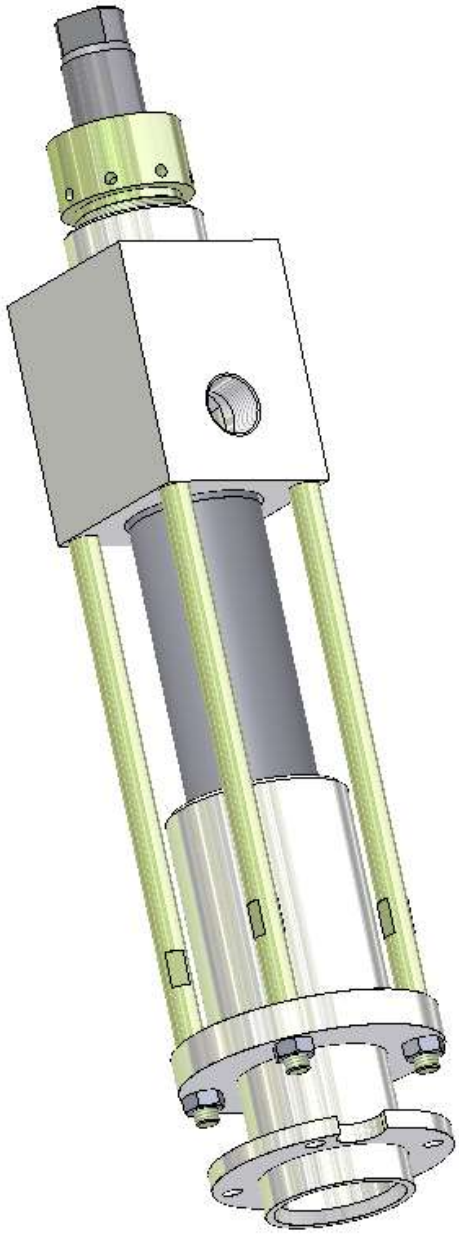
Chop Check Fluid Section

Component Manual

This manual is applicable to the following models:

- CCPLS-1000
- CCPLS-1000-SS



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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

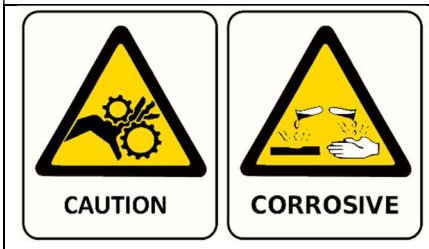
Fire Extinguisher – code ABC, rating number 4a60bc using Extinguishing Media –Foam, Carbon Dioxide, Dry Chemical, Water Fog, is recommended for this product and applications.

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

Resins		
Composite Component	**Organ System Target (Possible Target)**	**Known (Possible) Health Effect**
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)
Reinforcing materials		
Composite Component	**Organ System Target (Possible Target)**	**Known (Possible) Health Effect**
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
Hardeners and curing agents		
Composite Component	**Organ System Target (Possible Target)**	**Known (Possible) Health Effect**
Diaminodiphenylsulfone	N/A	No known effects with workplace exposure
Methylenedianiline	Liver, skin	Hepatotoxicity, suspect human carcinogen
Other aromatic amines		
Composite Component	**Organ System Target (Possible Target)**	**Known (Possible) Health Effect**
Meta-phenylenediamine (MPDA)	Liver, skin (kidney, bladder)	Hepatitis, contact dermatitis (kidney and bladder cancer)
Aliphatic andcyclo-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! Hydro carbon 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 Hyrdrocarbon 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 Hyrdocarbon (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, over-sprayed 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 maintenance and simple repair of the MVP Chop Check Fluid Section. The following procedures are included:

- Step-by-step assembly and disassembly

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.

As you disassemble the equipment, lay out the components in the correct order and direction to assist with reassembly. Pay particular attention to the order of the piston cup, piston cup spacer ring, piston cup backup ring, and compression ring and the directions that they face. Orienting these parts correctly is critical to proper functioning of the equipment.

Throughout this manual, directions are given for lubricating various parts of the fluid section. These are the typical lubricants:

- If the part contacts resin, use MVP Red Grease
- If the part is located where it will contact air, use Lubriplate®
- In the oil reservoir of the pump, use Throat Seal Oil (TSL-3200)
- Throat Seal Oil for use with ISO (TSL-ISO-800)
- Grease for use with ISO (GR-ISO-100)

DANGER

FIRE and EXPLOSION hazard. Never use any lubrication on the components of the catalyst system. Contact your catalyst manufacturer for additional material handling information.

Requirements

Air Requirements

Clean and dry compressed air must be available at up to 90 psi (6 bar) and a minimum volume of 10 CFM. Air must be provided through an air hose with a 0.5 inch diameter or greater.

Tools and Supplies Needed

When performing service and repair on the fluid section, you should have the following tools, spare parts, and supplies available before beginning.

- ❑ ONE TABLE VISE
- ❑ LOCTITE™ 243 (REMOVABLE) OR EQUIVALENT THREAD LOCK COMPOUND
- ❑ ONE SMALL HAMMER
- ❑ NEEDLE-NOSE PLIERS
- ❑ SOLVENT OR EMULSIFIER FOR CLEANING
- ❑ ONE CLEAN WORK TABLE
- ❑ ANTI-SEIZE THREAD SEALANT
- ❑ SET OF HEX WRENCHES * (08469)
- ❑ ONE 5/8-INCH WRENCH * (08474)
- ❑ ONE 9/16-INCH WRENCH * (08476)
- ❑ ONE 5/16-INCH WRENCH * (08477)
- ❑ EMPTY BUCKETS FOR CLEANING
- ❑ CLEAN ¼-INCH PLASTIC DOWEL OR ROD
- ❑ ONE 8-INCH ADJUSTABLE WRENCH * (08467)
- ❑ ONE 12-INCH ADJUSTABLE WRENCH * (08468)
- ❑ ONE 7/16-INCH OPEN-END WRENCH
- ❑ ONE ½-INCH SOCKET WRENCH
- ❑ ONE 7/16-INCH SOCKET WRENCH * (08472)
- ❑ WOODEN STICKS OR TONGUE DEPRESSORS (FOR TESTING)
- ❑ LABELS AND PENS (FOR MARKING PNEUMATIC LINES)
- ❑ CLEAN RAGS AND PAINT BRUSHES FOR CLEANING EQUIPMENT
- ❑ ONE TUBE OF MEDIUM-WEIGHT LITHIUM GREASE (SUCH AS LUBRIPLATE® LUBRICANT * (08465))
- ❑ LARGE (APPROXIMATELY 3 FEET BY 10 FEET OR 1 METER BY 3 METERS) STRIPS OF PAPER FOR PERFORMING SPRAY TESTS.
- ❑ ONE PIN WRENCH * (45031-1) (COMES WITH CATALYST JUG)
- ❑ ONE SCRIBE * (08126)
- ❑ RED GREASE * (6706-2-1 1OZ CAN) (6706-2-16 16OZ CAN) (6706-2-32 32OZ CAN)

- ❑ SEAL KITS *
    - ○ CCPLS-1000-RK REPAIR KIT – CHOP CHECK FLUID SECTIONS
    - ○ CCPLS-1000-SS-RK REPAIR KIT – SS CHOP CHECK FLUID SECTION

Note ***Items followed by an asterisk (*) may be purchased from Magnum Venus Products.***

IMPORTANT

Components used on this equipment are made of specially developed high-strength material. Only authentic MVP replacement parts are acceptable for use with this equipment. Use of unacceptable replacement parts will void our liability and warranty of this equipment.

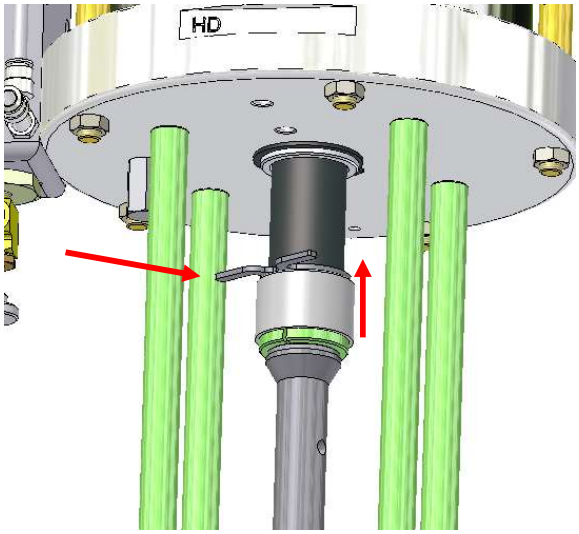
Contact your MVP distributor for more information.

Removing Fluid Section

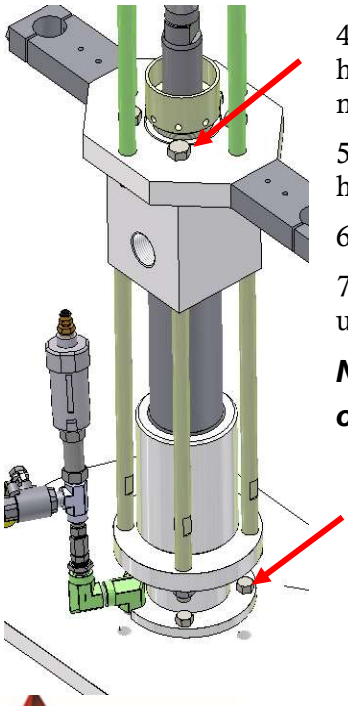
WARNING

When removing the pump fluid section, hoses, and resin surge chamber, be sure to bleed off fluid pressure from the system before disconnecting. Release the surge chamber charge before removing. If the system is under pressure loose parts can cause injury.

Note ***The fluid section can be rebuilt in place or easily removed and taken to a workbench. Flushing the fluid section with suitable cleaning agent can make the rebuild process easier.***



1. Put the pump into the lowest position of the down stroke.
2. Disconnect the resin hose from the side of the pump fluid section.
3. Remove the sleeve clip, lift up the shell retainer, and remove the two half shells from the rod ends.

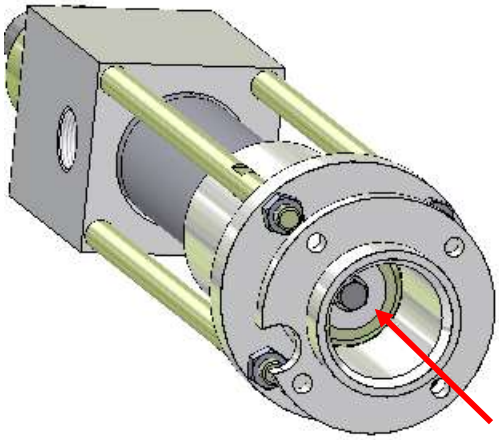


4. Remove the four hex head bolts holding the fluid section to the pump mount plate.
5. Remove the four hex head bolts holding the fluid section to the support plate.
6. Remove the two hex nuts from the support rod.
7. Shift the ram control valve into the ram up position, then move the ram up until the pump mount plate will allow the pump fluid section to be removed.

Note ***As you disassemble the unit, lay the parts out on a clean towel or rag in the order you take them apart. This will help you remember how they go back together. Inspect each part for wear or damage and note any parts that require replacement.***

Disassembling Fluid Section

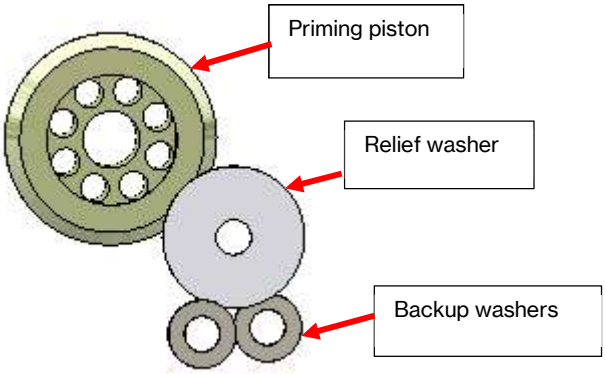
Note ***The seals differ from the standard steel version and the stainless steel version of the pump. Refer to the parts drawing specific to your equipment to ensure you order the correct replacement part numbers.***

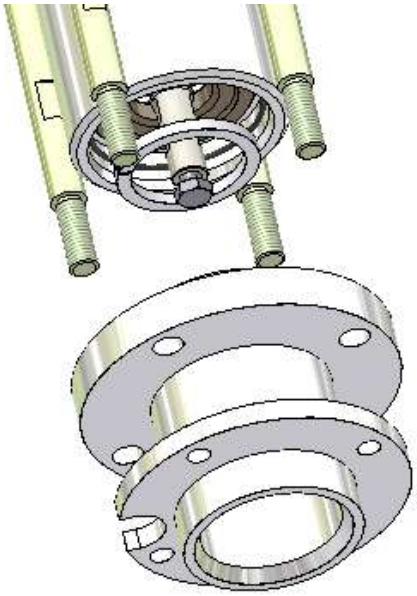


1. Move the pump to the bottom of the down stroke.
2. Remove the hex cap screw from the bottom of the priming rod.

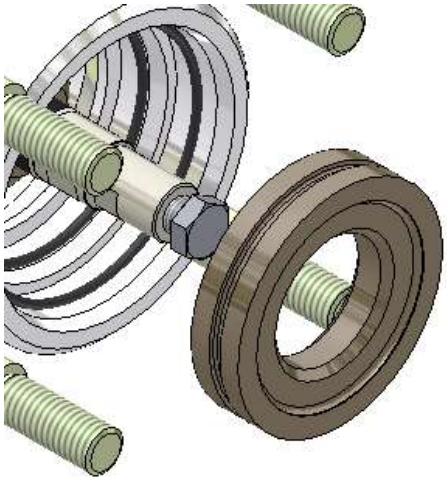
Note ***If the priming rod spins, put a wrench on the wrench flats of the priming rod just above the priming piston to hold it in place.***

3. Remove the backup washers, relief washer, and priming piston from the priming rod.

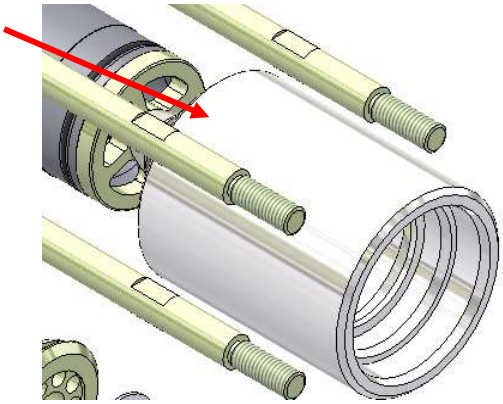


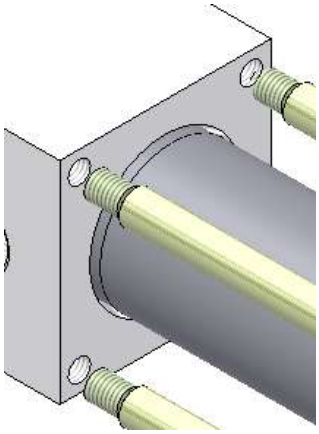


4. Unscrew the four hex nuts from the end of the tie rods.
5. Pull the priming valve housing off the tie rods and out of the foot valve housing.
6. Remove the lower valve seat from out of the end of the foot valve housing.

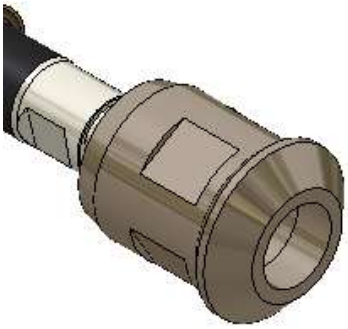


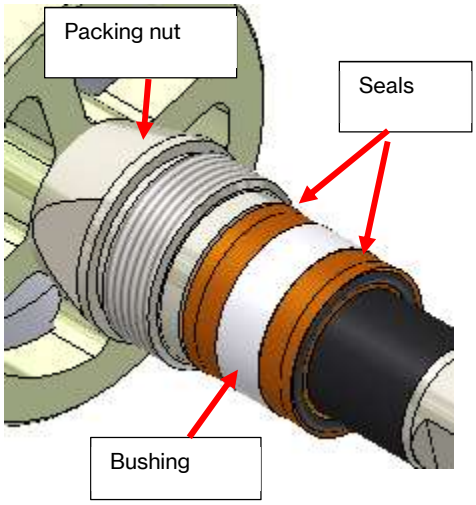
7. Slide the foot valve housing off the cylinder.
8. Unscrew the tie rods out of the outlet body.

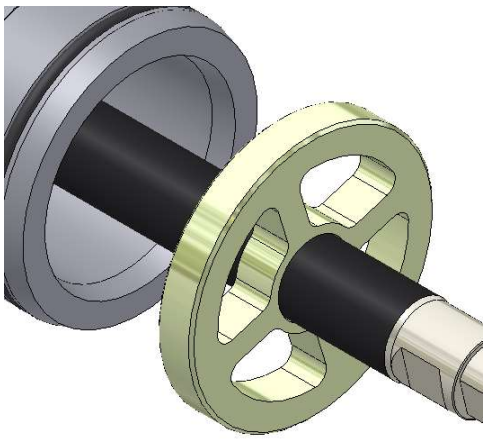




9. Pull the intake valve assembly off the priming rod.
10. Unscrew the intake valve packing nut from the intake valve.
11. Remove both of the intake valve seals and the bushing (if applicable) from inside the intake valve.







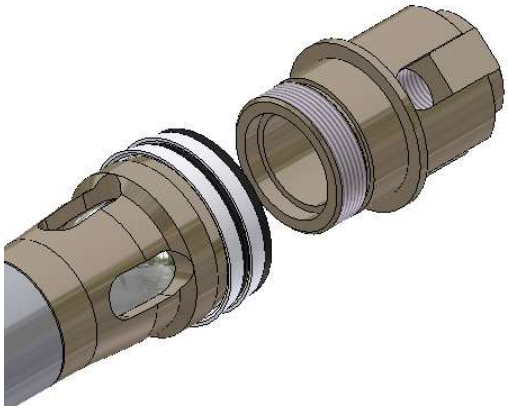
12. Slide the valve stop off the priming rod.
13. Pull the cylinder out of the outlet body and off the piston cups.
14. Remove the packing nut from the top of the outlet body.

15. Pull the displacement rod from the V-packing and outlet body and set aside.

16. Remove the rod bushing from the top of the outlet body.
17. Remove the spring support ring and wave springs from inside the outlet body.
18. Remove the female compression ring, male compression ring, and V-packing from inside the outlet body.

Note ***If the parts are difficult to remove from the top of the outlet body, use a wooden or plastic dowel to push the parts out from the bottom. Cleaning with solvent can also help loosen stuck parts.***

Disassemble Displacement Rod



19. Unscrew the lower piston body from the upper piston body.

Note ***Use caution not to let the piston ball fall out. If the ball falls onto a hard surface it may become scratched or get a flat spot.***

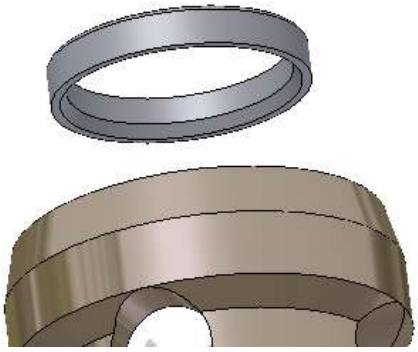
20. Remove the piston ball and ball check spring from the upper piston body.
21. Remove the piston cups, piston cup spacer, and piston cup backup ring from the lower piston body.

22. Remove the upper piston body from the end of the displacement rod.

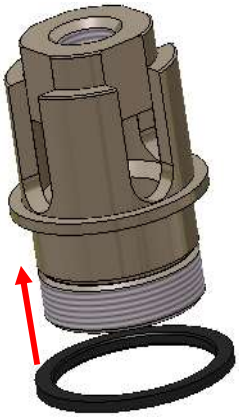
Reassembling Fluid Section

Assemble Displacement Rod

1. Mount the displacement rod in a vise by the wrench flats.
2. Apply a small amount of Loctite to the threads of the upper piston body and thread it into the displacement rod.
3. Insert the ball check spring into the upper piston body, larger end first.
4. Apply a light coat of the proper lubrication to the piston ball and place into the upper piston body on top of the spring.
5. Press the piston ball seat into the lower piston body with the chamfer toward the ball.



Note ***Be careful not to damage the ball seat area.***



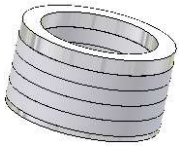
6. Slide the piston cup backup ring over the lower piston body, ridged side up.
7. Apply proper lubrication into the piston cups.
8. Slide one piston cup with the cup side up over the lower piston body onto the piston cup backup ring.

9. Slide the piston cup spacer onto the lower piston body so the narrow end is inside the cup.
10. Place the other piston cup (cup side up) over the lower piston body and onto the piston cup spacer.
11. Thread the lower piston body into the upper piston body on the displacement rod.

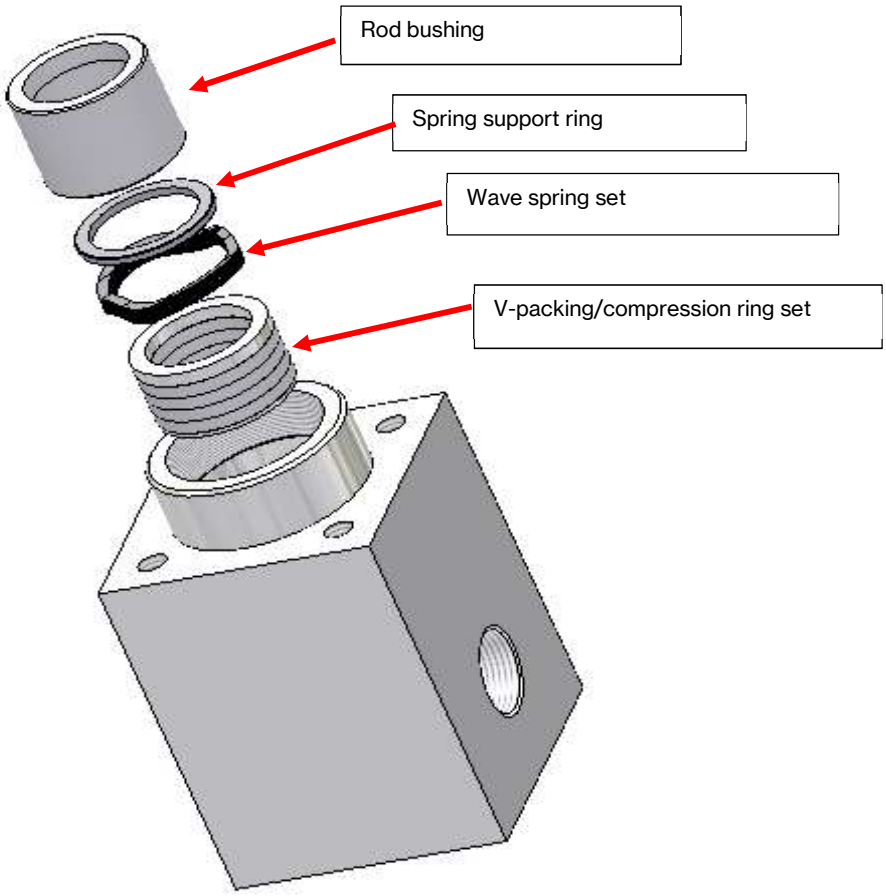
Note ***Use caution not to overtighten the lower piston body or you may damage the lip of the piston cups.***

12. Apply a small amount of Loctite to the threads of the priming rod and thread it into the lower piston body.
13. Remove the rod from the vise and set aside.

Assemble Outlet Body



14. Pack red grease into all of the V-packing and the female compression ring.
15. Apply a light film of the proper lubrication to the inside of the packing area of the outlet body.
16. Put together all four V-packing with the male compression ring on one end and the female compression ring on the other.
17. Place this V-packing assembly into the outlet body with the male compression ring going in first.

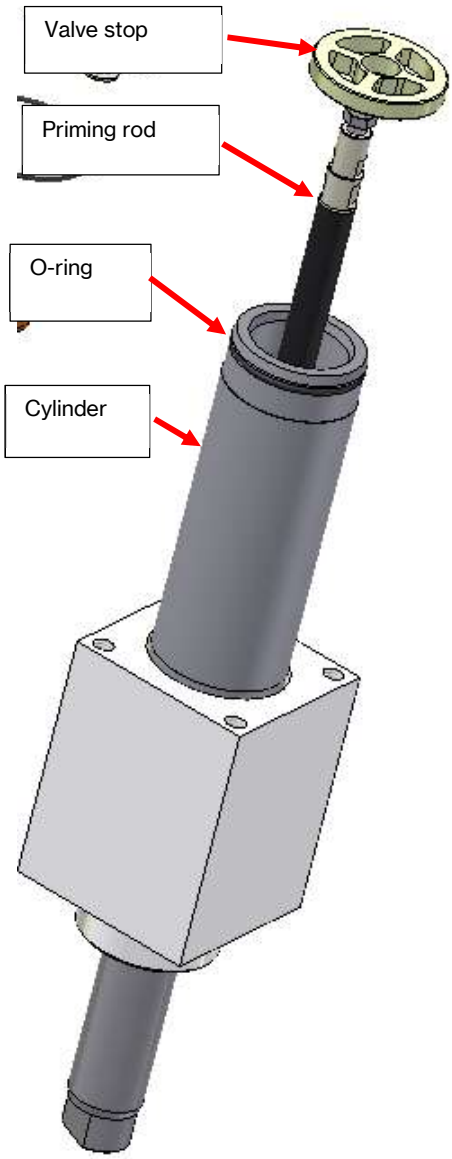


18. Apply a thin film of the proper lubrication to the ten wave springs and insert them into the outlet body onto the V-packing set.
19. Place the spring support ring into the outlet body on top of the wave spring set.
20. Insert the rod bushing into the outlet body onto the spring support ring.

21. Apply a little of the proper lubrication to the threads of the packing nut and thread it into the outlet body just enough to contact the rod bushing, do not tighten at this point.
22. Apply a thin film of the proper lubrication to the displacement rod and to the priming rod.
23. Apply a light film of the proper lubrication to the outlet body where the cylinder O-ring will be installed.

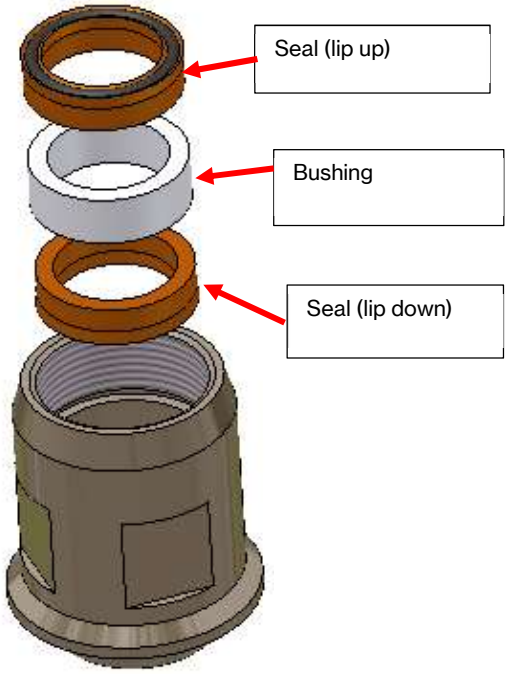
Note ***It may be helpful to hold the outlet body in a vise if the fluid section has been removed from the pump mount bracket.***

24. Gently insert the displacement rod assembly into the outlet body and through the V-packing from the outlet side.
25. Lightly grease both O-rings and install onto the cylinder.
26. Firmly press the cylinder over the priming rod and onto the piston cups, then into the outlet body.
27. Install the valve stop onto the priming rod up to the bottom of the cylinder.



Assemble Intake Valve

28. Apply a light film of the proper lubrication to the inside of the intake valve.
29. Lightly grease and install one seal into the intake valve with the lip going in first (or facing out the bottom of the valve).



30. Place the bushing inside the intake valve so that it is against the bottom of the seal.

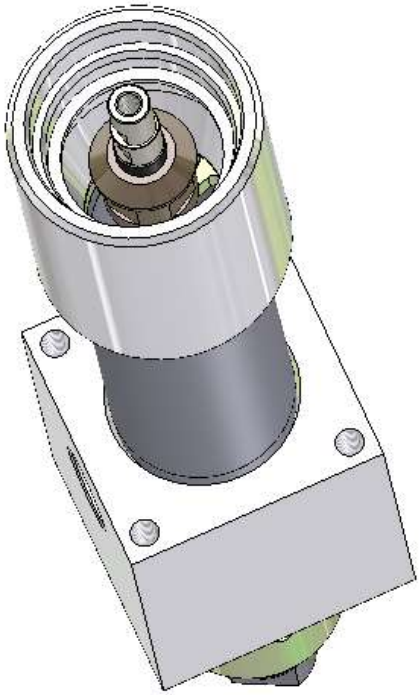
31. Lightly grease the other seal and install into the intake valve with the lip face up (or facing out the top).

Note ***The stainless steel intake valve only has one seal and no bushing. Refer to your parts drawing to ensure you order the correct replacement parts. Install the single seal in place of the seals and bushing pictured.***

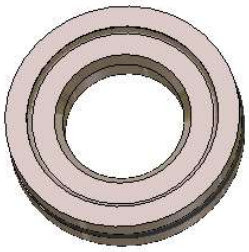
32. Apply a drop of Loctite to the threads of the intake valve packing nut and thread it just a little ways into the intake valve.
33. Install the intake valve assembly onto the priming rod with the intake valve packing nut going on first.
34. Finish tightening the intake valve packing nut into the intake valve.
35. Slide the intake valve up against the valve stop.

Complete Assembly

36. Apply a light film of the proper lubrication to the inside of both ends of the foot valve housing.

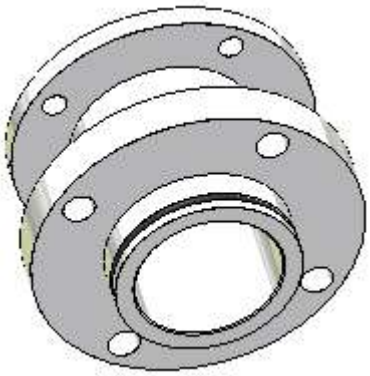


37. Slide the foot valve housing over the priming rod and intake valve and onto the cylinder, making sure to orient it correctly.
38. Apply a light film of the proper lubrication to a new O-ring and install onto the lower valve seat.

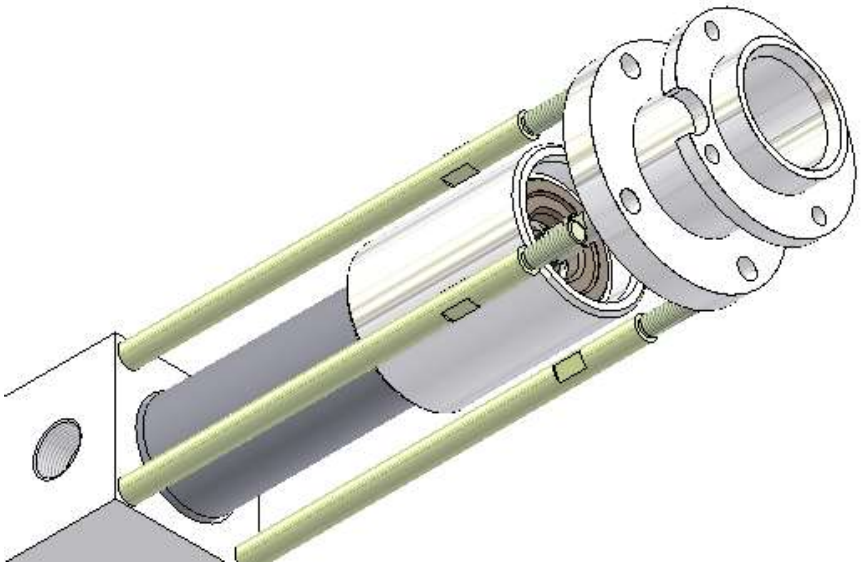


39. Install the lower valve seat over the priming rod and into the foot valve housing.
40. Install the four tie rods into the outlet body and tighten.

41. Apply the proper lubrication to a new O-ring and install onto the priming valve housing.



42. Install the priming valve housing over the priming rod, into the foot valve housing, and onto the tie rods, aligning the notch in the priming valve housing with the outlet hole in the outlet body.



43. Thread the four hex nuts onto the tie rod ends and tighten firmly against the priming valve housing.
44. Apply a thin film of the proper lubrication to the piston seal and install onto the priming piston.
45. Adjust the displacement rod in the pump so that just the wrench flats are exposed out of the packing nut.
46. Place the priming piston onto the priming rod.
47. Place one backup washer, the relief washer, and then the other backup washer onto the hex cap screw.
48. Apply a drop of Loctite to the threads of the hex cap screw and thread it into the end of the priming rod.
49. Tighten only until the priming rod starts to spin.

Note ***Be careful not to overtighten or the relief washer may be damaged.***

Specifications

Pump Ratios	
Powerhead	**Chop Check Putty Ratio**
VPH-5000-P	14 to 1
VPH-7000-P-HD	29 to 1

Note ***These ratios do not account for static or dynamic friction as well as the weight of moving components. It is assumed there is no fluid bypass around the piston cups or ball and seat.***

Pump Assemblies

The following assemblies use this fluid section:

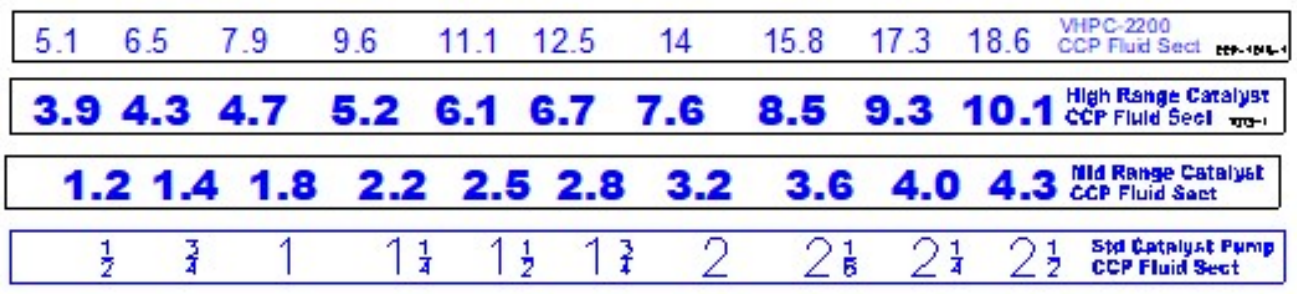
Pump Assemblies		
Part Number	**Description**	**Includes these parts**
CCP-1400-SS	14 : 1 Pump Assembly	VPH-5000-P & CCPLS-1000-SS
CCP-29100	29 : 1 Pump Assembly	VPH-7000-P-HD & CCPLS-1000
CCP-29100-SS	29 : 1 Pump Assembly	VPH-7000-P-HD & CCPLS-1000-SS

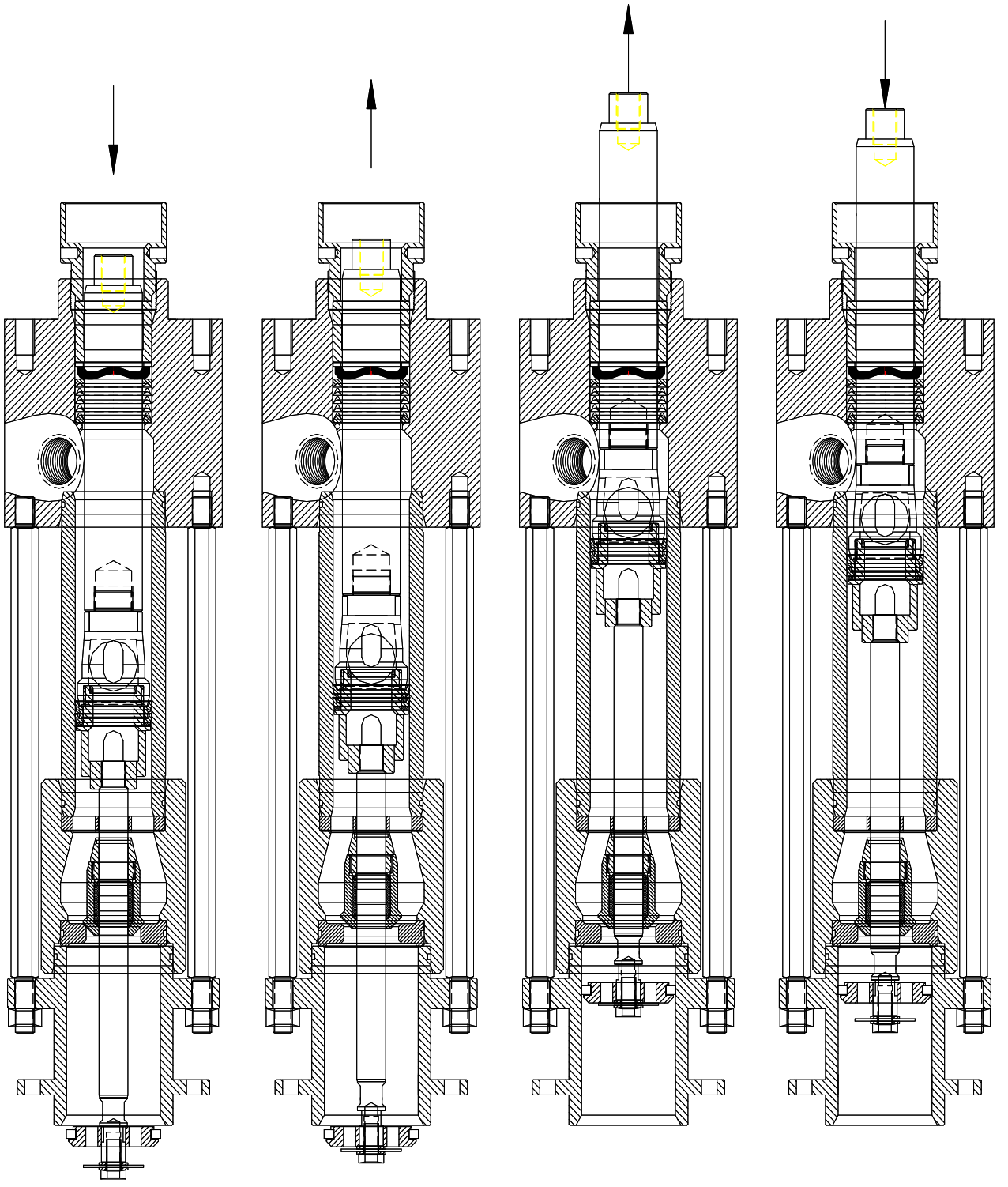
Pump Displacement

Fluid Section	Stroke Length	Displacement (in)/Stroke	Cycle
CCPLS-1000	4” (101.6 mm)	1.325 (21.7 cc)	2.65 (43.4 cc)

Catalyst Pump	Percentage Range
PHPC-7200	0.5% - 2.5%
PHPC-4200	1.2% - 4.3%
VHPC-3200	3.9% - 10.1%
VHPC-2200	5.1% - 18.6%

Slave Arm Stickers





> FULL DOWN
> PISTON BALL OPEN
> FOOT VALVE CLOSED
> PRIME PISTON OPEN

> UP STROKE
> PISTON BALL CLOSED
> FOOT VALVE OPEN
> PRIME PISTON CLOSING

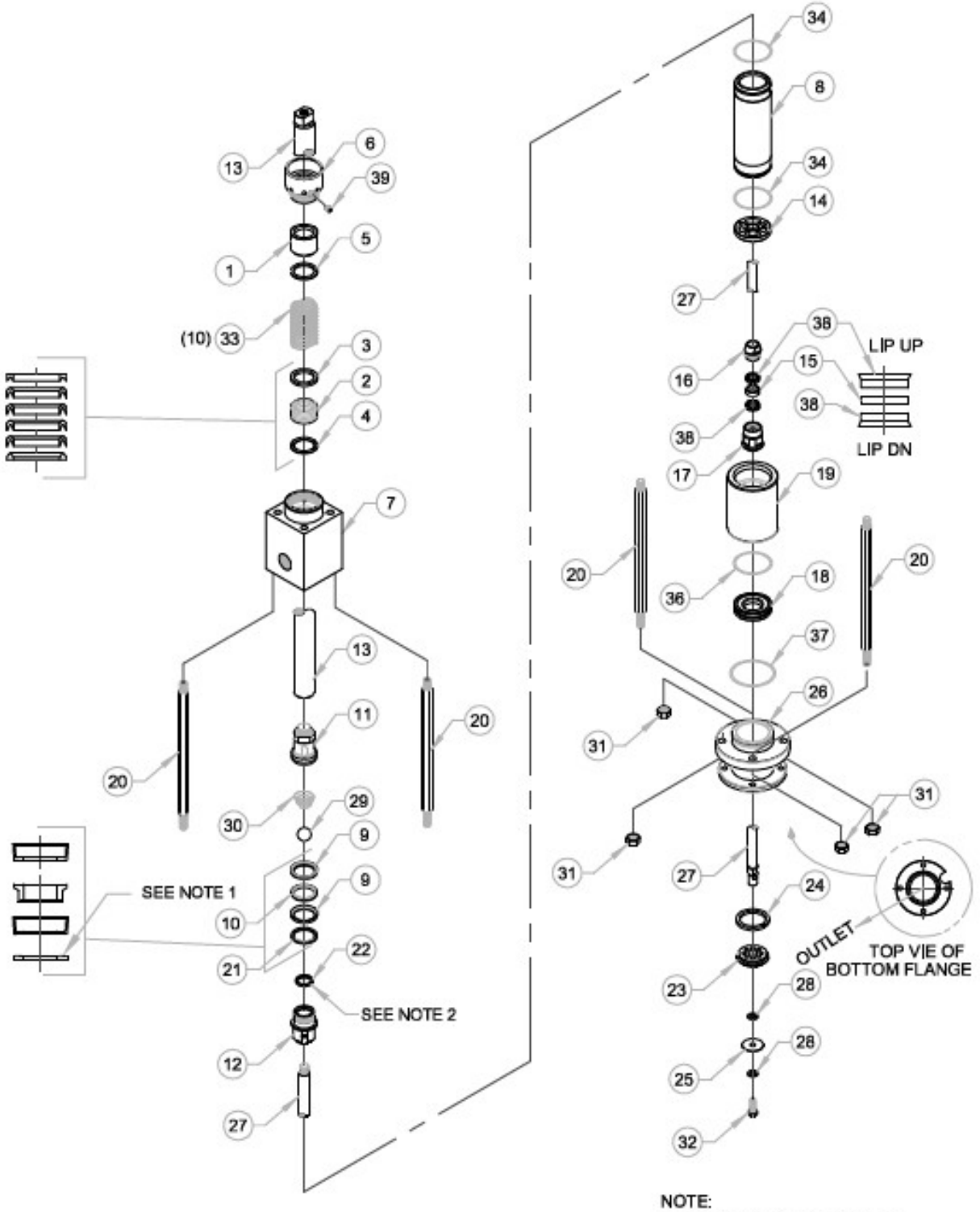
> FULL UP POSITION
> PISTON BALL CLOSED
> FOOT VALVE OPEN
> PRIME PISTON CLOSED

> DOWN STROKE
> PISTON BALL OPEN
> FOOT VALVE CLOSED
> PRIME PISTON OPENING

Parts Drawings

The following parts illustrations are included for reference during repair and for parts ordering.

Parts Drawings	
Part Number	**Description**
CCPLS-1000	Chop Check Fluid Section Assembly
CCPLS-1000-SS	Stainless Steel Chop Check Fluid Section Assembly
CCP-29100	Complete Pump Assembly With Air Motor
CCP-29100-BF	Complete Pump Assembly – Inlet Adaptor
CCP-29100-SS	Complete Stainless Steel Pump Assembly
CCP-1400-SS	Complete 14:1 SS Pump Assembly
CCP-SENS-100	Sensor Assembly
CCPLS-1000-RK	Chop Check Pump Repair Kit
CCPLS-1000-SS-RK	Repair Kit – SS Fluid Section



NOTE:
1. INSTALL WITH RIDGES UP
2. ITEM 22 IS PRESSED INTO ITEM 12

MAGNUM VENUS PLASTECH

CHOP CHECK PUMP FLUID SECTION	CCPLS-1000

REV. C = REMOVED ITEM 35 (PER ASSY) 10/18/05 JEM
REV. D = ADDED REPAIR KIT 2/7/06 JEM
REV. E = ADDED ITEM 39 04/30/07 JEM
REV. F = ADDED NOTE # 2 04/11/13 BT2

CHOP CHECK PUMP FLUID SECTION CCPLS-1000

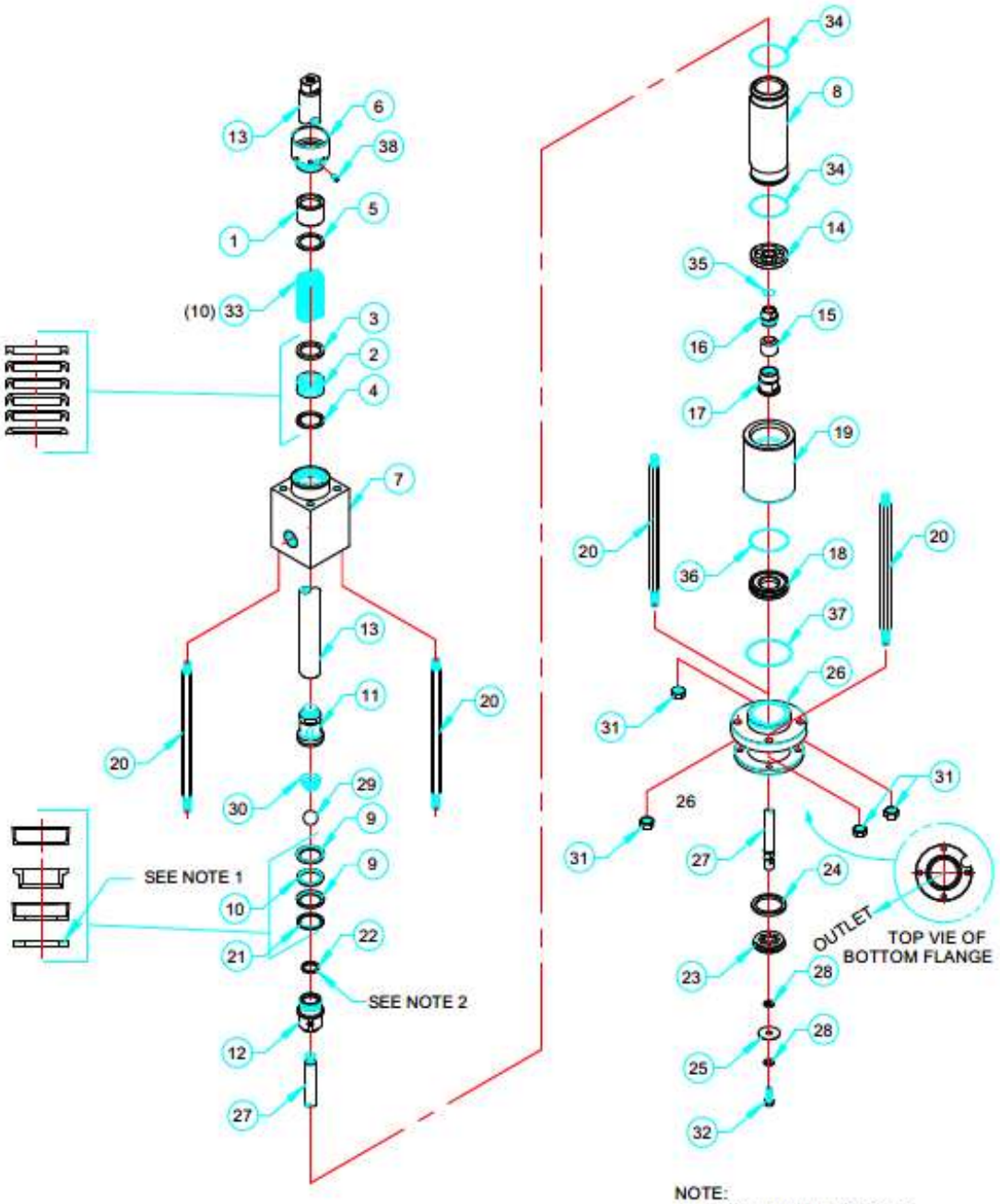
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	CCPLS-1001	1	ROD BUSHING - DISPLACEMENT ROD
* 2	CCPLS-1002	4	V PACKING
3	CCPLS-1003	1	FEMALE COMPRESSION RING
4	CCPLS-1004	1	MALE COMPRESSION RING
5	CCPLS-1005	1	SPRING SUPPORT RING
6	CCPLS-1006	1	PACKING NUT
7	CCLPS-1007	1	OUTLET BODY
8	CCPLS-1008	1	CYLINDER
* 9	CCPLS-1009	2	PISTON CUP
10	CCPLS-1010	1	PISTON CUP SPACER
11	CCPLS-1011	1	UPPER PISTON BODY
12	CCPLS-1012	1	LOWER PISTON BODY
13	CCPLS-1013	1	DISPLACEMENT ROD
14	CCPLS-1014	1	VALVE STOP
* 15	CCPLS-1033	1	BUSHING
16	CCPLS-1032	1	INTAKE VALVE PACKING NUT
17	CCPLS-1031	1	INTAKE VALVE
18	CCPLS-1018	1	LOWER VALVE SEAT
19	CCPLS-1019	1	FOOT VALVE HOUSING
20	CCPLS-1020	4	TIE ROD
21	CCPLS-1021	1	PISTON CUP BACKUP RING
22	CCPLS-1022	1	PISTON BALL SEAT
23	CCPLS-1023	1	PRIMING PISTON
* 24	CCPLS-1024	1	PISTON SEAL
* 25	CCPLS-1025	1	RELIEF WASHER
26	CCPLS-1026	1	PRIMING VALVE HOUSING
27	CCPLS-1027	1	PRIMING ROD
28	CCPLS-1028	2	BACKUP WASHER
* 29	VLS-4622	1	1-1/4" DIA BALL
30	3102-16-1	1	BALL CHECK SPRING
31	7201-12-8	4	HEX NUT
32	F-HB-06F-12	1	HEX CAP SCREW
33	CCPLS-1029	10	WAVE SPRING
* 34	O-V-144	2	O-RING
* 36	O-V-145	1	O-RING
* 37	O-V-150	1	O-RING
* 38	CCPLS-1034	2	SEAL
39	PF-AP-02	1	ALLEN PIPE PLUG

REPAIR KIT

PART NO.	DESCRIPTION
CCPLS-1000-RK	REPAIR KIT

* PARTS INCLUDED IN CCPLS-1000-RK REPAIR KIT



MAGNUM VENUS PLASTECH

CHOP CHECK PUMP FLUID SECTION SS CCPLS-1000-SS

REV. C = ITEM 31 WAS 7201-1-10 04/06/06 BT2
D = ITEM 29 WAS VLS-4622-440C 5/10/06 JEM
E = ADDED NOTE # 2 04/11/13 BT2
F = UPDATED KIT TO -SS VERSION 11/14/13 BT2

CHOP CHECK PUMP FLUID SECTION CCPLS-1000-SS

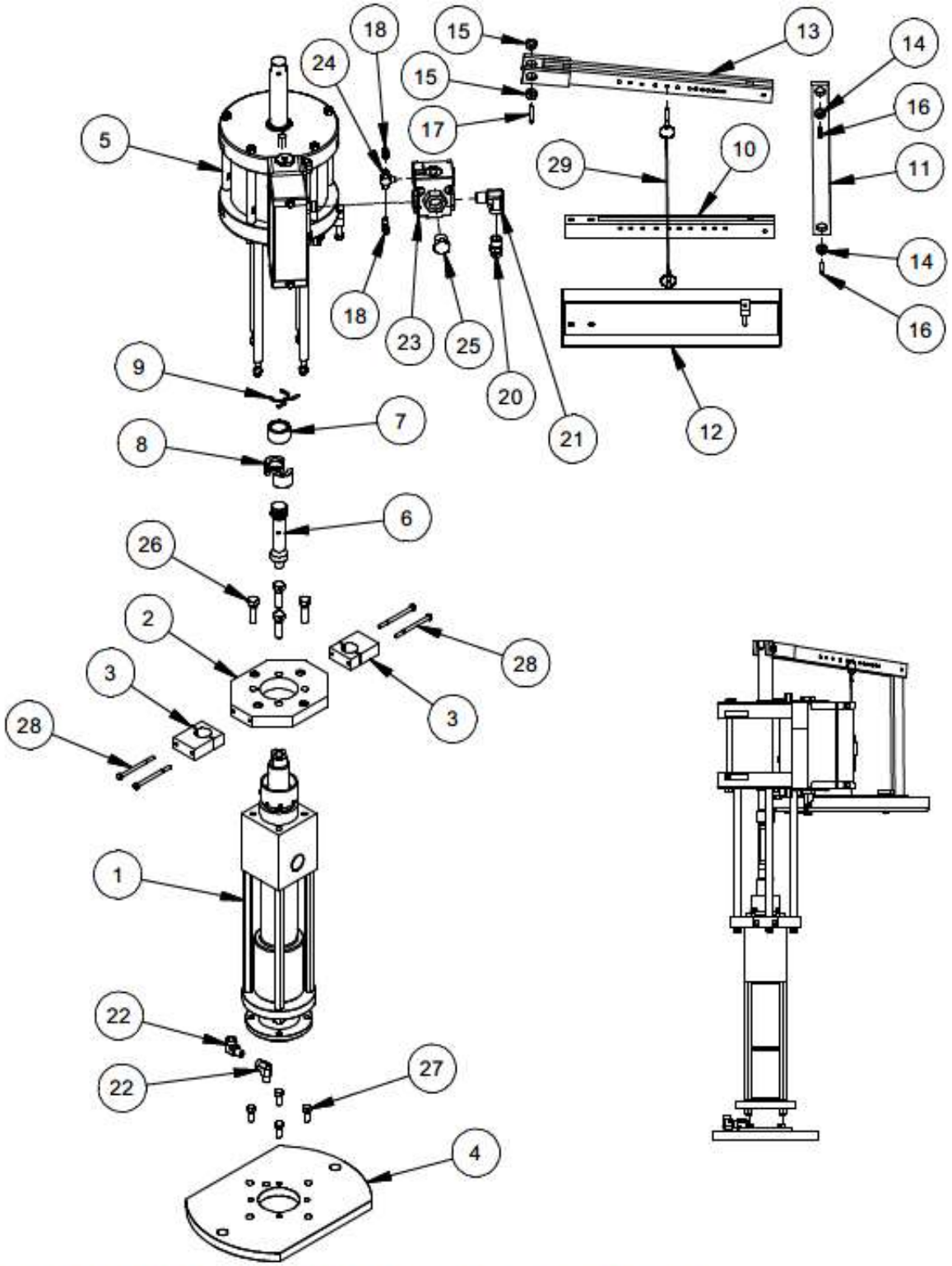
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	CCPLS-1001	1	ROD BUSHING - DISPLACEMENT ROD
* 2	CCPLS-1002	4	V PACKING
3	CCPLS-1003-SS	1	FEMALE COMPRESSION RING
4	CCPLS-1004-SS	1	MALE COMPRESSION RING
5	CCPLS-1005	1	SPRING SUPPORT RING
6	CCPLS-1006	1	PACKING NUT
7	CCLPS-1007-SS	1	OUTLET BODY
8	CCPLS-1008-SS	1	CYLINDER
* 9	CCPLS-1009	2	PISTON CUP
10	CCPLS-1010-SS	1	PISTON CUP SPACER
11	CCPLS-1011-SS	1	UPPER PISTON BODY
12	CCPLS-1012-SS	1	LOWER PISTON BODY
13	CCPLS-1013-SS	1	DISPLACEMENT ROD
14	CCPLS-1014-SS	1	VALVE STOP
* 15	CCPLS-1015	1	LWR INTAKE VALVE SEAL
16	CCPLS-1016-SS	1	INTAKE VALVE PACKING NUT
17	CCPLS-1017-SS	1	INTAKE VALVE
18	CCPLS-1018-SS	1	LOWER VALVE SEAT
19	CCPLS-1019-SS	1	FOOT VALVE HOUSING
20	CCPLS-1020	4	TIE ROD
21	CCPLS-1021-SS	1	PISTON CUP BACKUP RING
22	CCPLS-1022-SS	1	PISTON BALL SEAT
23	CCPLS-1023-SS	1	PRIMING PISTON
* 24	CCPLS-1024	1	PISTON SEAL
* 25	CCPLS-1025	1	RELIEF WASHER
26	CCPLS-1026-SS	1	PRIMING VALVE HOUSING
27	CCPLS-1027-SS	1	PRIMING ROD
28	CCPLS-1028	2	BACKUP WASHER
* 29	VLS-4622-SS	1	1-1/4" DIA SS BALL
30	3102-16-1	1	BALL CHECK SPRING
31	7201-12-8	4	HEX NUT
32	F-HB-06F-12-SS	1	HEX CAP SCREW
33	CCPLS-1029	10	WAVE SPRING
* 34	O-E-144	2	O-RING
* 35	O-E-018	1	O-RING
* 36	O-E-145	1	O-RING
* 37	O-E-150	1	O-RING
38	PF-AP-02	1	ALLEN PIPE PLUG

* PARTS INCLUDED IN CCPLS-1000-SS-RK REPAIR KIT

REPAIR KIT

PART NO.	DESCRIPTION
CCPLS-1000-SS-RK	REPAIR KIT



MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY	CCP-29100

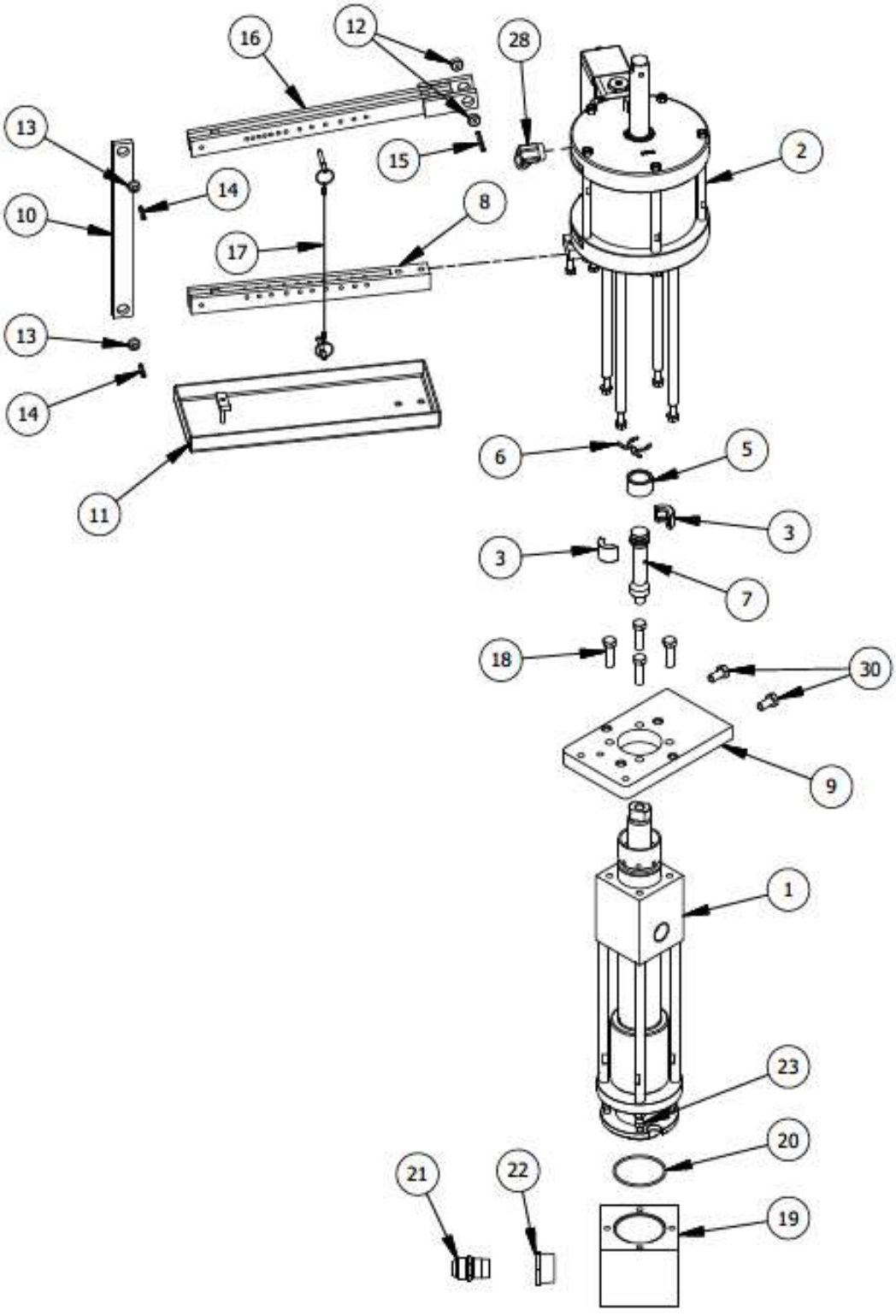
REV: A = VPH-7000-P-HD WAS VPH-7000-P, VLS-4613-HD WAS VLS-4613, ADDED PAT-PA-9110, VPH-10009, PAT-PA-9112 3/9/09 MDW

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CCPLS-1000	1	FLUID SECTION ASSY.
2	CCP-1008	1	PUMP MOUNT PLATE
3	CCP-1007	2	SUPPORT BRACKET
4	CCP-1009	1	SUPPORT PLATE
5	VPH-7000-P-HD	1	7" POWER HEAD ASSY. - HD
6	VLS-4613-HD	1	PISTON ROD ADAPTER - HD
7	PAT-PA-9110	1	SHELL RETAINER
8	VPH-10009	2	HALF SHELL
9	PAT-PA-9112	1	SLEEVE CLIP
10	CCP-1006	1	LOWER SLAVE ARM
11	CCP-1005	1	CONNECTING BAR
12	CCP-1003-01	1	DRIP TRAY ASSY.
13	86480-1	1	UPPER SLAVE WELD.
14	03501-1	2	BUSHING
15	03502-1	2	BEARING - UPPER SLAVE ARM
16	F-RP-04-20	2	ROLL PIN
17	F-RP-04-32	1	ROLL PIN
18	MPH-2534	2	POLY ELBOW
20	PF-HN-08-08S	1	HOSE ADAPTER
21	PF-SE-08	1	STREET ELBOW
22	PF-SE-04	2	STREET ELBOW
23	8407-1-1	1	VALVE
24	8407-3-1	1	SHUTTLE VALVE
25	PF-HP-12	1	HEX PLUG
26	F-HB-08C-28-GR8	4	HEX BOLT
27	F-HB-06C-16	4	HEX BOLT
28	F-HB-04C-56	4	HEX BOLT
29	52106-1	1	QUICK PIN CABLE

MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY CCP-29100

REV: A = VPH-7000-P-HD WAS VPH-7000-P, VLS-4613-HD WAS VLS-4613, ADDED PAT-PA-9110, VPH-10009, PAT-PA-9112 3/9/09 MDW



MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY	CCP-29100-BF

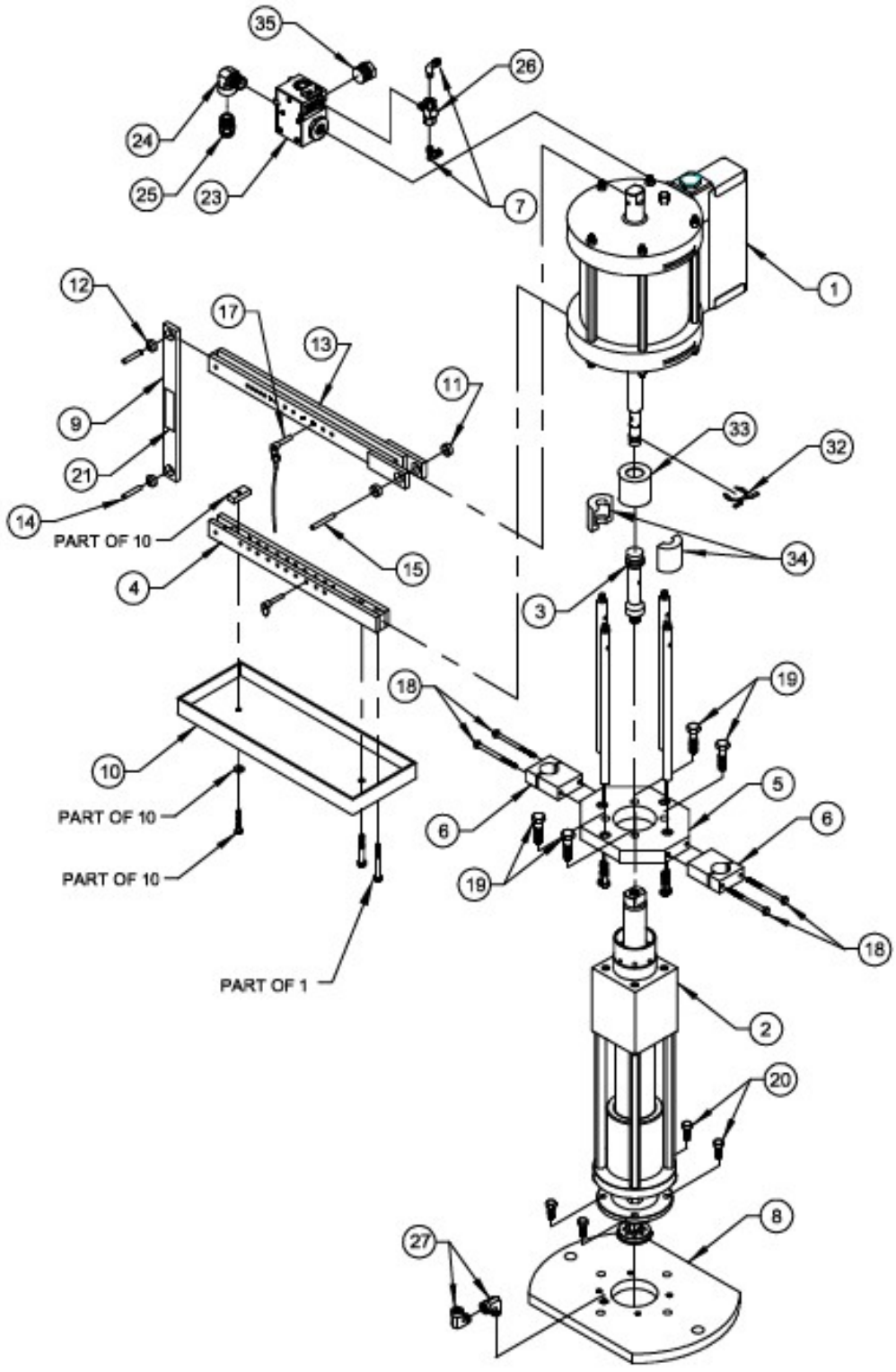
REV: D 05/29/2018 SHEET 1 / 2 4/17/2009

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CCPLS-1000	1	FLUID SECTION ASSY.
2	VPH-7000-P-HD	1	7" POWER HEAD ASSY. - HD
3	VPH-10009	2	HALF SHELL
5	PAT-PA-9110	1	SHELL RETAINER
6	PAT-PA-9112	1	SLEEVE CLIP
7	VLS-4613-HD	1	PISTON ROD ADAPTER - HD
8	CCP-1006	1	LOWER SLAVE ARM
9	VLS-4612-CCP	1	PUMP MOUNT PLATE
10	CCP-1005	1	CONNECTING BAR
11	CCP-1003-01	1	DRIP TRAY ASSY.
12	03502-1	2	BEARING - UPPER SLAVE ARM
13	03501-1	2	BUSHING
14	F-RP-04-20	2	ROLL PIN
15	F-RP-04-32	1	ROLL PIN
16	86480-1	1	UPPER SLAVE WELD.
17	52106-1	1	QUICK PIN CABLE
18	F-HB-08C-28	4	HEX BOLT
19	CCPLS-1030	1	RIGHT ANGLE ADAPTER
20	O-V-235	1	O-RING
21	PF-HN-16-16J	1	HEX NIPPLE
22	PF-RB-24-16	1	REDUCER BUSHING
23	F-HB-06C-16	4	HEX BOLT
28	PF-SE-08	1	1/2 NPT STREET EBOW
30	F-HB-08C-16	2	HEX BOLT

MAGNUM VENUS PLASTECH

CHOP CHECK PUMP ASSEMBLY	CCP-29100-BF

REV:D 05/29/2018 SHEET 2 / 2 4/17/2009



MAGNUM VENUS PLASTECH

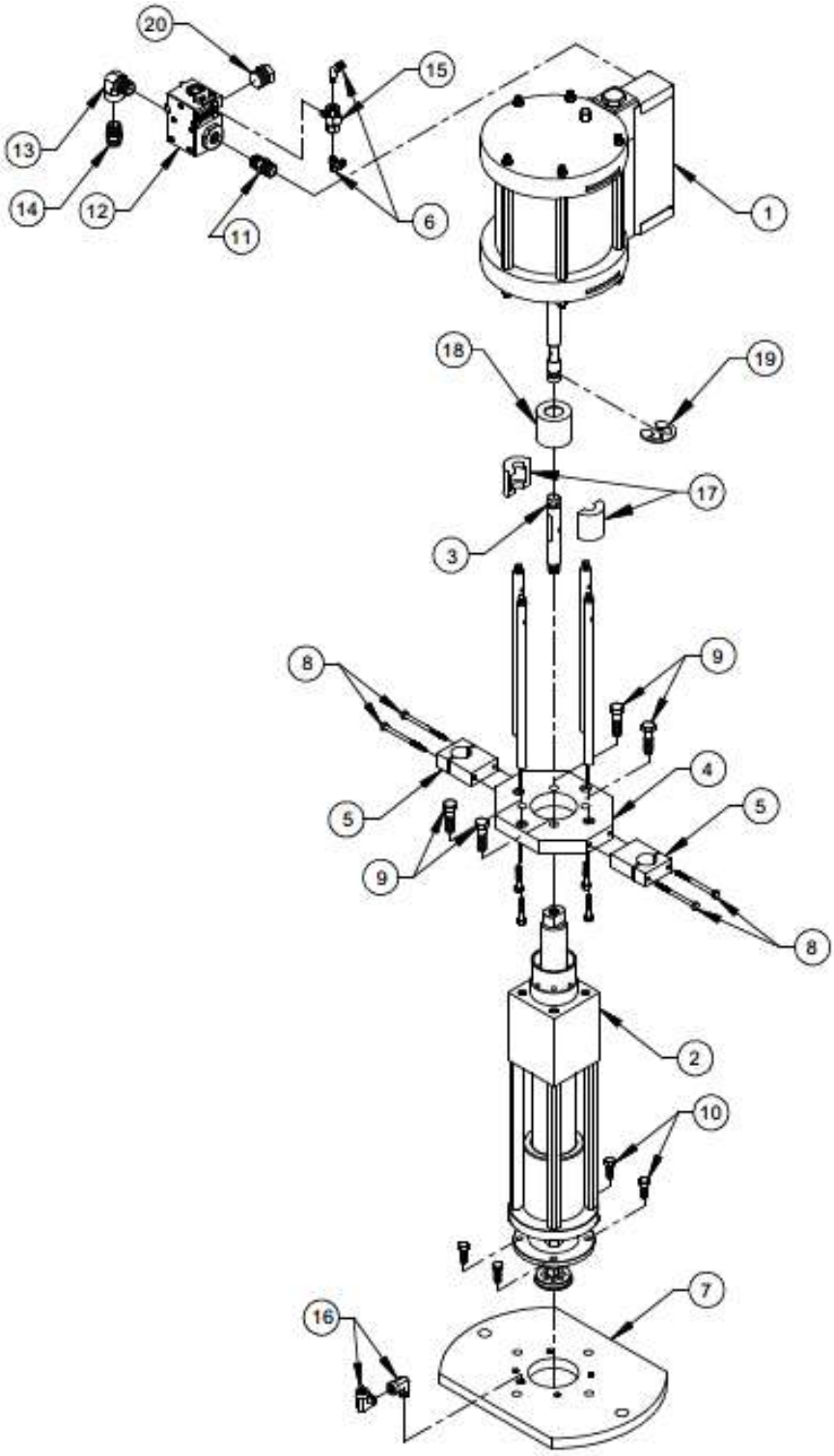
COMPLETE SS PUMP ASSY W / AIR MOTOR	CCP-29100-SS

REV. A = ADDED ITEMS 32, 33, & 34 07/25/07 JEM
REV. B = ITEM 19 WAS 02705-14 11/28/07 JEM
REV. C = ADDED ITEM 35 03/18/08 BT2
REV. D = ITEM 1 WAS VPH-7000-P, ITEM 3 WAS VLS-4613, MADE ITEM 10 AN ASSEMBLY, UPDATED ALPHA NUMERIC 03/24/09 BT2

COMPLETE SS PUMP ASSY W / AIR MOTOR CCP-29100-SS

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	VPH-7000-P-HD	1	7" POWER HEAD ASSY
2	CCPLS-1000-SS	1	PUMP FLUID SECTION
3	VLS-4613-HD	1	PISTON ROD ADAPTER
4	CCP-1006	1	LOWER SLAVE ARM
5	CCP-1008	1	PUMP MOUNT PLATE
6	CCP-1007	2	SUPPORT BRACKET
7	MPH-2534	2	POLY FITTING ELBOW
8	CCP-1009	1	SUPPORT PLATE
9	CCP-1005	1	CONNECTING BAR
10	CCP-1003-01	1	TRIP TRAY ASSY
11	03502-1	2	BUSHING
12	03501-1	2	BUSHING
13	86480-1	1	UPPER SLAVE ARM
14	F-RP-04-20	2	ROLL PIN
15	F-RP-04-32	1	ROLL PIN
17	52106-3	1	CABLE ASSY
18	F-HB-04C-56	4	HEX BOLT
19	F-HB-08C-28-GR5	4	HEX BOLT
20	F-HB-06C-16	4	HEX BOLT
21	95033-EN	1	CAUTION LABEL (NOT SHOWN)
23	8407-1-1	1	AIR VALVE
24	PF-SE-08	1	STREET ELBOW
25	PF-HN-08-08S	1	FITTING
26	8407-3-1	1	SHUTTLE VALVE
27	PF-SE-04	2	ELBOW FITTING
32	PAT-PA-9112	1	SLEEVE CLIP
33	PAT-PA-9110	1	SHELL RETAINER
34	VPH-10009	2	HALF SHELL
35	PF-HP-12	1	HEX PLUG



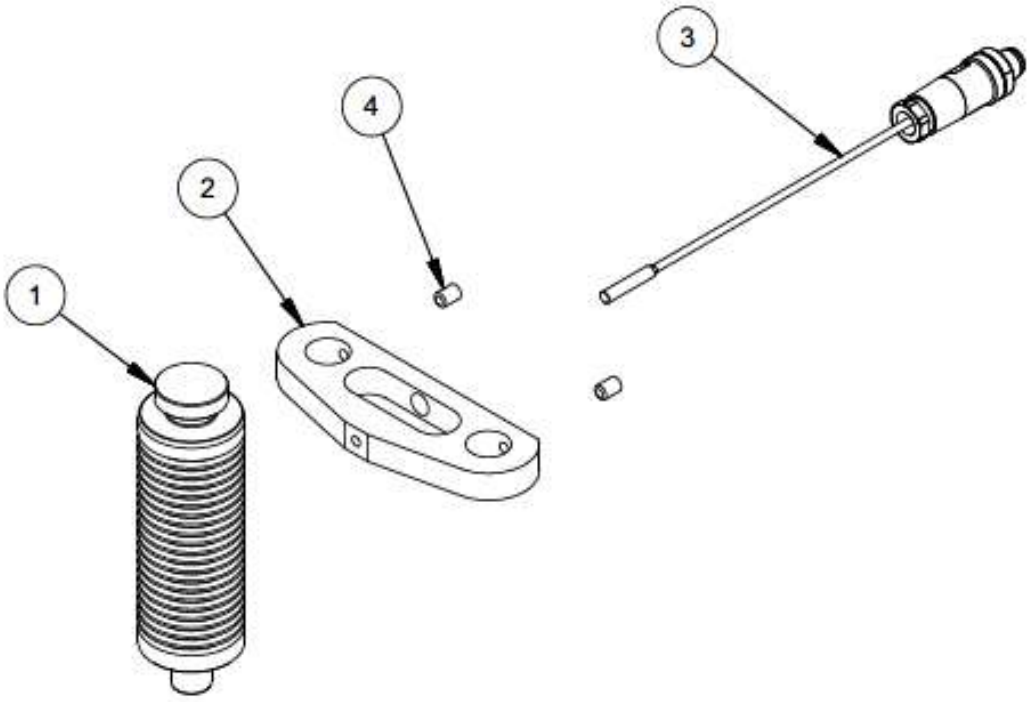
MAGNUM VENUS PLASTECH

CHOP CHECK PUMP FLUID SECTION	CCP-1400-SS

REV. 3/31/04 JEM
REV. A - ITEM 3 WAS VLS-4613, ITEM 14 WAS 7701-3-7, ITEM 16 WAS 7701-1-1, ADDDED ITEMS 17,18,19 11/19/07 BT2
REV. B - ITEM 9 WAS 02705-14 11/28/07 JEM
REV. C - ADDED ITEM 20 03/18/08 BT2

COMPLETE PUMP ASSY W / AIR MOTOR CCP-1400-SS
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	VPH-5000	1	5" POWER HEAD ASSY
2	CCPLS-1000-SS	1	PUMP FLUID SECTION
3	VLS-4613	1	PISTON ROD ADAPTER
4	CCP-1008	1	PUMP MOUNT PLATE
5	CCP-1007	2	SUPPORT BRACKET
6	MPH-2534	2	POLY FITTING ELBOW
7	CCP-1009	1	SUPPORT PLATE
8	02650-28	4	HEX BOLT
9	F-HB-08C-28-GR5	4	HEX BOLT
10	F-HB-06C-16	4	HEX BOLT
11	PF-HN-08	1	NIPPLE
12	8407-1-1	1	MAC VALVE
13	PF-SE-08	1	STREET ELBOW
14	PF-HN-08-08S	1	FITTING
15	8407-3-1	1	SHUTTLE VAVLE
16	PF-SE-04-SS	2	ELBOW FITTING
17	APP-9096	2	CONNECTOR
18	APP-9109	1	SLEEVE
19	APP-9102	1	RETAINER RING
20	PF-HP-12	1	HEX PLUG

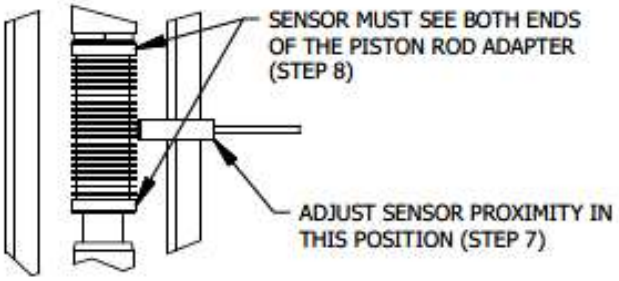


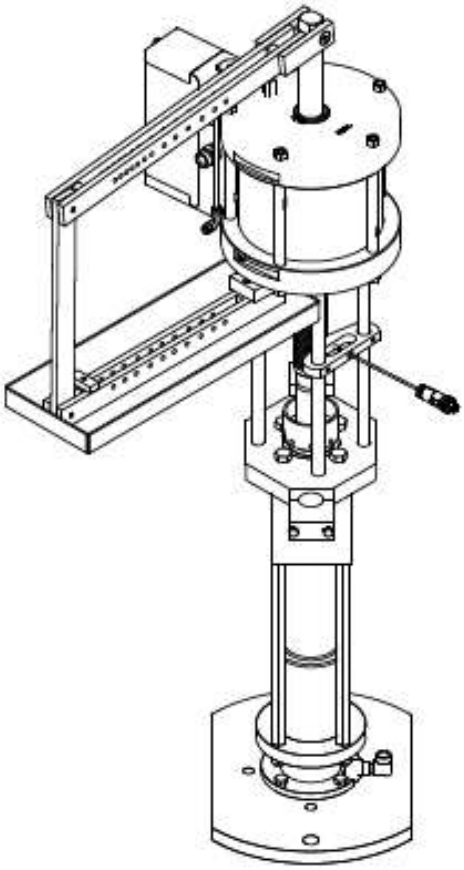
MAGNUM VENUS PRODUCTS

SENSOR ASSEMBLY	CCP-SENS-100

REV: SHEET 1 / 2 6/4/2015

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CCP-1021	1	PISTON ROD ADAPTER-CSD
2	CCP-BRKT-SM	1	SENSOR MOUNT
3	E-SEN-102-MLC	1	5 MM PROX SWITCH WITH PLUG
4	7102-11-6	2	SS SET SCREW





INSTALLATION:

1) REMOVE POWERHEAD FROM UNIT AND SLIDE SENSOR MOUNT ON TO POWERHEAD TIE RODS, ORIENTED AS SHOWN

2) INSTALL REPLACEMENT PISTON ROD ADAPTER (ITEM 1)

3) RE-INSTALL POWER HEAD

4) PLACE PUMP ASSEMBLY AT THE TOP OF THE STROKE

5) SLIDE SENSOR MOUNT ON THE TIE RODS SO THAT IT IS IN ALIGNMENT WITH THE MIDDLE OF PISTON ROD ADAPTER

6) SECURE BOTH SET SCREWS

7) ADJUST THE SENSOR IN THE SENSOR MOUNT SO THE FACE OF THE SENSOR (ITEM 3) IS APPROXIMATELY .050" FROM THE OD OF THE PISTON ROD ADAPTER

8) LOOSEN BOTH SET SCREWS AND MOVE THE SENSOR MOUNT DOWN SO THAT SENSOR WILL SENSE THE LOWER PART OF THE PISTON ROD ADAPTER. THE SENSOR MUST SENSE THE LAST TRIGGER MOVE THRU THE GROOVE AND THEN SENSE THE END OF THE PISTON ROD ADAPTER

9) SECURE BOTH SET SCREWS AND ROUTE SENSOR CABLE AND SECURE TO PUMP ASSEMBLY

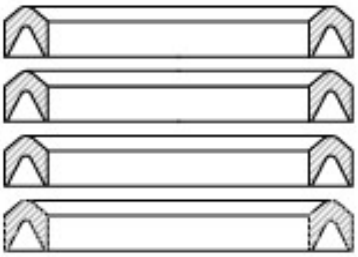
10) CYCLE THE PUMP ASSEMBLY SLOWLY TO MAKE SURE THE SENSOR IS READING CORRECTLY AT BOTH THE TOP AND BOTTOM STROKE - ADJUST AS NECESSARY

MAGNUM VENUS PRODUCTS

SENSOR ASSEMBLY	CCP-SENS-100

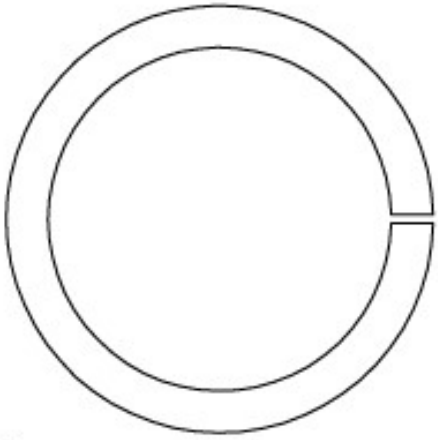
REV: SHEET 2 / 2 6/4/2015

CCPLS-1000-RK
SEAL KIT - CHOP CHECK PUMP

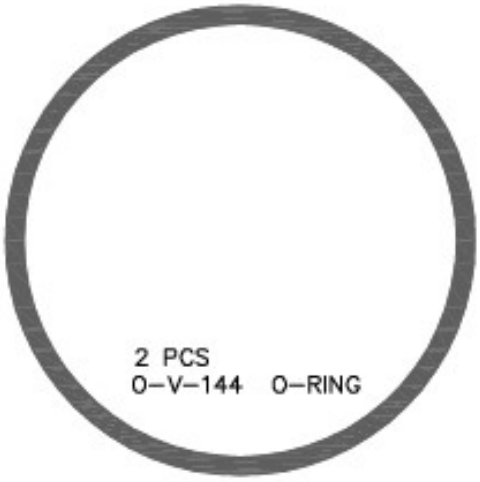


4 PCS
CCPLS-1002 PISTON ROD PACKING SET

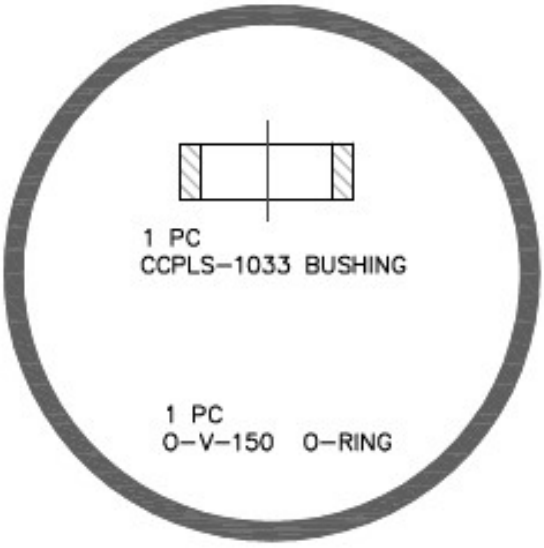
2 PC
CCPLS-1009 PISTON CUP



1 PC
CCPLS-1024 PISTON SEAL



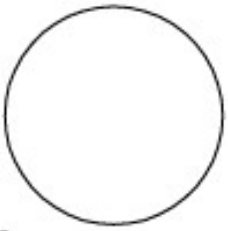
2 PCS
O-V-144 O-RING



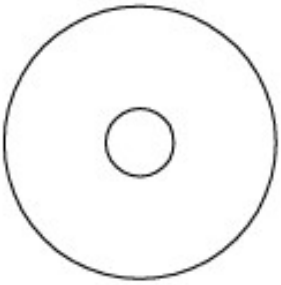
1 PC
CCPLS-1033 BUSHING

1 PC
O-V-150 O-RING

1 PC
O-V-145 O-RING



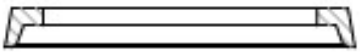
1 PC
VLS-4622 1-1/4 DIA BALL



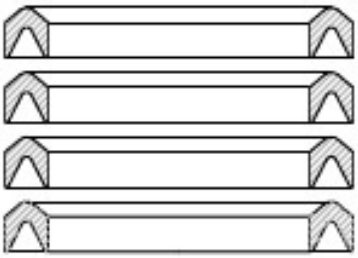
1 PC
CCPLS-1025 RELIEF WASHER

2 PC
CCPLS-1034 SEAL

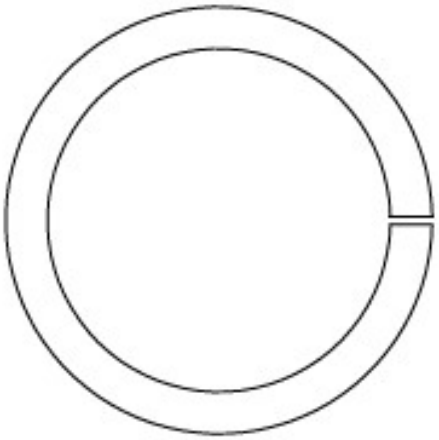
CCPLS–1000–SS–RK
SEAL KIT – CHOP CHECK PUMP



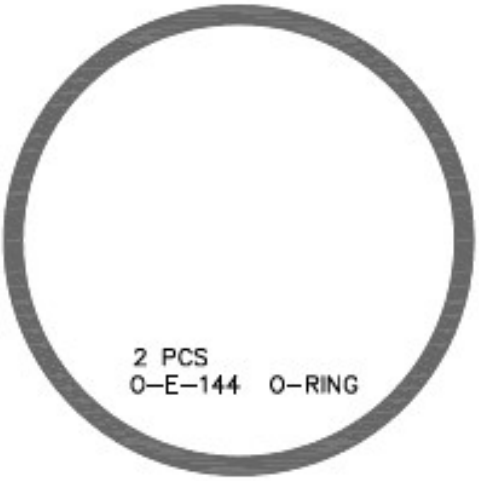
2 PC
CCPLS–1009 PISTON CUP



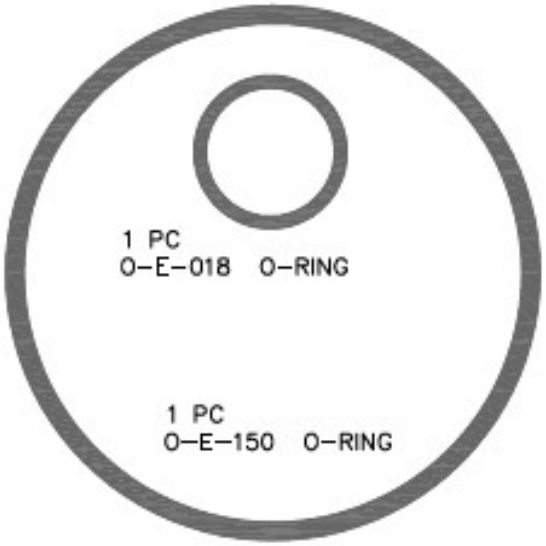
4 PCS
CCPLS–1002 PISTON ROD PACKING SET



1 PC
CCPLS–1024 PISTON SEAL

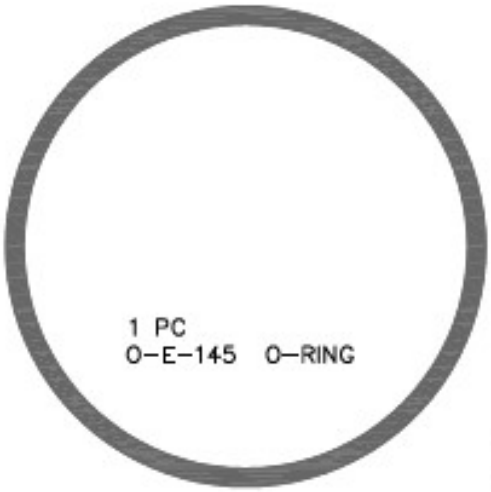


2 PCS
O–E–144 O–RING

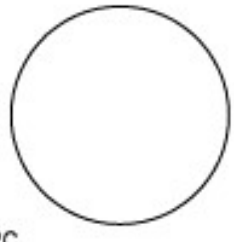


1 PC
O–E–018 O–RING

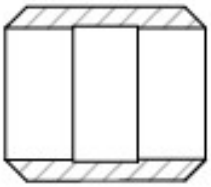
1 PC
O–E–150 O–RING



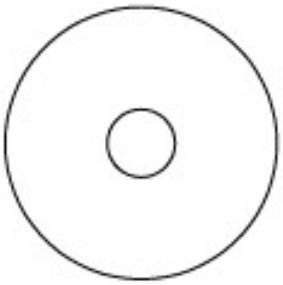
1 PC
O–E–145 O–RING



1 PC
VLS–4622–SS
1–1/4 DIA BALL



1 PC
CCPLS–1015 INTAKE VALVE SEAL



1 PC
CCPLS–1025 RELIEF WASHER

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