

*instructions  
and parts list*

# *mistral*

**POWER WASHERS**



**HOT & COLD POWER WASHERS**

50 years of British engineering excellence





## INSTRUCTION MANUAL & PARTS LIST

If occasionally you give your new Mistral Power Washer a little attention, in return it will give you many years of trouble-free service.

Its flow and power are matched to give the absolute ultimate washing power.

Don't think of washing power in terms of PSI or BAR, this is just measuring trapped pressure in the pump and has no relevance on its own. To clean surfaces efficiently the pump needs to deliver a sufficient **weight of water** (*flow*).

***NB:** So many plastic hobby machines claim a high PSI with a low water flow, that will provide a poor inefficient wash.*

## PRECAUTIONS

- Read the instructions prior to use.
- Do not let children or frail people use the power washer.
- Always wear waterproof protective clothing and goggles in case a hose bursts.
- A visor will protect your face from splashes, dirt and hose bursts.
- Don't point the gun at humans or animals.
- Don't use very hot water on paintwork, sign writing, decals, etc.
- Washing vehicles when the paintwork is hot will damage and dull the surface.
- Don't work too close to paintwork and decals.
- Protect the electric cable and don't let vehicles run over it.
- Any damage to the cables will necessitate immediate replacement.

# GENERIC REQUIREMENTS - ALL MODELS

## POWER

- ❑ Electric models are either 230v single phase OR 415 v three phase and neutral.
- ❑ 1500 models require 240v single phase supply 13-15 amps
- ❑ 2200 & 3000 models require 415v 3 phase and Neutral supply. 10 amps per phase
- ❑ Ensure the correct voltage is connected to your machine.
- ❑ Petrol driven models require unleaded petrol.

## DO NOT...

- ❑ Don't use extension leads. If unavoidable, then the cables must be a **minimum of 2.5mm**.
- ❑ More damage is caused to machines through poor power supply caused by perhaps being at the end of a power line, extension cables, or other equipment using the same circuit intermittently, i.e. milk coolers, lighting and compressors. If the machine trips out this is a positive sign that the machine is being starved of power.
- ❑ Ensure your supply socket is fitted with an earth leakage trip. This will protect you from being electrocuted if there is a fault or the cable gets damaged. Do not make the mistake that because a welder can run off a circuit that there will also be sufficient power for a Power Washer.

## WATER

- ❑ Supply a clean water supply from a hose pipe. Minimum pressure 2 bars.
- ❑ Ensure the water source is silt and sand free, particularly when sucking from a barrel on building sites.
- ❑ Always use a suction strainer provided when sucking from a remote water source.
- ❑ Hot water washers must only be connected to a hose pipe with 2 bar minimum pressure
- ❑ Ensure you clean the inline Y strainer water filter next to the pump inlet, as if this becomes blocked the machine will lose power intermittently and will make a rattling sound.
- ❑ Protect the machine from frost, and don't leave it outside.
- ❑ Connect a hose to the water inlet connection on the machine and turn the tap on.
- ❑ Use hose clips on the hose connections to prevent air being sucked in.

## OIL

- ❑ Check the oil level in the pressure pump.
- ❑ Use EP 90 oil in the pressure pump although most non-detergent oils will be ok.
- ❑ Fill only to the dot on the sight glass at the rear of the pump. Do not overfill.
- ❑ Normally the pump will not lose oil. If the oil level drops, consult an engineer.
- ❑ Normally change the oil after the first 6 weeks' use, then change once a year or if it turns 'milky'
- ❑ A milky appearance indicates water condensation inside the pump has mixed with the oil making the oil less efficient.
- ❑ Water can never enter the oil chamber from the pump head, so this is NOT a sign of leaking seals.

## CHEMICAL SYSTEM

- ❑ Use only a good grade of TFR (*Mistral Traffic Film Remover*) through the machine.
- ❑ Cheap grades often use high concentrations of caustic soda, which will dull paintwork and attack aluminum, and galvanized surfaces.

## HIGH PRESSURE WATER PUMP

- ❑ Mistral Pumps are indestructible under normal use and should work faultlessly for at least 20+ years.
- ❑ Use a little consideration and you will have no problems. Historically our customers only replace their machines after 25 years, so the little extra cost compared to a hobby machine is **money well invested**.
- ❑ However, abandon your Mistral Power Washer out in the frost, run it dry, use silty/sandy water, or leave it on bypass for long periods and you will drastically reduce its working life.
- ❑ In the unlikely event of a failure it is a bad idea to disassemble the pump yourself.
- ❑ Call an Engineer, as your diagnosis will inevitably be wrong. We have had pumps brought to us in pieces by 'experts'! When reassembled by our Engineers we find the cause of the problem had nothing to do with the pump!
- ❑ The Mistral Pump can have new seals and valves fitted at any time. That will bring the pump back to *as-new* performance.

## TO START

- ❑ Connect Power and Water as described above.
- ❑ When starting from new or when the machine has been left unused for a long time, the stainless steel one-way valves can sometimes stick together. So, connect a hose pipe and turn the water on.
- ❑ Initially do not connect the high-pressure hose.
- ❑ Switch the machine on and let water run from the outlet connection for a few seconds.
- ❑ This process allows the valves to open and push any air out of the system
- ❑ Switch OFF and then connect the high-pressure hose.
- ❑ Initially the machine may judder and an irregular low pressure will come from the gun.
- ❑ Simple cycle the trigger on and off a couple of times and that will clear any air trapped in the pressure regulator and full pressure will return.
- ❑ It is good practice to hold the gun open when starting the machine. This will take the initial start-up load off the motor.

## HIGH PRESSURE HOSES

- ❑ If a hose bursts or breaks, replace it! DO NOT repair hoses, especially if being used by a hot water washer, as you could get scalded!

# COLD WATER WASHERS

1500H & 2200H Models



# CHEMICAL INJECTION - Low Pressure

Chemical Injection is via a thin clear pipe fitted with a filter. Situated on the front panel just below the water inlet, this pipe and filter should be placed into a Detergent drum.

The Chemical pipe joins the internal pipework via an injector with an adjustment valve, which controls the amount of Chemical being used.

To facilitate Chemical Injection you first need to lower the outlet pressure. To do this take the Gun and unscrew the adjustable nozzle on the end of the Gun Lance. This automatically allows Chemical to be sucked into your power washer. It will take a few seconds to work through the system.

When the adjustable nozzle on the end of the lance is again tightened, full pressure is restored and the Chemical Injection stops.

The machine is supplied with a 30' high pressure hose.

*Longer lengths can be added; but the chemical dosing system function may not work properly with longer lengths, as the back pressure inside the hose prevents venturi injection.*

## FAULT FINDING - Cold Water Washer

Low pressure, juddering or no water flow.

- Air leaking in through inlet hose. (Check for holes and tighten hose clips)
- Water inlet connection not switched on.
- Water inline filter blocked.
- Jet in the end of the lance blocked.
- Pump seals need replacing.
- Dirt in one of the inlet valves.

NB: The Pressure Relief Valve is precisely adjusted in the factory, to give optimum pressure without overloading the motor. If this is tampered with or damaged, it may cause peaks of pressure when the handgun is released and may overload the motor and damage the pump.

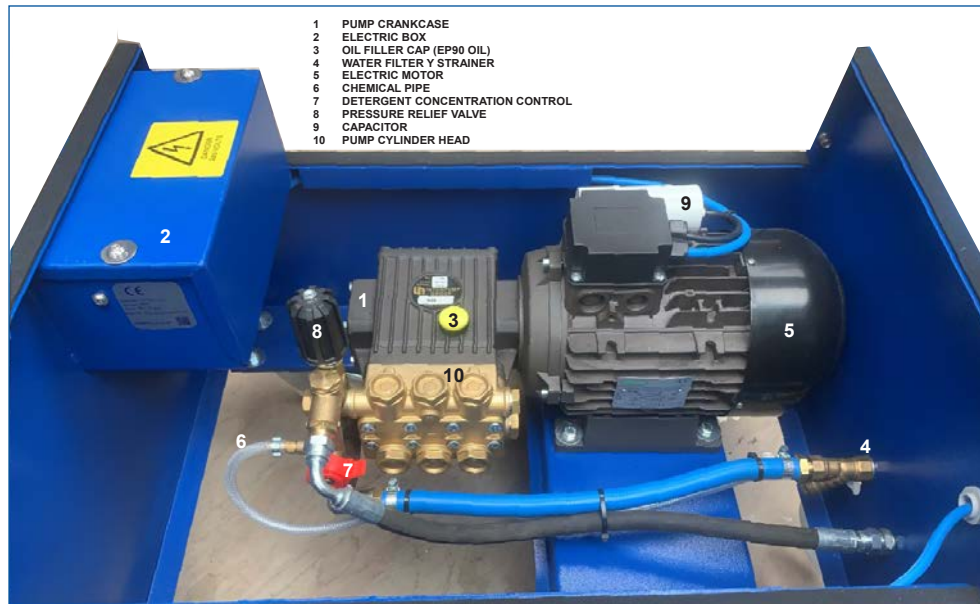
After many years of work or long periods of inactivity the Pressure Relief Valve may need replacing. Resealing them doesn't work.

If a machine is unused for long periods, the stainless-steel one-way valves inside the pump may stick, causing the pump to judder. Force feed the pump with a hose pipe to pop them open again thereby restoring previous pressure.

**The ONLY major problems with Mistral Power Washers are likely to be caused by YOU the operator!**

- Low voltage to the machine, eventually causes the motor capacitor to fail after repeatedly blowing fuses. *This can be caused by low mains voltage or long or thin extension cables.*
- Using dirty water and not cleaning inline water filters
- DO NOT leave the machine running whilst not in use, as the returning water will overheat and damage the pistons, valves and seal.

DO NOT dismantle the machine in an attempt to repair it, as you will normally be wrong and cause more damage and cost.



# HOT WATER WASHERS

1500H & 2200H Models



## KEY

1. LID CATCH
2. FUEL FILLER CAP (*Diesel Only*)
3. STAINLESS STEEL COVER
4. CHIMNEY
5. WHEEL
6. FUEL LEVEL SIGHT GLASS

## FUEL

Your machine is fitted with a vertical oil-fired burner unit, that is calibrated to use RED DIESEL OIL ONLY DO NOT USE PETROL or you and your machine will be toast!

- ❑ Use only clean red diesel oil in the fuel tank. A sight tube on the side of the fuel tank indicates the level.
- ❑ White Derv diesel can be used but this burns hotter and will probably require the burner settings to be altered.
- ❑ Condensation and debris will eventually collect in the bottom of the fuel tank.
- ❑ Occasionally drain the fuel tank via the drain plug on the bottom of the tank and change the disposable inline fuel filter.
- ❑ Do not re- fill the diesel fuel tank using old chemical drums? The chemical residue will mortally damage your fuel pump as will water droplets.

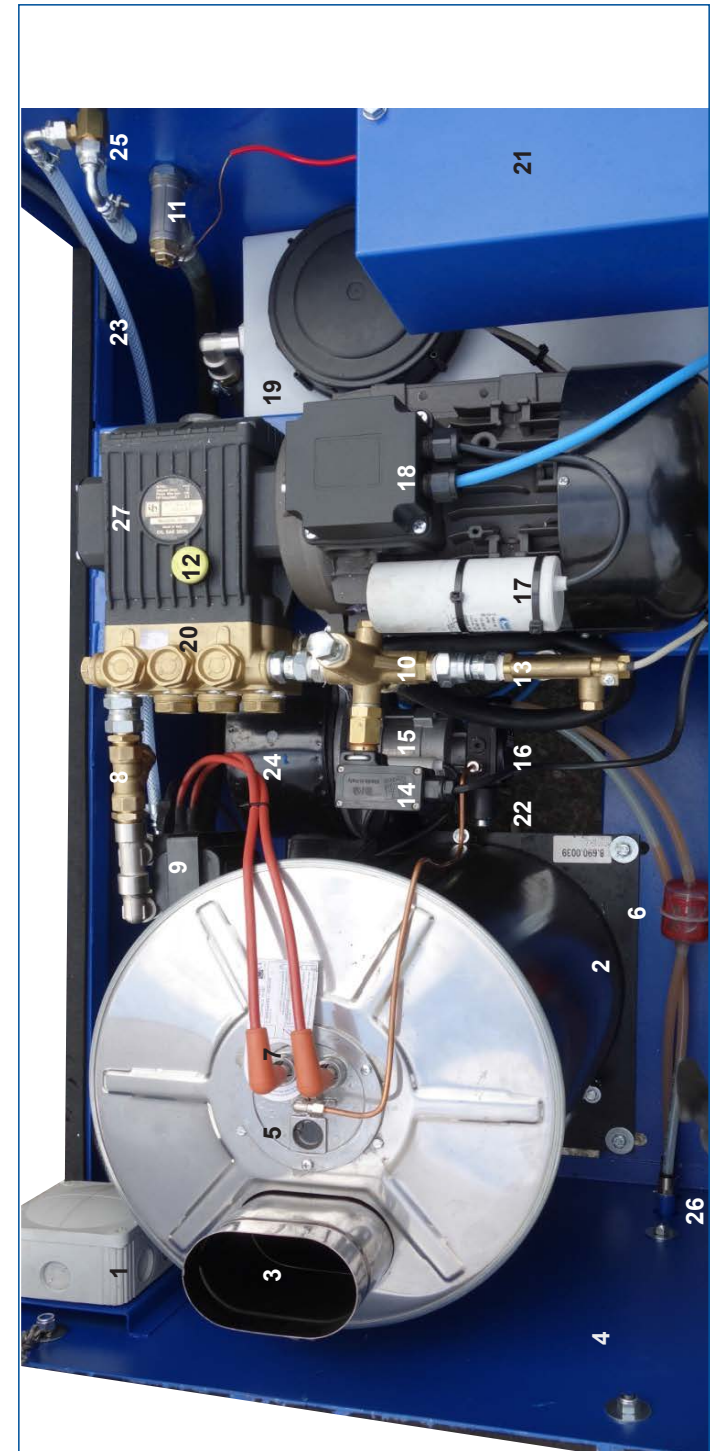
## HOT WATER

To produce hot water, switch the hot water control on the front of the control panel, set the thermostat to the desired temperature and when the gun trigger is depressed the burner will light.

The thermostat on the front of the machine will automatically controls the water temperature and will cut in and out while you are using the machine to give you the correct temperature that you have selected. If this control is set to zero, the burner will not light.

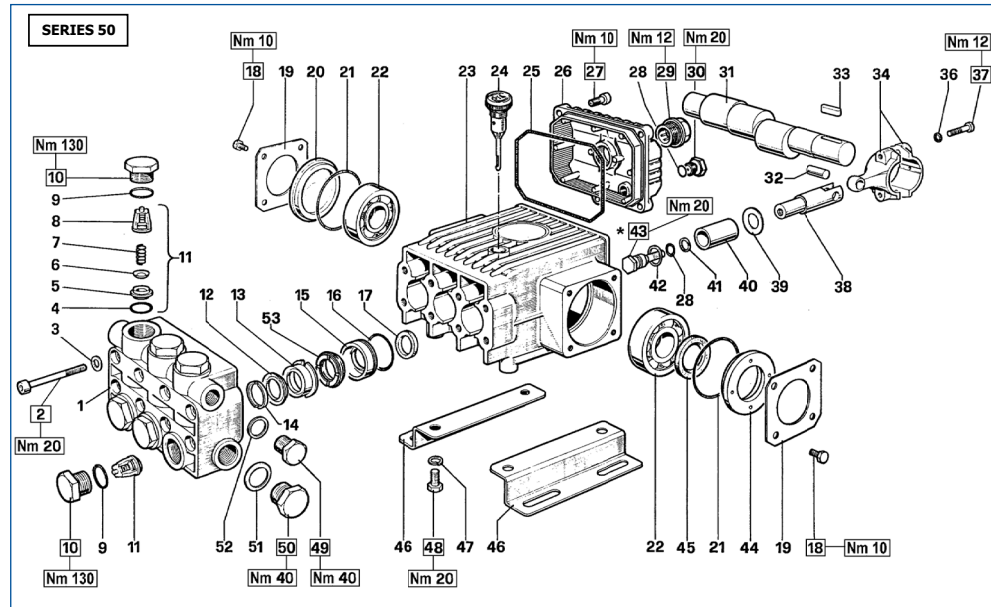
## COMPONENT IDENTIFIER

- |  |  |   |   |
|--|--|---|---|
| <ol style="list-style-type: none"> <li>1. JUNCTION BOX</li> <li>2. HEATING BOILER</li> <li>3. CHIMNEY</li> <li>4. DIESEL FUEL TANK</li> <li>5. BURNER SIGHT GLASS</li> <li>6. INLINE FILTER (DISPOSABLE)</li> <li>7. ELECTRODES</li> </ol> | <ol style="list-style-type: none"> <li>8. INLINE Y FILTER</li> <li>9. IGNITION TRANSFORMER</li> <li>10. PRESSURE RELIEF VALVE</li> <li>11. THERMOSTAT PROBE</li> <li>12. OIL FILLER CAP (EP90 OIL)</li> <li>13. FLOW VALVE</li> <li>14. PRESSURE SWITCH</li> </ol> | <ol style="list-style-type: none"> <li>15. BURNER MOTOR</li> <li>16. FUEL PUMP</li> <li>17. CAPACITOR</li> <li>18. ELECTRIC MOTOR</li> <li>19. WATER TANK</li> <li>20. CYLINDER HEAD</li> <li>21. ELECTRICAL BOX</li> </ol> | <ol style="list-style-type: none"> <li>22. FUEL SOLENOID</li> <li>23. CHEMICAL PIPE</li> <li>24. BURNER FAN</li> <li>25. CHEMICAL TAP</li> <li>26. FUEL TAP</li> <li>27. MAIN PUMP CRANKCASE</li> </ol> |
|--|--|---|---|



# PUMP ARRANGEMENT

1500 PSI MODEL



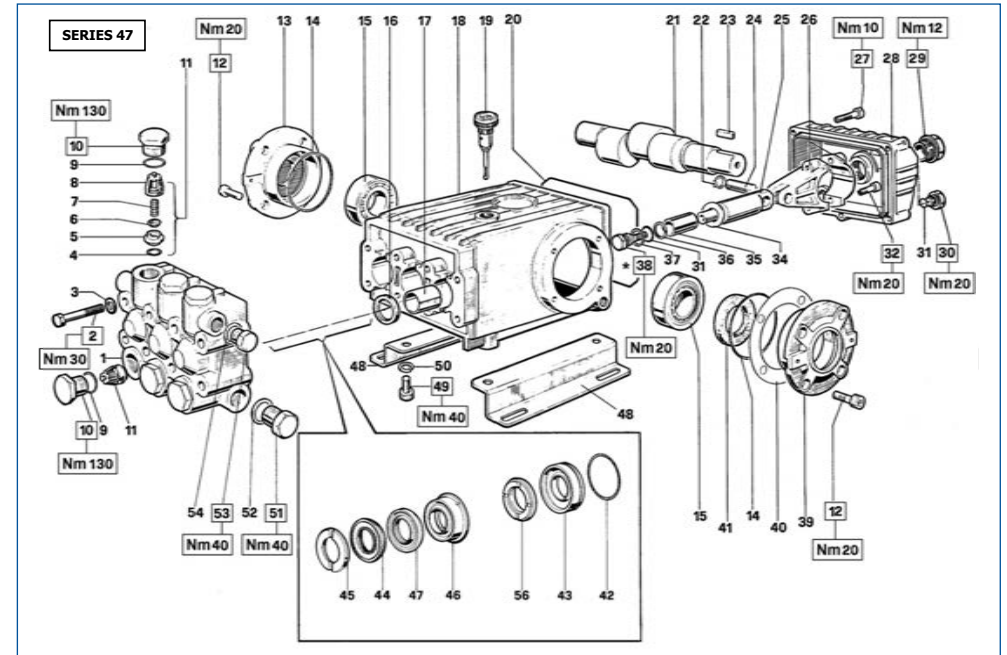
## Spare Part Kits - 20mm Piston

KIT No.	KIT 1	KIT 4	KIT 6	KIT 19
Diagram Part Number	4 - 5 6 - 7 8 (11)	9 - 10	28 - 39 41 - 42 43	12 - 53
Total Pieces	6	6	3	3

KIT 20	KIT 21	KIT 22	KIT 23	KIT 27
13	14	15 - 16	17	12 - 13 14 - 15 16 - 53
3	6	3	3	1

# PUMP ARRANGEMENT

2200 PSI MODEL



## Spare Part Kits - 20mm Piston

KIT No.	KIT 1	KIT 2	KIT 3	KIT 4	KIT 6
Diagram Part Number	4-5 6-7 8 (11)	16	41	9-10	31-34 36-37 38
Total Pieces	6	3	2	6	3

KIT 6	KIT 7	KIT 69	KIT 71	KIT 10	KIT 28
31-34 36-37 38	45	44-47 56	46-47	42-43	42-43 44-45 46-47 56
3	6	3	3	3	1

## HOT WATER – continued

When you release the trigger the burner will STOP.

IF THE BURNER DOESN'T STOP you must switch the machine OFF and consult an engineer.

It is good practice to switch the burner off and run cold water through the coil for a minute when you have finished using it, to allow the coil to cool down.

If you have hard water, then occasionally the burner coil will need descaling with inhibited acid. This is something that will be better done by a trained service engineer. Failure to descale the coil may eventually lead to the coil becoming completely blocked with lime scale, and reduced water heating ability of the burner unit may also need a replacement coil.

If the burner settings are incorrect the burner may smoke and burn inefficiently. This will cause soot to build up within the burner chamber and reduce its heating ability and prevent the burner lighting.

To rectify this the burner settings should be corrected and a “Soot buster” placed inside the burner casing to dissipate the soot. Again, a job for a trained engineer.

### CHEMICAL INJECTION - High pressure

- ❑ The thin clear pipe with a filter on the end that comes out of the front panel should be placed in a detergent drum.
- ❑ Where the chemical pipe joins the pipework inside the machine there is an adjustment knob which allows you to increase or decrease the amount of chemical being used.
- ❑ Open the chemical tap on the control panel to mix detergent with the water.
- ❑ It will take a few seconds to work through the system.
- ❑ It is good practice to occasionally draw clean, preferably warm water through the chemical system to remove solidified chemical scum as there is a small one way valve at the chemical injector that will seize if not occasionally washed with warm water.

### ELECTRODES

The electrodes produce the spark to ignite the burner fuel. If the electrodes, or the electrode caps and cables become damp, dirty, coated with fuel, or cracked, the spark will not be formed at the tips, and the spark runs up the electrode to short out on the casing, therefore the burner will not light.

### TO RESET THE ELECTRODES

Switch the machine off. Loosen the clamping screws holding the top of the electrodes.

Clean and dry the electrode; but do not scratch the shiny outer coating which acts as an insulator.

Set the points of the electrodes just to the side of the fuel jet. Do not put the points in the fuel spray area. Set the distance between the points of the electrodes at 4 to 5 mm

Whilst the electrode plate is outside the burner, ensure the flame cannot set fire to anything.

Switch the burner on and a spark should immediately jump between the electrodes. If there is no spark it may indicate that the ignition transformer has failed.



## FAULT FINDING FOR HOT WATER WASHERS

### BURNER WON'T LIGHT?

- ❑ Thermostat knob set too low
- ❑ Burner not switched on
- ❑ Fuel tank is empty
- ❑ Damp electrodes causing tracking
- ❑ Damaged or wrongly set electrodes
- ❑ Faulty ignition transformer
- ❑ Faulty pressure switch

### LOW PRESSURE JUDDERING or NO WATER FLOW?

- ❑ Water inlet connection not switched on
- ❑ Chemical tap left open allowing air to be sucked into the system
- ❑ Machine needs descaling, heating coil limed up
- ❑ Water inline filter blocked
- ❑ Jet in the end of the lance blocked
- ❑ Pump seals need replacing
- ❑ Dirty in one of the inlet valves

### MACHINE WON'T START?

- ❑ Check power supply and power cable
- ❑ Check fuses



### GENERAL INFORMATION

You will note that your machine is fitted with a reduction gearbox. This reduces the pump speed and allows the pump to suck from remote water sources.

Some competitor's machines bolt the pump directly onto the motor shaft running the pump at high speed reducing reliability and the ability to suck water - but saving build costs.

A separate handbook covering the engine is provided.

Any engine related problems must be dealt with by a Honda engine dealer.

Honda Engines are ultra reliable and there are dealers everywhere.

Check all bolts for tightness after the first few hours of use, then check on a regular basis.

This is a 4-stroke engine, so requires unleaded petrol and engine oil in the engine and gearbox.



## STARTING THE ENGINE

You need to avoid starting the engine under load. To facilitate this, a tap is fitted by the pump outlet which allows the water to be initially dumped during starting, this reduces the pressure.

## FAULT FINDING FOR PETROL COLD WATER WASHER

### LOW PRESSURE, JUDDERING or NO WATER FLOW?

- Air leaking in through inlet hose.
- Check for holes and tighten hose clips
- Water inlet connection not switched on.
- Water inline filter blocked.
- Jet in the end of the lance blocked.
- Pump seals need replacing.
- Dirt in one of the inlet valves

## IMPORTANT - PLEASE NOTE

The pressure relief valve is precisely adjusted to give optimum pressure without overloading the motor. If this is tampered with or damaged it may cause peaks of pressure when the handgun is released and may overload the motor and damage the pump.

After many years of work or long periods of inactivity, the pressure relief valve may need replacing. Resealing them doesn't work.

If a machine is unused for long periods, the stainless-steel one-way valves inside the pump may stick, causing the pump to judder. Force feed the pump with a hose pipe to pop them open again to restore previous pressure.

The only major problems with power washers are caused by YOU the operator...

- Use only unleaded petrol
- Don't use dirty water and clean inline water filters
- Do not leave the machine running for extended periods **whilst not in use**, as the returning water will overheat and damage the pump.
- Do not dismantle the machine in an attempt to repair it, as you will normally be wrong and cause more damage and cost

**For all other faults consult a service engineer**  
**Email: [info@mist-air.co.uk](mailto:info@mist-air.co.uk)**

## SPARES & ACCESSORIES



**Pump Unit**  
State Size

1500 models PUM001  
2200 models PUM003



**Pressure relief valve UL180**

PRV001



**Pressure relief valve K3 or K5**

PRV004



**Handgun**

GUN001



**Twin Lance** LAN001



**Insulated Lance - 900mm** LAN002



**Complete gun and 900mm lance assembly** GUN002  
*Also available: 500mm, 1000mm 1200mm 1500mm*



Large flow water float valve assembly  
BAL003



Water float valve assembly  
BAL001



Female quick release coupling  
*State Thread Size*  
COU005



Male quick release coupling  
*State Thread Size*  
COU007



Quick release water inlet coupling NITTO  
COU009



Adjustable nozzle for cold water washers  
DET003



Weighted suction strainer  
FIL002



Y Strainer  
FIL001



Inline disposable fuel filter  
FIL005



Tank filter  
FIL004



Detergent filter  
FIL003



Two position hot water switch  
SWI022



Toggle switch  
SWI007



Rotary switch  
SWI002



15-amp Overload switch  
*State Thread Size*  
SWI004



Burner motor and fan  
MOT016



Ignition transformer

TRA004



Thermostat

THE001



Fuel pump with solenoid

PUM018



Fuel pump without solenoid

PUM000



Pressure switch

*State Thread Size*

SWI015



Horizontal or Vertical flow switch

SWI016



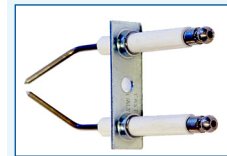
Vertical flow switch

SWI017



Electrode cap

ELE007



TwinElectrodes

ELE002



Fuel Jet

JET019



Detergent control valve

TAP004



Detergent injector

*Cold Water Washers*

DET001



Retro drain cleaning jet

JET010



Rotary nozzles

*1500 Models* JET027

*2200 Models* JET024



Stainless steel jets

*1500 Models* JET001

*2200 Models* JET005



### 3/8" High pressure hose

Lengths Available: **9 metre HOS006**  
**15 metre HOS007**  
**20 metre HOS008**



### Lightweight thermoplastic hose

*Use with cold water washers only. It's very light to carry, ideal for drain jetting, cleaning roofs, boats, aeroplanes, patios, etc. We supply in any length upto 400 metres. Sizes: 1/4" 3/8" 1/2" Contact us to order.*



### Locking Castor Wheel

**CAS001**



### Mistral Detergent

*Ideal for vehicles, machinery and greasy walls. Can also be supplied with Biocide to kill bacteria and viruses. Will not damage bright paint-work - so it's quite safe to use on your Bentley!*

**Require any  
advice or help?  
Consult one of our  
Service Engineers**

**email:  
info@mist-air.co.uk**

## WARRANTY

Machine Type:	Cold <input type="checkbox"/>	Hot <input type="checkbox"/>
Machine Serial Number:	M .....	
Voltage:	240v <input type="checkbox"/>	415v <input type="checkbox"/>
Model:	1500 <input type="checkbox"/>	2200 <input type="checkbox"/>
Date of Purchase	..... /..... /.....	
Customer's Name:	.....	
Customers Post Code:	.....	
Dealer:	.....	
Dealer's Post Code:	.....	
Dealer's Signature:	.....	

**Your pump is covered by a 10 year warranty, excluding seals. All other parts are covered by 2 years parts warranty, excluding hoses.**

**For warranty claims or repair the machine must be returned to Mistral at the customer's cost for inspection and repair. Labour may be chargeable depending on the cause of the failure.**

#### Warranty DOES NOT cover the following damage:

- Mechanical damage
- Frost/freezing damage
- Running the machine on bypass for long periods
- Low voltage damage to motor or capacitor
- Using contaminated or silty water

# mistralwashers.co.uk

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[mistralwashers.co.uk](http://mistralwashers.co.uk)

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