

USERGUIDE

IMB-035A 2/94

# Dust Collector

## Size 3



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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 equipment.

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. 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 personal injury and erratic machine operation.

Do not operate the equipment at power levels other than what is specified on the the equipment serial tag and data plate.



**WARNING: Electrical shock hazard**

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

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



**WARNING: Disconnect power and air sources.** Always disconnect the main power source and compressed air source before installing or servicing this equipment. This prevents the equipment 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.

**DESCRIPTION**

The Dust Collector is positioned between the loader and the vacuum pump on the vacuum line to remove any carryover dust to protect the pump.

The Size No. 3 Collector's operation is as follows. First, the contaminated air from the loader enters the collector. Some dust is removed by the change in volume and the air deflector. The remaining dust is collected on the outside of the three filter elements. The filtered air moves up through the venturis and plenum to the pump. (See Figure 1).

The three-filter elements are cleaned automatically and alternately. As a result, only one filter is off-stream at any one time while the two remaining filters are still in operation.

During filter element purge, the Solid State Control Timer automatically selects the element to be cleaned and activates the air valve solenoid. The air valve opens, resulting in a pulse of compressed air traveling into the manifold and down through the venturis. The compressed air pulse plus induced air pass through the filter elements from the inside-outward, removing the dust from the outside of the element. The dust falls into the hopper. At the end of the 100 millisecond pulse, the air valve closes and the element is back in operation (See Figure 2).

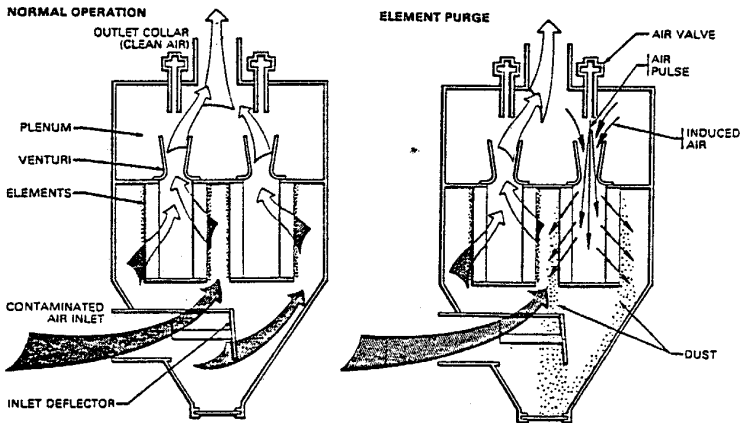


Figure 1

Figure 2

**SECTION****1****DESCRIPTION****LOCATION**

When using the manual dump type, the dust collector is best located near the vacuum pump. When using the automatic unload/reload collector, it is better to locate it near the loader that is receiving the dust. NOTE: If neither location is convenient, then locate the collector anywhere along the vacuum line between the loader and pump assembly.

**MOUNTING**

The Size 3 Dust Collector is supplied with a free-standing frame that should be anchored to the floor.

**AIR SUPPLY**

The filter purge system and the auto reloader system both require an air supply of 90 psig. A valve, a bleed-type regulator with gage, and a filter with an auto drain should be installed in the air supply line.

**CAUTION:** Purge air lines to remove debris before connecting to air manifold.

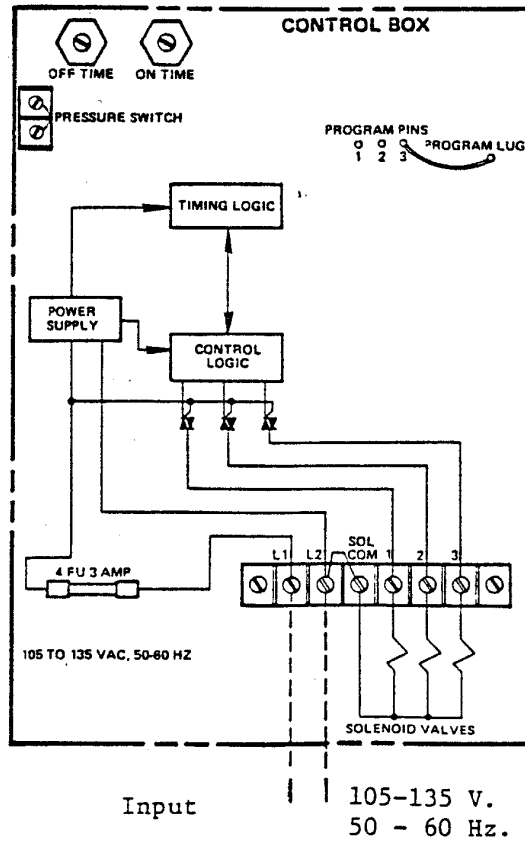
**DESCRIPTION**

**ELECTRICAL**

The Size 3 Manual Dust Collector requires a 120 V. control circuit to operate the filter purge system. This 120 V. circuit should be energized with the pump control power "ON" light to allow filter cleaning continuously, during both load and unload cycles (See Figure 3).

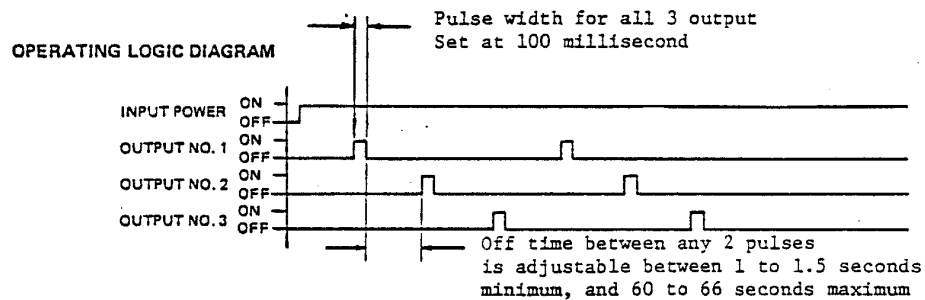
The Size 3 Auto Reloader Dust Collector requires, in addition to the 120 V. control circuit for the filter purge system, a 120 V. control circuit to operate the auto reloader control. This 120 V. circuit should be energized with the pump motor. This connection can be made at the terminal strip in the pump control with terminal numbers 2, 7, and G.

Figure 3



**OPERATION****MANUAL UNLOAD TYPE**

With power supplied to pump control (power "ON" light energized, motor energized or de-energized), the filter purge system is energized. This will initiate the filter purge control's "OFF" time. At the end of the "OFF" time, the control will energize a solenoid to provide a cleaning pulse for one filter element and then step to the next filter. This cycle is continuous (See Figure 4).



(Figure 4)

When the loader demands material, it signals the pump control to start. This causes a vacuum in the Dust Collector, the loader, and the material line. This "LOAD" cycle is continuous until the loader signals the pump that no material is required (See Figure 5).

**NOTE:** It is extremely important that this bottom container is emptied periodically and that it not be allowed to overflow, with dust backing up into the top filter section. If this happens, ineffective separation and premature clogging will occur.

**AUTO RELOADER TYPE**

With power supplied to the pump control (power "ON" light energized, motor energized or de-energized), the filter purge system is energized. This will initiate the filter purge control's "OFF" time. At the end of the "OFF" time, the control will energize a solenoid to provide a cleaning pulse for one filter element and then step to the next filter. This cycle is continuous (See Figure 4).

## OPERATION

When the loader demands material, it signals the pump control to start. Simultaneous with the pump motor, the reloader control timer is energized. This timer is adjustable and should be set at 5 to 10 seconds.

During the first 5 to 10 seconds of the load cycle, the conic valve in the reloader is sealed in the shut position and the air vent valve is opened. This allows dust collected in the bottom of the reloader to be vacuum conveyed to the loader through the diverter "Y".

At the end of the 5 to 10 seconds, the air vent closes, diverting 100% of the vacuum to the loader. During the rest of the load cycle, dust is collected in the reloader. When the load cycle is repeated, the reloader will also be energized and again emptied. This cycle is continuous until the loader signals the pump that no material is required (See Figure 6).

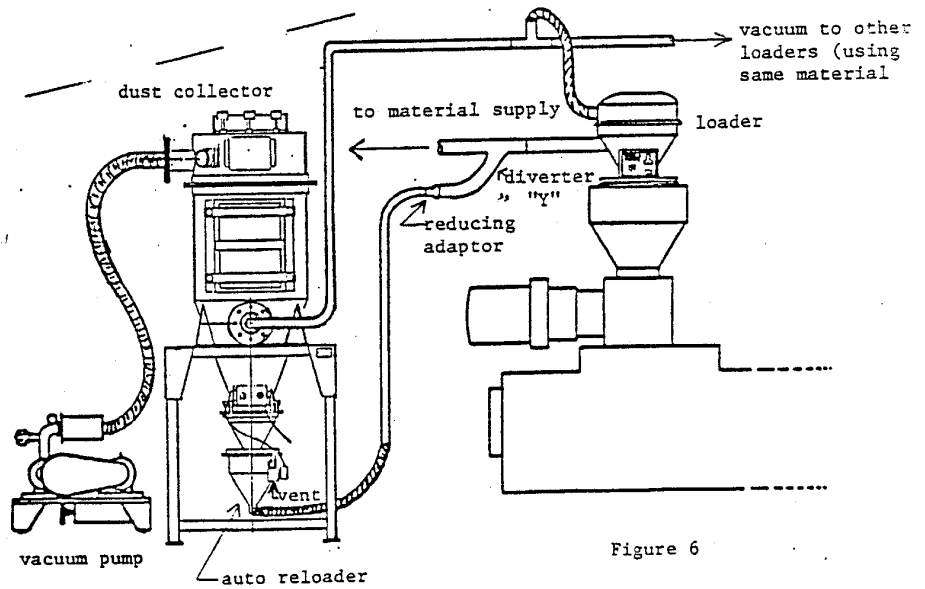
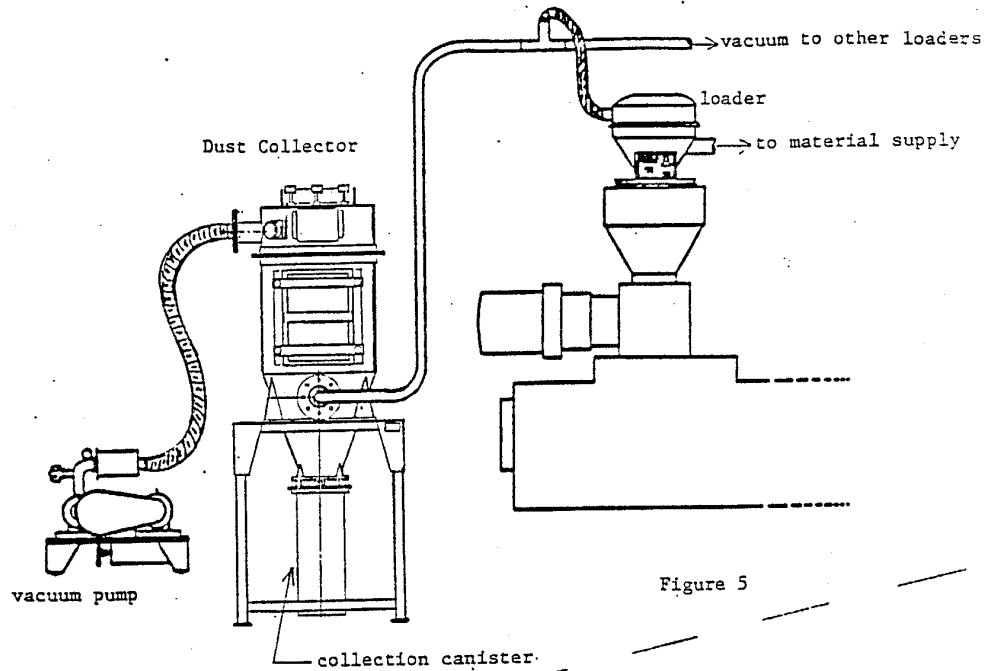
**NOTE:** When an auto unload/reload type dust collector is installed in a multiple loader conveying system, it is very important for the loader receiving the carryover dust from the dust collector to stay in operation. If it is turned off, or is otherwise out of operation for any period of time, the separated dust within the bottom chambers of the dust collector will accumulate to the point of clogging the filter chamber. To prevent this, the bottom auto unload/reload chambers should be replaced with a manual dump container to collect the separated dust. The manual dump containers will require periodic emptying.



SECTION

2

OPERATION



**MAINTENANCE**

**FILTER CHAMBER**

Located in the filter chamber are three cartridge-type filters. Regular filter servicing is required. Time between servicing depends on the pounds/hour capacity of the loading system and the type of material used (See Figure 7). Some indications of when to clean or change filter are an increase in the normal conveying vacuum, surging or line blockage, or a significant increase in load time (by 20 seconds or more).

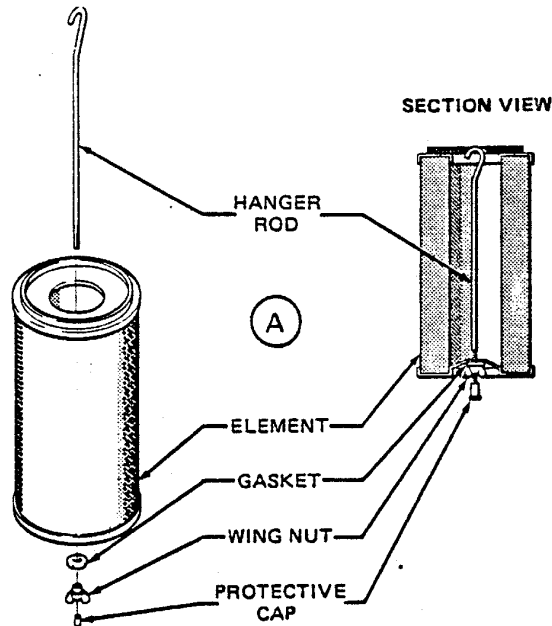


Figure 7

**MAINTENANCE**

Servicing should include a check of the rubber gaskets, all vacuum connections, and cleaning the filter element:

1. Clean, compressed air can be directed to the filter, blowing between the paper folds to remove dust and accumulated fines. Then, use a vacuum cleaner to remove loosened dust.
2. CAUTION: Do not use heavy blasts of air because the paper can be fractured.
3. Inspect the paper element for damage, holes, etc. before re-installing. For replacement filters - See spare parts list.

**OPERATING CHECKS**

1. Monitor exhaust. Exhaust should remain visually clean. If a leak develops, it will be first noticed as a puff of dust immediately after a cleaning pulse.
2. Monitor pressure drop. Equilibrium  $\Delta P^*$  is generally 3-4 inches on magnehelic gauge but 1-6" is considered normal.

\* $\Delta P$  = Pressure drop across filter elements.

**OPERATING ADJUSTMENTS**

Compressed air is specified at a pressure of 90 psig.

The control timer is factory set to clean an element every 10 seconds.

Higher than design  $\Delta P$  can often be lowered by increasing the frequency of cleaning. Minimum dwell time between pulses is 3 seconds. Additional cleaning energy may be obtained by adjusting pressure up to a maximum of 100 psig. **DO NOT** increase the length of each pulse beyond the nominal 100 millisecond factory setting. Longer pulses do not aid cleaning, they simply waste compressed air.

## TROUBLESHOOTING

DIFFICULTY	PROBABLE CAUSE	CORRECTIVE ACTION
Sluggish conveying, excessive load time, higher than normal conveying vacuums.	Clogged Filter	Clean filter (replace if necessary)
Excessive load time, low vacuum.	Vacuum Leak in material, vacuum, or dust return lines.	Seal O'ring couplings, check hose clamps.
	Loader dump valve leaking.	Clean and adjust valve and valve seal.
Excessive filter clogging.	Filter purge control inoperative.	Check air supply, check control power supply. Are conveying vacuums in the 10-12" hg range?
	Excessive dust carryover from loader.	See troubleshooting guide loader instructions.
Clogged separating section.	Build-up of dust in collector container.	Empty container and clean filter.
	Build-up of dust in automatic take-away section.	Disassemble both bottom sections and clean.
Build-up of dust in bottom two sections of automatic unload/reload type collector.	Vent air solenoid failure.	Check for 110 V. signal, check diaphragm for dirt --clean and reassemble valve.
	Timer failure.	Check electrical circuit, increase unload time.

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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 loading control 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.**