DUST COLLECTOR CARTRIDGE BAGHOUSE

INSTRUCTION, OPERATIONS & MAINTENANCE MANUAL

CLEAN AIR MANAGEMENT COMPANY, INC.
8224 Nieman Road • Lenexa, Kansas 66214 Phone: 913-831-0740 Fax: 913-831-9271

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OPERATION PRINCIPLE

A. Solids laden air or gases enter the unit at the hopper or housing inlet.

B. Air passes through the filter media.

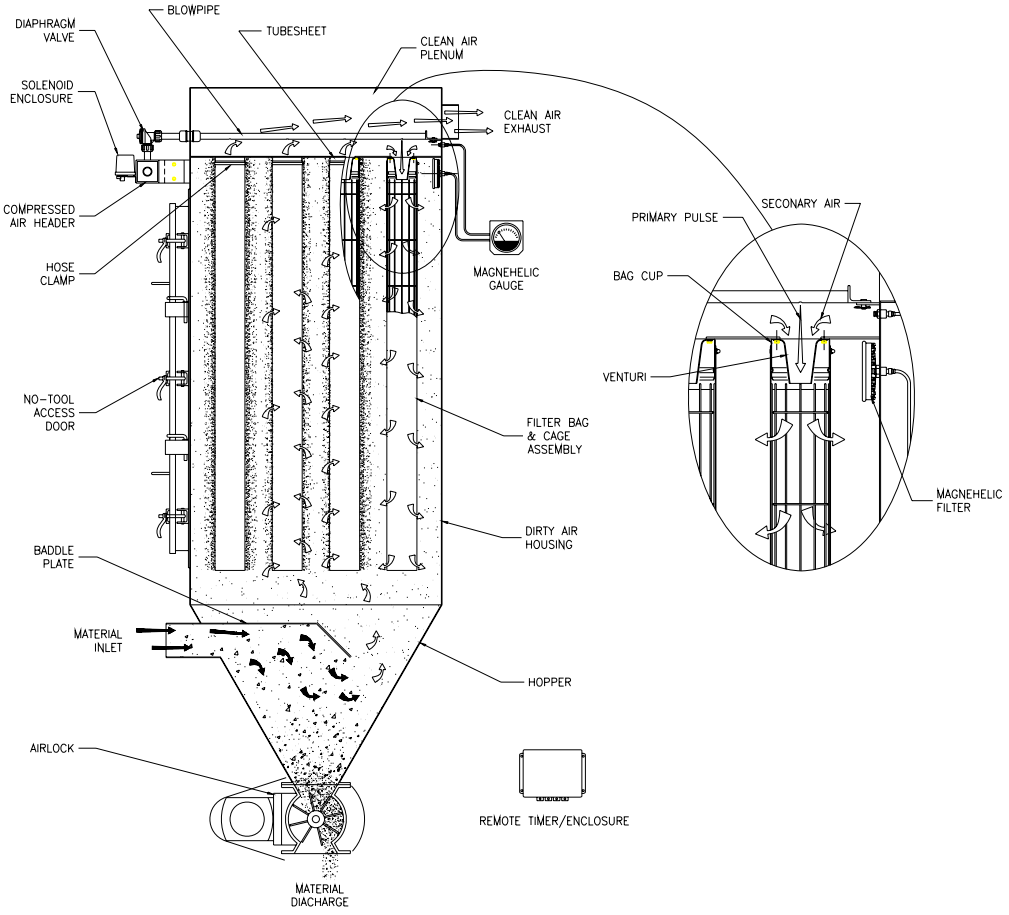
C. Solids are retained on the filter media surface.

D. Cleaning cycle consists of a momentary blast of 80 psig compressed air:

1. Momentarily taking a row of cartridges off stream through pressure reversal.

2. Flexing filter cartridges.

3. Solids are released to fall towards hopper and through rotary valve or other discharge equipment.



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RECEIVING YOUR UNIT

Prior to accepting shipment, care must be taken to inspect all equipment received both for proper count and for damage. Any and all irregularities must be noted on the carrier's copy of the shipping receipt to assist in settling any claims for damage or shortages. All equipment is shipped FOB point of origin whether on a prepaid or collect freight basis.

ANY CLAIM FOR DAMAGE IN TRANSIT OR SHORTAGES MUST BE BROUGHT AGAINST THE CARRIER BY THE PURCHASER.

Once your claim has been filed with the carrier, contact CAMCORP to notify us of the problem(s), and then we will advise the appropriate repair procedure or recommend it to be returned to the factory depending on the extent of damage.

INSPECTION OF UNIT

Housing, Air Header and Timer Assembly: Particular attention should be paid to the sheet metal housing of your collector. The unit should be inspected for dents, cracks, or rips. A dented housing may seriously affect the structural integrity of the unit. The air header and timer assembly are very delicate pieces of the unit and must be checked carefully for any signs of impact, warpage, or loose fittings. If any of these signs are present, note them on the shipping receipt and notify CAMCORP immediately. The entire unit should be checked against the certified drawings for correctness and the manufacturer notified immediately if there are any discrepancies. No corrections may be made without the expressed written consent of CAMCORP.

Components: A count should be made of all pieces received and this should be verified against the carrier's manifest. Boxes should be inspected for rough handling, which may have resulted in hidden damage.

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ON SITE STORAGE RECOMMENDATIONS

I. Baghouse, Bin Vent, Filter Receiver, Dirty Air Hopper and Housing

1. Housing can be stored outside.
2. Equipment must be blocked up to keep the flanges out of the dirt.
3. Many units are supplied with a plain finish bare steel interior. If storage of more than two weeks is anticipated, the interior should be prime coated before storage.
4. Covering the unit with a tarp is recommended to keep the interior from rusting or corroding as well as keeping the outer finish in new condition. However, the tarp is not absolutely necessary.

II. Baghouse, Bin Vent, Filter Receiver, and Clean Air Plenum

1. Unit can be stored outside.
2. Air header and diaphragm valves must be tarped for weather protection.
3. Positioned unit so water will not get in or remain inside the tube sheet area.
4. Unit must be blocked up to keep the flanges, bag cups, venturis and air header out of water and dirt.
5. Ports on diaphragm valves must be plugged and taped to keep insects, dirt, and moisture out.
6. For extended storage (more than 4 weeks), it is recommended to remove the timer panel and solenoid assembly (if mounted). These components should be stored inside a cool dry area along with the copper or black nylon tubing. The solenoids should have all ports capped and taped to protect from insects, dirt, and moisture.
7. The unit should be tarped but is not absolutely necessary.

III. Filter Cartridges

1. Filter cartridges must be stored inside a cool dry area protected from moisture, rodents and insects.
2. For extended storage the boxes for the bags should be wrapped with plastic wrap or stretch wrap to protect from moisture.
3. If the cartridges get wet for any reason, immediately lay them out with plenty of ventilation to dry in order to prevent mold and mildew.

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ON SITE STORAGE RECOMMENDATIONS (continued)

IV. Accessory Parts

1. This includes all gauges, bag clamps, nylon or copper tubing, valves, gaskets and other parts not specifically called out.
2. These items should be stored inside a cool dry place protected from moisture, insects and rodents.

V. Fan and Fan Accessories

1. Fans can be stored outside on a pallet or skid to keep them out of water and dirt.
2. Fan silencers, outlet dampers and inlet boxes should also be tarped and stored on a pallet or skid.

VI. Ducting

1. Ducting can be stored outside on a pallet or skid to keep it off the ground. It should be positioned so that water does not sit on or in the ducting.
2. If ducting is unpainted carbon steel, it should be at least primed coated before storage.
3. If ducting is already finish coated, it should be tarped to protect the finish but is not absolutely necessary.

VII. Knife Gate

1. All limit switches, solenoids and air cylinder ports must be capped and taped to prevent any moisture or dirt from entering.
2. Equipment can sit outside provided it is covered with a tarp and is on a pallet or skid to keep it out of water and dirt.

VIII. Isolation Dampers

1. All limit switches, solenoids and air cylinder ports must be capped and taped to prevent any moisture or dirt from entering.
2. Equipment can sit outside provided it is covered with a tarp and is on a pallet or skid to keep it out of water and dirt.

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ON SITE STORAGE RECOMMENDATIONS (continued)

IX. Rotary Valve

1. Rotor and interior of valve should be well oiled with vegetable oil to prevent rust and to maintain compatibility with product.
2. Unit can be stored outside provided it is covered with a tarp and is on a pallet or skid to keep it out of water and dirt.

X. Butterfly (Wafer Valve)

1. All limit switches, solenoids and air cylinder ports must be capped and taped to prevent any moisture or dirt from entering.
2. Unit can be stored outside provided it is covered with a tarp and is on a pallet or skid to keep it out of water, dirt and sunlight.

XI. Level Indicators

- ❖ Store these items inside a protected cool dry area.

XII. AC Inverters

- ❖ Store these items and all other electrical controls inside a protected cool dry area.

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SETTING UP YOUR UNIT

CAMCORP dust collectors are shipped either in one piece, fully assembled, or in two or more sections depending on the unit size and weight. Before attempting to move the dust collector or any of its sections, review both the certified general assembly drawing supplied from CAMCORP and the rigging and lifting guidelines included in this manual. Become familiar with the size and number of sections to be assembled, the orientation of inlet(s), outlet(s), access door(s), compressed air header(s), as well as the number and location of lifting lugs.

Dust collectors of this type are manufactured from steel sheets and are quite flexible. Therefore, even though care has been taken to maintain dimensional accuracy and squareness, some difficulty should be anticipated and temporary bracing in the field may be required.

The following sequential procedure will help to minimize any assembly difficulties:

STEP 1: Set up the supporting steel for the dust collector level and square. Precision at this point will greatly help facilitate erection and bolt hole alignment of the dust collector sections to follow.

STEP 2: Place the hopper with its girth channel on the supporting steel work. Check for squareness, and for bolthole alignment between the hopper flange and the girth channel. Apply the appropriate RTV silicone caulk around the periphery of the hopper flange, one bead on each side of the boltholes.

STEP 3: Lift the dusty air plenum, with the tube sheet into place. **DO NOT LOWER THE PLENUM ONTO THE HOPPER FLANGE UNTIL ALIGNMENT IS ACCOMPLISHED.** The silicone caulk makes horizontal movement very difficult once a load is applied. With the plenum suspended over the hopper ½" to 1", begin bolt hole alignment, starting at the center of the plenum and working toward the ends by using tapered drift pins. If the wall(s) has flexed out of square, it will be necessary to pry or pull it back into alignment. Depending on the size of the unit and the degree of difficulty, hydraulic jacks and come-alongs may be required. When the mating holes are properly aligned, finish lowering the plenum. Install the remaining bolts, washers and nuts and torque to the appropriate specifications.

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SETTING UP YOUR UNIT (continued)

STEP 4: Check the top of the dusty air plenum for squareness and bolthole alignment between the dusty air plenum and the tube sheet. Make sure that the silicone caulk has been applied between the top flange of the dusty air plenum and the underside of the tube sheet flange. Next, apply the caulk around the periphery of the topside of the tube sheet flange, one bead on each side of the boltholes.

STEP 5: Lift the clean air plenum into place and assemble in the same fashion as in STEP 3. Again, do not lower the clean air plenum completely until preliminary alignment is accomplished. Start drift pin alignment at the center of the plenum on the compressed air header side since the header makes access to the flange more limited. When alignment is complete, install the remaining bolts, washers and nuts and torque to the appropriate specifications.

All CAMCORP dust collectors are provided with lifting lugs for ease in handling of the units during field erection and installation. The number and location of these lifting lugs will vary depending on the model, size and weight of the dust collector. Before attempting to rig and lift your dust collector, review the certified general assembly drawing supplied from CAMCORP, to verify the number and location of lifting lugs as well as visually checking this information on the actual unit. Large units are frequently shipped in several sections, so check the lifting lugs provided on each section. If these cannot be used or there is some question about lifting lug location, consult the engineering staff at CAMCORP for proper location since proper care must be taken to prevent damage to housing or it components.

Rigging and Lifting Guidelines

1. Do not lift the dust collector by any attachments other than the lifting lugs provided.

2. Use all of the lifting lugs provided on the dust collector or a section of the dust collector, when making a lift.

3. If the lifting lugs are located below the roofline of the dust collector or below the top of the section of the dust collector, a vertical pull must be made to avoid crushing the top of the unit. Use spreader beams to accomplish this vertical pull.

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SETTING UP YOUR UNIT (continued)

4. Attach tag lines at several locations to help in controlling the unit when lifted and to prevent spinning or swinging.

5. The dust collector should be lifted and lowered at a slow, uniform rate and not allowed to bounce or joggle since this can cause excessive impact stresses at the lift points.

Compressed Air Manifold: CAMCORP ships the compressed air manifold installed complete with diaphragm valves and solenoid enclosure(s) except when units are over legal shipping width with them in place.

Doors and Flanges: Hold-downs on doors should only be hand tightened. Excessive pressure can distort the door panel itself resulting in leakage. All bolts on flanges should be tight. All ports in the dust collector, not being used, must be plugged prior to start-up.

Electrical: A 120 volt 60 Hertz circuit is required to operate the dust collector's pulse-jet cleaning system. This timer must be wired according to the wiring diagrams and be provided with a circuit that is free from transient currents. The timer has a feature call "Demand Pulse" that allows the output terminals to be energized and de-energized by the high and low set points of a differential pressure switch such as a Dwyer Photohelic Series 3000. Refer to the enclosed timer-wiring diagram for proper wiring. The "Demand Pulse" terminals are marked "Pressure Switch". Do not over fuse.

The pulse timer board has an adjustable pulse duration and interval (time between valves firing) settings. Before applying power to the timer, always check these settings according to the table below. Since there are many variances in operations and conditions, these are presented only as initial start-up guidelines. If you experience problems in cleaning of the filter cartridges, please contact CAMCORP.

TIMER BOARD ADJUSTMENTS
(Recommended at start-up)

VALVE SIZE	PULSE DURATION	INTERVAL
¾"	.10 to .12 seconds	20 to 25 seconds
1"	.10 to .12 seconds	20 to 25 seconds
1-½"	.06 to .08 seconds	20 to 25 seconds

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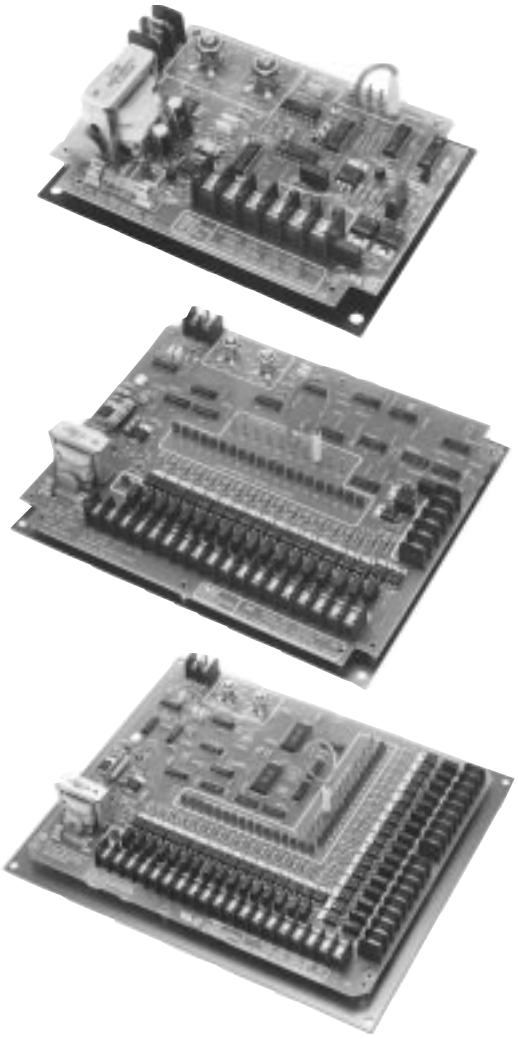
Features

- File #E65038
- Digital Timing Circuitry: Allows for stable timing from -40°F to 150°F temperature range
- Pulse Time: Line synchronized to eliminate 8 milliseconds triac tum off variation
- 10 Amp-400/600V Output Triacs: For maximum protection against output shorts. 200 VA load rating.
- RTV Coating: Conformally coated for protection against vibration, humidity and contamination
- 2 Modes of Operation: Can be operated continuously or "on demand" via external pressure switch
- Field Selectable: For numbers of outputs required
- LED Indicators: For compartment being cleaned indication
- Rugged Timing Adjustments: Large stable potentiometers are used for "on" and "off" time adjustments
- Metal Chassis Provided: For mounting directly into NEMA-4 box
- Timer Life Tested for 24 Hours: To eliminate field failures
- Input Protection: 30 joule metal oxide varistor
- One Year Warranty: Warranted to be free from defects in materials or workmanship for One Year from date of purchase
- Made in USA



Dust Collector Controls

AC Input, Pulse Cleaning of Bag House Dust Collectors

Models DNC-T2003 thru DNC-T2032

Operating Logic: The control can function in 2 modes:

Continuous Mode: The pressure switch terminals are shorted. Upon application of input voltage, the control activates output #1 after the preset off time. It will continue to activate outputs sequentially until input voltage is removed.

On Demand Mode: The pressure switch terminals are connected to an isolated set of contacts of a differential pressure switch. The control will activate the outputs sequentially whenever the pressure switch contacts are closed. When the pressure switch contacts open, the output sequencing stops. Re-closing of the contacts will cause the control to resume activating the outputs.

Program wire allows the user to select the maximum number of outputs to be activated.

Note: Controls are shipped with jumper across pressure switch terminals

Specifications

Time Delay

On-Time: Adjustable from 50 to 500 milliseconds

Off-Time: Range A - adjustable from 1.5 to 30 seconds; Range B - adjustable from 8.5 to 180 seconds

Note: Range S designates customer specified time range. Consult factory for parameters

Repeatability: ± 3% over temperature and voltage ranges

Input

Operating Voltage: 120 ± 10%, 220 ±10% VAC

Frequency: 50/60 Hz

Power Consumption: 2 VA Max.

Wiring diagram to Facilitate Expanded Output Mode →

To expand the number of outputs in "continuous cleaning mode", any two timers can be connected via a dual coil alternate action latch relay as shown in the diagram to the right.

The output pulse from the last compartment of Timer No. 1 activates the latch coil opening the reset contacts connected to pressure switch terminals of Timer No. 1, causing Timer No 1 to stop sequencing. At the same time, the latch contacts connected to pressure switch Timer No. 2 close which will cause Timer No. 2 to start sequencing until the last output activation causes the reset coil to unlatch the relay and Timer No. 1 begins sequencing. This cycle will continue until voltage is removed from the system.

Output

Type: Solid-state switch (Triac)

Switch Rating: 200 VA maximum per output

Protection

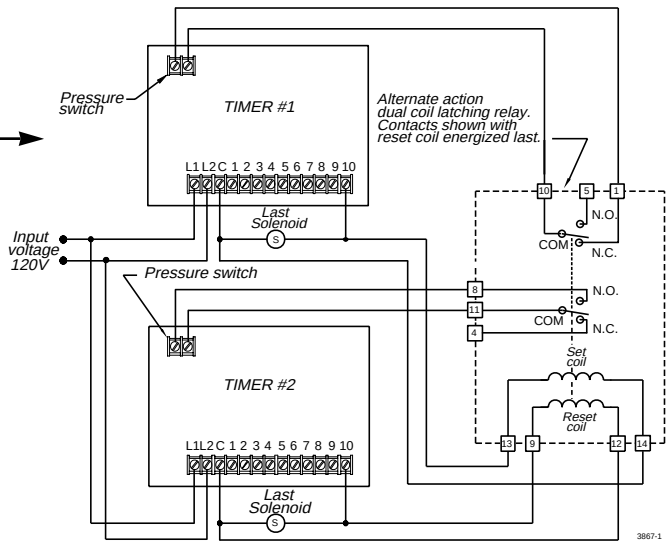
Transient Voltage: 30 joule metal oxide varistor

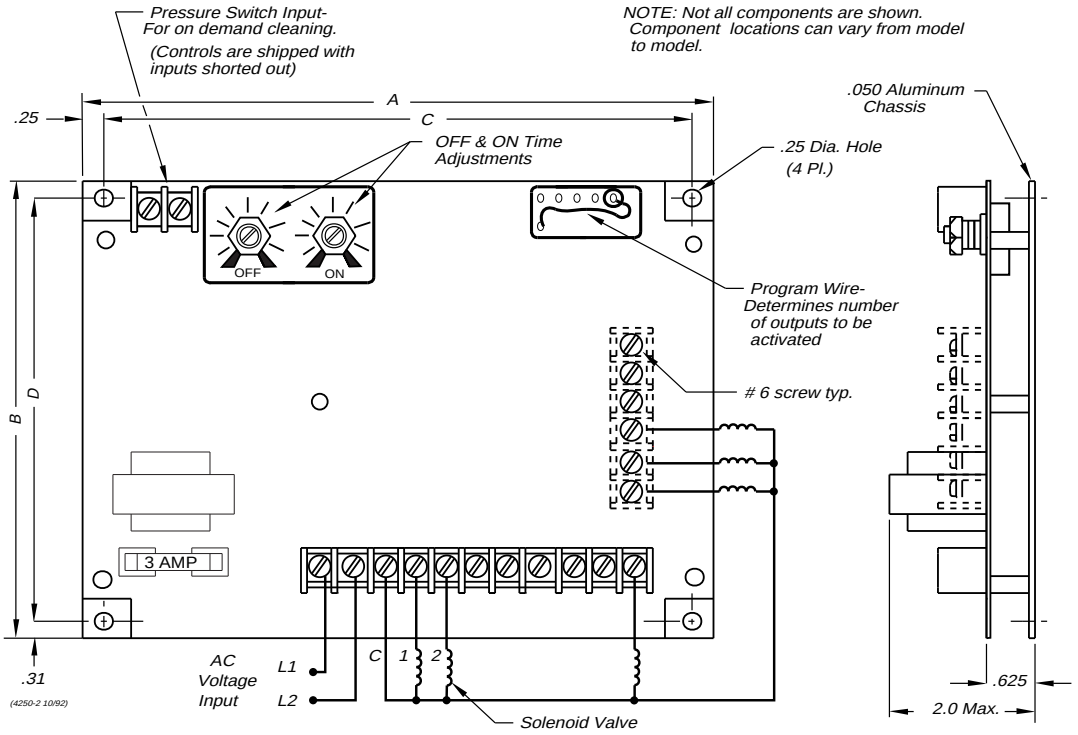
Short Circuit Protection: 3 Amp. fuse

Environmental

Operating Temperature: -40°C to 66°C

Storage Temperature: -40°C to 70°C





DNC-T2003 THRU T2032
WIRING DIAGRAM

Click for Where to Buy

DNC-T2003 through DNC-T2032 120VAC Input Voltage

Maximum No. of Outputs	Dimensions A	B	C	D	Size of NEMA-4 Encls. Required	Programmable No. of Outputs	Off Time In Seconds	Part Number
3	6 3/4"	4 7/8"	6 1/4"	4 1/4"	8" x 6" x 3 1/2"	1 - 3	1.5 - 30	DNC-T2003-A10
							8.5 - 180	DNC-T2003-B10
6	8 3/4"	6 7/8"	8 1/4"	6 1/4"	10" x 8" x 4"	2 - 6	1.5 - 30	DNC-T2006-A10
							8.5 - 180	DNC-T2006-B10
10	8 3/4"	6 7/8"	8 1/4"	6 1/4"	10" x 8" x 4"	3 - 10	1.5 - 30	DNC-T2010-A10
							8.5 - 180	DNC-T2010-B10
20	10 3/4"	8 7/8"	10 1/4"	8 1/4"	12" x 10" x 5"	11 - 20	1.5 - 30	DNC-T2020-A10
							8.5 - 180	DNC-T2020-B10
32	12 3/4"	10 7/8"	12 1/4"	10 1/4"	14" x 12" x 6"	17 - 32	1.5 - 30	DNC-T2032-A10
							8.5 - 180	DNC-T2032-B10

DNC-T2006 through DNC-T2032 220VAC Input Voltage

Maximum No. of Outputs	Dimensions A	B	C	DD	Size of NEMA-4 Encls. Required	Programmable No. of Outputs	Off Time In Seconds	Part Number
6	6 3/4"	4 7/8"	6 1/4"	4 1/4"	10" x 8" x 4"	2 - 6	1.5 - 30	DNC-T2006-A220
							8.5 - 180	DNC-T2006-B220
10	6 3/4"	4 7/8"	6 1/4"	4 1/4"	10" x 8" x 4"	3 - 10	1.5 - 30	DNC-T2010-A220
							8.5 - 180	DNC-T2010-B220
20	10 3/4"	8 7/8"	10 1/4"	8 1/4"	12" x 10" x 5"	11 - 20	1.5 - 30	DNC-T2020-A220
							8.5 - 180	DNC-T2020-B220
32	12 3/4"	10 7/8"	12 1/4"	10 1/4"	14" x 12" x 6"	17 - 32	1.5 - 30	DNC-T2032-A220
							8.5 - 180	DNC-T2032-B220

Note: Special time ranges are availabale with the following maximum to minimum time ratio restrictions: ON Time - 10:1; Off Time - 20:1

Accessories:

Enclosure For:	Dimensions	Part Number
DNC-T2003	8" x 6" x 3 1/2"	BOX-A0806-CHNF
DNC-T2006	10" x 8" x 4"	BOX-A1008-CHNF
DNC-T2010	10" x 8" x 4"	BOX-A1008-CHNF
DNC-T2020	12" x 10" x 5"	BOX-A1210-CHNF
DNC-T2032	14" x 12" x 6"	BOX-A1412-CHNF

Pilot Lamp	NEMA-4 Rated Red Light	ASL-00RED-NEMA4
On/Off Switch	NEMA-4 Rated w/Legend Plate	MSW-0DPST-011
Alternate Action Dual Coil Latch Relay		KDD-LATCH-120AC
Socket For Latch Relay		MSO-0D11P-012

National Controls Corporation offers NEMA 4 type enclosures for mounting our controls. These enclosures are made of heavy gauge steel and have a continuous hinge cover. All seams are continuously welded. The finish is gray hammer-tone enamel inside and out, over phosphatized surfaces.

Note. In order to keep abreast of the latest technology, National Controls Corporation reserves the right to change components and/or design of controls without notice.

National Controls Corporation
Phone **800-323-2593**
630-231-5900
Fax **630-231-1377**

Important Notice to Users:
Our timers are capable of use in a wide array of devices and in various applications. Any device or system incorporating a timer should be so designed that, in the event of failure, malfunction or normal wear-out of the timer, the system will become inoperative in a manner which will prevent property damage or bodily Injury.

Caution:
1. Do not mount controls in high vibration areas without shock mounts.
2. Do not mount controls in areas of high dust or corrosive atmospheres without a protective enclosure.
3 Do not use a converter or inverter for the power source.
4. Do not mount control in high transient voltage areas without an isolation transformer
5. Do not leave control box open.
6. Do not allow a local repair shop to repair the controls, as we employ some very sophisticated components that could be further damaged. For service, call us directly: 800-323-2593

SETTING UP YOUR UNIT (continued)

The firing sequence of the diaphragm valves on the dust collector should be set so that no two adjacent rows of cartridges fire in succession to insure maximum cleaning and life of the filter media. This can only be achieved when wiring the pulse timer board to the solenoid valves. If you are experience a high-pressure drop across the filter cartridges in your dust collector, the pulse interval should be reduced.

Apply electrical power to the timer and make sure that it is cycling completely through all rows of the unit. In some cases, the timer panel may have more "positions" than required, in which case, the position selector cable needs to be attached to the proper numerical value corresponding to the number of diaphragm valves on the unit.

If your dust collector was shipped via common carrier rather than a contract hauler, there is a possibility that the solenoid enclosure was not shipped installed on the unit. If this is the case, there is a mounting plate welded on the housing or the air header with the bolt pattern of the enclosure already drilled. Bolt the enclosure and install the nylon (or copper) tubing with the fittings provided, making sure that the solenoids are hooked to their corresponding diaphragm valve.

Valves and Piping: After the unit has been installed, the diaphragm valves should be checked to make sure that the port marked "IN" is assembled to the compressed air manifold. The "IN" connection of the solenoid valve is connected to the diaphragm valve by means of ¼" nylon or ¼" copper refrigeration tubing. Each nut on the brass compression fittings should be checked for tightness before the compressed air manifold is pressurized. In most cases a slip fit fitting has been used. The integrity of the nylon tubing inside each fitting should be checked by pulling gently on each tube. If the tube pulls out, simply push it back into the fitting until it will not go any further. The solenoids are shipped with a plastic plug in the discharge side of the valve. These plugs must be removed for proper operation.

Gauges: The differential pressure gauge, mounting bracket, fittings and tubing are usually shipped loose in a box with the dust collector. When installing, make sure that the high-pressure port of the gauge is connected below the tube sheet and the low-pressure port is connected above the tube sheet on the dust collector. There are pipe couplings welded on the side of the dust collector for these connections. After the differential pressure gauge is permanently mounted, the gauge needs to be zeroed prior to connecting the tubing to the gauge.

Auxiliary Equipment: All auxiliary equipment must be installed according to its manufacturer's specifications and interlocked with the entire system as needed. Direction of rotation of each item must be checked prior to start-up of the entire system.

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OPERATING INSTRUCTIONS and PARTS LIST

Magnehelic® Differential Pressure Gage

SPECIFICATIONS

Dimensions: 4-3/4" dia. X 2-3/16" deep.

Weight: 1 lb. 2 oz.

Finish: Baked dark gray enamel.

Connections: 1/8 N.P.T high and low pressure taps, duplicated, one pair side and one pair back.

Accuracy: Plus or minus 2% of full scale, at 70°F. (Model 2000-0, 3%; 2000-00, 4%).

Pressure Rating: 15 PSI.

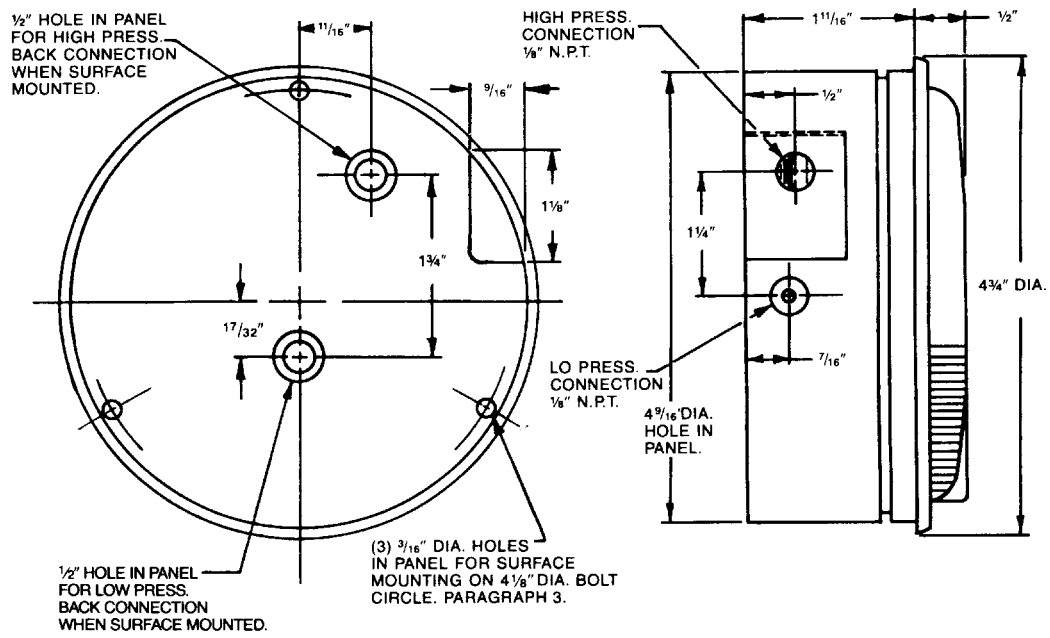
Ambient Temperature Range: 20° to 140°F

Standard gage accessories include two 1/8" N.P.T. plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapters, and three flush mounting adapters with screws.

Caution: For use with air or compatible gases only.

For repeated over-ranging or high cycle rates, contact factory.

Hydrogen Gas Precautionary Note: The rectangular rare earth magnet used in the standard gage may not be suitable for use with hydrogen gas since a toxic and explosive gas may form. For hydrogen service, consult the factory for an alternate gage construction.



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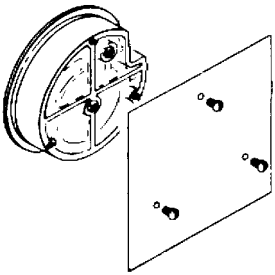
e-mail: info@dwyer-inst.com

1. Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines may be run any necessary distance. Long tubing lengths will not affect accuracy but will increase response time slightly. Do not restrict lines. If pulsating pressures or vibration cause excessive pointer oscillation, consult the factory for ways to provide additional damping.

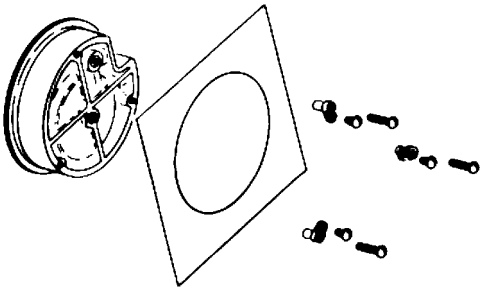
2. All standard Magnehelic gages are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If gages are to be used in other than vertical position, this should be specified on the order. Many higher range gages will perform within tolerance in other positions with only rezeroing. Low range Model 2000-00 and metric equivalents must be used in the vertical position only.

3. Surface Mounting



Locate mounting holes, 120° apart on a 4-1/8" dia. circle. Use No. 6-32 machine screws of appropriate length.

4. Flush Mounting



Provide a 4 $\frac{9}{16}$" dia. opening in panel. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adaptors, Part No. 360c, firmly secured in place. To mount gage on I ¼"-2" pipe, order optional A-610 pipe mounting kit.

5. To zero the gage after installation

Set the indicating pointer exactly on the zero mark, using the external zero adjust screw on the cover at the bottom. Note that the zero check or adjustment can only be made with the high and low pressure taps both open to atmosphere.

Operation

Positive Pressure: Connect tubing from source of pressure to either of the two high pressure ports. Plug the port not used. Vent one or both low pressure ports to atmosphere.

Negative Pressure: Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports. Plug the port not used. Vent one or both high pressure ports to atmosphere.

Differential Pressure: Connect tubing from the greater of two pressure sources to either high pressure port and the lower to either low pressure port. Plug both unused ports.

When one side of gage is vented in a dirty, dusty atmosphere, we suggest an A-331 Filter Vent Plug be installed in the open port to keep inside of gage clean.

a. For portable use or temporary installation, use 1/8" pipe thread to rubber tubing adapter and connect to source of pressure with rubber or Tygon tubing.

b. For permanent installation, 1/4" 0. D., or larger, copper or aluminum tubing is recommended. See accessory bulletin S-101 for fittings.

MAINTENANCE

Maintenance: No lubrication or periodic servicing is required. Keep case exterior and cover clean. Occasionally disconnect pressure lines to vent both sides of gage to atmosphere and re-zero. Optional vent valves, (bulletin S-101), should be used in permanent installations.

Calibration Check: Select a second gage or manometer of known accuracy and in an appropriate range. Using short lengths of rubber or vinyl tubing, connect the high pressure side of the Magnehelic gage and the test gage to two legs of a tee. Very slowly apply pressure through the third leg. Allow a few seconds for pressure to equalize, fluid to drain, etc., and compare readings. If accuracy unacceptable, gage may be returned to factory for recalibration. To calibrate in the field, use the following procedure.

Calibration:

1. With gage case, P/N 1, held firmly, loosen bezel, P/N 4 by turning counterclockwise. To avoid damage, a canvas strap wrench or similar tool should be used.
2. Lift out plastic cover and "O" ring.
3. Remove scale screws and scale assembly. Be careful not to damage pointer.
4. The calibration is changed by moving the clamp, P/N. 70-b. Loosen the clamp screw(s) and move slightly toward the helix if gage is reading high, and away if reading low. Tighten clamp screw and install scale assembly.
5. Place cover and O-ring in position Make sure the hex shaft on inside of cover is properly engaged in zero adjust screw, P/N 230-b.
6. Secure cover in place by screwing bezel down snug. Note that the area under the cover is pressurized in operation and therefore gage will leak if not properly tightened.
7. Zero gage and compare to test instrument. Make further adjustments as necessary

Caution: If bezel binds when installing, lubricate threads sparingly with light oil or molybdenum disulphide compound.

Warning: Attempted field repair may void your warranty, Recalibration or repair by the user is not recommended. For best results, return gage to the factory. Ship prepaid to:

Dwyer Instruments, Inc.
Attn. Repair Dept.
55 Ward St.
Wakarusa, IN 46573

Trouble Shooting Tips:

• *Gage won't indicate or is sluggish.*

1. Duplicate pressure port not plugged.
2. Diaphragm ruptured due to overpressure.
3. Fittings or sensing lines blocked, pinched, or leaking.
4. Cover loose or "O" ring damaged, missing.
5. Pressure sensors, (static tips, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F order gage with low temperature, (LT) option.

• *Pointer stuck-gage can't be zeroed.*

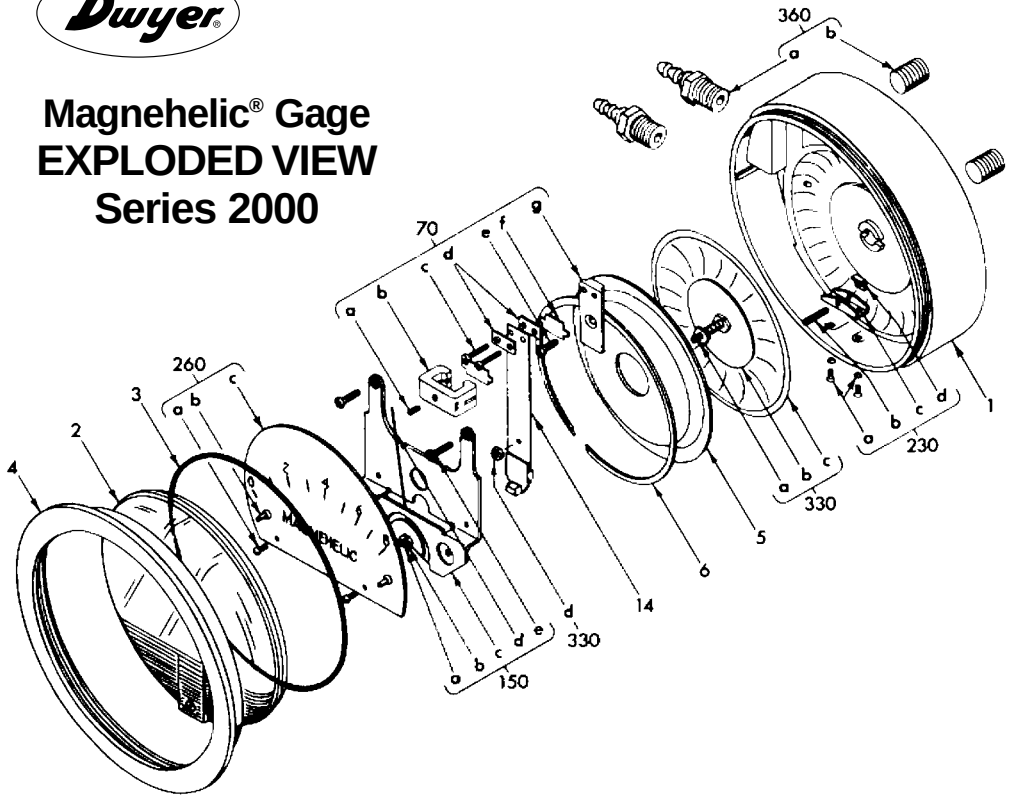
1. Scale touching pointer.
2. Spring/magnet assembly shifted and touching helix.
3. Metallic particles clinging to magnet and interfering with helix movement.
4. Cover zero adjust shaft broken or not properly engaged in P/N 230-b adjusting screw.

We generally recommend that gages needing repair be returned to the factory. Parts used in various sub-assemblies vary from one range of gage to another, and use of incorrect components may cause improper operation or failure. Gages repaired at the factory are carefully calibrated and tested to assure "like-new" operation. After receipt and inspection, we will be happy to quote repair costs before proceeding.

Consult factory for assistance on unusual applications or conditions.

Use with air or compatible gases only.

Magnehelic® Gage EXPLODED VIEW Series 2000



1. Case
2. Cover with zero adjust assy.
3. "O" ring seal
4. Bezel
5. Diaphragm sealing plate
6. Retaining ring
70. Range Spring assembly
    a. Clamp set screw
    b. Clamp
    c. Mounting screws (2 req'd)
    d. Clamping shoe (2 req'd)
    e. Clamp plate screw
    f. Spacer (2 req'd)
    g. Clamp plate
14. Range Spring with magnet
150. Wishbone Assembly -consists of:
    a. Front jewel
    b. Locking nut
    c. Wishbone
    d. Pointer
    e. Mounting screws (2 req'd)
    f. Helix assembly (not shown)
    g. Pivots (2 req'd) (not shown)
    h. Rear jewel (not shown)
230. Zero adjust assembly-consists of:
    a. Foot screws with washers (2 req'd)
    b. Adjust screw
    c. Foot
    d. Finger
260. Scale Assembly-consists of:
    a. Mounting screws (2 req'd)
    b. Bumper pointer stop (2 req'd)
    c. Scale
330. Diaphragm Assembly -consists of: (Arbor press needed to install)
    a. linkage assy., complete
    b. Front plate
    c. Diaphragm
    d. Rear plate (not shown)
    e. Plate washer (not shown)
360. Mounting Hardware Kit
    a. Adapter -pipe plug 1/8" NPT to rubber tubing - (2 req'd)
    b. Pipe plug 1/8" NPT-(2 req'd)
    c. Mounting lug (3 req'd)
    d. Long screw (3 req'd)
    e. Short screw (3 req'd)

Ordering Instructions:

When corresponding with the factory regarding Magnehelic® gage problems, refer to the call-out numbers in this view. Be sure to include model number, pressure range, and any special options. Field repair is not recommended; contact the factory for repair service information.

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INSTALLATION INSTRUCTIONS

Bottom Load Cartridge Filter Elements

1. Before entering the dust collector and beginning the installation procedure, follow the proper lockout, tagout and confined space entry procedures. Remove old bags and cages from the collector. Clean the bag cups/venturis so the urethane top will seal on a clean metal surface. Remove any sharp burrs or surface roughness that can cause tears in the urethane filter element tops. If there is access to the clean air plenum, it should be thoroughly cleaned after removing the used bags and cages.

   Note for PTFE users: The surface of your PTFE filter element is very delicate! When moving or handling, care must be taken to prevent any scraping of the surface. Cardboard or other smooth material should be placed on or around rough surfaces (such as door frames and handrails) to protect the filtration surface from damage during handling. Do not stack filter elements more than four high.

   Inspect each filter element for damage from shipping, storage or handling. Do not use damaged elements; they may leak or fail prematurely.

   If top load sleeve: Insert the provided installation sleeve in the tube-sheet hole to protect the membrane from the rough edges. (Installation sleeves are located in the box labeled "Open First.") Lower the element through the tubesheet hole, slip the installation sleeve off over the top of the element and complete the installation. (Figure #1)

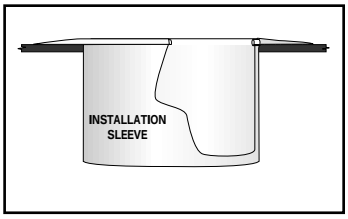


Figure #1

2. Loosely install the clamp between the outer groove markings on the urethane top. The clamp should be on the top, just tight enough to stay in place. Do not re-install used clamps.

Figure #2

3. Carefully lift the cartridge filter element and work the urethane top of the filter element onto the bag cups/venturi (Figure #2). Protect the media surface during handling and installation to avoid any damage to the filter media pleats.

4. Gently push the filter element up onto the bag cup/venturi until the flexible lip in the inner urethane top snaps into place on the groove in the bag cup/venturi. Pull down slightly or rotate the element to ensure the internal lip is properly engaged in the groove (Figure #3).

   If properly installed, the urethane top of the element **<u>will not</u>** touch the underside of the tubesheet.

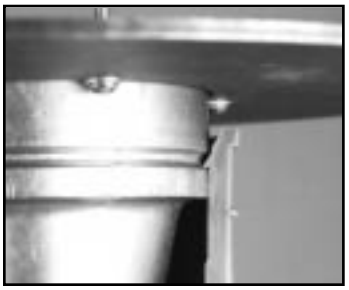


Figure #3 (cutaway)

-continued-

5. Center the clamp in the groove in the urethane top. Using a nut driver, hand tighten the clamp. Care should be taken when tightening the clamp:

    - **<u>Do not over tighten. Over tightening may cause a cutting of the urethane.</u>**
    - **<u>If the urethane material extrudes into the clamp band notches or around the edge of the clamp, over tightening has occurred</u>.**
    - Use of "lined" clamp is recommended, which protects the urethane from damage. Maximum width of the clamp band is 9/16".

Figure #4

After tightening, you should not be able to rotate the filter element by hand. Make sure the filter elements hang plumb and are not touching each other or the collector wall (Figure #4).

Operation Procedures for Bottom Load Collectors

- Leave the timer adjustments set as specified by the baghouse manufacturer until operation stabilizes (usually 24-48 hours). We also recommend a precoating agent such as Neutralite® utilized to help establish an initial control layer. Once operation has stabilized, the time interval between pulses should be adjusted daily until the longest off-time possible has been attained without exceeding the designed differential pressure. Excessive pulsing will lead to shortened filter life. Set the pulse on-time at 0.06 - 0.10 seconds.

- The pressure of the compressed air at the baghouse air header should be set and adjusted as follows when using cartridge filter elements:

  The initial setting should be 60 psi. Increase only if the differential pressure cannot be maintained. Then increase in 5-10 psi increments until it reaches a maximum of 90 psi. If the pressure must be increased further, contact Camcorp.

- Only dry compressed air should be supplied to the baghouse cleaning system.

- All inlet ducts should be equipped with baffles or deflector plates to prevent high velocity impingement of the particulate on the filter surface. Dust should never be allowed to build or stand in the hoppers.

- Verification of airflow should be completed after startup of the baghouse. In some cases, the airflow will be increased if proper airflow dampering or other method of controlling airflow is not utilized. Set the dampers or fan speed to the minimum required airflow at the ventilation point. If not controlled, increased pressure drop may occur due to increased grain loading and high gas velocity between filter elements.

INSTALLATION INSTRUCTIONS

Top Load
Filter Elements

1. Remove old bags and cages from the collector. The clean air plenum should be thoroughly cleaned after removing the used bags and cages. Clean the top surface and inside surface of the tubesheet hole so the urethane top will seal on a clean smooth metal surface. Remove any sharp edges prior to installing the filter elements as they can cause tears in the urethane tops of the filter elements.

   Note for TEXusers: The surface of your TEX filter element is very delicate! When moving or handling, care must be taken to prevent any scraping of the surface. Cardboard or other smooth material should be placed on or around rough surfaces (such as door frames and handrails) to protect the filtration surface from damage during handling. Do not stack filter elements more than four high. We recommend using an installation sleeve to protect the media during installation of the element into tubesheet.

   If top load sleeve: Insert the provided installation sleeve in the tubesheet hole to protect the membrane from the rough edges. (Installation sleeves are located in the box labeled "Open First.") Lower the element through the tubesheet hole, slip the installation sleeve off over the top of the element and complete the installation. (Figure #1)Inspect each filter element for damage from shipping, storage or handling.

   Do not use damaged elements; they may leak or fail prematurely.

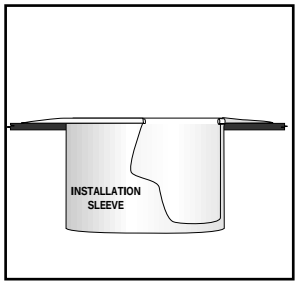


Figure #1


Figure #2

2. Slowly lower the filter element T through the tubesheet hole without touching the sides of the hole as much as possible (Figure #2). Hitting the sides can cause damage to the filter media pleats. Protect the media surface whenever possible.

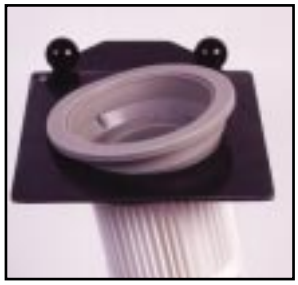


Figure #3


Figure #4

3. Gently push the flexible urethane top of the filter element on one side until it snaps into the tubesheet hole (Figure #3). Then push the opposite side of the top of the element until it is securely snapped into the tubesheet hole (Figure #4).

4. The top flange should be flat on the surface of the tubesheet. Do not use excessive force or stand on the filter elements to snap them into place. The groove in the urethane top of the element should be securely seated in the tubesheet hole (Figure #5).

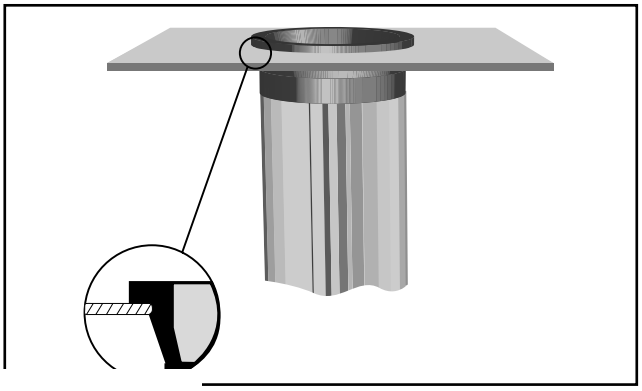


Figure #5

-continued-

Installation of Snapband Retainers for Top Load Filter Elements

NOTE: A snapband retainer has been shipped with every top load Filter Element. If you do not have these snapband retainers, call your representative immediately so they can be sent to you for proper installation.

Figure #6

Figure #7

Figure #8

5. Pinch the snapband retainer in the center to form a figure "8" (Figure #6).

6. Bend the loop slightly and place the retainer under the molded lip of the top flange of the filter element. This shallow lip prevents upward movement of the snapband retainer after proper installation (Figure #7).

7. With the snapband retainer held against one side of the filter element top interior (Figure 7), slowly allow the retainer to expand into the recessed area between the lip rim and the three interior post stops.

8. The snapband retainer should fit snugly between the lip rim and the vertical post stops (Figure 8). Be sure the snapband retainer is level and not installed crooked. A correctly installed snapband retainer will help prevent any potential leakage at the tubesheet and keep the filter element firmly in place.

Operation Procedures for Top Load Collectors

- Leave the timer adjustments set as specified by the baghouse manufacturer until operation stabilizes (usually 24-48 hours). We also recommend a precoating agent such as Neutralite® utilized to help establish an initial control layer. Once operation has stabilized, the time interval between pulses should be adjusted daily until the longest off-time possible has been attained without exceeding the designed differential pressure. Excessive pulsing will lead to shortened filter life. Set the pulse on-time at 0.06 - 0.15 seconds.

- The pressure of the compressed air at the baghouse air header should be set and adjusted as follows when using filter elements:

  The initial setting should be 60 psi. Increase only if the differential pressure cannot be maintained. Then increase in 5-10 psi increments until it reaches a maximum of 90 psi.

- Only dry compressed air should be supplied to the baghouse cleaning system.

- All inlet ducts should be equipped with baffles or deflector plates to prevent high velocity impingement of the particulate on the filter surface. Dust should never be allowed to build or stand in the hoppers.

COMPRESSED AIR REGULATOR INSTALLATION INSTRUCTIONS

With some dust collectors a filter/regulator is shipped loose with galvanized connectors and ball valves. The compressed air manifold is supplied with (2) 1" couplings (1 at each end), to allow the installer to bring a compressed air line to either end. The other coupling should be plugged.

INSTALLATION

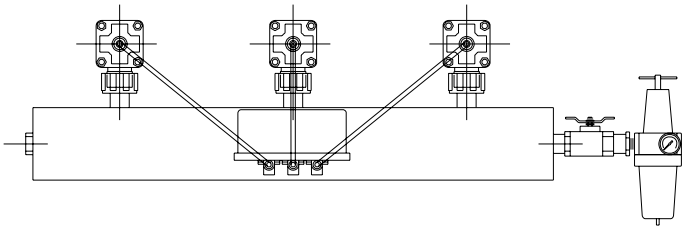
1. Choose end of header for compressed air inlet.

2. Assemble pipe fittings and ball valve as shown in Fig. 2-b, using Teflon tape on all pipe threads.

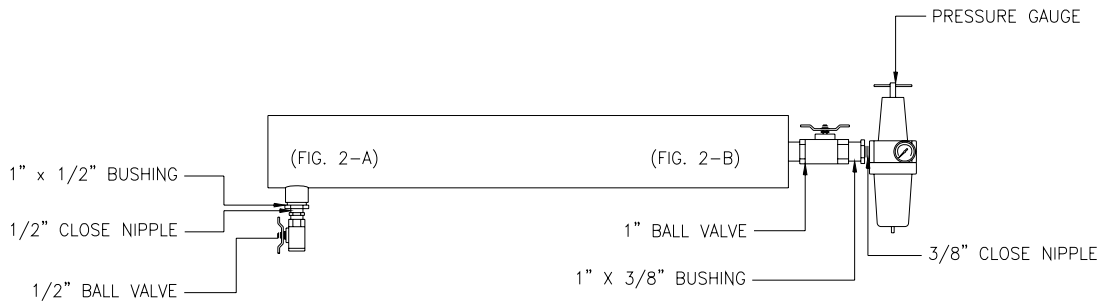
3. Connect the filter/regulator to the 3/8" close nipple so the airflow is in the direction of the arrows indicated on the filter/regulator unit.

4. Connect the pressure gauge to appropriate side of the regulator and put a plug in the opposite side.

5. On opposite side of the compressed air manifold, install pipe fittings and ball valve as shown in Fig. 2-a and this will serve as a drain valve and air bleed off.



(FIG. 1)



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START-UP CHECKLIST

1. Installation

   Make sure the unit is secured to the floor or mounting surface. The ladder(s) and platform(s) must be tightened and set up according to OSHA requirements. Ducting and piping must be secured and routed out of the way of traffic whenever possible to avoid injury. Ducting must also be free of all debris including moisture.

2. Interior of the dirty air plenum

   A. In bottom cartridge removal collector, inspect the filter cartridge assemblies referring to the "Filter Cartridge Installation" section of this manual. Improperly installed cartridges may allow dusty air to enter the clean air plenum and will shorten cartridge life.

   B. Make sure that the filter cartridge assemblies hang straight and the bottoms do **not** touch each other or any part of the collector interior. If this occurs, the cartridges will develop holes in them wherever they contact and will require replacement.

   C. High-level alarms should be connected sufficiently below the air inlet(s) to avoid a plugged up inlet or blinded off filter cartridges.

3. Interior of clean air plenum

   A. The blowholes in the blowpipes must be centered over the cartridges.

   B. On top cartridge removal collectors, check to see that cartridges are properly installed.

   C. On top cartridge removal collectors, the bulkhead fittings must be check for proper tightness and that the blowpipes are secured.

4. Exterior of dust collector

   A. Access doors, inspection ports and spring-loaded relief vents should seat effectively to prevent leakage.

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START-UP CHECKLIST (continued)

B. All bolts must be properly tightened.

C. Operate any equipment connected to the dust discharge of the dust collector. Check the rotation of any motor driven equipment such as rotary airlocks, horizontal unloading valves, live bottom bin activators and screw conveyors. Check slide gates and butterfly valves for binding.

5. Explosion relief panels – shear bolt style (when used)

   Inspect explosion relief vents (when used) for broken or damaged explosion bolts. **MAKE SURE THERE ARE NO STEEL BOLTS USED FOR THE INSTALLATION OF THE EXPLOSION RELIEF PANEL!!!** These bolts are made of special high tech poly-vinyl chloride and are designed to relieve at a specific pressure. A magnet should be used to check for steel bolts.

6. Compressed air system

   A. The pulse timer board must be correctly wired and mounted in its enclosure in a suitable location.

   B. All the ¼" copper or nylon tubing connections between the diaphragm and the solenoid valves must be tight and the tubing must not be crimped.

   C. The plugs (when used) must be removed from the exhaust ports of the solenoid valves and the tubing from the diaphragm valves must be connected to the "IN" port on the solenoid valves.

   D. The compressed air supply system must be equipped to supply clean, dry air to the pulsing air system. At this time, make sure that there is a suitable air pressure gauge on the compressed air manifold for reading 0-160 psig.

   E. Start the compressed air supply system and check for air leaks in all parts of the system. If air is heard escaping through one or more of the blowpipes (with the timer off), please refer to the "Troubleshooting the Compressed Air System" section of this manual. Gauge pressure at the compressed air manifold(s) should be 80 psig.

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START-UP CHECKLIST (continued)

F. With the compressed air system operating, energize the timer to begin pulsing. Check to see that all solenoids are firing by placing a finger over the exhaust port of the solenoid valve. When the solenoid valve being checked is triggered by an electrical pulse from the timer, the finger at the exhaust port should feel a short blast of air. Quickly move to the next solenoid valve in the firing order, noting any valves that do not fire or are stuck open causing a continuous airflow out of the exhaust port of the valve. At this time, note the quality of the compressed air. It should be clean, dry and oil free.

G. Allow the compressed air system to operate as long as possible to clear the system of dirt, rust, scale, welding slag and metal chips that can cause the diaphragm valves to stick.

H. The pressure at the compressed air manifold must recover to 80 psig before each pulse. Make sure that there is adequate compressed air delivery for full pressure recovery when all other systems connected to the same air supply are operating at full capacity.

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START-UP DUST CONTROL SYSTEMS

1. Fan or blower system

   A. Start the fan or blower and check for proper rotation.

   B. Check dust pickup points for proper suction; balance airflow in individual ducts.

   C. Check for air leakage at all flanged connections.

2. Equipment start-up sequence

   A. The compressed air supply system must be started first.

   B. When the pressure gauge on the compressed air manifold indicates that the system is at full pressure (80 psig), the sequential timer can be energized.

   C. Dust take away equipment such as rotary airlocks, screw conveyors, horizontal unloading valves, live bottom bin activators and pneumatic conveying systems can now be started in their correct sequence.

   D. Check that all access doors, hatches, ports and other openings are closed and latched or bolted.

   E. The main exhaust fan can now be started and brought up to speed.

   F. Start the dust laden air through the collector. The collector should be started under partial load to allow the cartridges to become slowly and evenly coated with dust particles.

      On pneumatic conveying systems, watch the differential pressure gauge closely for the first hour or so. If unstable, the collector discharge system may be too small for the volume it is seeing. A quick fix is to reduce the material feed until the discharge rate can be increased.

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START-UP DUST CONTROL SYSTEMS (continued)

G. Observe the manometer or magnahelic differential pressure gauge reading. As the new filter cartridges become coated with dust, the efficiency of the filtering action increases, and the differential pressure across the filter cartridges will also increase. Slowly bring the collector to full load and note the final pressure drop across the filter cartridges. Never allow the pressure drop across the filter cartridges to exceed 17" w.g. maximum or the filter cartridges may collapse.

Note: If the pressure drop continues to increase over 5" w.g. and does not stabilize, decrease the timer "off time" to fifteen seconds. Should adjustment of the timer "off time" fail to cause the pressure drop to stabilize below 5" w.g., shut down the collector and refer to "Troubleshooting the Collector" or call your CAMCORP representative.

H. When the collector has stabilized, the timer "off time" interval may be slowly increased for the most economical use of compressed air. As the "off time" is increased, the differential pressure will also increase. Readings up to 6" w.g. are acceptable; however, we recommend operating at 3"-4" w.g. for maximum filter cartridge life. The timer "off time" may be decreased when lower differential pressure readings are desired. When adjusting the "off time" interval, proceed in small steps, allowing the differential pressure to stabilize for several hours between increments.

I. Check the main airflow with a pitot tube, or equivalent measuring device, to establish initial conditions. If the main airflow must be adjusted up or down to suit the process, repeat step 2-H above.

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SHUT-DOWN PROCEDURES

1. Dust control systems

   Reverse start-up procedure, shut down fan, then after 5 or 10-minute delay, shut down the timer and discharge system.

2. Pneumatic systems

   Reverse start-up procedure, shut down fan, then after 5 or 10 minute delay, shut down the timer and discharge system.

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TROUBLESHOOTING THE DUST COLLECTOR

I. Excessive pressure drop across filter cartridges

The differential pressure gauge or manometer on your dust collector should read 6" w.g. or less. Higher readings and/or steadily increasing readings are an indication that the main airflow through the dust collector may be restricted and a potential process problem such as poor suction at duct pickup points may exist. In extreme cases (over 17" w.g.) filter bags will be damaged. Check the following:

A. Pressure Gauge

Check the differential pressure gauge or manometer and the tubing leading to the dust collector for proper operation. Disconnect the lines at the gauge or manometer and clear with compressed air. Look for loose fittings, cracked, broken or pinched tubing. Make sure that the gauge is zeroed or that the manometer is level, zeroed and contains the correct fluid.

B. Compressed Air System

Inspect the compressed air system as follows to make sure that all of the filter cartridges are being cleaned:

1. If none of the solenoid valves are operating, check the timer using the "Troubleshooting the Timer" section.

2. Check the air pressure at the compressed air manifold. It should recover to 80 psig before each pulse. If not, check to make sure that the compressed air supply system is in good operating condition, correctly sized, and supply lines are not too small or restricted. Listen for the sound of compressed air flowing continuously through one or more rows of filter bags, an indication of a valve or valves "stuck" in the pulsing position. The usual causes for this condition are either a leak in the tubing between the solenoid and diaphragm valves or dirt in the solenoid and/or diaphragm valves.

3. Check to see that all solenoid valves are firing by holding a finger over each solenoid exhaust port as described in item 6A-6H in the "Start up checklist" section.

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TROUBLESHOOTING THE DUST COLLECTOR (continued)

C. Cartridges Loaded with Dust

A condition known as blinding. If the dust is dry, see paragraph 1-4; if the dust is wet, see paragraphs 5 and 6.

1. Dust Not Discharging from the Hopper

   Check hopper for over-loading or bridging across the dust discharge. Correct by repairing dust discharge equipment, replacing with higher capacity equipment, or installing hopper vibrators, etc. as required to keep the hopper empty.

2. Air Flow too High

   If the main airflow is too high to allow dust to drop off of the filter cartridges, an excessive pressure drop across the dust collector will result and dust will build up in the system. In many cases this high pressure drop in turn leads to a reduction in the main air flow so that it is necessary to remove the dust accumulation from the filter cartridges (and the rest of the system) before measuring the main air flow volume.

   Visually inspect the cartridges for heavy caking; if caking is evident, see the note below and take the necessary action to clean the cartridges. Next, measure the main airflow with a pitot tube or equivalent device and compare with the original volume for which the unit was designed. If the flow is too high, cut back the main fan to prevent a recurrence of the problem.

3. Particle Size and Dust Load

   If possible, compare the dust particle size and loading with the original design specifications. Finer dust may cause a higher pressure drop. Do not hesitate to call CAMCORP; we have experience with many kinds of dust.

4. Water Leaks

   Inspect the dust collector housing and ductwork for holes, cracks, or loose gasketing where water could enter the collector.

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TROUBLESHOOTING THE DUST COLLECTOR (continued)

5. Condensation

   If moisture has been condensing inside the collector, check the dew point temperature of the incoming air stream. It may be necessary to insulate the collector and/or the ductwork leading to the collector to keep surface temperatures above the dew point and prevent condensation on the filter cartridges.

   NOTE: Collectors that have had blinded or caked filter cartridges can possibly be put into service by running the pulsing air system for 15 to 30 minutes with a 10 second "off time" and without the main fan or blower running. If the pressure drop is not lower when the main fan is started again, remove the filter cartridges from the collector and remove the caked dust by special dry-cleaning. Make sure the timer "off time" has been reset to specifications prior to re-start. Information pertaining to filter cartridge cleaning may be obtained by calling your CAMCORP sales representative.

II. Extremely Low Pressure Drop

A. Differential Pressure Gauge

   Check the differential pressure gauge or manometer and the tubing leading to the dust collector as in I-A of this section.

B. Holes in Filter Cartridges or Cartridges Incorrectly Installed.

   Inspect the filter cartridges for holes, rips, tears, or excessive wear. Make sure that the filter cartridges were installed correctly according to the "Filter Cartridge Installation" section.

C. Ductwork and Dampers

   Inspect the ductwork to and from the dust collector for air leaks or blockage. Make sure that any dampers in the system are correctly positioned to allow for proper air flow through the dust collector.

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TROUBLESHOOTING THE DUST COLLECTOR (continued)

D. Leaks in the Housing

Check the tube sheet (flat steel sheets from which the filter cartridges are suspended) and the dust collector housing for holes, cracks or loose gasketing that would permit air to bypass the dust collector or filter bags.

III. Continuous Flow of Dust in the Clean Air Exhaust (Primary Dusting)

A. Holes in the filter cartridges or cartridges incorrectly installed

Inspect the filter cartridges as in II-B this section.

B. Holes in the tube sheets

Check the tube sheet for holes, cracks or loose bolts that would permit dusty air to bypass the filter cartridges.

IV. Puff of dust in the clean air exhaust after each pulse (secondary dusting)

A. Compressed air manifold pressure too high

Check compressed air manifold pressure gauge. If the pulsing air pressure is over 80 psig the filter cartridges may flex excessively and allow fine dust to pass through the bag material.

B. Worn filter cartridges

Inspect the filter cartridges for wear. Worn filter cartridges may not stop fine dust when flexed by a compressed air pulse.

C. Residual dust

If dust has gotten into the clean air plenum because of a dropped filter cartridge, torn filter cartridge or a hole in tube sheet, etc., the pulsing air may stir up the dust and allow it to escape into the clean air exhaust after each pulse. Residual dust may also be driven down inside the filter cartridges by the pulsing air. If the filter cartridges are filled with several inches of dust, clean both the clean air plenum and the cartridges to avoid further problems.

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TROUBLESHOOTING THE DUST COLLECTOR (continued)

V. Short Cartridge Life

This is often a complicated problem to diagnose and we recommend calling the factory for advice. The following list may be helpful in performing some preliminary checks:

A. Temperature

Operating Temperature above the recommended limit of the filter element material.

B. Chemical attack

Cartridge material degrades due to attack from certain chemicals in the dust or gasses in the air stream.

C. High moisture

High moisture content in the collector may cause certain filter cartridge material to shrink, degrade (more rapidly at elevated temperatures) or blind off.

D. Localized abrasion

Abrasion of the cartridges at the dusty air inlet; a dust impingement baffle may be required.

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TROUBLESHOOTING THE TIMER

1. Check for mechanical damage.

2. If the "Power On" indicator is not on, check for 120 VAC power input. The "hot" line connection must be connected to terminal "L1", as this is the fused terminal.

3. Check for a blown fuse; if replacement is necessary, use only 2 AMP standard 3AG fuse (1-1/4" long). **Do not use a slow-blow type fuse.**

4. Check the wiring from the timer to the solenoids for open or short circuits.

5. After performing steps 1-4, if the timer is still not functioning properly (no output voltage, sequencing problems, etc.) please contact your CAMCORP representative.

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TROUBLESHOOTING THE COMPRESSED AIR SYSTEM

I. Pulsing failure of all valves, or the same numbered valve on each header

A. Pulse timer board inoperative

Check pulse timer board for 120 VAC pulse between each numbered terminal on timer board and solenoid common terminal. Repair or replace timer if necessary.

B. Open or short circuit in wiring between pulse timer board and solenoids

Check continuity with ohmmeter or suitable tester and repair as required.

II. Pulsing failure of valves at any location

A. Plastic plug in solenoid exhaust port

Remove and discard plug.

B. Ruptured diaphragm

Disassemble valve in question and inspect diaphragm(s). Replace with a repair kit if necessary.

C. Pinched or plugged tubing between solenoid and diaphragm valve.

Inspect tubing and replace if necessary.

III. Continuous passage of compressed air through one of more blowpipes

A. ¼" O.D. tubing or fittings disconnected, leaking broken.

Inspect and repair as required. Always use new ferrules in fittings when replacing copper tubing.

B. Diaphragm valve air bleed hole or passage restricted

Disassemble and inspect the diaphragm valve in question as follows:

- ¾" valves – check for plugged air bleed hole in diaphragm.
- 1" valves – check for plugged air bleed passages in valve body and cover.
- 1 ½" valves – check for plugged or restricted air bleed passages.

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SAFETY RECOMMENDATIONS

Because this unit may be under pressure or vacuum, do not attempt to open any device, doors or panels while fans or blowers are running. The unit has air hoses and valves with a maximum recommended operating pressure of 80 psig. To eliminate the danger of bursting, care must be taken to insure maximum desired pressure is not exceeded.

Before servicing any portion of the compressed air system, the air supply must be shut off and any pressure relieved.

If your unit is equipped with a discharge auger or an airlock, be sure chain guards are installed before start-up and servicing is attempted only after electrical power is locked out.

While servicing the filter, it is very important that there are no open flames, welding or grinding sparks. Dust laden air could be highly explosive and extreme care must be taken. Most filter cartridges will burn if exposed to sparks, welding or open flames.

Before entering any dust collector:

1. Run cleaning mechanism 20 minutes with the fan off to clean filter bags.
2. Discharge dust solids from hopper.
3. Shut off compressed air supply and relieve pressure in the compressed air manifold.
4. Lock out all electrical power on all equipment especially rotating equipment.
5. On toxic operation, purge collector housing and install a blank in the inlet duct.
6. Install catwalks and safety cables.
7. Secure access doors in an open position or remove doors.
8. Use buddy system.
9. Wear a respirator.
10. Use common sense.

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ROUTINE MAINTENANCE

A. Inspection

Frequency will vary as widely as there are operating conditions. In general proceed as follows:

1. Daily – Check unit differential pressure.

2. Weekly – Check pulse timer board and solenoid valves for function. This usually is only listening to check uniform time in intervals between blasts.

3. Monthly – Lubricate fan, rotary valve and screw conveyor. Check seals on latter two for dust loss.

4. Quarterly – On Top Access Units, check for dust accumulation in clean air plenum.

B. Repairs

1. Filter cartridges – Generally replacement, although some applications can be laundered.

2. Solenoid Valves – Repair kits are available if a valve is stuck open or fails to operate.

3. Diaphragm Valves – Repair kits are available if a valve is stuck open or fails to operate due to a ruptured diaphragm.

4. Rotary Valves – Usually a matter of periodic seal and blade replacement. More detailed information is supplied with the valve.

5. Screw Conveyors – Periodic replacement of "V" belts and shaft seals. Inspect hanger bearings during filter bag change. Failure will be detected by the squeal.

6. Fans – "V" belt tension and replacement of bearings if running rough. Make sure rotor balance is maintained.

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