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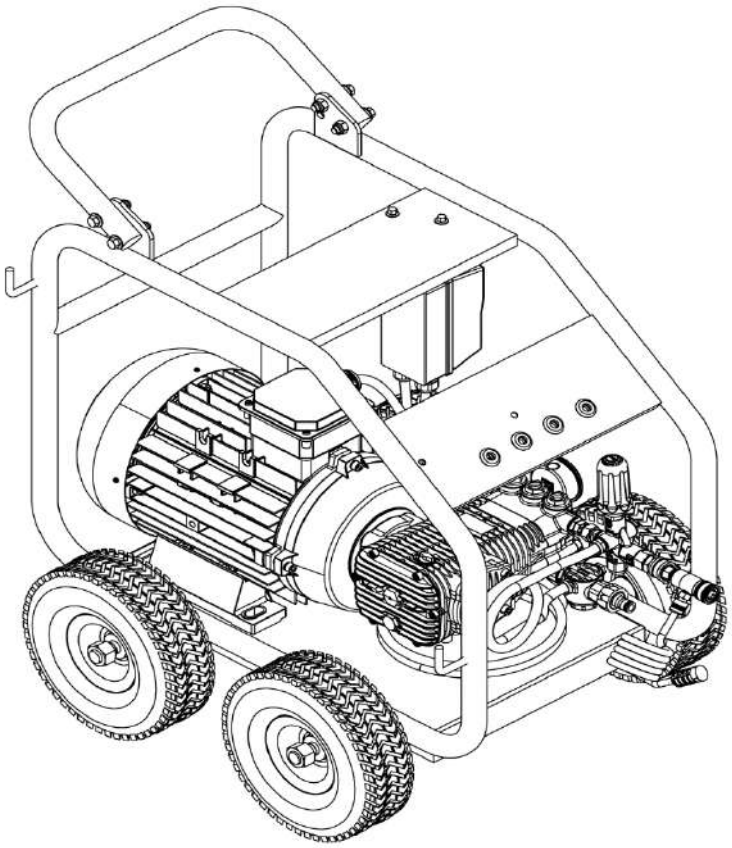
# Operator's Manual

## Industrial Electric Pressure Cleaners



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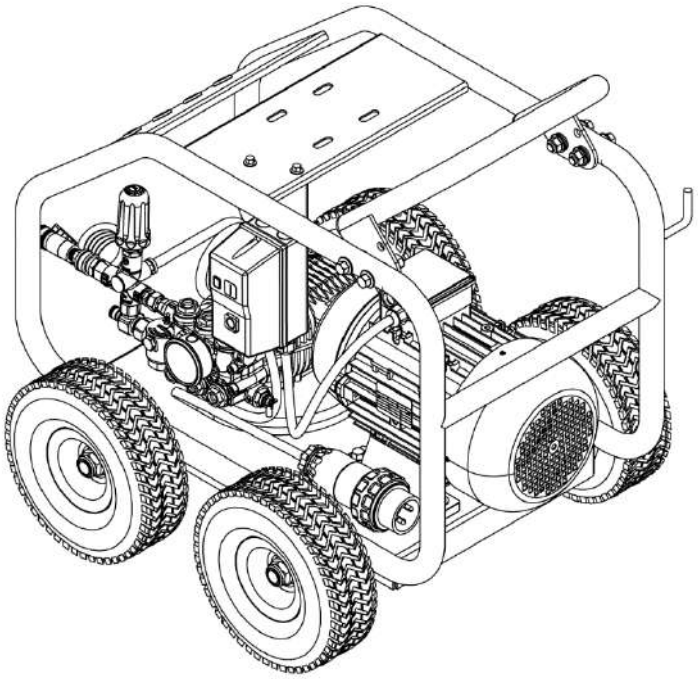

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# CLASSIFICATION

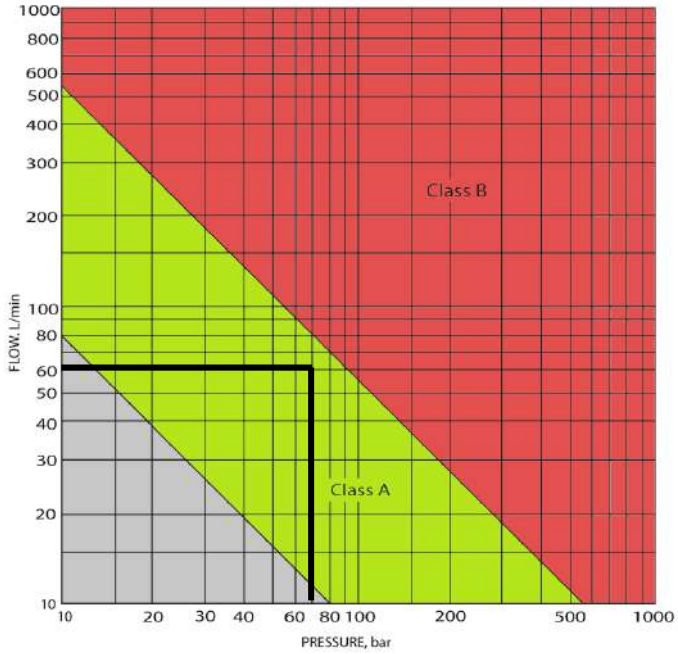
High Pressure Water Cleaning systems which include all BAR pressure cleaners are separated into two classes as per Australian and New Zealand Standard 4233.1 & 2

Class A systems – Produce [pressure*flow] between **800 bar litres per minute** and **5600 bar litres per minute**.

Class B systems – Produce [pressure*flow] of **5600 bar litres per minute** or greater.

A high pressure cleaning system cannot be reclassed by reducing available working pressure, the rating is based on the units' maximum output capability.

The following graph provided by Safe Work Australia can assist you to determine the class of your system.




**Helpful conversions**

| Pressure | | | |
|---|---|---|---|
| 1 | psi | = | 0.0689 bar |
| 14.5 | psi | = | 1 bar |
| 1000 | psi | = | 68.9 bar |
| 2900 | psi | = | 200 bar |

| Volume | | | |
|---|---|---|---|
| 0.264 | gallons | = | 1 litres |
| 1 | gallons | = | 3.785 litres |
| 2.642 | gallons | = | 10 litres |
| 7.925 | gallons | = | 30 litres |

**[π = 3.14]**

**Bar litres per minute** = pressure (bar) x flow (L/min)

For example –

**1000 psi** gives **68.9 bar** pressure from the conversion table and let's say we want **60 L/min** of flow. So if we follow the graph, we can see that the lines meet in the green section which is class A and if we put the values into the formula we get –

68.9 bar x 60 L/min = **4134 bar litres per minute**

which justifies the system to be in the **class A** range as we witnessed from the graph.

**Nozzle reaction force (newtons)** = 0.182 x pressure (bar) x [π x (nozzle diameter / 2)$^2$ (mm$^2$)]

[Please refer to online catalogue page - 526 for nozzle diameter.]

This manual references or includes material from the following sources:
Guide for managing risks from high pressure water jetting, Safe Work Australia - https://www.safeworkaustralia.gov.au/
AS/NZS 4233.1:2013 High pressure water jetting systems – Safe operation and maintenance
AS/NZ2 4233.2:2013 High pressure water jetting systems – Construction and performance

# CONTENTS

# INTRODUCTION

Thanks for purchasing an Electric Pressure Cleaner from BAR Group. Your new equipment is designed to operate at high pressures for domestic/professional cleaning applications.

This manual is an important part of your pressure cleaner and was written to take you through the safety requirements and operating functions of your machine. It should be read thoroughly before initial use, and referred to often to ensure adequate safety and service concerns are being addressed.

Reading the operator's manual thoroughly will help avoid any personal injury or damage to your machine. By knowing how best to operate this machine, you will be better positioned to instruct others who may also operate the unit.

You can refer back to the manual at any time to help with understanding procedures or troubleshooting, so store it with the machine at all times.

Attention: Read through the complete manual prior to the initial use of your electric pressure cleaner.

# PRODUCT DETAILS

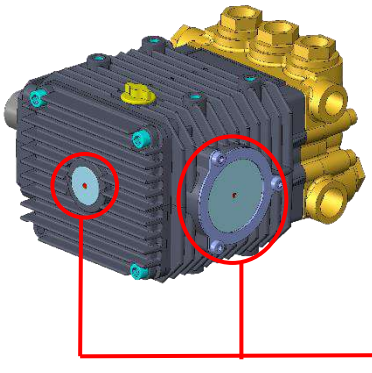
If you need to contact an Authorized Dealer or our Customer Service line (02) 4577 2144 for information on servicing, always provide the product model and serial numbers.

You will need to locate the model and serial number for your machine and record the information in the table provided below.

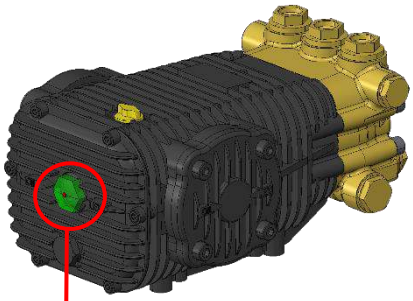
| |
|---|
| **Date of Purchase:** |
| **Dealer Name:** |
| **Dealer Contact:** |

| **Product Identification Numbers** |
|---|
| **Model Number:** |
| **Serial Number:** |

| **Lubrication Fluids** | |
|---|---|
| **Pump:** | **Universal Tractor Transmission Oil** |



Please check pump oil level through the sight glass. Make sure it doesn't fall below or exceed past the red dot.



# RISK ASSESSMENT

## Managing risks

Risk is the potential for injury or negative consequence based on the likelihood of a specific event occurring. Controls must be put in place to eliminate the risk. Where the risk cannot be entirely eliminated, implement controls to reduce risk by lowering the chance of the event occurring or minimising the severity of the consequence.

The risk matrix below can be used to provide a rank for any specific event.

| Likelihood \ Consequences | Extreme | Major | Moderate | Minor | Negligible |
|---|---|---|---|---|---|
| Certain | 25 | 23 | 20 | 16 | 11 |
| Likely | 24 | 21 | 17 | 12 | 7 |
| Possible | 22 | 18 | 13 | 8 | 4 |
| Unlikely | 19 | 14 | 9 | 5 | 2 |
| Rare | 15 | 10 | 6 | 3 | 1 |

| Rank | Risk |
|---|---|
| ≥18 | Very High |
| 12-17 | High |
| 6-11 | Medium |
| ≤5 | Low |

Some potential hazard events, risk rankings and possible control measures are outlined below.

| Potential Hazard | Risk/Consequence | Risk Ranking | Control measures |
|---|---|---|---|
| High pressure water jet | Operator injury, bystander injury | 18 | • Only point jet at area to be cleaned<br>• Use signage and barriers around work area<br>• Stop cleaning if a person enters the work area<br>• Wear appropriate PPE<br>• Never use damaged equipment<br>• Never leave running unit unattended |
| Unsecured machine moves during use | Operator injury, bystander injury | 8 | • Use wheel chocks for mobile units<br>• Periodic checks of mounting fasteners/locking plates for vehicle mounted units |
| Uneven ground or entangled hoses | Operator injury (trip/fall) | 8 | • Clear work area of trip hazards prior to operating pressure cleaner<br>• Use hose reel to avoid tangle hoses<br>• Wear non-slip footwear |
| Noise | Hearing damage | 11 | • Use hearing protection when nearby unit |
| Contact with chemicals | Skin irritation/burns, Sight impairment, Respiratory issues (fumes) | 13 | • Only use chemical cleaner if absolutely necessary.<br>• Adequate ventilation for work area<br>• Wear appropriate PPE (gloves, goggles, etc.)<br>• Follow chemical manufacture instructions |
| High temperature | Operator injury (burns) | 9 | • Avoid hot engine/pump/exhaust components<br>• Appropriate warning labels |
| Fire or explosion | Operator injury, bystander injury, equipment damage | 14 | • Allow engine to cool adequately before refuelling<br>• Ensure battery terminals are correctly protected/insulated<br>• Never overcharge battery |

## Do's & Don'ts

| DO |
|---|
| ✓ Contact site engineer, obtain necessary permits and note special precautions. |
| ✓ Erect barriers, rope off the clear area. Erect warning signs. |
| ✓ Ensure adequate, clean water supply and check for leaks at supply inlet. |
| ✓ Ensure power cable/electrical plug does not have any cuts, abrasions or damage. |
| ✓ Check oil level on pump, detergent level, detergent tube & filter. Repair any leaks. |
| ✓ Lay out equipment and visually inspect for damage. (Hoses, connections, etc.) |
| ✓ Assemble equipment checking all joints. |
| ✓ Ensure fan and fan cover are clean on electric motor. |
| ✓ Fully prime equipment and bleed where necessary. |
| ✓ Fit gun or lances and/or control valves. Visually check that correct size and type of nozzle is fitted for the application. |
| ✓ Increase pressure slowly until operating conditions are reached. |
| ✓ Re-check hose couplings and joints for leaks. |
| ✓ Rectify all leaks, ensuring that the unit is shut down and line pressure released before making adjustments. |
| ✓ Ensure all operators are wearing suitable protective clothing and are correctly positioned. |
| ✓ Regularly check operating conditions. (Oil and water pressure, condition of filters, pipework and hoses). |
| ✓ Ensure that all pressure in lines is released on any shutdown. |
| ✓ On completion, strip down equipment and store in a clean condition. |
| ✓ Clear the site of barriers, warning signs and debris, to customers' satisfaction. |
| ✓ On completion, ensure that customer has signed the necessary paperwork. (Satisfaction notes, work sheets, etc.) |

| DO NOT |
|---|
| ✗ **DO NOT** commence work on site without necessary permission. |
| ✗ **DO NOT** commence any pressure cleaning operation until warning signs are on show and area roped off. |
| ✗ **DO NOT** operate without adequate personal protection for eyes, head, ears, hands, feet and body. |
| ✗ **DO NOT** use oil if it looks milky and check pressure gauge to run at recommended value. |
| ✗ **DO NOT** operate unit before ensuring proper functioning of STOP button. |
| ✗ **DO NOT** run any equipment with any leakage whatsoever without rectifying. |
| ✗ **DO NOT** attempt to tighten any pressure joint whilst equipment is under pressure. |
| ✗ **DO NOT** by-pass safety cut-outs. Do check reasons for malfunction. (Low water, dusty fan & fan cover, low oil level, etc.) |
| ✗ **DO NOT** operate with guns and control valves not functioning correctly. (Failing to shut off, or leaking). |
| ✗ **DO NOT** operate guns or control valves with the operating lever tied back, wedged or locked in the on position. |
| ✗ **DO NOT** direct the water jet at any person or animal. |
| ✗ **DO NOT** direct the water jet towards materials containing asbestos. |
| ✗ **DO NOT** operate with badly worn or undersized nozzles. |
| ✗ **DO NOT** continue to operate if any unauthorized personnel enter the operating/work area. |
| ✗ **DO NOT** operate equipment at power levels which can produce a reaction force greater than the operator can comfortably absorb. (250N is advised as a maximum) |
| ✗ **DO NOT** leave unit running unattended. |
| ✗ **DO NOT** leave equipment unattended on site. |
| ✗ **DO NOT** store unserviceable equipment. (Notify supervisor.) |
| ✗ **DO NOT** leave the site in a dangerous or untidy condition. |
| ✗ **DO NOT** leave site without notifying all parties. (Engineers, site agents, occupiers, etc.) |

# SAFETY

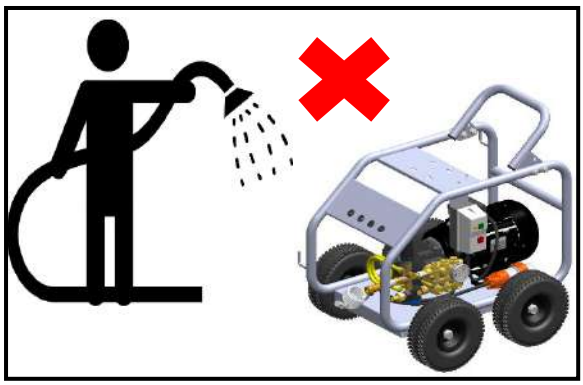
## Precautions

Using an Electric Pressure Cleaner can be very hazardous and all operators must be trained and competent. Do not operate machine alone, a second operator should always be present.

High pressure water jets can easily penetrate the skin, never place any part of your body in front of the high pressure nozzle.

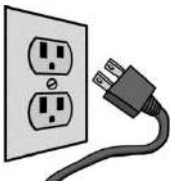
Completely drain water from all components if freezing conditions are expected. Ice forming inside pump/hoses can cause significant personal injury or equipment damage and keep detergent lines clean if the unit is not used regularly.

**DO NOT** wash or direct water at your pressure cleaner under any circumstances as it may damage the electrical equipments and may possess risk of electrocution. **⚠WARNING**



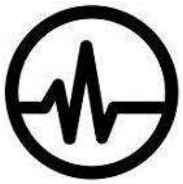
## Electrical Connection

The voltage rating and number of phases for individual units as mentioned on technical data in PARTS LISTS must correspond to that of the electrical mains outlet. Any damage of appliance due to not following instructions ****WILL NOT BE COVERED BY WARRANTY****.



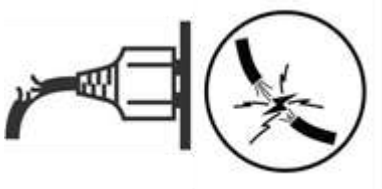
Only connect the unit to electrical installation made by **certified electrician and comply with IEC 60364-1.**

This appliance should only be connected to an earthed power supply fitted with an appropriately sized fuse.




Check for voltage fluctuations when starting the unit as it should not occur if the impedance of the transfer point is below 0.15Ω.

It is recommended that the electrical supply to this unit should include either a residual current device that will interrupt the supply if the leakage current to earth **exceeds 30mA for 30 ms** or a device that will prove the earth circuit.



Ensure that the power cord assembly is not damaged or cut before every use. If it is DO NOT connect the unit, have it replaced by an electrician or authorized service technician and DO NOT pull on the power cord in order to unplug the unit, remove plug from power outlet.

## Fire & Chemical Hazards

DO NOT use flammable liquids, undiluted acids or solvents as a chemical as the spray produced would be highly flammable. ⚠**WARNING**

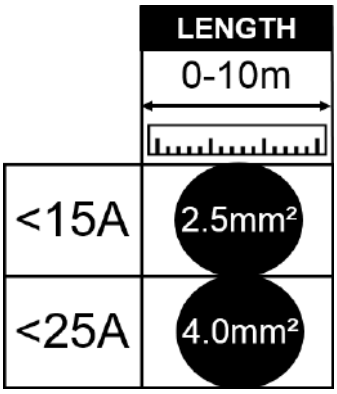
In the case of accidental contact with cleaning detergent or oil or if any spillage occurs, please follow instructions as mentioned on the product body or wash off immediately with clean running water.


Please wear rubber gloves to avoid injury during chemical handling.

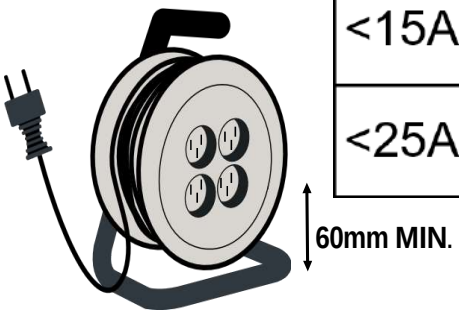
## Extension Cord

The following steps and precautions must be taken when handling extension cord:

- ✓ If using an extension cord make sure it is according to cross section / maximum length requirements as shown to the right.




- ✓ Inadequate extension cords can be dangerous. Extension cord should be suitable for outdoor use, and the connection needs to be kept dry and off ground. It is advised to use a cord reel which keeps the socket at least 60mm above the ground.




- ✓ Ensure the extension cord is fully unrolled, kept dry, away from traffic, sharp edges and heat to avoid damage or cuts.
- ✓ If using an extension cord, please check it is not connected to mains voltage when connecting / disconnecting to the unit's power cord.
- ✓ Loose extension cords and power cables provide a potential trip hazard, especially when they cross pathways.

- ✓ Take safety measures like placing traffic cones along the cord or tape the cord to the floor with duct tape.

## Site & Work Area

When working on a construction site, adhere to all signage and ensure correct worksite PPE is worn.

Always assess the site and plan your work prior to set up of the pressure cleaner. Things to consider are:

- Potential work area hazards
- Potential environmental issues
- Appropriate control measures
- Safety standards
- Emergency procedures

The work area should be adequately ventilated, well lit and free from obstructions. Block off the area using barriers to keep bystanders and non-essential persons away. Barriers should be erected at a distance outside the effective range of the high pressure spray so that it is no longer harmful to persons or animals.

Appropriate signage such as "DANGER – HIGH PRESSURE WATER CLEANING EQUIPMENT IN USE" should be clearly visible to anyone approaching the work area. Nearby workers should be notified of intended operations prior to commencing works.

## Personal Protective Equipment (PPE)

Always wear the appropriate protective equipment.

Good Workplace Health and Safety practices and other risk control measures are not replaced by the use of personal protective equipment. Preventative measures should always be explored before considering the requirement of PPE. Where PPE is issued, training in the correct use and maintenance should be provided to all operators and workers.

- **Head protection**
  Where required, head protection complying with AS/NZS 1801: 1997: *Occupational protective helmets* should be worn.
- **Eye protection**
  Eye protection suitable for the task, of good fit on the worker and complying with AS/NZS 1337: 2010 (Series): *Personal eye protection* should always be worn when the worker is near a cleaning operation. The worker in direct control of the flow of water should as a minimum, wear safety glasses and a face shield complying with AS/NZS 1337.
  Where liquids which can cause eye damage are being used at the workplace it may be necessary to use a combination of a face shield visor and goggles or a full hood with shield.
- **Leg and body protection**
  Workers should wear waterproof protective clothing complying with AS 3765.1-1990: *Clothing for protection against hazardous chemicals — Protection against general or specific chemicals* or AS 3765.2-1990: *Clothing for protection against hazardous chemicals – Limited protection against specific chemicals.*
  Leg and body armour manufactured from materials capable of withstanding the direct force of the water jet should be used by pressure cleaning operators where there is risk of injury. Liquid or chemical-resistant suits should be worn where a risk assessment indicates these are required.
- **Hand protection**
  Hand protection complying with the recommendations of AS/NZS 2161.2:2005: *Occupational protective gloves - General requirements*, AS/NZS 2161.3:2005: *Occupational protective gloves - Protection against mechanical risks* or AS/NZS 2161.5:1998: *Occupational protective gloves - Protection against cold*, should be worn where a risk assessment indicates this is required.
- **Foot and lower leg protection**
  Workers should wear protective footwear complying with AS/NZS 2210.3:2009: *Occupational protective footwear - Specification for safety footwear*. A foot and lower leg guard or shield made from material capable of withstanding the direct force of the water jet should be used where there is a risk of foot or leg injury.
  Further guidance on the selection of footwear is in AS/NZS 2210.1: 2010: *Safety, protective and occupational footwear - Guide to selection, care and use*.

- **Hearing protection**
  Where noise cannot be eliminated or minimised so far as is reasonably practicable personal hearing protectors as well as instruction and training in their use should be provided. Hearing protectors should be selected in accordance with AS/NZS 1269.3:2005: *Occupational noise management – hearing protector program* and tested in accordance with AS/NZS 1270:2002: *Acoustics - hearing protectors*.

- **Respiratory protection**
  Workers involved in high pressure water cleaning operations should wear respiratory protection where there is an assessed risk of injury that can be prevented by such equipment. Respiratory protection should only be worn by workers who have been trained in its correct use.
  A respiratory protection program should be implemented where there is evidence it could prevent injury or disease. AS/NZS 1715:2009: *Selection, use and maintenance of respiratory protective equipment* provides guidance on the implementation of respiratory protection programs.

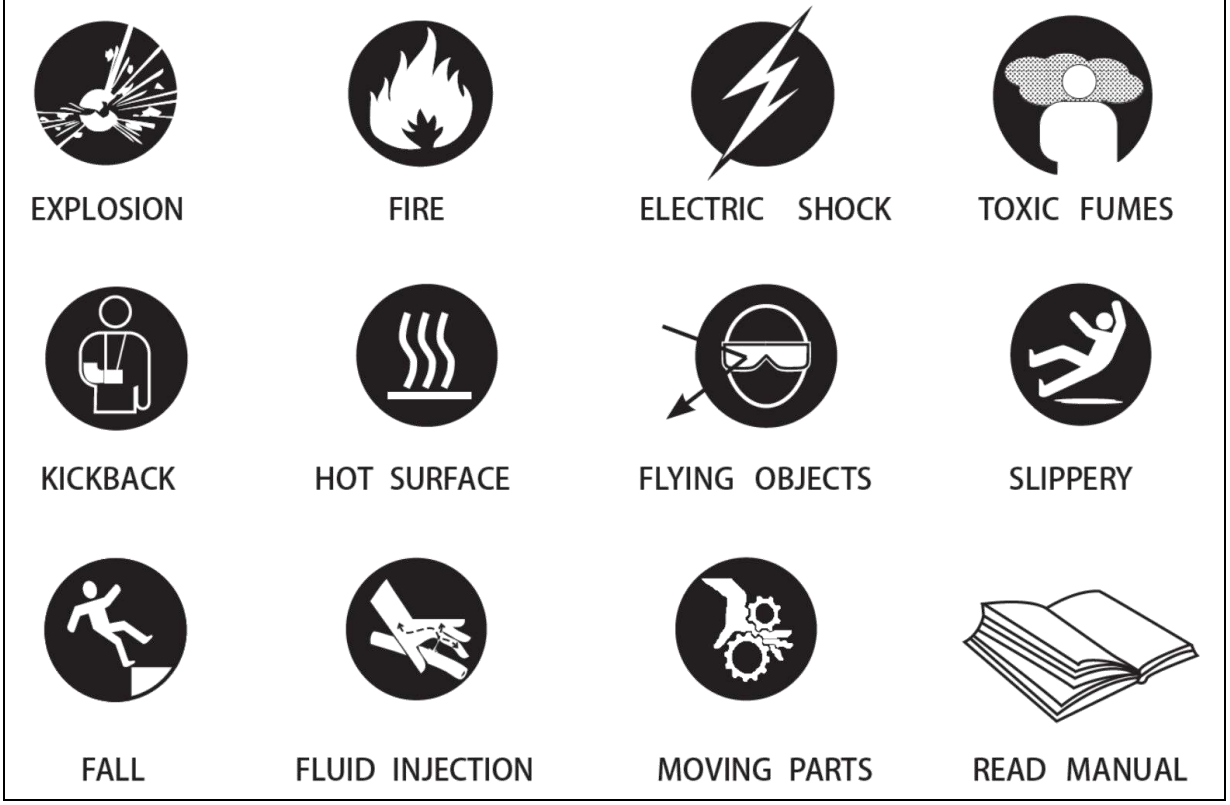
## Hazards & Symbols

This is the safety alert symbol. It is used to draw attention to potential hazards.
Obey all safety messages that follow this symbol to avoid possible injury or death.

The safety alert symbol is used in conjunction with a signal word, a pictorial symbol and/or safety message to assist in identifying the hazard.

| | |
|---|---|
| **DANGER** indicates a hazard which, if not avoided, will result in death or serious injury. | **WARNING** indicates a hazard which, if not avoided, could result in death or serious injury. |
| **CAUTION** indicates a hazard which, if not avoided, might result in moderate or minor injury. | **NOTICE** indicates a situation that could result in equipment or property damage. |

### Hazard Symbols



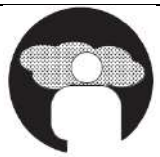
## ⚠ WARNING

Risk of electrocution.

Contact with power source can cause electric shock or burn.

- NEVER spray towards a power source.
- Ensure all nearby electrical equipment is appropriately protected against the ingress of water or debris.

## ⚠ WARNING



Some chemicals or detergents may be harmful if inhaled or ingested, causing severe nausea, fainting, or poisoning.

- ONLY operate pressure cleaner outdoors.
- Take care when using indoors.
- Use a respirator or mask whenever there is a chance that vapours may be inhaled.
- Read all instructions with mask to be certain the mask will provide the necessary protection against harmful vapours.

## ⚠ WARNING

Contact with motor area can result in serious burns.

- DO NOT touch hot components
- Allow equipment to cool before touching.
- Keep at least 1.5m of clearance on all sides of pressure cleaner unit including overhead.

## ⚠ WARNING

Risk of eye injury.

Spray can splash back or propel objects.

- Always wear safety goggles when using this equipment or in vicinity of where equipment is in use.
- Before starting the pressure cleaner, make sure adequate safety goggles are worn.
- NEVER substitute safety glasses for safety goggles.

## ⚠ WARNING

Use of pressure cleaner can create puddles and slippery surfaces.

Kickback from spray gun can cause loss of balance and/or a fall.

- Operate pressure cleaner from a stable surface.

- The cleaning area should have adequate slopes and drainage to reduce the possibility of a fall due to wet/slippery surfaces.
- Use extreme caution if the pressure cleaner must be used from a ladder, scaffolding, or any other similar location. High risk action can cause death or serious injury.
- Firmly grasp spray gun with both hands when using high pressure spray to avoid injury from spray gun reaction force.

## ⚠ WARNING

The high pressure jet of water produced by this equipment can cut through skin and its underlying tissues, leading to serious injury and possible amputation. Spray gun traps high water pressure, even when it is stopped and water is disconnected, which can cause injury.

- DO NOT allow children to operate the pressure cleaner
- NEVER attempt to repair the high pressure hose. Replace it.
- NEVER attempt to repair leaking connections with sealant of any kind. Replace O-ring or seal.
- NEVER connect high pressure hose to nozzle extension.
- Keep high pressure hose connected to pump and spray gun while system is pressurised.
- ALWAYS point spray gun in safe direction and squeeze spray gun trigger to release high pressure every time unit is stopped.
- NEVER aim spray gun at people, animals, or plants.
- DO NOT leave spray gun unattended while machine is running.
- NEVER use a spray gun which does not have a trigger lock or trigger guard in place and in working order.
- Always be certain spray gun, nozzles and accessories are correctly attached before spraying water.

## ⚠ WARNING

Motor fans and other rotating parts can entangle hands, hair, clothing, or accessories.

- NEVER operate pressure cleaner without protective housings and covers.
- DO NOT wear loose clothing, jewellery or anything that may be caught in the motor fan or other rotating parts.
- Tie up long hair securely.

## ⚠ NOTICE

High pressure jets may damage fragile items including glass.

- DO NOT point spray gun at glass, especially when using 0° nozzle.
- NEVER aim spray gun at people, animals or any other living things.

## ⚠ NOTICE

Improper treatment of pressure cleaner can damage it and shorten its life.

- If you have questions about intended use, contact the nearest authorized BAR dealer, call our support line on (02) 4577 2144, or visit our website bargroup.com.au.
- NEVER operate unit with broken or missing parts, or without protective housings and covers.
- DO NOT by-pass any safety devices on this machine.
- DO NOT tamper with electric control box.

- DO NOT operate pressure cleaner above rated pressure.
- DO NOT modify pressure cleaner in any way.
- Before starting pressure cleaner in cold weather, check all parts of the equipment to be sure ice has not formed.
- NEVER move machine by pulling on hoses or power cord. Use the unit's handle or frame only.
- Correct all defects before operating pressure cleaner.

## Medical

All operators should carry a medical alert card which explains to medical staff the possible nature of the injury, both relating to the high pressure water and any unusual infections that could be present.



Additional medical alert cards are available via our website.

## Incident reports

Incident reporting is vital for improving workplace safety procedures. All accidents, injuries and "near-miss" incidents should be appropriately recorded according to jobsite and company procedures.

The record of these significant incidents provides data to assist in the implementation of safety measures and procedures to eliminate or minimise potential hazards and reduce workplace injuries.

An incident report should also be completed when there is any equipment failure with details of latest inspection recorded.

Details recorded should include but are not limited to:

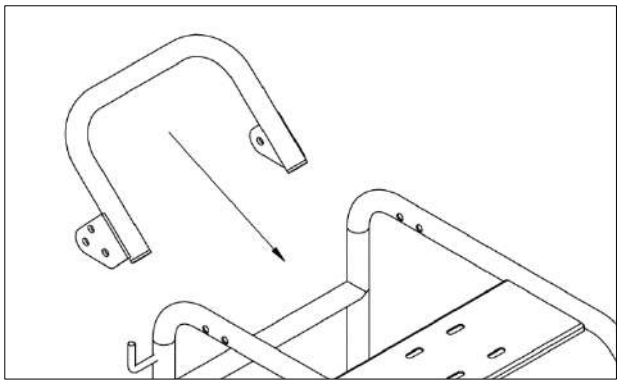
- Date and time of incident
- Location of incident
- Reporting person's name and contact
- Equipment/unit in use (including serial numbers if possible)
- Description of incident
- Description of injury
- Description of equipment/property damage
- First aid or Medical attention received
- Witnesses (other employees or bystanders)

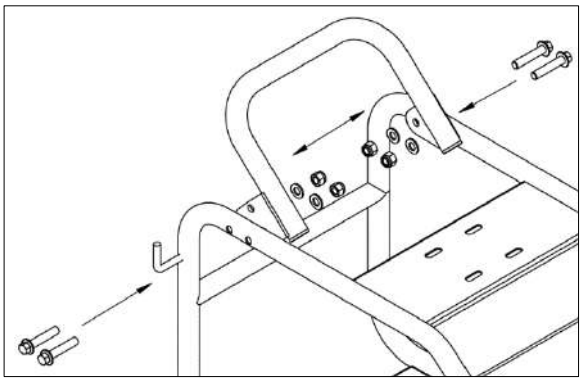
# UNDERSTANDING EQUIPMENT

Some pressure cleaner models require assembly prior to use.

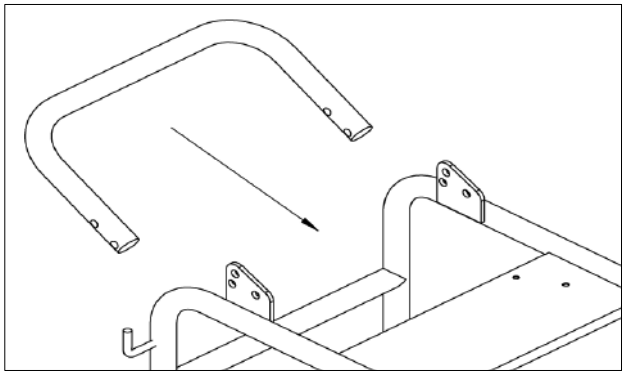
To attach the handle to the frame of your machine, locate the supplied mounting hardware, align handle with holes in frame, place all bolts, nuts and washers in place before tightening. Check all frame bolts regularly.

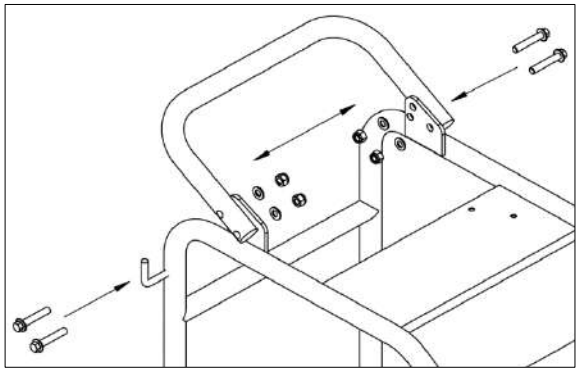
For units using **165 Frame JJ** –





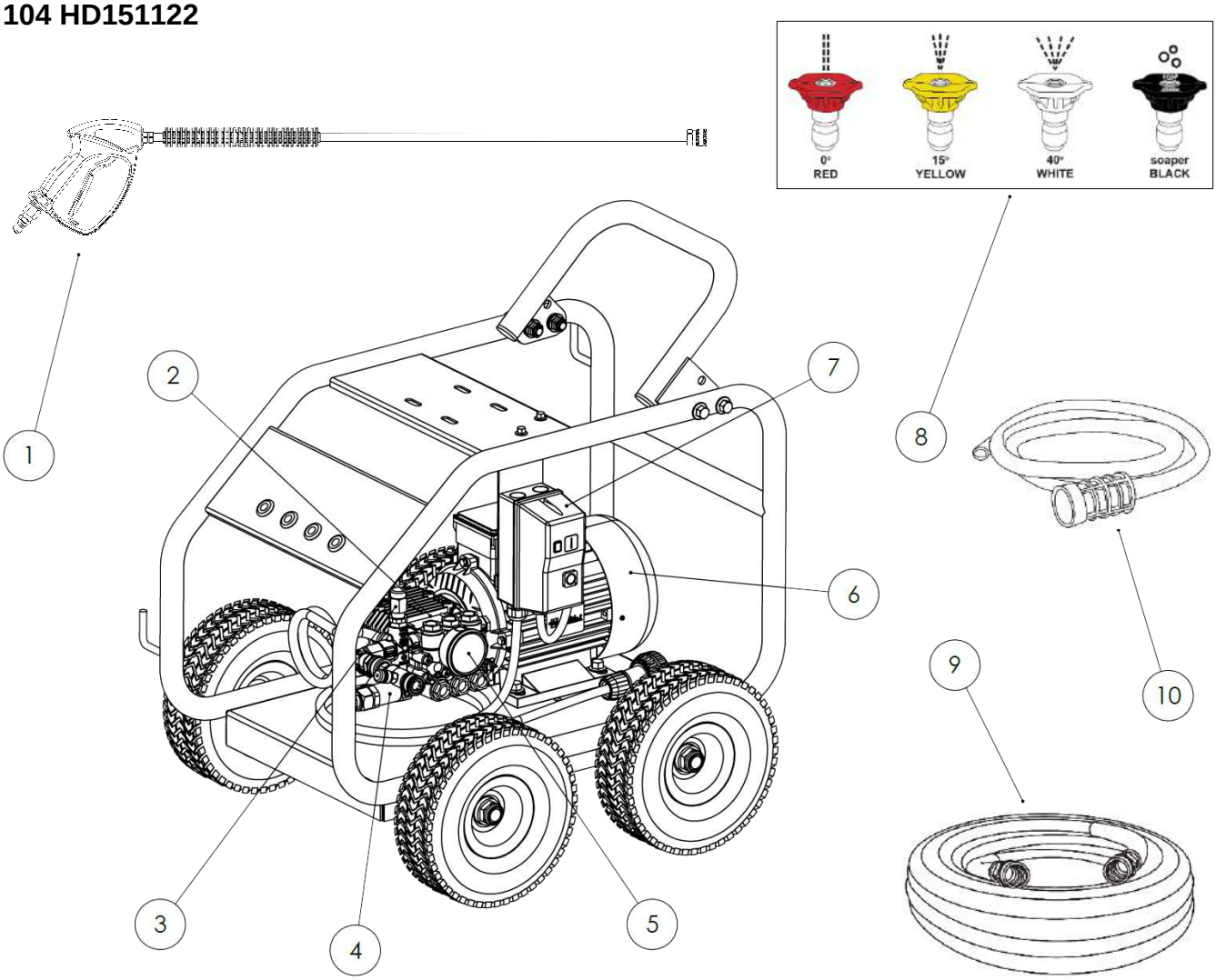
For units using **165 Frame J** –





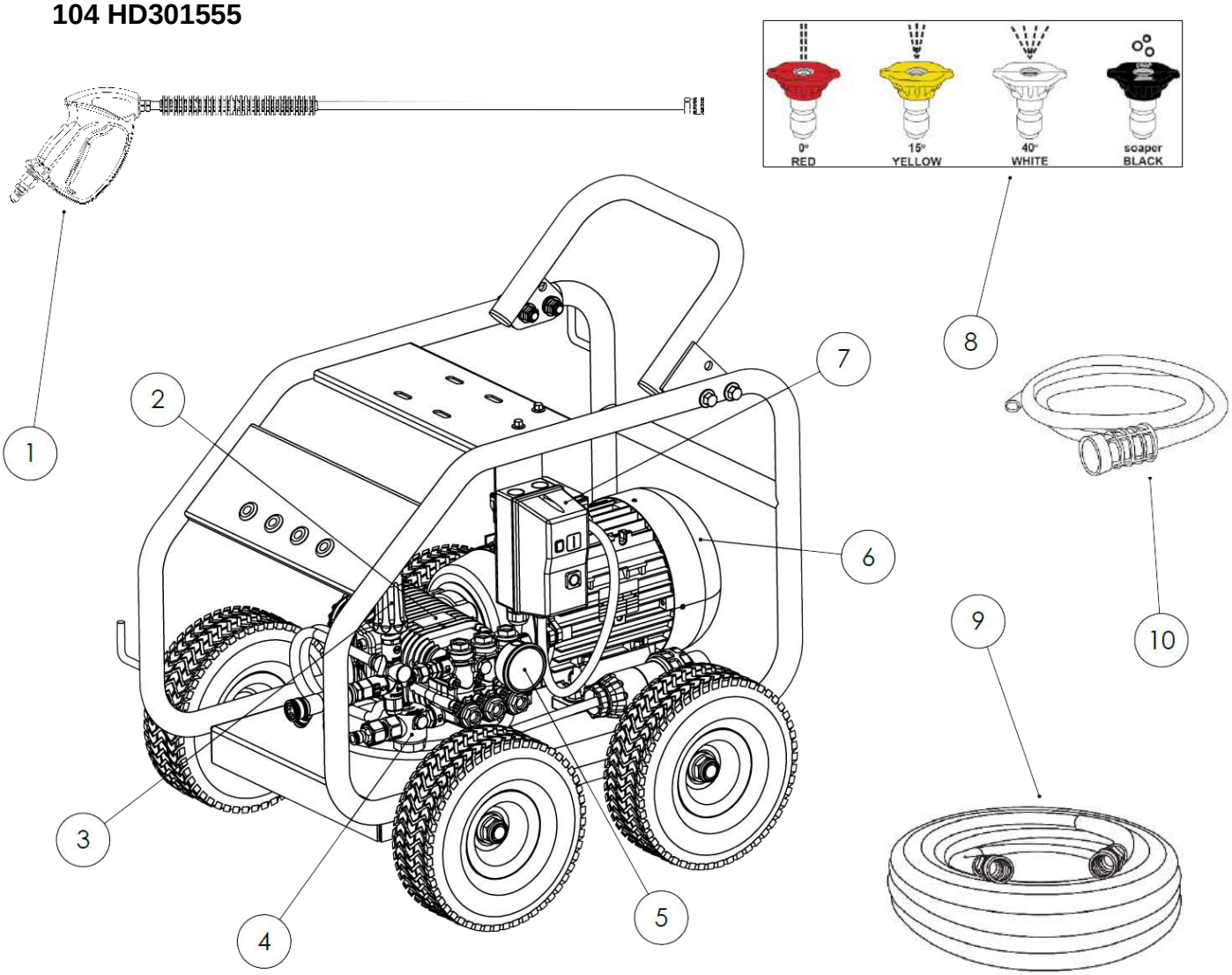
Note: Diagrams on this page are intended for general reference and may vary in appearance to your machine.

## 104 HD151122




1. **Spray gun/Lance assembly** - Controls the application of water onto cleaning surface with trigger device. Includes trigger lock. Allows you to switch between various spray tips.
2. **Pump** - Develops high pressure. Connect the supply hose to the water tank or pump inlet and connect the high pressure hose to the outlet.
3. **Unloader** - Opens to bypass in an over-pressured system. Pressure is pre-set at the factory.
4. **Water filter** - Protects the pump by filtering pollutants and debris out of intake water.
5. **Pressure gauge** - Shows the operating pressure on an easy read dial.
6. **Electric motor** - Powers the unit by converting electricity into mechanical energy.
7. **Switch box** – Used to turn the machine on and off.
8. **Nozzles** - 0°, 15°, 40° and detergent: for various cleaning applications.
9. **High pressure hose** - Designed to withstand the pressure created by the pump. Carries water flow to gun.
10. **Detergent siphoning hose** - Used to draw detergent into a low pressure stream.

## 104 HD301555




1. **Spray gun/Lance assembly** - Controls the application of water onto cleaning surface with trigger device. Includes trigger lock. Allows you to switch between various spray tips.
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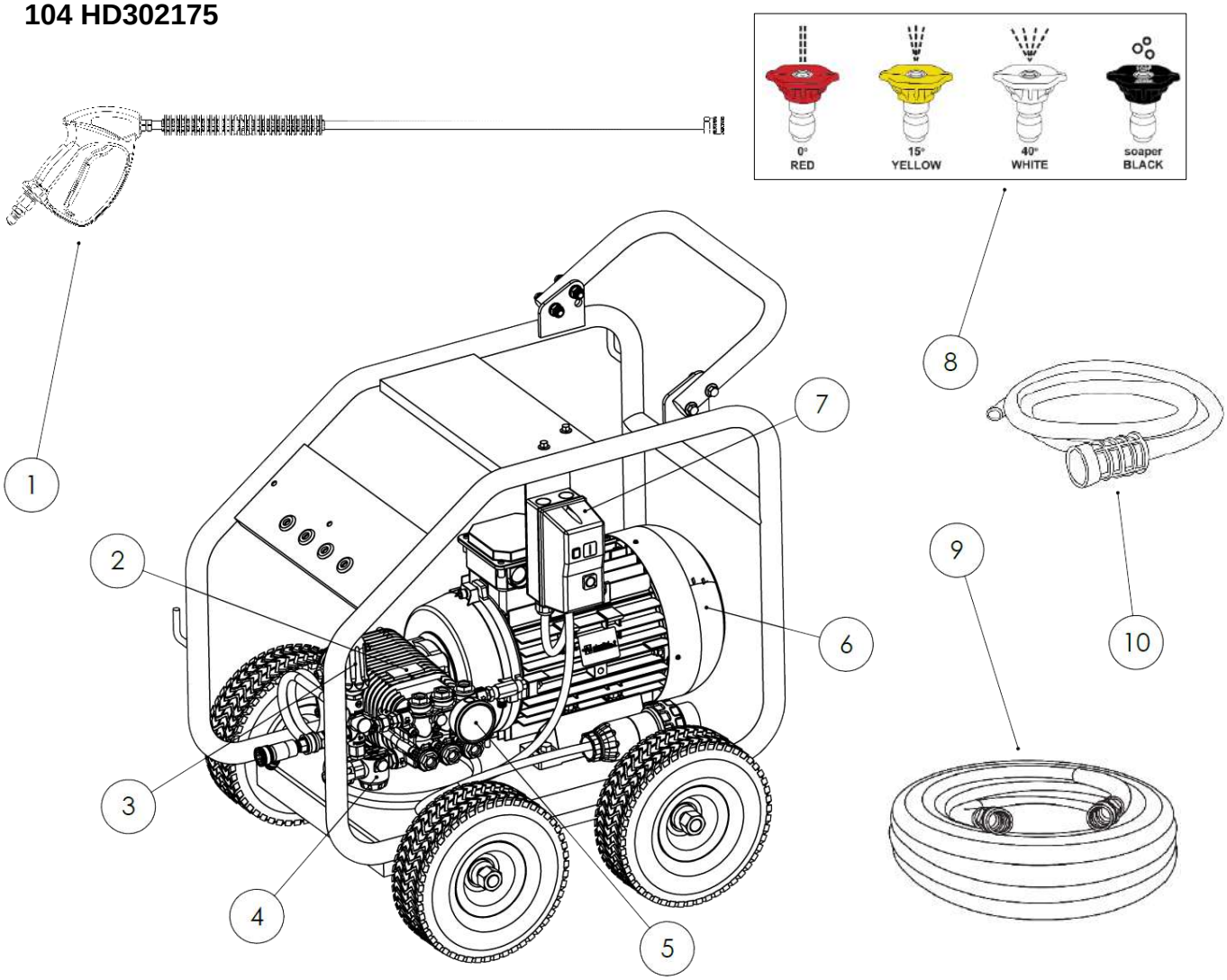
6. **Electric motor** - Powers the unit by converting electricity into mechanical energy.
7. **Switch box** – Used to turn the machine on and off.
8. **Nozzles** - 0°, 15°, 40° and detergent: for various cleaning applications.
9. **High pressure hose** - Designed to withstand the pressure created by the pump. Carries water flow to gun.
10. **Detergent siphoning hose** - Used to draw detergent into a low pressure stream.

## 104 HD302175




1. **Spray gun/Lance assembly** - Controls the application of water onto cleaning surface with trigger device. Includes trigger lock. Allows you to switch between various spray tips.
2. **Pump** - Develops high pressure. Connect the supply hose to the water tank or pump inlet and connect the high pressure hose to the outlet.
3. **Unloader** - Opens to bypass in an over-pressured system. Pressure is pre-set at the factory.
4. **Water filter** - Protects the pump by filtering pollutants and debris out of intake water.
5. **Pressure gauge** - Shows the operating pressure on an easy read dial.
6. **Electric motor** - Powers the unit by converting electricity into mechanical energy.
7. **Switch box** – Used to turn the machine on and off.
8. **Nozzles** - 0°, 15°, 40° and detergent: for various cleaning applications.
9. **High pressure hose** - Designed to withstand the pressure created by the pump. Carries water flow to gun.
10. **Detergent siphoning hose** - Used to draw detergent into a low pressure stream.

# OPERATION

## Preparation checks

- ☐ Is the work area clearly defined and warning signs posted?
- ☐ Have precautions been taken to protect electrical equipment?
- ☐ Have workers nearby been told about the intention to carry out pressure cleaning operations?
- ☐ Are components, for example fittings, hoses, guns and foot pedals of the correct pressure rating?
- ☐ Are hoses and fittings in safe operating condition and protected from accidental damage?
- ☐ Are nozzles free from blockages and in safe operating condition?
- ☐ Is there a suitable cool and clean water supply?
- ☐ Is the water supply filter clean and in safe operating condition?
- ☐ Have workers received correct training and been provided with appropriate PPE for this job?
- ☐ Are control systems and emergency stops operating correctly if supplied?
- ☐ Is the location of emergency medical aid known by workers?
- ☐ Has an effective communication system been put in place for the job?
- ☐ Has the reaction force been calculated to ensure that it is under 250N (25.5kgs) for hand held gun work?

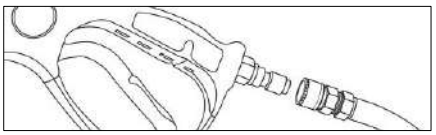
  [see "**CLASSIFICATION"** page]
- ☐ Is oil level in the pump at the proper level?

| **NOTICE** | |
|---|---|
|  | Running components with low oil levels will result in significant damage and may void warranty. |
| • Check oil level prior to starting unit.<br>• Oil should cover the half way mark on the sight glass of the pump. | |

| **NOTICE** | |
|---|---|
|  | Running pump without water will result in significant damage and may void warranty. |
| • A lack of water will cause pump to overheat.<br>• Check water supply is turned on and break tank(s) is full if fired. | |

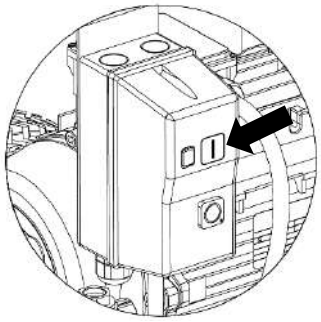
## Start-up procedure

1. Check the oil level in the pump is at the proper level (Check 'Product Details' for specifications).
2. Use a good quality garden hose for water supply. Check hose is free from obstructions/debris before connecting to water tank or pump.
3. Ensure water supply is turned ON, is not dripping and capable of supplying flow greater than the flow output of pressure cleaner. Use a good quality supply/garden hose that is free from obstructions/debris.
4. Make and check all outlet connections (hoses, gun/lance, nozzles).
5. Check break tank is full and float valve is operating correctly if fired.
6. Ensure hose end is safely secured to gun. If no nozzle is attached hose may be safely held pointing down and away from persons.



**⚠WARNING**

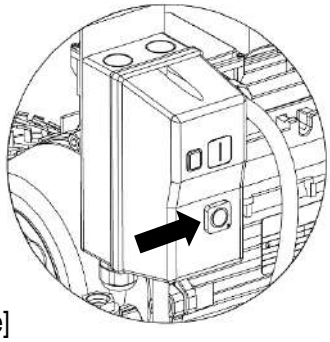
7. Check that the electrical outlet, extension cord if used and plug are all safe and secured.
8. Always wear Personal Protective Equipment (PPE).
9. Turn power supply ON at power point if necessary
10. Release the spray gun trigger lock and pull the trigger to run water through the system for a few minutes to release air from hydraulic system. Open and close the spray gun a few times if air still remains.



11. Press the ON power button **(I).**
12. Check that the pressure value on the pressure gauge matches that of technical data and ensure the pressure dial returns to zero once the trigger is released.

## Shut-down procedure

1. Close the chemical injector by turning it clockwise until it stops.
2. Press the OFF power button **(0).**
3. Disconnect the unit from the power supply.
4. Release all trapped water pressure in the unit by pulling the trigger of the spray gun, then engage the trigger lock to keep the unit in a safe manner.



[**NOTE** – Hose is still under pressure. So take care when releasing pressure]

5. Clean the detergent line by running water through it and then drop the line into a container of clean water If the unit is not to be used for a long time.
6. Wait for the pressure cleaner to cool down before storing away.

## Safe operation

Safe operating of the pressure cleaner will minimise the risk of injury and damage to equipment. Please read in full prior to operating your pressure cleaner.

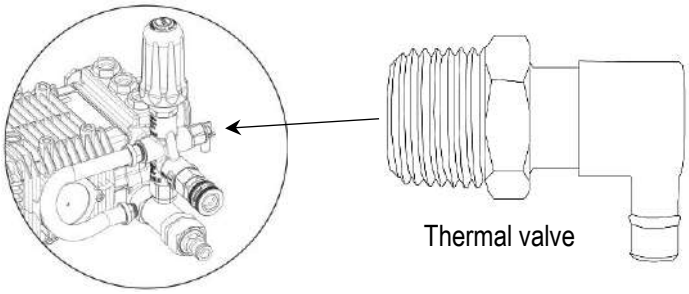
When operating a mobile unit (with wheels) always place chocks so that the unit cannot move during operation.

Operating the pressure cleaner while it is secured using tie-down only points for transport can cause frame damage as it restricts the units' natural vibration.

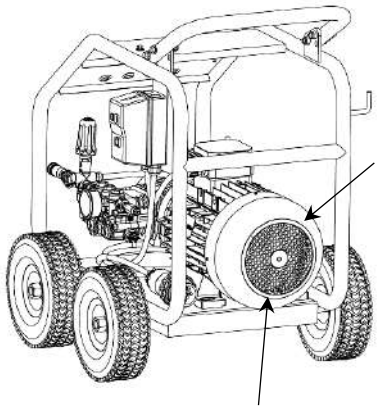
Be wary of running unit with trigger closed for long periods in bypass. The resulting heat build-up can cause damage to the pump. Ensure unit is shut-down within 1 minute of completing operation.

Most pumps are protected by a thermal valve. The thermal valve releases water if a pump starts to run too hot. It will prevent catastrophic heat failure. However, the pump may have suffered damage and need maintenance, repair, or replacement. If the thermal valve does not reset and continues to leak water, it may need replacement. **[NOT COVERED BY WARRANTY]**

Note: Heat build-up is not a concern on units with large break tanks as water is bypassed back to tanks.




## Ventilation



Ensure the unit is always run with adequate ventilation and fresh air supply. Do not suffocate motor or obstruct access to cooling fan and intake (see image).

The unloader and safety valves have been factory set for optimal performance. Do not tamper as adjusting above rated pressures can be very dangerous.

## Nozzle selection

Always use the correct size nozzle, an incorrect nozzle will not allow pump unit to reach maximum performance.

Our selection of nozzles will cover all your pressure cleaning needs from quick connect packs to specialized nozzles.


The correct size nozzle will produce maximum pressure at maximum flow. Using an:

- Undersized nozzles will cause damage to unloader as it will be in constant bypass - pressure will be maintained but with limited flow.
- Oversized nozzle will maintain maximum flow but will reduce working pressure.

To determine correct nozzle size for your pressure cleaner, you will need to know maximum pressure (psi) and flow (L/min). Consult the nozzle sizing guide on our website bargroup.com.au.

If you required assistance in selecting an appropriate nozzle for your application visit the nearest authorised dealer or contact us on (02) 4577 2144 or visit our website bargroup.com.au.

## Equipment Inspection

Pressure cleaning equipment should be inspected regularly to ensure safe compliance and to avoid damage or personal injury.

a) Keeping records of all equipment showing maintenance carried out and the results of formal inspections and tests will prove such activities are carried out.

b) While inspection before/during/after use is important, it does not remove the need for regular formal inspections to be carried out by the operator and/or company service team.

c) In the event of any equipment failure, a formal inspection of all equipment should be performed to identify whether other components were damaged as a result of the failure. An incident report should also be completed - See Page 11.

Nozzles are designed and sized specifically to control flow rate, pressure, direction and shape of jet. Using a nozzle with a blocked or worn orifice, damaged threads, cracks or any other structural damage could result in significant loss of performance.

Damaged nozzles should be immediately removed from service and replaced.

High pressure guns and triggers should be free from all leaks and when released should quickly cut off the flow of water. If your trigger mechanism is not working correctly, remove from service immediately and take it to your nearest BAR dealer for repair or replacement.

Hose wear occurs over time but is significantly increased by many factors including:

- environmental exposure to sharp edges or abrasive surfaces;
- chemicals used in cleaning operations;
- exposure to temperatures above hose rating;
- driven over by a vehicle.

Where possible avoid the above to maximise the service life of your hose. In the case of chemical use, ensure equipment is properly neutralised after use.

Any hose that has visible stress points, deep abrasions, bulges, kinks, leaks, corrosion, blisters or bubbles in the outer covering should be considered defective. Defective hoses should be immediately removed from service and clearly marked/tagged to prevent unintentional use.

Any other devices/equipment used with your pressure cleaner should be inspected regularly in accordance with the manufacturer's documentation.

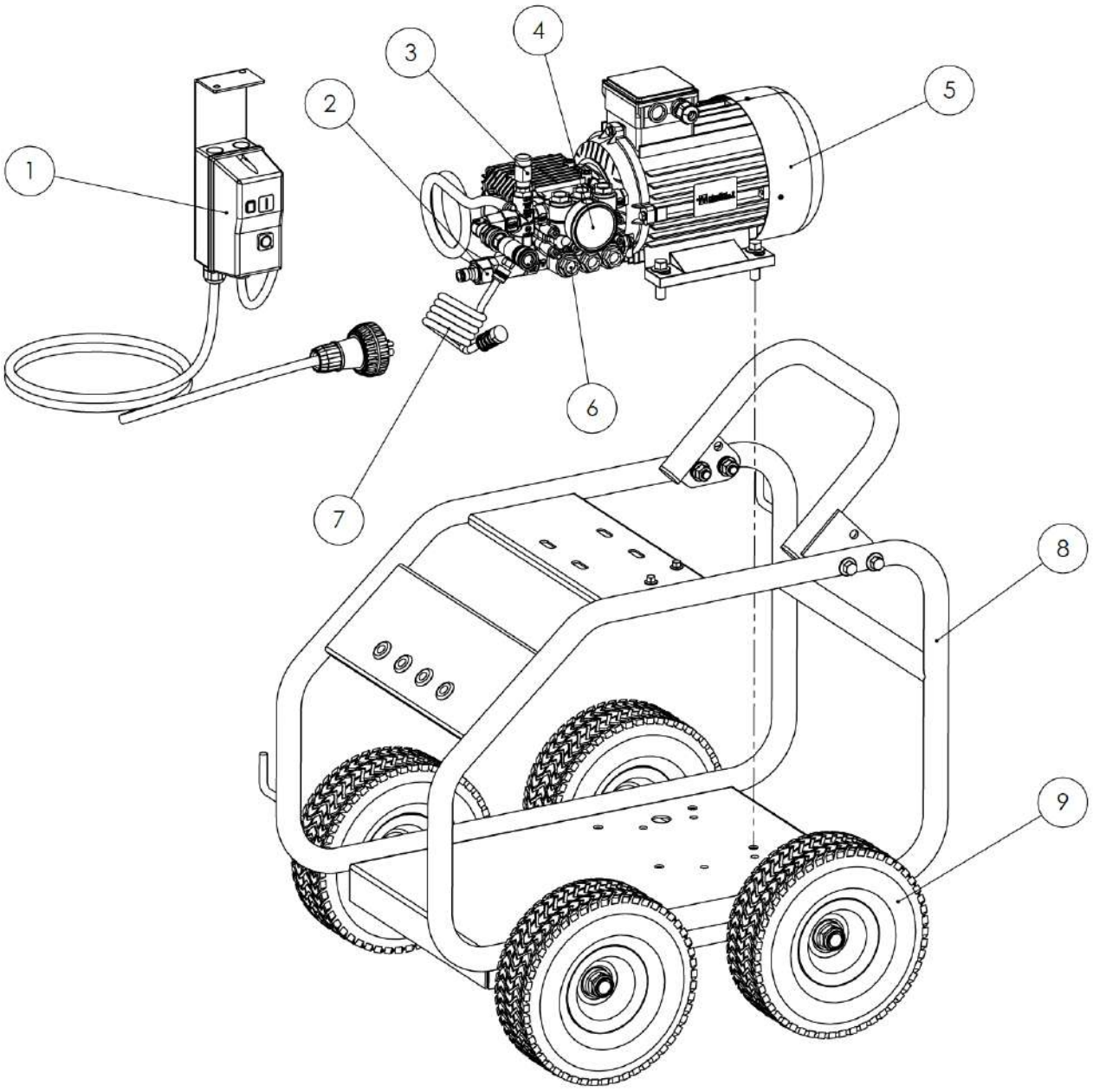
# PARTS LISTS

To order replacement parts please visit our website bargroup.com.au; call us on (02) 4577 2144; or contact the nearest authorized dealer.

A list of authorised dealers can be found on the Contact Us page of our website.

### 104 HD151122

| Maximum Pressure (psi) | Maximum Flow (L/min) | Power Rating (Kw) | Voltage (volt) | Electrical outlet size (amp) |
|---|---|---|---|---|
| 1500 | 11 | 2.2 | 240 | 15 |



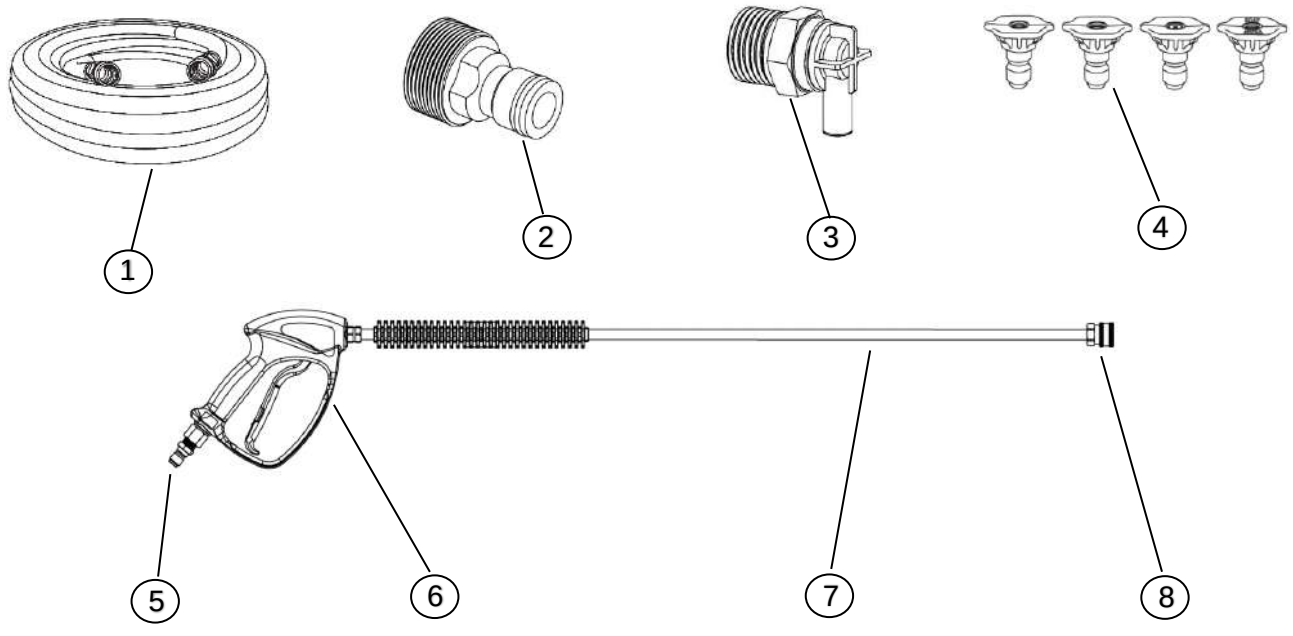
**104 HD151122**

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 Switch Kit 2.2 Kw 240 TRIS | On/Off starter c/w O/load 240V | 1 |
| 2 | 125 85.300.055 B | Water Inlet Filter – Clear Bowl | 1 |
| 3 | 145 60.0700.00 | Unloader VB7 3/8BspM/F (D8) | 1 |
| 4 | 165 1615933 | Gauge 6000 Psi Rear S/S 1pc | 1 |
| 5 | 165 M41002/2IN2C3KO | Nic 2.2Kw (1Ph) Hollow Shaft | 1 |
| 6 | 210 LW3016S | Comet Pump | 1 |
| 7 | 125 85.400.001 | Chemical Kit (Low Pressure) QC | 1 |
| 8 | 165 Frame JJ | Frame – Galvanised (B01) | 1 |
| 9 | 125 85.660.004B | Wheel 10in Air + Bearing (D10) | 4 |

## ACCESSORIES

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 R1J400 15MG QC | Hose R1 3/8 Grey QC | 1 |
| 2 | 125 85.300.165 | Click Spray Adaptor-Brass (D50) | 1 |
| 3 | 145 60.0630.70 | Thermal Dump Valve 1/2BspM (D30) | 1 |
| 4 | 125 85.210.045 | Nozzle Kit QC - 045 | 1 |
| 5 | 125 85.300.105S | Plug S/S 3/8 QC x 3/8 NptM | 1 |
| 6 | 155 4018000079 | Gun 5000 Psi Bsp (C40) | 1 |
| 7 | 125 85.202.026S | Lance 900mm SS (D25) | 1 |
| 8 | 125 85.300.102 | Female Quick Conn Coup(50/200) | 1 |

** See below for "Accessories" visual representation.



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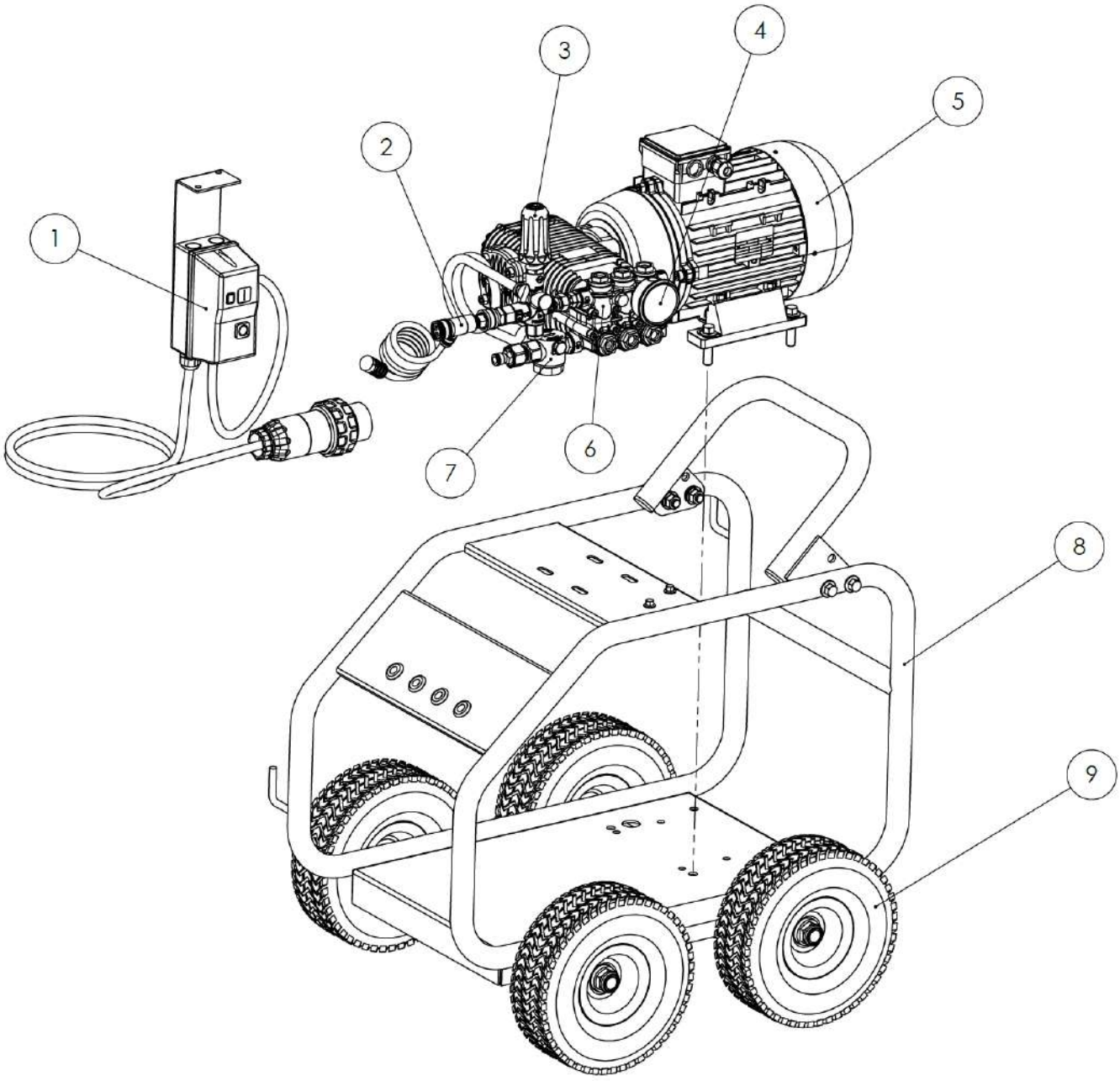
## 104 HD301555

| Maximum Pressure (psi) | Maximum Flow (L/min) | Power Rating (Kw) | Voltage (volt) | Electrical outlet size (amp) |
|---|---|---|---|---|
| 3000 | 15 | 5.5 | 415 | 20 |



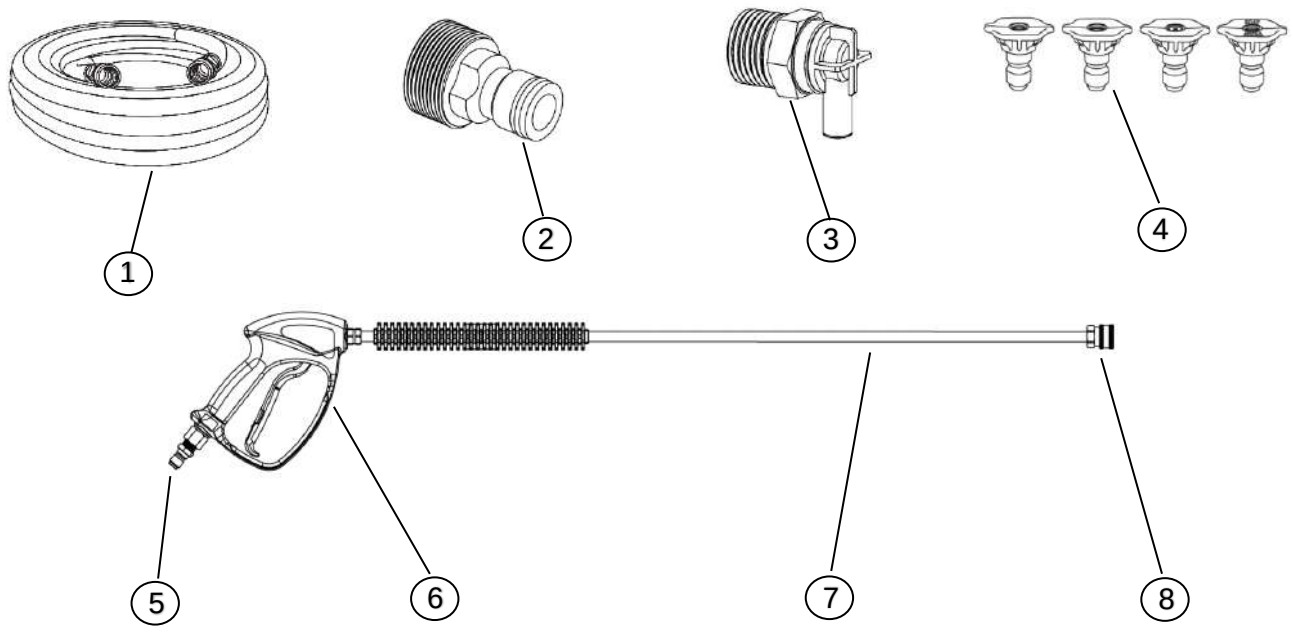
**104 HD301555**

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 Switch Kit 5.5 Kw TRIS | On/Off starter c/w O/load | 1 |
| 2 | 125 85.400.001 | Chemical Kit (Low Pressure) QC | 1 |
| 3 | 145 60.0007.60 | Unloader Pulsar 4 c/w Knob | 1 |
| 4 | 165 1615933 | Gauge 6000 Psi Rear S/S 1pc | 1 |
| 5 | 165 T41125/5NR1C3KG | Nic 5.5kW Elastic Joint | 1 |
| 6 | 210 RW4030S | Comet Pump | 1 |
| 7 | 125 85.300.058 | Water Inlet Filter | 1 |
| 8 | 165 Frame JJ | Frame – Galvanised (B01) | 1 |
| 9 | 125 85.660.004B | Wheel 10in Air + Bearing (D10) | 4 |

## ACCESSORIES

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 R1J400 15MG QC | Hose R1 3/8 Grey QC | 1 |
| 2 | 125 85.300.165 | Click Spray Adaptor-Brass (D50) | 1 |
| 3 | 145 60.0630.70 | Thermal Dump Valve 1/2BspM (D30) | 1 |
| 4 | 125 85.210.045 | Nozzle Kit QC - 045 | 1 |
| 5 | 125 85.300.105 | Plug S/S 3/8 QC x 3/8 NptM | 1 |
| 6 | 155 4018000079 | Gun 5000 Psi Bsp (C40) | 1 |
| 7 | 125 85.202.025S | Insl Lance 800mm | 1 |
| 8 | 125 85.300.102 | Female Quick Conn Coup(50/200) | 1 |

** See below for "Accessories" visual representation.



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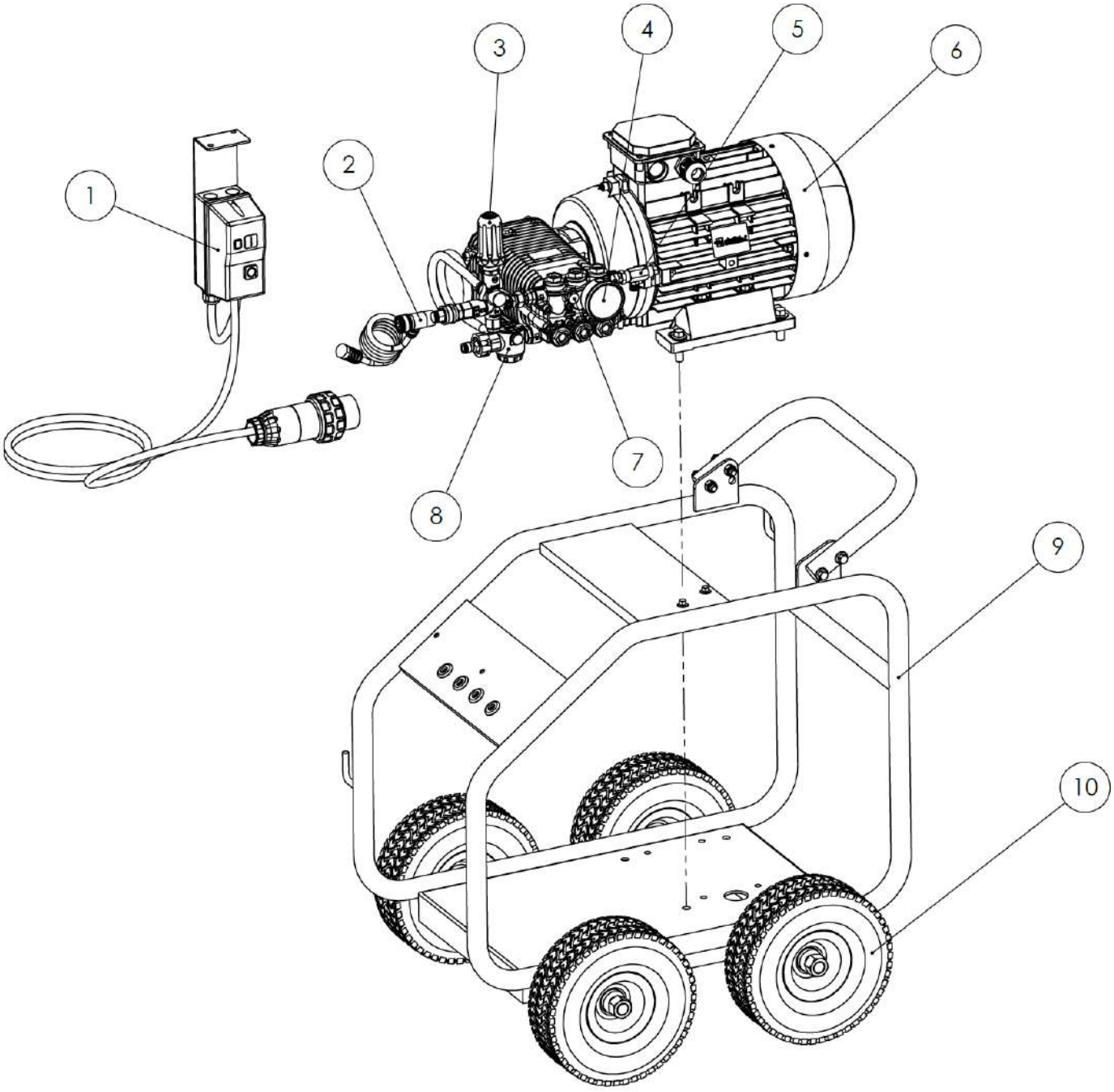
A list of authorised dealers can be found on the Contact Us page of our website.

## 104 HD302175

| Maximum Pressure (psi) | Maximum Flow (L/min) | Power Rating (Kw) | Voltage (volt) | Electrical outlet size (amp) |
|---|---|---|---|---|
| 3000 | 21 | 7.5 | 415 | 20 |



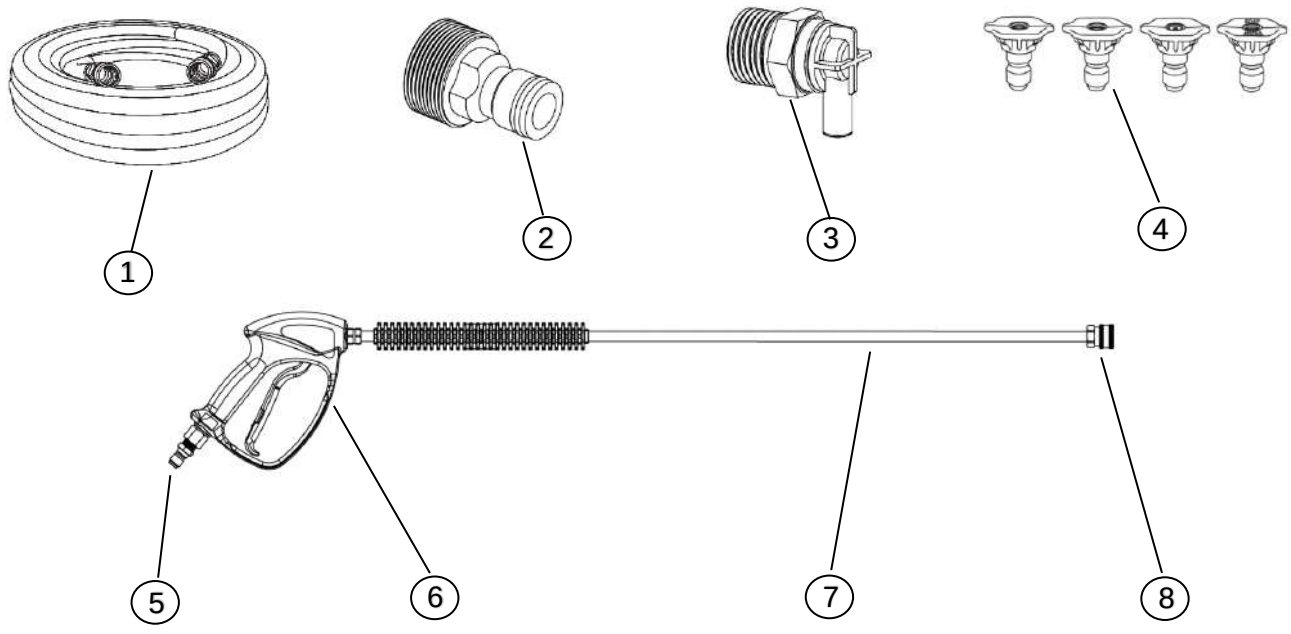
**104 HD302175**

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 Switch Kit 7.5 Kw TRIS | On/Off starter c/w O/load (C1) | 1 |
| 2 | 125 85.400.001 | Chemical Kit (Low Pressure) QC | 1 |
| 3 | 145 60.0007.60 | Unloader Pulsar 4 c/w Knob | 1 |
| 4 | 165 1615933 | Gauge 6000 Psi Rear S/S 1pc | 1 |
| 5 | 147 1120030111 | MG1000 S/valve | 1 |
| 6 | 165 T41337/5NR1C5KG | Nic 7.5kW Elastic Joint | 1 |
| 7 | 210 RW5530S | Comet Pump | 1 |
| 8 | 222 ZAFIL | WATER FILTER | 1 |
| 9 | 165 Frame J | Frame – Galvanised (B06) | 1 |
| 10 | 125 85.660.004B | Wheel 10in Air + Bearing (D10) | 4 |

## ACCESSORIES

| Item No. | Part Number | Description | QTY |
|---|---|---|---|
| 1 | 165 R1J400 15MG QC | Hose R1 3/8 Grey QC | 1 |
| 2 | 125 85.300.165 | Click Spray Adaptor-Brass (D50) | 1 |
| 3 | 145 60.0630.70 | Thermal Dump Valve 1/2BspM (D30) | 1 |
| 4 | 125 85.210.060 | Nozzle Kit Quick Connect 060 | 1 |
| 5 | 145 26.2023.61 | QC Plug 3/8 BSPM ARS250 | 1 |
| 6 | 155 4018000079 | Gun 5000 Psi Bsp (C40) | 1 |
| 7 | 125 85.202.026S | Lance 900mm SS (D25) | 1 |
| 8 | 125 85.300.102S | QC Coupler – 1/4 FNPT (D25) | 1 |

** See below for "Accessories" visual representation.



# STORAGE

When storing your Pressure cleaner unit for more than 30 days it is important to prepare the unit to avoid damage and ensure it runs smoothly when next used.

Preparing the pump and accessories:

- Clean all dirt and grime from the unit and all accessories.
- Drain pump and all accessories of all water to avoid freezing or corrosion.

| **NOTICE** |
|---|
| Freezing temperatures can cause serious damage to your pump |
| • DO NOT store unit in cold temperatures without proper preparation.<br>• DO NOT use unit if there is a chance ice has formed inside pump or hose.<br>• Always remove all held water from pump unit and accessories. |

Hoses where possible, should be stored lying flat in a cool dry area.

Store unit indoors and/or under cover in a cool dry place. Use a suitable protective cover that will not retain moisture.

| **WARNING** | |
|---|---|
|  | Storage covers can be flammable. |
| • DO NOT place a cover over the unit while hot.<br>• Allow equipment to cool completely (for at least 30mins) before placing cover. | |

# MAINTENANCE

All commercially used machines need to be under a regular maintenance schedule to keep operating at their best. The maximum allowable interval for this maintenance is every six months or 100hrs, whichever comes first.

Maintenance should be performed by an approved and qualified technician, refer to the nearest authorised dealer for further information if required.

Always make sure that the unit is turned off, allowed to cool down and that any trapped high pressure in its system has been released before carrying out any maintenance.

The maintenance should include the following:

- Check pump oil level and change pump oil when required - See Page 2.
- Check and clean all water filters for foreign debris.
- Check unloader and safety valve for leaks.
- Check all link hoses around machine for leaks.
- Check power cable, all connections and spray gun.
- Clean the nozzles and detergent suction filter.

When performing maintenance, take the time to complete a formal inspection of all jetting equipment including hoses, nozzles, guns and lances. Replace any damaged or defective components – See 'Equipment inspection' (Page 19).

## Records

| Date | Maintenance performed | Signed |
|---|---|---|
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# TROUBLESHOOTING

The table below should be used to identify and correct any issues experienced with your pressure cleaner.

If you are experiencing an issue that is not listed here or you have exhausted possible solutions in this table and are still experiencing the issue, visit the nearest authorised BAR dealer or contact us on (02) 4577 2144.

| Issue observed | Possible Cause | Solution |
|---|---|---|
| Failure to produce pressure,<br>Erratic pressure,<br>Chattering,<br>Loss of pressure,<br>Low water volume. | Low pressure spray tip installed. | Replace with high pressure spray tip. |
| | Water inlet is blocked. | Clear inlet. |
| | Inadequate water supply. | Provide adequate water flow. |
| | Inlet hose is kinked or leaking. | Straighten inlet hose. Replace if leaking. |
| | Clogged inlet hose screen. | Check and clean inlet hose screen. |
| | Water supply is over 100°F (38°C). | Provide cooler water supply. |
| | High pressure hose is blocked or leaking. | Clear blocks in outlet hose. Replace if leaking. |
| | Spray gun leaks. | Replace spray gun. |
| | Spray tip is obstructed/worn. | Clean spray tip/replace. |
| | Pump is faulty. | Contact the nearest authorised dealer. |
| No low pressure detergent delivery / low detergent suction | Detergent siphoning tube is not submerged. | Fully submerge detergent siphoning tube into detergent. |
| | Detergent siphoning tube/filter is clogged or cracked. | Clean or replace filter/siphoning tube. |
| | High pressure spray nozzle installed. | Replace with low pressure spray tip. |
| | Detergent too viscous. | Use a detergent recommended by the manufacturer, and dilute according to instructions. |
| The pressure cleaner vibrates a lot and is noisy. | Water inlet filter dirty. | Check and clean water filter. |
| | Suction of air. | Check hose / fittings for leaks. |
| | Not enough water supply or too much priming depth. | Ensure the tap is fully open and that the water mains flow or priming depth are in compliance with standards. |
| The motor does not start when switch is activated. | Plug is not connected. | Check the plug. |
| | If fitted: Low water cut off is activated. | Check the water / diesel tank are full and add water / diesel as necessary. |
| | No power supply. | Contact an authorized electrician to check power supply. |
| No water comes out of the nozzle. | No water. | Ensure the water mains tap is completely open or the suction hose can prime. |
| | Excess suctioning depth. | Make sure the priming depth is in compliance with standards. |
| | Water nozzle clogged. | Clean and/or replace the nozzle. |
| When switch is activated, the motor hums but does not run. | Incorrect extension cable. | Replace with an extension cord of correct size and length. |
| | Incorrect or insufficient voltage or amperage. | Contact an authorized electrician to check power supply. |
| | Failed capacitor. | Contact nearest authorised service dealer. |

| Issue observed | Possible Cause | Solution |
|---|---|---|
| The motor stops during operation. | The plug became loose. | Check the plug and properly fit it. |
| | No power supply. | Contact an authorized electrician to check power supply. |
| Unit does not reach required operating pressure. | Restricted or insufficient water supply. | Check supply hose isn't kinked, tap is fully open, filter not blocked. |
| | Unsuitable or worn nozzle. | Replace nozzle. |
| | Regulator set too low (for units with an adjustable unloader). | Reset unloader by turning knob (clockwise increases pressure). |
| | Inlet/delivery valves blocked. | Remove inlet/delivery valves and clean for debris. |
| | Pump sucking air. | Check hose / fittings for leaks. |
| | Water filter dirty. | Check and clean water filter. |

# TERMS & CONDITIONS

**Prices**

All prices are current at the date of issue and subject to change without notice. Unless otherwise stated, all quotations are valid for 7 days. All retail prices quoted are recommendations only. There is no obligation to comply with those recommendations.

**Special Builds**

Any item not specifically listed as a part number in the current catalogue is considered a "special build. Special builds are not eligible for return or deferment of delivery.

**Payment**

Payment terms are 30 days from the end of the month, unless otherwise stated in writing.

**Return of goods**

Goods eligible for return must be pre-approved, in writing, by BAR. Returned goods will be subject to a 15% restocking fee to cover administration costs, plus an additional amount estimated to be BAR's cost to return the goods to new, warehouse condition.

**Shipping**

All products foggier BAR are supplied ex-works our nearest warehouse. Where BAR agree to pay the freight for any shipment, this does not change the ex-works terms. We strongly recommend you undertake transit insurance for all shipments.

## Warranty

The Trade Practices Act supersedes all warranty conditions detailed below. All products are warranted to be free from faulty materials and workmanship. This excludes fair wear and tear, improper installation or application, failure to carry out scheduled and reasonable maintenance or improper application.

**Suitability for purpose**

BAR makes no representation about the suitability of a product for a specific application. Our representations relate solely to the operating performances of the product (in isolation to the application).

**Reservation of Title**

The rights to, and full interest and title in the goods supplied remains with BAR and does not pass to you until the goods have been fully paid for.

# NOTES


**If you need assistance with the operation of your Pressure Cleaner please contact**

# 02 4577 2144

**sales@bargroup.com.au**

October 2022