



REV 13  
Date: 04/15

## DUAL PRESSURE WASHER

DPW-2500, DPW-2500-0AHA, DPW-2500-0AHU



## OPERATOR'S MANUAL

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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 Washer DPW-2500 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. Work Smart Equipment reserves the right to change any portion of this information without notice.

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## DISCLAIMER

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.

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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**

**+61 2 9460 8071 (AUS)**

**407 446 1966 (USA)**

**MODEL NO.**

**DPW-2500, DPW-2500-0AHA, DPW-2500-0AHU**

**SERIAL NO.**

**DATE OF PURCHASE**






**PURCHASE LOCATION**

## ABOUT THIS MANUAL

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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 a 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 any one interacting with the machine.

## PRODUCT INFORMATION

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### SAFETY INFORMATION



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



MAKINEX Dual Pressure Washer is designed for professional operators only, instruct operators in care and use of the machine before use!



#### **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 washer 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
- NEVER operate pressure washer in an area containing dry bush or weeds.
- ALWAYS keep pressure washer 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.




#### **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 washer 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.
- 

 <b>WARNING</b>	<b>RISK OF FALL HAZARD</b> <ul style="list-style-type: none"> <li>• Use of pressure washer 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, broken, or genuine parts.
- NEVER leave wand unattended while unit is running.
- Keep children away from pressure washer at all times.
- DO NOT overreach or stand on an unstable support.
- The cleaning area should have adequate slopes and drainage to reduce the possibility of a fall due to slippery surfaces.
- Be extremely careful if you must use the pressure washer 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.

 <b>WARNING</b>	<b>RISK OF ELECTRICAL SHOCK</b> <ul style="list-style-type: none"> <li>• Risk of electrocution.</li> <li>• Contact with power source can cause electric shock or burn.</li> </ul>
---	---

- Unplug any electrically operated product before attempting to clean it. Direct spray away from electric outlets and switches.
- 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.

- 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. Never hold onto the hose or fitting during operation.
- 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 washer'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 washer.
- 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 washer. Keep children away from the pressure washer 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 washer, be sure you are wearing adequate safety goggles.
- NEVER substitute safety glasses for safety goggles.

# SAFETY DECALS

## MAKINEX<sup>®</sup>

### Dual Pressure Washer DPW-2500

**OPERATING INSTRUCTIONS**

- Use the lever on the valve to switch between wand and rotary cleaner
- Disconnect wand for transport

**CAUTION**

- Do not leave machine running without releasing pressure; internal seals will be damaged
- Ensure wand is attached before operation
- Always make sure all joints are connected before operation
- Never aim spray gun at people, animals or plants
- Never place hands in front of nozzle

**SPECIFICATIONS**

Engine - Honda GX200 5.5HP (4.1kW/5600rpm)

Output - 33 AMP/170A

Oil tank - 2.5 litres (0.66 gal)

Pressure - 170bar/2500psi (rotary and spray gun)

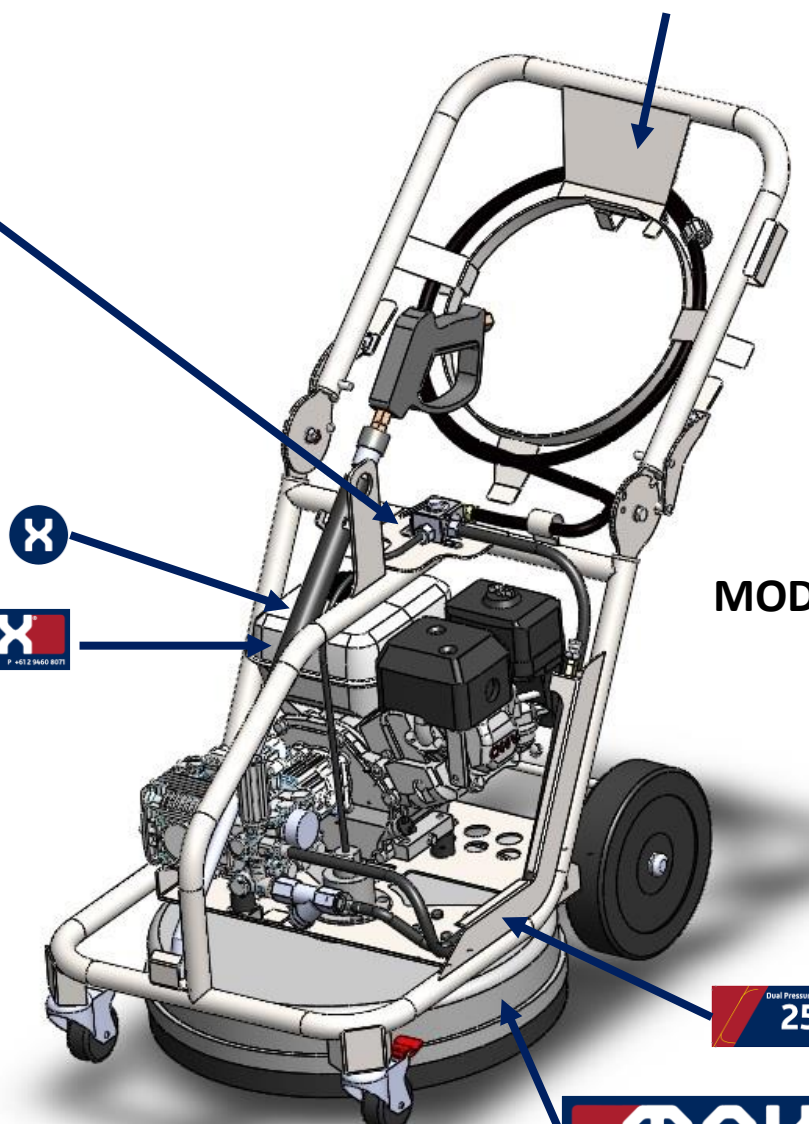
Flow - 11LPM/2.9gal

Rotary cleaner head length - 1170mm diameter

1700 mm

Designed in Australia  
Made in Australia  
Registered Design

makinex.com.au



**MODEL DPW-2500**



Dual Pressure Washer

## 2500 PSI

Max Flow 11LPM/2.9GAL

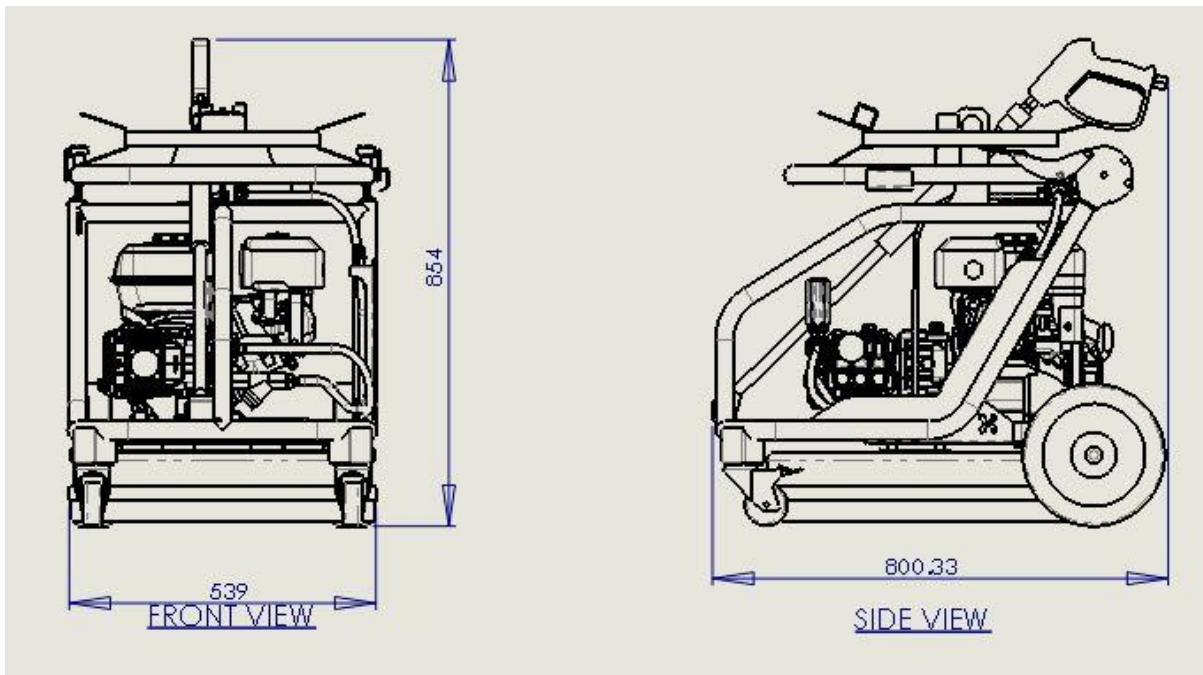
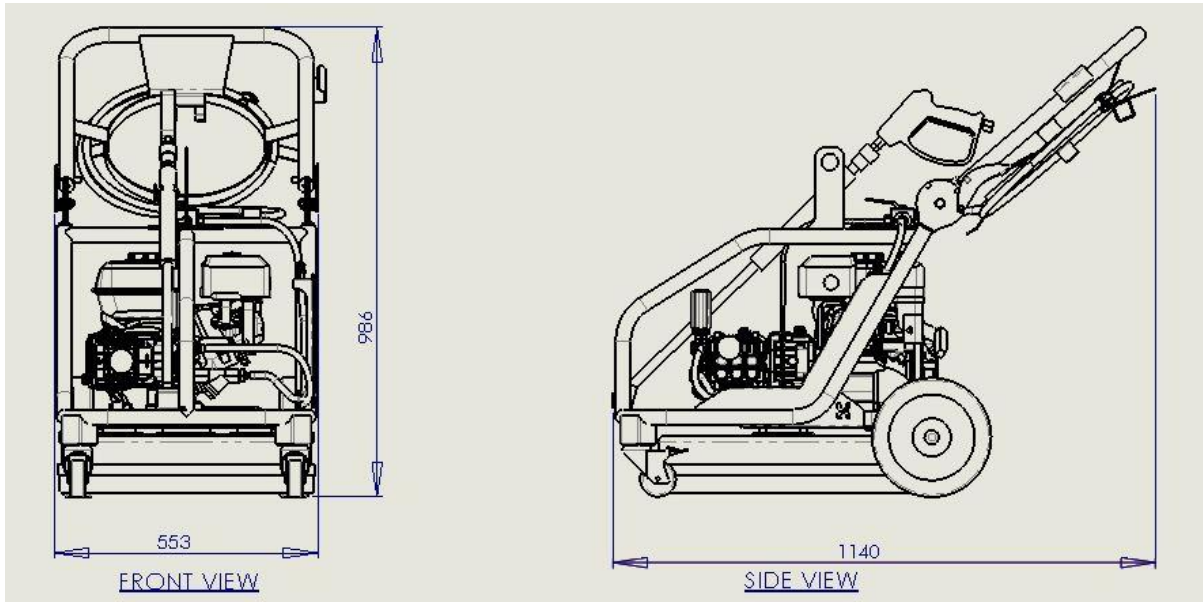


## **PRODUCT DESCRIPTION AND SPECIFICATIONS**

The MAKINEX Dual Pressure Washer DPW-2500 Range is a versatile, 2 in 1 compact 2500 psi pressure cleaner. It is designed and engineered to simplify the process of pressure washing. The pressure washer includes a combination of a rotary cleaner, a spray gun, a control valve, ten metres of high pressure hose, heavy duty industrial- strength Italian- made pump, and the reliable Honda GX200 pull start engine, all mounted on a compact, easy to transport, durable galvanised steel frame.

<b>OVERALL MACHINE SPECIFICATIONS</b>		
<b>OVERALL WEIGHT</b>	66kg/145.5lb	
<b>OVERALL WIDTH</b>	552mm/21.7inch	
<b>HANDLE FOLDED HEIGHT</b>	730mm/28.7inch	
<b>HANDLE EXTENDED HEIGHT</b>	986mm/39inch	
<b>HANDLE FOLDED LENGTH</b>	810mm/31.9inch	
<b>HANDLE EXTENDED LENGTH</b>	1137mm/44.8inch	
<b>HOSE LENGTH</b>	10m/32.8ft	
<b>PRESSURE OUTPUT</b>	2500psi/172 bar	
<b>FLOW RATE</b>	11L/min (2.9 gal/min) <b>DPW-2500</b>	9.5L/min (2.5 gal/min) <b>DPW-2500-0AHA and DPW-2500-0AHU</b>
<b>ENGINE</b>	5.5HP HONDA GX200 pull start	
<b>GEAR BOX</b>	2:1 Reduction (Model DPW-2500 only)	
<b>NOISE LEVEL @ HANDLE</b>	92dBA	
<b>NOISE LEVEL @ 7m</b>	88dBA	
<b>ROTOCLEAN</b>	530mm (21")	
<b>BALL VALVE</b>	500 bar/7252 psi rated 3 way ball valve	
<b>TRIGGER GUN</b>	5200psi/358.5bar rated	
<b>WAND LENGTH</b>	900mm/35.4inch	

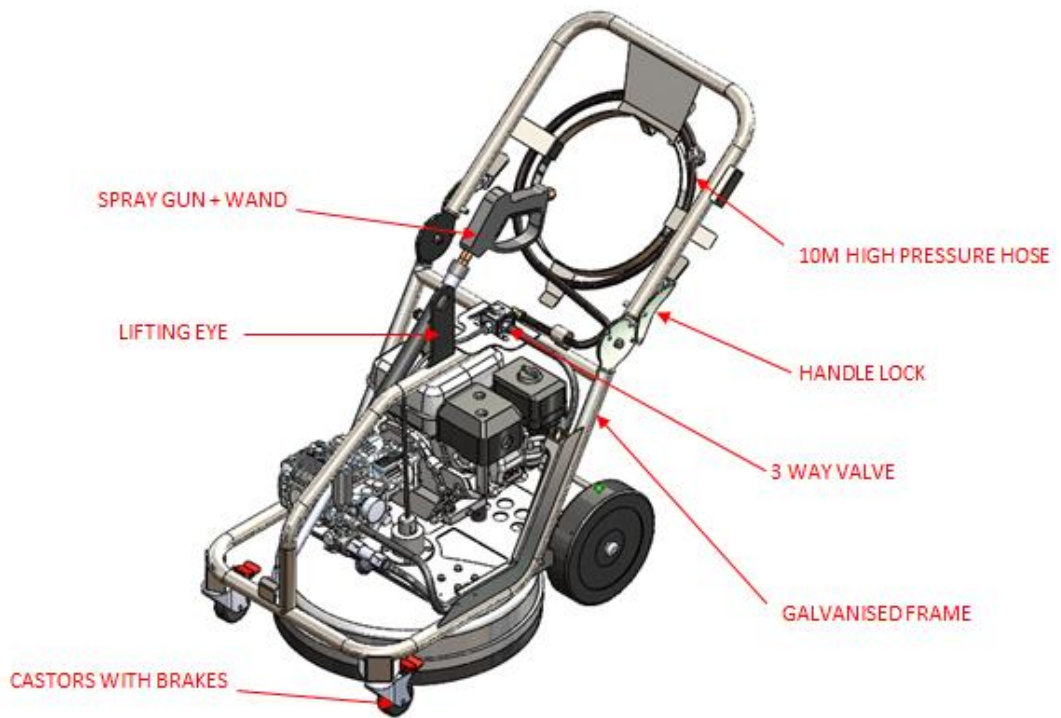
## OVERALL MACHINE DIMENSIONS



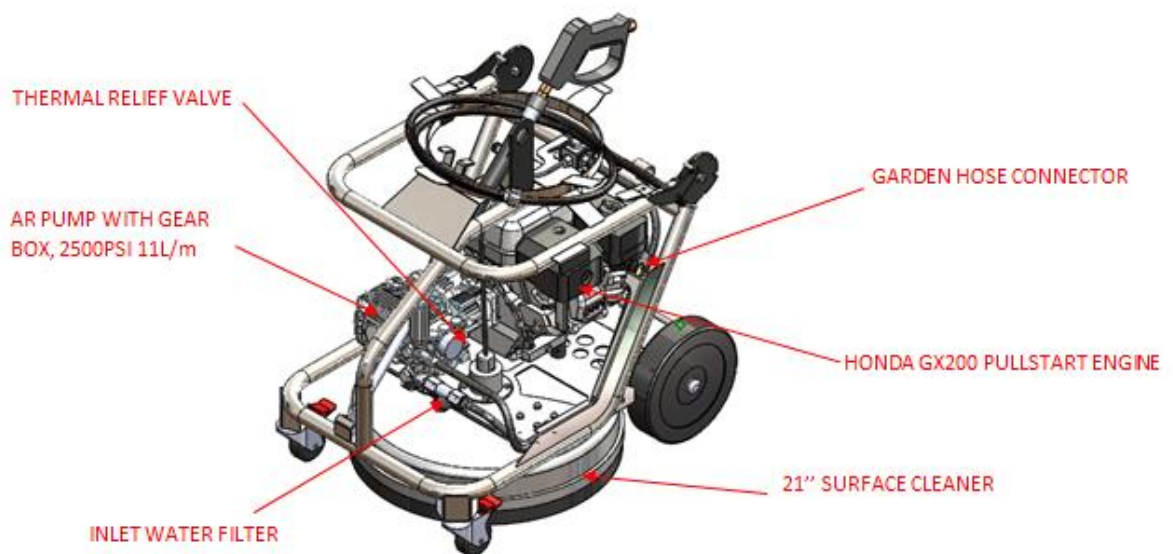
<b>PUMP SPECIFICATIONS</b>		
<b>MAKINEX AUS</b>		<b>MAKINEX USA</b>
<b>DPW-2500 (With AR XM11.17N)</b>		<b>DPW-2500-0AHA and DPW-2500-0AHU (With AR XMV2.5G26D-F25)</b>
<b>PRESSURE OUTPUT MAX</b>	2500 psi/172.4 bar	2600 psi/179.3 bar
<b>FLOW RATE MAX</b>	11L/min (2.9 gal/min)	9.5L/min (2.5 gal/min)
<b>OIL TYPE</b>	10W30	10W30
<b>RPM</b>	1450	3400
<b>WEIGHT</b>	6.5kg/14.3lb	6.8kg/15.0lb
<b>GEARBOX SPECIFICATIONS (DPW-2500 ONLY)</b>		
<b>REDUCTION</b>	2:1	
<b>SHAFT SIZE</b>	3/4" SHAFT	
<b>OIL TYPE</b>	SAE90W	
<b>ENGINE SPECIFICATIONS</b>		
<b>ENGINE TYPE</b>	Honda GX200 Air-cooled 4-stroke OHV	
<b>BORE x STROKE</b>	68 x 54mm/2.7 x 2.1inch	
<b>DISPLACEMENT</b>	196cm <sup>3</sup> /12.0inch <sup>3</sup>	
<b>MAX POWER OUTPUT</b>	5.5HP (4.1kW) @ 3600 rpm	
<b>NET TORQUE</b>	9.1 lb-ft (12.4Nm) @ 2500 rpm	
<b>PTO SHAFT ROTATION</b>	Counter-clockwise (from PTO shaft side)	
<b>COMPRESSION RATIO</b>	8.5:1	
<b>LAMP/CHARGE COIL OPTIONS</b>	25W, 50W/1A, 3A,7A	
<b>CARBURATOR</b>	Butterfly	

<b>IGNITION SYSTEM</b>	Transistorized Magneto
<b>STARTING SYSTEM</b>	Recoil Starter
<b>LUBRICATION SYSTEM</b>	Splash
<b>GOVERNOR SYSTEM</b>	Mechanical
<b>AIR CLEANER</b>	Dual Element
<b>OIL CAPACITY</b>	0.6L (0.63 US qt)
<b>FUEL TANK CAPACITY</b>	3.3L (3.1 U.S. qts)
<b>FUEL</b>	Unleaded 86 Octane or higher
<b>DRY WEIGHT</b>	16.1kg (35lbs)
<b>RUN TIME (Full tank)</b>	100min

## CONTROLS AND FEATURES



### MODEL DPW-2500



<b>FEATURES</b>
<b>Adjustable valve for easy operation switch</b>
<b>Adjustable Pressure 1000-2500 psi</b>
<b>Built in Pressure Gauge</b>
<b>Durable Galvanised frame</b>
<b>Easy manoeuvrable Trolley with front swivel castors</b>
<b>Pull Start motor</b>
<b>Gear Box reduction (2:1) for prolonged pump life (Model DPW-2500)</b>
<b>External Bypass Valve for seal heat protection</b>
<b>Thermal dump valve for over heat discharge</b>
<b>Multi cushion isolators for vibration reduction</b>
<b>10m high pressure hose attached</b>
<b>Spray gun included and mounted on frame</b>
<b>Built in 21'' 2500 psi Roto-Clean</b>
<b>Compact design for easy storage and transport</b>
<b>Lifting point for transportation</b>

# OPERATION

## BEFORE USE

### 1. Add Engine Oil (New machines will be pre-oiled from MAKINEX)

- 1.1 Place Pressure Washer on a flat, level surface.
- 1.2 Clean area around oil fill and remove oil fill cap.
- 1.3 Using oil funnel (optional), slowly pour contents into oil fill opening. (Oil capacity is 1.1L)
- 1.4 Replace oil fill cap and tighten.

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

## Adding Fuel



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

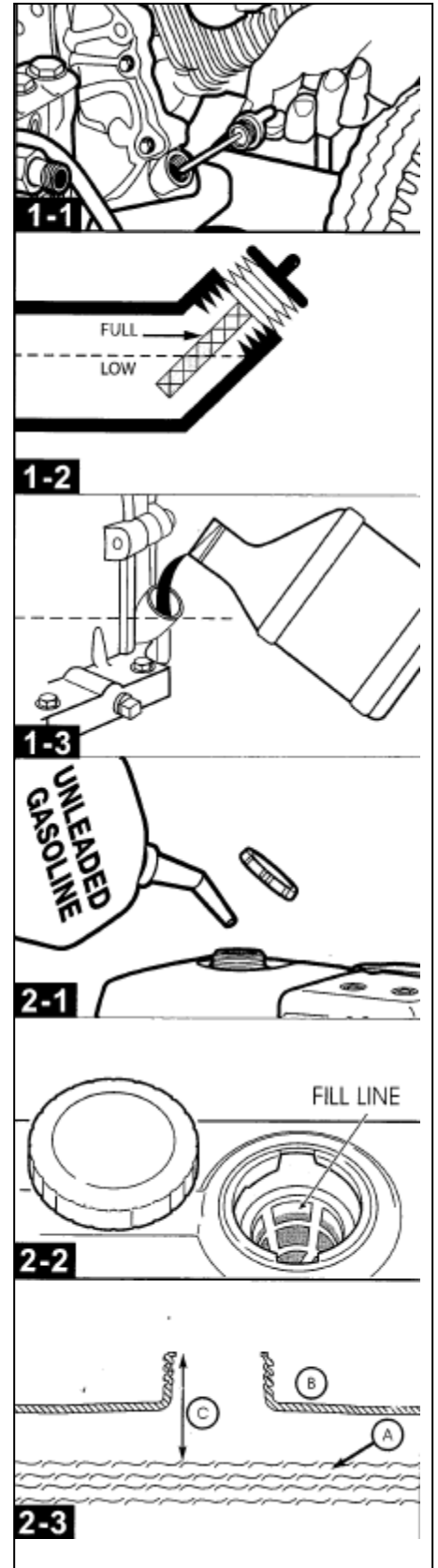
-DO NOT use unapproved gasoline such as E85 (85% ethanol/15% gasoline).

-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.**



**WHEN ADDING FUEL TO PRESSURE WASHER, OBSERVE THE FOLLOWING STEPS:**

- 2.1 Turn pressure washer OFF and let it cool for at least two minutes before removing fuel cap. Loosen fuel cap slowly to release pressure.
- 2.2 Fill fuel tank outdoors.
- 2.3 DO NOT overfill fuel tank. Leave room for fuel to expand.
- 2.4 Wait for spilled fuel to evaporate before cranking engine.
- 2.5 Keep fuel away from sparks, open flames, pilot lights, heat and other ignition sources.
- 2.6 DO NOT light a cigarette or smoke near open fuel tank or container.
- 2.7 Clean area around fuel fill cap and slowly remove cap to allow any pressure to escape.
- 2.8 Slowly add unleaded gasoline (A) to fuel tank (B). Use extreme caution not to fill fuel above baffle (C). This allows appropriate space for fuel expansion.
- 2.9 Install fuel cap and allow any spilled fuel to evaporate before starting engine.

## **OPERATING YOUR PRESSURE WASHER**

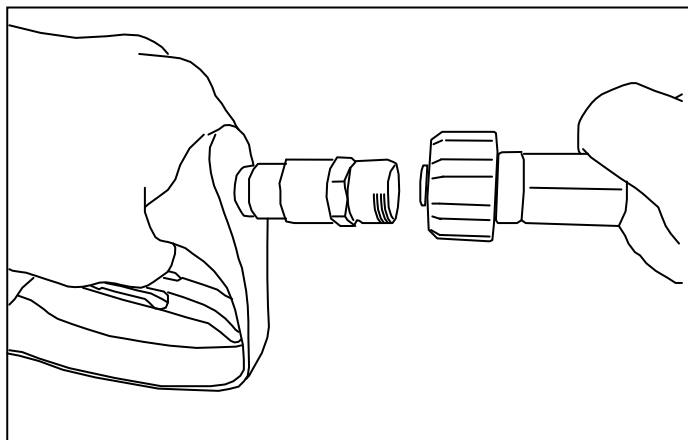
### **1. How to Pre-start your pressure washer**

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

- 1.1 Place pressure washer 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 washer end of garden hose.
- 1.2 Check all high pressure hose connections are tightly connected to the pump, valve, spray gun and Roto-Clean.
- 1.3 Make sure there are no kinks on hoses
- 1.4 Make sure the unit is in a levelled position.

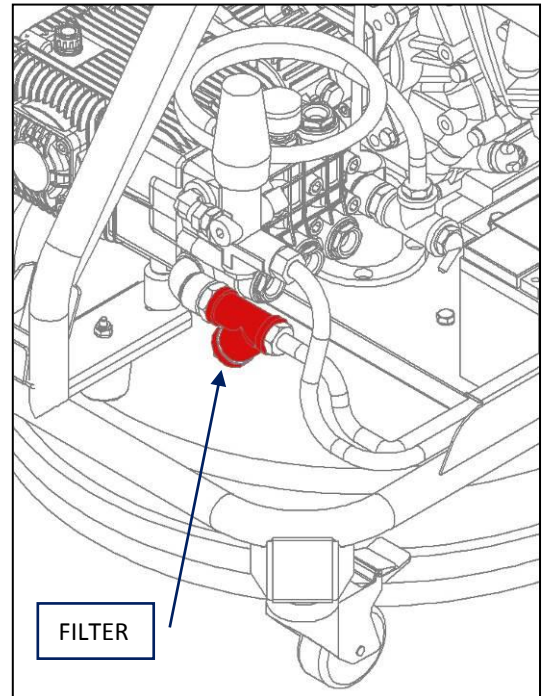
### **2. Attaching High pressure hose to spray gun**

- 2.1 The spray gun is preassembled to a swivel M22 Male nipple.
- 2.2 Connect the M22 female twist knob 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)



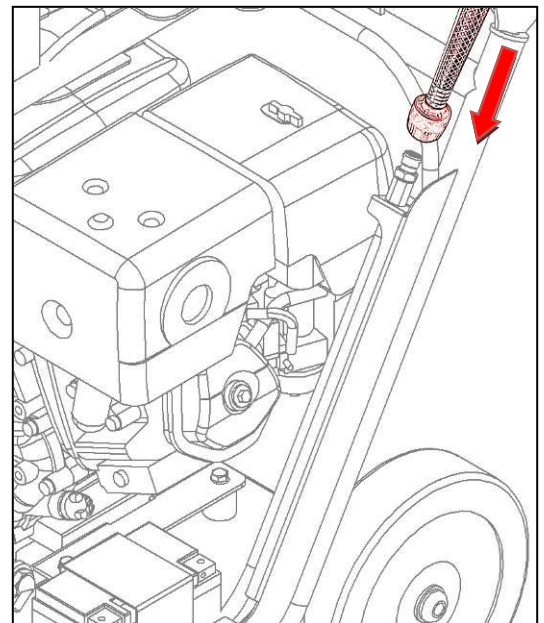
### 3. Connect garden hose to water inlet connector

- 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 inlet hose Water



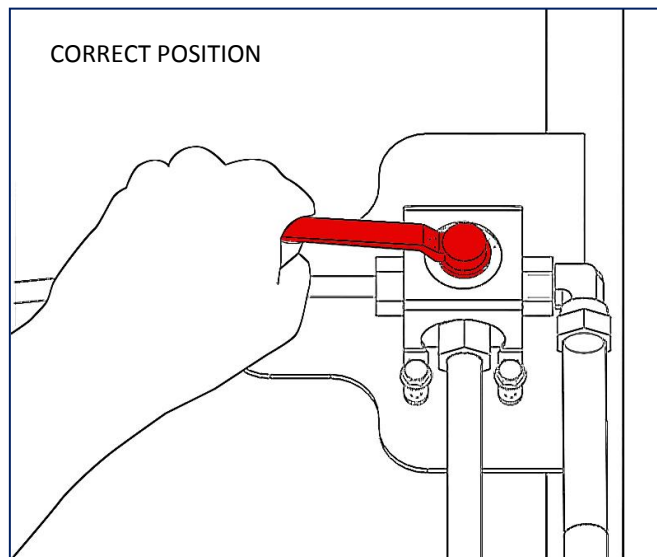
**\*\*\*IMPORTANT\*\*\***

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



#### 4. Adjust valve position to Roto-Clean

4.1 Make sure the valve is pointing to the Roto-Clean position before starting as this makes sure pressure is constantly released before you start the engine and during initial running.



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

#### 5. Start the engine

Refer to your Honda GX200 Engine Operator's manual for more details



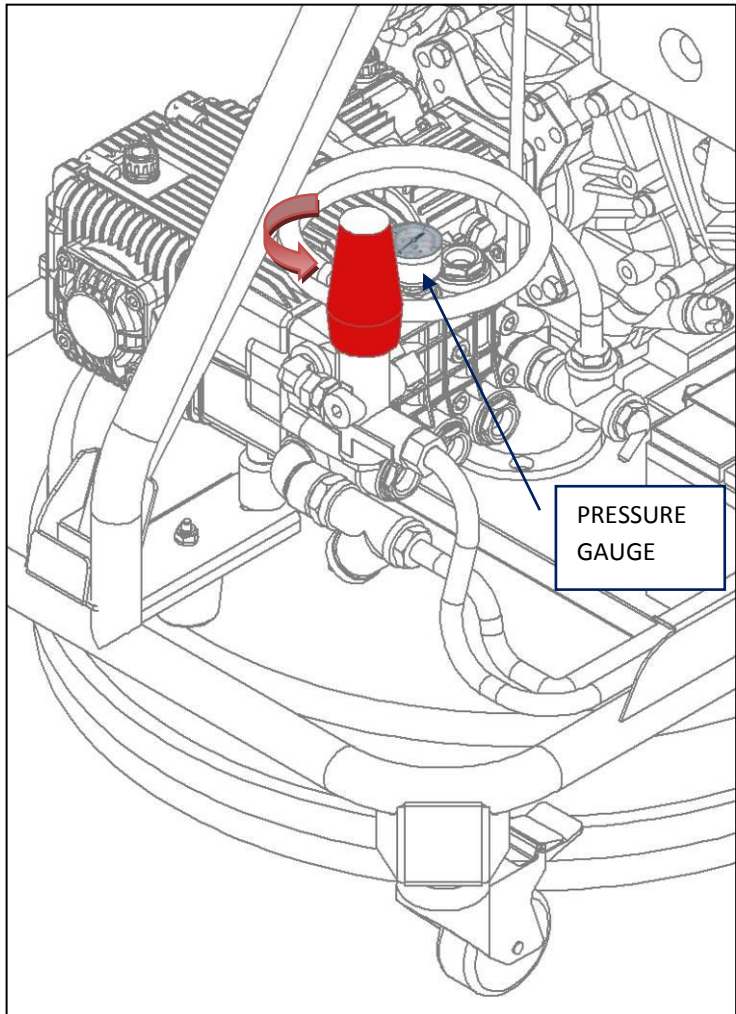
**\*\*\*IMPORTANT\*\*\***

**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. Checking/adjusting pressure**

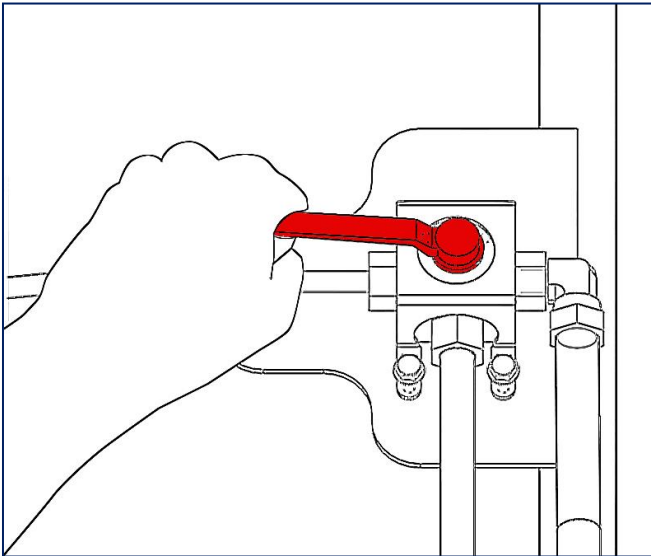
The MAKINEX dual pressure washer operating pressure is pre-adjusted to 2500 Psi. Over adjusting pressure will VOID WARRANTY.

- 6.1 Check the operating pressure when the machine starts; allow some time to build up pressure.
- 6.2 The by-pass valve has a knob to adjust pressure. DO NOT over adjust to the rated machine operating pressure. (i.e. >2500psi)

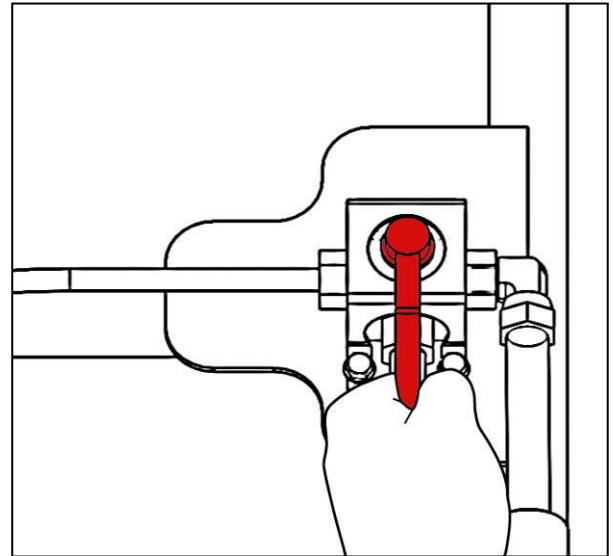


## 7. Two types of operations

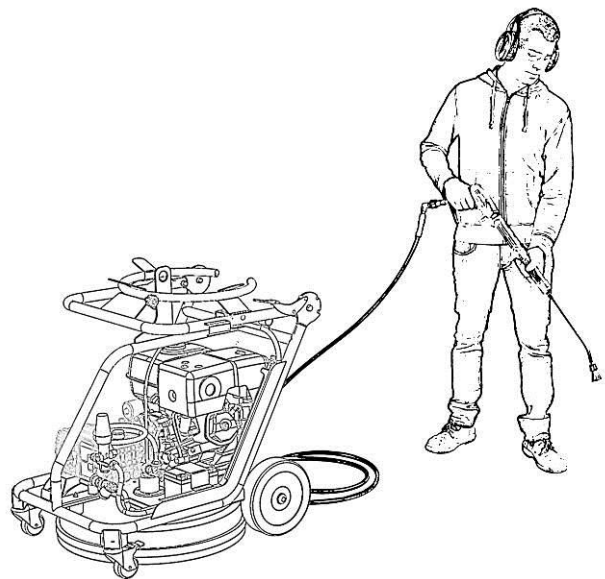
By using the valve, you can choose between two types of operation.



**ROTO-CLEAN OPERATION**



**SPRAY GUN OPERATION**



## **8. Nozzle selection**

The nozzle on the spray gun that comes with the MAKINEX dual pressure washer is a ¼ NPT M 15° Size 3.

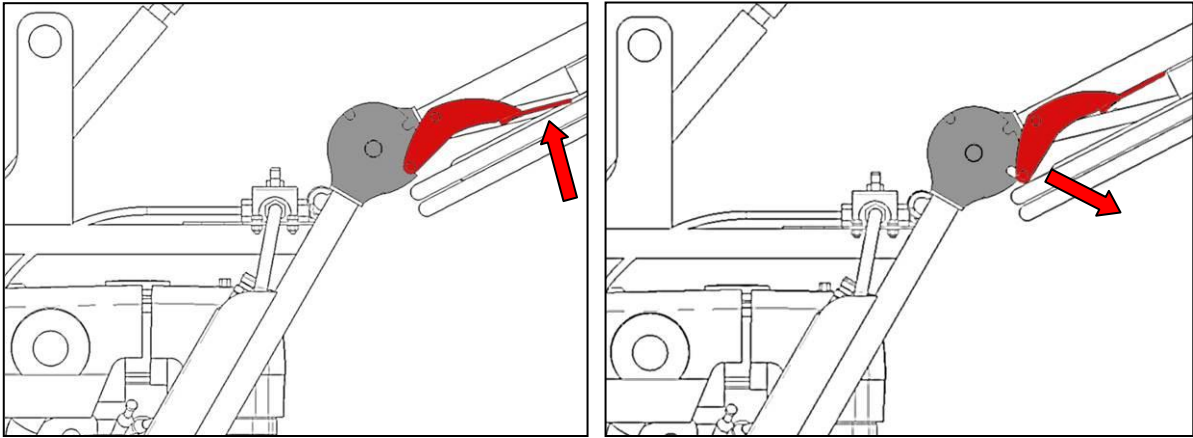
Your Roto-clean will come installed with one set of 25015 nozzles (25 degree 1.5 orifice).

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

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.

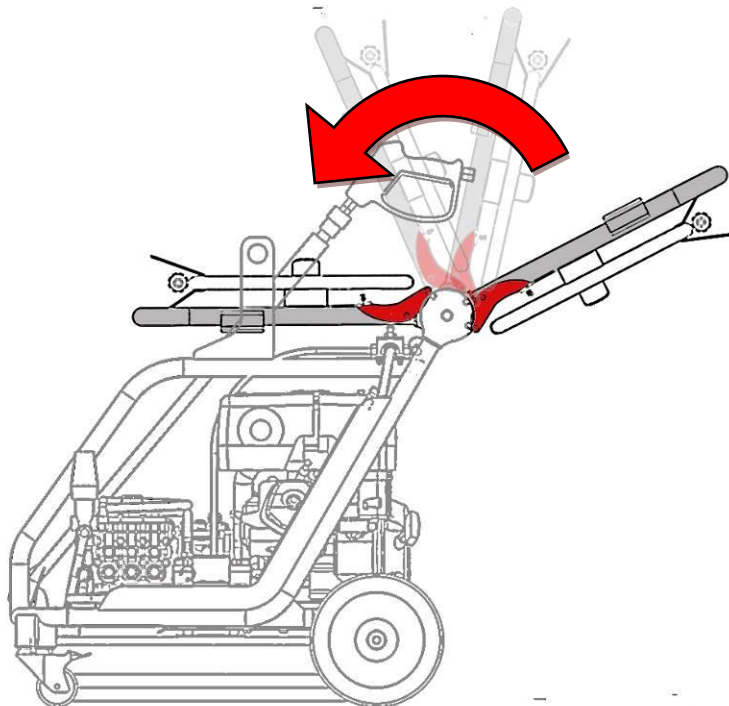
## 9. Foldable Handle



8.1 release the lock pin by pressing down on spring tab of the handle lock tab. Refer to above.

8.2 Use both hands at the same time.

8.3 Lock pin will spring into place at their designated grooves.



## **10. How to stop your pressure washer**

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 Move throttle control lever on engine to stop position

10.4 Store in a safe area

## MAINTENANCE

---

### General Recommendations:

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

The pressure washer'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 washer 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 washer, 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!**

## **Pressure Washer Maintenance**

### **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 washer. These openings must be kept clean and unobstructed.

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

Cleaning 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:

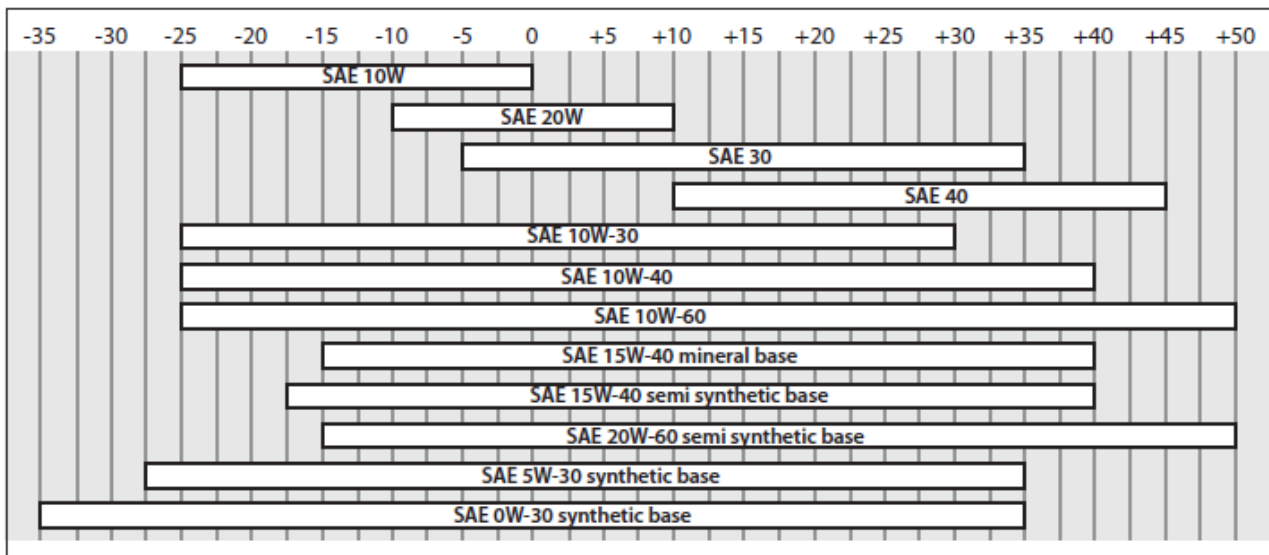
1. Shut off engine and turn off water supply.
2. ALWAYS point spray gun in safe direction, squeeze spray gun trigger to release retained high water pressure.
3. Remove spray tip from end of nozzle extension.
4. Use a small paper clip to free any foreign material clogging or restricting spray tip of the 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 Washer'.
11. Test pressure washer by operating the spray gun

12. Use same nozzle maintenance with the Roto-clean.

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.

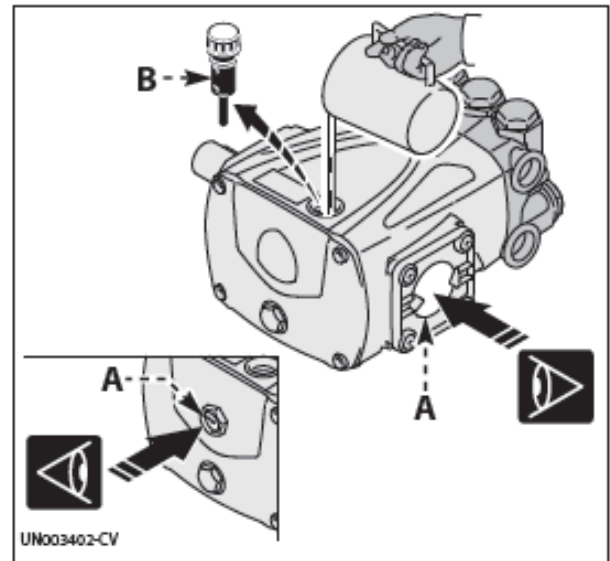
**NOTE:** When changing pump oil, use only high quality non-detergent oil. Use no special additives.

## Checking the 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).

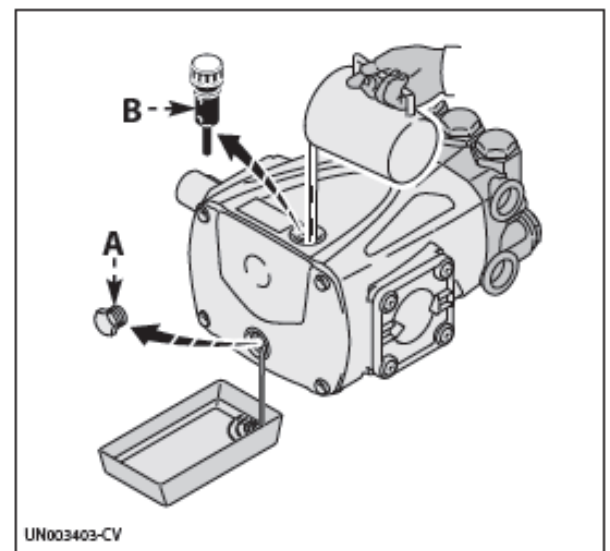


**Position the machine in which the pump is incorporated perfectly level, with the pump slightly warm. Do not release oil into the environment.**

**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

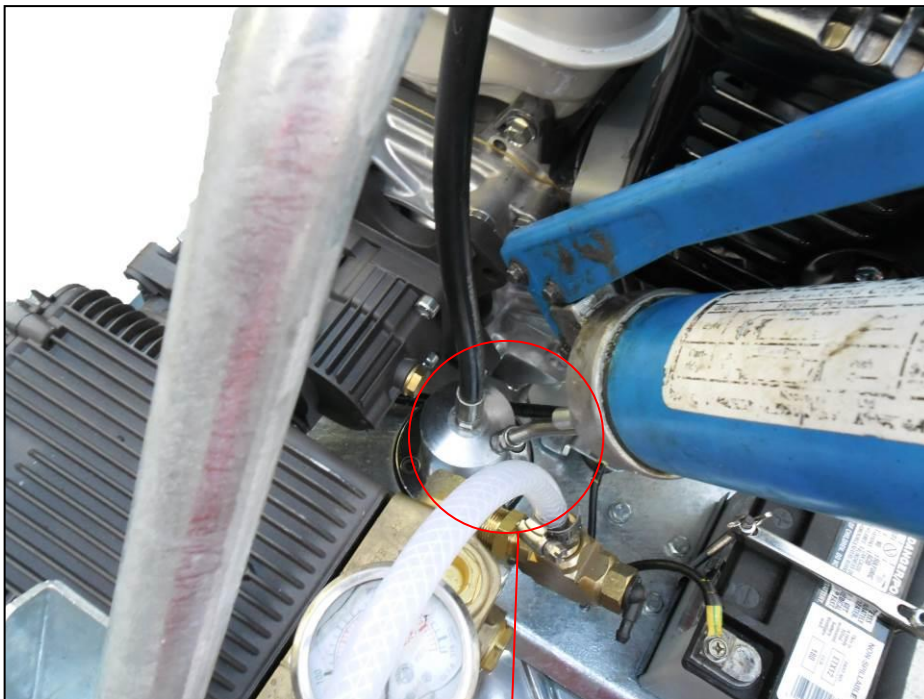
Before putting the pump back into service after a long period out of use, check the oil level and the tightness of the mounting screws.

## **Roto-clean Maintenance**

The Roto-clean 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 similar to nozzle maintenance of the spray gun.

We recommend that you supply grease to the rotary head every 30 – 40 hours of use (if frequent usage, grease every 20-30 hours of operation). Simply add a small squirt of automotive grease, do not overfill with grease as it will bog down the rotary head.



**Grease nipple location for Roto Clean**

## **Engine Maintenance**

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


## STORAGE

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### Long term storage instructions (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 carburetor parts. To keep fuel fresh, add a fuel stabiliser liquid additive to fuel. The fuel stabiliser is available at most auto parts stores.

Draining gasoline is unnecessary if the fuel stabiliser is used according to the instructions that come with it. Run pressure washer 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.

 <b>WARNING</b>	Fuel and fuel vapour are extremely flammable and explosive. Fire or explosion from misuse of fuel can cause severe burns and even death.
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### To protect against rust formation during storage, oil the cylinder bore:

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. Slowly pull the recoil starter 2-3 times to distribute and coat the cylinder bore with oil.

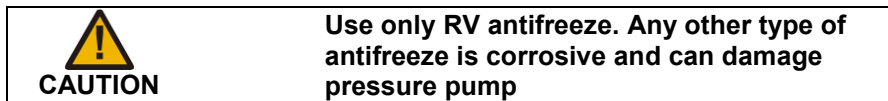
 <b>WARNING</b>	Unintentional sparking can cause fire or electrical shock. Failure to observe this warning can cause severe property damage, severe burns and even death.  Disconnect spark plug wire from spark plug and cover tip of spark plug wire with insulating tape and place wire where it cannot come in contact with spark plug or pressure washer frame.
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## Storage of Pressure washer

1. Drain all water from high pressure line, coil it and store it in cradle of pressure washer 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 washer 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.



2. Disconnect spark plug wire. Ensure it cannot touch any metal on pressure washer.
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.

## Disconnect Battery

1. Disconnect the negative lead from the battery terminal and store cap screw and lock washer
2. Repeat for the positive battery lead.
3. Store the battery in a cool, dry place.

## Charge the battery

For pressure washer equipped with batteries for electric starting, proper battery maintenance and storage should be followed. An automatic battery charger with automatic trickle charging capability should be used to charge the battery. Maximum charging rate should not exceed 1.5amps. Follow the instructions included with the battery charger. The battery should be fully charged at least once per month.

## 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 washer with a suitable cover that does not retain moisture such as a plastic or plastic coated tarp.
4. Store pressure washer 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 washer unit until it has completely cooled.

## TROUBLESHOOTING

<b>TROUBLE SHOOTING GUIDE</b>		
<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
Pump does not reach the specified pressures	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	
Irregular variations in pressure	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)
Fluctuating pressure	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
Pressure drop	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)
Pump noisy	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
Pump overheating	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

Water in oil	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)
Oil leak from pump	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)
	Water leaking at pump	loose 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)
Engine shuts down when running	Out of fuel	Fill fuel tank
	Low engine oil	Add oil
Engine will not start	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 carburetor 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 build up	Release pressure
(1) operations which must be carried out at an authorised service centre		

## LIMITED WARRANTY

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In order to take advantage of the MAKINEX limited warranty, you must have maintenance performed according to the 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 Washer 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 washers distributed by us and by our authorised MAKINEX dealers.

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.
- Honda GX Engine is subject to (3) years warranty. Please see [www.hondapowerequipment.com.au](http://www.hondapowerequipment.com.au) for details.
- 12 months warranty on pressure pump (Note: Maintenance is not warranty. Excludes service and consumables required at scheduled maintenance intervals)

## **Warranty exclusions:**

This warranty does not cover the following repairs and equipment:

### **Normal Wear**

Pressure washers 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 as a whole.

### **Installation, Use and Maintenance**

This warranty will not apply to parts and/or labour if this pressure washer is deemed to have been misused, neglected, involved in an accident, abused, loaded beyond the pressure washer'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.

### **Responsibility of the consumer under this Limited Warranty:**

- Only clean, potable water should be used through our pressure washers 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 daily checks and schedule with proof of scheduled maintenance service required by an authorised agent or qualified mechanic and/or electrician.
- Maintenance services are not covered under warranty.
- 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.

**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 premises 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. HONDA), 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.

## WARRANTY CONTACT INFORMATION:

### AUSTRALIA

Tel + 61 2 9460 8071

Fax +61 2 9439 9815

[d.lobban@Makinex.com.au](mailto:d.lobban@Makinex.com.au)

15 Waltham St, Artarmon, NSW

2064 AUSTRALIA

### USA

Tel 407-446-1966

407-826-0000

[j.spencer@makinexusa.com](mailto:j.spencer@makinexusa.com)

[m.spencer@makinexusa.com](mailto:m.spencer@makinexusa.com)

### EUROPE

Tel +31 (0)6 24881203

+31 (0)6 50841849.

## SERVICE & PART ORDERING

For service and ordering parts, please call

**AUS:** 1300 795 953 or +61 2 9460 8071

**USA:** 407-446-1996, 407-826-0000

**EUROPE:** +31 (0)6 24881203 or +31 (0)6 50841849

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

## CONTACT INFORMATION

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**AUSTRALIA/ NEW ZEALAND  
UNITED STATES OF AMERICA  
EUROPE**

**W** makinex.com  
**E** sales@makinex.com

## **APPENDICES**

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**APPENDIX A – GENERAL EXPLODED PARTS DIAGRAM**

**APPENDIX B – PUMP ASSEMBLY PARTS**

**APPENDIX C – HANDLE ASSEMBLY PARTS**

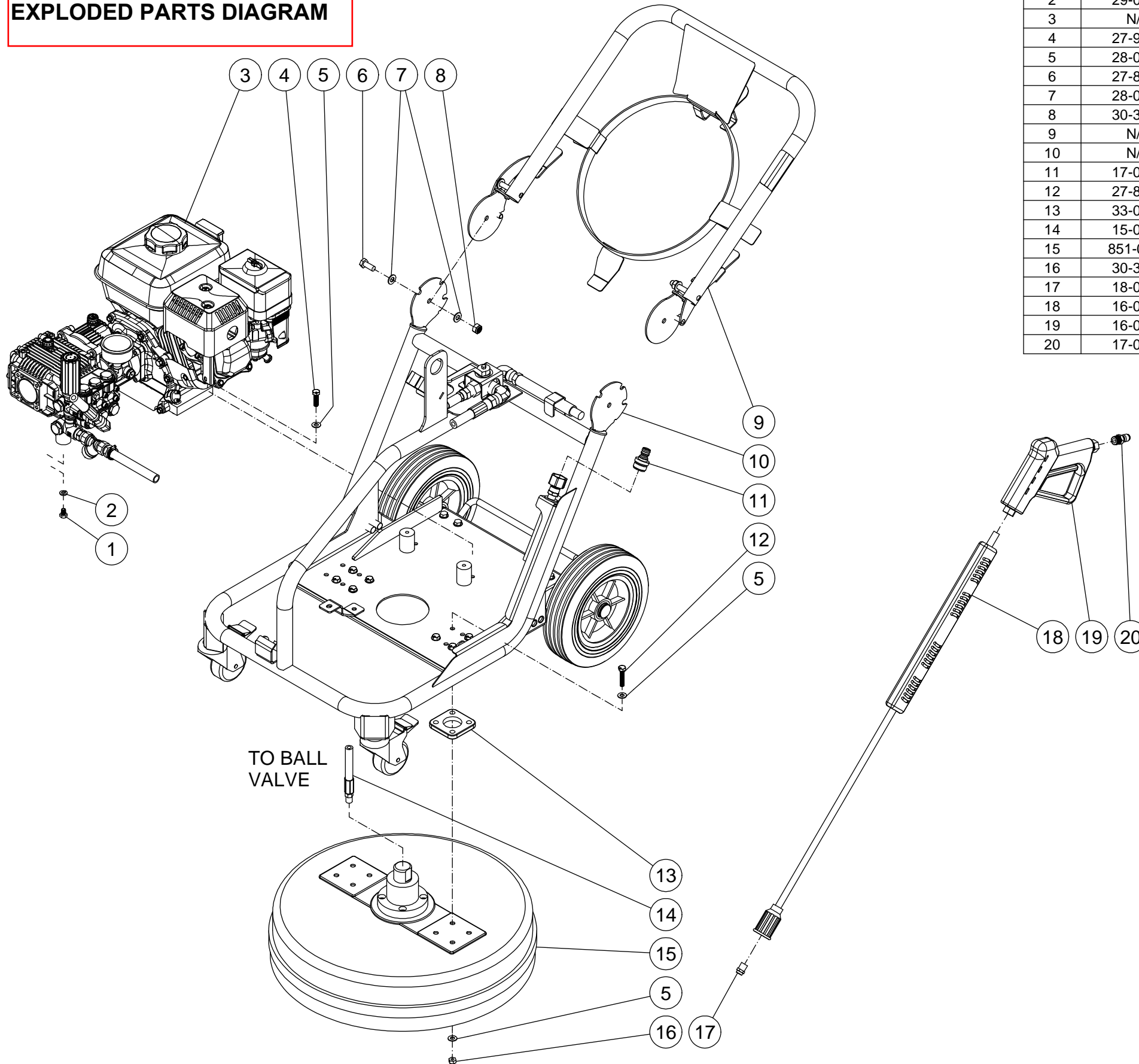
**APPENDIX D – FRAME ASSEMBLY PARTS**

**APPENDIX E – PUMP EXPLODED PARTS**

**APPENDIX F- ROTARY CLEANER EXPLODED PARTS**

**APPENDIX G- RISK ASSESSMENT**

**APPENDIX A – GENERAL EXPLODED PARTS DIAGRAM**



ITEM	PART #	VENDOR	DESCRIPTION	P/L	R/Q	QTY
1	27-8065	DPW-27-8065	HHCS-ZI GR8.8 M8-1.25 X 12MM			1
2	29-0007	DPWN2A-29-0007	LOCKWASHER-ZINC MED 5/16			1
3	N/A	-	DPW-2500-0AHA PUMP/ENG ASSY	N/A	X	1
4	27-9610	DPW2-27-9610	HHCS-ZI M8 X 30MM			2
5	28-0003	DPW-28-0003	WASHER-ZI SAE TYPE A 5/16"			19
6	27-8064	DPW-27-8064	HHCS-ZI GR 8.8 M10-1.5P X 25mm			2
7	28-0004	DPW-28-0004	WASHER - ZI SAE 3/8"			4
8	30-3159	DPW-30-3159	HEX NYLON LOCKNUT-ZINC M10-1.5			2
9	N/A	DPW2-200	DPW-2500 HANDLE ASSY	N/A	X	1
10	N/A	DPW2-100	DPW-2500 FRAME ASSY	N/A	X	1
11	17-0076	DPW-307-3-A	ADAPTER, 1/2" PLUG X 3/4"F M22			1
12	27-8066	DPW-27-8066	HHCS-ZI GR8.8 M8-1.25 X 40MM			8
13	33-0568	DPW-311	RUBBER PAD 2.85" X 2.85"			2
14	15-0342	DPW2-306	HOSE-3/8" I.D. x 27.5" 4000 PSI		X	1
15	851-0409	DPW2-303	21" WHIRLAWAY- BASE ASSY.			1
16	30-3156	DPW-30-3156	HEX NYLON LOCKNUT M8 X 1.25P X 6mm			8
17	18-0053	DPW2-N15030	NOZZLE 1503 1/4 MEG			1
18	16-0470	DPW4-308-L-A	LANCE- 36" INSUL 5000PSI 302F			1
19	16-0001	DPW-308-G	TRIGGER GUN 5000 PSI			1
20	17-0005	DPW-307-6	QC 3/8MX3/8 PLUG SS			1

ITEM	PART #	SHIPS WITH	QTY
-	34-0100	TAG - CONTROL CHECKLIST	1
-	37-1336	MANUAL-DPW2500	1
-	N/A	ENGINE MANUAL - W/ ENGINE	1
-	41-0035	PLASTIC BAG - ZIPLOCK 9 X 12	1

ITEM	PART #	BOXING	QTY
-	35-0100	SKID-TREATED 36 X 29 X 4 1/4	1
-	41-0420	INSERT-33 15/16"X22 3/16"	1
-	41-0606	BOX 35 1/4 X 28 1/4 X 36 1/2	1
-	27-2277	LAG BOLT - ZI 1/4 X 1	2
-	27-9524	HHCS - GR8.8 M8-1.25P X 20MM	4
-	20-1409	BRACKET - HOLDDOWN	2

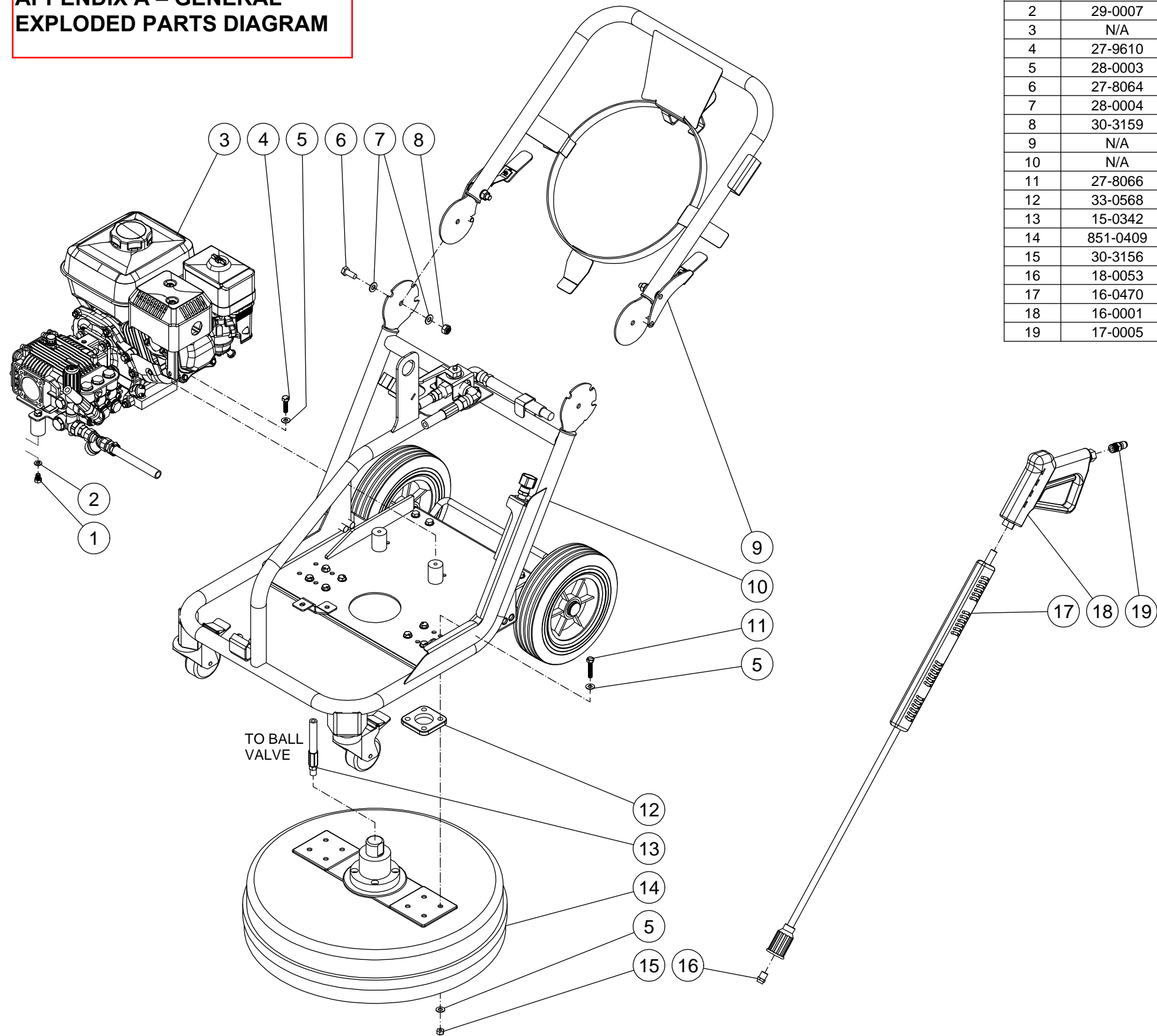
**Mi-T-M Corporation**

SCALE: NTS    DATE: 2/8/2015    DRAWING SIZE: B    APPD:    DRAWN BY: ALC

**DWP-2500-0AHA UNIT ASSY**

DRAWING/PART NO: **DWP-2500-0AHA UNIT ASSY**

**APPENDIX A – GENERAL EXPLODED PARTS DIAGRAM**



ITEM	PART #	VENDOR	DESCRIPTION	P/L	R/Q	QTY
1	27-8065	DPW-27-8065	HHCS-ZI GR8.8 M8-1.25 X 12MM			1
2	29-0007	DPWN2A-29-0007	LOCKWASHER-ZINC MED 5/16			1
3	N/A	-	DPW-2500-0AHU PUMP/ENG ASSY	N/A	X	1
4	27-9610	DPW2-27-9610	HHCS-ZI M8 X 30MM			2
5	28-0003	DPW-28-0003	WASHER-ZI SAE TYPE A 5/16"			18
6	27-8064	DPW-27-8064	HHCS-ZI GR 8.8 M10-1.5P X 25mm			2
7	28-0004	DPW-28-0004	WASHER - ZI SAE 3/8"			4
8	30-3159	DPW-30-3159	HEX NYLON LOCKNUT-ZINC M10-1.5			2
9	N/A	DPW2-200	DPW-2500 HANDLE ASSY	N/A	X	1
10	N/A	DPW2-100	DPW-2500 FRAME ASSY	N/A	X	1
11	27-8066	DPW-27-8066	HHCS-ZI GR8.8 M8-1.25 X 40MM			8
12	33-0568	DPW-311	RUBBER PAD 2.85" X 2.85"			2
13	15-0342	DPW2-306	HOSE-3/8" I.D. x 27.5" 4000 PSI		X	1
14	851-0409	DPW2-303	21" WHIRLAWAY- BASE ASSY.			1
15	30-3156	DPW-30-3156	HEX NYLON LOCKNUT M8 X 1.25P X 6mm			8
16	18-0053	DPW2-N15030	NOZZLE 1503 1/4 MEG			1
17	16-0470	DPW4-308-L-A	LANCE- 36" INSUL 5000PSI 302F			1
18	16-0001	DPW-308-G	TRIGGER GUN 5000 PSI			1
19	17-0005	DPW-307-6	QC 3/8MX3/8 PLUG SS			1

ITEM	PART #	SHIPS WITH	QTY
-	34-0100	TAG - CONTROL CHECKLIST	1
-	37-1336	MANUAL-DPW2500	1
-	N/A	ENGINE MANUAL - W/ ENGINE	1
-	41-0035	PLASTIC BAG - ZIPLOCK 9 X 12	1

ITEM	PART #	BOXING	QTY
-	35-0100	SKID-TREATED 36 X 29 X 4 1/4	1
-	41-0420	INSERT-33 15/16"X22 3/16"	1
-	41-0606	BOX 35 1/4 X 28 1/4 X 36 1/2	1
-	27-2277	LAG BOLT - ZI 1/4 X 1	2
-	27-9524	HHCS - GR8.8 M8-1.25P X 20MM	4
-	20-1409	BRACKET - HOLDDOWN	2

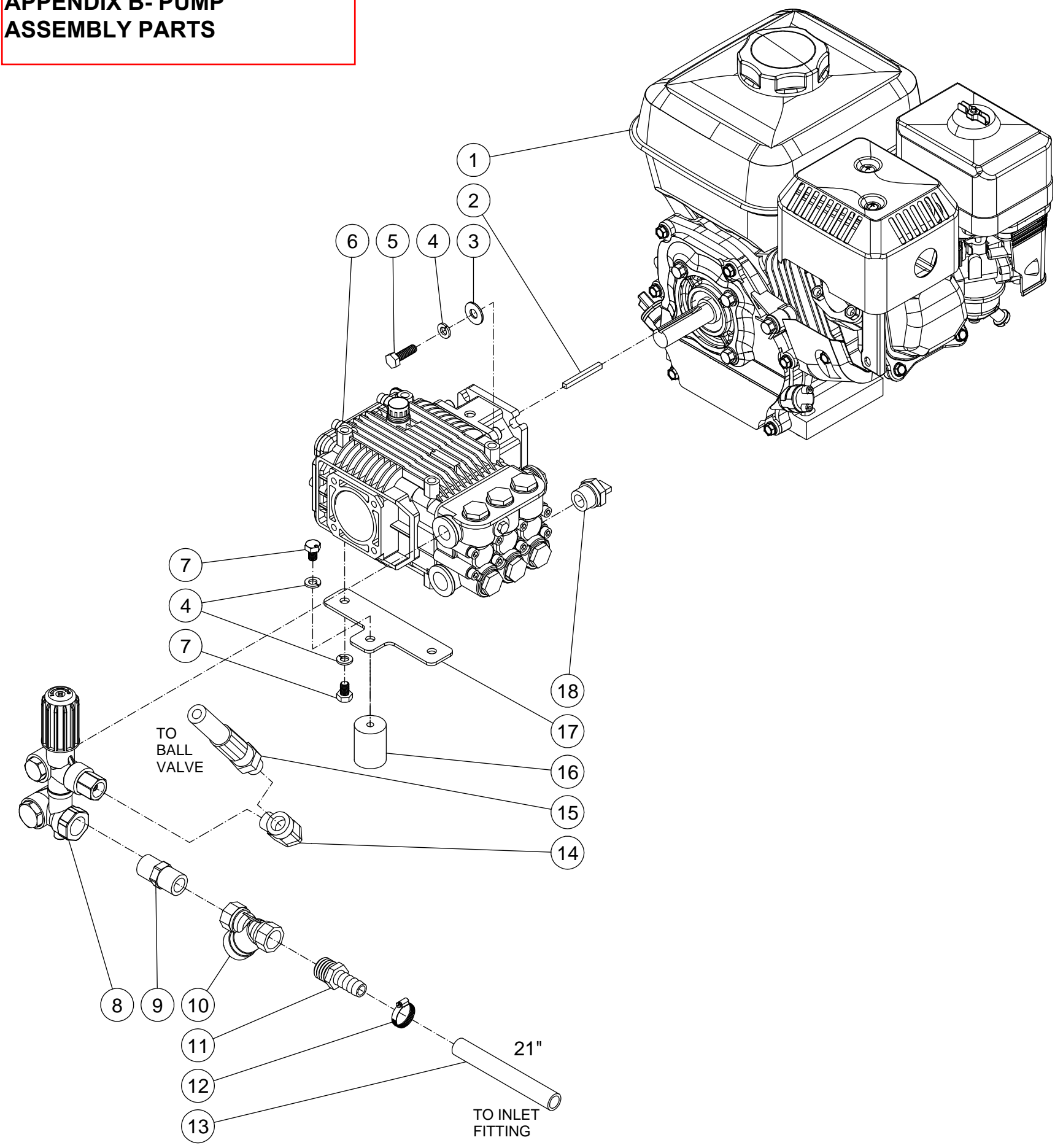
**Mi-T-M Corporation**

SCALE: NTS    DATE: 2/8/2015    DRAWING SIZE: B    APPD:    DRAWN BY: ALC

**DPW-2500-0AHU UNIT ASSY**

DRAWING/PART NO: DPW-2500-0AHU UNIT ASSY

**APPENDIX B- PUMP  
ASSEMBLY PARTS**



ITEM	PART #	VENDOR	DESCRIPTION	R/Q	QTY
1	1-0088	DPW2-301	ENGINE HONDA 6.5 HP RECOIL		1
2	43-0073	DPW2-43-0073	KEY - 3/16" SQ. x 1-7/8"		1
3	28-0022	DPW-28-0022	WASHER - ZI STANDARD 5/16"		4
4	29-0007	DPWN2A-29-0007	LOCKWASHER-ZINC MED 5/16		7
5	27-0092	DPW2U-27-0092	BOLT - HHCS - ZI GR5 5/16-24 X 1		4
6	3-0193	DPW2U-302	PUMP DIRECT DRIVE GAS		1
7	27-8065	DPW-27-8065	HHCS-ZI GR8.8 M8-1.25 X 12MM		3
8	8-0631	DPW2U-302-UL	UNLOADER ASSY - B13231		1
9	23-0012	DPW2-23-0442	NIPPLE - 1/2MP X 1/2MP		1
10	23-0514	DPW2-309-5	1/2NPT Y FILTER - BRASS		1
11	23-0045	DPW-309-2	BARB 1/2M X 1/2 HOSE		1
12	42-0011	DPW-309-4	SS WORM CLAMP 3/8"-1"		1
13	15-0007	DPW-307-1	HOSE 1/2 250psi	21"	1
14	24-0105	DPW-309-1	ELBOW 90° - STEEL - 3/8M x 3/8F		1
15	15-0194	DPW2-306B	HOSE 3/8X24" 4500PSI R2 BLACK		1
16	14-0144	DPW2-128	VIB/ISO 30mm X 40mm HEIGHT		1
17	20-1391A77	DPW2U-114	PUMP ISOLATION BRACKET		1
18	22-0005	DPW-309-6	VALVE - THERMAL RELIEF 1/2MNPT		1

NOTE: 1) QC FITTING ON UNLOADER MUST BE REMOVED.

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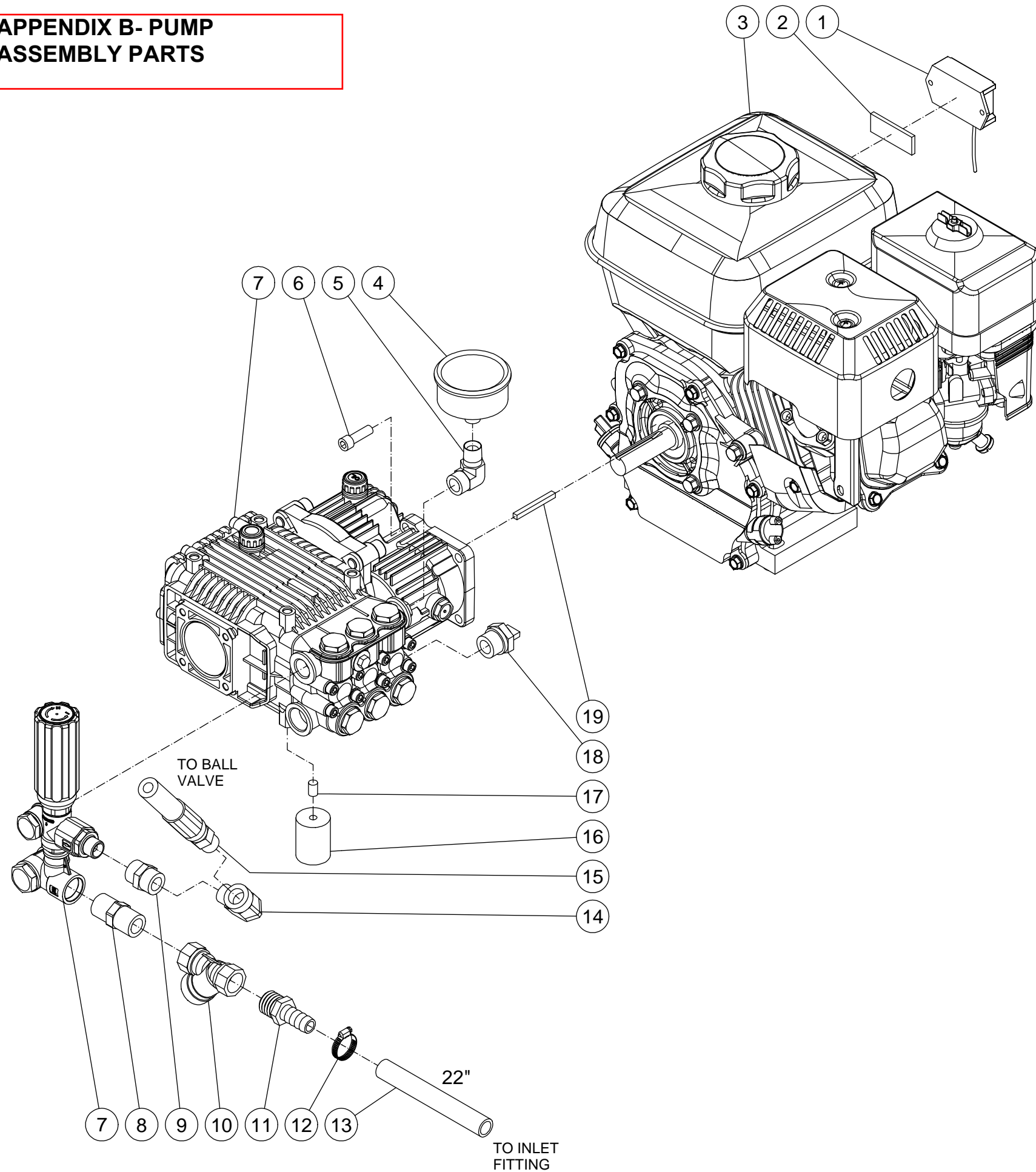
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DPW-2500-0AHU PUMP/ENG ASSY

DRAWING/PART NO: DPW-2500-0AHU ENGINE\_PUMP ASSY

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**APPENDIX B- PUMP ASSEMBLY PARTS**



ITEM	PART #	VENDOR	DESCRIPTION	R/Q	QTY
1	32-0416	DPWA-313	GAUGE-DIGITAL TACH/HOURMETER		1
2	33-0503	DPWA-33-0503	DOUBLE SIDED WHITE FOAM TAPE	2.00"	1
3	1-0088	DPW2-301	ENGINE HONDA 6.5 HP RECOIL		1
4	22-0465	DPW-309-7	GAUGE - 0-5000PSI 2 1/2"DIA BACK MOUNT		1
5	24-0004	DPWA-24-0004	ELBOW - 3/8 MNPT X 1/4 FNPT		1
6	27-0847	DPW2A-27-0847	SHCS-ZI GR8 5/16-24 X 1		4
7	3-0403	DPW2A-302	PUMP W/UNLOADER & GEARBOX		1
8	23-0012	DPW2-23-0442	NIPPLE - 1/2MP X 1/2MP		1
9	23-0077	DPW2-23-0077	COUPLER, 3/8F X 3/8F		1
10	23-0514	DPW2-309-5	1/2NPT Y FILTER - BRASS		1
11	23-0045	DPW-309-2	BARB 1/2M X 1/2 HOSE		1
12	42-0011	DPW-309-4	SS WORM CLAMP 3/8"-1"		1
13	15-0007	DPW-307-1	HOSE 1/2 250psi	22"	1
14	24-0105	DPW-309-1	ELBOW 90°- STEEL - 3/8M x 3/8F		1
15	15-0194	DPW2-306B	HOSE-HIGH PRESSURE		1
16	14-0144	DPW2-128	VIB/ISO 30mm X 40mm HEIGHT		1
17	31-2019	DPW2A-129	M8 - 1.25mm X 12mm STUD		1
18	22-0005	DPW-309-6	VALVE - THERMAL RELIEF 1/2MNPT		1
19	43-0073	DPW2-43-0073	KEY - 3/16" SQ. x 1-7/8"		1

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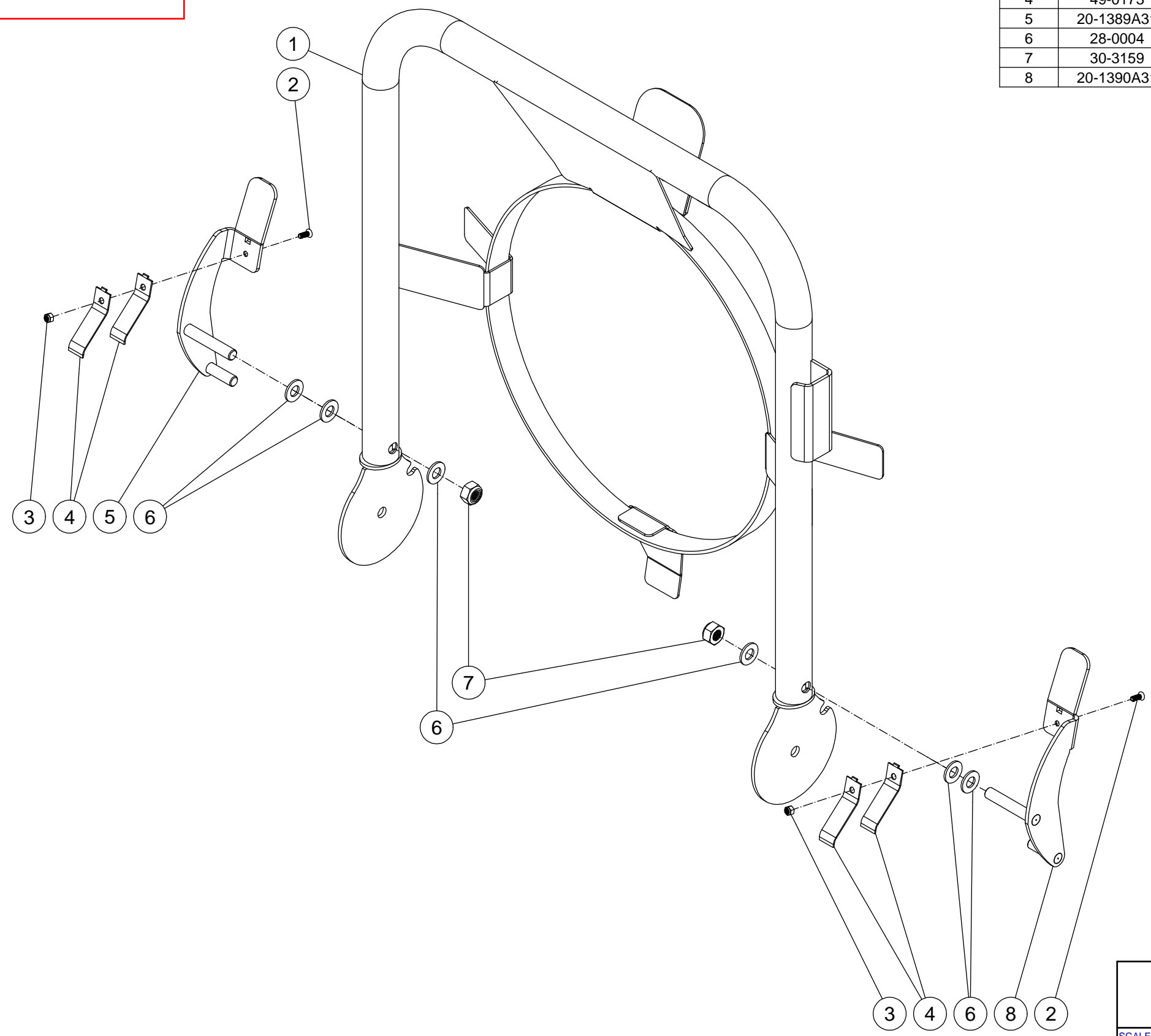
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**DPW-2500-0AHA PUMP/ENG ASSY**

DRAWING/PART NO: DPW-2500-0AHA PUMP/ENG ASSY

**APPENDIX C- HANDLE  
ASSEMBLY PARTS**

ITEM	PART #	VENDOR	DESCRIPTION	QTY
1	7-0248A77	DPW2-200	HANDLE - DPW2500	1
2	27-9609	DPW-27-9609	PFHMS - M4-0.7 X 12MM	2
3	30-3158	DPW-30-3158	HEX NYLON LOCKNUT-ZINC M4-0.7	2
4	49-0173	DPW-210	LEAF SPRING- HANDLE RELEASE	4
5	20-1389A31	DPW-205	HANDLE LOCK - RIGHT	1
6	28-0004	DPW-28-0004	WASHER - ZI SAE 3/8"	6
7	30-3159	DPW-30-3159	HEX NYLON LOCKNUT-ZINC M10-1.5	2
8	20-1390A31	DPW-206	HANDLE LOCK - LEFT	1



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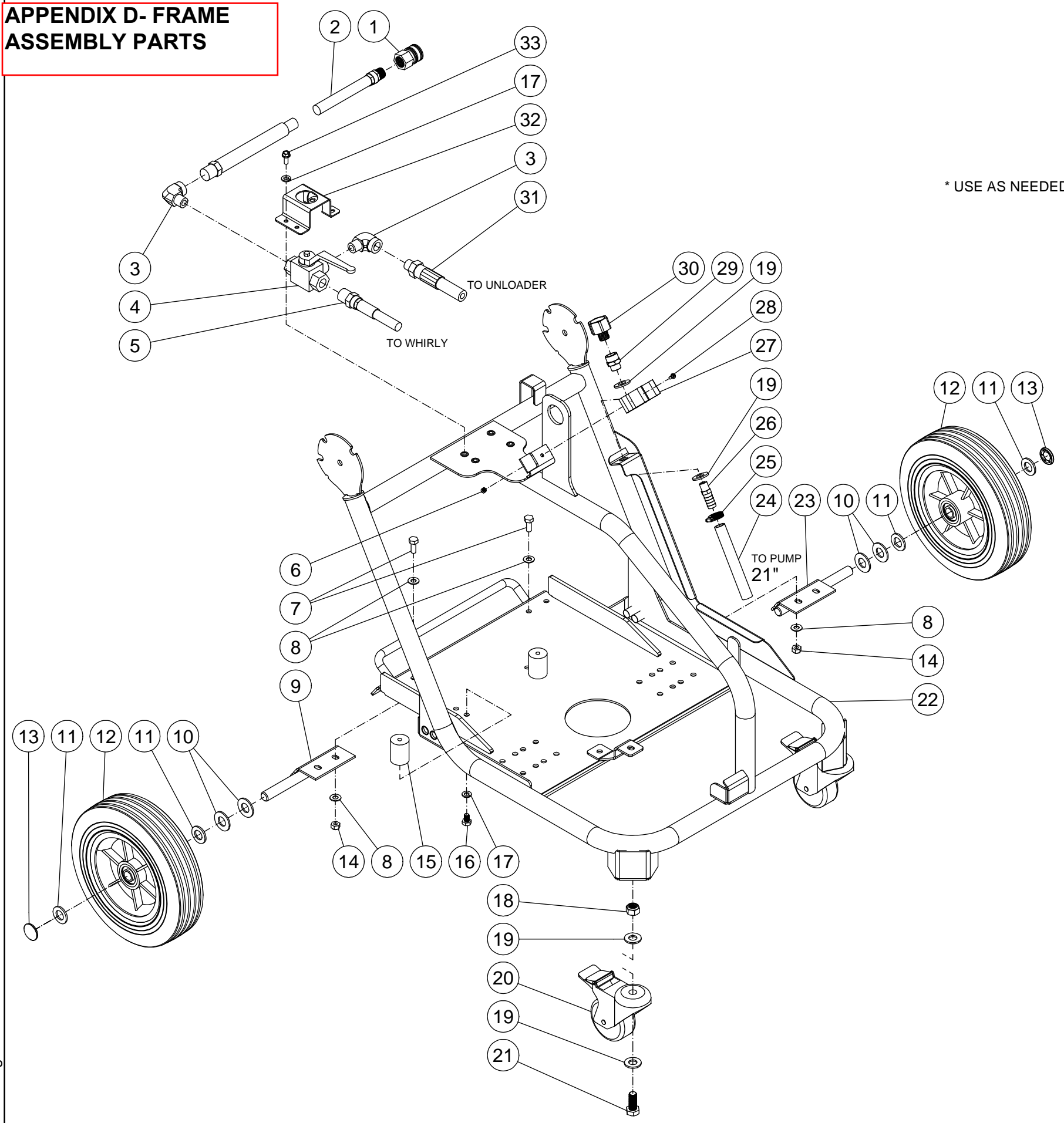
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**DPW-2500 HANDLE ASSY**

DRAWING/PART NO: DPW-2500 HANDLE ASSY

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**APPENDIX D- FRAME ASSEMBLY PARTS**



\* USE AS NEEDED

ITEM	PART #	VENDOR	DESCRIPTION	R/Q	QTY
1	17-0004	DPW-307-5	QC 3/8FX3/8 SOCKET BRASS		1
2	15-0341	DPW-304	HOSE-3/8" x 33' 4000 PSI		1
3	24-0105	DPW-309-1	ELBOW 90°- STEEL - 3/8M x 3/8F		2
4	22-0491	DPW-310	3 WAY BALL VALVE - 3/8" FNPT 7350PSI		1
5	15-0342	DPW2-306	HIGH PRESSURE HOSE - 1/4" X 27.5" 4000 PSI	X	1
6	30-3158	DPW-30-3158	HEX NYLON LOCKNUT-ZINC M4-0.7		2
7	27-8032	014013082	HHCS-ZI GR 8.8 M8-1.25P X 20MM		4
8	28-0003	DPW-28-0003	WASHER-ZI SAE TYPE A 5/16"		8
9	20-1385A77	DPW-122	RIGHT AXLE BRACKET		1
10	28-0008	DPW-28-0008	WASHER-ZI SAE TYPE A 5/8"		4
11	28-0073	DPW-125	WASHER-NYLON M16 O.D. 30MM		4
12	14-0139	DPW-121	WHEEL-10" RUBBR-SOLID GREY RIM		2
13	33-0018	DPW-126	CAP HUB 5/8"		2
14	30-3156	DPW-30-3156	HEX NYLON LOCKNUT M8 X 1.25P X 6mm		4
15	14-0144	DPW2-128	VIB/ISO 30mm X 40mm HEIGHT		2
16	27-8065	DPW-27-8065	HHCS-ZI GR8.8 M8-1.25 X 12MM		2
17	29-0007	DPWN2A-29-0007	LOCKWASHER-ZINC MED 5/16		6
18	30-3160	DPW-30-3160	HEX NYLON LOCKNUT-ZINC M12-1.75		2
19	28-0006	DPW-28-0006	WASHER - ZI SAE TYPE A 1/2		6
20	14-0141	DPW-110	CASTORS 75mm x 25mm		2
21	27-8499	DPW-27-8499	HHCS-ZI GR8.8 M12-1.25 X 30MM		2
22	5-0339A77	DPW2-100	FRAME - DPW2500		1
23	20-1386A77	DPW-123	LEFT AXLE BRACKET		1
24	15-0007	DPW-307-1	HOSE 1/2 250psi	21"	1
25	42-0011	DPW-309-4	SS WORM CLAMP 3/8"-1"		1
26	23-0120	DPW-307-2	HOSE BARB 1/4" M NPT x 1/2" - BRASS		1
27	42-0059	DPW-130	CLIP-SPRING WAND HOLDER		1
28	27-2770	DPW-27-2770	PPHMS M4-0.7X16MM - SS		2
29	23-0047	DPW-307-4	COUPLING 1/4F X 3/8F HEX BRASS		1
30	23-0096	DPW-23-0096	SWIVEL - 3/8 M x 3/4 F GARDEN HOSE - BRASS		1
31	15-0194	DPW2-306B	HOSE 3/8X24" 4500PSI R2 BLACK		1
32	20-1384A77	DPW-113	VALVE BRACKET		1
33	27-8001	DPW-27-8001	BOLT - HHCS M6 - 1.00P x 15mm		4

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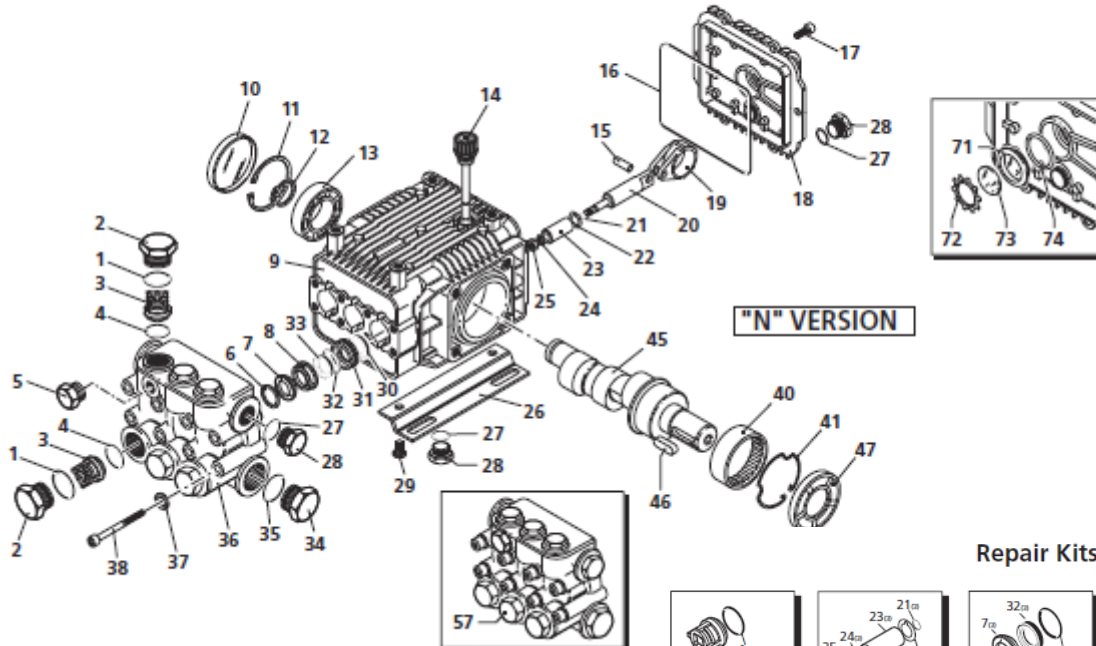
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### DPW-2500 FRAME ASSY

DRAWING/PART NO: DPW-2500 FRAME ASSY

APPENDIX E - PUMP PARTS BREAK DOWN

# XM 1450 RPM



Repair Kits



Special Parts / Kits

Code	Description	Qty.
2776	Viton water seals $\phi 15$	1
2777	Viton water seals $\phi 18$	1
2729	Rail KIT - 5/8" - 2 Rails & 4 Bolts	1
2633	Rail KIT - 1-3/4" - 2 Rails & 4 Bolts	1
2633H	Rail KIT - 2-5/8" - 2 Rails & 4 Bolts	1

Pos.	Code	Description	Qty.	Pos.	Code	Description	Qty.
1	960160	O-Ring $\phi 17.86 \times 2.62$	6	30	1260460	Oil seal	3
2	1260162	Valve cap (442 in/lbs)	6	31	1780100	Rear piston guide $\phi 15 \circ$	3
3	1269050	Complete valve	6	32	1780120	Rear piston guide $\phi 18 \blacktriangle$	3
4	880830	O-Ring $\phi 15.54 \times 2.62$	6	33	770260	O-Ring $\phi 23.52 \times 1.78$	3
5	620301	Plug 1/8" G	1	34	1260440	Low pressure seal $\phi 15 \circ$	3
6	1780130	Support ring $\phi 15 \circ$	3	35	1260450	Low pressure seal $\phi 18 \blacktriangle$	3
7	1780140	Support ring $\phi 18 \blacktriangle$	3	36	820361	Plug 1/2" G - Brass	1
8	1260130	High pressure packing $\phi 15 \circ$	3	37	180101	O-Ring $\phi 17.5 \times 2$	1
9	1260220	High pressure packing $\phi 18 \blacktriangle$	3	38	1780020	Pump head	1
10	1780090	Piston guide $\phi 15 \circ$	3	39	1381550	Washer	8
11	1780110	Piston guide $\phi 18 \blacktriangle$	3	40	1322730	Head bolt M6x60 (133 in/lbs)	8
12	1780010	Pump body	1	41	1321190	Bearing	1
13	1266740	Side cover seal	1	42	1321080	Snap ring	1
14	1260790	Circlip $\phi 15.2$	1	43	1780150	Crankshaft 24mm $\circ$	1
15	1780550	Snap ring	1	44	1780160	Crankshaft 24mm $\blacktriangle$	1
16	1780490	Bearing	1	45	1780180	Crankshaft 24mm $\blacktriangle$	1
17	880130	Vented oil cap	1	46	1380520	Key	1
18	1780050	Piston pin	3	47	1260750	Oil seal	1
19	1780510	O-Ring	1	57	1789201	Complete pump head $\phi 15 \circ$	1
20	1200430	Bolt M6x16 (89 in/lbs)	6	71	1789202	Complete pump head $\phi 18 \blacktriangle$	1
21	1789010	Complete cover	1	72	1260250	Oil sight glass	1
22	1780040	Con rod	3	73	1260430	Snap ring	1
23	1780060	Guiding piston	3	74	1780690	Contrast disc	1
24	480480	O-Ring $\phi 4.48 \times 1.78$	3	74	1140450	O-Ring $\phi 20.24 \times 2.62$	1
25	1260091	Washer (slinger)	3				
26	1780070	Plunger $\phi 15 \circ$	3	AR64516	Oil	1	
27	1780080	Plunger $\phi 18 \blacktriangle$	3				
28	1260100	Piston washer	3				
29	1260110	Nut M8 (106 in/lbs)	3				
	1380141	Rail 5/8"	2				
	Z-Bracket 1-3/4"	Rail 1-3/4"	2				
	Z-Bracket	Rail 2-5/8"	2				
	740290	O-Ring $\phi 14 \times 1.78$	3				
	1980740	Plug 3/8" G	3				
	1260470	Bolt M8x10	4				

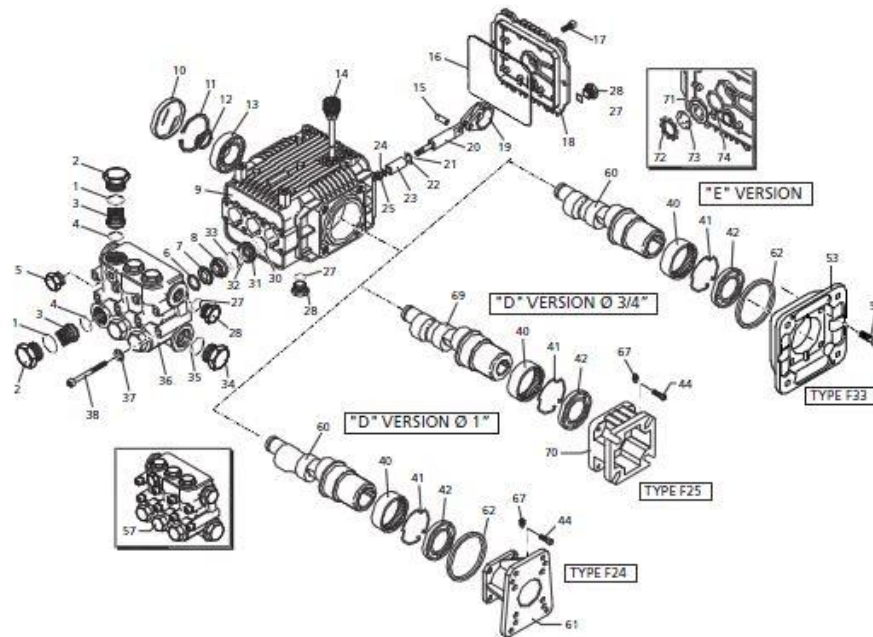
OIL CAPACITY - 14.5 oz

## MODEL DPW-2500

Legend

$\phi 15$	$\phi 18$	$\phi 18$
For $\circ$	For $\blacktriangle$	For $\blacksquare$
XM11.17	XM13.17	XM15.15

# XMV 3400 RPM

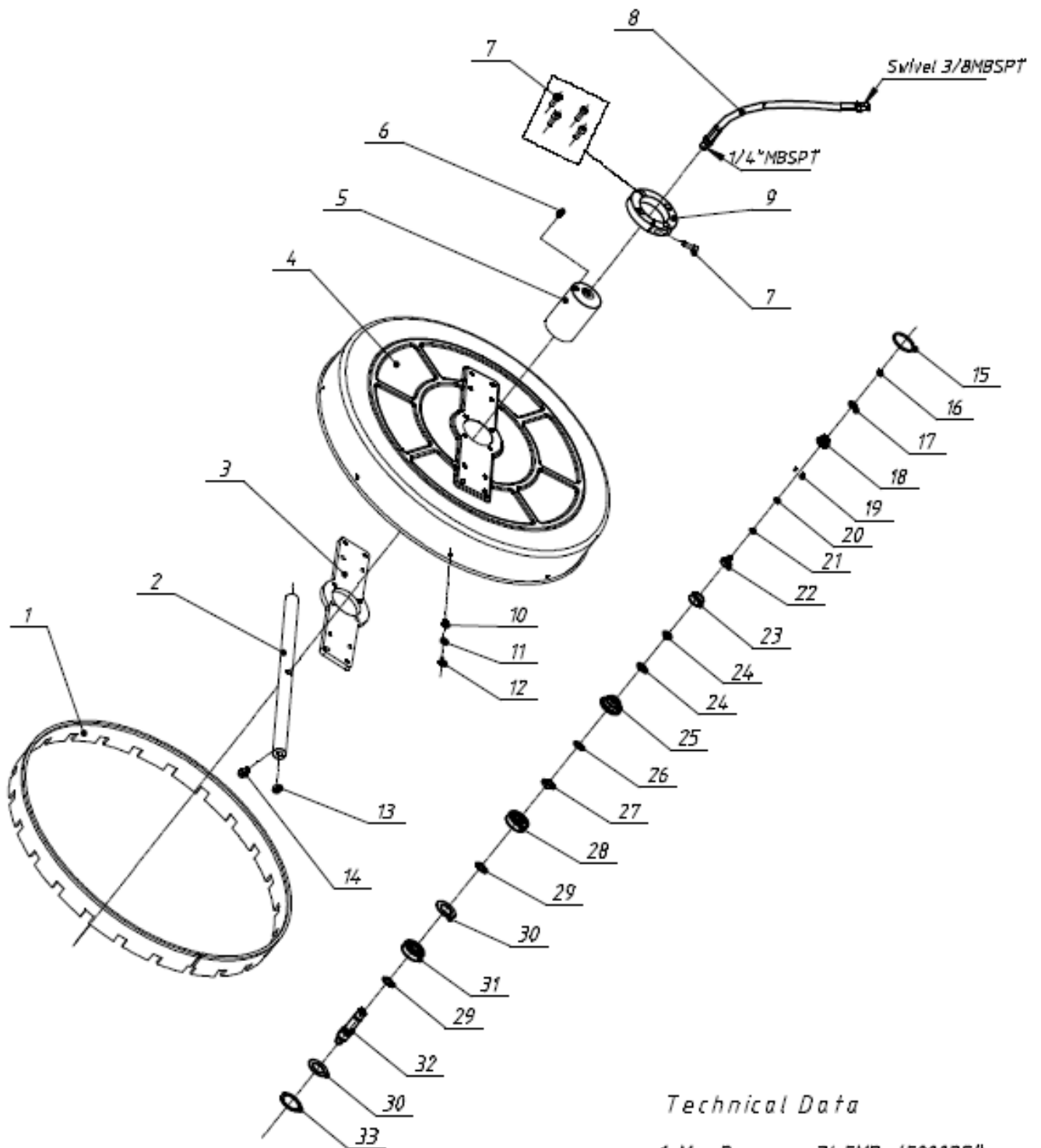


Repair Kits				Special Parts / Kits		
				Code	Description	Qty.
Valves Kit 1864	Pistons Kit 2544	Water Seals Kit 2741	Oil Seals Kit 2787	2776	Viton water seals ø15	1
				2817	Kit for up to 180° F ø15 High Temp	1

Pos	Code	Description	Qty.	Pos	Code	Description	Qty.	Legend		
1	960160	O-Ring ø17.86x2.62	6	38	1322730	Head bolt M6x60 (133 in/lbs)	8	ø 15	ø 15	ø 15
2	1260162	Valve cap (442 in/lbs)	6	40	1321190	Bearing	1	For ○	For △	For ■
3	1260162T	Valve Cap 1/4" threaded (442 in/lbs)	1	41	1321080	Snap ring	1	XMV3G25	XMV3.5G22	XMV4G20
3	1269050	Complete valve	6	42	480671	Oil seal	○ 1	XMV3G27	XMV3.5G25	XMV4G22
4	880830	O-Ring ø15.54x2.62	6	44	180030	Bolt M8x20	○ 4	XMV3G30		XMV4G25
5	620301	Plug 1/8" G	1	52	620610	Bolt M8x30	▽ 4	XMV3G32		XMV4G30
6	1780130	Support ring	3	53	1780910	Electric motor flange - F33	1			XMV4G32
7	1260130	High pressure packing	3	57	1789200	Complete pump head	1	For ◆	For √	For □
8	1780090	Piston guide	3	1780860	Hollow shaft ø5/8"	▽ 1	XMV3.5G30	XMV2G10		XMV2.5G26
9	1780010	Pump body	1	1780340	Hollow shaft ø1"	○ 1		XMV2G15		
10	1266740	Cap	1	1780920	Hollow shaft ø1"	△ 1		XMV2G22		
11	1260790	Circlip ø152	1	1780330	Hollow shaft ø1"	■ 1		XMV2G25		
12	1780550	Snap ring	1	61	1597	Gas engine flange - F24	1			
13	1780490	Bearing	1	62	1780430	Bushing	1			
14	880130	Oil cap	1	67	820440	Set screw	○ 1			
15	1780050	Piston pin	3	1780590	Hollow shaft ø3/4"	○ 1				
16	1780510	Gasket	1	1780930	Hollow shaft ø3/4"	△ 1				
17	1200430	Bolt M6x16 (89 in/lbs)	6	1780620	Hollow shaft ø3/4"	□ 1				
18	1789010	Complete cover	1	70	1780580	Gas engine flange - F25	1			
19	1780040	Con rod	3	71	1260250	Oil sight glass	1			
20	1780060	Guiding piston	3	72	1260430	Snap ring	1			
21	480480	O-Ring ø4.48x1.78	3	73	1780690	Contrast disc	1			
22	1260091	Washer (slinger)	3	74	1140450	O-Ring ø20.24x2.62	1			
23	1780070	Plunger	3							
24	1260100	Piston washer	3							
25	1260110	Nut M8 (106 in/lbs)	3							
27	740290	O-Ring ø14x1.78	3							
28	1980740	Plug 3/8" G	3							
29	1260470	Bolt M8x10	4							
30	1260460	Seal	3							
31	1780100	Rear piston guide	3							
32	770260	O-Ring ø23.52x1.78	3							
33	1260440	Low pressure seal	3							
34	820361	Plug 1/2" G - Brass	1							
35	180101	O-Ring ø17.5x2	1							
36	1780380	Pump head	1							
37	1381550	Washer	8							
					AR64516	Oil	1			
						OIL CAPACITY - 14.5 OZ				



## APPENDIX F- ROTARY CLEANER EXPLODED PARTS



### Technical Data

1. Max Pressure: 34.5MPa (5000PSI).
2. Max Flow Rate: 16.9L/min (4.46GPM).

33	GB/T893.1	Snap Ring	1	
32	F32102	Rotor Shaft	1	
31	GB/T 292	Bearing 7302AL	1	
30	F32115	Bearing Spacer 4.5x41.7x0.8	2	SS 304
29	F32116	Bearing Spacer 15.3x22x0.8	2	SS 304
28	GB/T 276	Bearing S6302-Z	1	
27	F32107	Bearing Back-up Ring	1	SS 420
26	GB/T 894.1	Snap Ring	1	SS
25	F32104	Bearing Retainer, Big	1	SS 420
24	GB/T 3452.1	O-ring 14.2X2.4	2	FKM-70
23	F32103	Bearing Retainer, Small	1	H59 Cu
22	F32106	Stem	1	SS 420
21	F32117	Backup ring 6.1x8.5x1.2	1	PTFE
20	GB/T 3452.1	O-ring 4.47x1.78	1	EPDM-70
19	F32108	Pin	2	SS 420
18	F32105	Bolt	1	H59 Cu
17	GB/T 3452.1	O-ring 14.2x1.9	1	FKM-80
16	F32109	Spring 0.8x7x8.5	1	SS
15	GB/T 3452.1	O-ring 40.94x2.62	1	FKM-70
14	F51048	Nozzle 25020	2	SS 420
13	F10131	Screw (MNPT1/4)	2	H59 Cu
12	GB/T 9074.1	Screw M6x14	8	SS
11	GB/T 97.1	Washer 6	8	SS
10	GB/T 889.1	Nut M6	8	SS
9	F32013	Clamp Ring	1	ADC 6061
8		1/4"Hose, 800mm Length	1	
7	GB/T 70.1	Screw M8x20	5	
6	F32110	Grease Nipple	1	
5	F32101	Swivel Housing	1	ADC 6061
4	F32052	Deck	1	SS 304
3	F32009	lower Plate	1	ADC 6061
2	F32012	Spray Bar	1	ADC 6061
1	F32020	Brush Assembly	1	
No.	Code	Description	Qty	Material

# APPENDIX G- RISK ASSESSMENT

## PRODUCT RISK / HAZARD ASSESSMENT TABLE

PRODUCT NAME: DUAL PRESSURE WASHER DPW-4000	Assessment Carried Out By: MICHAEL CHEN
MANUFACTURER: MAKINEX	Document Revision Number: 001
OPERATOR COMPETENCY: PLANT LICENCE NOT REQUIRED	Date Created: 05/08/2013

No:	TYPE / NATURE OF RISK or HAZARD	LIKELIHOOD	CONSEQUENCE	RISK LEVEL		CONTROL ACTION
				LIKELIHOOD	CONSEQUENCE	
1.0	1.1 CONTACT WITH FLUID UNDER PRESSURE PERSONAL INJURY BY WATER JET FROM SPRAY GUN	LIKELY	MINOR	3	MEDIUM	- NEVER POINT SPRAY GUN AT OTHER PEOPLE OR USE HIGH PRESSURE WATER TO CLEAN PEOPLE, ANIMALS, CLOTHING AND FOOTWEAR
	1.2 PERSONAL INJURY BY WATER JET FROM ROTARY CLEANER	UNLIKELY	MINOR	4	LOW	- NEVER PLACE ANY PART OF YOUR BODY 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	LOW	- ENSURE EQUIPMENT IS OPERATED PROPERLY
2.0	2.1 POTENTIAL IMPACT FROM BACK SPRAY CONTAINING WATER/OR DEBRI	LIKELY	NEGLECTIBLE	4	LOW	- WEAR APPROPRIATE PPE ( e.g. GOGGLES AND WATER PROOF CLOTHING ETC)
	2.2 STRIKE WITH UNCONTROLLED HOSE OR COUPLING	UNLIKELY	NEGLECTIBLE	5	LOW	- 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	3.1 SLIP, TRIP OR FALL DUE TO UNEVEN, SLIPPERY OR STEEP WORK SURFACES	LIKELY	NEGLECTIBLE	4	LOW	- TAKE EXTRA CAUTION WHEN OPERATING ON UNEVEN, SLIPPERY OR STEEP WORK SURFACES - ALWAYS WEAR APPROPRIATE FOOT WEAR
	3.2 SLIP, TRIP OR FALL DUE TO POOR HOUSEKEEPING	LIKLEY	NEGLECTIBLE	4	LOW	- 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	LOW	- MAKE SURE TO REEL HOSES NEATLY
4.0	4.1 PERSONAL INJURY - BURNS WHILST DOING MAINTENANCE ON MACHINE	LIKELY	NEGLECTIBLE	4	LOW	- BE CAUTIOUS OF HOT PARTS (SUCH AS MUFFLERS). ALLOW TO COOL BEFORE MAINTENANCE/ADJUSTMENTS
	4.2 FIRE/EXPLOSION WHILST REFUELING ENGINE	UNLIKELY	MAJOR	3	MEDIUM	- SHUT OFF MACHINE AND ALLOW TO COOL BEFORE REFUELING. NEVER REFUEL WHILE MOTOR IS RUNNING. - DO NOT SMOKE AND ENSURE REFUELING IS UNDERTAKEN IN WELL VENTILATED AREA (OUTSIDE, CLEAR OF IGNITION SOURCES)
5.0	5.1 ELECTROCUTION ELECTROCUTION DUE TO WATER IN CONTACT WITH LIVE ELECTRICAL EQUIPMENT	UNLIKELY	FATALITY	2	HIGH	- ENSURE PRESSURE WASHER IS NOT DIRECTED TO LIVE ELECTRICAL EQUIPMENT
	6.1 ERGONOMIC INJURY PERSONAL INJURY WHEN LIFTING/OR MOVEMENT ON SITE	LIKELY	MAJOR	2	HIGH	- STAFF TRAINING ON CORRECT LIFTING PROCEDURE
7.0	7.1 NOISE 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

<p><b>NOTES:</b></p> <ul style="list-style-type: none"> <li>&gt; THIS PRODUCT HAS BEEN DESIGNED AND MANUFACTURED AS A PRESSURE WASHER ONLY</li> <li>&gt; THIS DOCUMENT HAS BEEN PREPARED ACCORDING TO GUIDELINES AND RECOMMENDATIONS FOUND IN:             <ol style="list-style-type: none"> <li>1. HAZPAK<sup>®</sup> PRODUCED BY THE WORK COVER AUTHORITY AND THE AUSTRALIAN STANDARDS 4024.1.4/S - 1996</li> <li>2. SAFEGUARDING OF MACHINERY - PART 1: GENERAL PRINCIPLES AUSTRALIAN STANDARD, AS/NZS 3760 IN-SERVICE SAFETY INSPECTION AND TESTING OF ELECTRICAL EQUIPMENT.</li> </ol> </li> </ul>	<p>"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:</p> <ol style="list-style-type: none"> <li>1. VERY LIKELY</li> <li>2. LIKELY</li> <li>3. UNLIKELY</li> <li>4. VERY UNLIKELY</li> </ol>	<p>"CONSEQUENCE" REFERS TO THE SEVERITY OF INJURY CAUSED DUE TO AN EVENT OCCURRING. USING THE FOLLOWING SCALE AS DEFINED BY THE "HAZPAK" DOCUMENT:</p> <ol style="list-style-type: none"> <li>1. FATALITY = INJURIES RESULT IN DEATH</li> <li>2. MAJOR = NORMALLY IRREVERSIBLE INJURIES REQUIRING SEVERAL DAYS OFF</li> <li>3. UNLIKELY = ABLE TO BE TREATED USING FIRST AID</li> <li>4. VERY UNLIKELY</li> </ol>	<p>"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:</p> <ol style="list-style-type: none"> <li>1. HIGH = POTENTIAL DEATH, PERMANENT DISABILITY, OR MAJOR STRUCTURAL DAMAGE.</li> <li>2. MEDIUM = POTENTIAL TEMPORARY, DISABILITY, OR MINOR STRUCTURAL DAMAGE.</li> <li>3. LOW = POTENTIAL INCIDENT THAT HAS THE POTENTIAL TO CAUSE PERSONS TO REQUIRE FIRST AID.</li> </ol>
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