



Petrol-Powered High-Pressure Cleaner - TX870

User Manual

[Revision 1.0 December 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 [Checking and Changing 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 important that you read and understand the instruction manual before use and keep the manual in a safe place for future reference. Safety information presented here is generic in nature – some advice may not be applicable to every piece of equipment.</p> <p>All safety precautions must be observed to reduce the risk of personal injury when operating the equipment.</p> <p>The term "equipment" refers to your product, be it electrical mains, battery or petrol engine powered.</p> <p>IMPORTANT – Handle the equipment safely and carefully.</p> <p>BEFORE USE - If you are not familiar with the safe operation/handling of this equipment, or are in any way unsure of any aspect of suitability or correct use it for your application, you should complete training conducted by a person or organization qualified in safe use and operation of this equipment, including fuel/electrical handling and safety.</p> <p>WARNINGS</p> <ul style="list-style-type: none"> Read all safety warnings and all instructions. Failure to follow warnings and instructions may result in electric shock, fire and/or serious injury. Never run a combustion engine in confined areas. Do not operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. Engine and equipment may create sparks or heat that may ignite vapours, dust etc Keep clear of moving parts. This equipment may be a potential source of electric shock if misused. Do not operate the equipment if it is damaged, malfunctioning or is in an excessively worn state. Do not allow others to use the equipment unless they have read this manual and are adequately trained. When using the equipment, basic safety precautions detailed here must always be followed to reduce the risk of fire, electric shock, personal injury and material damage. When wiring electrically powered equipment, follow all electrical and safety codes. Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting equipment. 	<p>General Work Area Safety</p> <p>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.</p> <p>Personal Safety</p> <p>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> <p>Prevent unintentional starting of the equipment - ensure equipment and power source switches are in the OFF position before connecting or moving the equipment. Do not carry equipment with hands/fingers touching any controls.</p> <p>Remove any tools or other items that are not a part of the equipment from it before starting or switching on.</p> <p>Stay alert and use common sense when operating equipment. Do not overreach. Keep proper footing and balance at all times. Do not use equipment when tired or under the influence of drugs, alcohol or medication. This equipment is not intended for use by persons with reduced physical, sensory or mental capabilities.</p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. Always wear eye protection. Protective equipment such as respirators, non-skid safety shoes, hard hat, hearing protection etc should be used for appropriate conditions. Other people nearby should also wear appropriate personal protective equipment. Do not wear loose clothing or jewellery, which can be caught in moving parts. Keep hair and clothing away from the equipment.</p> <p>If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.</p> <p>General</p> <p>Do not force the equipment. Use the correct equipment for your application. The correct equipment will perform better and be safer within its design parameters. Do not use the equipment if the ON/OFF switch malfunctions – any equipment that cannot be controlled with the ON/OFF switch is dangerous and must be repaired.</p>	<p>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.</p> <p>Before use, inspect the equipment for misalignment or binding of moving parts, loose components, damage or any other condition that may affect its operation. If damaged, have the equipment repaired by an authorized service centre or technician before use.</p> <p>Always keep the equipment and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment, controls and handles dry and free from dirt, oil and grease.</p> <p>Store the equipment out of reach of children or untrained persons. To avoid burns or fire hazards, let the equipment cool completely before transporting or storing. Never place the equipment in places where there are flammable materials, combustible gases or combustible liquids etc.</p> <p>The equipment is not weatherproof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or very humid.</p> <p>Pressure Washer Use and Care</p> <ul style="list-style-type: none"> The pressure washer creates very high pressures that can puncture skin, cause severe injury and/or poison blood. Do not direct the high-pressure spray at any person, animal, electrical equipment, equipment or items that can be damaged by high-pressure water spray or the machine itself. Use only hoses, fittings and couplings supplied or recommended by the manufacturer. Do not allow any persons, animals etc to be within 20m (60') of the equipment when in use. Do not operate the pump without a liquid source to draw in. Maintain the machine and hoses in good operating condition. Operate the equipment on solid, level surfaces only. Do not hold or suspend the equipment by hoses or other unstable means. 			

General Fuel Safety	General Service Information
 <p>Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources.</p> <ul style="list-style-type: none"> Do not spill fuel. If you spill fuel, wipe it from equipment immediately – if fuel gets on your clothing, change them immediately Do not smoke near fuel. 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. 	<ul style="list-style-type: none"> Have the equipment serviced or repaired at authorized service centres by qualified personnel only. Replacement parts must be original equipment manufacturer (OEM) to help ensure that equipment safety is maintained. Do not attempt any maintenance or repair work not described in this instruction manual. After use, the equipment and components may still be hot – allow the equipment to cool and disconnect spark plugs and/or electrical power sources and/or batteries from it before making adjustments, changing accessories or performing repair or maintenance. Do not make adjustments while the equipment is running. Perform all service related activities under suitable conditions, such as a workshop etc. Replace any worn, damaged or missing warning labels immediately. Do not clean equipment with solvents, flammable liquids or harsh abrasives.

DANGER

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



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

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

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

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

Never smoke while refuelling combustion engines or handling flammable substances.

For generators, the electrical output is potentially lethal and must only be connected to a fixed electrical installation by an appropriately licensed person.

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

Handle any flammable substance with extreme caution.

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Parts Identification and Assembly

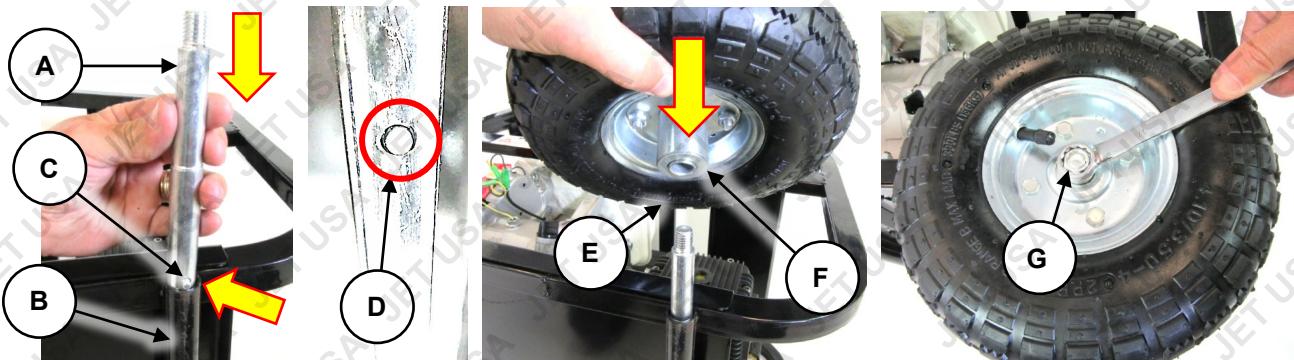
Pressure washers are supplied with minimal assembly required. Assembly is generally restricted to parts of the machine frame (handle, wheels etc) and plumbing (hoses, fittings, lance, drum etc).



No.	Name	No.	Name
1	Frame / Engine / Pump Assembly	10	Fasteners / Fittings / Tools: Wheel Axle (4) M12 Nut (4) Pump Vent Cap / Dipstick Barbed Inlet Connector "Turbo" Nozzle Adaptor (may come pre-assembled) Spark Plug Tool
2	Wheel (4)		
3	Lance		
4	Lance Extension		
5	Lance / Hose Bracket		
6	"Turbo" Nozzle (may be included, and adaptor may be pre-assembled)		
7	Pump Outlet Hose		
8	Pump Inlet Hose (includes strainer)		
9	Detergent Tube (includes strainer)		

Assembly

1. Insert the wheel axles (A) into the tubes (B) on the underside rear of the machine frame. Press the spring-loaded pin (C) in to insert the axle and ensure that it "pops" through the hole in the tube (D).
2. Place a wheel (E) onto each axle, with the long hub (F) toward the frame. Secure each wheel with a M12 nut (G) and tighten (rotate right) with a suitable spanner.



3. Attach the lance / hose bracket (H) to the top right-hand side of the machine frame by inserting the legs of the bracket through the holes in the frame and securing using 2 nuts (not shown). Tighten (rotate right) the nuts using a suitable spanner.



The machine is now basically assembled. Refer to [Pumps, Hoses and Fittings](#) for hose assembly information.

Pumps, Hoses and Fittings

The machine comes supplied with pump and components necessary for normal use. Some machines may include extra or optional lance attachments, nozzles, extension hoses etc. The basic methods for connecting hoses and using various fittings remains the same. Some information below may or may not apply explicitly to your machine.

Pumps



The pump output pressure is set at the factory. There is no need to alter the output pressure adjustment valve unless the pump includes a specific adjuster. **Altering the output pressure may damage the machine and void the product warranty.**

Non-Sealed

The pumps are manufactured in a way that requires normal pump maintenance. The pumps are usually oil-filled during production, require a breather cap, pump oil changes and have an oil sight glass and/or dipstick, oil drain and oil filler.



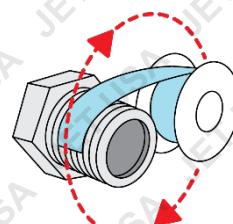
No.	Name	No.	Name
1	Pump Inlet	5	Oil Level Sight Glass
2	Pump Outlet	6	Oil Drain Plug
3	Detergent Port	7	Output Pressure Valve – limited adjustment
4	Oil Filler / Breather Cap		

Hoses and Fittings

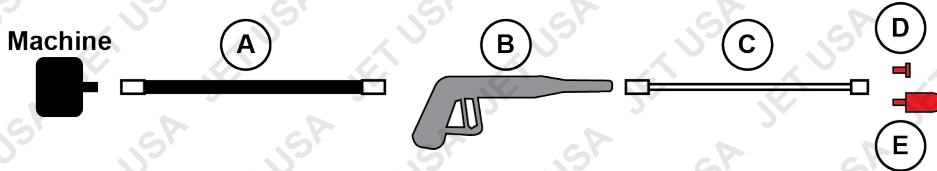
The machine comes with necessary hoses and fittings. The length, number of hoses and nozzles or accessories may vary depending on model. Some parts, such as the "turbo head" may come pre-assembled.



It is recommended to use plumbers Teflon tape (not supplied) on all threaded hose connections. To apply the tape, wrap it around the male thread of the fitting several times – 5 wraps is generally sufficient. When wrapping, rotate the tape to the right (clockwise) around the thread so it does not get unravelled when screwing the connection in. • The thread type on some connectors may vary slightly – always check the compatibility of the connectors before applying plumbers tape and making the final connection. • Always tighten connections using suitable spanners (where applicable) and ensure that the connections are secure.



The possible fittings are shown below. Not all models will come with all fittings.



Item	Description
A	Standard Hose
B	Lance
C	Lance Extension
D	Nozzle
E	"Turbo Head"

Item	Description
F	Extension Hose
G	Type B Fitting
H	Type A Fitting
I	Type C Fitting
J	Type D "Drain Cleaner" Fitting

Turbo-Head Assembly

If the "turbo head" and turbo-head is not assembled, 1) wrap the threaded part of the turbo-head adaptor fitting with plumbers Teflon tape (not supplied), then 2) screw the adaptor into the turbo-head, then 3) use an Allen key through the adaptor to tighten it firmly to the turbo-head.



"Quick-Connect" Type Connectors

1. Ensure the connectors are clean.
2. Pull back on the knurled ring until the ball bearings are visible and hold it in this position, then insert the male connector into the female. When the parts are fully connected, release the knurled ring.



Nozzles

The machine may come supplied with a variety of nozzles. Each nozzle is colour-coded for identification and produces a different spray pattern for different tasks. Nozzle colours may vary – check each before use.

- **Red** – 0° spread. Highest possible pressure for difficult cleaning tasks including stained concrete and paint removal. Not recommended for soft materials, decking or automotive.
- **Yellow** – 15° spread. Very high pressure for heavy cleaning tasks including, concrete, decking and paint removal. Not recommended for soft materials or automotive.
- **Green** – 25° spread. High pressure for general cleaning tasks including automotive.



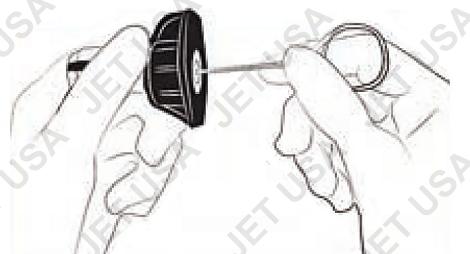
- **White** – 40° spread. Moderate pressure for general cleaning larger surfaces.
- **Black** – 65° spread. Low pressure for general cleaning larger surfaces and when using detergent.
- **"Turbo-Head"** – High pressure cleaning larger surfaces. The design of the turbo-head provides a "swirling" action to the spray that makes it a versatile general-purpose cleaning nozzle.

Nozzle Cleaning



Do NOT clean a nozzle whilst it is attached to the machine. Ensure that the engine is OFF and the water supply is OFF before detaching a nozzle. • Use caution when cleaning a nozzle to prevent damaging the nozzle orifice.

The machine may come with a nozzle cleaning wire which can be used if a nozzle becomes blocked. Remove the nozzle from the machine and carefully insert the end of the wire into the nozzle hole to clear it.



Detergent System



Do NOT use chlorine, bleach, tri-sodium phosphate, ammonia, acid-based, caustic, or corrosive substances in the detergent system as these will damage the machine and may damage the surface being cleaned. Use liquid car wash or similar mild detergents only. **Use of non-recommended substances in the detergent system will void the product warranty.** • The use of detergent requires the correct low-pressure nozzle to be used.

Detergent port on the pump, however, require a separate container (not supplied) for the detergent. The "vacuum" created by water flow through the pump enables the detergent to be drawn into the outlet flow.

Engines – Parts Identification

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



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



No.	Name	No.	Name
1	Exhaust	7	Oil Filler/Dipstick (some models have 2)
2	Fuel Tank (fuel filler on top)	8	Oil Drain Plug (some models have 2)
3	Air Intake Assembly (filter inside)	9	Engine ON/OFF Switch
4	Choke	10	Starter Cord
5	Throttle	11	Spark plug (not visible)
6	Fuel Tap	12	Output Shaft (pump removed)

Before Use Checklist



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

Engine Oil

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

Always check the engine oil level before starting the engine. See [Checking and Changing Engine Oil](#).

Air Filter

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

Always check the air filter before starting the engine. See [Checking, Cleaning and Replacing the Air Filter](#).

Fuel



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

Adequately fill the fuel tank with the correct fuel type.

- Use non-ethanol unleaded 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 in an upright position 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.

Pump Oil – Non-Sealed Pumps Only

Water pumps require oil for lubrication of internal components. Severe or irreparable damage may occur if the pump is used without oil. The pump oil for non-sealed pumps requires regular maintenance, however, does come shipped with oil. Check the oil level and ensure that it is at or just under the maximum level indicator.

Always check the pump oil level before starting the engine. See [Checking and Changing Pump Oil](#).

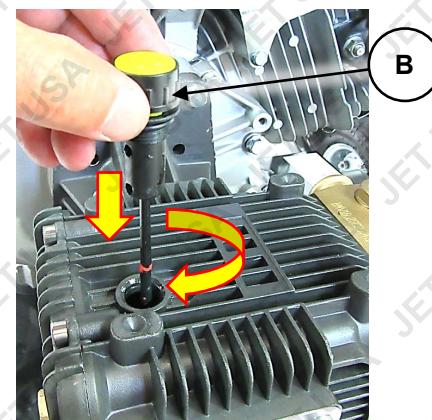
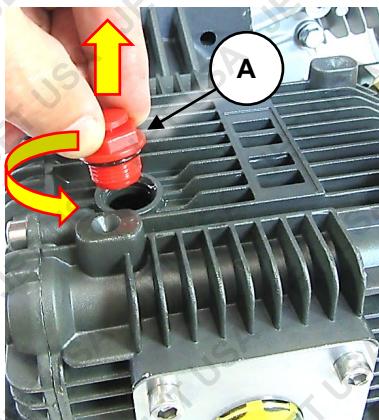
Pump Breather – Non-Sealed Pumps Only



Do NOT operate the machine until the shipping plug has been removed and the vent / breather cap is installed. **Failure to do so may result in machine damage and will void product warranty.**

For pumps that are not a "sealed unit" type there is a shipping plug on the pump that is used to prevent pump oil (pre-filled at the factory) leaking during shipping. The shipping plug MUST be removed and swapped for the vent / breather cap before using the machine.

1. Place the machine in an upright position on a flat and level surface.
2. Clean the machine around the shipping plug (A) so that no dirt or other material enters the pump when the cap is removed.
3. Remove (rotate left) the shipping plug.
4. Ensure that the vent / breather cap is clean.
5. Insert the vent / breather cap (B) to the pump and firmly tighten (rotate right) by hand.



Connecting High-Pressure Hoses



Use the high-pressure hoses and connectors / fittings supplied with the unit ONLY. •
Ensure that all hoses and connectors / fittings are correctly installed and secure.

1. Assemble the high-pressure hoses, lance and fittings into the required configuration.
2. Attach a nozzle to the end of the lance extension.
3. This models has a "quick-connect" fitting.



Connecting the Water Supply

The machine must be connected to a water supply that can deliver sufficient water for pumping. Most domestic applications will use a standard garden hose connected to the mains water supply. In cases where no mains or gravity fed water supply is available, the machine can draw water from a suitable reservoir using the supplied inlet hose and strainer.



When using a garden hose and mains water supply, it is recommended to run water through the hose first to flush out any debris BEFORE connecting it to the pump inlet. • Do NOT use hot water or water at temperatures above 40°C (104°F) as damage to the pump may result. **Using hot water in the machine may void the product warranty.**

Mains Water Supply

1. Connect a standard garden hose to the water supply and the pump inlet connector. Ensure that the connections are secure.
2. Turn ON the water supply.
3. Squeeze the trigger on the lance. When a steady stream of water is flowing from the nozzle, the machine is ready to be used.



Using the Machine to Draw Water



The maximum length of the inlet hose is 5m (15'). Do NOT exceed this limit. • Do NOT use the inlet hose without the strainer attached. • Do NOT allow the strainer end of the inlet hose to rest at the bottom of the reservoir as it may allow contaminants into the pump. • When running the engine to suck water into the pump, do NOT allow it to run for more than 60 seconds. • The pump suction procedure will require repeating if the machine is switched OFF and / or air gets into the inlet hose. **Running the pump "dry" for longer than 60 seconds may permanently damage it and will void the product warranty.**

1. Connect the supplied inlet hose to the pump inlet connector.
2. Place the free end of the inlet hose into the water reservoir.
3. Start the machine engine and run it at approximately half throttle. The pump will begin sucking in water.
4. Squeeze the trigger on the lance. When a steady stream of water is flowing from the nozzle, the machine is ready to be used.

Engine Starting

Video Tutorial:
[Starting 4-Stroke Engines](#)



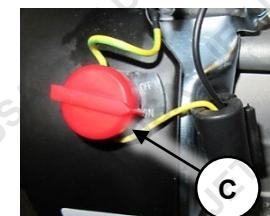
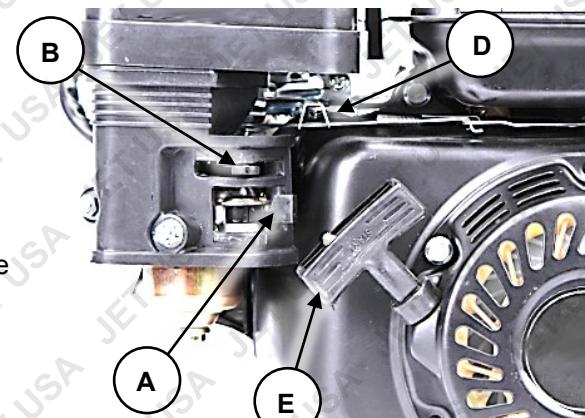
Before starting the engine, ensure that you have followed all procedures described in the [Before Use Checklist](#). The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use – see [Checking and Changing Engine Oil](#). **Failure to add engine oil will void the product warranty.** • Always wear suitable protective clothing and equipment when using the machine. • Inspect the machine before each use and check for wear or damage. If the machine is damaged, have it inspected and repaired at an authorized service centre before using it again.

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

Manual/Pull Starting

1. **FUEL** – Place the fuel tap (A) in the "ON" position.
2. **CHOKE** – If the engine is cold, place the choke (B) in the "COLD" or "CLOSED" position. If the engine is warm or the ambient temperature is high, place the choke in the "RUN" or "OPEN" position.
3. **IGNITION** – Place the engine ON/OFF switch (C) in the "ON" ("I") position.
4. **THROTTLE** – Place the throttle control (D) just off the "SLOW" position.
5. **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.
6. **WARM-UP** – Allow the engine to warm-up and run smoothly. If choke is being applied, place the choke (B) in the "RUN" or "OPEN" position.
7. **THROTTLE** – Adjust the throttle control (D) for the required engine speed and pumping requirements.

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



Stopping the Engine

Stopping in an Emergency

1. To stop the engine immediately, place the engine ON/OFF switch in the "OFF" position.

Stopping in Normal Use

1. Place the throttle control in the "SLOW" position.
2. Place the engine ON/OFF switch or key switch in the "OFF" position.
3. Place the fuel tap in the "OFF" position.

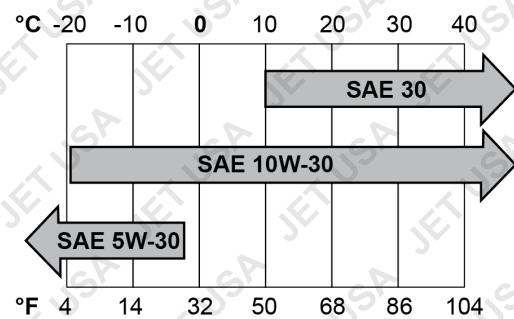
Environmental Considerations

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

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 following chart to determine the correct engine oil:



Pressure Washer Operation



Use the high-pressure hoses and connectors / fittings supplied with the unit ONLY. • Ensure that all hoses and connectors / fittings are correctly installed and secure. • Always hold the lance with both hands to avoid recoil. • Do NOT use the machine whilst standing on a ladder. • Water may flow from the pump pressure release valve (if fitted) when the engine is running but the spray action of the machine is not being used – this is to protect the pump and is normal. • If the engine is running but the spray action of the machine is not to be used for more than 2 minutes, switch the engine OFF. **Leaving the machine running without spraying for extended periods may damage the pump and / or other components and will void the product warranty.** • Highest effective water pressure occurs when the lance trigger is first pulled. The pressure washer creates very high pressures that can puncture skin, cause severe injury and/or poison blood. Do not direct the high-pressure spray at any person, animal, electrical equipment, equipment or items that can be damaged by high-pressure water spray or the machine itself. • Do not allow any persons, animals etc to be within 20m (60') of the equipment when in use. • Do not operate the machine without a liquid source to draw in.

Be aware that once the engine is running, the pumping action of the machine activates. When the engine is idling (slowest continuous running speed), the output water pressure is minimal. As you increase engine speed (use the engine throttle control), the water pressure increases. Note the following recommendations:

- Operate the engine at a sufficient speed to provide the desired output pressure.
- Use the correct nozzle for the job. Nozzles that concentrate the water jet into a small area can gouge and damage some surface materials.
- Before commencing the job, pressure clean a small test area to ensure that the surface will not be damaged and the machine will clean the surface adequately.
- Uncoil the high-pressure hose(s) fully before using the machine.
- Use a sweeping and overlapping pattern to help ensure effective cleaning and coverage.
- When cleaning using detergents, always rinse off any residues afterward.

1. Assemble the high-pressure hoses, lance and fittings into the required configuration.
2. Attach a nozzle to the end of the lance extension.
3. Connect the high-pressure hose to the pump outlet connector.
4. Connect the machine to the water supply and turn the water supply ON.
5. Squeeze the lance trigger and allow any air in the hoses and pump to be ejected by the water supply pressure. The water should flow freely before starting the engine.
6. Start the engine.

Using the Lance

The lance has a "trigger" (A) to start and stop spraying. The lance may feature a "lock" (B) that prevents the trigger accidentally being pulled. To spray, release the lock (if fitted or engaged) and pull the trigger – the spray action will continue while the trigger remains pulled. Release the trigger to stop the spray action.



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. • Ensure that the water supply is OFF and disconnected from the machine and that all pressure has been released before performing any maintenance tasks. • Some maintenance activities described may be beyond the scope of some users. For procedures that you are not comfortable with or have the tools or experience for, have the unit serviced by a service centre or qualified technician. • There may be slight variations between models to the images shown and the procedures described here. • Harsh operating environments such as extreme temperatures, dust etc may necessitate more frequent maintenance. • Maintenance frequencies are based on general factors including a maximum use of approximately 300 hours per year. Apply common-sense when following the maintenance schedule based on your actual use of the product. • Keep reasonable records of maintenance activities for reference.

Failure to follow the maintenance schedule, using incorrect or non-compatible accessories or replacements parts, or general negligence may result in making the product warranty void.

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

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

Maintenance Schedule

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

Checking and Changing Engine Oil

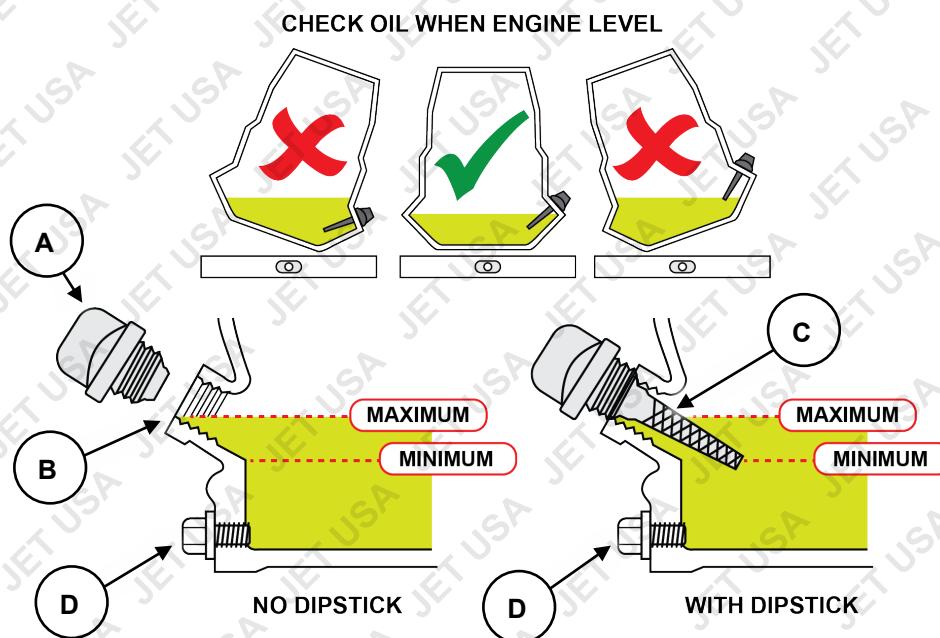


The product is NOT supplied with engine oil, although traces of oil from the manufacturing process may be present. It is essential to add adequate engine oil of the correct type to the engine before use. **Failure to add engine oil will void the product warranty.** • Always check engine oil level when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

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

To check engine oil level:

1. Place the machine in an upright position on a flat and level surface.
2. Clean the machine around the oil filler cap (A) so that no dirt or other material enters the engine when the cap is removed.
3. Remove the oil filler cap (rotate left) until fully unscrewed. For machines without a dipstick, the oil level is determined by how close the oil is to the edge of the filler hole (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.

Checking, Cleaning or Replacing the Air Filter



Operating the machine without a functional air filter may cause severe engine damage and will void any warranty. • A dirty or oil saturated air filter will restrict air flow, which can be mistaken as fuel system problems. Check the condition of the air filter before adjusting engine idle speed, where applicable. • If the air filter is damaged (torn, broken, disintegrating), replace it.

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

Air Filter Inspection and Cleaning

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

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

Air Filter Removal/Installation

To remove the air filter:

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



To install the air filter:

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

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.

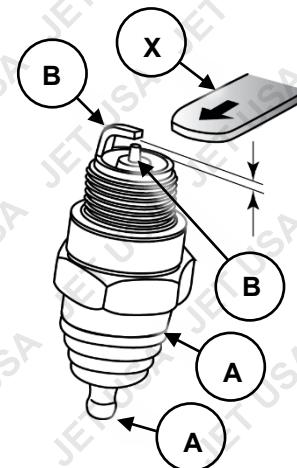
Spark Plug Cleaning and Gap Checking

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.



Spark Plug Removal/Installation

1. Pull the electrical lead (B) from the terminal on top of the spark plug (A).
2. 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

Checking and Changing Pump Oil – Non-Sealed Pumps Only

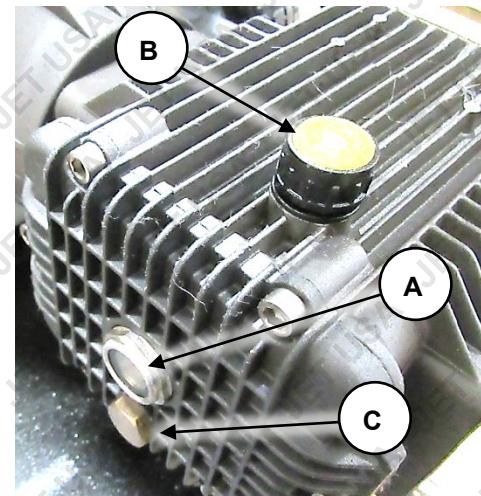


For machine that have unsealed pumps, it is necessary to maintain the pump oil. Sealed pumps do not feature oil drains and fillers. **Any attempt to service or alter a sealed pump may damage it and void product warranty.** • Suitable pump oils are 80W-90 / 85W-90 / SAE 90. **Using dirty or incorrect oil in the pump may damage it and void product warranty.** • Always use suitable tools. • Always dispose of used oil in an environmentally responsible manner and according to regulations. • **Always check the oil level and ensure is at or near the "MAX" indicator before using the machine.** • Some models may have 2 oil level sight glasses – it does not matter which one is used

Water pumps require oil for lubrication of internal components. Severe or irreparable damage may occur if the pump is used without oil. The pump oil for non-sealed pumps requires regular maintenance. The pump oil requires regular maintenance as per the maintenance schedule.

To check pump oil level:

1. Place the machine in an upright position on a flat and level surface.
2. View the current pump oil level through the oil sight glass (A). Do not use the dipstick for checking oil level as the function is more as a filler and breather cap than oil level gauge. The centre of the sight glass is the indicator – the oil level should be near the centre of the sight glass.
3. Ensure that the oil level is at or just under the "maximum". If the oil level is low, add additional oil through the filler until the correct level is reached - clean the machine around the oil filler cap (B) so that no dirt or other material enters the pump when the cap is removed, then remove the oil filler cap (rotate left) until fully unscrewed. If the oil level is too high, drain some oil until the correct level is reached.
4. When finished, re-install (rotate right) the oil filler cap until firm. Wipe off any residual oil from the machine.



To change the pump 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 (C) and oil filler cap/dipstick so that no dirt or other material enters the pump 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 pump. Once drained, allow the machine to sit level again.
5. Clean the drain plug and washer and then re-install them. Screw in fully (rotate right) and firmly tighten.
6. Remove the oil filler cap (rotate left) until fully unscrewed.
7. Using a funnel, carefully add oil to the pump until the "maximum" level is reached. Double- check the oil level (described above).
8. When finished, re-install (rotate right) the oil filler cap until firm. Wipe off any residual oil from the machine.

Checking, Cleaning or Replacing the Fuel Strainer



Some machines may be fitted with fuel strainers, installed in the fuel tank filler opening. 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.

Fuel Strainer 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.

Fuel Strainer Removal/Installation

To remove the fuel strainer:

1. Place the machine in a horizontal position with the fuel filler cap facing up on a flat and level surface.
2. Remove the fuel tank cap (A) (rotate left).
3. Pull the strainer (B) from the tank filler opening.

To install the fuel strainer:

1. Place the fuel strainer into the fuel tank filler opening. If any other parts are used in the fuel tank filler opening, ensure that they are installed correctly.
2. Re-install the fuel tank cap.



Transportation and Storage



Always ensure that the machine is cool enough to touch before transporting or storing. • Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources. • Always transport the machine with the fuel tap and engine ON/OFF switch in the "OFF" position. • Ensure that the water supply is OFF and disconnected from the machine and that all pressure has been released and drain the fuel tank before transportation or storage.

Preparing for Transport and Storage

- Drain the fuel system by allowing the engine to run until it stops.
- Ensure the fuel tap, engine ON/OFF switch (or key switch, if applicable) are in the "OFF" position.
- Ensure precautions are taken to prevent damage to the surrounding environment in the event that any oil, fuel, or detergent leaks from the unit.
- 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 30ml of clean engine oil into the cylinder. Pull the starter rope slowly to distribute the oil. Re-install the spark plug.
- Cover the equipment to protect it.

Troubleshooting



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

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

Difficulty starting the engine.

Possible Fault	Action
Lack of fuel	Check that there is fuel in the tank and the fuel tap is in the "ON" position. • To further check if fuel is reaching the carburettor, remove the carburettor drain plug and check if fuel drains.
Engine "OFF"	Ensure engine ON/OFF switch is in the "ON" position.
Water pressure build-up in pump	Squeeze and hold lance trigger until the water pressure is relieved before starting the engine.
Carbon build-up on spark plug	Remove the spark plug and clean any carbon from the electrodes before re-installing it.
Spark plug faulty	Remove the spark plug, then reconnect the plug lead to it. Place fuel tap in the "OFF" position and the engine ON/OFF switch in "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.
Engine "flooded" with fuel	Place the choke in "HOT" or "RUN" position. Leave the ON/OFF switch in the "OFF" position. Pull the starter cord several times to assist clearing excess fuel from engine before attempting to start engine.
Not enough or too much engine oil	Check oil level and ensure that the level is at or just below the recommended maximum level.

Engine starts but does not idle.

Possible Fault	Action
Blocked air filter	Check and clean the air filter.
Idle speed requires adjustment	Adjust idle speed until engine runs smoothly and at a reasonable speed when idling.

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

Possible Fault	Action
No fuel or engine oil	Check fuel level and ensure adequate fuel is available. For some 4-stroke engines, an engine oil sensor will automatically switch off the engine or prevent starting if a low engine oil level is detected.
Overheating	Allow engine to cool before restarting. If possible, improve engine cooling, such as operating in lower temperatures or in shade etc.
Carbon build-up on spark plug	Remove the spark plug and clean any carbon from the electrodes before re-installing it.
Carburettor blocked	Clean the carburettor.

Reduced engine speed/power during use.

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

Water pressure low or irregular or operation rough / noisy.

Possible Fault	Action
Lack of water supply	Ensure inlet hoses connected correctly, are not blocked or kinked and that the water supply turned ON sufficiently. If using machine to draw water, ensure inlet strainer is not blocked or buried in mud etc. Ensure hose is not kinked or obstructed. Replace damaged hoses.
Water strainer obstruction	Clean strainers (if fitted).
Air leaks or damaged hose	Ensure all hoses are correctly connected, and that the connections are secure. Replace unserviceable seals, hoses and fittings etc.
Air in pump	Remove lance extension from lance. Start the machine. When the water flow from the lance is steady, air has been removed – stop engine, re-assemble lance then start engine.
Nozzle blocked or damaged	Unblock nozzle. If damaged, replace
Output pressure adjusted incorrectly	Have pump inspected and adjusted.
Pump or engine worn or damaged	Have machine inspected and repaired.

Cannot operate lance trigger.

Possible Fault	Action
Trigger in "locked" position	Release trigger safety lock.

Water in engine oil.

Possible Fault	Action
<i>Worn output shaft seal</i>	Have machine inspected and repaired.

Detergent system not operating.

Possible Fault	Action
<i>No detergent available or incorrect detergent</i>	Ensure sufficient detergent is available. Ensure detergent is of a suitable type. Ensure suction end of the detergent tube is submerged in detergent.
	
<i>Detergent flow insufficient</i>	Ensure detergent flow control (if applicable) is open sufficiently.
	
<i>Detergent tube not connected or faulty</i>	Ensure detergent tube is connected correctly at pump. Ensure tube is not, blocked, cracked or damaged. Ensure suction end of tube is submerged in detergent.
	
<i>Incorrect nozzle</i>	Ensure that nozzle is suited to detergent use (low pressure nozzles).
	
<i>Detergent tube strainer obstruction</i>	Clean or replace strainer (if fitted).

Specifications

Engine	20HP OHV 4-Stroke
Displacement	450cc
Output	20HP / 3600 rpm
Maximum Pressure	5000PSI (331Bar)
Continuous Pressure	3600PSI (24Bar)
Starting System	Recoil start
Fuel Tank Capacity	6.5 L
Fuel Type	Regular Unleaded 95 +RON
Pump Type	Full brass pump
Flow	14L/min
Pressure hose	20m Hydraulic Wire Braided
Oil Capacity	1.1 L
Max. water temperature	50°C
Pump Oil Type	80W-90 / SAE 90 / 85W-90
Engine Oil Type	10W-30 / 10W-40 / 15W-30 / 15W-40 non-synthetic engine oil (not included with purchase)

Please Note: Soap nozzle is to be used with premixed water/detergent and the self-suction hose

Service and Maintenance Record

Use the following tables as a record of machine servicing and maintenance. Keeping accurate records will help ensure better machine service life and may simplify fault diagnosis and any possible warranty claims. Place a tick in the required box for either clean or replace with the date, as required.

	✓	Date								
Replace Engine Oil										
Replace Spark Plug										
Replace Air Filter										
Replace Fuel Filter										
Replace Fuel Lines										
Clean Fuel Tank										
Check/Adjust Valve Clearance										
De-coke Combustion Chamber										
Replace Pump Oil										

	✓	Date								
Replace Engine Oil										
Replace Spark Plug										
Replace Air Filter										
Replace Fuel Filter										
Replace Fuel Lines										
Clean Fuel Tank										
Check/Adjust Valve Clearance										
De-coke Combustion Chamber										
Replace Pump Oil										



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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