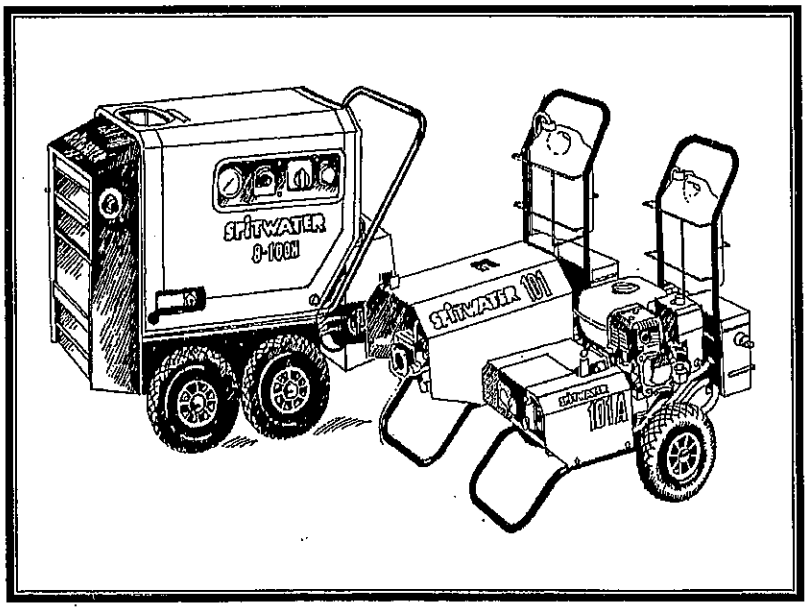
OPERATING AND MAINTENANCE MANUAL

ELECTRIC COLD WATER MODELS

SPITWATER

10-120C 13-180C
HP110 HP151 HP161 HP201 HP201S



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			10-120C	13-180C	HP110	HP131	HP151	HP161	HP201	HP201S
Flow Rate		L/M-L/H	10-600	13-780	12-720	10-600	14-840	18-1080	15-900	21-1260
Pressure	Working	Bar-Psi	120-1800	180-2700	110-1650	130-1950	150-2250	160-2400	200-3000	200-3000
	EWE Rotojet	Bar-Psi	170-2550	250-3750	160-2400	180-2700	195-2925	210-3150	255-3825	255-3825
Max Inlet	Pressure	Bar-Psi	10-150	10-150	10-150	10-150	10-150	10-150	10-150	10-150
	Temperature	°C	35	35	35	35	35	35	35	35
Pump Motor	Power	kW-HP	2.2-3	4-5.5	2.2-3	2.2-3	4-5.5	5.5-7.5	5.5-7.5	7.5-10
	Voltage	V	220-230-240	380-400-415	220-230-240	220-230-240	380-400-415	380-400-415	380-400-415	380-400-415
	Absorption	A	13.5-13.5-13	8.6-8.6-8.3	13.5-13.5-13	13.5-13.5-13	9.3-9.3-9.1	12.5-12.3-11.6	12.5-12.3-11.6	13.5-13.7-14
	Phases		1	3	1	1	3	3	3	3
	Hertz		50	50	50	50	50	50	50	50
	Protection	IP	54	54	54	54	54	54	54	54
	Insulation	Class	F	F	F	F	F	F	F	F
Electrical	Protection		Thermal O/Load	Thermal O/Load	Thermal O/Load	Thermal O/Load	Thermal O/Load	Thermal O/Load	Thermal O/Load	Thermal O/Load
Pump	Model		WW95	WW186	W140	W130	W154	WS162	WS201	WS202
	Rpm		2800	2800	1450	1450	1450	1450	1450	1450
	Oil Capacity	l	0.33	0.4	0.4	0.4	0.4	1.2	1.2	1.2
	Oil Type	SAE	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
Hose Length	$^5/_{16}$ or $^3/_8$ ϕ	M	8	8	10	10	10	10	10	10
Dimension	L x W x H	mm.	620x410x690	710x510x790	710x510x790	710x510x790	710x510x790	780x510x790	780x510x790	890x590x790
Weight		kg	33	51	51	51	53	67	67	94

The Manufacturer reserves the right to modify designs 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 cleaners, 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. **Read carefully the instructions concerning electricity supply, earthing and extension cords.**
10. **Do not pull electrical cable in order to unplug the unit.**
11. **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.**
12. **To reduce the risk of electric shock/damage do not aim the water jet onto the unit or any other electrical part and always wear rubber-soled footwear when operating the unit.**
13. **Keep the unit in a dry building where there is no danger of freezing.**
14. **Do not exceed the maximum temperature and pressure indicated in the technical data.**
15. **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.**
16. **Do not pull on high-pressure hose in order to move the unit.**
17. **Use only high-pressure hoses supplied by Spitwater Australia. In the case of defects, never try to bind up defective hoses, replace them.**
18. **Do not work in the rain or during thunderstorms.**
19. **When the unit is working, do not cover and do not place in a closed space where ventilation is insufficient.**
20. **Do not operate this unit in enclosed spaces.**
21. **When finishing work, always secure the handpiece with the lock catch.**
22. **To prevent injuries always disconnect the power before disassembling, servicing or before leaving the unit.**
23. **All serious servicing and maintenance procedures should be carried out by an authorised service person using spare parts supplied by Spitwater Australia.**
24. **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/ANIMALS

SAVE THESE INSTRUCTIONS

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

ELECTRICITY SUPPLY, EARTHING INSTRUCTIONS AND EXTENSION CORDS

The SPITWATER range of high-pressure cleaners should always be connected to an appropriately earthed power outlet with voltage and current supply matching the ones listed in the data plate affixed on the unit.

WARNING: -This appliance must be earthed to avoid the risk of electrocution should a breakdown / malfunction occur.

All electrical connections and fittings used in installing this unit should be in accordance with local standards and regulations and all electrical work during installation and maintenance should be carried out by a qualified electrician.

The use of extension cords should be avoided wherever possible by using longer high-pressure hoses. If an extension cord must be used it must be a commercial / industrial grade cord designed for outdoor use. The extension cord must have an electrical rating not less than the one of the unit and have an earthing wire.

Extension cords should be kept dry, away from traffic, sharp edges and heat to avoid the risk of electrocution. Connections should not be touched with wet hands and the extension cord should be disconnected from the power outlet prior to disconnecting the unit from the extension cord.

Note: Maximum length of extension cord allowed is 10 meters (30 feet).

INSTALLATION AND OPERATING INSTRUCTIONS

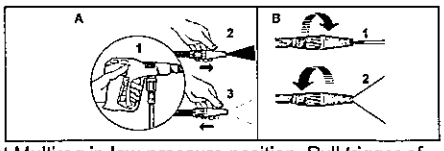
INSTALLATION

1. Identify your unit from the model description on the serial no. / data plate label affixed on the High pressure cleaner and the exploded views contained in this manual. (ALL NUMBERED REFERENCES APPLY TO EXPLODED VIEW OF UNIT)
2. (If necessary) Fit handle (3) to frame using bolts supplied in accessories bag.
3. (If necessary) Fit hoses (63) (28) (61) to break tank tailpieces (48) using hose clamps provided in accessories bag.
4. Position unit on a level surface near a suitable power and water supply (see serial no./ data plate)
5. Connect the high pressure cleaner to the electrical supply making sure that voltage and current supply are suitable as listed on the unit data plate and that the unit is properly earthed. Please note that wrong voltage or insufficient power supply will cause great damage to the unit. Any work needed on initial installation to connect the unit to the power supply must be carried out by a qualified electrician in accordance with local standards and regulations
6. Connect front part of lance (27) or (57) to back part of lance (26).
7. Connect high-pressure hose end (30) to Hand piece (31) and unit high-pressure outlet.
8. Connect water supply hose to inlet connector (18-19) supplied.
9. Connect inlet connector (18-19) to water inlet / float valve (45) or inlet (16). Make sure that water pressure/temperature does not exceed values listed in this manual and that water flow rate after inlet / gate valve is the same as the one required by the pump as stated on serial no. / data plate.
10. Open water supply. Where a water tank is fitted, water will fill water tank (20) and gate valve (45) will automatically stop water flow when water tank is full.
11. Replace pump oil travel plug (Red plug) with pump oil dipstick (Yellow plug) provided in accessories bag.
12. Check oil level in pump either using dipstick or through oil sight glass in back of 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.
13. Where fitted fill detergent tank (11) with cleaning solution. Only use a cleaning detergent approved by the manufacturer and do not use under any circumstance acid or corrosive products (Contact an authorised service agent or the manufacturer if in doubt).
14. Make sure that chemical injector (21) or chemical injector on pump is in closed position.
15. Set multireg (55) in low-pressure position. See pt 6 instructions on Operating/To start & use instructions.

OPERATING INSTRUCTIONS

TO START AND USE

1) Turn Power Supply On at power point if necessary.
2) Pull Trigger of Handpiece (31).
3) Start machine by switching the switch (12 or 52) to the on position. Allow water to run through the Pump (14), High-Pressure Hose (30), and Lance for 2-3 minutes in order to expel air from the hydraulic system. If some air is still in the system after that period of time, open and close Handpiece (31) 2-3 times to expel 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 handpiece disconnected from the hose to avoid any debris / scale getting lodged in the nozzle and/or gun assembly.**
4) Set multireg (55) in high-pressure position. See pt 6 instructions on the Operating/To start & use instructions.
5) Check if pressure on Pressure Gauge (29) is correct. (See data plate on pump).
6) Multireg nozzle (55) can be adjusted anywhere to provide a jet between 0^0 and 45^0 and high/low pressure so as to suit any cleaning application. By turning nozzle clockwise/anticlockwise you can decrease/increase size of fan as shown in picture beside (B). By pushing nozzle backward/forward with gun in closed position you can go into low pressure/high pressure as shown in picture beside (A).



7) To allow detergent through injection system, turn Chemical injector (21 or on pump) anticlockwise and put Multireg in low-pressure position. Pull trigger of Handpiece and low pressure will allow detergent through injection system.
   NOTE: DETERGENT INJECTION CAN BE MADE IN LOW PRESSURE ONLY.
8) **BEWARE: Units not fitted with a break tank or optional Thermal Protection valve must not be run for longer than 3 minutes with Gun (31) in closed position (in Bypass) because pump will be damaged. If unit is not required please switch it off.**

TO STOP

1. Clean Detergent Line (25-23) after removing from detergent bottle in order to prevent blockages in chemical injection device by dropping detergent line in clean water and running clean water through it. (For instructions on how to run clear water through detergent line see point no. 7 above on how to use detergent.)
2. Stop detergent flow, turning Chemical injector (21 or on pump) clockwise.
3. Stop machine by switching the switch (12 or 52) to the off position.
4. Pull trigger of Handpiece (31) to release pressure.

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 CUTOFF

1. The general operation of the unit is the same as above but the unit will be shutdown in case of low water to avoid damage by using the pump 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.

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:

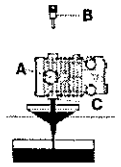
CHECKS TO BE CARRIED OUT BY USER

GENERAL

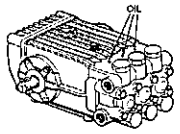
1) Power Cable (Each use)
   a) Check power cable for cuts, abrasion or general damage each time the unit is used. If power cords/ plugs are damaged they must be replaced immediately (not repaired) by an authorised service person/ electrician.
2) Water connections/connectors/lines(Each use)
   a) Check 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 unit immediately and contact an authorised service person/agent.
4) Nozzle (every 50 hours)
   a) Check and clean high-pressure nozzle (38). It is necessary in situations where dirty or contaminated water is used that nozzle be cleaned more regularly.
5) Filters (Every 100 hours)
   a) Check and clean water filter (47-17) Replace every 1000 hours
   b) Check and clean detergent filter (25).
6) Water and Detergent Lines
   a) 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 hp hose etc) and detergent lines or an appropriate anti freeze solution has been circulated in the above lines; contact your service agent for appropriate instructions. Failure to follow above guidelines will result in great damage occurring to unit.
   b) Keep detergent line clean (23,25) and make sure it is regularly flushed especially if machine is not used regularly.

PUMP

1) Oil
   a) Check oil level in pump either using dipstick or through oil sight glass in back of 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 data sheet in this instruction manual.(Only use SAE20 W 30 oil)
   b) Check that oil colour has not gone milky. If so do not operate unit and contact an authorised service agent/centre immediately.
   c) Replace oil after first 50 hours of operation and every 500 hours after first change or once per year. To replace 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 20 W 30 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 unit has been left unused for long periods of time, before restarting 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 interval times at which checks should carried out and performed by an 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 required.

SUMMARY OF CHECKS TO BE CARRIED OUT BY THE USER		**SUMMARY OF CHECKS TO BE CARRIED OUT BY AN AUTHORIZED SERVICE PERSON/AGENT**	
Power cable/water connections/ hp hose/performance	Each use	Check and if necessary replace pump seals	Each 750 hours
Nozzle clean and inspect	Each 50 hours	Replace High pressure nozzle	Each 200 hours
Water and Detergent lines	Each 50 hours	Check Settings of all Hydraulic line safety mechanisms	Once per year
Filters	Each 100 hours		
Pump oil first change	After 50 hours		
Pump oil change after first change	Each 100 hours		
Others checks	See Above		

NOTE:

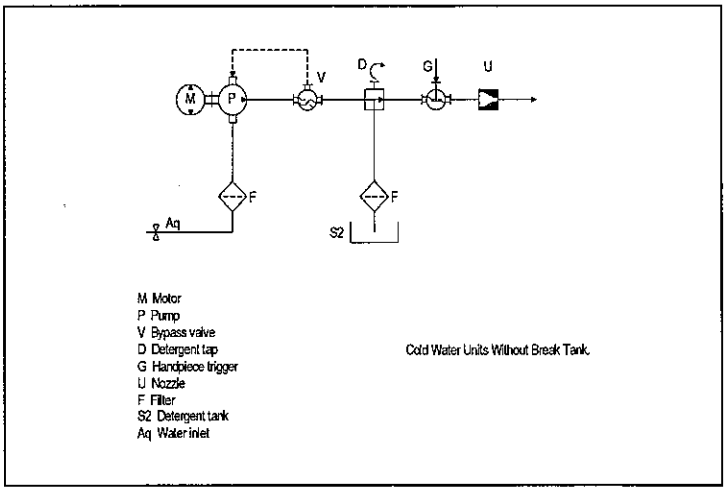
1) **Time indication for checks and replacement listed above are for units subject to normal operating conditions. Should unit be subject to abnormal conditions (ie. heavy duty use, dirty water or fuel, extreme temperatures or climatic conditions etc.) times should be reduced accordingly**
2) **Should 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 serve 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 35^0 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 motor does not start when switch is activated	Plug is not connected If fitted: Low water cut off is activated No power supply	Check the plug Check that water /diesel tank are full and add water/diesel as necessary Contact an authorised electrician to check power supply
When switch is activated the motor hums but does not run	Incorrect extension cable Incorrect or insufficient voltage or amperage	See instructions in manual and replace with an extension cord of correct size and length Contact an authorised electrician to check power supply
The motor stops		Contact authorised service person/agent

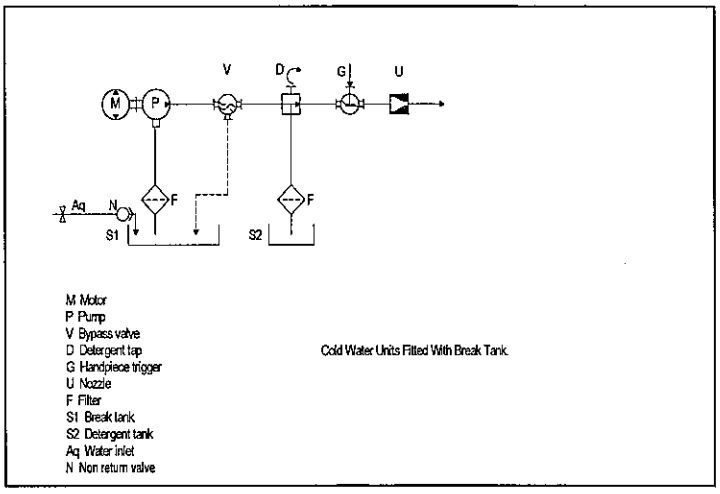
NOTE: If the fault cannot be identified or corrected using the above list (or remedy states contact Authorised service person/agent) stop using the machine immediately and contact an authorised service person /agent to rectify the fault.

HYDRAULIC AND ELECTRICAL DIAGRAMS



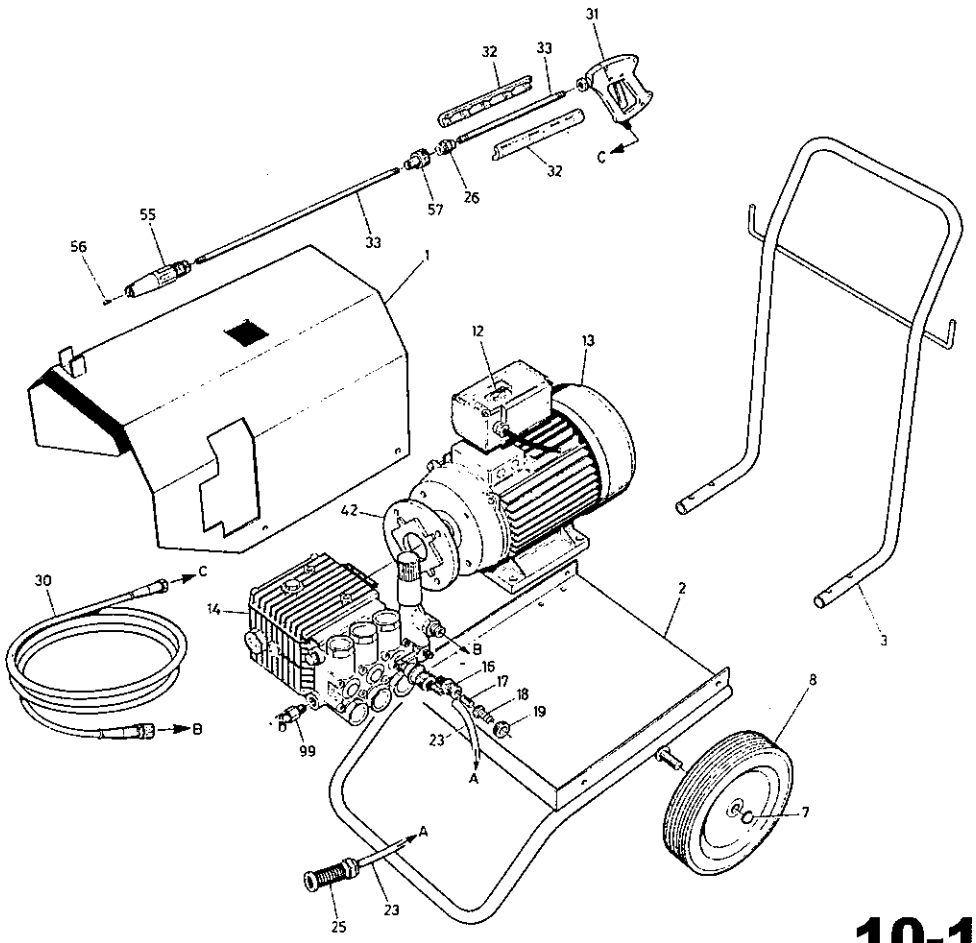
M Motor
P Pump
V Bypass valve
D Detergent tap
G Handpiece trigger
U Nozzle
F Filter
S2 Detergent tank
Aq Water inlet

Cold Water Units Without Break Tank.



M Motor
P Pump
V Bypass valve
D Detergent tap
G Handpiece trigger
U Nozzle
F Filter
S1 Break tank
S2 Detergent tank
Aq Water inlet
N Non return valve

Cold Water Units Fitted With Break Tank.


31
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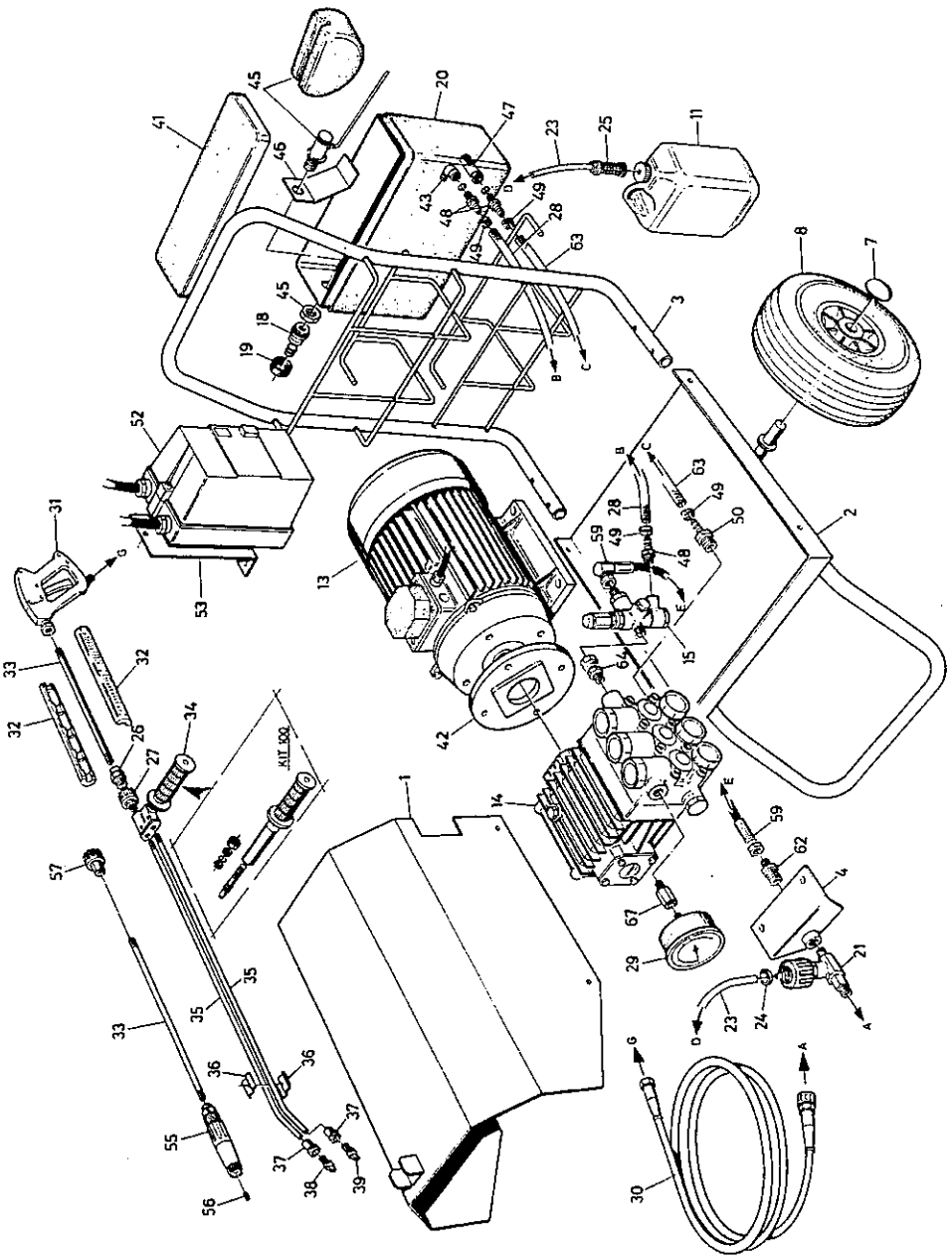
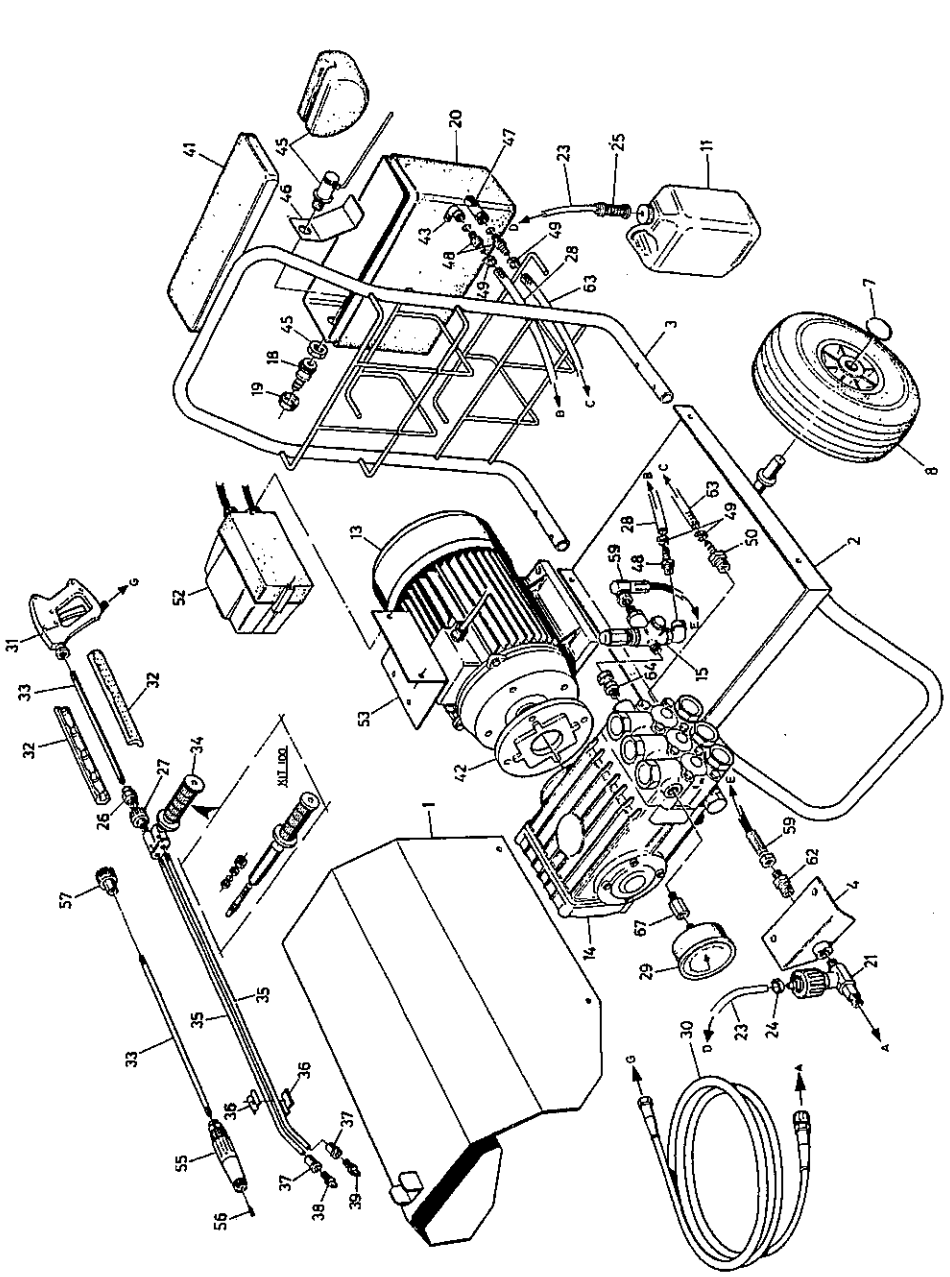
10-120C

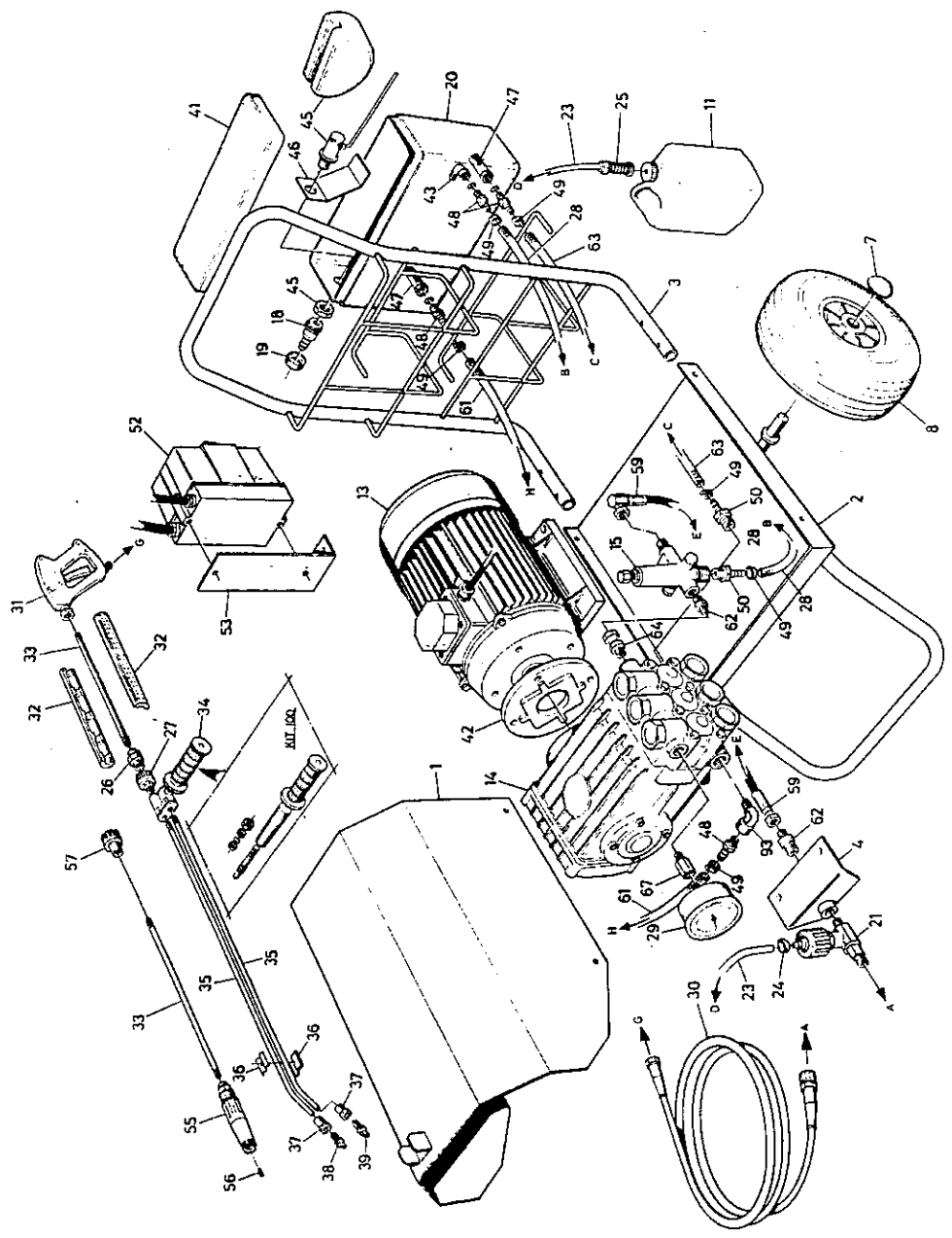
HP110/131/151





HP161/201

HP201S



COLD WATER 1450-2800RPM

NO	DESCRIPTION	Q	10/120C	Q	HP110		HP131		HP151		HP161		HP201		HP201S
			SLD10		SCW70		SCW68		SCW69		SCW52		SCW53		SCW54
1	BODY COVER	1	48081	1	48085	1	48085	1	48085	1	48087	1	48087	1	48088
2	FRAME BASE	1	48018	1	48021	1	48021	1	48021	1	48021	1	48021	1	48022
3	HANDLE	1	48108	1	48110	1	48110	1	48110	1	48110	1	48110	1	48110
4	BRACKET	=	=	1	48547	1	48547	1	48547	1	48549	1	48549	1	48549
6	HUB CAP BLOK	2	33265/C	2	33265/C	2	33265/C	2	33265/C	2	33265/C	2	33265/C	2	33265/C
7	HUB CAP COVER	2	33265/B	2	33265/B	2	33265/B	2	33265/B	2	33265/B	2	33265/B	2	33265/B
8	WHEEL	2	48132	2	33265	2	33265	2	33265	2	33265	2	33265	2	33265
11	DETERGENT BOTTLE	=	=	1	47002	1	47002	1	47002	1	47002	1	47002	1	47002
12	FRONT PART S/LANCE W/MULT.	1	SWA12	1	SWA12	1	SWA12	1	SWA12	1	SWA12	1	SWA12	1	SWA12
13	MOTOR	1	48314	1	48316	1	48316	1	48309	1	48310	1	48310	1	48311
14	PUMP	1	IPP74	1	IPP83	1	IPP81	1	IPP85	1	IPP39	1	IPP43	1	IPP44
15	BY PASS	=	=	1	48236/A	1	48236/A	1	48236/A	1	48236/A	1	48236/A	1	IPA027/B
16	BRASS REDUCER 3/4=1/2	1	47013	=	=	=	=	=	=	=	=	=	=	=	=
18	TAILPIECE A/NZ COMPLETE	1	70559	1	70559	1	70559		70559	1	70559	1	70559	1	70559
20	BREAK TANK	=	=	1	48033	1	48033	1	48033	1	48033/F	1	48033/C	1	48033/E
21	CHEMICAL INJECTOR	=	=	1	48235	1	48235	1	48235	1	48259	1	48235	1	48259
23	DETERGENT HOSE	1	44539/C	1	44539/A	1	44539/A	1	44539/A	1	44539/A	1	44539/A	1	44539/B
24	HOSE CLAMP	=	=	1	46240	1	46240	1	46240	1	46240	1	46240	1	46240
25	DETERGENT FILTER	1	46241	1	46241	1	46241	1	46241	1	46241	1	46241	1	46241
26	BACK PART LANCE W/GUN	1	SWA05	1	SWA05	1	SWA05	1	SWA05	1	SWA05	1	SWA05	1	SWA05
28	BY PASS HOSE 1/2	=	=	1	48792	1	48792	1	48792	1	48792	1	48792	1	48796
29	PRESSURE GAUGE	1	47104	1	47105	1	47105	1	47105	1	47105	1	47105	1	47105
30	HIGH PRESSURE HOSE	1	48749	1	44331	1	44331	1	44331	1	46605	1	46605	1	46605
42	FLANGE	1	48243	1	48247	1	48247	1	48247	1	48250	1	48250	1	48248
43	NUT	=	=	1	70558	1	70558	1	70558	=	=	=	=	1	70558
43	ELBOW 3/8F-3/8M	=	=	=	=	=	=	=	=	1	48774	1	48774	=	=
45	CISTERN COCK VALVE	=	=	1	48531	1	48531	1	48531	1	48531	1	48531	1	48531
46	SPLASH PROTECTION	=	=	1	48875	1	48875	1	48875	1	48875	1	48875	1	48875
47	WATER FILTER	1	I92892500	1	48767	1	48767	1	48784	2	48784	1	48784	2	48784
48	TAILPIECE 3/8	=	=	3	48775	3	48775	3	48775	5	48775	3	48775	5	48775
49	HOSE CLAMP	=	=	4	70597/C	4	70597/C	4	70597/C	6	70597/C	4	70597/C	6	70597/C
50	TAILPIECE 1/2	=	=	1	47036	1	47036	1	47036	1	47036	1	47036	2	47036
52	SWITCH	1	48934	1	48957/A	1	48957/A	1	48955	1	48957	1	48957	1	48959
53	SWITCH SUPPORT	=	=	1	48979	1	48979	1	48979	1	48980	1	48980	1	48979
56	NOZZLE FOR MULTIREG	1	I98663200	1	I98667400	1	I98661000	1	I98667400	1	I98678000	1	I98669000	1	I98682000
59	HIGH PRESSURE HOSE	=	=	1	48707/A	1	48707/A	1	48707/A	1	48707/B	1	48707/B	1	48708
61	SUCTION HOSE	=	=	=	=	=	=	=	=	1	48796	=	=	1	48797/A
62	NIPPLE M/M 3/8-3/8S	=	=	1	48752	1	48752	1	48752	1	48752	1	48752	1	48752
63	SUCTION HOSE 1/2	=	=	1	48793	1	48793	1	48793	1	48793	1	48793	1	48797
64	SWIWEL M/F 3/8	=	=	1	47026	1	47026	1	47026	1	47026	1	47026	1	47026
67	REDUCER M/F 3/8-1/4	1	48766	1	48766	1	48766	1	48766	1	48766	1	48766	1	48766
93	ELBOW 1/2-3/8	=	=	=	=	=	=	=	=	1	48772		=	1	48772
99	THERMAL VALVE	1	47400	=	=	=	=	=	=	=	=		=	=	=
137	WASHER ALLOY 3/4	=	=	1	70200/Z	1	70200/Z	1	70200/Z	1	70200/Z	1	70200/Z	1	70200/Z