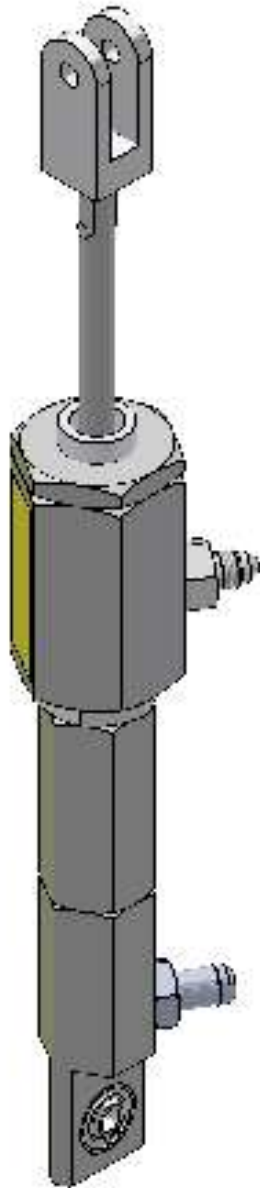


VHPC Series Metering Pump

Component Manual

This manual is applicable to the following models:

- VHPC-4200-C-3J
- VHPC-4200-C-UPS
- VHPC-4200-RV
- VHPC-4200-RV-INT
- VHPC-4200-MPR-2A
- VHPC-4200-MPR-2B
- PHPC-4200-B
- PHPC-4200-M
- VHPC-3200-ADH
- VHPC-3200-C-3J
- VHPC-3200-C-UPS
- 51570-7-LA
- VHPC-2200
- VHPC-2200-ADH
- VHPC-2200-HIS
- VHPC-2200-MLM
- VHPC-2200-COOK
- VHPC-2000
- VHPC-2000-RV
- VHPC-2000-RV-INT
- VHPC-2000-C-3J
- VHPC-2000-C-UPS
- VHPC-2000-COOK
- VHPC-1200
- VHPC-1100
- VHPC-1000
- VHPC-1000-C-3J
- VHPC-1000-C-UPS
- VHPC-1000-RV-INT
- VHPC-7200-C-3J
- PHPC-7200-B
- PHPC-7200-M





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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.

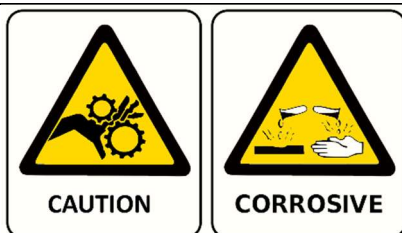
Safety Precautions

- 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 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! 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 Hyrdrocarbon (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 VHPC Series Metering Pump. The following procedures are included:

- Step-by-step assembly and disassembly
- Installation and set-up 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.

Pump Assemblies

This manual covers the repair of the following metering pump assemblies:

Part Number	Description
VHPC-4200-C-3J	Metering Pump Assembly
VHPC-4200-C-UPS	Metering Pump Assembly
VHPC-4200-RV	Metering Pump Assembly
VHPC-4200-RV-INT	Metering Pump Assembly
VHPC-4200-MPR-2A	Metering Pump Assembly – ISO
VHPC-4200-MPR-2B	Metering Pump Assembly – Resin
PHPC-4200-B	Metering Pump Assembly – Putty – BPO
PHPC-4200-M	Metering Pump Assembly – Putty – MEKP
VHPC-3200-ADH	Metering Pump Assembly – Adhesive Units
VHPC-3200-C-3J	Metering Pump Assembly
VHPC-3200-C-UPS	Metering Pump Assembly
51570-7-LA	Metering Pump Assembly – Pigment
VHPC-2200	Metering Pump Assembly
VHPC-2200-ADH	Metering Pump Assembly – Adhesive Units

Part Number	Description
VHPC-2200-HIS	Metering Pump Assembly
VHPC-2200-MLM	Metering Pump Assembly – Mini-Link Units
VHPC-2200-COOK	Metering Pump Assembly
VHPC-2000	Metering Pump Assembly
VHPC-2000-RV	Metering Pump Assembly – Relief Valve
VHPC-2000-RV-INT	Metering Pump Assembly – Relief Valve – International
VHPC-2000-C-3J	Metering Pump Assembly – Check Valve
VHPC-2000-C-UPS	Metering Pump Assembly – Check Valve – Siphon
VHPC-2000-COOK	Metering Pump Assembly – Slave Arm Version
VHPC-1200	Metering Pump Assembly
VHPC-1100	Metering Pump Assembly
VHPC-1000	Metering Pump Assembly
VHPC-1000-C-3J	Metering Pump Assembly – Check Valve
VHPC-1000-C-UPS	Metering Pump Assembly – Check Valve – Suction Feed
VHPC-1000-RV-INT	Metering Pump Assembly – Relief Valve – International
VHPC-7200-C-3J	Metering Pump Assembly – Slave Arm
PHPC-7200-B	Metering Pump Assembly – Putty Units – BPO
PHPC-7200-M	Metering Pump Assembly – Putty Units - MEKP

Note ***Parts and part numbers differ between the different metering pumps. It is important to have the current parts drawing specific to the pump assembly you are working on to ensure you order the correct parts.***

As you disassemble the equipment lay out the components on a clean surface in the correct order and direction to assist with reassembly.

Tools Required

- 1" Open End Wrench
- ¾" Open End Wrench
- ⅝" Open End Wrench
- 6" Adjustable Wrench (2 needed)
- 12" Adjustable Wrench
- ¼" Wooden Dowel, 6" Long
- Bench Vise
- 2" Wrench (Adjustable or Open End)
- 1.5 Wrench (Adjustable or Open End)
- 1.75 Wrench (Adjustable or Open End)
- Medium Size Adjustable Wrench
- ⅝" Allen Wrench
- Flathead Screwdriver
- Straight Scribe

Note ***The tools used will depend on the assembly you are working on. Not all tools will be needed for all assemblies.***

Removing Pump from System



WARNING

Before removing metering pump and surge chamber or any hoses or tubes from the drive, be sure to bleed the fluid pressure from the system. Fluids may be under high pressure and could cause injury.

1. Place a clean pail under the pump to collect any potential spills.
2. Close the main air supply ball valve.
3. Open the material manifold ball valve to relieve fluid pressure from the system.
4. Release the accumulator charge at the material manifold.
5. Close the ball valve from the feed container to the pump, if appropriate to your system.
6. Remove the catalyst jug from the bracket and hold it lower than the inlet fitting, allowing catalyst to drain out of the feed tube and back into the jug.
7. Remove the feed hose from the inlet fitting.
8. Remove the catalyst hose from the outlet fitting.
9. Remove the pins from the drive arms and remove the pump.
10. Wipe the pump clean and inspect for damage.



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. Never use grease or oil in the catalyst pump.

Disassembling Metering Pump

1. Have the seal kit appropriate to the pump you are working on ready.

For Systems with Outlet Check Valve

2. Remove the check valve body from the outlet body and remove and discard the two O-rings.
3. Remove the spring retainer and compression spring from the check valve body.
4. Remove and discard the stainless-steel ball.
5. Place the new ball down inside the check valve body through the double-threaded side.
6. Install the compression spring into the check valve body and onto the ball.
7. Screw the spring retainer into the inside of the check valve body, compressing the spring between the retainer and ball.
8. Place an O-ring over the single-threaded end of the check valve body and screw the check valve into the outlet body.

9. Place an O-ring over the double-threaded end of the check valve body until the thread relief area between the two sets of threads and against the end of the jam nut.

For Systems with Inlet Body Check Valve

10. Remove the check valve from the inlet body and then remove and discard the O-ring.
11. Loosen the lock nut and unscrew the outlet body from the cylinder.
12. Remove the seal retainer from the piston body.
13. Remove and discard the piston seal.
14. Remove the piston body from the piston rod.

Note *Use the wrench flats when removing to prevent damage to the piston rod.*

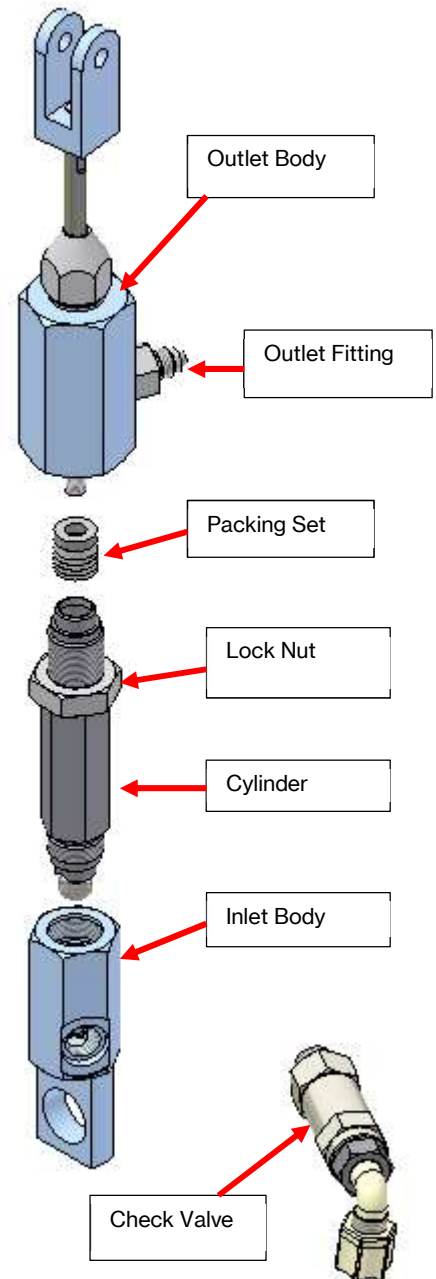
15. Remove and discard the stainless-steel ball.
16. Remove and retain the packing rod spring.
17. Unscrew the packing nut and pull the piston rod out of the outlet body.

Note *Use caution not to damage the interior of the cylinder.*

18. Inspect the piston rod for scratches or damage; replace if necessary.
19. Insert a ¼" diameter dowel into the bottom of the outlet body and force the piston rod packing out through the top, then discard.

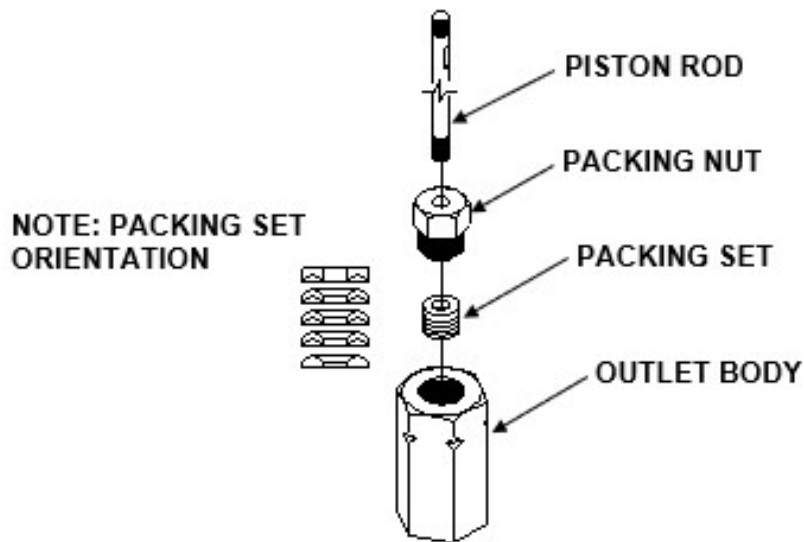
Note *Be careful not to damage the inside of the outlet body.*

20. Unscrew the cylinder from the inlet body.
21. Remove and discard the two O-rings.
22. Inspect the cylinder for scratches or other damage; replace as needed.
23. Remove and discard the stainless-steel ball.
24. Clean and inspect the seat inside the inlet body for nicks, scratches, or other damage; replace as needed.
25. Remove the tube fitting and remove and discard the O-ring.
26. Remove the seat and spring housings and the spring and piston.
27. Clean all parts to be reused with distilled water; replace any damaged parts.

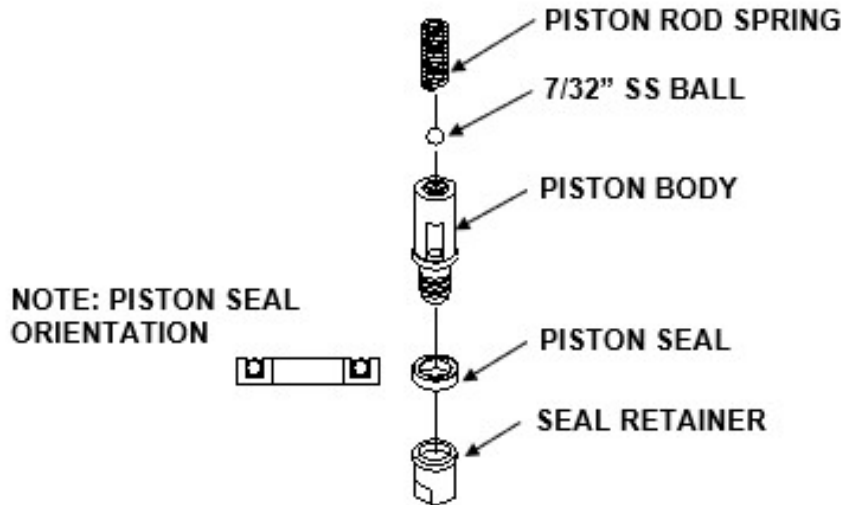


Assembling Metering Pump

1. Install O-ring and check valve into inlet body.
2. Insert the new stainless-steel ball into the inlet body, being careful not to scratch or dent the ball.
3. Position an O-ring onto the notched end of the cylinder, being careful not to damage the O-ring on the threads.
4. Screw the notched end of the cylinder into the inlet body until it bottoms.
5. Thread the lock nut onto the cylinder until it bottoms on the cylinder shoulder.
6. Install an O-ring onto the long threaded end of the cylinder.
7. Install the packing nut and packing set onto the piston rod.



8. Carefully insert the piston rod through the outlet body, taking care not to scratch the piston rod.
9. Carefully press the piston rod packings into the outlet body, being careful not to damage the packings.
10. Screw the packing nut into the outlet body until the packings bottom in the outlet body cavity.
11. Lightly snug the packing nut by hand.
12. Insert the piston rod spring into the piston rod.
13. Insert the $\frac{7}{32}$ " stainless-steel ball into the piston body.
14. Screw the piston body onto the piston rod, compressing the piston rod spring onto the ball.
15. Install the piston seal onto the threaded end of the piston body, spring side up.



16. Screw the seal retainer onto the piston body until hand tight.
17. Hold the piston rod with a wrench on the wrench flats and tighten the seal retainer with another wrench.
18. Insert the piston rod assembly into the cylinder, screwing the outlet body onto the cylinder threads until you feel the O-ring start to compress.
19. Align the outlet body so the outlet port is one hex plate to the left of the inlet port on the inlet body.



Offset intake and outlet ports one flat hex as shown in figure.

Installing Metering Pump

1. Secure the pump to the drive linkage at the desired percentage/ratio.
2. Tighten the pump packing nut approximately $\frac{1}{8}$ to $\frac{1}{4}$ turn clockwise to prevent leakage.

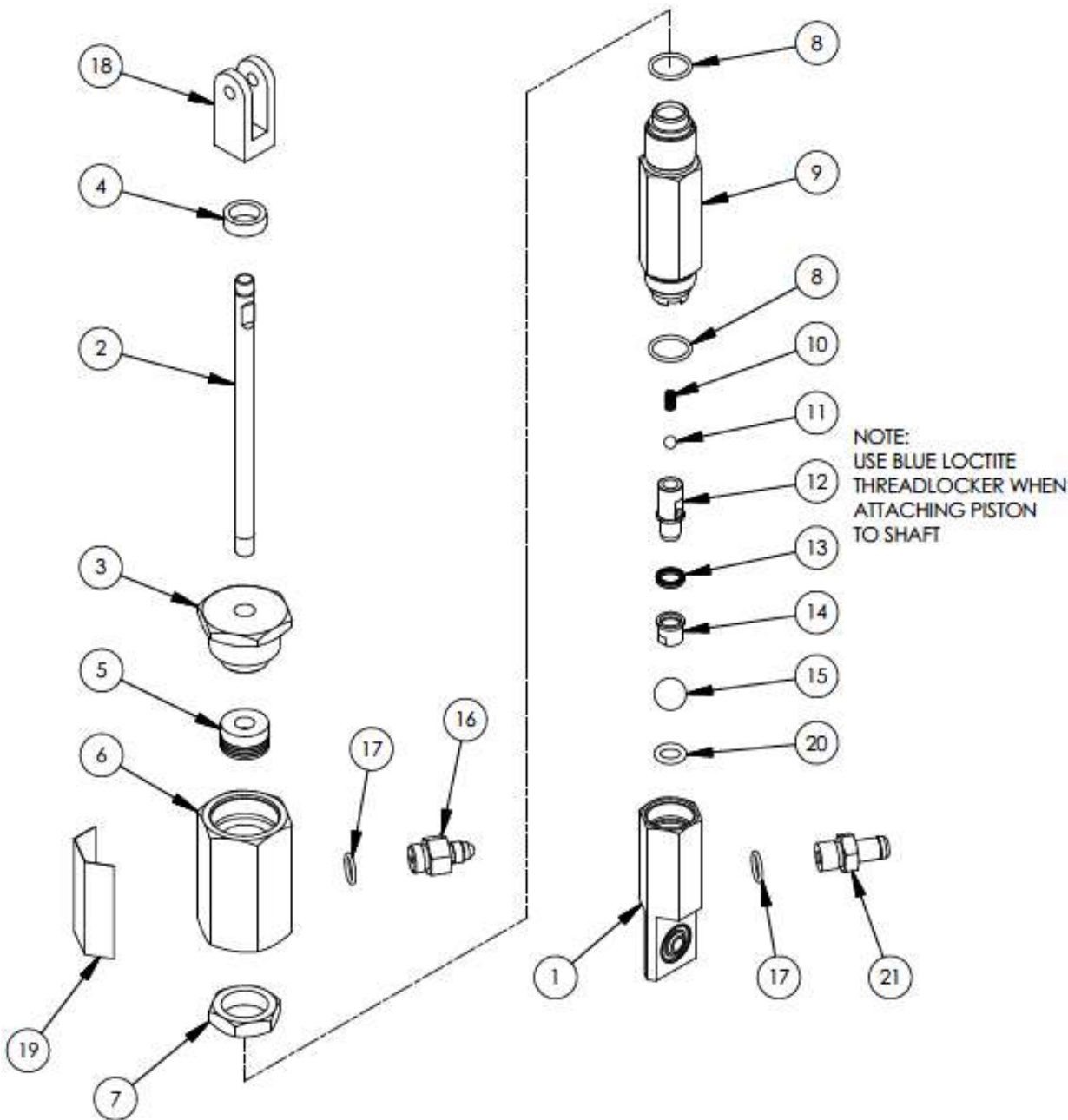
Note ***Repeat tightening whenever necessary to prevent material from leaking. Do not overtighten; this will reduce the life of the packing set and may cause damage to the pump.***

Parts Drawings

The following illustrations are included for reference when servicing the metering pump. Refer to the drawing specific to the model you are working on to make sure you order the correct parts and replace them in the correct orientation.

Parts Drawings	
Part Number	Description
VHPC-4200-C-3J	C42 Catalyst Pump Assemblies
VHPC-4200-C-UPS	C42 Catalyst Pump Assembly
VHPC-4200-RV	C42 Catalyst Pump Assembly
VHPC-4200-RV-INT	C42 Catalyst Pump – International
PHPC-4200-B	Metering Pump Assembly – Putty – BPO
PHPC-4200-M	Metering Pump Assembly – Putty – MEKP
VHPC-4200-MPR-2A	Metering Pump Assembly – ISO – A Side
VHPC-4200-MPR-2B	Metering Pump Assembly – Resin – B Side
VHPC-4200-SK	C42 Catalyst Pump Seal Kit
VHPC-4200-MPR-2SK	C42 Catalyst Pump Seal Kit
CV-2000	Catalyst Check Valve
VHPC-3200-ADH	Metering Pump Assembly – Adhesive Unit
VHPC-3200-C-3J	Metering Pump Assembly
VHPC-3200-C-UPS	Metering Pump Assembly
VHPC-3200-ADH-SK	Metering Pump Seal Kit – Adhesive Unit
VHPC-3200-SK	Metering Pump Seal Kit
51570-7-LA	Metering Pump Assembly – Pigment
VHPC-3200-ADH-RK	Metering Pump Repair Kit
VHPC-2200	Pump Assembly
VHPC-2200-ADH	Pump Assembly – Adhesive Units
VHPC-2200-HIS	Pump Assembly – HIS Slave Arms
VHPC-2200-MLM	Pump Assembly – Mini-Link Units
VHPC-2200-COOK	Pump Assembly
VHPC-2200-HIS-SK	Seal Kit
VHPC-2200-MLM-SK	Seal Kit
VHPC-2000	Catalyst Pump – Gel Coat (RV, C-3J, C-UPS)

Parts Drawings	
Part Number	Description
VHPC-2000-RV-INT	Catalyst Pump – Gel Coat
VHPC-2000-RK	Catalyst Pump Repair Kit – Gel Coat
VHPC-1200	Pump Assembly
VHPC-1200-SK	Pump Seal Kit
VHPC-1100	Pump Assembly
VHPC-1100-SK	Pump Seal Kit
VHPC-1000-RK	Repair Kit
VHPC-1000-X	Metering Pump Assembly
VHPC-1000-RV-INT	Metering Pump – International
VHPC-7200-C-3J	Metering Pump Assembly
PHPC-7200-B	Metering Pump – Putty – BPO
PHPC-7200-M	Metering Pump – Putty – MEKP



MAGNUM VENUS PRODUCTS

CATALYST PUMP	VHPC-4200-C-3J
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REV: -

SHEET 1 / 2

6/12/2017

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	VHPC-4225-B	1	INLET BODY ASSEMBLY
2	50360-1	1	PISTON ROD
3	50630-1	1	PACKING NUT
4	50591-1	1	PISTON ROD SLEEVE
* 5	02022-5	1	PACKING SET
6	50730-1	1	OUTLET BODY
7	50820-1	1	LOCK NUT
* 8	O-S-016	2	O-RING
9	50940-1	1	CYLINDER
10	04013-1	1	PISTON SPRING
11	9201-1-7	1	SS BALL
12	50440-1	1	PISTON BODY - C42
* 13	02014	1	PISTON SEAL -SPRING LOADED
14	50530-1	1	SEAL RETAINER
15	03072	1	Ø9/16 SS BALL
16	51501-1	1	OUTLET FITTING
* 17	O-S-013	2	O-RING
18	VHPC-4201	1	ROD CLEVIS
19	6701-24-EN	1	PUMP SEAL WARNING DECAL
20	O-F-110	1	O-RING
21	4101-8-1	1	INLET FITTING

REPAIR KIT

PART NO.	DESCRIPTION
* VHPC-4200-SK	SEAL KIT

*ASTERISKS DENOTE PARTS IN REPAIR KIT

OPTIONAL ITEM

PART NO.	DESCRIPTION
9202-1-1	SPHERICAL BEARING IN ITEM 1

MAGNUM VENUS PRODUCTS

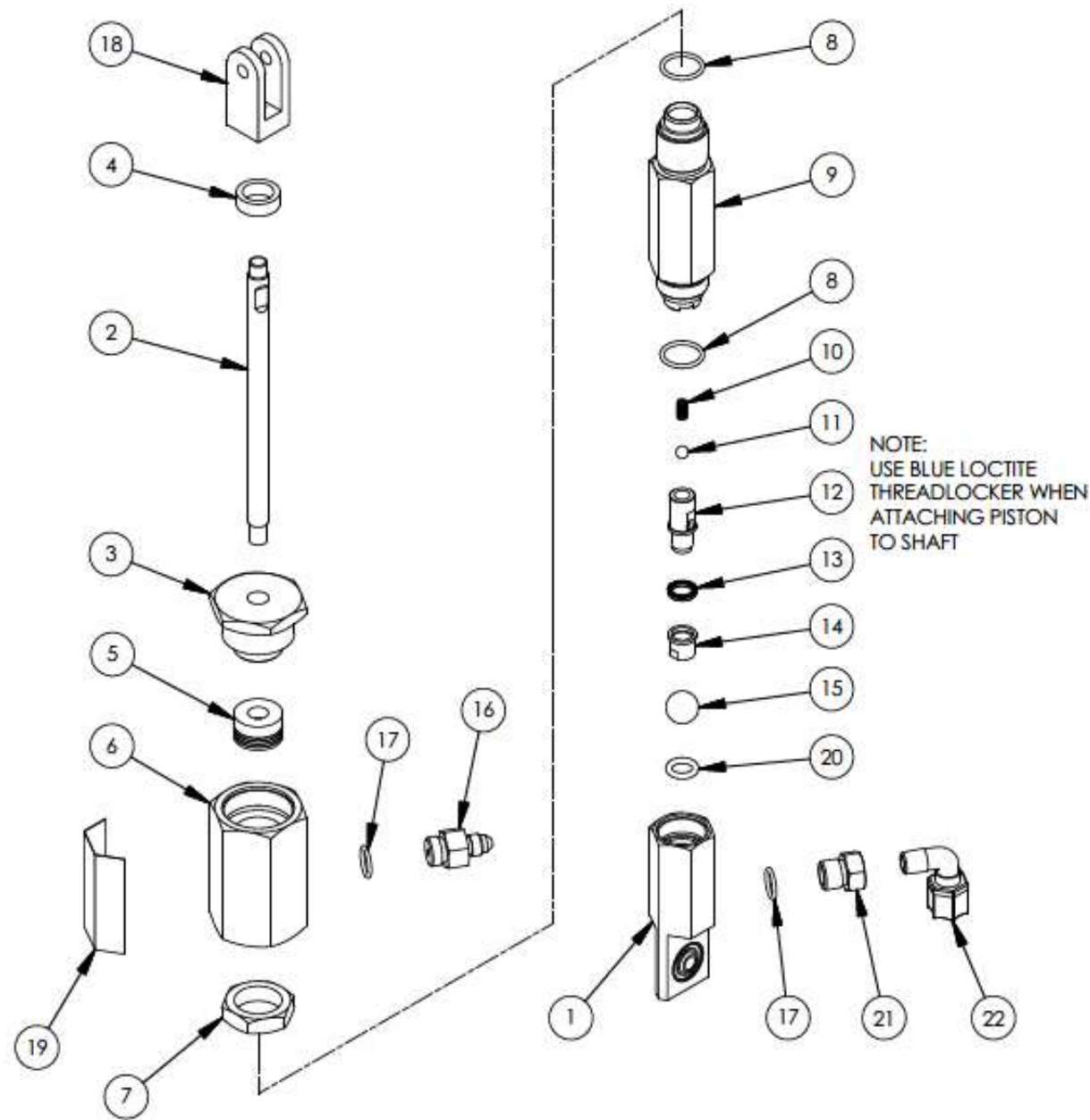
CATALYST PUMP

VHPC-4200-C-3J

REV: -

SHEET 2 / 2

6/12/2017



MAGNUM VENUS PRODUCTS

CATALYST PUMP	VHPC-4200-C-UPS
---------------	-----------------

REV: -

SHEET 1 / 2

6/12/2017

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	VHPC-4225-B	1	INLET BODY ASSEMBLY
2	50360-1	1	PISTON ROD
3	50630-1	1	PACKING NUT
4	50591-1	1	PISTON ROD SLEEVE
* 5	02022-5	1	PACKING SET
6	50730-1	1	OUTLET BODY
7	50820-1	1	LOCK NUT
* 8	O-S-016	2	O-RING
9	50940-1	1	CYLINDER
10	04013-1	1	PISTON SPRING
11	9201-1-7	1	SS BALL
12	50440-1	1	PISTON BODY - C42
* 13	02014	1	PISTON SEAL -SPRING LOADED
14	50530-1	1	SEAL RETAINER
15	03072	1	Ø9/16 SS BALL
16	51501-1	1	OUTLET FITTING
* 17	O-S-013	2	O-RING
18	VHPC-4201	1	ROD CLEVIS
19	6701-24-EN	1	PUMP SEAL WARNING DECAL
20	O-F-110	1	O-RING
21	VHPC-1003	1	INLET TUBE FITTING
22	MS-2053	1	MALE ELBOW - TUBE

REPAIR KIT

PART NO.	DESCRIPTION
* VHPC-4200-SK	SEAL KIT

*ASTERISKS DENOTE PARTS IN REPAIR KIT

OPTIONAL ITEM

PART NO.	DESCRIPTION
9202-1-1	SPHERICAL BEARING IN ITEM 1

MAGNUM VENUS PRODUCTS

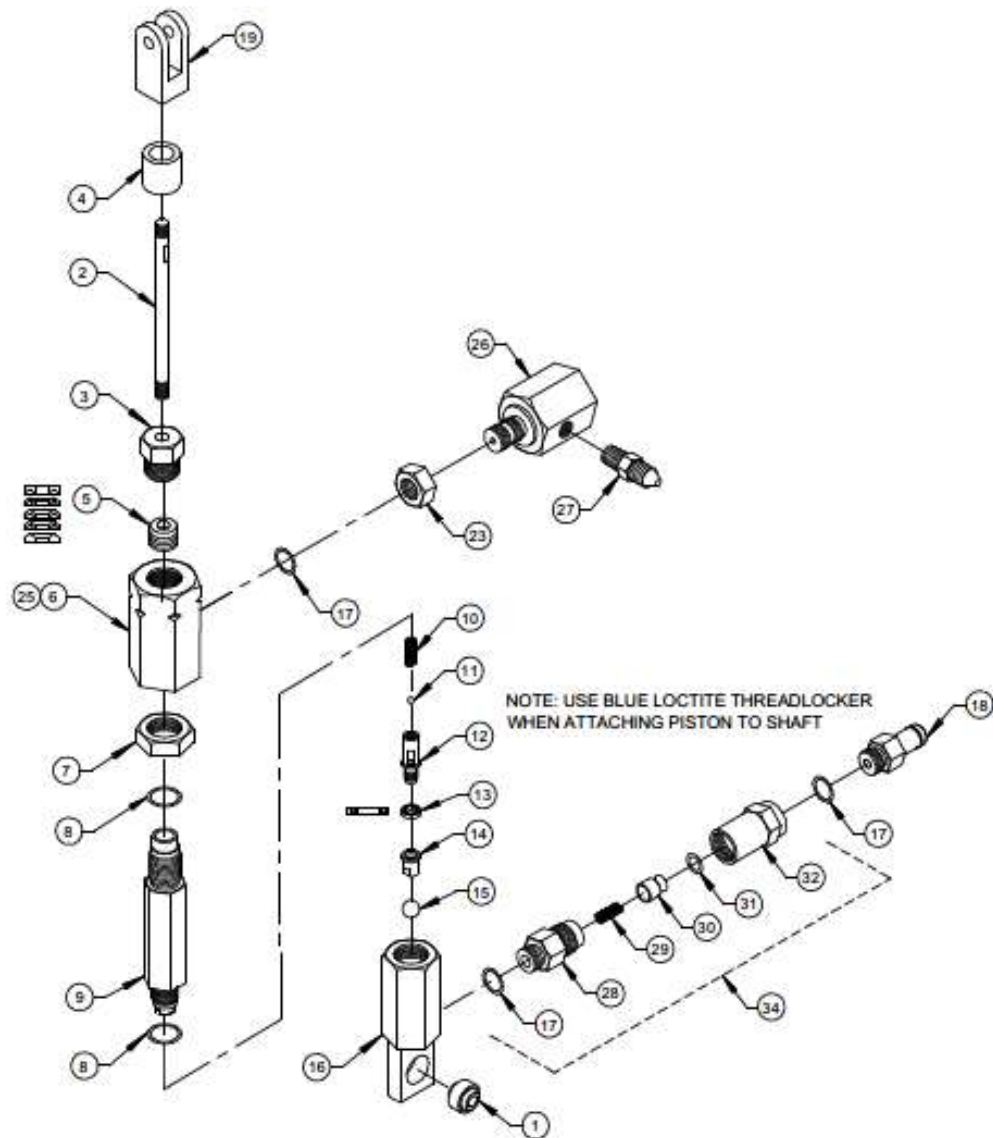
CATALYST PUMP

VHPC-4200-C-UPS

REV: -

SHEET 2 / 2

6/12/2017



MAGNUM VENUS PLASTECH

C42 Catalyst Pump External Mix - International VHPC-4200-RV-INT

REV. 02/23/03 BT2
REV. A -ADDED THREADLOCKER NOTE 05/15/08 BT2

C42 CATALYST PUMP EXTERNAL MIX VHPC-4200-RV-INT

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING
2	50360-1	1	PISTON ROD
3	50630-1	1	PACKING NUT
4	50591-3	1	PISTON ROD SLEEVE
★ 5	02022-5	1	PACKING SET ASSY
6	50730-1	1	OUTLET BODY
7	50820-1	1	LOCK NUT
★ 8	O-S-016	2	O-RING
9	50940-1	1	CYLINDER
10	04013-1	1	PISTON ROD SPRING
11	9201-1-7	1	7/32" SS BALL
12	50440-1	1	PISTON BODY
★ 13	02014	1	PISTON SEAL
14	50530-1	1	SEAL RETAINER
15	03072	1	9/16" SS BALL
16	51050-1	1	INLET BODY
★ 17	O-S-013	3	O-RING
18	4101-8-1	1	INLET TUBE FITTING
19	VHPC-4201	1	CLEVIS
23	4101-18-1	1	JAM NUT
25	6701-24-EN	1	PUMP SEAL WARNING DECAL
26	RV-1021	1	ADAPTER
27	PF-HN-02-03J-SS	1	OUTLET FITTING
28	CV-2002	1	SPRING HOUSING
29	CV-2004	1	SPRING
30	CV-2003	1	PISTON
★ 31	O-S-011A	1	O-RING
32	CV-2001	1	SEAT HOUSING

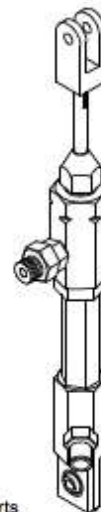
REPAIR KITS

PART NO.	DESCRIPTION
★ VHPC-4200-SK	SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

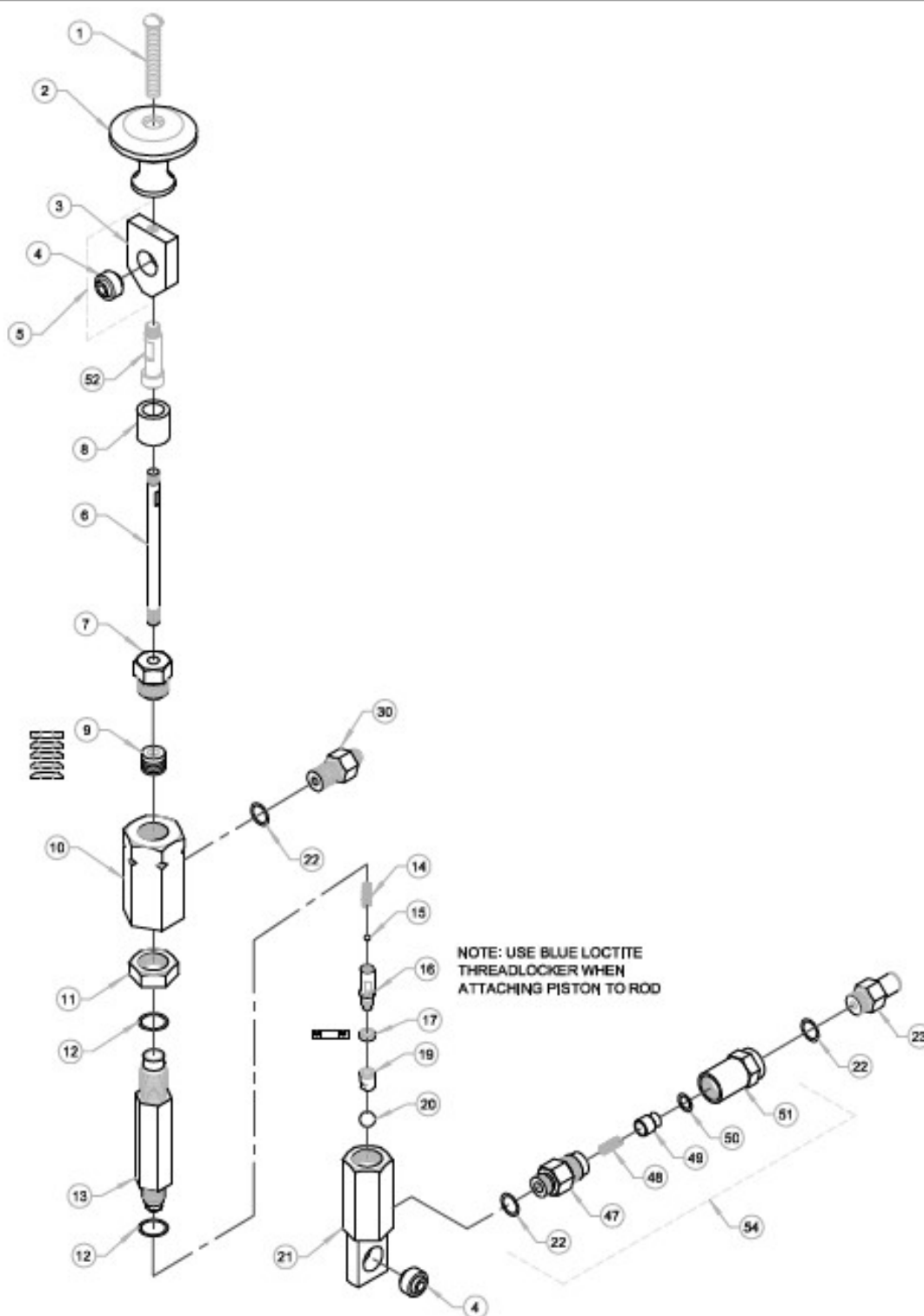
ITEM	PART NO.	QTY	DESCRIPTION
34	CV-2000	1	CHECK VALVE

FIGURE 1-1



Note:

Offset intake and outlet ports
one flat on hex as shown in
figure 1-1



MAGNUM VENUS PLASTECH

Assy - High Pressure Catalyst Pump - BPO

PHPC-4200-B

REV. A - PHPC-4200-B WAS 51580-3 7/3/03 JEM

REV. B - ADDED CSC-1000 SURGE CHAMBER AND CV-2000 CHECK VALVE 12/13/05 BT2

REV. C - ITEM 50 WAS O-S-011 03/09/06 BT2

REV. D - DELETED CSC-1000 SURGE CHAMBER AND ALL CORRESPONDING PARTS, ADDED THREADLOCKER NOTE 02/20/14 BT2

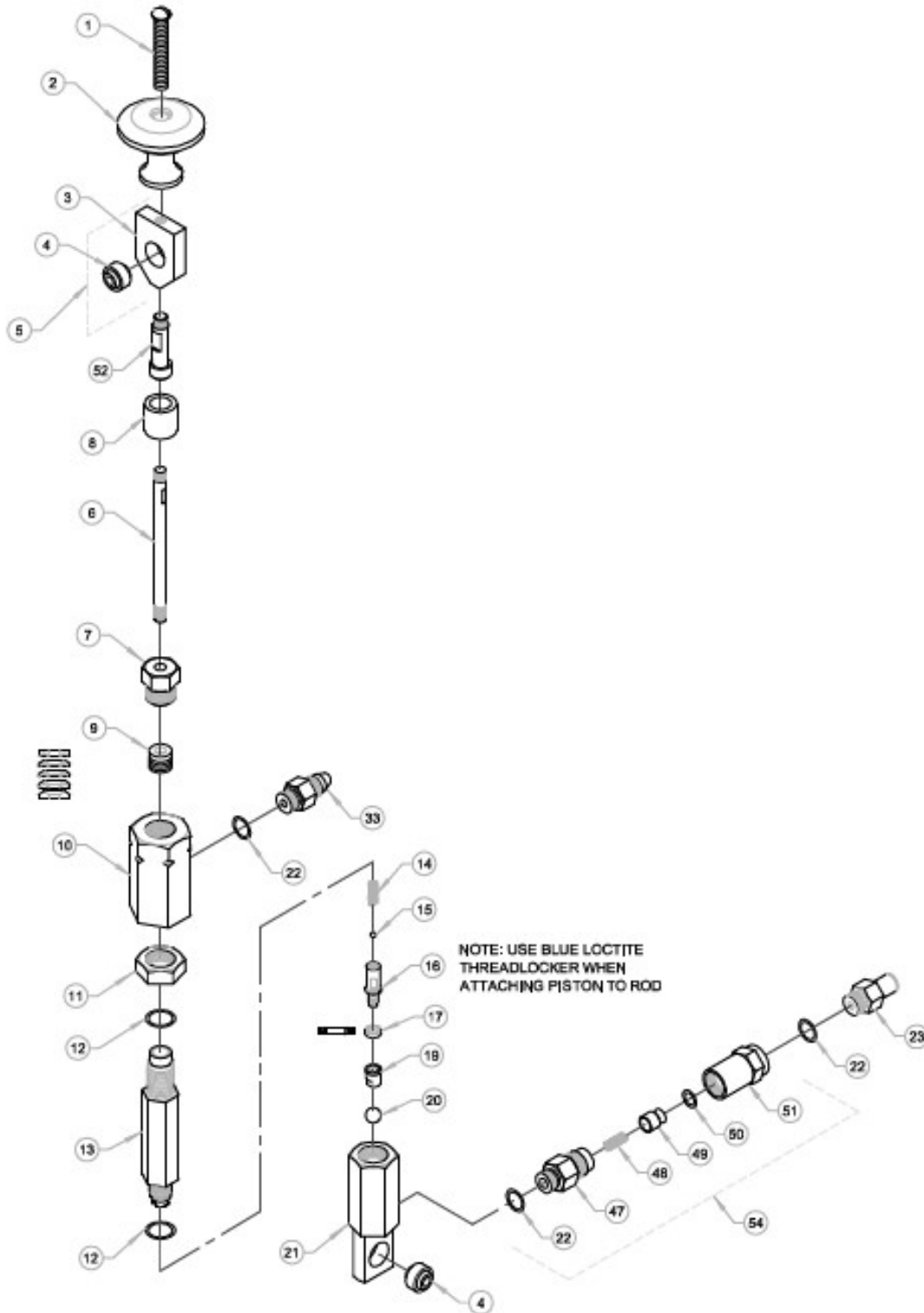
Assy - High Pressure Catalyst Pump PHPC-4200-B

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	MACHINE SCREW
2	50100-1	1	PRIMING KNOB
3	50230-3	1	BUSHING BLOCK
4	9202-1-1	2	SPHERICAL BEARING
6	50360-1	1	PISTON ROD
7	50630-1	1	PACKING NUT
8	50591-3	1	PISTON ROD SLEEVE
9	02022-5	1	PACKING SET ASSY
10	50730-1	1	OUTLET BODY
11	50820-1	1	LOCK NUT
12	O-S-016	2	O-RING
13	50940-1	1	CYLINDER
14	04013-1	1	PISTON ROD SPRING
15	9201-1-7	1	7/32" SS BALL
16	50440-1	1	PISTON BODY
17	02014	1	PISTON SEAL
19	50530-1	1	SEAL RETAINER
20	03072	1	9/16" SS BALL
21	51050-1	1	INLET BODY
22	O-S-013	3	O-RING
23	4101-8-1	1	INLET TUBE FITTING
30	51501-1	1	OUTLET FITTING
47	CV-2002	1	SPRING HOUSING
48	CV-2004	1	SPRING
49	CV-2003	1	PISTON
50	O-S-011A	1	O-RING
51	CV-2001	1	SEAT HOUSING
52	CCP-1010	1	PISTON ROD EXTENSION

ASSOCIATED PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
5	50230-1	1	ASSY - BUSHING BLOCK
54	CV-2000	1	CHECK VALVE



MAGNUM VENUS PLASTECH

Assy - Putty High Pressure Catalyst Pump - MEKP PHPC-4200-M

REV. A - PHPC-4200-M WAS 51560-1 7/3/03 JEM
REV. B - ADDED CSC-1000 SURGE CHAMBER AND CV-2000 CHECK VALVE 12/13/06 BT2
REV. C - ITEM 50 WAS O-S-011 03/09/08 BT2
REV. D - TOOK OFF CSC-1000 SURGE CHAMBER AND ITS PARTS, ADDED ITEM 52 AND THREADLOCKER NOTE 02/20/14 BT2

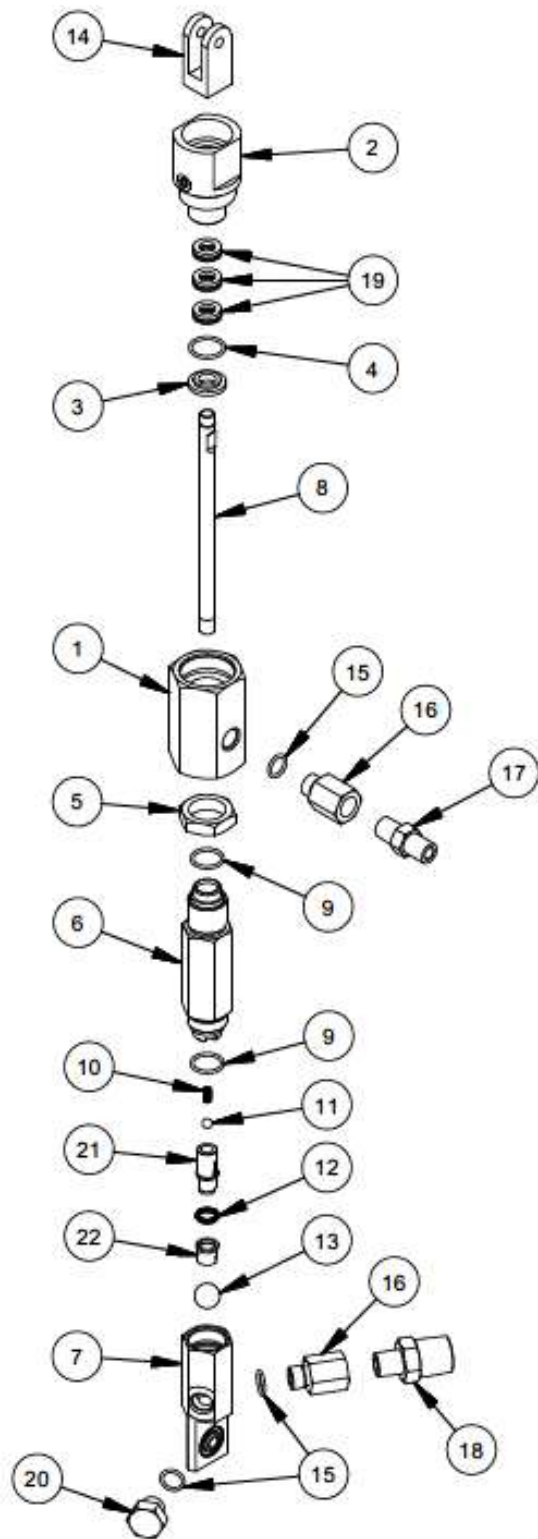
Assy - Putty High Pressure Catalyst Pump - PHPC-4200-M

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	MACHINE SCREW
2	50100-1	1	PRIMING KNOB
3	50230-3	1	BUSHING BLOCK
4	9202-1-1	2	SPHERICAL BEARING
6	50360-1	1	PISTON ROD
7	50630-1	1	PACKING NUT
8	50591-3	1	PISTON ROD SLEEVE
9	02022-5	1	PACKING SET ASSY
10	50730-1	1	OUTLET BODY
11	50820-1	1	LOCK NUT
12	O-S-016	2	O-RING
13	50940-1	1	CYLINDER
14	04013-1	1	PISTON ROD SPRING
15	9201-1-7	1	7/32" SS BALL
16	50440-1	1	PISTON BODY
17	02014	1	PISTON SEAL
19	50530-1	1	SEAL RETAINER
20	03072	1	9/16" SS BALL
21	51050-1	1	INLET BODY
22	O-S-013	3	O-RING
23	4101-8-1	1	INLET TUBE FITTING
33	51501-1	1	OUTLET FITTING
47	CV-2002	1	SPRING HOUSING
48	CV-2004	1	SPRING
49	CV-2003	1	PISTON
50	O-S-011A	1	O-RING
51	CV-2001	1	SEAT HOUSING
52	CCP-1010	1	ROD EXTENSION

ASSOCIATED PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
5	50230-1	1	ASSY - BUSHING BLOCK
54	CV-2000	1	CHECK VALVE



MAGNUM VENUS PLASTECH

A SIDE ISOCYANATE PUMP	VHPC-4200-MPR-2A
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REV:

SHEET 1 / 2

3/31/2015

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	50730-1	1	OUTLET BODY
2	VHPC-4237-NP	1	SEAL HOUSING, NON-PORTED
3	VHPC-4232	1	SEAL RETAINER
* 4	O-E-017	1	O-RING
5	50820-1	1	LOCK NUT
6	50940-1	1	CYLINDER
7	VHPC-4215-B	1	INLET BODY
8	50360-1	1	PISTON ROD
* 9	O-E-016	2	O-RING
10	04013-1	1	PISTON SPRING
11	9201-1-7	1	SS BALL 7/32"
* 12	02014	1	PISTON SEAL -SPRING LOADED
13	03072	1	Ø9/16 SS BALL
14	VHPC-4201	1	ROD CLEVIS
* 15	O-E-013	3	O-RING
16	CM-1055	2	FITTING
17	PF-HN-04	1	HEX NIPPLE
18	PF-HN-08-04	1	HEX NIPPLE
* 19	VHPC-4238	3	ROD SEAL ASSY
20	CM-1053	1	PLUG FITTING
21	50440-1	1	PISTON BODY - C42
22	50530-1	1	SEAL RETAINER

REPAIR KIT

PART NO.	DESCRIPTION
* VHPC-4200-MPR-2SK	SEAL KIT

* ASTERISKS DENOTE PARTS IN REPAIR KIT

OPTIONAL ITEM

PART NO.	DESCRIPTION
9202-1-1	SPHERICAL BEARING IN ITEM 9

MAGNUM VENUS PLASTECH

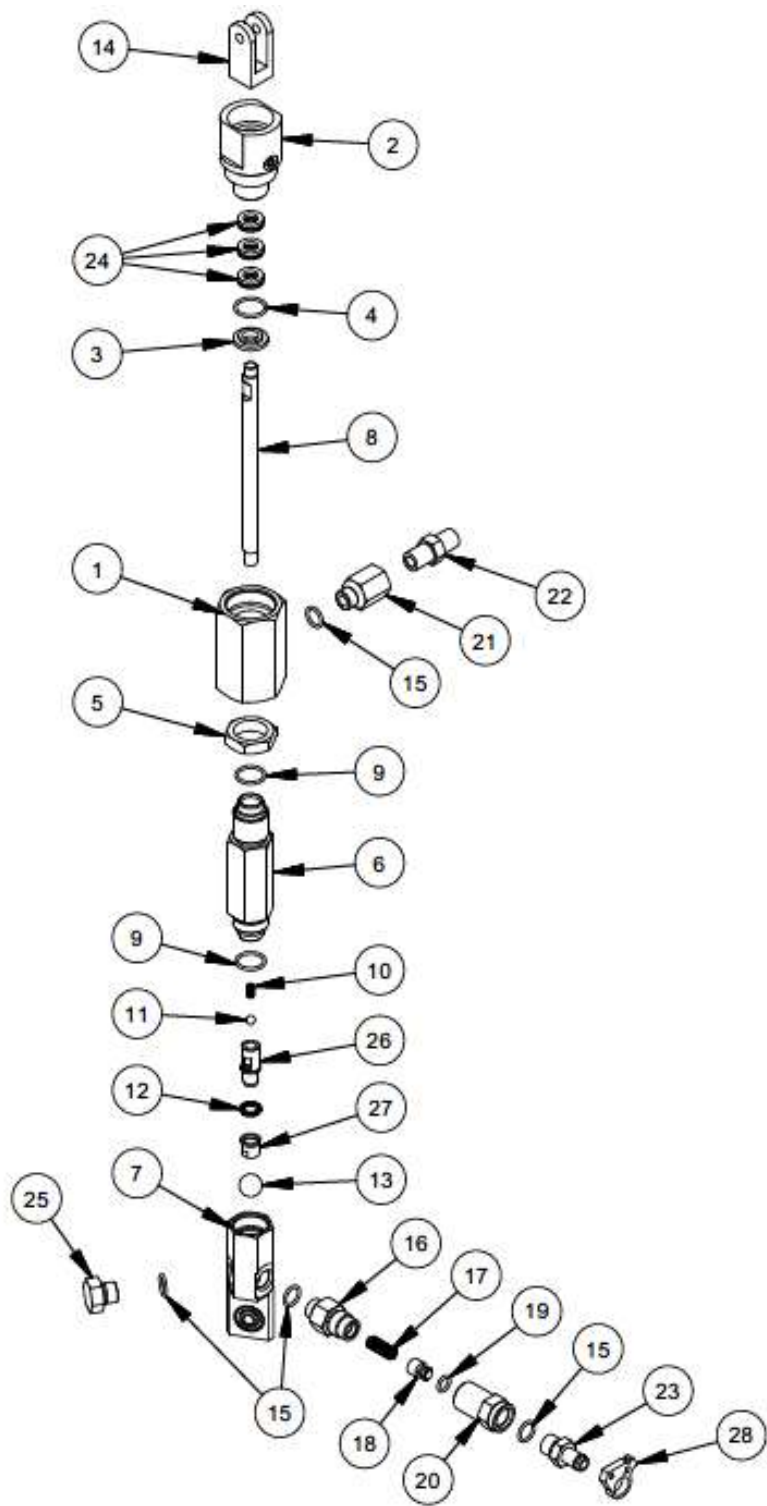
A SIDE ISOCYANATE PUMP

VHPC-4200-MPR-2A

REV:

SHEET 2 / 2

3/31/2015



MAGNUM VENUS PLASTECH

B SIDE RESIN PUMP	VHPC-4200-MPR-2B
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REV:

SHEET 1 / 2

4/1/2015

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	50730-1	1	OUTLET BODY
2	VHPC-4237-NP	1	SEAL HOUSING, NON-PORTED
3	VHPC-4232	1	SEAL RETAINER
* 4	O-E-017	1	O-RING
5	50820-1	1	LOCK NUT
6	50940-1	1	CYLINDER
7	VHPC-4215-B	1	INLET BODY
8	50360-1	1	PISTON ROD
* 9	O-E-016	2	O-RING
10	04013-1	1	PISTON SPRING
11	9201-1-7	1	SS BALL 7/32"
* 12	02014	1	PISTON SEAL -SPRING LOADED
13	03072	1	Ø9/16 SS BALL
14	VHPC-4201	1	ROD CLEVIS
* 15	O-E-013	4	O-RING
16	CV-2002	1	SPRING HOUSING
17	CV-2004	1	VALVE SPRING
18	CV-2003	1	VALVE PISTON
* 19	O-E-011	1	O-RING
20	CV-2001	1	SEAT HOUSING
21	CM-1055	1	FITTING
22	PF-HN-04	1	HEX NIPPLE
23	4101-8-1	1	INLET FITTING
* 24	VHPC-4238	3	ROD SEAL ASSY
25	CM-1053	1	PLUG FITTING
26	50440-1	1	PISTON BODY - C42
27	50530-1	1	SEAL RETAINER
28	7701-2-2	1	1/2" SUCTION HOSE CLAMP

REPAIR KIT

PART NO.	DESCRIPTION
* VHPC-4200-MPR-2SK	SEAL KIT

*ASTERISKS DENOTE PARTS IN REPAIR KIT

OPTIONAL ITEM

PART NO.	DESCRIPTION
9202-1-1	SPHERICAL BEARING IN ITEM 11

MAGNUM VENUS PLASTECH

B SIDE RESIN PUMP

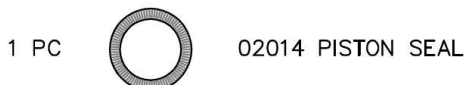
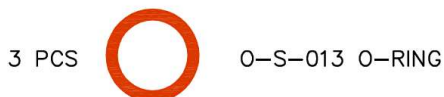
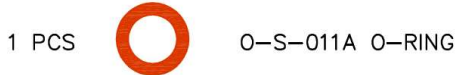
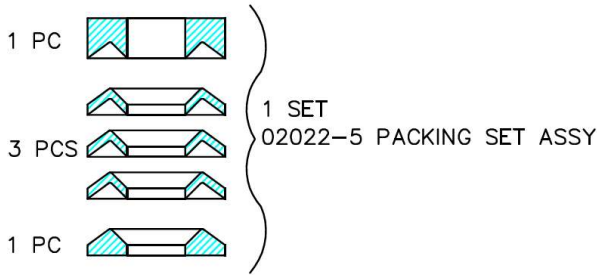
VHPC-4200-MPR-2B

REV:

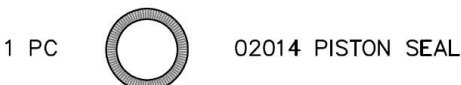
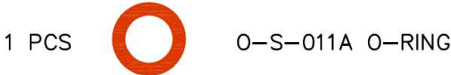
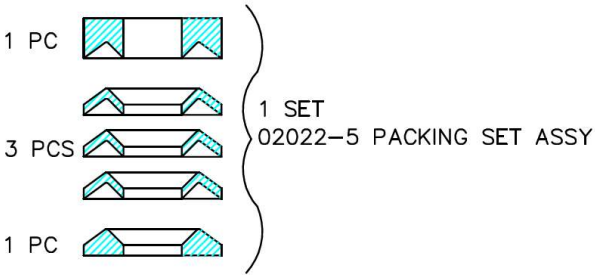
SHEET 2 / 2

4/1/2015

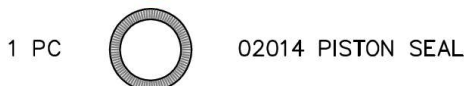
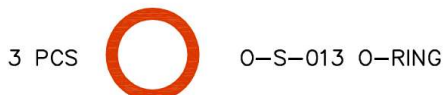
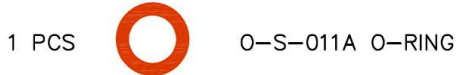
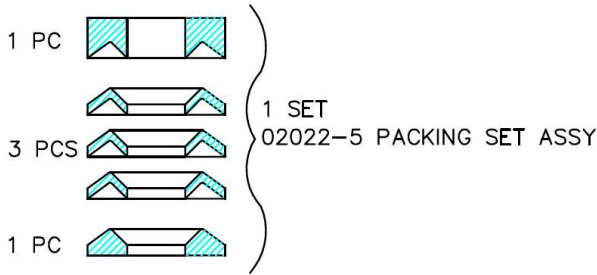
VHPC-4200-SK
MINOR REPAIR KIT C42 CAT PUMP



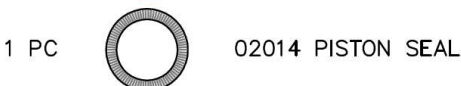
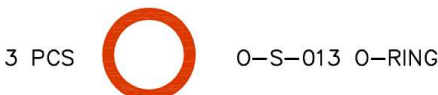
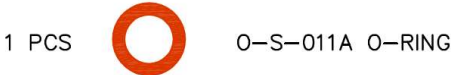
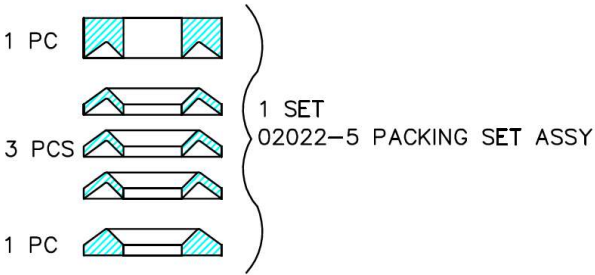
VHPC-4200-SK
MINOR REPAIR KIT C42 CAT PUMP









VHPC-4200-SK
MINOR REPAIR KIT C42 CAT PUMP









VHPC-4200-SK
MINOR REPAIR KIT C42 CAT PUMP









VHPC-4200-MPR-2SK
SEAK KIT FOR VHPC-4200-MPR-2A
AND VHPC-4200-MPR-2B

- 3 PCS  VHPC-4238 ROD SEAL
- 1 PC  O-E-011 O-RING
USED ON VHPC-4200-MPR-2B
ONLY
- 4 PCS  O-E-013 O-RING
VHPC-4200-MPR-2A USES
QUANTITY OF 3
- 2 PCS  O-E-016 O-RING
- 1 PC  O-E-017 O-RING
- 1 PC  02014 PISTON SEAL







VHPC-4200-MPR-2SK
SEAK KIT FOR VHPC-4200-MPR-2A
AND VHPC-4200-MPR-2B

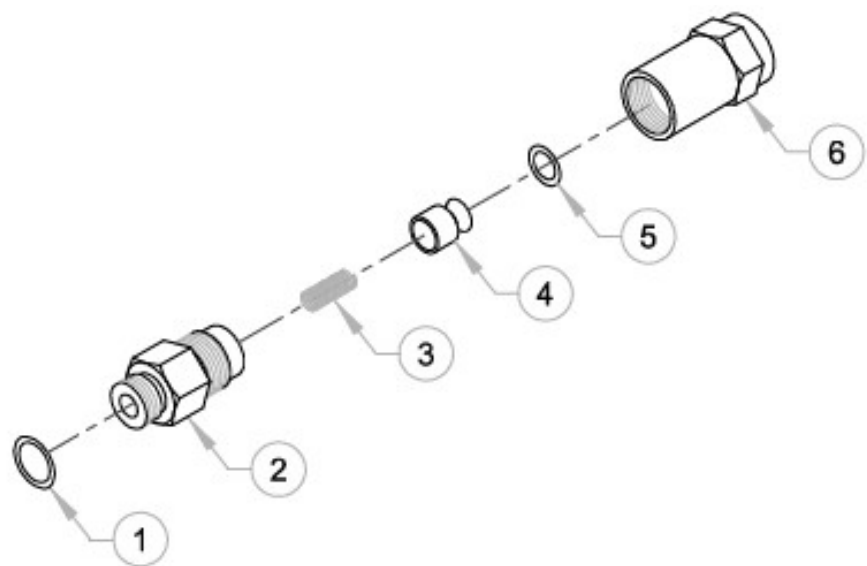
- 3 PCS  VHPC-4238 ROD SEAL
- 1 PC  O-E-011 O-RING
USED ON VHPC-4200-MPR-2B
ONLY
- 4 PCS  O-E-013 O-RING
VHPC-4200-MPR-2A USES
QUANTITY OF 3
- 2 PCS  O-E-016 O-RING
- 1 PC  O-E-017 O-RING
- 1 PC  02014 PISTON SEAL

VHPC-4200-MPR-2SK
SEAK KIT FOR VHPC-4200-MPR-2A
AND VHPC-4200-MPR-2B

- 3 PCS  VHPC-4238 ROD SEAL
- 1 PC  O-E-011 O-RING
USED ON VHPC-4200-MPR-2B
ONLY
- 4 PCS  O-E-013 O-RING
VHPC-4200-MPR-2A USES
QUANTITY OF 3
- 2 PCS  O-E-016 O-RING
- 1 PC  O-E-017 O-RING
- 1 PC  02014 PISTON SEAL

VHPC-4200-MPR-2SK
SEAK KIT FOR VHPC-4200-MPR-2A
AND VHPC-4200-MPR-2B

- 3 PCS  VHPC-4238 ROD SEAL
- 1 PC  O-E-011 O-RING
USED ON VHPC-4200-MPR-2B
ONLY
- 4 PCS  O-E-013 O-RING
VHPC-4200-MPR-2A USES
QUANTITY OF 3
- 2 PCS  O-E-016 O-RING
- 1 PC  O-E-017 O-RING
- 1 PC  02014 PISTON SEAL



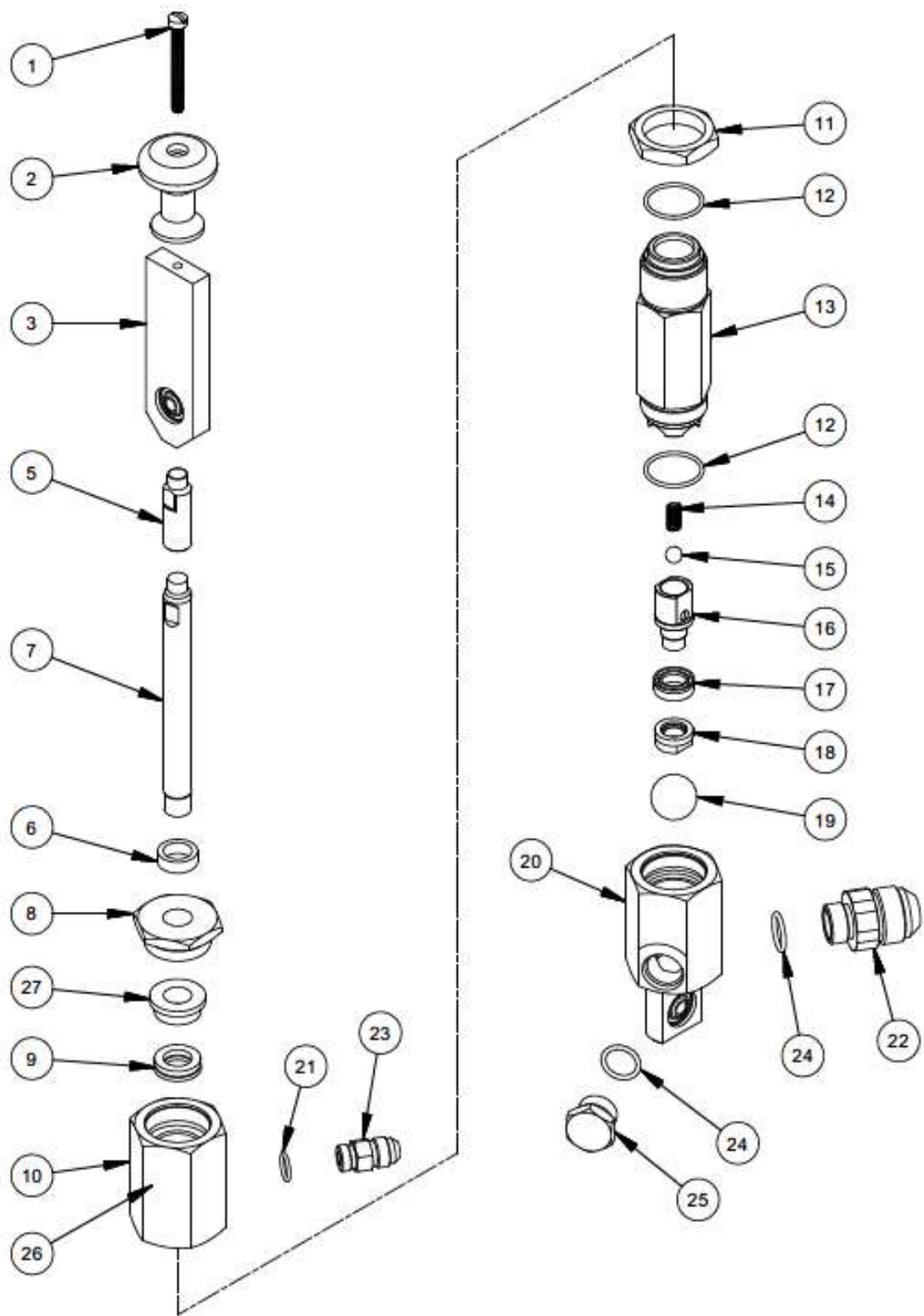
MAGNUM VENUS PRODUCTS

Catalyst Pump Check Valve	CV-2000
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REV. 07/20/05 BT2
REV. A - ITEM 5 WAS O-S-011 03/09/06 BT2

Assy - Catalyst Pump CV-2000**COMMON ASSY PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	O-S-013	1	O-RING
2	CV-2002	1	SPRING HOUSING
3	CV-2004	1	SPRING
4	CV-2003	1	PISTON
5	O-S-011A	1	O-RING
6	CV-2001	1	SEAT HOUSING



MAGNUM VENUS PRODUCTS

C32 HIGH VOLUME CATALYST PUMP	VHPC-3200-ADH
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REV: F 05/31/2017

SHEET 1 / 2

5/31/2017

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	02849-16	1	SLOTTED MACHINE SCREW
2	50100-1	1	PRIMING KNOB - CATALYST PUMP
3	50220-3	1	BUSHING BLOCK
5	CCP-1012	1	PISTON ROD EXTENSION
6	50591-1	1	PISTON ROD SLEEVE
7	50370-1	1	PISTON ROD - C32
8	VHPC-3207	1	PACKING NUT
* 9	VHPC-3210	1	ROD SEAL ASSEMBLY
10	50710-1	1	OUTLET BODY C32
11	50810-1	1	CYLINDER LOCK NUT C32
* 12	O-E-022	2	O-RING
13	50960-1	1	CYLINDER - C32
* 14	04009-1	1	PISTON SPRING - C32
* 15	03021	1	5/16 SS BALL
16	VHPC-3211	1	PISTON BODY
* 17	VHPC-3214	1	CUP SEAL
18	VHPC-3212	1	SEAL RETAINER
* 19	03071	1	7/8" SS BALL
20	VHPC-3218-B	1	DUAL INLET BODY ASSEMBLY
* 21	O-E-013	1	O-RING
22	HF-12F-12J-SS	1	HOSE ADAPTER
23	MAX-2022	1	J.I.C FITTING
* 24	O-E-3-908	2	O-RING
25	VHPC-2224	1	PLUG
26	6701-24-EN	1	PUMP SEAL WARNING DECAL
* 27	VHPC-3206	1	ROD GUIDE

REPAIR KIT

PART NO.	DESCRIPTION
* VHPC-3200-ADH-RK	REPAIR KIT

* ASTERISKS DENOTE PARTS IN REPAIR KIT

OPTIONAL ITEM

PART NO.	DESCRIPTION
9202-1-1	SPHERICAL BEARING IN ITEMS 3 AND 20

MAGNUM VENUS PRODUCTS

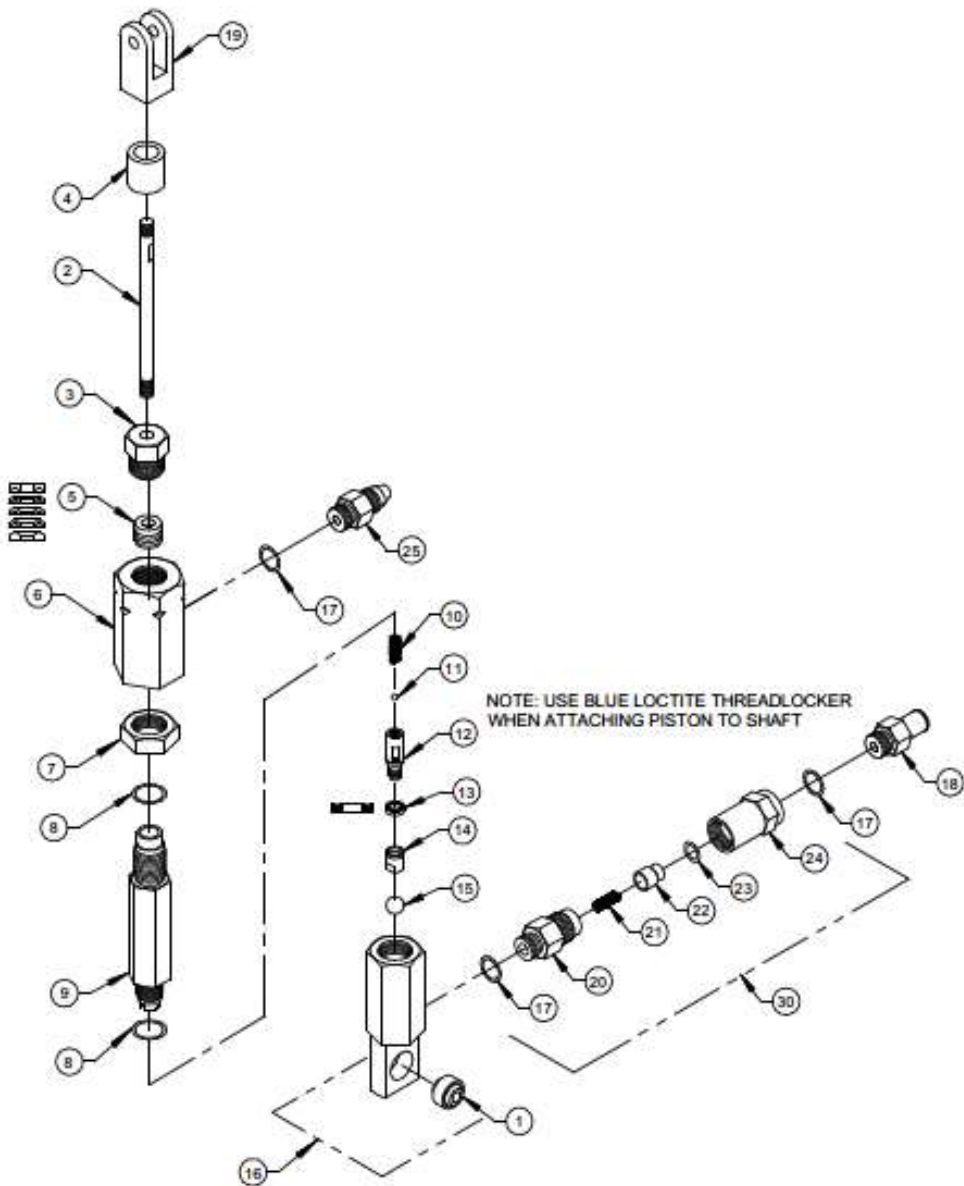
C32 HIGH VOLUME CATALYST PUMP

VHPC-3200-ADH

REV: F 05/31/2017

SHEET 2 / 2

5/31/2017



MAGNUM VENUS PLASTECH

Assy - C32 Catalyst Pump

VHPC-3200-C-3J

REV. A - DELETED UPPER CHECK VALVE PARTS, ADDED CV-2000 CHECK VALVE AND COMPONENTS 01/05/06 BT2
REV. B - ITEM 23 WAS O-S-011 03/09/06 BT2
REV. C - CHANGED ITEM 16 TO INCLUDE ITEM 1 2/21/07
REV. D - ADDED THREADLOCKER NOTE 05/15/08 BT2

ASSY - C32 CATALYST PUMP

VHPC-3200-C-3J

REPAIR KITS

PART NO.	DESCRIPTION
VHPC-3200-SK	SEAL KIT

COMMON ASSY PARTS LIST

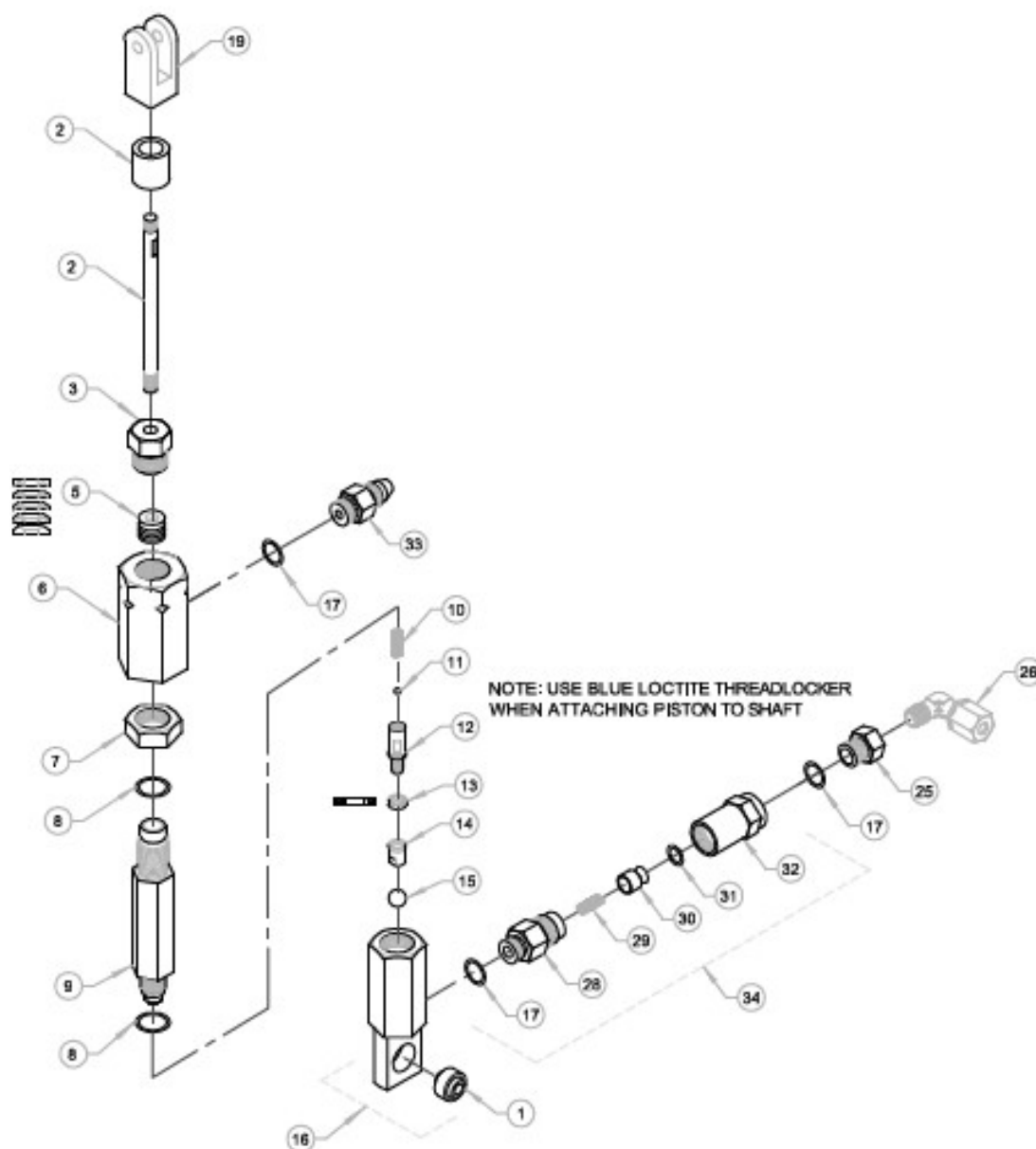
ITEM	PART NO.	QTY	DESCRIPTION
2	50370-1	1	PISTON ROD
3	50620-1	1	PACKING NUT
4	50591-1	1	PISTON ROD SLEEVE
5	02021-1	1	PACKING SET ASSY
6	50710-1	1	OUTLET BODY
7	50810-1	1	LOCK NUT
8	O-S-022	2	O-RING
9	50960-1	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03021	1	5/16" SS BALL
12	50420-1	1	PISTON BODY
13	02013	1	PISTON SEAL
14	50520-1	1	SEAL RETAINER
15	03071	1	7/8" SS BALL
16	51040-3	1	INLET BODY ASSY
17	O-S-013	3	O-RING
18	4101-8-1	1	INLET TUBE FITTING
19	VHPC-3201	1	CLEVIS
20	CV-2002	1	SPRING HOUSING
21	CV-2004	1	SPRING
22	CV-2003	1	PISTON
23	O-S-011A	1	O-RING
24	CV-2001	1	SEAT HOUSING
25	51501-1	1	OUTLET FITTING

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING
30	CV-2000	1	ASSY - CHECK VALVE



Note:
Offset intake and outlet ports
one flat on hex as shown in
figure 1-1



MAGNUM VENUS PLASTECH

Assy - C32 Catalyst Pump

VHPC-3200-C-UPS

REV. B - ITEM 31 WAS 0-S-011 03/09/08 BT2
 REV. C - CHANGED ITEM 16 TO INCLUDE ITEM 1 2/21/07 JEM
 REV. D - ADDED THREADLOCKER NOTE 05/15/08 BT2
 REV. E - ADDED ITEM 4 11/23/13 BT2

ASSY - C32 CATALYST PUMP VHPC-3200-C-UPS

COMMON ASSY PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
2	50370-1	1	PISTON ROD
3	50620-1	1	PACKING NUT
4	50591-1	1	PISTON ROD SLEEVE
* 5	02021-1	1	PACKING SET ASSY
6	50710-1	1	OUTLET BODY
7	50810-1	1	LOCK NUT
* 8	O-S-022	2	O-RING
9	50960-1	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03021	1	5/16" SS BALL
12	50420-1	1	PISTON BODY
* 13	02013	1	PISTON SEAL
14	50520-1	1	SEAL RETAINER
15	03071	1	7/8" SS BALL
16	51040-3	1	INLET BODY ASSY
* 17	O-S-013	3	O-RING
19	VHPC-3201	1	CLEVIS
25	VHPC-1003	1	INLET FITTING
26	MS-2053	1	ELBOW
28	CV-2002	1	SPRING HOUSING
29	CV-2004	1	SPRING
30	CV-2003	1	PISTON
* 31	O-S-011A	1	O-RING
32	CV-2001	1	SEAT HOUSING
33	51501-1	1	OUTLET FITTING
	6701-24-EN	1	PUMP SEAL WARNING DECAL (NOT SHOWN)

REPAIR KITS

PART NO.	DESCRIPTION
* VHPC-3200-SK	SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING
34	CV-2000	1	CHECK VALVE

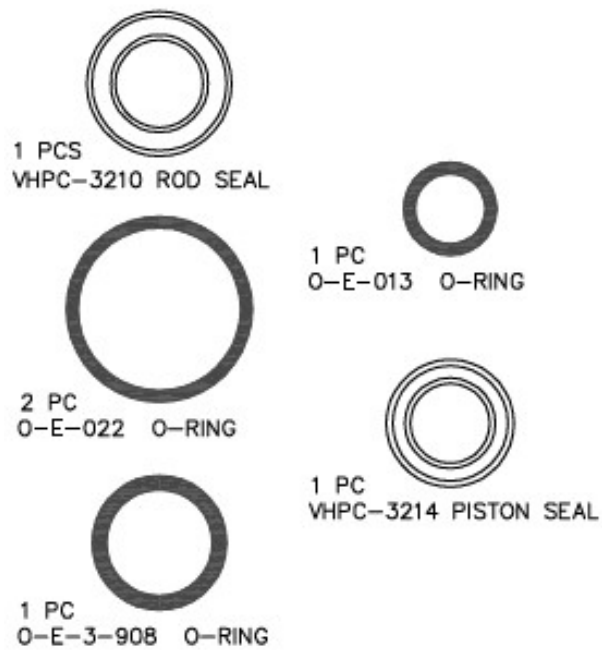
FIGURE 1-1



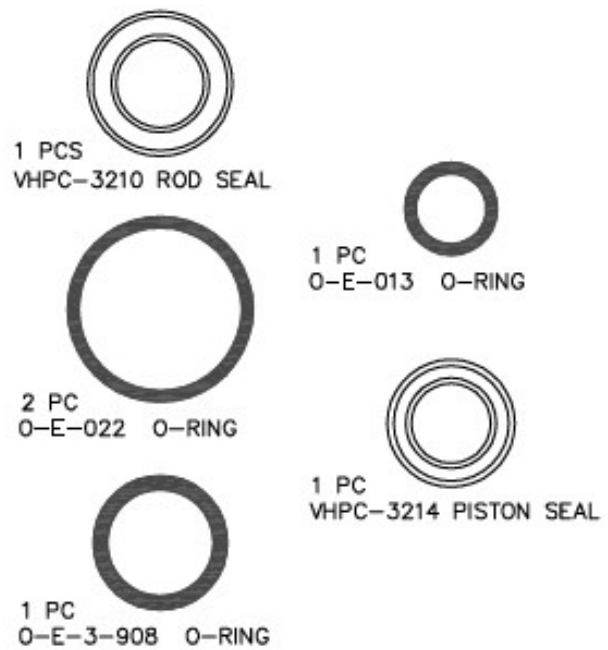
Note:

Offset intake and outlet ports
one flat on hex as shown in
figure 1-1

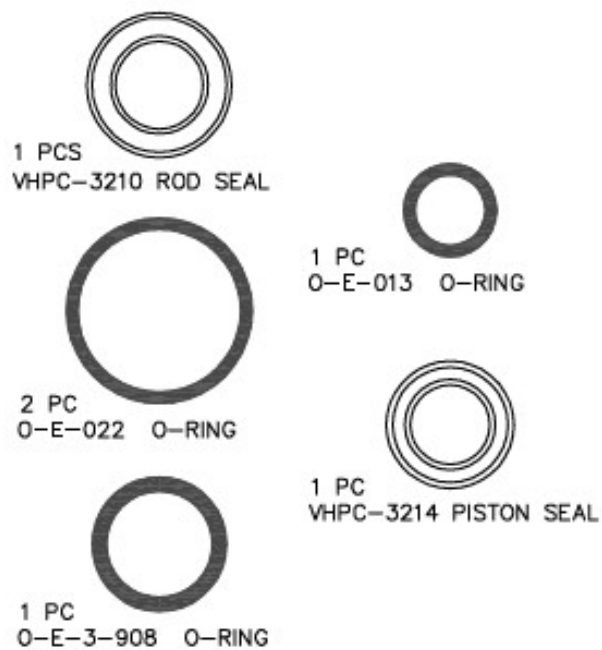
VHPC-3200-ADH-SK
MINOR REPAIR KIT C32 CAT PUMP



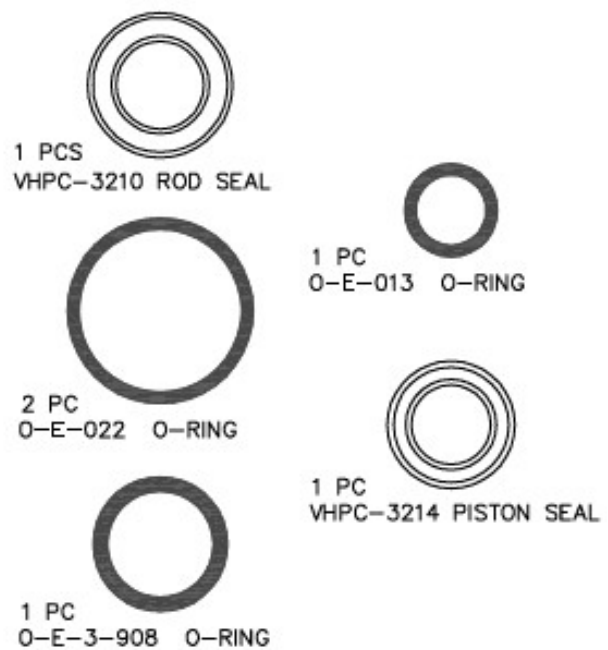
VHPC-3200-ADH-SK
MINOR REPAIR KIT C32 CAT PUMP



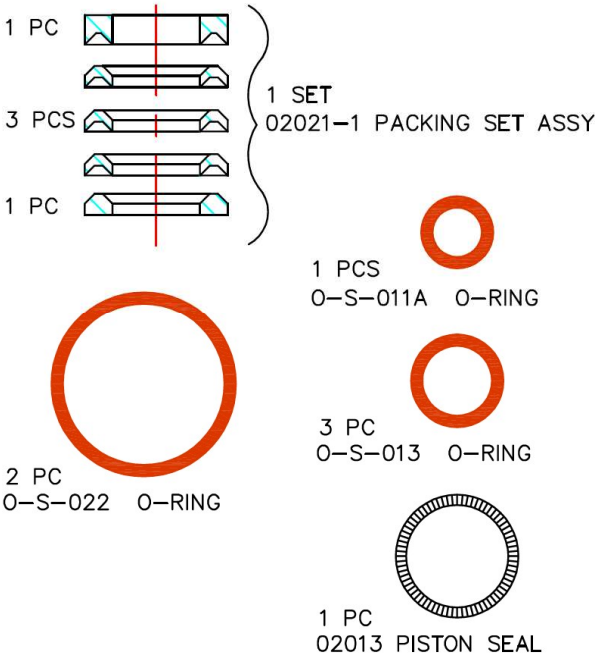
VHPC-3200-ADH-SK
MINOR REPAIR KIT C32 CAT PUMP



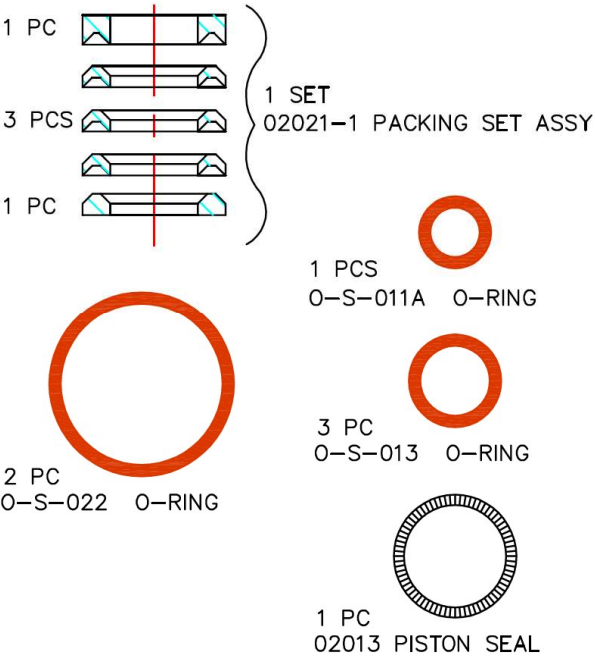
VHPC-3200-ADH-SK
MINOR REPAIR KIT C32 CAT PUMP



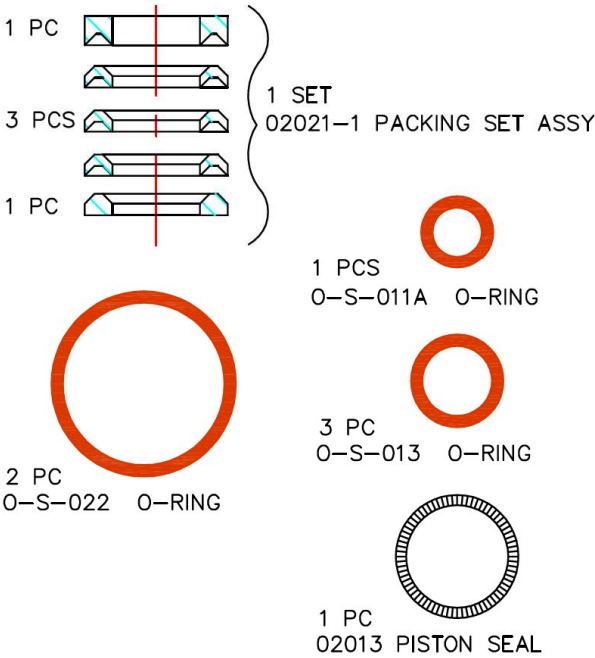
VHPC-3200-SK
MINOR REPAIR KIT C32 CAT PUMP



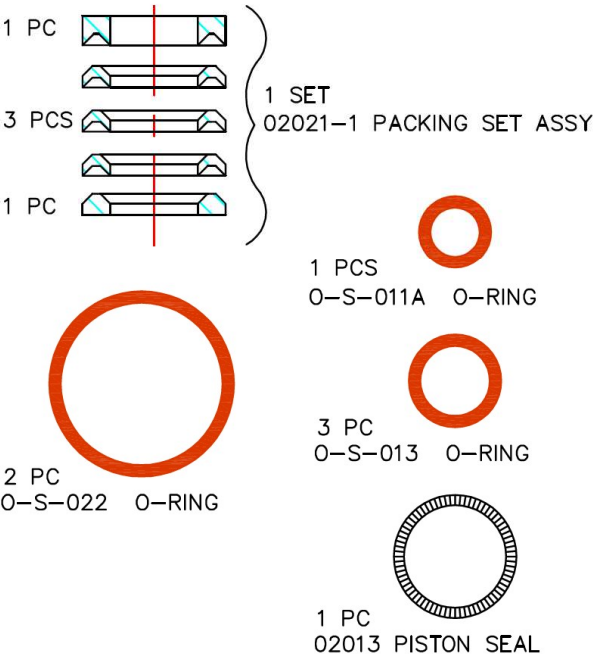
VHPC-3200-SK
MINOR REPAIR KIT C32 CAT PUMP

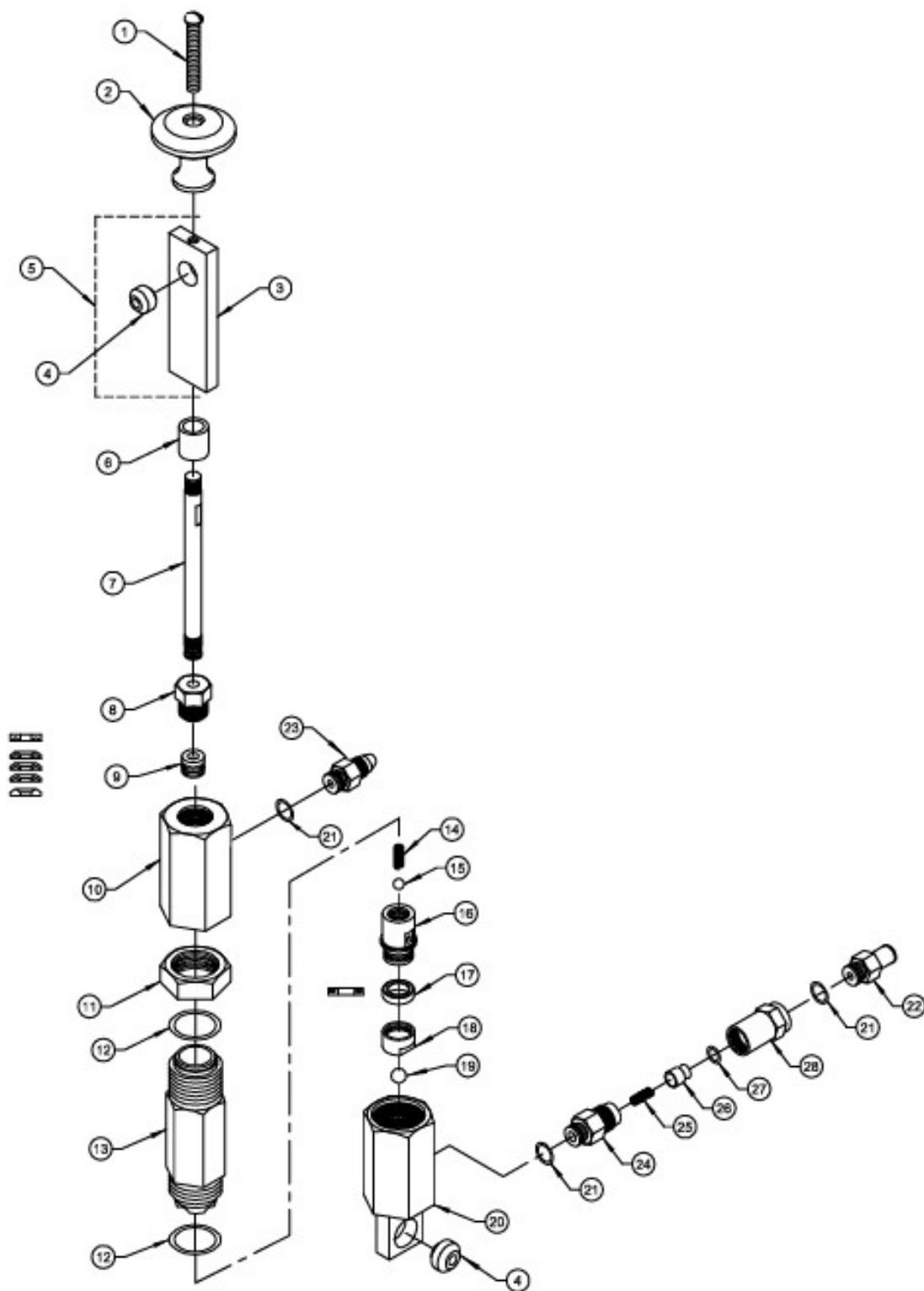


VHPC-3200-SK
MINOR REPAIR KIT C32 CAT PUMP



VHPC-3200-SK
MINOR REPAIR KIT C32 CAT PUMP





MAGNUM VENUS PLASTECH

HIGH-RANGE SLAVE ARM PUMP - PIGMENT

51570-7-LA

REV. A - 04/2012 BT2

HIGH RANGE SLAVE ARM PUMP - PIGMENT - 51570-7-LA


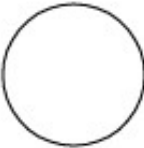







PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	MACHINE SCREW
2	50100-1	1	PRIMING KNOB
3	50220-3	1	BUSHING BLOCK
4	9202-1-1	2	SPHERICAL BEARING
6	50591-1	1	PISTON ROD SLEEVE
7	50370-1	1	PISTON ROD
8	50620-1	1	PACKING NUT
9	02021-1	1	PACKING SET ASSY
10	50710-1	1	OUTLET BODY
11	50810-1	1	LOCK NUT
12	O-V-022	2	O-RING
13	50960-1	1	CYLINDER
14	04009-1	1	PISTON ROD SPRING
15	03021	1	5/16" SS BALL
16	50420-1	1	PISTON BODY
17	02013	1	PISTON SEAL
18	50520-1	1	SEAL RETAINER
19	03071	1	7/8" SS BALL
20	51040-1	1	INLET BODY
21	O-V-013	3	O-RING
22	4101-8-1	1	INLET TUBE FITTING
23	51501-1	1	OUTLET FITTING
24	CV-2002	1	SPRING HOUSING
25	CV-2004	1	SPRING
26	CV-2003	1	PISTON
27	O-V-011	1	O-RING
28	CV-2001	1	SEAT HOUSING


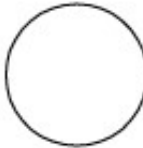







ASSOCIATED PARTS & ASSEMBLIES

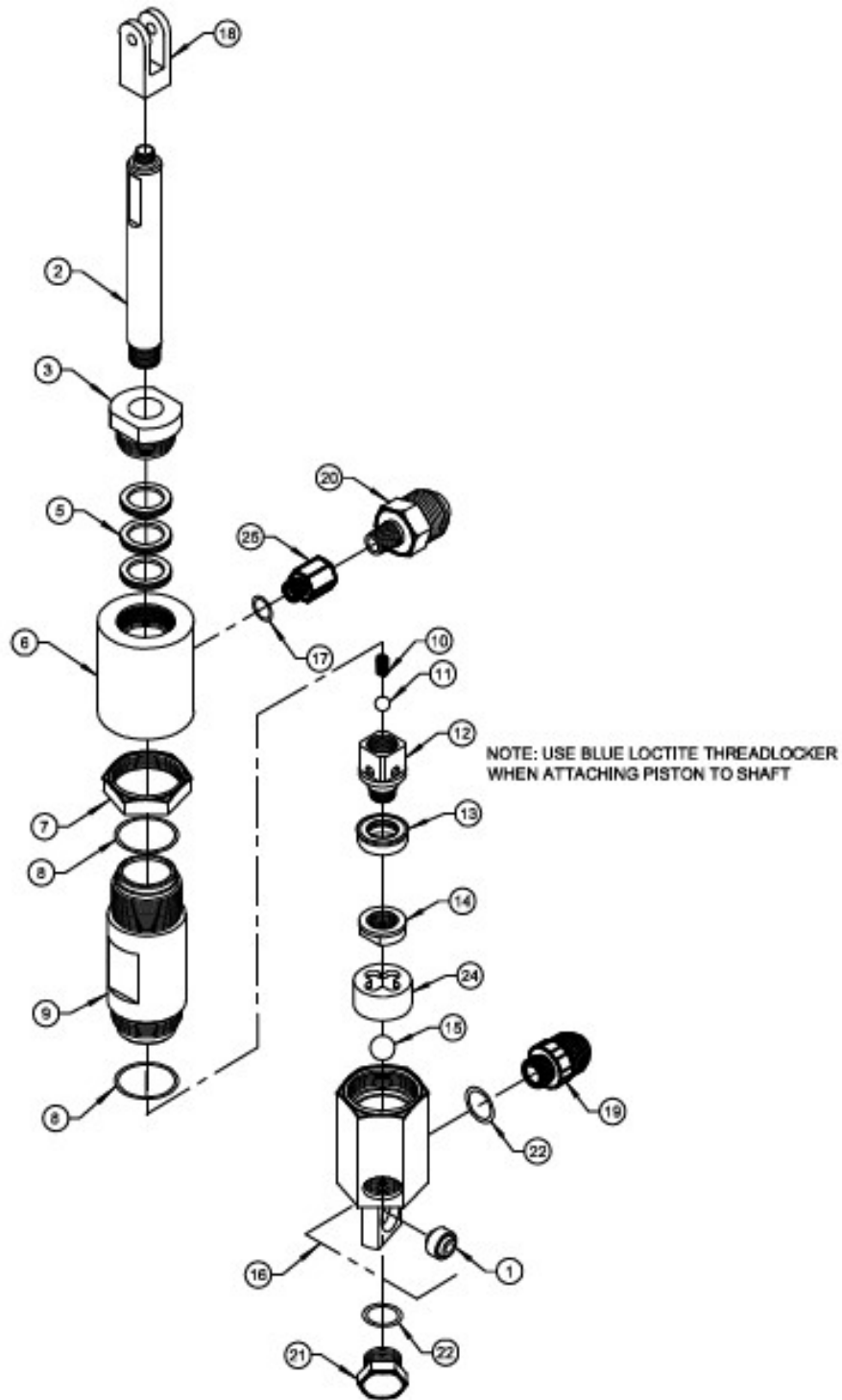
ITEM	PART NO.	QTY	DESCRIPTION
5	50220-1	1	ASSY - BUSHING BLOCK

VHPC-3200-ADH-RK
REPAIR KIT C32 CAT PUMP

1 PC		03021 5/16 SS BALL
1 PC		03071 7/8 SS BALL
1 PC		04009-1 PISTON ROD SPRING
1 PC		O-E-013 O-RING
1 PC		O-E-3-908 O-RING
2 PCS		O-E-022 O-RING
1 PC		VHPC-3206 ROD GUIDE
1 PC		VHPC-3210 ROD SEAL
1 PC		VHPC-3214 PISTON SEAL

VHPC-3200-ADH-RK
REPAIR KIT C32 CAT PUMP

1 PC		03021 5/16 SS BALL
1 PC		03071 7/8 SS BALL
1 PC		04009-1 PISTON ROD SPRING
1 PC		O-E-013 O-RING
1 PC		O-E-3-908 O-RING
2 PCS		O-E-022 O-RING
1 PC		VHPC-3206 ROD GUIDE
1 PC		VHPC-3210 ROD SEAL
1 PC		VHPC-3214 PISTON SEAL



MAGNUM VENUS PLASTECH

CATALYST PUMP ASSEMBLY

VHPC-2200

REV. B = REMOVED ITEM 23 VHPC-2219 (NOT REQUIRED) 3/08/07 JEM
 REV. C = KIT WAS VHPC-2200-SK 08/29/07 BT2
 REV. D = ADDED THREADLOCKER NOTE 05/15/08 BT2
 REV. E = ITEM 17 WAS O-S-013, ITEM 22 WAS O-S-3-908, SEAL KIT WAS VHPC-2200-HIS-SK 01/19/18 BT2

ASSY - CATALYST PUMP VHPC-2200
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
2	VHPC-2218	1	PISTON ROD
3	VHPC-2207	1	PACKING NUT
* 5	VHPC-2210	3	SEAL
6	VHPC-2217	1	OUTLET BODY
7	VHPC-2221	1	LOCK NUT
* 8	O-E-025	2	O-RING
9	VHPC-2216	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03069	1	3/8" SS BALL
12	VHPC-2211	1	PISTON BODY
* 13	VHPC-2222	1	PISTON SEAL
14	VHPC-2212	1	SEAL RETAINER
15	VHPC-2223	1	5/8" SS BALL
16	VHPC-2215-B	1	INLET BODY ASSY
* 17	O-E-013	1	O-RING
18	VHPC-3201	1	CLEVIS
19	HF-12F-12J-SS	1	INLET FITTING
20	PF-HN-04-12J-SS	1	FITTING
21	VHPC-2224	1	PORT PLUG
* 22	O-E-3-908	2	O-RING
24	VHPC-2220	1	BALL STOP
25	CM-1055	1	ADAPTER FITTING

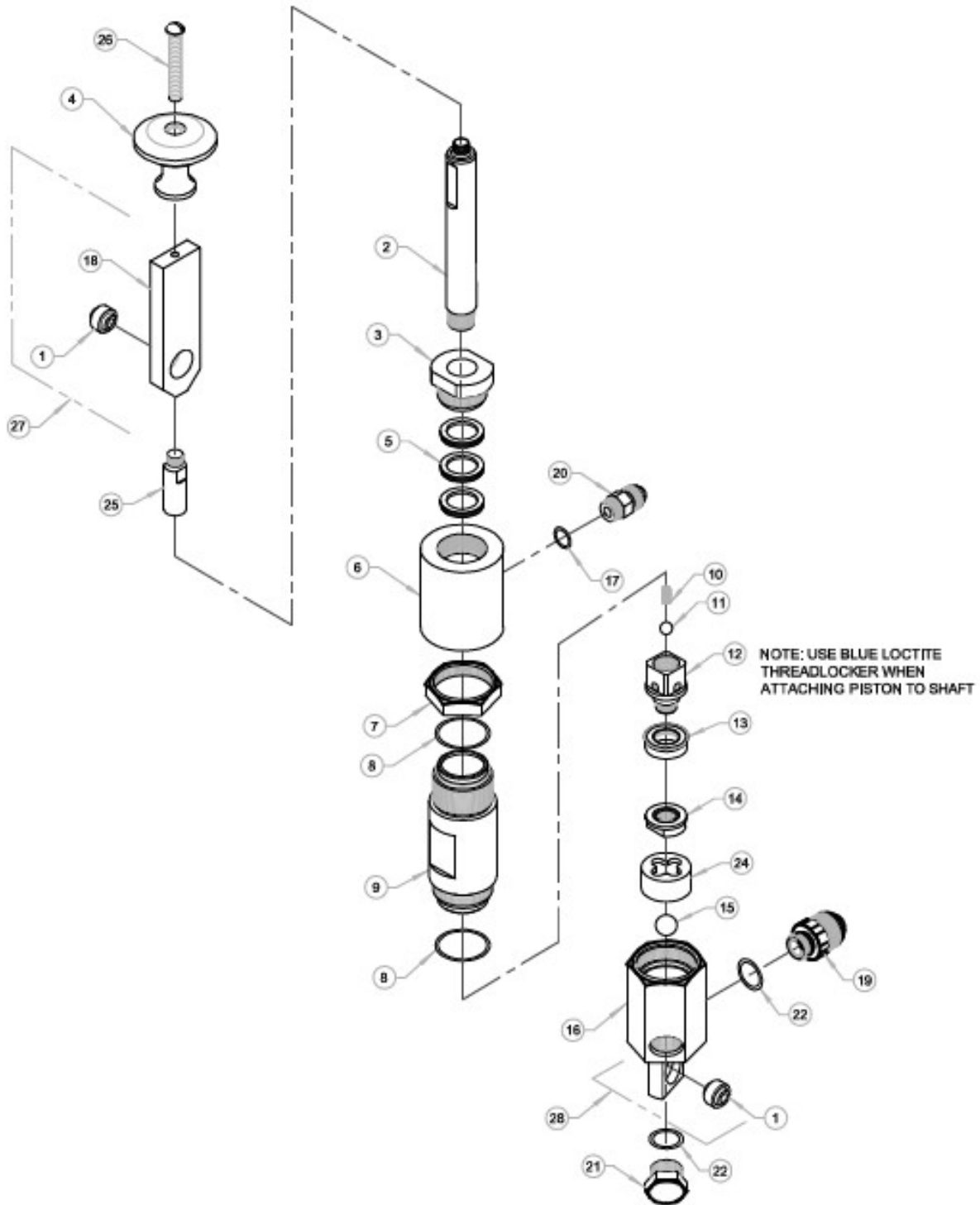
REPAIR KITS

PART NO.	DESCRIPTION
* VHPC-2200-ADH-SK	SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING

* ASTERISK DEPICTS PARTS IN SEAL KIT



MAGNUM VENUS PLASTECH

Assy - Catalyst Pump

VHPC-2200-ADH

REV. - 02-14-08 BT2

REV. A - ADDED THREADLOCKER NOTE 05-15-08 BT2

REV. B - ITEM 17 WAS O-S-013, ITEM 22 WAS O-S-3-908, KIT WAS VHPC-2200-HIS-SK 02-06-16 BT2

ASSY - CATALYST PUMP VHPC-2200-ADH**PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	2	SPHERICAL BEARING
2	VHPC-2218	1	PISTON ROD
3	VHPC-2207	1	PACKING NUT
4	50100-1	1	PRIMING KNOB
★ 5	VHPC-2210	3	SEAL
6	VHPC-2217	1	OUTLET BODY
7	VHPC-2221	1	LOCK NUT
★ 8	O-E-025	2	O-RING
9	VHPC-2216	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03069	1	3/8" SS BALL
12	VHPC-2211	1	PISTON BODY
★ 13	VHPC-2222	1	PISTON SEAL
14	VHPC-2212	1	SEAL RETAINER
15	VHPC-2223	1	5/8" SS BALL
16	VHPC-2215	1	INLET BODY
★ 17	O-E-013	1	O-RING
18	50220-1	1	BUSHING BLOCK
19	HF-12F-12J-SS	1	INLET FITTING
20	MAX-2022	1	MATERIAL FITTING
21	VHPC-2224	1	PORT PLUG
★ 22	O-E-3-908	2	O-RING
24	VHPC-2220	1	BALL STOP
25	CCP-1012	1	PISTON ROD EXTENSION
26	02849-16	1	MACHINE SCREW

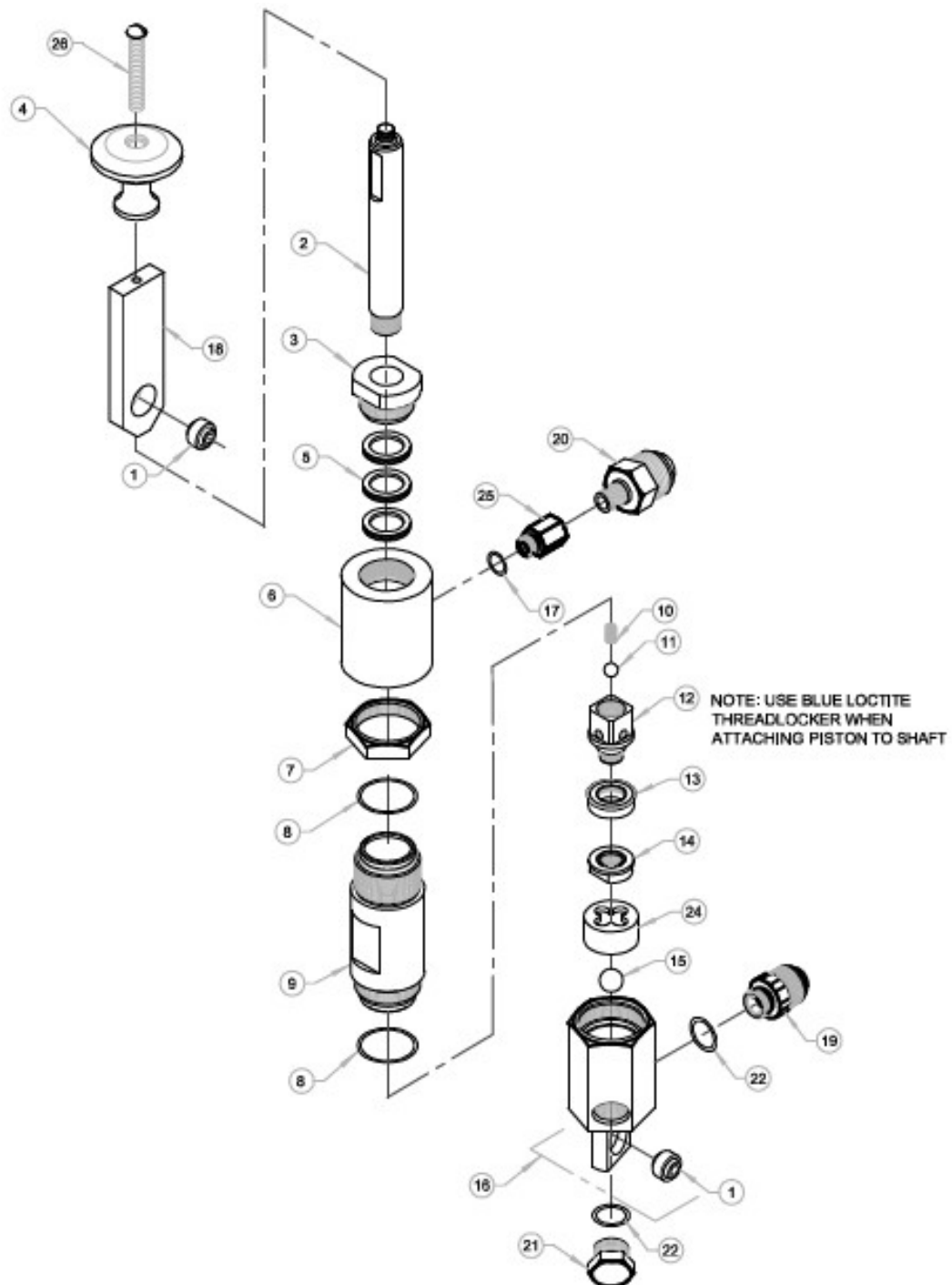
REPAIR KITS

PART NO.	DESCRIPTION
★ VHPC-2200-ADH-SK	SEAL KIT

★ ASTERISKS DEPICT PARTS IN SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
27	50220-3	1	BUSHING BLOCK W/ BEARING
28	VHPC-2215-B	1	INLET BODY W/ BEARING



MAGNUM VENUS PLASTECH

CATALYST PUMP ASSEMBLY

VHPC-2200-HIS

REV. C - ADDED ANOTHER ITEM 22 FOR PLUG SEAL AT BOTTOM 6/18/07 JEM
 REV. D - ADDED THREADLOCKER NOTE 05/15/08 BT2
 REV. E - CORRECTED ITEM 2 05/04/09 BT2
 REV. F - ITEM 17 WAS O-S-013, ITEM 22 WAS O-S-3-908, SEAL KIT WAS VHPC-2200-HIS-SK 01/19/18 BT2

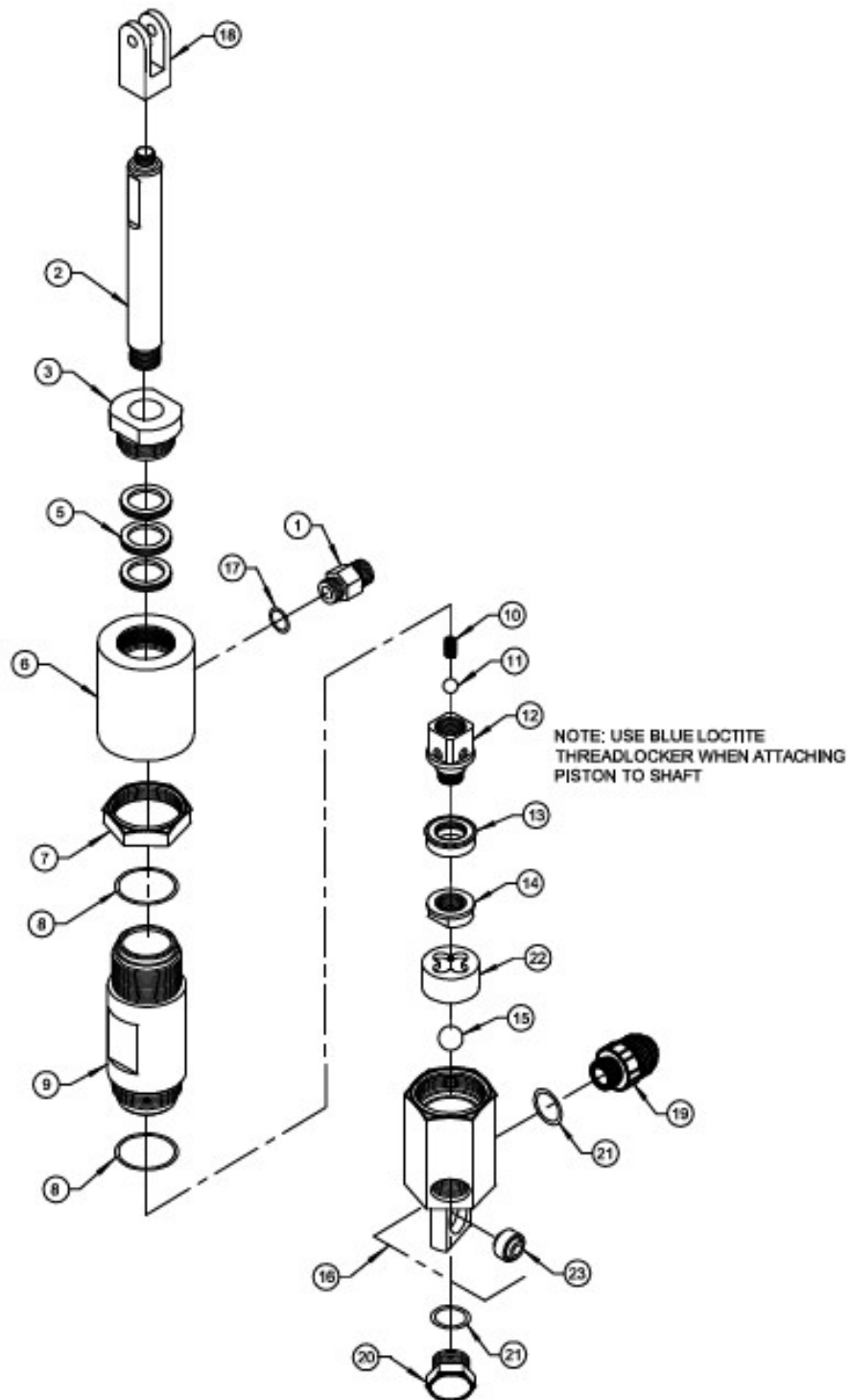
**ASSY - CATALYST PUMP
PARTS LIST**
VHPC-2200-HIS
REPAIR KITS

ITEM	PART NO.	QTY	DESCRIPTION	PART NO.	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING	* VHPC-2200-ADH-SK	SEAL KIT
2	VHPC-2218	1	PISTON ROD		
3	VHPC-2207	1	PACKING NUT		
4	50100-1	1	PRIMING KNOB		
* 5	VHPC-2210	3	SEAL		
6	VHPC-2217	1	OUTLET BODY		
7	VHPC-2221	1	LOCK NUT		
* 8	O-E-025	2	O-RING		
9	VHPC-2216	1	CYLINDER		
10	04009-1	1	PISTON SPRING		
11	03069	1	3/8" SS BALL		
12	VHPC-2211	1	PISTON BODY		
* 13	VHPC-2222	1	PISTON SEAL		
14	VHPC-2212	1	SEAL RETAINER		
15	VHPC-2223	1	5/8" SS BALL		
16	VHPC-2215-B	1	INLET BODY		
* 17	O-E-013	1	O-RING		
18	50220-1	1	BUSHING BLOCK		
19	HF-12F-12J-SS	1	INLET FITTING		
20	PF-HN-04-12J-SS	1	FITTING		
21	VHPC-2224	1	PORT PLUG		
* 22	O-E-3-908	2	O-RING		
24	VHPC-2220	1	BALL STOP		
25	CM-1055	1	ADAPTER FITTING		
26	02849-16	1	MACHINE SCREW		

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING

* ASTERISKS DEPICT PARTS IN SEAL KIT



MAGNUM VENUS PLASTECH

MINI-LINK PUMP ASSEMBLY

VHPC-2200-MLM

REV. - 02/22/11 BT2
REV. A - ITEMS 17 WAS O-S-013, ITEM 23 WAS O-S-3-908 01/05/16 BT2

PUMP ASSEMBLY VHPC-2200-MLM PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	55500-1	1	HOSE FITTING
2	VHPC-2218	1	PISTON ROD
3	VHPC-2207	1	PACKING NUT
* 5	VHPC-2210	3	SEAL
6	VHPC-2217	1	OUTLET BODY
7	VHPC-2221	1	LOCK NUT
* 8	O-E-025	2	O-RING
9	VHPC-2216	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03069	1	3/8" SS BALL
12	VHPC-2211	1	PISTON BODY
* 13	VHPC-2222	1	PISTON SEAL
14	VHPC-2212	1	SEAL RETAINER
15	VHPC-2223	1	5/8" SS BALL
16	VHPC-2215-B	1	INLET BODY ASSY
* 17	O-E-013	1	O-RING
18	VHPC-3201	1	CLEVIS
19	HF-12F-12J-SS	1	INLET FITTING
20	VHPC-2224	1	PORT PLUG
* 21	O-E-3-908	2	O-RING
22	VHPC-2220	1	BALL STOP

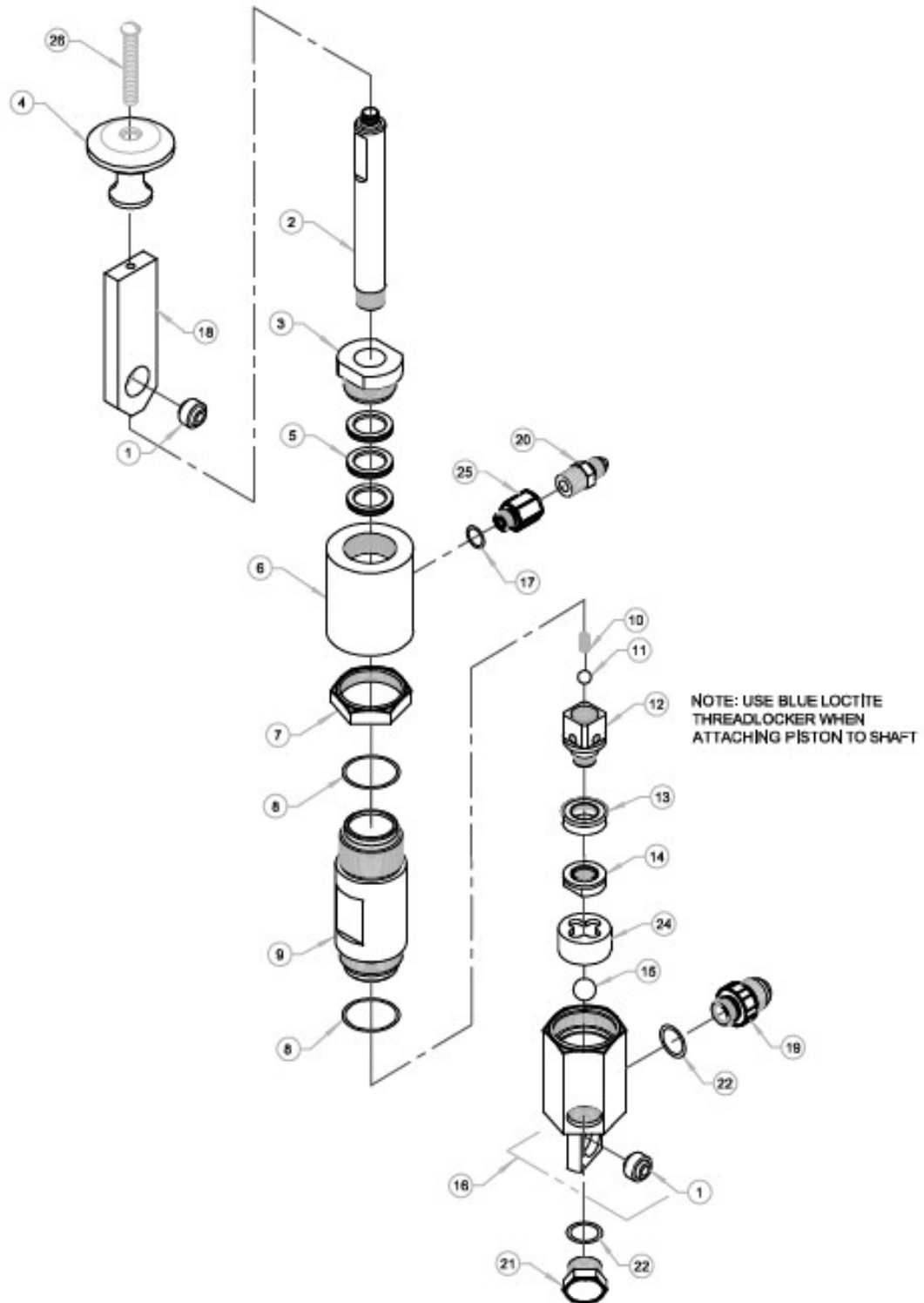
REPAIR KITS

PART NO.	DESCRIPTION
* VHPC-2200-MLM-SK	SEAL KIT

* ASTERISK DEPICTS PARTS IN SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
23	9202-1-1	1	SPHERICAL BEARING



MAGNUM VENUS PLASTECH

SLAVE PUMP ASSEMBLY

VHPC-2200-COOK

REV. - 06/13/07 BT2
 REV. A - ADDED THREADLOCKER NOTE 05/15/08 BT2
 REV. B - CORRECTED ITEM 2, ITEM 22 WAS QTY. 1 05/04/09 BT2

ASSY - SLAVE PUMP VHPC-2200-COOK
PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING
2	VHPC-2218	1	PISTON ROD
3	VHPC-2207	1	PACKING NUT
4	50100-1	1	PRIMING KNOB
★ 5	VHPC-2210	3	SEAL
6	VHPC-2217	1	OUTLET BODY
7	VHPC-2221	1	LOCK NUT
★ 8	O-E-025	2	O-RING
9	VHPC-2216	1	CYLINDER
10	04009-1	1	PISTON SPRING
11	03069	1	3/8" SS BALL
12	VHPC-2211	1	PISTON BODY
★ 13	VHPC-2222	1	PISTON SEAL
14	VHPC-2212	1	SEAL RETAINER
15	VHPC-2223	1	5/8" SS BALL
16	VHPC-2215-B	1	INLET BODY
★ 17	O-S-013	1	O-RING
18	50220-1	1	BUSHING BLOCK
19	HF-12F-08J-SS	1	INLET FITTING
20	PF-HN-04-04J-SS	1	OUTLET FITTING
21	VHPC-2224	1	PORT PLUG
★ 22	O-S-3-908	2	O-RING
24	VHPC-2220	1	BALL STOP
25	CM-1055	1	ADAPTER FITTING
26	02849-16	1	MACHINE SCREW

REPAIR KITS

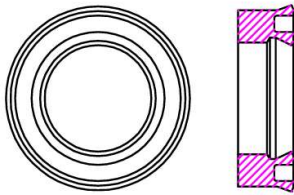
PART NO.	DESCRIPTION
★ VHPC-2200-HIS-SK	SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

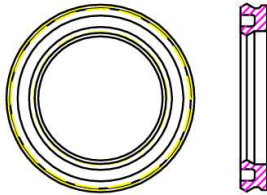
ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING

★ ASTERISKS DEPICT PARTS IN SEAL KIT

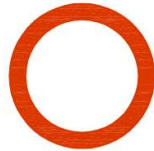
VHPC-2200-HIS-SK
SEAL KIT – CATALYST PUMP



1 PC VHPC-2222 (PISTON SEAL)



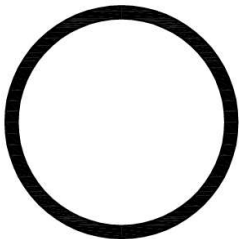
3 PC VHPC-2210 (ROD SEAL)



2 PC O-S-3-908 (INLET O-RING)

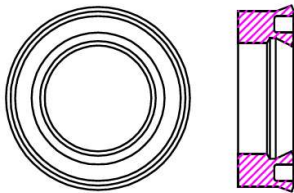


1 PC O-S-013 (OUTLET O-RING)

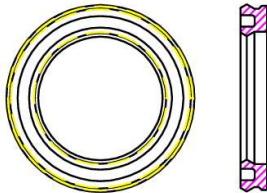


2 PC O-E-025 (CYL O-RING)

VHPC-2200-HIS-SK
SEAL KIT – CATALYST PUMP



1 PC VHPC-2222 (PISTON SEAL)



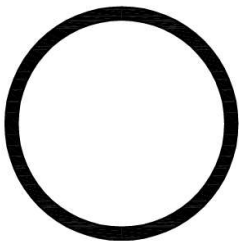
3 PC VHPC-2210 (ROD SEAL)



2 PC O-S-3-908 (INLET O-RING)

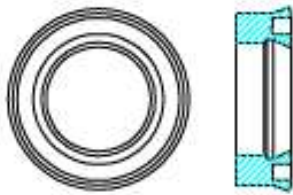


1 PC O-S-013 (OUTLET O-RING)



2 PC O-E-025 (CYL O-RING)

VHPC-2200-MLM-SK
SEAL KIT - CATALYST PUMP



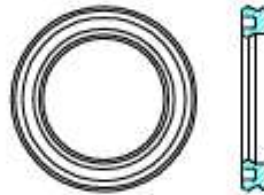
1 PC VHPC-2222 (PISTON SEAL)



2 PC O-E-3-908 (INLET O-RING)



1 PC O-E-013 (OUTLET O-RING)

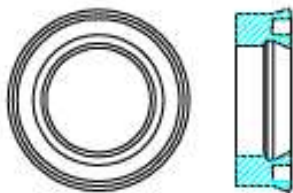


3 PC VHPC-2210 (ROD SEAL)



2 PC O-E-025 (CYL O-RING)

VHPC-2200-MLM-SK
SEAL KIT - CATALYST PUMP



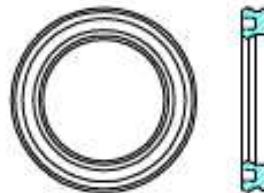
1 PC VHPC-2222 (PISTON SEAL)



2 PC O-E-3-908 (INLET O-RING)



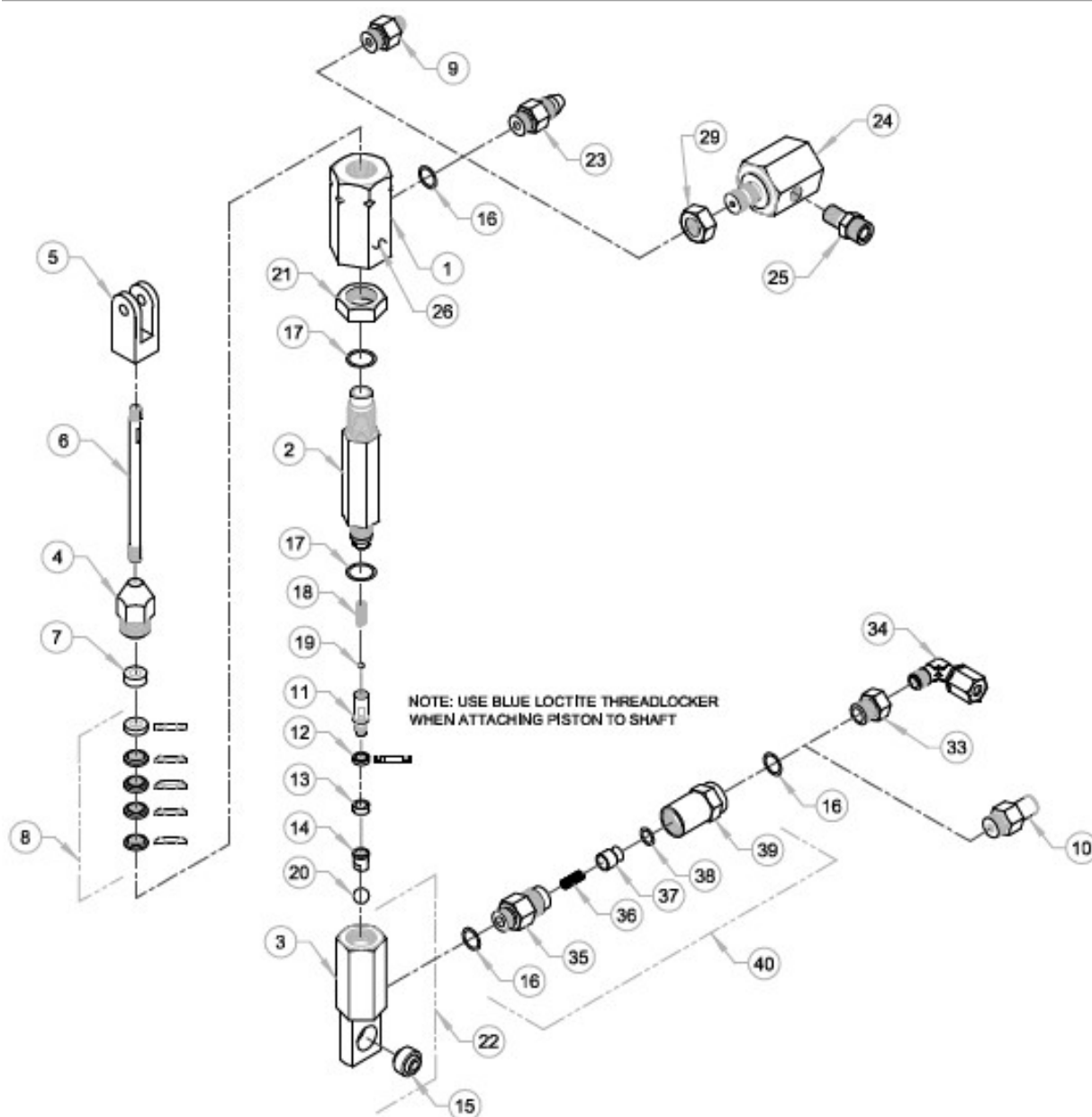
1 PC O-E-013 (OUTLET O-RING)



3 PC VHPC-2210 (ROD SEAL)



2 PC O-E-025 (CYL O-RING)



MAGNUM VENUS PLASTECH

Catalyst Pump Assy (W/Check Valve)
 Catalyst Pump Assy (For Relief Valve)
 Catalyst Pump Assy (W/Check Valve)
 Catalyst Pump Assy (W/Check Valve)

VHPC-2000
 VHPC-2000-RV
 VHPC-2000-C-3J
 VHPC-2000-C-UPS

REV. G = ITEM 25 WAS PF-HN-02-03J-SS, ITEM 38 WAS O-S-011 02/23/06 BT2
 REV. H = ADDED ITEM 26 04/14/06 BT2
 REV. I = ADDED THREADLOCKER NOTE 05/15/06 BT2
 REV. J = REINSTITUTED THE VHPC-2000 11/08/12 BT2

Catalyst Pump Assy VHPC-2000
 Catalyst Pump Assy VHPC-2000-RV
 Catalyst Pump Assy VHPC-2000-C-3J
 Catalyst Pump Assy VHPC-2000-C-UPS

COMMON ASSY PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	4101-14-1	1	OUTLET BODY
2	4101-2-1	1	CYLINDER
3	4101-7-1	1	INLET BODY
4	4101-11-1	1	PACKING NUT
5	4101-9-1	1	CLEVIS
6	4101-10-1	1	PISTON ROD
* 7	4101-12-1	1	UPPER GUIDE
* 8	4101-13-01	1	ROD PACK SPA
11	4101-4-1	1	PISTON BODY
* 12	7304-2-1	1	PISTON SEAL
* 13	4101-5-1	1	PISTON GUIDE
14	4101-6-1	1	SEAL RETAINER
15	9202-1-1	1	SPHERICAL BEARING
* 16	O-S-013	3	O-RING
* 17	O-S-014	2	O-RING
* 18	4101-3-1	1	PISTON ROD SPRING
* 19	9201-1-5	1	5/32" SS BALL
* 20	9201-1-14	1	7/16" SS BALL
21	4101-1-1	1	LOCK NUT
26	6701-24-EN	1	WARNING DECAL
35	CV-2002	1	SPRING HOUSING
36	CV-2004	1	SPRING
37	CV-2003	1	PISTON
* 38	O-S-011A	1	O-RING
39	CV-2001	1	SEAT HOUSING

ASSOCIATED PARTS AND ASSEMBLIES

22	4101-7-01	1	INLET BODY ASSEMBLY
40	CV-2000	1	CHECK VALVE ASSEMBLY

REPAIR KITS

PART NO.	DESCRIPTION
* VHPC-2000-RK	REPAIR KIT

Catalyst Pump Assy VHPC-2000
 PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
9	51700-1	1	OUTLET FITTING
10	4101-8-1	1	TUBE FITTING

Catalyst Pump Assy VHPC-2000-RV
 PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
10	4101-8-1	1	TUBE FITTING
24	RV-1021	1	ADAPTER
25	PF-HN-02-04S-SS	1	OUTLET FITTING
29	4101-18-1	1	JAM NUT

Catalyst Pump Assy VHPC-2000-C-3J
 PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
10	4101-8-1	1	TUBE FITTING
23	51501-1	1	OUTLET FITTING

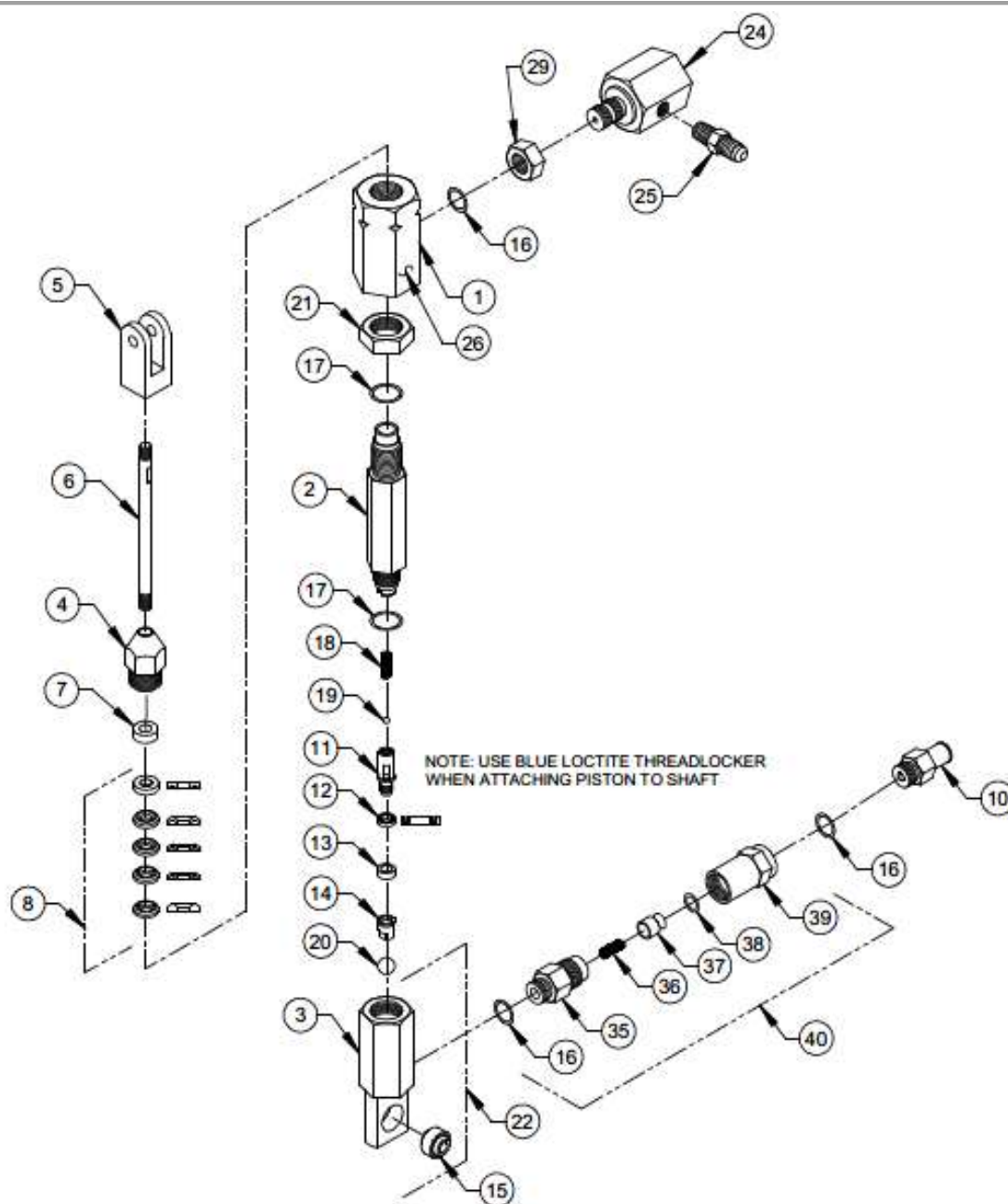
Catalyst Pump Assy VHPC-2000-C-UPS
 PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
23	51501-1	1	OUTLET FITTING
33	VHPC-1003	1	INLET FITTING
34	MS-2053	1	ELBOW

FIGURE 1-1



Note:
 Offset intake and outlet ports
 one flat on hex as shown in
 figure 1-1



MAGNUM VENUS PLASTECH

Catalyst Pump (For Relief Valve) -International

VHPC-2000-RV-INT

REV. 02/23/06 BT2
 REV. A = ADDED ITEM 26 04/14/06 BT2
 REV. B = ADDED THREADLOCKER NOTE 05/15/08 BT2

Catalyst Pump Assy VHPC-2000-RV-INT

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	4101-14-1	1	OUTLET BODY
2	4101-2-1	1	CYLINDER
3	4101-7-1	1	INLET BODY
4	4101-11-1	1	PACKING NUT
5	4101-9-1	1	CLEVIS
6	4101-10-1	1	PISTON ROD
★ 7	4101-12-1	1	UPPER GUIDE
★ 8	4101-13-01	1	ROD PACK SPA
10	4101-8-1	1	TUBE FITTING
11	4101-4-1	1	PISTON BODY
★ 12	7304-2-1	1	PISTON SEAL
★ 13	4101-5-1	1	PISTON GUIDE
14	4101-6-1	1	SEAL RETAINER
15	9202-1-1	1	SPHERICAL BEARING
16	O-S-013	3	O-RING
★ 17	O-S-014	2	O-RING
★ 18	4101-3-1	1	PISTON ROD SPRING
★ 19	9201-1-5	1	5/32" SS BALL
★ 20	9201-1-14	1	7/16" SS BALL
21	4101-1-1	1	LOCK NUT
24	RV-1021	1	ADAPTER
25	PF-HN-02-03J-SS	1	OUTLET FITTING
26	6701-24-EN	1	WARNING DECAL
29	4101-18-1	1	JAM NUT
★ 35	CV-2002	1	SPRING HOUSING
36	CV-2004	1	SPRING
37	CV-2003	1	PISTON
★ 38	O-S-011A	1	O-RING
39	CV-2001	1	SEAT HOUSING

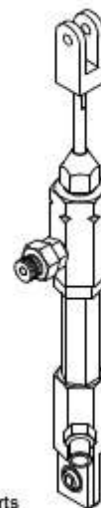
ASSOCIATED PARTS AND ASSEMBLIES

22	4101-7-01	1	INLET BODY ASSEMBLY
40	CV-2000	1	CHECK VALVE ASSEMBLY

REPAIR KITS

PART NO.	DESCRIPTION
★ VHPC-2000-RK	REPAIR KIT













FIGURE 1-1















Note:

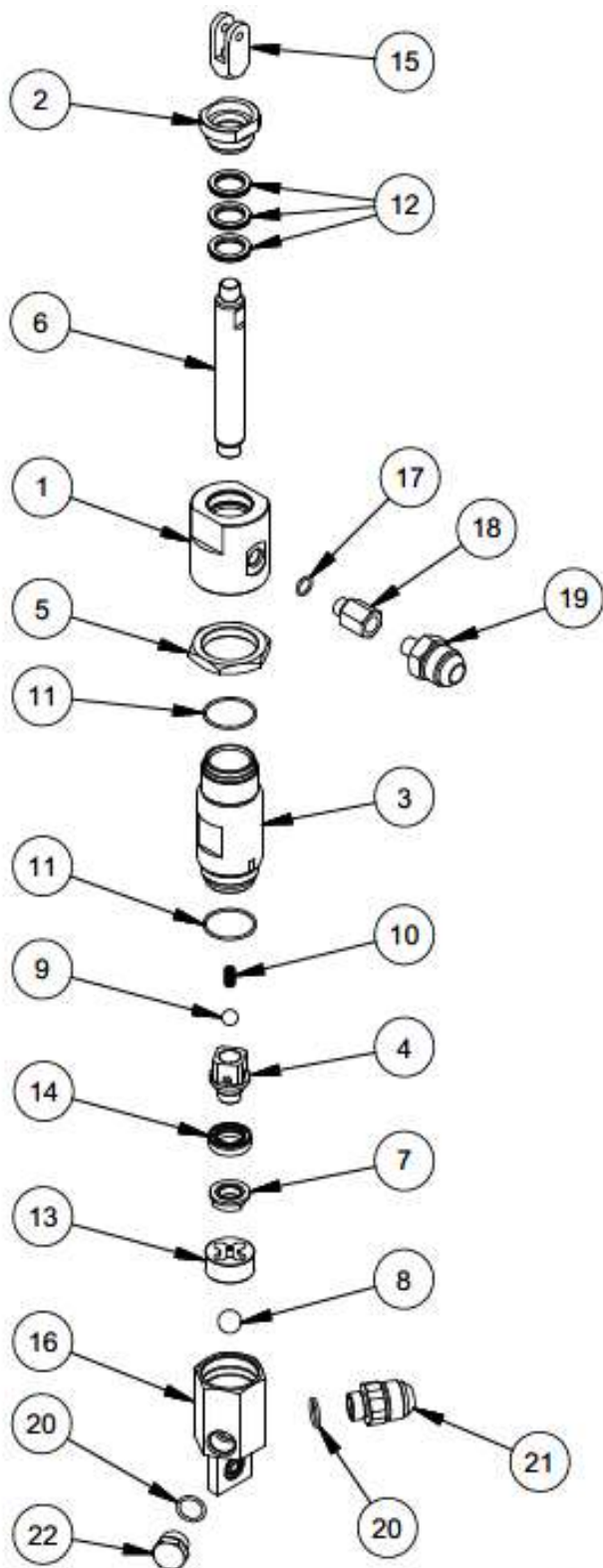
Offset intake and outlet ports
one flat on hex as shown in
figure 1-1

VHPC-2000-RK
METERING PUMP REPAIR KIT

1 PC		9201-1-5 5/32 SS BALL
1 PC		9201-1-14 7/16 SS BALL
1 PC		4101-5-1 PISTON GUIDE
1 PC		7304-2-1 PISTON SEAL
1 PC		4101-12-1 UPPER GUIDE
1 PCS		O-S-011A O-RING
3 PCS		O-S-013 O-RING
2 PCS		O-S-014 O-RING
1 PC		4101-13-01 (1 SET) PACKING SET ASSY
3 PCS		
1 PC		
1 PC		4101-3-1 PISTON ROD SPRING

VHPC-2000-RK
METERING PUMP REPAIR KIT

1 PC		9201-1-5 5/32 SS BALL
1 PC		9201-1-14 7/16 SS BALL
1 PC		4101-5-1 PISTON GUIDE
1 PC		7304-2-1 PISTON SEAL
1 PC		4101-12-1 UPPER GUIDE
1 PCS		O-S-011A O-RING
3 PCS		O-S-013 O-RING
2 PCS		O-S-14 O-RING
1 PC		4101-13-01 (1 SET) PACKING SET ASSY
3 PCS		
1 PC		
1 PC		4101-3-1 PISTON ROD SPRING



MAGNUM VENUS PLASTECH

MICROPRO/MINI LINK PUMP	VHPC-1200
-------------------------	-----------

REV:

SHEET 1 / 2

9/21/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	VHPC-1217	1	OUTLET BODY
2	VHPC-1207	1	PACKING NUT
3	VHPC-1216	1	CYLINDER
4	VHPC-1211	1	PISTON BODY
5	VHPC-1221	1	LOCK NUT
6	VHPC-1218	1	PISTON ROD
7	VHPC-1212	1	SEAL RETAINER
8	VHPC-2223	1	5/8 SS BALL
9	9201-1-14	1	SS BALL Ø7/16
10	04009-1	1	PISTON SPRING - C32
* 11	O-E-027	2	O-RING
* 12	VHPC-1210	3	ROD SEAL ASSY
13	VHPC-1220	1	BALL CAGE
* 14	VHPC-1222	1	PISTON SEAL ASSY
15	VHPC-1201	1	CLEVIS
16	VHPC-1215-B	1	INLET BODY
* 17	O-S-013	1	O-RING
18	CM-1055	1	FITTING
19	PF-HN-04-12J-SS	1	ADAPTER
* 20	O-S-3-908	2	O-RING
21	HF-12F-12J-SS	1	HOSE ADAPTER
22	VHPC-2224	1	PLUG

REPAIR KITS

PART No.	DESCRIPTION
* VHPC-1200-SK	SEAL KIT

* NOTE: ASTERISKS DENOTE PARTS USED IN SEAL KIT

MAGNUM VENUS PLASTECH

MICROPRO/MINI LINK PUMP

VHPC-1200

REV:

SHEET 2 / 2

9/21/2010

VHPC-1200-SK
SEAL KIT – MICROPRO/MINI LINK PUMP



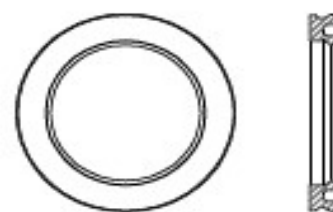
1 PC VHPC-1222 (PISTON SEAL)



2 PC O-S-3-908 (INLET O-RING)



1 PC O-S-013 (OUTLET O-RING)



3 PC VHPC-1210 (ROD SEAL)



2 PC O-E-027 (CYL O-RING)

VHPC-1200-SK
SEAL KIT – MICROPRO/MINI LINK PUMP



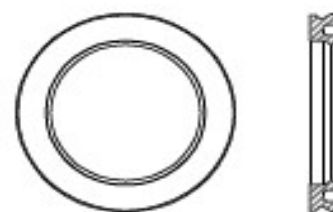
1 PC VHPC-1222 (PISTON SEAL)



2 PC O-S-3-908 (INLET O-RING)



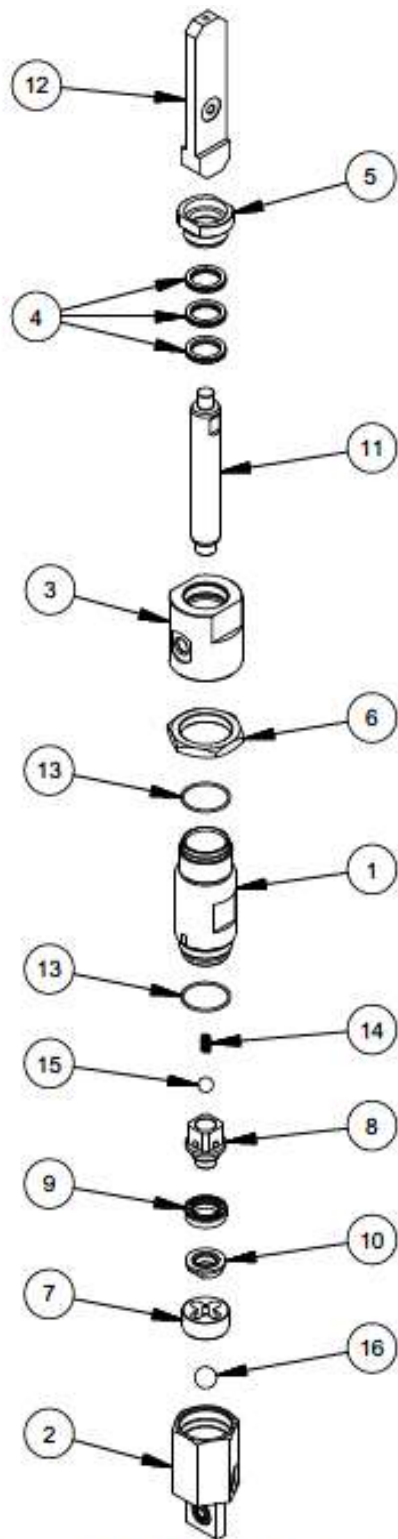
1 PC O-S-013 (OUTLET O-RING)



3 PC VHPC-1210 (ROD SEAL)



2 PC O-E-027 (CYL O-RING)



USE BLUE LOCTITE 242 THREADLOCKER (OR EQUIVALENT) WHEN ATTACHING PISTON TO PISTON ROD. TORQUE DOWN TO 40 FT-LBS.

MAGNUM VENUS PLASTECH

PUMP ASSEMBLY

VHPC-1100

REV:C 08/18/16

SHEET 1 / 2

11/6/2012

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1 VHPC-1116	1	CYLINDER
	2 VHPC-1215-B	1	INLET BODY
	3 VHPC-1117	1	OUTLET BODY
*	4 VHPC-1110	3	ROD SEAL ASSY
	5 VHPC-1107	1	PACKING NUT
	6 VHPC-1221	1	LOCK NUT
	7 VHPC-1220	1	BALL CAGE
	8 VHPC-1111	1	PISTON BODY
*	9 VHPC-1122	1	PISTON SEAL ASSY
	10 VHPC-1112	1	SEAL RETAINER
	11 VHPC-1118	1	PISTON ROD
	12 VHPC-1123-01	1	BUSHING BLOCK ASSEMBLY
*	13 O-E-027	2	O-RING
	14 04009-1	1	PISTON SPRING - C32
	15 9201-1-14	1	SS BALL $\varnothing 7/16$
	16 VHPC-2223	1	5/8 SS BALL

REPAIR KIT

* VHPC-1100-SK (ASTERISKS DENOTE PARTS IN KIT)

MAGNUM VENUS PLASTECH

PUMP ASSEMBLY

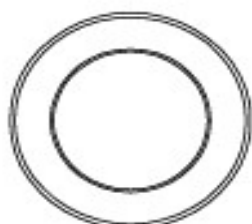
VHPC-1100

REV:C 08/18/16

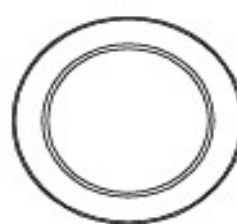
SHEET 2 / 2

11/6/2012

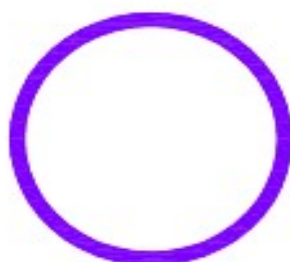
VHPC-1100-SK
SEAL KIT



1 PC VHPC-1122 (PISTON SEAL)

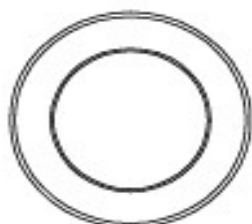


3 PC VHPC-1110 (ROD SEAL)

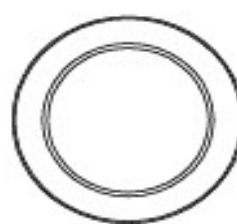


2 PC O-E-027 (CYL O-RING)

VHPC-1100-SK
SEAL KIT



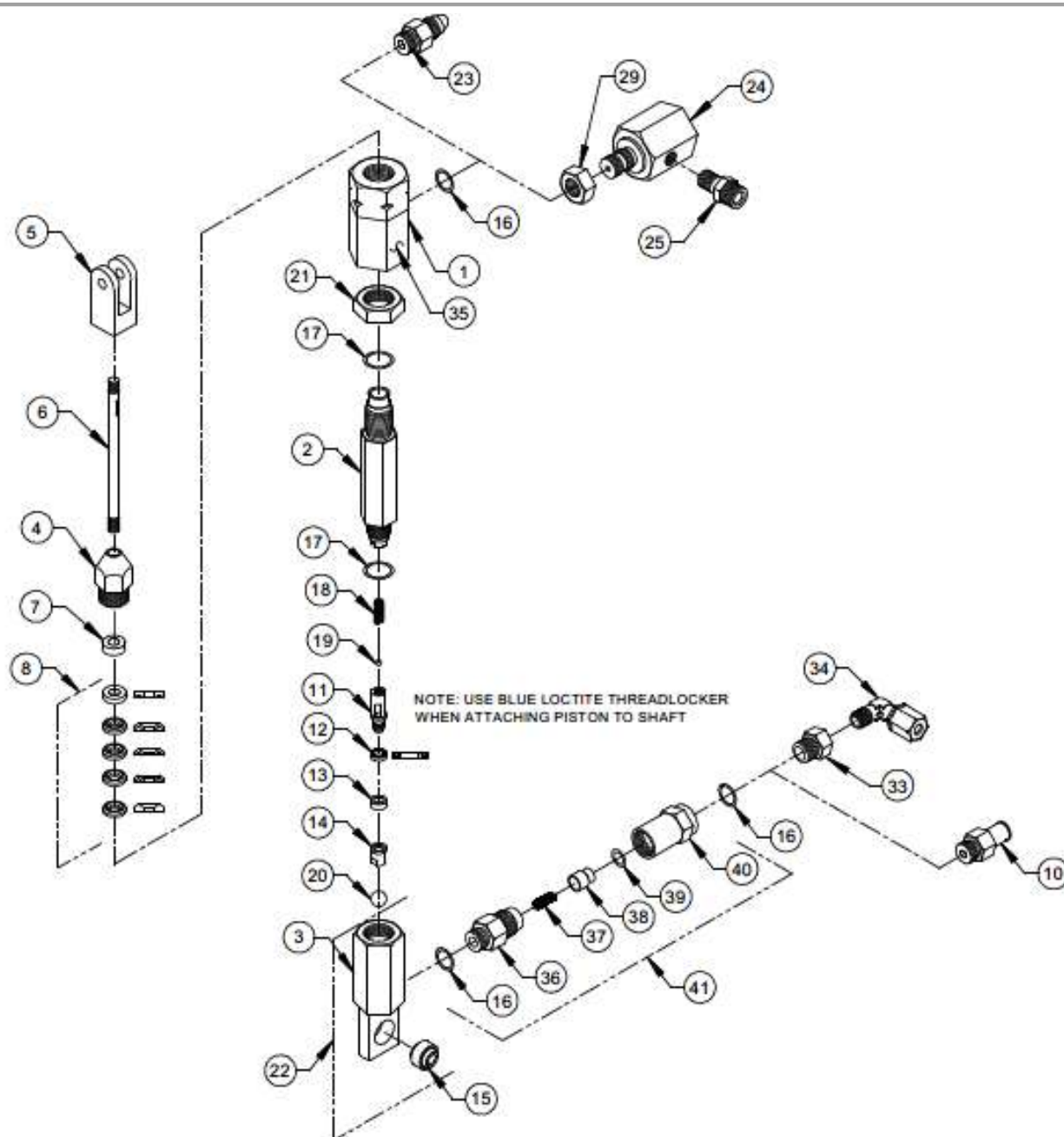
1 PC VHPC-1122 (PISTON SEAL)



3 PC VHPC-1110 (ROD SEAL)



2 PC O-E-027 (CYL O-RING)



MAGNUM VENUS PLASTECH

Catalyst Pump Assy (For Relief Valve)
Catalyst Pump Assy (W/Check Valve)
Catalyst Pump Assy (W/Check Valve)

VHPC-1000-RV
VHPC-1000-C-3J
VHPC-1000-C-UPS

REV. G = ADDED ITEM 40 CV-2000 TO DWG. 12/21/05 JEM
REV. H = DELETED VHPC-1000, VHPC-1000-3J, AND VHPC-1000-UPS FROM DRAWING 01/06/06 BT2
REV. I = ITEM 25 PF-HN-02-03J-SS, ITEM 39 WAS O-S-011 02/23/06 BT2
REV. J = ADDED THREADLOCKER NOTE 05/14/08 BT2

Catalyst Pump Assy VHPC-1000-RV
Catalyst Pump Assy VHPC-1000-C-3J
Catalyst Pump Assy VHPC-1000-C-UPS

COMMON ASSY PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	4101-14-1	1	OUTLET BODY
2	4102-6-1	1	CYLINDER
3	4101-7-1	1	INLET BODY
4	4102-3-1	1	PACKING NUT
5	4102-1-1	1	CLEVIS
6	4102-2-1	1	PISTON ROD
* 7	4102-4-1	1	UPPER GUIDE
* 8	4102-5-01	1	PISTON ROD PACK SPA
11	4102-7-1	1	PISTON BODY
* 12	7304-1-1	1	PISTON SEAL
* 13	4102-8-1	1	PISTON GUIDE
14	4102-9-1	1	SEAL RETAINER
15	9202-1-1	1	SPHERICAL BEARING
* 16	O-S-013	3	O-RING
* 17	O-S-014	2	O-RING
* 18	4101-3-1	1	PISTON ROD SPRING
* 19	9201-1-5	1	5/32" SS BALL
* 20	9201-1-14	1	7/16" SS BALL
21	4101-1-1	1	LOCK NUT
35	6701-24-EN	1	WARNING DECAL
36	CV-2002	1	SPRING HOUSING
37	CV-2004	1	SPRING
38	CV-2003	1	PISTON
* 39	O-S-011A	1	O-RING
40	CV-2001	1	SEAT HOUSING

Catalyst Pump Assy VHPC-1000-C-UPS PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
23	51501-1	1	OUTLET FITTING
33	VHPC-1003	1	INLET FITTING
34	MS-2053	1	ELBOW

ASSOCIATED PARTS AND ASSEMBLIES

22	4101-7-01	1	INLET BODY ASSEMBLY
41	CV-2000	1	CHECK VALVE ASSY

REPAIR KITS

PART NO.	DESCRIPTION
* VHPC-1000-RK	REPAIR KIT

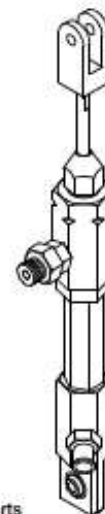
Catalyst Pump Assy VHPC-1000-RV PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
10	4101-8-1	1	INLET TUBE FITTING
24	RV-1021	1	ADAPTER
25	PF-HN-02-04S-SS	1	FITTING
29	4101-18-1	1	JAM NUT

Catalyst Pump Assy VHPC-1000-C-3J PARTS LIST













ITEM	PART NO.	QTY	DESCRIPTION
10	4101-8-1	1	INLET TUBE FITTING
23	51501-1	1	OUTLET FITTING

FIGURE 1-1















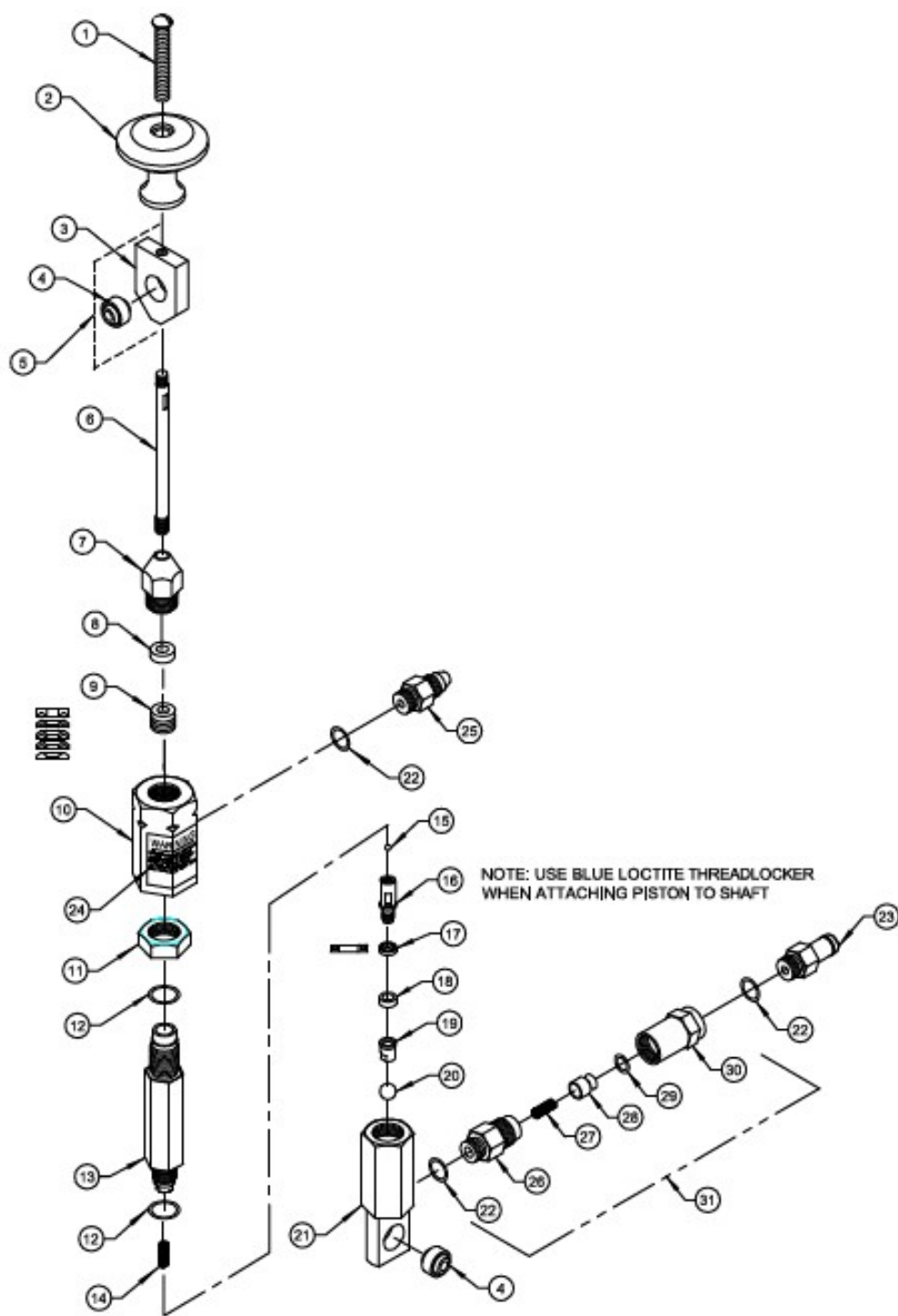
Note:
Offset intake and outlet ports
one flat on hex as shown in
figure 1-1

VHPC-1000-RK
METERING PUMP REPAIR KIT

1 PC		9201-1-5 5/32 SS BALL
1 PC		9201-1-14 7/16 SS BALL
1 PC		4102-8-1 PISTON GUIDE
1 PC		7304-1-1 PISTON SEAL
1 PC		4102-4-1 UPPER GUIDE
1 PCS		O-S-011A O-RING
3 PCS		O-S-013 O-RING
2 PCS		O-S-014 O-RING
1 PC		PACKING SET ASSY 4102-5-01 (1 SET)
3 PCS		
1 PC		
1 PC		4101-3-1 PISTON ROD SPRING

VHPC-1000-RK
METERING PUMP REPAIR KIT

1 PC		9201-1-5 5/32 SS BALL
1 PC		9201-1-14 7/16 SS BALL
1 PC		4102-8-1 PISTON GUIDE
1 PC		7304-1-1 PISTON SEAL
1 PC		4102-4-1 UPPER GUIDE
1 PCS		O-S-011A O-RING
3 PCS		O-S-013 O-RING
2 PCS		O-S-014 O-RING
1 PC		PACKING SET ASSY 4102-5-01 (1 SET)
3 PCS		
1 PC		
1 PC		4101-3-1 PISTON ROD SPRING



MAGNUM VENUS PLASTECH

CATALYST PUMP ASSEMBLY

VHPC-7200-C-3J

REV. A - UPDATED DWG 8/18/02 JEM
 REV. B - ADDED ITEM 31 TO DWG CV-2000 12/21/025 JEM
 REV. C - DELETED THE UPPER CHECK VALVE, ADDED ITEM 25 01/08/06 BT2
 REV. D - ADDED THREADLOCKER NOTE 05/15/08 BT2

CATALYST PUMP ASSY VHPC-7200-C-3J**PARTS LIST**

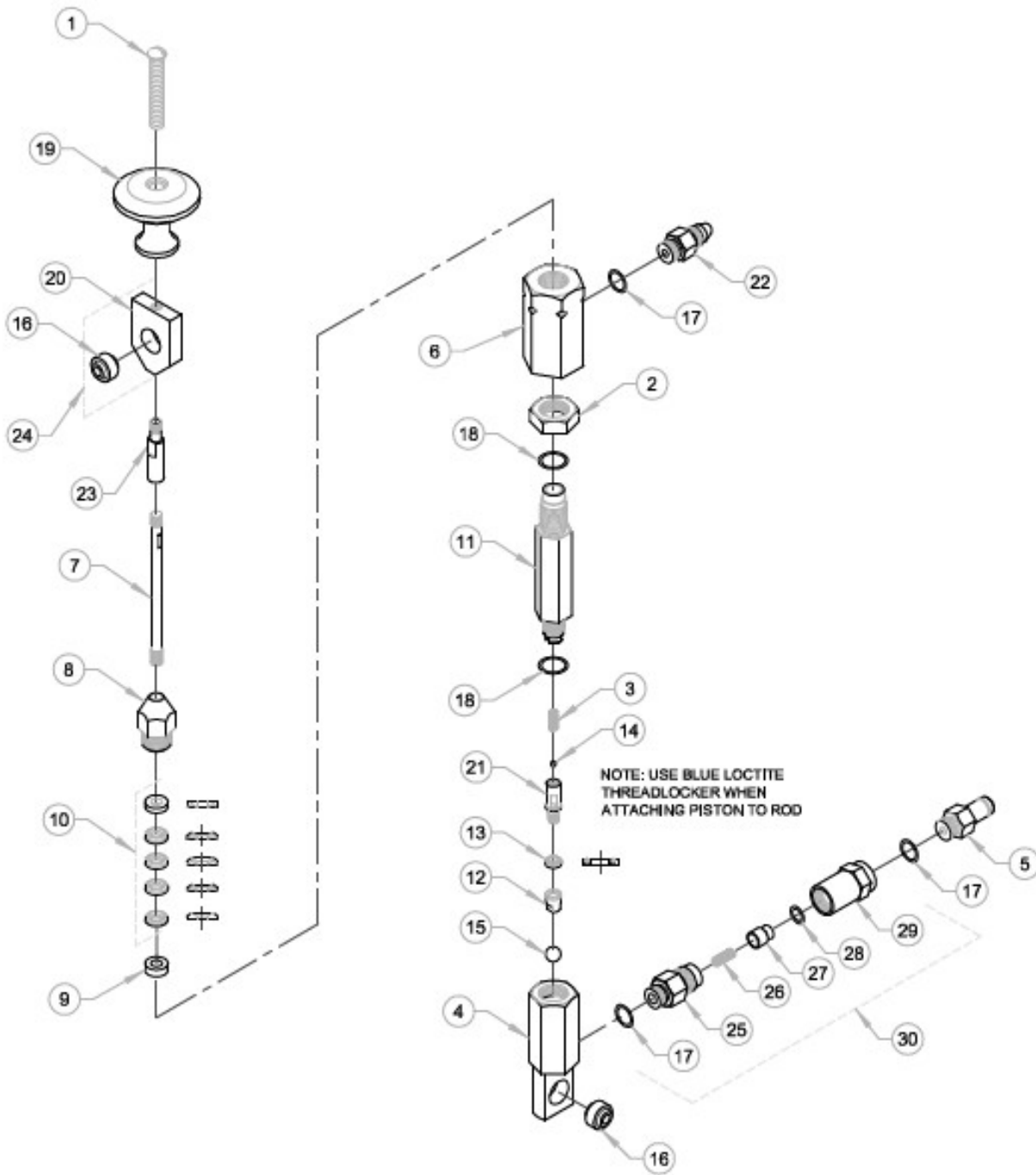
ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	MACHINE SCREW
2	50100-1	1	PRIMING KNOB
3	50210-1	1	BUSHING BLOCK
4	9202-1-1	2	SPHERICAL BEARING
6	4102-2-1	1	PISTON ROD
7	4102-3-1	1	PACKING NUT
8	4102-4-1	1	UPPER GUIDE
9	4102-5-01	1	PACKING SET ASSY
10	4101-14-1	1	OUTLET BODY
11	4101-1-1	1	LOCK NUT
12	O-S-014	2	O-RING
13	4102-6-1	1	CYLINDER
14	4101-3-1	1	PISTON ROD SPRING
15	9201-1-5	1	5/32" SS BALL
16	4102-7-1	1	PISTON BODY
17	7304-1-1	1	PISTON SEAL
18	4102-8-1	1	PISTON GUIDE
19	4102-9-1	1	SEAL RETAINER
20	9201-1-14	1	7/16" SS BALL
21	4101-7-1	1	INLET BODY
22	O-S-013	3	O-RING
23	4101-8-1	1	INLET TUBE FITTING
24	6701-24-EN	1	PUMP SEAL WARNING DECAL
25	51501-1	1	OUTLET FITTING
26	CV-2002	1	SPRING HOUSING
27	CV-2004	1	SPRING
28	CV-2003	1	PISTON
29	O-S-011A	1	O-RING
30	CV-2001	1	SEAT HOUSING

REPAIR KITS

PART NO.	DESCRIPTION
VHPC-1000-RK	REPAIR KIT

OPTIONAL PARTS & ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
5	50210-3	1	ASSY - BUSHING BLOCK
31	CV-2000	1	CHECK VALVE ASSY



MAGNUM VENUS PLASTECH

Putty High Pressure Catalyst Pump - BPO PHPC-7200-B

REV. 7/3/03 JEM
 REV. A - ADDED CV-2000 AND ALL OF ITS COMPONENTS
 REV. B - ITEM 28 WAS O-S-011 03/09/06 BT2
 REV. C - ADDED THREADLOCKER NOTE 02/20/14 BT2

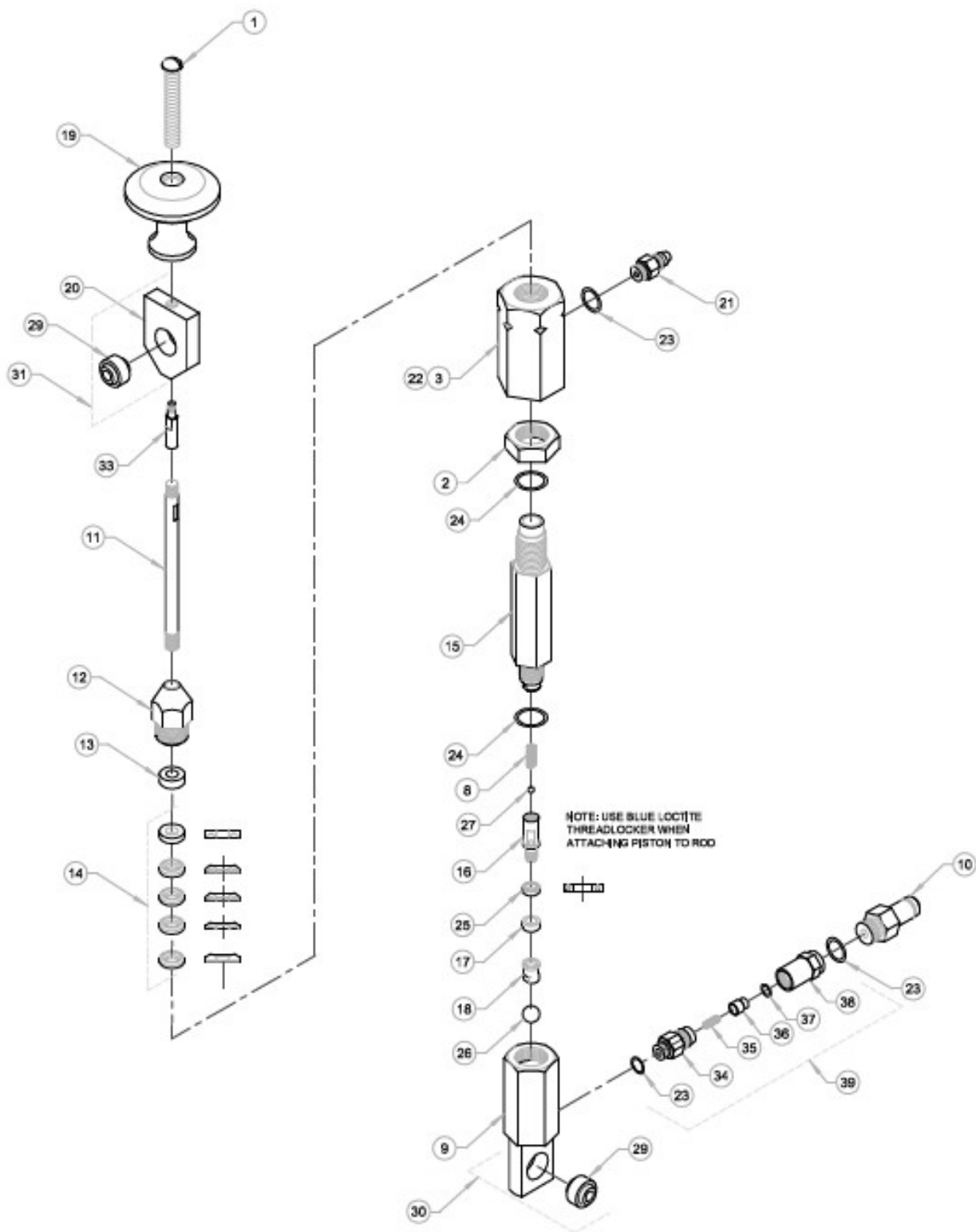
Putty High Pressure Catalyst Pump PHPC-7200-B

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	MACHINE SCREW
2	4101-1-1	1	LOCK NUT
3	4101-3-1	1	SPRING
4	4101-7-1	1	INLET BODY
5	4101-8-1	1	TUBE FITTING
6	4101-14-1	1	OUTLET BODY
7	4102-2-1	1	PISTON ROD
8	4102-3-1	1	PACKING NUT
9	4102-4-1	1	UPPER GUIDE
10	4102-5-01	1	PACKING SET(4 PCS)
11	4102-6-1	1	CYLINDER
12	4102-9-1	1	SEAL RETAINER
13	7304-1-1	1	PISTON SEAL
14	9201-1-5	1	BALL
15	9201-1-14	1	BALL
16	9202-1-1	2	BEARING
17	O-S-013	3	O-RING
18	O-S-014	2	O-RING
19	50100-1	1	PRIMING KNOB
20	50210-1	1	BUSHING BLOCK
21	50410-1	1	PISTON BODY
22	51501-1	1	NIPPLE
23	CCP-1004	1	PISTON ROD EXTENSION
25	CV-2002	1	SPRING HOUSING
26	CV-2004	1	SPRING
27	CV-2003	1	PISTON
28	O-S-011A	1	O-RING
29	CV-2001	1	SEAT HOUSING

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
24	50210-3	1	BUSHING BLOCK ASSY
30	CV-2000	1	CHECK VALVE



MAGNUM VENUS PLASTECH

ASSEMBLY - PUTTY CATALYST PUMP - MEKP

PHPC-7200-M

REV. B = DELETED ITEMS 5, 6, 7, 32, ITEM 21 WAS 51704-1, ADDED CV-2000 AND ALL OF ITS COMPONENTS
 REV. C = ITEM 37 WAS O-S-011 03/08/06 BT2
 REV. D = ITEM 24 WAS 7301-9-014 03/03/11 BT2
 REV. E = ADDED THREADLOCKER NOTE 02/20/14 BT2

PUTTY CATALYST PUMP - MEKP PHPC-7200-M**REPAIR KITS****PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	02849-16	1	SLOTTED MACHINE SCREW
2	4101-1-1	1	LOCKNUT
3	4101-14-1	1	OUTLET BODY
8	4101-3-1	1	PISTON ROD SPRING
9	4101-7-1	1	INLET BODY
10	4101-8-1	1	INLET TUBE FITTING
11	4102-2-1	1	PISTON ROD
12	4102-3-1	1	PACKING NUT
13	4102-4-1	1	UPPER GUIDE
14	4102-5-01	1	PACKING SET SPA
15	4102-6-1	1	CYLINDER
16	4102-7-1	1	PISTON BODY
17	4102-8-1	1	PISTON GUIDE
18	4102-9-1	1	SEAL RETAINER
19	50100-1	1	PRIMING KNOB
20	50210-1	2	BEARING BLOCK
21	51501-1	1	OUTLET FITTING
22	6701-24-EN	1	PUMP SEAL WARNING LABEL
23	O-S-013	3	O - RING
24	O-S-014	2	O - RING
25	7304-1-1	1	PISTON SEAL
26	9201-1-14	1	7/16" SS BALL
27	9201-1-5	1	5/32" SS BALL
29	9202-1-1	2	SPHERICAL BEARING
33	CCP-1004	1	PISTON ROD EXTENSION
34	CV-2002	1	SPRING HOUSING
35	CV-2004	1	SPRING
36	CV-2003	1	PISTON
37	O-S-011A	1	O-RING
38	CV-2001	1	SEAT HOUSING

PART NO.	DESCRIPTION
VHPC-1000-RK	REPAIR KIT

OPTIONAL PARTS & ASSEMBLIES

30	4101-7-01	1	INLET BODY W/ BEARING
31	50210-3	1	BEARING BLOCK W/ BEARING
39	CV-2000	1	CHECK VALVE



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