



Wheelmaster Pressure Feed System



Operating & Maintenance Instructions

Serial No.	
Customer	
A/C No.	

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1. Introduction

This manual should be regarded as part of the product and must be retained for the life of the machine. The manual must be passed to any subsequent owners of the machine.

Any amendments should be attached to the original manual. Machine identification and serial number can be found on the identification plate fixed to the machine body.

1.1 Safety recommendations

Guyson Blast Media

Material Safety Data Sheets are available on request for users of Guyson Blast Media

Users of Guyson equipment are advised to make sure they have identified any hazards associated with their specific blasting processes, including:

- Use of compressed air
- Fire/explosion risks, e.g. Aluminium dust
- Suitable procedures for dealing with fire hazards
- Production of carcinogenic or toxic dusts from media or component surface removal
- Any other known hazards

Users are responsible for ensuring that they have implemented any current regulatory requirements, e.g. COSHH, to deal with any potential risks and/or hazards associated with their processes.

ATEX ZONE DESIGNATION

The ATEX Directives 2014/34/EU (product requirements) and 99/92/EC (user requirements) are implemented by the Equipment and Protective Systems intended for use in potentially explosive Atmospheres Regulations 1996 (EPS) and the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR) respectively.

We are able to provide equipment that is suitable for use in a hazardous area, and/or equipment that is suitable for use when a hazardous area is created within a system, but it is the end users' responsibility to classify the area in which the equipment is to be used and/or the explosivity of any internal atmosphere created within the system. This is defined in Section 2, Article 3 to 9 of the 99/92/EC Directive (ATEX 137).

Unless we have been advised otherwise, we have to assume that the equipment will be used in an area that is not classified as potentially explosive, and uses a process which will not create an explosive atmosphere within the equipment.

1.2 Electrical specification

Electrical wiring on Guyson equipment conforms to:

- BSEN 60204-1:2006
- IEC 60204-1:2005

2. Data sheet

2.1 Blast cabinet

	Wheelmaster
Overall dimensions	
Height (mm)	1750
Width (mm)	990
Depth (mm)	1200
Turntable diameter (mm)	740
Armhole height (mm)	1085
Maximum air pressure	6 bar / 90 psi
Maximum air supply	77.4 m ³ /hr or 42 CFM
Cabinet lighting	
Electric supply	Single phase, 230 V, 50 Hz
Batten fluorescent	18 W
Fuse rating	2 A
Operator protection required	Hand and lower arm by gloves or gauntlets (supplied)

2.2 Cyclone

	75/16
Inlet diameter (mm)	100
Outlet diameter (mm)	150
Static inlet pressure (mm Wg.)	165
Static inlet pressure (Pa)	1620
Airflow (m ³ /min)	12.0
Height (mm)	*
Base (mm)	*
Body diameter (mm)	400
Pressure pot	G27

*Dependant on whether cyclone is free standing or cabinet mounted



2.3 Dust collector

	C400
Inlet diameter (mm)	150
Extraction outlet	Open exhaust
Maximum inlet static pressure (mm Wg)	165
Maximum inlet static pressure (Pa)	1620
Measured airflow (with open inlet/outlet) (m ³ /min)	11
Airflow adjustable?	Yes
Number of filters	1
Type of filter	Cartridge Filter - PTFE Element
Filtration area	10 m ² 97 ft ²
Air flow rating (with a filter velocity of 1.5 m/min)	900 m ³ /hr 530 CFM
Filter cleaning system	Manual pulse air cleaning system
Air consumption (litres per pulse)	7
Maximum compressed air supply pressure	50 psi 3.5 bar



2.4 Air consumption tables

2.4.1 Air flow measured in m³/hr at different pressures measured in bar

Nozzle bore **			Nozzle pressure (bar)						
mm	inch	no	2	2.8	3.5	4.1	4.8	5.5	6.2
3 (3.2)	1/8	2	11.9	15.3	20.4	22	25.5	30.6	32.3
5 (4.8)	3/16	3	32.3	37	42	51	60	68	73
6 (6.4)	1/4	4	58	68	85	92	102	119	127
8 (7.9)	5/16	5	90	110	136	152	170	195	212
9.5	3/8	6	125	156	186	212	246	272	297

** Nozzles have traditionally been given numbers to denote their size. This number defines the bore size in sixteenths of an inch e.g. a Guyson G2 nozzle is 2 sixteenths or one eighth of an inch. Bore sizes are also "rounded" to the nearest millimeter size but of course, this is not exact. The chart above indicates the "rounded" figure first with the exact size in brackets.

2.4.2 Air flow measured in CFM at different pressures measured in psi

Nozzle bore **			Nozzle pressure (psi)						
mm	inch	no	30	40	50	60	70	80	90
3 (3.2)	1/8	2	7	9	12	13	15	18	19
5 (4.8)	3/16	3	19	22	25	30	35	40	43
6 (6.4)	1/4	4	34	40	50	54	60	70	75
8 (7.9)	5/16	5	53	65	80	90	100	115	125
9.5	3/8	6	74	92	110	125	145	160	175

3. Installation

The system will comprise of the following units:

Blast Cabinet/Cyclone/Dust Collector

Flexible extraction hoses, sealing bands and hose clamps are supplied to connect these together.

Remove packing materials and check inside blast cabinet for loose items.

3.1 Location

The equipment must be located on a clean, dry surface.

Locate the cabinet in the required position and orientation; always allow sufficient room around the units to fully open doors and to give access for operation and maintenance.

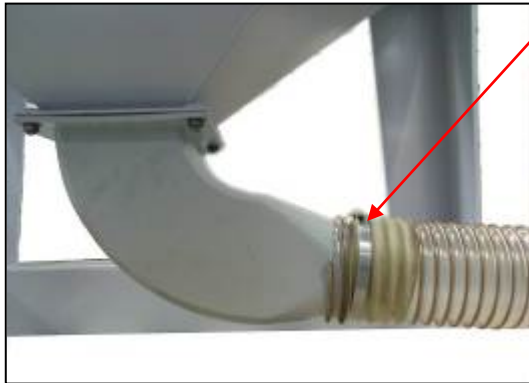
Care should be taken to ensure all parts of the system are level

3.2 Assembly

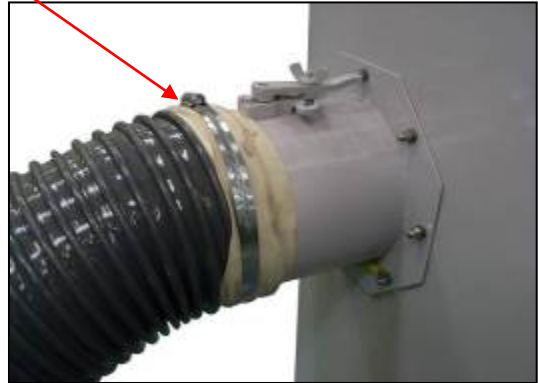
Hoses with media flowing through them should only have smooth flowing curves in them.

The cyclone needs to be connected between the blast cabinet and dust collector:

Connect the flexible extraction hose from the cabinet outlet to the cyclone inlet using the supplied sealing bands



Connect the flexible extraction hose and earthing wire from the cyclone outlet to the dust collector inlet using the supplied sealing bands.



Connect the flexible extraction hose from the bottom cyclone outlet to the pressure pot inlet using the supplied sealing bands.

3.2.1 Compressed air connections

The air supply should be from a manual shut-off valve that will exhaust down-stream air and be clean, dry and oil-free.

The machine requires a compressed air supply at a maximum of 6.0 bar (90 psi) at the filter inlet and pipework of adequate diameter to provide the flow rate required (see [air consumption tables](#)). The minimum recommended bore for the compressed air line is 1" and it connects to a 3/4" BSP thread.

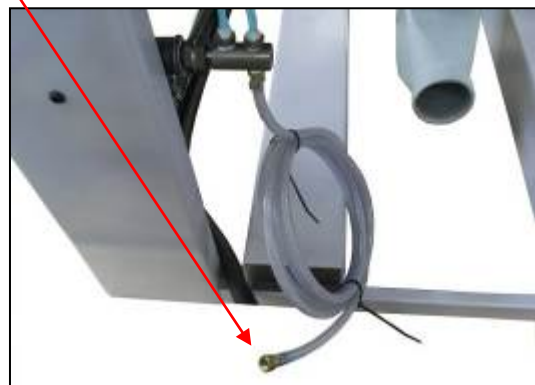
Connect the main compressed air supply to the pneumatic isolator valve



Take care that any jointing material (e.g. PTFE tape) does not enter the pipework.

The dust collector will require a compressed air supply. The regulator should be set to a maximum of 50 psi.

Connect the air supply from the back right leg of the blast cabinet to the dust collector.



3.2.2 Pressure pot connections

The pressure pot should be connected up to the exhaust, blast nozzle, air supply, etc. Use the hose tags and the drawings in the appendix to match the hoses up correctly.



3.2.3 Electrical connections

Electrical installations should only be carried out by qualified electricians

Please see “Electrical installation of dust collectors and cyclones” in the appendix

Power supplies should be taken to the starter boxes situated on the side of the dust collector and cyclone.



The plug to the lighting on the cabinet should be plugged into a single phase supply of the correct voltage and must be switched on at a convenient point for ease of operation.

4. Testing installation

4.1 Testing installation procedure

After completing all the connections the cabinet operation should be checked.

Do not add media at this stage

Do not open the air supply at this stage

- Switch on main electrical power supply
- Switch on cabinet light
- Start the dust collector:
 - o The direction of the impellor motor should be checked visually against the arrow on the motor. If rotation is in the wrong direction, then on a 3 phase motor two of the input phase lines should be changed over. Guyson International should be contacted for more information if it is a single phase motor.

NOTE: Air will flow from the outlet even if the fan rotation is wrong, but only at a low level, so rotation must be checked visually.

The best way to do this task is by starting then stopping the dust collector and watch the fan as it slows down.

On a C400 dust collector the motor is on the outside and can be easily checked.



- Start the cyclone:
 - o The direction of the impellor motor should be checked visually against the arrow on the motor. If rotation is in the wrong direction, then on a 3 phase motor two of the input phase lines should be changed over. Guyson International should be contacted for more information if it is a single phase motor.

NOTE: Air will flow from the outlet even if the fan rotation is wrong, but only at a low level, so rotation must be checked visually.

The best way to do this task is by starting then stopping the cyclone and watch the fan as it slows down.

On a 75/16 cyclone the motor is on the outside and can be easily checked.



- Check media flow control valve is closed
- Turn on the air supply by opening the main air valve
- Set pressure regulator to required blast pressure
- Check all in-line connections for leaks and possible blockages
- Insert both arms through the armhole entries
- Depress the foot pedal
- Check for steady air blast from gun and for possible leaks
- Release foot pedal and remove arms from entries
- Add media to machine

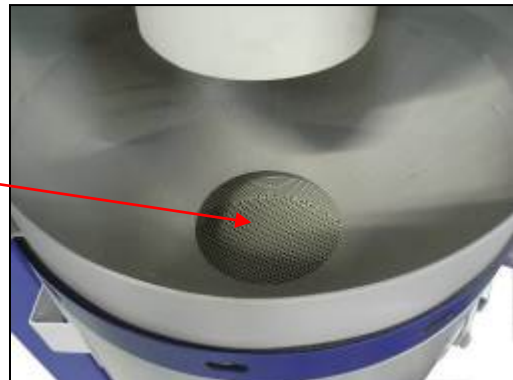


4.2 Media levels

The media should be added to the pressure pot via the 75/16 cyclone upper door. $\frac{1}{4}$ - $\frac{3}{4}$ of a 25kg bag of media should suffice.

4.2.1 Adding media to 75/16 cyclone

- Turn off the dust collector
- Turn off the cyclone
- Open the upper cyclone door
- Pour media into the cyclone
- Close the upper cyclone door
- Turn the dust collector on
- Turn the cyclone on
- Restore compressed air supply



The upper door should always be used so the media can pass through the sieve before it gets added to the pressure pot.

5. Machine settings

5.1 Blast settings

The blast settings should be set in the order they appear in the following sections.

5.1.1 Blasting pressure

Air pressure controls the speed at which the blast media leaves the nozzle. Blasting speed increases at higher pressures and shortens operation time. Never use a higher blast pressure than necessary to achieve the finish required.

- Higher pressure air is less economical
- It may distort or damage components
- Greater media breakdown means higher media consumption
- Noise increases

Adjust the blast gun pressure using the control knob on the main air inlet filter. The gauge shows the set pressure.



5.1.2 Media control valve

This operation will be greatly eased by the assistance of a second operative.

Note: The greater the flow of media from the media flow control valve to the blast nozzle, the higher the rate of wear of all wear parts especially media hose, blast nozzle and exhaust wear plates.

The media flow from the base of the pressure pot to the nozzle is controlled by the hand wheel on the bottom of the pot. This operates a valve between the pressure pot outlet and the Y branch in the main air pipe. This media flow control (or grit) valve should be gradually opened while the foot pedal is depressed until a steady stream of media is coming from the nozzle.

Do not open the media valve more than is necessary for a steady flow of media from the nozzle: excessive media in the media hose will cause erratic and intermittent flow of media to the nozzle.



Media flow control valve

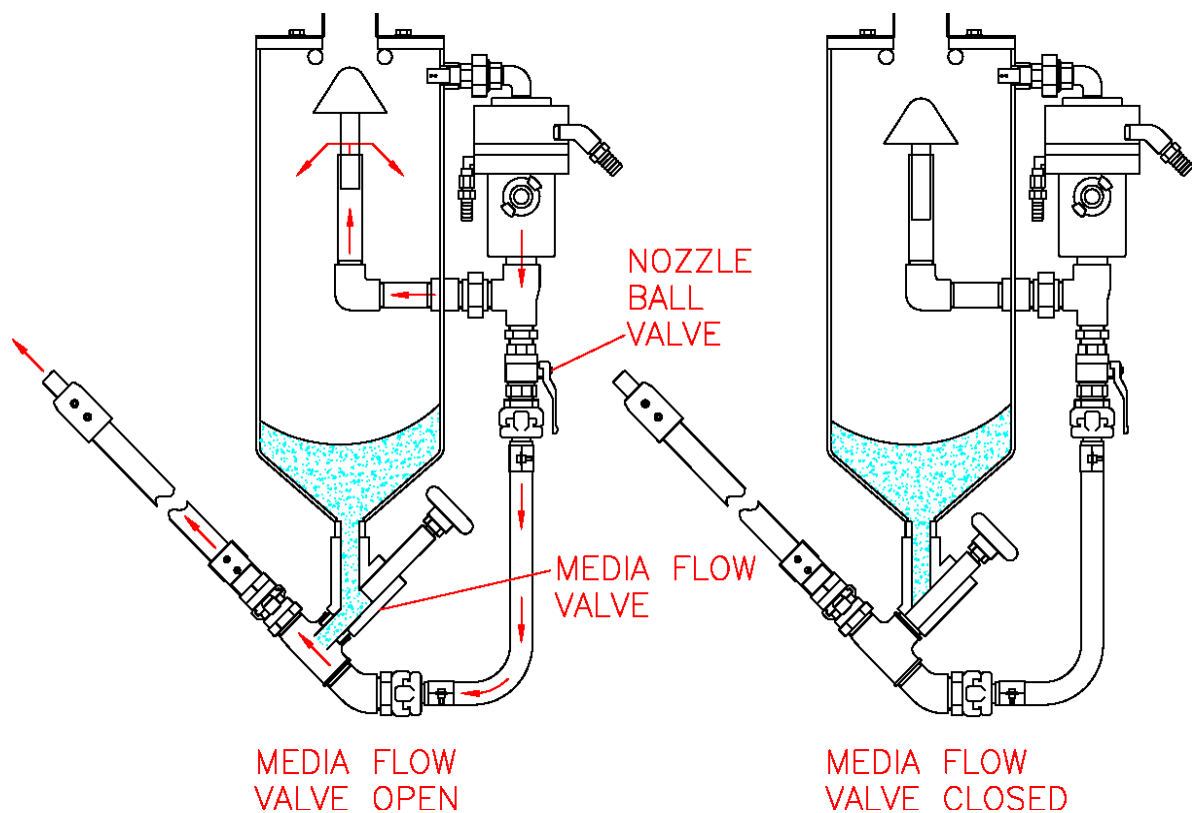


Nozzle ball valve

In certain circumstances, for instance with lightweight media, it can be difficult to achieve the desired media flow at any position of the media valve from fully open to fully closed. This is because the media in the pressure pot is not liquidised preventing media from flowing through the media control valve. An adjustment of the airflow is therefore necessary.

The nozzle ball valve controls the air flow balance. By default the ball valve should be fully open. To make more air flow through the pressure pot, to liquidise the media, close the ball valve slightly. This resetting of the ball valve upstream of the media valve means that less air is flowing down the main air hose and more air is flowing into the pressure pot which in turn liquidises the media causing the media to flow (see figure 1).

Once media flow is achieved by the gradual closing of the nozzle ball valve then the media valve should be adjusted to even out the flow. Small adjustments of both valves may thus be needed to achieve optimum performance.

Figure 1: Media flow control valve adjustment**Note:**

LEAN FLOW IS ALWAYS BEST. As the media enters the airstream it causes the airflow to slow down. Too much media makes the process less effective.

Once set to its optimum position it should not require further adjustment whilst using the same blast media.

5.1.3 Stand-off distance

This is the distance of the gun nozzle from the component. The stand-off distance should not normally be reduced below 50mm as media from the nozzle will be deflected or slowed down by media ricocheting from the surface being blasted.

The impact of the media can be affected by the stand-off distance and the air pressure. The type of media will influence this but a larger blast area may be achieved by increasing both the stand-off distance and the blast air pressure.

5.1.4 Angle of blasting

The optimum angle for blasting for surface finishing is between 90 and 60 degrees to the horizontal. Shallower angles can cause surface damage or compromise material properties. Shallower angles than this can be used for deposit removal where the surface finish is not critical and with softer media.

Blast guns should be angled to minimise interference between the outputs from different guns. This will avoid disrupting the speed and direction of media between nozzle and component.

Always position guns pointing away from any cabinet openings; this minimises the risk of media being blasted out of the cabinet.

5.2 Extraction settings

5.2.1 Dust collector

The air-flow must be sufficient to create a slight negative pressure inside the cabinet to prevent dust from blowing out. The airspeed must also be high enough to carry the blast media and dust out of the cabinet and up the extraction hose to the inlet of the cyclone. This varies with the size and weight of blast media.

The suction in the dust collector should be such that a minimum amount of media is transferred into the dust collection system.

This is altered with the blast gate on the dust collector inlet:

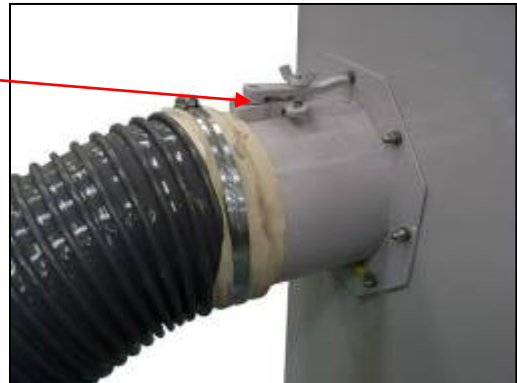
- Opening the blast gate increases the suction
- Closing the blast gate reduces the suction

The slide damper on the exhaust must be permanently fixed in the fully open position.

The dust collector must be started before and stopped after the cyclone unit in order to clear the system of dust after the blasting operation.

The dust collector should be checked to see how much reusable media has been transferred and the settings adjusted accordingly.

Never try to extract reusable media for reuse in the machine.



5.2.2 Cyclone

If after adjusting the dust collector damper good media is still being drawn into the dust collector, it may be necessary to adjust the cyclone vortex as well.

To test the position of the vortex; first clean the dust collector waste bin. Operate the blast process for 10 minutes and then look inside the dust collector waste bin. A large quantity of usable blast media in the waste bin indicates the vortex needs adjusting to reduce carry over. The absence of any dust at all indicates the vortex needs adjustment to separate the dust which may be retained within the media hopper.

A short vortex will usually draw more dust out of the cyclone than a long vortex. Each process may need a different vortex setting, with best results being achieved by trial.

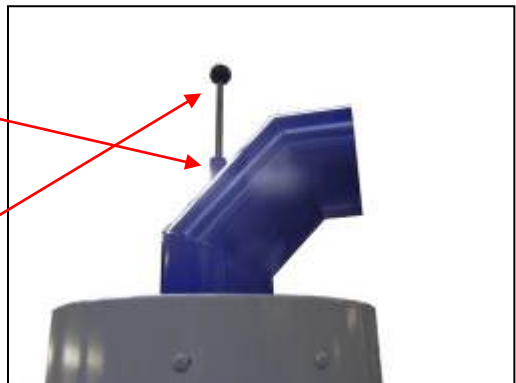
To adjust the length of the vortex in a motorized cyclone:

- Switch off the cyclone then the dust collector
- Open the access panel
- Slacken the tensioning clip around the vortex sleeve
- Slide the sleeve up or down as required
- Replace and secure the tensioning clip and close the access panel



To adjust the length of the vortex on a non-motorized cyclone:

- Switch off the cyclone then the dust collector
- Open the access panel
- Release the thumb-screw securing the vortex adjusting rod at the top of the cyclone exit elbow.
- By means of the knob attached to the adjusting rod, slide the rod up or down as required to decrease or increase respectively the length of the vortex.
- Secure the thumb-screw when the adjusting rod is in the desired position
- Close the access panel



NOTE: The position of the vortex can be viewed by opening the top access door during the adjustment procedure.

As a further aid to the separation of good media from dust and fines there is an air-flow separation control band around the body of the 75/16 cyclone.

This band has slots cut in it which coincide with holes in the cyclone body itself. When all the holes are lined up, air is permitted to enter the cyclone increasing the amount of air available for extraction to the dust collector. In turn this reduces the velocity of the exhaust air and permits media to fall out of the airstream more easily. This is particularly beneficial with light media (such as plastics) where the individual granules do not have sufficient mass to drop out of a moving airstream.



Where it is not necessary or not required to increase the velocity of the exhaust airstream the band should be rotated so that the holes in the band do not line up with the holes in the cyclone body; this will inhibit the entry of any extra air by this route and hence leave the characteristics of the air-flow unchanged.

It must be remembered that the air-flow separation band is adjustable to give all permutations between fully open and fully closed; this provides the operator with a wide range of adjustment to suit individual situations. However, it is also important to remember that there is no firm rule concerning the use of this band and the best results will be achieved by trial and error.

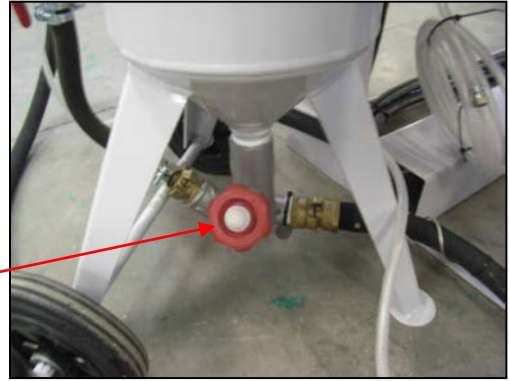
Once the cyclone has been set for a particular application, it should not require further adjustment. Any loss of visibility or a failure to remove sufficient dust may be caused by blocked breather pads or choked dust collector filters.

To maximize operation, each different blasting operation will need the settings checking for best blasting performance.

6. Operation

6.1 Operating procedure

- Perform 'daily maintenance tasks' (see section [7.1](#))
- Switch on main electrical power supply
- Switch on cabinet light
- Start the dust collector
- Start the cyclone
- Check media flow control valve is closed
- Turn on the air supply by opening the main air valve
- Ensure the wheel is grease-free and dry before blasting
- Open the cabinet door
- Remove the trolley stop pin(s)
- Place wheel on trolley in the cabinet
- Attach earthing clamp to wheel
- Position the blast gun and airwash so that they will be easily reached when using the gauntlets/gloves and sleeves
- Close the cabinet door securely
- Insert both arms through the armhole entries



**GAUNTLETS/GLOVES MUST BE USED IN CONJUNCTION WITH THE
ARMHOLE SLEEVES.**

- Depress the foot pedal, media will exit from the gun nozzle
- Move the nozzle jet across the affected area of the wheel at a suitable distance from the surface, refer to blast gun settings section [5.1](#)
- The affected area of the wheel should be blasted evenly
- When the blasting is complete, release the foot pedal
- The door can now be opened, and the wheel can be removed for inspection



- Further blasting may be necessary, or an adjustment to one or more of the machine or blast settings
- The air line may be used to clean dust from the component surface

Note:

If the machine is to be transported reinsert the trolley stop pin(s) to prevent the trolley from damaging the door and window.

7. Maintenance

Blast machines are subject to wear. The rate of wear is determined by:

- The speed of media passing over the component surface
- The proportion of media to air exiting the blast nozzle
- The angle of contact with component surface
- Component material
- Media coarseness and type used

The wear can be minimised by regular maintenance and monitoring settings particularly those effecting localised wear.

The frequency of any maintenance schedule and the replacement of parts are determined by the amount of use, media used and operating conditions. Maintenance intervals will be determined by experience of machine-use over time. The following periods are recommended for initial trial periods until wear patterns are established.



ENSURE ALL AIR SUPPLIES ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE



THE DUST COLLECTOR SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY MAINTENANCE. A LOCK-OUT AND TAG PROCEDURE SHOULD BE IN PLACE TO PREVENT THE MACHINE FROM BEING STARTED PRIOR TO THE COMPLETION OF MAINTENANCE.



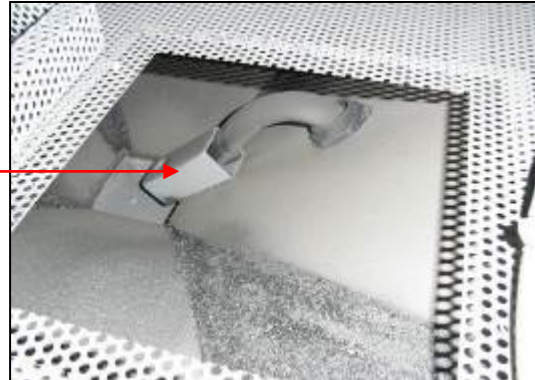
PPE: GUYSON RECOMMENDS THAT AS A MINIMUM, OPERATIVES SHOULD USE A DUST MASK AND SAFETY GLASSES WHEN PERFORMING MAINTENANCE OF ANY SORT. REFERENCE SHOULD BE MADE TO THE MATERIAL SAFETY DATA SHEET OF THE MEDIA BEING USED FOR ANY SPECIFIC PPE REQUIRED.

7.1 Daily

- Check exhaust box for wear (see section [7.1.1](#))
- Inspect the viewing window, anti-frost sheet, wire gauze (see section [7.1.2](#))
- Inspect all hoses for wear and damage (see section [7.1.3](#))
- Inspect blast nozzles for uneven wear and bore size (maximum oversize is plus 20%) (see section [7.1.4](#))
- Inspect door seals for wear (see section [7.1.5](#))
- Inspect hopper for signs of overspray wear (see section [7.1.6](#))
- Empty dust collector bin and check contents for quality of media, ensure good media is not being wasted (see section [7.1.7](#))
- Top up media as required(see section [7.1.8](#))
- Clean the filters every four working hours (see section [7.1.9](#))
- Check compressed air filter (see section [7.1.10](#))
- Check earthing bonds are secure (see section [7.1.11](#))

7.1.1 Exhaust box

Check that the base of the exhaust box (**E1AA3077**) situated in the cabinet hopper has not worn through. If it has the exhaust gases will fire straight at the hopper elbow and wear it out.



7.1.2 Viewing window



Check that the view of the component to be blasted is not impaired by a scratched anti frost sheet (**P2PF0008**), glass (**P2GL0008**) or a damaged wire gauze (**P2GL0018**). Replace if necessary.

7.1.3 Hoses



Check the media supply hoses (**R6TB0021**) for signs of wear and damage. Internal wear can be determined by feeling the rigidity of the tubing along its length. Any internal wear will result in the hose feeling soft where the hose wall is thinner.

Check the extraction hoses for holes or breaks as these will affect the rate of extraction from the cabinet.



Item code	Description
R6TB0030	Flexible exhaust ducting - standard - 100 mm bore (m)
R6TB0032	Flexible exhaust ducting - polyurethane - 100 mm (m)
P2HS0000	Hose sleeve - 100mm
R6TB0034	Flexible exhaust ducting - standard - 150 mm bore (m)
R6TB0036	Flexible exhaust ducting - polyurethane - 150 mm bore (m)
P2HS0001	Hose sleeve - 150mm

7.1.4 Blast nozzles

Inspect the blast nozzle on a daily basis for wear. When the bore size has increased by 20% (5mm bore @ 20% = 6mm) then the nozzle needs to be replaced. The effective bore of a nozzle can be quickly checked by use of a twist drill bit.

7.1.4.1 Checking bore size

Select a twist drill that is 20% bigger than the original nozzle, if this can be inserted then the nozzle will need to be replaced.

Item code	Description
D2BA0011	3mm PF Tungsten nozzle
D2BA0012	5mm PF Tungsten nozzle
D2BA0013	6mm PF Tungsten nozzle
D2BA0014	8mm PF Tungsten nozzle
D2BA0016	10mm PF Tungsten nozzle
D2BA0017	12mm PF Tungsten nozzle
D2BA0018	13mm PF Tungsten nozzle
D2BA0032	3mm PF Boron nozzle
D2BA0033	5mm PF Boron nozzle
D2BA0034	8mm PF Boron nozzle



Use a pipe wrench to unscrew the nozzle then again to screw the new nozzle in.

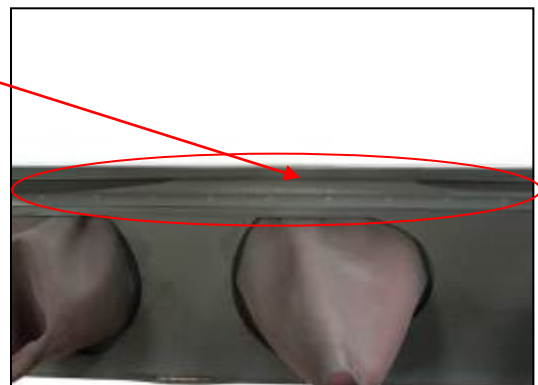
If the nozzle has uneven wear then it should be replaced.

7.1.5 Door seals

If the door gasket strips are worn then:

- this allows noise to escape from the cabinet more easily
- media may be able to exit the cabinet

Item code	Description
R5SL0024	16mm wide x 5m roll
R5SL0027	25mm wide x 5m roll
R5SL0026	38mm wide x 5m roll



7.1.6 Overspray

Care should be taken not to wear away the insides of the cabinet. If certain areas are getting increased wear then Guyson International can supply rubber curtains and linings.

7.1.7 Empty dust collector bin



The dust collector bin should be emptied twice daily. The bin should also be checked for good media. If this is present then the dust collector/cyclone settings will need adjusting.

The bin is compressed against the filter chamber of the dust collector by a lifter cam. To lower the bin; use the handle on the side. Then slide the bin out



**CARE SHOULD BE TAKEN WHEN HANDLING THE WASTE BIN AS THE BIN
MAY BE HEAVY**

7.1.8 Topping up media

Top up the media levels as required as media is consumed. This can be roughly gauged from the waste bin on the dust collector. Regular additions of small quantities of media maintain an even particle size and assist in producing consistent results.

7.1.9 Filter cleaning

Filter cleaning must be carried out on a regular basis. Initially this should be carried out every four hours, until a working pattern is reached.

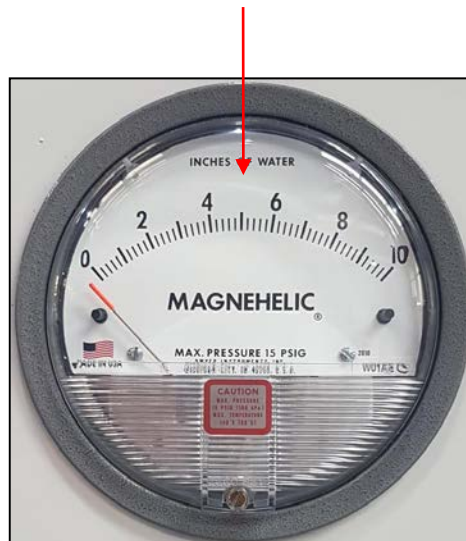
The filter cleaning system is manual. Push the button to release the compressed air from the pressure vessel to knock the dust from the filter.



THE MOTOR SHOULD BE SWITCHED OFF WHEN USING THE CLEANING MECHANISM ON THE C400 DUST COLLECTOR

After approximately five hundred hours use the dust will have worked its way into the body of the filter and cleaning with the cleaning mechanism will no longer clean sufficiently to allow enough air through. This will be evident by poor visibility in the cabinet and/or failure to extract the dust even with the dust collector damper fully open. A filter change will be necessary at this point.

C400 dust collectors are fitted as standard with a magnehelic manometer gauge. This measures the differential pressure across the main filter. When the pressure difference reaches 5" Water Gauge then a filter change will be necessary.



7.1.9.1 Replacing the filter cartridge on a C400

- Press the filter cleaning push button and turn off the air supply



Turn anti-clockwise to
unlock

Remove front cover



For filter removal turn lifter
cam 180° to the left

The cam is now unlocked
and the filter cartridge can
be removed



Replace with new filter
cartridge (**Y1CA0045
PTFE filter**)

Turn lifter cam 180° to the
right to lock cartridge

Replace front cover



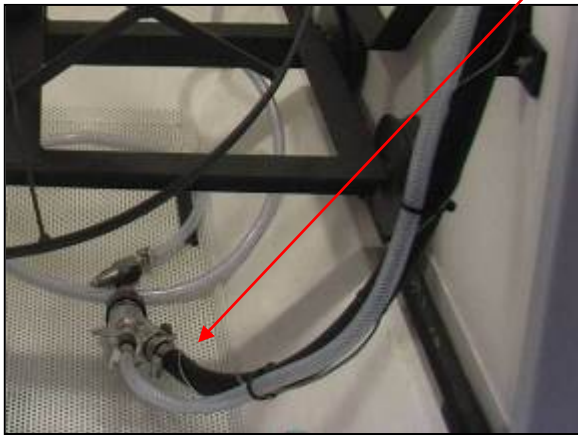
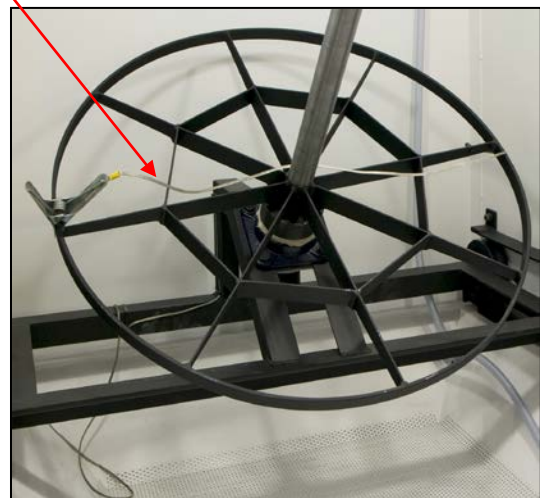
**ENSURE THE FILTER IS CORRECTLY POSITIONED SO THAT DUST
CANNOT BYPASS IT TO THE EXHAUST**

7.1.10 Compressed air filter

The compressed air filter is self draining. If the media is dry and not clumping together then the compressed air filter is working correctly. If the media is clumping together then there is a problem with the compressed air filter or your air supply. Guyson International should be contacted for more information.

7.1.11 Earthing bonds

Check that the earthing wires on the media hose and trolley are secure.



7.2 Weekly

- Inspect hopper elbow and wear plates for wear (see section [7.2.1](#))
- Inspect cyclone interior and wear plates for wear (see section [7.2.2](#))
- Inspect sleeves/gauntlets for wear (see section [7.2.3](#))
- Inspect wheelmaster trolley (see section [7.2.4](#))
- Inspect pressure pot media flow control valve for wear (see section [7.2.5](#))
- Check exhaust and media hoses and couplings for signs of wear (see section [7.2.6](#))

7.2.1 Hopper elbow

Hopper elbows will either be made of PU or Mild Steel. If they are Mild Steel they will either have a PU or Mild Steel wear plate fitted depending on the specification ordered. The wear plate should be inspected and replaced when worn thin. If the elbow is made of PU and has worn through then a new hopper elbow will be required.

7.2.1.1 Replacing the wear plate

- Turn dust collector on
- Turn cyclone on
- Run machine for 10 mins to clear pipes
- Turn dust collector off
- Turn cyclone off
- Detach hopper elbow
- Replace wear plate
- Reattach hopper elbow

Item code	Description
E1AA0097	90° Ø100 PU hopper elbow
E1AA0616	90° Mild Steel wear plate
E1AA0949	180° Mild Steel wear plate

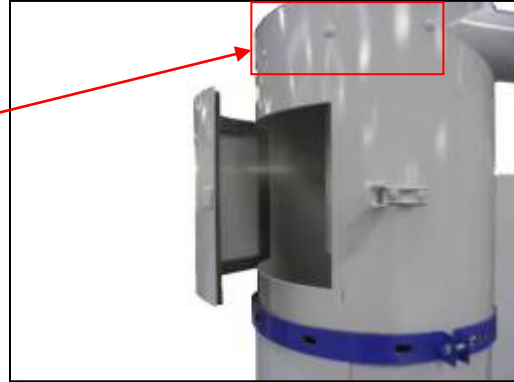
If your elbow is not one of those listed in the table above then please contact Guyson International for more information.

7.2.2 Cyclone

Cyclones will either have a PU lining or a wear plate fitted depending on the specification ordered. The wear plate (**E1AA2454**) should be inspected and replaced when worn thin. The PU lining cannot be relined and a new cyclone body will be required when it has been worn away.

7.2.2.1 Replacing the wear plate

- Open the top door
- Remove the 3 bolts while holding on to the wear plate to stop it falling off
- Replace wear plate and secure it in position with the 3 bolts



7.2.3 Sleeves/Gauntlets

If the sleeves (**Y1AA0024**) or gauntlets (**Y1AA0017**) have holes in them or have split then:

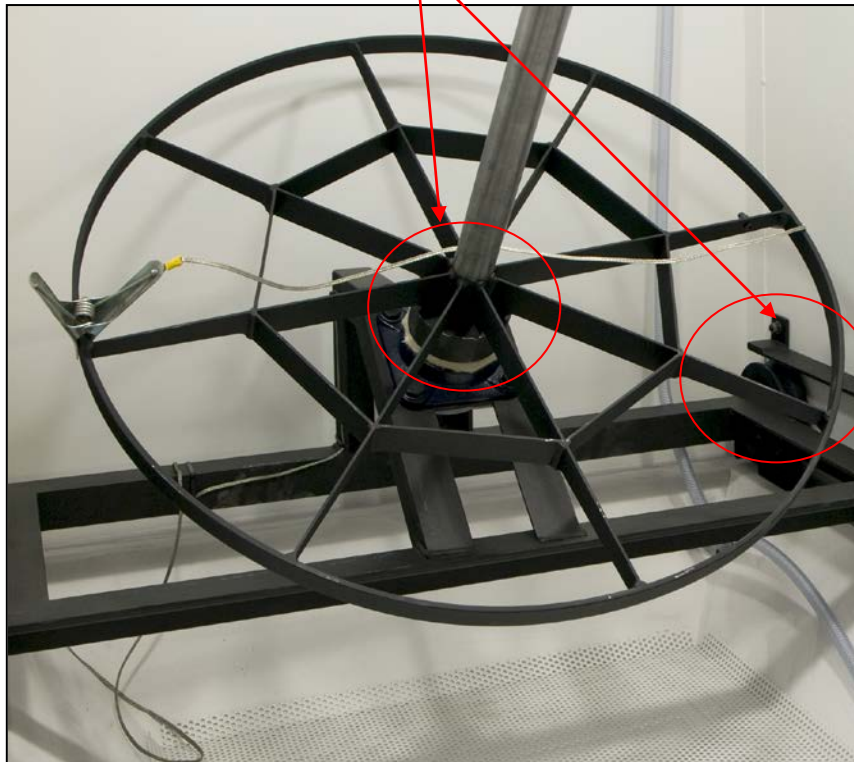
- this allows noise to escape the cabinet more easily
- media may be able to exit the cabinet

They should be replaced when damaged.



7.2.4 Wheelmaster trolley

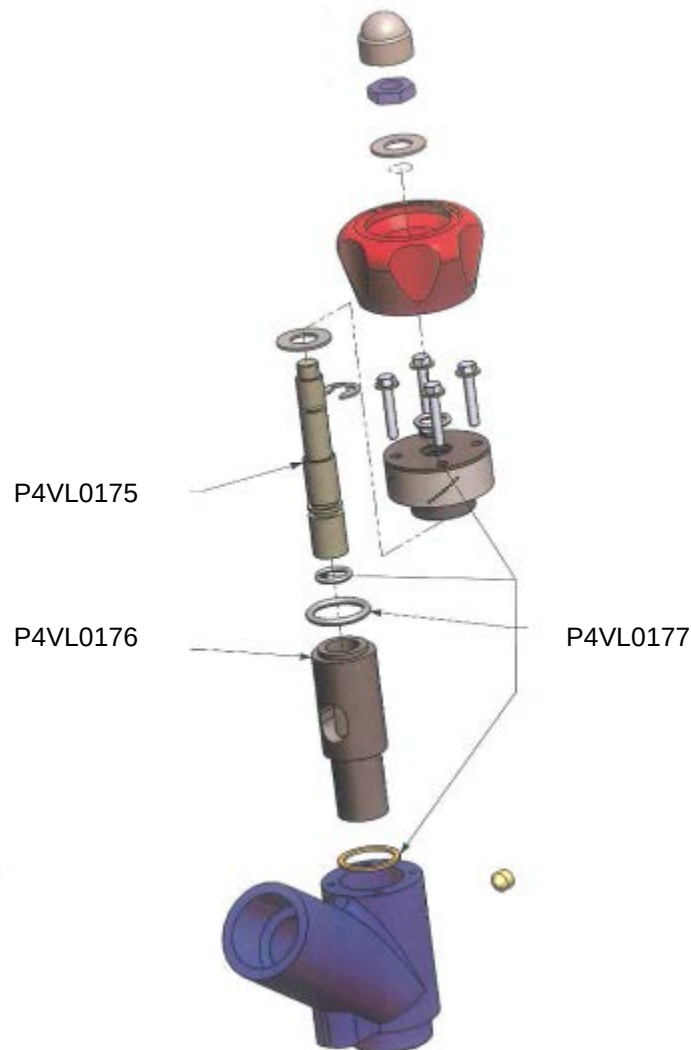
The turntable trolley should be checked to see that its 4 wheels and turntable are running smoothly and freely. If not then the wheels may have worn and need replacing. The turntable bearing may need replacing or greasing.



Item code	Description
E1AB2454	Vee wheel
P5BE0150	Flange bearing RHP SF 40

7.2.5 Media flow control valve

The media flow control valve (**P4VL0174**) is a sliding gate valve which regulates the flow of the media by altering the size of the orifice through which the media passes. The sliding gate is subjected to a continuous flow of media through it and hence it is being constantly eroded by the abrasive action of the media. The wear rate is dependent on the type and grain size of media in use and the air pressure within the pot. Regular inspection is necessary to ensure that the failure of the sliding gate does not lead to the destruction of the valve outer casing.



7.2.6 Media hoses and couplings

Check the media hoses (**R6TB0021**) for signs of wear and damage. Internal wear can be determined by feeling the rigidity of the tubing along its length. Any internal wear will result in the hose feeling soft where the hose wall is thinner.

See assembly drawings in appendix for coupling item codes.



7.3 Monthly

- Drain old media and discard (see section [7.3.1](#)) and refill system with new media (see section [4.2](#))
- Check the ball valve for internal wear and replace if worn (see section [7.3.2](#))
- Check exhaust valve and diaphragm for wear and splits (see section [7.3.3](#))

7.3.1 Emptying media

To empty machine:

- Turn on the dust collector
- Turn on cyclone
- Use an air line to clean inside cabinet
- Once clean leave dust extraction on for 10 minutes to clear pipes of residual media
- Switch off cyclone
- Switch off dust collector
- Unscrew media control valve and empty pot



TAKE CARE TO AVOID TRAPPING FINGERS; THE MIXER BOX COULD BE VERY HEAVY

7.3.2 Ball valve

The ball valve is the main air control valve and is subjected to compressed air at a high pressure and is the only control of it. Consequently it can wear internally. Also, if the pressure pot is overfilled with blast media, blast media can, in extreme cases, be passed backwards through the ball valve from the interior of the pressure pot.



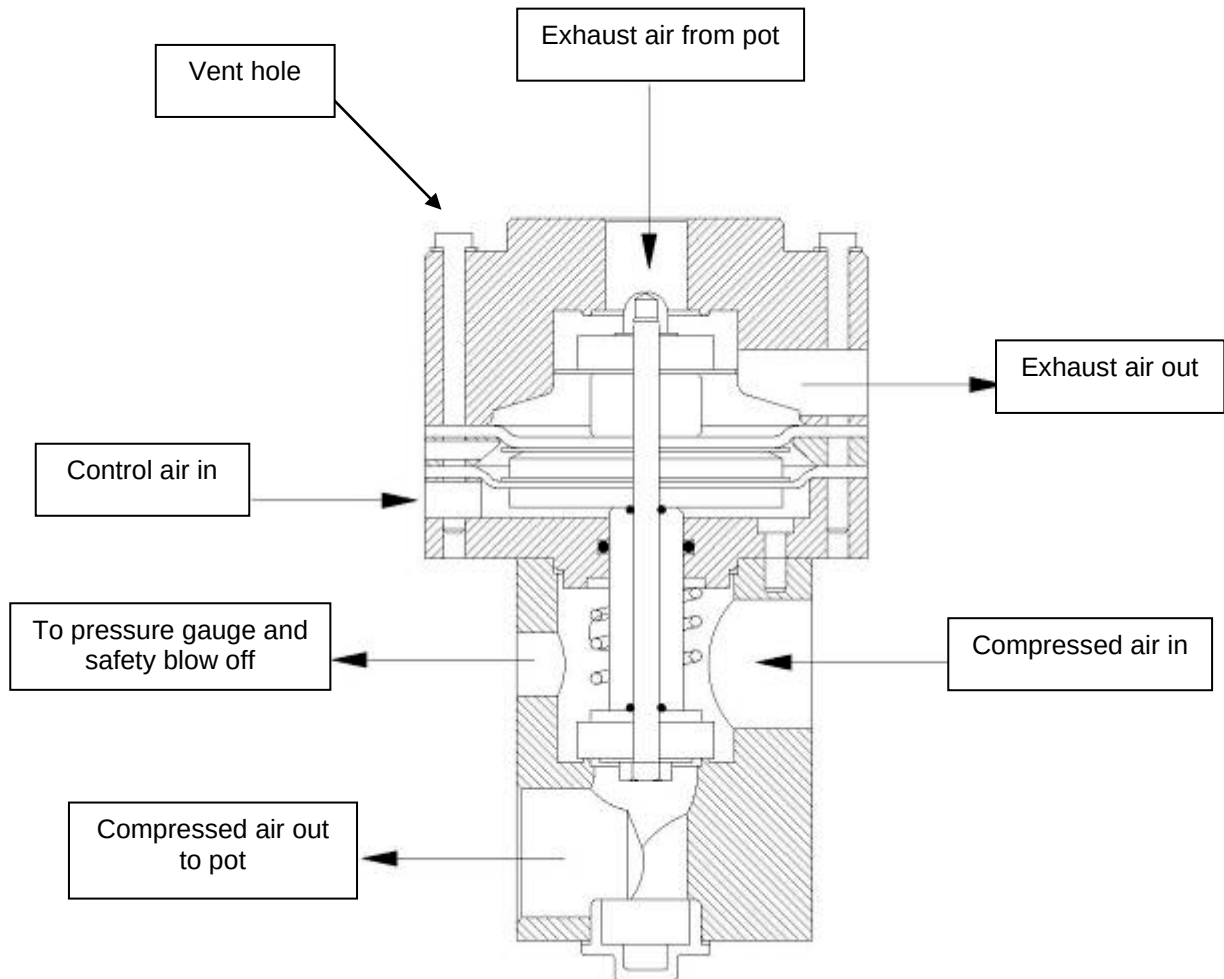
**PLEASE ENSURE THAT THE PRESSURE POT IS NOT OVERFILLED
OTHERWISE PREMATURE FAILURE OF THE MAIN AIR CONTROL VALVE
MAY OCCUR.**



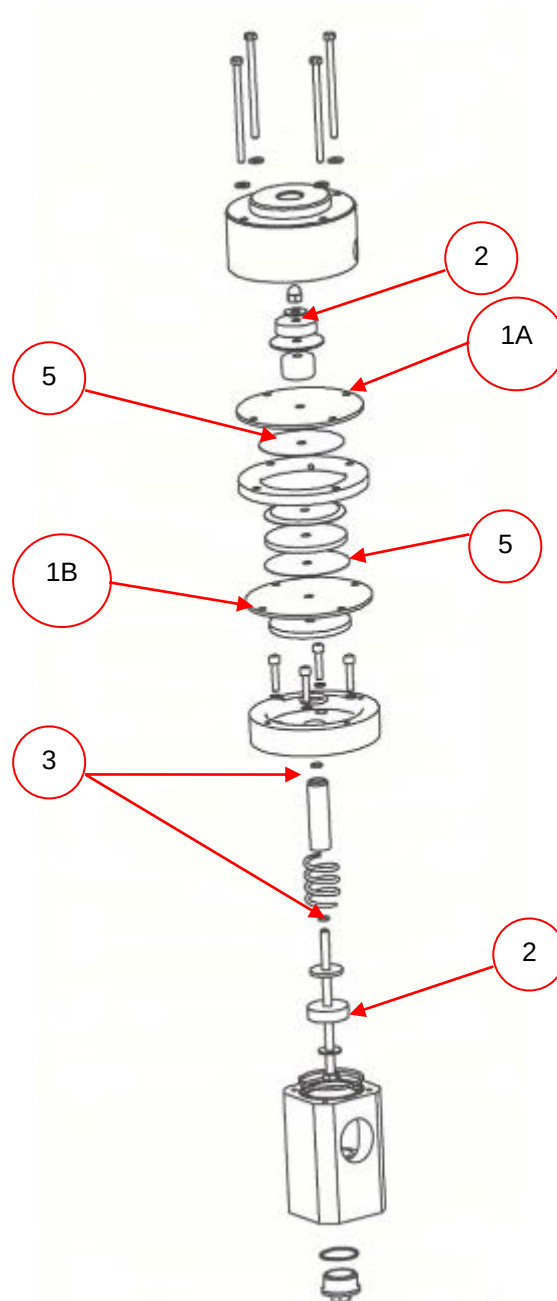
**REGULAR INSPECTION IS NECESSARY TO PREVENT PREMATURE
FAILURE**

7.3.3 Exhaust valve

The exhaust valve is constantly subjected to the rapid exhaust of all the compressed air inside the pressure pot along with any blast media which may be carried through by the stream of air. Consequently the interior of the valve, particularly the diaphragm, is potentially subject to a high rate of wear. This wear will increase if the pressure pot is regularly exhausted when full of media as opposed to when all the media has been expelled. Regular inspection is necessary to prevent premature failure of either the valve or of the diaphragm.



7.3.3.1 Spare parts

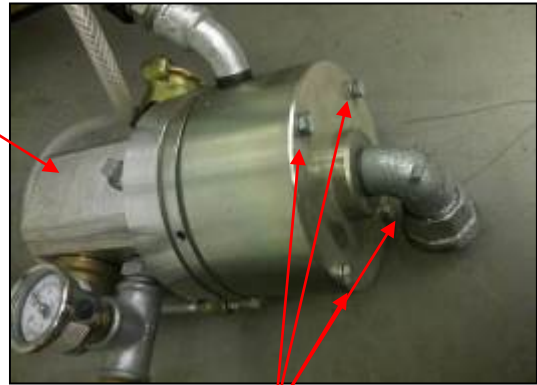


Component parts of spares kit – item number P4VL0179

- 1A 1 off polyurethane diaphragm (exhaust side)
- 1B 1 off rubber diaphragm (compressed air inlet side)
- 2 2 off polyurethane valve seals
- 3 2 off O-rings
- 4 1 off O-ring
- 5 2 off PTFE discs

Note: part number 1A is available as a separate part – item number P4VL0186
Complete valve: item number: P4VL0178

Disconnect all the hoses and remove the valve from the pressure pot

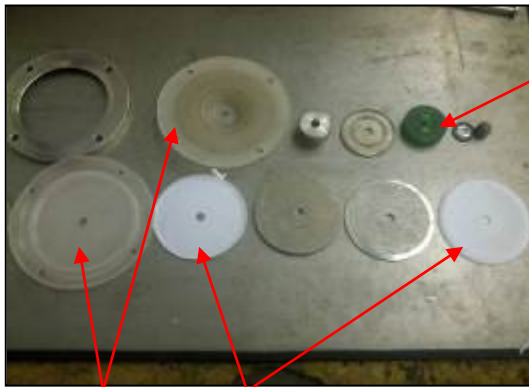


Unscrew and remove the 4 bolts holding all the sections together.

Remove the bottom plug from the valve. This allows access to the bolt.



Unscrew this bolt. This will enable the core of the valve to be fully disassembled.



Guyson suggests only replacing those items that are numbered though the other parts are included in the spares kit. The valve can then be reassembled in reverse order.

7.4 Quarterly

- Inspect blast gates for internal wear (see section [7.4.1](#))

7.4.1 Blast gates

Inspect for excessive wear. If this wear is so excessive that you cannot set the blast gate correctly then it will need replacing. Contact Guyson International for more information.



8. FAQ's

Static Electricity

Cabinet, media and component

Un-insulated earth braid wrapped round the media hose and/or connected to the component and then earthed to the cabinet and extraction equipment provides a drain path.

Static build-up on extraction hose

Un-insulated earth braid wrapped round the extraction hose and earthed to the cabinet and extraction equipment provides a drain path.

If you experience any problems with static electricity please contact our Service Department



FAULT-FINDING CHECKS SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED ENGINEER



IF REQUIRED THE BLAST CABINET AND ALL ITS ANCILLARY EQUIPMENT SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY FAULT FINDING CHECKS



IF REQUIRED ENSURE ALL AIR SUPPLIES ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE

Questions for pressure-feed machines

Fault	No media emitted from blast nozzle when in cycle	Action
Possible cause	No main line air supply	Ensure main line air valve is open
	Nozzle blocked	Unblock and clean
	Grit valve closed	Ensure grit valve is open to pre-set position
	Ball valve in blast air line closed	Ensure valve is open
Fault	Moisture coming from blast nozzle	Action
Possible cause	Fault with customer air supply	Customer to check and correct

Fault	Air pressure from blast nozzle drops	Action
Possible cause	Compressor fault/not to specification	Customer to check air supply and correct
	Incorrect mains supply pipe diameter	Refer to Data sheets, change pipe
	Worn air-jets or nozzle	Replace
	Faulty air valve	Replace
Fault	Erratic media flow from gun nozzle	Action
Possible cause	Grit valve incorrectly set.	Reset to produce even flow
	Incorrect air-pressure setting	Refer to Set-up information
Questions for machines with Cyclones / Dust collectors		
Fault	Incorrect media separation	Action
Possible cause	Cyclone vortex incorrectly set	Refer to Cyclone set-up
	Breather filters blocked	Replace
	Hole in bellows/gaiter on sieve	Replace
	Cyclone door seals worn/bin seals faulty	Replace as necessary
Fault	Poor visibility/dust emissions	Action
Possible cause	Lack of negative pressure in extraction system	Check dust collector filters and damper settings
	Damaged hoses on dust collector	Replace
	Breather filters blocked	Replace
	Poor media quality	Replace all media
<p>If problems are ongoing please conduct a full maintenance service of the equipment or contact Customer Services to book a Guyson Service Engineer visit</p>		



9. Spares and servicing

A maintenance and service agreement for this system is available as an optional extra, for further details please refer to contact details below.

When ordering spares or accessories please quote the following information:

Customer Account Number
Machine Serial Number
Product code of item required

If an item has broken that is not listed in the maintenance section and cannot be identified from the mechanical drawings in the appendix of this manual then please contact Guyson International on the details below for further help.

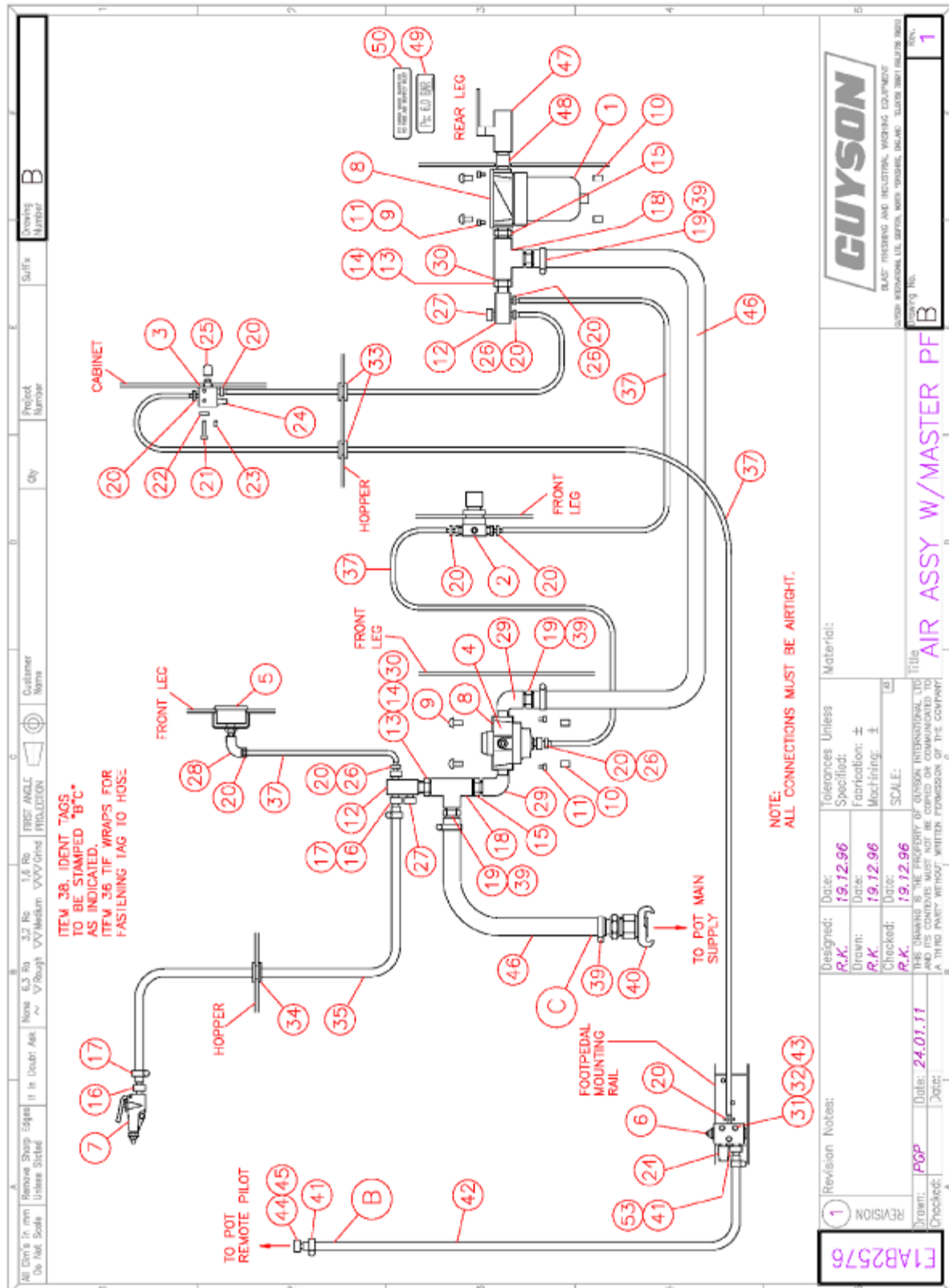
Customer Service Department
Guyson International Ltd
Snaygill Industrial Estate
Keighley Road
Skipton
North Yorkshire
BD23 2QR
Tel: 01756-799911
Fax: 01756-790213
E-mail: info@guyson.co.uk
Website: www.guyson.co.uk



10. Appendices

10.1 Mechanical drawings and parts lists

10.1.1 Air assembly for Wheelmaster PF with G27

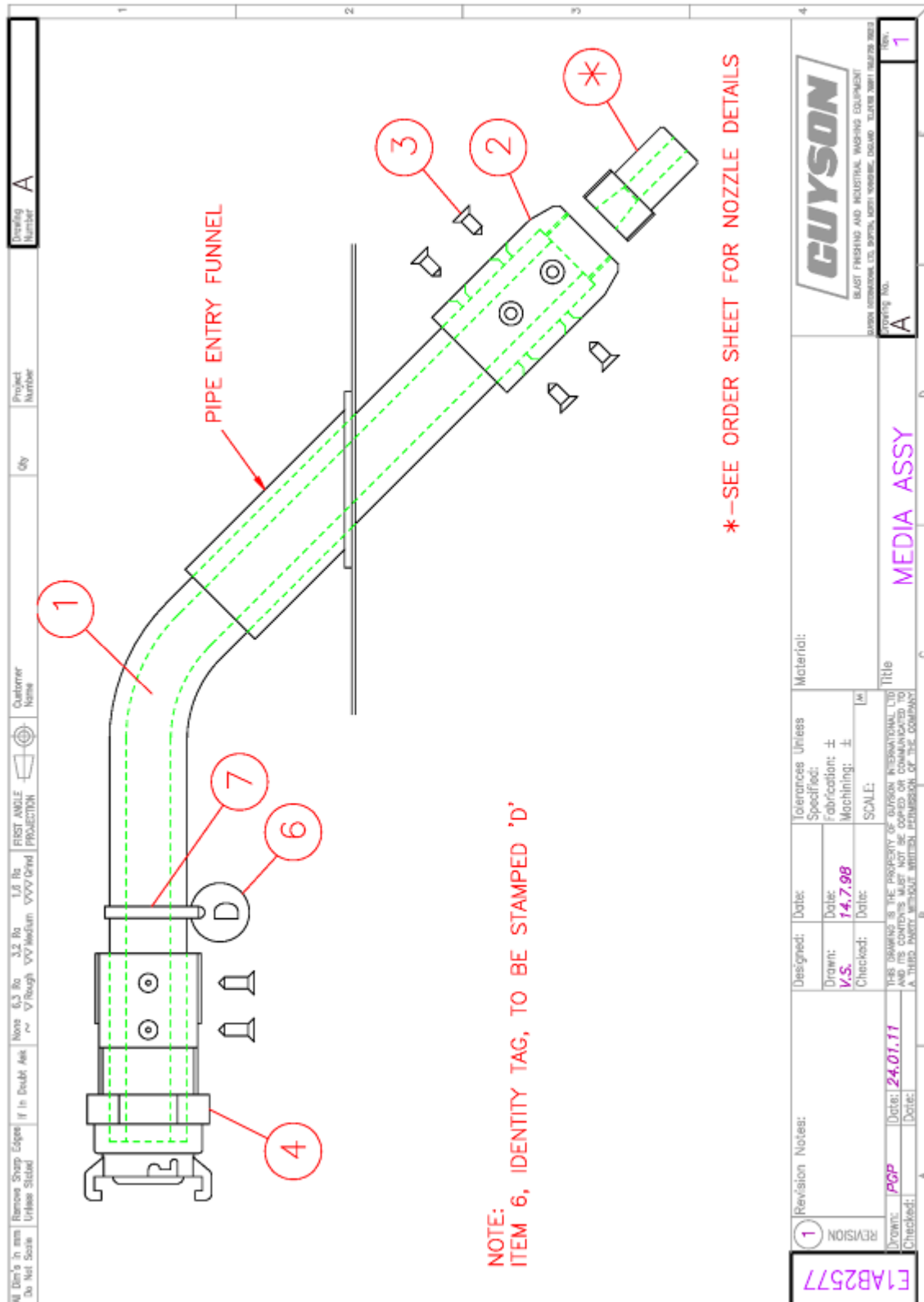




Pos.	Qty.	Item number	Description
1	1	P4AP0041	Filter 3/4" BSP Autodrain
2	1	P4AP0030	Regulator 1/8" BSP Pilot Reg
3	1	P4VL0033	Plunger Valve 3/2" 1/8" NPT
4	1	P4AP0040	Regulator 3/4" BSP P/Operated
5	1	P4SD0000	Press Gauge Panel 0-10 Bar
6	1	P4VL0134	Plunger Valve 3/2" 1/8" BSP
7	1	P4VL0072	Valve Trigger Gun (2006ga44)
8	2	E1AA0032	Mounting Bracket
9	4	P1TH0184	Hex.Skt. Button Screw M8 x 16
10	4	P1TH0228	Nutsert M8
11	8	P1TH0093	Hex.Skt.Cap Screw M5 x 10
12	2	D1MC0000	Manifold A3201 (3 Outlets)
13	2	P4MN0179	Locknut 1/2" BSP (Manifold)
14	2	P1WS0036	Washer Dowty 1/2"
15	2	P4MN0064	Nipple Hex. 3/4" BSP
16	2	P4CG0001	Hosetail 1/4" BSP x 10mm Hose
17	2	P1HC0000	Hose Clip 10mm
18	2	P4MN0049	Tee 3/4" BSP
19	4	P4CG0038	Hosetail 3/4" BSP x 3/4" Brass
20	10	P4TF0132	Hosetail Barb 1/8" - 1/8" NPT
21	1	P1TH0025	Hex. Set Screw M5 x 25
22	1	P1WS0012	Spring Washer M5
23	1	E1AA0031	Valve Locating Pin
24	2	P4SL0002	Silencer 1/8" NPT
25	1	P2GT0013	PVC Black End Cap
26	4	P4MN0151	Bush Red. 1/4" x 1/8" BSP
27	2	P4MN0134	Plug Solid 1/4" BSP
28	1	P4MN0000	Elbow Fem. 1/8" BSP
29	1	P4MN0020	Elbow M/F 3/4" BSP
30	2	P4MN0160	Bush Red. 3/4" x 1/2" BSP
31	3	P1TH0263	Hex.Skt.Cap Screw M5 x 35
32	3	P1WS0002	Plain Washer M5
33	2	P2GT0009	Grommet 5.6 x 8mm
34	1	P2GT0000	Grommet 10mm PVC Hose
35	2.5	R6TB0003	Hose 10mm x 16 OD Braided PVC
36	3	P3HW0036	Cable Tie 200 x 4.5mm Black
37	2.5	R6TB0046	Tube 1/8" Id Blue PU
38	8	E1AA0859	Hose Tag
39	4	P1HC0002	Hose Clip 19mm
40	1	P4CG0021	Coupling Q/R 19mm Hose Spigot
41	2	P1HC0000	Hose Clip 10mm
42	3.5	R6TB0002	Hose 6mm Clear PVC, Braided
43	3	P1TH0213	Hex. Nut M5 Nyloc
44	1	P4CG0015	Hosetail 6mm Hose
45	1	P4CG0014	Coupling Nut 1/4" BSP



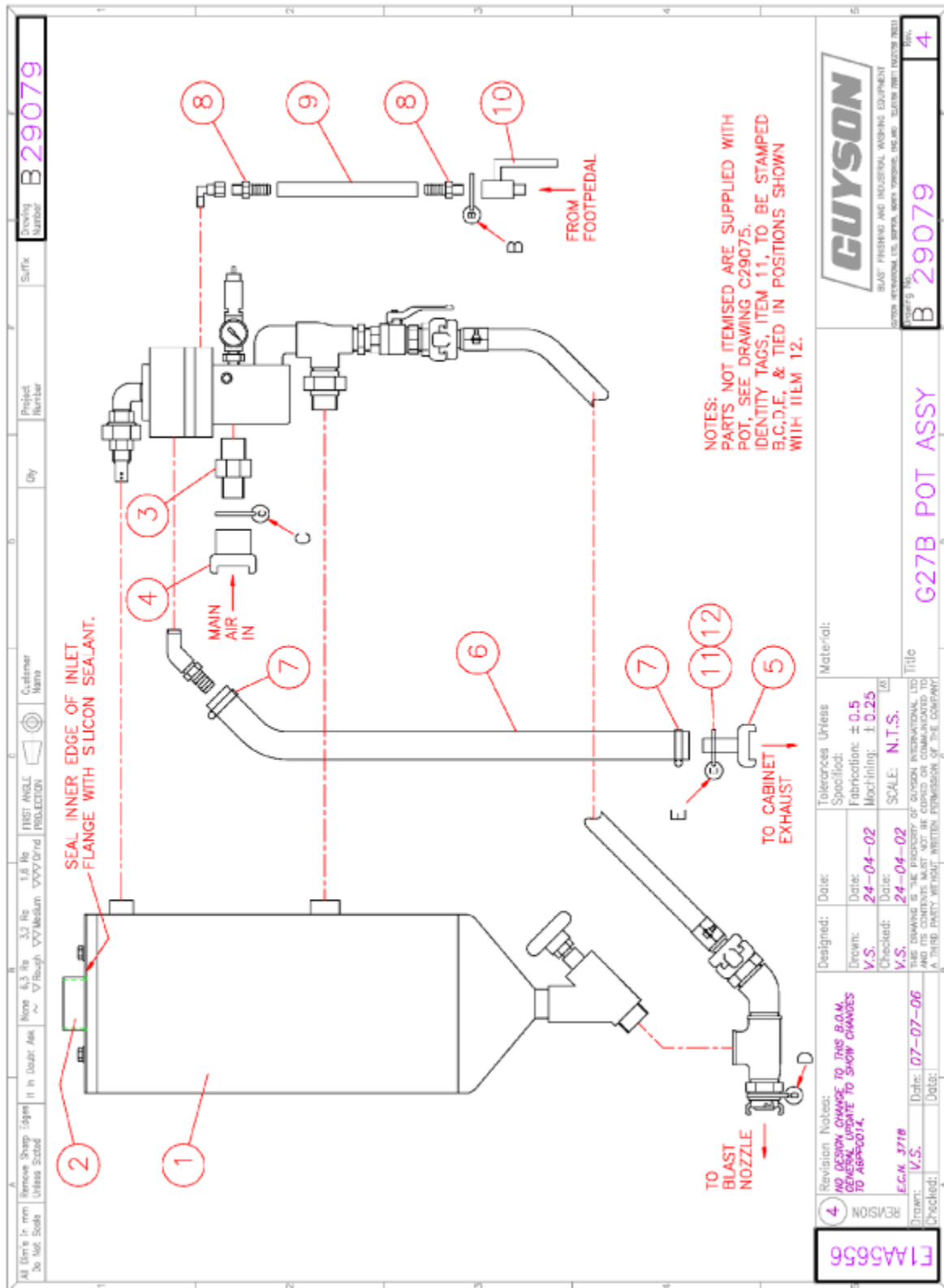
46	2.5	R6TB0019	Hose 19mm x 29mm Rubber 3428/3
47	1	P4VL0113	Ball Valve 3/4" BSP Venting
48	1	P4MN0090	Nipple Barrel 3/4" BSP
49	1	Y1BB0422	Label, "Ps: 6.0 Bar"
50	1	Y1BB0056	Label "Fit Hand Valve"
51	1	E1AA0009	Adaptor Plate
52	3	P1TH0130	Hex.Skt.Csk. Screw M6 x 16
53	1	P4CG0053	Hosetail 1/8" BSP x 6mm Hose





Pos.	Qty.	Item number	Description
1	3	R6TB0021	Hose 19mm x 33mm H/Duty Rubber
2	1	P4CG0013	Nozzle Holder
3	8	P1TH0239	Hose Clip 19mm
4	1	P4CG0096	Coupling Blast for Hose 20 x 33
6	1	E1AA0859	Hose Tag
7	1	P3HW0036	Cable Tie 200 x 4.5mm Black

10.1.3 G27 Pressure pot assembly





Pos.	Item number	Description
1	A6PP0014	Pressure Pot G27 Assy (French)
2	E1AA5648	Inlet Flange G27
3	P4MN0080	Nipple Hex. Red. 1 1/4" x 1" BSP
4	P4CG0019	Coupling Q/R 1" BSP Thread
5	P4CG0021	Coupling Q/R 19mm Hose Spigot
6	R6TB0021	Hose 19mm x 33mm H/Duty Rubber
7	P1HC0002	Hose Clip 19mm
8	P4CG0017	Hosetail 1/4" BSP x 6mm Hose
9	R6TB0002	Hose 6mm Clear PVC, Braided
10	P4VL0115	Ball Valve 1/4" BSP Venting
11	E1AA0859	Hose Tag
12	P3HW0036	Cable Tie 200 x 4.5mm Black

10.2 Electrical schematics and parts lists

The following references are used on the electrical drawing package.

Where numbering is added, this is to distinguish between like components.

Where a component consists of several units performing different functions, separate part numbers are given.

Reference	Description	Example
A	Assemblies/sub-assemblies	Speed controller, PLC
B	Transducers	Pressure, Vacuum, Reed, Proximity and Limit switches
E	Misc. equipment	Machine lighting
F	Protection devices	Fuses, Overloads, RCDs
H	Signalling devices	Visual and Audio indicators
KA	Relays	Control, Signal, Interface relays
KM	Main contactors	Motor contactors
KT	Timers	Process, Interface, Delay timers
M	Motors	All electrical motors
P	Test devices, meters	Hourmeter, Counter, Ammeter, Voltmeter
Q	Mechanical connecting devices for power circuits	Isolators, Circuit breakers
R	Resistors	Potentiometers, Resistors
S	Mechanical connecting devices for control circuits	Selector switches, Pushbuttons
T	Transformers	Voltage: Lighting, Controls, Power, Sensors
U	Converters (electrical)	Rectifiers, Encoders, Filters
X	Terminal connectors	Plugs/Sockets, Terminals
Y	Electrically actuated devices	Solenoid valves, Motor brakes, Door locks

Note:

These reference letters should be distinguished from lower case letters used to identify terminal connections.

10.2.1 Electrical installation of dust collectors and cyclones

Guyson dust collectors and motorised cyclones (whether for single or three phase supplies), when supplied to complement blast cabinets, are fitted with starters. These should be wired from the customer's switched fused isolator.

The starter needs to be wired up by a suitably qualified electrician; electrical schematics for the single and three phase systems are attached.

The supply required can be discovered from reading this chart:

Model	Phase	Voltage	Cycle (Hz)	Power (kW)	Full Load Current (A)*
21/41	1	230	50	0.37	3
C400	1	230	50	0.75	5
C600	1	230	50	0.75	5
C800	1	230	50	1.5	6.8
75/16	1	230	50	0.55	4.7
CY600	1	230	50	1.5	6.8
41	3	400	50	0.37	1.4
C400	3	400	50	0.75	1.8
C600	3	400	50	0.75	1.8
C800	3	400	50	1.5	3.6
75/16	3	400	50	0.55	1.5
CY600	3	400	50	1.5	3.6
CY900	3	400	50	1.5	3.6

* Fuses should be sized to comply with full load current. When sizing fuses, smallest fuse rating should be used to suit motor and starting characteristics.

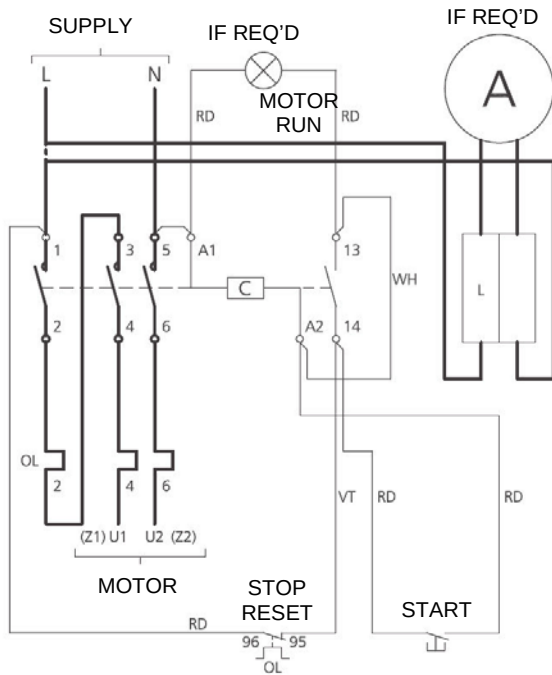
On both single and three phase motors it is essential to check that the direction of rotation matches the arrow attached to the motor housing. This is best done visually. If the motor is rotating in the wrong direction, it will be necessary to switch off the machine, isolate the electric supply and reverse the position of L1 and L2 on single phase machines or any TWO of the feed wires (L1, L2 or L3) on three phase machines.



If a problem occurs with installation then Guyson International should be contacted to provide support.



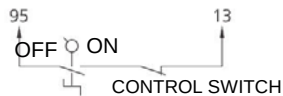
SINGLE PHASE



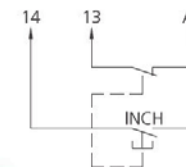
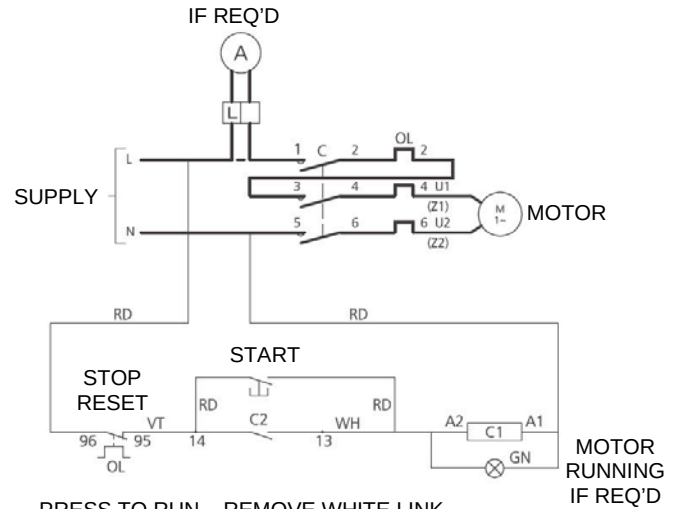
REMOTE START-STOP BUTTONS
REMOVE VIOLET LINK



REMOTE CONTROL SWITCH
REMOVE VIOLET LINK

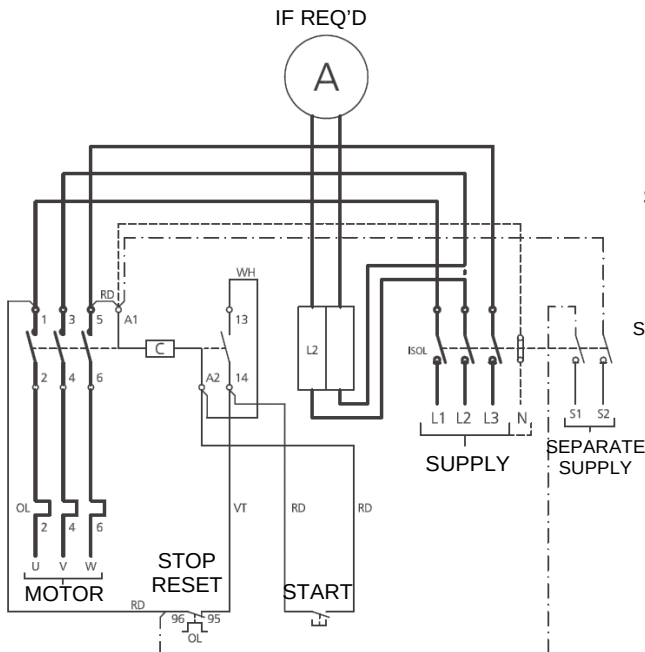


REMOTE INCH BUTTON
REMOVE WHITE LINK



PRESS TO RUN – REMOVE WHITE LINK
SEPARATE NO-VOLT SUPPLY – REMOVE LINK
BETWEEN 1 ON C & 96 ON OL AND 5 ON C & A1.
CONNECT SEPARATE SUPPLY TO 96 ON OL & A1

3 PHASE



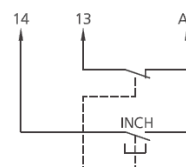
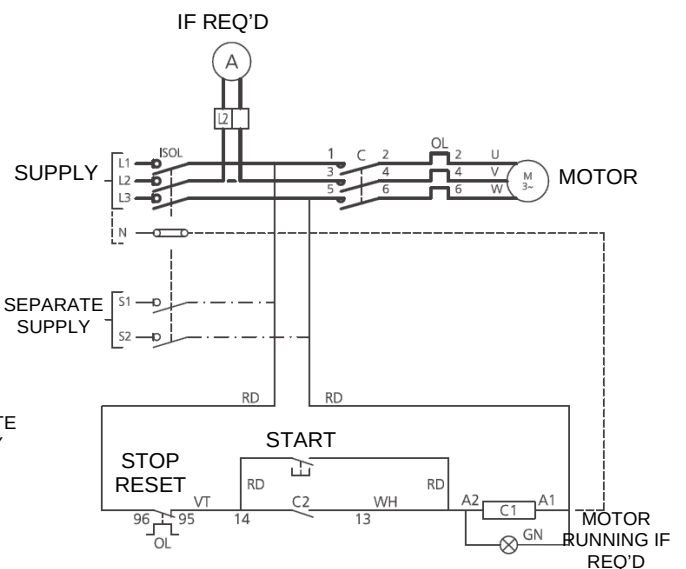
REMOTE START-STOP
BUTTONS
REMOVE VIOLET LINK



REMOTE CONTROL
SWITCH
REMOVE VIOLET LINK



REMOTE INCH BUTTON
REMOVE WHITE LINK



FOR LINE & NEUTRAL CONTROL, REMOVE
LINK BETWEEN A1 & 5 ON C AND WIRE AS
SHOWN DOTTED
PRESS TO RUN – REMOVE WHITE LINK
SEPARATE NO-VOLT SUPPLY – CONNECT AS
SHOWN

When fitting a new starter motor, the overload will have to be set to the required full load current. Use the table at the start of this section to select the correct value, and adjust the overload accordingly.



To adjust, pull out selector
and slide to required position