



Tumbleblast Suction Feed Range



Operating & Maintenance Instructions

Machine	
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

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

1.3 Blast media

Type	Guyson reference	Material	Application
Abrasive	Saftigrit brown	Brown alumina	Cleaning, removing corrosion and other surface deposits, roughening, preparing surfaces, etching and decorating.
	Saftigrit white	White alumina	
	Saftigrit pink	Pink alumina	
	Saftigrain	Reclaimed alumina	
	Sinterball	Sintered alumina	Different qualities are available for all applications.
	Silicon carbide	Silicon carbide	
Glass	Honite	Glass bead	Cleaning, peening, sheen surface cleaning
	Glass grit	Glass granules	Mild cutting version of above.
Metallic	Saftimetal	Angular iron grit	Removing corrosion, surface preparation for bonding.
	Turbogrit	Carbon steel grit	
	Turbobead	Carbon steel shot	Cleaning, deburring and peening.
	Flexgrain	Soft iron shot	Cleaning without dimensional change.
	Turbonox	Stainless steel shot	Cleaning, deburring and finishing.
Plastic	Guyblast	Urea - US type 2	Cleaning without dimensional change mould and die cleaning, light deburring and deflashing, paint removal.
	Guystrip	Melamine - US type 3	
	Flashgrit	Acrylic - US type 5	
	Flashgrain	Polycarbonate	Deburring and deflashing
	Flashbead	Polystyrene	Very fine deburring and deflashing
	Thermoflash	Polyamide nylon	Deburring and deflashing
Natural	Loygrain	Corn cob	Removal of corrosion and carbon
	Walnut shell	Walnut shell	
Ceramic	Zirblast	Fused zirconia	Cleaning, peening, deburring and scale removal
Expendables	Iron silicate	Copper slag	Site blasting, removing corrosion and paint prior to recoating



A data sheet is available for each of the media listed in the table, giving more specific details of the product, applications and mesh sizes. Contact Guyson International Ltd for further information and advice on which blast media will suit your application. Test and evaluation facilities are available if required.

2. Data sheets

2.1 Blast cabinets

Overall dimensions	T50	T40
Height (mm)	1845	1660
Width (mm)	1300	970
Depth (mm)	1385	1120
Average noise levels at 1 Metre		
with dust collector {dB(A)}	<80	<80
with dust collector and cyclone {dB(A)}	<80	<80
Floor height (mm)	810	570
Maximum air pressure	80 psi or 6 bar	80 psi or 6 bar
Electrical supply		
Supply type	3+N~50Hz 400/230V	3+N~50Hz 400/230V
Full load current	6.28A	6.28A
Full load kVA	4.4kVA	4.4kVA
Max motor amps	4.28A	4.28A
Isolator capacity	17kVA	17kVA
Control voltage	24V D.C	24V D.C

2.2 Cyclones

	Cyclone & Dust collector combination			
	75/16 with 41D/C	75/16 with C400 or C800 D/C	CY600/12 with C800 D/C	CY600/16 with C800 D/C
Inlet diameter (mm)	100	100	100	100
Outlet diameter (mm)	100	150	150	150
Airflow (m ³ /min)	8.0	12.0		
Height (mm)	1724	1724	2776	3145
Base diameter (mm)	700	700	750	750
Body diameter (mm)	400	400	300	400

2.3 Dust collectors

	Dust collector model number		
	41	C400	C800
Inlet diameter (mm)	100	150	150
Extraction outlet	Open exhaust		
Maximum inlet static pressure (mm Wg)	150	165	230
Maximum inlet static pressure (Pa)	1470	1620	2255
Measured airflow (with open inlet/outlet) (m ³ /min)	10	11	33
Airflow adjustable?	Yes		
Number of filters	4	1	2
Type of filter	B	A	A
Filtration area	1.8 m ² 17.5 ft ²	10 m ² 97 ft ²	20 m ² 194 ft ²
Air flow rating (with a filter velocity of 1.5 m/min)	162 m ³ /hr 95 CFM	900 m ³ /hr 530 CFM	1800 m ³ /hr 1059 CFM
Filter cleaning system	C	D	E
Air consumption (litres per pulse)	N/A	7	7
Maximum compressed air supply pressure	N/A	50 psi 3.5 bar	50 psi 3.5 bar

where:

A	Cartridge Filter - Polyester Element
B	Fabric filter - Polyester needlefelt - Scrim reinforced
C	Manual shaking system
D	Manual Pulse Air Cleaning System
E	Auto Pulse Air Cleaning System



2.4 Air consumption tables

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

Air-jet bore (mm)	Guyson gun type	Blast pressure (bar)				
		2	3	4	5	6
3.2	900	11.4	16.5	21.6	27.0	31.8
4.0	900	19.2	27.3	35.4	43.2	51.6
4.8	900	30.6	42.0	53.4	66.0	77.4

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

Air-jet bore (mm)	Guyson gun type	Blast pressure (psi)					
		30	40	50	60	70	80
3.2	900	7	9	11	14	16	17
4.0	900	12	15	18	21	24	27
4.8	900	18	22	27	32	37	42

3. Installation

The system may 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.

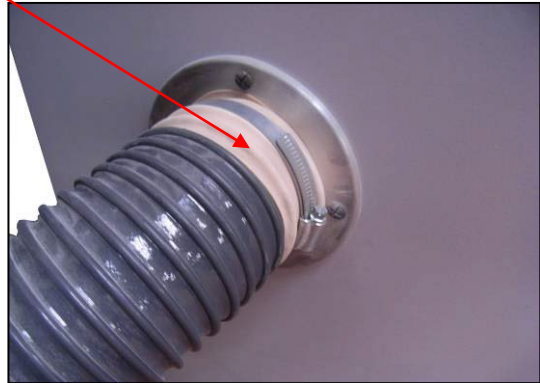
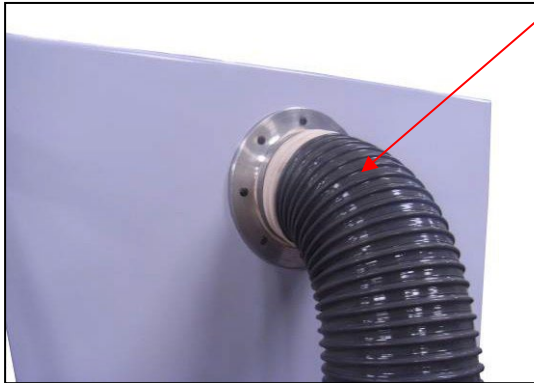
Care should be taken to ensure all parts of the system are level

3.2 Assembly

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

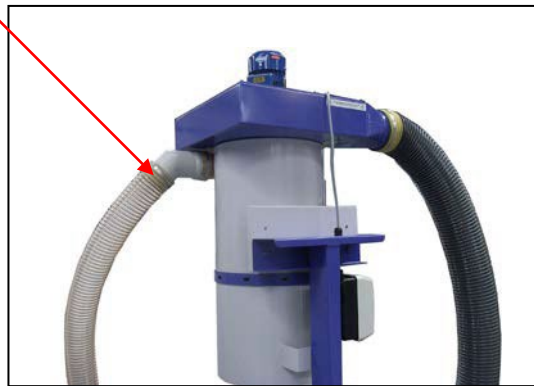
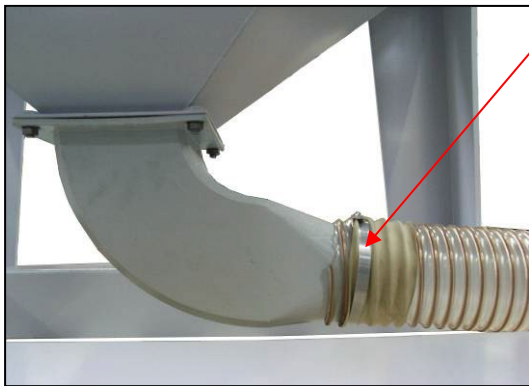
If your system only comprises of a blast cabinet and dust collector then:

Connect the flexible extraction hose from the cabinet outlet to the dust collector inlet using the sealing bands and hose clamps supplied.

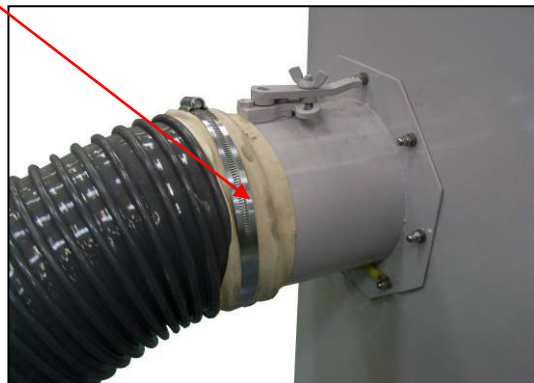


If your system comprises of a blast cabinet, cyclone and dust collector then the cyclone needs to be connected between the blast cabinet and dust collector:

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



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

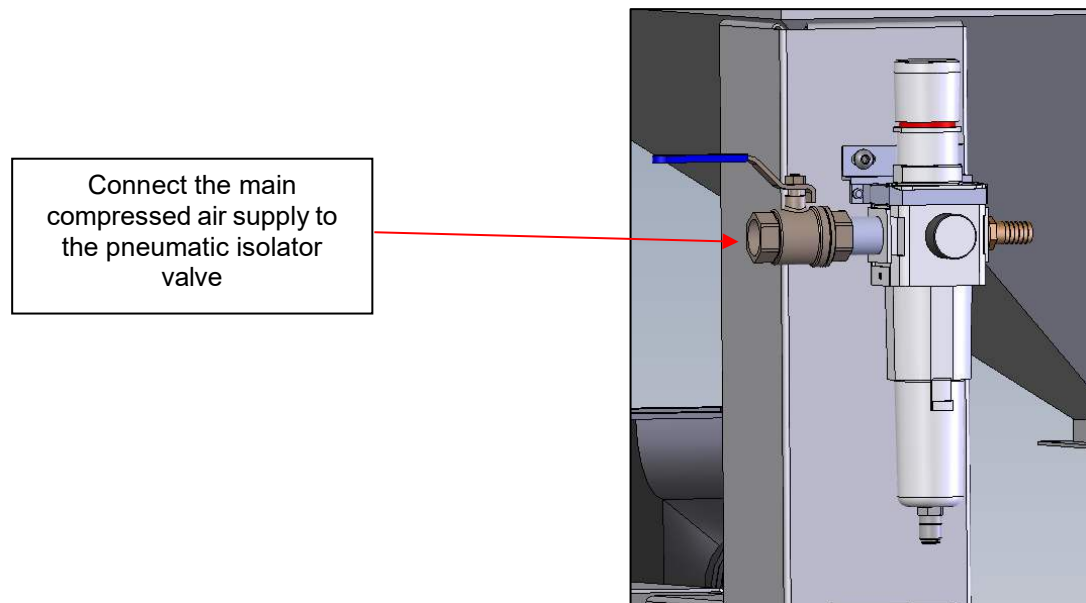


3.2.1 Compressed air connections

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

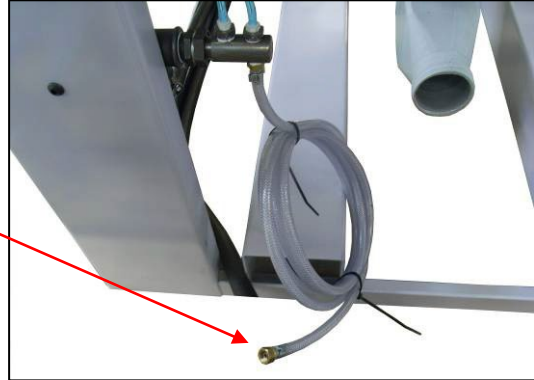
The machine requires a compressed air supply at a maximum of 6.0 bar (90 psi) at the filter inlet and pipework of adequate diameter to provide the flow rate required (see [air consumption tables](#)). The minimum recommended bore for the compressed air line is 1" and it connects to a 1/2" BSP thread.

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



The C400 or C800 dust collector will require a compressed air supply. The regulator should be set to a max of 50 psi.

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



C400



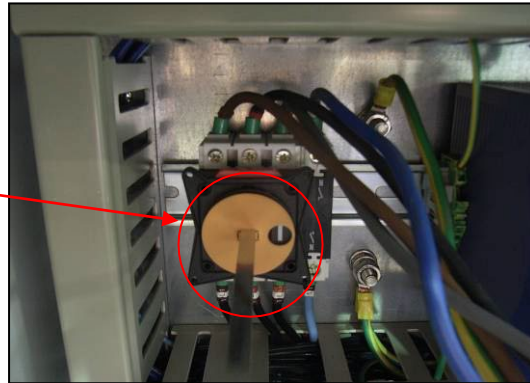
C800

3.2.2 Electrical connections

Electrical installations should only be carried out by qualified electricians

Please see “Electrical Installation of Dust Collectors and Cyclones” in the appendix

A singular appropriate power supply should be taken to the isolator inside the control box. See electrical drawings in the appendix or the data sheet at the front of the manual for the power supply requirements.



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 the cabinet light through the HMI
- Ensure that the Emergency Stop Push Button on the main control fascia is released.
- Press the “START” Button, to start a dry test cycle of the cabinet.
- The Cyclone and Dust Collector operation should also be started for testing.
 - 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 info 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.

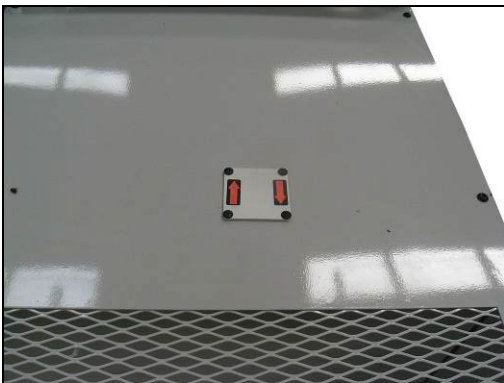
The best way to do this task is by starting then stopping the dust collector and watch the fan as it slows down.



On a 41 dust collector the motor is inside. The front cover must be removed to see the top of the motor.



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



On a C800 dust collector the motor is inside. There is a viewing hatch on top of the dust collector that can be opened to see the top of the motor.

- Start the cyclone:
 - 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 info 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 75/16 and CY600 cyclone the motors are on the outside and can be easily checked.

- 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
- Ensure the blast guns are switched on by means of the HMI
- Ensure that the air wash is switched on
- Set blast timer to desired duration
- Set airwash timer to desired duration
- Set spindle rotation speed to required value
- Press the "START" button. If all the machine controls are electrically interlocked, this will only energise if the dust extraction is running and the door is securely shut.
- The machine will then automatically cycle through its operative sequence

4.1.1 Operative sequence

- Blast timer energises
- Blast guns blast
- Tumble motor starts to revolve at pre-set speed
- Blast timer times out
- Blast guns stop
- Airwash timer starts
- Airwash valve opens
- Airwash solenoid energises
- Airwash timer times out
- Airwash stops
- Tumble keeps moving to home position
- Timers reset

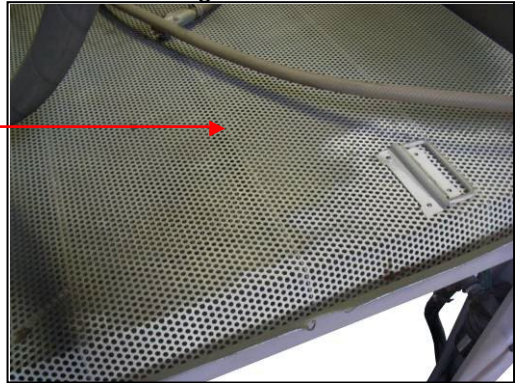
The machine will now remain on standby awaiting the operator to unload the finished components and reload a new batch.

4.2 Media levels

If a cyclone is fitted to the system then media should be added to this. If not then it should be added to the cabinet hopper. $\frac{1}{4}$ - $\frac{3}{4}$ of a 25kg bag of media should suffice.

4.2.1 Adding media to hopper

- Adding media to the hopper should only be done when media change is needed.
- Ensure dust collector is still on
- Open the cabinet door
- Pour media into the hopper
- Close the door

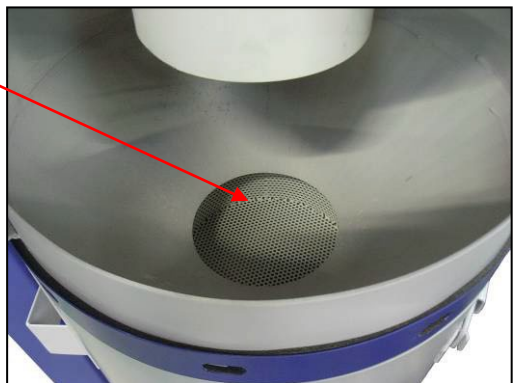


4.2.2 Adding media to 75/16 cyclone

- Turn off the dust collector
- Turn off the cyclone
- Open the upper cyclone door
- Pour media into the cyclone
- Close the door
- Turn the dust collector on
- Turn the cyclone on

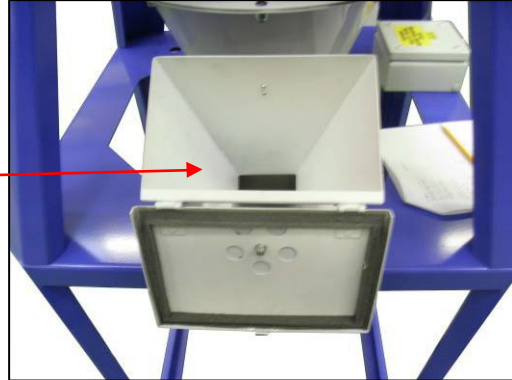


The upper door should always be used so the media can pass through the sieve before it gets to the mixer box.



4.2.3 Adding media to CY600 cyclone

- Turn off the dust collector
- Turn off the cyclone
- Open the filler chute flap
- Pour media into the cyclone
- Close the filler chute flap
- Turn the dust collector on
- Turn the cyclone on



5. Machine settings

5.1 Blast settings

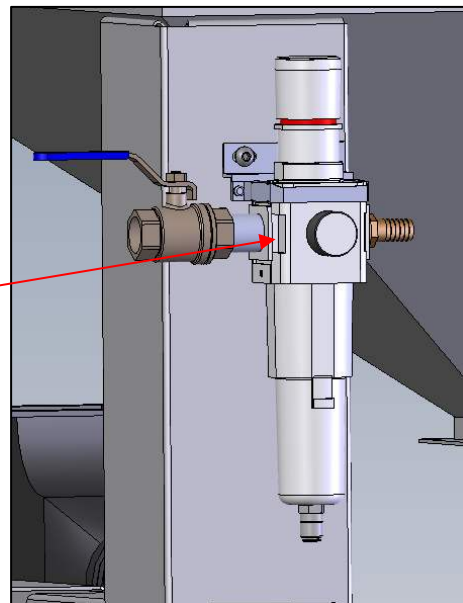
The blast settings should be set in the order they appear in the following sections.

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 pick-up tubes

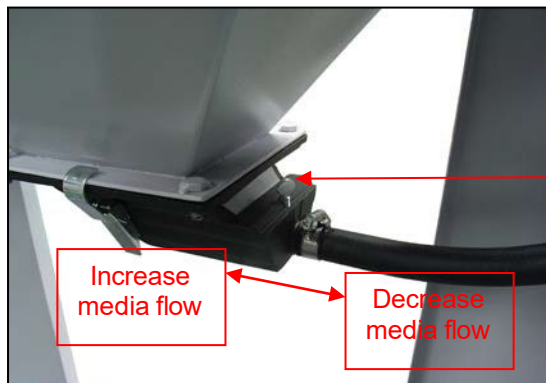
The setting of the pick-up tube in the media box has a significant effect on the blasting performance. Adjustment varies with the media density, with denser media requiring more air to circulate it.

The greater the flow of media from the mixer box to the blast gun, the higher the rate of wear on media hose, blast nozzle.

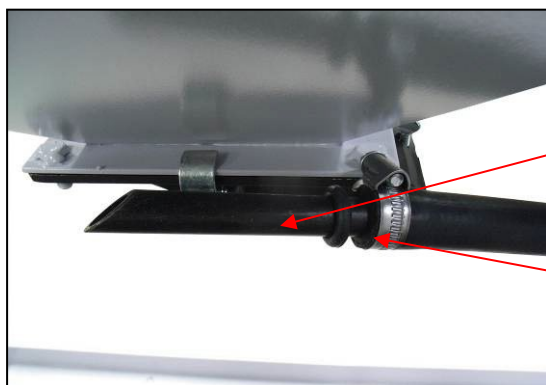
- Check that there is a supply of free-flowing, dry media to the mixer box
- With compressed air flowing through the blast gun gradually move the pick-up tube into the mixer box with the chamfer facing upwards while a colleague watches the media flow from the nozzle.

The pick-up tube is in the right position when you are just able to see the media stream leaving the nozzle. If the media stream is intermittent then the pick-up tube has been pushed too far in.

- Moving the pick-up tube out decreases media flow
- Moving the pick-up tube in increases media flow
- Lock the pick-up tube in place with the retaining screw
- Further adjustment should not be needed whilst using the same media



Retaining screw



Pick-up tube

O-ring is used to mark position of the pick up tube in the mixer box. This allows the tube to be reinserted at the same position.

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 50 mm as media from the nozzle will be deflected or slowed down by media ricocheting from the surface being blasted.

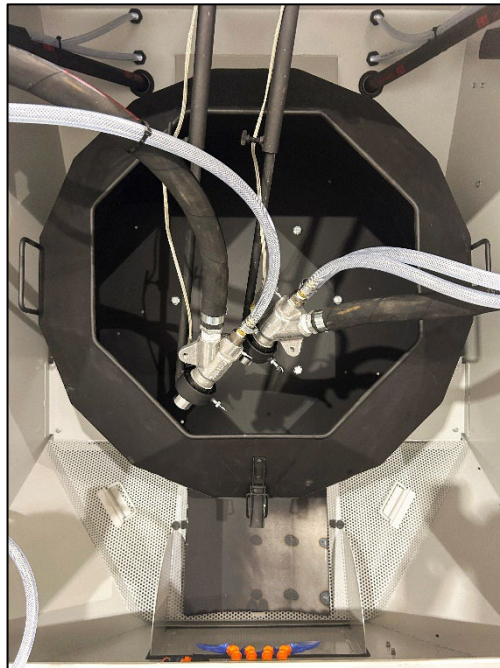
The impact of the media can be affected by the stand-off distance and the air pressure. The type of media will influence this but a larger blast area may be achieved by increasing both the stand-off distance and the blast air pressure.

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.



NOTE: A reference should be made by the operator to ensure the blasting guns return to the required blasting position when parts are being removed from the machine. It is also imperative that the rotating basket is filled with a sufficient amount of parts to ensure the basket itself isn't being blasted.

5.1.5 Blast time

This is used to make sure that the components are blasted long enough to get the required finish. If the finished product is not sufficiently treated or conversely has been damaged by over exposure to the blasting action, it will be necessary to adjust the period of operation of the blast gun.



5.1.6 Number of guns

This is achieved by means of the HMI screen, where the number of blast guns in operation can be amended.

5.1.7 Rotation speed

This is used to make sure that the items in the basket are tumbling and not sliding. This allows all components to be equally blasted.

5.1.8 Blast timer

This is used to make sure that the components are blasted long enough to get the required finish. If the finished product is not sufficiently treated or conversely has been damaged by over exposure to the blasting action, it will be necessary to adjust the period of operation of the blast gun.

5.1.9 Airwash timer

The Airwash is used to clear excess media from the components after the blast cycle. If the finished product is not sufficiently treated and still contains excessive amounts of media, adjust the airwash time accordingly.

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.

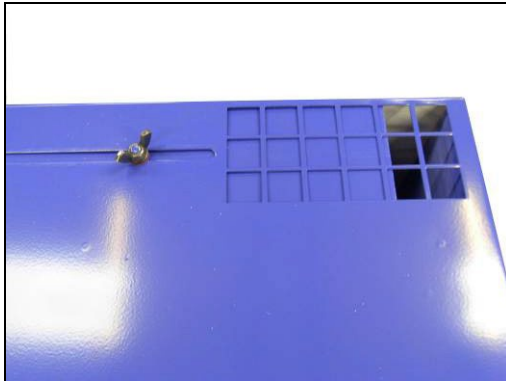
The suction in the dust collector should be such that a minimum amount of media is transferred into the dust collection system.

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

- Opening the damper/blast gate increases the suction
- Closing the damper/blast gate reduces the suction.

When setting the dampers/blast gates always keep the extraction air-flow to the minimum needed to avoid pressurisation of the cabinet during blasting. Over time the filters in the dust collector will become clogged with dust, and an increased air-flow may be necessary between filter changes and maintenance. In systems with a cyclone the extraction should be set so that a minimum amount of media is transferred into the dust collection system.

Always check the waste bin for good media when adjusting any settings.



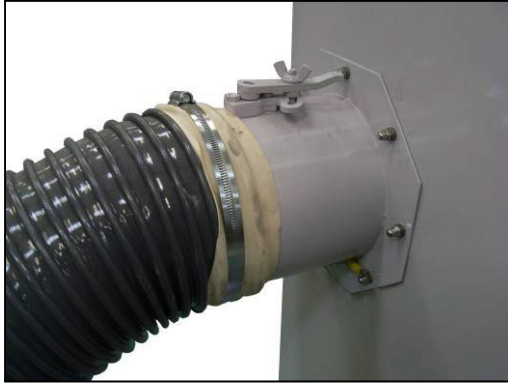
41 Dust collector

Air flow is controlled by the slide damper on the exhaust outlet on the dust collector.



C400 Dust collector

Air flow is controlled by the slide damper on the exhaust outlet on the dust collector.



C400, C800 Dust collector

Air flow is controlled by the blast gate on the inlet to the dust collector.

A blast gate will be fitted to the C400 if a cyclone is being used.

The dust collector must be started before and stopped after the cyclone unit (if fitted) 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.

On a C800 it is essential that a plastic bin liner (Y1CA0047) is used. It provides a simple and clean means of removing and disposing of the dust, but its use requires balancing the pressure either side of the bag to prevent it being drawn up into the hopper. This is achieved by the use of the bin balance pipe so that the same negative pressure is applied to the outside of the bag as the inside.

If a bin liner is not used then dust will be drawn up through the bin balance pipe into the clean side of the dust collector.

5.2.2 Cyclone

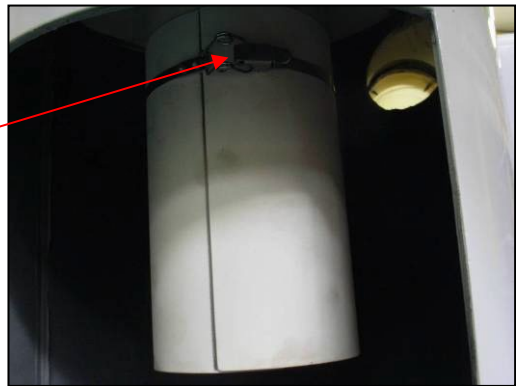
If after adjusting the dust collector damper good media is still being drawn into the dust collector, it may be necessary to adjust the cyclone vortex as well.

To test the position of 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.

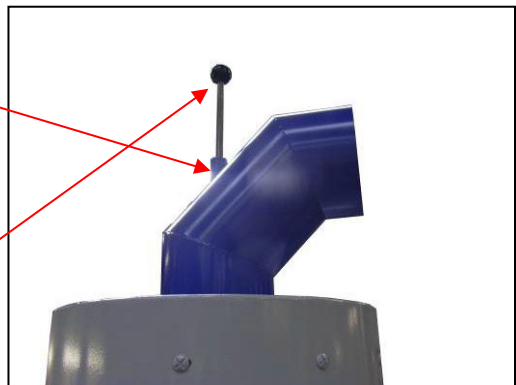
To adjust the length of the vortex in a motorized cyclone:

- 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



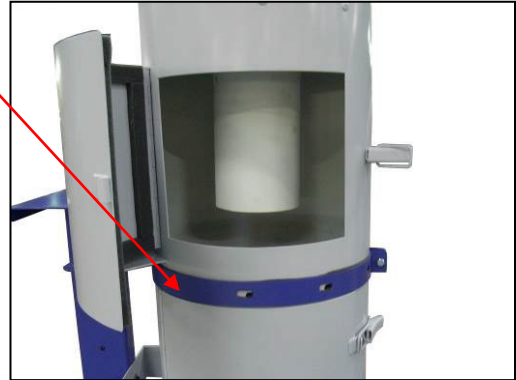
To adjust the length of the vortex on a non-motorized cyclone:

- 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 adjustable airflow separation control disc mounted on the top of the filler chute flap on a CY600 or an air-flow separation control band around the body of the 75/16 cyclone.



This disc/band has slots cut in it which coincide with holes in the filler chute flap/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 separator disc/band should be rotated so that the holes in the disc/band do not line up with the holes in the filler chute flap/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 disc/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 disc/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 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 Control panel



The above shows the machine control panel and the embedded HMI screen, the functions incorporated here are outlined below:

RESET- Resets the machine. If the reset button flashes this indicates that a reset is required.

EMERGENCY STOP- In the case of an emergency press this to immediately cease operations. In order to resume operations, ensure the E/Stop button has been released.

Start- Start the machines operation with the currently selected recipe.

Stop- Stop the current machine operation.

Home- Return the basket to the home position (T50 only).

Door- Release the door lock for the opening of the door.

Full functionality of the HMI screens is outlined in section 6.3

6.2 Operating procedure

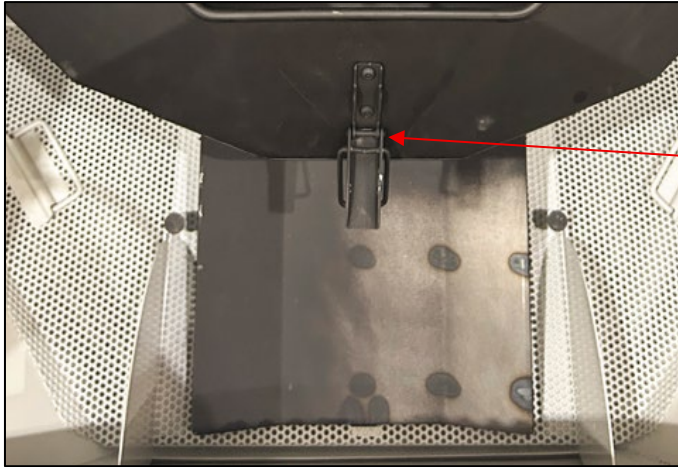
- Perform daily maintenance tasks (see section [7.1](#))
- Switch on main electrical power supply
- Wait for the Home Screen to load in
- Switch on cabinet light
- Ensure that the Emergency Stop Push-button on the main control fascia is released.
- Press the “DOOR” button to release the door locks.
- Open cabinet door
- Place components in basket
- Close cabinet door
- Press the ‘RESET’ button

PLEASE NOTE: WHENEVER RESET BUTTON FLASHES RESET IS NEEDED

- Make sure that the required recipe for the machine’s operation is selected, making sure to download it after selecting to make it active.
- Press the “START” button. If all the machine controls are electrically interlocked, this will only energise if the dust extraction system is running and the door is securely locked shut.
- The machine will then automatically run through the operating sequence (see section [4.1.1](#))
- On completion an “END OF CYCLE” message will be displayed on the HMI. A buzzer will also sound and the machine door will unlock. The front door can now be opened.
- Open the door and inspect the parts to determine whether or not they are finished to standard. If not alter the blasting parameters through the recipe edit screen (one at a time) until the desired end result is achieved (see section [5](#)).
- Once satisfied with the blasting finish, remove the parts. The machine will now remain on standby awaiting the operator to unload the finished components and re-load with a new batch.
- Return to “Open cabinet door” step

6.2.1 Removing Parts after Blasting (T50)

Upon completion of a cycle through a combination of a chute going from the basket through to a chute in the bottom of the cabinet, to be safely deposited into a container.

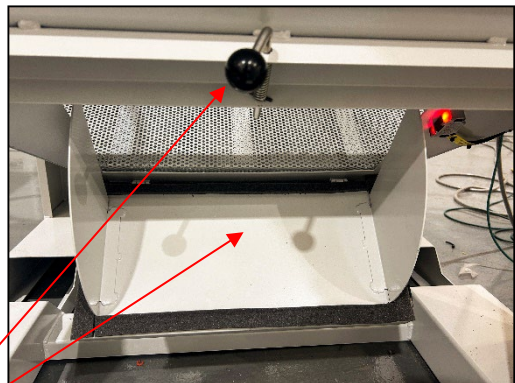
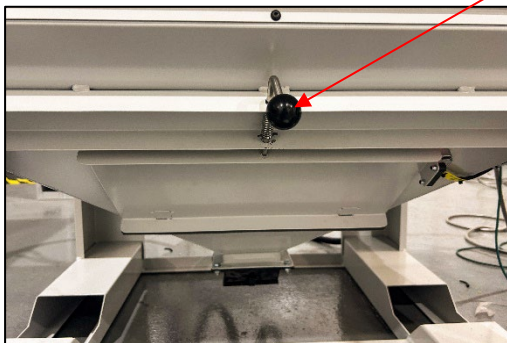


At the base of the basket there is a clamp holding in place the chute, to empty the basket simply release this.

After emptying raise the chute back up and clamp close, ready for loading of the next components for blasting.

To lower the cabinet chute, pull out the lever on the front, this will then release the chute.

PLEASE NOTE: There is a sensor fitted to the cabinet chute, this locks the chute in place and ensures it can't be opened during an operation cycle.



To close the cabinet chute again, push the media box flap back into position pull out and push back in the lever to lock it back in place.

6.2.2 Removing Parts after Blasting (T40)

With the T40 cabinet the chute unloading feature isn't included, as such the unloading of the system needs to be conducted manually. The user should ensure the cycle has ended, open the door through the HMI and unload the cabinet as required.

6.3 HMI Screens

The following sections of the manual contain instruction for the use of the HMI.

	Operators are assumed to have the necessary levels of qualification and / or training to use the equipment.
	This manual is to be used in conjunction with training provided by Guyson, and as such should not be viewed as a replacement for operator training.
	Screens shown in this section are for the demonstration of certain functions, and any values shown may not be representative of the values used in the machine's final configuration.

6.3.1 Home Screen

The below is the home screen, which will be displayed upon startup of the machine.

Please Note: Some features outlined below may not be available if your system is a T40 Tumbleblast.

Please Note: The status bar at the bottom of the HMI screen is colour coded as follows:

Blue-Standard Operation

Yellow- Warning

Red- Machine is in fault

Please Note: The buttons throughout the HMI screens are colour coded as follows:

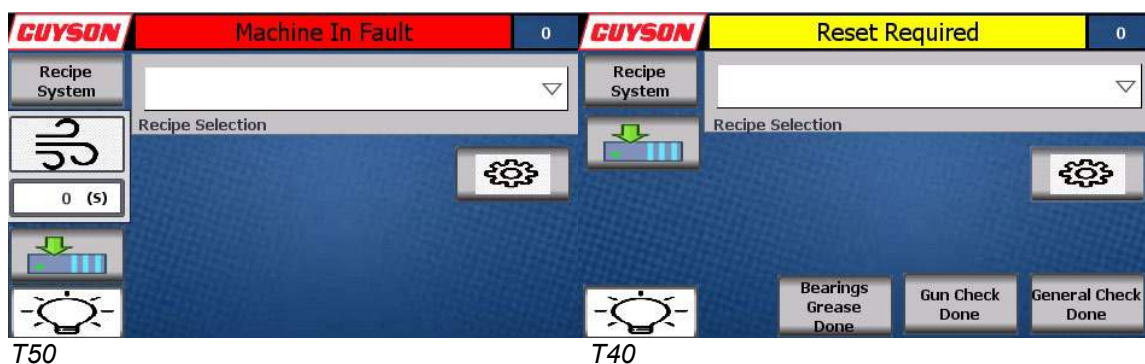
Grey Button- Button Enabled

White Button- Button Disabled

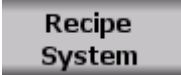
Blue Button- Screen Change

White Background- Editable Values

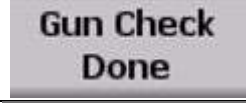
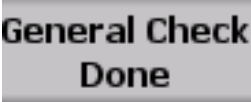
Transparent Background - Status



The corresponding functions from this screen are outlined below:

	Description	Function
	Recipe System	Shows that the system is currently in recipe mode, clicking this allows you to change to manual recipe mode.

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	Air Wash & Air wash duration	Clicking the top button will activate an air wash of the cabinet for the time shown below, to alter the time simply click where displayed and you can amend the duration as required. Setting the air wash time to 0 and running also acts as a way of returning the basket to home position.
	Recipe Selection	This brings up the recipe selection menu, where you can choose the required recipe for the current operation.
	Recipe Download	Once you've selected your recipe, you need to press this button to download it and make it active.
	Cabinet light	Clicking this button will turn the cabinet light on or off.
	Machine Settings	This brings up the machine settings screen.
	Bearings Grease Done	This serves as a maintenance reminder, clicking this will mark it as actioned and remove it from the HMI screen.
	Gun Check Done	This serves as a maintenance reminder, clicking this will mark it as actioned and remove it from the HMI screen.
	General Check Done	This serves as a maintenance reminder, clicking this will mark it as actioned and remove it from the HMI screen.

6.3.1.2 Home Screen Manual Recipe (T50)



The above is the home screen page, which is shown when the cabinet is in Manual Recipe mode for a T50.

Here the user is able to manually input a recipe for a Blast Cycle, clicking on the corresponding parameters allows for the duration and speed to be changed. The editable parameters are the following: **Blast Time Minutes, Wash Time Minutes, Cabinet Wash Minutes and Tumbler Speed RPM**

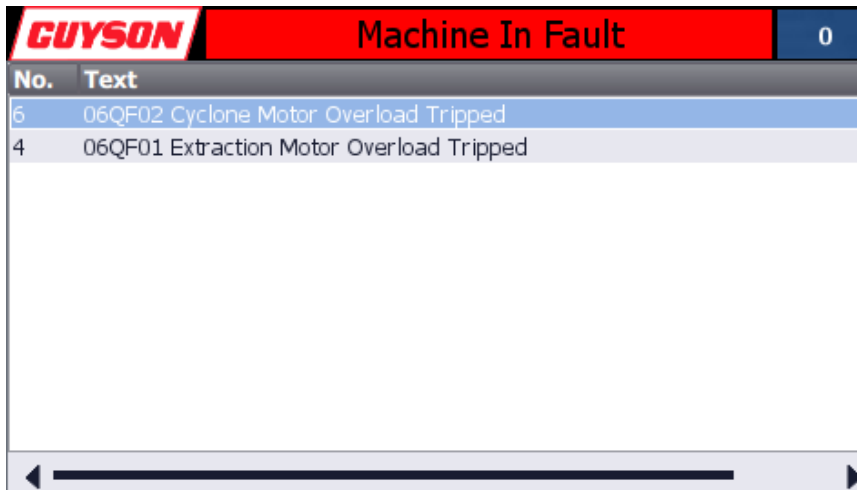
They can also individually turn ON/OFF the different blast guns.

6.3.1.3 Home Screen Manual Recipe (T40)



The above is the home screen page, which is shown when the cabinet is in Manual Recipe mode for a T40.

6.3.2 Alarms Screen



No.	Text
6	06QF02 Cyclone Motor Overload Tripped
4	06QF01 Extraction Motor Overload Tripped

This is the alarms screen, which will be brought up when pressing the alarms status button on the settings page.

In this example there is two recent alarms which haven't been viewed. Clicking on these alarms will mark them as resolved, removing from the alarms page.

Once all alarms listed have been resolved the alarms page icon on the main page will turn green.

The below lists the possible alarms which can be encountered during the machine's operation:

Hardware Fault

- 04A02 Tumbler Drive Incoming Supply Fault Check MCB
- 06QF01 Extraction Motor Overload Tripped
- 06QF01 Extraction Contactor Fault
- 06QF02 Cyclone Motor Overload Tripped
- 06QF02 Cyclone Contactor Fault
- 08B02 Rotation Sensor Failed Low
- 08B02 Rotation Sensor Failed High
- Safety Failed To Reset
- Hopper Media Below Low Level
- 07B01 Door Failed To Lock
- 07B01 Door Failed To Unlock
- 06KMS01 Contactor Welded
- 06KMS01 Failed To Energise
- 04A02 Tumbler Drive Fault

6.3.3 Standard Settings Page



The above is the standard settings page which is accessed by clicking the cog symbol from the main page upon startup.

There are a number of different options available from this page which are outlined below:

	Description	Function
	Machine Run Hours	This displays the number of hours that the machine has been running for, in this example 18 hours.
	Alarms	Brings up the alarms screen (See 6.3.2)
	Language Selection	Shows the currently selected language, clicking this button allows for the HMI language to be changed (See 6.3.4.2)
	System Diagnostics	Brings up the system diagnostics page (See 6.3.3.1)
	Alarm Time	Can amend here the time the alarm sounds at the end of the machine cycle. Please note: If set to 0 no alarm and if set to 99 the alarm will sound till reset.
	User Login	Brings up the user login screen, this will bring up a prompt to enter a username and password. You will be provided with the appropriate logins required for your operation. Different user levels are in place, allowing varying levels of functionality and ability to edit aspects of the cabinet operation.

6.3.3.1 System Diagnostics

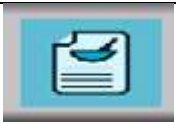
The below is the system diagnostics screen, this can be navigated to view ongoing diagnostic information about the system operation.



6.3.4 Recipe Login Settings Page



The above is the settings page when the user is logged in at the level where they have the permission level to edit and create recipes. The new options on this page are outlined below:

	Description	Function
	Recipe Menu	Brings up the Recipe Menu Screen (See 6.3.5)
	User Level Screen	Brings up the User Level Screen (See 6.3.4.1)
	User Logout	Logs out the current user.

6.3.4.1 User Level Screen

The below is the user level screen from here you can create new users (below your current user level), as well as change passwords for your user level and below.

Recipe login is **1234**

CUYSON		
Gun Check Required		0
User	Password	Logoff time
recipe	*****	30

6.3.4.2 Language Selection

The below shows the language selection screen, from here the user can change the language for the HMI operation.



6.3.5 Recipes Screen

Data Record Name: No.:

Entry Name	Value
Gun 1 Required	Off
Gun 2 Required	Off
Tumbler Run Time (M)	0

Ready

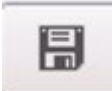
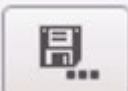
Data Record Name: No.:

Entry Name	Value
Tumbler Speed Sp	4
Air Wash Time (S)	0
Cabinet Wash (S)	0

Ready

The above shows the parameters which can be amended through the recipes edit screen, to be used for the operation of the machine.

The below details each function:

	Description	Function
	Record Name	The name of the currently selected recipe, the drop down shows all available records to choose from.
	Record Number	The record number given to the currently selected recipe.
	New Recipe	Clicking this will bring up a new blank recipe for you to start editing.
	Save	Saves the currently selected recipe, with any amendments you've made.
	Save As	Save the currently selected recipe with a new record name and/or record number.

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	Delete	Deletes the currently selected recipe.
	Edit	Allows you to rename the currently selected recipe.

Entry Name	Function
Gun 1 Required	Turns Gun 1 ON/OFF for the current recipe.
Gun 2 Required	Turns Gun 2 ON/OFF for the current recipe.
Tumbler Run Time (M)	Set the run time for the tumbler in minutes, for the current recipe.
Tumber Speed Sp	Set the tumbler speed for the current recipe.
Air Wash Time (S)	Set the Air Wash time in seconds, for the current recipe.
Cabinet Wash (S)	Set the Cabinet Wash time in seconds, for the current recipe.



6.4 Recovering from an emergency stop

Below is a guide on how to recover the machine from an emergency stop.

- After the E/stop button has been pressed, make sure that the E/stop button has been released.
- Press the reset button and check for any issues through the alarms screen.
- Once deemed safe to resume operations the "START" button can now be pressed and a cycle can be started.

PLEASE NOTE: FOLLOWING AN EMERGENCY STOP IN ORDER TO OPEN THE CABINET YOU NEED TO RELEASE THE E/STOP BUTTON AND PRESS THE RESET BUTTON

DUE TO BUILT UP PRESSURE THE CABINET DOOR LOCK WILL NOT RELEASE UNLESS FULLY CLOSED WHEN THE DOOR BUTTON IS PRESSED.

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 and the replacement of parts are determined by the amount of use, type of media used and the operating conditions. Maintenance intervals will be determined by experience of machine-use over time. The following schedule is recommended for an initial trial period 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.



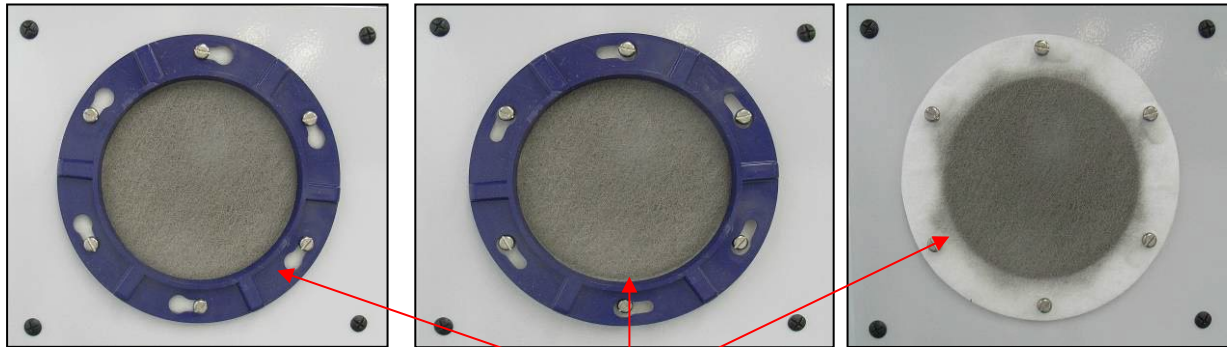
PPE: GUYSON RECOMMENDS THAT AS A MINIMUM, OPERATIVES SHOULD USE A DUST MASK AND SAFETY GLASSES WHEN PERFORMING MAINTENANCE OF ANY SORT. REFERENCE SHOULD BE MADE TO THE MATERIAL SAFETY DATA SHEET OF THE MEDIA BEING USED FOR ANY SPECIFIC PPE REQUIRED.

7.1 Daily

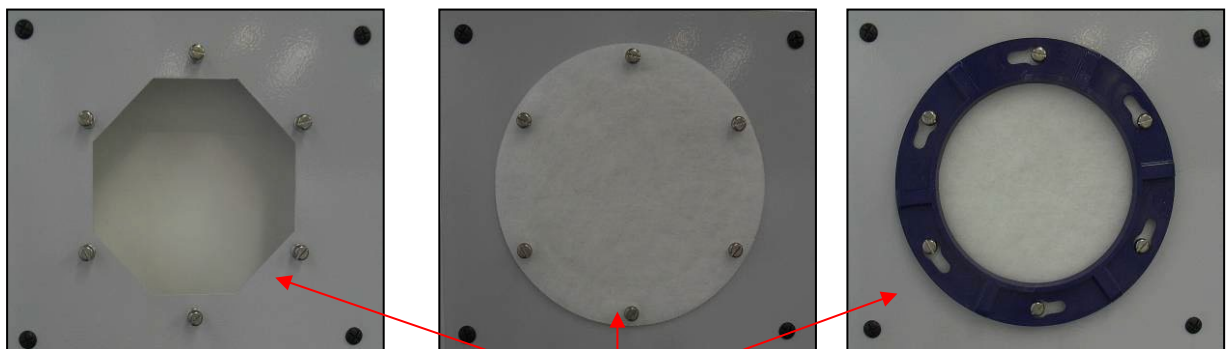
- Inspect breathers pads (see section [7.1.1](#))
- Inspect the viewing window, anti-frost sheet and illumination window (see section [7.1.2](#))
- Inspect all hoses for wear and damage (see section [7.1.3](#))
- Inspect pick up tube(s) and mixer box for wear and damage (see section [7.1.4](#))
- Inspect blast nozzles for uneven wear and bore size (maximum oversize is plus 20%) (see section [7.1.5](#))
- Inspect door seals for 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 Breather pads

The breather pads should be checked to see that they are not blocked. If they are they can cause an excessive negative pressure in the cabinet and affect the media stream from the gun. See below for how to change them if necessary.



Slide breather bezel anti-clockwise and remove.

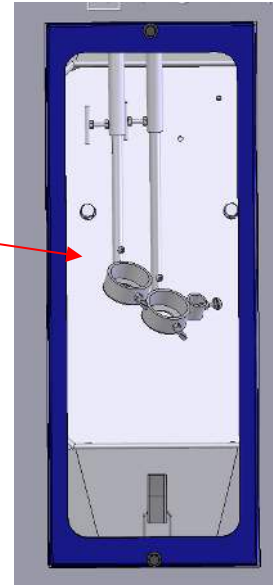


Remove and replace the breather pad (Y1AB0001). Return the breather bezel to the locked position.

7.1.2 Viewing and illumination window

Check that the view of the component to be blasted is not impaired by a scratched anti frost sheet or glass.
Replace if necessary.

The window gasket should also be inspected and replaced when worn.

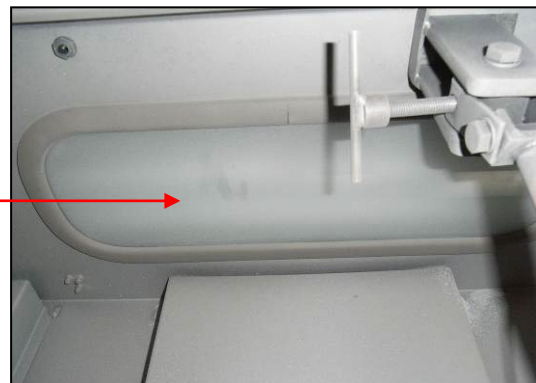


T50	
Item	Description
P2GL0009	Window, viewing 682mm x 264mm
P2PF0013	Antifrost sheet 682mm x 264mm

T40	
Item	Description
P2GL0000	Window, viewing 393mm x 159mm
P2PF0003	Antifrost sheet 393mm x 159mm

Check there is enough light entering the cabinet to work by. If not the illumination window (**P2GL0012**) may be scratched.
Replace if necessary.

The rubber gasket (**R5SL0000**) and the gasket filler strip (**R5SL0002**) should also be inspected and replaced 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. The first section to wear out is usually next to the pick up tube.

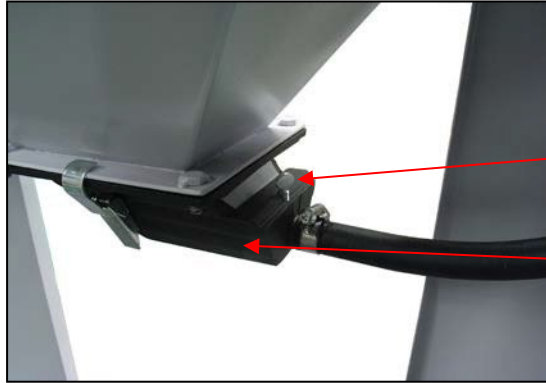
Check the extraction hoses for holes or breaks as these will affect the rate of extraction from the cabinet.



Item code	Description
R6TB0030	Flexible exhaust ducting - standard - 100 mm bore (m)
R6TB0032	Flexible exhaust ducting - polyurethane - 100 mm (m)
P2HS0000	Hose sleeve - 100mm
P1HC0004	Hose clip - 100mm
Y2AB0013	Hose flange - 100mm
R6TB0034	Flexible exhaust ducting - standard - 150 mm bore (m)
R6TB0036	Flexible exhaust ducting - polyurethane - 150 mm bore (m)
P2HS0001	Hose sleeve - 150mm
P1HC0006	Hose clip - 150mm
Y2AB0014	Hose flange - 150mm

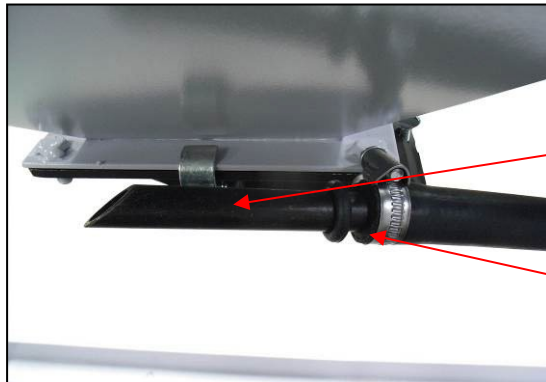
7.1.4 Pick-up tubes and mixer box

Unscrew the retaining screw so the mixer box and the pick-up tube can be inspected for wear and replaced when necessary. Refer to section [5.1.2](#) for setting up the new mixer box and/or pick-up tube.



Retaining screw
(P1TH0190)

Mixer box (see
spares)

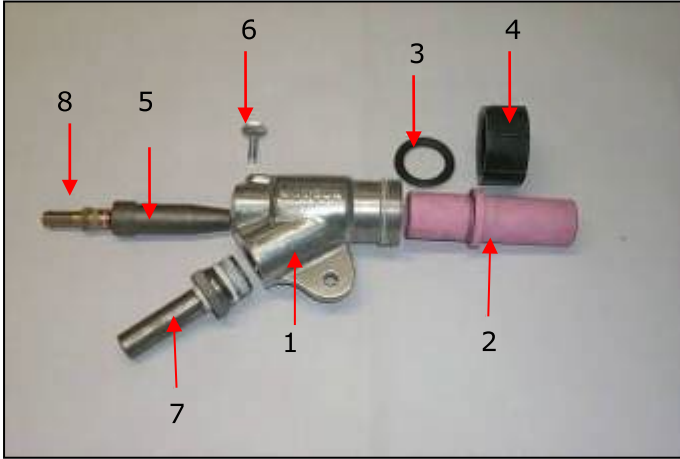


Pick-up tube
(E1AA4059,
19mm)

Adjustment ring
(P2GT0011)

7.1.5 Blast nozzles

900 Blast gun

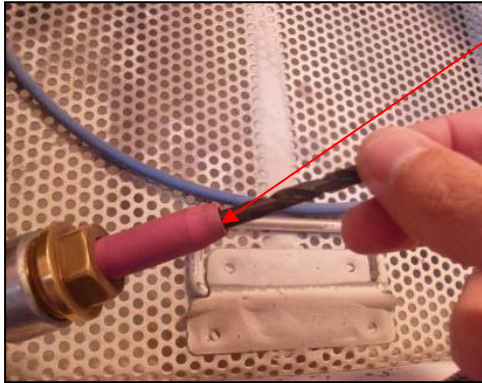


Pos	Item code	Description
1		900 Gun body
2	D2BA0006	9.5mm Ceramic nozzle
	D2BA0007	12.7mm Ceramic nozzle
	D2BA0009	9.5mm Boron nozzle
	D2BA0010	12.7mm Boron nozzle
3	P1WS0039	Nozzle washer
4	D2AA0009	Nozzle locknut
	D1AA0004	3.2mm Airjet
	D1AA0005	4.0mm Airjet
5	D1AA0006	4.8mm Airjet
	D1AA0007	6.4mm Airjet
	D1AA0012	3.2mm Tungsten sleeved airjet
	D1AA0011	4.0mm Tungsten sleeved airjet
	D1AA0008	4.8mm Tungsten sleeved airjet
6	P1TH0189	Thumbscrew
7	P4CG0010	Media entry 19mm Hose
8	P4CG0001	1/4" BSP Hosetail x 10mm

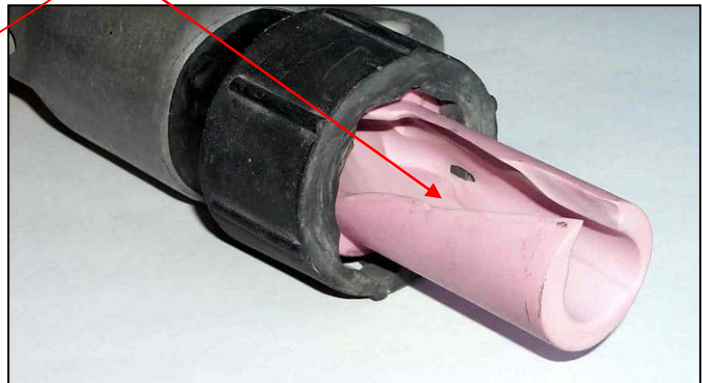
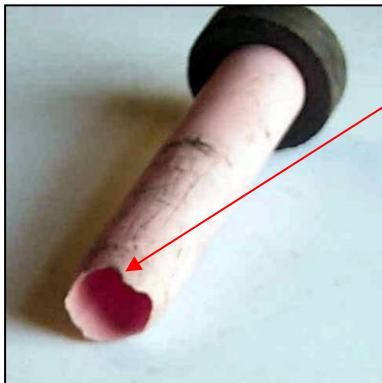
Blast nozzle

Inspect the blast nozzle for wear. When the bore size has increased by 20% (6mm bore @ 20% = 7.2mm) then the nozzle needs to be replaced. The effective bore of a nozzle can be quickly checked by use of a twist drill bit.

The nozzle should be withdrawn from the gun body after 8 hours blasting and rotated by 5° to avoid uneven wear.



The pictures below show extremely worn nozzles. Your nozzle should not be allowed to reach this state as it will decrease its blasting effectiveness and may also damage the blast gun.



Airjet

The airjet should be withdrawn from the gun body after 8 hours blasting to establish the wear pattern on its outer surface. When wear has become noticeable, the fitting should be rotated to the next unworn section. When wear has occurred around the whole circumference, the airjet should be replaced.

**Media entry**

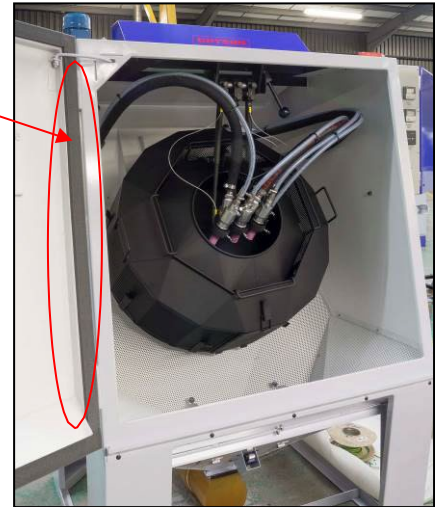
The media entry connection should be withdrawn from the gun body and inspected for wear on a regular basis.

7.1.6 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

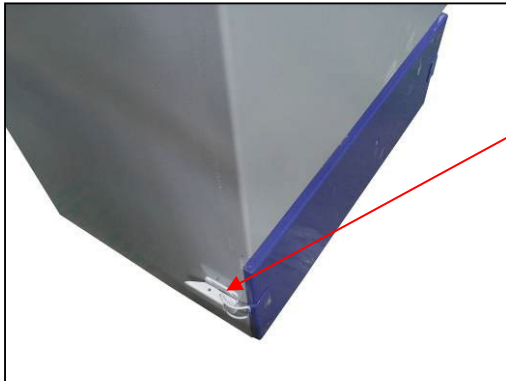


7.1.7 Empty dust collector bin

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



CARE SHOULD BE TAKEN WHEN HANDLING THE WASTE BINS AS THEY MAY BE HEAVY



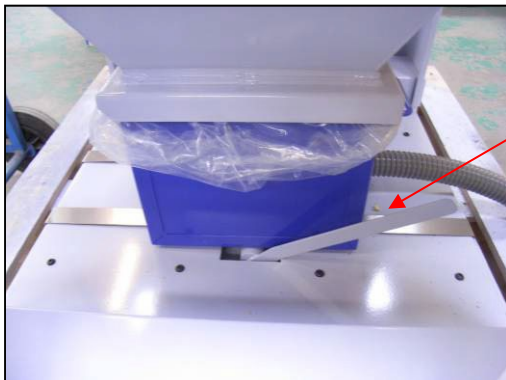
41 Dust collector

This bin is held in by clips on both sides of the dust collector. Release these to remove the bin from the dust collector.



C400 Dust collector

This 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.



C800 Dust collector

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

It is essential that a plastic bin liner (Y1CA0047) is used.

If a bin liner is not used then dust will be drawn up into the clean side of the dust collector.

7.1.8 Topping up media

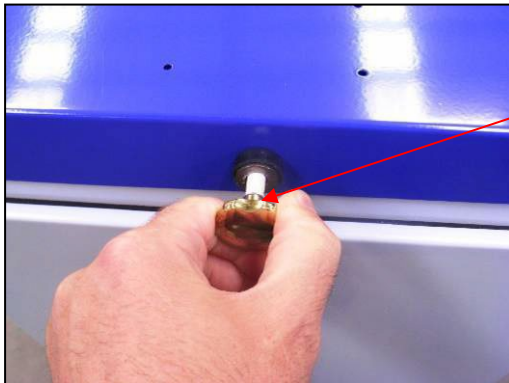
Top up the media levels as required as media is consumed. This can be roughly gauged from the waste bin on the dust collector. Regular additions of small quantities of media maintain an even particle size and assist in producing consistent results.

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 table below shows the different cleaning mechanisms on the various dust collector models:

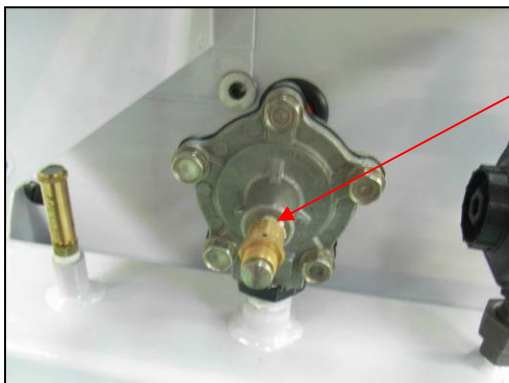


THE MOTOR SHOULD BE SWITCHED OFF WHEN USING THE CLEANING MECHANISM ON THE 41 AND C400 DUST COLLECTORS



41 Dust collector

The filter cleaning system is manual. Pull and push the knob back and forth to shake the filter clean.



C400 Dust collector

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.



C800 Dust collector

This has an automatic filter cleaning system. A controller automatically releases compressed air from the pressure vessel to knock the dust from the filters.

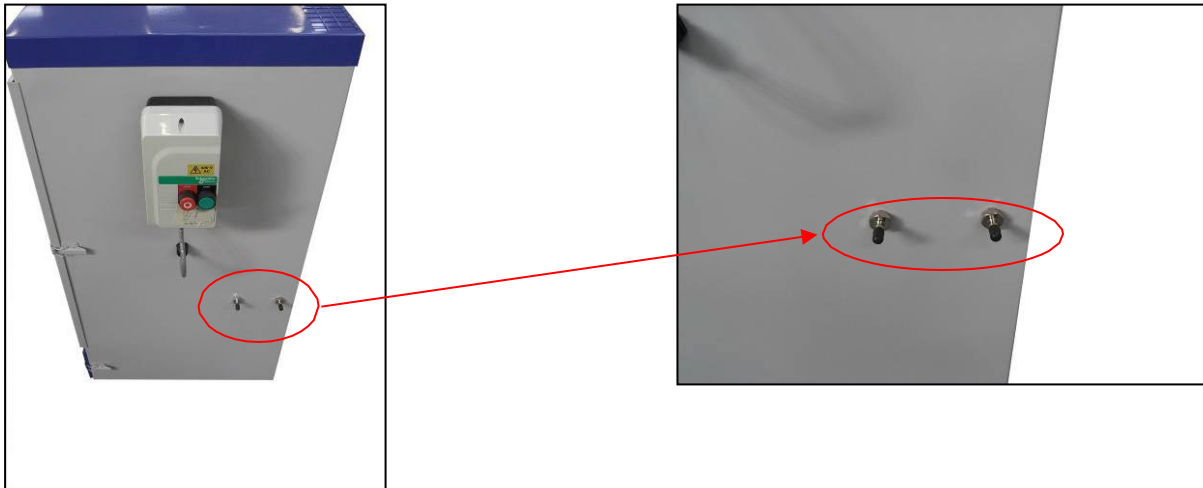
The release interval is set to 30 secs in the factory.

See appendix for controller manual.

C400 and C800 dust collectors are fitted as standard with differential pressure gauges. These measure the differential pressure across the main filter(s). When the pressure difference reaches 5" Water Gauge then a filter change will be necessary.



The 41 dust collector does not come fitted with differential pressure gauges as standard. Hosetails are fitted as standard allowing an aftermarket differential pressure gauge (**E1AA1836**) to be used.



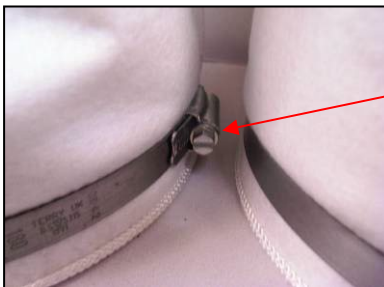
On a 41 dust collector, after approximately five hundred hours use the dust will have worked its way into the body of the filters and cleaning with the cleaning mechanism will no longer clean sufficiently to allow enough air through. This will be evident by poor visibility in the cabinet and/or failure to extract the dust even with the dust collector damper fully open. A filter change will be necessary at this point.

7.1.9.1 Replacing the filter sleeves on a 41



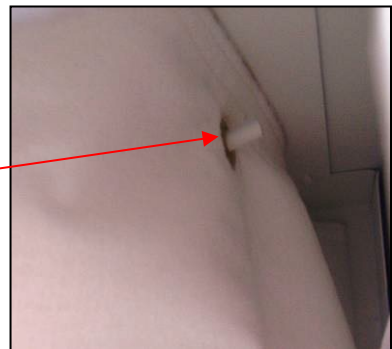
Shake filters and allow dust to settle.

Remove front panel by unhooking latches.



Remove large worm-drive clip from base of each filter sleeve.

Unhook top of each filter from retainer clip.



Carefully remove filter from dust collector.

Replace with new filter sleeve (**Y1CA0000**) by hooking top of filter onto retainer clip first then pass worm drive clip over the base of the sleeve and secure to base of dust collector. Re-fit front cover.



7.1.9.2 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 (**Y1CA0049
standard filter,
Y1CA0045 PTFE filter**)

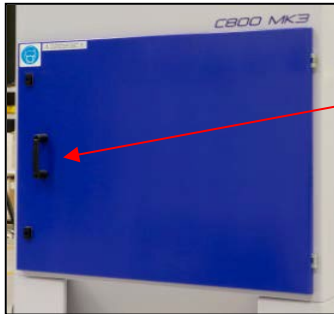
Turn lifter cam 180° to the
right to lock cartridge

Replace front cover



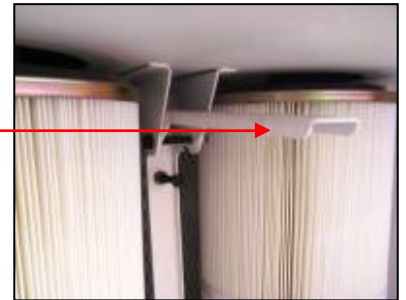
**ENSURE THE FILTER IS CORRECTLY POSITIONED SO THAT DUST
CANNOT BYPASS IT TO THE EXHAUST**

7.1.9.3 Replacing the filters on a C800



Unlock and open door

Lift filter handle to its
unlocked position



Remove filter cartridges
and clean inside the dust
collector

Fit new filter cartridge
(Y1CA0045 PTFE filter)
ensuring cartridge sits to
the rear of the bottom
plate



Ensure filters are sitting
evenly on the top plate

Lower lifting handle to its
locked position

Close door and lock



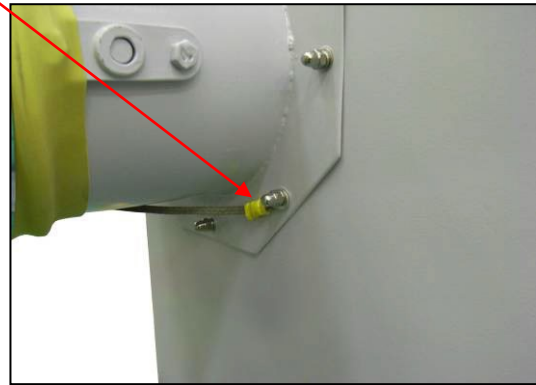
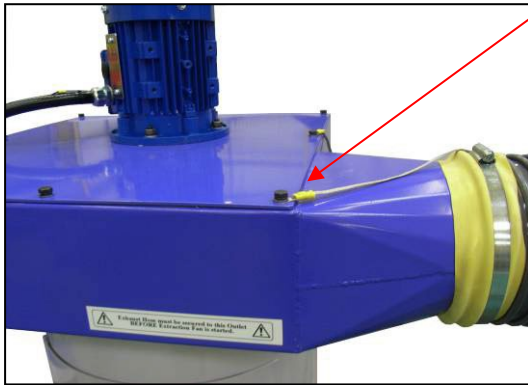
**ENSURE THE FILTERS ARE CORRECTLY POSITIONED SO THAT DUST
CANNOT BYPASS THEM TO THE EXHAUST**

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 between the separate units of the system are secure.





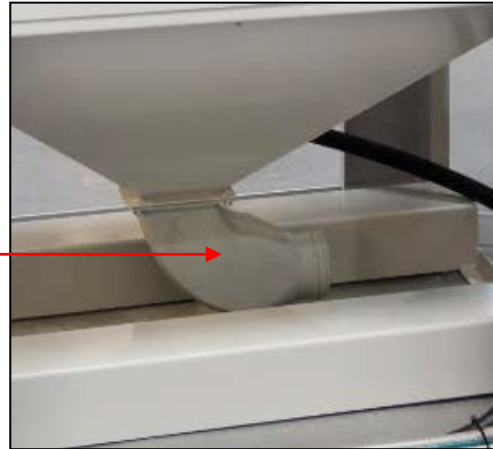
7.2 Weekly

- 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](#))

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 hopper elbow/wear plate

- Turn dust collector on
- Turn cyclone on
- Run machine for 10 minutes to clear pipes
- Turn cyclone off
- Turn dust collector off
- Detach hopper elbow
- Replace wear plate/replace hopper elbow
- Reattach hopper elbow/attach new hopper elbow

Item code	Description
E1AA0097	90° Ø100 PU Hopper elbow
E1AA3176	Wear plate (for mild steel hopper elbow)

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

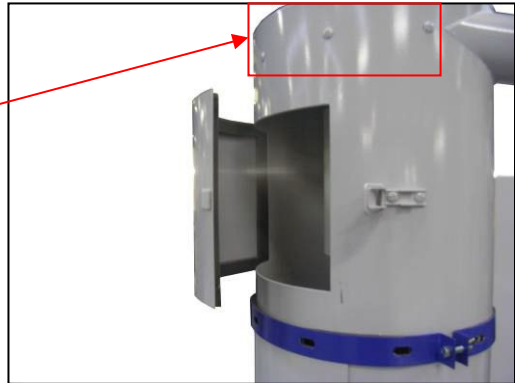
7.2.2 Cyclone

Cyclones will either have a PU lining or a wear plate fitted depending on the specification ordered. The wear plate 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

Item code	Description
E1AA2454	75/16 Body wear plate
E1AA2711	CY600/12 Body wear plate
E1AA2713	CY600/12 Entry wear plate



7.3 Monthly

- Drain old media and discard (see section [7.3.1](#)) and refill system with new media (see section [4.2](#)).
- Perform routine maintenance on basket drive (see sections [7.3.2](#), [7.3.3](#) and [7.3.4](#))

7.3.1 Emptying media

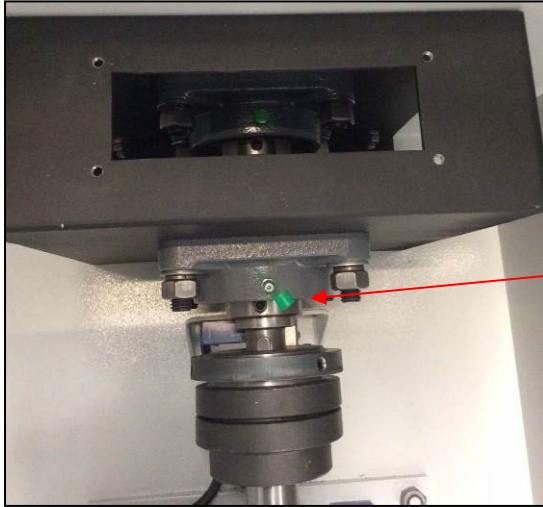
To empty machine:

- Turn on the extraction
- Turn on the cyclone (if fitted)
- 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
- When motor has stopped remove pick-up tube from mixer box
- Place your container under the mixer box, unclip and remove mixer box to collect media.



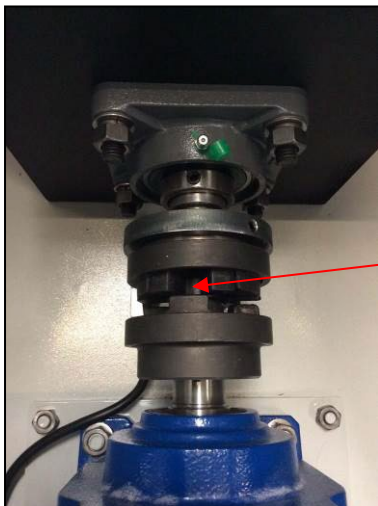
TAKE CARE TO AVOID TRAPPING FINGERS; THE MIXER BOX COULD BE VERY HEAVY

7.3.2 Basket drive bearings



Remove the motor drive guard to access the grease bearings. Now remove the green cap and apply the grease to the bearing.

7.3.3 Rubber drive coupling



Ensure rubber drive coupling is aligned correctly as shown in the photo. This will wear away rapidly if positioned incorrectly. Also check for free movement of the basket when inspecting the rubber drive coupling.

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 suction-feed machines		
Fault	No air from blast gun when in cycle	Action
Possible cause	Bore of air-jet in blast gun blocked	Unblock and clean
	Nozzle blocked	Unblock and clean
Fault	Moisture coming from blast gun 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	No media flow from blast gun	Action
Possible cause	Pick-up-tube incorrectly set in mixer box	Refer to Setting Media Pick-up-tube
	Damp media causing poor flow to mixer box	Replace media and check air supply and compressed air filter
	No suction at pick-up-tube	Check for hose blockage/ gun wear
	Blocked media supply hose to blast gun	Unblock
	No media in hopper	Refill
	Blocked nozzle	Unblock
Fault	Erratic media flow from gun nozzle	Action
Possible cause	Incorrect pick-up-tube setting	Refer to Setting Media Pick-up-tube
	Incorrect air-pressure setting	Refer to Set-up information
	Worn pick-up-tube/air-jet/gun nozzle	Replace as necessary
	Hole in gun body	Replace as necessary
	Air supply causing moisture in media	Customer to check air supply
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
	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
If problems are ongoing please conduct a full maintenance service of the equipment or contact Customer Services to book a Guyson Service Engineer visit		

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 need replacing that is not listed in the maintenance section and cannot be identified from the assembly drawings in the appendix of this manual then please contact Guyson International on the details below for further help.

Guyson International Limited

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

9.1 Spare parts identification

✓ = Standard options fitted to the specified Tumbleblast

✗ = Not available on specified Tumbleblast

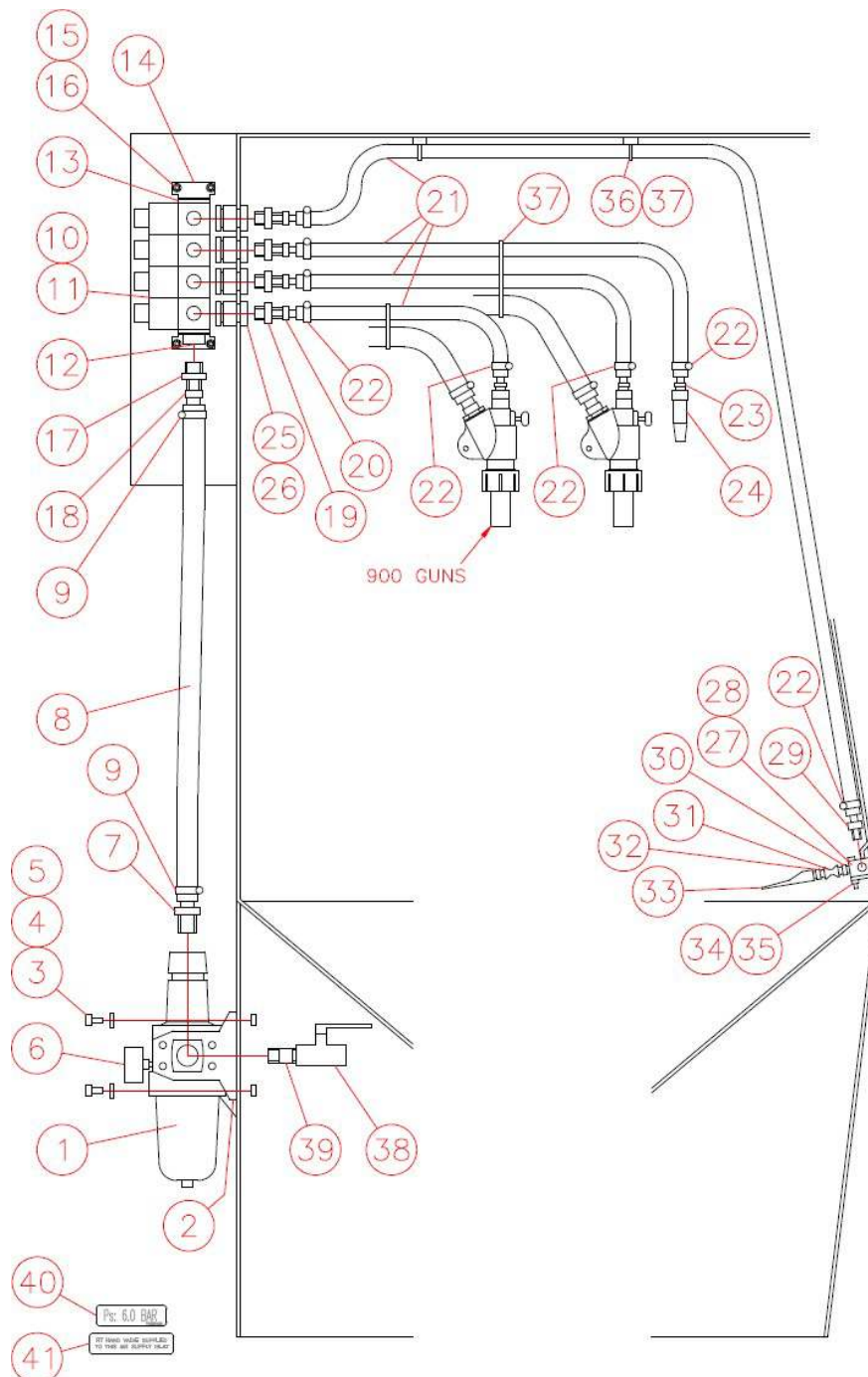
* = Optional equipment

Description	T40	T50	Item code
Viewing window, 393mm x 159mm	✓	✗	P2GL0000
Viewing window, 682mm x 264mm	✗	✓	P2GL0009
Antifrost sheet, 393mm x 159mm	✓	✗	P2PF0003
Antifrost sheet, 682mm x 264mm	✗	✓	P2PF0013
Viewing window gasket strip, 15mm x 19mm	✓	✓	R5SL0028
Illumination window 492mm x 162mm	✓	✓	P2GL0012
Illumination window rubber gasket	✓	✓	R5SL0000
Illumination window gasket filler strip	✓	✓	R5SL0002
Breather pads	✓	✓	Y1AB0001
LED roof light	✓	✓	P3LG2086
Media hose, 19mm HD rubber	✓	✓	R6TB0021
Media pick-up tube, 19mm	✓	✓	E1AA4059
Mixer box blanking plug (for 1 gun option)	*	✗	E1AA1643
Mixer box, 2 gun	*	*	E1AA1953
Mixer box, 3 gun	✗	*	E1AA5851
900 gun media entry, 19mm	✓	✓	P4CG0010
Flexible exhaust ducting - standard - 100 mm bore (m)	*	*	R6TB0030
Flexible exhaust ducting - polyurethane - 100 mm (m)	*	*	R6TB0032
Hose sleeve - 100mm	*	*	P2HS0000
Hose clips - 100mm	*	*	P1HC0004
Hose flanges - 100mm	*	*	Y2AB0013
Flexible exhaust ducting - standard - 150 mm bore (m)	*	*	R6TB0034
Flexible exhaust ducting - polyurethane - 150 mm (m)	*	*	R6TB0036
Hose sleeve - 150mm	*	*	P2HS0001
Hose clips - 150mm	*	*	P1HC0006
Hose flanges - 150mm	*	*	Y2AB0014
Lower sieve floor	*	✗	E1AA9465
Floor	✗	✓	E1AC5907
90° Ø100mm PU Hopper Elbow	*	*	E1AA0097

10. Appendices

10.1 Mechanical drawings and parts list

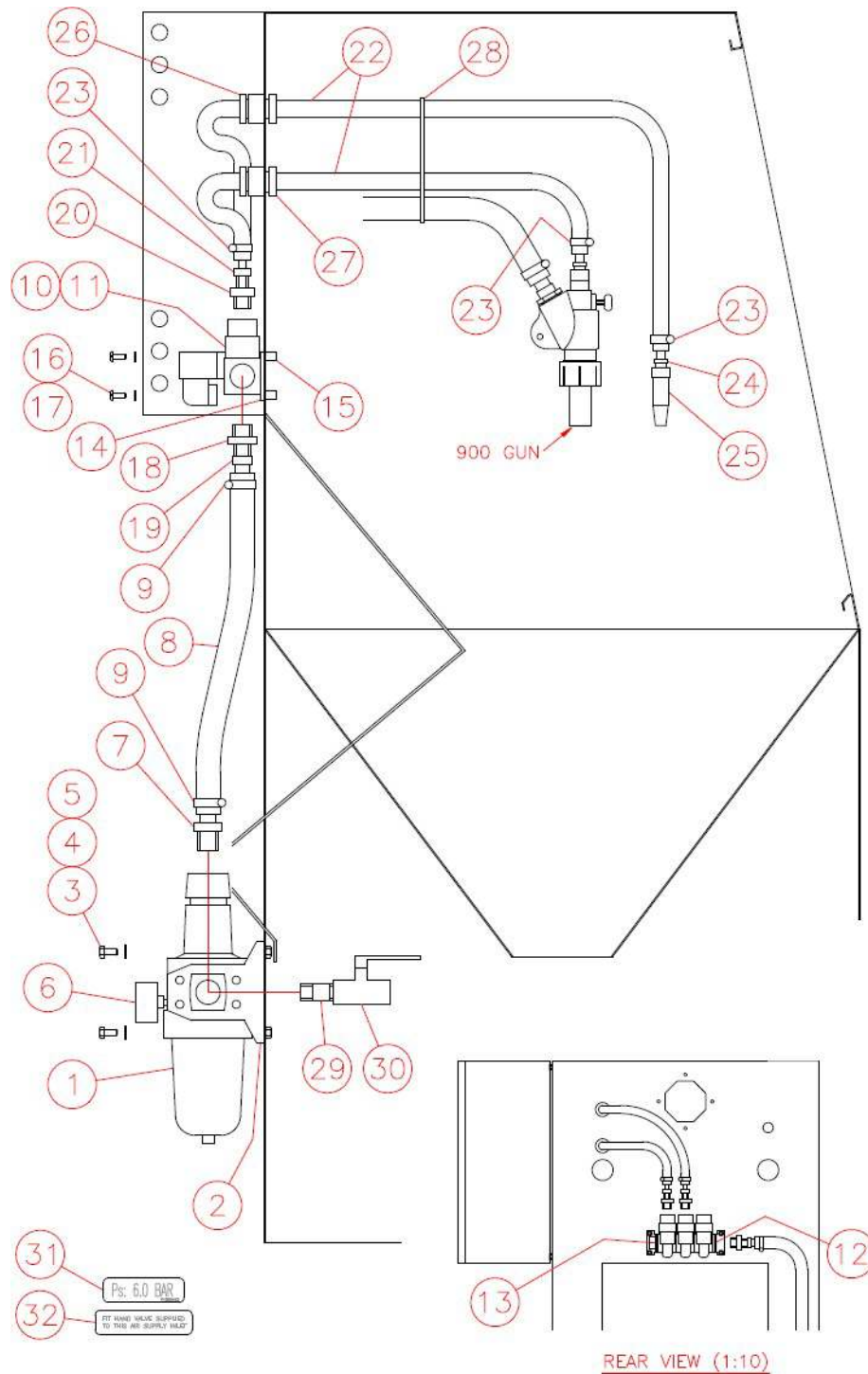
10.1.1 T50 air assembly 2 guns (E1AA2548)





Pos.	Item	Description	Qty
1	P4AP0165	FILTER/REGULATOR 1" BSP	1
2	P4AP0166	REGULATOR MOUNTING BRACKET	1
3	P1TH0038	HEX. SET SCREW M8 X 16	4
4	P1WS0004	PLAIN WASHER M8	4
5	P1TH0202	HEX. NUT M8	4
6	P4SD0001	PRESS GAUGE REAR 0-10 BAR	1
7	P4CG0011	HOSETAIL 1" BSPx19MM HOSE	1
8	R6TB0021	HOSE 19MM HEAVY DUTY RUBBER	2.5
9	P1HC0002	HOSE CLIP 19MM	2
10	P4VL0462	SOL VALVE 2/2 NC 1/2 BSP 110AC	4
11	P4VL0074	TIE ROD FOR 4X BRT SOL VALVES	1
12	P4VL0064	3/4" BSP PORT FOR BRT VALVE	1
13	P4VL0065	BLANKING PLATE FRO BRT VALVE	1
14	P4VL0066	MOUNTING BRACKET FOR BRT VALVE	1
15	P1TH0201	HEX. NUT M6	4
16	P1WS0003	PLAIN WASHER M6	4
17	P4MN0160	BUSH RED. 3/4 x 1/2 BSP	1
18	P4CG0006	HOSETAIL 3/8" BSPx10MM HOSE	4
19	P4MN0156	BUSH RED. 1/2 x 3/8 BSP	4
20	P4CG0006	HOSETAIL 3/8" BSPx10MM HOSE	4
21	R6TB0003	HOSE 10MM CLEAR PVC, BRAIDED	2
22	P1HC0000	HOSE CLIP 10MM	8
23	E1AA2549	ASSEMBLY GUN 900 - T40 T50	1
24	P4CG0001	HOSETAIL 1/4" BSPx10MM HOSE	1
25	D1AA0004	AIRJET 3.2MM BORE	4
26	P3HW0012	GLAND CABLE 12-18MM M25/254BK	4
27	P3HW0013	GLAND LOCKNUT M25/94 BLK	1
28	P4TF0125	MANIFOLD BLOCK 4X 1/4 BSP	3
29	P4MN0134	PLUG SOLID 1/4 BSP	1
30	P4CG0001	HOSETAIL 1/4" BSPx10MM HOSE	2
31	P4AW0007	SPIGOT 1/4" NPT	2
32	P4AW0005	LOC LINE DOUBLE SOCKET	2
33	P4AW0008	LOC LINE SPIGOT 1/8" NPT (BSP)	2
34	E1AA0984	MULTI CH A/W 1/8" INLET	1
35	P1TH0027	HEX. SET SCREW M5 X 40	2
36	P1TH0200	HEX.NUT M5	2
37	P3HW0036	CABLE TIE 200x4.5MM	24
38	P3HW0097	CABLE TIE BASE 28.5X28.5	8
39	P4VL0116	BALL VALVE 1" BSP VENTING	1
40	P4MN0091	NIPPLE BARREL 1 BSP	1

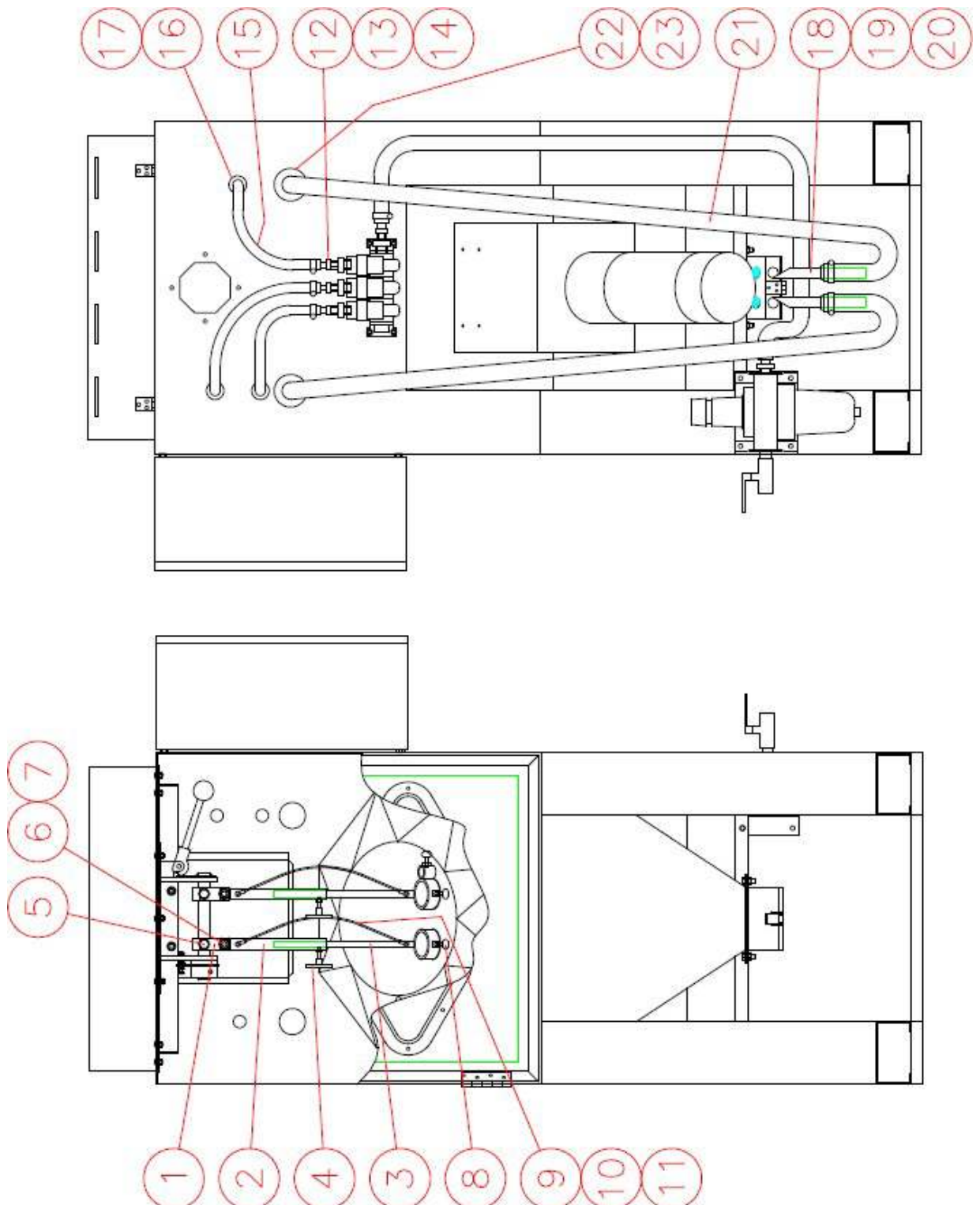
10.1.2 T40 air assembly 1 gun (E1AA2830)



Operation &
Maintenance
Manual

Pos.	Item	Description	Qty
1	P4AP0009	FILTER/REGULATOR 1 BSP (B68)	1
2	P4AP0033	MTG BRACKET FOR 3/4 OR 1 BSP	1
3	P1TH0038	HEX. SET SCREW M8 X 16	4
4	P1WS0004	PLAIN WASHER M8	4
5	P1TH0202	HEX. NUT M8	4
6	P4SD0003	PRESS GAUGE PANEL 0-10 BAR	1
7	P4CG0011	HOSETAIL 1" BSPx19MM HOSE	1
8	R6TB0021	HOSE 19MM HEAVY DUTY RUBBER	1.5
9	P1HC0002	HOSE CLIP 19MM	2
10	P4VL0145	SOL VALVE 2/2 NC 1/2" BSP 24AC	3
11	P4VL0063	TIE ROD FOR 3X BRT SOL VALVES	1
12	P4VL0064	3/4" BSP PORT FOR BRT VALVE	1
13	P4VL0065	BLANKING PLATE FRO BRT VALVE	1
14	P4VL0066	MOUNTING BRACKET FOR BRT VALVE	1
15	P1TH0227	NUTSERT M6	4
16	P1WS0003	PLAIN WASHER M6	4
17	P1TH0005	ROOFING BOLT M6 X 16	4
18	P4MN0160	BUSH RED. 3/4 x 1/2 BSP	1
19	P4CG0023	HOSETAIL 1/2" BSPx19MM HOSE	1
20	P4MN0156	BUSH RED. 1/2 x 3/8 BSP	2
21	P4CG0006	HOSETAIL 3/8" BSPx10MM HOSE	2
22	R6TB0003	HOSE 10MM CLEAR PVC, BRAIDED	4.5
23	P1HC0000	HOSE CLIP 10MM	4
24	P4CG0001	HOSETAIL 1/4" BSPx10MM HOSE	1
25	D1AA0004	AIRJET 3.2MM BORE	1
26	P3HW0012	GLAND CABLE 12-18MM M25/254BK	2
27	P3HW0013	GLAND LOCKNUT M25/94 BLK	2
28	P3HW0036	CABLE TIE 200x4.5MM	4
29	P4MN0091	NIPPLE BARREL 1 BSP	1
30	P4VL0016	SOL VALVE 2/2 NC 1/2 BSP	1
31	Y1BB0055	LABEL MAX. PRESSURE 120psi	1
32	Y1BB0056	LABEL "FIT HAND VALVE "	1

10.1.3 T40 air assembly 2 gun option (E1AA5105)



Operation &
Maintenance
Manual

Pos.	Item	Description	Qty
1	P4AP0009	FILTER/REGULATOR 1 BSP	1
2	P4AP0033	MTG BRACKET FOR 3/4 OR 1 BSP	1
3	P1TH0038	HEX. SET SCREW M8 X 16	4
4	P1WS0004	PLAIN WASHER M8	4
5	P1TH0202	HEX. NUT M8	4
6	P4SD0001	PRESS GAUGE REAR 0-10 BAR	1
7	P4CG0011	HOSETAIL 1" BSPx19MM HOSE	1
8	R6TB0021	HOSE 19MM HEAVY DUTY RUBBER	2.5
9	P1HC0002	HOSE CLIP 19MM	2
10	P4VL0062	SOL VALVE 2/2 NC 1/2 BSP 110AC	4
11	P4VL0074	TIE ROD FOR 4X BRT SOL VALVES	1
12	P4VL0064	3/4" BSP PORT FOR BRT VALVE	1
13	P4VL0065	BLANKING PLATE FRO BRT VALVE	1
14	P4VL0066	MOUNTING BRACKET FOR BRT VALVE	1
15	P1TH0201	HEX. NUT M6	4
16	P1WS0003	PLAIN WASHER M6	4
17	P4MN0160	BUSH RED. 3/4 x 1/2 BSP	1
18	P4CG0006	HOSETAIL 3/8" BSPx10MM HOSE	4
19	P4MN0156	BUSH RED. 1/2 x 3/8 BSP	4
20	P4CG0006	HOSETAIL 3/8" BSPx10MM HOSE	4
21	R6TB0003	HOSE 10MM CLEAR PVC, BRAIDED	2
22	P1HC0000	HOSE CLIP 10MM	8
23	E1AA2549	ASSEMBLY GUN 900 - T40 T50	1
24	P4CG0001	HOSETAIL 1/4" BSPx10MM HOSE	1
25	D1AA0004	AIRJET 3.2MM BORE	4
26	P3HW0012	GLAND CABLE 12-18MM M25/254BK	4
27	P3HW0013	GLAND LOCKNUT M25/94 BLK	1
28	P4TF0125	MANIFOLD BLOCK 4X 1/4 BSP	3
29	P4MN0134	PLUG SOLID 1/4 BSP	1
30	P4CG0001	HOSETAIL 1/4" BSPx10MM HOSE	2
31	P4AW0007	SPIGOT 1/4" NPT	2
32	P4AW0005	LOC LINE DOUBLE SOCKET	2
33	P4AW0008	LOC LINE SPIGOT 1/8" NPT (BSP)	2
34	E1AA0984	MULTI CH A/W 1/8" INLET	1
35	P1TH0027	HEX. SET SCREW M5 X 40	2
36	P1TH0200	HEX.NUT M5	2
37	P3HW0036	CABLE TIE 200x4.5MM	24
38	P3HW0097	CABLE TIE BASE 28.5X28.5	8
39	P4VL0116	BALL VALVE 1" BSP VENTING	1
40	P4MN0091	NIPPLE BARREL 1 BSP	1

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.

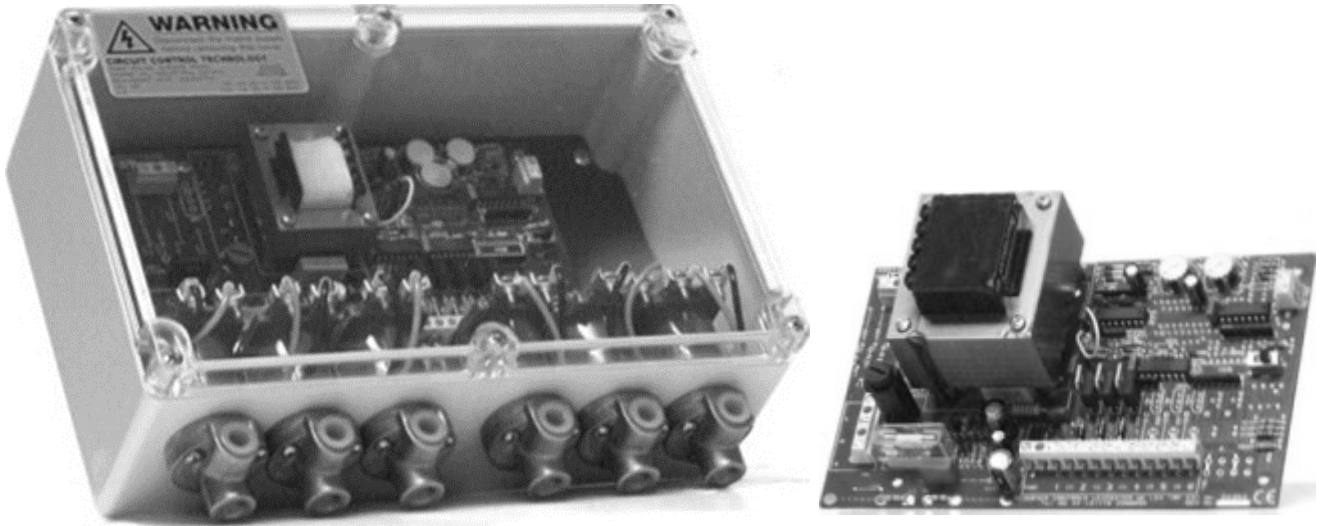
When fitting a new starter motor, the overload will have to be set to the required full load current. Use the table at the start of this section to select the correct value, and adjust the overload accordingly.



To adjust, pull out selector
and slide to required position

10.3 Proprietary manuals

Product Data Sheet **ZX393** 1-6 Way Sequence Controller



FEATURES

■ **The ZX393 Sequence Controller pcb** is the pulsing heart of our range of tried and tested Reverse Jet Stations. Aimed primarily at Dust Extraction and Air Flow applications, this sequencer has an electronic control system and responds to a simple volt-free open circuit. The unit is fully versatile for input voltage, output voltage, number of ways, pulse length and time between pulses.

You select the number of ways by ordering 2, 4 or 6 way units. Each unit has an on-board selector to pulse any number of ways you like up to the nominal. In other words a 2 way unit can pulse 2 ways; a 4 way unit does 1, 2, 3 or 4 ways and a 6 way unit covers all the options up to 6 ways.

Input and output voltages are available from 12Vdc to 24Vdc, or 110Vac to 240Vac - see the table on page 2 for a breakdown. This table also details the options available on the various models - options like Fan Run Down, Multiple Cycling of Outputs, Delay before Pulsing, Fast Clean Control, Enhanced Wattage Output (can fire 2 valves on a single pulse) and top entry terminals.

Pulse Duration and Pulse Interval are adjustable as standard on all models.

The **ZX393** is offered as a naked PCB ASSEMBLY or housed in a robust, IP65 rated, plastic enclosure as a **SEQUENCE CONTROLLER** or complete with pilot valves (and pipe fittings if required) - also in an IP65 plastic enclosure - as a **REVERSE JET STATION**.



dust filter controls

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Models and Options

The following is a table of models (-G...) available in the ZX393 Sequence Controller PCB.
The features incorporated with each model are shown as well as a reference drawing number.

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	FEATURES	REFERENCE DRAWING
-G4	110 / 220 / 240 Vac	110Vac	Pressure Switch Control (PSC)	ZX393G4600
-G49	110 / 220 / 240 Vac	110Vac	Pressure Switch Control (PSC)	ZX393G49600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
-G9	12Vdc	12Vdc	Pressure Switch Control (PSC)	ZX393G9600
-G10	24Vdc	24Vdc	Pressure Switch Control (PSC)	ZX393G10600
-G1419	110Vac	110Vac	Pressure Switch Control (PSC)	ZX393G1419600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
-G15	110 / 220 / 240 Vac	24Vdc	Pressure Switch Control (PSC)	ZX393G15600
			Enhanced Wattage Output	
-G159	110 / 220 / 240 Vac	24Vdc	Pressure Switch Control (PSC)	ZX393G159600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
			Enhanced Wattage Output	
-G31	110 / 220 / 240 Vac	24Vac	Pressure Switch Control (PSC)	ZX393G31600
			Enhanced Wattage Output	
-G319	110 / 220 / 240 Vac	24Vac	Pressure Switch Control (PSC)	ZX393G319600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
			Enhanced Wattage Output	
-G33	24Vac	24Vac	Pressure Switch Control (PSC)	ZX393G33600
-G339	24Vac	24Vac	Pressure Switch Control (PSC)	ZX393G339600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	

Top entry terminals are available on each model - simply add "2" at the end of the -G number.

Drawing references shown are all for 6 way boards. 2 way and 4 way boards are also available and the drawing reference is the same except that the number "6" - third from the right hand end - becomes "2" for a 2 way and "4" for a 4 way.

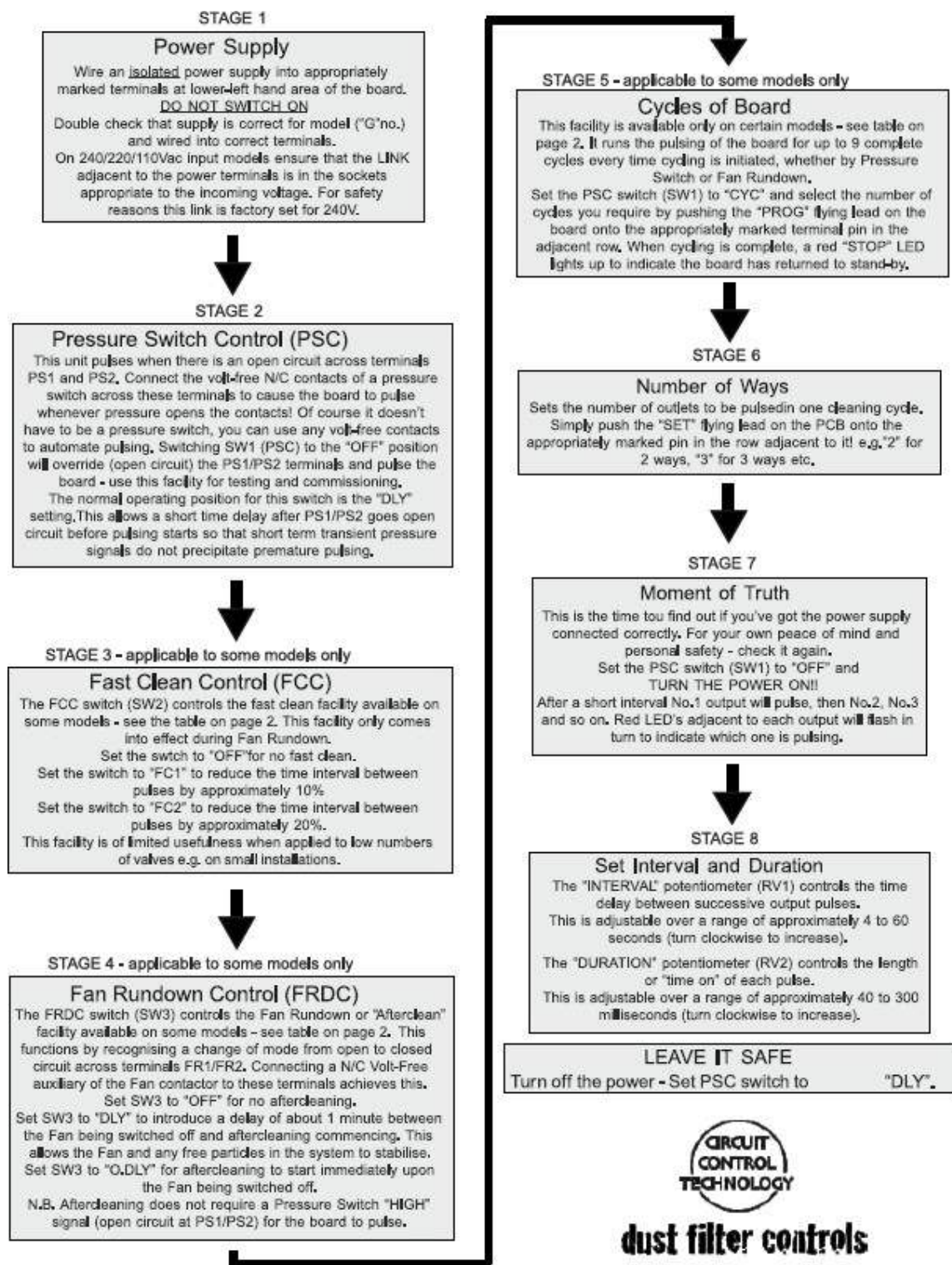
To order by part number, start by stating the number of ways (outputs) required followed by "W", then "ZX393" followed by the "-G..." number, e.g. a "4W ZX393-G92" is a 4 way ZX393 pcb with 12Vdc in, 12Vdc out, pressure switch control only and top entry terminals.



dust filter controls

Set-up Procedure

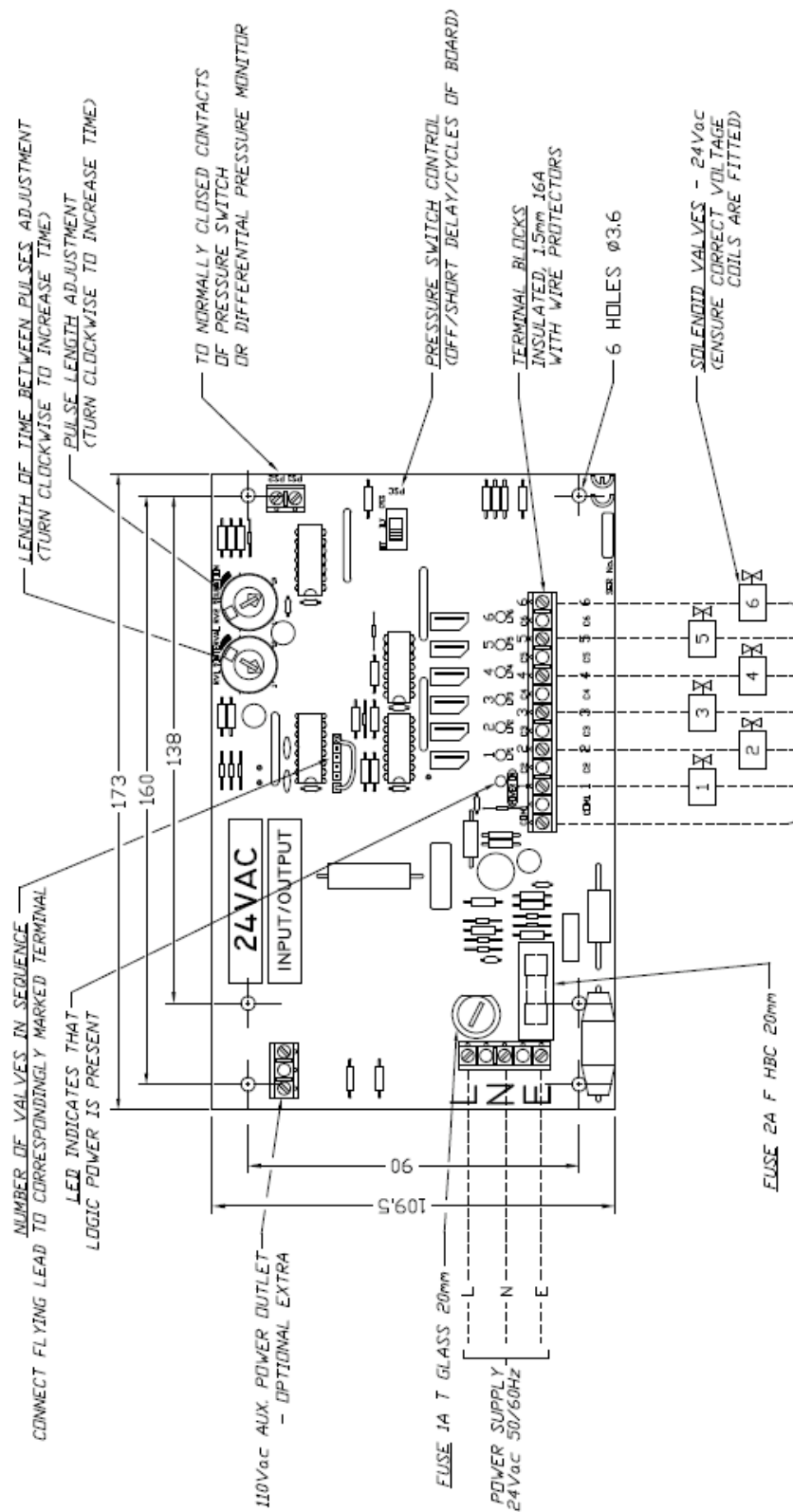
The following is a flow chart of the set-up procedure for the ZX393 Sequence Controller PCB.
The options available at each stage are explained in an easy to follow format.



Technical Specifications

UNIT:	Part Number ZX393
INPUT SUPPLY/ POWER CONSUMPTION:	Volts:-refer to table on page 2. Amps:- less than 500mA
INPUT FUSE:	Depending on Model Number.
OUTPUT FUSE:	Depending on Model Number.
MAINS FAILURE:	In the event of power interruption, the unit will operate to specification when the supply voltage is re-instated..
START UP SEQUENCE:	The unit is arranged so that pulsing will start as soon as an open circuit has been established across terminals PS1/PS2 for a few seconds, unless another option has been selected (see "Power Supply" on page 3).
INDICATION:	Red LED indicates "Power On", others light up to show which output is pulsing during cycling. Some models also have "STOP" LED also (see "Cycles of Board on page 3).
AMBIENT TEMPERATURE AT BOARD SURFACE:	-10 to +45 deg.C.
STORAGE TEMPERATURE:	-20 to + 70 deg.C.
SEQUENCE CONTROLLER:	The ZX393 is also available enclosed within an IP65 rated plastic .box. Just add "/E0" to the Part Number immediately after the model (-G...) number. Non-standard enclosures are also possible, or we can mount your ZX393 integrally with other equipments (e.g. Pressure Switch) on request. Please consult Circuit Control's sales department for more information.
REVERSE JET STATION:	The ZX393 can be used to drive any normally configured pilot valve, and we offer a variety of commercially available solenoid valves as standard in our Rev. Jet Stations - with or without rapid-fit or compression pipe fittings. Please consult Circuit Control's sales department for availability of specific combinations of board, box and valves to suit your requirements.
EXTERNAL SIGNALS:	The ZX393 conforms to current regulations regarding proper operation within zones of electrical interference. Nevertheless we recommend that connections to external equipments are kept as short as possible, made with screened cable earthed at one end and/or via an interposing relay.
MAINS (ac) SUPPLIES:	To ensure the reliable operation and longevity of your ZX393, any mains supply should not be a branch off a line carrying power to equipment containing rectifiers and/or thyristors (e.g. welders, variable speed drives, battery chargers etc.). Keep supply cables away from other power carrying conductors. A free-standing mains filter is available if needed.

Wiring diagram



General arrangement

