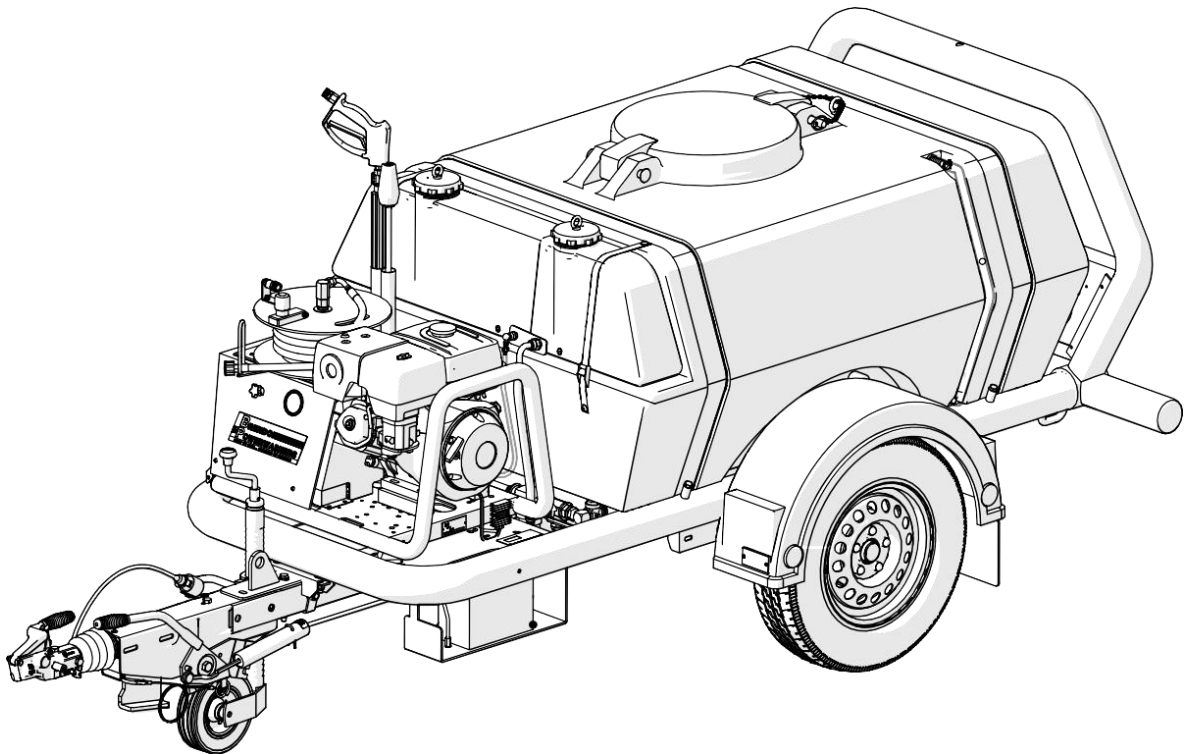




BBW35KPE (ES)

OPERATION MANUAL

BOWSERWASHER



(+44) 1984 624 500



SALES@POWERWASHERS.CO.UK



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EC Declaration of Conformity

Brendon Limited of Hillsmoor, off Sandysmoor, Taunton Road, Wiveliscombe,
Somerset, TA4 2TU, United Kingdom.

Declare that the machine described below complies with the relevant basic health and safety requirements of the EU Directives:

Equipment: Petrol Engine Driven High Pressure Bowserwasher Unit

Model: BBW35KPE (+ES)

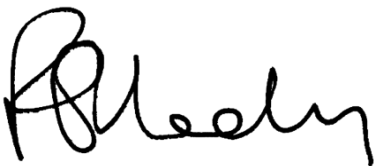
Serial No:

Trailer Vin No:

In accordance with the following Relevant EU Directives:

2007/46/E	WVTA Whole Vehicle Type Approval.
2006/42/EC	The Machinery Directive.
2000/14/EC	The Low Noise Directive.
2014/30/EU	The Electromagnetic Compatibility Directive.

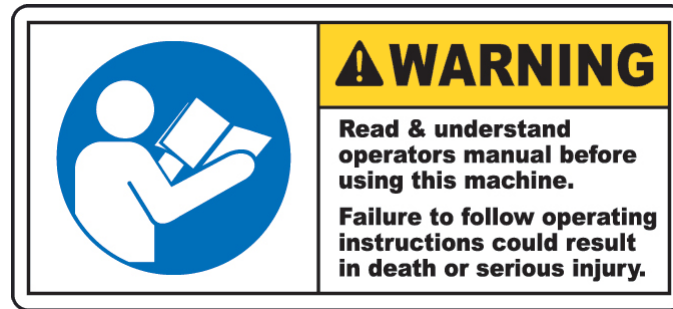
Signed by:



Mr. R J Hendy - Technical Director

Important safety statement

Operating this machine and/or its attachments with due care and diligence is the best assurance against an accident. It is essential that all operators, no matter their experience, **READ** and **UNDERSTAND** this manual, related manuals and updates* prior to operating this machine and/or its attachments.



**Brendon Powerwashers recommend that you check regularly for updates via our website (www.powerwashers.co.uk) in the "My Brendon" section under "Parts & Training"*

Be safe!

The industry standard symbol for **Safety Alert** is used throughout this manual, related manuals and updates* and on the machine and attachments to warn the risk of personal injury. The operators **must** read and understand these safety warnings and instructions prior to use of the machine and its attachments.



DANGER: High risk of DEATH or serious injury.



WARNING: Possible risk of DEATH or serious injury.



CAUTION: Possible risk of injury.



IMPORTANT: Likelihood of damage to property or equipment.



TIP: Useful information or procedure.

Other safety warning and icons are used throughout this manual. A key covering the range of Brendon Ltd. Machines can be found in the appendix of this manual.

**Brendon Powerwashers recommend that you check regularly for updates via our website (www.powerwashers.co.uk in the "My Brendon" section under "Parts & Training")*

Introduction

Thank you for purchasing a **Brendon BBW35KPE (+ES)** 3000psi Bowserwasher. The purpose of this manual is to show you how to safely operate and maintain this machine. It cannot be overstressed that the life of any machine with moving parts is dictated to a degree by the following factors:

- **Length of Operation**
- **Regular Maintenance**
- **Operator Care**

Please read this manual fully before operating your machine. If you are unsure of any of the instructions contact us:

- **Email:** Spares@powerwashers.co.uk
- **Helpline Tel.** 01984 624500.



All manuals must be stored in a safe place for later use or subsequent owners.

Please check that your machine has been delivered in good condition and is complete with any extras you have ordered. (See Delivery Note)



TIP: This manual is available for download on our website: **www.powerwashers.co.uk**

Unpacking instructions

This Brendon machine and its attachments are delivered ready to use, please take care when unpacking to make sure all items have been sent (refer to the delivery note). If you find anything is missing or any damages, please contact us within 3 working days of delivery.



IMPORTANT: Please make a visual check of your machine for any transit damage. If any damage is found, please advise us **immediately**.



IMPORTANT: This machine has been filled with the necessary lubricants. It is the operator's responsibility to check the lubricant levels prior to starting and using this machine.



IMPORTANT: This machine is supplied with all its attachments such as hoses and filters. It is the operator's responsibility to check the connections prior to starting and using this machine.



DANGER: Plastic bags can cause suffocation, dispose of immediately.
KEEP OUT OF REACH OF CHILDREN!



TIP: Refer to the **Pre-use safety checks** found in the appendix of this manual prior to starting or using this machine.



RECYCLE: Brendon limited use 100% recyclable packaging for their machines, please separate and recycle accordingly.



Polythene shrink wrap (check with your local waste authority)



Cardboard boxes



Wooden pallet

Warranty conditions

We, **Brendon Ltd**, undertake that if within twelve months of the date of delivery this **BRENDON** product or any part thereof is proved to be defective by reason only of faulty workmanship or materials, the company will at its option, repair or replace the same **FREE OF CHARGE** for labour, materials or carriage on the condition that:

- A) The machine has been correctly installed and used in accordance with the supplied instructions/operation manual**
- B) The machine has been serviced by a competent person as per the Brendon and engine manufacturer's instructions**
- C) The machine is still in the possession of the original purchaser**



NOTE: To make a claim please call the Brendon Help-line on **+44 (0)1984 624500** or email Spares@powerwashers.co.uk

This Warranty is void if:

1. The machine is used with a damaged or without the "Brendon Suction Strainer"
2. The machine is used with dirty or contaminated fluid
3. The engine throttle screw is tampered with causing the engine and pump to run too fast
4. The engine has been used with dirty or contaminated fuel
5. The machine is used with chemicals / accessories / parts not approved by Brendon Ltd.
6. The machine has been adapted or technically altered without prior written authorisation from the Brendon Ltd. Technical Department
7. The machine has been obviously mistreated or has had no basic maintenance

Product description

The **Brendon BBW35KPE (+ES)** is a Petrol driven High-Pressure Powerwasher unit designed to pump stable fluids up to a working pressure of 240Bar / 3500 Psi with flow rates up to 16 Lpm / 3.5 Gpm allowing up to 90 minutes of continuous cleaning time.

Typical applications:

- Rental Industry
- Plant & Machinery
- Landscaping
- Factories
- Agricultural
- Facilities Management
- Concrete Cleaning



IMPORTANT: The machine **must not** be modified in any way without the written consent of Brendon Ltd.



IMPORTANT: Any unauthorised modifications will void any warranty and liability.



DANGER: Any unauthorised modifications increases risk of hazards that may cause death or serious injury.

Specifications

Powerwasher Model	BBW35KPE (+ES)
Skid / Chassis Construction	Mild steel tubular chassis with a powder-coat finish
Engine	Honda GX390
Pump	Brendon CAT45F
Pump Oil	Hydraulic Grade 68
Belt Size (X3)	VBTP25 (SPZ670)
Pump Speed	1600 RPM
Unloader	PUV25 (250BAR)
Safety Valve	TSV100
Maximum Operating Pressure	240 BAR / 3500 PSI
Maximum Flow	15 LPM / 3.5 GPM
Nozzle Size	NZ1504
Fuel Capacity	6.1 Litres
Fuel Type	Petrol
High Pressure Hose	15M 400 BAR 3/8" HP hose
Water Tank Capacity	940 Litres
Detergent Tank Capacity	28 Litres
Anti-Freeze Tank Capacity	15 Litres
Sound Power Level	103dB LwA
Sound Level At 1M	82dB(A)
Sound Level At 7M	74dB(A)
Hand Arm Vibration	Standard Nozzle: EAV <2.5m/s ² Turbo Nozzle: EAV >2.5m/s ²
Dry Weight	500KG
Dimensions (Lxwxh)	3450mm x 1510mm x 1350mm
Maximum Allowable Mass	1500KG MAM

Brendon Ltd. Reserve the right to alter specifications without notice

Safe operation & practices

Brendon Powerwashers endeavours to design and build Quality High Pressure Powerwashers, Special Application machines and Accessories. All are “***built to last***” but more importantly they are built with a high standard of safety. This high standard of safety is met by simply following the instructions, practices and paying attention to the safety information provided in this manual and on the machine itself.

Read the operators manual

It is essential that **all** operators, no matter their experience, **READ** and **UNDERSTAND** this manual, related manuals, updates and the safety labels on the machine prior to operating this machine and/or its attachments.

Keep this manual with the machine for operators and / or subsequent owners. If you lose this manual you can request a hard copy from our spares department - spares@powerwashers.co.uk or download a free copy from our website www.powerwashers.co.uk



IMPORTANT: *Brendon Powerwashers use a range of engines, motors, pumps and other components to build a machine. It is essential that all operators **read** and **understand** the accompanying manuals for those components / equipment prior to use.*

Stay updated

Brendon Powerwashers recommend that you check regularly for updates via our website (www.powerwashers.co.uk in the “My Brendon” section under “Parts & Training”)

Know the limits

Each machine is designed with an intended use such as cleaning with high pressure water. Using this machine not for its intended use or modifying this machine in anyway (unless approved by Brendon Ltd. in writing) could significantly increase the risk of serious injury to the operator, other personnel or damage the machine or property.



DANGER: Operating this machine not for its intended use puts the operator, other personnel at a high risk of death or serious injury.

Pre-use checks

Operators are required to carry out a pre-use safety check prior to each use of the machine. The pre-use check is procedure detailed in this manual (see contents) and the Pre-use safety check sheet can be found in the appendix.



TIP: Make copies of the Pre-use safety check sheet for the operators to fill out before each use. You can also download this sheet from our website.

Be aware of the hazards

Brendon Powerwashers design & manufacture a wide range of machines varying in the components built for a diversity of applications. It is important to be aware of the potential hazards when operating, servicing and transporting them, it is also to be noted of the potential hazards of the applications and environment they are being used in.

Follow the rules

Brendon Powerwashers has set out some simple industry standard “General Health & Safety rules & instructions” (see contents). Simply following these rules & instructions will reduce the risk of harm to the operators or other personnel, also reducing the risk of damage to the machine and increase longevity of its lifespan.

Take precautions

Brendon Powerwashers manufactures machines that are versatile, built to last and can vary in a range of applications and environments. Operators **must** pay close attention to the task in hand and the environment they are working in and take the appropriate precautions to prevent risk to themselves, other personnel and the machine itself. A list of precautions is detailed in this manual; however, it is the **operator’s responsibility** to ensure safe working practices and prepare the working area appropriately.

Protect yourself

Personal Protective Equipment (PPE)

Due to range of applications and environments the machines are used in, it is important that the operators wear the appropriate clothing and equipment to protect themselves from the elements and hazards when using the machine and/or its attachments.

Industry standard “Personal Protective Equipment (PPE)” requirements are stated in this manual (see contents), however it is the operator’s responsibility to ensure that they wear the appropriate PPE according to the equipment and conditions they are working in.



IMPORTANT: *Brendon Powerwashers have based their suggestions for PPE on the current industry standards. The operator must comply with their employers and/or hire company’s Health & Safety regulations for PPE.*

Hand & Arm Vibration Syndrome (HAVS)

Some applications such as using turbo nozzles and high pressure (5000psi /345Bar+) machines may result in a higher risk to Hand & Arm vibration syndrome (HAVS). The risk of HAVS can be reduced significantly by taking regular rest breaks during the working period.

Details of the magnitude of vibration and the recommended operator exposure times can be found in this manual (see contents).



IMPORTANT: *Brendon Powerwashers have based the suggested exposure times on the current recommendations from the HSE guidance (www.hse.gov.uk/vibration). The operator must comply with their employers and/or hire company’s Health & Safety regulations for HAVS.*

Risk of Legionnaires’ disease

Legionella is a bacterium that can be found in all water sources and in general has a low risk of causing Legionnaires’ disease. To reduce the risk to an absolute minimum we recommend using potable clean water and to drain the water from the tank daily. Keep the inside of the tank clean and prevent the build-up of any contaminants.



WARNING: Brendon Powerwashers recommends that only **potable water** is used to reduce the risk of legionnaires significantly.



IMPORTANT: Brendon Powerwashers recommends that water tanks including their BBW & MBW range to be drained daily and cleaned regularly to **significantly reduce** the risk of Legionella contamination.

Drugs, Alcohol & Illness

Operating this machine and/or its attachments requires the operator to be of sound mind and sound physical ability. Illness, tiredness, drugs and alcohol can hinder these abilities and therefore increase the risk of harm to persons and damage to property or the machine.



DANGER: Operating this machine while under the influence of drugs or alcohol puts the operator, other personnel at a high risk of death or serious injury.



DANGER: Operating this machine while under the influence of medicated drugs such as sedatives, illness or tiredness puts the operator, other personnel at a high risk of death or serious injury.

Fire prevention

Keep clean

Brendon Powerwashers recommends that this machine is thoroughly cleaned after each use to ensure that all flammable debris, particles and fluids are not present during the start-up procedure or operation. The machine also requires to be clear of debris during use to ensure good airflow during operation.

Safe handling of fuels, lubricants and chemicals

To reduce the risk of fire significantly fuels, lubricants and chemicals are to be transported in the correct containers. Do not smoke or expose flames or sparks to working area of the machine. Use and dispose of the correct spill kits.

Ventilation

Engine powered machines must be used outside or in well ventilated areas with a minimum distance of 3 metres from any wall or other plant equipment.



DANGER: Using an engine powered machine in an enclosed area causes a significant risk to inhalation of poisonous gasses which could cause death or serious injury.



DANGER: Operating this machine with hazardous chemicals in an enclosed area causes a significant risk to inhalation of poisonous gasses or vapours which could cause death or serious injury.

Maintenance

The longevity and the reliability regarding safety of this machine is increased significantly if it is maintained and serviced regularly.

This machines maintenance schedule can be found in the appendix. It is also recommended that **ANY** services or maintenance is recorded and kept with this machine for future reference.



IMPORTANT: Only trained / competent persons should service or repair this machine.



DANGER: The machine must be turned off and any pressure released from the system prior to any service or repair. Failure to do so could lead to the cause of death or serious injury.

Hazard types

There are a variety of **potential hazards** the operators need to be aware of during operation, transportation or services made to the machine. Listed below are some examples of hazards.



EXPLOSION: Keep Engines, motors and batteries well ventilated and cooled during operation.



FIRE: Keep machines clean and free from fuels, lubricants and flammable chemicals. Do not smoke or use machinery near sparks or flames.



CHEMICAL / IRRITANT HAZARD: Certain applications require the use of chemicals such as detergents which can be harmful to the operator, personnel and the environment. Only use Brendon approved chemicals or detergents. Refer to the COSHH certificates prior to use.



BURN CORROSION HAZARD: Batteries contain sulfuric acid which is a corrosive and can cause serious injury. Always wear Goggles and suitable gloves when working with batteries. If battery acid comes in to contact with eyes or skin, use large amounts of water to rinse and contact medical care immediately.



Serious Health Hazard: Severe conditions such as sub-zero temperatures or excessive exposure to heat and toxic materials.



Environmental hazard: The use of chemical or by-products produced when cleaning surfaces can have a serious impact on local environment conditions.



CRUSH: Ensure machines are secured and on suitable level ground. Check BBW trailer breaks regularly.



INHALATION OF GASES & VAPOURS: Use machines outside or in well ventilated areas. Do not block or close any means of ventilation if operating inside an enclosed area.



SEVER HAZARD: Be aware of moving parts when the machine is starting or during operation. Never remove safety guards from any part of the machine.



HOT SURFACE: Engines, motors, hot water and steam units have hot surfaces that can cause serious burns. Allow the machine to cool before attempting to service or repair.



ELECTRIC SHOCK: Disconnect from mains / or disconnect battery prior to service or repairing machine. Do not spray water directly onto the machine or any electrical connections.



TRIP HAZZARD: Always keep hoses and cables tidy. Make sure work areas are cleared from debris during operation.



SLIP HAZARD: High volumes of water and chemicals such as detergents will be present during use of a pressure washer. Wear suitable non-slip footwear during operation. Use correct spill kits and signage when fuels or lubricants are spilt.



HIGH PRESSURE WATER: High pressure water or spray can cause serious injury. Do not point at any persons or animals at any time. Check condition of lances, trigger, hoses, nozzles and connectors prior to use.



HOT WATER & STEAM: High pressure hot water or steam can cause serious injury. Do not point at persons or animals at any time. Check condition of lances, trigger, hoses and connectors prior to use.



FLYING OBJECTS: Debris and particles can rebound during the use of high pressure washers which can cause serious injury. Always wear suitable PPE such as goggles, gloves and safety boots.



ENVIRONMENT HAZARD: Prolonged exposure to conditions such as cold, wet and heat can lead to ill health. Always wear appropriate PPE for the environment you are working in. Take breaks if necessary. Keep hydrated.



NOISE: Machines can create loud noises which can be harmful to you if exposed to for long periods of time. Always wear appropriate ear protection during operation.



IMPORTANT: Operators must be competent to use the machine for its intended purpose. it is the operator's responsibility to assess the machines condition and the working environment for potential hazards that may harm them or other personnel.

General Health & Safety rules



WARNING: This machine has been designed and built to produce high pressure fluids which can cause serious injury!

Please adhere to the following rules / instructions to practice safe use of this machine.

	<u>Never</u> point the High pressure hose at any person, pet or animal - even if the machine is switched off.
	<u>Never</u> direct the spray on any electrical machinery.
	<u>Never</u> work from a ladder or rooftop.
	<u>Never</u> tamper with any of the settings on the unloader and safety valves.
	<u>Never</u> use without a safety shut off or with the gun trigger locked in the open position.
	<u>Never</u> use the machine indoors or in a confined space or in a flame proof zone.
	<u>Never</u> run the pump dry of fluid.
	<u>Never</u> run the pump without the belt / drive guards fitted.
	<u>Never</u> use the machine if it is damaged or been modified.
	<u>Always</u> wear the correct protective clothing (PPE).
	<u>Always</u> check that the high-pressure hose and all connections are in good service order before each use.
	<u>Always</u> make sure that the machine is on level ground. Serious engine and pump damage can occur due to lack of lubrication.
	<u>Always</u> release the residual pressure in the gun after use and when the gun is left unattended.
	<u>Always</u> clean up any fuel or lubricant spillages immediately to reduce risk fire or slips.
	<u>Always</u> keep the machine clean and serviced regularly.

Personal Protective Equipment (PPE)

Brendon Ltd. manufacture a range of Powerwashers, dust suppression units & other specialised commercial equipment. When operating or working in the vicinity of **ANY** of these machines it is crucial that the correct **PPE** is worn to help protect the operator and other personnel from injury or harm.

Below is a list of mandatory **PPE typically used** in the commercial industries. Some of these mandatory PPE icons are used throughout this manual advising the **minimal PPE relevant** for that task or procedure.



IMPORTANT: Operators must adhere to wearing the required PPE.

Brendon Ltd. recommends that the operators and personnel refer to their employers, or site **PPE** requirements prior to using a Brendon machine.

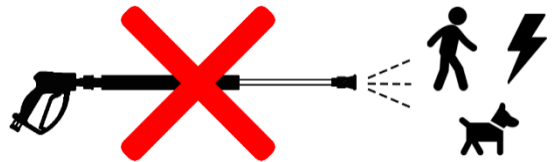
	Mandatory information		Wear respiratory protection
	Read operation manual		Wear ear protection
	Read service manual		Wear a face mask
	Wear a safety helmet		Wear safety gloves
	Wear appropriate safety clothing		Wear safety goggles
	Wear safety boots		Wear Hi-vis



Precautions

Typical precautions to take when using this machine are listed below, it is important for the operator to ensure these precautions are considered prior to starting and running this machine.

- Ensure surfaces are suitable for high pressure cleaning.
- Ensure any detergent or chemical used is approved by Brendon Powerwashers.
- Ensure detergent or chemical will not damage the surface to be cleaned.
- Keep the machine out of reach of children.
- **High pressure jets are dangerous** if used incorrectly. The jet must **not** be directed against persons or animals, electrical equipment or the machine itself.
- **Do not** operate the machine when persons and/or animals are within the reach of the jet.
- The operator must use the machine in **safe conditions** and situations avoiding any likelihood of potential danger to themselves and/or other persons.
- The **operator** will have to:
 - ⚠ Remember that the high pressure water jet generates a recoil reaction when the trigger is pulled.
 - ⚠ Avoid operating in unstable surface conditions.



- ⚠ Use adequate personal protective clothing (PPE)
- ⚠ Wear protective goggles and anti-slip rubber shoes
- ⚠ Avoid contaminating the environment with polluting, toxic or harmful substances.
- ⚠ Read and comply with the Health & Safety instructions.

Trailer Maintenance and Safety Precautions

- **Suspension:** The trailer is fitted with rubber suspension units, which require no maintenance as they are sealed for life.
- **Tyres:** The same laws apply to trailers as to vehicles - ensure there is enough tread to last through the next service. Any damaged tyres, with cuts or bulges, should be replaced. Check the tyre pressure on a weekly basis.
- **Tyres Fitted:** 185R14C 65 PSI / 4.5 bar.
- **Wheel Nuts:** The half-inch nut should be tightened to 90Nm (70lbs/ft.) Check after the first 300 miles or 300 miles after a wheel change.
- **Electrics:** Check plug for damage and corrosion, and the full operation of the lights. Check weekly that all bulbs are working.
- **Hitch:** The towing vehicle must be fitted with the right towing attachments at the correct height, and the towing jaws should be made to British Standards to prevent undue wear. There should be positive nose weight on the hitch not exceeding 100kg. The coupling should be greased using the nipples provided whenever necessary - at least every 3000 miles or once a year.
- **Drawtube:** Ensure the drawtube is not bent and there is not excessive wear of the front bearings. If this is more than 0.5mm, replacement is recommended.
- **Damper:** Check the working of the damper by pushing it fully through, whereupon it should return slowly by itself. If this is not the case, then either the damper has failed, or the drawtube is sticking due to excessive increases of dirt etc., or distortion. Remove the damper and compress to ascertain whether the damper or drawtube is the problem.
- **Bellows:** Check the bellows for splits and check the fastenings.
- **Brake Linkage:** Ensure the brake linkages and handbrake are free – lubricate where necessary.
- **Brakes:** Ensure all linkages are secure and nuts and split pins are in place where appropriate, making sure there is no binding through the transition system. Check the brake cables are not sticking or stretching. It is recommended these cables be changed every 12 months or 20,000 miles. Check the brakes shoes for wear. The minimum lining thickness for 200 x 50 brakes should be 1.5mm-2mm otherwise they will wear out before the next service. When replacing shoes check other moving parts within the drum for freedom of movement and wear. Adjust the brakes using the procedures described later.
- **Wheel Bearings:** After 2000km the wheel bearings should be checked for excessive play using the procedures described later.
- **Brake cables:** The brake cables currently fitted are of the detachable type. To change the cables, remove the clevis pin from the centre balance bar, slacken, and drop the cable end from the axle bracket. Remove the top of the cable entry shroud and lift out the cable. Fit in the reverse mode.
- **Bolts:** Check all bolts on the trailer are torqued to 90Nm. If replacing, ensure bolts are grade 8.8 (This does not apply to Powerwashers skid unit)

Bedding in of Brakes

Full braking performance will not be achieved until the brake linings have become bedded in (approximately 500km) and it is important that the system should be set up, again as described later. After this compensating for wear of the brake lining should only be made at the brake adjusters and not by tightening the linkages.

Changing Worn or Damaged Brake Cables

Changing brake cables on axles fitted with Knott or Lockheed brakes:

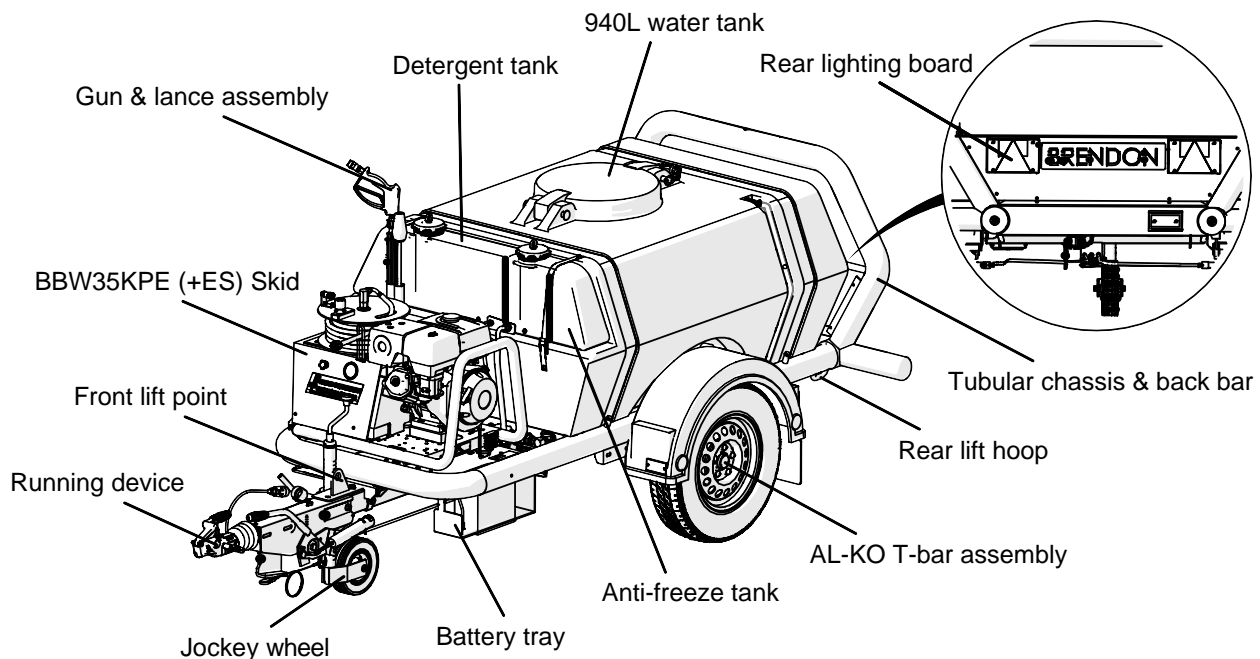
Check brake cable where it enters brake, if it ends in a collar that fits over the cable entry tube then the cables are of the detachable type Remove the control mechanism at the centre of the axle, slacken and drop cable end from the centre axle bracket, detach cables.

To refit reverse the procedure

To change the cables on the old type non-detachable brake requires removal of the hubs to gain access to the cable ends. We would recommend returning the vehicle to the dealer or distributor in order to carry out the repair.

Key Features

Bowser washer



Running device

EU approved running gear complete with Hitch protection plate, Handbrake, Breakaway cable and choice of Ring or Ball hitch.

Jockey wheel

350KG rated Jokey wheel and locking bracket.

BBW35KPE (+ES) Skid

240bar / 3500psi Petrol driven skid unit (**Ref: 35KPE (+ES) Skid on the following page**)

Gun & lance assembly

350 bar trigger complete with a 1M lance fitted with a standard 045 fan nozzle and an optional 1M lance fitted with 045 turbo nozzle.

**Detergent tank**

28 litre capacity detergent. We recommend that Brendon Traffic Film Remover (TFR) is used. For other detergents or chemicals please check with Brendon Ltd. For compatibility. See *“Using detergent or chemical” for instruction.*

Anti-freeze tank

15 litre capacity Glycol antifreeze tank. We recommend you use 25% Glycol to 75% Water mixture* to ensure no frost damage during the winter months. See *“Frost protection” for instruction.*

Water tank

940L capacity tank complete with vented lid, drain plug, level indicator, internal strainers and fitted baffle for improved and safer travel.

Tubular chassis

Robust construction of powder coated mild steel chassis with rear protection bar.

Lift points

3 point lifting system, consisting of a 1 tonne rated lift eye on the front and two strap guides at the rear of the chassis.

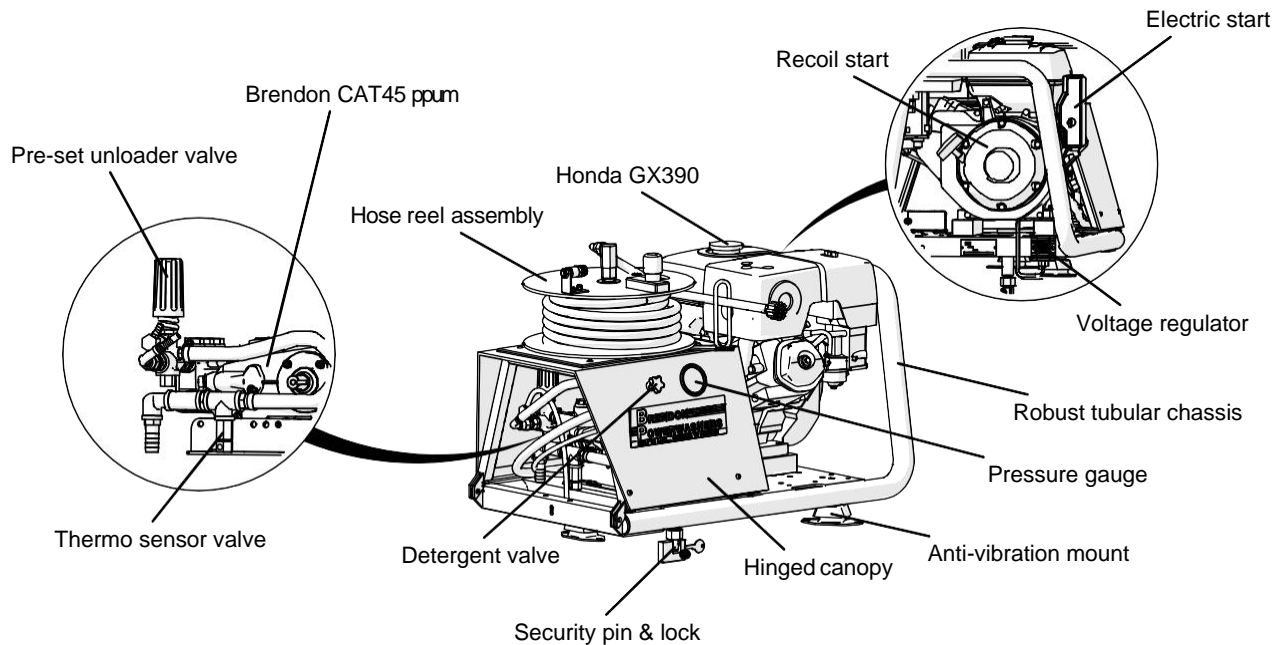
Battery enclosure

Plated 5mm mild steel enclosure complete with Varta B34 12v battery.

*(*Recommended for the UK. For sub-zero environments we recommend a 50% Glycol to 50% Water mixture)*

Key Features

35KPE Skid



Thermo sensor valve

Protects the pump seals overheating when the machine is bypassing for long periods.

Pre-set unloader

Bypass valve to recirculate and relive the pump from load when the trigger is in the closed position, reducing safety hazards and possible accidents.



WARNING: This valve has been pre-set specifically for your machine. **DO NOT TAMPER WITH THIS VALVE**, doing so could lead to expensive damage to the Powerwasher.



Brendon CAT45 triplex pump

Triplex plunger pump offering a smooth flow of water at a flow rate of 16 litres per minute at 1600rpm.

Hose reel assembly

Robust manual hose reel with rotary union and 15M (standard) of Brendon 400 bar rated delivery hose with quick release coupling.

**Honda GX390**

390cc 4-stroke single cylinder OHV petrol engine with Recoil start, Electric start (optional) & voltage regulator.

Tubular chassis

Robust construction of powder coated mild steel with hinged canopy mounted on 3 anti-vibration mounts.

Pressure gauge

Brendon 400 bar rated glycerine filled pressure gauge.

Security pin (optional)

Solid stainless steel security pin complete with pad lock

Detergent valve

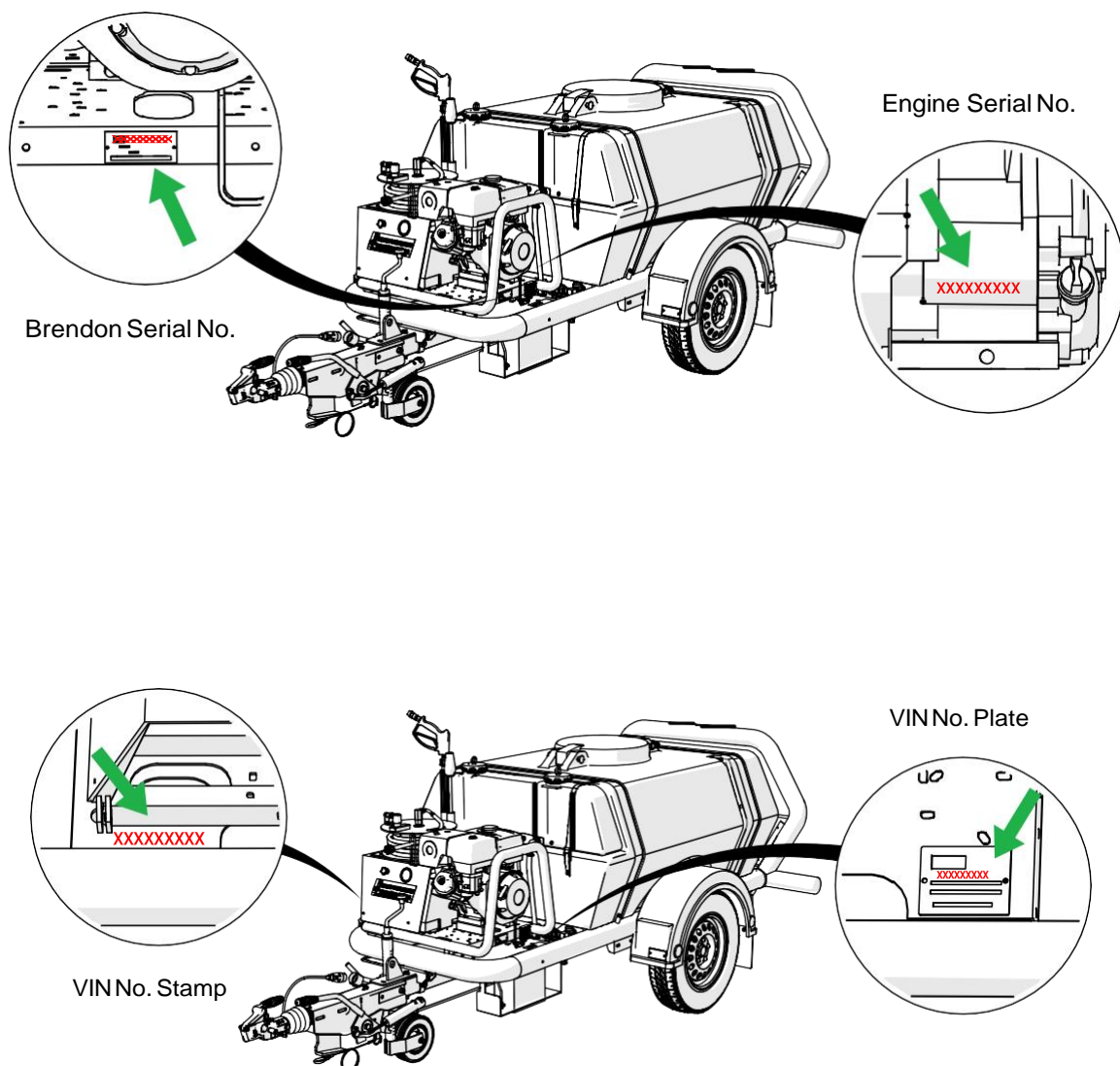
Metered injection system to add the detergent or chemical.

Identification

The Brendon **BBW35KPE (+ES)** Bowserwasher and its Honda Petrol engine both have unique serial numbers which may help determine the correct parts required for your machine.



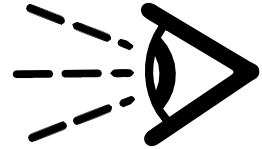
TIP: Keep a record of these numbers as they may be required when ordering parts.



Pre-use safety checks

Prior to using the **Brendon BBW35KPE (+ES)** some pre-use safety checks are required. A check sheet can be found at the end of this manual.

We recommend that this sheet is filled out by the operator prior to every use. It is a simple visual check that the machine and its components are in good condition / working order.



TIP: Make copies of the check sheet for the operators to fill out before each use.

Chassis / Construction

- Check for any dents or cracks.
- Check nuts and bolts are present and secure.

Engine

- Oil level.
- Fuel level.
- Battery, wiring and control panel condition.

Plumbing

- Check hoses are in good condition.
- Check connections are in good condition and no signs or corrosion.
- Check pump oil level.
- Check pullies & belts are in good condition.

Gun & Lance

- Trigger and lance assembly condition.
- Delivery hose & connections.
- Nozzle condition.

Tanks

- Check tanks, caps & plug condition.
- Check plumbing, float switch condition.
- Check fluid levels are suitable for use.

Trailer

- General condition
- Brakes
- Tyre condition and pressure.
- Lights & reflectors
- Running gear condition and functionality

*If any items are unfit for use, please contact your **HIRE COMPANY** or the Brendon help-line for advice.*

Using this machine



Prior to using this machine please complete the pre-use safety check sheet at the back of this manual.



Refer to the Health & Safety information and PPE recommendations prior to using this machine.

Start & stop procedure

Before starting this machine



- Read the **Engine manufacturers** owner's manual prior to use.
- Refer to the **Health & Safety** section of this manual prior to use.
- Refer to the **PPE** recommendations section of this manual prior to use.
- **Check** hoses, connections, gun & lance assembly is in good condition.
- **Check** engine oil level.
- **Check** pump oil level.
- **Check** fuel level.

Preparation

1. Ensure the Bowser tank has been filled with potable water ready for use.
2. Ensure the fuel tank has been filled with Petrol ready for use.
3. Assess the work and the environment is suitable for the machine (refer to the **Precautions** section in this manual).

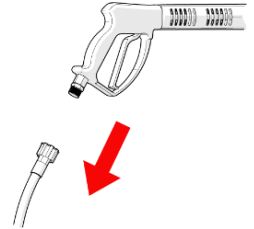


IMPORTANT: During the winter months, this machine should be protected from frost damage. Ensure ALL Anti-freeze mixture is flushed out of the machine prior to use (the *frost protection & recycling anti-freeze procedures* can be found later in this manual).

Priming the pump

For the 1st use, or if the machine has been stood for a period, the pump **MUST** be primed before use.

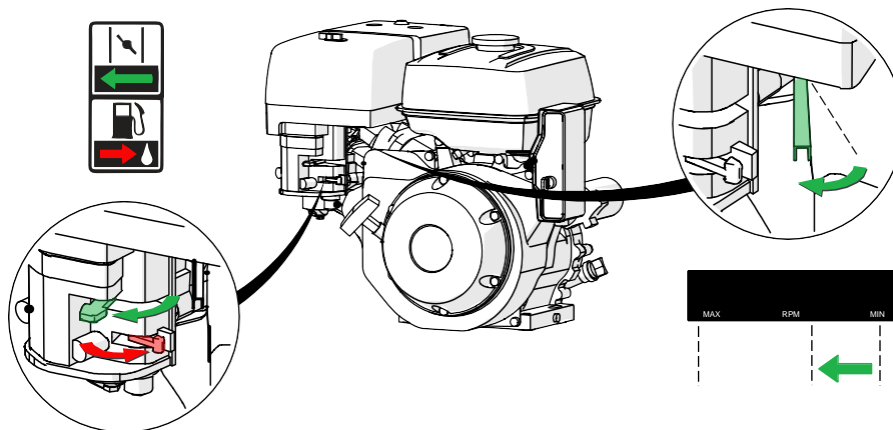
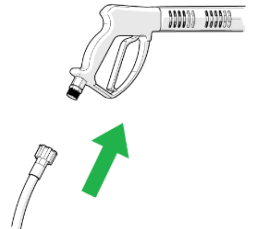
1. Disconnect the gun & lance assembly from the delivery hose.
2. Follow steps 2-6 of the *Starting the machine* procedure in the following section.
3. Run the machine until the water runs at a continuous flow (approx. 1-2 mins).
4. Turn off machine (Ref; *Stopping the machine* on the following pages).



The machine is now ready for use

Starting the machine

1. Connect the gun & lance assembly from the delivery hose.
2. Locate the and move the fuel valve lever to the **ON** position
3. To start a cold engine, move the choke lever to the **CLOSED** position.



4. Move the throttle lever away from the **MIN** position to about **1/3** of the way toward the **MAX** position.
5. Start the engine using the following steps with the trigger pulled on the Gun & lance assembly.



IMPORTANT: Ensure the trigger of the gun & lance assembly is held down when the engine is started to **prevent hydraulic lock**. Not doing so could lead to expensive damage to the pump & engine.

Electric start

6. Turn switch on the control panel to the **ON** position
7. Turn the key to the **START** position and hold it there until the engine starts.

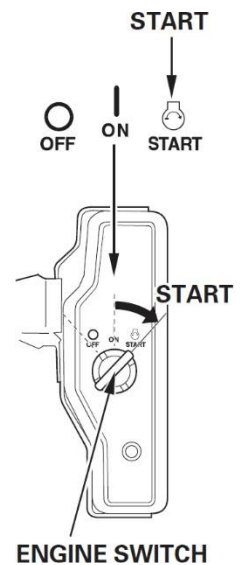


TIP: If the engine fails to start within 5 seconds, release the key, and wait at least 10 seconds before operating the starter again.

8. When the engine starts, release the key, allowing it to return to the **ON** position.

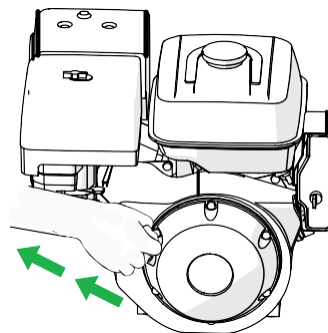
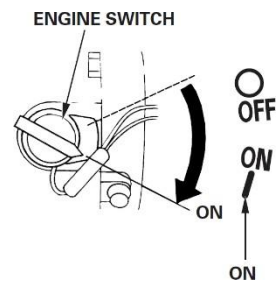


WARNING: Using the electric starter for more than 5 seconds at a time will overheat the starter motor and can damage it.



Recoil "Pull" start

4. Turn the engine switch to the **ON** position.
5. Pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow as shown below. Return the starter grip gently.

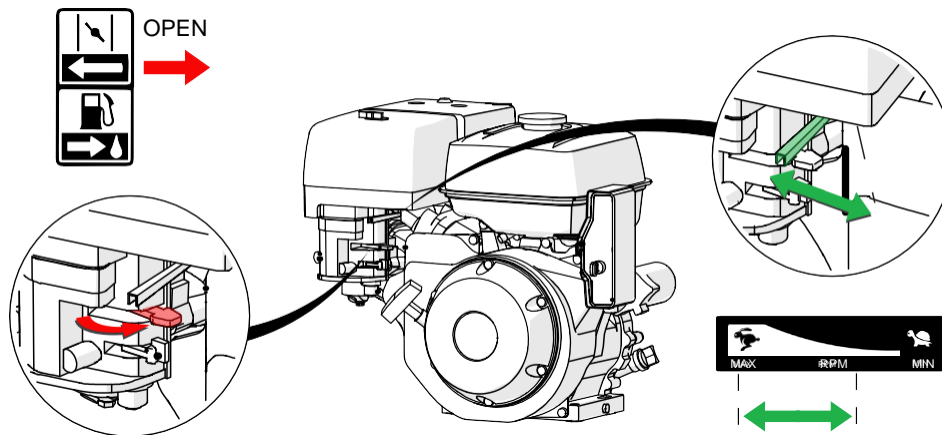


IMPORTANT: Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

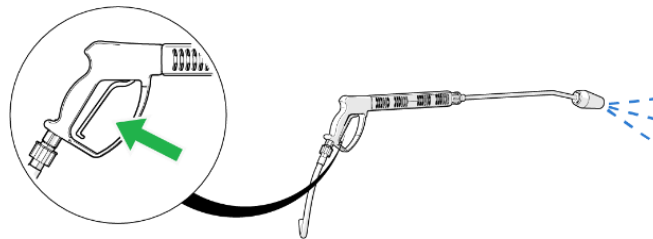


CAUTION: When using the pull start method when the gun & lance assembly is connected, it is advised to **use 2 persons** to start the machine (person 1 to use 2 hands to pull start and person 2 to hold the lance with the trigger pulled).

6. If the choke lever has been moved to the **CLOSED** position to start the engine, gradually move it to the **OPEN** position as the engine warms up.



7. Adjust the throttle lever to desired speed (increase in speed will increase the pressure) aim lance at job and pull the trigger.



TIP: If no water pressure is achieved after 15 seconds, switch off the engine and check the water supply.



DANGER: High pressure jets are dangerous if used incorrectly. The jet must **not** be directed against persons or animals, electrical equipment or the machine itself.



WARNING: The machine **SHOULD** be shut down within 5 minutes when not in use!
ALWAYS: Monitor fuel level during use!



CAUTION: Ensure personnel are aware of the slip hazards caused by the water spray and the trip hazards from the hoses. It is advised that appropriate PPE and signage is used prior, during and after the operation.



Stopping the machine

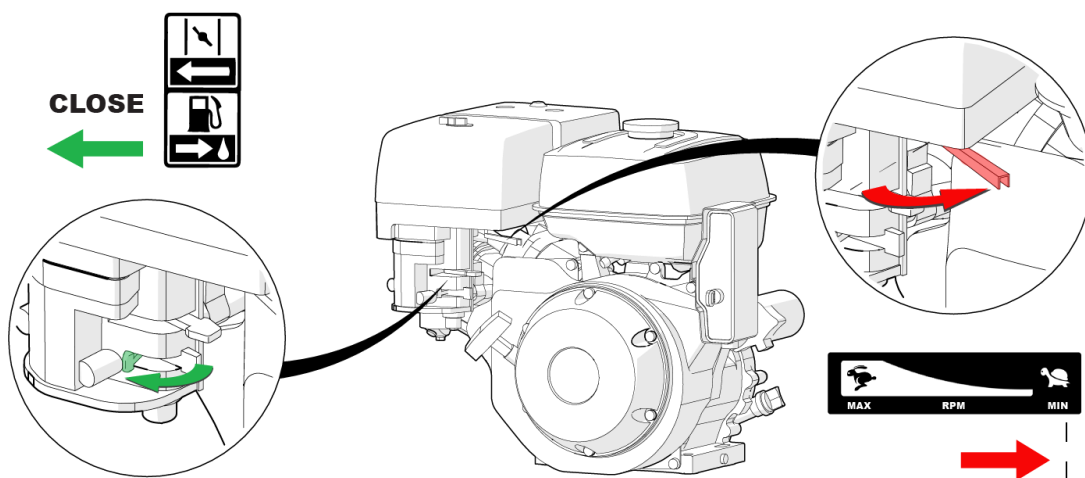


Emergency stop

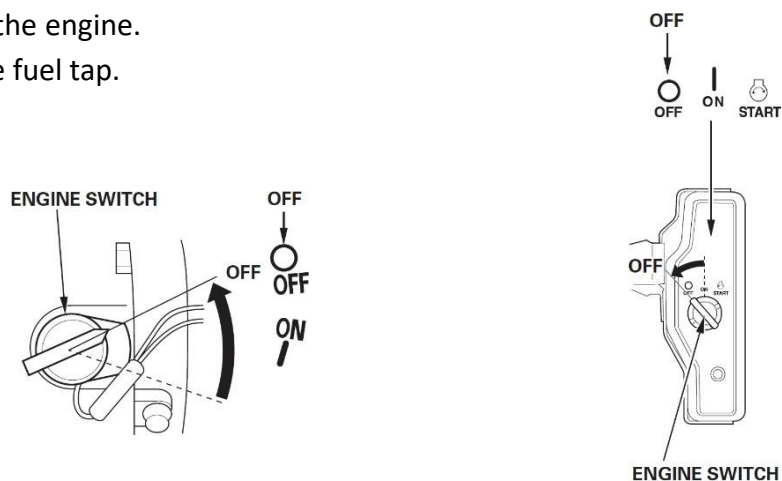
To stop the engine in an emergency, simply turn the engine switch to the **OFF** position.

Under normal conditions, use the following procedure:

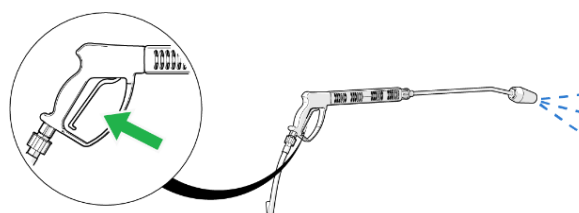
1. Slow the machine to and idle speed by moving the throttle lever to the **MIN** position and let the engine and pump cool down.



2. Turn off the engine.
3. Close the fuel tap.



4. Pull trigger to release any residual inline pressure.



Using the gun & lance



WARNING: High pressured water can be dangerous if subject to misuse. This machine is safe if it is used for the purpose for which it was designed. Brendon Powerwashers cannot be liable if the machine is used in a poor state of repair or if any parts of the machine are tampered with or modified in any way.

1. Set the throttle to the desired speed / pressure.
2. Reel off enough supply hose required for the work area.
3. Stand in a braced stance with the nozzle pointing towards the work surface.
4. Aim the nozzle approximately 5cm - 10cm from the work surface and pull the trigger.



TIP: The type of surface, type of nozzle and throttle speed will affect the overall finish of the surface. It is recommended that a small area or test piece is used to adjust the settings to achieve the desired finish.



WARNING: There is a recoil action when the trigger is opened.

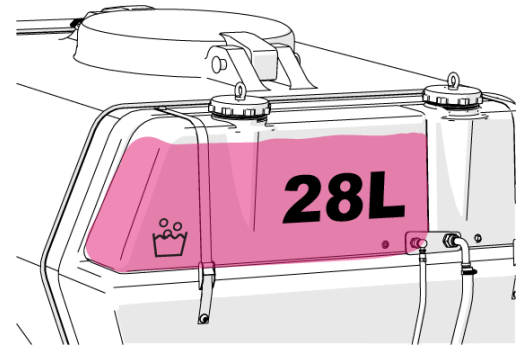
WARNING: High pressure water can damage and erode some surfaces, always check suitability before use.

Using detergent or chemical

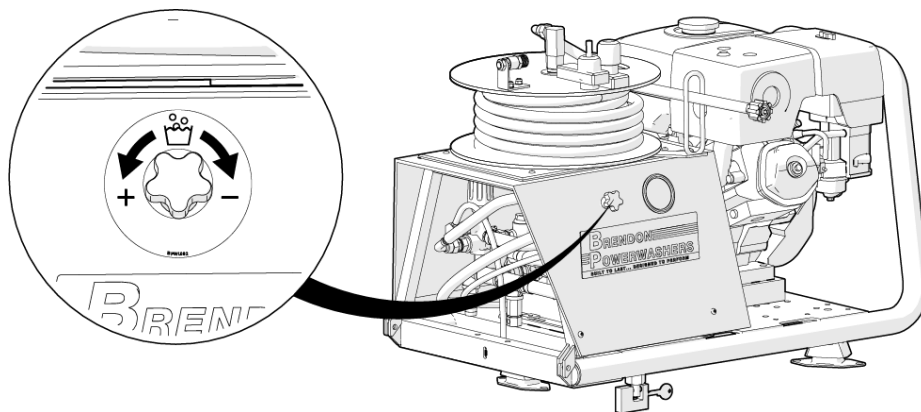


WARNING: Only use detergents or chemicals approved by Brendon Powerwashers. Using unapproved detergents or chemicals may cause damage to the pump and could VOID your warranty.

The **Brendon BBW35KPE (+ES)** has a metered injection system to add the detergent or chemical. This allows the operator to adjust the amount being used.



1. Fill the detergent / chemical tank with a Brendon approved detergent / chemical
2. Locate the detergent / chemical valve knob on the skid canopy.



3. Turn the Chemical valve (anti-clockwise) to introduce detergent / chemical to the waterflow.
4. Pull trigger and adjust valve for desired strength.
5. Turn off valve (clockwise) to stop detergent / chemical flow. Rinse with fresh water.
6. If the detergent runs low, the machine will have a low and intermittent pressure, turn off the valve and refill.



WARNING: Eye protection must be worn when cleaning with detergents and chemicals.



CAUTION: Ensure that any chemical that you use is **BIODEGRADABLE**. If you are in any doubt, do NOT use until you have checked with the manufacturer.

Frost Protection

If this machine is subjected to sub-zero ambient temperatures during Winter months, the machine will need to be protected from frost damage by running and priming the pump / system with 50% Glycol (Anti-Freeze) & 50% water solution.



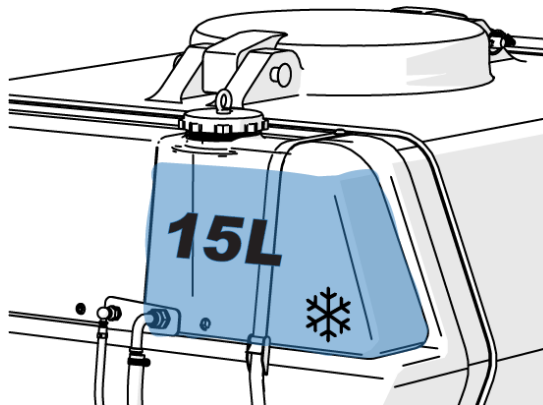
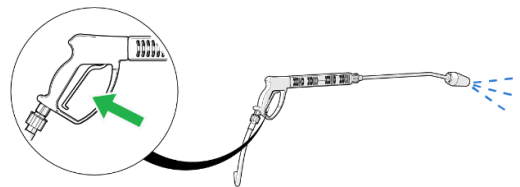
WARNING: Anti-freeze is toxic. Ingestion can be fatal!
DO NOT INDUCE VOMITING. Seek urgent medical attention.



IMPORTANT: Read the Anti-freeze **COSHH** information sheet at the back of this manual.

Frost protection instructions

1. With the machine switched off, safely release the residual pressure in the gun and disconnect it from the high pressure hose. Make sure the hose is re-wound, secured and not pointed at any person or animal.



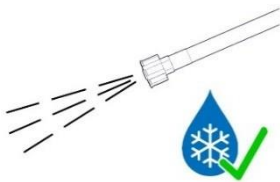
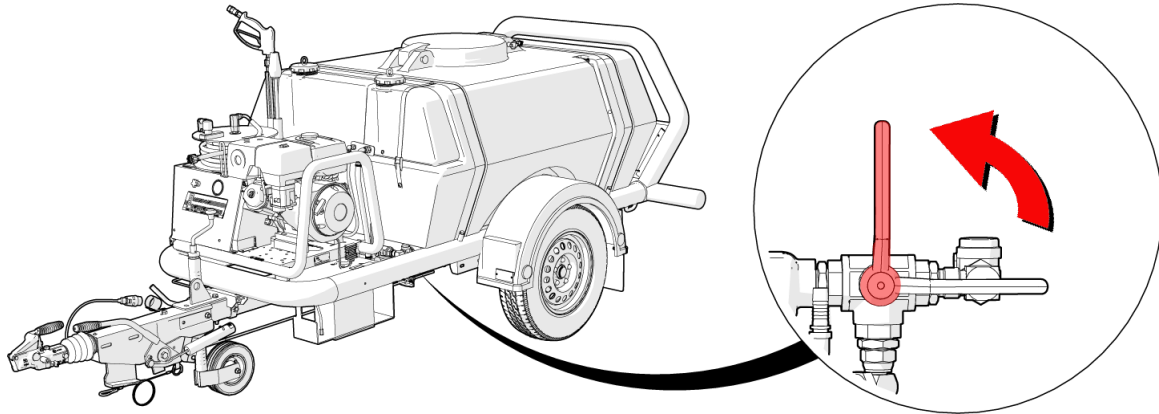
2. Fill the Anti-Freeze tank with the Glycol (anti-freeze) mixture.



WARNING: Eye protection and gloves must be worn when working with Glycol / anti-freeze chemicals.

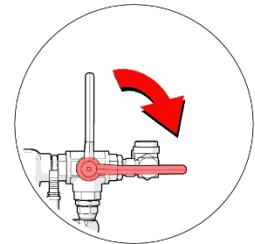


3. Locate the 3 way ball valve between the canopy and the water tank, turn the **RED** handle anti-clockwise to the 12 o'clock position.



4. Start the Engine allowing the Glycol (anti-freeze) mixture to circulate the pump and hose system. The process will be complete when the water is replaced with the Glycol mixture (slimy texture with blue tint).

5. Switch off the machine and turn the **RED** handle of the 3 way ball valve to the off position (3 o'clock).



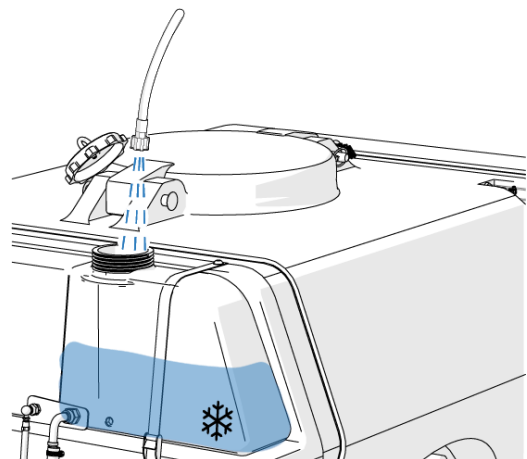
THE MACHINE IS NOW PROTECTED FROM POTENTIAL EXPENSIVE FROST DAMAGE

6. Once the risk of frost has cleared the anti-freeze mixture should be pumped back and **recycled** into the original container before the machine is used again.



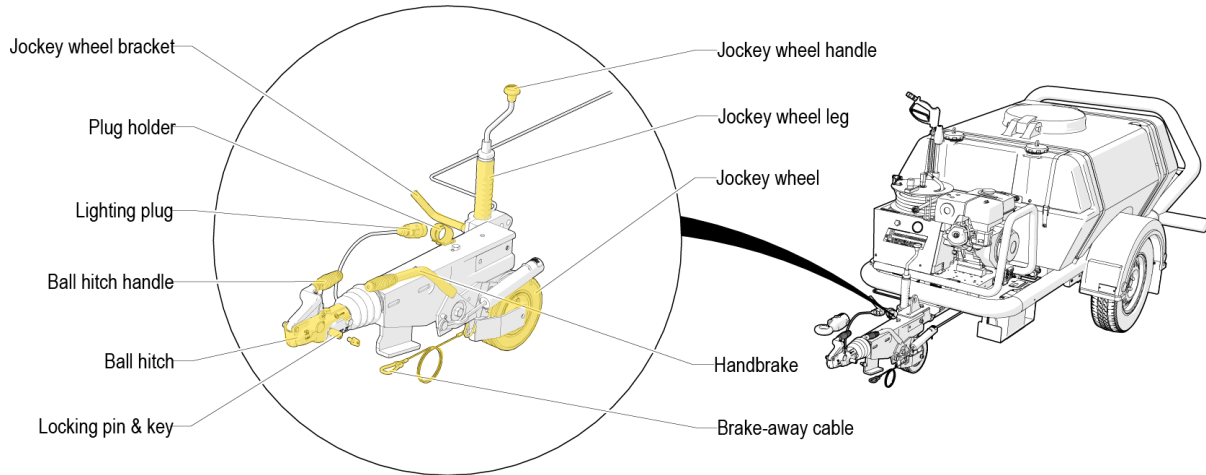
Recycling the anti-freeze mixture

Place the outlet of the high pressure hose into the Anti-freeze tank, run the machine until all the mixture has been purged from the pump (runs clear), then switch off the machine, replace the red cap and connect the lance for normal use.



Towing

Trailer running gear key features



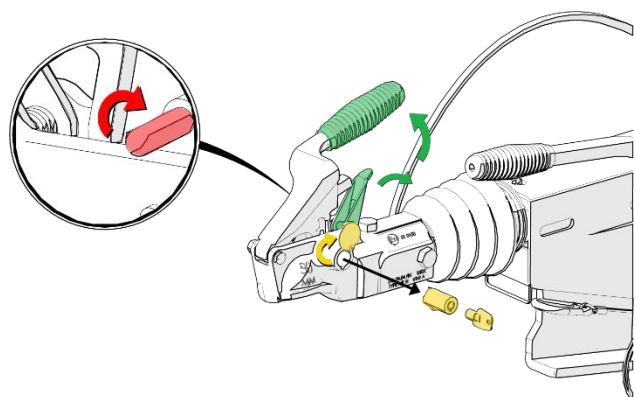
WARNING: The towing vehicle must be approved to tow a weight of 1500kg (MAM)

WARNING: Check your driver's licence entitles you to tow a trailer with a MAM of 1500kg.

Preparation

Ensure the handbrake is ON and the trailer is on LEVEL stable ground with the engine switched OFF. Ensure the trailer is suitable for towing (Ref: **Trailer maintenance & safety precautions** and the **Pre-use safety checks** in this manual).

1. Lift the locking pin cover and remove the security lock from the ball hitch using the key provided.
2. Pull back the safety latch and lift the hitch handle until the **RED** safety lock clicks into place.

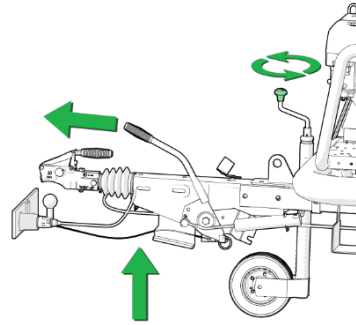
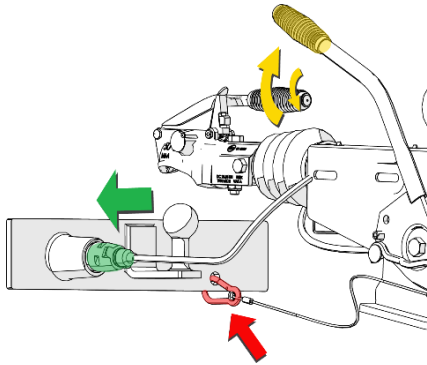


TIP: Keep the lock and key safe in the transporting vehicle.

TIP: If the trailer is equipped with a ring hitch, there is **NO** locking pin.

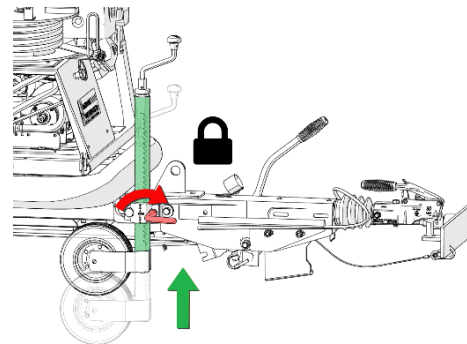
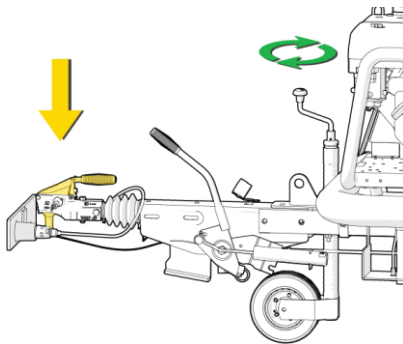
Connecting the trailer

1. Connect the brake-away cable to a suitable point on the tow hitch.
2. Turn the jockey wheel handle anti-clockwise to raise the hitch, release the handbrake and position directly above the tow hitch ball.
3. Immediately re-engage the handbrake.



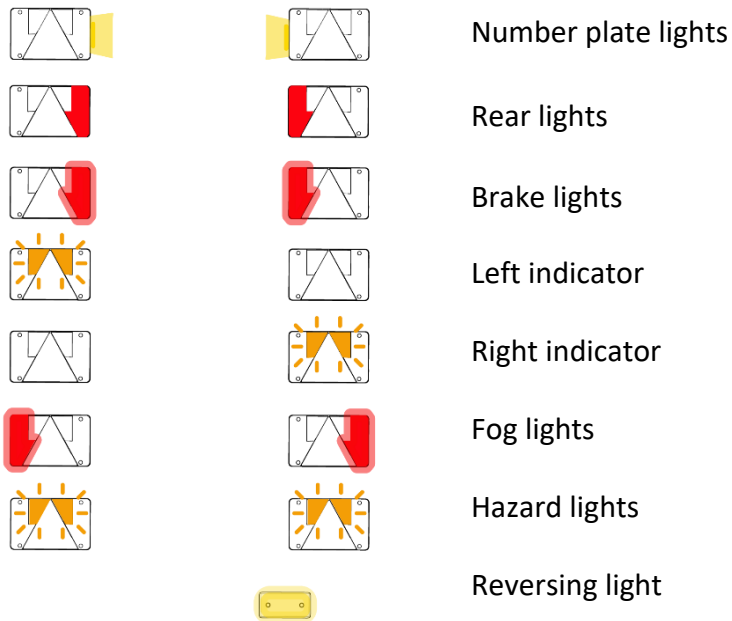
WARNING: Do not loop brake cable around the towing ball.

4. Lower the ball hitch onto the tow hitch ball by turning the Jockey wheel clockwise. The hitch handle will click into place.
5. Connect the trailer plug into the socket on the tow hitch.
6. Replace the locking pin and close the pin cover.



7. Raise the jockey wheel shaft up as far as possible.
8. Lock the jockey wheel in place using the jockey wheel bracket and secure the R-clip.

9. Check the lights work.
10. Release the handbrake ready for towing.



Reversing



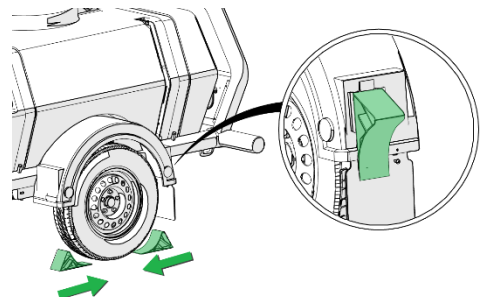
CAUTION: Check if you have enough space when reversing.



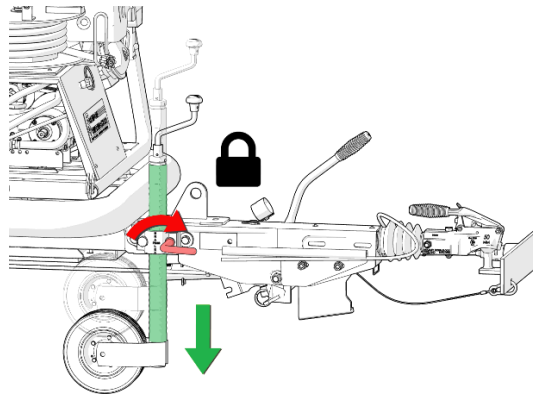
TIP: The overrun brake works automatically when reversing.

Unhitching

1. Ensure the trailer is on LEVEL stable ground with the engine switched off.
2. Place chocks either side of one of the wheels (Not standard UK spec).
3. Engage the handbrake.

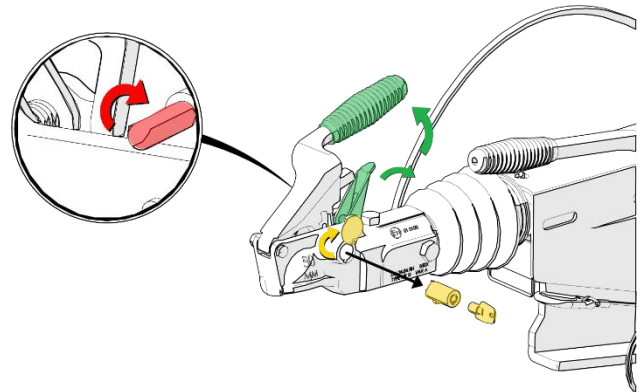


4. Unclip the R-clip and release the jockey wheel bracket and lower the jockey wheel shaft until the wheel touches the ground.
5. Lock the jockey wheel in place using the jockey wheel bracket.

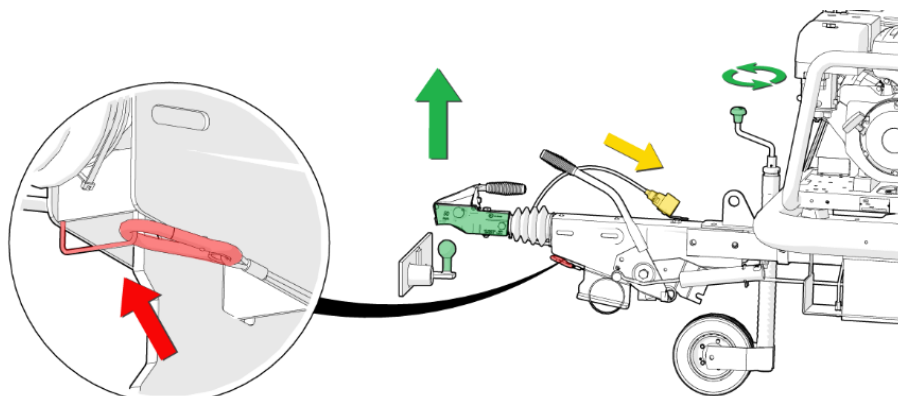


WARNING: When parking the machine on a slope make sure the hitch is facing downhill!

6. Lift the locking pin cover and remove the security lock from the ball hitch using the key provided.
7. Pull back the safety latch and lift the hitch handle until the **RED** safety lock clicks into place.

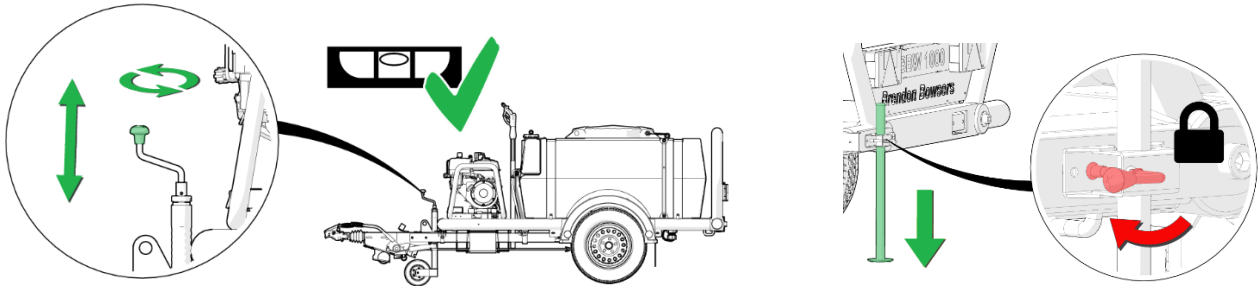


8. Raise the hitch above the towing hitch ball by turning the jockey wheel Anti-clockwise.



9. Replace the locking pin and close the pin cover.
10. Remove the plug from the towing hitch and secure in the plug holder.

11. Unclip the brake-away cable and secure on the on the running gear.
12. Move the trailer and adjust the jockey wheel until the unit is level with the ground.
13. If there is a rear stay, ensure this is lowered to ground level and locked off when not connected to the towing vehicle.



DANGER: Ensure the handbrake is engaged and the brake-away cable is secured during this process. Not doing so could cause DEATH or a serious crush injury.



IMPORTANT: Ensure the engine is switched off during process.

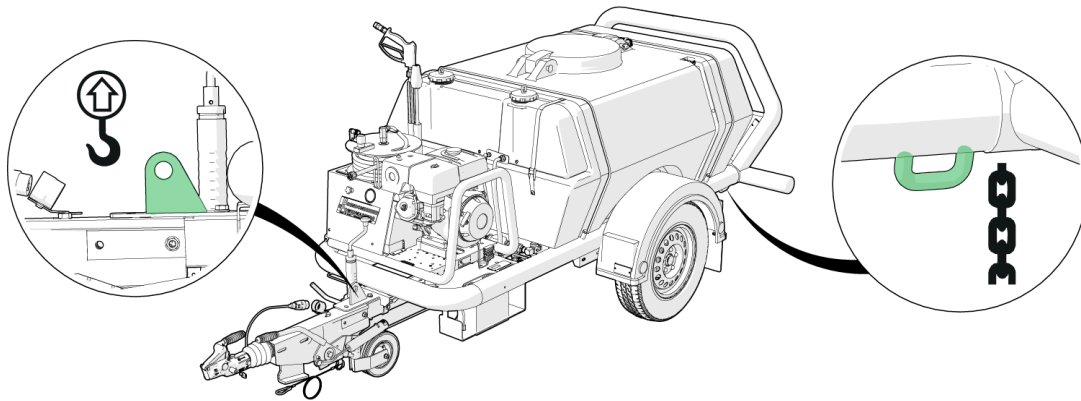


CAUTION: Pinch points and crush hazards are present when hitching or un-hitching the trailer, it is advised to wear safety gloves, goggles & boots during this procedure.



lifting

The **Brendon BBW35KPE (+ES)** has a front lift eye at the front of the trailer and a 2 lift strap guide hoops at the rear of each side of the Bowser chassis



WARNING: Use certified lifting slings only.

CAUTION: UK legislation requires lift slings to be inspected after 6 months

Using a crane, connect a **2880mm 2 to e S.W.L. strap** to be used in conjunction with a **2 tonne "D" shackle**, and a **7000mm 2 tonne S.W.L. strap** under the base of the rear chassis, threaded through each of the 2 guide hoops, ensuring the Bowserwasher stays level during the lifting process.



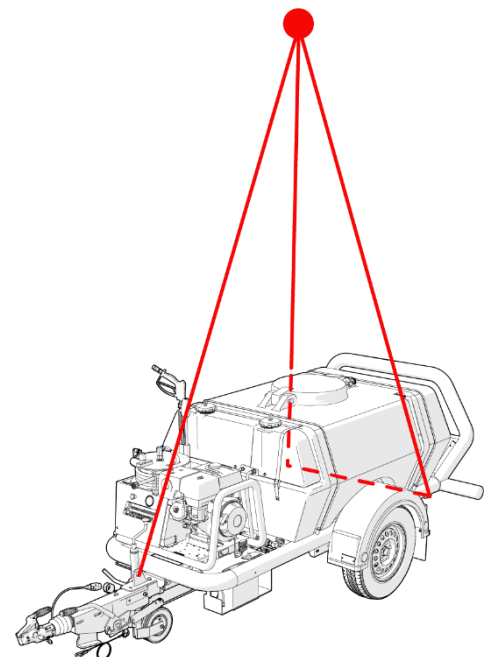
IMPORTANT: Ensure the delivery hose is reeled in and the gun & lance assembly is secured prior to any transportation.



IMPORTANT: Ensure the lifting chains / rig do not touch the water tank or canopy, doing so could lead to expensive damage.



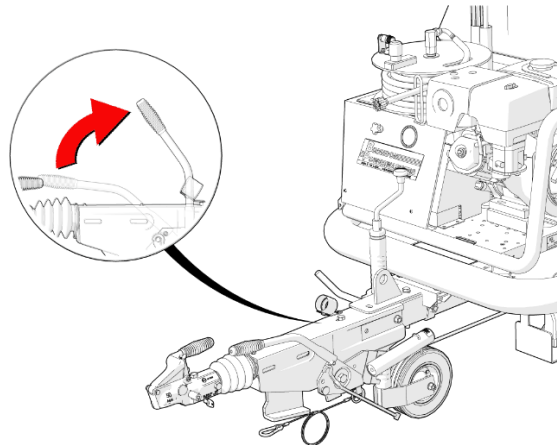
DANGER: lifting this machine is dangerous and could cause serious injury or DEATH. Ensure pre-lift safety checks are carried out and personnel wear suitable PPE and are clear of the lifting area prior to the procedure.



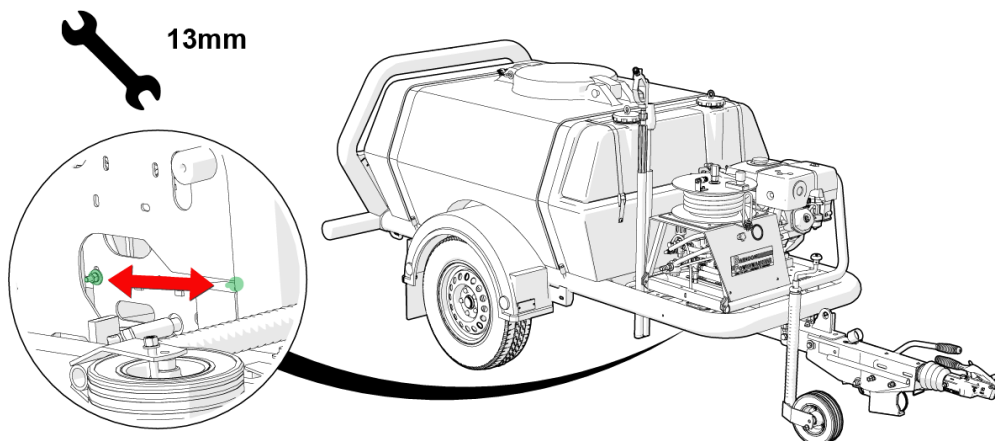
Canopy access

For maintenance purposes the **Brendon BBW35KPE (+ES)** is designed with an easy to open canopy hatch which can be open using the following steps:

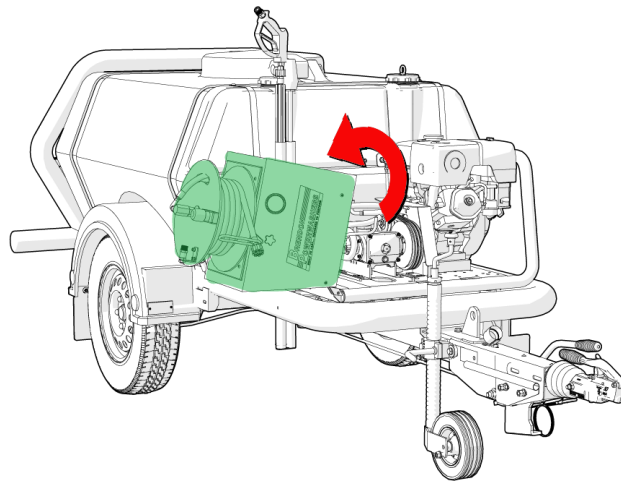
1. With the engine switched off, on stable ground engage the handbrake (*If available we recommend using chocks to secure the Bowserwasher*).



2. Access the skid unit from underneath the Bowser chassis.
3. Locate the canopy M8 bolts under the skid chassis, remove the nuts and washers using a 13mm wrench.



4. Stand facing the canopy with the engine behind, hold the top of the canopy firmly and pull up and towards the front taking care not to pinch or disconnect any of the hoses inside the canopy.



DANGER: Ensure the handbrake is engaged prior to any maintenance on this machine. Not doing so could cause DEATH or a serious crush injury.



IMPORTANT: Ensure the engine is switched off during the maintenance of this machine.



CAUTION: Pinch points and crush hazards are present when moving the canopy, it is advised to wear safety gloves, goggles & boots during this procedure.



Troubleshooting

The **Brendon BBW35KPE (+ES)** is a robust and reliable Petrol Powerwasher. On occasion the Powerwasher may have a fault which can be rectified simply by diagnosing the cause and providing a solution.

A table of common faults, typical causes and solutions are listed below. The procedures for the solutions are detailed on the following pages of this manual.

Fault	Probable Cause	Solution
Low Pressure	1. Blocked or worn nozzle.	Clean nozzle Change nozzle
	2. Insufficient water flow feeding the pump.	Unblock inline water filter Tighten suction hose joints
	3. Blocked filters.	Unblock or replace filters
	4. Leaking hose or couplings	Replace couplings Replace coupling seals / O-rings Replace hose
	5. Faulty unloader	Replace / Service unloader*
	6. Worn pump valves	Clean pump valves Replace pump valves
	7. Worn pump seals	Clean pump seals Renew pump seals
Pulsation	8. Restricted water supply	Check & clean all filters
	9. Air entering the system	Check for leaks in system
Engine will not start	10. Dirty Petrol & Clogged engine fuel filter	Replace Fuel Filter & Fuel
	11. Fuel line not open	Turn on fuel valve
	12. Flat battery	Charge or change battery
	13. Electric start not working	Replace electric control panel Use pull start method

If the problem persists or is not listed, please contact us by: Email: **Spares@powerwashers.co.uk** or Phone: **+44 (0)1984 624500**.

***Note:** To determine if the pre-set unloader valve is faulty, an unloader bypass test is required. This procedure is detailed on the following pages.

Troubleshooting - solutions

Low Pressure

1. Check suction hose and strainer is clean (Ref: **Check suction hose & Strainer**).
2. Check the inline filter is clean (Ref: **Check inline filter**).
3. Check the condition and tension of the Vee belts (Ref: **Check Vee belt tension**).
4. Fit a new high pressure nozzle (Ref: **Changing nozzles**).



IMPORTANT: Correct size must be fitted!

5. Carry out By-Pass test on the unloader valve (Ref: **Unloader valve bypass test**).
6. Remove the pump manifold and inspect the seals and ceramics and replace if necessary (Ref: **Inspect seal pump condition**).

Pump fails to prime or build up pressure

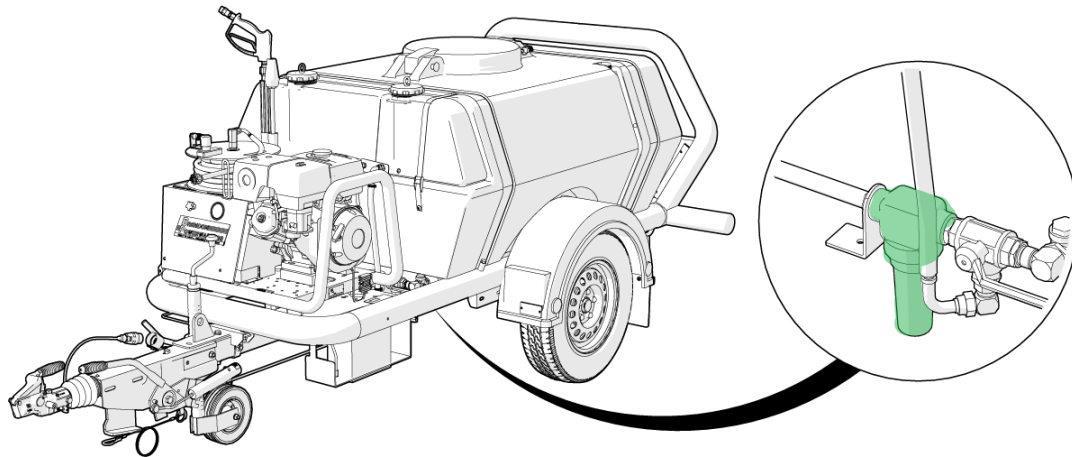
1. Check the nozzle, gun and lance are clear of obstructions (Ref: **Inspect gun, lance and nozzle/s**).
2. Ensure there are no air pockets in the pump /system (Ref: **Prime / re-prime pump**).
3. Remove the manifold and inspect the pump seals and ceramics. Renew any damaged parts. (Ref: **Inspect pump seal condition**).

Pressure pulsating or uneven flow

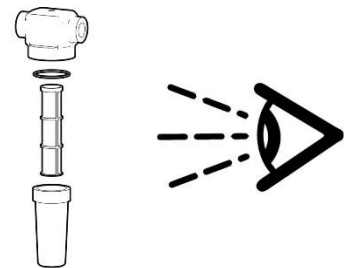
1. Check the condition and tension of the Vee belts (Ref: **Check Vee belt tension**).
2. Check suction hose and strainer (Ref: **Check suction hose & Strainer**).
3. Check the inline filter is clean (Ref: **Check inline filter**).
4. Check there is enough water supply rate to pump (Ref: **Mains water connection**).
5. Check pump valves (Ref: **Check pump valves**).
6. Remove the pump manifold and inspect the seals and ceramics and replace if necessary (Ref: **Inspect seal pump condition**).

Check inline filter

1. Locate the inline strainer in between the Skid unit and the main water tank, unscrew the strainer bowl by hand.



2. Check the filter / strainer is clean, also pay attention to the condition of the O-ring and the bottom bowl. Either clean and re-use or replace the strainer (Part no. ILS30DS).



TIP: If the bowl is too tight to remove by hand carefully use a pipe wrench initially.

TIP: When replacing the bowl, add a light coating of silicone grease to the O-ring.

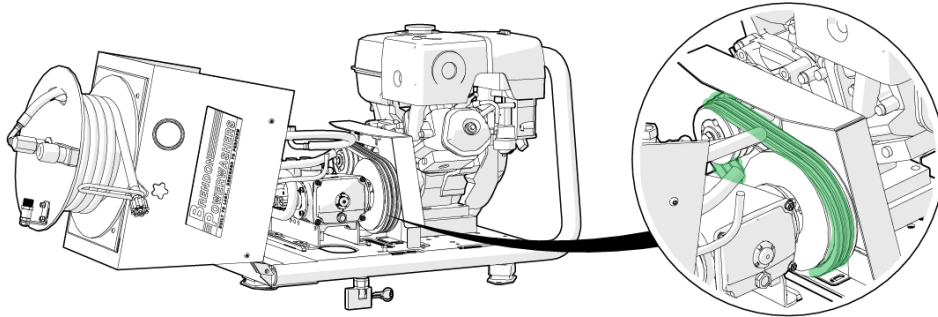


DANGER: Ensure machine is turned off, disconnected and all inline pressure is released prior to any service or inspection. Always wear safety goggles and gloves.



Check vee belt tension

1. Locate the 3 drive belts situated between the engine and the pump.



TIP: There is no need to remove the belt guard.

1. Press firmly in between the 2 pulleys so the belt bends inwards.
The belt should only bend 2-3mm. If it bends anymore, then the belts should be tightened. Refer to the belt tensioning document for instruction.

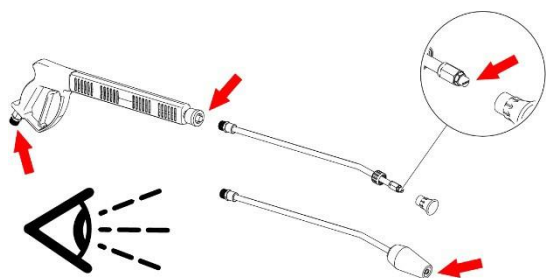


DANGER: Ensure machine is turned off, disconnected and all inline pressure is released prior to any service or inspection. Always wear safety goggles and gloves.

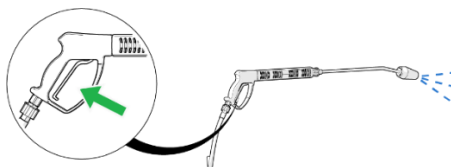


Inspect gun, lance and nozzle/s

1. Check the nozzle, gun and lance are clear of obstructions, couplings and O-rings are in good condition.



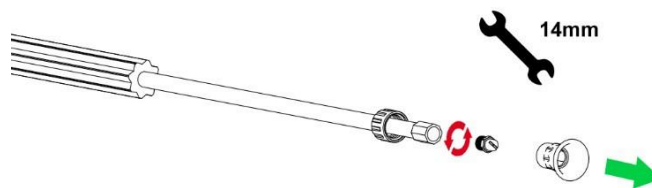
CAUTION: Ensure the machine is switched off and the inline pressure has been released prior to inspecting the gun & lance assembly.



Changing nozzles

Pin & fan nozzles

1. Secure the lance using a vice, then unscrew and remove the nozzle shroud.
2. Using a 14mm wrench unscrew the nozzle.
3. Wrap the thread 3-4 times with PTFE tape and screw the nozzle (Part No. **NZ15045**) back in tightly and replace the nozzle shroud.

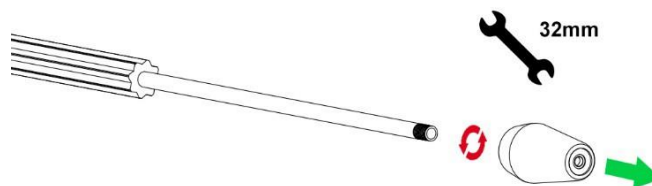


DANGER: Ensure machine is turned off, disconnected and all inline pressure is released prior to any maintenance on the gun & lance assembly. Always wear safety goggles and gloves.



35mm Turbo nozzle

1. Secure the lance using a vice, then unscrew the nozzle using a 32mm wrench.
2. Wrap the thread of the lance 5-6 times with PTFE tape and screw the nozzle (Part No. **TURBO35045**) back on tightly.



DANGER: Ensure machine is turned off, disconnected and all inline pressure is released prior to any maintenance on the gun & lance assembly. Always wear safety goggles and gloves.



Unloader valve bypass test

The following procedure details the steps required to complete an unloader valve bypass test.

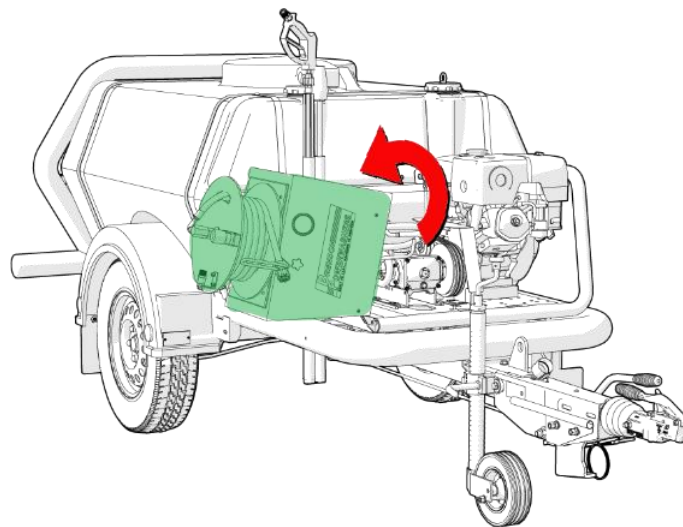


TIP: Keep a record of all the maintenance and services of this machine for future reference.

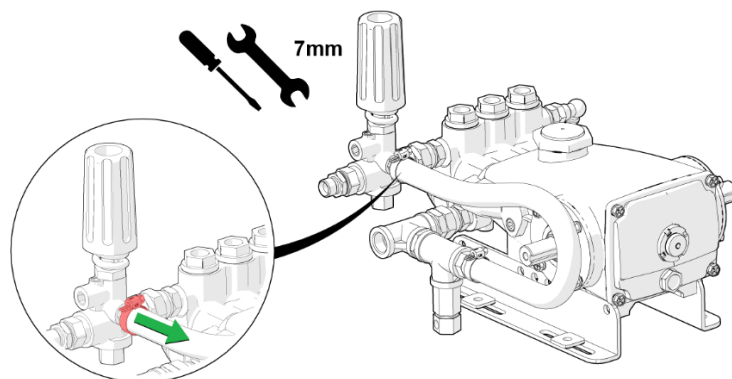
Recommended Personal Protective Equipment (PPE) for this procedure:



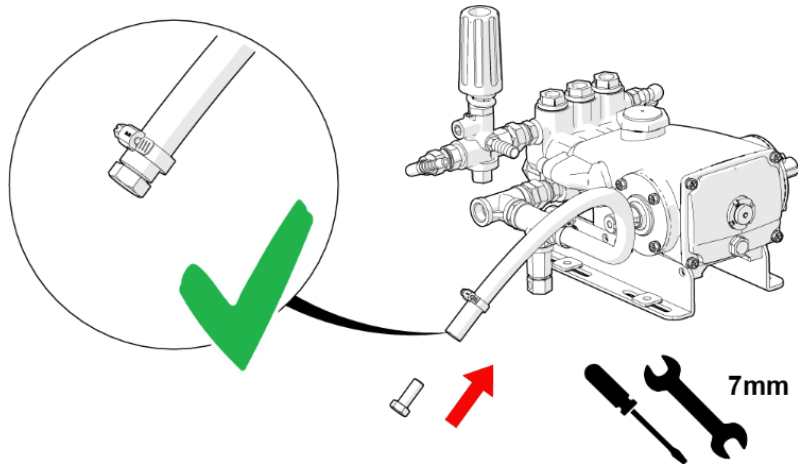
1. Open canopy (Ref: Canopy access for instruction).



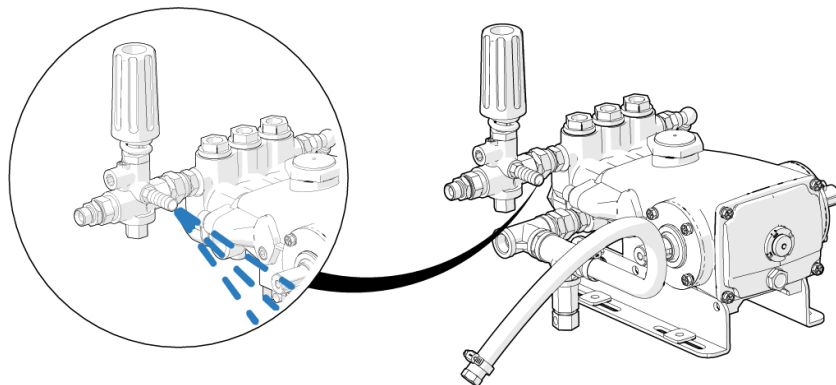
1. Loosen the hose clip with a 7mm socket or flathead screwdriver and disconnect the bypass hose from the unloader valve.



2. Close the end of the hose end with a suitable plug (such as an M12 bolt) and secure by tightening the hose clip.

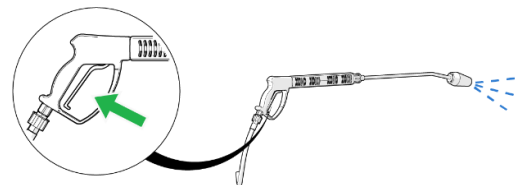


3. Close the canopy and start the engine as normal. Water should be flowing at pressure out of the hose tail of the unloader valve when the trigger is closed.



CAUTION: Do not put your face or hand in front of the hose tail, the HIGH pressure water spray could lead to serious injury.

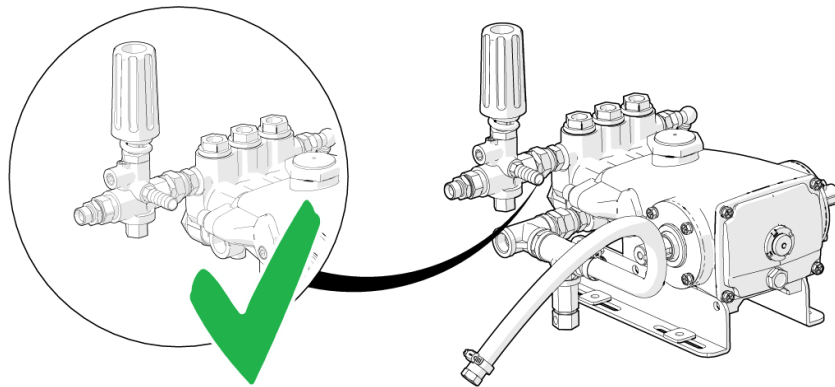
4. Pull the trigger on the gun & lance assembly for bursts of 5-10 seconds.



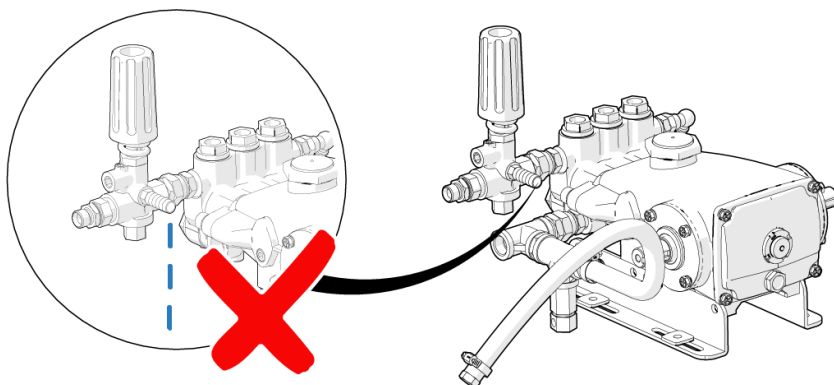
DANGER: High pressure jets are dangerous if used incorrectly. The jet must not be directed against persons or animals, electrical equipment or the machine itself.



If it does not leak any water from the hose tail of the unloader whilst the trigger is pulled the unloader is working correctly. *(If there is low pressure and the unloader is working correctly it is likely the pump seals and/or pump valves need replacing)*



If it does leak water from the hose tail whilst the trigger is pulled the unloader is **NOT** working correctly. Either an Inline pressure test is required (Inline pressure kit required Part No. **INLINETK**) or replace (Recommended) with a Pre-set unloader valve (**PUV25**).



5. Replace unloader if necessary, re-fit unloader bypass hose and secure with hose clips.



CAUTION: Pinch points and crush hazards are present when moving the canopy, it is advised to wear safety gloves and boots.

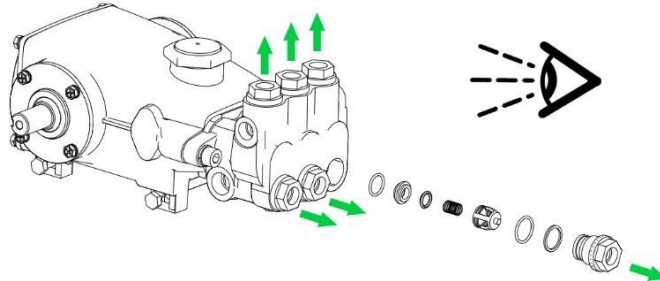


CAUTION: High pressure water is dangerous! Always wear safety goggles



Check pump valves

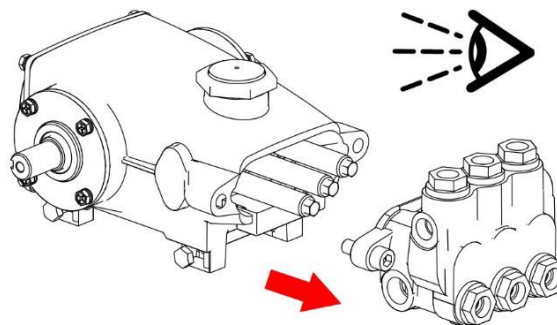
1. Open and Examine all pump manifold valves to see if they are worn or blocked open.



IMPORTANT: Re-torque the valve plugs to 58nM (43 lb/pf)

Inspect pump seal condition

2. Remove the manifold and inspect the pump seals and ceramics. Renew any damaged parts. (refer to the Brendon CAT45F pump service document for instruction)



IMPORTANT: Only competent personnel should perform any servicing of this pump. Refer to the BBW35KPE parts manual for spares. For technical support contact us via: Email – sales@powerwashers.co.uk or phone +44(0)1984 624500



DANGER: Ensure machine is turned off, disconnected and all inline pressure is released prior to any service on the pump. Always wear safety goggles and gloves.



IMPORTANT: Always re-prime the pump after replacing any internal parts of the pump; failing to do so can cause farther damage.

Brendon BBW35KPE (+ES) – Service schedule

We recommend that the **Brendon BBW35KPE (+ES)** service schedule should be followed to optimise the maximum performance and longevity of the machine.



TIP: Keep a record of all the maintenance and services of this machine to ensure the schedule below is met.

Please refer to the **Health & Safety, PPE & Maintenance** sections prior to any service work on this machine.

Service Schedule					
Honda GX390 - Please refer to Honda GX390 owner's manual for servicing information.					
Change Engine Oil	First 1 month or 20Hrs		Then every 100Hrs or 6 months		
Spark Plug	Check /adjust @ 6 months / 100Hrs		Replace @ 12 months / 300Hrs		
Air Filter	Clean @ 6 months / 100Hrs		Replace @ 24 months / 500Hrs		
Fuel filter	Replace @ 24 Months / 500Hrs				
Period or	1 Month	6 Months	12 Months	18 Months	24 Months
Running Hours	50Hrs	250Hrs	500Hrs	750Hrs	1000Hrs
Pump, Tank & Plumbing					
Pump Oil	X	X	X	X	X
Internal Tank Fuel Filter	-	-	-	-	Check
Nozzle/s	-	X	X	X	X
Drive Belts	Check	Tighten	Check	Check	Check
Pump Seals	-	-	-	-	X
Pump Valves	-	-	-	-	Check
Unloader Valve	-	-	-	-	X
HP Hose & Fittings	Check	Check	Check	Check	X
Gun & Lance	Check	Check	Check	Check	X
Trailer					
Brakes	-	Check	Check	Check	X
Tyres	Check	Check	Check	Check	Check
Hitch Coupling	Check	Grease	Check	Grease	Check
Lights	Check	Check	Check	Check	Check

(X = Replace)

Service history

Please service this machine regularly to optimise performance and longevity.

For spares or assistance please call the Brendon help-line on +44 (0)1984 624500 or email Spares@powerwashers.co.uk

Date	Hours	Service / repair description	Completed by

BBW35KPE (+ES) - Pre-use safety check sheet.

We recommend that this sheet is filled out by the operator prior to every use, it is a simple visual check that the machine and its components are in good condition / working order.



TIP: Make copies of this page for the operators to fill out before each use.

If any items are unfit for use, please contact your **HIRE COMPANY** or the Brendon help-line for advice. (use the notes section to detail any fault / issues)

Operator name: _____ Date: ____/____/____

Item/s	Description / What to check	Fit for use	Unfit for use
Engine	Oil level (dip stick)		
	General condition (dents / breaks)		
	Fuel level		
	Condition of control panel / electric cables		
Pump	Pump oil level (sight glass)		
	Belt condition		
Plumbing	Condition of Unloader & Thermo sensor valves		
	Hoses & connectors (leaks / cracks)		
Canopy / enclosure	Canopy (dents, cracks or breaks)		
	Condition of hinges, latches & locks		
Gun & lance	Trigger and lance assembly (leaks / cracks)		
	Delivery hose, reel & connectors (leaks / cracks)		
	Condition of nozzle/s		
Pressure gauge	General condition		
	Shows pressure when trigger in operation		
Bowser chassis	Chassis (dents, cracks or breaks)		
	Back bar (dent, cracks or breaks)		
Item/s	Description / What to check	Fit for use	Unfit for use

Bowser tank	Main water tank (leaks / cracks)		
	Water level		
	Detergent tank (leaks / cracks)		
	Glycol (anti-freeze) tank (leaks / cracks)		
	Plumbing (hoses & connectors)		
Bowser trailer	General condition (dents / breaks)		
	Brakes working correctly (no movement): <ul style="list-style-type: none"> • Cables x2 • Hand brake lever • Brake rod 		
	Condition of Wheels / tyres <ul style="list-style-type: none"> • Pressure (4.5Bar) • Tyre tread 		
	Lights: <ul style="list-style-type: none"> • Plug & lead condition • Taillights (left / right) • Stop (left / right) • Indicators (left / right) • Fog lights (left / right) • Number plate lights (left / right) • Reversing light • Amber side reflectors x4 • Front facing reflectors x2 		
	Condition of hitch (running gear) <ul style="list-style-type: none"> • Breakaway cable • Ball lock lever (if applicable) • Locking pin (if applicable) • Bellow (splits / tears) • Jockey leg & handle function • Jockey wheel condition 		

Notes

Anti-Freeze COSHH Information



Product:	GP3 anti-freeze / coolant.
Application:	Water freezing point suppressant.
Composition:	Mono Ethylene glycol with anti-corrosion additives.

Physical Data:	Green/Blue liquid. Soluble in water.
Boiling Point:	198°C.
Specific Gravity:	1.13 @ 20°C
Odour:	Sweetish.

Fire Hazard Data:	Flash point = 111°C.
Hazardous Combustion Products:	Oxides of carbon, water vapour and Unidentified carbon compounds.
Extinguisher media:	CO2, Dry Powder, Foam, Halon, Water Vapour.
Incompatible materials:	Strong oxidizer's and Perchloric acid.

Toxicological Data:	Toxic Dose - 100ml adult man - Ethylene glycol.
TLV:	10Mg/m3 (Mist) 60Mg/m3 (Vapour).
Effect on Skin:	Can cause irritation.
Effect on Eyes:	Mild irritation and smarting, with temporary conjunctive reaction.

Emergency and First Aid Procedures:

Ingestion:	Can be fatal (Minimal dose 100 ml adult men) DO NOT INDUCE VOMITING. Seek urgent medical attention Give milk or water if patient is conscious.
Contact with eyes:	Flush with plenty of water for 15 minutes.
Contact with skin:	Wash with soap and water.
Inhalation of mist:	In the event of dizziness or nausea, remove from exposure keep warm and at rest. If affects persist, seek medical attention. If breathing stops give artificial respiration and if necessary cardiac resuscitation. Seek medical help. Notes for Doctors: Gastric lavage should be considered if significant quantities have been swallowed in previous 4 hours.

Spillages:	Soak up with absorbent material and collect solids in container. Clean floor with water.
Disposal:	Incinerate or land dump in accordance with local regulations.



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Classic 10W-40 COSHH Information



Product:	Classic 10W-40.
Application:	Motor oil.
Composition:	Mineral oil of petroleum origin.

Physical Data:	Clear yellow thick slippery liquid, insoluble and floats on water.
Boiling Point:	n/a.
Specific Gravity:	0.865 - 0.875 @ 15°C.
Odour:	Characteristic.

Fire Hazard Data:	Flash point = 234°C.
Hazardous Combustion Products:	gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.
Extinguisher media:	Carbon dioxide (CO ₂). ABC powder. Foam. Water spray or fog.
Incompatible materials:	Strong oxidising agents.

Toxicological Data:	Toxic Dose: No data, unlikely event, obtain medical advice.
TLV:	(TLV) TWA 5 mg/m ³ (highly refined).
Effect on Skin:	Can cause irritation.
Effect on Eyes:	Mild irritation.

Emergency and First Aid Procedures:

Ingestion:	Clean mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.
Contact with eyes:	Flush with plenty of water for 15 minutes.
Contact with skin:	Wash with soap and water.
Inhalation:	Remove casualty to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Notes for First Aiders: First aider needs to protect himself. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device

Spillages:	Soak up with absorbent material and collect solids in container.
Disposal:	Clean floor with soapy water. Dispose in accordance with local regulations.



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Hydraulic Oil ISO 68 COSHH Information



Product:	Hydraulic Oil ISO 68.
Application:	Hydraulic oil
Composition:	Mineral oil of petroleum origin.

Physical Data:	Clear yellow thick slippery liquid, insoluble and floats on water.
Boiling Point:	n/a.
Specific Gravity:	0.882 @ 15.5°C.
Odour:	Oily Characteristic.

Fire Hazard Data:	Flash point = 220°C.
Hazardous Combustion Products:	gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.
Extinguisher media:	Carbon dioxide (CO ₂). ABC powder. Foam.
Incompatible materials:	Strong oxidising agents.

Toxicological Data:	Toxic Dose: No data, unlikely event, obtain medical advice.
TLV:	No Data.
Effect on Skin:	Can cause irritation.
Effect on Eyes:	Mild irritation.

Emergency and First Aid Procedures:

Ingestion:	Clean mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.
Contact with eyes:	Flush with plenty of water for 15 minutes.
Contact with skin:	Wash with soap and water.
Inhalation:	Remove casualty to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Notes for First Aiders: First aider needs to protect himself. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Spillages:	Soak up with absorbent material and collect solids in container.
Disposal:	Clean floor with soapy water. dispose in accordance with local regulations.



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Traffic Film Remover (TFR) COSHH Information



Product:	TFR ULTRA.
Application:	Cleaning agent.
Composition:	Mixed chemicals (Harmful / Corrosive)

Physical Data:	Dark Red Fluid. Soluble in water.
Boiling Point:	100°C.
Specific Gravity:	1.150 c/St typical @ 20°C.
Odour:	Mild.

Fire Hazard Data:	Flash point = n/a.
Hazardous Combustion Products:	Oxides of carbon, water vapour and Unidentified carbon compounds.
Extinguisher media:	CO2, Dry Powder, Foam, Halon, Water Vapour.
Incompatible materials:	Acids, aluminium, tin, zinc or alloys containing these metals, strong oxidising agents.

Toxicological Data:	Classed as serious eye irritant.
TLV:	2mg/m3 @ 15min STEL.
Effect on Skin:	Can cause irritation.
Effect on Eyes:	Mild irritation and smarting, with temporary conjunctive reaction.

Emergency and First Aid Procedures:

Ingestion:	Wash out mouth with water and give sips of cold water to soothe the affected parts. Do not induce vomiting.
Contact with eyes:	Flush with plenty of water for 15 minutes.
Contact with skin:	Wash with soap and water.
Inhalation of mist:	Remove to fresh air. If symptoms persist, seek medical advice. Notes for Doctors: Treat symptomatically.

Spillages:	Soak up with absorbent material and collect solids in container. Hose away with plenty of water diluting to at least 5% w/v (50 g / litre).
Disposal:	Dispose only in accordance with Local and National Authority regulations.



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