

DYNABREEZE

TRADE QUALITY SINCE 1995

20kW INDUSTRIAL
DIESEL HEATER



MODEL HE-53218

Instruction User Manual & Warranty



Only use in well
ventilated areas



Not for domestic use
3 pin - 10 amp plug required

CAUTION: Read the Assembly & Safety Instructions before
operating and retain for future reference



Thank you & Congratulations on the purchase of your Dynabreeze Industrial 20kW Diesel Heater

To find out more information on this product,
please visit www.dynabreeze.com.au or contact:

Tradeware

Address 45 Birralee Rd, Regency Park SA 5010
Phone AU 1300 658 494 NZ 0800 689 960
Email info@tradeware.com.au
Website www.tradeware.com.au

SPECIFICATIONS

Model	HE-53218	Fuse Rating	3.15A
Voltage	220-240V	Tank Capacity (L)	19
Frequency	50Hz	Max Operation Range (H)	10
Heat Output	20kW	Unit Dimensions	L 765 x W 395 x H 560
Air Output (m ³ /h)	550	Product Weight	16.4KG
Air Pressure Setting (bar)	0.32		
Fuel Type	Diesel or Kerosene		
Fuel Consumption (L/h)	1.7		
Electrical Power (W)	230		
Current Rating (A)	1.1		



OPERATION CONDITIONS & SAFETY PRECAUTIONS

WARNING: When using electrical appliances, basic safety precautions should be followed to reduce the risk of fire, electric shock and injury to persons or property.

WARNING: Not for domestic use - 3 PIN - 10 amp plug.

- Please read instructions carefully.
- Place user manual in a safe place for future reference. Do not allow anyone who has not read these instructions to assemble, adjust or operate this Heater.
- Failure to comply with the precautions and instructions provided with this Heater, can result in death, serious injury and property loss or damage from hazards of fire, explosion, burn, and/or electrical shock.
- Only persons who can understand and follow the instructions should use or service this Heater. If you need assistance or require Heater information such as an instruction manual, labels, etc., contact Tradeware.
- Fire, burn, inhalation, and explosion hazard. Keep solid combustibles, such as building materials, paper or cardboard, a safe distance away from the Heater as recommended by the instructions. Never use the Heater in spaces which do or may contain volatile or airborne combustibles, or products such as gasoline, petrol, flammable vapours or liquids, solvents, paint thinner, dust particles or unknown chemicals.
- The electrical system to which the appliance is connected must comply with local regulations.
- Connect to properly grounded power outlet only. No other appliance should be plugged into the same outlet.
- Always check the power cord before using the appliance. It must not be bent, taut, stretched, crushed or any way damaged.

- If the power cord and/or plug is damaged, it must be replaced by Tradeware, a service agent or a qualified persons.
- Do not run power cord over carpeting or other heat insulators. Do not cover the cord, keep cord away from traffic areas.
- If an extension cord is used, it must not be longer than 2m.
- Do not cover the diesel Heater.

WARNING: The front outlet is very hot during operation. Do not touch! Burn danger.

- Do not leave Heater unattended when in use.
- Never use Heater with wet hands or when either the Heater or power cable is wet.
- Children should be supervised to ensure that they do not play with the Heater.
- The Heater is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience & knowledge.
- Do not connect an external on/off timer or other automatic switch.
- Switch off and unplug Heater before moving, cleaning or making any repairs or servicing.
- Keep safety guards/grilles in place and do not operate the machine with them removed.

WARNING: Touching of moving blades can cause serious injury.

- Do not insert fingers or anything through the grille or the front of the unit - the hot air outlet.
- Do not wear jewellery or loose clothing that could be caught by the rotating blades.

OPERATION CONDITIONS & SAFETY PRECAUTIONS

- Only position the Heater in the normal upright position (on the wheels).
- Do not place the Heater near walls, corners or low ceilings.
- Do not place the Heater below a power socket outlet.
- Do not place the Heater on moving vehicles or 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 cord away from heat sources, sharp edges, 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.
- Do not use spray products at the location where the Heater is used, the gas from the spray tin can cause danger of fire and explosion.
- Do not use the appliance in place with combustible powder, waste-paper, wood crumbs, fibre scraps. If these powders are sucked in the Heater and heated up, flame and spark may be ejected out and cause fire and burning danger.
- Never block air inlet or heating part, it can cause abnormal burning and fire.
- Never modify the Heater, alterations may cause malfunctions and fire, and is very dangerous.
- Pull out the plug before the routine maintenance and examination.
- Do not place articles near the Heater. Keep all combustible materials away from Heater. Ensure the following minimum safety clearances from materials or objects in the surroundings of the Heater, see Fig. 1 below:
Outlet (front) 3M, air inlet (rear) 2M, top 2M, side 2M.

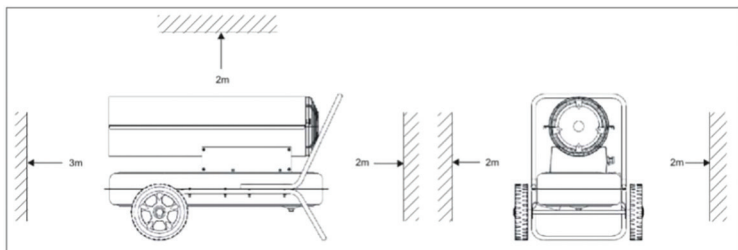


FIG. 1

PARTS IDENTIFICATION

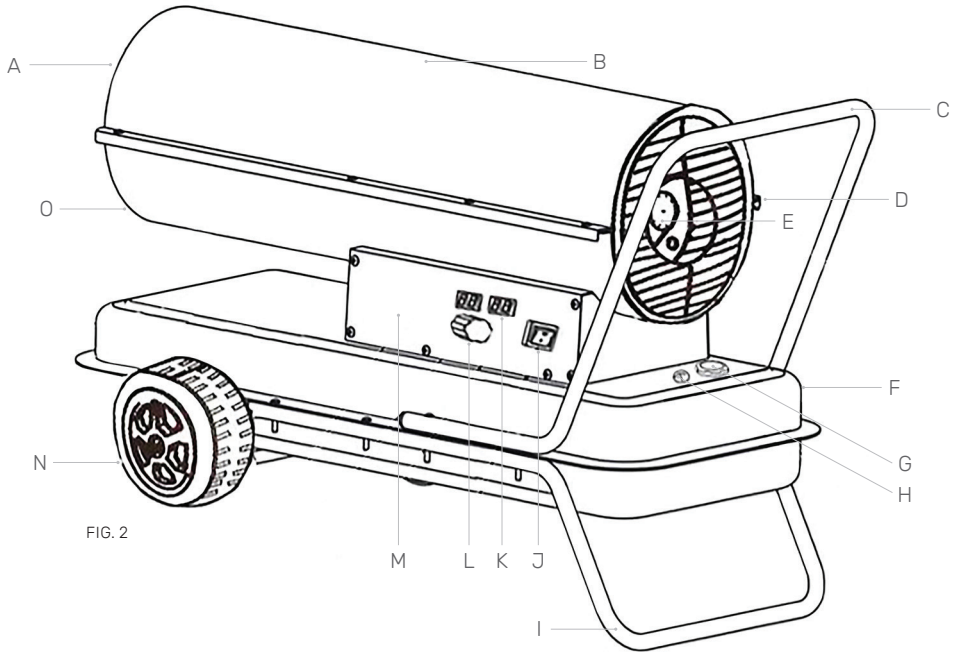


FIG. 2

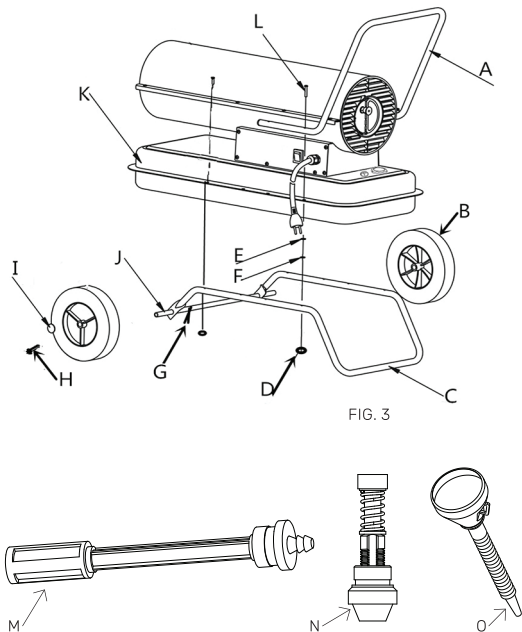
A Hot air outlet	I Lower frame
B Upper shell	J Power switch
C Front handle	K Display window
D Back grille	L Thermostat knob
E Pressure gauge	M Side panel
F Fuel tank	N Wheel
G Fuel cap	O Lower shell
H Fuel gauge	

ASSEMBLY & OPERATION

Remove the Heater from the carton. If the Heater is damaged, please contact Tradeware or where you purchased the Heater from. Do not proceed to assembling and using it.

The following parts are supplied in the carton:

Pos.	Description	Qty
A	Rear handle	1
B	Wheels	2
C	Lower frame	1
D	Nut M4	8
E	Spring washer	8
F	Plain washer	8
G	Cotter pin	4
H	Screw	2
I	Plain waster	1
J	Wheel axle	1
K	Main body	1
L	Screw	8
M	Oil inlet filter	1
N	Spare nozzle	1
O	Fuel funnel	1



To assemble the Heater, proceed as follows:

- Insert the wheel axle (J) to the corresponding hole of the lower frame (C).
- Insert the cotter pin (G) to the corresponding holes. Put plain washer (I) to the two ends of the wheel axle, slide the wheel (B) over the wheel axle, tighten the screw (H) to fix the wheel on the axle.
- Put the Heater body on the lower frame assembly, line up the 4 holes of the rear handle (A) ensure holes line up with the lower frame.
- Using the screws (L), spring washer (E) plain washer (W) and nuts (D) fix the lower frame & handle to the tank.

ASSEMBLY & OPERATION

- Position the Heater on a flat, level, non-flammable & solid surface.
- 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 25 cm²/kW, equally distributed between floor and high level, with a minimum of 250 cm².

	HE-53218
Minimum Opening Size	600cm ²

START UP

- Fill the tank with clean fuel. Only use diesel or kerosene, using the fuel funnel supplied to put the diesel/kerosene into the Heater.
- The fuel gauge on top of the tank allows you to check the fuel level.
- Connect plug to the relevant power source.
- The power indicator will light up & the ambient temperature will display.
- Push the power switch to "ON" by pushing it up to position 1.
- If the thermostat knob setting temperature is higher than the ambient temperature, the electrodes will start sparking & after 7 seconds the Heater will start.
- If the thermostat control knob setting is lower than the ambient temperature, turn the thermostat control knob to desired temperature setting. The electrodes will start sparking & after 7 seconds the Heater will start.

BLENDING DIESEL & KEROSENE

A blend of diesel & kerosene should be used in low temperature regions (alpine/highland/inland) or unseasonable cold weather to avoid wax crystallising (solidifying) in diesel.

Guideline Ratio:

Kerosene at 5L for each 100L of Diesel.

COLD START-UP

For use in low temperature, in Alpine/Highland/Inland regions and unseasonably cold weather:

- Block the air vent hole on the air pump (see Fig. 7) by using your finger during ignition to make start-up easier.

ABNORMAL OPERATION

In case of malfunction (flame failure, reduced air flow, bad combustion) the Heater stops and the indicator light starts FLASHING (THE LOCK-OUT MODE code will be shown on the display window).

ASSEMBLY & OPERATION

MANUAL RESET/RESTART

If the Heater is in lock-out mode, check and remove the cause of lock-out before restarting the Heater. To reset, turn the ON/OFF switch to 0 and then again to I. If problem continues please contact Tradeware. Turning the thermostat control knob will **NOT** reset the Heater.

SHUTDOWN

Move switch to "OFF" (0) position.

- Never disconnect the Heater from mains to stop it while in operation.
- Always allow the cooling sequence to be completed, otherwise the residual heat could damage internal components.
- Do not cover the Heater. Do not block the air inlet and outlet.

WARNING: The front outlet is very hot during operation and after use. Do not touch! Burn danger. Use personal protecting equipment if needed.

- Unplug the Heater before moving it. Never pull the cable to unplug or move the unit.

CHECKING THE FUEL TANK

When there is waste and water in the tank, clean and drain the fuel tank.

Draining the fuel tank (see figure below):

- Put the Heater on the working table and place an oil container under the fuel tank.
- Use a spanner to loosen the drain screw and release the water and waste inside the tank.
- After draining, tighten the drain screw again and wipe clean any left over water and oil.

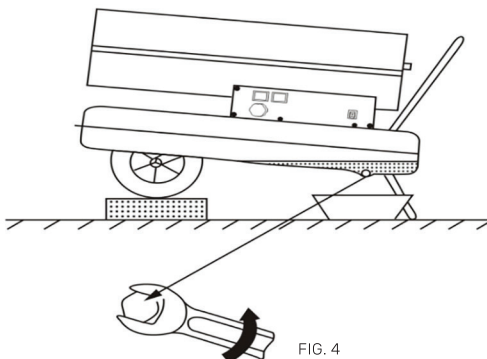


FIG. 4

ASSEMBLY & OPERATION

WORKING PRINCIPLES

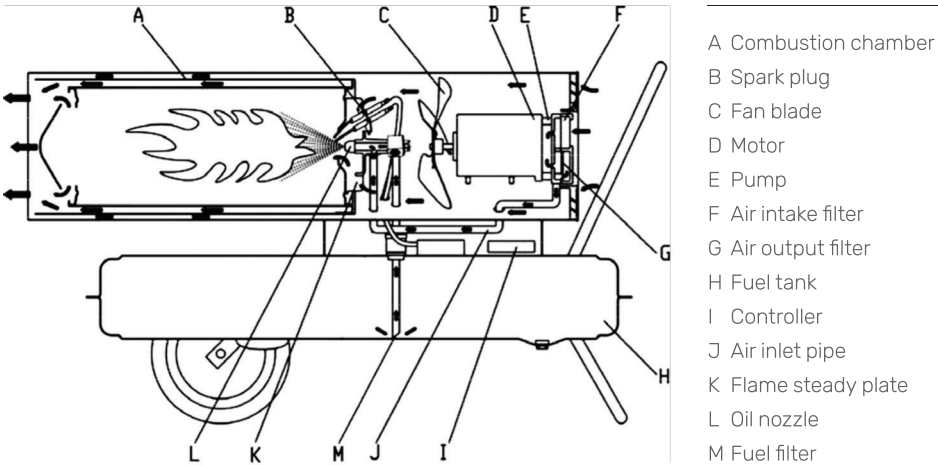


FIG. 5

Description of working principles:

- Open the fuel cap to add kerosene/diesel in the tank. Place the fuel cap back on and plug the power cord in the socket.
- Turn the power switch on to position "1", the motor will start working and the digital temperature display will light up.
- The left display window is setting temperature and right is room temperature. The spark plugs will ignite automatically when the setting temperature is higher than the room temp.

This Heater is equipped with an electric air pump that forces air through the air line that is connected to the fuel intake and then through a nozzle in the burner head. When the air passes in front of the fuel intake it causes fuel to rise from the tank and into the burner nozzle. This fuel and air mixture is then sprayed into the combustion chamber in a fine mist and is then blown by the fast turning fan blades;

- Air enters the flame steady plate and the burner, supplies additional oxygen to the burning and makes the burning more sufficient and takes away the heat from the burner interior to outside.
- Air enters the heat insulation layer of A, takes away the heat from the insulation layer so that the burner surface will not overheats. The spark plug stops working after 12s of sparking.

CLEANING, MAINTENANCE & STORAGE

Please refer to the Maintenance Schedule & Log Book that came with this Heater.

- 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 service or repair, contact a qualified person.
- 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.

Regularly wipe the enclosure using a soft sponge or cloth. For very dirty parts, use a lukewarm moist sponge 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 qualified person only.

Before storing the Heater, make sure it is perfectly cool and dry. Cover the unit with a blanket or tarp and store it in a dry, ventilated place.

The following checks are recommended before every seasonal use:

Nozzle

Carefully unscrew nozzle from 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 (9), wash air intake filter (13) using a light detergent and dry it thoroughly before re-installing. Replace air delivery filter (8) once a year.

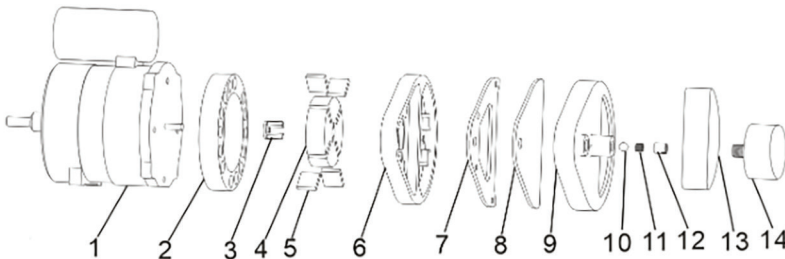


FIG. 6

CLEANING, MAINTENANCE & STORAGE

Air Pump Pressure Adjustment (qualified person only)

The Air Pump Pressure is factory set and must be checked and adjusted by qualified technicians only, tampering with the unit may be dangerous.

Start the Heater and read air pressure value. If necessary adjust pressure to the correct value turning the adjusting screw (the air vent hole in the adjusting screw middle) clockwise to increase, anticlockwise to decrease the pressure.

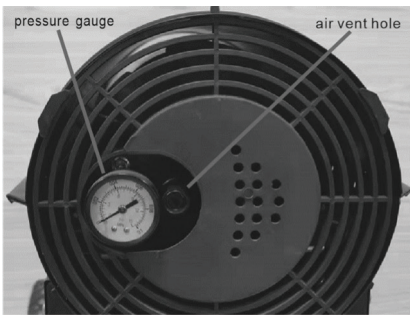


FIG. 7

Model	Air Pressure (bar)
HE-53218	0.32

Ignition Electrodes (qualified person only)

Clean, adjust and if necessary replace ignition electrode.

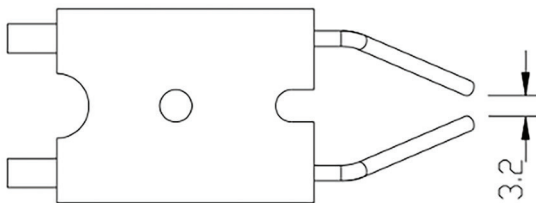
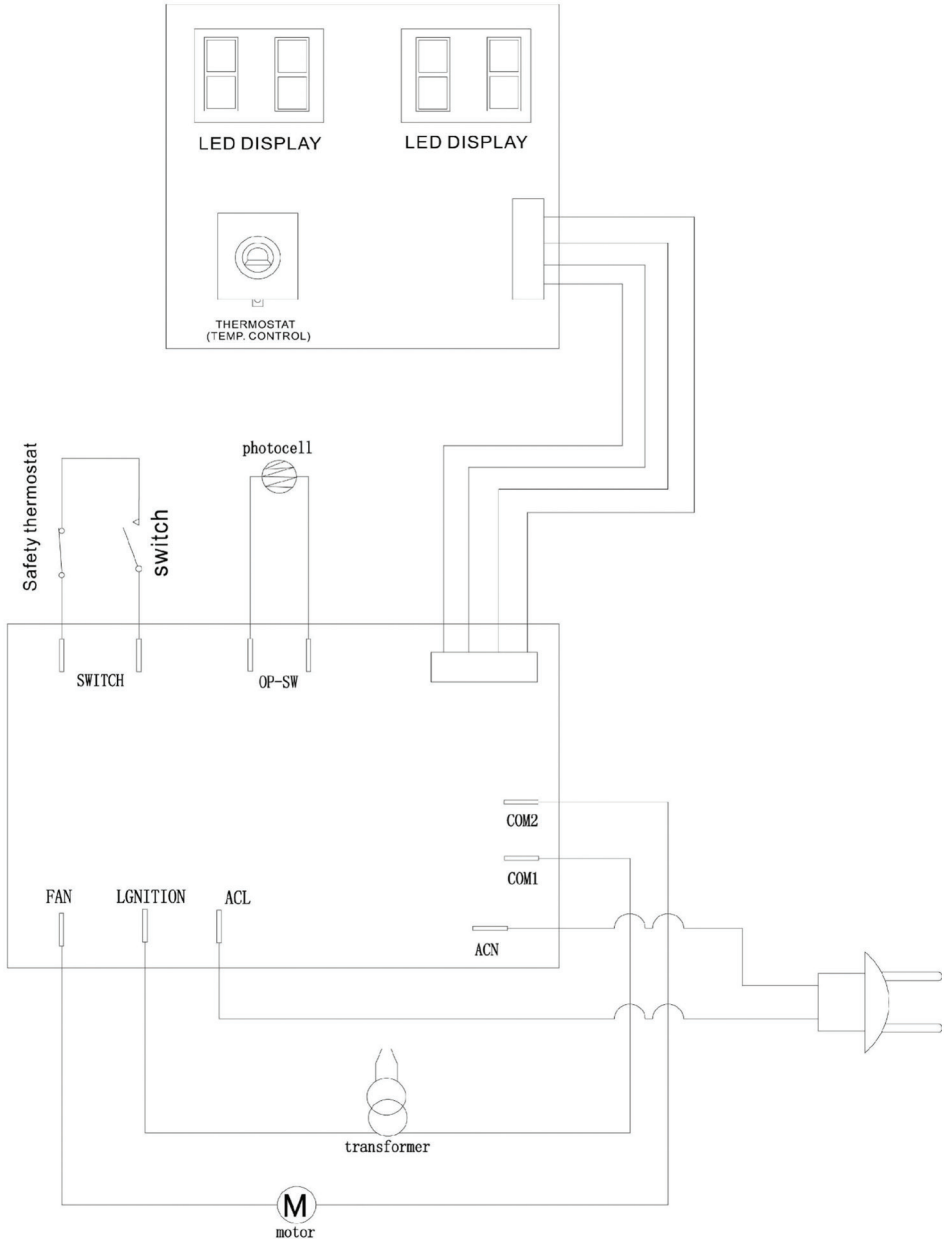


FIG. 8

WIRING DIAGRAM





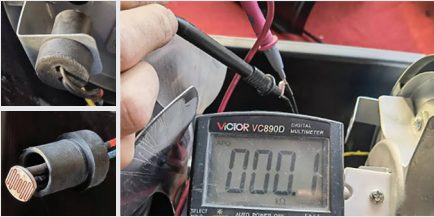
PARTS BREAKDOWN

Part no	Description	Material	Quantity	Part no	Description	Material	Quantity
53	Motor plate	SGCC	1	27	Fan blade	Al	1
52	Backside plate	SFCC	1	26	Motor		1
51	Display window	PC	2	25	Insert	POM	1
50	PCB 2		1	24	Pump body		1
49	PCB 1		1	23	Pump core		1
48	PCB board plate	ABS	1	22	Pump blade		4
47	Ignition transformer	2*15KV	1	21	AI pump cover		1
46	High voltage wire case		1	20	Air outlet filter		1
45	Fuel tank support	SFCC	2	19	Plastic pump cover	PC	1
44	Fuel tank	SECC-P	1	18	Ball	Φ6	1
43	Photo cell assembly		1	17	Spring		1
42	Photo cell bracket	SGCC	1	16	Air inlet filter		1
41	Fuel filter		1	15	Adjusting screw	PA	1
40	Ignition needle		1	14	Back grill	PA	1
39	Burner head		1	13	Pressure gauge		1
38	Nozzle assembly		1	12	Lock	PG9	
37	Lower casing	SGCC	1	11	Fuel cap		1
36	Thermal cut-out		1	10	Fuel gauge		1
35	Thermal cut-out tube	SGCC	1	9	Power cord		1
34	Out casing bracket	SGCC	4	8	Lower frame		1
33	Frame baffle	Stainless steel	1	7	Wheel axle		1
32	Insulation chamber	SGCC	1	6	Wheel	Rubber	2
31	Upper casing	SFCC	1	5	Wheel screw	M6*14	2
30	Combustion chamber	Stainless steel	1	4	Power switch	RK2	1
29	Burner support plate		1	3	Knob	ABS	1
28	Rear handle		1	2	Waterproof bar	Rubber	2
Part no	Description	Material	Quantity	Part no	Description	Material	Quantity
explode drawing							
Project	Date	Units		Material			
Design	Date	Proportion		Model number		HE-53218	
Audit	Date	Drawing number					


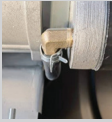



TROUBLESHOOTING

ISSUE	CAUSE	FIX
Motor does not start. E1 displayed on the screen.	No power or low voltage.	Check power supply & voltage. Check fuse & replace if necessary.
	Faulty or damaged power cord.	Check & replace.
	Faulty motor/capacitor.	Check & replace if necessary.
	Lock-out mode due to previous overheating.	Detect the cause of overheating. Shut the Heater down. Check air inlet & outlet. Wait 5 mins & restart the Heater.
E2 displayed on the screen.	The temperature probe is faulty or the connector is loose.	Check & replace. Check & replace PCB if needed.
Motor runs but the Heater does not ignite & locks out after a short time. E1 displayed on the screen.	Empty fuel tank: dirty or wrong fuel.	Check fuel level, fill the tank with clean diesel or kerosene if required. Remove wrong or dirty fuel.
	Fuel filters clogged.	Clean or replace filters.
	Air leaks in fuel line.	Check fuel lines if connections are tight and no cracks. Replace if required.
	Fuel nozzle clogged.	Clean nozzle by blowing compressed air or replace if required.
	Fuel viscosity increased at low temperature.	Blend diesel with kerosene.
Flame comes out of the body. E1 displayed on the screen.	Insufficient air flow into combustion chamber.	Check air pump, air inlet, fan & motor.
	Air pressure too high.	Check air pump pressure.
Heater stops during operation. Ambient temperature displayed on the screen.	The room temperature set has been achieved.	Adjust the thermostat control knob clockwise for higher setting.
Heater stops during operation. E1 displayed on the screen.	Flame failure.	Check & remove the cause(s) of the malfunction. Reset, turn the ON/OFF switch to "0" and then again to "I".
	Bad combustion.	
	Reduced air flow.	
	Overheating.	



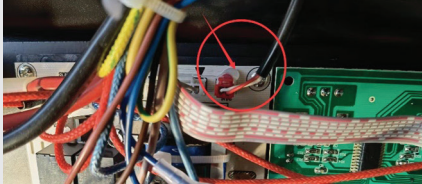
TROUBLESHOOTING

NO.	REASON	PROCESS	FIX
1.	Fuel exhausted.	Check fuel.	<p>Remove fuel cap and add enough fuel.</p> 
2.	Thermostat cut-out.	Check thermostat.	<p>Using a multi-meter, check both ends of the thermostat. The thermostat is working if there is a resistance value. Replace thermostat if no resistance.</p> 
3.	Photocell breakdown.	Check photocell assembly.	<p>Pull out the photocell and let it sense light. Using a multi-meter connect both ends. It is good if there is no resistance. Replace photocell if there is value.</p> 

TROUBLESHOOTING

NO.	REASON	PROCESS	FIX
4.	Motor not working.	Check motor condition.	<p>Open the control panel. Using a multi-meter check motor circuit.</p> 
5.	Air line leakage.	Check air line.	<p>Take out the air line. Carefully Check the line surface. Replace if there are any cracks or damages.</p>  
6.	Fuel filter blocked.	Check fuel filter.	<p>Take out the fuel filter. If blocked, clean it out then rinse and soak in diesel or kerosene. Replace fuel filter if blockage is too thick. A spare fuel filter was supplied to you with this purchase.</p>  

TROUBLESHOOTING

NO.	REASON	PROCESS	FIX
7.	Air pump leakage.	Check air pump.	<p>Block the air outlet and adjusting hole. The air pump is good if pressure gauge needle reaches 14PSI. Replace air pump if it failed. The factory setting pressure is 4-6PSI.</p> 
8.	Fuel nozzle blocked.	Check and clean nozzle.	<p>If there is black smoke or flash fire check and clean the fuel nozzle. Replace the nozzle if the same symptoms continue. A spare fuel filter was supplied to you with this purchase.</p> 
9.	Probe damage (E2).	Check probe.	<p>Open the control panel. Check the condition of the probe and connection point. Replace the probe if the end is damage. Reconnect it well if loose.</p> 

DISPOSAL GUIDELINES

Do not dispose of this product with general household waste. This product must be disposed according to the laws governing Waste Electrical and Electronic Equipment.

If required, contact your local authorities for information regarding the available disposal facilities.

WARRANTY

Under the Australian Consumer Law (ACL) or NZ Consumer Guarantees Act (CGA), you are entitled to a 12 month replacement or refund for product failure and compensation for any other reasonably foreseeable loss or damage.

Tradeware offers a 3 Year Warranty. The additional warranties, terms and conditions are outlined on the website www.dynabreeze.com.au under the Support tab.

Under Support you can also **Register your product** upon purchase and enjoy the peace of mind of knowing your product is registered should anything happen.

If the unit fails to operate efficiently, is broken or other problems arise, unplug and do not operate. Ask for advice by calling Tradeware.

To Claim, the Heater should be returned to the place of purchase or via the website within the warranty period.

Such claims must include:

- Details of the alleged defect or fault;
- Evidence of the claim; and
- Proof of purchase documentation which clearly shows the date and place of purchase.

Please visit www.dynabreeze.com.au for more details



Tradeware

Tradeware

45 Birralee Road, Regency Park
South Australia 5010
info@tradeware.com.au
1300 658 494
www.tradeware.com.au

Due to continual product development, please note the information and content provided may not be final and may be subject to changes.



Please
Recycle