VAC-U MAX

OPERATION AND SERVICE MANUAL

AIR POWERED VACUUM CLEANER
FOR DIFFICULT POWDERED MATERIALS

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MODEL 30/55 *With Pulse Jet Filter Clean*

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VAC-U MAX

Operation and Service Manual

Model 30/55

with pulse jet filter clean

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OPERATING INSTRUCTIONS

Mdl 30/55 Air-powered Vacuums With Manual Pulse Filter Cleaning

VAC-U-MAX is proud to have you as an owner/operator of one of our products. These instructions are designed to help you achieve efficient operation, high production, and long life from your VAC-U-MAX product. If you have any questions regarding this manual or the product it describes, please call us immediately on our toll-free number:

1-800-289-8228
(United States Only)
or
1-973-759-4400
(U.S. and International)

or you can send us a fax at
973-759-7121 or 973-759-6449
or you can Email us at info@vac-u-max.com

When contacting us regarding your equipment, please have the following information ready to give to our customer service representative:

- VAC-U-MAX order number found on the identification plate ("C" plus 6 digits)
- MDL number and serial number (if applicable)

If you wish to place an order for spare parts or place a warranty claim, please contact the VAC-U-MAX Customer Service Department at the following numbers:

Telephone: 1-973-759-1043
Fax: 1-973-759-6671
or you can Email us at info@vac-u-max.com

Applicable Catalog Numbers

40006-(30 GAL., 1-VENTURI, COVER UNIT)
40008-(30 GAL., 1-VENTURI, COMPLETE UNIT)
40010-(55 GAL., 1-VENTURI, COVER UNIT)
40011-(55 GAL., 2-VENTURI, COVER UNIT)
40012-(55 GAL., 1-VENTURI, COMPLETE UNIT)
40013-(55 GAL., 2-VENTURI, COMPLETE UNIT)

INTRODUCTION

Your MDL 55 and 30 air powered vacuums with manual pulse filter cleaning have been designed to give the most productive vacuuming service while handling the most difficult fine and lightweight powders. VAC-U-MAX has taken its vast experience in the pneumatic conveying of powders and placed it in its vacuum systems. Previously, pulse filter cleaning technology was unknown on a portable vacuum cleaner.
It was widely-used on dust collectors, but vacuum cleaners would always suffer due to smaller filter areas, and little interest in vacuuming productivity. You can now consider yourself as having the latest technology in the industry, which will improve your plant operations, product quality, working conditions, and ultimately result in reduced costs.

START-UP

Make sure that you have enough compressed air supply in the working area. The air powered vacuums shown above will consume the following minimum compressed air supplies:

Single Venturi-35 SCFM @ 60 PSIG
(minimum ½" air line)

Twin Venturi-70 SCFM @ 60 PSIG
(minimum 3/4" air line)

Your VAC-U-MAX air power vacuum has a unique variable orifice venturi, which allows it to operate very efficiently with the least amount of compressed air. The above compressed air supplies are based on the orifice "needles" in the "in" position, which is the position set at the factory prior to shipment. If the needles are screwed to the "out" position, the vacuum will generate its full vacuum rating of 16" Hg (216" waterlift), but it will also double the amount of compressed air that is consumed. Adjusting the orifice needles will increase the maximum vacuum rating, but it will NOT increase the generated airflow which is 100 CFM per venturi (Figure 1).

Before connecting your vacuum to a compressed air supply, make sure that any packaging materials have been removed and that the cover sits evenly on the drum.

Figure 1- Adjustment of variable orifice

Make sure that the drum is minimum 16-gauge steel construction and does not have any dents or leaks. The high vacuum generated by the VAC-U-MAX Air-powered vacuums will be canceled by even the smallest leak in the drum, or it can implode (collapse) the drum if it has a dent or weak spot.

Air-powered vacuums will generate static electricity during their operation. It is important to properly ground your vacuum so that the operator does not get shocked and that you prevent any unwanted static discharges. Grounding can be accomplished through the compressed air line if it is static-conductive (VAC-U-MAX compressed air hoses are static-conductive, but this is not guaranteed with other manufacturers). Grounding can also be accomplished by using an external ground wire and connecting it securely to the vacuum. Your vacuum includes a stainless steel ground strap on the underside, which provides continuity between the cover and the drum.

The operator can be further protected from static shocks by utilizing a static-conductive vacuum hose, such as VAC-U-MAX Vinyloy and Superflex hoses. Plastic vacuum tools should be avoided for the same reason of static charge buildup and uncontrolled discharge.

Connect the compressed air hose to the compressed air inlet on the vacuum. The
VAC-U-MAX venturis are most efficient with a clean, dry air supply. An in-line air dryer might be necessary if your compressed air supply is dirty and/or oily.

OPERATION

After connecting the compressed air line, turn on the compressed air supply at the vacuum by turning the ball valve on the inlet manifold. Test the vacuum by placing your hand over the vacuum inlet and feel the vacuum build up inside the drum.
If the vacuum or drum has any leaks or weak spots, this procedure will help you find them. It is natural to see the cover flex downward as the vacuum level builds. If your drum has a thin-gauge bottom, it will also be normal to hear a small bang as the bottom flexes under vacuum. Turn off the air supply and remove your hand from the inlet (Refer to figures 2 and 3 for parts view).

Figure 2-Removable vacuum inlet

Figure 3-compressed Air Shut-off Valve To The Venturi

Next you should test the VAC-U-MAX pulse jet filter cleaning mechanism. Your vacuum is equipped with a regulator and pressure gauge to control the pulse filter cleaning mechanism. Our experience shows that good filter cleaning can be accomplished at pressure of 45 PSI.
Set your gauge at 45 PSI by using the regulator. Pull up on the regulator cap and turn in clockwise or counter-clockwise to adjust the pressure (Figure 4).

Figure 4-Pulse Bottle with Regulator

Test the manual pulse mechanism by pressing down firmly on the pulse button on the top of the valve.
Do not hold the button down continuously (Figure 5).

Figure 5-Actuation Of Pulse Filter Clean

If the vacuum is lifted off the drum during pulsing, your pressure is too high and it must be regulated downward.
After you have tested the pulse mechanism, it will automatically refill itself and be ready for the next pulse.You may now connect the vacuum hose and tools.
You have purchased this air-powered vacuum system with its manual pulse filter cleaning mechanism because you are dealing with difficult powder products in your operations. After vacuuming for a period of time, it is possible that you will experience a loss in vacuum performance due to “filter blinding”.
At this time, you should turn off the ball valve for the air supply, and press the pulse button on top giving the filter a “reverse pulse” of air to dislodge the powders.

Figure 6-Removal Of Filter Bag

Figure 7-Filter Cage Assembly

Figure 8-Filter and Filter Cage Removed

Operation of the vacuum should return to near-original conditions.
As the drum fills up with material, the time between pulsing can become shorter as the powders have less room in the drum to settle out of the airstream. You can pulse the filter bag several times if required. The pulse bottle will refill itself in 2-3 seconds.

The dust filter (filter bag) on your vacuum is a PTFE (Teflon)-coated material which was designed for its ability to keep powders from sticking to it and for its fine filtration efficiency of 99.9% at 1 micron size. The dust filter is supported by a filter "cage", and it is held in place by stainless steel hardware, which is removable by hand for filter replacement or removal for cleaning (Figures 6, 7, and 8).

MAINTENANCE

Your VAC-U-MAX air-powered vacuum is powder coated. Coated surfaces can be washed with mild soap and detergents. Do not use solvents or wire brushes to clean the vacuum!.

Figure 9-Venturi Muffler

Figure 10- Removal of Venturi Muffler

SAFETY GUIDELINES

- √ Do not operate the vacuum on uneven surfaces
- √ Do not block the exhaust air from the vacuum.
- √ Do not operate the vacuum in hazardous environments that contain flammable, explosive, or corrosive materials.
- √ Do not perform any maintenance on the vacuum until the compressed air has been disconnected from the vacuum.
- √ Do use proper safety gear, such as safety glasses, lifting belts, gloves, etc. when operating the vacuum.

The dust filter is washable with hot water up to 185° Fahrenheit. Soak the filter, do not rub it. They should then be hung dry on a line. Do not use any washing machines or dryers!!

Each venturi on your vacuum has an exhaust muffler. These mufflers also act as a final filter for contaminants which pass through the venturi (oil and dirt from the compressed air, or very fine materials which have passed the dust filter). These mufflers should be checked periodically for dirt buildup which will directly affect the performance of the vacuum. The mufflers can be accessed by removing the muffler guard on the vacuum cover. After the guard is removed, the mufflers will slide easily off the venturi (Figures 9 and 10).

Note: VAC-U-MAX urges caution when the vacuum is being used in hazardous or explosive areas. Proper precautions must be taken by the user or owner for operator safety and training when using the vacuum. If the working area is hazardous or explosive, contact VAC-U-MAX as to the suitability of your equipment, and/or the availability of optional equipment designed for that application.

VACUUM EQUALIZER KIT

Your VAC-U-MAX air powered vacuum is supplied with a Vacuum Equalizer Kit (VEK). This kit allows the placement of a standard plastic bag inside the drum for the collection of powders. The VEK prevents the bag from being pulled up against the filter when the vacuum is turned "on". When it is time to empty the drum, simply remove the vacuum from the drum, close off the bag, and lift it out of the drum. This eliminates the dusty process of turning drums over and creating a dust cloud.

VEK Installation

The VEK is supplied as an accessory kit with your VAC-U-MAX vacuum. If you DO NOT want to handle the collected powders in polybags, you may proceed directly to the operation of the vacuum.

If you DO want to take advantage of the convenience and dust-free handling of our VEK, you need to remove the 1/8" NPTM pipe plug located on a diamond-shaped stainless steel plate on the cover of the vacuum near the pulse jet assembly. Remove the contents of the VEK Kit from the bag and locate the 90-degree street elbow. Screw the elbow into the fitting where you removed the plug.

Drums with Bungs

Locate the 2" NPTM modified bung plug in the VEK kit and thread it into the 2" bung at the bottom sidewall of the drum. Screw the other 90-degree elbow with push-in fitting into the 1/8" NPTF hole in the bung plug with the push-in fitting facing upwards.

Drums without Bungs

Locate the bulkhead fitting supplied with the VEK kit. You will need to drill a 3/4" hole approximately 2.0" the bottom of the drum. Put a bead of silicone or other sealant around the bulkhead-fitting surface where it contacts the drum to prevent vacuum leaks. Install the bulkhead fitting before the sealant dries with the 1/8" NPTF thread on the exterior of the drum. When the sealant has dried, thread the 90-degree elbow with push-in fitting into the 1/8" NPTF hole of the bulkhead fitting. The push-in fitting should be facing upwards.

The VEK Hose

Screw the quick-disconnect nipple (male end) into the street elbow on the cover. Attach the quick-disconnect coupler (female end) to one end of the polytubing from the VEK kit. Push the other end of the polytubing into the fitting on the bung plug. The VEK kit is supplied with 5 feet of the polytubing for your convenience. When you need to empty the collected materials from the vacuum, disconnect the VEK at the quick-disconnect assembly and lift the vacuum from the drum. It is NOT necessary to use all 5 feet of polytubing—you can cut off any un-needed hose at the bung plug end to fit the height of your drum.

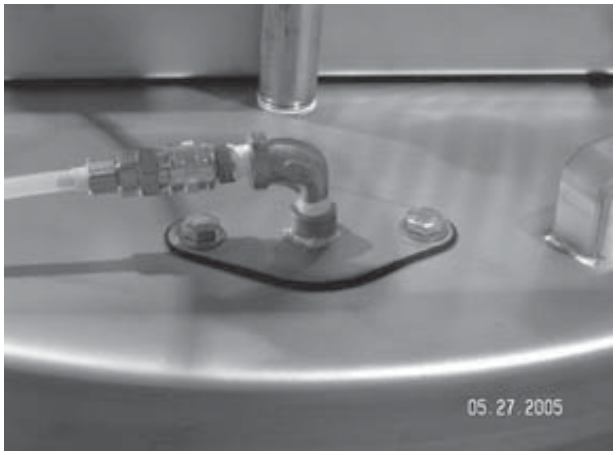

Figure 11 - View of VEK connection on Vacuum Cover.

We recommend an industrial-quality bag with minimum 4-mil, and preferably 6-mil thickness. The bag needs to be strong enough to support the amount of powder that you will collect before you empty the vacuum.

Note: Some materials can be quite heavy. If the bag will be lifted out of the drum vertically, make sure that the operator observes proper lifting techniques and is following your company's approved safety instructions for lifting.

If you do not plan to utilize the VEK, you must disconnect the tubing from the venturi housing to the bung plug of the drum. If you are not using a polybag inside the drum, and you do not disconnect the tubing, you will pull powder through the tube, and it will likely clog the exhaust muffler and/or blow powder into the air, necessitating replacement of the muffler(s) (Figure 11).

To install a plastic bag inside the drum, we recommend that you expand the bag (like a balloon) and push it into the drum. Wrap excess bag material over the edge of the drum and place the vacuum cover on the drum.

If you have purchased a vacuum "cover unit" from VAC-U-MAX (you provide your own drum and drum dolly), it will still include the VEK components such as the 1/4" tubing and the modified bung plug. The drum you select must have a 2" bung on the bottom to accept our bung plug.

Thank you for choosing
VAC-U-MAX equipment !!

TROUBLESHOOTING GUIDE

Problem	Solution
1. Vacuum has poor suction.	A. Insufficient compressed air supply. Check for proper air line size and pressure. B. Filter is blinded. Turn off vacuum and press pulse button several times. If condition continues, remove dust filter and clean or replace. C. Exhaust muffler(s) is/are clogged. Remove muffler gaurd and replace mufflers. Inspect dust filter for proper installation or damage. D. Hose is clogged. Reverse hose end-for-end and connect to vacuum to relieve the block age. E. Muffler(s) is/are clogged because VEK tube still connected but there is no polybag inside the drum. Utilize a polybag inside the drum, or disconnect VEK tube and replace muffler(s). F. Pulse valve is leaking. Open valve and inspect diaphragm for damage or foreign object interference. Clean or replace diaphragm as required. G. Drum has leaks. Inspect or replace drum. H. Cover gasket is missing or damaged resulting in leaks between cover and drum. Replace cover gasket. I. Drum is full and blocking inlet. Empty drum more often. J. Polybag is drawn against the filter and preventing airflow. Make sure that VEK is connected properly to hold polybag in place in the drum.
2. Drum collapses during operation.	A. Drum is not minimum 16-gauge steel onstruction. Replace with suitable drum. B. Excessive compressed air supply resulted in vacuum rating over 16" Hg. Use heavier-gauge drum or reduce air pressure to 60-90 psig with a regulator. C. Drum is dented causing weak spot. Replace with new round drum.

TROUBLESHOOTING GUIDE

Problem	Solution
3. Powder is blowing from the exhaust of the vacuum.	A. Dust filter is missing or damaged. Replace dust filter and muffler(s). B. Dust filter gasket is missing or damaged. Replace with new gasket. C. Dust particle size is less than 1 micron.HEPA filtered-vacuumed is required. Contact VAC-U-MAX sales for information.
4. Operator is being shocked by static electricity.	A. Vacuum cleaning hose and/or tools are not static-conductive. Replace as necessary. B. Static ground wire in hose is broken, or ground strap on end-cuff is not making contact with vacuum cleaner. C. External grounding of vacuum is missing.Utilize VAC-U-MAX static-conductive high-pressure air hose, or a separate ground wire kit to ground the vacuum.(Note: if compressed air system is not grounded, e.g. PVC pipe, you must use the separate ground wire kit to prevent uncontrolled static discharge.)

BILL OF MATERIALS
REPLACEABLE PARTS LISTING

[ITEMS LISTED BY CATALOG NUMBER]

ITEM #	DESCRIPTION	APPLICABLE MODELS
04081	Single Jet Muffler Guard with decal	40006/40008 40010/40012
04632	Twin Jet Venturi Muffler Guard	40011/40013
65510RU	Repair Kit for High Pressure Diaphragm Valve	All Models
01345	High Pressure Air Regulator	All Models
01358	Pressure Gauge 0-160 PSIG	All Models
25916	Flanged Inlet 1.5 inch Stainless Steel	40006/40008 40010/40012
26108	Flanged Inlet Stainless Steel 2.0 inch	40011/40013
03626	Cover Gasket .375x1.25x72	All Models
03633	Filter Gasket .375x.375x60	All Models
47595SCRIM	Dust Filter 13.75x8.25x11 TTK Static Conductive	40006/40008
20191SCRIM	Dust Filter 13x16x11 TTK Static Conductive	40010/40011 40012/40013
01237	VEK Quick Disconnect Coupler .25 tube	All Models
01238	VEK Quick Disconnect Nipple .25 tube	All Models
04886	Four Inch Diameter Static Conductive Swivel Casters	40008/ 40012/40013
01376	Venturi Exhaust Muffler	All Models
03851	Twin Jet Variable Orifice Manifold	40011/40013
03850	Single Jet Variable Orifice Manifold	40006/40008 40010/40012
03729	Brass Ball Valve .75 NPT	40011/40011
03728	Brass Ball Valve .5 NPT	40006/40008 40010/40012