Maguire Products Inc.

VENTURI LOADERS

MPL Models: MPL, MPL-A, MPL-AS

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

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To every person concerned with use and maintenance of the Maguire MPL Series – ML Series Venturi Loader 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.

These operating instructions only apply to the equipment described within this manual.

For the latest revision of this manual, visit www.maguire.com

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AVAILABLE MODELS

All VENTURI LOADER MODELS use our aluminum venturi vacuum generator.

MPL series loaders:

- Are built on a two inch steel bar for easy mounting to the frame of a concentrate feeder or Weigh Scale Blender.
- The air solenoid is visible on the bar.
- Only ONE venturi loader can be controlled.

MPL has no separate control box.

MPL-A has a control box with ALARM Strobe light and beeper.

MPL-AS uses the same control box with an additional time delayed solenoid to activate a shut down procedure in the event the ALARM goes unattended.

ML series loaders:

- Do not use a steel bar for mounting.
- The air solenoids are enclosed in the control box.
- Up to FOUR venturies can be controlled from one box.
- An ALARM feature is available, but no shut down function.

ML-1: Controls 1 venturi only, for loading one hopper. The control panel accommodates ONE switch only.

ML-2, ML-3, and ML-4:
The control panel accommodates up to FOUR switches to control FOUR venturi loaders. The number installed determines the model number.

Add "M" to the model number:
when the unit is to be mounting on a MICRO Blender (ML-1M).

Add "A" to the model number:
when an ALARM function is required (ML-1A).
PARTS SUPPLIED

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:

   On MICRO blender series, (ML-1M), a complete new lid is provided with filtered receiver box.

   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 depending on model. (none for model MPL)

MPL, MPL-A, MPL-AS only:

1. Steel SUPPORT BAR with:
   a) Air solenoid valve
   b) Air pressure gauge
   c) Low Level sensor

MPL-A, MPL-AS only:

1. Controller mounting bracket, included if loader control is attached to a WSB additive feeder.

PACKAGED for SHIPPING:

ALL models: The PICK-UP lance is shipped in one carton.

MPL series: All remaining parts are shipped in one additional carton.

ML series: The controller is in one carton. Parts for each venturi loader are shipped one additional carton per loader.
ASSEMBLY (Refer to diagrams)

MPL series:

1. Attach the Steel SUPPORT BAR to the ADAPTOR FRAME as shown in Figure A. To do so, remove one bolt, slide clamping bar behind two corner angles; re-install bolt and tighten. On a concentrate feeder, the bar attaches to the REAR of the adaptor frame and extends BEHIND the controller.

All Models:

2. Mount the deflector and connection stub tube to the hopper lid as shown in Figure B.

   NOTE: OLDER HOPPER LIDS:
   If this unit is being added to an older hopper lid, you must first add the new hole pattern to your existing hopper lid. The hole pattern is shown in Figure A.

   NOTE: MICRO BLENDERS:
   Replace the standard lid with the new lid provided.

3. Connect the red material suction hose to the top of the lid.

   NOTE: MPL series models with SUPPORT BAR:
   Secure this hose to the SUPPORT BAR using the "U" bolt provided. Adjust so that there is NO STRAIN on the hopper lid.

4. Attach the other end of the red material hose to the venturi / pick-up lance provided.

5. Run the air line from the air solenoid to the venturi.

6. 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.

7. Install the gray (35 mm) level sensor into this mount. Secure with the rubber ring or by tightening the hold down screw.

8. 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 (all models except MPL)

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 A. 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.
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DIAGRAMS - VENTURI COLOR LOADER - 7 PAGES

Figure A - Typical Installation
MPL-A to MCF Feeder
Figure B and C
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 pipe or larger.

Plumbing Installation:
Compressed air should be oil-free and filtered for at least 40 microns. Air should supply at least 15 SCFM @ 80 psi.

1/4 MPT Hex Nipple
#fse44 Elbow
1/4 MPT Hex Nipple
#fse44 Elbow
#fbc64-3 Hose Conn.
#fbc64-3 Hose Conn.

#1710-C Press Fit Adaptor
#374 Vacuum Generator
#hbc24 Hose Clamp
#fpe46 Air Line
(a,2,supplied)
#f14-18 Material Line
(a,2,supplied)

For runs between 25' & 50', use 3/8 pipe or 1/2 pipe or larger.

MAGUIRE MCF HOPPER
Aluminum Venturi
#8-MCFL Loaders
[Existing]

Lid and lance details (wide diagram)
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 on MPL-A (not the ML-A), 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.

On model MPL-AS only, if five more minutes pass without the sensor being covered, a third device is turned on. This signal will drive a shut down circuit, either a relay that is wired to stop your process, or an air operated flow control gate, that stops the flow of pellets to the process.

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

MODEL MPL: has no control box. Loading is simply controlled by uncovering the sensor.

MODELS MPL-A and MPL-AS:

1. SWITCHES:
   LEFT switch is the LOADER control.
   MIDDLE switch is the ALARM control.
   RIGHT switch is the optional process SHUT-DOWN control. This "shut-down" function requires an air operated mechanical shut-off device mounted to an adaptor frame (as supplied standard with our concentrate feeders). When energized, this will stop the flow of natural material to the process.

2. SWITCH POSITIONS:
   UP for automatic operation.
   MIDDLE position to prevent operation of the associated function.
   DOWN position to force ON, or TEST the associated function.

3. PILOT LIGHTS:
   UPPER LEFT and RIGHT indicate the associated function is ON.
   LOWER LEFT indicates ALARM DELAY TIMER is running (blinking). If the loader does not load within 2 minutes, the ALARMS will be actuated.
   LOWER MIDDLE indicates SHUT-DOWN DELAY TIMER is running (blinking).

MODELS ML-1, ML-2, etc:

1. SWITCHES:
   Each venturi has an ON/OFF switch associated with it.
   An integral pilot light lights when turned on.

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

1. AIR FLOW CONTROL VALVE:

The idea is to use as little air as possible and still convey pellets. Conveying can occur with as little as 20 PSI air. Read and adjust the pressure gauge WHILE CONVEYING, to determine correct conveying pressure. If pressure drops too low for proper operation, the diameter of the AIR SUPPLY line is TOO SMALL.

Too much air flow wastes air and may create dust problems. Pellets may bounce out of the hopper from under the lid.

A very low flow of air may not convey pellets properly. Use just enough air to ensure a steady continuous flow.

2. 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 pilot 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 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:

We rely on the loose fit of the lid to allow air to escape from the hopper. The loader will not work if you gasket the lid. Over time, a small amount of dust may accumulate on the outside of the hopper. If this is a problem, we can punch a large (3 inch) hole in the lid and add an automotive style air filter to the top of the lid. Thin gasketing can then be added to the underside of the hopper lid.

A draw back is that this becomes a possible source of cross color contamination and is also an occasional maintenance item. We believe it is simpler to clean off this dust when color changes are made, thereby avoiding the maintenance required by the addition of a filter.
Wiring Diagrams (3 pages)

ML-1 Wiring Diagram

- 1 Amp Fuse
- 4 Pin Connector
- Switch
- Solenoid
- Plug (110V Illustrated)

24V Power Supply

Note:
110V: 1&3 and 2&4 jumpered
240V: 2&3 jumpered
ML–1A Wiring Diagram

Note:
110V: 1&3 and 2&4 jumpered
240V: 2&3 jumpered

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MPL ML Series Venturi Loaders®
ML-2/3/4 Wiring Diagram

- Connectors AMP
  - Switches #1, #2, #3, #4
  - Connectors
    - Orange, Blue, Grey, Purple
  - Solenoid Manifold
    - #1, #2, #3, #4

- 1 Amp Fuse
- Plug (110V Illustrated)
- 24V Power Supply

Note:
- 110V: #1 & #3 and #2 & #4 jumpered
- 240V: #2 & #3 jumpered
WARRANTY - Exclusive 5-Year

MAGUIRE PRODUCTS offers one of the MOST COMPREHENSIVE WARRANTIES in the plastics equipment industry. We warrant each MPL Series – 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 MPL Series – 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 furnished 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.
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