



# Clemas & Co Ltd

INDUSTRIAL CLEANING EQUIPMENT

## DEMON TEMPEST 1, 2, 3 & CABINET PRESSURE WASHERS OPERATOR MANUAL



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## Technical Specifications

### **Tempest 1 / Auto / Cabinet Washer 240V ( Blue Cable)**

<b>Pump</b>	<b>XT11.11</b>		<b>Boiler</b>	
Pump pressure	100 bar	1500psi	Fuel type	Kerosene/gas oil/derv
Flow rate	111pm	2.45gpm	Pressure	7 bar 110psi
Max by-pass setting	110 bar	1650psi	Nozzle	1.5 US galls
Min pressure setting	50 bar	750psi	Nozzle make	Monarch 60°R or AR Danfoss 60° S
H.P nozzle	25045		Electrode gap	6mm ± 1mm
Motor power	2.2KW(MTR00100)		Ignition Transformer	70 Watts
Pump oil	10W40		Fuel pump	50 Watts
Unloader valve	ARMM4B/TSS		Fan motor	75 Watts
Noise			Fuse001	1 amp semi delay 20mm glass
Valve Kit	ARKIT1864		Oil Seal Kit	ARKIT1872
Seal Kit	ARKIT1874		Piston Kit	ARKIT2629

**Generator Size required 6KVA**

### **Tempest 3 / Auto 110V (Yellow Cable)**

<b>Pump</b>	<b>XT11.11</b>		<b>Boiler</b>	
Pump pressure	100 bar	1500psi	Fuel type	Kerosene/gas oil/derv
Flow rate	11 lpm	2.45gpm	Pressure	7 bar 100psi
Max by-pass setting	110 bar	1650psi	Nozzle	1.5 US galls
Min pressure setting	50 bar	750psi	Nozzle make	Monarch 60°R or AR Danfoss 60° S
H.P nozzle	25045		Electrode gap	6mm ± 1mm
Motor power	2.2KW(MTR00301)		Ignition Transformer	70 Watts
Pump oil	10W40		Fuel pump	50 Watts
Unloader valve	ARMM4B/TSS		Fan motor	75 Watts
Noise			Fuse002	3 amp semi delay 20mm glass
Valve Kit	ARKIT1864		Oil Seal Kit	ARKIT1872
Water Seal Kit	ARKIT1874		Piston Seal Kit	ARKIT2629

**Generator size required 8KVA**

### **Tempest 4 / Auto /Cabinet Washer 415V (Black Cable) ( From the 03/07/12 ARGM3 unloader)**

<b>Pump</b>	<b>RK15.20H</b>		<b>Boiler</b>	
Pump pressure	200bar	2900psi	Fuel Type	kerosene/gas oil/ derv
Flow rate	151pm		Pressure	7 Bar 110psi
Max by-pass setting	200bar	2900psi	Nozzle	1.75 US galls
Min pressure setting	50bar	750psi	Nozzle make	Monarch 60°R or AR Danfoss 60° S
H P Nozzle	2505		Electrode gap	6mm + 1mm
Motor power	7.5KW(MTR00220)		Ignition Transformer	70watts
Pump oil	10W40		Fuel pump	50watts
Old Unloader Valve	ARMM4B/TSS		New Unloader Valve	ARGM3
			fan Motor	75watts
Noise			Fuse001	1amp semi delay 20mm glass-
Valve Kit	ARKIT1828		Water Seal Kit	ARKIT1857
Oil Seal Kit	ARKIT1856		Piston	ARKIT2757

**Tempest Cabinets fitted with low water and low fuel cut out sensors**

**Service Part Numbers for Tempest 1 & 3**

ARKIT1874	Seal Kit
ARKIT2812	Seals for Unloader
ARKIT1864	Valve Kit
AR1271160	Pistons
AR1980200	Unloader Seat
DB000010	Fuel Nozzle
DB000110	Electrodes
DB00250	Fuel Filter
N26001/25045	Nozzle
DEM10115	Detergent Pipe
AR1320351	Piston Guides

**Tempest 4 Service Kit**

ARKIT1857	Seal Kit
ARKIT2611	Valves
AR1560320	Pistons
AR1560051	Valve Tube
ARKIT1828	H P Valves
DB000015	Fuel Nozzle
DB000110	Electrodes
DB00250	Fuel Filter
N26001/2505	Nozzle
DEM10115	Detergent Pipe
AR1380090	Seal Carriers

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## FAULT FINDER

FAULT	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 fuse.
Sudden pressure loss	No water Low water sensor activated No chemical Burst disk failure	Check water supply Fill with water Check chemical drum Close valve Replace disk
Low pressure	H.P. Nozzle worn or unloader set incorrectly.	Replace HP Nozzle Reset unloader valve
Low pressure with noise and vibration	Valves worn or blocked Piston seals worn Pump sucking air	Clean and 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	Pump seals worn	Replace
Oil drips from pump bottom	Pump seals worn	Replace
Burner will not ignite	Fuel tank empty Low fuel tank sensor tripped out Fuel filter blocked Fuel nozzle blocked Electrodes dirty or out of adjustment. Flow switch out of adjustment	Refill Refill Replace Clean, replace Clean, replace or adjust Adjust
Oil is milky in colour	Water ingress 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 replacements parts required will vary according to the area and the 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.

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## **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.

# Step by Step Operating Manual Demon Tempest

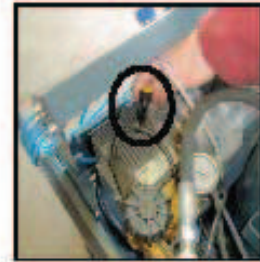
## How to start the Tempest



NB

You will also find instructions on the front left hand side of the machine on how to operate the Tempest.

1



Unlock bonnet clips, lift lid and check pump oil. Replenish as required.

2



Check fuel level and replenish as required.

3



Unwind power lead and plug into mains. NB not an extension lead

4



Connect to mains water by pulling back inlet and pushing hose on.

5



Connect MVG High pressure hose. Push 1 MVG nipple & tighten nut

6



Connect hose to trigger – ensure correct lance for hot water is used.

7



Turn on mains water. Water tank will begin to fill inside machine.

8



NB - On first use check water valve shuts off water correctly.

9



Shut down lid and push button to turn pump on to get cold water.

10



For hot water push button and hot water will filter through.



## Step by Step Operating Manual Demon Tempest

P2 of 2

11



NB – the longer you wait the hotter the water will be to a max temp of 93°C

NB

Ensure when you have finished with detergent that the valve is turned off to prevent air being sucked into machine and reducing pressure.

12



For detergent. Insert detergent pipe into chemical drum.

14



When finished switch off hot water and run until water is cold..

16



Unplug and re-wind electrical cable around handle and reconnect bonnet clips

15



Release any pressure in hose by squeezing trigger and disconnect.

13



Ensure hot water on. Adjust detergent valve accordingly.

NB

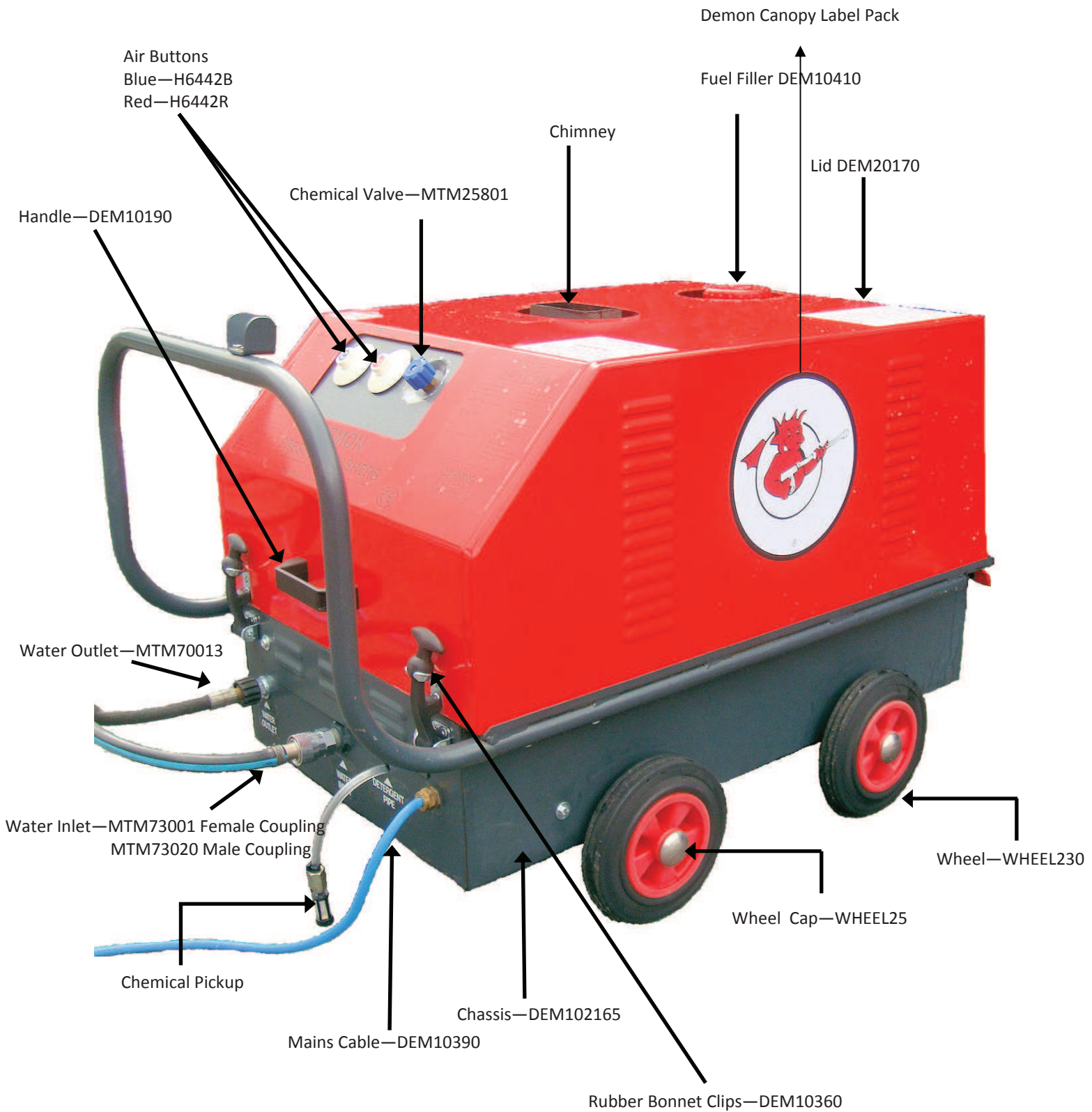
Switch off water at mains. Continue running until the machine is empty of cold water. This will ensure that during a cold snap the water does not freeze in the machine causing damage.

NB

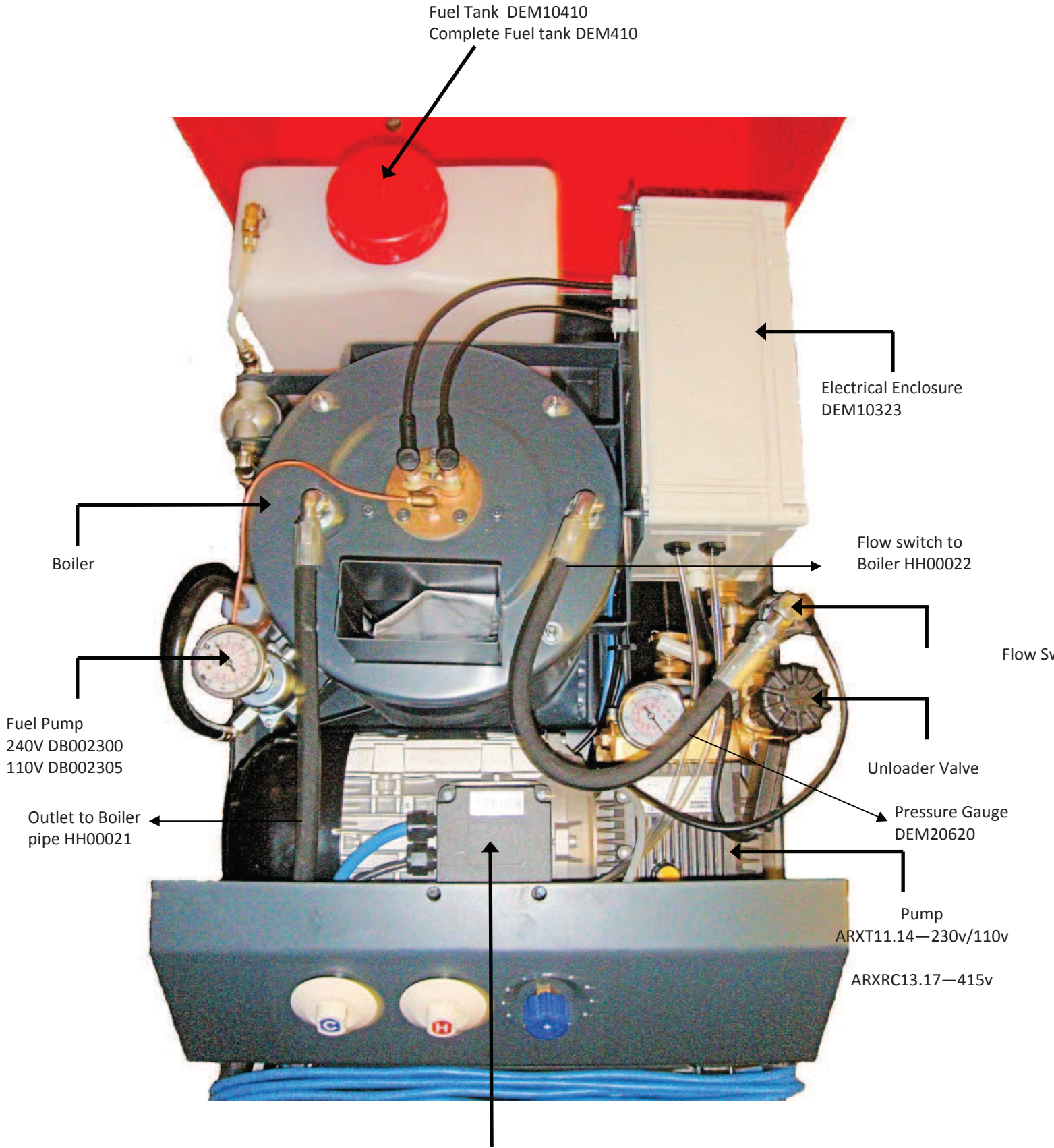


For faults refer to the instruction panel on the front right hand side of the machine prior to calling for technical assistance.

# Demon Tempest Hot Water Range - General Arrangement



# Demon Tempest Range Arrangement Drawing—Plan View



240V Motor MTR00100  
110v Motor MTR00301  
415V Motor MTR00220  
Trip switch DEM10175

Note: Not visible Capacitor  
230v—1 x 65 $\mu$  capacitor  
110v—2 x 65 $\mu$ capacitor

## **Tempest Cabinet Washer - Installation Instructions**

The Tempest Cabinet washer is simple to install, there are four holes in the feet for bolting to a solid surface such as a concrete plinth and a 10 mm masonry drill can be drilled to a depth to suit either raw bolts or sleeve anchors. The water supply is via a standard hose pipe to a tap and there is a stepped nipple to suit 13 mm and 19 mm pipe.

Electricity supply must be wired by a competent electrician and we recommend the supply is wired using armoured cable with an isolator nearby. If a separate supply is required for the frost protection system then this must be installed upstream of the isolator so the heater will work even if the mains supply is turned off. A fused spur is ideal for this application.

230V model – needs a D20 MCB on your distribution panel

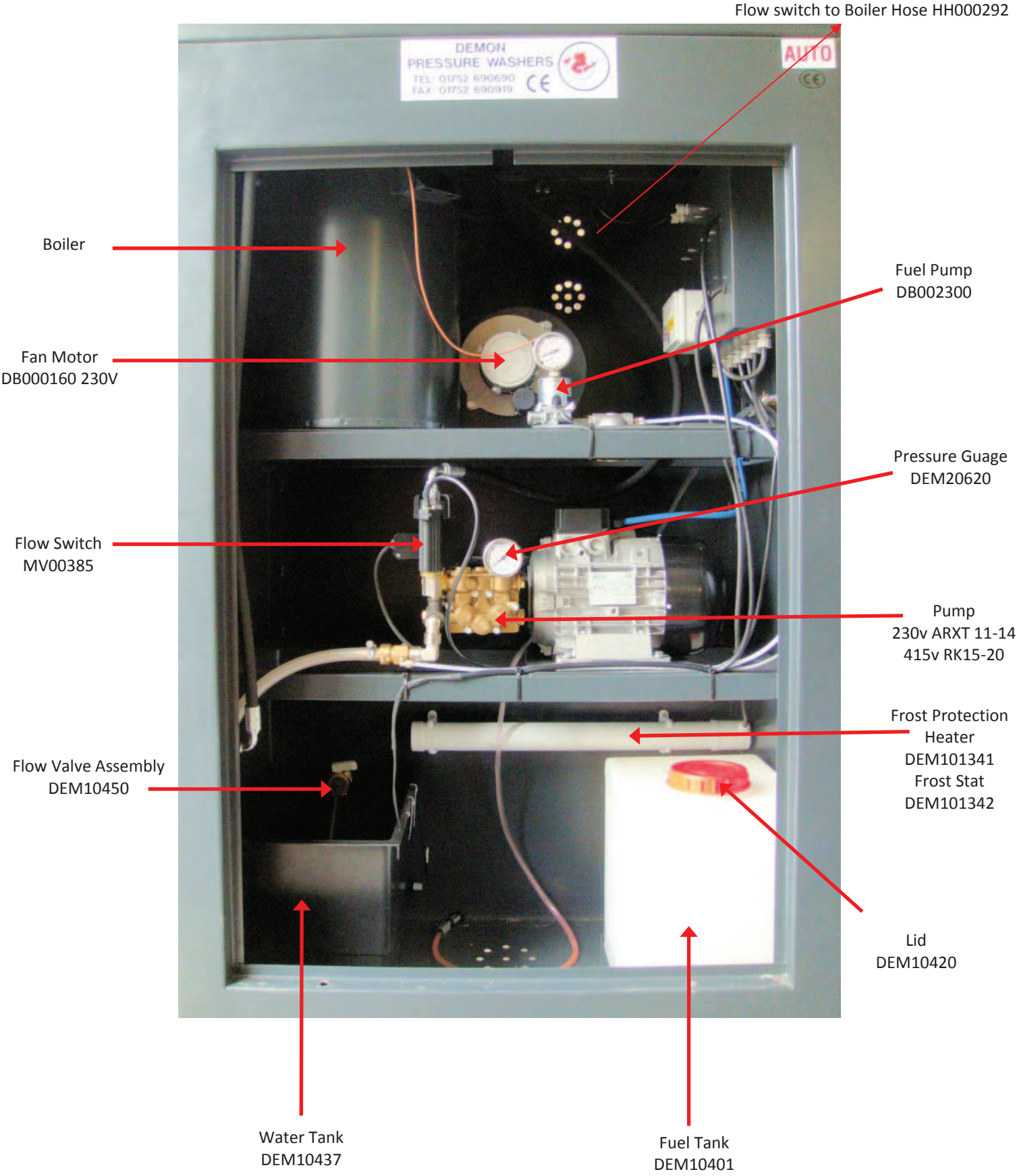
415V model – needs a D20 triple MCB on your distribution panel

Both models – separate feed for frost protection 5 amp fused spur

Prolonged periods of cold weather

In prolonged periods of cold weather we advise turning the water off and running the machine until it is empty then disconnect all hoses and isolate from the mains power but leaving the frost protection circuit live to give some heat inside the cabinet.

# Tempest Cabinet Washer - General Arrangement



Locking Handle for Cabinet DEM101361  
Please retain key number

## **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 maintenance, 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 transferable 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.

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.
6. For parts warranty ring Demon and request a warranty claim form faxed to you. This form must accompany any returned parts.

#### **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.



## Nozzles - you can't get pressure without one!

### How do I know which nozzle I have?

Look at this part of the nozzle and it will have a four or five digit number which gives the angle of spray as the first two digits. The next two or three numbers are the size. (i.e. 25045 is 25° spray angle with 045 size aperture.)



Pressure starts and ends at the nozzle. The volume of water pushed down the hose and forced through the small hole determines the pressure on the gauge. Try taking the nozzle out and then pulling the trigger. You get virtually no pressure registering on the gauge.

The golden rule when diagnosing a loss of pressure is **to start at the nozzle** and work back to the pump. Example: a new Typhoon is delivered to your branch and is left in the workshop for a few days until a hire comes up. The lance gets pinched to go out with one of your other pressure washers so you search around for something to use and find a lance that will do. Unfortunately it came from a petrol pressure washer and now the Typhoon will only do 1500psi. It must be Demon's fault. Get them to dash out and sort it out, must be warranty! No its the nozzle. An 055 fitted to a petrol pressure washer will only give 1500psi when used on a Typhoon. (This has happened!)

Example: I can't check that the right nozzle is fitted because the numbers are worn away. If you can't read the number then the nozzle is old a probably worn out. Fit a new one and see what pressure you get. (All the lances are now colour coded)

Model	Flow	Pressure	Nozzle	Colour
Storm 1 & 2	11 litres	1500 psi	25045	Blue
Storm Freestanding/ Wallmounted 1	11 litres	1500 psi	25045	Blue
Storm Freestanding/ Wallmounted 4	15 litres	2900 psi	2505	Red
Storm 500	15 litres	7000 psi	2505	Red
Tempest 1 & 3 Auto inc Cabinet	11 litres	1500 psi	25045	Blue
Tempest 4 Auto inc Cabinet	15 litres	2900 psi	2505	Red
Hurricane P1	11 litres	1500 psi	25045	Blue
Tornado & Hurricane P2	13 litres	2200 psi	25045	Blue
Tornado & Hurricane P4 & D1ES	15 litres	2900 psi	2505	Red
Mini-Bowser P1	11 Litres	1500 psi	25045	Blue
Mini-Bowser P2	13 Litres	2200 psi	25045	Blue
Typhoon 1, 2, P4 & Evolution Models	15 litres	2900 psi	2505	Red

**Demon Technical Support 01752 - 690690**



## Lance and Machine Colour Codes

Part Number	Description	Storm	Wall Mounted	Hurricane	Tempest Inc Cabinet	Typhoon	Evolution	Tornado & Mini-Bowser
DEM10031B	Cold Water Lance 045 Blue	Storm 1 & 2, FS1	WM1	P1 & P2	N/A	N/A	N/A	P1 & P2
DEM10031R	Cold Water Lance 05 Red	FS4	WM4	P4 & D1	N/A	N/A	N/A	P4 & D1
DEM10032B	Hot Water Lance 045 Blue	N/A	N/A	N/A	Tempest 1, 3 & 4 (13.17 pump)	N/A	N/A	N/A
DEM10032R	Hot Water Lance 05 Red	N/A	N/A	N/A	Tempest 4 (15.20 Pump)	Typhoon 1, 2 & P4	Evo1 & Evo 2	N/A

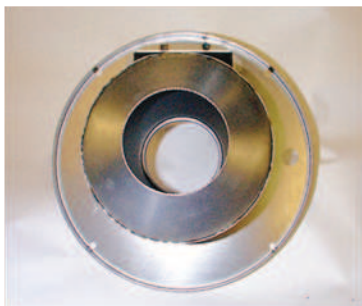


## The water is not as hot as it used to be – Why?

The fuel nozzle in your hot water pressure washer is a wearing item. It needs to be changed regularly. When depends entirely on the quality of fuel passing through it. As the nozzle wears the droplets which are atomised become bigger until they will no longer ignite easily. The symptom of this is flames appearing up the chimney. As soon as the flames are visible half way up the square section, change your nozzle and your filter, as well as removing the fuel tank and draining out the sediment and water that will have accumulated.



Another reason for the water not getting as hot it used to, is a damaged cone. The one on the left is new and how it should look, the one on the right is burnt and has one side missing. If you strip a fuel nozzle you will find that there are three very small grooves that the fuel travels along before it leaves the nozzle.



Dirt can block one of these grooves which forces most of the fuel out of one side causing a lopsided flame, which will in time oxidise the metal causing it to flake and drop into the bottom of the coil. The flame will burn mostly on one side of the boiler and even heating of the coil will not occur leading to a loss of heat output. Other symptoms include a hot outer casing and a partially melted fuel tank.

**TIP:**  
Change your fuel nozzle frequently and you won't need to fit a new inner drum lid & cone.

The nozzle we use is a Danfoss 1.50 US gallons per minute 60° solid nozzle. From the picture you can see that it is made up of five parts. The bits that get damaged by dirty fuel is the third and fourth items from the left. If you take one apart you will see how small the fuel grooves really are.



**Demon Technical Support 01752 - 690690**



## I can't get the pressure to where it used to be – where do I start?



Well by now you should know to check the nozzle - assuming that is correct and you still have no or low pressure the golden rule is to connect the pump to the mains water supply - whichever machine you are testing start with a good mains feed.

1. With the gun and lance connected turn the tap on - can you see a leak? If so there is your problem, if water can leak out air can get in and the pump won't produce pressure - simple as that. (Leaks from underneath the pump are either worn seals or a cracked piston - strip to find out which.)

**Remedy:** Fix leak or replace seals or piston.

2. Check enough flow of water can get into the pump. Make sure all the filters are clean. The new Tempest hot water machines have a fine filter which will remove most solids. All Demon machines are now double filtered. Have you checked both of them?

**Remedy:** Strip and inspect filters.

3. There are no leak's what next? With the pump switched off pull the trigger, water will spray out. Keeping the trigger pulled switch the pump on, if the water spray does not improve the valves are the fault. Either worn out or dirty. Strip and inspect. (The high pressure hose will also vibrate on the ground.)

**Remedy:** Replace or clean valves.

4. The valves are OK there are no leaks but it still won't get up to pressure – what next? The unloader valve piston and seal are damaged or worn allowing some of the water to circulate around the cylinder head - strip and inspect, you will see any damage.

**Remedy:** Strip unloader and inspect - replace damaged parts.

5. My cold water pressure washer does not feel as powerful as it used to be but the pressure gauge shows the correct pressure. What causes this? The chemical pick-up has a nozzle of 1.8mm or 2.0mm size and can get partially blocked. This will allow some but not all of the water to flow to the lance.

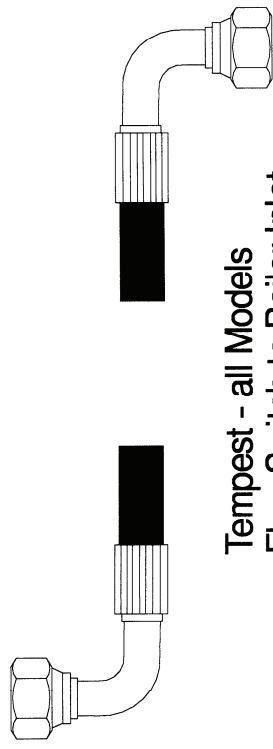
**Remedy:** Strip and remove the blockage.

6. The pressure remains high even when I let go of the trigger and the engine or motor is struggling or stalling. The non- return valve in the unloader is damaged or jammed.

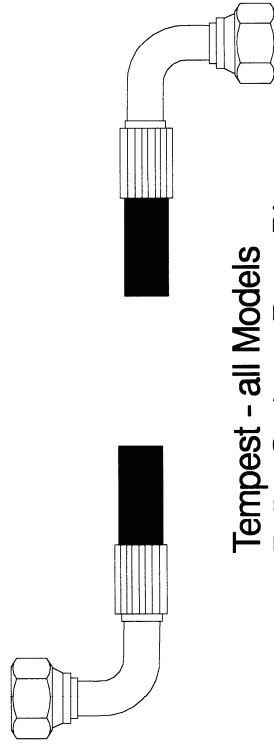
**Remedy:** Strip and clean or replace.

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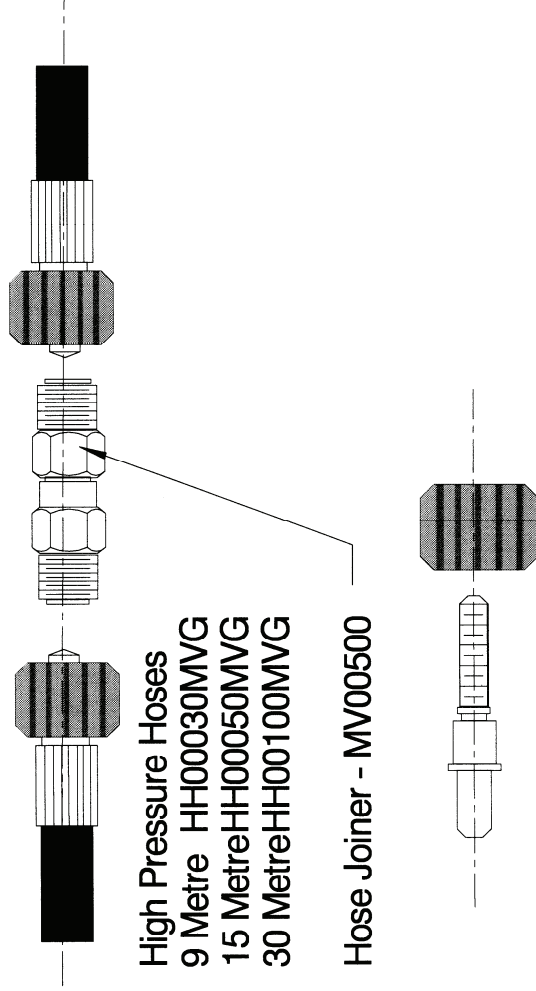
# High Pressure Hoses



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

HH0049 3/8 Ferrules (R1A)

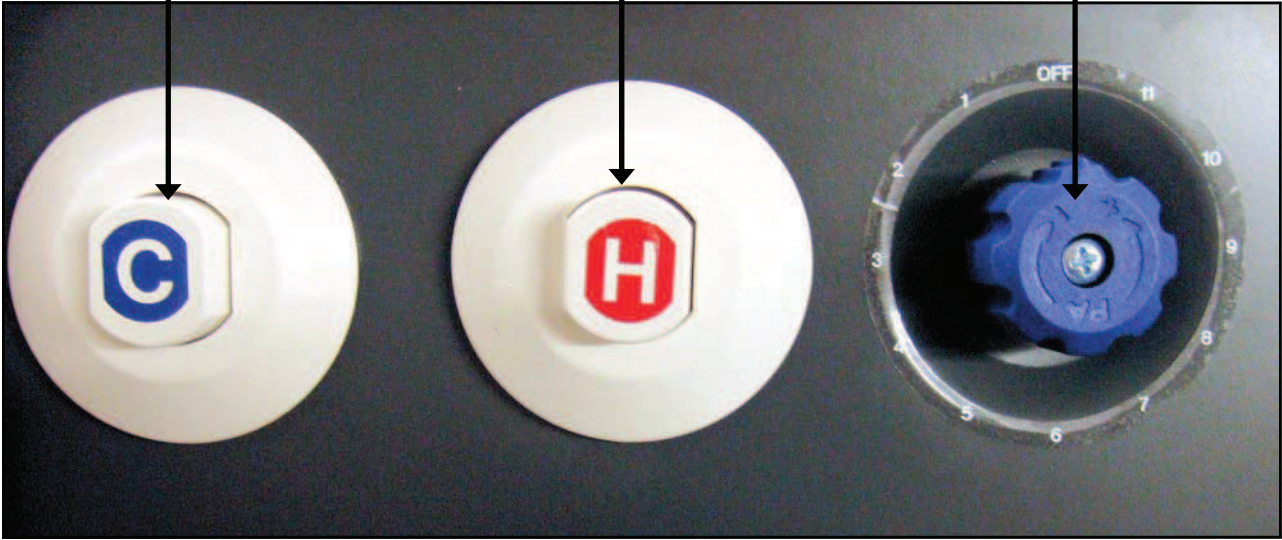
HH0053 Hose from Pump to Tap 1/2" L/P Yellow Hose

## Control Panel and Front Panel

Cold Button H6442B

Hot Button H6442R

Detergent/ Chemical Valve  
MTM25801



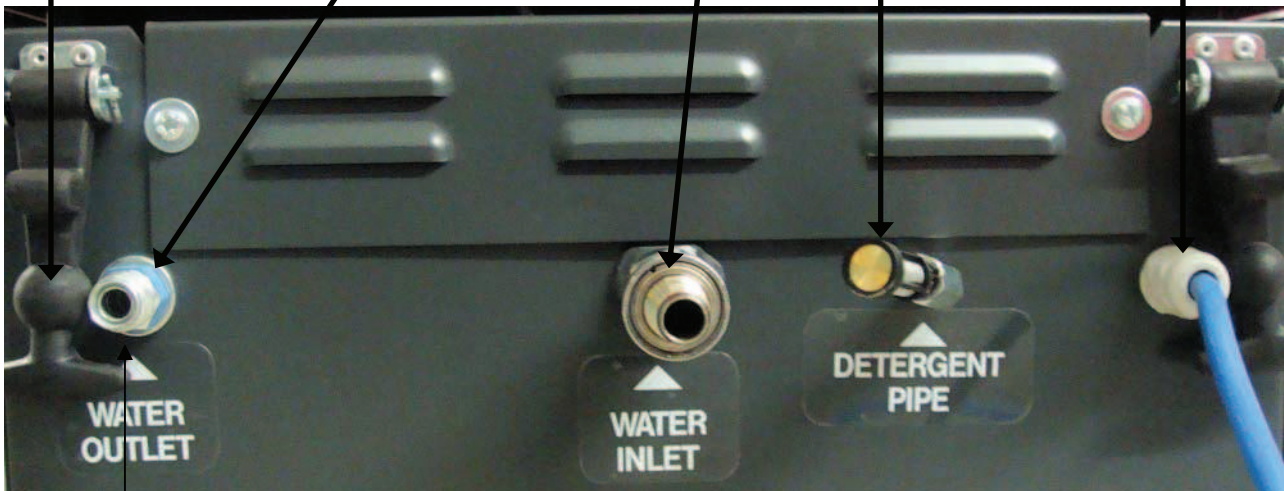
Water Inlet  
Inlet Connector MTM73001 Female nito  
Hose Connector MTM73020 Male nito  
Plastic Washers MTM73k991

Rubber Bonnet Clip  
DEM00360

Water Outlet  
MTM70013 Female  
MTM70012 Male

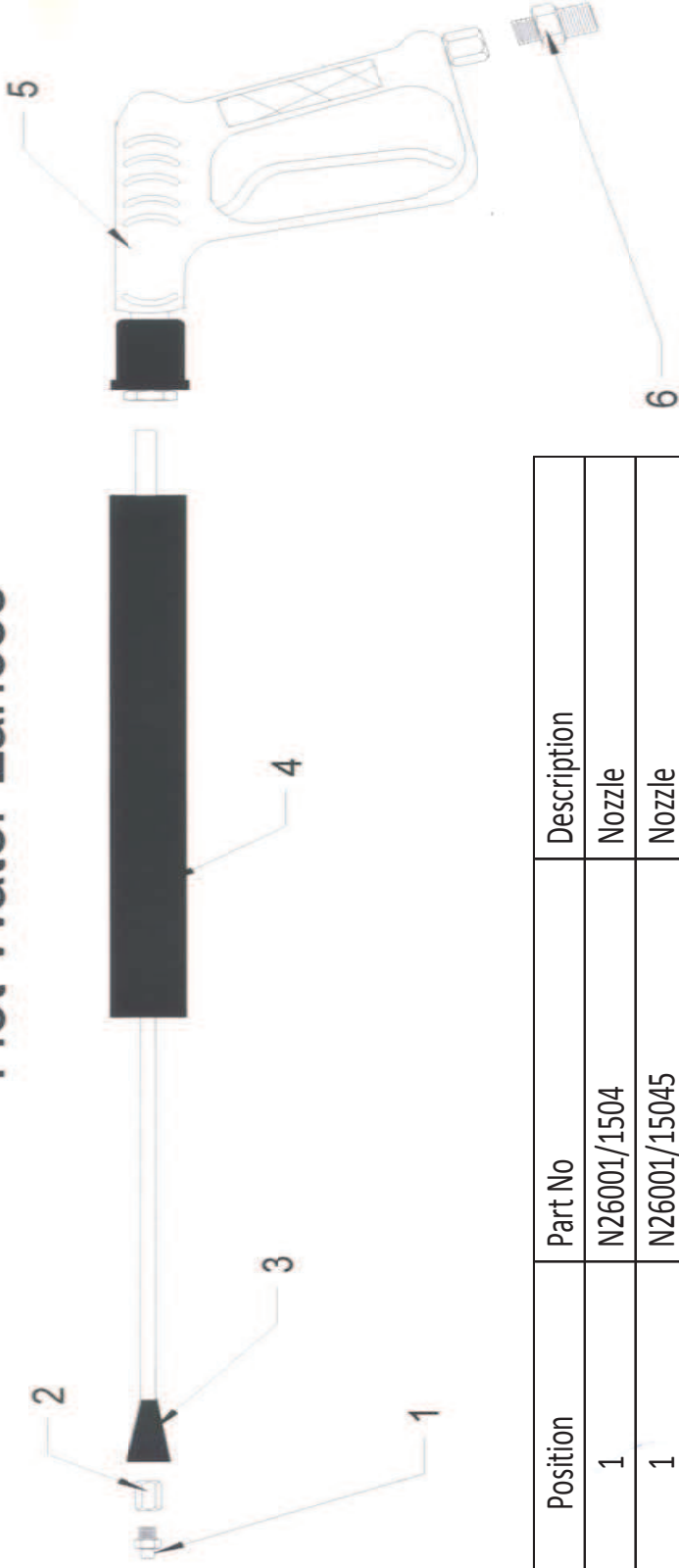
Detergent Pickup

Cable Gland  
DEM100938



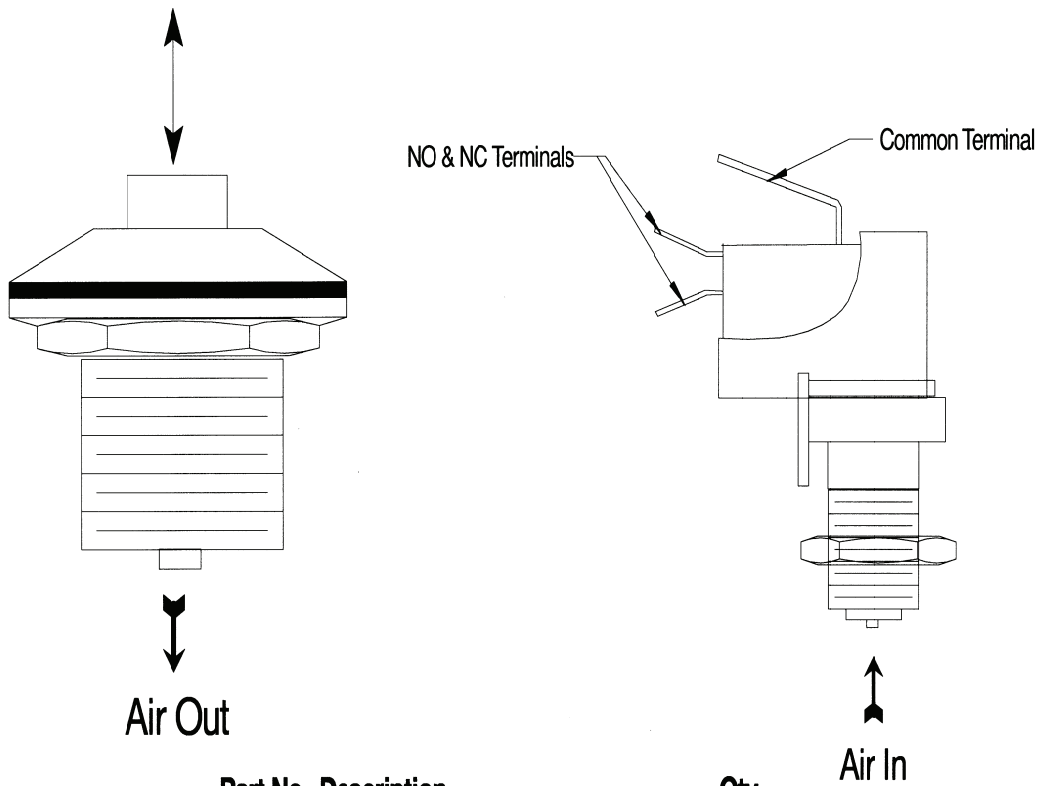
Brass 3/8 T Behind water Outlet MTM0013FFM2

# Hot Water Lances



Position	Part No	Description
1	N26001/1504	Nozzle
1	N26001/15045	Nozzle
1	N26001/1505	Nozzle
2	DEM20340	Barrel Nut
3	MTM0001000	Rubber Cover
4	DEM10032Y	Tempest 4 QR Lance 04
5	DEM10030	QR Trigger
6	MTM70012	MVG Nipple 3/8 male
	DEM100521	Turbo 045
	DEM10053	Turbo 05
	MTM90040	Adjustable Nozzle

## 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

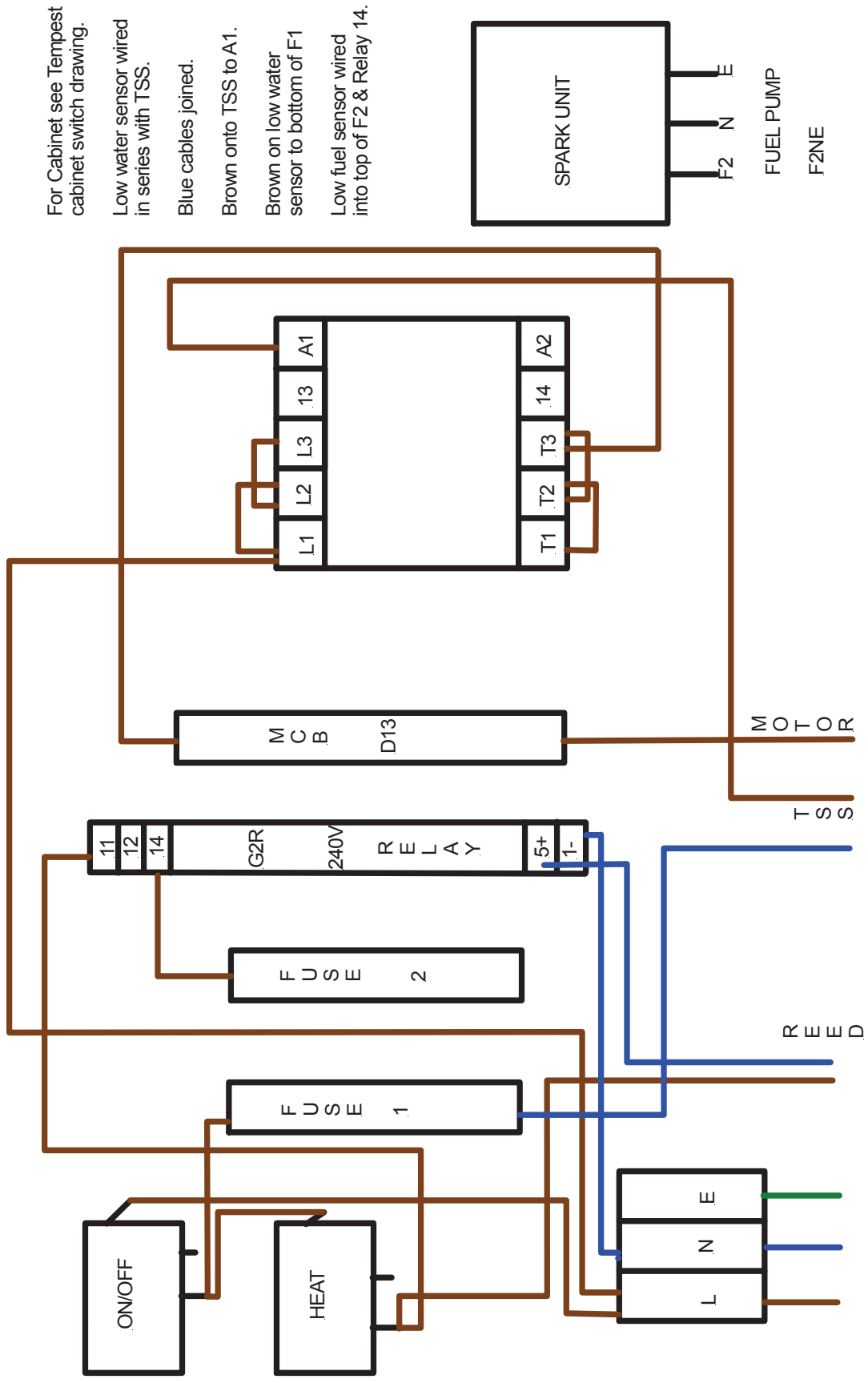
### How does this work ?

The air switch push button contains a membrane which, when the button is pushed it increases the air pressure in the air pipe which in turn activates a mechanism inside the switch.

The top terminal on the switch is a common live feed in and the other two are N/O and N/C respectively which means it does not matter which terminal you use for the switching signal.

With the Typhoon 1 you are turning the fan motor on which gives a live feed to the flow switch which in turn signals the relay to give fuel and sparks at the same time.

# Tempest 240V and Tempest Cabinet Wiring

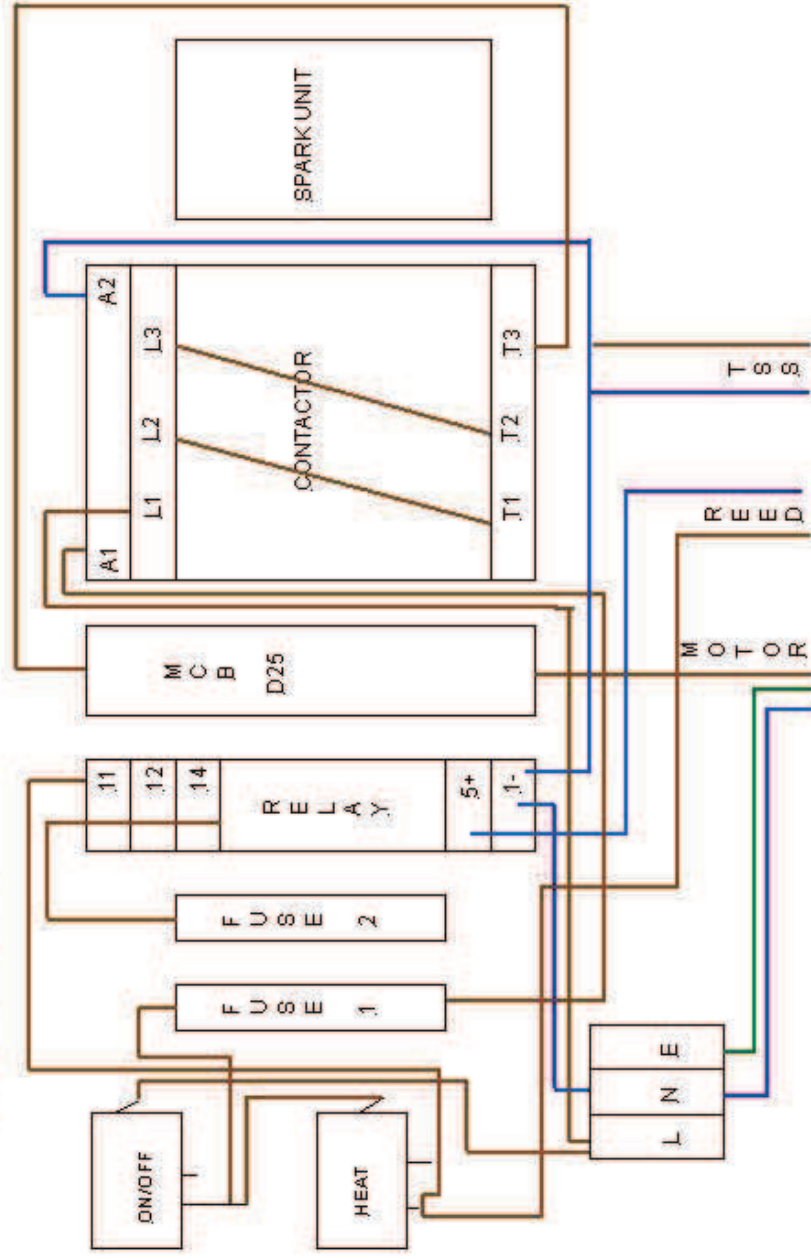




Tempest 240V Electrical Part Numbers

MTR00100	Ravel Motor 240V
ARXT11-14	Pump
DEM10125	Contactor
DEM101251	MCB 13 amp
DEM100920	Fuse Holder
FUSE001	Fuse
DB000160	Fan Motor 240V
DB000252	Ignition Transformer
DEM100750	Relay Base
DEM100910	Relay
DEM100948	Connector Block ( 3way)
DEM10341	Enclosure Base
DEM10322	Lid for Enclosure
DEM10327	Screws for Lid
DEM10323	Complete Electrical Box
DEM10330	Chassis Plate
DEM20100	PG11 Cable Gland
DEM20110	PG9 Cable Gland
H6871AC	Airswitch

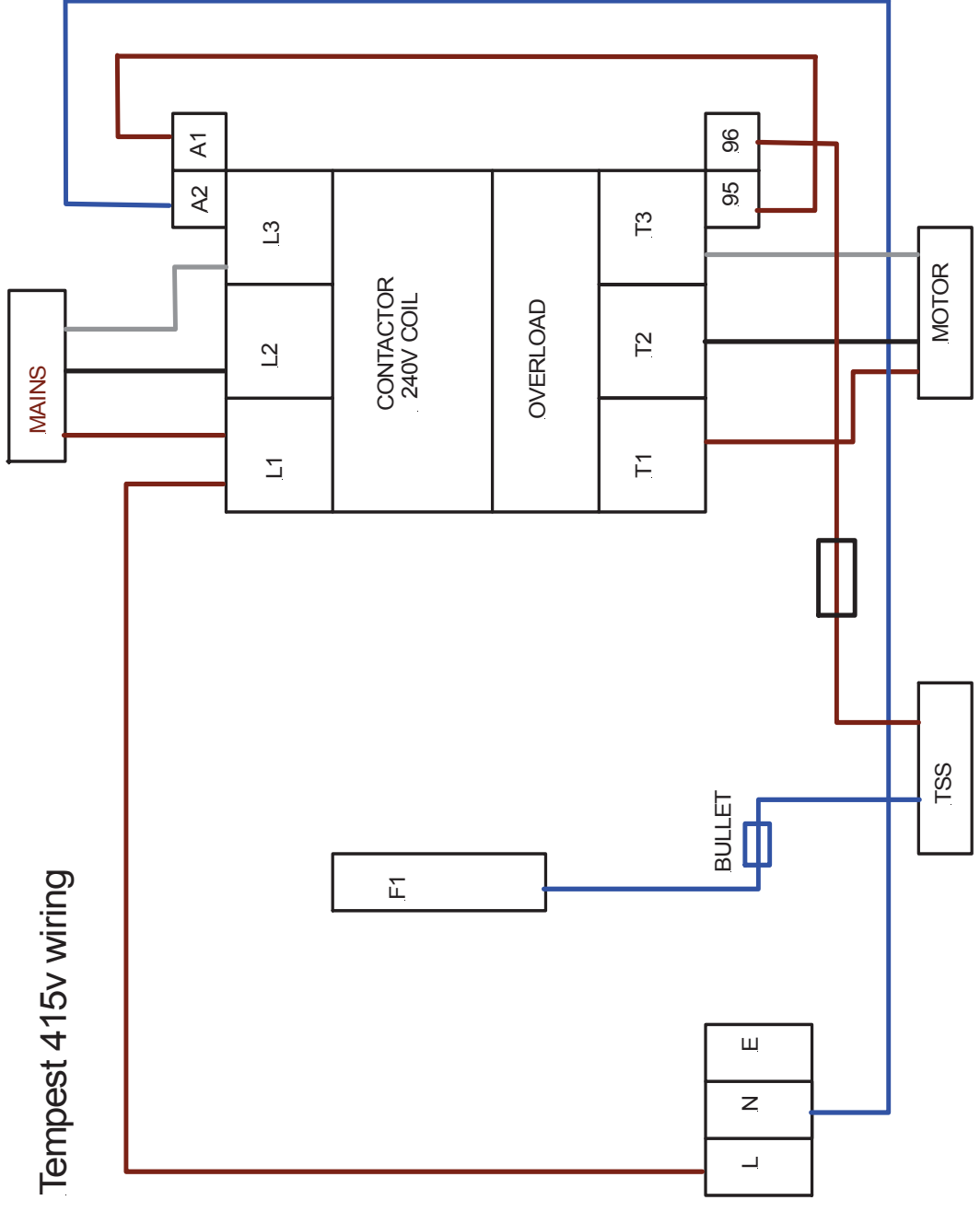
# 110V TEMPEST



Tempest 110V Electrical Part Numbers

MTR00301	Ravel Motor 110V
ARXT11-14	Pump
DEM10111	Contactora
DEM10130	MCB 110V
DEM100920	Fuse Holder
FUSE002	Fuse 3.5
DB000170	Fan Motor 110V
DB000255	Ignition Transformer
DEM100750	Relay Base
DEM100915	Relay
DEM100948	Connector Block ( 3Way)
DEM10341	Enclosure base
DEM20110	PG9 Cable Gland
DEM20100	PG11 Cable Gland
DEM10322	Lid for Enclosure
DEM10326	Metal Chassis Plate
DEM10327	Screws for Lid
DEM10323	Complete Box

# Tempest 415v wiring



For Tempest Cabinet see Tempest cabinet switch drawing.

Low water sensor wired in series with TSS & sensor.

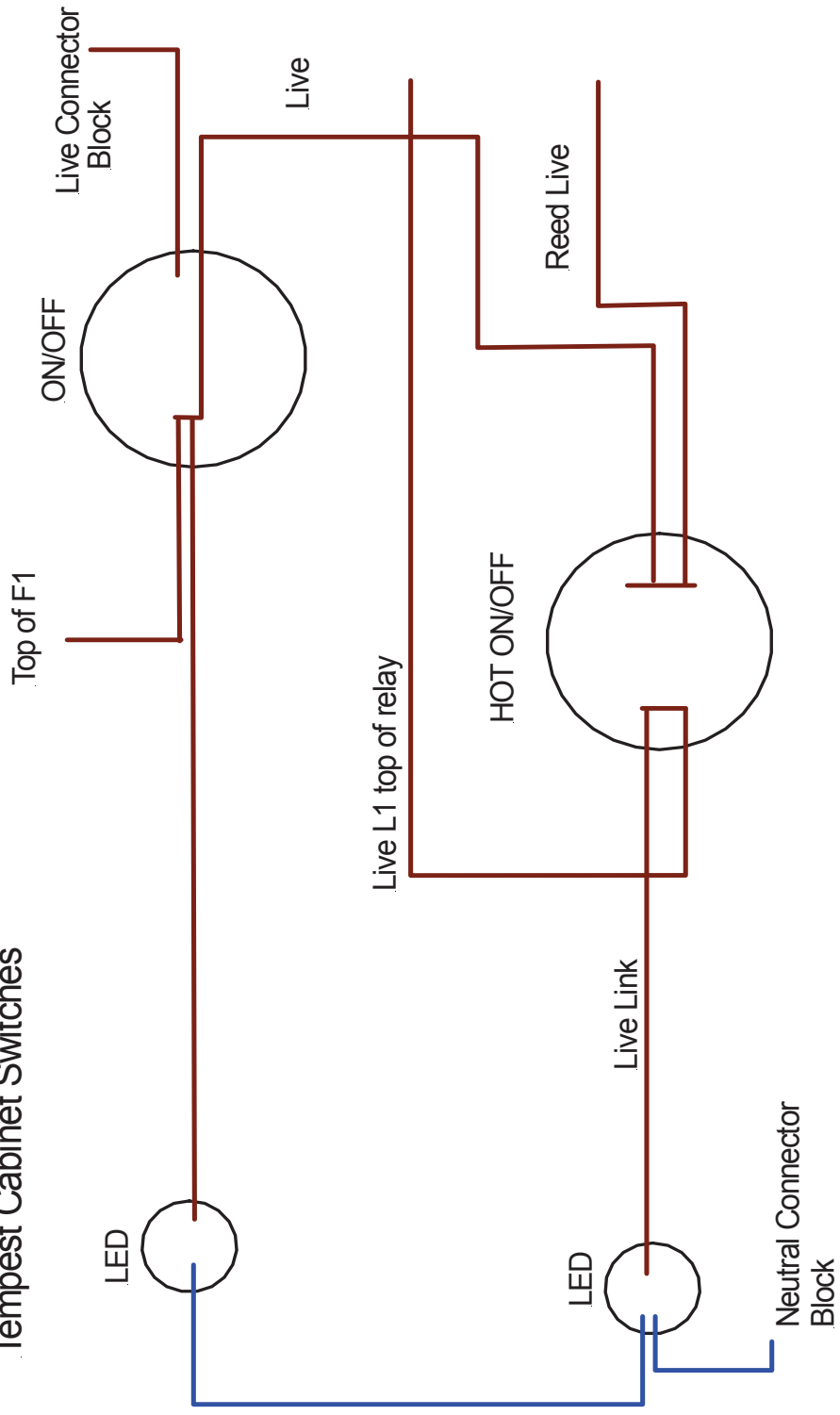
Blue cables joined.

Brown on TSS to 96.

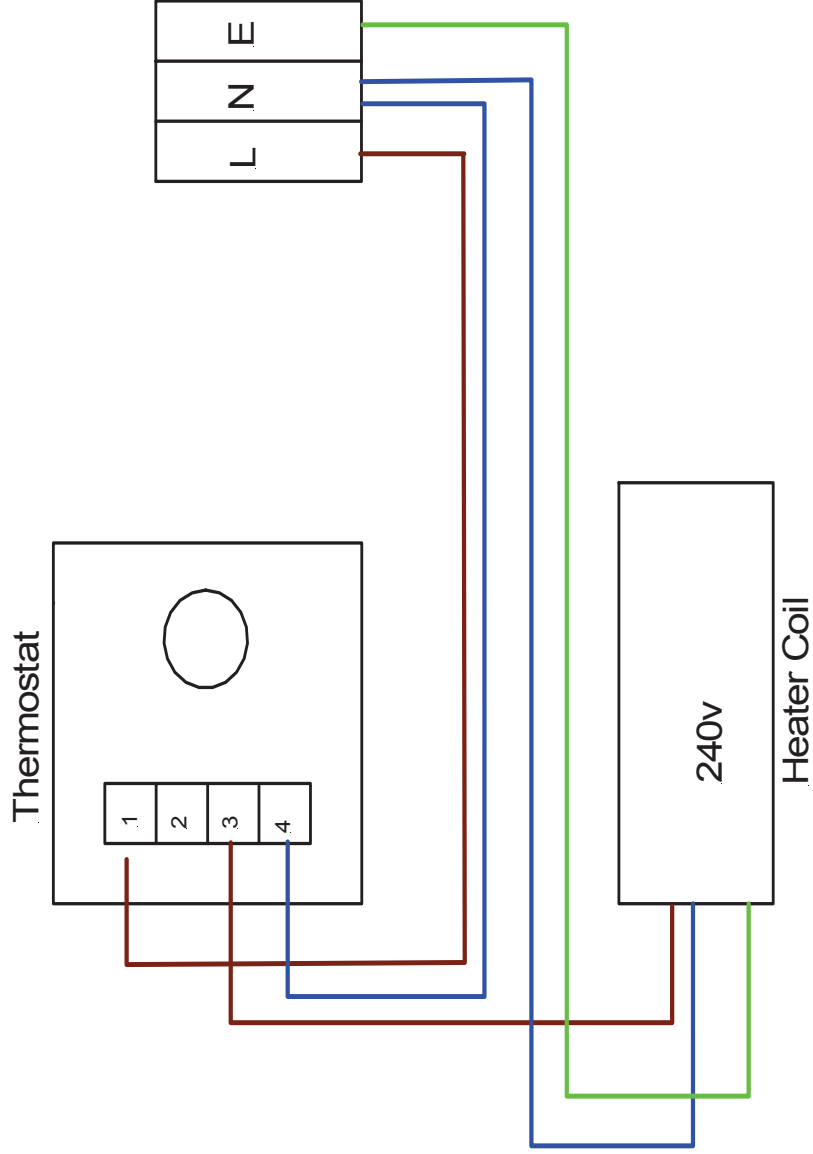
Brown on low water sensor to bottom of F1.

Low fuel sensor wired between top of F2 & top of relay 14.

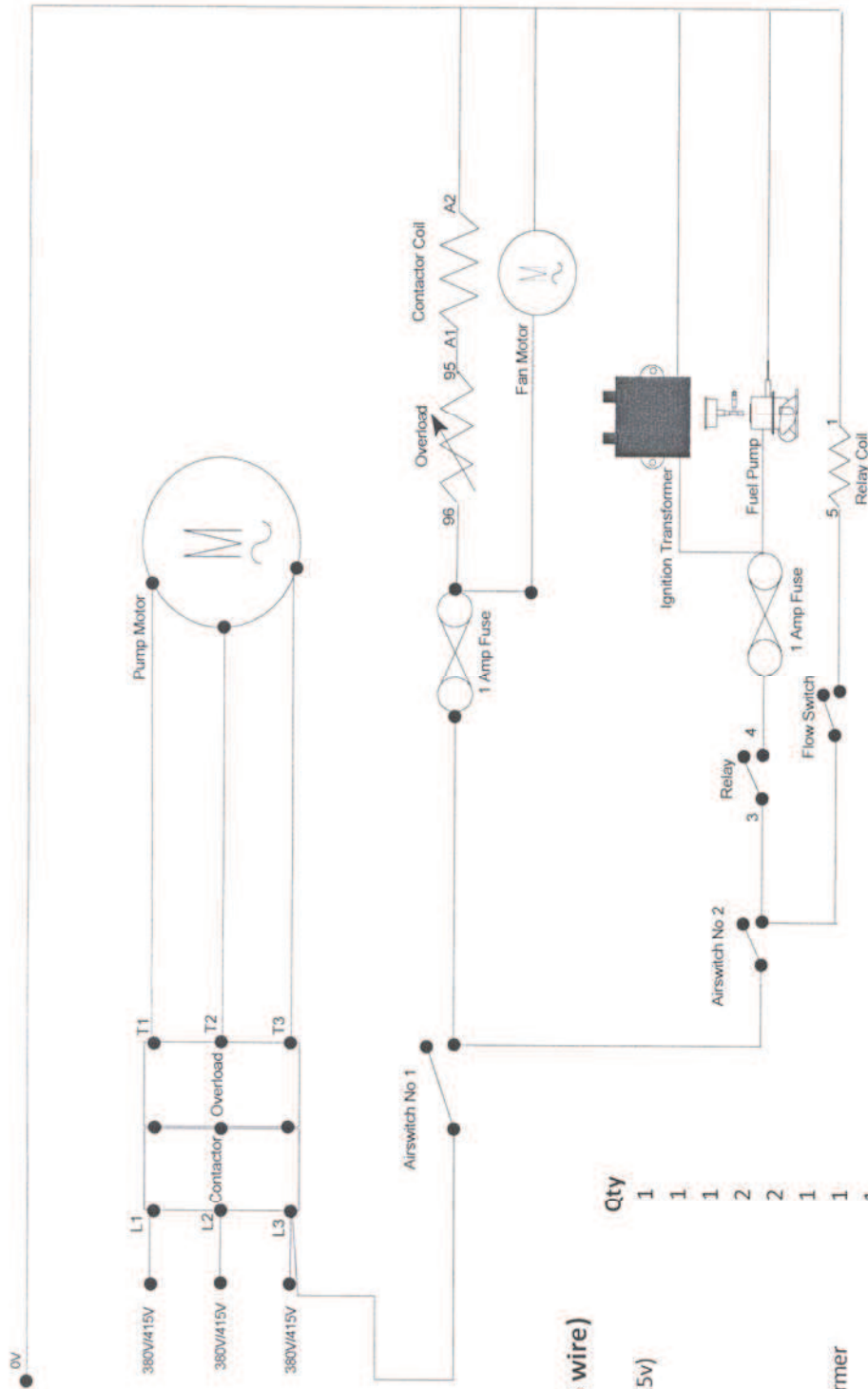
# Tempest Cabinet Switches



Frost Stat & Heater Coil (all cabinets)



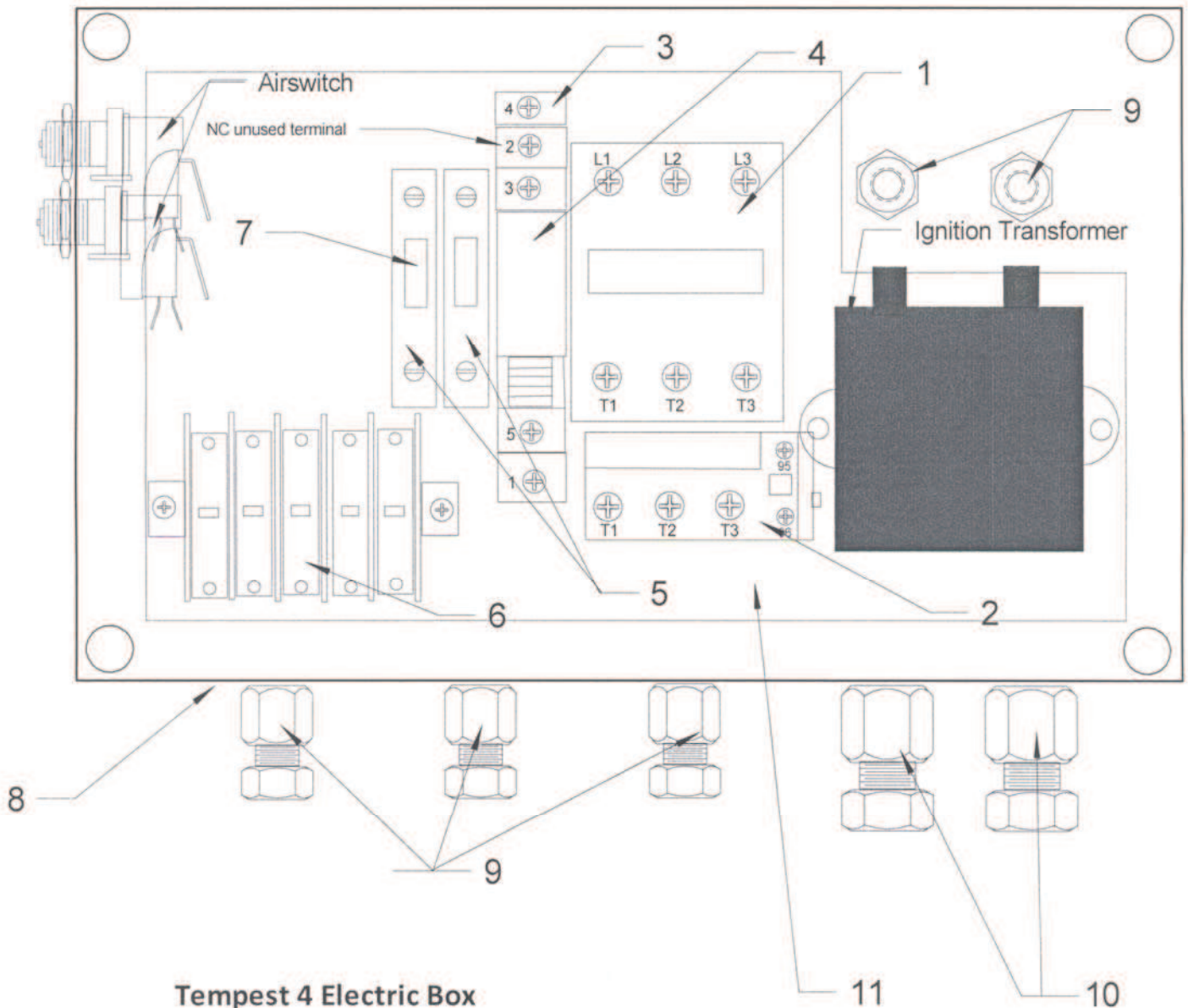
# Tempest 4 Wiring Diagram



## Tempest 4 (5 wire)

Part No	Description	Qty
MTR00200	Pump Motor (415v)	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 4 Electric Box

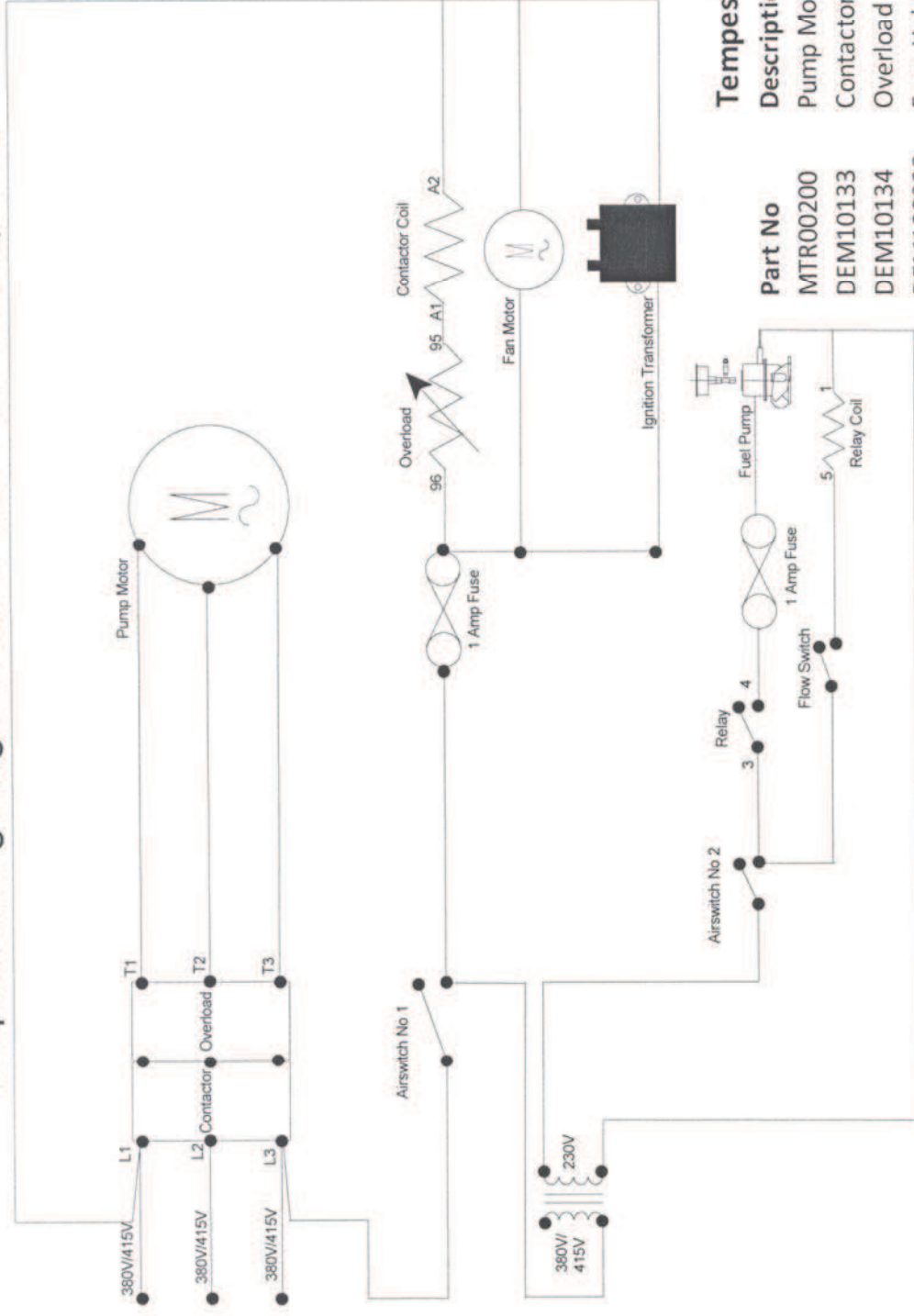


## Tempest 4 Electric Box

Pos.	Part No.	Description	Qty
1	DEM10133	Contactor	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



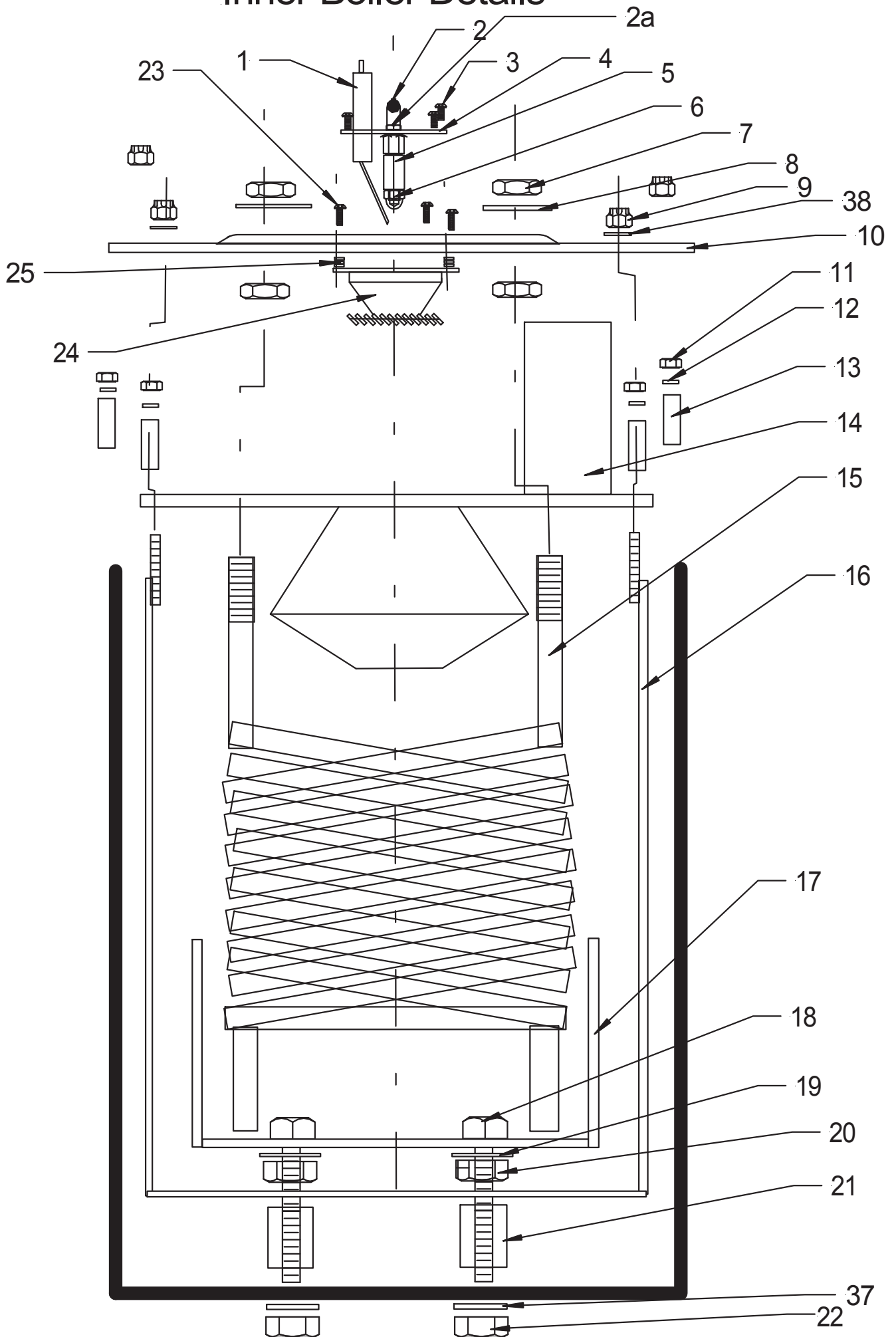
# Tempest Wiring Diagram 380V/415V Four Wire Special



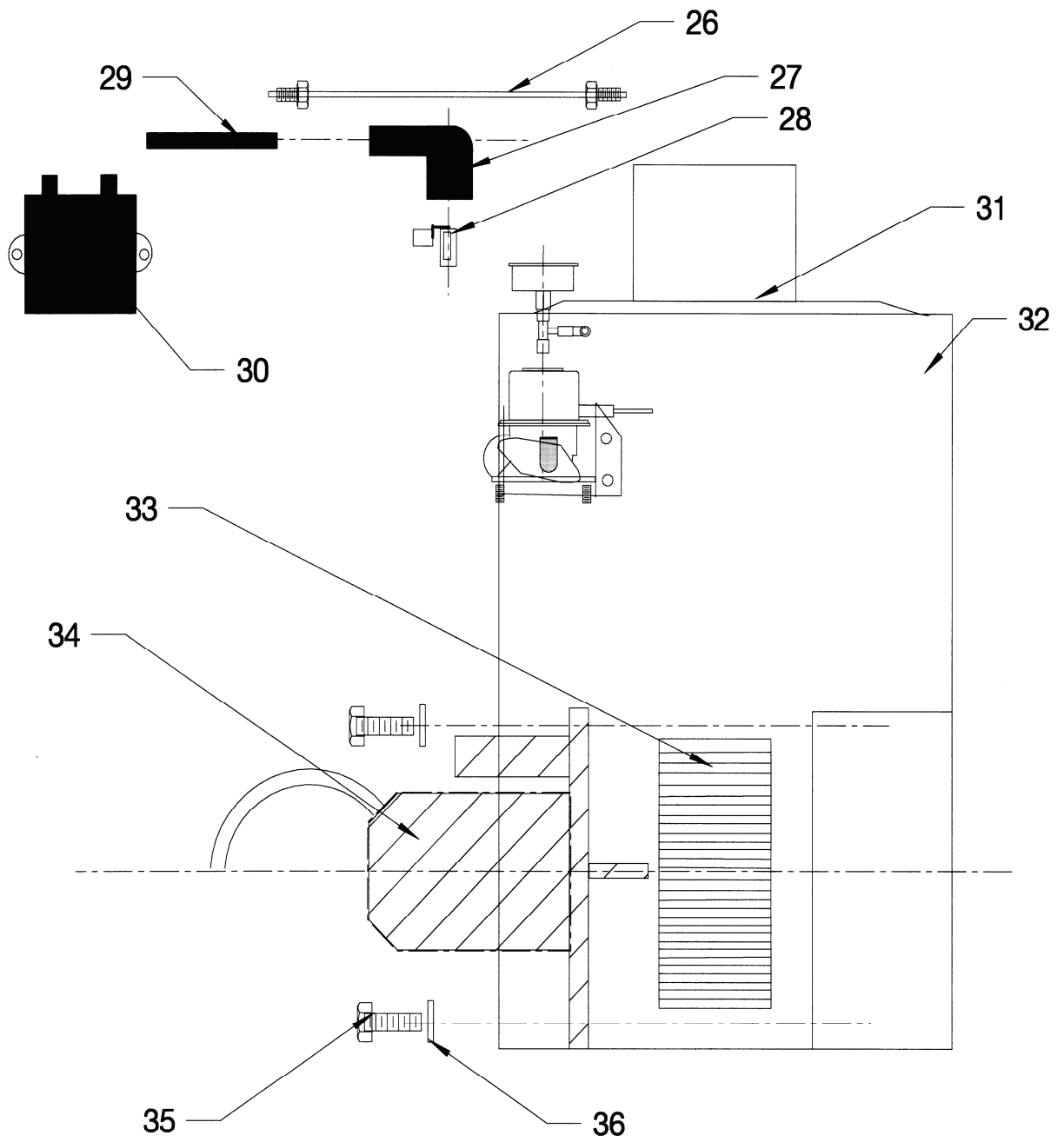
Part No	Description	Qty
MTR00200	Pump Motor (415v)	1
DEM10133	Contactor	1
DEM10134	Overload	1
DEM100920	Fuse Holder	2
FUSE001	Fuse	2
DB000175	Fan Motor	1
DB000250	Ignition Transformer	1
DEM100750	Relay Base	1
DEM100910	Relay	1
DEM100949	Connector Block (4 Way)	1

## Tempest 4 (4 wire)

# Inner Boiler Details



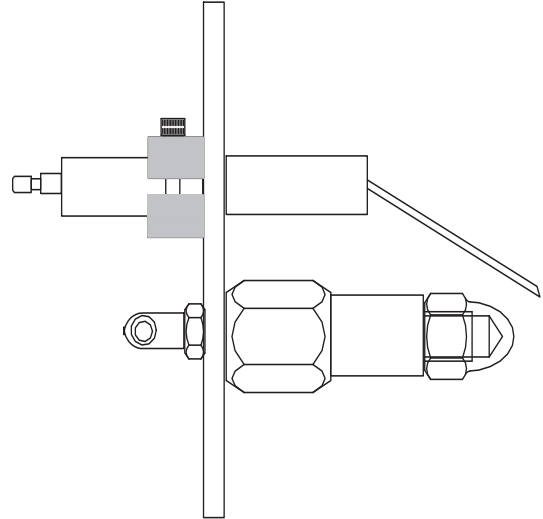
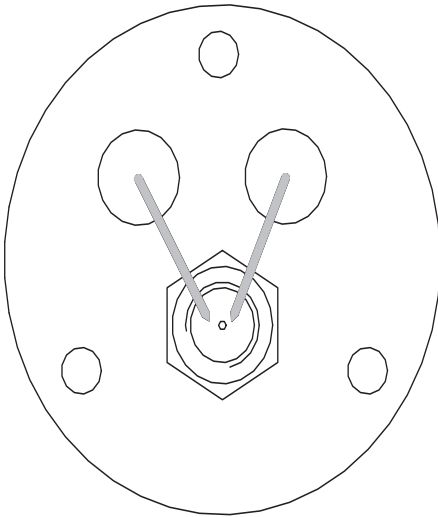
# Outer Boiler Details



## Boiler Parts List

No	Description	Part No	Qty
1	Electrode	DB000110	2
2	Adaptor	DB000130	1
2a	1/8 male male & nut adaptor	DB000240	1
3	Screw	NBW00450	3
4	Top Plate	DB000030	1
5	Nozzle Holder	DB000020	1
6	Nozzle	DB000010	1
7	$\frac{3}{8}$ " BSP Nut	DB000340	4
8	16mm Washer	DB000320	2
9	Nyloc Nut	NBW00160	4
10	Outer Drum Lid	DB000041	1
11	Plain Nut	NBW00200	4
12	M6 Washer	NBW00300	4
13	M6 Spacer	DB000280	4
14	Inner Drum Lid & Cone	DB000051	1
15	Heating Coil	DB000094	1
16	Inner Drum	DB000071	1
17	Flame pan	DB000081	1
18	M10 x 70mm Bolt	DB000065	3
19	M10 Washer	NBW00310	3
20	M10 Nut	DB000345	3
21	M10 Spacer	DB000350	3
22	M10 Nyloc Nut	DB000345	3
23	Screw	NBW00460	3
24	Flame swirler	DB000100	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
29a	HT leads for Cabinet	DB0002155	2
30	Ignition Transformer 230V	DB000252	1
	Ignition Transformer 110V	DB000255	1
31	Gasket	DB000300	1
32	Outer drum + Fan Housing	DB000061	1
33	Impeller	DB000180	1
34	Fan Motor 230V	DB000160	1
	Fan Motor 110V	DB000170	1
35	Bolt	NBW00060	2
36	Washer	NBW00280	2
37	M10 Penny Washer	NBW00311	3
38	M6 Penny Washer	NBW00301	4

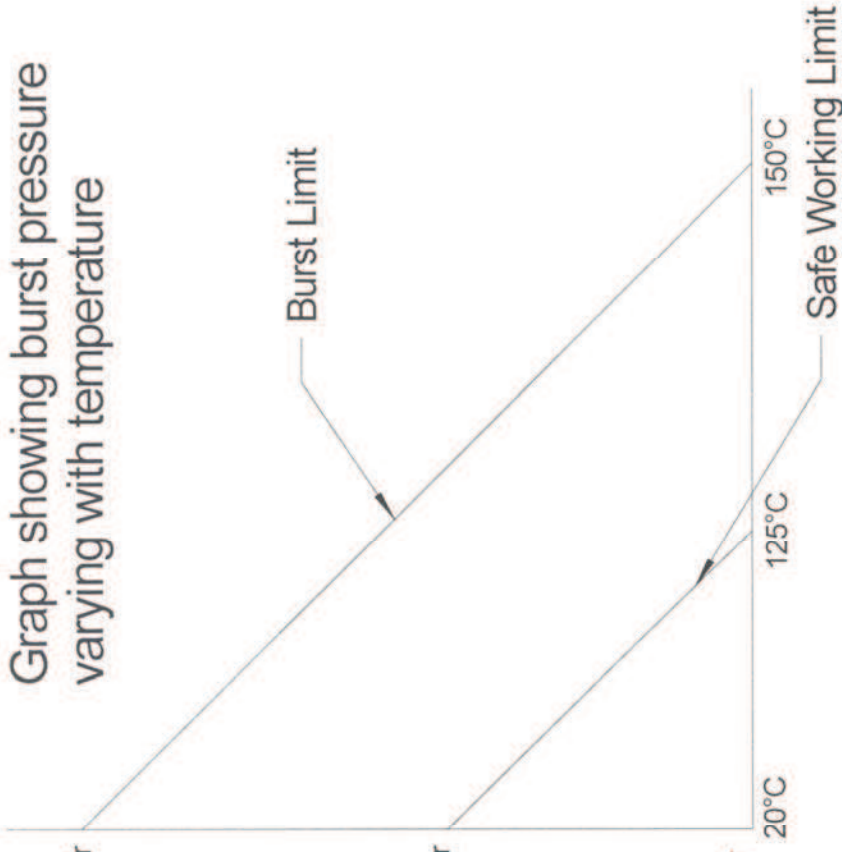
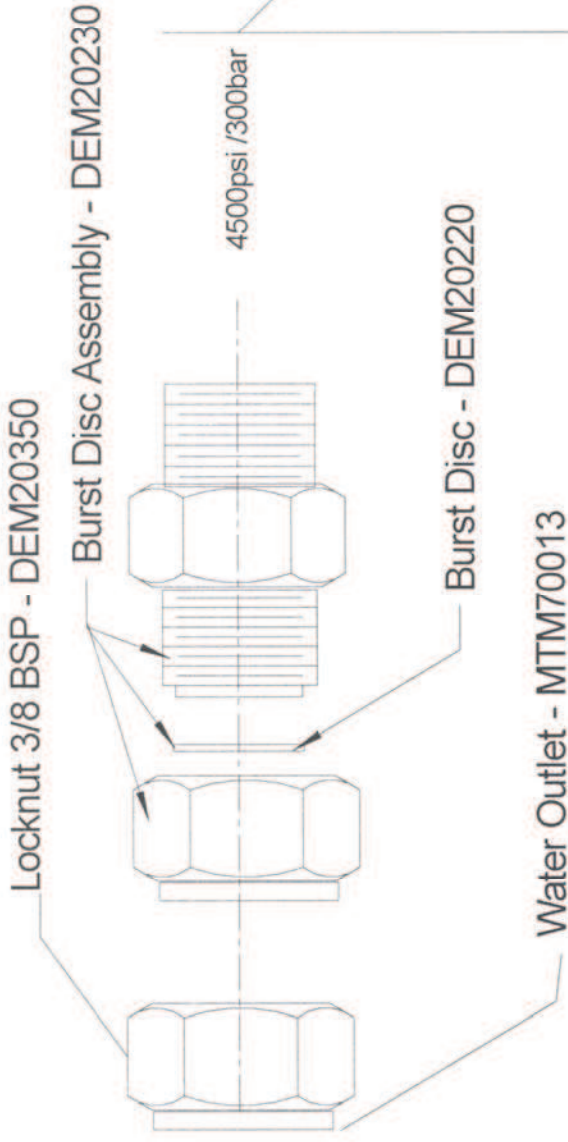
# Electrode Setting Details



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 - fuel 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!!

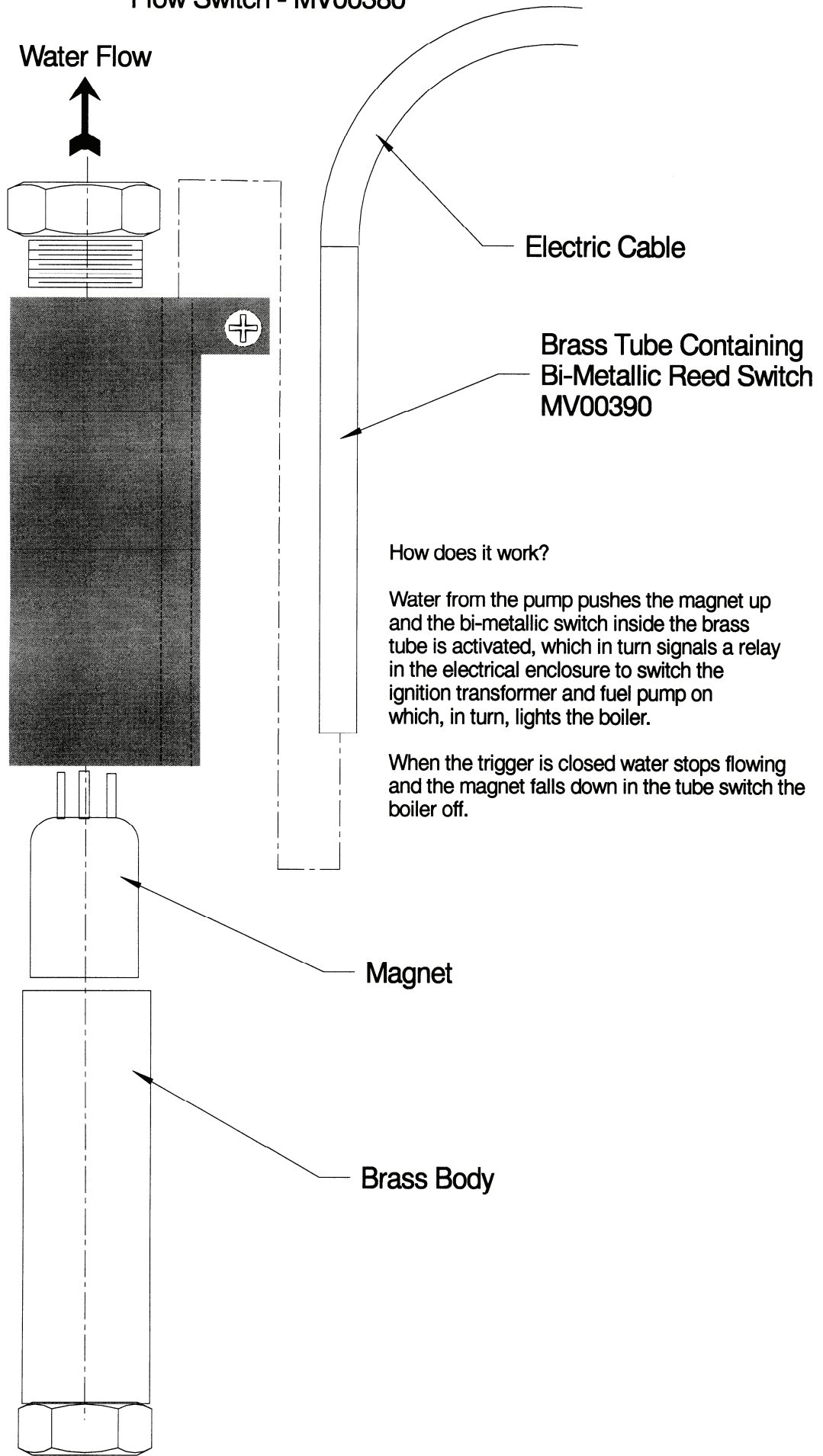


The burst disc fitted to the Demon hot water range of machines is designed to burst either with excess heat or excess pressure. The burst disc works like a fuse and will always fail safe. Rupturing of the burst disc is commonly due to one of three faults, not cooling the machine after using, a poorly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



Water Flow

Electric Cable

Brass Tube Containing  
Bi-Metallic Reed Switch  
MV00390

How does it work?

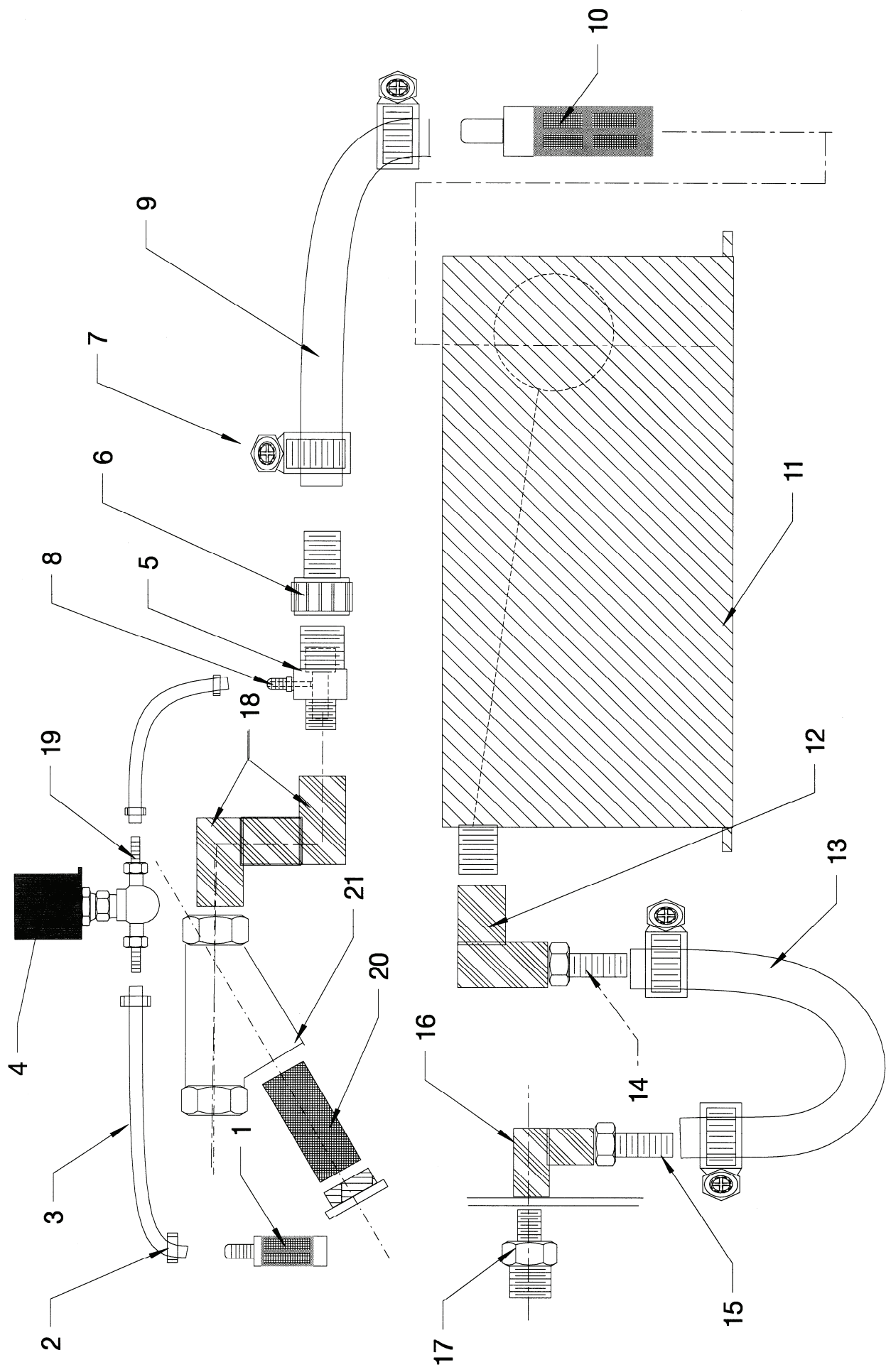
Water from the pump pushes the magnet up and the bi-metallic switch inside the brass tube is activated, which in turn signals a relay in the electrical enclosure to switch the ignition transformer and fuel pump on which, in turn, lights the boiler.

When the trigger is closed water stops flowing and the magnet falls down in the tube switch the boiler off.

Magnet

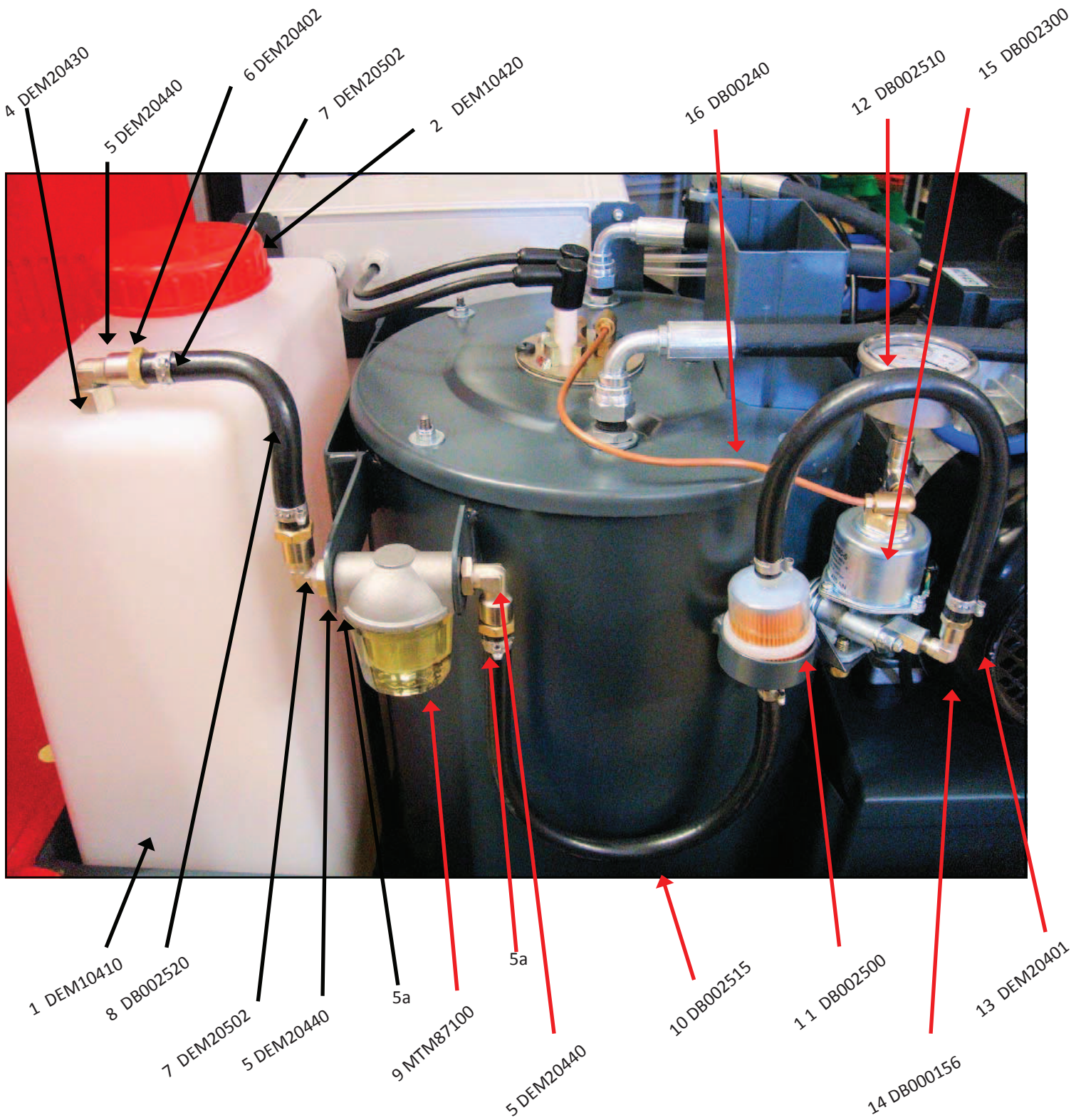
Brass Body

# Chemical and Water Circuits





# Demon Hot Water Range Fuel Tank

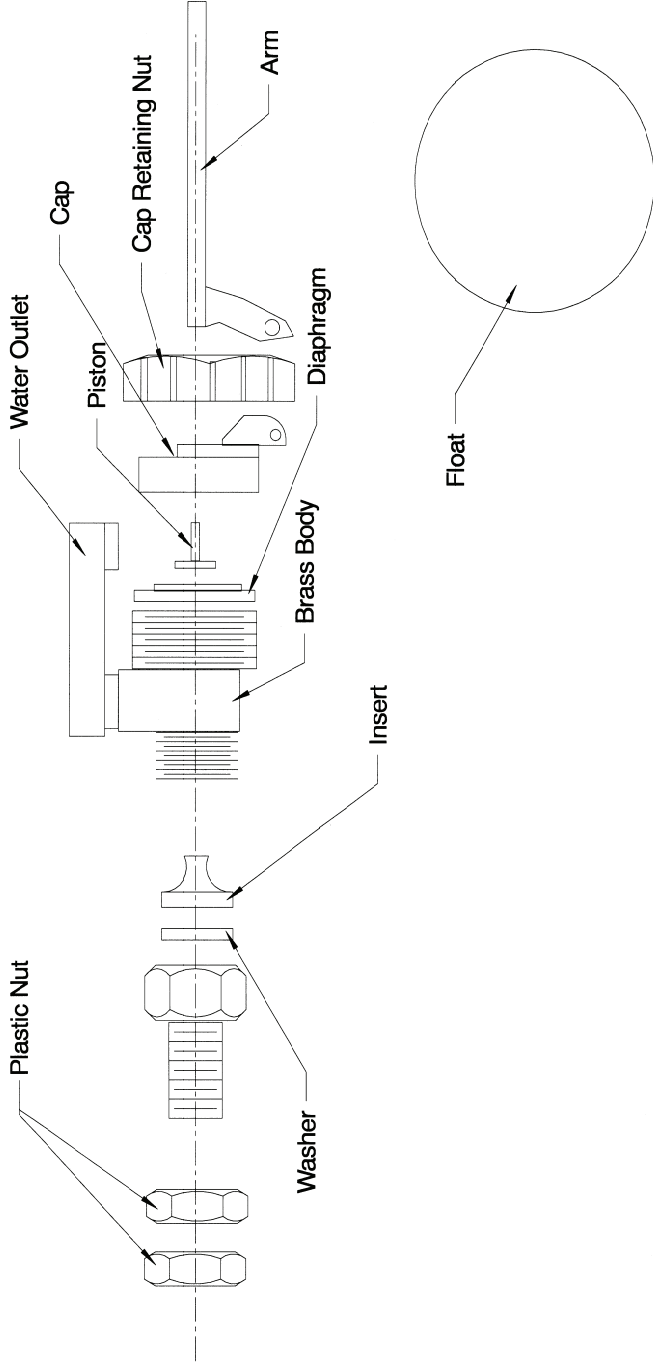


Please note that part no 3 is not visible as its inside the fuel tank.

Fuel System Part List			
No	Part No	Description	Qty
1	DEM10410	Fuel Tank Complete	1
2	DEM10420	Fuel Tank Cap	1
3	DEM20450	Fuel Pickup Pipe	1
4	DEM20430	Fuel Pickup Adaptor	1
5	DEM20440	Elbow for Fuel Tank M/F 90 1/4 BSP	3
5a		Nuts	
6	DEM20402	1/4 Hose Barb x 5/16 9mm	3
7	DEM20502	One Eared Clamp 15.3mm	6
8	DB002520	Fuel Pipe—Tank to Filter	1
9	MTM87100	Fuel Filter - clear bowl type	1
10	DB002515	Fuel Pipe—Filter to Filter	1
11	DB002500	Fuel Filter	1
12	DB002510	Fuel Pipe-Filter to Pump	1
13	DEM20401	1/8 Hose Barb x 5/16 (9mm)	1
14	DB000156	Elbow 1/8 male x 1/8 female	1
15	DB002300/2301/2305/2306	Fuel Pump (Pick 1 option)	1
16	DB00240	Copper fuel pipe	1

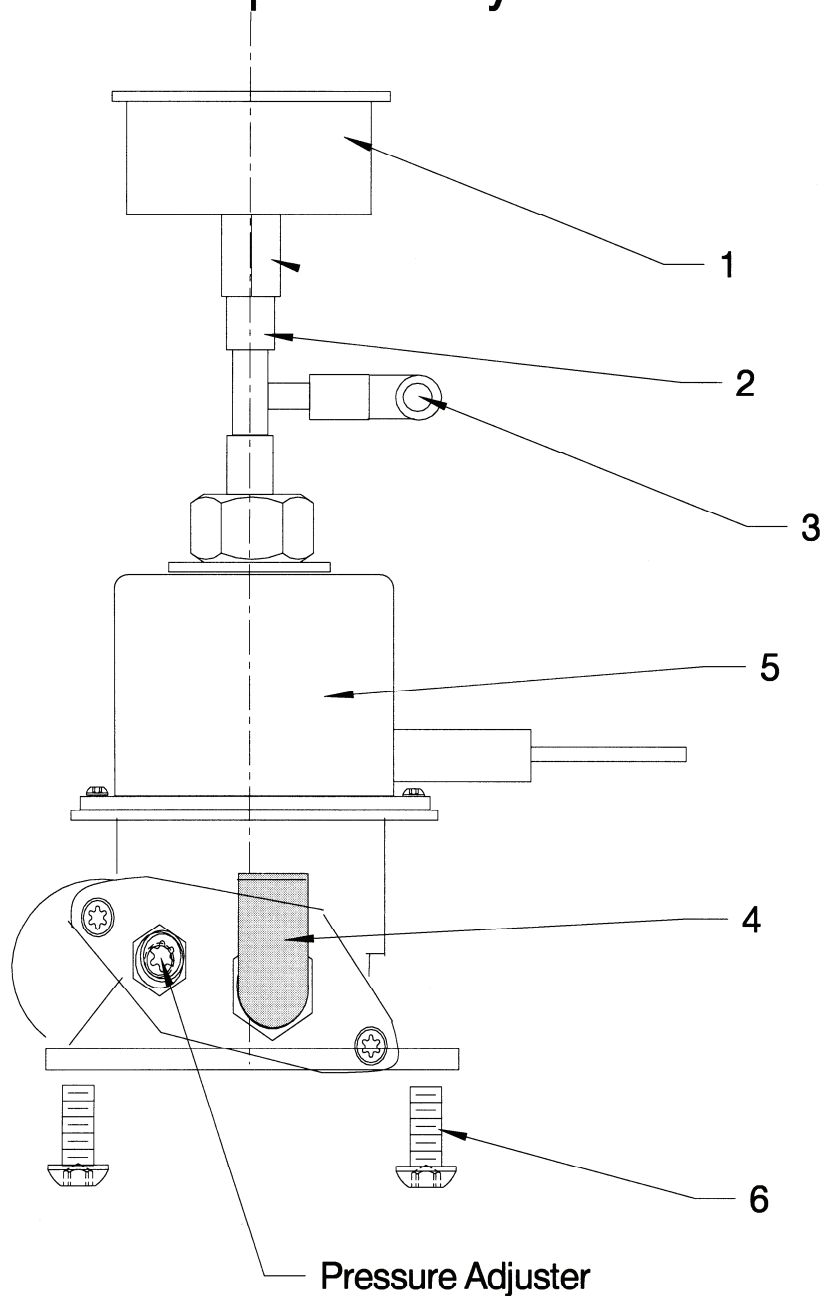
Chemical & Water Circuits			
No	Part No	Description	Qty
1	MTM86010	Chemical Filter	1
2	DEM20500	Hose Clips	4
3	DEM10115	Detergent Pipe	2
4	MTM25801	Chemical Valve	1
5	PA00100	Chemical Intake	1
6	MTM71167	Hose Barb Complete	1
7	DEM20500	Jubilee Clip	4
8	DEM20400	Hose Tail 1/8	1
9	HH0053	Inlet pipe	1
10	MTM85002	Water Filter	1
11	DEM10435	Water Tank	1
12	MTM0012FF03	Brass Elbow	1
13	HH0053	Pipe	1
14	DEM10310	Hose tail	1
15	DEM10300	Hose tail	1
16	MTM0012FF02	Brass Elbow	1
17	DEM20255	Adaptor	1
18	MTM0012FM03	Brass Elbow	2
19	DEM204110	Hose tail	2
20	MTM89011B	Mesh Insert / Y strainer	1
21	MTM89011	Brass Filter	1

# Float Valve Assembly



Part Number	Description	Qty
DEM10450	Brass Float Arm	1
DEM10449	Ball For Float Arm	1
DEM10445	HP Insert White7 to 20bar	1
DEM10446	MP Insert Red3 to 7bar	1
DEM10447	LP Insert 0 to 3bar	1
No other Parts available		

# Fuel Pump Assembly



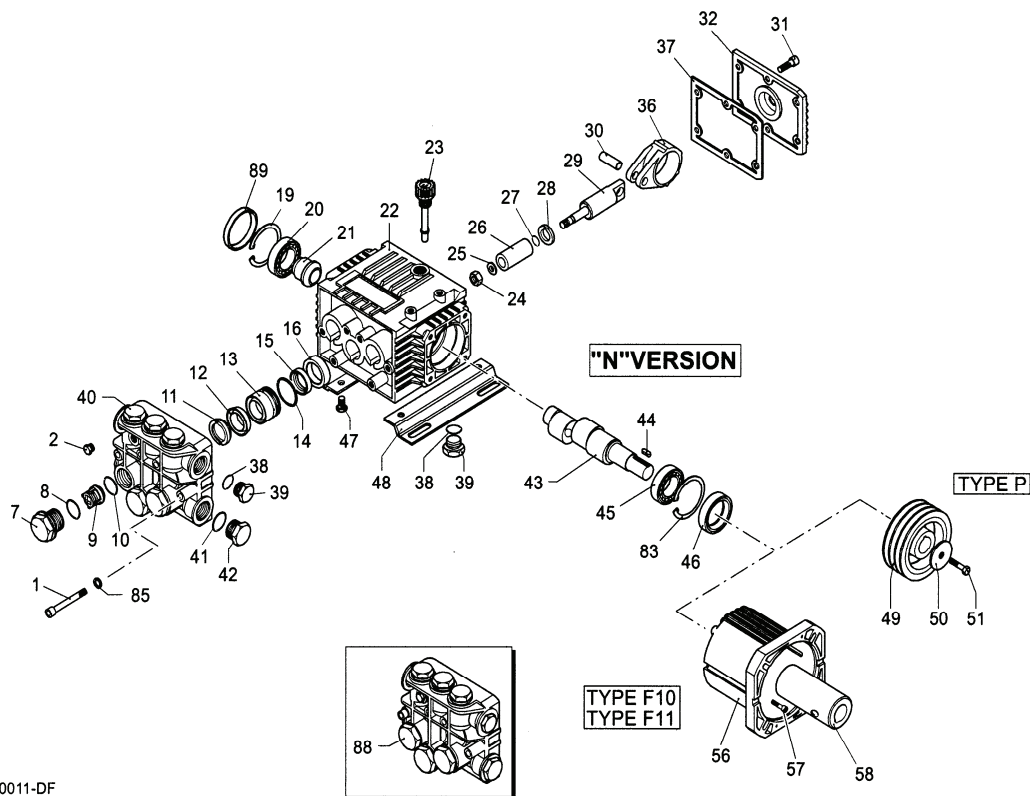
Item	Description	Part Number	Quantity
1	Fuel Pressure Gauge	DEM20630	1
2	Tee	DB000155	1
3	Adaptor	DB000135	1
4	Adaptor	DB000145	1
5	Fuel Pump Complete 110V	DB002305	1
	Fuel Pump Complete 230V	DB002300	1
6	Screw	AR1260470	2

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

Pump for Tempest 1 and Tempest 3

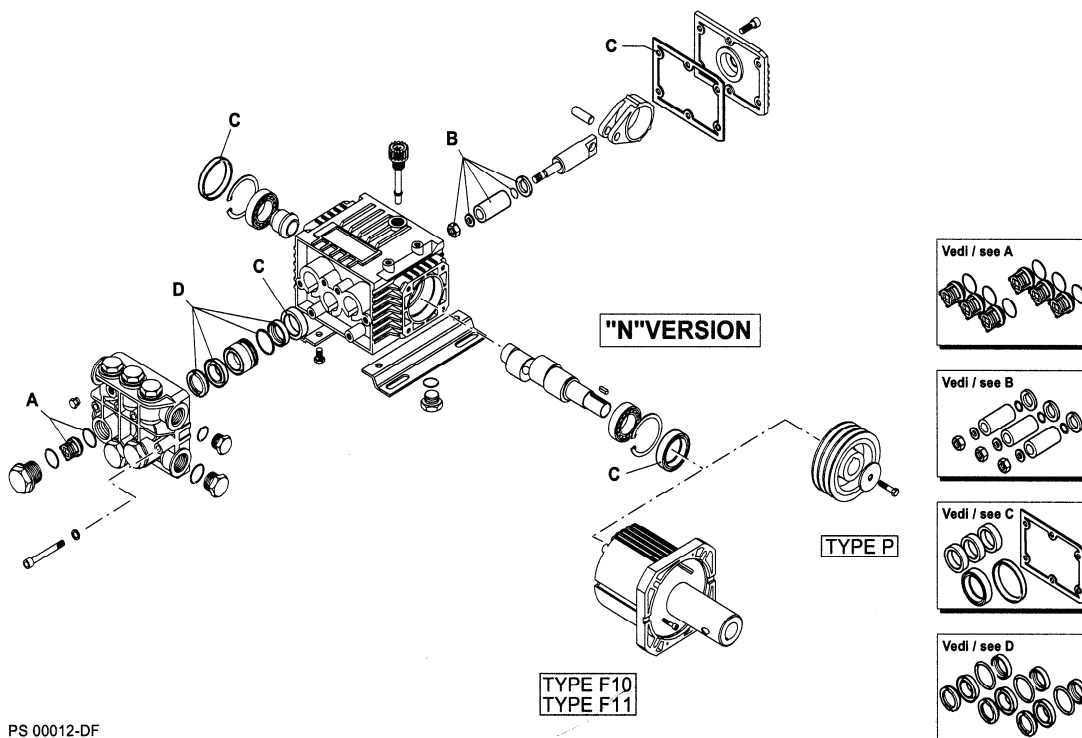
**XT**

**VERSION N 1450 RPM**



PS 00011-DF

**KIT RICAMBI / PART KITS**



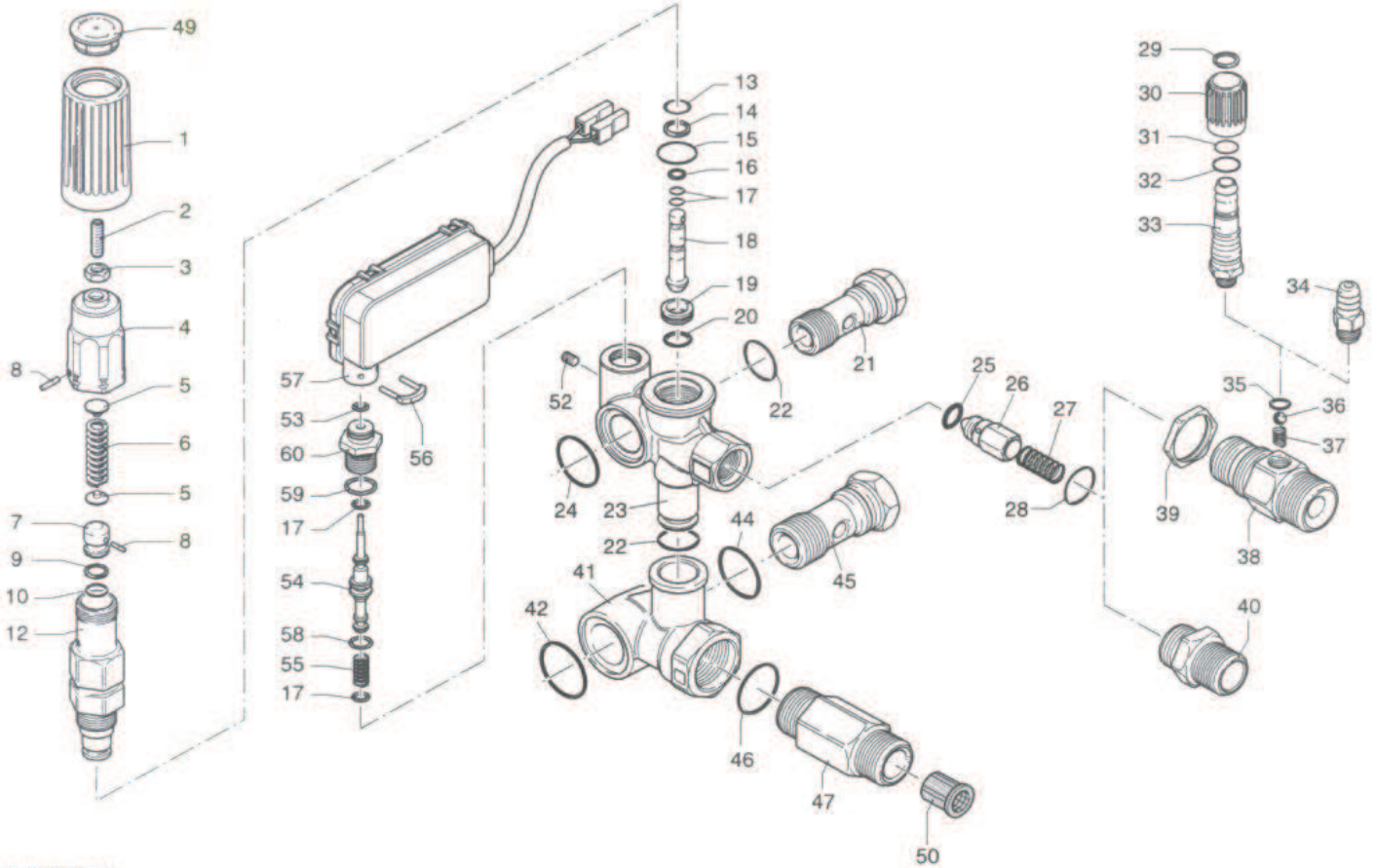
PS 00012-DF

<b>XT 1450</b>				<b>For XT11-14 / XT13-12 / XT13-15</b>			
Pos	Code No	Description	Qty	Pos	Code No	Description	Qty
1	AR680570	Screw	6	40	AR1320020	Pump Head	1
2	AR620301	Plug	1	41	AR180101	O Ring	1
7	AR1260162	Plug	6	42	AR820361	Plug	1
8	AR960160	O Ring	6	43	AR1260200	Crankshaft	1
9	AR1269050	Complete Valve	6	43	AR1320260	Crankshaft	1
10	AR880830	O Ring	6	44	AR1380520	Key	1
11	AR1320340	Support Ring	3	45	AR1320370	Bearing	1
12	AR1260220	Gasket	3	46	AR1260750	Seal	1
13	AR1320351	Piston Guide	3	47	AR1260470	Screw	4
14	AR1260420	O Ring	3	48	AR1263890	Base	2
15	AR1260450	Gasket	3	83	AR1260790	Circlip	1
16	AR1260460	Seal	3	85	AR1381550	Washer	6
19	AR1260790	Circlip	1	88	AR1269222	Pump Head pre-ass	1
20	AR1320370	Bearing	1	89	AR1266740	Cap	1
21	AR1320330	Bushing	1				
22	AR1320010	Pump Housing	1				
23	AR880130	Oil Plug	1				
24	AR1260110	Nut	3				
25	AR1260100	Washer	3				
26	AR1260210	Piston	3				
27	AR480480	O Ring	3				
28	AR1260091	Spacer	3				
29	AR1260070	Guiding Piston	3				
30	AR1260080	Piston Pin	3				
31	AR1260760	Screw	6				
32	AR1269101	Complete Cover	1				
32	AR1320910	Complete Cover	1				
36	AR1260060	Con Road	3				
36	AR1320140	Con Road	3				
37	AR1260040	Gasket	1				
38	AR740290	O Ring	2				
39	AR1980740	Plug	2				

<b>ARKIT1864</b>		<b>ARKIT2629</b>		<b>ARKIT1872</b>	
Valve Kit		Piston Kit		Oil Seal Kit	
Pos	Qty	Pos	Qty	Pos	Qty
9	6	24	3	16	3
10	6	25	3	37	1
		26	3	46	1
		27	3	89	1
		28	3		

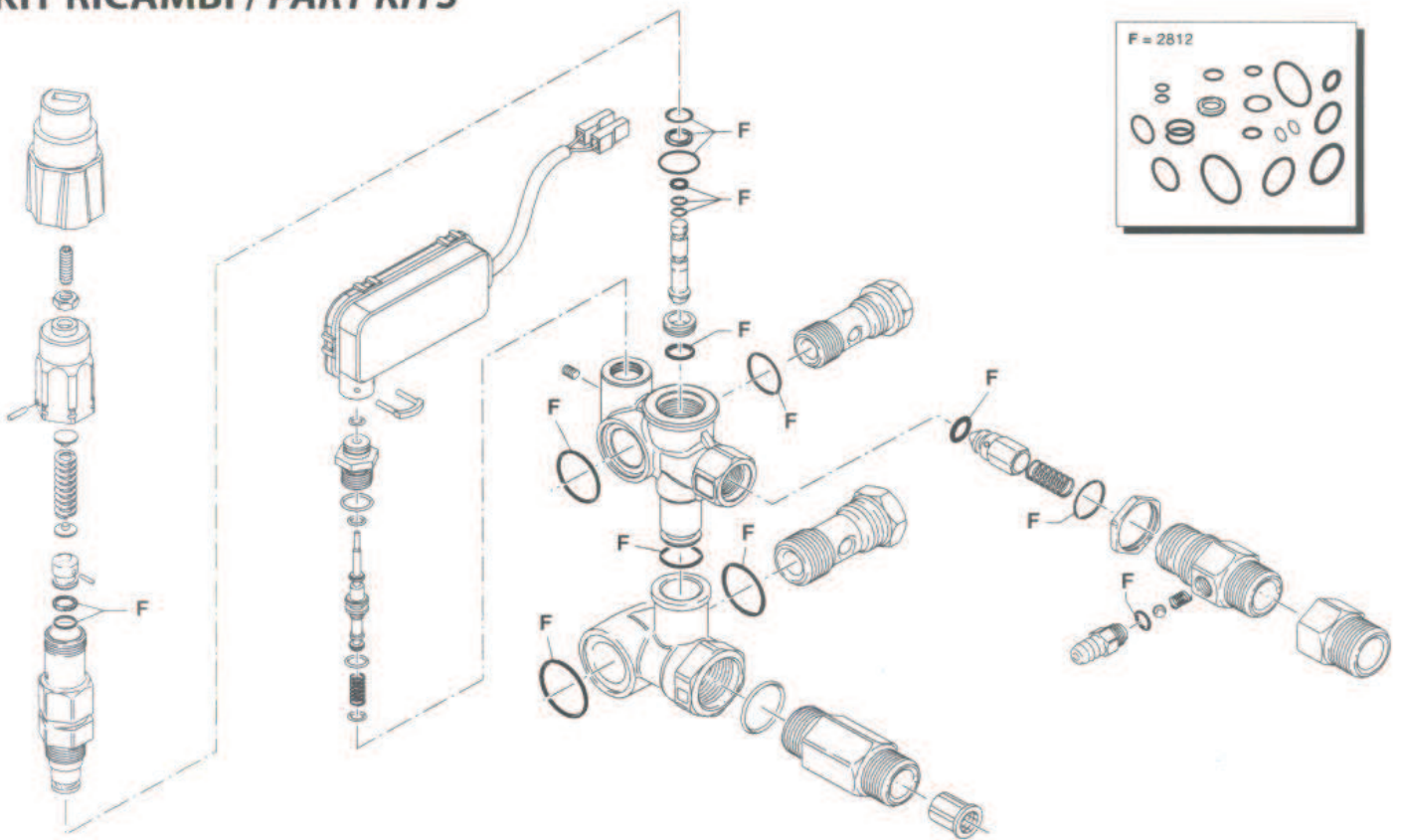
<b>ARKIT1874</b>	
Water Seals	
11	3
12	3
14	3
15	3

# MINIMATIC 4/B TSS



UN002257-IA

## KIT RICAMBI / PART KITS



UN002258-IA

**MINIMATIC 4/B TSS**

Pos	Part No	Description	Qty	Pos	Part No	Description	Qty
1	AR1981780	Knob extension	1	40	AR1540180	Adaptor <sup>3</sup> / <sub>8</sub> G	1
2	AR392840	Grub screw	1	40	AR1540500	Adaptor <sup>3</sup> / <sub>8</sub> NPT	1
3	AR1980300	Nut	1	41	AR1540280	By pass housing	1
4	AR2500400	Knob insert	1	42	AR1540630	O RING	1
5	AR1980220	Spring plate	2	44	AR880270	O RING	1
6	AR1271070	Spring	1	45	AR1540260	Screw	1
7	AR1080041	Upper piston	1	46	AR480440	O ring	1
8	AR1080070	Pin	2	47	AR1560600	Suction fitting	1
9	AR1080401	Back Up Ring	1	49	AR1981770	Knob plug	1
10	AR1080250	O Ring	1	50	AR1340260	Water suction filter	1
12	AR1980210	Piston Guide	1	52	AR1981190	Grub screw	1
13	AR740290	O ring	1	53	AR1260820	O ring	1
14	AR800560	O ring	1	54	AR1540880	TSS piston	1
15	AR880830	O ring	1	55	AR1981320	Spring	1
16	AR1271170	Back up ring	1	56	AR2022200	Clip	1
17	AR1080190	O ring	2	57	AR2029753	TSS assembly	1
18	AR1271160	Lower piston	1	58	AR660190	O ring	1
19	AR1980200	Valve seat	1	59	AR880840	O ring	1
20	AR1470210	O ring	1	60	AR1540870	TSS fitting	1
21	AR1540270	Thread screw	1	61	AR2029753	Switch	1
22	AR390080	O ring	2	62	AR2029753a	Microswitch	1
23	AR1540660	Valve housing	1				
24	AR1140450	O ring	1				
25	AR1460430	O ring	1				
26	AR1540170	Jet	1				
27	AR1080091	Ball Spring	1				
28	AR394280	O ring	1				
29	AR1560660	Ring	1				
30	AR1560680	Detergent reg knob	1				
31	AR480560	O ring	1				
32	AR800560	O ring	1				
33	AR1560650	Hose tail	1				
34	AR1560490	Hose tail	1				
35	AR480480	O ring	1				
36	AR1250280	Ball	1				
37	AR1560520	Spring	1				
38	AR1540570	Fitting <sup>3</sup> / <sub>8</sub> G	1				
38	AR1540580	Fitting <sup>3</sup> / <sub>8</sub> G	1				
39	AR1540300	Nut	1				

**ARKIT 2812**

**O Rings**

Pos	Qty	Pos	Qty	Pos	Qty
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		

**ARKIT2222**

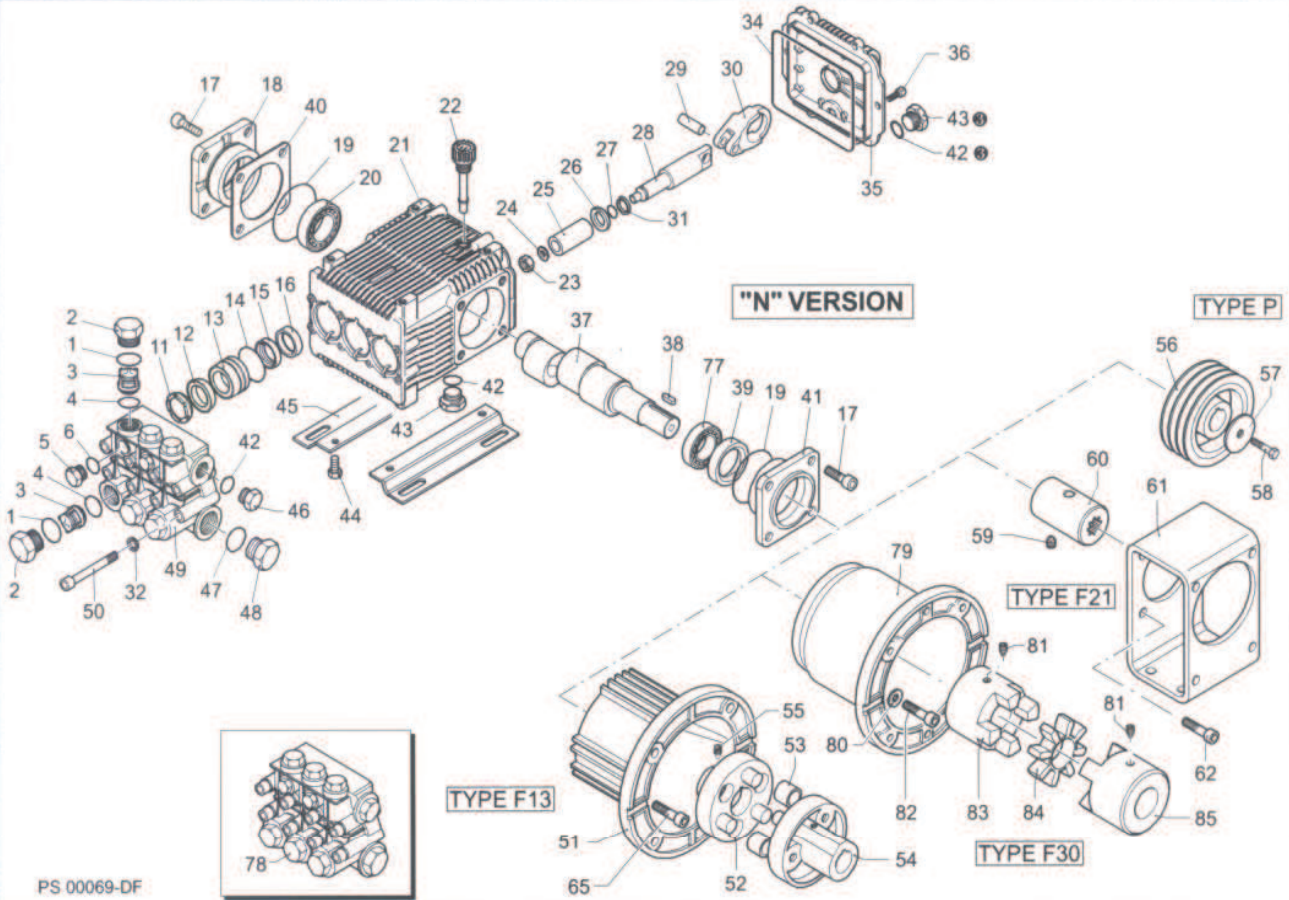
**MINI MATIC AUTO REPAIR KIT**

Pos	Qty	Pos	Qty
17	4	58	1
53	1	59	1
54	1	60	1
55	1	62	1



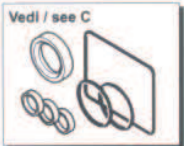
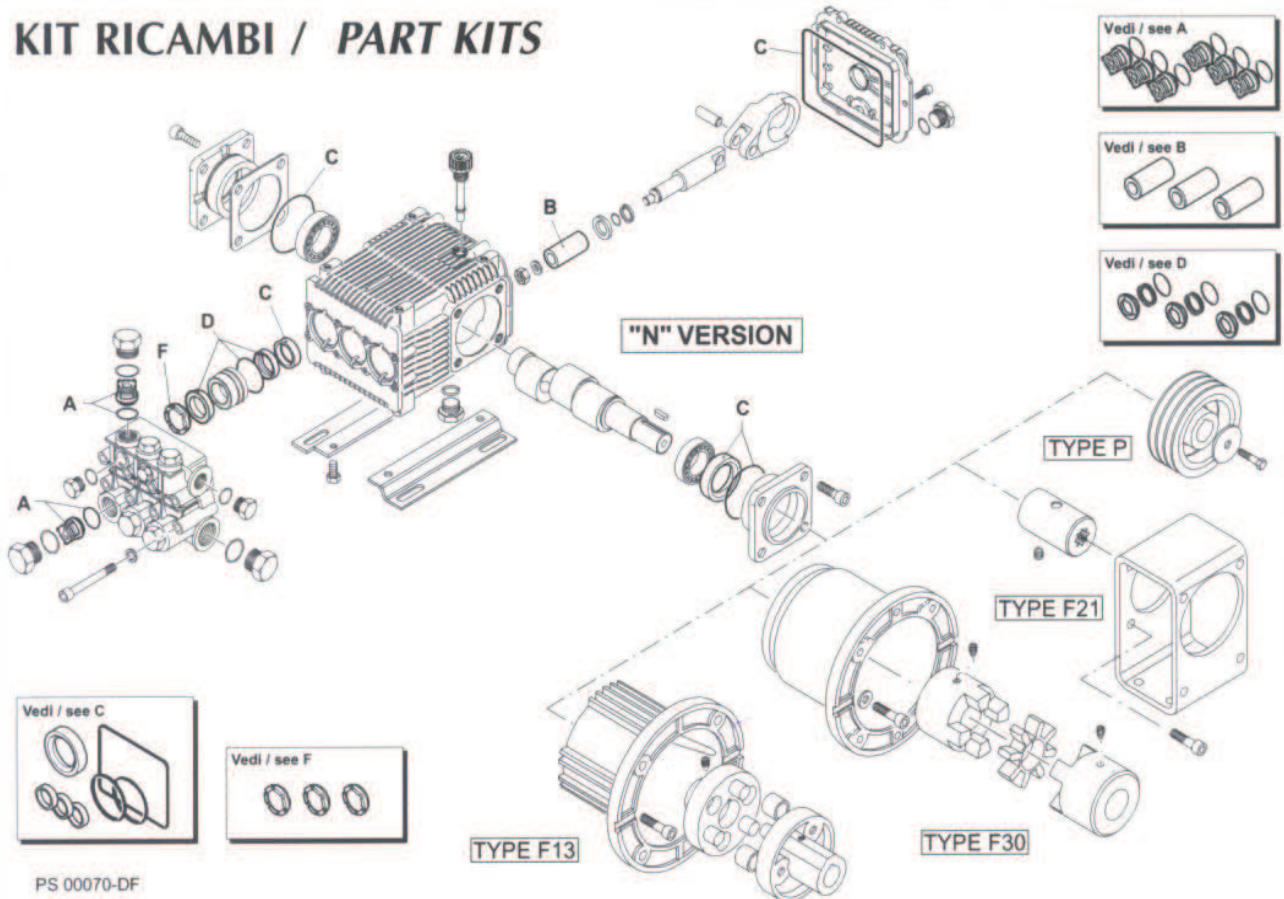
# RK

# VERSION N 1450 RPM



PS 00069-DF

## KIT RICAMBI / PART KITS



PS 00070-DF

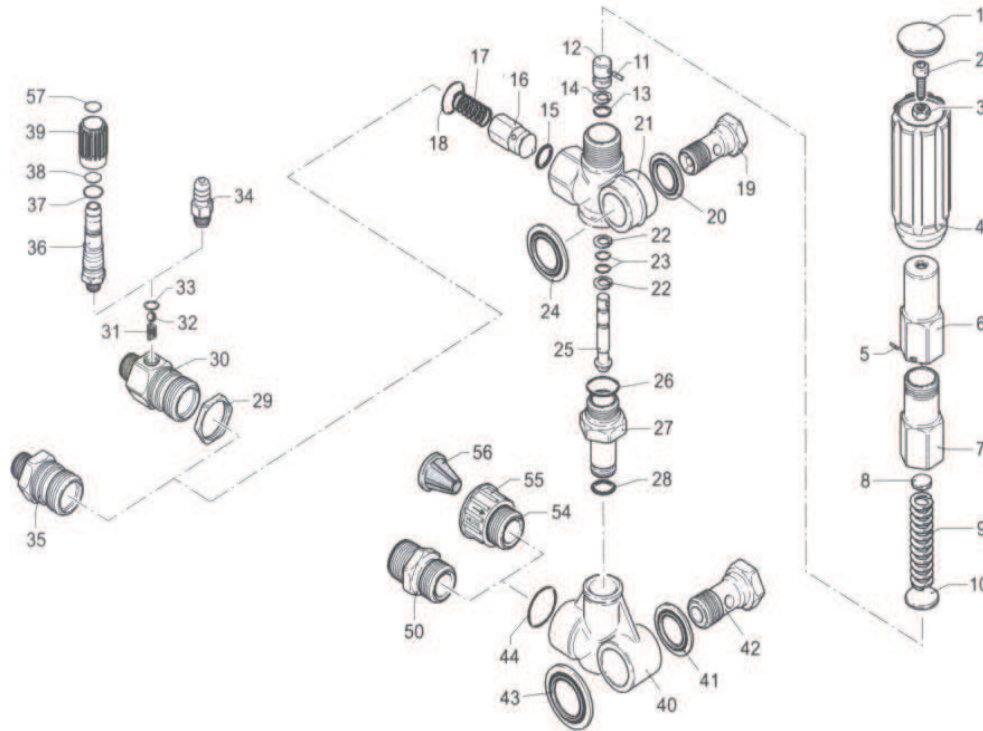
**RK MODEL: 15.20H**

Pos	Part No	Description	Qty	Pos	Part No	Description	Qty
1	AR960160	O Ring	6	36	AR1343510	Screw	6
2	AR960090	Plug	6	40	AR1380120	0.10mm shim	1÷3
2	AR1380740	Plug	6	40	AR1380130	0.20mm shim	1÷3
3	AR1389051	Complete Valve	6	40	AR1380530	0.25mm shim	1÷3
4	AR880830	O Ring	6	40	AR1382810	0.05mm shim	1÷3
5	AR880581	Plug	2	42	AR740290	O ring	3
6	AR820510	O Ring	2	43	AR1980740	<sup>3</sup> / <sub>8</sub> G plug	2
11	AR960110	Support Ring	3	44	AR1260470	Screw	4
12	AR880320	Gasket	3	45	AR1380141	Base	2
13	AR1380090	Piston Guide	3	46	AR1980740	<sup>3</sup> / <sub>8</sub> G Plug	1
14	AR961240	O Ring	3	46	AR1981180	<sup>3</sup> / <sub>8</sub> G Plug	1
15	AR880330	Gasket	3	47	AR180101	O Ring	1
16	AR138130	Seal	3	48	AR820361	Plug	1
17	AR850370	Screw	8	48	AR960870	Plug	1
18	AR1380050	Closed Bearing sup	1	49	AR1381071	Pump head	1
19	AR640030	O Ring	1	50	AR820150	Screw	8
20	AR2280240	Bearing	1	60	AR1380320	Bearing	1
21	AR1382770	Pump Housing	1	61	AR621170	Seal	1
22	AR880130	Oil Cap	1	62	AR1380220	O Ring	1
23	AR962010	Nut	3	63	AR1380210	Shaft cover	1
24	AR962000	Washer	3	66	AR2280180	Hollow Shaft 28mm	1
24	AR1380940	Ceramic Piston	3	66	AR2280170	Hollow Shaft 028mm	1
26	AR1380950	Spacer	3	66	AR2280160	Hollow Shaft 028mm	1
27	AR600180	O ring	3	66	AR2280150	Hollow Shaft 028mm	1
28	AR1380920	Guiding Piston	3	67	AR1380370	El Motor flange	1
29	AR1380060	Piston Pin	3	76	AR620610	Screw	4
30	AR1383050	Aluminium con-rod	3	86	AR1260250	Oil Indicator	1
31	AR1080401	Ring	3	87	AR1260430	Snap Ring	1
32	AR1381850	Washer	8	88	AR1780690	Disc	1
34	AR1780510	O Ring	1	89	AR1140450	O Ring	1
35	AR1789010	Complete cover	1				

Valve Kit		Piston Kit		Oil Seal Kit	
ARKIT1828		ARKIT2757		ARKIT1856	
Pos	Qty	Pos	Qty	Pos	Qty
3	6	25	3	16	3
4	6			19	1
				34	1
				61	1
				62	1

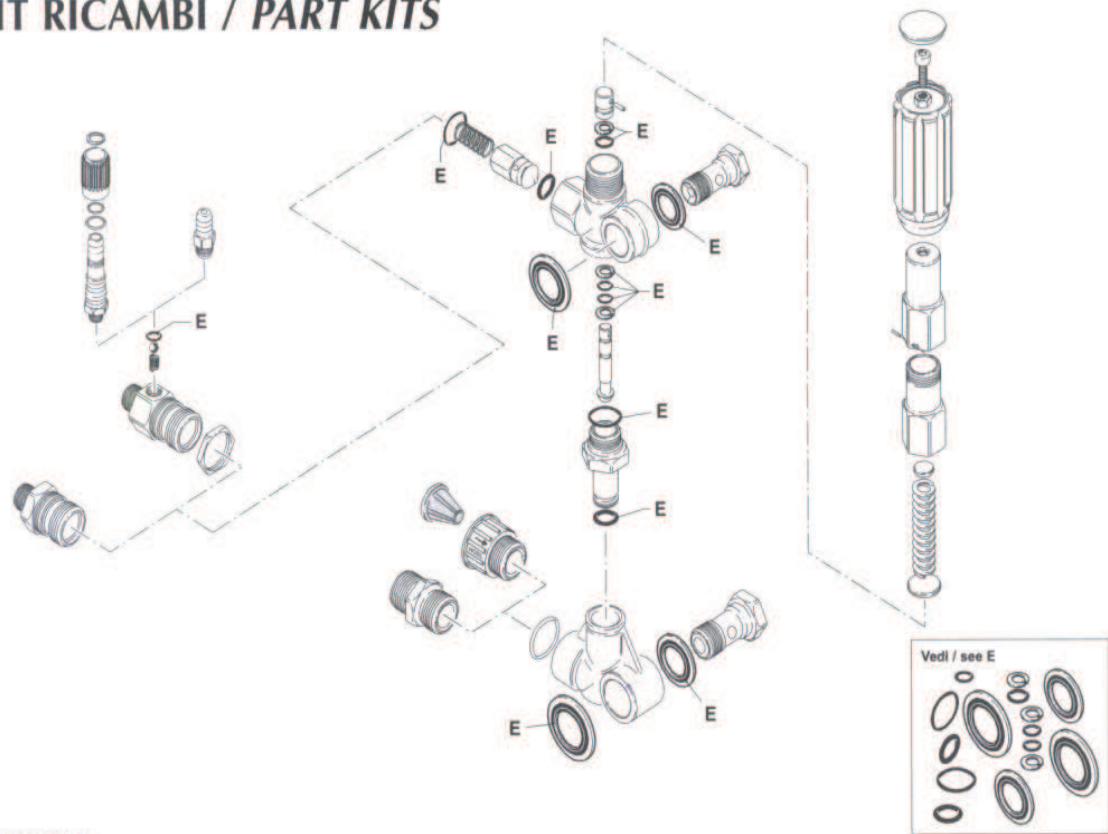
Water Seal		Support Ring	
ARKIT1857		ARKIT1829	
Pos	Qty	Pos	Qty
12	3	11	3
14	3		
15	3		

# GYMATIC 3/B



UN000190-HF

## KIT RICAMBI / PART KITS



UN000191-HF

### GYMATIC 3/B

Pos	Part No	Description	Qty	Pos	Part No	Description	Qty1
1	AR1560580	Knob Plug	1	39	AR1560670	Detergent Reg Knob	1
2	AR180030	Screw	1	40	AR1540020	By-pass housing	1
3	AR1660210	Nut	1	41	AR154120	Washer	1
4	AR1560400	Handle	1	42	AR1540090	Fitting 1/2" G	1
5	AR1080070	Pin	1	42	AR1540200	Fitting 1/2" NPT	1
6	AR1560420	Adjusting Screw	1	43	AR1560290	Washer	1
7	AR1560410	Spring Guide	1	44	AR480440	O Ring	1
8	AR1560440	Plate	1	50	AR1540050	Fitting 1/2" G	1
9	AR1560350	Spring	1	54	AR1560310	Fitting	1
10	AR108610	Spring Plate	1	55	AR1560300	Ring Nut	1
11	AR1080660	Pin	1	56	AR1266330	Filter	1
12	AR1080540	Upper Piston	1	57	AR1560660	Ring	1
13	AR391000	O Ring	1				
14	AR108640	Back up Ring	1				
15	AR1560150	O Ring	1				
16	AR1560100	Jet	1				
17	AR1560140	Spring	1				
18	AR180101	O Ring	1				
19	AR1540080	Fitting 3/8" G	1				
19	AR1540190	Fitting 3/8" NPT	1				
20	AR1540110	Washer	1				
21	AR1560010	Valve Housing	1				
22	AR1080550	Back Up ring	2				
23	AR480480	O Ring	2				
24	AR1560280	Washer	1				
25	AR1560320	Lower piston	1				
26	AR880270	O Ring	1				
27	AR1560051	By pass adaptor	1				
28	AR390080	O Ring	1				
29	AR1560510	Nut	1				
30	AR1560500	Fitting 3/8" G	1				
30	AR1560530	Fitting 3/8" G	1				
30	AR1560540	Fitting 3/8" G	1				
31	AR1560520	Spring	1				
32	AR1250280	Ball	1				
33	AR480480	O Ring	1				
34	AR1560490	Hose Tail	1				
35	AR1560110	Adaptor 3/8" G	1				
35	AR1560111	Adaptor 3/8" G	1				
36	AR1560650	Hose Tail	1				
37	AR800560	O Ring	1				
38	AR480560	O Ring	1				

### ARKIT2611

Pos	Qty	Pos	Qty	Pos	Qty
13	1	23	2	43	1
14	1	24	1		
15	1	26	1		
18	1	28	1		
20	1	33	1		
22	2	41	1		