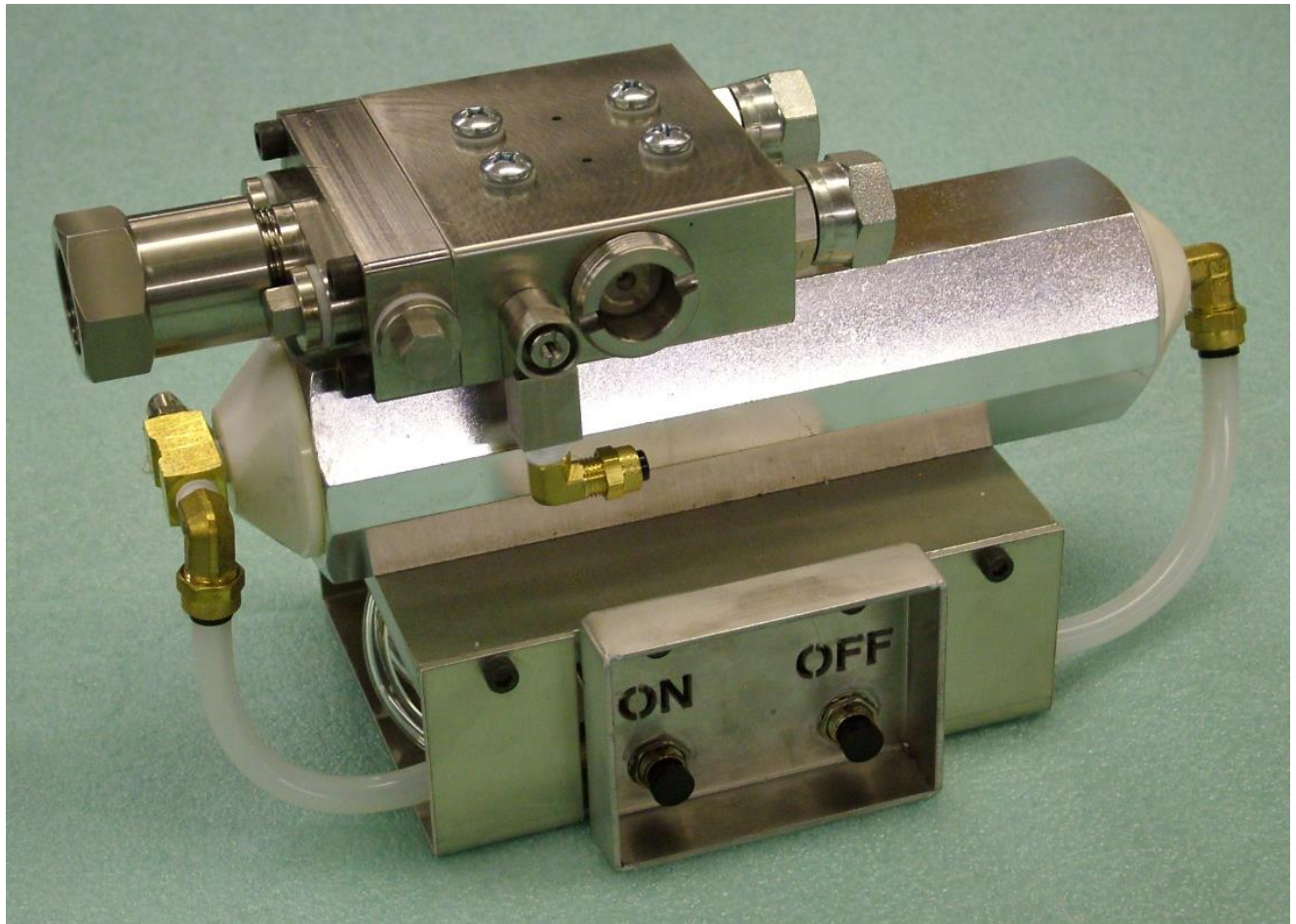


High Volume 1:1 Pro Gun Manual HVDG-2000-XX



MagnumVenusProducts™

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MagnumVenusProducts™

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Terms & Conditions of Sale:

- Customs duties, import and export licenses and certificates, if required, and all local taxes are excluded from this offer. If US state and local taxes are applicable and not included in equipment invoice, such amount may be invoiced later.
- Delivery dates or shipping schedules are approximate and based upon the most recent information available at the time of order. Dates may be adjusted upon receipt of subsequent information or modification of order. Seller will ship prior to the delivery date if possible, but not without Buyer's consent on Advanced Equipment sales.
- All contract dates and timelines begin upon receipt at MVP of customer purchase order, signed Terms and Conditions of Sale (if applicable), and down payment per quotation (if applicable).
- If shipments are delayed by the Buyer, or because the Buyer's account is in arrears, payments shall become due on the date when the Seller is prepared to make shipment. Products held by the Seller for the Buyer shall be at the risk and expense of the Buyer.
- Damages, defects or shortages must be communicated immediately to MVP. Discrepancy in pricing and/or quantities on invoices must be reported within 30 days of the invoice date. Claims made 30 days or more following the invoice date will not be honored.
- Permission to return items must be requested and granted in advance. No credit will be given if items are returned prior to requesting and receiving permission. All returns are subject to a restocking fee. The standard 15% charges may be increased or decreased depending on the reason for the return. Special ordered items may not be returned.
- Seller warrants that the mechanical operation of the goods as specified shall be free from faults in respect to materials and workmanship for a period of 12 months for parts from the date of invoice. For systems, 12 months from start-up or, if earlier, 18 months from the date of the Bills of Lading. The warranty does not cover general wear and tear or damage due to negligence or improper use. Seller's liability under the warranty shall be limited solely to repair or replacement costs, and has no responsibility for reimbursing repair cost incurred by Buyer in connection with equipment without first giving written authorization for such charges. Seller makes no express warranties except those set forth in this agreement, and disclaims all other warranties, expressed or implied, including without limitation, implied warranties of non-infringement merchantability and fitness for a particular purpose. Seller accepts no liability for loss of production, loss of profits, or other direct or indirect damages. In any claim by the Buyer



against the Seller in respect of the goods, the liability of the Seller shall be limited to the value of the goods.

- Many factors beyond Seller's control contribute to the success of Buyer's finished products, such as raw materials used to manufacture the product. Equipment is warranted to perform to specifications detailed in quotation, but Seller is not liable for quality or quantity of finished products produced by Buyer.
- The country of origin is the United States of America. Sale, installation and all rights of the parties are governed by the laws of the state of Florida. Venue with regard to any litigation shall be in Pinellas County, Florida. The parties agree to waive all rights to trial by jury as to any and all disputes.
- The goods remain the property of the Seller until full payment is received.
- Sale of equipment is subject to application and issuance of proper US Government export license and regulations, if applicable.
- Installation of equipment is responsibility of Buyer and Seller, with cost responsibility and number of days provided as detailed in original customer Quotation. Seller will provide installation supervision personnel within 30 days of customer request. If installation is delayed by the Buyer more than six months from the date of shipment, or if customer facility or material/parts are not prepared for installation, seller will invoice full installation costs, up to \$1,250 a day plus expenses, for each MVP installation technician on site. Seller has the option to waive this fee at its discretion.
- Parties shall be excused for delays caused by embargoes, acts of civil or military authorities, Acts of God, or other circumstances beyond the reasonable control of the parties. Notification of such delays must be made in writing within ten days of occurrence.
- Our agreement supersedes any previous agreement and applies in full.



SAFETY & WARNING INFORMATION:

OPERATING YOUR POLYESTER SYSTEM SAFELY



1. Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safely. This system has been specifically designed for use of Polyester Resin, Gel-Coat, and Methyl Ethyl Ketone Peroxides (MEKP) applications. Other formulations or blends considered for use in this equipment is strictly prohibited without the expressed consent by Magnum Venus Products Inc. Magnum Venus Products cannot eliminate every danger nor foresee every circumstance that might cause an injury during equipment operation. Some risks, such as the high pressure liquid stream that exits the spray tip, are inherent to the nature of the machine operation and are necessary to the process in order to manufacture the end-product. For this reason, ALL personnel involved in polyester operations should read and understand the Safety Manual. It is very important for the safety of employees involved in the operation that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation. Each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures. Magnum Venus Products hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program. Magnum Venus Products recommends this Safety Manual remain on your equipment at all times for your personnel safety. In addition to the manual, Magnum Venus Products recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

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.

Other standards and recognized authorities to consult are the National Fire Protection Association (NFPA) bulletins as follows:

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



Type of Fire Extinguishing equipment recommended: Fire Extinguisher – code ABC, rating number 4a60bc.

Extinguishing Media – Foam, Carbon Dioxide, Dry Chemical, Water Fog.

Copies of the above bulletins are available, at a nominal charge from:

National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210



Research Report No.11 of the American Insurance Association deal with “Fire, Explosion and Health Hazards of Organic Peroxides”. It is published by:

American Insurance Association
85 John Street
New York, NY 10038

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

1.2 Personal Safety Equipment

Magnum Venus Products recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:

Magnum Venus Products recommends that the user consult the state and local regulations established for all Safety equipment listed.

2.0 Material Safety

2.1 Hazards Associated with Laminating Operations

The major hazards which should be guarded against in polyester laminating operations are those associated with:

1. The flammability and explosion dangers of the catalyst normally used – Methyl Ethyl Ketone Peroxide (MEKP).
2. The flammability dangers of clean-up solvents sometimes used (Magnum Venus Products recommends that clean-up solvents be non-flammable), and of resin diluents used, such as styrene.
3. The flammability dangers of catalyst diluents, if used. (Magnum Venus Products recommends that catalyst not be diluted.
4. The flammability dangers of the uncured liquid resins used.
5. The combustibility dangers of the cured laminate, accumulations of over spray, and laminate sandings.
6. The toxicity dangers of all the chemicals used in laminating operations with respect to ingestion, inhalation and skin and eye hazards.

2.2 Catalyst (Methyl Ethyl Ketone Peroxide)

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.

Contamination with promoters or 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 become explosive in nature. Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT).



Researchers have reported measuring pressure rates-of-rise well in excess of 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 in regards to 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:

- A. Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.
- B. Keep MEKP away from heat, sparks and open flames.

- C. Prevent contamination of MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum and non-stainless steels.
- D. Never add MEKP to anything that is hot, since explosive decomposition may result.
- E. 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.
- F. Avoid spillage, which can heat up to the point of self-ignition.
- G. 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.
- H. 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.
- I. 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.

2.3 Clean-Up Solvents and Resin Diluents

WARNING

A hazardous situation may be present in your pressurized fluid system! Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). The 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.



- A. There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.
 - a. 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. b. 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.
 - b. Equipment capable of withstanding pressure. When HHC solvent contacts 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.

A. 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. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEKP, alcohol, and toluene, may render the inhibitors ineffective.

B. The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.

C. 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, which will safely prevent the chemical reaction under all circumstances.

D. 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

(VOC's), 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 solvents in pressurized fluid systems having aluminum or galvanized wetted parts.



NOTE: Magnum Venus Products is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in closed fluid system. TAKE IMMEDIATE ACTION... Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.

A. Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

B. 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.

C. If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.

D. Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.

E. You should allow only enough solvent for one day's use in your laminating area.

F. "NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.

G. 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.

H. Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

2.4 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. This avoids the 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 diluents being contaminated through rust particles in drums, poor quality control on the part of the diluents suppliers, or any other reason. If, however, diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferable, the supplier should premix the catalyst to prevent possible “on the job” contamination while mixing.

WARNING

If diluents are not used, it should be remembered that catalyst spillage, gun, hose and packing leaks are potentially more hazardous, since each drop contains a higher concentration of catalyst, and therefore will react quicker with over spray and the leak.

2.5 Cured Laminate, Overspray and Laminate Sandings Accumulation

A. Remove all accumulations of overspray, 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.

B. Floor coverings, if used, should be non-combustible.

C. Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, over-sprayed chop or resin, FRP sandings or any other material with MEKP.

To prevent this 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.

2.7 Toxicity of Chemicals

- A. 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.
- B. 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.
- C. Also determine the best methods of first aid treatment for each chemical used in your plant.

2.8 Treatment of Chemical Injuries

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 is 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 any injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting your doctor.



Fast treatment of the outer skin and eyes that contact such 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, however, may be incorrect for some chemicals; that is why you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

NOTE: Refer to your System User Manual for complete and detailed operating instructions and service information.

3.0 Equipment Safety

WARNING

Magnum Venus Products suggests 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!



WARNING

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. (TREAT THE GUN AS IF IT WERE A LOADED PISTOL.)

3.1 Emergency Stop Procedures

The following steps should be followed in order to stop the machinery in an emergency situation

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. To do this, simply rotate the lever on the ball valve 90 degrees. Doing this will cause all the system air to bleed out of the system in a matter of a few seconds, making the system incapable of operating

NOTE: Step 2 is a precautionary step and should be followed whenever the above mentioned ball valve is activated to the stop mode. Failure to do so, can damage the regulators and components on reactivating to the "ON" position.

2. Turn all system regulators to the "OFF" position (counter-clockwise) position

NOTE: Verify that the Catalyst relief line, located on the catalyst manifold, and the resin return line, located on the resin filter, are secured relieving catalyst and resin fluid pressure.

3. Catalyst pressure in the catalyst pump can be eliminated by rotating the ball valve on the catalyst manifold 90 degrees to the "open" or "on" 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.

4. Resin pressure in the resin pump can be eliminated by rotating the ball valve on the resin filter 90 degrees to the "open" or "on" position. Place a container under the ball valve to catch any resin that is ejected out of the valve.

3.2 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 may be as low as 1 meg ohm (10 ohms) but that resistance as high as 10,000 meg ohms will produce an adequate leakage path in some cases. 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". Check with local codes and authorities for other specific standards that might apply to your application. NEVER USE HARD MATERIALS SUCH AS WIRE, PINS, ETC., TO CLEAR A PLUGGED GUN. HARD MATERIALS CAN CAUSE PERMANENT DAMAGE. DAB WITH A BRISTLE BRUSH, BLOW BACKWARDS WITH AIR UNTIL CLEAR WHILE WEARING A PROTECTIVE EYE SHIELD. REPEAT AS MANY TIMES AS NECESSARY. DO NOT PERFORM ANY MAINTENANCE OR REPAIRS UNTIL YOU HAVE FOLLOWED THE PRECAUTIONS STATED ABOVE. IF YOU, AS AN EQUIPMENT OPERATOR OR SUPERVISOR, DO NOT FEEL THAT YOU HAVE BEEN ADEQUATELY TRAINED OR INSTRUCTED AND THAT YOU LACK THE TECHNICAL KNOWLEDGE TO OPERATE OR PERFORM MAINTENANCE ON A PIECE OF MAGNUM VENUS PRODUCTS EQUIPMENT, PLEASE CALL MAGNUM VENUS PRODUCTS BEFORE OPERATING OR PERFORMING MAINTENANCE ON THE EQUIPMENT. IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE PRECAUTIONS OR ANY SERVICE OR OPERATION PRECEDURES, CALL YOUR MAGNUM VENUS PRODUCTS DISTRIBUTOR OR MAGNUM VENUS PRODUCTS.

NOTICE: *All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind express or implied. The user should not assume that all safety measures are indicated or that other measures are not required.*

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 of dirt, grease or resin. Clean catalyst system components with clean water only.*

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.

WARNING: Please refer to your catalyst manufacturer's safety information regarding the safe handling and storage of catalyst. Wear appropriate safety equipment as recommended.



Introduction:

Generally, the HV Dual Pro Gun™ will not need to be completely disassembled for daily cleaning. However, the entire gun should be disassembled and the o-rings and seals replaced approximately every six months depending on use.

Disassembling the HV Dual Pro Gun™ is easy; the gun breaks down into two separate modules which are then disassembled further into their individual parts. A special tool kit (HVPG-TOOLS), which includes a specially designed HV Pro Gun™ tool and a packing assembly tool, is available to aid in performing maintenance and repair.

This manual, the **HIGH VOLUME 1:1 PRO GUN MANUAL**, provides information you need to perform simple maintenance and repair on your equipment.

- ❑ Step-by-step assembly and disassembly procedures are included for each component.

Please read the manual carefully. Follow the steps in the order given, otherwise you may damage the equipment or injure yourself.

During Disassembly:

As you disassemble the equipment, lay out the components on a clean surface in the correct order and direction. This will help you to reassemble them.

This manual covers the following High Volume 1:1 Pro Gun Assemblies:

| | |
|--------------|---|
| HVDG-2000 | High Volume 1:1Pro Gun Assembly |
| HVDG-2000-DR | High Volume 1:1Pro Gun Assembly – Ratio Setup |
| HVDG-2000-TM | High Volume 1:1Pro Gun Assembly – Tube Mixer |



Tools required

- You will need the following tools:
 - Rubber mallet
 - Thread Sealant
 - Adjustable wrench
 - Needle-nose pliers
 - Flat-end screwdriver
 - Lubriplate™ Lubricant (08465)
 - Scribe set (08126)
 - Pro Gun™ oil (04394)
 - Seal Installation tool (58198-1)
 - HV Pro Gun™ packing bit (58199-1)
- You should also have appropriate cleaning materials such as solvent, clean shop towels or rags, a small brush, and empty containers into which you will flush the gun.
- Also, you will need new o-rings and seals to replace the current ones in the HV Duo Pro Gun™. Please refer to the parts drawings to obtain proper parts numbers for the o-rings and seals to be replaced.

Note: If you are using o-ring part number O-K-008 in the flush assembly, you do not need to replace the o-ring unless it is showing obvious signs of wear. This o-ring is specially designed to handle most solvents.

DANGER: To prevent accidental injection injury, disconnect all air and electrical power to the unit before beginning repair or maintenance on this equipment.

Release Pressure

1. Turn off air supply to pump – set regulator to zero.
2. Release fluid pressure from lines by holding the gun over an appropriate empty container and opening (activating) the gun. Also repeat this process if the system has a recirculation assembly.
3. Flush gun into appropriate container
4. Turn OFF the main inlet air supply to the unit.
5. Turn OFF air supply to the solvent tank.
6. Release any pressure in the flush tank by gently pulling upwards on the ring attached to the pressure relief valve.

Remove Hoses

Note: Although previous steps should have removed all pressure from the lines, there may still be trapped fluids under pressure in the lines. Read the recommended safety procedures below.

WARNING: Wear appropriate eye protection. Pressurized fluids may cause eye injuries.

WARNING: When removing hoses from fittings, wrap a large rag or shop towel around the wrench and fitting as you remove the fitting. Remove fitting slowly to allow any pressurized fluid to escape into the rag or towel.

1. Wrap a large rag or shop towel around the resin fitting and wrench.
2. Use the wrench to loosen the fitting slowly until you can remove the resin hose from the fitting.
3. Use this technique to remove the solvent hose, and the catalyst hose.

Disassemble Gun into Modules

1. Remove the four screws that secure the gun block to the actuator. Set gun block aside for now
2. You have now disassembled the gun into modules. Next you will disassemble, clean, and reassemble each module.

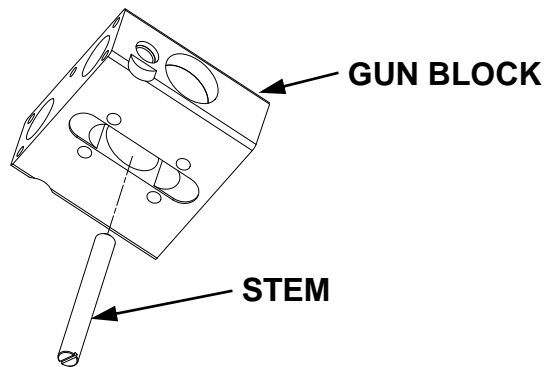




Gun Block Disassembly:

Remove Actuating Stem

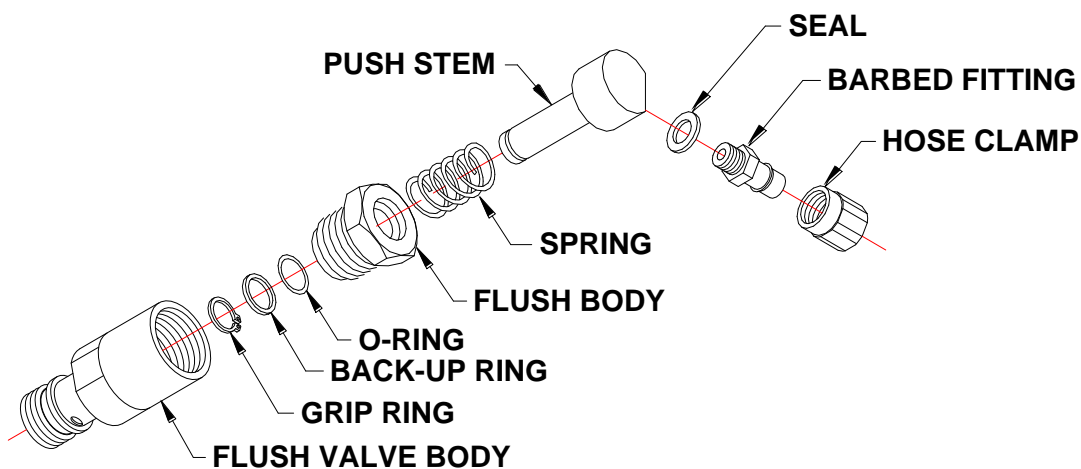
1. Unscrew the actuating stem from the valve rod. Tightly clamp the actuating stem into a soft jawed vise and rotate the whole gun block.



Remove & Disassemble Flush Valve Assembly

1. Unscrew the flush valve body from either side of the gun block.
2. Remove the split seal from the flush valve body.
3. Remove the flush valve body from the flush valve neck.
4. Remove the flush valve seal from the flush valve body.

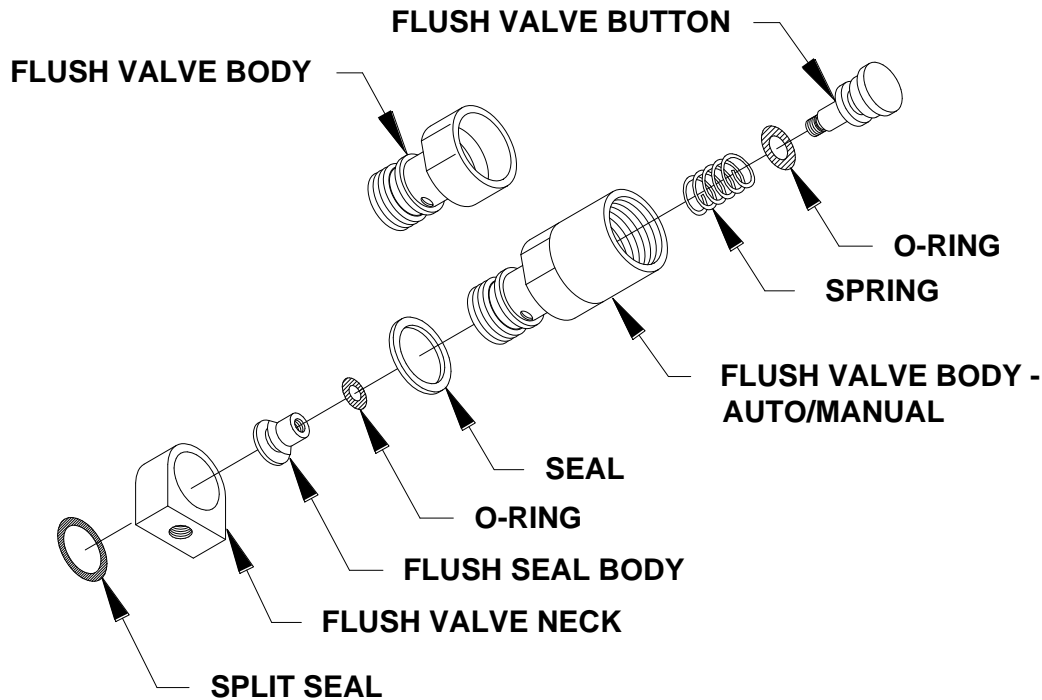
Note: For systems without Auto/Manual flush assemblies skip steps 5 – 7



5. Unscrew the auto/manual flush body assembly from the flush valve body.



6. Remove the grip ring from the push stem of the auto/manual flush body assembly. Use caution not to lose the spring in the flush body.
7. Remove the back-up ring and o-ring from the push stem.
8. Unscrew the flush seal body (5104-23-1) from the flush valve button (5104-25-01).
9. Remove the spring (9203-2-3).



10. Use a scribe to remove the o-ring (O-K-008) from the flush valve button.
11. Remove the o-ring (O-A-007) from the flush seal body (5104-23-1).
12. Set parts aside for now or go down to flush valve assembly
13. Discard and replace the flush valve's o-rings and seals, after reading the note below.

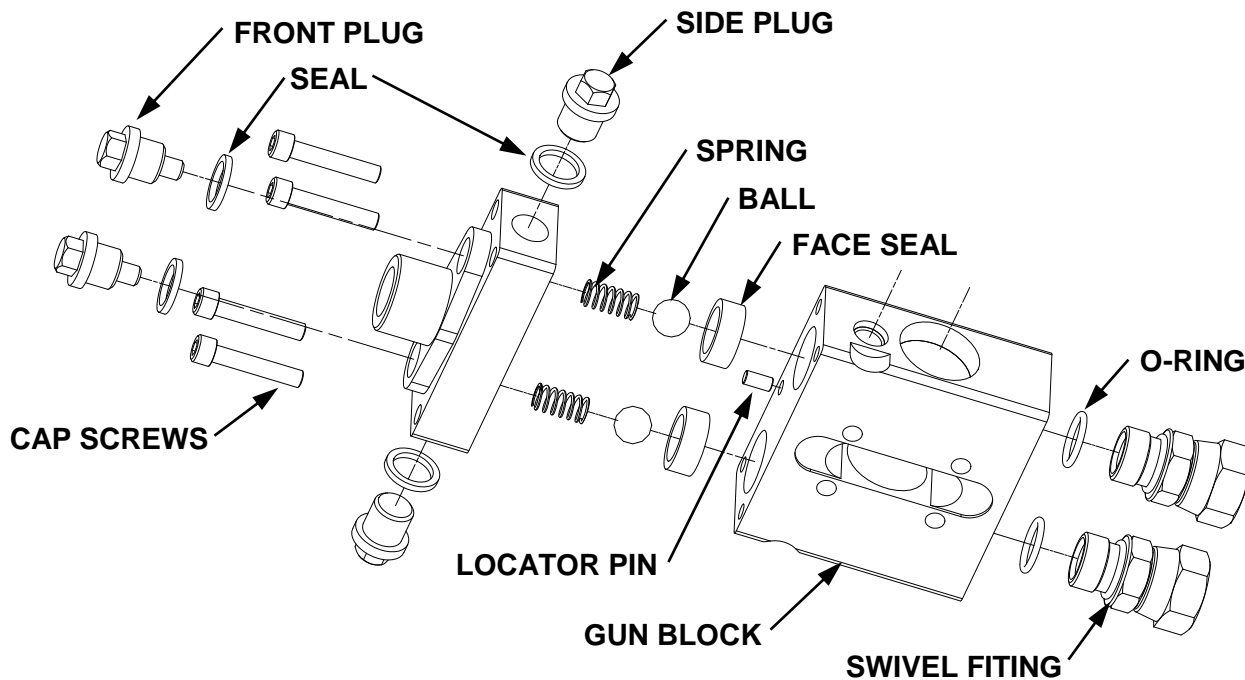
Note: Do not replace o-ring (O-K-008) unless it is worn or damaged. This o-ring is designed for use with all solvents. In some cases O-K-008 o-ring can be replaced with the more economical o-ring (O-E-008).

Remove Gun Head / Mix Chamber

There are four (4) Gun Heads (mix chambers) available for the HV Duo gun:

- HVDG-2202 Gun Head – Pipe thread – 3/4" Mixer
- HVDG-2204 Gun Head – Recirculation – Ratio
- HVDG-2212 Gun Head – Disposable Mixer
- HVDG-2214 Gun Head – Standard HV Pro Gun Mix Chamber

1. Remove any items connected to the front of the Gun Head – Nozzle, Mixer
2. Remove the two Front plugs and Seals – use caution as the Spring and Ball may fall out.
3. Remove the Spring and Ball from the Gun Head (if applicable to assembly).
4. Remove the Side Plugs and seals from the Gun Head.
5. Remove the Gun Head by unscrewing the four (4) screws holding the Gun Head to the gun block. Use caution not to drop the Locator Pin.
6. Remove the two Check Face seals from the Gun Block.
7. Inspect and clean the Gun Head and components with solvent.



Remove Hose Fittings

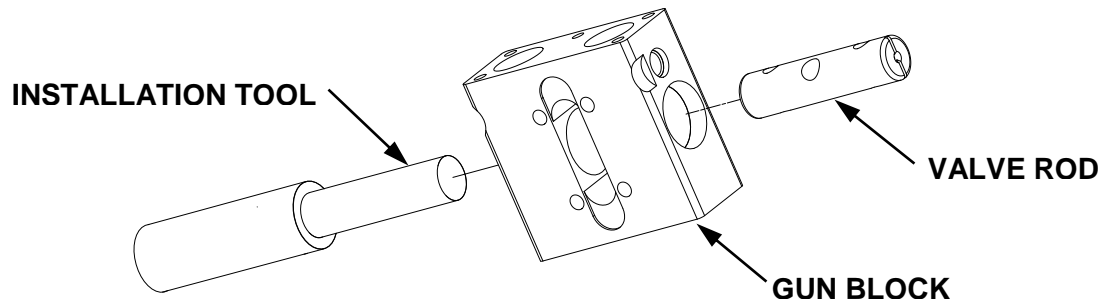
1. Remove and clean the Fittings and O-rings on the rear of the Gun block.

Remove Valve Rod

1. Remove the two Set Screws (HVDG-2211) and Seals (7304-3-1) from the top of the Gun Block assembly.
2. Use the Packing bit to unscrew the Packing nuts (58122-1) from both the catalyst and resin side.

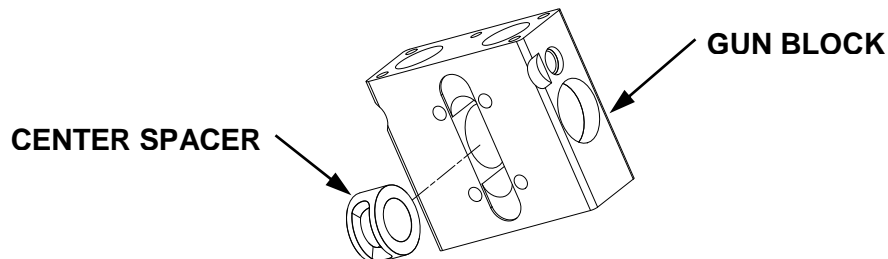
Note: Use caution not to damage the packing bit. If you are unable to remove the packing nut soak in a solvent or apply heat to the packing nuts.

3. Place the small end of the Seal installation tool onto one end of the Valve rod.
4. Use a rubber mallet or hammer to gently tap the valve rod out of the Gun block.
5. Inspect the Valve Rod for damage; clean with solvent.



Remove Center Spacer

1. Use needle-nose pliers to remove the Center Spacer (58124-1).

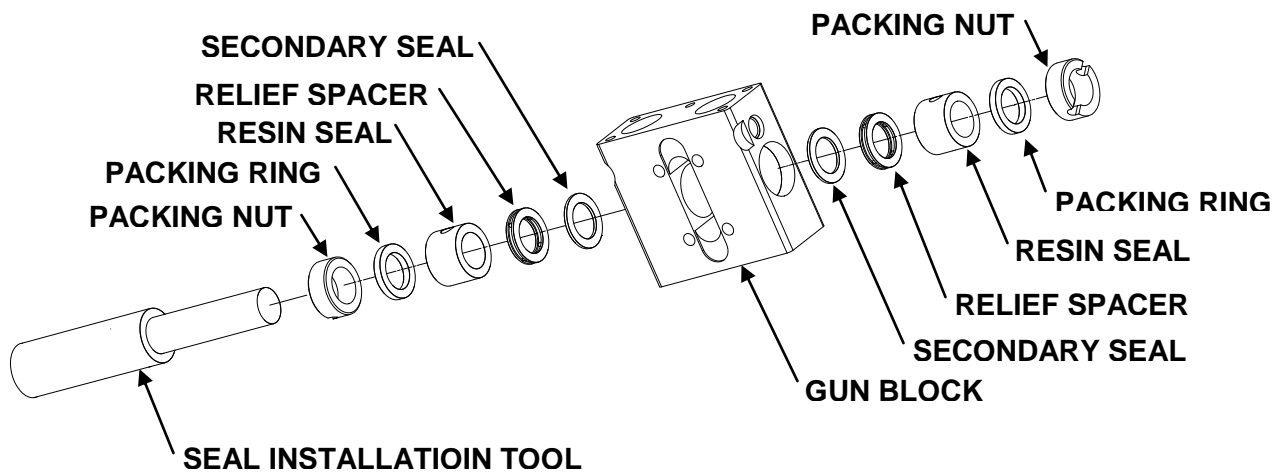


Remove Resin & Hardener Seals

1. Insert the Seal installation tool into one of the side ports and gently tap it completely through the Gun block with a rubber mallet or hammer. As the tool is tapped through the interior of the gun block it will remove the seal sets for both the Resin and the Hardener sides.
2. Remove Hardener and Resin seal (relief spacer and secondary seal) from the Seal installation tool. Clean with solvent.

CAUTION: Keep the components of the hardener side separate from the components of the resin side. Mixing the components could result in cross-contamination.

3. Clean the two Relief spacers (58123-1) with solvent and allow to air dry.
4. Discard the Resin seals and replace with new ones from repair kit.



Clean Gun Block Assembly

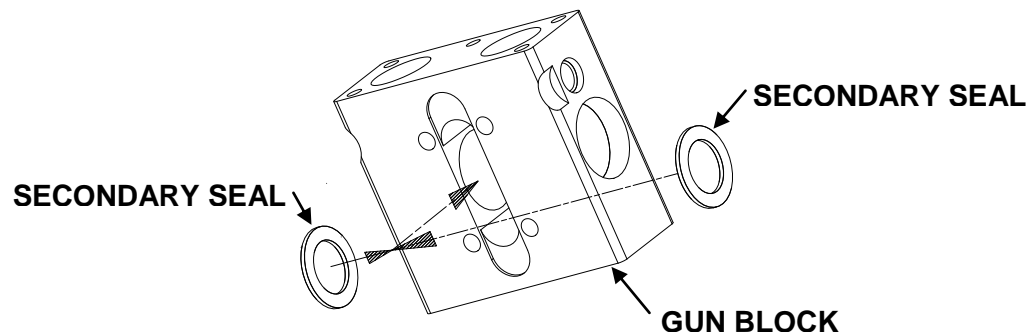
- Discard old o-rings and seals.
- Clean remaining components with solvent and allow to air dry.
- You have now disassembled the gun block.



Gun Block Assembly:

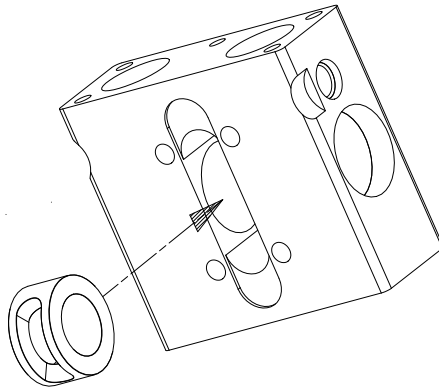
Install Secondary Seals

1. Place one of the Secondary Seals (58135-1) into the center of the Gun block where the center spacer goes. Gently push the Secondary seal into position with something flat, flush with the Gun block. Use caution not to damage the seal.
2. Repeat the process for the other Secondary seal.



Reinstall Center Spacer

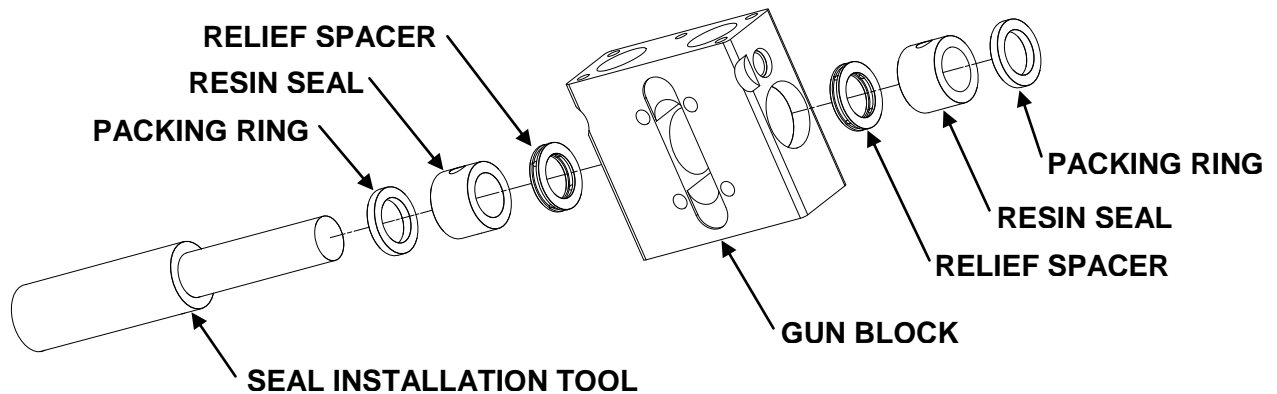
1. Place the Center spacer (58124-1) in the Gun block, making sure that the Center spacer is aligned as accurately as possible with the slot facing up. Use caution not to damage the Secondary seals, already installed



Reassemble Resin/Hardener Components

1. Place the Hardener/Resin Seal components onto the Seal installation tool in the following order:
 - Packing ring (58146-1)
 - Hardener/Resin seal (58126-1-GFT)
 - Relief spacer (58123-1)

Note: *The hole in the Seals should be aligned with the port hole in the Gun block before inserting the Seal installation tool into the gun block.*



2. Insert the seal installation tool with the components on it, into the catalyst side of the gun block. Press firmly, or tap with a rubber mallet, then pull the packing tool out of the gun block.

Note: *Again before inserting the Seal installation tool, align the holes in the Seals with the holes in the Gun block as closely as possible.*

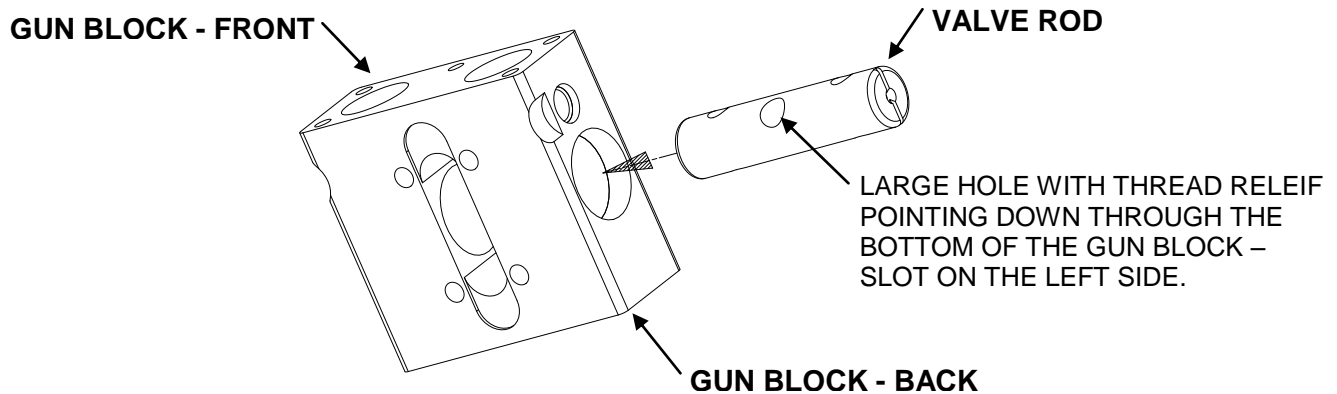
3. The Resin / Hardener Seal components should be seated in the interior of the Gun block against the Center spacer.
4. Check that the holes in the Seals are properly aligned with the holes in the Gun block by looking through the ports in the Gun Block.
5. Gently screw a Packing nut (58122-1) into the Gun Block. Do not tighten.

Note: *At this point, the Resin / Hardener Packing nuts should only be hand tight.*

Install Valve Rod

1. Insert the Valve rod (HVDG-2209) into the Gun block through the resin side. Use the Seal Installation tool to center the valve rod.

Note: Make sure that the valve rod is correctly aligned; rotate the Valve Rod so that the large Actuating stem hole (relief side) is pointing down and the slot on the end of the Valve Rod is on the left side of the Gun block when looking at the back of the gun.



Reinstall Actuating Stem

1. Screw the Actuating stem (58147-1) into the Valve rod (HVDG-2209) through the Center spacer.

Note: Make sure the Actuating stem is screwed into the side of the Valve rod with the larger hole (thread relief).

2. Look down the front of the gun while moving the actuating stem back and forth. You should be able to see the holes open and close. The Valve rod is installed properly when the Actuating stem is rotated toward the front of the Gun block and the ports are open (see through the gun block). Set the actuating stem so that the holes are closed.

Tighten Packing Nuts

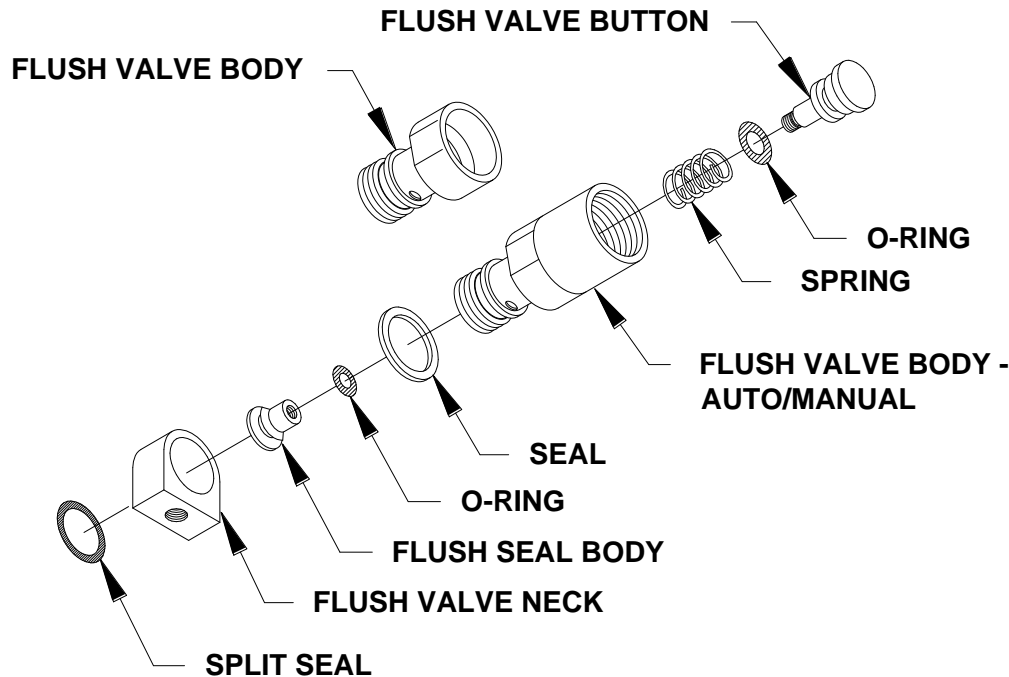
1. Tighten both the Packing nuts – do not over tighten.
2. Move the Actuating stem back and forth, opening and closing the gun.
3. Again tighten both the Packing nuts.
4. Repeat the above tightening process one more time
5. Thread the two Set Screws (HVDG-2211) and Seals (7304-3-1) into the top side of the Gun Block.



Reinstall Hose Fittings

1. Reinstall the Hose Fitting and o-ring for the resin and hardener hoses on the rear of the Gun block.

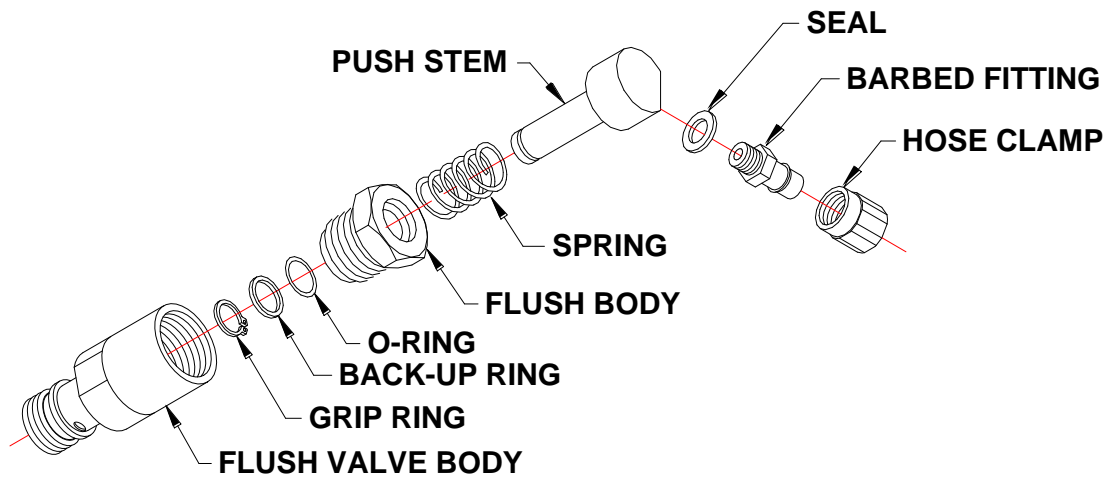
Reassemble Flush Valve



1. Place the O-ring (O-E-008) on the Flush valve button (5104-25-1).
2. Insert the Spring (9203-2-3) onto the Flush valve button.
3. Place the O-ring (O-E-007) on the Flush seal body (5104-23-1).
4. Push the Button and Spring into the Flush valve body (5104-24-1).
5. Insert the Flush seal body (5104-23-1) into the end of the Flush valve body and screw it onto the Button.
6. Place a Flush valve seal (5104-26-1) on the Flush valve body.
7. Install the Flush valve body (5104-24-1) into the Flush valve neck (5104-22-1).
8. Install the Split seal (5104-21-1) onto the Flush valve body (5104-24-1).

Note: For systems without Auto/Manual flush assemblies skip steps 9 – 13





9. Install the spring and push stem into the flush body.
10. Install a new o-ring onto the end of the push stem sticking out of the flush body.
11. Install the back-up ring onto the end of the push stem against the new o-ring.
12. Install the grip ring onto the end of the push stem.
13. Thread the auto/manual flush body assembly into the flush valve body.
14. Screw the flush valve assembly (5104-01-01) into the front side port on the resin side of the gun block

Note: If using o-ring part number O-K-008 (o-ring is used on the flush button), you do not need to replace the o-ring unless it is showing obvious signs of wear or damage. This o-ring is specially designed for use with all solvents.

Note: In some cases O-K-008 o-ring can be replaced with the more economical o-ring (O-E-008).

Assemble Gun Head

1. Install the two Check Face Seal into the front of the Gun block.
2. Install the Locator Pin into either the Gun block or Gun head.
3. Mount the Gun Head onto the Gun Block using the four Cap screws.

Note: the following procedure will apply to all configurations except the Ratio Gun head setup (HVDG-2204).

4. Install the Side Plugs and Seals into both sides of the Gun Head.



5. With the Gun head pointing upward place the Ball into the front port of the Gun Head.
6. Place the Spring on top of the Ball.
7. Screw the Front Plug and Seal into the front port of the Gun head – making sure that the Spring centers on the pin on the front plug.

Mix Housing Options:



HVDG-2204 RATIO GUN HEAD – Used for checking material ratios and recirculation guns. Two 1/2 –14 NPT ports



HVDG-2214 HIGH VOLUME GUN HEAD – Use for spray or all application of the standard HV Pro Gun. (1-1/4 –18 UNEF)



HVDG-2212 DISPOSABLE MIXER GUN HEAD – Use with 3/4" Disposable mixers (162A623)



HVDG-2202 STATIC MIXER GUN HEAD – (1-1/6 –18 UNEF) Use with Mixer Adaptor (HVDG-2206) to attach 3/4" Static Mixer (05260)



Actuator Rebuild:

Actuator Disassembly

1. Remove the End cap from both ends of the Cylinder body.
2. Push the Actuator Piston out the back of the Cylinder body.
3. Replace the O-ring (O-V-133) on the Actuator piston.
4. Check the Actuator bushing and Cylinder Body for wear or damage.
5. Apply a light film of Pro Gun oil to both the inside of the Cylinder and Actuator piston.
6. Install the Actuator Piston into the Cylinder body, the Actuator bushing should go in first and be off center towards the top.
7. Install the End cap onto both ends of the Cylinder body.

Assembly the Components

1. Align the Actuator Stem on the Gun block with the Actuator bushing in the Cylinder body.
2. Attach the Gun block to the Cylinder using the four screws, seals.

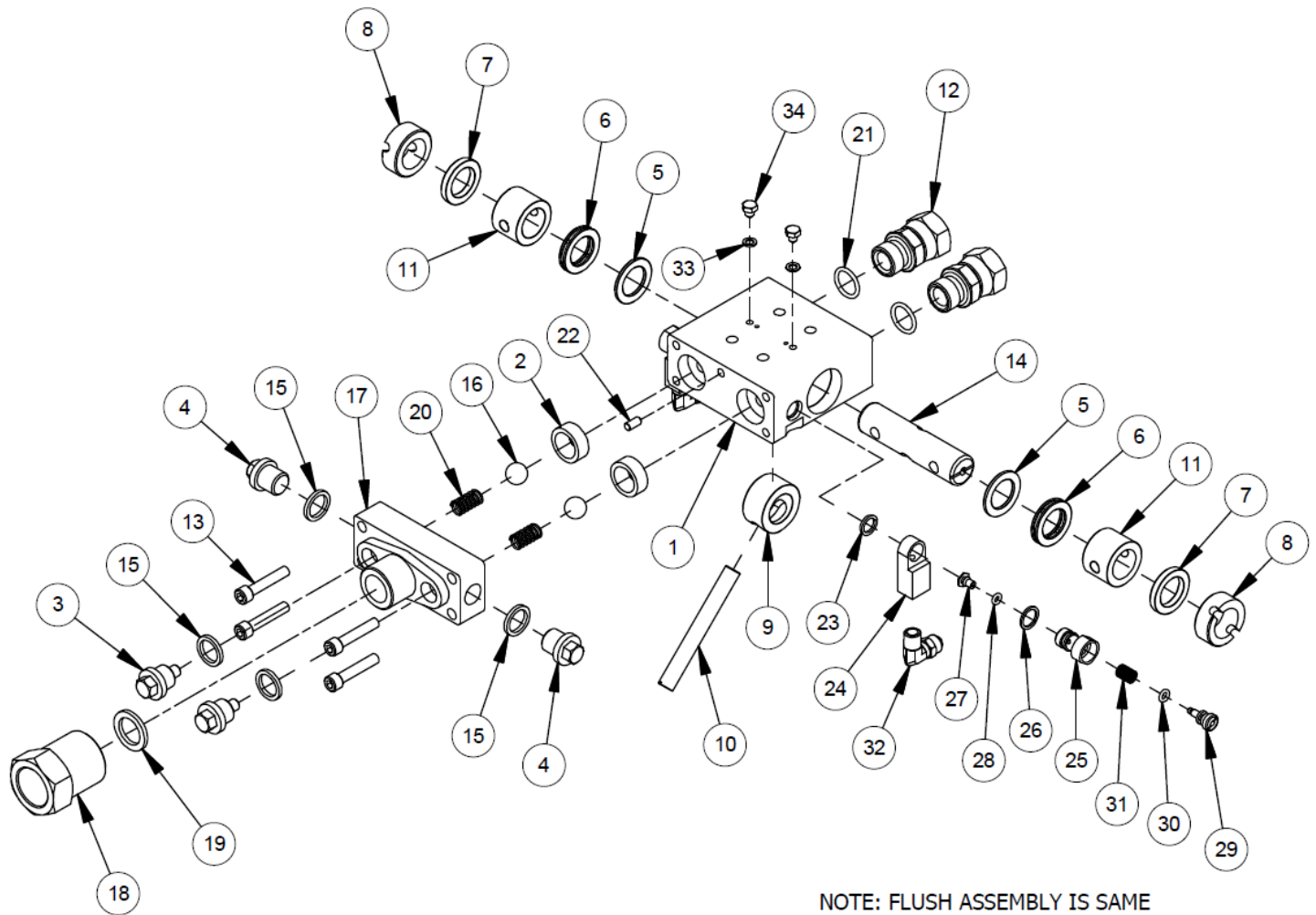




Parts Drawings:

| | |
|------------------------|---|
| HVDG-2100 | HIGH VOLUME DUO GUN BLOCK ASSEMBLY |
| HVDG-2100-DR | HV DUO GUN BLOCK ASSEMBLY – RATIO |
| HVDG-2100-TM | HV DUO GUN BLOCK ASSEMBLY – TUBE MIXER |
| HVDG-2000 | HV DUO GUN ASSEMBLY |
| HVDG-2000-DR | HV DUO GUN ASSEMBLY – RATIO GUN HEAD |
| HVDG-2000-TM | HV DUO GUN ASSEMBLY – TUBE MIXER |
| HVDG-2200 | HV DUO GUN ACTUATOR |
| HVDG-2000-RK | REPAIR KIT – HV DUO GUN ASSEMBLY |
| HVDG-2200-DR-RK | REPAIR KIT – HV DUO GUN ASSEMBLY - RATIO |
| HVDG-2200-TM-RK | REPAIR KIT – HV DUO GUN ASSEMBLY- TUBE MIXER |
| 58715-1 | AUTO / MANUAL FLUSH VALVE ASSEMBLY |
| 58742-1 | AUTOMATIC FLUSH VALVE ASSEMBLY |
| 58742-1-INT | AUTO FLUSH VALVE ASSY - INTERNATIONAL |





MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN BLOCK

HVDG-2100

REV:A 01/21/11

| Parts List | | | |
|------------|-------------|-----|--------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2201 | 1 | GUN BLOCK |
| 2 | HVDG-2205 | 2 | CHECK FACE SEAL |
| 3 | HVDG-2203 | 2 | FRONT PLUG |
| 4 | HVDG-2208 | 2 | SIDE PLUG |
| 5 | 58135-1 | 2 | SECONDARY SEAL |
| 6 | 58123-1 | 2 | RELIEF SPACER |
| 7 | 58146-1 | 2 | PACKING RING |
| 8 | 58122-1 | 2 | PACKING NUT |
| 9 | 58124-1 | 1 | CENTER SPACER |
| 10 | 58147-1 | 1 | STEM |
| 11 | 58126-1-GFT | 2 | RESIN SEAL, GLASS FILLED |
| 12 | 05654 | 2 | SWIVEL FITTING |
| 13 | F-CS-04F-20 | 4 | CAP SCREW |
| 14 | HVDG-2209 | 1 | VALVE ROD |
| 15 | HVDG-2210 | 4 | SEAL |
| 16 | 03402 | 2 | BALL |
| 17 | HVDG-2202 | 1 | GUN HEAD |
| 18 | HVDG-2206 | 1 | MIXER ADAPTOR |
| 19 | HVDG-2207 | 1 | SEAL |
| 20 | SPR-C-1007 | 2 | SPRING |
| 21 | O-V-3-908 | 2 | O-RING |
| 22 | HVDG-2225 | 1 | LOCATOR PIN |
| 23 | 5104-21-1 | 2 | FLUSH VALVE SPLIT SEAL |
| 24 | 5104-22-2 | 2 | FLUSH VALVE NECK |
| 25 | 5104-24-1 | 2 | FLUSH VALVE BODY |
| 26 | 5104-26-1 | 2 | FLUSH VALVE SEAL |
| 27 | 5104-23-1 | 2 | FLUSH SEAL BODY |
| 28 | O-E-007 | 2 | O-RING |
| 29 | 5104-25-1 | 2 | FLUSH VALVE BUTTON |
| 30 | O-E-008 | 2 | O-RING |
| 31 | 9203-2-3 | 2 | COMPRESSION SPRING |
| 32 | MPH-2534 | 2 | POLY ELBOW |
| 33 | 7304-3-1 | 2 | NYLON SEAL |
| 34 | HVDG-2211 | 2 | SET SCREW |

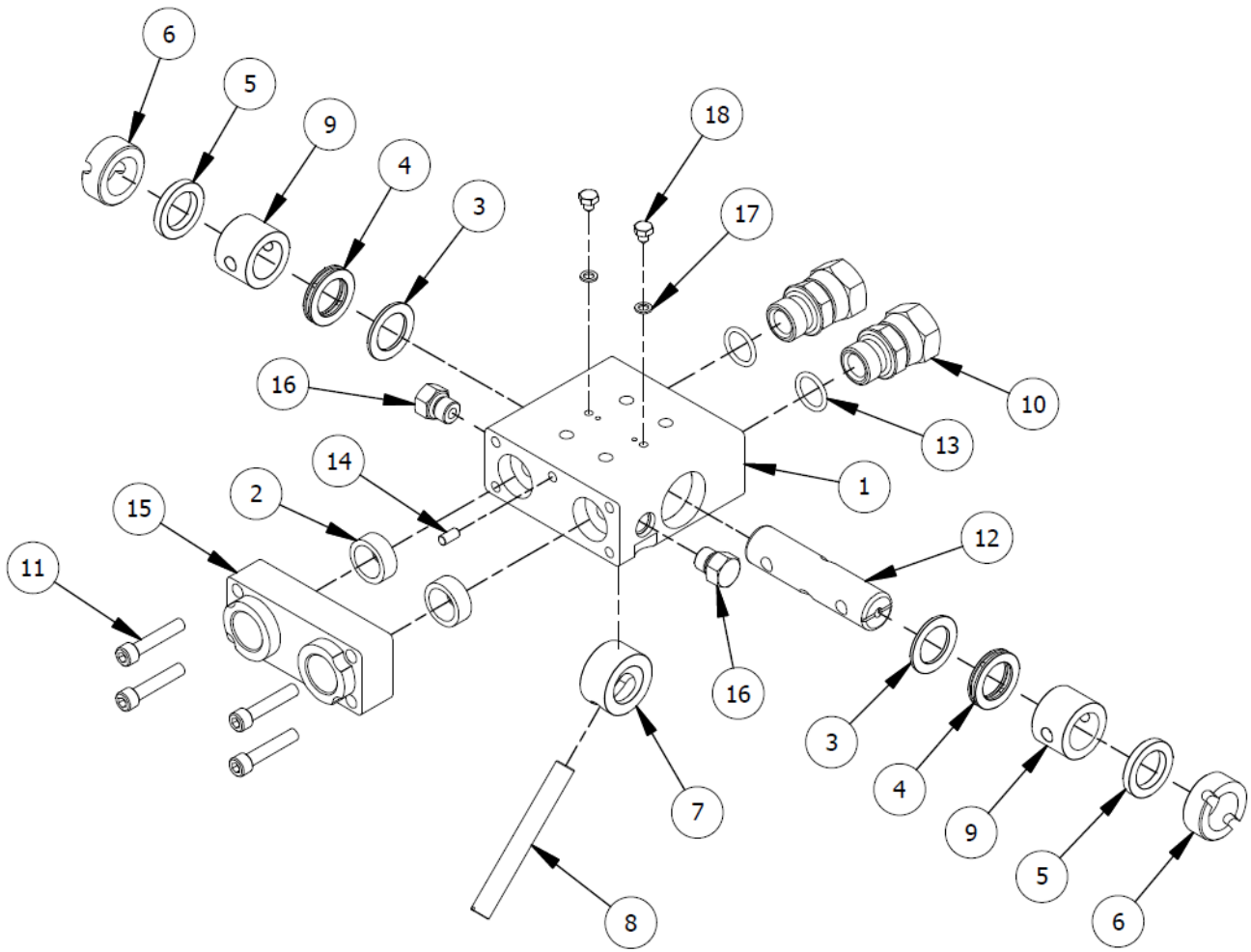
MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN BLOCK

HVDG-2100

REV:01/21/11





MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN BLOCK - RATIO SETUP

HVDG-2100-DR

REV:A 01/21/11

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| Parts List | | | |
|------------|-------------|-----|--------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2201 | 1 | GUN BLOCK |
| 2 | HVDG-2205 | 2 | CHECK FACE SEAL |
| 3 | 58135-1 | 2 | SECONDARY SEAL |
| 4 | 58123-1 | 2 | RELIEF SPACER |
| 5 | 58146-1 | 2 | PACKING RING |
| 6 | 58122-1 | 2 | PACKING NUT |
| 7 | 58124-1 | 1 | CENTER SPACER |
| 8 | 58147-1 | 1 | STEM |
| 9 | 58126-1-GFT | 2 | RESIN SEAL, GLASS FILLED |
| 10 | 05654 | 2 | SWIVEL FITTING |
| 11 | F-CS-04F-20 | 4 | CAP SCREW |
| 12 | HVDG-2209 | 1 | VALVE ROD |
| 13 | O-V-3-908 | 2 | O-RING |
| 14 | HVDG-2225 | 1 | LOCATOR PIN |
| 15 | HVDG-2204 | 1 | RATIO BLOCK |
| 16 | F-SP-07F | 2 | SOLVENT PLUG |
| 17 | 7304-3-1 | 2 | NYLON SEAL |
| 18 | HVDG-2211 | 2 | SET SCREW |

MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN BLOCK - RATIO SETUP

HVDG-2100-DR

REV:A 01/21/11

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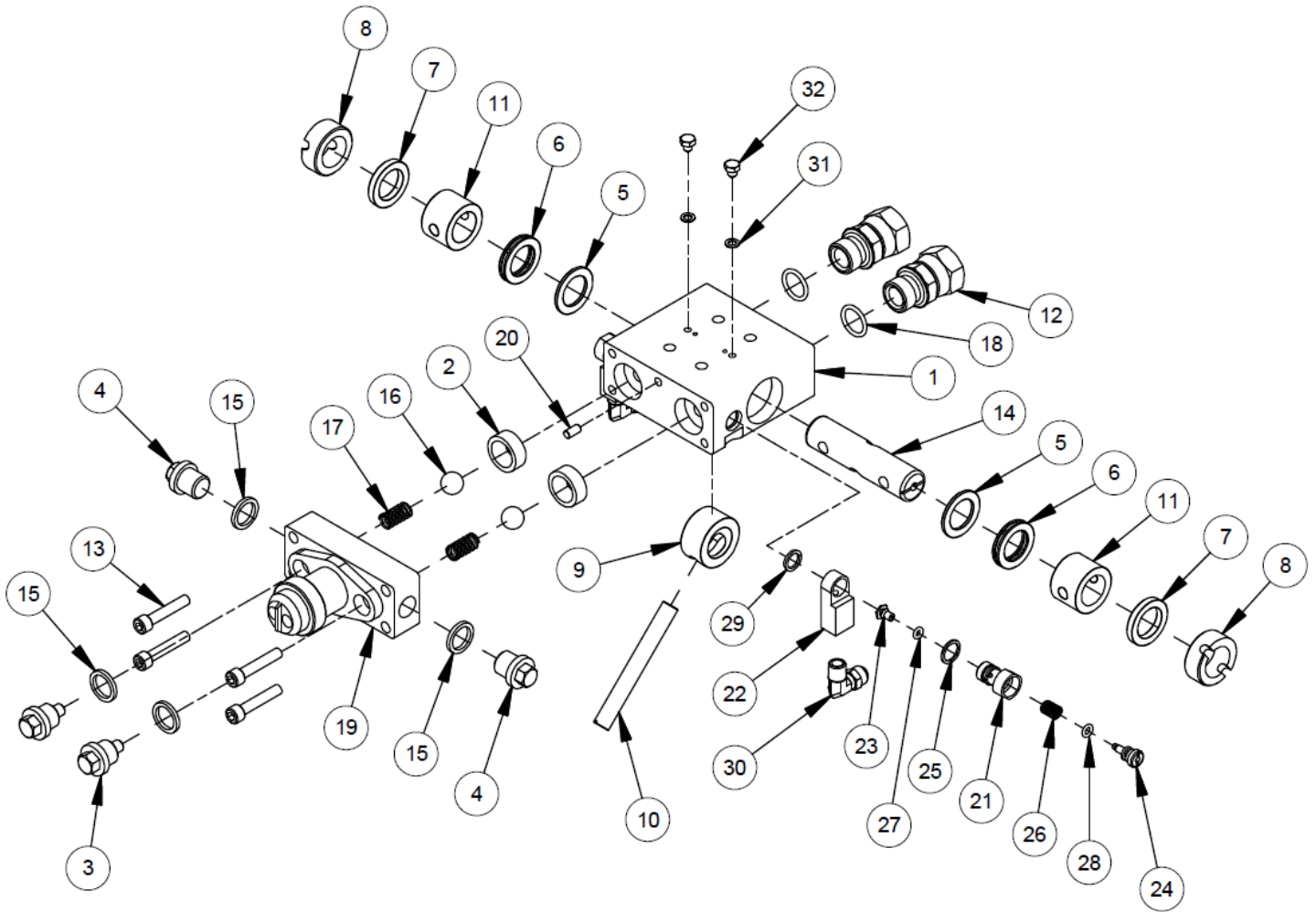
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NOTE: FLUSH ASSEMBLY IS SAME
ON OPPOSITE SIDE

MAGNUM VENUS PLASTECH

HV DUO GUN BLOCK - FOR TUBE MIXER HVDG-2100-TM

REV:A 01/24/10



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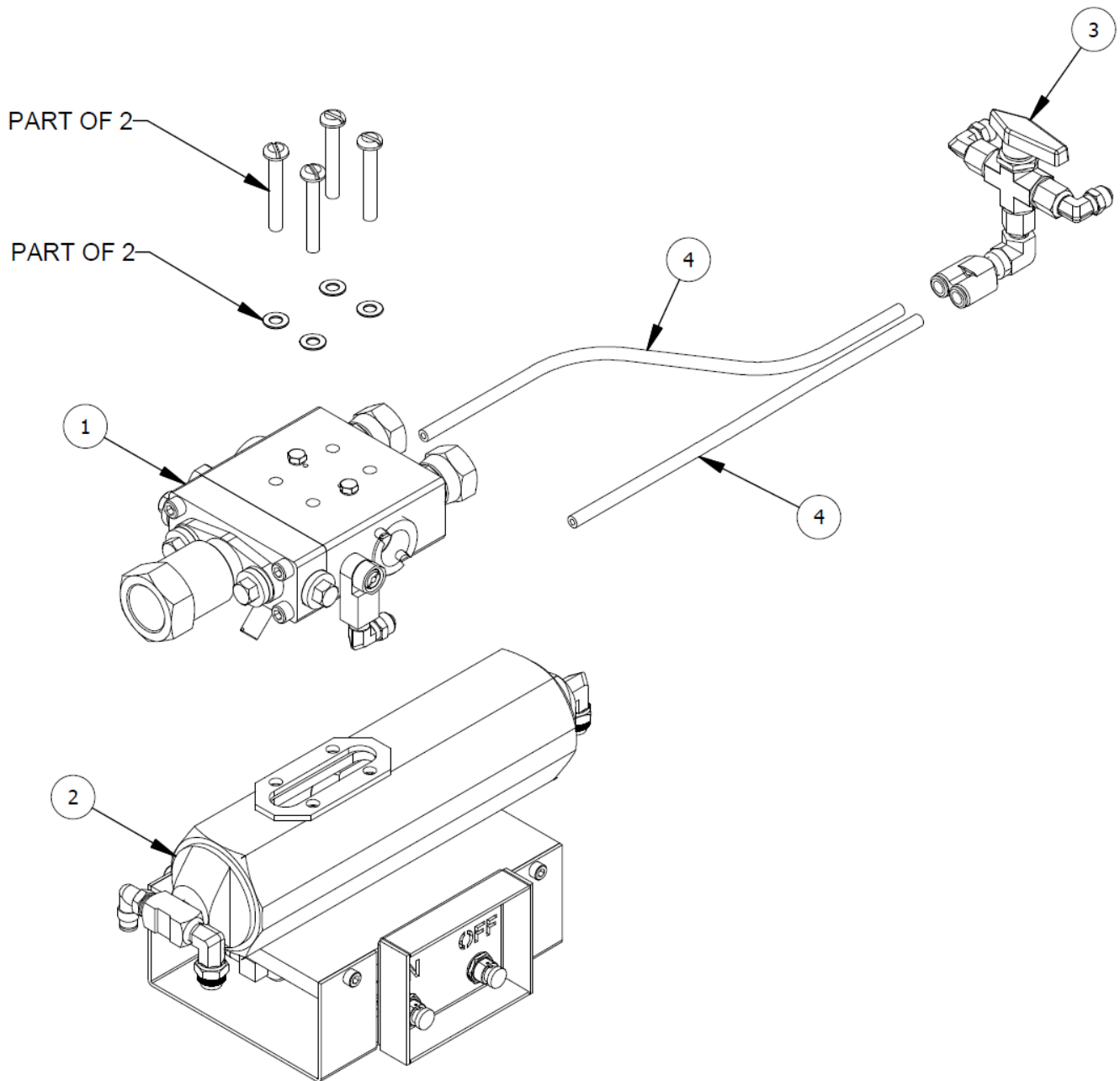
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| Parts List | | | |
|------------|-------------|-----|--------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2201 | 1 | GUN BLOCK |
| 2 | HVDG-2205 | 2 | CHECK FACE SEAL |
| 3 | HVDG-2203 | 2 | FRONT PLUG |
| 4 | HVDG-2208 | 2 | SIDE PLUG |
| 5 | 58135-1 | 2 | SECONDARY SEAL |
| 6 | 58123-1 | 2 | RELIEF SPACER |
| 7 | 58146-1 | 2 | PACKING RING |
| 8 | 58122-1 | 2 | PACKING NUT |
| 9 | 58124-1 | 1 | CENTER SPACER |
| 10 | 58147-1 | 1 | STEM |
| 11 | 58126-1-GFT | 2 | RESIN SEAL, GLASS FILLED |
| 12 | 05654 | 2 | SWIVEL FITTING |
| 13 | F-CS-04F-20 | 4 | CAP SCREW |
| 14 | HVDG-2209 | 1 | VALVE ROD |
| 15 | HVDG-2210 | 4 | SEAL |
| 16 | 03402 | 2 | BALL |
| 17 | SPR-C-1007 | 2 | SPRING |
| 18 | O-V-3-908 | 2 | O-RING |
| 19 | HVDG-2212 | 1 | GUN HEAD |
| 20 | HVDG-2225 | 1 | LOCATOR PIN |
| 21 | 5104-24-1 | 2 | FLUSH VALVE BODY |
| 22 | 5104-22-2 | 2 | FLUSH VALVE NECK |
| 23 | 5104-23-1 | 2 | FLUSH SEAL BODY |
| 24 | 5104-25-1 | 2 | FLUSH VALVE BUTTON |
| 25 | 5104-26-1 | 2 | FLUSH VALVE SEAL |
| 26 | 9203-2-3 | 2 | COMPRESSION SPRING |
| 27 | O-E-007 | 2 | O-RING |
| 28 | O-E-008 | 2 | O-RING |
| 29 | 5104-21-1 | 2 | FLUSH VALVE SPLIT SEAL |
| 30 | MPH-2534 | 2 | POLY ELBOW |
| 31 | 7304-3-1 | 2 | NYLON SEAL |
| 32 | HVDG-2211 | 2 | SET SCREW |

MAGNUM VENUS PLASTECH

HV DUO GUN BLOCK - FOR TUBE MIXER HVDG-2100-TM

REV:02-18-10



MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN

HVDG-2000

REV:A 06/17/11

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| Parts List | | | |
|------------|---------------|------|--------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2100 | 1 | HV DUO GUN BLOCK |
| 2 | HVDG-2200 | 1 | HV DUO GUN ACTUATOR |
| 3 | SAPV-1000-DUO | 1 | SOLVENT/AIR PURGE VALVE |
| 4 | 01443 | 2 FT | TUBE - 2) 1 FT. SECTIONS |

REPAIR KIT - HVDG-2000-RK

MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN

HVDG-2000

REV:A 06/17/11

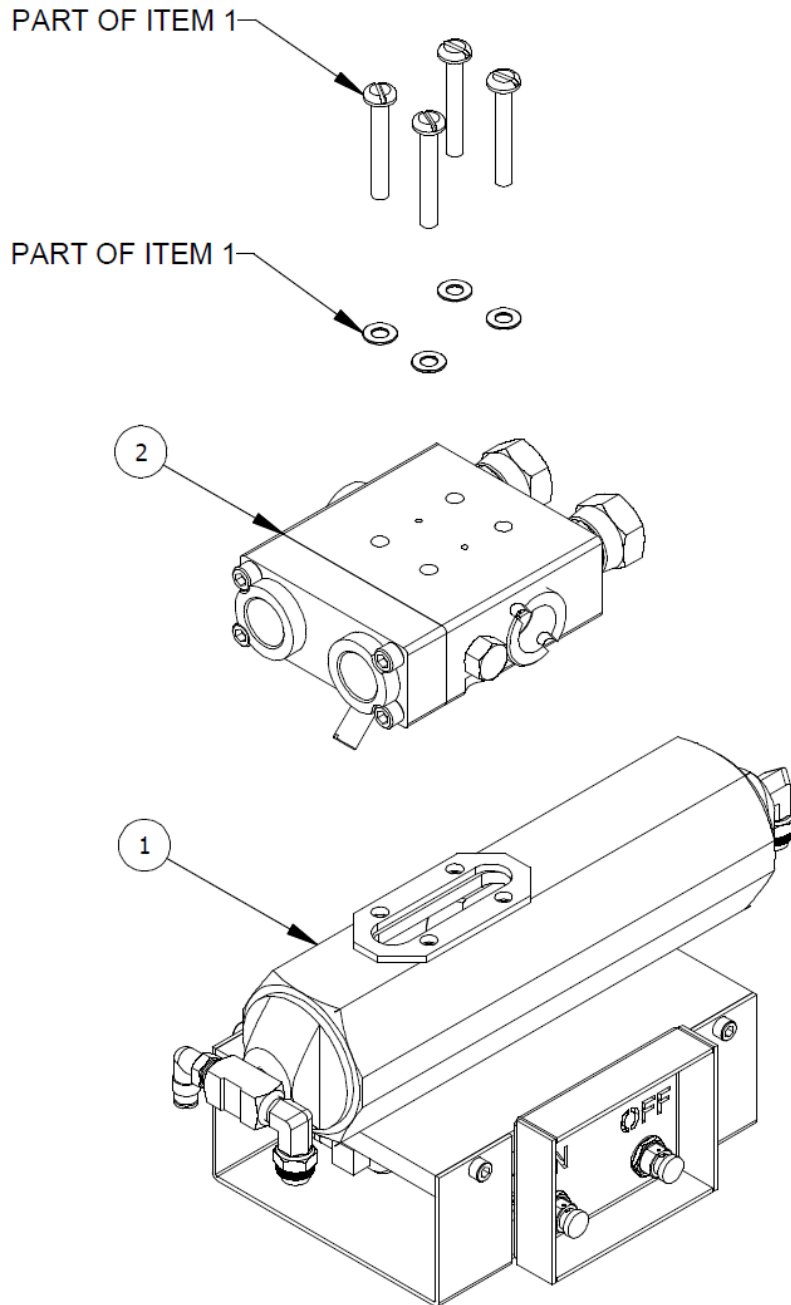
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HIGH VOLUME DUO GUN - RATIO SETUP

HVDG-2000-DR

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| Parts List | | | |
|------------|--------------|-----|--------------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2200 | 1 | HV DUO GUN ACTUATOR |
| 2 | HVDG-2100-DR | 1 | HV DUO GUN BLOCK - RATIO SETUP |

REPAIR KIT - HVDG-2000-DR-RK

MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN - RATIO SETUP

HVDG-2000-DR

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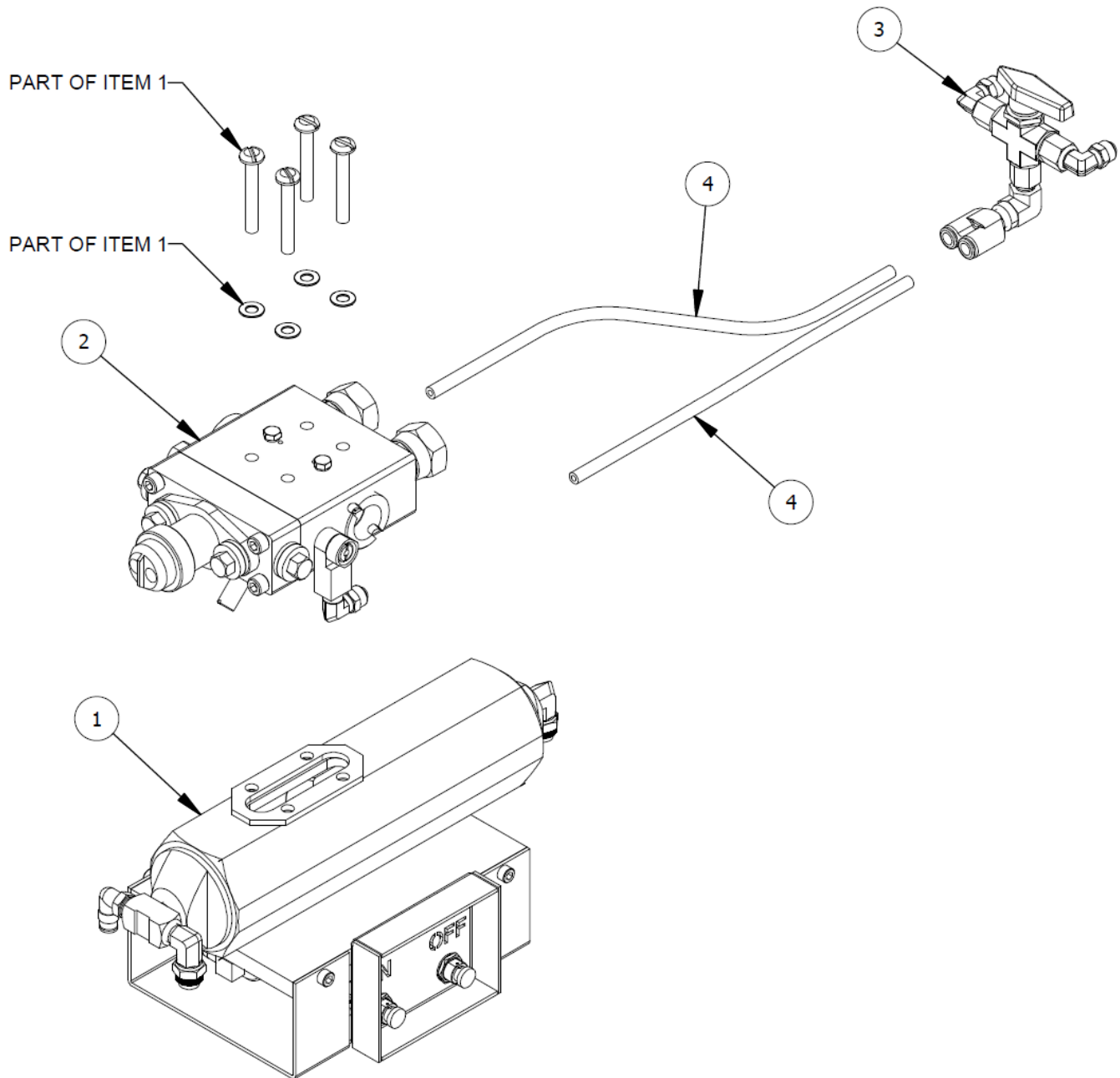
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MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN - FOR TUBE MIXER

HVDG-2000-TM

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| Parts List | | | |
|------------|---------------|------|-----------------------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | HVDG-2200 | 1 | HV DUO GUN ACTUATOR |
| 2 | HVDG-2100-TM | 1 | HV DUO GUN BLOCK - FOR TUBE MIXER |
| 3 | SAPV-1000-DUO | 1 | SOLVENT/AIR PURGE VALVE |
| 4 | 01443 | 2 FT | TUBE - 2) 1 FT. SECTIONS |

REPAIR KIT - HVDG-2000-TM-RK

MAGNUM VENUS PLASTECH

HIGH VOLUME DUO GUN - FOR TUBE MIXER

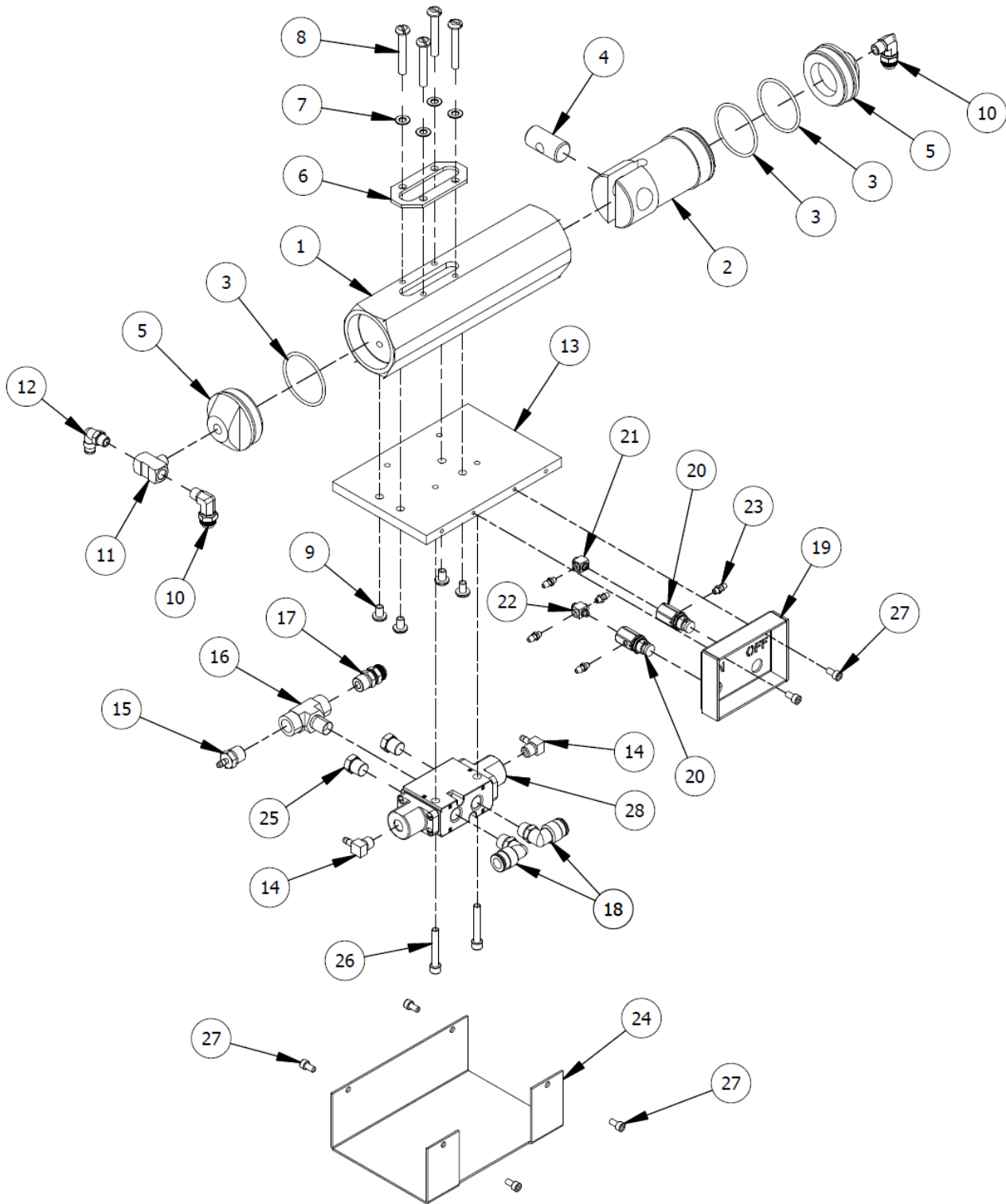
HVDG-2000-TM

REV:A 06/17/11

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7/15/2009





MAGNUM VENUS PLASTECH

HV DUO GUN ACTUATOR

HVDG-2200

REV:A 05/11/11

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| Parts List | | | |
|------------|-------------------|-----|----------------------|
| ITEM | PART NUMBER | QTY | DESCRIPTION |
| 1 | 58140-1 | 1 | ACTUATOR BODY |
| 2 | 58136-1 | 1 | ACTUATING PISTON |
| 3 | O-V-133 | 3 | O-RING |
| 4 | 58138-1 | 1 | ACTUATING BUSHING |
| 5 | 58137-1 | 2 | END CAP |
| 6 | 58144-1 | 1 | ACTUATOR SEAL |
| 7 | 58143-1 | 4 | MOUNTING SEAL |
| 8 | F-PH-04C-28 | 4 | PAN HEAD SCREW |
| 9 | 02809-3 | 4 | PAN HEAD SCREW |
| 10 | 7701-6-18 | 2 | POLY TUBE ELBOW |
| 11 | PF-MBT-02-02 | 1 | MALE BRANCH TEE |
| 12 | PTF90-02-02 | 1 | MALE ELBOW |
| 13 | HVDG-2222 | 1 | MOUNTING PLATE |
| 14 | MPM-2589 | 2 | MALE ELBOW |
| 15 | 00421 | 1 | MALE CONNECTOR |
| 16 | PF-BT-04F-04F-04M | 1 | BRANCH TEE |
| 17 | 7701-3-35 | 1 | MALE CONNECTOR |
| 18 | 07234 | 2 | MALE POLY ELBOW |
| 19 | HVDG-2224 | 1 | CONTROL PANEL |
| 20 | 09169 | 2 | 3-WAY VALVE |
| 21 | TRU-1021 | 1 | SWIVEL ELBOW FITTING |
| 22 | 08807 | 1 | SWIVEL TEE |
| 23 | 7701-6-7 | 5 | BARB FITTING |
| 24 | HVDG-2221 | 1 | VALVE COVER |
| 25 | MPM-2568 | 2 | BREATHER VENT |
| 26 | F-CS-04C-24 | 2 | CAP SCREW |
| 27 | F-CS-1024-06 | 6 | CAP SCREW |
| 28 | HVDG-2226 | 1 | MAC DUAL PILOT VALVE |

MAGNUM VENUS PLASTECH

HV DUO GUN ACTUATOR

HVDG-2200

REV:A 05/11/11

SHEET 2 / 2

6/17/2009

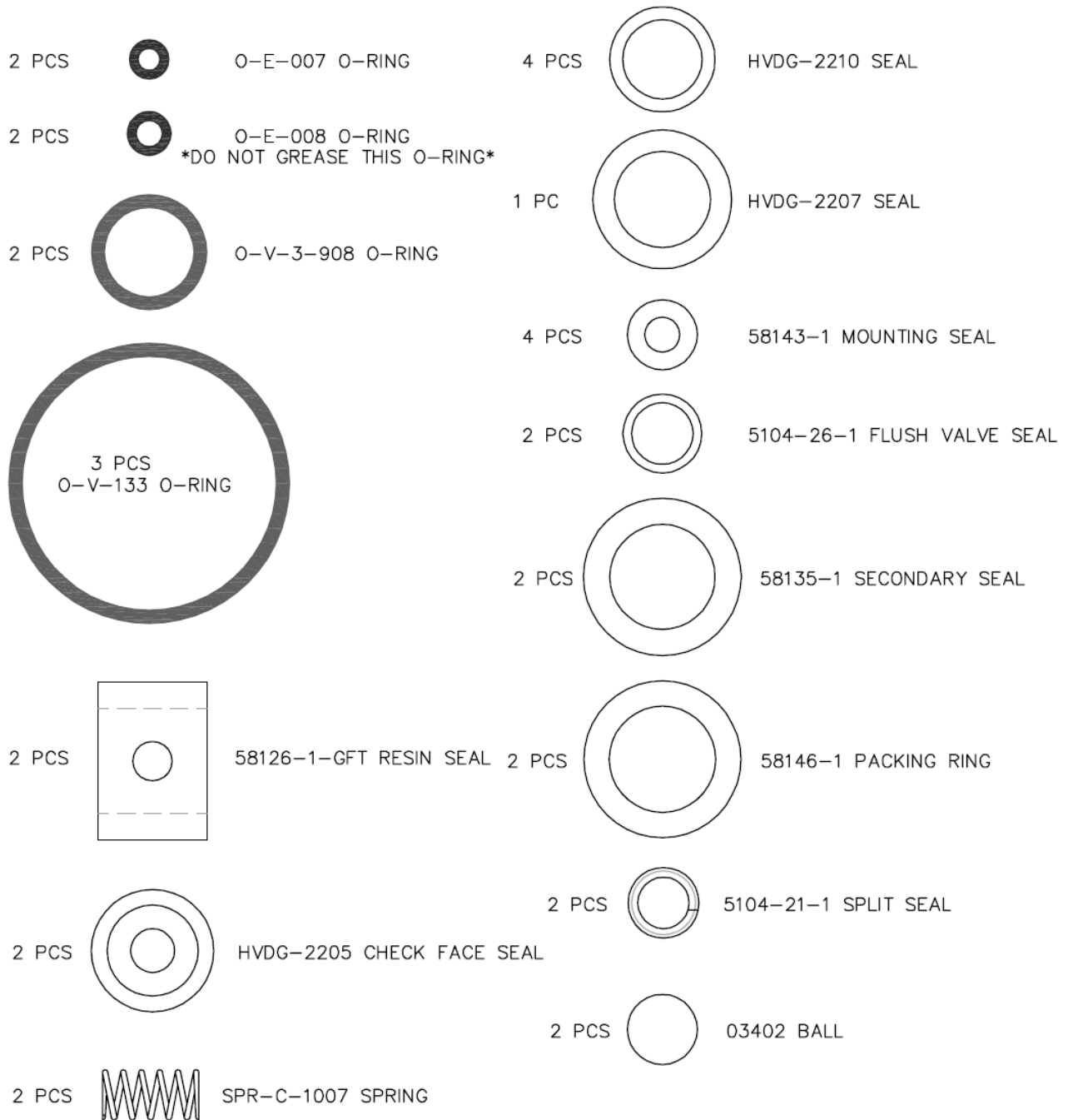


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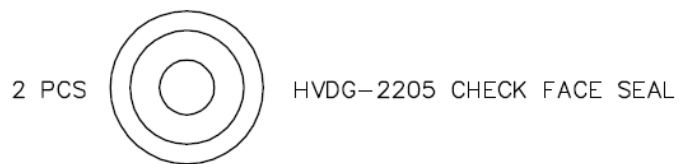
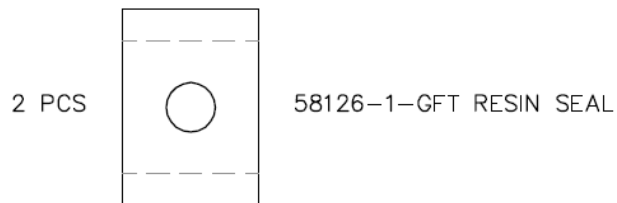
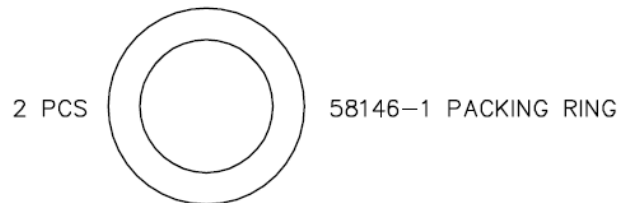
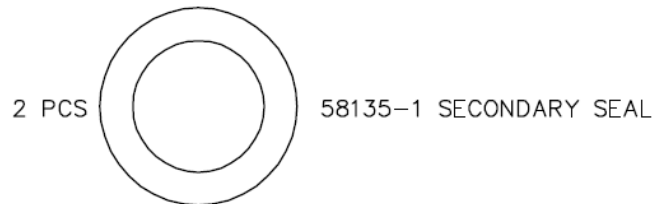
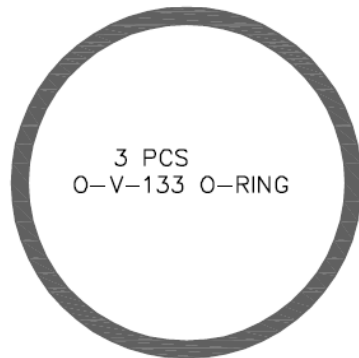
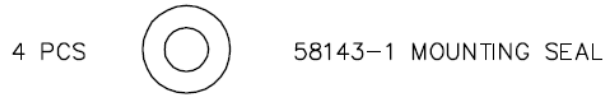
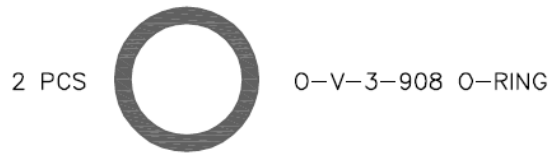
Rev. 04/2014

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HVDG-2000-RK
HV DUO GUN REPAIR KIT





HVDG-2000-DR-RK
HV DUO GUN REPAIR KIT

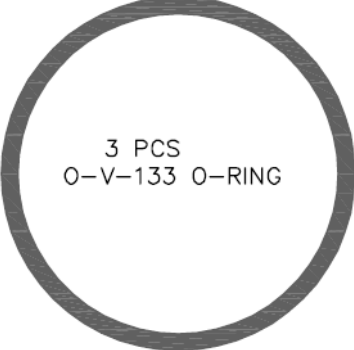


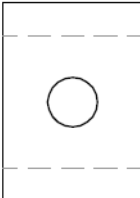
HVDG-2000-TM-RK
HV DUO GUN REPAIR KIT

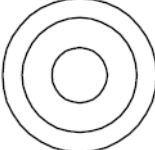
2 PCS  O-E-007 O-RING

2 PCS  O-E-008 O-RING
DO NOT GREASE THIS O-RING

2 PCS  O-V-3-908 O-RING


3 PCS
O-V-133 O-RING 

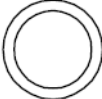
2 PCS  58126-1-GFT RESIN SEAL

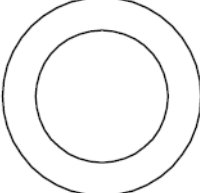
2 PCS  HVDG-2205 CHECK FACE SEAL

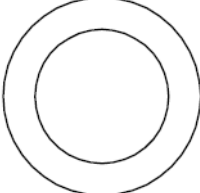
2 PCS  SPR-C-1007 SPRING


4 PCS  HVDG-2210 SEAL

4 PCS  58143-1 MOUNTING SEAL

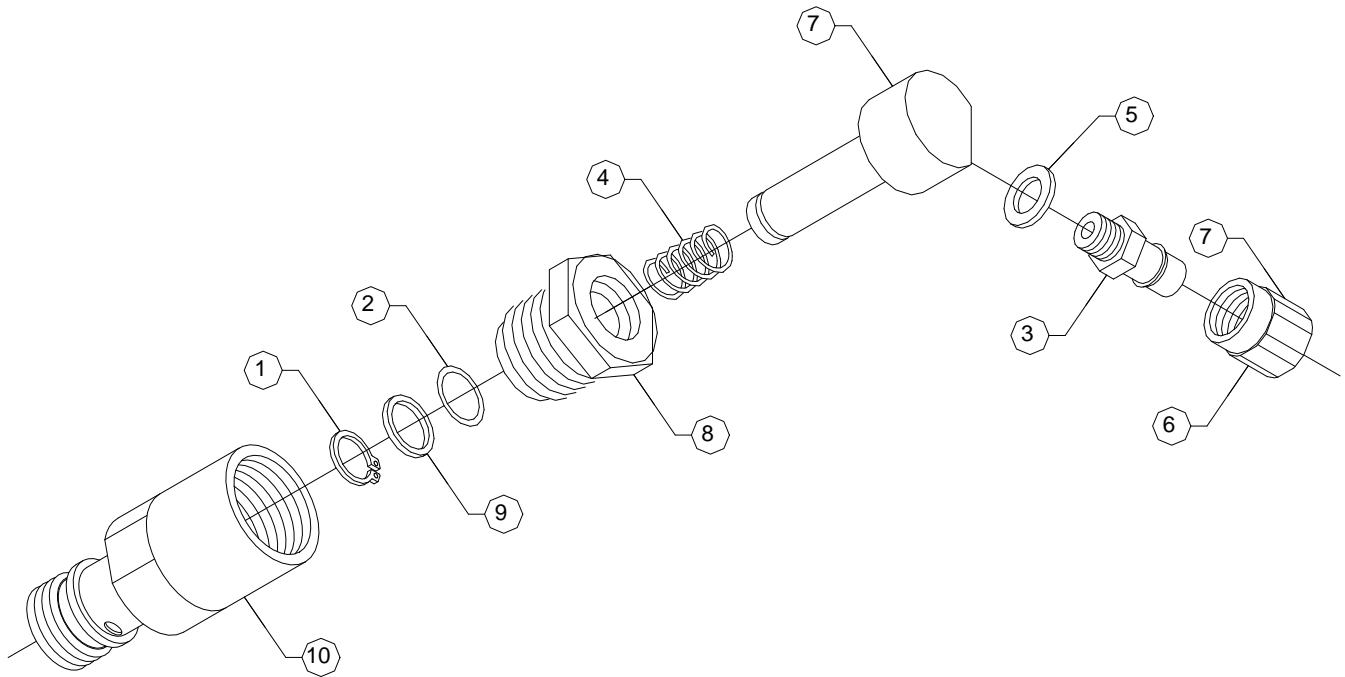
2 PCS  5104-26-1 FLUSH VALVE SEAL

2 PCS  58135-1 SECONDARY SEAL

2 PCS  58146-1 PACKING RING

2 PCS  5104-21-1 SPLIT SEAL

2 PCS  03402 BALL



MAGNUM VENUS PRODUCTS

Manual / Auto Flush Button Assy - Pro Gun

58715-1

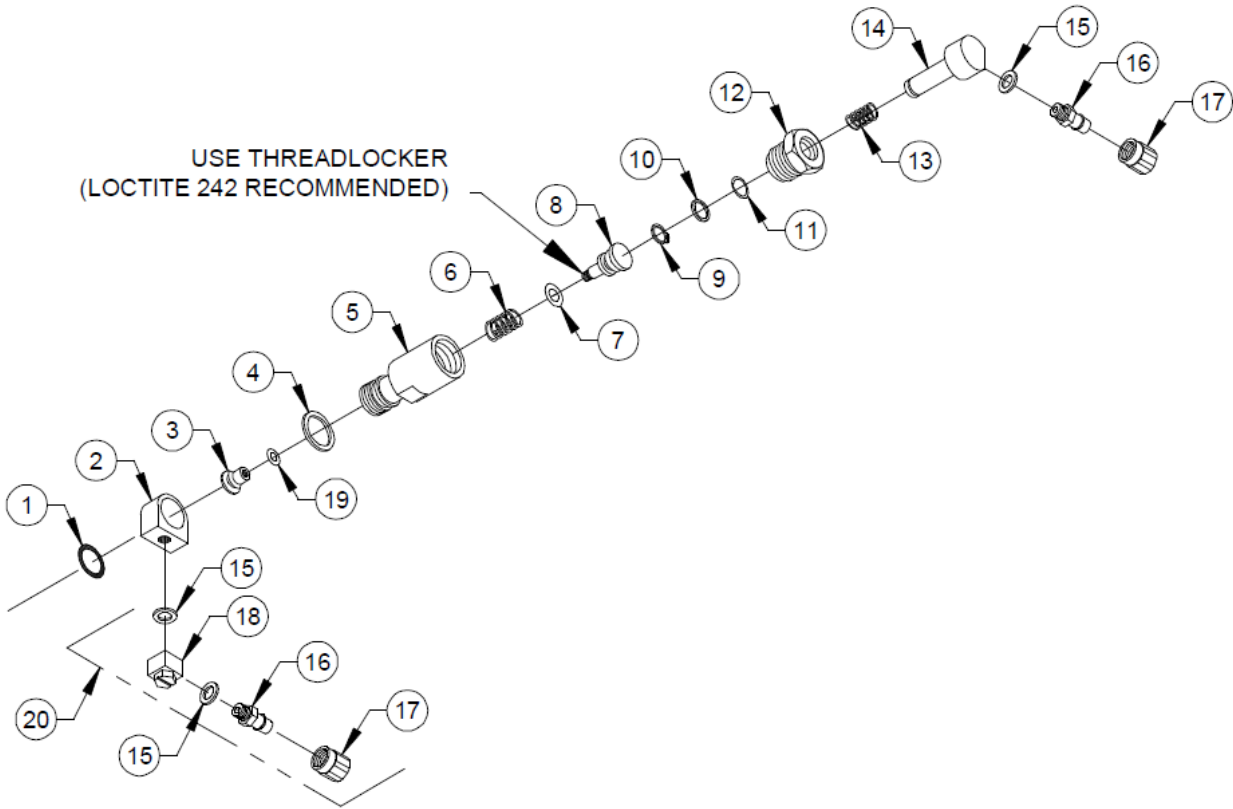
REV. B = DWG CHANGED TO NEW FORM, ADDED 58681-1 TO DWG 4/11/03 JEM



Manual / Auto Flush Button Assy - Pro Gun 58715-1

PARTS LIST

| ITEM | PART NO. | QTY | DESCRIPTION |
|------|----------|-----|-------------------------|
| 1 | 00973 | 1 | GRIP RING |
| 2 | 01019 | 1 | O-RING |
| 3 | 7701-6-3 | 1 | BARBED FITTING |
| 4 | 04356 | 1 | SPRING |
| 5 | 7304-3-1 | 1 | NYLON SEAL |
| 6 | 7701-2-1 | 1 | HOSE CLAMP |
| 7 | 58716-1 | 1 | PUSH STEM |
| 8 | 58717-1 | 1 | BODY - AUTO FLUSH VALVE |
| 9 | 58718-1 | 1 | BACK UP RING |
| 10 | 58681-1 | 1 | BODY - FLUSH VALVE |



MAGNUM VENUS PLASTECH

Automatic Flush Valve Assembly

58742-1

REV - 09-11-07 BT2
REV A - ADDED THREADLOCKER NOTE 10-12-08 BT2

Automatic Flush Valve Assembly 58742-1

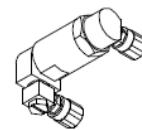
PARTS LIST

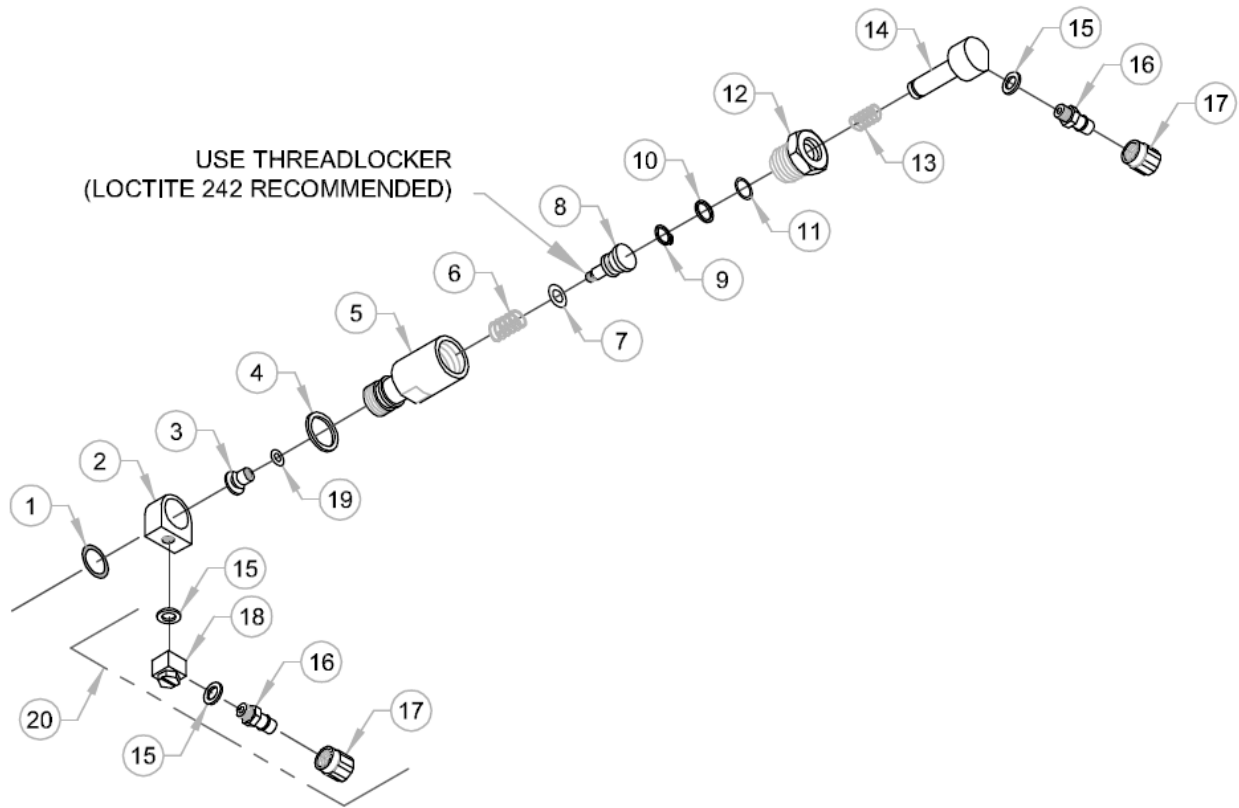
| ITEM | PART NO. | QTY | DESCRIPTION |
|------|-----------|-----|--------------------------|
| 1 | 5104-21-1 | 1 | FLUSH VALVE SPLIT SEAL |
| 2 | 5104-22-1 | 1 | FLUSH VALVE NECK |
| 3 | 5104-23-1 | 1 | FLUSH SEAL BODY |
| 4 | 5104-26-1 | 1 | FLUSH VALVE SEAL |
| 5 | 58681-1 | 1 | FLUSH VALVE BODY |
| 6 | 9203-2-3 | 1 | COMPRESSION SPRING |
| 7 | O-E-008 | 1 | O-RING |
| 8 | 5104-25-1 | 1 | FLUSH VALVE BUTTON |
| 9 | 00973 | 1 | GRIP RING |
| 10 | 58718-1 | 1 | BACK UP RING |
| 11 | O-B-010 | 1 | O-RING |
| 12 | 58717-1 | 1 | MANUAL / AUTO FLUSH BODY |
| 13 | 04356 | 1 | SPRING |
| 14 | 58716-1 | 1 | PUSH STEM |
| 15 | 7304-3-1 | 3 | NYLON SEAL |
| 16 | 7701-6-3 | 2 | BARB FITTING |
| 17 | 7701-2-1 | 2 | HOSE CLAMP |
| 18 | TRU-1021 | 1 | ELBOW FITTING |
| 19 | O-E-007 | 1 | O-RING |

OPTIONAL PARTS AND ASSEMBLIES

| ITEM | PART NO. | QTY | DESCRIPTION |
|------|------------|-----|----------------------|
| 20 | 5104-02-01 | 1 | FLUSH ELBOW ASSEMBLY |

FIGURE 1-1





MAGNUM VENUS PLASTECH

Automatic Flush Valve Assembly

58742-1-INT

REV - 07-19-10 BT2

Automatic Flush Valve Assembly 58742-1-INT

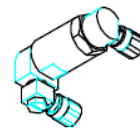
PARTS LIST

| ITEM | PART NO. | QTY | DESCRIPTION |
|------|-----------|-----|--------------------------|
| 1 | 5104-21-1 | 1 | FLUSH VALVE SPLIT SEAL |
| 2 | 5104-22-1 | 1 | FLUSH VALVE NECK |
| 3 | 5104-23-1 | 1 | FLUSH SEAL BODY |
| 4 | 5104-26-1 | 1 | FLUSH VALVE SEAL |
| 5 | 58681-1 | 1 | FLUSH VALVE BODY |
| 6 | 9203-2-3 | 1 | COMPRESSION SPRING |
| 7 | O-E-008 | 1 | O-RING |
| 8 | 5104-25-1 | 1 | FLUSH VALVE BUTTON |
| 9 | 00973 | 1 | GRIP RING |
| 10 | 58718-1 | 1 | BACK UP RING |
| 11 | O-B-010 | 1 | O-RING |
| 12 | 58717-1 | 1 | MANUAL / AUTO FLUSH BODY |
| 13 | 04356 | 1 | SPRING |
| 14 | 58716-1 | 1 | PUSH STEM |
| 15 | 7304-3-1 | 3 | NYLON SEAL |
| 16 | 7701-6-3 | 2 | BARB FITTING |
| 17 | 7701-2-1 | 2 | HOSE CLAMP |
| 18 | TRU-1021 | 1 | ELBOW FITTING |
| 19 | O-A-007 | 1 | O-RING |

OPTIONAL PARTS AND ASSEMBLIES

| ITEM | PART NO. | QTY | DESCRIPTION |
|------|------------|-----|----------------------|
| 20 | 5104-02-01 | 1 | FLUSH ELBOW ASSEMBLY |

FIGURE 1-1





Revision Information:

- REV: 03/2010** **Created the manual**
- REV: 12/2010** **Updated the manual format and drawings.
Changed to the new MVP Logo. Added thread sizes
to the mix housing options section.**
- REV: 02/2011** Updated the Gun Block Drawings (HVDG-2100, HVDG-21-DR & HVDG-2100-TM). Changed the instructions to include the Set Screw (HVDG-2211) on top of the gun block.
- REV: 07/2011** Updated the Gun Block Drawings (HVDG-2000, HVDG-2200 & HVDG-2000-TM).
- Rev: 05/2012** Updated the manual format and Address. Added the Terms & Conditions of Sale section to the manual.





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E-mail: info@mvpind.com · www.mvpind.com

Assemblies Covered in this Manual:

| | |
|--------------|---|
| HVDG-2000 | High Volume 1:1Pro Gun Assembly |
| HVDG-2000-DR | High Volume 1:1Pro Gun Assembly – Ratio Setup |
| HVDG-2000-TM | High Volume 1:1Pro Gun Assembly – Tube Mixer |

