CARTRIDGE DUST COLLECTOR SYSTEM
FILT-AIRE 20DC

OPERATION'S MANUAL

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REVIEW THIS MANUAL BEFORE OPERATING THE DUST COLLECTOR SYSTEM

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GENERAL INFORMATION AND INSTALLATION INSTRUCTIONS

1.1 EQUIPMENT VIEW AND IDENTIFICATION

SPECIAL INFORMATION ABOUT THE CARTRIDGE DUST COLLECTOR SYSTEM

Each Dust Collection System is built with standard equipment options, but also can be built with specific customized features. Therefore, some of the information described in this manual may not apply to your particular equipment.

Dust Collector System

MODEL: FILT-AIRE 20DC **SERIAL:** DCS-200??

This unit has the following Customized Features:

- ☐ Standard Equipment Options
- ☐ Premium Efficiency Motor, 100HP Premium Electric IEEE Motor
- ☐ 100HP Rated Motortronics Soft Starter, NEMA 4X
- ☐ 100 VA Extra Capacity Transformer
- ☐ Visible Blade Main Disconnect, NEMA 4X
- ☐ Rain Guards over NEMA 4X Enclosures
- ☐ Instrument Panel Access Ladder
- ☐ Run Light, Start/Stop Push Button, Filter Switch
- ☐ Discharge Silencer, 84 DBA @3FT.
- ☐ HDBI-360 Fan, 16" WG, Direct Drive, 3 Blade Damper
- ☐ Damper Control Low Mount
- ☐ (3) 18" Flanged Inlet Backdraft Dampers
- ☐ 14 Head Internal Filter Sprinkler System
- ☐ UX-NANO MERV 14 Rated Filter Cartridges
- ☐ 4 Point Certified Lift Cage, 6" x 12" Fork Tubes

1.1 EQUIPMENT VIEW AND IDENTIFICATION

REVIEW THIS MANUAL BEFORE OPERATING THE DUST COLLECTOR SYSTEM

MODEL #: FILT-AIRE 20DC

SERIAL #: DCS-200??

IDENTIFICATION LABEL LOCATION

THIS MANUAL SHOULD BE KEPT NEAR THE EQUIPMENT FOR FUTURE REFERENCE.

IMPORTANT SAFETY INSTRUCTIONS!!

When using The Dust Collection Equipment, ALWAYS follow basic safety precautions, including but not limited to the following:

WARNING! This equipment weighs 12,500lbs (empty). Caution must be used in lifting and transporting. 10% unexpected growth (13,750lbs)

WARNING! This equipment is 10' 6" in height, while in the stowed position.

****** Caution MUST be used for Overhead Clearances during Transportation******

WARNING! It is recommended that ALL Owners/Operators and Personnel working with The Dust Collection System read and understand this manual prior to operating the equipment.

WARNING! This manual should be kept near The Dust Collector System for future referencing.

WARNING! ALWAYS use Proper Protective Equipment (PPE) when Operating or working near Dust Collection Equipment. Protective Footwear, Hearing Protection, and Safety Glasses are all recommended for during Operations.

****ALWAYS follow OSHA's State and Federal Guidelines.*

WARNING! ALWAYS lift or transport unit in the stowed position, making sure all telescoping legs are properly pinned. While adjusting telescoping legs, use caution keeping hands and fingers clear of Pinch Point Hazards. Pinch Points can cause serious personal injury.

WARNING! When setting up for operation, make sure the unit is set-up on a solid level surface. If surface conditions are not level or solid, take proper precautions with planks or plywood for a more secure and safe work area.

WARNING! Make sure ALL telescoping legs bear weight and are properly pinned. Skid style Dust Collectors are considered a Crushing Hazard. NEVER adjust telescoping legs while standing under.

WARNING! Read and follow all safety and warning labels located on the equipment. Keep in good condition and replace damaged or missing labels accordingly. Replacements are available from the manufacturer.

WARNING! ALWAYS be prepared for Emergencies! Have phone numbers and first aid items readily available and know your Emergency Action Plan.

WARNING! DO NOT operate equipment without proper guards or protective parts in place. Failure to do so could cause serious personal injury, death, or property damage.

WARNING! ALWAYS disconnect and lock out tag out power prior to performing any maintenance on The Dust Collector System.

WARNING! DO NOT operate equipment if dust is visible from fan discharge. Shut down unit and contact manufacturer if dust is visible.

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****ALWAYS following OSHA's State and Federal Guidelines.**

WARNING! Work in well-ventilated areas and DO NOT use Dust Collector on explosive materials and/or gases.

WARNING! ALWAYS empty the Collection Hopper(s) and take the proper steps to clean and dispose of the waste.

*****ALWAYS following OSHA's State and Federal guidelines.**

WARNING! NEVER lift or transport The Dust Collector System with the collection hopper full. Dust Collector should ONLY be lifted or transported while collection hopper is **EMPTY**.

WARNING! NEVER transport The Dust Collector System while Instrument Panel Access Ladder is out of the stowed position.

WARNING! ONLY authorized personnel should open the Electrical Enclosure.

WARNING! ALWAYS disconnect the power source before opening or servicing the Electrical Enclosure. High voltage inside can cause severe personal injury or death.

WARNING!

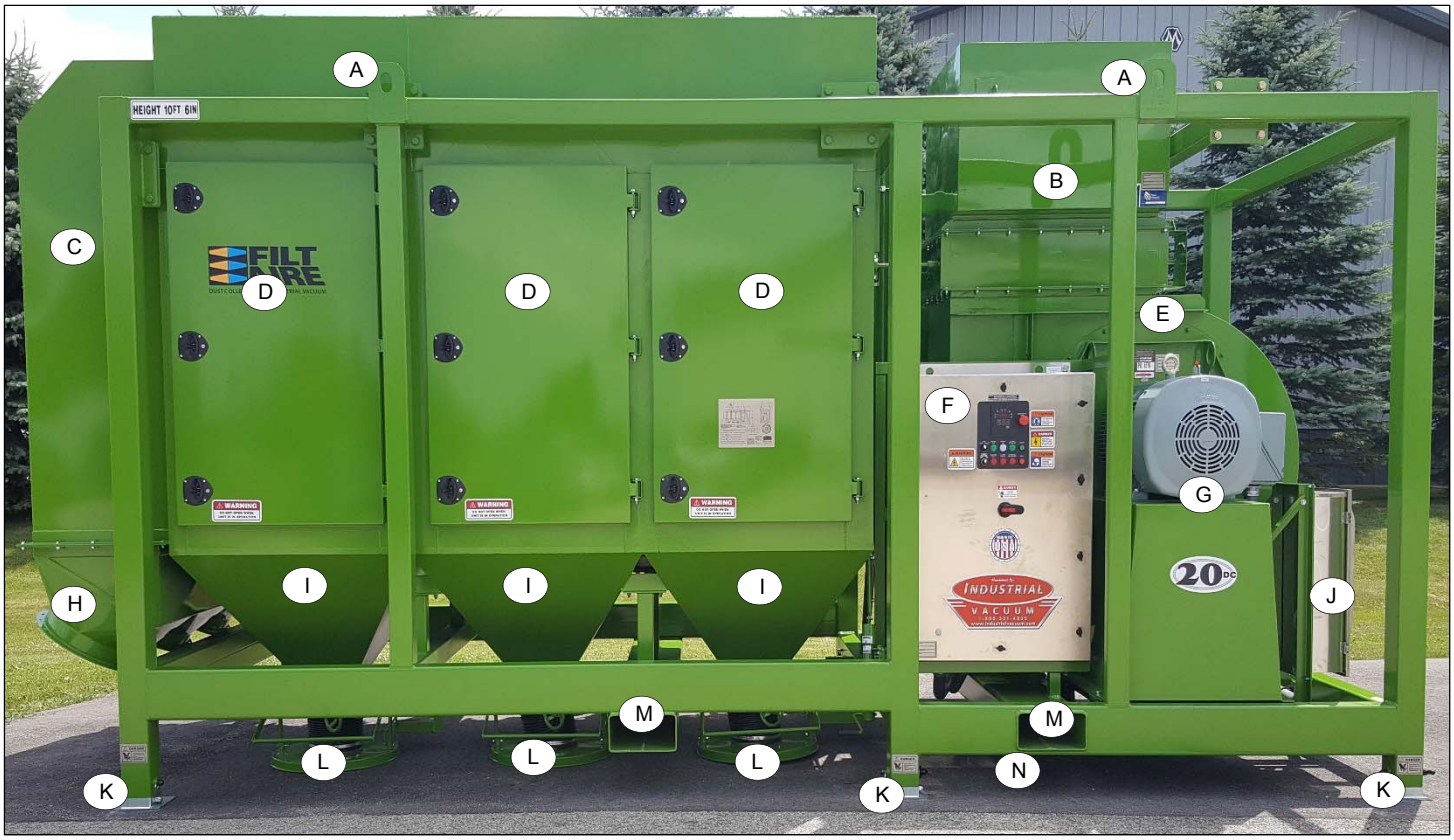
This manual contains important materials for the Owner(s) and/or Operator(s) to know and understand. The information in this manual relates to Protective Personal Safety and The Prevention of Potential Equipment Problems. It is the responsibility of the Owner(s)/Operator(s) to inform anyone working in the area of this equipment and these safety guidelines. To help distinguish this information, use the pictures and definitions throughout. Please read this manual paying attention to these sections.

Failure to read this manual and its safety instructions is considered misuse of equipment and could lead to serious injury, death or equipment damage.

SAVE THESE INSTRUCTIONS!!!

1.1 EQUIPMENT VIEW AND IDENTIFICATION

"View #1- Instrument Panel & Filter Access Door Side"



Key	Identification	Remarks
A	Lift Eyes	(4)
B	Silencer	
C	Inline Back Draft Damper Transition	(3) Rubber Gasket
D	Filter Housing Access Doors	(3)
E	Fan Housing	
F	Instrument Panel	NEMA 4X, Stainless Steel
G	Electric Motor	Vibration Spring Mounted
H	Inlet Hose Connections	(3) 18" Diameter Flanged
I	Collection Cone Area	(3)
J	Visible Blade Safety Switch	NEMA 4X, Stainless Steel
K	Telescoping Legs	(6)
L	Adjustable Drum Cover	(3)
M	Fork Lift Pockets	(2) with (4) Openings
N	Instrument Panel Access Ladder	Shown in the Stowed Position

1.1 EQUIPMENT VIEW AND IDENTIFICATION

"View #2- Visible Blade Safety Switch Side"

Key	Identification	Remarks
A	Silencer	
B	Fan Damper Manual Lever Indicator	OPEN/CLOSE
C	Fan Transition Inlet	
D	Electric Motor	Vibration Spring Mounted
E	Fan Housing	
F	Boltable Fan Access Area	
G	Visible Blade Safety Switch	NEMA 4X, Stainless Steel
H	Telescoping Legs	(6)

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"View #3- Air Manifold Side"

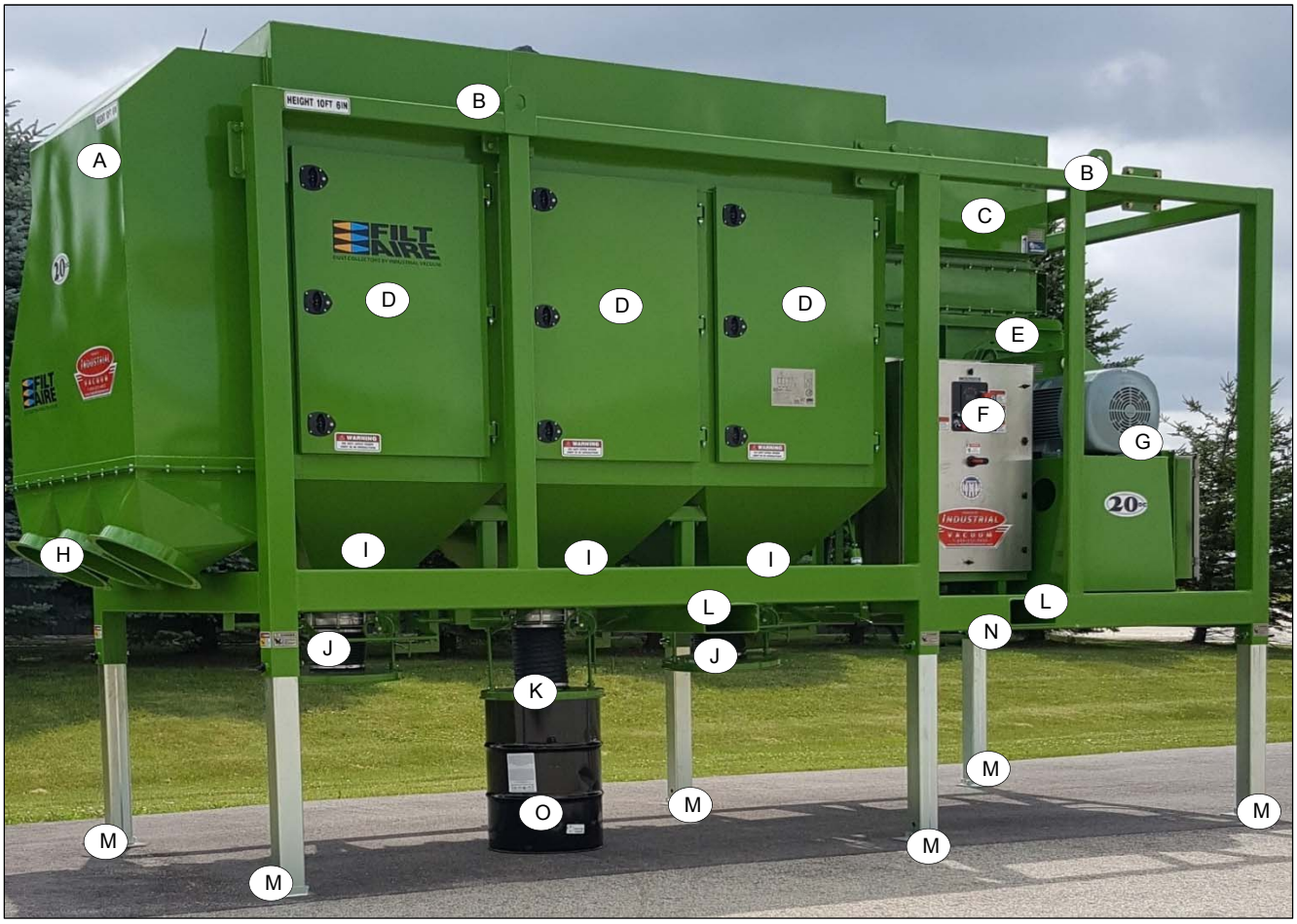
Key	Identification	Remarks
A	Silencer	
B	Lift Eyes	(4)
C	Air Manifolds	(3)
D	Fan Transition Inlet	
E	Magnehelic Gauge	
F	Regulator w/ Ball Valve (Air 'IN' Connection)	Lock- Out
G	Filter Pulsing Enclosure	
H	Inline Backdraft Damper Transition	(3) Rubber Gasket
I	Collection Hopper Area	(3)
J	Fork Lifting Pockets	(2) with (4) Openings
K	2 ½" NPT Water Connection	Brass w/ Cover & Lanyard
L	Adjustable Drum Cover	(3)
M	Telescoping Legs	(6)
N	Air Manifold Drain Valves	(3) Lock- Out

1.1 EQUIPMENT VIEW AND IDENTIFICATION

"View #4- Inline Backdraft Damper Transition Side"

Key	Identification	Remarks
A	Lift Eyes	(4)
B	Air Manifold	(3)
C	Filter Housing Enclosure	
D	Inline Backdraft Damper Transition	(3) Rubber Gasket
E	Filter Pulsing Enclosure	
F	Inlet Hose Connections	(3) 18" Diameter Flanged
G	Telescoping Legs	(6)
H	Fork Lifting Pockets	(2) with (4) Openings
I	Adjustable Drum Cover	(3)

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Lifted View with 55-Gallon Drum"

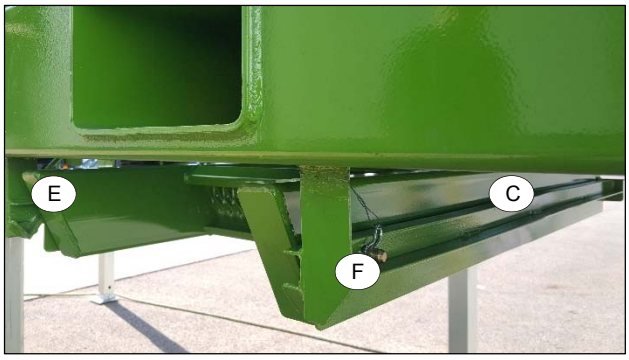


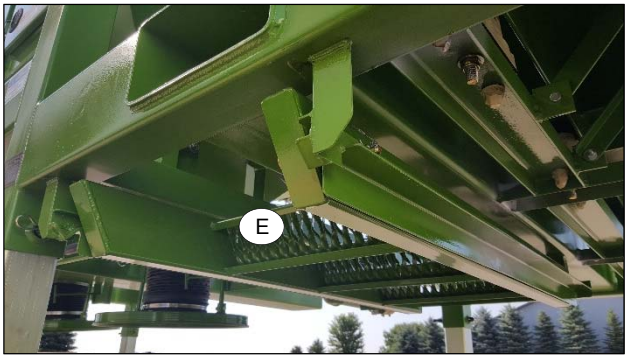
Key	Identification	Remarks
A	Inline Backdraft Damper Transition	(3) Rubber Gasket
B	Lift Eyes	(4)
C	Silencer	
D	Filter Housing Access Doors	(3)
E	Fan Housing	
F	100 HP Soft Start	NEMA 4X, Stainless Steel
G	Electric Motor	Vibration Spring Mounted
H	Inlet Hose Connections	(3) 18" Diameter Flanged
I	Collection Cone Area	(3)
J	Adjustable Drum Cover	Shown in DISCONNECTED and LOCKED Position
K	Adjustable Drum Cover	Shown in CONNECTED and LOCKED Position
L	Fork Lifting Pockets	(2) with (4) Openings
M	Telescoping Legs	(6) Shown as LIFTED
N	Instrument Panel Access Ladder	Shown in Stowed Position
O	55-Gallon Drum	

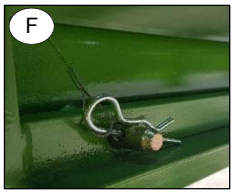
1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Instrument Panel"

Key	Identification	Remarks
A	100 HP Soft Start	NEMA 4X, Stainless Steel
B	Stainless Steel ID Name Plate	
C	LED Digital Display	Hour Meter/Fault Codes
D	Emergency Stop Button	Push/ Pull
E	Local ON/OFF Remote	
F	Motor Run Light	Green LED
G	Power On Light	White LED
H	Across the Line Enabled Light	Green LED
I	Green Start Button	
J	Filter Pulsing ON/OFF Switch	
K	Soft Start Fault Light	Red LED
L	E-Stop Fault Light	Red LED
M	External Interlock Light	Red LED
N	Red Stop Button	

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Instrument Panel Access Ladder"





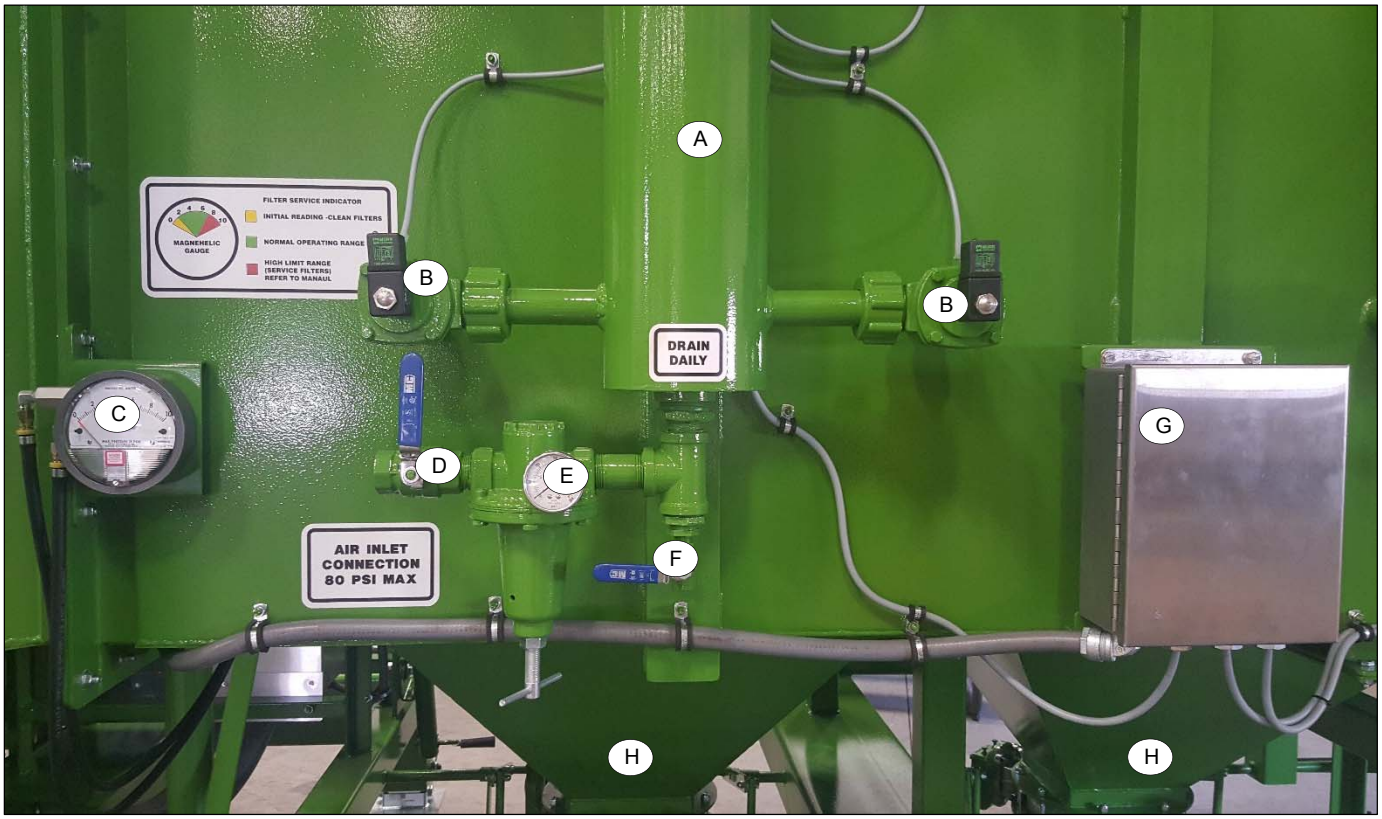


Key	Identification	Remarks
A	100 HP Soft Start	NEMA 4X, Stainless Steel
B	Fork Lifting Pockets	(2) with (4) Openings
C	Ladder Stow-Away Tracking	
D	Instrument Panel Access Ladder	Shown in 'Open' Position
E	Instrument Panel Access Ladder	Shown in "Stowed" Position
F	Ladder Secure Pin Assembly	Shows Outer Assembly
G	Ladder Secure Pin Assembly	Shows Inner Assembly

*** **WARNING!** NEVER transport The Dust Collector System while Instrument Panel Access Ladder is out of the stowed position.

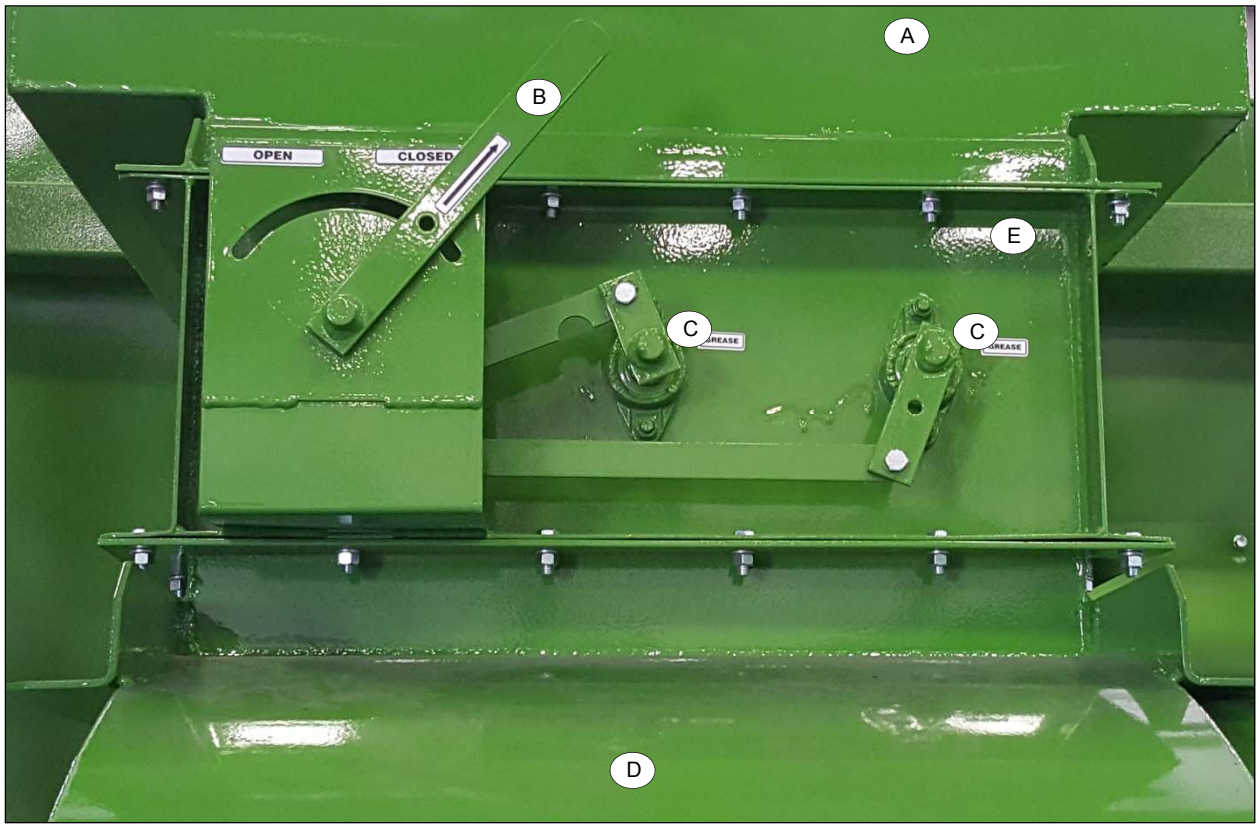
1.1 EQUIPMENT VIEW AND IDENTIFICATION

"Air Manifold System, Magnehelic Gauge & Filter Pulsing Close Up View"



Key	Identification	Remarks
A	Air Manifold	(3)
B	Air Pulsing Compression Diaphragm w/ Integrated Solenoid	120 Volt AC
C	Magnehelic Gauge	
D	1" NPT Ball Valve (Air IN Connection)	Lock- Out
E	Regulator w/ Gauge	80 PSI Max.
F	Air Manifold Drain Valves	(3) Lock- Out
G	Filter Pulsing Enclosure	NEMA 4X
H	Collection Hopper Area	(3)

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Fan Damper"



Key	Identification	Remarks
A	Silencer	
B	Fan Damper Manual Lever Indicator	OPEN/CLOSE
C	¾" Flange Bearing w/ Grease Zerks	(3) Front, (3) Rear
D	Fan Housing	
E	Fan Outlet Damper	

1.1 EQUIPMENT VIEW AND IDENTIFICATION

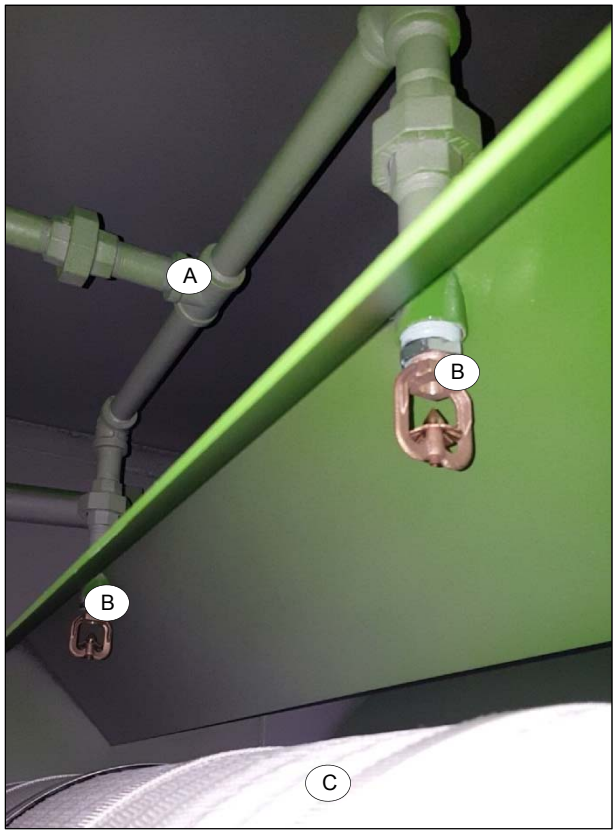
"Lifted with Adjustable Drum Cover Attached to 55-Gallon Drum View"

Key	Identification	Remarks
A	Collection Cone Area	(3)
B	10" Butterfly Valve	(3) Rubber Lined
C	Gear Operated Hand Wheel	(3) 6" Diameter, OPEN/CLOSE
D	Manual Drum Cover Positioning Handle	(3)
E	Extending Discharge Hose	(3)
F	Latching Mechanism	(3)
G	Adjustable Drum Cover	(3)
H	55-Gallon Drum	(3)

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Filter Housing Access Door & Filter Cartridges"

Key	Identification	Remarks
A	Filter Housing Access Door	(3) Shown in OPEN Position
B	Filter Cartridges	(36) UX-Nano MERV 14 Rated
C	Tube Sheet	
D	Filter Access Door Lockable Latch	Key Entry Option/ Lock-Out
E	½" Handle Nut	(18)
F	Filter Cartridge Plate w/ Gasket	(18)
G	Cartridge Support Rails	

1.1 EQUIPMENT VIEW AND IDENTIFICATION
"Open Head Sprinkler & Water Connect"



Key	Identification	Remarks
A	Sprinkler System Internal Water Piping	Galvanized
B	Open Head Sprinkler	(14) Brass
C	Filter Cartridge	(36) UX-Nano MERV 14 Rated
D	2 ½" NPT Water Connection	Brass w/ Cover and Landyard

1.1 INSPECTION OF EQUIPMENT

Please inspect the equipment for proper parts, orientation, size, and condition prior to accepting shipment

Notify the manufacturer immediately if there are any concerns in the equipment that you are receiving

1.2 SETTING UP THE DUST COLLECTION SYSTEM

The Dust Collection System should be set up in an area where the ground is solid and level. If necessary, make accommodations so the work area will be safe and secure. Planks and Plywood can help with creating a more level and sturdy work area.

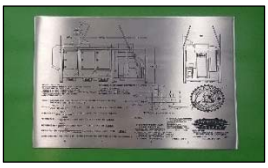
☐ Attach the appropriate size duct hose to the inlet connections.

☐ Once in place, carefully unpin all six (6) of the Dust Collectors telescoping legs.

***** Use caution While adjusting telescoping legs, keep hands and fingers clear of Pinch Point Hazards. Pinch Points can cause serious personal injury.**

☐ Lift the unit with a fork lift or crate that is rated and capable of lifting the weight of The Dust Collector System. This will allow the Equipment to adjust out of the stowed position.

*** NOTE:** Lifting Diagrams are displayed on the equipment (as seen in picture below) and **in Section 4.4 of The Operation's Manual.**



☐ When the unit is lifted about 40" high, there will be a second set of holes. Align the outer holes with the inner square tube holes and pin thru both sides, using the supplied 1" Dia. hitch pin and clip.

***** Skid style Dust Collector is considered a Crushing Hazard, be sure pins are secured while telescoping legs are extended.**

☐ Install 55-gallon drum under The Collection Hopper(s).

***** Use caution when switching 55-gallon drums out**

☐ Make sure the sure seal valve(s) or the slide plate are in the closed position.

☐ Apply pressure down on the drum cover handle and pull out the latching mechanism/safety catch so the lid can lower down on the drum opening.

☐ Unclip and remove the pin securing The Instrument Panel Access Ladder in the stowed position. Slowly slide Ladder out (pulling) towards you and lowering down to the ground.

NOTE: Once out of stowed position and prior to using, make sure ladder locks into place (grooves) and is secured.

*****Always use proper protective equipment when operating equipment. Hearing protection, safety glasses, gloves, and respirator are recommended. Follow OSHA, State and Federal guidelines.***

1.3 CONNECTING COMPRESSED AIR SUPPLY

The compressed air supply like should be a minimum of ¾" Dia. or a recommended 1" Dia. rated for the PSI that is being supplied from the compressor source. The airline must be free of dirt, oil, and water. Purging the airline prior to installation is recommended.

A clean, dry and oil-free air supply is required for proper operation. The air will need to be regulated at 80-PSI max (factory set). If excessive moisture is present in the air system, and after cooler desiccant dryer and in line air filter are strongly recommended. For cold climate outdoor installations this will be mandatory to insure proper operations.

- ☐ Close Air Manifold Drain Valve
- ☐ Purge and Attach Air Supply Line
- ☐ Open Supply Shut-off Valve
- ☐ Regulate to a maximum of 80-PSI
- ☐ Make certain there are no air leaks and tighten fittings where required

1.4 CONNECTING ELECTRICAL SUPPLY

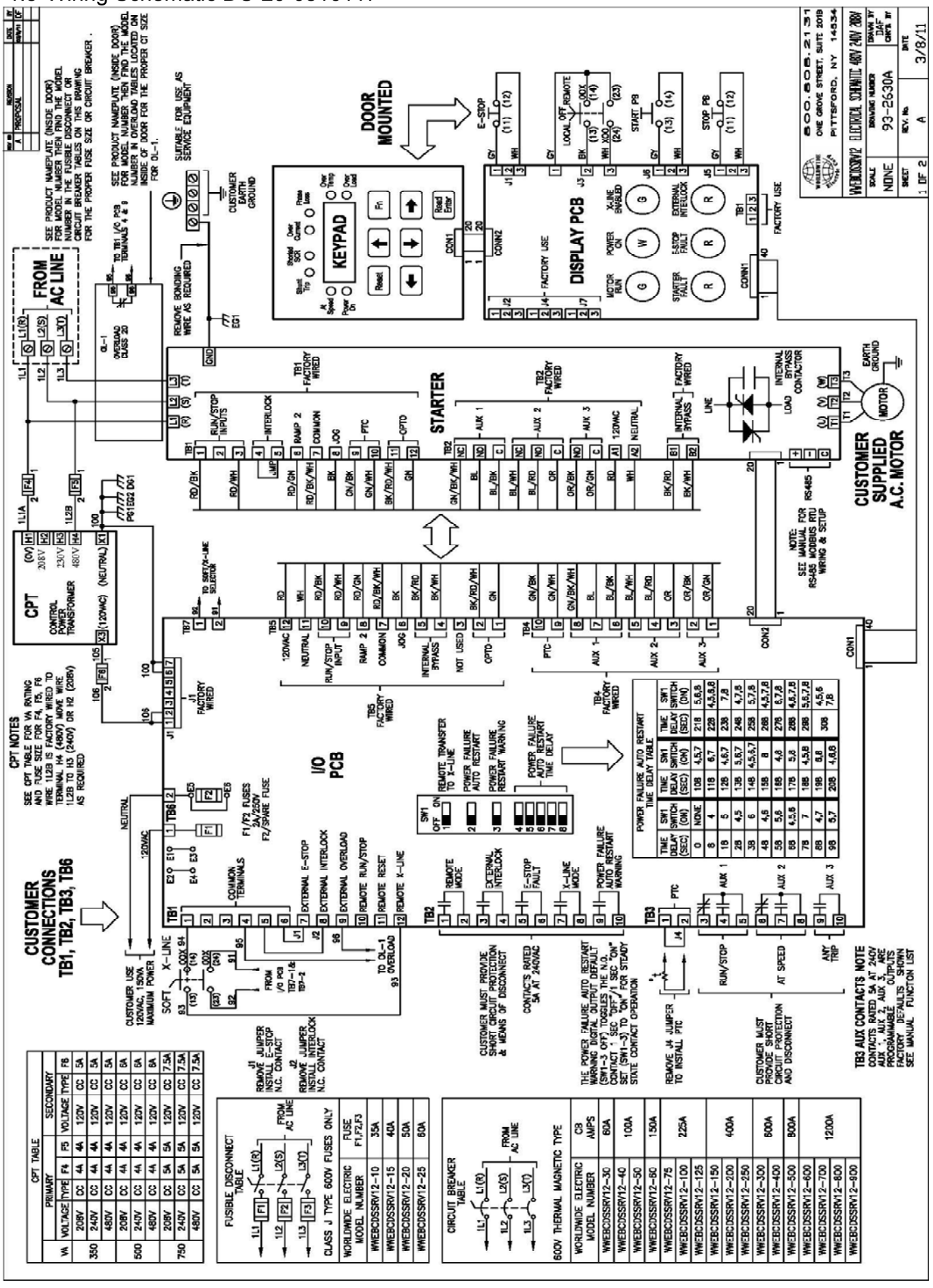
Consult a Certified Electrician for installation hook-up. Always follow the proper electrical codes and laws that apply.

- ☐ The Dust Collector System will need the appropriate power supplied to the main instrument panel (480-Volt, 3 Phase Wiring)
- ☐ This unit is supplied with a "visible type" safety switch for supplying power to the unit.
- ☐ For installation, reference wiring diagram. Drawing # DC-20-0516117 & # DC-20-0516118 as seen on next two (2) pages)

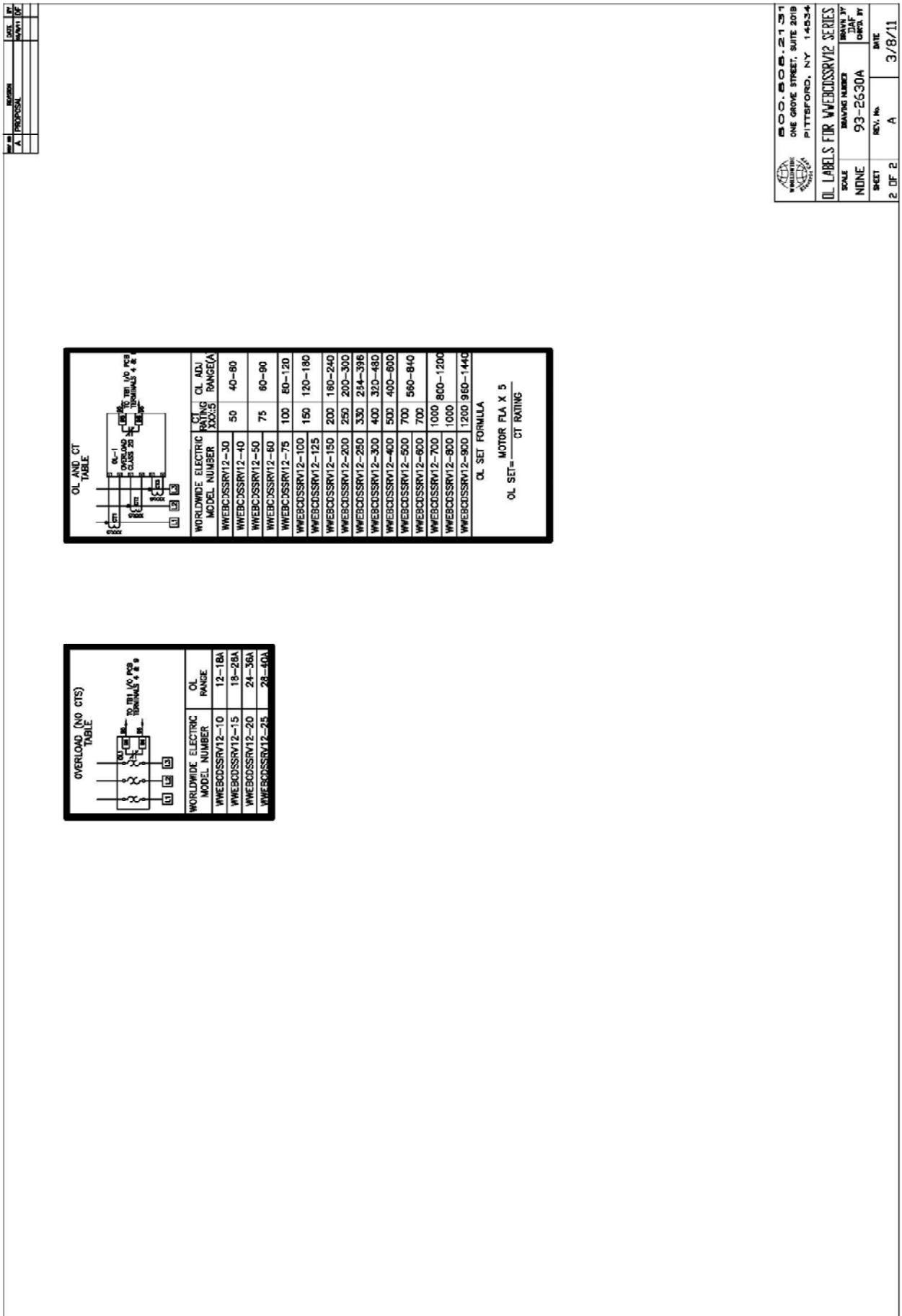
WARNING! ONLY authorized personnel should open the Electrical Enclosure.

WARNING! ALWAYS disconnect the power source before opening or servicing the Electrical Enclosure. High voltage inside can cause severe personal injury or death.

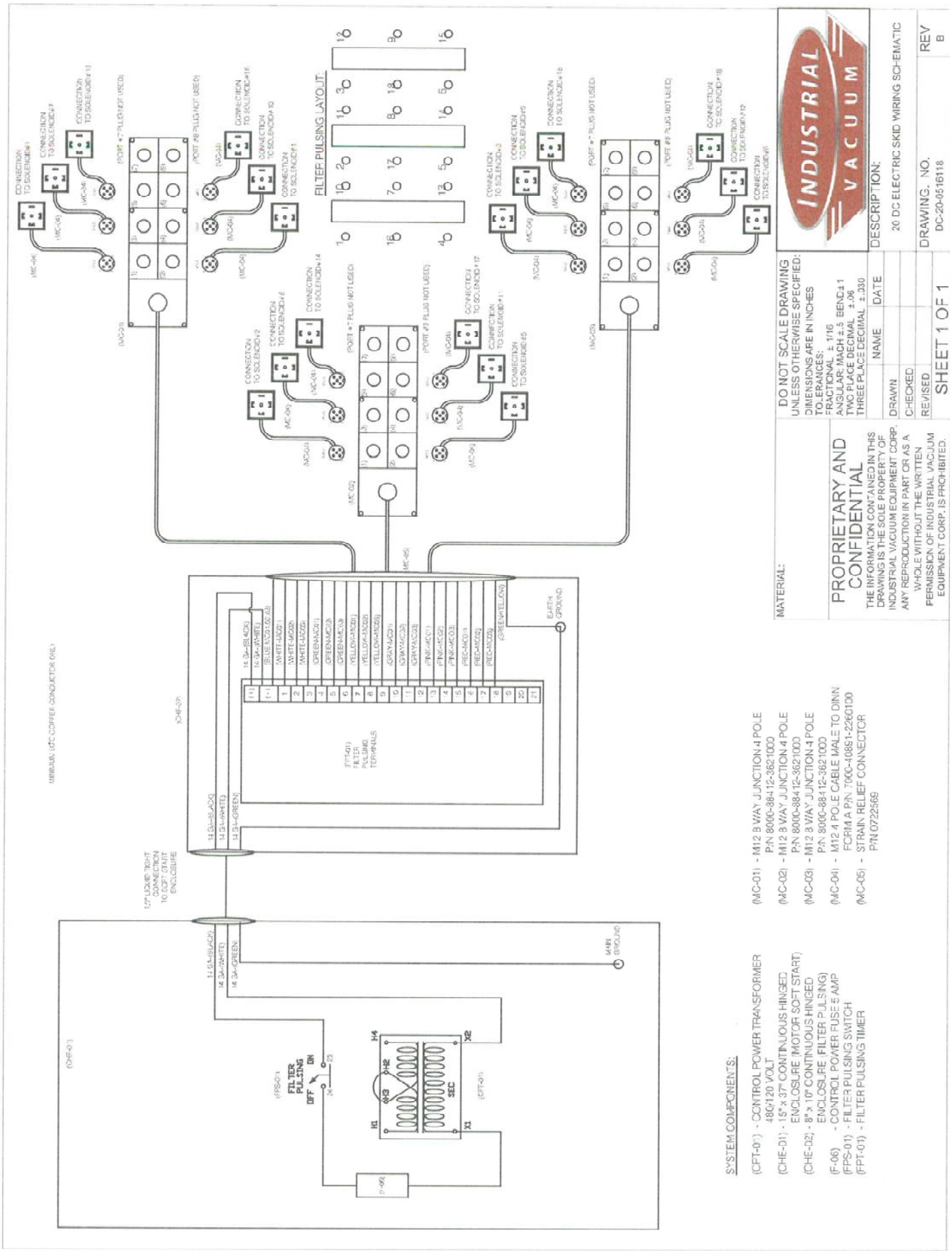
1.5 Wiring Schematic DC-20-0516117



1.5 Wiring Schematic DC-20-0516117 *(Continued)*



Wiring Schematic DC-20-0516118



1.5 CONNECTING FILTER SPRINKLER SYSTEM

The Dust Collector Equipment has an Open Head Sprinkler System inside the filter housing enclosure. This System consists of the following:

- (14) Open Head Sprinkler Valves, located above the filter Cartridges
- Galvanized Schedule 40 Pipe Network
- Brass 2-1/2" Swivel Female Connection (water inlet)
- Brass 2-1/2" Male Plug with lanyard for sealing when not in use.

*** * * CUSTOMER SUPPLIES WATER LINE * * ***

The customer supplied water line should be connected to The Dust Collector Equipment, when in operation. The water supply line needs to be isolated from The Dust Collector with a (customer supplied) Shutoff Valve. The Shutoff Valve should be upstream of The Dust Collector, so in case of a fire, the Shutoff Valve can be safely opened to let water through the Sprinkler Valves and flood the inside compartment of the filter housing.

Open Head Sprinkler System

2-1/2" Water Connection

In case of fire

- **Shut "OFF" Motor/Fan.** This will isolate the fire and smoke to The Dust Collector. If the motor/fan are not shut down the system will continue to supply air into The Dust Collector, which in turn will add oxygen to the fire resulting in potential growth or contaminating other areas
- **Turn "ON" or "OPEN" Water Supply**. Switching the Shutoff Valve to the "OPEN" position will allow the water supply into The Dust Collection System. With the Valve in the "OPEN" position, The Sprinkler System will spray water and flood The Filter Housing.
- **Know and follow your designated Emergency Action Plan.** Not having proper understanding in what to do or where to go during an Emergency is a serious hazard and could result in serious personal injury or death.
- **Have Fire Extinguishers Readily Available.** Having fire extinguishers accessible in appropriate areas is critical to how wide spread a fire could become and the amount of damage it has the potential of.

1.6 CONNECTING FILTER SPRINKLER SYSTEM ******CONTINUED******

Clean Up Procedures

- Drain filter enclosure by opening The Hopper Discharge Valve and either drain out at the bottom or collecting water into 55-gallon drums.
- Inspect for further damage to The Dust Collector System
- Allow filter housing enclosure to dry out, moisture could cause problems during future operations.
- Install new filter cartridges prior to starting back up with operations. Upon activating The Sprinkler System, water dispersal inside the filter housing enclosure will contaminate the filter cartridges which will need to be removed and disposed of accordingly.

For proper Removal and Installation Procedures of the filter cartridges, it is recommended to refer to these Sections:

- ☐ Section **3.2 CARTRIDGE REMOVAL AND INSTALLATION**
- ☐ Section **3.3 CARTRIDGE REMOVAL/INSTALLATION VIEW AND IDENTIFICATION**

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****Always use proper protective equipment when operating equipment. Hearing protection, safety glasses, gloves, and respirator are recommended. Follow OSHA, State and Federal guidelines.***

SECTION 2:
OPERATION AND SHUTDOWN INSTRUCTIONS

2.1 INITIAL START-UP PROCEDURES

The following procedures need to be followed prior to operating The Dust Collector System. Refer to these Sections:

- ☐ Section **1.3 SETTING UP THE DUST COLLECTOR SYSTEM**
- ☐ Section **1.4 CONNECTING COMPRESSED AIR SUPPLY**
- ☐ Section **1.5 CONNECTING ELECTRICAL SUPPLY**

Filter Pulsing Timer Set-Up

Make sure the electrical power supply to The Dust Collector System is "off" before changing the time settings.

- ☐ Set the timer "OFF-TIME" to approximately 10 seconds.
- ☐ Set the timer "ON-TIME" to 125-150 milliseconds.

Initial Set-Up

The electrical system needs to be checked. Make sure the electrical supply that will run The Dust Collector System is turned "ON."

On the electrical enclosure and the safety switch, the service disconnect handle needs to be put to the "ON" position.

The following steps will need to be verified:

- ☐ Make sure the regulated air pressure is set to 80-PSI.
- ☐ Turn the Filter Pulsing switch to the "ON" position. Verify that all the pulsing solenoids and diaphragm valves are operating in their timed sequence and repeating. After verification turn the filter pulsing switch to the "OFF" position.
- ☐ Check to see if the manual damper valve is in the "CLOSED" position.
- ☐ Check phasing of the fan motor. Push the "START" button, this will start the fan. Verify the fans rotation by seeing what way the shaft is spinning. The correct rotation for the fan/motor is clockwise (CW). Labels on the fan also indicate the proper rotation. Make sure the fan is spinning freely with no obstructions and vibration free. Once rotation is verified and the electrical phasing is correct, push the "STOP" button. This will stop the fan/motor
- ☐ The Dust Collector System is now set up and ready for operation.

2.2 OPERATING THE DUST COLLECTOR SYSTEM

Operation with New Cartridges

- ☐ When the cartridges are new, The Dust Collector System will need to be operated with the manual fan damper partially opened (about 30% open).
  - This will help prevent cartridge damage and overloading the fan motor at start-up.
- ☐ When ready to filter dust, start the fan motor. Push the green "START" button. The green "MOTOR RUN" light will illuminate.
- ☐ Maintain the partial air volume flow rate until the differential pressure across the cartridges reaches 3.5" WG, as indicated on the magnehelic gauge.
  - Cartridges will perform more efficiently when there is a thin layer of dust on the filter media. Running The Dust Collector System with the baghouse filter pulsing switch in the "OFF" position will expedite the differential pressure range.
- ☐ Slowly move the manual fan damper handle to the fully open position (100% open) and start the baghouse "FILTER PULSING" sequence (turn the baghouse switch to the "ON" position).

Operation with Older Cartridges

- ☐ Slowly move the manual fan damper handle to the fully open position (100% open).
- ☐ When ready to filter dust, start the fan motor. Push the green "START" button.
- ☐ Start the baghouse filter pulsing sequence (turn the baghouse switch to the "ON" position)

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

Always use proper protective equipment when operating equipment. Hearing protection, safety glasses, gloves, and respirator are recommended. Follow OSHA, State and Federal guidelines.

Operation of Collection Hopper(s)

- ☐ Open the sure seal valve on the discharge drum to empty the collection hopper. Once the 55-gallon drum is full, close the Sure Seal Valve. Opening and closing of valve can be done by rotating 6" Gear Hand Wheel. Raise the drum cover by pulling down on the handle and locking the latching mechanism. The drum cover will then be locked into its highest position.
- ☐ Remove, cover, and dispose of drum.
- ☐ Install new drum under collection hopper.
- ☐ Lower the drum cover by slightly pulling down on the handle to remove the latching mechanism. Let the downward pressure off of the handle and the weight of the drum cover will let the handle go upward and the drum cover will lower onto the 55-gallon drum.
- ☐ Repeat when needed.

2.3 EFFECTIVE OPERATIONS & CONSIDERATIONS

The Dust Collection System is designed to operate the most efficient by maintaining 4" WG pressure drop across the cartridges. The magnehelic gauge on the side of the unit monitors the differential pressure. Depending on the characteristics of the dust/particles being collected the pressure drop range may need to lean towards the 6" WG pressure drop to operate effectively.

- ☐ When the proper conditions apply such as a constant dust load, moisture, and temperature, etc..., the differential pressure will drop as the unit's air volume is decreased. (Manual outlet damper)

The following may or may not drop or decrease The Differential Pressure:

- ☐ The filter pulsing timer "TIME-ON" is increased.
- ☐ The filter pulsing timer "TIME-OFF" is decreased.
- ☐ The air manifold pressure is increased.

MAGNEHELIC DIFFERENTIAL PRESSURE GAUGE
MOBILE OR SKID MOUNTED DUST COLLECTOR

This magnehelic gauge indicator ranges between 0" to 10" on the water column. The magnehelic gauge will monitor The Dust Collectors filters and show the differential pressure between the clean side and the dirty side of the filter. A lower reading on the water column indicates a cleaner filter and a higher reading indicates dirty or plugged filters.

With new (or clean) filters, the gauge should read between 0.5" – 1.5" on the water column. Figure A shows The Dust Collector with new (or clean) filters.
The normal operating range should be between 1.5"- 6" on the water column. Figure B shows the normal operating range.

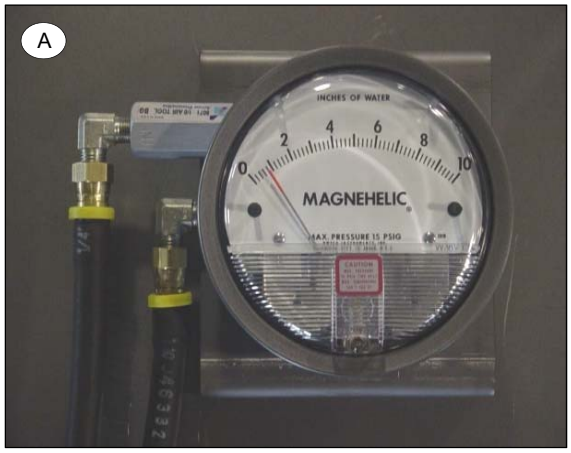
As the filters become increasingly dirty, the indicator will move higher on the water column. When the gauge reaches 8" or more on the water column, the filters in The Dust Collector need to be inspected and/or replaced, as shown in Figure C.

Things to Consider:

A low-pressure drop can be obtained but will shorten the cartridge life and use more than the normal amount of compressed air. Higher maintenance costs could be the result with the amount and time of air being increased to the filter pulsing.

A high-pressure drop can be obtained but will make the fan work harder and use more horsepower, which creates a higher amp draw on the electric motor. Higher electric costs could be the result and also reduced air volume through The Dust Collector System.

2.3 EFFECTIVE OPERATIONS & CONSIDERATIONS



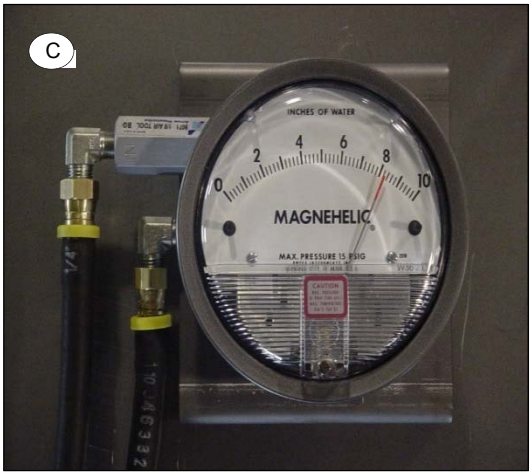


Figure	Identification	Remarks
A	Shows the magnehelic gauge indicating "clean" or "new" filter conditions	
B	Shows the magnehelic gauge indicating normal operating range	
C	Shows the magnehelic gauge indicating "dirty" conditions requiring inspection/maintenance	

DO NOT exceed 80-PSI pressure on the air manifolds. Failure to comply with these recommendations will result in cartridge or diaphragm failure.

Increasing the filter pulsing timer "TIME ON" will also increase the amount of compressed air used and for most applications this will not change the efficiency.

For optimum performance, from The Dust Collector System, it is key to keep a constant range of 4"-6" WG pressure drop across the cartridges. This will insure a coating of dust on the cartridges to work properly and have a longer life expectancy. If the cartridges DO NOT have a coating or layer of dust covering the filter media there is a chance of dust emissions to pull thru, usually on initial start-up of new cartridges.

2.4 SHUTDOWN PROCEDURE

- ☐ Push the red "STOP" button. This will shut-off power to the fan motor.
- ☐ Allow the filter pulsing timer to cycle two (2) or three (3) times before turning the baghouse "FILTER PULSING" switch to the "OFF" position. This will allow the cartridges to have some additional cleaning time.
  - Doing this each time for shutdown will help cartridge life. Cleaning the cartridges while the fan is in the "OFF" position will also help take care of hygroscopic or sticky dusts that tend to cling on the pleats.
- ☐ Move the main disconnect lever, located on the panel, to the "OFF" position. Also move the safety switch disconnect lever to the "OFF" position.
- ☐ Open the sure seal valve(s) on the discharge drum to empty the collection hopper(s). once the collection hopper(s) are empty, close the sure seal valve(s). Opening and closing of Valve can be done by rotating 6" Gear Hand Wheel. Raise the drum cover by pulling down on the handle and locking the latching mechanism. The drum cover will then be locked into its highest position for when the unit is in the stowed position.
- ☐ Remove and dispose of drum(s).
- ☐ Disconnect electrical, air and duct hose connections before moving or transporting
- ☐ Use forklift or crane to take weight off hitch pins in telescoping legs. Remove pins and lower unit to ground. Make sure to securely pin all six (6) telescoping legs in their stowed position.
- ☐ Lift The Instrument Panel Access Ladder out of secured place (grooves) and slowly slide into tracks (pushing) into stowed position. Once Ladder is fully in stowed position line up pin holes, insert pin and clip securely into The Stowed Position.
- ☐ Once these procedures are done, The Dust Collector System will be ready for moving or transporting.

SECTION 3:
MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

3.1 ROUTINE MAINTENANCE

DAILY

- ☐ Drain moisture from Air Manifold(s)
- ☐ Check for air leakage on Components and fix if needed.
- ☐ Make sure there is no obstructions around Inlet and Outlet Connections.
- ☐ Monitor and empty Collection Hopper.

NOTE: It is IMPORTANT to remember to continuously check that the Collection Hopper is never more than 50% full.

WARNING! ALWAYS empty the Collection Hopper(s) and take the proper steps to clean and dispose of the waste.

*****ALWAYS following OSHA's State and Federal guidelines.**

- ☐ Visually inspect the Fan Outlet Damper for dust emissions. If dust is visible check condition of cartridges for holes or loose fit.
- ☐ Monitor differential pressure range and keep between 4"-7" WG. Never Exceed 9" WG. **(Refer to 3.3 TROUBLESHOOTING SECTION)**

WEEKLY OR PERIODICALLY

- ☐ Inspect Fan Housing for foreign material. Drain or remove if needed. **(Refer to FAN MAINTENANCE AND TROUBLESHOOTING MANUAL)**
- ☐ Inspect bearings and handle control on damper. **(Refer to FAN MAINTENANCE AND TROUBLESHOOTING MANUAL)**
- ☐ Make sure moisture is kept out of the Air System and Cartridge Area.
- ☐ Grease Motor. **(Refer to the WWEC MAINTENANCE AND TROUBLESHOOTING MANUAL)**
- ☐ Check Access Door and Collector Area for possible leaks, gasket condition, and corrosion or build-up.
- ☐ Make sure Sprinkler Heads are not obstructed.

MAKING SURE ROUTINE MAINTENANCE IS DONE TO THE DUST COLLECTOR SYSTEM, WILL ENSURE MANY YEARS OF TROUBLE FREE OPERATIONS!

⚠WARNING **NEVER** start any kind of maintenance on DUST COLLECTOR SYSTEM unless **ALL** power driven equipment has been shut down. Disconnect and lock out power before entering hopper or servicing the equipment.

3.1 Maintenance Schedule

20 DCS Maintenance Schedule:		Frequency						
	Service	Daily	Weekly	Monthly	3 Months or 250 Hours	6 Months or 500 Hours	1 Year or 1000 Hours	2 Year or 2000 Hours
Symbols Used: (*)=Initial Break-In 100 Hours, A=Adjustment, C=Check, R=Replace/Renew								
Skid	Telescoping Legs Pinned, Sure Seal Valves Closed, Empty Collection Cone, Manual Damper Closed, Inlet Hose Connections, Electrical Power Hook up	Start-Up or Shutdown Inspection						
Electric Motor	Grease Zerks					C		
	Fan, Cooling	C			C			
	Mounting Hardware			C				
	Grease Relief- Purge				C			
Manual Damper	Grease -Zerk Points				R			
	Linkage and Levers					C		
Centrifugal Fan	Fan Housing Drain	C						
	Exhaust No Obstructions			C				
	Spring Vibration Mounts		C					
	Mounting Hardware			C				
	Fan Wheel						C	
	Shaft Seal						C	
	Rubber Fan Connection						C	
Pneumatic System	Diaphragms/Solenoids	C						
	Pulsing Timer Function	C						
	Drain Air Tanks (3)	C						
	Regulator 85 PSI Max.				C			
Filtering System	Fan Discharge -Dust	C						
	Magnehelic Gauge	C						
	Dust Collector Cartridges			C				
	Magnehelic Gauge Filter	C						
	Empty Collection Cones	C						
Electrical System	Instrumentation	C						
	Solenoid Cables	C						
	Incoming Power	C						
Collection Cone	Discharge Opening	C						
	Collection Cone Empty	C						
	10" Sure Seal Valve & Gear Box	C						

3.2 CARTRIDGE REMOVAL AND INSTALLATION

The Dust Collector System should be in the stowed position to easily access the Cartridge Area. Also, use the appropriate Personal Protective Equipment (PPE) when removing used cartridges. ALWAYS following OSHA's State and Federal Guidelines.

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****ALWAYS following OSHA's State and Federal Guidelines.**

- ☐ Open filter access door by pulling out handle and rotating 90-degrees.
  NOTE: Doors maybe locked… Key access needed.
- ☐ Start with removing the ½" Handle Nuts and Cartridge retaining Plates with Gasket.
- ☐ Cartridges should be removed from Top to Bottom. Carefully slide the used Cartridges of the support rails. Dispose of the used Filter Cartridges Following OSHA's State and Federal Guidelines.
- ☐ At this time, Check the collection hopper for maintenance or cleaning.
- ☐ Install the new cartridges by using the same process above.

NOTE: The gasket side of the cartridge should face the vertical tube sheet of the Collector Area. (Opposite of the Access Door)

- ☐ Place the cartridge retaining plate with gasket facing towards the cartridge and tighten the ½" handle nut.
- ☐ The Cartridges are properly tightened when they can no longer spin or move on their axis.

  ***** Make sure to double check that ALL cartridges are tight! *****
- ☐ Inspect Gaskets on Access Door.
- ☐ Close door(s), install washers and tighten ½" Stainless Steel Nuts.
- ☐ Make sure the filter access doors are shut and sealed. Lock if necessary.
- ☐ Refer to **SECTION 2.1 INITIAL START-UP PROCEDURES**, for new cartridges.

WARNING! ALWAYS use Proper Protective Equipment (PPE) when Operating or working near Dust Collection Equipment. Protective Footwear, Hearing Protection, and Safety Glasses are all recommended for during Operations.

*****ALWAYS following OSHA's State and Federal Guidelines.**

3.3 CARTRIDGE REMOVAL/INSTALLATION VIEW AND IDENTIFICATION

Key	Identification	Remarks
A	Filter Housing Access Door	(3) Shown in OPEN Position
B	Filter Cartridges	(36) UX-Nano MERV 14 Rated
C	Tube Sheet	
D	Filter Access Door Lockable Latch	Key Entry Option / Lock-Out
E	½" Handle Nut	(18)
F	Filter Cartridge Plate w/ Gasket	(18)
G	Cartridge Support Rails	

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****<u>ALWAYS</u> following OSHA's State and Federal Guidelines.**

3.3 CARTRIDGE REMOVAL/INSTALLATION VIEW AND IDENTIFICATION

Filter Enclosure Safety Recommendations and Reminders

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****Always use proper protective equipment when operating equipment. Hearing protection, safety glasses, gloves, and respirator are recommended. Follow OSHA, State and Federal guidelines.***

WARNING! **NEVER** open Filter Access Doors while Dust Collection System is running.

WARNING! **NEVER** start any kind of maintenance on Dust Collection System unless **ALL** power to the driven equipment has been shut down. Disconnect and lock out power before entering or servicing the equipment.

WARNING! **NEVER** go into the Filter Enclosure with out implementing proper lock out tag out procedures.

WARNING! DO NOT operate equipment if dust is visible from fan discharge. Shut down unit and contact manufacturer if dust is visible.

WARNING! Work in well-ventilated areas and DO NOT use Dust Collector on explosive materials and/or gases.

WARNING! ALWAYS empty the Collection Hopper(s) and take the proper steps to clean and dispose of the waste.

*****ALWAYS following OSHA's State and Federal guidelines.**

WARNING! NEVER lift or transport The Dust Collector System with the collection hopper full. Dust Collector should ONLY be lifted or transported while collection hopper is **EMPTY**.

Filter Cartridge Removal & Installation

Removal

1) Turn ½" Handle Nut Counterclockwise (CCW) to loosen and remove.

2) Filter Plate shown without ½" Handle Nut.

3) Once ½" Handle Nut has been removed, carefully "Pull" Filter Plate towards you to take off.

4) Filter Cartridge shown after Filter Plate has been fully removed.

5) There are two (2) rows of Filter Cartridges. Once Filter Plate is removed, slowly remove first row of filter Cartridges by "Pulling" towards you.

6). Second Row of Filter Cartridge shown after removal of First Row.

Filter Cartridge Removal & Installation

Removal

7) To get to Second Filter Cartridge reach into Filter Enclosure, repeating Step 5.

8) Showing the bare Cartridge Support Rails. Once both rows of Filters are removed.

Continue Following Steps 1-8 until desired or until all 36 Filter Cartridges have been removed.

- There are twelve (12) Filter Cartridges behind each of the Filter Access doors; Six (6) rows of two (2). The Dust Collector System has thirty-six (36) Filter Cartridges in total.

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

****Always use proper protective equipment when operating equipment. Hearing protection, safety glasses, gloves, and respirator are recommended. Follow OSHA, State and Federal guidelines.***

WARNING! **NEVER** start any kind of maintenance on Dust Collection System unless **ALL** power to the driven equipment has been shut down. Disconnect and lock out power before entering or servicing the equipment.

Filter Cartridge Removal & Installation

Installation

To Install the Filter Cartridges. Follow the "Removal" Instructions backwards, starting with Step 8 and finishing with Step 1.

Showing bare Filter Enclosure, Prior to Installation of Filter Cartridges.

1) Each Filter Cartridge has a Black Seal on one (1) end. This end should be facing away from you upon installation.

2) Carefully lift and set Filter Cartridge (with Black Seal facing away) onto Cartridge Support Rails, "Pushing" the Filter Cartridge in and away from you.

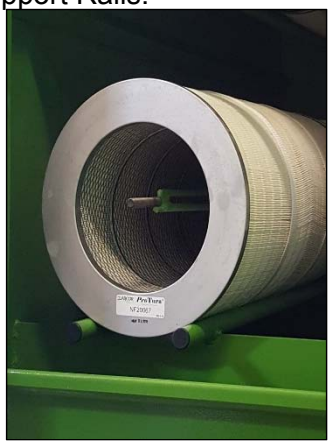
3) There are two (2) Filter Cartridges per each row. Showing first installed Filter Cartridge

4) Repeat Step #2 with second Filter Cartridge.

Filter Cartridge Removal & Installation

Installation

5) Filter Cartridges shown after both installed on to Cartridge Support Rails.



6) Once Filters are resting on Cartridge Support rails; you are ready to install Filter Plate. Filter Plate has a Black Seal that should be facing towards the Filter Cartridges when installed.

7) With the Filter Plate's Black Seal facing towards Filter Cartridges, align the holes with rails, slowly "Pushing" Into place.

8) Filter Plate shown aligned with Cartridge Support Rails.

9) Take ½" Handle Nut, turn clockwise (CW) to tighten.

Continue to repeat this process, Installation Steps 1-9, until finished with Filter Cartridges Installation.

3.4 TROUBLESHOOTING

Very High Differential Pressure

- ☐ Check Compressed Air Pressure (80-PSI Max.) Regulate if needed.
- ☐ Check Filter Pulsing System for proper operations. Make sure all diaphragms and solenoids are working.
- ☐ If none of the Valves are pulsing. Check timer operation and compressed air supply.
- ☐ If some of the valves are not pulsing, check for solenoid loose wiring or solenoid valve blockage or damage.
- ☐ Assuming all valves are operating properly, decrease the filter pulsing timer "TIME-OFF" and evaluate improvement.
- ☐ Operate the filter Pulsing System with the fan turned to the "OFF" Position for approximately 20 minutes. If the differential pressure is about the same after turning the fan "ON" again, the cartridges may be plugged, which will require a cartridge change.
- ☐ Check for moisture or oil in the air supply. If the cartridges are damp they will have high dust build up. **(Refer to SECTION 1.4 CONNECTING COMPRESSED AIR SUPPLY)**
- ☐ Check for dew point of Dust-Laden Air. Severe moisture conditions may require insulating and heat treating the collector.
- ☐ Check the main air flow volume with an air measuring device to insure the dust collector system is working properly for its designed conditions.
- ☐ Check the dust particle size, air temperature and moisture against its designed conditions.
- ☐ Check collection hopper to make sure it is empty. If material starts sticking or bridging inside the hopper it will need to be removed. Open sure seal valve and empty collection hopper into 55-gallon storage container more often. Make sure discharge hose is not plugged.

NOTE: Preventative maintenance should be done or options can be installed to help keep The Collection Hopper clean.

Excessive build-up of material in the Collection Hopper contributes to a High Differential Pressure Drop and premature wear of the Filter Cartridges.

⚠WARNING **NEVER** start any kind of maintenance on DUST COLLECTOR SYSTEM unless **ALL** power driven equipment has been shut down. Disconnect and lock out power before entering hopper or servicing the equipment.

Very Low Differential Pressure

- ☐ Inspect Magnehelic Gauge and Connection Hoses.
- ☐ Measure air volume (ACFM) that is going through The Dust Collection System.
- ☐ Reduce filter pulsing frequency by increasing the timer's "TIME-OFF" Setting.

Dust Emission

- ☐ Check for improper Filter Cartridge Installation.
- ☐ Check Filter Cartridges for holes or wear. Replace the warn out Cartridges.
- ☐ Reduce the filter pulsing frequency by increasing the timer's "TIME-OFF" Setting.
- ☐ After installation of new cartridges and before performing emission tests, allow The Dust Collector System to filter Dust-Laden Air for about 48 hours. The Cartridges need to have time to get a coating of dust on the filter media to achieve optimal performance.

Poor Cartridge Life

- ☐ Measure actual Air Volume (ACFM) and compare against its design specs. Excessive Dust-Laden Air, along with Abrasive Dust will shorten filter Cartridge life.
- ☐ If cartridges show signs of wearing in certain areas of The Collector, a modified baffle may be required inside The Collector. Contact Manufacturer for assistance.
- ☐ Check operating Temperature. It should be within the Manufacturer's specs of the filter media being used. Also check characteristics of the dust and make sure the appropriate filter media is being used.
- ☐ Check for moisture problems in the Collector Area. High moisture will cause cartridges to have excessive dust build-up. This will make the performance of The Dust Collector System to operate at elevated pressure drops and lower air volume.
- ☐ If experiencing other problems, please contact the Manufacturer for further assistance.

WARNING! Filters may contain harmful material. Take the proper steps to clean, dispose, or change the filter media. Use Proper Protective Safety Equipment (PPE), it is recommended to wear a respirator while working with filters or in the filter housing enclosure.

*****ALWAYS following OSHA's State and Federal Guidelines.**

3.5 TECHNICAL SUPPORT AND CONTACT INFORMATION

INDUSTRIAL VACUUM EQUIPMENT CORP.
N7959 BIRCH ROAD
IXONIA, WI 53036
1-800-331-4832
www.industrialvacuum.com

SECTION 4:
SPECIFICATIONS AND OPTIONAL EQUIPMENT

4.1 EQUIPMENT DATA

The DC 20000 ES Model Dust Collector System **HAS** the following Standard Equipment:

- Standard Equipment Options
- Premium Efficiency Motor, 100HP Premium Electric IEEE Motor
- 100HP Rated Motortronics Soft Starter, NEMA 4X
- 100 VA Extra Capacity Transformer
- Visible Blade Main Disconnect, NEMA 4X
- Rain Guards over NEMA 4X Enclosures
- Instrument Panel Access Ladder
- Run Light, Start/Stop Push Button, Filter Switch
- Discharge Silencer, 84 DBA @3FT.
- HDBI-360 Fan, 16" WG, Direct Drive, 3 Blade Damper
- Damper Control Low Mount
- (3) 18" Flanged Inlet Backdraft Dampers
- 14 Head Internal Filter Sprinkler System
- UX-NANO MERV 14 Rated Filter Cartridges
- 4 Point Certified Lift Cage, 6" x 12" Fork Tubes

4.1 EQUIPMENT DATA

The DC 20000 ES Model Dust Collector System **HAS** the following Operating, Design, and Construction Data:

- 20,000 ACFM (Air Volume)
- 16" WG (Operating Pressure)
- Very fine Iron Oxide & Paint Fines less than (<) 1 GR./CU. FT. (Dust Info.)
- Ambient (Operating Temperature)
- Outdoor Mobile Equipment
- Weight of Unit 12,500lbs. (Empty) 10% unexpected Growth (13,7500lbs)
- 20" WG (Design Pressure)
- 24 SCFM @ 80-PSI (Required Air Compressor)
- 8,136 SQ. FT. Filter Area
- 556 ACFM (Air to Cartridge Ratio)
- 2.46/1 (Air to Filter Area Ratio)
- 12 and 10 Gauge Carbon Steel Construction
- Cartridges (12.75" Dia. x 26" Long) 208 SQ. FT. of Filter- UX Cellulose/Poly Blend, MERV 14 Rating

4.2 OPTIONAL EQUIPMENT

The DC 20000 ES Model Dust Collector System **CAN HAVE** the following Optional Equipment:

- Electric and Diesel Dual Package
- Diesel Power Package
- DOT Approved Tandem Axle Trailer (Pintle or Gooseneck Style)
- Air Compressor Package
- Sound Package for Quiet Operations
- Hydraulic Telescoping Lift
- Removable Feet- Casters, V-Groove, Vibration Pads
- Discharge Height Leg Extensions
- Emergency Shut-Down
- Fire Trace, Fire Suppression System with or without Alarm
- UX-NANO Fire Retardant Media
- Explosion Proof Vent, Fan and or Motor
- On Board Fire Extinguisher
- Camlock Connectors (Electric Panel Connections)
- Custom Outlet and Inlet Transitions
- Collection Vibrators
- Walkways and Railings
- Ladder Kit
- Hose and Connection Supplies
- LED Work Lights

SECTION 5:
MAJOR COMPONENTS AND REFERENCE INFORMATION

5.1 MOTOR AND STARTER

DESCRIPTION: 100HP Premium Electric IEEE Motor
MANUFACTURER: Hyundai

DESCRIPTION: 100 HP Rated Motortronics Soft Starter NEMA 4X
MANUFACTURER: Siemens

5.2 FAN

DESCRIPTION: HDBI-360 Fan, Direct Drive, 3 Blade Damper
MANUFACTURER: Cincinnati Fan

DESCRIPTION: Discharge Silencer, 84 Dba @ 3FT.
MANUFACTURER: DB Noise Reduction

5.3 ELECTRICAL COMPONENTS

DESCRIPTION: 120-Volt 18 Station Pulsing Timer
MANUFACTURER: Dwyer

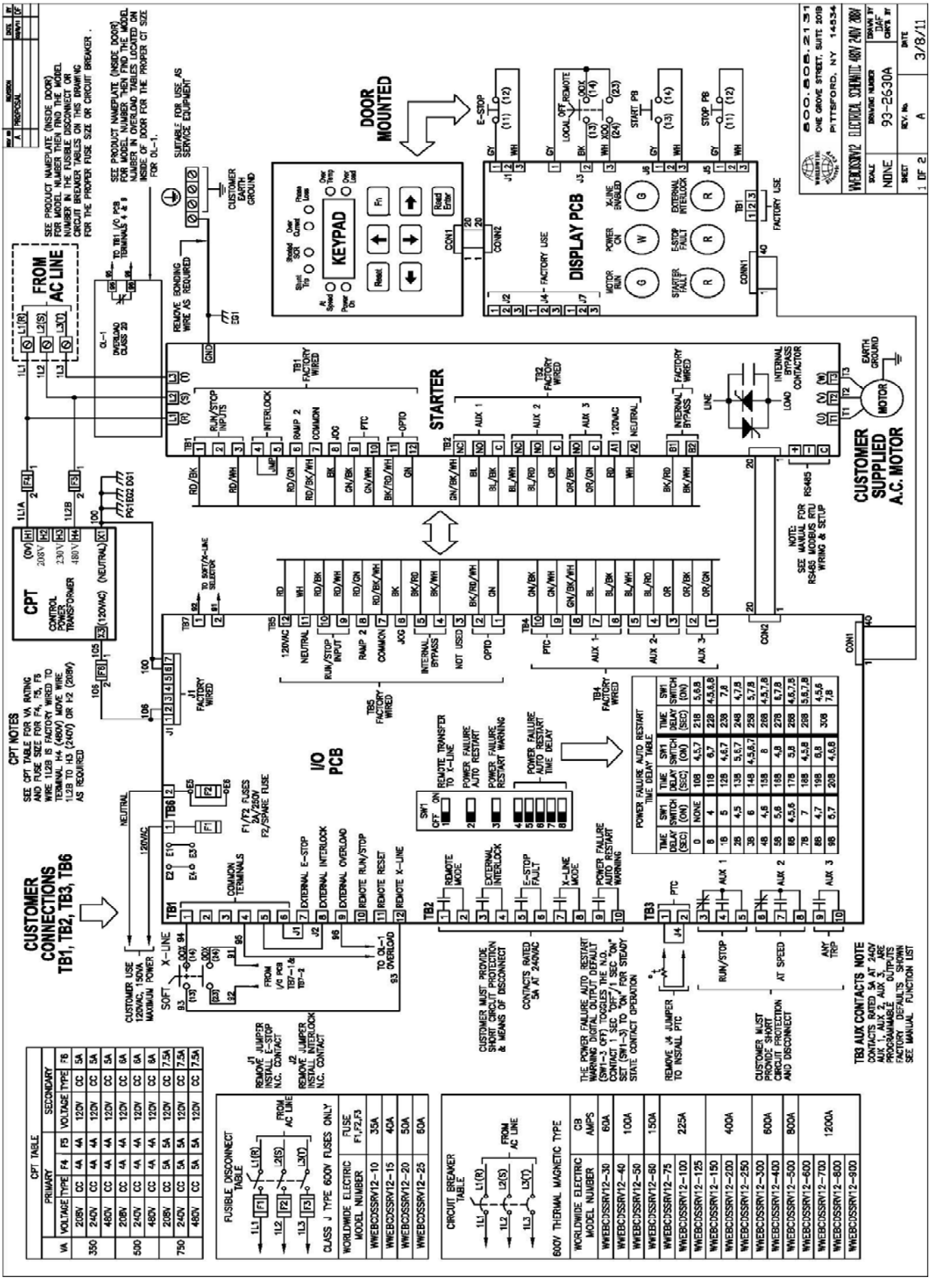
DESCRIPTION: 120-Volt Filter Solenoid (18)
MANUFACTURER: Turbo

DESCRIPTION: 120-Volt M12 Junction Block- 8 Station
MANUFACTURER: MURR

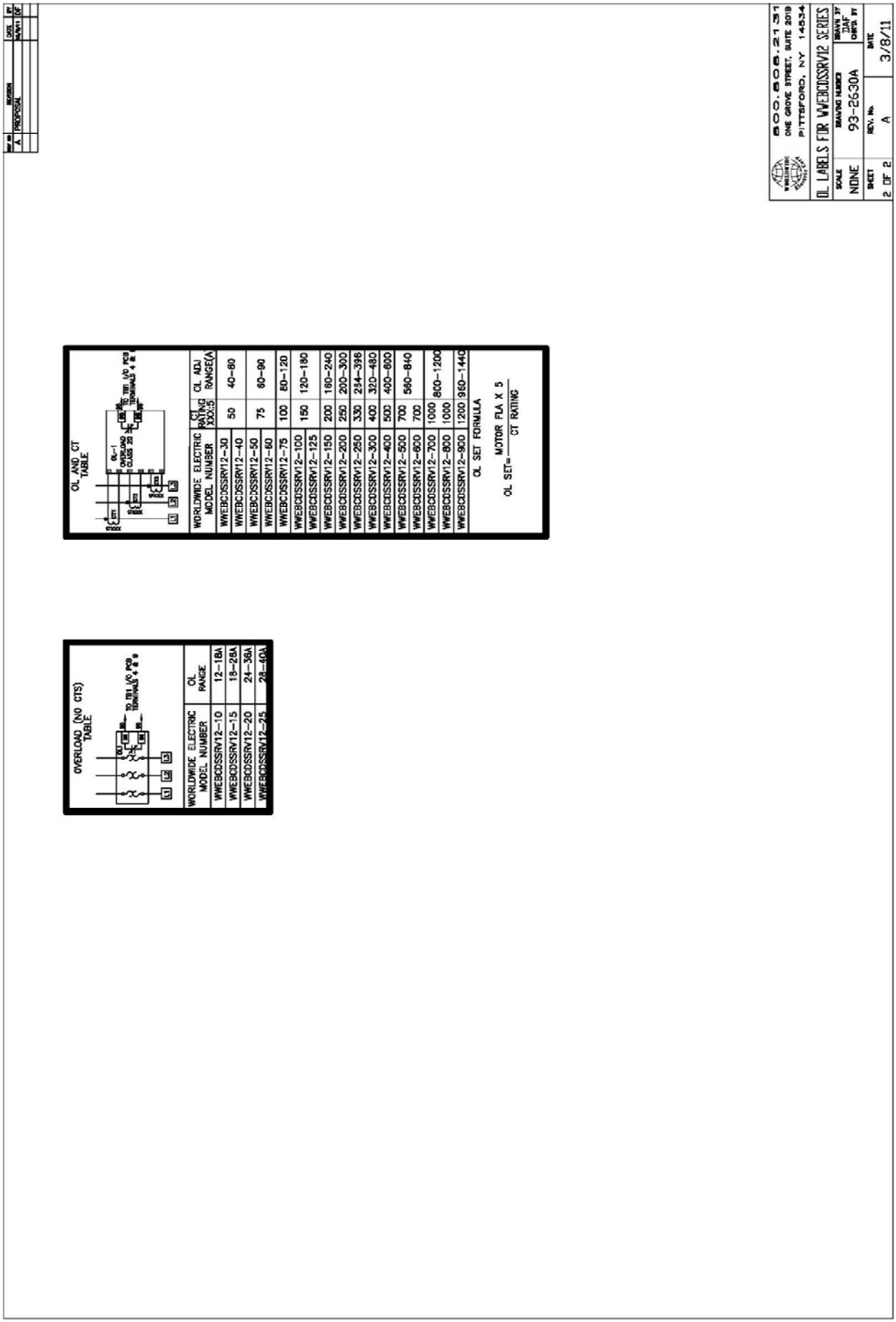
DESCRIPTION: 120-Volt Solenoid Cable- M12 x 18 MM DINN
MANUFACTURER: MURR

5.4 WIRING SCHEMATICS

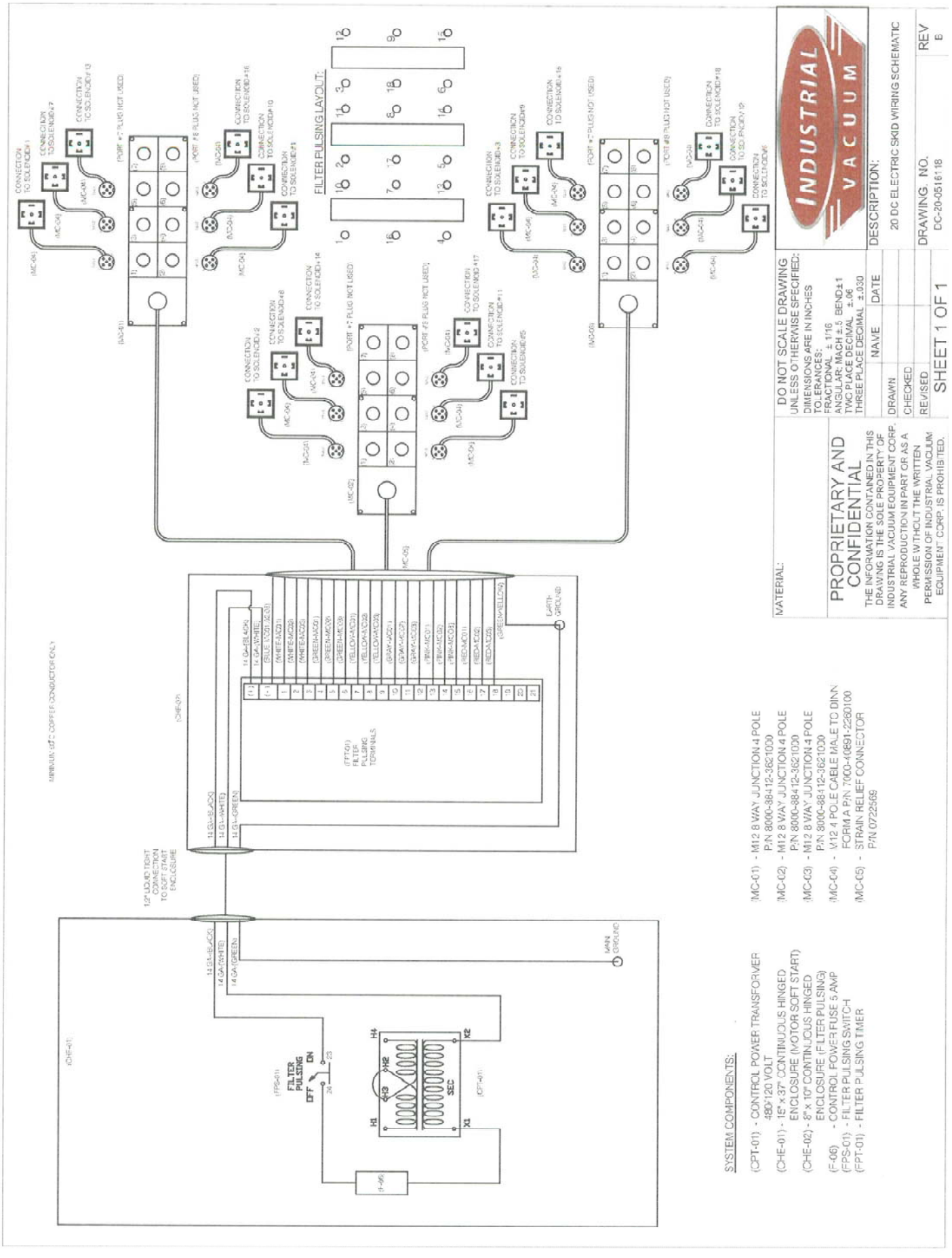
5.4 Wiring Schematic DC-20-0516117



5.4 Wiring Schematic DC-20-0516117 *(Continued)*



5.4 Wiring Schematic DC-20-0516118



SECTION 6:
WARRANTY AND SERVICE NOTES

INDUSTRIAL VACUUM EQUIPMENT CORP.
LIMITED WARRANTY

Seller warrants each new product to be free from defects in material and workmanship under normal use and maintenance as herein described. This warranty does not apply to commercial items manufactured by others (Cincinnati fans, Worldwide Electric Motors, etc.), which are covered by existing warranties of the representative manufacturers thereof. Seller's sole obligation under this warranty shall be limited to repairing, replacing or allowing credit for, at Seller's option, any part which under normal and proper use and maintenance proves defective in material or workmanship within twelve (12) months after delivery to Buyer. In the event of defects developing within that period, the Seller will furnish, F.O.B. its plant, without charge, parts required to replace material found defective. Beyond this, the Seller assumes no responsibility.

This warranty is in lieu of all other warranties (except of title), expressed or implied, and there is not an implied warranty of merchantability or fitness for a particular purpose. In no event shall Seller be liable for consequential or special damages.

Used products are sold on an "as is" basis and there is no implied warranty of merchantability or of fitness for a particular purpose, unless otherwise expressly stated on the face of this form.

SERVICE NOTES _____

SECTION 7:
SPARE PARTS LIST

Qty	Item #		Description
36	FN3777-N		20,000 CFM Electric Skid Mounted Dust Collector Filter- UX- Nano MERV 14 Rated, NF20067 BHA
1	EC2001-22		22 Station 120 Volt Baghouse Timer
18	AR4016-2		1" Diaphragm Filter Pulsing Assembly w/ Integrated Solenoid
1	AR4017-2		1" Diaphragm Rebuild Kit for 20,000 ES Dust Collector
3	DCP95150		MURR-EL Exact Molded Cable, 88412-3621000 MURR Electronik
18	DCP95151		MURR-EL MSUD Valve Plug,40891-2260100 MURR Electronik
18	AR4015-1		120- Volt Solenoid for Dust Collector w/ Murr Wiring
1	AR4018		20,000 CFM Electric Skid Dust Collector 120 Volt Solenoid Rebuild Kit
18	FN3779		½" Handle Nut
6	DCP18501		1" x 6" T Handle Hitch Pin, 02800 Double HH MFG.
9	DCP1003		Door Latch Assembly