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USERGUIDE
IMB-094-93

Ratio Proportioning Valve

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SECTION 1

DESCRIPTION

This instruction manual covers Conair Ratio Proportioning valves equipped with dedicated, separate controls, designed to be retrofitted onto existing loaders. Conair Loaders, ordered as ratio units from the factory, come equipped with ratio valves operated by the controls that cycle the loading functions. Instructions for these units may be found in the instruction manual that covers the operation of the loader.

The Ratio Proportioning Valve is essentially two material line valves in a single package, with a common material discharge (See Figure #1). Each material line is controlled by a separate cylinder and plunger. Each of these valves, referred to as Virgin (left) and Regrind (right) open and close during the loading cycle to provide for entry of the two materials into the vacuum receiver. When there is no loading, the virgin valve is closed and the regrind valve is open. The control supplied with this valve is designed to proportion the two materials being conveyed, and create some pre-mixing of these materials. This is done by alternately opening the virgin and regrind conveying lines one at a time.

The control has two settings - one, (labeled "% REGRIND") determines the percentage of open time for the regrind valve, in timed proportion to the virgin valve. The other, (labeled "CYCLES") determines the number of times the valve switches between virgin and regrind during each load cycle.

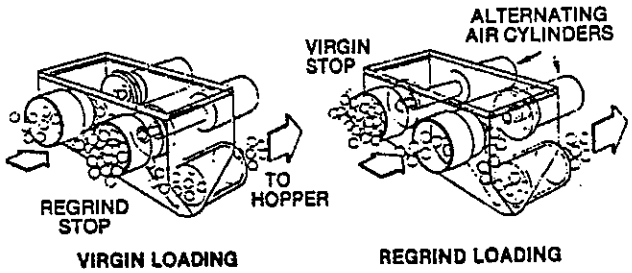


FIGURE 1

SECTION

2

INSTALLATION

The ratio valve may be installed: 1). Directly on the loader inlet, or 2). Mounted on the conveying line. Details of arrangement #1 are shown in Figure #2. NOTE: The Ratio Valve must be mounted in a horizontal position, with the incoming lines above the single outlet (with the removable faceplate up). Do not mount in vertical or inverted position.

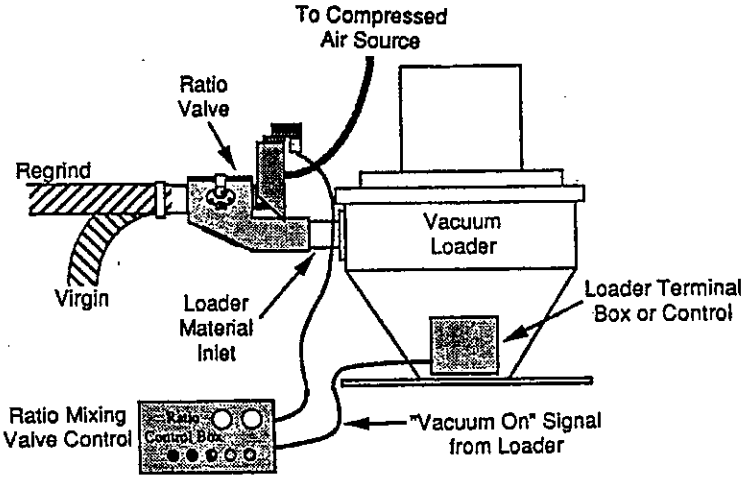


FIGURE 2

When the ratio valve is installed, the three-wire cord is wired into the vacuum signal at the loader control or terminal box. The wiring from the valve body to the control enclosure is done through a terminal strip. The ratio control unit may be mounted in any convenient operating location.

Piping of plant air to the unit is left to the customer's wishes, as the exact method depends on the layout of the components and your preference of types of fittings, etc. These general guidelines should be followed:

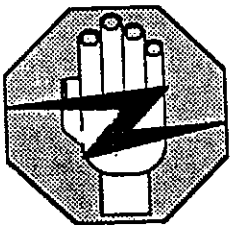
1. If the loader is an integral motor unit with blowback, the valve air is tapped off ahead of the blowback.

2. If the valve is mounted away from the loader, or on a loader which does not normally require an air connection, air must be supplied from the plant air system.

OPERATION

When the valve is to be mounted on the conveying line at a location remote from the loader, extend the length of the wire between the ratio valve and the vacuum signal at the loader control by splicing the wire from the valve onto additional wire of the required length, type and rating.

To extend the length of the connection from the valve to the valve control unit, splice the cable (as described above), and terminate directly at the control unit, where a terminal strip is used for connecting the wiring per the label inside the control enclosure. As with any plant wiring, HAVE THE WORK PERFORMED BY A COMPETENT ELECTRICIAN.



CAUTION!

Changes made from the valve to the control unit should be made only after disconnecting power to the control.

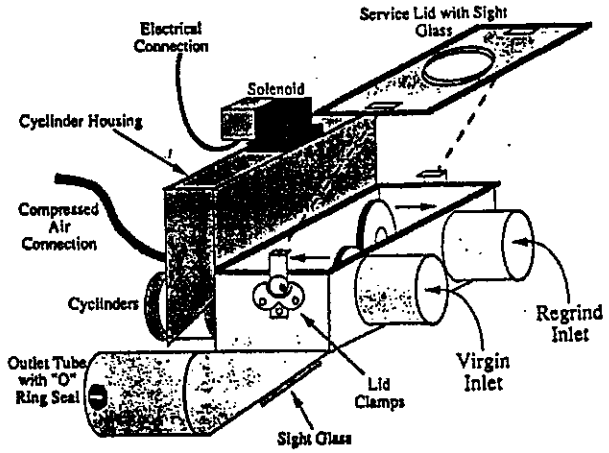


FIGURE 3

SECTION 3

OPERATION

CONTROL DESCRIPTION

The ratio control gets the signal to operate from the loader control "Vacuum On" signal. When the vacuum source is on, the "Loading" light on the ratio control is lit.

During this time, the valve control will open virgin and regrind lines one at a time. The number of times each line is open (and the length of time each line is open) is set by the two dials on the front of the control. When the "Virgin" line is open, the "Virgin" light will be lit, and when the "Regrind" line is open, the "Regrind" light will be lit.

The dials on the valve control are labeled "% REGRIND" and "CYCLES". The "% REGRIND" dial sets the length of time each line is open. The "CYCLES" control sets the number of times each line is open during the load cycle. When the load timer in the loader control unit shuts off the vacuum signal, the virgin valve closes, and the regrind valve opens.

CONTROL SETUP

The actual amount of material conveyed during a given time depends on the flow characteristics of the virgin and regrind, lengths of conveying lines, feed tube settings and so forth. The setup procedure is:

1. Set selector switch to Virgin & Regrind position.
2. Set the "CYCLES" control to the "MAXIMUM" setting (Fastest cycling).
3. Set the "% REGRIND" control for the desired mixture.

4. Adjust the "Load Time" knob on the loader control so the vacuum shuts off immediately after the loader hopper is full.

5. Check the proportion of Virgin/Regrind. Increase or decrease "% REGRIND" to get desired proportions.

6. If too many valve transfers are taking place each load cycle, decrease the "CYCLES" control knob on the valve control unit (slower cycling).

   NOTE: Too many valve switches during one load cycle will lower the conveying rate - too few may not provide enough "Pre-Mix" for your needs. Set this to suit your process.

7. After the valve is set up this way once, the "% REGRIND" can be changed through its entire range (0 - 100%) as needed for material change. Little or no changes should be needed on the "CYCLES" setting.

8. The ratio valve has the option of conveying all virgin material or all regrind material. To do so, set the selector switch to "Vir." for all Virgin or to "Reg." for all Regrind. This change of operation can be made without resetting any controls.

Disconnect material source from inlet lines and cycle loader to clean material from inside the valve body. Powders & irregular pellets may require removal of faceplate to clean.

SECTION 4

TROUBLESHOOTING

TROUBLESHOOTING		
SYMPTOM	POSSIBLE CAUSES	REMEDIES
Solenoid Valve Leaks	Oil or contaminants in plant air.	Check/replace filter, clean up air supply.
Plunger movement sluggish.	Air connecting line not large enough for length of run.	Use larger tubing.
	Solenoid valve or filter plugged.	Replace filter, check solenoid valve. If lubricator is used, check for residue in air devices.
	Damaged or worn cylinders.	Repair/replace
	Air Leaks	Find and correct.
No Plunger Movement	If no movement obtained using manual button on solenoid valve.	See "Plunger" movement sluggish.
	Control not energized, "Load" light not lit.	Wiring Fault: Isolate and correct.
	Control lights for "VIR" and "REG" light, no valve motion	Wiring Fault: Isolate and correct.
	Solenoid valve coil faulty.	Replace valve.
	Faulty control	Remove control or faulty component. Relocate control if temp. over 120°F or extreme vibration exists.
Valve plunger will not seal inlet line.	Improper Installation	See instructions on installation.
	Cylinders not operating properly.	Refer to proper section of troubleshooting chart.
Vacuum Leaks	Damaged lid gasket, cracked sight glass(es), damaged or missing O'ring in discharge coupler.	Replace the appropriate part.
Sluggish conveying	Problem with loader, vacuum source or pickup device setting	Refer to Loader Manual.

We're Here to Help

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.

How to Contact Customer Service

To contact Customer Service personnel, call:

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.

Before You Call ...

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.

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

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.