MANUAL NUMBER: MM-380

BLAST-IT-ALL®

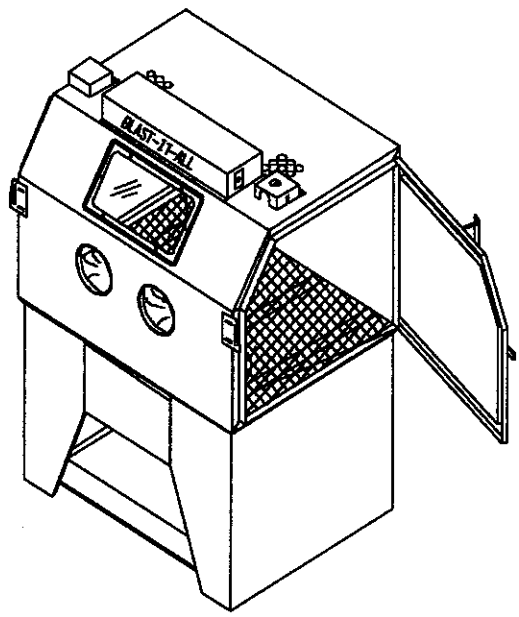
DRY BLAST SYSTEMS
PRESSURE BLAST MACHINES

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 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

THIS MACHINE IS DESIGNED FOR THE USE OF GLASS BEADS OR ALUMINUM OXIDE.



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Dear Customer:

We at Larry Hess & Associates, Inc. would like to take this opportunity to thank you for your patronage. The **Larry Hess & Associates, Inc.** machine you have purchased has been manufactured and assembled in the USA with quality materials by skilled craftsmen, backed by a highly qualified engineering staff. Your machine has passed a Quality Assurance test that enables you to begin enjoying benefits of your machine right away.

Provided in the following pages of this manual are operating instructions, a trouble shooting guide, maintenance procedure and detailed parts listings. In the event you have any problems or questions pertaining to your **Larry Hess & Associates, Inc.** machine, please contact your local distributor, or our Service Department. To expedite parts ordering or technical questions, please include your Model and Serial Number listed below in all correspondence.

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Thank you once again for letting Larry Hess & Associates, Inc. serve you.

Sincerely,
"Happy Blasting"

Larry Hess & Associates, Inc.

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SECTION I
DESCRIPTION AND GENERAL INFORMATION

1-1 Purpose and Scope

This publication contains operations and maintenance instructions with a trouble shooting guide and illustrated part's breakdown for the BLAST-IT-ALL® Dry Blast Cabinet, manufactured by Larry Hess & Associates, Inc. of Salisbury, North Carolina.

1-2 The blast cleaning and peening machine is of the enclosed type. Parts for processing are loaded into the cabinet through doors on the right or left sides of the unit. The operator's hands are inserted into a pair of gloves to protect the operator and to retain the media in the enclosure. Observation of parts in process is through a tempered glass window in the cabinet front. The unit also contains a sealed, two tube, fluorescent light which illuminates the work area. This machine is equipped with a safety interlock which controls the blasting process. This provides a measure of safety for the blast operator.

The media for abrasive blasting cleaning or bead peening is propelled by externally supplied air pressure. The air pressure is routed through a moisture separator, pressure regulator, and blast control to the nozzle.

The blast cleaning and peening machine is equipped with a media reclaiming device. This device is a cyclone separator with a very delicate air balance. Media, dust, and debris returned from the cabinet sump enters the air wash for separation. Reusable material drops through the filter screen where large particles are trapped, and into the storage hopper for reuse. Air and dust, are exhausted through the reclaiming device to be discarded. The cyclone separator is equipped with an adjustable slide tube assembly. The slide tube controls the amount of dust being removed from the media.

Air and dust being exhausted from the cyclone separator may be contained by several means. Standard means is the use of a Dust Bag attached to the outlet of the blower. Larry Hess & Associates, Inc. also builds dust collector systems that are easily installed with the machine. Exhausting into in-plant exhaust systems requires special considerations. Your **BLAST-IT-ALL®**, Inc. distributor or a factory representative should be contacted if any other dust collecting system is considered.

1-3 General Information

This machine is designed primarily for cleaning and peening process with glass beads,(size 3-13) or aluminum oxide (size 46-220). Other types and sizes require special consideration. The nozzle pressure and media is determined by the application. Additionally, the blast cleaning and peening machine has the following applications:

A. Increase tensile strength and relieve stress by microscopic bombardment.

B. Remove burrs following machining or grinding operation, subminiature space age or large castings.

C. Produces a metallurgically clean surface for plating, painting, and other processes.

D. Increase tool life by blending minute surface imperfections.

E. Improve releasing characteristics of molds and dies which process glass, rubber, and plastic parts.

F. Enhance lubrication by impeening a microscopically controlled dimpled surface.

G. Retain critical dimensions while producing above results.

H. Reclaim and recondition parts by removing paint, rust, and corrosion, etc. This process is also used on rubber, fiberglass, and plastics.

SECTION II
UTILITY REQUIREMENTS

2-1 Air Requirements

Compressed air with sufficient pressure and volume must be used. Normal blast pressure should not exceed 80 PSI. Air volume (CFM) must be sufficient to maintain correct blast pressure for the gun orifice used (see Table 1). Compressed air to the dry blast cabinet must be clean and dry. Water and/or oil in the compressed air will contaminate the media and cause clogging in the machine, nozzle, reclaimer and dust collecting system. Piping to the machine should be of the size of the machine inlet or larger to prevent pressure and volume loss.

TABLE 1

Orifice	CFM	PSI	LBS/HR
No. 1/8	21.0	80	115
No. 3/16	41.0	80	260
No. 1/4	72.0	80	460
No. 5/16	113.0	80	725

2-2 Electrical Requirements

Before electricity is applied to the blast machine, consult the Motor Data Plate for proper voltage. The standard blast machine is equipped with a cord and plug for 120 volt AC operation. All other voltages require termination wiring on the machine.

A. 1 HP, 120 Volt, 1Phase, 60 HZ, 20 AMP. circuit

B. 1 HP, 240 Volt, 1 Phase, 60 HZ, 10 AMP. circuit

C. 2 HP, 240 Volt, 1 Phase, 60 HZ, 20 AMP. circuit

D. 2 HP, 230 Volt, 3 Phase, 60 HZ, 20 AMP. circuit

E. 2 HP, 460 Volt, 3 Phase, 60 HZ, 10 AMP. circuit

Machines that are wired for other than 120 Volt, 1 Phase, use a step down transformer to power the lights and control voltage. Make sure machine and components are properly grounded as per local NEC requirements.

SECTION III
INSTALLATION - PRESSURE MACHINE

3-1 Location

In selecting a location for your blast cabinet the following should be taken into consideration:

A. Access to electrical supply

B. Access to compressed air supply

C. Sufficient room around machine for parts handling

D. Access to dust bag or dust collector for dust removal

E. Access to reclaimer fill door to clean trash screen and add media.

F. Noise level of blasting operation to other operator stations

G. High atmospheric humidity conditions where moisture is pulled into the cabinet

3-2 Installation

A. Remove the plastic covering and any strapping holding the machine and components.

B. Remove lag bolts holding the machine to the pallet, and remove from pallet. Place the machine in the desired location.

C. Remove reclaim/pressure pot units from pallet and place unit behind machine.

D. Select the proper size flex hose and two (2) clamps to connect reclaimer to the machine. Slide one end of the flex hose on the sump outlet of the mahine and clamp in place. Slide the other end of the flex hose onto the reclaimer inlet and clamp in place.

E. Connect blast hose to the adjustable media valve located on the bottom of the pressure pot. This is done by aligning the prongs of the coupling on the blast hose to the other half of the coupling on the media valve and turning until it locks in place. Insert a small wire through the hole on each half of the coupling to prevent accidental uncoupling.

F. Connect 1/8 inch red plastic line from the blast cabinet to corresponding fitting on pressure pot (line pressure).

G. Connect 1/8 inch blue plastic line from the the control regulator to corresponding fitting located on the pilot regulator on the pressure pot.

H. **Dust Bag Installation:**

Remove the dust bag from its package and unfold. Slide dust bag opening over the outlet of the blower housing, making sure zippered end is in the down position. Using the proper clamp, secure dust bag to the blower housing.

TABLE 2

R-18 Reclaimer-700CFM	1 Dust Bag
R-24 Reclaimer-900CFM	2 Dust Bags

I. **Dust Collector Installation D10 and D20:**

Move the dust collector to a position close to the reclaimer. Slip one end of the flex hose (6 in. for D10 (700 CFM), 8 in. for D20 (900 CFM) on the outlet adapter located on the top of the reclaimer and clamp in place. Slip the other end of the flex hose on the inlet damper of the dust collector and clamp in place. Connect the 1/4 inch plastic air supply line for the shaker valve to the fitting supplied at the moisture separator.Be sure the slide gate on the bottom of the sump is in place before starting the machine.

J. Motor wires from the machine should be terminated. If they are not, do so at this time. Wiring should be connected to the motor by a qualified electrician. A wiring schematic is furnished by the motor manufacturer for correct wiring of desired voltage.

K. Connect compressed air line to the moisture trap mounted to the machine skirt at the back of the machine. (See Table 1 for compressed air requirements).

L. Connect proper electricity to the machine using motor data plate and Section 2-2 for guidance.

M. Connect a grounding conductor from the bolt on the machine skirt labeled "Ground Machine Here", to a earth ground.

Example: Cold water pipe, ground rod, etc.

N. For machines with a dust collector, loosen the wing nut on the inlet damper handle. Move the handle to full open position and tighten wing nut to prevent damper from moving.

O. Slowly turn on compressed air supply. Listen for any air leaks that may have occured during shipment and installation. If any leaks have occured, turn compressed air off and repair leaks. Repeat steps until full air pressure is achieved with valve fully open.

P. Move switch to the OFF position and apply electrical power to the machine.

Q. Move the switch to its ON position. The two tube, flouresent light will be energized and illuminate the interior of the cabinet and the blower motor will start.

R. **Single Phase Machines:**

Check fan rotation.

S. **Three Phase Machines:**

Three phase motors must have the rotation of the blower checked before operating. The fan must turn clockwise in the blower housing viewed from the top, of motor side of the blower housing. If rotation is wrong, have a qualified electrician reverse rotation. If rotation is correct, press the switch marked Start and machine motor will start.

T. Close all doors on the machine, reclaimer and dust collector. Cabinet doors must be closed for blast to occur. Insert one hand into a glove and hold the blast nozzle firmly. Activate the blast by pressing down on the foot pedal located at the bottom front of the machine. Observe the reading on the gauge marked "Gun Air Pressure". Adjust the regulator until the gauge reads 80 PSI (clockwise- pressure increases, counter clockwise - pressure decreases). Release the foot pedal and blast will stop. Activate and release foot pedal several times to insure no damage has occured during shipment, and to become familiar with the feel of the blast.

U. Stop the Reclaim Fan before adding media.

V. Obtain the desired media selected for your operation. Open the reclaimer door and pour the correct amount of media into the hopper of the reclaimer (See Table 3). Close the reclaimer door and secure latch, making sure the reclaimer door is sealed.

Table 3

1 Cu. Ft. Pot	50 lbs
3 Cu. Ft. Pot	200 lbs

W. Turn adjusting knob on media valve clockwise until it stops, this is the closed position. Turn adjusting knob counter-clockwise three (3) complete revolutions to begin blasting. Later adjustments may be necessary.

X. Insure that the 1/4 turn "Choke" valve is full open (handle parallel to valve body.) Choke valve is located on pressure pot, in the air line supplying air to the media valve. Later adjustment may be necessary.

Y. Open the machine door and place a test piece onto the grate within reach of the gloves. Close the machine door and latch securely. Move switch to its ON position. Insert both hands into the gloves. Hold the piece to be blasted **firmly** in

one hand, and the blast nozzle in the other. Activate the foot pedal to begin blasting. **(Do not point nozzle at viewing window).**

Z. Blasting technique is similar to spray painting,that is, smooth continuous strokes are most effective. The distance of the gun from the part effects the size and results of the blast pattern. Normal use places the nozzle approximately 8 inches from the surface of the material, at approxiamately a 30 to 45 degree perpendicular angle. Several media sizes and pressures may be required to process many varied types of materials. However, once the correct size is established, any person may be taught the application in a short time.

AA. A proper media/air ratio must be obtained for efficient blasting. This is accomplished by adjusting the media valve and choke valve for a proper balance. Smaller blast nozzles may require reducing the air flow going to the media valve. This is accomplished by partially closing the 1/4 turn choke valve. The amount of the choke valve is closed, depends upon the blast pressure desired and the size of the blast nozzle. Adjustments should be made in small increments until proper balance can be obtained. Media flow should also be made in 1/4 turn increments until proper media/air ratio is obtained. Media flow that is too heavy will cause pulsating of the blast stream. Media flow that is too light will not produce satisfactory blast results. Media valve and choke valve should be operated as open as possible and still produce desired blast results.

BB. When blasting is finished move the switch to its OFF position, open door and remove part.

CC. **Dust Removal - Dust Bags:**

Obtain a container and place under the dust bag. Use the zipper in the bottom of the dust bag to open the bag and allow the accumulated dust to flow into the container. When the dust has been transferred into the container, close the dust bag by moving the zipper to its closed position.

CAUTION: Never open Dust Bag with Motor Running!

DD. **Dust Removal - Dust Collector:**

With motor off, press the button of the air operated vibrator valve mounted on the side of the dust collector. When vibrator valve is activated, you will be able to hear the vibrator shaking the bags inside the dust collector. The vibrator should be activated for one (1) minute before releasing. Obtain a container and place under the slide gate on the sump of the dust collector. Move slide gate to its OPEN position and the accumulated dust will flow into the container. When dust has stopped flowing, move the slide gate to its CLOSED position.

CAUTION: NEVER ACTIVATE SHAKER OR SLIDE VALVE WITH MOTOR RUNNING

Note: Dust removed from the dust bag or dust collector must be disposed of in an approved manner. This dust is WASTE and should **NEVER BE PUT BACK INTO THE MACHINE.**

EE. Turn off compressed air supply and drain mositure trap. Open the reclaimer door and clean trash screen or basket.

SECTION IV
MAINTENANCE

4-1 Before Each Use:

A. Check moisture trap and drain if needed

B. Visually inspect machine for any unsafe condition

C. Turn on compressed air supply

D. Turn on electricity

4-2 After Each Use:

A. Turn off blower fan

B. Activate shaker valve on dust collector

C. Turn off electricity

D. Turn off compressed air supply

E. Drain moisture trap

4-3 Daily Inspection:

A. Clean trash screen in reclaimer

B. Empty dust bag or dust collector

4-4 Weekly Inspection:

A. Dust bags in dust collector

B. Blast nozzle for wear

C. Machine door gaskets

D. Reclaimer door gasket

E. Air hoses for leaks and loose clamps

F. Blast hose for holes or soft spots

4-5 As Needed:

A. Add media

B. Replace bags

C. Replace worn gloves

D. Replace window

E. Replace reclaimer trash screen

F. Replace any worn or defective blast parts

G. Replace gaskets

H. Replace hoses

Notes:

SECTION V
PRESSURE POT

5-1 Operation -

All pressure pots, regardless of size, work basically in the same manner. Air controls, purge valves, media valves, and means of activation may vary widely for specific applications, and between manufactures. When blast is activated, the pressure pot purge is closed and compressed air is allowed to enter the pot. The on-rush of compressed air into the pot forces the plunger to close and seal, pressurizing the pot. As this occurs, compressed air flows to the media valve, where it picks up media and continues flowing to the blast nozzle. Blast condition continues until pot is deactivated. At this time, compressed air supply to the pot is stopped and the purge line is opened. When the purge line is opened the pot is depressurized allowing the plunger to open. When the plunger opens, media that has been stored in the hopper of the reclaimer is allowed to flow into the pressure pot, recharging it for the next sequence of blast.

5-2 Choke Valve Adjustment

Correct operation of a pressure blast system requires a small differential of pressure across the media valve. Small bore blast nozzles allow a back pressure to occur in the blast hose and media valve, if the air flow capability entering the media mixing chamber exceeds the flow exiting from the nozzle. This back pressure will be almost equal to the pressure within the pressure pot. By closing the choke valve slightly and decreasing the flow of air to the media valve and nozzle, the pressure differential across the media valve can be increased without effecting flow from the nozzle. This increase in differential pressure causes media to flow through the regulating valve more evenly. Adjustment of the choke valve should be in small increments because the pressure differential across the media valve is very small.

5-3 Media Adjustment

To obtain satisfactory blast results, the media/air ratio from the blast nozzle must be balanced correctly. Sufficient media must be mixed with the compressed air for efficient blasting, but too much media reduces the blast effect. The most noticeable effect of too much media is a surging or pulsating of the air/media mixture coming from the blast nozzle. If this condition exists, the flow of media through the media valve should be reduced. This adjustment should be made in small increments until a satisfactory air/media ration is obtained.

5-4 Blast Pressure Adjustment

Blast pressure must be determined for each blasting process. This may require several test peices to be blasted at different pressure to obtain proper results. Correct blast pressure is maintained by a regulator on the incoming compressed air line. A pilot operated regulator uses a compressed air supply to vary its output. This air is supplied by a smaller, usually remotely located, manual regulator. The output of the Pilot regulator, ofter referred to as the "Slave" regulator, it proportional to the pressure applied by the control regulator, and may be read by a gauge at the control regulator. Sufficient blast pressure must be maintained to allow the plunger inside the pressure pot to seal. If the plunger does not seal, the pressure pot

cannot pressurize, due to the compressed air escaping between the plunger and its "O" ring seat.

Unfortunately, factory setting of the blast pressure, choke valve, and media valve is almost impossible. There settings must be made at the time of installation and start-up. Many factors determine the balance between these settings - nozzle size, media size, desired finish, etc. The correct balance may be found quickly on some applications, but require a considerable amount of adjustments on others. Be patient and make adjustments in small increments and systematically.

SECTION VI
RECLAIMER AIR WASH

6-1 Operation

Reclaimer/Dust Bag: A4083A (900 CFM) - A4084A (700 CFM)

Media, dust and debris are removed from the blast cabinet and enters the reclaimer through the inlet (25). The air velocity created by the blower assembly (27,28,29,30) causes the mixture removed from the cabinet to begin spinning in the reclaimer body (2). This spinning action separates the dust and small particles from the good media and debris. The dust is pulled from the reclaimer body (2) through the inner tube assembly (22,36) by the air velocity and discharges into the dust bag. Good media and debris falls to the trash screen (35), where the debris is trapped and re-usable media passes through, to be used again. The amount of dust and small particles removed may be varied (See 6-3 adjustment).

6-2 Operation

Pull-Through- A4083 (900 CFM) - A4084 (700 CFM)

The internal operation of a pull-through reclaimer is the same as described in 6-1; the only difference is that the motor assembly is located on the dust collector. An adapter is bolted onto the reclaimer in place of the blower assembly and a flex hose connects the reclaimer to the dust collector. The dust collector is equipped with an inlet damper which must also be adjusted (See 7-4, damper adjustment).

6-3 Air Wash Adjustment

Placement of the slide tube (22) for each type of blasting application cannot be a pre-determined setting. Many factors contribute to the air wash adjustment such as media type, media size, desired finish of part, etc. Adjustment of the slide tube (22) must be made in small increments (approxiamately 1/4 inch.)in the direction needed to prevent over adjustment.

Adjust slide tube (22) up, when good media is found in the material removed from the dust bag or dust collector. Adjust the slide tube (22) down when excessive dust is found mixed with the media in the reclaimer sump. To adjust the slide tube (22), move the switch to its OFF position and allow the motor to stop. Disengage reclaimer door latch (33) and open the access door (31). Remove screen basket using caution, insert arm into reclaimer housing routing hand upward through the inner cone until the round slide tube is felt.

Loosen the locking "T" handle located inside the slide tube (22), by turning counter-clockwise. Move the slide tube (22) in the determined direction and lock in place by turning "T" handle clockwise. Carefully remove arm and close access door (31) and engage access door latch (33) to insure air tight seal. The machine should be operated under blast condition until the media has been circulated through the reclaim several times. Inspect media and dust again to determine if further adjustment is needed.

SECTION VII
DUST COLLECTOR

7-1 Operation - Ref. Dwg. B2129, B2131

The D10 (700 CFM) and D20 (900 CFM) Dust Collectors operate in the same manner; the area of dust collecting is the only operation difference. The dust bags are equipped with one end closed while the other end remains open. The blower assembly mounted on side of the dust collector creates a negative air flow through the dust bags. This negative flow draws air, media, dust and debris from the blast cabinet into the reclaimer, where the dust is separated. The dust laiden air from the reclaimer is drawn into the dust bags where the dust is trapped inside the bags. Clean air is then allowed to pass through the bags and exhausted from the blower assembly.

7-2 Cleaning

The bag hanger is equipped with an air operated vibrator. This vibrator is activated by an air push button located on the side of the dust collector. Cleaning of the dust bags and emptying the dust from the sump is very critical for correct operation of the blast machine. Failure to clean the dust bags reduces air movement in the blast machine and reclaimer. Results of reduced air movement includes excessive dust in cabinet, improper reclaiming, etc. (See Trouble Shooting Guide).

Dust bags should be shaken after each use or more often if needed. To shake the dust bags, first move the switch to its OFF position and allow motor to stop rotating. Press the button on the shaker valve and hold for one minute. With motor off, place a container under the slide gate in the sump of the dust collector. Move slide gate to its open position and allow dust to flow into the container. Move slide gate to its closed position. DISPOSE OF DUST IN AN APPROVED MANNER. Do not cycle dust back into the system. Do not shake bags or open sump slide gate when motor is operating. Remove wing nuts and remove access door weekly and inspect dust bags. After extended use, the dust bags will become saturated with dust

and will not pass sufficient air. At this time remove the dust bags and replace with new bags.

7-3 Bag Replacement

Move the switch to its OFF position. De-energize electrical service switch and lock in its off position. Shake dust bags and empty sump as described in 7-2. Turn air supply to the unit off. Remove wing nuts and remove access door. Remove the closed end of the dust bag from the bag hanger at the top of the collector. Starting at the front, remove the bags from the bag holder. The open end of the bag has two coil springs sewn into the felt material. One spring is on each side of the bag holder. Pushing the springs inward will allow the bag to slip from its mounting hole.

Caution: Personnel protection should be taken against any dust that might escape during bag replacement. Some blasted items may produce dust that is harmful. Know what your dust contains.

To install new bags, begin by hanging the bags on the bag hanger using the loop sewn into the closed end of the bag. With the bags hanging in place, begin at the rear of the machine installing the open end of the dust bag into the bottom bag holder. Place one spring on each side of the bag holder metal. Working forward, install all bags carefully into their respective hole being careful not to cross any bags. Do not use any sharp object to install bags in bag holder. When all bags have been installed correctly, inspect and replace any worn gasket around the access door. Replace access door and tighten all wing nuts. When the blast machine is restarted, observe the exhaust from the blower for traces of dust. If dust is detected, remove access door and inspect bag installation and dust bags.

7-4 Damper Adjustment

Due to increased efficiency over the standard dust bag, the D10 and D20 dust collectors are equipped with an inlet damper. The inlet damper has an external adjustable handle which can be locked in place with a wingnut. The inlet damper should be open enough to maintain sufficient air flow for correct reclaiming and to clean dust from the cabinet. If inlet damper is open too far, it will tend to pull good media out of the reclaimer. Inspection of the dust removed from the dust collector will determine if the damper is open too far. A correct balance of the inlet damper of the dust collector and the air wash in the reclaimer will produce maximum use of selected media.

SECTION VIII

Safety Blast Control

8-1 Operation

A. Air Operated

A safety air valve is located above each cabinet door. This valve is activated when door(s) are closed.

WARNING: By-passing safety valve could cause a hazardous condition to personnel

Section IX

Trouble Shooting

Solution

9-A No Blast- No Air or Media

Probable Cause

1. Air supply to machine turned off.	Turn on air supply
2. Regulator adjusted too low.	Set regulator to 80 PSI
3. Foot valve out of adjustment or bad.	Adjust or replace as needed.
4. Nozzle or media valve plugged.	Clear pluggage and re-adjust
5. Air safety interlock.	Check & replace if needed.
6. Main regulator bad.	Check & replace if needed.
7. Control regulator bad.	Check & replace if needed.

9-B No Media from Blast Nozzle (Air Only)

1. Out of media	Add media to reclaimer sump.
2. Media valve plugged.	Clear pluggage and determine reason for becoming plugged.
3. Plunger stuck closed (no media transferring from reclaim to pressure pot.)	Open reclaim service door, remove trash screen. Inspect plunger.

	Probable Cause	Solution
	5. Reclaimer trash screen clogged.	Remove and clean trash screen. Daily maintenance.
9-C	**Blast From Nozzle Surging**	
	1. Fluctuating air pressure.	**A.** Restriction in compressed air supply **B.** Control air regulator bad. **C.** Blast regulator bad.
	2. Contaminated media	Remove contaminated media and replace with new. Heavily contaminated media may require cabinet and reclaimer to be cleaned.
	3. Media/Air Valve ratio incorrect.	Adjust as needed.
9-D	**Cabinet Cloudy**	
	1. Low air movement	Check Dust Bags.
	2. Media too fine.	Reorder Media.Adjust reclaim for proper seperation.
9-E	**Low or No Air Movement**	
	1. Fan motor not running.	Check motor/fan rotation.
	2. Fan motor running in reverse direction.	Reverse rotation. (See 3-2-S)
	3. Incorrect fan speed.	**A.** Check for correct motor voltage. (See 2-2) **B.** Check motor bearings for wear. **C.** Fan blade loose on motor shaft.
	4. Fan worn	Replace fan.

	Probable Cause	Solution
	5. Dust bag full.	**A.** Empty dust bag. (See 3-2-CC). **B.** Replace bag if material is saturated.
	6. Dust collector full.	**A.** Shake bags and empty sump (See 3-2-DD). **B.** Replace bag if material is saturated.
	7. Air intake holes in blast cabinet closed.	Remove any obstructions covering holes on top of blast cabinet.
	8. Inlet damper on dust collector closed.	Adjust inlet damper. (See 7-4).
	9. Flex hose - machine to reclaimer.	**A.** Flex hose off - replace. **B.** Hose collapsed - replace. **C.** Hose clogged with large objects, bolts, Clean. **D.** Hole in flex hose - replace.
	10. Flex hose - reclaimer to dust collector.	
9-F	**Reclaimer Not Separating (Dust in Media)**	
	1. Contaminated media	Replace contaminated media with new media, and correct source of contanmination. (See 9-G).
	2. Adjustable air wash in reclaimer set too high.	Adjust air wash slide tube. (See 6-3).
	3. Low air movement.	See 9-E.
	4. Reclaimer baffle worn.	Replace baffel plate.
9-G	**Contamination of Media**	
	1. Condensation in compressed air.	**A.** Drain mositure trap more often. **B.** Install air dryer in compressed air supply.
	2. Oil in compressed air from air compressor.	Install coalescing filter in compressor air supply.
	3. Machine oil or cleaning solvents on parts being blasted.	Parts being blasted should be cleaned in a solution that leaves no residue.
	4. Atmospheric Humidity.	Machine should be placed in a location where large amounts of outside humid air is not drawn through the system.

Probable Cause	Solution
9-H Pressure Pot Plunger not Sealing	
1. Insufficient air supply to pressure pot.	**A.** Blast pressure too low. **B.** Bad check valve. **C.** Insufficient compressed air supply. **D.** Bad blast pressure regulator.
2. Worn Plunger.	Remove and inspect, replace if needed.
3. Worn Plunger seal.	Remove "O" ring. Inspect and replace if needed.
4. Too much media in system.	Remove media and recharge system with correct amount of media.
5. Pot purge not closing.	(See 9-J)
6. Plunger misaligned.	Remove access port and aligned plunger.
9-I Pressure Pot Plunger Sticking Closed	
1. Plunger mis-aligned.	Remove access port and align plunger.
2. Media in plunger guide.	This condition is usually caused by over filling pot. Open access part, remove plunger and clear guide. Re-align plunger.
9-J Pressure Pot Purge not Closing	
1. Purge valve activator not working.	Some purge valves are operated by a separate 3-port valve. Check and replace if needed.
2. Insufficient air flow.	Check air lines to purge valve-replace if needed.
3. Valve binding mechanically.	Repair or replace as needed.
4. Purge hose worn inside.	Replace.

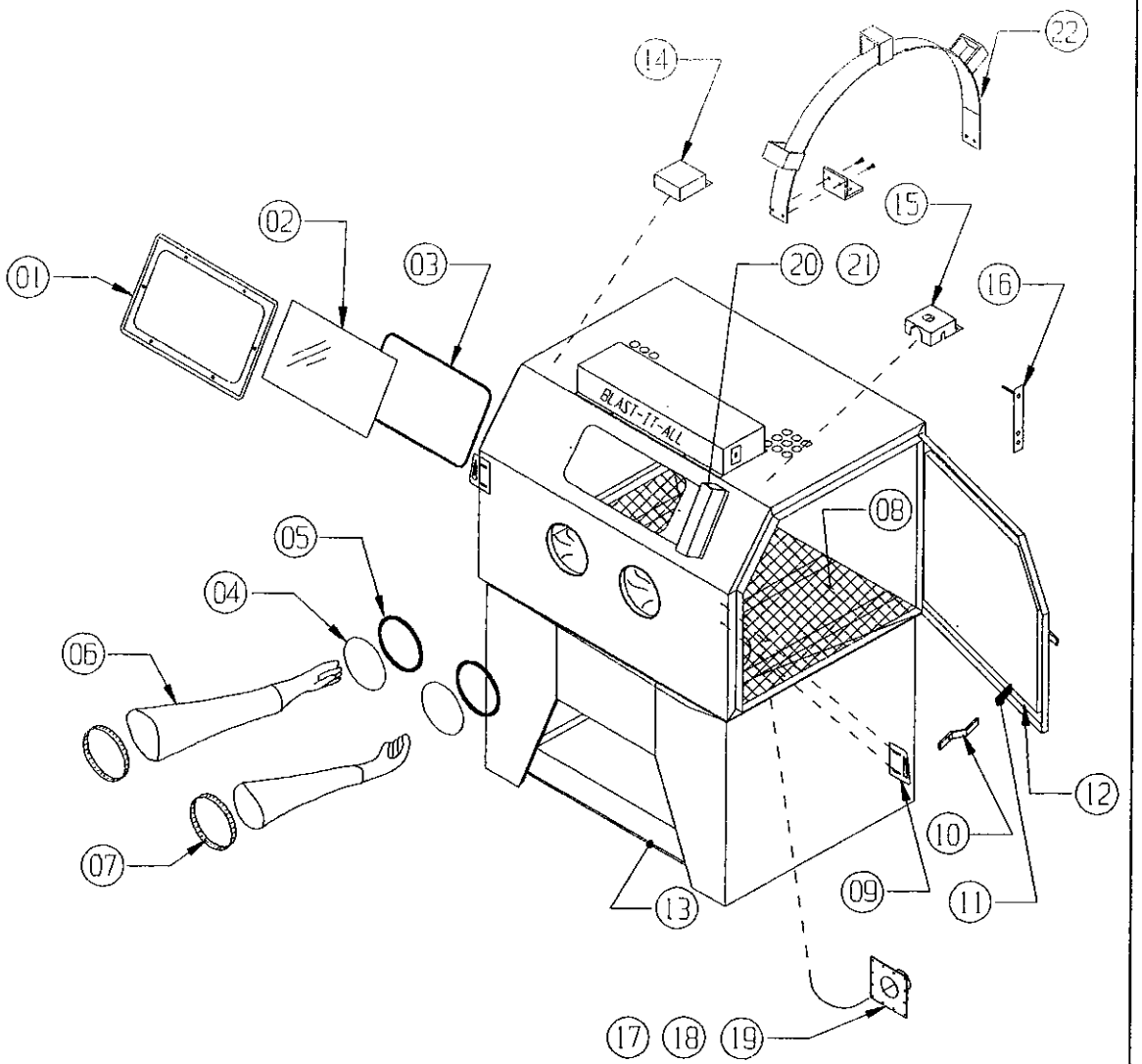
LARRY HESS & ASSOCIATES

DESCRIPTION: STANDARD MACHINE REPLACEMENT PARTS

DATE: 4/23/96

ENGINEER: DEC

DWG. NO.: M117P



ITEM NO.	PART NO.	DESCRIPTION
1	23-053	WINDOW FRAME
2	23-050	WINDOW, VIEWING
3	24-059	WINDOW GASKET (SPECIFY LENGTH)
4	22-102	ARM HOLE TRIM (PAIR)
5	22-101	ARM HOLE GASKET (PAIR)
6	22-070	GLOVES (PAIR)
6A	22-077	GLOVE (LEFT ONLY)
6B	22-078	GLOVE (RIGHT ONLY)
7	21-038	GLOVE CLAMP (EACH)
8	------	GRATE (SPECIFY MODEL NO.)
9	15-730	DOOR STRIKER (EITHER SIDE)
10	15-719	DOOR CAM (EITHER SIDE)
11	15-720	DOOR CAM RUBBER GRIP
12	24-025	DOOR GASKET (SPECIFY LENGTH)
13	15-729	FOOT TREADLE (SPECIFY MODEL)
14	A117	SAFETY VALVE PANEL
15	A7170	CONTROL REGULATOR PANEL
16	A237	SAFETY DOOR CONTROL ARM
17	11-705	Ø 4" SUMP OUTLET
18	11-905	Ø 5" SUMP OUTLET
19	11-905-6	Ø 6" SUMP OUTLET
20	011191	MYLAR GLASS PROTECTOR
21	011190	MYLAR HOLDER
22	REF.A698	HOSE SUPPORT

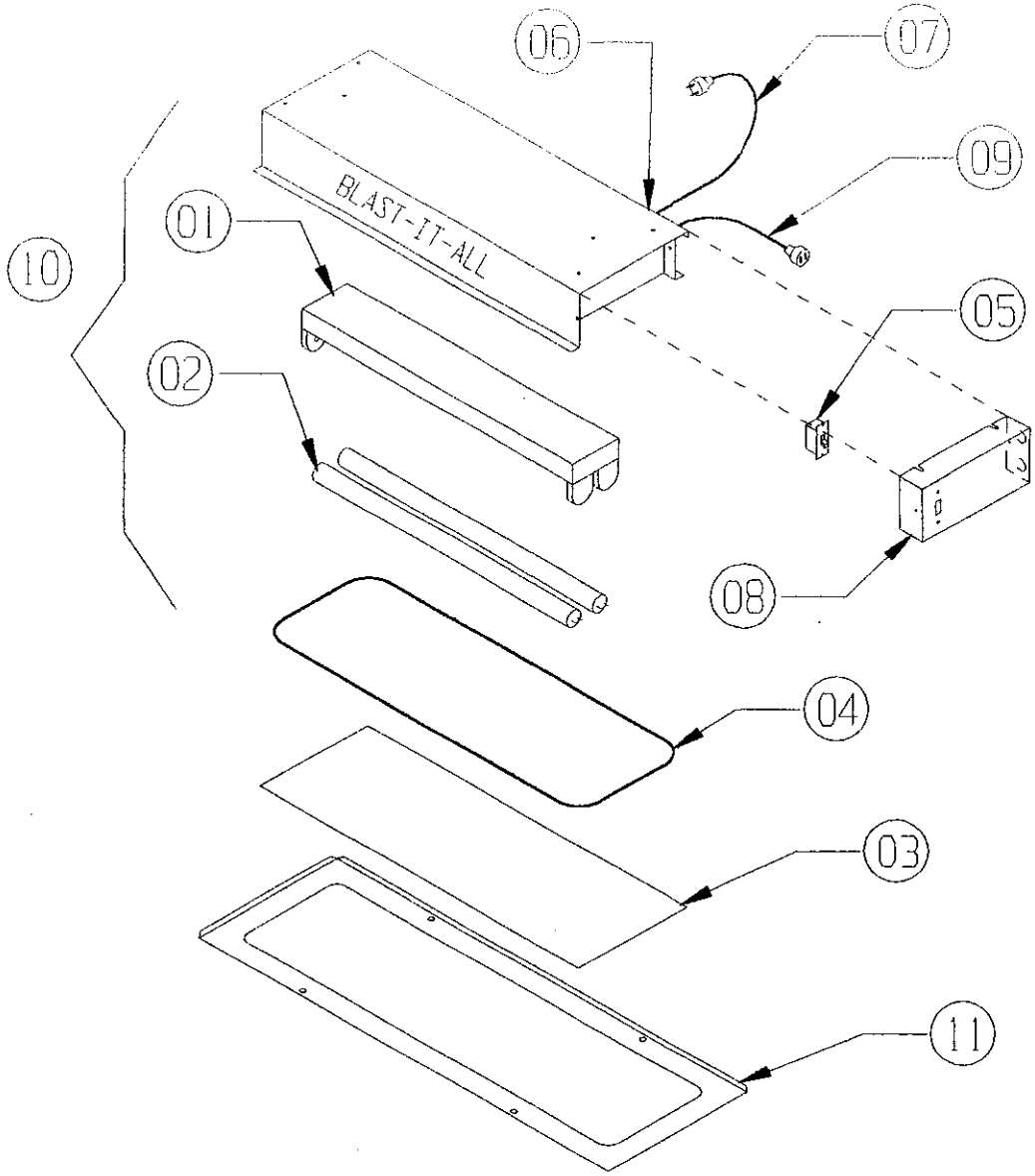
LARRY HESS & ASSOCIATES

DESCRIPTION: BIA LIGHT BOX

DATE: 4/23/96

ENGINEER: DEC

DWG. NO: M129



ITEM NO.	PART NO.	DESCRIPTION
1	13-533	FLUORESCENT FIXTURE, (NO TUBES)
2	13-534	24" FLUORESCENT TUBE
3	23-058	PROTECTOR, LIGHT
4	23-059	GASKET
5	13-655	SWITCH
6	13-605	HEYCO CONNECTOR
7	13-550	POWER CORD, 3 WIRE
8	CONT. FACT.	SWITCH MOUNTING PLATE
9	010172	CORD WITH FEMALE PLUG
10	010801	COMPLETE LIGHT BOX (EXCEPT 3 & 4 & 11)
11	A506	LIGHT BOX WINDOW FRAME

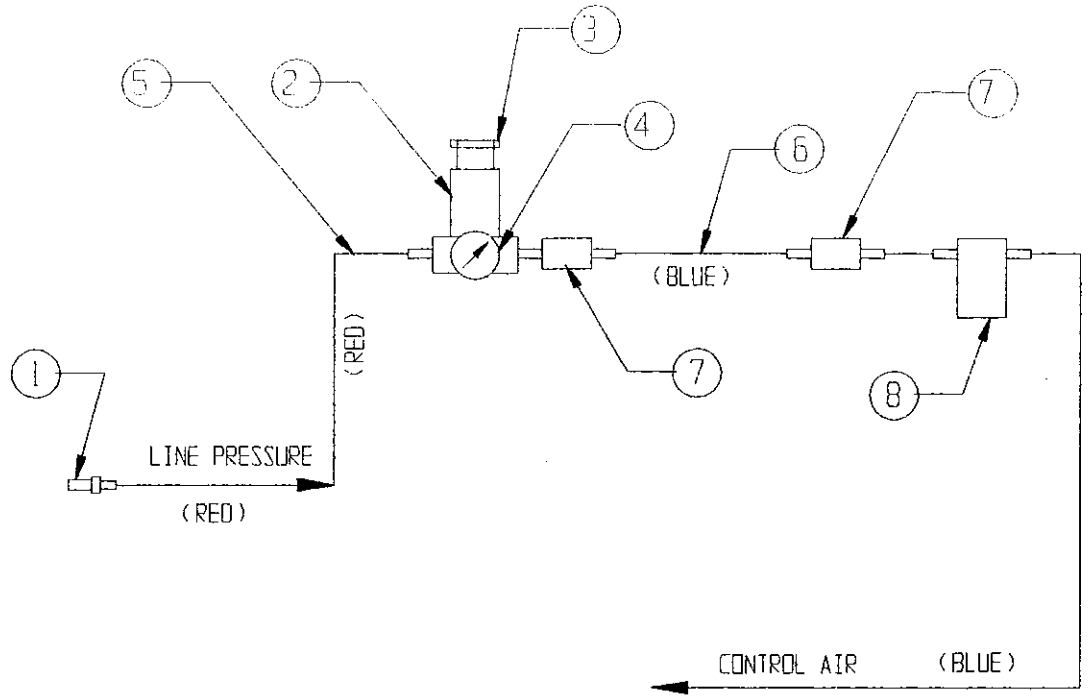
LARRY HESS & ASSOCIATES

DESCRIPTION: PRESSURE AIR CONTROL

DATE: 5/01/96

ENGINEER: DEC

DWG. NO: M7024



ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	006270	9	FITTING 1/8" x 1/8"
2	001564	1	REGULATOR, 1/8"
3	001564-N	1	NUT FOR REGULATOR
4	16-820	1	GAUGE, 1/8" BACK
5	010601	*	TUBING, RED
6	010602	*	TUBING, BLUE
7	010600	2	VALVE, AIR 1/8" 3-WAY (SAFETY DOOR)
8	011062	1	VALVE, AIR 1/8" 3-WAY (FOOT CONTROL)

LARRY HESS & ASSOCIATES

DESCRIPTION: STANDARD FOOT TREADLE

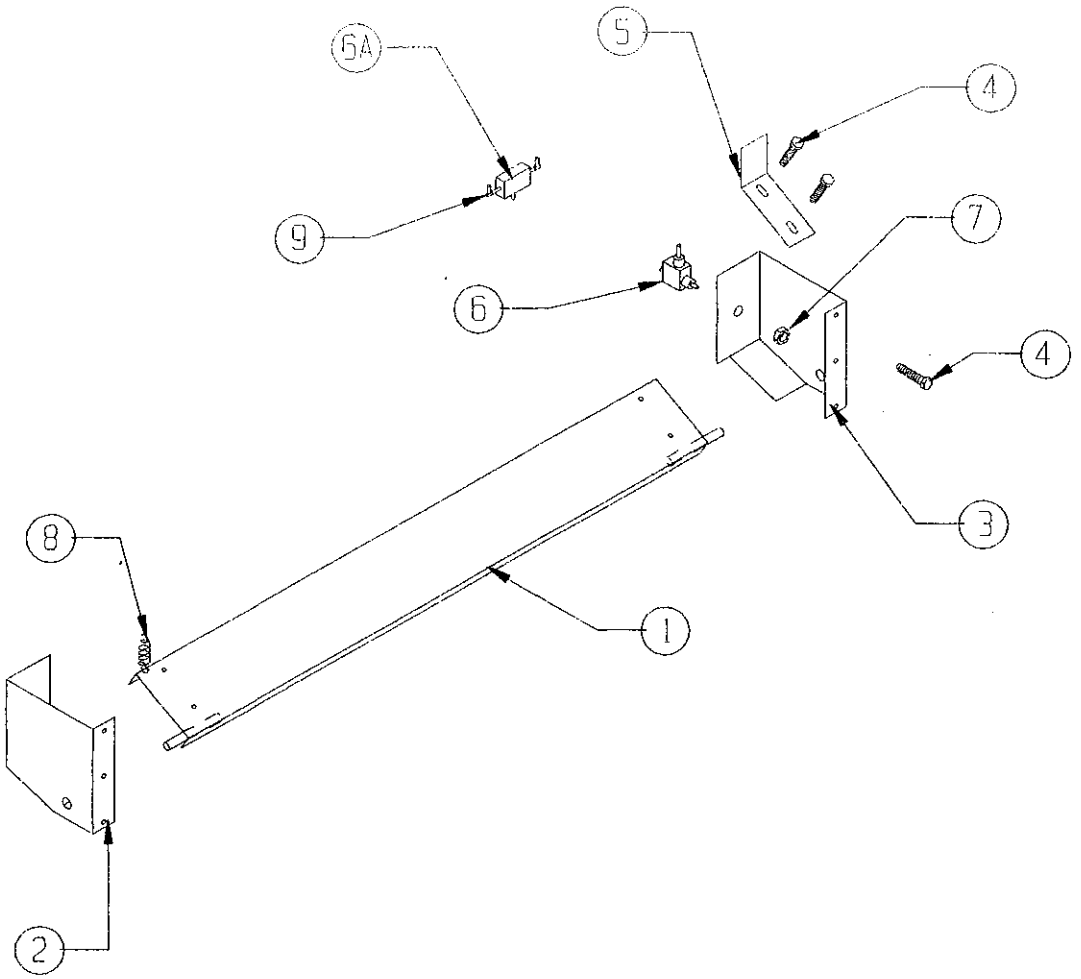
DATE: 4/23/96

ENGINEER: DEC

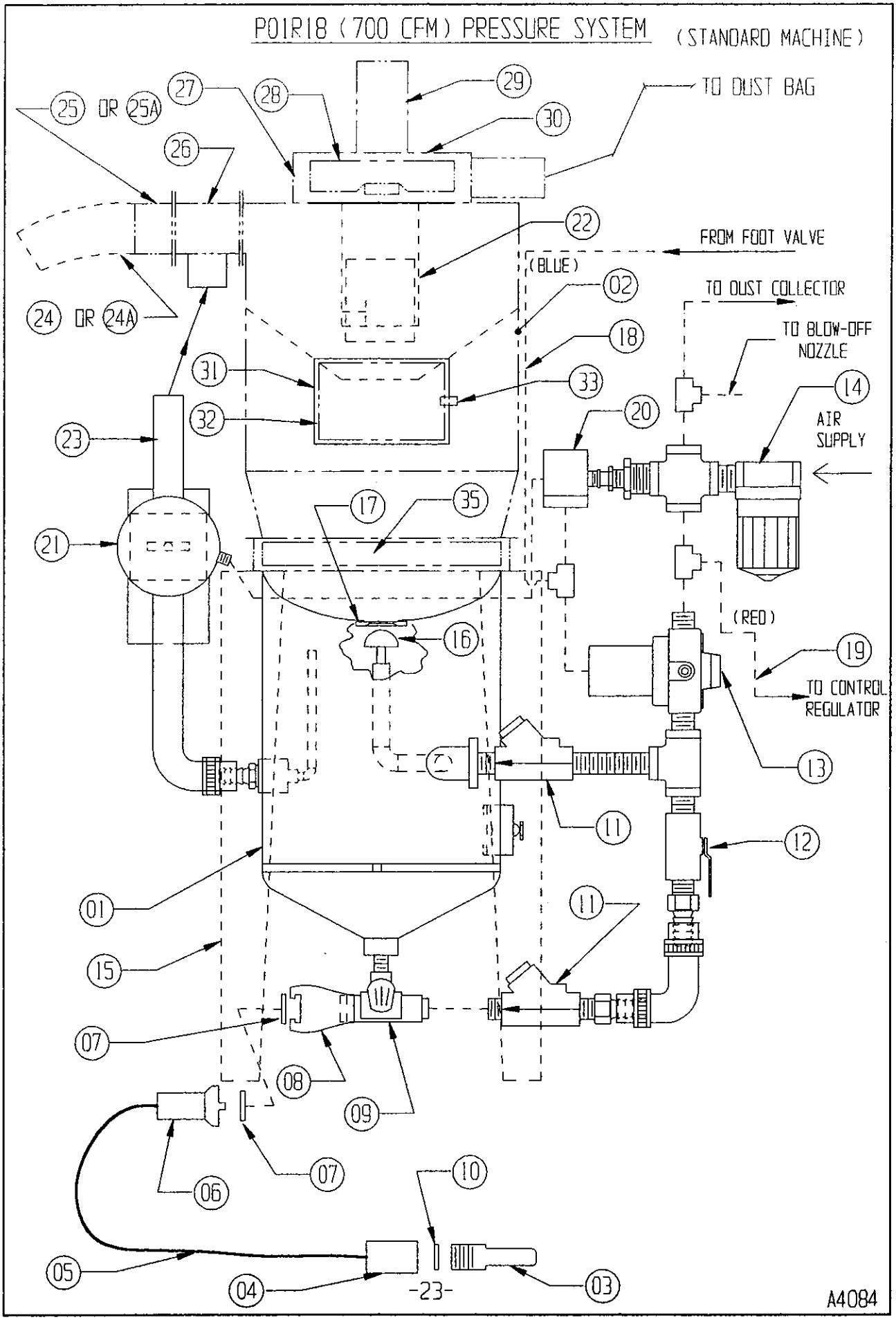
DWG. NO. M131

REV. BY LJF 6/19/98

REV. BY DEC 12/03/01



ITEM NO.	DESCRIPTION	PART NO.
1	FOOT TREADLE (ONLY),(SPECIFY MACHINE MODEL)	A313-1
2	LEFT BRACKET	A6277-1
3	RIGHT BRACKET	A6277-2
4	1/4"-20 x 1/2" SELF TAPPER	30-111
5	SWITCH BAR	A313-2
6	AIR VALVE 1/8" 3-WAY	010600
6A	AIR VALVE 1/8" 3-WAY (HEAVY DUTY)	011062
7	NUT	-----
8	SPRING	15-721
9	FITTING, 1/4" x 1/8"	003084


P01R18 (700 CFM) PRESSURE SYSTEM
(STANDARD MACHINE)
TO DUST BAG
FROM FOOT VALVE
(BLUE)
TO DUST COLLECTOR
TO BLOW-OFF NOZZLE
AIR SUPPLY
(RED)
TO CONTROL REGULATOR
25 OR 25A
24 OR 24A
A4084

ITEM	QTY	P01R18 (700 CFM) PRESSURE SYSTEM PARTS LIST	PART NO.
01	1	PRESSURE POT 1.0 CU. FT. (FLANGE TOP)	16-935
02	1	RECLAIM HOUSING	11-701P
03	1	NOZZLE 1/4 x 1-3/4 MPT x 1-3/4 STR	20-602
04	1	NH 1-1/8 O.D. x 3/4 NPT ALUM	14-108
05	*	HOSE, BLAST 1/2 I.D. x 1-1/8 O.D.	18-100
06	1	QC 1-1/8 O.D. 2 PRONG ALUM	14-101
07	2	WASHER, COUPLING QC & TC	14-106
08	1	TC 1-1/4 FPT 2 PRONG ALUM	14-117
09	1	MICRO VALVE	16-878
10	1	WASHER, NOZZLE	14-114
11	2	VALVE, SWING CHECK 3/4 NPT	14-474
12	1	VALVE, BALL 3/4 NPT	14-464
13	1	REGULATOR, AIR SLAVE 3/4 FPT	16-896
14	1	FILTER, AIR 3/4 FPT	16-897
15	4	LEG	A1124
16	1	VALVE, POP-UP 1.0 LAGRANGE	005799
17	1	SEAL, POP-UP 1.0 LAGRANGE	005800
18	*	TUBING, 1/8 I.D. VINYL (BLUE)	010602
19	*	TUBING, 1/8 I.D. VINYL (RED)	010601
20	1	VALVE 3-PORT AIR/SPRING 1/8	16-832
21	1	PINCH VALVE ASS'Y.	16-1015
22	1	TUBE, INNER VACUUM WITH SLIDE TUBE	11-731
23	*	HOSE, BLAST 3/4 I.D. x 1-1/2 O.D.	18-101
24	8'	FLEX HOSE, 4"	19-092
24A	8'	FLEX HOSE, 5"	19-094
25	1	INLET ADAPTOR 4"	11-705
25A	1	INLET ADAPTOR 5"	11-905
26	1	PURGE ADAPTOR	010077 (B1125)
27	1	BLOWER HOUSING, 700 CFM	11-716
28	1	BLOWER BLADE, 700 CFM	11-718
29	1	MOTOR, 1 HP-110V	13-700
30	1	BLOWER MOTOR PLATE	11-720
31	1	RECLAIMER DOOR/W GASKET	11-702
32	1	RECLAIMER DOOR GASKET	11-703
33	1	RECLAIMER DOOR LATCH	15-728
34	1	DUST BAG, 700 CFM	11-715
35	1	SCREEN DRAWER	A270
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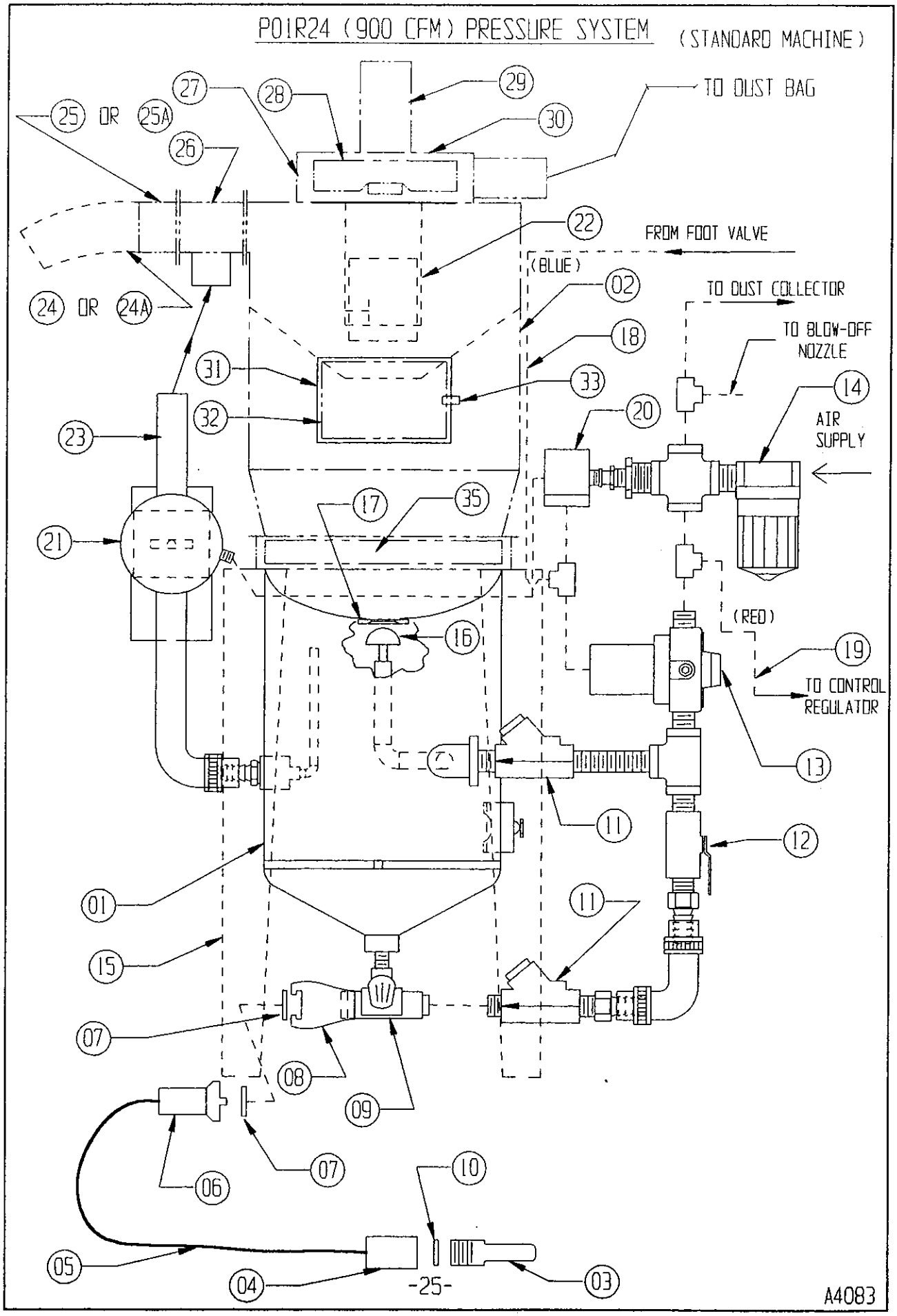
* SPECIFY LENGTH

A4084PL


P01R24 (900 CFM) PRESSURE SYSTEM
(STANDARD MACHINE)
TO DUST BAG
FROM FOOT VALVE
(BLUE)
TO DUST COLLECTOR
TO BLOW-OFF NOZZLE
AIR SUPPLY
(RED)
TO CONTROL REGULATOR
25 OR 25A
24 OR 24A
01
02
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A4083

ITEM	QTY	P01R24 (900 CFM) PRESSURE SYSTEM PARTS LIST	PART NO.
01	1	PRESSURE POT 1.0 CU. FT. (FLANGE TOP)	16-935
02	1	RECLAIM HOUSING	11-910P
03	1	NOZZLE 1/4 x 1-3/4 MPT x 1-3/4 STR	20-602
04	1	NH 1-1/8 O.D. x 3/4 NPT ALUM	14-108
05	*	HOSE, BLAST 1/2 I.D. x 1-1/8 O.D.	18-100
06	1	QC 1-1/8 O.D. 2 PRONG ALUM	14-101
07	2	WASHER, COUPLING QC & TC	14-106
08	1	TC 1-1/4 FPT 2 PRONG ALUM	14-117
09	1	MICRO VALVE	16-878
10	1	WASHER, NOZZLE	14-114
11	2	VALVE, SWING CHECK 3/4 NPT	14-474
12	1	VALVE, BALL 3/4 NPT	14-464
13	1	REGULATOR, AIR SLAVE 3/4 FPT	16-896
14	1	FILTER, AIR 3/4 FPT	16-897
15	1	STAND	A1205-P
16	1	VALVE, POP-UP 1.0 LAGRANGE	005799
17	1	SEAL, POP-UP 1.0 LAGRANGE	005800
18	*	TUBING, 1/8 I.D. VINYL (BLUE)	010602
19	*	TUBING, 1/8 I.D. VINYL (RED)	010601
20	1	VALVE 3-PORT AIR/SPRING 1/8	16-832
21	1	PINCH VALVE ASS'Y.	16-1015
22	1	TUBE, INNER VACUUM WITH SLIDE TUBE	11-931
23	*	HOSE, BLAST 3/4 I.D. x 1-1/2 O.D.	18-101
24	8'	FLEX HOSE, 5"	19-094
24A	8'	FLEX HOSE, 6"	19-096
25	1	INLET ADAPTOR 5"	11-905
25A	1	INLET ADAPTOR 6"	A12767
26	1	PURGE ADAPTOR	010077 (B1125)
27	1	BLOWER HOUSING, 900 CFM	11-916
28	1	BLOWER BLADE, 900 CFM	11-918
29	1	MOTOR, 2 HP-220V/440 3PH	13-900
30	1	BLOWER MOTOR PLATE	11-920
31	1	RECLAIMER DOOR/W GASKET	11-902
32	1	RECLAIMER DOOR GASKET	11-903
33	1	RECLAIMER DOOR LATCH	15-728
34	2	DUST BAG, 900 CFM	11-915
35	1	SCREEN DRAWER	A270
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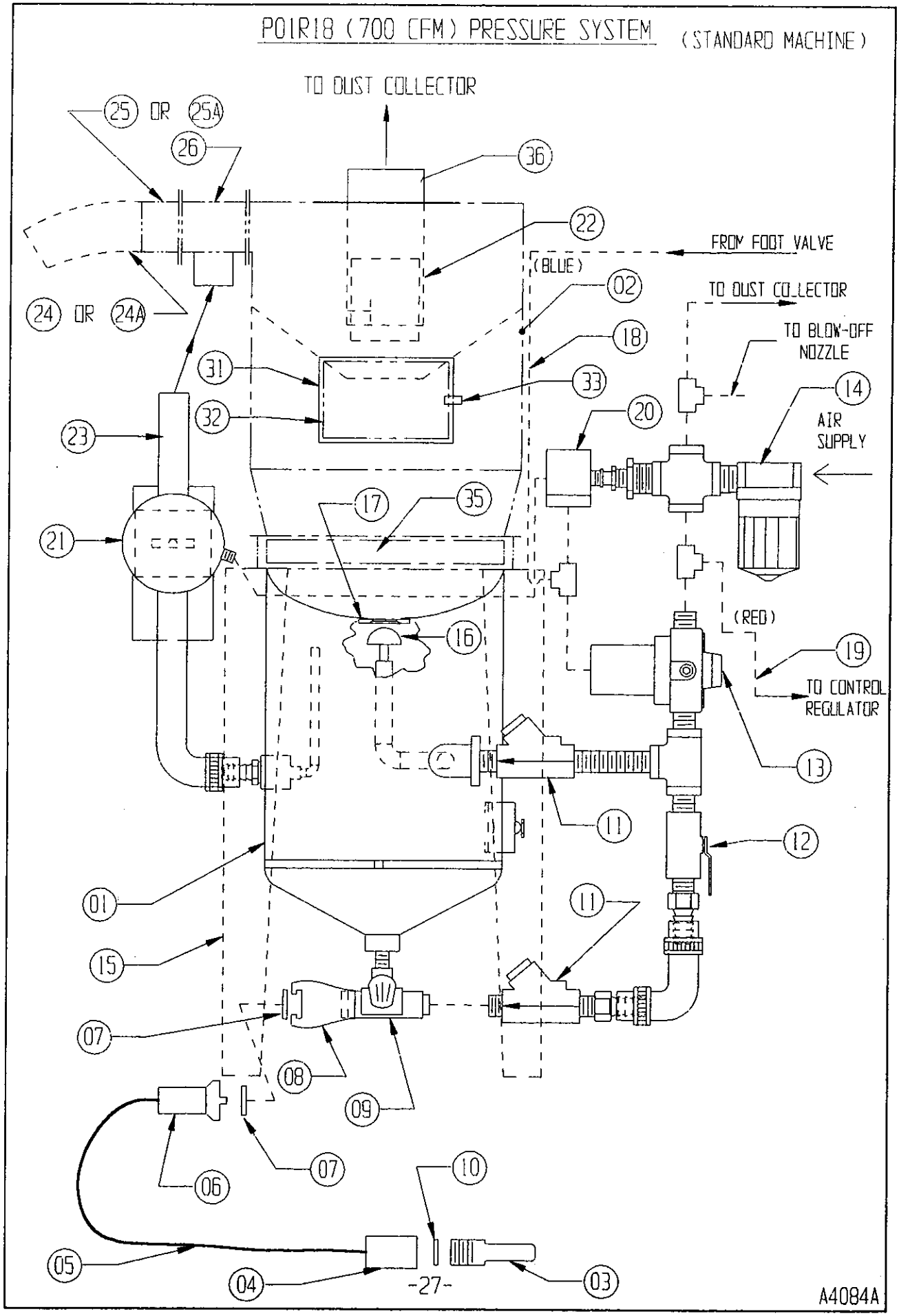
P01R18 (700 CFM) PRESSURE SYSTEM (STANDARD MACHINE)



A4084A

ITEM	QTY	P01R18 (700 CFM) PRESSURE SYSTEM PARTS LIST	PART NO.
01	1	PRESSURE POT 1.0 CU. FT. (FLANGE TOP)	16-935
02	1	RECLAIM HOUSING	11-701P
03	1	NOZZLE 1/4 x 1-3/4 MPT x 1-3/4 STR	20-602
04	1	NH 1-1/8 O.D. x 3/4 NPT ALUM	14-108
05	*	HOSE, BLAST 1/2 I.D. x 1-1/8 O.D.	18-100
06	1	QC 1-1/8 O.D. 2 PRONG ALUM	14-101
07	2	WASHER, COUPLING QC & TC	14-106
08	1	TC 1-1/4 FPT 2 PRONG ALUM	14-117
09	1	MICRO VALVE	16-878
10	1	WASHER, NOZZLE	14-114
11	2	VALVE, SWING CHECK 3/4 NPT	14-474
12	1	VALVE, BALL 3/4 NPT	14-464
13	1	REGULATOR, AIR SLAVE 3/4 FPT	16-896
14	1	FILTER, AIR 3/4 FPT	16-897
15	4	LEG	A1124
16	1	VALVE, POP-UP 1.0 LAGRANGE	005799
17	1	SEAL, POP-UP 1.0 LAGRANGE	005800
18	*	TUBING, 1/8 I.D. VINYL (BLUE)	010602
19	*	TUBING, 1/8 I.D. VINYL (RED)	010601
20	1	VALVE 3-PORT AIR/SPRING 1/8	16-832
21	1	PINCH VALVE ASS'Y.	16-1015
22	1	TUBE, INNER VACUUM WITH SLIDE TUBE	11-731
23	*	HOSE, BLAST 3/4 I.D. x 1-1/2 O.D.	18-101
24	8'	FLEX HOSE, 4"	19-092
24A	8'	FLEX HOSE, 5"	19-094
25	1	INLET ADAPTOR 4"	11-705
25A	1	INLET ADAPTOR 5"	11-905
26	1	PURGE ADAPTOR	010077 (B1125)
27			
28			
29			
30			
31	1	RECLAIMER DOOR/W GASKET	11-702
32	1	RECLAIMER DOOR GASKET	11-703
33	1	RECLAIMER DOOR LATCH	15-728
34	1	DUST BAG, 700 CFM	11-715
35	1	SCREEN DRAWER	A270
36	1	TOP OUTLET	002028
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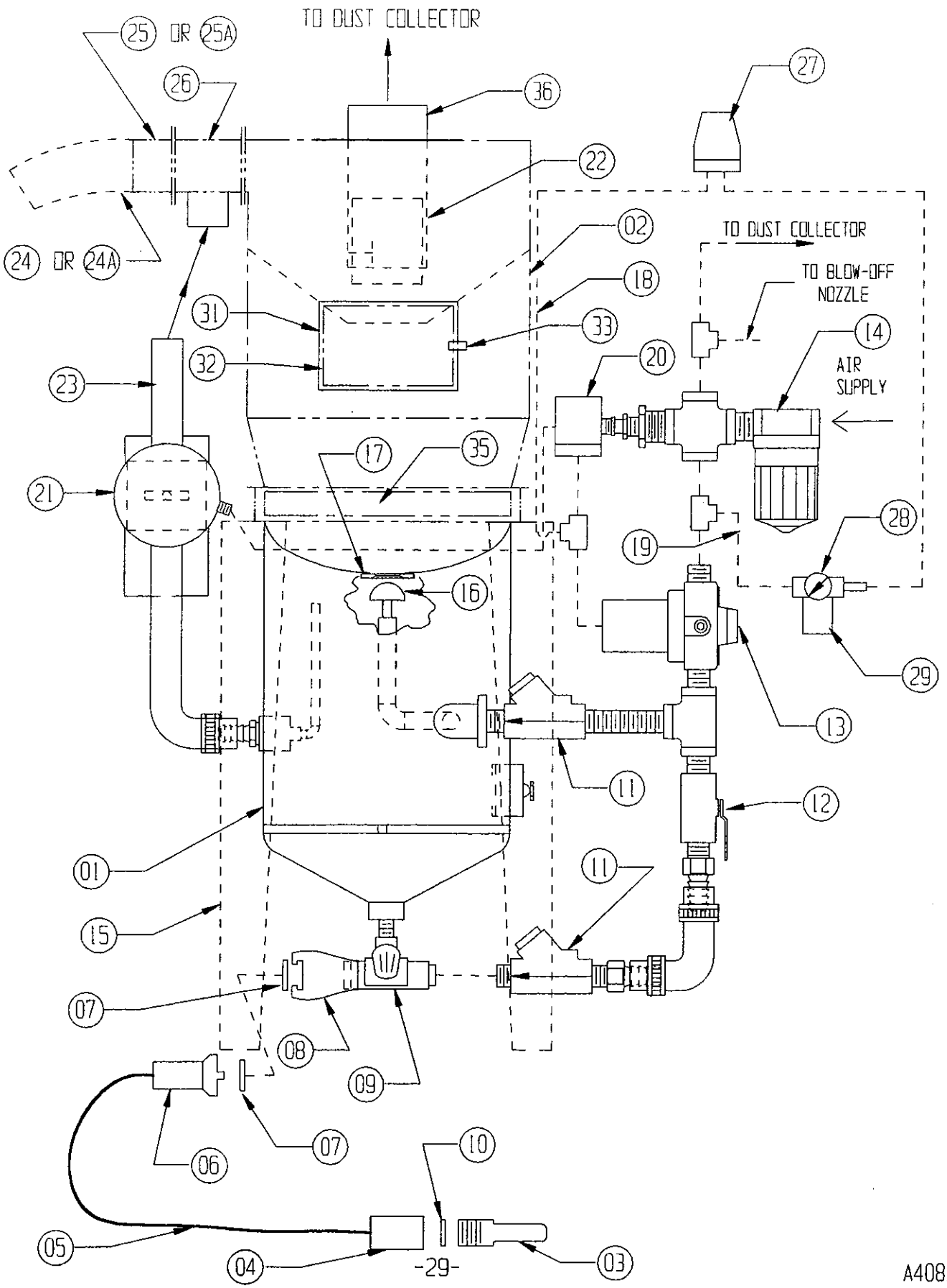
* SPECIFY LENGTH

P01R24 (900 CFM) PRESSURE SYSTEM (STANDARD MACHINE)



A4083A

ITEM	QTY	P01R24 (900 CFM) PRESSURE SYSTEM PARTS LIST	PART NO.
01	1	PRESSURE POT 1.0 CU. FT. (FLANGE TOP)	16-935
02	1	RECLAIM HOUSING	11-910P
03	1	NOZZLE 1/4 x 1-3/4 MPT x 1-3/4 STR	20-602
04	1	NH 1-1/8 O.D. x 3/4 NPT ALUM	14-108
05	*	HOSE, BLAST 1/2 I.D. x 1-1/8 O.D.	18-100
06	1	QC 1-1/8 O.D. 2 PRONG ALUM	14-101
07	2	WASHER, COUPLING QC & TC	14-106
08	1	TC 1-1/4 FPT 2 PRONG ALUM	14-117
09	1	MICRO VALVE	16-878
10	1	WASHER, NOZZLE	14-114
11	2	VALVE, SWING CHECK 3/4 NPT	14-474
12	1	VALVE, BALL 3/4 NPT	14-464
13	1	REGULATOR, AIR SLAVE 3/4 FPT	16-896
14	1	FILTER, AIR 3/4 FPT	16-897
15	1	STAND	A1205-P
16	1	VALVE, POP-UP 1.0 LAGRANGE	005799
17	1	SEAL, POP-UP 1.0 LAGRANGE	005800
18	*	TUBING	18-111
19	*	TUBING	18-111
20	1	VALVE 3-PORT AIR/SPRING 1/8	16-832
21	1	PINCH VALVE ASS'Y.	16-1015
22	1	TUBE, INNER VACUUM WITH SLIDE TUBE	11-931
23	*	HOSE, BLAST 3/4 I.D. x 1-1/2 O.D.	18-101
24	8'	FLEX HOSE, 5"	19-094
24A	8'	FLEX HOSE, 6"	19-096
25	1	INLET ADAPTOR 5"	11-905
25A	1	INLET ADAPTOR 6"	A12767
26	1	PURGE ADAPTOR	010077 (B1125)
27	1	FOOT CONTROL (AIR)	003190
28	1	GAUGE	16-820
29	1	REGULATOR	001564
30			
31	1	RECLAIMER DOOR/W GASKET	11-902
32	1	RECLAIMER DOOR GASKET	11-903
33	1	RECLAIMER DOOR LATCH	15-728
34	2	DUST BAG, 900 CFM	11-915
35	1	SCREEN DRAWER	A270
36	1	TOP OUTLET	003153
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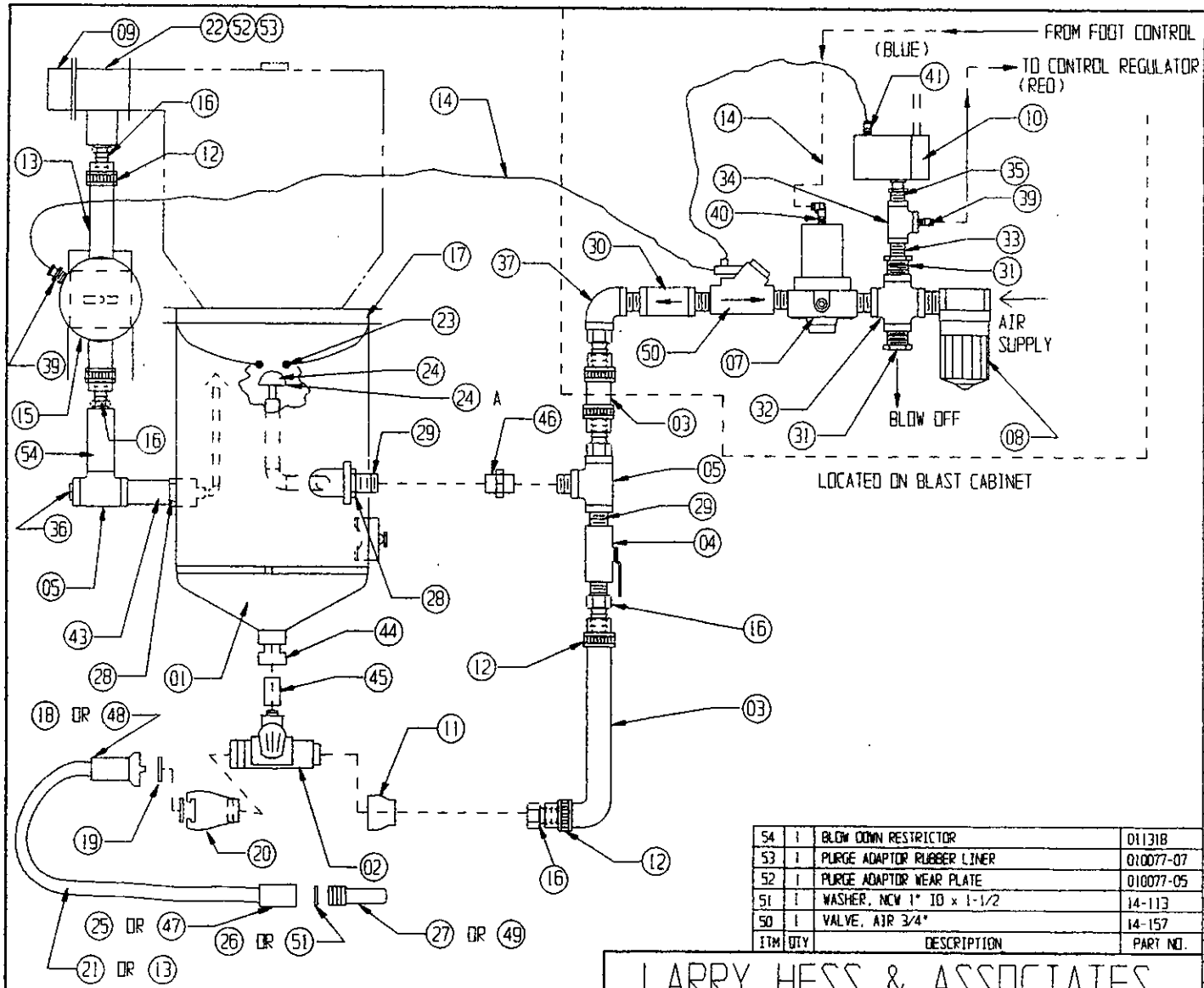


ITM	QTY	DESCRIPTION	PART NO.
54	1	BLOW DOWN RESTRICTOR	011318
53	1	PURGE ADAPTOR RUBBER LINER	010077-07
52	1	PURGE ADAPTOR WEAR PLATE	010077-05
51	1	WASHER, NCW 1" ID x 1-1/2	14-113
50	1	VALVE, AIR 3/4"	14-157

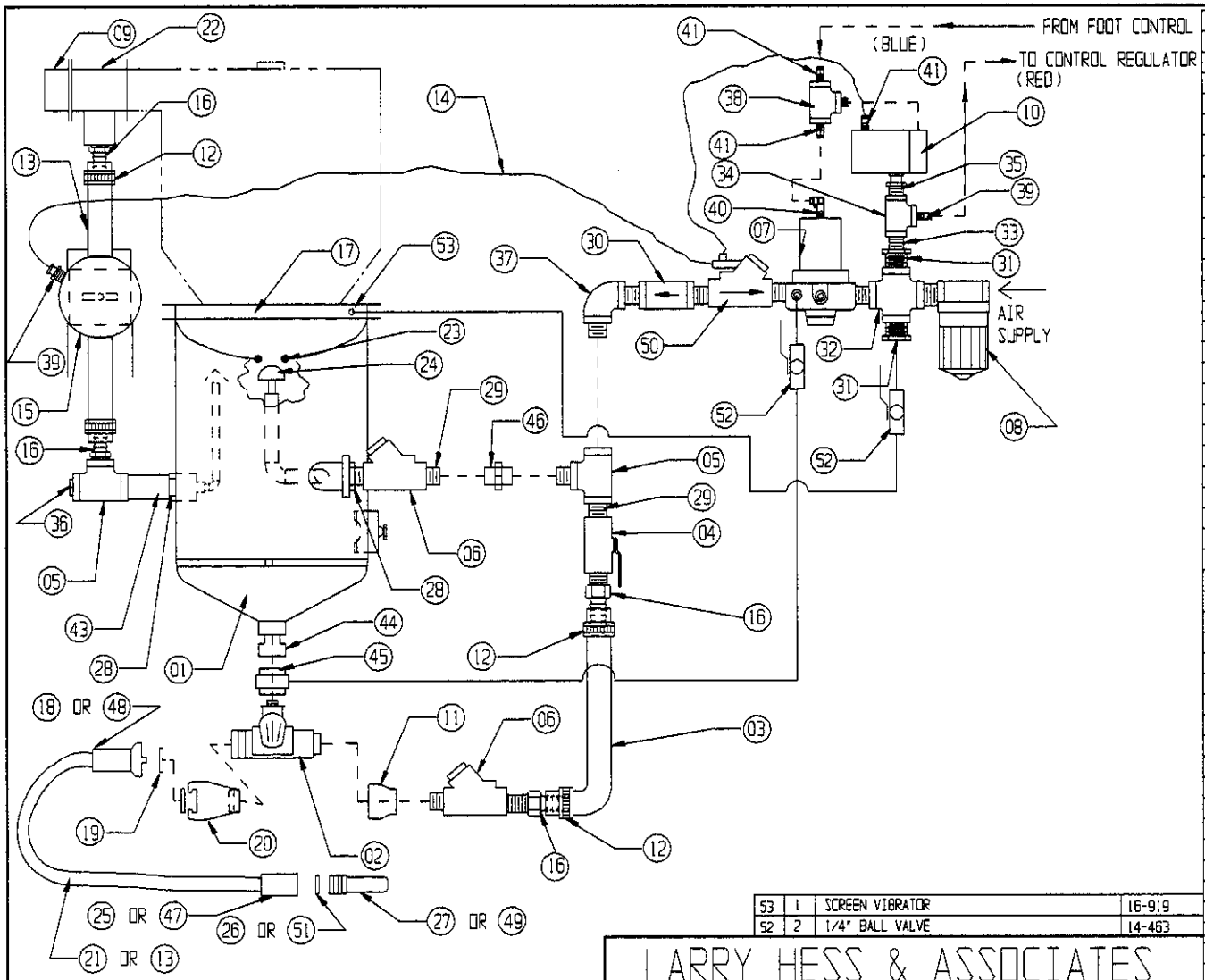
ITM	QTY	DESCRIPTION	PART NO.
49	1	NOZZLE, 1-1/4" THREADS	20-622
48	1	QUICK CONNECT COUPLING 3/4" HOSE	14-102
47	1	HOLDER, HOLDER 1-1/4" THREADS	14-109
46	1	UNION, 3/4"	14-521
45	1	NIPPLE, 1-1/4" CLOSE	14-350
44	1	BUSHING, 2" x 1-1/4"	14-528
43	1	NIPPLE, 3/4" x 3" LG.	14-520
42	1	NIPPLE, 1/8" CLOSE	001151
41	3	FITTING, STRAIGHT CONNECTOR 1/8" x 1/4"	16-951
40	1	FITTING, 90° ELBOW CONNECTOR 1/4" x 1/4"	003083
39	2	FITTING, STRAIGHT CONNECTOR 1/4" x 1/4"	004623
38			
37	1	STREET ELL, 3/4"	14-466
36	1	PLUG, 3/4"	000835
35	1	BUSHING, 1/4" x 1/8"	14-389
34	1	TEE, 1/4" BRASS	14-329
33	1	NIPPLE, 1/4" CLOSE	14-320
32	1	CROSS, 3/4"	14-516
31	2	BUSHING, 3/4" x 1/4"	14-396
30	1	VALVE, CHECK IN-LINE	006271
29	7	NIPPLE, CLOSE 3/4	14-341
28	2	BUSHING, 1" x 3/4"	14-371
27	1	NOZZLE, 1/4"	20-602
26	1	WASHER, NCW 1/2" ID x 1-1/8"	14-114
25	1	HOLDER, NOZZLE 3/4" THREADS	14-108
24A	1	VALVE, POP-UP, URETHANE (7/17/00)	16-706U
24	1	VALVE, POP-UP	16-706
23	1	SEAL, POP-UP	16-707
22	1	PURGE ADAPTOR	010077
21	*	HOSE, BLAST 1/2" ID X 1-1/8 OD	18-100
20	1	TANK CONNECT 1-1/4 FPT 2 PRONG AL	14-117
19	2	WASHER, DC & TC	14-107
18	1	QUICK CONNECT OD 2 PRONG AL	14-101
17	1	SCREEN DRAWER ASMB.	010580
16	4	3/4" K.C. NIPPLE	002834
15	1	PINCH VALVE ASMB.	16-1015
14	*	TUBING 1/4" OD VINYL	18-111
13	*	HOSE, BLAST 3/4" ID X 1-1/2" OD	18-101
12	4	CLAMP	21-031
11	1	BELL REDUCER 1 1/2 X 3/4	006227
10	1	SOLENOID 3-PORT ELECTRICAL	13-516
09	1	INLET ADAPTOR	11-905
08	1	AIR FILTER 3/4" FPT	16-897
07	1	REGULATOR, PILOT OPERATED 3/4" FPT	16-896
06			
05	2	TEE 3/4" 150# MI	14-509
04	1	VALVE, BALL 3/4"	14-464
03	*	HOSE, AIR 3/4" I.D.	18-080
02	1	MICRO VALVE	16-878
01	1	PRESSURE POT 1 CU. FT.	16-935

REV.	DESCRIPTION	BY	DATE
1	ADD 24A & 54	LJF	7/17/00

LARRY HESS & ASSOCIATES

1 CU FT POT		JOB NO.	ITEM NO.
ENGINEER DEC	DATE 08/17/99	DWG. NO. B4060-3	

54	1	BLOW DOWN RESTRICTOR	011318
53	1	PURGE ADAPTOR RUBBER LINER	010077-07
52	1	PURGE ADAPTOR WEAR PLATE	010077-05
51	1	WASHER, NCW 1" ID x 1-1/2	14-113
50	1	VALVE, AIR 3/4"	14-157
49	1	NOZZLE, 1-1/4" THREADS	20-622
48	1	QUICK CONNECT COUPLING 3/4" HOSE	14-102
47	1	HOLDER, HOLDER 1-1/4" THREADS	14-109
46	1	UNION, 3/4"	14-521
45	1	NIPPLE, 1-1/4" CLOSE	14-350
44	1	BUSHING, 2" x 1-1/4"	14-528
43	1	NIPPLE, 3/4" x 3" LG.	14-520
42	1	NIPPLE, 1/8" CLOSE	001151
41	3	FITTING, STRAIGHT CONNECTOR 1/8" x 1/4"	16-951
40	1	FITTING, 90° ELBOW CONNECTOR1/4" x 1/4"	003083
39	2	FITTING, STRAIGHT CONNECTOR 1/4" x 1/4"	004623
38			
37	1	STREET ELL, 3/4"	14-466
36	1	PLUG, 3/4"	000835
35	1	BUSHING, 1/4" x 1/8"	14-389
34	1	TEE, 1/4" BRASS	14-329
33	1	NIPPLE, 1/4" CLOSE	14-320
32	1	CROSS, 3/4"	14-516
31	2	BUSHING, 3/4" x 1/4"	14-396
30	1	VALVE, CHECK IN-LINE	006271
29	7	NIPPLE, CLOSE 3/4	14-341
28	2	BUSHING, 1" x 3/4"	14-371
27	1	NOZZLE, 1/4"	20-602
26	1	WASHER, NCW 1/2" ID x 1-1/8"	14-114
25	1	HOLDER, NOZZLE 3/4" THREADS	14-108
24A	1	VALVE, POP-UP, URETHANE (7/17/00)	16-706U
24	1	VALVE, POP-UP	16-706
23	1	SEAL, POP-UP	16-707
22	1	PURGE ADAPTOR	010077
21	*	HOSE, BLAST 1/2" ID X 1-1/8 OD	18-100
20	1	TANK CONNECT 1-1/4 FPT 2 PRONG AL	14-117
19	2	WASHER, QC & TC	14-107
18	1	QUICK CONNECT OD 2 PRONG AL	14-101
17	1	SCREEN DRAWER ASMB.	010580
16	4	3/4" K.C. NIPPLE	002834
15	1	PINCH VALVE ASMB.	16-1015
14	*	TUBING 1/4" OD VINYL	18-111
13	*	HOSE, BLAST 3/4" ID X 1-1/2" OD	18-101
12	4	CLAMP	21-031
11	1	BELL REDUCER 1 1/2 X 3/4	006227
10	1	SOLENOID 3-PORT ELECTRICAL	13-516
09	1	INLET ADAPTOR	11-905
08	1	AIR FILTER 3/4" FPT	16-897
07	1	REGULATOR, PILOT OPERATED 3/4" FPT	16-896
06			
05	2	TEE 3/4" 150# MI	14-509
04	1	VALVE, BALL 3/4"	14-464
03	*	HOSE, AIR 3/4" I.D.	18-080
02	1	MICRO VALVE	16-878
01	1	PRESSURE POT 1 CU. FT.	16-935
ITM	QTY	DESCRIPTION	PART NO.



ITM	QTY	DESCRIPTION	PART NO.
01	1	PRESSURE POT 1 CU. FT.	16-935
02	1	MICRO VALVE	16-878
03	*	HOSE, AIR 3/4" I.D.	18-080
04	1	VALVE, BALL 3/4"	14-464
05	2	TEE 3/4" 150# MI	14-509
06	2	VALVE, SWING CHECK 3/4" NPT	14-474
07	1	REGULATOR, PILOT OPERATED 3/4" FPT	16-896
08	1	AIR FILTER 3/4" FPT	16-897
09	1	INLET ADAPTOR	11-905
10	1	VALVE 3-PORT AIR/SPRING	16-832
11	1	BELL REDUCER 1 1/2 X 3/4	005227
12	4	CLAMP	21-031
13	*	HOSE, BLAST 3/4" ID X 1-1/2" OD	18-101
14	*	TUBING 1/4" OD VINYL	18-111
15	1	PINCH VALVE ASMB.	16-1015
16	4	3/4" K.C. NIPPLE	002834
17	1	SCREEN DRAWER ASMB.	010580
18	1	QUICK CONNECT OD 2 PRONG AL	14-101
19	2	WASHER, OC & TC	14-107
20	1	TANK CONNECT 1-1/4 FPT 2 PRONG AL	14-117
21	*	HOSE, BLAST 1/2" ID X 1-1/8 OD	18-100
22	1	PURGE ADAPTOR	010077
23	1	SEAL, POP-UP	16-707
24	1	VALVE, POP-UP	16-706
25	1	HOLDER, NOZZLE 3/4" THREADS	14-108
26	1	WASHER, NCW 1/2" ID x 1-1/8"	14-114
27	1	NOZZLE, 1/4"	20-602
28	2	BUSHING, 1" x 3/4"	14-371
29	7	NIPPLE, CLOSE 3/4	14-341
30	1	VALVE, CHECK IN-LINE	006271
31	2	BUSHING, 3/4" x 1/4"	14-396
32	1	CROSS, 3/4"	14-516
33	1	NIPPLE, 1/4" CLOSE	14-320
34	1	TEE, 1/4" BRASS	14-329
35	1	BUSHING, 1/4" x 1/8"	14-389
36	1	PLUG, 3/4"	000835
37	1	STREET ELL, 3/4"	14-486
38	1	TEE, 1/8" BRASS	14-326
39	2	FITTING, STRAIGHT CONNECTOR 1/4" x 1/4"	004623
40	1	FITTING, 90° ELBOW CONNECTOR1/4" x 1/4"	003083
41	3	FITTING, STRAIGHT CONNECTOR 1/8" x 1/4"	16-951
42	1	NIPPLE, 1/8" CLOSE	001151
43	1	NIPPLE, 3/4" x 3" LG.	14-520
44	1	BUSHING, 2" x 1-1/4"	14-528
45	1	AERATOR	001575
46	1	UNION, 3/4"	14-521
47	1	HOLDER, HOLDER 1-1/4" THREADS	14-109
48	1	QUICK CONNECT COUPLING 3/4" HOSE	14-102
49	1	NOZZLE, 1-1/4" THREADS	20-622
50	1	VALVE, AIR 3/4"	14-157
51	1	WASHER, NCW 1" ID x 1-1/2	14-113
52	2	1/4" BALL VALVE	14-463
53	1	SCREEN VIBRATOR	16-919

LARRY HESS & ASSOCIATES

1 CU FT POT (PMB)	JOB NO.	ITEM NO.
ENGINEER LJF	DATE 02/26//99	DWG. NO. B4060-2

53	1	SCREEN VIBRATOR	16-919
52	2	1/4" BALL VALVE	14-463
51	1	WASHER, NCW 1" ID x 1-1/2	14-113
50	1	VALVE, AIR 3/4"	14-157
49	1	NOZZLE, 1-1/4" THREADS	20-622
48	1	QUICK CONNECT COUPLING 3/4" HOSE	14-102
47	1	HOLDER, HOLDER 1-1/4" THREADS	14-109
46	1	UNION, 3/4"	14-521
45	1	AERATOR	001575
44	1	BUSHING, 2" x 1-1/4"	14-528
43	1	NIPPLE, 3/4" x 3" LG.	14-520
42	1	NIPPLE, 1/8" CLOSE	001151
41	3	FITTING, STRAIGHT CONNECTOR 1/8" x 1/4"	16-951
40	1	FITTING, 90° ELBOW CONNECTOR1/4" x 1/4"	003083
39	2	FITTING, STRAIGHT CONNECTOR 1/4" x 1/4"	004623
38	1	TEE, 1/8" BRASS	14-326
37	1	STREET ELL, 3/4"	14-466
36	1	PLUG, 3/4"	000835
35	1	BUSHING, 1/4" x 1/8"	14-389
34	1	TEE, 1/4" BRASS	14-329
33	1	NIPPLE, 1/4" CLOSE	14-320
32	1	CROSS, 3/4"	14-516
31	2	BUSHING, 3/4" x 1/4"	14-396
30	1	VALVE, CHECK IN-LINE	006271
29	7	NIPPLE, CLOSE 3/4	14-341
28	2	BUSHING, 1" x 3/4"	14-371
27	1	NOZZLE, 1/4"	20-602
26	1	WASHER, NCW 1/2" ID x 1-1/8"	14-114
25	1	HOLDER, NOZZLE 3/4" THREADS	14-108
24	1	VALVE, POP-UP	16-706
23	1	SEAL, POP-UP	16-707
22	1	PURGE ADAPTOR	010077
21	*	HOSE, BLAST 1/2" ID X 1-1/8 OD	18-100
20	1	TANK CONNECT 1-1/4 FPT 2 PRONG AL	14-117
19	2	WASHER, QC & TC	14-107
18	1	QUICK CONNECT OD 2 PRONG AL	14-101
17	1	SCREEN DRAWER ASMB.	010580
16	4	3/4" K.C. NIPPLE	002834
15	1	PINCH VALVE ASMB.	16-1015
14	*	TUBING 1/4" OD VINYL	18-111
13	*	HOSE, BLAST 3/4" ID X 1-1/2" OD	18-101
12	4	CLAMP	21-031
11	1	BELL REDUCER 1 1/2 X 3/4	006227
10	1	VALVE 3-PORT AIR/SPRING	16-832
09	1	INLET ADAPTOR	11-905
08	1	AIR FILTER 3/4" FPT	16-897
07	1	REGULATOR, PILOT OPERATED 3/4" FPT	16-896
06	2	VALVE, SWING CHECK 3/4" NPT	14-474
05	2	TEE 3/4" 150# MI	14-509
04	1	VALVE, BALL 3/4"	14-464
03	*	HOSE, AIR 3/4" I.D.	18-080
02	1	MICRO VALVE	16-878
01	1	PRESSURE POT 1 CU. FT.	16-935
ITM	QTY	DESCRIPTION	PART NO.

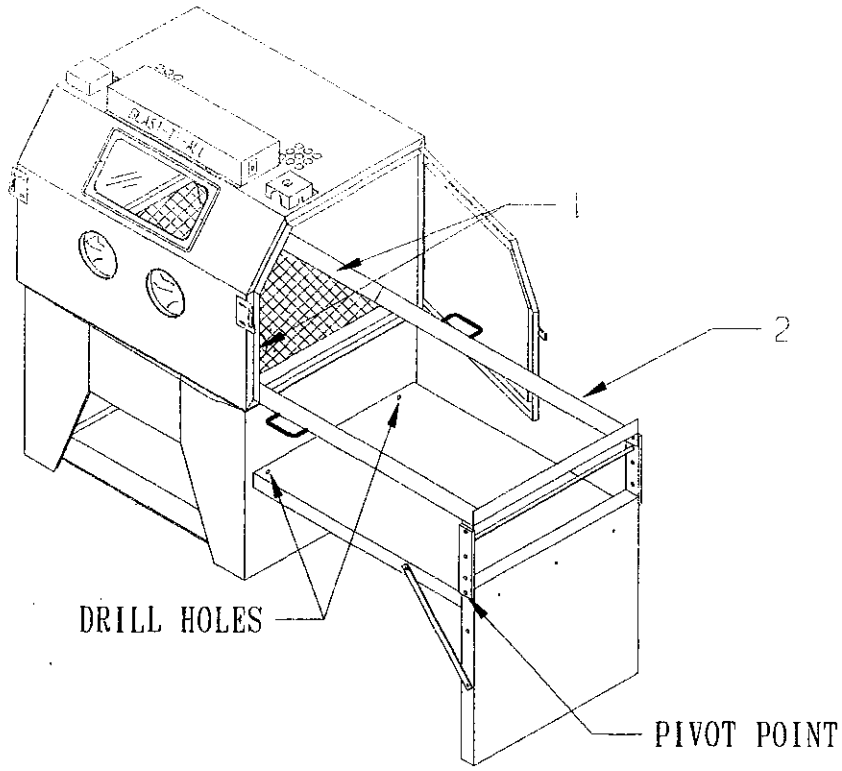
LARRY HESS & ASSOCIATES

DESCRIPTION: STANDARD INSIDE & OUTSIDE TRACK ASS'Y.

DATE: 4/23/96

ENGINEER: DEC

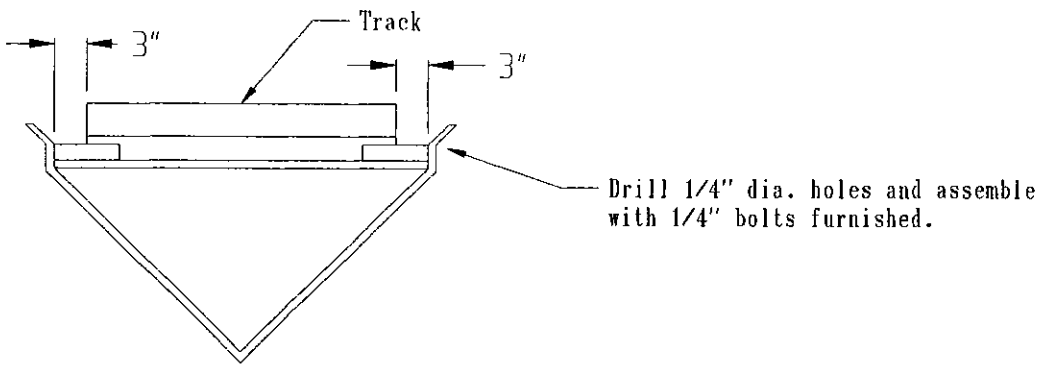
DWG. NO. M11018



ITEM	MACHINE MODEL NUMBER				DESCRIPTION
NO.	3636	4426	4836, 4848	6048, 6060	
1	17-111	17-112	17-113	17-131	INSIDE TRACK
2	17-110	17-110	17-110	17-110	OUTSIDE TRACK

INSTALLATION INSTRUCTIONS

1. Locate and install the inside tracks, per figure below. Center to center distance is 18-1/2".



2. Locate and install outside table and track.

   A. Set table on either side of machine desired.
   B. Drill two (2) 1/2" dia. holes in side of machine skirt to receive 1/2" dia. bolts furnished.
   C. Flip track into machine.
   D. Select (1) of (3) pivot holes in table assembly, that will allow the outside track to set level.
   E. For minor height adjustments, use bolt levelers in bottom of table leg.

3. For turntable assembly see drawing M11019.

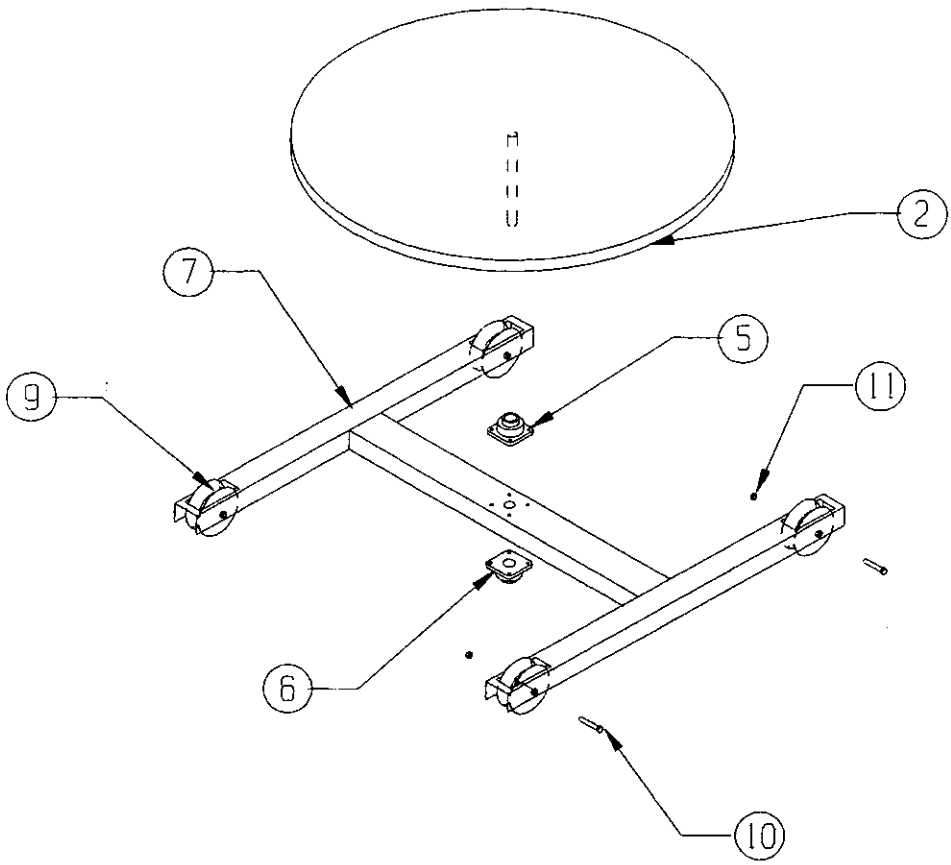
LARRY HESS & ASSOCIATES

DESCRIPTION: STANDARD TURNTABLE ASSEMBLY

DATE: 4/23/96

ENGINEER: DEC

DWG. NO: M11019



ITEM NO.	20" DIA.	24" DIA.	DESCRIPTION
1	17-106	17-107	COMPLETE ASSEMBLY
2	17-120	17-121	TURNTABLE TOP (ONLY)
3	------	------	----------
4	------	------	----------
5	30-123	30-123	3/8" x 1-1/2" BOLT & NUT
6	15-920	15-920	1" 4-BOLT BEARING
7	17-123	17-123	CART
8	------	------	----------
9	15-913	15-913	3" WHEEL
10	30-132	30-132	1/2" x 2-3/4" BOLT
11	30-509	30-509	1/2" LOCKNUT

NOTE: SET-IN TURNTABLE ASSEMBLIES DO NOT INCLUDE 9, 10, OR 11.

LARRY HESS & ASSOCIATES

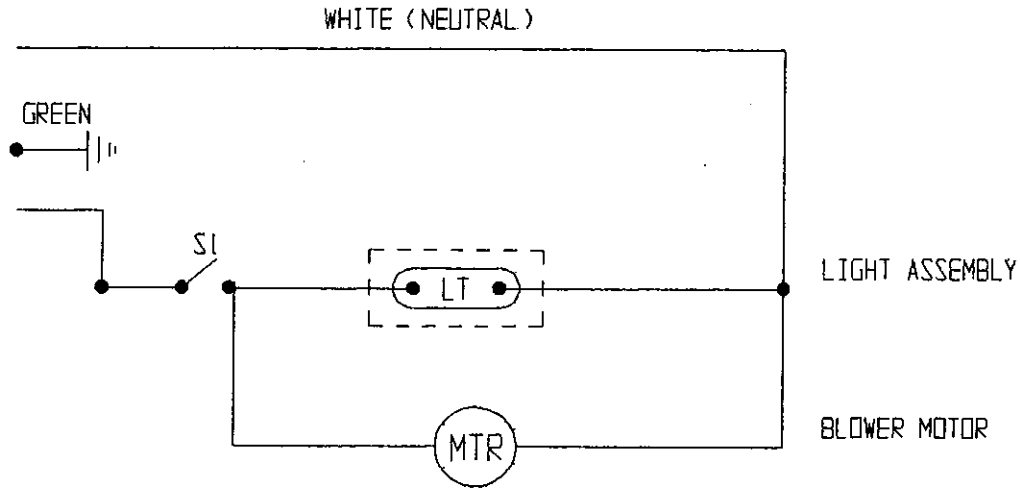
DESCRIPTION: 120 V/ 1 PHASE ELECTRICAL SCHEMATIC

DATE: 4/23/96

ENGINEER: DEC

DWG. NO.: A5107

120 VOLT SINGLE PHASE WIRING

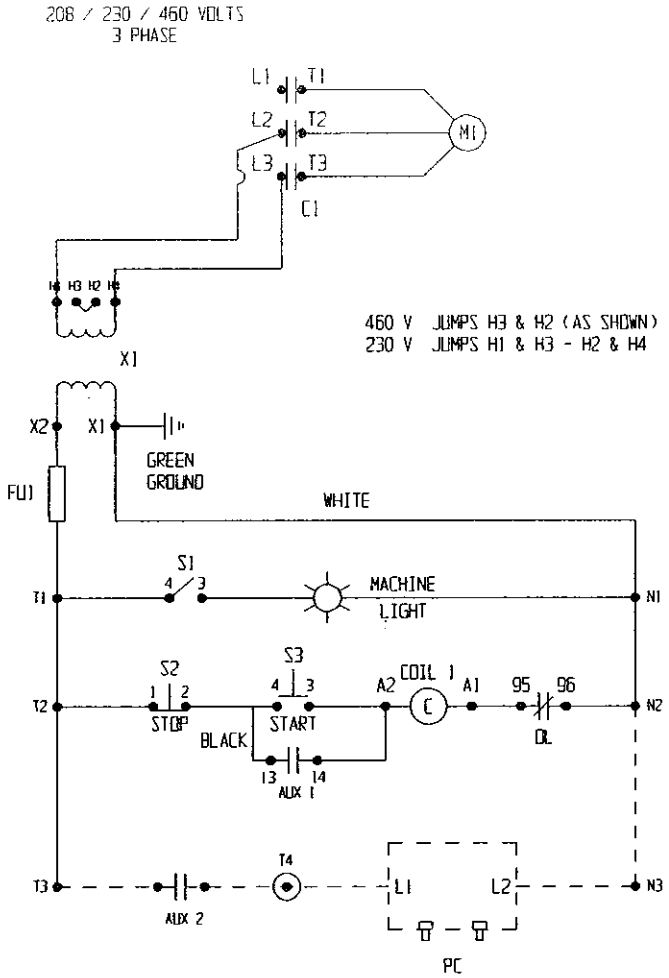


SWITCH NO.	FUNCTION	PART NO.
SW1	MACHINE LIGHT - OFF/ ON	13-510
LT	LIGHT FIXTURE	13-533
MTR	MOTOR (1 HP SINGLE PHASE)	13-700

DWG. NO.	B5102-M
ENGINEER	DEC
DATE	4/23/96
DESCRIPTION	208-230/460 3 PHASE ELECTRICAL SCHEMATIC

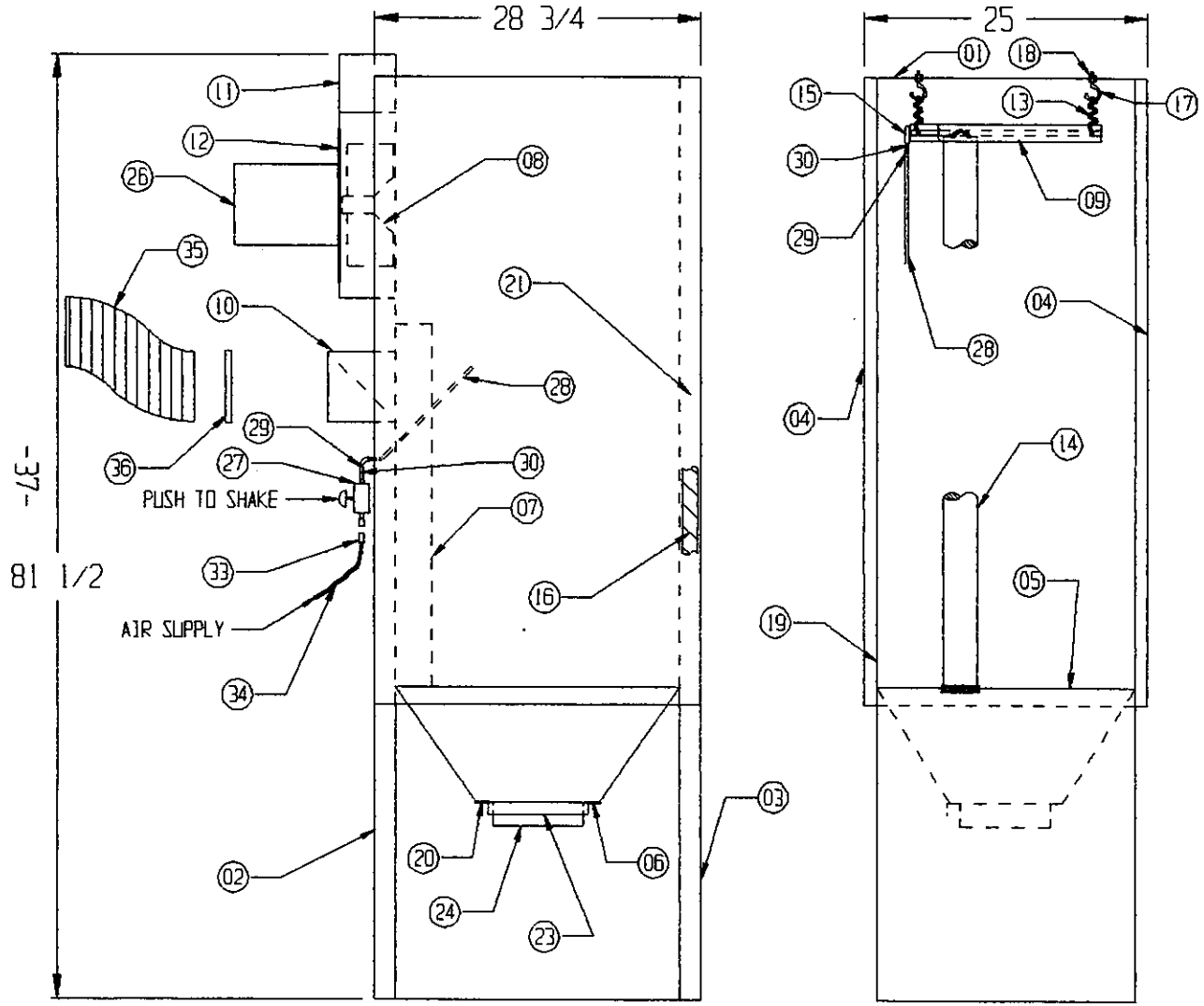
LARRY HESS & ASSOCIATES

REV. 03/02/05 BY DEC



SWITCH NO.	FUNCTION	PART NO.
S1	MACHINE LIGHT - OFF/ ON	13-655
S2	M1 (PUSH TO STOP)	
S3	M1 (PUSH TO START) STARTS M1	006404
X1	TRANFORMER (250)	000117
FU1	FUSE	13-101-5A
FH	FUSE HOLDER	13-101
C1	CONTACTOR	010210-S
OL	OVERLOAD (230 V)	010223-S
OL	OVERLOAD (460 V)	010211-S
M1	MOTOR (2 HP)	13-900
PC	PULSE CONTROL BOARD (RPJ ONLY)	010453
AUX 1	AUXILLARY CONTACT	011720

B2129



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
38			
37		CUT SHEET	A2502
36	2	SCREW CLAMP	21-036 OR 000818
35	5'	FLEX HOSE (6")	19-096 OR 001992
34	6'	1/4" PLASTIC HOSE	18-111 OR 001656
33	1	MALE CONNECTOR	000718
32			
31			
30	2	1/8" x 1/4" HOSE BARB	14-316 OR 000927
29	2	1/4" SCREW CLAMPS	000496
28	3'	1/4" AIR HOSE	18-074 OR 000738
27	1	SHAKER VALVE 1/8"	16-830 OR 001001
26	1	MOTOR 1HP-110V 56C	13-700 OR 000076
25			
24	1	OUTLET FLANGE 8" DIA.	000725
23	1	SLIDE GATE	000324
22			
21	6	1/4" WING NUT	000305
20	80	1/4" x 3/4"LG. ROLLOX	000301
19	12	1/4" x 1"LG. ROLLOX	000377
18	8	3/16" HEX NUT	000378
17	4	3/16" EYE BOLT	000379
16	50'	1/4" x 1" GASKET	000307
15	1	SHAKER	16-919 OR 000382
14	25	DUST BAG	11-349
13	4	SPRING	000347
12	1	BLOWER/MOTOR PLATE	11-720 OR 000369
11	1	BLOWER HOUSING ASS'Y.	11-716 OR 000371
10	1	INLET DAMPER ASS'Y. (6" DIA.)	000723
09	1	DUST BAG MOUNT ASS'Y.	A2501
08	1	BLADE ASS'Y.	11-718 OR 000390
07	1	D-10 PLENUM ASS'Y.	000335
06	1	SPACER	A2487-1
05	1	SUMP ASS'Y.	A2500
04	2	DOOR PANEL	A2486
03	1	RIGHT SIDE PANEL	A2485-1
02	1	LEFT SIDE PANEL	A2484-1
01	1	TOP PLATE	A2487-1

REV.	DESCRIPTION	BY	DATE

LARRY HESS & ASSOCIATES, INC.
SALISBURY, NORTH CAROLINA

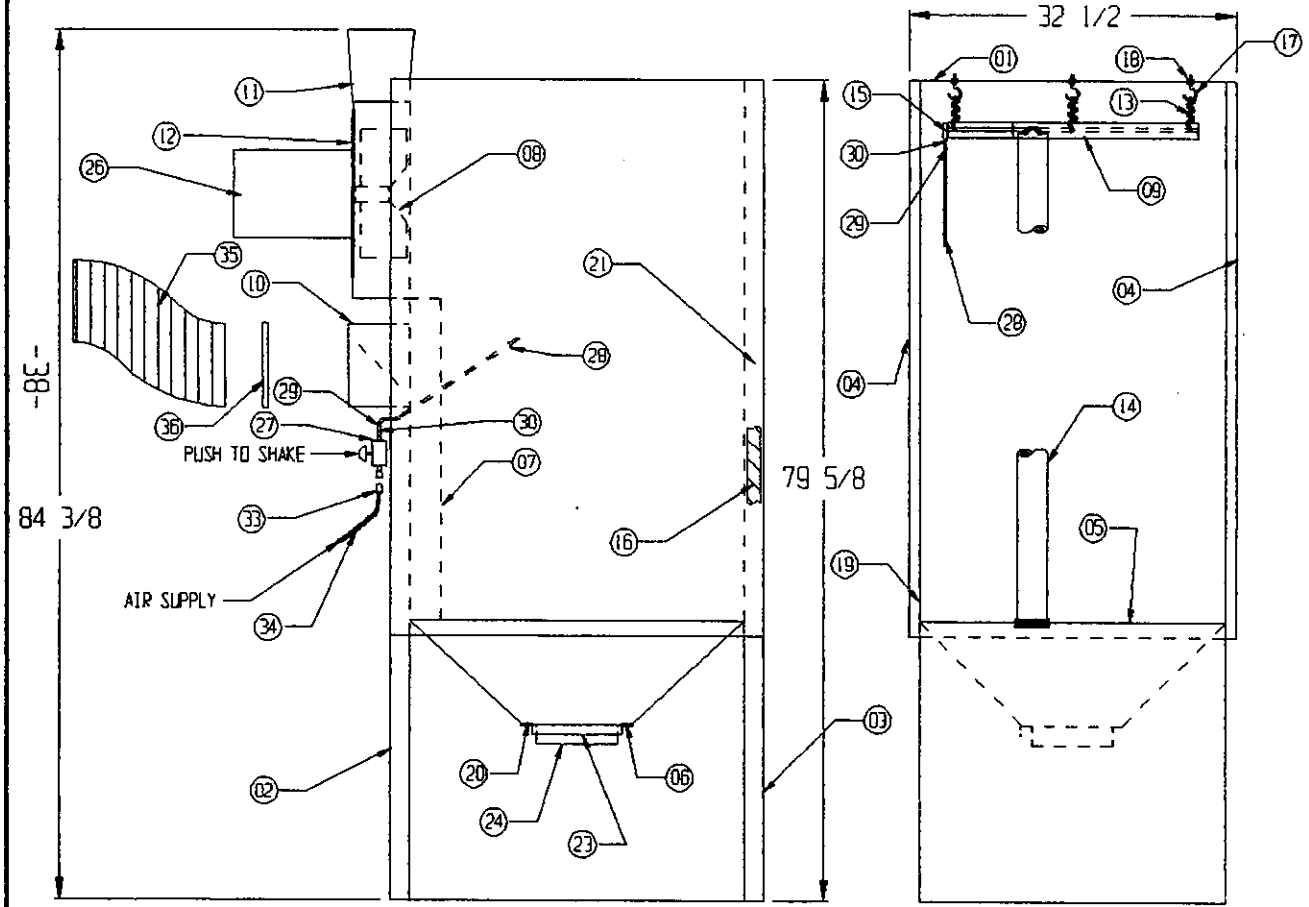
DESCRIPTION: D-10 DUST COLLECTOR ASS'Y.

MATERIAL: PER DWG.

DEC	02/10/95	3/32"=1"	STD.

DRAWING NO.: B2129

B2131



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
38			
37		CUT SHEET	A2508
36	2	SCREW CLAMP (8")	21-038 OR 000310
35	8'	FLEX HOSE (8")	19-098 OR 002502
34	6'	1/4" PLASTIC HOSE	18-111 OR 001656
33	1	MALE CONNECTOR	000718
32	1	FLEX HOSE (7")	19-097 OR 003052
31	1	HEPA BOX (OPTIONAL)	A35025
30	2	1/8" x 1/4" HOSE BARB	14-316 OR 000927
29	2	1/4" SCREW CLAMPS	000496
28	3'	1/4" AIR HOSE	18-074 OR 000738
27	1	SHAKER VALVE 1/8"	16-830 OR 001001
26	1	MOTOR 2HP-220/440V 3PH	13-900 OR 000077
25	2	SCREW CLAMP (7")	21-037 OR 000819
24	1	OUTLET FLANGE 8" DIA.	000725
23	1	SLIDE GATE	000324
22	1	HEPA FILTER	006568
21	6	1/4" WING NUT	000305
20	80	1/4" x 3/4"LG. ROLLOX	000301
19	12	1/4" x 1"LG. ROLLOX	000377
18	12	3/16" HEX NUT	000378
17	6	3/16" EYE BOLT	000379
16	50'	1/4" x 1" GASKET	000307
15	1	SHAKER	16-919 OR 000382
14	49	DUST BAG	11-349
13	6	SPRING	000347
12	1	BLOWER/MOTOR PLATE	11-920 OR 001056
11	1	BLOWER HOUSING ASS'Y.	11-916 OR 001062
10	1	INLET DAMPER ASS'Y. (8" DIA.)	001046
09	1	DUST BAG MOUNT ASS'Y.	A2507
08	1	BLADE ASS'Y.	11-718 OR 000390
07	1	D-20 PLENUM ASS'Y.	001051
06	1	SPACER	A2487-1
05	1	SUMP ASS'Y.	A2506
04	2	DOOR PANEL	A2492
03	1	RIGHT SIDE PANEL	A2495
02	1	LEFT SIDE PANEL	A2496
01	1	TOP PLATE	A2494

REV.	DESCRIPTION	BY	DATE

LARRY HESS & ASSOCIATES, INC.
SALISBURY, NORTH CAROLINA

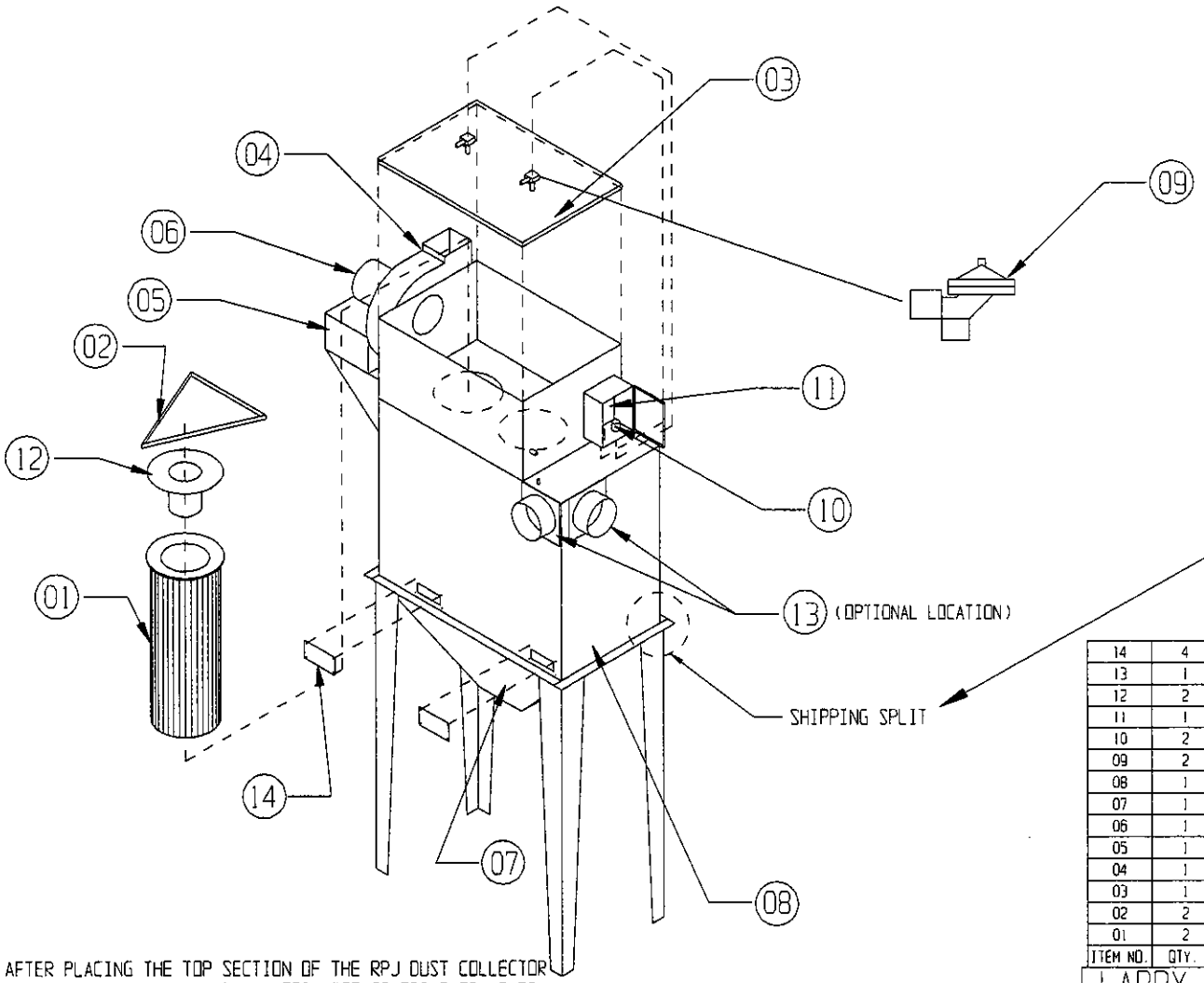
DESCRIPTION: D-20 DUST COLLECTOR ASS'Y.

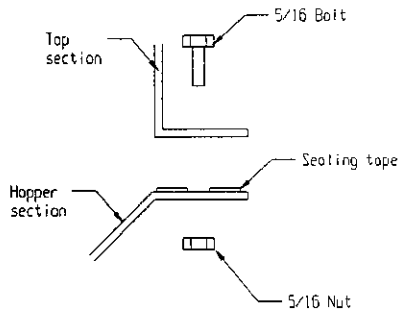
MATERIAL: PER DWG.

SEE	02/23/95	S/64"=1"	S10.
DEC	07/17/95		

DRAWING NO.: B2131

M2066-3





HOPPER SEAL

ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
14	4	FORKLIFT COVER	A2642
13	1	8" DAMPER INLET ASS'Y.	001046
12	2	CARTRIDGE CAP	A2463
11	1	CONTROL BOARD	003000-B
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, 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

*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

LARRY HESS & ASSOCIATES, INC.
SALISBURY, NORTH CAROLINA

DESCRIPTION: 2 CARTRIDGE DUST COLLECTOR (1200 CFM)

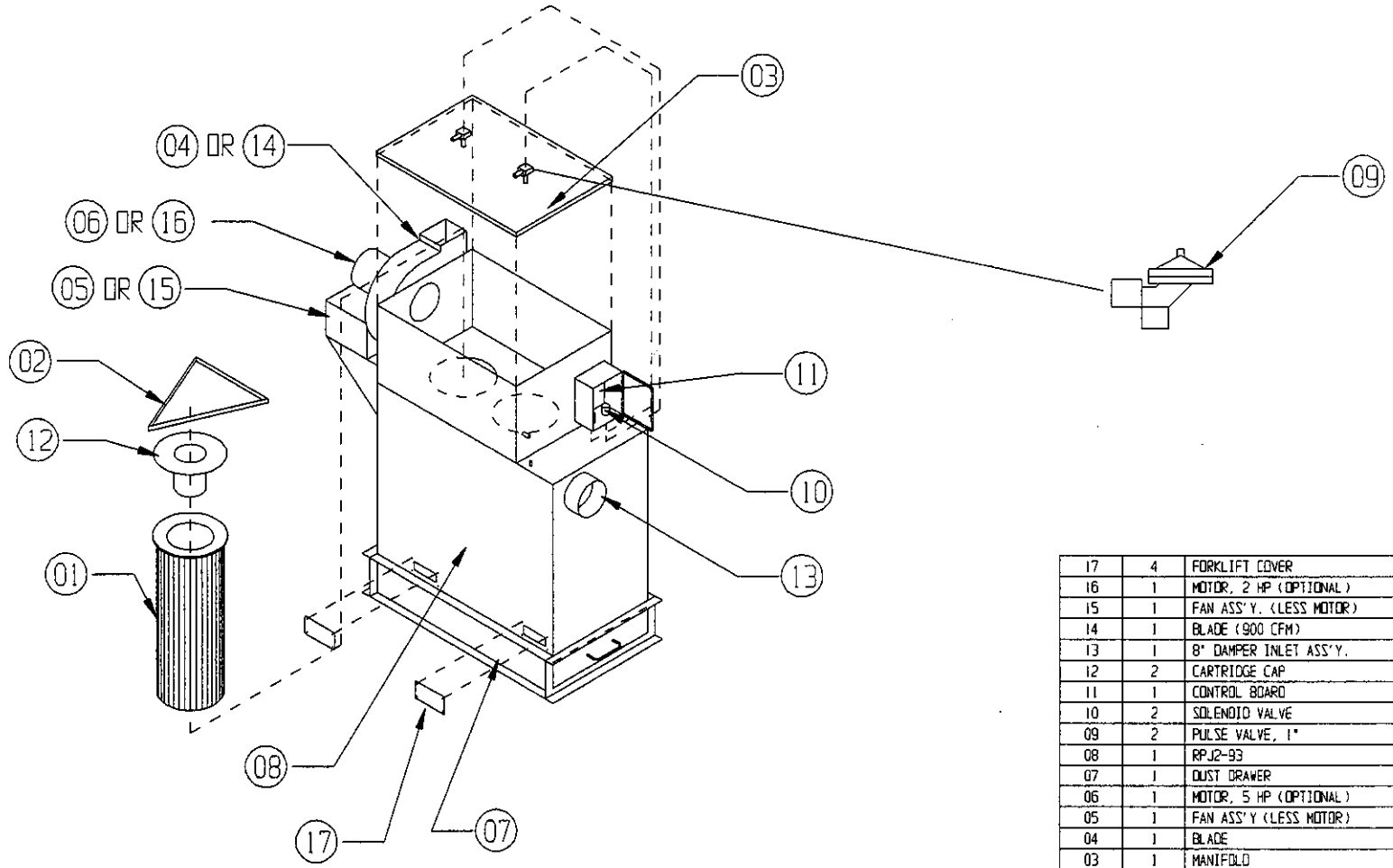
MATERIAL: 14 GA.

DRAWN BY: DEC | DATE: 8/01/94 | SCALE: 3/64": 1" | JOB NO.:

CHK'D BY: | DATE: | FRACTIONAL: DECIMAL: ANGULAR: | WELD ASS'Y.:

DRAWING NO.: M2066-3

M2068-1



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
17	4	FORKLIFT COVER	A2842
16	1	MOTOR, 2 HP (OPTIONAL)	000077
15	1	FAN ASS'Y. (LESS MOTOR)	001062
14	1	BLADE (900 CFM)	001054
13	1	8" DAMPER INLET ASS'Y.	001046
12	2	CARTRIDGE CAP	A2453
11	1	CONTROL BOARD	003000B
10	2	SOLENOID VALVE	003285
09	2	PULSE VALVE, 1"	005410
08	1	RPJ2-93	007420
07	1	DUST DRAWER	
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	
01	2	CARTRIDGE	006870

*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

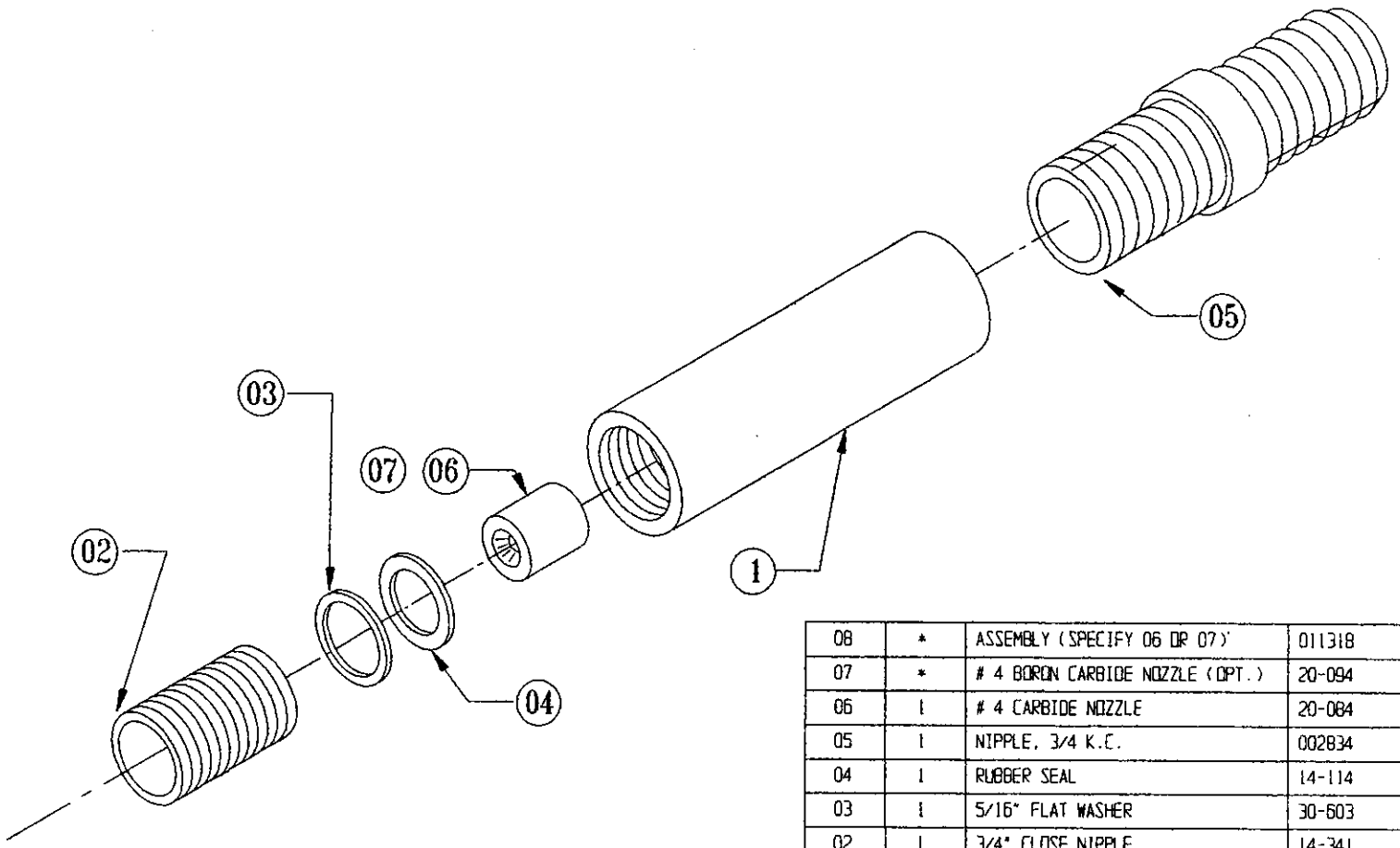
LARRY HESS & ASSOCIATES, INC.
SALISBURY, NORTH CAROLINA

DESCRIPTION: (1200 CFM OR 900 CFM) 2 CARTRIDGE DUST COLLECTOR

MATERIAL: 14 GA.

DRAWN BY: DEC	DATE: 7/18/95	SCALE: 3/64" = 1"	JOB NO.	DRAWING NO.: M2068-1
CHK'D BY: DEC	DATE: 5/13/98	FRACTIONAL ± DECIMAL ± ANGULAR ±	NEXT ASSY:	

A4096



ITEM NO.	QTY.	DESCRIPTION	DWG.NO./ MATERIAL
08	*	ASSEMBLY (SPECIFY 06 OR 07)'	011318
07	*	# 4 BORON CARBIDE NOZZLE (OPT.)	20-094
06	1	# 4 CARBIDE NOZZLE	20-084
05	1	NIPPLE, 3/4 K.C.	002834
04	1	RUBBER SEAL	14-114
03	1	5/16" FLAT WASHER	30-603
02	1	3/4" CLOSE NIPPLE	14-341
01	1	HOLDER	011319

LARRY HESS & ASSOCIATES, INC.
SALISBURY NORTH CAROLINA

DESCRIPTION: BLOW DOWN RESTRICTOR

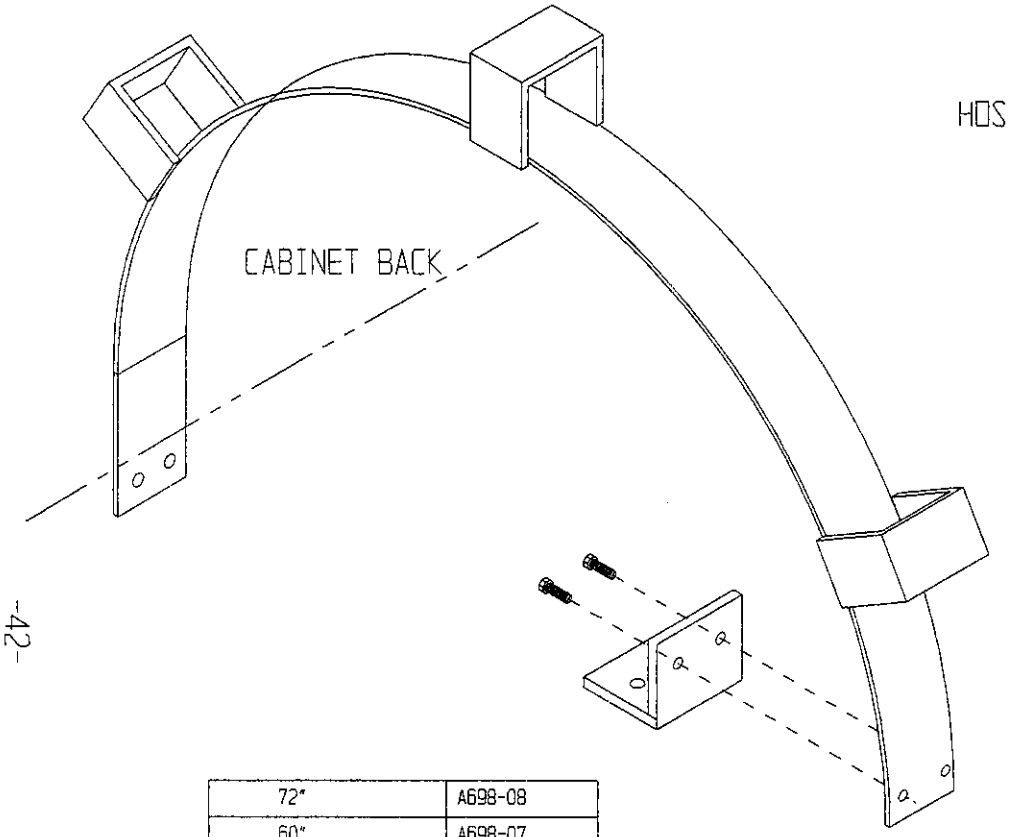
MATERIAL:

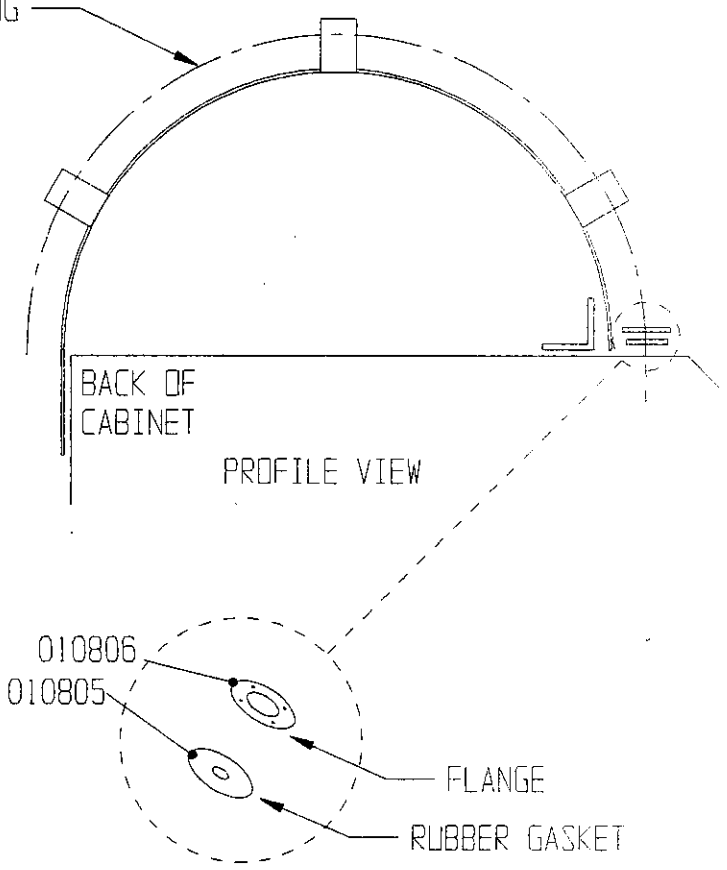
DRAWN BY:	DATE:	SCALE:	JOB NO:
LJF	06/14/00	1/4"= 1"	STD.
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.

DRAWING NO.: A4096

REV.	DESCRIPTION	BY	DATE

CONFIDENTIAL





72"	A698-08
60"	A698-07
48"	A698-05
36"	A698-02
24"	A698-01
MACHINE DEPTH	SUPPORT NO.

REV.	DESCRIPTION	BY	DATE

CONFIDENTIAL

LARRY HESS & ASSOCIATES, INC.
SALISBURY NORTH CAROLINA

DESCRIPTION: BLAST HOSE TOP SUPPORT ASSEMBLY

MATERIAL:

DRAWN BY:	DATE:	SCALE:	JOB NO:
LJF	06/18/02	N.T.S.	STD.
CHK'D BY:	DATE:	FRACTIONAL: DECIMAL: ANGULAR:	NEXT ASS'Y.:

DRAWING NO.: A698-M

WARRANTY

Larry Hess & Associates, Inc. Warrants to the original purchaser the merchandise sold to be free from defects in material and workmanship under normal use and service for a period of one (1) year. Upon prompt notification by the buyer, to LHA, components that are determined by LHA to be defective will be repaired or replaced at no additional charge, F.O.B. our factory.

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

This warranty does not apply to parts that are directly involved in the blasting operation. Example: gun, gun parts, viewing window, hose, gloves, etc.

Manufacturer shall not be required to pay any removal or installation charges whatsoever under this warranty.

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

This warranty does not apply to damage caused by accidents, damage in 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 Larry Hess & Associates, Inc. before credit is issued.

If genuine BLAST-IT-ALL® replacement parts are not used, the warranty is void.

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

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 POTENTIAL PERSONNEL HAZARD. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.***

BLAST-IT-ALL®
Larry Hess & Associates, Inc.
Airport Industrial Park
185 Piper Lane
P.O. Box 1615
Salisbury, NC 28145-1615