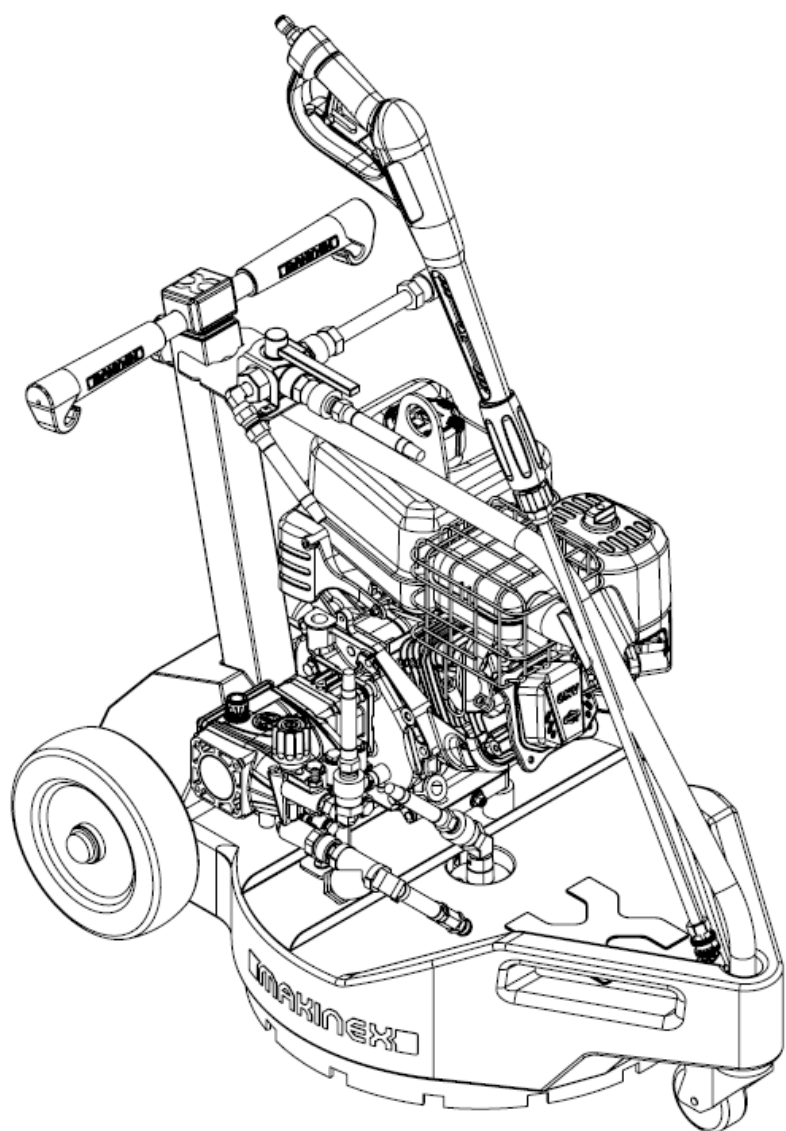




## DUAL PRESSURE CLEANER

DPC-2200



## OPERATOR'S MANUAL

Rev 0821

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## INTRODUCTION

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Thank you for purchasing a MAKINEX product.

This manual provides information and procedures to safely operate and maintain the **Dual Pressure Cleaner DPC-2200 Range**. For your own safety and protection from injury, carefully read, understand and observe the safety instructions described in this manual.

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact MAKINEX. This machine is designed and built with user safety in mind; however, it can present hazards if improperly operated and serviced. Please follow the operating instructions carefully. If there are any questions regarding operating or servicing of this machine, please contact MAKINEX.

The information contained in this manual was based on machines in production at the time of publication. MAKINEX reserves the right to change any portion of this information without notice.

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Any type of reproduction or distribution not authorised MAKINEX represents an infringement of valid copyrights and will be persecuted. We expressly reserve the right to make technical modifications, even without due notice, which aim at improving our machines or their safety standards.

## **DISCLAIMER**

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MAKINEX and its affiliates take no responsibility for any damage, injury or death resulting from the incorrect or unsafe use of this product. Use of this product should be undertaken by competent persons only. It is the operator's responsibility to ensure that the following safety procedures are followed. If you are unsure, do not operate this product.

Record the model and serial numbers as well as date and place of purchase for future reference. Have this information available when ordering parts and when making technical or warranty inquiries

**MAKINEX SUPPORT**

**Refer to contact details on pg. 36**

**MODEL NO.**

**DPC-2200**

**SERIAL NO.**

**DATE OF PURCHASE**






**PURCHASE LOCATION**

## ABOUT THIS MANUAL

---

This manual uses the following symbols to help differentiate between different kinds of information. The safety symbol is used with a key word to alert you to potential hazards in operating and owning power equipment. Follow all safety messages to avoid or reduce the risk of serious injury or death.

### KEY TERMS

 <b>READ CAREFULLY</b>	<b>READ CAREFULLY</b> – refers to <i>important information</i> that should be paid careful attention.
 <b>CAUTION</b>	<b>CAUTION</b> - indicates a potential hazardous situation which, if not avoided, <i>may</i> result in minor or moderate injury
 <b>WARNING</b>	<b>WARNING</b> – indicates a potentially hazardous situation which, if not avoided, <i>could</i> result in death or serious injury
 <b>DANGER</b>	<b>DANGER</b> – indicates an imminently hazardous situation which, if not avoided, <i>will</i> result in death or serious injury
 <b>PROHIBITED</b>	<b>PROHIBITED</b> – identifies actions that <i>should never</i> be carried out by anyone interacting with the machine.

These safety warnings do not eliminate all possible hazards that could occur therefore it is essential to use common sense and to strictly follow any instructions to prevent accidents.

## SAFETY INFORMATION

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Read this manual **thoroughly** before operating your pressure cleaner. Failure to follow instructions could result in serious injury or death



### **RISK OF EXPLOSION OR FIRE**

- Fuel and its vapours are extremely flammable and explosive
- Fire or explosion can cause severe burns or death

- **ALWAYS** shut off engine and allow it to cool a least 2 minutes before adding fuel to the tank
- **ALWAYS** use care in filling tank to avoid spilling fuel. Move pressure cleaner away from fuelling area before starting engine.
- **ALWAYS** keep maximum fuel level below top of tank to allow for expansion.
- **ALWAYS** operate and use equipment in well ventilated areas free from obstructions. Equip areas with fire extinguishers suitable for gasoline fires
- **ALWAYS** keep pressure cleaner a minimum of 1.2m away from surfaces (such as houses, automobiles, or live plants) that could be damaged from muffler exhaust heat.
- **ALWAYS** store fuel in an OSHA approved container, in a secure location away from work area.
- **NEVER** spray flammable liquids.
- In the event of a fuel spill, ensure machine and entire area is cleaned of excess before operation.




### **RISK OF BREATHING**

- Running engine gives off Carbon Monoxide, an odourless, colourless, poisonous gas.
- Breathing Carbon Monoxide can cause nausea, fainting or death.
- Some chemicals or detergents may be harmful if inhaled or ingested, causing severe nausea, fainting or poisoning.

- **ALWAYS** operate pressure cleaner in a well-ventilated area. Avoid enclosed areas such as garages, basements etc.

- **ALWAYS** keep exhaust gas from entering a confined area through windows, doors, ventilation intakes, or other openings.
- **ALWAYS** follow manufacturer's recommendations, use a respirator or mask whenever there is a chance that vapours may be inhaled.
- If the operating area becomes enclosed, turn off engine and release system pressure by pulling gun trigger. Immediately leave the affected area.

 <p><b>WARNING</b></p>	<p style="text-align: center;"><b>RISK OF FALL HAZARD</b></p> <ul style="list-style-type: none"> <li>• Use of pressure cleaner can create puddles and slippery surfaces.</li> <li>• Kick back from spray gun can cause you to fall.</li> </ul>
---	--

- Keep operating area clear of all persons, pets and obstacles.
- **DO NOT** operate the product when fatigued or under the influence of alcohol or drugs. Stay alert at all times.
- **DO NOT** operate the machine with missing or broken parts.
- **NEVER** leave wand unattended while unit is running.
- Keep children away from pressure cleaner at all times.
- **DO NOT** overreach or stand on an unstable support. If you become unstable during use, release the trigger and stop engine if necessary. Re-assess operating area before commencing operation.
- The cleaning area should have adequate slopes and drainage to reduce the possibility of a fall due to slippery surfaces. If the area becomes slippery or unstable, turn off engine and release system pressure by pulling gun trigger. Allow the area to drain and assess when suitable to operate again.
- Be extremely careful if you must use the pressure cleaner from a ladder, scaffolding, or any other off ground location.
- Firmly grasp spray gun with both hands when using high pressure spray to avoid injury when spray gun kicks back.
- **NEVER** spray near power source.





### **RISK OF FLUID INJECTION**

- The high-pressure stream of water that this equipment produces can cut through skin and its underlying tissues, leading to serious injury and possible amputation. Spray guns trap high pressure, even when engine is stopped and water is disconnected, which can cause injury.
- Should the spray penetrate the skin, **SEEK MEDICAL ATTENTION IMMEDIATELY**

- **ALWAYS** point spray gun in safe direction and squeeze trigger, to release high pressure, every time you stop the engine.
- **NEVER** aim spray gun at people, animal, or plants.
- **NEVER** place hands in front of nozzle.
- Make sure hose and fittings are tightened and in good condition.
- **DO NOT** allow hose to contact muffler.
- **NEVER** attach or remove wand or hose fittings while system is pressurised.
- Use only hose and high-pressure accessories rated for pressure higher than your pressure cleaner's psi.
- To relieve system pressure, shut off engine, turn off water supply, and pull gun trigger until water stops flowing.
- **DO NOT** allow children to operate pressure cleaner.
- **NEVER** direct the spray jet at any surface that may contain asbestos material.
- **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.
- **ALWAYS** wear personal protective clothing such as goggles, ear muffs, gloves, and closed foot wear.



#### **RISK OF CHEMICAL BURN**

- Use of acids, toxic or corrosive chemicals, poisons, insecticides, or any kind of flammable solvent with this product could result in serious injury or death.

- Wear protective clothing to protect eyes and skin from contact with sprayed material.



#### **RISK OF HOT SURFACES**

- Contact with hot surfaces, such as engines exhaust components, could result in serious burn.

- During operation, touch only the control surfaces of the pressure cleaner. Keep children away from the pressure cleaner at all times. They may not be able to recognise the hazards of this product.



#### **RISK OF MOVING PARTS**

- Starter and other rotating parts can entangle hands, hair, clothing, or accessories.

- **DO NOT** wear loose clothing, jewellery or anything that may be caught in the starter or other rotating parts.
- Tie up long hair and remove jewellery.



#### **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, be sure you are wearing adequate safety goggles.
- **NEVER** substitute safety glasses for safety goggles.

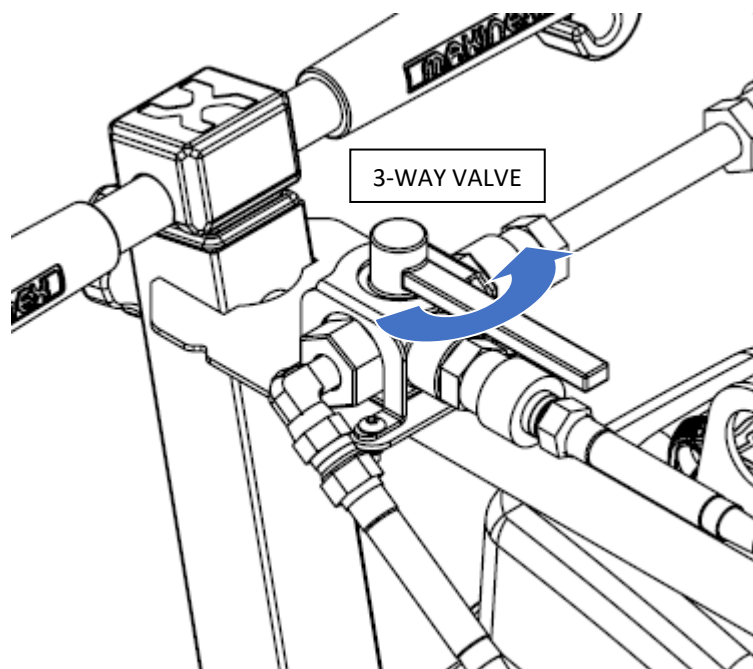
## EMERGENCY INFORMATION

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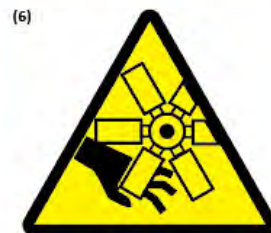
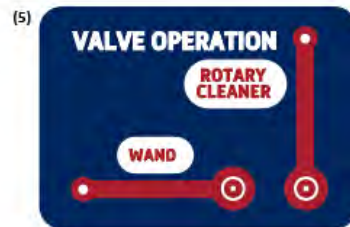
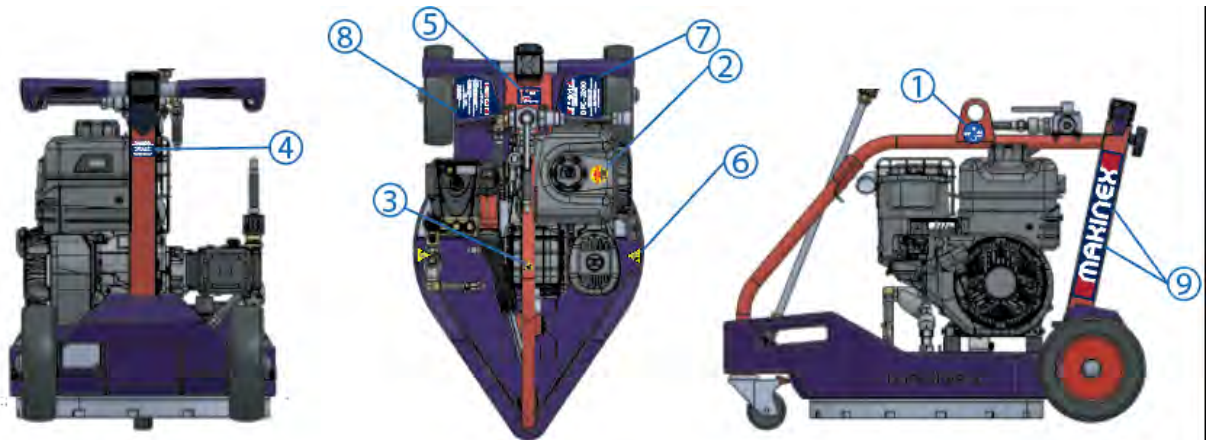
In the event of an emergency, stop the machine immediately.

1. This product is fitted with a 'hold to activate' mechanism which is the spray gun trigger. Upon releasing grip, the high-pressure water flow will be automatically stopped.
2. To disable the product, turn the red ignition switch to the 'off' position. See picture below. This will immediately stop the engine.
3. Further to the above, the water flow can be diverted from the spray gun by turning the 3-way valve to divert the water to the Surface-Cleaner.

Always ensure all safety information is observed before re-commencing work.



# SAFETY DECALS



## PRODUCT DESCRIPTION AND SPECIFICATION

The MAKINEX Dual Pressure Cleaner DPC-2200 Range is a versatile, 2 in 1 compact 2200 psi pressure cleaner. It is designed and engineered to simplify the process of pressure washing. The pressure cleaner includes a combination of a rotary cleaner, a spray gun, a control valve, ten metres of high-pressure hose, heavy duty Italian- made pump, and the reliable Briggs and Stratton XR 950 pull start engine, all mounted on a compact, easy to transport, durable galvanised steel frame.

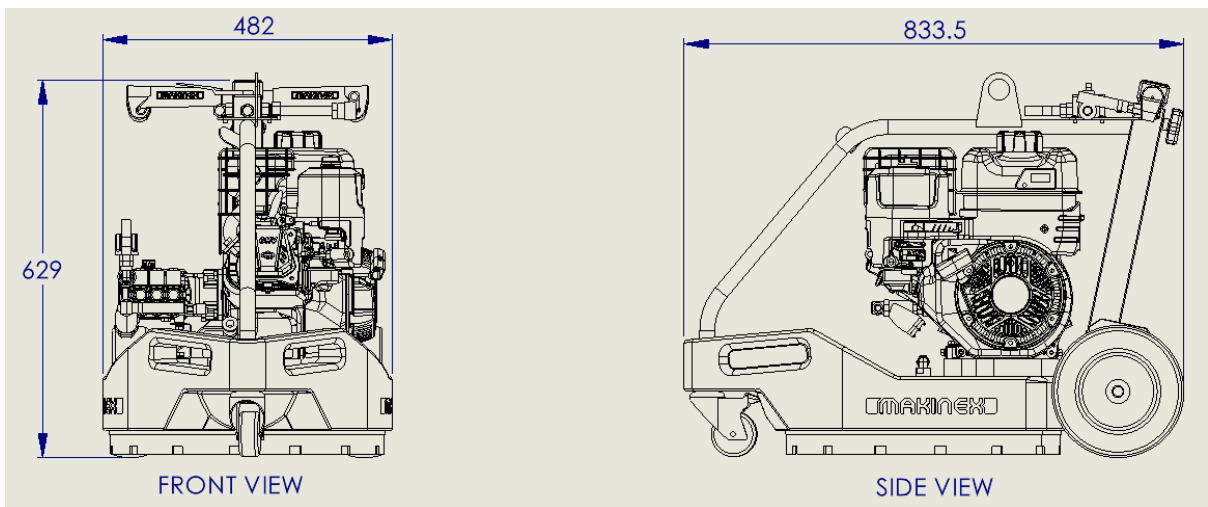
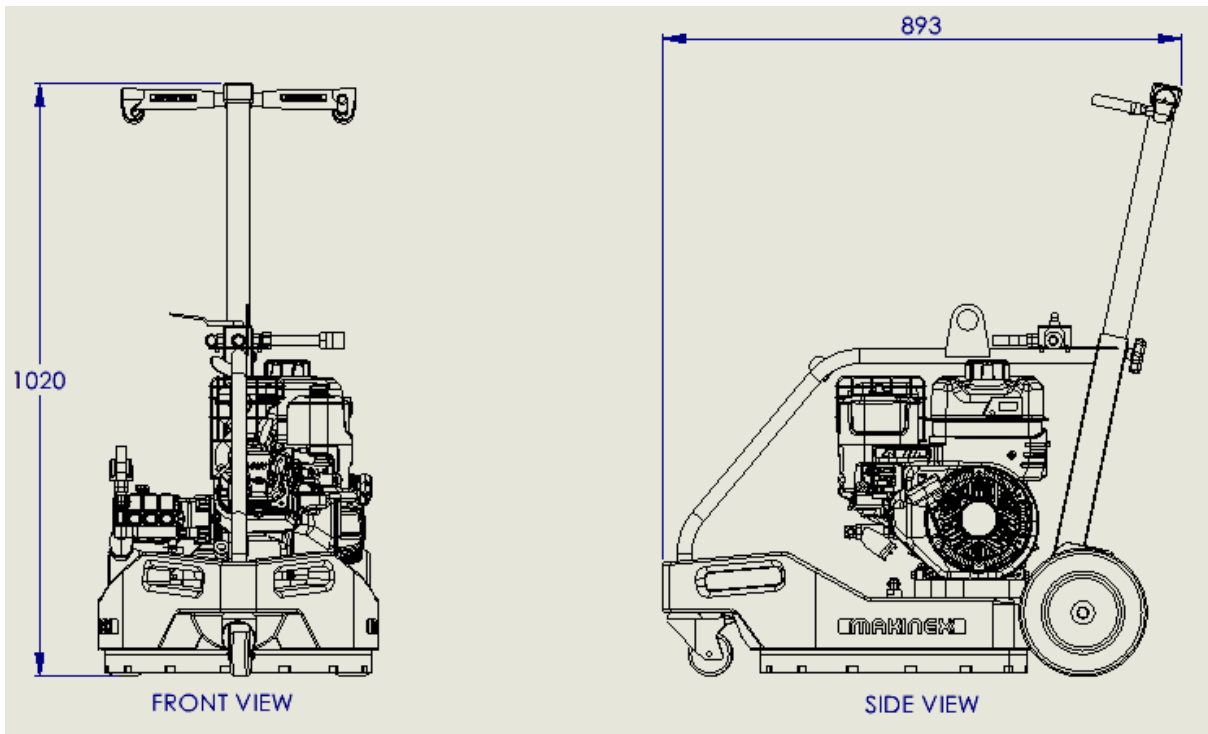
Applicable Australian standards:

- AS4233.1 High Pressure Water Jetting Part 1. Safe Operation and Maintenance.
- AS4233.2 High Pressure Water Jetting Part 2. Construction and Performance.

OVERALL MACHINE SPECIFICATIONS	
MODEL	DPC-2200
OVERALL WEIGHT	40kg/88.2lb
OVERALL WIDTH	482mm/19.0inch
HANDLE FOLDED HEIGHT	629mm/24.8inch
HANDLE EXTENDED HEIGHT	1020mm/40.2inch
HANDLE FOLDED LENGTH	833.5mm/32.8inch
HANDLE EXTENDED LENGTH	893mm/35.2inch
HOSE LENGTH	10m/32.8ft
PRESSURE OUTPUT	2200psi/152bar
FLOW RATE	11L/min (3.0 gal/min)
ENGINE	5.5HP BRIGGS AND STRATTON XR 950 pull start
GEAR BOX	NONE
NOISE LEVEL @ HANDLE	92dBA
NOISE LEVEL @ 7m	88dBA
SOUND POWER LEVEL ( $L_{WA}$ )	109dB

<b>SURFACE-CLEANER</b>	450mm (18inch)
<b>BALL VALVE</b>	500bar/ 7252psi rated 3-way ball valve
<b>TRIGGER GUN</b>	358.5bar/ 5200psi rated
<b>WAND LENGTH</b>	900mm/35.4inch

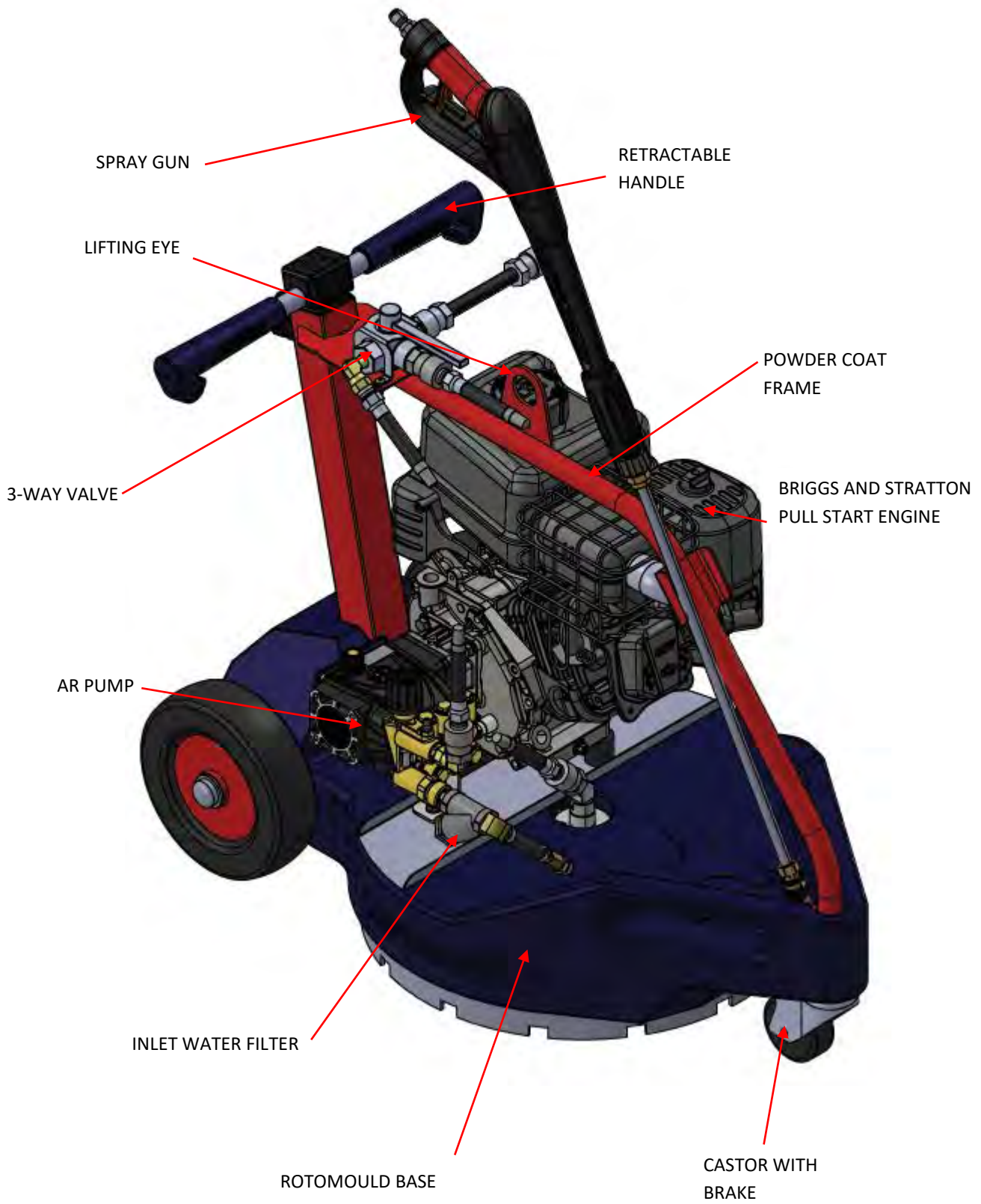
## OVERALL MACHINE DIMENSIONS



<b>PUMP SPECIFICATIONS</b>	
<b>MODEL</b>	<b>DPC-2200 (With JRV3G30)</b>
<b>PRESSURE OUTPUT MAX</b>	2200 psi/152 bar
<b>FLOW RATE MAX</b>	11L/min (3.0 gal/min)
<b>OIL TYPE</b>	10W30
<b>RPM</b>	2600
<b>WEIGHT</b>	4kg/8.8lbs
<b>ENGINE SPECIFICATIONS</b>	
<b>ENGINE TYPE</b>	Briggs and Stratton XR950 Air-cooled 4-stroke OHV
<b>BORE x STROKE</b>	68.3 x 55.9mm/2.7 x 2.2inch
<b>DISPLACEMENT</b>	208cm <sup>3</sup> /12.7inch <sup>3</sup>
<b>MAX POWER OUTPUT</b>	6.5HP (4.8kW) @ 2600 rpm
<b>GROSS TORQUE</b>	9.5 lb-ft (12.88Nm) @ 2600 rpm
<b>PTO SHAFT ROTATION</b>	Counter-clockwise (from PTO shaft side)
<b>COMPRESSION RATIO</b>	8.5:1
<b>CARBURATOR</b>	Gravity Feed, Needle and Seat Float
<b>IGNITION SYSTEM</b>	Electronic Magnatron Ignition Module
<b>STARTING SYSTEM</b>	Recoil Starter
<b>LUBRICATION SYSTEM</b>	Splash
<b>GOVERNOR SYSTEM</b>	Mechanical
<b>OIL CAPACITY</b>	0.6L (0.63 US qt)
<b>FUEL TANK CAPACITY</b>	3.1L (3.3 U.S. qts)
<b>FUEL</b>	Unleaded 86 Octane or higher
<b>DRY WEIGHT</b>	16kg (35lbs)
<b>RUN TIME (Full tank)</b>	
Full Load	1.5 hours
75% Load	2.25 hours
50% Load	2.75 hours

# CONTROLS AND FEATURES

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## FEATURES

**Valve for switching between surface cleaner and wand**

**Durable powder coated frame**

**Easily manoeuvrable with front swivel castor**

**Internal Bypass Valve to protect seals from overheating**

**Thermal dump valve for over heat discharge**

**Multi cushion isolators for vibration reduction**

**Detachable 10m high pressure hose**

**Spray gun included and mounted on frame**

**Built in 2200 psi Surface-Cleaner**

**Compact design for easy storage and transport**

**Lifting point for transportation**

## OPERATION

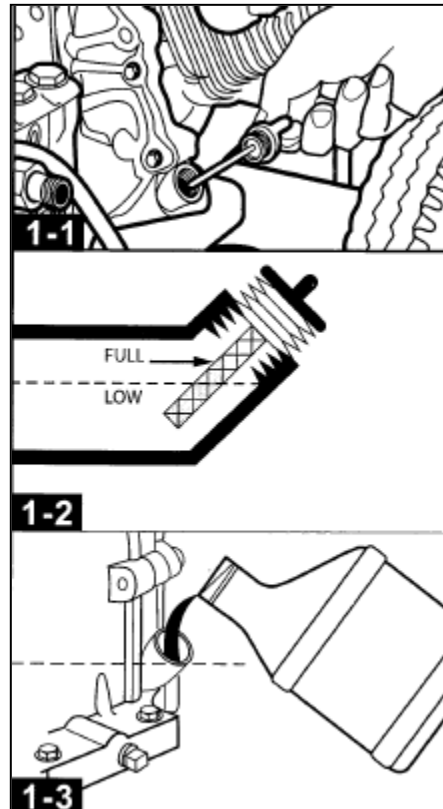
### OIL LEVEL CHECK



Check the engine oil level with the engine stopped and in a levelled position

1. Clean area around oil fill and remove oil cap.
2. Check the dipstick to ensure there is enough oil.
3. If there is not enough oil, using oil funnel (optional), slowly pour contents into oil fill opening.
4. Replace oil fill cap and tighten.
5. For pump oil, see 'CHECKING PUMP OIL LEVEL' in maintenance section of this manual.

**NOTE:** IMPROPER treatment of pressure cleaner can damage it and shorten its life. DO NOT attempt to start the engine before it has been properly serviced with the recommended oil. This may result in an engine failure.



**NOTE:** Refer to XR 950 Manual for more in-depth instructions

**NOTE:** New machines will be pre-oiled from MAKINEX with:  
**Power Equipment Engine Oil – SAE 10W-30, API SJ**

## REFUELING



**FAILURE TO USE FUEL AS RECOMMENDED IN THIS MANUAL WILL VOID WARRANTY**

- **DO NOT** use unapproved gasoline such as ethanol-based fuel.
- **DO NOT** mix oil with gasoline.
- **DO NOT** modify engine to run on alternate fuels.



**Fuel and fuel vapour are extremely flammable and explosive. Fire or explosion from misuse of fuel can cause severe burns and even death.**



**Always ensure that fuel tanks are filled outdoors.**

1. Turn engine **OFF** and let it cool for at least two minutes before removing fuel cap.
2. Loosen fuel cap slowly to release pressure.
3. Slowly add unleaded gasoline to fuel tank. **DO NOT** fill fuel above baffle to allow for appropriate space fuel expansion.
4. Wait for spilled fuel to evaporate before starting the engine.



**Keep fuel away from sparks, open flames, pilot lights, heat and other ignition sources.**



**DO NOT** light a cigarette or smoke near open fuel tank or container.

# OPERATING YOUR PRESSURE CLEANER

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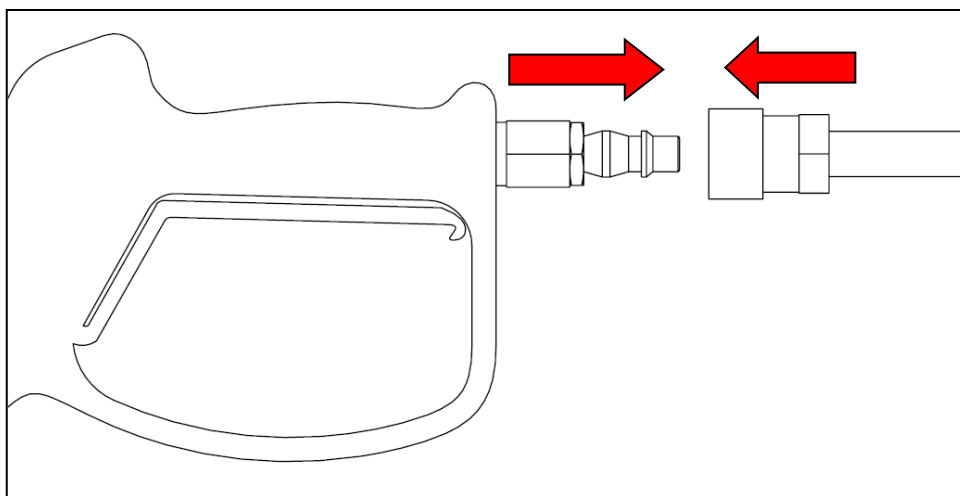
## 1. HOW TO PRE-START PRESSURE CLEANER

To start your pressure cleaner for the first time, follow these instructions. This information also applies if you let the pressure cleaner sit idle for at least a day.

- 1.1 Place pressure cleaner near an outside water source capable of supplying water at a flow rate at least 5 gallons/19L per minute and no less than 20 psi at pressure cleaner end of garden hose.
- 1.2 Check all high-pressure hose connections are tightly connected to the pump, valve, spray gun and Surface-Cleaner.
- 1.3 Make sure there are no kinks on hoses
- 1.4 Make sure the unit is in a levelled position.

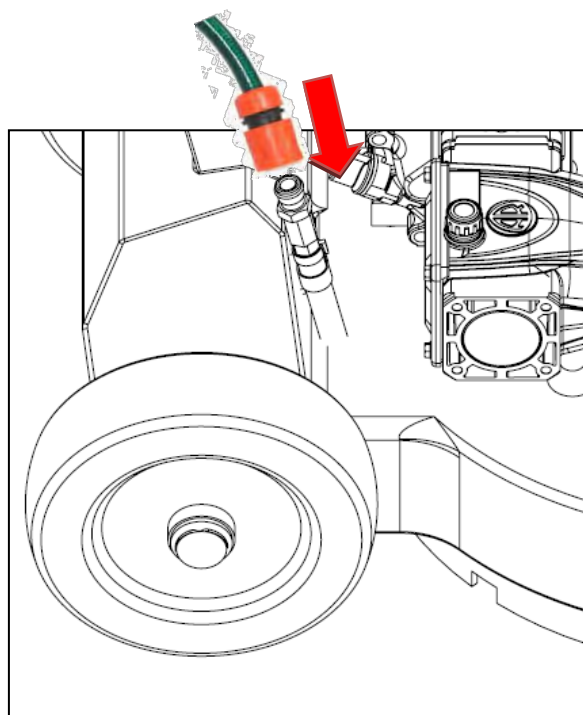
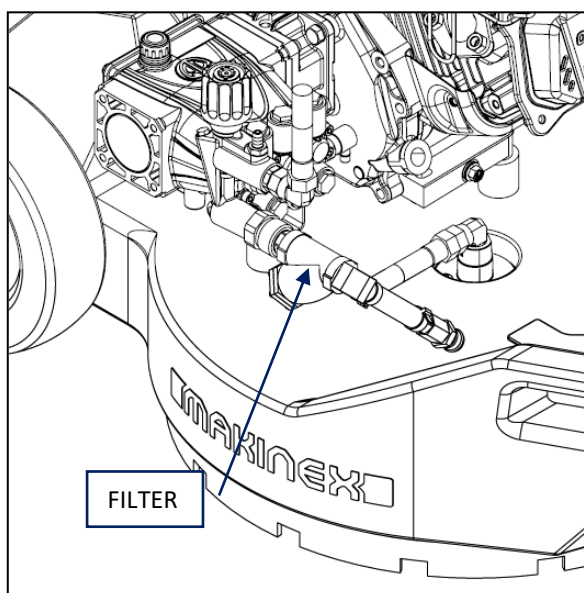
## 2. ATTACHING HIGH-PRESSURE HOSE TO SPRAY-GUN

- 2.1 The spray gun is preassembled to a swivel male quick-connect fitting.
- 2.2 Connect the Quick-Connect female fitting from the high-pressure hose to the spray gun as shown by hand, make sure it's a tight fit and the threads are not cross threaded (the connection is a self-sealed one, hence no plumbing is needed)



### 3. CONNECT GARDEN HOSE TO WATER INLET CONNECTION

- 3.1 Before connecting the garden hose to the water inlet connector, inspect the filter
- 3.2 Run water through your garden hose for 30 seconds to clean out any debris
- 3.3 Release any pressure from spray gun by pulling the trigger.
- 3.4 Connect the garden hose to the water inlet connector (not to exceed 15m/50ft in length and with the inner diameter of hose no less than **13mm**).
- 3.5 Turn on water

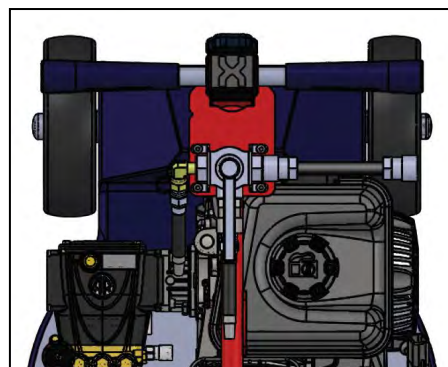


**\*\*\*IMPORTANT\*\*\***

**DO NOT siphon standing water for the water supply. Use ONLY cold water (less than 37°C/100°F)**

#### 4. ADJUST VALVE POSTION TO SURFACE-CLEANER

4.1 **Make sure the valve is pointing to the Surface-Cleaner position (as shown on the right)** before starting as this makes sure pressure is constantly released before you start the engine and during initial running.



**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, be sure you are wearing adequate safety goggles.
- **NEVER** substitute safety glasses for safety goggles.

#### 5. START THE ENGINE

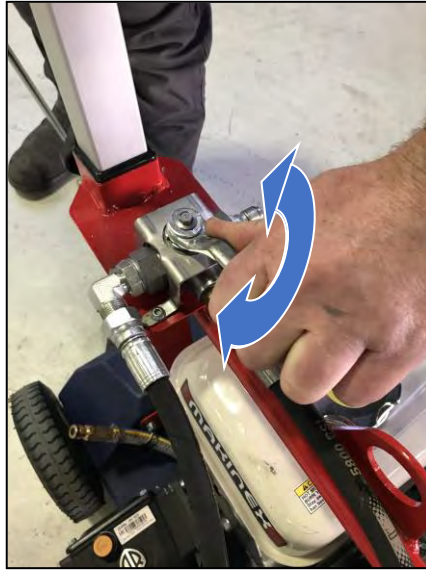
Refer to your Briggs and Stratton XR 950 Engine Operator's manual for more details

**\*\*\*IMPORTANT\*\*\***

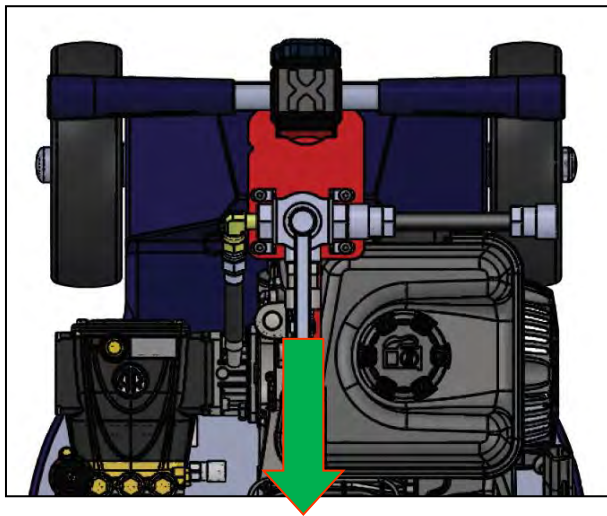
**DO NOT run the pump without the water supply connected and turned on. Damage to equipment resulting from failure to follow this instruction will VOID WARRANTY**

## 6. TWO TYPES OF OPERATION

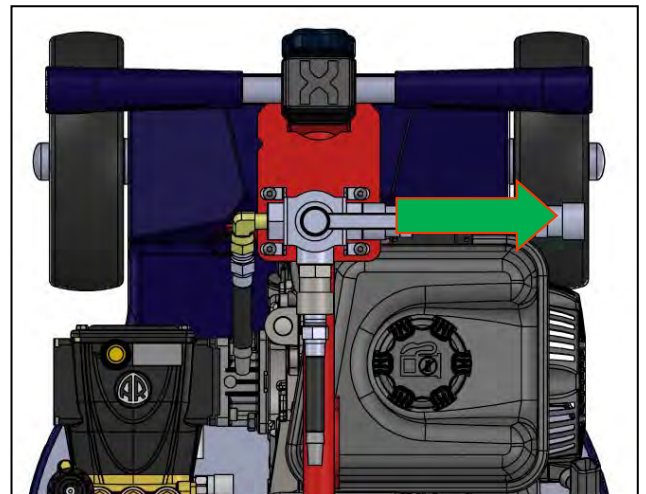
By using the valve, you can choose between two types of operation.



**SURFACE-CLEANER VALVE POSITION**



**SPRAY GUN VALVE POSITION**



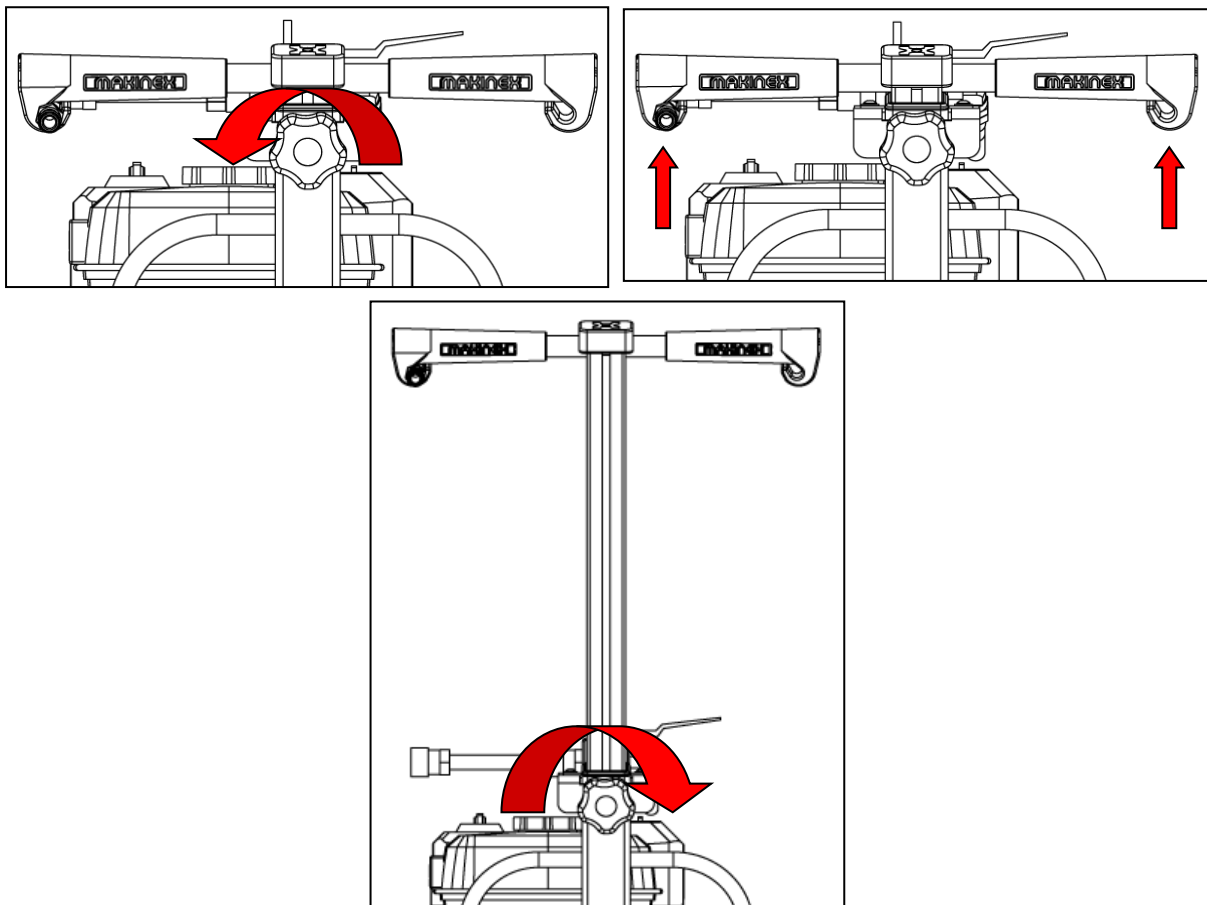
## 7. NOZZLE

The nozzle on the spray gun that comes with the MAKINEX dual pressure cleaner is a multi-spray pattern Quick Connect nozzle with 0, 15, 25, and 40 degree spray angles as well as a soap and rinse pattern.

The minimum orifice to be used in your Surface-cleaner is half that which is being used in your pressure cleaner. Example: If your pressure cleaner uses a size 5 orifice, you need to use a size 2.5 orifice in your Surface-cleaner.

The nozzles being used should have a 15°-25° spray pattern; anything less than a 15° spray pattern can damage the area being cleaned. Anything more than 25° may not allow the bar to rotate. Nozzles should be screwed into the rotating bar. The spray fan should be parallel to the rotating bar.

## 8. RETRACTABLE HANDLES



9.1 Loosen the thumbscrew by rotating anti-clockwise – see above

9.2 Lift handle to desired height.

9.3 Tighten the thumbscrew by rotating clockwise.



## **9. STOPPING THE PRESSURE CLEANER**

10.1 Turn off the engine

10.2 Release pressure from spray gun, **ALWAYS** point gun in safe position before pressing trigger.

**NOTE:** Spray gun traps high water pressure, even when engine is stopped, and water is disconnected.

10.3 Store in a safe area

# MAINTENANCE

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## GENERAL RECOMMENDATIONS:

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Regular maintenance will improve the performance and extend the life of the pressure cleaner.

The pressure cleaner's warranty does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, the operator must maintain the pressure cleaner as instructed in this manual and in the engine manual, including proper storage as detailed in Winter Storage and Long-Term Storage.

**NOTE:** An hour meter is installed on the machine to help with tracking operation hours.

Should you have questions about replacing components on your pressure cleaner, please contact dealer for assistance.

**\*\*\*\*IMPORTANT\*\*\*\***



**DO NOT RUN EXCESSIVE BY-PASS (this means engine running but no water flow)!**

Switch machine off within two minutes of ceasing operation as excessive by-pass can cause heat to build up in pump and subsequent damage. **EXCESSIVE BY-PASS RUNNING VOIDS WARRANTY!**

## GENERAL MAINTENANCE

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### CLEAN DEBRIS

Daily or before use, clean accumulated debris from cleaning system. Keep the unit clean at all times. Keep area around and behind muffler free from any combustible debris. Inspect cooling air slots and openings on the pressure cleaner. These openings must be kept clean and unobstructed.

**NOTE: IMPROPER** treatment of pressure cleaner can damage it and shorten its life. **DO NOT** spray any objects through cooling slots.

System parts should be kept clean to reduce the risk of overheating and ignition of accumulated debris.

- Use a damp cloth to wipe exterior surfaces clean.
- Use a soft bristle brush to loosen caked on dirt, oil, etc.
- Use a vacuum cleaner to pick up loose dirt and debris.

### CHECK AND CLEAN INLET FILTER

Examine the inlet water filter on the pump after every use and clean it if the screen is clogged or replace immediately if screen is damaged.

### CHECK HIGH PRESSURE HOSE

The high-pressure hose can develop leaks from wear, kinking, or abuse. Inspect the hose each time before using it. Check for cuts, leaks, abrasions or bulging of cover, damage or movement of couplings. If any of these conditions exist, replace the hose immediately.



- The high-pressure stream of water that this equipment produces can cut through skin and its underlying tissues, leading to serious injury and possible amputation.
- **NEVER** repair high pressure hose. Replace it.
- Replacement hose rating **MUST** exceed maximum pressure rating of unit.

## **CHECK SPRAY GUN**

Examine the hose connection to the spray gun and make sure it is secure, and make sure the 'safety lock' is present and attach on the trigger, it helps to prevent any accidental jets when in operation. Replace spray gun immediately if the safety lock is damaged or not functioning.

## **CHECK WAND**

Occasionally, the spray wand can be clogged with foreign materials such as dirt. When this happens, excessive pressure can develop. Whenever the pressure nozzle becomes partially clogged, the pump pressure will pulsate. It should be cleaned immediately cleaned.

## **NOZZLE MAINTENANCE**

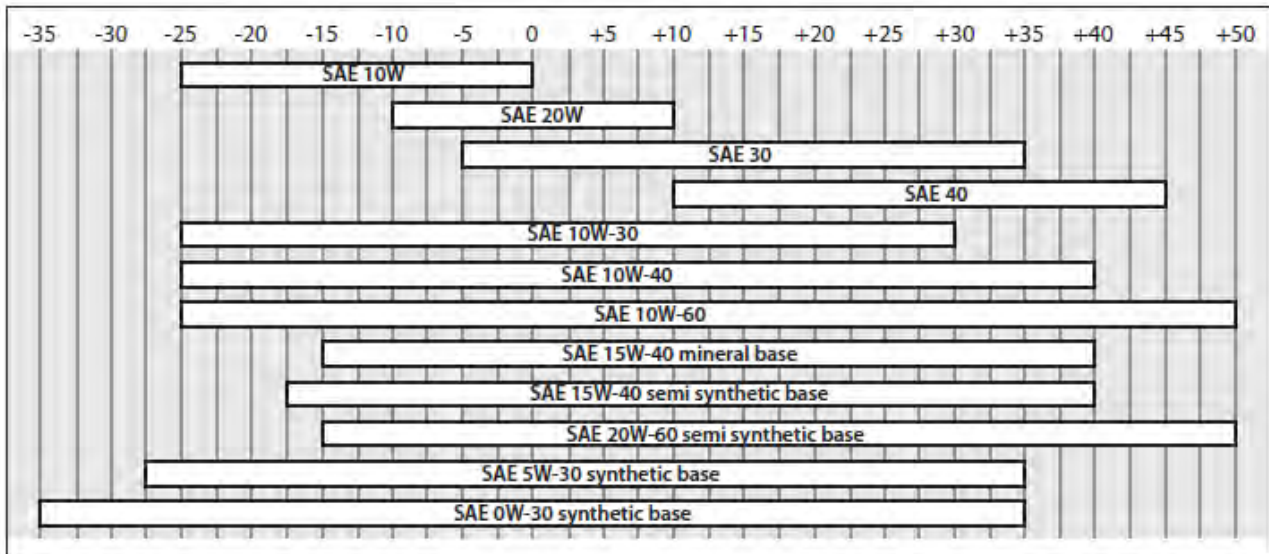
A pulsing sensation felt while squeezing the spray gun trigger may be caused by excessive pump pressure. The principal cause of excessive pump pressure is a spray tip clogged or restricted with foreign materials, such as dirt, etc. To correct the problem, immediately clean the spray tip following these instructions:

1. Shut off engine and turn off water supply.
2. ALWAYS point spray gun in safe direction, squeeze spray gun trigger to release retained high water pressure.
3. Remove spray tip from end of nozzle extension.
4. Use a small paper clip to free any foreign material clogging or restricting spray tip of the nozzle.
5. Remove nozzle extension from spray gun.
6. Using a garden hose, remove additional debris by back flushing water through the nozzle extension.
7. Reinstall spray tip into nozzle extension.
8. Reconnect nozzle extension to spray gun.
9. Make sure garden hose is connected to spray gun and pump. Turn on water.
10. Start engine following instructions 'How to Start Your Pressure Cleaner'.
11. Test pressure cleaner by operating the spray gun
12. Use same nozzle maintenance with the Surface-Cleaner.

If pressure drops off check nozzle for wear. Nozzles should be replaced on a regular basis (suggestion: every month for machines in regular use, every three months for machines used intermittently). Using the machine with the incorrect nozzle size or worn nozzle will **VOID WARRANTY** and can be **DANGEROUS** to operator.

## PUMP MAINTENANCE

### CHANGING PUMP OIL



The pump is delivered complete with oil, with the characteristics stated on the data plate. When changing the oil, use oil suitable for conditions in the operating environment. The correct lubricating oil viscosity depends on the external temperature. Use the graph to select the degree of viscosity best suited to the temperature of use.

Change oil after first 50 hours of operation and then every 200 hours of operation or every 3 months of regular use, whichever occurs first.

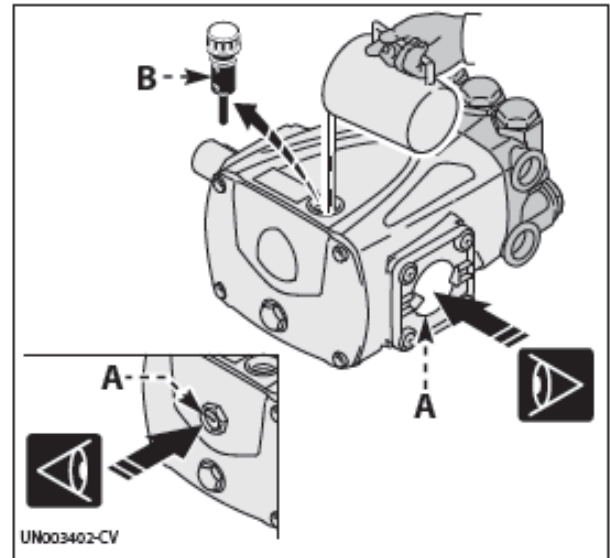
**NOTE:** When changing pump oil, use only high quality non-detergent oil. Use no special additives.

## CHECKING PUMP OIL LEVEL

- Check the oil with the pump level and cold.
- Check the amount of oil through the level gauge (A).
- If necessary, top up with oil with the characteristics specified in the 'lubricants table'.

To top up with oil proceed as described below.

1. Unscrew the plug (B) and pour oil in until it is halfway up the level gauge (A).
2. Screw on the plug (B).

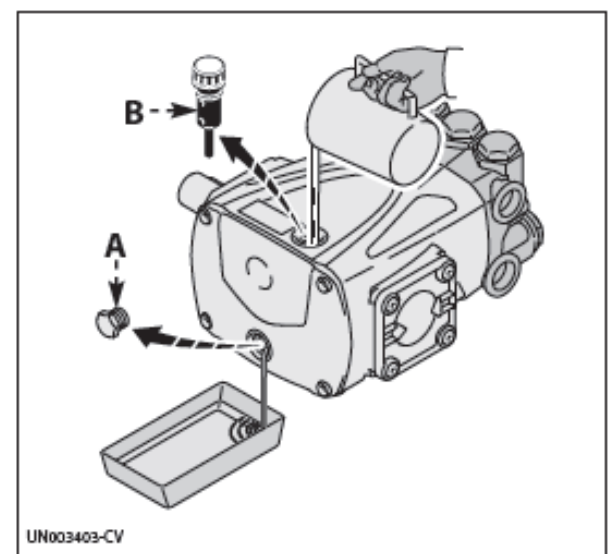


**Position the machine so the pump is perfectly level, with the pump slightly warm. Do not release oil into the environment.**

**Dispose of spent oil in accordance with statutory requirements.**

To change the oil, proceed as described below.

1. Position a receptacle of suitable capacity to collect the spent oil.
2. Unscrew the drain plug (A) and allow all the oil to flow out.
3. Screw on the drain plug (A).
4. Unscrew the filler plug (B).
5. Pour in the fresh oil through the filter hole until the correct level is reached.
6. Screw on the filler plug (B)



## **LENGTHY PUMP LAY-OFFS**

If the pump is to be unused for a long time, proceed as described below.

1. Run the pump with clean water for a few minutes.
2. Operate the pump without water for 10 seconds with the end of the delivery pipeline open to empty the pump and the delivery circuit and prevent scaling.
3. Flush the pump with water and solvents authorised by the relevant laws.
4. Dry the pump with a pressurised air jet.
5. Protect the pump from weather.

## **PUTTING THE PUMP BACK INTO SERVICE**

Before putting the pump back into service after a long period out of use, check the oil level and the tightness of the mounting screws.

## **SURFACE-CLEANER MAINTENANCE**

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The Surface-Cleaner must be maintained to ensure correct function and longevity of life.

There are two nozzles attached and they need to be checked before every use and are like nozzle maintenance of the spray gun.

## **ENGINE MAINTENANCE**

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See the engine operator's manual for instructions on how to properly maintain the engine.

## **STORAGE**

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### **STORAGE WITH FUEL IN TANK**

Gasoline fuel can become stale when stored over **30 days**. Stale fuel causes acid and gum deposits to form in the fuel system or crucial carburettor parts. To keep fuel fresh:

1. Add a fuel stabiliser liquid additive to fuel.
2. Run engine for a minimum of 2 minutes to allow it to circulate throughout the engine

Draining gasoline is unnecessary if the fuel stabiliser is used according to the instructions that come with it. Run pressure cleaner engine for a minimum of two minutes, after stabiliser is added to fuel, to allow it to circulate throughout the engine. The engine and fuel can be stored up to 24 months.



Fuel and fuel vapour are extremely flammable and explosive. Fire or explosion from misuse of fuel can cause severe burns and even death.

### **RUST PREVENTION IN CYLINDERS**

1. Remove spark plug and pour approx. 15ml (1/2oz) of clean engine oil into the cylinder.
2. Install spark plug and pull starter handle slowly to distribute oil. **DO NOT** start engine at this time.
3. Ensure ignition switch is OFF, then slowly pull the recoil starter 2-3 times to distribute and coat the cylinder bore with oil.



Unintentional sparking can cause fire or electrical shock. Failure to observe this warning can cause severe property damage, severe burns and even death.

Disconnect spark plug wire from spark plug and cover tip of spark plug wire with insulating tape and place wire where it cannot come in contact with spark plug or pressure cleaner frame.



## **STORAGE OF PRESSURE CLEANER**

1. Drain all water from high pressure line, coil it and store it in cradle of pressure cleaner handle.
2. Drain all water from spray gun and spray wand by holding spray gun in vertical position with nozzle pointed downward. Squeeze trigger to remove fluids from spray gun and spray wand. Store in spray gun holder.
3. Store high pressure hose and spray wand so they are protected from damage.

It is **RECOMMENDED** that you follow these steps to protect the internal seals of pressure cleaner when storing unit for more than 30 days and/or when freezing temperatures are expected.

1. Obtain a funnel, 170g (6oz) of RV antifreeze and approximately 0.9m (36inches) of garden hose with a male hose connector on one end.



**Use only RV antifreeze. Any other type of antifreeze is corrosive and can damage pressure pump.**

2. Disconnect spark plug wire. Ensure it cannot touch any metal on pressure cleaner.
3. Connect the 0.9m of garden hose to water inlet of pressure pump.
4. Add **RV antifreeze**.
5. Pull engine starter rope slowly several times until antifreeze comes out of pressure hose connection of pressure pump.
6. Remove hose from water inlet of pressure pump.
7. Reconnect spark plug wire.

## **OTHER STORAGE TIPS**

1. **DO NOT** store gasoline from one season to another unless it's been treated with fuel stabiliser.
2. Replace fuel container, if metal, and if it begins to rust. Rust and dirt and debris can contaminate fuel supply and components resulting in poor performance and/or internal damage to engine. Fuel should be stored in newer approved plastic storage container.
3. Cover pressure cleaner with a suitable cover that does not retain moisture such as a plastic- or plastic-coated tarp.
4. Store pressure cleaner in a clean and dry area.



Certain storage covers can be flammable or can melt in high temperatures. **DO NOT** place storage cover over pressure cleaner unit until it has completely cooled.

## TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
<b>Pump does not reach the specified pressures</b>	Pump sucking air	Restore the tightness of the intake line
	Intake flow rate insufficient	Increase the size of the intake pipelines
		Remove and kinks from the pipes
		Increase the filter capacity or clean the filter cartridge
		Increase the RPM to the rated speed
	Worn intake and delivery valves	Replace the valves (1)
	By-pass valve seat worn	Replace the valve
	Worn gaskets	Replace the gaskets (1)
	Unsuitable, worn nozzle	Replace nozzle
	Faulty Gauge	Check and Replace
<b>Irregular variations in pressure</b>	Worn intake and delivery valves	Replace the valves (1)
	Valves blocked by dirt	Clean the valves (1)
	Air being sucked into system	Restore the tightness of the intake pipeline connections
	Worn gaskets	Replace the gaskets (1)
<b>Fluctuating pressure</b>	Valves worn	Check and replace
	Valves blocked	Check and replace
	Pump sucking air	Check water supply and air ingress at joints in suction line
	Worn piston packing	Check and replace
<b>Pressure drop</b>	Nozzle worn	Replace Nozzle
	Worn intake and delivery valves	Replace the valves (1)
	Valves blocked by dirt	Clean the valves (1)
	By-pass valve seat worn	Replace the valve
	Worn gaskets	Replace the gaskets (1)
<b>Pump noisy</b>	Air being sucked into system	Restore the tightness of the intake pipeline connections
	intake and/or delivery valve springs broken or collapsed	Replace the valves (1)
	Valves blocked by dirt	Clean the valves (1)
	Worn bearings	Replace the bearings (1)
	Intake liquid temperature too high	Reduce liquid temperature
<b>Pump overheating</b>	High pump operating pressure	Reduce the pressure to the rated values
	Not enough water flowing through	Check water inflow through pump
	Pump left on idle for too long	DO NOT LEAVE PUMP ON IDLE FOR >2min VOIDS WARRANTY
<b>Water in oil</b>	Guide piston gasket worn	Replace the gaskets (1)
	High humidity percentage in air	Change the oil twice as often

	Worn gaskets	Replace the gaskets (1)
<b>Oil leak from pump</b>	Worn gaskets	Replace the gaskets (1)
	Worn pistons	Replace the pistons (1)
	Loose drain plug	Tighten drain plug
	pump overfilled	Check for correct amount
	incorrect oil use	Drain and refill with correct type and amount of oil
	Oil seals worn	Replace seals (1)
<b>Water leaking at pump</b>	loose connections	Tighten connections
	Piston packings worn	Check and replace (1)
	Worn or broken O-rings	replace O-rings
	Pump head or tubes damaged from freezing	Check and replace (1)
<b>Engine shuts down when running</b>	Out of fuel	Fill fuel tank
	Low engine oil	Add oil
<b>Engine will not start</b>	Out of fuel	Fill fuel tank
	Low engine oil	Add oil
	wrong fuel	Drain and refill recommended fuel
	Rocker switch set to off	Set to on
	Fuel valve is in off position	Set to on
	Spark plug wire not connected to spark plug	Check and make sure its wired
	Faulty spark plug	Check and replace
	Water in fuel	Drain tank and carburettor and refill
	Flooded	Wait 5 minutes and re-crank engine
	Engine too hot	Allow engine to cool
	Choke in wrong position	Change choke position
	Too much pressure builds up	Release pressure
(1) operations which must be carried out at an authorised service centre		

## LIMITED WARRANTY

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To take advantage of the MAKINEX limited warranty, you must have maintenance performed according to the maintenance schedule (contained in relevant owner's manual supplied with this product), by an authorised MAKINEX dealer or MAKINEX service technician. You are free to have your MAKINEX product serviced by any suitably qualified mechanic or electrician (depending on the mechanical or electrical requirement) and this will not affect your statutory warranties, however, failure by the owner to have the recommended servicing carried out by an authorised MAKINEX dealer/service technician means that you cannot take advantage of the MAKINEX limited warranty.

In order to ensure your safety, we strongly recommend that you only use an authorised MAKINEX dealer for servicing. Only authorised MAKINEX dealers have access to all the special tools, technical information, parts and training required to maintain your MAKINEX product in peak operating condition.

MAKINEX warrants each new Dual Pressure Cleaner to be free from defects in material and workmanship under normal domestic and industrial use and service for the period specified below, conditional to the limitations and exclusions printed on this page. This warranty applies only to new MAKINEX pressure cleaners distributed by us and by our authorised MAKINEX dealers.

AUSTRALIA: Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

### **WARRANTY: (Ex-factory/ Reseller premise)**

MAKINEX warrants to the original purchaser:

- Frame and Engine will be free of defects in material and workmanship for a period of one (1) year from the original date of purchase.
- Briggs and Stratton Engine is subject to (2) years warranty. Please see [www.briggsandstratton.com](http://www.briggsandstratton.com) for details.
- 12 months warranty on pressure pump (Note: Maintenance is not warranty. Excludes service and consumables required at scheduled maintenance intervals)

## **WARRANTY EXCLUSIONS**

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This warranty does not cover the following repairs and equipment:

### **NORMAL WEAR**

Pressure cleaners need periodic parts and service to perform well. This warranty does not cover repair when normal use has exhausted the life of a part or the equipment.

### **INSTALLATION, USE, AND MAINTENANCE**

This warranty will not apply to parts and/or labour if this pressure cleaner is deemed to have been misused, neglected, involved in an accident, abused, loaded beyond the pressure cleaner's limits, modified, installed improperly or connected incorrectly to any water supply. Normal maintenance such as spark plugs, air filters, adjustments, fuel system cleaning and obstruction due to build-up is not covered by this warranty.

### **OTHER EXCLUSIONS**

This warranty excludes:

- Cosmetic defects such as paint, decals, etc.
- Wear items such as filter elements, Pistons, O-rings, etc.
- Accessory parts such as starting batteries, and storage covers.
- Failures due to acts of God and other force majeure events beyond the manufacturer's control.
- Problems cause by parts that are not original MAKINEX parts.
- Maintenance service cost
- Expedited freight costs

## **OWNER'S RESPONSIBILITY UNDER LIMITED WARRANTY:**

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Only clean, potable water should be used through our pressure cleaners with a flow rate at least 15% more than the pump requirements (e.g. a 15LPM pump requires a water supply of 18LPM minimum to prevent pump cavitation).

Strict adherence to the maintenance checks and with **proof of scheduled maintenance history** is required by an authorised agent or qualified mechanic. It is the consumer's responsibility to deliver the machine in question to our service premises or to the premises of our appointed agent at the consumer's expense for replacement or repair as applicable. Maintenance services are not covered under warranty.

### **Claim Procedure:**

- Contact MAKINEX by phone or email informing us of your machines problem or defect.
- Once the extent of the claim has been assessed, we retain the right to compensate the consumer for such defect, or repair (pars & labour), or replace the machine under warranty.
- All warranties will be carried out by MAKINEX authorised staff or appointed agents at a premise to be determined by the Manufacturer.
- Transportation charges on product submitted for repair or replacement under this warranty are the sole responsibility of the purchaser. This warranty only applies to the original purchaser and is not transferable.
- It is the responsibility (and cost) of MAKINEX or our appointed agent to return the machine to be repaired or replaced under warranty to the consumer- this is valid for domestic territories only (e.g. Australian units will be delivered within Australian territory, USA units will be delivered within USA territory and European units will be delivered within its designated country's territories).
- Where the specific warranty component (e.g. Engine) is under a Manufacturer's warranty other than MAKINEX (e.g. Briggs and Stratton), the consumer can either contact MAKINEX or the applicable Manufacturer for repairs where such warranty was registered with that manufacturer at purchase.
- Warranty calls will only be carried out by our representatives and not via client's choice of repairer. We will not accept back charges for any work not carried out by our representatives or accept any charges due to equipment being un-operational for any reason even during its warranty period.

## CONTACT INFORMATION

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For sales, service, warranty and parts for all MAKINEX products; please refer below.

	<b>SALES, SERVICE, SPARE PARTS &amp; WARRANTY</b>
<b>AUSTRALIA</b>	<p style="text-align: center;"><b><u>SALES</u></b> TEL 1300 795 953 or +61 2 9460 8071 WEB <a href="http://www.makinex.com.au">www.makinex.com.au</a></p> <p style="text-align: center;"><b><u>SERVICE, SPARE PARTS &amp; WARRANTY</u></b> EMAIL <a href="mailto:service@makinex.com.au">service@makinex.com.au</a></p>
<b>USA</b>	<p style="text-align: center;"><b><u>SALES</u></b> TEL +1 855-625-4639 WEB <a href="http://www.makinex.com">www.makinex.com</a></p> <p style="text-align: center;"><b><u>SERVICE, SPARE PARTS &amp; WARRANTY</u></b> EMAIL <a href="mailto:service@makinex.com">service@makinex.com</a></p>
<b>UK</b>	<p style="text-align: center;">WEB <a href="http://www.makinex.co.uk">www.makinex.co.uk</a></p>
<b>EUROPE</b>	<p style="text-align: center;">TEL +31 (0)6 24881203 or +31 (0)6 50841849 EMAIL <a href="mailto:info@mtools.eu">info@mtools.eu</a></p>
<b>CHINA</b>	<p style="text-align: center;">TEL +86 18951118278 EMAIL <a href="mailto:sales@makinex.com.cn">sales@makinex.com.cn</a></p>

**Or your nearest MAKINEX distributor**

We have very knowledgeable, experienced staff to assist you with help and advice.



# APPENDIX A- RISK ASSESSMENT

PRODUCT RISK / HAZARD ASSESSMENT TABLE						
PRODUCT NAME: DUAL PRESSURE WASHER DPW-4000		Assessment Carried Out By: Daniel Merhi		000		
MANUFACTURER: MAKINEX		Document Revision Number:		Date Created: 28/08/20		
OPERATOR COMPETENCE/PLANT LICENCE NOT REQUIRED		Updated By: Daniel Merhi		Updated Date: 28/08/20		
No.	TYPE / NATURE OF RISK OR HAZARD	LIKELIHOOD	CONSEQUENCE/RISK LEVEL	CONTROL ACTION		
1.0	CONTACT WITH FLUID UNDER PRESSURE 1.1 PERSONAL INJURY BY WATER JET FROM SPRAY GUN	LIKELY	MINOR 3	NEVER POINT SPRAY GUN AT OTHER PEOPLE OR USE HIGH PRESSURE WATER TO CLEAN PEOPLE, ANIMALS, CLOTHING AND FOOTWEAR. THIS PRODUCT IS FITTED WITH A 'HOLD TO ACTIVATE' MECHANISM WHICH IS THE SPRAY GUN TRIGGER. UPON RELEASING GRIP, THE HIGH-PRESSURE WATER FLOW WILL BE AUTOMATICALLY STOPPED. WEAR EYE PROTECTION AND PPE USE HIGH PRESSURE RESISTANT GLOVES USE BARRIERS TO KEEP BYSTANDERS AWAY FROM WORK AREA STOP JETTING IF PERSONS ENTER WORK AREA STOP OPERATING IF A MALFUNCTION OCCURS. TO DISABLE THE PRODUCT, TURN THE RED IGNITION SWITCH TO THE 'OFF' POSITION. SEE PICTURE BELOW. THIS WILL IMMEDIATELY STOP THE ENGINE. FURTHER TO THE ABOVE, THE WATER FLOW CAN BE DIVERTED FROM THE SPRAY GUN BY TURNING THE 3 WAY VALVE TO DIVERT THE WATER TO THE SURFACE CLEANER.		
	1.2 PERSONAL INJURY BY WATER JET FROM ROTARY	UNLIKELY	MINOR 4	NEVER PLACE ANY PART OF YOUR BODY UNDER SHROUD WHILST THE ROTARY CLEANER IS IN OPERATION UNDER PRESSURE		
	1.3 EXCESS PRESSURE AND/OR DAMAGED ACCESSORIES CAUSING BLOW OUT OF AIR OR WATER	UNLIKELY	NEGLECTIBLE 5	ENSURE EQUIPMENT IS OPERATED PROPERLY AND VALVES ARE ENGAGED/DISENGAGED FULLY THIS PRODUCT IS FITTED WITH A 'HOLD TO ACTIVATE' MECHANISM WHICH IS THE SPRAY GUN TRIGGER. UPON RELEASING GRIP, THE HIGH-PRESSURE WATER FLOW WILL BE AUTOMATICALLY STOPPED. WEAR EYE PROTECTION AND PPE USE HIGH PRESSURE RESISTANT GLOVES FURTHER TO THE ABOVE, THE WATER FLOW CAN BE DIVERTED FROM THE DAMAGED ACCESSORY BY TURNING THE 3 WAY VALVE TO DIVERT THE WATER TO THE SURFACE CLEANER OR TO THE SPRAY GUN		
2.0	IMPACT/CUTTING 2.1 POTENTIAL IMPACT FROM BACK SPRAY CONTAINING WATER/OR DEBRIS	LIKELY	NEGLECTIBLE 4	WEAR APPROPRIATE PPE (e.g. GOGGLES AND WATER PROOF CLOTHING ETC)		
	2.2 STRIKE WITH UNCONTROLLED HOSE OR COUPLING	UNLIKELY	NEGLECTIBLE 5	ENSURE HIGH PRESSURE WASHER IS OPERATED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS WEAR APPROPRIATE PPE (e.g. GOGGLES AND WATER PROOF CLOTHING ETC)		
3.0	SLIPS/TRIPS /FALLS 3.1 SLIP, TRIP OR FALL DUE TO UNEVEN, SLIPPERY OR STEEP WORK SURFACES	LIKELY	NEGLECTIBLE 4	TAKE EXTRA CAUTION WHEN OPERATING ON UNEVEN, SLIPPERY OR STEEP WORK SURFACES ALWAYS WEAR APPROPRIATE FOOT WEAR SIGNPOST WHERE APPROPRIATE, USE WITCHES HATS, 'CORDON OFF' AREAS, ETC.		
	3.2 SLIP, TRIP OR FALL DUE TO POOR HOUSEKEEPING	LIKLEY	NEGLECTIBLE 4	ENSURE THAT APPROPRIATE HOUSEKEEPING STANDARDS ARE MAINTAINED AT ALL TIMES TO MINIMISE THE RISK OF A SLIP, TRIP OR FALL ALWAYS WEAR APPROPRIATE FOOT WEAR		
	3.3 TRIPPING ON HOSES	LIKELY	NEGLECTIBLE 4	MAKE SURE TO REEL HOSES NEATLY		
4.0	BURNS/FIRE 4.1 PERSONAL INJURY – BURNS WHILST DOING MAINTENANCE	LIKELY	NEGLECTIBLE 4	BE CAUTIOUS OF HOT PARTS (SUCH AS MUFFLERS). ALLOW TO COOL BEFORE MAINTENANCE/ADJUSTMENTS		
	4.2 FIRE/EXPLOSION WHILST REFUELLING ENGINE	UNLIKELY	MAJOR 3	SHUT OFF MACHINE AND ALLOW TO COOL BEFORE REFUELLING. NEVER REFUEL WHILE MOTOR IS RUNNING. DO NOT SMOKE AND ENSURE REFUELLING IS UNDERTAKEN IN WELL VENTILATED AREA (OUTSIDE, CLEAR OF IGNITION SOURCES)		



5.0	ELECTRIC SHOCK	5.1	ELECTROCUTION DUE TO WATER IN CONTACT WITH LIVE ELECTRICAL EQUIPMENT	UNLIKELY	FATALITY	2	HIGH	ENSURE PRESSURE WASHER IS NOT DIRECTED TO LIVE ELECTRICAL EQUIPMENT ENSURE ANY EXCESS WATER DOES NOT COME INTO CONTACT WITH POWER SOURCES
6.0	ERGONOMIC INJURY	6.1	PERSONAL INJURY WHEN LIFTING/OR MOVEMENT ON SITE	LIKELY	MAJOR	2	HIGH	STAFF TRAINING ON CORRECT LIFTING PROCEDURE USE ASSISTED LIFTING DEVICE, SUCH AS MAKINEX PHT-140, WHERE SUITABLE
7.0	NOISE	7.1	HEARING DAMAGE DUE TO LONG TERM USE	UNLIKELY	MAJOR	3	MEDIUM	ALWAYS WEAR HEARING PROTECTION WHILST OPERATING AND/OR IN CLOSE VICINITY OF THE MACHINE
8.0	ENTANGLEMENT WITH HOSE	8.1	INJURY TO OPERATOR OR BYSTANDERS	UNLIKELY	MINOR	3	MEDIUM	HOSE REEL USED TO MINIMISE EXCESS HOSE BE AWARE OF ENVIRONMENT AND ENSURE FIRM FOOTING
9.0	SUFFOCATION	8.1	FATALITY	UNLIKELY	FATALITY	1	HIGH	DO NOT OPERATE ENGINE WITHOUT SUITABLE VENTILATION

**NOTES:**

- > THIS PRODUCT HAS BEEN DESIGNED AND MANUFACTURED AS A DUAL PRESSURE WASHER ONLY
- > THIS DOCUMENT HAS BEEN PREPARED ACCORDING TO GUIDELINES AND RECOMMENDATIONS FOUND IN:
  1. 'HAZPAK' PRODUCED BY THE WORK-COVER AUTHORITY AND
  2. THE AUSTRALIAN STANDARDS 4024.1.4/5 - 1996 "SAFEGUARDING OF MACHINERY" - PART 1: GENERAL PRINCIPLES AUSTRALIAN STANDARD, AS/NZS 3760 IN-SERVICE SAFETY INSPECTION AND TESTING OF ELECTRICAL EQUIPMENT.

"LIKELIHOOD LEVEL" REFERS TO THE PROBABILITY OF AN EVENT HAPPENING. THE FOLLOWING SCALE HAS BEEN USED TO DESCRIBE THE LIKELIHOOD OF A DEFINED RISK / HAZARD EVENT OCCURRING DURING NORMAL OPERATION OF THE EQUIPMENT. NOTE THAT LIKELIHOOD EVALUATION IS QUALITATIVE AND BASED ON BEST ESTIMATION VIA CONSULTATION AND EXPERIENCE:

1. VERY LIKELY
2. LIKELY
3. UNLIKELY
4. VERY UNLIKELY

"CONSEQUENCE" REFERS TO THE SEVERITY OF INJURY CAUSED DUE TO AN EVENT OCCURRING, USING THE FOLLOWING SCALE AS DEFINED BY THE "HAZPAK" DOCUMENT:

1. FATALITY = INJURIES RESULT IN DEATH
2. MAJOR = NORMALLY IRREVERSIBLE INJURIES REQUIRING SEVERAL DAYS OFF USING FIRST AID
3. MINOR = REVERSIBLE INJURIES REQUIRING SEVERAL DAYS OFF USING FIRST AID
4. NEGLIGIBLE = ABLE TO BE TREATED USING FIRST AID

"RISK LEVEL" REFERS TO THE SEVERITY OF A RISK BASED ON THE "LIKELIHOOD LEVEL" AND "INJURY LEVEL". INHERENTLY, AS THE CONSEQUENCE INCREASES IN SEVERITY, RISK INCREASES - EVEN WHEN LIKELIHOOD IS LOW - THE FOLLOWING SCALE HAS BEEN USED:

1. HIGH = POTENTIAL DEATH, PERMANENT DISABILITY, OR MAJOR STRUCTURAL DAMAGE.
2. MEDIUM = POTENTIAL TEMPORARY, DISABILITY, OR MINOR STRUCTURAL DAMAGE.
3. LOW = POTENTIAL INCIDENT THAT HAS THE POTENTIAL TO CAUSE PERSONS TO REQUIRE FIRST AID.

