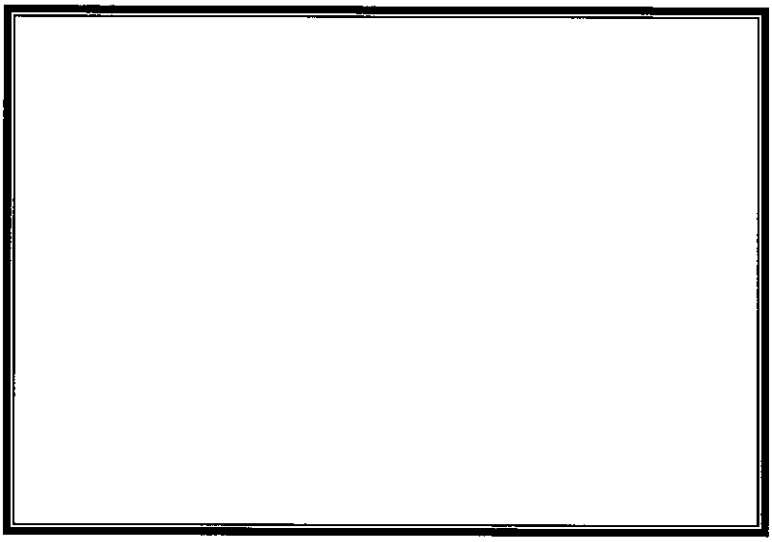
OPERATING AND MAINTENANCE MANUAL

HOT WATER PETROL HIGH PRESSURE CLEANER

SPITWATER

SW15200PE and SW21200PE



Made By:

SPITWATER AUSTRALIA

Spitwater Australia Pty Ltd
953 Metry St
North Albury , NSW , Australia

WARNING: **FAILURE TO FOLLOW OPERATING, SAFETY AND MAINTENANCE INSTRUCTIONS LISTED IN THIS MANUAL RELEASES THE MANUFACTURER FROM ANY RESPONSIBILITY FOR ACCIDENTS OR DAMAGES TO BOTH HUMANS AND OBJECTS AND MAY RENDER ANY WARRANTY VOID**

TECHNICAL DATA				
Model			**SW15200 PE**	**SW21200 PE**
Flow rate		l/m-l/h	15-900	21-1260
Pressure		bar-psi	200-3000	200-3000
Max outlet				
	Temperature	°C	80	80
Max inlet				
	Pressure	bar-psi	10-150	10-150
	Temperature	°C	50	50
Engine				
	Honda	model	**GX390**	**GX630**
	Power	kW-HP	9.7-13	11.5-15.5
	Cylinder	number	1	2
	Fuel		Unleaded fuel	Unleaded fuel
	Starting system		Electric	Electric
	Electric system			
		Voltage	12V	12V
		Power	1.2kW	1.2kW
	Cooling system		air	air
Pump				
	Model		**WS251**	**WS202**
	rpm		1450	1450
	Oil capacity	l	1.2	1.2
	Oil type	SAE	15W40	15W40
Burner motor				
	Power	W	120	120
	Voltage	Voltage	12	12
	Absorption	A	10	10
	Phases		1	1
Burner				
	Nozzle size	GPH	1.75	1.75
	Consumption	kg/h	7	7
Diesel tank				
	Capacity	l	41	41
Hose length				
	ϕ3/8	m	10	10
Dimension				
	L x W x H	mm	1100x1100x1010	1100x1100x1010

The manufacturer reserves the right to modify design features and technical data without notice.

INTRODUCTION

The SPITWATER range of high-pressure cleaners has been designed to give safe, efficient and reliable service when the correct operating sequences are followed and proper attention is given to cleaning and maintenance procedures. This manual is to provide up to date information necessary to the user/serviceperson for operating, cleaning and servicing the unit, together with faultfinding techniques and general specifications details and diagrams. Please note that the information given herein after may be subject to revision in compliance with the policy of continual improvements.

The SPITWATER range of cleaners should only be used in the manner and purpose for which they were intended and in accordance with the recommendations and safety precautions detailed in the following Manual and in the Operating Instructions stickers on the unit itself.

All SPITWATER cleaners undergo rigorous safety and operational tests before being despatched into the marketplace however it is still imperative that prior to use, all operators have read and understood all information and instructions provided and are aware of possible hazards.

IMPORTANT SAFETY INSTRUCTIONS AND PRECAUTIONS

This booklet contains important information for the use and safe operation of this high pressure cleaner. Read and understand all warnings before you start using the unit.

WARNING: When using this high pressure cleaner:

1. **Read all instructions before using this high pressure cleaner.**
2. **Know how to start and stop the unit and bleed pressure quickly. Be quite familiar with the controls.**
3. **Follow the maintenance and fault-finding procedures outlined in this manual.**
4. **Keep operating area clear of all persons.**
5. **To prevent fire hazards, do not use near inflammables such as: gasoline, grain dust, solvents, thinners etc.**
6. **Stay alert and hold the lance strongly as high pressure cleaner jets produce a strong reaction force**
7. **This unit is not to be operated by children, teenagers or impaired persons (ie. people under the influence of drugs, alcohol etc).**
8. **Do not overreach or stand on unstable supports.**
9. **Keep the unit in a dry building where there is no danger of freezing.**
10. **Do not exceed the maximum temperature and pressure indicated in the technical data.**
11. **Never aim the jet in the direction of human beings, because the water jet comes out of the nozzle at high speed with high pressure.**
12. **Do not pull on high-pressure hose in order to move the unit.**
13. **Use only high-pressure hoses supplied by Spitwater Australia. In case of defects, never try to bind up defective hoses, replace them.**
14. **Do not work in the rain or during thunderstorms.**
15. **When the unit is working, do not cover and do not place in a closed space where ventilation is insufficient.**
16. **Do not operate this unit in enclosed spaces.**
17. **When finishing work, always secure the handpiece with the lock catch.**
18. **To prevent injuries always disconnect the power before disassembling, servicing or before leaving the unit.**
19. **All serious servicing and maintenance procedures should be carried out by an authorised service person using spare parts supplied by Spitwater Australia.**
20. **Local regulations and standards as to the installation and operation of high-pressure cleaners must be observed.**
21. **Follow all safety and operating instructions in the engine booklet provided**

WARNING: RISK OF INJECTION OR INJURY - DO NOT DIRECT JET STREAM AT PERSONS/ANIMALS

SAVE THESE INSTRUCTIONS

READ WITH ATTENTION THE WARRANTY CARD AND MAIL COPY ON THE DATE OF SALE

INSTALLATION

All number references refer to the exploded view of the machine.

1. Position the unit on a flat level surface near a water outlet.
2. Follow installation and pre-start procedures for the engine as per the engine manual.
3. Replace the pump travel plug (Red) with the supplied dipstick (Yellow).
   Check oil level through the sight glass. Maximum - upper edge of red circle.
   Minimum - lower edge of red circle.
4. Connect the double lance to the gun.
5. Connect the high pressure hose to the gun and to the chemical injector.
6. Connect your water supply hose to the water tank. Ensure that the water supply is sufficient for the pump flow rate, and that the water temperature does not exceed the maximum allowed.
7. Turn on the water supply and allow the water tank to fill. The float valve will stop the water when the tank is full.
8. Fill the engine with fuel.
9. Fill the detergent bottle with detergent. **Caution: Do not use acid or corrosive products.** Contact service agent if unsure.
10. Fill the diesel tank with clean filtered diesel fuel.
11. Check that the chemical injector knob is closed.

OPERATION

START

1. Start the engine following the instructions in the engine manual.
2. Pull the trigger on the gun.
3. Allow the water to run through the machine for 2-3 minutes in order to expel any air in the system. If some air is still in the system after that time, open and close the gun a few times to expel the remaining air.
4. Check if the pressure on the pressure gauge is reading as per the technical data.
5. Turn the thermostat knob to the temperature required and start the burner by turning on the burner switch. The burner will ignite and work only when the gun is in the open position. Burner ignition is controlled by a pressure switch, and by the thermostat. The burner will shut off either when the gun is closed or when water temperature reaches the set point.
6. To allow detergent through the injection system, turn the chemical injector knob anti-clockwise and the adjustable handgrip on the double lance anti clockwise. Pull the trigger on the gun and the low pressure will allow the detergent through the injection system. **NOTE: Detergent can only be injected in low pressure mode.**

STOP

1. In order to prevent blockages flush the detergent system after use. Remove the detergent hose and filter from the detergent bottle and place into a container of clean water. Run the machine as if you were using detergent (see point 6 above).
2. After the system has been flushed, turn the chemical injector knob clockwise to shut off the detergent suction.
3. Stop the burner by turning the burner switch to the off position.
4. Run the machine for approximately 5-10 minutes with the gun open until the water has cooled.
5. Stop the engine as per the engine instruction manual.
6. Pull the trigger on the gun to release pressure in the system. **WARNING: Do not stop the machine until operations 3 and 4 have been completed, as this could cause scale formation in the coil.**

MAINTENANCE INSTRUCTIONS

To maintain your unit in peak working condition during its operable life it is necessary to carry out regular maintenance operations and replace worn or broken down parts immediately upon their failure. We suggest that a qualified service person carries out all maintenance and that original spare parts be used in effecting repairs to guarantee quality, reliability and longevity. **Failure to follow the above instructions releases the manufacturer from any responsibility in reference to injuries and damages to both persons and goods and may render any warranty given with the units void.**
Please find below a summary table of maintenance operation with a general description on how they should be carried out:

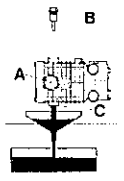
CHECKS TO BE CARRIED OUT BY THE USER

GENERAL

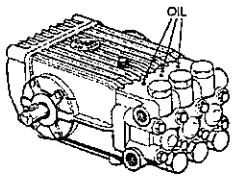
1) Engine (Each use)
   a) Follow the instructions in the engine Operator's Manual, supplied.
2) Water connections/connectors/lines(Each use)
   a) Check high-pressure hose, connectors and other connections for leaks.
   b) Check inlet hose connections for leaks.
3) Performance (each use)
   a) Check machine functionality (ie. operation, pressure etc.) and performance and make sure that everything operates as described in the operating instruction. Should any malfunction occur, stop operating the unit immediately and contact an authorised service person/agent. **Pay particular attention to the fact that there should be no burner ignition if there is no water flowing through the unit. Should any malfunction occur, stop operating the unit immediately and contact an authorised service person/agent**
4) Nozzle (every 50 hours)
   a) Check and clean high-pressure nozzle. It is necessary in situation where dirty or contaminated water is used that the nozzle be cleaned more regularly.
5) Filters (Every 100 hours)
   a) Check and clean external, burner Diesel filter. Replace every 1000 hours
   b) Check and clean water filter. Replace every 1000 hours
6) Water Lines
   a) The unit should never be stored in areas where freezing conditions can occur unless all water has been expelled from all hydraulic lines (ie. inlet, pump, coil and high pressure hose, etc) or an appropriate anti freeze solution has been circulated in the above lines; contact your service agent for appropriate instructions. Failure to follow the above guideline could result in great damage occurring to the unit.

PUMP

1) Oil
   a) Check the oil level in the pump either using the dipstick or through the oil sight glass in the back of the pump. Minimum oil level is at lower edge of red circle on sight glass or lower notch on dipstick while maximum oil level is at upper edge of red circle on sight glass or upper notch on dipstick. If oil reservoir needs replenishing only use oil of a type as listed in the data sheet in this instruction manual.
   b) Check that oil colour has not gone milky. If so do not operate the unit and contact an authorised service agent/centre immediately.
   c) Replace the oil after the first 50 hours of operation and every 500 hours after first change or once per year. To replace the oil remove oil plug C and oil dipstick B and let oil fall into container until completely drained. After oil has completely drained replace oil plug C and refill using only SAE 20W30 oil until mark on sight glass A or oil dipstick B has been reached. Dispose of waste oil according to local regulations and standards.



2) General
   a) If the unit has been left unused for long periods of time before restarting the unit a few drops of oil should be placed on the pump vents to lubricate the seals at start up. (Note that not all pumps are fitted with these vents)



CHECKS TO BE PERFORMED BY AUTHORIZED SERVICE PERSON/AGENT

Checks and the interval times at which they should occur that have to be performed by and authorised service person/agent are summarised below. It is essential that such checks and repairs be carried out by an authorised service person/agent as they have the necessary experience and training to carry them out.

SUMMARY OF CHECKS TO BE CARRIED OUT BY THE USER		**SUMMARY OF CHECKS TO BE CARRIED OUT BY AN AUTHORIZED SERVICE PERSON/AGENT**	
Engine/water connections/ high pressure hose /performance	Each use	Descaling of coil	Each 1500 hours
Nozzle clean and inspect	Each 50 hours	Clean Diesel pump	Each 300 hours
Water and Detergent lines	Each 50 hours	Replace Diesel nozzle	Each 500 hours
Filters	Each 100 hours	Clean Diesel tank	Each 300 hours
Pump oil first change	After 50 hours	Check adjustment of electrodes	Each 300 hours
Pump oil change after first change	Each 500 hours	Replace electrodes	Each 500 hours
Others checks	See Above	Check and if necessary replace pump seals	Each 750 hours
		Replace High pressure nozzle	Each 200 hours
		Check pressure switch	Each 100 hours
		Check combustion and settings of all diesel and Hydraulic line safety mechanisms	Once a Year or every 500 hours whichever comes first

NOTE:

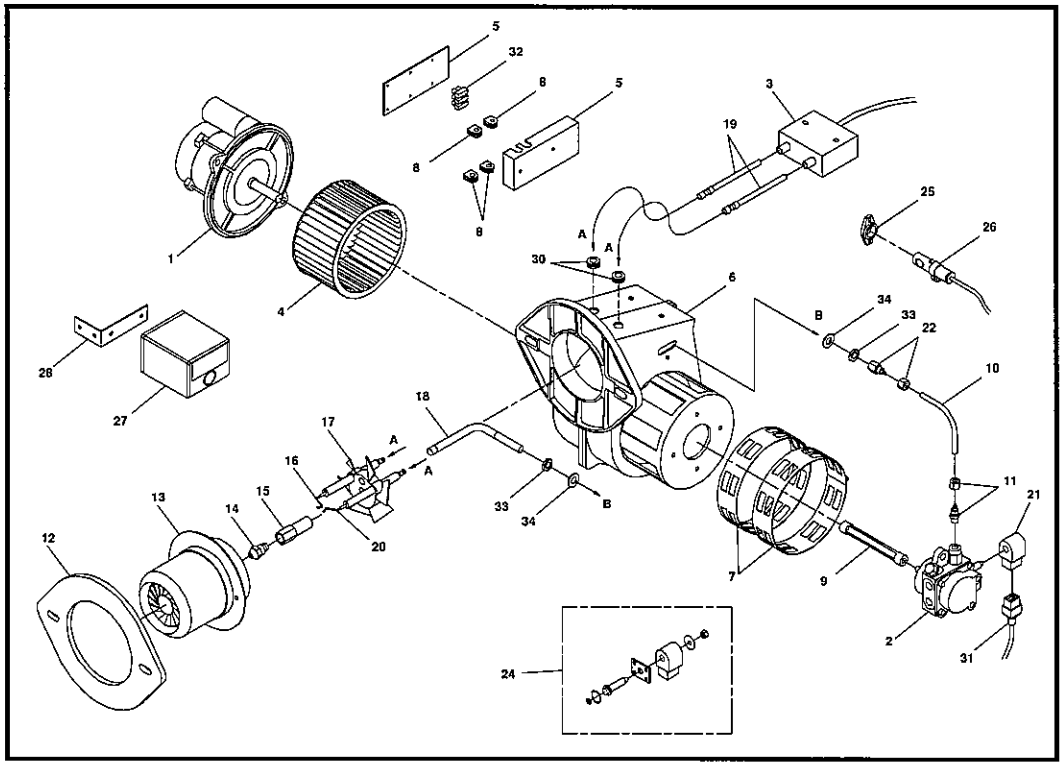
1) **The time indication for checks and replacement listed above are for units subject to normal operating conditions. Should the unit be subject to abnormal conditions (ie. heavy duty use, dirty water or fuel, extreme temperatures or climatic conditions etc.) the times should be reduced accordingly**
2) **Should the unit be subject to very limited use all checks and if necessary replacements should be carried out at least once per year.**

TROUBLESHOOTING

FAULT	**CAUSE**	**REMEDY**
The pump is running normally but the pressure does not achieve rated values	Pump Sucking air Nozzle is blocked Water filter dirty	Check that hoses and fitting on inlet side of pump are airtight. Check and clean nozzle Check and clean water filter
Fluctuating Pressure	Pump Sucking Air Water filter dirty	Check that hoses and fitting on inlet side of pump are airtight. Check and clean water filter
Pressure drops after a period of normal use		Contact authorised service person/agent
Pump is noisy	Pump Sucking air Water inlet is too hot	Check that hoses and fitting on inlet side of pump are airtight. Reduce water inlet temperature below 50° C
Presence of water in pump oil		Contact authorised service person/agent
Water dripping from under pump		Contact authorised service person/agent
Oil dripping from under pump		Contact authorised service person/agent
The engine does not start when switch is activated	Emergency stop in activated position Low water/Diesel cut off is activated No fuel or water	Check the plug Check that water /diesel tank are full and add water/diesel as necessary Contact an authorised electrician to check power supply
The engine stops		Contact authorised service person/agent
The burner doesn't work	Lack of Diesel Diesel filters dirty	Check and fill diesel tank Check and clean diesel filters
The Burner continues combustion when the washing gun is off		Turn the unit off immediately and do not use! Contact authorised service person/agent immediately to rectify the problem!

NOTE: If the fault cannot be identified or corrected using the above list (or remedy states contact Authorised service person/agent) stop using the machine immediately and contact an authorised service person /agent to rectify the fault.

44902/12V-BURNER



No.	Description	Part No.	No.	Description	Part No.
1	Motor	44250/12V	17	Baffle	44934
2	Pump with Solenoid Valve	44924	18	Distillate Pipe	44935/A
3	Transformer	49099/12V	19	High Voltage Cable	44936
4	Fan	44656/A	20	Electrode Left	44763
5	Terminal Box with Lid	44925	21	Solenoid Coil	44937
6	Fan Housing	44051	22	Rilsan Nipple 1/8" Female	48765
7	Air Adjustment Ring	44926	24	Kit for Diesel pump	Sw104
8	Grommet – Dia 5.5 Dia 6.5 Dia 7.5	48438	25	Photocell(Optional)	48413
			26	Photocell Holder(Optional)	48414
			27	Combustion Cont.Box(Opt)	48415
9	Joint	44929	28	Comb. C/Box Bracket(Opt)	48463
10	Distillate Hose	48739	30	Grommet	48431
11	Rilsan Nipple 1/8" Male	44342	31	Lead – Solenoid Valve	48437
12	Gasket	44101	32	Terminal Block – 3 Way	33121
13	Electrode Housing	44932	33	Nut 1/8" Bsp	100155
14	Nozzle 1.75Gph	44571/C	34	Flat Washer 10.5x21x1.5	70200/I
15	Nozzle Bearer	44933			
16	Electrode Right.	44764			