DUST COLLECTION
& SOURCE CAPTURE

Owner's manual for installation,
use and maintenance

MAXIFLO-MC™

INDEX

1 INTRODUCTION

This present manual refers to the MAXIFLO-MC dust collector equipped with an air pulse cleaning system. It includes important information concerning the installation, use and maintenance of your collector. Read this manual thoroughly and apply the directives and procedures. Staff and personnel using the system will have to trained on safety measures and maintenance instructions.

WARNING!

The use of the collector or the type of dust to be filtered may require an explosion relief venting system. Dust collectors are not equipped with such a device unless it was requested when ordered. Contact A.Q.C. Inc. if you have any doubt in regard to the use of your collector.
Not following directives and procedures could cause injuries or property damages.

2 INFORMATION ON THE MAXIFLO-MC DUST COLLECTOR

Model: _____ Serial number: _____

Delivery date: _____ Date of installation: _____

Name of customer: _____

Address: _____

_____

_____

Accessories: _____

Other: _____

3 PRESENTATION

The MAXIFLO-MC is a cartridge dust collector with an air pulse cleaning system which cleans the entire surface of filtration. The down flow type dust collector obtains high efficiency filtration while requiring low energy consumption. The cartridges are cleaned by means of a sequenced pulse of compressed air and this, one at a time.

The MAXIFLO-MC dust collector is largely used in areas where dust is a nuisance. Main applications are for welding, buffing, pharmaceutical operations, handling of volatile dusts, etc.

3.1 Each MAXIFLO-MC unit includes:

Fully welded steel cabinet with reinforcements.

- 1, 2 or 3, 4 or 6 filter cartridges with specific media for your application.
- Air deflectors to protect the cartridges from large debris.
- Cartridge cleaning system by air pulsation and electronic sequencer.
- Factory prewired cleaning valves.
- Differential pressure indicator showing the status of cartridges.
- 3 steps paint finish: degreasing, prime coat and polyurethane final coat.

The Maxiflo-MC unit is usually shipped assembled for final field assembly.

4 NORMAL USE

The MAXIFLO-MC unit is designed to remove dust from the air resulting from a fabrication process. Each MAXIFLO-MC dust collector is built as per the criteria and information supplied by the customer for a specific application and should not serve any other application without the approval of A.Q.C. Inc. supplied by the customer for a specific application and should not serve any other application without the approval of A.Q.C. Inc.

5 OPERATION AND PURPOSE

During normal operation, the MAXIFLO-MC unit vacuums dust laden air into the collector inlet. Smaller particles are vacuumed toward the cartridges and larger particles fall toward the dust storage section. Dust is trapped within the cartridge leaving clean air crossing the filter toward the collector outlet.

6 MODEL NUMBERS

Models	# Of cartridges	Filtration area SQ.FT. / SQ.MT	Max. Air volume CFM / LS	Max. HP / KW	Motor RPM	Weight lbs / kg	Air pressure required (Pulse cleaning)
DMC-01	1	260 / 24	600 / 285	1.50 / 1.10	1750 / 3500 (as per static pressure required)	870 / 370	60-80 PSI
DMC-02	2	520 / 48	1450 / 685	1.5-2.00 / 1.10-1.5		1080 / 490	
DMC-03	3	780 / 72	2200 / 1040	3.00-5.00 / 2.25-3.75		1210 / 550	
DMC-04	4	1040 / 97	3300 / 1557	3.00-5.00 / 2.25-3.75		1210 / 549	
DMC-06	6	1560 / 145	4400 / 2077	5.00-10.00 / 3.75-7.45		1400 / 635	

WARNING!

Flammable or explosive dusts and solvents present a fire or explosion hazard within the collector. Under no circumstances, be filtered by the collector unless it has been designed to that effect and equipped with an explosion relief venting system or fire extinguishing device. This is the reason why special attention is required with the handling or usage of dust collecting equipment in contact with flammable or explosive dusts and solvents. Any burning or flammable material such as a spark created by metal be introduced within the collector where it could cause a fire or explosion.

7 CARTRIDGE CLEANING

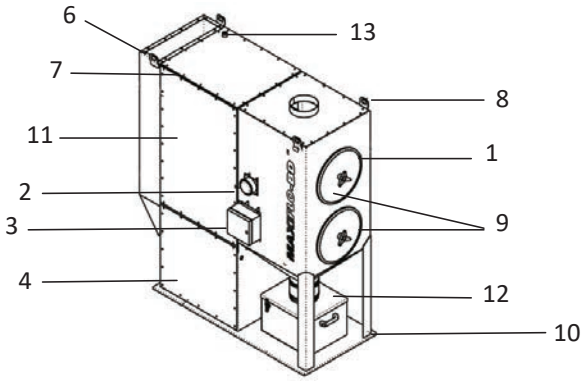
The cleaning of the filter cartridges is performed using a reverse air pulse technology (see figure 1). A solenoid and diaphragm valve system is aligned toward the cartridges and the shock wave created by releasing air at high velocity cleans the cartridges. The cleaning cycle starts from the upper cartridges and ends at the lower cartridges.

8 COMPONENTS

1. High efficiancy cartridges
2. Magnehelic pressure gauge for cartridge cleaning
3. Automatic control panel
4. Access door to pulse cleaning air tank, direct drive fan and venturi
5. Acoustic lining clean air outlet at rear of caninet

6. Dirty air inlet at front of cabinet
7. Lifting lug at each corner of cabinet
8. Access door to cartridges with quick turn knobs
9. Pre-drilled holes at each corner of unit support plate for floor anchors
10. 10 and 14 gauge steel cabinet with premium paint final coating
11. 15 gallon compact dust storage bin with grab handle
12. Dust container
13. Compressed air inlet

Figure 1



9 INSTALLATION

WARNING!

Installation of equipment must be performed as per local building laws and regulations. Structure must meet proper weight support of equipment.

9.1 Inspection of goods

The MAXIFLO-MC unit is usually shipped assembled. Proceed with a visual inspection upon receiving the material and check for any apparent damage that may have occured on freight. Generally, shipment includes the filter cabinet and the dust storage section with support structure. Other optional components such as blow back or back draft dampers may be delivered on separate skids.

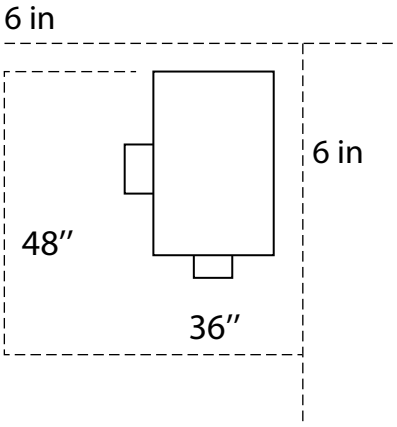
9.2 Location

1. The area where the dust collector will be installed should be able to sustain the weight of such along with the accessories, ducting, blower and matter that will be stored. The construction of a flat and solid surface such as a concrete slab or platform may be required.
2. Wind factor and seismic zones should be considered before selecting the location of the dust collector.
3. Position the dust collector in a way to have access to the control panel, cleaning valves, pneumatic conduits, access door to filters and dust storage systems as suggested in figure 1.
4. If the dust collector is equipped with an explosion relief venting system, follow NFPA guidelines for directives or contact AQC for instructions.

Note on explosion venting panels : a minimum clearance of 25' (8 meters) free of obstacles, pedestrian walkway, building walls, trees or bushes is required to allow dispersion of possible blast. Contact factory for details.

9.2.3 Clearance

Facing the access doors, the access to the blower, pulse components and control panel are as the left side, leave a minimum of 4'0' of clearance for maintenance on that side and another 4'0' in the front for maintenance on the cartridges.



WARNING!

The use of improper lifting device may result in injuries or damages. Adequate lifting devices are required and necessary precautions must be taken when handling the equipment.

10 ASSEMBLY AND INSTALLATION

10.1 Required tools

The following tools and equipment are required for the assembly of the dust collector:

- Crane or lift truck
- Spreader
- Chains
- Slings
- Shackles
- Eye bolts
- Spikes
- Wrench
- Sockets
- Power drill
- Concrete drill bit
- Concrete anchors
- Bolts
- Self tapping screws.
- Caulking

1. Prepare the area where the collector will be installed making sure it is clear and free of any obstacle. A 36" free work space around the collector should be planned for maintenance purposes.
2. Using eye bolts, slings and shackles, lift the unit above the selected area and set slowly on the floor.
3. Once this section is firmly set to the ground, make sure it is level. Anchor the unit into the ground to keep it in place.
4. Connect duct work on top of the filter cabinet.
5. If unit is installed outside, clean air outlet may be ducted to recycle clean air into the facility.

10.2 Electrical connection (pulse control panel)

The dust collector control panel regulates the cartridge cleaning system.

The dust collector control panel may be installed on the MAXIFLO-MC unit, inside or outside the building or remote of the unit.

1. Using the electrical diagram supplied with the panel, connect the power supply from the main breaker (supplied by the customer) to the control panel.
2. Refer to the descriptive identification plate to select proper voltage and amperage.
3. If the unit is supplied with a customized control panel, refer to the descriptive schematics to perform connection to the power supply.
4. Verify for proper motor rotation.

WARNING!

The electrical connection must be executed by a qualified electrician and with respect to codes and regulations. For safety measures, shut off power supply to the collector prior to perform the installation. Lock off any power supply prior to servicing or maintenance.

10.2.1 Electrical connection for DCT-500 sequencer (figure 3)

The MAXIFLO-MC unit is equipped with 115 VAC solenoids which activate the cleaning valves. Those solenoids are integrated in a NEMA 4/12 box behind the filter cabinet and above the air tanks. Connections for those solenoids are factory wired. The DCT-500 sequencer activates the solenoids in a cascading sequence operating the cleaning valves.

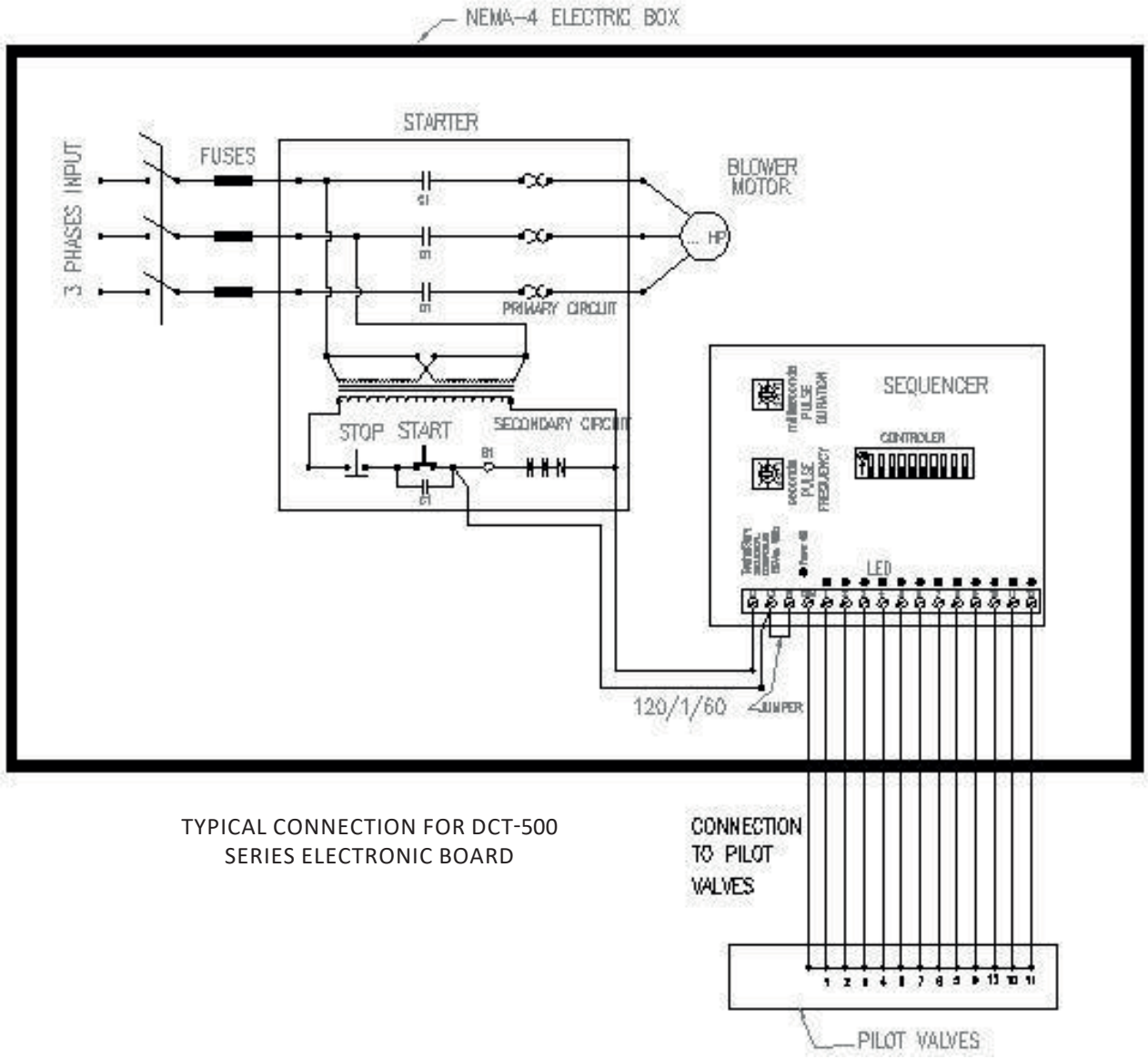
Figure 1 shows a typical connection for a DCT-500 sequencer with starter. The electronic board is activated upon fan start up using an auxiliary contact. The electronic board is fitted in a NEMA 4/12 box.

To activate the pulse cleaning system when the fan is OFF, install a selector or timer with constant feed on the inlet connector of the electronic board. **Refer to page 15 of this document to program the sequencer.**

10.2.2 DCT-500 board specifications

Number of connectors: 4, 6, & 10
Power: 102-132 VAC 50-60 Hz.
Consumption: 2.5 W.
Power to solenoids: 3A max. per connector
Fuses: Type 3 AG, 3 A @ 250 VAC.
Temperature range: -40 to 140°F (-40 to 60°C)
Shutter time: 50 msec to 500 msec.
Shutter time accuracy: ±10 msec.
Shutter time stability: ±1 msec.
Lapse sequence: 1 second to 180 seconds.
Lapse sequence precision: ±5% settings.
Weight: 9 oz (255 g).
Approval agency: CE (pending).

Figure 1



TYPICAL CONNECTION FOR DCT-500 SERIES ELECTRONIC BOARD

10.3 Electrical connection for DCT-1000 sequencer (figure 2)

The MAXIFLO-MC dust collector is equipped with 115V solenoids which activate the cleaning valves. These solenoids are grouped in a NEMA 4/12 panel installed behind the cabinet, above the air tanks. A differential control panel (DCP) may also be included on the electronic panel. Wiring for these solenoids is factory assembled. The optional DCT-1000 activates the solenoids in sequence to operate the cleaning valves. Figure 2 represents a typical connection with a starter to a DCT-1000 sequencer card. The electronic panel is activated simultaneously with the fan start-up. This operation will regulate the pulsation required as per the status of the filters.

10.3.1 DCT-1000 board specifications

DCT-1000 controller:

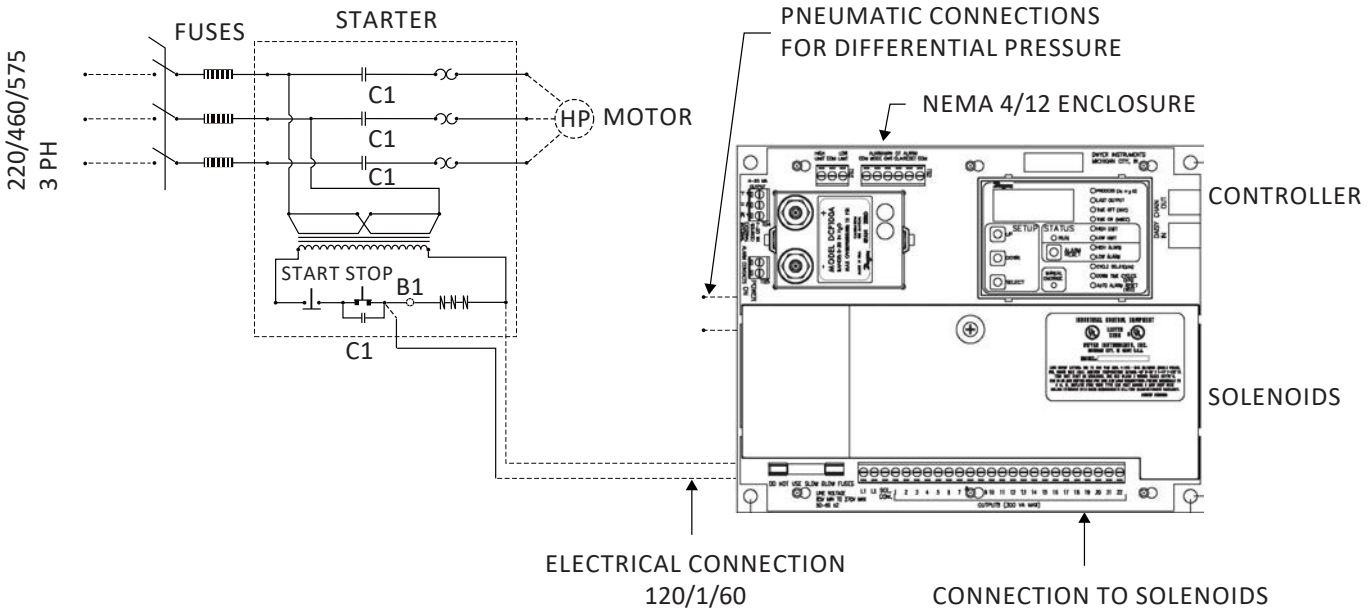
Number of connectors: 6, 10 & 22
Extendable to 255 connections by using extension card DCT-1122 & DCT-1110
Power: 85-270 VAC, 50-60 Hz.
Consumption: 5 W.
Power to solenoids: 3A max per connection.
Fuses: 3 A @ 250 VAC.
Temperature range: -40 to 140°F (-40 to 60°C).
Shutter time: 10 msec to 600 msec.
Shutter time accuracy: ±10 msec.
Down time: 1 second to 255 seconds
Down time accuracy: ±1% of setting
Weight: 1 lb, 3.0 oz (538.6 g).
Approval agency: UL, cUL.

DCP pressure module:

Pressure range: 10» w.c. ou 20» w.c.
Temperature range: -40 to 140°F (-40 to 60°C)
High pressure: 10 psig (68.95 kPa).
High pressure (differential): 10 psig (68.95 kPa)
Accuracy: ±1.5% F.S. @ 73°F (22.8°C).
Outlet signal: 4-20 mA.
Weight: 5.5 oz (155.9 g).

DCP PRESSURE MODULE

Figure 2



TYPICAL CONNECTION FOR DCT-1000 SEQUENCER

11 COMPRESSED AIR CONNECTION

WARNING!

Compressed air must be free of oil and humidity.
Contamination of compressed air may result in a poor cartridge filtration, decreased cleaning and reduced life time.
Purge the compressed air line to remove any debris prior to connecting air line to the dust collector air tank.
Shut off the compressed air system and purge all air lines prior to servicing or maintaining the collector.

- The pneumatic air tank is integrated into the MAXIFLO-MC dust collector.
- Compressed air connection is located on top of the unit. Check for possible leak(s) when connection is complete (see page 6, components).

Note : The use of an air dryer is strongly recommended to avoid any problem related to humidity in the compressed air system. Install a shut off valve, pressure regulator and filter on the compressed air line. Those components are not supplied by A.Q.C. unless required by the customer.

All components must meet a maximum 90 psig pressure. NEVER ALLOW MORE THAN 100 PSIG. Damages to components may occur.

12 VENTILATION DUCTING

- The dust collector should be installed as close as possible to the source of dust in order to minimize the length of ventilation ducting.
- Do not install short radius elbows.
- Install taps with 30 degrees inlet or less.
- Do not install straight T taps.
- Join ducting using tapping screws and caulking for a proper seal.

13 START UP

13.1 Check list

Prior to starting the collector for the first time, the check list must be followed to ensure a proper continuous operation.

1. Remove all objects in and around the inlet and outlet.
2. Check if all accessories and optional equipment are installed correctly.
3. Ensure the compressed air gauge indicates 90 psig. Check for air leaks.

14 ELECTRICAL CONNECTIONS (FAN AND MOTOR)

WARNING!

The electrical connection must be executed by a qualified electrician and with respect to codes and regulations. For safety measures, shut off power supply to the collector prior to perform the installation.

1. Electrical connections to the control panel.
2. Ensure all electrical connections are sealed and power is available.
3. Check remote control connections (if any) and that all breakers are OFF.
4. Switch ON power to the unit.
5. Start the fan and shut off immediately. Check fan rotation. The rotation is indicated on the label of the fan.
6. Adjust the adequate air volume using the air damper (if any).

14.1 Magnehelic gauge

The Magnehelic is a differential pressure gauge used to measure the difference between the clean and dirty air. This allows a visual reference on the filters status and indicates when it is time to replace.

This gauge is generally factory installed unless under specific request to A.Q.C.. If the Magnehelic gauge is not part of the collector, connect the **(HIGH-PRESSURE)** tube on the **"dirty"** side of the collector. Connect the other **(LOW-PRESSURE)** tube on the **"clean"** side of the collector. This gauge is not available when the collector is supplied with a DCT-1000 electronic board and a DCP pressure module since it is this one that will read the pressure differential.

14.2 Shut down

To shut the system down, follow these steps. Cut power to the fan. Shut off compressed air to unit and sequencer. Close inlet and outlet dampers in order not to have dirty air back into the collector and avoid risks of explosion.

14.3 Spark producing activities

When the dust or particles to be collected are stocked within the collector or adjacent equipment, there should be no welding process or any other spark or flame producing activities around the collector until the system has been shut down and cleaned. If such operations have to be performed, the filter elements have to be removed from the collector and stored in a dry area.

15 MAINTENANCE

WARNING!

Refer to the Safety section prior to proceeding with any maintenance or inspection on the dust collector.

A preventive maintenance program should dismiss most emergency shut downs and extend the expected life time of the system. The maintenance charts contained in this chapter explain the maintenance operations and procedures in case of problems with the system.

The schedules and delays in between operations may be modified with conclusive experiments or with a specific usage of the collector.

If you have any questions, do not hesitate to call an A.Q.C. Inc. representative.

15.1 Cartridge replacement

The life expectancy is limited by it's resistance to the particles to be filtered and will require periodical replacements.

However, should a cartridge tear or fail, replacement should be performed as soon as possible.

Before replacing the cartridges, shut the fan OFF, shut power OFF to the sequencer and all related components. Lock the breaker in the electrical board. Compressed air feeding the the tank must be shut OFF and tan must be bled.

Maintenance staff should wear adequate protective cothing and eye wear and breathing apparatus is suggested. Purge the unit of all gases. Ensure no air is moving within the unit and interior temperature is safe to perform maintenance procedures.

Follow theses steps to remove the cartridges.

WARNING!

The use of safety equipment and adequate protection is needed for the changing of cartridges. The dirty cartridges may be heavier than expected. Use caution when removing the cartridges to avoid injury. Do not drop the cartridges.

1. Remove the cartridge round access door by unscrewing the knob. Ensure that you do not damage the rubber gasket seal around the access door. Start this procedure from the top row of cartridges.
2. Slowly twist the cartridge half a turn to remove the deposit of dust that could be on top of the cartridge.
3. Gently slide out the cartridge along the yoke and out of cabinet.
4. Disposal of dirty cartridges must be done according to environmental regulations.
5. Check for any excessive dust accumulation in the hopper and clean if necessary.

Follow these steps to install the new cartridges.

1. Ensure that you have the same cartridges as originally installed in the collector.
2. Slide the cartridges onto the support yokes. Ensure cartridge is pushed all the way in. Check for the integrity of the cartridge seal.
3. Install the access door back onto the cabinet making sure the rubber gasket seal is well attached. Screw the knob in and assure all components are sealed
4. Switch power and compressed air system back on before starting the unit.

15.2 Dust disposal

Shut down the system and empty the dust storage bin as needed to minimize the accumulation of dust in the hopper.

15.3 Compressed air system

WARNING!

Refer to the Safety section prior to proceeding with any maintenance or inspection on the dust collector.

1. Periodically check the compressed air components such as the air dryer and regulator. Replace in line air filters feeding compressed air to the unit.
2. Remove any humidity that may be present in the compressed air lines using the recommendations of the manufacturer.
3. With the compressed air system switched on, check the cleaning valves, the activating solenoids, pneumatic hoses and possible leaks. Correct any problem and replace defective parts.

15.4 Programming instructions DCT-500 sequencer

The card programming was factory adjusted. The valves opening time is set at 100 msec and the delay between each opening is set at 10 seconds.

Should those delays be modified for any reason, adjust the potentiometers located at the top of the electronic board. **"PULSE ON"** represents the opening time and the **"PULSE OFF"** represents the delay in between each cleaning sequence.

Refer to the manufacturer's owner's manual for any questions concerning the DCT-500 sequencer.

Note : Do not readjust the valves opening time **"PULSE ON"** or the delay between each cleaning until appropriate tests have been made. A too short or too long delay could reduce the life expectancy of the filters. Contact your A.Q.C. representative for questions.

15.5 DCT-1000 sequencer

The card programming was set at the factory. The valves opening time was set at 100 msec and the delay set at 10 seconds. Furthermore, if the electronic card was supplied with a pressure module, other parameters may be programmed such as low and high pressures, pulse connectors, etc.

Should those delays be modified for any reason, adjust them as per the following instructions:

Press the **"select"** button to scroll the different programming options. Press **"UP"** and **"DOWN"** buttons to modify the value.

1. **"LAST OUTPUT"** sets the amount of valves the system uses.
2. **"TIME OFF"** sets the delay in between each pulse.
3. **"TIME ON"** sets the valve opening time.
4. **"HIGH LIMIT"** sets the highest limit at which the sequencer will start pulsing (available only with the DCP pressure module).
5. **"LOW LIMIT"** sets the lowest limit at which the sequencer will stop pulsing (available only with the DCP pressure module).
6. **"HIGH ALARM"** and **"LOW ALARM"** are adjustments for an alarm signal to be activated if either of the two (2) settings is passed.
7. **"CYCLE DELAY"** allows a waiting period between each cleaning cycle.
8. **"DOWN TIME CYCLE"** allows one or more cleaning cycles after the shutdown of the system.
9. **"AUTO ALARM RESET"** allows the original automatic alarm settings.

Refer to the manufacturer's owner's manual for any questions concerning the DCT-1000 sequencer.

Note : Do not readjust the valves opening time **"PULSE ON"** or the delay between each cleaning until appropriate tests have been made. A too short or too long delay could reduce the life expectancy of the filters. Contact your A.Q.C. representative for questions.

16 MAINTENANCE AND INSPECTION

The chart indicated below shows different inspections and the frequency at which they should be performed.

Frequency of inspections	Components	Procedures
Daily	Dust collector	Check the clean air outlet for possible presence of dust or smoke traces.
		Check the level of dust in the storage bins or drums. Empty if needed.
		Check the proper operation of the diaphragm valves.
	Magnehelic gauge	Check and log data. If the values indicated are above the fixed limits, refer to the troubleshooting section.
Weekly	Filters	Check for possible leaks. Repair if necessary.
		Ensure the cartridges are well sealed.
		Look for accumulation of dust or debris above and inside the filters. Clean if necessary.
Yearly	Dust collector	Perform a complete inspection of the collector and its components.
		Check the status of the cartridges and the filtration efficiency. Replace if necessary.
		Check for missing or chipped paint and rust. Remove rust and apply paint touch ups.
		Check fasteners supporting the unit.

17 TROUBLESHOOTING

Problem	Probable cause	Solution
Dust or smoke at the clean air outlet	Cartridges are not installed correctly.	Check installation of cartridges and repair if necessary. Seal the whole assembly (Refer to the replacement cartridge section on page 14).
	Cartridges are not adjusted	Screw in tight in order to have the gaskets squeezed against the frame.
	Cartridges are damaged	Replace defective filters (Refer to the replacement cartridge section on page 14).
	Gaskets are damaged	Check the gaskets on the access doors, honeycomb plate, and on the filters.
Insufficient suction of dust.	Fan rotates the wrong way	Check rotation of fan.
	Access doors are not properly sealed	Check all access doors and gaskets. Also check hopper for leaks. (Refer to installation on page 7)
	Fan has obstructions	Check for obstructions at the fan outlet. Remove any debris. Adjust the air damper.
	Cartridges need to be replaced	Remove and replace the used cartridges with the same type of cartridges. (Refer to cartridges replacement section on page 14)
	No pressure in air system	Ensure there is a minimal 90 psig in the system. (Refer to eletrical connection on page 9)
	Air pulse cleaning is insufficient.	Check if voltage output to the sequencer is sufficient. Check and change fuse(s) if required. (Refer to electrical connection on page 9)
	Leaks in the com-pressed air system	Make sure power is fed to the transformer. Check wiring on light kit hood mounted switch.
	Leaks in the com-pressed air system	Lock all electrical breakers hooked up to the dust collector and bleed the pneumatic lines. Check for debris, wear and tear or a break in the diaphragm valve by removing the cover. Check for possible leaks at solenoids near the pneumatic hoses. Replace if necessary.

Problem	Probable cause	Solution
Insufficient suction of dust.	The sequencer card does not respond	Check if voltage output to the sequencer is sufficient. Check and replace the fuse if required. If voltage and fuse are working and card still does not respond, change the card. (Refer to card connection on page 9)
Filtration has minimal effect.	Air pulse cleaning is insufficient.	Check if voltage output to the card is sufficient. Check and replace fuse if required (refer to card connection diagram on page 10-11)
	Shortage of compressed air	Ensure there is a minimal 90 psig in the system. (Refer to eletrical connection on page 12)
	Valves do not work properly	Lock all electrical breakers hooked up to the dust collector and bleed the pneumatic lines. Check for debris, wear and tear or a break in the diaphragm valve by removing the cover. Check for leaks at the solenoids and on the pneumatic hoses. Replace and repair all damages. If the valves are frozen, check the air dryer or install a heating element around the valves.
	Wrong adjustment in pulsation sequence	Check for cleaning delay and duration are adequate. (Refer to sequencer card adjustment on page 15)
	High level of humidity loads the filters	Check for relative humidity in the collector. Check for leaks. Take necessary measures to lower the humidity level.
	Wrong filter material	Replace the filters as per the recommendations of A.Q.C. Inc.
	Temperature of gas filtered is higher than anticipated	Check for temperature of gas. Improve the situation to obtain appropriate temperature.
	Presence of static electricity in collector	Ground collector and components
Cleaning cycle light is ON but nothing happens.	Solenoids are not wired properly	Check wiring between sequencer card and solemoids.
	Defective solenoids	Check if solenoids work properly
	Defective sequencer card	Check if sequencer card is defective by following the manufacturer's recommendations.
The alarm light is ON (DCT-1000)	Alarmvalue is too low	Adjust to a higher value
	Too much pressure loss	Check and clean compressed air system. Replace cartridges if normal pressure does not resume to normal
	The pneumatic data hose is unplugged, broken or clogged.	Check the pneumatic hoses connected to the DCP pressure module for any leak or tear. Replace if necessary.

18 WARRANTY

18.1 ***Coverage:*** Aireau Quality Control Inc. or its designated affiliate (the "Seller") selling the product (the "Product"), warrants that the Product sold by Seller will be free from defects in material and workmanship for a period of 12 months from the date of its installation or 14 months from the date of shipment by Seller, whichever date is earlier (the "Warranty Period").

18.2 ***Exceptions:*** This warranty does not apply to any Product or portion thereof that: (i) has been used in a manner not in compliance with Seller's or manufacturer's documentation and instructions, (ii) has had changes, alterations or repairs made by a person other than a person authorized by Seller, (iii) has been improperly installed or used or has been installed or used contrary to applicable codes, standards, laws and regulations, (iv) has been subjected to improper storage, accident, neglect, misuse or abuse, (v) has been damaged during shipping, (vi) has been subject to damages resulting from normal wear and tear, (vii) has not been used with appropriate fire protection systems or explosion venting when required or (viii) has not been installed by a licensed contractor with experience in fire and explosion hazards and applicable codes, laws and regulations . For greater certainty, this warranty does not apply to filters sold as part of, or for use with, the Product. Unless specifically accepted otherwise in writing by Seller, Seller does not warrant that electrical equipment will comply with any laws or regulations of the customer's jurisdiction.

18.3 ***Claims:*** To benefit from this warranty, customer must notify Seller in writing of the Product defect, which notice shall include a reasonable description of the defect, within 10 days from the date such defect is discovered or ought to have been discovered.

18.4 ***Remedy:*** During the Warranty Period and subject to the terms herein, Seller will, at its option, either: (i) repair or replace the Product or any defective parts or components (except for filters) with Product, parts or components (except filters) free from defect or (ii) credit or refund the purchase price of the Product. If Seller so requests, customer must return the defective Product to Seller's place of business determined by Seller. Shipping, installation, removal and re-installation costs will be solely borne by the customer. **The foregoing shall be customer's sole and exclusive remedy for any defect in the product, its parts and components and for any breach of the warranty herein.**

18.5 ***Disclaimer:*** **Except as set forth in this section 1, each of seller, its affiliates and their directors, officers, subcontractors and representatives (the "seller parties") disclaims all representations and warranties, whether written, oral, express, implied, statutory, or otherwise, including all implied warranties of merchantability, quality, fitness for a particular purpose, non-infringement, and warranties arising from a course of dealing, course of performance, usage, or trade practice and customer hereby expressly waives any right related thereto. Without limitation to the foregoing and except as expressly set out herein, the seller parties do not represent or warrant that: (a) the use of the product will be timely, uninterrupted or operate in combination with any other hardware, software, system or data or (b) the product will meet customer's intended use, requirements or expectations.**

19 LIMITATION OF LIABILITY

19.1 ***Limitation of Liability:*** **Notwithstanding anything to the contrary, in no event will the seller parties' liability arising out of, or related to, the product or its parts and components, whether pursuant to contractual or extracontractual liability, tort or under any other theory of liability, exceed the price paid to seller for the product giving rise to such liability.**

19.2 ***Exclusion of Consequential and Similar Damages:*** **Notwithstanding anything to the contrary, in no event will the seller part ies be liable for any indirect, punitive, special, exemplary, incidental, consequential or other similar damages of any type or kind (including loss of revenue, profits, use or other economic advantage, damages due to product failure, work stoppage or delays in delivery) arising out of, or in any way connected to, the product or its use, breach of contract, tort (including negligence), strict liability, product liability, or otherwise, regardless of cause, even if the seller parties had previously been advised of the possibility of such damages or could have reasonably foreseen them.**

19.3 ***Fire and Explosion and Acceptance of Risk:*** Customer acknowledges that improper installation or use of the Product may result in fire or explosion. To minimize such risks, proper installation, operation, and maintenance of the Product in accordance with all applicable codes, standards, laws and regulations is critical. Prior to installation and use, customer shall ensure that the Product meets the applicable codes, laws and regulations, including those related to the addition of appropriate fire protection systems or explosion venting. Installation shall be performed by a licensed contractor with experience in fire and explosion and applicable codes, laws and regulations.

20 APPLICABILITY

20.1 The terms herein constitute the only warranty given by Seller with respect to the Product. No other terms and conditions, whether included on a purchase order or in any other document, shall apply or bind the Seller with respect to the Product warranty and all such terms and conditions and documents are expressly disclaimed.

21 GOVERNING LAW

21.1 These warranty terms will be governed by and construed under the laws in force in the Province of Ontario, Canada, excluding its conflict of law rules.