DIESEL GENERATOR, 5000W, 4-STROKE ENGINE, 110/230V

MODEL NO: **DG5000.V2**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.


Refer to instruction manual


Warning


Wear ear protection


Hot surfaces


Warning Electricity


Never operate in non-ventilated rooms


Keep away from rain


No open flame


Switch off the engine before refuelling



No oil in unit add oil


Breathing hazard

1. SAFETY

- ❑ **WARNING!** Ensure any Health & Safety, Government, or local authority regulations are adhered to when using this equipment.
- ❑ **WARNING!** Safe operation requires sufficient operator knowledge of the functions and positions of the controls and indicators or meters.
- ❑ **WARNING!** Generating sets should only be loaded up to their rated power under the rated ambient conditions.
- ❑ **WARNING!** Prior to commencing maintenance work it shall be ensured that untimely start-up is not possible.
- ✓ Familiarise yourself with the application and limitations, as well as the potential hazards, of the generator.
- ✓ Maintain the generator in good condition (use Sealey Service Centre). Replace or repair damaged parts. Use genuine parts only. Unauthorised parts may be dangerous and will invalidate the warranty.
- ❑ **WARNING!** The installation and major repair work shall be carried out only by specifically trained personnel.
- ✓ This generator is designed and manufactured for specific applications. **DO NOT** attempt to modify the unit or use it for any application for which it is not designed. If you have any questions regarding the application of the unit please contact your local Sealey stockist.
- ❑ **WARNING! DO NOT** exceed the Wattage/Amperage capacity of the generator**.** Add rated wattage of all devices intended for connection at any one time, the total must not exceed rated wattage of generator (see specifications).
- ❑ **WARNING!** When installed in ventilated rooms, additional requirements for fire and explosion protection shall be observed.
- ❑ **WARNING!** Some parts of the internal combustion engine are hot and may cause burns. Pay attention to the warnings on the generating set.
- ❑ **WARNING!** This is a heavy and unbalanced object. Handle with care and use two people when required.
- ❑ **WARNING!** Engine exhaust gases are toxic. **DO NOT** operate the generating set in unventilated rooms. When installed in ventilated rooms, additional requirements for fire and explosion protection shall be observed.
- ▲ **DANGER!** This generator is designed for outdoor use only. To use the generator inside any building or enclosure, including the generator compartment of a caravan, may result in fire or an explosion. No user performed modifications, including venting of the exhaust and/or cooling ventilation, will eliminate the danger.
- ▲ **DANGER!** If this unit is used for back-up power in the event of a commercial power failure, the following steps must be taken. Before connecting the generator to the electrical system, open the main circuit breaker to isolate the generator and system from the commercial electric supply. Failure to do this may result in damage to the generator and may result in serious injury or fatality, due to a back-feed of electrical energy.
- ▲ **DANGER!** The generator produces a very powerful voltage that can cause a severe electrical shock. Avoid contact with bare wires, terminals etc. Never allow any unqualified person to operate or service the generator.
- ❑ **WARNING!** Fuel is combustible and easily ignited. **DO NOT** refuel during operation. **DO NOT** refuel during operation. **DO NOT** refuel while smoking or near naked flames. **DO NOT** spill fuel.
- ❑ **WARNING!** Protect children by keeping them at a safe distance from the generating set.
- ❑ **WARNING!** Risk of burns. **DO NOT** touch the exhaust system or the drive unit.
- ❑ **WARNING! NEVER** refuel when the engine is running or when the engine is hot. Allow cool down time.
- ✓ Operate the generator only on level surfaces (maximum allowable tilt is 10º) and where it will not be exposed to excessive moisture, dirt or corrosive vapours or be in the proximity of combustible material (flammable liquids, solids or gases).
- × **DO NOT** tip or change the generator's position whilst it is operating.
- ✓ Remove ill fitting clothing, ties, watches, rings and other loose jewellery and contain long hair. Wear appropriate protective clothing.
- × **DO NOT** use the generator for any purpose other than that for which it is designed.
- × **DO NOT** operate the generator if any parts are missing or damaged, as this may cause failure and/or personal injury.
- × **DO NOT** over-fill fuel tank. Always leave room for fuel to expand.
- × **DO NOT** operate in the rain.
- ▲ **DANGER! DO NOT** tamper with the engine governed speed setting. Higher operating speeds are dangerous and increase the risk of personal injury and/or equipment damage. The generator supplies the correct rated frequencies and voltage only when running at the correct governed speed. Incorrect frequency and/or voltage can damage some connected electrical loads. Operating at excessively low speeds may result in shortened engine life. Over-speeding will invalidate the warranty.

× **DO NOT** operate the generator when you are tired, or under the influence of alcohol, drugs or intoxicating medication.
× **DO NOT** store generator with fuel in tank where fuel vapours might reach an open flame or spark.
× To avoid carbon monoxide poisoning **DO NOT** use fuel- powered equipment inside any of the following; Home, garage, tent, camper van, mobile home, caravan or boat. This list is not exhaustive and if you are in any doubt contact your Sealey stockist.
✓ Dispose of wast oil in accordance with local authority regulations.

1.1. ELECTRICAL SAFETY

✓ Before use, the generating set and its electrical equipment should be checked to ensure that they are not defective.
× The generating set shall not be connected to other power sources, such as the power company supply mains.
✓ Protection against electrical shock depends on circuit breakers specially matched to the generating set. If the circuit breakers require replacement, they should be replaced with a circuit breaker having identical ratings and performances characteristics. Due to high mechanical stresses, only tough rubber-sheathed flexible cable or the equivalent should be used.
✓ When using extension lines or mobile distribution networks the resistance value shall not exceed 1,5 Ω.
✓ The choice of protection arrangement to be carried out depending on characteristic of the generator, running conditions and scheme of grounded liaisons determined by the user.
✓ The protective measures the user must do When operating a 5000W generator with 110/230V output, safety is critical to prevent electrical hazards, fire risks, and mechanical failures.
❑ **WARNING!** The user shall conform to regulations of electrical safety applicable to the place where the generating sets are used.
❑ **WARNING!** Never start or stop the generator while electrical loads are connected. Start the engine, let it stabilise, then connect the electrical load. To stop engine, disconnect the electrical load and let engine stabilise before switching off.
❑ **WARNING! DO NOT** use worn, bare, frayed or otherwise damaged electrical cables with the generator. To do so may result in electric shock.

1.2. **COMPREHENSIVE RANGE OF APPLICATIONS WHICH THE MACHINE IS INTENDED**

1. Home Backup Power.
2. Construction & Work Sites.
3. Outdoor & Recreational Use.
4. Industrial & Agricultural Applications.
5. Emergency & Disaster Relief.

1.3. LIMITATIONS OF A 5000W GENERATOR

Not ideal for:

1. Whole-House Power (Limited to small homes or partial loads).
2. Large Industrial Machinery (Requires higher wattage).
3. High-Powered Electric Heating Systems (Some heaters exceed 5000W).

1.4. LIMITATIONS OF USE AT LOCATIONS WHERE THE RISK OF FIRE MAY BE HIGH

There are several important limitations and precautions to observe—especially in areas with a high risk of fire, such as forests, grasslands, or near combustible materials.

1. No Use Near Flammable Materials
- **DO NOT** operate the generator near dry grass, leaves, or flammable liquids.
- Maintain a clear area (minimum 3 meters/10 feet) around the generator.

2. Spark Arrestor Required
- In fire-prone areas, local regulations may require a spark arrestor on the exhaust.
- ISO 8528-13 does not directly mandate spark arrestors, but compliance with regional fire prevention laws is essential.

3. Fuel Storage Restrictions
- Store fuel at a safe distance (at least 10 meters/30 feet) from the generator.
- Keep containers sealed and away from heat sources.

4. Exhaust Clearance
- Hot exhaust gases can ignite dry vegetation.
- Ensure exhaust outlets are not directed at flammable surfaces and that the muffler is intact and functioning properly.

5. Surface and Placement
- Place the generator on a non-combustible, stable surface such as gravel, concrete, or metal mesh.
- Avoid setting it directly on the ground in brush-heavy or forested areas.

6. Operational Monitoring
- Never leave the generator unattended in high-risk areas while it's running.
- Shut it down if wind conditions change and begin spreading nearby flames, smoke, or embers.

7. Fire Extinguishing Equipment
- Always have a fire extinguisher (Class B or ABC) readily available nearby.
- A bucket of water or sand may be helpful as a backup.

1.5. INDICATIONS ABOUT THE HOT SURFACES AND THEIR GUARDS

🔧 **1. Typical Hot Surfaces**

The following components of the generator typically reach high temperatures during operation:
- Exhaust manifold.
- Muffler/silencer.
- Engine block and cylinder head.
- Oil fill and drain areas.
- Alternator housing (if air-cooled).
- Exhaust pipe and tailpipe outlet.

These surfaces can exceed 200–500°C (392–932°F) during use.

1.6. FITTINGS, GUARDS

Guards are critical for protecting users from moving or hot parts:

1. Exhaust/Muffler Guard
- Usually a metal heat shield over muffler and exhaust pipe.
- Prevents burns and limits risk of fire ignition.

2. Fan and Alternator Guards
- Perforated steel or mesh guard over cooling fan and flywheel area.

- Prevents contact with rotating parts.

3. Belt/Pulley Covers (if applicable)

- Some generators use belts for certain subsystems.
- Covered with rigid guards to prevent entanglement or injury.

4. Frame Protection

- A tubular steel frame often surrounds the whole unit, offering structural and impact protection.

5. Hot Surface Covers

- In addition to the muffler, guards may be applied to:
- Cylinder head.
- Engine block (partial).
- Exhaust manifold.

1.7. NECESSARY SPACE FOR THE MACHINE

Adequate space should be maintained around the unit. This ensures:

- Proper ventilation and cooling.
- Easy access for operation and maintenance.
- Reduced risk of fire and injury.

1.8. PROTECTIVE MEASURES TO BE IMPLEMENTED

1. Fire Prevention Measures (See fire and burn hazards in the next section).

2. Mechanical Protection

- Ensure all guards and covers (e.g., for fan, muffler, rotating parts) are securely in place and undamaged.
- Protect hot surfaces with heat shields or thermal guards to prevent burns.
- Install vibration dampers or mounts to stabilize the unit and reduce wear on components.

3. Electrical Protection

- Use Residual Current Devices (RCDs) or Ground Fault Circuit Interrupters (GFCIs) on all AC outlets for shock prevention.
- Connect to earth via the external grounding terminal using appropriate earthing rods.
- Protect outlets with weatherproof covers when used outdoors.
- Ensure all power cables are rated, insulated, and free of cuts or abrasions.
- **DO NOT** overload: respect the generator's rated capacity (5000W max continuous load).

1.9. REASONABLY FORESEEABLE MISUSE

1. Overloading the Generator

- Users may connect more electrical load than the generator is rated for (e.g., plugging in too many tools or appliances).
- **Risks:** Overheating, fire, damage to connected devices or generator windings.
- Mitigation: Install automatic circuit breakers, include clear load rating labels, and educate users.

2. Using Indoors or in Enclosed Spaces

- Users might run the generator inside garages, sheds, or near windows.
- **Risks:** Carbon monoxide poisoning, oxygen depletion.
- **Mitigation:** Prominent CO warning labels, manual warnings, and promotion of outdoor-only use.

3. Refueling While Running or Hot

- Refueling without shutting down the engine or allowing cooling.
- **Risks:** Fuel vapour ignition from hot surfaces, burns, fire.
- **Mitigation:** Warning decals, fuel cap notices, training materials.

4. Improper Grounding or Electrical Hookup

- Users might skip earth grounding or use damaged extension cords.
- **Risks:** Electrocution, GFCI failure, fire.
- **Mitigation:** Include clear grounding instructions, durable GFCI outlets, cord condition checks.

5. Removing Guards or Covers

- For maintenance or curiosity, users may remove hot surface shields or fan guards and forget to replace them.
- **Risks:** Burns, entanglement, mechanical injury.
- **Mitigation:** Use guards that require tools to remove, and apply "**DO NOT** OPERATE WITHOUT COVER" stickers.

6. Operating in Wet Conditions

- Using the generator during rain or while standing on wet ground.
- **Risks:** Electrocution, short circuits, unit damage.
- **Mitigation:** Include weatherproof outlet covers, instruct on dry placement, and recommend canopy covers.

7. Children or Untrained Persons Accessing the Unit

- Children may touch or play around the generator, or untrained users may attempt to operate it.
- **Risks:** Burns, shock, injury from moving parts.
- **Mitigation:** Clear safety signage, lockable control panel or key start, and emphasize trained personnel only.

8. Using Near Flammable Materials

- Placing generator near dry leaves, fuel containers, or inside a tent.
- **Risks:** Fire or explosion from radiant heat or sparks.

1.10. PROHIBITED APPLICATIONS

1. Indoor or Enclosed-Space Operation

- Prohibited Use: Operating the generator inside homes, garages, basements, sheds, tents, or other enclosed/poorly ventilated spaces.

- **Reason:** Risk of carbon monoxide poisoning, fire, or lack of ventilation.

2. Use as a Primary or Backup Power Source for Life-Support Equipment

- **Prohibited Use:** Connecting the generator to critical medical equipment (e.g., ventilators, oxygen concentrators, ICU systems).
- **Reason:** Portable generators are not medically rated and can suffer voltage fluctuations or unexpected shutdowns.

3. Operation in Wet or Flooded Conditions

- **Prohibited Use:** Running the generator in the rain, on wet ground, or during flooding without proper protection.
- **Reason:** Risk of electrocution, equipment damage, and short-circuits.

4. Direct Connection to Building Electrical Systems (Without Transfer Switch)

- **Prohibited Use:** Plugging the generator directly into a wall outlet (“backfeeding”) or household panel without an approved transfer switch.
- **Reason:** Causes backfeeding to the grid, endangering utility workers and violating electrical codes.

5. Use Near Flammable or Explosive Atmospheres

- **Prohibited Use:** Operating in fuel storage areas, gas stations, grain silos, or anywhere with combustible dust or vapours.
- **Reason:** Risk of explosion or fire from hot surfaces or electrical sparks.

6. Use on Unstable or Sloped Surfaces

- **Prohibited Use:** Operating the generator on steep slopes, soft soil, or uneven ground.
- **Reason:** Risk of tipping, oil starvation, and fuel spillage, potentially causing fire or mechanical damage.

7. Use with Underrated or Damaged Extension Cables

- **Prohibited Use:** Using extension cords that are undersized, damaged, or not rated for outdoor/heavy-duty use.
- **Reason:** Fire hazard, voltage drop, overheating, or electrocution.

8. Use by Untrained or Unauthorized Personnel

- **Prohibited Use:** Allowing untrained users, children, or non-designated personnel to operate the generator.
- **Reason:** Risk of injury, misuse, and equipment damage.

9. Operation Below Minimum Temperature Without Preheat

- **Prohibited Use:** Starting or operating in extremely cold conditions (e.g., below -10°C / 14°F) without using engine preheating if specified.
- **Reason:** Poor lubrication, starting issues, engine wear.

10. Charging Lithium-Ion Batteries Without Proper Regulation

- **Prohibited Use:** Directly connecting the generator to lithium-ion batteries without charge controllers or inverters.
- **Reason:** Overcharging, fire risk, battery damage.

1.11. RISKS THAT CANNOT BE ELIMINATED

1. Heat from Engine and Exhaust.
2. Carbon Monoxide Emissions.
3. Electric Shock (Especially in Wet Conditions).
4. Noise Emissions.
5. Fire Risk from Fuel Handling.
6. Environmental Impact.
7. Mechanical Injury from Moving Parts.

1.12. NATURE OF INSPECTIONS FOR SAFETY FUNCTIONS

1. Visual Safety Inspection (Before Each Use).
2. Functional Testing of Electrical Safety Devices.
3. Hot Surface & Exhaust System Check.
4. Mechanical Guarding and Moving Parts.
5. Fuel & Fire Safety Measures.
6. Noise and Vibration Monitoring.
7. Documentation and Record keeping.

1.13. LIST OF NECESSARY SAFETY CHECKS

1. General Visual Inspection

- **Fuel System:** Inspect fuel lines, fuel tank, and fittings for leaks or cracks.
- **Oil Lines:** Check for signs of oil leaks or damage.
- **Exhaust System:** Ensure exhaust pipe is not blocked and check for leaks or damage to muffler.
- **Electrical Cables:** Inspect all cables and connections for fraying, cuts, or burns.
- **Guards and Shields:** Confirm that all protective guards and covers are in place and properly secured (e.g., fan guards, belt guards).
- **Warning Labels:** Ensure all safety labels (e.g., CO hazard, no smoking, grounding instructions) are intact and legible.

1.14. FREQUENCY OF INSPECTIONS FOR SAFETY FUNCTIONS

1. General Visual Inspection.
2. Electrical Safety Checks.
3. Engine and Mechanical Safety Inspections.
4. Exhaust and Hot Surface Checks.
5. Fuel System Safety and Fire Prevention.
6. Noise and Vibration Monitoring.
7. Post-Operation Checks.
8. Periodic Maintenance Inspections.

1.15. DAMPENING OF THE MACHINES NOISE AND VIBRATION

It is crucial to ensure the comfort of the operator and to comply with local noise regulations (e.g., limiting sound levels in residential or worksite environments). It also improves the machine’s operational longevity by reducing the stress on components.

1. Engine and Exhaust Muffler Design

- **Noise Reduction:** The engine’s exhaust system is one of the largest sources of noise in a generator. Mufflers or silencers can significantly reduce the noise generated by the engine’s exhaust gases.
- **Action:** Ensure the generator has an engine muffler with a high-quality soundproof design. Consider mufflers with multi-chamber or reverse-flow designs to minimize exhaust noise.

2. Vibration Isolation

- **Vibration Dampening:** Vibration is produced by moving parts in the engine, especially the crankshaft and rotating components. It can result in operational wear and discomfort for the operator. Proper vibration isolation helps reduce these effects.
- **Action:** Install rubber mounts, shock absorbers, or vibration isolation pads beneath the generator frame and engine. These materials absorb vibrations before they reach the chassis or platform.
- **Additional Tip:** Ensure that the engine mounts are in good condition. Worn mounts can lead to increased vibration.

3. Acoustic Enclosures or Soundproof Housings

- **Enclosure Design:** To reduce noise exposure, particularly in noise-sensitive areas, enclosing the generator in an acoustic soundproof housing or enclosure is highly effective.
- **Action:** Use acoustic panels or insulated covers that line the outer casing of the generator. These panels absorb sound and prevent

noise from escaping the housing.
- **Key Benefits:** These enclosures also protect against weather damage and help reduce the environmental impact of noise pollution.

1.16. 4. Sound Absorbing Materials

- **Material Selection:** Applying sound-absorbing materials directly to the generator's outer surfaces can help absorb the noise produced by the engine and exhaust.
- **Action:** Use foam or rubberised coatings inside generator enclosures, particularly around the engine and exhaust areas.
- **Additional Tip:** Ensure materials are durable and resistant to wear, heat, and oil exposure, as these conditions are common in generators.

5. Location and Surface Placement

- Environmental Considerations: The surface on which the generator is placed can affect both vibration and noise transmission.
- **Action:** Use a rubber mat or a vibration-dampening base under the generator. These surfaces help absorb vibrations and prevent them from transferring to the ground or surrounding surfaces.
- **Additional Tip:** Position the generator on soft ground or on shock-absorbing platforms to further reduce noise and vibration.

6. Use of Anti-Vibration Technology

- **Vibration Dampening Technologies:** Several advanced technologies can help further dampen vibration.
- **Action:** Active vibration control systems, such as piezoelectric materials that adapt to the machine's vibrations, could be incorporated if available in higher-end generators.
- **Additional Tip:** Consider anti-vibration mounts for the engine and alternator, which are critical to reducing mechanical noise and vibrations.

7. Sound Barriers and Acoustic Fencing

- **External Noise Control:** If the generator is used in an environment where it is difficult to shield the sound completely (e.g., construction sites or outdoor events), sound barriers or acoustic fencing can be placed around the generator to direct noise away from sensitive areas.
- **Action:** Place soundproof barriers around the generator, ensuring there is adequate airflow for cooling. These barriers should be made of dense, sound-absorbing materials.
- **Additional Tip:** Directing the exhaust pipe towards an area surrounded by natural barriers (such as trees or walls) can help dampen the sound.

1.17. ADVISE ON NEED FOR PPE

It's essential to use Personal Protective Equipment (PPE) to protect against the risks associated with noise, vibration, mechanical hazards, and exposure to fumes.

1.18. GENERATED RISKS FROM USE OF THE GENERATOR

1. Fire and Explosion Risk (see next section)

2. Carbon Monoxide (CO) Poisoning

- Causes:
- Incomplete combustion in enclosed or semi-enclosed spaces.
- **Consequences:** Dizziness, unconsciousness, fatal poisoning
- **Control Measures:**
- Only operate in open, ventilated areas.
- Display CO hazard warnings.
- Install CO detectors if used in semi-enclosed areas.

3. Electrical Shock and Electrocution (see 1.1 ELECTRICAL SAFETY)

4. Mechanical Injuries

- **Causes:**
- Contact with rotating parts (cooling fan, flywheel).
- Removal of guards during operation.
- Accidental entanglement with loose clothing or tools.
- **Consequences:** Cuts, lacerations, crushed fingers, entanglement
- **Control Measures:**
- Never operate without guards.
- Install warning labels.
- Provide PPE (e.g., gloves, close-fitting clothes).

5. Burns from Hot Surfaces

- **Causes:**
- Contact with muffler, engine block, or exhaust pipe.
- Consequences: First- or second-degree burns.
- **Control Measures:**
- Install heat shields.
- Mark hot zones with hazard labels.
- Allow cool down before maintenance or transport.

6. Noise-Induced Hearing Loss

- **Causes:**
- Extended exposure to generator engine noise (typically 70–95 dB).
- Consequences: Temporary or permanent hearing damage.
- **Control Measures:**
- Use hearing protection.
- Post noise hazard signage.
- Maintain distance during long operation.

7. Environmental Contamination

- **Causes:**
- Fuel, oil, or coolant leaks.
- Improper waste disposal (filters, fluids).
- **Consequences:** Soil and water contamination, fire hazard.

- **Control Measures:**
- Use drip trays or spill kits.
- Follow proper disposal procedures.
- Routine inspection of seals and gaskets.

8. Ergonomic and Handling Injuries

- **Causes:**
- Lifting or moving without assistance or handles.
- Poor posture during refuelling/maintenance.
- **Consequences:** Back strain, dropped unit, hand injuries
- **Control Measures:**
- Use wheels and handles.
- Lift with team or hoisting tools.
- Follow safe lifting practices.

1.19. FIRE AND BURN HAZARDS

The exhaust system gets hot enough to ignite some materials.

✓ Keep the generator at least one meter away from buildings and other equipment during operation and maintenance.

✓ Some parts of the internal combustion engine are hot and may cause burns. Pay attention to the warnings on the generating set.

× **DO NOT** enclose the generator in any structure.

✓ Keep flammable materials away from the generator.

✓ The exhaust becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the exhaust whilst is hot. Let the generator cool before storing the generator indoors.

✓ Fuel is extremely flammable and explosive under certain conditions. **DO NOT** smoke or allow sparks where the generator is refuelled or where the fuel is stored. Refuel in a well-ventilated area with the engine stopped.

❑ **WARNING!** Fuel vapours are extremely flammable and may ignite after the engine is started. Make sure that any spilled fuel has been wiped off before starting the engine.

❑ **WARNING!** Always use Class C fire extinguisher that are specifically designed for fires involving energised electrical equipment.

1.20. BATTERY SAFETY

✓ Check the Battery Regularly.

✓ Inspect the battery for signs of damage, corrosion, or leakage. Ensure terminals are clean and connections are tight.

✓ Avoid Sparks and Flames.

✓ Keep the battery away from open flames or sparks. Batteries emit hydrogen gas, which is highly flammable.

✓ Use Proper Ventilation.

✓ Always operate and charge the battery in a well-ventilated area to prevent gas buildup.

❑ **WARNING!** Wear Protective Gear when handling the battery, wear safety glasses and gloves to protect against acid leaks or accidental short circuits.

✓ Disconnect When Servicing.

✓ Always disconnect the battery terminals before performing any maintenance on the generator.

✓ Correct Polarity, ensure the battery is connected with the correct polarity—positive (+) to positive, and negative (–) to negative.

✓ Charge Safely, use a compatible charger and follow the manufacturer's instructions when charging the battery.

❑ **WARNING!** Keep batteries out of reach of children. Batteries contain hazardous chemicals and an electrical charge. Store them safely to prevent accidental exposure or injury.

2. INTRODUCTION

Direct injection diesel engine produces 5kW, ideal for providing backup power or running power tools, lighting and equipment. 15L Fuel tank will provide power for up to 7 hours, perfect for use on job sites and in workshops. Electric start allows the generator to be started effortlessly. Built to conform to the European Euro V emissions standards. LCD screen displays real-time data such as voltage, frequency and total working time. Smart Automatic Voltage Regulator (AVR) ensures steady output voltage which protects connected equipment. Includes 230V 32A, 110V 32A, 110V 16A and 12V DC outputs. Enclosed design features four wheels, a large handle and lifting eye for easy manoeuvrability. To maximise lifespan, the generator features low oil cut off, overload protection and DC circuit breaker. Supplied with small tool kit for initial set up and maintenance of the generator.

3. SPECIFICATION

Model No:	**DG5000.V2**
Continuous Power Rating:	4.6kW
Current Rating:	32/16A/8A
Dimensions (W x D x H):	950 x 550 x 700mm
Displacement (cc):	418cc
Fuel Tank:	18L
Fuel:	Diesel
Maximum Power Rating:	4.8kW

Maximum Running Time:	7hr
Motor Power:	6.3kW/3600rpm
Motor Type:	4-Stroke
Nett Weight:	170kg
Noise Rating:	97dB(A)
Oil Capacity:	1.65L
Output:	110/230V
Recommended Oil:	SAE-20W

1	Castor Wheels.
2	Vent grill.
3	Exhaust.
4	Handle (1 either side of cabinet).
5	Fuel cap.

6	Lifting eye (centre of gravity point).
7	Control Panel.
8	Access Panel open here.
9	Air filter Panel.

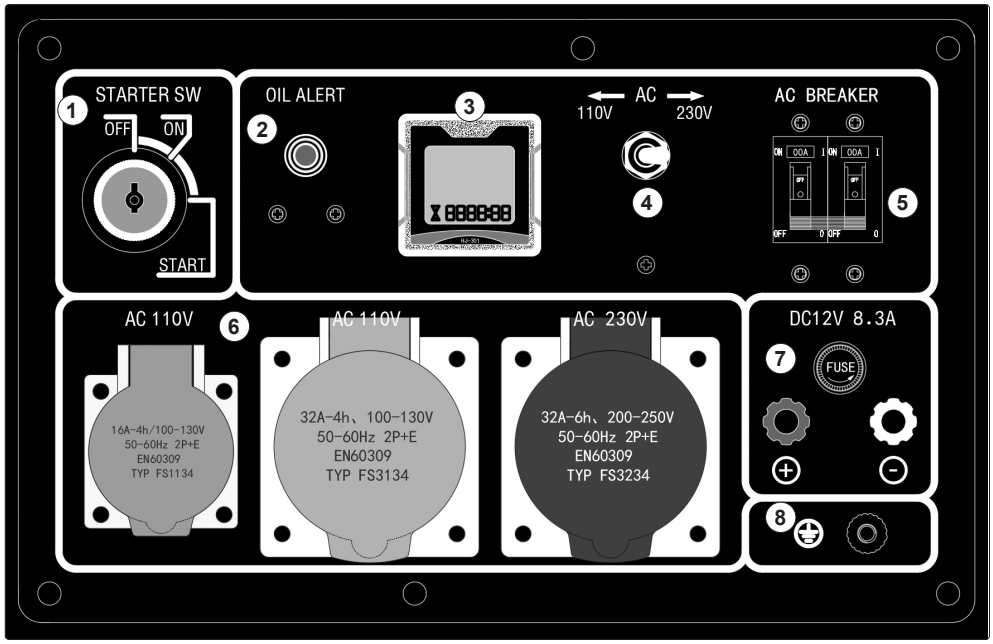
4. FEATURES AND FUNCTIONS

4.1. The DG5000.V2 air-cooled diesel generators feature the following:

- Lightweight construction.
- Air-cooled system.
- Four-stroke diesel internal combustion engine.
- Direct fuel injection system.
- Electric starter.
- Large fuel tank.
- Automatic voltage stabilizer.
- NFB circuit protector.
- AC and DC outputs.
- Low oil pressure sensor.

4.2. CONTROLS

1	STARTER SWITCH
2	OIL ALERT
3	DIGITAL METER
4	TRANSFORM SWITCH 110/230V
5	AC BREAKER
6	AC OUTPUTS
7	DC 12V OUTPUT
8	GROUND CONNECTION



5. PREPARATION

❑ **WARNING!** Generator is shipped without oil. Add oil before starting. See paragraph 5.6

5.1. CENTRE OF GRAVITY

5.1.1. The centre of gravity on the DG5000.V2 generator is typically located near the geometric centre of the unit's mass, slightly offset toward the engine side due to its weight. When using the lifting eye, the generator must remain balanced during lifting and transport. The lifting eye is positioned directly above the centre of gravity to ensure safe and vertical lifting.
- Always use appropriate lifting equipment and ensure the hook or shackle is properly aligned with the lifting eye.
- Avoid tilting the generator during hoisting.

5.1.2. INSTALLATION AND COMMISSIONING OF THE GENERATOR

1. Site Selection
- Install the generator on a flat, solid, and vibration-resistant surface.
- Ensure proper ventilation and clearance around the unit (minimum 1 meter on all sides).
- Keep away from flammable materials, excessive dust, moisture, or direct rain exposure.
- The site should allow for easy access for operation, inspection, and maintenance.

5.2. FUEL

Use only light diesel fuel. The fuel should be clean and properly filtered. Never allow dust or water to mix with the fuel in the fuel tank, as this can:
- Clog fuel lines and nozzles.
- Cause poor engine performance.
- Potentially damage the fuel injection pump.

Always store and handle fuel carefully to ensure reliable operation and prolong the life of your generator.

5.2.1. PRIMING (fig.1) Before starting to prime make sure that there is fuel in tank and that you can contain any fuel spilt.

5.2.2. It is done by releasing the pipe clip on the diesel fuel line connected to the injector pump. Make sure you pinch the fuel line and then release slowly until all air is released and fuel appears.

5.2.3. When fuel appears replace pipe onto the injector pump and replace clip.

5.2.4. Clear up any fuel spills before restarting.

5.2.5. The above may be necessary when new, or if the machine runs out of fuel.

5.3. FUEL AND SAFETY PRECAUTIONS

The proper fuel for the diesel generator set is light diesel fuel. **DO NOT** use gasoline, kerosene, or any other fuel types, as these are not compatible and may cause serious damage.

Safety Guidelines:
- Keep all flammable fuels away from the generator, as it may produce sparks that could ignite fuel vapours.
- To prevent fire hazards and ensure proper ventilation for both the generator and operators, maintain a minimum distance of 1.5 meters from buildings, walls, or other equipment.
- Always operate the generator on a level surface.

❑ **WARNING!** Operating on an incline can disrupt the lubrication system, potentially leading to engine failure.

5.4. ELECTRIC SHOCK AND SHORT CIRCUITS

Electrical Safety Precautions
- Never touch the generator if it is wet, or if your hands are wet.

× **DO NOT** operate the generator in rainy, snowy, foggy, or any wet weather conditions.
- Exposure to moisture increases the risk of electric shock and equipment damage.

To prevent electrical hazards:
- Ensure the generator is properly grounded before use.
- Use a grounding wire to connect the generator's grounding terminal to a suitable earth grounding point, such as a ground rod.

5.5. CONNECTING THE GENERATOR TO A POWER SUPPLY

1. Turn Off All Loads
- Before connecting the generator, make sure all connected appliances or equipment are switched off.

2. Check Voltage Compatibility
- Ensure the generator output voltage (e.g., 110V/230V) matches the voltage requirements of your equipment or power system.

3. Use Approved Cables
- Use properly rated power cables with correct insulation and ampacity.
- Ensure all plugs and sockets are clean, dry, and free from damage.

4. Connect to Output Terminals or Sockets
- Plug the load into the AC outlet or connect to the output terminals (if provided).
- For terminal-type connections, ensure secure tightening of all connections.

5. Ground the Generator
- Always ground the generator to prevent electric shock.
- Connect a grounding wire from the grounding terminal to an appropriate earth ground (e.g., ground rod or metal stake in soil).

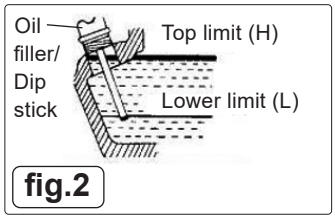
6. Turn On Power
- Once all connections are secure, start the generator.
- After it stabilizes (usually after 1–2 minutes of running), switch on the connected equipment one at a time.

NOTE: Never connect the generator directly to household wiring without a transfer switch—this can cause back feeding, posing serious risks to utility workers and your equipment.

× **DO NOT** overload the generator. Ensure the total power demand does not exceed the rated capacity.

5.6. PREPARATION BEFORE STARTING

❑ **WARNING!** The generator comes without oil please fill to the appropriate level. Refer to Fig.2



5.7. CHECKS BEFORE STARTING

5.8. OIL CHECKS

5.8.1. Always check the engine oil level daily using the dip stick, with the generator on a flat, level surface before starting or refilling the machine.

5.8.2. If the engine oil level is too low, it may cause engine damage.

× **DO NOT** overfill the engine with oil check on dipstick. Fig.3. The lubricating oil should be to spec.
NOTE: Engine oil is a crucial factor in determining the lifespan of your generator's engine. Using poor-quality oil or failing to change it regularly can cause excessive wear on the piston and cylinder, or even lead to them seizing up. Additionally, the lifespan of other engine components such as bearings and rotating parts will be significantly reduced. Change engine oil every 20 hours or every 3 months or 1000 hours.
While the alarm system monitors oil pressure, it's always a good practice to manually check the oil level in the engine. If the oil level is low, add oil before starting the engine. A good time to drain the oil is when the diesel engine is still warm.
Draining oil from a fully cooled engine makes it more difficult to remove all the oil, and some impurities may remain inside.

❑ **WARNING! DO NOT** fill engine oil when the engine is operating.

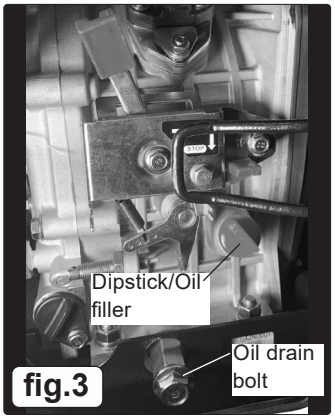


fig.3

5.9. OPERATING TEMPERATURE

5.9.1. For recommended operating temperature see table Fig.4.

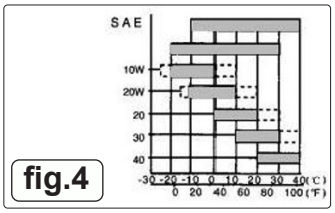


fig.4

5.10. LOW OIL PRESSURE SWITCH

5.10.1. This generator is equipped with a low oil pressure switch this system will stop the engine automatically when the oil pressure falls below the minimum pressure required.

5.10.2. This prevents damage such as bearing seizures etc. However, this should not be relied upon and the engine oil level should be checked and topped up if required, daily.

5.11. CHECK AIR FILTER

5.12. Remove the air filter side panel cover on the generator to access the air filter box.

5.13. Loosen the butterfly wing nut and remove the air filter cover. Fig.5, 6. Remove air filter after removing lock nut.


fig.5

× **DO NOT** use detergent to clean the air filter element. Use warm water with mild dish soap, rince and dry, lightly apply engine oil and squeeze out the excess. Replace the filter element if engine performance decreases or if the exhaust smoke appears abnormal. Never start the engine without the air filter installed, as foreign objects may enter the intake and cause serious engine damage.

5.13.1. After replacing the air filter element, replace lock nut, and reattach the cover and securely tighten the butterfly nut.

5.13.2. Replace air filter outer side panel cover.


fig.6

5.14. CHECKING THE GENERATOR

5.14.1. Before starting the generator, ensure the air switch is in the 'OFF' position. Starting the generator with the switch in the 'ON' position is very dangerous. Additionally, the generator should be properly grounded to prevent the risk of electric shock.

❑ **WARNING!** Before starting the generator, confirm that the air switch is in the 'OFF' position. Starting the generator while the switch is in the 'ON' position can be extremely dangerous. Always ensure the generator is properly grounded to avoid the risk of electric shock.

5.14.2. Use dry compressed air (at a pressure of approximately 1.96×10^5 Pa) to blow dust out of the electric control cabinet and from the surface of the generator.

5.14.3. Refer to the electrical wiring diagram (contact Sealey Service Centre) to verify that all connections are correct and securely fastened. Use a 500MΩ insulation resistance tester to measure the insulation resistance of the electrical components. The resistance should not be less than 2MΩ. Ensure that the capacitor is turned off before performing any measurements to avoid damaging it. (For silent-type generator sets, this inspection may not be required).

5.14.4. ENGINE RUN-IN

When you purchase a brand-new engine, it must be properly run in to ensure optimal performance and longevity. The run-in period is approximately 20 hours. Follow these guidelines during this time:

1. Avoid Overloading

DO NOT subject the engine to heavy loads during the run-in period.

2. Change the Engine Oil as Specified.

- For a new engine, change the oil after the first 20 hours of operation or after one month, whichever comes first.
- For an older engine, change the oil every 100 hours or every three months.

5.15. GROUND TERMINAL

5.15.1. Is to prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the ground terminal and the ground source. The generator has a system ground that connects the generator frame components to the ground terminals in the AC output receptacles. The system ground is not connected to the AC neutral wire. If the generator is tested by a receptacle tester, it will not show the same ground circuit condition as for a home receptacle.

6. OPERATION

6.1. MANUAL STARTING

To start and stop the engine in accordance with procedures below

6.1.1. Turn the main AC switch to the 'OFF' position. (Fig.1). Make sure that the machine has fuel for the task. Be sure the emergency STOP 2 switch is out (turn anti-clockwise). Fig.7 next page.

6.1.2. Set the engine speed lever 1 is set to 'RUN'. Fig.7

6.1.3. Turn the starting key clockwise to the 'START' position.

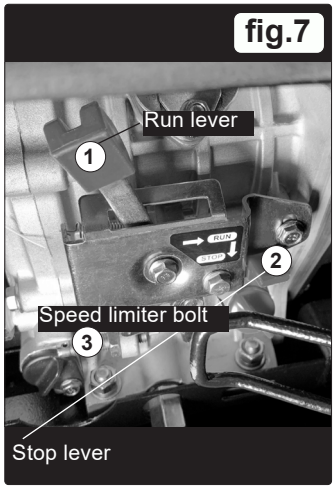
6.1.4. Remove your hand from the key as soon as the engine starts.

NOTE: If the engine does not start after 10 seconds, wait 15 seconds before trying again. Excessive start attempts will cause the battery to go flat.

If it does not start after 3 attempts, or runs intermittently with excessive smoke check that the fuel system is fully primed.

6.1.5. Turn the main AC switch to the 'ON' position and turn the electrical appliance on.

DO NOT loosen or readjust either the engine speed limiting bolt (fig.7) or the fuel injection limiting bolt as this will cause the performance of the generator to be affected.



6.2. CONNECTING EQUIPMENT

6.3. Connecting the loads with the largest motor, then the smaller items.

6.4. If the generator is overloaded the main breaker will trip.

6.5. To reset the breaker do the following; Turn OFF and disconnect all loads. Reset breaker, and add load onto the circuit to within 50% to 75% of rated output. Wait a few minutes before resuming operation.

6.6. CHECK DURING ENGINE OPERATION

1. Listen for abnormal noises.

- Any knocking, grinding, or unusual sounds may indicate a mechanical issue.

2. Evaluate engine performance.

- Monitor for irregular operation, reduced output, or unstable RPMs.

3. Inspect the colour of exhaust gases.

- Excessive black smoke may indicate over-fuelling or air intake issues.
- Excessive white smoke could signal coolant leakage or incomplete combustion**.**

If any of the above conditions are observed:

- Immediately stop the engine.
- Identify and resolve the cause of the issue.
- If the problem persists or cannot be identified, contact your local dealer or the nearest company branch for assistance.

6.7. LOADING

Exert loads in accordance with the specified parameters.

- Ensure that the connected electrical load matches the generator's rated output (e.g., 5000W, 110/230V).
- Avoid sudden or excessive load application to prevent voltage or frequency instability.
- Gradually increase load to allow stable engine and alternator performance.

6.8. OUTPUT OF ELECTRICITY

1. Check voltage output.

- Observe the voltmeter: it should indicate 220V ±5% at 50Hz. (4. Features and Functions).
- (For 60Hz models, refer to the appropriate voltage rating as specified in the manual).

❑ **WARNING!** Don't start multiple electrical products all at once:

When electrical devices are powered on, especially ones with motors (like compressors or pumps), they can draw a large inrush current. If you start too many at once, it can:

- Overload the generator.
- Cause voltage/frequency drops.
- Possibly trip breakers or damage connected equipment.
- **Start them one by one:**

This spreads the load gradually, giving the generator time to stabilize after each load is applied.

- Avoid using the floodlight with other devices:

This likely means the floodlight draws a significant amount of power, and using it together with other equipment could exceed the generator's 5000W capacity.

6.9. CONNECTING DEVICES TO THE GENERATOR

1. Connect devices in proper order.

- Begin by connecting larger electrical loads to the generator.
- Once these are running normally, gradually add smaller devices.

2. Avoid overloading the generator

- If the generator shuts off unexpectedly, the total load may be exceeding its capacity.
- Disconnect some smaller devices until the generator resumes normal operation.
- Always ensure the total power consumption does not exceed the generator's maximum output rating.
- Refer to Table in specification section for technical specifications and output capacity.

3. Resetting after overload

- If an overload causes the generator to shut down, let the unit sit for several minutes before restarting.

4. Stop the generator immediately if problems persist

- **DO NOT** continue operating the generator if output levels remain unstable or devices are not functioning correctly.
- Investigate and resolve the issue before restarting.

Ventilation and Safety

5. Operate the generator in a well-ventilated area

- Ensure there is sufficient airflow around the generator to prevent overheating.
- **DO NOT** cover the generator with any materials while it is running. Proper ventilation is essential for both performance and safety.

6.10. CHARGING THE BATTERY

1. Automatic charging during operation

- For models with an electric starter, the 12V battery charges automatically via the generator's built-in voltage regulator while the generator is running.

2. Battery care during long-term storage

- If the generator will not be used for an extended period, disconnect the battery to prevent gradual energy loss or deep discharge.

3. Avoid short-circuiting the battery

- Never connect the positive (+) and negative (−) terminals together. Doing so will result in a short circuit and damage the battery.

4. Correct polarity is essential

- When connecting battery cables, ensure correct polarity:
- Red cable to positive (+)
- Black cable to negative (−)

- Reversing polarity can damage both the battery and the electric starter system.

5. Safety during charging

- While charging, the battery emits flammable gases.
- **DO NOT** smoke or expose the battery to open flames or sparks, as this may cause explosion or fire.

6.11. CONNECTING AND DISCONNECTING BATTERY CABLES SAFELY

To avoid sparking and ensure safe battery handling:

1. Connecting the Battery

- First, connect the battery cables to the battery terminals.
- Then, connect the other ends of the cables to the motor (starter system).

2. Disconnecting the Battery

- First, disconnect the cables from the motor side.
- Then, remove the cables from the battery terminals.

❑ **WARNING!** Always ensure the generator is turned off before making or breaking any battery connections.

6.12. STOPPING THE GENERATER

1. Remove the electrical load

- Turn off or unplug all devices connected to the generator to unload the generator before shutdown.

2. Turn off the generator air switch

- Switch off the air circuit breaker or main output switch to fully disconnect electrical output.

3. Allow engine to cool down

- Move the speed handle to the “RUN” position and let the engine idle for approximately 3 minutes after removing the load.
- **DO NOT** stop the diesel engine immediately.
- Sudden shutdown can cause an abnormal temperature rise, potentially locking the injector nozzle or damaging the diesel engine.
- Allowing the engine to “warm down” helps protect internal components and ensures longer engine life.

4. Engage the brake handle

- Press down on the brake handle to assist in slowing and stabilizing the generator as it shuts down.

5. Turn off the electric starter switch

- Turn the starter key to the “OFF” position to stop the ignition circuit.

6. Shut off the fuel supply

- Move the fuel handle to the “STOP” position (stop/closed) to cut off the fuel supply to the engine.

7. Prepare the engine for storage (anti-rust step)

- Slowly pull the recoil handle until you feel resistance-this indicates the piston is at the compression stroke (both intake and exhaust valves are closed).
- This step helps seal the combustion chamber, preventing internal rusting during periods of non-use.

7. MAINTENANCE

7.1. PERFORM AND ROUTINE MAINTENANCE

🔧 Keeping your generator well-maintained will significantly extend its service life and ensure safe, efficient operation. **Regular maintenance should cover all major components, including:**

- The diesel engine

- The generator unit.
- The control panel.
- The frame and structural components.

IMPORTANT: Always ensure the diesel engine is turned off and has cooled down before beginning any maintenance work.

For a complete guide to routine service intervals, please refer to the Table on the next page.

Interval of maintenance Item	Everyday	1st month or after 20 hours	3rd month or 100 hours	6th month or 500 hours	Every year or 1000 hours
Check and fill fuel	O				
Empty fuel		O			
Check and fill engine oil	O				
Check for oil leaks	O				
Check and Tighten Fastened Parts	O			ⓞ Check torque on cylinder head	
Change engine oil		O (1st time)	O (2nd time)		
Clean oil filter				O (Replace)	
Change air filter element	If the generator is operated in dusty or sandy environments, the maintenance intervals should be shortened			O (Replace)	
Clean fuel filter				O	ⓞ (Replace)
Check high pressure oil pump				ⓞ	
Check nozzle				ⓞ	
Check fuel pipe				ⓞ (If neccesary Replace)	
Adjust the Air Intake and exhaust gates		ⓞ (1st time)		ⓞ	
Service the Air Intake and Exhaust Gates					ⓞ
Replace piston ring					ⓞ
Check brushes and slide ring				ⓞ	
Check insulation resistance	After 10+ Days of Inactivity O				

NOTE: mark "ⓞ" indicates that it needs a special wrench, please contact Sealey Service Centre.

7.2. MAINTENANCE PLANNING:

- Maintenance logs must be maintained, showing service intervals, components checked, and signatures.
- **Documentation and Training:** Operators must be trained and familiar with start-up/shutdown procedures and safety systems.
- Spare parts inventory should be maintained (oil, filters, etc.).
- Emergency stop function must be tested periodically.
- Lubrication, electrical, and mechanical checks should follow documented intervals based on operating hours.

7.3. AIR FILTER ELEMENT

× **DO NOT** wash the air filter. The filter element is made of a dry-type material that is not suitable for washing.

- If the engine performance is poor or the exhaust gas colour appears abnormal, the air filter may be clogged or damaged.
- In such cases, replace the air filter element immediately.

NOTE: Never operate the diesel engine without the air filter installed, as this can cause serious internal damage.

Air Filter Maintenance Schedule

1. Clean the air filter every 6 months or after 500 hours of operation — whichever comes first.

2. Replace the air filter element if it is excessively dirty, damaged, or cleaning is not sufficient to restore airflow. See fig.5 & 6.

3. DO NOT use detergent or soap to clean the air filter element, as this may damage the material and reduce filtration efficiency.

Maintaining a clean air filter is essential for proper engine performance and fuel efficiency.

7.4. FUEL FILTER MAINTENANCE

1. The fuel filter should be cleaned regularly to maintain maximum engine performance and prevent fuel flow issues.

2. Recommended Cleaning Interval:

- Every 6 months or 500 hours of operation.

Cleaning Procedure:

A. Drain the fuel from the fuel tank completely.

B. Loosen the small screws on the fuel switch and carefully remove the fuel filter from the port.

C. Clean the filter thoroughly using clean diesel fuel — **DO NOT** use water or detergents.

While performing fuel system maintenance, also: – Remove the fuel injector and clean any carbon deposits around the nozzle area.

- Recommended interval for injector cleaning: Every 3 months or 100 hours of operation.

NOTE: Always perform this maintenance in a well-ventilated area and ensure there are no open flames or sparks nearby during fuel-related tasks.

7.5. CYLINDER HEAD BOLT TENSION

The cylinder head bolts must be tightened to the specified torque settings to ensure proper engine performance and to prevent damage or leaks. Contact Sealey Service Centre.

NOTE: Improper torque can cause engine failure, warping, or gasket leaks. Always follow the manufacturer's guidelines precisely.

7.6. PREVENTATIVE MAINTENANCE MEASURES TO BE OBSERVED

1. Daily / Before Each Use

Safety First

Always shut down the generator, disconnect it from the load, and allow the engine to cool before maintenance.

- **Use appropriate PPE:** gloves, goggles, and hearing protection.
- Ensure the generator is operated and serviced in a well-ventilated area.
- Check fuel level and inspect for fuel leaks.
- Check engine oil level and top up if necessary.
- Inspect air filter for blockage or dirt.
- Check battery voltage.
- Ensure exhaust is unobstructed and no carbon build-up.
- Inspect for loose wires, hoses, or connections.
- Verify all gauges and indicators are functional.
- Clean exterior surfaces to prevent dust accumulation.
- Follow Lockout/Tagout (LOTO) procedures during any electrical or mechanical service.

2. Weekly (or Every 10–20 Operating Hours)

- Test generator output voltage (ensure correct 110V/230V output under no-load and load).
- Run generator under load for at least 15–30 minutes to ensure operational readiness.
- Drain condensation or water from the fuel system (if fitted with a water trap or fuel separator).

7.7. ENGINE OIL SYSTEM

- Initial Oil Change:

Change the engine oil after the first 20 hours of operation on a new generator.

- Routine Oil Changes:

After the initial change, replace the engine oil every 100 hours of operation.

Oil Changing Procedure:

1. Warm up the engine slightly before draining the oil.

- This helps the oil flow out more easily.

CAUTION: Be careful of hot oil and engine parts to avoid burns.

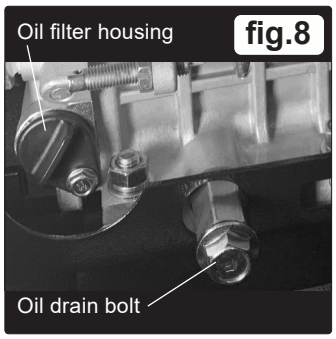
2. Remove the oil drain plug, located at the bottom of the cylinder (see Fig. 3).

3. Allow all oil to drain completely.

4. Reinstall and tighten the drain bolt securely.

5. Refill the engine with the recommended oil type to the proper level (see Fig. 2).

- **DO NOT** overfill.
- Use manufacturer-recommended engine oil.
- Replace oil filter during oil changes.



7.8. REPLACING OIL FILTER

1. Replace oil filter every 6 months or 500 hours of operation. See Fig.8 for location.

7.9. MONTHLY (or Every 50–100 Operating Hours)

- Change engine oil (especially after initial 20–30 hours on a new unit).
- Inspect or replace air filter depending on environment (dusty areas may require more frequent changes).
- Check engine mounts and fasteners for tightness.
- Inspect fuel filter and lines for wear or leaks.
- Clean cooling fins and ensure proper airflow around the engine.
- Test emergency stop function.
- Check fuel levels and inspect fuel lines for cracks, leaks, or blockages.
- Clean fuel filter or replace as recommended by the manufacturer.
- Drain fuel tank and replace old fuel if the generator hasn't been used in over 30 days.
- Use only clean, fresh, and recommended fuel.

Quarterly or 250 Operating Hours

- Flush and replace engine oil (if not already done).
- Inspect alternator wiring and terminals for corrosion or wear.
- Check AVR (Automatic Voltage Regulator) operation (if equipped).
- Inspect insulation resistance of wiring (using a megohmmeter if required.

Battery Maintenance (for electric start units)

- Ensure the electrolytic solution level in the battery is full and within the recommended range.
- The engine uses a 12V battery, which may experience electrolyte loss due to frequent starting cycles.

Monthly Battery Maintenance:

1. Inspect the battery for any physical damage, cracks, or leaks before refilling.

2. If the electrolyte level is low, add distilled water only — never use tap water or acids.

3. DO NOT overfill. Ensure the water just covers the top of the battery plates.

NOTE: Perform this check once a month or more often if the generator is in frequent use.

Annually or 500+ Hours

- Deep clean and full inspection of engine and generator body.
- Replace fuel filter and thoroughly clean fuel tank.
- Test generator under full load, preferably with a load bank.
- **Conduct a full system diagnostic, including:**
- Output frequency.
- Voltage stability.
- Load capacity.
- Safety shut-off.
- Review and update maintenance records, ensure all past services are logged.

7.10. COOLING SYSTEM

- For air-cooled units, clean cooling fins and air ducts to ensure proper airflow.

Electrical & Output System

- Test voltage and frequency output under load using a multimeter.
- Inspect all wiring, terminals, and outlets for wear, corrosion, or damage.
- Check control panel for error codes or warning lights.

7.11. GENERAL MAINTENANCE MEASURES

- Use only recommended parts and fluids.
- Maintain a clean and dry environment for storage and operation.
- Never overload the generator beyond rated capacity.
- Train operators in proper start-up, shutdown, and safety procedures.
- Keep a maintenance logbook, signed and dated after each service.

General Mechanical Inspection

- Inspect and tighten all bolts, mounts, and frame hardware.
- Check vibration isolators for wear.
- Examine exhaust system for leaks, cracks, and carbon buildup.

7.12. RECORD KEEPING & DOCUMENTATION

- Log every maintenance action, inspection, and replacement.
- Keep track of operating hours and schedule services accordingly.
- Maintain a spare parts inventory for filters, oil, spark plugs, and fuses.
- Review manufacturer's service intervals and adjust based on usage conditions.

7.13. DISMANTLING, DISABLING AND SCRAPPING

1. Pre-Dismantling Safety Measures

- Disconnect all power sources (including battery and mains connection if used with ATS).
- Fully shut down the generator and allow the engine to cool completely.
- Ensure unit is in a well-ventilated, open area for dismantling.
- Apply lockout/tagout (LOTO) procedures.
- Wear appropriate PPE: gloves, safety glasses, steel-toe boots, and overalls.

2. Draining Fluids (Environmental Compliance)

Before dismantling, all fluids must be safely drained and disposed of in accordance with local environmental regulations:

- Engine oil.
- Fuel.

Label and store fluids in approved containers for collection and recycling/disposal.

3. Dismantling Process

Component	Procedure
Battery (if present)	Disconnect negative terminal first. Remove and store for recycling.
Fuel System	Remove fuel tank, fuel lines, and filter. Cap lines to prevent leaks.
Alternator	Disconnect wiring, unbolt from engine and frame.
Engine	Remove from frame after disconnecting from alternator and mounts.
Exhaust System	Unbolt muffler and exhaust piping. Check for hazardous deposits.
Frame & Housing	Remove panels, wheels, and skid mounts. Sort metals for recycling.
Control Panel	Disconnect all electrical wires and sensors before removal.

4. Disabling the Generator

If the generator is being decommissioned for non-use or storage:

- Drain fuel completely to prevent vapour buildup or leakage.
- Remove battery and disconnect all electrical connections.
- Tag as "**OUT OF SERVICE**" or "**DECOMMISSIONED**" clearly on housing.
- Record disabling in maintenance/asset log.

5. Scrapping & Recycling Guidance

- Metal components (engine block, alternator housing, frame): Sort by type (aluminium, steel) and send to licensed metal recycler.
- **Wiring:** Copper wiring can be stripped and recycled separately.
- **Plastics and housing:** Recycle where facilities allow; otherwise dispose in accordance with waste guidelines.
- **Battery:** Return to battery recycling point (hazardous material).
- Electronic components (control board, sensors): Follow local e-waste disposal protocols.
- **Oil and fuel filters:** Dispose as hazardous waste due to contamination.

6. Documentation & Record keeping

Maintain records for:

- Date and reason for decommissioning.
- Serial number and asset ID.
- Items dismantled, recycled, and disposed.
- Waste transfer certificates or disposal documentation (if required by local law).
- Final status (e.g., destroyed, scrapped, or repurposed).

7. Legal & Environmental Considerations

- Follow local environmental protection authority (EPA) guidelines.
- Ensure no hazardous waste enters storm drains or soil.

7.14. FAULT IDENTIFICATION AND LOCATION FOR REPAIR

To identify and locate faults for repair on DG5000.V2 generator, in accordance (which deals with the measurement and evaluation of mechanical vibrations of reciprocating internal combustion engine driven generator sets), you'll want to follow a systematic diagnostic and repair process.

🔧 Step-by-Step Fault Identification & Location

1. Safety First

Before doing anything:

- Disconnect all loads.
- Switch off the generator and allow it to cool.
- Ensure grounding is correct.
- Use PPE and follow lock-out/tag-out procedures if needed.

2. Preliminary Visual & Sensory Inspection

Look for obvious signs of trouble:

- Leaks (fuel, oil, coolant).
- Loose or damaged wires.
- Burnt smells.
- Unusual vibrations or noise.
- Broken mounts or cracks in the frame.

3. Functional Checks by System

Electrical System

- Output voltage check: Measure across 110V and 230V terminals using a multimeter.
- Expected: ~110V and ~230V ±5% under no-load.
- **Frequency check:** Should be around 50Hz or 60Hz (depending on region).
- **Circuit breakers/fuses:** Inspect for tripping or burnout.
- **AVR (Automatic Voltage Regulator):** Common failure point causing voltage instability.
- Stator/rotor resistance: Test with an ohmmeter for open or short circuits.

Battery/Starting System

- Check battery charge state (≥12.6V typically).
- Check starter motor operation.
- Inspect solenoid and ignition wiring.

Fuel System

- Ensure fuel flow from tank to injector.
- Check fuel filter and pump.
- Inspect for airlocks or blockages.

Air Intake & Exhaust

- Check for blocked air filters.
- Inspect muffler for carbon buildup or clogs.

Cooling System

- Check coolant levels (if liquid cooled).
- Verify fan operation and unobstructed airflow.
- Inspect for scaling or overheating signs.

Lubrication System

- Check oil level, pressure, and condition.
- Low oil pressure may cause the generator to shut down.

4. Vibration & Mechanical Health Check

ISO 8528-13 sets permissible vibration levels to ensure generator set longevity and safety.

Use a vibration meter/accelerometer to measure RMS vibration at:

- Engine mounts.
- Alternator housing.
- Frame/chassis.
- Typical limits for small gen-sets: <4.5 mm/s RMS at main mounting points (check spec).
- If vibrations exceed limits:
- Check for unbalanced rotors.
- Loose or misaligned couplings.
- Worn bearings.

5. Diagnostic Tools You'll Need

- Multimeter (voltage, resistance, continuity).
- Clamp meter (for current draw).
- Oscilloscope (optional for waveform analysis).
- Vibration analyser (ISO 8528-13 reference).
- Tachometer (engine speed).
- Thermal camera or IR thermometer.

7.15. RESTARTING THE MACHINE AFTER AN INTERVENTION

1. Pre-Start Safety Checks

Before starting the generator:

- Ensure all tools and foreign objects are cleared from the generator and surroundings.
- Verify all covers and panels are securely fastened.
- Ensure all connections are tight (especially electrical and fuel lines).
- Make sure the load is disconnected (no equipment plugged in or breakers ON).

2. Post-Repair Inspection

- **Oil level:** Check using dipstick.
- **Fuel level:** Top up if low.

- **Battery voltage:** Should be at least 12.6V.
- **Check for leaks:** Fuel, oil, coolant.
- **Wiring:** Ensure connectors and terminals are tight and correctly routed.
- **Filters:** Air, fuel, and oil filters must be in place and clean.

3. Initial Power-Up (No Load)

1. Switch ON the main breaker, but keep it open (disconnected from load).

2. Start the generator using the key or electric start button.

3. Observe startup behaviour:

- Engine should start within a few seconds.
- No excessive vibration or noise.
- Smooth acceleration to rated RPM.
- Let it run for 2–5 minutes with no load to stabilize and warm up.

4. Monitor Vital Parameters

Use your instruments or control panel to confirm:

Parameter	Expected Range
Voltage	110V / 230V ±5%
Frequency	50Hz or 60Hz ±1Hz
Engine RPM	~3000 RPM (for 2-pole, 50Hz)
Oil pressure	Within spec for model
Vibration level	≤4.5 mm/s RMS (general limit)

5. Gradually Apply Load

- Once stable, close the main breaker to connect load.
- Apply load incrementally (e.g., 25%, 50%, 75%, 100%) while observing:
- Voltage/frequency stability.
- Engine sound.
- Overcurrent trip or AVR fluctuation.
- Any rise in vibration.

6. Final Checks Under Load

- Ensure generator handles full rated load (~5000W) without:
- Tripping breakers.
- Excessive temperature rise.
- Smoke, noise, or abnormal vibration.
- Recheck vibration compliance.

7. Record and Sign Off

- **Log all test data:** Voltage, frequency, RPM, vibration, noise level.
- Compare results to pre-intervention conditions.
- Document parts replaced and adjustments made.

7.16. REDUCTION IN POWER DUE WHEN IN USE IN HIGH TEMPERATURE, ALTITUDE AND HUMIDITY

1. Derating Due to High Ambient Temperature

Most generators are rated at 25°C (77°F) ambient temperature. For temperatures above this, the generator must be derated.

Typical derating guideline:

Reduce output by ~3% for every 10°C above 25°

Ambient Temp (°C)	Derating (%)	Available Power (W)
25°C	0%	5000W
35°C	3%	4850W
45°C	6%	4700W
50°C	7.5%	4625W

2. Derating Due to Altitude

Typical derating guideline:

Reduce output by ~3–4% per 300m (1000 ft) above 1000m (3280 ft).

Altitude (m)	Derating (%)	Available Power (W)
0–1000 m	0%	5000W
1500 m	6%	4700W
2000 m	9%	4550W
2500 m	12%	4400W

3. Derating Due to High Humidity

Humidity affects air density, but it's a minor factor compared to temperature and altitude.

Power output may reduce by ~1–2% in very high humidity (>90%), especially when combined with heat and altitude.

Combined Derating Formula (Approximation).

Total Derating (%) = Temp Derating + Altitude Derating + Humidity Factor.

7.17. MAINTENANCE OPERATIONS THAT REQUIRE A PERSON WITH TECHNICAL KNOWLEDGE AND/OR SKILLS

1. Electrical System Maintenance

Task	Why It's Technical
Testing & replacing the AVR (Automatic Voltage Regulator).	Requires electrical testing and safe handling of live circuits.
Checking stator and rotor windings.	Involves resistance/continuity testing and insulation checks.
Testing and replacing circuit breakers or fuses.	Requires understanding of load balancing and generator wiring.
Measuring voltage, frequency, waveform stability.	Needs multimeter, clamp meter, and sometimes oscilloscope.
Repairing or replacing wiring harnesses.	Risk of miswiring or damaging sensitive components.

2. Engine & Mechanical Maintenance

Task	Why It's Technical
Valve clearance adjustment.	Precision work affecting engine performance.
Carburetor cleaning or tuning..	Involves fuel-air ratio tuning and small part handling.
Governor adjustment.	Incorrect settings affect voltage and frequency stability.
Timing adjustments (if applicable).	Requires knowledge of engine cycles and timing marks.
Overhauling pull-start or electric starter assembly.	Mechanical disassembly, spring tensioning, or motor rewiring.
Bearing inspection or replacement.	Requires pulling tools and alignment knowledge.

3. Fuel System Work

Task	Why It's Technical
Fuel pump replacement.	Involves fuel pressure considerations and line bleeding.
Fuel injector cleaning (on diesel models).	Needs specialized cleaning tools and safety protocols.
Tank cleaning & line flushing.	Risk of contamination or airlock if done improperly.

4. Vibration & Alignment Diagnostics

Task	Why It's Technical
Measuring vibration levels.	Requires vibration analyzer and interpretation.
Correcting shaft misalignment.	Needs dial indicators, laser tools, or balancing equipment.
Engine mount replacement.	May involve lifting engine or alternator assembly.

5 Load Testing & Performance Verification

Task	Why It's Technical
Performing a full-load test.	Needs proper test equipment and safety precautions.
Frequency and voltage regulation under load.	Must monitor AVR response and governor operation.
Waveform quality assessment.	May require oscilloscope or harmonic analysis tools.

Why These Tasks Need Professionals

- Risk of electric shock or electrocution.
- Possibility of voiding warranty if mishandled.
- Errors can cause irreversible engine damage or unsafe operation.
- Requires diagnostic experience, correct interpretation of results.

7.18. MAINTENANCE OPERATIONS THAT DO NOT REQUIRE A PERSON WITH TECHNICAL KNOWLEDGE OR SKILL

There are several basic maintenance operations for the DG5000.V2 generator that don't require technical skills — just a bit of care, attention.

Non-Technical Maintenance Tasks (User-Level)

1. Visual Inspection

- Check for fuel, oil, or coolant leaks.
- Inspect the generator for loose bolts, damaged covers, or worn cables.
- Look for signs of rust, cracks, or vibration-related wear.

2. Oil Level Check

- Locate the oil dipstick.
- Remove, wipe clean, reinsert, and check oil level.
- Top up with the recommended oil type if needed (don't overfill!).

3. Air Filter Inspection & Cleaning

- Open the air filter cover (usually with clips or screws).
- Remove and check the air filter element.
- Tap gently to remove dust, or wash with mild soap and water (if washable).
- Dry completely before reinstalling.

4. Fuel Level Check & Top-Up

- Open the fuel tank cap.
- Check fuel level and top up with fresh fuel if needed.
- Make sure fuel is clean and not old (discard old fuel >30 days).

5. Battery Check (for electric-start models)

- Check if terminals are clean and tight.
- Look for corrosion (white powdery buildup).
- Wipe terminals with a damp cloth or a baking soda solution.

NOTE: Don't remove or replace battery unless comfortable with basic 12V systems.

6. Keep it Clean

- Wipe down the generator housing with a dry cloth.
- Remove dust and debris buildup on ventilation grills.
- Keep the generator in a clean, dry, and ventilated space.

7. Run the Generator Regularly

- Even without use, start and run the generator every 2–4 weeks for 10–15 minutes.
- This keeps the carburetor clean and battery charged.

7.19. WHAT TO AVOID WITHOUT TECHNICAL SKILLS

Avoid Doing	Why
Adjusting carburetor or governor.	May affect voltage/frequency stability.
Testing electrical components.	Risk of shock or short circuits.
Replacing AVR, stator, or starter motor.	Involves wiring and safety risks.

8. TROUBLESHOOTING

8.1. DIESEL ENGINE MALFUNCTIONS AND THEIR REMEDIES

CAUSE	REMEDY
When the weather is cold, the machine oil becomes more viscous.	1. Preheat the engine, then fill machine oil into the crankcase. 2. Add a small amount of machine oil into the inlet manifold. 3. Disassemble the connection belt of the attached machine, then start the diesel engine. 4. Once the engine is warm, stop the engine and reassemble the belt. 5. Restart the engine.
A malfunction in the fuel system has occurred due to water contamination in the fuel.	Clean the fuel tank, filter, and fuel pipes, and replace the fuel.
The fuel has become thick and is not flowing easily.	Use the specified fuel.
There is air in the fuel system.	Drain the air from the fuel system and tighten each fuel pipe connector.
The fuel injection is insufficient or nonexistent, and the spray pattern is poor.	Check the position of the speed governor handle, clean the spray nozzle and fuel pump, and maintain or replace the pump or nozzle if necessary.
The combustion is incomplete.	The spray nozzle is faulty, the delivery angle is incorrect, the cylinder head gasket is leaking, and the compression pressure is insufficient. Remedy each issue by addressing its cause.
Diesel fuel delivery is interrupted.	There is too little diesel fuel in the fuel tank. Fill the tank with fuel. If the fuel pipe or fuel filter is obstructed or leaking, repair or replace them.
The compression pressure in the cylinder is insufficient. The cylinder head nut may not be tightened properly, or the cylinder head gasket may be damaged or leaking.	Tighten the cylinder head nut according to the diagonal sequence and standard requirements. Check the cylinder head gasket; if replacing the gasket, tighten the cylinder head nut again after running the diesel engine for a short period.
The gap in the piston ring is too large due to wear.	Replace the piston ring.

CAUSE	REMEDY
The piston rings are severely stuck or broken.	Clean with diesel fuel or replace the piston rings.
Gas valve leakage.	Grind the gas valves, If the vestige is too deep, please Send it to Sealey Service Centre.
The valve clearance is not correct.	Adjust the clearance as specified.
The valve stem is clipped on guide Pipe.	Disassemble the gas valve and clean the stem and guide pipe.

8.2. CAUSES AND REMEDIES FOR INSUFFICIENT POWER IN A DIESEL ENGINE

CAUSE	REMEDY
Fuel System Malfunction: Obstruction in the Fuel Pipeline and Fuel Filter	Check the fuel switch to ensure it is fully open. Clean the fuel filter and fuel pipeline.
The fuel pumping is insufficient.	Repair or replace the damaged parts of the fuel pump.
Nozzle Malfunction: Injection Pressure is Incorrect.	Adjust the injection pressure.
Carbon deposits in the spray holes.	Clean.
The needle valve is stuck.	Clean or change.
The fit between the needle valve and the needle valve body is too loose.	Change.
The air filter is obstructed.	Disassemble to clean or replace the filter core.
The speed is not high enough.	Check the speed of the diesel engine with a tachometer. Adjust the high-speed limit screw.

8.3. CAUSES AND REMEDIES FOR THE ENGINE STOPPING AUTOMATICALLY

CAUSE	REMEDY
Fuel System Malfunction: No Fuel	Add fuel.
Fuel pipeline of filter is obstructed	Refill, maintain, or clean the fuel system.
There is air in fuel system	Drain out the air.
The needle valve of the nozzle is stuck.	Clean and grind the nozzle, or replace it if necessary.
The air filter is blocked.	Clean or replace the air filter as needed.
The load increases suddenly.	Decrease the load.

8.4. CAUSE AND REMEDY FOR EXHAUST WITH BLACK SMOKE

CAUSE	REMEDY
The engine is overloaded.	Decrease the load if the working machine is not properly matched; otherwise, replace it.
The fuel injection is poor.	Check the injection pressure and spray condition and correct it. Or change the nozzle if it is damaged.
There is insufficient air or an air leak.	Clean the air filter, check the cause of leakage and remedy.

8.5. CAUSES AND REMEDIES FOR EXHAUST WITH BLUE SMOKE

CAUSE	REMEDY
There is machine oil, in cylinder.	Check the oil level and drain any excess machine oil.
The piston ring is damaged or worn, its spring tension is insufficient, or the gaps of the rings are aligned in the same direction, causing machine oil to rise.	Check and replace the piston rings, ensuring that the gaps are positioned at different angles.
The gap between the piston and the cylinder is too large.	Repair or replace as necessary.
The valve and guide are worn.	Replace the valve and guide.

8.6. CAUSES AND REMEDIES FOR EXHAUST WITH WHITE SMOKE

CAUSE	REMEDY
There is water in diesel fuel.	Clean the fuel tank and diesel filter, and replace the diesel fuel.

8.7. METHODS AND PROCEDURES FOR STOPPING AND CHECKING WHEN THE ENGINE IS MALFUNCTIONING

CAUSE	REMEDY
The speed fluctuates, sometimes high and sometimes low.	Check the speed governor system to ensure it is responsive. Also, check if there is air in the fuel pipeline.
An abnormal sound suddenly appears.	Check each moving part carefully.
Exhaust emits black smoke suddenly.	Check the fuel system, especially the nozzle.
There is a rhythmic metal knocking sound in the cylinder.	Adjust the fuel delivery angle.

8.8. OVERHAULING AND TROUBLESHOOTING PROCEDURES

(see table on the following page).

	CAUSES AND MALFUNCTION	REMEDY
Engine cannot be started	Not enough fuel in tank	Add more fuel to fuel tank
	The fuel tap is not in the open position.	Turn the fuel tap to the open position.
	The high-pressure pump and nozzle do not inject fuel, or the injected amount is insufficient.	Disassemble the nozzle and adjust it on a test bench.
	The speed control lever is not in the 'RUN' position.	Turn the speed control lever to the 'RUN' position.
	Check the lubrication oil level.	The standard amount of lubricating oil should be between the high ('H') and low ('L') marks.
	The recoil starter lacks speed and strength during pulling.	Start the diesel engine in accordance with the requirements of the 'Start Operation Procedures.
	There is dirt in the nozzle.	Clean the nozzle.
	The accumulator has no electricity.	Charge the accumulator or replace it.
Generator cannot generate electricity and has no welding voltage	The master switch (NFB) is not switched on.	Turn the master switch handle to the 'ON' position.
	The carbon brush of the generator is worn, causing poor contact.	Replace the carbon brush.
	The socket contact is poor.	Adjust the contact feet of socket.
	The engine cannot reach its rated revolution.	Make it reach the rated revolution in accordance with the requirements.
	The AVR automatic governor is damaged.	Replace it.
	The potentiometer for current regulation in the electric welder is damaged.	Replace it.

8.8.1. If the generator still cannot generate electricity, please contact Sealey Service Centre.
If you do not understand anything or have any questions, please feel free to contact your local stockists or reach out to Sealey Service Centre directly. Below is a list of information you should have ready before contacting your local stockists or us:
1. Model of the diesel engine generator and engine model number.
2. Number of operating hours along with the problem that occurred.
3. A detailed description of the condition and time when the problem occurred, including climate and atmospheric conditions.

9. TRANSPORTING / STORAGE

9.1. When transporting the generator, turn the engine switch and the fuel valve OFF. Keep the generator level to prevent fuel spillage. Fuel vapour or spilled fuel may ignite.

❑ **WARNING!** Contact with a hot engine or exhaust system can cause serious burns or fires. Let the engine cool before transporting or storing the generator.
Take care not to drop or strike the generator when transporting. **DO NOT** place heavy objects on the generator.
Storing your DG5000.V2 generator properly is key to ensuring it stays in good working condition — especially if it won't be used for several weeks or months. Poor storage can lead to fuel system issues, battery drain, corrosion, or even engine damage.
1. Choose the Right Location
- Cool, dry, and well-ventilated area.
- Away from flammable materials, heat sources, or direct sunlight.
- Off the ground if possible (on a pallet or shelf) to prevent moisture exposure.
- Rodent-proof area to avoid chewed wires.
- Avoid storing in damp basements or enclosed sheds without airflow.

ENVIRONMENT PROTECTION
Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

REGISTER YOUR PURCHASE HERE

Note: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice. Please note that other versions of this product are available. If you require documentation for alternative versions, please email or call our technical team on technical@sealey.co.uk or 01284 757505.
Important: No Liability is accepted for incorrect use of this product.
Warranty: Guarantee is 12 months from purchase date, proof of which is required for any claim.

Sealey Group, Kempson Way, Suffolk Business Park, Bury St Edmunds, Suffolk. IP32 7AR
01284 757500 **sales@sealey.co.uk** **www.sealey.co.uk**