



**DIESEL HEATER 20KW  
DIESEL HEATER 30KW  
DIESEL HEATER 50KW**



**TSDH1 | TSDH3 | TSDH5**



**[www.thetoolshed.co.nz](http://www.thetoolshed.co.nz)**



OPERATION MANUAL

PRODUCT DETAILS

PRODUCT

Toolshed Diesel Heater  
20kW | 30kW | 50kW

MODEL NO.

TSDH1 | TSDH3 | TSDH5



**NOTE:**

This manual is only for your reference. Due to the continuous improvement of the ToolShed products, changes may be made at any time without obligation or notice.

**WARRANTY**

This product may be covered under the ToolShed warranty. For more information see our Terms & Conditions at [www.thetoolshed.co.nz](http://www.thetoolshed.co.nz)



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This heater is intended to be used for commercial and light industrial space heating. It is a portable stand-alone appliance to be used inside a large well-ventilated space. It is important that it is not connected to any flue or duct that might restrict the airflow within the heater.

## SPECIFICATIONS

MODEL	TSDH1	TSDH3	TSDH5
Heat Input (kW)	20	30	50
Air Flow Rating (m3/h)	550	720	1100
Fuel Type	Diesel	Diesel	Diesel
Fuel Consumption (LPH)	1.94	2.82	4.71
Voltage (V/Hz)	AC220-240V/50	AC220-240V/50	AC220-240V/50
Air Pressure Setting	0.32 bar	0.31 bar	0.45 bar
Current Rating (A)	1.1	1.1	1.5
Electrical Power (W)	230	230	340
Fuse Rating	T3.15A	T3.15A	T3.15A
Net Weight (kg)	14	21	27
Length (mm)	750	880	1090
Width (mm)	315	456	490
Height (mm)	415	590	585
Tank Capacity (L)	19	38	56
Operating Range (h)	~10	~13	~12
Fuel Gauge	YES	YES	YES
Handle	1	1	1
Ambient Thermostat	Built-In	Built-In	Built-In
Malfunction Detection Light	Built-In	Built-In	Built-In

## SERVICE

- Have your tools and machinery serviced at The ToolShed with ToolShed replacement parts. This will ensure that the safety of the power tool or machine is maintained.

## IMPORTANT INFORMATION

### GENERAL SAFETY GUIDELINES



**WARNING** READ ALL SAFETY WARNINGS AND ALL INSTRUCTIONS. Failure to follow instructions and warnings could lead to serious injury, electric shock, or fire. Save ALL warnings and instructions for future reference.

### WORK AREA SAFETY

- **Ensure that your work area is kept well-lit and clean.** Lack of visibility and clutter greatly increase the risk of accident.
- **Keep bystanders and children clear when operating a power tool or machine.** They can cause distraction or risk injury themselves.
- **Ensure you are not operating the power tool or machinery in the presence of flammable gases, dust, liquids, or anything that creates an explosive atmosphere.** Power tools and machinery can create sparks which can lead to ignition in these environments.

### PERSONAL SAFETY

- **Always wear personal protective equipment.** Eye protection, ear protection, dust masks and other protective equipment will help to reduce the risk of personal injury.
- **Dress appropriately. Do NOT wear jewellery or loose clothing that can get caught in moving parts.** Keep hair, loose clothing, jewellery, and anything else that could be of risk away from moving parts or they could be caught.
- **Always remain alert and do NOT operate the power tool or machinery under the influences of any substances (drugs, medication, alcohol).** Losing focus could lead to injury while operating power tools and machinery.
- **Always keep proper footing and balance.** Overreaching can lead to slipping and falling which can result in injury.
- **Ensure the power switch is in the off position before connecting any battery or power source to the power tool or machinery.** This can lead to accidents as tools and machinery can fire suddenly when it is not expected and lead to accident.
- **Ensure loose parts such as a wrench or adjusting key are removed before starting the power tool or machinery.** Failure to remove these can result in serious injury.

### ELECTRICAL SAFETY

- **Do NOT use the power tool or machinery in raining conditions or wet areas where the power tool or machinery could get wet.** Water in the power tool or machinery can lead to electric shock.
- **Only use the power tool or machinery when the plug correctly matches the power outlet.** Modifying plugs greatly increases the risk of electric shock.
- **Keep the power cord away from anything that could damage it such as sharp edges, moving parts or heat.** A damaged power cord increases the risk of electric shock.
- **Only operate outdoors with the use of an outdoor extension lead.** Not all extension leads are suited to outdoor use and using one which is not can greatly increase the risk of electric shock.

### **ADDITIONAL SAFETY FOR DIESEL HEATER.**

**WARNING:** Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

**WARNING:** Risk of fire, burn, inhalation, and explosion hazard. Keep solid combustibles such as building materials, paper, or cardboard a safe distance away from the heater. Never use the heater in spaces which do or may contain volatile or airborne combustibles, or products such as gasoline, solvents, paint thinner, dust particles, or unknown chemicals.

**WARNING:** Direct-fired heaters may cause carbon monoxide (CO) poisoning when incorrectly used, e.g indoors without adequate air circulation, or if not properly working. CO poisoning may lead to death.

- Not for home or recreational vehicle use.
- The electrical system to which the appliance is connected must comply with current legislation. Installation requires an RCD (Residual Current Device).
- Unplug the appliance and allow to cool down before performing any maintenance operations.
- Always check the power cable before using the appliance. It must not be bent, taut, stretched, crushed, or any way damaged.
- The power cable must be replaced by qualified personnel only. Use an original power cable with a 3-pin approved plug only.
- The front outlet is very hot during operation. DO NOT TOUCH.

## ASSEMBLY

Remove the heater from its carton. If it is damaged in any way, do not use it and contact your dealer.

**TSDH1** – This heater only requires attaching the plastic handle, no other assembly is required.

**TSDH3/TSDH5** – The following accessories are supplied in the shipping carton:

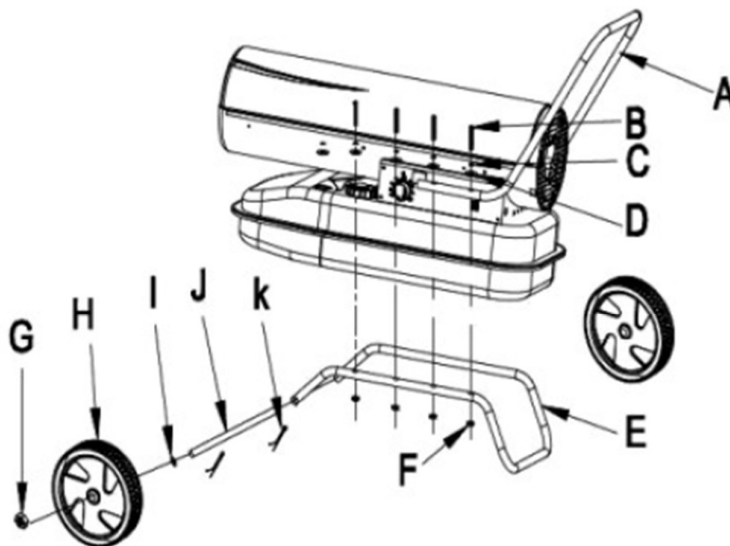


Fig.1

LABEL	DESCRIPTION	QTY
A	Handle	1
B	Screw	6 or 8
C	Spring washer	6 or 8
D	Plain washer	6 or 8
E	Feet pipe	1
F	Nut M5	6 or 8
G	Nut M12	2
H	Wheel	2
I	Plain washer Ø12	2
J	Wheel shaft	1
K	Cotter	2

To assemble the heater, proceed as follows (see Fig. 1):

1. Insert the wheel shaft J to the corresponding hole of feet pipe E. Insert the cotter K to the corresponding holes; out plain washers I to the two sides of the shaft. Slide the wheel H over the wheel shaft J. Screw the nut G to fix the wheel on to the shaft.
2. Put the heater body on the feet pipe assembly. Make sure the 4 holes of handle A point towards the corresponding 4 holes on the feet pipe.
3. Using the screw B, spring washer C, plain washer D, and nut F – fix the feet pipe assembly and handle to the tank.

## INSTALLATION INSTRUCTIONS

**WARNING:** Position the heater on a flat, level, non-flammable, solid surface.

**WARNING:** Direct-fired heaters are intended for use in outdoor open areas or in indoor well-ventilated areas. For indoor use, provide permanent ventilation openings of at least 25cm<sup>2</sup>/kW, equally distributed between floor and ceiling height with a minimum of 250cm<sup>2</sup>.

	TSDH1	TSDH3	TSDH5
Minimum Opening Size	600cm <sup>2</sup>	800cm <sup>2</sup>	1250cm <sup>2</sup>

- Only install the heater in a normal upright position.
- Do not place the heater near walls, corners, or low ceilings.
- Do not place the heater below a socket outlet.
- Do not place the heater on moving vehicles where it can tip over.
- Keep the heater away from flammable, combustible, explosive, or corrosive materials.
- Keep the heater away from curtains or similar materials that could block the air inlet and outlet.
- Never block or restrict the air inlet and outlet for any reason.
- Keep the power cable away from heat sources, sharp edges, and cutting and moving parts.
- Do not expose directly to the weather or to excessive humidity.
- Do not place the heater in the immediate surroundings of a bath, shower, or swimming pool.

Follow general and specific fire safety regulations in force in all fields of applications. In any case, ensure the following minimum safety clearances from materials or objects in the surroundings of the heater:

- Side 2m
  - Air Inlet Side 2m
  - Top 2m
  - Hot Air Outlet Side 3m
  - Floor 0m
- Do not connect direct-fired heaters to air ducts.





## OPERATION

### START UP

1. Fill the tank with clean fuel. **Only use diesel.** The fuel gauge on top of the tank allows you to check the fuel level.
2. Connect the power cord plug to an earthed electrical supply.

### MODELS TSDH1 / TSDH3:

1. Once the startup steps are completed the power indicator will light up and the display window will show the ambient temperature value.
2. Push the power switch to the ON position.

If the thermostat control knob setting temperature is higher than the ambient temperature, the electrodes start sparking and after 7 seconds the heater starts.

### MODEL TSDH5

1. Once the startup steps are completed, the left display window will show “—” and the right window will show the ambient temperature value.
2. Push the power switch to the ON position.
3. The default temperature setting is 20° which will be shown on the left display window.
4. If the ambient temperature is lower than the default temperature, turn the thermostat control knob to the desired temperature. The electrodes will start sparking and after 7 seconds the heater will start.

### MANUAL RESET / RESTART

If the heater is in lock-out mode, check and remove the cause of the lock-out before restarting the heater. To reset, turn the ON/OFF switch to 0 and then again to I. In case of repeated malfunction, call technical service. Turning the thermostat control knob will NOT reset the heater.

### SHUT DOWN

Move switch to OFF (O) position. Unplug the unit.

- **NEVER disconnect the heater from mains to stop it while in operation. Always allow the cooling sequence to be completed (TSDH5), otherwise the residual heat could damage internal components.**
- Do not cover the heater. Do not block the air inlet and outlet.
- The heater outlet is very hot during operation and after use. DO NOT touch. Use personal protection equipment if required.
- Unplug the heater before moving it. Never pull the cable to unplug or move the unit.
- Do not leave the heater unattended when in use.
- Never use the appliance with wet hands or when either the heater or the power cable is wet.
- If the supply cable is damaged, contact your local ToolShed.

## CLEANING, MAINTENANCE & STORAGE

Regularly wipe the enclosure using a soft sponge or cloth. For very dirty parts, use a sponge wetted with lukewarm water and a mild detergent. Then dry using a clean cloth.

Keep air inlet and fan free from dust and dirt. To clean inner parts, gently blow compressed air through air inlet.

Regularly inspect the power cable: if worn, cracked, or damaged, have it replaced by a service technician.

Before storing the heater, make sure it is completely cool and dry. Cover the unit with a plastic bag, put it in its packing box and store it in a dry ventilated place.

- **Before starting any maintenance task, shut down, unplug, and let the heater cool down for at least 15 minutes.**
- **Do not attempt any electrical repair yourself. If the heater needs repair, contact a qualified technician.**
- **Do not use a faulty unit unless a qualified technician has inspected and repaired it.**
- **When cleaning, make sure that water does not enter the unit.**
- **Do not open the enclosure to clean the inner parts. Do not spray water into the heater.**
- **Never use solvents, gasoline, toluene, and similar aggressive chemicals to clean the heater.**

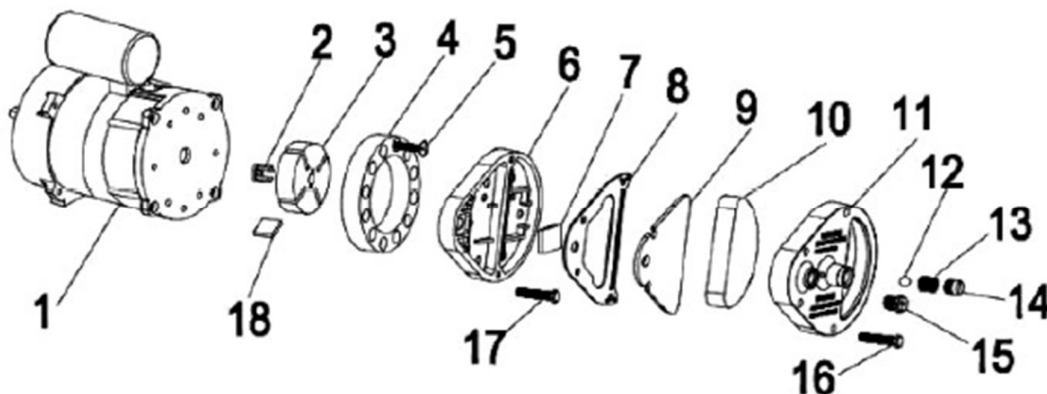
The following checks by a **QUALIFIED TECHNICIAN** are recommended before every seasonal use:

### Nozzle

Carefully unscrew the nozzle from the nozzle fitting. Blow compressed air through nozzle orifice to free it from dirt. Replace nozzle if necessary.

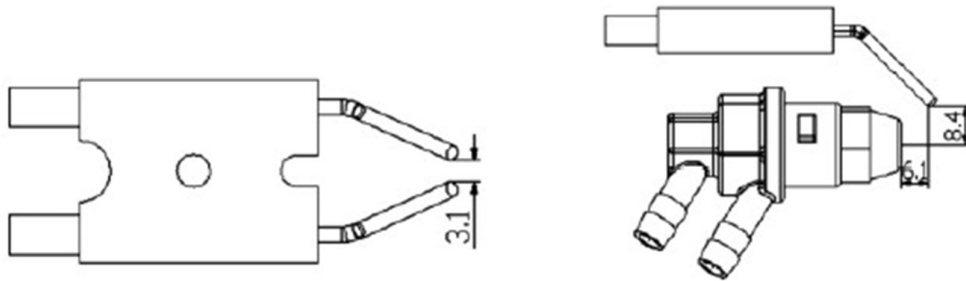
### Air Filters

Clean air filters. Remove filter end cover (11), wash air intake filter (10) using a light detergent and dry it thoroughly before re-installing. Replace air delivery filter (9) once a year.



### Ignition Electrodes

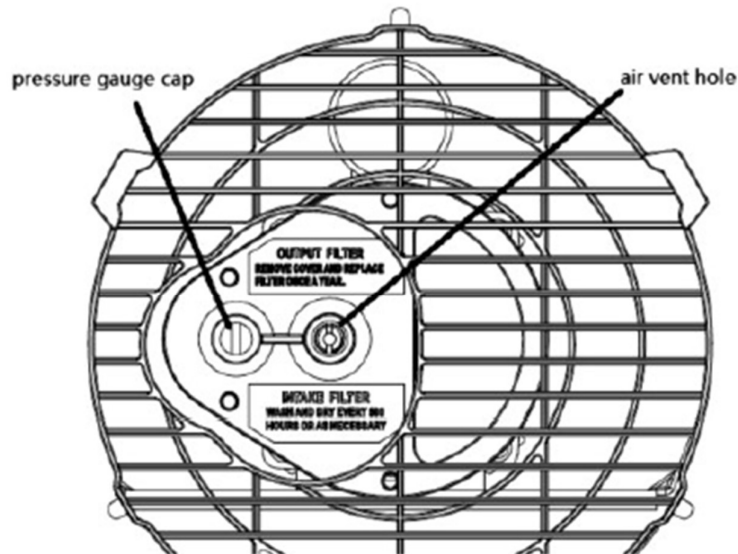
Clean, adjust, and if necessary, replace ignition electrode.



### Compressor Pressure Adjustment

- The compressor pressure is factory set and must be checked and adjusted by qualified technicians only. Tampering with the unit may be dangerous.

Remove pressure gauge cap. Connect a pressure gauge on the pressure measuring port on the rear guard. Start the heater and read the air pressure value. If necessary, adjust pressure to the correct value. Turn the adjusting screw clockwise to increase pressure and anti-clockwise to decrease it.

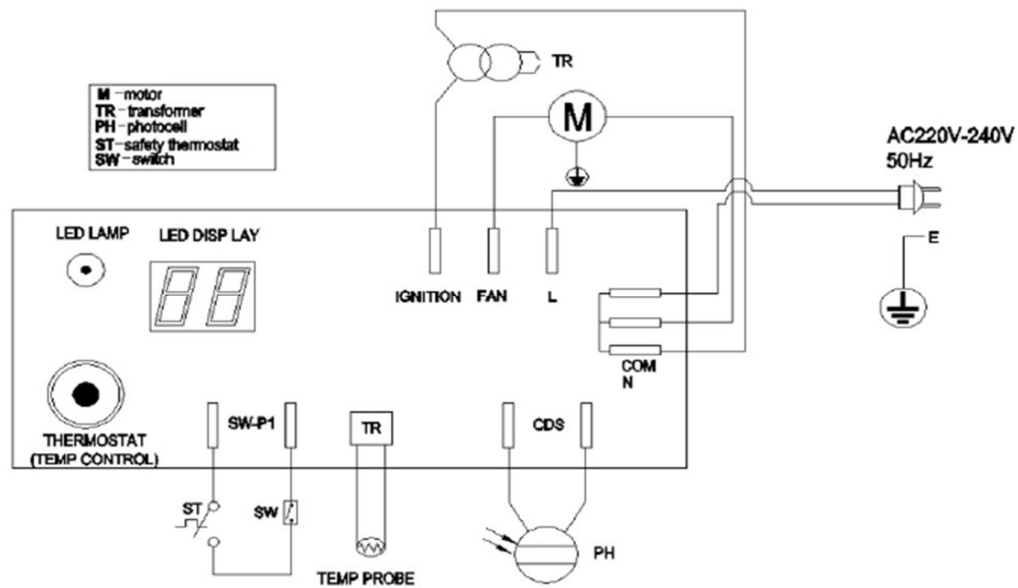


## TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Heater ignites but MAIN PCB assembly shuts heater off after a short period of time  E1 displayed on the screen	1. Wrong pump pressure.	1. See pump pressure adjustment.
	2. Dirty air output, air Intake or lint Filter.	2. See air output, air intake and lint filter.
	3. Dirty fuel filter.	3. See Fuel filter.
	4. Burner nozzle clogged	4. Clean nozzle blowing compressed air, replace if necessary
	5. Dirty photocell lens	4. Clean photocell lens.
	6. Photocell assembly not properly installed. (Not seeing flame)	6. Make sure photocell boot is properly seated in bracket.
	7. Defective photocell.	7. Replace photocell.
	8. Bad electrical connection between photocell and MAIN PCB assembly.	8. Check electrical components.
Heater will not ignite but motor runs for a short period of time  E1 displayed on the screen	1. Empty fuel tank, dirty or wrong fuel	1. Remove wrong or dirty fuel Fill the tank with clean Diesel or kerosene
	2. Wrong pump pressure.	2. See pump pressure adjustment.
	3. Dirty fuel filter.	3. See Fuel filter.
	4. Burner nozzle clogged .	4. Clean nozzle blowing compressed air, replace if necessary
	5. Carbon deposits on spark plug and/or improper gap.	5. See spark plug.
	6. Ignition wire is not attached to spark plug.	6. Attach ignition wire to spark plug. See spark plug.
	7. Air leaks in oil line	7. Check hoses, tighten connections, if necessary replace
	8. Fuel viscosity increased at low temperature	8. Mix Diesel with 10-20% kerosene
	9. Bad electrical connection between photocell and MAIN PCB assembly.	9. Check electrical components.
Fan does not turn when heater is plugged in and power switch was in the "ON" position	1. Thermostat setting is too low. 2. Bad electrical connection between motor and MAIN PCB assembly.	1. Turn thermostat control knob to a higher setting. Check electrical connections. See Wiring Diagram.
Heater will not turn-on. The indicator lamp is not alarm.	1. Thermostat setting is lower than room temp. 2. Temperature limit safety device is overheated and auto shutted off. 3. No electrical power. 4. Blown fuse. 5. Bad electrical connection between temperature limit safety device and PCB board. 6. Thermostat switch failure.	1. Turn thermostat control knob to a higher setting. 2. Turn power switch to "OFF" and allow to cool. 3. Check to insure heater cord and extension cord are plugged in. Check power supply. 4. Replace safety fuse in PCB board. 5. Check electrical connections. See Wiring Diagram. 6. Check thermostat switch
E2 displayed on the screen	The temperature probe is faulted or the connector for temperature probe is loosen	Check and replace if the temperature probe if needed Check and replace the PCB if needed
Flames come out of flue outlet	Insufficient airflow into combustion chamber	Check air inlet, fan, motor
E1 displayed on the screen	Compressor pressure too high	Check air pressure, adjust if needed*
Heater stops during operation  Ambient temperature displayed on the screen	The room temperature set on room thermostat has been reached	Normal operation To start turn the temperature control knob clockwise on a higher setting
Heater stops during operation  E1 displayed on the screen	Flame failure	Check and remove the cause(s) of malfunction
	Bad combustion	To reset, turn On/Off switch to 0 and then to I
	Reduced airflow	Call technical service if the problem persists
	Overheating	

## ELECTRICAL DIAGRAMS

### TSDH1 / TSDH3



### TSDH5

