

ATLOSON

THERMAL SYSTEMS

NERAL BD4000

INSTALLATION AND OPERATION MANUAL

OPERATION | MAINTENANCE | PARTS



HEAT DRIVES
POSSIBILITIES

01 Identification, safety and use

This manual accompanies model NERAL BD4000. Record SKU, serial number, voltage, fuel and revision before installation. Accessories, functions and protective devices depend on the supplied variant.

Cabin heating and domestic hot-water preparation in a recreational vehicle or converted van. Separate cold/hot-water, warm-air and combustion circuits.

SKU	Fuel	Voltage
ATL-NER-BD4000	Diesel + Electric	Read the rating plate
ATL-NER-BD4000-G	Gasoline + Electric	Read the rating plate
ATL-NER-BD4000-P	Propane + Electric	Read the rating plate

Carbon monoxide: combustion gases must remain outside occupied spaces. Do not operate in a garage or other enclosed location. Keep intakes and flue outlets clear, especially after snow, mud or travel.

Fuel smell, abnormal smoke, leakage or a CO alarm: stop use, move occupants away and have the installation inspected. Do not restart to conceal a fault. Contact emergency services if there is immediate danger.

Fire and burns: keep combustible materials away from the appliance, hot ducts and exhaust. Do not use the service compartment for storage. Allow cooling before inspection and keep children away from hot surfaces.

Power: use the nameplate voltage. Never increase a fuse rating or bypass protection. For a normal stop, allow the controlled cooling cycle to finish before disconnecting power.

Stop before refuelling. Fuel, combustion, gas and mains work require a qualified professional. Install and maintain a CO detector suitable for the application according to its own instructions.

Combi heating: identify the warm-air circuit separately from the domestic-water tank. Confirm pump, pressure, relief valve, draining and frost protection. Do not energise a water element dry. Diesel, gasoline and propane versions each require their own supply. Mains power needs protection and earthing according to the approved design.

02 Variant specifications

Common specification	Value
Heat output class	4 kW

Differences between variants

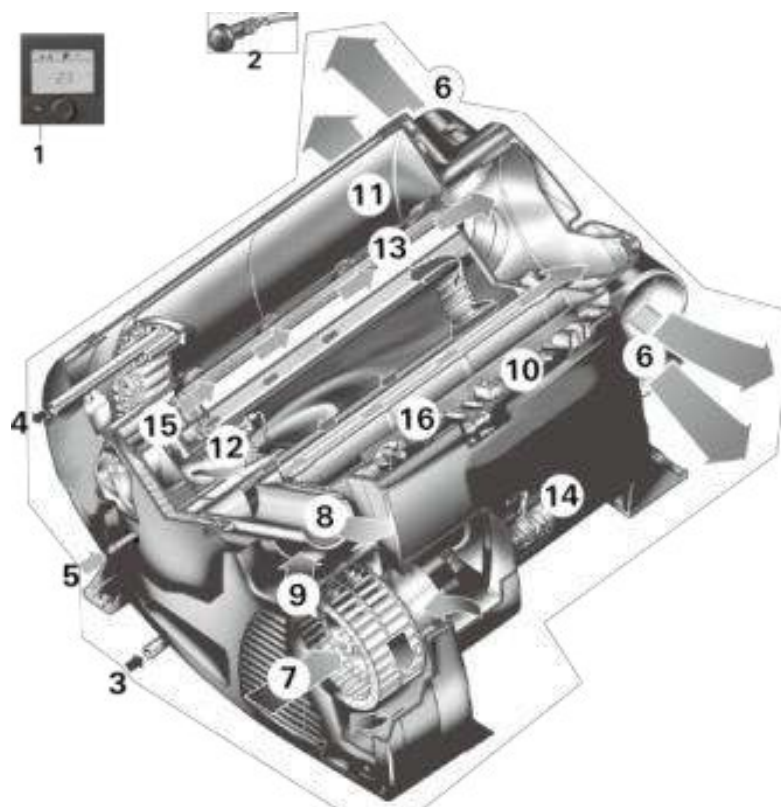
Specification	SKU	Value
Fuel	ATL-NER-BD4000	Diesel + Electric
Fuel	ATL-NER-BD4000-G	Gasoline + Electric
Fuel	ATL-NER-BD4000-P	Propane + Electric

For unpublished values, use the supplied variant's nameplate and data sheet: starting current, fastening torque, pressure, pump flow and protection devices cannot be inferred from power.

03 Recommended applications and output selection

Select according to insulation, outdoor temperature, heated volume and air exchange. For domestic water: water demand, pressure and frost protection. Engine displacement and engine coolant volume are not applicable to this unit.

04 BD4000 family section view



Drawing callouts: identify components before service. A sectional view shows operation; it does not define a disassembly sequence. Check the unit revision before ordering any part.

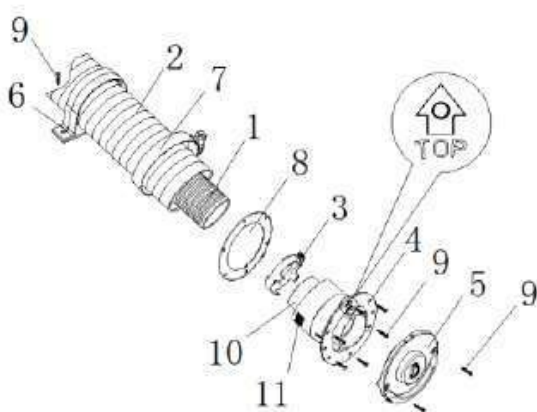
05 Step-by-step installation

STEP 1 - Prepare the compartment

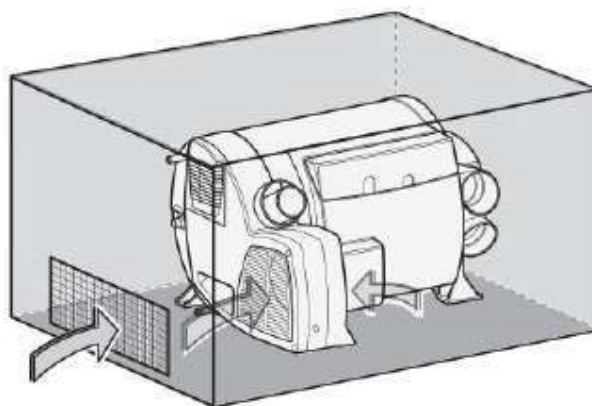
Secure the base and maintain access to the drain, connections and electronics. Keep the return-air inlet clear and distribute heating outlets.

STEP 2 - Mount the combustion terminal

Use the terminal and ducts for the supplied variant. Observe the TOP marking and intake/exhaust connections. Check every clamp and leak tightness before closing the compartment.



Terminal and duct connections

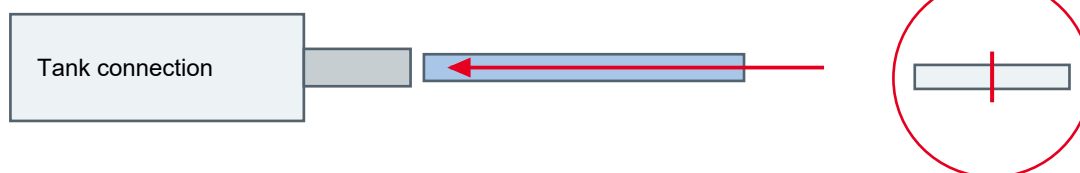


Compartment and return air

STEP 3 - Connect domestic water

Connect cold water and hot outlet without mechanical stress on fittings. Install the safety valve, drain and downward outdoor discharge. Fill with a hot-water tap open until air is expelled.

ACTION DETAIL - schematic

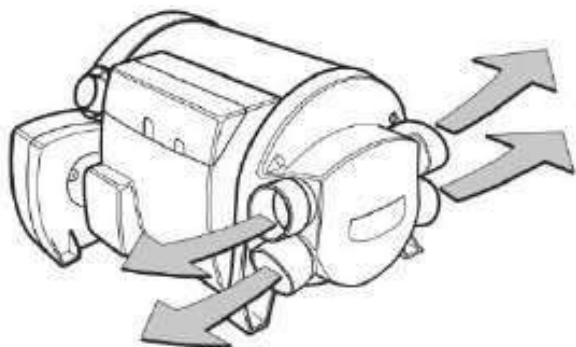


Support the tube. Insert as specified for the supplied connector.

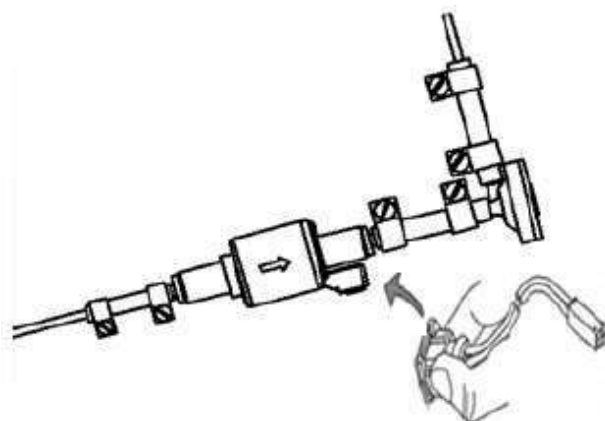
Check retention and sealing.

STEP 4 - Connect the energy supply

Diesel/gasoline: matched circuit and pump. Propane: regulator and line according to the nameplate; leak test by a competent person. Mains: voltage, earth and protection devices for the actual supplied version.



Hot-air distribution

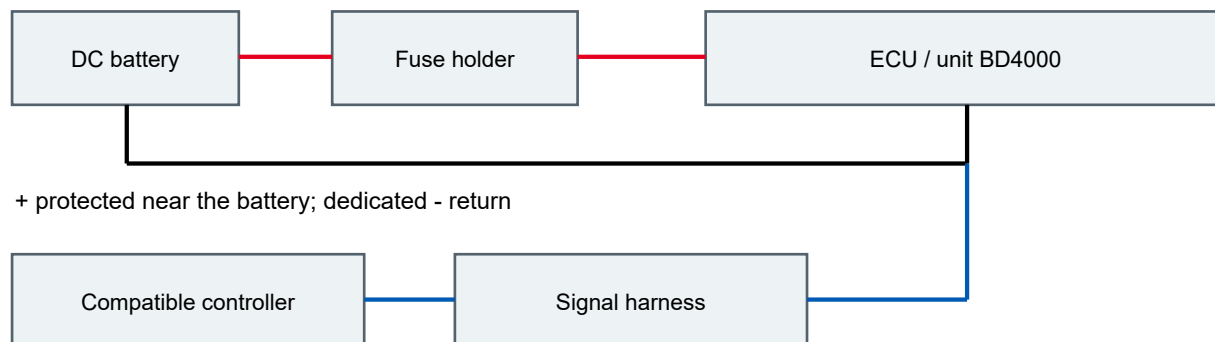


Domestic-water connection

STEP 5 - Commission

Test air, water and then combined mode. Test available energy sources separately. Check hot outlets, domestic-water leak tightness and draining. Do not activate heating elements with an empty tank.

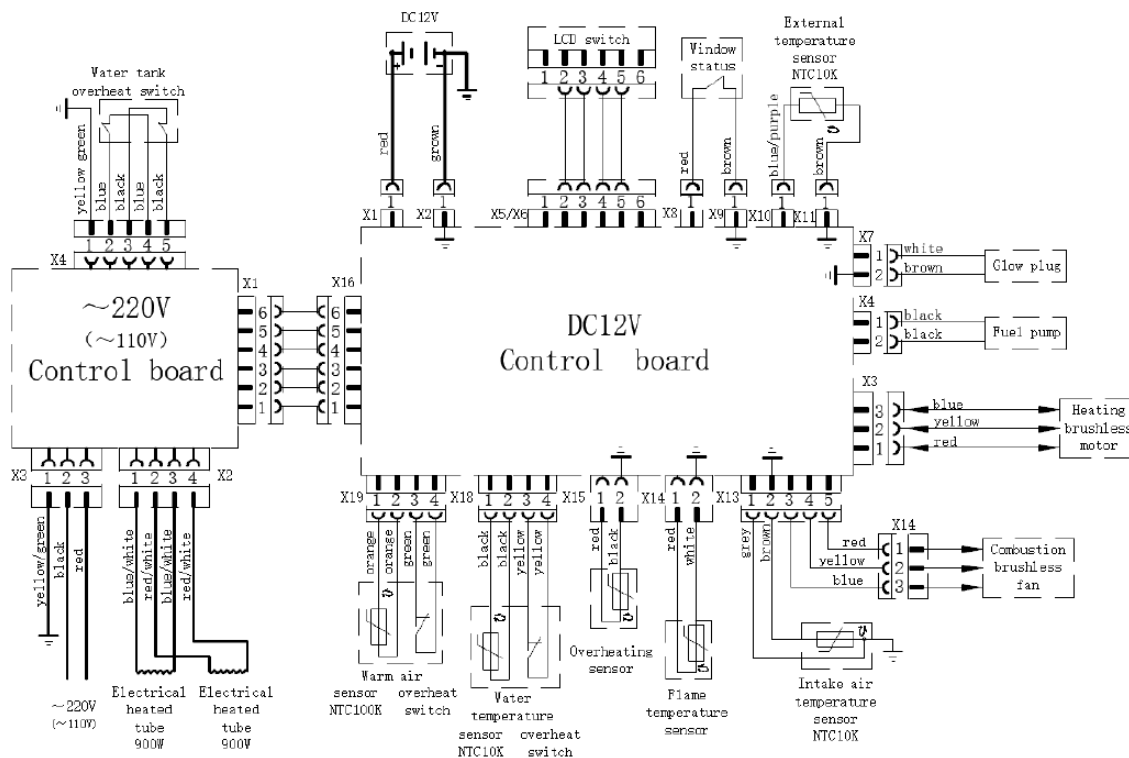
06 Electrical connections



Schematic. Pins, rating and voltage: use the supplied harness.

Mains: separate circuit with grounding and protective devices matched to the rating plate.

Maintain power during cooling. Normal shutdown uses the controller; do not install a switch that interrupts the cycle. Protect cables and connections against water, abrasion and heat.



Circuit detail for the illustrated family. Drawing labels identify components; check connectors, voltage and options on the supplied harness. A mains connection cannot be inferred from nominal power alone.

07 Initial commissioning

Check	Result to verify
Rating plate and controller	SKU, voltage, fuel and connectors match
Mounting	Mountings, clearances, ducts and outlets checked
Fluid circuit	Filled and bled; no leaks
Supply under load	Voltage measured during starting
Complete cycle	Ignition, operation, setpoint and shutdown/cooling tested
Delivery	Rating-plate photo, measurements, date and installer recorded

08 Operation and controls

Fill the domestic-water tank before water heating. Select an available mode: water, air or combined according to unit; fuel, mains or mixed according to variant. A setpoint does not guarantee immediate tap-water temperature: scalding hazard.

Situation	Action
Fill the domestic-water circuit	Close the drain, open a hot-water tap and run the water pump until water flows continuously without air. Check connections. Do not activate water heating or heating elements with an empty tank.
Mains / propane	Confirm the 120 V version and protection devices before connection. Current or power from a 230 V version does not apply to the 120 V version. For propane, have a competent person check the regulator, pressure and leak tightness.
Winterization	Switch off heat sources, allow cooling, stop the water pump and fully drain the tank and pipes according to their layout. Open taps to admit air. Check that no water remains at low points; merely stopping the heater does not protect against freezing.

09 Maintenance and winterization

When	Work
Before use	Check fuel, battery, ducts, outlets, connections and absence of leaks.
After transport	Inspect mountings, cables, ducts and exposed components.
Before the season	Supervised test; full inspection of combustion and protective devices.
Domestic water	Check valve and drain; drain before frost or storage.
After repair	Suitable seals, leak test, complete cycle and measurements recorded.

Before use and after travel, inspect ducts, supports, openings, fuel lines and accessible connections. Once cool, remove external debris without directing water into the intake or flue.

Before the season and after storage, have the installation, battery, protection, tightness and combustion checked. Hour-based intervals, exercise-run duration and component life remain to be confirmed for the exact model and revision.

The user may keep access clear and clean cold surfaces using material-appropriate methods. Burner, exchanger, pump, sensor and ECU removal is qualified service work. Do not adjust fuel delivery or thermal protection.

After repair, require leak checks and a full cycle. Record date, hours, symptom, code, part SKUs and technician. Confirm applicable warranty terms with ATLOSON; no other warranty is implied.

Winter storage: stop, allow cooling, switch off the water pump and open taps and drains. Check that the tank and low points actually drain. Before restarting, fill and bleed; never heat an empty tank.

10 Troubleshooting and fault codes

Symptom	Action
Display off	Check the permitted power supply, visible connection and identified protection device; a fuse that blows again requires professional diagnosis.
No ignition / flameout	Record the code and check fuel level and visible obstructions. Do not repeat starting or priming attempts; have fuel dosing and combustion checked.
Overheating / low heat output	Keep air passages clear. On a coolant circuit, allow cooling before checking the level; have air bleeding, circulation and pump checked. Do not bypass the sensor.
Smoke / odor / leak	Stop using the system and have it inspected before returning it to service. Do not tighten or repair a hot pipe.
Communication / remote control	Record the message and version. Have harness and protocol confirmed. For GSM, check the module and network availability with the installer.

Record the exact code before clearing it. Stop and allow cooling, check the power supply under load, then ducts and the fluid circuit. Correct the cause before a supervised test. A repeated fault requires workshop service.

11 Fault-code table - family controller

Use only with a controller displaying this set of codes. Gas, pump and heating-element outputs depend on the variant.

Code	Action
10 / 11	High / low voltage
21 / 22	Air-outlet sensor open circuit / short circuit
23 / 24	Water sensor open circuit / short circuit
25 / 26	Ambient sensor open circuit / short circuit
27 / 28	Combustion sensor open circuit / short circuit
31 / 32 / 33	Ignition / combustion / flame sensor
41 / 42 / 43 / 44 / 45	Air/water overheating, depending on code
51	Panel / ECU communication
61 / 62	Metering pump open circuit / short circuit
63 / 65	Glow plug open circuit / glow plug control
71 / 72	Gas valve / gas control
81 / 82 / 83	Combustion fan: open circuit / starting / speed
84 / 85 / 86	Heating fan: open circuit / starting / speed
91 / 92 / 93 / 94	High-voltage ignition / gas valve: propane reference
110	Window / interlock
120	Low-voltage alarm
169	CPU reset after power interruption
220	No mains supply

12 Parts, kits and purchasing

Order by part number and variant. Drawing callouts are not SKUs. Check voltage, fuel and connector before replacement. A complete-system reference is not a maintenance kit.

Reference / purchase	Catalogue description
AT0003	Fuel Line Adapter 90' 7.5mm to 4.5mm
AT103516	TEMPERATURE EXTERNE SENSOR
AT1048	Fuel line clamp $\varnothing$ 12-14mm
AT104897	Fuel Tank, 10L, 304 SS-2
AT1049	Air duct clamp
AT1050	Air diffuser (grille)
AT10569	T-Joint, 60 mm
AT1057	Self-drilling self-tapping screw ST5.5×25
AT10570	Air Duct Connector, 60-90 mm
AT10571	Air Duct Elbow Connector, 60 mm
AT10572	Air Duct Straight Connector, 60 mm
AT10573	Air Duct Y, 60 mm
AT10574	Air Ducting, 60 mm, 5 m Length

Reference / purchase	Catalogue description
AT10575	Air Outlet with Adjustable Louvers, 60 mm
AT1146	FUEL TANK 10, PLASTIK
AT1158	Fuel pump 12V
AT1160	Fuel pump damper
AT1161	Fuel pump support
AT1166	Nut M6
AT1167	Flat washer 6mm*12mm
AT1170	Fuel line $\phi 5 \times 2.0$ mm L1m
AT1171	Fuel line $\phi 4$ mm $\times \phi 1.5$ mm L6m, clear
AT1172	Fuel line coupling 3.5*9.5*40mm
AT1173	Fuel line coupling 4.1*10.5*40mm
AT1174	Fuel line clamp $\phi 8$ -10mm
AT1175	Fuel line clamp $\phi 9$ -11mm
AT1189	Fuel pickup tube
AT119105	Fuel Pump Connector
AT504898	Fuel Tank, 25L, SS
AT50575	Air Outlet with Adjustable Louvers, 90 mm
AT6001	NERAL - BD Series Diagnostics USB Cable
AT6003	BD4000 MAINTENANCE KIT 12V DIESEL
AT6004	BD4000 MAINTENANCE KIT 12V GASOLINE
AT6005	BD4000 Heater Only Diesel
AT6006	BD4000 Heater Only Gasoline
AT6007	BD4000 Heater Only Propane
AT6008	Process Air Blower Motor
AT6009	Combustion Fan O-ring
AT6010	Water Tank Seal
AT6013	Intake & Exhaust Bulkhead Fitting
AT6014	Process Air Impeller
AT6015	Atomizing Screen
AT6016	Combustion Air Cowl
AT6017	Combustion Air Intake Pipe
AT6018	60 mm Air Outlet Vent
AT6019	60 mm Hot Air Duct, 5 m
AT6020	60 mm Hot Air Duct, 1 m
AT6021	NERAL Control Panel Digital
AT6022	Thermostat Extension Cable
AT6023	BD4000 12V Diesel Control Unit
AT6024	BD4000 12V Gasoline Control Unit

Reference / purchase	Catalogue description
AT6025	BD4000 12V Propane Control Unit
AT6026	Sealing Rubber Spacer
AT6027	Front Housing Cover
AT6028	Combustion Blower Cover
AT6029	Aluminum Heat Shield
AT6030	Air Intake Grille
AT6031	Water Temp Sensor
AT6032	12V Supply Cable
AT6033	220V AC Power Cable
AT6034	7 m Fuel Pump Extension Harness
AT6035	Pressure Safety Valve, 1/2" NPT
AT6036	Serrated Lock Washer
AT6037	Nut
AT6038	M4 Allen Screw
AT6039	NERAL Series Fitting Kit
AT6040	Dual LPG Valve
AT6041	Socket Head Cap Screw
AT6042	NERAL 1/2" NPT Compression Adapter
AT6043	Fuel Line Bracket Gasket
AT6044	1/2" NPT Freeze Protection Valve
AT6045	G-Thread Pressure Relief Valve
AT6046	G-Thread Freeze Protection Valve
AT6047	Manual Pressure Relief Valve
AT6048	Heat Sink Base
AT6049	Thermal Transfer Plate
AT6050	U-Shaped Heating Element 900W/□230V
AT6051	U-Shaped Heating Element 900W/□110V
AT6052	Combustion Blower PIN
AT6053	Combustion Blower Assembly
AT6054	Combustion Blower Wheel
AT6055	Combustion Blower Mounting Bracket
AT6056	Air Baffle Plate
AT6057	Air Guide Plate
AT6058	Burner Mounting Base
AT6059	Heating Blower Cover
AT6060	Combustion Tube Mount
AT6061	Burner Baffle Plate
AT6062	H-Type Ignition Electrode

Reference / purchase	Catalogue description
AT6063	Mesh Burner Cover
AT6064	Burner Cover Plate
AT6065	High-Voltage Ignition Coil
AT6066	Combustion Tube Assembly
AT6067	Controller Housing Cover
AT6068	Controller Mounting Bracket
AT6069	R-Type Cable Clamp
AT6070	Electric Heater Control Cable
AT6071	Coolant Overheat Switch Gasket
AT6072	Coolant Temperature Sensor Gasket
AT6073	Overheat Switch Retaining Clip
AT6074	Intake Air Temperature Sensor
AT6075	Plate Sealing Compound
AT6076	Insulating Washer
AT6077	NERAL BD Water Tank
AT6078	Snap-Action Temperature Limiter
AT6079	Tank Overheat Switch Gasket
AT6080	Safety Switch Wiring Harness
AT6081	Rear Housing Cover
AT6082	Air Outlet Cover
AT6083	Hot Air Combination Sensor
AT6084	Protective Insulation Sheet
AT6085	Aluminum Heat Shield
AT6086	Wiring Harness Sealant
AT6087	Stainless Steel Gas Flex Hose
AT6088	Intake & Exhaust Port Assembly - White
AT6089	Intake & Exhaust Port Assembly - Black
AT6090	Precision Steel Tube
AT6091	Straight Adapter Fitting
AT6092	Intake & Exhaust Port Cover - White
AT6093	Intake & Exhaust Port Cover - Black
AT6094	Hose Clamp
AT6095	Air Intake Pipe Retaining Clip
AT6096	Exhaust Pipe
AT6097	Tee Fitting
AT6098	Corrugated Tube Retaining Clip
AT6099	Tank Air Vent Valve
AT6100	Cooling Fan

Reference / purchase	Catalogue description
AT6101	Dual Gas Safety Valve
AT6102	Single-Line Gas Safety Valve Assembly, Ø8 mm
AT6103	Gas Safety Switch
AT6104	Gas Safety Switch
AT6105	Air Pump Assembly
AT6106	Dual-Line Gas Filter
AT6107	Gas Cylinder Connection Hose
AT6108	German-Standard LPG Cylinder Connection Hose
AT6109	Gas Safety Switch Connection Hose
AT6110	Flame sensor
AT6111	Fuse 20A/250V 5*20
AT6112	Combustion Chamber Assembly
AT6113	Thermocouple
ATL6001	BD4000 Heater Kit, Dual Air/Water, 4kw, 12V/120V, Diesel, Controller Digital - BT
ATL6002	BD4000 Heater Kit, Dual Air/Water, 4kw, 12V/120V, Gasoline, Controller Digital - BT
ATL6003	BD4000 Heater Kit, Dual Air/Water, 4kw, 12V/120V, Propane, Controller Digital - BT
ATM001005	NERAL - BD4000 Instruction Manual

Records and support

Date / hours: _____ Work / parts: _____

Keep the invoice, SKU, serial number and history. For assistance, provide a nameplate photo, code and symptom.

[ATLOSON support](#)