

OPERATING AND MAINTENANCE MANUAL

DIESEL ENGINE POWERED HOT & COLD WATER PRESSURE CLEANER



MODEL SW15200DE AND SW21200DE



Pictured: Model SW21200DE

Made By:



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**

Congratulations on the choice you have made. This shows your level of technical knowledge and taste for beautiful things. **You have in fact purchased an appliance of high technology made by the largest manufacturer of High Pressure Cleaners in the Southern Hemisphere.** It is a professional and versatile machine, which you will use for a long time.

TECHNICAL DATA

Model			SW15200DE	SW21200DE
Flow Rate		L/M-L/H	15-900	21-1260
Pressure	Working	Bar-Psi	200-3000	200-3000
	EWE Rotojet	Bar-Psi	255-3825	255-3825
Max Outlet	Temperature	°C	80	80
Max Inlet	Pressure	Bar-Psi	10-150	10-150
	Temperature	°C	50	50
Engine	Kubota	Model	OC95	D902E3
	Power	kW-HP	7.1 - 9.5	17.5 - 23.5
	Cylinders	No	1	3
	Fuel		Diesel	Diesel
	Starting	System	Electric	Electric
	Starting	Motor	12 V, 1.2 kW	12 V, 1.2 kW
	Protection		Oil Pressure	Oil Pressure
	Cooling		Air	Water
Pump	Model		WS251	WS202
	Rpm		1450	1450
	Oil Capacity	L	1.2	1.2
	Oil Type	SAE	20-30	20-30
Burner Motor	Power	W	120	120
	Voltage	V	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	$\frac{5}{16}$ or $\frac{3}{8}$ φ	M	10	10
Dimension	L x W x H	mm.	1160X1160X1165	1200X1450X900
Weight		kg	404	470

The Manufacturer reserves the right to modify designs features and technical data without notice

INTRODUCTION

The SPITWATER HIGH PRESSURE CLEANERS have been designed to give safe, efficient and reliable service. Like any other piece of equipment however, the unit will only operate at maximum efficiency if the correct operating sequences are followed and proper attention is given to the maintenance procedures.

The purpose of this manual is to provide up to date information necessary to the user for operating, maintaining and servicing the unit, together with fault finding techniques and general specification details and diagrams. The information given, however, may be subject to revision in compliance with the policy of continual improvements.

HEALTH AND SAFETY AT WORK

Manufacturers and suppliers of products for use in the workplace have a duty to ensure, so far as is reasonably practicable, that such products are safe and without risk to health when properly used and to make available to users of such products adequate information about their safe and proper operation.

The SPITWATER High pressure cleaner should only be used in the manner and purpose for which they were intended and in accordance with the recommendation detailed in this Manual and in any other Government Standard applicable in your country. Our units have been designed, produced and inspected with safety in mind; however, there are certain basic precautions which should be taken by the user and in particular, attention is drawn to the safety precautions in this Manual and in the Operating Instruction stickers on the unit itself.

It is imperative therefore, that all persons who may make use of this unit, have all the information and instructions they require to ensure that they are fully aware of the hazards and they know both the purpose and correct manner of operation of our pressure cleaner. **Therefore, please read and follow these operating instructions carefully.**

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: petrol, grain dust, solvents, thinners etc.
6. Stay alert and hold the lance strongly as high pressure cleaners 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. Do not effect temporary repairs on worn or damaged electrical cords and plugs. Have worn, cut or damaged cords and plugs replaced by an authorised service person/electrician.
10. To reduce the risk of electric shock/damage do not aim the water jet onto the unit and always wear rubber-soled footwear when operating the unit.
11. Keep the unit in a dry building where there is no danger of freezing.
12. Do not exceed the maximum temperature and pressure indicated in the technical data.
13. 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.
14. Do not pull on high-pressure hose in order to move the unit.
15. Use only high-pressure hoses supplied by Spitwater Australia. In the case of defects, never try to bind up defective hoses, replace them.
16. Do not work in the rain or during thunderstorms.
17. When the unit is working, do not cover and do not place in a closed space where ventilation is insufficient.
18. When finishing work, always secure the handpiece with the lock catch.
19. To prevent injuries always turn the engine electric start key off and turn the battery isolator into the off position before:
 - Disassembling any part of the unit
 - Effecting any servicing and
 - Before leaving the machine.
20. All servicing and maintenance procedures should be carried out by an authorised service person using spare parts supplied by Spitwater Australia.
21. Local regulations and standards as to the installation and operation of high-pressure cleaners must be observed.

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

SAVE THESE INSTRUCTIONS

SAVE THE DIESEL ENGINE INSTRUCTION BOOKLET SUPPLIED

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION

1. Identify your unit from the model description on the serial no. / data plate label affixed on the High pressure cleaner
2. Position the unit on a level surface near a suitable water supply (see serial no./ data plate)
3. Connect the front part of the lance to the back part of the lance.
4. Connect the high-pressure hose end to the Hand piece and the unit high-pressure outlet.
5. Connect the inlet connector to the water inlet / float valve.
6. Connect the water supply hose to the inlet connector supplied. Make sure that water pressure does not exceed the values listed in this manual and that water flow rate after inlet / gate valve exceeds the one required by the pump as stated on the serial no. / data plate.
7. Open the water supply and fill the water tank. The gate valve will automatically stop the water flow when the water tank is full.
8. Replace pump oil travel plug (Red plug) with pump oil dipstick (Yellow plug) provided in the accessories bag.
9. 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.
10. Remove the Diesel tank cap and fill the Diesel tank with clean filtered Diesel. Only use Diesel in this unit, as using any other fuel will create a risk of explosion.
11. Set lance assembly in the low pressure position. See point 6 of Operating Instructions To Start and Use (below).

OPERATING INSTRUCTIONS

TO START AND USE

- 1) Turn Battery Isolator on to allow power to the battery.
- 2) Start the machine by turning the engine start key in the control box of the machine. Pull the Trigger of the Handpiece on the back part of lance and allow the water to run through the Pump, the Coil, the High-Pressure Hose and the Lance for 2-3 minutes in order to expel air from the Hydraulic system.
- 3) If some air is still in the system after that period of time, open and close the Handpiece 2-3 times to expel the remaining air.
Note: if this is the first time the unit is being run or it has been left idle for a long period of time it is advisable to run the above operation with the front part of lance (12) disconnected from the lance to avoid any debris / scale getting lodged in the nozzle and/or gun assembly.
- 4) Set the front part of lance in high pressure position. See point 6 of Operating Instructions To Start and Use (below).
- 5) Check if the pressure on the Pressure Gauge is correct. (See data plate on pump).
- 6) Double lance can be adjusted between high/ low pressure by turning the handle clockwise/anticlockwise.
- 7) Set the temperature required by operating the Thermostat Knob and start the Burner by turning the Burner Switch to the On Position. **The burner will ignite and only work with the Handpiece in the Open Position.** (Burner ignition is controlled by a Pressure Switch, which will cut off when the Handpiece is in closed position, and by the Thermostat, which will cut off when the water reaches the temperature set).
- 8) Stop the burner by turning the Burner Switch to the Off Position.
- 9) Run the unit for approximately 5-10 minutes with the trigger on the back part of lance on until the water has cooled.
- 10) Stop the machine by turning the engine start key to the off position.
- 11) Pull the trigger of the Handpiece on the back part of lance to release pressure.
- 12) **WARNING:** Do not stop the unit until operation (8) and (9) have been completed as this could cause scale formation in the Coil or lead to premature coil failure due to heat stress.
- 13) **EMERGENCY STOP – This machine has been fitted with an Emergency Stop for added safety. In case of emergency push the red, Emergency Stop button to stop the operation of the machine immediately.**
- 14) To restart the machine once the emergency has passed, ensure that the Emergency Stop button is unlocked and in the ready to activate position before restarting the machine. The machine will not restart unless this is done.

OPTIONAL EXTRAS (WHERE FITTED)

Your unit may be fitted with optional extras and following are instructions on the unit operation in the case where these are fitted.

LOW WATER/DIESEL CUTOFF

1. The general operation of the unit is the same as above but the unit will be shutdown in case of low water/diesel levels to avoid damage to the pump/diesel pump when using it dry.

TIMING DEVICE

1. The general operation of the unit is the same as above but the timer will shut down the unit if it is left in bypass for longer than 5 minutes. The timer is activated by the pressure switch (21).

STEAM KIT

When a steam kit is fitted to the unit it enables it to produce steam at 150⁰ C as well as operating as a normal hot water pressure cleaner. The general operation of the unit is the same as above but to use the steam function please follow the following instructions:

To Start

1. Turn By-Pass knob anticlockwise until pressure is reduced to 50 bar.
2. Follow steps In the TO START instructions setting the Thermostat on 150⁰ C. Steam will be produced in approximately 4 minutes.

To Stop

1. Follow Steps 8 to 11 in the Operating Instructions To Start and Use (above).
2. Turn By-Pass knob (15) anticlockwise until it stops on locknut.

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:

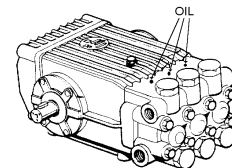
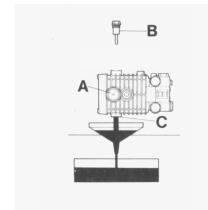
CHECKS TO BE CARRIED OUT BY THE USER

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 external water filter. If the filter is dirty, replace as required
- 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. (Use SAE15W40 non-synthetic oil)
 - 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 200 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 SAE15W40 non-synthetic 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 200 hours
Water and Detergent lines	Each 50 hours	Replace Diesel nozzle	Each 400 hours
Filters	Each 100 hours	Clean Diesel tank	Each 200 hours
Pump oil first change	After 50 hours	Check adjustment of electrodes	Each 200 hours
Pump oil change after first change	Each 200 hours	Replace electrodes	Each 400 hours
Others checks	See Above	Check and if necessary replace pump seals	Each 800 hours
		Replace High pressure nozzle	Each 200 hours
		Check pressure switch	Each 200 hours
		Check combustion and settings of all Diesel and Hydraulic line safety mechanisms	Once a Year or every 400 hours whichever comes first

NOTE:

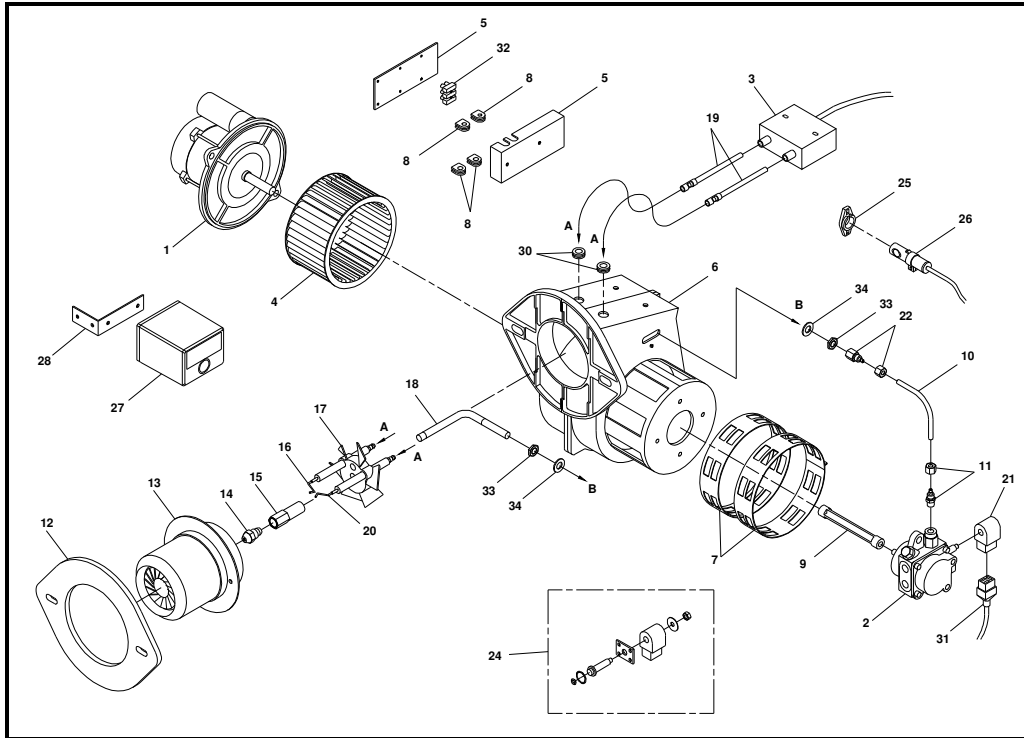
- 1) The time indication for checks and replacement listed above are for units subject to normal operating conditions. Should the unit be subject to abnormal conditions (ie. heavy duty use, dirty water or fuel, extreme temperatures or climatic conditions etc.) the times should be reduced accordingly
- 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			