

MAGUIRE PRODUCTS INC.

MAGUIRE

ML Series[®]
VENTURI LOADERS

INSTALLATION • OPERATION • MAINTENANCE

Original Instructions Manual
Revision Date: January 6, 2023

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Maguire Products Inc.

VENTURI LOADERS

ML Models: ML-1, ML-2, ML-3, ML-4
-M for Micro blender Models
-A for Alarm Models

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Maguire ML Series Venturi Loaders

This document is the Original Instructions manual of the Maguire ML Series Venturi Loader models ML-1, ML-2, ML-3, and ML-4 and sub models.

The information contained within this manual including any translations thereof, is the property of Maguire Products Inc. and may not be reproduced, or transmitted in any form or by any means without the express written consent of Maguire Products Inc.

To every person concerned with use and maintenance of the Maguire ML Series Venturi Loaders it is recommended to read thoroughly these operating instructions. Maguire Products Inc. accepts no responsibility or liability for damage or malfunction of the equipment arising from non-observance of these operating instructions.

To avoid errors and to ensure trouble-free operation, it is essential that these operating instructions are read and understood by all personnel who are to use the equipment.

Should you have problems or difficulties with the equipment, please contact Maguire Products Inc. or your local Maguire distributor.

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Manufacturer's Contact Information

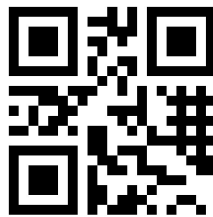
Maguire Products Inc.
11 Crozerville Road
Aston, PA. 19014

Phone: 610.459.4300

Fax: 610.459.2700

Website: <http://www.maguire.com>

Email: info@maguire.com



Maguire ML Series Venturi Loader Models

Compact Venturi Loader for loading minor components.

- For masterbatch & additive loading beside the machine.
- Ideal conveying distance 6 - 9 feet (2 - 3 meters).
- Load from 1 to 4 individual materials.
- All Maguire ML Venturi Loader Models use our aluminum venturi vacuum generator.

Loading Minor Components – Maguire Venturi Loaders load minor materials automatically and are available in a range of build options including with load alarms, auto shut off, and options for loading regrind.

ML Hopper Mounts – There is a choice of hopper mounts according to the type of hopper being loaded – for compact hoppers such as Micro Blender hoppers there is a diffuser box mount to help defuse conveying air, and for larger removable hoppers or feeder hoppers there is a simple stub tub mount adapter.

ML Control – 1 to 4 Venturi Loaders – The ML control can accommodate and conveniently control up to 4 venturi loaders from the single ML control panel.

ML Conveying Throughput

All ML models can automatically load material at rates of up to a maximum of 200 lb/h (90 kg/h), based on beside the press conveying distances of 6 to 9ft (2 to 3m), conveying materials of a normal bulk density.

ML Model Build Variants

Model ML – Standard ML Venturi loader - operated by a sensor positioned in the material hopper or feeder that controls material loading level in the hopper. The sensor signals a pneumatic solenoid to begin loading. Loading continues until the sensor is covered.

Model ML-A – The Model ML-A adds audio / strobe light alarm to the Model ML, which alert the operator to material supply running out. If loading time exceeds two minutes, the alarm will sound / flash until the situation is corrected. (Model variants ML-1A, ML-2A, ML-3A, ML-4A)

Model ML-1R Regrind Loader – Model ML-1R is designed specifically for regrind. A larger diameter air amplifier and tube are used for maximum air flow and efficient conveying of regrind. This unit is effective for emptying compact granulators. The ML-1R will not convey pellets.

Automatic Venturi Loaders

1. Loader Controller

Accommodates up to four switches to control up to four venturi loaders.

3. Air Flow

Use just enough air to ensure steady, continuous flow.

5. Vacuum Generator

One vacuum generator supplied per station. When sensor is uncovered the air solenoid is turned on, conveying material into the hopper.



2. Alarm Options

Options for control box with alarm strobe light for audible and visual notifications, plus option for system shut down if alarm is activated.

4. Material Sensor

Sensor installs on the hopper or lid. A level sensor fits into the sensor mount to measure the level of material in the hopper.

6. Mounting Options

Mounting options for both Blenders and Feeders.

Parts Supplied with All Models

1. Aluminum Vacuum Generator, mounts directly to the material pickup lance.
2. Material Pick-up Lance
3. Material Transfer Lines
 - a) Suction line (12 feet of 1-inch flexible hose).
 - b) Material pick-up lance (aluminum).
4. Air Line (plastic) to connect the air solenoid to the Vacuum Generator.
5. Hopper Lid Parts:
 - a) On MICRO blender series, (ML-1M), a completely new lid is provided with filtered receiver box.
 - b) All others, a PELLET DEFLECTOR box is provided to mount inside the hopper lid to accept the inflow of material.
6. Sensor Mount (red polypropylene) installs in the hopper or lid.
7. Level Sensor, fits into the sensor mount.
8. Control Box varies with model.

Assembly (Refer to diagrams)

All ML Models:

1. Mount the deflector and connection stub tube to the hopper lid as shown in Figure A.

NOTE: MICRO BLENDERS:

Replace the standard lid with the new lid provided.

2. Connect the red material suction hose to the top of the lid.
3. Attach the other end of the red material hose to the venturi / pick-up lance provided.
4. Run the air line from the air solenoid to the venturi.
5. Install the SENSOR MOUNT into the hopper in place of one of the viewing windows. On Concentrate feeder hoppers, with augers, remove the rear-most window on the operator side (the same side as the controller front and nearest the controller). Use a 1/8" drill to remove the window rivets. Install sensor mount using #6 sheet metal screws provided.
6. Install the gray (35 mm) level sensor into this mount. Secure with the rubber ring or by tightening the hold down screw.
7. An air supply line of at least 80 PSI must be connected. A "quick disconnect" fitting is recommended. Airflow requirement is about 16 CFM. A 3/8" I.D. supply line is adequate. Lower pressures and smaller I.D. lines may or may not be adequate.

Mounting Control Boxes

On MCF Auger Feeders: If this loader to be used with an MCF concentrate feeder, attach the control box to the end of the Feeder control box as shown in Figure B. This can be done using the existing sheet metal screws in the MCF controller.

Weigh Scale Blenders: If this loader is to be used with a Weigh Scale Blender feeder, then a bracket is provided. Bolt this bracket to the plate that is mounted under the auger feeder drive motor and then bolt the loader control box to the bracket. This is shown in Figure C.

Micro Blenders and Other Equipment: If we have not provided a separate mounting bracket for the controller, then you should select whatever position or location that serves your needs best.

DIAGRAMS

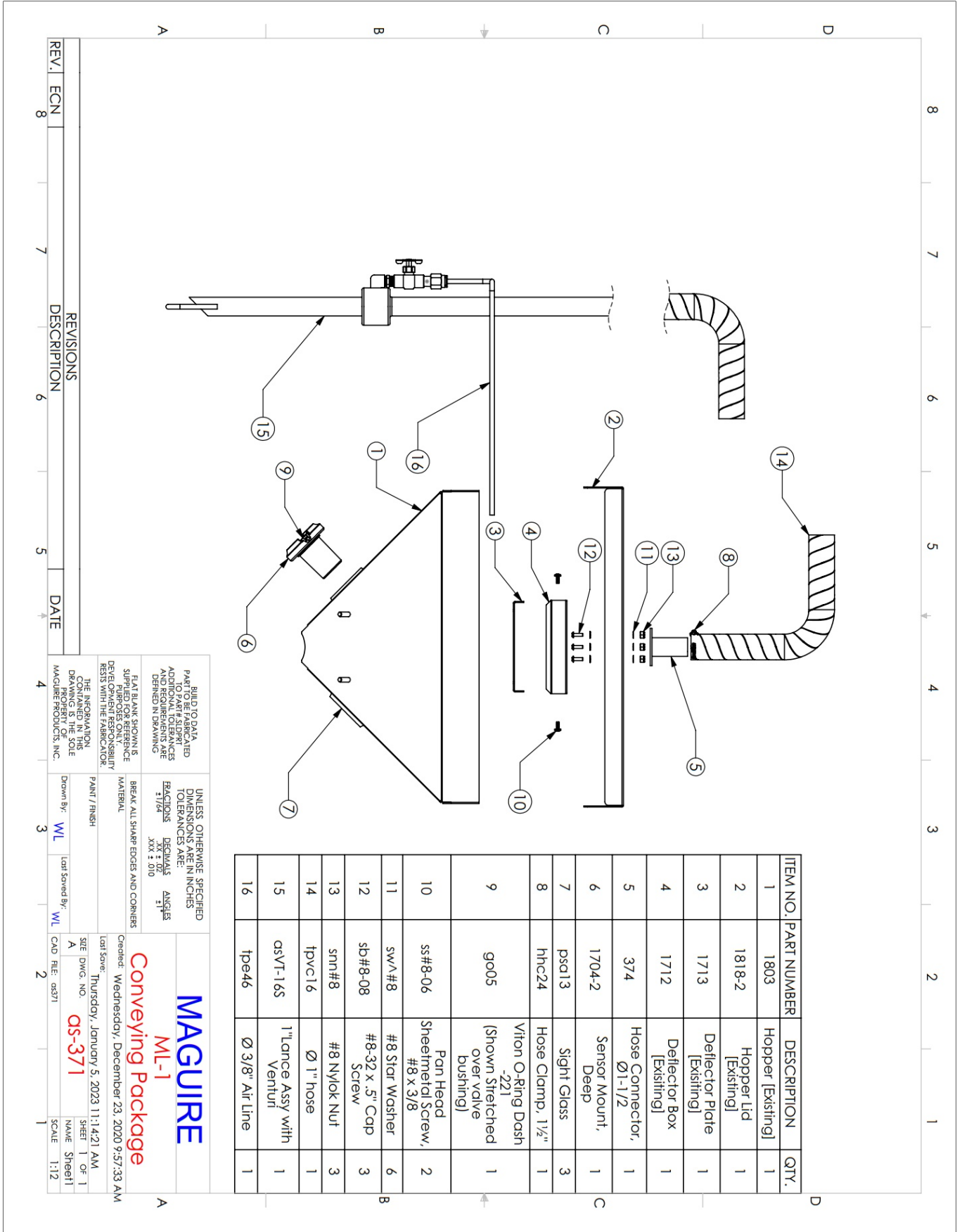


FIGURE A

MAGUIRE
ML-1
Conveying Package

Created: Wednesday, December 23, 2020 9:57:33 AM
 Last Save: Thursday, January 5, 2023 11:14:21 AM
 SHEET 1 OF 1
 NAME Sheet1
 SCALE 1:12

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 DECIMALS .XXX ± .010
 ANGLES ±1°

BREAK ALL SHARP EDGES AND CORNERS
 MATERIAL
 PAINT / FINISH

FLAT BLANK SHOWN IS SUPPLIED FOR REFERENCE DEVELOPMENT RESPONSIBILITY RESTS WITH THE FABRICATOR.

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MAGUIRE PRODUCTS, INC.

Drawn By: WL
 Last Saved By: WL

REVISIONS

REV.	ECN	DESCRIPTION	DATE
8			
7			
6			
5			
4			
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2			
1			

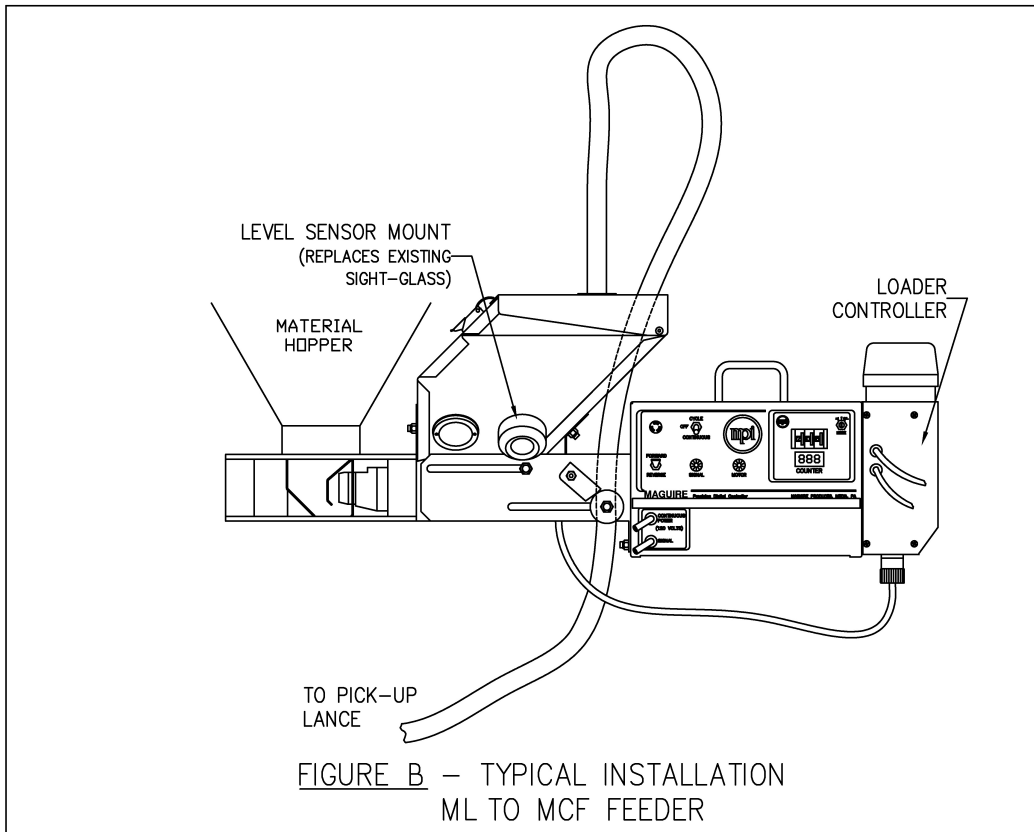


FIGURE B

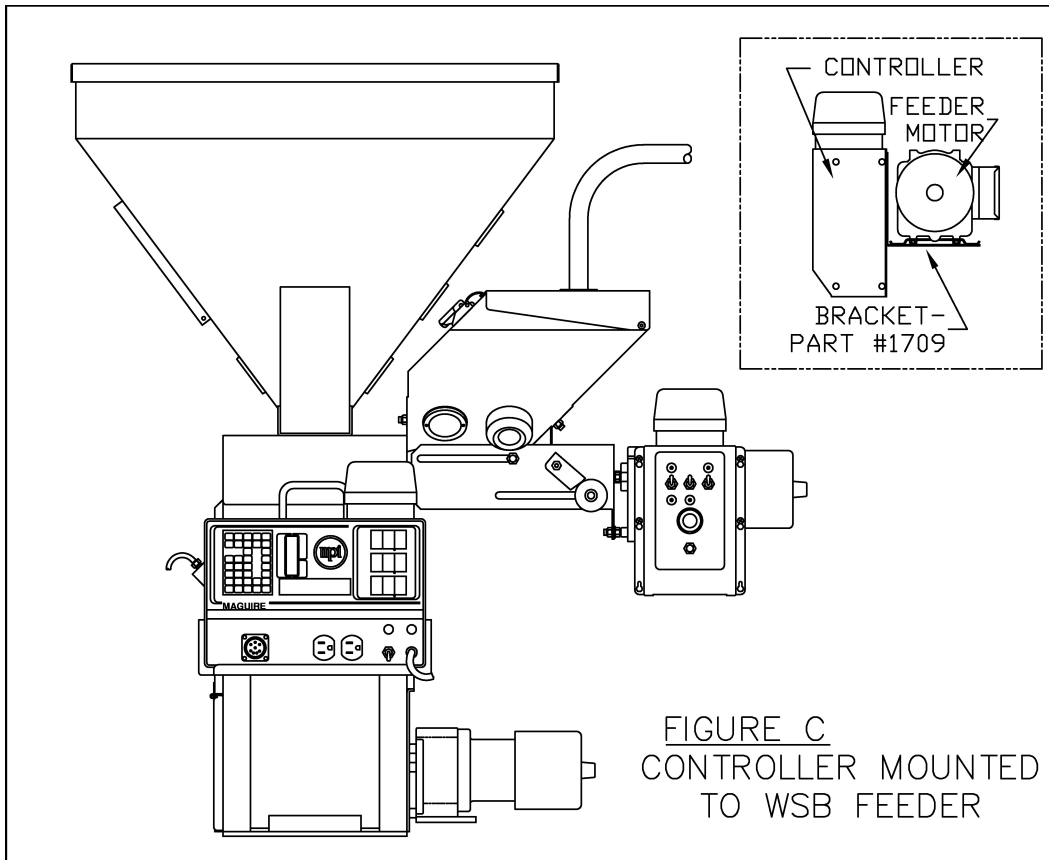


FIGURE C

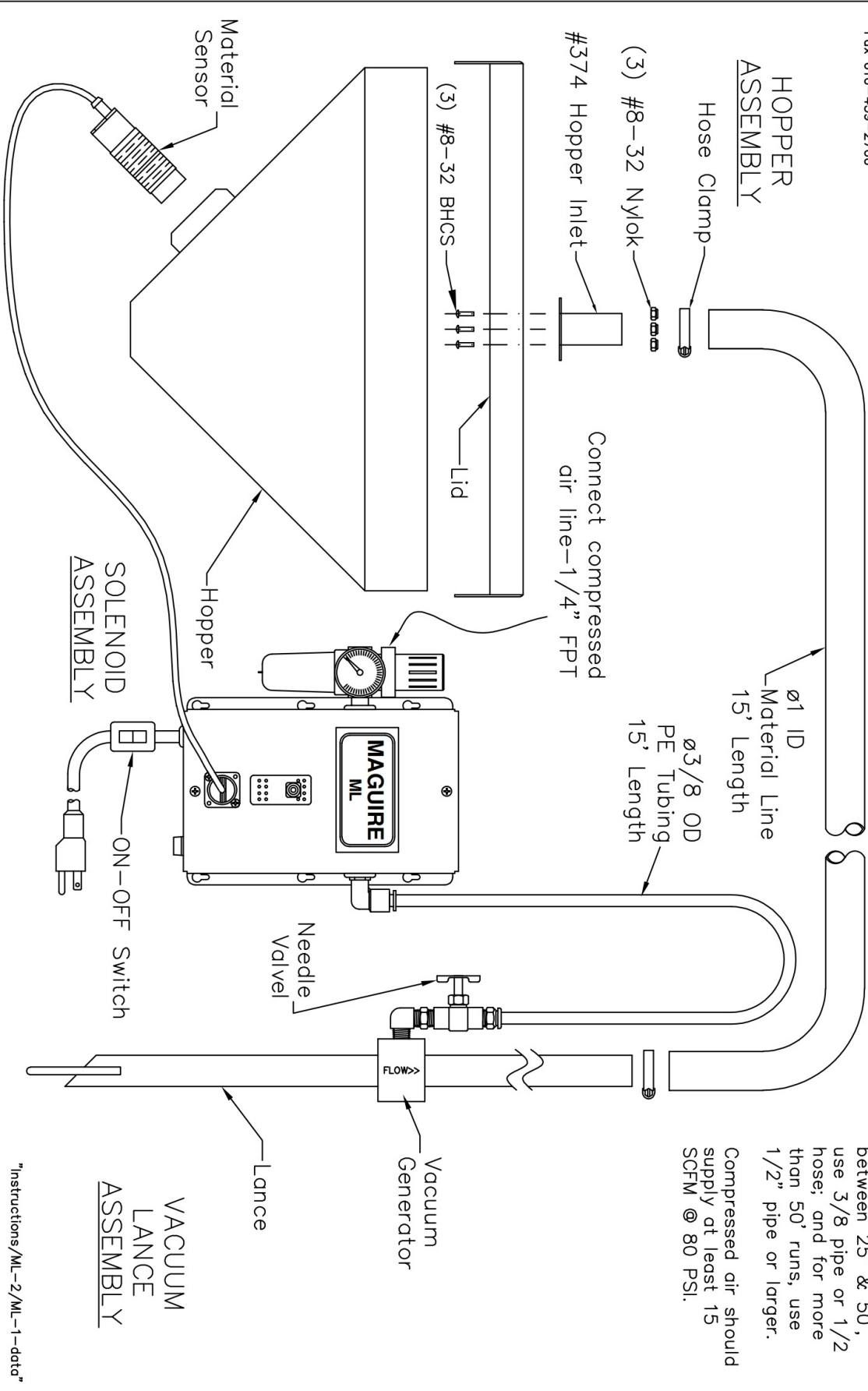


ML-1 MICRO-LOADER

MAGUIRE PRODUCTS INC.
11 Crozeraville Road
Aston, PA 19014 USA
610-459-4300
Fax 610-459-2700

1/5/22

- Part List:**
- (1) Solenoid Assembly
 - (1 per station) Hopper Inlet
 - (1 per station) Lance
 - (1 per station) Vacuum Generator
 - (15' per station) $\varnothing 1"$ Material Line
 - (15' per station) $\varnothing 3/8"$ Air Tubing
 - (4 per station) Hose Clamps



Installation:
Run compressed air supply to the **REGULATOR**.
Use 1/4" pipe or 3/8" hose for runs up to 25' long. For runs between 25' & 50', use 3/8" pipe or 1/2" hose; and for more than 50' runs, use 1/2" pipe or larger.
Compressed air should supply at least 15 SCFM @ 80 PSI.

"Instructions/ML-2/ML-1-data"



ML-2/3/4 MICRO-LOADER

MAGUIRE PRODUCTS INC.
11 Crozerville Road
Aston, PA 19014 USA
610-459-4300
Fax 610-459-2700

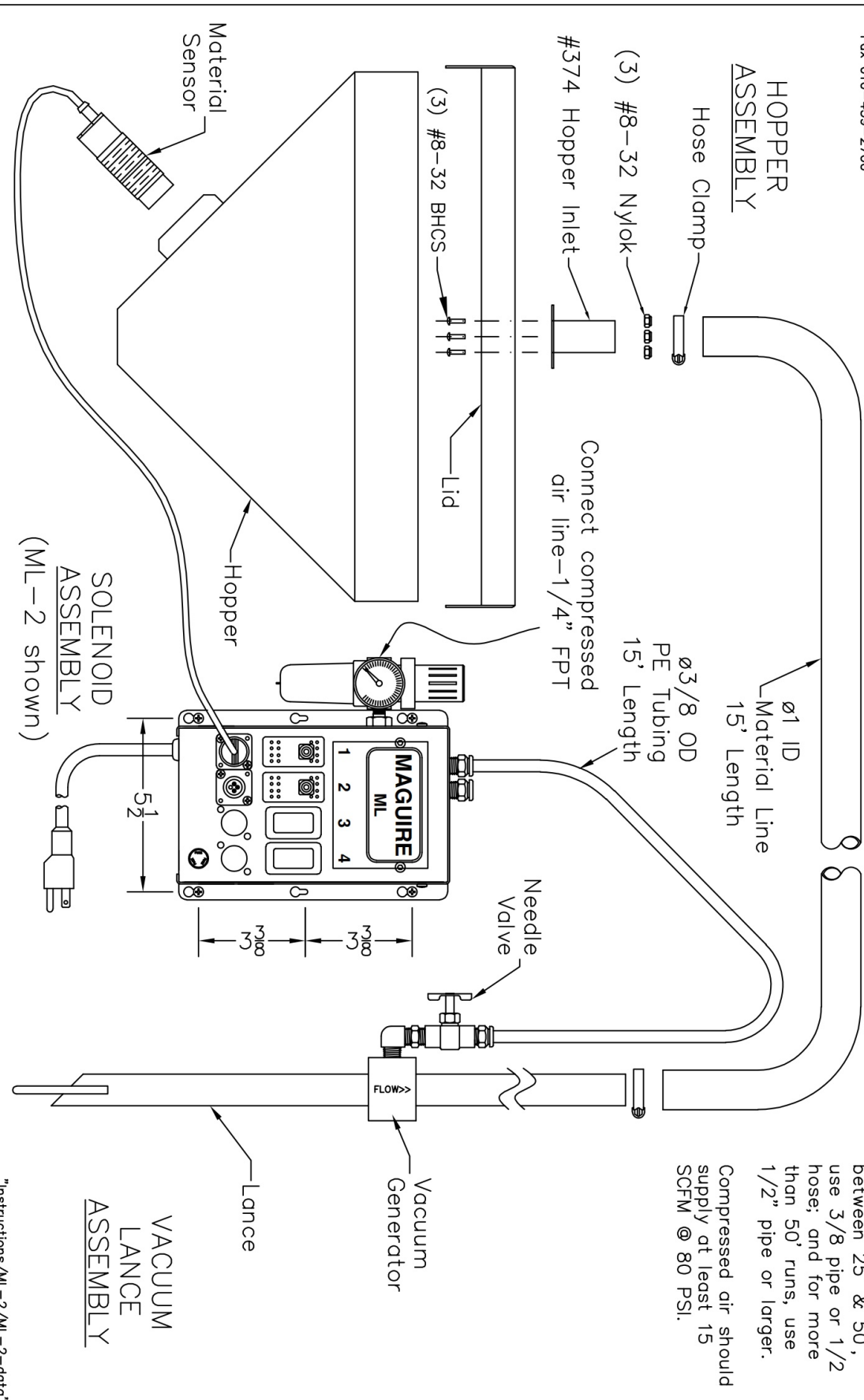
1/5/22

Part List:

- (1) Solenoid Assembly
- (1 per station) Hopper Inlet
- (1 per station) Lance
- (1 per station) Vacuum Generator
- (15' per station) $\varnothing 1"$ Material Line
- (15' per station) $\varnothing 3/8"$ Air Tubing
- (4 per station) Hose Clamps

Installation:

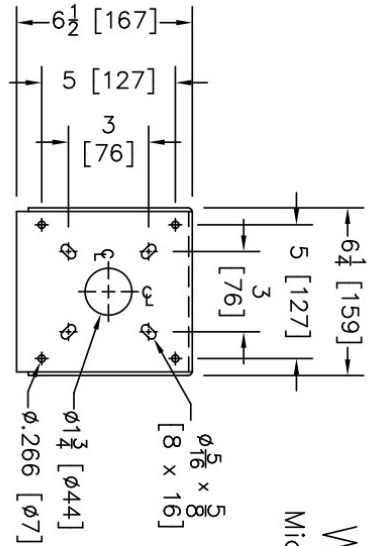
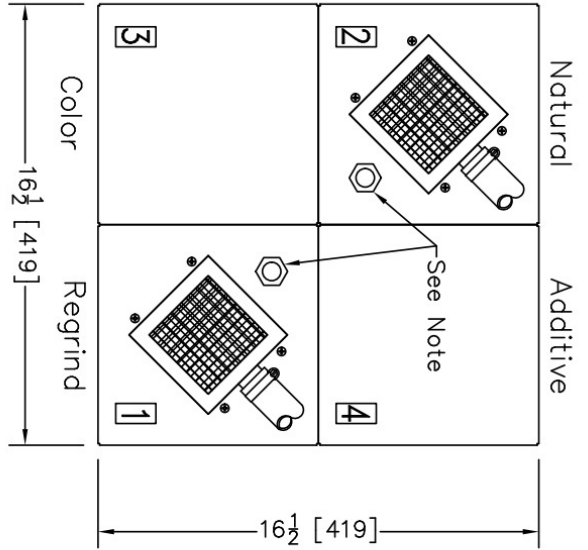
Run compressed air supply to the REGULATOR. Use 1/4" pipe or 3/8" hose for runs up to 25' long. For runs between 25' & 50', use 3/8" pipe or 1/2" hose; and for more than 50' runs, use 1/2" pipe or larger. Compressed air should supply at least 15 SCFM @ 80 PSI.



SOLENOID ASSEMBLY
(ML-2 shown)

VACUUM LANCE ASSEMBLY

"Instructions/ML-2/ML-2-datc"

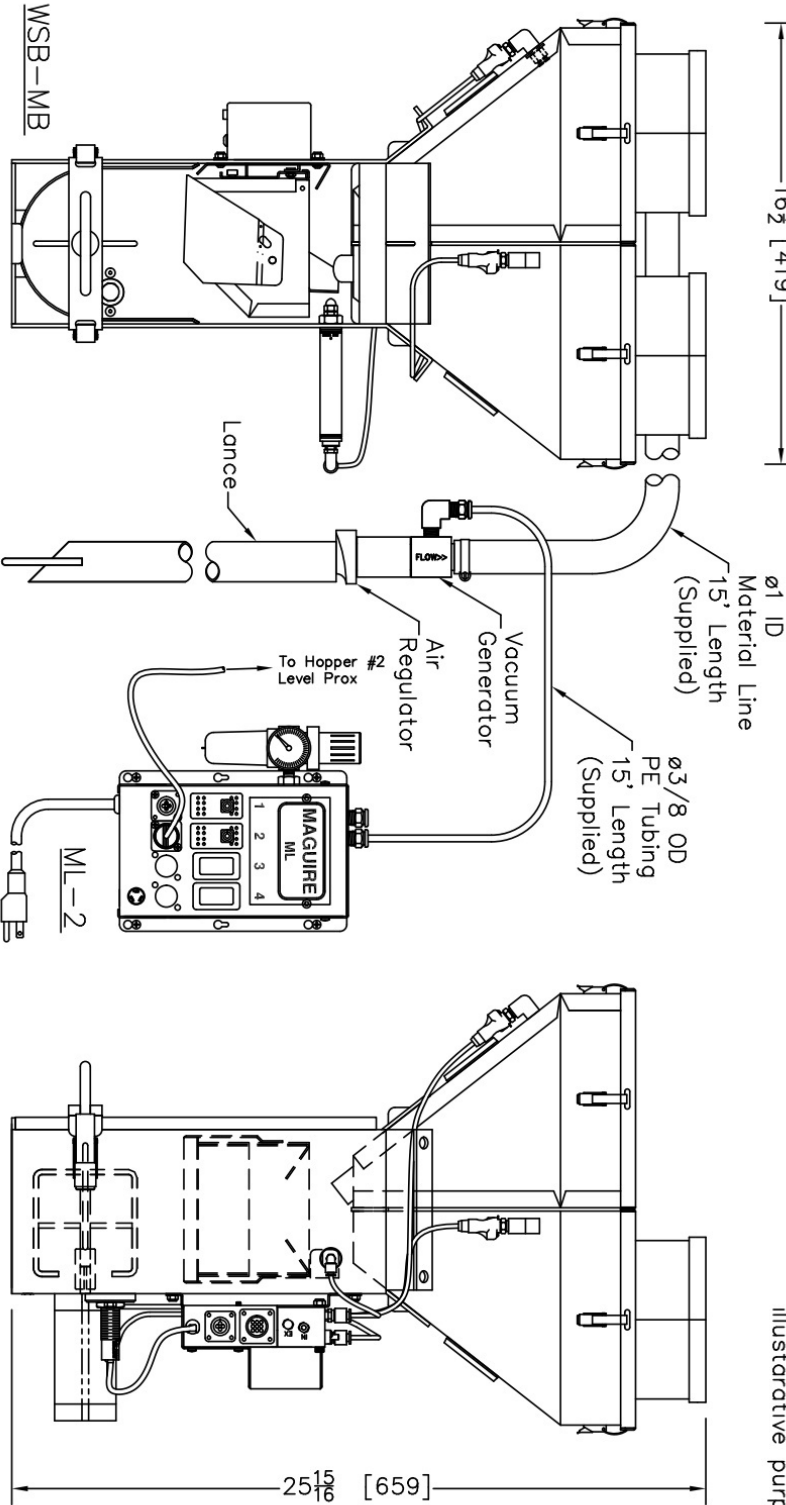


FOOTPRINT

NOTE:
HOPPER CAPACITY IS APPROX
.3 CU FT [8 LITRES]

WSB-MB & ML-2
Micro-Blender with Micro-Loader
1/5/22
DIMENSIONS
US inches [SI mm]

NOTE:
Location of Hopper Lids are important. Material Sensor must be towards center of machine (to ensure proper location above Valve to maximize material level in the Hoppers.)
*Of course any hoppers can be loaded, natural & regrind hoppers shown with loaders merely for illustrative purposes.



MAGUIRE PRODUCTS INC.
400 W. Knowlton Road
Media, PA 19063 USA
610-459-4300
Fax 610-459-2700

Instructions/ML-2/ML-2MB



MAGUIRE PRODUCTS INC.
 11 Crozerwille Road
 Aston, PA 19014 USA
 610-459-4300
 Fax 610-459-2700

ML-2MB MICRO-LOADER 1/5/22

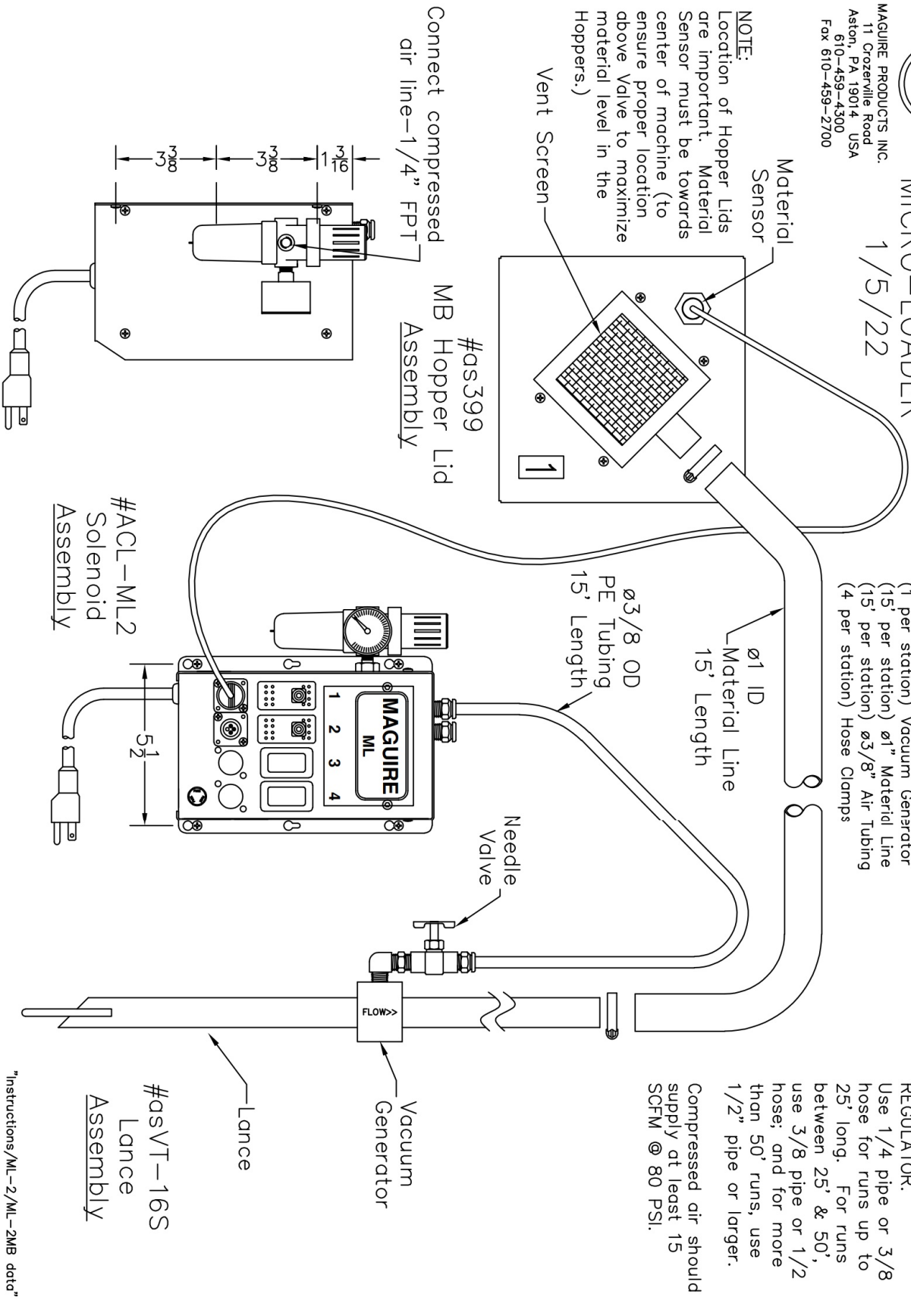
Part List:

- (1) Solenoid Assembly
- (1 per station) Lid Assembly
- (1 per station) Lance
- (1 per station) Vacuum Generator
- (15' per station) $\varnothing 1"$ Material Line
- (15' per station) $\varnothing 3/8"$ Air Tubing
- (4 per station) Hose Clamps

Installation:

Run compressed air supply to the REGULATOR.
 Use 1/4" pipe or 3/8" hose for runs up to 25' long. For runs between 25' & 50', use 3/8" pipe or 1/2" hose; and for more than 50' runs, use 1/2" pipe or larger.
 Compressed air should supply at least 15 SCFM @ 80 PSI.

NOTE:
 Location of Hopper Lids are important. Material Sensor must be towards center of machine (to ensure proper location above Valve to maximize material level in the Hoppers.)



"Instructions/ML-2/ML-2MB data"

Operation

When material level in the hopper drops enough to uncover the sensor, the air solenoid is turned on. High pressure air passing through the vacuum generator creates a high volume, low pressure, flow of air into the hopper. This flow of air pulls material from the source and conveys it into the hopper.

A steel plate in the hopper serves to deflect the blast of pellets and slow their speed. This prevents high speed bouncing of pellets in the hopper, keeping them from escaping under the edges of the hopper lid. The Air stream is expected to escape from the hopper by passing under the edge of the lid. The lid must not be gasketed.

When the sensor is covered, loading stops. It is not unusual for load times to be short. While you may be accustomed to seeing other loaders go through lengthy load time cycles, if this loader cycles on for only a few seconds, it is an indication that the unit is loading quite well.

Alarm Models

If the letter "A" is part of the model designation, then you have a control box with an ALARM function. In this case a timer is running whenever the venturi is loading. If loading continues for two minutes, the timer will turn on the strobe light and beeper alarms automatically.

At any time, if the sensor is covered for even a moment, the alarms reset and timers are reset to zero.

Timers are preset for 2 minutes and 5 minutes, respectively. These times can be changed by moving jumpers on the board. Note: The ML-A does not have a timer adjustment. On the ML-A, the alarm is set for 2 minutes, meaning that if a sensor is not re-covered within 2 minutes the controller will alarm.

Controls

1. Venturi Switches

Each venturi station has an ON/OFF switch associated with it.

2. Alarms

If an ALARM is provided, it is fully automatic. Models controlling two or more venturis, the one ALARM activates for any single venturi failure to load.

Adjustments

1. **SET THE AIR REGULATOR TO 80 PSI** - Supply Line should be no smaller than 3/8".

2. AIR FLOW CONTROL VALVE LOCATED ON THE VENTURI:

The idea is to use as little air as possible and still convey pellets. Watch and adjust the flow control valve WHILE CONVEYING and use just enough air to ensure a steady continuous flow. A very low flow of air may not convey pellets properly.

3. LEVEL SENSOR:

The SENSOR should be adjusted to "turn on" when about half of the sensor holder is covered. A very small screwdriver is required for adjustments. The adjustment screw and on/off light are located in the back of the sensor. Be sure sensor is always fully seated in the sensor holder.

Troubleshooting

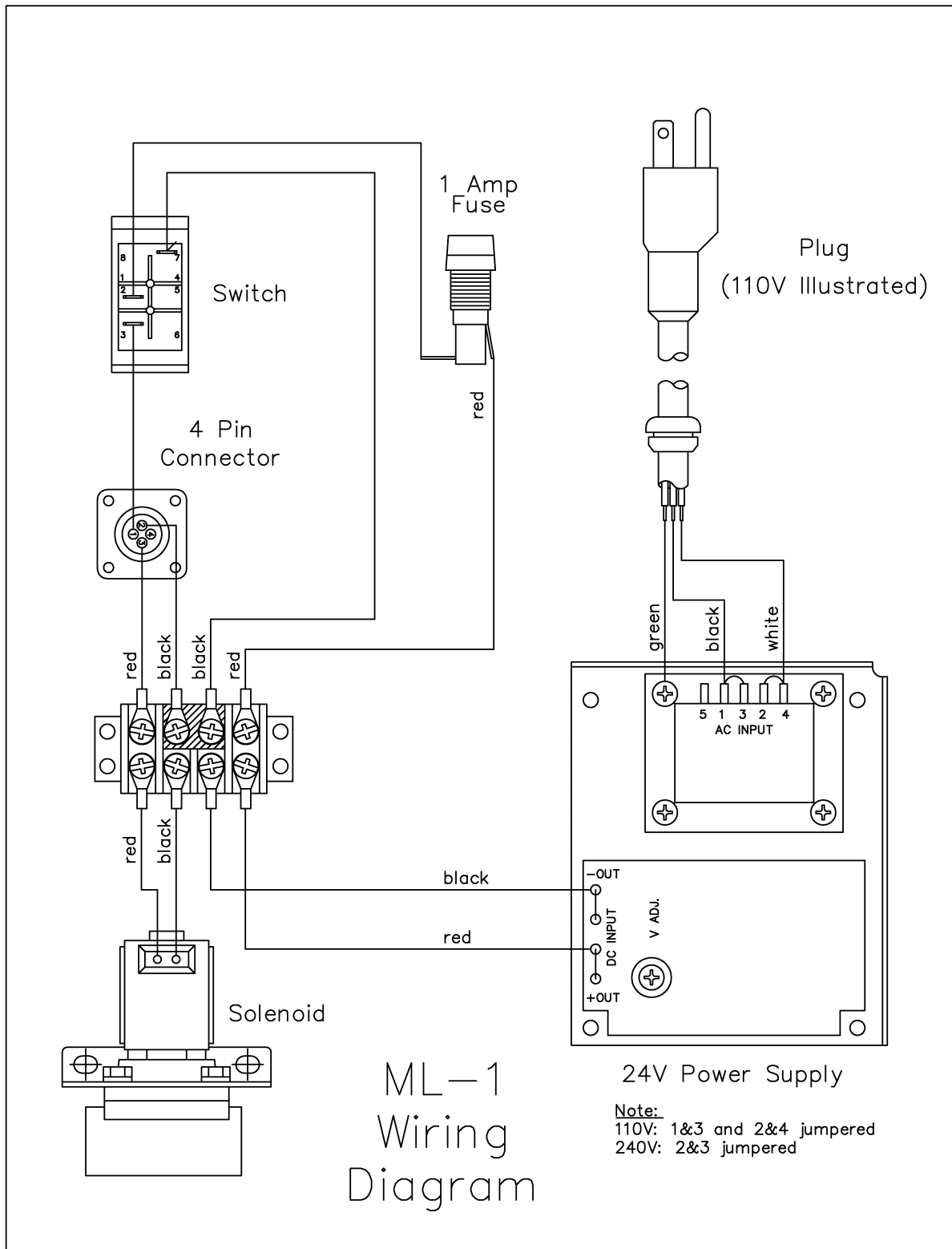
FAILURE TO CONVEY MATERIAL:

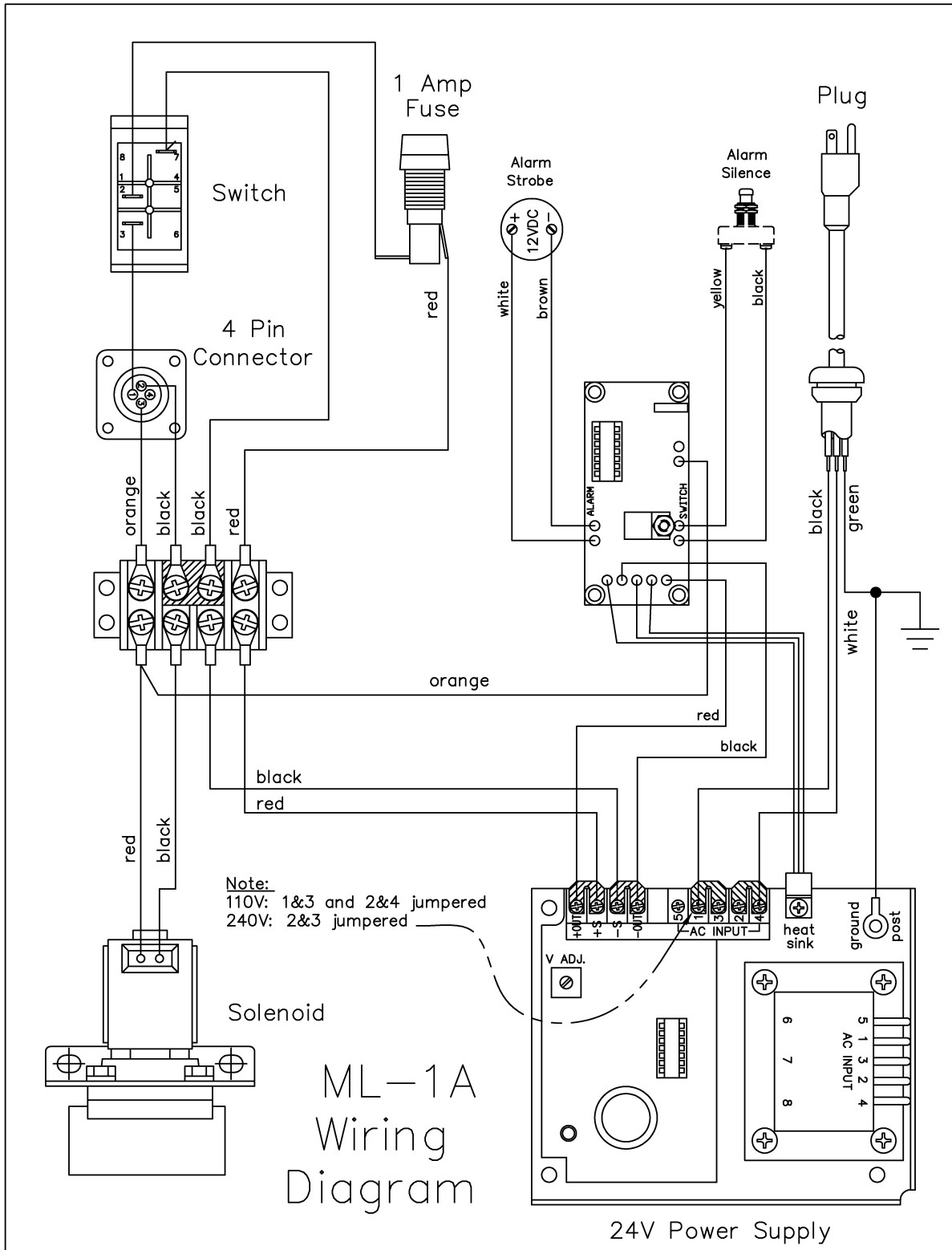
1. Check that air supply is adequate. Check the pressure gauge while the loader is ON. It should read between 20 and 80 PSI WHILE LOADING.
2. Check for obstructions in the conveying line.
3. Disconnect the material line from the venturi loader and confirm that the venturi moves air correctly with the material line removed.

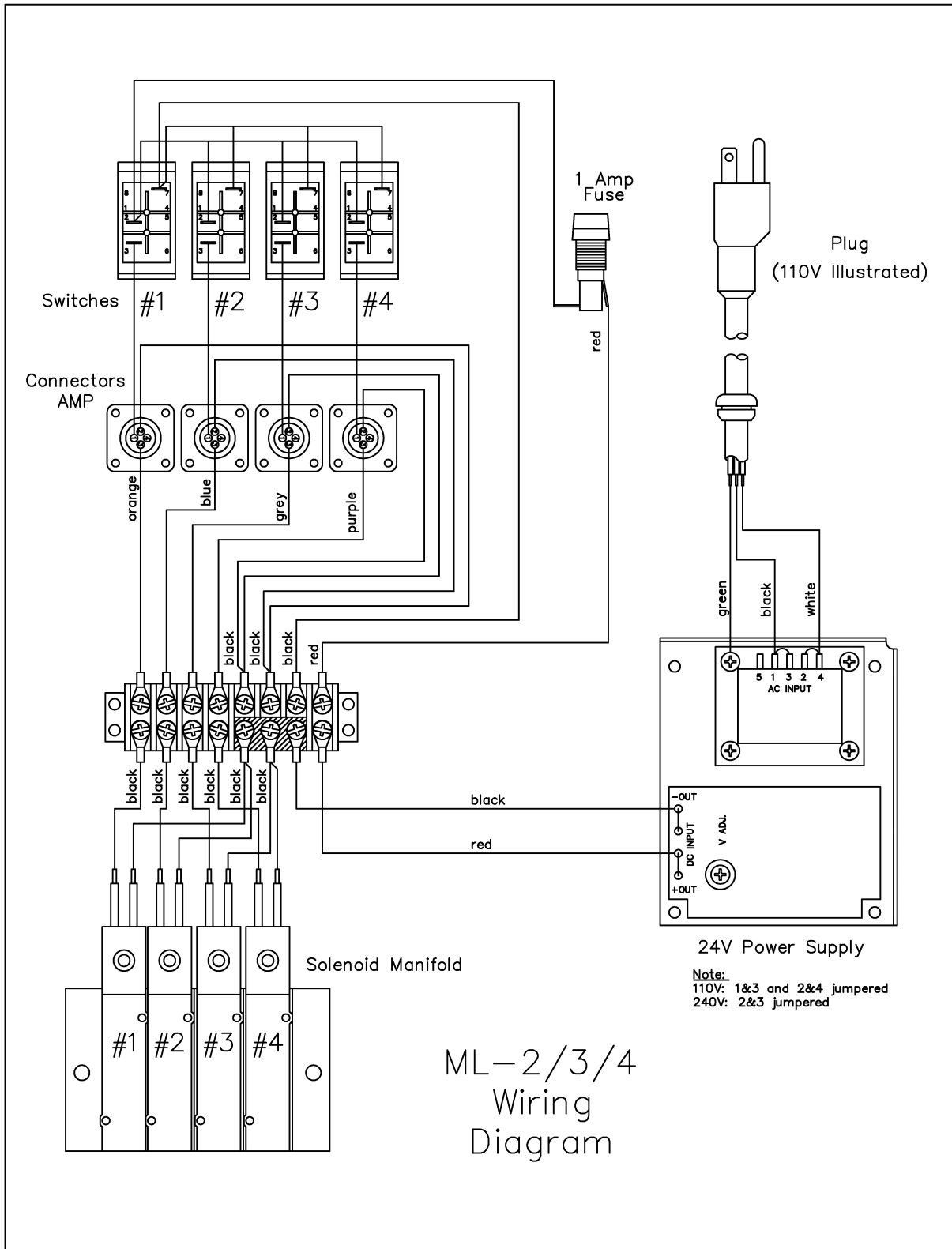
DUST problems:

The ML Venturi Loader rely on the loose fit of the lid to allow air to escape from the hopper. The loader will not work if the lid and the hopper have a gasket. Over time, a small amount of dust may accumulate on the outside of the hopper. If dust is a problem, an air filter can be added to the top of the lid (requires a 3-inch hole in the lid). A thin gasket can then be added to the underside of the hopper lid.

Wire Diagrams







WARRANTY - Exclusive 5-Year

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each ML Series Venturi Loader manufactured by us to be free from defects in material and workmanship under normal use and service; our obligation under this warranty being limited to making good at our factory any Concentrate Feeder which shall within FIVE (5) YEARS after delivery to the original purchaser be returned intact to us, transportation charges PREPAID, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part, and MAGUIRE PRODUCTS neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sale of its products.



This warranty shall not apply to any ML Series Venturi Loader which shall have been repaired or altered outside MAGUIRE PRODUCTS factory, unless such repair or alteration was, in our judgment, not responsible for the failure; nor which has been subject to misuse, negligence or accident, incorrect wiring by others, or installation or use not in accord with instructions provided by Maguire Products.

Our liability under this warranty will extend only to Venturi Loader that are returned to our factory in Aston, Pennsylvania PREPAID.

It should be noted, however, that we strive to satisfy our customers in whatever manner is deemed most expedient to overcome any problems they may have in connection with our equipment.

Technical Support and Contact Information

Maguire Products Inc.

11 Crozerville Road

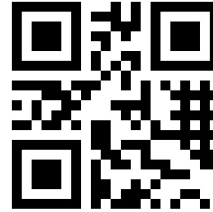
Aston, PA 19014

Tel: 610.459.4300

Fax: 610.459.2700

Email: info@maguire.com

Web: www.maguire.com



Maguire Europe

Tame Park

Tamworth

Staffordshire

B775DY

UK

Tel: + 44 1827 265 850

Fax: + 44 1827 265 855

Email: info@maguire-europe.com

Maguire Products Asia PTE LTD

Main Office

15 Changi North Street 1

#01-15, I-Lofts

Singapore 498765

Tel: 65 6848-7117

Fax: 65 6542-8577

E-mail: magasia@maguire-products.com.sg