6 (1.48)	
Fuel nozzle size	L/hr (gph)	2.1 (0.55) (80B)	4.2 (1.10) (80W)	
Efficiency	%	80.5	84.5	
Noise level at 1 m	dB (A)	74	77	
Power requirement	VAC/Hz	120/60	120/60	
Electrical current	Ampere	15	15	
Weight (no fuel)	kg (lb)	69.9 (154)	109.8 (242)	
Height	mm (in.)	864 (34)	965 (39)	
Length	mm (in.)	1219 (48)	1435 (56.5)	
Width	mm (in.)	610 (24)	711 (28)	
Flue diameter	mm (in.)	152.4 (6)	152.4 (6)	
Fuel tank capacity	L (gal)	65.1 (17.2)	105 (27.74)	
Fuel pressure	psi	217	181	
Air band setting		mm (in.)	Number	Number
Diesel fuel (production)		3.0 (0.118)	3.5	3.0
Diesel fuel (max. efficiency)		2.0 (0.079)	3.0	2.6
Winter blend (production)		3.0 (0.118)	3.8	3.3
Winter blend (max. efficiency)		2.0 (0.079)	3.0	2.6

Model		HI 300D	HI 300HD D
	Units		
Heat input	BTU/hr	293,982	293,982
Heat output	BTU/hr	245,475	245,475
Air flow	cfm	2531	2531
Fuel consumption	L (gal)/hr	8 (2.12)	8 (2.12)
Fuel nozzle size	L/hr (gph)	5.7 (1.50) (80W)	5.7 (1.50) (80W)
Efficiency	%	83.5	83.5
Noise level at 1 m	dB (A)	75	75
Power requirement	VAC/Hz	120/60	120/60
Electrical current	Ampere	15	15
Weight (no fuel)	kg (lb)	129.3 (285)	177.8 (392)
Height	mm (in.)	1143 (45)	1245 (49)
Length	mm (in.)	1740 (68.5)	2159 (85)
Width	mm (in.)	700 (27.5)	864 (34)
Flue diameter	mm (in.)	152.4 (6)	15.2 (6)
Fuel tank capacity	L (gal)	134.8 (35.6)	216.1 (57.1)
Fuel pressure	psi	200	200
Air band setting		Number	Number
Diesel fuel (production)		4.0	4.0
Diesel fuel (max. efficiency)		3.2	3.2
Winter blend (production)		6.8	3.5
Winter blend (max. efficiency)		3.4	3.2

10 Schematics

10.1 Schematic—HI 110 D



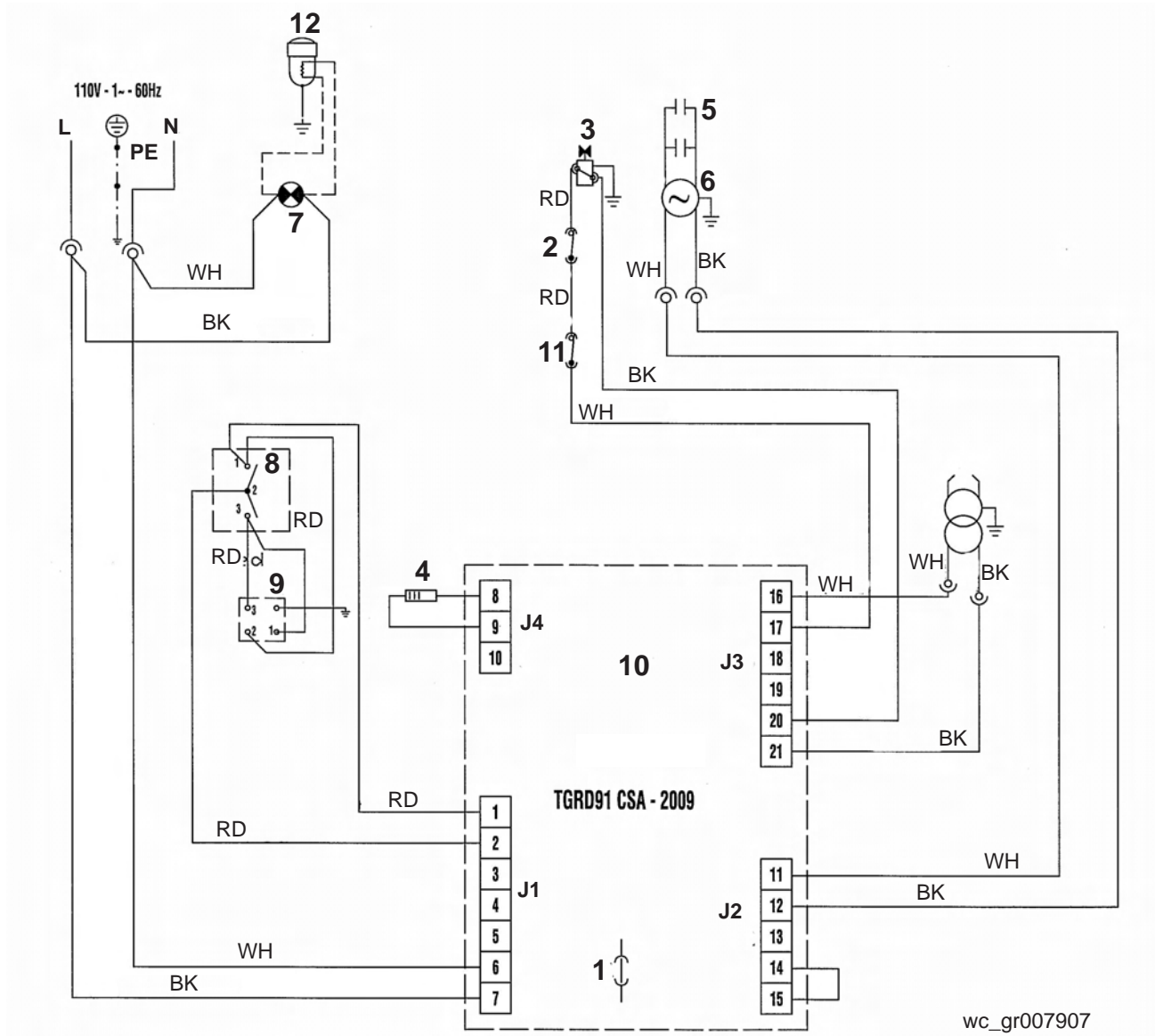
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10.2 Components—HI 110

No.	Description	No.	Description
1	Fuse	7	Electric pilot lamp
2	Overheat thermostat	8	Control
3	Solenoid valve	9	Room thermostat plug
4	CAD cell	10	Control box
5	Capacitor	11	Air pressure switch
6	Fan motor	12	Heated fuel filter (optional)

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Lt. blue

10.3 Schematic—HI 110 HD D

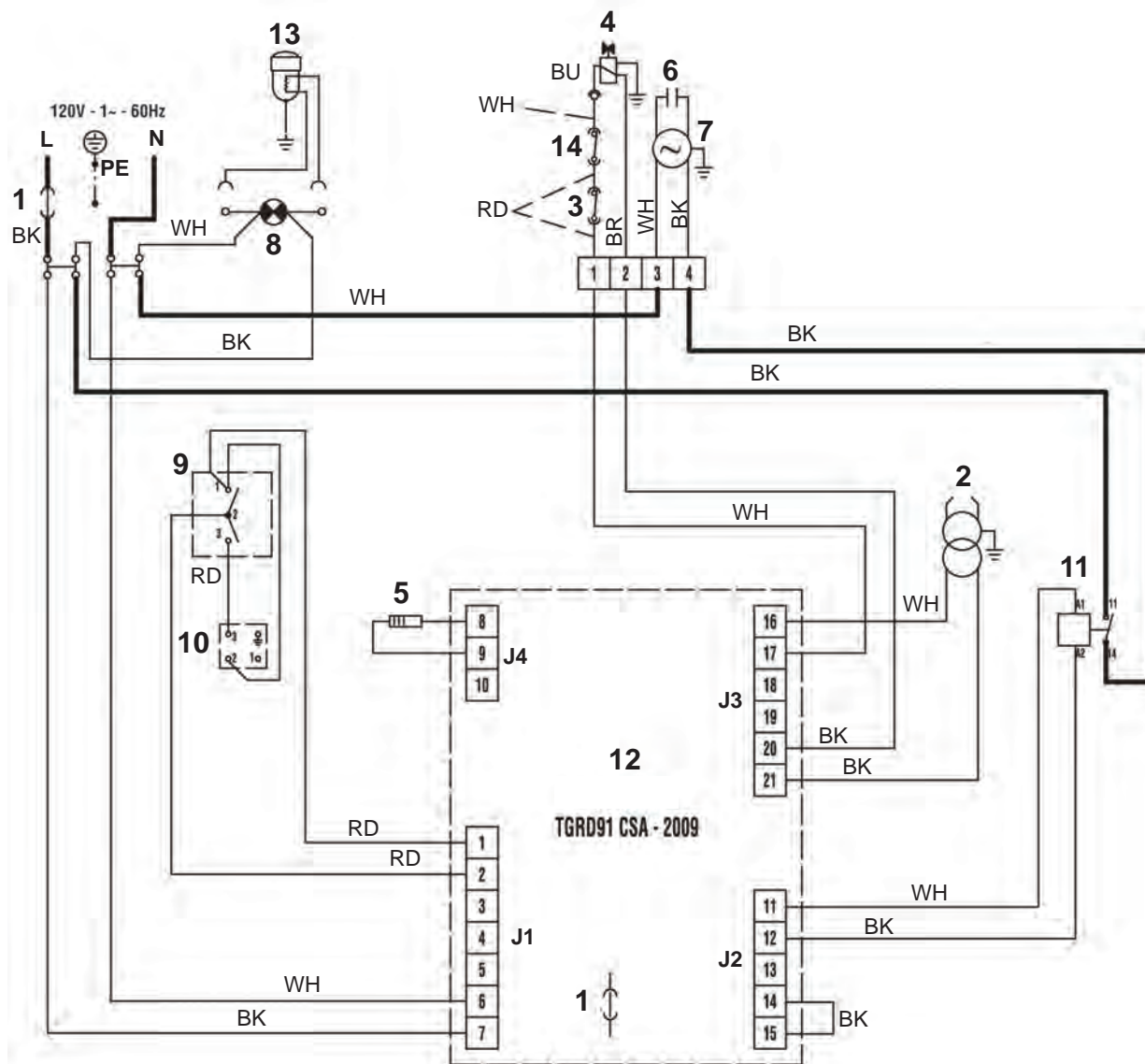


10.4 Components—HI 110 HD D

No.	Description	No.	Description
1	Fuse	8	Control
2	Overheat thermostat	9	Room thermostat plug
3	Solenoid valve	10	Control box
4	CAD cell	11	Air pressure switch
5	Capacitor	12	Heated fuel filter
6	Fan motor	13	Transformer
7	Electric pilot lamp	—	—

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Lt. blue

10.5 Schematic—HI 200 D / HI 300 D



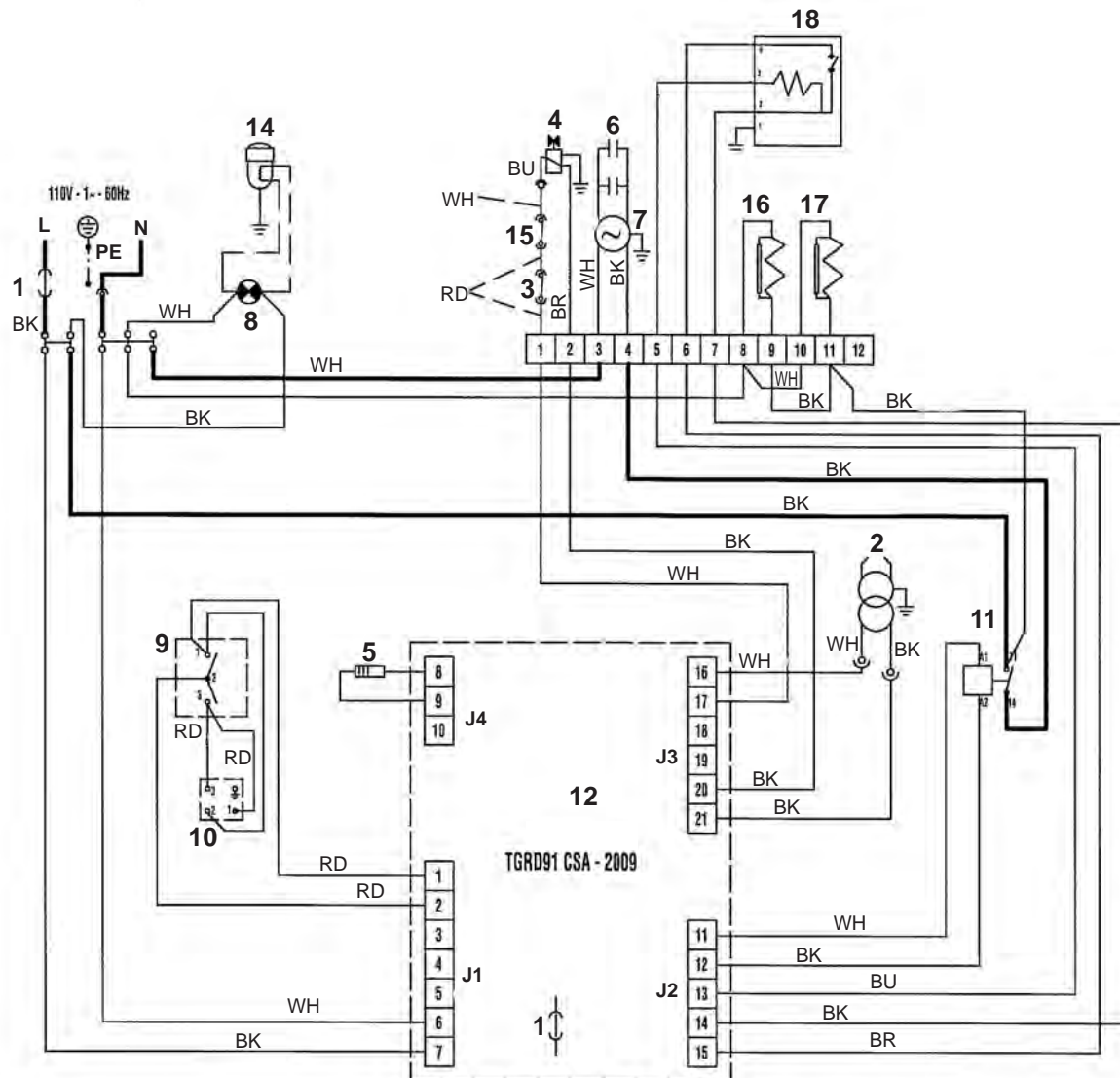
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10.6 Components—HI 200 D / HI 300 D

No.	Description	No.	Description
1	Fuse	8	Electric pilot lamp
2	Transformer H.V.	9	Control
3	Overheat thermostat	10	Room thermostat plug
4	Solenoid valve	11	Relay
5	CAD cell	12	Control box
6	Capacitor	13	Heated fuel filter (optional)
7	Fan motor	14	Air pressure switch

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Lt. blue

10.7 Schematic—HI 200 HD D / 300 HD D



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10.8 Components—HI 200 HD D / 300 HD D

No.	Description	No.	Description
1	Fuse	10	Room thermostat plug
2	Transformer H.V.	11	Relay
3	Overheat thermostat	12	Control box
4	Solenoid valve	14	Heated fuel filter
5	CAD cell	15	Air pressure switch
6	Capacitor	16	Control board heater
7	Fan motor	17	Pressure switch heater
8	Electric pilot lamp	18	Preheated nozzle
9	Control	—	—

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Lt. blue

