

mityvac®

INSTRUCTION MANUAL



CE[®]

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The Mityvac® hand-held vacuum pump is used in a variety of industrial and scientific applications. Users find the unit to be compact, lightweight, and easy to use. Some applications include:

- Vacuum Filtration
- Liquid Transfer or Pickup
- Integrity Checks of Hydraulic, Vacuum or Liquid Lines
- Valve Checks

The pumps (except for the Silverline Metal Pump) are constructed of durable, rigid, engineering polymer (PVC). They will attain and hold 25 (62cm) Hg vacuum and a minimum of 7 psig pressure; both vacuum and pressure nozzles fit standard 1/4" (6mm) ID. tubing. The pumps also feature a trigger vacuum release.

All pump models are available with or without a vacuum gauge (Excluding the Silverline pump). In addition, the Dual Converter is available as a kit for all pumps. This accessory allows easy, convenient switching from vacuum to pressure applications and may be purchased separately or already installed on the pump. It has its own built-in compound gauge for direct reading of either vacuum or pressure. The pumps are available individually, or they may be purchased as part of a specially designed Kit which includes the most popular vacuum/pressure accessories.

If you have comments or suggestions, please send them to the address below. Feedback from you is important to us, so that we may continue to improve **Mityvac®** products and their usefulness to you.

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LIMITED WARRANTY

Lincoln warrants the equipment it supplies to be free from defects in material and workmanship for one (1) year following the date of purchase. If equipment proves to be defective during this warranty period it will be repaired or replaced, at Lincoln's discretion, without charge provided that factory authorized examination indicates the equipment to be defective. To obtain repair or replacement, you must ship the equipment, transportation charges prepaid, with proof of date of purchase to a Lincoln authorized warranty and service center, within one (1) year following the date of purchase.

Lincoln warrants the MityVac equipment it supplies to be free from defects in material and workmanship for one (1) year following the date of purchase. If equipment proves to be defective during the warranty period it will be repaired, or replaced, at Lincoln's discretion, without charge provided that factory authorized examination indicates the equipment to be defective. To obtain repair or replacement, you must ship the equipment, transportation charges prepaid, with proof of purchase to a Lincoln Authorized Warranty and Service Center within one (1) year following the date of purchase.

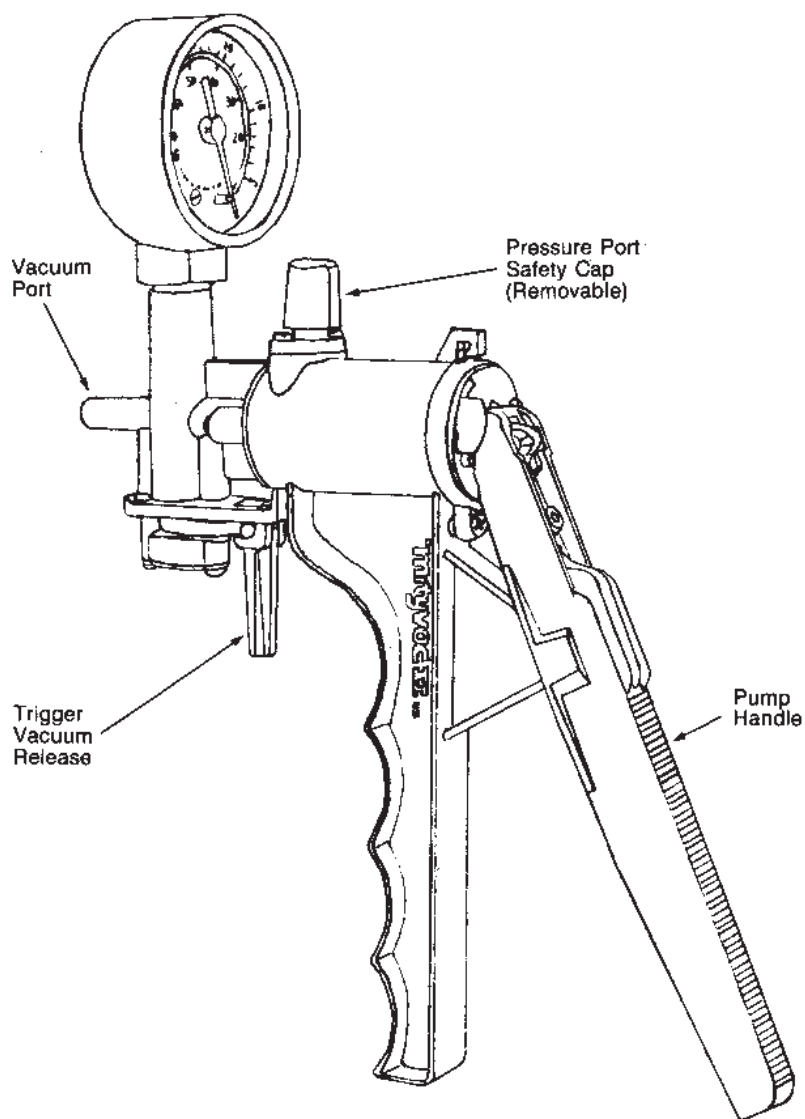
This warranty is extended to the original retail purchaser only. It does not apply to equipment damaged from accident, overload, abuse, misuse, negligence, faulty installation or abrasive or corrosive material, or to equipment repaired or altered by anyone not authorized by Lincoln to repair or alter the equipment. This warranty applies only to equipment installed and operated according to the recommendations of Lincoln or its authorized field personnel. No other express warranty applies.

Any implied warranties applicable to equipment supplied by Lincoln, including the warranties of merchantability and fitness for a particular purpose, will last for only one (1) year from the date of purchase. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

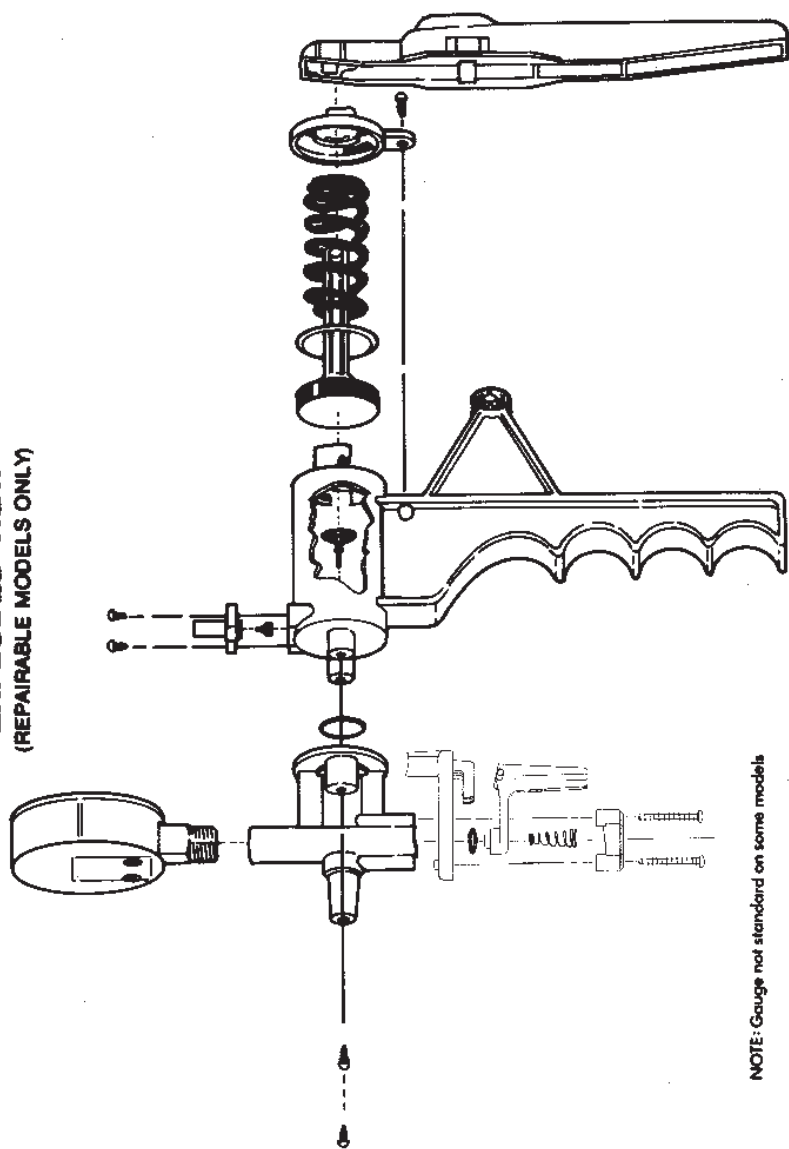
In no event shall Lincoln be liable for incidental or consequential damages. Lincoln's liability on any claim for loss or damages arising out of the sale, resale or use of equipment it supplies shall in no event exceed the purchase price. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights. You may also have other rights that vary by jurisdiction.

THE MITYVAC[®] PUMP



EXPLODED VIEW
(REPAIRABLE MODELS ONLY)



NOTE: Gauge not standard on some models



PRESSURE UNIT CONVERSION FACTORS

Known:

Multiply the known by the given factor to get:

- inches of Mercury:
- millimeters of Mercury:
- pounds per sq. inch:
- pounds per sq. foot:
- inches of water:
- feet of water:
- millibars:
- kiloPascals:
- atmospheres:
- kilograms per sq. meter:

inches of mercury (" Hg)	millimeters of mercury (mm Hg)	pounds per square inch (psi)	pounds per square foot (psf)	inches of water (" H ₂ O)	feet of water (ft H ₂ O)	millibars (mb)	kiloPascals (kPa)	atmospheres (A or Atm)	kilograms per sq meter (kg/m ²)
1.000	.039	2.036	.014	.074	.883	.030	.295	29.920	.0029
25.400	1.000	51.712	.359	1.870	22.445	.750	7.496	760.000	.0736
.491	.019	1.000	.069	.036	.434	.015	.145	14.696	.0014
70.733	2.765	144.000	1.000	5.209	62.430	2.088	20.880	2116.325	.2048
13.580	.535	27.648	.192	1.000	12.000	.401	4.009	408.314	.0394
1.133	.045	2.307	.016	.083	1.000	.033	.334	33.950	.0033
33.864	1.353	68.943	.479	2.494	29.920	1.000	10.000	1013.250	.0981
3.381	.133	6.863	.048	.249	2.987	.100	1.000	101.325	.0098
.033	.001	.068	.0005	.002	.030	.001	.010	1.000	.0001
345.300	1360.000	703.100	4.862	25.400	304.800	10.193	101.931	10333.000	1.0000

To use the chart: find the column for the "known" measurement. Go down the column to the row wanted. Multiply the known number by the factor to get the wanted number.

For example: Assume we have a pressure of 11 pounds per square inch and we want to convert that to millimeters of Mercury. Go to the psi column and the Millimeters of Mercury row. We then multiply 11 by 51.712 to get our answer, 568.832 millimeters of mercury.

While Prism Enterprises, Inc. believes these factors to be correct, we make no warranty as to accuracy or applicability.

THE MITYVAC® PUMP

This **Mityvac®** vacuum pump is an extremely versatile service tool that can be used to test a variety of systems and perform a number of useful tasks. Almost any part or system that requires proper sealing, pressure or vacuum to operate can be tested with the Mityvac® vacuum pump. The pump and its accessories also transfer fluids and aid in other tasks.

This pamphlet will describe the Mityvac® pump, give specifications, list available kits and accessories, tell how to use the pump and provide some service tips to help you keep your **Mityvac®** pump in tip-top shape.

DESCRIPTION

The Mityvac® hand-held vacuum pump is manufactured by Lincoln Industrial. It is simple, accurate, easy to use and has many applications. Although it comes in several different versions, the basic Mityvac® unit consists of a pump body, movable handle, vacuum gauge, vacuum release, vacuum fitting and a safety-capped pressure fitting. The pump is easily held in your hand, and when the handle is squeezed, a vacuum is drawn at the vacuum fitting. If the vacuum fitting of the pump is connected to a closed container or system, the gauge will show the vacuum level. If the pressure fitting is attached to the container or system, a pressure will be generated but will not be shown on the gauge. If it is desired to read the amount of pressure, a separate pressure gauge is needed.

VACUUM RELEASE

The vacuum release is a Trigger Vacuum Release. It is a straight lever which must be pulled straight back to release the vacuum. This action allows air to enter the system, thus relieving the vacuum.

SAFETY CAP

The small cap on the pressure fitting is pressed on with a friction fit. It can be removed with a twisting pull. The cap is used to prevent any fluids which may have accidentally been pulled into the pump, from squirting out into the user's eyes. Also, it protects check valve from dirt and dust. For this reason, the cap should always be in place when using the pump, except when using the pressure fitting.

The pump will last for many years if cared for properly (See section on **Proper Care**).

SPECIFICATIONS

Application	Measurement
-------------	-------------

Maximum Vacuum At	
Sea Level	Approx. 23-25" in Hg
	Volume
Standard	1 cu. in.
Superpump	2 cu. in.
Silverline	1 cu. in.

Maximum Pressure (with Dual Converter)	
--	--

<u>Unassisted</u>	
Standard	12 psi
Superpump	7psi
Silverline	15 psi
<u>Assisted</u>	
Standard	30 psi
Superpump	25 psi
Silverline	30+ psi

Gauge Accuracy	
15-20 in. Hg	+3/2/3%

MAINTENANCE KITS

are available for all pumps models. (See section on lubrication.)

USING THE MITYVAC® PUMP

The Mityvac® vacuum pump is simple to use. In most cases, the Mityvac® pump is either attached directly to a component, used in place of a vacuum line or connected into a vacuum circuit with a tee connector.

The Mityvac® pump can be operated as a test instrument in three ways.

- (1) When vacuum is desired for a test, the movable handle of the pump is simply squeezed with your hand, as in clenching your fist. Continue strokes until desired vacuum is indicated on the gauge.
- (2) The Mityvac® pump can be connected into a vacuum circuit and used to measure existing amounts of vacuum, just as any vacuum gauge would be used. When used this way, do not pump the handle, or incorrect readings may result.

- (3) The **Mityvac®** pump can also be used as a pressure pump by removing the safety cap and connecting to the pressure fitting. When the pump handle is released from the closed position, pressure is created. Additional pressure can be applied by manually pushing in the piston pump rod. **CAUTION:** Always be sure the cap is in place unless the pressure fitting is being used.

PROPER CARE

Your Mityvac® pump is a sturdily built, precision test instrument. **Do handle it carefully!** Don't drop or handle roughly as the gauge accuracy may be affected. Don't lay on hot surface or expose to direct flame. Care for your Mityvac® pump and it will give you years of trouble-free service.

Lubrication — The factory installed lubricant is silicone oil and should provide very long service. If you find it necessary to lubricate your pump, use silicone oil. If unavailable, you may use DOT 5 (**not** DOT 3) silicone-based brake fluid. Do not use petroleum based fluids or spray lubricants (WD-40, motor oil etc.) as these will damage the pump. If cleaning the **Silverline™** metal pump with water, be sure to **dry thoroughly** — and then relubricate to avoid oxidation.

TRANSFERRING/ SIPHONING LIQUIDS

The Mityvac® Kits and the Liquid Transfer Accessory Kit (No. 6845) contains jar lids for standard size and wide-mouth mason jars, and necessary pieces of plastic tubing and tubing adapters for transferring

liquids from one container to another. The 70mm and 84mm lids make it easy to siphon fluids in small volume applications. The threaded lid will fit most standard cans.

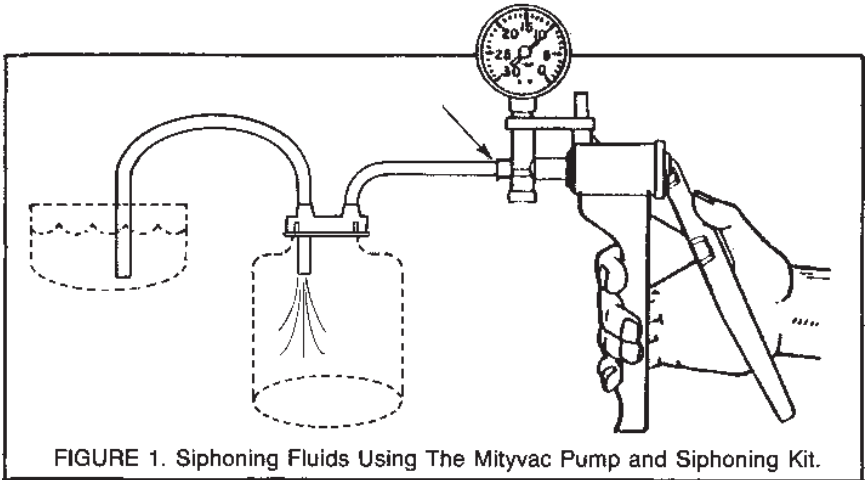


FIGURE 1. Siphoning Fluids Using The Mityvac Pump and Siphoning Kit.

SIPHONING PROCEDURE

Since the Mityvac® pump was not designed to pump liquids through it, an intermediate receptacle must be used to prevent the liquids from reaching the pump (Figure 1). The siphoning procedure is simple:

1. From the Kit, select a lid that fits your receptacle. Tighten the lid or ring firmly on the receptacle.
2. Connect the piece of 1/4" inside diameter (ID) tubing between lid outlet marked "PUMP" and the vacuum port of the Mityvac® pump as shown (Figure 1).
3. Push the appropriately sized tubing through the lid until about 3" extends through. Place the other end in the liquid to be siphoned.
4. Keep the receptacle below the level of the liquid being siphoned, and pump the Mityvac® vacuum pump until liquid is flowing into the receptacle. The liquid will continue to flow as long as the receptacle remains lower than the liquid being siphoned. However, continued use of the pump will hurry the process.
5. When the desired amount of liquid is siphoned, remove the long tubing from the tank.

CAREFUL: Stop siphoning before the receptacle is completely filled to avoid drawing liquid into the pump.

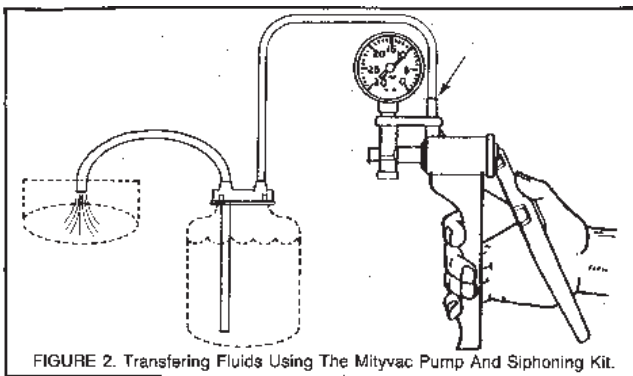


FIGURE 2. Transferring Fluids Using The Mityvac Pump And Siphoning Kit.

LIQUID TRANSFER PROCEDURE

The liquid transfer procedure uses the pressure feature of the Mityvac® pump to push liquids from one container into another.

1. From the accessories, select a lid to fit your container. Tighten the lid or ring firmly on the container.
2. Connect the piece of 1/4" inside diameter (ID) tubing between lid outlet marked "PUMP" and the pressure port of the Mityvac® pump as shown (Figure 2).
3. Push the appropriately sized tubing through the lid of the container until the end of the tubing is about 1/8" to 1/4" from the bottom of the container.
4. Put the other end of this tubing into whatever container will be receiving the liquid.

5. Pump the Mityvac® pump until the desired amount of liquid has been transferred.

Note: Because there will be residual pressure in the sealed container (the one you're transferring **from**), slow down the pumping as the receiving container gets full, or else the fluid will overflow.

If liquid is accidentally drawn into the Mityvac® pump, flush quickly with clean warm soapy water, rinse with clean water and dry thoroughly.

Relubricate the pump with a non-petroleum based lubricant (silicone oil).

Instructions for the use of the variable tubing adapters

1. Select an internal adapter (the circular T-shaped pieves) which will fit your tubing. Note that 1/2" Outside Diameter tubing will fit directly into the lid, without an adapter.
2. Wet the outside of the tubing to help it slide into the adapter.
3. Slide the tubing into the adapter as far as you want it to go, starting at the big end of the T. The tubing must go completely into the adapter in order to work.
4. If you have chosen one of the smaller adapters, select another one (or more) to do around the smaller one and "stack" them until they fit snugly into the lid.
5. Make sure the adapters are pushed fully into the lid and into each other.
6. Attach your now-completed lid assembly to the can or jar you will be using.
7. Attach a tube from the other port on the lid to the pump, and begin pumping.

©Declaration of Conformity as defined by Machinery directive 98/37/EG Annex II A

This is to declare that the design of the **Hand-held Vacuum and Low Pressure pumps for Mityvac products** in the version supplied by Lincoln Industrial, complies with provisions of the Directives 98/37/EG.

Applied harmonized standards in particular:

1. EN 292-1 Safety of machinery part 1
Basic terminology, methodology
2. EN 292-2 Safety of machinery part 2
Technical principles and specifications
3. EN 809 Pumps and pump units for liquids Safety requirements

©Déclaration de la conformité comme définie par l'annexe II A de Machinery Directive 98/37/EG.

Ce doit déclarer que la conception du **Pompes de vide tenu dans la main et de basse pression pour des produits de Mityvac** dans la version fournie par nous, se conforme aux dispositions du 98/37/EG directif.

Normes harmonisées appliquées en particulier

1. EN 292-1 Safety of machinery part 1
Basic terminology, methodology
2. EN 292-2 Safety of machinery part 2
Technical principles and specifications
3. EN 809 Pumps and pump units for liquids Safety requirements



St. Louis, MO 11/09/2004. Ayzik Grach, Manager, Product Engineering.

©EG-Konformitätserklärung nach Richtlinie 98/37/EG Anhang II A

Hiermit erklären wir, dass dieses Produkt **Handvakuumpumpe- und Niederdruckpumpen für Mityvac Produkte** in der von uns gelieferten Ausführung den Bestimmungen der Richtlinie 98/37/EG für Maschinen entspricht.

Angewendete harmonisierte Normen, insbesondere:

1. EN 292-1 Safety of machinery part 1
Basic terminology, methodology
2. EN 292-2 Safety of machinery part 2
Technical principles and specifications
3. EN 809 Pumps and pump units for liquids Safety requirements

©Declaración de la conformidad según lo definido por el anexo II A de Machinery Directive 98/37/EG

Éste debe declarar que el diseño de la **Bombas del vacío hand-held y de la presión baja para los productos de Mityvac** en la versión provista por nosotros, se conforma con las provisiones del 98/37/EG directivo.

Estándares armonizados aplicados en detalle:

1. EN 292-1 Safety of machinery part 1
Basic terminology, methodology
2. EN 292-2 Safety of machinery part 2
Technical principles and specifications
3. EN 809 Pumps and pump units for liquids Safety requirements

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