# TECHNICAL MANUAL

## SEALVAC™ VACUUM DEFUELER

## SV/ SVU MODEL

## 200, 400, 600 Gallon Capacity

## (909, 1818, 2728 Litres)

| NSN | PART NUMBER |
|---|---|
| 2330-01-531-3495 | SVU 216 |
| 2330-01-531-3494 | SVU 416 |
| 2330-01-531-4213 | SVU 616 |

# SI AVIATION

**Spokane, Washington**

## SealVac™

## SV/ SVU

### ONE YEAR LIMITED WARRANTY

Seller warrants the 200, 400, 600 gallon SV/ SVU SealVac™ to be free from defects in material and workmanship under the normal use and service for which the unit is intended if, but only if the unit has been properly operated, maintained and stored in accordance with printed directions contained in the product manual. Our obligation under this Warranty shall be limited to the repair or exchange of SI manufactured equipment and parts which may prove defective within one year of the date the unit is put into service but shall in no event extend beyond a date three years from the date the unit is shipped from our plant. All transportation charges on parts returned to us for replacement under this warranty must be returned prepaid.

Other manufacturers' components warranties apply as their warranty reads.

This warranty does not extend to damage caused be environmental factors varying from normal design conditions, whether natural or man-made, or to units subjected to misuse, negligence or accident. This warranty likewise does not extend to the unit or any parts thereof which have been repaired or altered improperly or in any way so as to effect adversely its stability or reliability. This warranty does not cover parts or labor required to repair or replace parts whose usefulness is exhausted due to normal operation of the unit.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOT SET FORTH IN WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OR SELLER. SELLER SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL LOSS OR DAMAGE RESULTING FROM THE USE OR LOSS OF USE OF THE UNIT.**

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## Section 1.0 Specifications

| TABLE 1.0 SEALVAC™ SPECIFICATIONS 200 - 400 - 600 series | | | | | | |
|---|---|---|---|---|---|---|
| | 200 | | 400 | | 600 | |
| | SV | SVU | SV | SVU | SV | SVU |
| **DIMENSIONS Imperial / Metric** | | | | | | |
| LENGTH | 104" / 265 cm | 104" / 265 cm | 116" / 295 cm | 116" / 295 cm | 116" / 295 cm | 116" / 295 cm |
| WIDTH | 59" / 150 cm | 68" / 173 cm | 76" / 193 cm | 82" / 208 cm | 76" / 193 cm | 89" / 226 cm |
| HEIGHT | 52" / 132 cm | 55" / 140 cm | 54" / 137 cm | 57" / 145 cm | 59" / 150 cm | 62" / 158 cm |
| | | | | | | |
| **WEIGHT EMPTY Imperial / Metric** | **Pounds / Kilograms** | | | | | |
| SINGLE WALL | 1075 / 488 | Awaiting Data | 1450 / 658 | Awaiting Data | 1555 / 705 | Awaiting Data |
| DOUBLE WALL | 1350 / 613 | Awaiting Data | 1700 / 771 | Awaiting Data | 2085 / 946 | Awaiting Data |
| | | | | | | |
| **CAPACITY Imperial/ Metric** | 200 Gal. / 909 Ltr. | | 400 Gal. / 1818 Ltr. | | 600 Gal. / 2728 Ltr. | |
| | **Feet / Meters** | | | | | |
| **TURN RADIUS - Outside Wheels to Outside Wheels** | 28' / 8.5 M | | 31' / 9.5M | | Awaiting Data | |
| **Grounding Reel Cable Length** | 50' / 15.25 M | | 50' / 15.25 M | | 50' / 15.25 M | |
| **Ground Clearence** | 6" / 15.25 cm @ Tow Bar<br>8" / 20.25 cm @ axle | | 6" / 15.25 cm @ Tow Bar<br>8" / 20.25 cm @ axle | | 6" / 15.25 cm @ Tow Bar<br>8" / 20.25 cm @ axle | |
| **AIR SOURCE REQUIREMENTS -** | **IMPERIAL** - 60 CFM @ 90 PSI with 3/4" inner diameter supply air hose.<br>**METRIC** - 1.7 m³/min @ 6.2 bar with 19 mm inner diameter supply hose. | | | | | |
| | | | | | | |
| | 200 | | 400 | | 600 | |
| **Optional Equipment Items** | SV | SVU | SV | SVU | SV | SVU |
| | **Feet / Meters** | | | | | |
| Duplex Hose | **NA** | 35' / 10.6 M | **NA** | 35' / 10.6 M | **NA** | 35' / 10.6 M |
| Depuddle hose, inner diameter 3/4" / 19 mm | **NA** | 25' / 7.6 M | **NA** | 25' / 7.6 M | **NA** | 25' / 7.6 M |
| Depuddle hose, inner diameter 1 1/4" / 31.75 mm | 35' / 10.6 M<br>50' / 15,25 M | 35' / 10.6 M<br>50' / 15,25 M | 35' / 10.6 M<br>50' / 15,25 M | 35' / 10.6 M<br>50' / 15,25 M | 35' / 10.6 M<br>50' / 15,25 M | 35' / 10.6 M<br>50' / 15,25 M |

## Section 2.0 Safety Guidelines for HandiFueler™

**2.1** This manual contains guidelines and safety recommendations for use of the HandiFueler™. It is the responsibility of the end user to completely read this manual and comply with all local, state and federal laws and regulations applicable for using this equipment.

**2.2** Spokane Industries Inc. is not responsible for industry specific information on safety management, employment safety, health standards, safety codes, etc. Contact your local safety manager or industrial safety representative.

**NOTE:** Spokane Industries Inc. is not responsible for any modifications performed on this equipment. Modifications performed by user may result in an unsafe condition for equipment or personnel and void the manufacturers warranty.

**2.3** It is the responsibility of the end user to ensure persons operating this equipment:

- Are trained, authorized and permitted to use the equipment.

- Have physical and mental ability to operate this equipment safely.

- Are aware of the potential hazards associated with this equipment, including operating this equipment during adverse weather conditions.

- Do not attempt to move, service or adjust this equipment without another capable person present to provide assistance in the event of injury.

### Table 2.0 Other Suggested Safety Resources (USA only)

| | | |
|---|---|---|
| ANSI | American National Standards Institute | |
| OSHA | Occupational Safety & Health Administration | Hazardous Materials, Material Safety Data Sheets (MSDS), Lockout/Tagout, Confined Space, Fire Prevention, Personal Protective Equipment (PPE) |
| CFR | Certified Federal Regulations | |
| FAA | Federal Aviation Administration | |
| FAR | Federal Aviation Regulations | |
| NFPA | National Fire Protection Association | |
| | | |

**Always consult and follow local directives and guidance before dealing with any defueling operations.**

## Section 3.0 CONTROLS & INDICATORS

**3.1** The Controls and Indicators section is designed to provide a description of the various controls and indicators found on the SealVac™ .

### Table 3.0 CONTROLS & INDICATORS - SEALVAC™

### SV/ SVU Models - 200, 400, 600 gallon (909, 1818, 2728 Litres)

| | |
|---|---|
| Parking Brake Handle | Used to set park brake during operation and storage. |
| Tank Quantity gauge | Indicates level of the fluid inside the main tank. Located on top of the main tank. |
| Primary Vacuum Generator Handle | Turns Primary Vacuum Generator on and off. Handle located on Sediment chamber cover, allows air to Primary Vacuum Generator. Mechanically connected to the Auto-Vac Shutoff system . **See Fig. 6 & Fig. 6.3 # 17** |
| Primary Vacuum Generator, 1 each. | Venturi affect Vacuum for main tank. Provides vacuum to; defueling hose of the Duplex hose assembly, Fuel Probe, and Depuddle hose. Located on top of Sediment chamber cover, underneath shroud. Manual On/ Off operation with Auto-Shutoff safety feature. **See Fig. 6, # 15** |
| Secondary Vacuum valves. 2 each | Provides separate On/ Off control for either left or right system. Located forward of Sediment Chamber cover. **See Fig. 6.5** |
| Secondary Vacuum generators, 2 each. Left and right systems, (2 connections per system) | Venturi affect continuous vacuum when external air source is provided . Provides vacuum to; vacuum line in Duplex Hose Assembly and Suction Plates. Located on top of sediment chamber cover, underneath shroud. **See Fig. 6.4 , #3** |
| Fuel Recovery valves, 4 each. | Mechanical connection point for defueling hose of the Duplex hose assembly. Located on top of Sediment Chamber cover, along the perimeter . **See Fig. 6, #1,2,3,4 (as assembly)** |
| Depuddle/ Utility hose valve, 1 each | Mechanical connection point for using Depuddle hose. Uses camlock style hose connection. **See Fig. 6, #8, 9, 10** |
| Depuddle/ Utility hose | Open end, general purpose hose. Used to remove surface fluids or fluids in other containers. **See Fig. 15 & 16** |
| Auto- Shutoff Assembly | Turns off Primary Vacuum Generator when tank fluid level reaches approximately 5-6 inches (12.5 -15cm) from top of tank. **See Fig. 7** |

**Table 3.0 Controls and Indicators,** continued

| | |
|---|---|
| Auto Shutoff Bypass Valve | Allows user to bypass air signal from Auto Shutoff valve assembly that pressurizes linear actuator mounted to the Primary Vacuum Generator On/ Off handle. **See Fig.6.3, # 9** |
| Vacuum Regulator/Relief Assembly | Regulates the internal vacuum for the main tank and defueling hose of the Duplex Hose assembly. Set at 8 in. mg. Regulator is preset during manufacture, there is **NO** adjustment allowed. **See Fig. 6, # 17, 18** |
| Alignment Tool | Used to align Suction Plate Fuel Probe port with center of sump drain**. See Fig. #17** |
| Suction Plate Assembly**,** 3 different versions **Round** | Used as a general purpose Suction plate, designed for surfaces with minor obstructions or imperfections. All 3 connect to the vacuum hose of the Duplex Hose assembly. **See Figs. 10** |
| **Oval** | Used to bridge imperfections such as rivets or panel seams near sump drain that may affect sealing ability of suction plate. **See Fig. 11** |
| **Elongated** | Slightly longer than Oval Plate, used to bridge imperfections such as rivets or panel seams near sump drain that may affect sealing ability of suction plate. **See Fig. 12** |
| | All Suction Plates come with 2 knife edge Viton seals. One adheres the Suction Plate to the surface, the other increases surface adhesion and creates a fluid seal around the Fuel Probe during operation. |
| Duplex Hose Assembly | Consists of 2 hoses that are mechanically housed as one unit. One hose is the main de-fueling hose, the other hose provides vacuum. Each hose connects to the SealVac™ on one end, the other ends connect to the Fuel Probe and Suction Plate assemblies. |
| Fuel Probe and Hose Assembly | Inserts into Suction Plate, manually adjusted pin raises sump drain to release fuel. Connects to end of Duplex Hose. Contains clear hose section for visual verification. Vacuum release valve allows air for fluid evacuation of defueling hose. **See Fig, 13** |
| Sediment Chamber Screen | A steel perforated screen located beneath the Primary Vacuum Generator. Used to collect foreign matter before fluid enters the main tank. Must remove Sediment cover to access screen. |
| Low Point Drain Valve Assembly | Drains tank when tank reaches maximum capacity. See **Fig. 2, # 5, 6, 7** |
| Telescoping Funnel Isolation Valve | Telescoping funnel is gravity feed only. Valve isolates funnel assembly during SealVac™ Operations. **See Fig. 2, #6** |

## Section 4.0 BASIC OPERATION OF SEALVAC™

**4.1** This section contains information necessary for the operation and maintenance of the SealVac™. The SealVac™ is designed to provide a portable, safe, self-contained, de -fueling system for the aviation industry.

**4.2** **Pre-Towing the SealVac™.** Items in Table 4.0 need to be accomplished before towing the SealVac™ .

### Table 4.0 PRE-TOWING SAFETY CHECKLIST

| ITEM DESCRIPTION | PRE-TOWING CHECK | VISUAL INSPECTION | CORRECTIVE ACTION |
|---|---|---|---|
| **Tires, Tire Pressure** | | Check for damage and proper tire inflation. | Replace tire if damaged. Inflate to manufacturers specifications on tire sidewall |
| **Brakes** | | Ensure BRAKE handle is in the OFF position | |
| **Tank** | | Visually inspect for cracks or leaks. Ensure tank is securely fastened to the rolling undercarriage. Check that Manway cover is closed and latched. | Repair cracks or leaks before use. Tighten fasteners if loose. |
| **Hoses, Grounding Clamps and wires** | | Ensure all hoses and ground wires clamps are secured for transportation. Inspect hoses, clamps and wires for serviceability. | Replace hoses, grounding clamps or wires before use if found to be beyond repair. |
| **Valves** | | Visually inspect to ensure all valves are in the closed position. Check for leaks. | Close all valves. If leaks are found, repair or replace item before using. |
| **Storage Boxes** | | Ensure boxes are secured to mounting rails, internal items are secured for transportation, hinged covers are closed and latched, no items are on top of latched covers. | Tighten mounting hardware, store internal items to prevent damage to seals, close and latch covers, remove items on top of covers. |

**4.3 Operational Definitions.**

**CAUTION** Indicates an operation or condition that, if not observed, could result in equipment or property damage.

**WARNING** Indicates an operation or condition that, if not observed, could result in possible injury or death.

**4.4 Preparation for Use**

**ALL -** Ensure availability of an air supply unit capable of providing 60 CFM @ 90 PSI (1.7 $m^3$/min @ 6.9 bar) during the defueling process. Unit must be able to maintain continuous operation during de-fueling process.

**ALL -** Inspect Duplex hose, Vacuum hose assemblies and depuddle hoses for cuts, cracks and wear. Any conditions that affect safety to personnel or operation or the SealVac™ requires that affected hose be replaced.

**SVU -** Inspect suction plate knife edge Viton seal surfaces for deformity or damage caused during storage. Deformed seals can be re-formed by hand, seals with cuts need to be replaced.

**SVU -** Inspect vacuum line On/ Off valve at the suction plate, ensure valve is securely threaded into suction plate, tighten if necessary. A loose On/ Off valve will affect suction plate adhesion.

**SVU -** Ensure all valves for Duplex hose assemblies operate smoothly and can be positioned in the full OPEN and CLOSED positions. If valves can not be fully opened or closed, determine cause and either repair or replace valve as necessary.

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## 4.5 FUEL PROBE ASSEMBLY PIN HEIGHT ADJUSTMENT: SVU Only

Due to the variety of fuel drain sump design and locations it will be necessary to adjust the height of the fuel probe pin. There is no exact measurement that can be used for all, but once the fuel probe pin height has been set it will usually work on most locations on one particular aircraft. Each SealVac™ comes with a pin kit which has two types of pins; straight and button head, in a variety of lengths. The straight pin will be the most common, the button head style should be used on larger diameter drain sumps. Other than the initial pin setting, the following procedures will need to be performed while actually performing the de-fueling process. Fuel Probe installation and removal, Section 4.6, steps 17 and 18, will be where the adjustments are made.

1. Install the shortest straight pin from the pin kit, ensure pin is seated into fuel probe end but do not over tighten, you may have to remove it.

2. After inserting the fuel probe (4.6 step 17) look through the transparent hose section to see if you have fuel flow:

   A. **No Flow** : No Fuel — no change in clear window.
   B. **Low Flow** : Low Fuel flow — Small streams of fuel running down the inside of the clear hose.
   C. **Normal Flow** : Clear steady flow.

   If No Flow or Low Flow are indicated, remove hose (4.6 step 18) and change the pin for the next longer length. **DO NOT** increase the length by more than one pin length at a time, too long of a pin may damage the sump drain and possibly cause sump drain to stay in the open position.

3. After pin change, insert fuel probe, pay attention to the initial flow, this will help determine the difference between air trapped during installation and a low flow condition. Slowly increase pin lengths until you see the fuel start flowing through the clear hose as a solid/ steady fluid. Once this is establish, you have set the proper pin length. After defueling, with the fuel probe removed, secure the pin but **DO NOT** over tighten, the pin may have to be removed in the future.

*Section 4, Operation of SealVac™ continued next page*

### 4.6 DEFUELING OPERATION: SVU Only, SV models begin at step 4.8

**CAUTION:** Before using the SealVac™ for de-fueling operations, ensure the SealVac™ has been drained or has the capacity for the amount of fuel to be defueled.

1. Position SealVac™ and set parking brake.
2. Ground SealVac™ to approved grounding points.
3. Connect air source to SealVac™ air connection **(see Fig. 6)**
4. Remove Duplex defueling hoses, fuel probes and suction plates from storage, lay Duplex hoses on the ground and straighten.
5. Connect Duplex Hose defueling end to any fuel recovery valve quick disconnect **(See Fig. 6, #4)**
6. Connect fuel probe assembly to opposite end of Duplex hose, ensure probe pin is securely threaded into end of probe.
7. Connect Duplex Hose vacuum line to secondary Vacuum connector on SealVac™ vacuum cover **(See Fig. 6.5)**
8. Turn on air source.
9. Open appropriate fuel recovery valves and secondary vacuum valves.
10. Open Primary Vacuum Generator valve **(Fig. 6 )**
11. Connect suction plate vacuum line to vacuum line on end of duplex hose.
12. Test for vacuum at Suction Plate by moving vacuum slide valve towards suction plate, you should hear air movement. **(See Fig.11, # 4).**
    If no sound is present, determine cause.
    **See Troubleshooting, Table, 6.1**
13. Transport suction plate, petroleum jelly, alignment tool and duplex hose to defuel location.

**WARNING:** If working on an elevated maintenance platform, attach duplex hose hanger strap to maintenance platform to reduce weight pulling on the Suction Plate.

14. Apply a thin coating of petroleum jelly to the knife edge viton seal on the Suction Plate face.
15. Insert alignment tool into suction plate, turn it 90º. Turn on vacuum by moving vacuum valve towards suction plate. Slightly tilt the plate, visually align probe tip with center of sump drain, level suction plate with surface and press firmly with alignment tool and against plate body.
16. Turn alignment tool 90º opposite and remove.

**CAUTION:** Ensure Primary Vacuum generator is ON, fluid will flow immediately when Fuel Probe is inserted. Suction affect from Fuel Probe increases Suction Plate seal to surface, ensuring fluid drains into Fuel Probe end.

4.6 *defueling, continued on next page*

*4.6 defueling operation continued*

17. Lubricate Fuel Probe O-ring with petroleum jelly and insert into suction plate fully, turn 90º to lock. Fluid will flow immediately when probe is inserted.

18. **Fuel Probe Removal** -

**During defueling** -To remove Fuel Probe during defueling operations before fuel tank is empty, simply depress vacuum relief valve **(See Fig. 13, #9)** on the side of the fuel probe tip. Turn Fuel Probe 90º opposite, and slowly remove Fuel Probe from Suction Plate. Ensure drain sump has closed completely, capture any residual fuel during removal. Hold vacuum relief valve to remove residual fuel in hose length.

**Empty Tank** - Monitor clear hose on Fuel Probe, air will begin coming through Fuel Probe when fuel tank becomes empty. Depress vacuum relief valve on the side of the fuel probe tip. Turn Fuel Probe 90º opposite, and slowly remove Fuel Probe from Suction Plate. Hold vacuum relief valve to remove residual fuel in hose length.

19. To remove Suction Plate hold firmly and release vacuum.
20. Clean residual fuel and petroleum jelly left on sealing surfaces.
21. Turn off Primary an Secondary Vacuum generators.
22. Turn off air source
23. Close all valves.
24. Return Suction Plates and Fuel Probes into storage boxes, Duplex hoses onto hose hangars.

**4.7 AUTO-SHUT OFF and BYPASS VALVE OPERATION** The SealVac™ is equipped with an Auto-Shut off for over flow protection. Consisting of a intern float sensor that sends air to an actuator when the float rises. The actuator is connected to the Primary Vacuum control handle. When the actuator is pressurized it moves the control handle to the “OFF” position. If Auto-Shut off is activated it means the main tank needs to be drained. There is no bypass for the SV models. The SVU Bypass Valve allows the users to temporarily override the Auto-Shut off function. User can then cease defueling, remove the Fuel Probe from the suction plate and clear the defueling hose of residual fuel. Two persons are required to operate the Bypass Valve, one activates and holds the valve, the other removes the Fuel Probe and depresses the Fuel Probe relief valve.

**After Auto-Shutoff has activated: SV model**

The SV model is a simple system. When the Auto-shutoff has activated the actuator to close air flow to the primary vacuum generator, the defuel/ depuddling operation is terminated unit the tank can be drained. There are no bypass mechanisms.

*SVU model bypass Valve Operation Continued on next page*

*4.7 Bypass Valve Operation Continued*,

**After Auto-Shut has activated: SVU model**

Person #1 stands near the Auto-Shut off bypass valve, **See Fig. 6.3**
Person #2, located at suction plate used during defueling.

1. Ensure air source is on, Primary vacuum handle will be "OFF"
2. Depress Bypass Valve button, holding it in during entire operation.
3. Turn "ON" Primary Vacuum, pushing handle forward, do not hold it.
4. Depress and hold Vacuum Relief valve on fuel probe.
5. Turn Fuel Probe 90º and slowly remove, holding Vacuum Relief Valve.
6. When Probe is totally removed, release Relief Valve.
7. Keep probe elevated until Defueling Hose has had enough time to be totally drained, usually 10-20 seconds.
8. Repeat steps if more than one suction plate was used for defueling.
9. With all defueling hoses drained, release Bypass Valve.
10 Auto-Shut Off will move Primary Vacuum handle to the "OFF" position.
11. Restore all equipment to the stored configuration.

**4.8 Depuddle Hose - Small diameter, SVU model** (optional equipment) **Fig.15**

1. Position SealVac™ and set parking brake.
2. Ground SealVac™ to approved grounding points.
3. Connect air source to SealVac™ air connection. **(See Fig. 6)**
4. Connect depuddle hose to defueling valve quick disconnect **(Fig. 6, #4)**

**(Hose may be added to end of Duplex hose for additional length)**

5. Turn on air source
6. Open Primary Vacuum Generator valve by pushing handle. **(See Fig.6)**
7. Open defueling valve
8. Hose is ready for fluid removal.

**Depuddle/ Utility Hose - Large diameter, SV** (SVU optional equipment) **Fig. 16**

**CAUTION:** Due to the size and open end of the Depuddle hose user should be cautious not to ingest foreign matter that could possibly clog hose or valve. If hose is continually used, large foreign matter may build up on sediment chamber screen faster than normal, requiring shorter inspection intervals for the sediment chamber area.

1. Position SealVac™ and set parking brake.
2. Ground SealVac™ to approved grounding points.
3. Connect air source to SealVac™ air connection. **(See Fig. 6)**
4. Connect hose end to the camlock attachment provided on top the sediment chamber cover. **(See Fig. 6, #9)**
5. Turn on air source.
6. Open Primary Vacuum Generator valve by pushing handle **(See Fig.6)**
7. Open valve at connection to Depuddle hose. **(See Fig. 6, #8)**
8. Hose is ready for fluid removal.

**4.9 Telescoping funnel operation -** (optional equipment)

The telescoping funnel is designed as a gravity feed system, no additional support equipment is needed. The telescoping sections have been isolated internally from the SealVac™ vacuum system. This design, along with the funnel valve, allows normal SealVac™ operation without excess air coming through the funnel assembly. Use of the telescoping funnel is achieved by extending the sections to the height required and opening the funnel valve to allow the fluid to enter the tank. The Primary and/ or Secondary Vacuum generators are **NOT** used during funnel operations.

**CAUTION:** Before using the SealVac™ for de-fueling operations, ensure the SealVac™ has been drained or has the capacity for the amount of fuel to be defueled.

1. Position SealVac™ telescoping funnel under drain.
2. Ground SealVac™ to approved grounding points.

**WARNING** Raising telescoping funnel sections creates a pinch hazard for hands. Ensure sections are handled securely during the lifting process and that clamps are securely tightened before extending the next section.

3. Open cover on top of funnel, clean screen if necessary.
4. Extend funnel by raising upper section first, tightening clamp securely. Extend next section, if needed, and tighten clamp securely.
5. Open funnel isolation valve, inline with plumbing. **See Fig. 2**
6. Begin defuel process.
7. When finished, close funnel isolation valve.
8. Lower funnel sections in reverse order.
9. Close and secure funnel cover.

**4.10 Draining the Main Tank - Refer to Fig. 2**

1. Position SealVac™ near or over approved drain receptacle.
2. Ground SealVac™ to approved grounding points.
3. Remove valve cam lock plug. **Item # 5**
4. Open Bottom drain valve slowly.
5. Drain Completely.
6. Close drain valve, remove and store depuddle hose if used and replace protective cap.

## SECTION 5.0 SV/SVU INSPECTION AND MAINTENANCE

**5.1** This section provides the basic requirements to maintain the SealVac™. Take care to store all product manuals for future reference.

**Table 5.0 Inspection Intervals and Component Maintenance Guide**

### INSPECT BEFORE EACH USE

| Component | Area | Inspection | Corrective Action |
|---|---|---|---|
| Tires | Tread wear<br>Tire Pressure | Minimum Tread - 1/16 inch (1.5 mm)<br>See tire sidewall for correct tire pressure | Replace tire<br>Inflate to specifications |
| Tow Bar | Attachment pin<br>Hinge point | Pin is secured with retaining clip<br>Hinge point for signs of wear or cracking | <br>Weld repair or replace |
| Defueling Valves **Fig.6, # 2** | Handles for freedom of movement | Inspect internally for obstructions, check internal ball for smoothness. | Replace valve if movement is restricted |
| Duplex Hose Assembly **Fig. 14** | Defuel/ vacuum hoses<br>Hose connections | Check hoses for any damage<br>General condition | Replace hose<br>Replace if in-operative |
| Suction Plate Assemblies **Figs. 10, 11, 12** | Viton Seals<br>Fuel probe port<br>Vacuum hose | Check for cuts<br>Check port for deformation, metal particles<br>Check hose for cuts<br>On/ Off valve for freedom of movement. | Replace seal<br>Remove metal particles<br>Replace cut hoses<br>Replace valve/hose assembly |
| Fuel Probe Assembly **Fig.13** | O-Ring<br>Pressure Relief valve | Cuts or wear<br>Verify In/ Out movement | Replace O-Ring<br>Replace Relief Valve |
| Main Tank | External Tank<br>Welds<br>Hardware | Check for damage, cracks, leakage<br>Check for cracks, leakage<br>Mount hardware for security to chassis | **STOP**-Call manufacturer for guidance.<br>Tighten mount hardware |

*Inspection and Maintenance continued next page*

*Inspection and Maintenance continued,*

**Table 5.**

## INSPECT ANNUALLY

| Component | Area | Inspection | Corrective Action |
|---|---|---|---|
| Sediment Chamber | Screen | Check screen area for items that have been collected during defueling or depud-dle operations. Analyze if unknown origin. | Remove all items collected on screen. |
| Sediment Chamber | Foam rubber seal | Inspect seal for cuts (due to compression), tears, missing material | Replace seal if vacuum operation begins to deteriorate. |
| Main Tank | Internal/ External | Drain tank, ventilate, accomplish thorough internal and external inspection of all seams, welds and general tank condition. **Follow Local Tank Entry Procedures.** | **STOP**-If repairs are needed, call manufacturer first for guidance. |
| Wheels | Bearings | Inspect bearings for indications of abnormal wear, or metal flaking. Ensure bearings are properly lubricated. | Replace if necessary. Repack bearings with approved wheel bearing grease. |
| Funnel | Foam rubber seal **See Fig. 8.1, #4** | Inspect seal for cuts, tears, missing material | Replace seal if operation is affected. |
| Static grounding Reels | Cable<br><br>Mount hardware | Perform Ohms check between SealVac™ and bonded cable end.<br>Check for security of mounting hardware. | 25 Ohms Max, if higher replace reel assembly.<br>Tighten if necessary. |
| Brakes/ linkage | Brakes.<br>Brake linkage cross-over shaft. | Ensure brakes maintain proper holding capability.<br>Grease zerks on both sides. **See Fig. 4.A** | Adjust if necessary, see maintenance-**Sect.5.2.1**<br>Grease with general purpose grease. |

*Maintenance continued next page*

## SECTION 5.0 MAINTENANCE, *continued*

**5.2** The chassis and tank of the SealVac™ requires minimal preventive maintenance. The steering arm and steering spindles use Oil Lite bronze bushings which require **NO** lubrication.

### 5.2.1 BRAKE ADJUSTMENT. SV/ SVU Refer to figure 4.3

1. Loosen jam nut on brake linkage at rear brake assembly. **Fig. 4.3**, **#7**
2. Remove cotter pin and clevis pin. **Fig. 4.3, #1 & 2**
3. Raise clevis off of brake cam lever.
4. Turn yoke end one turn to shorten rod length. **Fig.4.3, # 8**
5 Re-align clevis with brake cam lever, temporarily reinstall clevis pin.
6. Test adjustment for proper brake lever tension, repeat step 4 if necessary.
7. Once proper adjustment is determined align clevis with brake cam lever and insert clevis pin.
8. Tighten jam nut on brake linkage.
9. Install new cotter pin into clevis pin and bend cotter pin ends.

### 5.2.2 SEDIMENT CHAMBER COVER REMOVAL/ INSTALLATION - SV/ SVU See Fig. 6, #14

**Removal**

1. Ground SealVac™ unit to approved grounding point.
2. Release rubber hold down straps around perimeter.
3. Verify all hoses are disconnected from quick disconnect points.
4. Disconnect ground wire between cover and sediment chamber side.
5. With assistance, slowly raise cover until it clears the sediment chamber.
6. Place cover on ground or table, do not damage lower tubing assemblies.
7. Inspect Chamber screen for objects or damage, clean if necessary.

**INSTALLATION**

1. Ensure SealVac™ is grounded to approved ground points before installing cover.
2. Inspect under side of cover for damage, repair if necessary.
3. Inspect foam rubber seal around chamber opening, a bad seal will adversely affect the primary vacuum capability.
4. With assistance, raise cover over chamber area and align.
5. Slowly lower cover, align large rubber hose with metal tubing inside chamber, ensure hose slides over metal tubing.
6. Ensure cover is flat against chamber edge, attach rubber straps.
7. Connect ground wire between cover and sediment chamber side.

## SECTION 6.0 TROUBLESHOOTING THE SEALVAC™

**6.1** The following troubleshooting guidelines are designed to cover most common types of problems with probable solutions to repair the condition.

### Table 6.0

**NO OR LOW PRIMARY VACUUM AT DEFUELING PROBE**

| POSSIBLE CAUSE | CORRECTIVE ACTION |
|---|---|
| Fuel tank being defueled is empty. | |
| Fuel tank being defueled is not vented | Verify tank is vented, check maintenance preparation for tank being defueled. |
| Primary air source not operating, outlet valve closed or unit is not providing required air pressure/ volume. | Ensure air source is operating, outlet valve is open and unit is providing required air. |
| Fuel probe pin length too short, bent or missing. | Verify pin is installed, no defects and re-accomplish Pin Height adjustment, **Sect 4.5** |
| Defuel valve not opened completely. | Verify "OPEN" position, ensure handle slide lock is not blocking handle position. **Fig. 6, #2** |
| Defueling hose disconnected at defueling valve. | Verify hose is connected and valve is "OPEN". **Fig. 6, #4** |
| Defueling hose is plugged, pinched, or has cuts or holes. | Inspect for damage or obstructions. Replace hose if damaged, remove obstructions if possible. |
| Other duplex hose/ fuel probe assemblies are connected with the defuel valves open, but are drawing air into hoses. | Close defueling valves for duplex hose assemblies not performing defuel functions. |
| Funnel isolation valve is open. | Close funnel isolation valve. **Fig. 2** |
| Sediment chamber cover foam gasket is leaking. | Remove sediment chamber cover and inspect gasket condition, replace if necessary. **Fig. 6, #16** |
| Sediment chamber screen is plugged with foreign matter. | Remove sediment chamber cover and inspect screen, remove foreign material if necessary. **Fig.6, # 14** |
| Fluid Level indicator lose. | Check security of liquid level indicator, reseal with thread sealer and tighten if necessary. |
| **COLD CLIMATES -** | |
| Possible frozen water in defueling drain system from previous defueling operations. | Use approved non-flammable hot air heater to thaw affected pieces. Bring indoors if necessary to thaw if no heater is available. |
| Possible frozen water in air source line caused by migrating condensation from air source tank | Use approved non-flammable hot air heater to thaw affected pieces. Bring indoors if necessary to thaw if no heater is available. |
| Primary Vacuum Generator silencer is frozen from moisture buildup. | Use approved non-flammable hot air heater to thaw affected pieces. Bring indoors if necessary to thaw if no heater is available. |

## SECTION 6.0 TROUBLESHOOTING THE SEALVAC™

### Table 6.1

**NO OR LOW SECONDARY VACUUM AT SUCTION PLATE**

| POSSIBLE CAUSE | CORRECTIVE ACTION |
|---|---|
| Primary air source is not running, outlet valve closed, not connected to SealVac™ . | Ensure air source is running, outlet valve is open and hose is connected to SealVac™ . |
| Secondary vacuum valves in the "OFF" position. | Open corresponding secondary vacuum valve. **Fig. 6.5** |
| Suction Plate vacuum hose ON/ OFF slide valve in the OFF position.. | Slide valve towards suction plate, the "ON" position. **Fig. 10, # 6** |
| Vacuum hose, of the Duplex hose assembly, not connected at SealVac™ or to Suction Plate hose. | Verify vacuum hose connection at SealVac™ and suction plate hose connection. |
| Check suction plate Viton Seal condition, check for cuts/ deformities, knife edge seal properly inserted into plate. | Replace seals with cuts or deformities that affect adhesion. Install seal into seal groove evenly. |
| Small black nylon air supply lines to secondary vacuum generators disconnected. | Check lines for security and leaks. |
| Secondary vacuum silencer exit is plugged or covered. | Remove any obstructions. **Fig. 6.4, #5** |

## SECTION 7.0 PARTS BREAKDOWN FIGURES

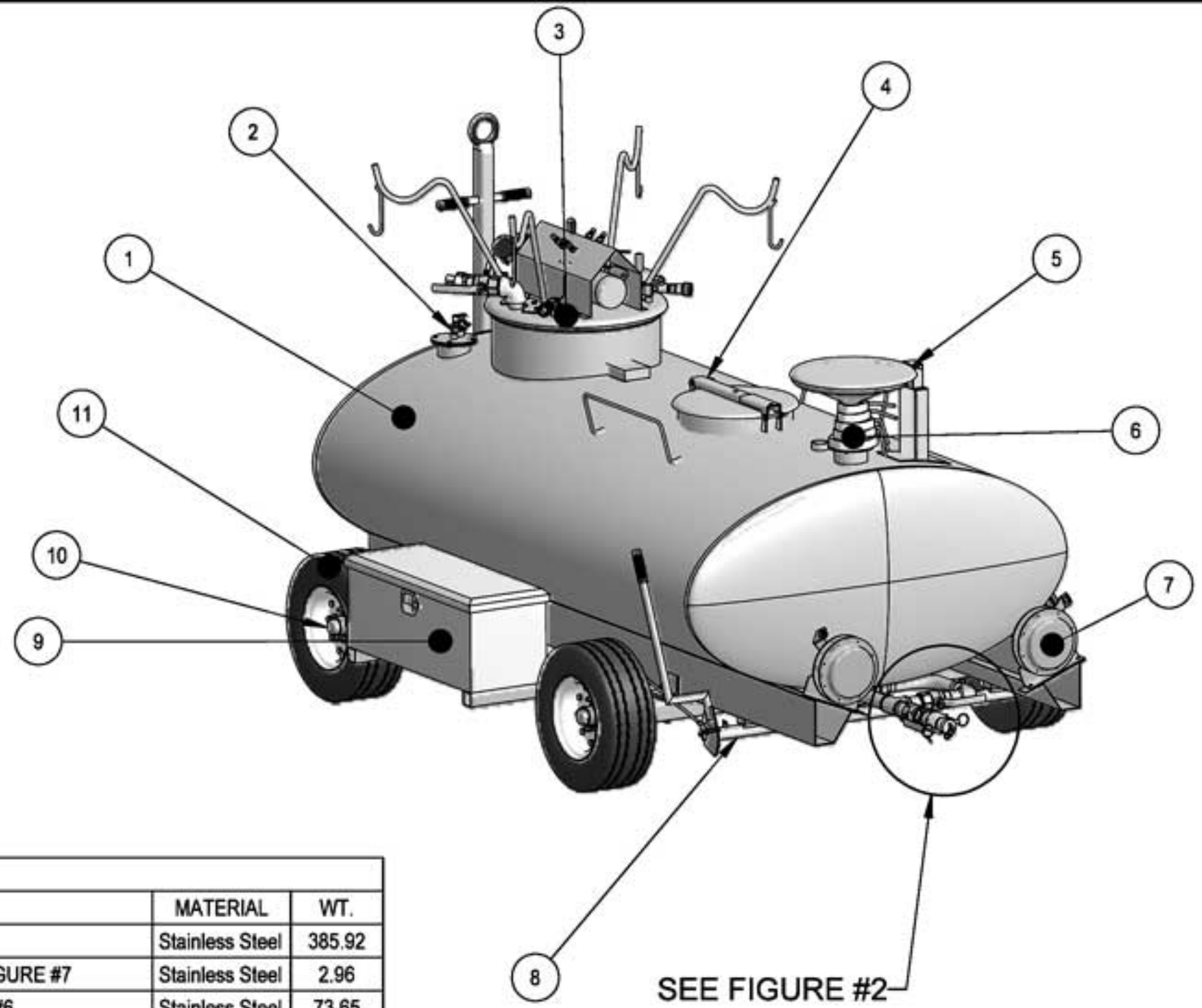
The following figures are supplied to assist in component identification and parts re-ordering.

When reordering, ensure the complete model number and serial number are provided to the sales representative. Write the model and serial below upon receipt of the unit to aide during reordering.

MODEL # _____ SERIAL # _____

| SECTION 7. | PARTS BREAKDOWN FIGURES | | |
|---|---|---|---|
| **1.** | **SV/ SVU Overview, major components** | 6.5 | SVU Vacuum System, Reference |
| **2.** | **Funnel Isolation & Low Point drain valve** | **7.** | **Auto-Shutoff Valve, Safety Feature** |
| **3.** | **Front Undercarriage Assembly** | **8.** | **Funnel, Telescoping, Major Assy's** |
| 3.1 | Wheel Hub, Front | 8.1 | Funnel Section, 8 Ft., 12 Ft., 16 Ft. |
| 3.2 | King pin/ Spindle, Front Undercarriage | 8.2 | 2 1/2" Telescoping Section, All |
| 3.3 | Steering Arm, Front Undercarriage | 8.3 | 3" Telescoping Section, All |
| **4.** | **Rear Undercarriage, 200 series** | 8.4 | 3 1/2" Telescoping Section, 12 & 16 Ft. |
| **4.A** | **Rear Undercarriage, 400 & 600 series** | 8.5 | 4" Telescoping Section, 16 Ft. only |
| 4.1 | Axle, Rear | 8.6 | Base Clamp, Telescoping Funnel, All |
| 4.2 | Rear Brake Assembly | 8.7 | Cover, Funnel |
| 4.3 | Brake Rod | **9.** | **Cover, Manway Assembly** |
| 4.4 | Hub & Drum, Rear, Assembly | **10.** | **Suction Plate, Standard Round** |
| **5.** | **Wheel & Tire Assembly, All series** | **11.** | **Suction Plate, Oval** |
| **6.** | **SVU Vacuum System Assembly** | **12.** | **Suction Plate, Elongated** |
| 6.1 | Cover, Primary Vacuum Generator, SV/ SVU | **13.** | **Probe, Fuel, Assembly** |
| 6.2 | Air Manifold, Primary/ Secondary, Reference | **14.** | **Duplex Hose, Shielded** |
| 6.3 | Air Manifold, Primary/ Secondary | **15.** | **Hose, Depuddle, 25 feet, SV/ SVU** |
| 6.3 | Air Manifold System | **16.** | **Hose, Utility, 1 1/4"** |
| 6.4 | Secondary Vacuum Generator | **17.** | **Alignment Tool** |

*Parts Breakdown Figures continued next pages,*




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | | SV/SVU 200, 400, 600 GALLON TANK WELDMENT | Stainless Steel | 385.92 |
| 2 | 1 | 08-1802 | SV/SVU AUTO-VAC SHUT-OFF ASSEMBLYSEE FIGURE #7 | Stainless Steel | 2.96 |
| 3 | 1 | 08-1000 U | SVU VACUUM SYSTEM ASSEMBLY SEE FIGURE #6 | Stainless Steel | 73.65 |
| 4 | 1 | 05-10251 | CROSS ARM AND LID ASSY. (16" MANWAY) SEE FIGURE #9 | Stainless Steel | .25 |
| 5 | 1 | 08-10261 | FUNNEL COVER SEE FIGURE #8.7 | Stainless Steel | .25 |
| 6 | 1 | 08-1034 U | TELESCOPING FUNNEL SEE FIGURE #8.6 | Stainless Steel | 20.21 |
| 7 | 1 | 04-10361 R | GROUNDING REEL WITH PLUG | | 9.39 |
| 7 | 1 | 04-10361 | GROUNDING REEL WITH CLAMP | | 9.39 |
| 8 | 1 | 08-10102 | REAR UNDERCARRIAGE SEE FIGURE #4 | Stainless Steel | 126.66 |
| 9 | 2 | 04-0030 | STORAGE BOX-OPTIONAL | Stainless Steel | 12.66 |
| 10 | 1 | 08-1029 R1 | FRONT UNDERCARRIAGE SEE FIGURE #3 | Stainless Steel | 186.82 |
| 11 | 4 | 07-10201 | WHEEL, TIRE, AND TUBE ASSEMBLY SEE FIGURE #5 | Stainless Steel | 31.90 |

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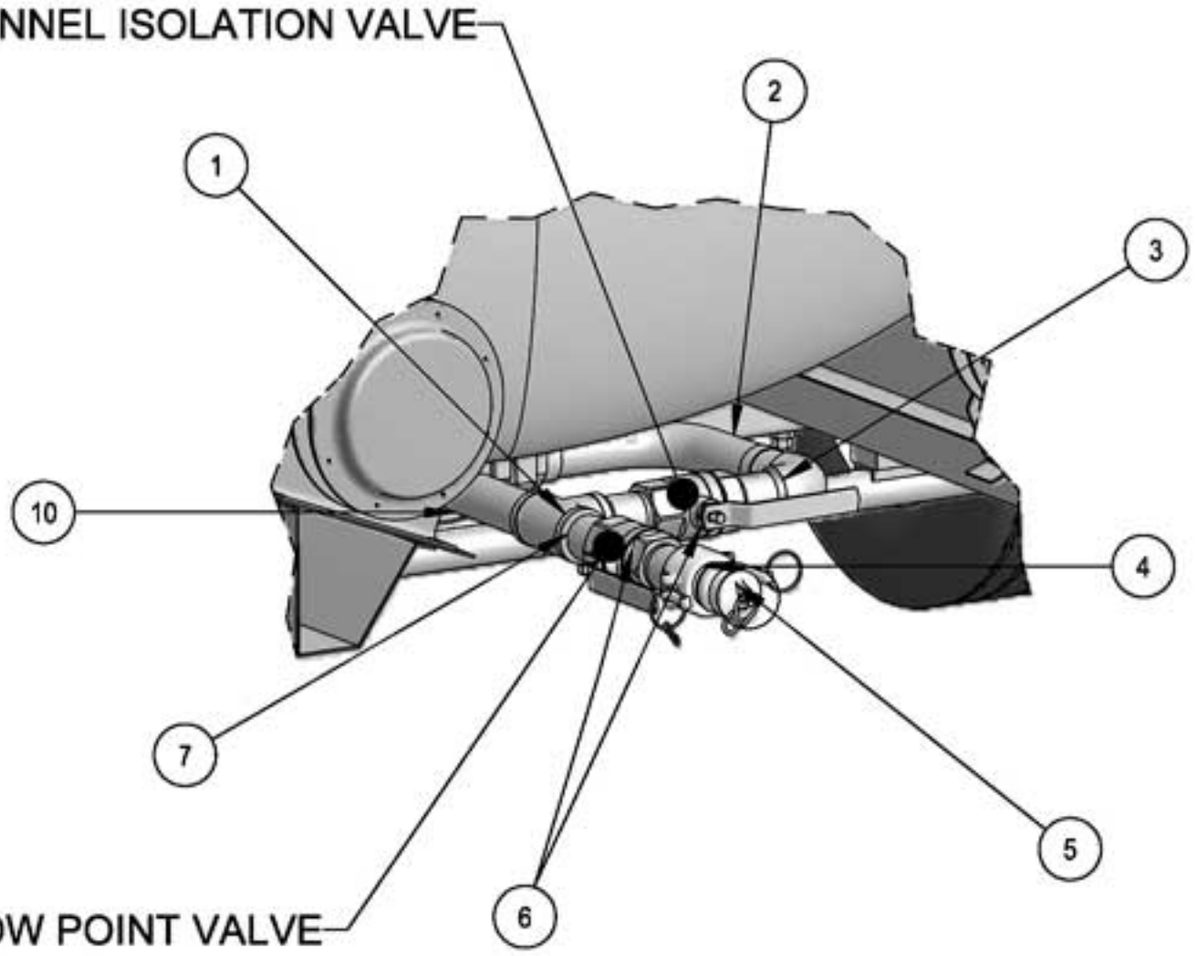
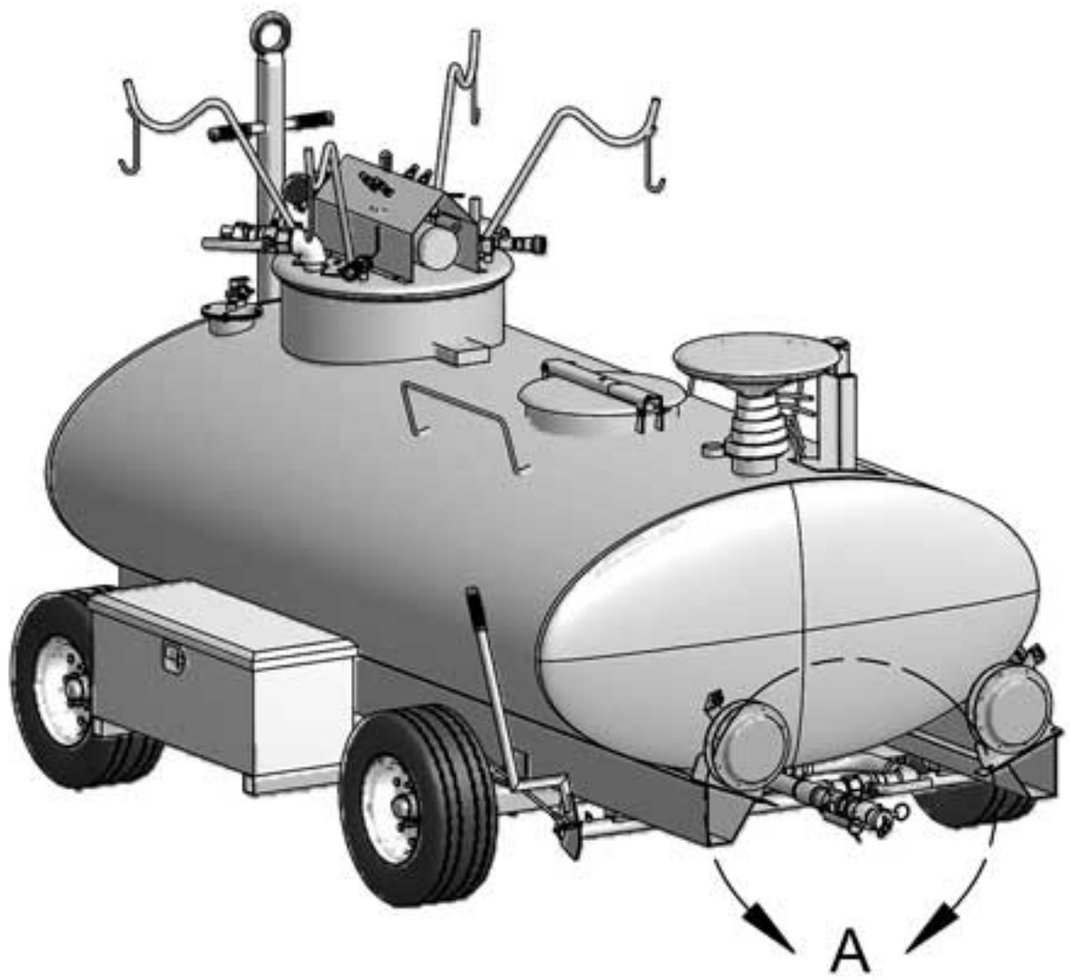
| | | | | |
|---|---|---|---|---|
| Tolerance:except as noted x/x=± 1/8" .xx=± .03" .xxx=± .005" ANG=± 1° | SV/SVU 200-400-600 | | | |
| | SV/SVU MODELS | | | FIG #1 |
| Drawn: AL | Date:11/16/2006 | Size: A | Scale: NTS | Sheet 1 of 1 |




# DETAIL A

NOTE: 1" FUNNEL ISOLATION 200 ONLY
1 1/2 FUNNEL ISOLATION 400 & 600 ONLY

Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 03-10074 | 1 1/2" THREADED TEE | Stainless Steel | 2.09 |
| 2 | 1 | 06-10164 | 1 1/2" FLEX HOSE ASSEMBLY<br>1" FLEX HOSE ASSEMBLY, P.D. 200 ONLY | Stainless Steel | 4.04 |
| 3 | 1 | 03-10014 | 1 1/2" THREADED ELBOW<br>1" THREADED ELBOW, 03-10651 200 ONLY | Stainless Steel | 1.42 |
| 4 | 1 | 04-1033 | 1 1/2" CAMLOCK | Aluminum | .72 |
| 5 | 1 | 04-10331 | CAM-LOCK PLUG | Aluminum | .35 |
| 6 | 2 | 04-10321 | BALL VALVE, 1 1/2"( LOW POINT DRAIN & FUNNEL ISOLATION) BALL VALVE, 1"( FUNNEL ISOLATION), 04-10315 200 ONLY | | 3.59 |
| 7 | 4 | 03-02921S | 1 1/2" NIPPLE 3" LG. | Stainless Steel | .67 |

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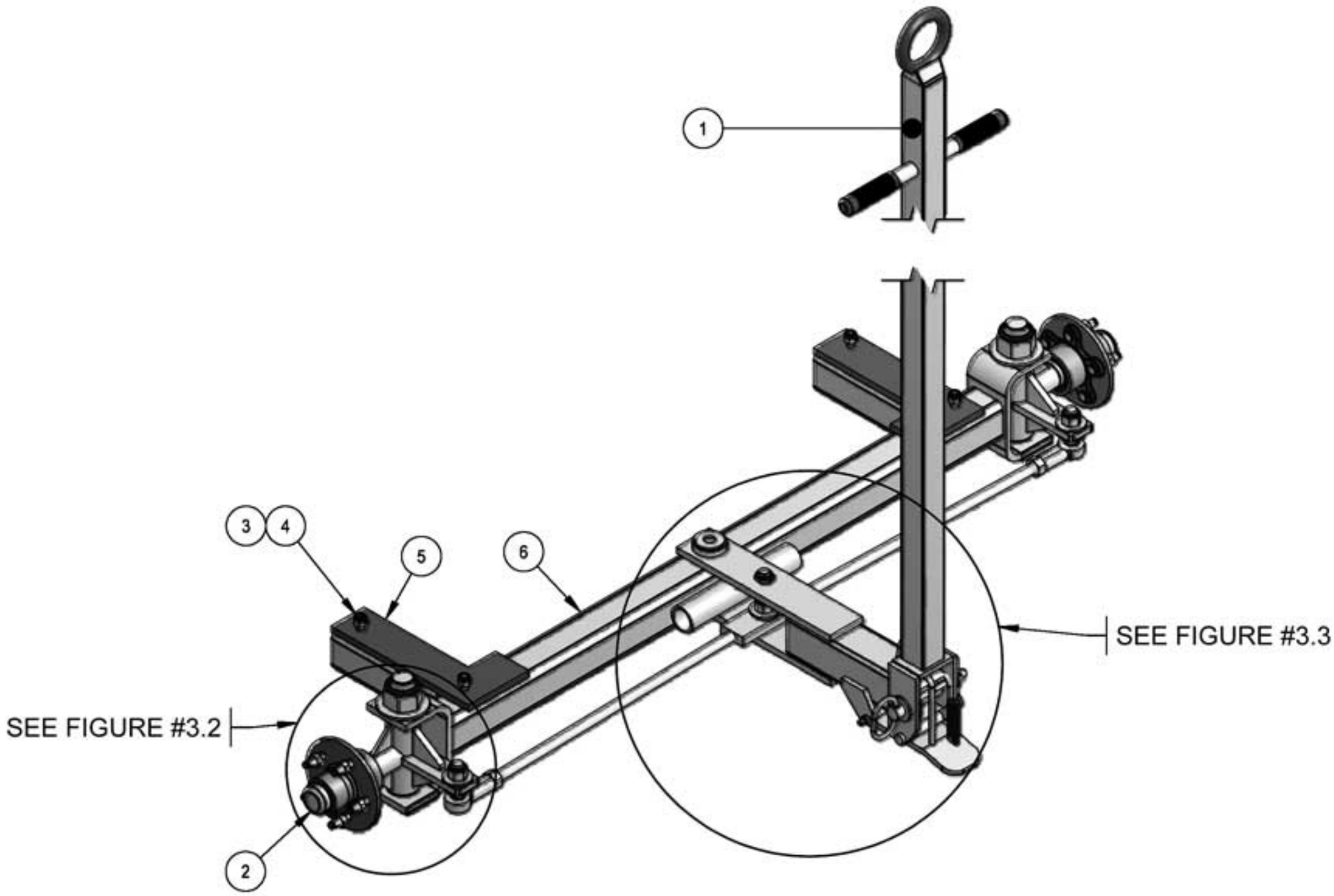
ANG=± 1°

FUNNEL ISOLATION/LOW POINT DRAIN

SV/SVU MODELS | FIG.#2

Drawn: AL | Date:11/16/2006 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 07-1103 | TOW BAR | | 21.65 |
| 2 | 2 | 08-1011 | FRONT HUB ASSEMBLY | | 8.62 |
| 3 | 4 | 02-12041 | NUT, NYLON INSERT, 1/2" UNC | Steel, Mild | .05 |
| 4 | 4 | 02-1503 | HEX BOLT, 1/2" UNC x 4 1/2" LG. | Steel, Mild | .31 |
| 5 | 2 | 06-1023 | PAD, MOUNTING | Rubber | .75 |
| 6 | 1 | 07-1053 | FRONT AXLE, 200 ONLY | | 67.95 |
| 6 | 1 | 07-11071 | FRONT AXLE, 400 & 600 ONLY | | 67.95 |

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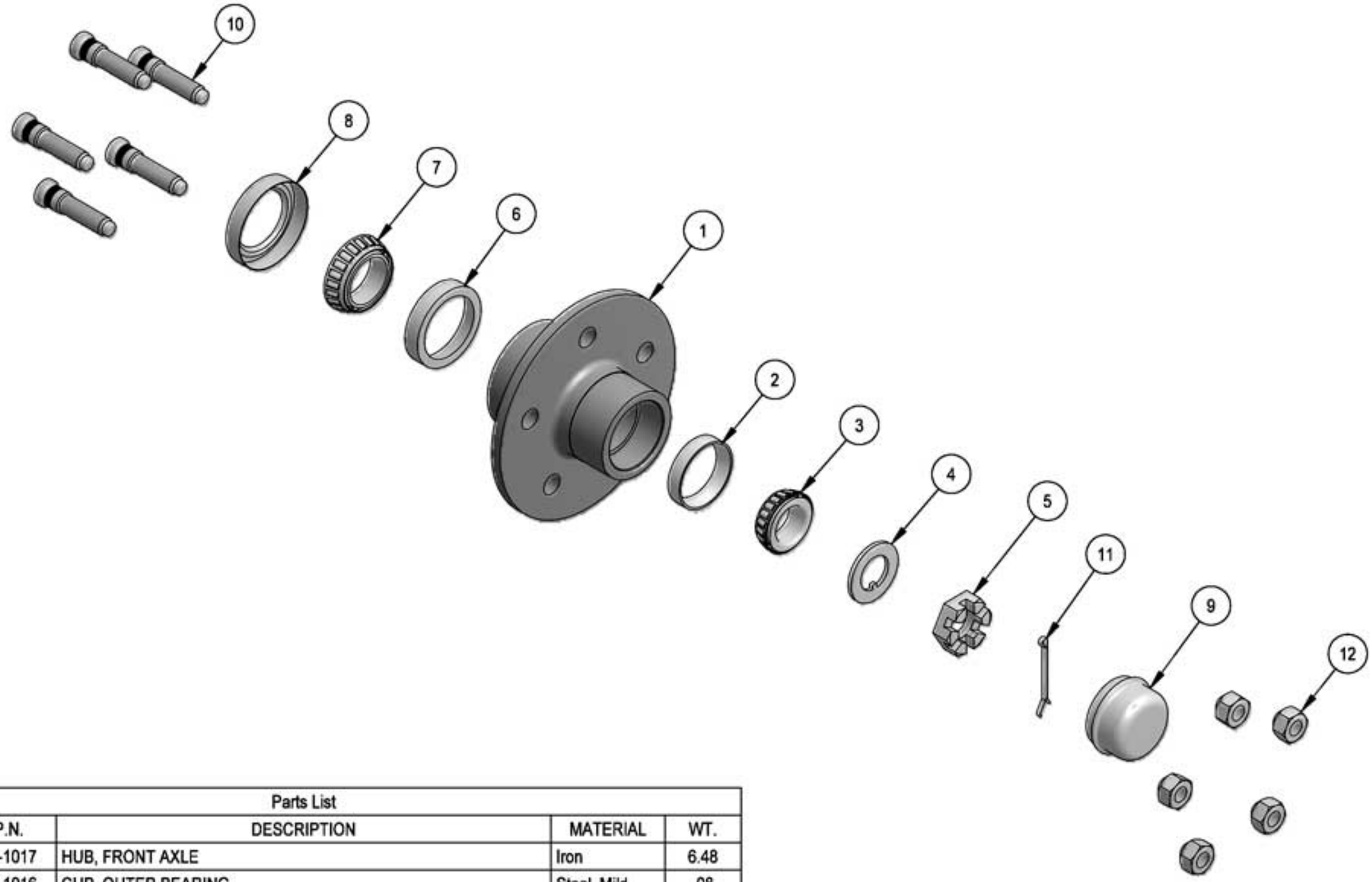
.xxx=± .005"
ANG=± 1°

# WHEEL STEERING SPINDLE ASSEMBLY
## SV/SVU 200,400,600

FIG. #3

Drawn: AL | Date:11/30/2004 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 04-1017 | HUB, FRONT AXLE | Iron | 6.48 |
| 2 | 1 | 04-1016 | CUP, OUTER BEARING | Steel, Mild | .08 |
| 3 | 1 | 04-1014 | CONE, OUTER BEARING | Steel, Mild | .17 |
| 4 | 1 | 02-12055 | WASHER | Steel, Mild | .05 |
| 5 | 1 | 02-1205 | NUT, CASTLE | Steel, Mild | .16 |
| 6 | 1 | 04-1015 | CUP, INNER BEARING | Steel, Mild | .18 |
| 7 | 1 | 04-1013 | CONE, INNER BEARING | Steel, Mild | .24 |
| 8 | 1 | 04-1012 | SEAL, BEARING | Steel, Mild | .04 |
| 9 | 1 | 04-1019 | CAP, HUB | Steel, Mild | .10 |
| 10 | 5 | 02-1017 | STUD | Steel, Mild | .16 |
| 11 | 1 | 02-1303 | PIN, COTTER | Steel, Mild | .01 |
| 12 | 5 | 04-1021 | NUT, LUG | Steel, Mild | .06 |

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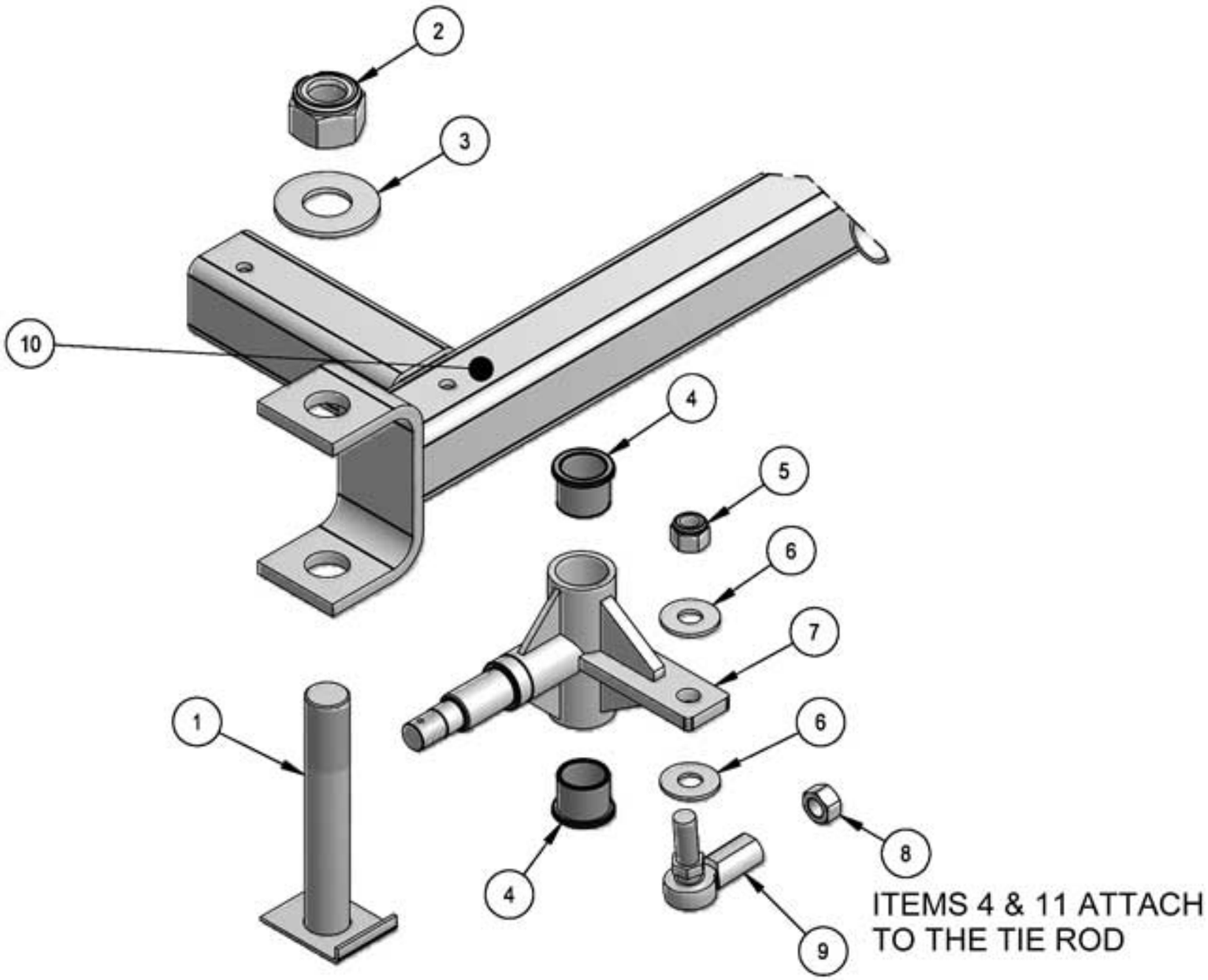
.xx=± .03"
.xxx=± .005"
ANG=± 1˚

# FRONT HUB ASSEMBLY
## SV/SVU 200,400,600

SV/SVU MODELS | FIG. #3.1

Drawn: jay | Date:10/18/2005 | Size: A | Scale: NTS | Sheet 1 of 1




ITEMS 4 & 11 ATTACH
TO THE TIE ROD

| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 07-10105 | KING PIN | | 5.24 |
| 2 | 1 | 02-12131 | NUT, NYLON INSERT | Steel, Mild | 1.21 |
| 3 | 1 | 02-11131 | WASHER, FLAT | Steel, Mild | .43 |
| 4 | 2 | 03-1013 | BUSHING, KING PIN | Bronze | .36 |
| 5 | 1 | 02-12071 | NUT, NYLON INSERT, 3/4-16 UNF | Steel, Mild | .17 |
| 6 | 2 | 02-11072 | FLATWASHER, 3/4" | Steel, Mild | .10 |
| 7 | 1 | 07-1009 | HOUSING, KING PIN 03-1013 INSTALLED WHEN ORDERED | | 8.17 |
| 8 | 1 | 02-12141 | NUT, 3/4-16 UNF | Steel, Mild | .13 |
| 9 | 1 | 03-1016 | ROD END, BALL JOINT | | 1.32 |
| 10 | 1 | 07-11071 | FRONT AXLE, 400 & 600 ONLY | Steel, Mild | 67.95 |
| 10 | 1 | 07-1053 | FRONT AXLE, 200 ONLY | Steel,Mild | |

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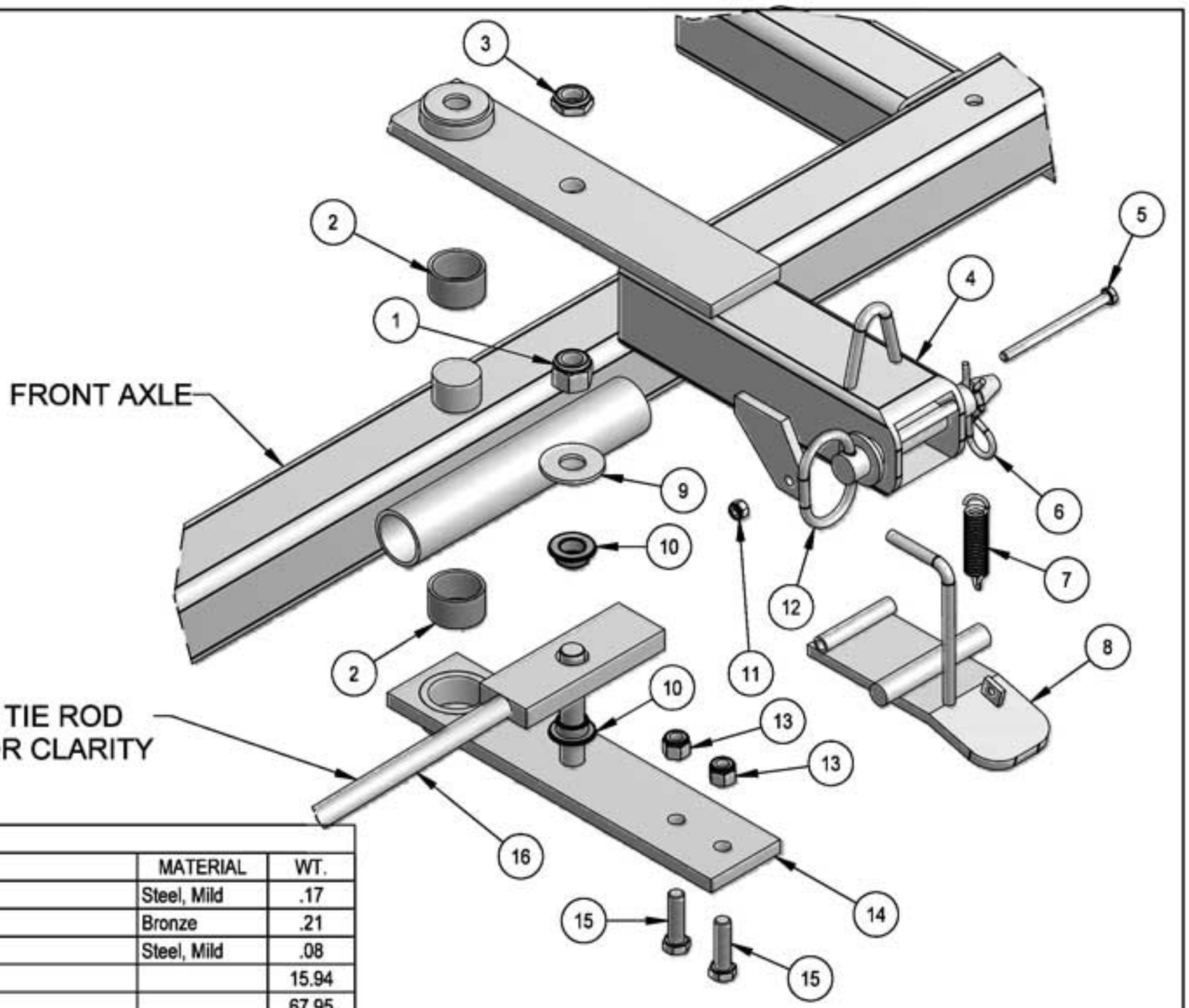
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1˚

# FRONT UNDERCARRIAGE
# SV/SVU 200,400,600

FIG. #3.2

Drawn: AL | Date:11/30/2004 | Size: A | Scale: NTS | Sheet 2 of 3




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 02-12071 | NUT, NYLON INSERT, 3/4-16 UNF | Steel, Mild | .17 |
| 2 | 2 | 03-1014 | BUSHING, STEERING ARM | Bronze | .21 |
| 3 | 1 | 02-1207 | JAM NUT, NYLON INSERT, 3/4-16 UNF | Steel, Mild | .08 |
| 4 | 1 | 07-1104 | STEERING ARM 400 & 600 ONLY | | 15.94 |
| 4 | 1 | 07-1052 | STEERING ARM 200 ONLY | | 67.95 |
| 5 | 1 | 02-1501 | HEX BOLT, 5/16-18 x 4 1/2" LG. | Steel, Mild | .11 |
| 6 | 1 | 02-1300 | PIN, COTTER | Steel, Mild | .06 |
| 7 | 1 | 04-1054 | SPRING | Steel, Mild | .12 |
| 8 | 1 | 07-1020 | TOE LATCH | | 3.46 |
| 9 | 1 | 02-11072 | FLATWASHER, 3/4" | Steel, Mild | .10 |
| 10 | 2 | 03-1015 | BUSHING, TIE ROD | Bronze | .09 |
| 11 | 1 | 02-1201 | NUT, NYLON INSERT, 5/16-18 | Steel, Mild | .02 |
| 12 | 1 | 02-1304 | HITCH PIN | Steel, Mild | 1.59 |
| 13 | 2 | 02-12041 | NUT, NYLON INSERT, 1/2" UNC | Steel, Mild | .06 |
| 14 | 1 | 07-1016 | STEERING ARM, LOWER PLATE, 400 & 600 ONLY | | 6.57 |
| 14 | 1 | 07-1046 | STEERING ARM, LOWER PLATE, 200 ONLY | Steel, Mild | 2.39 |
| 15 | 2 | 02-1502 | BOLT, 1/2-13 x 1 3/4" LG. | Steel, Mild | .14 |
| 16 | 1 | 07-1005 | TIE ROD | Steel, Mild | |

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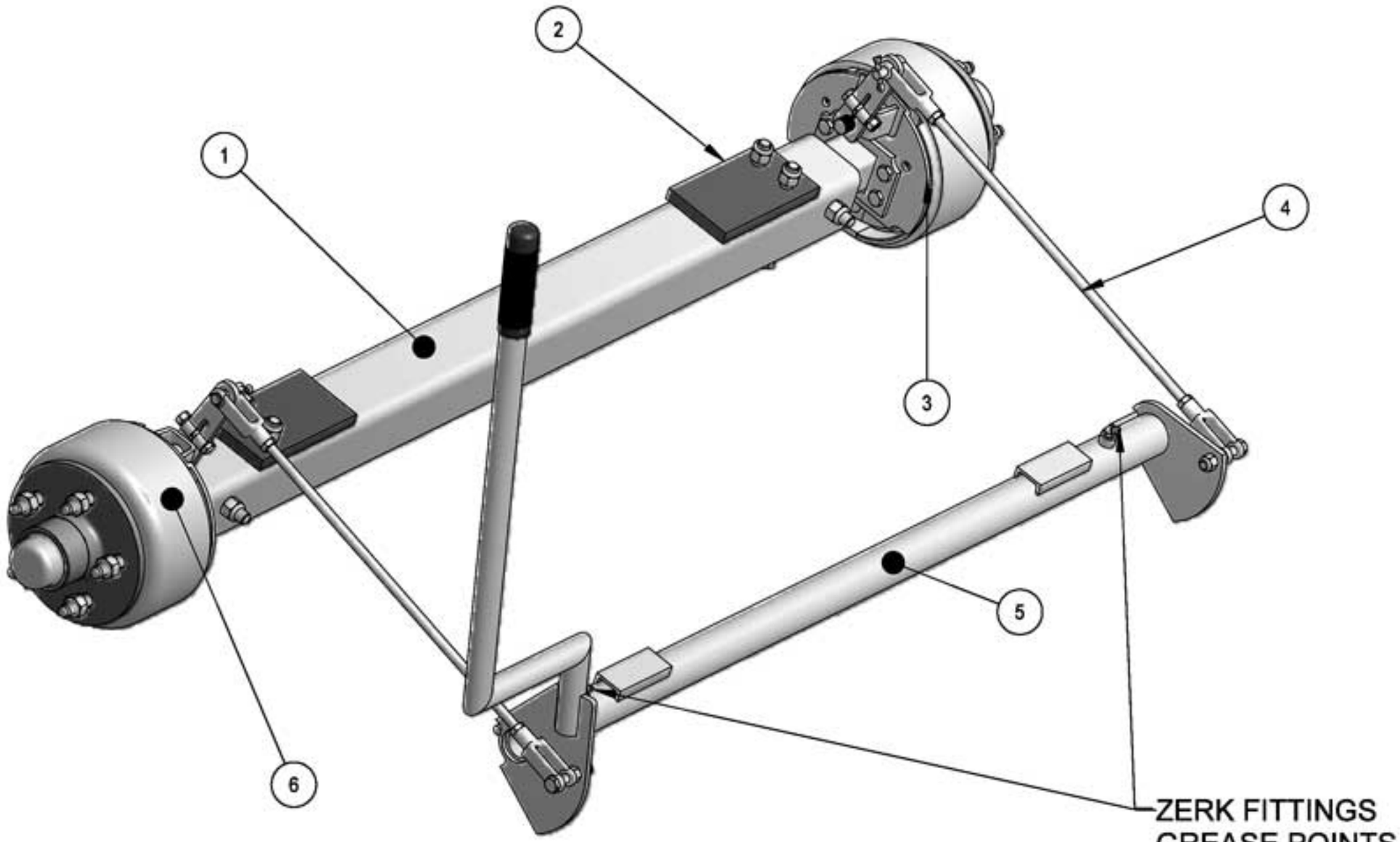
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# FRONT UNDERCARRIAGE SV/SVU 200,400,600

FIG. #3.3

Drawn: AL | Date:11/30/2004 | Size: A | Scale: NTS | Sheet 3 of 3




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 08-1030ZR2 | REAR AXLE ASSEMBLY SEE FIGURE #4.1 | | 49.68 |
| 2 | 2 | 06-1012 | REAR MOUNT PAD LEFT AND RIGHT | RUBBER | .27 |
| 3 | 2 | 04-1063R | BRAKE ASSEMBLY SEE FIGURE #4.2 | | 5.23 |
| 4 | 2 | 08-12050 | BRAKE LINKAGE SEE FIGURE #4.3 | | 1.12 |
| 5 | 1 | 08-1031X | BRAKE ACTUATOR ASSEMBLY (INFIELD SERVICE ONLY) | | 17.69 |
| 6 | 2 | 08-10111 | REAR HUB & DRUM ASSEMBLY SEE FIGURE #4.4 | | 15.09 |

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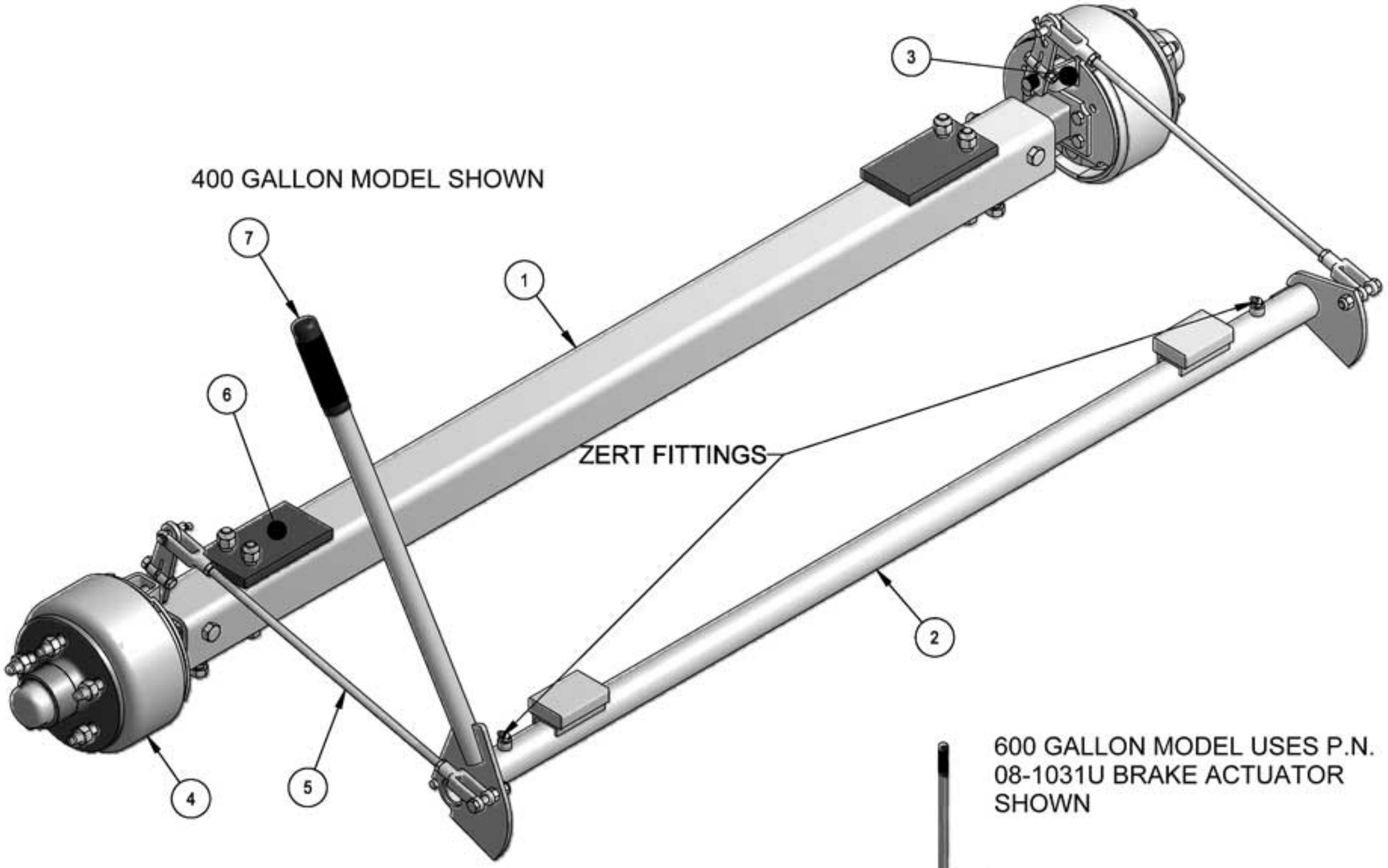
.xxx=± .005"
ANG=± 1°

# REAR UNDERCARRIAGE
## 200 GALLON MODELS

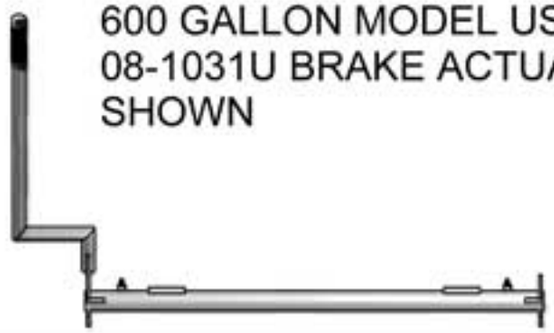
SV/SVU 200 ONLY — FIG. #4

Drawn: AL | Date:11/16/2005 | Size: A | Scale: NTS | Sheet 1 of 1

400 GALLON MODEL SHOWN




600 GALLON MODEL USES P.N.
08-1031U BRAKE ACTUATOR
SHOWN



Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 08-10301 | REAR AXLE ASSEMBLY SEE FIGURE #4.1 | | 61.67 |
| 2 | 1 | 08-1031W | BRAKE ACTUATOR ASSEMBLY (INFIELD SERVICE ONLY) | | 20.87 |
| 3 | 2 | 08-1007R | BRAKE ASSEMBLY SEE FIGURE #4.2 | | 5.23 |
| 4 | 2 | 08-10111 | REAR HUB & DRUM ASSEMBLY | | 15.09 |
| 5 | 2 | 08-12050 | BRAKE LINKAGE SEE FIGURE #4.3 | | 1.12 |
| 6 | 2 | 06-1012 | REAR MOUNT PAD | Rubber | .27 |
| 7 | 1 | 04-1055 | HAND GRIP | Rubber | .05 |

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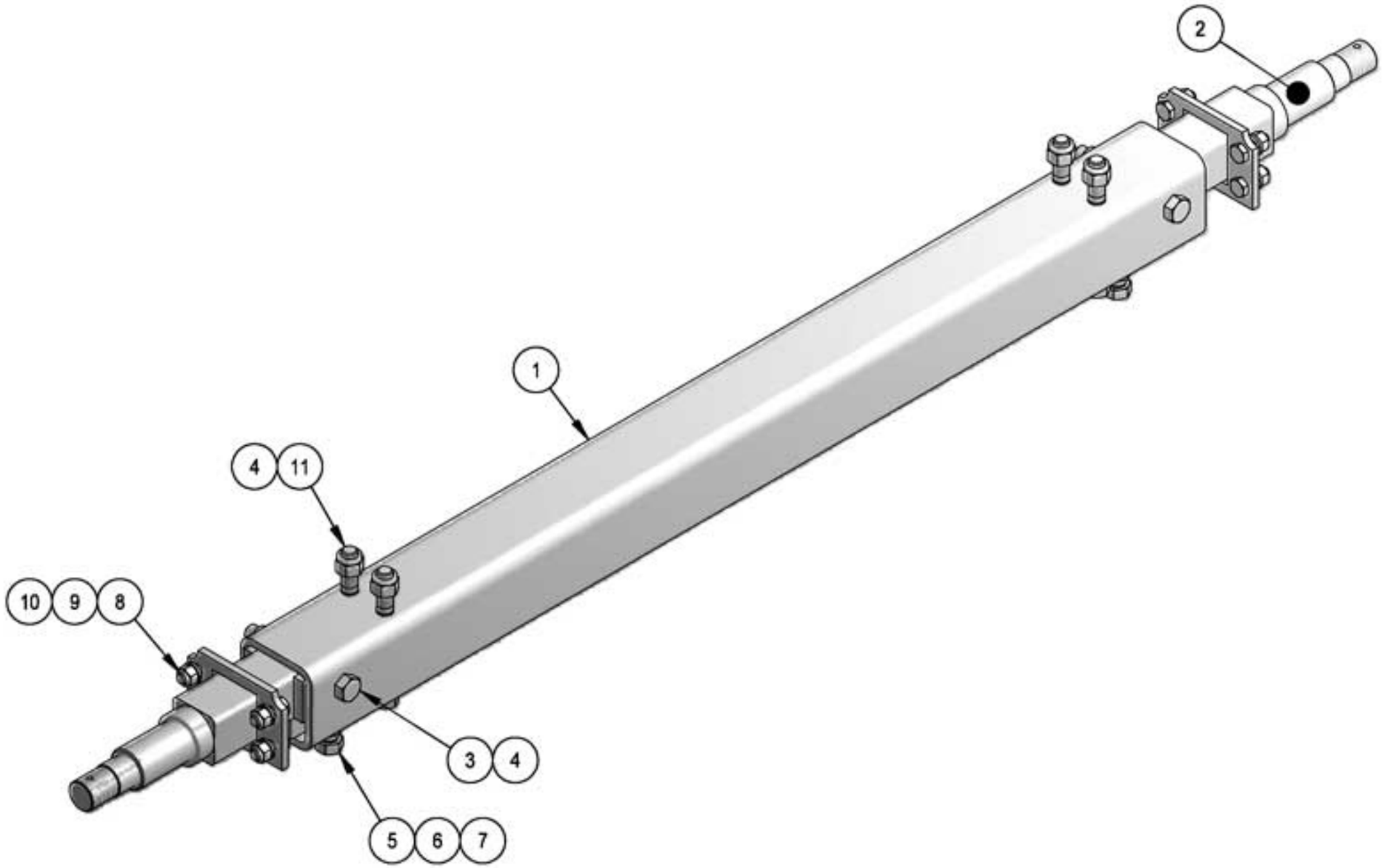
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

REAR UNDERCARRIAGE
400 & 600 GALLON MODELS

PN: 08-10102 | FIG. #4A

Drawn: jay | Date:10/7/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 05-1054 | REAR AXLE, 200 ONLY | Steel, Mild | 27.72 |
| 1 | 1 | 05-1023 | REAR AXLE, 400 & 600 ONLY | | |
| 2 | 2 | 07-1010R | REAR SPINDLE | | 9.39 |
| 3 | 2 | 02-1505 | BOLT, HEX, 1/2" UNC x 4" LG. | Steel, Mild | .28 |
| 4 | 6 | 02-12041 | NUT, NYLON INSERT, 1/2" UNC | Steel, Mild | .05 |
| 5 | 2 | 02-10041 | BOLT, HEX, 1/2" UNC x 1 1/2" LG. | Steel, Mild | .13 |
| 6 | 2 | 02-1014 | NUT, HEX, 1/2" UNC | Steel, Mild | .04 |
| 7 | 2 | 02-1203 | NUT, HEAVY HEX, 1/2" UNC | Steel, Mild | .07 |
| 8 | 8 | 02-15035 | BOLT, 3/8 UNC x 1" LG. | Steel, Mild | .05 |
| 9 | 8 | 02-1103 | LOCK WASHER, 3/8" | Steel, Mild | .01 |
| 10 | 8 | 02-1216 | HEX NUT, 3/8"-UNC | Steel, Mild | .02 |
| 11 | 4 | 02-1503 | HEX BOLT, 1/2" UNC x 4 1/2" LG. | Steel, Mild | .31 |

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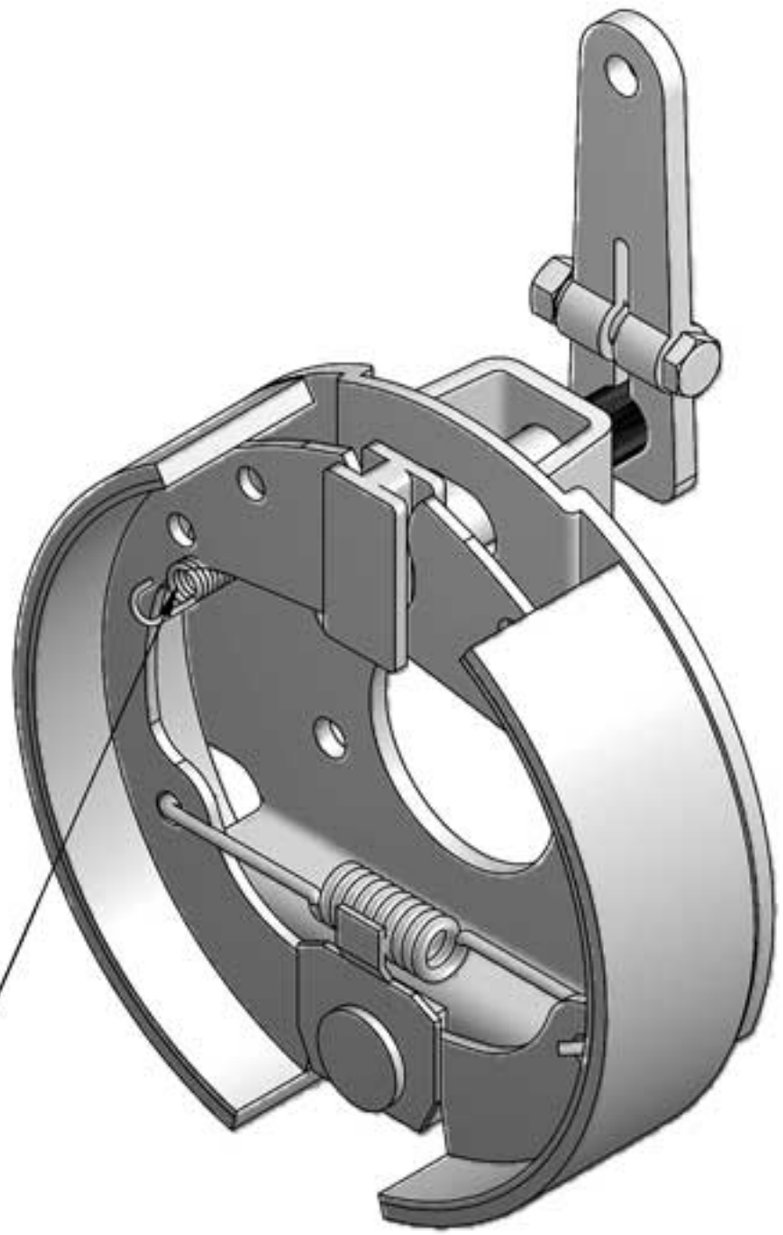
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

REAR AXLE
200,400,600 MODELS

PN: 08-1030ZR2 | FIG. #4.1

Drawn: jay | Date:11/16/2005 | Size: A | Scale: NTS | Sheet 1 of 1



SHOWN OUT OF POSITION
FOR CLARITY

NOTE: ORDERED AS A COMPLETE ASSEMBLY

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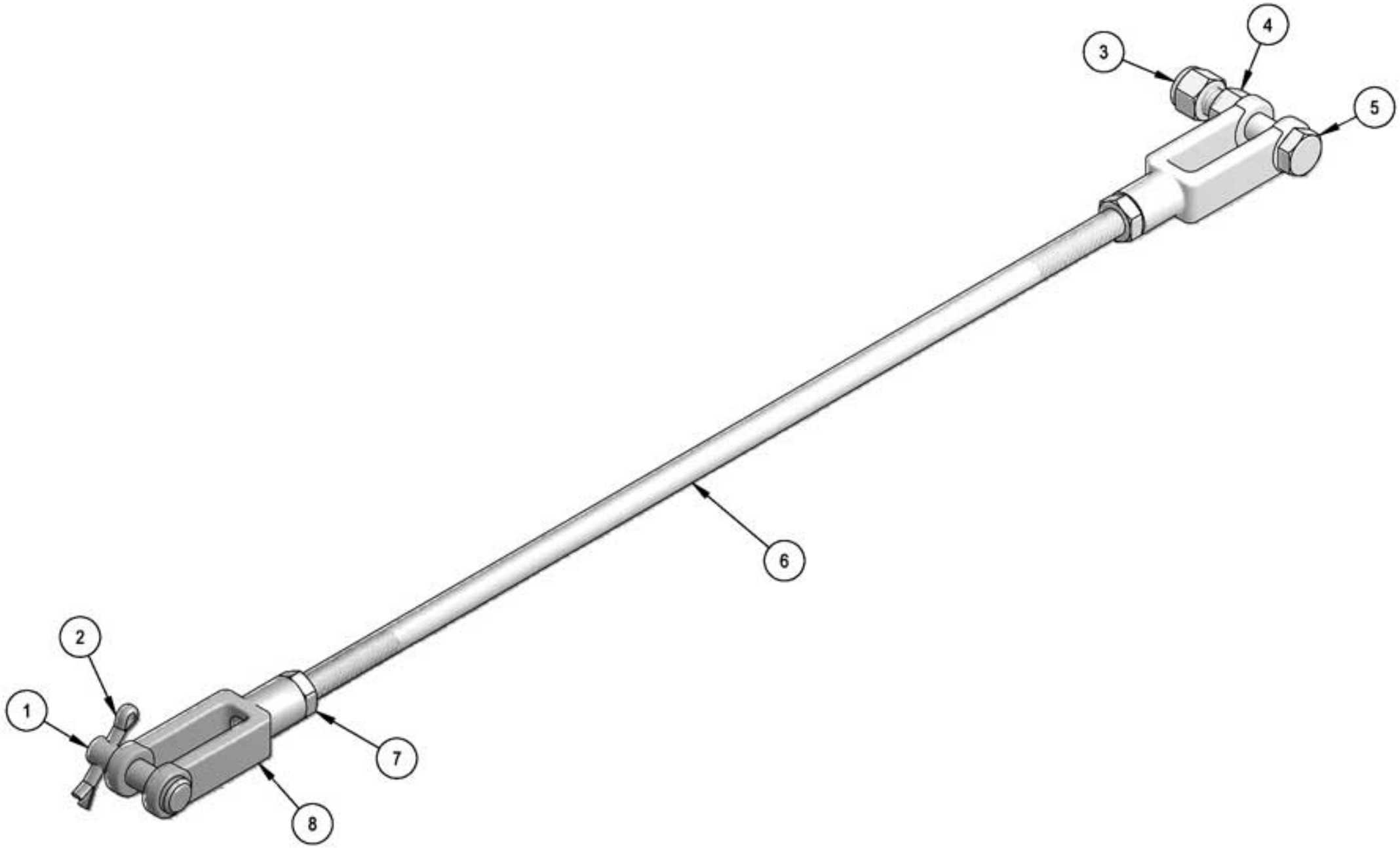
| | | | | |
|---|---|---|---|---|
| Tolerance:except as noted x/x=± 1/8" .xx=± .03" .xxx=± .005" ANG=± 1° | BRAKE ASSEMBLY ALL MODELS | | | |
| | 04-1063R | | | FIG. #4.2 |
| Drawn: jay | Date:10/11/2005 | Size: A | Scale: NTS | Sheet 1 of 1 |




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 02-1302 | CLEVIS PIN, 3/8" x 1 1/4" LG. | Steel, Mild | .05 |
| 2 | 1 | 02-1301 | COTTER PIN | Steel, Mild | .01 |
| 3 | 1 | 02-12021 | NUT, 3/8" UNC NYLON INSERT | Steel, Mild | .03 |
| 4 | 1 | 02-1216 | HEX NUT, 3/8"-UNC | Steel, Mild | .02 |
| 5 | 1 | 02-10012 | HEX CAP SCREW, 3/8" UNC 2" LG. | Steel, Mild | .08 |
| 6 | 1 | 05-1026 | BRAKE ROD, 3/8" x 16 1/2" LG. 200, 400, 600 MODELS | Steel, Mild | .52 |
| 7 | 2 | 02-100231 | HEX JAM NUT, 3/8"-UNF | Steel, Mild | .01 |
| 8 | 2 | 04-2516 | YOKE END | Steel, Mild | .20 |

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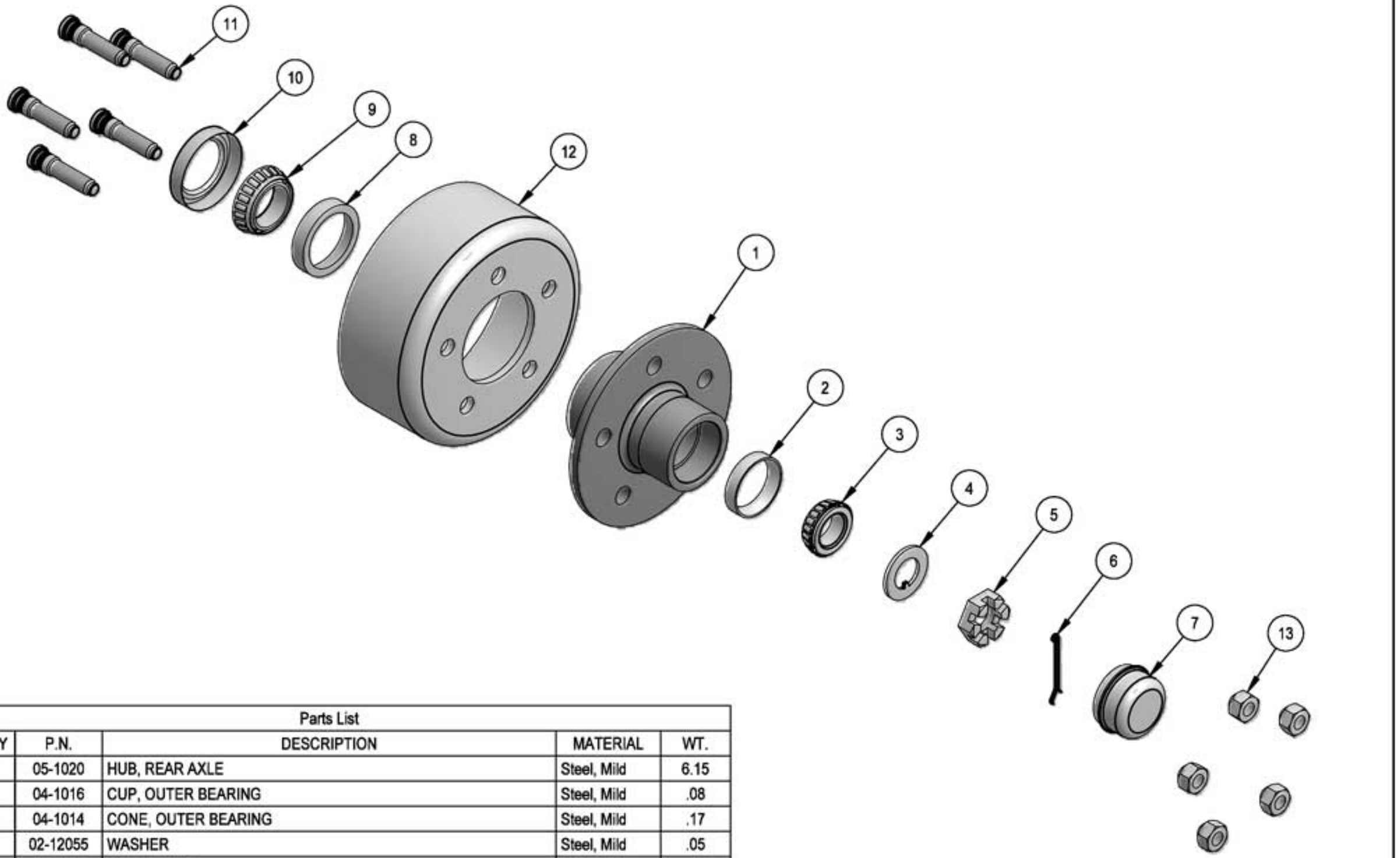
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

BRAKE LINKAGE
ALL MODELS

PN: 08-12050 | FIG. #4.3

Drawn: AL | Date:10/11/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 05-1020 | HUB, REAR AXLE | Steel, Mild | 6.15 |
| 2 | 1 | 04-1016 | CUP, OUTER BEARING | Steel, Mild | .08 |
| 3 | 1 | 04-1014 | CONE, OUTER BEARING | Steel, Mild | .17 |
| 4 | 1 | 02-12055 | WASHER | Steel, Mild | .05 |
| 5 | 1 | 02-1205 | NUT, CASTLE | Steel, Mild | .16 |
| 6 | 1 | 02-1303 | PIN, COTTER | Steel, Mild | .01 |
| 7 | 1 | 04-1019 | CAP, HUB | Steel, Mild | .10 |
| 8 | 1 | 04-1015 | CUP, INNER BEARING | Steel, Mild | .18 |
| 9 | 1 | 04-1013 | CONE, INNER BEARING | Steel, Mild | .24 |
| 10 | 1 | 04-1012 | SEAL, BEARING | Steel, Mild | .04 |
| 11 | 5 | 02-1017 | STUD | Steel, Mild | .16 |
| 12 | 1 | 05-1021 | DRUM, BRAKE | Steel, Mild | 6.80 |
| 13 | 5 | 04-1021 | NUT, LUG | Steel, Mild | .06 |

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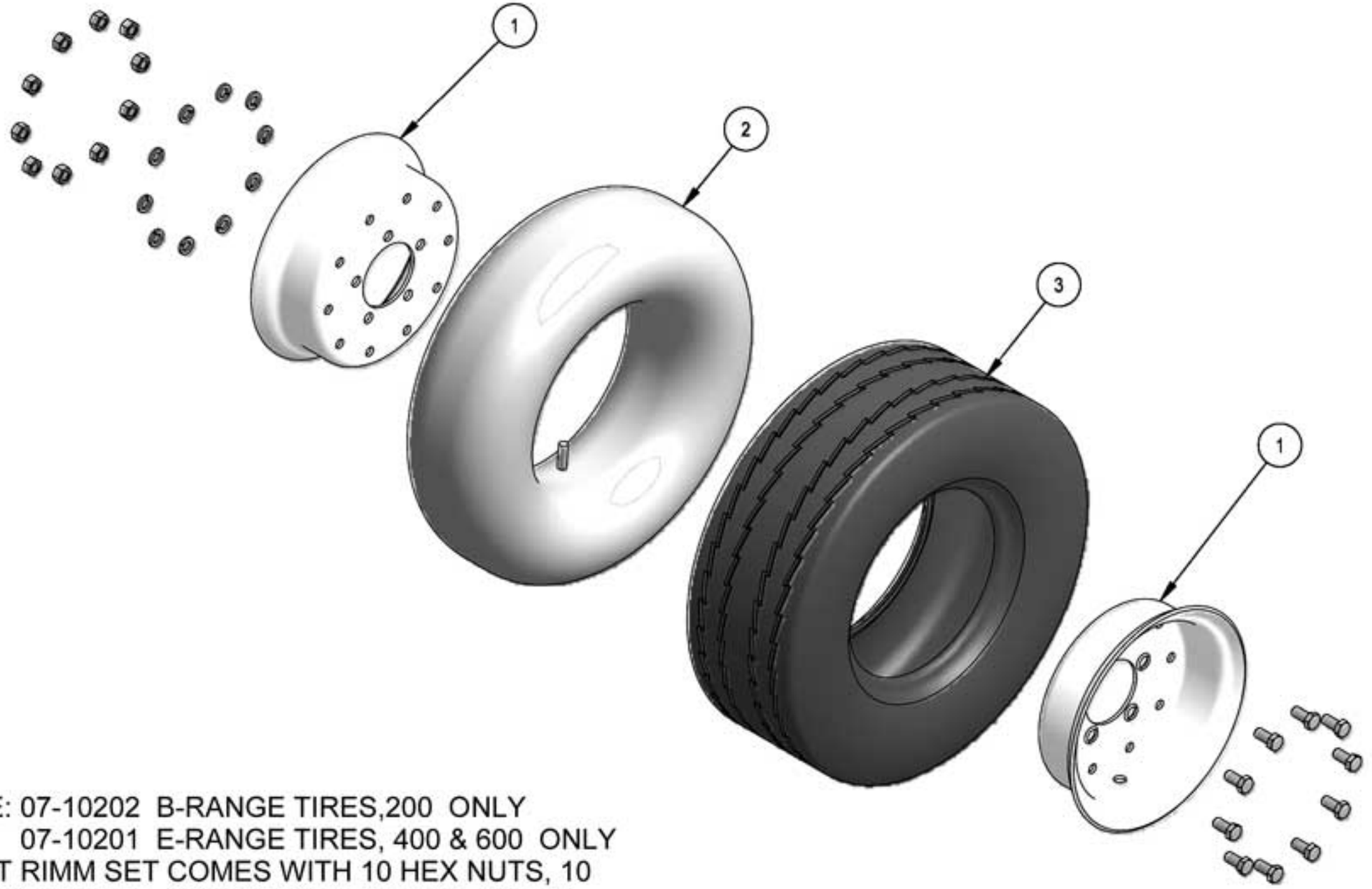
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# REAR HUB & DRUM ASSEMBLY

PN: 08-10111 | FIG. #4.4

Drawn: jay | Date:11/30/2005 | Size: A | Scale: NTS | Sheet 1 of 1




NOTE: 07-10202 B-RANGE TIRES,200 ONLY
07-10201 E-RANGE TIRES, 400 & 600 ONLY
SPLIT RIMM SET COMES WITH 10 HEX NUTS, 10 LOCK WASHERS, 10 HEX CAP SCREWS, AND 2 SPLIT RIM WHEELS.

Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 2 | 04-1020 | WHEEL, SPLIT RIM SET | | 17.89 |
| 2 | 1 | 04-1045 | TUBE, INNER | Rubber | 2.79 |
| 3 | 1 | 04-10222 | TIRE, B-RANGE | Rubber | 9.70 |
| 3 | 1 | 04-10221 | TIRE, E-RANGE | | |

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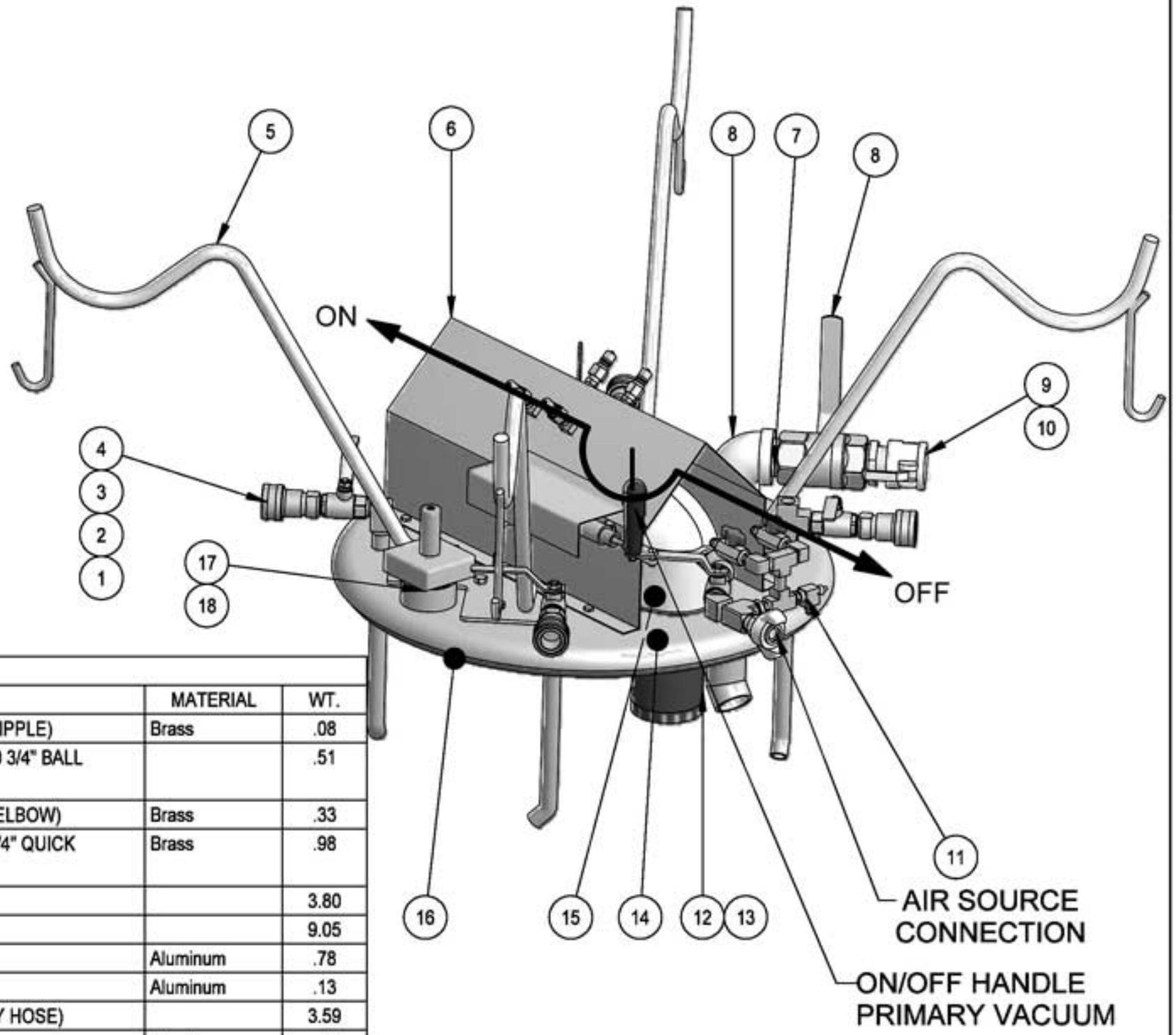
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1˚

WHEEL & TIRE ASSEMBLY
200,400,600 MODELS

P.N. FIG. #5

Drawn: AL | Date:11/17/2005 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 4 | 03-10081 | CLOSE NIPPLE, 1/2" (03-111390 3/4" CLOSE NIPPLE) | Brass | .08 |
| 2 | 4 | 04-1032 | BALL VALVE, 1/2" (DE-FUEL VALVE) (04-10320 3/4" BALL VALVE) | | .51 |
| 3 | 4 | 03-1006 | STREET ELBOW, 1/2" ( 03-0065S 3/4" STREET ELBOW) | Brass | .33 |
| 4 | 4 | 03-111394 | FEMALE QUICK CONNECT, 1/2" (03-111392 3/4" QUICK DISCONNECT) | Brass | .98 |
| 5 | 2 | 07-1075R | HOSE HANGER | | 3.80 |
| 6 | 1 | 08-10459 | PRIMARY VACUUM COVER SV/SVU | | 9.05 |
| 8 | 1 | 03-1001 | ELBOW, 1 1/2" | Aluminum | .78 |
| 7 | 1 | 03-02922 | CLOSE NIPPLE, 1 1/2" | Aluminum | .13 |
| 8 | 1 | 04-10321 | BALL VALVE, 1 1/2" (LARGE DEPUDDLE/ UTILITY HOSE) | | 3.59 |
| 9 | 1 | 04-10335 | CAMLOCK, 1 1/4" | Aluminum | .47 |
| 10 | 1 | 03-1002 | BUSHING, 1 1/2" x 1 1/4" | Aluminum | .16 |
| 11 | 1 | 08-14005 | AIR MANIFOLD SYSTEM | | 7.16 |
| 12 | 1 | 06-101791 | 3" REFUELING HOSE, 6" LG. ( VACUUM CONNECTION) | Rubber | .52 |
| 13 | 2 | 03-10181 | HOSE CLAMP | Stainless Steel | .04 |
| 14 | 1 | 07-10225 | SEDIMENT CHAMBER LID | | 26.52 |
| 15 | 1 | 08-1004 | PRIMARY VACUUM GENERATOR | | 5.69 |
| 16 | 1 | 06-1022V | SEDIMENT CHAMBER GASKET | Sponge Rubber | 1.28 |
| 17 | 1 | 07-10339 | VACUUM RELIEF VALVE RAIN COVER | Stainless Steel | .33 |
| 18 | 1 | 04-10098 | VACUUM RELIEF VALVE | | 2.30 |

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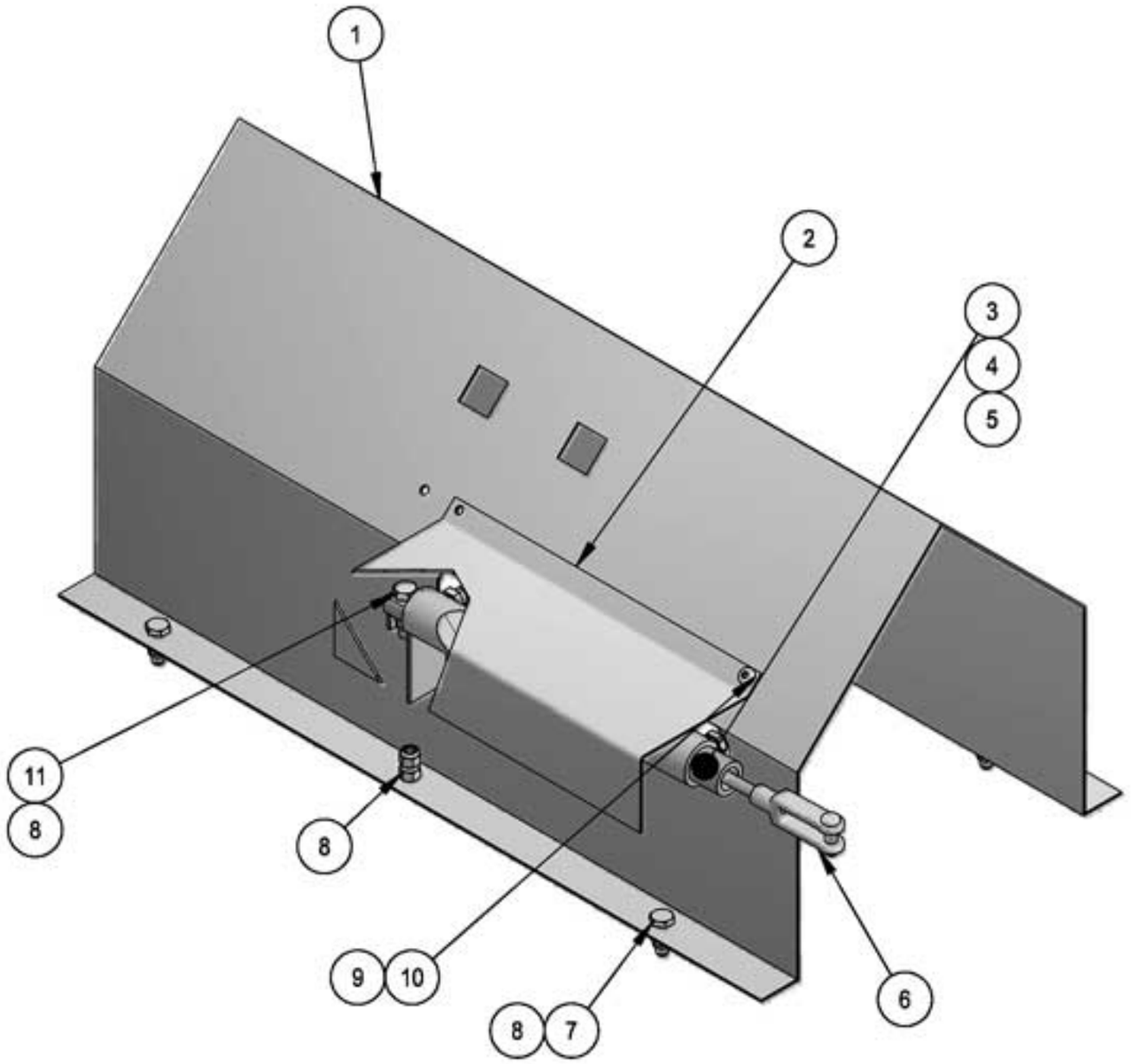
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# SVU VACUUM SYSTEM ASSEMBLY

PN: 08-1000U | FIG. #6

Drawn: AL | Date:10/12/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 07-1034SV | VACUUM GENERATOR COVER | Stainless Steel | 6.02 |
| 2 | 1 | 01-8360 | CYLINDER COVER | Stainless Steel | .60 |
| 3 | 1 | 04-7001 | AIR CYLINDER | | 2.03 |
| 4 | 1 | 03-1075 | HOSE ADAPTER, 1/8" x 1/8" | Brass | .03 |
| 5 | 1 | 03-1076 | MUFFLER, 1/8" NPT | Brass | .03 |
| 6 | 1 | 04-25161 | YOKE, 1/4-28 UNF | Steel, Mild | .10 |
| 7 | 5 | 02-100101 | HEX CAP SCREW, 1/4 UNC 3/4" LG. | Stainless Steel | .02 |
| 8 | 8 | 02-1200 | NUT, NYLON INSERT, 1/4-20 UNC | Stainless Steel | .01 |
| 9 | 1 | 02-12101 | NUT, NYLON INSERT, 10-32 | Stainless Steel | .01 |
| 10 | 1 | 04-06740 | HEX SOCKET BUTTON HEAD CAP SCREW, 10-32 1/2" LG. | Stainless Steel | .01 |
| 11 | 1 | 02-1000 | BOLT, 1/4" UNC 1" LG. | Stainless Steel | .02 |
| 12 | 1 | 04-10063 | COVER PLUG, SV ONLY | PLASTIC | |

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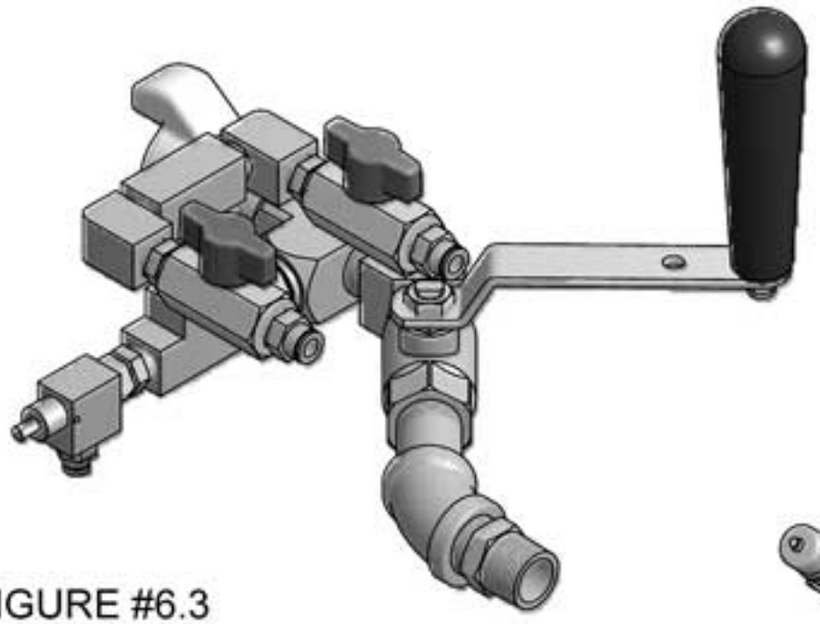
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

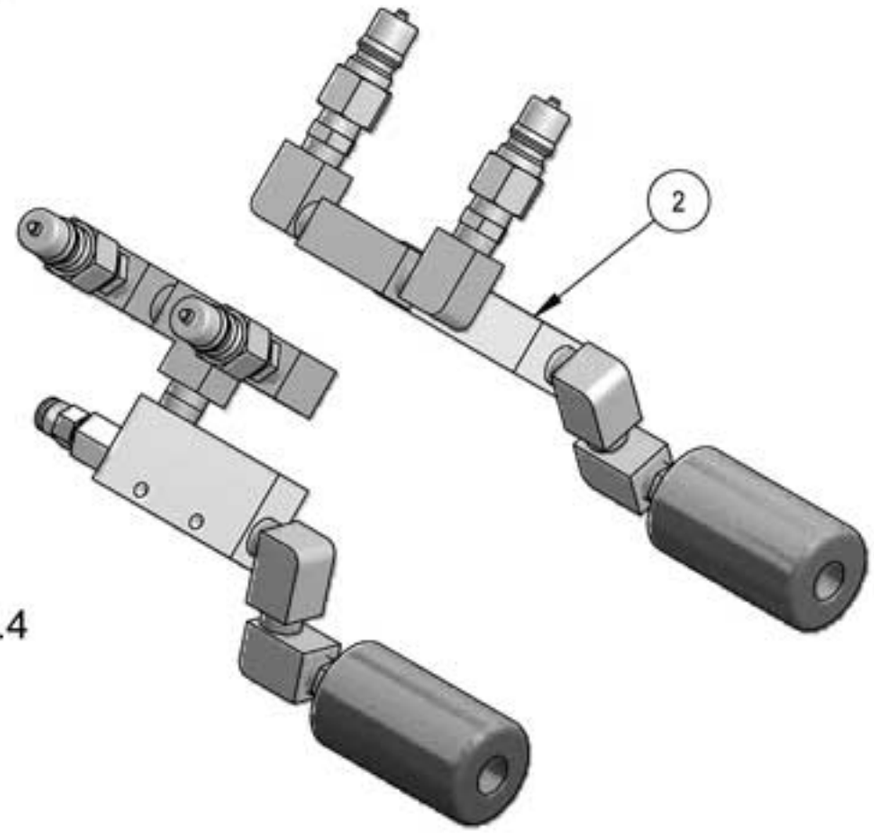
# PRIMARY VACUUM COVER SV/SVU

PN: 08-10459 | FIG. #6.1

Drawn: AL | Date:10/14/2005 | Size: A | Scale: NTS | Sheet 1 of 1



SEE FIGURE #6.3




SEE FIGURE #6.4

| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | | PRIMARY AIR MANIFOLD | | 3.96 |
| 2 | 1 | | SECONDARY VACUUM GENERATOR, LEFT SIDE | | 1.60 |
| 3 | 1 | | SECONDARY VACUUM GENERATOR, RIGHT SIDE | | 1.60 |

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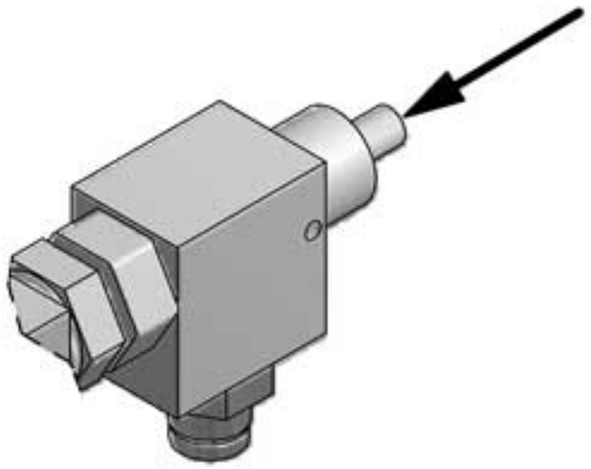
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

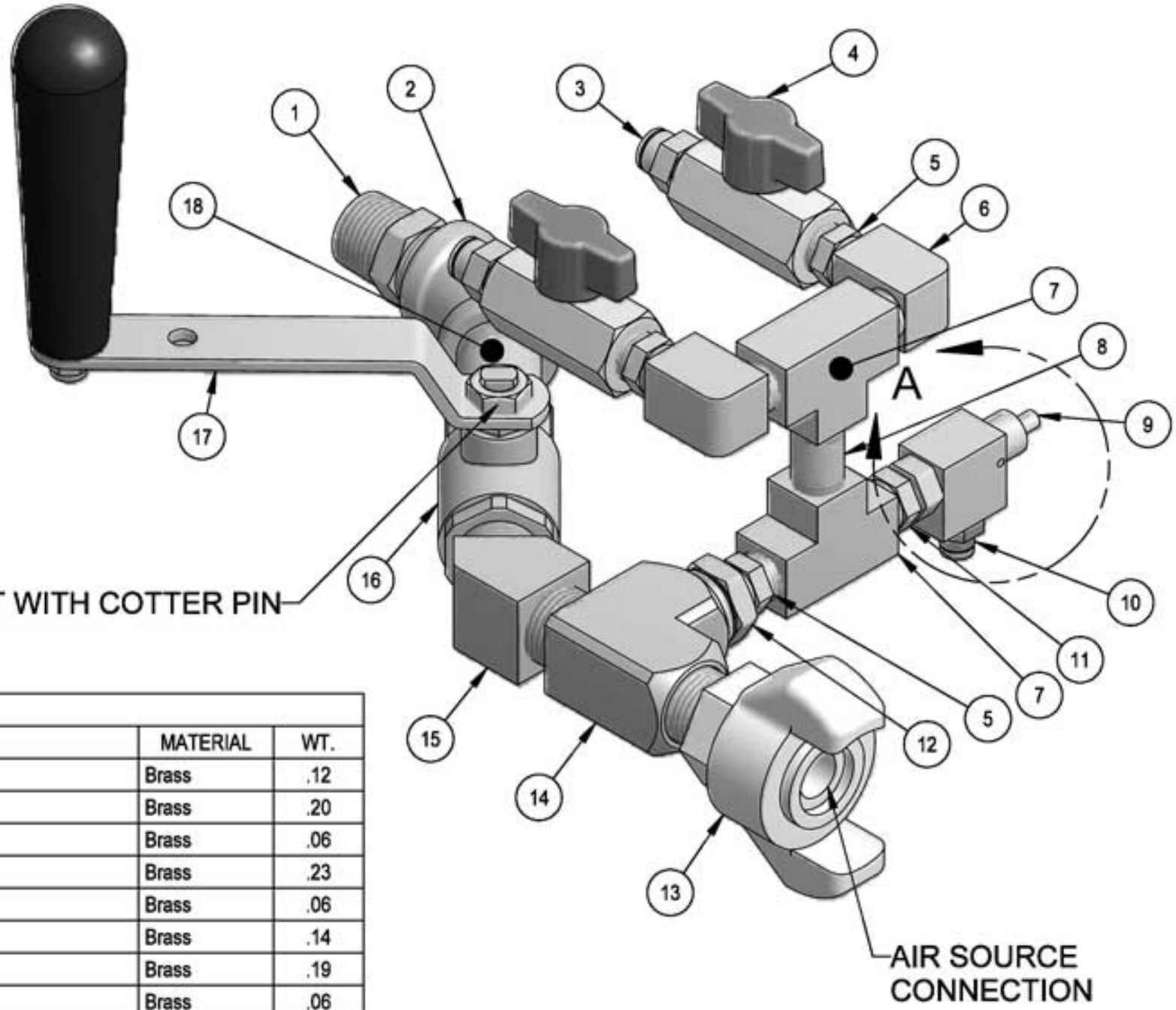
PRIMARY/SECONDARY VACUUM GENERATOR AIR MANIFOLD SYSTEM

REFERENCE ONLY | FIG. #6.2

Drawn: AL | Date:10/5/2005 | Size: A | Scale: NTS | Sheet 1 of 1



DETAIL A
AUTOSHUT-OFF
BYPASS VALVE
ITEM #9




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 03-10083 | HEX NIPPLE, 1/2" | Brass | .12 |
| 2 | 1 | 03-10061 | ELBOW, 45 DEGREE, 1/2" | Brass | .20 |
| 3 | 2 | 03-1079 | PUSH CONNECT, 1/4" x 1/4" | Brass | .06 |
| 4 | 2 | 04-2506 | BALL VALVE, 1/4" W/ T-HANDLE | Brass | .23 |
| 5 | 3 | 03-10691 | HEX NIPPLE, 1/4" | Brass | .06 |
| 6 | 2 | 03-11136 | STREET ELBOW, 1/4" | Brass | .14 |
| 7 | 2 | 03-11131 | TEE, 1/4" | Brass | .19 |
| 8 | 1 | 03-10692 | NIPPLE, 1/4" x 1 1/2" LG. | Brass | .06 |
| 9 | 1 | 04-10327 | BYPASS VALVE | Brass | .17 |
| 10 | 1 | 03-1075 | HOSE ADAPTER, 1/8" x 1/8" | Brass | .03 |
| 11 | 1 | 03-10693 | HEX NIPPLE, 1/4" x 1/8" | Brass | .04 |
| 12 | 1 | 03-10152 | BUSHING, 1/2" x 1/4" | Brass | .08 |
| 13 | 1 | 04-1056 | AIR CHUCK | Aluminum | .28 |
| 14 | 1 | 03-10057 | STREET TEE, 1/2" | Brass | .33 |
| 15 | 1 | 03-10062 | STREET ELBOW, 45 DEGREE, 1/2" | Brass | .25 |
| 16 | 1 | 04-1032 | BALL VALVE, 1/2" | Brass | .51 |
| 17 | 1 | 01-8359 | HANDLE, VALVE | Stainless Steel | .14 |
| 18 | 1 | 03-10082 | NIPPLE, 1/2" x 2" LG. | Brass | .24 |

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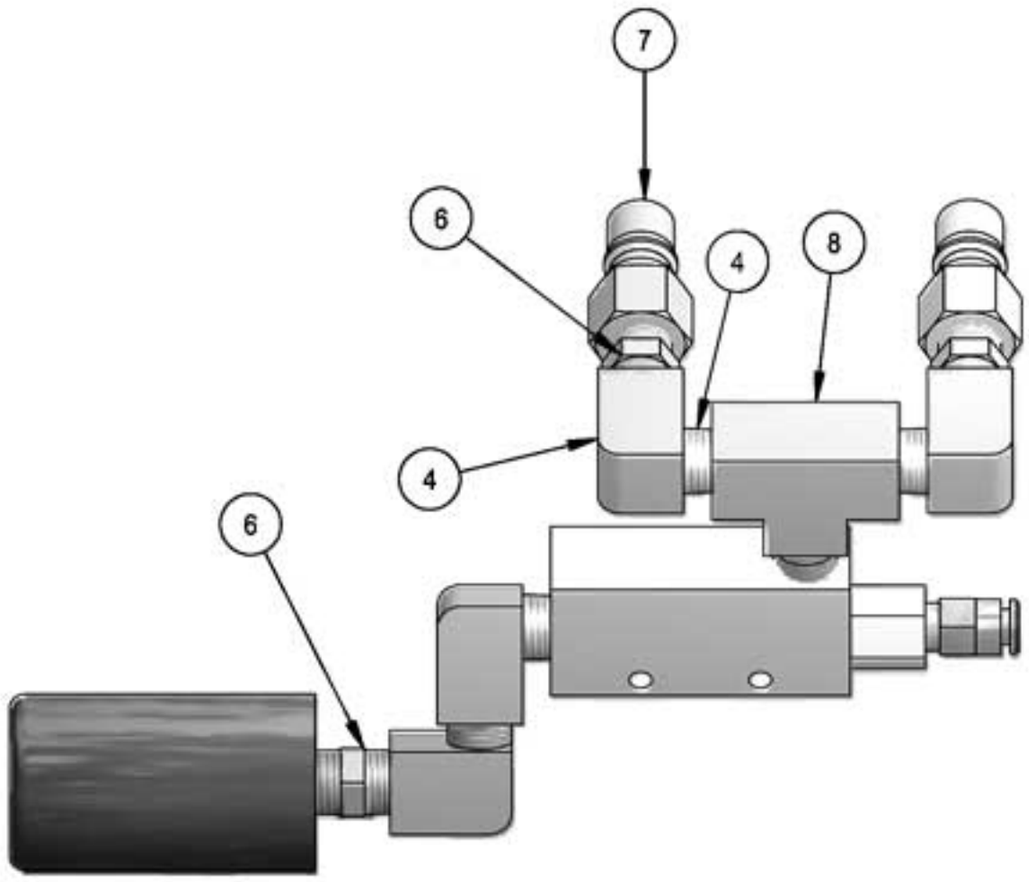
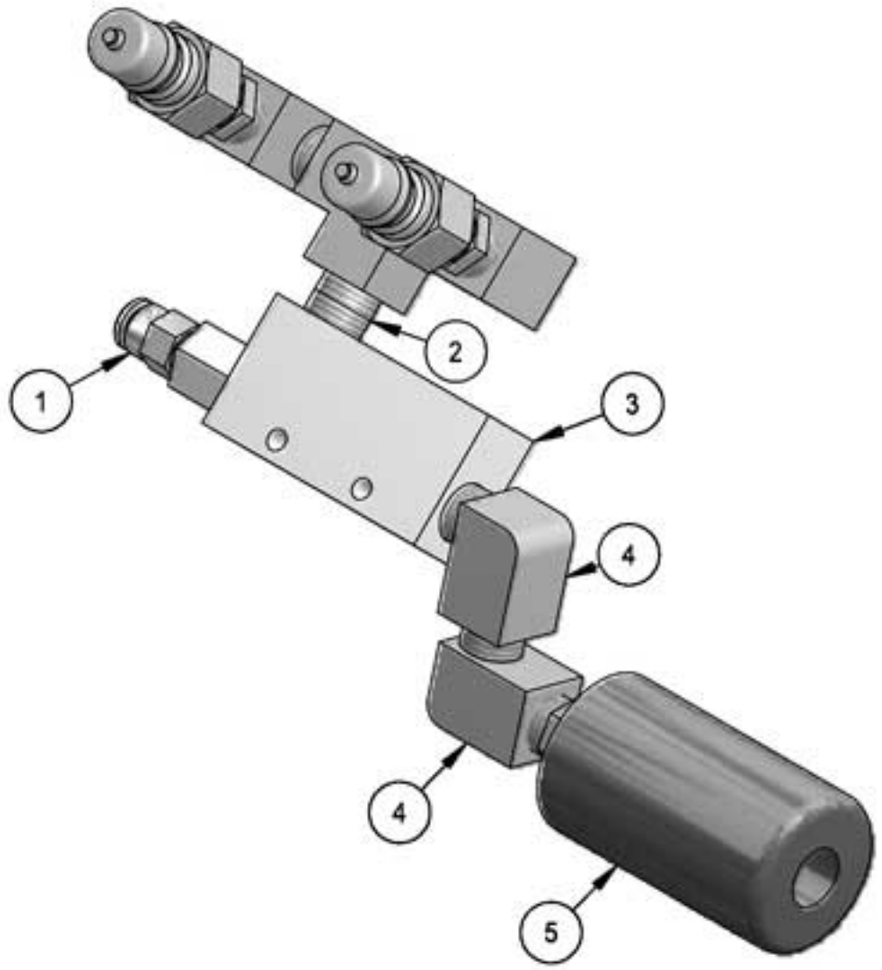
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

PRIMARY/SECONDARY VACUUM GENERATOR
AIR MANIFOLD SYSTEM

PN: 08-14020 | FIG. #6.3

Drawn: AL | Date:10/14/2005 | Size: A | Scale: NTS | Sheet 1 of 1




NOTE: P.N. 06-0100 1/8" O.D. BLACK TUBING
06-0101 1/4" O.D. BLACK TUBING

Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 03-1078 | PUSH CONNECT, 1/8" NPT x 1/4" HOSE | Brass | .03 |
| 2 | 1 | 03-10690 | CLOSE NIPPLE, 1/4" | Brass | .03 |
| 3 | 1 | 04-10035B | BODY, SECONDARY VACUUM GENERATOR | Aluminum | .20 |
| 4 | 4 | 03-11136 | STREET ELBOW, 1/4" | Brass | .14 |
| 5 | 1 | 04-10335M | MUFFLER FROM SECONDARY VACUUM GENERATOR | Delrin, Black | .19 |
| 6 | 3 | 03-10691 | HEX NIPPLE, 1/4" | Brass | .06 |
| 7 | 2 | 03-111397 | MALE QUICK-CONNECT, 1/4" | Brass | .12 |
| 8 | 1 | 03-11131 | TEE, 1/4" | Brass | .19 |

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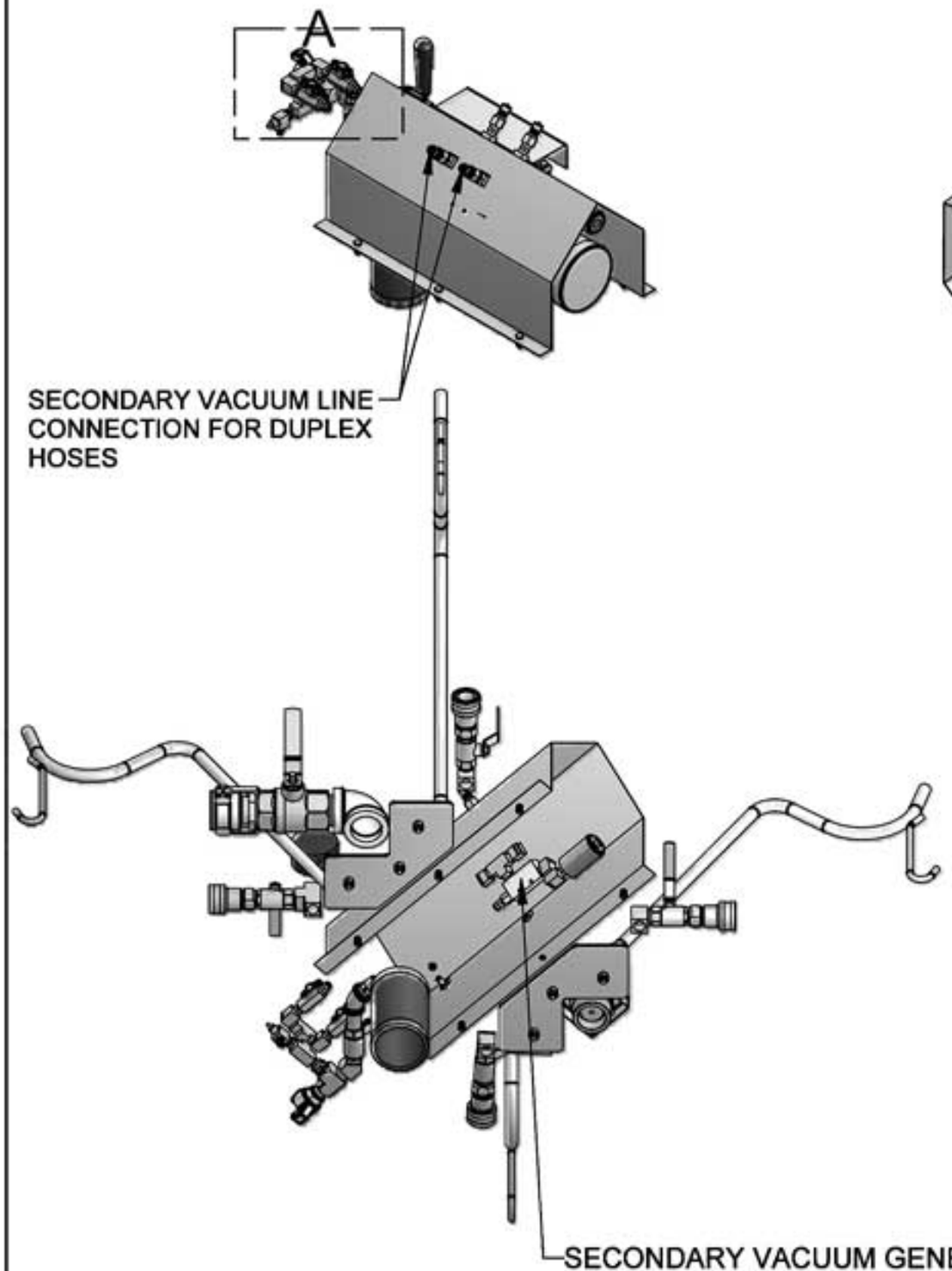
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

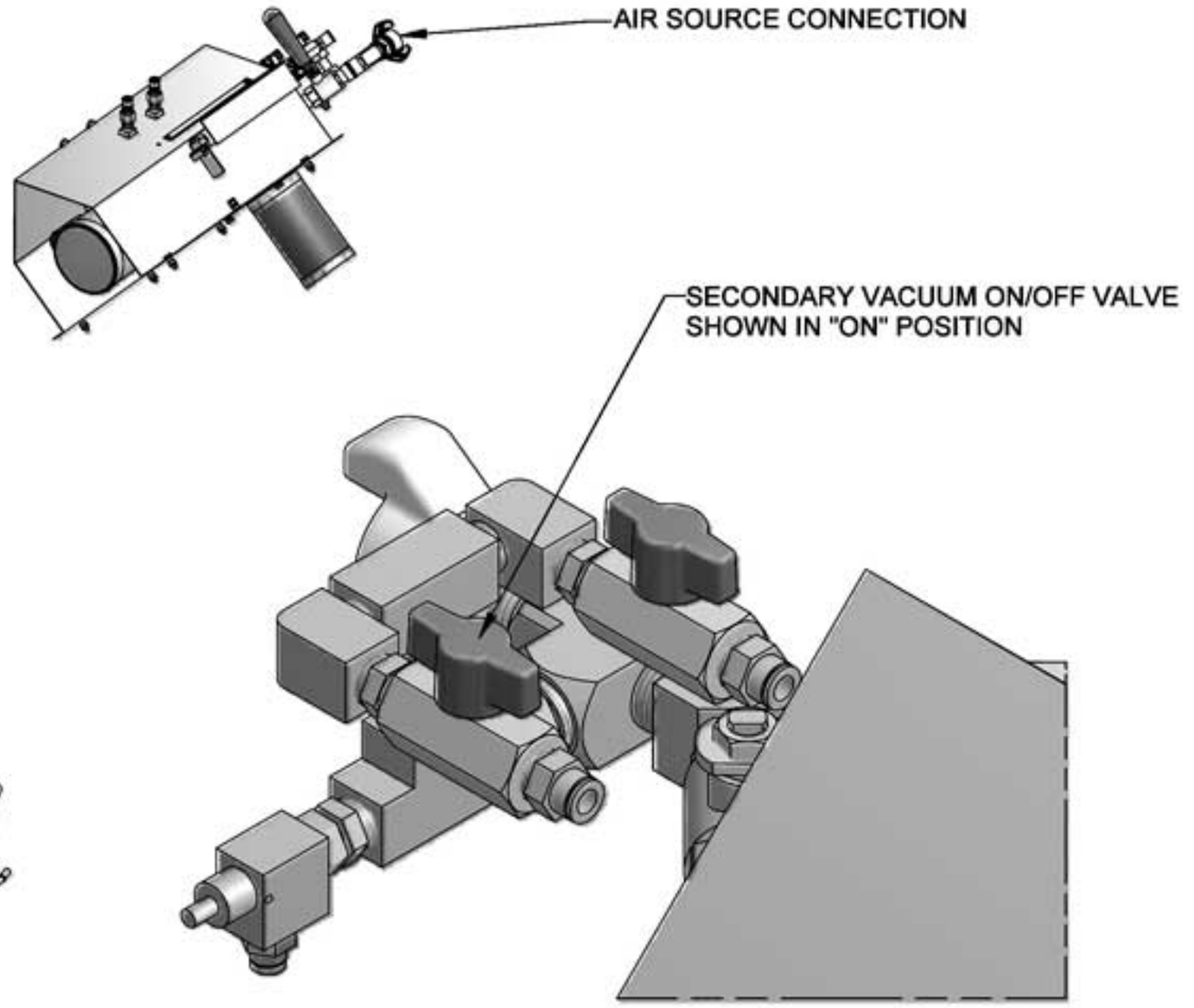
# SECONDARY VACUUM GENERATOR

PN: 08-14015 | FIG. #6.4

Drawn: AL | Date:10/14/2005 | Size: A | Scale: NTS | Sheet 1 of 1




PRIMARY VACUUM
REMOVED FOR CLARITY




DETAIL A

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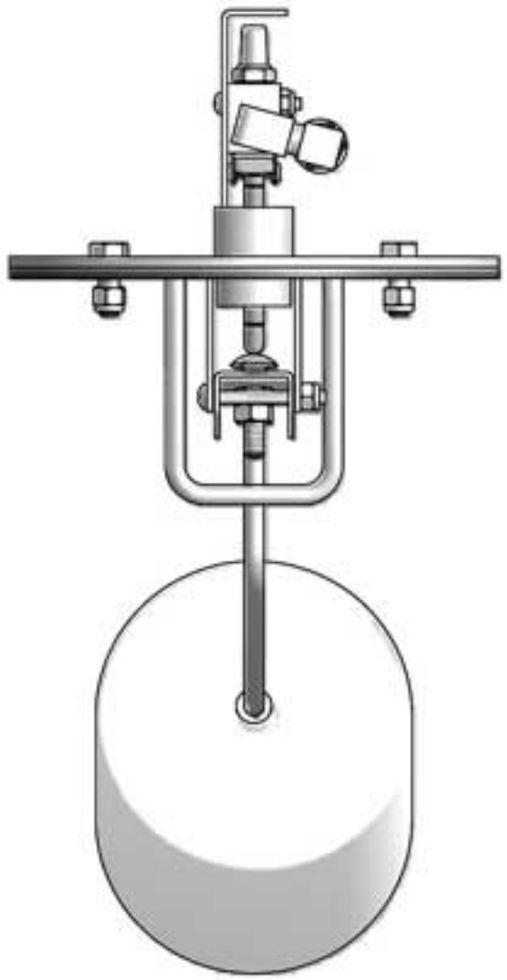
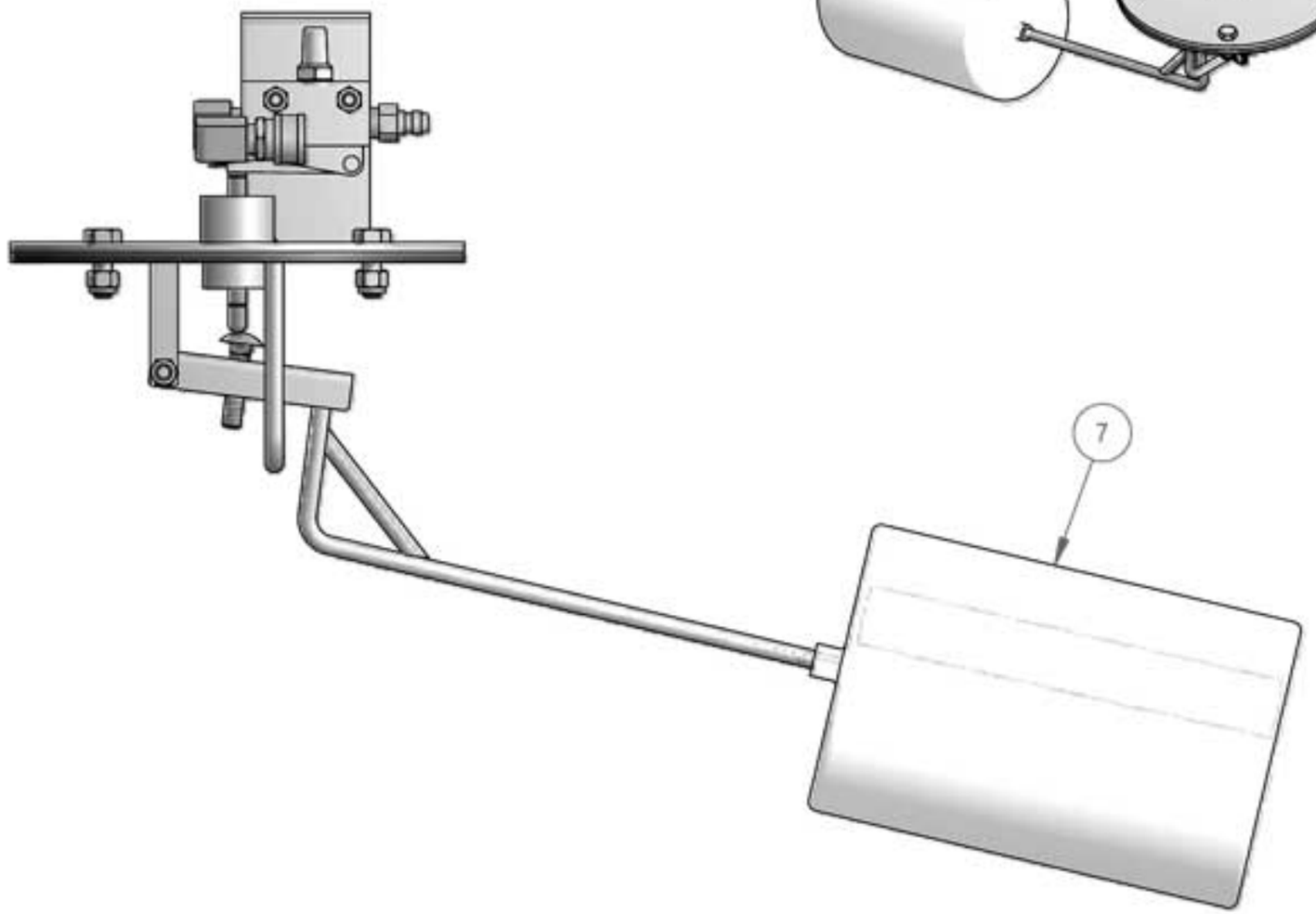
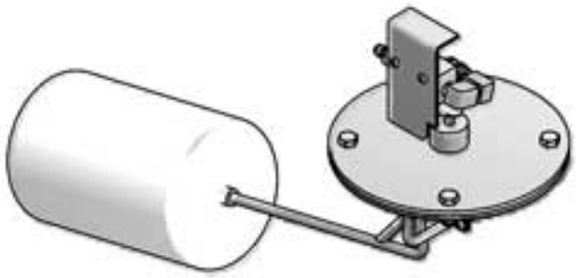
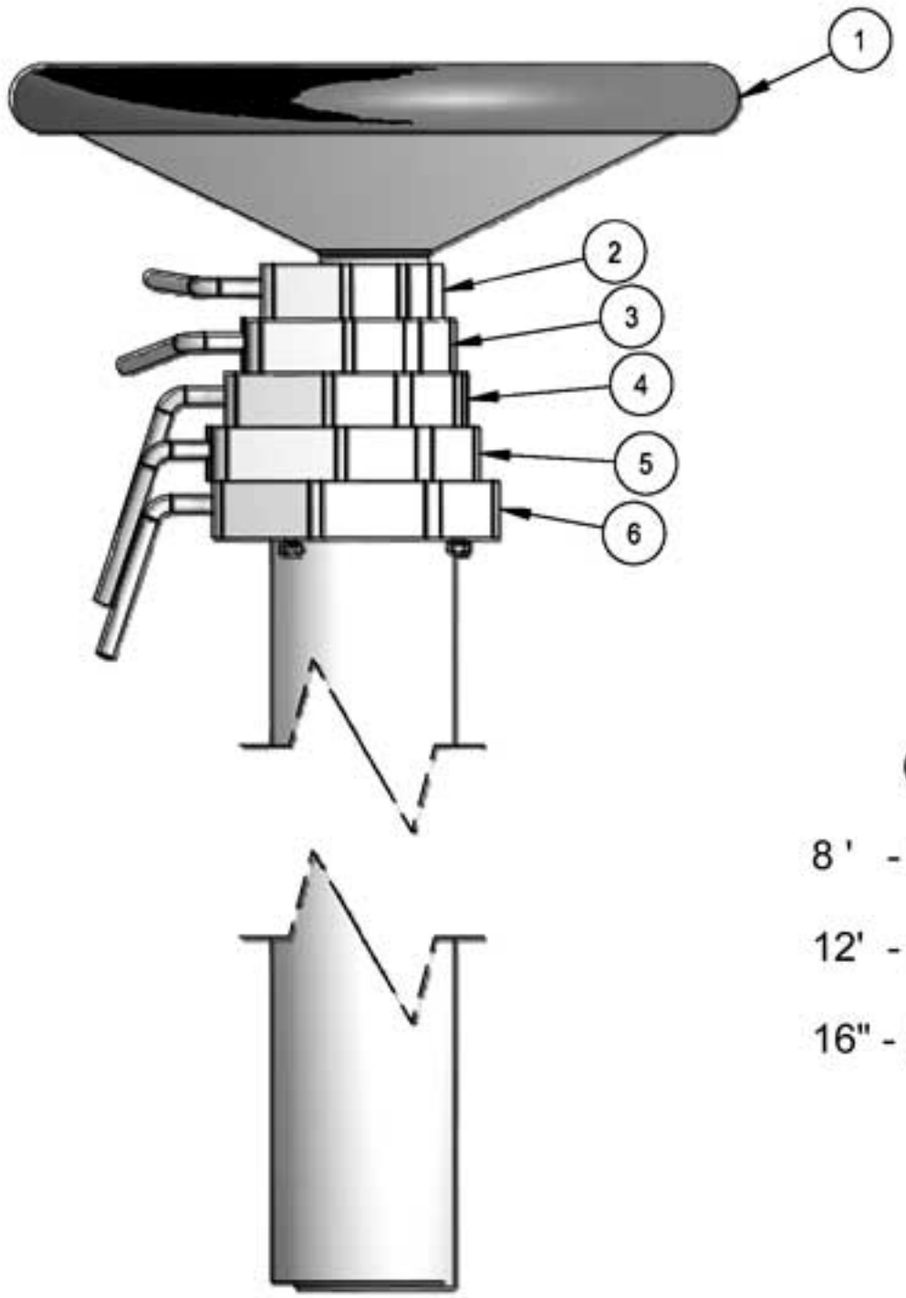
| | | | | |
|---|---|---|---|---|
| Tolerance:except as noted x/x=± 1/8" .xx=± .03" .xxx=± .005" ANG=± 1° | SVU VACUUM SYSTEM ASSEMBLY | | | |
| | REFERENCE | | | FIG.# 6.5 |
| Drawn: jay | Date:1/23/2007 | Size: A | Scale: NTS | Sheet 1 of 1 |





| | | | | |
|---|---|---|---|---|
| SPOKANE INDUSTRIES PO Box 3303 Spokane, WA. 99220 800-541-3601 | | | | |
| Tolerance:except as noted x/x=± 1/8" .xx=± .03" .xxx=± .005" ANG=± 1˚ | AUTO-VAC SHUT OFF | | | |
| | PN: 08-1802 | | | FIG. #7 |
| Drawn: Jay | Date:10/25/2005 | Size: A | Scale: NTS | Sheet 1 of 1 |

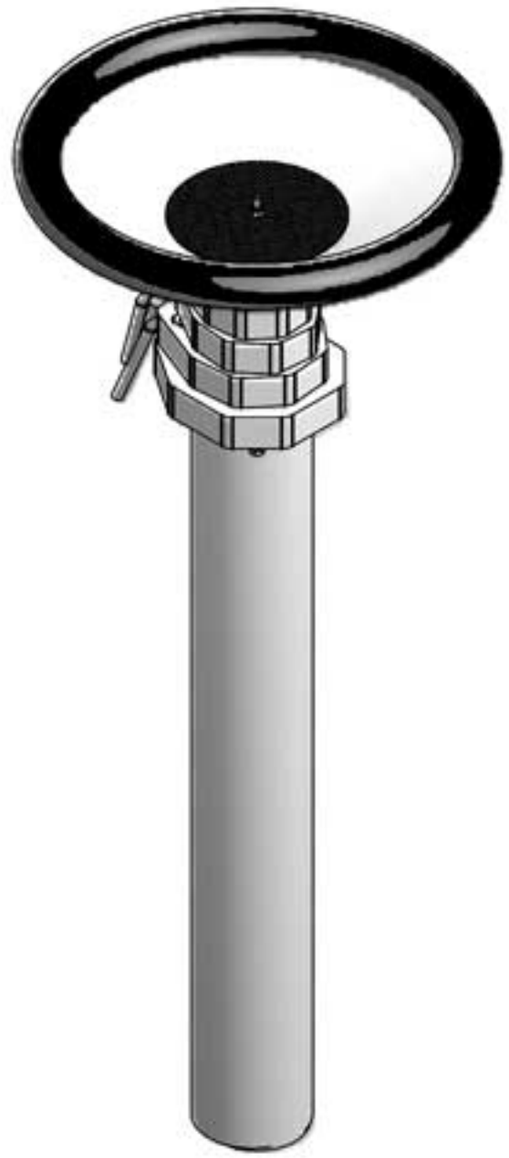



( P.N. )

8 ' - (08-1016U)

12' - (08-1033W)

16" - (08-1016U)



Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | | FUNNEL SECTION SEE FIGURE #8.1 | | 6.25 |
| 2 | 1 | | 2 1/2" TELESCOPING SECTION SEE FIGURE #8.2 | | 2.55 |
| 3 | 1 | | 3" TELESCOPING SECTION SEE FIGURE #8.3 | | 2.94 |
| 4 | 1 | | 3 1/2" TELESCOPING SECTION SEE FIGURE #8.4 | | 3.40 |
| 5 | 1 | | 4" TELESCOPING SECTION SEE FIGURE #8.5 | | 3.82 |
| 6 | 1 | | 4" BASE CLAMP SEE FIGURE #8.6 | | 2.09 |

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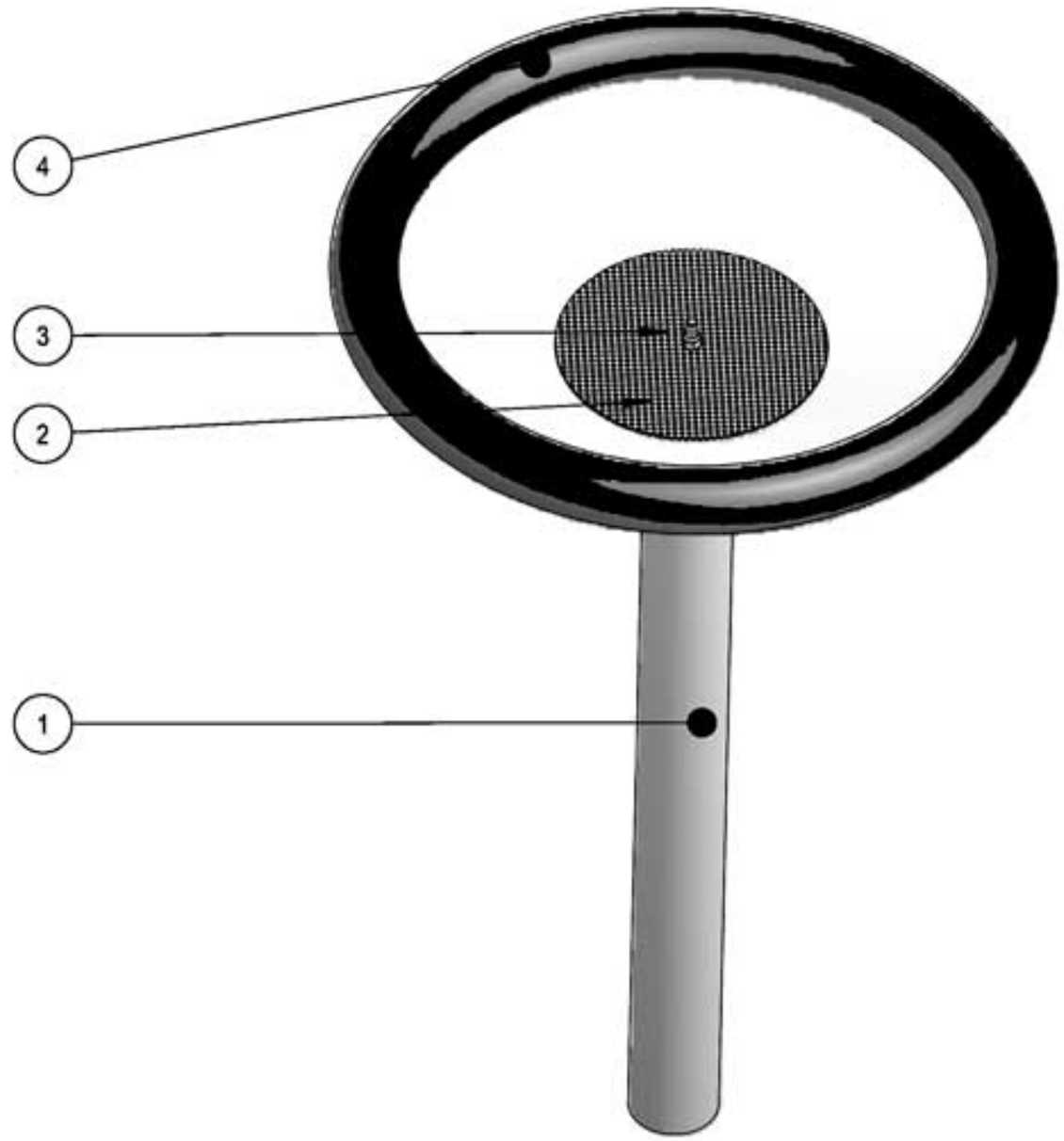
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

TELESCOPING FUNNEL DRAIN
8',12',16' SIZES

PN: N/A | FIG. #8

Drawn: jay | Date:1/7/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 07-1051 | FUNNEL SECTION (8') | Stainless Steel | 2.50 |
| 1 | 1 | 07-1054 W | FUNNEL SECTION (12') | Stainless Steel | 3.00 |
| 1 | 1 | 07-10541 | FUNNEL SECTION (16') | | 5.86 |
| 2 | 1 | 04-1039 | STRAINER | S/S | .36 |
| 3 | 1 | 02-1200 | NUT,NYLON INSERT, 1/4-20 UNC | S/S | .01 |
| 4 | 4 | 06-1022 T | GASKET | SPONGE RUBBER | .81 |

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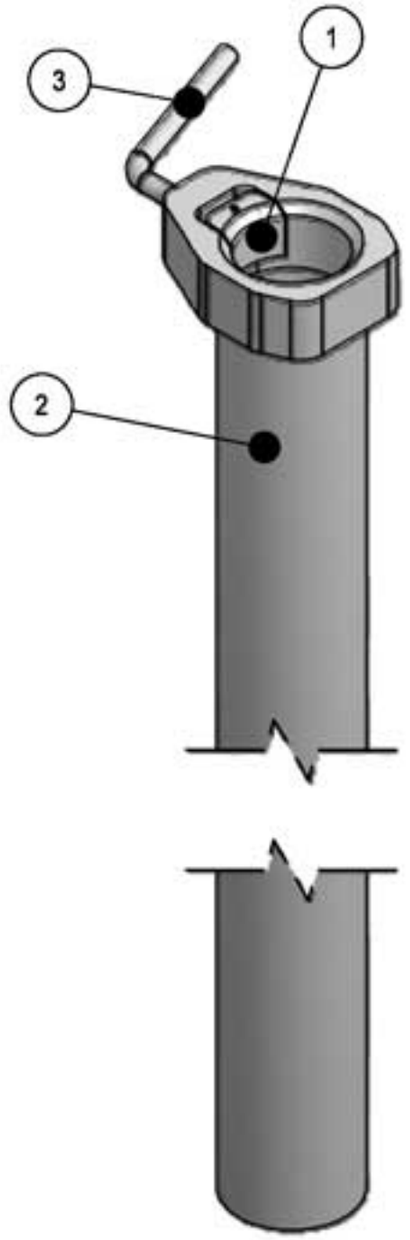
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# FUNNEL SECTION
## (8');(12');(16') FUNNEL SECTIONS

FIG.#8.1

| Drawn: AL | Date:10/23/2006 | Size: A | Scale: NTS | Sheet 1 of 1 |
|---|---|---|---|---|




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 05-10011 | WEDGE | Aluminum | .06 |
| 2 | 1 | 07-1049 | TUBING, .065" WALL, 2 1/2" (8 FT) | Stainless Steel | 1.63 |
| 2 | 1 | 07-1012 W | TUBING, .065" WALL, 2 1/2" (12FT) | Aluminum | 1.63 |
| 2 | 1 | 08-1017 U | TUBING, .065" WALL, 2 1/2" (16FT) | Aluminum | 1.63 |
| 3 | 1 | 05-10181 | HANDLE | Stainless Steel | .18 |

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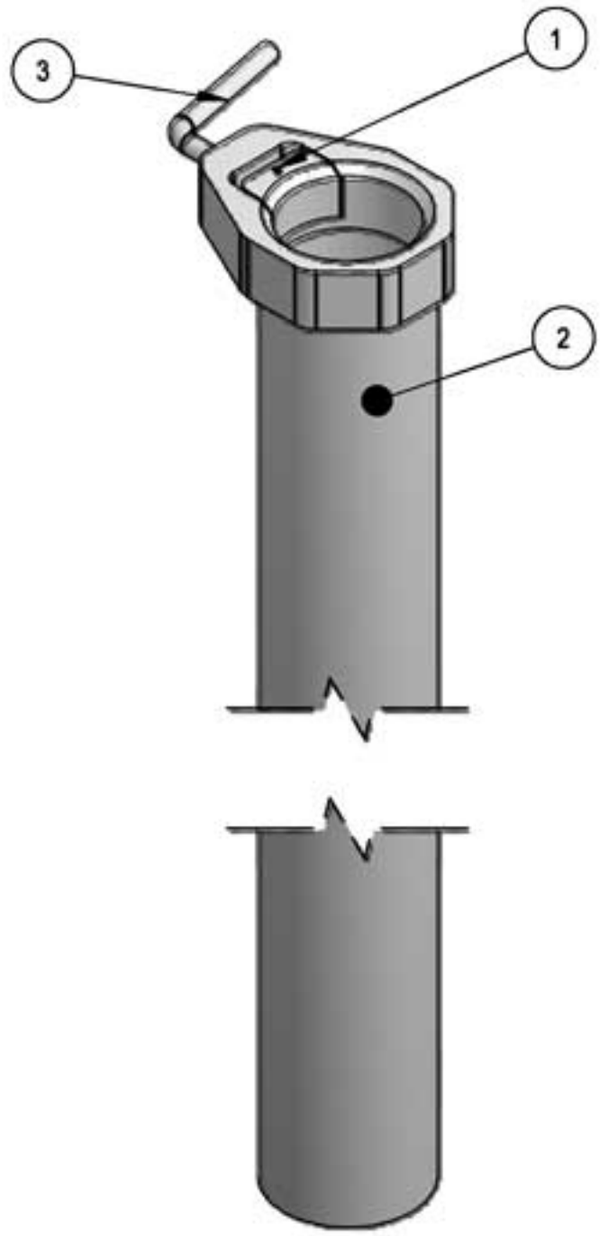
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# 2 1/2" TELESCOPING SECTION 200,400,600 GALS. MODELS

FIG. #8.2

Drawn: AL | Date:12/7/2004 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 05-10021 | WEDGE, CLAMP, 2 1/2" | Aluminum | .09 |
| 2 | 1 | 07-1045 | TUBE, 3" x .065" WALL (8FT) | Stainless Steel | 1.91 |
| 2 | 1 | 07-1013 W | TUBE, 3" x .065" WALL (12FT) | Aluminum | 1.91 |
| 2 | 1 | 08-1027 U | TUBE, 3" x .065" WALL (16FT) | Aluminum | 1.91 |
| 3 | 1 | 05-10181 | HANDLE | Stainless Steel | .18 |

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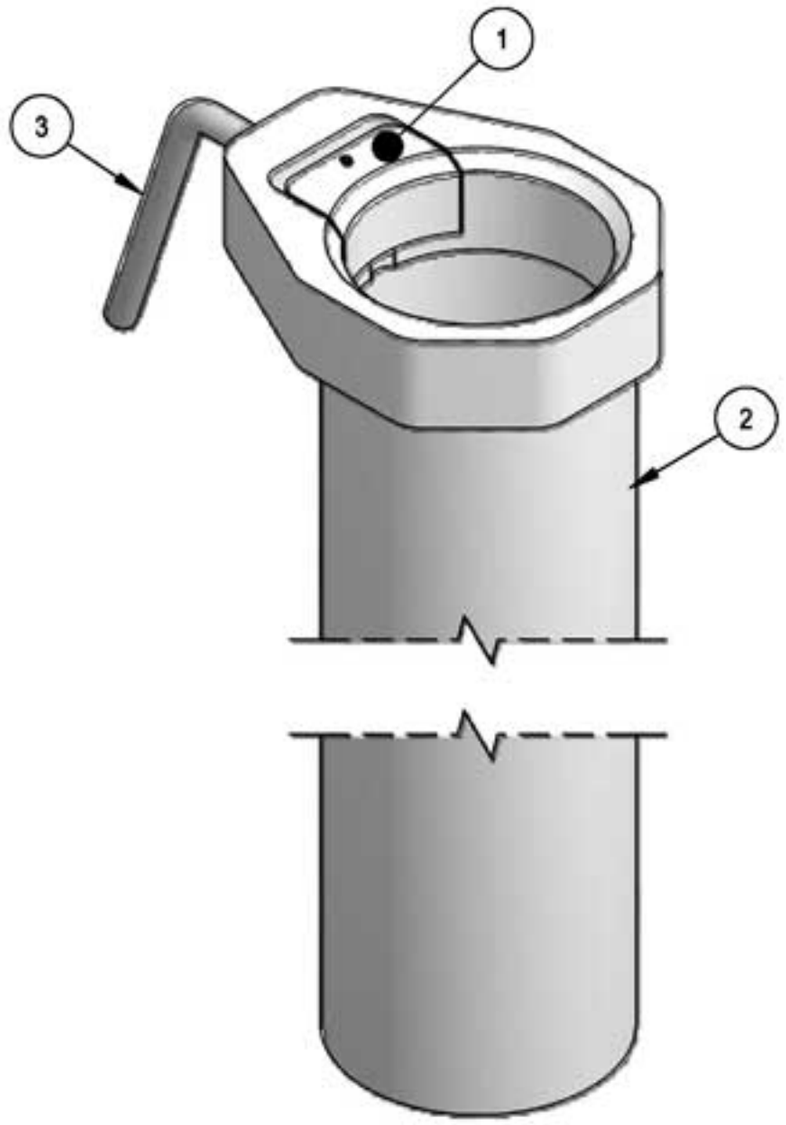
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1˚

# 3" TELESCOPING SECTION
# 200,400,600 GALS. MODELS

FIG. #8.3

Drawn: AL | Date:12/9/2004 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 05-10031 | WEDGE | Aluminum | .14 |
| 2 | 1 | 07-1014W | 3 1/2" TUBE (12 FT) | Aluminum | 2.16 |
| 2 | 1 | 08-1028U | 3 1/2" TUBE (16 FT) | Stainless Steel | .00 |
| 3 | 1 | 05-10181 | HANDLE | Stainless Steel | .18 |

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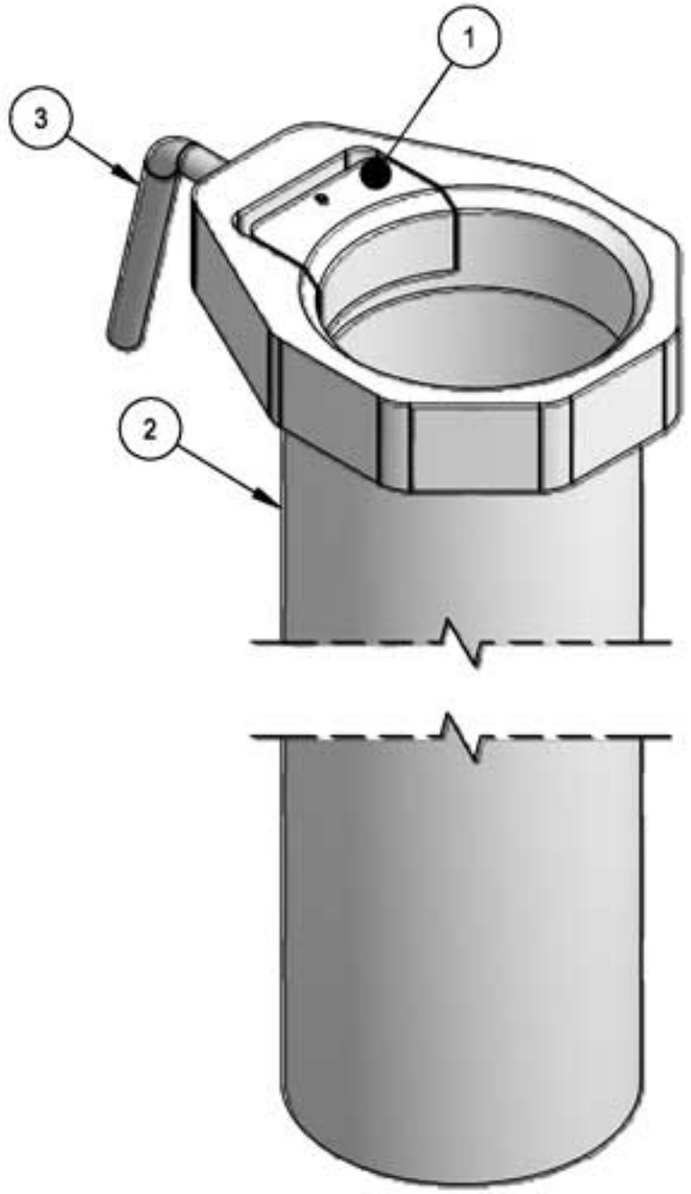
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# 3 1/2" TELESCOPING SECTION 200,400,600 GALS

FIG #8.4

Drawn: jay | Date:12/1/2005 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 05-10041 | WEDGE | Aluminum | .19 |
| 2 | 1 | 07-1014U | 4" TUBE , (16FT ONLY) | Aluminum | 2.40 |
| 3 | 1 | 05-10181 | HANDLE | Stainless Steel | .18 |

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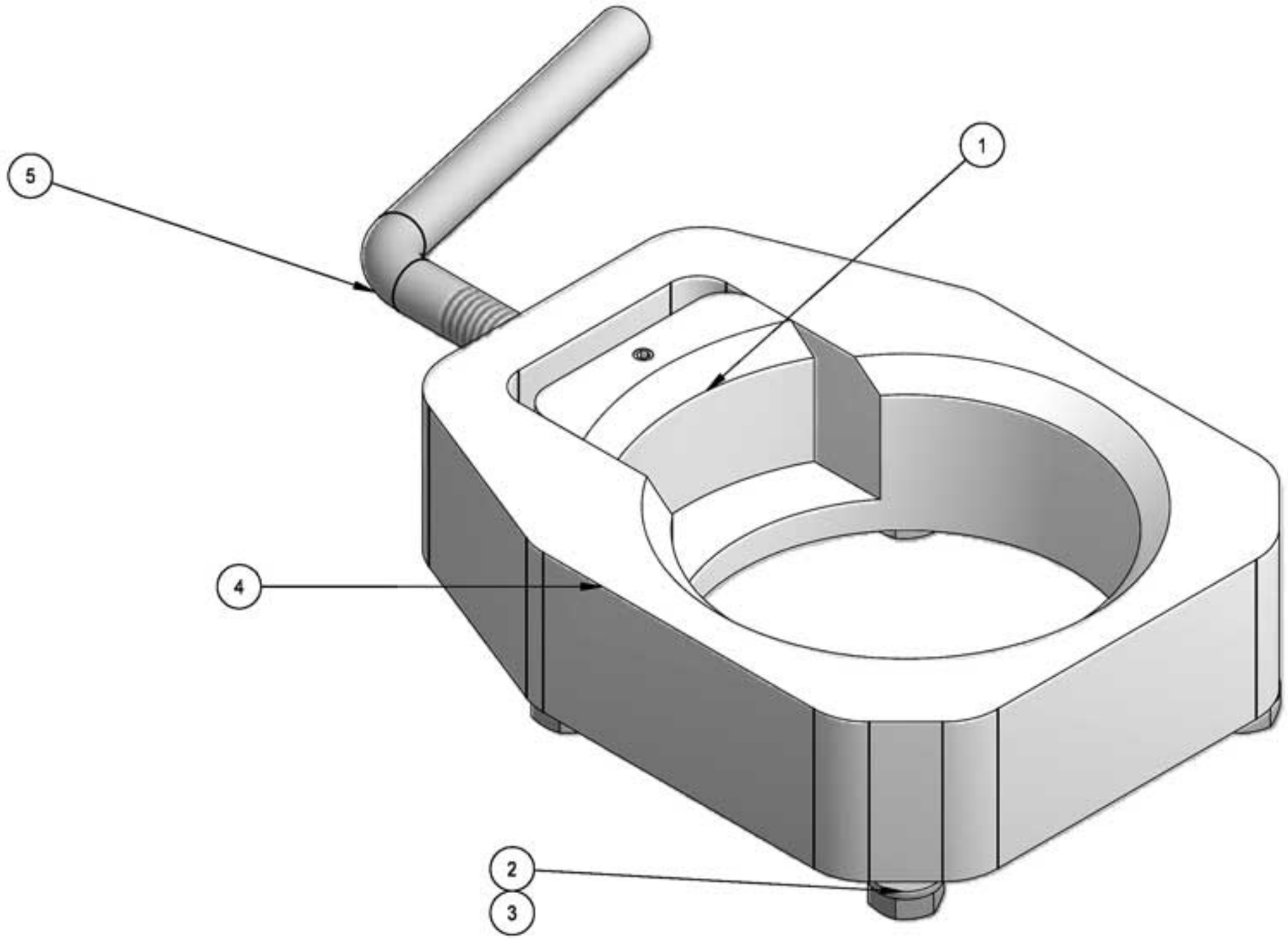
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

4" TELESCOPING SECTION
200,400,600 GALS

FIG. #8.5

Drawn: jay | Date:12/1/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 05-10051 | WEDGE | Aluminum | .11 |
| 2 | 4 | 02-11001 | LOCK WASHER, 1/4" | Stainless Steel | .00 |
| 3 | 4 | 02-10010 | BOLT, 1/4" UNC x 5/8" LG. | Stainless Steel | .02 |
| 4 | 1 | 05-10292 | 8' BASE CLAMP | Stainless Steel | 1.19 |
| 4 | 1 | 07-6000 W | 12' BASE CLAMP | Stainless Steel | 1.19 |
| 4 | 1 | 05-10302 | 16' BASE CLAMP | Stainless Steel | |
| 5 | 1 | 05-10181 | HANDLE | Stainless Steel | .18 |

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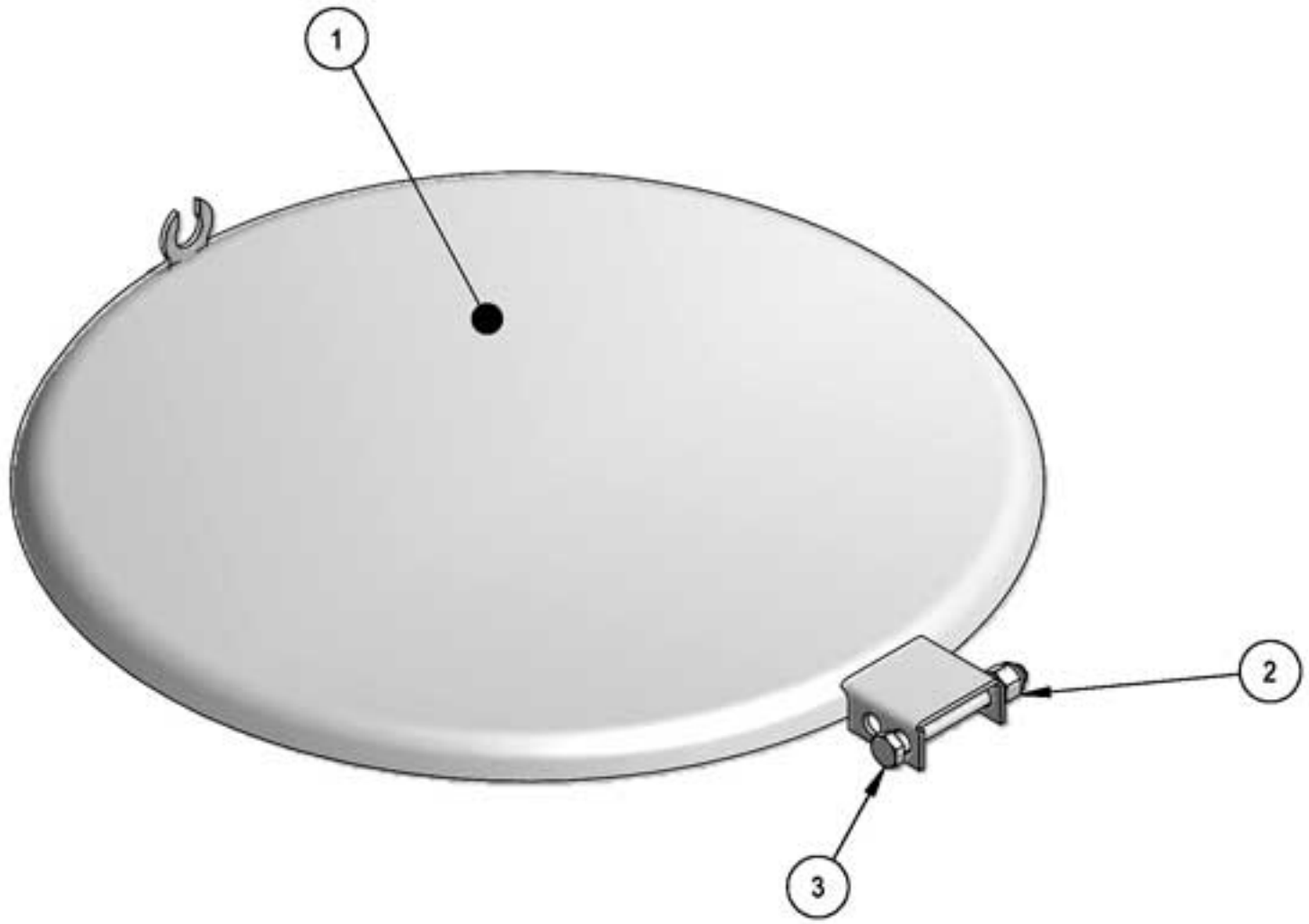
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# TELESCOPING FUNNEL BASE CLAMP 200,400,600 GALS

FIG. #8.6

Drawn: AL | Date:10/23/2006 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 01-86001 | LID | Stainless Steel | 7.50 |
| 2 | 1 | 02-1202 | NUT, NYLON INSERT 3/8" UNC | Stainless Steel | .03 |
| 3 | 1 | 02-10013 | HEX CAP SCREW, 3/8" UNC 3" LG | Stainless Steel | .12 |

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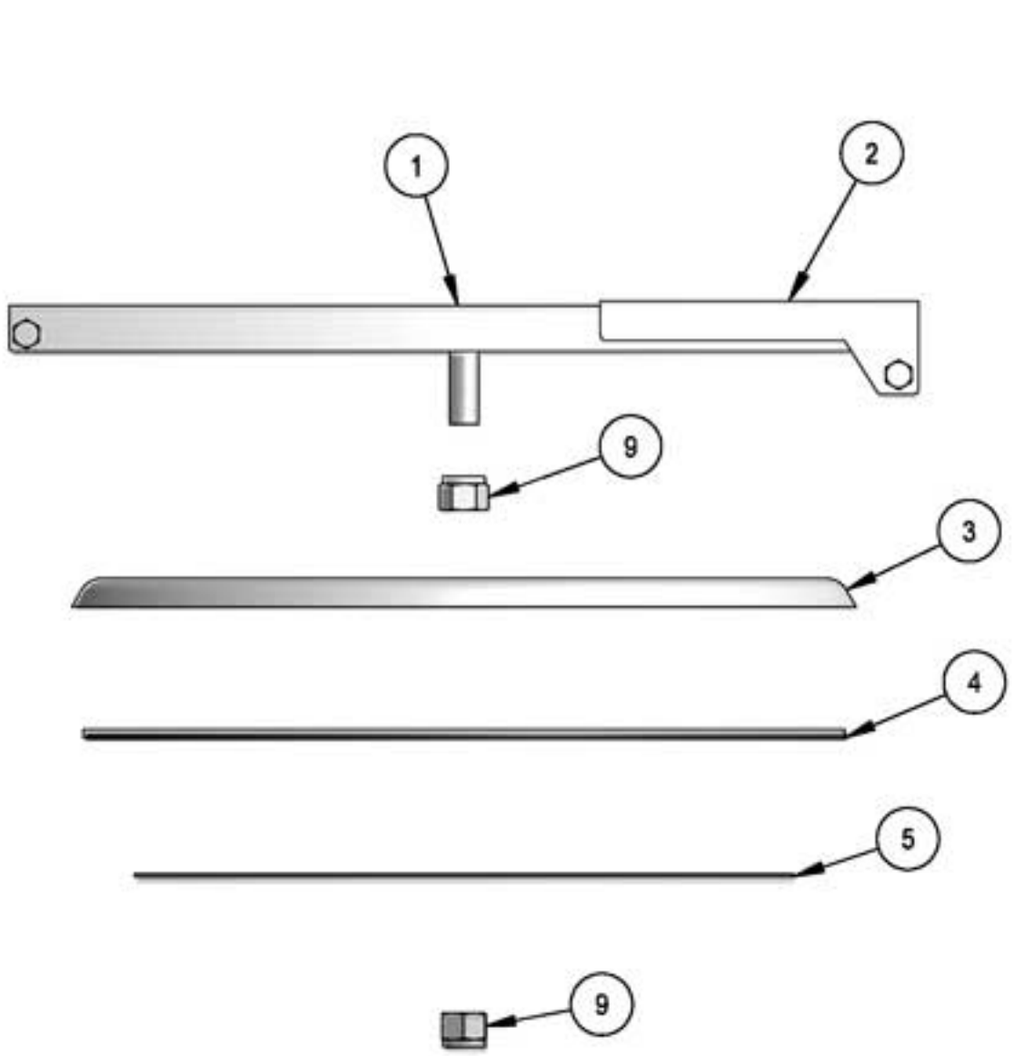
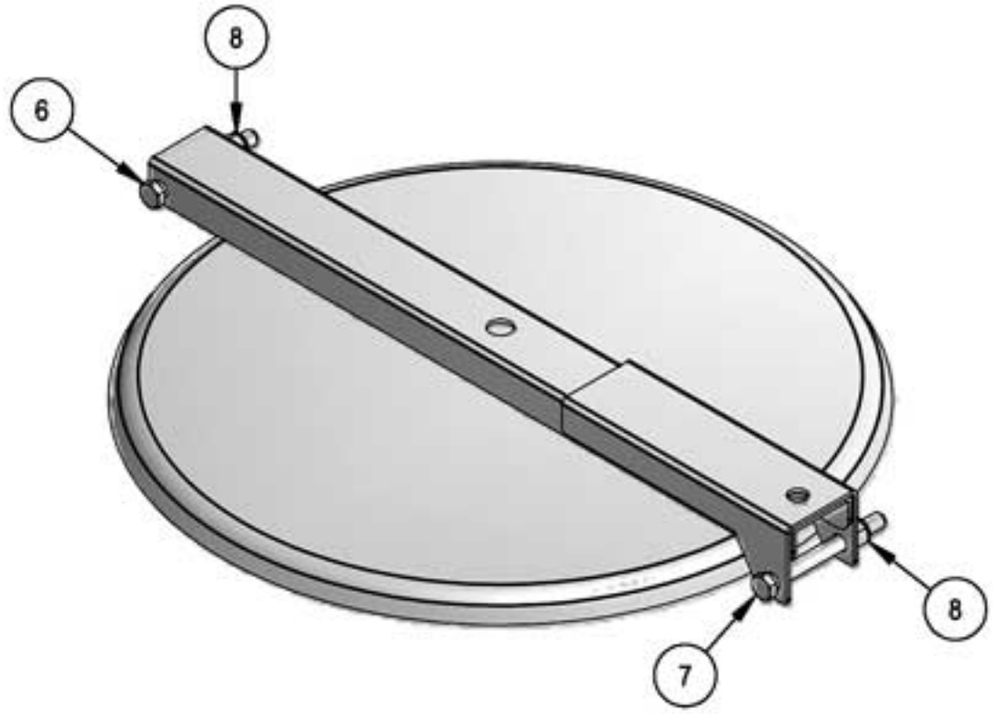
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

FUNNEL COVER

PN: 08-10261 FIG. #8.7

Drawn: jay | Date:10/25/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 07-1039S | CROSS ARM | Stainless Steel | 2.41 |
| 2 | 1 | 01-8222S | FLIP LOCK | Stainless Steel | .86 |
| 3 | 1 | 01-86002 | MANWAY LID | Stainless Steel | 9.60 |
| 4 | 1 | 06-25025 | MANWAY GASKET | Rubber | 1.39 |
| 5 | 1 | 01-8710 | GASKET RETAINER | Stainless Steel | .97 |
| 6 | 1 | 02-10013 | HEX CAP SCREW, 3/8" UNC 3" LG | Stainless Steel | .12 |
| 7 | 1 | 02-10014 | HEX CAP SCREW, 3/8" UNC 3 1/2" LG. | Stainless Steel | .13 |
| 8 | 2 | 02-1202 | NUT, NYLON INSERT 3/8" UNC | Stainless Steel | .03 |
| 9 | 2 | 02-20611S | NUT, NYLON INSERT 5/8" UNF | Stainless Steel | .11 |

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x/x=± 1/8"
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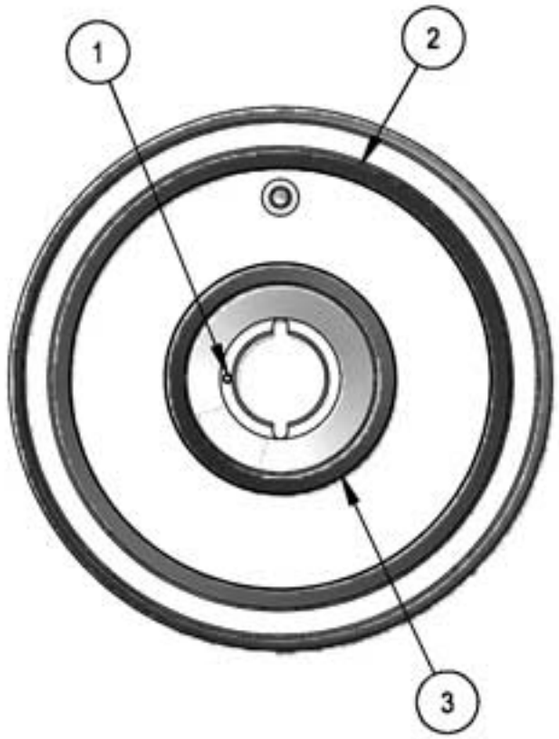
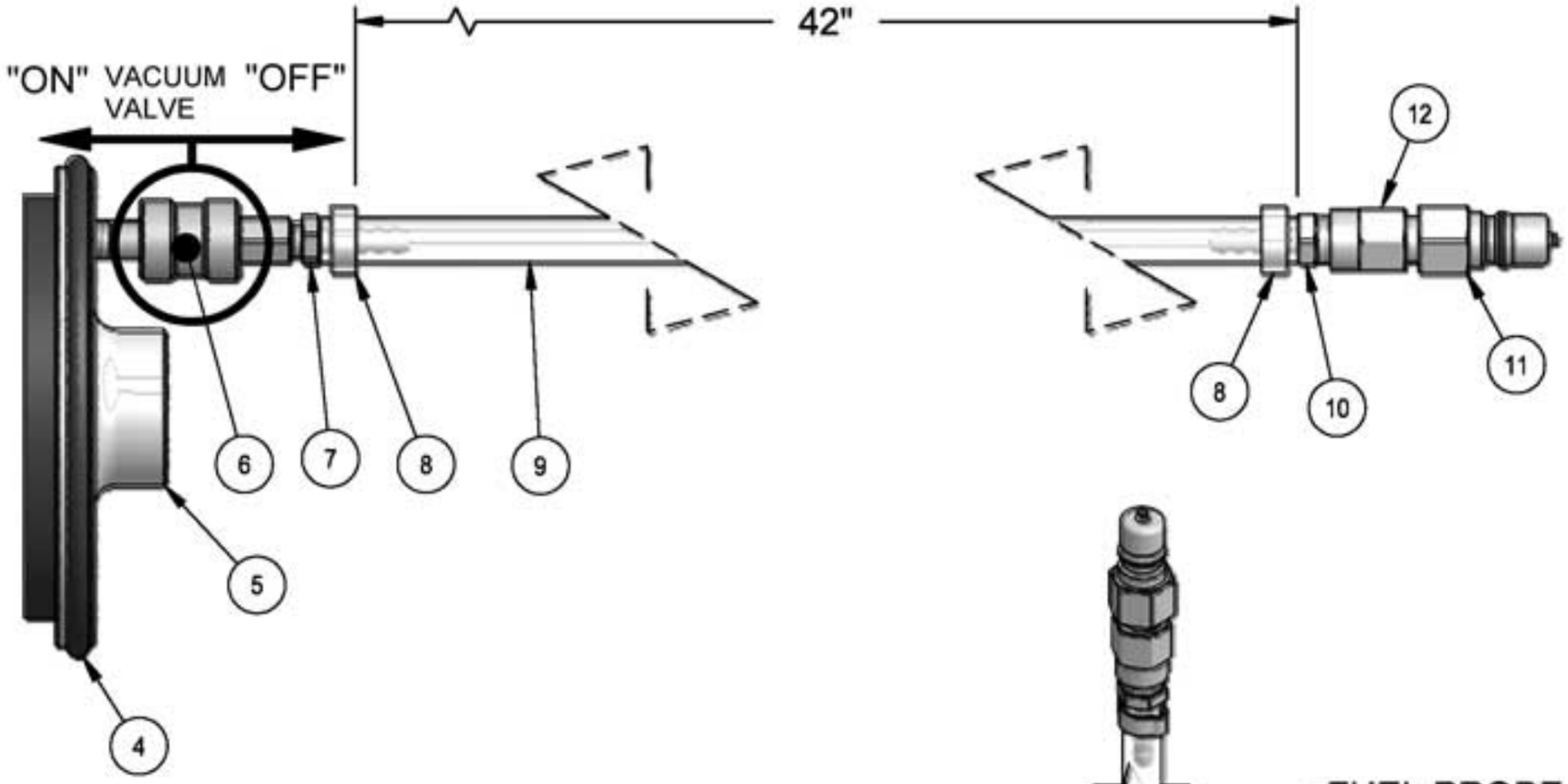
.xxx=± .005"
ANG=± 1°

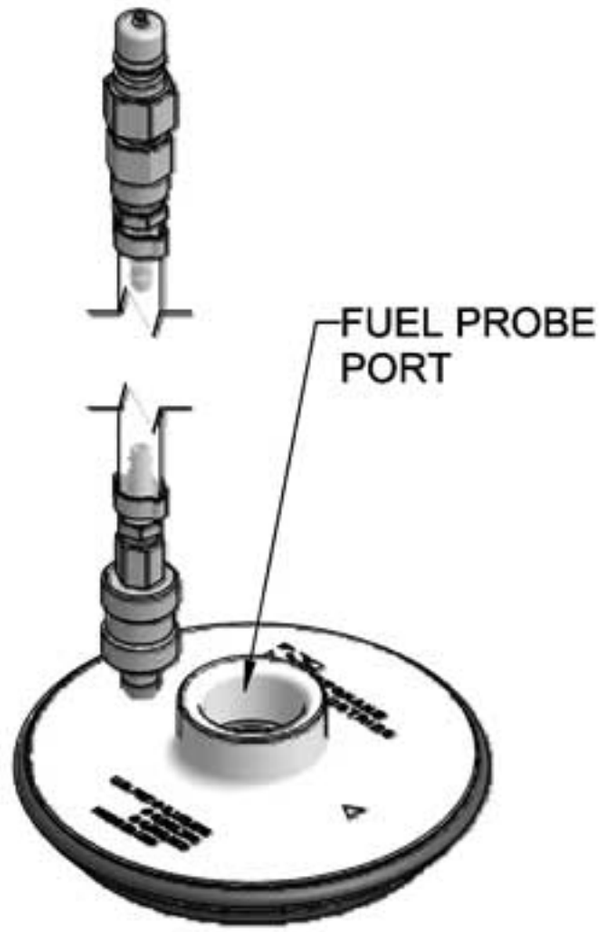
CROSS ARM & LID ASSEMBLY
200,400,600 GALS.

PN: 08-10251 | FIG. #9

Drawn: jay | Date:10/25/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 02-1350 | ROLL PIN, 3/32" x 1/4" LG. | Stainless Steel | .00 |
| 2 | 1 | 06-0075 | SEAL, 4.75" O.D. | Viton | .05 |
| 3 | 1 | 06-0074 | SEAL, 2" I.D. | Viton | .02 |
| 4 | 1 | 06-00688 | BUMPER | Rubber | .03 |
| 5 | 1 | 05-1040 | SUCTION PLATE | Aluminum | .83 |
| 6 | 1 | 04-10325 | SLIDE VALVE, 1/8" 250# | Brass | .23 |
| 7 | 1 | 03-111334 | HOSE BARB, 1/8" NPT x 1/4" BARB | Brass | .03 |
| 8 | 2 | 03-10105 | CLAMP, OETIKER, 1/2" | Stainless Steel | .01 |
| 9 | 1 | 06-2526 | TUBING, 1/4" x 1/2" #510 | Vinyl | .27 |
| 10 | 1 | 03-11133 | HOSE BARB, 1/4" NPT x 1/4" BARB | Brass | .05 |
| 11 | 1 | 03-111397 | MALE QUICK-CONNECT, 1/4" | Brass | .12 |
| 12 | 1 | 04-10091 | CHECK VALVE | Brass | .07 |

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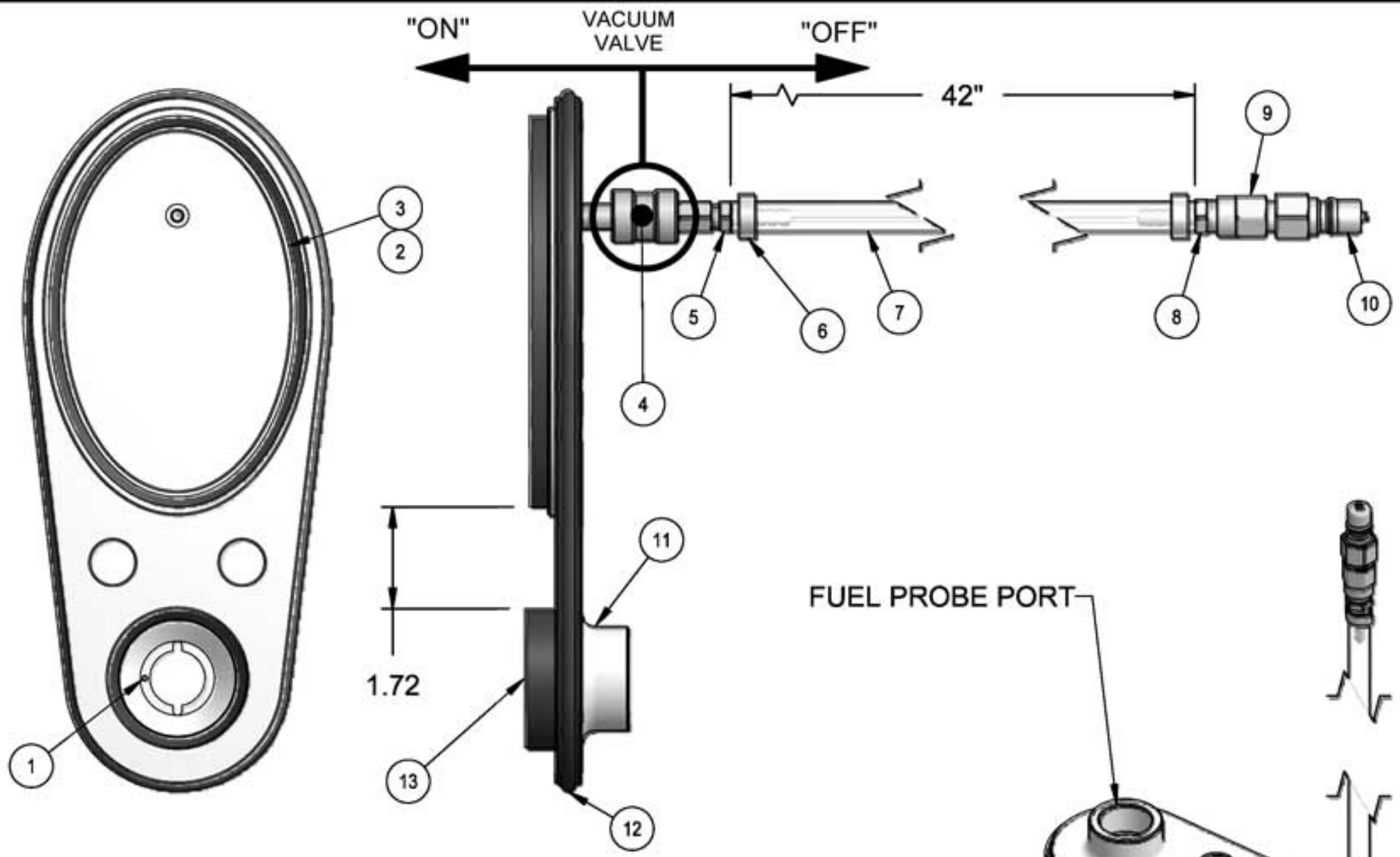
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# SealVac Standard Suction Plate Assembly

PN: 08-0200 | FIG. #10

Drawn: jay | Date:9/9/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 02-1350 | ROLL PIN, 3/32" x 1/4" LG. | Stainless Steel | .00 |
| 2 | 1 | 06-0077 | SEAL, FLAT | VITON | |
| 3 | 1 | 06-00774 | SEAL, CONTOURED (HIGH CONTOUR SURFACES) | Viton | .05 |
| 4 | 1 | 04-10325 | SLIDE VALVE, 1/8" 250# | Brass | .23 |
| 5 | 1 | 03-111334 | HOSE BARB, 1/8" NPT x 1/4" BARB | Brass | .03 |
| 6 | 2 | 03-10105 | CLAMP, OETIKER, 1/2" | Stainless Steel | .01 |
| 7 | 1 | 06-2526 | TUBING, 1/4" x 1/2" #510 | Vinyl | .27 |
| 8 | 1 | 03-11133 | HOSE BARB, 1/4" NPT x 1/4" BARB | Brass | .05 |
| 9 | 1 | 04-10091 | CHECK VALVE | Brass | .07 |
| 10 | 1 | 03-111397 | MALE QUICK-CONNECT, 1/4" | Brass | .12 |
| 11 | 1 | 05-10402 | OVAL SUCTION PLATE | Aluminum | 1.72 |
| 12 | 1 | 06-00685 | BUMPER | Rubber | .05 |
| 13 | 1 | 06-0073 | HUB SEAL | Rubber | .02 |

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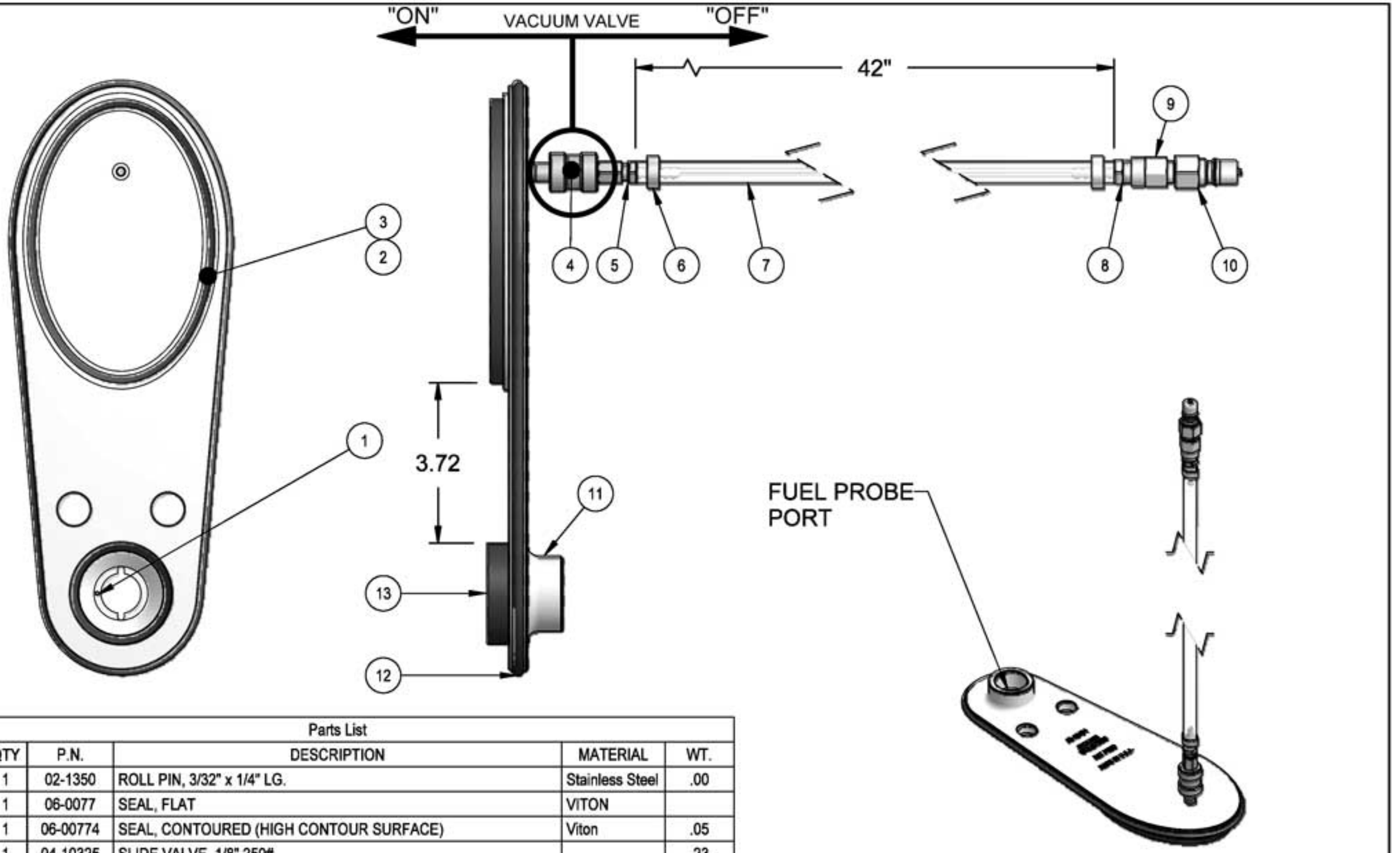
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# OVAL SUCTION PLATE ASSEMBLY

PN: 08-0300 | FIG. #11

Drawn: jay | Date:9/13/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 02-1350 | ROLL PIN, 3/32" x 1/4" LG. | Stainless Steel | .00 |
| 2 | 1 | 06-0077 | SEAL, FLAT | VITON | |
| 3 | 1 | 06-00774 | SEAL, CONTOURED (HIGH CONTOUR SURFACE) | Viton | .05 |
| 4 | 1 | 04-10325 | SLIDE VALVE, 1/8" 250# | | .23 |
| 5 | 1 | 03-111334 | HOSE BARB, 1/8" NPT x 1/4" BARB | Brass | .03 |
| 6 | 2 | 03-10105 | CLAMP, OETIKER, 1/2" | Stainless Steel | .01 |
| 7 | 1 | 06-2526 | TUBING, 1/4" x 1/2" #510 | Vinyl | .27 |
| 8 | 1 | 03-11133 | HOSE BARB, 1/4" NPT x 1/4" BARB | Brass | .05 |
| 9 | 1 | 04-10091 | CHECK VALVE | Brass | .07 |
| 10 | 1 | 03-111397 | MALE QUICK-CONNECT, 1/4" | Brass | .12 |
| 11 | 1 | 05-10404 | ELONGATED SUCTION PLATE | Aluminum | 2.07 |
| 12 | 1 | 06-00686 | BUMPER | Rubber | .05 |
| 13 | 1 | 06-0073 | HUB SEAL | Rubber | .02 |

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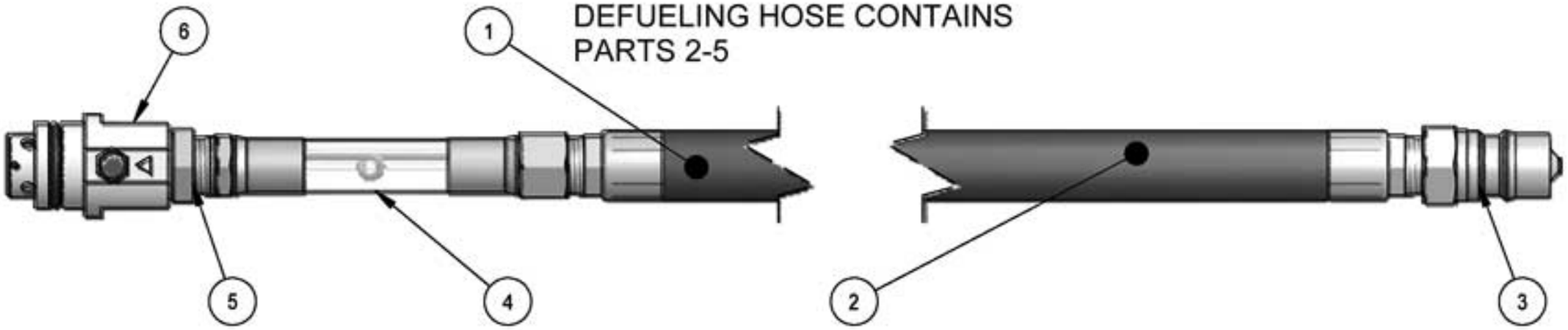
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

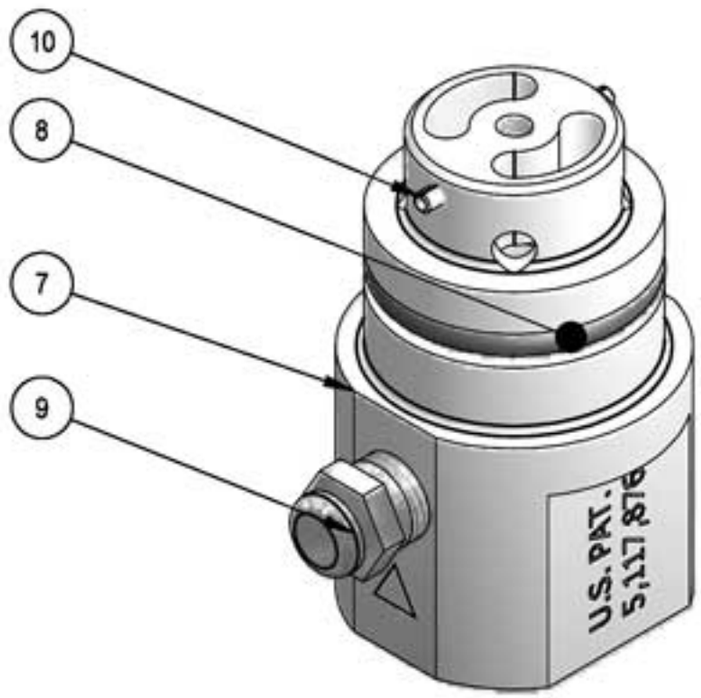
# ELONGATED SUCTION PLATE

PN: 08-0310 | FIG. #12

Drawn: jay | Date:10/27/2005 | Size: A | Scale: NTS | Sheet 1 of 1




DEFUELING HOSE CONTAINS
PARTS 2-5




ITEM #6

CONTAINS ITEMS # 7 -10

| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 08-1050 | HOSE, PROBE PIGTAIL (COMPLETE) ITEMS 2-5 | | 1.93 |
| 2 | 1 | 06-101660 | HOSE,1/2" DEFUELING, (06-101671 HOSE 3/4" DEFUELING) | | |
| 3 | 1 | 03-111395 | QUICK DISCONNECT, 1/2"(03-111392 QUICK DISCONNECT 3/4") | | |
| 4 | 1 | 04-0750 | SIGHT WINDOW (04-0751 SIGHT WINDOW 3/4") | | |
| 5 | 1 | 03-10155 | BUSHING, 3/4"X 1/2" | | |
| 6 | 1 | 08-0100 | DE-FUELING PROBE ( COMPLETE)( ITEMS 7-10) | | .20 |
| 7 | 1 | 05-1037R | PROBE | | |
| 8 | 1 | 06-00684 | O-RING | | |
| 9 | 1 | 04-10328 | VACUUM RELIEF VALVE | | |
| 10 | 1 | 02-1350 | ROLL PIN, 3/32"X1/4"LG. | | |

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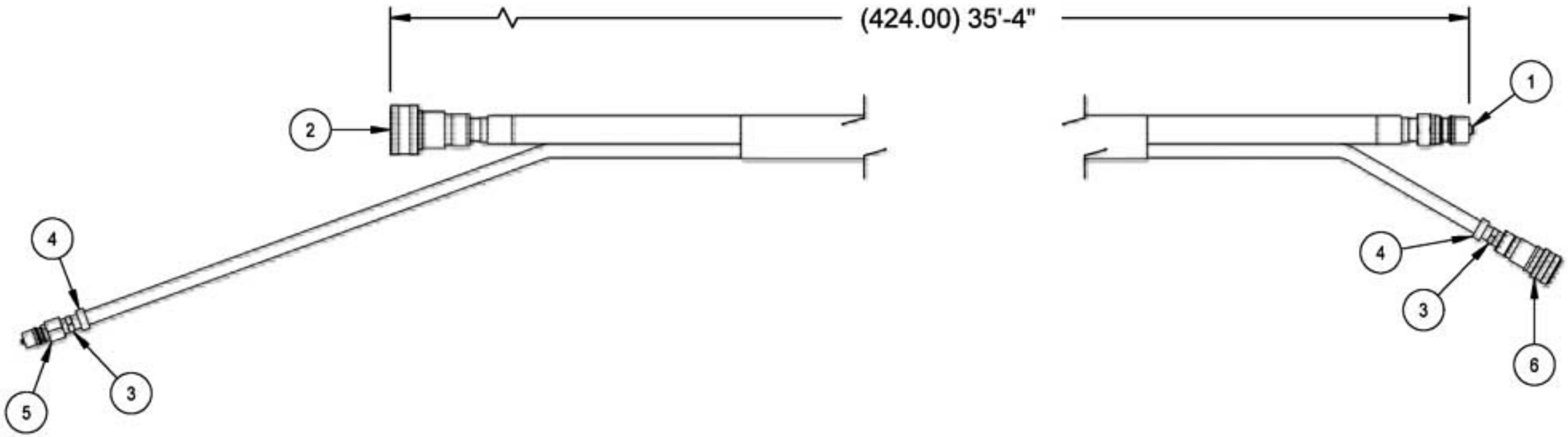
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

PROBE & PIGTAIL ASSEMBLY

P.N.08-1050 & 08-0100 | FIG. #13

Drawn: jay | Date:11/30/2005 | Size: A | Scale: NTS | Sheet 1 of 1




| Parts List | | | | | |
|---|---|---|---|---|---|
| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
| 1 | 1 | 03-111395 | MALE QUICK DISCONNECT, 1/2" | Brass | .29 |
| 1 | 1 | 03-111391 | MALE QUICK DISCONNECT, 3/4" | | 8.75 |
| 2 | 1 | 03-111392 | FEMALE QUICK CONNECT, 3/4" | PVC | 3.26 |
| 2 | 1 | 03-111394 | FEMALE QUICK CONNECT, 1/2" | Brass | .98 |
| 3 | 2 | 03-11133 | HOSE BARB, 1/4" NPT x 1/4" BARB | Brass | .05 |
| 4 | 2 | 03-10105 | CLAMP, OETIKER, 1/2" | Stainless Steel | .01 |
| 5 | 1 | 03-111397 | MALE QUICK-CONNECT, 1/4" | Brass | .12 |
| 6 | 1 | 03-111398 | FEMALE QUICK-CONNECT, 1/4" | Brass | .35 |
| 7 | 1 | P.D | HOSE ONLY-1/2"( VACUUM,DEFUEL, HEAT SHRINK) | RUBBER | |
| 7 | 1 | 08-0031 | HOSE ONLY-3/4" | RUBBER | 1.21 |

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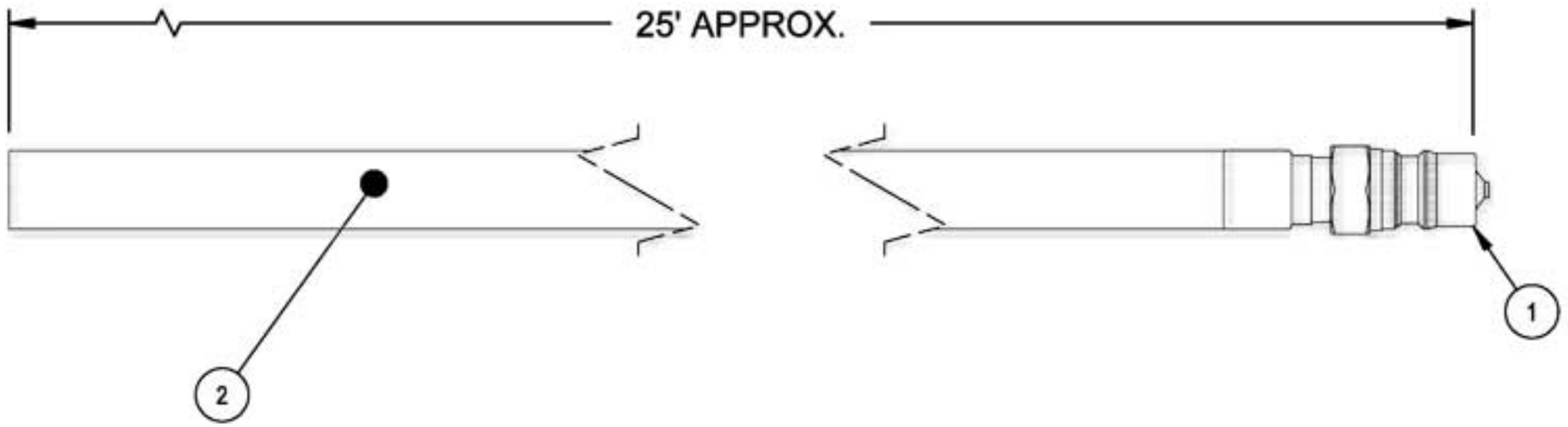
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# SHIELDED DUPLEX HOSE

PN: 08-0025(1/2") &08-0030(3/4") | FIG. #14

Drawn: jay | Date:10/19/2005 | Size: A | Scale: NTS | Sheet 1 of 1




Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 03-111391 | QUICK DISCONNECT, 3/4" | BRASS | .29 |
| 1 | 1 | 03-111395 | QUICK DISCONNECT, 1/2" | Brass | .29 |
| 2 | 1 | 06-101665 | DEFUELING HOSE, 1/2" W/ THREADED END | RUBBER | |
| 2 | 1 | | DEFUELING HOSE, 3/4" W/ THREADED END | RUBBER | |

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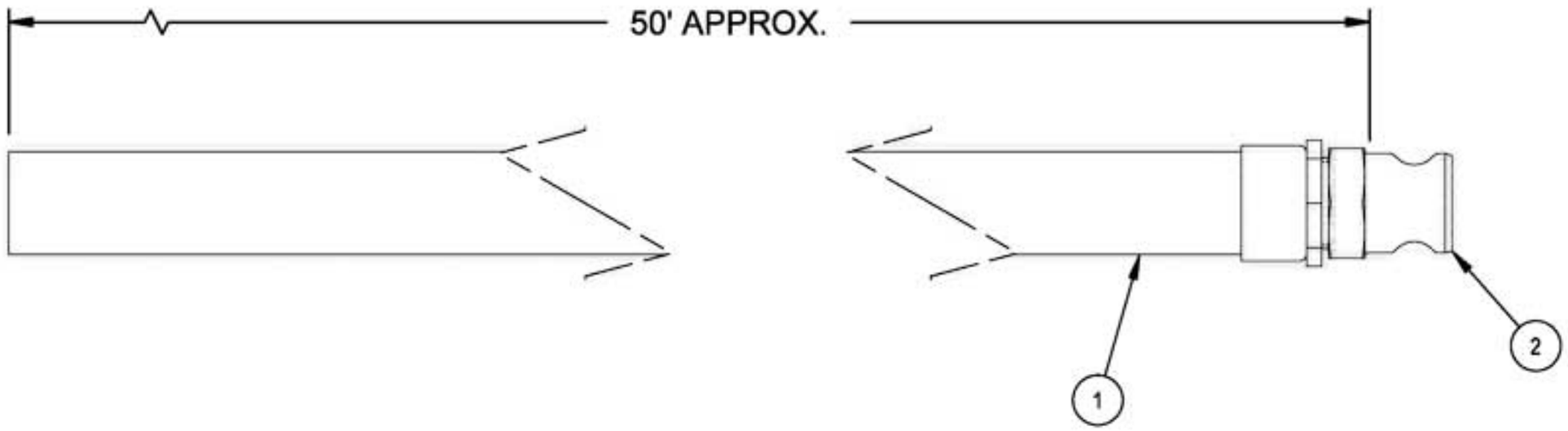
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

# 25' DE-PUDDLING HOSE SVU ONLY

PN: 08-0024 (1/2") & 08-00241 (3/4") | FIG. #15

Drawn: jay | Date:10/26/2005 | Size: A | Scale: NTS | Sheet 1 of 1




NOTE: INCLUDES MALE QUICK DISCONNECT

Parts List

| ITEM | QTY | P.N. | DESCRIPTION | MATERIAL | WT. |
|---|---|---|---|---|---|
| 1 | 1 | 06-10162 | DEFUELING HOSE, 1 1/4" x 50' LG. | Rubber | 30.92 |
| 2 | 1 | 04-10336 | CAMLOCK ADAPTER, 1 1/4" F-NPT x 1 1/4" M-CL | Aluminum | .28 |

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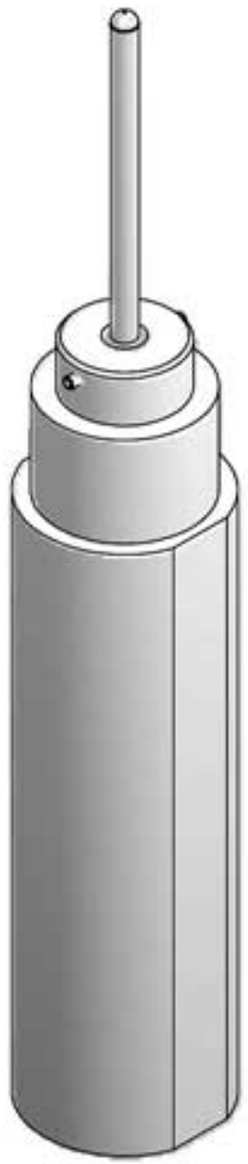
Tolerance:except as noted
x/x=± 1/8"
.xx=± .03"
.xxx=± .005"
ANG=± 1°

1 1/4" UTILITY HOSE
SV/SVU ONLY

PN: 06-10162 | FIG. #16

Drawn: jay | Date:10/26/2005 | Size: A | Scale: NTS | Sheet 1 of 1



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| | | | | |
|---|---|---|---|---|
| Tolerance:except as noted x/x=± 1/8" .xx=± .03" .xxx=± .005" ANG=± 1˚ | PROBE ALIGNMENT TOOL | | | |
| | PN: 08-12020 | | | FIG. #17 |
| Drawn: jay | Date:12/1/2005 | Size: A | Scale: NTS | Sheet 1 of 1 |