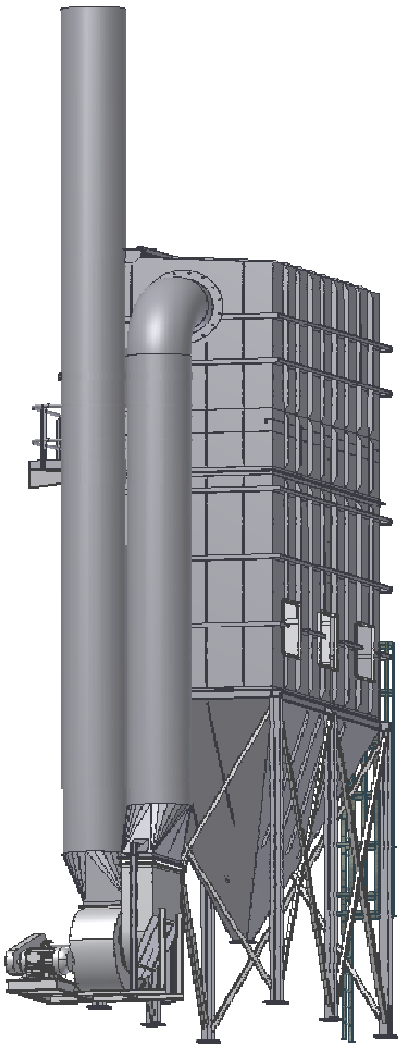
Operation Setting to Work Maintenance Manual

Sonic Pulse Dust Collector



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3. SCOPE

This Operation and Maintenance Manual for Filtercorp Dust Collectors has been prepared by FILTERCORP INTERNATIONAL LTD.

The purpose of this Manual is to provide information for the proper installation and removal of Filtercorp filter elements, and assessing when it may be necessary to do so.

4. INTENDED READER

This document is intended for use by the personnel involved in the day-to day operation of the equipment, the diagnosis and correction of faults, and day to day maintenance.

5. DESCRIPTION OF FILTERCORP SONIC PULSE DUST COLLECTOR

The FILTERCORP INTERNATIONAL LTD Sonic Pulse Dust Collector is a Continuous Online Cleaning System for the removal of dust or fume particulate from air streams.

The Dust Collector is divided by a cell plate into two compartments, the clean air chamber and the air borne dust particulate (dirty air) chamber.

The filter media (Snaptex bags and supporting cages) are retained and sealed into the cell plate and suspended into the dirty air chamber of the dust collector.

Dust laden air enters into the dirty air chamber and any dust particulate that does not settle out of the air stream contacts onto the outside surface of the filter material.

The air passes through the filter media leaving the dust particles on the dirty side of the filtration surface. The particles build up into permeable filter cake; the degree of permeability being dependent on the characteristics of the dust.

As the dust particulate cake builds up on the filter material, the pressure differential between the dirty and clean surfaces of the filter material increases and causes a reduction of airflow through the filter media.

To maintain the designed air flow through the dust collector the design pressure differential across the filter media must also be maintained by periodic and routine removal of the accumulated dust particulate from the surface of the filter media.

This removal of accumulated dust particles is facilitated utilising a sonic pulse wave of air, which passes down the length of the filter media loosening the dust cake. The pulse of compressed air, combined with an induced secondary air flow, inflates and ripples the filter media and the momentary reverse air flow through the filter media causes the dust cake to be released from the filter bags.

The cake of accumulated dust particulate falls from the vicinity of the filter tube as the air flow is less than the conveying velocity of the accumulated dust cake.

The sonic pulse system is fully automatic and in order to control the increase in resistance, a controller signals the diaphragm valve releasing the pulse of compressed air from a reservoir into the blow tubes, then down into the outlet opening of the Filter Element.

The filter bags that are pulsed at each sonic burst are only a fraction of the total, and are off line for about 0.3 of a second. This enables the Dust Collector to run continuously on line. The individual rows of filters are pulsed out of sequence to prevent re-entrainment of the released dust onto the adjacent row of filters.

The cleansed air is discharged from the clean chamber of the dust collector.

7. Compressed Air

The FILTERCORP INTERNATIONAL LTD Dust Collector requires a consistent Compressed Air supply to the air reservoir. The air must be dry and oil free.

When using filter bags the compressed air supply is to be adjustable between 450 and 820 kPA (65 > 120 psi) to produce an effective sonic pulse.

8. Sonic Pulse System Operation

The Sonic Pulse Wave is generated by compressed air accelerating through a nozzle directed centrally into the outlet of the filter tube. The sonic pulse system control can be manual or fully automatic.

To control the filter air flow, the pressure differential caused by the permeable dust cake on the media must be monitored, and the cake periodically removed to maintain an acceptable pressure differential over the filter media thus ensuring a consistent air flow.

A signal to the diaphragm valve releasing the pulse of compressed air from a reservoir into the blow tube and through a sonic nozzle, where the velocity of the air is increased to sonic speed.

A sequence timer is programmed to automatically actuate the diaphragm valve to maintain and control the pressure differential across the filter media.

A Magnehelic Gauge is fitted to visibly monitor the pressure drop across the filter media.

9. Filter Sock Servicing

Servicing filtration equipment can expose personnel to hazards such as confined spaces, compressed air, respirable/toxic dusts and potentially explosive dust/air mixtures. Therefore it is essential that operating and maintenance personnel be instructed in recognising hazards, and in the relevant safety procedures for dealing with them.

All dust must be considered a health risk and it is recommended that safety clothing, protective breathing apparatus and eye protection be used when changing the Filter Socks.

Suitable means of containing any residual dust and transporting the Filter Socks should be considered before removal of the Socks from the Dust Collector Cell Plate.

As any concentration of dust may be ignitable (explosive) any sources of ignition should be eliminated from or minimised at the work area. If present, the dust collector pulse sequence timer and controller should be electrically isolated before working within the dust collector.

FILTERCORP INTERNATIONAL LTD Dust Collectors are designed for tool free Filter Sock installation.

The clean air chamber of the Dust Collector should be cleaned before the installation of new or replacement Filter Socks.

The Cell Plate must be clean about each filter hole before the installation of any Filter Sock.

The edge of each filter hole at the Cell Plate must be undamaged and burr free.

10. Filter Sock Access

Access to the Dust Collector Filter Socks is through the clean air plenum chamber.

The Dust Collector incorporates the Filtercorp Sonic Pulse Cleaning System and requires removal of the blow tubes located over the Filter Socks. Open the access door, release the blow pipe securing handle and remove the blow pipe to Service/Replace the Filter Sock.

Replace the blow pipe into the coupling collar (apply a Petroleum gel or a similar product before pushing blow pipe into the coupling).

Secure the blow tubes into position ensuring that the sonic nozzles are aimed directly down the inside centres of the Filter Socks.

11. Snaptex Filter Sock Installation

Start the Filter Sock installation furthest away from the access platform, ladder, or access opening, and work back towards the opening or ladder.

Carefully pass the Filter Sock through the hole in the cell plate without damaging the filtration surface. Deform the open cuff end of Filter Sock inwards (kidney shape) locate the filter sock cuff recess groove onto the edge of the cell plate hole. Release and allow the deformed Filter Sock to resume the original shape ensuring that the cell plate hole edge fits into the groove recess. The Filter Sock must fully resume the original shape to ensure a seal at the cell plate (A snapping of the filter Sock into the Cell Plate usually indicates that the Filter Sock cuff is correctly fitted).

Insert the filter support wire cage carefully into the Filter Sock ensuring that the cage is fully lowered and that the cage top is seated onto the Filter Sock cell plate. (Static units may not use a cage and instead have a cuff that snaps onto a lower cell plate).

12. Snaptex Filter Sock Removal

Lift and remove the filter support cage from inside the Filter Sock.

Deform the top cuff band of the Filter Sock (may require loosening out of the cell plate filter hole by a sharp kick to the edge of the cuff) and withdraw the Filter Sock from the cell plate ensuring that the filter media does not scrap against the edge of the cell plate filter hole.

The Filter Sock should be placed into a bag (plastic) to ensure that any residual dust is not distributed / dislodged into the clean chamber of the Dust Collector.

Alternatively the Filter Sock (after removal of the support cage) can be forced through the cell plate into the dirty chamber of the Dust Collector and removed to a waste container.

13. FILTER BAG INSTALLATION

GENERAL

The correct fixing of the filter bag is of paramount importance and procedures must be adhered to with utmost diligence.

Negligence during filter bag installation will result in poor dust collection efficiency and high gas dust emission.

INSTALLATION OF "TOP REMOVAL" TYPE FILTER BAGS

Filter bags can only be installed from the clean gas plenum and prior to installation of blow tubes.

1. Insert filter bag through hole in cell plate starting with closed end of filter bag, until snap-band collar section rests on cell plate.

2. Insert groove in snap-band collar into one side of cell plate hole and compress the snap-band collar sufficiently until it can be inserted completed (Figure 1).

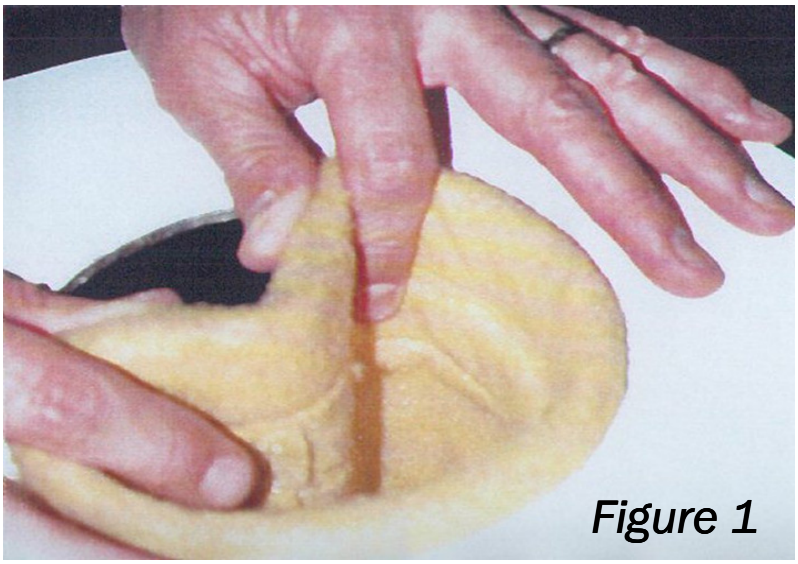

Figure 1

3. Release snap-band and make sure that the snap-band has assumed its circular shape and the snap-band collar groove is firmly seated I the hole of the cell plate (Figure 2).

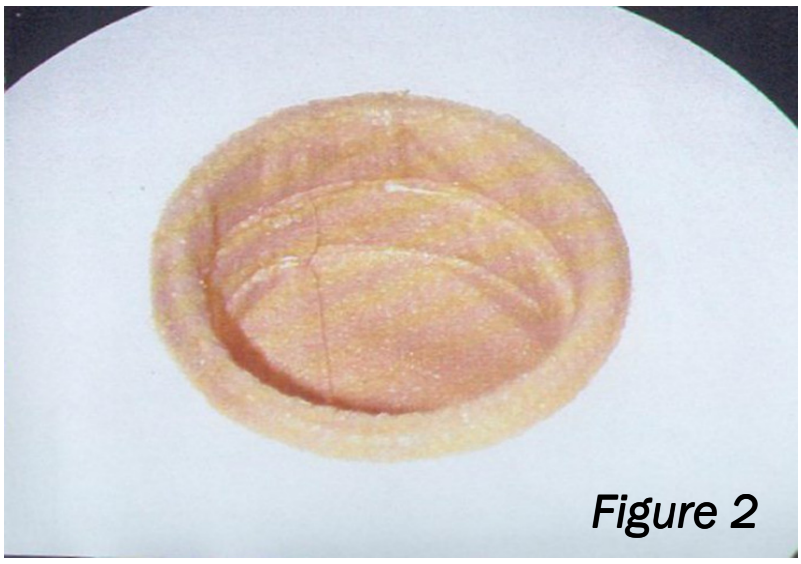

Figure 2

4. To prevent dislodging or damage to the filter bag installed, it is recommended to insert the filter bag support cage before installing the next filter bag.

   The filter bag support cage must be handled with care and it is imperative that it is straight before insertion. Bent or bowed cages will cause filter bag wear and reduce service life.

   "Top Removal" type support cages have an end cap on the one end and a support ring on the other end.

   The support cage is inserted into the filter bag with the end cap first, and pushed down until the support ring covers the bag snaptex collar and rests on the cell plate (Figure 3).

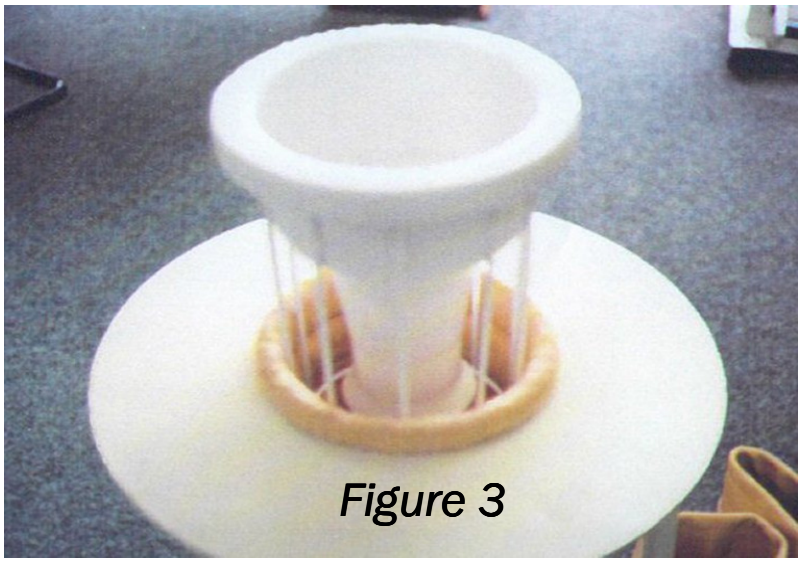

Figure 3

5. On completion of installation, check from raw gas side that the filter bags do NOT touch each other or the bag filter casing. Adjust where necessary by firmly holding down the ring onto the cell plate and gently bending the cages away from each other. Cages with bad bows or kinks must be removed for straightening or replacement (support cages may differ from the above image—Figure 3—depending on the application).

14. Filter Bag Replacement

It is acceptable to replace individual bags to solve an emission problem due to bag damage; however, if more than 15-20% bags require replacement it is recommended that a full bag house change be carried out.

Air finds the path of least resistance and will blind off the new filter bags very quickly (sometimes in a matter of hours). This premature overloading of the media will have a detrimental effect upon the new elements and result in a shortened operative life.

15. Filter Bag Operating Life

If a Dust Collector Pulse Sequence Timer is present it should be wired independently of the air flow fan to enable the pulsing of the filter elements to be continued for a period after shutting down of the Dust Collector fan so that when the fan is turned off, the Collector continues to pulse down for 5 to 10 minutes. This run-on of pulsing ensures removal of any residual dust cake, and prevents moisture or humidity causing any detrimental damage to the filter bags.

For any prolonged shut down period, and when filter bags are handling hygroscopic dusts, they should be removed, vacuum cleaned and dry stored to prevent any residual dust cake due to moisture or humidity causing any detrimental damage to the filter bags.

16. Filter Bags

Operating Life

Filter bags are usually effective for 12-18 months before requiring cleaning/laundering.

Filter bags can usually be laundered 2-3 times at decreasing intervals before requiring replacement.

Filter Sock Cleaning

◊ Soft Dry Brush and Vacuum
◊ Industrial Dry Clean (check with filter manufacturer)

17. Shut Down

The Dust Collector Pulse Sequence Timer should be wired independently of the air flow fan to enable the pulsing of the filter bags to be continued for a period after shutting down of the Dust Collector fan so that when the fan is turned off, the Collector continues to pulse down for 5 to 10 minutes. This run-on of pulsing ensures removal of any residual dust cake, and prevents moisture or humidity causing any detrimental damage to the filter bags.

For any prolonged shut down period, and when filter bags are handling hygroscopic dusts, they should be removed, vacuum cleaned and dry stored to prevent any residual dust cake due to moisture or humidity causing any detrimental damage to the filter bags.

18. Start Up

Prior to the start-up of a Filtercorp Sonic Pulse Dust Collector it is recommended and essential that a systematic and thorough check of the installation be undertaken.

- All Filter Bags are installed and sealed into the Cell Plate.
- All Blow Tubes c/w Sonic Nozzles are installed secured and aligned over Filter Element gas outlet at Cell Plate.
- All access covers, doors, inspection ports, and joints are shut and sealed to ingress of air.
- Test the Pulse system electrically to ensure that the Sequence Timer is operative.
- Air flow Fan is operative (direction of rotation).
- Ducting into Dust Collector, Ducting out from Dust Collector, connected.
- Waste product discharge shut.

Before starting the Dust Collector it is recommended that there be a means of:

- Measuring the Air flow through the Dust Collector.
- Measuring the pressure differential over the Filter Elements.
- Measuring the Fan absorbed power (Amps).

Start Procedure (Initial)

- Start air flow through Dust Collector (Minimal air flow utilising damper or a speed control).
- Measure the pressure differential over Filter Elements at Cell Plate.
- Start Pulse Sequence (to check operation).
- Open Compressed Air supply (to check supply of air).
- Shut Compressed Air.
- Operate Dust Collector at minimal duty to establish a dust layer upon the surface of the filter media.

Operational Procedures

- Start air flow through Dust Collector (Minimal air flow utilising damper or a speed control).

During start up with clean Filter Bags there will be very little resistance (Pressure differential) across the collector until a dust cake has built up on the filter media surface. Unless the fan is restricted the air flow through the Dust Collector will exceed the media recommended flow rate and have a detrimental effect on the filter media and thus shorten the operative life of the filter media.

It is recommended that when the dust to be collected is very fine and/or abrasive that the filter surface be artificially coated with a permeable cake to minimise the product fines being forced into the filtration material causing blinding of the filter media.

The artificial coating product is introduced onto the surface of the filter media at a reduced velocity until the pressure drop across the filter has increased to about 25 mm water gauge.

19. MONITORING PERFORMANCE

Monitoring of the filter elements is typically by daily visual observation of emissions and readings of the Differential Pressure Gauge by the Operator or Maintenance Engineer.

The nominal design pressure of a Dust Collector is 76 - 150mm Wg (3 - 4 in. Wg) Readings outside of this range may indicate a problem or potential problem.

19.1 Low Pressure Differential

Possible Cause

- Faulty Gauge
- Gauge connecting tube failure (blockage/leak)
- Gauge Sensor Outlet blockage
- Filter Element/Cell Plate seal failure
- Filter Element Media failure
- Low Air Flow through Dust Collector

19.2 High Pressure Differential

Possible Cause

- Faulty Gauge
- Gauge connecting tube failure (blockage/leak)
- Gauge Sensor Outlet blockage
- Filter Element Media Blinded
- High Air Flow through Dust Collector

19.3 Visible Dust Emission from Exhaust

Possible Cause

- Filter Element/Cell Plate seal failure (by-passing of Filter Media)
- Filter Element Media failure (by-passing of Filter Media)
- Insufficient Dust cake on Filter Media surface (dust penetrating Filter Media)

19.4 Excessive Filter Element Failure

Possible Cause

- Filter Element Failure (mechanical) to individual elements
- Filter Element Failure (decomposition)
- Blinding of Filter Media surface
- Change to dust being Filtered (size, material, etc.)

ATTENTION

As the Dust Collector may be fully or partially operational during monitoring or fault diagnosis of the equipment, the service personal undertaking the process must ensure at all times that all care is taken to eliminate or minimize injury or damage from Electrical, Mechanical, or Pneumatic components of the Dust Collector.

20. TROUBLE SHOOTING

20.1 Gauge / Gauge Tubing / Sensor Outlets

- Test Gauge by replacing Gauge with a Gauge of known reliability (temporary)
- Test and Check Gauge Tubing failure by fitting Gauge direct to Sensor Outlets
- Test and Check Gauge Sensor Outlets by fitting Gauge direct to Sensor Outlets

20.2 Filter Element / Cell Plate Seal

- Filter Element must seal into hole at Cell Plate
- (Leakage may be visual as a product dust streak on the cell plate, or the situation confirmed by introducing a fluro-tracing dust into the Dust Collector to indicate the leak point)

20.3 Filter Element Media

Abrasive damage may be caused by;

- Contact with other Filter Elements (air flow induced sway or circular movement)
- High Velocity Dust entering the Dust Collector
- Obstruction contact within the confines of the Filter Element

Mechanical damage may be caused by;

- Contact with other Filter Elements
- Obstruction contact within the confines of the Filter Element
- Prior to or after installation of the Filter Element into the Cell Plate Excessive pulsing of the Filter Elements
- (Leakage may be visual as a product dust streak, or by utilizing a fluro-tracing dust introduced into the Dust Collector to indicate the leak point).

20.4 Blinding of Filter Element Media

Blinding of the Filter Element Media can be the result of;

- Excessive air flow through the Filter Media
- Incompatibility of Filter Media and Dust Material
- Insufficient permeable cake build up on media during initial start-up
- Moist dust or air flowing into Dust Collector
- Heated dust or air flowing into Dust Collector
- Re-entrainment of dust after Pulsing of Filter Element

The airflow through the Dust Collector should NOT be greater than the original design flow to ensure that dust particles are not impinged (forced) into or through the filter media.

Excessive air flow through the Dust Collector may produce air velocities about the Filter Elements that could re-entrain the dust particles dislodged from the Filter Elements at each Sonic Pulse causing a concentrating accumulation of dust and thus increasing the probability of dust penetration of the filter media.

The filter media should be compatible with the dust particles that are to be captured onto the filter media surface to minimize penetration of the filter media.

Moist dust and/or air will cause caking upon the filter media surface and should be avoided whenever possible (momentarily moist flow blinding may be removed by subsequence operation of the Dust Collector under dry conditions).

Heated dust and/or air flowing onto cooler filter media will react similar to moist air if the dew point of the air entering is higher than the temperature of the filter media.

A permeable coating can be applied onto the Filter Element surface by introducing the coating (usually fine Lime dust) into the Dust Collector at the rate of 0.25 - 0.50 Kg / M^2 of Filter Media surface area.

Storage or accumulation of dust within the Dust Collector can increase the effective density of the dust loading on the Filter Elements and thus blinding due to over loading.

Confirmation of several of the malfunctions of the Dust Collector components requires specialist knowledge, experience or equipment.

FILTERCORP INTERNATIONAL LTD can supply this specialisation.

21. Preventative Maintenance Procedures

Daily –

Check pressure drop. (*Refer 21. Monitoring Performance*)

Observe stack (visually or with opacity metre). (*Refer 21. Monitoring Performance Item #4*)

Check for unusual occurrences in process. (*Refer 21. Monitoring Performance*)

Observe control panel indicators. (*It is suggested that an equipment logbook system be initiated and used to record all gauges and indicators. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Assure that dust is being removed from system. (*Plant/Machine Operators to carry out continuous Visual Inspection during normal operations*)

Check compressed air pressure. (*Refer 7. Compressed Air*)

Weekly –

Check compressed air lines, including line filters and dryers. (*Refer 22. Trouble Shooting Item #1*)

Check that valves are opening and closing properly in bag-cleaning sequence. (*Refer 24. Accessories and Equipment Item #4*)

Check pressure drop indicating equipment for plugged lines. (*Refer 22. Trouble Shooting Item #1; Refer 24. Accessories and Equipment Items #1, 2, or 3 depending on equipment supplied*)

Monthly –

Inspect fans for corrosion and material build up. (*Refer 24. Proprietary Equipment*)

Inspect and lubricate appropriate items. (*Refer 24. Proprietary Equipment*)

Spot check for bag leaks. (*Refer 22. Trouble Shooting Item #2, 3 & 4*)

Check hoses and clamps. (*Refer 27. Safety Precautions Item #2*)

Check accuracy of indicating equipment. (*Refer 22. Trouble Shooting Item #1*)

Inspect housing for corrosion. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Quarterly –

Inspect baffle plate for wear. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Inspect bags thoroughly. (*Refer 22. Trouble Shooting Item #2, 3 & 4*)

Check duct for dust build up. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Inspect paint, insulation etc. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Annually –

Check welds. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

Inspect hopper for wear. (*It is suggested that an equipment logbook system be initiated and used to record all visual inspections. By maintaining good records it is possible to detect potential problems and therefore carry out preventative maintenance before major shutdowns are necessary.*)

22. ACCESSORIES AND EQUIPMENT

22.1 Magnehelic Gauge

A Magnehelic Gauge accurately measures the pressure differential across the Filter Socks/ Elements.

22.2 Diaphragm Valves

The Diaphragm Valve delivers compressed air to the Sonic Nozzle located above each Filter Sock / Element.

The valve is normally closed and controlled by the timer sequence pilot valve.

The diaphragm valve may occasionally need the rubber diaphragm and body spring replacing. Ensure the spring is replaced between the diaphragm and the bonnet.

MODEL	DIAPHRAGM KIT
TBA	TBA

22.3 Explosive Vents

As a mixture of air and fine dust can be explosive a means of relieving the pressure generated by the ignition of the air/dust should be fitted into a Dust Collector. This is usually a rupture panel.

23. PROPRIETARY EQUIPMENT

The Dust Collector incorporates a number of components that are supplied to FILTERCORP INTERNATIONAL LTD by other companies.

FILTERCORP INTERNATIONAL LTD refers to these as Proprietary or Original Equipment Manufacturer (OEM) parts.

24. SAFETY STATEMENT

FILTERCORP INTERNATIONAL LTD is committed to supplying Equipment that ensures a safe working environment for your company.

However, safety also requires a continuous commitment to the proper use, operation and maintenance of all the equipment supplied.

It is important that operating and maintenance personnel be instructed in recognising hazards, and in the relevant safety procedures.

Staff should be encouraged to report any accident, no matter how minor, so that its effect on safety can be immediately assessed. The realisation that they could suffer injury is often a powerful incentive to their observance of this, but it would help if you, as the employer, can be seen to take notice of their reports and have serious faults rectified immediately.

FILTERCORP INTERNATIONAL LTD recommends that the guidelines contained within this section be implemented in regards to the supplied equipment.

As the customer, it is your responsibility to establish a maintenance program, which ensures that all equipment is kept in a safe condition.
All maintenance must be carried out by trained personnel.

Only trained Employees shall be permitted to operate equipment. Training shall include instruction in operation under both normal and emergency conditions.

25. SAFETY PRECAUTIONS

Following is a list of recommendations for your guidance and safety. These should be adhered to at all times.

Further, more specific, safety recommendations are listed at other relevant locations throughout this manual.

25.1 Confined Space Safety Procedures

Dust Collector Vessel

Persons entering these locations may be;

- Exposed to an oxygen deficient atmosphere.
- Exposed to the risk of engulfment by either the product, water, or another material.

(Note that a person whose upper body, or head, is within the confined space is considered to have entered that space).

The procedure should give due consideration to;

- Ensuring that the location is fully isolated from services, product, etc prior to entry.
- Ensuring that the atmosphere within the location is properly purged with fresh air prior to entry.
- Ensuring that the location is properly ventilated throughout with an adequate flow of fresh air whilst it is occupied.
- Ensuring that, where an adequate supply of fresh air to the occupant(s) of the location cannot be guaranteed, the occupant is equipped with appropriate personal protection equipment.
- Ensuring that occupants of the location are properly and continuously supervised by person (s) outside the location, and that adequate communication exists between the occupant and said supervision.

- Monitoring the atmosphere within the location whenever it is occupied.
- Ensuring that any adverse affect on the occupant of the location is made immediately apparent to the person(s) charged with the continuous supervision of the occupant.
- Ensuring that the occupant of the location can be immediately and quickly removed from the location, in an unconscious state if necessary, by person(s) charged with the continuous supervision of the occupant.

25.2 Risks Associated with Pneumatic Equipment

Hazards to personnel due to pneumatic component failures include;

- The release of compressed air.
- Whipping of disconnected tubing.
- The ejection of damaged or incorrectly fitted components.

Precautions to be adopted when working with or around pneumatic equipment;

- Always wear safety glasses.
- Ensure pneumatic equipment is isolated and tagged out prior to commencing maintenance work.
- Work to an appropriate "Air On" procedure, in which the compressed air is reapplied to the plant in a controlled and safe manner.

25.3 Suggested Compressed "Air On" Procedure;

- All isolation valves closed.
- Final connections between isolation valve and equipment should be disconnected to allow purging of the air lines.
- Purge the air lines.

Purging of the air lines is paramount to the reliability of the equipment.

Any contamination forced into equipment will cause problems, and possible equipment failures.

Do not purge air lines by blowing through solenoid valves, which have been energised or manually over ridden. This may cause contaminates to become lodged in the valve, resulting in a valve failure.

25.4 Compressed Air is Dangerous

It is important that all precautions and safety guidelines as stated in this manual are followed.

- Open each isolation valve and blow air to atmosphere, long enough to remove any contamination from the pipes. The time will depend on the length and size of the line.
- Reconnect equipment.
- Preset all regulators to 0-bars.
- Turn main supply - On - (Slowly).
- Check for leaks between the isolation valve and the regulator(s).
- Increase the pressure on the regulator to 1 bar.
- Check for and remedy any air leaks downstream along the remainder of the line.
- Increase all regulators to the pressure stated on the P & I diagram, and check again for leaks.

25.5 Mitigation of Risks Associated with the Creation of Potentially Explosive Dust/Air Mixtures

Many organic powders are capable of producing potentially explosive dust/air mixtures.

FILTERCORP INTERNATIONAL LTD has taken the following steps to minimise this risk.

- Provision of explosion venting panels in vessels deemed to be at risk.
- Provision of earthing Filter Socks / Elements at all potential static points.
- Provision of appropriate levels of protection for electrical equipment in high risk area.

The following points should be noted.

In order to minimise the risk of a secondary explosion being ignited in the room(s) in the event of an explosion within the equipment itself, good housekeeping practices should be maintained at all time. In particular, the accumulation of powder at any point within the powder handling area should be avoided.

Static earthing provisions should be inspected regularly to ensure that all static earth discontinuities are satisfactorily bridged.

26. OEM Equipment Items

The system incorporates a number of components that are supplied with the Dust Collector by other companies.

Follows is a List of OEM parts, for which the manufacturer has produced an Operating and Maintenance Manual, a copy of which is included in this manual.

- TBA