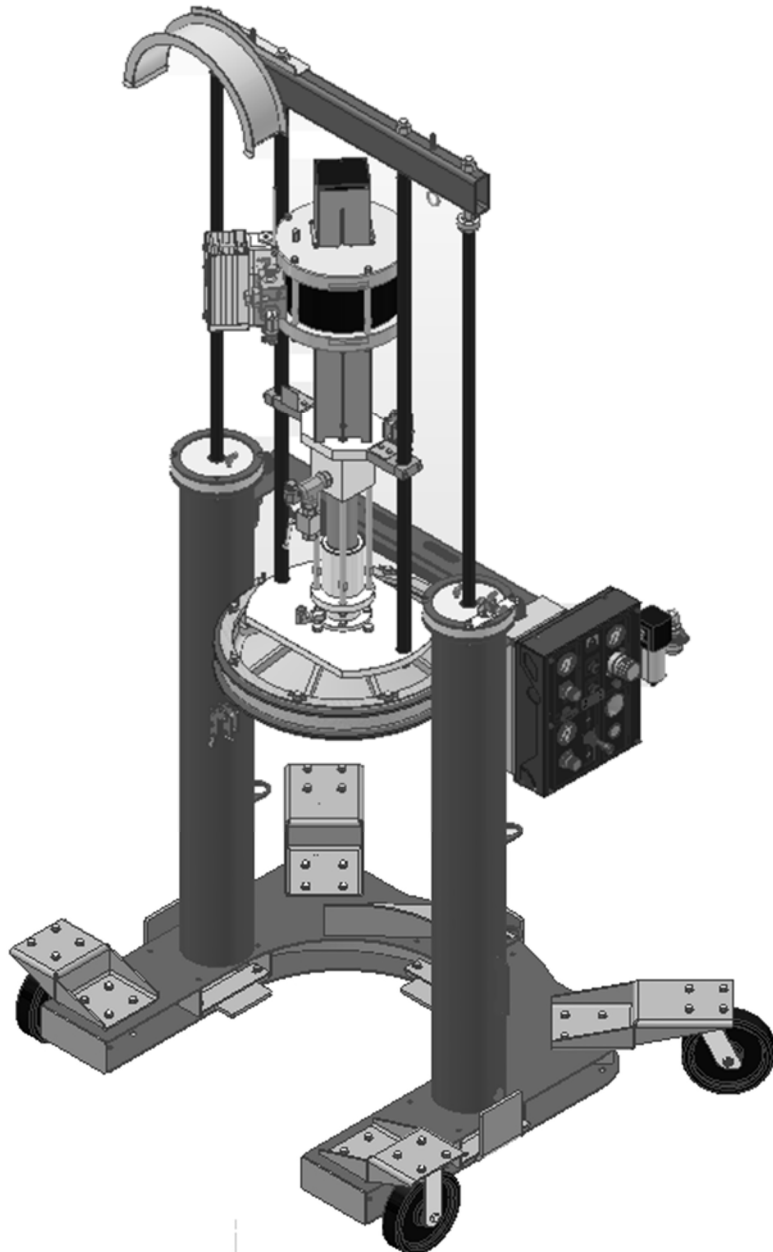


# Single Component Unit

## Operations Manual

This manual is applicable to the following models:

- 1KS-CCP-30
- 1KS-CCP-30S
- 1KS-CCP-60
- 1KS-CCP-60S



Revision: 1  
Rev. September 2019



**CORPORATE HEADQUARTERS**

2030 Falling Waters Rd, Suite 350, Knoxville, TN 37922 · USA · Tel: (865) 686-5670

**DISTRIBUTION AND PURCHASING**

642 Barbrow Ln, Knoxville, TN 37932 · USA · Tel: (865) 684-4416

**TECHNOLOGY CENTER AND MANUFACTURING**

1862 Ives Ave, Kent, WA 98032 · USA · Tel (253) 854-2660 · Fax (253) 854-1666

E-mail: [info@mvpind.com](mailto:info@mvpind.com)

For a list of international distributors, visit our website at :

[www.mvpind.com/mvp-international](http://www.mvpind.com/mvp-international)

*Use of this product confirms that Magnum Venus Products, Inc.'s standard terms and conditions of sale apply.*

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# Safety & Warning Information

## Warnings

Due to the vast number of chemicals that could be used and their varying chemical reactions, the buyer and user of this equipment should determine all factors relating to the fluids used, including any of the potential hazards involved. Particular inquiry and investigation should be made into potential dangers relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures. MVP assumes no responsibility for loss, damage, expense or claims for bodily injury or property damage, direct or consequential, arising from the use of such chemical components.

The end user is responsible for ensuring that the end product or system complies with all the relevant laws in the country where it is to be used and that all documentation is adhered to.

### Recommended Occupational Safety & Health Act (OSHA) Documentation:

- 1910.94                      Pertaining to ventilation
- 1910.106                    Pertaining to flammable liquids
- 1910.107                    Pertaining to spray finishing operations, particularly paragraph (m), Organic Peroxides and Dual Component Coatings

For Additional information, contact the Occupational Safety and Health Administration (OSHA) at <https://www.osha.gov/about.html>.

### Recommended National Fire Protection Association (NFPA) Documentation:

- NFPA No.33 Chapter 14                      Organic Peroxides and Dual Component Materials
- NFPA No. 63                                    Dust Explosion Prevention
- NFPA No. 70                                    National Electrical Code
- NFPA No. 77                                    Static Electricity
- NFPA No. 91                                    Blower and Exhaust System
- NFPA No. 654                                   Plastics Industry Dust Hazards

**Fire Extinguisher** – code ABC, rating number 4a60bc using Extinguishing Media –Foam, Carbon Dioxide, Dry Chemical, Water Fog, is recommended for this product and applications.

The following general warnings and guidelines are for the setup, use, grounding, maintenance, and repair of equipment. Additional product-specific warnings may be found throughout this manual as applicable. Please contact your nearest MVP Technical Service Representative if additional information is needed.

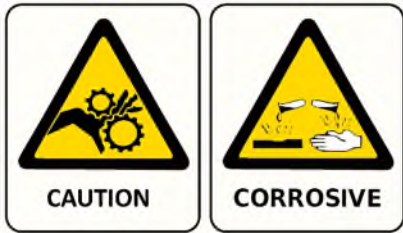
**Safety Precautions**

- Avoid skin contact and inhalation of all chemicals.
- Review Material Safety Data Sheet (MSDS) to promote the safe handling of chemicals in use.
- Restrict the use of all chemicals to designated areas with good ventilation.
- Chemicals are flammable and reactive.
- Noxious fumes released when combusted.
- Operate equipment in a ventilated environment only.
- Uncured liquid resins are highly flammable unless specifically labeled otherwise.
- Cured laminate, accumulations of overspray, and laminate sandings are highly combustible.
- Do not operate or move electrical equipment when flammable fumes are present.
- Ground all equipment.
- If a spark is seen or felt, immediately halt operation. Do not operate the equipment until the issue has been identified and repaired.
- Contaminated catalyst may cause fire or explosion.
- Containers may explode if exposed to fire / heat.
- Use and store chemicals away from heat, flames, and sparks.
- Do not smoke in work areas or near stored chemicals.
- Do not mix Methyl Ethyl Ketone Peroxide (MEKP) with materials other than polyethylene.
- Do not dilute MEKP.
- Keep food and drink away from work area.



**Physical Hazards**

- Never look directly into the spray gun fluid tip. Serious injury or death can result.
- Never aim the spray gun at or near another person. Serious injury or death can result.
- Chemical compounds can be severely irritating to the eyes and skin.
- Inhalation, ingestion, or injection may damage internal organs and lead to pulmonary disorders, cancers, lymphomas, and other diseases or health conditions.
- Other potential health effects include: irritation of the eyes and upper respiratory tract, headache, light-headedness, dizziness, confusion, drowsiness, nausea, vomiting, and occasionally abdominal pain.
- Eye contact: Immediately flush with water for at least 15 minutes and seek immediate medical attention.
- Skin Contact: Immediately wash with soap and water and seek immediate medical attention.
- Inhalation: Move the person to fresh air and seek immediate medical attention.
- Do not remove shields, covers, or safety features on equipment that is in use.
- Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can shoot liquid through the skin.
- Keep hands and body parts away from any moving equipment or components.
- Do not stand under plunger
- An improperly loaded drum may lead to an imbalance, causing a unit to tip over



**Personal Protective Equipment (PPE)**

- MVP recommends the use of personal safety equipment with all products in our catalog.
- Wear safety goggles, hearing protection, a respirator, and chemical resistant gloves.
- Wear long sleeve shirts or jackets and pants to minimize skin exposure.
- PPE should be worn by operators and service technicians to reduce the risk of injury.



For Additional information, contact the Occupational Safety and Health Administration (OSHA). <https://www.osha.gov/about.html>

## Symbol Definitions



Indicates the risk of contact with chemicals that are hazardous, which may lead to injury or death.



Indicates the risk of contact with voltage / amperage that may lead to serious injury or death



Indicates that the materials being used are susceptible to combustion



Indicates the risk of contact with moving components that may lead to serious injury or death.



Indicates that the system or component should be grounded before proceeding with use or repair.



Indicates the use of lit cigarettes or cigars is prohibited, because the materials being used are susceptible to combustion.



Indicates that the materials and/or the process being performed can lead to ignition and explosion.



A recommendation for the use of Personal Protective Equipment (PPE) before using or repairing the product.

## Polymer Matrix Materials: Advanced Composites

Potential health hazards associated with the use of advanced composites can be controlled through the implementation of an effective industrial hygiene and safety program.

[https://www.osha.gov/dts/osta/otm/otm\\_iii/otm\\_iii\\_1.html#t\\_iii:1\\_1](https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_1.html#t_iii:1_1)

<b>Resins</b>		
<b>Composite Component</b>	<b>Organ System Target (Possible Target)</b>	<b>Known (Possible) Health Effect</b>
Epoxy resins	Skin, lungs, eyes	Contact and allergic dermatitis, conjunctivitis
Polyurethane resins	Lungs, skin, eyes	Respiratory sensitization, contact dermatitis, conjunctivitis
Phenol formaldehyde	Skin, lungs, eyes	As above (potential carcinogen)
Bismaleimides (BMI)	Skin, lungs, eyes	As above (potential carcinogen)
Polyamides	Skin, lungs, eyes	As above (potential carcinogen)
<b>Reinforcing materials</b>		
<b>Composite Component</b>	<b>Organ System Target (Possible Target)</b>	<b>Known (Possible) Health Effect</b>
Aramid fibers	Skin (lungs)	Skin and respiratory irritation, contact dermatitis (chronic interstitial lung disease)
Carbon/graphite fibers	Skin (lungs)	As noted for aramid fibers
Glass fibers (continuous filament)	Skin (lungs)	As noted for aramid fibers
<b>Hardeners and curing agents</b>		
<b>Composite Component</b>	<b>Organ System Target (Possible Target)</b>	<b>Known (Possible) Health Effect</b>
Diaminodiphenylsulfone	N/A	No known effects with workplace exposure
Methylenedianiline	Liver, skin	Hepatotoxicity, suspect human carcinogen
<b>Other aromatic amines</b>		
<b>Composite Component</b>	<b>Organ System Target (Possible Target)</b>	<b>Known (Possible) Health Effect</b>
Meta-phenylenediamine (MPDA)	Liver, skin (kidney, bladder)	Hepatitis, contact dermatitis (kidney and bladder cancer)
Aliphatic and cyclo-aliphatic amines	Eyes, skin	Severe irritation, contact dermatitis
Polyaminoamide	Eyes, skin	Irritation (sensitization)
Anhydride	Eyes, lungs, skin	Severe eye and skin irritation, respiratory sensitization, contact dermatitis



## Catalyst - Methyl Ethyl Ketone Peroxide (MEKP)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the “unstable (reactive)” chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal. MEKP is a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called “MEKP”) and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.



### **WARNING**

***Contamination with promoters, materials containing promoters (such as laminate sandings), or with any readily oxidizing material (such as brass or iron) will cause exothermic redox reactions which can be explosive in nature. Heat applied to MEKP or heat buildup from contamination reactions can cause the material to reach its Self-Accelerating Decomposition Temperature (SADT).***

Researchers have reported measuring pressure rates-of-rise well over 100,000 psi per second when certain MEKP's reach their SADT. For comparison, the highest-pressure rate-of-rise listed in NFPA Bulletin NO.68, “Explosion Venting”, is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second. Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts. If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions, and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result from improper handling of MEKP, especially regarding contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use, and disposal of MEKP and other hazardous materials used in the laminating operation. In addition, users should make every effort to:

- Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.
- Keep MEKP away from heat, sparks, and open flames.
- Prevent contamination or MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum, and non-stainless steels.

- Never add MEKP to anything that is hot, since explosive decomposition may result.
- Avoid contact with skin, eyes, and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves, and eye protection must be worn. Firefighting equipment should be at hand and ready.
- Avoid spillage, which can heat up to the point of self-ignition.
- Repair any leaks discovered in the catalyst system immediately, and clean-up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.
- Use only original equipment or equivalent parts from Magnum Venus Products in the catalyst system (i.e.: hoses, fitting, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.
- Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank, such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to which the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

## Clean-Up Solvents and Resin Diluents



### **WARNING**

***A hazardous situation may be present in your pressurized fluid system! Hydrocarbon solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). An explosion could cause serious injury, death, and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon solvents. Some Magnum Venus Products spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon solvents.***

There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.

- |    |   |  |
|----|---|--|
| 1. | The presence of HHC solvents.               | 1,1,1 – Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing.   |
| 2. | Aluminum or Galvanized Parts.               | Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.   |
| 3. | Equipment capable of withstanding pressure. | When HHC solvent contact aluminum or galvanized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions. When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal; any amount of aluminum is too much. |

- The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Mixing HHC solvents with other materials or solvents such as MEKP, alcohol, or toluene may render the inhibitors ineffective.
- The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. The possible presence of water in reclaimed solvents could also feed the reaction.
- Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys to safely prevent the chemical reaction under all circumstances.
- Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many state implementation plans as Volatile Organic Compounds (VOCs), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.



### **WARNING**

***Do not use Halogenated Hydrocarbon (HHC) solvents in pressurized fluid systems having aluminum or galvanized wetted parts. Magnum Venus Products is aware of NO stabilizers available to prevent HHC solvents from reaction under all conditions with aluminum components in closed fluid systems. HHC solvents are dangerous when used with aluminum components in a closed fluid system.***

- Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon solvents.
- Magnum Venus Products recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.
- If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.
- Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.
- You should only allow enough solvent for one day's use in your laminating area.
- NO SMOKING signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.
- Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No.91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.
- Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

## Catalyst Diluents

Magnum Venus Products spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. Magnum Venus Products therefore recommends that diluents not be used to avoid possible contamination which could lead to an explosion due to the handling and mixing of MEKP and diluents. In addition, it eliminates any problems from the diluent being contaminated through rust particles in drums, poor quality control on the part of the diluents suppliers, or any other reason. If diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferably the supplier should premix the catalyst to prevent possible “on the job” contamination while mixing.



### **WARNING**

***If diluents are not used, remember that catalyst spillage and gun, hose, and packing leaks are potentially more hazardous since each drop contains a higher concentration of catalyst and will therefore react more quickly with overspray and the leak.***

## Cured Laminate, Overspray and Laminate Sandings Accumulation

- Remove all accumulations of overspray, Fiberglass Reinforced Plastic (FRP) sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire; in addition, the fire would burn hotter and longer.
- Floor coverings, if used, should be non-combustible.
- Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, oversprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent spillage and leakage, you should:

- |  |   |
|--|---|
| 1. Maintain your Magnum Venus Products System.   | Check the gun several times daily for catalyst and resin packing or valve leaks. REPAIR ALL LEAKS IMMEDIATELY.  |
| 2. Never leave the gun hanging over or lying inside the mold.  | A catalyst leak in this situation would certainly damage the part, possibly the mold, and may cause a fire.   |
| 3. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the hose and fittings. | Replace if wear or weakness is evident or suspected.  |
| 4. Arrange the hoses and fiberglass roving guides so that the fiberglass strands DO NOT rub against any of the hoses at any point.     | If allowed to rub, the hose will be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also, the material may spew onto personnel in the area. |

## Toxicity of Chemicals

- Magnum Venus Products recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No.33, Chapter 14, and NFPA No.91.
- Contact your chemical supplier(s) and determine the toxicity of the various chemicals used as well as the best methods to prevent injury, irritation and danger to personnel.
- Also determine the best methods of first aid treatment for each chemical used in your plant.

## Equipment Safety

Magnum Venus Products suggest that personal safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels). This equipment should only be operated or serviced by technically trained personnel!



### CAUTION

***Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT THE GUN AT OR NEAR ANOTHER PERSON OR AN ANIMAL.***



### DANGER

***Contaminated catalyst may cause fire or explosion. Before working on the catalyst pump or catalyst accumulator, wash hands and tools thoroughly. Be sure work area is free from dirt, grease, or resin. Clean catalyst system components with clean water daily.***



### DANGER

***Eye, skin, and respiration hazard. The catalyst MEKP may cause blindness, skin irritation, or breathing difficulty. Keep hands away from face. Keep food and drink away from work area.***

## Treatment of Chemical Injuries



### CAUTION

***Refer to your catalyst manufacturer's safety information regarding the safe handling and storage of catalyst. Wear appropriate safety equipment as recommended.***

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, Magnum Venus Products recommends the use of protective clothing and eye wear in using polyester systems. However, users should be prepared in the event of such an injury.



**Precautions include:**

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or if swallowed.
2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.
3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals have.

**WARNING**

**Contact your doctor immediately in the event of an injury. If the product's MSDS includes first aid instructions, administer first aid immediately after contacting a doctor.**

Fast treatment of the outer skin and eyes that contact chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment may be incorrect for some chemicals; you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

**Emergency Stop Procedure**

In an emergency, follow these steps to stop a system:

1. The ball valve located where the air enters the power head of the resin pump, should be moved to the "OFF" or closed position.

**Note**      **The "open" or "on" position is when the ball valve handle is parallel (in line) with the ball valve body. The "closed" or "off" position is when the ball valve handle is perpendicular (across) the ball valve body.**

2. Turn all system regulators to the "OFF" position (counter-clockwise) position.
3. Verify / secure the catalyst relief line, located on the catalyst relief valve.
4. Verify / secure the resin return line, located on the resin filter.
5. Place a container under the resin pump ball valve to catch ejected resin.
6. Locate the ball valve on the resin pump.
7. Rotate the ball valve 90 degrees to the "On" or open position.

**Grounding**

Grounding an object means providing an adequate path for the flow of the electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables. In any event, the grounding means should have the lowest possible electrical resistance.

Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. Magnum Venus Products recommends grounding straps be made of AWG No.18 stranded wire as a minimum and the larger wire be used where possible. NFPA Bulletin No77 states that the electrical resistance of such a leakage path should be 1 meg ohm ( $10^6$  ohms) or less.



#### CAUTION

***Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity. For further information, see National Fire Protection Association (NFPA) 77, titled “Recommended Practice on Static Electrical”. Refer especially to section 7-7 titled “Spray Application of Flammable and Combustible Materials”.***

## Introduction

This manual provides information for the operation, maintenance, and simple repair of the MVP Single Component Unit. The following procedures are included:

- Step-by-step assembly and disassembly
- Installation, start-up, and shut-down instructions
- Step-by-step operation instructions



Please read this manual carefully and retain for future reference. Follow the steps in the order given, otherwise you may damage the equipment or injure yourself.

### Air Requirements:

1. The system requires a supply of air (75 cfm). Do not exceed 100 psi or 5000 psi internal pressure.
2. The unit requires a ½ inch (12 – 13 mm) inside diameter air hose minimum. Use caution when using quick disconnects; they may restrict air flow.
3. Air should be clean, dry, and oil-free.
4. The ram extraction airline is equipped with a disposable desiccant filter/dryer. Replace when color changes from original dark color to a complete light transparent color in the desiccant beads. Install hand tight only, do not overtighten.

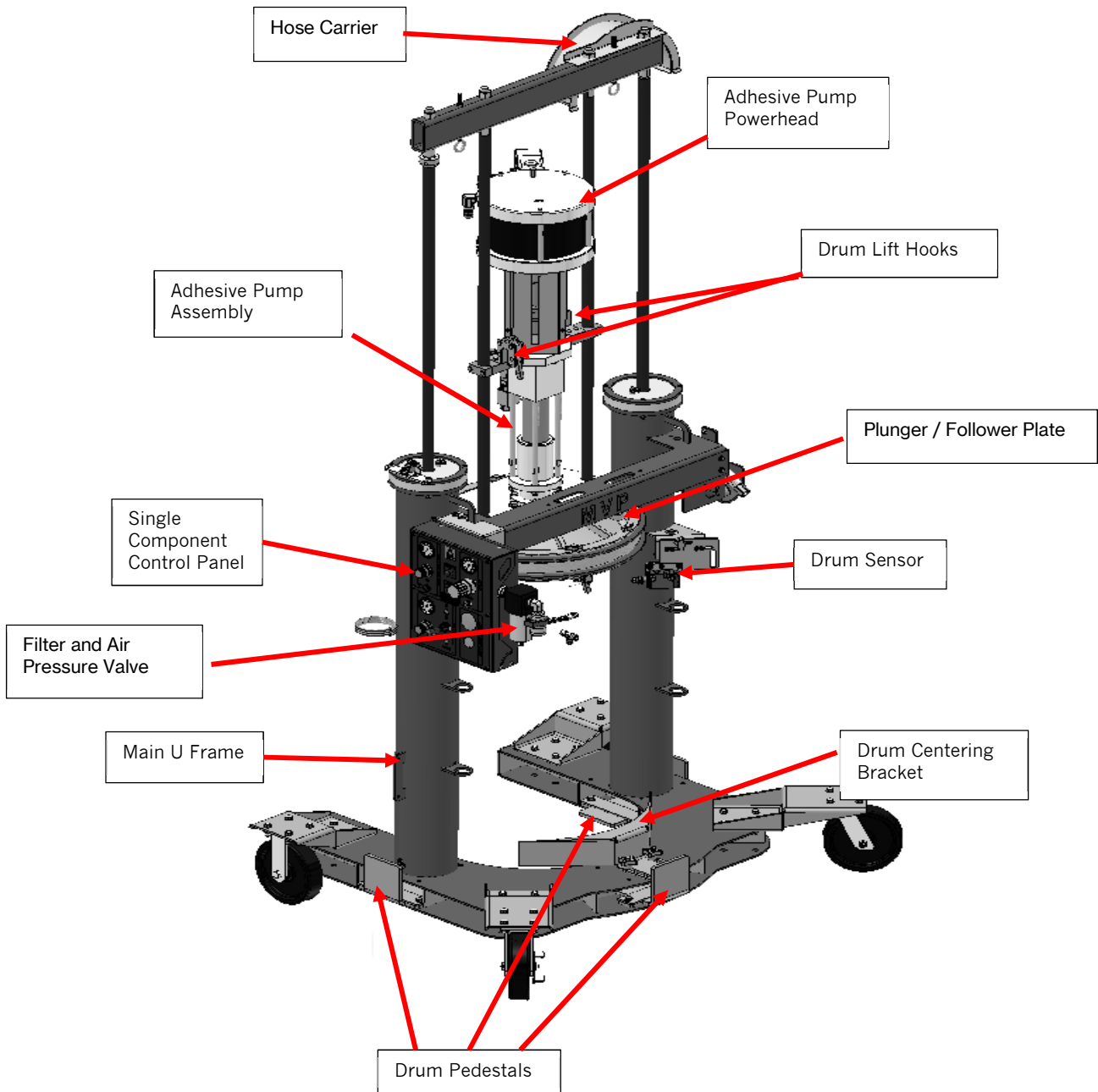
## Unit Overview

Below helps identify the main components and controls the operator needs to know for proper operation for the unit.



### **WARNING**

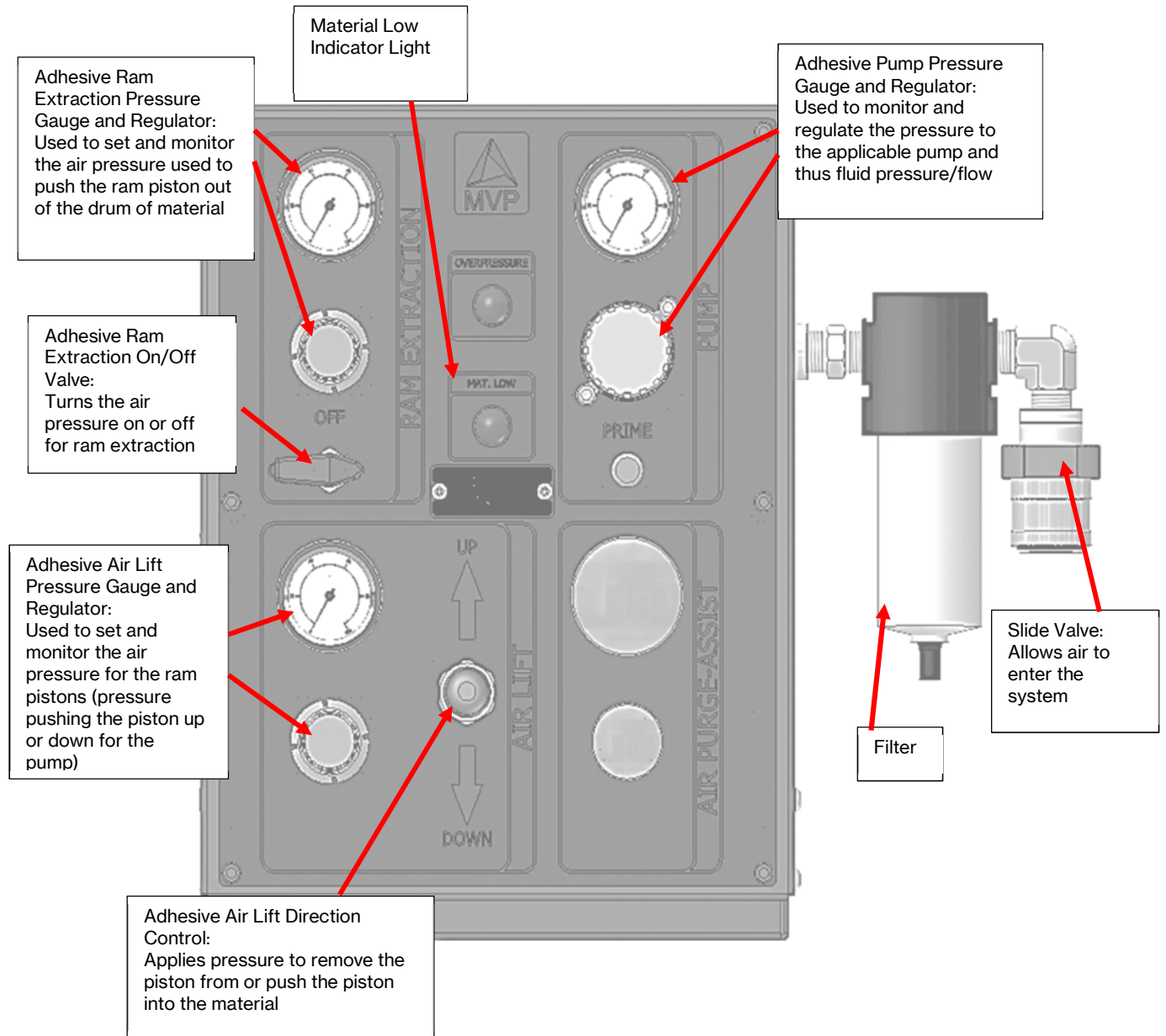
***This unit is not rated for explosive atmospheres.***





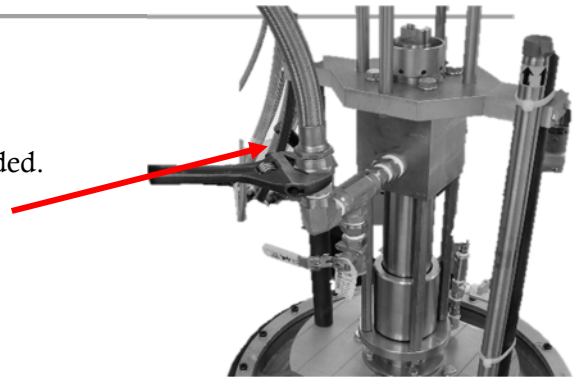
## Overview of Controls

Following is a brief description of the main controls and their function. Controls that are not necessary to the operation of the Single Component Ram have been removed and replaced with blank discs.



# Getting Started

1. Check all hoses for wear or damage; replace as needed.
2. Connect the putty hose.
3. Connect the dispense gun.

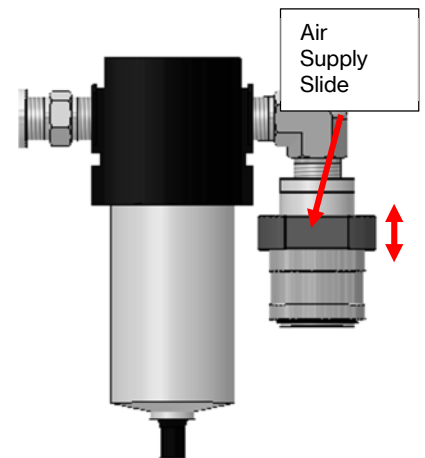
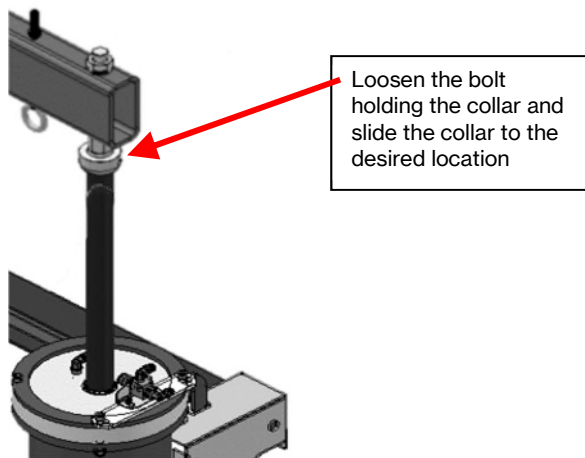


## CAUTION

***Moving parts can pinch or amputate fingers or other body parts. Keep clear of moving parts while pump is in operation.***

## Pre-Startup Instructions

4. Check that all hoses are connected properly and connections are tight.
5. Check to be sure you have appropriate quantities of adhesive to complete the job.
6. Check that the adhesive drum is not dented or damaged; this can cause damage to the ram seals.
7. On the ram adhesive unit, check and adjust the ram lower limit by adjusting the bracket to adjust the ram stop position.
  - i) To set the low-level limit, loosen the bolt holding the shaft collar in place.
  - ii) Slide the shaft collar to the desired position on the post and tighten the bolt back down.



8. Slide the main air supply valve to the **OFF** position.

**Note**     ***The valve turns off the air supply to the air motor valve, thus stopping the pump.***

9. Connect ½ inch (12mm -13mm) air hose to the inlet port of the slide valve.
10. Press and turn all regulators counterclockwise to full off and close the slide valve on the control panel.

11. Slide the main air supply valve to the ON position.
12. Secure all fittings and correct leaks if any are found.
13. Fill solvent cups with ISO Oil (TSL-ISO-800) or equivalent (see Figure 1).
14. Push the air lift direction control to the **UP** position, then release.
15. Slowly increase the air lift pressure regulator to 5 - 20 psi.
16. Pump & ram should slowly begin to lift; check for hoses catching or kinking and correct as necessary.
17. Allow the ram to go up enough to allow clearance for the drum.

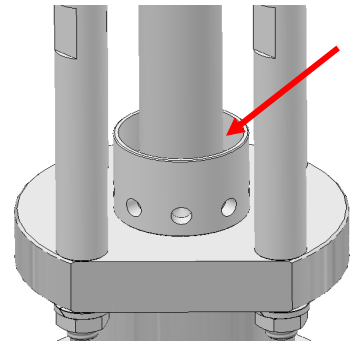


Figure 1. Solvent Cup on Pump

## Loading a Drum

**Note** *Begin with the drum sensor disengaged. The drum sensor limits the power on the down stroke and prevents the unit from tipping if a drum is not loaded and the plunger is lowered. The sensor is designed to break away if impacted so no damage occurs.*

**Note** *Inspect the drum for dents and damage. Using a dented or damaged drum can damage the piston seals and cause leaking.*

1. Wheel the unit to drum location and position ram over the drum so that the drum is centered between the ram posts and underneath the cross bar, as shown in [Figure 2](#).



### CAUTION

*Only load or unload a drum on flat, even ground. Uneven or sloped surfaces can make controlling the drum difficult and lead to injury.*

2. Lower the plunger and stop just above the drum, as shown in [Figure 2](#). (Cylinders will be marked with stop point).
3. Adjust the drum as needed to be directly centered with the ram piston.



### CAUTION

*Keep hands clear of moving parts to avoid risk of injury.*

**Note** *If the drum has a plastic liner check to make sure it is not obstructing the lip of the drum. The lift hooks should be attached directly to the metal to ensure a secure attachment.*

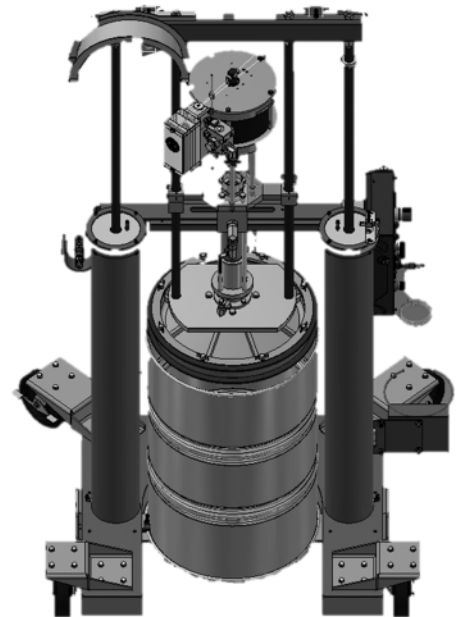


Figure 2. Centering a Drum

4. Attach lift hooks to the lip of the drum at points directly opposite from each other (180°). Cylinders will be marked with attach point locations (see [Figure 3](#)).

**Note** *If the cables are not evenly spaced the drum may become skewed during lifting and cause the plunger to jam.*

**Note** *Do not attach hooks to any surface other than the lip of the drum. Make sure not to tangle the lift cables.*

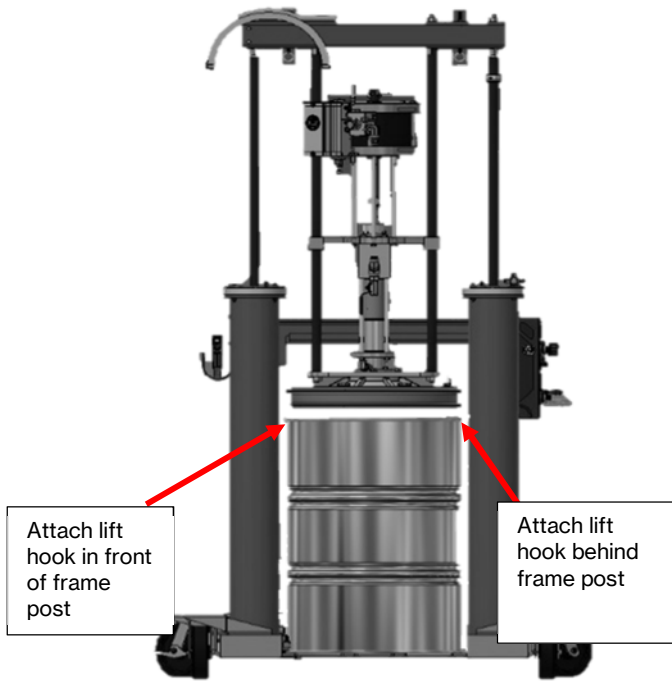


Figure 3. Plunger Stop and Lift Hook Attachment Points



5. Adjust the slack in the cables by raising or lowering the lifting eyebolts in the support beam.
6. Slowly raise plunger/crossbeam until it reaches the top most position and drum is lifted off the ground. Ensure hooks stay even when lifting to prevent spilling or tipping drum.
7. Kick all three drum pedestals into place so they are beneath the drum, as shown in [Figure 4](#).

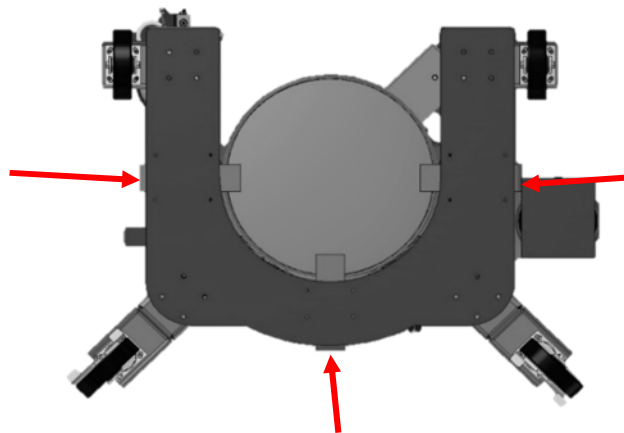


Figure 4. Drum Pedestals

8. Once the pedestals are in place, slowly lower the plunger/crossbeam until the drum touches down onto the pedestals.

**Note** *You may need to guide the drum to line it up with the pedestals.*

9. To remove the lift hooks, lower the plunger/crossbeam until there is no tension on the hooks or lifting cables, as shown in [Figure 5](#).
10. Push the hook tail down to release the hooks (see [Figure 6](#)).
11. Store hooks on storage brackets on the frame.



Figure 5. Slack Lifting Cable

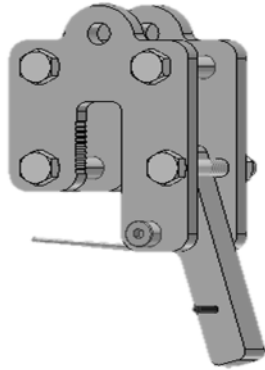
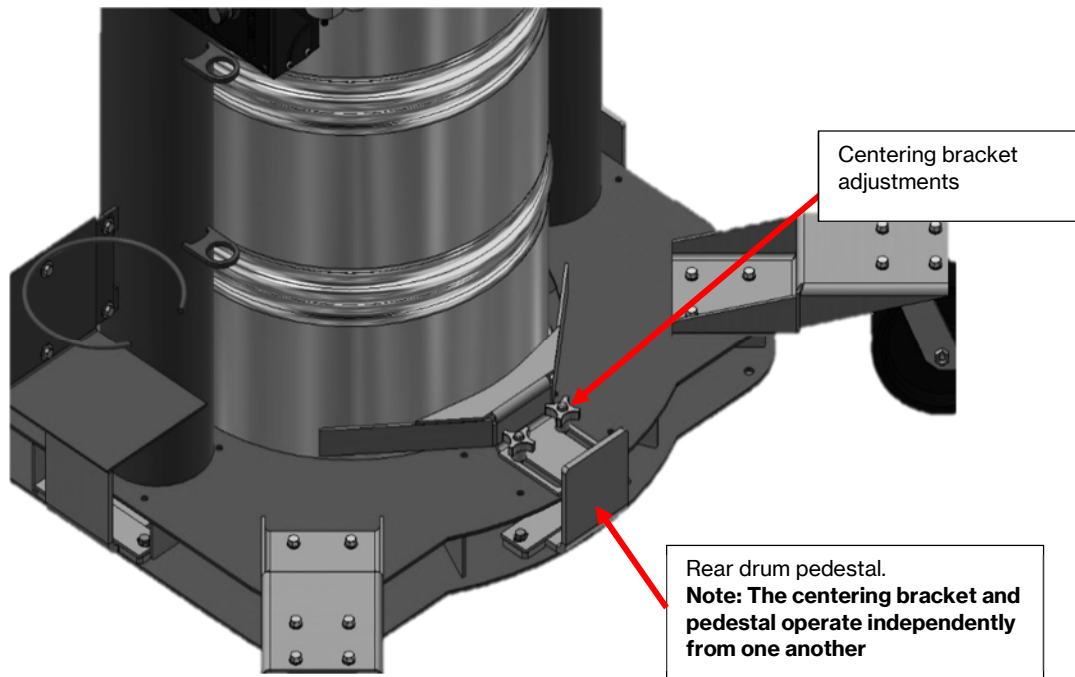
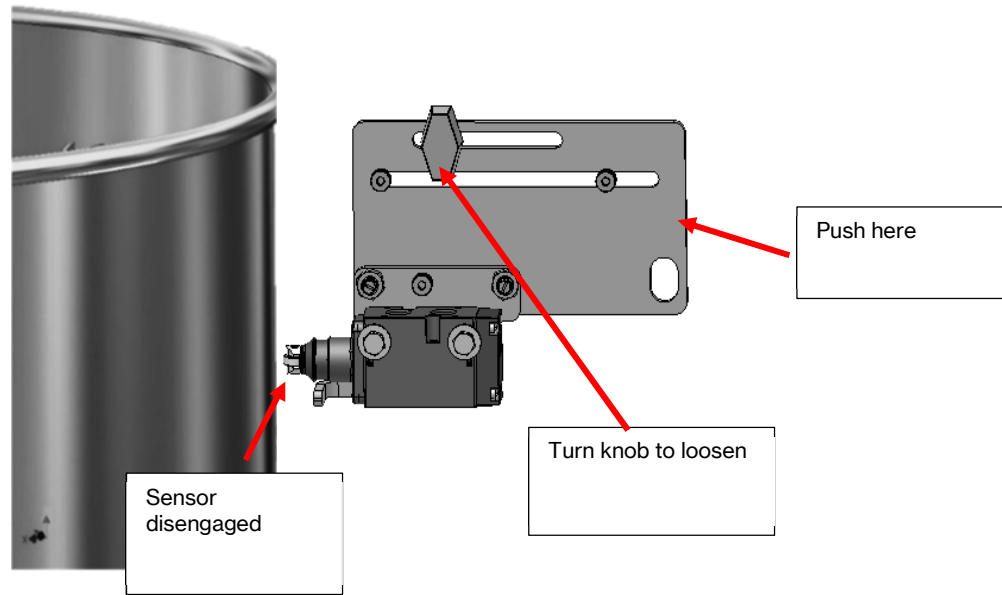


Figure 6. Hook Tail Release

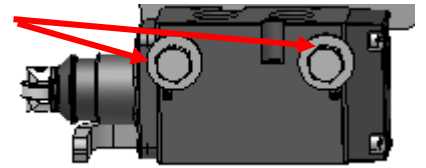
12. Make sure the ram piston and seals are centered on the drum opening. Reposition the drum as needed until the ram piston and seals are centered on the drum opening, then attach a plunger liner.
13. Adjust the centering bracket and lock it in place to keep the drum centered.



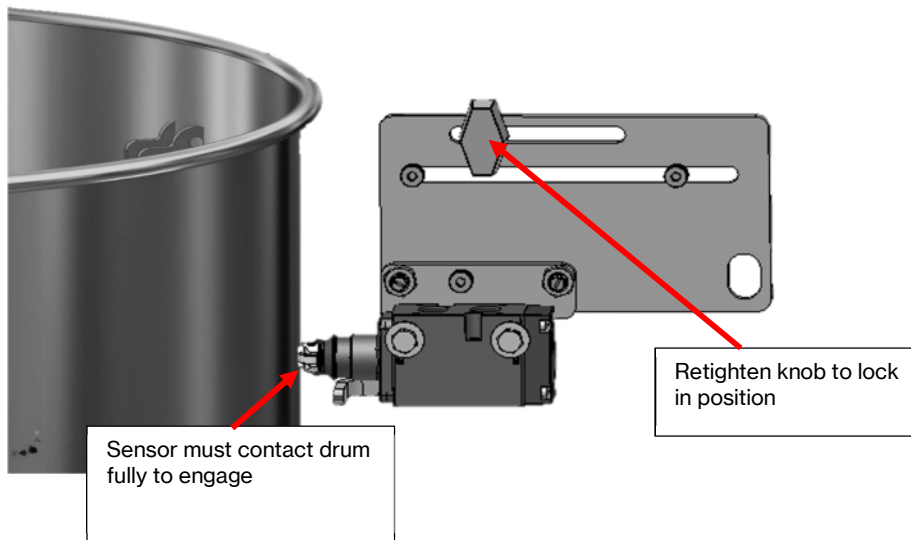
14. Engage the drum sensor by loosening the tightening knob and pushing the slide forward until the sensor contacts drum and is fully depressed.



**Note** *The drum sensor is held in place with ball detents that will cause the sensor to break away if impacted to avoid damage. You can loosen or tighten the fittings to your preference and lock the setting in place with jam nuts.*



15. Once in position, re-tighten knob.



16. Move the unit back to the dispensing area and lock the caster wheels in place.

**Note** *The drum sensor limits power on the down stroke when disengaged to prevent the unit from tipping when a drum is not loaded and the plunger is lowered. Engage the sensor to increase to full power immediately.*



# Dispensing Material

**Note** *If the 55-gallon drum has a plastic liner, use the ring from the drum top to hold the liner in place or tape the liner to the outside of the drum to prevent the liner from being pushed down into the drum.*

1. Push the Air Lift direction control to the down position, then release.

The ram piston should slowly move down.



## CAUTION

*Keep hands clear of moving parts to avoid risk of injury.*

2. Remove the pipe plug and open the ball valve located on top of the follower plate; this will allow air trapped between the ram piston and the adhesive to escape.

**Note** *Allow time for air to be pushed out of the ball valve.*

3. Once ram piston has started into adhesive drum, slowly increase air lift regulator pressure 20 to 40 psi.
4. Once air is no longer coming out of the valve and the ram piston has come to a complete stop onto the top of the adhesive (a small amount of adhesive might come out the ball valve), close the ball valve.



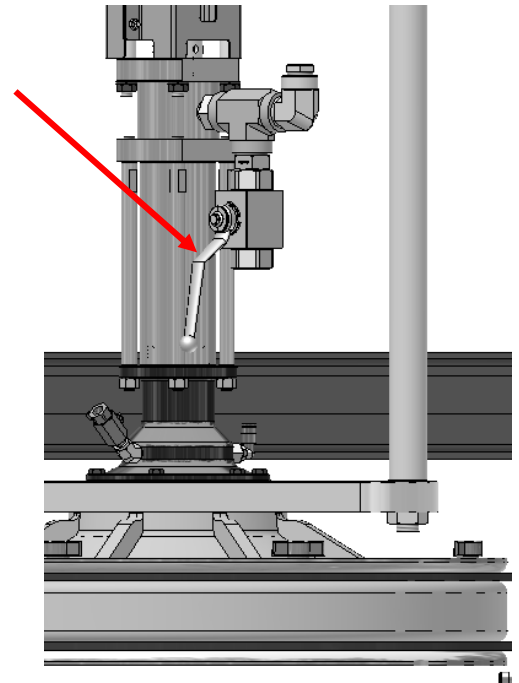
## CAUTION

*Follow all safety guidelines on the MSDS for the chemical compounds in use.*

5. Position a waste container under the adhesive pressure dump ball valve to allow priming of the pump.
6. Slowly increase the pump pressure regulator.

**Note** *The amount of pressure needed will depend on the material being dispensed. At least 20 psi is needed to maintain downward pressure, but more may be needed for thicker materials.*

7. Adjust the pump regulator as needed to maintain a slow and uniform movement of the adhesive pump.
8. Allow unit to run until adhesive material is being dispensed out of the pressure dump ball valve.
9. Close adhesive pressure dump ball valve.
10. Reinstall the pipe plug.



**Note** *Residual material may set up in the valves if it remains exposed to moisture in the air. Use the pipe plugs to keep the system clear.*

11. Begin dispensing a bead of material.



**WARNING**

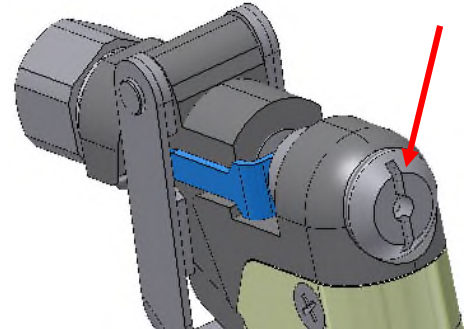
*Never look directly into the spray gun fluid tip. Serious injury can result.*

## Adjusting the Gun

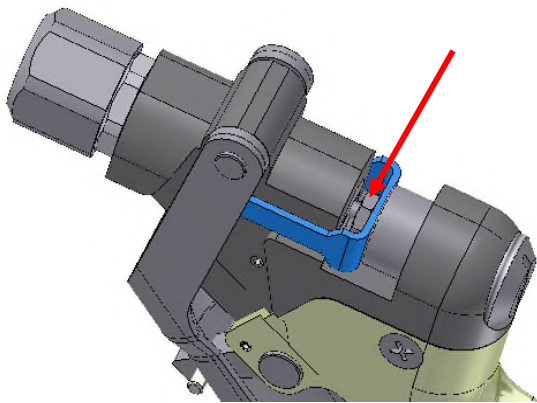
### Adjust Trigger Travel

1. Turn the spring adjustment nut on the back of the gun counterclockwise and remove.

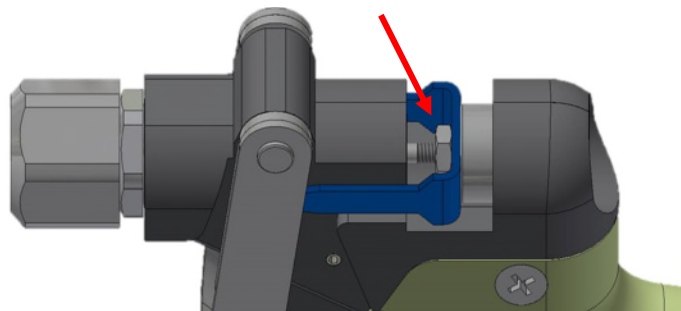
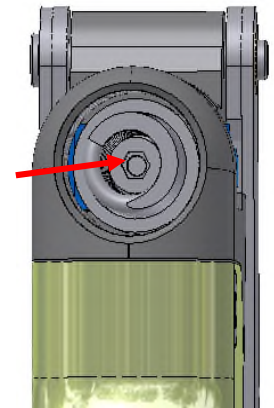
**Note** *Be careful not to lose the spring. It is under tension and may fly out when the nut is removed. If the spring comes out of the gun, put it back in place before reassembling the gun or adjusting the spring tension.*



2. Using a  $\frac{5}{16}$ " wrench, hold the hex nut in front of the needle actuator.



3. Turn the spring retainer nut counterclockwise with a  $\frac{1}{8}$ " Allen wrench until the desired trigger travel is achieved.
4. Tighten the hex nut up completely against the needle actuator.



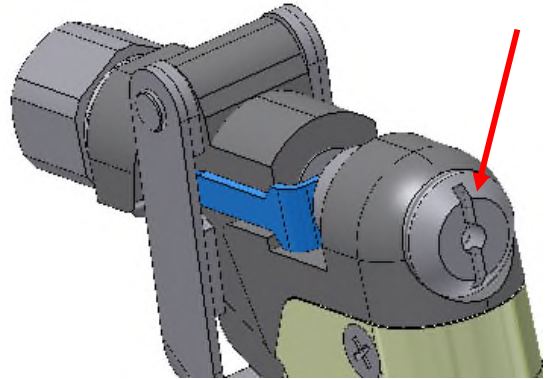
5. Replace the spring and spring retainer nut into the back of the gun.



## Adjust Spring Tension

- To increase the spring tension, use a flathead screwdriver to turn the adjustment nut on the back of the gun clockwise until the desired tension is achieved.
- To decrease tension, use a flathead screwdriver to turn the adjustment nut counterclockwise until the desired tension is achieved.

**Note** *Be careful not to turn the nut completely out of the housing.*



## Cleaning & Shutdown

When finished with dispensing, it is necessary to clean the dispense head / gun.

- Open dispense head / gun momentarily to allow pump shafts to run to fully lowered position.
- Close dispense head / gun valve all the way.
- Turn main air off to system and clean the dispense head / gun handle.
- Remove the plastic dispense tip from the gun and replace with a pipe plug to keep material from setting in the gun port.

**Note** *You may also replace the plastic dispense tip each day. Residual material will set up in the gun if the tip is removed and no plug is put in place.*

## Changing an Empty Drum

- On the control panel, push the air lift direction control to the **UP** position, then release.
- Turn the Air Lift pressure regulator to 0 (zero).
- Turn the Ram Extraction valve to the **On** position.
- Slowly turn up ram extraction regulator to approximately 20 psi until the pump and ram move up and out of drum slowly and evenly.
- Check that the hoses are not catching or kinking as they go up.



### **WARNING**

*Excessive air pressure in the drum could cause the drum to rupture. Use minimum air pressure necessary to remove the ram from the drum. Do not use ram with damaged or dented drum.*

- When the lower seal on the ram is near the top of the drum air will begin to leak around the seal and the pump and ram will no longer be

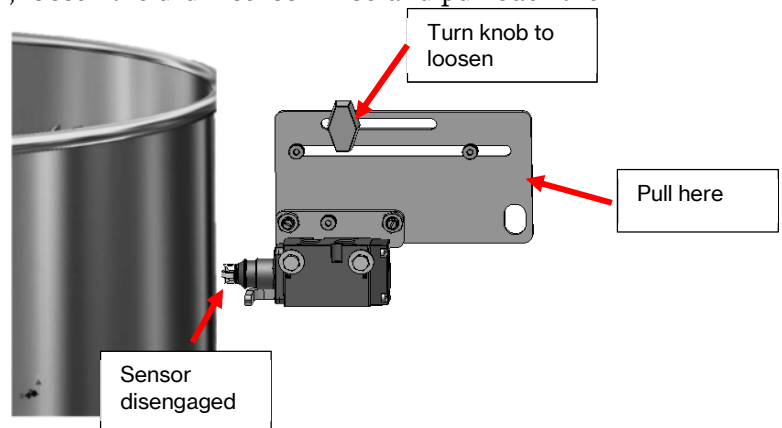


moving out of drum. Remove the tape holding the plastic boot to the ram and allow it to stay with the drum or fall into the empty drum.

7. Turn the ram extraction valve to the **Off** position to stop the air leak.
8. Slowly increase the Air Lift pressure regulator to 5 - 10 psi.
9. Pump and ram should slowly begin to lift (move up); check to make sure hoses are not catching or kinking and correct as necessary.
10. Allow the pump and ram to fully clear the drum.

**Note** *It may be necessary to adjust both Air Lift and Ram Extraction pressures to facilitate removal without lifting the drum.*

11. Once pump and ram are free of the drum, loosen the drum sensor knob and pull back the slide to disengage the drum sensor.
12. Attach both lift hooks to the lip of the drum at points directly opposite from each other (180°) at the designated attachment points (see Figure 3).



**Note** *Raise or lower the eyebolts in the crossbeam to adjust cable slack.*

13. Slowly raise plunger/crossbeam until it reaches the top most position and drum lifts off the drum pedestals.
14. Disengage the three drum pedestals.
15. Slowly lower the crossbeam until the drum touches down onto the ground.
16. Remove the empty drum, then dispose of the plastic boot.
17. Clean any adhesive build-up from the lifting hooks and replace them on the storage brackets.
18. Inspect the ram seals and clean any build-up of adhesive material on ram seals and follower plate.

**Note** *If new seals are required, reference the part number in the table below when ordering.*

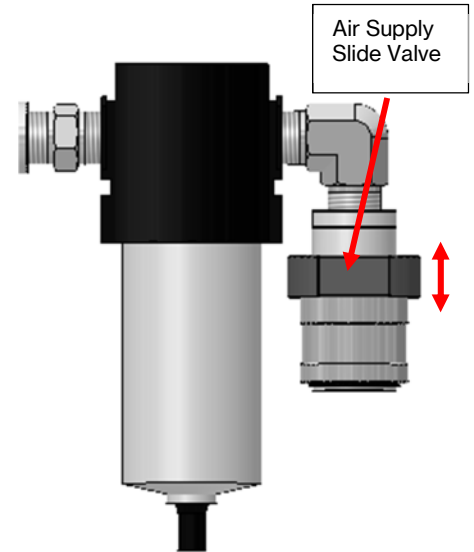
Application	Seal No.	Item	Seal Material	Seal OD	Backup Ring	Item
Polyester Putty	60520-3	29	Urethane – Red - Standard	22.56"		
	60520-1	29	EPDM – Black - <b>Optional</b>	22.56"	60510-1	64
	60520-5	29	Leather – Brown - <b>Optional</b>	22.56"	60510-1	64

19. Unlock the casters, then follow the steps in the Loading a Drum section to install a new 55-gallon (200 liter) drum of adhesive onto the unit.

# Starting-up & Shutting-Down

## Daily Startup

1. Check the level of adhesive and replace if needed.
2. Slide the main air valve (open) to pressurize the system.
3. Check the air filter and bleed off any water accumulated.
4. Check the system for leaks and damage and replace or repair items as needed.
5. Check that air lift pressure settings are correct and adjust if needed.
6. Check pump air pressure settings are set appropriately. If needed, adjust the pump pressure.
7. Reassemble and attach spray gun and connect air supply to the nozzle.



## Daily Shut-Down

8. Drain water trap filter daily.
9. Thoroughly flush the gun with solvent.
10. Disconnect air supply to the gun.
11. Turn down the pump pressure.
12. Slide the main air valve to the closed position.

**Note**      ***Do not leave barrel piston in 55-gallon drum if the system will be idle for more than two weeks.***