

Bäumr-AG®



TRN600 Trencher

User Manual

[Revision 3.0 July 2018]

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 [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:

 You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.	 You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.	 You CAN be INJURED if you do not follow instructions or equipment damage may occur.
<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 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. 	<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.
<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.

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.

- Use combustion engines OUTSIDE only, and far away from windows, doors and vents.

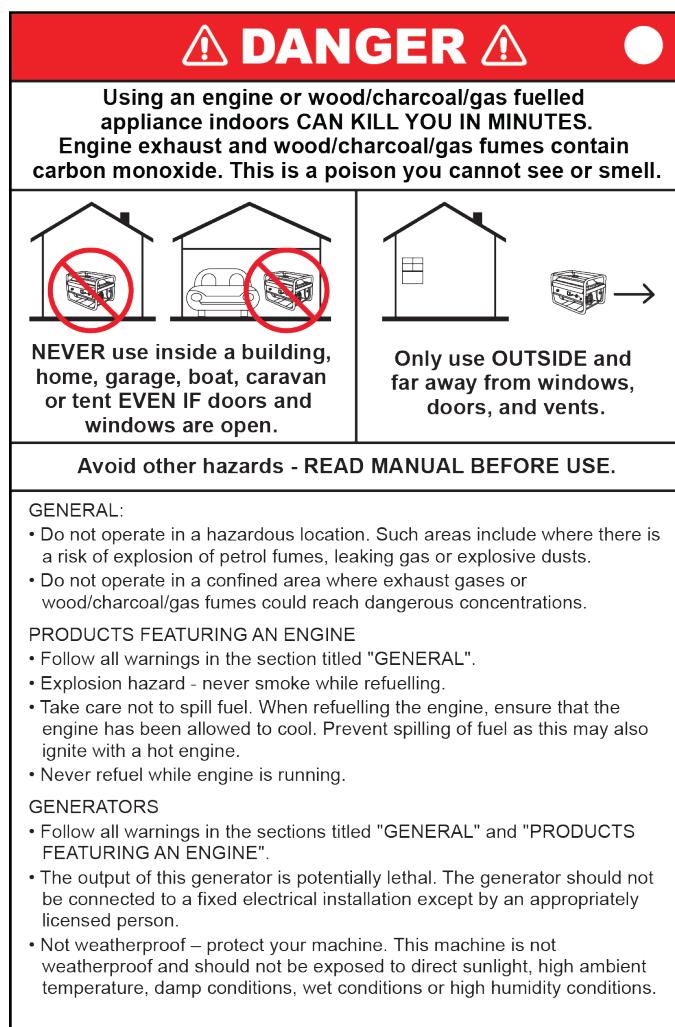
General Electrical Safety

- 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.

- For specific equipment safety use and care, see [Equipment Safety](#).

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.



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>

 <p>Carbon-Monoxide Hazard Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.</p>	 <p>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.</p>	 <p>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.</p>	 <p>"Slam Dunk" Warning Do NOT attempt "slam dunk" manoeuvres as this may result in severe injury due to falling, product breakage or collapse etc.</p>
 <p>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.</p>	 <p>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.</p>	 <p>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.</p>	 <p>"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.</p>
 <p>Winch Operator Position Hazard Do NOT stand between winch and load. Do NOT use winch to move people.</p>	 <p>Winch Lift Hazard Do NOT LIFT load vertically. Use machine to PULL only.</p>	 <p>Cable Hazard Ensure that load bearing cable is not kinked or knotted.</p>	 <p>Winch Cable Hazard Ensure that there is a minimum number of cable coils on winching mechanism.</p>
 <p>Winch Hook Hazard Carry hook to load – do NOT throw or run.</p>			

Equipment Safety



Trenchers are high-speed, fast-cutting equipment with exposed teeth that can cause serious 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 motorised trencher, it is highly recommended that you be trained/instructed by a suitably qualified or experienced person before using the machine.
- Fully understand how to safely operate the machine and the trenching process. See Operation.
- You must be in good physical condition to use a motorised trencher. 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 machine 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.
- Wear suitable hearing protection.
- Wear heavy-duty, non-slip leather or protective gloves.
- Wear approved heavy-duty safety boots, with steel toe-caps and non-slip soles.
- 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 get caught up or obstruct the machine, or may get thrown by it.
- 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 EXTREME CAUTION when using the machine on sloping surfaces.
- Use EXTREME CAUTION when changing machine direction, reversing etc.
- Do NOT use any trenching attachment that is cracked or damaged in any way – replace it.

- Ensure the trenching teeth are not obstructed before digging.
- Ensure that all trenching teeth are fully secured before digging.
- If the trencher jams, stop the engine immediately.
- Do NOT use the equipment for purposes it is not designed for, such as cutting concrete.
- Do not attach the machine to fixed supports.

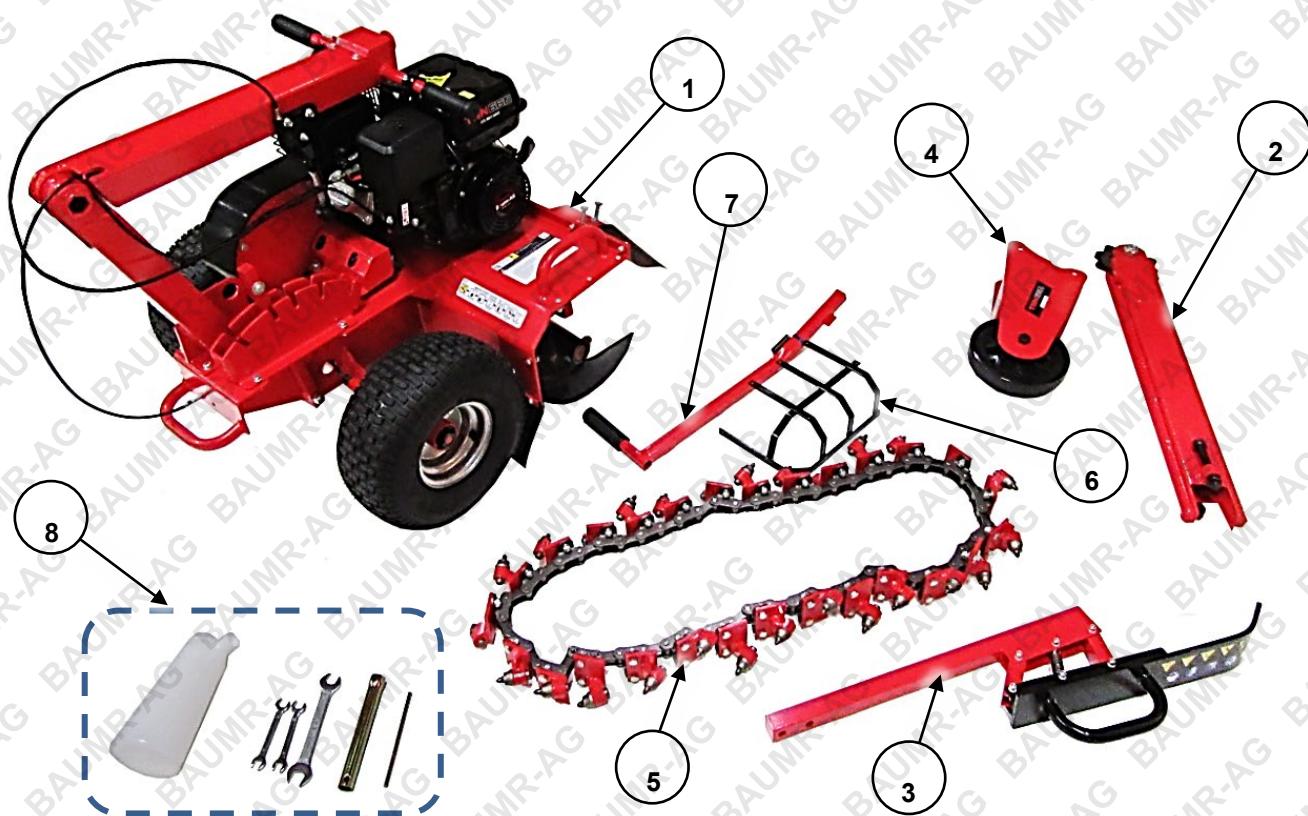
Transportation Safety

- 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, and the machine is secured in an upright position to prevent tip-over, machine damage or fuel spills.

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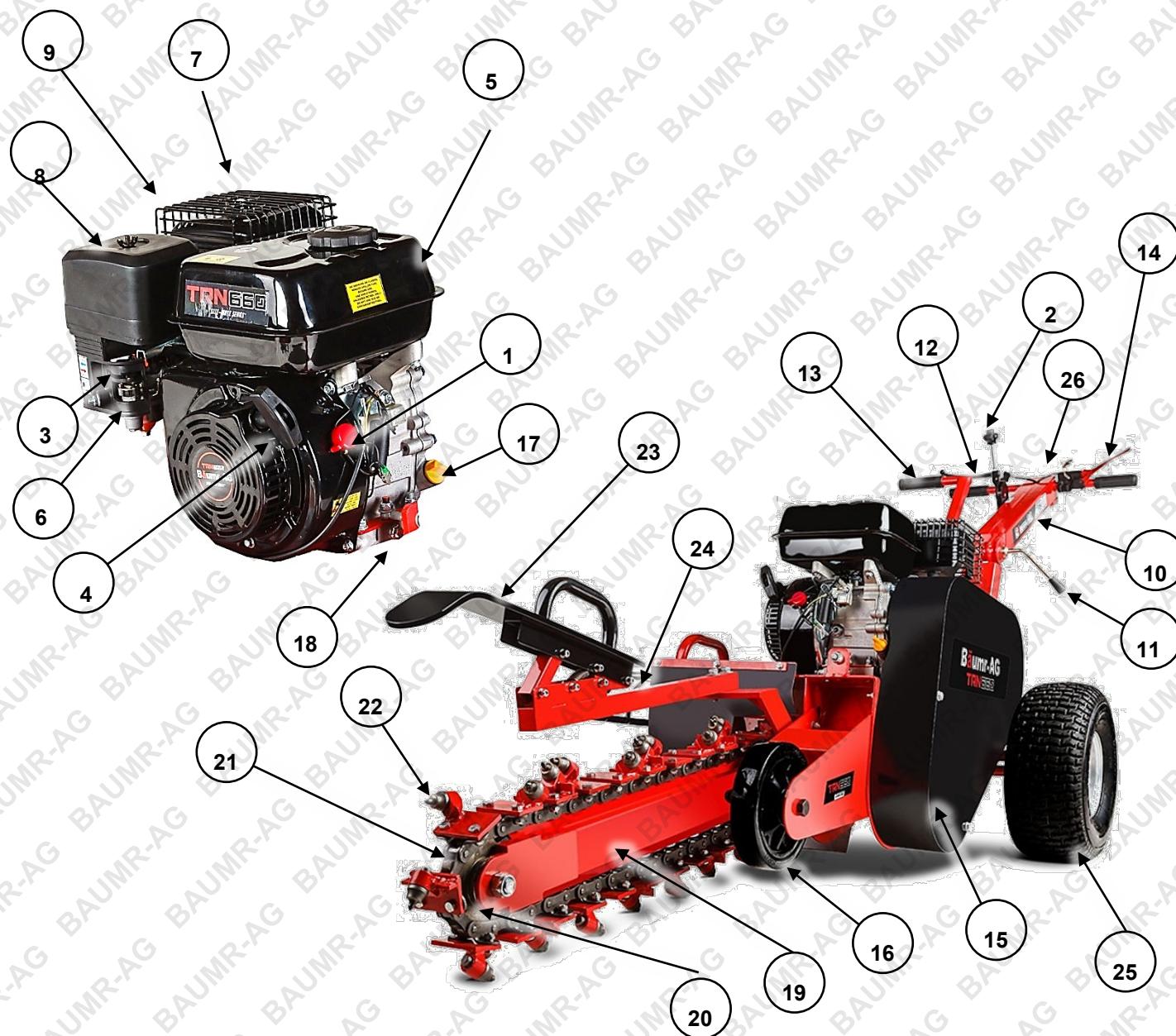
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Parts Identification



No.	Name	No.	Name
1	Engine / Gearbox / Frame / Handle Assembly	8	Tools / Fasteners / Accessories: Note that all necessary fasteners are installed in position. 10 / 13 (2) / 17 / 19mm Spanner Spark Plug Tool M6x20 Bolt (4) M8x25 Bolt (5) M10x50 Bolt (2) M6 Washer (4) M8 Washer (7) M10 Washer (2) M6 Spring Washer (4) M8 Spring Washer (4) M6 Nut (4) M8 Nut (2) Fuel Bottle
2	Chain Arm		
3	Front Guard		
4	Guide Wheel		
5	Chain / Cutting Teeth Assembly		
6	Side Guard		
7	Depth Adjustment Handle		

Engine and Machine Components



No.	Name	No.	Name
1	Engine ON / OFF Switch	14	Engine Safety Switch
2	Throttle Control	15	Drive Cover (drive system inside)
3	Choke Lever	16	Guide Wheel
4	Starter Cord	17	Oil Filler Cap
5	Fuel Tank	18	Oil Drain Plug
6	Fuel Tap	19	Chain Arm
7	Exhaust	20	Idler Gear
8	Air Filter Assembly (air filter inside)	21	Chain
9	Spark Plug (obscured)	22	Cutting Tooth / Mounting Plate (27)
10	Handlebar	23	Front Guard
11	Handlebar Lock Lever	24	Side Guard
12	Wheel Lock Lever	25	Wheel
13	Depth Adjustment Handle	26	Emergency Stop Button (obscured)

Before Use Checklist



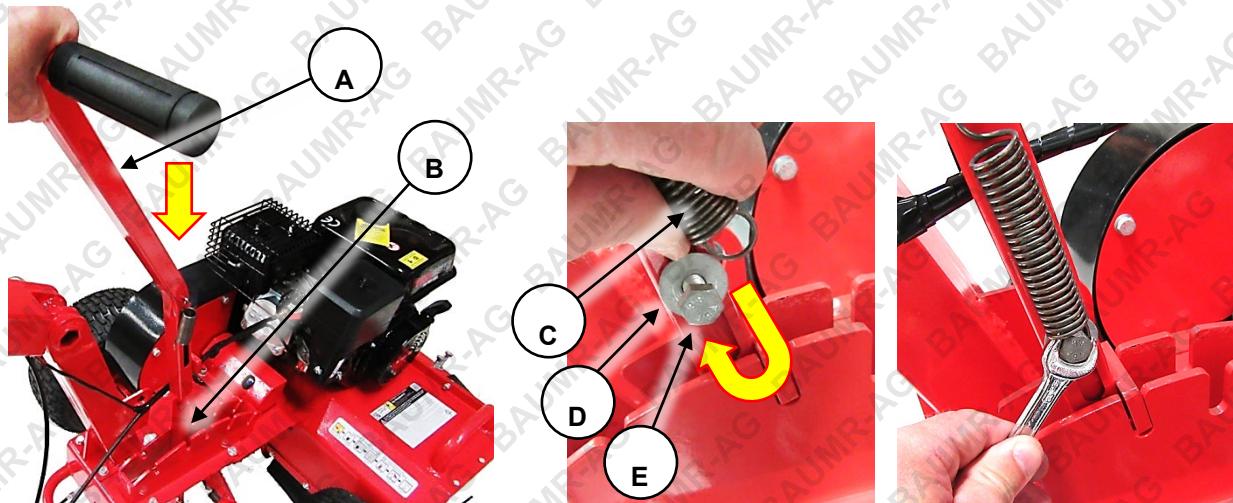
Ensure that you carry out all procedures below before starting the engine or operating the equipment. All procedures described are generic in nature and slight variations between different models may exist. **Failure to follow the checklist and carry out the procedures correctly may result in making 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 [Engine Oil](#). **Failure to add engine oil will void the product warranty.**

Assembly

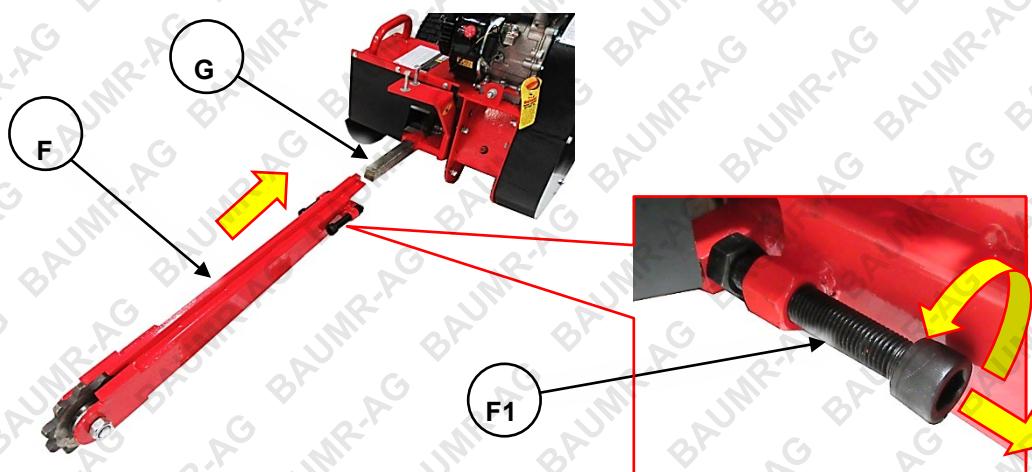


2 or more persons are required for assembly. • Suitable tools are required for correct assembly. • Check all parts have been supplied and are in good condition before commencing assembly. • Firmly secure all fasteners. • Occasionally, additional fasteners may come supplied, however, these are not used for this machine configuration.

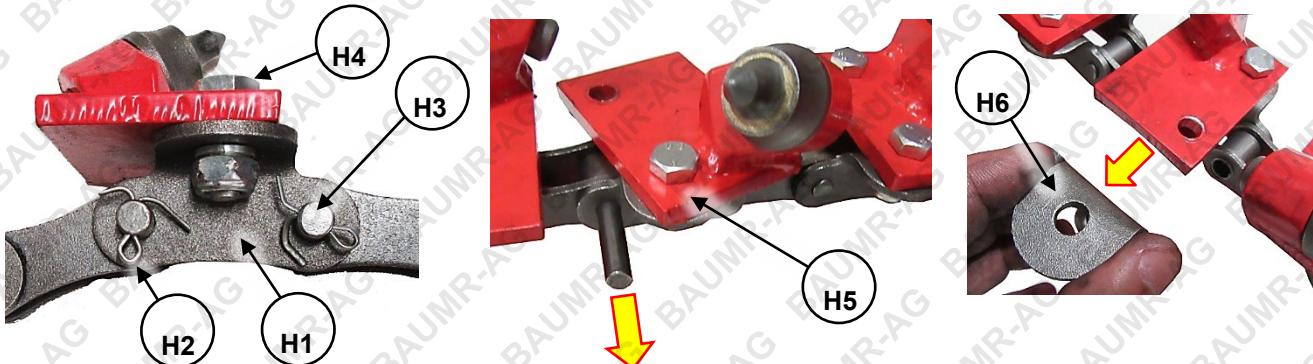
1. Place the depth adjustment handle (A) over the depth adjustment shaft (B). Ensure that the spring (C) is facing outward.
2. Place a M8 washer (D) in position, and insert a M8x25 bolt (E) through the slot in the handle and screw it in (rotate right) to the depth adjustment shaft approximately 10mm. Pull the end of the spring over the bolt, then screw the bolt in further (there is no need to "tighten" the bolt as the spring tension should prevent it from loosening).



3. Slide the end of the chain arm (F) onto the bar (G) at the front of the machine. Using a suitable spanner and Allen key, back-off (rotate left) the chain tensioning bolts (F1) on either side of the chain arm so they are as far back as possible.



4. The chain and cutting teeth assembly (H) needs to be "split" in order to be installed. Find the removable link (H1) in the chain – it has split pins (H2) to retain the link pins (H3). Remove both split pins (do not damage or discard them), then using a suitable pin punch and hammer, drive 1 link pin through the chain link from the split pin side. Remove 1 nut, spring washer and bolt (H4) from the split pin side of the tooth plate (H5), then remove the link plate (H6) from the split pin side – the chain is now split.



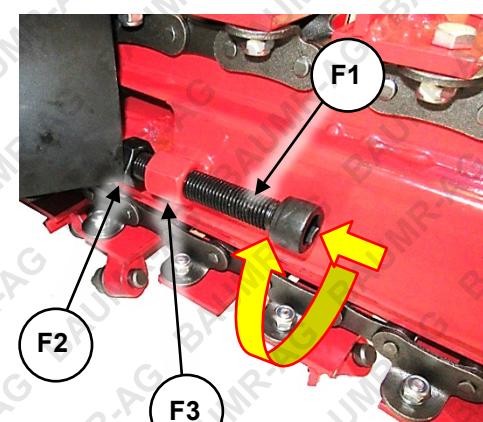
5. Pull the chain around the drive shaft housing underneath the machine (at this stage run the chain next to the drive gear, and ensure that the cutting teeth are facing forward) so the free end of the chain will lie along the top of the chain arm. Lift the chain onto the drive gear so the links engage with the drive gear teeth. Rest the chain on the ridge running the length of the chain arm.

6. Hold the chain in position so it does not roll back around the drive gear, then pull the free end of the chain over the idler gear at the front end of the chain arm. Bring the two ends of the chain together, then drive the previously removed link pin through the chain link so the chain is again joined. Place the link plate over the two link pins, then re-insert the split pins through the link pins. Bend the legs of the split pins around so the pins cannot fall out. Re-insert the previously removed bolt through the tooth plate and link plate, then secure it using a spring washer and nut. Use the spanners to firmly tighten (rotate right) the nut.

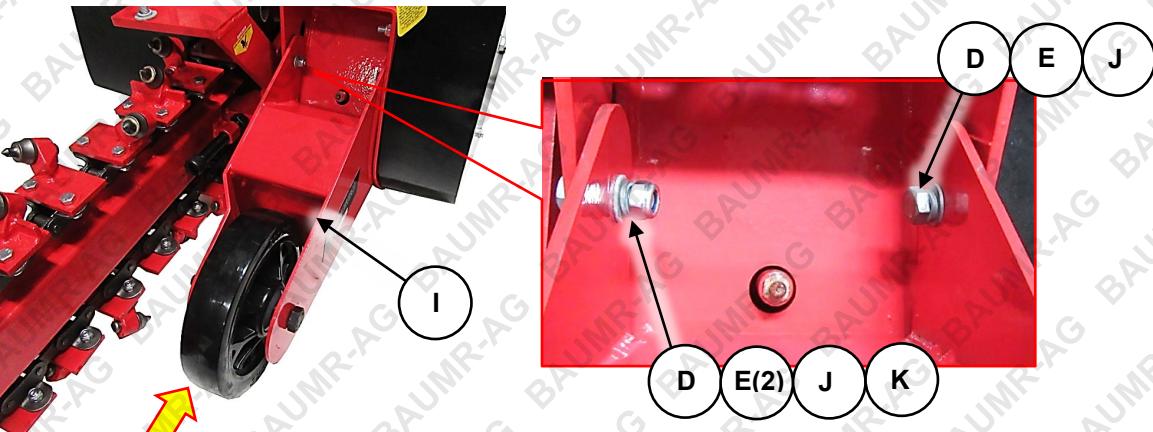


7. Using a suitable spanner and Allen key, advance (rotate right) the chain tensioning bolts (F1) on either side of the chain arm to increase tension on the chain. Tension the chain so there is approximately 10 to 20mm of slack in it when you pull it down from the underside of the chain arm at its centre. When tension is correct, tighten the nut (F2) against the welded nut (F3) on both sides.

8. Bring the guide wheel assembly (I) into position next to the chain arm (left side of the machine when standing behind it). Attach the guide wheel assembly to the plate on the chain arm side using 2 M8x25 bolts (E), 4 washers (D), 2 spring washers (J) and 2 nuts (K). The bolts should pass through a washer, plate, guide wheel assembly, washer, spring washer, then nut. Note that it may be necessary to change the chain arm depth position in order to have access to the bolt holes.



9. On the drive cover side, attach the guide wheel assembly using 2 M8x25 bolts (E), 2 washers (D) and 2 spring washers (J). The bolts should pass through a spring washer, washer, guide wheel assembly, then into the plate. Firmly tighten (rotate right) all fasteners using the spanners.



10. Attach the front guard (L) to the mounting plate (M) above the chain arm using 2 M10x50 bolts (N), washers (O) and spring washers (P). The bolts should pass through a spring washer, washer, front guard, then into the plate. Firmly tighten (rotate right) the fasteners using the spanner.



11. Attach the side guard (Q) to the inside of the soil ejection chute (R) using 4 M6x20 bolts (S), washers (T), spring washers (U) and nuts (V). The bolts should pass through a washer, chute, guard, spring washer, then nut. Firmly tighten (rotate right) the fasteners using the spanners.

When assembly is complete, the machine should look similar to below.



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.

Always check the engine oil level before starting the engine. See [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 [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 petrol (higher RON values will provide best engine performance). Do not use old or contaminated fuel.

To fill or top up fuel:

1. Place the machine on a flat and level surface.
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 pump away from the spillage before starting the engine.

Greasing Drive Shafts

Components that REQUIRE greasing will have grease nipples. Grease at all places marked in the diagrams below before use. It is recommended to grease applicable components approximately every 3 months, possibly more frequently if used often. Users will require a grease gun and grease - normal automotive wheel bearing grease is suitable. Attach the grease gun hose to the nipple and inject one squeeze of grease.

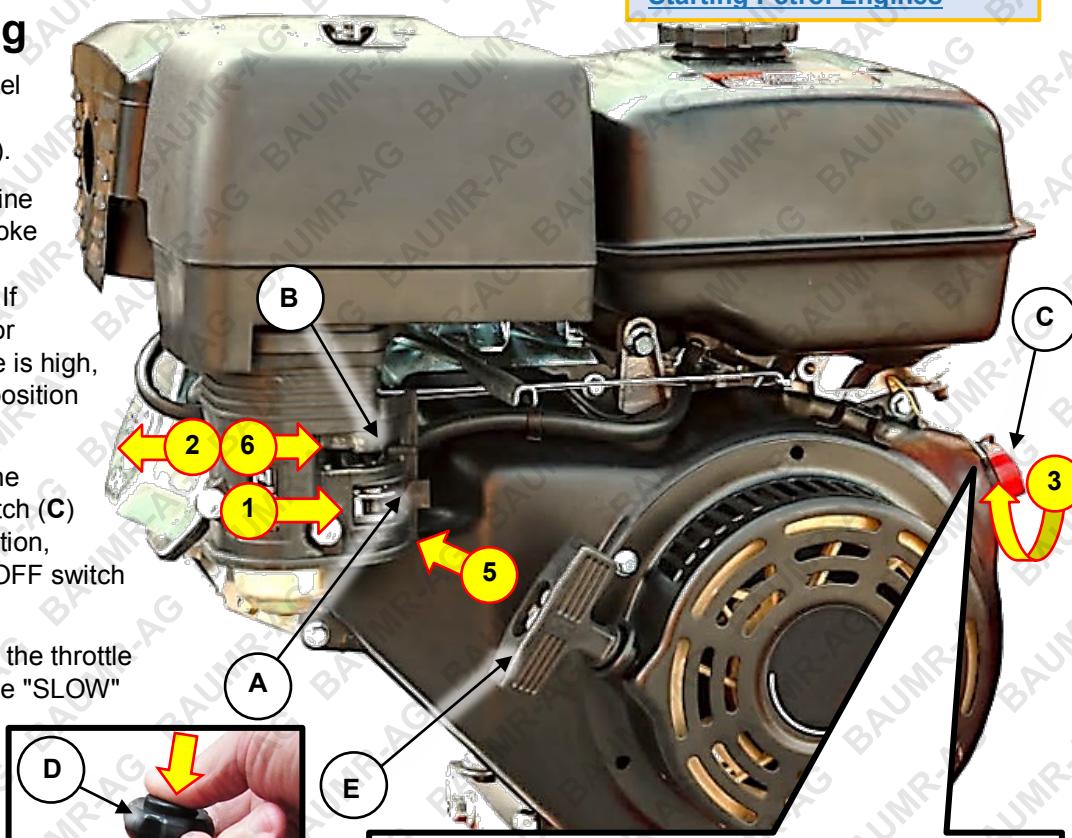
Grease at all places marked below.



Engine Starting and Stopping

Engine Starting

- FUEL** – Place the fuel tap (A) in the "ON" position (to the right).
- CHOKE** – If the engine is cold, place the choke (B) in the "COLD" position (to the left). If the engine is warm or ambient temperature is high, place in the "HOT" position (to the right).
- IGNITION** – Place the engine ON/OFF switch (C) in the "ON" ("I") position, and secondary ON/OFF switch in the "ON" position.
- THROTTLE** – Place the throttle control (D) just off the "SLOW" position. To move the throttle, press and hold the button at the top of the lever, move it to the required position, then release the button.
- START** – Slowly pull out the starter cord (E) 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.
- WARM-UP** – Allow the engine to warm-up and run smoothly. If choke is being applied, place the choke (B) in the "HOT" position.
- THROTTLE** – Adjust the throttle control (D) for the required engine speed.



Note that there is a secondary engine ON/OFF switch located on the left handlebar. To place it in the ON position, pull the lever and hold in this position, then rotate the metal clip over so it is between the lever and switch housing. Release the lever – the clip should remain in the ON position.



If the engine does not start, repeat step 5 onward. If the engine fails to start after several attempts, refer to [Troubleshooting](#).

Video Tutorial:
[Starting Petrol Engines](#)



Stopping the Engine

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

Emergency Stopping

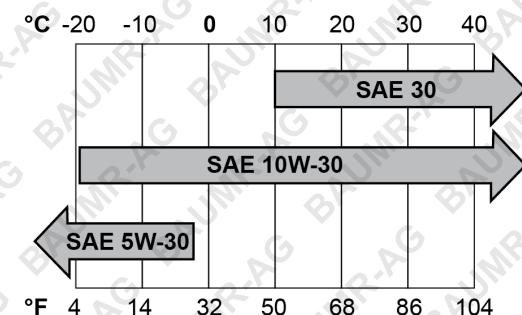
To stop the engine in an emergency, pull the secondary ON/OFF switch lever (A), or push the emergency stop button (B) on the end of the handlebar. After using the button, rotate it right (clockwise) until it "pops" up.



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 to determine the correct engine oil.



Trencher Operation



Trenchers are high-speed, fast-cutting equipment with exposed teeth 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 trenching by machine. • Do not attempt to trench through concrete, rock, tree roots, heavy clay or other hard or problematic surfaces. If you come across material that cannot be trenched by the machine, use some other method to remove the material before continuing trenching (for example, a jackhammer etc) • Do not use attachments or accessories beyond those supplied with the machine. • Augers and auger tips are consumable parts, and are not covered under warranty.

The machine is used for digging and clearing narrow trenches, up to 600mm deep, in suitable ground material. The machine is designed for manual operation, where the operator both holds and controls it. Note the following:

- Adjust the throttle, which engages the trenching chain and controls its speed, only when ready to begin trenching.
- Guide the machine as straight as possible when in use to ensure straight trenches.
- Depending on the softness of the ground material and the depth of trench, it may require several passes at greater depths each time to complete the trench.
- Always check the trenching chain and cutting teeth before trenching. Replace any worn or damaged components. Do not use if damaged in any way.
- If the machine is getting "stuck" during trenching, reduce depth and/or investigate other reasons such as suitability of the ground material, obstacles etc.
- When moving the machine, disengage the wheel locks, then push down on the handlebars to raise the trenching arm, then move the machine.

To trench:

1. Position the machine in the required location, with the front of the machine at the end of the trench – that is, trenching is performed by moving the machine backwards.
2. Start the machine and allow it to warm up.
3. Set the trenching arm to the required depth. It may be necessary to hold the trenching arm up by putting weight on the handlebar.
4. Engage the wheel locks.
5. Use the throttle to increase engine speed and drive the trenching chain.
6. Holding the handlebar firmly with both hands, carefully lower the trenching arm into the ground, Allow the cutting teeth to "dig in" to the ground material.
7. When the guide wheel contacts the ground the trench is at full depth. Put weight on the handlebar to raise the trenching arm, then disengage the wheel locks and move the machine backwards 100 to 150mm (4 to 6").
8. Repeat steps 4 to 7 as necessary to cut the trench.
9. When finished, stop the engine and raise the trenching arm.

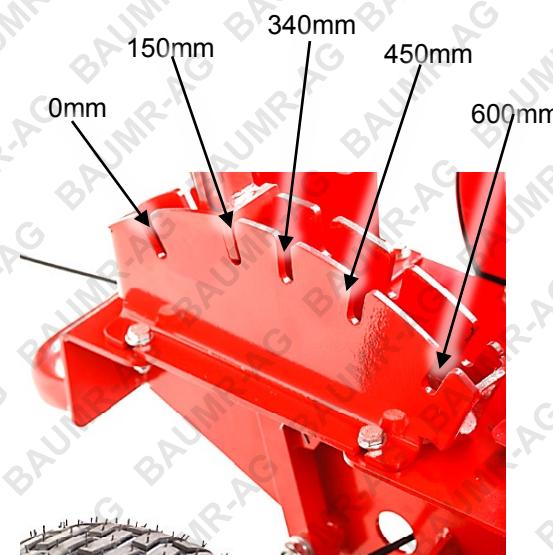
Adjusting Handlebar Position

1. Rotate the locking handle (A) left (anti-clockwise) until the top section of the handle (B) can be rotated.
2. Move the handle to the required position – where it is comfortable for you to hold, and to raise the front of the machine. Generally, waist height is a good starting point.
3. Rotate the locking handle right (clockwise) until the handlebar assembly is firmly held.



Adjusting Trench Depth

1. Pull the depth adjustment handle (C) upward so it disengages from the setting plate (D).
2. Move the handle forward to increase trench depth, or backward to reduce depth as required. Note that it may be necessary to raise the front of the machine off the ground to allow the trenching arm to drop.
3. Release the depth adjustment handle, ensuring that the tab at its bottom is fully engaged in a slot in the setting plate.

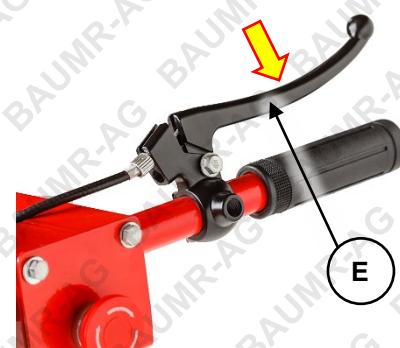


Using the Wheel Locks

The wheels use spring-loaded pins to lock them in position while trenching. This is to help reduce forward "creep" caused by the digging action of the cutting teeth.

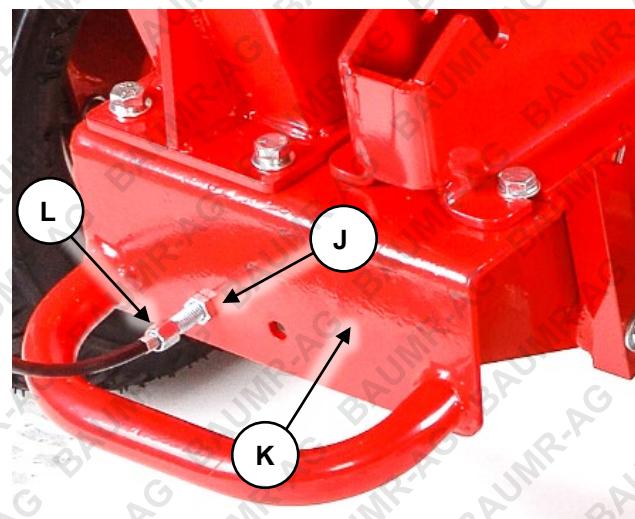
1. Pull and hold the lever on the right handlebar (E) to disengage the wheel locking pins.
2. Move the machine as required.
3. Release the lever. Note that there may be a small amount of movement before the locking pins fully engage.

The wheel lock mechanism comes factory set, however, can be adjusted, if required (for example, if the locking pins are not fully disengaging). Before adjusting, visually inspect the wheel lock on each side of the machine – whilst looking at the mechanism, pull the wheel lock lever (E) and check if the locking pin (F) is retracting fully from the



holes in the wheel hub (**G**). Release the lever – the locking pin should enter the hole in the hub sufficiently to prevent the wheel from rotating. If the cables require adjustment:

- If adjustment is required for one wheel only, loosen the lock nut (**H**). Rotate the adjusting screw (**I**) "IN" (right / clockwise) to reduce how much the locking pin retracts when the lever is pulled; rotate "OUT" (left / anti-clockwise) to increase locking pin retraction. When adjustment is complete, tighten the lock nut.
- If adjustment is required equally for both wheels, use spanners to loosen lock nuts (**J**) at the rear of the machine – there is a second on the inside of the plate (**K**). Rotate the adjusting screw (**L**) "IN" (right / clockwise) to reduce how much the locking pins retract when the lever is pulled; rotate "OUT" (left / anti-clockwise) to increase locking pin retraction. When adjustment is complete, tighten the lock nuts.



Using the Throttle

The throttle lever (**F**), located on the handlebar column, is used to adjust the engine speed, which in turn engages the trenching chain. To adjust the throttle, press and hold the button at the top of the lever, rotate the lever to the required position, then release the button.



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.**

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 – Petrol Engines / Machines

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 *						Replace	
Loose 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 *					Clean. Replace as necessary	Replace	
Fuel Strainer *	Check					Replace	
Float Bowl *						Clean	
Fuel Lines / Hoses	Check				Replace as necessary		
Fuel injector *						Check. Clean	
Fuel Pump *						Flush and clean	
Fuel Tank							
Idle Speed						Check. Adjust as necessary	
Valve Clearance						Check. Adjust as necessary	
Cylinder Head Fasteners						Check. Tighten as necessary	
Combustion Chamber							
Battery Electrolyte *						Check. Clean / de-coke as necessary	Perform
Major Service							
Cutting Blade / Chain *	Check					Sharpen. Replace as necessary	
Water Pump Oil **			Check level. Adjust as necessary			Replace	
Hydraulic Fluid ***						Replace	
Drive Belt *			Check tension. Adjust as necessary			Check. Replace as necessary	

* 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

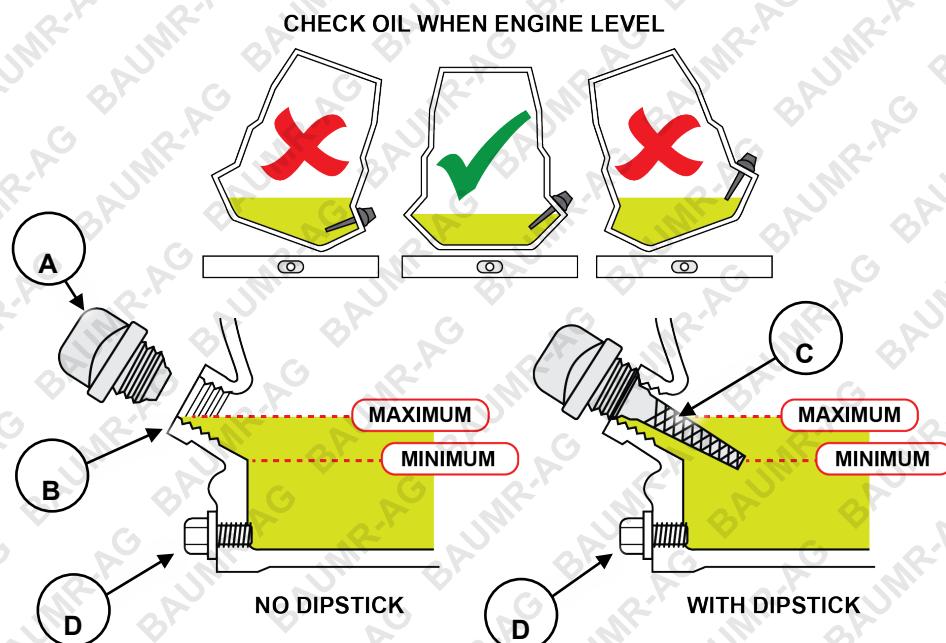


Engines are NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use. **Failure to add engine oil will void the product warranty.** • Always check engine oil level when the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

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 drain plug (**D**) 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 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.

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.

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. Tapping the filter element against a hard surface and brushing the pleats using a soft brush may also help remove debris from 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.

Removal/Installation

To remove the air filter:

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



To install the air filter:

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

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](#).

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.

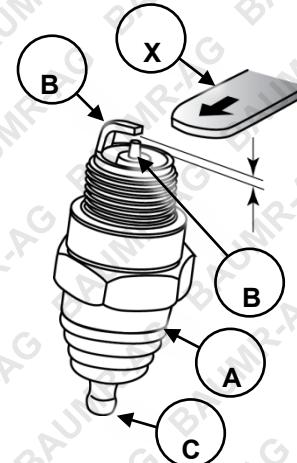
Cleaning and Gap Checking

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.

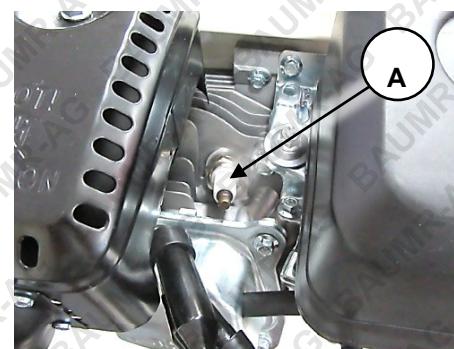
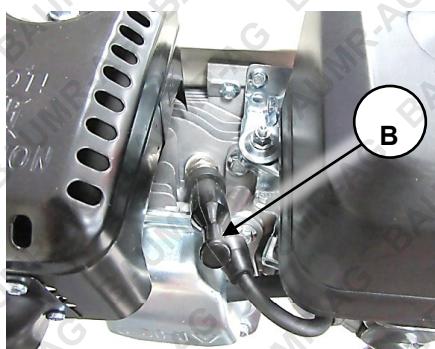
To check and adjust the spark plug "gap":

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. Pull the electrical lead (A) from the terminal on top of the spark plug (B).
2. If accessible, clean the area around the spark plug so that no dirt or other material can enter the engine when the spark plug is removed.
3. Use the spark plug tool (C) 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 with the terminal.

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 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 is in the "OFF" position.
- Ensure the fuel tap is in the "OFF" position.
- Avoid exposing the equipment to direct sunlight, particularly during transportation.
- Remove the tillers (if installed) and install the wheels.
- 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:

- 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.
- Re-install (rotate right) the carburettor drain plug and tighten.
- Remove the spark plug and put 10ml 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.

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 [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
<i>Lack of fuel</i>	Check that there is sufficient fuel in the tank and the fuel tap (if equipped) is in the "ON" position. • To further check if fuel is reaching the carburettor, remove the carburettor drain plug and check if fuel drains.
<i>Engine "OFF"</i>	Ensure the engine ON / OFF switch (if equipped) is in the "ON" position.
<i>Carbon build-up on spark plug</i>	Perform a spark plug service .
<i>Spark plug faulty</i>	Remove the spark plug, then reconnect the plug lead to it. Place the fuel tap (if equipped) in the "OFF" position and the engine ON/OFF switch (if equipped) in the "ON" position. 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. Not applicable to diesel engines.
<i>Engine "flooded" with fuel</i>	Place the choke in the "HOT" or "RUN" position. Leave the engine ON / OFF switch (if equipped) in the "OFF" position. Pull the starter cord several times to assist clearing excess fuel from engine before attempting to start engine.
<i>Not enough or too much engine oil</i>	Check oil level and ensure that the level is at or just below the recommended maximum level. For some engines, an engine oil sensor will automatically switch off the engine or prevent starting if a low engine oil level is detected.

Engine starts but does not idle.

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

Engine will not stop when throttle control is positioned at stop, or engine speed does not increase properly when the throttle control is adjusted.

Possible Fault	Action
Debris interfering with the throttle linkage	Clean away dirt and debris.

Engine starts but runs erratically.

Possible Fault	Action
Spark plug lead loose	Ensure the spark plug lead is undamaged and is securely connected to the spark plug terminal.
↓	
Choke ON	Set the choke to the "HOT" or "RUN" position.
↓	
Blocked fuel line or stale fuel.	Clean the fuel line. Fill the tank with clean, fresh fuel.
↓	
Water or dirt in fuel system	Drain fuel tank and carburettor. Refill with fresh fuel.
↓	
Dirty air filter	Perform an air filter service.

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 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.
↓	
Carbon build-up on spark plug	Perform a spark plug service .
↓	
Fuel system blockage	Clean fuel lines / fuel filter / carburettor / fuel injector.

Reduced engine speed/power during use.

Possible Fault	Action
Blocked air filter	Perform an air filter 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.
↓	
Carbon build-up on spark plug	Perform a spark plug service .



<i>Fuel system blockage</i>	Clean fuel lines / fuel filter / carburettor / fuel injector.
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Engine overheats.

Possible Fault	Action
<i>Engine oil level low</i>	Fill the crankcase with the correct engine oil type to the "MAX" indicator or just under.



<i>Dirty air cleaner</i>	Perform an air filter service .
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Wheel locks not operating.

Possible Fault	Action
<i>Cable requires adjustment</i>	Check and adjust locking pin cable as required .

Specifications

Engine Type	4-stroke, single cylinder
Fuel Type	Non-ethanol unleaded 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" \pm 0.001") Exhaust: 0.2mm \pm 0.02mm (0.008" \pm 0.001")
Engine Oil Type	SAE 10W-30 automotive engine oil recommended for general use
Engine Oil Capacity	Approximately 0.5l (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](#)).

Date	Hours Use	Maintenance Task / Notes



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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