

# **Manual for the UniMove Unit**

## **Models CM450/CM470**

Section A: **Introduction**

Section B: **Installation**

Section C: **Operation**

Section D: **Maintenance & Spare Parts List**

Section E: **Warranty**

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## **Section A: Introduction**

*Welcome to the rapidly growing list of satisfied UniMove users! The UniMove unit will allow your plant personnel to handle a wide variety of objects and products that have been manually lifted in the past. The use of this unit will drastically curtail or eliminate the potential for operator injury while retaining (or increasing) the productivity your operation demands.*

*The UniMove is not operated by vacuum in the traditional sense. Traditional high vacuum systems (90-95% vacuum) require a near perfectly smooth, non-porous attachment surface and any air flow into the seal area will result in an immediate release of the load. A high vacuum system is highly aggressive, can damage many surfaces and is very dangerous to an operator should accidental skin contact occur. Traditional high vacuum systems require a secondary materials handling device (electric hoist, air cylinder, manipulator arm etc.) to lift and transport your load. Moreover, the necessary utilization of compressed air to power these systems can result in high energy and operating costs.*

*The UniMove is a high air flow suction device and does not suffer (within it's rated capacity) from the limitations of traditional vacuum systems. The unit pulls up to approx. 210 CFM of air at 16-18" Hg vacuum (45-55% vacuum) at all times regardless of whether or not your load is porous or non-porous. This moving column of air grabs, supports, lifts and lowers your load and does it quickly, controllably and effortlessly. Transport from point A to point B is accomplished by mounting the unit on ergonomically designed, very light weight crane systems. The high air flow produced by this unit allows your load handling surfaces to be porous and still be gripped very securely but quite gently. Note: The handling of a living being is never recommended, however accidental contact is not dangerous. Since the air column is always moving through the UniMove unit, there is no lag time at either attachment or release points. The unit is self-contained and powered by an economical NEMA 145TC frame 3.0 HP three-phase TEFC electric motor.*

*The American-made UniMove is an extremely versatile, effective and cost efficient materials handling device that will protect plant personnel from injury and add to the profitability of your company. UNIMOVE, LLC is the most experienced supplier of this type of materials handling equipment to the industrial market and we and our local dealers stand fully prepared to support and aid your company in its application of these units.*

## **Section B: Installation**

### **Unpacking:**

Carefully unpack the unit from its shipping container. Place the lift tube assembly in a protected space until you are ready to hang it from your crane trolley. **Do not** place anything on top of the lift tube assembly that could damage it!

### **Installation of Power Unit:**

Assemble the power unit according to the instruction sheet you will find inside of the enclosure. Keep this instruction sheet for future reference.

Mount and secure the power unit in a location that will not interfere with the operation of the crane system or any other plant equipment. Floor level installation is not recommended! When choosing a location keep in mind that the power unit must be connected to the in-line air filter with the length of the 2" blue suction hose cut from the hose provided with the unit. The suction hose can lose approx. 30% of its overall length when the UniMove is handling a load. Keep this in mind when determining the location of the filter housing, the maximum travel of the unit on the crane system and in determining the length of suction hose to cut to connect them.

**Caution:** Secure the hose ends to their attachment points with high-torque hose clamps. **Failure to follow these instructions could result in operator injury!**

The power unit can be remotely located from the system and hard-piped with 2" O.D. gray PVC vacuum tubing. The flexible hose is necessary only on the crane system! Consult your local dealer or UNIMOVE on any remote installations.

**Never** mount the power unit on any moveable component (such as the bridge or jib boom) of the crane system!

Suggested mounting locations: A simple steel shelf connected to a column or wall at a height to allow for unrestricted aisle passage. Suspend a similar baseplate from overhead with suitable support rods if ceiling loading permits.

**Always** fasten or otherwise contain the power unit within its support to prevent any movement.

**Electrical Hook-up:** The power unit has a 3.0 HP, 208/230/460 volt, 3 ph, 60 Hz NEMA 145TC frame TEFC electric motor. "Take over point" (T.O.P.) is the electrical junction box on the motor. Use your choice of strain relief to pass through the wall of the junction box. We recommend the installation of a suitable

motor starter/overload protection device and an ON/OFF push button control of the proper NEMA ratings for your facility.

**Caution:** It is critical that this unit be connected to an electrical service that will provide suitable and constant voltage and amperage! The UniMove is powered by a 3,450 RPM high speed motor and any drop in RPM's can affect the performance of the unit in gripping power and lifting capacity.

All local electrical codes and insurer's requirements must be adhered to.

**Note:** Proper rotation of the pump is required. Air must flow from the filter assembly into the inlet port of the pump (stamped "IN") and be exhausted through the exhaust port of the pump (stamped "OUT") into the silencer.

If desired, the exhaust air flow can be directed away from the power unit by means of 4" ID open ducting or hose clamped over the end of the silencer. **Note:** Exhaust hose must be able to withstand 275°F.

Never block or otherwise obstruct the free flow of the exhaust air.

**Always** connect the complete air filter to the inlet port before testing or running the power unit!

### **Installation of unit on crane system:**

Crane system must be installed and checked for level and free movement before the unit is installed. Power unit and filter should be located and installed.

**Caution:** If you feel the crane system dragging or binding at any point, correct the problem before installing the UniMove unit. Anything less than a totally free-moving crane system will affect the overall operation of the whole system!

Attach the lift tube assembly to the crane trolley. A rigid attachment is preferable as it will transmit the movement of the unit to the crane system more effectively.

Move the unit through all areas of the crane system's possible movement and make sure that no part of the lift tube assembly can hit any obstruction. Stop

damage before it occurs!

Mounting air filter: Mount the in-line air filter housing in a convenient location of your choice (nearby column, wall, etc.)

**Important!!** The standard filter (#3500) normally supplied with the unit has a filter element rated at 10 micron particle diameter protection. This will protect the pump from most dust found in industrial areas. If you have smaller particles in your environment contact your dealer or UNIMOVE.

Mount the filter housing so that the access cover to the filter element is facing down. This will allow any dirt in the housing body to fall out of the system when the filter element is changed.

**Failure to mount the filter body as noted above will void any warranty coverage on the pump.**

Utilize the 2" blue suction hose to festoon along the crane system and to connect the filter housing to the inlet on the upper swivel assembly of the lift tube. Use the minimum number of festoon hanger points that will keep the suction hose out of your active workspace as every hanger adds a slight amount of friction to the unit's travel.

To connect the festooned loops of suction hose to the festooning hangers we suggest the following: Place a S/S hose clamp around the hose at the desired attachment point and tighten loosely. Slip a 7" or 8" long heavy nylon ty-rop between the hose and the clamp, then tighten the clamp firmly. Use the ty-rop to attach to the festoon trolley on the crane. This will allow the suction hose to coil and twist naturally while following a straight line of travel during operation. The tight grip of the hose clamp around the hose should prevent the hose from "snaking" thru the connection during use.

Keep in mind that one end of a crane bridge and runway will have to accommodate all of the retracted festooned suction hose (the same as a crane with a traditional electric hoist) and you will lose that area of your work space. The minimum number of festoon hangers will result in the least work area lost.

Note on Festooning: Festooning a coil of hose is somewhat different than festooning electrical cable. First, uncoil the suction hose and stretch it out on the floor in a straight line. When you pull the hose towards you as you festoon, the hose will be able to rotate and will allow you to easily control the size and shape of the festooning loops. We suggest that you let the hose follow its natural twist and form an upward pointing loop where you wish to attach the festooning trolley. Attach the trolley at the top of the loop. In this manner the hose, when fully retracted, will fall into a series of mating loops. By tightening and

loosening individual hose clamps you can easily adjust the festoon loops so that they are all the same size and shape.

**Caution:** After the unit is under power and holding a load, move the lift tube and festooned suction hose throughout the entire area of the crane system. Watch the movement of the festooned hose and be sure that the hose cannot "kink" or pinch together. This can cause a major restriction of the air flow that will cause pump and/or motor damage and possibly affect the safe operation of the system!

Sections of suction hose can be simply joined together by using a short (4" - 6") section of 2" O.D. automotive exhaust pipe as a splice and securing the hose ends over each end of the pipe with high torque clamps. Splice kits are available from UniTech Industries, Inc.

Firmly attach the suction foot to the bottom of the control head on the lift tube with the two mounting screws provided.

Be sure that the mounting gasket is properly positioned between the suction foot and the control head and that the mounting screws pass through the holes provided in the mounting gasket.

**Note:** Proper tightness of the mounting screws is when the gasket is firmly seated and compressed so that a slight bulge of gasket material can be seen around it's perimeter. **Do not over-tighten!!!**

**Note:** A mounting gasket must be used at every connection between the bottom of the control head and any attachment (including the mechanical adaptor) to insure an airtight seal.

We strongly recommend that you choose a "unit-off" position and provide either a shelf or hook to secure the lift tube when not under power. We have found that units left unattended and dangling from their crane systems when turned off are much more likely to be damaged by other plant equipment or personnel. The unit should be removed from this support before turning the power on.

**Caution:** All units having custom designed end effectors weighing more than ten pounds (10#) must have the control heads supported at all times while the units are off. The dead weight of these large units can cause the tube attachments to loosen when the units is not under power. This will not happen while the units are in use.

Check that a clean filter element is properly installed in the air filter housing **at all times** during the unit's operation. Always insure that the rubber seal under the air filter access cover is properly seated and that there are no air leaks.

**Caution:** Check all connections on the unit and crane system for proper tightness and seal.

Have your dealer inspect the installation before you "start-up" the system.  
**This inspection is required for full warranty and liability coverage!**

**Caution:** Understand all of the procedures outlined in the "Operations" section of this manual before operating this equipment!

**The UniMove unit is now ready for operation.**

## **Section C: Operation**

The operation of the UniMove unit is simple indeed and one of its greatest assets.

**Caution: DO NOT attempt to operate this unit until you have read and understand all of the operational instructions and "Cautions" contained in this manual.**

The blue hand rest is adjustable up and down, in and out by loosening the four (4) black knobs or locknuts on the hand rest, choosing your desired position and re-tightening.

**\*\*\*IMPORTANT\*\*\*** Adjust the hand rest on the control head, with your palm resting on the hand rest, so that **only your fingertips** will naturally slide into the blue & yellow colored control handle. The **fingertip** opening in the control handle can be easily widened or narrowed by turning the two black knobs on the handle. Proper adjustment of the opening size will allow you to easily insert your **fingertips only** while retaining a "snug" fit front and back.

**DO NOT insert more than your fingertips thru the control handle!** You will not have enough front to rear stroke to properly operate the unit and it will feel very uncomfortable. **Place** your thumb on the curved thumb rest provided on the blue hand rest. This will allow your hand to grip the control and will improve the overall comfort and control of the unit.

The UniMove control head is designed to be used by both right- and left-handed operators.

Remove the UniMove unit from its "unit-off" position and pull the control handle back to the "release" position.

Turn on the power.

### **Controls**

**Lift/lower** is controlled in either the loaded or unloaded mode of operation by the blue & yellow colored operating handle on the control head. **Push** the operating handle in (toward the lift tube) - the unit lifts, **Pull** the operating handle back (toward the operator) - the unit lowers.

**Speed** is controlled by how rapidly and how far in (lift) or out (lower) you move the control handle. The unit is capable of very slow or fast movement that is easily controlled by the operator.

**Varying weights and surfaces** will **automatically** set their own point in the stroke of travel of the control handle where the unit begins to lift or lower.



Note: The UniMove unit is designed to give you a comfortable and controllable stroke for lifting and lowering a load. If the control feels too "touchy" see the Troubleshooting section of this manual or contact your dealer.

Attachment of the load to be handled is accomplished by simply placing the suction foot on top of the load. The constantly moving air flow will cause the rubber seal(s) of the suction foot to grab the load surface. A good suction seal (grip) must be made before the unit can lift more than its own weight.

A good seal (grip) on your load will happen instantly or not at all. You do not have to wait for vacuum to build up, it's always ready.

**Caution:** Always place the suction foot directly over the center point of even weight distribution for your load. A very unbalanced load can "peel" away from the seal and cause the load to drop. You will discover from operating this unit that it is simply easier to handle a balanced load than an unbalanced load.

**Caution:** Any suction or vacuum seal can be broken by peeling the seal away from the load.

**Caution:** Never touch, in any manner, the seal area while the unit is handling a load. Lifting the edge of the sealing gasket or otherwise breaking the seal will result in the instantaneous release of the load!

**Caution:** When handling long or wide loads (eg. sheets, pipe, long rolls, etc.) do not press down or pull up on the load with your free hand. The distance from your free hand to the edge of the suction seal becomes a lever and could cause the load to release. Control your load by pushing straight forwards or pulling straight back on the unit. Let the UniMove lift and lower your load!

Release of the load (standard units) is accomplished by placing your load in its desired resting place and taking all weight off of the unit. Then pull the control handle all the way back through its maximum travel toward the operator and the load will release instantly. As you reach the end of the control handle's travel and as the load releases, lift one corner of the suction seal slightly to prevent re-attachment, move the control handle back to the operating position and power the unit away for your next load.

Automatic loaded/unloaded balance control is built into the UniMove's unique control valve system. The unit may be stopped at any point in its vertical length of travel and will remain at this point until the operator moves the control handle to change the position. Note: Control handle tension adjustment (see below) set at its higher levels (screwed in) can affect unloaded balance. A

*minute of experimentation by each operator will allow them to find a comfortable "blend" of these controls.*

**Caution:** *We strongly recommend that the operator allow an unloaded unit to balance at a height no higher than waist level. The control head of the unit, hanging at eye level, could result in injury to any fellow employee!*

**Caution:** *Allowing the unit to remain attached to any surface for extended periods of time can cause premature pump and/or motor wear and possible damage. Never allow the unit to remain near full lift (loaded OR unloaded) for longer than one minute. This is equivalent to parking your car and "flooring" the accelerator pedal for long periods!*

*Unloaded speed control is located on the lower left side (operator facing the control handle) of the control head.*

*This control allows each operator to set a comfortable unloaded rate of response in a matter of seconds. The small S/S knob controls pre-set unloaded unit speed. This control has no effect on the unit's loaded performance. Turning the knob counterclockwise slows the rate at which the control head will move in response to movement of the control handle. Turning the knob clockwise will increase the speed of the control head. We suggest that you turn the knob counterclockwise until the unit becomes too slow, then begin to turn the knob clockwise until the response is where you want it.*

*Control handle tension control is the black knob located directly below the control handle. Adjustment of this knob will allow you to set a level of tension on the control handle and to allow the control handle to "spring" out of the full release position into the beginning of the operating stroke. Rotating the knob clockwise will increase the tension on the handle and rotating the knob counter-clockwise will reduce the tension. We suggest that this control should be screwed in until the base of the black knob is flush with the valve enclosure wall (optional controls available). This will allow the unit to balance at any point that the operator chooses. Always keep some tension on the control handle so that the response of the unit feels predictable and comfortable to you.*

*Once you have set these controls to your desired operational levels, no further adjustment will be necessary unless you wish to change the performance of the unit.*

## Operation

Rotation of the unit is provided by the top swivel at the top of the lift tube assembly. The lift tube has continuous 360 degree manual ball bearing-mounted rotation.

**Caution:** A totally inexperienced operator should not attempt to handle a load with this unit immediately. Raise and lower the unloaded unit for a few seconds (or more) to get a "feel" for how the unit operates. When attaching to a load for the first time use a **slow** movement of the operating handle to get a "feel" for the speed control of the unit while lifting and lowering, then set the load straight down, release, re-attach and repeat several times. Then attempt a transport of your load through it's cycle.

**Rated maximum capacities** of each unit are located to the right of the control handle on all units. Maximum capacities on solid or non-porous surfaces will remain constant unless there is a leak somewhere in the system. Maximum rated capacities on a porous surface may be affected by the changing porosity of packaging materials. Maximum rated capacities on any surface may also be affected by the use of optional attachments and/or adapters.

**Warning:** **Never attempt to handle any load that exceeds the maximum rated capacity of the unit!!!**

Transport of your load from point A to point B is accomplished by the lightweight crane system from which the UniMove unit is hung.

The operator should use both hands to move the unit through your workspace. You will find that it is much easier to operate with both hands on the unit. Handholds are provided on both sides of the control head for this purpose. The handholds are angled for the natural way that the human hand grabs a vertical object.

**Caution:** **The UniMove unit, or any other hoist, is designed to be used only in the plumb and vertical position. Never try to handle a load that is outside of the work envelope of your crane system! Never attempt to attach to and lift any object with the yellow lift tube angled towards the object!! This is absolutely prohibited and a dangerous action with ANY type of lifting equipment including traditional electric hoists!!**

**Caution:** **Never place any body part under, stand under or over or allow someone else to stand under or over a load being lifted or transported. This is simply a good safety practice with any lifting device!**

*In the event of a power outage the unit will trap the existing vacuum in the lift tube, however the unit will immediately begin a controllable decent to the ground. The unit will not drop the load. Moving the control handle forward into the lift position (a natural reaction) will allow you to "brake" the decent of the load and place it on the floor. Should you have fragile loads or critical surfaces, we strongly suggest covering your floor with suitable matting. End-users with dangerous, very fragile or valuable loads should consult with their local dealer and UNIMOVE for additional safeguards.*

*Note: We strongly suggest that a new operator handle a non-critical load while a second person deliberately cuts off power to the unit. This will allow the operator to become used to the action of the unit should a power outage occur and will result in a safer operation. Since power outages generally occur infrequently, we also suggest that even experienced operators practice this procedure on a regular basis.*

### **Safety**

*The UniMove unit must be operated within the guidelines contained in this manual. All safety procedures required by OSHA, your insurer, company policy, federal, state and local agencies must be adhered to. Required protective clothing, devices and procedures for the handling of potentially dangerous loads must be utilized.*

*Do **NOT** attempt to operate the unit until you have read and understand all of the "Cautions" and "Warnings" contained in this manual.*

*Should you have any questions concerning the safe operation of this equipment, contact UNIMOVE, LLC. **before** you attempt to use the unit.*

### **Operating Tips**

*The adjustability of the hand rest and control handle allows many different positions of the operator's hand. Experiment to find the position most comfortable and productive for you.*

*When operating the unit through its work cycle, relax and let the unit do the work for you. Never "muscle" the unit through the cycle. A smooth flowing motion will result in an almost effortless and fast work cycle for the operator.*

*When transporting the unit along the crane system, don't lift your load straight up, move to your release position and lower the load straight down. As you begin to lift*

*your load also begin your side-to-side transfer. This will result in your moving in a smooth arc up, across and down. You will find that a great deal of the unit's energy used to lift and lower will be transferred to "power" your side-to-side travel. You will find that even in transfers over long distances the light weight crane systems will allow you to move with very little effort.*

**Critical positioning:** *The UniMove control will allow very precise positioning of any load. If you have a load that requires extremely precise positioning you will find that the unit, when balanced, has several inches of up and down "float". This built-in "float" allows you to let go of the controls and gently guide the weightless load for final perfect positioning with your free hand.*

**Any** *questions concerning the operation of this unit that are not answered to your satisfaction by this manual should be directed to your local dealer or to the factory.*

## **Section D: Maintenance & Parts List**

*You will discover, as other end-users have, that the UniMove unit will require less maintenance and attention than almost any other piece of equipment in your plant.*

**Note:** *All of the following recommended maintenance intervals are based on a **single shift or two thousand (2,000) working hours per year.** Adjust the recommended intervals as determined by your actual usage of the unit*

**Warning:** *Failure to follow a proper preventive maintenance program as scheduled and outlined below can result in shortened component life, loss of warranty and possible operator injury.*

### **Daily Preventive Maintenance (Operator)**

*\***Keep** unit as clean as possible in its working environment.*

*\***Visually** check lift tube assembly, any suction foot hose, festooned hose and all connections for damage and potential leaks.*

*\***Insure** that the control handle, speed and tension controls, top swivel and any optional adapters are working smoothly and properly.*

*\***Always** check that rubber suction foot seals are properly seated on the metal suction foot body.*

*\***Report** any "sluggishness" or slow-down of the unit to your maintenance department immediately.*

### **Weekly Preventative Maintenance**

*\***Check** all connections on the unit and crane system to insure their tightness and that the system is sealed.*

*\***Inspect** rubber suction foot seals for flexibility and lack of tears or cracks.*

*\***Check** fit and tightness of the clamps attaching the suction hose to the top swivel, filter housing and the power unit.*

*\***Check** that the safety valve is operating properly by attaching a non-critical load to the unit and shutting the power off.*

### **Monthly Preventative Maintenance**

*\*Inspect rubber suction foot seals, lift tube body and suction hose for wear or degradation due to physical or chemical reactions to other materials used in your operation.*

*\*Check that the control handle tension spring is operational.*

*\*Check that the unloaded speed control is operating properly.*

*\*Inspect all fasteners on the unit for proper tightness.*

**\*\*\*\*\*Clean air filter element. (Maximum interval)\*\*\*\*\***

### **Yearly Preventative Maintenance**

*\*Remove control head assembly from lift tube and inspect operation of control valve system. Replace components if excessive wear is noted.*

*\*Clean interior of control head assembly, if necessary.*

*\*Inspect pump and motor for cleanliness and overall condition.*

*\*Check electrical connections and all fasteners.*

### **General Major Component Preventative Maintenance**

#### **Filter Element**

*The filter element and housing should be cleaned at a maximum interval of once every month. The filter element (if kept dry) can be removed, blown out with compressed air and replaced a number of times. The actual number of times a single filter element can be re-used is greatly dependent upon the amount and type of dust present in the air around the unit.*

**Important:** *The standard UniMove filter system provides protection against dust particles down to 10 micron diameter. If you have finer particles in your environment, contact UNIMOVE or your local dealer.*

*We suggest that you keep one or more filter elements on hand so that a dirty filter*

can be removed and replaced with a clean filter. The dirty filter element can now be cleaned at your leisure and, if still functional, can be re-used at the next required filter cleaning. This will also result in the shortest possible "downtime" for performing this maintenance function. Filter element replacement should require no more than two to three minutes!

Assuming that your dust levels remain constant, you will be able to predict your cleaning interval (see below).

To establish your individual filter element cleaning cycle after initial start-up, begin by checking the filter element condition after the first day, then every two or three days, then every week and so on up to one month. Somewhere within this time span you will find your required filter element cleaning cycle when the element is dirty enough for replacement. Increases in dust levels around the unit may decrease filter cleaning interval.

**Note:** Always check that the filter access cover gasket is properly seated when replacing the access cover and that no air leakage is occurring.

**Caution:** Operation of this unit without a clean and properly operating air filter can cause the premature release of a load and/or damage to the power unit. Never neglect proper filter element replacement.

### **Power Unit**

Inspect power unit for obvious signs of developing problems (excessive noise, heat, vibration, etc.). Note: Pump is a sealed unit, contains no internal lubricants, and is not field serviceable. **Opening of the pump housing will void any remaining warranty.** Call UniTech or your local dealer.

Maintain pump and motor according to the manufacturer's recommendations enclosed with the unit.

The pump manufacturer recommends that the pump be disassembled every 20,000 hours, inspected and have the bearings re-lubed and packed by hand.

### **Lift Tube**

The lift tube carries no load during operation of the unit and should exhibit a long life as a result. However, the tube body can be punctured by accident or intention. A hole in the lift tube can be temporarily repaired by patching over the opening with a good quality vinyl tape. The lift tube is made of thermoplastic elastomer and is chemically resistant to both acid and caustic solutions, making it suitable for wash-down procedures.



The end-cuffs of the lift tube are an integral part of the tube construction, therefore the tube cannot be cut down.

UniMove manufactures thermoplastic lift tubes at any length for tube diameters of: 4.7"/120mm; 5"/130mm; 5.5"/140mm; 6.25"/160mm; 7"/180mm; 8"/200mm; and 10"/250mm

### **Control Head and Top Swivel**

These components contain no lubricants and have very few moving parts. There are no specific preventative maintenance procedures for these components beyond visual inspection and replacement of worn components.

Note: **DO NOT** use any greases or oils in the control head or top swivel assemblies.

### **Cosmetic Care**

The stainless steel surfaces of the unit will retain a good appearance for many years with minimal care. Almost any solvent or cleaner may be used to remove heavy build-ups of oil or grease. Residue that the solvents leave behind, as well as fingerprints, usually can be removed by rubbing with a clean cloth soaked in denatured alcohol and wiping dry with another clean cloth. A glass cleaner, such as Windex, is also very effective.

### **Troubleshooting**

Unit is operating slowly or has trouble establishing a good seal on load- Check entire system for **leaks** and tightness of connections. A small smoke (ammonium chloride) generator (or a lit cigarette) is a very effective and efficient leak detector.

**Check that the filter element is clean!** These two conditions are responsible for 95% of all operational complaints and are easily avoided. Check suction feet, inlet

hosing, interior of control head, interior of top swivel and suction hosing for obstructions (wadded paper, cigarette butts, popcorn packing, etc.). Check whether or not your load has been changed, eg. new style or grade of packaging. Check that your electrical service is sufficient for the rating of the motor (brownouts, too many motors on one service, etc.). Check that the black rubber mounting gasket is installed and properly tightened between the bottom of the control head and the suction foot and between any additional optional adapters, if present!!

Control lever does not operate smoothly- Check interior of control head for obstruction caught in control valve. Remove outer control valve housing and inspect control lever bearing points for free movement.

Lift/lower controls feel too sensitive- Your particular operation may require the use of an optional bleeder valve, mechanical adaptor or other option. Consult with your local dealer.

Lift/lower controls are not sensitive enough- See above.

Note: When handling extremely light loads a particular unit will feel more responsive than normal simply because it is too powerful! We do not recommend the use of the CM450 unit on loads lighter than 20 pounds and the use of the CM470 unit on loads of less than 50 pounds. Occasional use on lighter loads is generally not a problem as long as the operator realizes that the "feel" of the unit will change and that their safety margins in the grip may, in some cases, be substantially reduced.

Power unit does not operate- Electrical problem, pump or motor failure. Refer to manufacturer's instructions. Check your electrical service connections.

**Do NOT open a vacuum pump that is still covered by warranty, this will void any remaining warranty on the pump!**

Note on "Brownouts": The UniMove is powered by a high-speed (3450 RPM) electrical motor. "Brownouts" or connection to a service with inadequate amperage will affect the performance of the unit as the motor will drop in RPM. If your operator complains that the unit lowers of its own accord without movement of the controls, check your electrical service. This can be difficult to isolate if another piece of equipment is coming on and off line on the same service and overdrawing the available amperage. Note: Motor will run hot if it is trying to operate on less than required amp service. Normal skin temperature of the motor is approx. 135°F. Motor failure will result if this situation continues.

Pump runs "Hot": Check for obstructions that block air flow in the system. Check filter. Check to see that the festooned hose is not "kinking". **Check that operators are not leaving the unit in full or high lift positions for extended periods of time or allowing the unit to remain attached to a lifted load for extended periods of time.** Note: Normal skin temperature of the pump is about 180° to 200°F.

Any unusual operational or maintenance problem- Contact your local dealer at once for prompt service or consultation.

**UniMove Spare Parts List**  
**Models CM450/470**

(Effective 6/13/17)

<u>Part No.</u>	<u>Description</u>
	<b><u>Power Unit</u></b>
1000	Power Unit, Complete (CM450/470)
1001	Motor only, 3 HP (CM450/470)
1002	Pump only (CM450/470)
1301	Vacuum Pump/Motor Assy. (CM450/470)
1370	Muffler (CM450/470)
1375	Mounting Base Legs, set of 2 (CM450/470)
	<b><u>Suction Hose</u></b>
2000	Hose, 2" Blue Suction (25')
2001	Hose, 2" Blue Suction (50')
2102	Hose Clamps, 2"
	<b><u>In-Line Filter</u></b>
3105	Filter Cover "O" Ring (Black Steel Filter)
3109	Filter Cover "O" Ring (Cyclonic)
3110	Body, Filter Housing
3206	Filter Element
3406	Filter Element, Cyclonic
3500	CM450/470 Filter System, Comp. (black steel)
3502	Lower Seal
3510	Housing/Lid

	<u><b>Lift Tube Assembly</b></u>
4000	<i>Top Swivel, Complete (CM450)</i>
4005	<i>Top Swivel, Complete (CM470)</i>
4010	<i>Top Swivel Housing (CM450)</i>
4015	<i>Top Swivel Housing (CM470)</i>
4020	<i>Inlet Hose Connector</i>
4030	<i>Top Swivel Bearing</i>
4037	<i>Bearing Assembly Retainer Screws, Set (4)</i>
4045	<i>Upper Bearing Seal</i>
4055	<i>Lower Bearing Seal</i>
4060	<i>Bearing Retainer</i>
4070	<i>Lock Collar</i>
4087	<i>Lock Collar Safety Bolt</i>
4090	<i>Safety Valve</i>
4091	<i>Safety Valve Conn. Bolt</i>
4140	<i>Tube Assembly, Complete (CM450)</i>
4140A	<i>Tube Assembly, Compressed Air Access Option,</i>
	<i>Complete (CM450)</i>

- 4152 *Tube Clamps, each (CM450)*
- 4154 *Cover Strips, each (CM450)*
- 4155 *Lift Tube, Std. 10'L (CM450)*
- 4155X *Lift Tube, 15'L (CM450)*
- 4260 *Tube Assembly, Complete (CM470)*
- 4260A *Tube Assembly, Compressed Air Access Option,*  
*Complete (CM470)*
- 4272 *Tube Clamps, each (CM470)*
- 4274 *Cover Strips, each (CM470)*
- 4275 *Lift Tube, (CM470)*
- 4275X *Lift Tube, 15'L, (CM470)*
  
- 4309 *Control Head, Complete (CM450)*

4311 *Control Housing Body, (CM450)*  
 4313 *Control Head, Complete (CM470)*  
 4314 *Control Housing Body, (CM470)*  
 4320 *Housing Grab Handle*  
 4325 *Handle Bushings, (4)*  
 4327 *Handle Mounting Screws/seals, (4)*

4360 *Valve Enclosure, (CM450)*  
 4380 *Valve Enclosure, (CM470)*  
 4377 *Valve Enclosure Lower Mounting Screws, (4)*  
 4387 *Valve Enclosure Upper Mounting Screws, (2)*  
 4390 *Valve Enclosure Edging, (3)*  
 4400\* *Adjustable Hand Rest*  
 4410 *Hand Rest Mounting Plates (2)*  
 4418\* *Hand Rest Adjustment Knobs (4)*  
 4420\* *Control Handle Frame*  
 4430\* *Adjustable Finger Grip*  
 4437\* *Control Handle Pivot Screw and Locknut*  
 4438\* *Finger Grip Adjustment Knobs, (2)*  
 4439\* *Finger Grip Tension Springs, (2)*  
 4440\* *Valve Connecting Rod*

4450 *Conversion Kit to replace #6500(X) articulated handle with standard handle. Includes all parts above marked (\*)*

4500 *Control Valve Body*  
 4503X *Control Valve Body, Special Design*  
 4507 *Control Valve Body Set Screw*  
 4508 *Control Valve Retaining Ring*  
 4509 *Control Valve O-ring*  
 4510 *Control Valve*  
 4513 *Wrist Pin*  
 4520 *Rocker Arm*  
 4524 *Rocker Arm Mounting Shaft*  
 4527 *Rocker Arm Connecting Screw and Locknut*  
 4530 *Bearing Blocks, (2)*  
 4537 *Bearing Block Mounting Screws and Locknuts (4)*

4600 *Tension Spring Retainer*  
 4609 *Tension Spring*  
 4610 *Tension Spring Retaining Plate*  
 4620 *Tension Spring Operating Rod*  
 4628 *Tension Spring Knob*

4700 Unloaded Speed Control Valve Plate  
4701 Unloaded Speed Control Lock Collar  
4705 Unloaded Speed Control Nylon Bushing  
4707 Unloaded Speed Control Adjustment Screw  
4708 Unloaded Speed Control Adjustment Knob  
4709 Unloaded Speed Control Valve Spring (2)  
4800 Valve Plate Mounting Stud Assembly (2)

4980 Capacity Label, (Specify Model)  
4981 Model Label, (Specify Model)  
4982 Control Label

6504 Operating Rod, Articulated Handle  
6508 Cable Assy., Articulated Handle  
6506X Cable Assy., Articulated Handle (Custom)  
6510 Operating Knob, Articulated Handle

### **Spare Parts for Suction Feet**

5600 12" Spreader bar  
5610 16" Spreader bar  
5612 24" Spreader bar  
5613 36" Spreader bar  
5614 48" Spreader bar  
5614X Custom length spreader bar (specify)  
5615 Suction foot gasket (5500, 5700, 5705)  
5615F Flexible gasket for #5615 gasket  
5615W White #5615 gasket  
5616 Suction foot, metal body (5500, 5700)  
5616C Suction foot, metal body (5705)  
5617 Suction foot, Each complete (5500, 5700)  
5617W #5617 with white gasket  
5618 Suction foot, Each complete (5507)  
5618A Suction foot, Each complete (5506)  
5619 Suction foot, Each complete (5508)  
5621 Suction foot mounting bolts (2)  
5623 Suction foot gasket (5509)  
5624 Suction foot, metal body (5509)  
5625 Suction foot gasket (5520, 5720)  
5625W White #5625 gasket  
5625X Short #5625 gasket  
5626 Suction foot, metal body (5520)  
5627 Suction foot, metal body (5720)

5628 Suction foot (5525, 5725, 5925)  
 5635 Flexible gasket, Std. white (5520, 5720)  
 5635L Flexible gasket, oversize white or black  
 5635M Flexible gasket, undersize white  
 5636 Clamp for #5635 gasket  
 5637 Spring for suction feet on spreader bar, (2)  
 5639 Thumbscrew for #5638 spreader bar clamp, ea.  
 5643 Suction foot retaining pin, (2)  
 5644 CM450 Spreader bar mounting plate  
 5645 Suction foot gasket (5540, 5740)  
 5645W White #5645 gasket  
 5645F Flexible gasket for #5645 gasket  
 5646 CM450 Suction foot mounting gasket  
 5647 Suction foot, metal body (5540, 5740)  
 5648 Rubber gasket only for #5646  
 5649 Metal plate only for #5646  
 5650 Suction foot, metal body (5545)  
 5651 Suction foot, metal body (5745)  
 5652 Suction foot outer gasket (foam) (5545, 5745)  
 5653 Suction foot inner gasket (hard) (5545, 5745)  
 5654 CM470 Spreader bar mounting plate  
 5657 Rubber gasket only for #5656  
 5658 Metal plate only for #5656  
 5660 1-1/4" dia. Suction foot hose, per foot  
 5664F Flexible gasket for #5665 gasket  
 5665 Suction foot gasket (5560, 5760, 5960)  
 5665FC Suction foot gasket (5560, 5760, 5960) fully  
 clamped  
 5665W White #5665 gasket  
 5666 Suction foot, metal body (5560, 5760)  
 5666FC Suction foot, metal body (5560, 5760) fully  
 clamped  
 5667 Spreader bar safety screw assembly & cap (2)  
 5668 Suction foot, metal body (5960)  
 5668FC Suction foot, metal body (5660) fully clamped  
 5670X Special spreader bars  
 5671 Suction foot gasket (5563, 5763, 5963)  
 5672 Suction foot, metal body (5563, 5763, 5963)  
 5673 Suction foot gasket (5565)  
 5674 Suction foot, metal body (5565)  
 5676 Suction foot (5582)  
 5677 Suction foot gasket (5587, 5787)  
 5677U Suction foot gasket (5587,5787) Urethane  
 5678 Suction foot gasket (5585, 5785)

5678F *Flexible gasket (5587, 5787)*  
5678W *White #5678 gasket*  
5679 *Suction foot, metal body (5585)*  
5682 *Suction foot, metal body (5587)*  
5684 *Suction foot, metal body (5785)*  
5686 *Suction foot, metal body (5787)*  
5692 *Angle adaptor hose*  
5694 *Suction foot gasket (5590)*  
5695 *Suction foot, metal body (5590)*



## **Section E: Warranty**

*The UniMove unit is covered by a twelve (12) month warranty providing 100% coverage of all parts and transportation (excluding filter elements and gaskets) and is subject to the restrictions noted below.*

*The above warranty is based on a term of one (1) year of single shift operation or two thousand (2,000) operating hours in one (1) year, whichever occurs first.*

*The above warranty does not cover claims resulting from abuse, damage, loss or unauthorized use of the UniMove unit and/or its components. The above warranty does not provide any guarantee of continuous operation and, specifically, does not provide same-day parts replacement.*

*A UniMove dealer representative must inspect and approve each installation to initiate valid warranty coverage.*

*The end user must complete and return the Warranty Validation Form enclosed with the unit to UNIMOVE, LLC within 15 days from delivery of the unit.*

*All parts claimed for warranty must be returned to UNIMOVE, LLC. for final approval. Note: All returns must be accompanied by a UNIMOVE-issued RAN (Return Authorization Number)*

*Any allowed warranty labor claims will be reimbursed at average internal labor rates prevailing at the time of claim.*

*Determination of valid warranty claims and compensation is the sole province of UNIMOVE, LLC.*

*The installation of this unit on a crane system not approved in advance by UNIMOVE, LLC and its authorized dealer will result in loss of warranty on the entire unit.*

*No warranty service is to be performed without the express knowledge and prior written approval of UNIMOVE, LLC and it's authorized dealer.*

*Modifications to or alterations of this unit and/or it's components without the express knowledge and prior written approval of UNIMOVE, LLC will void any warranty or liability responsibility on the part of UNIMOVE, LLC and/or its authorized dealers*

## **UniMove Data Sheet**

This page contains specific information about your UniMove unit.  
**Keep this for future reference!**

**Dealer:** Aztech Systems, Inc

**Phone:** 908-309-5496

**Unit Model #:** CM470

**Unit Serial #:**

**Date Shipped:**

**Date Installed:**

**Suction Foot Model #:** Oval Bag Foot, 7" x 14", P/N 5720

**Replacement gasket #, main molded:** P/N 5625

**Replacement gasket #, secondary flexible:** P/N 5635

**Custom suction foot data:** NA

**Custom attachment data:** NA

### **Optional Equipment:**

P/N 5820, Lo-Profile Screen Insert for Oval Bag foot;

P/N 6250, Adjustable Docking Station;

P/N 2005; P/N 2005, Union Kit,

### **Quick reference replacement parts:**

Filter element: #3206

2 " blue suction hose: #2000

Lift tube: P/N 4275R-9

Foot mounting gasket: P/N 5656

Vacuum pump: P/N 1000, Power Unit, Complete

Electric drive motor:

Drive belt(s): NA

1 1/4" black suction hose: NA

Handrest adjustment knobs: P/N 4418 (4)

Control head assy., complete: P/N 4313

Top swivel assy., complete: P/N 4005

### **Other Notes:**

