MANUAL NUMBER: MM-502

BLAST-IT-ALL®

REVERSE PULSE
DUST COLLECTOR

WARNING

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

WEBSITE FOR SILICOSIS:
http://www.osha.gov/Silica/IT69D 1.html

M – SERIES

HESS MANUFACTURING, INC.
P.O. BOX 1615
SALISBURY, NC 28145-1615

1-800-535-2612

FAX:704-638-9311

MM – 502

TABLE OF CONTENTS

SPECIFICATION AND INSTRUCTIONS FOR M-SERIES COLLECTORS

1.0 GENERAL DESCRIPTION

The **MODEL M COLLECTORS** are cartridge filter jet pulse type collectors. These collectors may be supplied as a complete unit. An air inlet is located on the top 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 CONTAINER. The air separates as it is drawn into the cartridge filter(s). 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 DUST CONTAINER.

2.0 DESIGN CONSIDERATIONS

2.01 Maximum negative pressure: 15" 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.

4.0 BASIC CONSTRUCTION

4.01 Basic Unit: The basic unit is fabricated from 12 gauge carbon steel. All seams are welded to form a solid seal. 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 of the unit.

4.02 Filter Cartridges: Each cartridge contains approximately 103 SQ.FT. FILTER AREA FOR EACH CARTRIDGE,and the number of filter units depends on the unit size.

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 AUTO CLEAN units a solid state controller is provided.

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 this pressure. The air supply must be clean and free of moisture.

6.0 PAINT

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

7.0 SHIPMENT

The units are shipped assembled.

8.0 COMPRESSED AIR PIPING

The compressed air piping installed by the user shall be a minimum of 1/2" 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 CONTAINER - The FLEX HOSE must be installed and attached to the dust container. This container 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.

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 activated when the unit is in operation.

2.02 If the unit is not equipped with a automatic pulse package, the filters are cleaned by manually pushing the clean pulse air valve. This will allow the cartridge to be pulse cleaned. **(PUSH 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 CONTAINER

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

3.01 Shut system down.

3.02 Remove and empty container in to approved dust receptacle.

3.03 Replace container and attach cover.

MAINTENANCE

Regular maintenance is consistent with satisfactory and efficient operation of any dust collector. Remember to clean and inspect the filters 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.

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 Unscrew filter cover and remove filter.

4.02 Pull out filters

5.0 FILTER CARTRIDGE REPLACEMENT

5.01 Brush any dust that may have fallen. 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 Tighten cover plate

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.

1.02 Filter(s) Wet:
Make sure there is no moisture in the compressed air lines.

1.03 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 container is over full. A full container 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 indicates 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 OF DUST OUT EXHAUST AFTER EACH CLEANING:

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

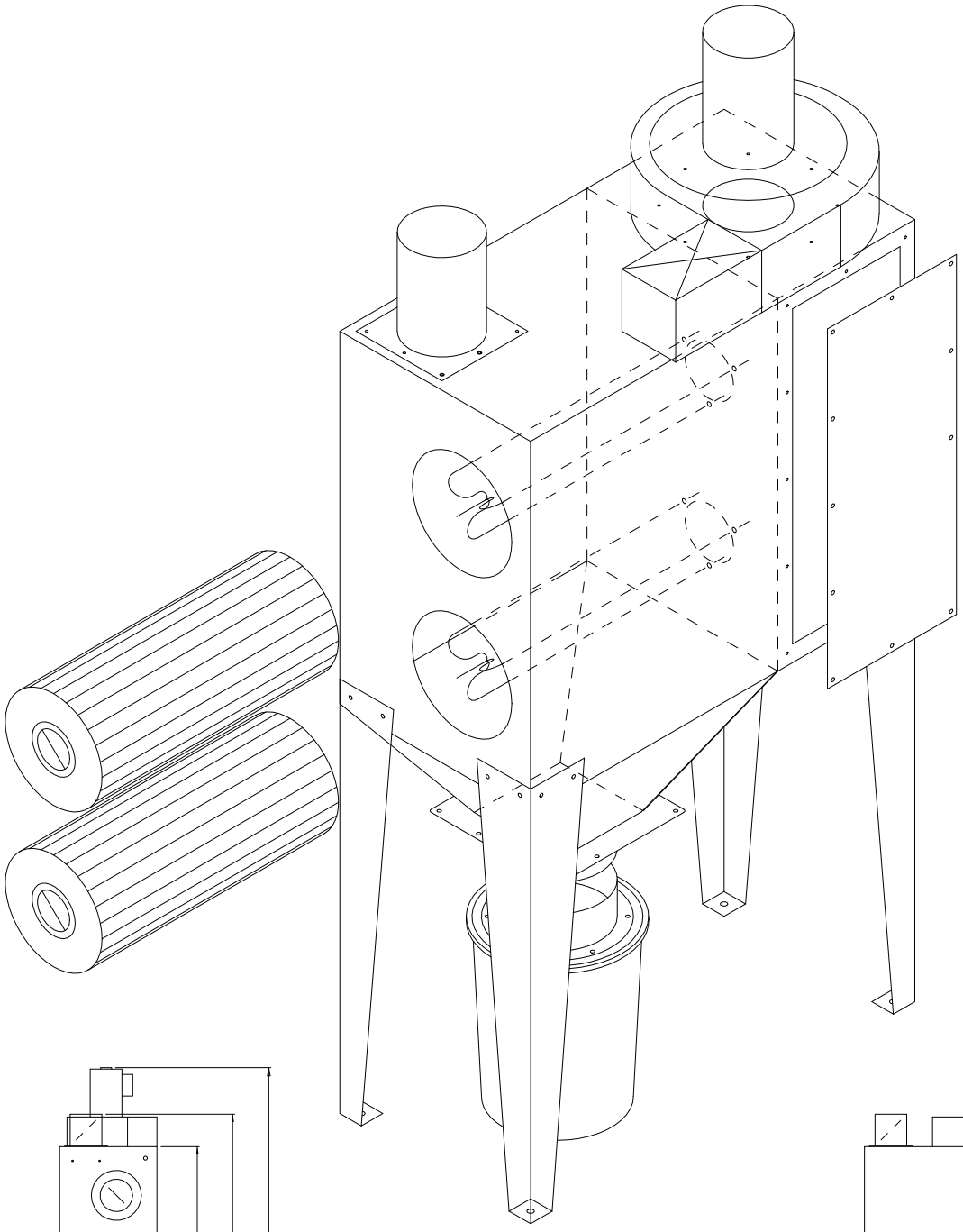
3.02 Filter Worn: Remove and inspect filters for pin holes, spots, or other locations where dust may be passing through the filter media. Replace filter cartridges if required.

4.0 CONTINUOUS DUST OUT EXHAUST:

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-tighen or replace filter. Do not attempt to repair gasket seal.

BLAST-IT-ALL®



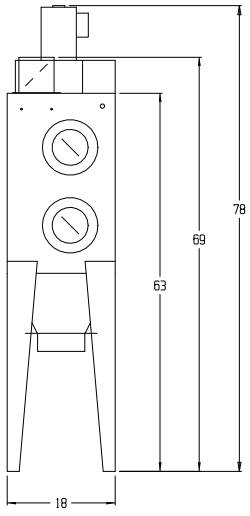


Fig. A

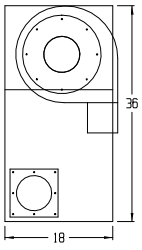
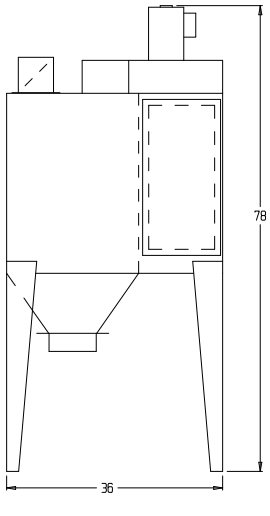


Fig. B



MODEL M2-DC

HESS MANUFACTURING, INC.

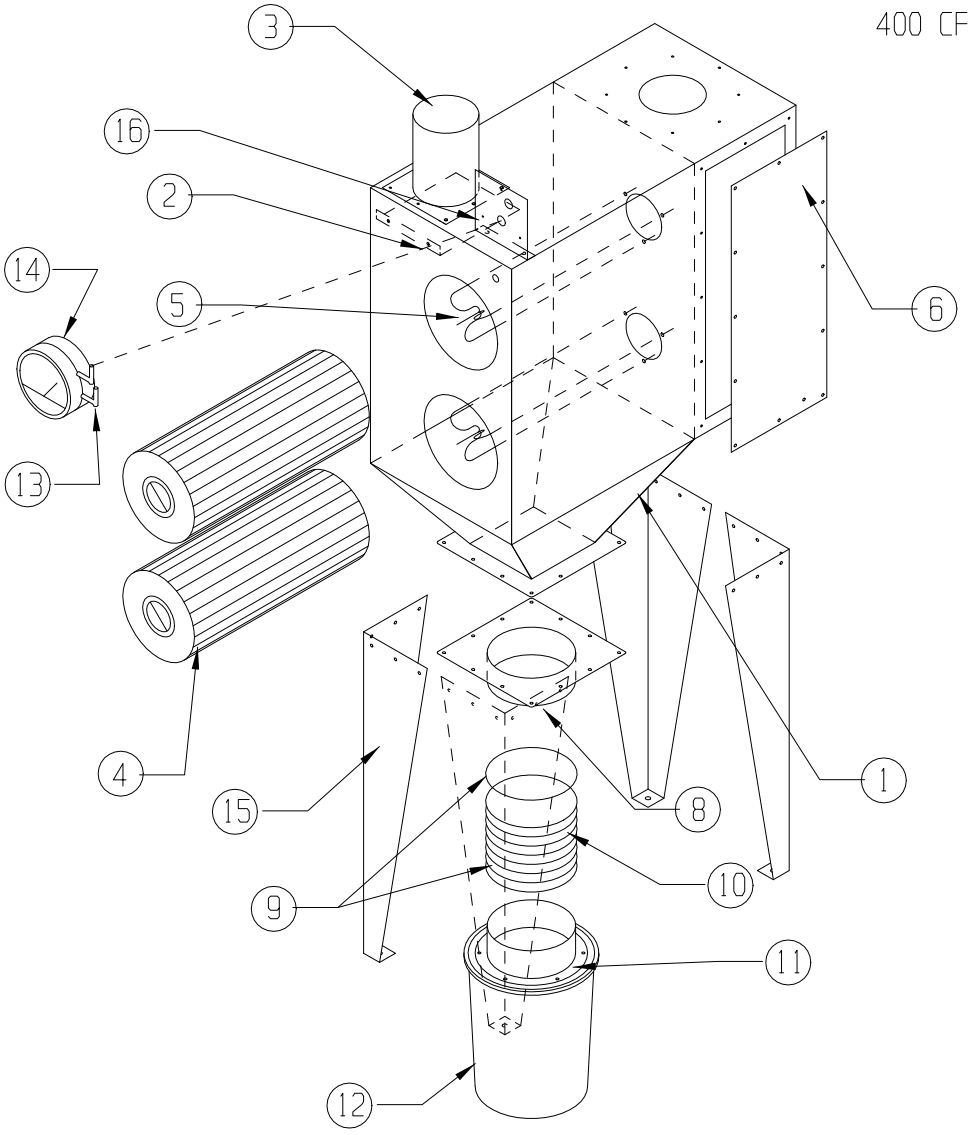
DESCRIPTION: M2 DUST COLLECTOR WITH LEGS

DATE: 05/31/12

ENGINEER: DEC

DWG. NO.: M2081-N

400 CFM



ITEM NO.	PART NO.	DESCRIPTION
1	B2198	DUST COLLECTOR
2	B2198-9	BAFFLE PLATE
3	A35249	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	011351-1	PAIL COVER W/ADAPTOR
12	011350	3 GALLON PAIL
13	003084	1/8" 90° BRASS FITTING
14	004457	MAGNAHELIC GUAGE
15	A2762	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

HESS MANUFACTURING, INC.

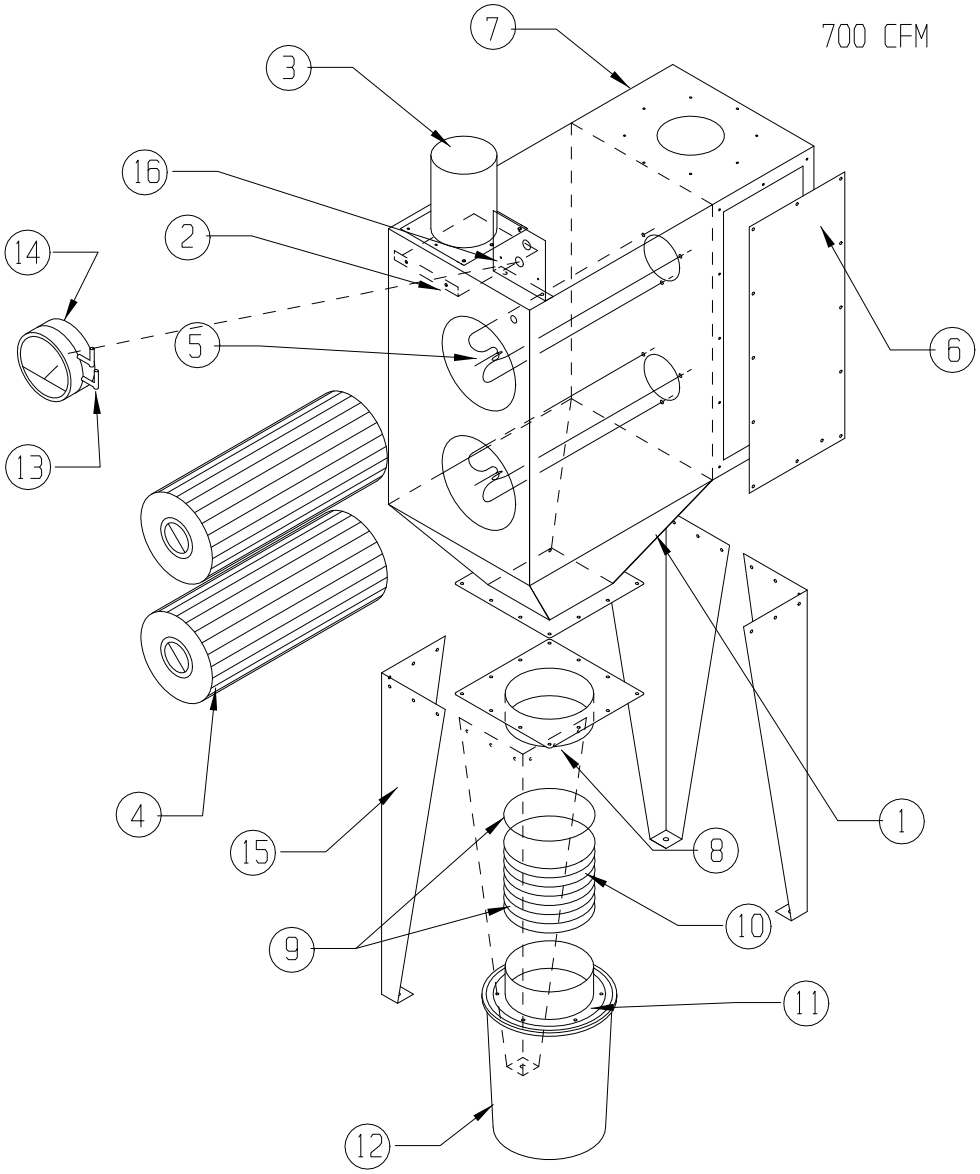
DESCRIPTION: M2 DUST COLLECTOR STANDARD

DATE: 05/31/12

ENGINEER: DEC

DWG. NO.: M2091-N

700 CFM



ITEM NO.	PART NO.	DESCRIPTION
1	B2198	DUST COLLECTOR
2	B2198-9	BAFFLE PLATE
3	000723	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	B2198-8	COVER PLATE LEFT SIDE
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	011351-1	PAIL COVER W/ADAPTOR
12	011350	3 GALLON PAIL
13	003084	1/8" 90° BRASS FITTING
14	004457	MAGNAHELIC GUAGE
15	A2762	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

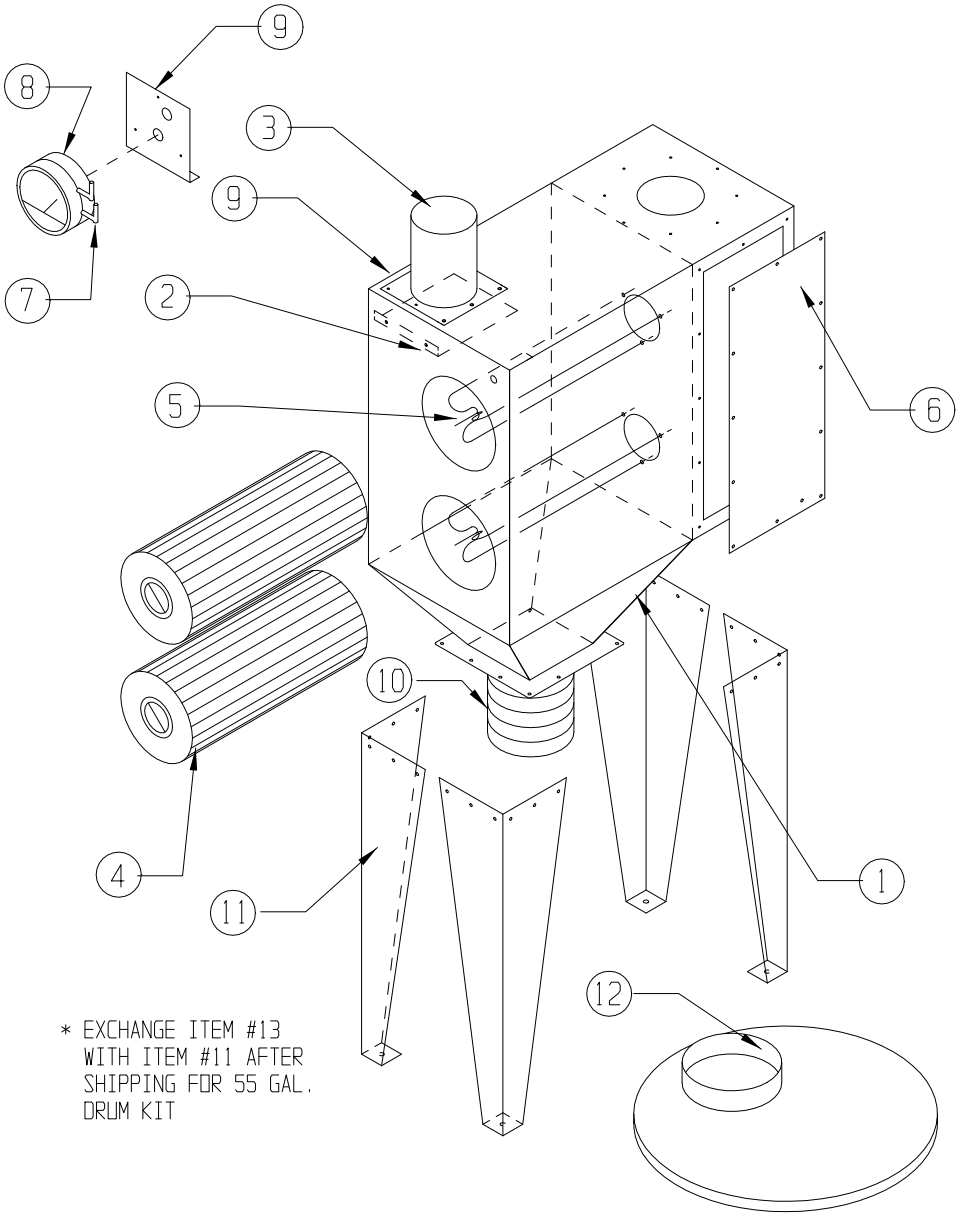
HESS MANUFACTURING, INC.

DESCRIPTION: M2 D. C. WITH 55 GAL. LEGS

DATE: 05/31/12

ENGINEER: DEC

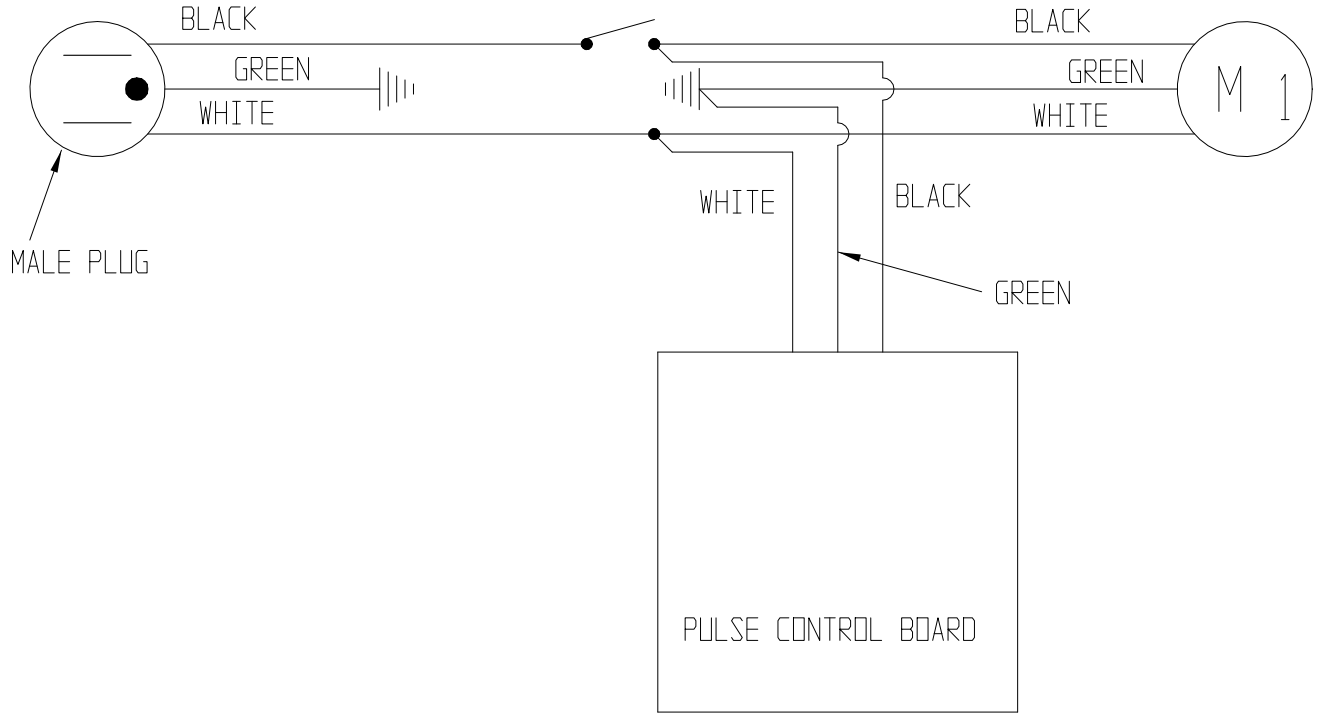
DWG. NO.: M2084-N



* EXCHANGE ITEM #13 WITH ITEM #11 AFTER SHIPPING FOR 55 GAL. DRUM KIT

ITEM NO.	PART NO.	DESCRIPTION
1	B2198	DUST COLLECTOR
2	B2194-2	BAFFLE PLATE
3	000723	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	003084	1/8" 90° BRASS FITTING
8	004457	MAGNAHELIC GUAGE
9	004457-B	MAGNAHELIC BRACKET
10	19-098	Ø 8" HOSE (SPECIFY LENGTH)
11	A2763	LEGS (4) 55 GAL KIT
12	A2651	55 GAL. DRUM LID
13	A2762	LEGS (4) STANDARD

A5198



REV.	DESCRIPTION	BY	DATE

CONFIDENTIAL

HESS MANUFACTURING, INC.

SALISBURY, NORTH CAROLINA

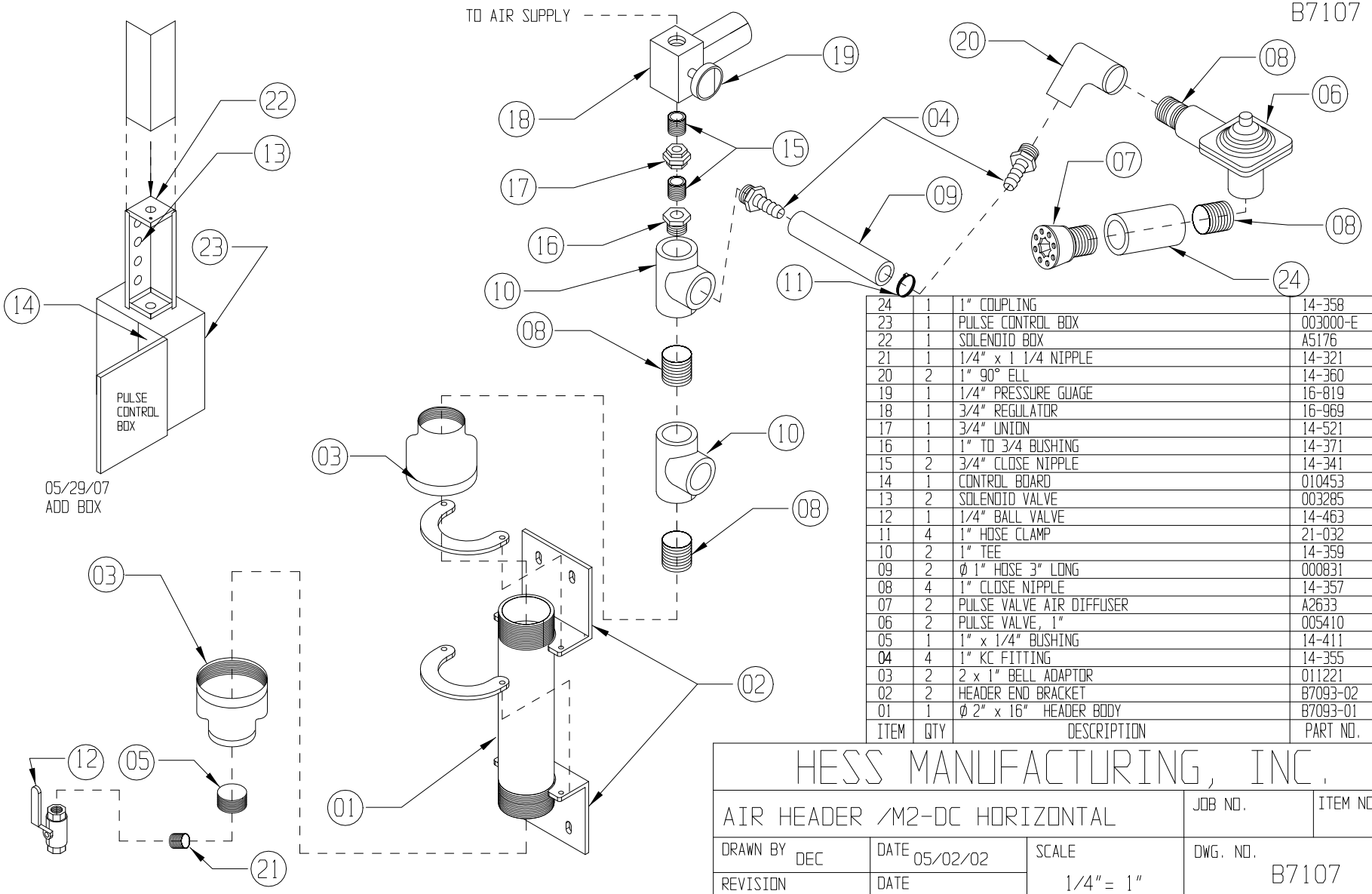
DESCRIPTION: M2 DC ELECTRICAL

MATERIAL:

DRAWN BY:	DATE:	SCALE:	JOB NO:
LJF	03/20/08	NTS	STD.
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.:

DRAWING NO.: A5198

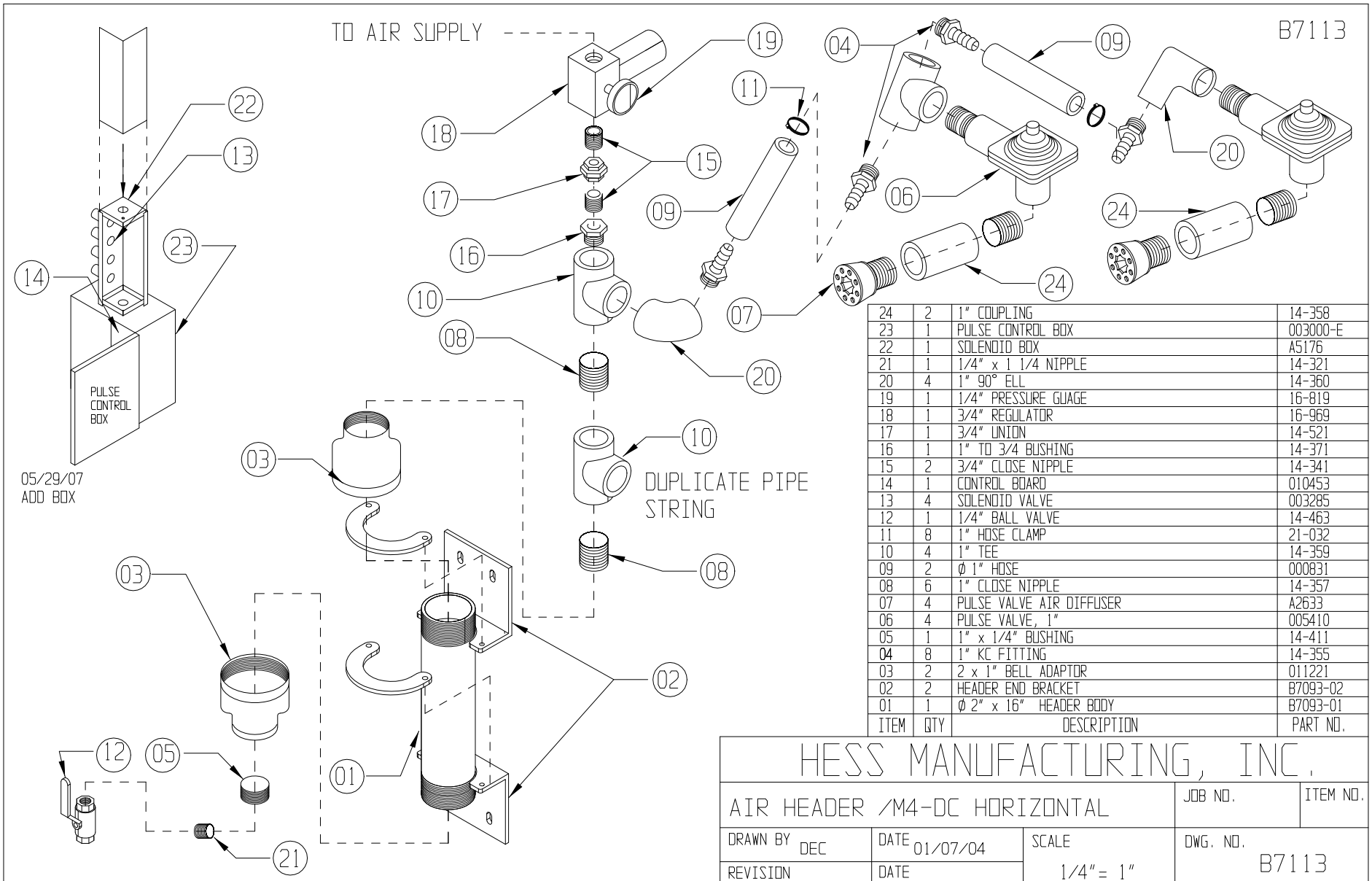
B7107



ITEM	QTY	DESCRIPTION	PART NO.
24	1	1" COUPLING	14-358
23	1	PULSE CONTROL BOX	003000-E
22	1	SOLENOID BOX	A5176
21	1	1/4" x 1 1/4 NIPPLE	14-321
20	2	1" 90° ELL	14-360
19	1	1/4" PRESSURE GUAGE	16-819
18	1	3/4" REGULATOR	16-969
17	1	3/4" UNION	14-521
16	1	1" TO 3/4 BUSHING	14-371
15	2	3/4" CLOSE NIPPLE	14-341
14	1	CONTROL BOARD	010453
13	2	SOLENOID VALVE	003285
12	1	1/4" BALL VALVE	14-463
11	4	1" HOSE CLAMP	21-032
10	2	1" TEE	14-359
09	2	Ø 1" HOSE 3" LONG	000831
08	4	1" CLOSE NIPPLE	14-357
07	2	PULSE VALVE AIR DIFFUSER	A2633
06	2	PULSE VALVE, 1"	005410
05	1	1" x 1/4" BUSHING	14-411
04	4	1" KC FITTING	14-355
03	2	2 x 1" BELL ADAPTOR	011221
02	2	HEADER END BRACKET	B7093-02
01	1	Ø 2" x 16" HEADER BODY	B7093-01

HESS MANUFACTURING, INC.

AIR HEADER /M2-DC HORIZONTAL			JOB NO.	ITEM NO.
DRAWN BY DEC	DATE 05/02/02	SCALE 1/4"= 1"	DWG. NO. B7107	
REVISION	DATE			



ITEM	QTY	DESCRIPTION	PART NO.
24	2	1" COUPLING	14-358
23	1	PULSE CONTROL BOX	003000-E
22	1	SOLENOID BOX	A5176
21	1	1/4" x 1 1/4 NIPPLE	14-321
20	4	1" 90° ELL	14-360
19	1	1/4" PRESSURE GUAGE	16-819
18	1	3/4" REGULATOR	16-969
17	1	3/4" UNION	14-521
16	1	1" TO 3/4 BUSHING	14-371
15	2	3/4" CLOSE NIPPLE	14-341
14	1	CONTROL BOARD	010453
13	4	SOLENOID VALVE	003285
12	1	1/4" BALL VALVE	14-463
11	8	1" HOSE CLAMP	21-032
10	4	1" TEE	14-359
09	2	Ø 1" HOSE	000831
08	6	1" CLOSE NIPPLE	14-357
07	4	PULSE VALVE AIR DIFFUSER	A2633
06	4	PULSE VALVE, 1"	005410
05	1	1" x 1/4" BUSHING	14-411
04	8	1" KC FITTING	14-355
03	2	2 x 1" BELL ADAPTOR	011221
02	2	HEADER END BRACKET	B7093-02
01	1	Ø 2" x 16" HEADER BODY	B7093-01

HESS MANUFACTURING, INC.

AIR HEADER /M4-DC HORIZONTAL			JOB NO.	ITEM NO.
DRAWN BY DEC	DATE 01/07/04	SCALE 1/4"= 1"	DWG. NO. B7113	
REVISION	DATE			

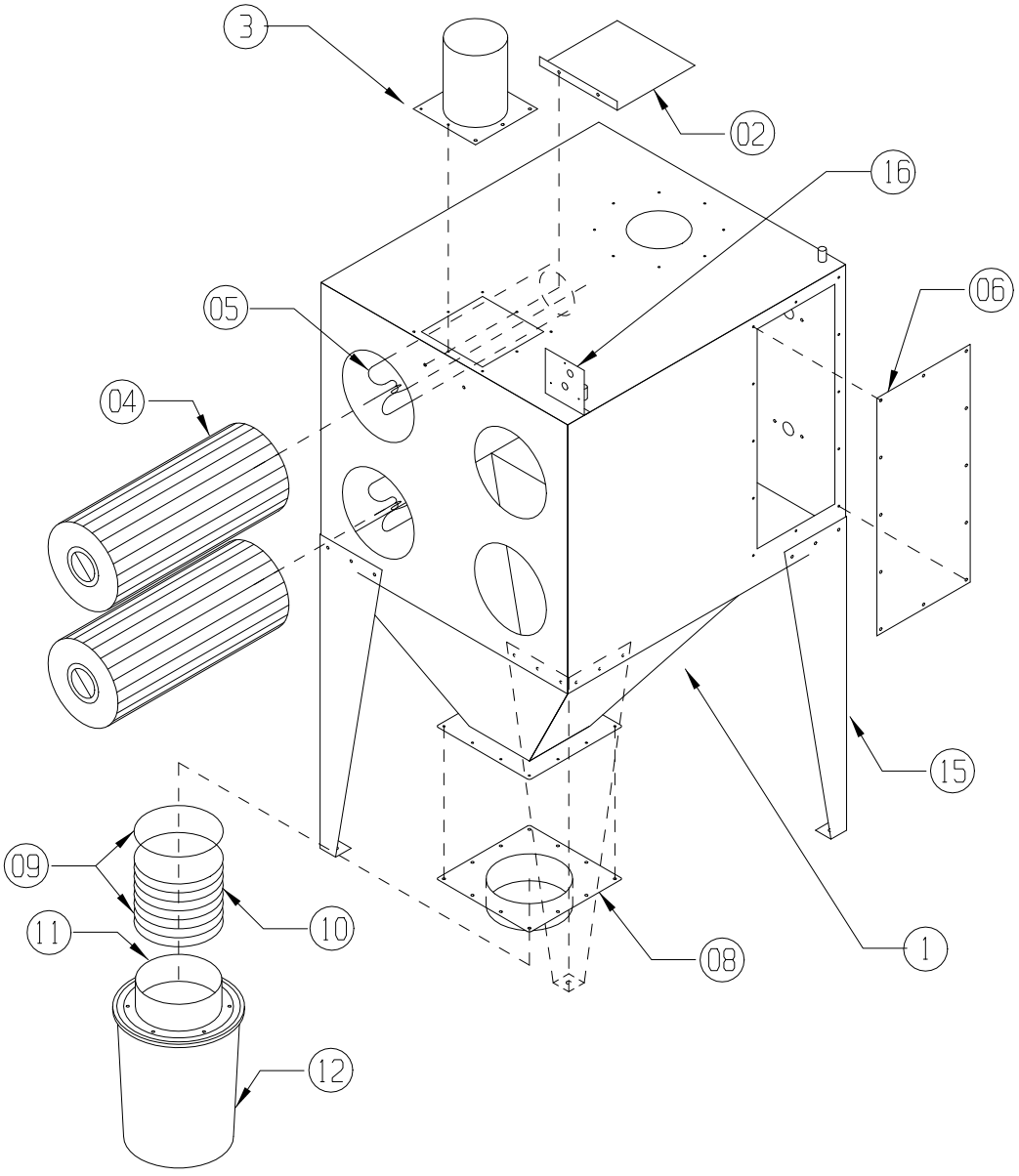
HESS MANUFACTURING, INC.

DESCRIPTION: M4 DUST COLLECTOR (700 CFM)

DATE: 05/31/12

ENGINEER: DEC

DWG. NO.: M2086-N



ITEM NO.	PART NO.	DESCRIPTION
1	B2199	DUST COLLECTOR
2	B2198-9	BAFFLE PLATE
3	000723	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	011351-1	PAIL COVER W/ADAPTOR
12	011350	3 GALLON PAIL
13	------	----------
14	------	----------
15	A2748	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

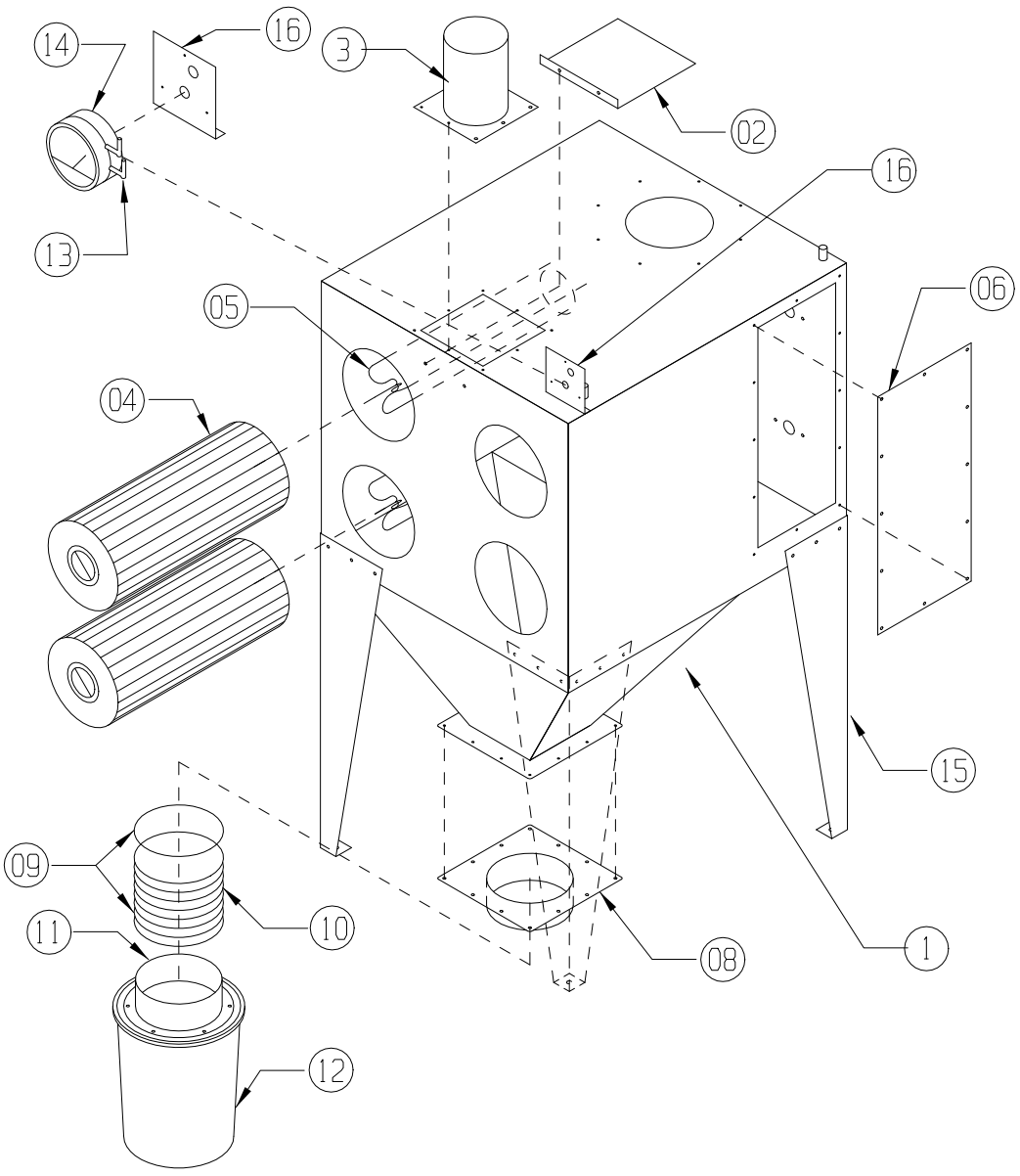
HESS MANUFACTURING, INC.

DESCRIPTION: M4 DUST COLLECTOR (900 CFM)

DATE: 05/31/12

ENGINEER: DEC

DWG. NO.: M2085-N



ITEM NO.	PART NO.	DESCRIPTION
1	B2199	DUST COLLECTOR
2	B2199-9	BAFFLE PLATE
3	001046	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	011351-1	PAIL COVER W/ADAPTOR
12	011350	3 GALLON PAIL
13	003084	1/8" 90° BRASS FITTING
14	004457	MAGNAHELIC GUAGE
15	A2748	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

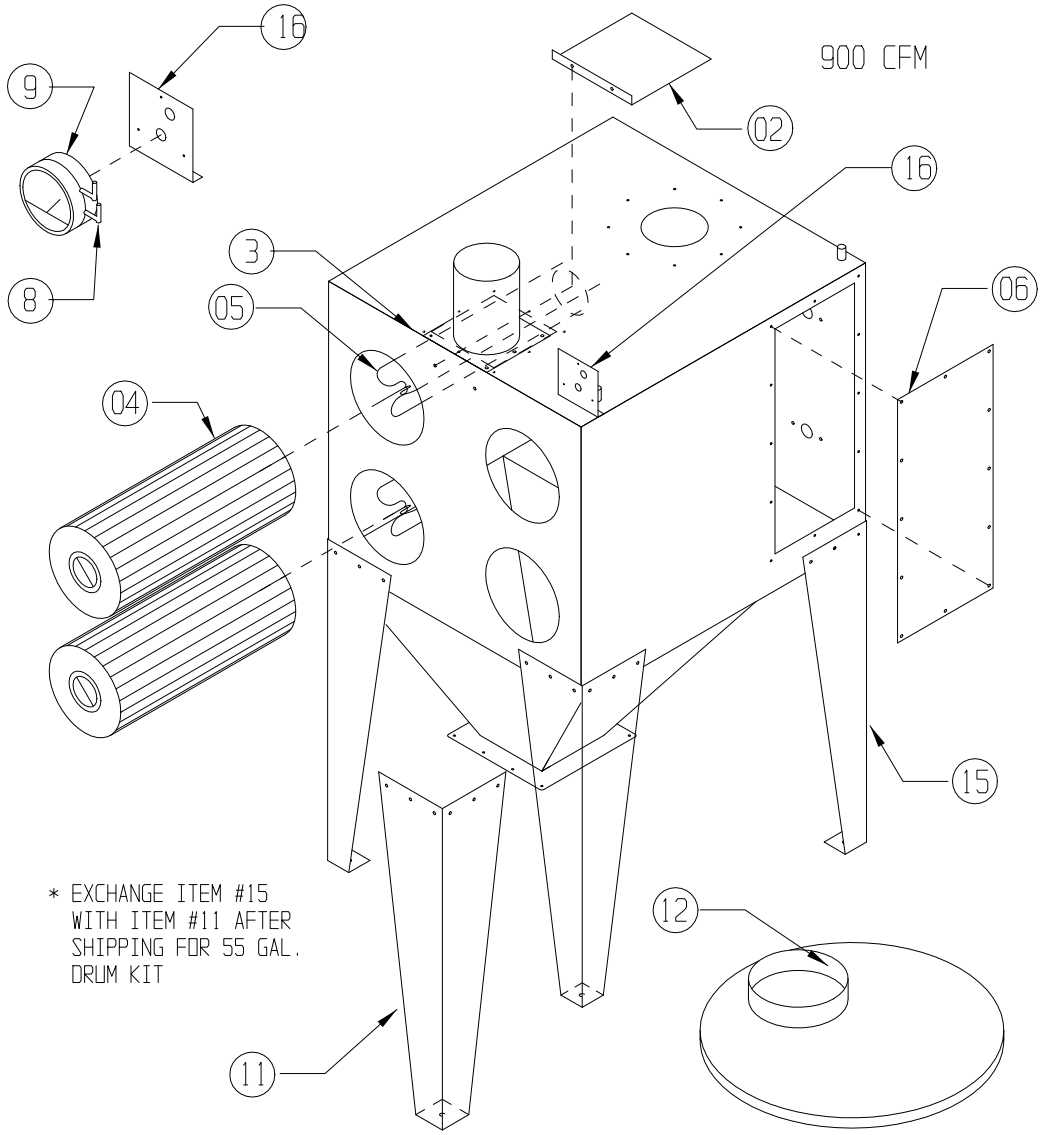
HESS MANUFACTURING, INC.

DESCRIPTION: M4 DUST COLLECTOR (900 CFM)

DATE: 05/31/12

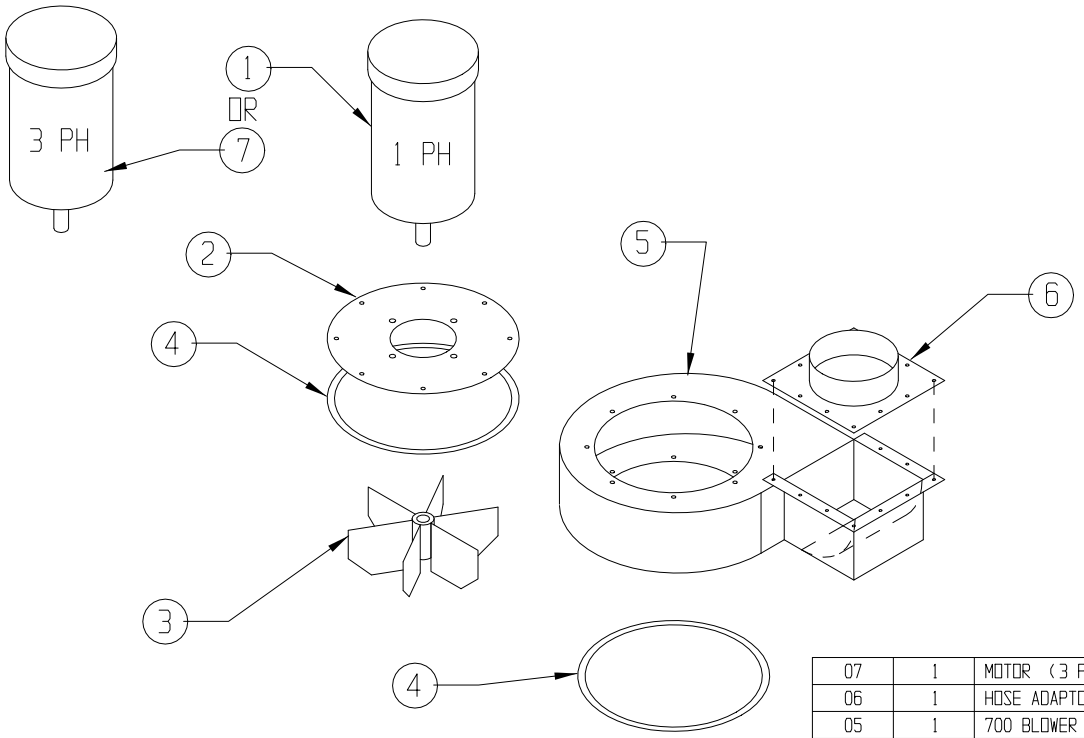
ENGINEER: DEC

DWG. NO.: M2089-N



ITEM NO.	PART NO.	DESCRIPTION
1	B2199	DUST COLLECTOR
2	B2199-9	BAFFLE PLATE
3	001046	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	003084	1/8" 90° BRASS FITTING
9	004457	MAGNEHELIC GAGE
10	19-098	Ø 8" FLEX HOSE (SPECIFY LENGTH)
11	A2749	LEGS (4) 55 GAL. KIT
12	A2651	55 GAL. DRUM LID
13	------	----------
14	------	----------
15	A2748	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

M12041



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
07	1	MOTOR (3 PHASE)	13-701
06	1	HOSE ADAPTOR	A12767-2
05	1	700 BLOWER HOUSING UPWARD	11-716-UP
04	*	PUTTY TAPE	24-030
03	1	BLADE	11-718
02	1	MOTOR PLATE	11-720
01	1	MOTOR (1 PHASE)	13-700

HESS MANUFACTURING, INC.
SALISBURY, NORTH CAROLINA

DESCRIPTION:
700 REPLACEMENT BLOWER PARTS

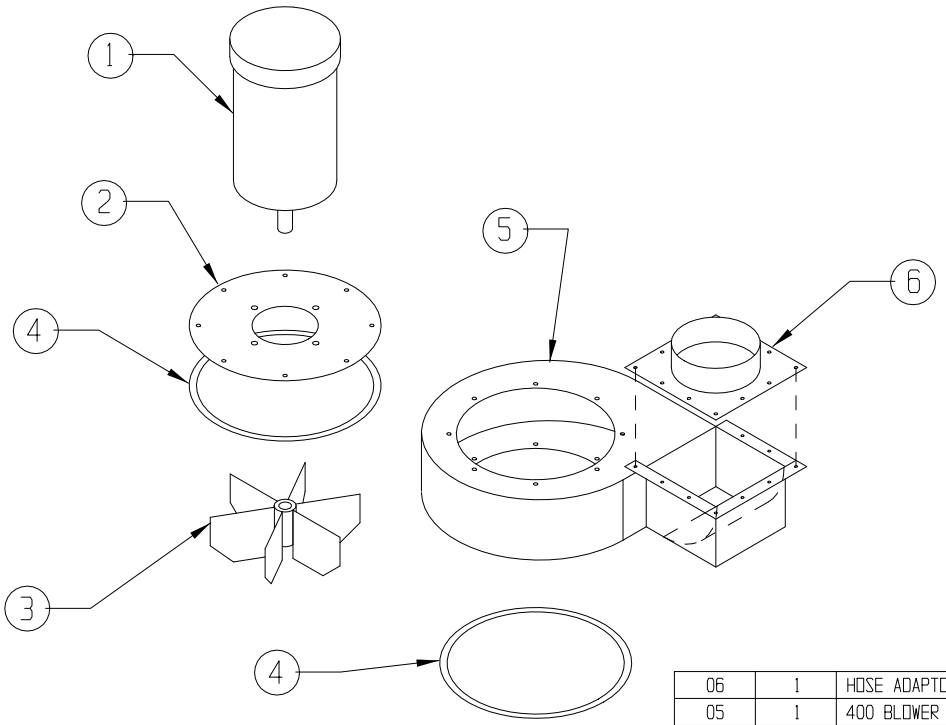
MATERIAL:
PER DWG.

DRAWN BY:	DATE:	SCALE:	JOB NO:
DEC	05/03/02	NONE	
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.:

DRAWING NO.: M12041

REV.	DESCRIPTION	BY	DATE

M12042



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
06	1	HOSE ADAPTOR	A35394
05	1	400 BLOWER HOUSING	11-416
04	*	PUTTY TAPE	24-030
03	1	BLADE	11-418
02	1	MOTOR PLATE	11-420
01	1	MOTOR (1/2 HP)	13-400

HESS MANUFACTURING, INC.
SALISBURY, NORTH CAROLINA

DESCRIPTION:
400 REPLACEMENT BLOWER PARTS

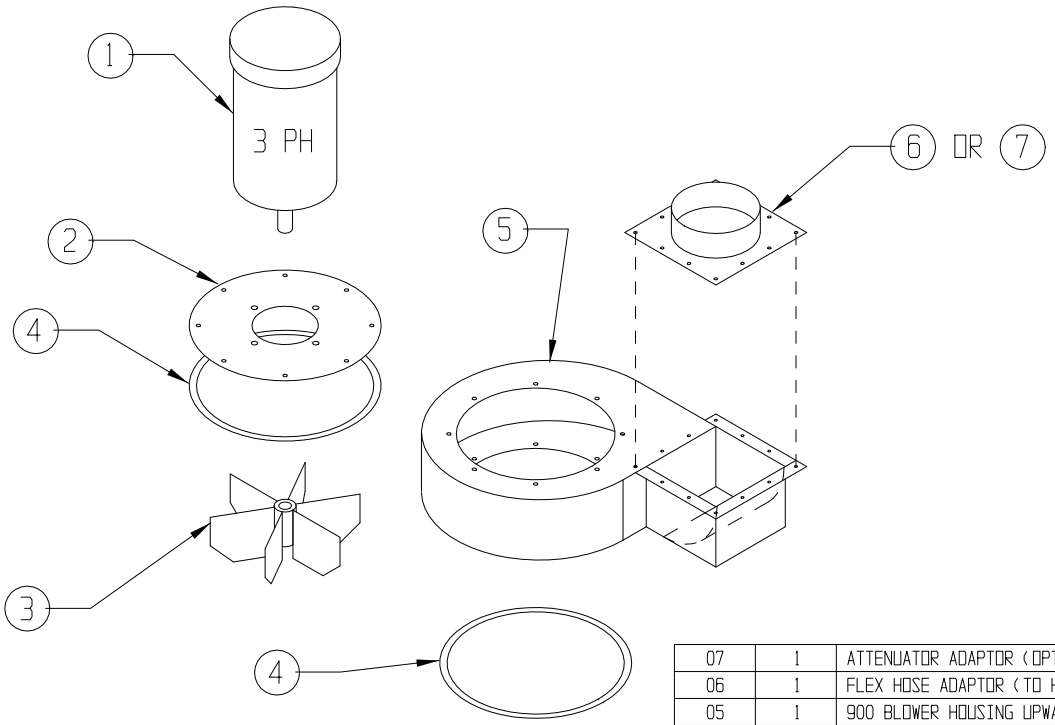
MATERIAL:
PER DWG.

DRAWN BY:	DATE:	SCALE:	JOB NO:
DEC	09/25/02	NONE	
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.:

DRAWING NO.: M12042

REV.	DESCRIPTION	BY	DATE

M12043



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
07	1	ATTENUATOR ADAPTOR (OPTIONAL)	B12374 Ø 7"
06	1	FLEX HOSE ADAPTOR (TO HEPA BOX)	B12374-3A Ø 8"
05	1	900 BLOWER HOUSING UPWARD	11-916-1
04	*	PUTTY TAPE	24-030
03	1	BLADE	11-918
02	1	MOTOR PLATE	11-920
01	1	MOTOR (3 PHASE)	13-900

HESS MANUFACTURING, INC.
SALISBURY, NORTH CAROLINA

DESCRIPTION:
900 REPLACEMENT BLOWER PARTS

MATERIAL:
PER DWG.

DRAWN BY:	DATE:	SCALE:	JOB NO:
DEC	01/06/04	NONE	
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.:

DRAWING NO.: M12043

REV.	DESCRIPTION	BY	DATE
#1	UPDATED 06, 07	DEC	09/02/14

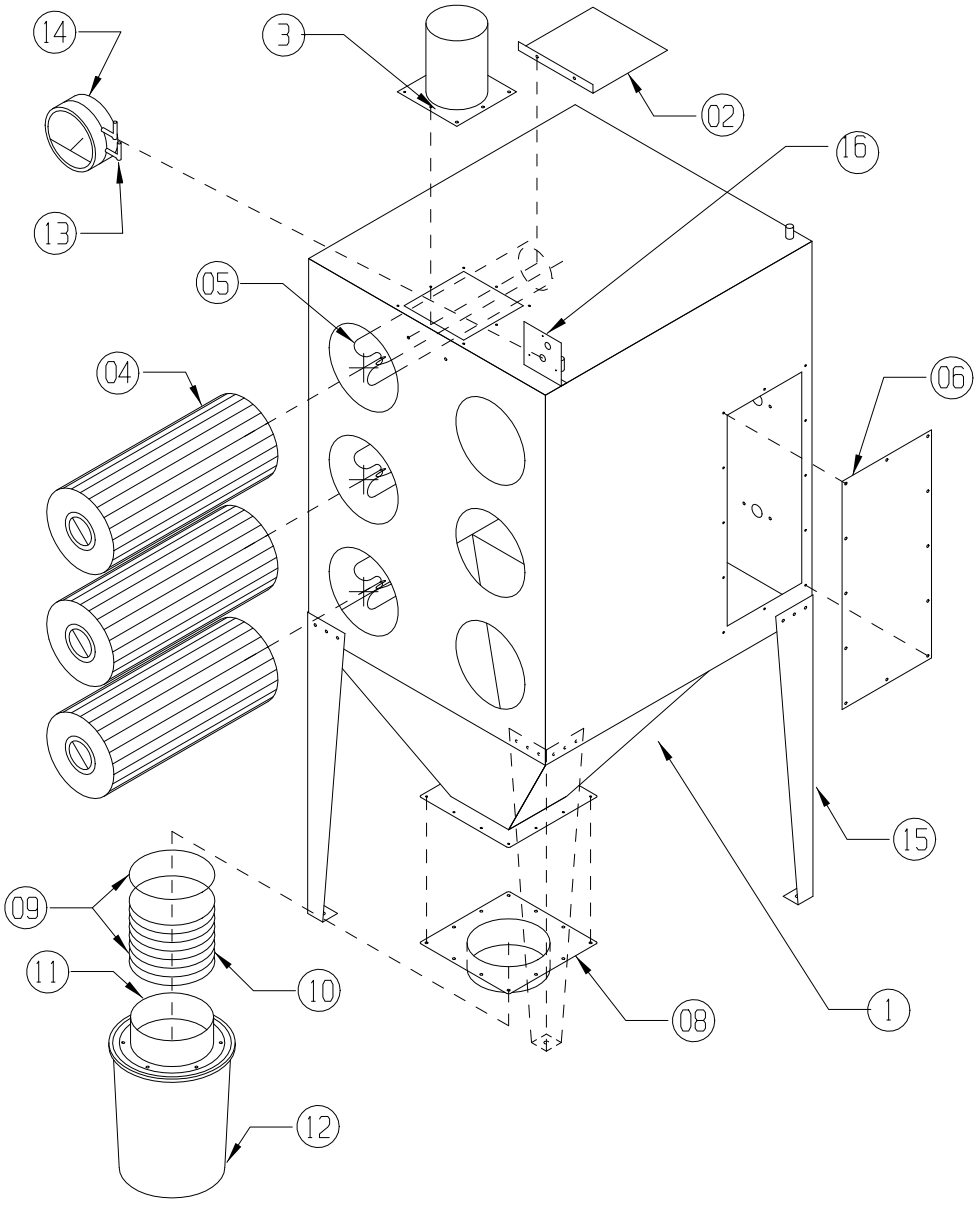
HESS MANUFACTURING, INC.

DESCRIPTION: M6 DUST COLLECTOR (1200 CFM)

DATE: 01/11/10

ENGINEER: DEC

DWG. NO.: M2094



ITEM NO.	PART NO.	DESCRIPTION
1	B2199	DUST COLLECTOR
2	B2199-9	BAFFLE PLATE
3	001046	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	011351-1	PAIL COVER W/ADAPTOR
12	011350	3 GALLON PAIL
13	003084	1/8" 90° BRASS FITTING
14	004457	MAGNAHELIC GUAGE
15	A2628	LEGS (4)
16	A741	MAGNEHELIC GAGE BRACKET

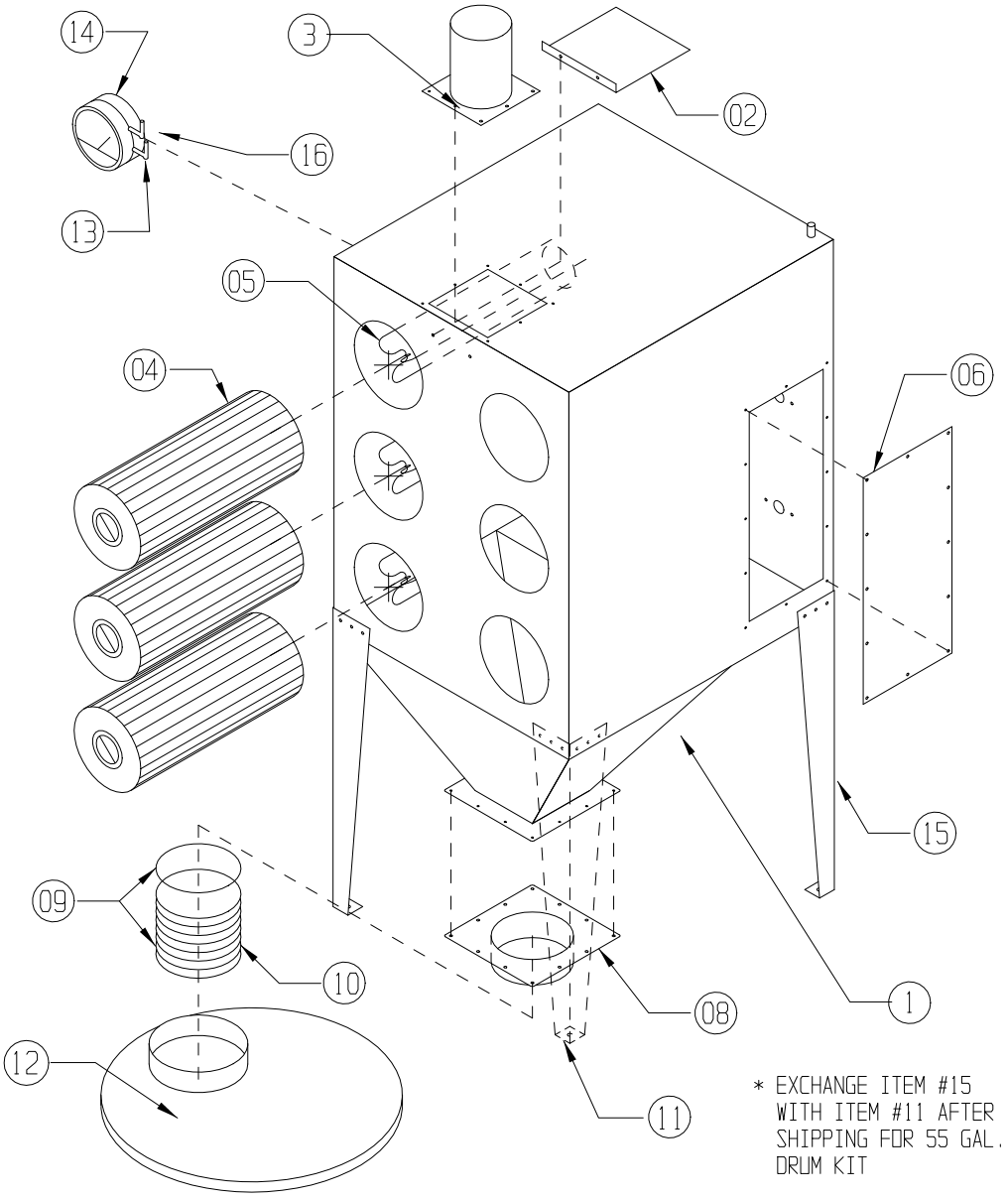
HESS MANUFACTURING, INC.

DESCRIPTION: M6 DUST COLLECTOR/ 55 GAL.

DATE: 01/12/16

ENGINEER: LJF

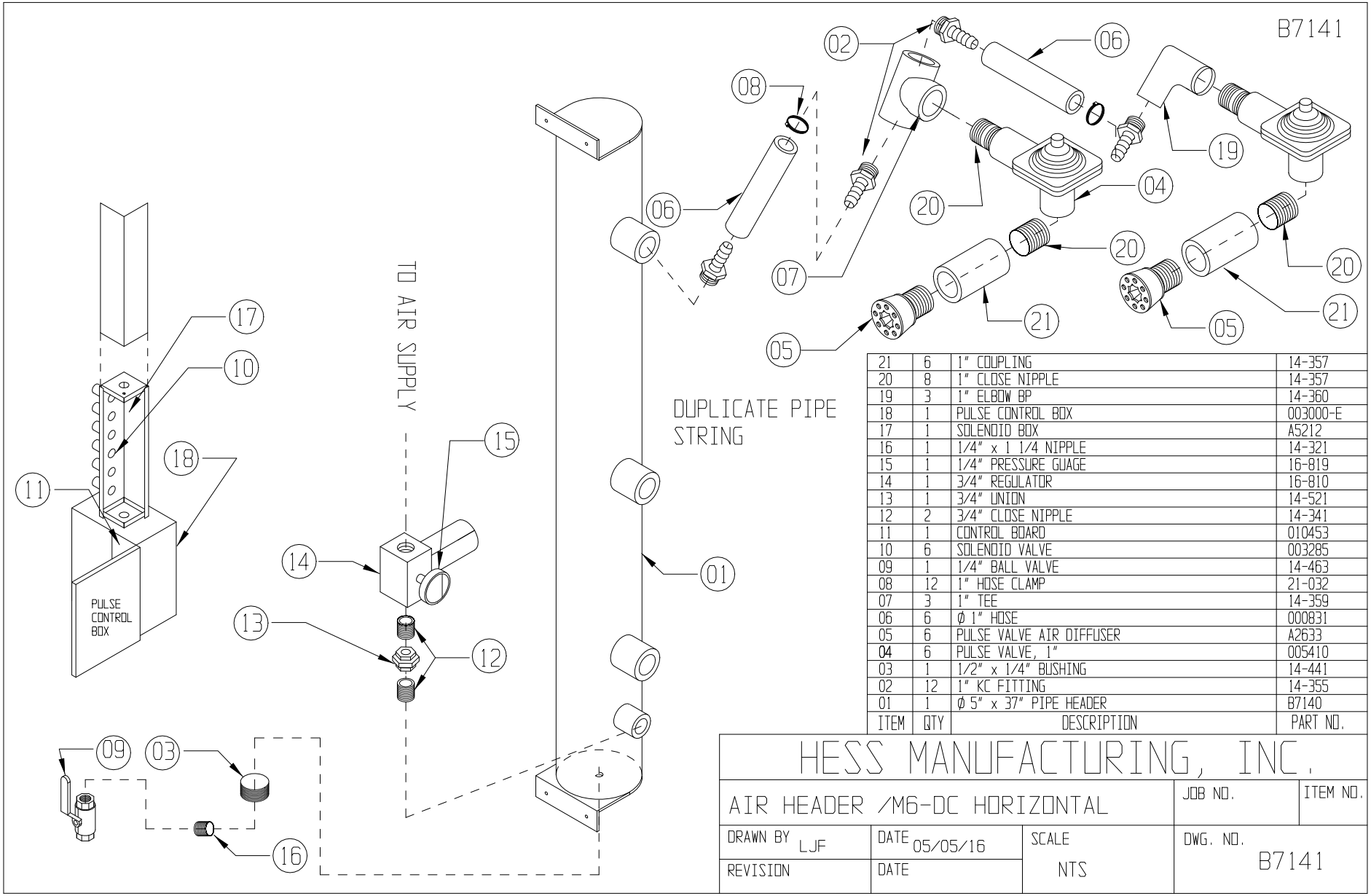
DWG. NO.: M2098



* EXCHANGE ITEM #15 WITH ITEM #11 AFTER SHIPPING FOR 55 GAL. DRUM KIT

ITEM NO.	PART NO.	DESCRIPTION
1	B2199	DUST COLLECTOR
2	B2199-9	BAFFLE PLATE
3	001046	DAMPER INLET
4	011519	CARTRIDGE
5	011520	CARTRIDGE HOLDER
6	B2198-8A	COVER PLATE RIGHT SIDE
7	------	----------
8	B2198-10	WASTE OUTLET
9	21-038	CLAMP
10	19-098-12	FLEX HOSE 8"Ø x 12" LG.
11	A2749	LEGS (4) 55 GAL KIT
12	A2651	55 GALLON DRUM LID
13	003084	1/8" 90° BRASS FITTING
14	004457	MAGNAHELIC GUAGE
15	A2748-SHIP	LEGS (4) SHIPPING
16	A621	MAGNEHELIC GAGE BRACKET

B7141

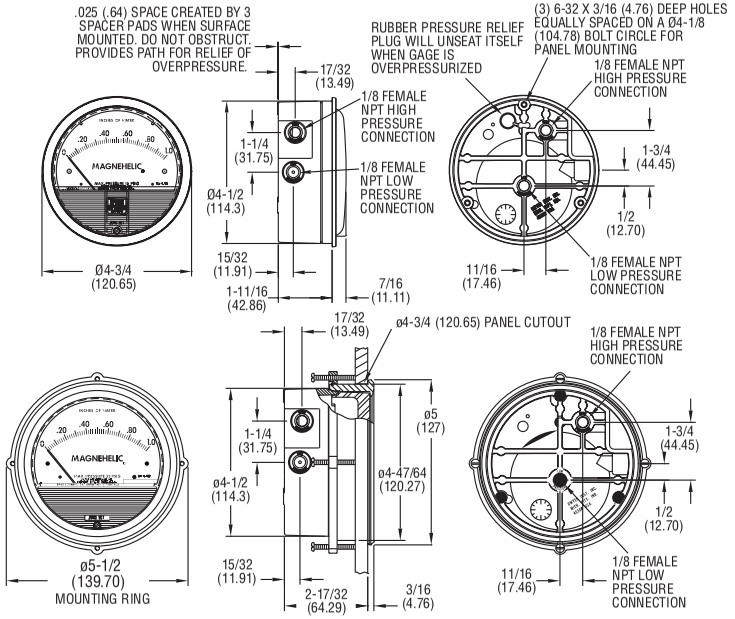


ITEM	QTY	DESCRIPTION	PART NO.
21	6	1" COUPLING	14-357
20	8	1" CLOSE NIPPLE	14-357
19	3	1" ELBOW BP	14-360
18	1	PULSE CONTROL BOX	003000-E
17	1	SOLENOID BOX	A5212
16	1	1/4" x 1 1/4 NIPPLE	14-321
15	1	1/4" PRESSURE GUAGE	16-819
14	1	3/4" REGULATOR	16-810
13	1	3/4" UNION	14-521
12	2	3/4" CLOSE NIPPLE	14-341
11	1	CONTROL BOARD	010453
10	6	SOLENOID VALVE	003285
09	1	1/4" BALL VALVE	14-463
08	12	1" HOSE CLAMP	21-032
07	3	1" TEE	14-359
06	6	Ø 1" HOSE	000831
05	6	PULSE VALVE AIR DIFFUSER	A2633
04	6	PULSE VALVE, 1"	005410
03	1	1/2" x 1/4" BUSHING	14-441
02	12	1" KC FITTING	14-355
01	1	Ø 5" x 37" PIPE HEADER	B7140

HESS MANUFACTURING, INC.

AIR HEADER /M6-DC HORIZONTAL			JOB NO.	ITEM NO.
DRAWN BY LJF	DATE 05/05/16	SCALE NTS	DWG. NO. B7141	
REVISION	DATE			

Magnehelic® Differential Pressure Gage



PART NO. 004457-10

**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.*

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.

MP AND HP GAGE ACCESSORIES: Mounting ring and snap ring retainer substituted for 3 adaptors, 1/4" compression fittings replace 1/8" pipe thread to rubber tubing adaptors.

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.

SPECIFICATIONS

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 (±3% on -0, -100PA, -125PA, -10MM and ±4% on -00, -60PA, -6MM), throughout range at 70°F (21.1°C); High accuracy version: ±1% on full scale (±1.5% on -0, -100PA, -125PA, -10MM and ±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.
Mounting Orientation: Diaphragm in vertical position. 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), MP & HP 2 lb 2 oz (963 g).
Agency Approvals: RoHS.

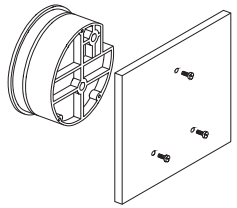
†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options.

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

INSTALLATION

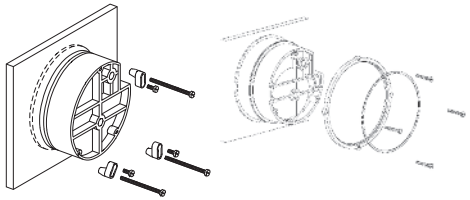
Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F (60°C). Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines may be run any necessary distance. Long tubing lengths will not affect accuracy but will 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.
All standard Magnehelic® Differential Pressure 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 models of 0.5" w.c. plus 0.25" w.c. and metric equivalents must be used in the vertical position only.

SURFACE MOUNTING



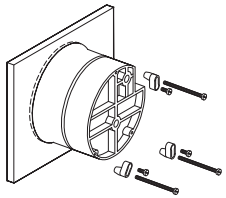
Locate mounting holes, 120° apart on a 4-1/8" dia. circle. Use No. 6-32 machine screws of appropriate length.

FLUSH MOUNTING



Provide a 4-9/16" dia. (116 mm) opening in panel. Provide a 4-3/4" dia. (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.

FOR -SS BEZEL INSTALLATION



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

PIPE MOUNTING

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

TO ZERO 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 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.

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 should be used in permanent installations. The Series 2000 is not field serviceable and should be returned 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.

WARNING

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

TROUBLE SHOOTING TIPS

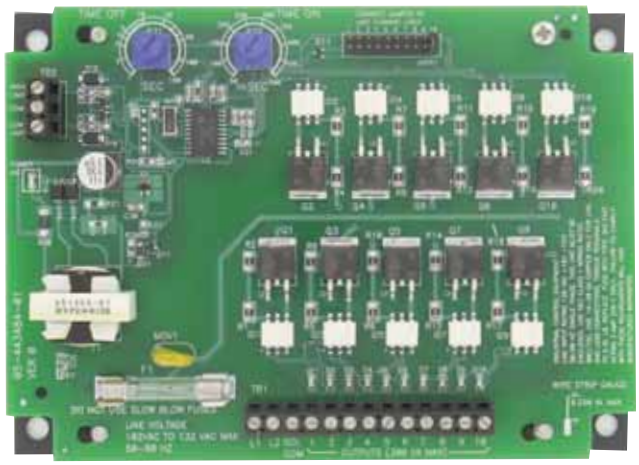
Gage won't indicate or is sluggish.

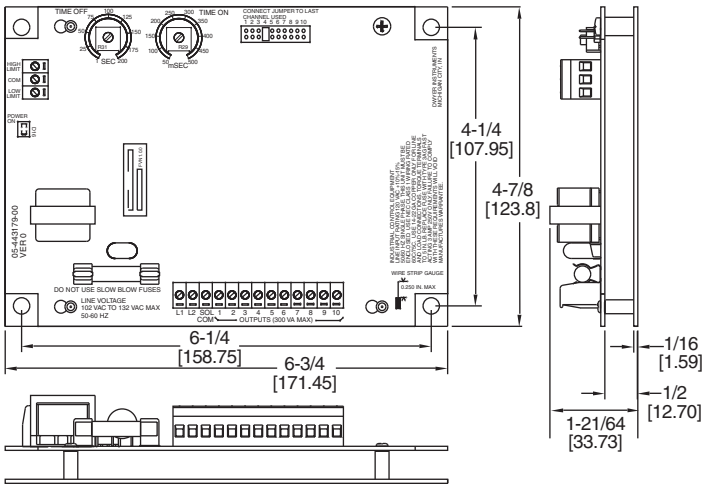
1. Duplicate pressure port not plugged.
2. Diaphragm ruptured due to overpressure.
3. Fittings or sensing lines blocked, pinched, or leaking.
4. Cover loose or "O"ring damaged, missing.
5. Pressure sensor, (static tips, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F (-7°C), order gage with low temperature, (LT) option.

Series DCT500A Timer Controller

BULLETIN E-98A

Specifications – Installation & 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.

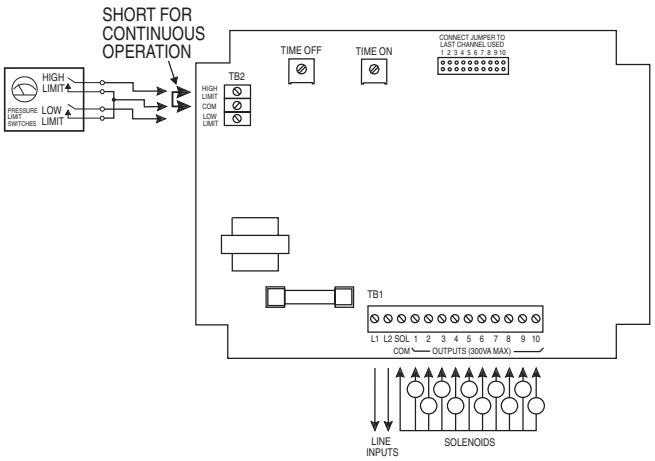


FIGURE 2-1 Switch Connections

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.

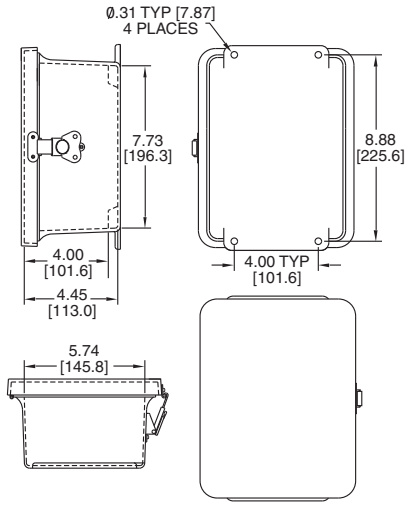
System Setup

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.

<u>DO NOT USE SAND!</u> 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.