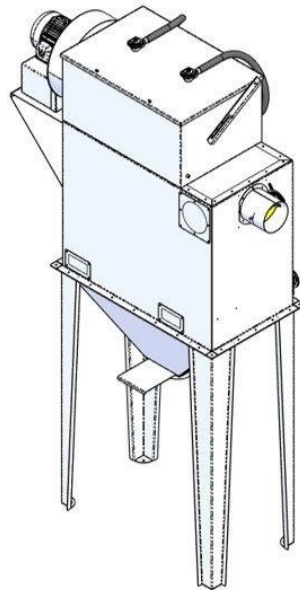


	<p><b>BLAST-IT-ALL®</b> <b>LEADING THE INDUSTRY IN</b> <b>SURFACE PREPARATION</b> <b>EQUIPMENT</b></p>	<p><b>HESS MANUFACTURING, INC.</b> <b>185 Piper Ln.</b> <b>Salisbury, NC 28147</b> <b>(800) 535-2612</b> LIVE CHAT- <a href="http://www.blast-it-all.com">www.blast-it-all.com</a></p>
---	--	--

MANUAL NUMBER: MM-329-2023

## RPJ-2



### **\*\* WARNING \*\***

DO NOT USE SAND. SAND WILL CAUSE SILICA DUST, WHICH IS THE CAUSE OF SILICOSIS DISEASE, A CONDITION OF MASSIVE FIBROSIS OF THE LUNGS. THIS STATEMENT INDICATES A POTENTIAL PERSONNEL HAZARD. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.

Table of Contents

SPECIFICATIONS AND INSTRUCTIONS FOR RPJ DUST COLLECTORS ..... 3

Pre-Start Check..... 6

Operation ..... 7

Maintenance ..... 8

Troubleshooting..... 10

ILLUSTRATIONS AND PARTS..... 12

## SPECIFICATIONS AND INSTRUCTIONS FOR RPJ DUST COLLECTORS

### 1.0 General Description

The **MODEL RPJ COLLECTORS** are cartridge filter jet pulse type collectors. These collectors may be supplied as a complete unit or they may be supplied in two sections ready for installation in the user's plant. A top opening door is provided for the inspection and/or replacement of the filter cartridges and the air pulsing system components. If the unit is supplied with a hopper it is of the pyramidal type forming the lower part of the collector. An air inlet is located either on the side or top depending on the size of the collector. The dirty air stream passes through the inlet and is deflected away from the cartridges to help prevent premature cartridge wear. As the dirty air enters the collection chamber the velocity reduces due to the expanded area. The heavier particles drop into the Dust Drawer or Hopper. The air separates as it is drawn into the cartridge filters. The air goes through the cartridge media for the final separation of the solids (dirt) from the air stream. Solid particles are captured on the filter media as the air stream passes through and into the center section of the cartridge and is exhausted from the collector. Compressed air jets are used periodically to BACK FLUSH (CLEAN) the filter pleats causing the collected particles to fall down into the drawer or hopper.

### 2.0 Design Considerations

- 2.01 Maximum negative pressure: 12" WG.
- 2.02 Design operating temperature: 150 f
- 2.03 Compressed air supply: 80 to 90 PSIG operating pressure with a 100 PSIG being the maximum design.

### 3.0 Installation and Arrangement

The user will place the unit on a flat level surface. The self-supporting base and/or structure provided does not require anchor bolts for indoor applications. If the unit is to be located outdoors, the user must provide adequate anchoring consistent with the appropriate building codes. When locating the unit, allow sufficient space to allow filter removal from the top of the unit (usually 3 feet).

## 4.0 Basic Construction

- 4.01 Basic Unit: The basic unit is fabricated from 12-gauge carbon steel. All seams are continuously welded to form a solid seal. The filter/air pulsing access door(s) are gasketed. The air jet valves are designed especially for this type air pulse application and are operated through the sequence control by manual push buttons or by timed unit depending on the model or the unit.
- 4.02 Filter Cartridges: Each cartridge contains approximately 250 pleats and the number of filter units depends of the unit size. The open end of the cartridge has a lip under which a special composition gasket is mounted. Any cuts gouges or tears in this gasket will cause premature failure of the filtering unit.
- 4.03 Cleaning Control: The cleaning is actuated by one of two means. On the manual cleaning units a manual push-button is provided. On the larger units a solid state controller it provided. On some units this control may be shipped loose for installation by the customer.

## 5.0 Reverse Pulse Jet Air System

The compressed air manifold is to be supplied with compressed air at 85 PSIG. The user must provide a pressure regulator to maintain the pressure. The air supply must be clean and free of moisture. Air consumption rates for 85 PSIG are determined as follows in standard cubic feet of compressed air:

Number of pulse valves (cartridges) x 1.75 SCF

Example: 2 cartridges x 1.75 SCF=3.5 SCF

If we clean every 3 minutes the usage is divided by 3 or 1.16 SCFM.

## 6.0 Paint

One coat of primer is applied to interior and exterior surfaces. A finish coat of industrial enamel is applied to the exterior.

## 7.0 Shipment

The smaller units without hopper(s) are shipped assembled. The units with hoppers are shipped in two sections. The filters, filter hold-downs, and control box require field installation.

## 8.0 Compressed Air Piping

The compressed air piping installed by user shall be a minimum of ½" sch. 40. In addition a pressure regulator must be provided and installed by the user.

## Pre-Start Check

### 1.0 Pre Start Checklist

Review all components to assure that they are operational.

- 1.01 **All Ductwork** – the inlet and exhaust ducting must be inspected to assure it is properly installed and complete.
- 1.02 **Dust Drawer / Hopper Gaskets** – The gasket on the drawer edge must be installed and attached to the drawer. This drawer must be closed and secured before operation.
- 1.03 **Compressed Air Piping** – A pressure regulator must be installed and set for 85 PSI. Make sure the air is clean and dry.
- 1.04 **Wiring** – Motors must be wired and installed with proper overload protection.
- 1.05 **Sequence Control Box** – Provide incoming wiring. Control will be pre-set. The control box is to be field installed.
- 1.06 **Electrical Protection Devices** – Fuses, circuit breakers, heaters, etc., must be properly sized and installed.
- 1.07 **System Fan** – Make sure the rotation of the fan is correct.

## Operation

### 1.0 Start-Up and Operation

- 1.01 Turn on compressed air supply.
- 1.02 Start system: CHECK FAN ROTATION
- 1.03 Check seals.

### 2.0 Filter Cleaning

- 2.01 If the unit is equipped with automatic pulse cleaning, the cleaning cycle will be timer and activated when the unit is in operation.
- 2.02 If the unit is not equipped with an automatic pulse package, the filters are cleaned by manually pushing the clean pulse air valve. This will allow the cartridge to be pulse cleaned. **(PULSE AND RELEASE) THIS NEEDS TO BE OPERATED AT LEAST ONCE EACH HOUR OF OPERATION OR MORE IF A DIRTY CABINET CONDITION EXISTS.**

### 3.0 Dust Drawer / Hopper Emptying

The collector must be shut down before any attempt is made to empty the dust container.

- 3.01 Shut system down.
- 3.02 UN-latch dust drawer / hopper.
- 3.03 Remove and empty container into approved dust receptacle.
- 3.04 Replace drawer or container and secure.

**NOTE: MAKE SURE GASKET SEAL IS IN PLACE.**

## Maintenance

Regular maintenance is consistent with satisfactory and efficient operation of any dust collector. Remember to clean and inspect the filter regularly and do not allow the dust container(s) to overfill.

### 1.0 Weekly

- 1.01 Compressed air pressure set at 85 PSI.
- 1.02 Drain all moisture from compressed air lines.
- 1.03 Check and record pressure drop across the filters with customer supplied manometer.
- 1.04 Empty dust container. The container may have to be emptied more frequently depending on use.

### 2.0 Monthly

- 2.01 Inspect dust container gasket(s).
- 2.02 Remove and inspect filter cartridge.
- 2.03 Replace cartridge if evidence of dirt is inside

### 3.0 Yearly

- 3.01 Check all gaskets and replace if required.
- 3.02 Remove all cartridges and inspect for wear. If evidence of dirt is inside replace filters.

### 4.0 Filter Removal

- 4.01 Open filter access area.
- 4.02 Remove filter hold-down device.
- 4.03 Pull out filters "being careful not to knock off dust into clean air area".

### 5.0 Filter Cartridge Replacement

- 5.01 Brush any dust that may have fallen into the clean air compartment into the dustbin. Remove any bits of the old filter gasket that may have stuck to the filter plate.



- 5.02 Slowly place cartridges in holes.
- 5.03 Replace the hold-down bars and attach with the holding nuts.  
Maintain even pressure at all points.
- 5.04 Close collector.

## Troubleshooting

### 1.0 Visibility Poor in Cabinet:

#### 1.01 Pulse Interval Time Too Long:

Adjust the knob in the sequence control panel to shorter time.  
(The larger unit the shorter the time required).

#### 1.02 Filter(s) Wet:

Make sure there is not moisture in the compressed air lines.

#### 1.02 Filter(s) Blinded:

- A. Blinded filters can be the result of operating the unit too long without cleaning or the cleaning interval is too long.
- B. The dust drawer or bin is over full. A full bin will cause severe dust retainment, which will overload (blind) the filters. Remove the filters from the unit and clean or replace.

### 2.0 Control Circuit Fails to Operate:

2.01 If the diaphragm valve does not operate, this generally indicated a leak in the tubing. If the control tube has a leak the diaphragm valve will remain open and no pressure will build up in the log manifold.

2.02 Compressed Air Bleed Down: If a diaphragm valve will not return to the closed position, this indicates either a break in the diaphragm, a leaking control line, or a control pulse solenoid is stuck in the open position.

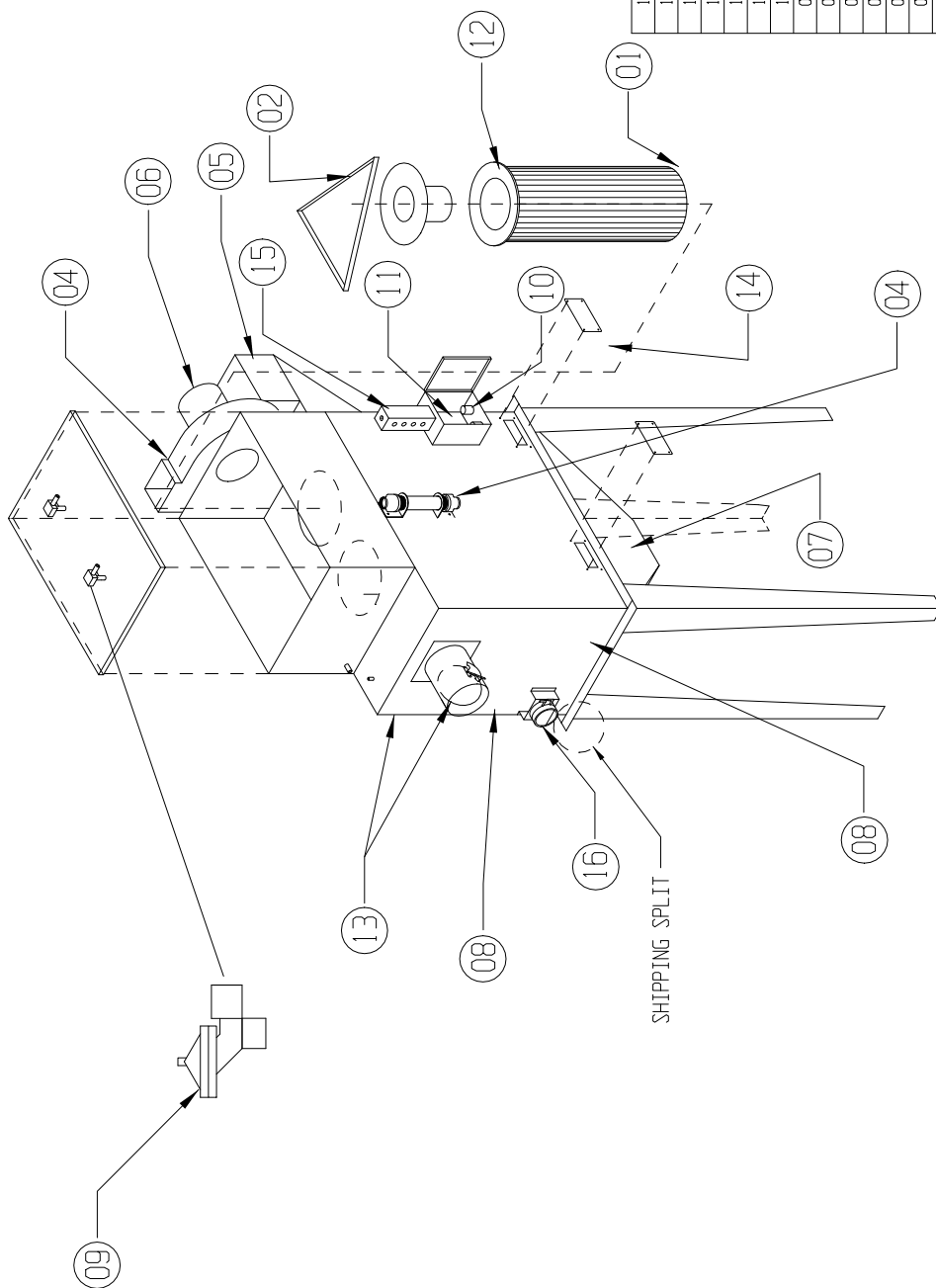
2.03 Check to make sure there is sufficient air pressure flow to the log manifold.

### 3.0 Puff or Dust Out Exhaust After Each Cleaning:

3.01 Cleaning too often: Clean less often or increase the interval on the control panel.

3.02 Filter Worn: Remove and inspect filters for pin holes, spots, or other locations where dust may be passing through the filter media. Replace filter cartridges if required.

- 4.01 Broken, torn, or punctured filter media. Locate and replace cartridge.
- 4.02 Poor seal between cartridge and collector plate: Look for dust patterns around the filter seals. Re-tighten or replace filter. Do not attempt to repair gasket seal.



16	1	MAGNETIC GAGE	004457-10
15	1	ELECTRICAL BOX	A5176
14	4	FORKLIFT COVER	A2714
13	1	8" DAMPER INLET ASS'Y.	001046
12	2	CARTRIDGE CAP	A2463
11	1	CONTROL BOARD	010453
10	2	SOLENOID VALVE	003285
09	2	PULSE VALVE, 1"	005410
08	1	RPJ-93	007420
07	1	SUMP ASS'Y.	A2432
06	1	MOTOR, 5 HP (OPTIONAL)	010162
05	1	FAN ASS'Y (LESS MOTOR)	010163
04	1	BLADE	010165
03	1	MANIFOLD	B7111
02	2	CARTRIDGE HOLDER	010849
01	2	CARTRIDGE	006870 / 010899
ITEM NO.	QTY.	DESCRIPTION	DWG. NO. / MATERIAL

HESS MANUFACTURING, INC.  
SALISBURY, NORTH CAROLINA

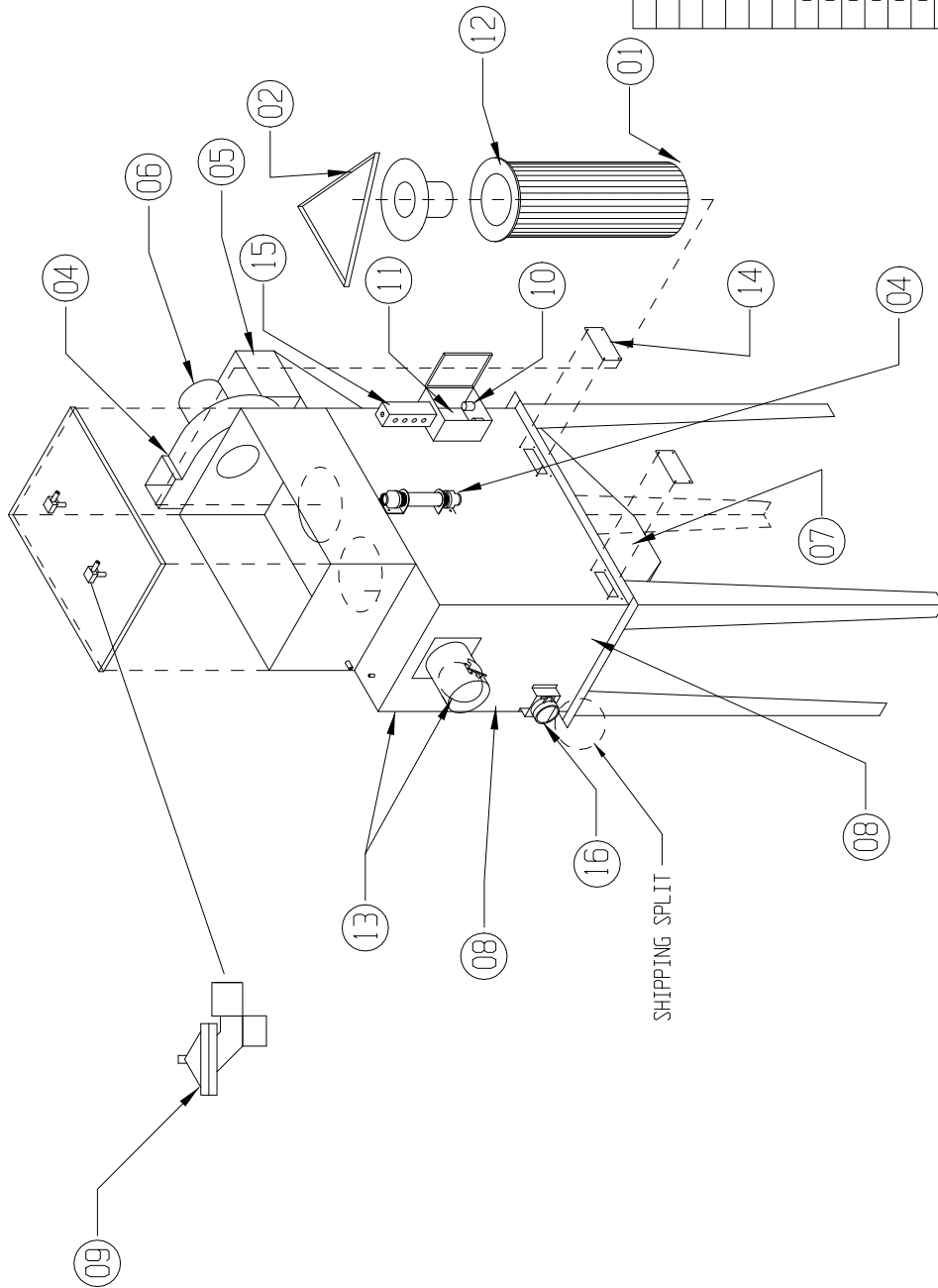
DESCRIPTION:		(1200 CFM)	MATERIAL:
2 CARTRIDGE DUST COLLECTOR			14 GA.
DRAWN BY:	DATE:	SCALE:	JOB NO.
DEC	9/01/94	3/64" = 1"	
CHECKED BY:	DATE:	REVISION:	REV. AEST.:
DRAWING NO.:		M2066-3	

CONFIDENTIAL

THE DISCLOSURES AND CONTENTS OF THIS DRAWING ARE  
CONFIDENTIAL AND ARE THE EXCLUSIVE PROPERTY OF  
HESS MANUFACTURING, INC.  
THIS DRAWING IS NOT TO BE COPIED OR REPRODUCED WHOLLY  
OR IN PART WITHOUT WRITTEN PERMISSION OF  
HESS MANUFACTURING, INC.

\*NOTE: AFTER PLACING THE TOP SECTION OF THE RPJ DUST COLLECTOR  
ON THE BOTTOM SECTION PLACE FORKLIFT COVERS OVER HOLES.  
USE PUTTY TAPE BETWEEN ALL BOLT TOGETHER FLANGES.

REV.	DESCRIPTION	BY	DATE
#1	STD. LIFT COVERS	L.F.	05/18/2017



\*NOTE: AFTER PLACING THE TOP SECTION OF THE RPJ DUST COLLECTOR ON THE BOTTOM SECTION PLACE FORKLIFT COVERS OVER HOLES. USE PUTTY TAPE BETWEEN ALL BOLT TOGETHER FLANGES.

16	1	MAGNETIC GAGE	004457-10
15	1	ELECTRICAL BOX	A5176
14	4	FORKLIFT COVER	A2714
13	1	8" DAMPER INLET ASS'Y.	001046
12	2	CARTRIDGE CAP	A2463
11	1	CONTROL BOARD	010453
10	2	SOLENOID VALVE	003285
09	2	PULSE VALVE, 1"	005410
08	1	RPJ2-93	007420
07	1	SUMP ASS'Y.	A2432
06	1	MOTOR, 2 HP (OPTIONAL)	I3-900
05	1	FAN ASS'Y (LESS MOTOR)	001062
04	1	BLADE	001054
03	1	MANIFOLD	B7111
02	2	CARTRIDGE HOLDER	010849
01	2	CARTRIDGE	006870 / 010899
ITEM NO.	QTY.	DESCRIPTION	DWG. NO. / MATERIAL

HESS MANUFACTURING, INC.  
SALISBURY, NORTH CAROLINA

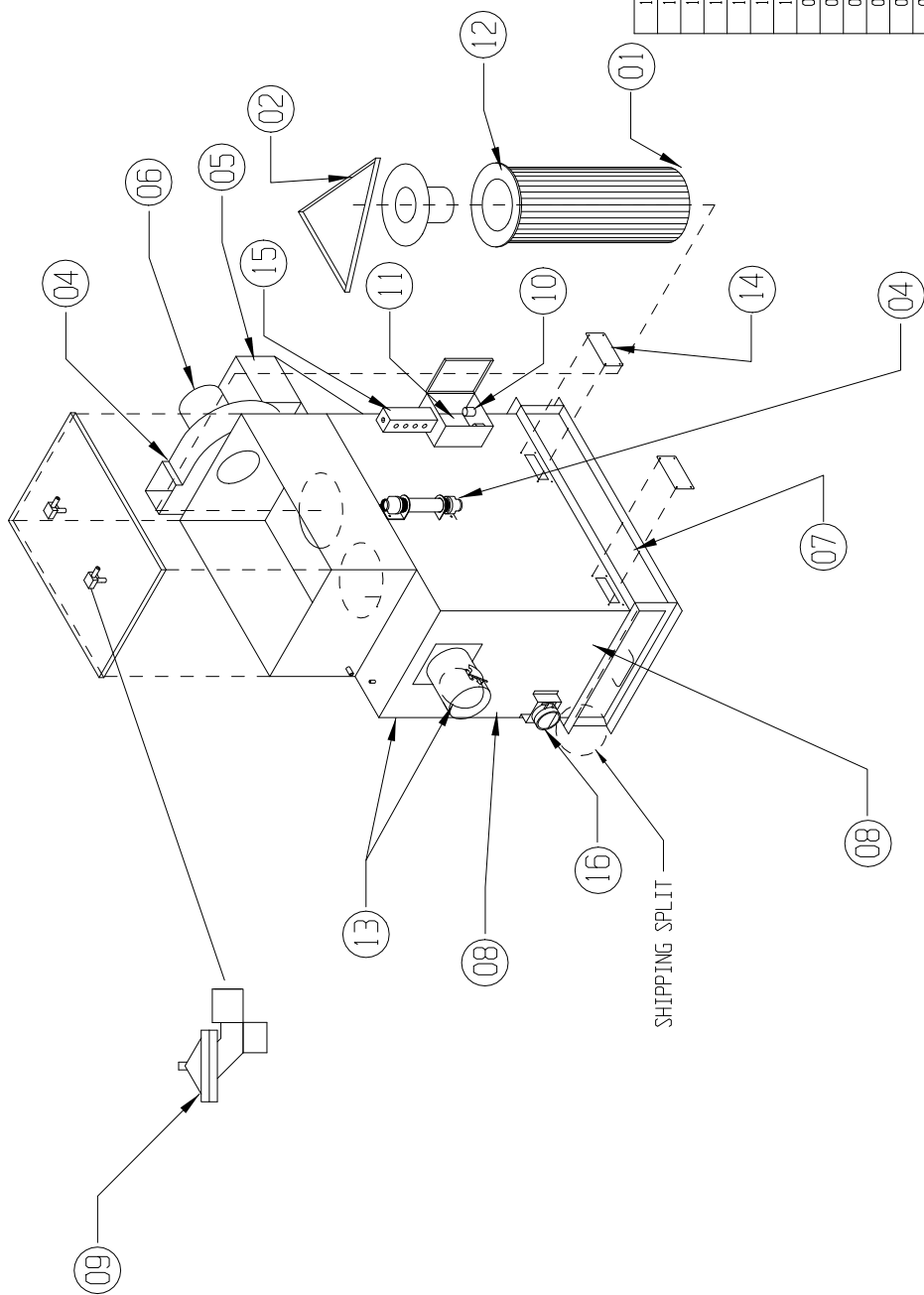
DESCRIPTION:		(900 CFM)	MATERIAL:
2 CARTRIDGE DUST COLLECTOR			14 GA.
DRAWN BY:	DATE:	SCALE:	JOB NO.
DEC	04/22/99	3/4" = 1"	
CHECKED BY:	DATE:	REVISION:	REV. NO.

DRAWING NO.: M2066-4

CONFIDENTIAL

THE DISCLOSURES AND CONTENTS OF THIS DRAWING ARE CONFIDENTIAL AND ARE THE EXCLUSIVE PROPERTY OF BLAST-IT-ALL ® A DIV. OF HESS MANUFACTURING, INC. THIS DRAWING IS NOT TO BE COPIED OR REPRODUCED WHOLLY OR IN PART WITHOUT WRITTEN PERMISSION OF HESS MANUFACTURING, INC.

REV.	DESCRIPTION	BY	DATE



\*NOTE: AFTER PLACING THE TOP SECTION OF THE RPJ DUST COLLECTOR ON THE BOTTOM SECTION PLACE FORKLIFT COVERS OVER HOLES. USE PUTTY TAPE BETWEEN ALL BOLT TOGETHER FLANGES.

CONFIDENTIAL

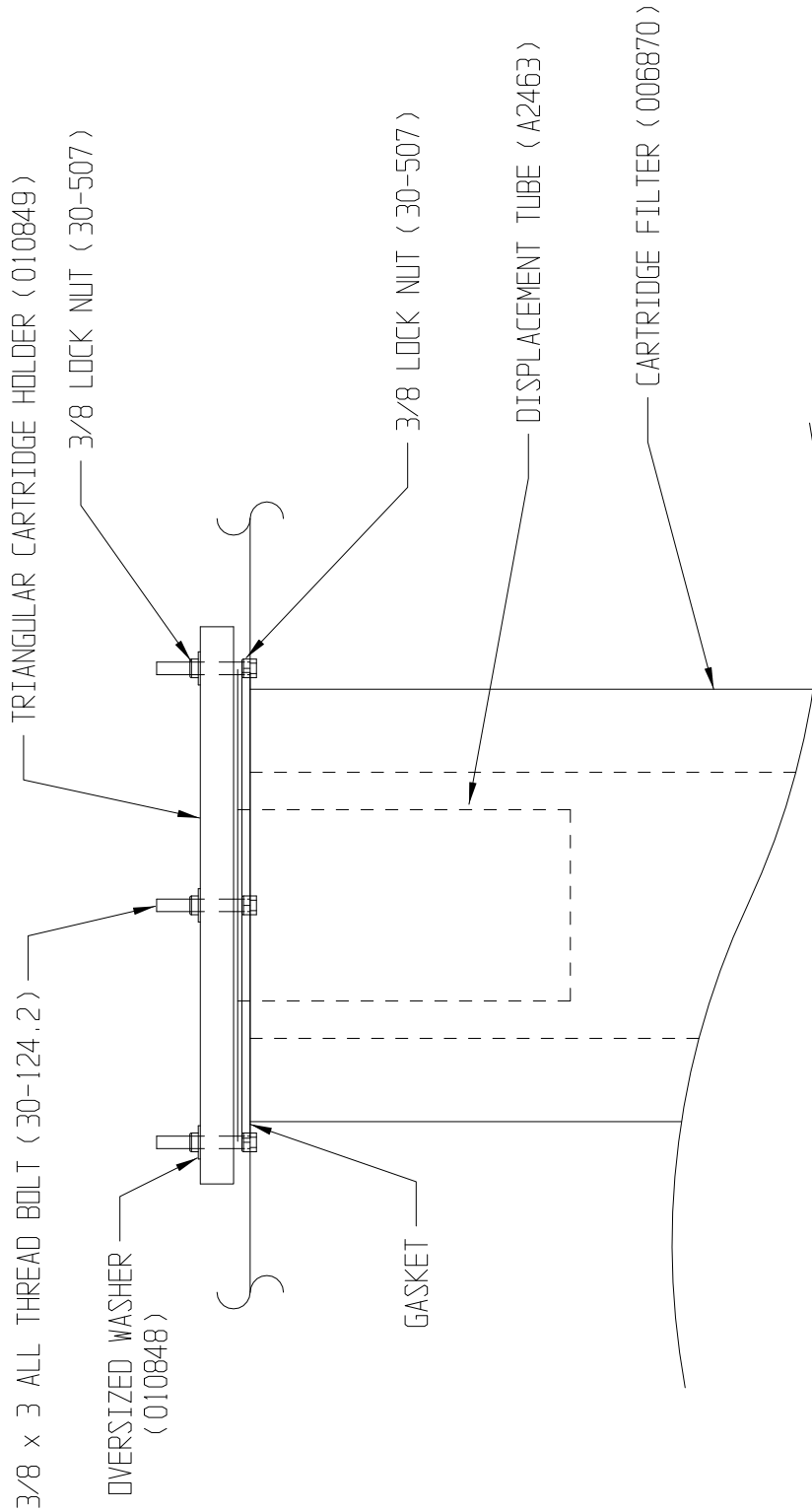
THE DISCLOSURES AND CONTENTS OF THIS DRAWING ARE CONFIDENTIAL AND ARE THE EXCLUSIVE PROPERTY OF HESS MANUFACTURING, INC. THIS DRAWING IS NOT TO BE COPIED OR REPRODUCED WHOLLY OR IN PART WITHOUT WRITTEN PERMISSION OF HESS MANUFACTURING, INC.			
REV.	DESCRIPTION	BT	DATE
#2	UPDATED	DEC	02/28/07
#1	UPDATED TO 900	DEC	03/02/05

DESCRIPTION:  
2 CARTRIDGE DUST COLLECTOR  
(900 CFM)  
MATERIAL: 14 GA.  
Hess Manufacturing, Inc.  
Salisbury, North Carolina

ITEM NO.	QTY.	DESCRIPTION	DWG. NO. / MATERIAL
16	1	MAGNETIC GAGE	004457-10
15	1	ELECTRICAL BOX	A5176
14	4	FORKLIFT COVER	A2714
13	1	8" DAMPER INLET ASS'Y.	001046
12	2	CARTRIDGE CAP	A2463
11	1	CONTROL BOARD	010453
10	2	SOLENOID VALVE	003285
09	2	PULSE VALVE, 1"	005410
08	1	RPJ2-93	007420
07	1	DRAWER ASS'Y.	
06	1	MOTOR, 2 HP (OPTIONAL)	13-900
05	1	FAN ASS'Y (LESS MOTOR)	001062
04	1	BLADE	001054
03	1	MANIFOLD	B7111
02	2	CARTRIDGE HOLDER	010849
01	2	CARTRIDGE	006870 / 010899
DWG. NO. / MATERIAL			

DATE:	7/19/05	SCALE:	3/4" = 1"	JOB NO.	
DATE:	5/13/08	DATE:	5/13/08	REV. NO.:	

A2509



HESS MANUFACTURING, INC.  
SALISBURY, NORTH CAROLINA

CONFIDENTIAL

THE DISCLOSURES AND CONTENTS OF THIS DRAWING ARE  
CONFIDENTIAL AND ARE THE EXCLUSIVE PROPERTY OF  
BLAST-IT-ALL® A DIV. OF HESS MANUFACTURING, INC.  
THIS DRAWING IS NOT TO BE COPIED OR REPRODUCED WHOLLY  
OR IN PART WITHOUT WRITTEN PERMISSION OF  
HESS MANUFACTURING, INC.

DESCRIPTION:

RPJ CARTRIDGE INSTALLATION

MATERIAL:

PER DWG.

DRAWING NO.:

A2509

DATE: 6/02/95

DATE:

DEC

ADDED DISP. TUBE

DESCRIPTION

BY

DATE

DEC 02/03/97

DATE

DATE

DATE

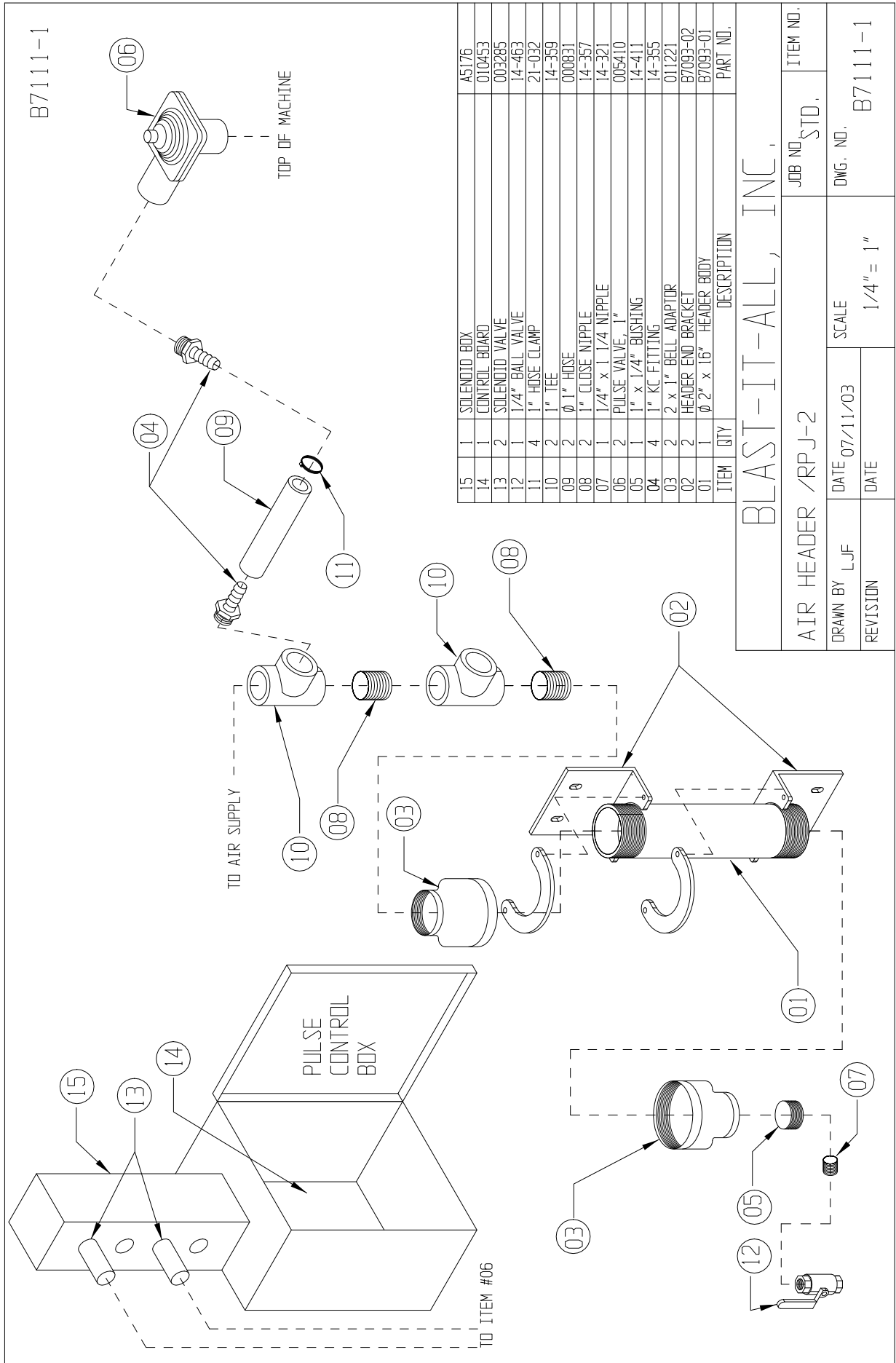
DATE

DATE

DATE

DATE

DATE





005: (5A) SPACE CREATED BY 3 SPACER PADS WHEN SURFACE MOUNTED DO NOT OBSTRUCT PROVIDES PATH FOR RELIEF OF OVERPRESSURE.

(3) 6-32 X 3/16 (4.76) DEEP HOLES EQUALLY SPACED ON A Ø4-18 (104.78) BOLT CIRCLE FOR PANEL MOUNTING

RUBBER PRESSURE RELIEF PLUG WILL UNSEAT ITSELF WHEN GAGE IS OVERPRESSURIZED

Ø4-3/4 (120.65) DEEP HOLES

1/8 FEMALE NPT HIGH PRESSURE CONNECTION

1/8 FEMALE NPT LOW PRESSURE CONNECTION

1/8 FEMALE NPT HIGH PRESSURE CONNECTION

1/8 FEMALE NPT LOW PRESSURE CONNECTION

11/16 (17.46)

7/16 (11.11)

1-11/16 (42.86)

15/32 (11.91)

Ø4-3/4 (120.65)

1-1/4 (31.75)

Ø4-1/2 (114.3)

17/32 (13.49)

Ø5 (127)

Ø4-17/64 (120.27)

3/16 (4.76)

2-17/32 (64.23)

1/8 FEMALE NPT LOW PRESSURE CONNECTION

11/16 (17.46)

1/2 (12.70)

1/8 FEMALE NPT LOW PRESSURE CONNECTION

1/8 FEMALE NPT HIGH PRESSURE CONNECTION

Ø5-1/2 (139.70) MOUNTING RING

The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models.

\*The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on cages which require an elastomer other than silicone for the diaphragm.

**STANDARD GAGE ACCESSORIES:** Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapters and three flush mounting adapters with screws.

**OVERPRESSURE PROTECTION:** Standard Magnehelic® Differential Pressure Gages are rated for a maximum pressure of 15 psig and should not be used where that limit could be exceeded. Models employ a rubber plug on the rear which functions as a relief valve by unseating and venting the gage interior when over pressure reaches approximately 25 psig (excludes MP and HP models). To provide a free path for pressure relief, there are four spacer pads which maintain .023" clearance when gage is surface mounted. Do not obstruct the gap created by these pads.

Differential Pressure Gages are rated for a maximum pressure of 15 psig and should not be used where that limit should be exceeded. Models employ a rubber plug on the rear which functions as a relief valve by unseating and venting the chamber interior when over pressure reaches approximately 25 psig.

pressure relief, there are four spacer pads which maintain .023" clearance when gage is surface mounted. Do not obstruct the gap created by these pads.

**Service:** Air and non-combustible, compatible gases. (Natural Gas option available.)

**Wetted Materials:** Consult factory.  
**Housing:** Die cast aluminum case and bezel, with acrylic cover. (MP model has polycarbonate cover).

**Accuracy:** 2% of full scale ( $\pm 3\%$  on -0, -100PA, -125PA, -10MM and  $\pm 4\%$  on -00, -60PA, -6MM), throughout range at 70°F (21.1°C). High accuracy version:  $\pm 1\%$  on full scale ( $\pm 1.5\%$  on -0, -100PA, -125PA, -10MM and  $\pm 2\%$  on -00, -60PA, -6MM).

**Pressure Limits:** -20" Hg to 15 psig.† (-0.677 bar to 1.034 bar); MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).

**Enclosure Rating: IP67.**

**Overpressure:** Relief plug opens at approximately 25 psig (1.72 bar), standard gages only. The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.

**Temperature Limits:** 20 to 140°F (-6.67 to 60°C). \*Low temperature models available as special option.

**Size:** 4" (101.6 mm) diameter dial face.

Consult factory for other position orientations.

**Process Connections:** 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

**Weight:** 1 lb 2 oz (510 g), M

**Agency Approvals:** RoHS.

**Note:** May be used with hydrogen when ordering Buna-N diaphragm. Pressure must be less than 35 psi.

Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F (60°C). 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.

The diagram illustrates a cross-section of a concrete slab. Three rebar anchors are shown embedded in the slab. Below the slab, a circular reinforcement cage is depicted, which is designed to fit around the anchors to provide additional structural support.

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

## An exploded view diagram of a mechanical assembly. At the top are two circular rings, one labeled 'Ring' and the other 'Ring'. Below them are two chains, one labeled 'Chain' and the other 'Chain'. In the center is a complex component with multiple internal parts, labeled 'Component'. At the bottom is a cylindrical base unit with a flange, labeled 'Base Unit'. Three screws or bolts are shown positioned around the base unit, labeled 'Screw'. The entire assembly is shown in an exploded perspective view.

Provide a 4-9/16" dia. (116 mm) opening in panel. Provide a 4-120 mm) opening for MP and HP models. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adapters, firmly secured in place.

Provide a 4-9/16" opening in panel. Insert gage and secure with supplied mounting hardware.

To mount gage on 1-1/4" - 2" pipe, order optional A-610 pipe mounting kit.

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.

**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 the gage is vented in 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 of temporary installation use 1/8" pipe thread to rubber tubing adapter and connect to source of pressure with flexible rubber or vinyl tubing.

**B.** For permanent installation, 1/4" O.D., or larger, copper or aluminum tubing is recommended.

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 should be used in permanent installations. The Series 2000 is not field serviceable and should be returned to the factory for repair. If repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.

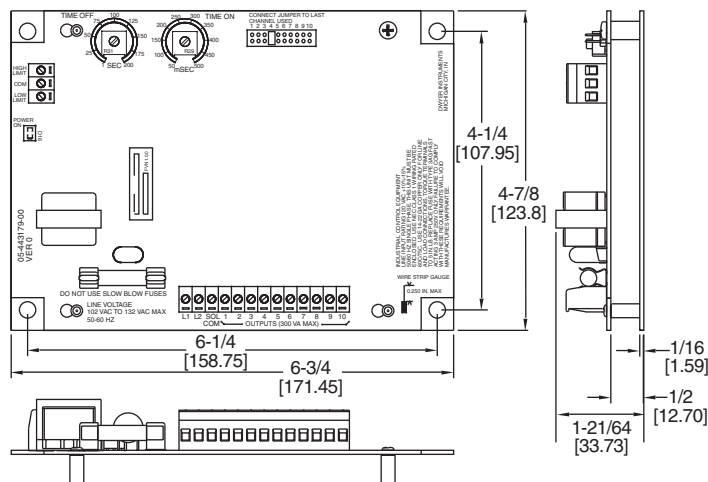
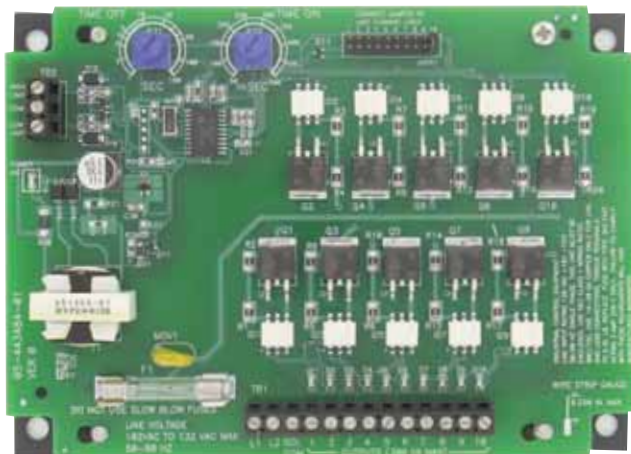
Attempted field repair may void your warranty. Recalibration or repair by the user is not recommended.

**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 sensor, (static taps, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F (-7°C), order gage with low temperature, (LT) option.

## Specifications – Installation &amp; Operating Instructions

**Introduction**

The Series DCT500A Timer Controller is a timing system for pulse-jet type dust collectors or pneumatic conveying systems in either continuous or on-demand cleaning applications. It is provided with either 4, 6, or 10 channels. The DCT500 was designed for ease of installation in your dust collector system. For installations requiring fewer channels than available on the board, a shorting plug is provided to allow selection of the last used channel. Time-on and time-off settings are selected using two potentiometers. High-limit and low-limit control inputs are provided for use with on-demand systems. When used in a continuous mode the high-limit input is jumped. For safety, the control circuitry including the control inputs and the last channel jumper, is isolated from the power line.

**Installation**

**Warning:** Always install and service this device with the power off and a lockout installed if required. Line voltages are exposed on the board. As a result, this device is not intended to be installed in any open location. It must be installed within an enclosure that meets appropriate safety and local code requirements. Follow applicable safety procedures when installing or servicing this product.



**Warning:** Always replace the fuse with the proper type and rating. The fuse is Type 3 AG fast acting 3 Amp @ 250V. DO NOT use slow-blow type fuses. Failure to comply with this requirement will pose a serious safety risk and will void manufacturer's warranty.



**Warning:** As a permanently installed piece of equipment, a power disconnect switch, circuit, or other approved disconnect device must be installed in close proximity to the installed board and within easy reach of the operator. This disconnect device must include a label indicating its function as a mains disconnect.

**Power Requirements**

The controller is designed for operation on 120 VAC 50/60 Hz power. The input voltage must be between 102 VAC and 132 VAC either 50 or 60 Hz. The solenoid loads must be rated for 120 VAC operation.

**Location**

The system must be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements. Mount it using the four mounting holes in the baseplate. The baseplate back is flush, so no special spacers are needed to accommodate obstructions except for those imposed by the location itself.

Installed screws and other mounting hardware must maintain a spacing of 0.250 in (6.35 mm) from the circuit board.

**SPECIFICATIONS**

**Output Channels:** 4, 6, & 10 channels.

**Voltage Requirements:** 102 to 132 VAC (~) 50 or 60 Hz.

**Power Consumption:** 1.8 W.

**Input Power:** 302 VA max.

**Load:** 300 VA max, pilot rating C300.

**Fuse:** Type 3 AG, 3A @ 250 VAC (~).

**Ambient Operation Temperature:** -40 to 149°F (-40 to 65°C).

**Storage Temperature:** -40 to 176°F (-40 to 80°C).

**Humidity Conditions:** 5 to 95% noncondensing.

**On Time:** 50 to 500 msec.

**On Time Accuracy:** ±5% of setting.

**On Time Repeatability:** ±1 msec.

**Off Time:** 1 to 180 seconds.

**Off Time Accuracy:** 5% of setting.

**Pollution Degree:** 2.

**Altitude:** 6560 ft (2000 m) max.

**Environment:** Indoor use, must be installed in a weather-proof enclosure for outside applications.

**Weight:** 9 oz (255 g).

**Agency Approvals:** UL, cUL, CE.

**Connections**

The line and solenoid connections are located at the lower edge of the board. The terminal block is a "Euro" style connector system that clamps the wire within the connector body. The connector will accept wire sizes from 14 to 22 gages. Wire must be copper only with at least 60°C or 60/75°C rated insulation. These terminals should be torqued to 5 in. lb. The connectors are specified for single connection but multiple wires may be connected to a single lug provided local codes allow this and good workmanship practices are followed. When using stranded wire, make sure that there are no "stray" strands. These pose safety hazards and may cause system failure or damage. Connect the line power to L1 and L2. Connect the solenoids between the selected output and the solenoid common. Solenoid common and L2 are internally connected. Refer to Figure 2-1.

The wire should be stripped to no more than 0.25 in. A strip gauge is provided at the lower right corner of the board. Longer than this may cause shorts or expose line voltages to possible contact.

Switches connected to the control inputs at the top of the board must be isolated normally open contacts connected only to the relevant terminal and to the common terminals.

The following subparagraphs describe the external switch connections. Refer to figure 2-1 for switch connection illustration.

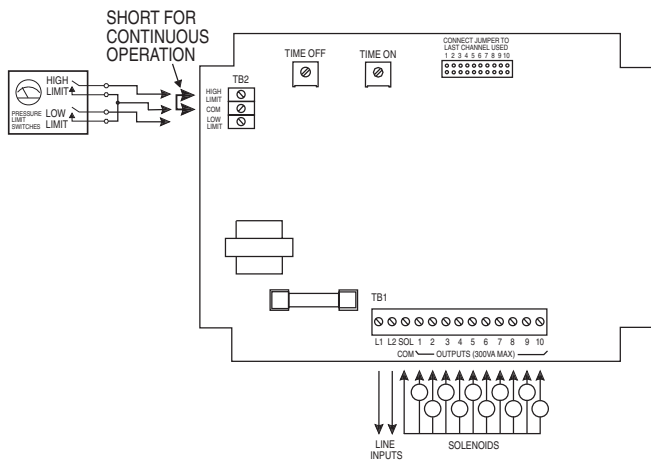


FIGURE 2-1 Switch Connections

#### External Limit Switch Connection

The controller may be used with an external pressure limit switch or sensor to provide demand-cleaning operation. A three pin terminal block provides connection for external high and low limit switches. A simple on-off system can be established with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch/gage such as the Dwyer Photohelic® pressure gage. The switches must be isolated contacts between the high or low limit input and the common connection. The wiring from the switches must be two or three wires with no other connections made to these. The common line must not be connected to equipment ground or protective ground, since these may introduce electrical noise and cause improper operation or possible damage to the control board. The operation of these inputs is summarized as follows:

Current Operation	Low Limit Switch	High Limit Switch	Next Operation
Hold	Open	Open	Hold
Hold or Run	X	Closed	Run
Hold	Ø	Open	Hold
Hold	Closed	Ø	Run
Run	Closed	≠	Run
Hold	Closed	Ø	Run
Run	≠	Open	Hold

Ø – Transition from open to closed  
 ≠ – Transition closed to open  
 X – Either open or closed

#### Operating Modes

##### Continuous Cycle Mode

The DCT500A has two operating modes available for different applications. Starting with the most basic mode, it is capable of operating in a continuous cleaning cycle. This can be initiated by placing a jumper between the high limit input and the common connection. Two setup parameters control operation: time off, time on. Time on and time off specifically deal with the solenoid on time and the time interval between the end of the on pulse and the start of the next.

##### Demand Mode

Demand mode operation can be configured using the high limit and low limit inputs. A simple on-off system can be setup with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch set such as is provided in the Photohelic® pressure gage. In this on-demand mode, time on and time off may be programmed to define the cleaning cycle. When the cleaning cycle is completed, the controller will continue the cycle until the last channel is pulsed. The next cleaning cycle will always start on channel 1. A factory installed option is available that will not clean to the end of the cycle, but rather stop where the cleaning cycle ended. The next demand for cleaning will start the subsequent channel where the last cleaning cycle left off.

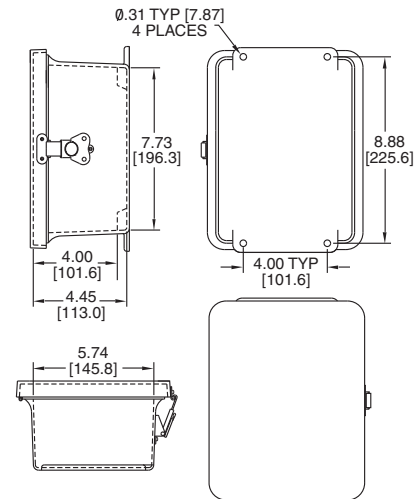
#### System Setup

##### Last Channel Selection

A jumper connector is provided to select the last channel used. Place the jumper on the two pins corresponding to the last channel used in the installation.

#### Time Off and Time On Setup

Time off defines the period of time between solenoid activations when no channels are enabled. This value may be set between 1 second and 200 seconds with a resolution of 1 second. Time on defines the solenoid on time. The value may be set between 50 msec and 500 msec with a resolution of 10 msec. If adjustments are made while the system is in operation, the new setting will take effect in the following solenoid cycle. Do not use excessive force to turn the potentiometers. This will damage the unit. A factory installed option is available for a time on range of 0.05 to 10 seconds.



Weatherproof Enclosure Option

#### Explanation of Symbols:

Symbol	Description
	Caution: Risk of electric shock
	Caution: Risk of danger, refer to user's manual for further information
	Alternating current

#### Agency Approvals and Test Standards:

UL:	UL508: 2008 IEC 61010-1: 2001-02
CE:	IEC 61000-4-2: 2001 IEC 61000-4-3: 2006 IEC 61000-4-4: 2004 IEC 61000-4-5: 2005 IEC 61000-4-6: 2006 IEC 61000-4-11: 2004 CENELEC EN 55022: 2007 FCC Part 15 CFR Title 47: 2007 ICES-003: 2004 Digital Apparatus (Industry Canada) ANSI 63.4-2003 CENELEC EN 61326-1: 2006 2004/108/EC EMC Directive



# BLAST-IT-ALL®

A Division of Hess Manufacturing Inc.  
185 Piper Lane Salisbury, NC 28147  
P O Box 1615 Salisbury, NC 28145  
Toll Free 800-535-2612  
Fax 704-638-9311



Hess Manufacturing Inc. Warrants to the original purchaser of the merchandise sold, to be free from defects in material or workmanship under normal use and service for a period of (5) years. **This warranty does not cover typical wear items.** Upon prompt notification by the purchaser, to HM, components that are determined by HM to be defective will be repaired or replaced at no additional charge F.O.B. our factory.

This warranty requires the following:

- 1) **A completed and returned Warranty Registration card.**
- 2) **Use of Genuine Blast-it-all® OEM replacement parts purchased through Hess Manufacturing Inc. Blast-it-all® to include common wear items. For the entire period of the warranty.**
- 3) **Failures to provide proof of the purchase of Blast-it-all® OEM wear Items voids warranty.**

Manufacturer shall have the right to inspect prior replacing all merchandise in question.

Manufacturer shall not be required to pay any removal or installation charges whatsoever

Manufacturer shall not be held liable for prospective profits, special or consequential damages, nor shall any recovery of any kind against manufacturer be greater in amount the cost of the repairs of defects in workmanship

This warranty does not apply to damage caused by accidents, damage occurring during transit, alterations by unauthorized personnel, abuse or damage by flood, fire or acts of God, nor by artificially generated electric currents or any other cause whatsoever except defects in material or factory workmanship.

In ALL cases, defective parts must be returned to Hess Manufacturing Inc. before credit is issued.

This warranty is in lieu of all other warranties expressed, written or implied and releases Hess Manufacturing Inc. of all other obligations and liabilities whatsoever. This warranty neither assumes nor authorizes any person any obligation other than those specified by this warranty.



**DO NOT USE SAND! SAND WILL CAUSE SILICA DUST, WHICH IS THE CAUSE OF SILICOSIS DISEASE, A CONDITION OF MASSIVE FIBROSIS OF THE LUNGS. THIS STATEMENT INDICATES POTENTIAL PERSONEL HAZARD. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.**