

Bäumr-AG®



HP440 Post Driver

User Manual

[Revision 1.0 November 2017]

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.



Engines are 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 [Engine Oil](#). **Failure to add engine oil will void the product warranty.**

Safety

Safety messages are designed to alert you to possible dangers or hazards that could cause death, injury or equipment or property damage if not understood or followed. Safety messages have the following symbols:

 <p>You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.</p>	 <p>You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.</p>	 <p>You CAN be INJURED if you do not follow instructions or equipment damage may occur.</p>
<p>It is vital that you read and understand this user manual before using the product, including safety warnings, and any assembly and operating instructions. Keep the manual for future reference.</p> <p>Safety precautions and recommendations detailed here must be fully understood and followed to reduce the risk of injury, fire, explosion, electrical hazard, and/or property damage.</p> <p>Safety information presented here is generic in nature – some advice may not be applicable to every product. The term "equipment" refers to the product, be it electrical mains powered, battery powered or combustion engine powered.</p> <ul style="list-style-type: none"> Before Use - If you are not familiar with the safe operation/handling of the equipment, or are in any way unsure of any aspect of suitability or correct use 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. Do NOT operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. The equipment may create sparks or heat that may ignite flammable substances. Keep clear of moving parts. Equipment may be a potential source of electric shock or injury 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. 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. 	<p>General Personal Safety</p> <ul style="list-style-type: none"> Wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from eye and ear injury, poisoning, burns, cutting and crush injuries. Protective equipment such as safety goggles, respirators, non-slip safety footwear, hard hat, hearing protection etc should be used for appropriate equipment / 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. Stay alert and use common sense when operating the equipment. Do not over-reach. Always maintain secure footing and balance. Do not use the equipment if 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. 	<p>General Equipment Use and Care</p> <ul style="list-style-type: none"> The equipment is designed for domestic use only. Handle the equipment safely and carefully. 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 authorised service centre or technician before use. Prevent unintentional starting of the equipment - ensure equipment and power switches are in the OFF position before connecting or moving equipment. Do not carry equipment with hands or 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. Do not force the equipment. Use the correct equipment for your application. Equipment will perform better and be safer when used within its design and usage parameters. Use the equipment and accessories etc. in accordance with these instructions, considering working conditions and the work to be performed. Using the equipment for operations different from those intended could result in hazardous situations. Always keep equipment components (engines, hoses, handles, controls, frames, housings, guards etc) and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment clean and, where applicable, properly lubricated. 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 or store the equipment near flammable materials, combustible gases or liquids etc. The equipment is not weather-proof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or humid. Do not clean equipment with solvents, flammable liquids or harsh abrasives. For specific equipment safety use and care, see Equipment Safety.
<p>General Work Area Safety</p> <ul style="list-style-type: none"> 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. If devices are provided for connecting dust extraction / collection facilities, ensure these are connected and used properly. Dust collection can reduce dust-related hazards. 	<p>General Fuel Safety</p> <ul style="list-style-type: none"> 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 off the equipment immediately – if fuel gets on your clothing, change clothing. Do NOT smoke near fuel or when refuelling. Always shut off the 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. 	<p>General Carbon-Monoxide Safety</p> <ul style="list-style-type: none"> Using a combustion engine indoors CAN KILL IN MINUTES. Engine exhaust contains carbon-monoxide – a poison you cannot smell or see. Use combustion engines OUTSIDE only, and far away from windows, doors and vents.

General Electrical Safety

- Inspect electrical equipment, extension cords, power bars, and electrical fittings for damage or wear before each use. Repair or replace damaged equipment immediately.
- Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting or disconnecting equipment.
- When wiring electrically powered equipment, follow all electrical and safety codes.
- Wherever possible, use a residual current device (RCD).
- High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.

General Electrical Safety

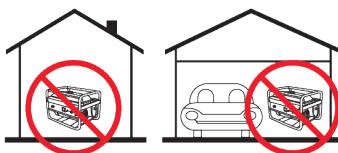
- Electrically grounded equipment must have an approved cord and plug and be connected to a grounded electrical outlet.
- Do NOT bypass the ON/OFF switch and operate equipment by connecting and disconnecting the electrical cord.
- Do NOT use equipment that has exposed wiring, damaged switches, covers or guards.
- Do NOT use electrical equipment in wet conditions or in damp locations.
- Do NOT use electrical cords to lift, move or carry equipment.
- Do NOT coil or knot electrical cords, and ensure electrical cords are not trip hazards.

General Service Information

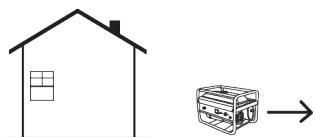
- The equipment must be serviced or repaired at authorised service centres by qualified personnel only.
- Replacement parts must be original equipment manufacturer (OEM) to ensure equipment safety is maintained.
- Do NOT attempt any maintenance or repair work not described in this manual.
- After use, 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 service related activities in suitable conditions, such as a workshop.
- Replace worn, damaged or missing warning/safety labels immediately.

DANGER

Using an engine or wood/charcoal/gas fuelled appliance indoors CAN KILL YOU IN MINUTES.
Engine exhaust and wood/charcoal/gas fumes contain carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a building, home, garage, boat, caravan or tent EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

Avoid other hazards - READ MANUAL BEFORE USE.**GENERAL:**

- Do not operate in a hazardous location. Such areas include where there is a risk of explosion of petrol fumes, leaking gas or explosive dusts.
- Do not operate in a confined area where exhaust gases or wood/charcoal/gas fumes could reach dangerous concentrations.

PRODUCTS FEATURING AN ENGINE

- Follow all warnings in the section titled "GENERAL".
- Explosion hazard - never smoke while refuelling.
- Take care not to spill fuel. When refuelling the engine, ensure that the engine has been allowed to cool. Prevent spilling of fuel as this may also ignite with a hot engine.
- Never refuel while engine is running.

GENERATORS

- Follow all warnings in the sections titled "GENERAL" and "PRODUCTS FEATURING AN ENGINE".
- The output of this generator is potentially lethal. The generator should not be connected to a fixed electrical installation except by an appropriately licensed person.
- Not weatherproof – protect your machine. This machine is not weatherproof and should not be exposed to direct sunlight, high ambient temperature, damp conditions, wet conditions or high humidity conditions.

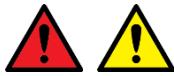
Safety Symbols

The product may have safety warning labels attached to it, explained below. Understand the symbols on your product and their meanings. If any stickers become unreadable, unattached etc, replace them.

 <p>Flammable Material Hazard Flammable liquids, gases or substances etc may present. Avoid ignition sources and open flames. Danger of fire.</p>	 <p>Read User Manual Read and fully understand product safety warnings, operation, procedures etc before using the product.</p>	 <p>Use Hand Protection Wear appropriate hand protection and take due care as the product or use of the product may present hand hazards.</p>	 <p>WARNING EXHAUST FUMES Carbon-Monoxide Hazard Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.</p>
 <p>Electrocution / Electrical Shock Hazard High voltage or high current electricity may be present or required by the product. Take due care when handling electrical products, cables, plugs and leads. Electrical shock can be fatal.</p>	 <p>Toxic Fumes / Dust Hazard Using the product or by-products from use may produce fumes, smoke or particles that could be harmful if inhaled. Wear appropriate breathing protection and have adequate ventilation.</p>	 <p>Explosive Material Hazard Combustible liquids, gases or substances etc may be present. Avoid ignition sources and open flames. Danger of explosion.</p>	 <p>Cutting / Amputation Hazard The product may have blades, edges or mechanical devices that can cause severe cut injury to fingers, limbs etc. Take due care when handling and using the product.</p>
 <p>Crush Hazard The product may have blades, edges or mechanical devices that can cause severe crush injury to fingers, limbs etc. Take due care when handling and using the product.</p>	 <p>Single Operator Only The product must be operated by a single person only. More than one person operating the product may introduce additional hazards.</p>	 <p>Use Face Protection Wear appropriate full-face protection and take due care as the product or use of the product may present face and eye hazards.</p>	 <p>Use Foot Protection Wear appropriate foot protection and take due care as the product or use of the product may present foot hazards.</p>
 <p>Use Eye / Ear / Head Protection Wear appropriate eye and / or ear and / or head protection and take due care as the product or use of the product may present eye, hearing and head hazards.</p>	 <p>Running Hazard Do not run on or near the product as doing so may present a fall hazard.</p>	 <p>Diving Hazard Do not dive into the product as doing so may present a neck / head injury hazard.</p>	 <p>Adult Supervision Required Always supervise children and other users of a product to prevent drowning or injury.</p>
 <p>Skin Penetration / Puncture Hazard The product may produce pressure, emit liquids or objects that can cause severe injury to fingers, limbs, blood etc. Take due care when handling and using the product.</p>	 <p>Hot Surface Hazard Be aware that the product may produce high temperatures and hot surfaces that can cause burn injuries.</p>	 <p>Flying Debris Hazard Be aware that the product or use of the product may present hazards produced by flying debris. Wear appropriate clothing and protective devices.</p>	 <p>Moving Parts Hazard Be aware that the product contains or uses mechanical devices that move or rotate. Always wait for moving parts to stop fully before handling the product, adjusting, maintenance etc.</p>

			
Carbon-Monoxide Hazard Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.	Pull Hazard Be aware that the product contains or uses mechanical devices that can pull in objects and can cause severe injury to fingers, limbs etc. Take due care when handling and using the product.	Slope / Fall Injury Hazard Be aware that using the product on sloping surfaces or in slippery conditions may present additional dangers from falls and contact with blades, moving parts, hot surfaces etc.	"Slam Dunk" Warning Do NOT attempt "slam dunk" manoeuvres as this may result in severe injury due to falling, product breakage or collapse etc.
			
Electrocution / Electrical Shock Hazard - Outdoor High voltage or high current electricity may be present or required by the product. Do NOT use in rain, damp or wet conditions. Electrical shock can be fatal.	Electrocution / Electrical Shock Hazard - Disconnect High voltage or high current electricity may be present or required by the product. Always disconnect the product from the electrical supply before handling the product, adjusting, maintenance etc.	Power Line Electrocution Hazard High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.	"Kick-Back" Hazard High level of "kick-back" hazard that can cause the machine to suddenly rotate towards operator. Kick-back injury can be fatal.
			
Winch Operator Position Hazard Do NOT stand between winch and load. Do NOT use winch to move people.	Winch Lift Hazard Do NOT LIFT load vertically. Use machine to PULL only.	Cable Hazard Ensure that load bearing cable is not kinked or knotted.	Winch Cable Hazard Ensure that there is a minimum number of cable coils on winching mechanism.
			
Winch Hook Hazard Carry hook to load – do NOT throw or run.			

Equipment Safety



Post drivers are high-speed, impact equipment that can cause serious or fatal injury if not used correctly or without taking proper safety precautions. **It is extremely important that you read and fully understand the information in this section and all other safety warnings / recommendations and usage instructions before using the equipment.**

Operator

- If you are untrained in the use of a post driver or a particular accessory, it is highly recommended that you be trained/instructed by a suitably qualified or experienced user before using the machine.
- You must be in good physical condition to use a post driver. NEVER operate the machine when tired, or under the influence of any substance (medication, alcohol, drugs etc) that may impair your judgement, alertness, physical strength, vision or dexterity.
- Maintain sure-footing and balance always when using or handling the machine and have full awareness of your surroundings and any possible hazards.
- Prolonged use may lead to health complications, such as carpal tunnel syndrome, due to vibration. To help reduce the possibility of such conditions, wear gloves, take breaks frequently, keep fingers and hands warm, and maintain the equipment for optimal operation and minimal vibration. It is recommended to seek medical advice if you feel numbness or burning sensations in fingers/hands.

Clothing and Protective Equipment – All Operators and Assistants

- Wear approved safety goggles, or safety glasses with adequate top and side protection. In addition to eye protection, wearing a full-face shield is highly recommended.
- Wear suitable hearing protection.
- Wear an approved safety hard-hat.
- Wear heavy-duty, non-slip leather or protective gloves.
- Wear suitable overalls or work clothing that fits snugly, but does not restrict movement. Avoid loose fitting clothing, scarves, jewellery etc and keep long hair contained to avoid getting caught or pulled by the chainsaw or by tree branches etc.

Work Area Safety

- Use EXTREME CAUTION to avoid power cables – contact can be fatal. Also be aware of plumbing, water and gas pipes etc. If in any doubt, do NOT dig – contact the appropriate organisation or authority for information before digging.
- Inspect the work area and remove any objects that may obstruct posts.
- Be aware of fire risks resulting from machine use. Ensure that the machine exhaust and spark arrestor (if equipped) is well maintained and that engine is tuned correctly.
- Refuel outdoors only. Avoid fuel spillage. Start the machine at least 3m (10') away from the fuelling location.

Operational Safety

- Do NOT use the machine if the throttle or any safety guard or mechanism is not installed or is not operating correctly – have the machine inspected and repaired at an authorised service centre before using it again.
- Always hold the machine firmly with both hands during operation. Always use the machine handles.
- Use CAUTION when using the machine on sloping surfaces.
- Do NOT use any attachment that is cracked or damaged in any way – replace it.
- Ensure the piling socket is not obstructed before post driving.
- Do NOT use the equipment for purposes it is not designed for, such as breaking concrete.
- Do not attach the machine to fixed supports.

Transportation Safety

- Always STOP the engine before transporting or working on it (refuelling, adjusting etc).
- When transporting the machine in a vehicle, ensure the engine is OFF, the tillers and digging attachments are disconnected, and the machine is secured in an upright position to prevent tip-over, machine damage or fuel spills.

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Parts Identification



No.	Name	No.	Name
1	Engine / Hammer / Handle Assembly	5	Tools / Accessories:
2	55 to 80mm Piling Socket Adaptor		4 / 5 / 6mm Allen Key
3	45 to 55mm Piling Socket Adaptor		4 / 5 / 6mm Multi-Allen Key
4	20 to 45mm Piling Socket Adaptor		8 / 10mm Spanner
			Flat-Blade Screwdriver
			Spark Plug Tool / Screwdriver
			Spark Plug (spare, may be included)
			Grease (for hammer pin)

Engine and Machine Components



No.	Name	No.	Name
1	Engine ON / OFF Switch	8	Exhaust
2	Throttle Control	9	Air Filter Assembly (air filter inside)
3	Choke Lever (obscured)	10	Spark Plug Cover (spark plug inside)
4	Starter Cord	11	Handle
5	Fuel Tank	12	Hammer Case
6	Fuel Primer (obscured)	13	Pinion Housing
7	Throttle Limiter	14	Pinion Access Cover

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.**

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 [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. • Always pre-mix the fuel before placing it in the fuel tank.

Adequately fill the fuel tank with the correct fuel type.

- Use non-ethanol unleaded petrol (higher RON values will provide best engine performance). Do not use old or contaminated fuel/oil. Fuel/oil mix ratio examples are shown below.

To fill or top up fuel:

1. Place the machine in a horizontal position on a flat and level surface with the fuel filler cap facing up.
2. Clean the machine around the fuel filler so that no dirt or other material enters the engine when the cap is removed.
3. Remove (rotate left) the fuel filler cap.
4. 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.
5. 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 machine away from the spillage before starting the engine.

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:

1. Ensure the fuel tank is filled with fuel.
2. Press the fuel primer (A) bulb repeatedly until you feel resistance or pressure in the bulb – this indicates that it is full of fuel. Fuel will also be visible in the fuel intake tube.

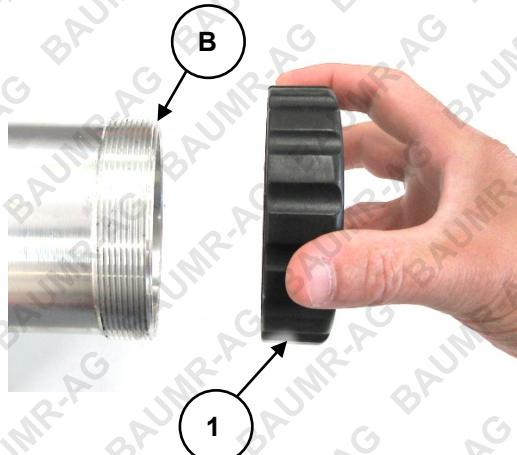


Attaching the Piling Socket Adaptor



Do not use the machine without a piling socket adaptor attached.

Screw the required piling socket adaptor (1) to the thread on the end of the hammer case (B) (rotate right) and firmly tighten by hand.



Engine Starting and Stopping

Starting the Engine

- PRIME** – If necessary, prime the fuel system.
- CHOKE** – If the engine is cold, place the choke (E) in the "COLD" position. If the engine is warm or the ambient temperature is high, place the choke in the "RUN" position.
- IGNITION** – Place the engine ON/OFF switch (F) in the "ON" ("I") position.
- START** – Slowly pull out the starter cord (G) until you feel it engage with the engine, then pull it out rapidly. The engine should start. Allow the starter cord to rewind slowly – do not let it "snap" back.
- WARM-UP** – Allow the engine to warm-up and run smoothly. If choke is being applied, gradually move the choke (E) to the "RUN" position.

If the engine does not start, repeat step 4 onward. If the engine fails to start after several attempts, refer to [Troubleshooting](#).



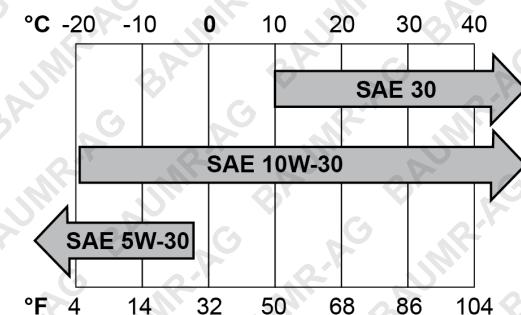
Stopping the Engine

To stop the engine, release the throttle and place the engine ON/OFF switch in the "OFF" position.

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 (4-Stroke Engines) – 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 to determine the correct engine oil.



Post Driver Operation



Post drivers are high-speed, impact equipment that can cause serious or fatal injury if not used correctly or without taking proper safety precautions. **It is extremely important that you read and fully understand the information in this section and all other safety warnings / recommendations and usage instructions before using the equipment.** • Before use, ensure that there are no electrical cables, gas or water pipes etc or other buried or unseen hazards in the work area. Contact the applicable utility providers for assistance. • The machine should be operated on ground that is suitable for driving posts. Do not attempt to drive posts into set concrete, rock, tree roots, or other extremely hard surfaces. • Do not use the machine without a piling socket attached.

The machine is used for driving "star pickets" and hollow metal posts etc into the ground. For example, to erect simple fencing etc. The machine operates by driving a "hammer" against the top of the post many times per second, effectively forcing it into the ground. The machine is designed for manual operation, where the operator both holds and controls it. Note the following:

- Place the post/star picket into the required position before driving it.
- Adjust the throttle, which controls the hammer action, only when ready to begin driving the post.
- Hold the machine as straight as possible when in use to ensure that posts are driven in vertically.

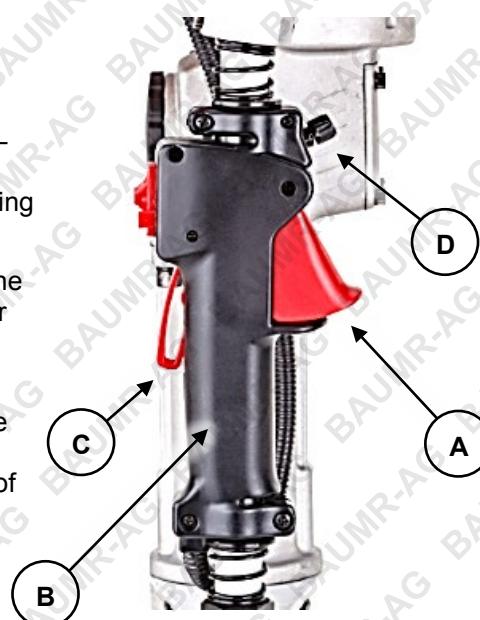
To drive a post:

1. Start the machine and allow it to warm up.
2. Position the post in the required location.
3. Place the machine over the post so that it rests on it.
4. Adjust the throttle for the desired hammering speed.
5. Drive the post into the ground as required – there is no need to push down on the machine.
6. Release the throttle – this disengages the hammer action.
7. Lift the machine from the post.

Using the Throttle and Adjusting Hammer Speed

The throttle (A) is used to adjust the engine speed, which in turns controls speed of the hammer action. To adjust the throttle, grip the throttle handle (B) so that the throttle safety switch (C) is pushed in – this allows the throttle to be adjusted – squeeze to increase engine speed. The throttle features a limiting screw (D) that stops it from being opened further. Note the following:

- The throttle safety switch must be pushed in, in order to adjust the throttle. When the throttle safety switch is released it is no longer possible to adjust the throttle.
- It is recommended to set the limiting screw when an effective engine/hammer speed is attained. Turn the screw right to reduce the throttle opening limit (slower speed). Turn the screw left to increase the throttle opening limit (faster speed). The hardness of the material that the posts are being driven into may require adjustment of engine/hammer speed for best performance.



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 may be beyond the scope of some users. Do NOT attempt procedures that you are not comfortable with, or do not have the necessary tools, experience or knowledge for – take the unit to an authorised service centre or qualified technician for servicing. • Harsh operating environments such as extreme temperatures, dust etc may necessitate more frequent maintenance. • **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.**

1. To keep the machine performing at optimal efficiency, regular checks and maintenance is required. 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.

Maintenance Schedule

Use the following maintenance schedule for a list of regular maintenance tasks and how often they need to be performed. Maintenance frequency is based on average usage. Be aware of how much the machine is used and be sure to follow the schedule according to time or usage, whichever comes first.

Towards the end of this document is a form you can use for maintenance record keeping. It is recommended that you keep a reference of all maintenance.



Major Servicing and "Heavy-Duty" Usage - For engines that are subject to "heavy-duty" use,

which can be defined as being used under loads of 85% or more and / or in use more than approximately 300 hours per year (for example, generators and water pumps), more frequent "Major Service" maintenance is required. In addition to normal service requirements, and as with many smaller machine and off-road bike engines, the following parts (as applicable for petrol, diesel or 2-stroke engines) may require replacement during a major service:

- Piston rings.
- Big-end bearings.
- Small-end bearings.
- Gudgeon pin.
- Oil rings.
- Gaskets and seals.
- Valve seats.

Inspection of the following items is required:

- Piston for cracks and stress fractures.
- Bore for wear requiring reconditioning.
- Full machine for broken, worn or loose parts.

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 – 4-Stroke Engine / Machine

Component / Task	Every Use	After First 5 Hours Use	3 Months / 25 Hours Use	6 Months / 50 Hours Use	12 Months / 100 Hours Use	Major Service – Normal Use 24 Months / 200 Hours Use	Major Service – Heavy-Duty Use Every 200 Hours Use
Engine Oil ***						Replace	
Engine Oil Filter *	Check level. Adjust as necessary					Replace	
Engine / Machine Fasteners					Check. Tighten as necessary		
Air Filter	Check		Clean. Replace as necessary			Replace	
Spark Plug			Check			Replace	
Spark Arrestor *				Clean. Replace as necessary		Replace	
Fuel Filter *	Check					Replace	
Fuel Strainer *	Check					Replace	
Float Bowl *					Clean		
Fuel Lines / Hoses	Check				Replace as necessary	Check. Clean	
Fuel Injector *						Check. Clean	
Fuel Pump *						Flush and clean	
Fuel Tank						Check. Adjust as necessary	
Idle Speed						Check. Adjust as necessary	
Valve Clearance						Check. Tighten as necessary	
Cylinder Head Fasteners						Check. Clean / de-coke as necessary	
Combustion Chamber						Check. Clean / de-coke as necessary	
Battery Electrolyte *					Check level. Adjust as necessary	Perform	
Major Service							
Cutting Blade / Chain *			Check		Sharpen. Replace as necessary		
Water Pump Oil **			Check level. Adjust as necessary			Replace	
Hydraulic Fluid ***			Check level. Adjust as necessary			Replace	
Drive Belt *			Check tension. Adjust as necessary			Check. Replace as necessary	
Gearbox / Joints *						Grease	

* Where applicable. ** Pressure washers with non-sealed water pumps. *** Log splitters only.

**** Briggs & Stratton "EXi" engines do NOT require engine oil changes; just ensure that oil level is correct.

Engine Oil

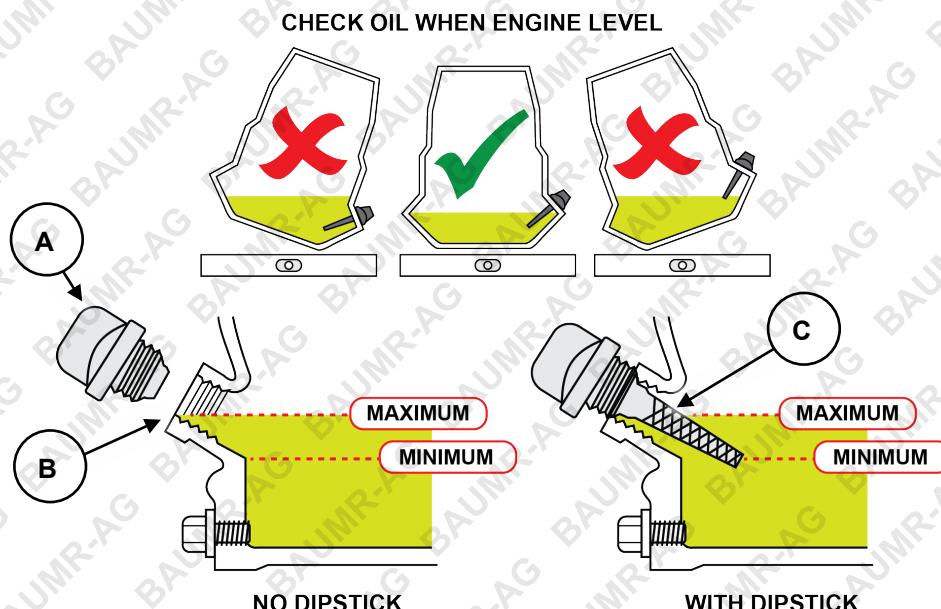


Engines are NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use. **Failure to add engine oil will void the product warranty.** • Always check engine oil level when the 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 10 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 is at or near the "MAX" indicator before using the machine.**

4-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 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 (B). For machines equipped with an oil level dipstick:
 - a. Remove the dipstick (C) and wipe clean with a piece of cloth or paper.
 - b. Insert the dipstick into the oil filler but do not screw it in.
 - c. 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.



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 filler cap (**A**) and oil filler cap/dipstick so that no dirt or other material enters the engine when the plug or cap is removed.
3. Unscrew (rotate left) and remove the oil filler cap/dipstick.
4. Tilt the machine and drain all oil from the engine. Once drained, allow the machine to sit level again.
5. Clean away any residual oil from the engine.
6. Using a funnel, carefully add oil to the engine until the "maximum" level is reached. Double-check the oil level (described above).
7. When finished, re-install (rotate right) the oil filler cap/dipstick until firm. Wipe off any residual oil from the machine.

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 reduce performance and 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 engine breather may be connected to the air intake assembly – this may lead to a build-up of oil in the air filter over extended use and is normal. The air filter requires regular maintenance as per the maintenance schedule.

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, if possible. The air should be blown from the engine side of the filter. Tapping the filter element against a hard surface and brushing the pleats using a soft brush may also help remove debris from the filter.
- 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.
- It is recommended to clean the air filter cover and air intake assembly of any dirt, cuttings etc.

Removal/Installation

To remove the air filter:

1. Squeeze in and hold the tabs (B) at the top of the air filter cover (A) then, rotate the top of the air filter cover downward until it can be released from the engine.
2. Carefully remove the filter element (D).



To install the air filter:

1. Insert the air filter element, and ensure it is correctly positioned in relation to the air intake assembly as it will seat properly in one position only.
2. Locate the bottom of the cover in the hooks at the bottom of the air intake, then rotate the top of the cover up until it "clicks" into position.

Spark Plug



If the spark plug is damaged (cracked insulator, broken or eroded electrodes etc), replace it. • Always use spark plugs of the correct "heat range" - see [Specifications](#). • Depending on model, the spark plug may be accessible directly, or may be located underneath the air filter cover.

The spark plug is used to ignite the air/fuel mixture inside the engine. The spark plug has electrodes on one end and an electrical terminal on the other. The spark plug requires regular maintenance.

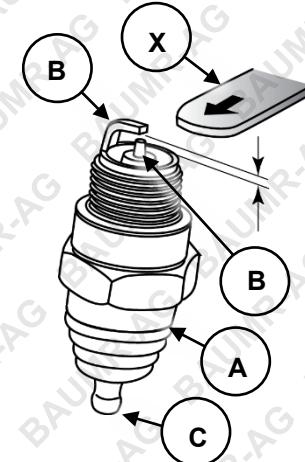
Cleaning and Gap Checking

The spark plug should be checked and cleaned as per the maintenance schedule.

1. Remove any carbon deposits on the spark plug (A) electrodes (B) with a wire brush.
2. Clean the spark plug threads and the electrical terminal (C) on the top.

To check and adjust the spark plug "gap":

1. Use "feeler" or "thickness" gauges (X) to measure the existing gap. The gauge must drag a little when being slid between the electrodes (2) – this means the measurement is fairly accurate.
2. Adjust the gap to within specification (see [Specifications](#)). If the gap needs to be reduced, gently tap the electrode as required. If the gap needs to be increased, use pliers to gently pull the electrode as required.
3. Measure the gap again and ensure it is within the specified range before re-installing the spark plug.



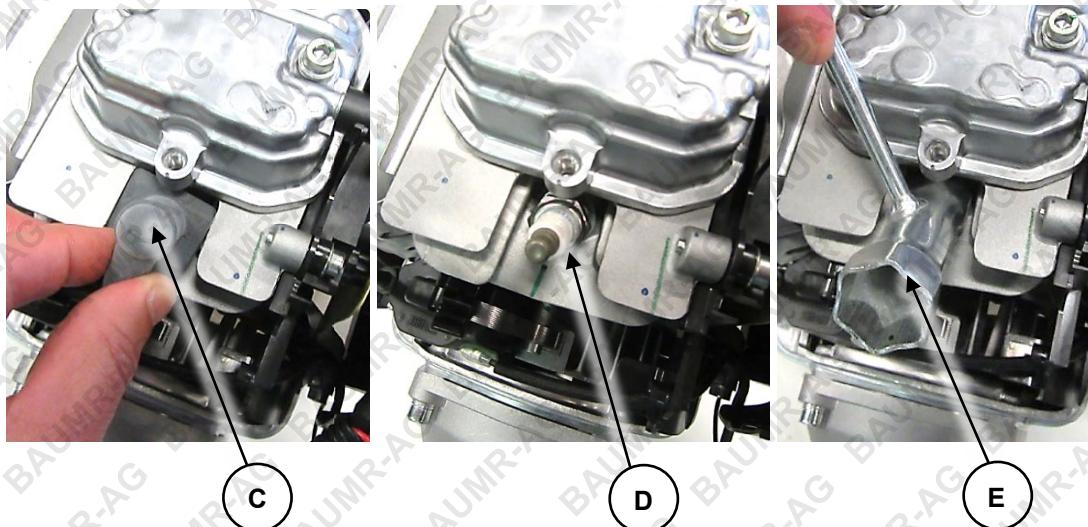
Removal/Installation

1. Loosen the screw (B) securing the top engine cover (A), then remove the cover to access the engine and spark plug.
2. Pull the electrical lead / rubber boot (C) from the terminal on top of the spark plug (D).
3. Clean the area around the spark plug so that no dirt or other material can enter the engine when the spark plug is removed.
4. Use the spark plug tool (E) to remove the spark plug (rotate left).

To re-install the spark plug:

1. Place the spark plug in its hole and screw it in (rotate right) until "finger tight".
2. Use the spark plug tool to tighten the spark plug approximately one quarter turn (do not over-tighten).
3. Place the electrical lead over the spark plug terminal and push it down so that it connects firmly and the rubber boot is seated firmly against the engine.
4. Re-install the top engine cover, then tighten the screw to secure it.





Fuel Strainer



A dirty or blocked fuel strainer will restrict fuel flow, which can reduce performance and be mistaken as fuel system problems. Check the condition of the fuel strainer before adjusting engine idle speed, where applicable. • If the fuel strainer is no longer serviceable, replace it.

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

Inspection and Cleaning

Inspect the fuel strainer for dirtiness and debris etc. Clean or replace the strainer as necessary. To clean fuel strainers:

- Wash the strainer in clean solvent.
- If possible, use compressed air to assist in removing any blockages. Blow air into the strainer from where it connects to the tube.

Removal/Installation

To remove the fuel strainer:

1. Place the machine in a horizontal position on a flat and level surface with the fuel filler cap facing up.
2. Remove the fuel tank cap (rotate left) and empty the fuel tank (**A**).
3. Use a hooked object to capture the fuel intake tube (**B**) inside the fuel tank and gently pull it from the tank.
4. The strainer (**C**) is installed on the end of the tube – to remove it, twist and pull it from the end of the tube

To install the strainer:

1. Firmly push the strainer onto the fuel intake tube.
2. Place the tube back inside the fuel tank – it should rest along the bottom of the tank.



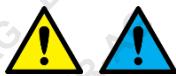
Pinion

The pinion is used to activate the hammer. The pinion operates at high speed and requires lubrication. To grease the pinion:

1. Place the machine in a horizontal position with the fuel filler cap facing up on a flat and level surface.
2. Remove the pinion access cover (A) (rotate left).
3. Liberally coat the pinion and drive components with automotive bearing grease.
4. Re-install the pinion access cover (rotate right) and tighten firmly by hand.



Cleaning Guidelines



Do not use solvents, chemicals or abrasives when cleaning the machine, as some surfaces may be damaged. • Wear gloves or use suitable tools to assist in cleaning – do not use bare hands. • Clean the machine after every use to ensure best performance and longest service life.

- Use a slightly damp cloth and mild detergent for cleaning.
- Use a brush for parts that are difficult to reach.
- Ensure air vents and surfaces designed for heat dissipation are clean and free of obstructions or debris.
- Ensure all guards and safety devices are clean and functioning correctly.
- Ensure that spring-loaded parts, such as the throttle, return to the normal position when released.
- Ensure that all control cables, levers, switches etc are clean and operate normally and smoothly.

Engine Tuning Guidelines



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 may be beyond the scope of some users. Do NOT attempt procedures that you are not comfortable with, or do not have the necessary tools, experience or knowledge for – take the unit to an authorised service centre or qualified technician for servicing. • **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.** • Improper tuning can lead to engine failure – **engine failure due to improper tuning is not covered under warranty**. • If you cannot tune the engine, contact an authorised service centre for assistance or have the machine checked by a small engine specialist. • The carburettor is supplied factory-set and should run properly. Engine tuning should be attempted only if the machine shows signs of requiring adjustment. • A tachometer is recommended for setting engine idle and full throttle speeds.

The engine must be maintained in a reasonable "state of tune" to ensure best performance and safety. If the engine is running roughly, emitting excessive smoke, not revving properly, not idling properly, showing signs of reduced power, not responding crisply to the throttle etc, it may require "tuning". Before any engine tuning:

- Service the [air filter](#).
- Service the [spark plug](#).
- Use fresh [fuel](#).

Basic tuning for 4-stroke engines by owners is limited to idle speed only. If the engine requires more complex tuning, take it to an authorised service centre.

Carburettor Adjustments

The carburettor has 1 adjustment available:

- **Idle Speed** – Controls how open the throttle is when released. If idle speed is too low, the engine may stop when the throttle is released due to a lack of air/fuel mixture. If idle speed is too high, the engine may idle at a speed that engages the clutch and cause the cutting attachment to rotate – this is a dangerous condition that should never be allowed.

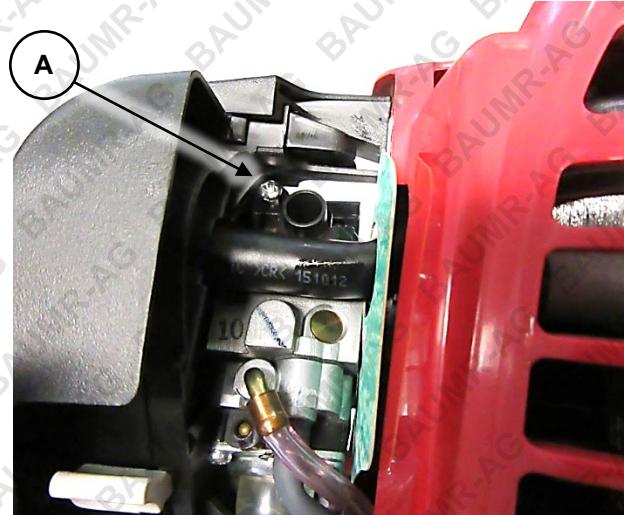
The idle speed screw (A) is accessed from the rear of the engine.

Factory Settings

Each adjustment screw has a general "factory setting", which is measured from the adjustment screw being rotated "IN" (right / clockwise) until fully seated (but not tight). From this point, the setting is made by counting the number of full rotations of the screw "OUT" (rotate left / anti-clockwise). Factory settings are:

- **Idle Speed** – Approximately 5 turns out.

Use the factory settings as the basis for tuning. Set all adjustment screws to factory settings, then test the engine before further tuning. Use a suitable screwdriver and ensure that it is properly engaged with the adjustment screw before rotating.



Tuning

1. Start and allow the engine to idle until it is warmed up – tuning a cold engine will result in rich running when the engine is warm. If the engine does not idle, use the throttle to keep the engine running ("blip" the throttle; do not run the engine continuously at high speed).
2. **Adjust Idle Speed** – Rotate the adjustment screw one quarter (1/4) turn at a time – rotate "IN" (right / clockwise) to increase idle speed; rotate "OUT" (left / anti-clockwise) to reduce idle speed. Set the speed so the engine idles at 3100 ± 200 RPM. Never set the idle so the cutter attachment rotates when the throttle is released.

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 engine ON / OFF switch (if equipped) 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 engine ON/OFF switch (if equipped) is 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.
 - a. 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.
 - b. Re-install (rotate right) the carburettor drain plug and tighten.
- Remove the spark plug and put 5ml of clean engine oil into the cylinder. Pull the starter cord slowly to distribute the oil. Re-install the spark plug.
- Cover the equipment to protect it.

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. • Products with 4-stroke engines are 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 [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 may be beyond the scope of some users. Do NOT attempt procedures that you are not comfortable with, or do not have the necessary tools, experience or knowledge for – take the unit to an authorised service centre or qualified technician for servicing.

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

Difficulty starting the engine.

Possible Fault	Action
Lack of fuel or bad fuel	Ensure that there is sufficient fuel in the tank. Use new fuel.
Engine "OFF"	Ensure engine ON/OFF switch is in the "ON" position.
Carbon build-up on spark plug	Perform a spark plug service .
Spark plug faulty	Remove the spark plug, then reconnect the plug lead to it. Place the engine ON/OFF switch in "ON" position (if applicable). Touch the spark plug electrode to a part of the engine crankcase, away from the spark plug hole, and attempt to start the engine – a spark should be visible across the electrodes as the engine is rotated. If no spark is visible, replace the spark plug.
Engine "flooded" with fuel	Place the choke in "HOT" or "RUN" position. Leave the engine ON/OFF switch in the "OFF" position. Remove the spark plug. Pull the starter cord several times to assist clearing excess fuel from the engine before attempting to start engine.

Engine starts but does not idle.

Possible Fault	Action
Blocked air filter	Perform an air filter service .
Idle speed requires adjustment	Adjust idle speed until engine runs smoothly and at a reasonable speed when idling.

Driving power is poor.

Possible Fault	Action
Engine in poor state of tune	Tune engine .

Engine stops suddenly during use.

Possible Fault	Action
No fuel	Check fuel level and ensure adequate fuel is available.
Carbon build-up on spark plug	Perform a spark plug service .
Carburettor blocked	Clean the carburettor.

Reduced engine speed/power during use or engine running poorly at cutting speed.

Possible Fault	Action
Blocked air filter	Perform an air filter service .
Engine in poor state of tune	Tune engine .
Carbon build-up on spark plug	Perform a spark plug service .
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.

Excessive vibration.

Possible Fault	Action
Fasteners loose	Check all accessible fasteners (not carburettor adjustment screws) for tightness.
Pinion damaged	Repair or replace.

Specifications

Engine Type	4-stroke, single cylinder
Fuel Type	Non-ethanol unleaded petrol
Spark Plug Type	CM7H / CMR7H
Spark Plug Gap	0.6 to 0.7mm (0.024 to 0.028")
Valve Clearance	Inlet: $0.08\text{mm} \pm 0.02\text{mm}$ ($0.003" \pm 0.0008"$) Exhaust: $0.11\text{mm} \pm 0.02\text{mm}$ ($0.004" \pm 0.0008"$)
Engine Oil Type	SAE 10W-30 automotive engine oil recommended for general use
Engine Oil Capacity	Approximately 100ml (0.1l) (always check level)

Engine Service and Maintenance Record

Use the following tables as a record of machine servicing and maintenance. Keeping accurate records will help ensure longest machine service life and may simplify fault diagnosis and any possible warranty claims. Fill out date, number of hours of use and the activity performed, as required (see [Maintenance Schedule](#)).



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.datastreamserver.com/safety

- 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.

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