JETWAVE®

HIGH PRESSURE CLEANERS

EXPLORER 251

HOT WATER PETROL HIGH PRESSURE WATER CLEANER

OPERATOR MANUAL

Model	Pump	Working Pressure PSI BAR	Flow Rate l/pm	Petrol Engine	RPM	Approx Weight (Unit Only)	Machine Dimensions mm	Boxed Dimensions
HW251-15PE	Interpump WS251 (Series 47)	3600 251	15	Honda GX390 13HP	1450	270kg	1100mm (l)) x 700mm (w) x 860mm (h)	970mm (l)) x 600mm (w) x 670mm (h)

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1. This operating manual should be read in conjunction with the manual provided with the engine.
2. The information contained in this document may change without notice.
3.

Where to Find Us

You never have to look far to find Jetwave support and service for your pressure washer. There are many Jetwave authorised service dealers Australia wide who provide quality service. You can also contact Jetwave Customer Service by phone at +61 8 8371 3599 or on our website at www.Jetwave.com.au.

Model Number										
Serial Number										
Date Purchased										

Operating Instructions

Congratulations on the purchase of your new Jetwave product. Before attempting to operate your machine(s), please read all of the instructions to ensure safe operation and trouble free service from your high pressure water cleaner.

Component Checklist

The following standard accessories should have accompanied your machine:

Spray Gun - Industrial insulated duty back part lance and quick coupling.

Lance / Nozzle - Stainless steel dual lance with variable pressure control complete with hardened nozzles.

High Pressure Hose - 10m of 3/8” double wire braided hose with quick coupling.

User Manual Explorer 251 Hot Water Petrol High Pressure Washer
Warranty Card

Contact your point of purchase immediately if any of the above components are missing

Pre-Operation Instructions

1. Ensure the engine is turned off.
2. Ensure burner switch is turned off.
3. Flush water supply first or when water appears clear before connecting to inlet hose. This is to ensure any foreign objects are flushed out of the supply system.
4. Connect water supply into inlet water connection.
5. Fill diesel tank with diesel only until full. Note: tank capacity is approx. 25 litres.

WARNING: Do not attempt to fill the tank whilst the engine is running.

6. Check oil dipstick on engine to ensure oil level is at a suitable level (refer to Honda Manual).
7. Connect quick coupling on end of high-pressure hose on high-pressure outlet, and tight to bottom of gun.
8. Turn water supply ON.
9. Ensure the water supply is a minimum of 15 litres per minute in order to keep sufficient supply up to the machine.
10. Ensure the water inlet supply hose does not have any kinks or any fittings are leaking in order to allow full flow to pump.

    Note: Please also refer to Daily and Weekly Checks.

Petrol Engine Start Up Instructions

1. Turn ON/OFF petrol tap located on the Honda Engine to the ON position.
2. Turn key on Honda Engine to the START position.
3. Once Honda Engine is running allow it to run for approx 1 to 2 minutes to warm up slowly before pressure cleaning

Burner Start Up Instructions

1. Turn Burner Switch to ON position.
2. Set the Thermostat to correct temperature setting.

WARNING: DO NOT attempt to start the motor with the burner ON.

Gun Operation

Read the chapter on Important Safety Precautions before proceeding to use the machine.

1. Depress gun trigger before connecting gun to lance assembly. This will flush any foreign objects from the system to prevent blocking the high-pressure nozzle.
2. Connect lance assembly.
3. Point the lance towards the object to be cleaned and depress the trigger on the gun.

Burner Shut Down Instructions

1. Turn thermostat to 0° degrees.
2. Continue to run the machine with cold water for approximately 2 minute to cool down the heating coil.
3. Turn burner switch off.

Machine Shut Down

1. Turn key on Honda petrol engine to the OFF position.
2. Turn ON/OFF petrol tap to the OFF position.
3. Turn water supply OFF.
4. Pull the trigger on the gun to release any backpressure.
5. Detach high-pressure hose from gun.
6. Detach lance assembly from gun.

Trouble Shooting

The following table is provided as a general guide only. Please refer to your local Jetwave agent for service, repairs, parts and/or specific advice.

Fault	Probable Cause	Possible Remedy
Pump runs normally but pressure does not achieve rated value.	Pump is sucking air.	Check that all hoses and fittings are airtight.
	Valves are worn or dirty.	Check, clean or replace.
	Unloader valve packing worn.	Check and replace.
	Nozzle incorrect or worn.	Check and replace.
	Worn piston packing.	Check and replace.
	Dirty inlet filter.	Check and clean.
Fluctuating pressure.	Valves dirty, worn or stuck.	Check, clean or replace.
	Pump sucking air.	Check that all hoses and fittings are airtight.
	Worn piston packing.	Check and replace.
	Dirty filter.	Check and clean.
Presence of water in oil.	High humidity in air.	Check and change oil twice as often.
	Piston packing or oil seal worn.	Check and replace.
	Water entering through breather.	Excessive water on machine.
Water dripping from pump.	Piston packing worn.	Check and replace.
	Piston guide o-rings worn.	Check and replace.
Dripping oil.	Worn oil seals.	Check and replace.
	Oil coming out of breather.	Pump oil level overfull.
Motor does not start when switched on	Plug not well connected or unreliable power supply.	Check plug, cable and switch.
	Earth leakage overload.	Check earth leakage.
The water doesn't reach working temperature	Damaged thermostat.	Replace.
	Thermostat adjusted to low.	Place the thermostat at the required temperature.
	Scale in the hydraulic system.	Contract the maintenance service.
	Sooted boiler.	Contract the maintenance service.
	Water in the diesel tank.	Completely drain the diesel tank then, fill up with clean diesel.

Fault	Probable Cause	Possible Remedy
The boiler is smoking	Incorrect diesel pressure.	Turn the adjusting screw until obtaining approx. 10 bar; contact the Maintenance Service. Adjust the difference between the electrodes; contact the Maintenance Service.
	Fuel nozzle dirty.	Clean the fuel nozzle.
	Fuel nozzle worn out.	Replace the fuel nozzle.
	Heating coil blocked by soot.	Clean the heating coil.
	Diesel pump dirty.	Disassemble the pump and clean the filter; contact Maintenance Service.
	Diesel solenoid valve not working.	Replace the solenoid valve.
The burner cut out during operation.	Diesel fuel tank empty.	Fill up the diesel tank.
	Water in the diesel tank.	Completely drain the gas oil tank and fill up with clean gas oil.
	Starting transformer damaged.	Replace the transformer.
	Rotation of the starting electrodes.	Set the electrodes back to their proper position; contact the Maintenance Service.
	Diesel nozzle dirty.	Clean the nozzle.
	Diesel nozzle damaged.	Replace the nozzle.
	Diesel pump damaged.	Replace the diesel pump.
	Diesel solenoid valve damaged.	Replace the diesel solenoid valve.
	Faulty thermostat.	Check and replace.
	Faulty pressure switch.	Check and replace.

Standard Operating Procedures

Instructions

1. High pressure cleaning should be carried out in an area isolated from other hazards and/or workers, or steps taken to prevent exposure of persons to the high pressure cleaning process.
2. Persons should not operate high-pressure cleaners unless they have been instructed in the hazards and the means of safe use and operation of the equipment, including the reading and understanding of all motor and operation manuals.
3. All persons using high-pressure cleaners are to use personal protective equipment (PPE) appropriate for the task and the equipment used.

Task Sequence	Identified Hazards in Task	Key Processes to be Followed	Precautions / PPE Required
1. Preparation	Electric Shock	Care must be taken to ensure that key components such as the motor is not sprayed and are kept out of water/spray and splash back, and preferably above ground. Follow instructions when adding chemical cleaning agents to the high pressure cleaner.	Keep unit well clear of working area.
	Skin irritation Burns, risk of fire	Exercise caution when igniting diesel.	Hand protection must be worn. No smoking or naked flames in the vicinity.
2. Operation	Foreign matter in eyes	Water splash will contain cleaning agent and foreign matter from article being cleaned, which may splash back towards operator.	Wear safety goggles and/or face shield. Keep hands and feet clear.
	Skin irritation	High Pressure water injection, over spray and splash back will result in operator's clothing becoming wet with contaminated water from cleaner.	Appropriate task clothing Inc. wet weather clothing and waterproof footwear required.
	Burns	Protect hands from hot water and heat from lance.	
	Slips and falls	Keep work areas cleaner – remove grease and other matter from floors.	Keep hoses organised. Slip-proof stable footwear and remove grease and other matter from floors in operator's vicinity.

Task Sequence	Identified Hazards in Task	Key Processes to be Followed	Precautions / PPE Required
	Breathing hazard	Combustion engines may generate excessive carbon monoxide.	Only operate in well ventilated area.
3. Risks to Other Persons	Splashing	The distance that water will be ejected over depends on the shape and velocity of the water jet. Exclusion of persons other than those actually involved in the cleaning task should be made to prevent injury from water and water borne particles and cleaning agents.	Prevent unauthorised entry into where the cleaning is being carried out.

WARNING: Operator is responsible to complete a site risk assessment before commencing operation.

NOTE: Be aware that the onus is on the operator to be aware of Australian Standard - AS/NZS 4233.1:1999 High Pressure Water (Hydro) Jetting Systems – Part one: Guidelines for Safe Operation and Maintenance. Jetwave will not be responsible for standards not met.

Precautions

1. The following precautions should be observed when carrying out this procedure.
2. Where applicable, suitable safety and warning signs should be displayed in areas where this procedure is carried out.

Preparation	Operation	Risk to other persons
Ensure that the PPE is on hand and that the surrounding area is a no smoking area.	Ensure the correct PPE is being worn by operators during operation.	Ensure everyone is a safe distance from the operating machinery.

Pump Instruction and Breakdowns

General Information

JETWAVE GROUP declines all liability for any damage caused by negligence or failure to respect the rules contained in this manual.

1. The STANDARD pumps work with clean, soft water, at a maximum temperature of 40°C, and, only for short periods, up to 60°C. In the latter case, call Customer Care to establish the specifications required according to the type of plant installed.
2. The performance indicated in the catalogue refers to the maximum performance provided by the pump.
3. Improper use of pumps and high-pressure systems and failure to respect installation and maintenance regulations may cause serious injury to persons and/or damage to things.
4. Any person responsible for assembling or using high-pressure systems must have the competence required to do so, be familiar with the characteristics of the components he is about to assemble/use and adopt all necessary precautions required to guarantee maximum safety under all operating conditions.
5. High-pressure system components, particularly those of systems that run mainly outdoors, must be adequately protected against the rain, frost and heat.

Installation

1. Avoid installing and using the pumps near heat sources and/or in environments where condensation may form as this affects the effectiveness of the lubricant contained in the pump. .
2. Make sure that the pump never operates dry even for short periods by installing safety devices on the system.
3. For pumps with a built-in regulating valve or if the plant has the pressure regulating valve outlet (BYPASS) connected directly to the feed inlet (IN) of the pump, the pump must not be operated in BYPASS mode for more than 3 minutes, otherwise there will be a risk of damage to the seals and valves caused by overheating.

Feed Line

To ensure the pump works to its full potential, the feed line must have the following characteristics:

1. An inside diameter at least as large as the (IN) inlet on the pump manifold; along the pipe avoid fitting 90° elbows, connections with other pipes, chokes, “T” connections, siphons, areas where air bubbles may stagnate and cause head losses and cavitation.
2. The lay-out must be such as to ensure, under all working conditions, a positive head of between min. 0.20 m (0.02 bars) and max. 80 m (8 bar) measured at the pump feed inlet; this minimum value is valid for cold water having a temperature of up to 20°C, for higher temperatures, see the graph on the last page.
3. The pumps can also work at a lower supply pressure, under certain operating conditions authorised by Jetwave Group Technical Department.

4. It must be completely airtight and designed in such a way that its seal is guaranteed to last in time.

Delivery Line

The following rules should be respected in designing the DELIVERY line:

1. The inside diameter of the piping must be correctly sized according to the maximum pressure and capacity so as to ensure the appropriate speed of the fluid and to limit head losses.
2. The first section of piping connected to the pump must be flexible, so as to avoid forced connections and to isolate the vibrations produced by the pump from the rest of the plant.

Maintenance

1. System maintenance work should be done within the time intervals laid down by Jetwave Group.
2. Correct maintenance prolongs the life of the pump and maintains its maximum performance in time.
3. All maintenance work should be done by a specialised trained service technician.
4. The pump and its components are to be assembled and disassembled exclusively by trained service technician, using equipment suited to the purpose so as to avoid damaging components that could put their safety at risk.
5. Scheduled maintenance:

After the first 50 hours	Every 500 hours	Every 1000 hours (mean period: should be reduced for harsh operating condition)
Oil change	Oil change	Checking/replacement: Valve assemblies, pumping seals.

For the recommended oils.

WARNING: All used oil should be collected in containers and delivered to authorized centres for disposal in accordance with the regulations in force. In no circumstances shall it be dumped in the environment.

WARNING: To guarantee absolute reliability and safety, use should be made exclusively of original spare parts.

Guarantee Conditions

1. The guarantee period and conditions are indicated in the purchase agreement.
2. The guarantee will, in any case, be considered null and void if the pump is used for improper purposes, coupled with motors having a power higher than those indicated, used at pressures or speeds higher than those indicated, repaired with non-original spare parts or if it is damaged as a result of a failure to following the instructions given in this manual.

Start-Up

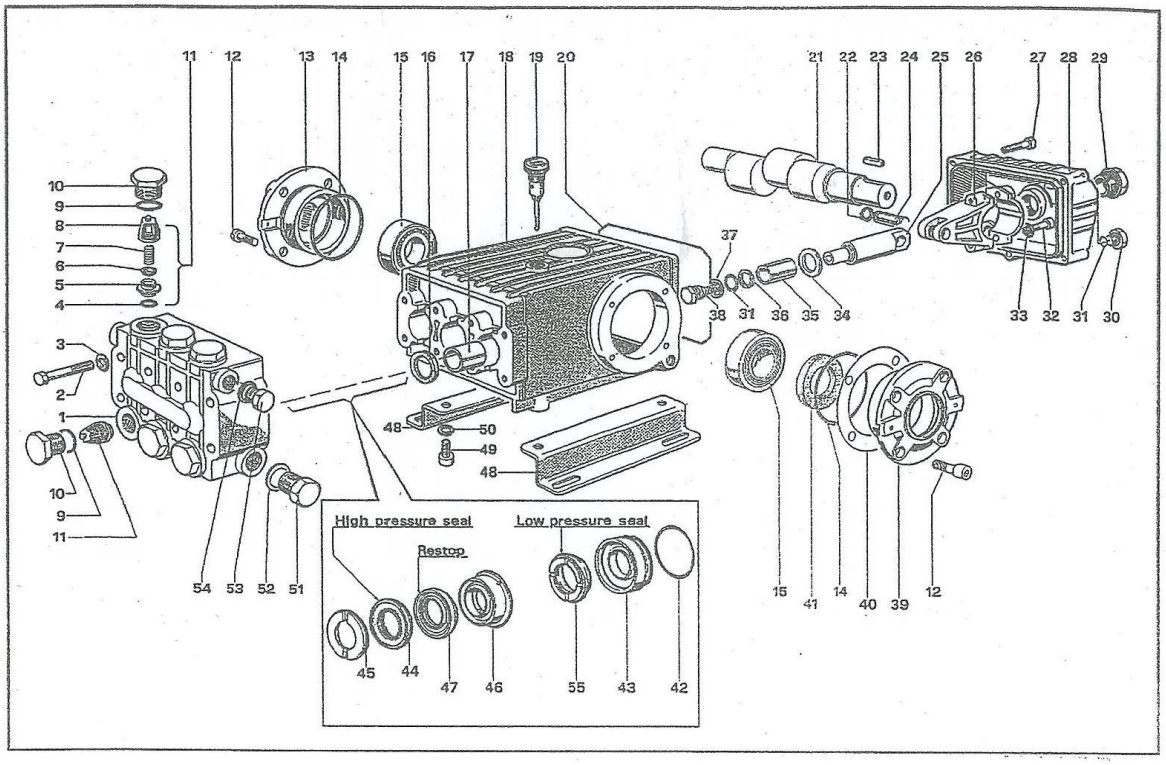
1. Check the oil level through the window or using the dipstick and, if necessary, top it up.
2. Make sure that all fittings are securely tightened and that the pump feed is open.
3. Start the pump for 5/10 seconds until the liquid flows out smoothly from the delivery pipe or appliances; if this does not happen, stop the pump and repeat the operation after a 10-second pause.
4. Complete the connections and/or install the nozzles.
5. All Jetwave Group units are tried and tested prior to shipment, the user is, however, obliged to test the complete system for an adequate time to check for leaks, overheating, deterioration in performance or calibration, etc.

Warning: Calibrate or regulate the valves; to prevent tampering, apply lead seals where possible, or paint the regulating registers so that any tampering can be readily detected.

Troubleshooting Guide (pump specific)

At start-up, the pump makes no noise	• The pump is not primed and is operating dry, without lubricant • The water supply is off. • The valves are blocked. • The delivery line is closed and does not let the air flow out of the pump.
The pipes pulsate in an irregular fashion.	• There is insufficient air suction and/or supply. • Bends, elbows, fittings on the feed line are slowing down the flow of the liquid. • The feed filter is dirty or too small. • The booster pump, if installed, is providing an insufficient pressure and/or capacity. • The pump is not primed due to an insufficient head, the delivery pipe closing during priming and/or a valve sticking • Worn pressure valves and/or seals and/or transmission problems. • The pressure regulating valves are not working properly.
The pump does not give the rated capacity and makes excessive noise.	• There is an insufficient supply and/or the number of revolutions is less than the rated value. • Excessive leaking from the pressure regulating valve and/or the pressure seals. • Worn valves. • Cavitation due to undersized feed pipes and/or filter, insufficient capacity, high water temperature, clogged filter.
The pressure supplied by the pump is insufficient.	• The appliance (nozzle) is too large or is worn. • Excessive leaking from the pressure seals. • The pressure regulating valve is not working properly and/or the valves are worn.
The pump overheats:	• The pressure and/or the number of revolutions is higher than the rated value. • The oil in the sump of the pump is not at the required level or is not of the recommended type. • The belt is too tight, the joint or the transmission is not aligned.

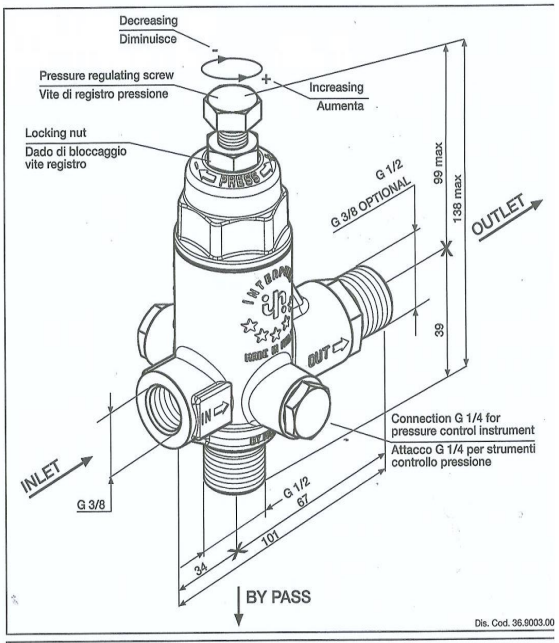
Pump Breakdown – Interpump WS251



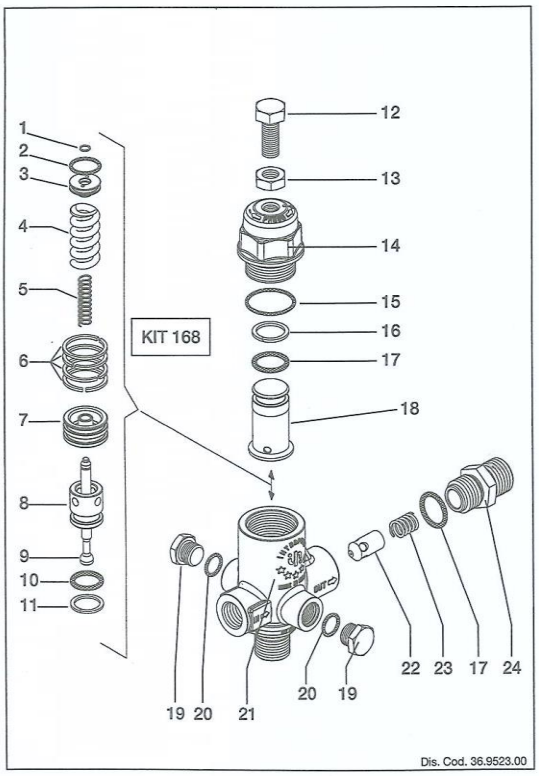
Po	Code	Description
1	47121741	Head
2	99320600	Hex Bolt
3	96702000	Washer Ø 8 UNI 1736
4	90384100	O' Ring Ø 17.13 x 2.62
5	36200366	Valve Seat
6	36200176	Valve
7	94737600	Spring Øm. 9.4 x 14.8 INOX
8	36200251	Valve Guide
9	90384700	O' Ring Ø 20.24 x 2.62 (3081)
10	98222800	Plug M 24 x 1.5 x 17.5
11	36703201	Valve Assembly
12	99303900	Screw M8 x 16 UNI 5931
13	47150122	Bearing Housing
14	90391300	O' Ring 67.95 x 2.62 (3268)
15	91837800	Roller Bearing
16	90162500	Oil seal Kit 2
17	90912600	Bushing Ø M22 x 25 x 30
18	47010022	Crank Case
19	98210600	Oil Dip Stick G3/8 x 80
20	90392200	O' Ring Ø 133.02 x 2.62 (3525)
21	47021835	Shaft
22	90055700	Circlip
23	91489000	Key
24	97738000	Connecting Rod Pin Ø 13 x 35
25	47050356	Piston Guide
26	47030001	Connecting Rod
27	99191200	Screw M6 x 30 UNI 5931 8.8
28	47160122	Crankcase cover

Po	Code	Description
29	97596800	Oil Level Indicator G3/4
30	98204100	Cap G1/4 x 9
31	90358500	O' Ring Ø 10.82 x 1.78 (2043)
32	99309900	Screw M8 x 35 UNI 5931 8.8
33	96701400	Washer Ø 8.4 x 13 x 0.8
34	96728600	Washer Ø 14 x 28 x 0.5 Cu
35	47040409	Piston Ø 20
36	90506700	Anti Extrusion Ring
37	96728000	Washer Ø 14 x 18.5 x 0.5 Cu
38	47219566	Piston Bolt Kit 6
39	47150022	Flange
40	97567800	Shim
41	90164800	Oil Seal Kit
42	90361600	O' Ring Ø 34.65 x 1.78 (2137)
43	47080570	Brass Guide
44	90270500	Packing Ø 20
45	47100051	Head Ring
46	47216970	Brass Retainer
47	90270400	Restop Ring
48	47200074	Foot
49	99364400	Screw M10 x 18 UNI 5931
50	96710600	Washer Ø 21.5 x 27 x 1.5
51	98217600	Cap G1/2 x 10
52	96751400	Washer Ø 21.5 x 27 x 1.5
53	98210000	Cap G3/8 x 13
54	96738000	Washer Ø 17.5 x 23 x 1.5
55	90271000	Packing

Unloader Valve breakdown - K1



TECHNICAL CHARACTERISTIC - CARATTERISTICHE TECNICHE						
VOLUME - PORTATA		MAX. PRESS.			WEIGHT - PESO	
l/min	G.P.M. (USA)	bar	MPa	P.S.I.	kg	lbs
9÷41	2.38÷10.83	250	25	3600	1,05	2.31



Pos	Code	Description	# Pcs.
1	90006000	Stop Ring D.6 UNI7433-INOX	1
2	90359300	O' Ring Ø 15.60 x 1.78	1
3	36325770	Spring Plate	1
4	94742500	Spring Ø 14 x 35	1
5	94733700	Spring Ø 7.3 x 32	1
6	92772200	Compression Ø 27	4
7	36325570	Control Piston	1
8	36325666	Valve Seat	1
9	36325466	Valve Stem	1
10	90383500	O' Ring Ø 15.08 x 2.62	1
11	90509000	Anti Extrusion Ring	1
12	99366300	Screw TE M10 x 1.25 x 25 UNI 5740	1
13	92236800	Nut M10 x 1.25 x 25 UNI 5589	1
14	36325141	Upper Body	1
15	90360600	O' Ring Ø 26.70 x 1.78	1
16	90510700	Anti Extrusion Ring	1
17	90384100	O' Ring Ø 17.13 x 2.62	2
18	36325270	Limit switch	1
19	98204100	Cap G1/4 x 9	2
20	90358500	O' Ring Ø 10.82 x 1.78	2
21	36325041	Lower Body	1
22	36325866	Nozzle	1
23	94737500	Spring Ø 9.4 x 17	1
24	36325370	Nipple G 1/2	1

Maintenance Log

Approx Hour Meter Reading	Date	Maintenance Performed	Service Agent

Notes


JETWAVE®
Imagine a
cleaner world