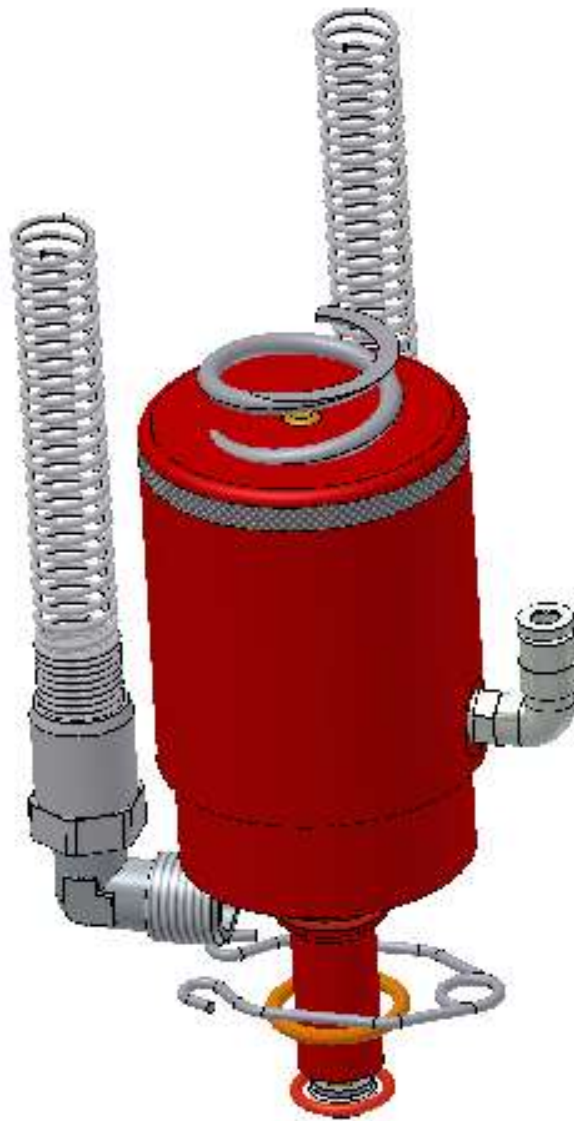


Turbo Autosprue (TAS) Valve

Manual

This manual is applicable to the following models:

- 5855
- 5855-INV2
- 5856
- 5856-HIPRESS/DA
- 5856-HT
- ASSY-0437
- 5858-HT
- 5858
- ASSY-0469





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www.mvpind.com/mvp-international

Use of this product confirms that Magnum Venus Products, Inc.'s standard terms and conditions of sale apply.



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Safety & Warning Information

Warnings

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

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

Recommended Occupational Safety & Health Act (OSHA) Documentation:

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

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

Recommended National Fire Protection Association (NFPA) Documentation:

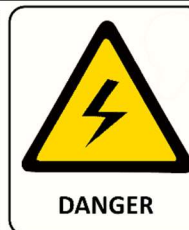
- NFPA No.33 Chapter 14 Organic Peroxides and Dual Component Materials
- NFPA No. 63 Dust Explosion Prevention
- NFPA No. 70 National Electrical Code
- NFPA No. 77 Static Electricity
- NFPA No. 91 Blower and Exhaust System
- NFPA No. 654 Plastics Industry Dust Hazards

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

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

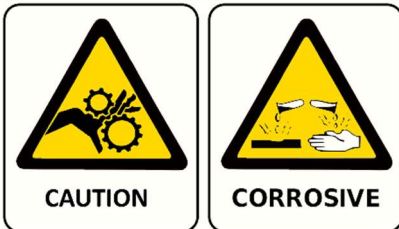
Safety Precautions

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



Physical Hazards

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



Personal Protective Equipment (PPE)

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



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

Symbol Definitions



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



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



Indicates that the materials being used are susceptible to combustion



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



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



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



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



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

Polymer Matrix Materials: Advanced Composites

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

https://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_1.html#t_iii:1_1

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

Catalyst - Methyl Ethyl Ketone Peroxide (MEKP)

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



WARNING

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

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

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

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

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

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

Clean-Up Solvents and Resin Diluents



WARNING

A hazardous situation may be present in your pressurized fluid system! Hydro carbon solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.). An explosion could cause serious injury, death, and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hyrdrocarbon solvents. Some Magnum Venus Products spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon solvents.

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

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

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



WARNING

Do not use Halogenated Hydrocarbon (HHC) solvents in pressurized fluid systems having aluminum or galvanized wetted parts.

Magnum Venus Products is aware of NO stabilizers available to prevent HHC solvents from reaction under all conditions with aluminum components in closed fluid systems. HHC solvents are dangerous when used with aluminum components in a closed fluid system.

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

Catalyst Diluents

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



WARNING

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

Cured Laminate, Overspray and Laminate Sandings Accumulation

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

To prevent spillage and leakage, you should:

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

Toxicity of Chemicals

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

Equipment Safety

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



CAUTION

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



DANGER

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



DANGER

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

Treatment of Chemical Injuries



CAUTION

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

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

Precautions include:

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

**WARNING**

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

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

Emergency Stop Procedure

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

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

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

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

Grounding

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

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



CAUTION

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

Introduction

The Turbo Autosprue™ (TAS) is designed to interface between resin transfer molding (RTM), light resin transfer molding (LRTM) or infusion molds and a Magnum Venus Products meter mix machine, or any other automatic unit designed for dispensing mixed resin. This manual provides information for the operation, maintenance, and simple repair of the MVP Turbo Autosprue (TAS) Valve. The following procedures are included:

- Step-by-step assembly troubleshooting
- Installation instructions
- Step-by-step operation instructions



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

Configurations

MVP's Turbo Autosprue (TAS) Valve is available in the following configurations:

Core System Parts	
Part Number	Description
5855 / 5855-INV2	Low Pressure (10bar) Nylon Hose
5856	Heavy Duty (30bar) High Pressure Hose
5856HT	High Temperature (30bar) High Pressure Hose
5856-HI PRESS/DA	High Pressure / Double Acting (110bar)
ASSY-0437	TAS14 Hi Flow – Infusion Valve – Low Pressure 110bar High Pressure Hose
5858-HT	TAS High Temperature Spares Kit
5858	Spares Kit
Assy-0469	TAS 14 Spares Kit

Connecting to the Mold

1. Ensuring that the nose O-ring(s) are in place, wipe silicone grease over the O-rings to help protect them from wear.
2. Use the spring clip to hold the TAS firmly attached to the universal mold insert.
3. Once locked in position the TAS nose will be flush with the mold face.
4. To check that the TAS is correctly locked in place, pull firmly while rotating the TAS body.
5. To remove the TAS from the universal insert, turn the spring clip through 90° and gently pull on the TAS body to release the nose.

Operating the TAS

Note *The high pressure / double acting version of the TAS requires a control valve (ASSY-0477).*

1. With the TAS firmly locked into the mold insert, connect the machine nozzle to the quick release input connector.
2. Connect the Control Valve to the two 4mm elbow fittings on the side of the TAS body using the 4mm pipe supplied.
3. Place the 10 mm nylon drain pipe in a vented waste container, **ensuring that it is firmly fastened** in the container to avoid the pipe becoming dislodged during flushing with solvent and air.

When the machine starts the TAS valve will open and allow free passage of resin mix into the mold. On completion of the injection, the machine will close the TAS at the mold face and the mix-head.

4. Flush the injection pipe and the internal fluid path of the TAS and deliver the waste solvent to a vented waste container.

The TAS is suitable for use in vertical, upside down and horizontal positions, and tests have proven that the TAS operates and flushes efficiently with a long service life in all positions with all commonly used thermoset resin systems, whether filled or unfilled.

All tests have been conducted using one of Magnum Venus Products injection machines fitted with the SP3 or SP4 non-pressurized solvent pump systems. In conditions of low air pressure (below 72.5 psi, or 5 bar) efficient flush and cleaning may not occur, and this can leave a build-up of catalyzed resin within the valve, feed pipe and drain pipe. Ensure that all flushing systems are maintained correctly and operated at the recommended supply pressure range of 90 – 100 psi (6 – 7 bar).



CAUTION

Ensure that relevant Personal Protective Equipment (PPE), especially eye protection, is worn when testing or servicing the Turbo Autosprue (TAS).

Note

- **Never** - Operate TAS without sufficient cleaning/flushing solvent flow
- **Ensure** – The correct cleaning/flushing solvent pressure of at least 6 bar
- **Immediately** - Renew nose outer red silicon seal (3265) if damaged
- **Do Not** - Unlock or attempt to remove TAS from the mold:
 - During the injection or flushing operation
 - Until the resin in the mold has cured
- **Only Use** - Genuine spare parts from Magnum Venus Products
- **Renew** – Spring Clip if damaged or bent

Maintaining the TAS

The Turbo Autosprue™ is designed to operate for several hundred injection cycles without any need for maintenance. After lengthy service (700-1200 cycles) we recommend that the following maintenance checks are carried out.

Test the Seals

1. Operate the valve between open and closed and check that the valve nose seal moves back and forward by 7- 8 mm.
2. If the movement of the nose seal is observed to be sluggish, proceed to check (and if necessary replace) the main piston seal and/or the shaft seals.

Change the Nose Seal

3. With the TAS closed (no open signal) operate the machine's flush cycle.
4. After 12 seconds and with the air-dry flush cycle still operating, block the drain pipe outlet. This will pressurize the valve's fluid section and enable the observation of any air leakage out through the main nose seal.
5. Should any air leakage be present under these conditions replace the nose seal.

The integrity of the nose seal is determined entirely by the tightness of the nose screw as it compresses the nose seal against the washer and the base of the shaft.

- **Correct tightening** of the nose screw will seal the nose.
- **Over tightening** of the nose screw will seal the nose BUT prevent the nose seal moving back and forth between the seal surface of the nose and the seal surface of the body.
- **Under tightening** of the nose screw will not seal the nose and it may leak solvent and air into the mold cavity and/or leak resin through to the flush outlet whilst injecting.

To achieve the correct tightening of the nose screw we recommend the following actions:

6. Assemble the nose seal with the back-up washer and the nose seal screw using a small amount of blue Loctite 243 on the end of the screw.
7. Screw into the shaft end until it is finger tight and meets some resistance.
8. Turn the screw a further $\frac{1}{4}$ to $\frac{1}{2}$ turn, ensuring that the shaft does not turn at the same time.

Note ***To prevent the shaft from turning, apply 6 - 7 bar air pressure to the 4mm air fitting on the side of the main body. This will open the valve and hold the shaft tight.***

9. Immediately reassemble the valve and connect to the machine, and with the TAS out of the mold operate the flush cycle and observe that there is no leak of solvent, or air from the sealed nose.
10. To test the integrity of the nose seal, further pressure can be applied to the TAS by blocking the TAS drain pipe whilst the machine is flushing, this action will place the nose seal under full shop air pressure.

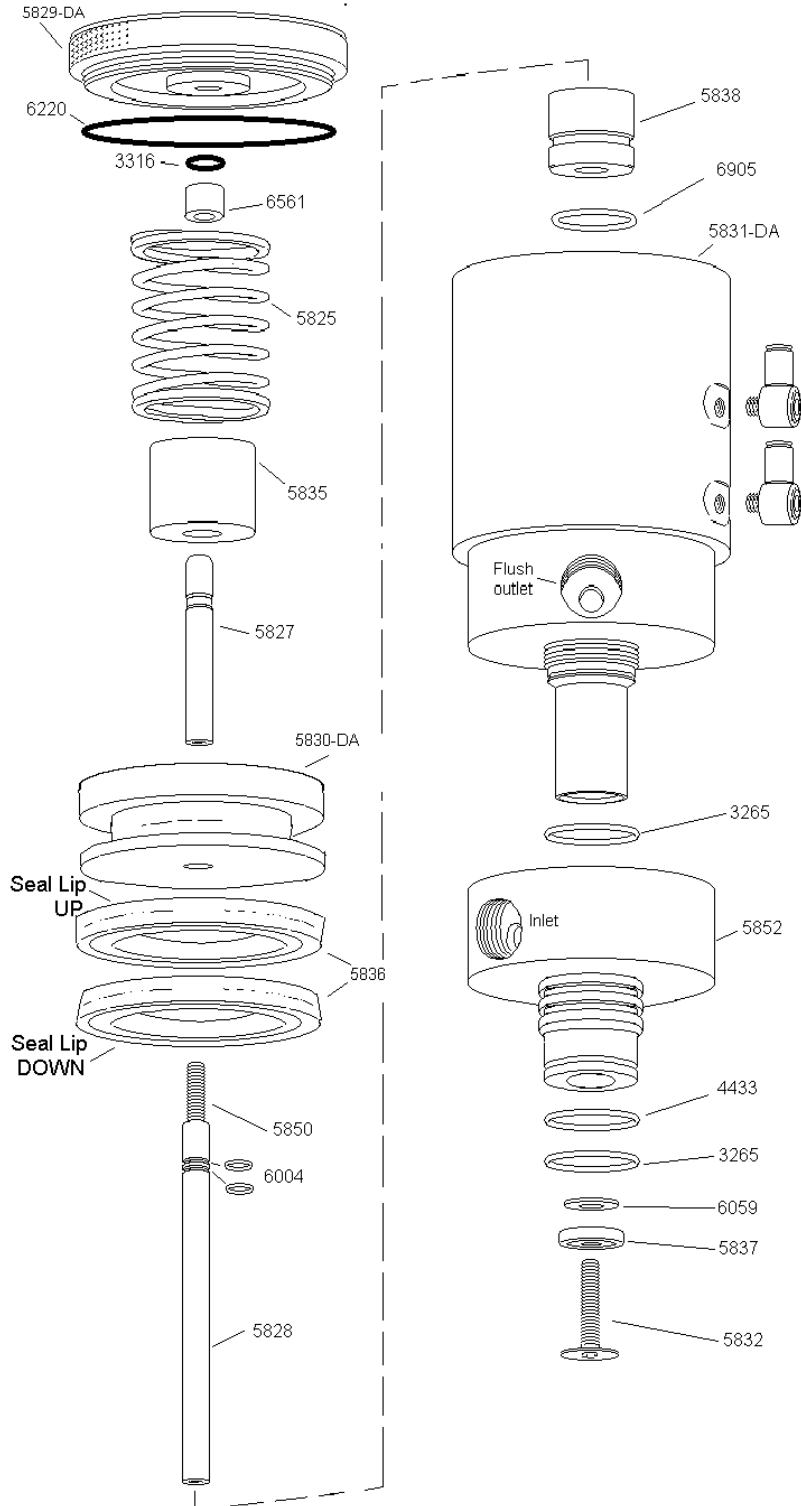
Note ***The flush line should only be blocked in this manner once the solvent has flushed through and the valve is only purging with air pressure.***

11. If any leakage is observed at the nose during this test, immediately tighten screw by a further $\frac{1}{4}$ turn, or more until the leak is sealed. This will increase the diameter of the nose seal a further fraction of a millimeter and effectively seal the nose in both the closed and open conditions.

Change the Piston Seal & Shaft Seals

The 2 main shaft seals should be replaced every 2,000 cycles, or sooner if required. Any resin found to be migrating into the upper air cylinder indicates the need for the immediate renewal of these 2 seals.

To access the 2 seals, first remove the nose seal then unscrew the cylinder top (but be aware of the force of the internal spring). The Spring, Limiter and the Piston assembly is then withdrawn from the open cylinder end by pulling on the end of the brass shaft.



Drawing Number Turbo Autosprue - High Pressure/DA Assy

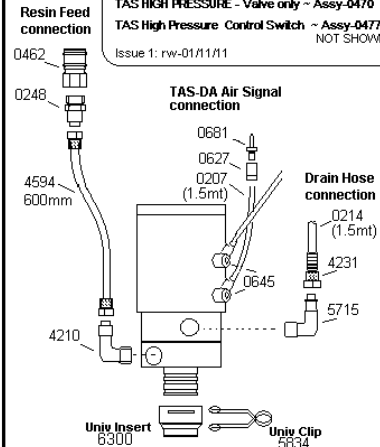
Issue 1: rw-01/11/11

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TAS HIGH PRESSURE - COMPLETE #5856 HI PRESS/DA

Resin Feed Connection ~ Assy-0479
Drain Hose Connection ~ Assy-0482
High Pressure, Air Signal Connection ~ Assy-0478
TAS HIGH PRESSURE - Valve only ~ Assy-0470
TAS High Pressure Control Switch ~ Assy-0477
NOT SHOWN

Issue 1: rw-01/11/11

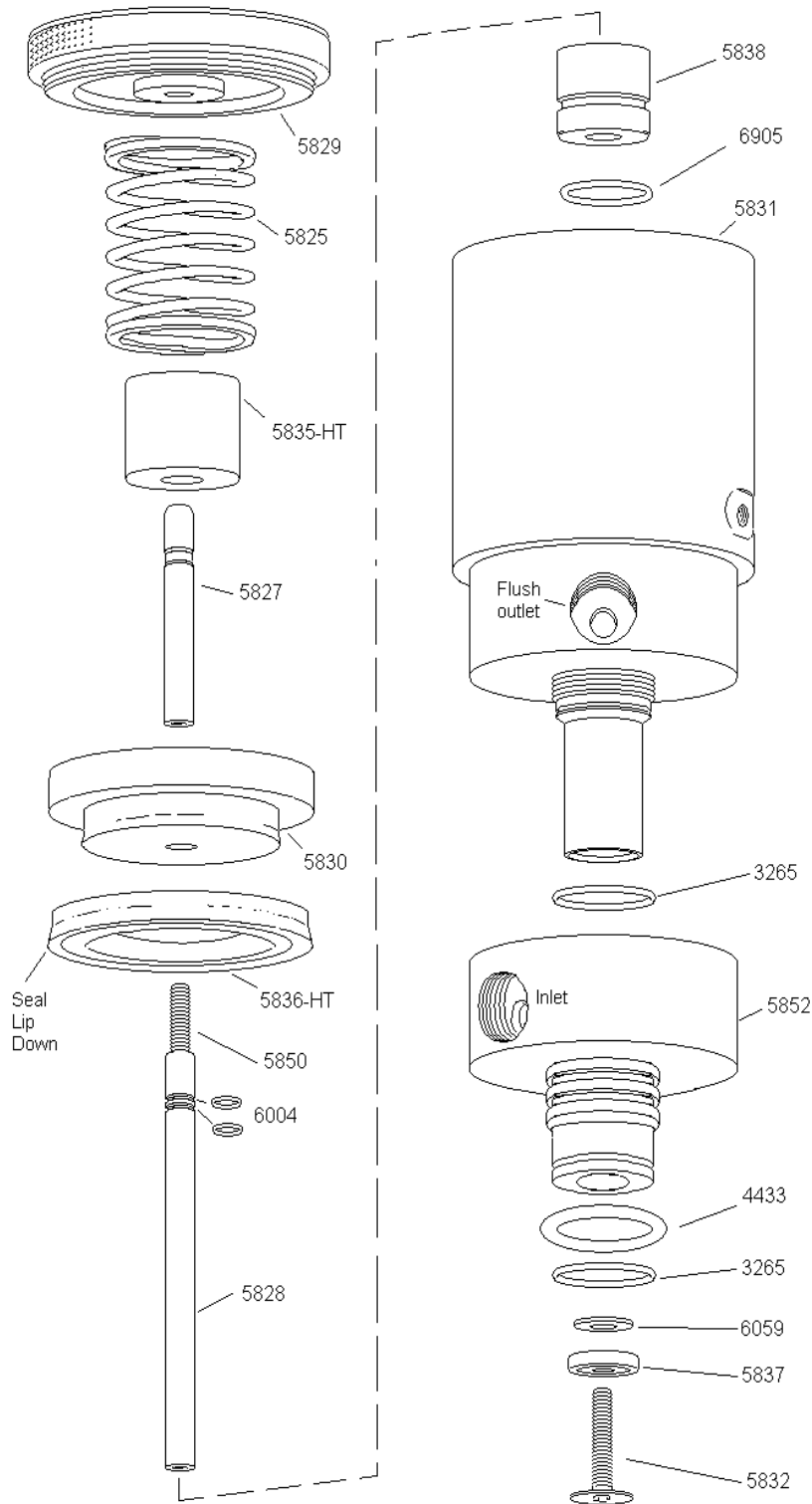


SPARES KIT:

TAS HIGH PRESSURE / DOUBLE ACTING
5858-HI PRESS/DA

5837 x 1
3265 x 3
6004 x 2
5836 x 1
6220 x 1
3316 x 1
6905 x 1
0645 x 1
4433 x 1 (Replaces 6578)
0464 x 1

For details of Turbo Autosprue-HI Temp required to operate at temperatures higher than 120°C, contact your local Magnum Venus Products distributor.



Drawing Number

Turbo Autosprue - High Temperature

Issue 01 rw 25/11/2011

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ASSY DRAWING; TAS HEAVY DUTY (HD) - COMPLETE # 5856

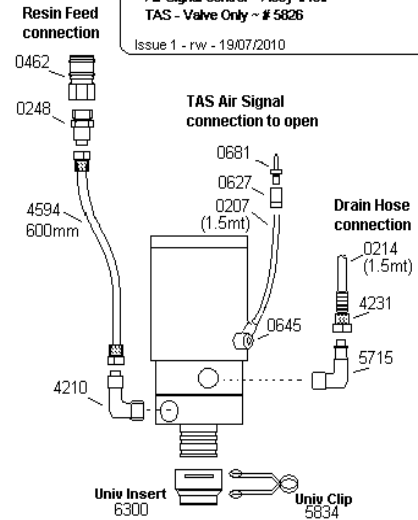
Resin Feed Connection HD ~ Assy-0479

Drain Hose Connection ~ Assy-0462

Air Signal Control ~ Assy-0480

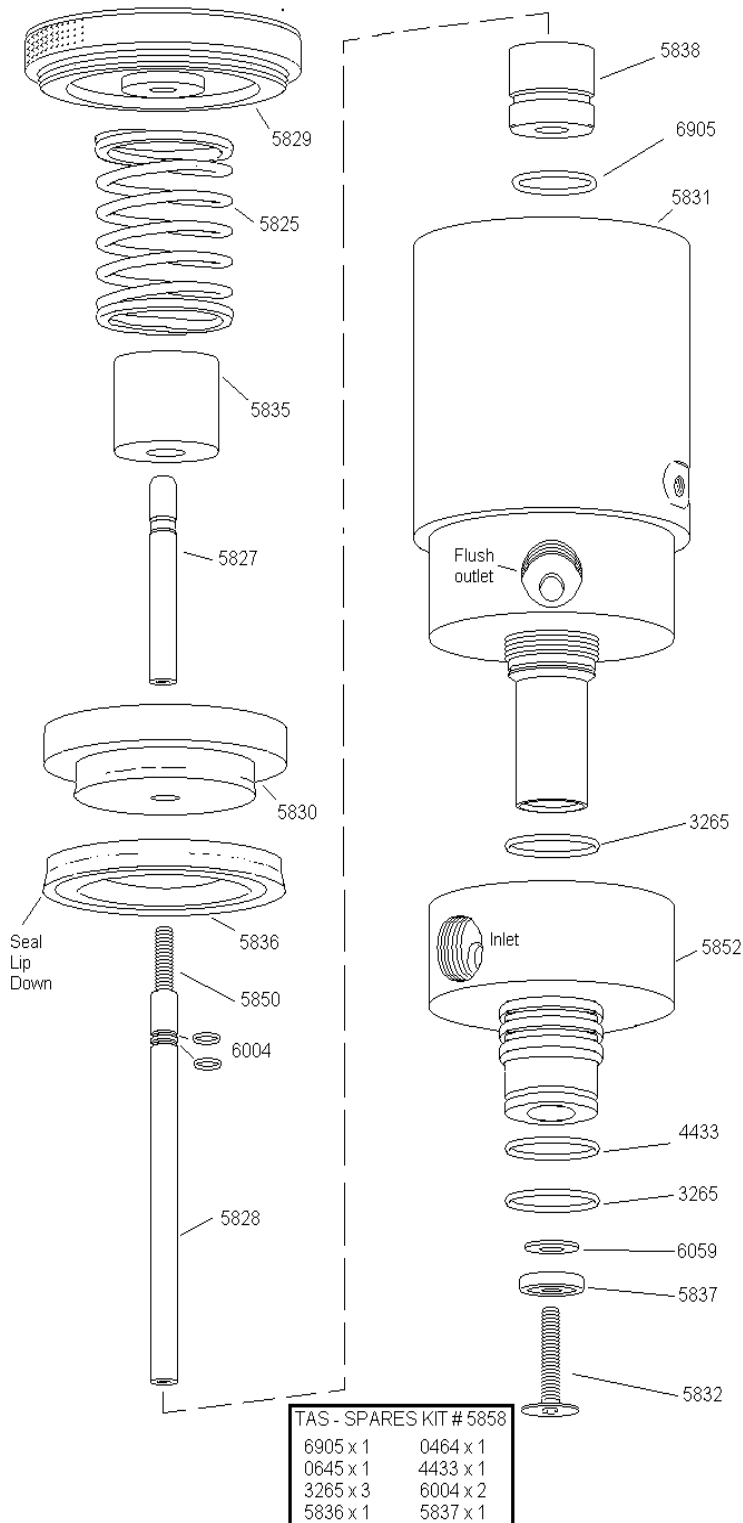
TAS - Valve Only ~ # 5826

Issue 1 - rw - 19/07/2010



TAS-HT SPARES KIT #5858-HT

6905 x 1	0464 x 1
0645 x 1	4433 x 1
3265 x 3	6004 x 2
5836-HT x 1	5837 x 1



Drawing Number 22414-9 Turbo Autosprue Assy

drawn arh 29/01/04

Issue 6: rw 01/02/2010 - oring 6578 added

Issue 7 25/05/2010 arh O ring 6903 added for bush 5838

Issue 8 rw 20/07/10 - O ring 6903 change to 6905

Issue 9 rw 23/09/2011 - Add hose connection dwgs, remove notes

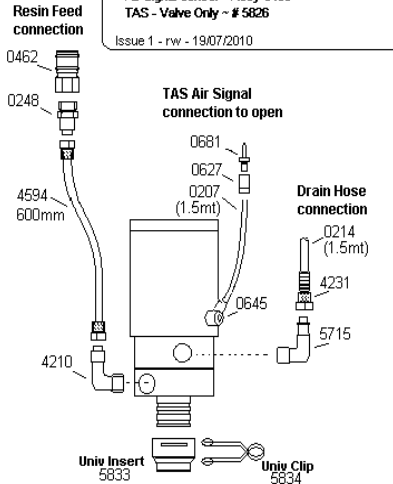
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Update Spares Kit Contents

**ASSY DRAWING:
TAS HEAVY DUTY (HD) - COMPLETE # 5856**
Resin Feed Connection HD ~ Assy-0479
Drain Hose Connection ~ Assy-0482
Air Signal Control ~ Assy-0480
TAS - Valve Only ~ # 5826

Issue 1 - rw - 19/07/2010



ASSY DRAWING: TAS NYLON - COMPLETE # 5855

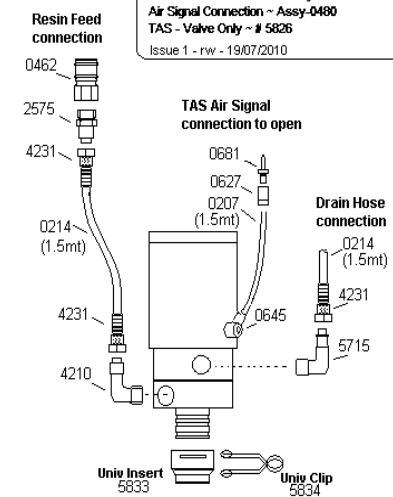
Resin Feed Connection NYLON ~ Assy-0481

Drain Hose Connection ~ Assy-0482

Air Signal Connection ~ Assy-0480

TAS - Valve Only ~ # 5826

Issue 1 - rw - 19/07/2010



Maintenance Tips

- Do not over grease piston seals. This can cause the valve to stick after periods of rest.
- Use a small smear of silicone grease on the 2 Shaft O-rings.

14. If the valve is difficult to open, check that:
 - At least 7 bar pressure is available to power the valve.
 - The TAS valve has been flushed correctly.
15. Ensure that the TAS nose is not damaged and that the nose O rings are replaced if showing signs of wear.

Internal Damage to TAS Nose

It is most important not to damage the sealing surface of the 10 mm hole in the TAS nose. Damage usually occurs when the valve has been gelled up and mechanical attempts have been made to rectify the problem.

To solve the problem, clean the gelled-up nose surface with solvent and a cloth. Alternatively, leave the nose in acetone for several hours to soften the residue before attempting to clean the internal surface. On no account should any hard metal or 10 mm drill bit be used to clean this surface.

Note ***Any scratches or pitting damage on the precision 10 mm nose bore will result in the nose seal leaking and damage to the nose seal itself. In the event that the nose seal surface is observed to be damaged as described then it is necessary to replace with a new nose.***

Using the TAS in a Metal Mold

When you have a metal mold with the insert dimensions machined into the back of the tool, the Turbo Autosprue can be held securely in position in either of the ways shown below.

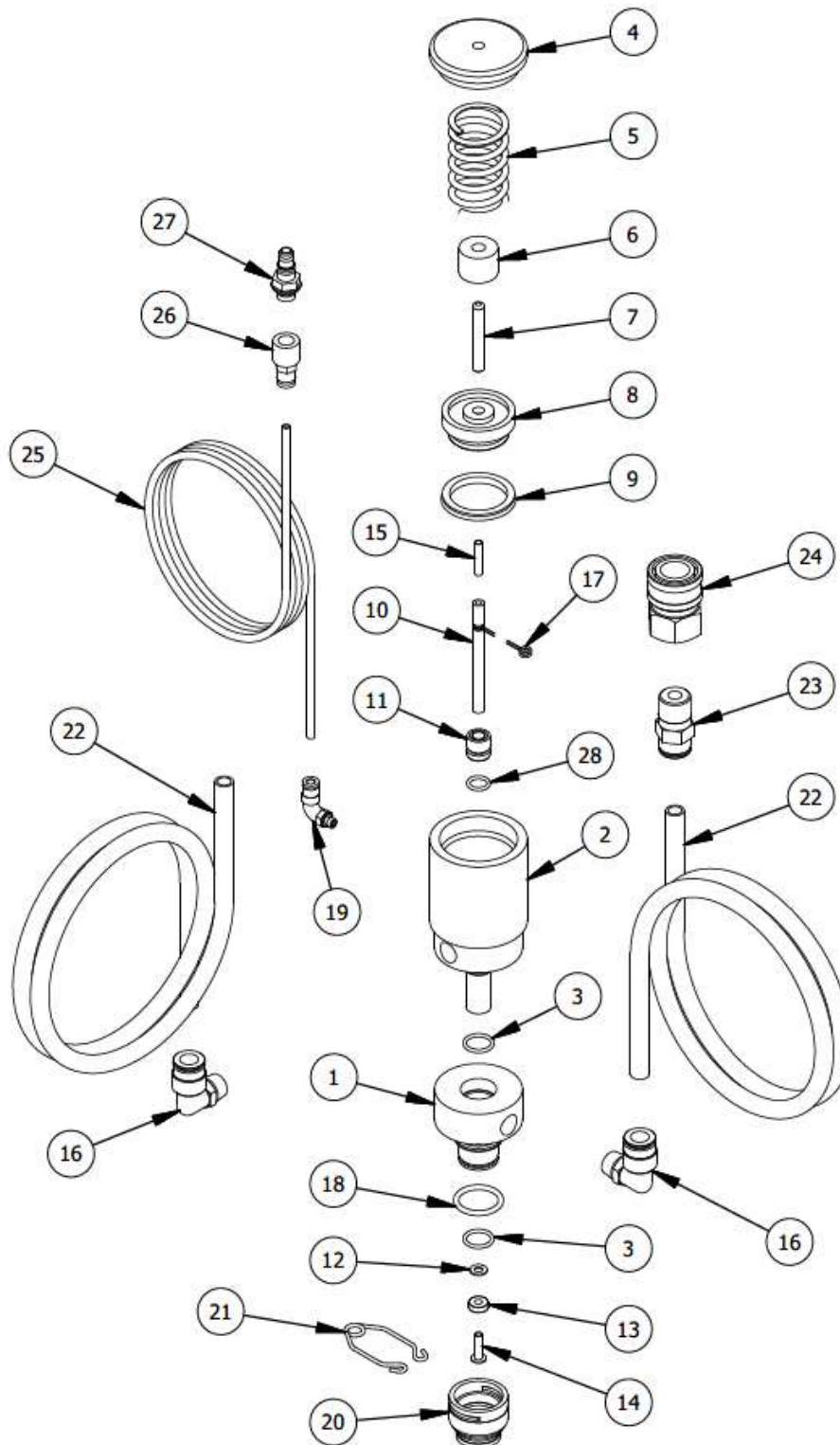
Always bear in mind not to block the pin that extends through the lid during operation.



Parts Drawings

The following parts breakdowns are included for reference:

- 5855-A
- 5855-INV2
- 5856-HT
- 5856-HIPRESS/DA
- ASSY-0437



MAGNUM VENUS PLASTECH

TURBO AUTOSPRUE

5855-A

REV: A 09/01/2015

SHEET 1 / 2

2/12/2010

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	5852	1	TAS / RAV NOSE
2	5831	1	TAS CYLINDER
3	3265	2	O-RING
4	5829	1	TAS CYLINDER TOP
5	5825	1	SPRING
6	5835	1	TAS STROKE LIMITER
7	5827	1	UPPER SHAFT
8	5830	1	RAV/TAS PISTON
9	5836	1	SEAL
10	5828	1	LOWER SHAFT
11	5838	1	TAS-RAV BUSHING
12	6059	1	WASHER
13	5837	1	TAS/RAV NOSE SEAL
14	5832	1	TAS NOSE SCREW
15	5850	1	SET SCREW
16	07234	2	MALE POLY ELBOW
17	6004	2	O-RING
18	6578	1	O-RING
19	0645	1	SWIVEL ELBOW
20	5833	1	LOCKSERT
21	5834	1	LOCKSERT CLIP
22	MPM-2583-1	6 FT	TUBING
23	07226	1	MALE CONNECTOR
24	0462	1	FEMALE QD
25	PET-4MM-1	5 FT	TUBING
26	0627	1	TUBE FITTING
27	0681	1	QD STEM
28	6905	1	O-RING

MAGNUM VENUS PLASTECH

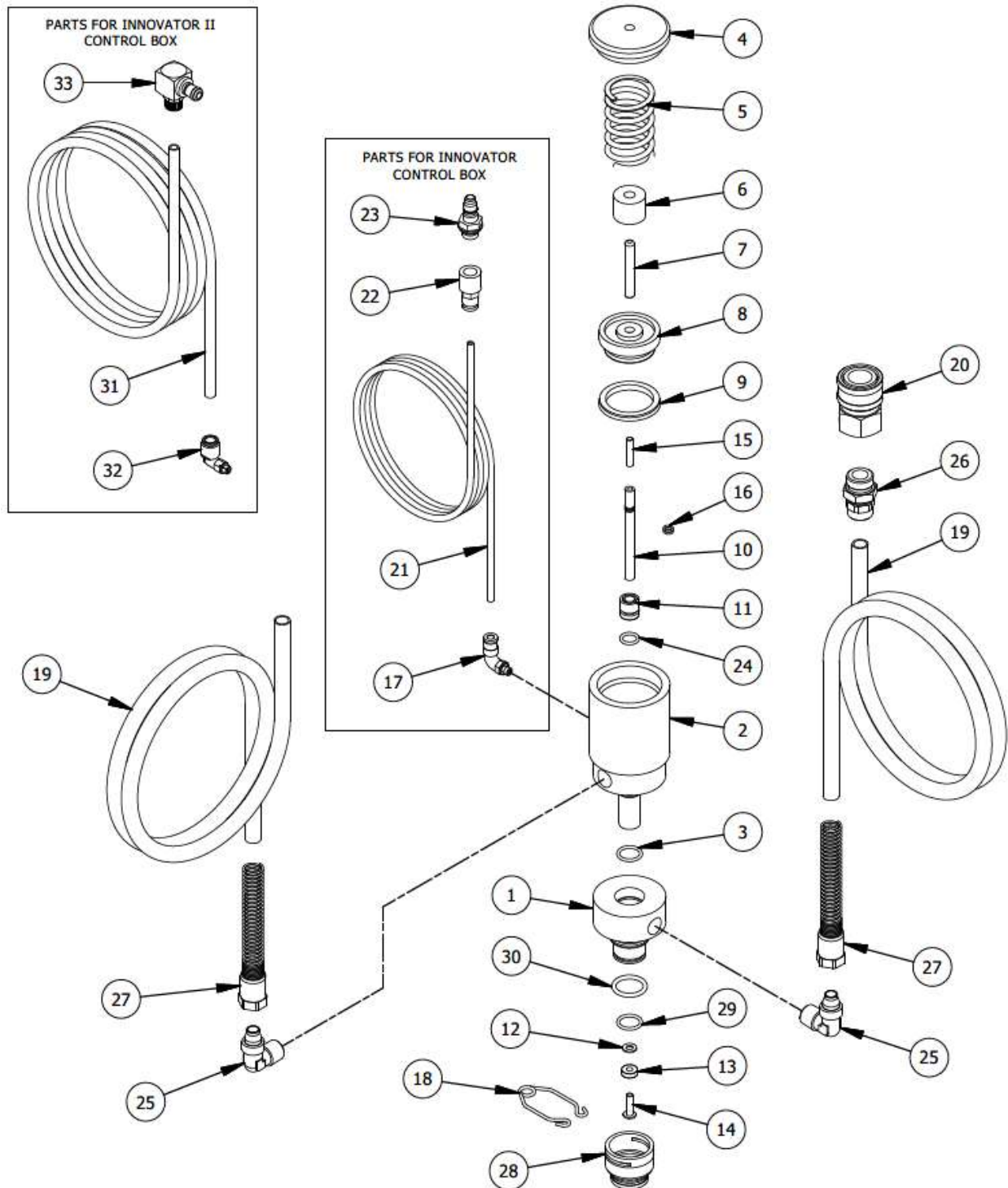
TURBO AUTOSPRUE

5855-A

REV:A 09/01/2015

SHEET 2 / 2

2/12/2010



MAGNUM VENUS PLASTECH

TURBO AUTOSPRUE

5855-INV2

REV:

SHEET 1 / 2

3/24/2016

Parts List			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	5852	1	TAS / RAV NOSE
2	5831	1	TAS CYLINDER
3	3265	1	O-RING
4	5829	1	TAS CYLINDER TOP
5	5825	1	SPRING
6	5835	1	TAS STROKE LIMITER
7	5827	1	UPPER SHAFT
8	5830	1	RAV/TAS PISTON
9	5836	1	SEAL
10	5828	1	LOWER SHAFT
11	5838	1	TAS-RAV BUSHING
12	6059	1	WASHER
13	5837	1	TAS/RAV NOSE SEAL
14	5832	1	TAS NOSE SCREW
15	5850	1	SET SCREW
16	6004	2	O-RING
17	0645	1	SWIVEL ELBOW
18	5834	1	LOCKSERT CLIP
19	0214	2	TUBING
20	0462	1	FEMALE QD
21	0207-FT	1	TUBING
22	0627	1	TUBE FITTING
23	0681	1	QD STEM
24	6905	1	O-RING
25	5715	2	FIXED MALE ELBOW
26	2575	1	TUBE FITTING
27	4231	2	ANTI KINK TUBE NUT
28	6300	1	UNIVERSAL ADAPTER
29	O-S-014	1	O-RING
30	4433	1	O-RING
31	09073	1	TUBING
32	06867	1	ELBOW
33	MVP-1020	1	QD COMPRESSION ELBOW

MAGNUM VENUS PLASTECH

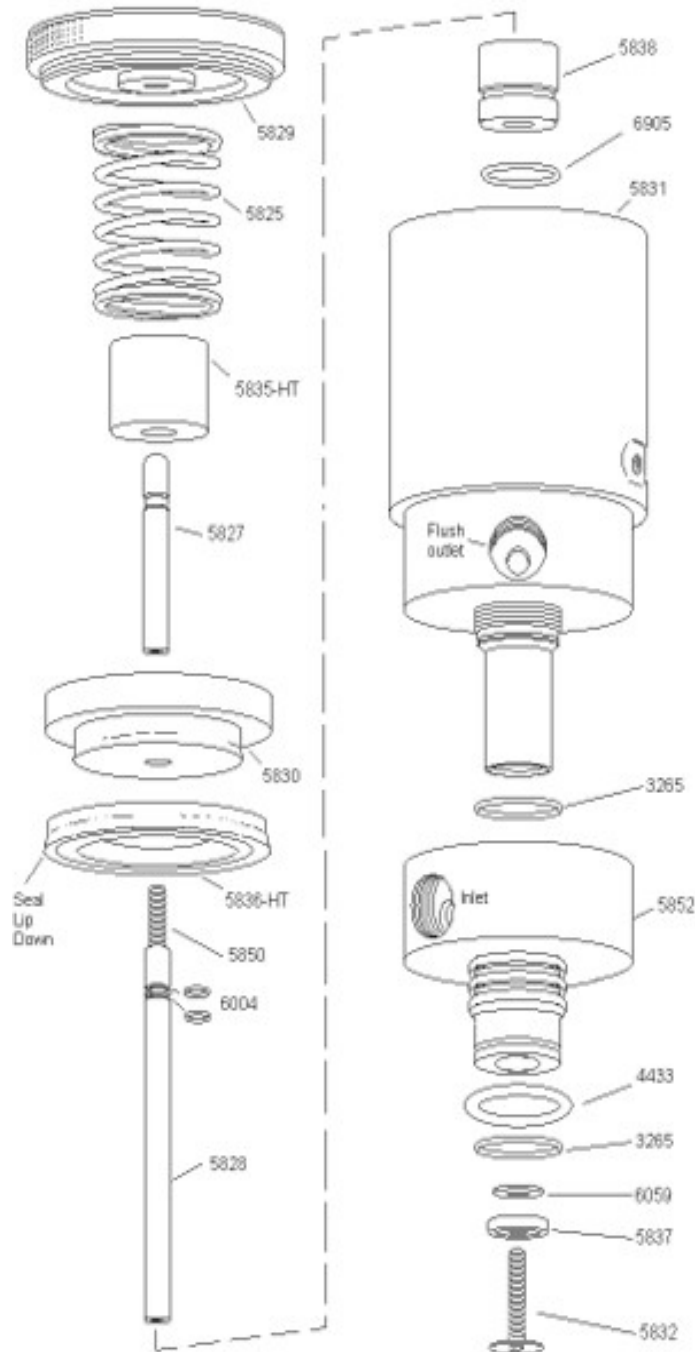
TURBO AUTOSPRUE

5855-INV2

REV:

SHEET 2 / 2

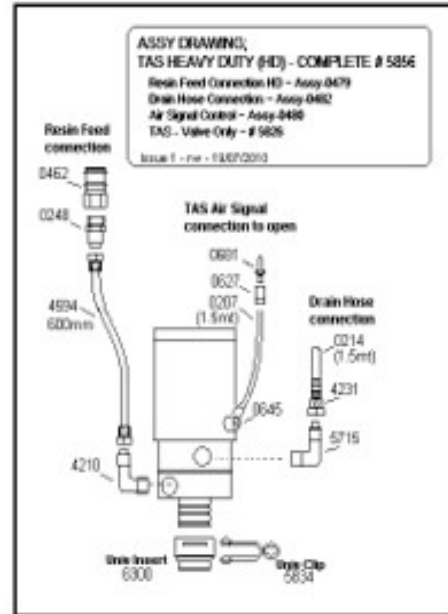
3/24/2016



Drawing Number Turbo Autosprue - High Temperature

Issue 01 rev 25/11/2011

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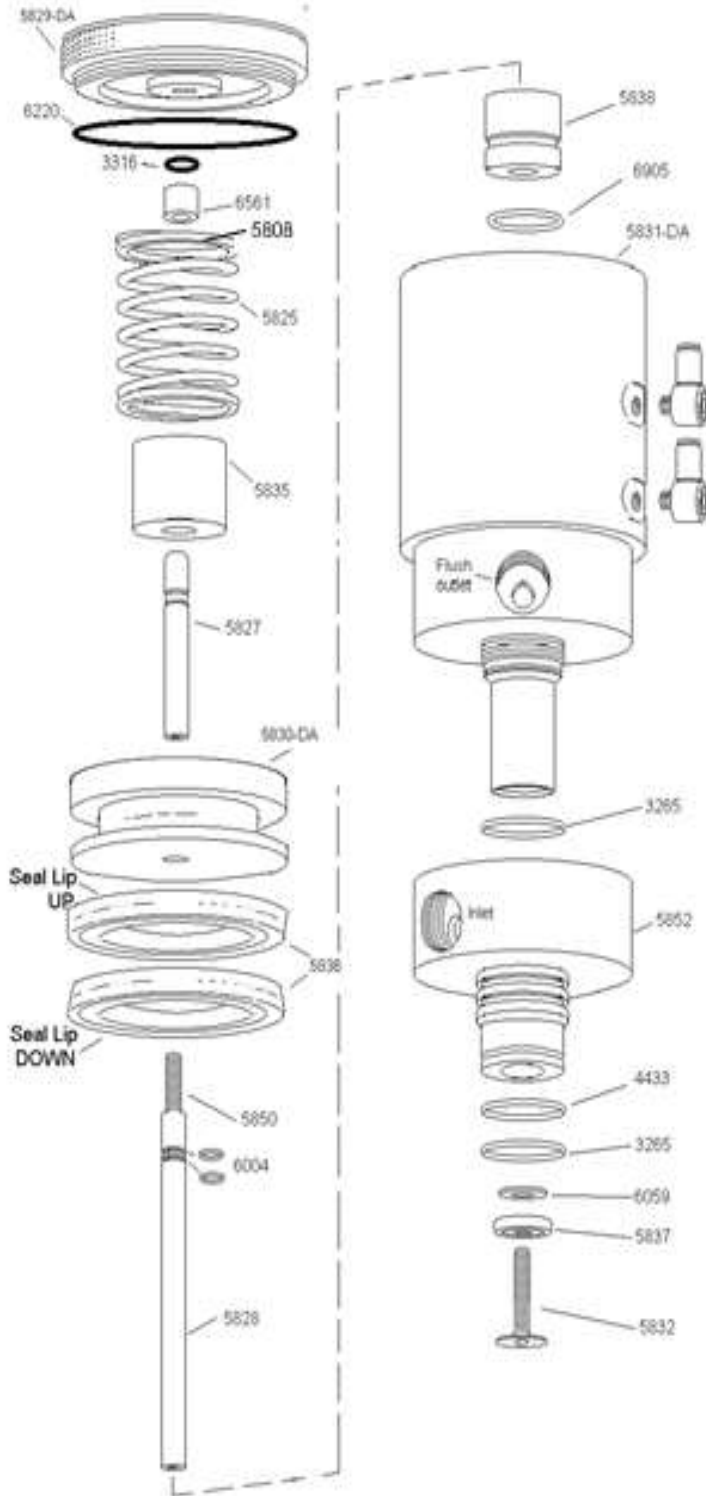


TAS-HT SPARES KIT #5858-HT

6905 x 1	0464 x 1
0645 x 1	4433 x 1
3265 x 3	6004 x 2
5836-HT x 1	5837 x 1

Part Number	Description
5829	Cylinder Top
5825	Spring
5835-HT	Stroke Limiter
5827	Upper Shaft
5830	Piston
* 5836-HT	Seal
5850	Set Screw
* 6004	O-ring
5828	Lower Shaft
5832	Nose Screw
* 5837	Nose Seal
6059	Washer
* 3265	O-ring
* 4433	O-ring
5852	TAS Nose
5831	TAS Cylinder
* 6905	O-ring
5838	TAS Bushing
0462	Fitting
0248	Union Fitting
4594	600 mm Tubing
4210	Elbow Fitting
6300	Universal Insert
5834	Locksert Clip
5715	Tube Elbow
4231	Anti-Kink Tube
0214	Tubing
* 0645	Swivel Elbow
0207	Tubing
0627	Tube Fitting
0681	Stem

* Denote parts included in spares kit



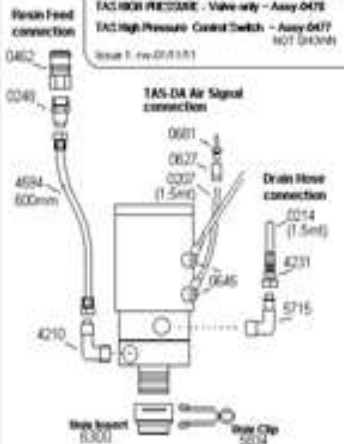
Drawing Number
Turbo Autosprue -
High Pressure/DA Assy

Issue 1 rev 01/01/01

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TAS HIGH PRESSURE - COMPLETE
#5856 HI PRESS DA

Heater Feed Connection - Assy 0479
 Drain Hose Connection - Assy 0482
 High Pressure Air Signal Connection - Assy 0478
 TAS HIGH PRESSURE - Valve only - Assy 0478
 TAS High Pressure Control Switch - Assy 0477
 Issue 1 rev 01/01/01



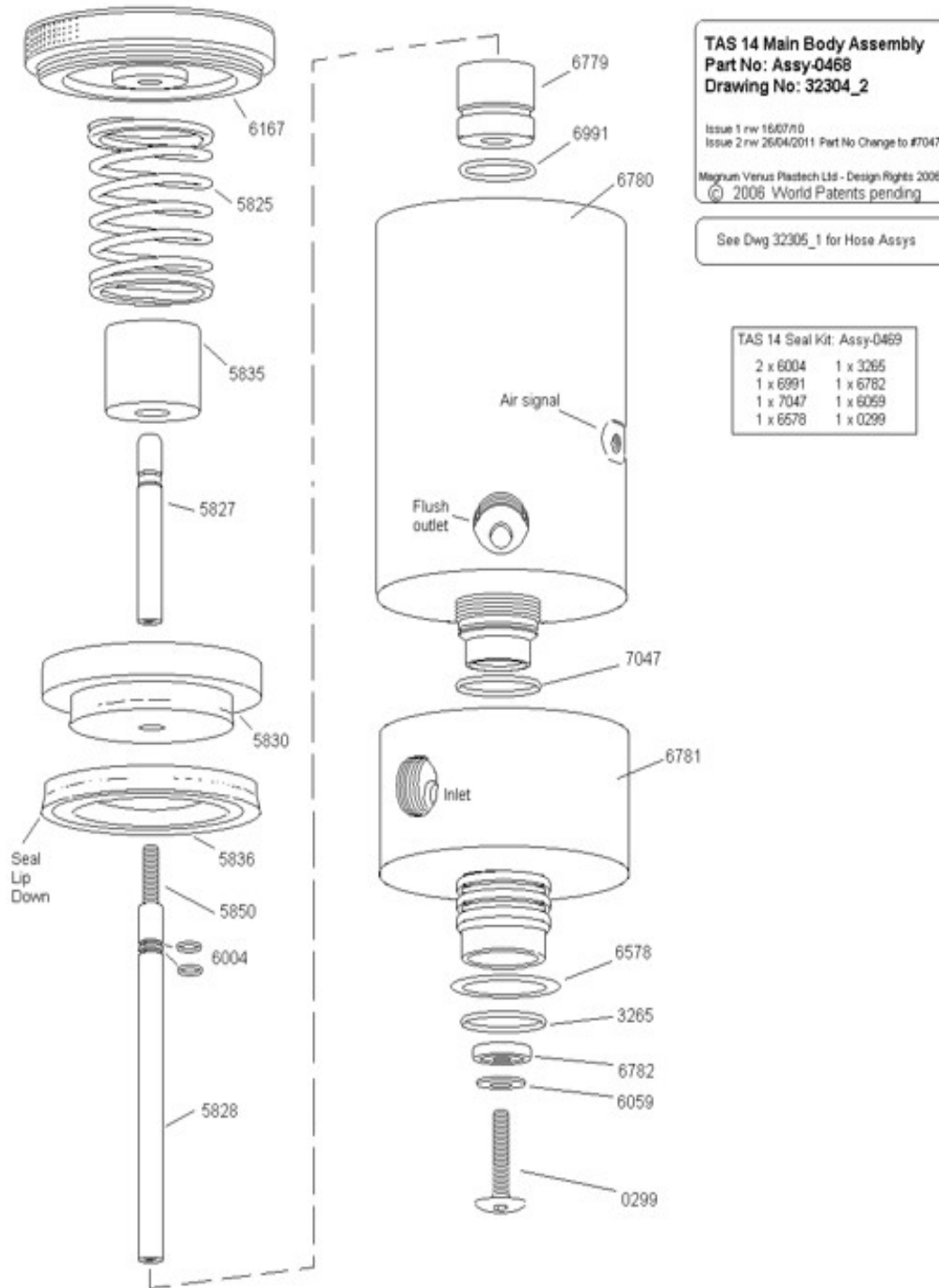
SPARES KIT:
TAS HIGH PRESSURE / DOUBLE ACTING
5856-HI PRESS DA

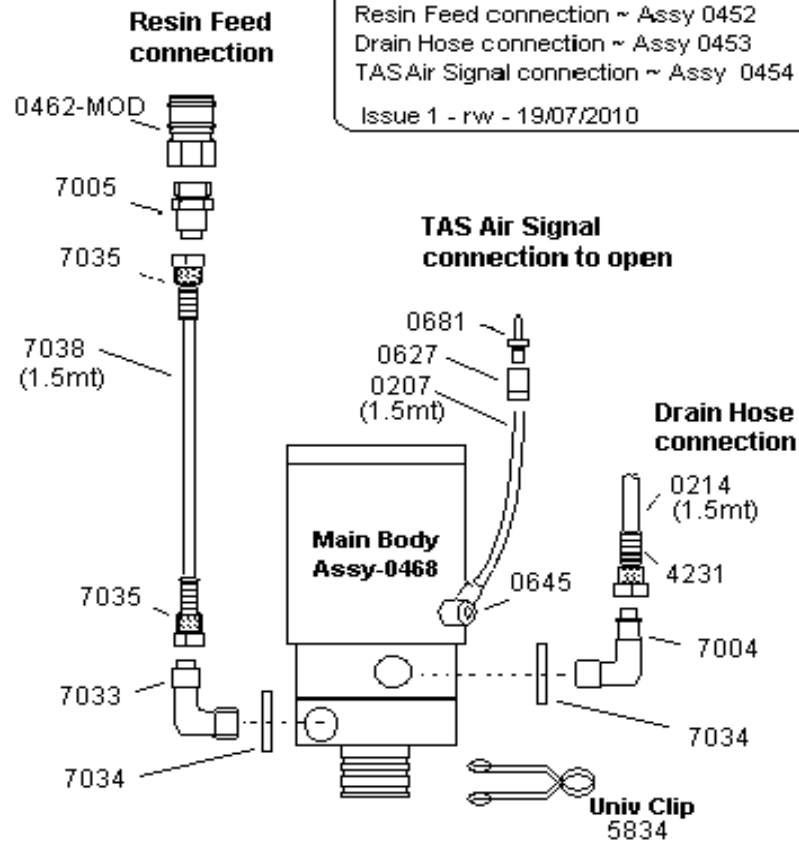
- 5837 x 1
- 3265 x 3
- 6004 x 2
- 5838 x 1
- 6220 x 1
- 3316 x 1
- 6005 x 1
- 0645 x 1
- 4433 x 1 (Replaces 6059)
- 0484 x 1

For details of Turbo Autosprue-HI Temp required to operate at temperatures higher than 120°C, Please contact your local Magnum Venus Products distributor.

	Part Number	Description
	5829-DA	Cylinder Top
*	6220	O-ring
*	3316	O-ring
	5808	TAS Double-Acting Piston
	5825	Spring
	5835	Stroke Limiter
	5827	Upper Shaft
	5830-DA	Piston
	5836	Seal
	5850	Set Screw
*	6004	O-ring
	5828	Lower Shaft
	5832	Nose Screw
*	5837	Nose Seal
	6059	Washer
*	3265	O-ring
*	4433	O-ring
	5852	TAS Nose
	3265	O-ring
	5831-DA	TAS Cylinder
*	6905	O-ring
*	5838	TAS Bushing
	0462	Fitting
	0248	Union Fitting
	4594	600 mm Tubing
	4210	Elbow Fitting
	6300	Universal Insert
	5834	Locksert Clip
	5715	Tube Elbow
	4231	Anti-Kink Tube
	0214	Tubing
	0645	Swivel Elbow
	0207	Tubing
	0627	Tube Fitting
	0681	Stem

*Denote parts included in spares kit





Part Number	Description
6167	Cylinder Top
5825	Compressed Spring
5835	Stroke Limiter
5827	Upper Shaft
5830	Piston
5836	Seal
5850	Set Screw
* 6004	O-ring
5828	Lower Shaft
* 0299	Hex Screw
* 6059	Washer
* 6782	Nose Seal
* 3265	O-ring
* 6578	O-ring
6781	Lower Nose Body
* 7047	O-ring
6780	TAS 14 Body
6991	O-ring
6779	Seal Bush
0462-MOD	Female Fitting
7005	Fitting
7035	Tube Fitting
7038	Tubing
7033	Elbow Fitting
7034	Bushing
5834	Universal Clip
7004	Elbow Fitting
4231	Fitting
0214	Tubing
0645	Fitting
0207	Tubing
0627	Tube Fitting
0681	Stem

*Denotes parts included in spares kit



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