

Böhmer-AG

Qualität Durch Forschung



Version 1.1

READ THIS MANUAL CAREFULLY BEFORE USE – FAILURE TO DO SO MAY RESULT IN INJURY, PROPERTY DAMAGE AND MAY VOID WARRANTY. • KEEP THIS MANUAL FOR FUTURE REFERENCE.

- Products covered by this manual may vary in appearance, assembly, inclusions, specifications, description and packaging.



The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use – see the Checking and Changing Engine Oil section. Failure to add engine oil will void the product warranty.

Safety



You Can be INJURED if you do not follow instructions or equipment damage may occur.



You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.



You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.

Use the equipment and accessories etc. in accordance with these instructions, taking into account working conditions and the work to be performed. Using the equipment for operations different from those intended could result in hazardous situations.

Before use, inspect the equipment for misalignment or binding of moving parts, loose components, damage or any other condition that may affect its operation. If damaged, have the equipment repaired by an authorized service centre or technician before use.

Always keep the equipment and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment, controls and handles dry and free from dirt, oil and grease. Store the equipment out of reach of children or untrained persons. To avoid burns or fire hazards, let the equipment cool completely before transporting or storing. Never place the equipment in places where there are flammable materials, combustible gases or combustible liquids etc.

The equipment is not weatherproof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or very humid.

General Work Safety

Work areas should be clean and well lit. Do not operate the equipment if bystanders, animals etc are within operating range of the equipment or the general work area.

Personal Safety

Keep packaging away from children - risk of suffocation! Operators must use the equipment correctly. When using the equipment, consider conditions and pay due care to persons and property.

Prevent unintentional starting of the equipment - ensure equipment and power source switches are in the OFF position before connecting or moving the equipment. Do not carry equipment with hands/fingers touching any controls.

Remove any tools or other items that are not a part of the equipment from it before starting or switching on.

Stay alert and use common sense when operating equipment. Do not overreach. Keep proper footing and balance at all times. Do not use equipment when tired or under the influence of drugs, alcohol or medication. This equipment is not intended for use by persons with reduced physical, sensory or mental capabilities.

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. Always wear eye protection. Protective equipment such as respirators, non-skid safety shoes, hard hat, hearing protection etc should be used for appropriate conditions. Other people nearby should also wear appropriate personal protective equipment. Do not wear loose clothing or jewellery, which can be caught in moving parts. Keep hair and clothing away from the equipment.

If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.

General

Do not force the equipment. Use the correct equipment for your application. The correct equipment will perform better and be safer within its design parameters. Do not use the equipment if the ON/OFF switch malfunctions - any equipment that cannot be controlled with the ON/OFF switch is dangerous and must be repaired.

It is important that you read and understand the instruction manual before use and keep the manual in a safe place for future reference. Safety information presented here is generic in nature - some advice may not be applicable to every piece of equipment.

All safety precautions must be observed to reduce the risk of personal injury when operating the equipment.

The term "equipment" refers to your product, be it electrical mains, battery or petrol engine powered.

IMPORTANT - Handle the equipment safely and carefully.

BEFORE USE - If you are not familiar with the safe operation/handling of this equipment, or are in any way unsure of any aspect of suitability or correct use it for your application, you should complete training conducted by a person or organization qualified in safe use and operation of this equipment, including fuel/electrical handling and safety.

WARNINGS

- Read all safety warnings and all instructions. Failure to follow warnings and instructions may result in electric shock, fire and/or serious injury.
- Never run a petrol engine in confined areas.
- Do not operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. Engine and equipment may create sparks or heat that may ignite vapors, dust etc
- Keep clear of moving parts.
- This equipment may be a potential source of electric shock if misused.
- Do not operate the equipment if it is damaged, malfunctioning or is in an excessively worn state.
- Do not allow others to use the equipment unless they have read this manual and are adequately trained.
- When using the equipment, basic safety precautions detailed here must always be followed to reduce the risk of fire, electric shock, personal injury and material damage.
- When wiring electrically powered equipment, follow all electrical and safety codes.
- Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting equipment.

General Fuel Safety



Petrol/fuel/gasoline is extremely flammable - keep clear of naked flames or other ignition sources.

- Do not spill fuel. If you spill fuel, wipe it from your equipment immediately. If fuel gets on your clothing, change them immediately.
- Do not smoke near fuel.
- Always shut off engine before refuelling.
- Do not refuel a hot engine
- Open the fuel cap carefully to allow any pressure build-up in the tank to release slowly.
- Always refuel in well ventilated areas.
- Always check for fuel leakage. If fuel leakage is found, do not start or run the engine until all leaks are fixed.

General Service Information

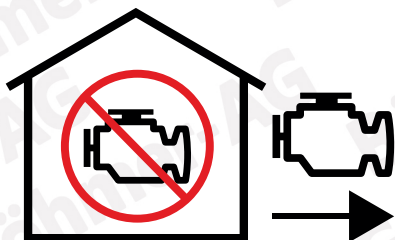
- Have the equipment serviced or repaired at authorized service centers by qualified personnel only.
- Replacement parts must be original equipment manufacturer (OEM) to help ensure that equipment safety is maintained.
- Do not attempt any maintenance or repair work not described in this instruction manual.
- After use, the equipment and components may still be hot – allow the equipment to cool and disconnect spark plugs and/or electrical power sources and/or batteries from it before making adjustments, changing accessories or performing repair or maintenance.
- Do not make adjustments while the equipment is running.
- Perform all service related activities under suitable conditions, such as a workshop etc.
- Replace any worn, damaged or missing warning labels immediately.
- Do not clean equipment with solvents, flammable liquids or harsh abrasives.



DANGER



Running combustion engines in confined areas **CAN KILL IN MINUTES**. Engine exhaust fumes contain carbon-monoxide – a deadly gas that you cannot smell or see.



NEVER run a combustion engine in confined areas **EVEN IF** windows and doors are open. **ONLY** run petrol engines **OUTDOORS** and away from doors, windows and vents.

Do not operate the equipment in hazardous locations, such as where there may be a risk of fire or explosions from flammable liquids, gases or dust.

Do not operate the equipment in confined areas where exhaust gases, smoke or fumes could reach dangerous concentrations.

Do not refuel a combustion engine while it is running, on or hot.

Never smoke while refuelling combustion engines or handling flammable substances. For generators, the electrical output is potentially lethal and must only be connected to a fixed electrical installation by an appropriately licensed person.

Be aware that the equipment may include hazardous components, such as blades, hot surfaces and moving parts.

Handle any flammable substance with extreme caution.

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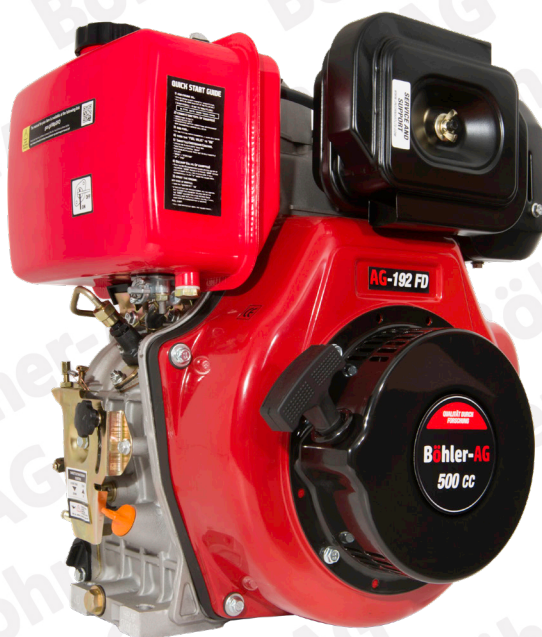
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Applicable Models

This Manual applies to the following diesel engines:



AG-178-FD



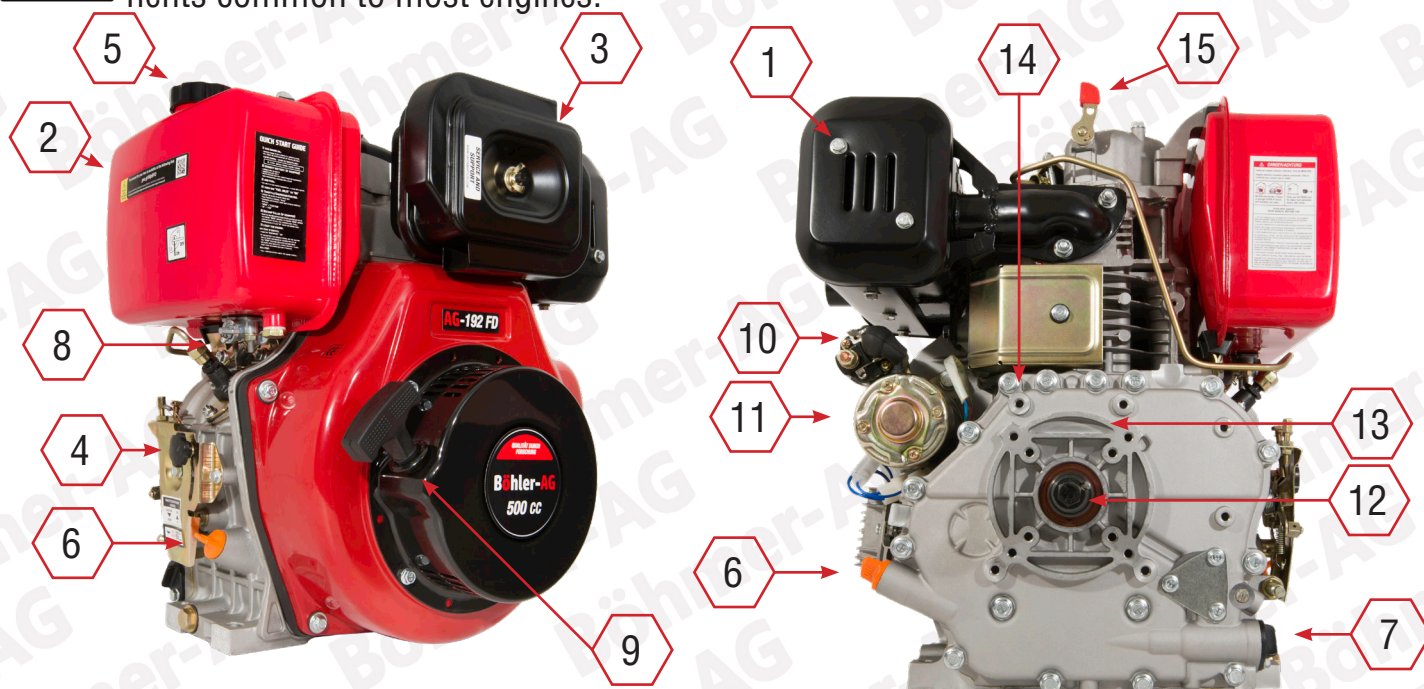
AG-192-FD

Parts Identification

It is strongly recommended that you familiarise yourself with all major components of the machine before using it or performing any maintenance tasks.



Products detailed in this manual may vary in appearance, inclusions, description and packaging from those shown or described. This section shows typical major components common to most engines.



No.	Name	No.	Name
1	Exhaust	9	Recoil Starter Cord
2	Fuel Tank (fuel filter on top)	10	Electric Start Module (Electric Start Models)
3	Air Intake assembly (Filter inside)	11	Starter Motor (Electric Start Models)
4	Throttle	12	Output Shaft (Drive Key supplied)
5	Fuel Tap	13	Output Shaft Flange
6	Oil Filter/Dipstick (Some models have 2)	14	Engine Mounting Holes (4)
7	Oil Drain Plug (Some models have 2)	15	De-compression Switch
8	Fuel ON/OFF Switch		

Assembly

Typically, most engines are fully assembled, however, some models may require the following assembly (as applicable). The image below shows an unassembled electric start model with exhaust shroud.



Exhaust Shroud

Place the shroud (A) over the exhaust port – generally with the opening facing down, and attach it using the 4 supplied screws.

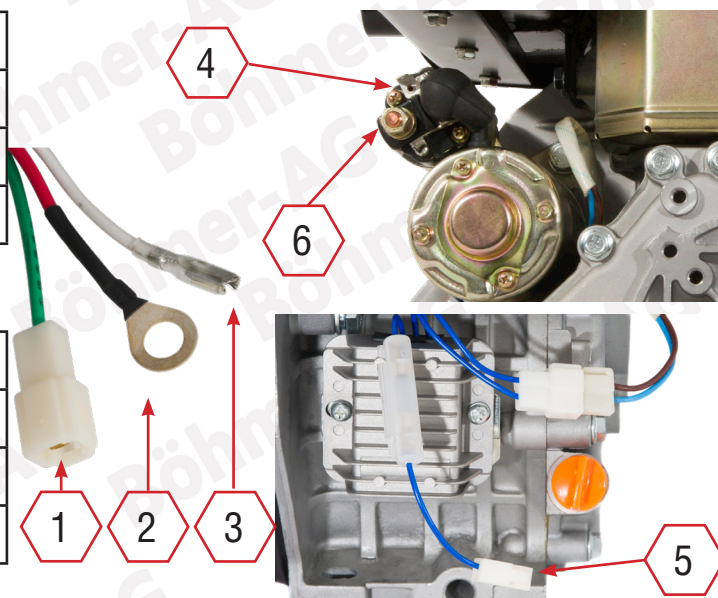


Electric Start

If the electric start switch block has been supplied unassembled, it will require attachment to the engine and the wiring connected. Attach the switch block (B) to the brackets on the engine using the 2 supplied bolts. The mounting brackets on the engine may vary slightly between models, however, the switch block is always located next to the starter motor. Connect wires as follows:

No.	Wire Colour	Use
1	Green	Ignition
2	Red	Starter Motor Power
3	White	Starter Motor Earth

No.	On Engine	Use
4	Push Terminal	Connect to '3'
5	Blue Wire	Connect to '1'
6	Earth Terminal	Connect to '2'



Before Use Checklist



Ensure that you carry out all procedures below before starting the engine or operating the equipment. All procedures described are generic in nature and slight variations between different models may exist. Failure to follow the checklist and carry out the procedures correctly may result in making the product warranty void. The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use – see Checking and Changing Engine Oil. Failure to add engine oil will void the product warranty.

Engine Oil

Four-stroke engines require engine oil in the crankcase for lubrication of internal components. Severe or irreparable damage may occur if the engine is allowed to run without engine oil. The engine oil level requires regular maintenance. Check the engine oil level and ensure that the oil level is at or just under the maximum level indicator.

Some machines may feature an oil level sensor that will prevent the engine being started or automatically stop the engine if the oil level falls below an acceptable level. This system, however, is not to be solely relied upon. Always check that the engine oil level is at or near the "MAX" indicator before starting the engine. See Checking and Changing Engine Oil.

Air Filter

The air filter is used to prevent dirt and other particles from possibly entering the engine and causing internal damage to it. The air filter requires regular maintenance.

Always check the air filter before starting the engine. See Checking, Cleaning and Replacing the Air Filter.

Fuel



Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources. The engine must be cool before refuelling.

Adequately fill the fuel tank with the correct fuel type.

- Use non-ethanol unleaded (higher RON values will provide best engine performance). Do not use old or contaminated fuel.
- To fill or top up fuel:
- Place the machine in an upright position on a flat and level surface.
- Clean the machine around the fuel filler so that no dirt or other material enters the engine when the cap is removed.
- Remove (rotate left) the fuel filler cap.
- Using a funnel, carefully fill the tank with fuel. Do not fill above the top of the strainer (if equipped) or otherwise overfill the tank.
- When finished, reinstall (rotate right) the fuel filler cap until firm. Wipe away any residual fuel from the machine. If fuel has been spilt, move the pump away from the spillage before starting the engine.

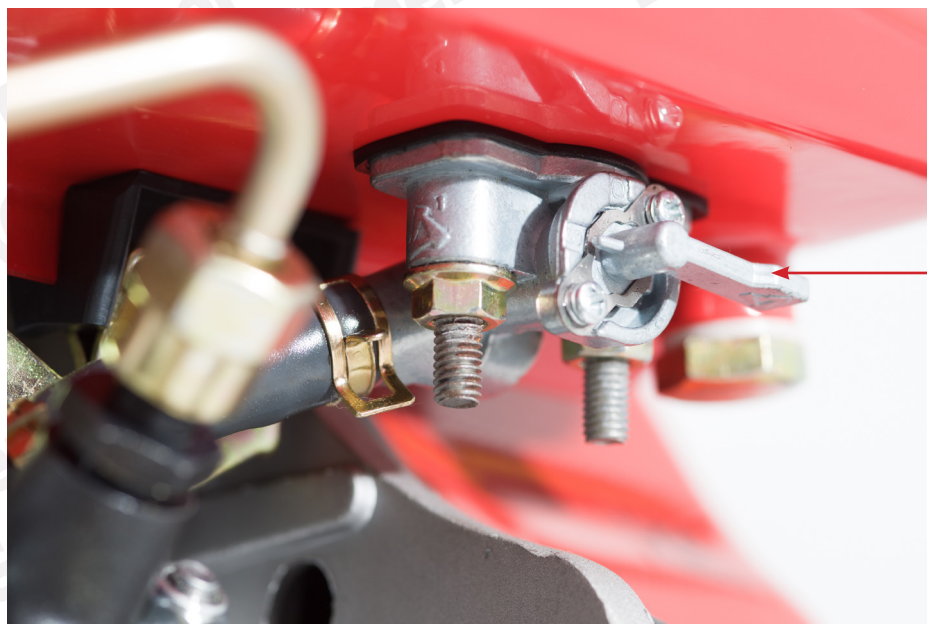
Before Use Checklist Continued

Priming the Fuel System

When an engine is new or has been completely run out of fuel it may be necessary to “prime” the fuel system before attempting to start the engine. This means removing any air from the fuel line.

To prime:

- Fill the fuel tank with fuel.
- Remove the fuel line from the carburettor or fuel injector using pliers to loosen the hose-clamp. Hold a container beneath the fuel line to catch any spilt fuel.
- Place the fuel tap (A) in the “ON” position and allow fuel to flow out (into the container) until no air bubbles can be seen in the fuel stream.
- Push the fuel line back onto its connection point and re-fasten the hose clamp.
- Clean up any spilled fuel. If fuel has been spilt, move the pump away from the spillage before starting the engine.
- Start the engine.

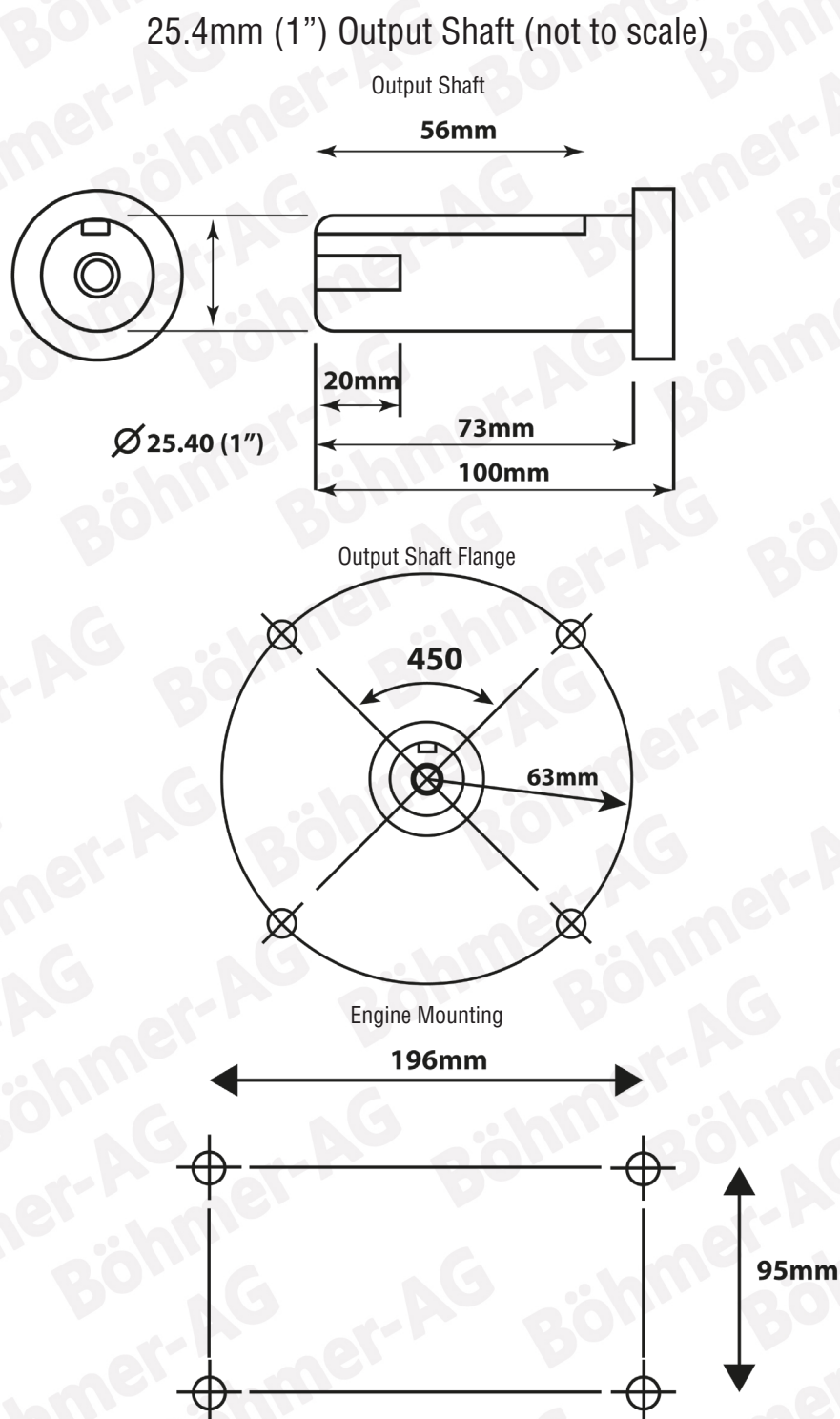


Mounting & Connecting to the Engine



Always measure the actual unit before building or drilling mounting frames, drive pulleys etc.

Each engine features a set of holes in the base for mounting and a keyed output shaft. It is essential that the engine be mounted to a suitable surface, frame etc that is capable of supporting the weight of the engine as well as any twisting forces it generates.



Engine Starting and Operation



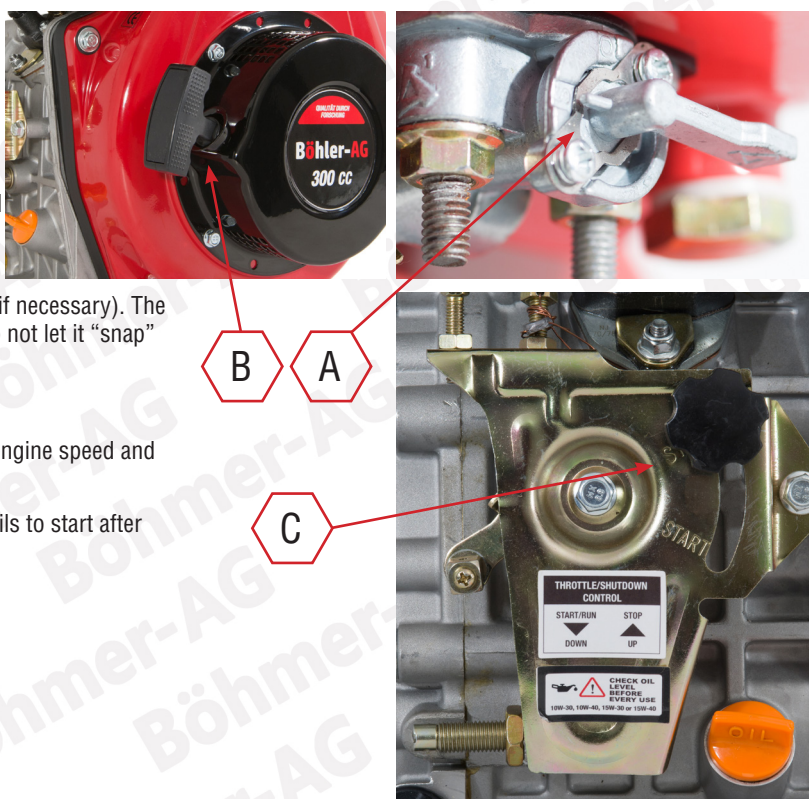
Before starting the engine, ensure that you have followed all procedures described in the Before Use Checklist. The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use – see Checking and Changing Engine Oil. Failure to add engine oil will void the product warranty.

Different models may feature variations in design; for example, some have different engine types, electric start etc. The following procedures and images are typical to all models, however, the position or appearance of controls etc may vary. All major engine controls are identified on the machine by way of stickers or other markings.

Manual/Pull Starting

1. PRIME – If necessary, “prime” the fuel system.
2. FUEL – Place the fuel tap (A) in the “ON” position.
3. IGNITION – Place the engine ON/OFF switch (C) or key switch (if equipped) in the “ON” (“START”) position. For key switches, the “OFF” position allows the key to be removed from the switch. The “ON” position is reached when the key is rotated to the right from the “OFF” position.
4. START – Slowly pull out the starter cord (B) until you feel it engage with the engine, then pull it out rapidly (use both hands if necessary). The engine should start. Allow the starter cord to rewind slowly – do not let it “snap” back.
5. WARM-UP – Allow the engine to warm-up and run smoothly.
6. THROTTLE – Adjust the throttle control (C) for the required engine speed and pumping requirements.

If the engine does not start, repeat step 6 onward. If the engine fails to start after several attempts, refer to Troubleshooting.



Electric Starting

For models equipped with an electric start option, charge the battery then connect a suitable battery cable (cables may be supplied) between the battery POSITIVE (“+”) terminal and the starter solenoid POSITIVE terminal (this usually has rubber caps for the connectors). Then, connect a battery cable between the battery NEGATIVE (“-”) terminal and the starter solenoid NEGATIVE terminal.

1. Follow steps 1 to 5 as per manual/pull starting.
2. START – Turn the ignition key fully to the right to engage the starter motor. The engine should start.
3. WARM-UP – Allow the engine to warm-up and run smoothly.
4. THROTTLE – Adjust the throttle control for the required engine speed and pumping requirements.

If the engine does not start, repeat step 2 onward. If the engine fails to start after several attempts, refer to Troubleshooting.

Engine Starting and Operation Continued

Jump Starting

If the battery does not have enough charge to sufficiently crank the engine, the engine can be jump-started. Use a fully charged battery (the “jump” battery) and suitable jump-starting cables. To jump-start:

1. Ensure the ignition is “OFF” (for some models, this is the position that allows the key to be removed).
2. Connect the jump battery positive (“+”) terminal to the engine battery positive (“+”) terminal.
3. Connect the jump battery negative (“-”) terminal to the engine battery negative (“-”) terminal.
4. Follow the normal electric start procedure from step 2 onward.

Stopping the Engine

Stopping in an Emergency

1. To stop the engine immediately, place the engine ON/OFF switch or key switch in the “OFF” position.

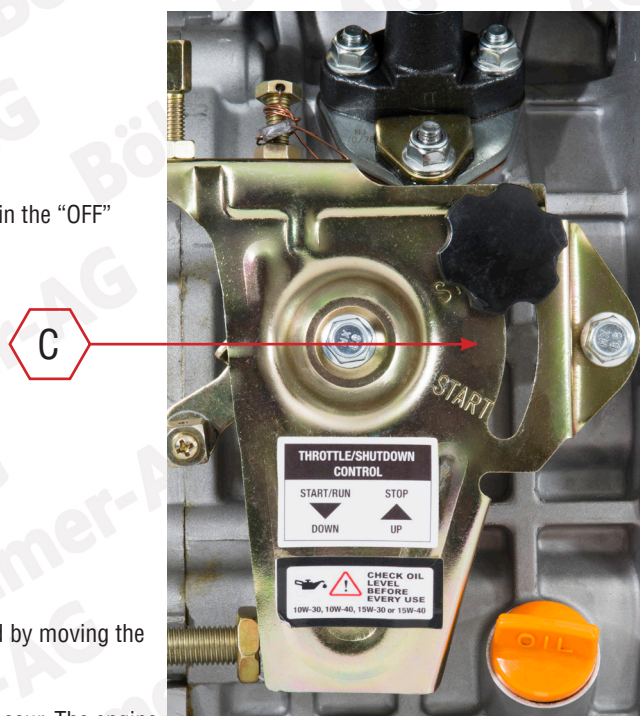
Stopping in Normal Use

2. Place the throttle control in the “SLOW” position.
3. Place the engine ON/OFF switch or key switch in the “OFF” position.
4. Place the fuel tap in the “OFF” position.

Engine Operation

Once the engine is running and has warmed up, adjust the engine speed as required by moving the throttle lever (C).

For electric start models, when the engine is running, normal battery charging will occur. The engine must run for several hours to fully charge the battery.



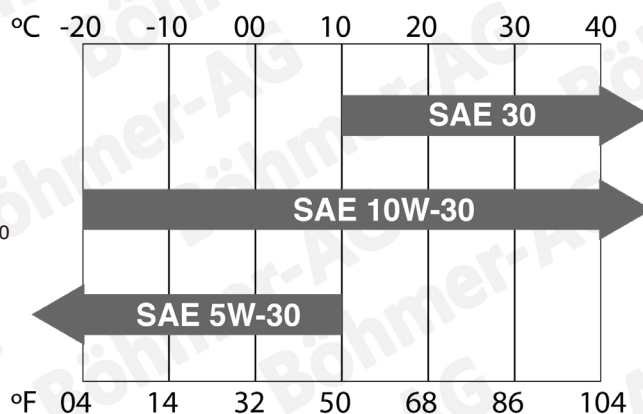
Environmental Considerations

Altitude

If the engine is being used in altitudes at or above 1500m (approximately 5000'), adjustments to the carburettor may be required. This is because there is less oxygen in the air as altitude increases, which effectively “enriches” the ratio of fuel to air going into the engine and the higher the altitude, the richer the fuel mixture becomes. If the engine is being permanently operated at high altitude, it is recommended to have an authorized service centre make the necessary carburettor adjustments. If the engine is used occasionally at altitude (not extreme altitudes), no adjustments should be required, however, a slight decrease in engine performance can be expected.

Temperature

If the engine is being used in extremely cold or hot environments; for example, desert or snow conditions, the type of engine oil may need to be changed to suit environmental temperatures. Oil thickens as the temperature decreases and thins as temperature increases, which means that if the engine oil is not suited to the temperature its ability to properly lubricate the engine may be affected. Use the chart above to determine the correct engine oil.



Maintenance



Running combustion engines in confined areas CAN KILL IN MINUTES. Engine exhaust fumes contain carbon-monoxide – a deadly gas that you cannot smell or see. NEVER run a combustion engine in confined areas EVEN IF windows and doors are open. ONLY run combustion engines OUTDOORS and away from doors, windows and vents. • Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources.

• Do not have the engine running during inspection and maintenance unless specifically required. • The engine should be cool enough to touch before performing maintenance activities. • Some maintenance activities described may be beyond the scope of some users. For procedures that you are not comfortable with or have the tools or experience for, have the unit serviced by a service centre or qualified technician.

To keep the machine performing at optimal efficiency, regular checks and maintenance is required. Proper care and maintenance ensures best performance and longest service life.

The maintenance schedule below specifies preventative maintenance checks and necessary maintenance tasks and how often they should be performed. The schedule applies to multiple engines; some engines may not include some components, so maintenance on those components is not applicable.



Harsh operating environments such as extreme temperatures, dust etc may necessitate more frequent maintenance. • Maintenance frequencies are based on general factors including a maximum use of approximately 300 hours per year. Apply common-sense when following the maintenance schedule based on your actual use of the product. • Keep reasonable records of maintenance activities for reference. **Failure to follow the maintenance schedule, using incorrect or non-compatible accessories or replacements parts, or general negligence may result in making the product warranty void.**

Maintenance Schedule

Component/ Task	Every Use	First Month or 20 Hours Use	Every 3 Months or 50 Hours Use	Every 6 Months or 100 Hours Use	Every Year or 300 Hours Use
Engine Oil	Check	Replace			
Oil Leaks	Check/repair as necessary				
Air Cleaner	Check	Clean and replace as necessary	Clean and replace as necessary	Clean and replace as necessary	Clean and replace as necessary
Valve Clearance					Adjust as necessary
Combustion Chamber					De-coke as necessary
Idle Speed				Check/adjust as necessary	
Fastners	Check/tighten as necessary				
Fuel Tank					Flush and clean
Fuel Line		Replace as necessary	Replace as necessary	Replace as necessary	Replace as necessary
Fuel Filter		Clean and replace as necessary	Clean and replace as necessary	Clean and replace as necessary	Clean and replace as necessary
Fuel Strainer	Check				

Checking and Changing Engine Oil

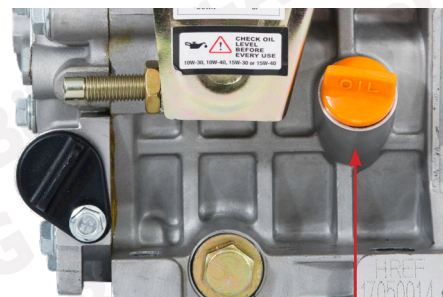


The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use. Failure to add engine oil will void the product warranty. • Always check engine oil level when the machine is in an upright position on a flat and level surface. • Do not use used or contaminated engine oils. • Use only engine oils of the correct type (see Specifications). • Perform the first oil change within the first 20 hours of use. Subsequently, change the oil every 20 hours of use. • It is recommended that the engine be warm, but not hot, when performing oil changes. When the oil is warm it drains faster. • Using dirty or incorrect engine oil may cause engine damage and void any warranty. • Always use suitable tools. • Always dispose of used oil in an environmentally responsible manner and according to regulations. • Some engines feature oil level detection, which will prevent the engine being started or automatically stop a running engine if there is insufficient oil. • Always check the oil level and ensure it is at or near the "MAX" indicator before using the machine. • Some models may have 2 oil drain plugs and fillers on either side of the engine – it does not matter which one is used.

Four-stroke engines require engine oil in the crankcase for lubrication of internal components. Severe or irreparable damage may occur if the engine is allowed to run without engine oil. The engine oil level requires regular maintenance as per the maintenance schedule.

To check engine oil level:

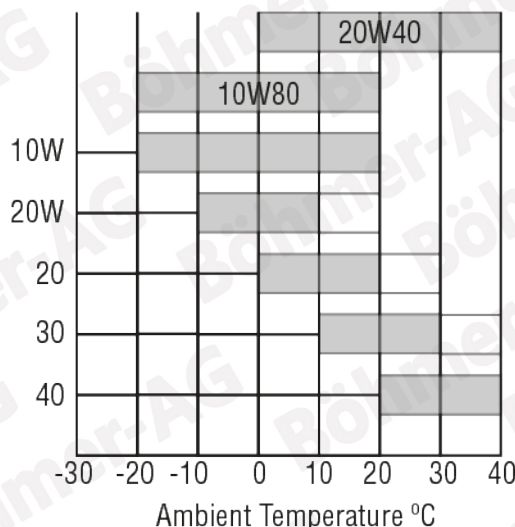
1. Place the machine in an upright position on a flat and level surface.
2. Clean the machine around the oil filler cap (A) so that no dirt or other material enters the engine when the cap is removed.
3. Remove the oil filler cap (rotate left) until fully unscrewed. For machines without a dipstick, the oil level is determined by how close the oil is to the edge of the filler hole. For machines equipped with an oil level dipstick:
 - Remove the dipstick (A) and wipe clean with a piece of cloth or paper.
 - Insert the dipstick into the oil filler but do not screw it in.
 - Remove and inspect the dipstick – the oil level is determined by where oil can be seen on it.
4. Ensure that the oil level is at or just under the "maximum". If the oil level is low, add additional oil until the correct level is reached. If the oil level is too high, drain some oil until the correct level is reached.
5. When finished, re-install (rotate right) the oil filler cap until firm. Wipe off any residual oil from the machine.



A

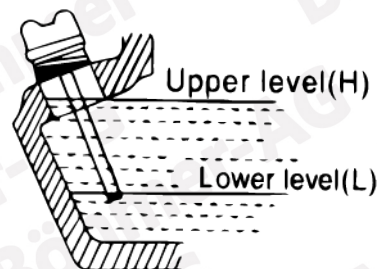
Engine Oil

We recommend A.P.I service classification of CC or CD. Always use oil with the correct viscosity for the ambient temperature in which your engine is being operated. Use the chart to correctly choose your engine oil



Oil Filler Port

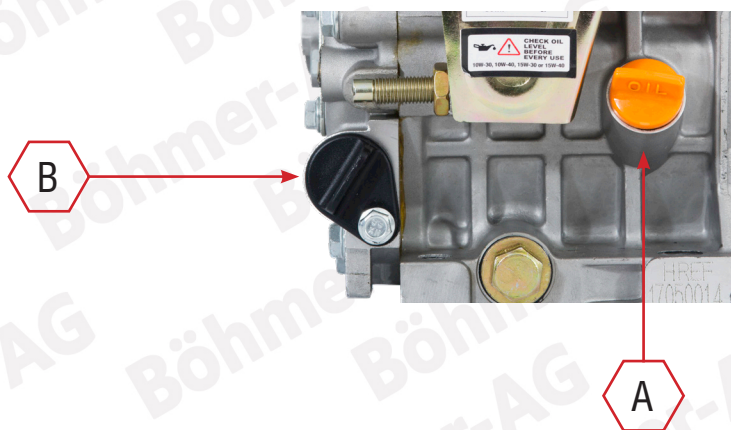
Fill the oil up to the mouth of the filler port with the engine placed on the level. When checking oil, simply dip the Dipstick into the oil pan. Do not screw in the Dipstick.



Checking and Changing Engine Oil Continued

To change the engine oil:

1. Place the machine on a suitable work surface that is flat and level and have a container ready to catch drained oil.
2. Clean the machine around the oil drain plug (B) and oil filler (A) so that no dirt or other material enters the engine when the plug or cap is removed.
3. Unscrew (rotate left) and remove the drain plug and washer.
4. Tilt the machine and drain all oil from the engine. Once drained, allow the machine to sit level again.
5. Clean the drain plug and washer and then reinstall them. Screw in fully (rotate right) and firmly tighten.
6. Remove the oil filler cap (rotate left) until fully unscrewed. Wipe the oil level indicator clean with a piece of cloth or paper.
7. Using a funnel, carefully add oil to the engine until the “maximum” level is reached. Double-check the oil level (described above).
8. When finished, re-install (rotate right) the oil filler cap until firm. Wipe off any residual oil from the machine.



Checking, Cleaning or Replacing the Air Filter



Operating the machine without a functional air filter may cause severe engine damage and will void

any warranty. A dirty or oil saturated air filter will restrict air flow, which can be mistaken as fuel system problems. Check the condition of the air filter before adjusting engine idle speed, where applicable. If the air filter is damaged (torn, broken, disintegrating), replace it.

The air filter is used to prevent dirt and other particles from possibly entering the engine and causing internal damage to it. The air filter requires regular maintenance as per the maintenance schedule.

Air Filter Inspection and Cleaning

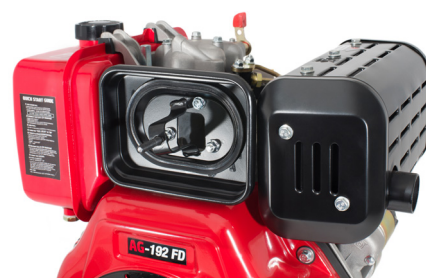
Inspect the air filter for dirtiness and debris, damage etc. Clean or replace the filter element as necessary. To clean air filters:

- For foam filters, wash the filter in warm water and mild detergent, then rinse and allow to dry.
- For paper filters, use compressed air to blow particles from it. The air should be blown from the engine side of the filter.
- Clean all other air filter assembly components using water and mild detergent, then dry them.
- For foam filters, place a few drops of clean engine oil on the filter then squeeze it a few times to spread the oil through the filter material and remove any excess oil.

Air Filter Removal/Installation

To remove the air filter:

1. Unscrew (rotate left) the wing nut (B) securing the air filter cover (C) and remove the cover from the air intake assembly (A).
2. Unscrew (rotate left) the wing nut (D) and remove the filter element (E).



To install the air filter:

1. Re-install the filter element and ensure it is seated correctly on the air intake assembly.
2. Re-install (rotate right) the wing nut and tighten by hand so that the filter element is secure. Do not over-tighten.
3. Re-install the filter cover and secure it with the wing nut (rotate right). Tighten the nut by hand. Do not over-tighten.

Transportation and Storage



Always ensure that the machine is cool enough to touch before transporting or storing. Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources. Always transport the machine with the fuel tap and engine ON/OFF switch in the “OFF” position. Drain the fuel tank before transportation or storage.

Preparing for Transport and Storage

- Drain the fuel system by allowing the engine to run until it stops.
- Ensure the fuel tap, engine ON/OFF switch (or key switch, if applicable) are in the “OFF” position.
- Avoid exposing the equipment to direct sunlight, particularly during transportation.
- Ensure the equipment is secure and upright during transport.
- Store the unit in a dry, well-ventilated area and out of the reach of children.

Long Term Storage

Follow the normal procedures for storage, then:

- Drain the fuel system. It is advised to have the fuel tank as empty as possible before draining.
 1. Unscrew (rotate left) the carburettor drain plug. Use a suitable container to catch the draining fuel, and allow the fuel to drain. Store the drained fuel in a properly sealed container.
 2. Re-install (rotate right) the carburettor drain plug and tighten.
- Remove the spark plug and put 30ml of clean engine oil into the cylinder. Pull the starter rope slowly to distribute the oil. Re-install the spark plug.
- Cover the equipment to protect it from dirt and dust.

Troubleshooting



Running combustion engines in confined areas CAN KILL IN MINUTES. Engine exhaust fumes contain carbon-monoxide – a deadly gas that you cannot smell or see. NEVER run a combustion engine in confined areas EVEN IF windows and doors are open. ONLY run combustion engines OUTDOORS and away from doors, windows and vents.

• Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources. The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential

to add adequate engine oil of the correct type to the engine before use – see Checking and Changing Engine Oil.

Failure to add engine oil will void the product warranty. • Do not have the engine running during inspection and maintenance unless specifically required. • The engine should be cool enough to touch before performing maintenance activities. • Some maintenance activities described may be beyond the scope of some users. For procedures that you are not comfortable with or have the tools or experience for, or if problems persist after following all suggested actions, contact a service centre or qualified technician.

The following information may assist in identifying a problem and rectifying it.

Difficulty Starting the Engine	
Possible Fault	Action
Lack of fuel	Check that there is fuel in the tank and the fuel tap is in the "ON" position. • To further check if fuel is reaching the carburettor, remove the carburettor drain plug and check if fuel drains.
↓	
Engine 'OFF'	Ensure engine ON/OFF switch is in the "ON" position.
↓	
Engine 'Flooded' with fuel	Place the choke in "HOT" or "RUN" position. Leave the ON/OFF switch in the "OFF" position. Pull the starter cord several times to assist clearing excess fuel from engine before attempting to start engine.
↓	
Not enough or too much engine oil	Check oil level and ensure that the level is at or just below the recommended maximum level.

Engine Starts but does not Idle	
Possible Fault	Action
Blocked Air Filter	Check and clean the Air Filter
↓	
Idle speed requires adjustment	Adjust the idle speed until the engine runs smoothly and at a reasonable speed when idling

Troubleshooting Continued

Difficulty restarting the engine after use or engine stops suddenly during use.

Possible Fault	Action
No fuel or engine oil	Check fuel level and ensure adequate fuel is available. For some 4-stroke engines, an engine oil sensor will automatically switch off the engine or prevent starting if a low engine oil level is detected.
↓	
Overheating	Allow engine to cool before restarting. If possible, improve engine cooling, such as operating in lower temperatures or in shade etc.
↓	
Carburettor blocked	Clean the carburettor.

Reduced Engine Speed/Power During Use

Possible Fault	Action
Blocked Air Filter	Check and clean air filter.
↓	
Carbon build-up in engine and/or entry to exhaust silencer	Remove the engine cylinder head and clean any carbon from the combustion chamber. For the exhaust silencer, remove it and clean any carbon deposits from the exhaust entry port.
↓	
Carburettor blocked	Clean the carburettor.

Specifications

AG - 178 FD

Engine Type	4-Stroke, single cylinder
Fuel Type	Unleaded non-ethanol petrol
Fuel Tank Capacity	3.6L
Spark Plug Type	F7TC, F7RTC
Spark Plug Gap	0.7 to 0.8mm (0.028 to 0.032")
Valve Clearance	Inlet: 0.15mm \pm 0.02mm (0.006" to 0.001") Exhaust: 0.2mm \pm 0.02mm (0.008" to 0.001")
Engine Oil Type	SAE 10W-30 automotive engine oil recommended for general use
Engine Oil Capacity	Approximately 0.6L (always check level)

AG - 192 FD

Engine Type	4-Stroke, single cylinder
Fuel Type	Unleaded non-ethanol petrol
Fuel Tank Capacity	6L
Spark Plug Type	F7TC, F7RTC
Spark Plug Gap	0.7 to 0.8mm (0.028 to 0.032")
Valve Clearance	Inlet: 0.15mm \pm 0.02mm (0.006" to 0.001") Exhaust: 0.2mm \pm 0.02mm (0.008" to 0.001")
Engine Oil Type	SAE 10W-30 automotive engine oil recommended for general use
Engine Oil Capacity	Approximately 1.1L (always check level)

Service and Maintenance Record

Use the following....

	✓	Date	✓	Date	✓	Date	✓	Date	✓	Date
Replace Engine Oil										
De-Choke Com-bustion Chamber										
Replace Air Filter										
Replace Fuel Filter										
Replace Fuel Lines										
Clean Fuel Tank										
Check/Adjust Valve Clearance										

	✓	Date	✓	Date	✓	Date	✓	Date	✓	Date
Replace Engine Oil										
De-Choke Com-bustion Chamber										
Replace Air Filter										
Replace Fuel Filter										
Replace Fuel Lines										
Clean Fuel Tank										
Check/Adjust Valve Clearance										



Some experts believe the incorrect or prolonged use of almost any product could cause serious injury or death. For information that may reduce your risk of serious injury or death, consult the points below and additionally, the information available at www.unionmartltd.co.uk

- Consult all documentation, packaging and product labelling before use. Note that some products feature online documentation which should be printed and kept with the product.
- Check product for loose / broken / damaged / missing parts, wear or leaks (if applicable) before each use. Never use a product with loose / broken / damaged / missing parts, wear or leaks (if applicable).
- Products must be inspected and serviced (if applicable) by a qualified specialist every 6 months assuming average residential use by a person of average weight and strength, above average technical aptitude, on a property matching average metropolitan specification. Intended use outside these guidelines could indicate the product is not suitable for intended use or may require more regular inspection or servicing.
- Ensure all possible users of the product have completed an industry recognized training course before being given access to the product.
- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or your description of the application. Be sure to attain third-party approval for your application from a qualified specialist before use regardless of prior assurances by the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (take an automobile, aircraft, computer or ball point pen for example), there is always a small chance of technical issues that needs to be repaired or may require replacement of the product or a part. If the possibility of such failure and the associated time it takes to rectify could in any situation inconvenience the user, business or employee then the product is not suitable for your requirements. This product is not for use where incorrect operation or a failure of any kind, including but not limited to a condition requiring product return, replacement, service by a technician or replacement of parts could cause a financial loss, loss of employee time or an inconvenience requiring compensation.
- If this item has been purchased in error after considering the points above, simply contact the retailer directly for details of their returns policy, if required.

Böhmer-AG