

# TLM Model Tube Loaders

Hopper Loading and Direct Feed Configurations  
with MLC2 Control

*Installation*

*Operation*

*Maintenance*

*Troubleshooting*



TLM Tube Loader  
Hopper Loader  
Configuration

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UGC011/0902

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*Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.*

It's a good idea to record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

<b>Date:</b>
<b>Manual Number: UGC011/0902</b>
<b>Serial number(s):</b> ..... .....
<b>Model number(s):</b> ..... .....

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## PARTS/DIAGRAMS

This section has been provided for you to store spare parts lists and wiring, plumbing or assembly diagrams.

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# INTRODUCTION

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## PURPOSE OF THE USER GUIDE






This User Guide describes the Conair TLM Loaders with manual or potentiometer controls. It explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

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## HOW THE GUIDE IS ORGANIZED

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.

-  Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.
-  Numbers within shaded squares indicate tasks or steps to be performed by the user.
-  A diamond indicates the equipment's response to an action performed by the user.
-  An open box marks items in a checklist.
-  A shaded circle marks items in a list.

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## YOUR RESPONSIBILITY AS A USER

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

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We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.

 **ATTENTION:  
READ THIS SO NO  
ONE GETS HURT**



**WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.**

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of machine.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the the machine serial tag and data plate.



**WARNING: Voltage hazard**

This equipment is powered by single-phase alternating current, as specified on the machine serial tag and data plate.

A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in severe personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.

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## DESCRIPTION

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## WHAT IS THE TLM LOADER?

The TLM Loader is a self-contained vacuum loader designed to transfer plastic pellets by vacuum from boxes, bins or hoppers to an end-use destination such as molding machines, extruders or other hoppers or bins.

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## TYPICAL APPLICATIONS

The tube loader is available in two configurations:



**Direct Feed**



**Hopper Loading**

The operation of both loaders is very similar.

Here's the difference :

The **Direct Feed Model** comes equipped with a cylindrical sight glass on the bottom allowing it to be mounted directly to a machine throat. The sight glass assembly has a small funnel at the bottom to direct the flow of material from the loader through the glass and into the machine throat.

The **Hopper Loading Model** is intended to be mounted through a hole in the flat top of a bin or hopper.

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## Features

The **standard** TLM Loader is equipped with a **Model MLC2 control box** with an internal load time setting. The control's on/off switch is also a lighted circuit breaker.

The TLM loader features no-tools, **swing clips** that allow easy access for maintenance.

## Options

An **optional, Model MLC6 control** is available. The MLC6 control allows numerous other loading functions including purging or ratio loading. See alternate instructions for this control.

A **Blowback** can be selected as an **option** and has its own timing control. Clean, dry compressed air is required if the TLM is equipped with the blowback option. Blowback will extend the life of the cartridge filter inside the tube loader.

A **remote on/off switch** for the TLM is available as an **option**.

# OVERVIEW OF FEATURES AND OPTIONS

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# INSTALLATION

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# UNPACKING THE BOXES

The TLM Loader comes fully assembled in a single crate.

- 1** Carefully uncrate the **TLM Loader** and its components.
- 2** Remove all packing material, protective paper, tape, and plastic. Compare contents to the shipping papers to ensure that you have all the parts.
- 3** Carefully inspect all components to make sure no damage occurred during shipping. Check all wire terminal connections, bolts, and any other electrical connections, which may have come loose during shipping.
- 4** Take a moment to record serial numbers and specifications in the blanks provided on the back of the User Guide's title page. The information will be helpful if you ever need service or parts.
- 5** You are now ready to begin installation.

The Tube Loader is equipped with a discharge valve on the bottom that allows the loader to be vacuum sealed while it is loading.

**CAUTION:** To avoid personal injury or damage to the loader, the loader must be mounted firmly to the machine it is filling. If the unit is not mounted firmly the loader could be accidentally moved out of position or come loose when the loader lid is tilted back for typical filter maintenance or cleaning.

The **Direct Feed Model** comes equipped with a cylindrical sight glass on the bottom allowing it to be mounted directly to a machine throat. The sight glass has a small funnel at the bottom to direct the flow of material from the loader through the glass, to the machine throat.



**1 Drill the glass chamber's mounting base as needed to match the molding machine throat.**

**NOTE:** To make installation easier, the tube loader separates from the glass chamber with three perimeter clamps located just above the glass section.

**2 Bolt the direct feed chamber directly to the processing machine throat.**

**3 Secure the loader onto the glass chamber.**  
The loader may be oriented as needed. Secure the three perimeter clamps to hold the loader securely.

**NOTE:** An additional adaptor may be required to funnel the outlet of the sight glass down to the size of the processing machine throat.

## INSTALLING THE DIRECT FEED CONFIGURATION

**TIP:** We recommend the loader be placed with the inlet tube oriented towards the material source, so that the conveying hose follows the shortest, straightest route possible. Orient the control so that it is both visible and easy to access.

**TIP:** Gasket material (not supplied) may be installed between the glass chamber and the processing machine throat to assure a dust-free seal, but it is not required for normal loader operation.

# INSTALLING THE HOPPER LOADING CONFIGURATION

**TIP:** We recommend the loader be placed with the inlet tube oriented towards the material source, so that the conveying hose follows the shortest, straightest route possible. Orient the control so that it is both visible and easy to access.

**TIP:** Gasket material (not supplied) may be installed between the mounting flange of the loader and the receiving hopper to assure a dust-free seal, but it is not required for normal loader operation.



**CAUTION:** To avoid personal injury or damage to the loader the loader must be mounted firmly to the hopper or bin it is filling. If the unit is not mounted firmly the loader could be accidentally moved out of position or come loose when the loader lid is tilted back for typical filter maintenance or cleaning.

The **Hopper Loading Model** is intended to be mounted through a hole in the flat top of a bin or hopper.



## 1 Place the discharge valve down into the top of the hopper to be filled.

Use the loader's mounting flange, as the interfacing surface with the hopper the loader will fill. A 6-5/8 inch diameter clearance hole in the destination hopper is required for mounting. Make sure the loader's discharge valve can move freely once it is in its mounted position.

**Note:** If the discharge valve does not move freely because of the close clearances with the hopper, A "riser" (available from Conair) may be used to mount the tube loader above the hopper lid.

## 2 Secure the loader into its mounting hole.

The loader can be secured with bolts or hold-down clips. Use the pre-drilled holes in the mounting flange to bolt the loader into position *OR* use the hold-down clips (supplied with most Conair hoppers), tightened against the outer edge of the mounting flange.

**Note:** Most Conair hoppers are supplied with hold down clips (and an appropriately sized hole) for easy mounting. If the loader is to be used in a hole that is too large an adaptor plate must be used for secure mounting.







**WARNING:** Improper installation could result in equipment damage and severe personal injury from electrical shock.

Electrical connections should be made only by qualified personnel. This machine requires a well-grounded circuit and single-phase alternating current as specified on the data plate. If the correct power supply is not available, you must install a transformer between the building supply and the machine. A properly sized conductive ground wire from the power supply must be connected to the ground terminal on the loader.

The TLM loader uses a control that is mounted directly to the loader's mounting flange, and preconnected to all loader functions.

- 1** Connect the power cord to an appropriate electric power source.

## CONNECTING THE CONTROL

**IMPORTANT:** Have a qualified electrician check the loader's data plate that gives voltage and amperage and make sure it matches your electrical power source.

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# CONNECTING A COMPRESSED AIR SUPPLY

If your TLM Loader has the optional blowback solenoid you will need compressed air for operation. The blowback is a small solenoid that is installed on one of the pipes extending from the base of the motor unit.

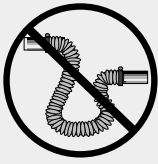
- 1** **Connect the compressed air to the 1/4 inch NPT female inlet.** The compressed air source must deliver a maximum of 125 psi of clean, dry (non-lubricated), air pressure.

**IMPORTANT:** *The compressed air connected to the Tube Loader **must be non-lubricated**, if it is not, the filter media used in the Tube Loader will become blocked, severely reducing conveying performance.*

**TIP:** *We recommend installing a filter (available from Conair, 800-458-1960) in the compressed air line to remove moisture from the line. It should be installed in the compressed air line leading to the loader and in a location that accommodates frequent servicing.*

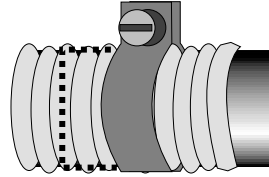
# CONNECTING MATERIAL LINES

Typical Tube Loader installations use the included flex hose to connect the material inlet of the loader to the material source.



**IMPORTANT:** The material line should be as straight as possible. Avoid loops and S-curves in flexible hose. This can hurt conveying performance.

- 1** **Connect the material inlet of the loader to the material source.** Attach flex hose over the inlet stub of the loader and secure the hose with a hose clamp. The hose should be fitted over the inlet stub at least 1-1/2 inches. Position the hose clamp at least 1/4 inch from the end of the inlet.



- 2** **Connect to the material source's vertical feed tube or distribution box.** Attach the flex hose in the same manner as described above.

## **When connecting to vertical feed tubes or wands:**

(used for conveying out of open-top boxes) sufficient slack should be left to allow movement of the feed tube when the material supply gets low, but “valleys” or droops should be avoided.

## **When connecting to horizontal feed tubes:**

(use for conveying from surge bins, silos or granulators) less slack will be needed, but flex hose is still suggested to allow easy disconnection in the event of trouble. A hose clamp should be installed to prevent disconnection of the hose from the feed tube.

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# LOADER OPERATION

- 1** Insert the feed tube into the material supply.
- 2** Turn the control on.
- 3** Adjust the load time.  
see *"ADJUSTING THE LOAD TIME." SECTION 4*

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# OPERATION

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## How It Works

Once the loader is turned on, the start of the loading function is triggered by the demand switch, integrated into the gravity discharge valve on the bottom of the loader.

When the flapper swings closed by the weight of its own counterweight, it is an indication that the loader 'sees' no material below it and must provide material by starting a load cycle.

The demand switch, located on the loader flange, is a "reed" type that magnetically reacts with a small magnet, located on the flapper weldment. As the flapper closes and the magnet gets close to the reed switch, the reeds of the switch close, providing a demand signal to the loader control. From that point, the loader control's timed vacuum function takes over, providing an automated, timed load cycle.

Upon completion of the timed loading cycle, the vacuum motor will stop and the loaded material will discharge from the loader into the receiving bin, or glass chamber below the loader.

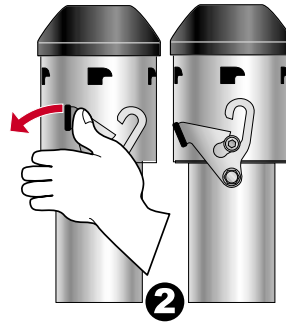
After discharging material into the receiving hopper below the loader, the cycle may repeat or the discharge flapper may be held open with the material that was discharged from the loader. If the flapper closes, the cycle will repeat. If the flapper is held open by the material, it is an indication that there is no need for another load cycle and the loader will wait until the material level falls, the flapper closes, the magnet comes close to the reed switch and triggers another load cycle.

To access to the motor and filter area follow these simple steps:

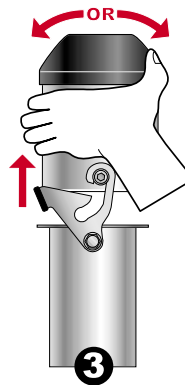
## USING THE MOTOR HOLD-DOWN SWING CLAMPS

**1** Unplug the motor from the control.

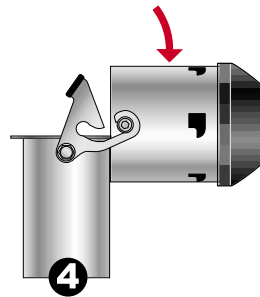
**2** To release the clamps, press in or pull on the rubber pads on each clamp in the direction shown in figure 2.



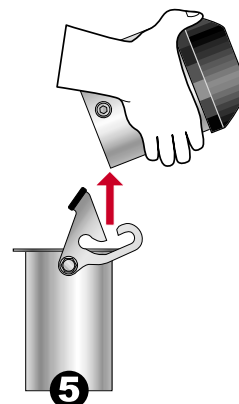
**3** Lift the motor housing straight up and away from the loader body. See figure 3.



**4** The motor housing can stay attached to the clamps and tilted to a 90 degree angle, to completely expose the filter inside the loader body. See figure 4.



**5** When necessary, the motor housing can be completely removed (for instance when servicing the brushes) by lifting it out of the openings in the clamps. See figure 5.



**6** To re-install, repeat the above procedures in the reverse order. Use care to align the grooves in the motor unit's blowback pipe with the swing clamps.

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# ADJUSTING THE LOAD TIME

Load time can be adjusted through the adjustable potentiometer located inside the control box.

## To adjust the load time:

- 1 Loosen one screw and pull the lid off the control box.** Locate the adjustable potentiometer inside the control box.
- 2 Use a small screw driver to adjust the potentiometer.** Clockwise increases the duration of the vacuum motor's cycle and counterclockwise decreases it.

## How to determine where to set your load time:

Load time should be set with enough seconds to "just fill" the vacuum loader. 'Just full' is indicated by an audible rise in the pitch of the vacuum motor and/or material no longer flowing in the material conveying line.

Too much load time will prematurely wear out the vacuum motor, pack material in the conveying line, prematurely blind the filter and possibly cause material shortages by clogging up the system by attempting to fill a loader that is already full.

Too few seconds set on the control may starve your process with numerous on and off cycles that yield too little material transfer.

Load time may be best adjusted by trial and error, to provide sufficient vacuum-on time to "just fill" the loader before the motor shuts off.



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## How the optional blowback works:

When equipped, the blowback function of your TLM Loader is comprised of a compressed air solenoid and timer, connected to the blowback chamber above the internal cartridge filter of the loader, below the vacuum motor. The solenoid is wired to be energized whenever the loader is turned on. A small timer on the solenoid's electrical connector provides periodic pulses of compressed air, to clean the filter of collected material fines and dust.

## To adjust the blowback pulses:

The blowback pulses may be adjusted to provide more thorough filter cleaning (more pulses) or to conserve compressed air (fewer pulses) by adjusting one of the dual timers located on the blowback solenoid's electrical connector.

The mini-screwdriver adjustable "ON" timer provides the duration of the filter cleaning burst of air and should be factory set correctly to minimum. Only about ½ second burst of compressed air should provide an optimized pulse of filter cleaning action.

**IMPORTANT:** The "ON" time setting should not be changed from its ½ second setting.

The "OFF" setting establishes the length of time between each burst of air. This setting should be factory set to about a 50 second time-length, so that a ½ second filter cleaning burst of air will occur every 50 seconds.

Changes may be made to the blowback timer's "OFF" setting to increase the number of pulses (counter-clockwise turns, for less pause between pulses). Or the number of pulses may be decreased (clockwise turns, for more pause time between pulses) by adjusting the "OFF" time setting.

# OPERATION AND ADJUSTMENT OF THE OPTIONAL BLOWBACK

**NOTE:** The filter cleaning blowback action, will occur as set whenever the loader is turned on, regardless of how little or how much the loader is being used. Blowback bursts are likely to occur during vacuum loading, which may momentarily alter loading performance. This is normal.

The blowback will also occur when the loader is not being used for any period of time, but yet remains turned on, since the blowback function runs on its own timer. This is also normal. If this is undesirable, the loader should simply be turned off, which will halt the blowback function as well as any loading.

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## TYPES OF FEED TUBES

Feed tubes may be provided in a variety of styles made to match the needs for your production. Whether they are horizontal types like distribution boxes (take off boxes) or horizontal bin tubes, or vertical types like wands that are made to be hand inserted into material bins, they need to be adjusted for their air to material ratio. Conair offers a vertical feed tube that provides a fixed amount of material entry with an adjustment provision for air flow. Horizontal types are also available, that feature fixed air flow and adjustments for regulating material entry.

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## VERTICAL FEED TUBE ADJUSTMENTS

Smooth material flow is controlled by opening or closing the holes at the top of the feed tube.

***TIP:** Covering all holes conveys the maximum amount of material with minimal air, producing the highest volume of material flow but at the slowest possible conveying speed (a low air to material ratio). This can make conveying over longer distances or through bends more difficult. With holes uncovered, a 'thinner' flow of material is achieved and the greatest conveying speeds are realized. This is a high air to material ratio and can create undesirable material fracturing in the loader, "angle hair" in the conveying lines and material dust.*

- 1 Insert the feed tube into the material supply and observe its conveying action.**
- 2 If the material surges ("gulps") as it is conveyed,** clear the line by lifting the feed tube out of the material supply and allow the line to clear.
- 3 Cover holes on the feed tube and retest until the material conveys smoothly.**  
Use flex hose connected to the feed tube or strong tape (duct tape is commonly used) to cover the holes.
- 4 Test several cycles.**  
Cover and uncover the feed tube holes to achieve the desired results.
- 5 Once conveying is fine tuned,** the feed tube should be twisted in its conveying hose to place the open feed tube holes up, so that material cannot fall out of the holes when conveying stops.

- 
- 1 Close off material flow to the loader.**  
Loosen the thumb screw next to the adjustable air inlet tube and push it all the way in to close off material flow and allow 100% air to flow through to the loader.
  - 2 Adjust the air tube to achieve optimum conveying.**  
Over the course of several cycles, pull the air tube out slowly until optimum conveying is achieved with minimal surging (gulping).
  - 3 If surging does occur,**  
clear the conveying line by pushing the air inlet tube all the way in until the line clears and then trial and error settings may be attempted again.
  - 4 Once optimum settings are achieved,**  
the air inlet position may be locked into position with the thumb screw.

## HORIZONTAL FEED TUBE ADJUSTMENTS

**NOTE:** As described in "Types of Feed Tubes" different types of feed tubes feed material mixed with air in different ways. Conair horizontal feed tubes (distribution boxes, etc) provide adjustments for material flow with a fixed amount of conveying air for optimum material flow. Competitive units may not work in the same manner.

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# MAINTENANCE

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# PREVENTATIVE MAINTENANCE SCHEDULE

Normal maintenance of the TLM Loader consists of cleaning the filter and motor brush replacement.

- **Daily**

- Clean the filter.**

If you are running a dusty material or regrind you may need to check and clean the filter more often. If the loader seems to be straining to run, or material flow is erratic or sluggish, check the filter. The filter also should be cleaned whenever you change materials.

- **Weekly, or as needed.**

- Drain the compressed air filter trap (if equipped).**

Depending on your compressed air system, you may see moisture or oil in the compressed air filter trap. Open the petcock on the bottom of the trap to drain. If you see oil we recommend installing a coalescing type filter ahead of the standard moisture removing filter.

- **Monthly, or as needed**

- Check the motor brushes.**


See “Motor Brush Inspection and Replacement.”


- **Semi-annually or as needed**

- Examine the bolts.**

Examine the bolts or clips holding the loader to the surface. Make sure the bolts or clips are tight.

# REMOVING THE FILTER FOR CLEANING

 **WARNING: Disconnect power and air sources.** Always disconnect the main power source and compressed air source before removing the filter. This prevents the loader from starting during servicing, which could cause personal injury from flying debris or moving parts.

 **CAUTION: Wear eye protection**  
We recommend that you use vacuum air for cleaning filters and other parts of this equipment. If you use compressed air to clean the equipment, you must wear eye protection and observe all OSHA and other safety regulations pertaining to the use of compressed air.

The filter of your TLM Loader is designed to protect the vacuum motor from damage by plastic pellets, regrinds, and fines that are drawn to the loader by the vacuum action of the motor. The cartridge filter, situated below the vacuum motor, in the body of the loader, separates vacuum conveying air from the loaded material and can become caked with material dust as material is loaded.

The blowback function (if your Tube Loader is equipped with it), does a good job of cleaning the filter, but occasionally the filter will need manual cleaning, or eventual replacement, to stay effective. The schedule of cleaning will depend upon how much material and how clean the material being conveyed is (dusty regrind causes rapid filter blinding).

**1** **Disconnect power to the loader.**

**2** **Remove the filter.**

Expose the filter by releasing and tilting the motor unit off of the top of the loader body. see ***“USING THE MOTOR HOLD-DOWN SWING CLAMPS .” SECTION 4***

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## INSPECTING THE FILTER

With the filter removed, it may be cleaned with either compressed air, blowing down through from the motor side, or with a vacuum cleaner sucking against the outside filter media.

### **1** Inspect the filter carefully.

Check for holes that could allow the passage of fines or dust to the loader motor. Replace the filter if it is damaged, excessively worn or too clogged with fines and dust to clean. Be sure to discard and replace any filter that has become hopelessly clogged with material dust. Do not attempt to repair a damaged filter. Replace the entire filter if the rubber seal is damaged or excessively worn.

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## CLEANING/ WASHING THE FILTER

**IMPORTANT:** Do not excessively bang the filter cartridge on a hard surface to clean material from the filter. This could damage the filter, create holes that will allow dust through the filter, or distort the flat sealing surface of the cartridge.

**NOTE:** Make sure you clean the filter in a dry location using dry air. If moisture is added to the filter medium, the collected fines can solidify into clumps that will be very difficult to remove.

If moisture is accidentally introduced, set the filter aside and allow it to thoroughly air dry before vacuuming, or replace it with a new filter.

### **CAUTION: Wear eye protection**

We recommend that you use vacuum air for cleaning filters and other parts of this equipment. If you use compressed air to clean the equipment, you must wear eye protection and observe all OSHA and other safety regulations pertaining to the use of compressed air.

### **1** Vacuum or use compressed air to remove particulate from the filter.

We recommend that you vacuum the filter surfaces. If you use compressed air, you must wear eye protection and follow all safety regulations pertaining to cleaning equipment with compressed air. The cartridge filter may be cleaned by blowing with compressed air from the inside out.

### **2** Wash the filter.

Wash the cartridge with low water pressure (about 40 psi) from the inside outward.

### **3** Dry the filter.

Let the cartridge dry for about 72 hours or until the filter media is completely dry. **IMPORTANT:** The cartridge must be 100% dry before returning it to normal operation.



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#### **4** Install/Re-install the filter.

**NOTE:** *The filter in your Conair Tube Loader performs double-duty as an effective seal between the hopper body and the lid of the loader. Be sure to examine the integrity of the rubber seal at the top so that the motor unit will seal effectively when clamped. Make sure to replace the entire filter if the rubber seal is damaged or excessively worn.*

## **CLEANING/ WASHING THE FILTER (CONTINUED)**

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You can add a moisture trap to the compressed air supply of your loader. A moisture trap can prevent troublesome moisture, contained in the air, from entering the loader.

The filter bowl of this moisture trap must be emptied regularly to drain the water from the air system. Follow the instructions listed on the filter bowl itself, which usually requires opening a port at the base of the bowl and letting the water in the bowl blow out in a stream of compressed air. Creating a path for this blowout of moisture is usually a good idea, to prevent a stream of moisture-soaked air from contaminating machines or people.

It is also a good idea to inspect the bowl periodically with the compressed air supply turned off, to clean or replace the filter element if need be or to remove contaminant accumulation, if it is present.

## **CLEANING THE COMPRESSED AIR FILTER (OPTIONAL)**

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# MOTOR BRUSH INSPECTION AND REPLACEMENT

**⚠ WARNING: Disconnect power and air sources.** Always disconnect the loader from the main power source and compressed air source before service. This prevents the loader from starting during servicing, which could cause personal injury from flying debris or moving parts.

The vacuum motor on your Tube Loader is powered by a brush type, high RPM motor that requires maintenance to the brushes on a regular basis. Inspect brushes regularly. Worn brushes can damage the motor and should be replaced.

- 1 Disconnect the power.**  
Lock out/tag out according to your plant's safety guidelines.
- 2 If provided, disconnect the compressed air line to the blowback solenoid.**  
(This will be necessary to fully release the motor unit from the loader. )
- 3 Release the motor unit from the loader. *“USING THE MOTOR HOLD-DOWN SWING CLAMPS .” SECTION 4.***  
Once the motor unit is removed from the loader it may be taken to a work area for disassembly and inspection of the brushes.
- 4 Remove the motor.**  
The motor is located within a cylindrical shroud. To remove the motor, place the motor upside down on its black plastic top, remove the bolt on the side of the motor housing and twist the exposed blowback chamber clockwise to release it from the two slots in the motor shroud. Once released the blowback chamber can be set aside.
- 5 Release the motor's power cable**  
from the shroud by carefully pulling up on the cable and its grommet until it slips out of its slot in the shroud.

The motor may now be gently pulled straight out of the shroud, along with its cable for brush inspection. Take care to avoid catching the electrical wires on any metal details inside the shroud as the motor is pulled out.

**continued on the next page...**

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## MOTOR BRUSH INSPECTION AND REPLACEMENT (CONTINUED)

### **6 Free the brushes and their holders by removing the screws.**

Once the motor has been removed from the shroud, the motor brush covers will be visible on each side of the motor, held in place with two phillips-headed screws.

### **7 Examine the brushes carefully.**


Check to see if the brush is still intact and not disintegrated from use. The brush should be at least 1/4" long (as measured from the motor end to the brush holder) to be returned to service. If either brush is not, discard both brushes and holders and replace both immediately.

### **8 Reassemble the loader.**

Once motor brush maintenance is completed, place the motor back into the shroud carefully, being careful not to pinch any wires by lining up the motor's power cable with its cord grip slot on the motor shroud. Reroute the motor wire's grommet through the slot in the motor shroud and re-install the blowback chamber, **making sure that the small hole in the center of the blowback pipe is visible and will be directed toward the filter**, once the motor unit is re-installed on the loader. Twist the blowback chamber back into its locked position below the motor by rotating counter-clockwise until it clicks into position in the motor shroud. Grooves in the blowback pipe facilitate proper positioning.

Re-install and tighten the locking bolt on the side of the motor shroud. This bolt should line up with a threaded boss on the side of the blowback chamber. If the boss is on the opposite side of the blowback chamber, simply remove the chamber, rotate it and re-install so that the bolt may be installed securely.

Reconnect the motor unit with the swing clamps on the loader by pushing the blowback pipe back through the openings in the clamps. The motor unit may now be placed in position and fastened back down on the loader with the swing clamps.

 **WARNING: Do not operate the loader without the locking bolt in place and tightened securely.** If the locking bolt is not in place and tightened securely the motor assembly could come loose during operation or maintenance and cause personal injury.

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# TROUBLESHOOTING

- *Conveying problems and solutions . . . . . 6-2*

# CONVEYING PROBLEMS

**⚠ WARNING: Disconnect power and air sources.** Always disconnect the loader from its main power source and compressed air source before servicing. This prevents the loader from starting during servicing, which could cause personal injury.

Problem	Possible cause	Solution
Low or no material flow.	Does the filter need to be cleaned?	Check the filter and clean if it is clogged with dust or fines. Clean the filter. <i>See Section 5, CLEANING THE FILTER.</i>
	Is there an overload on the circuit breaker(s)?	Reset the circuit breaker if it is tripped. Check for reason.
	Are there kinks in the flex hose?	Check the material flex hose line for loops and “S” curves. Remove any loops and “S” curves in the flex hose. Try to keep the hose as straight as possible.
	Are there holes or cracks in any of the material lines?	Check the material line for holes, cracks or other signs or excessive wear. Replace worn flex hose.
	Are hose connections too loose?	Check the material line hose connections for leaks. Hose clamps should be secured near the end of the hose connections.
	Are material to air adjustments at the material pickup device correct?	Check the material to air adjustments at the feed tube or distribution box to make sure they are properly adjusted <i>See Section 4, FEED TUBE ADJUSTMENTS.</i>
	Do you have enough material at the source?	Replace/refill the material container or reposition the feed tube.
	Are the motor brushes worn?	Check the motor brushes. If any brush is too short, replace both brushes. <i>See Section 5, MOTOR BRUSH INSPECTION AND REPLACEMENT.</i>

**⚠ WARNING: Disconnect power and air sources.**  
 Always disconnect the loader from its main power source and compressed air source before servicing. This prevents the pump from starting during servicing, which could cause personal injury from flying debris or moving parts.

## CONVEYING PROBLEMS

Problem	Possible cause	Solution
Low or no material flow (continued).	Has material plugged the tubing or flexible hose?	Remove the conveying line from the material and check for vacuum. If necessary, uncouple the lines, remove blockages and reassemble the lines. Readjust for proper material flow <i>See Section 4, FEED TUBE ADJUSTMENTS.</i>
	Motor speed sounds like it varies as it operates.	Check and/or replace brushes. <i>Section 5, MOTOR BRUSH INSPECTION AND REPLACEMENT</i>
Loader will not cycle.	Is there a vacuum air leak?	Check o-rings and gaskets for damage or leaks.  If the blowback option is installed, make sure the compressed air line is connected at the lid.
	Are all electrical connections correct?	Check to make sure loader control is plugged into a power source.
	Is the flapper on the bottom of the loader blocked preventing a demand signal?	Unblock the flapper and determine the reason for the obstructed flapper motion. A riser may be required for hopper loading installations. <i>See Section 3, Installing the Hopper Loading Version.</i>

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Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

## WE'RE HERE TO HELP

To contact Customer Service personnel, call:



## HOW TO CONTACT CUSTOMER SERVICE

**From outside the United States, call: 814-437-6861**

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

### **If you do have a problem, please complete the following checklist before calling Conair:**

- Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- Make sure power is supplied to the equipment.
- Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- Check the troubleshooting guide of this manual for a solution.
- Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- Check that the equipment has been operated as described in this manual.
- Check accompanying schematic drawings for information on special considerations.

## BEFORE YOU CALL ...

*Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.*



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## EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

## PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

## WARRANTY LIMITATIONS

**Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.**

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## ADDING THE OPTIONAL BLOWBACK

The blowback option (120VAC, PN#101-795-03-01; and 220VAC, PN#101-795-03-02) may be added to TLM tube Loader. The blowback assembly can be located on either side of the vacuum motor. The blowback solenoid is connected to the to the blowback tube (located in the base of the motor module) and is wired to the loader control.

**1 Select which side you wish to locate the blowback assembly.**

Make the selection based on the location of your compressed air supply in relation to the loader. Keep in mind that the motor unit (with the blowback assembly) will be tilted back, and/or removed frequently for filter and brush maintenance.

**NOTE:** A non-restrictive quick disconnect fitting (not supplied) may be used to allow full disconnection of the air supply line when performing maintenance on the loader.

**NOTE:** Wet or lubricated compressed air will foul the filter operation and cause premature filter blinding. A compressed air filter (available from Conair) is recommended when using compressed air blowback, to assure a clean supply of dry air to the filter during blowback. The compressed air filter should be mounted as close as possible to the loader, but should be connected to your air line or header, not the loader.

**2 Remove the pipe plug from either side of the blowback tube** located in the motor unit of the loader. Carefully remove all residue thread sealant.

**3 Install the compressed air solenoid into the blowback tube.** Make sure that the solenoid's air flow is directed into the blowback tube. Required fittings are included with the solenoid valve. Use thread sealant to secure the fit and to prevent leaks, but take care to avoid excess that could end up trapped in the blowback pipe or filter element. Make sure all fittings are tight and cannot vibrate loose or leak.

**4 A quick disconnect fitting may be supplied at the inlet of the solenoid valve, if desired.** (see note). Air supply may not exceed 125 psi, the limit of the solenoid. If it does, an air regulator (not supplied) must be installed to limit air pressure to 125 psi.

continued on the next page...

# ADDING THE OPTIONAL BLOWBACK (CONTINUED)

**5 Wire the solenoid to the loader control.**  
The solenoid's coil connector is equipped with a compact timer element. The wire for the solenoid comes out of that connector and must be wired into the loader control. On Conair's optional "MLC6" control, with a matching terminal box (referred to as a "UTB"), the termination of that solenoid wire is already equipped with a green plastic connector that may be readily plugged into the receptacle marked "BLOBAK" on the UTB and your installation is complete. On the standard "MLC2" control, the solenoid cable must be installed inside the control enclosure. The cable is supplied with a cord grip that may be used for passage through the control enclosure in place of one of the hole plugs installed in the enclosure.

**6 Firmly connect the terminals.**  
The individual conductors of the cable, green (ground), white (neutral) and brown (hot) are equipped with insulated "spade lug" terminations that may be readily connected to mating white, green and brown terminals located inside the control. Make sure the terminals are pushed together firmly, closing off any exposed conductor. Refer to Blowback Connections chart below for proper connections of 120 or 220 volt loaders.

## Blowback Connections

	Blowback Cable	Control Connectors	
120 VAC	Green to White to Brown to	Green White Brown	Ground Neutral Hot
220 VAC	Green to White to Brown to	Green\Yellow Blue Brown	Ground Neutral Hot

**IMPORTANT:** The blowback unit can now be connected to the compressed air supply and operated, along with the loader. Refer to instructions in the TLM loader manual for operational details.

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The optional remote On/Off switch (120VAC, PN#107-620-08-01; and 220VAC, PN#107-620-08-02) may be added to TLM Tube Loader.

The TLM loader, equipped with the standard MLC2 control, may be equipped with an optional remote on/off switch to allow the loader to be turned on and off from a remote location up to 15 feet away. The parts provided for this option consist of a switch and 15 foot wire assembly, terminated with spade lug connections that may be easily wired inside the MLC2 control. The switch is recommended to be bolted to a firm surface within the length of the cable provided. A bolt hole for a 1/4 inch bolt is provided on the switch.

- 1 Disconnect all power to the TLM Loader.**  
Make sure to unplug the power cord and locking out/tagging out according to your site's regulations.
- 2 Insert the remote on/off cable and its' cord grip into the appropriate hold.**  
Remove the hole plug located just above the power cable in the control enclosure and insert the remote on/off cable with its accompanying cord grip. The grip should provide suitable strain relief and insulation at the control box entry point.

**NOTE:** *The remote on/off switch will interrupt the electrical path from the incoming power cable to the rest of the control by making the power travel through the remote switch before it reaches any components inside the control.*

- 3 Terminate the ground wire at the ground screw inside the box.**  
The ground wire is equipped with a circular connector for performing this connection.
- 4 Connect the remote on/off switch wires.**  
Inside the control, the power wire connecting the incoming power wire to the combination circuit breaker/switch is equipped with a coupled spade lug connection that may be separated to allow connection of the remote on/off switch wires. The remote on/off switch is equipped with mating connectors see the wiring guide labeled **Figure 1** on the next page for proper connection of 120 or 220 volt loaders.

## ADDING THE OPTIONAL REMOTE ON/OFF SWITCH



**WARNING:** Improper installation, operation or servicing may result in equipment damage or personal injury.

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of machine.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground.

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# ADDING THE OPTIONAL REMOTE ON/OFF SWITCH

- 5 Match the mating connectors.**  
Push the connectors together fully, to completely cover any exposed conductor. Electrical connections are now complete.

Figure 1

	Remote On/Off Switch Cable		Control Connectors	
120 VAC	Green	to	Green ground screw	Ground
	White w/male	to	Black w/female	Hot
	Black w/female	to	Black w/male	Hot
220 VAC	Green/Yellow	to	Green/Yellow ground screw	Ground
	Blue w/male	to	Brown w/female	Hot
	Brown w/female	to	Brown w/male	Hot



**WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.**

Before returning this equipment to service make sure that all wire connections, disconnections and adjustments were made by a qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground.

- 6 Route the remote on/off switch cable from the loader control to the desired location within the 15 foot cable length.**

Make sure the cable routing provides enough slack at the control/loader for maintenance, removal, etc and make sure the cable will not come in contact with hot surfaces or moving parts that may damage the cable in operation.

- 7 Mount the switch assembly.**

The switch assembly can be mounted to any firm surface using the accompanying bolt hole. Be sure to locate the switch so that it will not be accidentally turned on or off.

**NOTE:** In operation, the remote on/off switch will enable the loader's operation in a similar fashion as the loader's circuit breaker /lighted switch, located on the control. However, when the remote on/off switch is in the off position, the light on the circuit breaker will not be on, indicating the loader is not enabled and cannot operate. If the circuit breaker is turned off, the light will be off and the loader cannot operate, regardless of the position of the remote on/off switch.