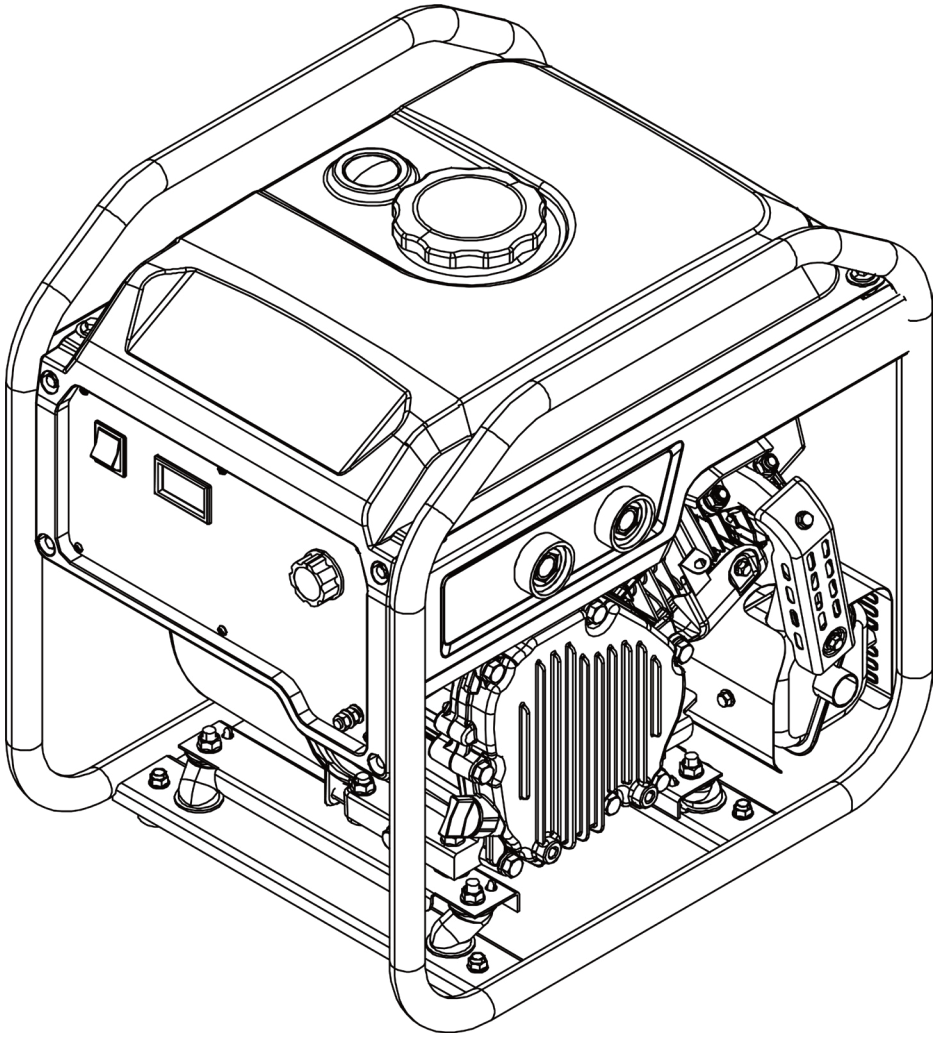
TOOLSHED WELDER GENERATOR 10–130A



TSGW1

www.thetoolshed.co.nz

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Thank You

For the purchase of this ToolShed product. We try our hardest to supply customers like you with the best quality products available, at the best price possible. We cant wait to continue working together in the future.

Please contact us for any servicing, replacement parts, or questions you might have about your ToolShed product by visiting our website, or calling: 0800 948 665.

PRODUCT DETAILS

Product Model	*ToolShed Welder Generator 10–130A*
Product Code	*TSGW1*

DISTRIBUTED BY:

Note:

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

Warranty:

This product may be covered under The ToolShed warranty. For more information, see our Terms & Conditions at www.thetoolshed.co.nz

SPECIFICATIONS

Engine

Displacement	223 CC/REV
Ignition System	Transistor Magneto
Fuel Tank Capacity	8.0 Litre
Oil Capacity	0.6 Litre
Rated Speed	3600 RPM

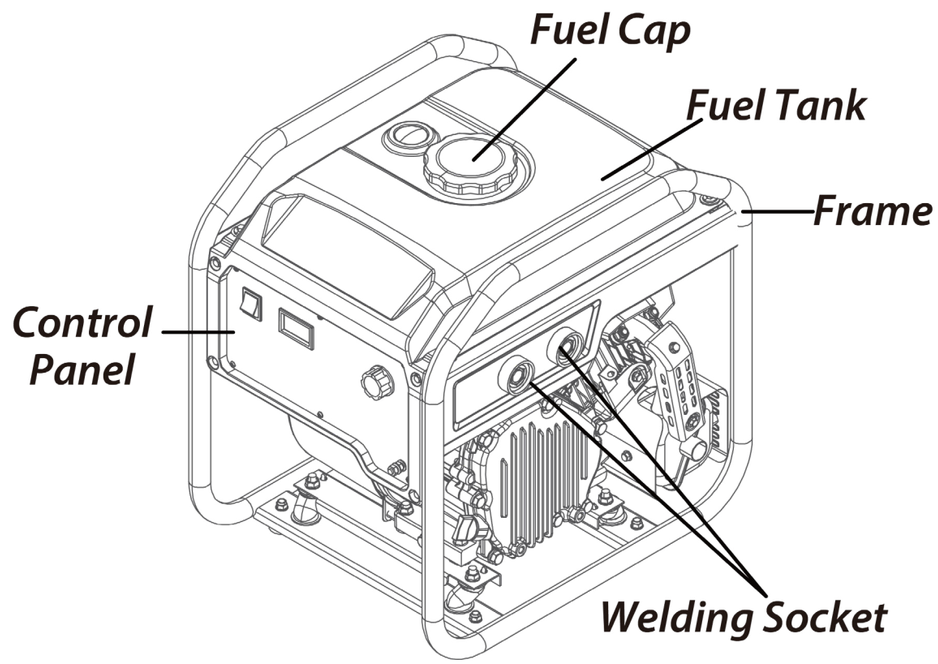
Generator

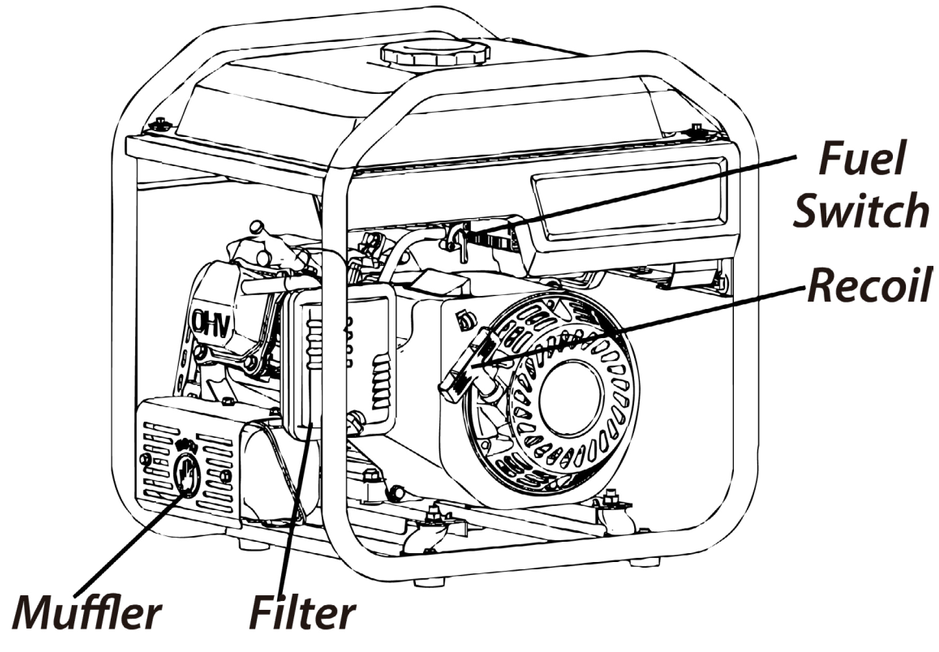
Product Dimensions (LxWxH)	480 x 370 x 468 mm
Net Weight	28 kg

Welder

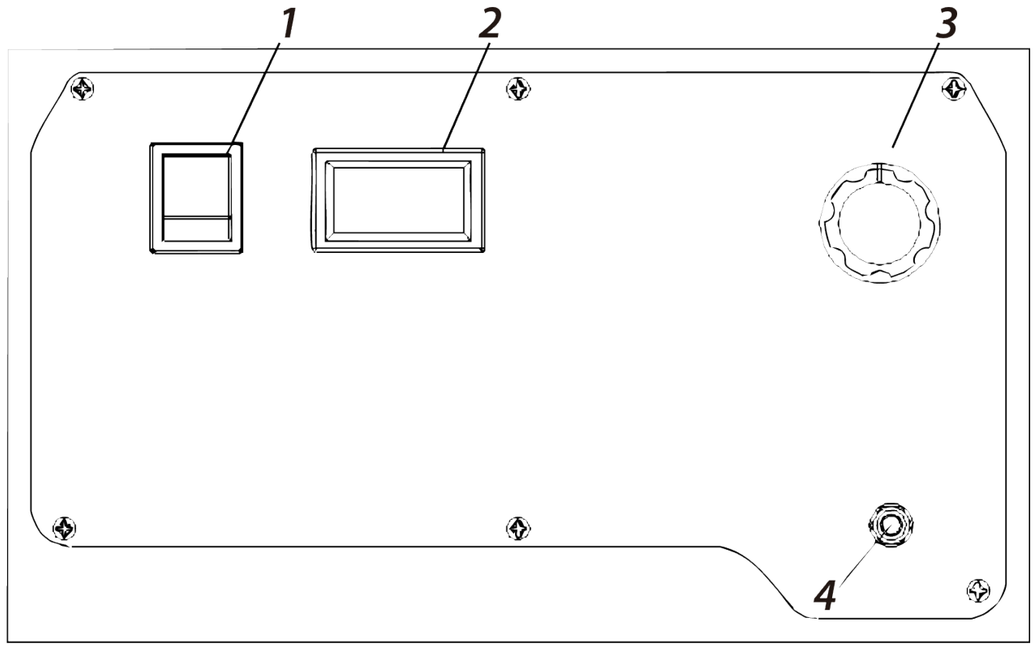
Unload Voltage	52 ±2 V DC
Load Voltage	24.2–27 V DC
Welding Current	10–130 Amps

PRODUCT IDENTIFICATION





CONTROL PANEL



1 Welding Switch
2 Welding Ammeter
3 Welding Current Adjusting Knob
4 Ground Terminal

SAFETY GUIDELINES

WARNING

READ ALL SAFETY WARNINGS & INSTRUCTIONS. Failure to follow instructions and warnings could lead to serious injury, electric shock, or fire.

Work Area Safety

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

Personal Safety

- **Always wear personal protective equipment (PPE).** Eye protection, ear protection, dust masks, and other protective equipment will help to reduce the risk of personal injury or long-term illnesses.
- **Dress appropriately. DO NOT wear loose clothing that can get caught in moving parts.** Keep hair, loose clothing, jewellery, and anything else that could be of risk, away from moving parts in the machine, or they could become caught therein.
- **Always remain alert and DO NOT operate power tools or machinery under the influence of any substances such as alcohol or drugs, including prescription medications.** Lack of focus could lead to injury or accidents while operating these power tools and machinery.
- **Always ensure proper footing and balance.** Overreaching can lead to slipping and falling which can result in injury or accident.
- **Ensure the power switch is in the OFF position before connecting any battery, or power source to the power tool or machinery.** This can cause injury as tools and machinery can suddenly fire incidentally when live, causing accidents.
- **Use all provided dust collection and extraction attachments, if included.** This equipment, along with the use of PPE dust masks, can help keep you safe from dust, and keep your work site clear from hazards.
- **Ensure loose parts such as wrenches or adjusting keys are removed before starting the power tool or machinery.**

SAFETY GUIDELINES

Electrical Safety

- **DO NOT use the power tool or machinery in rainy conditions or wet areas where the power tool or machinery could get wet.** Water in this power tool or machinery can lead to electric shock.
- **Only use the power tool or machinery when the plug correctly matches the power outlet.** Modifying plugs greatly increases the risk of electric shock.
- **Keep the power cord away from anything that could damage it such as sharp edges, moving parts or heat.** A damaged power cord increases the risk of electric shock.
- **Only operate outdoors with the use of an outdoor extension lead.** Not all extension leads are suited to outdoor use and using one which is not can greatly increase the risk of electric shock.
- **Avoid body contact with grounded or earthed surfaces.** Surfaces such as radiators, ranges, pipes, and refrigerators can increase the risk of electric shock due to your body being earthed or grounded.
- **Never carry the power tool by the cord, or yank the cable from the power outlet.** This can damage the internal wiring and may become a hazard.

WARNING

Electric shock can cause serious injury or, in some cases be fatal.

Power Tool & Machinery Use & Care

- **Use the correct tool for the job.** Forcing a tool to do a job it was not designed for increases the risk of accident or injury.
- **Disconnect tools and machinery from power, or remove batteries before doing any maintenance or adjustments, or before storing the tools and machinery.** This reduces or removes the risk of a power connection that causes the tool or machinery to accidentally fire, which can help prevent injury or accident.
- **Check the general condition of the power tool for damage or any problems that could affect the way the tool or machine works.** An unrepaired tool or machine can lead to accident and injury. Only have your tool or machine repaired with genuine parts from The ToolShed.
- **Only use the power tool and machinery with genuine parts or accessories that are designed to be used with this power tool and machinery.** Failure to do so could result in accident or injury, or damage your tool or machinery.
- **Store your tool or machinery out of reach of children, and away from untrained personnel when not in use.** Use by somebody untrained, or a child, could lead to accident or serious injury.

SAFETY GUIDELINES

Fuel & Engine Safety

- Engine exhaust contains carbon monoxide, a colourless, odourless, poison gas. Breathing carbon monoxide will cause nausea, dizziness, fainting or death. If you start to feel dizzy or weak, get fresh air immediately.

WARNING

Operate this machine outdoors only in a well-ventilated area and point the exhaust away from you.

- DO NOT operate the machine inside any building, including garages, basements, crawlspaces and sheds, enclosures, or compartments, including the storage compartment of a recreational vehicle.
- DO NOT allow exhaust fumes to enter a confined area through windows, doors, vents, or other openings.
- NEVER use inside a home or garage, EVEN IF doors and windows are open. ONLY use OUTSIDE and far away from windows, doors, and vents.

WARNING

Using an engine indoors CAN KILL YOU IN MINUTES. Engine exhaust contains Carbon Monoxide. This is a poison you cannot see or smell.

Gasoline & Vapours

DANGER

GASOLINE AND GASOLINE VAPOURS ARE HIGHLY FLAMMABLE AND EXPLOSIVE. Fire or explosion can cause severe burns or death.

- Gasoline is highly flammable and explosive.
- Gasoline can cause a fire or explosion if ignited.
- Gasoline is a liquid fuel, but its vapours can ignite.
- Gasoline is a skin irritant and needs to be cleaned up immediately if spilled on skin or clothes.
- Gasoline has a distinctive odour; this will help detect potential leaks quickly.
- In any petroleum gas fire, you should not attempt to extinguish the flames unless it can be done in such a way by turning the fuel supply valve OFF. This is because if a fire is extinguished and a supply of fuel is not turned OFF, then an explosion hazard could be created.
- Never fill the gas tank to capacity as gasoline needs room to expand if temperature rises.
- Never use gasoline that is stale, contaminated, or mixed. Avoid getting contaminants, dirt or water in the fuel tank.

SAFETY GUIDELINES

When Adding or Removing Gasoline

- DO NOT light or smoke cigarettes.
- Turn the engine off and let it cool for at least two minutes before removing the gasoline cap. Loosen the cap slowly to relieve pressure in the tank.
- Only fill or drain gasoline outdoors in a well-ventilated area.
- DO NOT pump gasoline directly into the engine at the gas station. Use an approved container to transfer fuel to the engine.
- DO NOT overfill the gasoline tank.
- Always keep gasoline away from sparks, open flames, pilot lights, heat, and other sources of ignition.
- DO NOT refill the fuel tank while the engine is running or while the engine is still hot.
- When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per local regulations.

When Starting the Engine

- DO NOT attempt to start a damaged engine.
- Make certain that the gasoline cap, air filter, spark plug, fuel lines, and exhaust system are properly in place.
- Allow spilled gasoline to evaporate fully before attempting to start the engine.
- Make certain that the unit is resting firmly on level ground.
- Spark from a removed spark plug wire can result in fire or electrical shock.

Service

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

⚠ WARNING

The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Always Use Common Sense

- It is not possible to cover every conceivable situation you can face. Always exercise care and use your common sense. If you get into a situation where you feel unsafe, stop and seek expert advise. Contact your dealer, service agent, or an experienced user. Do not attempt any task you feel unsure of!
- **Do not let familiarity gained from the frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

OPERATION MANUAL

SAFETY GUIDELINES

Generator Specific Safety

- Rapid retraction of the starter cord will pull your hand and arm towards the engine faster than you can let go.
- Unintentional start-up can result in entanglement, traumatic amputation or laceration. Broken bones, fractures, bruises or sprains could also result.
- When starting the engine, pull the starter cord slowly until you feel sufficient resistance, and then pull rapidly to avoid kickback.
- DO NOT start or stop the engine with electrical devices plugged in.
- DO NOT overload the generator.
- Start the generator, and give the engine time to stabilise before connecting any electrical loads to the generator.
- Connect all electrical equipment in the OFF position, then turn them on for operation.
- Turn electrical equipment off before stopping the generator.
- DO NOT tamper with the governed speed.
- DO NOT modify the generator in any way.
- Use the generator only for intended uses.
- Operate only on level surfaces.
- DO NOT expose generator to excessive moisture, dust, or dirt.
- DO NOT allow any material to block the cooling slots. If connected devices overheat, turn them off and disconnect them from the generator.

DO NOT use the generator if:

- Electrical output is lost,
- Equipment sparks, smokes or emits flames,
- Equipment vibrates excessively.

⚠ DANGER

Generator exhaust contains carbon monoxide, a colourless, odourless, poisonous gas. Breathing carbon monoxide will cause nausea, dizziness, fainting or death. If you start to feel dizzy or weak, get to fresh air immediately.

OPERATE GENERATOR OUTDOORS ONLY IN A WELL VENTILATED AREA AND POINT EXHAUST AWAY.

- DO NOT operate the generator inside any building, including garages, basements, crawlspaces and sheds, enclosure or compartment, including the generator compartment of a recreational vehicle.
- DO NOT allow exhaust fumes to enter a confined area through windows, doors, vents or other openings.

⚠ DANGER

Using a generator indoors CAN KILL YOU IN MINUTES. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

- NEVER use inside a home or garage, EVEN IF doors and windows are open.
- ONLY use OUTSIDE and far away from windows, doors, and vents.

SAFETY GUIDELINES

DANGER

Although the generator contains a spark arrester, maintain a minimum distance of 1.5m from dry vegetation to prevent fires.

DANGER

Operate equipment with guards in place. Rotating parts can entangle hands, feet, hair, clothing and/ or accessories. Traumatic amputation or severe laceration can result.

- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewellery.
- DO NOT wear loose-fitting clothing, dangling drawstrings or items that could become caught.

DANGER

Generator produces powerful voltage.

- DO NOT touch bare wires or receptacles.
- DO NOT use electrical cords that are worn, damaged or frayed. Use only Champion electrical cords for proper application.
- DO NOT operate generator in wet weather.
- DO NOT allow children or unqualified persons to operate or service the generator.

WARNING

Do not use generator for medical and life support uses.

WARNING

Spark from removed spark plug wire can result in fire or electrical shock.

- **When servicing the generator:** Disconnect the spark plug wire and place it where it cannot contact the plug or any other metal object.
- DO NOT check for spark with the plug removed.
- Use only approved spark plug testers.

CAUTION

Exceeding the generator's running capacity can damage the generator and/or electrical devices connected to it.

- DO NOT overload the generator.
- DO NOT tamper with the governed speed.
- DO NOT modify the generator in any way.
- Start the generator and allow the engine to stabilise before connecting electrical loads.
- Connect electrical equipment in the off position, and then turn them on for operation.
- Turn electrical equipment off and disconnect before stopping the generator.

SAFETY GUIDELINES

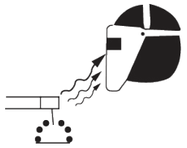
Welding Personal Protective Equipment

- **A welding helmet is a crucial piece of PPE that shields the welder's face and eyes from the intense light, radiation, flying sparks, molten metal, and debris.** Without a welding helmet, welders risk suffering from arc eye, which is a painful condition caused by overexposure to the welding arc's ultraviolet (UV) and infrared (IR) rays. Long-term exposure can lead to permanent eye damage, including blindness.
- **Gloves provide protection from sparks, spatter, and hot metal that can result from the welding process.** Gloves prevent burns and injuries to the hands, which are particularly vulnerable to heat and molten metal.
- **Welders should wear flame-resistant overalls or clothing that covers their entire body.** Sparks or slag can ignite materials like cotton, proper welding attire protects from welding arc radiation, spatter, and potential fires.
- **Welding glasses:** Post welding can remove the helmet in use of Safety glasses that can protect your eyes when brushing, chipping, or grinding slag from the weld.
- **Ear Protection:** Earplugs or earmuffs can help protect against hearing damage from prolonged exposure to loud welding equipment.
- **Welding Respirator:** Welding produces fumes and gases that can be harmful when inhaled. A respirator with appropriate filters can help protect against inhaling these noxious substances.

ARC Welding Electric Shock Hazards

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers.
- Disconnect input power or stop engine before installing or servicing this equipment.
- Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
- Use fully insulated electrode holders. Never dip holder in water to cool it, or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not wrap cables around your body.
- Ground the workpiece to a good electrical (earth) ground.
- Do not touch electrode while in contact with the work (ground) circuit.
- Use only well-maintained equipment.
- In confined spaces or damp locations, do not use a welder with AC output unless it is equipped with a voltage reducer. Use equipment with DC output.
- Wear a safety harness to prevent falling if working above floor level.
- Keep all panels and covers securely in place.

SAFETY GUIDELINES



ARC Rays Hazards

WARNING

ARC RAYS can burn eyes and skin; NOISE can damage hearing.

Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

- Use a Welding Helmet or Welding Face shield fitted with a proper shade of filter to protect your face and eyes when welding or watching.
- Wear approved safety glasses. Side shields recommended.
- For welders under 160 Amps output, use a shade 10 lens; for those above 160 Amps, use a shade 12. Refer to the *Shade Guide Table* on page 12 for more information.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.
- Use approved ear plugs or ear muffs if noise level is high.

Fumes & Gasses Hazards

WARNING

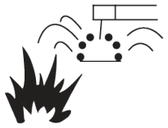
FUMES AND GASES can be hazardous to your health.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breath the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor, use an approved air-supplied respirator.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanised, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

OPERATION MANUAL

SAFETY GUIDELINES



Fire & Explosion Hazards

WARNING

WELDING can cause fire or explosion.

The flying sparks and hot metal, weld spatter, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 10m (35 ft) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Always be alert for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks or drums.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Connect the work cable close to the welding area to prevent current from traveling long distances, reducing electric and fire hazards.

Cylinder Hazards

WARNING

CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are an important part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
- Install and secure cylinders in an upright position by chaining them to a stationary support or equipment cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never allow a welding electrode to touch any cylinder.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and all associated parts in good condition.
- Turn your face away from valve outlet when opening cylinder valve.
- Keep the protective cap in place over the valve except when the cylinder is in use, or connected for use.

OPERATION

Operation Procedure of Welder

1. Before starting the generator, ensure that the welder pliers and ground wire are in good contact with the quick socket at the output end of the welder; After insertion, turn clockwise to lock the plug.
2. Start the generator, adjust suitable welding current, and start the welding operation;
3. Set the current preset to minimum when no welding job is required.

Welding Precautions

1. The welding operation should be performed in a dry environment with air humidity not exceeding 90%.
2. The ambient temperature should be between -10˚C and 40˚C.
3. Do not weld in direct sunlight or rain, and prevent water from entering the welder.
4. Avoid welding in dusty areas or locations with corrosive gases.
5. Avoid gas-shielded welding in environments with strong air flow.

Recommended Current for Electrode Specifications in Downward Welding

Electrode Specification	*Ø2.5*	*Ø3.2*
Welding Current	70 – 100A	110 – 130A

Connection of Quick Connector of Welder

1. Connect the welding clamp to the positive terminal and the ground wire to the negative terminal.
2. After inserting the quick plug into the socket, rotate it to the right to securely lock it in place, as shown in the image below:

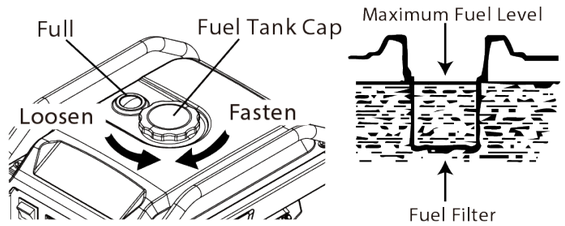
WARNING

If the quick plug is not securely locked, it may damage the generator set and, in severe cases, could cause a fire.

Fuel Preparation

- Fuel is flammable and toxic—please read all safety instructions carefully before refuelling.
- Do not overfill the tank, as fuel may overflow when it warms up.
- After refuelling, ensure the fuel tank cap is securely tightened.
- Recommended fuel: Unleaded petrol, 92# or higher
- Fuel tank capacity: 8 Litres.

OPERATION

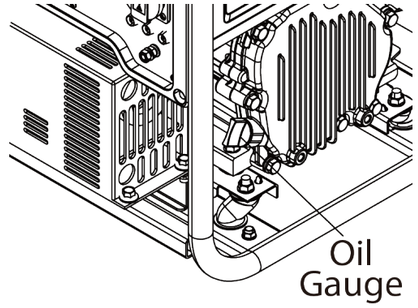


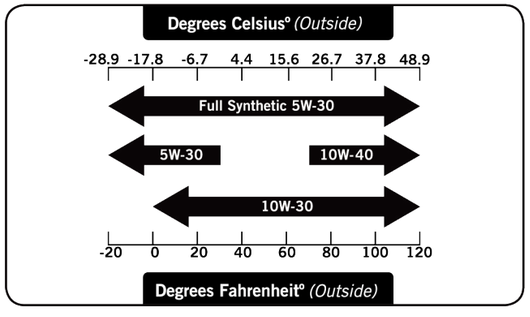
CAUTION

You must use unleaded gasoline, leaded gasoline can seriously damage the internal parts of the engine.

Oil Preparation

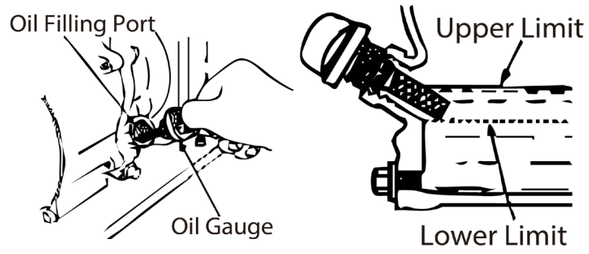
- The generator is not filled with oil at the factory. Add sufficient oil before use and before starting the engine.





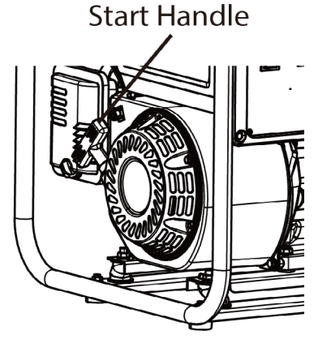
- For regular use, SAE 10W-30 is recommended as a general-purpose engine oil for typical temperatures. Other oils may be used if the average temperature in your area matches the range shown in the chart above.
- To fill the oil, follow these steps:

1. Place the machine on a level surface.
2. Loosen and remove the oil gauge.
3. Use a funnel for easier filling. Insert the oil gauge into the crankcase (do not screw it in); the oil level should just reach the bottom of the gauge—this is the minimum level.
4. Screw in the oil gauge and tighten securely.



Starter

- Pull the starter handle slowly until you feel resistance, then pull it firmly to start. Return the handle slowly—do not let it snap back, as this may cause damage.



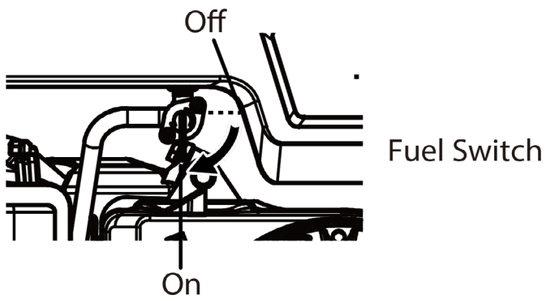
OPERATION

CAUTION

Do not allow the starter handle to spring back suddenly after starting. Gently guide it back and release it smoothly.

Fuel Switch

- The fuel switch controls fuel flow from the tank to the carburettor. After shutting down, ensure the fuel switch is turned to "Off".



Use of Generator

- **Applicable Temperature:** -5°C–40°C.
- **Applicable Humidity:** below 95%.
- **Applicable Altitude:** Suitable for use at altitudes up to 1000 metres. For areas above 1000m, reduce appliance power during use or contact your local ToolShed

CAUTION

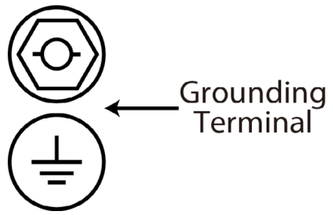
Standard welding generator sets can support welding and power generation at the same time.

Welding should only begin 15 seconds after the engine starts.

After an overload or undervoltage, wait 15 seconds before resuming welding.

Grounding the Generator

- To prevent inferior electrical appliances from being subjected to electric shocks or electrical errors resulting in generator damage, it is recommended to ground the generator with a wire with good insulation.



Use in High Altitude Area

- At high altitudes, the standard carburettor can cause the fuel mixture to be too rich, leading to reduced power output and increased fuel consumption.
- Performance can be improved by fitting a smaller main jet or adjusting the mixture screw.
- If you regularly operate the generator above 1000 metres, consider replacing the carburettor through an authorised ToolShed dealer. Otherwise, reduce the generator's load during use.
- Even with the correct carburettor, engine power decreases by approximately 3.5% for every 300-metre increase in altitude. Without adjustment, the power loss will be even greater.

OPERATION

Starting the Machine

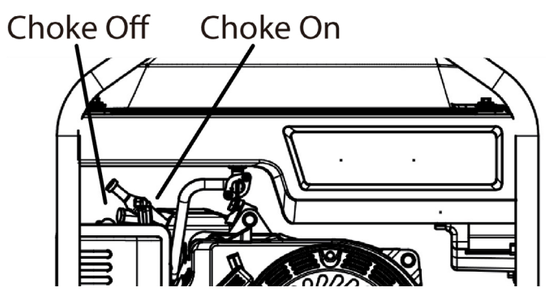
- Before starting the machine, make sure that you have completed the proper preparation.

CAUTION

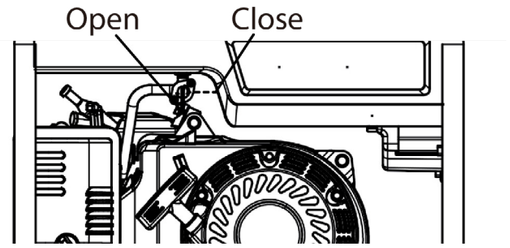
Do not apply any load before starting the machine. In particular, ensure the welding wire's positive and negative electrodes are not connected during startup.

- Follow these steps to start the machine:

1. Make sure there is no load connected; otherwise, it will be difficult to start the machine.
2. Make sure the machine is properly grounded.
3. Check oil and fuel levels.
4. Turn on the fuel switch.
5. Set choke switch to "On" position.



6. Turn on the engine switch
7. Pull the starter handle slowly until you feel resistance, then pull it out quickly.
8. Once the engine starts, promptly move the choke handle to the "OFF" position.



CAUTION

Do not engage the choke when starting the engine while it's still warm.

CAUTION

To stop the generator in an emergency, set the generator switch to the "Off" position.

Stop the Generator

1. Turn the ECO switch to "OFF";
2. Turn off the AC circuit break protector;
3. Turn off the generator;
4. Turn off the fuel switch;
5. Disconnect all electrical devices.

MAINTENANCE

- Compressed air is the most effective way to clean this tool. Always wear PPE safety goggles when cleaning tools with compressed air.
- Ventilation openings and switch levers must be kept clean. DO NOT attempt to clean by inserting pointed objects through openings.
- Do not use harsh chemicals or solvents when cleaning this tool.
- If you discover any damaged or broken parts, consult your nearest ToolShed for replacements and advise.

Environment & Disposal

- Packaging materials are raw materials and can be re-used. Separate the different packaging materials and take them to the appropriate waste disposal facility. More information can be obtained from your local authorities.
- Old machines do not belong in your household garbage! Dispose of old machines appropriately, we are all responsible for the environment.

Maintenance Schedule

- Proper maintenance is key to safe, efficient, and reliable operation, while also helping to protect the environment.
- To keep the engine performing at its best, carry out regular inspections and follow the recommended maintenance schedule.

Items \ *Maintenance Period*		*Each Time*	*First month or after 20 hours use*	*Every three months or every 50 hours use*	*Every Year*
Engine Oil	Check/Add	✓			
	Replace		✓	✓	
Gearbox Gear Oil	Check Oil Level	✓			
	Replace		✓	✓	
Air Filter Element	Check	✓			
	Clean		✓		
	Replace			✓	
Settling Bowl	Clean				✓
Spark Plug	Clean/Adjust				✓
Spark Reducer	Clean			✓	
Idling*	Check/Adjust				✓
Valve Clearance*	Check/Adjust				✓
Fuel Tank/Filter	Clean				✓
Fuel Pipe	Check	Every two years (change if necessary)			
Cylinder Head, Piston	Carbon Removal*	Displacement <225cc, every 125 hours; Displacement ≥225cc, every 250 hours.			

- These items should be serviced by the ToolShed's authorised service centre, unless the user has the appropriate tools and capabilities to repair.

MAINTENANCE

CAUTION

If operating frequently under high temperatures or heavy loads, change the oil every 10 hours.

- If operating frequently in dusty or harsh environments, clean the air filter element every 10 hours. Replace it every 25 hours if necessary.
- Maintenance should follow the recommended service intervals.
- If the maintenance period has been exceeded, perform the required maintenance as soon as possible according to the schedule.

WARNING

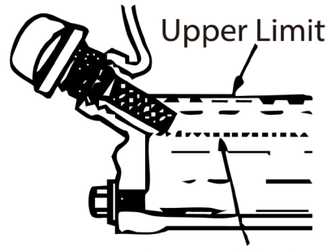
Please stop the engine prior to performing any maintenance. The engine should be placed in a horizontal position. To prevent the engine from starting, the spark plug cap should be separated from the spark plug.

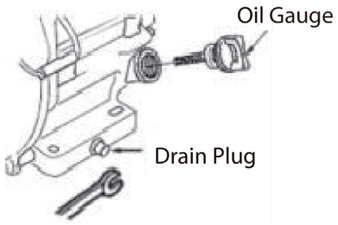
Do not use indoors or in poorly ventilated places such as tunnels or caves. Make sure the working area is well ventilated. The exhaust gas from the engine contains poisonous carbon monoxide, which can cause shock, loss of consciousness and even death if inhaled.

Replacing the Oil

- Start the gasoline engine and warm the engine for a few minutes before adding oil, to ensure a quick and clean removal of oil.

1. Remove the oil gauge. Re-turn the oil drain plug and discharge the oil.
2. Install drain plug and tighten.
3. Fill the oil and check the oil level.





4. Put on the oil gauge.

- Constant exposure to motor oil can lead to skin cancer. It is recommended to wash the skin in contact with the oil immediately and thoroughly with soap and water.
- For environmental protection, please properly dispose of the waste oil generated after use.
- We strongly recommend that you: put the waste oil in a sealed container and take it to a local service station or waste oil recovery centre. Remember: Do not throw it in the garbage or dump it on the ground or in the ditch.

MAINTENANCE

Maintaining the Air Filter

- Dirty air filter will affect the flow of air into carburettor. To prevent carburettor failure, maintain the air filter regularly. If used in dusty environments, frequent maintenance is required.

WARNING

Using gasoline or flammable solvents to clean the filter element may cause fire or explosion. Use soapy water or a non-flammable solvent to clean the filter element.

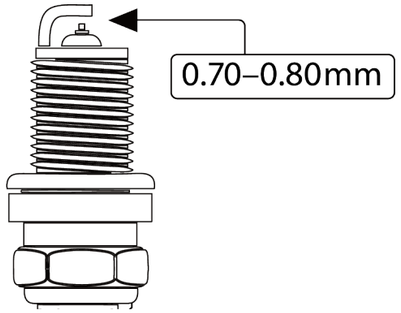
It is strictly prohibited to start the generator without an air filter, otherwise it will lead to rapid wear of the gasoline engine.

1. Open the connecting button of the air filter cover and open the air filter cover. Check the air filter element to ensure it is intact and clean.
2. If the foam filter is dirty, please clean the foam filter: wash it in hot water with household detergent, or clean it in a non-combustible or high-flash solvent; Then rinse with water, squeeze clean, and drop a few drops of oil and squeeze evenly.
3. Install the filter element and close the air filter cover.

Spark Plug

- Replace the spark plug according to the original spark plug model.

1. Remove the spark plug cap.
2. Remove the spark plug with a spark plug socket wrench.
3. Visually inspect the spark plug insulator for damage. Replace the spark plug if damaged.
4. Measure the spark plug gap with a thick gauge. Bend the side electrode to adjust the clearance. The clearance should be guaranteed at 0.70–0.80mm.
5. Check that the gasket of the spark plug is in good condition.
6. Install the spark plug and tighten with the spark plug socket wrench, press the spark plug washer. Close the spark plug cap.



CAUTION

Spark plug must be fully fastened, if not properly fastened will cause overheating and cause damage to the machine. Please select the correct spark plug heat value and use the recommended or equivalent model.

STORAGE

- To prevent burns or fire from contact with hot parts, allow the generator to cool completely before packaging or storing.
- For long-term storage, ensure the area is clean, dry, and well-ventilated.

1. Drain the fuel tank. Clean the fuel filter, O-ring, and settling bowl before reinstalling.
2. Loosen the carburettor drain bolt to release any fuel, then reinstall and tighten the bolt securely.
3. As petrol is highly flammable and explosive, always drain fuel in a well-ventilated area after shutdown. Keep all open flames and sparks away during this process.
4. Remove the oil gauge, then unscrew the oil drain plug on the crankcase to drain the oil. Once drained, tighten the plug and refill with fresh oil up to the correct level. Reinstall the oil gauge.
5. Remove the spark plug and pour one tablespoon of clean oil into the combustion chamber. Rotate the crankshaft several times to distribute the oil, then reinstall the spark plug.
6. Gently pull the starter handle until resistance is felt, ensuring the intake and exhaust valves are closed.
7. Store the generator in a clean, dry location.

ENGINE TROUBLESHOOTING

FAULT	POSSIBLE CAUSE	SUGGESTED SOLUTION
Gasoline Engine cannot Start	Check if there is any fuel in the tank	Put fuel in the tank.
	Check if there is enough oil in the crankcase	Add oil.
	Check whether the spark plug produces adequate spark	Replace the spark plug.
		Otherwise consult your nearest ToolShed service department.
	Check if any fuel in the carburettor	Check and clean the carburettor settle bowl.
	If all of the above fail, consult your nearest ToolShed service department.	

WELDER TROUBLESHOOTING

FAULT	POSSIBLE CAUSE
The ammeter does not Display anything	Check the input power supply voltage of the welding machine (the normal voltage should be between AC280V-AC480V);
	Generator output voltage ≥AC520V;
	Check whether the welder switch is damaged and whether the switch is normal;
	Check whether the welder fuse is damaged;
	Check whether there is DC600V at the test end of the auxiliary power supply inside the welder (if there is, the auxiliary power supply is damaged, if not, the rectifier circuit is damaged);
	Frequent switching of welding machine, resulting in manual misoperation;
The fan of welder does not work, ammeter normal display	Fan damage;
	The power supply cable to the fan is broken;
	A foreign body is stuck in the fan hole;
The fan of welder normal rotates, ammeter does not display	Check whether the ammeter signal cable is off (the 4-hole connector is the ammeter signal cable);
	Ammeter damage;

WELDER TROUBLESHOOTING

FAULT	POSSIBLE CAUSE
The fan and ammeter are normal, the current is not adjustable	The adjustment knob is damaged;
	Signal cable of adjusting knob falls off (3-hole connector is current adjusting knob);
The fan, current display, and adjusting knob are normal; the welder has no output	Welder module input voltage is lower than AC280V or higher than AC480V;
	Internal fault of welding machine (welding machine has no drive or output high-frequency rectifier tube is damaged);
Fan, ammeter, regulation, output are normal, welding with spark but can not arc	Triggers welder power protection mechanism from insufficient generator power (severe shaking when welding and close to shut down)
	The input power supply is out of phase;
	Welder internal fault (power protection circuit fault);
	The welding pliers is in poor contact with the ground wire or the output of the welding machine;
	The wire diameter used by the welding pliers and ground wire is too small (the minimum use of national standard 16MM2 single strand cable);
Fan, ammeter, regulation, output are normal, welding without spark and can not arc	Welder has no output (check whether the positive and negative electrodes of the welder have DC60V voltage);
	The welding pliers is in poor contact with the ground wire or the output quick socket of the welding machine;
	Welder input voltage exceeds AC480V;
	Welder failure;
The generator is difficult to start or cannot pull	Turn off the welder power switch and start the generator. If it can start normally, the welding machine is damaged. If it cannot be solved, continue to step 1 and 2;
	Unplug the power supply plug of the inverter, if the generator starts normally, the inverter is damaged;
	Unplug the power supply plug of the inverter and welding machine. If it cannot be started, the generator is judged to be damaged;
The inverter output is normal, and the welding machine cannot melt the electrode during welding	Inverter AC220V output load large power electrical appliances, observe whether the generator works normally;
	Generator insufficient power;
	Welder and inverter load at the same time, resulting in insufficient generator power;
	Welding machine input power supply is out of phase;
	Internal fault of welding machine (welding machine has no drive or output high-frequency rectifier tube is damaged);