HYDRAULIC MINI LINK OPERATIONS MANUAL

Second Generation Linkage

MagnumVenusProducts

Rev. 04/2014

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Terms & Conditions of Sale:

GSSC, Inc.'s Terms & Conditions of Sale ("Terms & Conditions") 588284v4

1. ACCEPTANCE: Acceptance of any purchase order from a customer or potential customer ("Buyer") is subject to credit approval by GSSC, Inc. ("Seller"), acceptance of the purchase order by Seller and, when applicable, any manufacturer, vendor, or other third party that provides goods to Seller for resale to Buyer ("Vendor"). If Seller, in its sole discretion, determines that Buyer's credit becomes unsatisfactory or it has reasonable grounds for insecurity, Seller reserves the right, upon notice to Buyer, to demand adequate assurance of due performance from Buyer and/or terminate any purchase order with no liability to Seller. BY REQUESTING A QUOTE FROM SELLER, ACCEPTING AN INVOICE FROM SELLER, OR PRESENTING A PURCHASE ORDER TO SELLER, BUYER CONFIRMS THAT THESE TERMS & CONDITIONS SHALL GOVERN ALL PURCHASES OF PRODUCTS OR MATERIALS PROVIDED TO BUYER BY SELLER ("GOODS"). GOODS SOLD BY SELLER ARE EXPRESSLY SUBJECT TO THE TERMS AND CONDITIONS SET FORTH HEREIN AND ANY DIFFERENT OR ADDITIONAL TERMS OR CONDITIONS SET FORTH IN A PURCHASE ORDER OR SIMILAR COMMUNICATION RECEIVED FROM BUYER ARE OBJECTED TO AND SHALL NOT BE BINDING UPON SELLER UNLESS SPECIFICALLY AGREED TO IN WRITING BY AN AUTHORIZED CORPORATE OFFICER OF SELLER.NO SELLER EMPLOYEE OR AGENT HAS THE AUTHORITY TO MODIFY THESE TERMS & CONDITIONS VERBALLY. SELLER OBJECTS TO AND REJECTS ANY TERMS BETWEEN BUYER AND ANY OTHER PARTY, AND NO SUCH TERMS, INCLUDING BUT NOT LIMITED TO ANY GOVERNMENT REGULATIONS OR "FLOWDOWN" TERMS, SHALL BE A PART OF OR INCORPORATED INTO ANY PURCHASE ORDER FROM BUYER TO SELLER, UNLESS AGREED TO IN WRITING BY AN AUTHORIZED REPRESENTATIVE OF SELLER.

2. PRICES AND TAXES: Buyer agrees to pay the prices quoted by Seller or listed on any related invoice, and is responsible for additional applicable shipping and handling charges, taxes, duties, and charges for import and export licenses and certificates. All prices quoted by Seller are subject to change without notice. Seller will generally collect applicable taxes along with the purchase price unless Buyer submits a valid tax exemption certificate, and indicates which Goods are covered by it. Prices on special-order Goods may be subject to change before shipment. In order to be corrected, any discrepancies in pricing and/or quantities on invoices must be reported by Buyer within thirty (30) days of the invoice date.

3. PAYMENT: Payment terms are 30 days net from the invoice date or upon such other terms approved by Seller in writing. Retainage shall not apply, and Buyer shall not hold back any retainage from Seller, even if retainage is part of any contract between Buyer and any other party. Payment is not contingent on Buyer's ability to collect or obtain funds from any other party. Credit card sales are billed at the time of purchase. Buyer expressly represents it is solvent at the time it places any purchase order with Seller. Seller, in its sole discretion, may determine that Buyer's financial condition requires full or partial payment prior to manufacture or shipment. If Buyer fails to make any payment when due, Seller reserves the right to suspend performance. Buyer agrees to pay a charge on all amounts past due at the rate of 1 ½% per month (18% per year) or the maximum lawful rate, whichever is less. In the event of non-payment, Buyer agrees to pay Seller's reasonable attorney fees and court costs, if any, incurred by Seller to collect payment, and all applicable interest charges. Seller may apply payments to any outstanding invoices unless Buyer provides specific payment direction.

4. TITLE AND RISK OF LOSS OR DAMAGE: As to Goods delivered directly by Seller, title passes upon delivery at the place Buyer receives possession; and, thereafter, all risk of loss or damage shall be on Buyer. All other sales are F.O.B., point of shipment, and Buyer takes title and assumes responsibility for risk of loss or damage at the point of shipment for such sales. Claims for Goods damaged in transit are Buyer's sole responsibility when not delivered directly by Seller.

5. QUOTATIONS: All quotations expire thirty (30) days from the date of the quotation unless otherwise noted on the quotation. This time limit applies even if Buyer uses the quotation to submit a job or project bid to any other party.

6. ASSIGNMENT: The Buyer's rights and responsibilities under any purchase order or these Terms & Conditions shall not be assigned by Buyer without the express written consent of the Seller.

7. RETURN OF GOODS: 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. Subject to the foregoing, Seller shall accept returns of Goods for any reason for a period of thirty (30) days following shipment for exchange or refund of the purchase price; provided, that such Goods must be unused and are subject to a 15% restocking charge, which may be increased or decreased, in the Seller's sole discretion, depending on the reason for such return. Any Goods which were special ordered by Buyer are may not be returned, and any such Goods which are returned are subject to a restocking/cancellation fee of 100% of the cost of the Goods. Goods shall be deemed accepted by Buyer (and cannot thereafter be returned), if Buyer fails to object to the Goods within thirty (30) days after the Goods are received by Buyer.

8. CANCELLATION: The Buyer may cancel any purchase order prior to shipment of the Goods by mutual agreement of the parties and upon payment to Seller of reasonable and proper cancellation charges.

9. TERMINATION: Seller may terminate the whole or any part of any purchase order if there is a material breach of these Terms & Conditions. In the event of any such breach, the Seller will provide Buyer with written notice of the nature of the breach and the Seller's intention to terminate for default. In the event Buyer does not cure such failure within ten (10) days of such notice, Seller may, by written notice, terminate the purchase order; provided, that Buyer shall continue its performance to the extent not terminated.

10. CHANGE IN BUYER'S FINANCIAL CONDITION: Seller reserves the right to cancel any order or to require full or partial payment in advance without liability to Seller in the event of: (i) insolvency of the Buyer; (ii) the filing of voluntary petition in bankruptcy by Buyer; (iii) the appointment of a Receiver or Trustee for the Buyer; (iv) the execution by Buyer of an assignment for benefit of creditors; or (v) past due payment on previous shipments to Buyer by Seller. Seller reserves the right to cancel Buyers credit at any time for any reason.

11. INTERPRETATION RESPONSIBILITY; PRODUCT USE AND SAFETY: Seller does not guarantee that the Goods it sells conform to any plans and specifications or intended use. When plans and specifications are involved, Buyer is solely responsible for verifying Seller's interpretations of such plans and specifications, and it is Buyer's sole responsibility to assure that Seller's Goods will be acceptable for any specific job. When Seller offers substitute Goods on any proposal, Buyer is solely responsible for confirming their acceptability.

12. DELIVERY: Shipping dates given in advance of actual shipment are approximate and not guaranteed. All contract dates and timelines begin upon receipt by Seller of a purchase order, Buyer's acceptance of these Terms & Conditions, and the payment of any required down payment.

13. EXCUSABLE DELAYS: Seller shall have no liability if its performance is delayed or prevented by causes beyond its reasonable control, including, without limitation, acts of nature, labor disputes, government priorities, transportation delays, insolvency or other inability to perform by any Vendor, or any other commercial impracticability. In the event of any such delay, the date of delivery or performance shall be extended for a period equal to the time lost by reason of delay. If Goods are held or stored beyond the delivery date for the convenience of Buyer, such Goods shall be so stored at the risk and expense of Buyer.

14. CLAIMS: Claims for any nonconforming Goods must be made by Buyer, in writing, within ten (10) days of Buyer's receipt of such Goods and must state with particularity all material facts concerning the claim then known to Buyer. Failure by Buyer to give notice within such ten (10) day period shall constitute an unqualified acceptance of such Goods by Buyer, and a waiver of any right to reject or revoke acceptance of such Goods.

15. WARRANTIES:
(a) SELLER'S WARRANTIES: Seller warrants that all Goods sold shall mechanically operate as specified and shall be free from faults in respect to materials and workmanship for a period of: (i) for parts, twelve (12) months from the date of invoice, and (ii) for systems, twelve (12) months from start-up, or, if earlier, eighteen (18) months from the date of the bill of lading. Seller also warrants that the Goods shall, upon payment in full by Buyer for the Goods, be free and clear of any security interests or liens. Buyer's exclusive remedy for breach of such warranties shall be limited to repair or replacement costs or termination of any security interests or liens, and Seller shall have no responsibility for reimbursing repair costs incurred by Buyer in connection with Goods without first giving written authorization for such charges. In any claims 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. This warranty applies only to Goods properly used and maintained and does not apply to any Goods which are misused or neglected, or which has been installed, operated, repaired, altered or modified other than in accordance with instructions or written authorization by Seller. This warranty does not apply to any Goods not manufactured by Seller, and Buyer's sole warranty with respect to such Goods shall be that of the Seller's Vendor, if any.
(b) VENDOR'S WARRANTIES: Seller shall assign to Buyer any Vendor warranties and/or remedies provided to Seller by its Vendor.
(c) INTELLECTUAL PROPERTY INFRINGEMENT: SELLER DISCLAIMS ANY AND ALL WARRANTIES AND/OR INDEMNIFICATIONS AGAINST INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF ANY NATURE. SELLER SHALL, IF GIVEN PROMPT NOTICE BY BUYER OF ANY CLAIM OF INTELLECTUAL PROPERTY INFRINGEMENT WITH RESPECT TO ANY GOODS SOLD HEREUNDER, REQUEST THE APPLICABLE VENDOR TO GRANT FOR THE BUYER SUCH WARRANTY OR INDEMNITY RIGHTS AS SUCH VENDOR MAY CUSTOMARILY GIVE WITH RESPECT TO SUCH GOODS.
(d) LIMITATIONS: THERE ARE NO OTHER WARRANTIES WRITTEN OR ORAL, EXPRESS, IMPLIED OR BY STATUTE. SELLER SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO REPAIR OF GOODS OR OTHER COSTS ARE ASSUMED BY SELLER UNLESS AGREED TO, IN ADVANCE, IN WRITING.
16. LIMITATIONS OF LIABILITY: UNLESS APPLICABLE LAW OTHERWISE REQUIRES, SELLER'S AND ANY VENDOR'S TOTAL LIABILITY TO BUYER, BUYER'S CUSTOMERS OR TO ANY OTHER PERSON, RELATING TO ANY PURCHASES GOVERNED BY THESE TERMS & CONDITIONS, FROM THE USE OF THE GOODS FURNISHED OR FROM ANY ADVICE, INFORMATION OR ASSISTANCE PROVIDED BY SELLER (BY ANY METHOD, INCLUDING A WEB SITE), IS LIMITED TO THE PRICE OF THE GOODS GIVING RISE TO THE CLAIM. NEITHER SELLER NOR ITS VENDORS SHALL BE LIABLE FOR ANY SPECIAL, INCIDENTAL, DIRECT, CONSEQUENTIAL OR PENAL DAMAGES, INCLUDING, BUT NOT LIMITED TO BACKCHARGES, LABOR COSTS, COSTS OF REMOVAL, REPLACEMENT, TESTING OR INSTALLATION, LOSS OF EFFICIENCY, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE GOODS OR ANY ASSOCIATED GOODS, DAMAGE TO ASSOCIATED GOODS, LATENESS OR DELAYS IN DELIVERY, UNAVAILABILITY OF GOODS, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES OR SERVICES, DOWNTIME, OR CLAIMS FROM BUYER'S CUSTOMERS OR OTHER PARTIES. IF SELLER FURNISHES BUYER WITH ADVICE OR OTHER ASSISTANCE WHICH CONCERNS ANY GOODS SUPPLIED HEREUNDER, OR ANY SYSTEM OR EQUIPMENT IN WHICH ANY SUCH GOODS MAY BE INSTALLED, AND WHICH IS NOT REQUIRED PURSUANT TO THESE TERMS & CONDITIONS, THE FURNISHING OF SUCH ADVICE OR ASSISTANCE WILL NOT SUBJECT SELLER TO ANY LIABILITY, WHETHER BASED ON CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) OR OTHER GROUNDS.
17. BUYER'S USE OF GOODS: Many factors beyond Seller's control contribute to the success of the Buyer's finished products, such as raw materials used to manufacture the products. Seller is not liability for the quality or quantity of finished products produced by Buyer with the use of the Goods.
18. EXPORTS: If Goods are sold for export, Seller's standard terms & condition for export sales, if any, shall also apply. Acceptance of export orders is not valid unless confirmed in writing by Seller. Buyer, and not Seller, is responsible for compliance with all United States export control rules and regulations. Buyer shall not name Seller as shipper or exporter of record in connection with the export of any Goods purchased from Seller.
19. INSTALLATION: Installation of the Goods is the responsibility of Buyer, unless otherwise indicated in the quotation or invoice provided to Buyer. Notwithstanding the foregoing, however, Seller will provide installation supervision personnel within thirty (30) days of Buyer's request. If an installation for which the Seller is to participate is delayed by the Buyer more than six (6) months after the date of shipment of the Goods, or if Buyer's facility, materials, or parts are not prepared for installation for such period of time, Seller shall be entitled to invoice the Buyer for the anticipated installation costs, up to $1,250 per day plus expenses, for each of Seller's installations technicians which are on site.
20. ANTI-MONEY LAUNDERING RESTRICTIONS: Seller rejects questionable purchase orders and payments: Except for pre-approved credit arrangements, Seller rejects third-party payments, cashiers' checks, money orders and bank drafts. Seller accepts only checks imprinted with Buyer's name; wire transfers originated in Buyer's account; letters of credit with Buyer as account party; and credit or debit cards in Buyer's name. All payments must be by single instrument in the amount of the invoice, less credits, from banks acceptable to Seller.
21. GOVERNING LAW: These Terms & Conditions and all disputes related to it shall be governed by the laws of the State of Florida, United States of America, without giving effect to its conflict of law rules.
22. JURISDICTION AND VENUE: The parties hereby irrevocably submit to the jurisdiction of the state courts of the State of Florida and to the jurisdiction of the United States District Court for the Middle District of Florida, for the purpose of any suit, action, or other proceeding related to, arising out of or based upon these Terms & Conditions or in any way related to, arising out of or involving sale of Goods hereunder; waive and agree not to assert by way of motion, as a defense, or otherwise, in any such suit, action, or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action, or proceeding is brought in any inconvenient forum, that the venue of the suit, action, or proceeding is improper, or that these Terms & Conditions or the subject matter hereof may not be enforced in or by such court; and waive and agree not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such Florida state or federal court. The parties hereby consent to service of process by registered mail at the address to which notice is to be given. The exclusive venue for any proceeding under these Terms & Conditions shall be solely in any state court in Pinellas County, Florida, or the Federal District Court for the Middle District of Florida, Tampa Division, sitting in Tampa, Florida. Buyer acknowledges that the prices for Goods offered hereunder are in part dependent on Buyer's consent to jurisdiction in Florida and exclusive venue in Pinellas County, Florida or the Federal District Court for the Middle District of Florida, Tampa Division, sitting in Tampa, Florida, and without Buyer's consent to this jurisdiction and venue provision the prices for the Goods may be higher.
23. GENERAL: Any representation, affirmation of fact and course of dealing, promise or condition in connection therewith or usage of trade not contained herein, shall not be binding on either party. If any provision hereof shall be unenforceable, invalid or void for any reason, such provision shall be automatically voided and shall not be part of these Terms & Conditions and the enforceability or validity of the remaining provisions of these Terms & Conditions shall not be affected thereby.

TO THE EXTENT NOT CONTRARY TO APPLICABLE LAW, THE FOLLOWING SHALL APPLY:
24. Buyer waives any available homestead exemption as well as any and all requirements or rights with regard to notice, demand, presentment.

IMPORTANT NOTICE: *THIS INSTRUMENT PERMITS SELLER TO OBTAIN AND USE YOUR INDIVIDUAL CREDIT HISTORY FOR CREDIT EVALUATION PURPOSES.*

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 safety. 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:

The Mini Link system uses a hydraulic pump and cylinder to drive the metering system, which delivers an extremely consistent mix / meter at low flow rates.

This manual provides information needed to properly operate and perform simple maintenance and repair on this equipment.

- Step-by-step operations procedures are provided.
- This manual includes Installation, Start-up and Shut-Down instructions.
- Step-by-step assembly and disassembly procedures are included for each component.

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

Metering Pumps:

The Mini Link system consists of a combination of two of the following metering pumps and dispense gun:

- 1:1 Classic Pro Gun Repair Manual

And one or a combination of the following metering pump manuals

- VHPC-1200 Metering Pump
- VHPC-2200 Metering Pump
- VHPC-3200 Metering Pump
- VHPC-4200 Metering Pump

Below are the Ratio Ranges possible using the typical metering pumps.

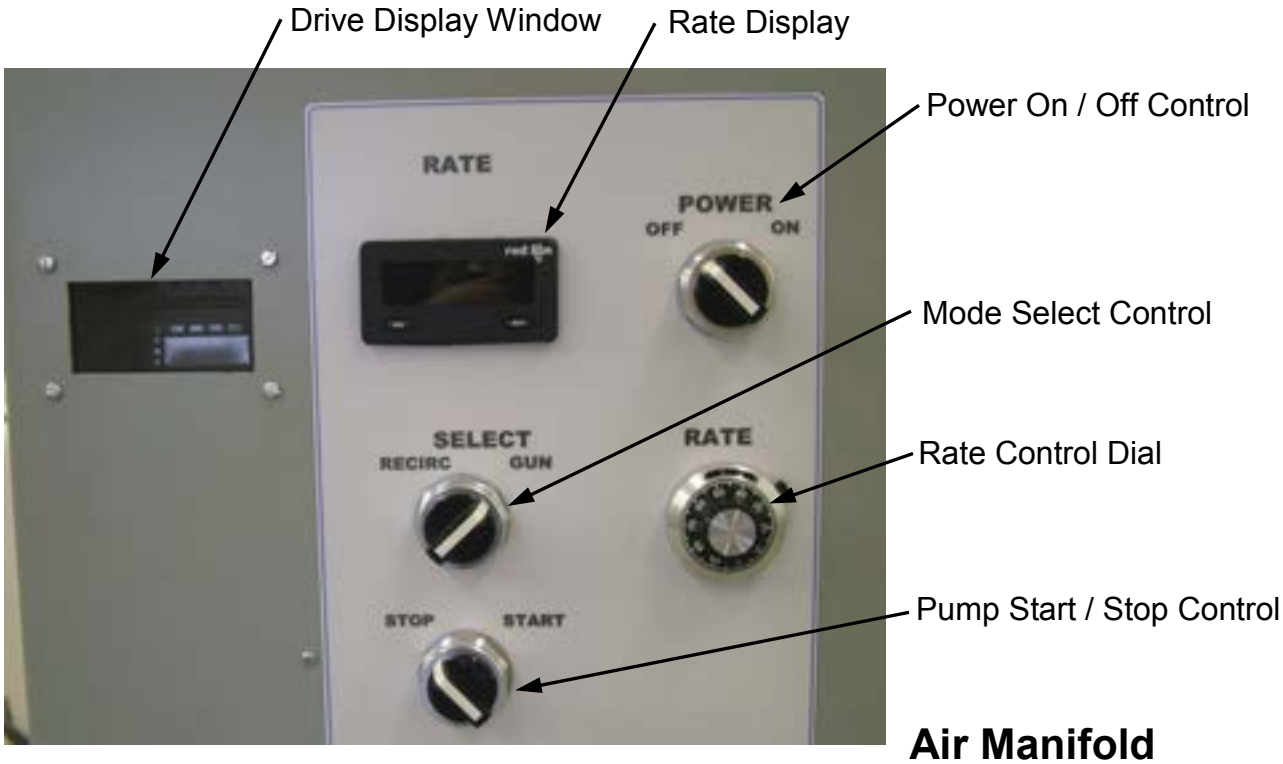
Mini Link Ratio Chart

Hydraulic	Fixed Fluid Section	Var. Fluid Section	Material Ratio Range		Output
			High	Low	
	VHPC-1200	VHPC-1200	1:1	4.6:1	.53-.87 GPM (2.0 - 2.9 liter)
	VHPC-1200	VHPC-2200	1.3:1	5.8:1	.51-.78 GPM (1.93 - 2.38 liter)
	VHPC-1200	VHPC-3200	2.2:1	10.4:1	.48-.63 GPM (1.81 - 2.38 liter)
	VHPC-1200	VHPC-4200	5:1	21.5:1	.46-.52 GPM (1.81 - 1.96 liter)
	VHPC-2200	VHPC-2200	1:1	4.6:1	.42-.69 GPM (1.6 - 2.61 liter)
	VHPC-2200	VHPC-3200	1.8:1	8.25:1	.39-.54 GPM (1.47 - 2.04 liter)
	VHPC-2200	VHPC-4200	4:1	18.6:1	.36-.43 GPM (1.36 - 1.63 liter)
	VHPC-3200	VHPC-3200	1:1	4.6:1	.23-.38 GPM (.87 - 1.43 liter)
	VHPC-3200	VHPC-4200	2.2:1	10.4:1	.21-.28 GPM (.79 - 1.06 liter)
	VHPC-4200	VHPC-4200	1:1	4.6:1	.10-.17 GPM (.37 - .64 liter)

Description of Controls for Unit:

Familiarize yourself with the Air Manifold controls, which consist of the following regulators and gauges:

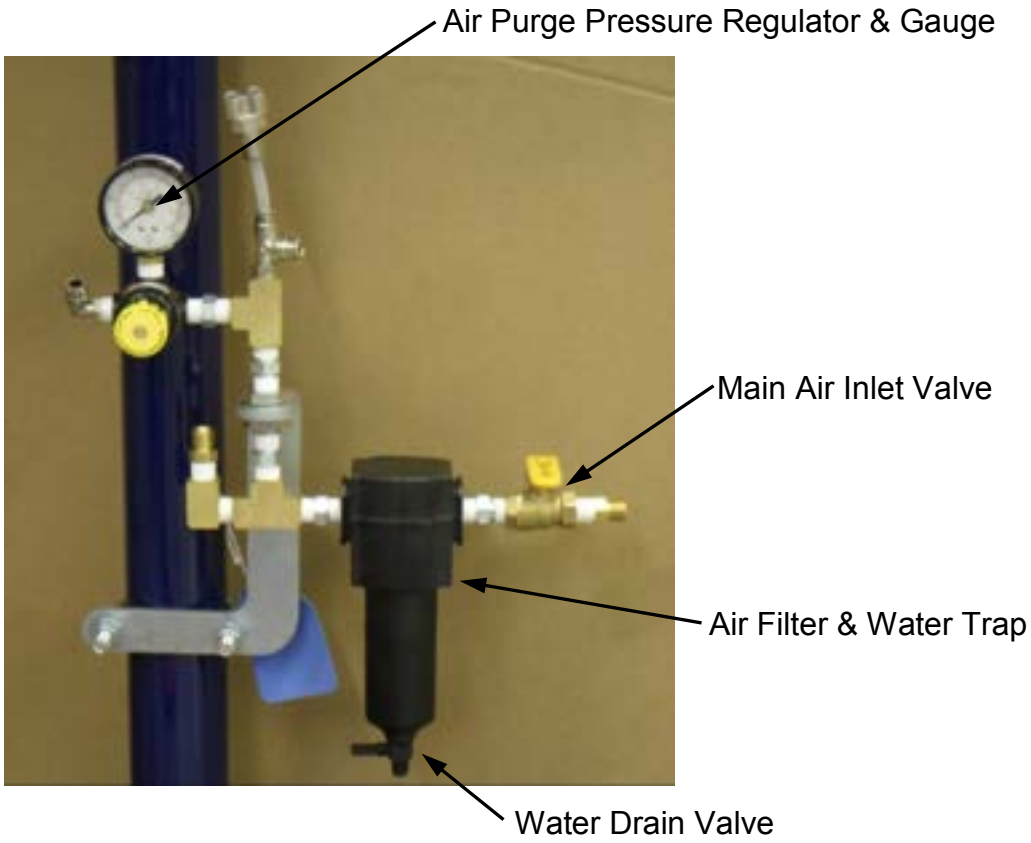
- POWER ON/OFF CONTROL – control box main power switch, turn On & Off power to the control box and hydraulic pump / motor.
- RECIRCULATION or GUN SELECT – selects between the Recirculation and Gun mode. In Recirculation mode the material is returned to the containers and in Gun mode the material is ready to be dispensed through the gun.
- RATE CONTROL DIAL – this is the pump speed control. It controls the rate at which the material is dispensed.
- START / STOP CONTROL – this starts or stops the pump movement. It turns Off / On the hydraulic motor / pump.
- RATE DISPLAY – this displays a number used to indicate the rate of material being dispensed. The display comes from MVP programmed to display a number which can be used to represent a material flow rate. This display can also be programmed to display the actual material flow rate in any unit desired or be programmed as a total meter.
- DRIVE DISPLAY WINDOW – shows the megahertz of the motor controller. The window allows the operator to see the megahertz as displayed on the motor controller.



Air Manifold

Controls:

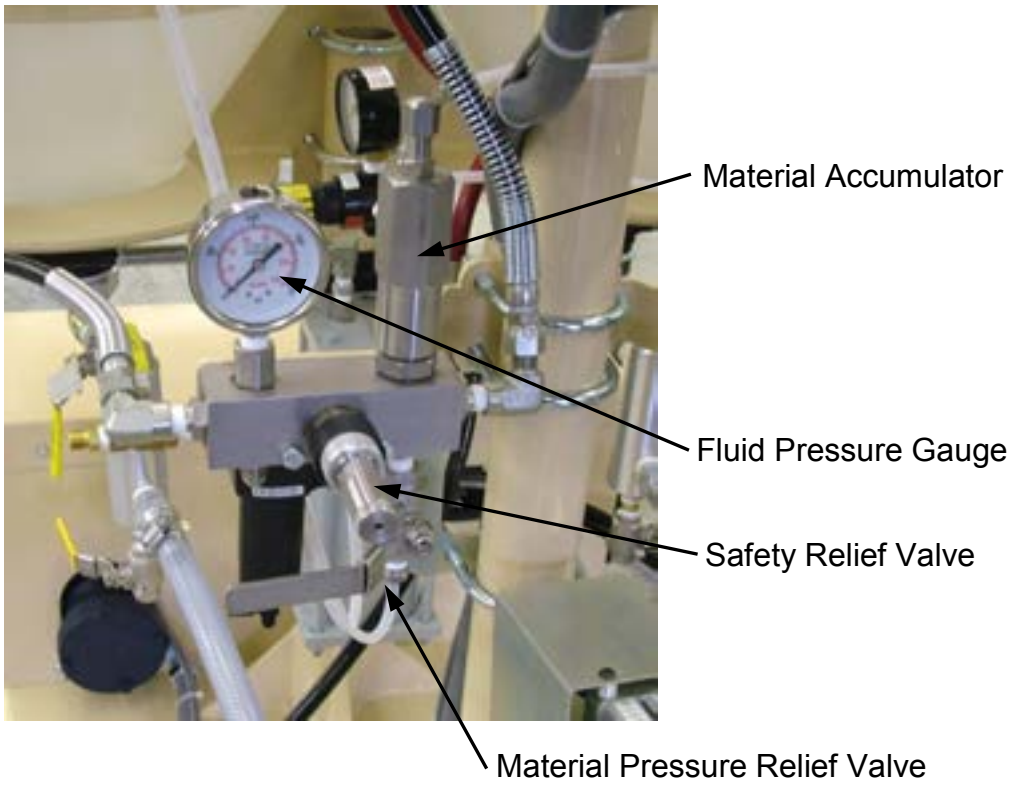
- MAIN AIR INLET VALVE – this is where the air supply to the unit is connected. The valve turns On / Off the air supply to the unit.
- AIR PURGE GAUGE & REGUALTOR – this gauge & regulator are used to set the pressure used to air purge the gun, mix chamber and mixer.
- SOLVENT TANK GAUGE & REGULATOR – these are located on the top of the solvent tank. This gauge & regulator are use to set the solvent flush pressure.



Fluid Pressure – Material Manifolds:

- FLUID PRESSURE GAUGE – This displays the fluid pressure for each of the two components. These are located at the material manifold for each material.
- MATERIAL PRESSURE RELIEF VALVE – the valve is used to relieve the material fluid pressure back to the source container.
- SAFETY RELIEF VALVE – the safety relief valve will automatically open to prevent excessive fluid pressure. The safety relief valve is set to open at a preset pressure and returns the material to the source container.

Material Manifold:



Unit Setup:

WARNING

Please observe all warnings before performing any maintenance

Follow the pressure relief procedures in this manual.

Use proper safety gear, gloves and safety glasses.

Turn off electrical equipment associated with system

Clean all tools to be used for repair of grease or other material that can react with the material being pumped.

1. Connect air supply to system which requires 90 - 100 psi (6 – 7 bar) supply 5 CFM of clean dry air. When using the air driven mixer, supply air of 20 CFM is required. Open air manifold ball valve.

2. Check hydraulic oil level (Chevron Rykon oil AW ISO 46) which has been filled at the factory.

3. Connect power supply; the unit is set to customers request at either 120 Volt 22 amps or 220 single phase 13.7 amps. Check that all hose fittings are tight; inspect condition of hoses that none were damaged in shipping.

4. Fill solvent container (no more then 2/3 full) with desired solvent, non-flammable solvents are recommended. Pressurize container from 40 to 60 psi (3 – 4 bar) with air regulator located on the flush tank.

5. The Air Purge regulator which is mounted at the top air manifold should also be set at 40 to 60 psi (3 – 4 bar). The Air Purge is used to air purge the material from the gun and mixer before and after flushing.

6. Located on the hose set by the gun is a 3-way ball valve. Rotate the ball valve handle to the flush position which is the direction pointing to the yellow tubing. Test solvent flush by pushing flush buttons located on either side of the gun block. Rotate the ball valve handle to the direction of the clear tubing; push the flush buttons to air purge the mixer housing. Always rotate the ball valve handle to the neutral position (center) when flushing/air purge is complete.

Set the Dispense & Recirculation Gun Packing:

1. Turn the Gun Mode Select Switch from RECIRC to GUN then back again – do this 3 or 5 times. The Recirc and Dispense guns should open and close as selected.

Note: if your system has a standard gun with trigger you will need to pull the trigger on the gun 3 or 5 times.

2. Using the "T" bit tool snug the Packing Nuts on each of the gun blocks. Repeat procedures 1 - 2 several times. This will properly seat the seals in the Pro Gun Blocks.

Note: the Recirc & Dispense gun Packing will need to be tightened regularly as necessary to prevent or stop leaks.

Priming Metering Pumps:

1. Priming the fluid sections from gravity feed containers (standard on most systems), suction feed or pressure feeding.

NOTE: When pressure feeding the A&B component to pump and gun, the outgoing fluid pressure should be 8 to 10 times higher then the inlet pressure from feed source for proper metering.

Install ratio block onto gun head to keep the A&B materials separate for priming. This will allow for no material waste for priming and ratio checks.

2. Set both pumps for longest pump stroke for priming. If either tank or pump completely runs out of A or B materials, never re-prime fluid section with static mixer attached. This could result in material cross over inside the gun.

3. Using the throat seal oil (TLS-ISO) provided with the system, pour oil into the packing nut reservoirs, (see drawing VHPC-2200, item 3, part number VHPC-2207 packing nut) ¾ full of TSL-ISO oil (TLS-ISO-800). This will protect materials from drying on the piston rod which affects the life of the piston rod packings.

4. Fill both A & B containers with materials with no more then 12-gallons in each container. At any time the air driven mixer is to be used, no less then 3-gallons of Resin should be in the container. Mixer speed should be run at lowest speed possible to avoid whipping air into Resin. Connect red air hose quick disconnect to mixer air motor. Slowly turn mixer air regulator knob until desired mixer speed is achieved. Always keep the ISO tank lid on the tank and slightly snug tighten to avoid moisture contamination and or crystals from forming. Crystallized ISO will plug the fluid filter and will affect metering of the system.

5. The Rate control Dial is used for adjusting the speed of the pumps and is located on the control panel. Turn the Rate Control Dial to zero.

6. With air pressure to the system, turn the power on/off switch to ON position. The Red Lion LCD should light-up and read zero.

7. Set the Start / Stop switch to the Stop position.

8. Turn the Mode Select switch to the Gun position. The pump should not run but the dispense gun valve rod should rotate to the ON position and the recirculation gun should close. There is a machined slot in one end of the valve rod which should be horizontal in the open position and vertical in the off position. Refer to parts drawing CPD-6100, item 26 part number 58693-1 to verify. Turn Mode Select switch to Recirc, the valve rod should rotate to vertical position. After checking dispense gun open/close positions, turn Mode Select switch to the Gun position (gun open).

9. Check that the ball valves between the material tanks and filters are open; the ball valves on the bottom of the filters should remain closed.

10. Now set the Start / Stop switch to the Start position. Note the hydraulic pump and motor will start.

Note: with the Ratio Block a couple of fittings and some poly tube installed on the front of the dispense gun the two components can be returned to the tanks or source without the risk of contamination.

11. With ratio block attached to gun head, turn the Rate control dial (clock wise) to begin cycling the pumping system. Once a steady flow of both A & B materials, note if any fluid pressures of both materials, if no pressure is reading, increase pump speed. For gravity feed container systems, very little fluid pressure is required for ratio checks but the fluid gauge needle should come off its stop even if an exact reading is not obtainable.

12. Turn the Select switch to the Recirc position, the dispense gun valve rod should close and the recirculation gun valve rod open returning the materials to the source tanks. When using the ratio block, the two materials have not come into contact and no solvent flush should be required at this time.

13. To stop the unit from Recirculating set the Start / Stop switch to the Stop position or turn the Rate control dial to zero (all the way counter clock wise).

Setting Pump Ratio:

The resin pump (part A) (Polyol) normally is fixed at the longest pump stroke length and is not used for adjusting the ratio changes.

The hardener pump (part B) (ISO) is used to set the proper ratio by loosening the cap screw (F-CS-05C-08 Socket cap screw) and sliding the Upper & Lower Slide Clevis (top and bottom of the metering pump) in the slotted track to the desired setting, tighten cap screw. The indicator stickers on the top and bottom of the slotted track are used for a reference indicator when setting ratios.

During the priming of the fluid sections if both fluids read pressure, proceed with setting ratios. If one of the fluid sections shows no pressure because of a very low viscosity material, a restriction is needed to create fluid pressure. By adding a smaller diameter hose onto the ratio block to restrict the flow is normally all that is needed to increase the fluid pressure.

To set the ratio, an accurate scale or volumetric beakers are needed.

1. Turn the Mode Select switch to gun, allowing for the A&B materials to begin to flow out of the ratio block. Slide two pre-weighed containers under the resin streams. Allow no less then 10 pump reversals before removing the containers. Turn Select switch to Recirc. Subtract container weights to find ratio. Some material manufactures may only give a volumetric ratio rather then weight. If this is the case and setting the ratio by weight measurement is preferred then the Specific Gravity of each material is needed to convert weight to volume in cc's.

   Example:

   The Poly resin (A) weight is 500 grams and has a Specific gravity of 1.09 which requires dividing the sample weight by Specific gravity (500/1.09=458.71 cc's). Repeat using the Specific gravity and dividing by ISO hardener (B) to weight to convert to cc's.

2. To adjust the ratio, loosen the cap screw to adjust the pump stroke length on the ISO hardener (B) fluid section (shorter – lower slave arm number).

3. Tighten cap screw before checking ratio again. Make notes of each setting that the ratios were taken from on the indicator sticker until desired ratio is set.

Once the material ratio has been set flush the ratio block by pushing in the flush valves and selecting between solvent/air purge with 3-way ball valve.

NOTE: It is recommended to make notes of all settings during ratio checks including pump speed settings, pressures and temperatures. At the start of each work week, a ratio check should be performed. This is even more important when using fillers mixed into the Polyol resin to assure filler settling has not taken place in the Polyol resin filter and or pump.

4. Install mix chamber, spring and ball checks. It is sometimes easier to install mix block first then remove the plugs on the of the front mix block to install the ball and springs (see drawing CPD-6100 if needed). Attach the static mixer to mix chamber.

5. Turn the Select switch to Gun, dispense material into a waste bucket. Make note of the fluid pressures for both A & B materials then turn Select switch to Recirc and flush the dispense gun and mixer out. The fluid pressures do not have to match but it is preferred that there is not a huge difference - 300 psi on the resin (A) and 150 psi on the hardener (B) would be acceptable in most cases. In some cases, the pump may run so slow that it is difficult to read an exact pressure. As long as both pressure gauge needles come off of their stops is all that is needed for proper ball seating when gravity feeding.

Rate Display:

Note: the Rate Display is only active while dispensing through the dispense gun - Mode Select switch set to the Gun position and not during Recirc mode.

The rate display has already been set at MVP but can be changed to meet customer needs. For the Rate to be displayed the rate **Display Designator**: “R” to the left side of the display needs to be displayed. It has not been set-up to give a flow rate in pounds or kilograms; it is only a reference number. Once the speed of the pump has been set the rate number and the corresponding output should be noted. Depending on up-date time that has been programmed - the rate speed of the pump may show different numbers from up-stroke to down-stroke. This is not an issue; it’s only a reference number that can be noted for each application, mould or die profile.

Note: the Rate Display can be programmed to display the actual material output rate in any units desired (pounds/minute, kilos/hour, grams/second). The Rate display can also be programmed as a counter for either counting the number of strokes or material output total. See appendix A for more detail on programming the display.

Start-Up & Shut-Down:

DAILY SHUT-DOWN:

1. For shut-down, the fluid pump shafts should be in the bottom of the stroke to avoid any material from drying on the shafts. **Not following this procedure will have a great effect on piston rod seal life**. Set the Select switch to Recirc. Turn the Start / Stop switch to Stop just before the pumps reach the bottom reversal.

2. Flush both A & B side of the mix chamber into a waste container and air purge dry.

3. Remove mixer from mix housing. Inspect the static mixer that it has been completely cleaned of metered materials.

4. Remove Mix housing, spring and balls and inspect for any set-up materials. Depending on the resin systems used it may not be necessary to remove mix housing for shut-down every day however the static mixer should always be removed for daily shut-down.

5. Turn the electrical Power switch to Off

6. Turn off the Main Air Inlet valve

7. Remove the flush tank pressure by lifting the relief valve ring.

8. Open the fluid Pressure Relief valves on the material manifolds to release fluid pressure and then close.

DAILY START-UP:

1. Inspect material levels to begin production - resin, hardener and solvent.
2. Turn On the Main Power
3. Open the Main Air Inlet supply to system.
4. Install mix housing, spring and balls into mix housing.
5. Set the Select switch to Recirc and the Start / Stop to Start;
6. Adjust the Rate control to the desired output speed. Allow several pump strokes and inspect return hose in the tank to assure material flow.
7. The unit is ready to operate – it is important to perform a periodic ratio check and material gel test this can done at this time.
8. Prepare the Dispense gun for operation then set the Select switch to Gun.

MAINTENANCE:

1. The water trap should be inspected daily, drain water from trap as needed.
2. Inspect pump piston shafts for material build-up and clean as needed.
3. Inline filters should be checked weekly and cleaned as needed
4. Once a month the hydraulic oil reservoir should be checked to be sure the fluid level is correct.
5. As noted earlier tighten Recirculation & Dispense gun packing to stop or prevent leaks.
6. Recirculate the materials occasionally if the unit is not going to be in use for a several days. The material in the hoses can be recirculated by using the Ratio Block.

SOLVENT FLUSHING FOR LONG TERM SHUT-DOWN:

1. Place a container under each of the filter ball valves, open ball valve and allow materials to drain out of each tank.

2. Set the Select switch to Recirc and set the Start / Stop to Start. Adjust the Rate control so the pumps are moving slowly.

3. When the majority of the material is out of both tanks close both filter ball valves. Then set the Start / Stop to Stop or adjust the Rate control to zero.

4. Remove lids from feed containers; pour 1 to 2 liters of solvent into containers. Clean container walls using a brush.

5. With the Select switch in Recirc set the Start / Stop switch to Start and allow the pumps to recirculate the solvent through the recirculation gun and hoses for several minutes. Then set the Start / Stop to Stop or adjust the Rate control to zero.

6. With no mixer on gun, turn the Start / Stop switch to Start or adjust the Rate control and Select switch to Gun this will purge the materials into a waste container through the front of the gun. Have a second container on hand, once the A & B materials have been purged from the hoses and solvent is being dispensed out of the gun move to the second container to collect dirty solvent.

7. Repeat steps #4 - 6 with clean solvent in each of the two containers until it comes out of the gun clean, then run pump until solvent flow has stopped. When the fluid sections are at the bottom of the stroke, turn the Start / Stop switch to Stop. Inspect throat seal oil and add as needed.

8. Open filter ball valve and allow the tanks to drain.

9. Remove hex fitting from the top of the filters. Remove filter screens from housing, inspect for debris and clean. Allow solvent to dry before assembling the filters.

Setting the Pump Sensors:

SETTINGS FOR PUMP REVERSAL SENSORS:

The hydraulic cylinder sensor switches have already been set at the factory. In the event that they need to be re-set to factory recommendation use the following procedure.

1. Remove sensor cover (MLM-PD-2015) by loosening the two machine screws (F-MS-832-04).

2. Turn the Select switch to Recirc and turn the Start / Stop switch to Start and adjust the Speed control dial so the cylinder runs at a very low speed.

3. Allow the cylinder to travel to the full extension and stop. Then set the Start / Stop switch to Stop.

4. Loosen the cap screw (F-CS-1024-12) which is used on the upper sensor clamp (MLM-PD-2013). Adjust the sensor clamp so that it lines up with the cylinder piston – you will hear the relay in the control box make a click sound. Tighten the cap screw up to lock the sensor clamp in place.

5. Turn the Start / Stop switch to Start again and allow the cylinder to retract to the shortest position and stop (bottom out in the cylinder). Then set the Start / Stop switch to Stop.

6. Loosen the cap screw (F-CS-1024-12) which is used on the lower sensor clamp (MLM-PD-2013). Adjust the sensor clamp so that it lines up with the cylinder piston – you will hear the relay in the control box make a click sound. Tighten the cap screw up to lock the sensor clamp in place.

7. Turn the Start / Stop switch to Start and allow the assembly to travel up and down. If the cylinder stops at either of the two positions you will need to adjust that sensor clamp in a little to allow the cylinder to move.

8. Install sensor cover and tighten machine screws.

Metering Pump Manual:

The Mini Link comes standard with two VHPC-2200 Metering Pumps a 1:1 to 3.7:1 ratio. It can also be used in combination with the VHPC-3200 Metering Pump for 1.84:1 to 5.85:1 or VHPC-4200 Metering Pump for 4.15:1 to 13:1 ratios.

Depending on the metering pump combination installed on this unit you will see one or two of the following manuals:

- See Manual "**VHPC-1200 Metering Pump Manual**"
- See Manual "**VHPC-2200 Metering Pump Manual**"
- See Manual "**VHPC-3200 Metering Pump Manual**"
- See Manual "**VHPC-4200 Metering Pump Manual**"

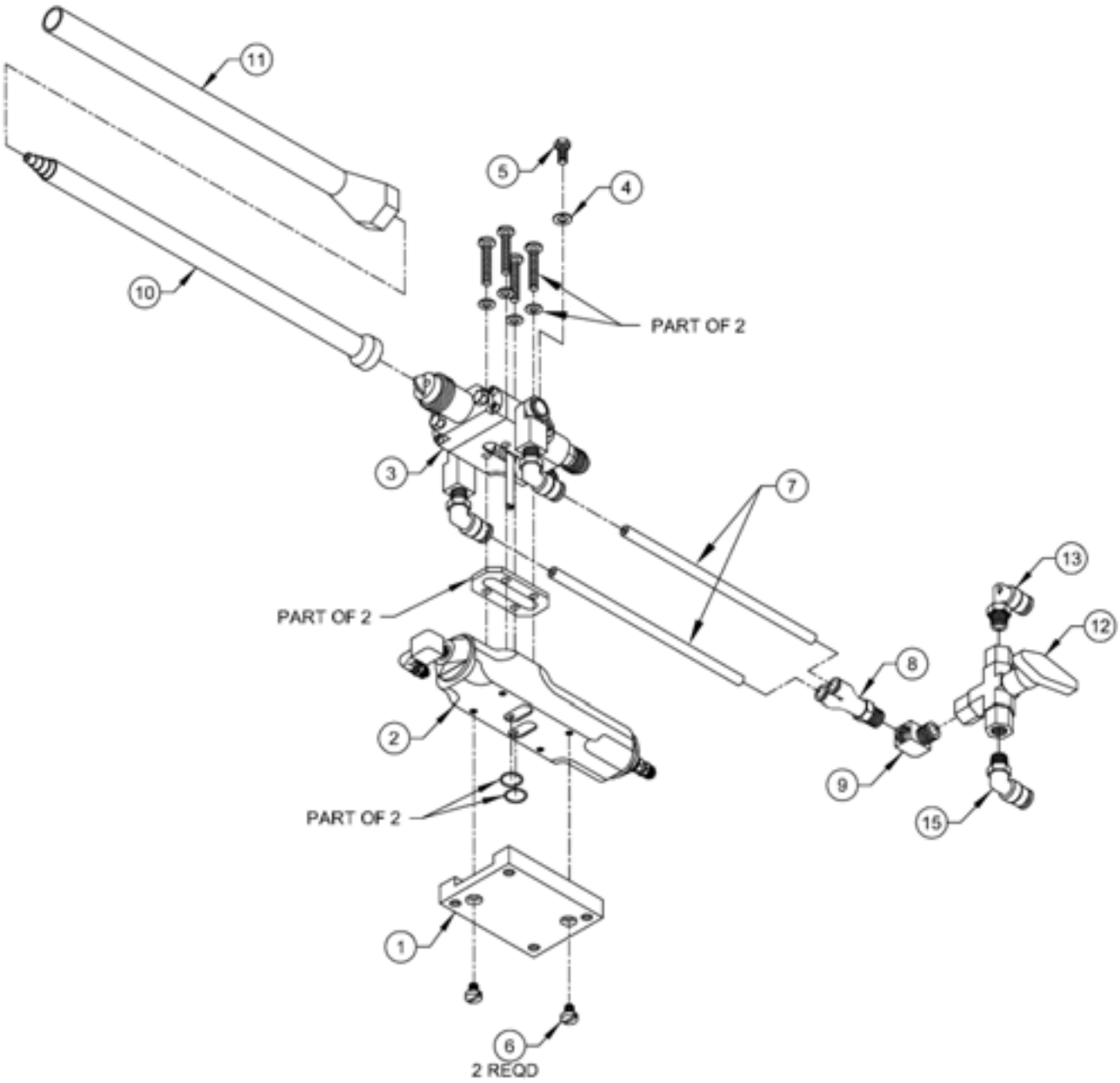
Dispense Gun Manual:

The Mini Link comes standard with the 1:1 Classic Pro gun for both the Dispense Gun and Recirculation Gun. For a detailed description of the repair procedures please see the following manual

- See Manual "**1:1 CLASSIC PRO GUN REPAIR MANUAL**"

Parts Drawings:

Drawing Number	Description
CPD-6000-A	AUTOMATIC PRO GUN - 1:1
CPD-6100	PRO GUN BLOCK – DUO 1:1
CPD-6000	PRO GUN ASSEMBLY – DUO 1:1
VHPC-2200	PUMP ASSEMBLY
VHPC-2200-HIS-SK	SEAL KIT
MLM-PD-4000	DRIVE LINKAGE ASSEMBLY
MLM-BF-1000	BASE FRAME ASSEMBLY
MLM-BRKT-CB-100	CONTROL BOX BRACKET
MLM-BRKT-MM-200	MANIFOLD BRACKET
MLM-BRKT-PM-100	PUMP MOUNT BRACKET
MLM-BRKT-TK-400	TANK MOUNT BRACKET
MLM-MA-1	AIR MANIFOLD
MLM-MM-1	MATERIAL MANIFOLD RIGHT
MLM-MM-2	MATERIAL MANIFOLD LEFT
MLM-TF-1000	TANK FILTER
MLM-TK-1000	MIXER TANK ASSEMBLY
MLM-TK-2000	VENTED TANK ASSEMBLY
MLM-PDA-1000	PUMP DRIVE ASSEMBLY
PRTM-RG-1000-A	RECIRCULATION GUN ASSEMBLY
PRTM-RG-1100	RECIRCULATION GUN BLOCK
MLM-CB-1000-240-NFX	ELECTRICAL DIAGRAM
MLM-HC-1000	HYDRAULIC CYLINDER



MAGNUM VENUS PLASTECH

Pro Duo 1:1 Automatic Gun With Mixer	CPD-6000-A

REV. - 09/29/08 BT2
REV. A - MODIFIED DRAWING OF CPD-6100 TO SHOW FLUSH VALVE ORIENTATION FOR AUTOMATIC GUN, ITEM 2 WAS 58604-1 12/05/08 BT2

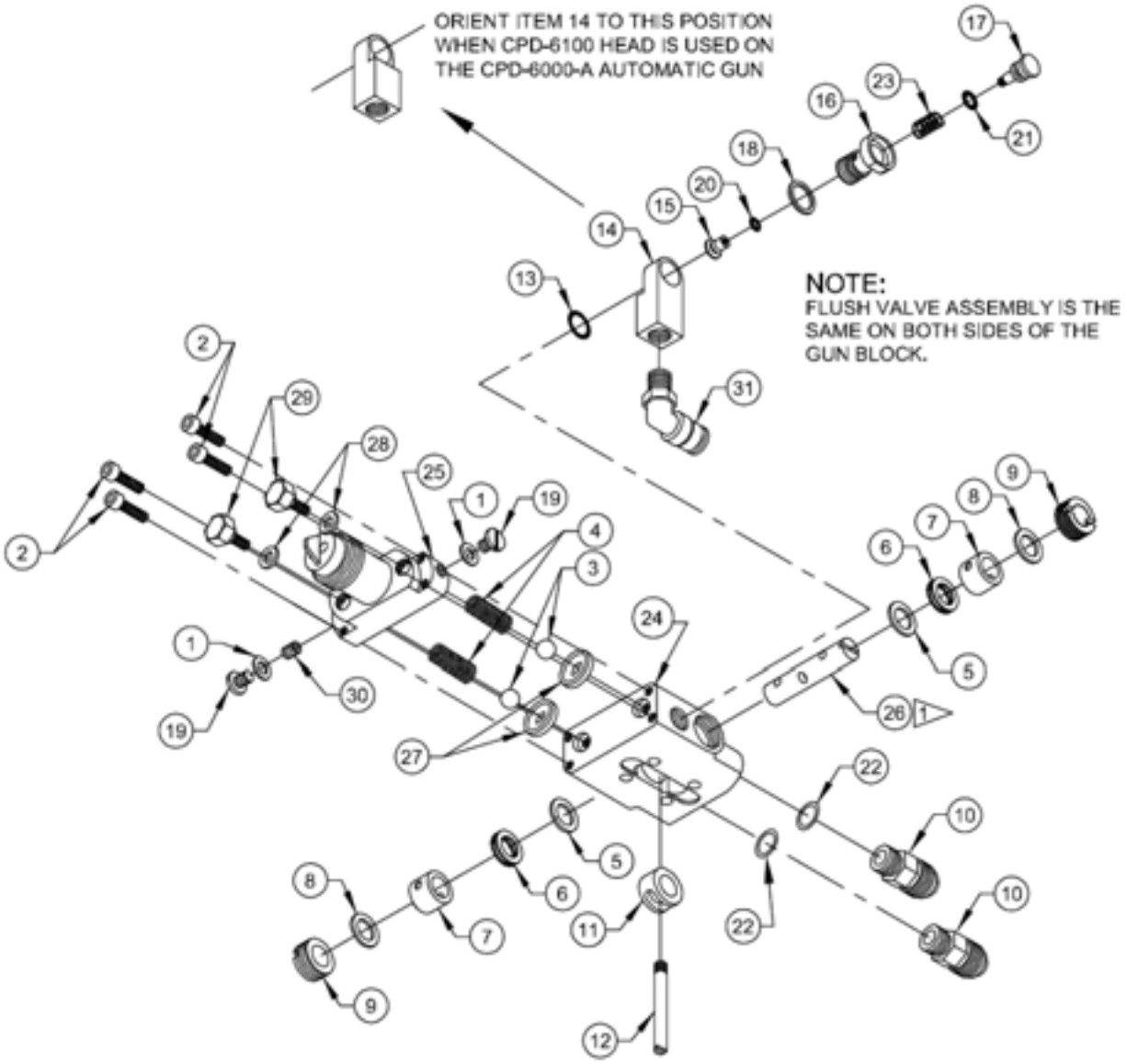
Pro Duo Gun Assembly CPD-6000-A

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	58704-1	1	MOUNTING PAD - PRO GUN
2	CPC-1200-A	1	ACTUATOR ASSEMBLY
3	CPD-6100	1	GUN BLOCK ASSEMBLY
4	F-SW-04	1	LOCK WASHER
5	F-HB-04C-08	1	HEX BOLT
6	02806-2	2	PAN HEAD SCREW
7	01443	4 FT.	2 - 2 FT. TUBE SECTIONS
8	06952	1	Y CONNECTOR
9	PF-SE-02-BR	1	ELBOW
10	07550	1	DISPOSABLE MIXER
11	04409	1	MIXER HOUSING
12	8407-6-1	1	BALL VALVE
13	MPH-2539	2	POLY ELBOW

REPAIR KITS

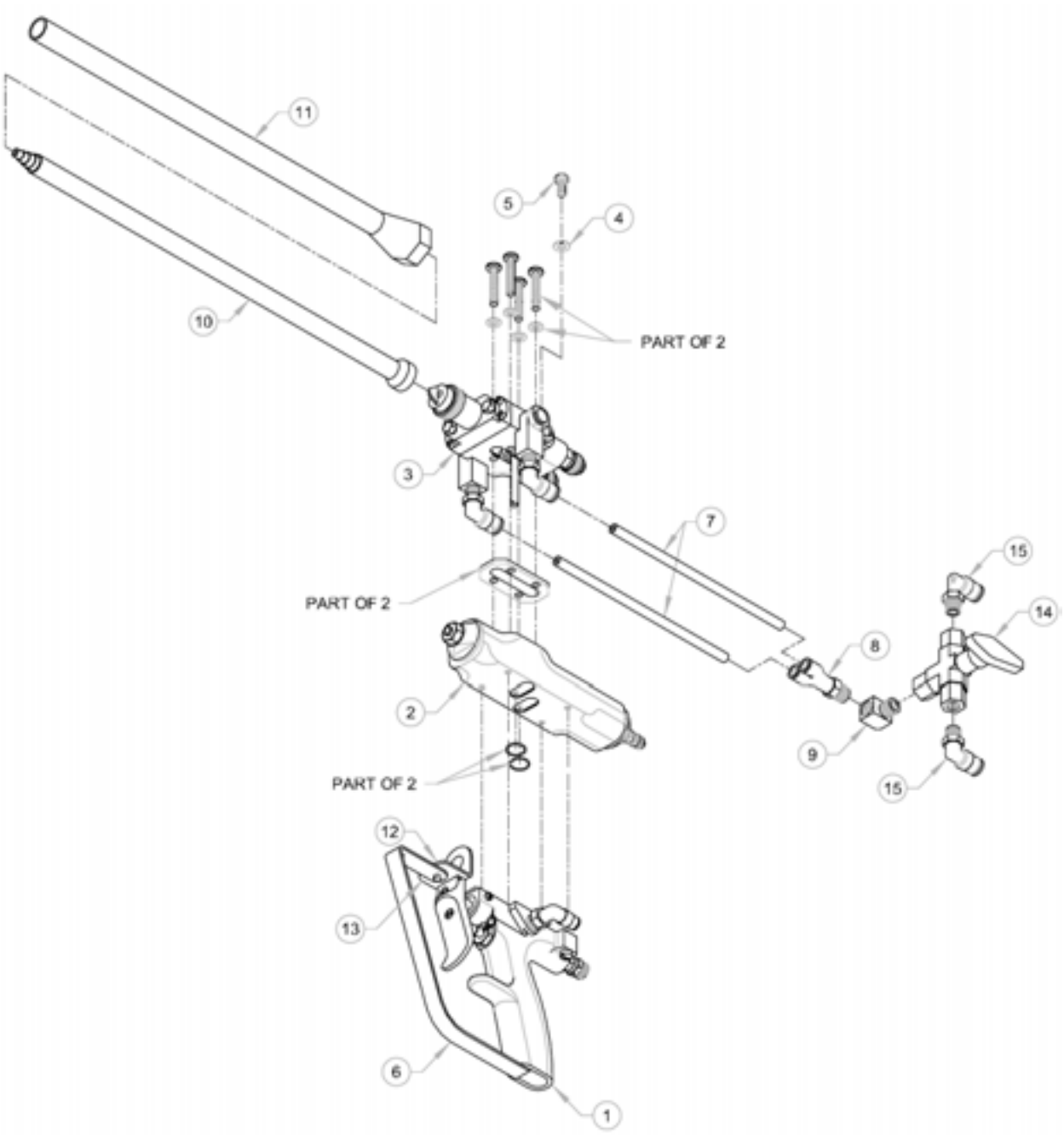
PART NO.	DESCRIPTION
CPD-6000-A-RK	MAJOR REPAIR KIT



MAGNUM VENUS PLASTECH

PRO DUO 1:1 GUN BLOCK	CPD-6100

REV - 03/12/08 BT2
REV A - ADDED ORIENTATION NOTE FOR ITEM 14 TO DRAWING 12/05/08 BT2



MAGNUM VENUS PLASTECH

Pro Duo 1:1 Gun With Mixer	CPD-6000

REV. - 03/13/08 BT2
REV. A - REPAIR KIT WAS CPD-5000-RK 09/30/08 BT2
REV. B - ITEM 10 WAS 07750, ITEM 11 WAS 04409 01/17/13 BT2

Pro Duo Gun Assembly CPD-6000

PARTS LIST

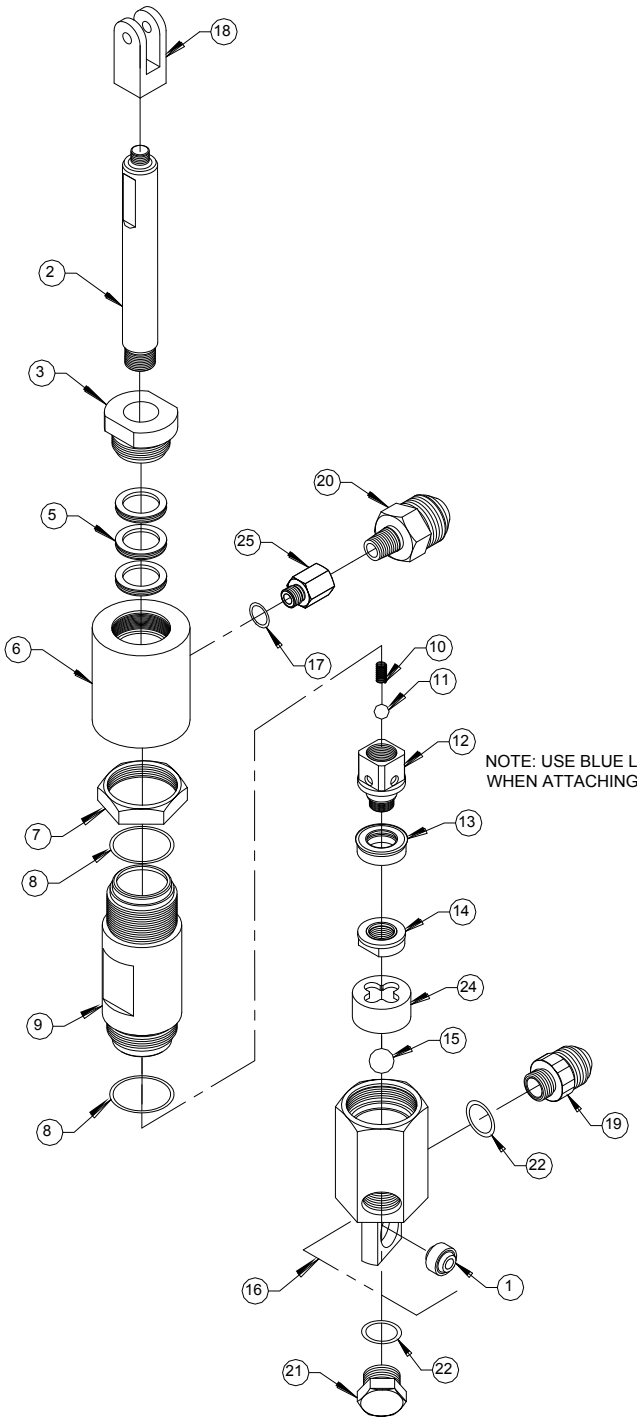
ITEM	PART NO.	QTY	DESCRIPTION
1	CPD-6300	1	GUN HANDLE
2	58604-1	1	ACTUATOR ASSEMBLY
3	CPD-6100	1	GUN BLOCK ASSEMBLY
4	F-SW-04	1	LOCK WASHER
5	F-HB-04C-08	1	HEX BOLT
6	58670-1	1	TRIGGER GUARD
7	01443	4 FT.	2 - 2 FT. TUBE SECTIONS
8	06952	1	Y CONNECTOR
9	PF-SE-02-BR	1	ELBOW
10	CPD-6018	1	DISPOSABLE MIXER
11	CPD-6017	1	MIXER HOUSING
12	02806-2	1	SCREW
13	58671-1	1	DRIP SHIELD
14	8407-6-1	1	BALL VALVE
15	MPH-2539	2	POLY ELBOW

REPAIR KITS

PART NO.	DESCRIPTION
CPD-6000-RK	REPAIR KIT

OPTIONAL PARTS AND ASSEMBLIES

PART NO.	DESCRIPTION
58676-1	TRIGGER GUARD ASSEMBLY



MAGNUM VENUS PLASTECH

CATALYST PUMP ASSEMBLY	VHPC-2200

REV. A = CHANGED ITEM 16 TO INCLUDE ITEM 1 (SPHERICAL BEARING) 2/21/07 JEM
REV. B = REMOVED ITEM 23 VHPC-2219 (NOT REQUIRED) 3/06/07 JEM
REV. C = KIT WAS VHPC-2200-SK 08/29/07 BT2
REV. D = ADDED THREADLOCKER NOTE 05/15/08 BT2

ASSY - CATALYST PUMP VHPC-2200

PARTS LIST

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

REPAIR KITS

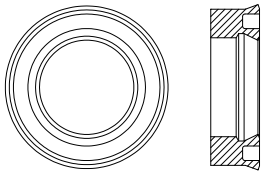
	PART NO.	DESCRIPTION
*	VHPC-2200-HIS-SK	SEAL KIT

OPTIONAL PARTS & ASSEMBLIES

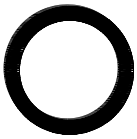
ITEM	PART NO.	QTY	DESCRIPTION
1	9202-1-1	1	SPHERICAL BEARING

* ASTERISK DEPICTS PARTS IN SEAL KIT

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

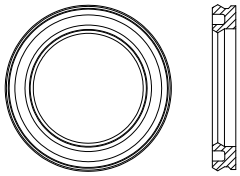


1 PC VHPC-2222 (PISTON SEAL)

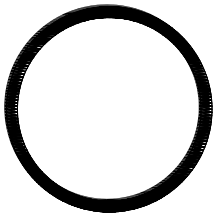


2 PC O-S-3-908 (INLET O-RING)

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

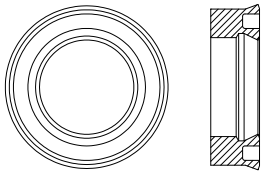


3 PC VHPC-2210 (ROD SEAL)

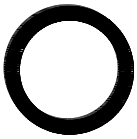


2 PC O-E-025 (CYL O-RING)

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

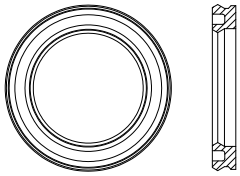


1 PC VHPC-2222 (PISTON SEAL)

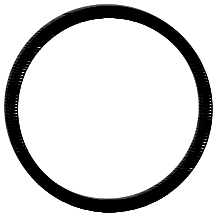


2 PC O-S-3-908 (INLET O-RING)

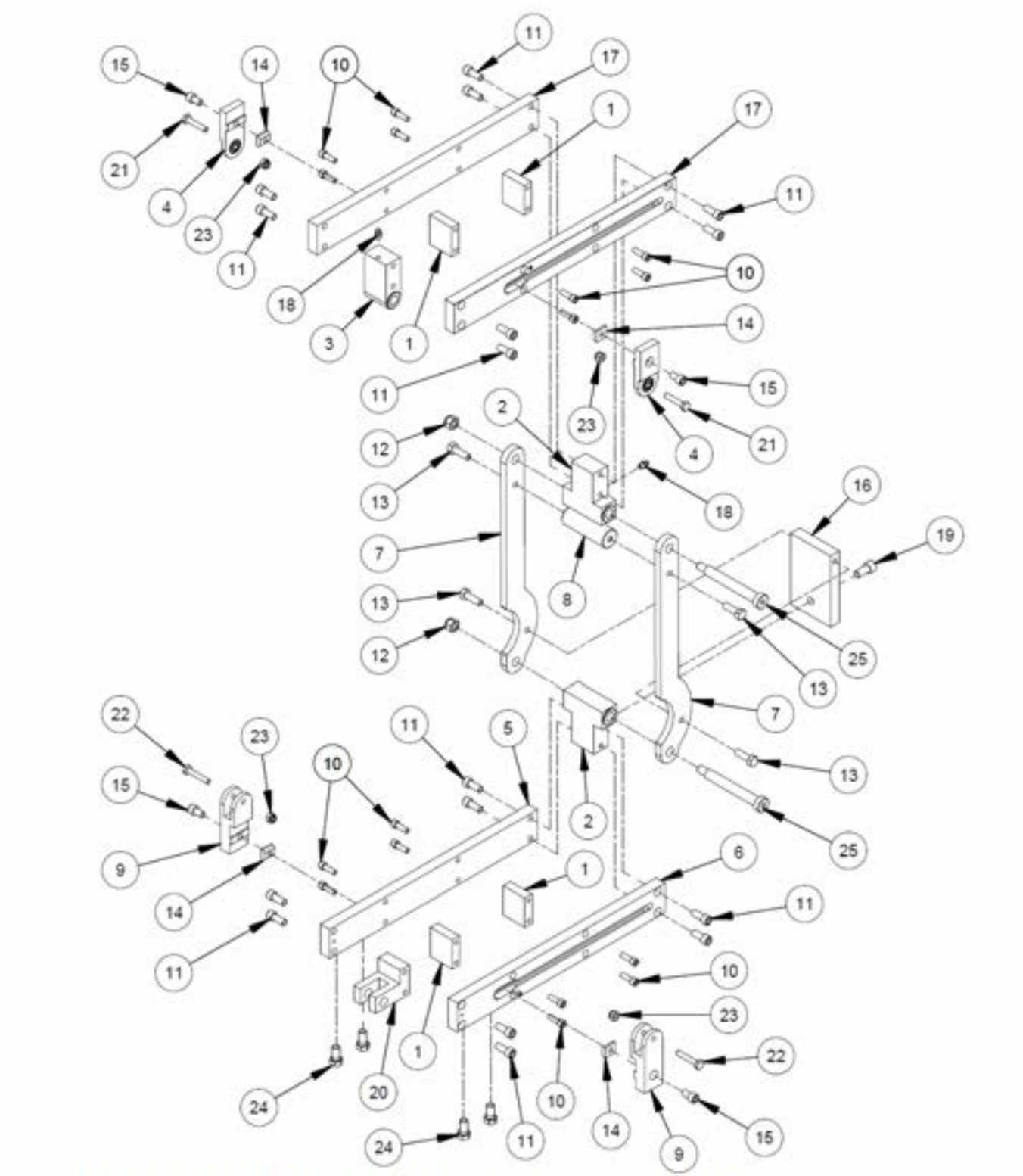
1 PC O-S-013 (OUTLET O-RING)



3 PC VHPC-2210 (ROD SEAL)



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

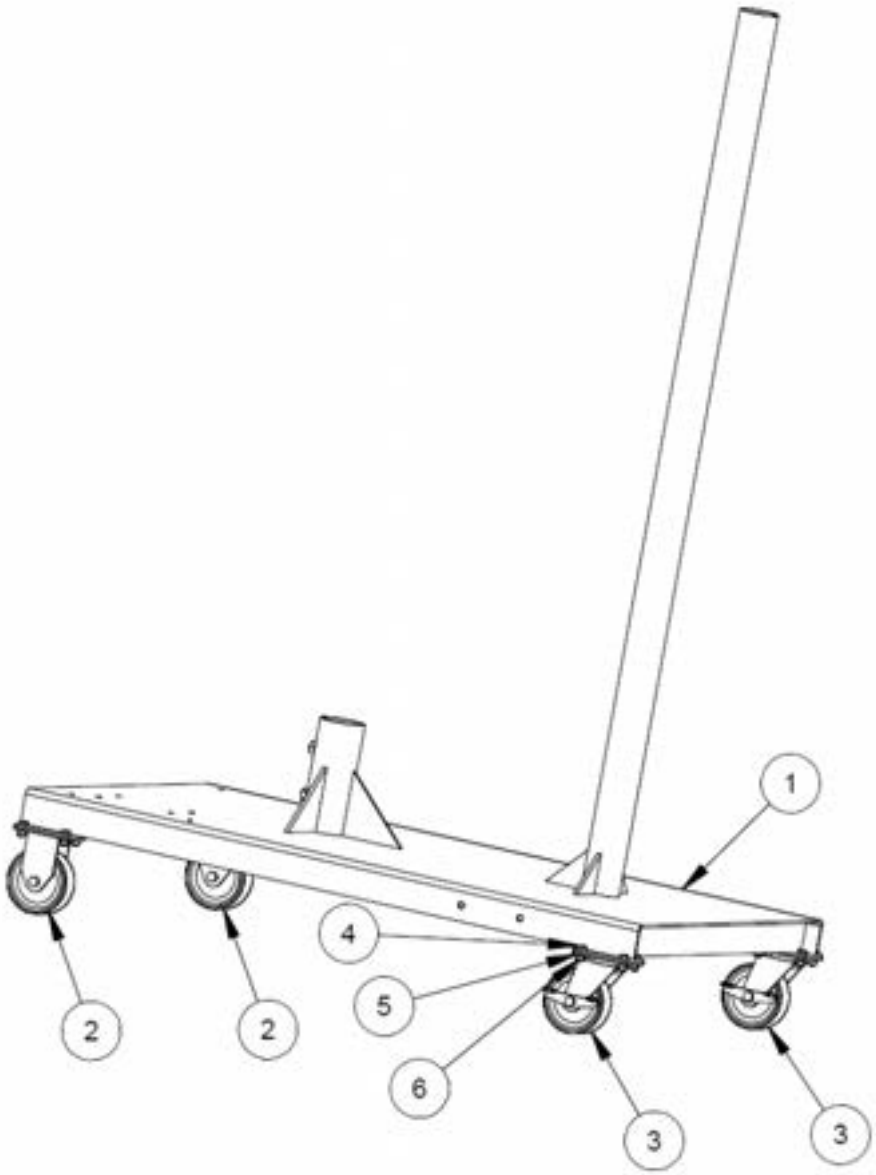

MAGNUM VENUS PLASTECH
PUMP DRIVE ASSEMBLY
MLM-PD-4000
REV:
SHEET 1 / 2
5/13/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MPR-PD-4006	4	SPACER
2	MPR-PD-4007	2	PIVOT BLOCK
3	MPR-PD-4008	1	CLEVIS BLOCK
4	MPR-PD-4009	2	UPPER SLIDE CLEVIS
5	MPR-PD-4005	1	LOWER DRIVE RAIL
6	MPR-PD-4002	1	LOWER DRIVE RAIL
7	MPR-PD-4001	2	PIVOT ARM
8	MPR-PD-4010	1	SPACER
9	MPR-PD-4011	2	LOWER SLIDE CLEVIS
10	F-CS-04C-12	16	CAP SCREW
11	F-CS-05C-12	16	CAP SCREW
12	F-LN-06C	2	LOCK NUT
13	F-HB-05C-16	4	HEX BOLT
14	PAT-SD-3108	4	T-NUT
15	F-CS-05C-08	4	CAP SCREW
16	MLM-PD-4099	1	BRACE
17	MPR-PD-4003	2	UPPER DRIVE RAIL
18	05563	2	GREASE FITTING
19	F-CS-06C-12	1	CAP SCREW
20	MLM-PD-4098	1	CLEVIS BLOCK
21	F-AB-04F-21	2	AIRCRAFT BOLT
22	F-AB-04F-22.5	2	AIRCRAFT BOLT
23	F-LN-04F	4	LOCK NUT
24	F-HB-06C-12	4	HEX BOLT
25	F-SB-08-56	2	SHOULDER BOLT

MAGNUM VENUS PLASTECH

PUMP DRIVE ASSEMBLY MLM-PD-4000

REV: SHEET 2 / 2 5/13/2010

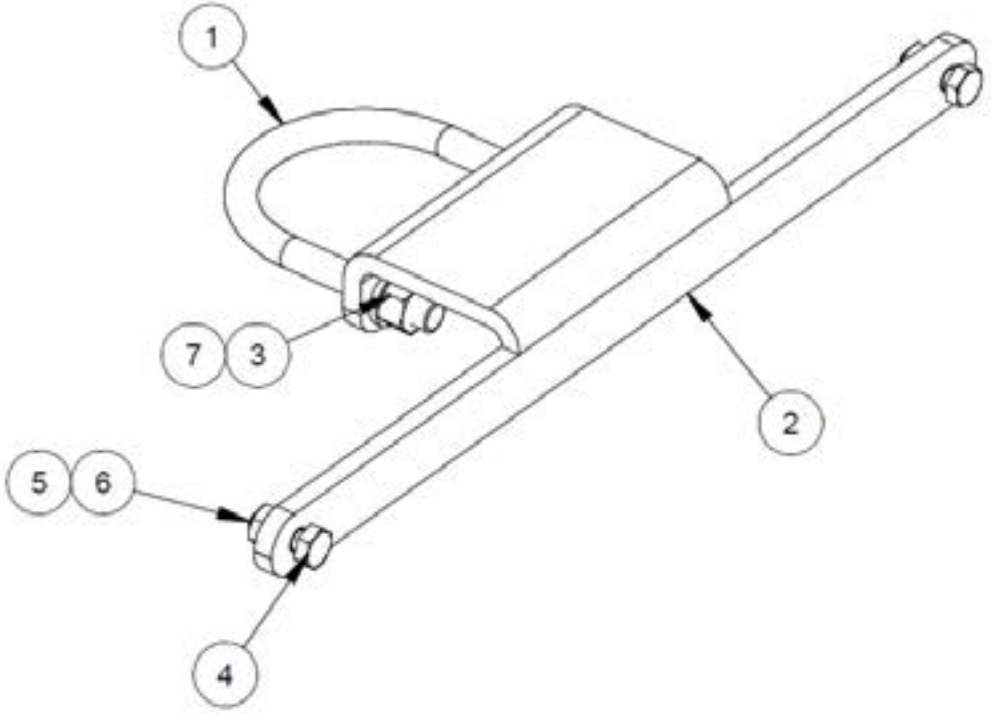


Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MLM-BF-1001	1	BASE FRAME
2	MVP-1013	2	RIGID CASTER
3	MVP-1014	2	SWIVEL CASTER W/BRAKE
4	F-HB-05C-12	16	HEX BOLT
5	F-SW-05	16	5/16 LOCK WASHER
6	F-HN-05C	16	HEX NUT, 5/16-18UNC

MAGNUM VENUS PLASTECH

BASE FRAME ASSEMBLY MLM-BF-1000

REV:08-26-08 BT2

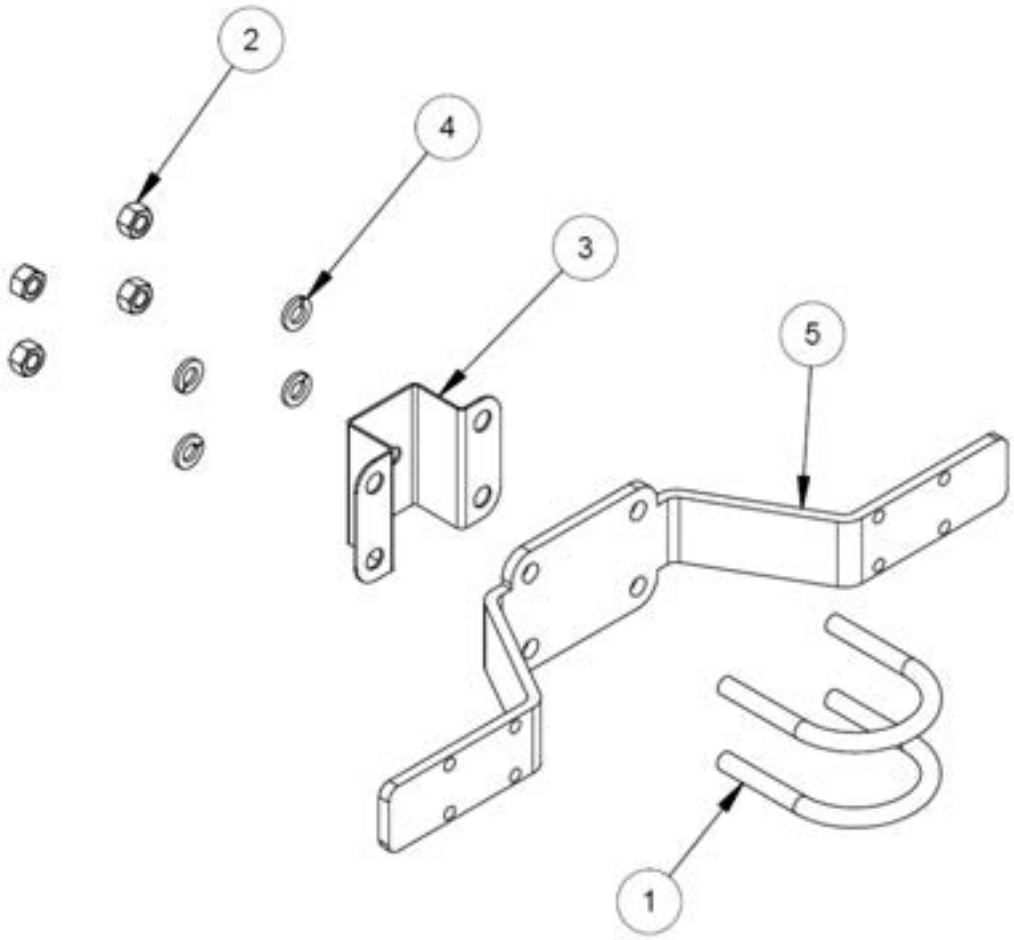


Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	F-UB-06C-40	1	U-BOLT
2	MLM-BRKT-CB-1	1	CONTROL BOX BRACKET
3	F-HN-06C	2	HEX NUT
4	F-HB-04C-12	2	HEX BOLT, 1/4-20UNC X .75
5	F-HN-04C	2	HEX NUT
6	F-SW-04	2	LOCK WASHER
7	F-SW-6	2	LOCK WASHER

MAGNUM VENUS PLASTECH

CONTOL BOX BRACKET ASSEMBLY MLM-BRKT-CB-100

REV:07-02-08 BT2

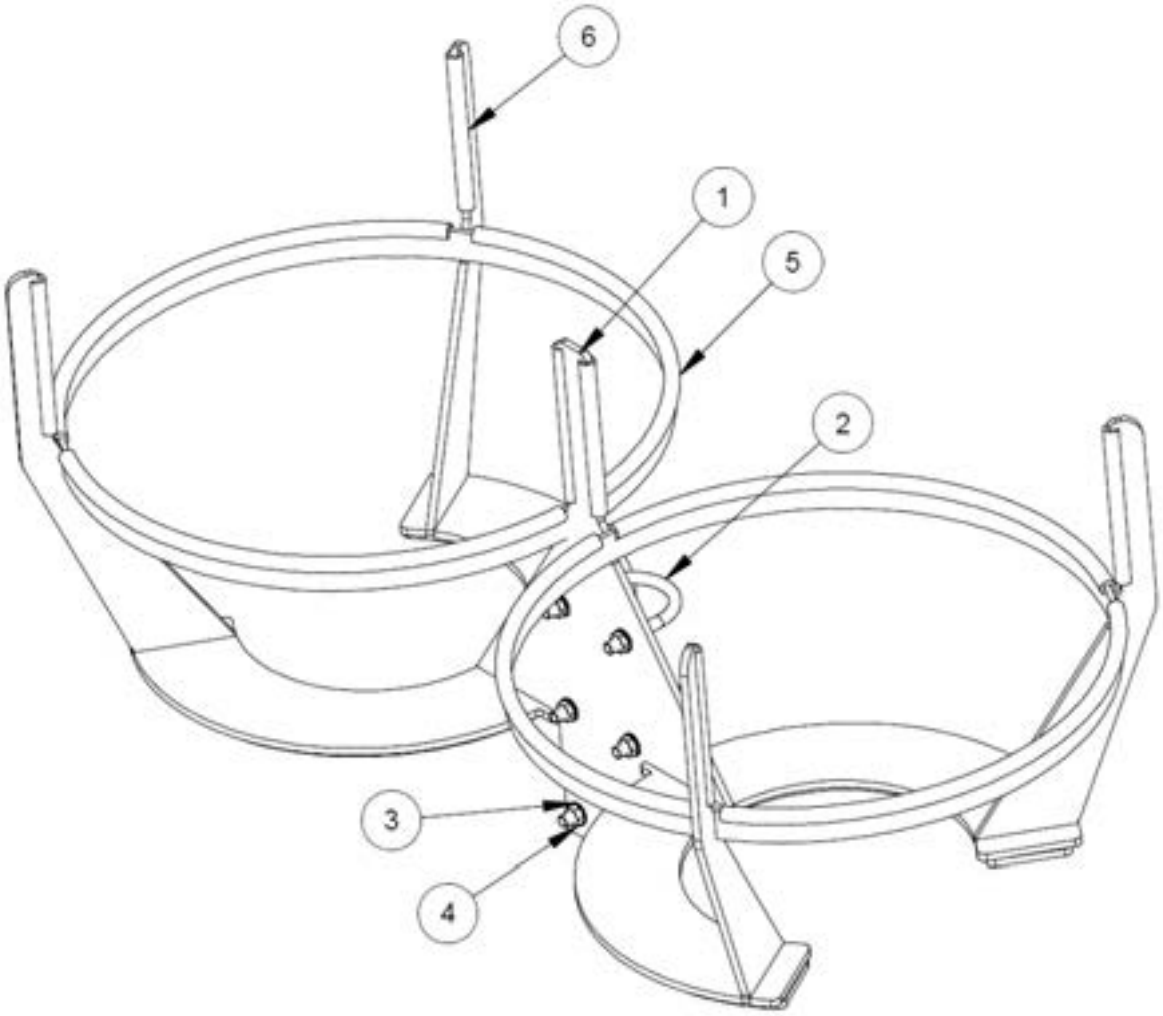


Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	F-UB-06C-40	2	U-BOLT
2	F-HN-06C	4	HEX NUT
3	MLM-BRKT-MM-2	1	WIRE BRACKET
4	F-SW-06	4	LOCK WASHER
5	MLM-BRKT-MM-3	1	MANIFOLD BRACKET

MAGNUM VENUS PLASTECH

MANIFOLD BRACKET MLM-BRKT-MM-200

REV:07-22-09 BT2

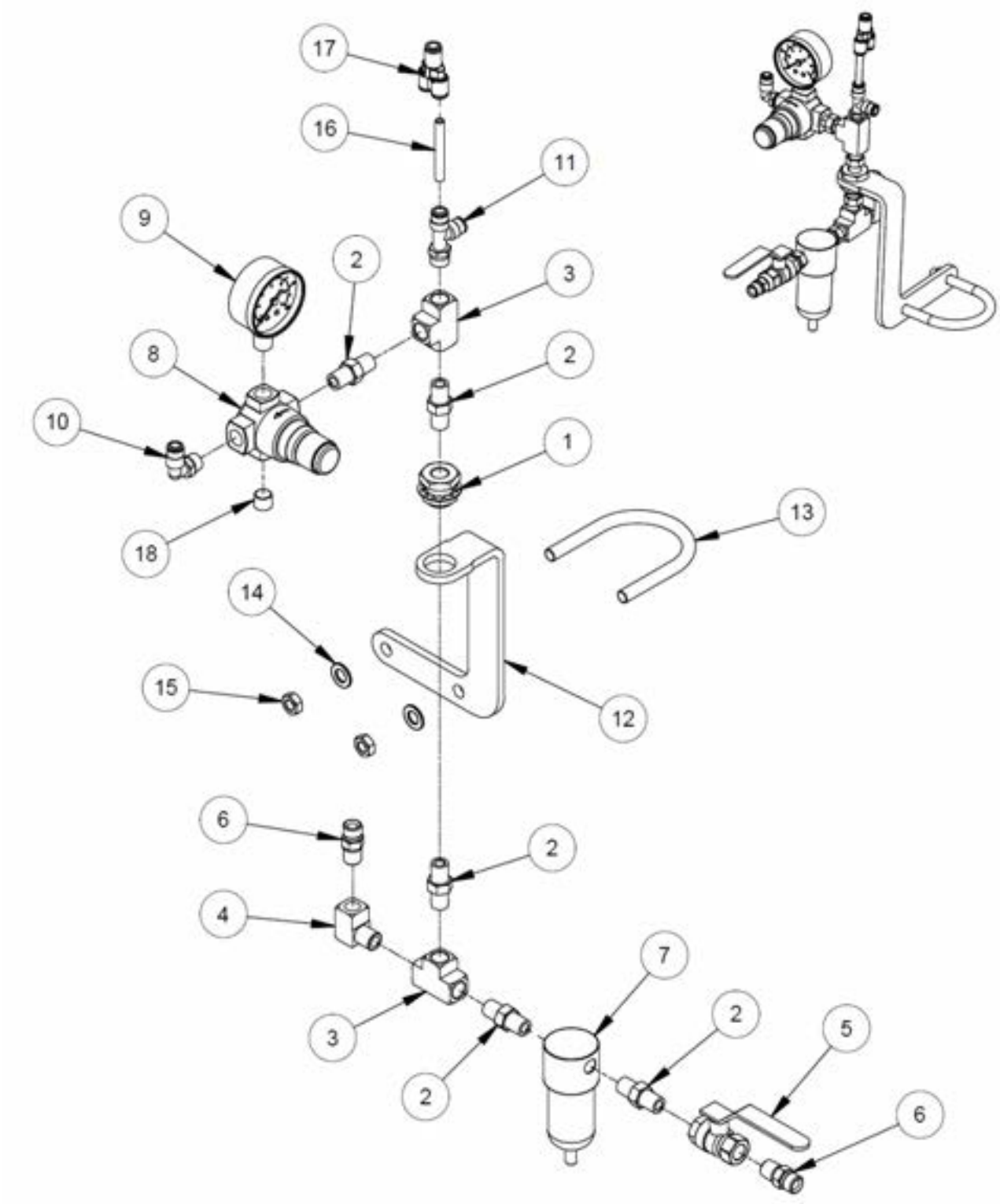


Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MLM-BRKT-TK-1	1	TANK BRACKET
2	F-UB-06C-40	3	U-BOLT
3	F-FW-06	6	3/8 FLAT WASHER
4	F-HN-06C	6	HEX NUT
5	MVP-1008-19	6	EDGE TRIM
6	MVP-1008-5.5	6	EDGE TRIM

MAGNUM VENUS PLASTECH

TANK BRACKET ASSEMBLY MLM-BRKT-TK-400

REV: 07-03-08



MAGNUM VENUS PLASTECH

AIR MANIFOLD	MLM-MA-1

REV:02-28-11 BT2

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	7701-3-19	1	BULKHEAD FITTING
2	PF-HN-04	5	HEX NIPPLE
3	00446	2	1/4 TEE
4	PF-SE-04-BR	1	MALE ELBOW
5	BV-FF44-L	1	BALL VALVE
6	PF-HN-04-04S	2	HOSE ADAPTER
7	07379	1	AIR FILTER
8	09218	1	REGULATOR - 1/4 NPT
9	AG-B2-100	1	2" AIR GAUGE
10	07233	1	MALE POLY ELBOW
11	06963	1	MALE RUN TEE SWIVEL
12	MLM-BRKT-MA-1	1	AIR MANIFOLD BRACKET
13	F-UB-06C-40	1	U-BOLT
14	F-FW-06	2	3/8 FLAT WASHER
15	F-HN-06C	2	HEX NUT
16	MS-2052-1	.167 FT	POLY TUBE
17	06946	1	POLY Y FITTING
18	PF-AP-04	1	ALLEN PLUG

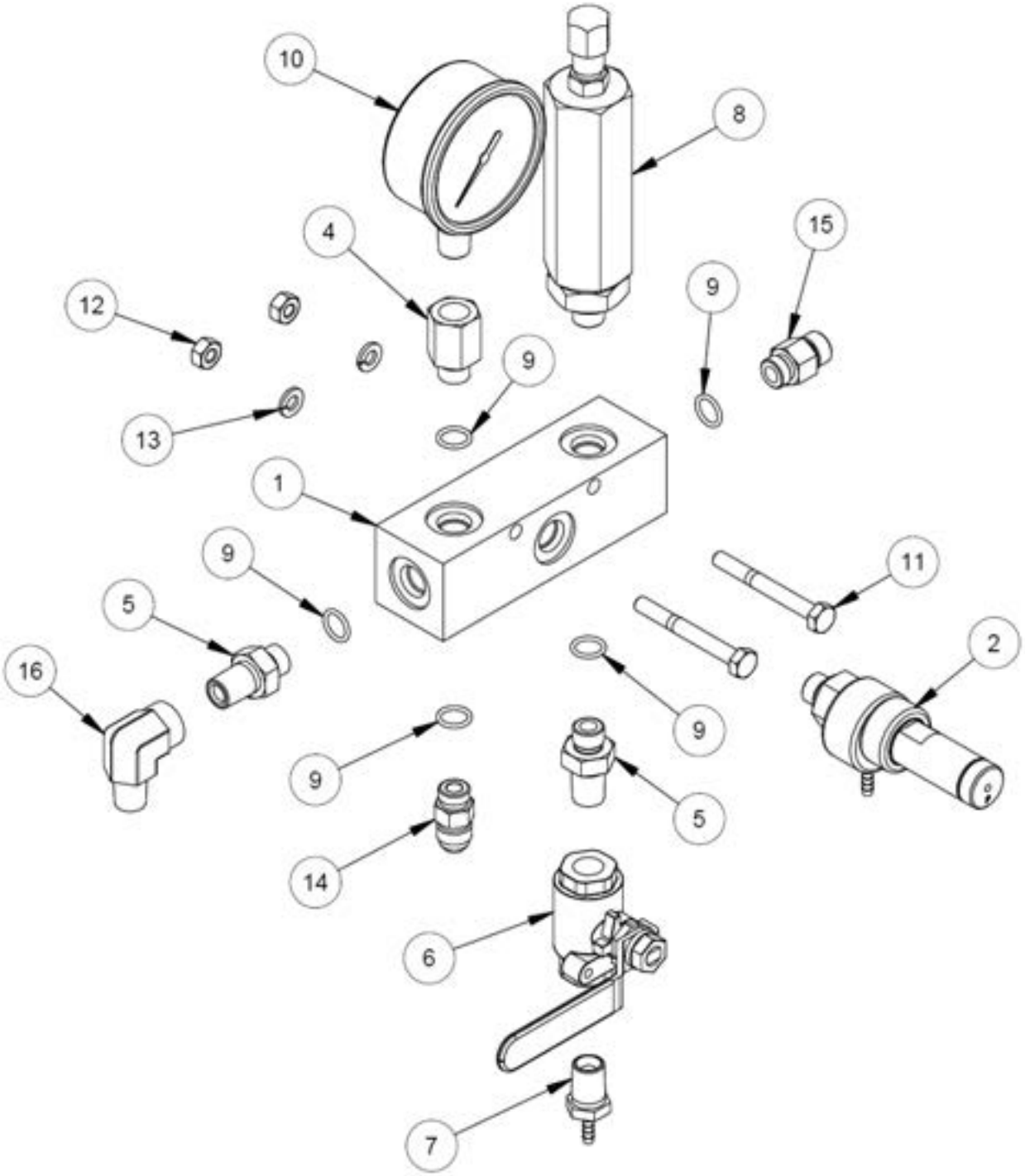
OPTIONAL ASSEMBLY

PAT-BRKT-MA-100 CONSIST OF ITEMS 12, 13, 14, AND 15

MAGNUM VENUS PLASTECH

AIR MANIFOLD MLM-MA-1

REV:02-28-11 BT2



MAGNUM VENUS PLASTECH

MATERIAL MANIFOLD RIGHT	MLM-MM-1

REV:02-22-11 BT2

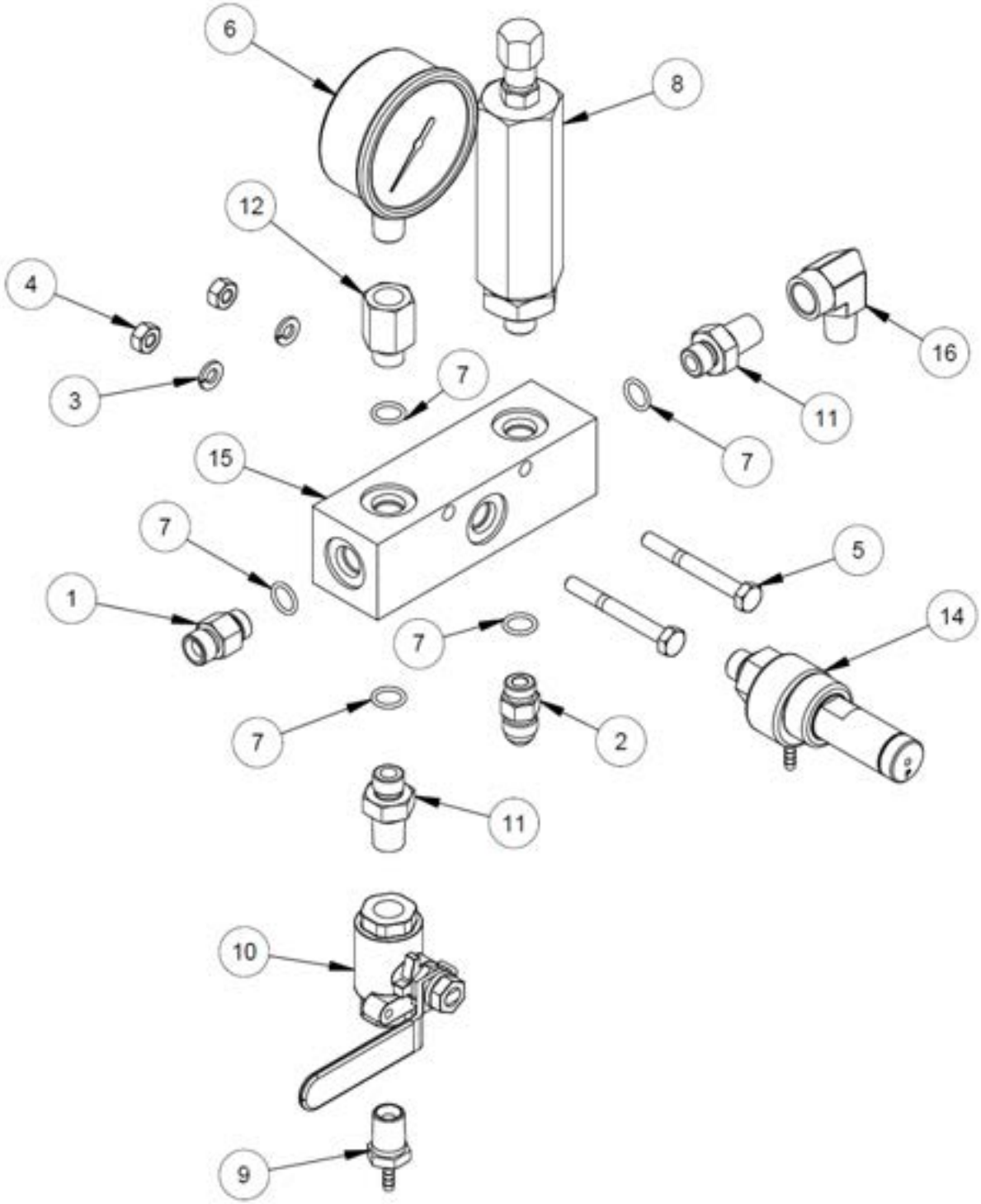
Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	CM-1051-SS	1	CATALYST MANIFOLD
2	RV-1000-1500	1	CATALYST RELIEF VALVE
4	CM-1055	1	FITTING
5	CM-1056	2	FITTING
6	CM-1005	1	SS BALL VALVE
7	CPRV-1002-A	1	CPRV HOSE FITTING
8	CSC-1000-CM	1	CATALYST SURGE CHAMBER ASSY
9	O-S-013	5	O-RING
10	MRD-1005-2000	1	2000 LB. GAUGE
11	F-HB-04C-36-GR5	2	HEX BOLT
12	F-HN-04C	2	HEX NUT
13	F-SW-04	2	LOCK WASHER
14	MAX-2022	1	J.I.C FITTING
15	55500-1	1	HOSE FITTING
16	PF-SE-04	1	STREET ELBOW

NOTE: ITEMS 2 AND 8 COME WITH AN O-S-013 O-RING
FOR MOUNTING TO MANIFOLD

MAGNUM VENUS PLASTECH

MATERIAL MANIFOLD - RIGHT MLM-MM-1

REV:02-22-11 BT2



MAGNUM VENUS PLASTECH

MATERIAL MANIFOLD - LEFT	MLM-MM-2

REV:02-22-11 BT2

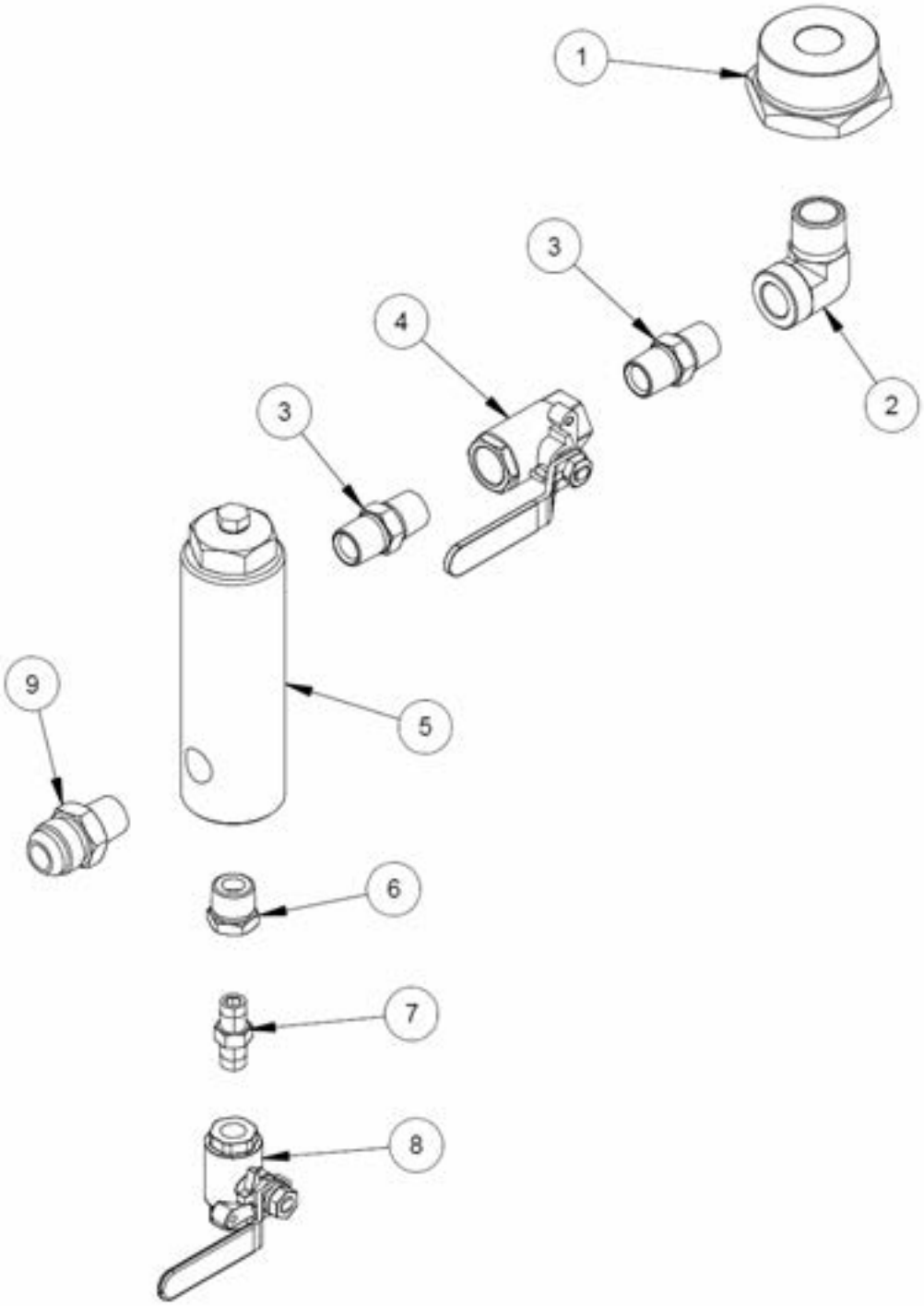
Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	55500-1	1	HOSE FITTING
2	MAX-2022	1	J.I.C FITTING
3	F-SW-04	2	LOCK WASHER
4	F-HN-04C	2	HEX NUT
5	F-HB-04C-36-GR5	2	HEX BOLT
6	MRD-1005-2000	1	2000 LB. GAUGE
7	O-S-013	5	O-RING
8	CSC-1000-CM	1	CATALYST SURGE CHAMBER ASSY
9	CPRV-1002-A	1	CPRV HOSE FITTING
10	CM-1005	1	SS BALL VALVE
11	CM-1056	2	FITTING
12	CM-1055	1	FITTING
14	RV-1000-1500	1	CATALYST RELIEF VALVE
15	CM-1051-SS	1	CATALYST MANIFOLD
16	PF-SE-04	1	STREET ELBOW

NOTE: ITEMS 8 AND 14 COME WITH AN O-S-013 O-RING
FOR MOUNTING TO MANIFOLD

MAGNUM VENUS PLASTECH

MATERIAL MANIFOLD - LEFT MLM-MM-2

REV:02-22-11 BT2



MAGNUM VENUS PLASTECH

TANK OUTLET FILTER	MLM-TF-1000

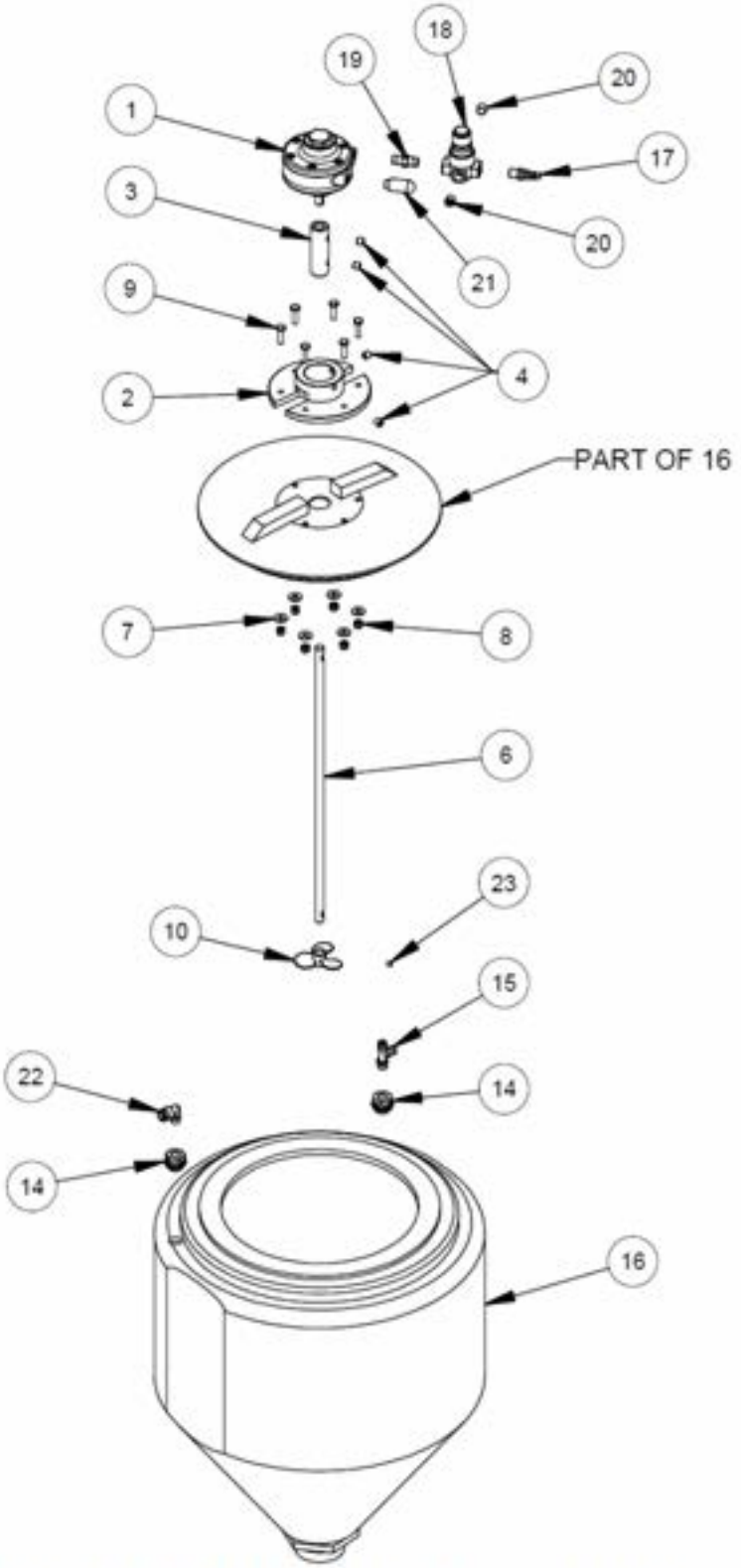
REV: 08-27-08 BT2

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PF-RB-32-12	1	REDUCER BUSHING
2	PF-SE-12M-08F	1	3/4 TO 1/2 STREET ELBOW
3	PF-HN-08	2	HEX NIPPLE
4	BV-88-316	1	BALL VALVE
5	FF-5000-30	1	FILTER ASSY
6	PF-RB-08-04	1	REDUCER BUSHING
7	PF-HN-04	1	HEX NIPPLE
8	CM-1005	1	SS BALL VALVE
9	PF-HN-08-12J	1	HOSE ADAPTER

MAGNUM VENUS PLASTECH

TANK OUTLET FILTER MLM-TF-1000

REV:08-27-08 BT2



MAGNUM VENUS PLASTECH

MIXER TANK ASSEMBLY	MLM-TK-1000

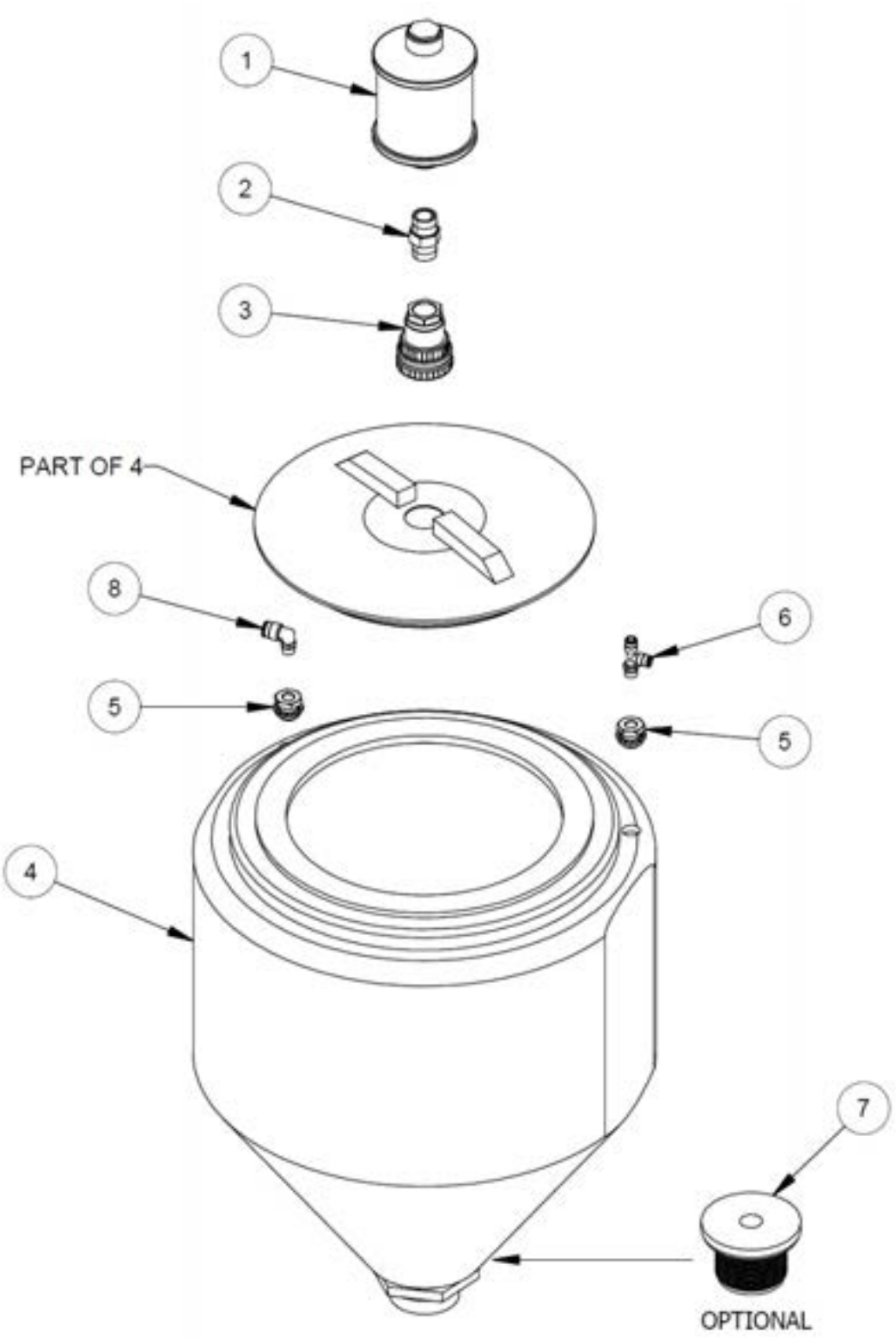
REV:02-25-11 BT2

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	07179	1	MODIFIED AIR MOTOR
2	MLM-TK-1003	1	BASE PLATE
3	50030-1	1	SHAFT COUPLING
4	F-SS-06C-06-SS	4	SS SET SCREW
6	MLM-TK-1005	1	MIXER SHAFT
7	F-FW-04	6	FLAT WASHER
8	F-LN-04C	6	LOCK NUT
9	F-HB-04C-16	6	1/4 HEX BOLT
10	MVP-1017	1	MIXER
14	7701-3-19	2	BULKHEAD FITTING
15	06963	1	MALE RUN TEE SWIVEL
16	MLM-TK-1001	1	MIXER TANK
17	08690	1	MALE QUICK DISCONNECT
18	09218	1	REGULATOR - 1/4 NPT
19	PF-HN-04	1	HEX NIPPLE
20	PF-AP-04	2	ALLEN PLUG
21	04699	1	SILENCER 1/4-NPT
22	07234	1	MALE POLY ELBOW
23	F-SS-04C-04	1	SET SCREW

MAGNUM VENUS PLASTECH

MIXER TANK ASSEMBLY MLM-TK-1000

REV:02-25-11 BT2



MAGNUM VENUS PLASTECH

VENTED TANK ASSEMBLY	MLM-TK-2000

REV:02-22-11 BT2

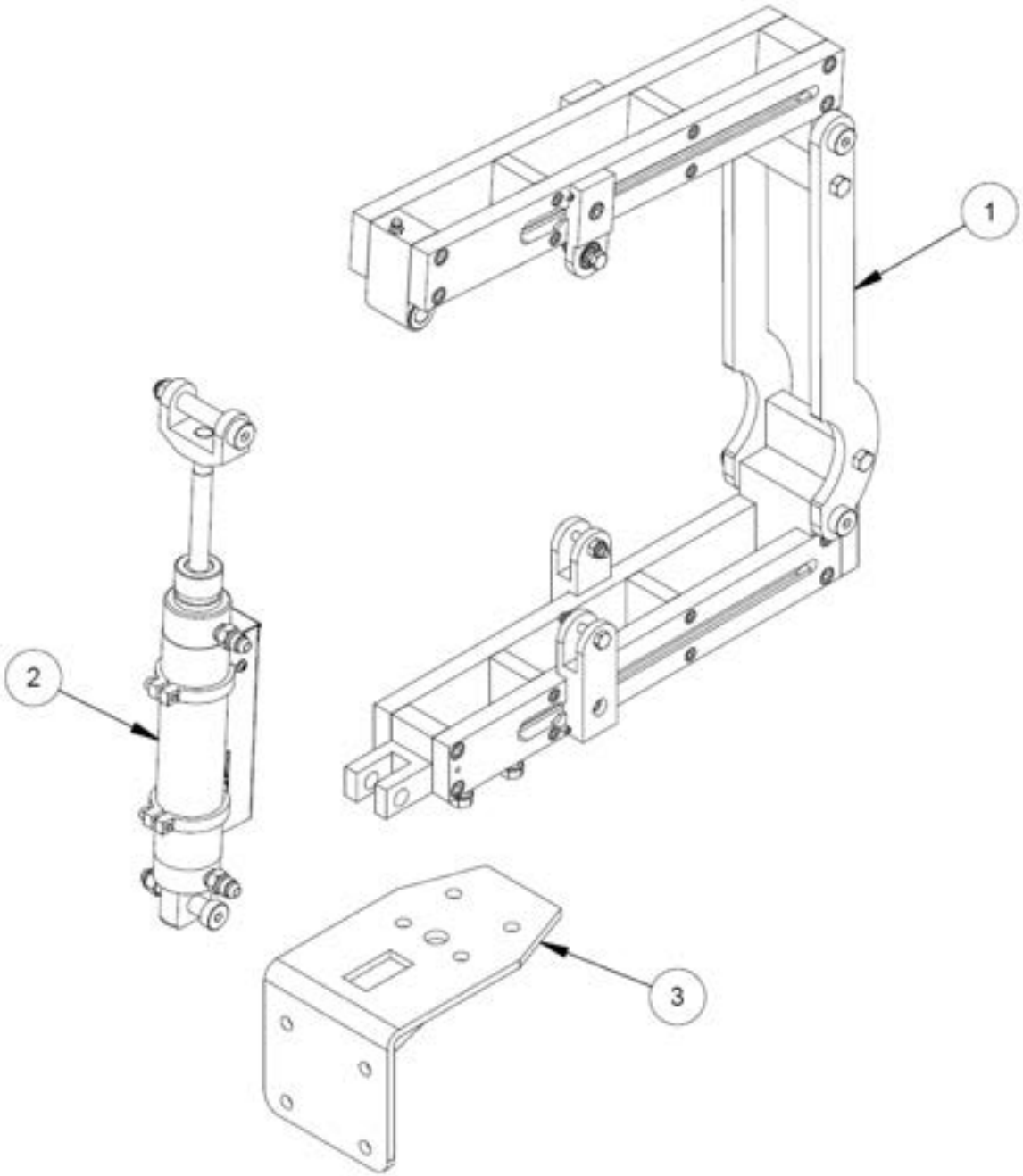
Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	DDV-1001	1	DRUM VENT DRYER
2	PF-HN-12	1	HEX NIPPLE
3	MVP-1011	1	PVC BULKHEAD FITTING
4	MLM-TK-2001	1	VENTED TANK
5	7701-3-19	2	BULKHEAD FITTING
6	06963	1	MALE RUN TEE SWIVEL
8	07234	1	MALE POLY ELBOW

OPTIONAL TANK FITTING # 7 - MLM-TK-1008 - REPLACES FITTING ON THE BOTTOM OF MLM-TK-2001

MAGNUM VENUS PLASTECH

VENTED TANK ASSEMBLY MLM-TK-2000

REV:02-22-11 BT2



MAGNUM VENUS PLASTECH

PUMP DRIVE ASSEMBLY	MLM-PDA-1000

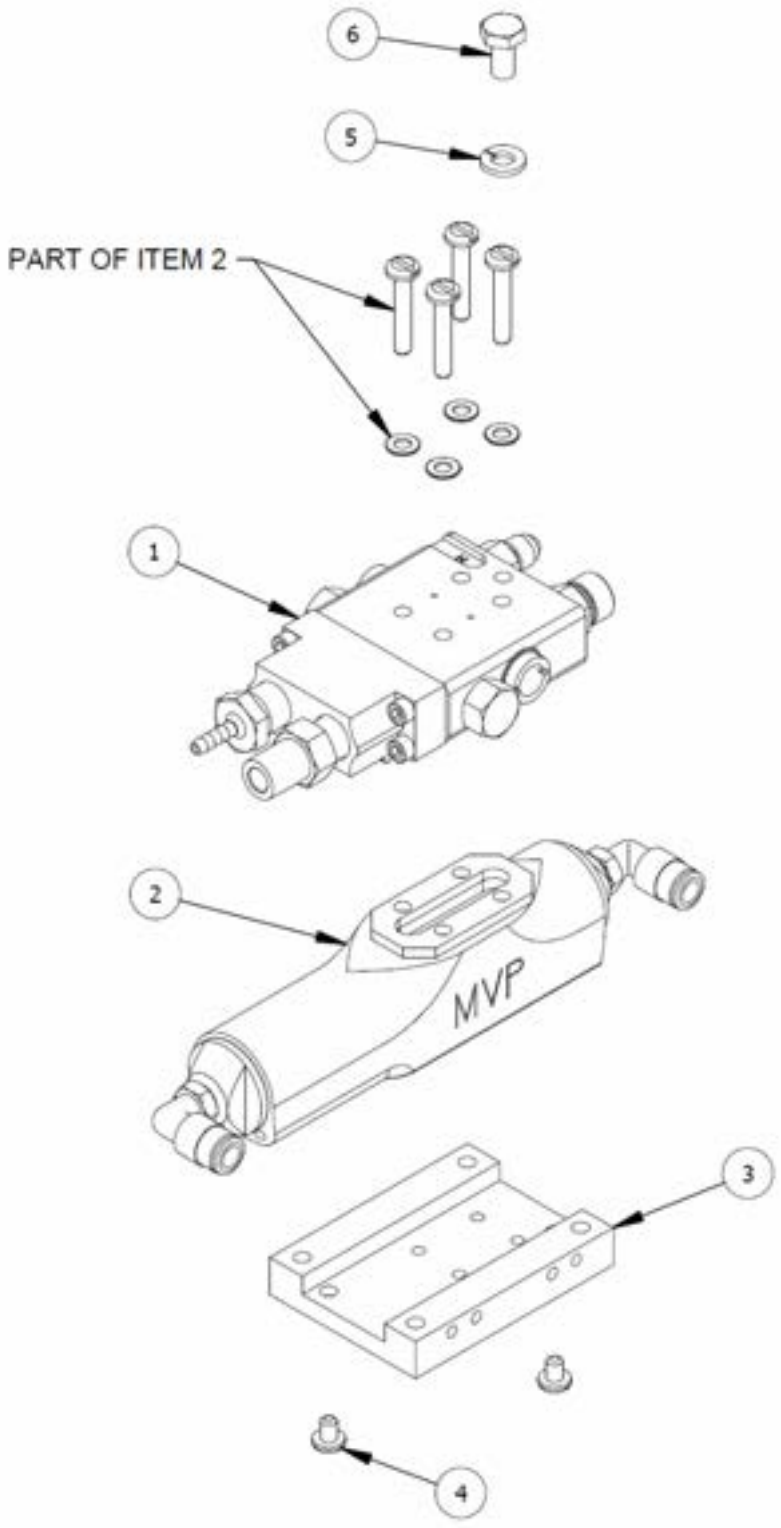
REV: SHEET 1 / 2 6/30/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MLM-PD-4000	1	PUMP DRIVE ASSY
2	MLM-HC-1000	1	CYLINDER ASSY
3	MLM-BRKT-PM-3	1	PUMP MOUNT BRACKET

MAGNUM VENUS PLASTECH

PUMP DRIVE ASSEMBLY	MLM-PDA-1000

REV: SHEET 2 / 2 6/30/2010



MAGNUM VENUS PLASTECH

RECIRCULATION GUN	PRTM-RG-1000-A

REV:A 02/24/11 SHEET 1 / 2 8/11/2009

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	PRTM-RG-1100	1	RECIRCULATION GUN BLOCK
2	PRTM-RG-1200-A	1	ACTUATOR ASSEMBLY
3	58704-1	1	MOUNTING PAD
4	02806-2	2	10-24 PAN HEAD SCREW
5	F-SW-04	1	LOCK WASHER
6	F-HB-04C-08	1	HEX BOLT

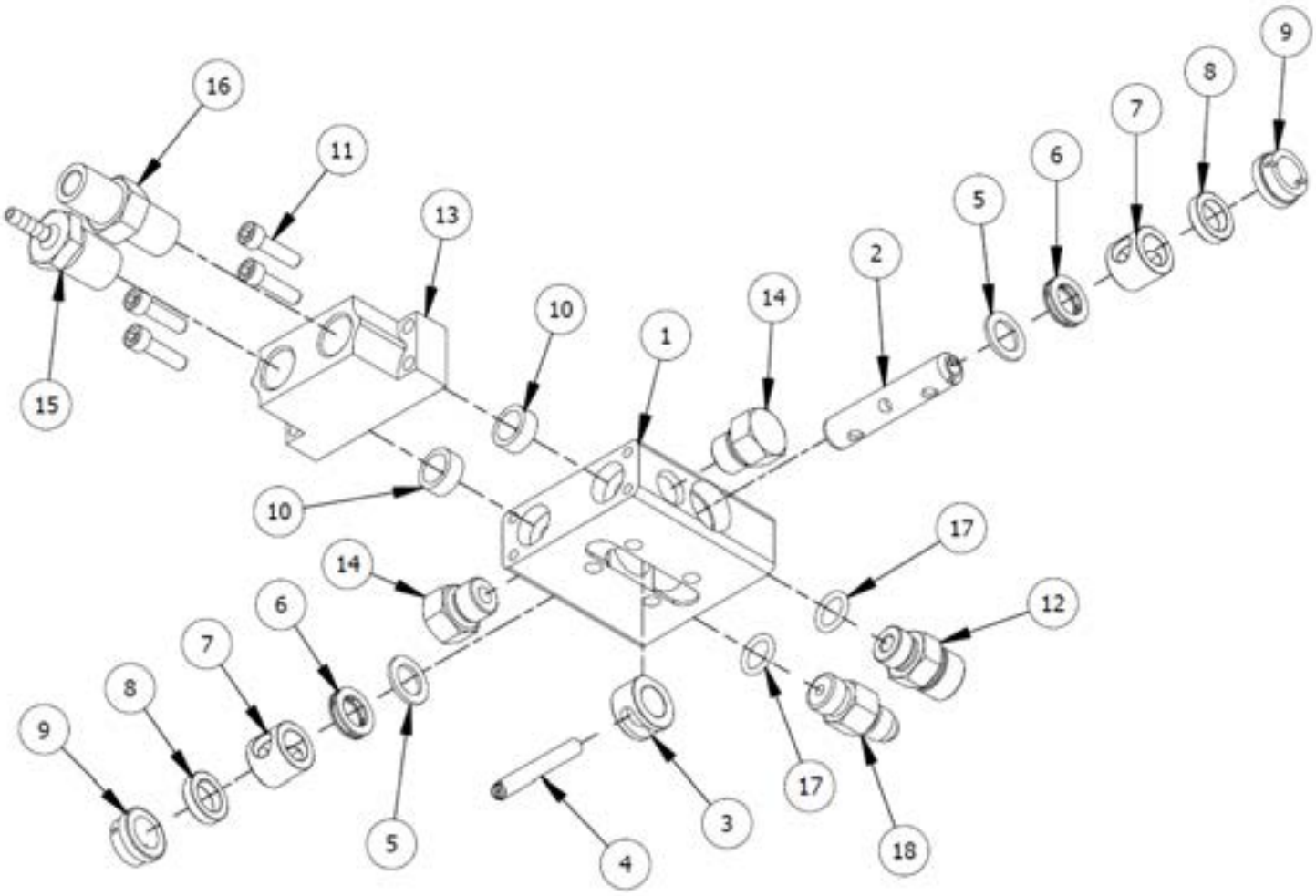
REPAIR KIT

PART No.	DESCRIPTION
CPD-4000-A-INV-RK	REPAIR KIT

MAGNUM VENUS PLASTECH

RECIRCULATION GUN	PRTM-RG-1000-A

REV:A 02/24/11 SHEET 2 / 2 8/11/2009



MAGNUM VENUS PLASTECH

RECIRCULATION GUN BLOCK	PRTM-RG-1100

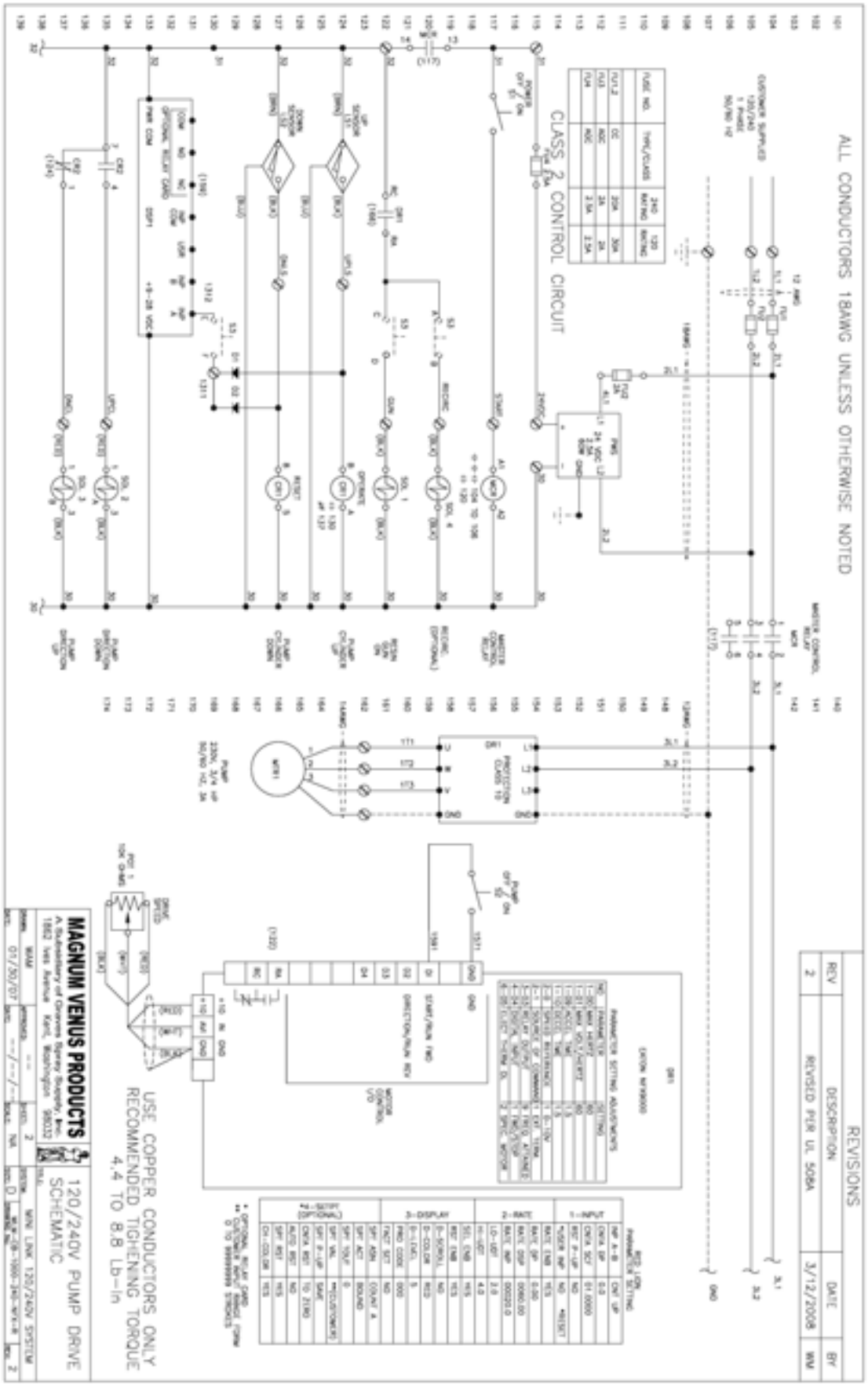
REV:A - 08/03/10 SHEET 1 / 2 8/10/2009

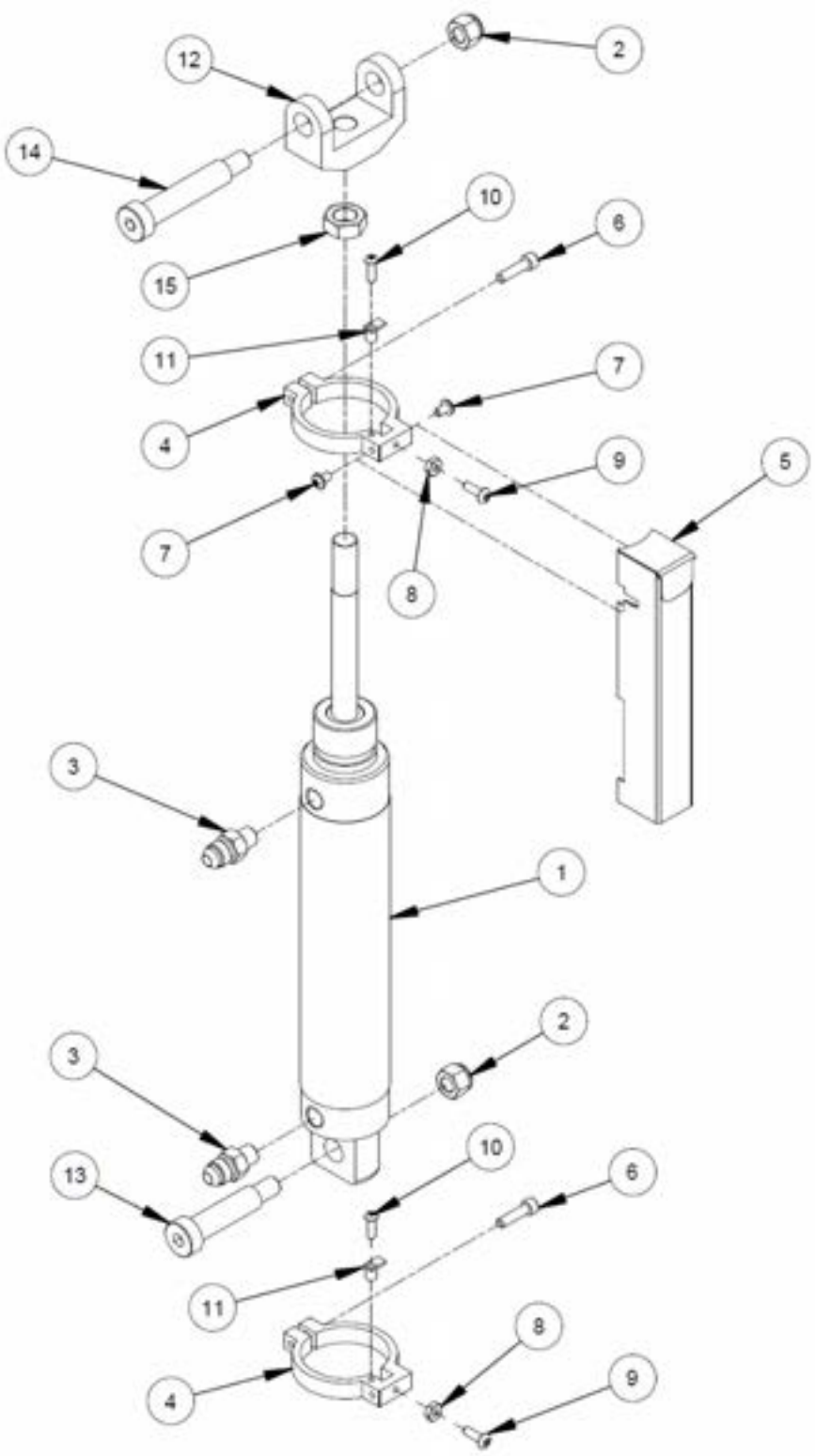
Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	58691-1	1	1:1 GUN HEAD
2	58693-1	1	VALVE ROD
3	5104-10-1	1	CENTER SPACER
4	5104-11-1	1	ACTUATING STEM
5	5104-3-1	2	SECONDARY SEAL
6	5104-4-1	2	RELIEF SPACER
7	5104-5-1	2	RESIN SEAL
8	5104-7-1	2	PACKING RING
9	5104-8-1	2	PACKING NUT
10	58694-1	2	CHECK FACE SEAL
11	F-CS-832-10-GR8	4	SOCKET HEAD CAP SCREW
12	5104-9-1	1	RESIN FITTING
13	DUO-4201	1	SEPARATE STREAM BLOCK
14	F-SP-07F	2	SOLVENT PLUG
15	CPRV-1002-A	1	CPRV HOSE FITTING
16	PF-HN-04	1	HEX NIPPLE
17	O-E-3-904	2	O-RING
18	HF-07F-03J-SS	1	HOSE FITTING

MAGNUM VENUS PLASTECH

RECIRCULATION GUN BLOCK PRTM-RG-1100

REV:A - 08/03/10 SHEET 2 / 2 8/10/2009


ALL CONDUCTORS 18AWG UNLESS OTHERWISE NOTED
CLASS 2 CONTROL CIRCUIT
REVISIONS
REV
DESCRIPTION
DATE
BY
2
REVISED PER UL 508A
3/12/2008
WM
MAGNUM VENUS PRODUCTS
120/240V PUMP DRIVE SCHEMATIC
MINI LINK 120/240V SYSTEM
USE COPPER CONDUCTORS ONLY
RECOMMENDED TIGHTENING TORQUE
4.4 TO 8.8 Lb-In



MAGNUM VENUS PLASTECH

HYDRAULIC CYLINDER	MLM-HC-1000

REV:B 05-11-11 SHEET 1 / 2 5/14/2010

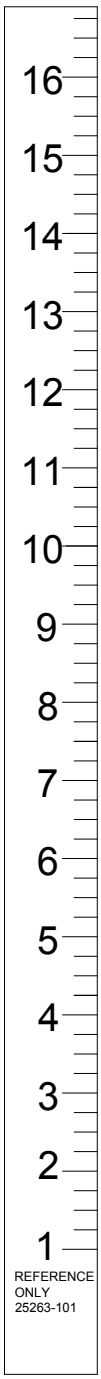
Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	MLM-PD-2010	1	CYLINDER
2	F-LN-06C	2	LOCK NUT
3	PF-HN-02-05J	2	FITTING
4	MLM-PD-2013	2	SENSOR CLAMP
5	MLM-PD-2015	1	SENSOR COVER
6	F-CS-1024-12	2	CAP SCREW
7	F-MS-832-04	2	MACHINE SCREW
8	F-HN-832	2	HEX NUT
9	F-BHCS-832-08	2	BUTTON HEAD CAP SCREW
10	F-BHCS-632-08	2	BUTTON HEAD CAP SCREW
11	MLM-PD-2014	2	SENSOR STOP
12	MLM-PD-4096	1	PISTON ROD CLEVIS
13	F-SB-08-28	1	SHOULDER BOLT
14	F-SB-08-36	1	SHOULDER BOLT
15	F-JN-08F	1	JAM NUT

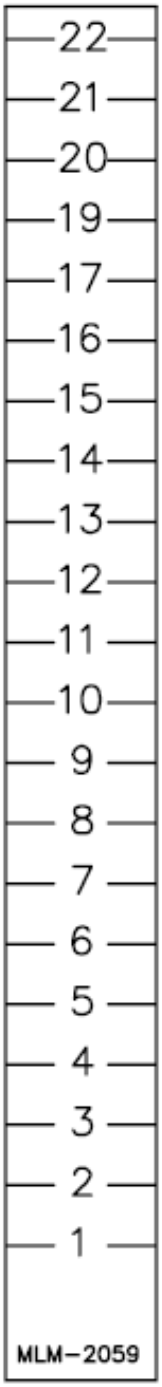
MAGNUM VENUS PLASTECH

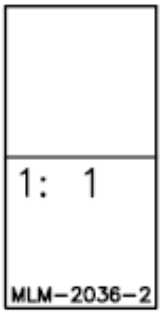
HYDRAULIC CYLINDER MLM-HC-1000

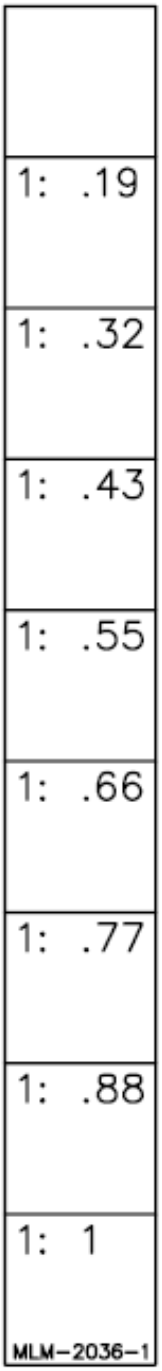
REV:B 05-11-11 SHEET 2 / 2 5/14/2010

Slave Arm Stickers:









Appendix A:

Display Programming:

OPERATING MODE DISPLAY DESIGNATORS

"R" - To the left of the display is the rate value.
- Counter A has no designator.

Pressing the **SEL** button toggles the meter through the selected displays. If display scroll is enabled, the display will toggle automatically every four seconds between the rate and count values.

KEY	DISPLAY MODE OPERATION	ENTERING PROGRAM MODE	PROGRAMMING MODE OPERATION
SEL	Index display through enabled values	Press and hold for 2 seconds to activate	Store selected parameter and index to next parameter
RST	Resets count display(s) and/or outputs		Advances through the program menu/ Increments selected parameter value or selection

The Resin Rate can be calculated by:

If the number of counts / pulses per "single" unit (i.e. # of counts (pulses) per pound) is known, then it can be entered as the Scaling Input value and the Scaling Display value will be entered as the following:

RATE PER	DISPLAY (RAtE dSP)	INPUT (RAtE INP)
Second	1	# of pulses per unit
Minute	60	# of pulses per unit
Hour	3600	# of pulses per unit

Notes:

1. The decimal place can be adjusted by multiplying the values by 10 or 100, both values must be raised and lower by the same proportion i.e. if the display value is raised by a multiple of 10 then the input value must be raised by the same.
2. Both values must be greater than zero (0).
3. If # of pulse per unit is less than 1, then multiply both Input and Display values by 100.
4. If # of pulse per unit is less than 10, then multiply both Input and Display values by 10.

Procedures for determining the number counts per unit:

Items needed: Accurate Scale – capable of weighing 5 – 10 lbs (2.5 – 5 kg)
Appropriate size container

Process:

1. Using the recirculation valve and return hoses - pump some resin into two containers. This can also be done by pumping the material through the gun into one container. Pump out enough material to get a good sample weight. The larger the sample the more accurate the calibration will be.
2. Count the number of strokes: slide the container(s) under the stream(s) at the top or bottom of the pump stroke. The top and bottom of the stroke is one count.
3. Weigh the resin – subtract the weight of the container or zero the scale with the container on it before starting.

Divide the Count Total on the Resin Total Meter by the weight of the resin:

$$\frac{\text{Number of Counts}}{\text{Weight of the Resin (Pounds or Kilograms)}} \div \frac{\text{Counts / Pulses per Weight (pounds or kilograms)}}{}$$

This can then be entered into the Scaling Input **(RAtE INP)**

Note: by dispensing a know volume i.e. gallons or liters of resin instead of a weight the meter can display the rate in gallons or liters per minute.

Calibrating the Rate Display:

With the appropriate numbers in the Rate Scaling Display **(RAtE dSP)** and Rate Scaling Input **(RAtE INP)**

1. Pump some material through the dispense gun for a know amount of time (one minute, 30 seconds). Note the Rate that is displayed on the Rate display.
2. Weight the material and determine the Rate.
3. If the Rate being displayed on the Rate Display is not correct the Rate Scaling Input **(RAtE INP)** value can be adjusted so that the Rate Display is correct.

Repeat the steps above as needed until the correct Rate is displayed.

Revision Information:

6/2009 – Document was created

Rev. 08/2010 Updated manual format and updated Drive Linkage (MPR-PD-4000) information including slave arm stickers. Added the reference to the component manuals. Updated the Rate Display information.

Rev. 05/2011 Added the VHPC-1200 Metering pump information and the Ratio chart. Inserted the 1:1 Pro gun packing tightening procedures.

Rev: 09/2012 Updated the manual format and Address. Added the Terms & Conditions of Sale section to the manual. Updated the drawing MLM-HC-1000.

Rev: 08/2013 Updated the Terms & Conditions section and drawing CPD-6000 in the manual. Removed Products address and information.

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Included with this operations manual are the following component manuals:

- ❑ **1:1 CLASSIC PRO GUN REPAIR MANUAL**

Plus one or a combination of the manuals below

- ❑ **VHPC-1200 METERING PUMP MANUAL**
- ❑ **VHPC-2200 METERING PUMP MANUAL**
- ❑ **VHPC-3200 METERING PUMP MANUAL**
- ❑ **VHPC-4200 METERING PUMP MANUAL**