



Clemas & Co Ltd

Industrial Cleaning Equipment
Sales - Hire - Service

DEMON TEMPEST PRESSURE WASHERS OPERATOR MANUAL



Clemas & Co. Unit 5 Ashchurch Business Centre, Alexandra Way, Tewkesbury,
Gloucestershire, GL20 8NB.

Tel: 01684 850777

Fax: 01684 850707

Email: info@clemas.co.uk

Web: www.clemas.co.uk

Technical Specifications

Tempest 1



Pump

Pump pressure	100 bar
Flow rate	111pm
Max by-pass setting	110 bar
Min pressure setting	50 bar
H.P nozzle	15045
Motor power	2.2KW
Pump oil	10W40
Unloader valve	MM4B

XT11.14

Boiler

1500psi	Fuel type	Kerosene/gas oil/derv
2.45gpm	Pressure	7 bar 100psi
1650psi	Nozzle	1.5 US galls
750psi	Nozzle make	Monarch 60°R or AR
		Danfoss 60° S
	Electrode gap	6mm ± 1mm
	Ignition Transformer	70 Watts
	Fuel pump	50 Watts
	Fan motor	75 Watts
	Fuses	1 amp semi delay 20mm glass

Tempest 2



Pump

Pump pressure	120 bar
Flow rate	111pm
Max by-pass setting	130 bar
Min pressure setting	50 bar
H.P nozzle	1504
Motor power	2.2KW
Pump oil	10W40
Unloader valve	MM4B

XT11.14

Boiler

1750psi	Fuel type	Kerosene/gas oil/derv
2.45gpm	Pressure	7 bar 100psi
1900psi	Nozzle	1.5 US galls
750psi	Nozzle make	Monarch 60°R or AR
		Danfoss 60° S
	Electrode gap	6mm ± 1mm
	Ignition Transformer	70 Watts
	Fuel pump	50 Watts
	Fan motor	75 Watts
	Fuses	1 amp semi delay 20mm glass

Tempest 3



Pump

Pump pressure	110 bar
Flow rate	91pm
Max by-pass setting	120 bar
Min pressure setting	50 bar
H.P nozzle	1504
Motor power	1.8KW
Pump oil	10W40
Unloader valve	MM4B

RK9.14

Boiler

1600psi	Fuel type	Kerosene/gas oil/derv
2.45gpm	Pressure	7 bar 100psi
1750psi	Nozzle	1.5 US galls
750psi	Nozzle make	Monarch 60°R or AR
		Danfoss 60° S
	Electrode gap	6mm ± 1mm
	Ignition Transformer	70 Watts
	Fuel pump	50 Watts
	Fan motor	75 Watts
	Fuses	3 amp semi delay 20mm glass

Tempest 4



Pump

Pump pressure	170 bar
Flow rate	131pm
Max by-pass setting	170 bar
Min pressure setting	50 bar

H.P nozzle	15045
Motor power	4.0KW
Pump oil	10W40
Unloader valve	GM3B

RK13.17

2500psi
2.8gpm
2500psi
750psi

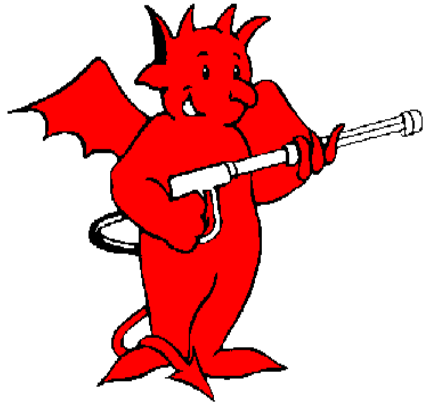
Boiler

Fuel type	Kerosene/gas oil/derv
Pressure	7 bar 100psi
Nozzle	1.5 US galls
Nozzle make	Monarch 60°R or AR Danfoss 60° S
Electrode gap	6mm ± 1mm
Ignition Transformer	70 Watts
Fuel pump	50 Watts
Fan motor	75 Watts
Fuses	1 amp semi delay 20mm glass

FAULT FINDER

FALUT	CAUSE	REMEDY
Machine stops suddenly or will not start.	Blown fuse.	Check mains power power, overload 13 amp fuse and 1 or 3 amp control fuses
Sudden pressure loss.	No water. No chemical. Burst Disk failure.	Check water supply. Check chemical drum, close valve. Replace disk.
Low pressure.	H.P nozzle worn or unloader set incorrectly.	Replace H.P nozzle. Reset unloader valve.
Low pressure with noise and vibration	Valves worn or blocked. Piston seals worn. Pump sucking air.	Clean/replace as required. Replace. Check water supply pipe and unions.
Pump will not by-pass.	Non return valve dirty or jammed.	Clean or replace.
Water drips from pump box.	Pump seals worn.	Replace.
Oil drips from pump bottom.	Oil seal worn.	Replace.
Burner will not ignite.	Fuel tank empty. Fuel filter blocked. Fuel nozzle blocked. Electrodes dirty or out of adjustment. Flow switch out of adjustment.	Refil. Replace. clean or replace. clean, replace or adjust. Adjust.
Oil is milky in colour.	Water igress through oil filter plug.	Replace oil.

IF IN DOUBT ASK - OUR ADVICE IS FREE AND CAN SAVE YOU MONEY



MINIMUM SERVICE SCHEDULES

DAILY CHECK THE FOLLOWING

- a. Oil level - top up as required.
- b. Fuel tank - top up as required.
- c. All hose unions for leaks- replace O rings if leaking.
- d. Hose condition - cuts etc.
- e. Electrical led and plug - damaged etc.

EVERY 500 HOURS OR SIX MONTHS (WHICHEVER COMES FIRST)

- a. Drain and replace pump oil.
- b. Drain and refill fuel tank.
- c. Clean and reset electrodes.
- d. Replace fuel filter.
- e. Clean water filter.
- f. Replace high pressure nozzle.
- g. Replace fuel nozzle.
- h. Descale water system. (hard water areas only)

EVERY 1000 HOURS OR 12 MONTHS (WHICHEVER COMES FIRST)

- a. Complete 500 hour service.
- b. Replace pump seals.
- c. Replace oil seals.
- d. Check float level.
- e. Replace chemical pipes.
- f. Check unloading pressure and safety valve pressure and adjust.
- g. Replace fuel nozzle and set fuel pressure.
- h. Check flow switch and adjust if necessary.
- i. Check electrical connections for tightness.

The above service schedules are intended as a guide only. Actual service times and replacement parts required will vary according to the area and usage of the machine.

PREPARATION

- a. Connect hose to water inlet connector and turn on.
- b. Connect high pressure hose to connector.
- c. Connect lance to hose.
- d. Connect plug to suitable RCD protected supply and turn on.
- e. Top up fuel levels and check oil levels in pump and engine.
- f. If chemical is to be used place filter in drum of chemical and open valve. If not make sure valve is closed.

OPERATION TO START MACHINE

- a. Push blue switch once to start the engine.
- b. Pull trigger until operating pressure is reached.
- c. Push red switch once, burner will then operate.
- d. Burner will then ignite once trigger is pulled.

OPERATION TO STOP MACHINE

- a. Close the chemical valve if opened.
- b. Switch to cold by pressing red button once and run the machine until the water turns cold.
- c. Switch off by pressing blue button once.
- d. Pull trigger to release excess pressure and disconnect from machine.
- e. If the machine is to be stored, drain water system and top up the fuel and oil levels.

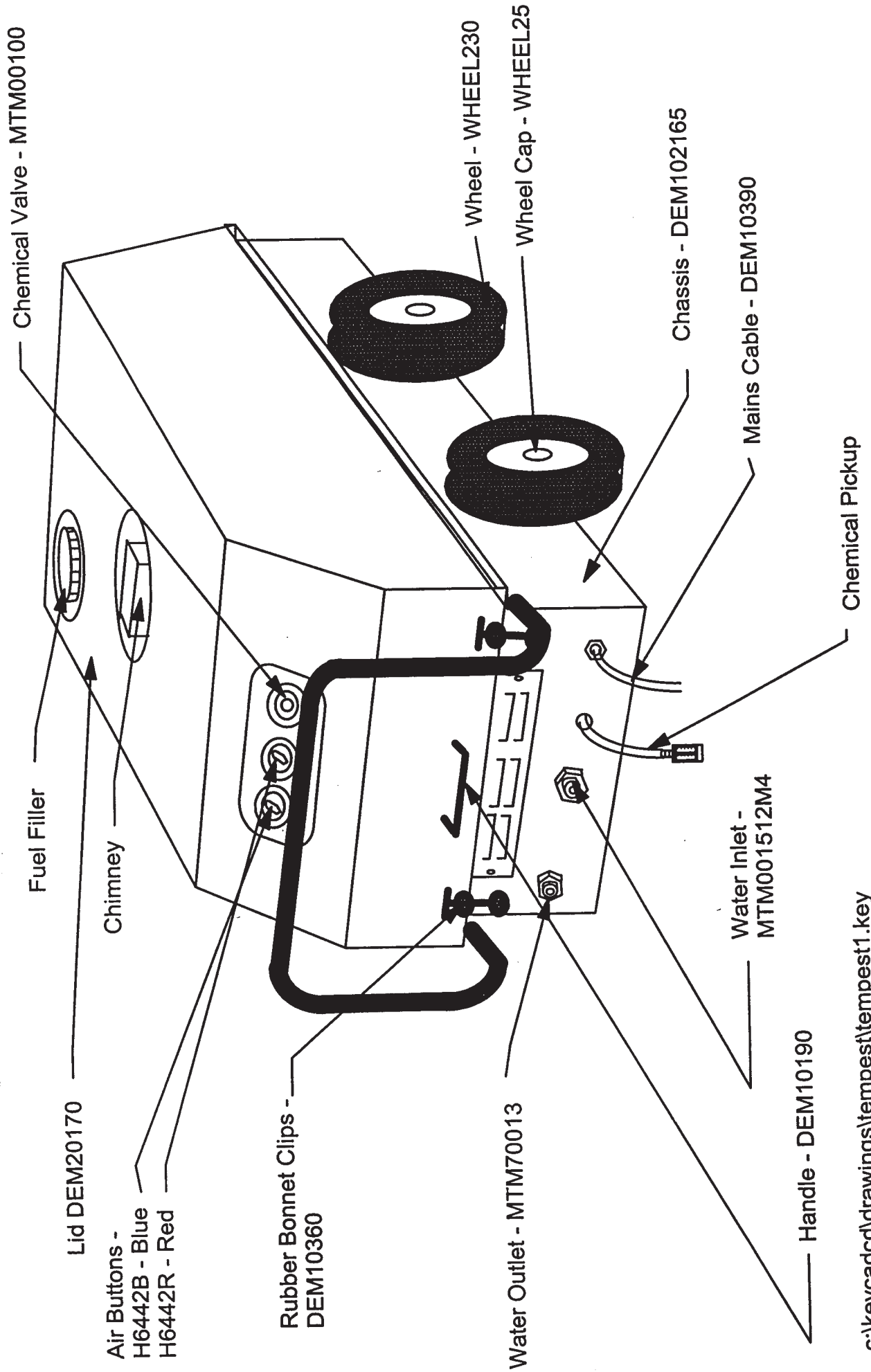
IF IN DOUBT ASK - OUR ADVICE IS FREE

SAFETY

- i. Under the terms of the **Health & Safety at Work Act** and for the operators protection a **Residual Current Device (R.C.D)** or Earth Leakage Trip **MUST** be used with this machine.
- ii **Water at high pressure is dangerous and can cause serious injury. This machine is to be used with great caution.**
 - a. **NEVER** point the high pressure spray jet at any person, animal, glass or any other material which may shatter.
 - b. **PREVENT** any over-spray from injuring other people or damaging property.
 - c. **DO NOT** even try to use a pressure washer on machinery or electrical equipment that is connected in any way to the mains supply. (all switches in the off position, pull out all plugs and if possible remove fuses). Cover or seal electric motors and fittings to prevent entry of water.
 - d. **ALWAYS** when using machine:-
 - wear safety goggles and helmet or helmet with a visor.
 - wear waterproof clothing and gloves.
 - take particular care with detergents and chemicals.
 - e. **NEVER** attempt to disconnect any hose with pressure in it or allow the hose to be flattened or kinked.
 - f. **DO NOT** use a high pressure hose from a ladder. Use a platform tower or proper scaffolding.
 - g. **CHECK** that your supply voltage agrees with that shown on the machine.
 - h. Extension leads are not recommended for use with this equipment. Fit extension hoses or contact the service department.
 - i. Where a cable is found to be damaged, the power must be switched off and the plug removed before attempting to remove the equipment.
 - j. **ALWAYS** disconnect the hoses when the machine is not in operation and protect the machine from frost and cold winds.
 - k. **ALWAYS** use the machine in a well ventilated area.

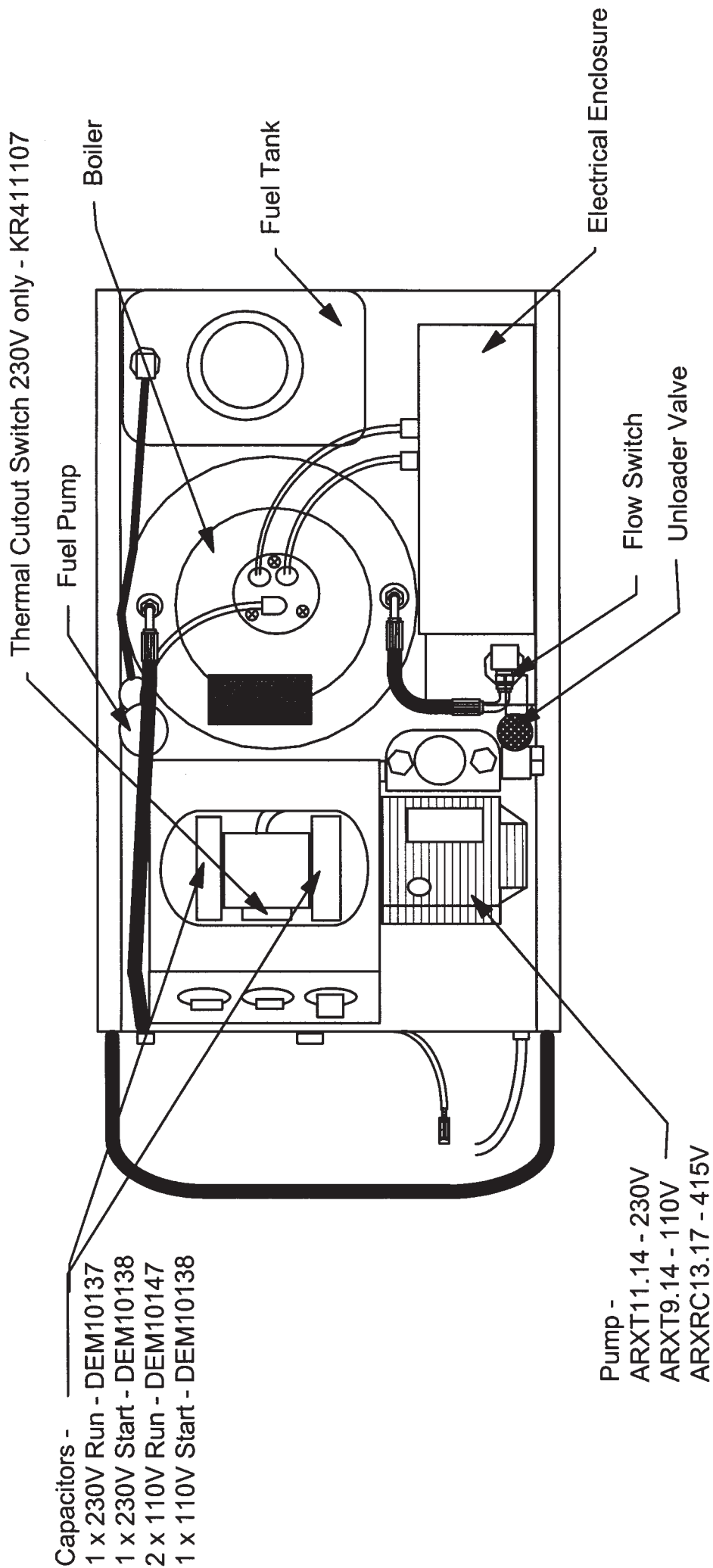
CAUTION - if using chemicals some brands will adversely affect the brass components fitted to this machine. If in doubt please telephone our technical department for advice.

Tempest Hot Water Range - General Arrangement



c:\keycadcd\drawings\tempest\tempest1.key

Demon Tempest Range Arrangement Drawing - Plan View



- Capacitors -
- 1 x 230V Run - DEM10137
 - 1 x 230V Start - DEM10138
 - 2 x 110V Run - DEM10147
 - 1 x 110V Start - DEM10138

WARRANTY

This warranty covers the cost of all replacement parts and labour charges incurred. It does not cover the cost of transport or carriage. It is the owners responsibility to return the machine to a service depot or pay the travelling expenses of a service engineer to attend. Demon International's decision in warranty matters is final and binding.

Demon International Ltd undertake to repair or replace, any component which may fail due to a manufacturing fault within a period of 12 months from the date of purchase, provided that any fault or damage was not sustained by;

- A. Lack of regular and proper maintainance, user negligence, misuse, or damage caused by ice and frost.
- B. The effects of contaminated fuel or water, the use of non-approved chemicals or an insufficient or unsuitable electrical supply.
- C. The effects of un-authorized modification and use.
- D. Compression damage to high pressure hose.(HOSES WARRANTED FOR 1 MONTH ONLY)
- E. Worn out items considered fair wear and tear.

Parts which may or may not wear out during the first year and which are considered service items which will need replacing from time to time: High pressure nozzle, lance, trigger, hoses, fuel nozzle, fuel filter, piston seals, valves, unloader seats and seals, water filter, non-return valve, chemical barbs, chemical pipes and pump oil seals.

It is the owners responsibility to ensure the Pressure Washer is kept in a safe and suitable environment and any faults reported by operatives to be rectified at the earliest possible date.

It is the operators responsibility to check the Pressure Washer for any faults and report them immediately. The Pressure Washer must be used in accordance with the manufacturers specifications and guidelines.

Demon International Ltd undertake to use the highest quality components available during manufacture, but cannot be held responsible for any undue consequence arising from the use of there Pressure Washer.

This warranty is given to the original purchaser only and is not tranferable without the fully authorised and written consent of Demon International Ltd.

Warranty Procedure

End Users

If your machine develops a problem:

1. Phone Demon for advice with the model and serial number to hand.
2. Describe fully the problem as best you can.
3. If the problem cannot be resolved over the phone then the machine can be booked in for repair and if the faults are covered by the warranty the repair will be carried out free of charge.
4. If you cannot bring the machine in for repair then we will despatch an engineer. If the fault is covered by the warranty then we will not charge for labour or spares used, however the transport charge will be payable whether or not the repair is warranty.

Hire Centres and Dealers

If your machine develops a problem:

1. Phone Demon for advice with the model and serial number to hand.
2. Describe fully the problem.
3. We will advise you on the best course of action, however if parts are required you must raise a purchase order number to cover the parts. When the parts are fitted they must be returned for examination before a credit note is issued.
4. If you are unable to repair the machine then we will despatch an engineer to carry out the repair. We will need a purchase order to cover the cost of transport to and from the site and for parts and labour if the repair is not covered under the warranty.
5. If required Demon will arrange for a carrier to collect a damaged machine, if the warranty claim is valid we will pay this cost, if not it will be charged to the customer.

Notes:

You will not invalidate the warranty by investigating faults and repairing them yourself providing you follow our advice. Hire Centres and Dealers are expected to carry out all repairs themselves with Demon crediting faulty parts upon receipt and inspection.

Spare parts fitted to machines are guaranteed for 1 month only or the remainder of the warranty period whichever is longer.

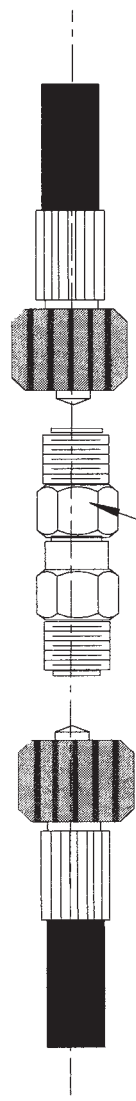
High Pressure Hoses



Tempest - all Models
Flow Switch to Boiler Inlet
HH00022 - 200mm Long

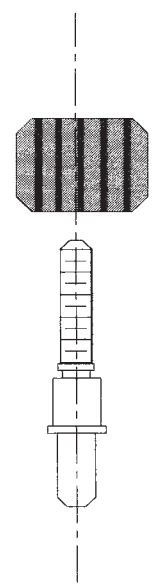


Tempest - all Models
Boiler Outlet to Burst Disc
HH00021 - 800mm Long



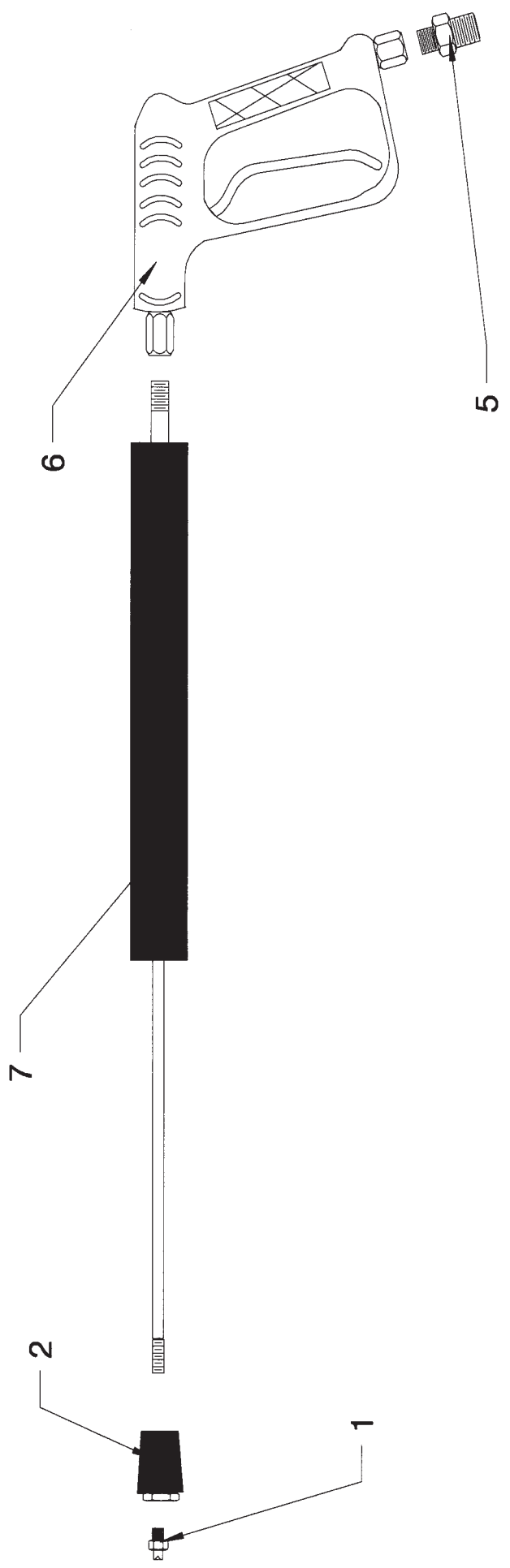
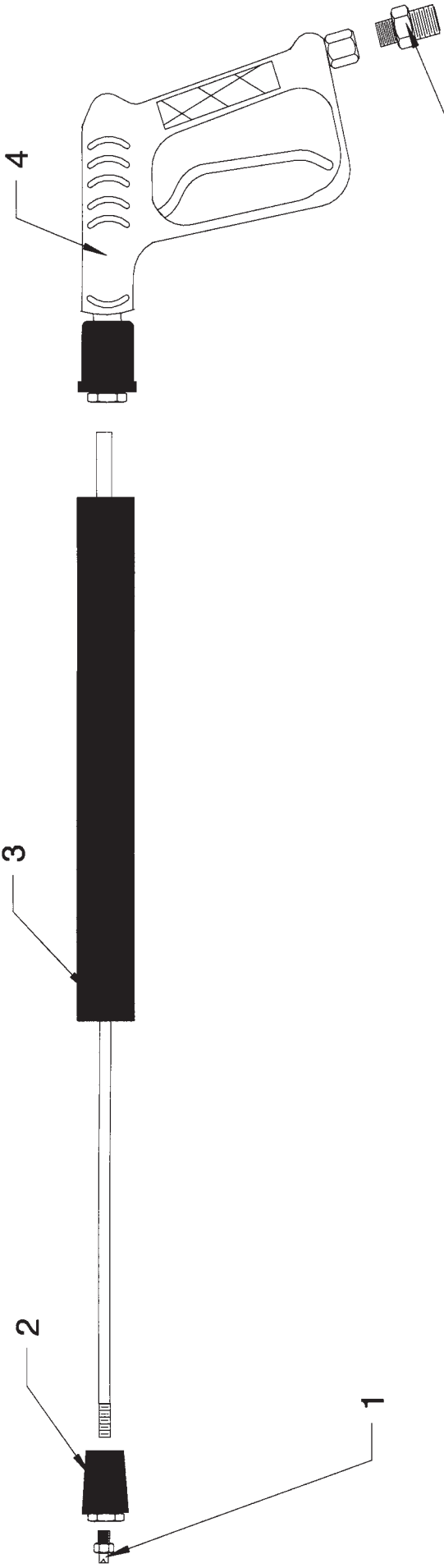
High Pressure Hoses
9 Metre HH00030MVG
15 Metre HH00050MVG
30 Metre HH00100MVG

Hose Joiner - MV00500

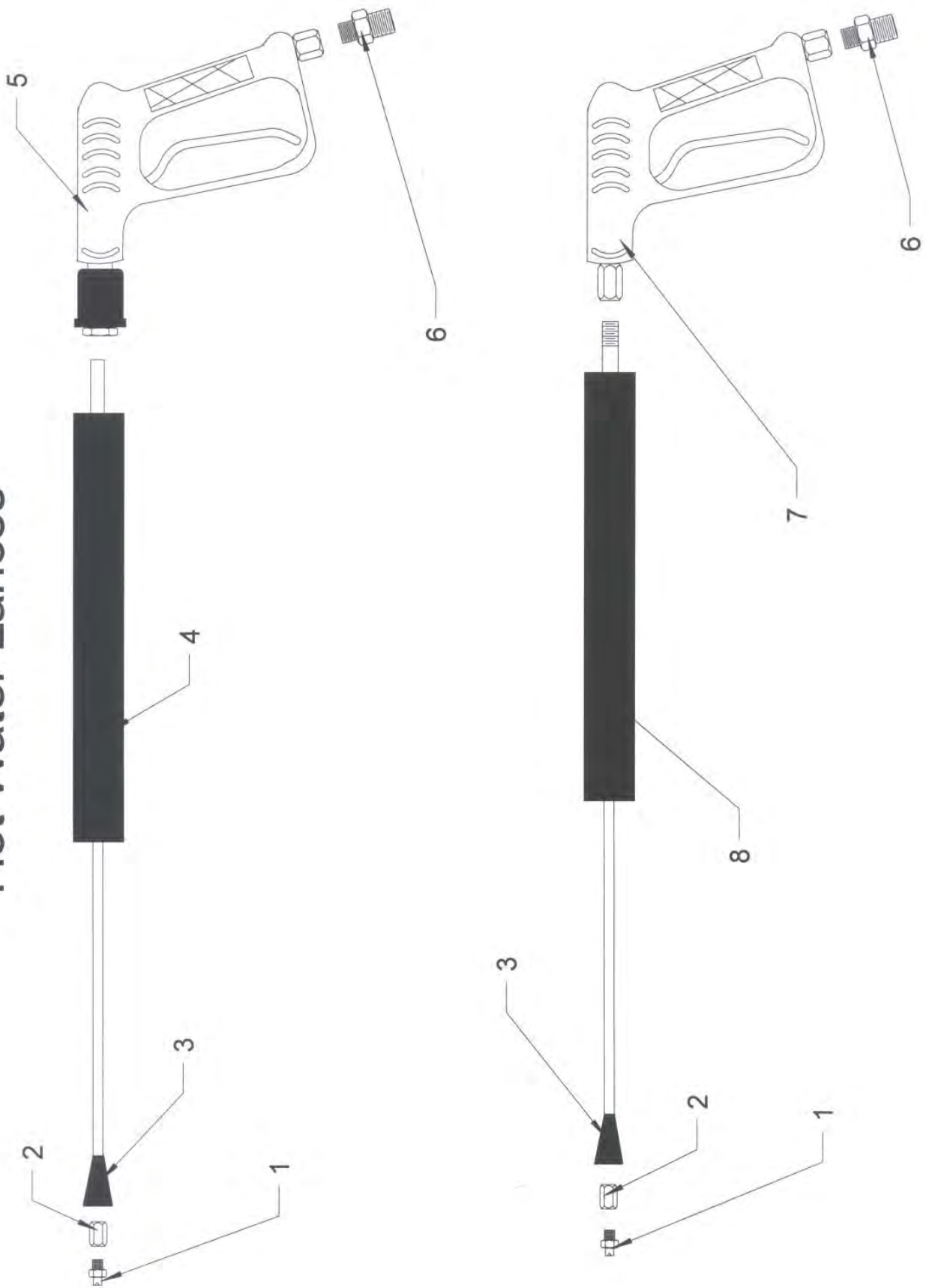


Hose Insert and Nut MV00490

Cold Water Lances



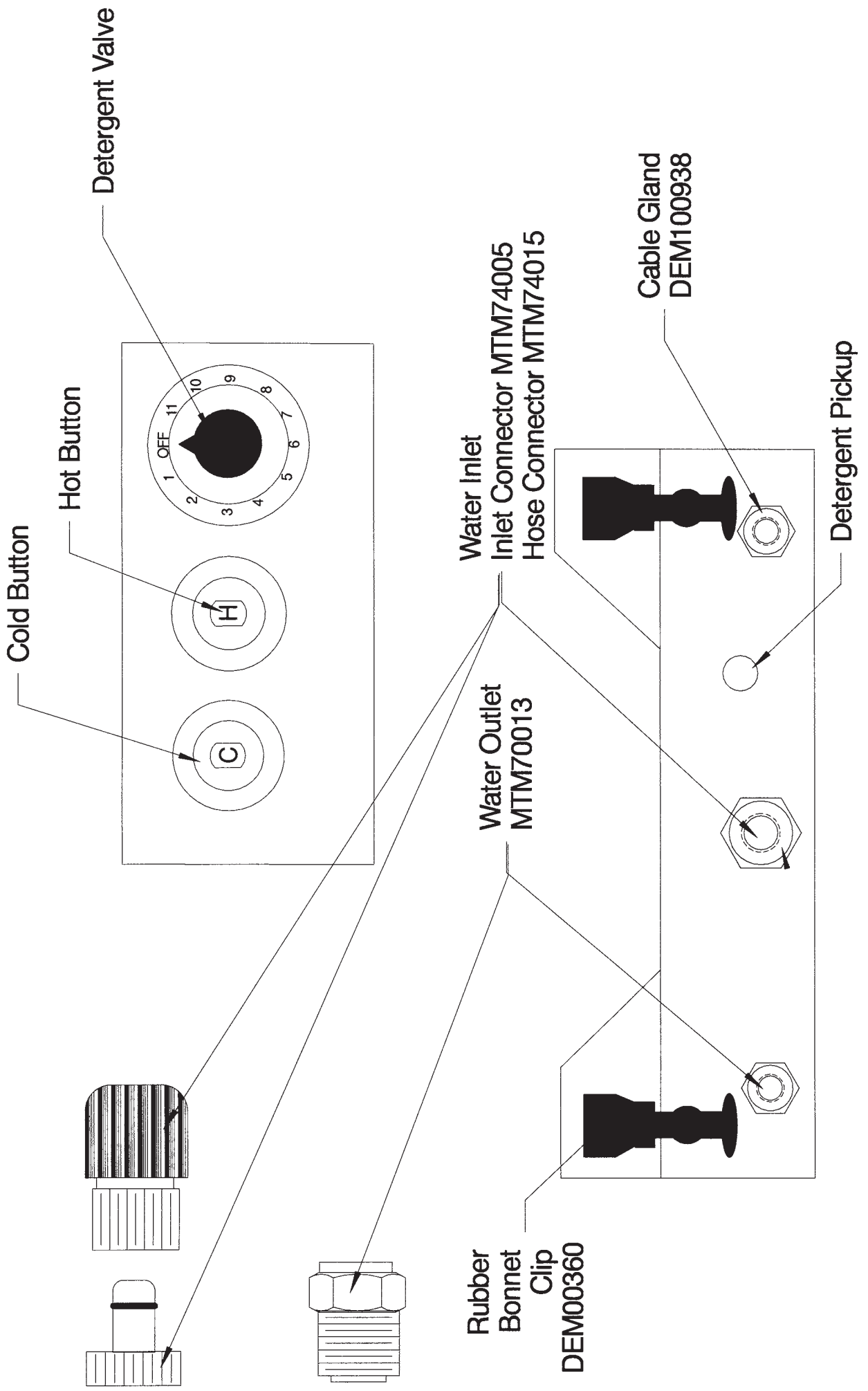
Hot Water Lances



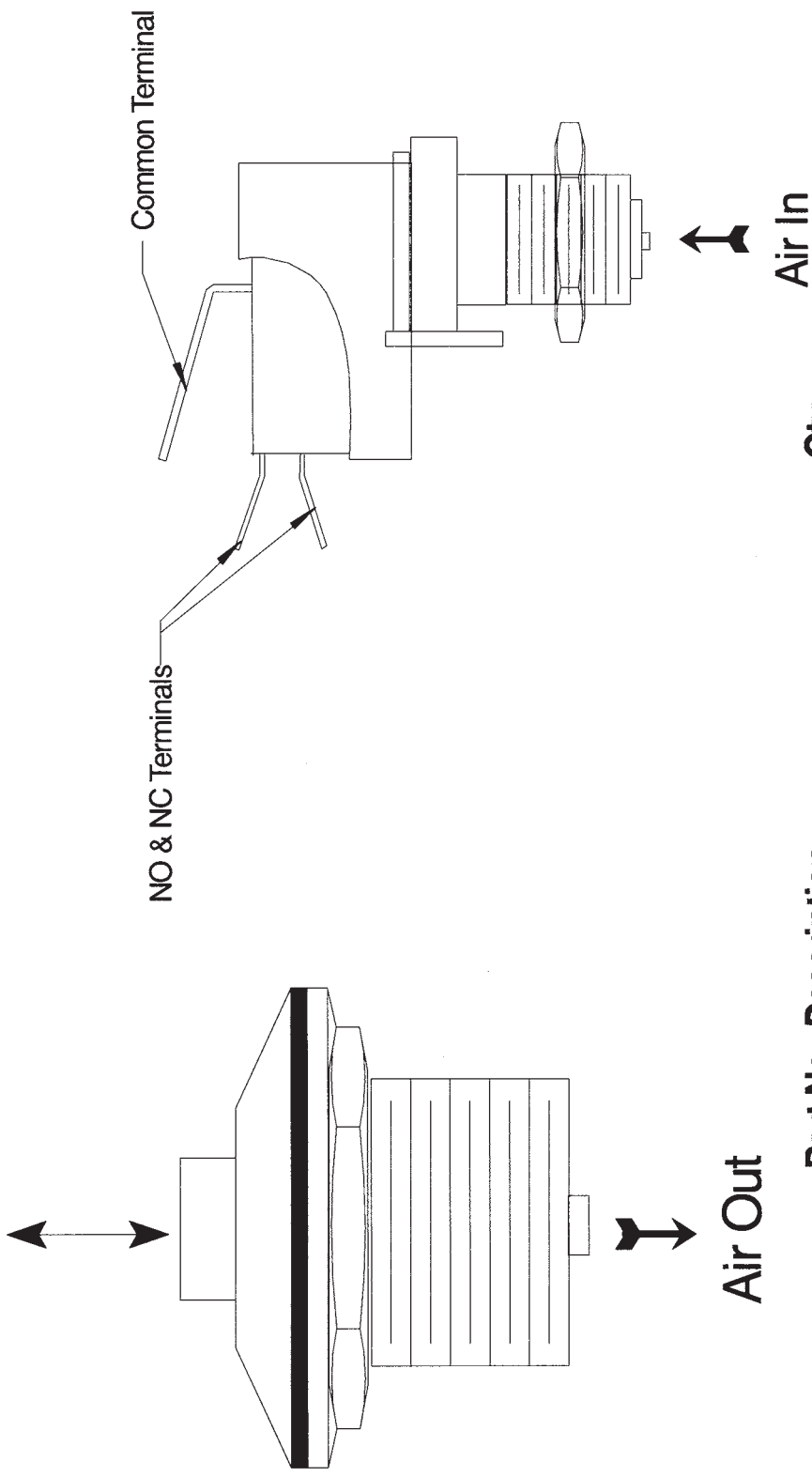
Lance Parts Tables - Complete Range

Hot Water Lances				
Pos.	Part No.	Description	Fitted to:	Qty
1	N26001/1504	Nozzle	Tempest 3 & 4 Typhoon 1	1
1	N26001/15045	Nozzle	Tempest 1 & 2	1
1	N26001/1505	Nozzle	Typhoon 2	1
2	DEM20340	Barrel Nut	All	1
3	MTM0001000	Rubber Cover	All	1
4	MTM500900	QR Lance 900mm	All	1
5	MTM23051	QR Trigger	All	1
6	MTM70012	MVG Coupling	All	1
7	MTM23001	Trigger	All	1
8	MTM590090	Lance 900mm	All	1
	DEM10032	QR Lance Complete	All - Standard Fitment	1
	DEM100333	Fixed Lance Complete	All - Non-Standard	1
Cold Water Lances				
Pos.	Part No.	Description	Fitted to:	Qty
1	N26001/1504	Nozzle	Storm 2 & Hurricane P3	1
1	N26001/15045	Nozzle	Storm 1 & 3	1
1	N26001/1505	Nozzle	Hurricane P2, P4 and D1	1
2	MTM90040	Adjustable Nozzle	All	1
3	MTM500950	QR Lance 900mm	All	1
4	MTM23051	QR Trigger	All	1
5	MTM70012	MVG Coupling	All	1
6	MTM23001	Trigger	All	1
7	MTM590090	Lance 900mm	All	1
	DEM10031	QR Lance Complete	All - Standard Fitment	1
	DEM10030	Fixed Lance Complete	All - Non-Standard	1

Control Panel and Front Panel

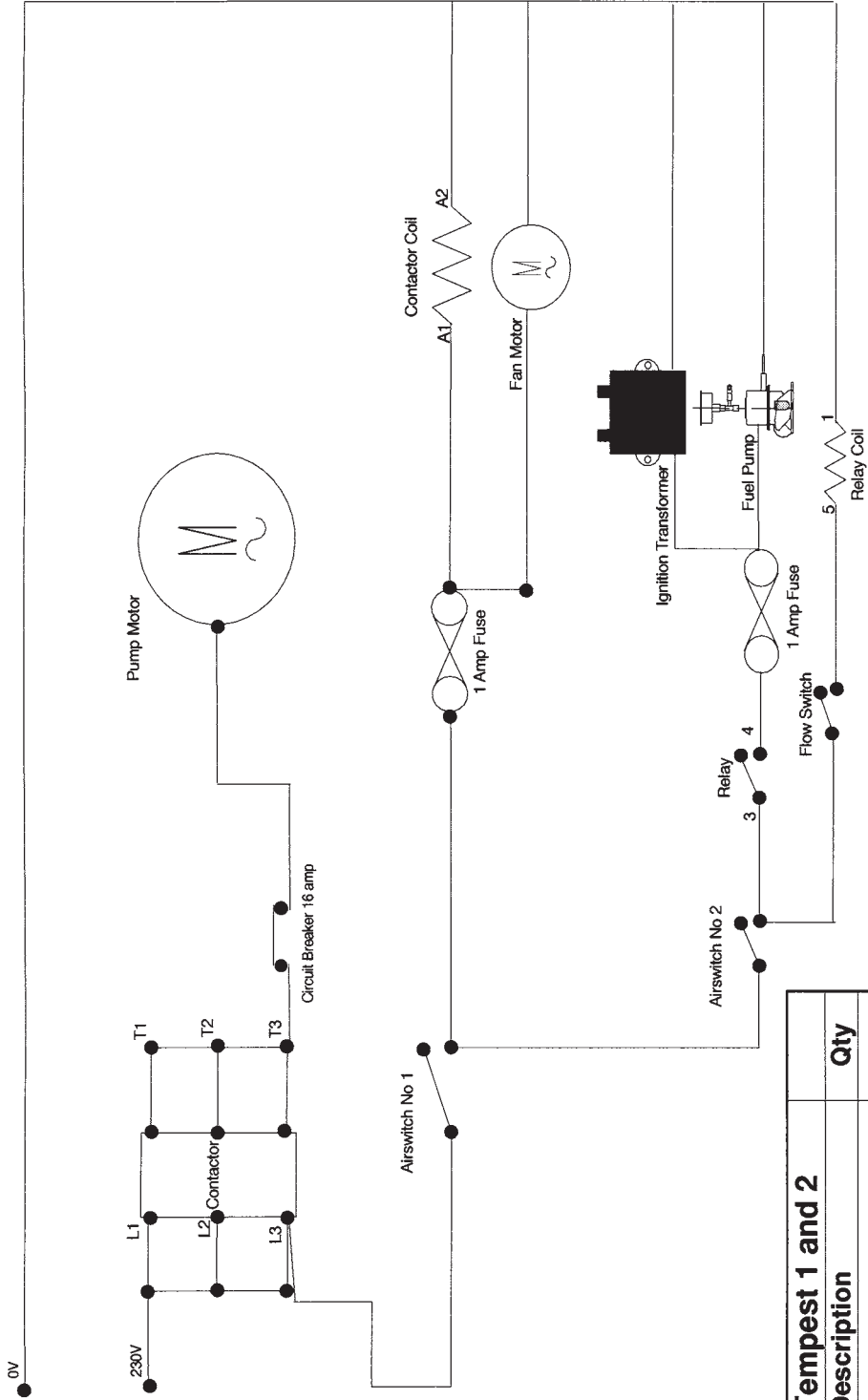


Air operated push button and switch



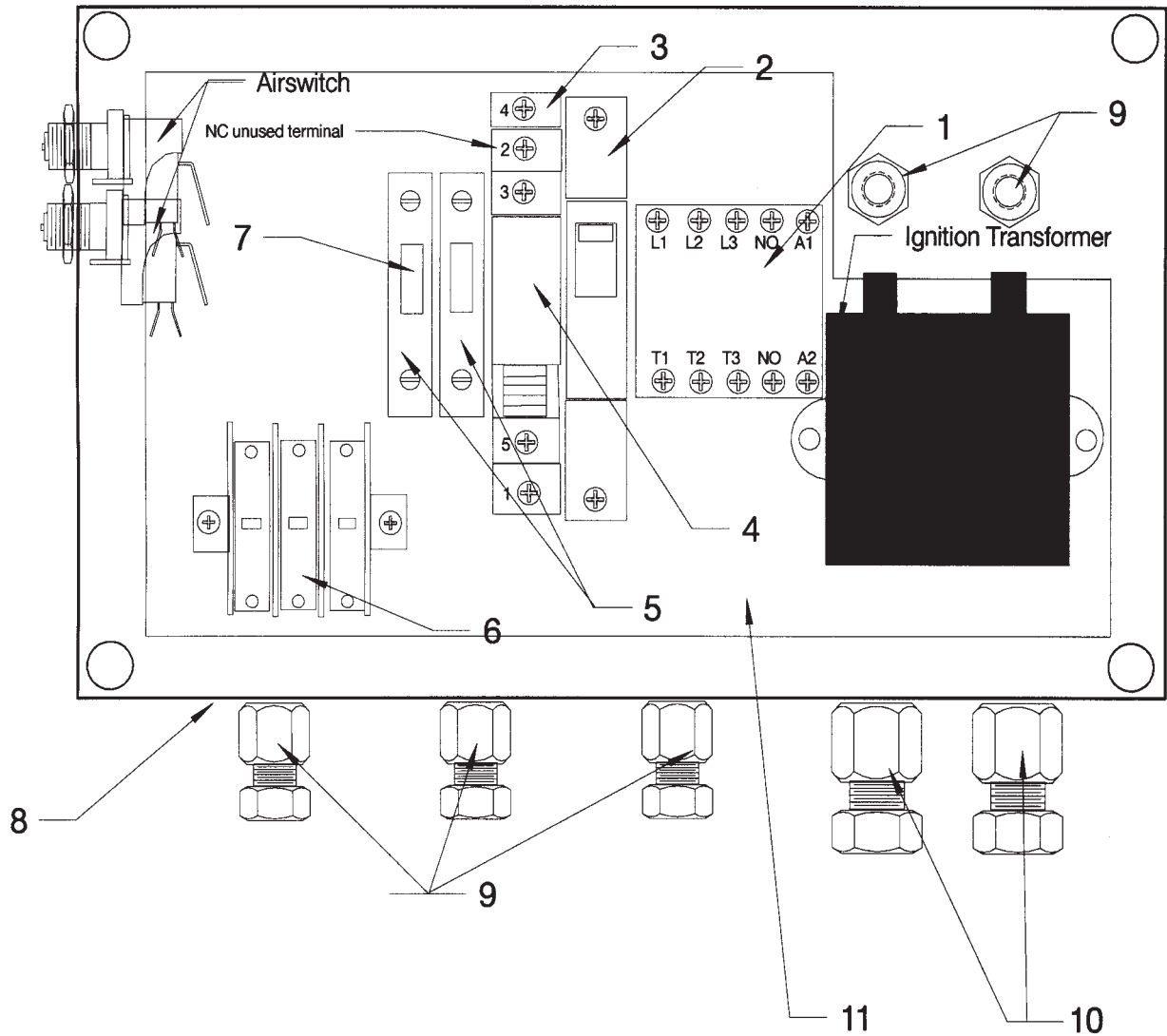
Part No.	Description	Qty
H6442B	Push Button (Blue)	1
H6442R	Push Button (Red)	1
H65000	Air Pipe	2
H6871AC	Switch	2

Tempest 1 and 2 Wiring Diagram



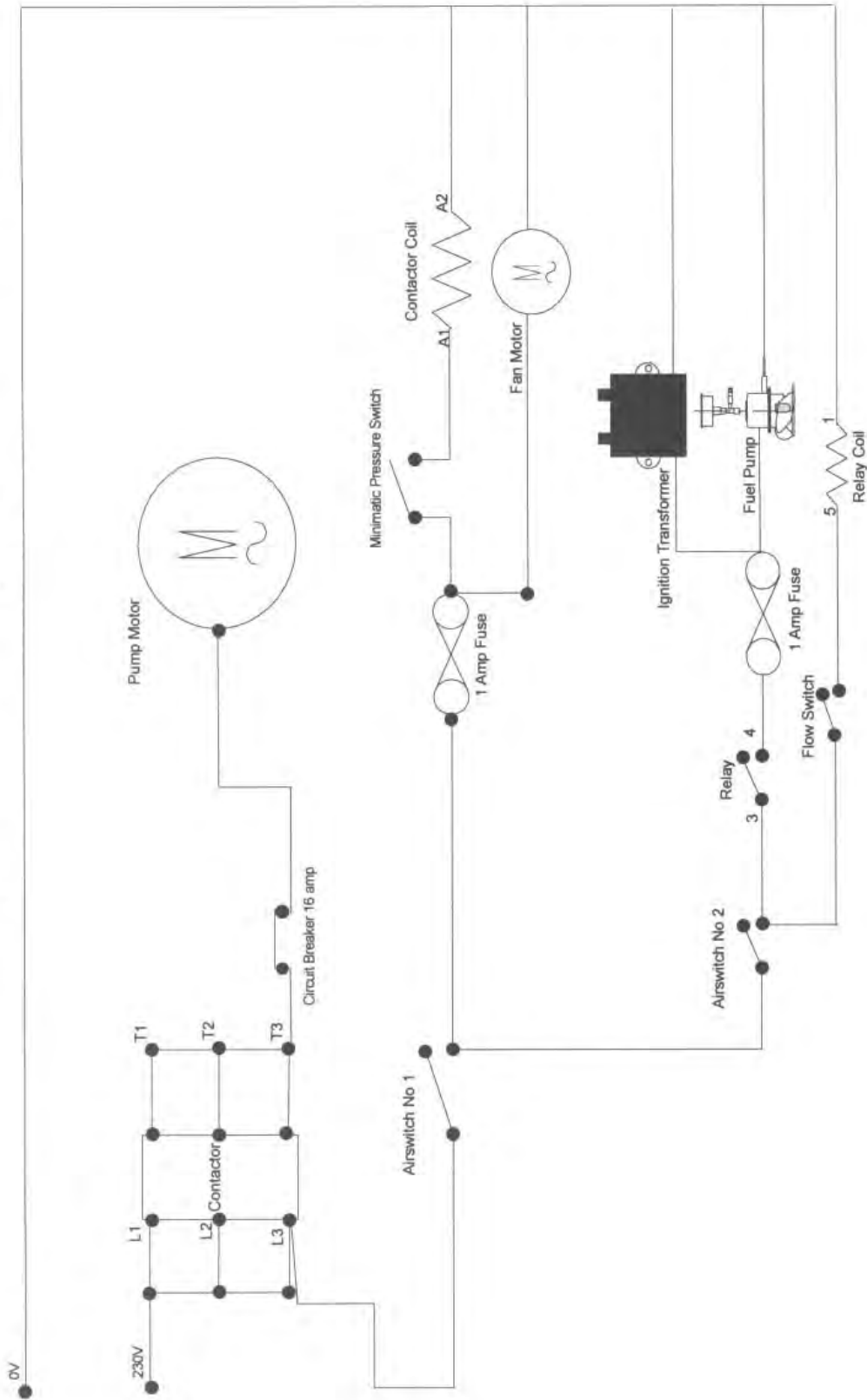
Tempest 1 and 2		
Part No	Description	Qty
MTR00101	Pump Motor	1
DEM10125	Contactor	1
DEM101251	Circuit Breaker	1
DEM100920	Fuse Holder	2
FUSE001	Fuse	2
DB000160	Fan Motor	1
DB000252	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100910	Relay	1
DEM100948	Connector Block (3 Way)	1

Tempest 1 and 2 Electric Box

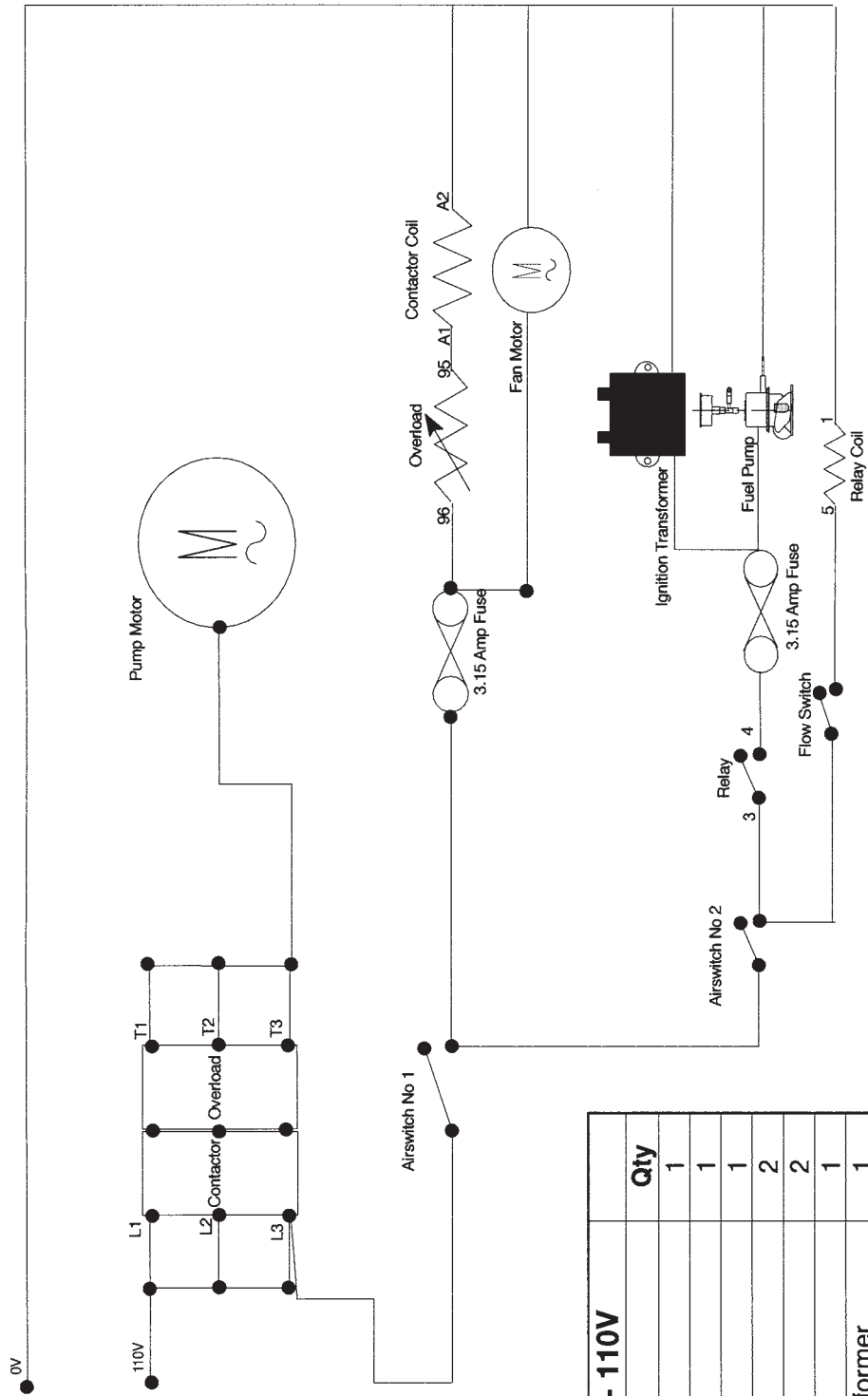


Tempest 1 and 2 Electric Box			
Pos.	Part No.	Description	Qty
1	DEM10133	Contactors	1
2	DEM101251	Circuit Breaker	1
3	DEM100750	Relay Base	1
4	DEM100910	Relay 230V	1
5	DEM100920	Fuse Holder	2
6	DEM100948	Connector Block	1
7	FUSE001	Fuse 1 Amp	2
8	DEM10341	Enclosure	1
9	DEM20110	PG9 Cable Gland	5
10	DEM20100	PG11 Cable Gland	2
	DEM10322	Lid for Enclosure	1
11	DEM10326	Metal Chassis Plate	1
	DEM10327	Screws for Lid	4

Tempest 1 and 2 Wiring Diagram - Automatic version

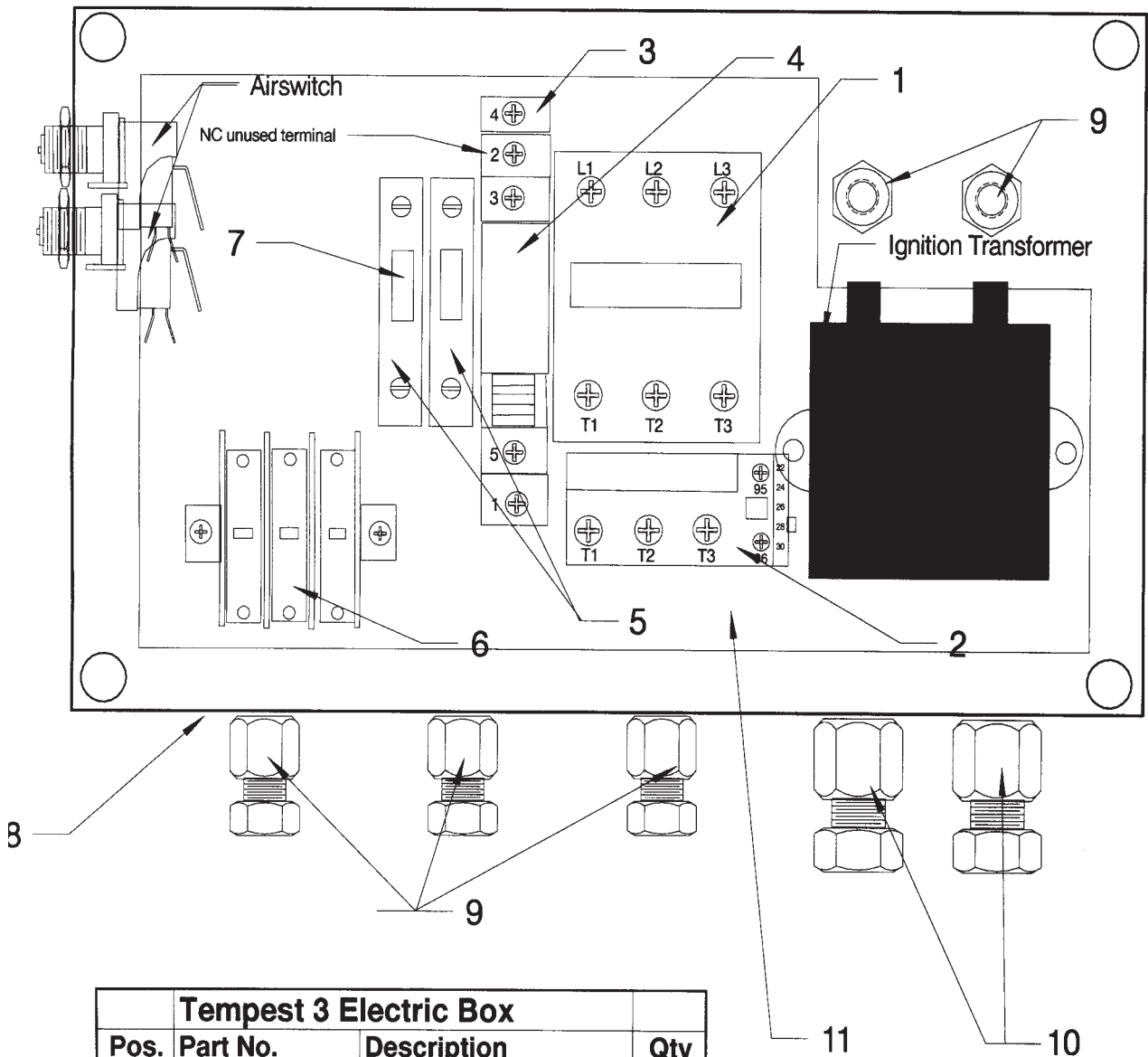


Tempest 3 Wiring Diagram



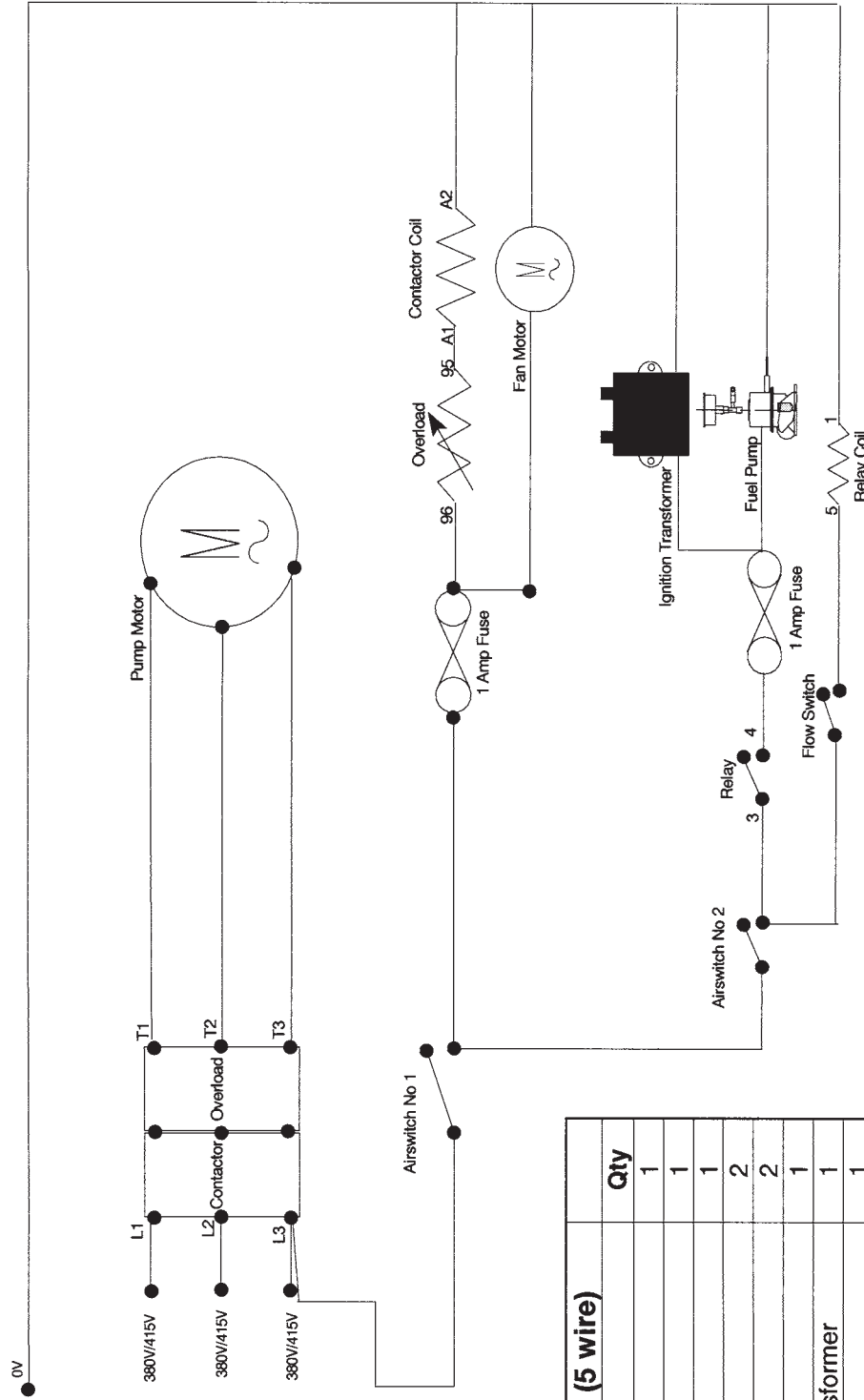
Tempest 3 - 110V		
Part No	Description	Qty
MTR00301	Pump Motor	1
DEM10122	Contactor	1
DEM10123	Overload	1
DEM100920	Fuse Holder	2
FUSE002	Fuse	2
DB000170	Fan Motor	1
DB000255	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100915	Relay	1
DEM100948	Connector Block (5 Way)	1

Tempest 3 Electric Box



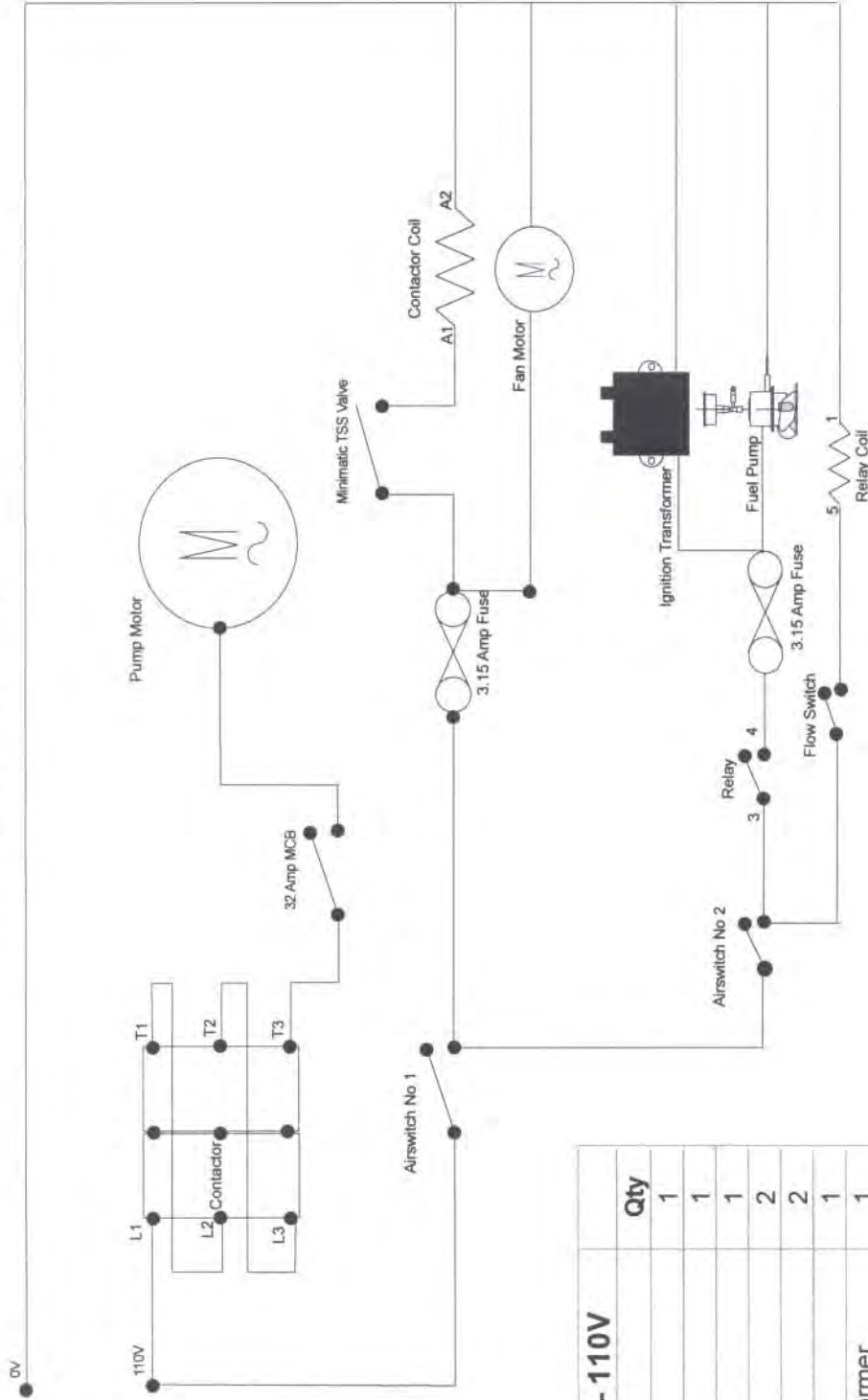
Tempest 3 Electric Box			
Pos.	Part No.	Description	Qty
1	DEM10122	Contactors	1
2	DEM10123	Overload	1
3	DEM100750	Relay Base	1
4	DEM100915	Relay 110V	1
5	DEM100920	Fuse Holder	2
6	DEM100948	Connector Block	1
7	FUSE002	Fuse 3.15 Amp	2
8	DEM10341	Enclosure	1
9	DEM20110	PG9 Cable Gland	5
10	DEM20100	PG11 Cable Gland	2
	DEM10322	Lid for Enclosure	1
11	DEM10326	Metal Chassis Plate	1
	DEM10327	Screws for Lid	4

Tempest 4 Wiring Diagram



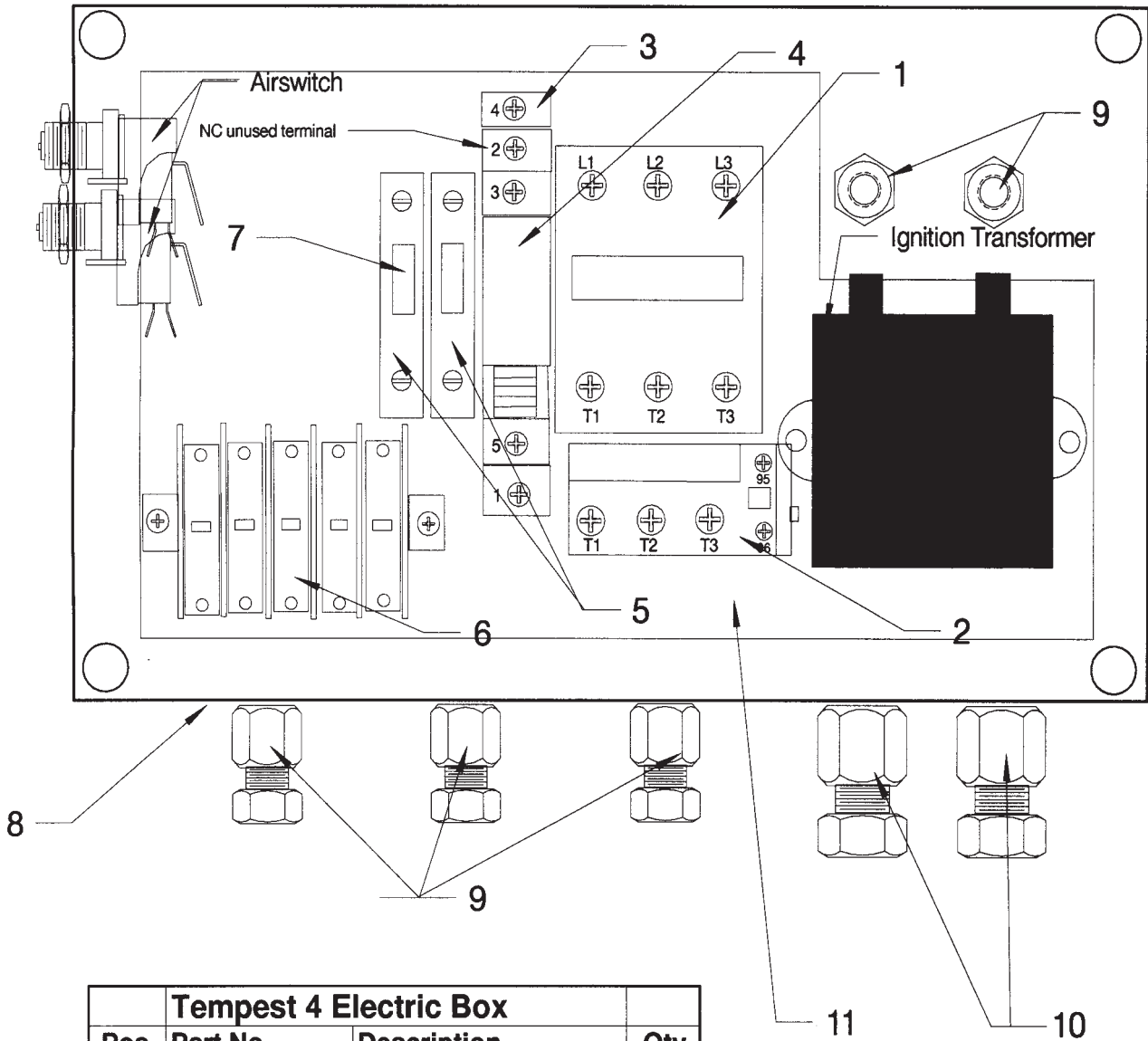
Tempest 4 (5 wire)		
Part No	Description	Qty
MTR00200	Pump Motor	1
DEM10133	Contactor	1
DEM10134	Overload	1
DEM100920	Fuse Holder	2
FUSE001	Fuse	2
DB000160	Fan Motor	1
DB000252	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100910	Relay	1
DEM100950	Connector Block (5 Way)	1

Tempest 3 Wiring Diagram - Automatic version



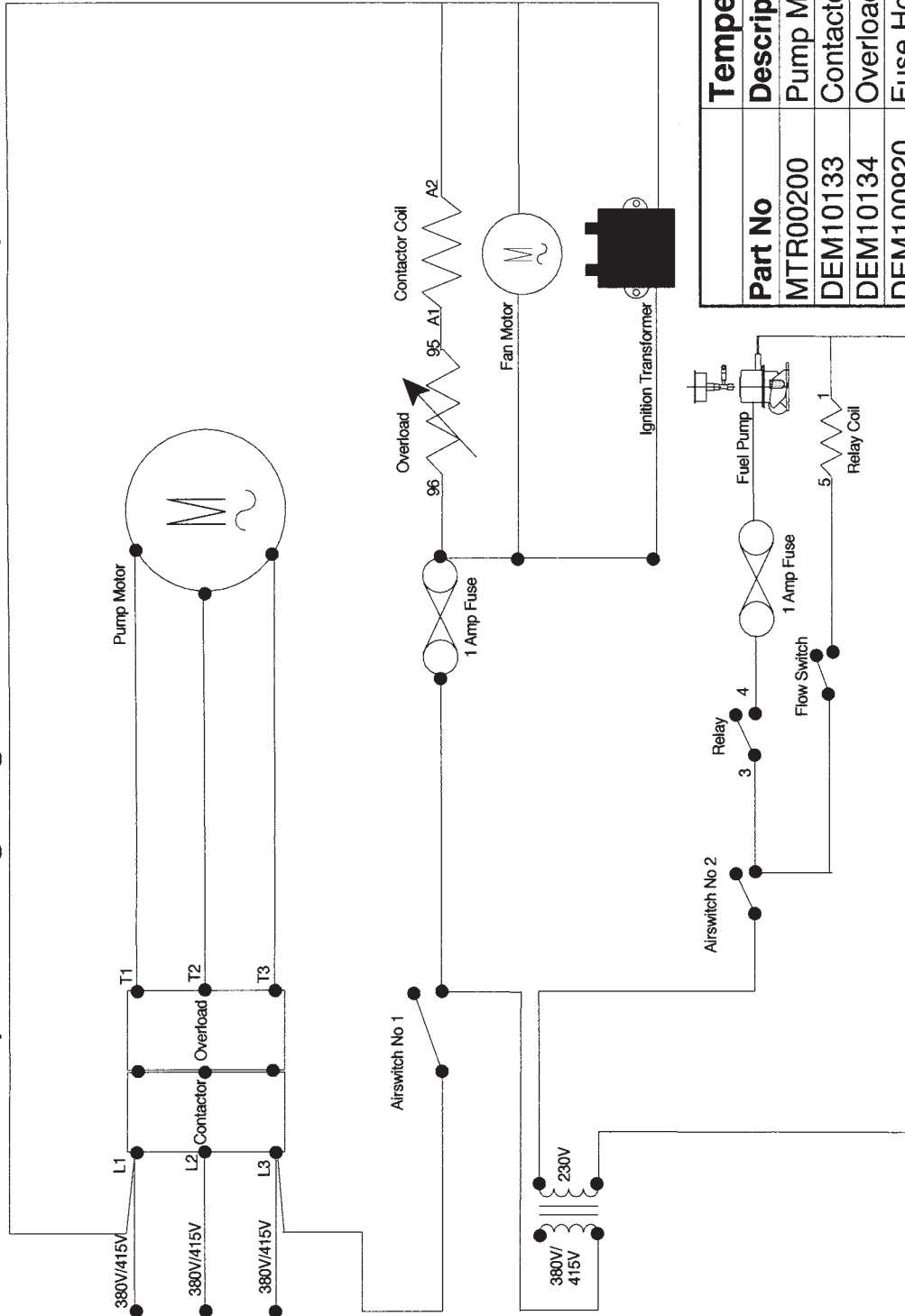
Tempest 3 - 110V		
Part No	Description	Qty
MTR00301	Pump Motor	1
DEM10122	Contactor	1
DEM101252	32 Amp MCB	1
DEM100920	Fuse Holder	2
FUSE002	Fuse	2
DB000170	Fan Motor	1
DB000255	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100915	Relay	1
DEM100948	Connector Block (3 Way)	1

Tempest 4 Electric Box



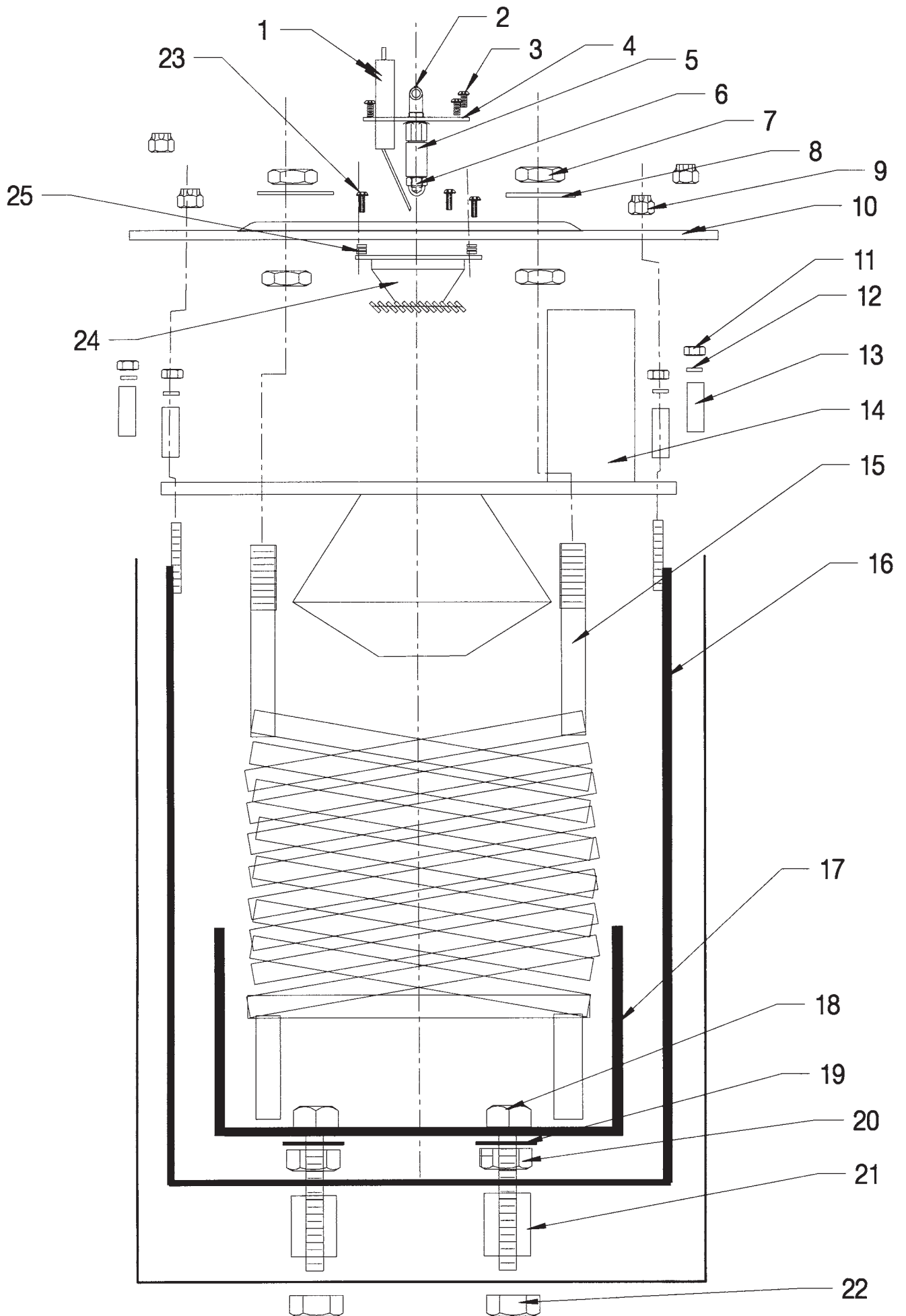
Tempest 4 Electric Box			
Pos.	Part No.	Description	Qty
1	DEM10133	Contacteur	1
2	DEM10134	Overload	1
3	DEM100750	Relay Base	1
4	DEM100900	Relay 230V	1
5	DEM100920	Fuse Holder	2
6	DEM100948	Connector Block	1
7	FUSE001	Fuse 1 Amp	2
8	DEM10341	Enclosure	1
9	DEM20110	PG9 Cable Gland	5
10	DEM20100	PG11 Cable Gland	2
	DEM10322	Lid for Enclosure	1
11	DEM10326	Metal Chassis Plate	1
	DEM10327	Screws for Lid	4

Tempest Wiring Diagram 380V/415V Four Wire Special

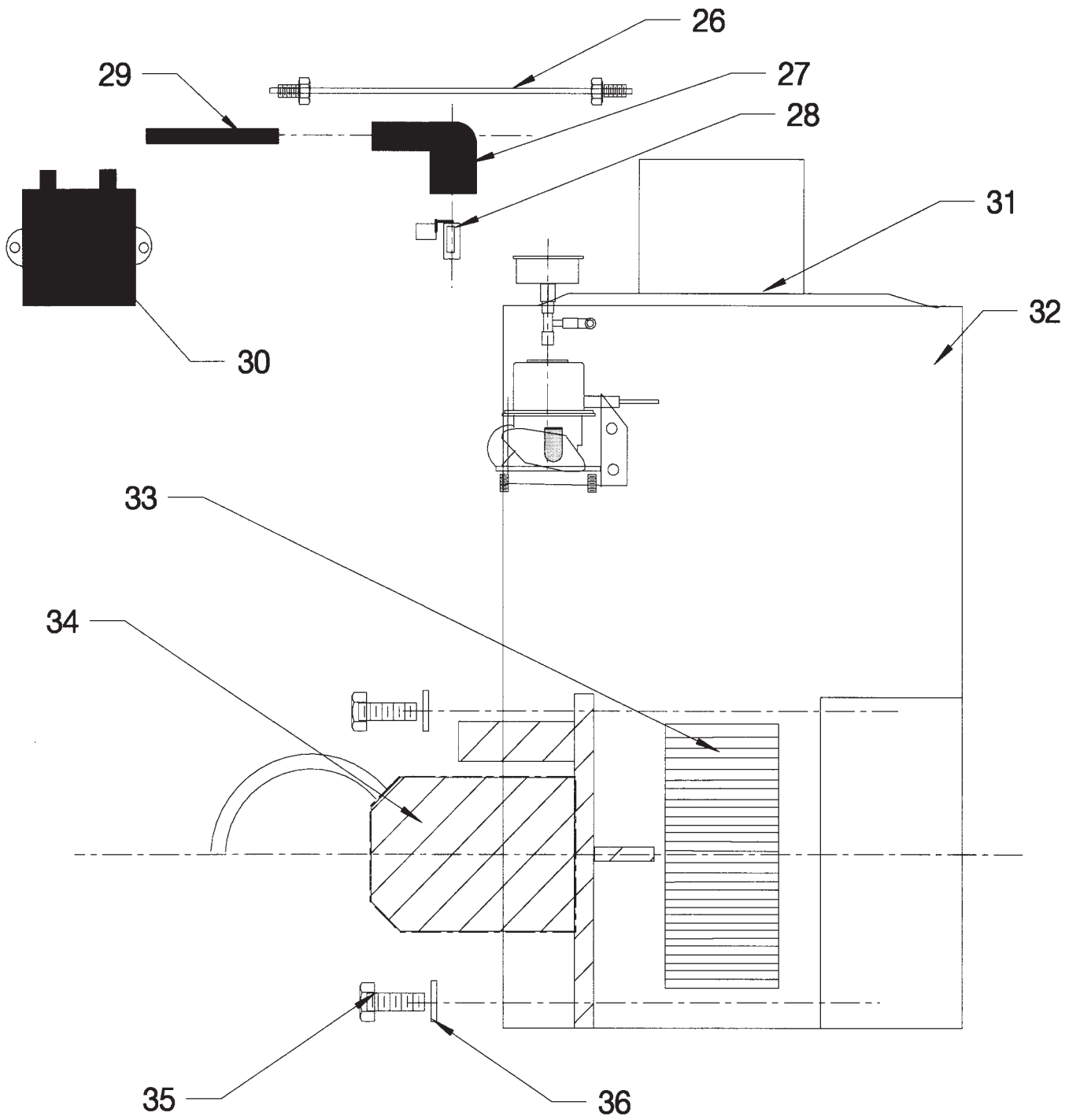


Part No	Description	Qty
MTR00200	Pump Motor	1
DEM10133	Contactor	1
DEM10134	Overload	1
DEM100920	Fuse Holder	2
FUSE001	Fuse	2
DB000175	Fan Motor	1
DB000250	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100910	Relay	1
DEM100949	Connector Block (4 Way)	1

Inner Boiler Details

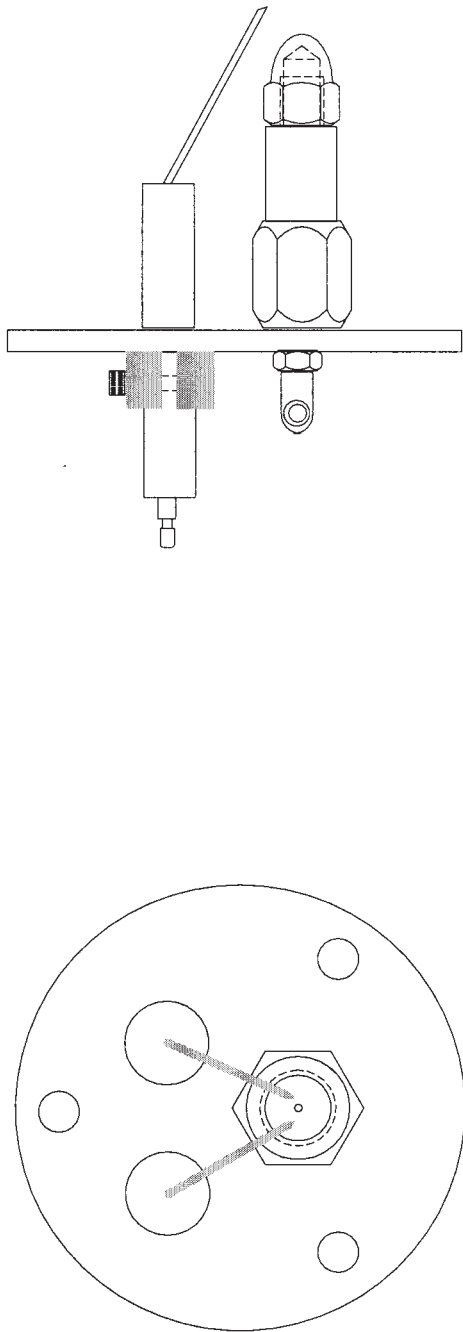


Outer Boiler Details



Boiler Parts List			
No.	Description	Part Number	Qty
1	Electrode	DB000110	2
2	Adaptor	DB000130	1
3	Screw	NBW00450	3
4	Top Plate	DB000030	1
5	Nozzle Holder	DB000020	1
6	Nozzle	DB000010	1
7	3/8" BSP Nut	DB000340	4
8	Washer	DB000320	2
9	Nyloc Nut	NBW00160	4
10	Outer Drum Lid	DB000040	1
11	Plain Nut	NBW00200	4
12	Washer	NBW00300	4
13	Spacer	DB000280	4
14	Inner Drum Lid & Cone	DB000051	1
15	Heating Coil	DB000094	1
16	Inner Drum	DB000070	1
17	Flame Pan	DB000081	1
18	Bolt	DB000065	3
19	Washer	NBW00310	3
20	Nut	DB000345	3
21	Spacer	DB000350	3
22	Nut	DB000345	3
23	Screw	NBW00460	3
24	Flame Swirler	DB001000	1
25	Washer	NBW00300	9
26	Fuel Pipe	DB002400	1
27	HT Cap (Rubber)	DB000220	2
28	Rajah Clip	DB000230	2
29	HT Lead	DB000215	2
30	Ignition Transformer 230V	DB000252	1
	Ignition Transformer 110V	DB000255	1
31	Gasket	DB000300	1
32	Outer Drum + Fan Housing	DB000060	1
33	Impeller	DB000180	1
34	Fan Motor 230V	DB000160	1
	Fan Motor 110V	DB000170	1
35	Bolt	NBW00060	2
36	Washer	NBW00280	2

Electrode Setting Details

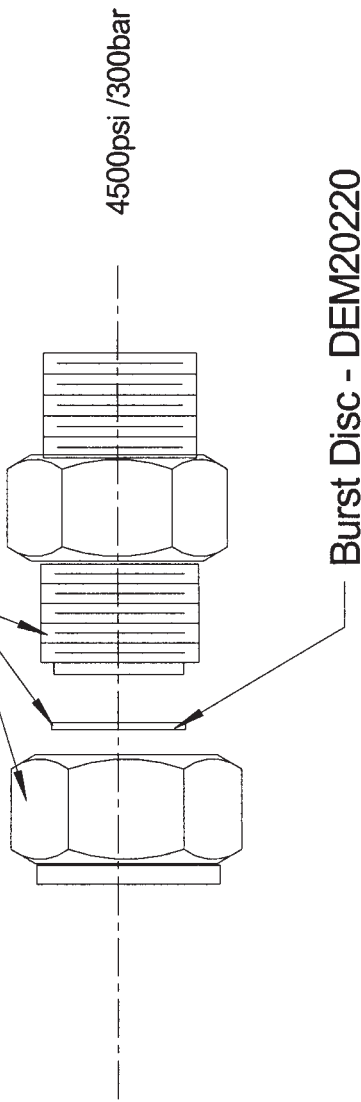


The electrodes should be set according to the picture. 50% of the ceramic insulation should be inside the boiler and 50% outside. The electrode gap should be approximately 6mm and the tips should not be in the fuel spray.

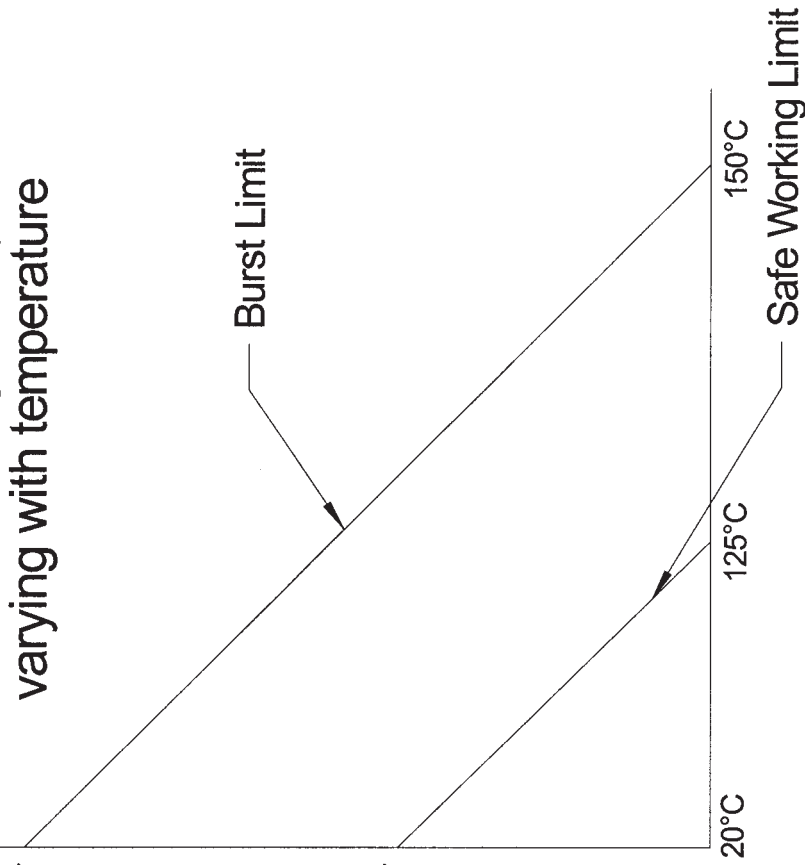
Common problems - fuels filters and nozzles are not changed regularly enough. The nozzle is a precision instrument that can be damaged by small particles of solid matter in the fuel that it is not possible to filter out. Nozzles will not atomise the fuel correctly leading to a longer flame path which you can see by flames visible near the top of the chimney. To remedy this empty the fuel tank and fill with clean fuel, change the filter and then change the fuel nozzle. Clean the electrodes and grind the tips to reveal new metal. Reset and refit and run the boiler with the gun removed for 10 minutes. This will burn off any excess fuel and clean the boiler tubes.

Service the boiler frequently for reliable running, an unserviced boiler does not heat the water correctly wasting your money!!

Burst Disc Assembly - DEM20230



Graph showing burst pressure varying with temperature

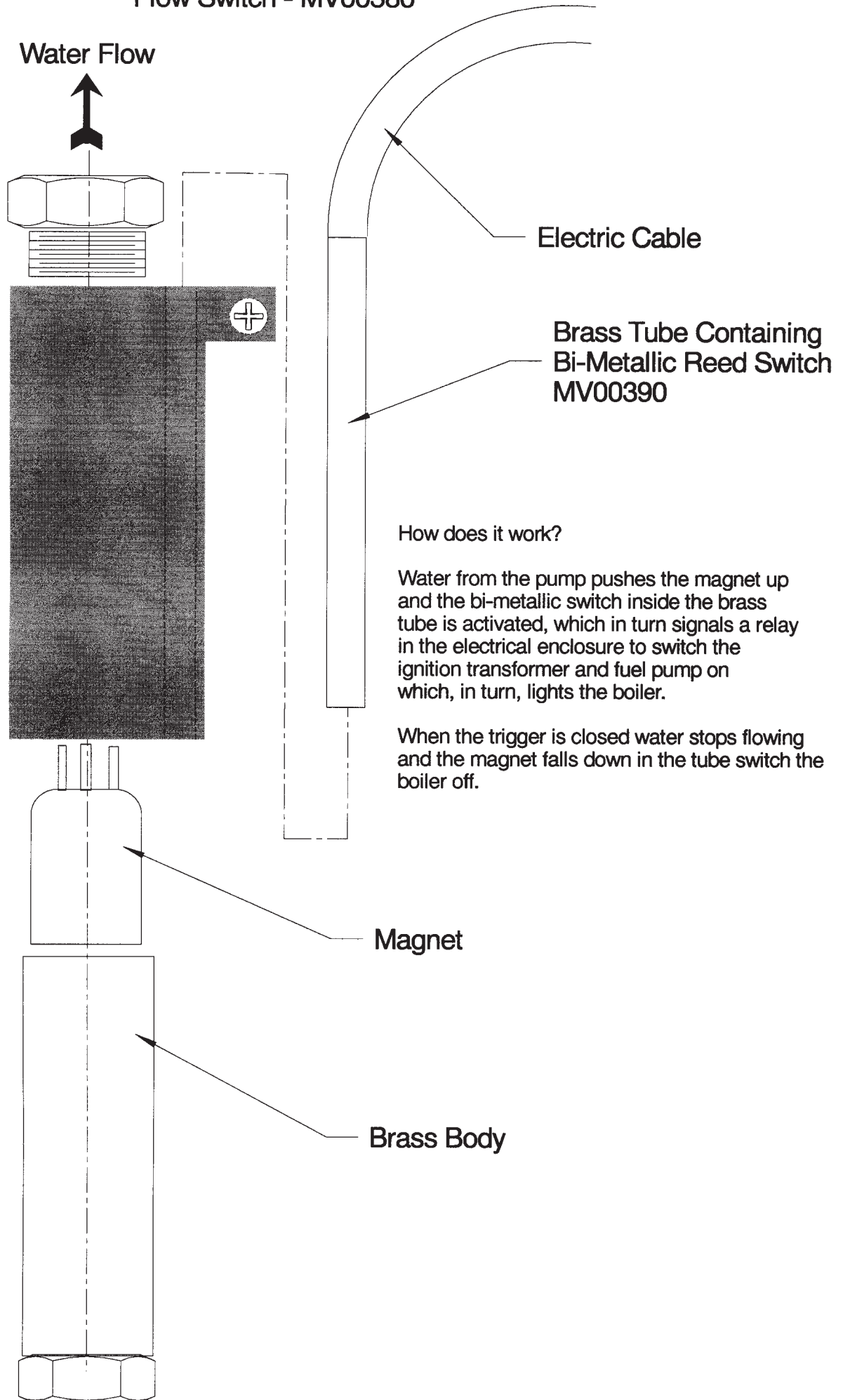


The burst disc fitted to the Demon hot water range of machines is designed to burst either with excess heat or excess pressure. The burst disc works like a fuse and will always fail safe. Rupturing of the burst disc is commonly due to one of three faults, not cooling the machine after using, a poorly maintained boiler or flow switch failure.

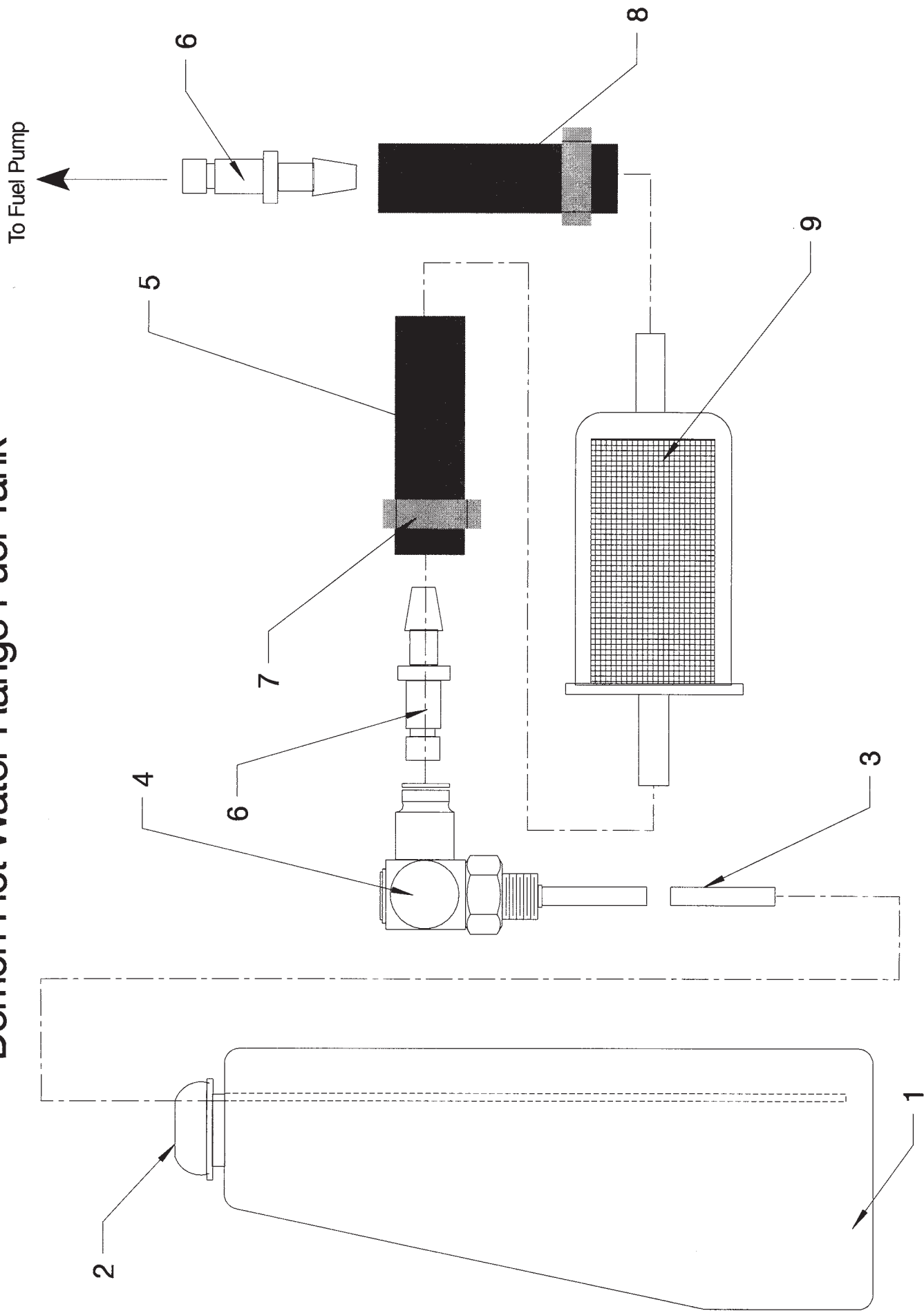
Running the machine for two minutes with the boiler switched off will increase the life of the boiler.

Maintaining the boiler regularly will also lead to increased efficiency and fewer breakdowns.

Flow Switch - MV00380



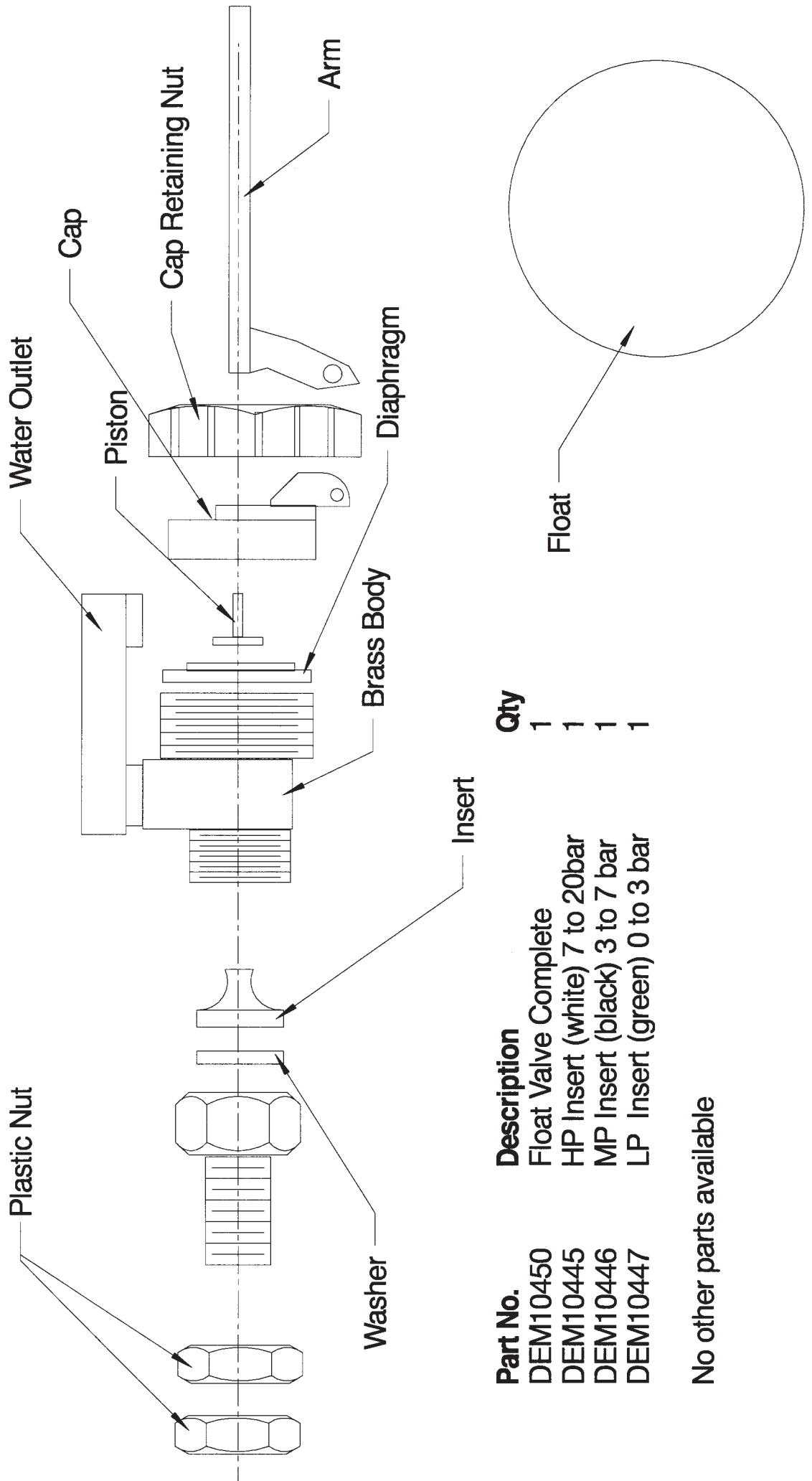
Demon Hot Water Range Fuel Tank



Chemical & Water Circuits			
No	PartNo	Description	Qty
1	M TM 86010	Chemical Filter	1
2	DEM 20500	Hose Clips	4
3	DEM 10115	Chemical pipe	2
4	M TM 25801	Chemical Valve	1
5	PA00100	Chemical Intake	1
6	M TM 71167	Hose Barb Complete	1
7	DEM 20500	Jubilee Clip	4
8	DEM 20400	Hose Tail	1
9	HH0053	Hub Pipe	1
10	M TM 85002	Water Filter	1
11	DEM 10435	Water Tank	1
12	M TM 0012FF03	Brass Elbow	1
13	HH0053	Pipe	1
14	DEM 10310	Hose Tail	1
15	DEM 10300	Hose Tail	1
16	M TM 0012FF02	Brass Elbow	1
17	DEM 20255	Adaptor	1
18	M TM 0012FM 03	Brass Elbow	2
19	DEM 204110	Hose Tail	2
20	M TM 89011B	Mesh Insert	1
21	M TM 89011	Brass Filter	1

Fuel System Part List			
No	PartNo	Description	Qty
1	DEM 10410	Fuel Tank 24 Litres	1
2	DEM 10420	Fuel Tank Cap	1
3	DEM 20450	Fuel Pickup Pipe	1
4	DEM 20430	Fuel Pickup Adaptor	1
5	DB002520	Fuel Pipe - Tank to Filter	1
6	DEM 20440	Hub Tail	2
7	DEM 20502	O Clip	4
8	DB002510	Fuel Pipe - Filter to Pump	1
9	DB002500	Fuel Filter	1

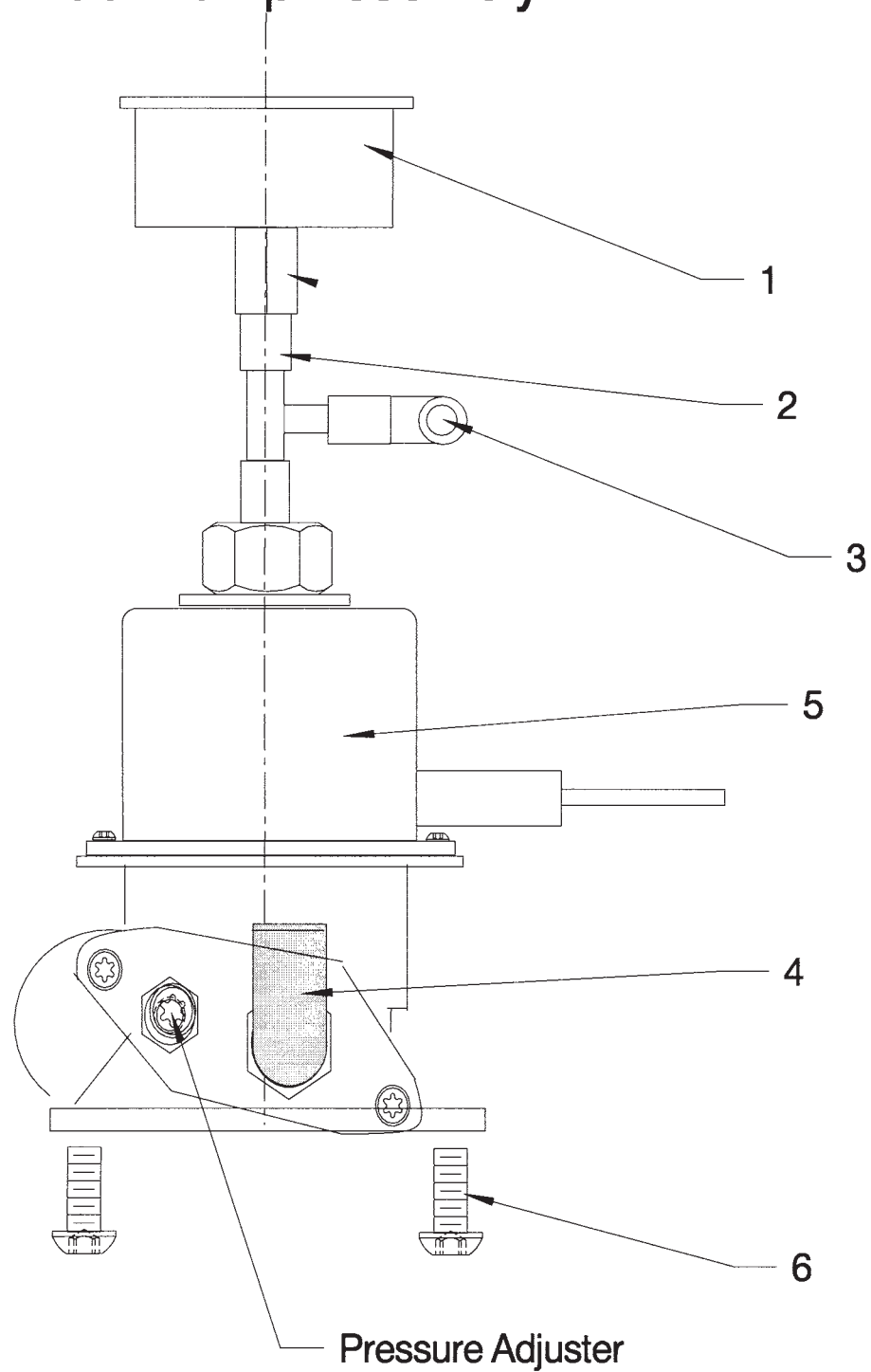
Float Valve Assembly



Part No.	Description	Qty
DEM10450	Float Valve Complete	1
DEM10445	HP Insert (white) 7 to 20bar	1
DEM10446	MP Insert (black) 3 to 7 bar	1
DEM10447	LP Insert (green) 0 to 3 bar	1

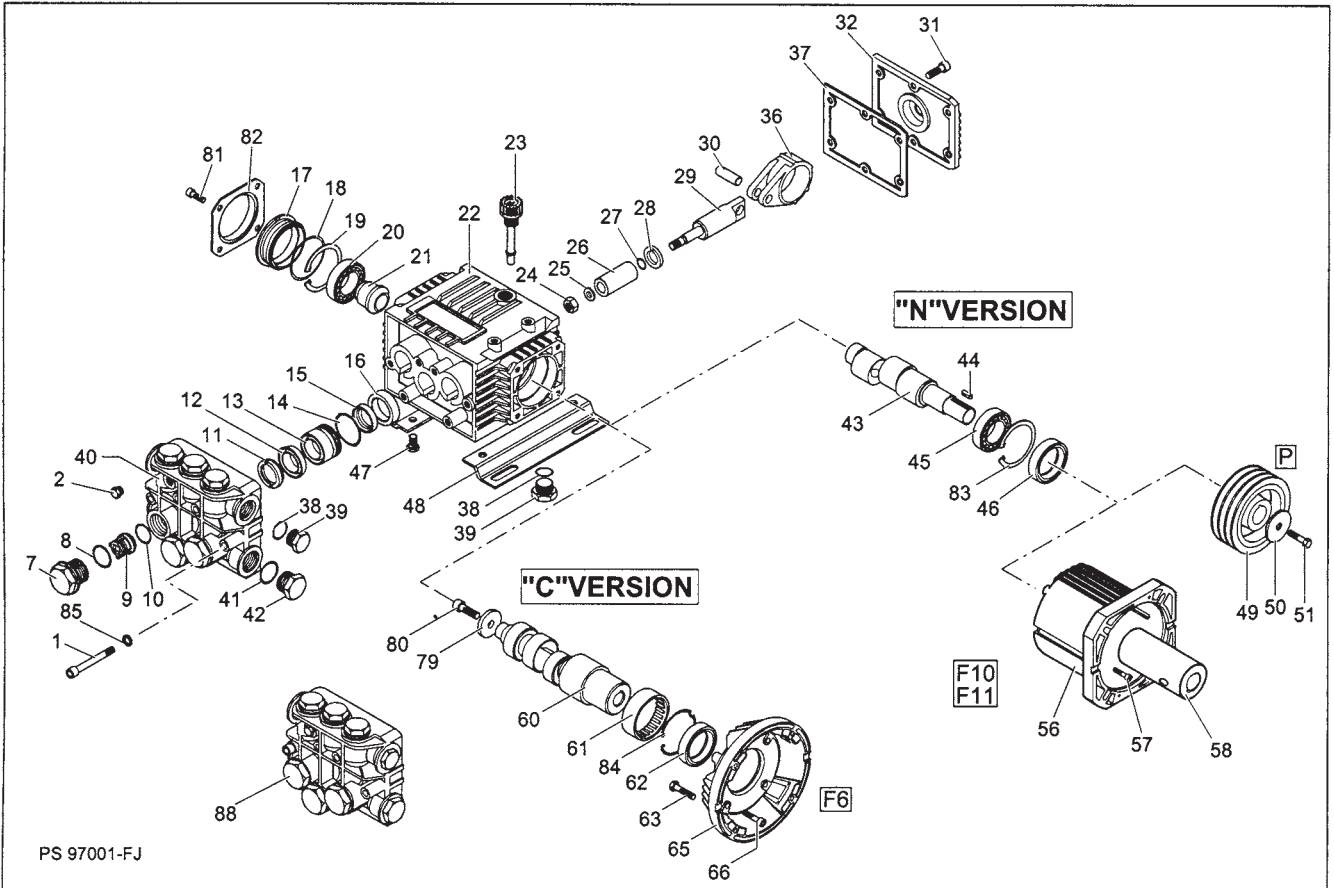
No other parts available

Fuel Pump Assembly



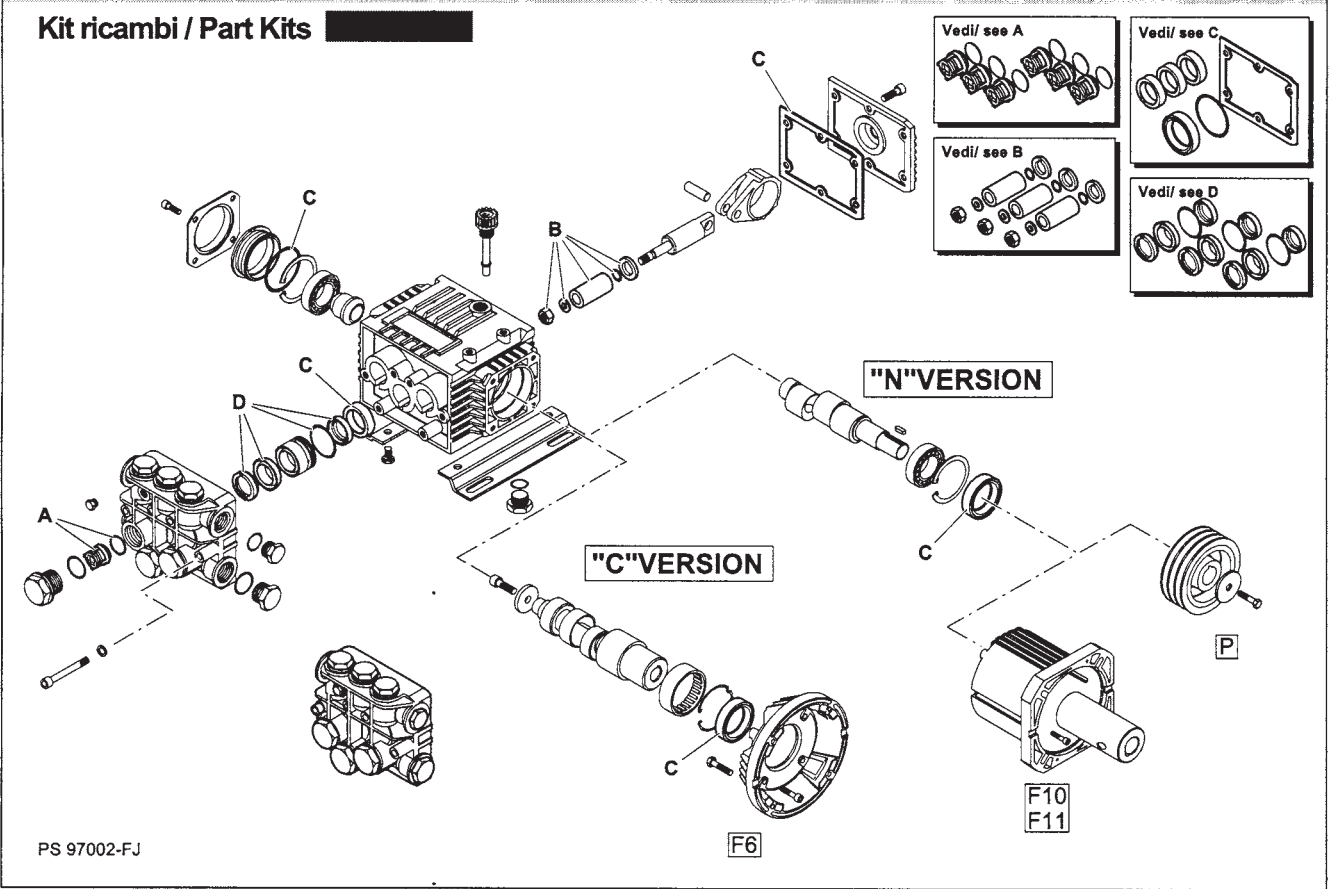
Item	Description	Part Number	Quantity
1	Fuel Pressure Gauge	DEM20630	1
2	Tee	DB000155	1
3	Adaptor	DB000135	1
4	Adaptor	DB000145	1
5	Fuel Pump Complete 110V	DB002305	1
	Fuel Pump Complete 230V	DB002300	1
6	Screw	AR1260470	2

Note: Pump available in 230V or 110V only, fuel pump has no serviceable parts, when fitting new pump do not shorten leads, pressure set to 110psi (7.5 bar).



PS 97001-FJ

Kit ricambi / Part Kits



PS 97002-FJ

ANNOVI PUMPS XT19.14 XT11.14 XT13.12

Item	Part Number	Description	Quantity
1	AR680570	Head Bolts M6x60	6
2	AR620301	Bung Nut 1/8" Thread	1
7	AR1260160	Valve Plug	6
8	AR960160	O Ring for Valve Plug	6
9	AR1269050	Complete Valve (ARKIT1864)	6
10	AR880830	O Ring - XT Valve (ARKIT1864)	6
11	AR1320340	Support Ring 18mm (ARKIT1874)	3
12	AR1260220	Seal (ARKIT1874)	3
13	AR1320351	Piston Guide 18mm	3
14	AR1260420	O Ring for Seal Holder (ARKIT1874)	3
15	AR1260450	Piston Seal 18mm (ARKIT1874)	3
16	AR1260460	Oil Seal (ARKIT1872)	3
17	AR1320320	Bung	1
18	AR1320360	O Ring (ARKIT1872)	1
19	AR1260790	Circlip 52mm	1
20	AR1320370	Crank Bearing	1
21	AR1320330	Crank Bearing Bush	1
22	AR1320010	Pump Body Casting	1
23	AR880130	Oil Plug With Dipstick	1
24	AR1260110	Piston Nut (ARKIT2629)	3
25	AR1260100	Copper Washer XT Piston Nut (ARKIT2629)	3
26	AR1260210	Piston 18mm (ARKIT2629)	3
27	AR480480	Piston O Ring (ARKIT2629)	3
28	AR1260091	Seperation Disk (ARKIT2629)	3
29	AR1260070	Piston Guide	3
30	AR1260080	Piston Pin	3
31	AR1260760	Bolt M5x20	6
32	AR1329010	Complete Cover	1
36	AR1320140	Con Rod (Bronze)	3
37	AR1260040	Gasket (ARKIT1872)	1
38	AR740290	O Ring	2
39	AR880530	Bung Nut 1/2"	2
40	AR1320020	XT Cylinder Head (Brass)	1
41	AR180101	O Ring	2
42	AR820360	Bung Nut 1/2"	1
43	AR1260180	Crankshaft XT9.14	1
43	AR1260200	Crankshaft XT11.14	1
43	AR1320260	Crankshaft XT13.12	1
44	AR1380520	Key	1
45	AR1320370	Crank Bearing	1
46	AR1260750	Oil Seal (ARKIT1872)	1
83	AR1260790	Circlip 52"	1

MINIMATIC 4/B



Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedi / See	Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedi / See
1	1981780	Manopola	Handle	1		40	1540180	Niples 3/8" G	Adaptor 3/8" G	1	●
2	1540560	Grano M6x20	Grub	1			1540500	Niples 3/8" NPT	Adaptor 3/8" NPT	1	●
3	1980300	Dado M6	Nut	1		41	1540280	Corpo by-pass	By-pass housing	1	3/8" G
4	1980390	Inserto manopola	Knob insert	1			1540480	Corpo by-pass	By-pass housing	1	3/8" NPT
5	1980220	Plattello molla	Spring plate	2		42	1540630	OR Ø 23,47x2,62	O-Ring	1	
6	1271070	Molla	Spring	1		44	880270	OR Ø 17,17x1,78	O-Ring	1	
7	1080041	Pistone superiore	Upper piston	1		45	1540260	Vite 1/2" G	Thread screw	1	
8	1080070	Spina	Pin	2		46	480440	OR Ø 17,13x2,62	O-Ring	1	Optional
9	1080401	Anello antiest.	Back-up ring	1		47	1540050	Raccordo	Fitting	1	Optional
10	1080250	OR Ø 7,66x1,78	O-Ring	1		49	1981770	Tappo manopola	Knob plug	1	
12	1980210	Guida pistone	Piston Guide	1							
13	740290	OR Ø 14x1,78	O-Ring	1							
14	800560	OR Ø 8,73x1,78	O-Ring	1							
15	880830	OR Ø 15,54x2,62	O-Ring	1							
16	1271170	Anello antiest.	Back-up ring	1							
17	1080190	OR Ø 2,90x1,78	O-Ring	2							
18	1271160	Pistone inferiore	Lower piston	1							
19	1980200	Sede valvola	Valve seat	1							
20	1470210	OR Ø 9x1	O-Ring	1							
21	1540270	Vite 3/8" G	Thread screw	1	Ottone/Brass						
	1540430	Vite 3/8" G Inox	Thread screw	1	Inox/Steel						
22	390080	OR Ø 11,91x2,62	O-Ring	2							
23	1540510	Corpo valvola	Valve housing	1							
24	1140450	OR Ø 20,24x2,62	O-Ring	1							
25	1460430	OR Ø 4x2,5	O-Ring	1							
26	1540170	Otturatore	Jet	1							
27	1080091	Molla	Spring	1							
28	394280	OR Ø 12,42x1,78	O-Ring	1							
29	1560660	Anello	Ring	1	▲						
30	1560680	Manopola reg.det.	Detergent reg. knob	1	▲						
31	480560	OR Ø 6,75x1,78	O-Ring	1	▲						
32	800560	OR Ø 8,73x1,78	O-Ring	1	▲						
33	1560650	Portagomma	Hose tail	1	▲						
34	1560490	Portagomma	Hose tail	1	■						
35	480480	OR Ø 4,48x1,78	O-Ring	1	■▲						
36	1250280	Sfera	Ball	1	■▲						
37	1560520	Molla	Spring	1	■▲						
38	1540570	Raccordo 3/8" G	Fitting 3/8" G	1	Ø 2 ■▲						
	1540580	Raccordo 3/8" G	Fitting 3/8" G	1	Ø 2,3 ■▲						
	1540610	Raccordo 3/8" NPT	Fitting 3/8" NPT	1	Ø 2 ■▲						
	1540620	Raccordo 3/8" NPT	Fitting 3/8" NPT	1	Ø 2,3 ■▲						
39	1540300	Controdado	Nut	1	■▲						

KIT RICAMBI PART KITS

LEGENDA :

E=KIT 2812 OR O-Rings							
pos.	Q.ty	pos.	Q.ty	pos.	Q.ty	pos.	Q.ty
9	1	17	2	35	1		
10	1	20	1	42	1		
13	1	22	2	44	1		
14	1	24	1				
15	1	25	1				
16	1	28	1				

pos.	Q.ty	pos.	Q.ty	pos.	Q.ty	pos.	Q.ty

● Per / For
MINIMATIC 4/B

■ Per / For
MINIMATIC 4/B+ID

▲ Per / For
MINIMATIC 4/B+IDR

MINIMATIC 4/B TSS



Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedi / See	Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedi / See
1	1981780	Manopola	Handle	1		40	1540180	Niples 3/8" G	Adaptor 3/8" G	1	●
2	1540560	Grano M6x20	Grub	1			1540500	Niples 3/8" NPT	Adaptor 3/8" NPT	1	●
3	1980300	Dado M6	Nut	1		41	1540830	Corpo by-pass	By-pass housing	1	3/8" G
4	1980390	Inserito manopola	Knob insert	1		42	1540630	OR Ø 23,47x2,62	O-Ring	1	
5	1980220	Piattello molla	Spring plate	2		44	880270	OR Ø 17,17x1,78	O-Ring	1	
6	1271070	Molla	Spring	1		45	1540260	Vite 1/2" G	Thread screw	1	
7	1080041	Pistone superiore	Upper piston	1		46	480440	OR Ø 17,13x2,62	O-Ring	1	
8	1080070	Spina	Pin	2		47	1560600	Raccordo	Fitting	1	
9	1080401	Anello antiestrusione	Back-up ring	1		49	1981770	Tappo manopola	Knob plug	1	
10	1080250	OR Ø 7,66x1,78	O-Ring	1		50	1540770	Raccordo	Fitting	1	
12	1980210	Guida pistone	Piston Guide	1		51	1260820	OR Ø 1,78x1,78	O-Ring	1	
13	740290	OR Ø 14x1,78	O-Ring	1		52	1540790	Asta TSS	TSS pin	1	Per / For XT
14	800560	OR Ø 8,73x1,78	O-Ring	1			1540800	Asta TSS	TSS pin	1	Per / For XM
15	880830	OR Ø 15,54x2,62	O-Ring	1		53	1540780	Molla	Spring	1	
16	1271170	Anello antiestrusione	Back-up ring	1		54	2021960	Forcella	Clip	1	
17	1080190	OR Ø 2,90x1,78	O-Ring	2		55	2029711	Prem. TSS	TSS assembly	1	
18	1272110	Pistone inferiore	Lower piston	1							
19	1980200	Sede valvola	Valve seat	1							
20	1470210	OR Ø 9x1	O-Ring	1							
21	1540270	Vite 3/8" G	Thread screw	1	Ottone/Brass						
	1540430	Vite 3/8" G Inox	Thread screw	1	Inox/Steel						
22	390080	OR Ø 11,91x2,62	O-Ring	2							
23	1540510	Corpo valvola	Valve housing	1							
24	1140450	OR Ø 20,24x2,62	O-Ring	1							
25	1460430	OR Ø 4x2,5	O-Ring	1							
26	1540170	Otturatore	Jet	1							
27	1080091	Molla	Spring	1							
28	394280	OR Ø 12,42x1,78	O-Ring	1							
29	1560660	Anello	Ring	1	▲						
30	1560680	Manopola reg. det.	Detergent reg. knob	1	▲						
31	480560	OR Ø 6,75x1,78	O-Ring	1	▲						
32	800560	OR Ø 8,73x1,78	O-Ring	1	▲						
33	1560650	Portagomma	Hose tail	1	▲						
34	1560490	Portagomma	Hose tail	1	■						
35	480480	OR Ø 4,48x1,78	O-Ring	1	■▲						
36	1250280	Sfera	Ball	1	■▲						
37	1560520	Molla	Spring	1	■▲						
38	1540570	Raccordo 3/8" G	Fitting 3/8" G	1	0 2 ■▲						
	1540580	Raccordo 3/8" G	Fitting 3/8" G	1	0 2,3 ■▲						
	1540610	Raccordo 3/8" NPT	Fitting 3/8" NPT	1	0 2 ■▲						
	1540620	Raccordo 3/8" NPT	Fitting 3/8" NPT	1	0 2,3 ■▲						
39	1540300	Controdado	Nut	1	■▲						

KIT RICAMBI PART KITS

E=KIT 2812
OR
O-Rings

pos.	Q.ty	pos.	Q.ty	pos.	Q.ty	pos.	Q.ty
9	1	17	2	35	1		
10	1	20	1	42	1		
13	1	22	2	44	1		
14	1	24	1				
15	1	25	1				
16	1	28	1				

pos.	Q.ty	pos.	Q.ty	pos.	Q.ty	pos.	Q.ty

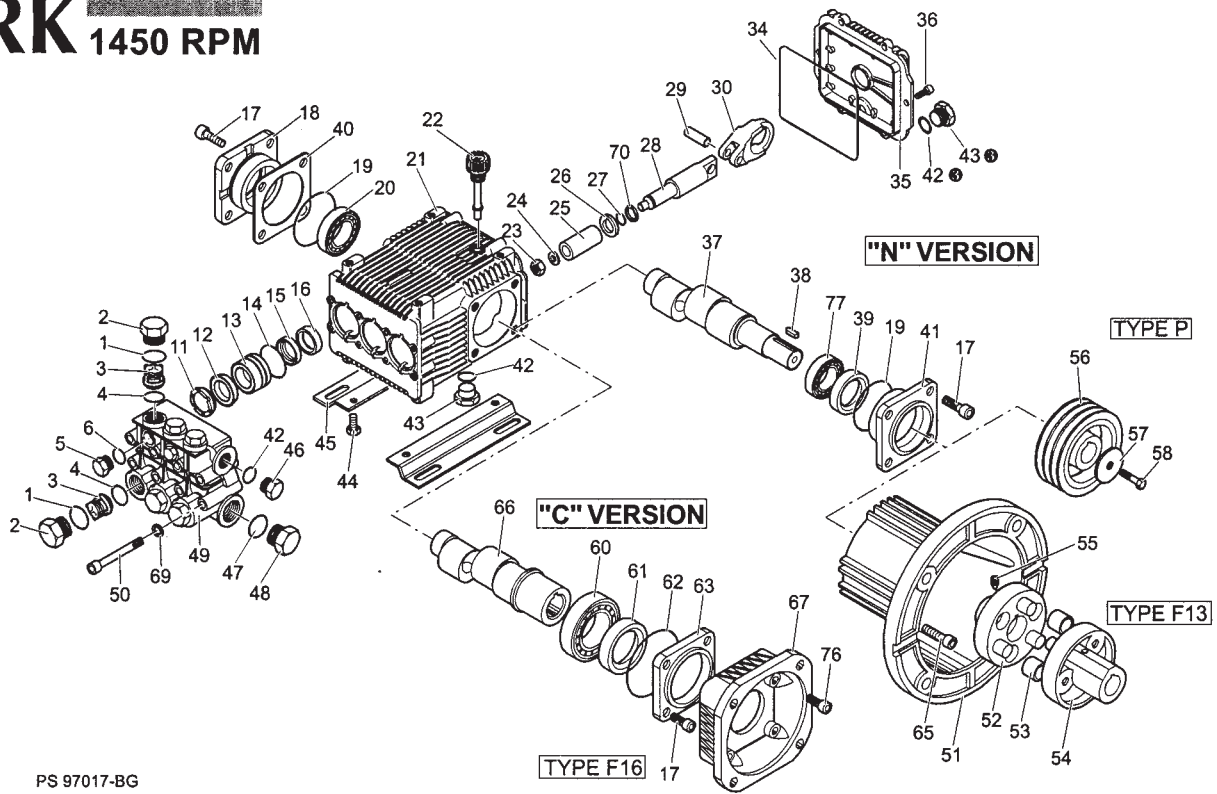
LEGENDA :

● Per / For
MINIMATIC 4/B TSS

■ Per / For
MINIMATIC 4/B TSS
+
ID

▲ Per / For
MINIMATIC 4/B TSS
+
IDR

RK 1450 RPM



PS 97017-BG

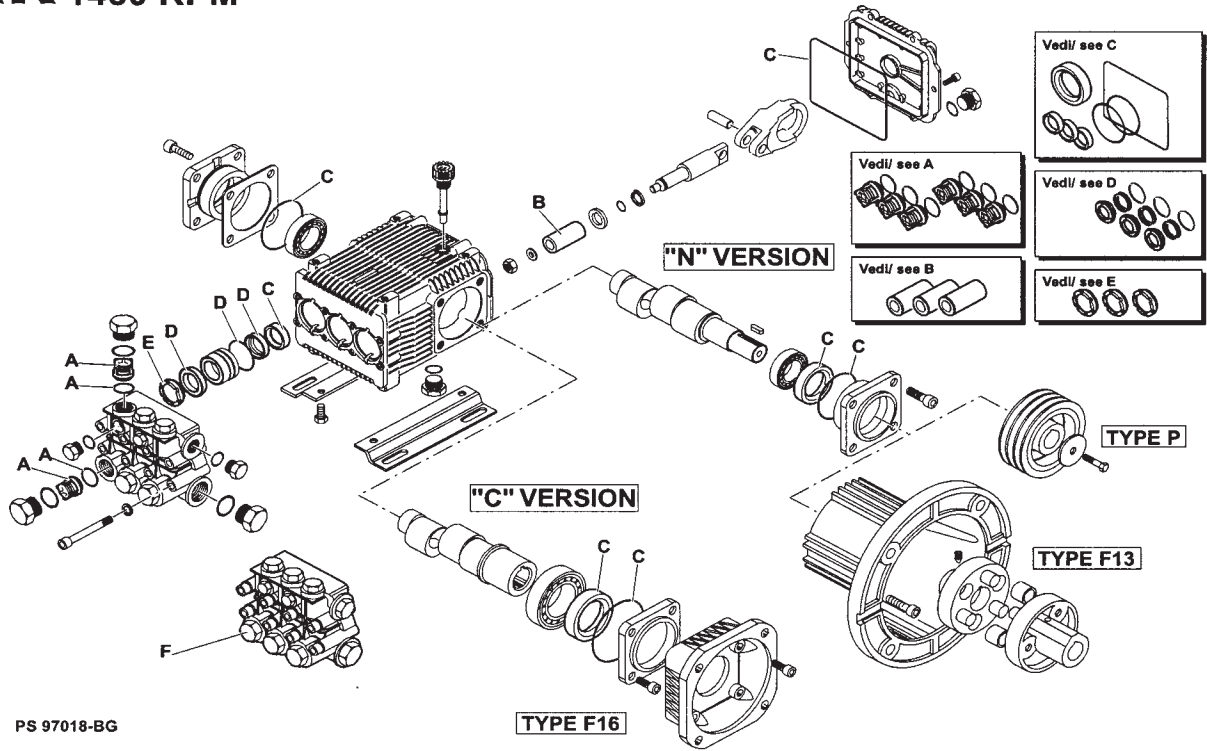
Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedl/see
1	960160	OR	O-Ring	6	
2	960090	Tappo	Plug	6	① ④ ⑥
	960850	Tappo	Plug	6	③
	1380740	Tappo	Plug	6	② ⑤ ⑦
3	1389051	Valvola completa	Complete valve	6	
4	880830	OR	O-Ring	6	
5	880581	Tappo	Plug	2	① ④ ⑥
	1380690	Tappo	Plug	2	② ③ ⑤ ⑦
6	820510	OR	O-Ring	2	
11	960110	Anello appoggio	Support ring	3	Ø18 ○ □ ● ■
	840300	Anello appoggio	Support ring	3	Ø20 ☆
12	840320	Anello appoggio	Support ring	3	Ø22 ☆
13	880320	Guarnizione	Gasket	3	Ø18 ○ □ ● ■
	840290	Guarnizione	Gasket	3	Ø20 ☆
14	840330	Guarnizione	Gasket	3	Ø22 ☆
15	1380090	Guida pistone	Piston guide	3	Ø18 ○ □ ● ■
	1380150	Guida pistone	Piston guide	3	Ø20 ☆
16	1380160	Guida pistone	Piston guide	3	Ø22 ☆
17	961240	OR	O-Ring	3	
18	880330	Guarnizione	Gasket	3	Ø18 ○ □ ● ■
	840280	Guarnizione	Gasket	3	Ø20 ☆
	840340	Guarnizione	Gasket	3	Ø22 ☆
19	1383130	Anello tenuta	Seal	3	
20	850370	Vite	Screw	8	
21	1380050	Supp. cusc. chiuso	Closed bearing sup.	1	
22	640030	OR	O-Ring	2	
23	2280240	Cuscinetto	Bearing	1	
24	1382770	Corpo pompa	Pump housing	1	
25	880130	Tappo carico olio	Oil cap	1	
26	962010	Dado	Nut	3	
27	962000	Rosetta	Washer	3	
28	1380940	Pistone in ceramica	Ceramic piston	3	Ø18 ○ □ ● ■
	1380930	Pistone in ceramica	Ceramic piston	3	Ø20 ☆
	1382360	Pistone in ceramica	Ceramic piston	3	Ø22 ☆
29	1380950	Disco separatore	Spacer	3	
30	600180	OR	O-Ring	3	
31	1380920	Pistone di guida	Guiding piston	3	
32	1380060	Spinotto	Piston pin	3	
33	1383050	Biella alluminio	Aluminium con-rod	3	
	1383020	Biella bronzo	Bronze con-rod	3	
34	1780510	OR	O-Ring	1	
35	1789010	Coperchio completo	Complete cover	1	
36	1343510	Vite	Screw	6	
37	2280100	Albero eccentrici	Crankshaft	1	○
	2280080	Albero eccentrici	Crankshaft	1	□
	2280070	Albero eccentrici	Crankshaft	1	● ★
	2280060	Albero eccentrici	Crankshaft	1	■ ☆
38	1380520	Linguetta	Key	1	
39	180340	Anello tenuta	Seal	1	

Pos.	Cod. Part n°	Denominazione	Description	Q.tà Q.ty	Note Vedl/see
40	1380120	Spessore 0,10 mm	0,10 mm shim	1+3	
	1380130	Spessore 0,20 mm	0,20 mm shim	1+3	
	1380530	Spessore 0,25 mm	0,25 mm shim	1+3	
	1382810	Spessore 0,05 mm	0,05 mm shim	1+3	
	1380040	Supp. cusc. aperto	Open bearing sup.	1	
41	740290	OR	O-Ring	3	③
42	1980740	Tappo	Plug	2	③
43	1260470	Vite	Screw	4	
44	1380141	Piede	Base	2	
45	1980740	Tappo	Plug	1	① ④ ⑥
46	1981180	Tappo	Plug	1	② ③ ⑤ ⑦
47	180101	OR	O-Ring	1	
48	820361	Tappo	Plug	1	① ④ ⑥
	960870	Tappo	Plug	1	② ③ ⑤ ⑦
49	1381071	Testa pompa	Pump head	1	①
	1381070	Testa pompa	Pump head	1	② ③
50	1380020	Testa pompa	Pump head	1	④ ⑥
	1380680	Testa pompa	Pump head	1	⑤ ⑦
51	820150	Vite	Screw	8	
52	1380380	Flangia motore el.	El. motor flange	1	B3/B14
53	1380300	Semigiunto pompa	Pump coupling	1	
54	1321670	Boccola	Bushing	6	
55	1380340	Semigiunto motore	Motor coupling	1	Ø 28 mm
56	1380180	Grano	Grub screw	1	
	1320270	Puleggia	Pulley	1	2A Øe 120mm
57	1380890	Puleggia	Pulley	1	3A Øe 120mm
	1380900	Puleggia	Pulley	1	4A Øe 138mm
58	780230	Rosetta	Washer	1	
59	740450	Vite	Screw	4	
60	1380320	Cuscinetto	Bearing	1	
61	621170	Anello tenuta	Seal	1	
62	1380220	OR	O-Ring	1	
63	1380210	Coperchio albero	Shaft cover	1	
64	540290	Vite	Screw	4	
66	2280180	Alb.ecc. cavo Ø28mm	Hollow shaft Ø28mm	1	○
	2280170	Alb.ecc. cavo Ø28mm	Hollow shaft Ø28mm	1	□
	2280160	Alb.ecc. cavo Ø28mm	Hollow shaft Ø28mm	1	● ★
	2280150	Alb.ecc. cavo Ø28mm	Hollow shaft Ø28mm	1	■ ☆
67	1380370	Flangia motore el.	El. motor flange	1	Gr. 100, 112
68	1381850	Rondella	Washer	8	
69	1080401	Anello	Ring	3	
70	620610	Vite	Screw	4	
71	840370	Cuscinetto	Bearing	1	

③ Compreso nel cod. 1789010 / Part of part n° 1789010

RK 1450 RPM

KIT RICAMBI - PREMONTAGGIO TESTA POMPA PART KITS - PUMP HEAD PRE-ASSEMBLY



KIT RICAMBI PART KITS PER/FOR	A Valvole Valves	B Pistoni Pistons	C Tenute olio Oil seals		D Tenute acqua Water seals	E Appoggio guar. Support ring
			N VERSION	*C* VERSION		
RK 11.14 RK 11.20 H RK 11.25 H	KIT 2864	KIT 2757	KIT 1855	KIT 1856	KIT 1857	KIT 1829
RK 13.12 RK 13.17 RK 13.20 H	KIT 2864	KIT 2757	KIT 1855	KIT 1856	KIT 1857	KIT 1829
RK 14.16	KIT 2864	KIT 2757	KIT 1855	KIT 1856	KIT 1857	KIT 1829
RK 15.15 RK 15.20 H RK 15.25 H RK 15.28 H	KIT 2864	KIT 2757	KIT 1855	KIT 1856	KIT 1857	KIT 1829
RK 18.12 RK 18.16 H RK 18.20 H	KIT 2864	KIT 2758	KIT 1855	KIT 1856	KIT 1887	KIT 1815
RK 21.10 RK 21.15 H RK 21.19 H	KIT 2864	KIT 2759	KIT 1855	KIT 1856	KIT 1888	KIT 1816

LEGENDA					
① For / per RK 11.14 RK 13.12 RK 13.17 RK 14.16 RK 15.15	③ For / per RK 11.25 H RK 15.25 H	④ For / per RK 21.10 RK 21.15 H RK 21.19 H	⑤ For / per RK 11.14 RK 11.20 H RK 11.25 H RK 13.12 RK 13.17 RK 13.20 H	⑥ For / per RK 15.15 RK 18.12 RK 18.16 H RK 18.20 H	⑦ For / per RK 11.14 RK 11.20 H RK 11.25 H RK 13.12 RK 13.17 RK 13.20 H
② For / per RK 11.20 H RK 13.20 H RK 15.20 H	④ For / per RK 18.12 RK 18.16 H RK 18.20 H	⑤ For / per RK 15.15 RK 15.20 H RK 15.25 H RK 15.28 H	⑥ For / per RK 18.12 RK 18.16 H RK 18.20 H	⑦ For / per RK 21.10 RK 21.15 H RK 21.19 H	⑧ For / per RK 14.16

parti speciali in special parts in			
Cod. Part n°	Denominazione Description	Q.tà	Q.tv
2809	Ten. acqua VITON vedi ○ □ ● ■		1
2810	VITON water seals see ○ □ ● ■		1
2811	Ten. acqua VITON vedi ☆		1
	Ten. acqua VITON see ☆		1

GB Torque wrench settings. The screws in position 50 are tightened to 24,5 Nm (2,5 kgm). The valve nuts position 2 are tightened to 54 Nm (5,5 kgm). Nuts position 23 must be tightened to 12 Nm (1,2 kgm). Tighten bearing support bolts position 17, 65 and 76 to 24,5 Nm (2,5 kgm).

LUBRICATION
Before starting the pump, check the oil level in the pump. 0,43 kg of "SAE 30 W" is to be used. Change the oil after the first 50 working hours and then after every 500 working hours.

F Couple de serrage. Vis position 50 seront serrées à 24,5 Nm (2,5 kgm). Bouchons de clapets position 2 seront serrés à 54 Nm (5,5 kgm). L'écrou position 23 devra être fixé avec 12 Nm (1,2 kgm). Les vis support roulement position 17, 65 et 76 doivent être serrés avec 24,5 Nm (2,5 kgm).

LUBRIFICATION
Avant la mise en service de la pompe s'assurer que l'huile dans le carter soit à son juste niveau. L'huile à utiliser est "SAE 30 W" 0,43 kg. Changer l'huile après les premières 50 heures de fonctionnement et successivement toutes les 500 heures de travail.

D Anzugsmomente. Schrauben Pos. 50 mit 24,5 Nm (2,5 kgm) befestigen. Ventildeckel Pos. 2 mit 54 Nm (5,5 kgm) befestigen. Die Schraubenmutter Pos. 23 muß mit einem Drehmomentdruck von 12 Nm (1,2 kgm) befestigt werden. Die Lagerschrauben Pos. 17, 65 und 76 mit 24,5 Nm (2,5 kgm)

bevestigen.
SCHMIERUNG
Vor der Inbetriebnahme der Pumpe Ölstand im Kurbelgehäuse überprüfen. Zur Ölfüllung 0,43 kg "SAE 30 W" verwenden. Ölwechsel nach den ersten 50 Betriebsstunden und dann alle 500 Betriebsstunden vornehmen.

E Pares de torsión. Tornillos pos. 50: 24,5 Nm (2,5 kgm). Tapón válvula pos. 2: 54 Nm (5,5 kgm). La tuerca pos. 23 con 12 Nm (1,2 kgm). Tornillos soporte cojinete pos. 17, 65 y 76: 24,5 Nm (2,5 kgm).

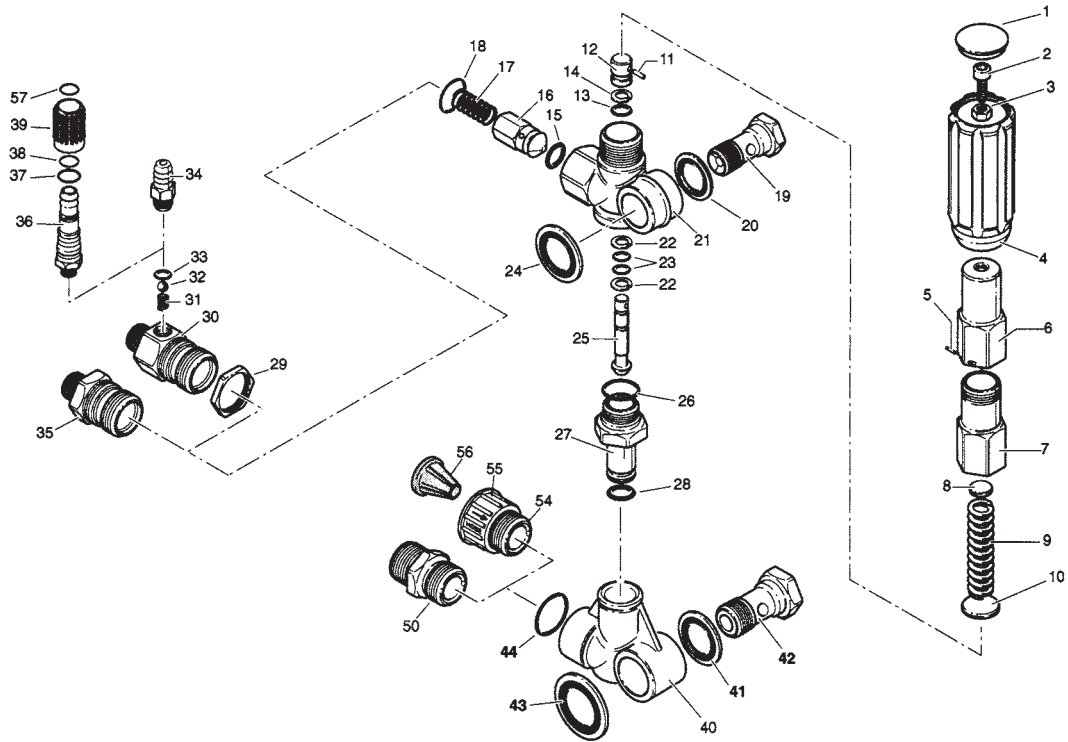
LUBRICATION
Antes de poner en funcionamiento la bomba asegurarse que el nivel de aceite en el carter sea justo. El aceite que debe utilizarse es "SAE 30 W" en la cantidad de 0,43 kg. Cambiar el aceite después de las primeras 50 horas de funcionamiento y sucesivamente cada 500 horas de trabajo.

I Coppie di serraggio. Viti pos. 50 vanno serrate con 24,5 Nm (2,5 kgm). Tappi valvole pos. 2 vanno serrate con 54 Nm (5,5 kgm). Dadi pos. 23 vanno serrati con 12 Nm (1,2 kgm). Viti supporto cuscinetto pos. 17, 65 e 76 vanno serrate con 24,5 Nm (2,5 kgm).

LUBRIFICAZIONE
Prima dell'avviamento della pompa assicurarsi che l'olio nel carter sia al giusto livello. L'olio da usare è "SAE 30 W" nella quantità di 0,43 kg. Sostituire l'olio dopo le prime 50 ore di funzionamento e successivamente ogni 500 ore di lavoro.

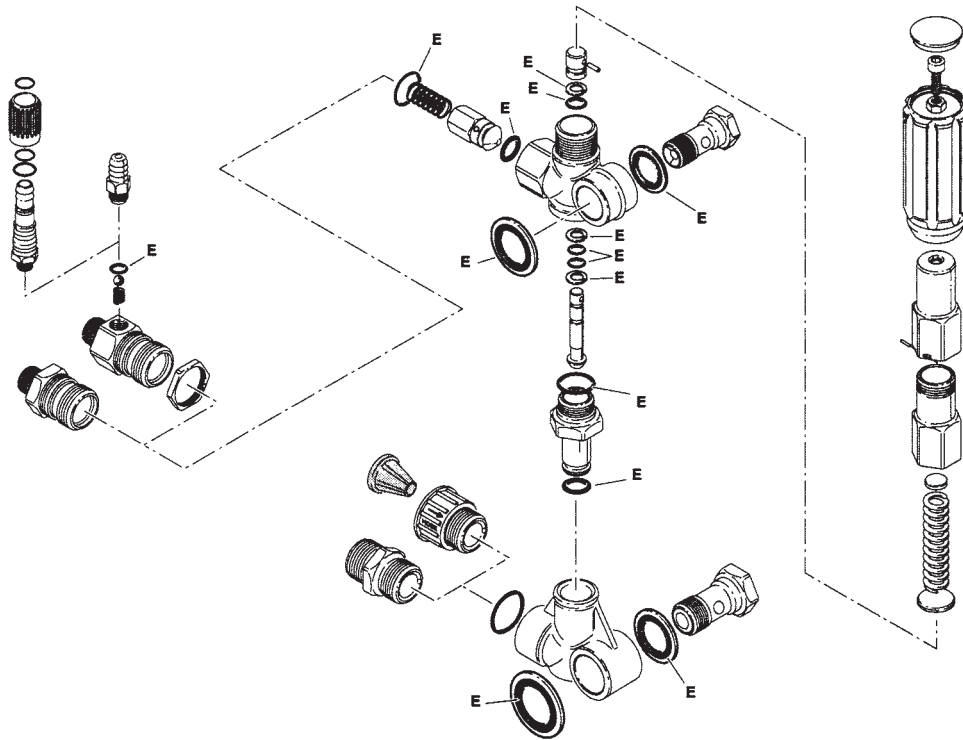
Characteristics and descriptions are not binding. (Caratteristiche e descrizioni non vincolanti per le descrizioni e le illustrazioni sono solo a titolo indicativo e non impegnativo.)

GYMATIC 3/B

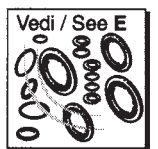


DIS. Gim3kit - DF

KIT RICAMBI / PART KITS



DIS. Gim3Bkit - DF



ANNOVI GM3B UNLOADER VALVE	
Part Number	Description
ARGM3B	Complete Unloader Valve
AR1560580	Cap
AR1660210	Nut
AR1560400	Adjusting Knob
AR1560420	Adjusting Cap
AR1080070	Mini Matic Pin
AR1560410	Spring Holder
AR1560440	Spring Cap
AR1560350	Spring
AR1080610	Spring Plate
AR1080660	Pin GM Unloader
AR1540080	Banjo Bolt
AR1560010	Valve Body (G)
AR1080540	Upper Piston GM Unloader
AR1560100	Non Return Body
AR1560140	Spring
AR1560490	Chemical Barb
AR1250280	Ball
AR1560520	Spring
AR1560510	Nut
AR1560500	Exit Piece with Chemical Injector
AR1560110	Exit Piece 3/8"
AR1560111	Exit Piece 3/8"
AR1560320	By Pass Piston
AR880270	O'Ring
AR1560050	By Pass Tube (Gymatic)
AR1540050	Inlet 1/2" BSP
AR1540090	Banjo Bolt
AR1540020	Low Pressure Housing
ARKIT2611	Unloader Valve Kit (200 Bar)