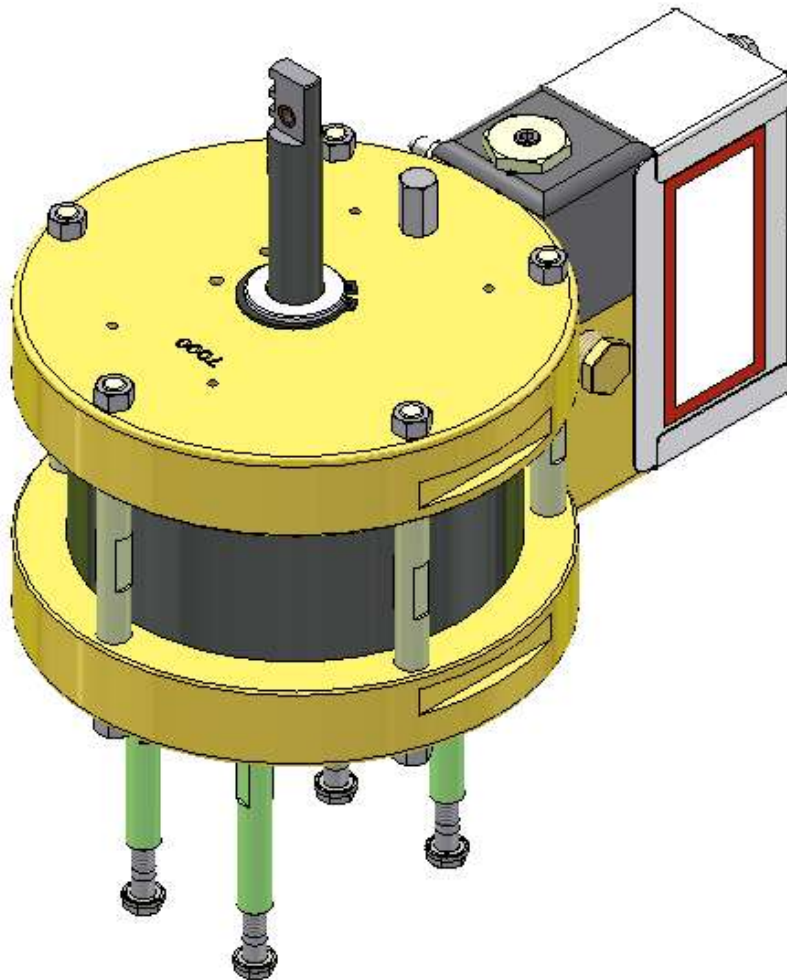


# Patriot Powerhead

## Component Manual

This manual is applicable to the following models:

- PAT-PH-3250
- PAT-PH-3250-INV
- PAT-PH-4250
- PAT-PH-5000
- PAT-PH-5000-CA
- PAT-PH-5000-SSB
- PAT-PH-5000-INV
- PAT-PH-5000-XD
- PAT-PH-7000
- PAT-PH-7000-CA
- PAT-PH-7000-D
- PAT-PH-7000-HD
- PAT-PH-7000-P
- PAT-PH-10000



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# Safety & Warning Information

## Warnings

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

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

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

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

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

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

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

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

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

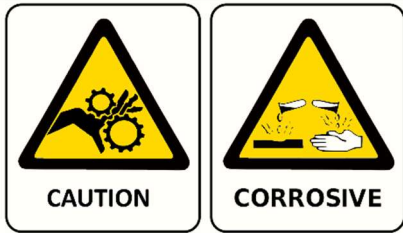
## Safety Precautions

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



**Physical Hazards**

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



**Personal Protective Equipment (PPE)**

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



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

## Symbol Definitions



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



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



Indicates that the materials being used are susceptible to combustion.



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



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



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



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



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

## Polymer Matrix Materials: Advanced Composites

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

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

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

## Catalyst - Methyl Ethyl Ketone Peroxide (MEKP)

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



### **WARNING**

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

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

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

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

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

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

## Clean-Up Solvents and Resin Diluents



### **WARNING**

***A hazardous situation may be present in your pressurized fluid system! 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 Hydrocarbon solvents. Some Magnum Venus Products spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon solvents.***

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

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

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



### **WARNING**

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

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

## Catalyst Diluents

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



### **WARNING**

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

## Cured Laminate, Overspray and Laminate Sandings Accumulation

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

To prevent spillage and leakage, you should:

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

## Toxicity of Chemicals

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

## Equipment Safety

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



### CAUTION

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



### DANGER

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



### DANGER

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

## Treatment of Chemical Injuries



### CAUTION

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

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

**Precautions include:**

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

**WARNING**

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

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

**Emergency Stop Procedure**

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

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

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

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

**Grounding**

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

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

**CAUTION**

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

## Introduction

This manual provides information for the maintenance and simple repair of the MVP Patriot Powerhead. The following procedures are included:

- Step-by-step assembly and disassembly
- Parts information



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.

**Note**     ***The Duo unit is also a heavy duty assembly.***

**WARNING**

***Before beginning any service work, release all fluid and air pressure from the system and remove the air lines from the motor. You do not need to completely remove the air motor from the system for service.***

As you disassemble the equipment, lay out the components in the correct order and direction to assist with reassembly. Reassembly will require the use of removable thread lock compound, lithium grease, and SUPERLUBE O-ring lubricant. Reference the current parts drawing during repair to ensure you have a guide and the correct part numbers.

## Requirements

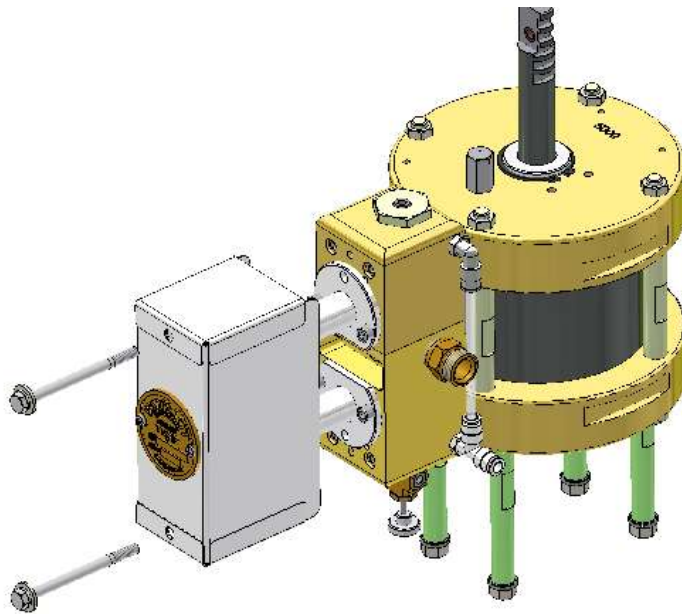
You will need the following:

- Medium removable thread locking compound
- Brown grease
- Super O-ring lubricant (SUPERLUBE)
- $7/16$ ” socket wrench

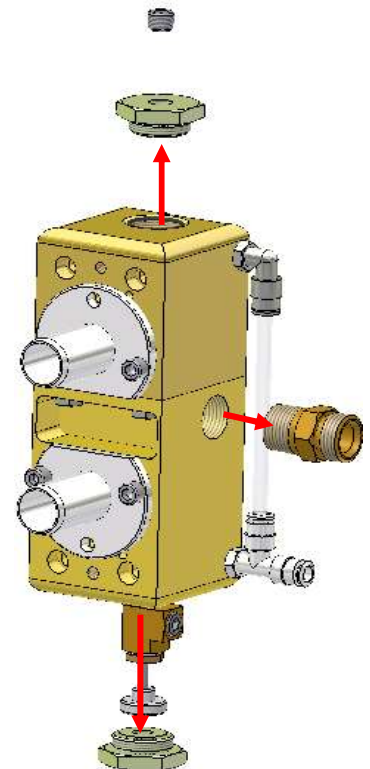
- Hex wrench set
- $\frac{9}{16}$ " wrench
- 12" adjustable wrench
- Flat head screwdriver
- Snap-ring pliers

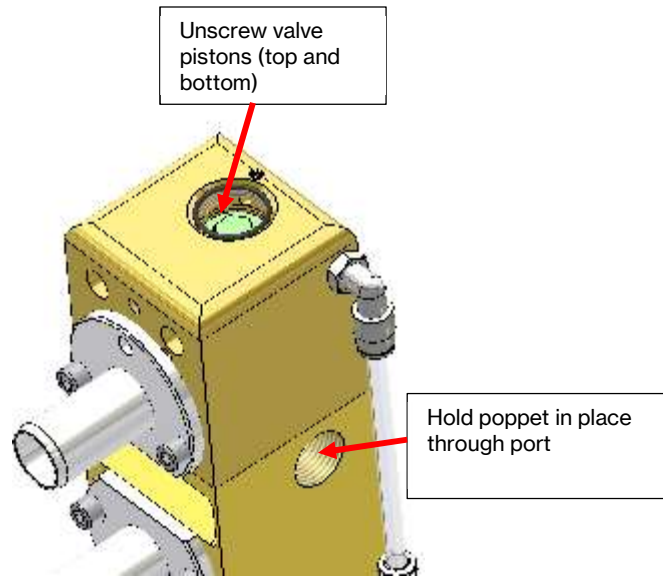
## Disassembling Valve Block

1. Remove the two hex head screws from the front of the muffler and remove the muffler from the side of the powerhead.

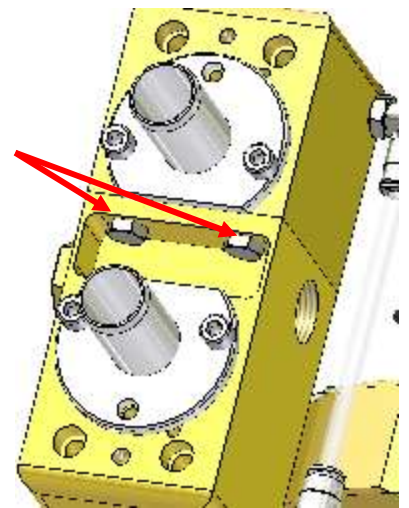


2. Remove the air line from the side of the valve block.
3. Remove the valve block from the side of the powerhead by removing the screws.
4. Remove the two end caps from the valve block.
5. Remove the pipe plug from the side of the lower valve block.
6. Rotate either the two valve pistons until the hole in the valve poppet aligns with the pipe plug port in the lower valve block.
7. Insert a hex wrench through the pipe plug port and into the hole in the valve poppet.
8. Unscrew the valve pistons while the hex wrench holds the poppet in place.





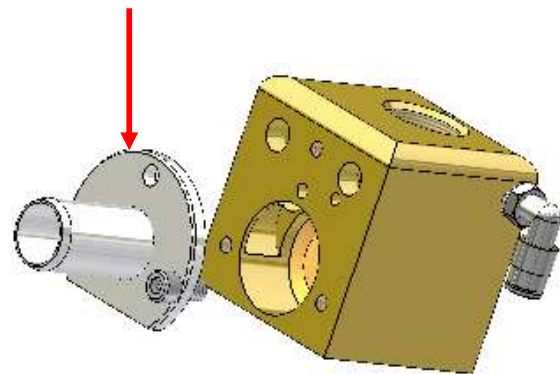
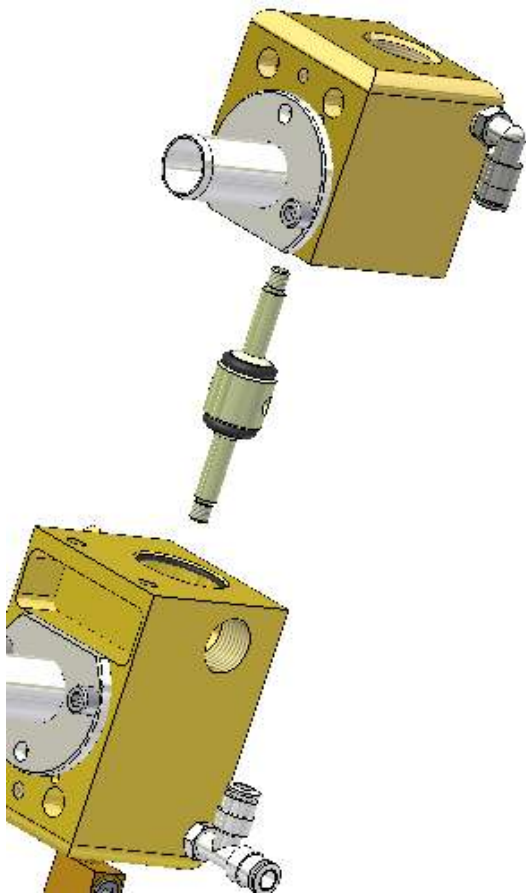
- Using an open-end wrench, remove the two hex cap screws from the front of the lower valve block.



- Twist and pull the upper valve block from the lower valve block.

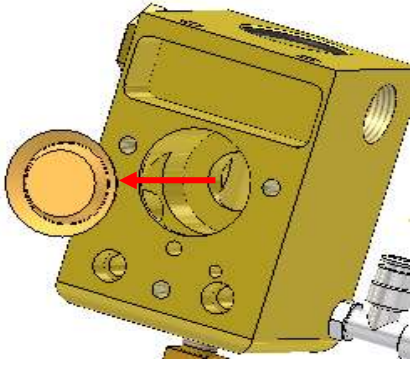
- Remove the valve rod assembly from the valve block.

- Remove the two cap screws from each of the valve exhausts and pull the valve exhausts off the valve blocks.



- Use a screwdriver to push the center riser on each diaphragm to one side then remove the diaphragm from each of the valve blocks.

**Note**      **Avoid scratching the valve blocks.**

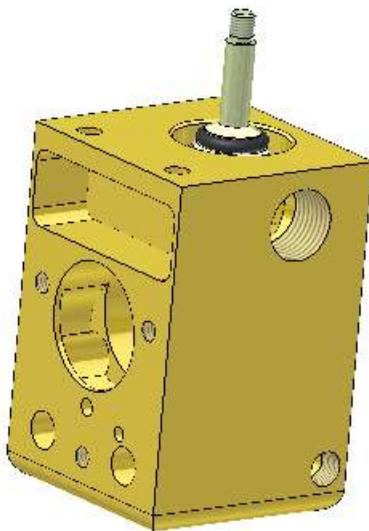


14. Remove each O-ring and replace with a new one, coating each new O-ring with brown grease.
15. Coat the diaphragm bore and both valve piston bores with brown grease.
16. Use a wire brush to clean the valve rod threads of any dry thread locking compound.

## Reassembling Valve Block

**Note**     *Replace all O-rings and seals you remove with new ones from the seal kit. Apply brown grease to all O-rings and seal areas before assembling.*

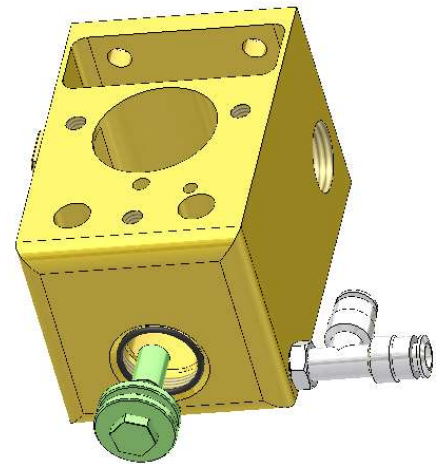
1. Apply one to two drops of removable thread locking compound to the threads of the valve poppet and reassemble.
2. Push the valve piston all the way into the lower valve block.
3. Apply a small amount of removable thread locking compound to the threads on one end of the valve poppet and thread it into the valve piston in the lower block while holding the valve piston in place.



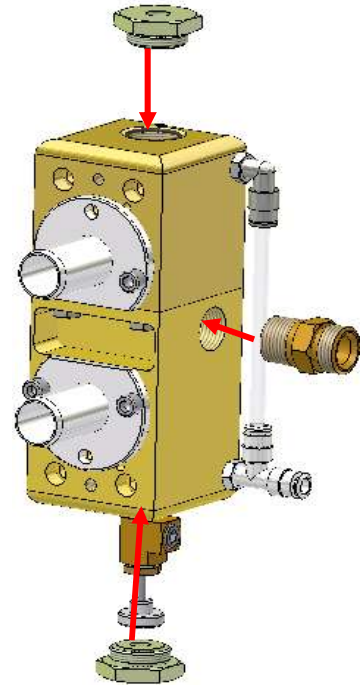
4. Turn the valve poppet in the lower valve block so that the hole in the poppet body is aligned with the side port.
5. Insert a hex wrench through the side port and into the hole in the valve poppet to hold it in place, then use a socket wrench to tighten the valve poppet into the valve piston; do not overtighten.
6. Apply a small amount of removable thread locking compound to the threads on the other end of the valve poppet.
7. Apply some brown grease to the O-ring that goes on the upper valve block, then push the upper valve block into the lower valve block and over the valve poppet.
8. Insert the hex wrench back through the side port and into the valve poppet and hold it in place, then tighten the other piston; do

not overtighten.

9. Install the two hex bolts to hold the lower valve block to the upper valve block.



10. Use Teflon tape or pipe seal compound on the threads of the pipe plug and install it into the side port of the lower valve block.
11. Insert the diaphragms into the upper and lower valve blocks with the outside leading edge facing out, then push them all the way down into the valve block bore.
12. Install the valve exhausts onto the upper and lower valve blocks using socket head cap screws.
13. Install the valve end caps into the upper and lower valve blocks and lightly snug.
14. Connect the air line on the side of the valve block.



## Disassembling Air Cylinder

**Note** Refer to a current drawing for the powerhead you are working on to reference for part numbers.

1. Remove the E-ring or snap ring from the lower piston rod.



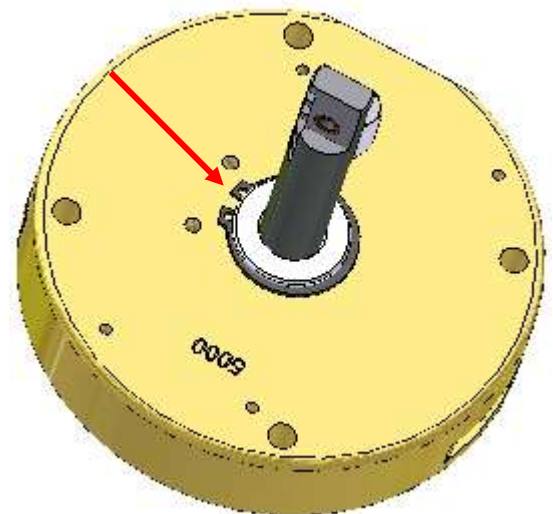
2. Lift the sleeve or sleeve clip and remove the two connectors or half-shells.
3. Remove the upper hex nuts from the tie rods and pull the upper end cap off the cylinder and upper piston rod.

**Note** You can remove the unit from the system for repair or leave it mounted in place.

4. Slide the piston assembly up from the lower end cap.
5. Remove the snap ring from the upper bushing using snap-ring pliers.
6. Push the upper bushing out of the upper end cap.



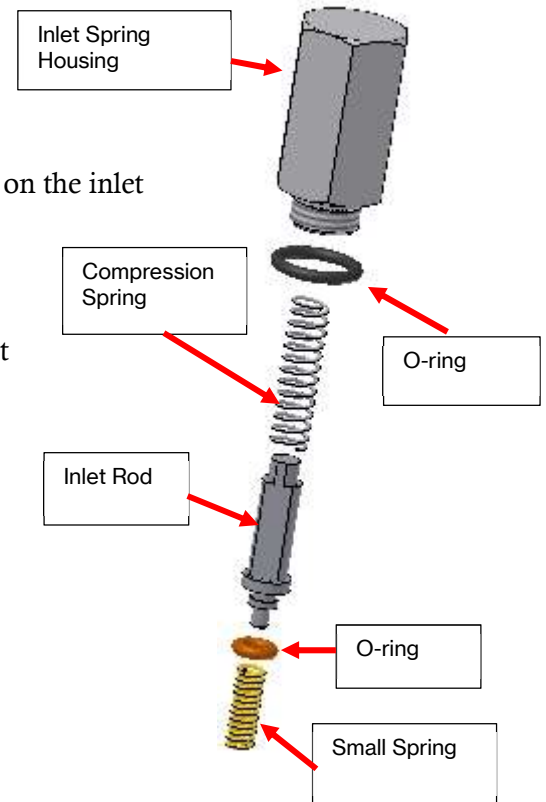
7. Remove the snap ring from the lower bushing and push the bushing out of the lower end cap.
8. Replace all O-rings and coat the new ones with brown grease.
9. Coat the inside of the cylinder, piston rods, and piston rod bushing with brown grease.



## Rebuilding Pilot Valve

**Note**     *The two pilot valves in the upper and lower end caps are the same.*

1. Remove the inlet spring housing from the upper end cap.
2. Remove the spring with the inlet rod.
3. Turn the end cap over and a small spring will fall out.
4. Replace the O-ring on the inlet spring housing and the O-ring on the inlet rod.
5. Coat the new O-rings and springs with a light coat of SUPERLUBE grease.
6. Set the larger spring into the inlet spring housing with the inlet rod facing up.
7. Screw the inlet spring housing into the upper end cap.



**Note**     *Do not install the smaller spring at this time; it will be installed from the bottom.*

8. Remove the stem seal from the bottom of the upper end cap.



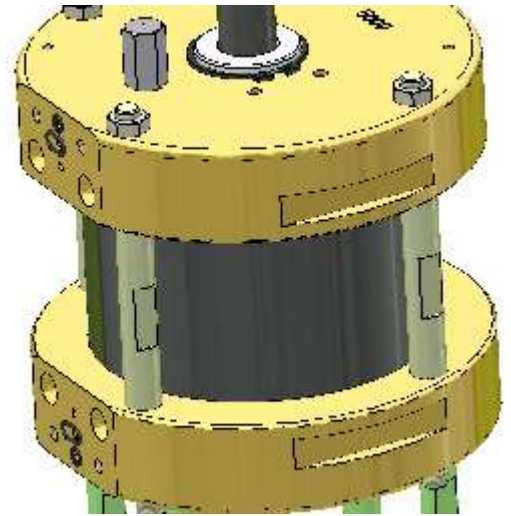
9. Remove the valve stem and seal guide with the spring.
10. Replace the O-ring on the stem seal and coat with SUPERLUBE grease.
11. Drop the small spring into the stem seal bore; it should center itself on the inlet rod.
12. Insert the spring with the seal guide into the end cap.
13. Set the small end of the seal guide onto the spring.
14. Set a new O-ring on top of the seal guide.
15. Screw the stem seal with the valve stem into the upper end cap.
16. Repeat the pilot valve rebuild on the lower end cap.

## Reassembling Air Cylinder

1. Apply a thin coat of brown grease to the inner bore of the lower end cap and install the lower bushing.
2. Install snap ring to secure the lower bushing in place.
3. Apply a thin coat of brown grease to the inner bore of the upper end cap and install the upper bushing.
4. Install the snap ring to secure the upper bushing in place.
5. Insert the lower piston rod through the piston rod bushing of the lower end cap.

6. Slide the cylinder over the piston and down onto the lower end cap O-ring.
7. Set the upper end cap onto the cylinder with the valve block flats facing the same direction.
8. Screw the hex nuts onto the tie rods and snug.

**Note**     ***Tightening sequence should always be the across method. Tighten the first nut or bolt a little more than hand tight, then go to the nut or bolt directly opposite and tighten. Repeat this through a 3-step (minimum) torque procedure. For the tie rod nuts, first torque all to 5 - 7 ft/lbs, then to 15 ft/lbs, then to 23 ft/lbs.***



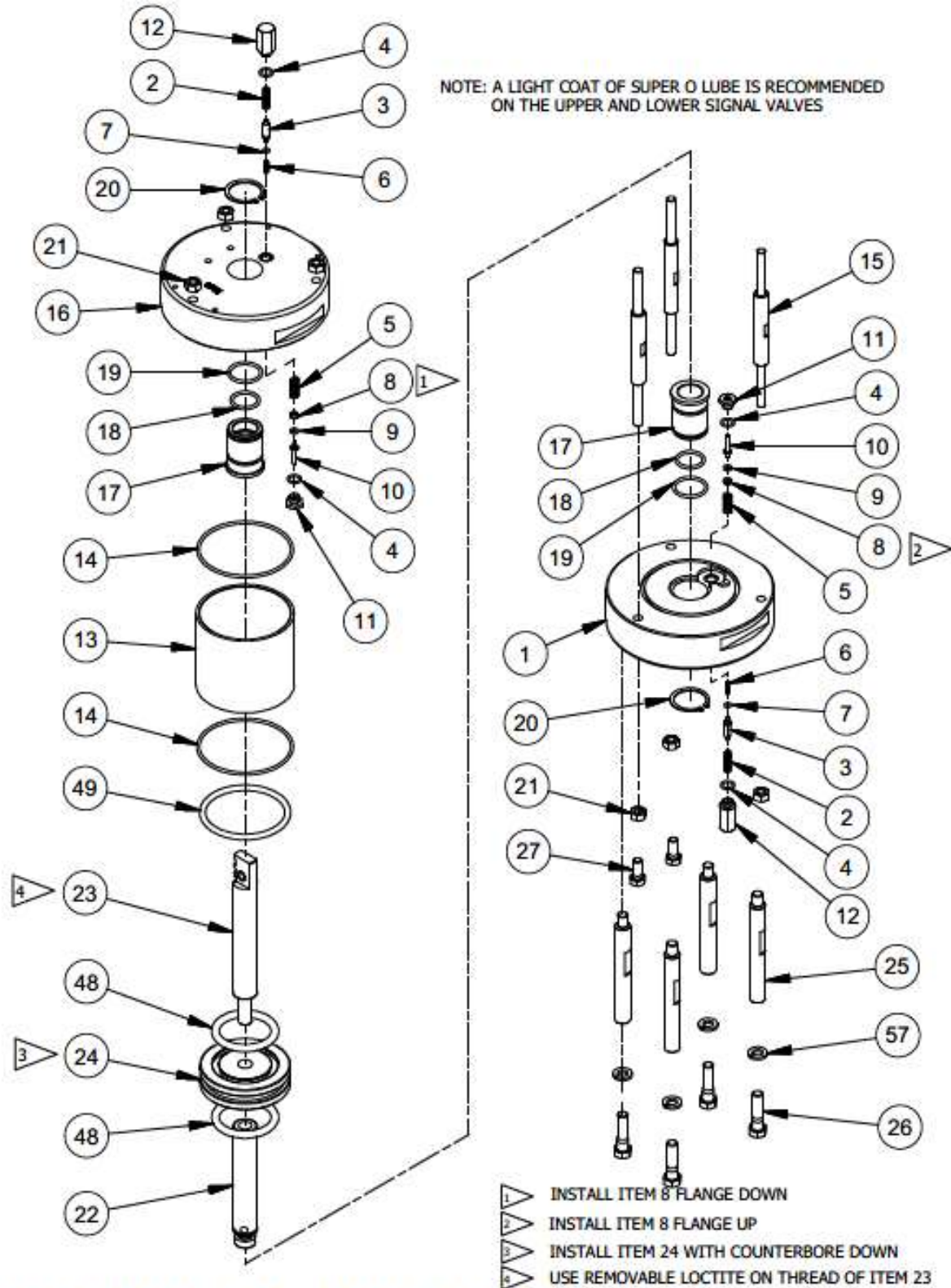
9. Install the connectors or half shells, sleeve (sleeve clip), and E-ring onto the piston rod.
10. Reinstall the valve block onto the side of the cylinder.
11. Connect the pilot air hose and regulated air hose.
12. Install the muffler.

## Parts Drawings

The following illustrated breakdowns are included for reference when you are working on the equipment. Refer to the correct drawing for the specific powerhead you are servicing to make sure you have the correct part numbers and to assist with the orientation of parts.

Parts Drawings	
Part Number	Description
PAT-PH-3250	3.25" Patriot Powerhead Assembly
PAT-PH-3250-INV	3.25" Innovator Powerhead Assembly
PAT-PH-3250-SK	Powerhead Seal Kit
PAT-PH-4250	4.25" Patriot Powerhead Assembly
PAT-PH-4250-SK	4.25" Powerhead Seal Kit
PAT-PH-SB	Shift Block Assembly
PAT-PH-5000	5" Patriot Powerhead Assembly
PAT-PH-5000-CA	5" Patriot Powerhead Assembly – Multi-Color
PAT-PH-5000-SSB	5" Patriot Powerhead Assembly – Patriot SSB
PAT-PH-5000-INV	5" Patriot Powerhead Assembly - Innovators
PAT-PH-5000-XD	5" Patriot Powerhead Assembly – Heavy Duty Drive
PAT-PH-5000-SK	5" Patriot Powerhead Seal Kit
PAT-PH-7000	7" Patriot Powerhead Assembly
PAT-PH-7000-CA	7" Patriot Powerhead – Multi-Color
PAT-PH-7000-D	7" Patriot Powerhead – Duo Unit
PAT-PH-7000-HD	7" Patriot Powerhead – Heavy Duty

<b>Parts Drawings</b>	
<b>Part Number</b>	<b>Description</b>
PAT-PH-7000-P	7" Patriot Powerhead - Putty
PAT-PH-7000-CA-SK	Seal Kit – Multi-Color Powerhead
PAT-PH-7000-HD-SK	Seal Kit – Heavy Duty Powerhead
PAT-PH-7000-SK	Seal Kit – 7" Patriot Powerhead
PAT-PH-10000	10" Patriot Powerhead Assembly
PAT-PH-10000-SK	Seal Kit – 10" Patriot Powerhead
PAT-GRD-1000	CE Norms Guard
PAT-GRD-1100	CE Norms Guard
PAT-PH-SB-XL	Shift Block Assembly

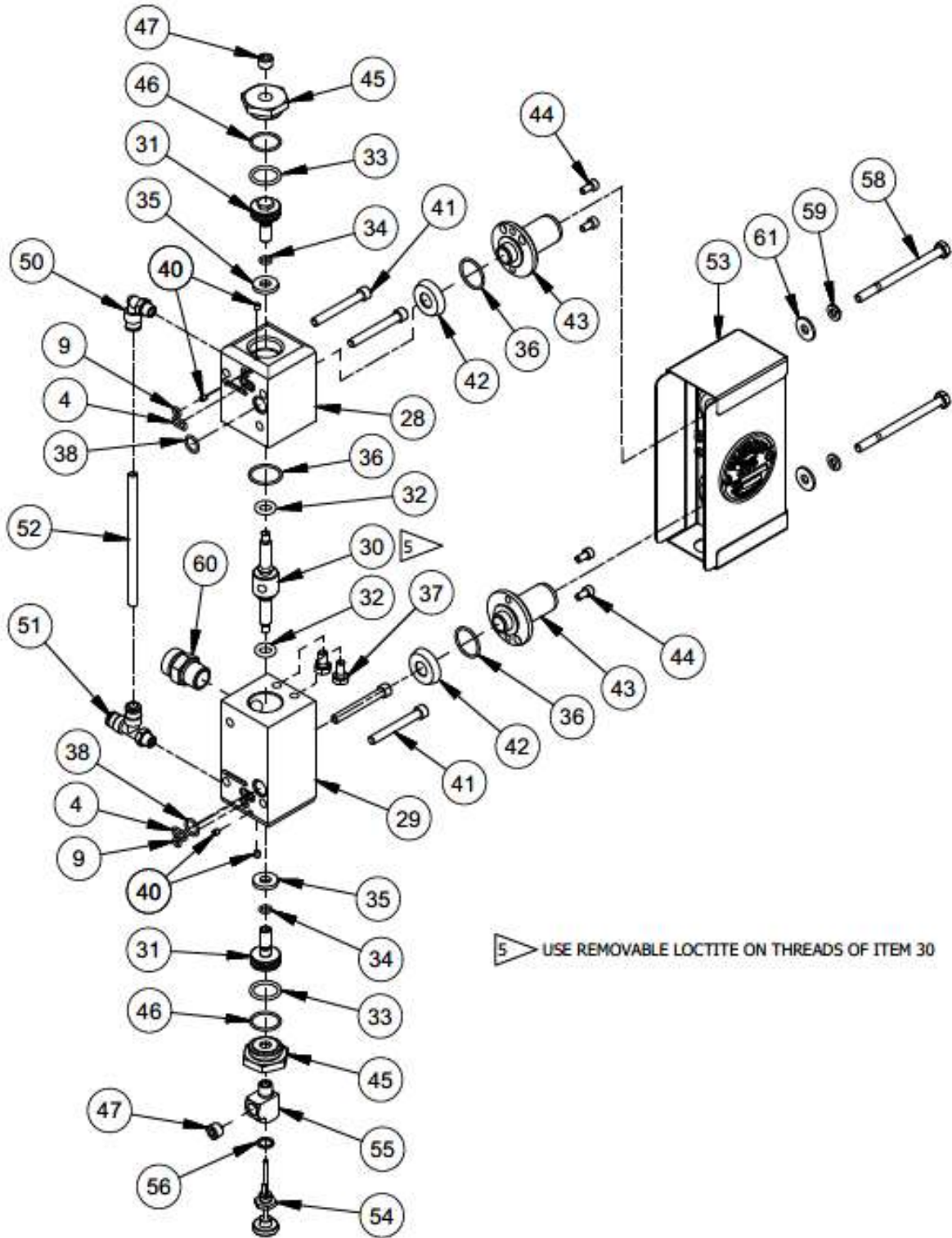


# MAGNUM VENUS PLASTECH

3-1/4 PATRIOT POWER HEAD

PAT-PH-3250

REV: A 05/24/11



# MAGNUM VENUS PLASTECH

3-1/4" PATRIOT POWER HEAD

PAT-PH-3250

REV: A 05/24/11

PAT- PH-3250 PARTS LIST				
ITEM	PART NUMBER	QTY	DESCRIPTION	
1	PAT-PH-3204	1	LOWER END CAP	
2	MPH-2533	2	COMPRESSION SPRING	
3	MPH-2540	2	INLET ROD- PILOT VALVE	
*	4	O-B-012	O-RING	
5	MPH-2528	2	SPRING	
6	MPH-2526	2	SPRING	
*	7	O-U-006	O-RING	
8	MPH-2512	2	SEAL GUIDE- PILOT VALVE	
*	9	O-B-008	O-RING	
10	MPH-2513	2	VALVE STEM- PILOT VALVE	
11	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE	
12	MPH-2541	2	SPRING HOUSING- PILOT VALVE	
13	PAT-PH-3203	1	CYLINDER - $\phi$ 3-1/4x 2" STROKE	
*	14	O-B-152	O-RING	
15	PAT-PH-3206	3	TIE ROD	
16	PAT-PH-3212	1	UPPER END CAP	
17	MPH-4254	2	BUSHING- 7/8 DIA. PISTON ROD	
*	18	O-B-118	O-RING	
*	19	O-B-121	O-RING	
20	MPH-3261	2	SNAP RING - EXTERNAL	
21	F-HN-05F	6	HEX NUT	
22	PAT-PH-5009	1	LOWER ROD	
23	PAT-PH-5008	1	UPPER ROD ASSY	
24	MPH-3251	1	PISTON - 3-1/4" POWER HEAD	
25	PAT-PH-5011	4	TIE ROD	
26	F-HB-06C-24-GR8	4	HEX BOLT	
27	F-HB-05C-12	2	HEX BOLT	
28	PAT-PH-3201	1	UPPER VALVE BLOCK	
29	PAT-PH-3202	1	LOWER VALVE BLOCK	
30	PAT-PH-3205	1	VALVE ROD POPPET	
31	MPH-2517	2	VALVE PISTON	
*	32	O-U-204-90	O-RING	
*	33	O-B-116	O-RING	
*	34	O-D-010-90	O-RING	
35	MPH-3262	2	PISTON STOP	
*	36	O-B-020	O-RING	
37	F-HB-04C-08	2	HEX BOLT	
*	38	O-B-013	O-RING	
40	F-SS-832-02-SS	4	SET SCREW	
41	F-CS-04C-32-SS	4	SOCKET HEAD CAP SCREW	
*	42	MPH-2529	2	DIAPHRAGM
43	MPH-2522	2	VALVE EXHAUST PORT	
44	F-CS-1024-06-SS	4	CAP SCREW	
45	MPH-2521	2	VALVE END CAP	
*	46	O-B-019	O-RING	
47	PF-AP-02-SS	2	PIPE PLUG	
*	48	O-B-404	O-RING	
*	49	O-B-336	O-RING	
50	MPH-2539	1	MALE ELBOW	
51	MPH-2538	1	MALE POLY TEE FITTING	
52	MS-2052-1	.40ft	POLY TUBE	
53	PAT-PH-3210-01	1	MUFFLER ASSY. -2" STROKE	
54	MPH-2546-01	1	VALVE STEM ASSY	
55	PF-ST-02-BR	1	TEE FITTING	
56	MPH-2545	1	SEAL	
57	F-SW-06	4	LOCK WASHER	
58	F-HB-04C-56-SS	2	HEX BOLT	
59	F-SW-04-SS	2	LOCK WASHER	
60	PF-HN-06-0BS	1	HOSE ADAPTER	
61	F-FW-04	2	FLAT WASHER	

\* ASTERISKS DENOTE PARTS INCLUDED IN PAT-PH-3250-SK SEAL KIT

OPTIONAL PARTS AND ASSEMBLIES

PART No.	QTY.	DESCRIPTION
MPH-2542	1	RESET PUTTON ASSY
PAT-PH-SB	1	SHIFT BLOCK ASSY

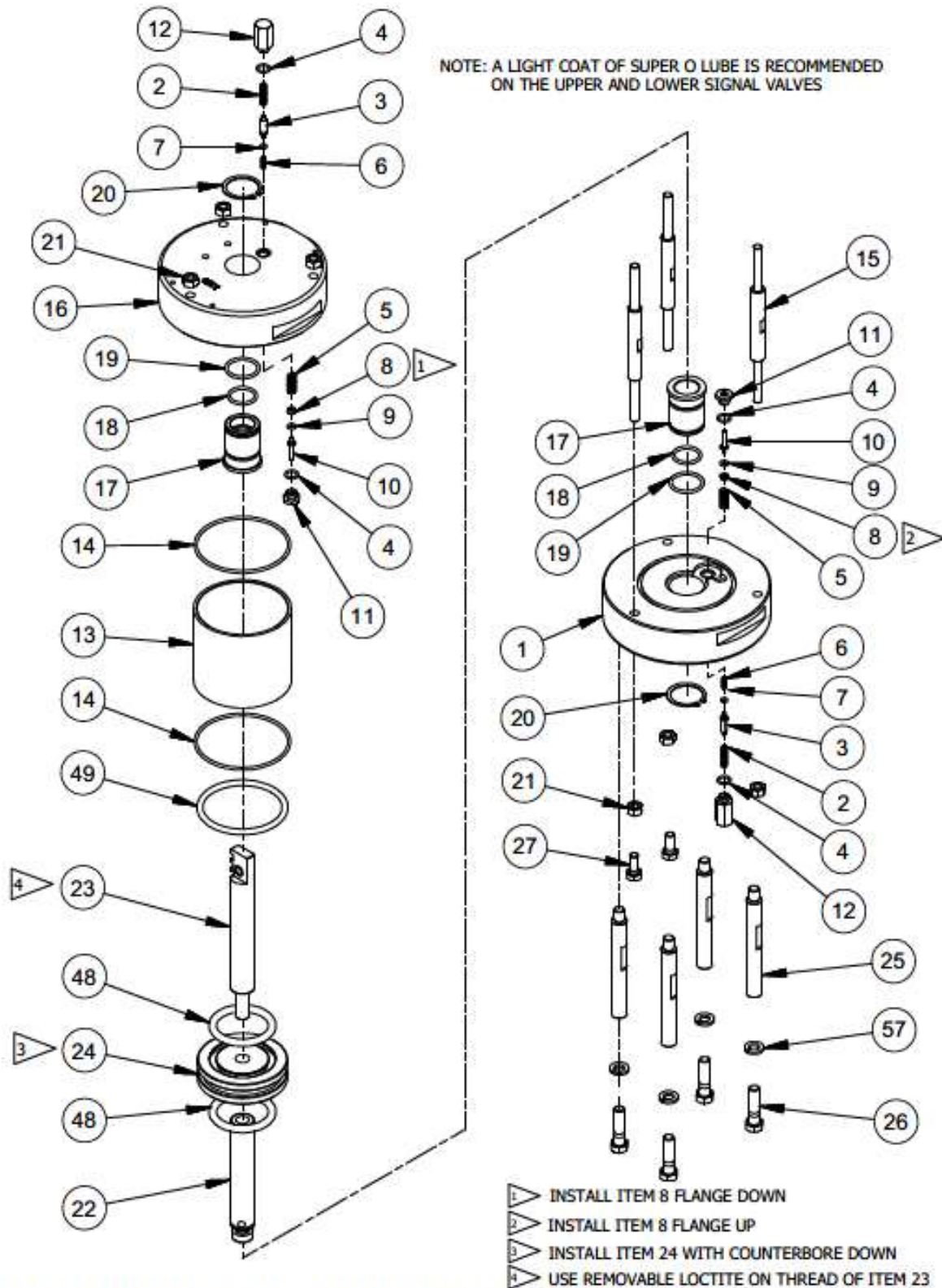
# MAGNUM VENUS PLASTECH

3-1/4" PATRIOT POWER HEAD

PAT-PH-3250

REV: A 05/24/11



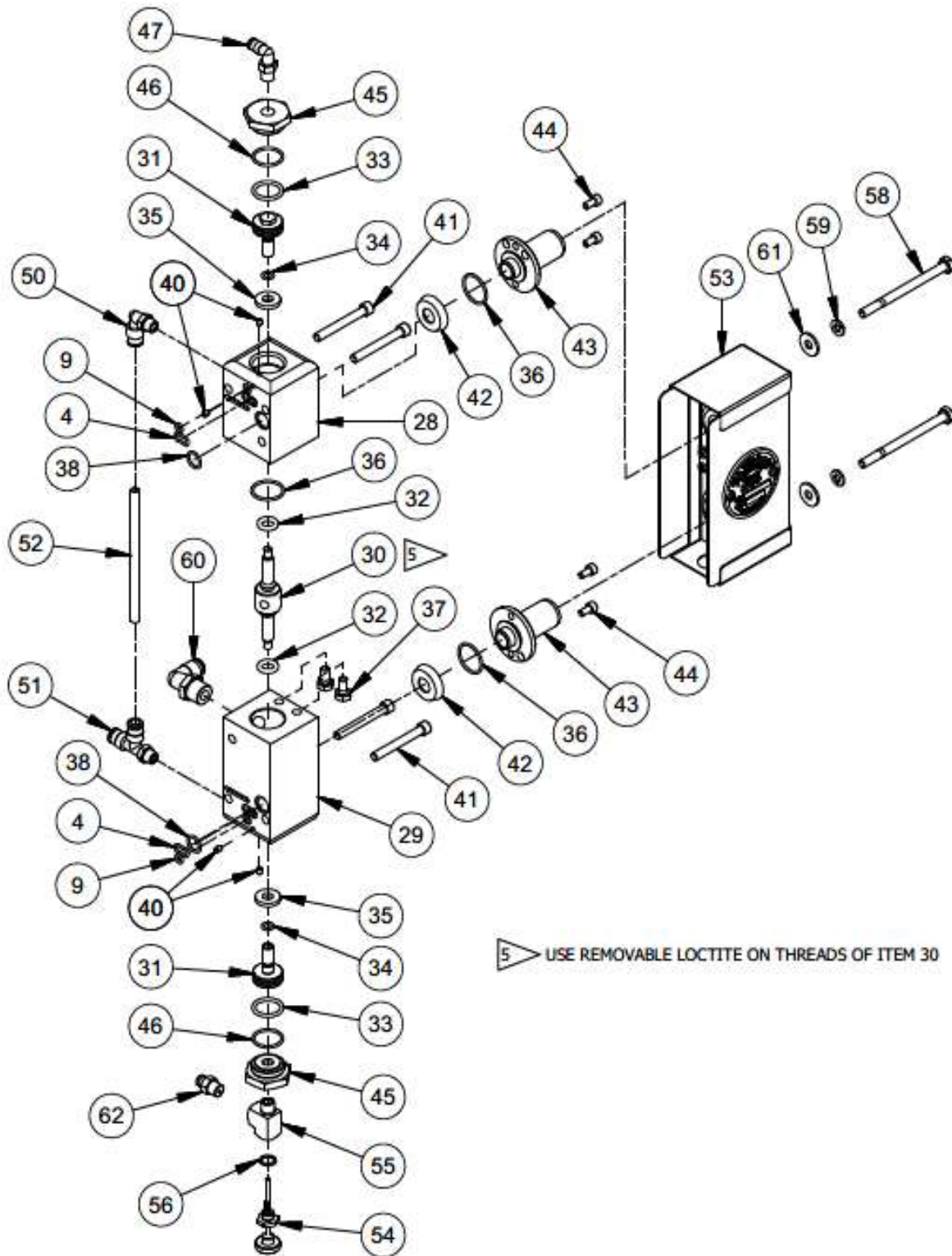


# MAGNUM VENUS PLASTECH

3-1/4 PATRIOT POWER HEAD

PAT-PH-3250-INV

REV: A 05/24/11



# MAGNUM VENUS PLASTECH

3-1/4" PATRIOT POWER HEAD

PAT-PH-3250-INV

REV: A 05/24/11

PAT- PH-3250 PARTS LIST				
ITEM	PART NUMBER	QTY	DESCRIPTION	
1	PAT-PH-3204	1	LOWER END CAP	
2	MPH-2533	2	COMPRESSION SPRING	
3	MPH-2540	2	INLET ROD- PILOT VALVE	
*	4	O-B-012	O-RING	
5	MPH-2528	2	SPRING	
6	MPH-2526	2	SPRING	
*	7	O-U-006	O-RING	
8	MPH-2512	2	SEAL GUIDE- PILOT VALVE	
*	9	O-B-008	O-RING	
10	MPH-2513	2	VALVE STEM- PILOT VALVE	
11	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE	
12	MPH-2541	2	SPRING HOUSING- PILOT VALVE	
13	PAT-PH-3203	1	CYLINDER - $\varnothing$ 3-1/4x 2" STROKE	
*	14	O-B-152	O-RING	
15	PAT-PH-3206	3	TIE ROD	
16	PAT-PH-3212	1	UPPER END CAP	
17	MPH-4254	2	BUSHING- 7/8 DIA. PISTON ROD	
*	18	O-B-118	O-RING	
*	19	O-B-121	O-RING	
20	MPH-3261	2	SNAP RING - EXTERNAL	
21	F-HN-05F	6	HEX NUT	
22	PAT-PH-5009	1	LOWER ROD	
23	PAT-PH-5008	1	UPPER ROD ASSY	
24	MPH-3251	1	PISTON - 3-1/4" POWER HEAD	
25	PAT-PH-5011	4	TIE ROD	
26	F-HB-06C-24-GR8	4	HEX BOLT	
27	F-HB-05C-12	2	HEX BOLT	
28	PAT-PH-3201	1	UPPER VALVE BLOCK	
29	PAT-PH-3202	1	LOWER VALVE BLOCK	
30	PAT-PH-3205	1	VALVE ROD POPPET	
31	MPH-2517	2	VALVE PISTON	
*	32	O-U-204-90	O-RING	
*	33	O-B-116	O-RING	
*	34	O-D-010-90	O-RING	
35	MPH-3262	2	PISTON STOP	
*	36	O-B-020	O-RING	
37	F-HB-04C-08	2	HEX BOLT	
*	38	O-B-013	O-RING	
40	F-SS-832-02-SS	4	SET SCREW	
41	F-CS-04C-32-SS	4	SOCKET HEAD CAP SCREW	
*	42	MPH-2529	2	DIAPHRAGM
43	MPH-2522	2	VALVE EXHAUST PORT	
44	F-CS-1024-06-SS	4	CAP SCREW	
45	MPH-2521	2	VALVE END CAP	
*	46	O-B-019	O-RING	
47	PTF90-02-4MM	1	MALE ELBOW	
*	48	O-B-404	O-RING	
*	49	O-B-336	O-RING	
50	MPH-2539	1	MALE ELBOW	
51	MPH-2538	1	MALE POLY TEE FITTING	
52	MS-2052-1	.40ft	POLY TUBE	
53	PAT-PH-3210-01	1	MUFFLER ASSY. -2" STROKE	
54	MPH-2546-01	1	VALVE STEM ASSY	
55	PF-ST-02-BR	1	TEE FITTING	
56	MPH-2545	1	SEAL	
57	F-SW-06	4	LOCK WASHER	
58	F-HB-04C-56-SS	2	HEX BOLT	
59	F-SW-04-SS	2	LOCK WASHER	
60	PTF90-06-05	1	MALE ELBOW	
61	F-FW-04	2	FLAT WASHER	
62	PTF-02-4MM	1	MALE CONNECTOR	

\* ASTERISKS DENOTE PARTS INCLUDED IN PAT-PH-3250-SK SEAL KIT

OPTIONAL PARTS AND ASSEMBLIES

PART No.	QTY.	DESCRIPTION
MPH-2542	1	RESET PUTTON ASSY
PAT-PH-SB	1	SHIFT BLOCK ASSY

# MAGNUM VENUS PLASTECH

3-1/4" PATRIOT POWER HEAD

PAT-PH-3250-INV

REV: A 05/24/11

PAT-PH-3250-SK  
 SEAL KIT 3-1/4" AIR MOTOR

2 PCS  
 O-U-006 O-RING

4 PCS  
 O-B-008 O-RING

6 PCS  
 O-B-012 O-RING

2 PCS  
 O-B-013 O-RING

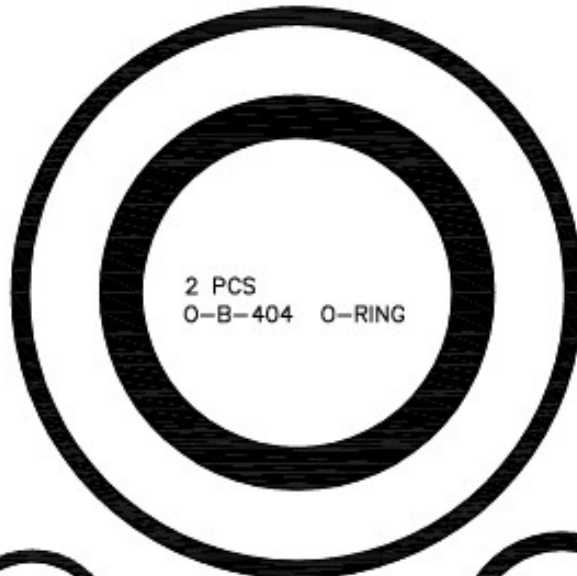
2 PCS  
 O-B-116 O-RING

2 PCS  
 O-B-019 O-RING

2 PCS  
 O-B-118 O-RING

2 PCS  
 O-U-204-90 O-RING

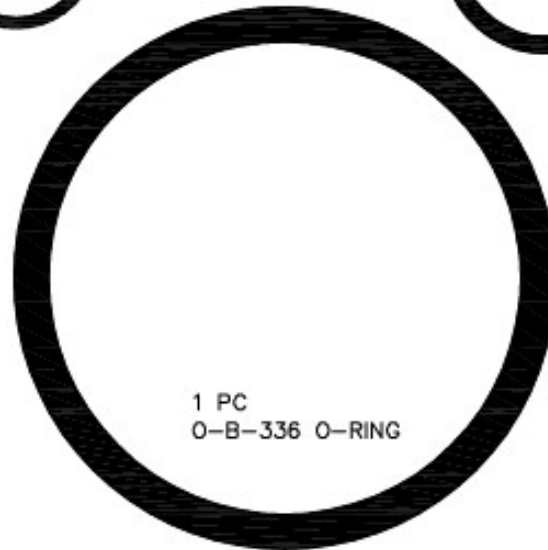
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 O-D-010-90 O-RING



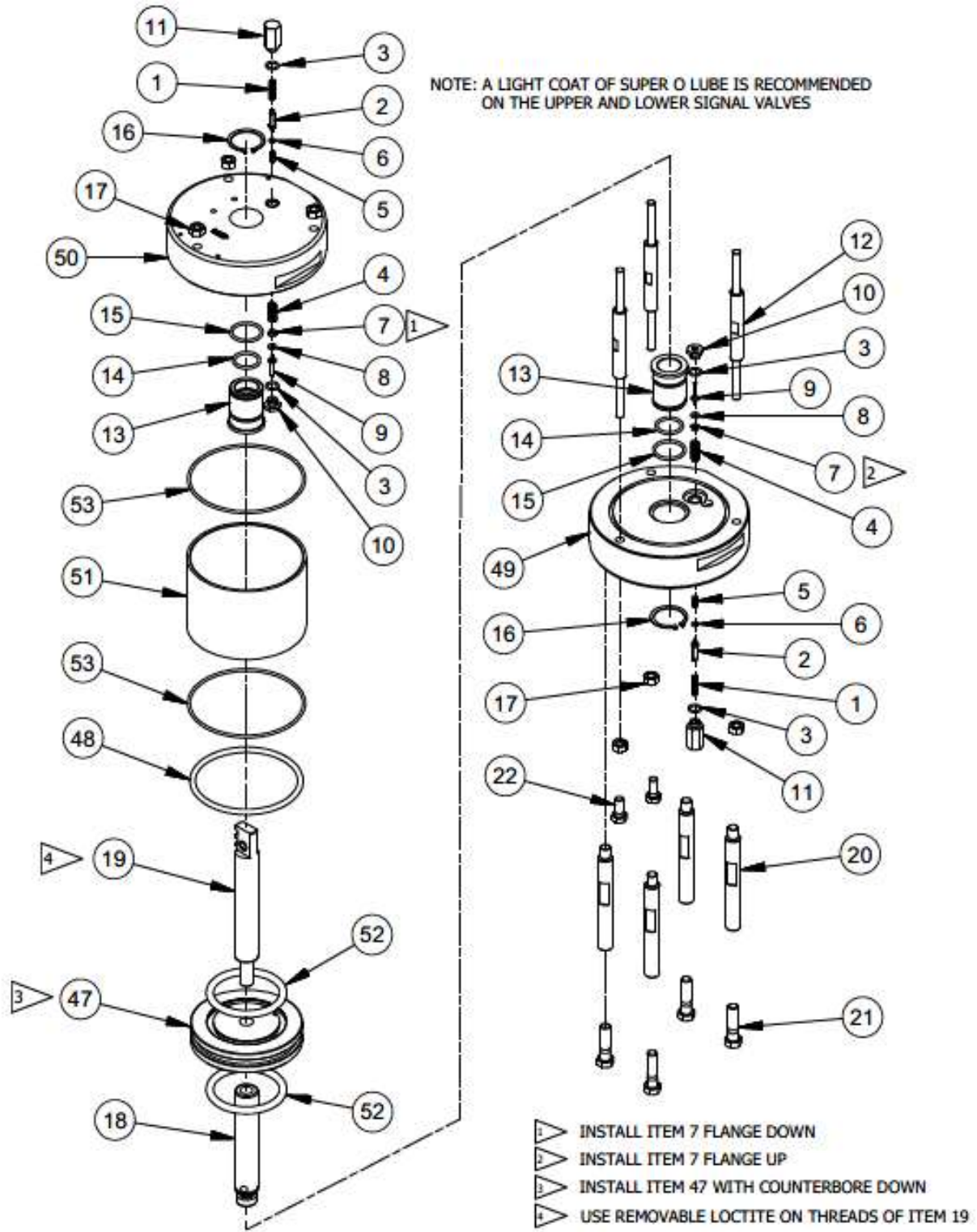
3 PCS  
 O-B-020  
 O-RING

2 PCS  
 O-B-152 O-RING

2 PCS  
 O-B-121  
 O-RING



2 PCS  
 MPH-2529 1/4" DIAPHRAGM

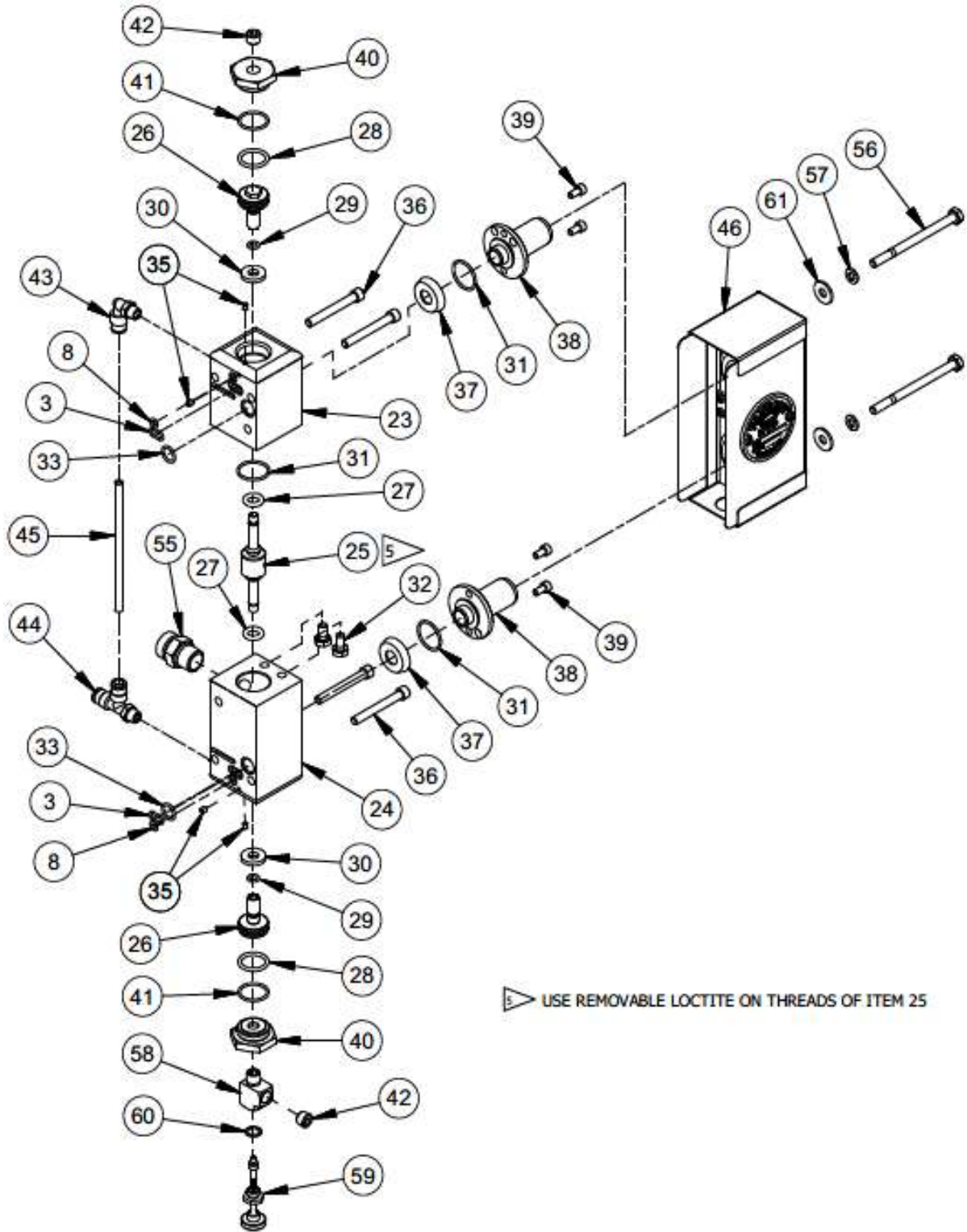


# MAGNUM VENUS PLASTECH

4-1/4" PATRIOT POWER HEAD

PAT-PH-4250

REV: A 05/24/11



# MAGNUM VENUS PLASTECH

4-1/4" PATRIOT POWER HEAD PAT-PH-4250

REV: A 05/24/11

4-1/4" POWER HEAD PARTS LIST			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MPH-2533	2	COMPRESSION SPRING
2	MPH-2540	2	INLET ROD- PILOT VALVE
* 3	O-B-012	6	O-RING
4	MPH-2528	2	SPRING
5	MPH-2526	2	SPRING
* 6	O-U-006	2	O-RING
7	MPH-2512	2	SEAL GUIDE- PILOT VALVE
* 8	O-B-008	4	O-RING
9	MPH-2513	2	VALVE STEM- PILOT VALVE
10	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE
11	MPH-2541	2	SPRING HOUSING- PILOT VALVE
12	PAT-PH-3206	3	TIE ROD - 2" STROKE P.H.
13	VPH-4254	2	BUSHING- 7/8 DIA. PISTON ROD
* 14	O-B-118	2	O-RING
* 15	O-B-121	2	O-RING
16	MPH-3261	2	SNAP RING - EXTERNAL
17	F-HN-05F	6	HEX NUT
18	PAT-PH-5009	1	LOWER ROD
19	PAT-PH-5008	1	UPPER ROD ASSY
20	PAT-PH-5011	4	TIE ROD
21	F-HB-06C-24-GR8	4	HEX BOLT
22	F-HB-05C-12	2	HEX BOLT
23	PAT-PH-3201	1	UPPER VALVE BLOCK
24	PAT-PH-3202	1	LOWER VALVE BLOCK
25	PAT-PH-3205	1	VALVE ROD POPPET
26	MPH-2517	2	VALVE PISTON
* 27	O-U-204-90	2	O-RING
* 28	O-B-116	2	O-RING
* 29	O-D-010-90	2	O-RING
30	MPH-3262	2	PISTON STOP
* 31	O-B-020	3	O-RING
32	F-HB-04C-08	2	HEX BOLT
* 33	O-B-013	2	O-RING
35	F-SS-832-02-SS	4	SET SCREW
* 36	F-CS-04C-32-SS	4	SOCKET HEAD CAP SCREW
37	MPH-2529	2	DIAPHRAGM
38	MPH-2522	2	VALVE EXHAUST PORT
39	F-CS-1024-06-SS	4	CAP SCREW
40	MPH-2521	2	VALVE END CAP
* 41	O-B-019	2	O-RING
42	PF-AP-02-SS	2	PIPE PLUG
43	MPH-2539	1	MALE ELBOW
44	MPH-2538	1	MALE POLY TEE FITTING
45	MS-2052-1	.40R	POLY TUBE
46	PAT-PH-3210-01	1	MUFFLER ASSY. -2" STROKE
47	VPH-4251	1	PISTON
* 48	O-B-344	1	O-RING
49	PAT-PH-4204	1	LOWER END CAP
50	PAT-PH-4212	1	UPPER END CAP
51	PAT-PH-4203	1	CYLINDER
* 52	O-B-409	2	O-RING
* 53	O-B-156	2	O-RING
55	PF-HN-06-08S	1	HOSE ADAPTER
56	F-HB-04C-56-SS	2	HEX BOLT
57	F-SW-04-SS	2	1/4" LOCK WASHER
58	PF-ST-02-BR	1	TEE FITTING
59	MPH-2546-01	1	RESET STEM ASSEMBLY
60	MPH-2545	1	SEAL
61	F-FW-04	2	FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES

PART No.	QTY.	DESCRIPTION
MPH-2542	1	RESET PUTTON ASSY
PAT-PH-SB	1	SHIFT BLOCK ASSY

\* ASTERISKS DENOTE PARTS INCLUDED IN PAT-PH-4250-SK SEAL KIT

# MAGNUM VENUS PLASTECH

4-1/4" PATRIOT POWER HEAD

PAT-PH-4250

REV: A 05/24/11

PAT-PH-4250-SK  
SEAL KIT 4-1/4" AIR MOTOR

2 PCS  
O-U-006 O-RING

4 PCS  
O-B-008 O-RING

6 PCS  
O-B-012 O-RING

2 PCS  
O-B-013 O-RING

2 PCS  
O-B-019 O-RING

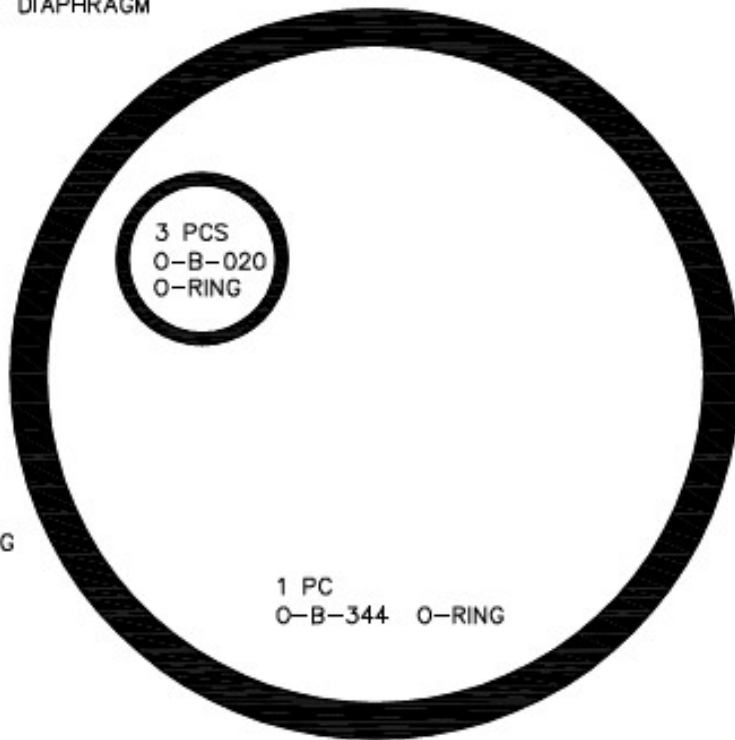
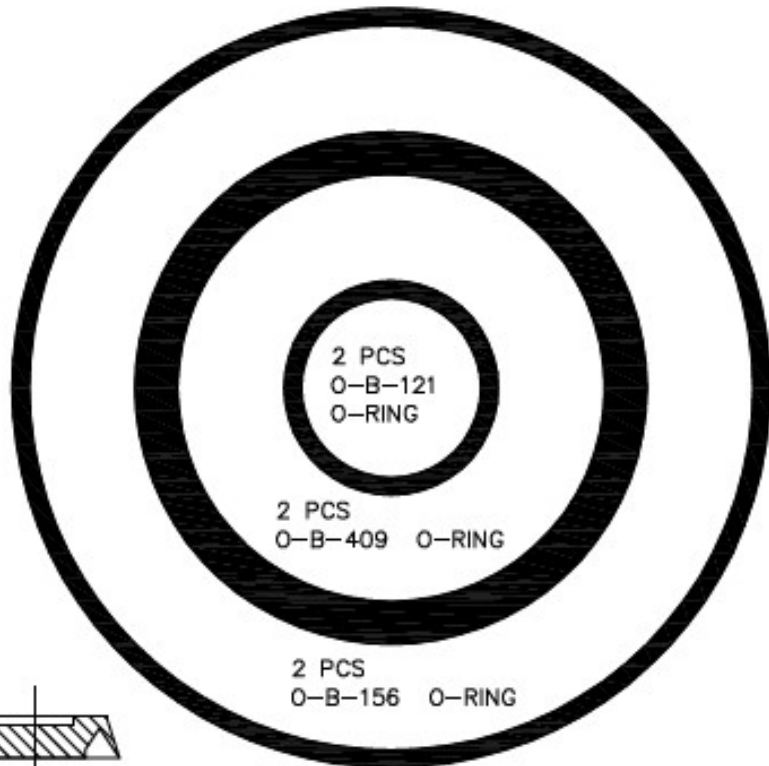
2 PCS  
MPH-2529 1/4" DIAPHRAGM

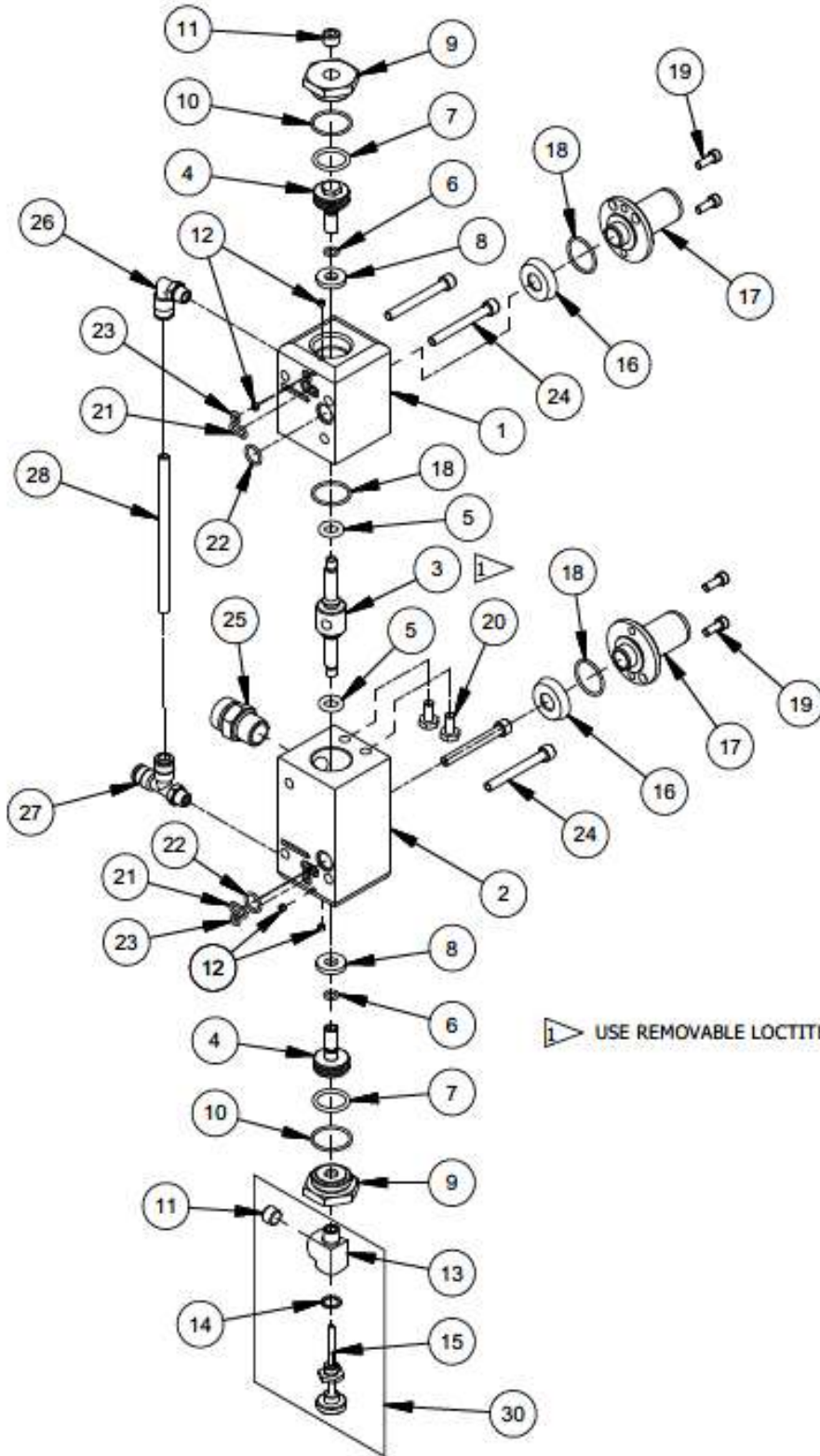
2 PCS  
O-B-116 O-RING

2 PCS  
O-B-118 O-RING

2 PCS  
O-U-204-90 O-RING

2 PCS  
O-D-010-90 O-RING





# MAGNUM VENUS PLASTECH

SHIFT BLOCK ASSEMBLY - 3.25" POWER HEAD

PAT-PH-SB

REV: B

SHEET 1 / 2

10/3/2012

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PAT-PH-3201	1	UPPER VALVE BLOCK
2	PAT-PH-3202	1	LOWER VALVE BLOCK
3	PAT-PH-3205	1	VALVE ROD POPPET
4	MPH-2517	2	VALVE PISTON
* 5	O-U-204-90	2	O-RING
* 6	O-D-010-90	2	O-RING
* 7	O-B-116	2	O-RING
8	MPH-3262	2	PISTON STOP
9	MPH-2521	2	VALVE END CAP
* 10	O-B-019	2	O-RING
11	PF-AP-02-SS	2	PIPE PLUG
12	F-SS-832-02-SS	4	SS SET SCREW
13	PF-ST-02-BR	1	TEE FITTING
14	MPH-2545	1	SEAL
15	MPH-2546-01	1	RESET STEM ASSEMBLY
* 16	MPH-2529	2	DIAPHRAGM
17	MPH-2522	2	VALVE EXHAUST PORT
* 18	O-B-020	3	O-RING
19	F-CS-1024-08	4	CAP SCREW
20	F-HB-04C-08	2	HEX BOLT
* 21	O-B-012	2	O-RING
* 22	O-B-013	2	O-RING
* 23	O-B-008	2	O-RING
24	F-CS-04C-32-SS	4	SOCKET HEAD CAP SCREW
25	PF-HN-06-08S	1	HOSE ADAPTER
26	MPH-2539	1	MALE ELBOW
27	MPH-2538	1	MALE POLY TEE FITTING
28	MS-2052-1	.313 FT	POLY TUBE

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART No.	QTY	DESCRIPTION
30	MPH-2542	1	RESET BUTTON ASSEMBLY

REPAIR KIT

PART No.	DESCRIPTION
* PAT-PH-SB-SK	SEAL KIT

# MAGNUM VENUS PLASTECH

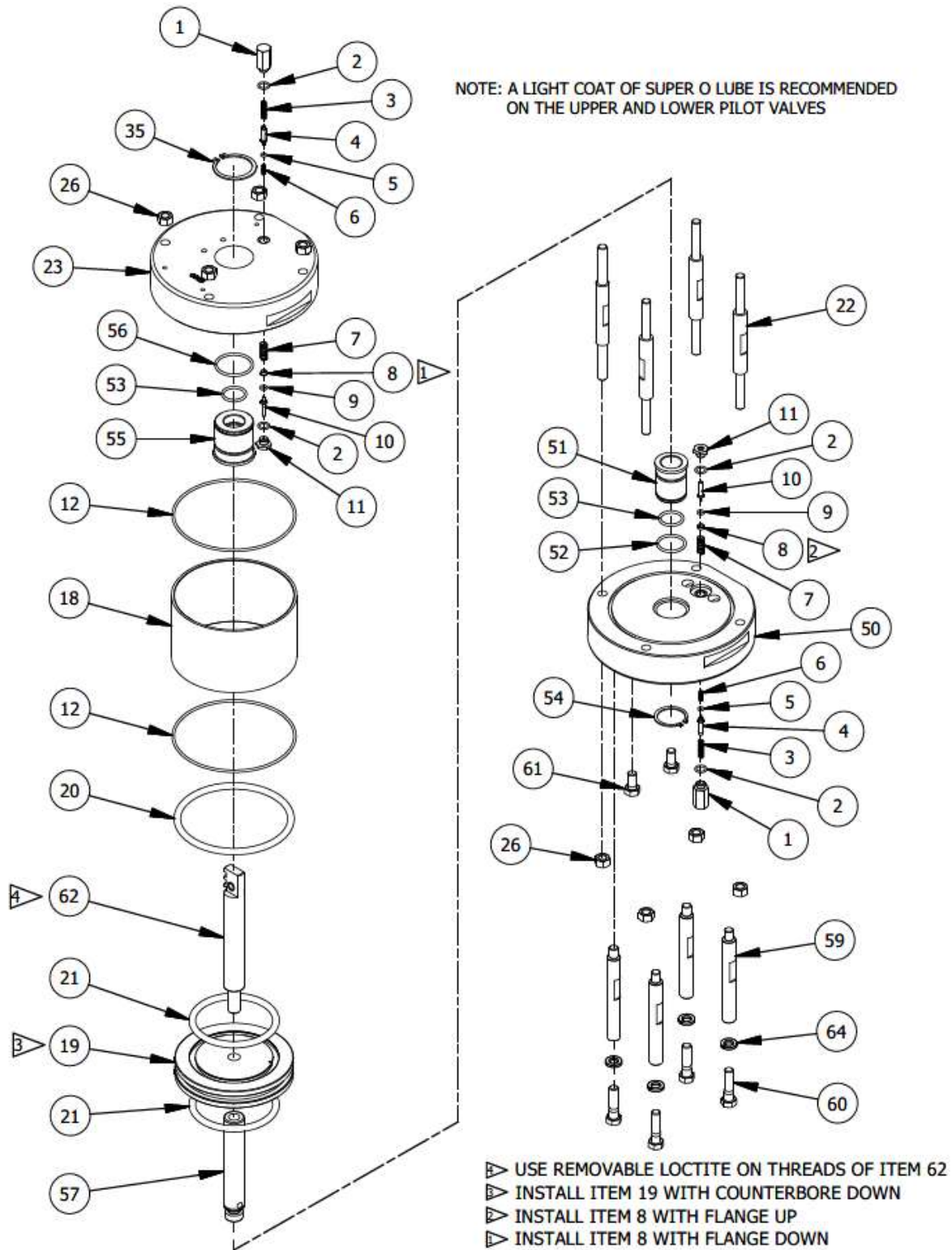
SHIFT BLOCK ASSEMBLY - 3.25" POWER HEAD	PAT-PH-SB
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REV:B

SHEET 2 / 2

10/3/2012





# MAGNUM VENUS PLASTECH

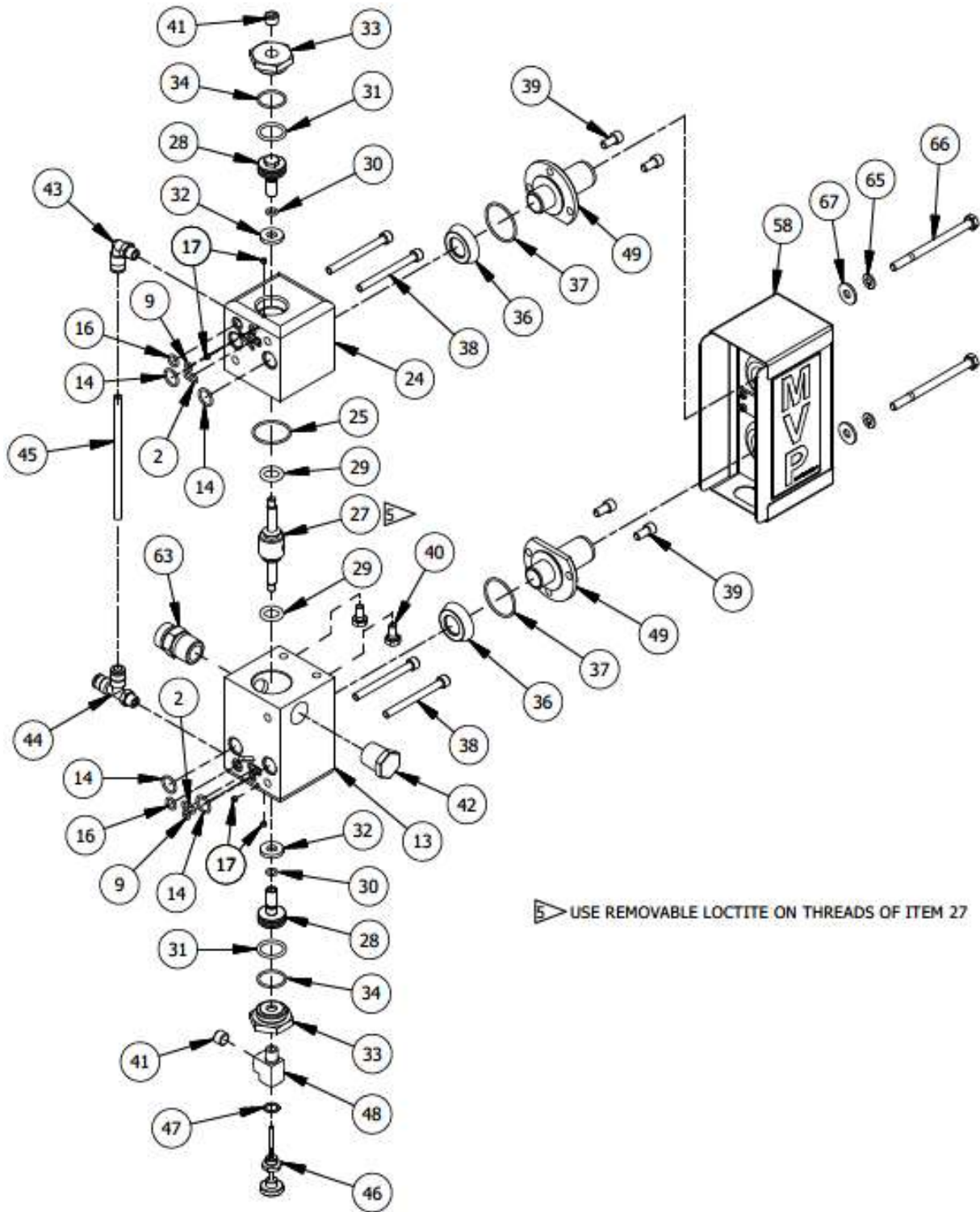
5" PATRIOT POWER HEAD

PAT-PH-5000

REV:B 09/16/13

SHEET 1 / 3

10/22/2009



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000
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REV:B 09/16/13

SHEET 2 / 3

10/22/2009

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	2	MPH-2541 SPRING HOUSING- PILOT VALVE
*	2	6	O-B-012 O-RING
	3	2	MPH-2533 COMPRESSION SPRING
	4	2	MPH-2540 INLET ROD- PILOT VALVE
*	5	2	O-U-006 O-RING
	6	2	MPH-2526 SPRING
	7	2	MPH-2528 SPRING
	8	2	MPH-2512 SEAL GUIDE- PILOT VALVE
*	9	4	O-B-008 O-RING
	10	2	MPH-2513 VALVE STEM- PILOT VALVE
	11	2	MPH-2511-01 STEM SEAL ASSY- PILOT VALVE
*	12	2	O-B-159 O-RING
	13	1	PAT-PH-5002 LOWER VALVE BLOCK
*	14	4	O-B-014 O-RING
*	16	2	O-B-011 O-RING
	17	4	F-SS-832-02-SS SS SET SCREW
	18	1	PAT-PH-5003 CYLINDER - Ø5"
	19	1	MPH-5006 PISTON - Ø5"
*	20	1	O-B-425 O-RING
*	21	2	O-B-415 O-RING
	22	4	PAT-PH-5006 TIE ROD - 2" STROKE
	23	1	PAT-PH-5012 UPPER END CAP - 5"
	24	1	PAT-PH-5001 UPPER VALVE BLOCK
*	25	1	O-B-024 O-RING
	26	8	F-HN-06F HEX NUT
	27	1	PAT-PH-5005 POPPET VALVE - 2" STROKE
	28	2	MPH-2517 VALVE PISTON
*	29	2	O-U-206-90 O-RING
*	30	2	O-D-010-90 O-RING
*	31	2	O-B-116 O-RING
	32	2	MPH-3262 PISTON STOP
	33	2	MPH-2521 VALVE END CAP
*	34	2	O-B-019 O-RING
	35	1	7205-2-26 EXTERNAL SNAP RING
*	36	2	MPH-5010 DIAPHRAGM
*	37	2	O-B-026 O-RING
	38	4	F-CS-04C-40-SS SOCKET HEAD CAP SCREW
	39	4	F-CS-04C-08-SS CAP SCREW
	40	2	F-HB-04C-08 HEX BOLT
	41	2	PF-AP-02-SS PIPE PLUG
	42	1	PF-HP-08 HEX PLUG
	43	1	MPH-2539 MALE ELBOW
	44	1	MPH-2538 MALE POLY TEE FITTING
	45	.313 FT	MS-2052-1 POLY TUBE
	46	1	MPH-2546-01 RESET STEM ASSEMBLY
	47	1	MPH-2545 SEAL
	48	1	PF-ST-02-BR TEE FITTING
	49	2	MPH-5009 EXHAUST PORT
	50	1	PAT-PH-5004 LOWER END CAP - 5" POWER HEAD
	51	1	VPH-4254 BUSHING- 7/8 DIA. PISTON ROD
*	52	1	O-B-121 O-RING
*	53	2	O-B-118 O-RING
	54	1	MPH-3261 SNAP RING - EXTERNAL
	55	1	PAT-PH-5007 UPPER BUSHING
*	56	1	O-B-127 O-RING
	57	1	PAT-PH-5009 LOWER ROD
	58	1	PAT-PH-5010-01 MUFFLER ASSEMBLY
	59	4	PAT-PH-5011 TIE ROD
	60	4	F-HB-06C-24-GR8 HEX BOLT
	61	2	F-HB-06C-12 HEX BOLT
	62	1	PAT-PH-5008 UPPER ROD ASSY
	63	1	PF-HN-08-08S HOSE ADAPTER
	64	4	F-SW-06 LOCK WASHER
	65	2	F-SW-04-SS LOCK WASHER
	66	2	F-HB-04C-56-SS HEX BOLT
	67	2	F-FW-04 FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES  
PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

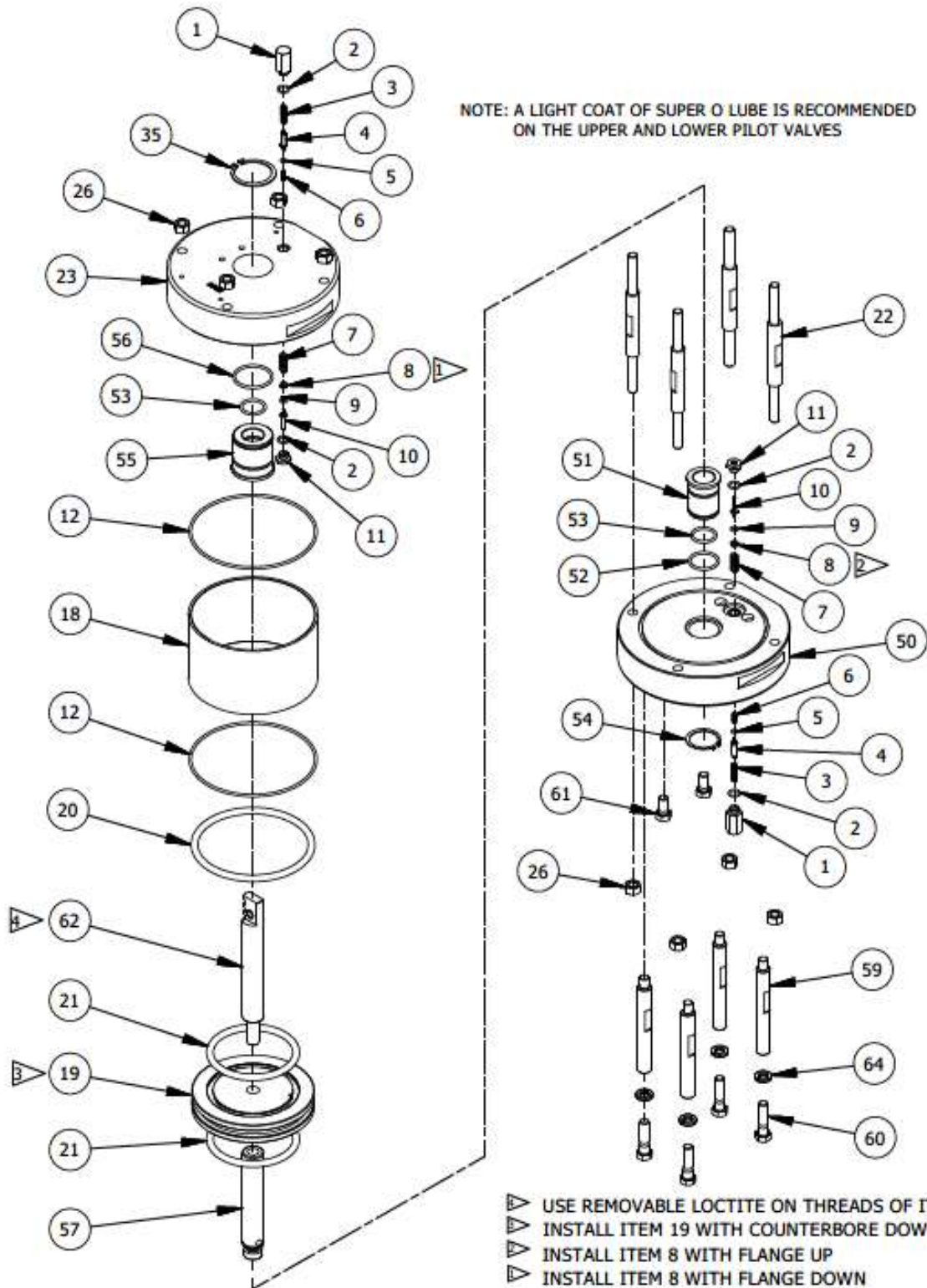
PART No.	DESCRIPTION
PAT-PH-5000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000
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# MAGNUM VENUS PLASTECH

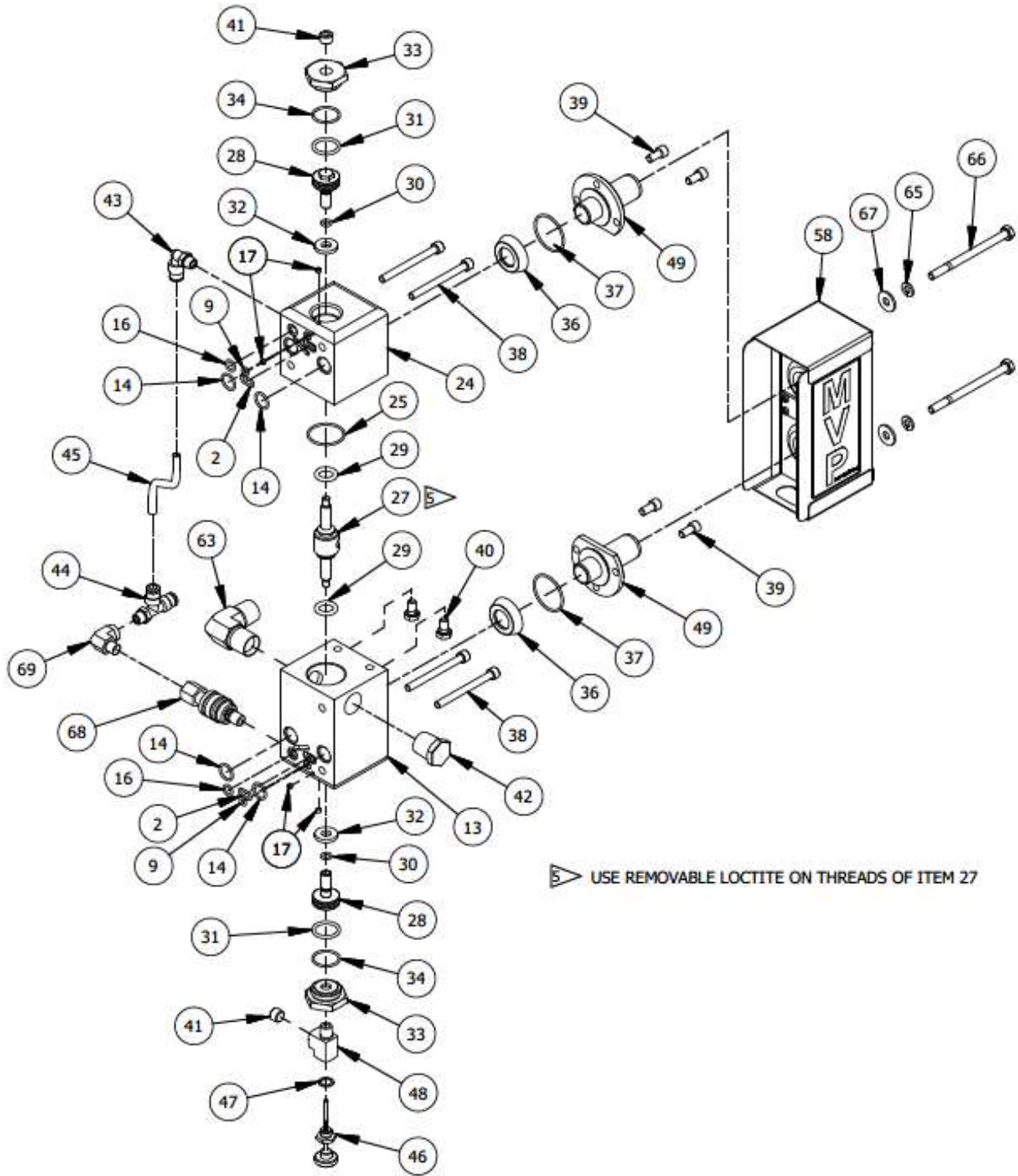
5" PATRIOT POWER HEAD

PAT-PH-5000-CA

REV:C 09/16/13

SHEET 1 / 3

1/13/2010



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000-CA
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REV:C 09/16/13

SHEET 2 / 3

1/13/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	2	SPRING HOUSING- PILOT VALVE
*	2	6	O-RING
	3	2	COMPRESSION SPRING
	4	2	INLET ROD- PILOT VALVE
*	5	2	O-RING
	6	2	SPRING
	7	2	SPRING
	8	2	SEAL GUIDE- PILOT VALVE
*	9	4	O-RING
	10	2	VALVE STEM- PILOT VALVE
	11	2	STEM SEAL ASSY- PILOT VALVE
*	12	2	O-RING
	13	1	LOWER VALVE BLOCK
*	14	4	O-RING
*	16	2	O-RING
	17	4	SS SET SCREW
	18	1	CYLINDER - Ø5"
	19	1	PISTON - Ø5"
*	20	1	O-RING
*	21	2	O-RING
	22	4	TIE ROD - 2" STROKE
	23	1	UPPER END CAP - 5"
	24	1	UPPER VALVE BLOCK
*	25	1	O-RING
	26	8	HEX NUT
	27	1	POPPET VALVE - 2" STROKE
	28	2	VALVE PISTON
*	29	2	O-RING
*	30	2	O-RING
*	31	2	O-RING
	32	2	PISTON STOP
	33	2	VALVE END CAP
*	34	2	O-RING
	35	1	EXTERNAL SNAP RING
*	36	2	DIAPHRAGM
*	37	2	O-RING
	38	4	SOCKET HEAD CAP SCREW
	39	4	CAP SCREW
	40	2	HEX BOLT
	41	2	PIPE PLUG
	42	1	HEX PLUG
	43	1	MALE ELBOW
	44	1	MALE POLY TEE FITTING
	45	.50 FT	POLY TUBE
	46	1	RESET STEM ASSEMBLY
	47	1	SEAL
	48	1	TEE FITTING
	49	2	EXHAUST PORT
	50	1	LOWER END CAP - 5" POWER HEAD
	51	1	BUSHING- 7/8 DIA. PISTON ROD
*	52	1	O-RING
*	53	2	O-RING
	54	1	SNAP RING - EXTERNAL
	55	1	UPPER BUSHING
*	56	1	O-RING
	57	1	LOWER ROD
	58	1	MUFFLER ASSEMBLY
	59	4	TIE ROD
	60	4	HEX BOLT
	61	2	HEX BOLT
	62	1	UPPER ROD ASSY
	63	1	MALE ELBOW
	64	4	LOCK WASHER
	65	2	LOCK WASHER
	66	2	HEX BOLT
	67	2	FLAT WASHER
	68	1	SHUT OFF VALVE
	69	1	STREET ELBOW

OPTIONAL PARTS AND ASSEMBLIES

PARTS LIST		
PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-5B-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
PAT-PH-5000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT

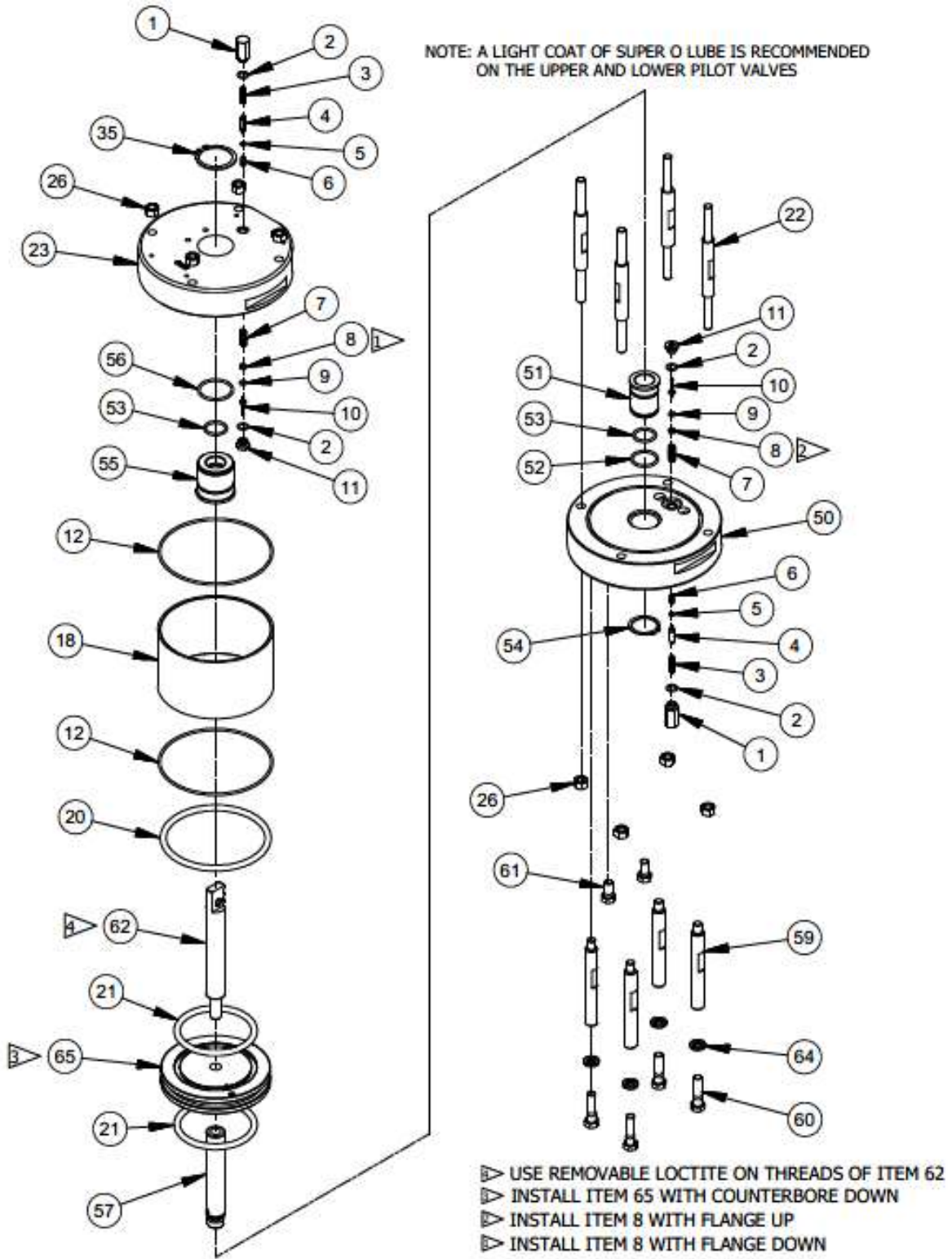
## MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000-CA
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REV:C 09/16/13

SHEET 3 / 3

1/13/2010

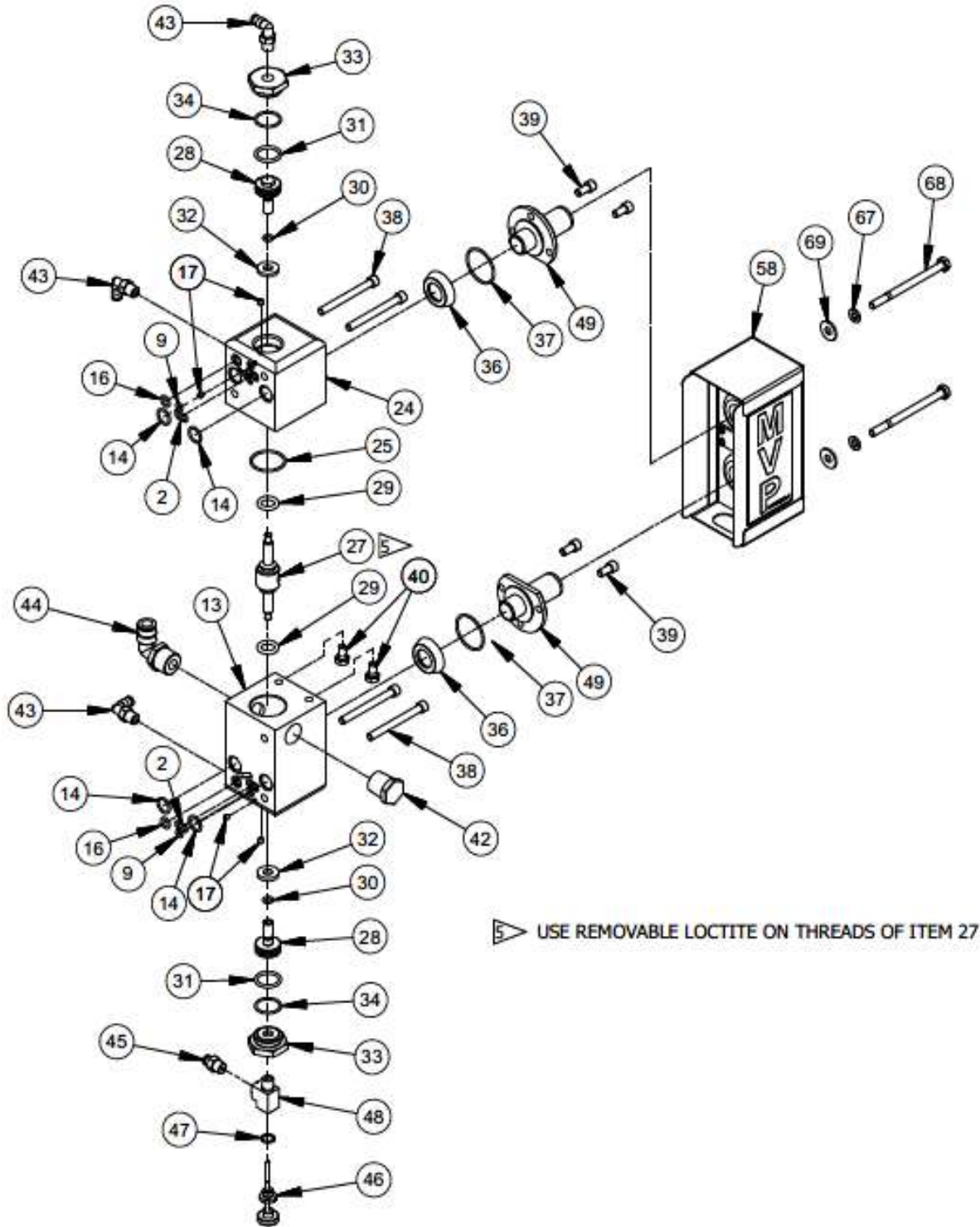


# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD

PAT-PH-5000-SSB

REV:A 05/27/11



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD

PAT-PH-5000-SSB

REV:A 05/27/11

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	MPH-2541	2 SPRING HOUSING- PILOT VALVE
*	2	O-B-012	6 O-RING
	3	MPH-2533	2 COMPRESSION SPRING
	4	MPH-2540	2 INLET ROD- PILOT VALVE
*	5	O-U-006	2 O-RING
	6	MPH-2526	2 SPRING
	7	MPH-2528	2 SPRING
	8	MPH-2512	2 SEAL GUIDE- PILOT VALVE
	9	O-B-008	4 O-RING
*	10	MPH-2513	2 VALVE STEM- PILOT VALVE
	11	MPH-2511-01	2 STEM SEAL ASSY- PILOT VALVE
*	12	O-B-159	2 O-RING
	13	PAT-PH-5002	1 LOWER VALVE BLOCK
*	14	O-B-014	4 O-RING
*	16	O-B-011	2 O-RING
*	17	F-SS-832-02-SS	4 SET SCREW
	18	PAT-PH-5003	1 CYLINDER - Ø5"
*	20	O-B-425	1 O-RING
*	21	O-B-415	2 O-RING
*	22	PAT-PH-5006	4 TIE ROD - 2" STROKE
	23	PAT-PH-5012	1 UPPER END CAP - 5"
	24	PAT-PH-5001	1 UPPER VALVE BLOCK
*	25	O-B-024	1 O-RING
*	26	F-HN-06F	8 HEX NUT
	27	PAT-PH-5005	1 POPPET VALVE - 2" STROKE
	28	MPH-2517	2 VALVE PISTON
*	29	O-U-206-90	2 O-RING
*	30	O-D-010-90	2 O-RING
*	31	O-B-116	2 O-RING
*	32	MPH-3262	2 PISTON STOP
	33	MPH-2521	2 VALVE END CAP
*	34	O-B-019	2 O-RING
*	35	7205-2-26	1 EXTERNAL SNAP RING
*	36	MPH-5010	2 DIAPHRAGM
*	37	O-B-026	2 O-RING
*	38	F-CS-04C-40-SS	4 CAP SCREW
	39	F-CS-04C-08-SS	4 CAP SCREW
	40	F-HB-04C-08	2 HEX BOLT
	42	PF-HP-08	1 HEX PLUG
	43	PTF90-02-4MM	3 MALE ELBOW
	44	06559	1 MALE ELBOW
	45	PTF-02-4MM	1 MALE CONNECTOR
	46	MPH-2546-01	1 RESET STEM ASSEMBLY
	47	MPH-2545	1 SEAL
	48	PF-ST-02-BR	1 TEE FITTING
	49	MPH-5009	2 EXHAUST PORT
	50	PAT-PH-5004	1 LOWER END CAP - 5" POWER HEAD
	51	VPH-4254	1 BUSHING- 7/8 DIA. PISTON ROD
*	52	O-B-121	1 O-RING
*	53	O-B-118	2 O-RING
*	54	MPH-3261	1 SNAP RING - EXTERNAL
	55	PAT-PH-5007	1 UPPER BUSHING
*	56	O-B-127	1 O-RING
*	57	PAT-PH-5009	1 LOWER ROD
	58	PAT-PH-5010-01	1 MUFFLER ASSEMBLY
	59	PAT-PH-5011	4 TIE ROD
	60	F-HB-06C-24-GR8	4 HEX BOLT
	61	F-HB-06C-12	2 HEX BOLT
	62	PAT-PH-5008	1 UPPER ROD ASSY
	64	F-SW-06	4 SPLIT WASHER
	65	MPH-5006-MAG	1 PISTON WITH MAGNET
	67	F-SW-04-SS	2 LOCK WASHER
	68	F-HB-04C-56-SS	2 HEX BOLT
	69	F-FW-04	2 FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES

PART No.	QTY.	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY

REPAIR KITS

PAT-PH-5000-SK	SEAL KIT
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\* DENOTES COMPONENTS INCLUDED IN SEAL KIT

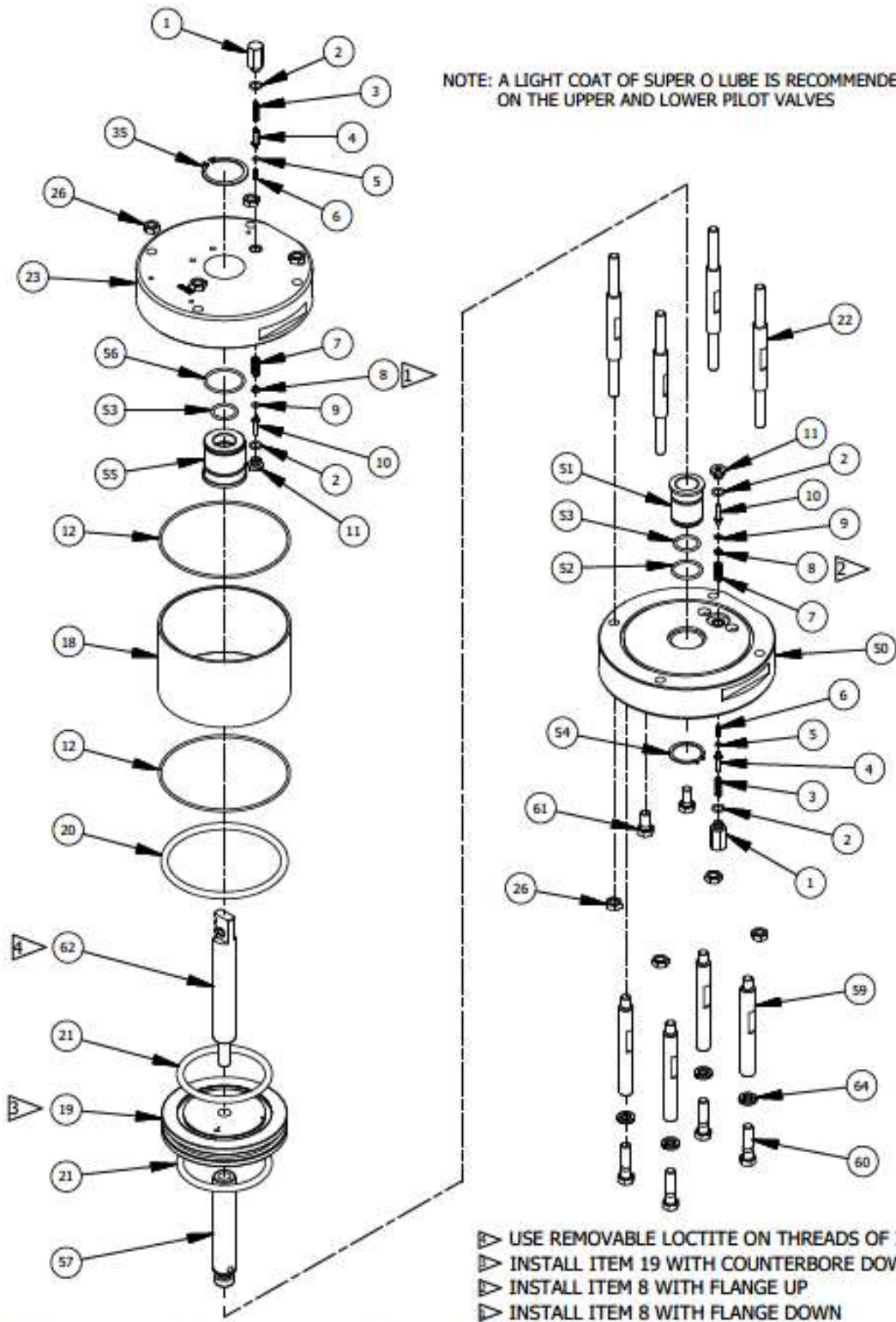
**MAGNUM VENUS PLASTECH**

5" PATRIOT POWER HEAD

PAT-PH-5000-SSB

REV:A 05/27/11





# MAGNUM VENUS PLASTECH

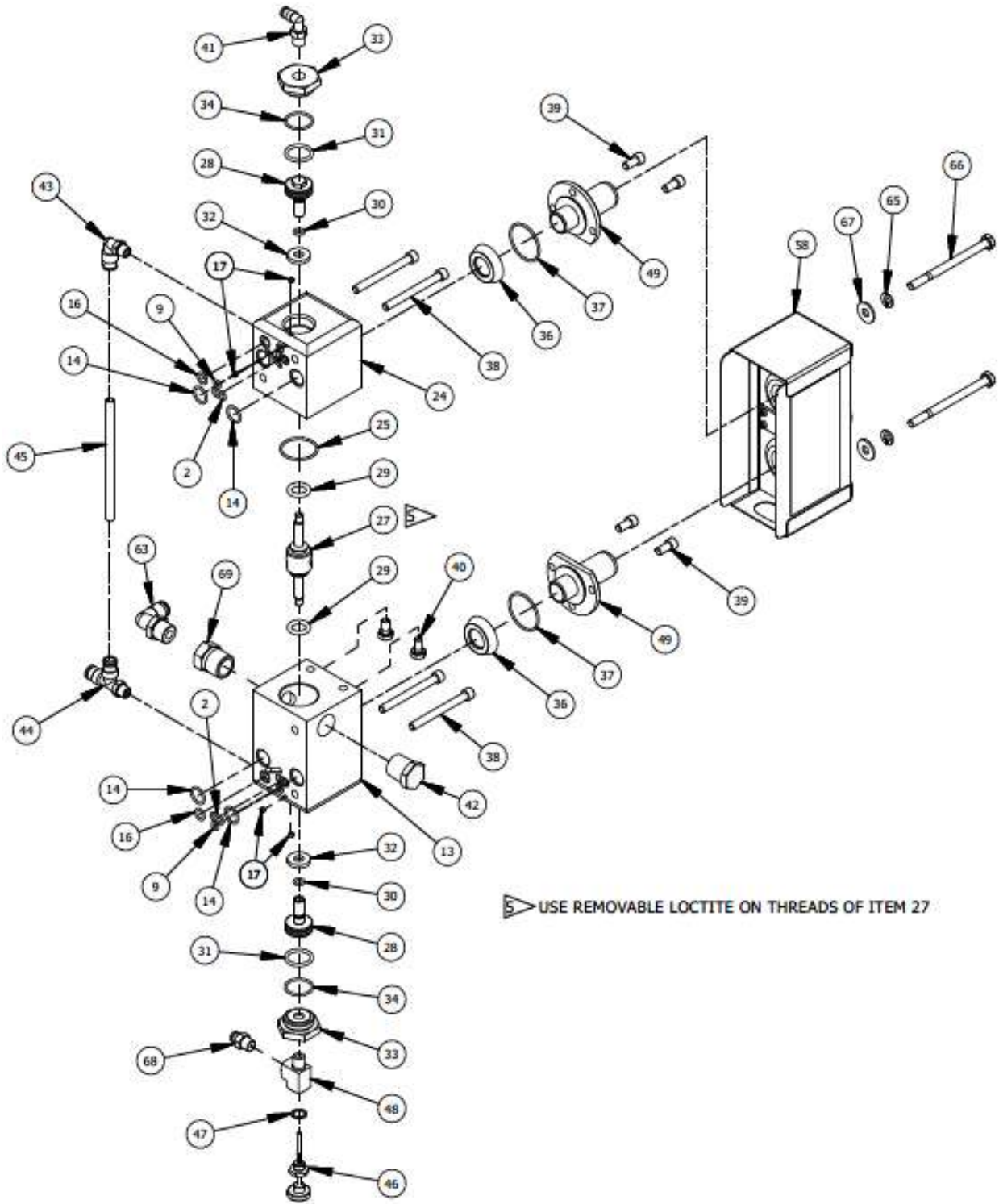
5" PATRIOT POWER HEAD

PAT-PH-5000-INV

REV:A 08/11/2016

SHEET 1 / 3

10/22/2009



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000-INV
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REV:A 08/11/2016

SHEET 2 / 3

10/22/2009

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	2	MPH-2541 SPRING HOUSING- PILOT VALVE
*	2	6	O-B-012 O-RING
	3	2	MPH-2533 COMPRESSION SPRING
	4	2	MPH-2540 INLET ROD- PILOT VALVE
*	5	2	O-U-006 O-RING
	6	2	MPH-2526 SPRING
	7	2	MPH-2528 SPRING
	8	2	MPH-2512 SEAL GUIDE- PILOT VALVE
*	9	4	O-B-008 O-RING
	10	2	MPH-2513 VALVE STEM- PILOT VALVE
	11	2	MPH-2511-01 STEM SEAL ASSY- PILOT VALVE
*	12	2	O-B-159 O-RING
	13	1	PAT-PH-5002 LOWER VALVE BLOCK
*	14	4	O-B-014 O-RING
*	16	2	O-B-011 O-RING
	17	4	F-SS-832-02-SS SS SET SCREW
	18	1	PAT-PH-5003 CYLINDER - $\varnothing 5"$
	19	1	MPH-5006 PISTON - $\varnothing 5"$
*	20	1	O-B-425 O-RING
*	21	2	O-B-415 O-RING
	22	4	PAT-PH-5006 TIE ROD - 2" STROKE
	23	1	PAT-PH-5012 UPPER END CAP - 5"
	24	1	PAT-PH-5001 UPPER VALVE BLOCK
*	25	1	O-B-024 O-RING
	26	8	F-HN-06F HEX NUT
	27	1	PAT-PH-5005 POPPET VALVE - 2" STROKE
	28	2	MPH-2517 VALVE PISTON
*	29	2	O-U-206-90 O-RING
*	30	2	O-D-010-90 O-RING
*	31	2	O-B-116 O-RING
	32	2	MPH-3262 PISTON STOP
	33	2	MPH-2521 VALVE END CAP
*	34	2	O-B-019 O-RING
	35	1	7205-2-26 EXTERNAL SNAP RING
*	36	2	MPH-5010 DIAPHRAGM
*	37	2	O-B-026 O-RING
	38	4	F-CS-04C-40 CAP SCREW
	39	4	F-CS-04C-08-SS SOCKET HEAD CAP SCREW
	40	2	F-HB-04C-08 HEX BOLT
	41	1	PTF90-02-4MM MALE ELBOW
	42	1	PF-HP-08 HEX PLUG
	43	1	MPH-2539 MALE ELBOW
	44	1	MPH-2538 MALE POLY TEE FITTING
	45	.313 FT	MS-2052-1 POLY TUBE
	46	1	MPH-2546-01 RESET STEM ASSEMBLY
	47	1	MPH-2545 SEAL
	48	1	PF-ST-02-BR TEE FITTING
	49	2	MPH-5009 EXHAUST PORT
	50	1	PAT-PH-5004 LOWER END CAP - 5" POWER HEAD
	51	1	VPH-4254 BUSHING- 7/8 DIA. PISTON ROD
*	52	1	O-B-121 O-RING
*	53	2	O-B-118 O-RING
	54	1	MPH-3261 SNAP RING - EXTERNAL
*	55	1	PAT-PH-5007 UPPER BUSHING
*	56	1	O-B-127 O-RING
	57	1	PAT-PH-5009 LOWER ROD
	58	1	PAT-PH-5010-01 MUFFLER ASSEMBLY
	59	4	PAT-PH-5011 TIE ROD
	60	4	F-HB-06C-24-GR8 HEX BOLT
	61	2	F-HB-06C-12 HEX BOLT
	62	1	PAT-PH-5008 UPPER ROD ASSY
	63	1	PTF90-06-05 MALE ELBOW
	64	4	F-SW-06 LOCK WASHER
	65	2	F-SW-04-SS LOCK WASHER
	66	2	F-HB-04C-56-SS HEX BOLT
	67	2	F-FW-04 FLAT WASHER
	68	1	PTF-02-4MM MALE CONNECTOR
	69	1	PF-RB-08-06 BUSHING FITTING

OPTIONAL PARTS AND ASSEMBLIES  
PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
PAT-PH-5000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT

# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD

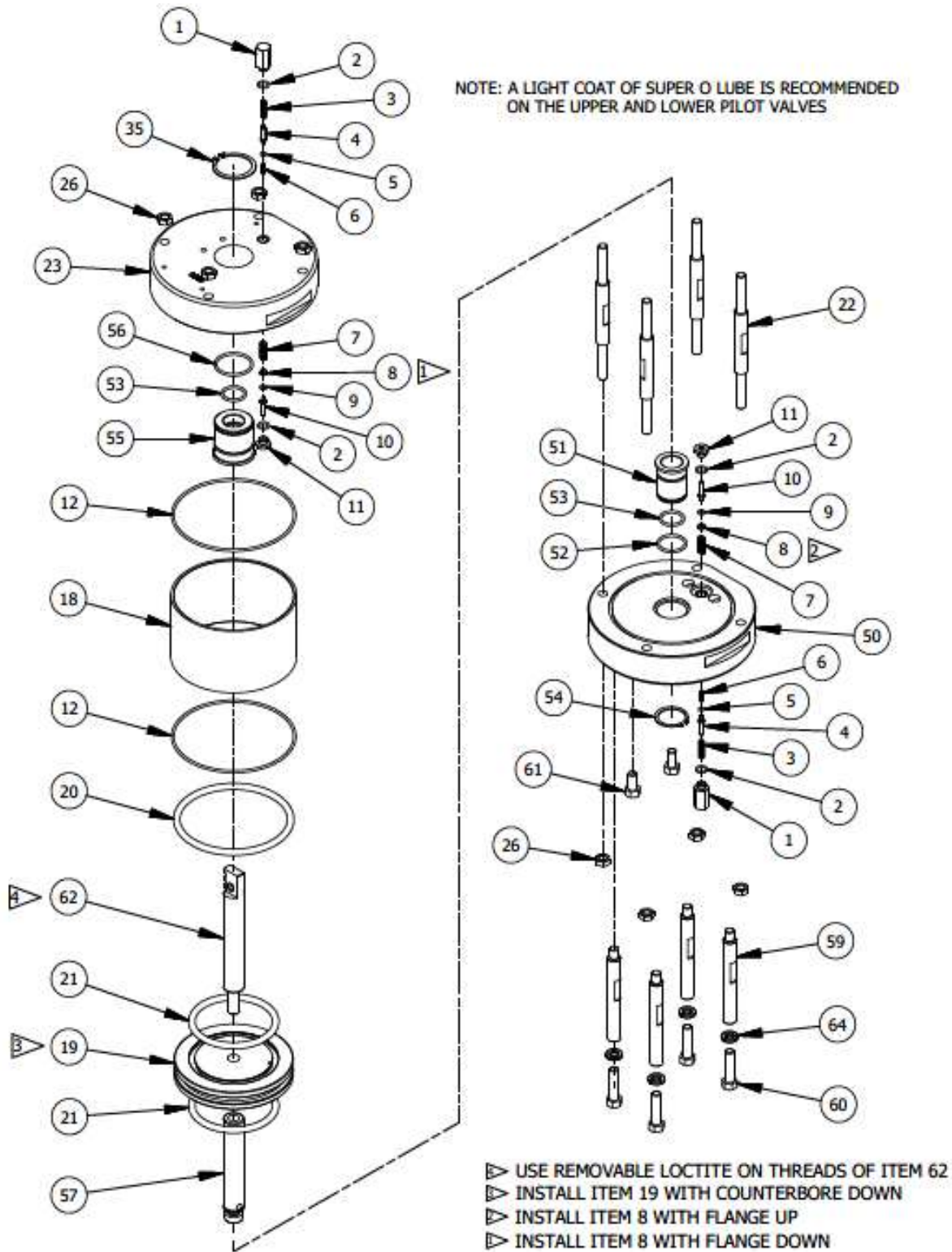
PAT-PH-5000-INV

REV:A 08/11/2016

SHEET 3 / 3

10/22/2009





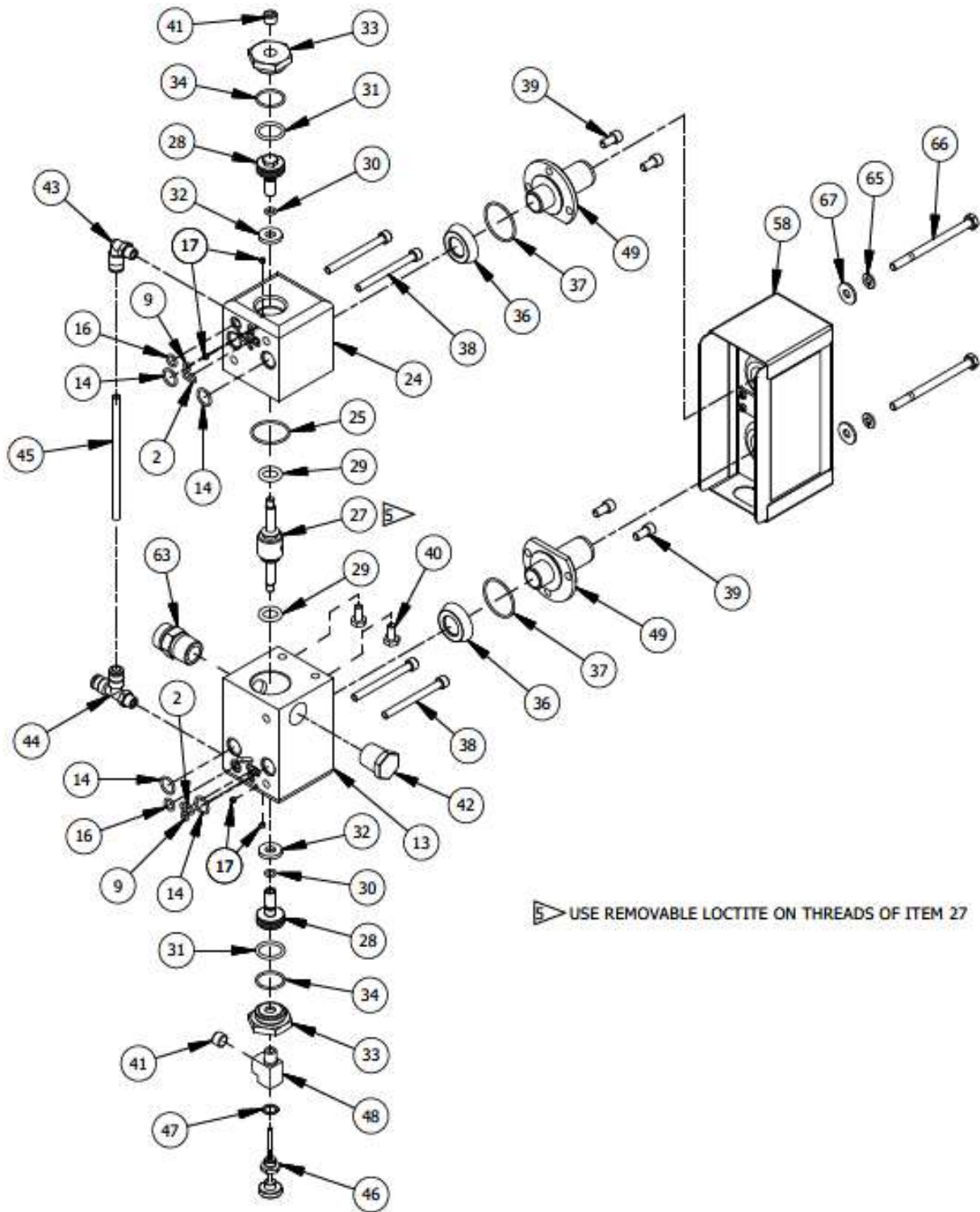
# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD	PAT-PH-5000-XD
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REV:

SHEET 1 / 3

2/20/2015



# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD

PAT-PH-5000-XD

REV:

SHEET 2 / 3

2/20/2015

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
* 1	MPH-2541	2	SPRING HOUSING- PILOT VALVE
* 2	O-B-012	6	O-RING
3	MPH-2533	2	COMPRESSION SPRING
4	MPH-2540	2	INLET ROD- PILOT VALVE
* 5	O-U-006	2	O-RING
6	MPH-2526	2	SPRING
7	MPH-2528	2	SPRING
8	MPH-2512	2	SEAL GUIDE- PILOT VALVE
* 9	O-B-008	4	O-RING
10	MPH-2513	2	VALVE STEM- PILOT VALVE
11	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE
* 12	O-B-159	2	O-RING
13	PAT-PH-5002	1	LOWER VALVE BLOCK
* 14	O-B-014	4	O-RING
* 16	O-B-011	2	O-RING
17	F-SS-832-02-SS	4	SS SET SCREW
18	PAT-PH-5003	1	CYLINDER - Ø5"
19	MPH-5006	1	PISTON - Ø5"
* 20	O-B-425	1	O-RING
* 21	O-B-415	2	O-RING
22	PAT-PH-5006	4	TIE ROD - 2" STROKE
23	PAT-PH-5012	1	UPPER END CAP - 5"
24	PAT-PH-5001	1	UPPER VALVE BLOCK
* 25	O-B-024	1	O-RING
26	F-HN-06F	8	HEX NUT
27	PAT-PH-5005	1	POPPET VALVE - 2" STROKE
28	MPH-2517	2	VALVE PISTON
* 29	O-U-206-90	2	O-RING
* 30	O-D-010-90	2	O-RING
* 31	O-B-116	2	O-RING
32	MPH-3262	2	PISTON STOP
33	MPH-2521	2	VALVE END CAP
* 34	O-B-019	2	O-RING
35	7205-2-26	1	EXTERNAL SNAP RING
* 36	MPH-5010	2	DIAPHRAGM
* 37	O-B-026	2	O-RING
38	F-CS-04C-40-SS	4	SOCKET HEAD CAP SCREW
39	F-CS-04C-08-SS	4	SOCKET HEAD CAP SCREW
40	F-HB-04C-08	2	HEX BOLT
41	PF-AP-02-SS	2	PIPE PLUG
42	PF-HP-08	1	HEX PLUG
43	MPH-2539	1	MALE ELBOW
44	MPH-2538	1	MALE POLY TEE FITTING
45	MS-2052-1	.313 FT	POLY TUBE
46	MPH-2546-01	1	RESET STEM ASSEMBLY
47	MPH-2545	1	SEAL
48	PF-ST-02-BR	1	TEE FITTING
49	MPH-5009	2	EXHAUST PORT
50	PAT-PH-5054	1	LOWER END CAP - 5" POWER HEAD

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
51	VPH-4254	1	BUSHING- 7/8 DIA. PISTON ROD
* 52	O-B-121	1	O-RING
* 53	O-B-118	2	O-RING
54	MPH-3261	1	SNAP RING - EXTERNAL
55	PAT-PH-5007	1	UPPER BUSHING
* 56	O-B-127	1	O-RING
57	PAT-PH-5009	1	LOWER ROD
58	PAT-PH-5010-01	1	MUFFLER ASSEMBLY
59	PAT-PH-5011	4	TIE ROD
60	F-HB-06C-24-GR8	4	HEX BOLT
61	F-HB-06C-12	2	HEX BOLT
62	PAT-PH-5008	1	UPPER ROD ASSY
63	PF-HN-08-08S	1	HOSE ADAPTER
64	F-SW-06	4	LOCK WASHER
65	F-SW-04-SS	2	LOCK WASHER
66	F-HB-04C-56-SS	2	HEX BOLT
67	F-FW-04	2	FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES  
PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KIT

PART No.	DESCRIPTION
PAT-PH-5000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT

# MAGNUM VENUS PLASTECH

5" PATRIOT POWER HEAD

PAT-PH-5000-XD

REV:

SHEET 3 / 3

2/20/2015

PAT-PH-5000-SK  
SEAL KIT 5" AIR MOTOR

2 PCS  
O-U-006 O-RING

4 PCS  
O-B-008 O-RING

6 PCS  
O-B-012 O-RING

4 PCS  
O-B-014 O-RING

2 PCS  
O-B-019 O-RING

2 PCS  
O-B-026  
O-RING

2 PCS  
O-B-415 O-RING

2 PCS  
O-B-159 O-RING

2 PCS  
O-B-116 O-RING

2 PC  
O-B-118 O-RING

1 PC  
O-B-024  
O-RING

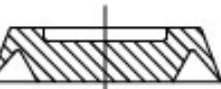
2 PCS  
O-B-011 O-RING

2 PCS  
O-U-206-90 O-RING

2 PCS  
O-D-010-90 O-RING

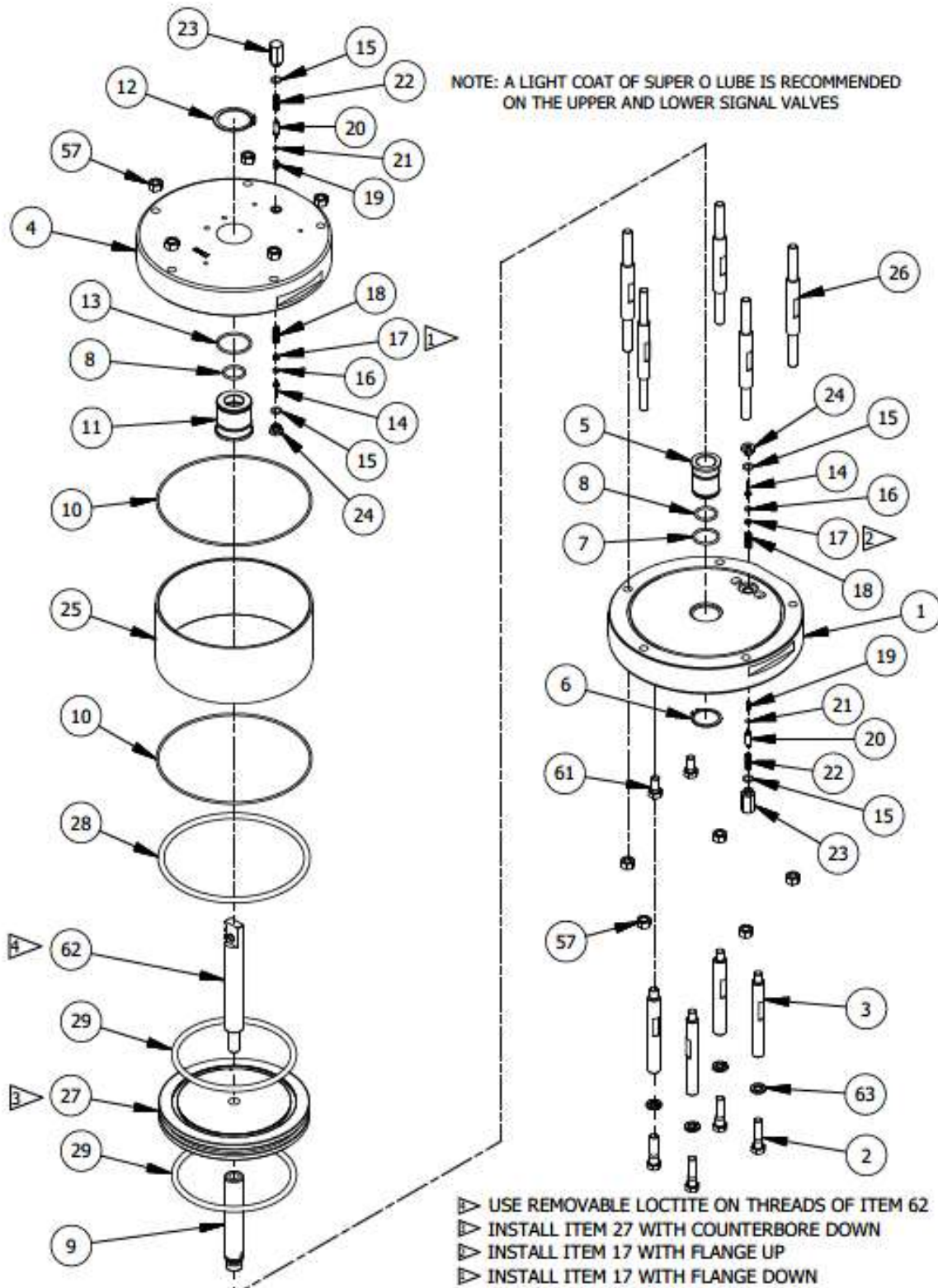
1 PC  
O-B-425 O-RING

2 PCS  
MPH-5010 1/2" DIAPHRAGM



1 PC  
O-B-121  
O-RING

1 PC  
O-B-127  
O-RING



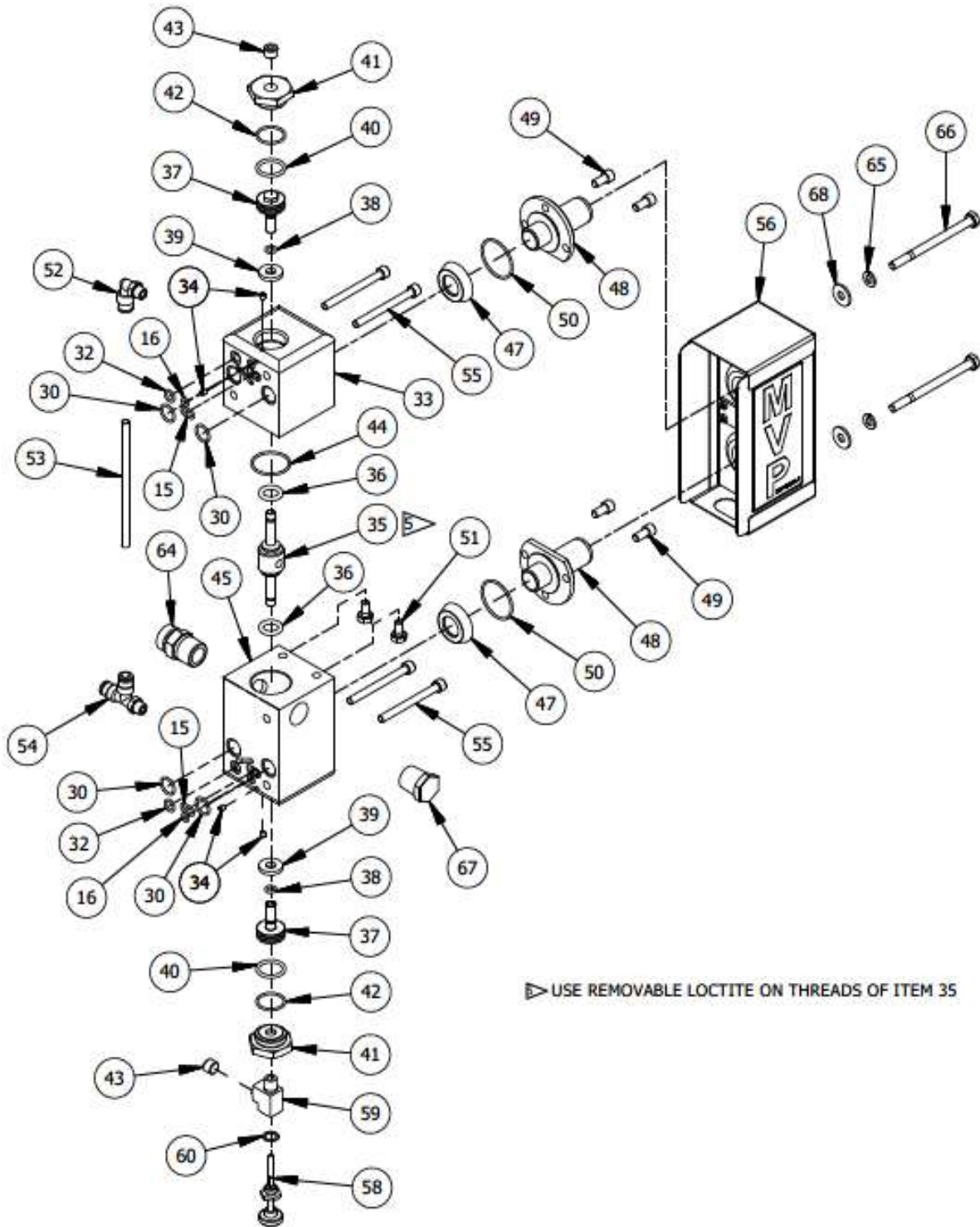
# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD	PAT-PH-7000
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REV:B 09/16/13

SHEET 1 / 3

10/22/2009



# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD

PAT-PH-7000

REV: B 09/16/13

SHEET 2 / 3

10/22/2009

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PAT-PH-7004	1	LOWER END CAP
2	F-HB-06C-24-GR8	4	HEX BOLT
3	PAT-PH-5011	4	TIE ROD
4	PAT-PH-7012	1	UPPER END CAP - 7"
5	VPH-4254	1	BUSHING- 7/8 DIA. PISTON ROD
6	MPH-3261	1	SNAP RING - EXTERNAL
* 7	O-B-121	1	O-RING
* 8	O-B-118	2	O-RING
9	PAT-PH-5009	1	LOWER ROD
* 10	O-B-167	2	O-RING
11	PAT-PH-5007	1	UPPER BUSHING
12	7205-2-26	1	EXTERNAL SNAP RING
* 13	O-B-127	1	O-RING
14	MPH-2513	2	VALVE STEM- PILOT VALVE
* 15	O-B-012	6	O-RING
* 16	O-B-008	4	O-RING
17	MPH-2512	2	SEAL GUIDE- PILOT VALVE
18	MPH-2528	2	SPRING
19	MPH-2526	2	SPRING
20	MPH-2540	2	INLET ROD- PILOT VALVE
* 21	O-U-006	2	O-RING
22	MPH-2533	2	COMPRESSION SPRING
23	MPH-2541	2	SPRING HOUSING- PILOT VALVE
24	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE
25	PAT-PH-7003	1	CYLINDER
26	PAT-PH-5006	5	TIE ROD - 2" STROKE
27	MPH-7004	1	PISTON - 7"
* 28	O-B-439	1	O-RING
* 29	O-B-431	2	O-RING
* 30	O-B-014	4	O-RING
* 32	O-B-011	2	O-RING
33	PAT-PH-5001	1	UPPER VALVE BLOCK
34	F-SS-832-02-SS	4	SET SCREW
35	PAT-PH-5005	1	POPPET VALVE - 2" STROKE
* 36	O-U-206-90	2	O-RING
37	MPH-2517	2	VALVE PISTON
* 38	O-D-010-90	2	O-RING
39	MPH-3262	2	PISTON STOP
* 40	O-B-116	2	O-RING
41	MPH-2521	2	VALVE END CAP
* 42	O-B-019	2	O-RING
43	PF-AP-02-SS	2	PIPE PLUG
* 44	O-B-024	1	O-RING
45	PAT-PH-5002	1	LOWER VALVE BLOCK
* 47	MPH-5010	2	DIAPHRAGM
48	MPH-5009	2	EXHAUST PORT
49	F-CS-04C-08-SS	4	CAP SCREW
* 50	O-B-026	2	O-RING
51	F-HB-04C-08	2	HEX BOLT
52	MPH-2539	1	MALE ELBOW
53	MS-2052-1	.313 FT	POLY TUBE
54	MPH-2538	1	MALE POLY TEE FITTING
55	F-CS-04C-40-SS	4	SOCKET HEAD CAP SCREW
56	PAT-PH-5010-01	1	MUFFLER ASSEMBLY
57	F-HN-06F	10	HEX NUT
58	MPH-2546-01	1	RESET STEM ASSEMBLY
59	PF-ST-02-BR	1	TEE FITTING
60	MPH-2545	1	SEAL
61	F-HB-06C-12	2	HEX BOLT
62	PAT-PH-5008	1	UPPER ROD ASSY
63	F-SW-06	4	LOCK WASHER
64	PF-HN-08-08S	1	HOSE ADAPTER
65	F-SW-04-SS	2	LOCK WASHER
66	F-HB-04C-56-SS	2	HEX BOLT
67	PF-HP-08	1	HEX PLUG
68	F-FW-04	2	FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES

PARTS LIST		
PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
* PAT-PH-7000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT

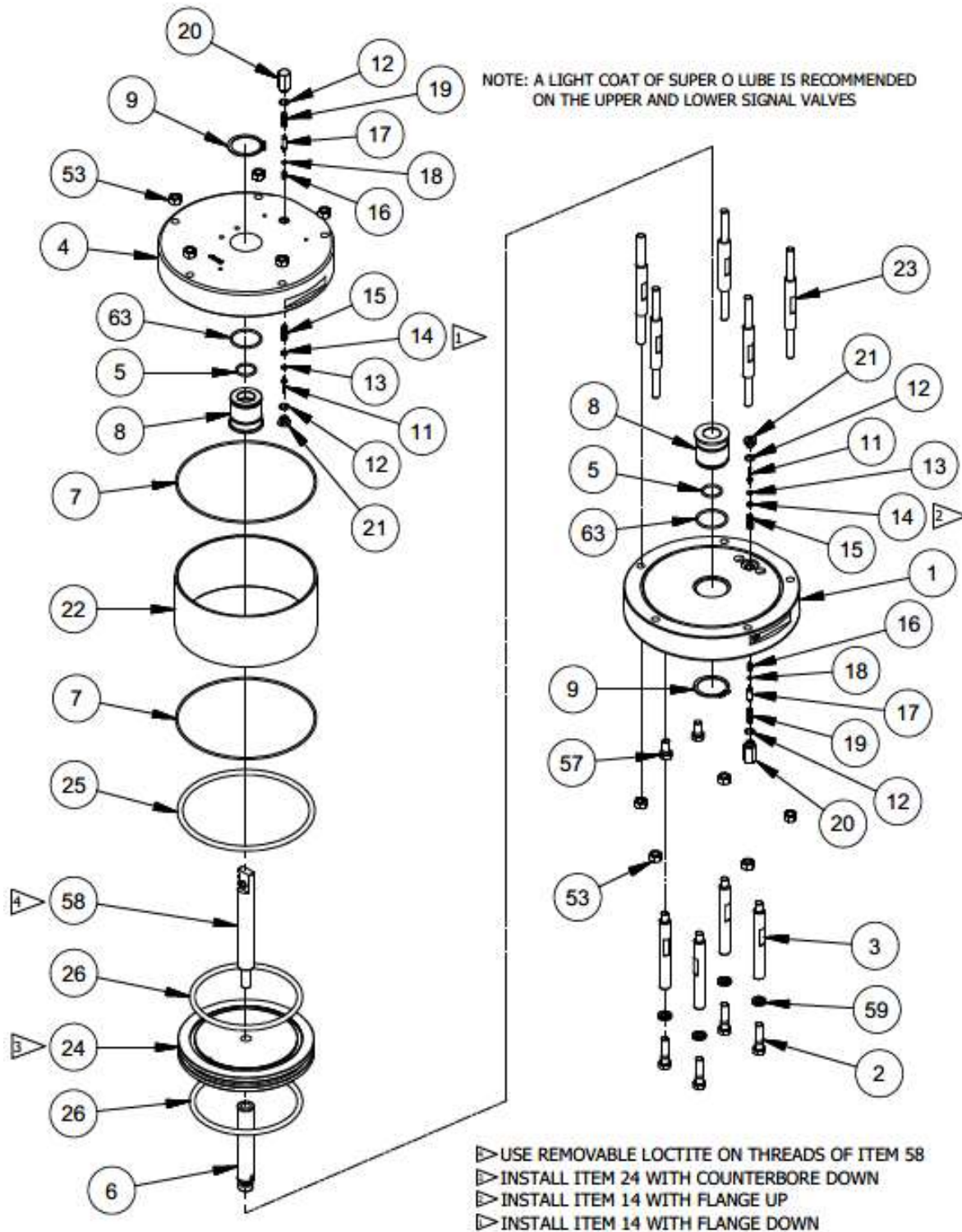
## MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD	PAT-PH-7000
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REV:B 09/16/13

SHEET 3 / 3

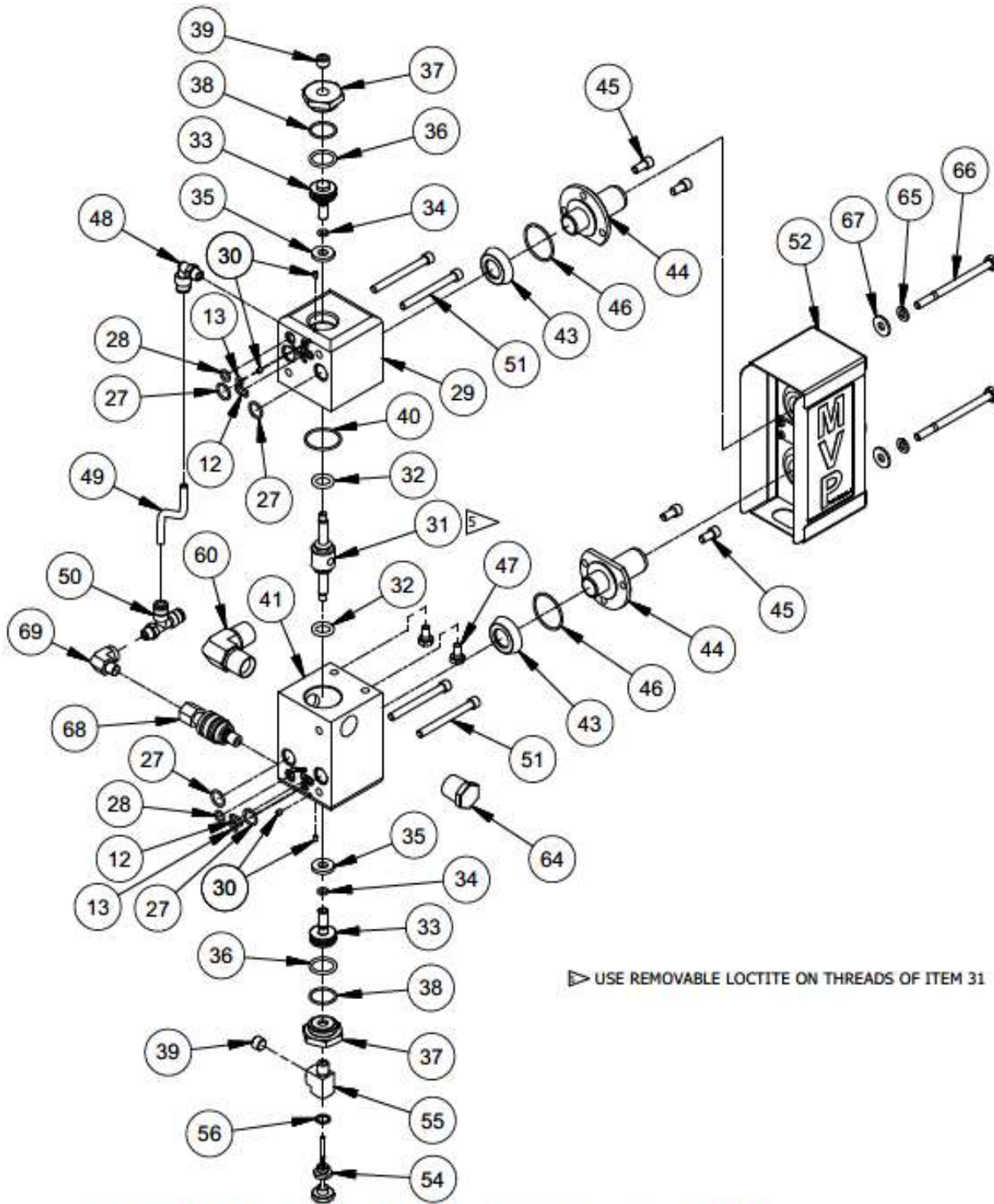
10/22/2009



# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD PAT-PH-7000-CA

REV: A 05/24/11



▶ USE REMOVABLE LOCTITE ON THREADS OF ITEM 31

# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD	PAT-PH-7000-CA
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REV: A 05/24/11

PAT-PH-7000-CA PARTS LIST			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	1	LOWER END CAP
	2	4	HEX BOLT
	3	4	TIE ROD
	4	1	UPPER END CAP - 7"
*	5	2	O-RING
	6	1	LOWER ROD
*	7	2	O-RING
	8	2	UPPER BUSHING
	9	2	EXTERNAL SNAP RING
	11	2	VALVE STEM- PILOT VALVE
*	12	6	O-RING
*	13	4	O-RING
	14	2	SEAL GUIDE- PILOT VALVE
	15	2	SPRING
	16	2	SPRING
	17	2	INLET ROD- PILOT VALVE
*	18	2	O-RING
	19	2	COMPRESSION SPRING
	20	2	SPRING HOUSING- PILOT VALVE
	21	2	STEM SEAL ASSY- PILOT VALVE
	22	1	CYLINDER
	23	5	TIE ROD - 2" STROKE
	24	1	PISTON - 7"
*	25	1	O-RING
*	26	2	O-RING
*	27	4	O-RING
*	28	2	O-RING
	29	1	UPPER VALVE BLOCK
	30	4	SET SCREW
	31	1	POPPET VALVE - 2" STROKE
*	32	2	O-RING
	33	2	VALVE PISTON
*	34	2	O-RING
	35	2	PISTON STOP
*	36	2	O-RING
	37	2	VALVE END CAP
*	38	2	O-RING
	39	2	PIPE PLUG
*	40	1	O-RING
	41	1	LOWER VALVE BLOCK
*	43	2	DIAPHRAGM
	44	2	EXHAUST PORT
*	45	4	CAP SCREW
	46	2	O-RING
	47	2	HEX BOLT
	48	1	MALE ELBOW
	49	.50 FT	POLY TUBE
	50	1	MALE POLY TEE FITTING
	51	4	CAP SCREW
	52	1	MUFFLER ASSEMBLY
	53	10	HEX NUT
	54	1	RESET VALVE STEM
	55	1	TEE FITTING
	56	1	SEAL
	57	2	HEX BOLT
	58	1	UPPER ROD ASSY
	59	4	LOCK WASHER
	60	1	MALE ELBOW
*	63	2	O-RING
	64	1	HEX PLUG
	65	2	LOCK WASHER
	66	2	HEX BOLT
	67	2	FLAT WASHER
	68	1	SHUT OFF VALVE
	69	1	STREET ELBOW

OPTIONAL PARTS AND ASSEMBLIES

PARTS LIST		
PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
* PAT-PH-7000-CA-SK	SEAL KIT

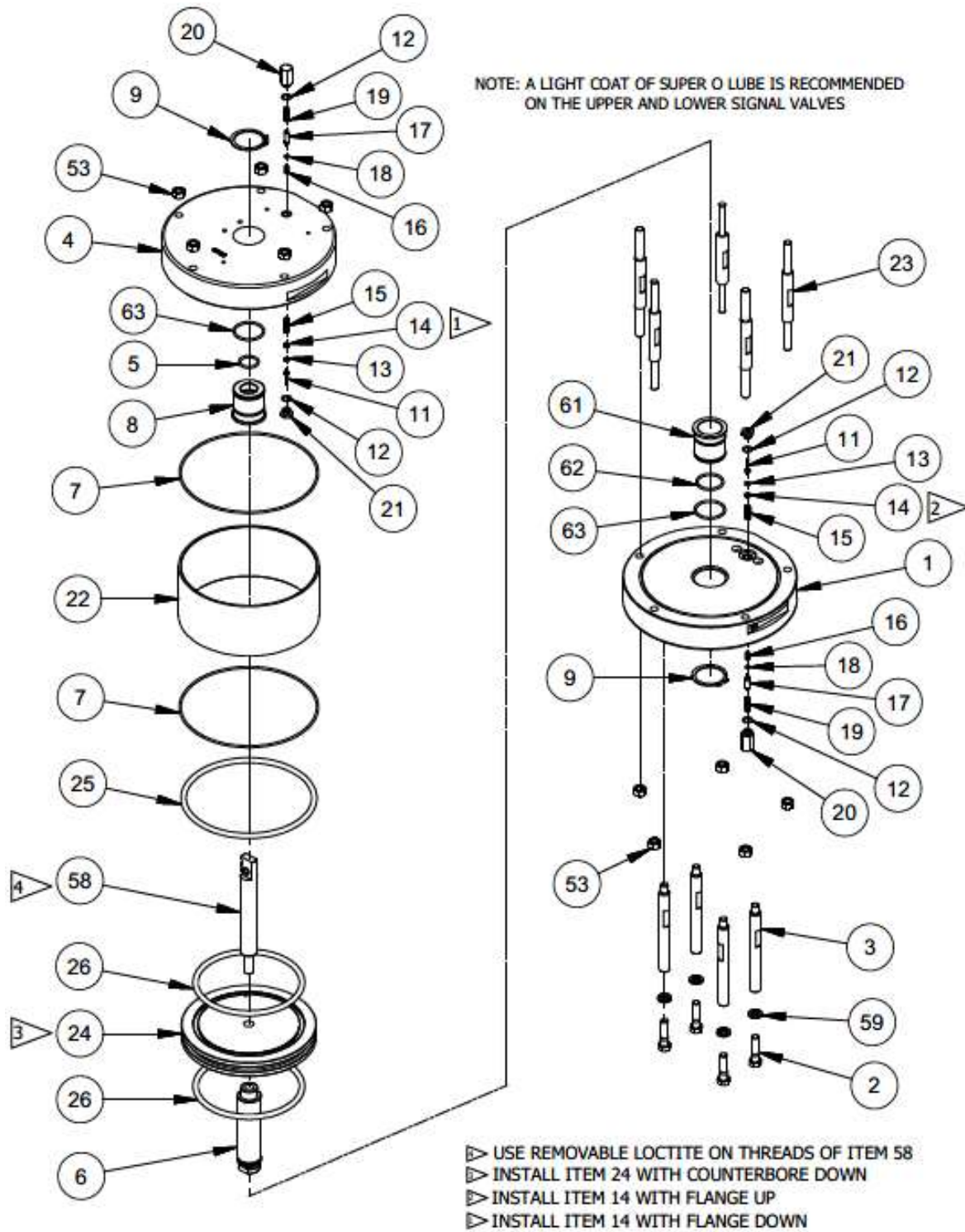
\* ASTERISKS DENOTE PARTS IN SEAL KIT

# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD

PAT-PH-7000-CA

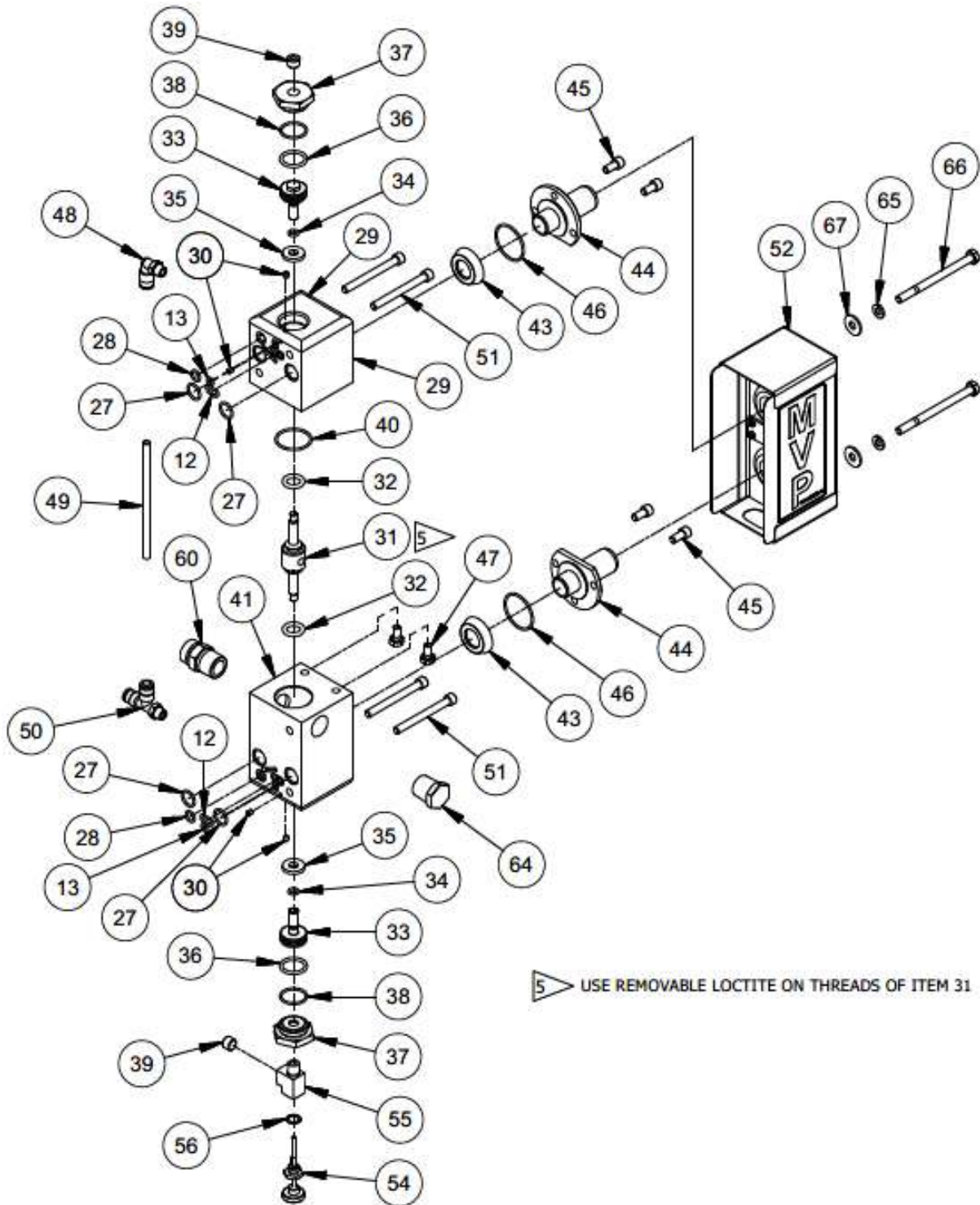
REV: A 05/24/11



# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD -DUO PUMP PAT-PH-7000-D

REV: A 05/24/11



# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD - DUO PUMP PAT-PH-7000-D

REV: A 05/24/11

PAT-PH-7000-D PARTS LIST			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	1	PAT-PH-7004-HD LOWER END CAP
	2	4	F-HB-06C-24-GR8 HEX BOLT
	3	4	PAT-PH-7013 LOWER TIE ROD
	4	1	PAT-PH-7012 UPPER END CAP - 7"
*	5	1	O-B-118 O-RING
	6	1	PAT-PH-7009 LOWER ROD - HD
*	7	2	O-B-167 O-RING
	8	1	PAT-PH-5007 UPPER BUSHING
	9	2	7205-2-26 EXTERNAL SNAP RING
	11	2	MPH-2513 VALVE STEM- PILOT VALVE
*	12	6	O-B-012 O-RING
*	13	4	O-B-008 O-RING
	14	2	MPH-2512 SEAL GUIDE- PILOT VALVE
	15	2	MPH-2528 SPRING
	16	2	MPH-2526 SPRING
	17	2	MPH-2540 INLET ROD- PILOT VALVE
*	18	2	O-U-006 O-RING
	19	2	MPH-2533 COMPRESSION SPRING
	20	2	MPH-2541 SPRING HOUSING- PILOT VALVE
	21	2	MPH-2511-01 STEM SEAL ASSY- PILOT VALVE
	22	1	PAT-PH-7003 CYLINDER
	23	5	PAT-PH-5006 TIE ROD - 2" STROKE
	24	1	MPH-7004 PISTON - 7"
*	25	1	O-B-439 O-RING
*	26	2	O-B-431 O-RING
*	27	4	O-B-014 O-RING
*	28	2	O-B-011 O-RING
	29	1	PAT-PH-5001 UPPER VALVE BLOCK
	30	4	F-SS-832-02-SS SET SCREW
	31	1	PAT-PH-5005 POPPET VALVE - 2" STROKE
*	32	2	O-U-206-90 O-RING
	33	2	MPH-2517 VALVE PISTON
*	34	2	O-D-010-90 O-RING
	35	2	MPH-3262 PISTON STOP
*	36	2	O-B-116 O-RING
	37	2	MPH-2521 VALVE END CAP
*	38	2	O-B-019 O-RING
	39	2	PF-AP-02-SS PIPE PLUG
*	40	1	O-B-024 O-RING
	41	1	PAT-PH-5002 LOWER VALVE BLOCK
*	43	2	MPH-5010 DIAPHRAGM
	44	2	MPH-5009 EXHAUST PORT
	45	4	F-CS-04C-08-SS CAP SCREW
*	46	2	O-B-026 O-RING
	47	2	F-HB-04C-08 HEX BOLT
	48	1	MPH-2539 MALE ELBOW
	49	1	MS-2052-1 POLY TUBE
	50	1	MPH-2538 MALE POLY TEE FITTING
	51	4	F-CS-04C-40-SS CAP SCREW
	52	1	PAT-PH-5010-01 MUFFLER ASSEMBLY
	53	10	F-HN-06F HEX NUT
	54	1	MPH-2546-01 RESET VALVE STEM
	55	1	PF-ST-02-BR TEE FITTING
	56	1	MPH-2545 SEAL
	58	1	PAT-PH-5008 UPPER ROD ASSY
	59	4	F-SW-06 LOCK WASHER
	60	1	PF-HN-08-08S HOSE ADAPTER
	61	1	VPH-7005 BUSHING
*	62	1	O-B-124 O-RING
*	63	2	O-B-127 O-RING
	64	1	PF-HP-08 HEX PLUG
	65	2	F-SW-04-SS LOCK WASHER
	66	2	F-HB-04C-56-SS HEX BOLT
	67	2	F-FW-04 FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES

PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

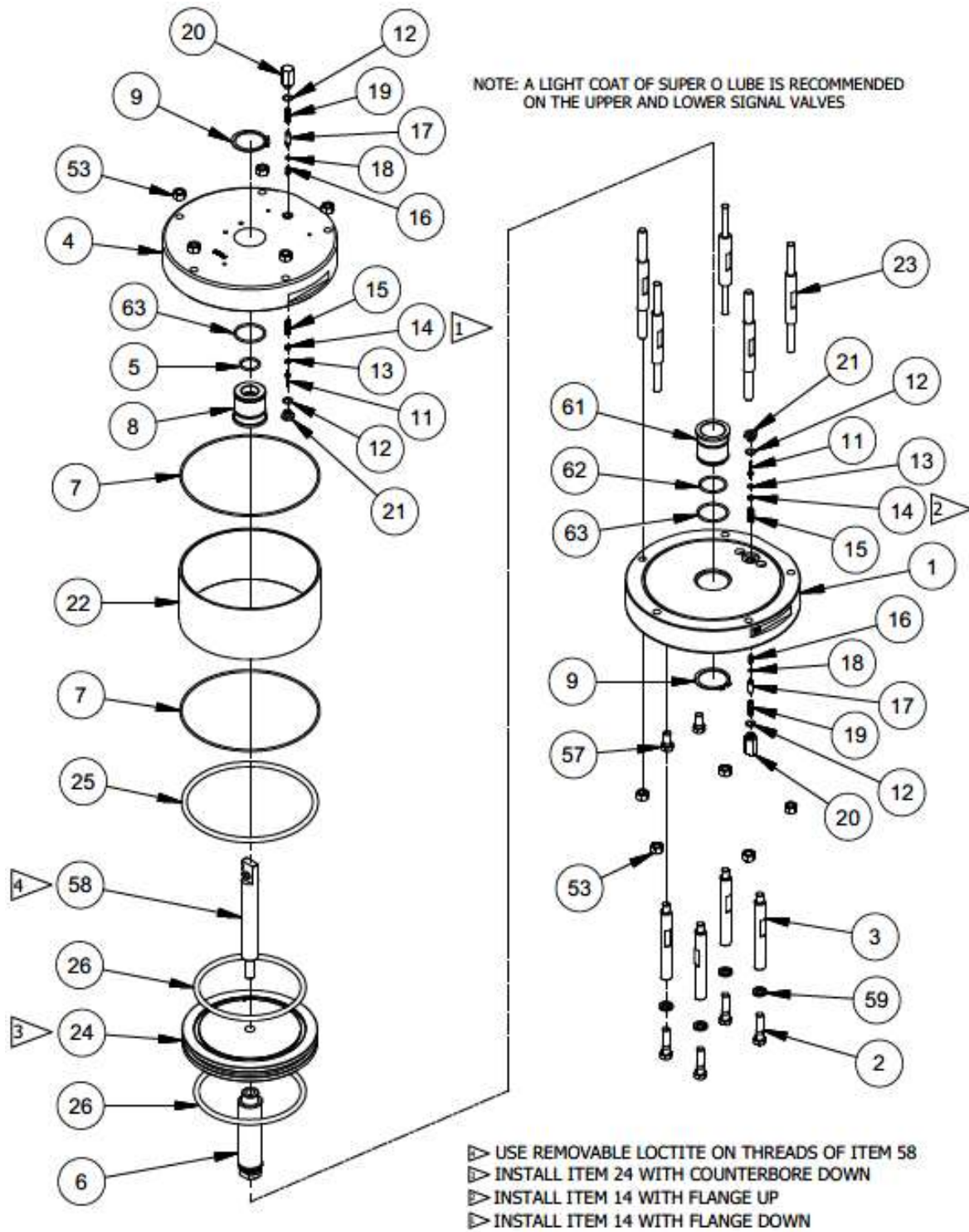
PART No.	DESCRIPTION
* PAT-PH-7000-HD-5K	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT

# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD - DUO PUMP PAT-PH-7000-D

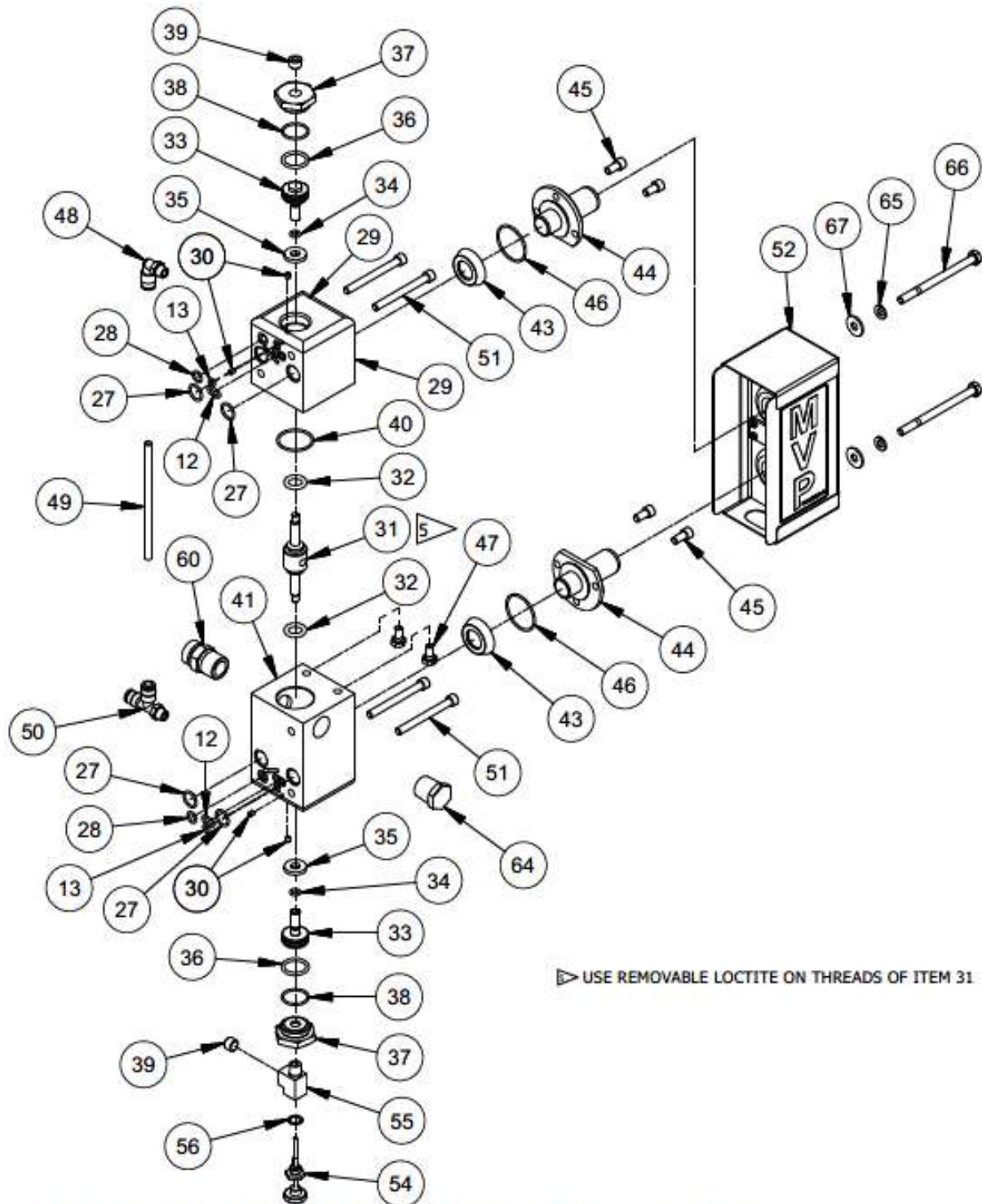
REV: A 05/24/11



# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD -HD	PAT-PH-7000-HD
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REV: A 05/24/11



▶ USE REMOVABLE LOCTITE ON THREADS OF ITEM 31

# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD - HD      PAT-PH-7000-HD

REV: A 05/24/11

PAT-PH-7000-HD PARTS LIST			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	1	PAT-PH-7004-HD LOWER END CAP
	2	4	F-HB-06C-24-GR8 HEX BOLT
	3	4	PAT-PH-5011 TIE ROD
	4	1	PAT-PH-7012 UPPER END CAP - 7"
*	5	1	O-B-118 O-RING
	6	1	PAT-PH-7009 LOWER ROD - HD
*	7	2	O-B-167 O-RING
	8	1	PAT-PH-5007 UPPER BUSHING
	9	2	7205-2-26 EXTERNAL SNAP RING
	11	2	MPH-2513 VALVE STEM- PILOT VALVE
*	12	6	O-B-012 O-RING
*	13	4	O-B-008 O-RING
	14	2	MPH-2512 SEAL GUIDE- PILOT VALVE
	15	2	MPH-2528 SPRING
	16	2	MPH-2526 SPRING
	17	2	MPH-2540 INLET ROD- PILOT VALVE
*	18	2	O-U-006 O-RING
	19	2	MPH-2533 COMPRESSION SPRING
	20	2	MPH-2541 SPRING HOUSING- PILOT VALVE
	21	2	MPH-2511-01 STEM SEAL ASSY- PILOT VALVE
	22	1	PAT-PH-7003 CYLINDER
	23	5	PAT-PH-5006 TIE ROD - 2" STROKE
	24	1	MPH-7004 PISTON - 7"
*	25	1	O-B-439 O-RING
*	26	2	O-B-431 O-RING
*	27	4	O-B-014 O-RING
*	28	2	O-B-011 O-RING
	29	1	PAT-PH-5001 UPPER VALVE BLOCK
	30	4	F-SS-832-02-SS SET SCREW
	31	1	PAT-PH-5005 POPPET VALVE - 2" STROKE
*	32	2	O-U-206-90 O-RING
	33	2	MPH-2517 VALVE PISTON
*	34	2	O-D-010-90 O-RING
	35	2	MPH-3262 PISTON STOP
*	36	2	O-B-116 O-RING
	37	2	MPH-2521 VALVE END CAP
*	38	2	O-B-019 O-RING
	39	2	PF-AP-02-SS PIPE PLUG
*	40	1	O-B-024 O-RING
	41	1	PAT-PH-5002 LOWER VALVE BLOCK
*	43	2	MPH-5010 DIAPHRAGM
	44	2	MPH-5009 EXHAUST PORT
	45	4	F-CS-04C-08-SS CAP SCREW
*	46	2	O-B-026 O-RING
	47	2	F-HB-04C-08 HEX BOLT
	48	1	MPH-2539 MALE ELBOW
	49	.40ft	MS-2052-1 POLY TUBE
	50	1	MPH-2538 MALE POLY TEE FITTING
	51	4	F-CS-04C-40-SS CAP SCREW
	52	1	PAT-PH-5010-01 MUFFLER ASSEMBLY
	53	10	F-HN-06F HEX NUT
	54	1	MPH-2546-01 RESET VALVE STEM
	55	1	PF-ST-02-BR TEE FITTING
	56	1	MPH-2545 SEAL
	57	2	F-HB-06C-12 HEX BOLT
	58	1	PAT-PH-5008 UPPER ROD ASSY
	59	4	F-SW-06 LOCK WASHER
	60	1	PF-HN-08-08S HOSE ADAPTER
	61	1	VPH-7005 BUSHING
*	62	1	O-B-124 O-RING
*	63	2	O-B-127 O-RING
	64	1	PF-HP-08 HEX PLUG
	65	2	F-SW-04-SS LOCK WASHER
	66	2	F-HB-04C-56-SS HEX BOLT
	67	2	F-FW-04 FLAT WASHER

OPTIONAL PARTS AND ASSEMBLIES

PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
* PAT-PH-7000-HD-5K	SEAL KIT

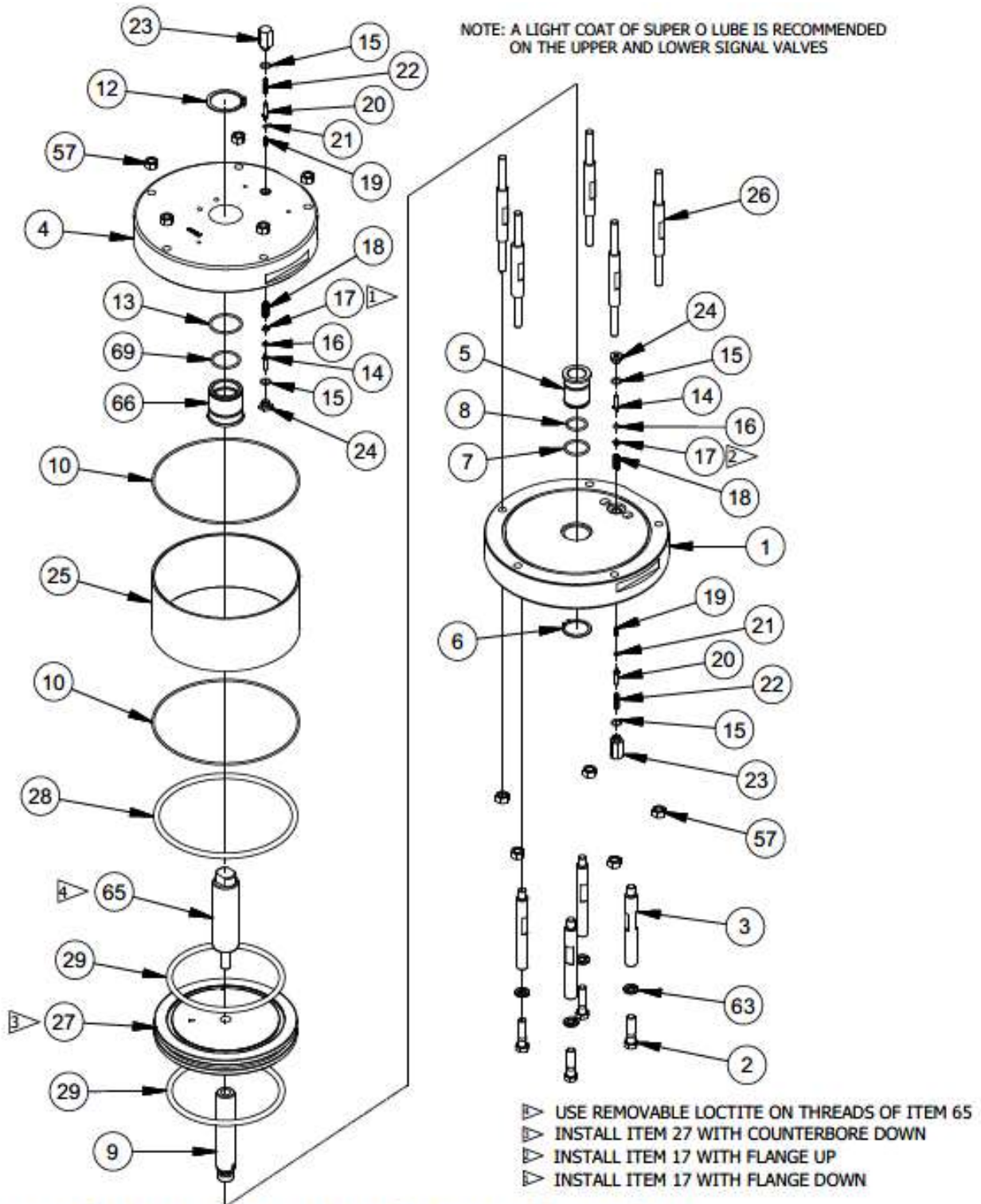
\* ASTERISKS DENOTE PARTS IN SEAL KIT

# MAGNUM VENUS PLASTECH

7" PATRIOT POWER HEAD - HD

PAT-PH-7000-HD

REV: A 05/24/11

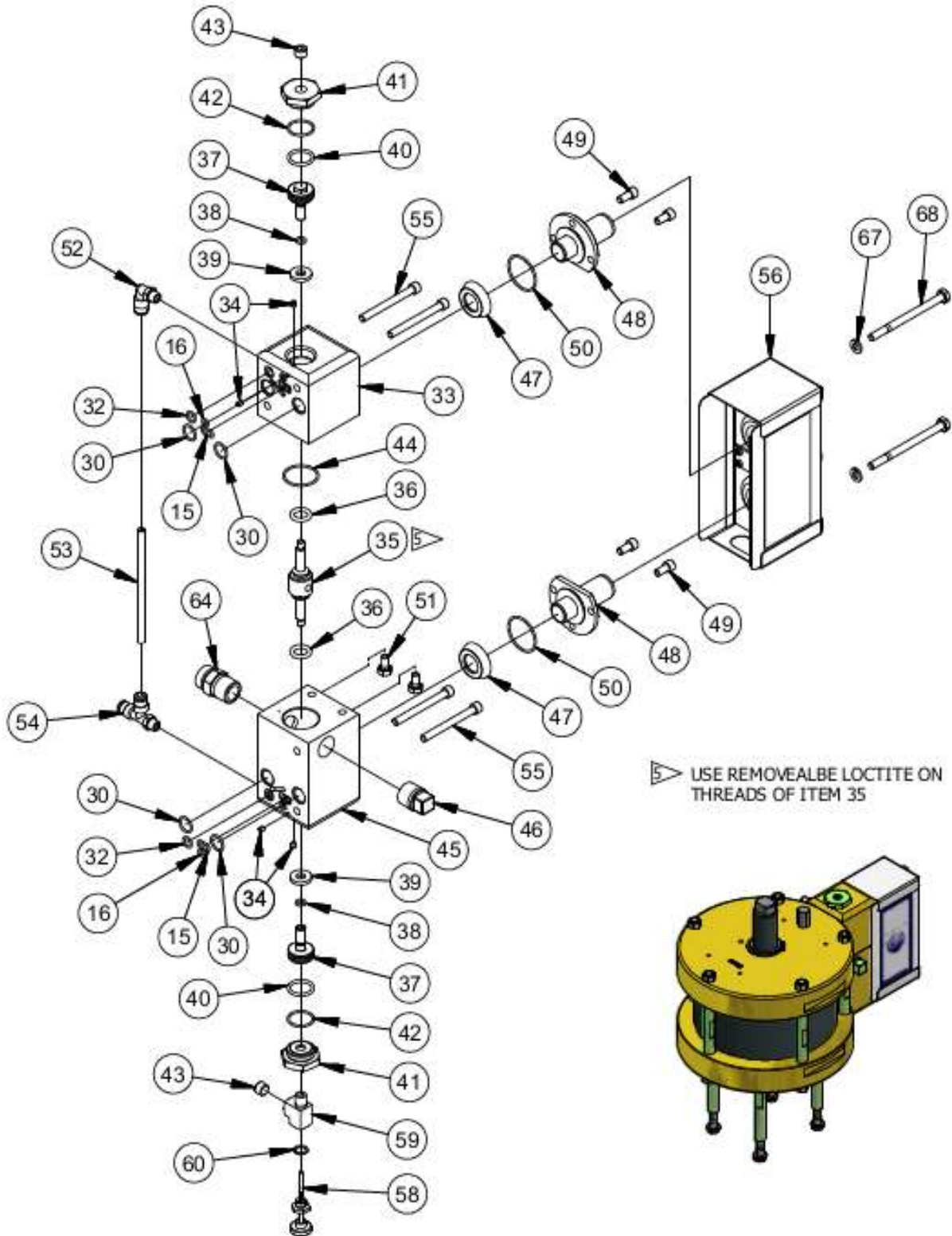


# MAGNUM VENUS PLASTECH

7" Patriot Power Head - Putty

PAT-PH-7000-P

REV:B 07/01/15



# MAGNUM VENUS PLASTECH

7" Patriot Power Head - Putty

PAT-PH-7000-P

REV: B 07/01/15

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PAT-PH-7004	1	LOWER END CAP
2	F-HB-06C-24-GR8	4	HEX BOLT
3	PAT-PH-5011	4	TIE ROD
4	PAT-PH-7012	1	UPPER END CAP - 7"
5	VPH-4254	1	BUSHING- 7/8 DIA. PISTON ROD
6	MPH-3261	1	SNAP RING - EXTERNAL
* 7	O-B-121	1	O-RING
* 8	O-B-118	1	O-RING
9	PAT-PH-5009	1	LOWER ROD
* 10	O-B-167	2	O-RING
12	7205-2-26	1	EXTERNAL SNAP RING
* 13	O-B-127	1	O-RING
14	MPH-2513	2	VALVE STEM- PILOT VALVE
* 15	O-B-012	6	O-RING
* 16	O-B-008	4	O-RING
17	MPH-2512	2	SEAL GUIDE- PILOT VALVE
18	MPH-2528	2	SPRING
19	MPH-2526	2	SPRING
20	MPH-2540	2	INLET ROD- PILOT VALVE
* 21	O-U-006	2	O-RING
22	MPH-2533	2	COMPRESSION SPRING
23	MPH-2541	2	SPRING HOUSING- PILOT VALVE
24	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE
25	PAT-PH-7003	1	CYLINDER
26	PAT-PH-5006	5	TIE ROD - 2" STROKE
27	MPH-7004	1	PISTON - 7"
* 28	O-B-439	1	O-RING
* 29	O-B-431	2	O-RING
* 30	O-B-014	4	O-RING
* 32	O-B-011	2	O-RING
33	PAT-PH-5001	1	UPPER VALVE BLOCK
34	F-SS-832-02-SS	4	SET SCREW
35	PAT-PH-5005	1	POPPET VALVE - 2" STROKE
* 36	O-U-206-90	2	O-RING
37	MPH-2517	2	VALVE PISTON
* 38	O-D-010-90	2	O-RING
39	MPH-3262	2	PISTON STOP
* 40	O-B-116	2	O-RING
41	MPH-2521	2	VALVE END CAP
* 42	O-B-019	2	O-RING
43	PF-AP-02-SS	2	PIPE PLUG
* 44	O-B-024	1	O-RING
45	PAT-PH-5002	1	LOWER VALVE BLOCK
46	PF-HP-08	1	PIPE PLUG
* 47	MPH-5010	2	DIAPHRAGM
48	MPH-5009	2	EXHAUST PORT
49	F-CS-04C-08-SS	4	CAP SCREW
* 50	O-B-026	2	O-RING
51	F-HB-04C-08	2	HEX BOLT
52	MPH-2539	1	MALE ELBOW
53	MS-2052-1	.40 FT	POLY TUBE
54	MPH-2538	1	MALE POLY TEE FITTING
55	F-CS-04C-40-SS	4	CAP SCREW
56	PAT-PH-5010-01	1	MUFFLER ASSEMBLY
57	F-HN-06F	10	HEX NUT
58	MPH-2546-01	1	RESET STEM ASSEMBLY
59	PF-ST-02-BR	1	TEE FITTING
60	MPH-2545	1	SEAL
63	F-SW-06	4	LOCK WASHER
64	PF-HN-08-08S	1	HOSE ADAPTER
65	PAT-PH-7008	1	UPPER ROD - PUTTY
66	VPH-7005	1	BUSHING - UPPER PISTON ROD
67	F-SW-04-SS	2	LOCK WASHER
68	F-HB-04C-56-SS	2	HEX BOLT
* 69	O-B-124	1	O-RING

OPTIONAL PARTS AND ASSEMBLIES

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-SB-XL	1	SHIFT BLOCK ASSY

REPAIR KIT

\* PAT-PH-7000-SK (ASTERISKS DENOTE PARTS IN KIT)

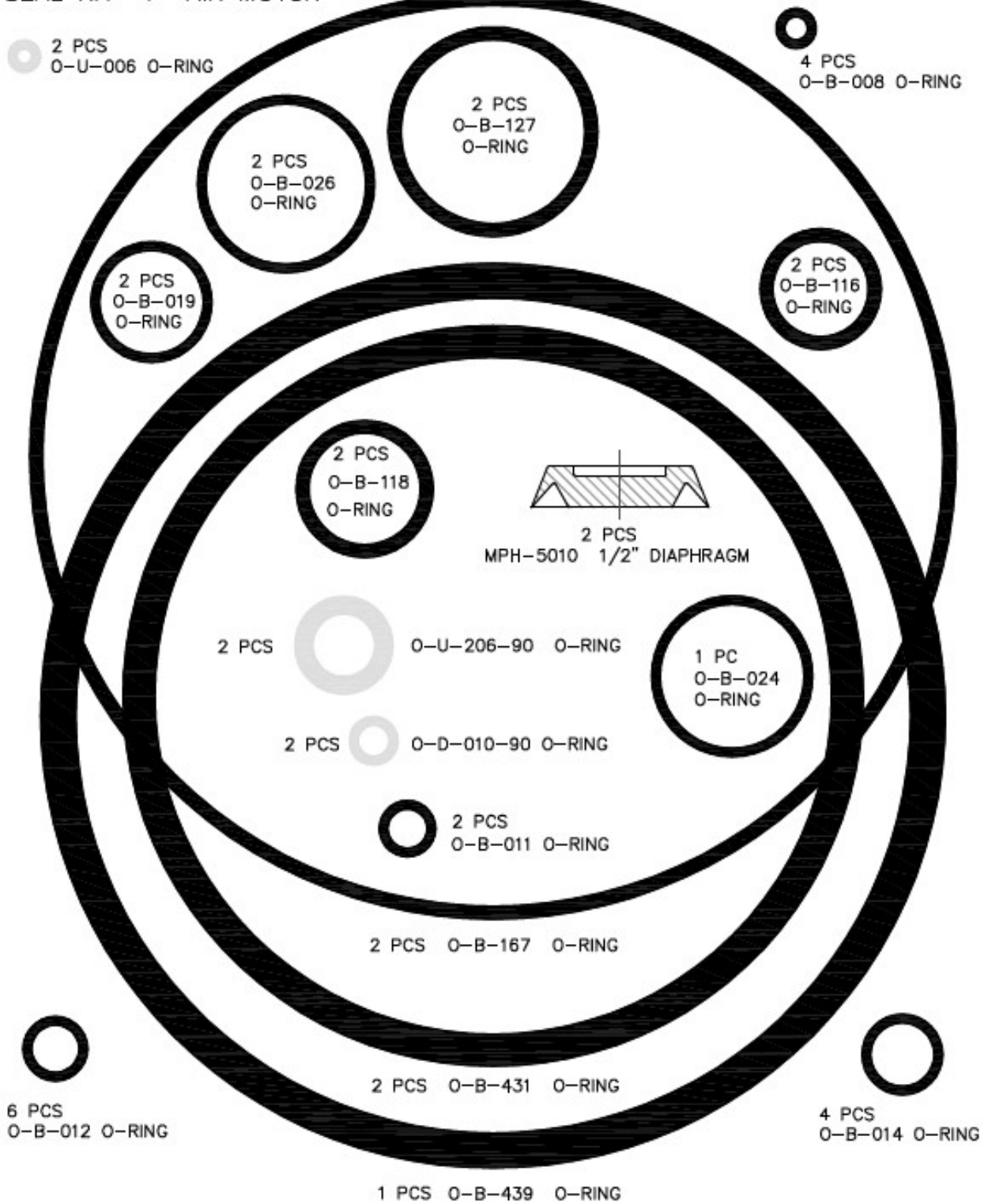
# MAGNUM VENUS PLASTECH

7" Patriot Power Head - Putty

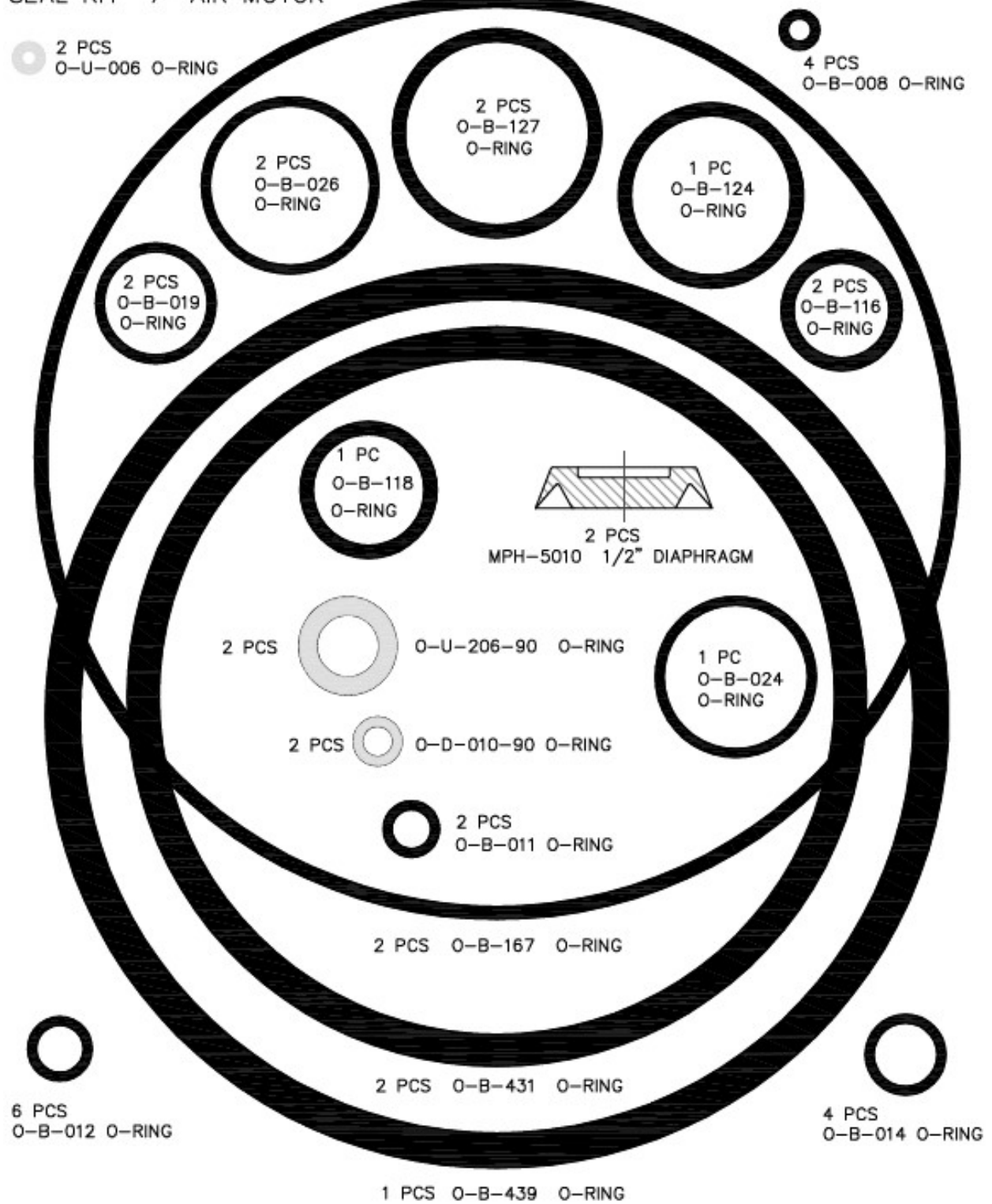
PAT-PH-7000-P

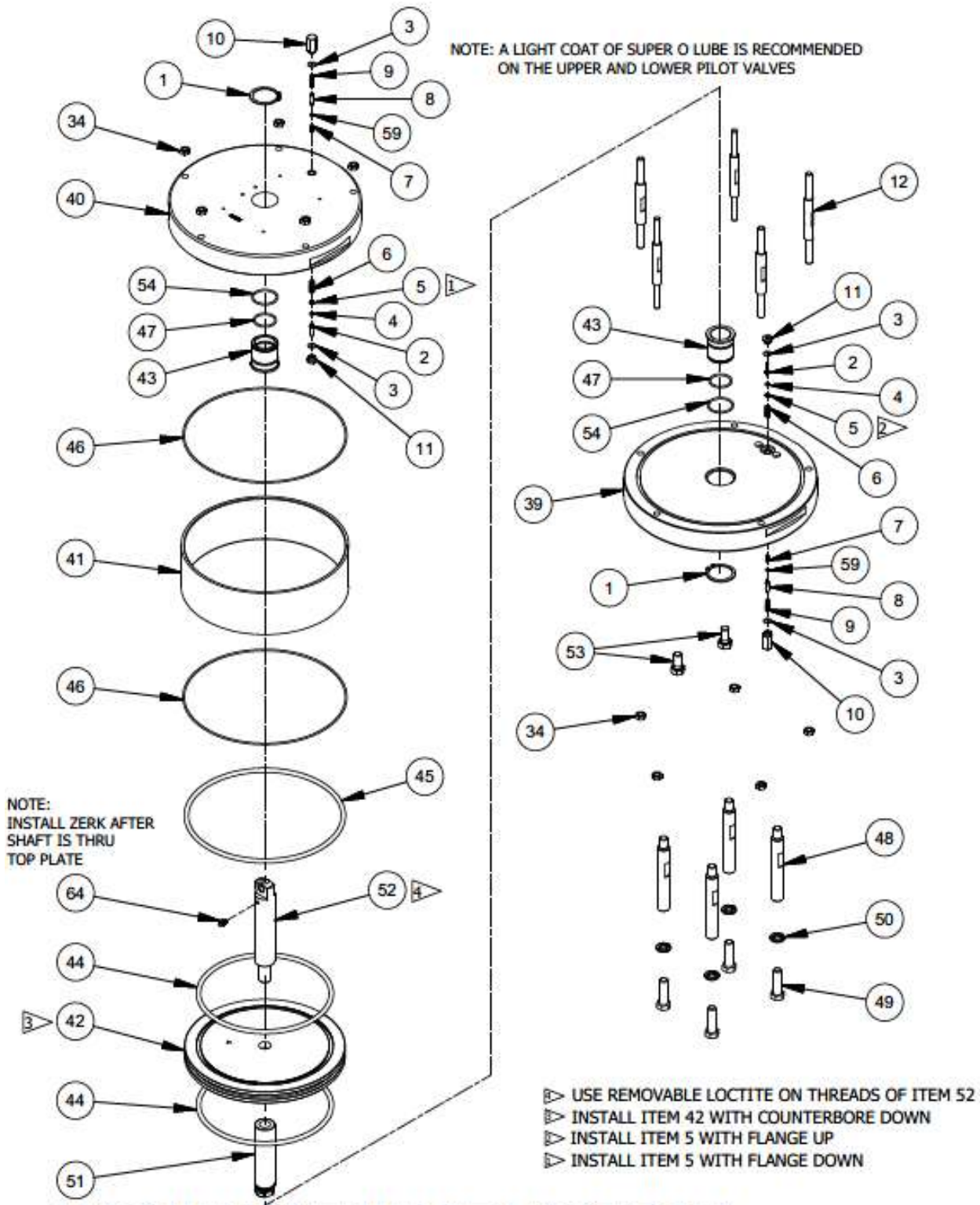


PAT-PH-7000-CA-SK  
SEAL KIT 7" AIR MOTOR



PAT-PH-7000-HD-SK  
SEAL KIT 7" AIR MOTOR





# MAGNUM VENUS PLASTECH

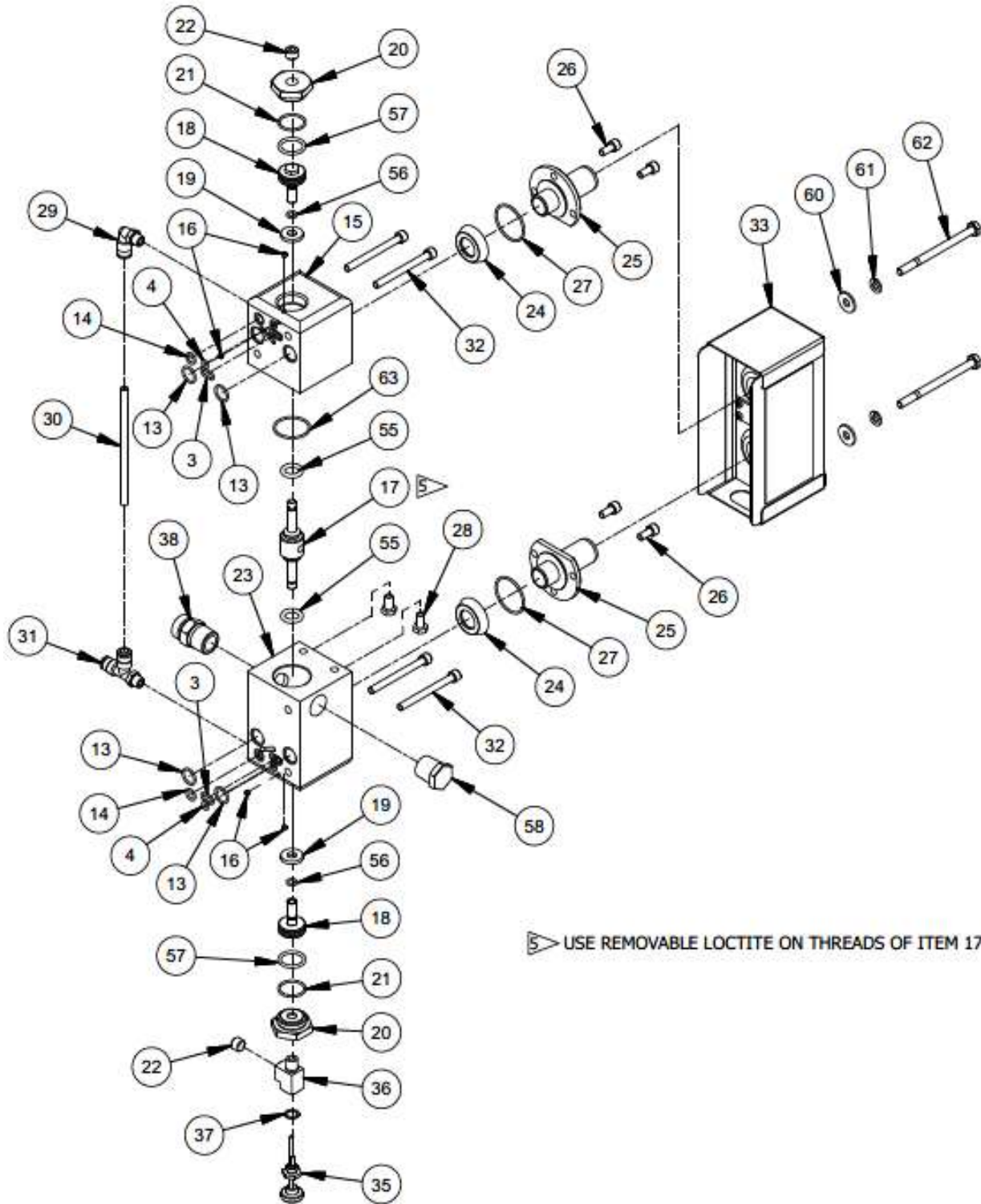
10" PATRIOT POWER HEAD

PAT-PH-10000

REV:C 03/02/2017

SHEET 1 / 3

4/20/2010



# MAGNUM VENUS PLASTECH

10" PATRIOT POWER HEAD

PAT-PH-10000

REV: C 03/02/2017

SHEET 2 / 3

4/20/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	7205-2-26	2	EXTERNAL SNAP RING
2	MPH-2513	2	VALVE STEM- PILOT VALVE
* 3	O-B-012	6	O-RING
* 4	O-B-008	4	O-RING
5	MPH-2512	2	SEAL GUIDE- PILOT VALVE
6	MPH-2528	2	SPRING
7	MPH-2526	2	SPRING
8	MPH-2540	2	INLET ROD- PILOT VALVE
9	MPH-2533	2	COMPRESSION SPRING
10	MPH-2541	2	SPRING HOUSING- PILOT VALVE
11	MPH-2511-01	2	STEM SEAL ASSY- PILOT VALVE
12	PAT-PH-5006	5	TIE ROD - 2" STROKE
* 13	O-B-014	4	O-RING
* 14	O-B-011	2	O-RING
15	PAT-PH-5001	1	UPPER VALVE BLOCK
16	F-SS-832-02-SS	4	SS SET SCREW
17	PAT-PH-5005	1	POPPET VALVE - 2" STROKE
18	MPH-2517	2	VALVE PISTON
19	MPH-3262	2	PISTON STOP
20	MPH-2521	2	VALVE END CAP
* 21	O-B-019	2	O-RING
22	PF-AP-02-SS	2	PIPE PLUG
23	PAT-PH-5002	1	LOWER VALVE BLOCK
* 24	MPH-5010	2	DIAPHRAGM
25	MPH-5009	2	EXHAUST PORT
26	F-CS-04C-08-SS	4	SOCKET HEAD CAP SCREW
* 27	O-B-026	2	O-RING
28	F-HB-04C-08	2	HEX BOLT
29	MPH-2539	1	MALE ELBOW
30	MS-2052-1	1	TUBING
31	MPH-2538	1	MALE POLY TEE FITTING
32	F-CS-04C-40-SS	4	SOCKET HEAD CAP SCREW
33	PAT-PH-5010-01	1	MUFFLER ASSEMBLY
34	F-HN-06F	10	HEX NUT
35	MPH-2546-01	1	RESET STEM ASSEMBLY
36	PF-ST-02-BR	1	TEE FITTING
37	MPH-2545	1	SEAL
38	PF-HN-08-08S	1	HOSE ADAPTER
39	PAT-PH-10004	1	LOWER END CAP 10"
40	PAT-PH-10012	1	UPPER END CAP 10"
41	PAT-PH-10003	1	CYLINDER
42	VPH-10006	1	PISTON - 10" POWER HEAD
43	VPH-7005	2	BUSHING - UPPER PISTON ROD
* 44	O-B-445	2	O-RING
* 45	O-B-448	1	O-RING
* 46	O-B-178	2	O-RING
* 47	O-B-124	2	O-RING
48	PAT-PH-10011	4	TIE ROD
49	F-HB-08C-28-GR5	4	HEX BOLT
50	F-SW-08	4	LOCK WASHER
51	PAT-PH-10009	1	LOWER ROD
52	PAT-PH-10008	1	UPPER SHAFT ASSY
53	F-HB-08C-16	2	HEX BOLT
* 54	O-B-127	2	O-RING
* 55	O-U-206-90	2	O-RING
* 56	O-D-010-90	2	O-RING
* 57	O-B-116	2	O-RING
58	PF-HP-08	1	HEX PLUG
* 59	O-U-006	2	O-RING
60	F-FW-04	2	FLAT WASHER
61	F-SW-04-SS	2	LOCK WASHER
62	F-HB-04C-56-SS	2	HEX BOLT
* 63	O-B-024	1	O-RING
64	1/4X28	1	GREASE FITTING

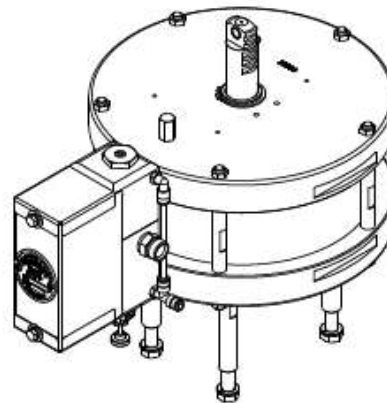
OPTIONAL PARTS AND ASSEMBLIES  
PARTS LIST

PART No.	QTY	DESCRIPTION
MPH-2542	1	RESET BUTTON ASSY
PAT-PH-58-XL	1	SHIFT BLOCK ASSY

REPAIR KITS

PART No.	DESCRIPTION
* PAT-PH-10000-SK	SEAL KIT

\* ASTERISKS DENOTE PARTS IN SEAL KIT



## MAGNUM VENUS PLASTECH

10" PATRIOT POWER HEAD

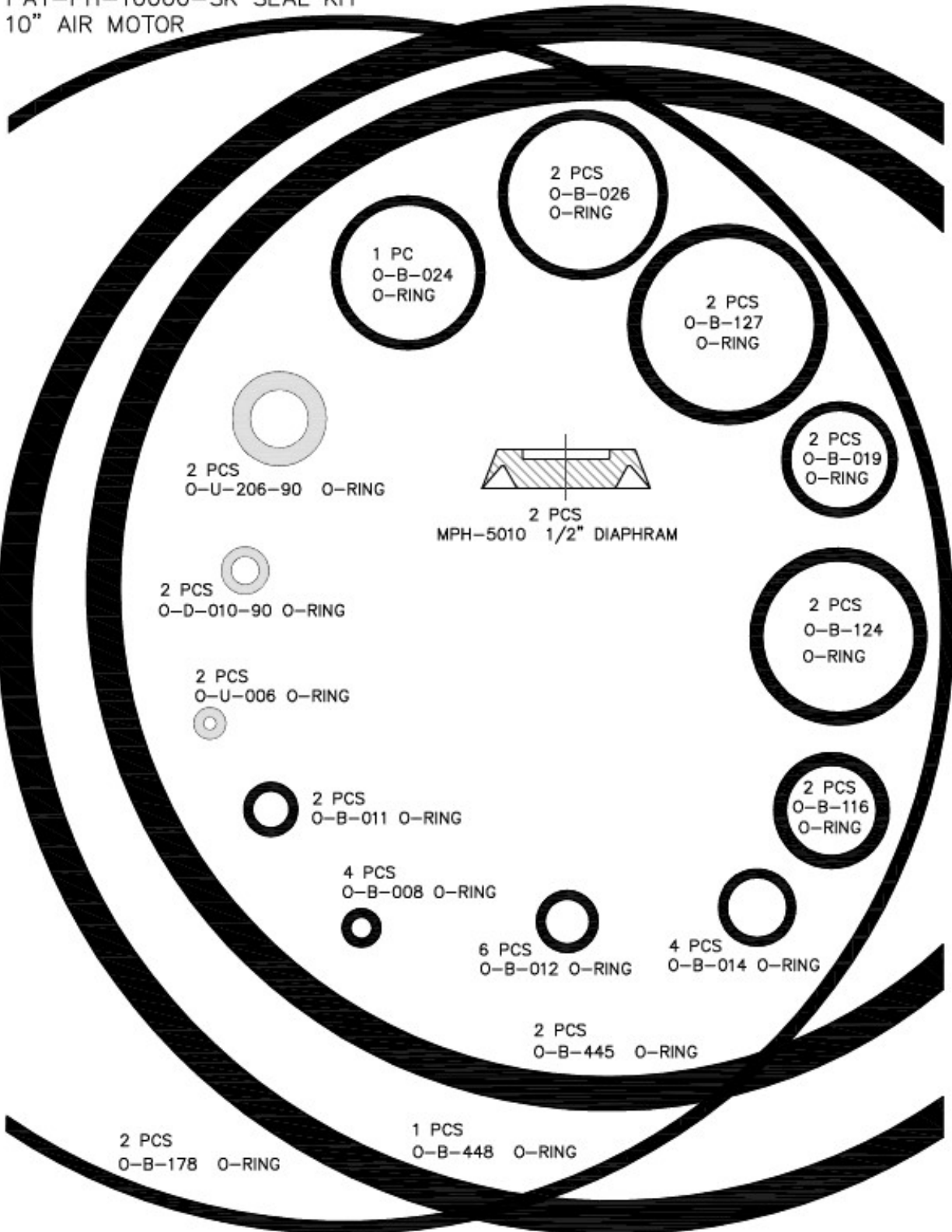
PAT-PH-10000

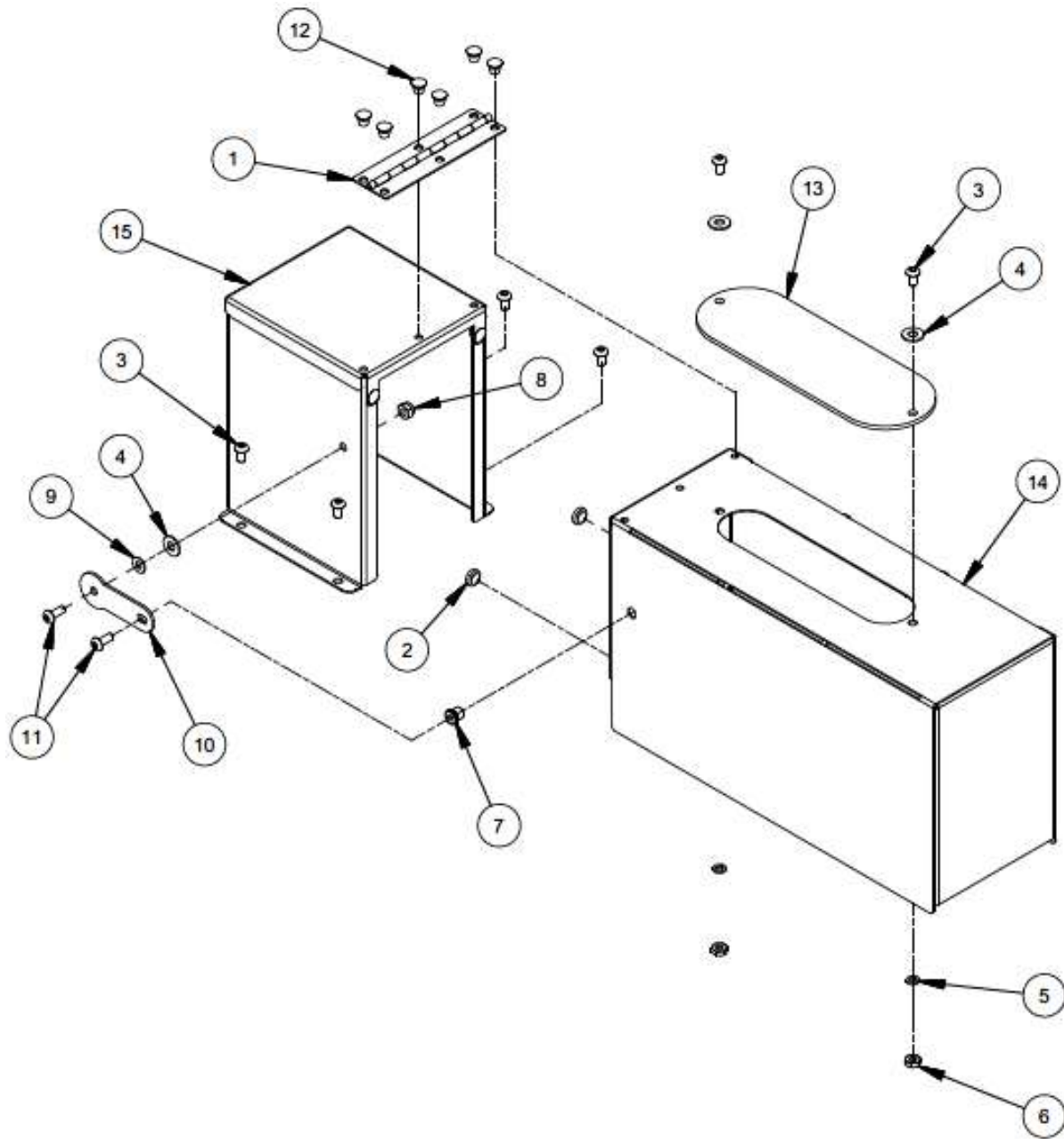
REV:C 03/02/2017

SHEET 3 / 3

4/20/2010

PAT-PH-10000-SK SEAL KIT  
10" AIR MOTOR





# MAGNUM VENUS PLASTECH

CE NORM GUARD - PAT-PH-10000	PAT-GRD-1000
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REV:

SHEET 1 / 2

7/3/2014

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PAT-HIN-2	1	CONTINUOUS HINGE
2	PAT-BUM	2	RUBBER BUMPER
3	F-BHCS-1024-06	6	BUTTON HEAD CAP SCREW
4	F-FW-1024	3	FLAT WASHER
5	F-SW-1024	2	HELICAL SPRING LOCK WASHER
6	F-HN-1024	2	HEX NUT
7	04571	1	THREAD INSERT
8	F-LN-1024	1	NYLOCK NUT
9	F-FW-1032-NY	1	NYLON WASHER
10	PAT-GRD-3-3	1	LATCH
11	F-BHCS-1024-08	2	BUTTON HEAD CAP SCREW
12	F-PR-6-2	6	POP RIVET
13	PAT-GRD-10-4	1	VIEW PANEL
14	PAT-GRD-10-2	1	HOOD WELDMENT
15	PAT-GRD-10-1	1	BOX WELDMENT

## MAGNUM VENUS PLASTECH

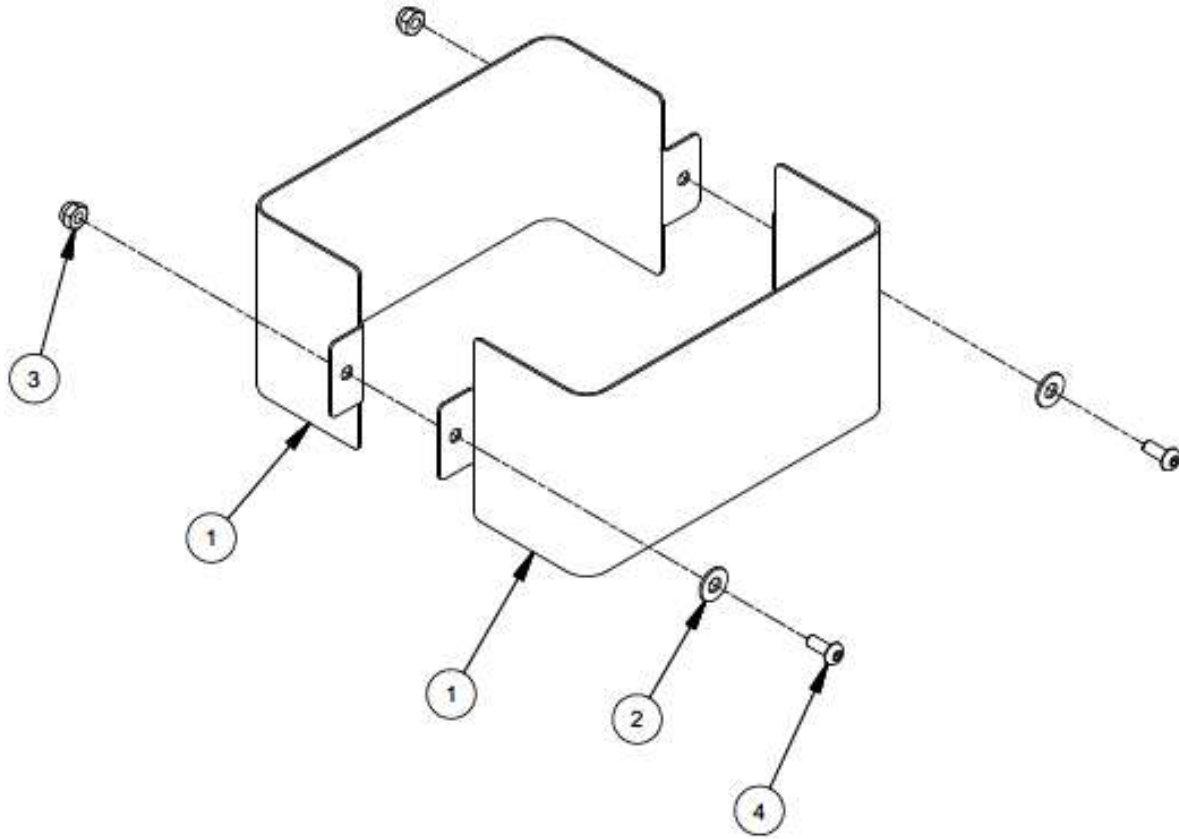
CE NORM GUARD - PAT-PH-10000

PAT-GRD-1000

REV:

SHEET 2 / 2

7/3/2014



# MAGNUM VENUS PLASTECH

CE NORM GUARD - BASE SHROUD ASSEMBLY - PAT-PH-10000

PAT-GRD-1100

REV:

SHEET 1 / 2

7/3/2014

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PAT-GRD-1101	2	BASE SHROUD
2	F-FW-1024	2	FLAT WASHER
3	F-LN-1024	2	NYLOCK NUT
4	F-BHCS-1024-08	2	BUTTON HEAD CAP SCREW

# MAGNUM VENUS PLASTECH

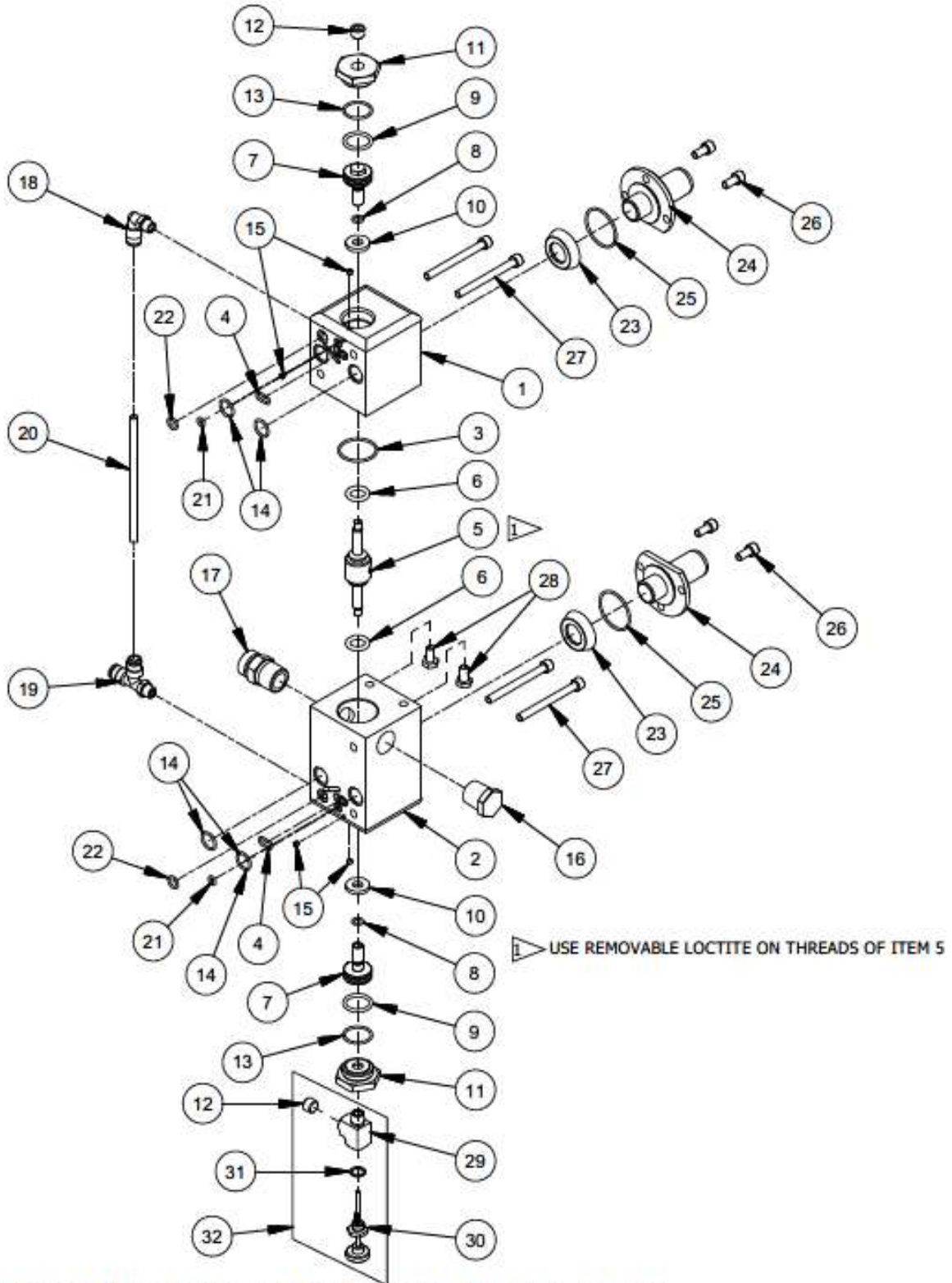
CE NORM GUARD - BASE SHROUD ASSEMBLY - PAT-PH-10000

PAT-GRD-1100

REV:

SHEET 2 / 2

7/3/2014



# MAGNUM VENUS PLASTECH

SHIFT BLOCK ASSEMBLY - 5" AND 7" POWER HEADS

PAT-PH-SB-XL

REV:A

SHEET 1 / 2

10/3/2012

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
	1	PAT-PH-5001	1 UPPER VALVE BLOCK
	2	PAT-PH-5002	1 LOWER VALVE BLOCK
*	3	O-B-024	1 O-RING
*	4	O-B-012	2 O-RING
	5	PAT-PH-5005	1 POPPET VALVE - 2" STROKE
*	6	O-U-206-90	2 O-RING
	7	MPH-2517	2 VALVE PISTON
*	8	O-D-010-90	2 O-RING
*	9	O-B-116	2 O-RING
	10	MPH-3262	2 PISTON STOP
	11	MPH-2521	2 VALVE END CAP
	12	PF-AP-02-SS	2 PIPE PLUG
*	13	O-B-019	2 O-RING
*	14	O-B-014	4 O-RING
	15	F-SS-832-02-SS	4 SS SET SCREW
	16	PF-HP-08	1 HEX PLUG
	17	PF-HN-08-08S	1 HOSE ADAPTER
	18	MPH-2539	1 MALE ELBOW
	19	MPH-2538	1 MALE POLY TEE FITTING
	20	MS-2052-1	.313 FT TUBING
*	21	O-B-008	2 O-RING
*	22	O-B-011	2 O-RING
*	23	MPH-5010	2 DIAPHRAGM
	24	MPH-5009	2 EXHAUST PORT
*	25	O-B-026	2 O-RING
	26	F-CS-04C-08-SS	4 SOCKET HEAD CAP SCREW
	27	F-CS-04C-40-SS	4 SOCKET HEAD CAP SCREW
	28	F-HB-04C-08	2 HEX BOLT
	29	PF-ST-02-BR	1 TEE FITTING
	30	MPH-2546-01	1 RESET STEM ASSEMBLY
	31	MPH-2545	1 SEAL

OPTIONAL PARTS AND ASSEMBLIES

ITEM	PART No.	QTY	DESCRIPTION
32	MPH-2542	1	RESET BUTTON ASSEMBLY

REPAIR KIT

PART No.	DESCRIPTION
* PAT-PH-SB-XL-SK	SEAL KIT

# MAGNUM VENUS PLASTECH

SHIFT BLOCK ASSEMBLY - 5" AND 7" POWER HEADS

PAT-PH-SB-XL

REV:A

SHEET 2 / 2

10/3/2012



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