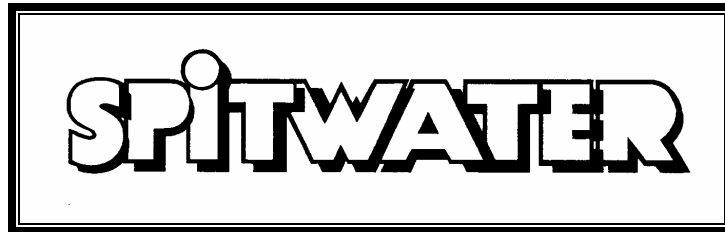
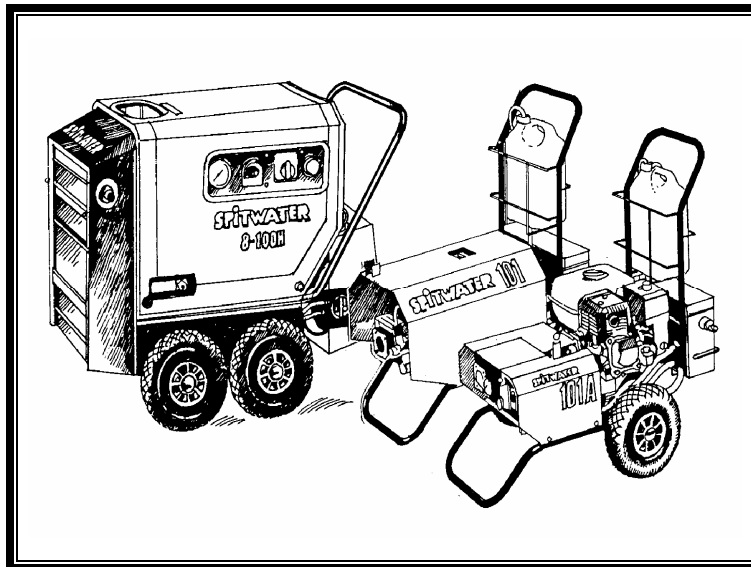


OPERATING AND MAINTENANCE MANUAL

HOT & COLD WATER ELECTRIC MODELS
SINGLE PHASE 50HZ



HEATING CYLINDER



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. **Therefore please read and follow these operating instructions carefully.**

TECHNICAL DATA

Model			HEATING CYLINDER
Flow Rate	MIN-MAX	L/M	12 - 18
Pressure	Working Max	Bar-Psi	200-3000
Max Outlet	Temperature	°C	90
Burner Motor	Power	W	150
	Voltage	V	220-230-240
	Absorption	A	1.2
	Phases		1
Burner	Nozzle Size	GPH	1.75
	Consumption	KG/H	6
Diesel Tank	Capacity	l	34
Hose Length	$\frac{3}{8}$ J	M	2
Dimension	L x W x H	mm	1040x640x800
Weight		kg	132
<small>The Manufacturer reserves the right to modify designs features and technical data without notice</small>			

INTRODUCTION

The SPITWATER heating cylinder has 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 Heating cylinder 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 heating cylinder.

IMPORTANT SAFETY INSTRUCTIONS AND PRECAUTIONS

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

WARNING: When using this unit:

1. **Read all instructions before using this heating cylinder.**
2. **Know how to start and stop the unit and bleed pressure quickly. Be quite familiar with the controls.**
3. **Follow the maintenance and faultfinding procedures outlined in this manual.**
4. **Keep operating area clear of all persons.**
5. **To minimise the risk of 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 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. **Read carefully the instructions concerning 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. **When using extension cords, it is essential to follow the instructions given in this manual under "EXTENSION CORDS". Wrong choice of wire dimensions can damage and impair the operation of the unit.**
14. **Keep the unit in a dry building where there is no danger of freezing.**
15. **Do not exceed the maximum temperature and pressure indicated in the technical data.**
16. **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.**
17. **Do not pull on high-pressure hose in order to move the unit.**
18. **Use only high-pressure hoses supplied by Spitwater Australia. In the case of defects, never try to bind up defective hoses, replace them.**
19. **Do not work in the rain or during thunderstorms.**
20. **When the unit is working, do not cover and do not place in a closed space where ventilation is insufficient.**
21. **To prevent injuries always disconnect power plug before disconnecting any part of the unit or effecting any servicing and before leaving the machine.**
22. **All servicing and maintenance procedures should be carried out by an authorised service person using spare parts supplied by Spitwater Australia.**
23. **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

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

ELECTRICITY SUPPLY AND EARTHING INSTRUCTIONS

The SPITWATER heating cylinder 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.

EXTENSION CORDS

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 3 core 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 Heating Cylinder and the exploded views contained in this manual. (ALL NUMBERED REFERENCES APPLY TO EXPLODED VIEW OF UNIT)
2. (If necessary) Fit wheels (19) and lock them using hub cap (17-18) provided in the accessories bag.
3. Position the unit on a level surface near a suitable power supply (see serial no./ data plate)
4. **Make sure that the heating cylinder is to be used with a high pressure cleaner that is within the maximum pressure and volume requirements as listed in the technical data.**
5. Connect the high pressure hose supplied with the unit to the outlet of the high pressure cleaner and the inlet of the heating cylinder(57).
6. Connect the high-pressure hose, gun and lance assembly of the high pressure cleaner to the heating cylinder outlet (9).
7. Connect the heating cylinder to the electrical supply making sure that both voltage and current supply are suitable for the unit 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.
8. Remove the diesel tank cap (27) and fill the diesel tank (23) with clean filtered diesel. Only use diesel in this unit, as using any other fuel will create a risk of explosion.

OPERATING INSTRUCTIONS

TO START AND USE

- 1) Turn Power Supply On at power point if necessary.
- 2) After starting the high pressure cleaner the heating cylinder is started by turning the Switch (36) to the on position, this will power the burner motor and transformer..
- 3) Set the temperature required by moving the Thermostat Knob (8) to the desired position (max 90 degrees C). **The burner must only ignite when there is water flow through the unit.** (Burner ignition is controlled by a Flow Switch (41), which will cut off when there is no water flowing through the unit, and by the Thermostat, which will cut off when the water reaches the set temperature).

TO STOP

1. Stop the burner by turning the Switch (36) to the Off Position.
2. Run the unit for approximately 5-10 minutes with water flowing through the unit until the water has cooled..
3. Stop the pressure cleaner connected to the unit and release any pressure that might still be in the system by pulling the trigger on.

WARNING: Do not stop the unit until operation (2) and (3) have been completed as this could cause scale formation in the Coil or lead to premature coil failure due to heat stress.

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) 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.
- 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., **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) Filters (Every 100 hours)
 - a) Check, clean and drain diesel filter (51). Replace every 1000 hours
- 5) 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 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 will result in great damage occurring to the unit.

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	
Power cable/water connections/ hp hose/performance	Each use	Check clean & replace if necessary flow switch piston and spring	Each 200 hours
Water lines	Each use	Check clean & replace if necessary the high pressure filter and non return valve	Each 200 hours
Performance	Each Use	Clean Diesel pump	Each 300 hours
Filters	Each 100 hours	Replace diesel nozzle	Each 500 hours
Others checks	See Above	Clean Diesel tank	Each 300 hours
		Check adjustment of electrodes	Each 300 hours
		Replace electrodes	Each 500 hours
		Replace diesel nozzle	Each 500 hours
		Descaling of coil	Each 1500 hours
		Check combustion and settings Check Hydraulic line control & safety mechanisms(safety valve , limit thermostat , thermostat etc)	Once a Year or every 500 hours whichever comes first

NOTE:

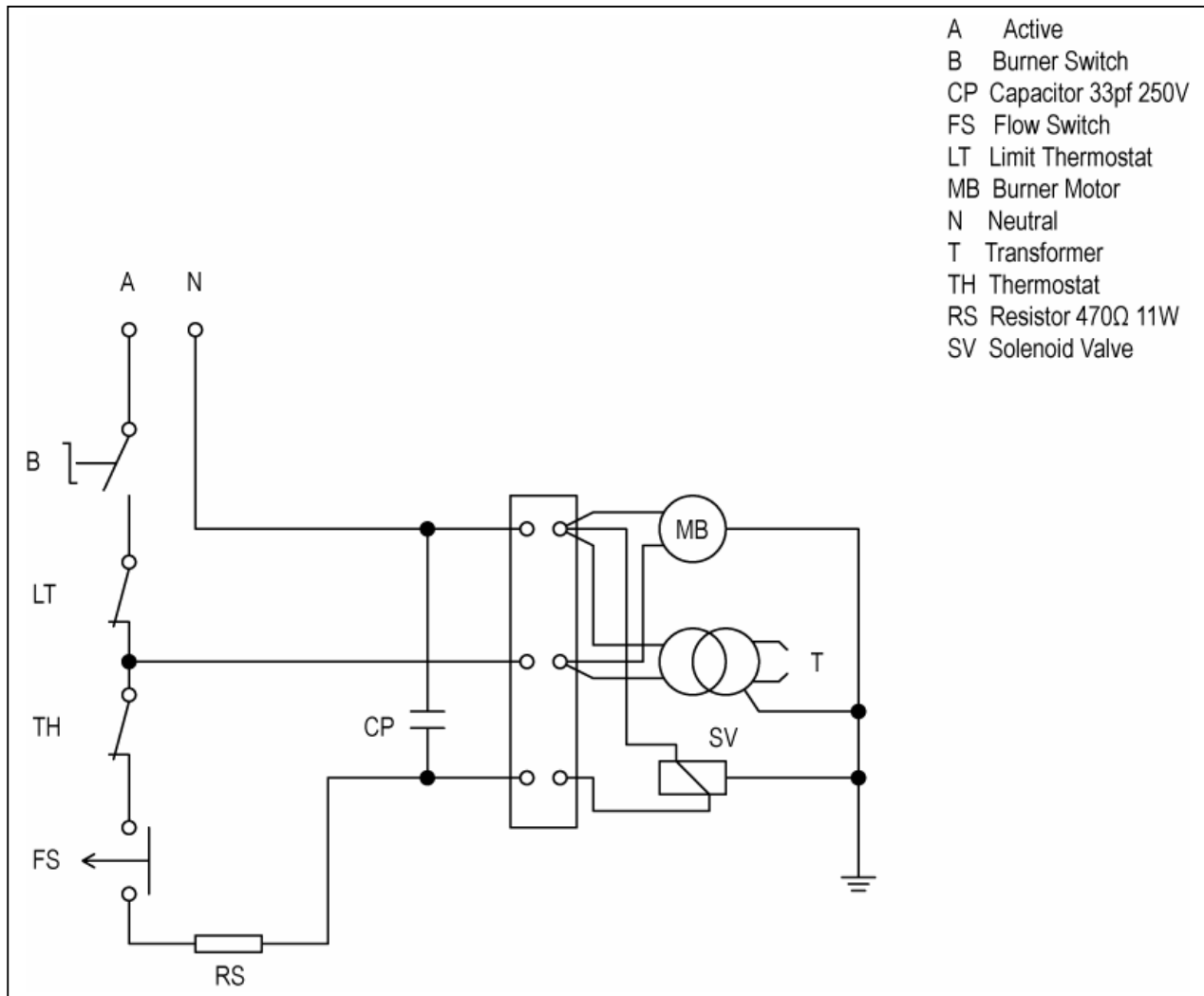
- 1) The time indication for checks and replacement listed above are for units subject to normal operating conditions. Should the unit be subject to abnormal conditions (ie. heavy duty use, dirty water or fuel, extreme temperatures or climatic conditions etc.) the times should be reduced accordingly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

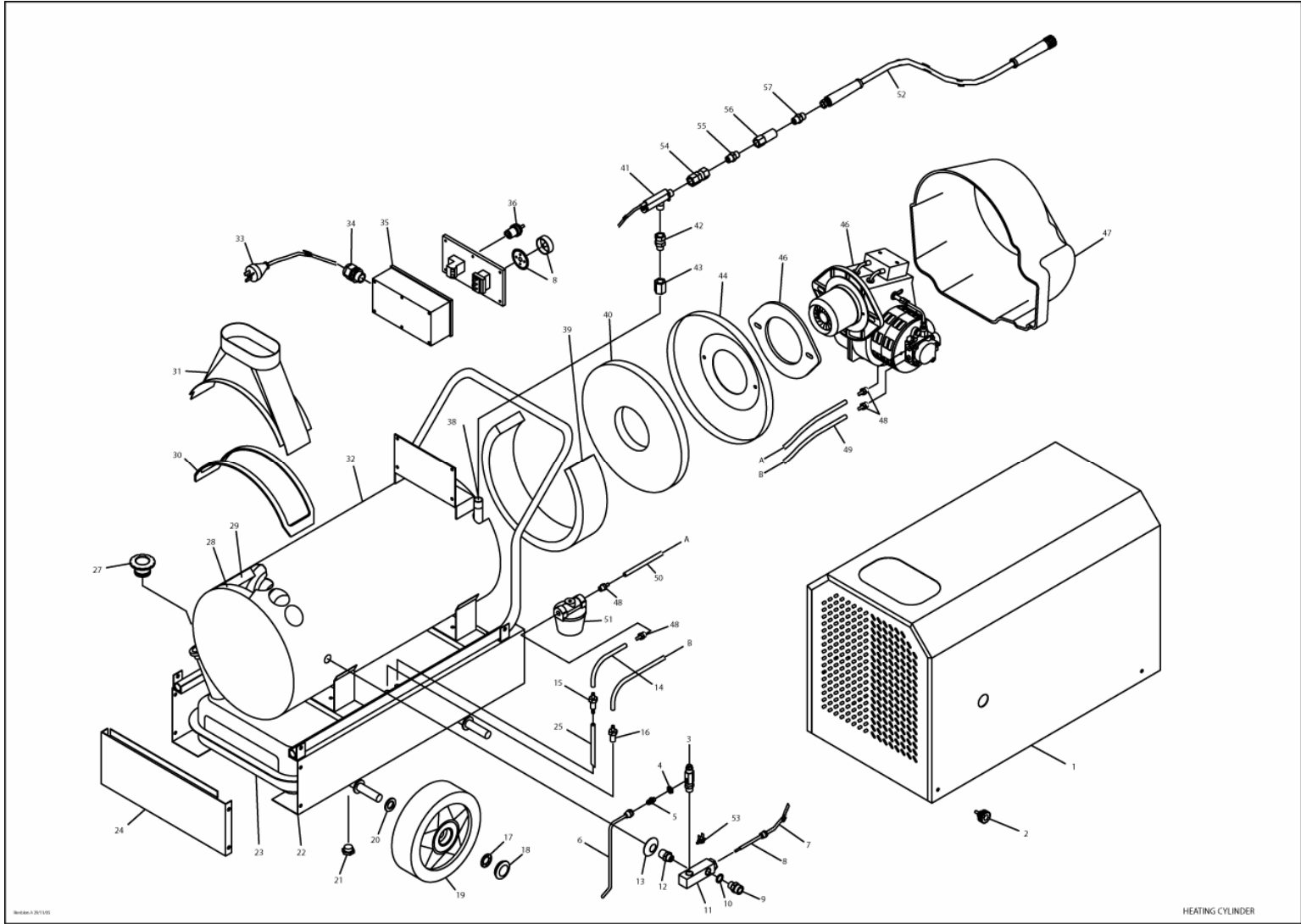
TROUBLESHOOTING

FAULT	CAUSE	REMEDY
The motor does not start when switch is activated	Plug is not connected If fitted: Low water/diesel 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
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 there is no water flow		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

Electrical Diagram





Parts Listing

No	Description	Reference
1	HEATING CYLINDER COVER	1 48996
2	FASTENING KNOB	4 46236
3	SAFETY VALVE MG 1000 3/8GM - 1/4GM	1 46213
4	NUT 1/8	1 100155
5	NIPPLE 7/16 X 24 - 1/8	1 33089
6	PIPE ASSEMBLY SAFETY VALVE	1 48843
7	SLEEVE	1 48835
8	MECHANICAL THERMOSTAT	1 47210/A
9	NIPPLE 3/8 - 22 X1.5 M/M	1 48759
10	WASHER	1 I96738000
11	SUMP MECHANICAL THERMOSTAT	1 47211/A
12	NIPPLE 1/2 - 3/8	1 47134
13	WASHER mm.50 S/S	1 44890
14	SUCTION HOSE	1 48838
15	HOSE TAIL M12x1/4"-L 60	1 47039/D
16	HOSE TAIL M12x1/4"-L45	1 47039/C
17	HUB CAP BLOCK 20 mm.20	4 33265/C
18	HUB CAP COVER G48 BLACK	4 33265/B
19	WHEEL AC 250 mm.250 BORE mm.20	4 33265
20	STANDARD FLAT WASHER 20.5x35x3	4 70200/P
21	DRAIN PLUG	1 100157
22	CHASSIS HEATING CYLINDER	1 48844
23	TANK HEATING CYLINDER	1 48845
24	HEATING CYLINDER FRONT PANEL	1 48998
25	SUCTION TUBE	1 48836
27	FILLER'S CAP	1 PA29019784
28	CERAMIC FIBRE DISC W/OUT HOLE	1 44901/A
29	CERAMIC FIBRE 760x152.5x25	1 44901/D
30	STACK SEAL MPSA1	1 47111
31	STACK HEATING CYLINDER	1 44910/C
32	CYLINDER HEATING CYLINDER	1 48506
33	CABLE PVC 3x1-Mt.5 LONG-PLUG 10 AMP	1 70510
34	NYLON CABLE GLAND BLACK mm.25	1 48417/I
35	SWITCH ENCLOSURE	1 48896
36	BURNER SWITCH	1 44916
38	COIL HEATING CYLINDER	1 47110/C
39	CERAMIC FIBER/BURNER CYLINDER	1 44899/B
40	CERAMIC FIBRE DISC HOT WATER	1 44901
41	FL3-2 FLOW SWITCH 250BAR 30L/M 80C	1 PA28054000
42	SWIVEL M/F 3/8	1 47026
43	REDUCING BUSH 1/2-3/8 BSP	1 48837
44	BURNER SUPPORT	1 44091
46	BURNER WITH NOZZLE 1.75	1 44902/03
47	BURNER PROTECTION COVER SW	1 48071
48	1/4 BSP-mm.6 BARB BRASS	4 47039
49	HOSE DIESEL RETURN	1 44846
50	HOSE FILTER/PUMP	1 44847
51	DIESEL FILTER	1 48701
52	MT.2 HIGH P/ HOSE R2-WITH Q/C BRIDG	1 46605/B
53	LIMIT THERMOSTAT	1 33041
54	HP NON RETURN VALVE 310BAR 3/8 FF	1 46216
55	NIPPLE 3/8 - 3/8 CONIC	1 48752/A
56	INLINE FILTER HEATING CYLINDER	1 46218
57	NIPPLE M/M 3/8 - 3/8 -60 DEG SEAT	1 48752