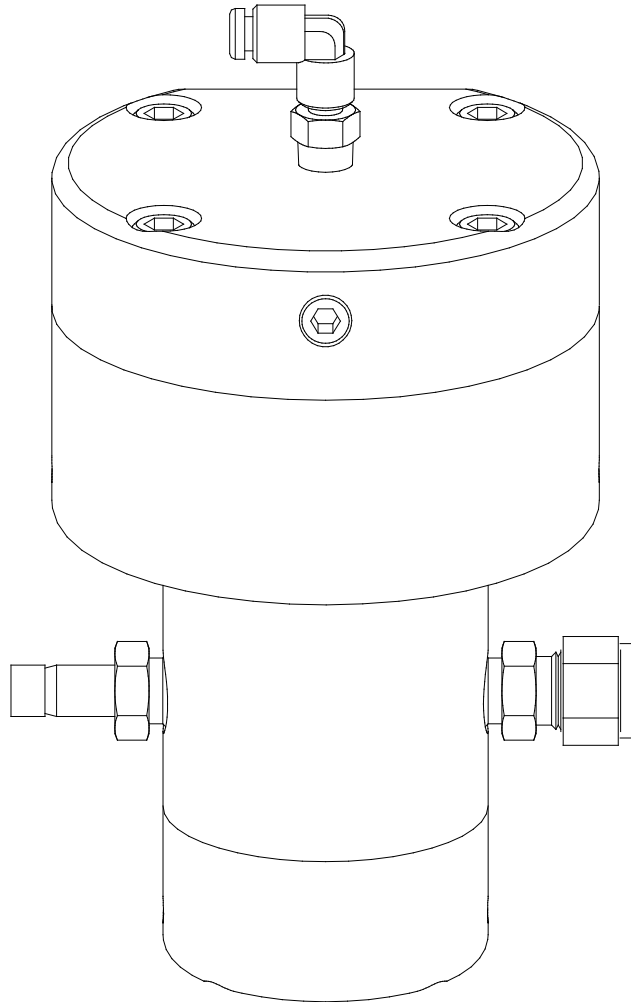

WEEPLESS MVR ASSEMBLY



MODEL: 76624

IMPORTANT: Before using this equipment, carefully read **SAFETY PRECAUTIONS**, starting on page 1, and all instructions in this manual. Keep this Service Manual for future reference.

Service Manual Price: \$20.00(U.S.)

NOTE: This manual has been changed from revision **LN-9225-00.4** to revision **LN-9225-00.5**. Reasons for this change are noted under “Manual Change Summary” inside the back cover of this manual.

CONTENTS

	PAGE
SAFETY:	1-5
SAFETY PRECAUTIONS.....	1
HAZARDS / SAFEGUARDS.....	2-5
INTRODUCTION:	6
76624 WEEPLESS MVR ASSEMBLY.....	6
MAINTENANCE:	7-10
POSSIBLE CAUSES OF MVR PROBLEMS.....	7
PREVENTIVE MAINTENANCE.....	7
GENERAL.....	7
PRELIMINARY PROCEDURES.....	8
DISASSEMBLY PROCEDURES.....	8
VALVE BODY SERVICING.....	8
ASSEMBLY PROCEDURES.....	8-9
FLUID NEEDLE REPLACEMENT.....	10
PARTS IDENTIFICATION:	11-15
WEEPLESS MVR ASSEMBLY / PARTS LIST.....	11-12
WEEPLESS MVR ASSEMBLY OPTIONS.....	12
RECOMMENDED SPARE PARTS.....	13
AVAILABLE TOOLS.....	13
SERVICE KITS.....	13
77052-00 WEEPLESS MVR SEAL REPLACEMENT KIT.....	14
77048-00 WEEPLESS MVR SEAL UPGRADE KIT.....	15
WARRANTY POLICIES:	16
LIMITED WARRANTY.....	16
APPENDIX:	17-23
PAINT AND SOLVENT SPECIFICATIONS.....	17
VISCOSITY CONVERSION CHART.....	18-19
VOLUMETRIC CONTENT OF HOSE OR TUBE.....	20
TECHNICAL BULLETIN: LINE PRESSURE INCREASE DURING TRIGGER-OFF.....	21
76624 WEEPLESS MVR ASSEMBLY / LAFX4001 VALVE ASSEMBLY.....	22

SAFETY

SAFETY PRECAUTIONS

Before operating, maintaining or servicing any Ransburg electrostatic coating system, read and understand all of the technical and safety literature for your Ransburg products. This manual contains information that is important for you to know and understand. This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the following symbols. Please pay particular attention to these sections.

A WARNING! states information to alert you to a situation that might cause serious injury if instructions are not followed.

A CAUTION! states information that tells how to prevent damage to equipment or how to avoid a situation that might cause minor injury.

A NOTE is information relevant to the procedure in progress.

While this manual lists standard specifications and service procedures, some minor deviations may be found between this literature and your equipment. Differences in local codes and plant requirements, material delivery requirements, etc., make such variations inevitable. Compare this manual with your system installation drawings and appropriate Ransburg equipment manuals to reconcile such differences.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier troubleshooting. If you do not have the manuals and safety literature for your Ransburg system, contact your local Ransburg representative or Ransburg.




WARNING



- The user **MUST** read and be familiar with the Safety Section in this manual and the Ransburg safety literature therein identified.
- This manual **MUST** be read and thoroughly understood by **ALL** personnel who operate, clean or maintain this equipment! Special care should be taken to ensure that the **WARNINGS** and safety requirements for operating and servicing the equipment are followed. The user should be aware of and adhere to ALL local building and fire codes and ordinances as well as **NFPA-33 SAFETY STANDARD, LATEST EDITION**, prior to installing, operating, and/or servicing this equipment.

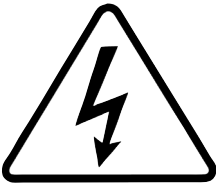





WARNING

- The hazards shown on the following pages may occur during the normal use of this equipment. Please read the hazard chart beginning on page 2.

AREA Tells where hazards may occur.	HAZARD Tells what the hazard is.	SAFEGUARDS Tells how to avoid the hazard.
<p>Spray Area</p> 	<p>Fire Hazard</p> <p>Improper or inadequate operation and maintenance procedures will cause a fire hazard.</p> <p>Protection against inadvertent arcing that is capable of causing fire or explosion is lost if any safety interlocks are disabled during operation. Frequent Power Supply or Controller shutdown indicates a problem in the system requiring correction.</p>	<p>Fire extinguishing equipment must be present in the spray area and tested periodically.</p> <p>Spray areas must be kept clean to prevent the accumulation of combustible residues.</p> <p>Smoking must never be allowed in the spray area.</p> <p>The high voltage supplied to the atomizer must be turned off prior to cleaning, flushing or maintenance.</p> <p>When using solvents for cleaning:</p> <ul style="list-style-type: none"> • Those used for equipment flushing should have flash points equal to or higher than those of the coating material. • Those used for general cleaning must have flash points above 100°F (37.8°C). <p>Spray booth ventilation must be kept at the rates required by NFPA-33, OSHA, country, and local codes. In addition, ventilation must be maintained during cleaning operations using flammable or combustible solvents.</p> <p>Electrostatic arcing must be prevented. Safe sparking distance must be maintained between the parts being coated and the applicator. A distance of 1 inch for every 10KV of output voltage is required at all times.</p> <p>Test only in areas free of combustible material. Testing may require high voltage to be on, but only as instructed.</p> <p>Non-factory replacement parts or unauthorized equipment modifications may cause fire or injury.</p> <p>If used, the key switch bypass is intended for use only during setup operations. Production should never be done with safety interlocks disabled.</p> <p>Never use equipment intended for use in waterborne installations to spray solvent based materials.</p> <p>The paint process and equipment should be set up and operated in accordance with NFPA-33, NEC, OSHA, local, country, and European Health and Safety Norms.</p>

<p>AREA Tells where hazards may occur.</p>	<p>HAZARD Tells what the hazard is.</p>	<p>SAFEGUARDS Tells how to avoid the hazard.</p>
<p>Spray Area</p> 	<p>Explosion Hazard</p> <p>Improper or inadequate operation and maintenance procedures will cause a fire hazard.</p> <p>Protection against inadvertent arcing that is capable of causing fire or explosion is lost if any safety interlocks are disabled during operation.</p> <p>Frequent Power Supply or Controller shutdown indicates a problem in the system requiring correction.</p>	<p>Electrostatic arcing must be prevented. Safe sparking distance must be maintained between the parts being coated and the applicator. A distance of 1 inch for every 10KV of output voltage is required at all times.</p> <p>Unless specifically approved for use in hazardous locations, all electrical equipment must be located outside Class I or II, Division 1 or 2 hazardous areas, in accordance with NFPA-33.</p> <p>Test only in areas free of flammable or combustible materials.</p> <p>The current overload sensitivity (if equipped) MUST be set as described in the corresponding section of the equipment manual. Protection against inadvertent arcing that is capable of causing fire or explosion is lost if the current overload sensitivity is not properly set. Frequent power supply shutdown indicates a problem in the system which requires correction.</p> <p>Always turn the control panel power off prior to flushing, cleaning, or working on spray system equipment.</p> <p>Before turning high voltage on, make sure no objects are within the safe sparking distance.</p> <p>Ensure that the control panel is interlocked with the ventilation system and conveyor in accordance with NFPA-33, EN 50176.</p> <p>Have fire extinguishing equipment readily available and tested periodically.</p>
<p>General Use and Maintenance</p> 	<p>Improper operation or maintenance may create a hazard.</p> <p>Personnel must be properly trained in the use of this equipment.</p>	<p>Personnel must be given training in accordance with the requirements of NFPA-33, EN 60079-0.</p> <p>Instructions and safety precautions must be read and understood prior to using this equipment.</p> <p>Comply with appropriate local, state, and national codes governing ventilation, fire protection, operation maintenance, and housekeeping. Reference OSHA, NFPA-33, EN Norms and your insurance company requirements.</p>

<p>AREA Tells where hazards may occur.</p>	<p>HAZARD Tells what the hazard is.</p>	<p>SAFEGUARDS Tells how to avoid the hazard.</p>
<p>Spray Area / High Voltage Equipment</p> 	<p>Electrical Discharge</p> <p>There is a high voltage device that can induce an electrical charge on ungrounded objects which is capable of igniting coating materials.</p> <p>Inadequate grounding will cause a spark hazard. A spark can ignite many coating materials and cause a fire or explosion.</p>	<p>Parts being sprayed and operators in the spray area must be properly grounded.</p> <p>Parts being sprayed must be supported on conveyors or hangers that are properly grounded. The resistance between the part and earth ground must not exceed 1 meg ohm. (Refer to NFPA-33.)</p> <p>Operators must be grounded. Rubber soled insulating shoes should not be worn. Grounding straps on wrists or legs may be used to assure adequate ground contact.</p> <p>Operators must not be wearing or carrying any ungrounded metal objects.</p> <p>When using an electrostatic handgun, operators must assure contact with the handle of the applicator via conductive gloves or gloves with the palm section cut out.</p> <p>NOTE: REFER TO NFPA-33 OR SPECIFIC COUNTRY SAFETY CODES REGARDING PROPER OPERATOR GROUNDING.</p> <p>All electrically conductive objects in the spray area, with the exception of those objects required by the process to be at high voltage, must be grounded. Grounded conductive flooring must be provided in the spray area.</p> <p>Always turn off the power supply prior to flushing, cleaning, or working on spray system equipment.</p> <p>Unless specifically approved for use in hazardous locations, all electrical equipment must be located outside Class I or II, Division 1 or 2 hazardous areas, in accordance with NFPA-33.</p>

<p>AREA Tells where hazards may occur.</p>	<p>HAZARD Tells what the hazard is.</p>	<p>SAFEGUARDS Tells how to avoid the hazard.</p>
<p>Electrical Equipment</p> 	<p>Electrical Discharge</p> <p>High voltage equipment is utilized in the process. Arcing in the vicinity of flammable or combustible materials may occur. Personnel are exposed to high voltage during operation and maintenance.</p> <p>Protection against inadvertent arcing that may cause a fire or explosion is lost if safety circuits are disabled during operation.</p> <p>Frequent power supply shut-down indicates a problem in the system which requires correction.</p> <p>An electrical arc can ignite coating materials and cause a fire or explosion.</p>	<p>Unless specifically approved for use in hazardous locations, the power supply, control cabinet, and all other electrical equipment must be located outside Class I or II, Division 1 and 2 hazardous areas in accordance with NFPA-33 and EN 50176.</p> <p>Turn the power supply OFF before working on the equipment.</p> <p>Test only in areas free of flammable or combustible material.</p> <p>Testing may require high voltage to be on, but only as instructed.</p> <p>Production should never be done with the safety circuits disabled.</p> <p>Before turning the high voltage on, make sure no objects are within the sparking distance.</p>
<p>Toxic Substances</p> 	<p>Certain material may be harmful if inhaled, or if there is contact with the skin.</p>	<p>Follow the requirements of the Material Safety Data Sheet supplied by coating material manufacturer.</p> <p>Adequate exhaust must be provided to keep the air free of accumulations of toxic materials.</p> <p>Use a mask or respirator whenever there is a chance of inhaling sprayed materials. The mask must be compatible with the material being sprayed and its concentration. Equipment must be as prescribed by an industrial hygienist or safety expert, and be NIOSH approved.</p>
<p>Spray Area</p> 	<p>Explosion Hazard – Incompatible Materials</p> <p>Halogenated hydrocarbon solvents for example: methylene chloride and 1,1,1,-Trichloroethane are not chemically compatible with the aluminum that might be used in many system components. The chemical reaction caused by these solvents reacting with aluminum can become violent and lead to an equipment explosion.</p>	<p>Aluminum is widely used in other spray application equipment - such as material pumps, regulators, triggering valves, etc. Halogenated hydrocarbon solvents must never be used with aluminum equipment during spraying, flushing, or cleaning. Read the label or data sheet for the material you intend to spray. If in doubt as to whether or not a coating or cleaning material is compatible, contact your coating supplier. Any other type of solvent may be used with aluminum equipment.</p>

INTRODUCTION


76624 WEEPLESS MVR ASSEMBLY

The material regulator valve is an air-operated sliding valve. It has a tapered needle and specially designed fluid ports that permit precise regulation and rapid response to command signals. These characteristics are maintained over the full operating range of the regulator valve.

Control of the MVR is achieved through an air pressure control signal generated from the transducer panel. Air pressure against a solvent resistant

diaphragm moves the needle up and down across the fluid ports. The tapered seat on the needle, combined with the fluid port configuration, allows fluid flow through the MVR to directly reflect the air pressure control signal. An increase in air pressure results in an increase in fluid flow through the regulator.

The flow rate of the material depends on the position of the shaft taper within the valve body.

 CAUTION	
▶	IT IS NOT recommended this product be used with isocyanate catalyst or degraded product performance or failure will be observed.

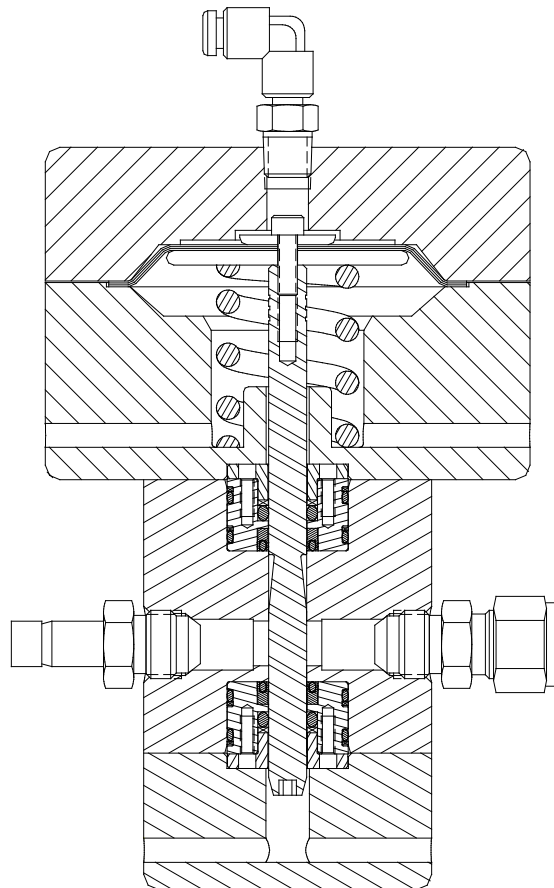


Figure 1: 76624 Weepless MVR Assembly

MAINTENANCE

POSSIBLE CAUSES OF MVR PROBLEMS

1. Most problems with the material regulator are caused by improperly filtered fluid. Particulates and residue in the material regulator can cause plugging of the fluid ports and sluggish valve operation. If repeated disassembly and cleaning for removal of solids and residue occurs, inspect the entire fluid supply system.

2. Fluid backup, i.e. reverse flow, can cause reacted/catalyzed material to enter the material regulator. Reverse flow will be detected by the 2-K and the system will shut down, however the material regulator should be cleaned or flushed immediately to prevent the fluid from setting-up.

If repeated cleaning is required, inspect the check valves and adjust the REV FLOW parameter accordingly.

3. Kinks or tight bends in the control air line may restrict air flow to the material regulator. Inspect the condition of exposed tubing periodically and check the fitting connection at the material regulator.

4. Check the leakage port for any signs of coagulated material. Excessive buildup will cause the valve to operate improperly. Buildup can also indicate that the valve needle and valve body should be replaced.

PREVENTIVE MAINTENANCE

Daily

1. Check the leakage ports for fluid leakage. If fluid leakage is evident, repair at earliest opportunity.

2. Inspect the exposed fluid and air tubing for kinks, tight bends, leaks, etc.

Weekly

Flush the coating material from the system.

2500 Hours of Operation

Rebuild the valve:

1. Inspect the fluid section and fluid needle. Replace both if excessive leakage is evident.

2. Replace the air diaphragms.

3. Replace the compression spring.

4. Replace the seals (use seal kit 77052-00).

GENERAL

1. Work from a clean, dry bench.

2. Always install new o-rings, gaskets and diaphragms when the material regulator is re-assembled.

3. Use only lint-free wipers/cloths for cleaning.

4. Refer to the model number of the material regulator when ordering replacement parts.

PRELIMINARY PROCEDURES

Prior to removing the material regulator for service or repair, perform the following:

1. Flush the material regulator with the system purge.
2. Remove pressure from the affected fluid line.
3. Close the shut-off valves on either side of the material regulator.
4. Clean the exterior of the material regulator before loosening any fittings.
5. Disconnect the control air line from the material regulator. Cover the exposed hose end to prevent contamination.
6. Remove the material regulator from the fluid line.
7. If the fluid lines will be left open during the repair, cover them to prevent contaminants from entering the fluid system.

DISASSEMBLY PROCEDURES

Material Regulator Disassembly

1. Clamp the regulator in a bench vise with padded jaws.
2. Loosen the top (4) housing bolts equally and alternately.
3. Lift off the upper housing and remove the diaphragm and needle assembly.

NOTE

- As the bolts are loosened, the load spring will force the housing halves apart. Keep equal tension on the housing bolts to avoid damaging the internal components.

Diaphragm Removal

1. Remove the allen screw from the diaphragm end of the needle assembly and lift off the flat washer.
2. Remove the diaphragm flat washers and regulator spring. The diaphragm is constructed of (3) layers of PTFE material. It should be replaced if fluid has leaked into the air pressure chamber or the diaphragm shows signs of wear.

Fluid Section Disassembly Procedures

1. Loosen the bottom (4) housing bolts to remove the 76619-00, fluid section, and 76622-00, bottom section.
2. Thread the 76629-00, piston removal tool, into each of the 77055-00, guide bushings, and pull gently to remove.

VALVE BODY SERVICING

Remove the fittings/adapters from the inlet and outlet ports of the valve and clean out any coating build up.

ASSEMBLY PROCEDURES

Needle Pre-assembly

1. Assemble the TR-SSF-506, small washer, onto the 8301-16C, screw. The radius side of the washer should be facing away from the screw head.
2. Now assemble the (3) TR-SSMM-151, diaphragms, onto the 8301-16C, cap screws, and then place the TR-SSF-505, large washer, on top of the diaphragms.

3. Apply a small drop of 7969-031, adhesive (blue), onto the cap screw and assemble onto the 76623-xx, needle. Tighten the needle using the appropriate Allen wrenches. For exact assembly detail, see Figure 3.

Guide Bushing Pre-assembly (Refer to Figures 4 & 5)

1. Locate the (2) 77055-00, guide bushings, and assemble (2) 76626, o-rings, and (2) 76625, PTFE back-up rings, onto each guide bushing.

2. Locate (2) 77051-00, seals, one for each guide bushing, and press the seals into the guide bushings. The o-ring side of the seal should be facing out once pressed into the guide bushing.

3. Locate (2) 77050-00, o-rings, and install in the guide bushings.

4. Locate (2) 77049-00, back-up rings, and install in the guide bushings, directly behind the 77050-00, o-rings.

5. If no compatibility issues exist with the coating material, apply a generous amount of petroleum jelly on and between the 77050-00, o-rings, and 77051-00, u-cup seals.

6. Install the 77057-00, seal retainer assembly, onto each of the guide bushings, as shown.

7. After assembling the guide bushings, sparingly lubricate the O.D. of the bushings with petroleum jelly.

Fluid Section Pre-assembly

1. Lubricate sparingly, the two bores in the body, with petroleum jelly.

2. Once lubricated, press in the assembled guide bushings. The two threaded holes in the bushing should be facing out from the 76619, fluid section. (See Figures 4 & 5.)

Fluid Section to Bottom Section Assembly

1. Assemble the 76621, bottom section, onto the 76619, fluid section, and also onto the 76622, bottom housing. Make sure to align the roll pin into the 76621, bottom section.

2. Once the roll pin is aligned, apply "Blue Adhesive" to the (4) 7959-112C, screws, and screw loosely in place. Do not tighten down screws until all (4) screws have been assembled into the 76621, bottom section, then tighten in an "X" pattern.

NOTE

- ▶ The weep hole in the 76622, bottom housing, must be aligned as shown in Figure 3.

Final Body Assembly

1. Place the A10231-00, spring, into the 76621, housing. Now obtain the 76623-xx, needle assembly, and apply a light coat of petroleum jelly onto the assembly. Carefully slide the needle into the 76621, body, and down through the 76619, fluid section. Only a light pushing force is needed.

2. After the needle is seated, obtain the 76618, top section, and place it on top of the TR-SSMM-151, diaphragms. Assemble the (4) 8532-40C, screws, into the 76618, top section, and tighten in an "X" pattern.

FLUID NEEDLE REPLACEMENT

NOTE

- ▶ When replacing MVR fluid needles, use Figure 2 below and Weepless MVR Assembly "Part Number Options Chart / Column C" in the "Parts Identification" section to determine the correct size and part number. The number of grooves at the top of the needle correlates to the dash number of the part number.

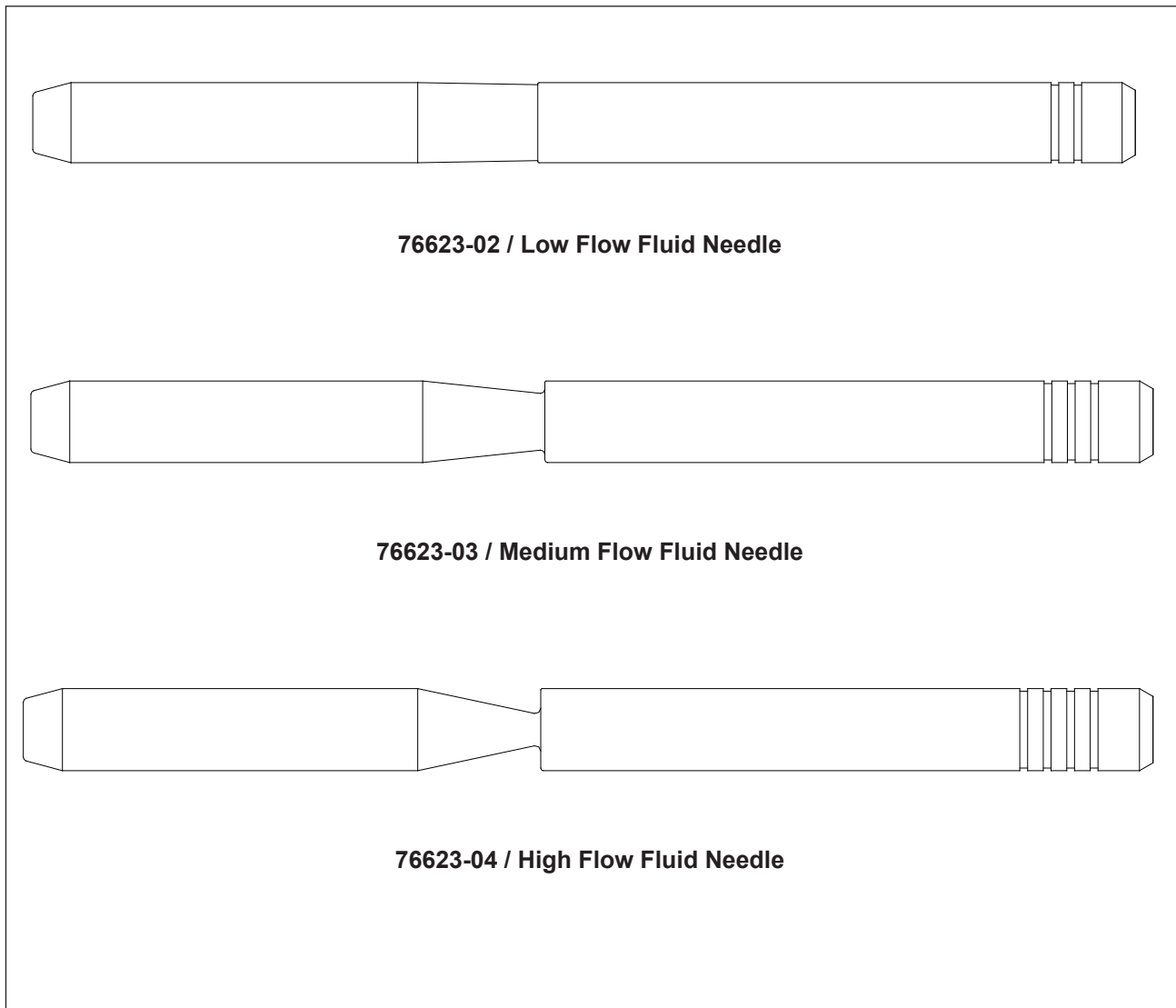


Figure 2: Weepless MVR Fluid Needles

PARTS IDENTIFICATION

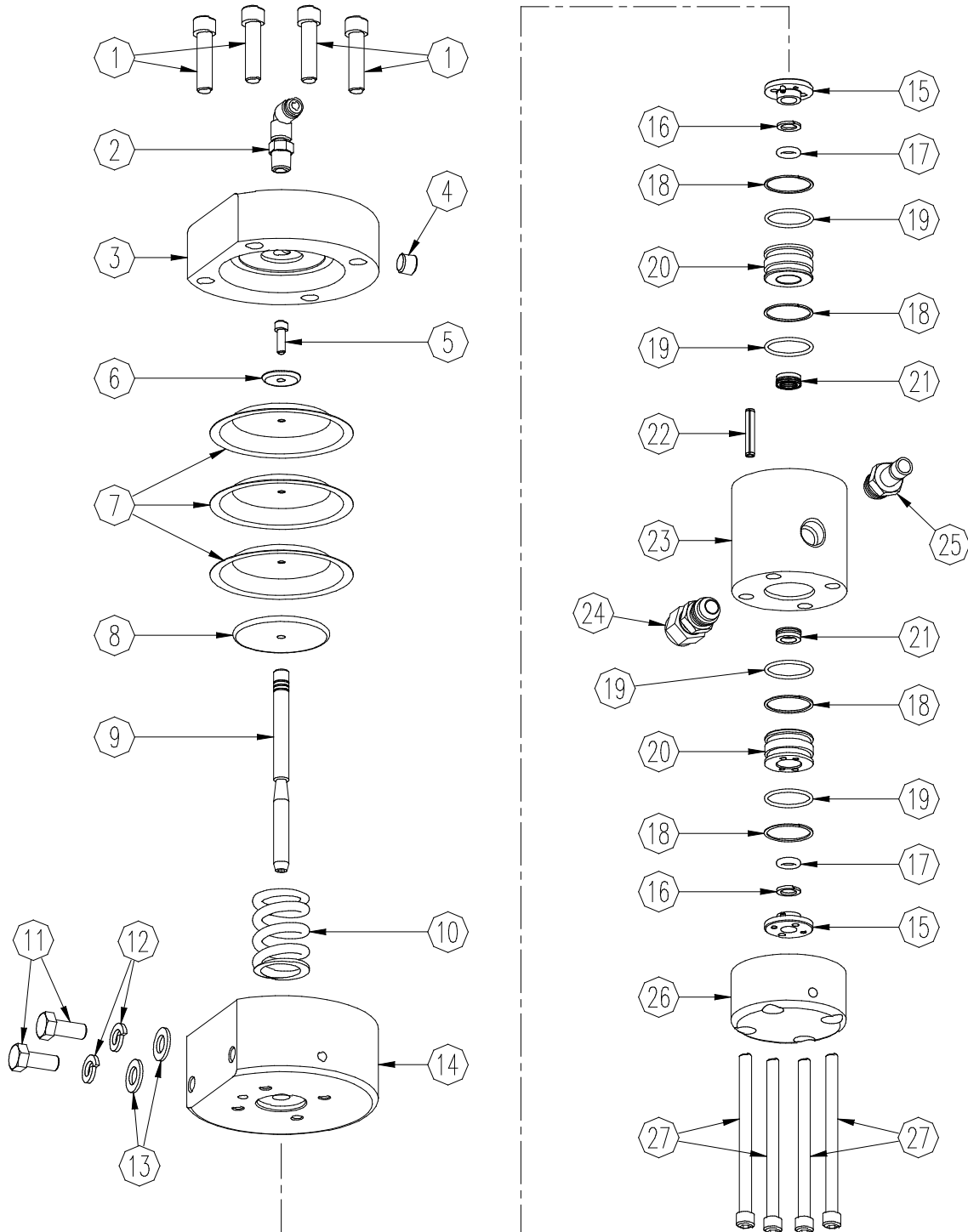


Figure 3: Weepless Mvr Assembly

WEEPLESS MVR ASSEMBLY - PARTS LIST (Figure 3)			
Item #	Part #	Description	Qty
1	8532-40C	Screw, 5/16-18 UNC x 1.25 Long, Steel Socket Head	4
2	41-FTP-1006	Fitting, 1/8 NPT x 5/32 O.D. Tube Elbow	D*
3	76618-00	Upper Membrane Housing, Machined, Weepless MVR	1
4	41-FP-1006	Plug, 1/8 NPT, Brass Pipe	1
5	8301-16C	Screw, #8-32 UNC x 1/2 Long, Steel Socket Head	1
6	TR-SSF-506	Washer, Machined, Upper Diaphragm Support	1
7	TR-SSMM-151	Air Diaphragm, MVR Assembly	3
8	TR-SSF-505	Washer, Machined, Lower Diaphragm Support	1
9	C*	Fluid Needle, Machined, Weepless MVR	1
10	A10231-00	Compression Spring, MVR	1
11	SS-1532-CD	Screw, 5/16-18 UNC x 1.5 Long, Steel Hex Head	2
	8156-24C	Screw, 5/16-18 UNC x 1.75 Long, Steel Hex Head	2
12	7734-07	Lock Washer, 5/16 Helical Spring	2
13	7486-07	Flat Washer, 5/16	2
14	76621-00	Lower Membrane Housing, Machined, Weepless MVR	1
15	77057-00	Seal Retainer Assembly, Weepless MVR	2
16	77049-00	Back-Up Ring for 2-109 O-Ring, High Pressure	2
17	77050-00	O-Ring, .299 I.D. x .103 c/s, Solvent Proof	2
18	76625-00	Back-Up Ring for 2-020 O-Ring, High Pressure	4
19	76626-00	O-Ring, .864 I.D. x .070 c/s, Solvent Proof	4
20	77055-00	Guide Bushing, Machined, Weepless MVR	2
21	77051-00	Seal, O-Ring Loaded U-Cup	2
22	21132-027	Pin, 3/16 Diameter x 1 Long Roll	1
23	76619-00	Fluid Section, Machined, Weepless MVR	1
24	LSFI0033-00	Fitting, 3/8 AN Flare x 3/8 O.D. Tube, Stainless	E*
25	76628-00	Adapter, 3/8 AN Flare x 3/8 O.D. Stem, Stainless	F*
26	76622-00	Bottom Section, Machined, Weepless MVR	1
27	7959-112C	Screw, 1/4-20 UNC x 3.5 Long, Steel Socket Head	4
28	31881-101	Label, Ransburg	1

* See corresponding column in Part Number Options below.

WEEPLESS MVR ASSEMBLY - PART NUMBER OPTIONS					
Part #	Description	C	D	E	F
76624-02	Low Flow Assembly With No Fittings	76623-02	0	0	0
76624-02A	Low Flow Assembly (2) 3/8 O.D. Tube Fittings	76623-02	1	2	0
76624-02B	Low Flow Assembly (1) 3/8 O.D. Tube Fitting and (1) 3/8 O.D. Stem Adapter	76623-02	1	1	1
76624-03	Medium Flow Assembly With No Fittings	76623-03	0	0	0
76624-03A	Medium Flow Assembly (2) 3/8 O.D. Tube Fittings	76623-03	1	2	0
76624-03B	Medium Flow Assembly (1) 3/8 O.D. Tube Fitting and (1) 3/8 O.D. Stem Adapter	76623-03	1	1	1
76624-04	High Flow Assembly With No Fittings	76623-04	0	0	0
76624-04A	High Flow Assembly (2) 3/8 O.D. Tube Fittings	76623-04	1	2	0
76624-04B	High Flow Assembly (1) 3/8 O.D. Tube Fitting and (1) 3/8 O.D. Stem Adapter	76623-04	1	1	1

RECOMMENDED SPARE PARTS

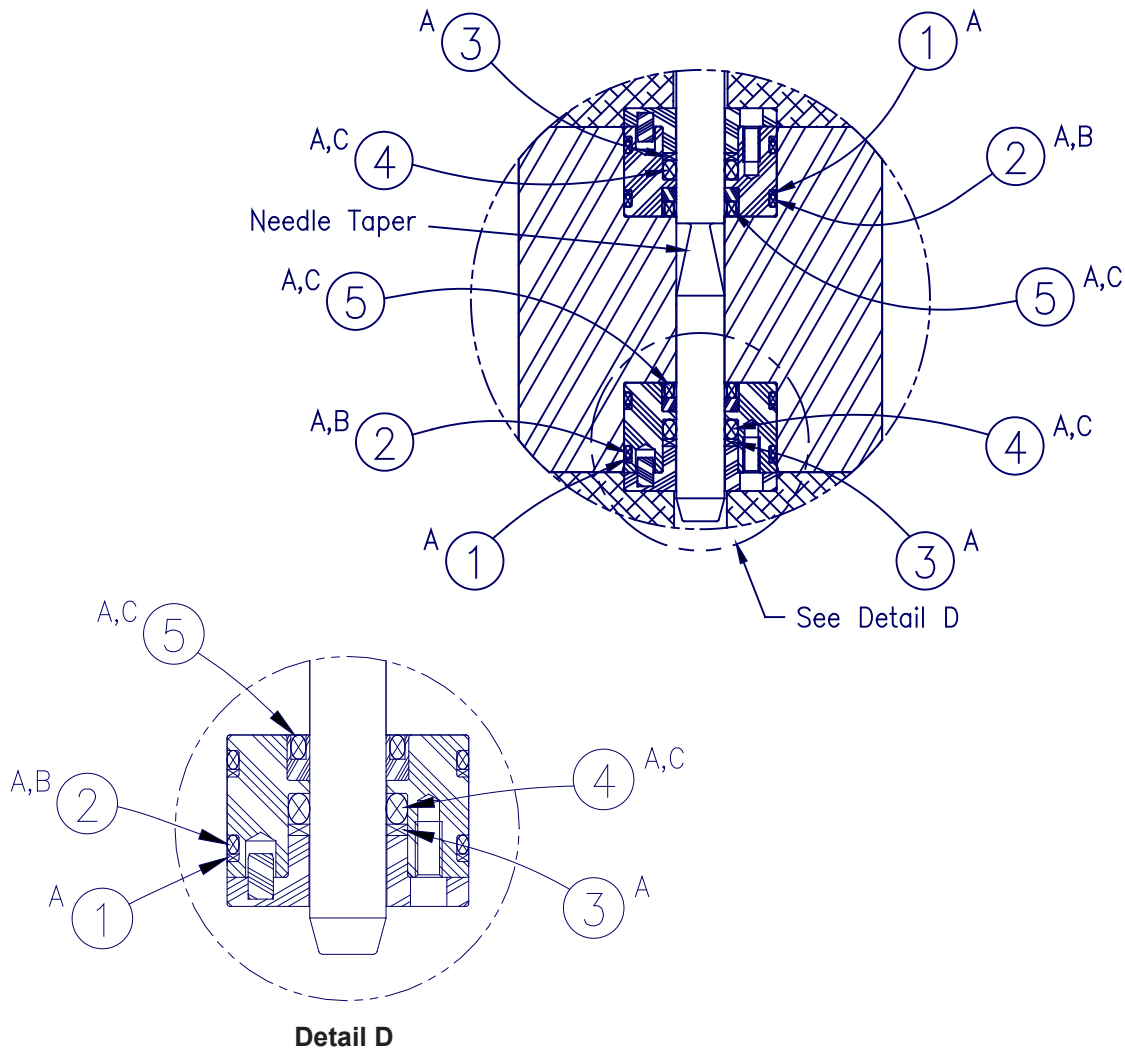
Part #	Description	Qty
TR-SSMM-151	Air Diaphragm, MVR Assembly	3
A10231-00	Compression Spring, MVR	1
77049-00	Back-Up Ring for 2-109 O-Ring, High Pressure	2
77050-00	O-Ring, .299 I.D. x .103 c/s, Solvent Proof	2
76625-00	Back-Up Ring for 2-020 O-Ring, High Pressure	4
76626-00	O-Ring, .864 I.D. x .070 c/s, Solvent Proof	4
77051-00	Seal, O-Ring Loaded U-Cup	2

AVAILABLE TOOLS

Part #	Description
76629-00	Tool, Piston Removal

SERVICE KITS

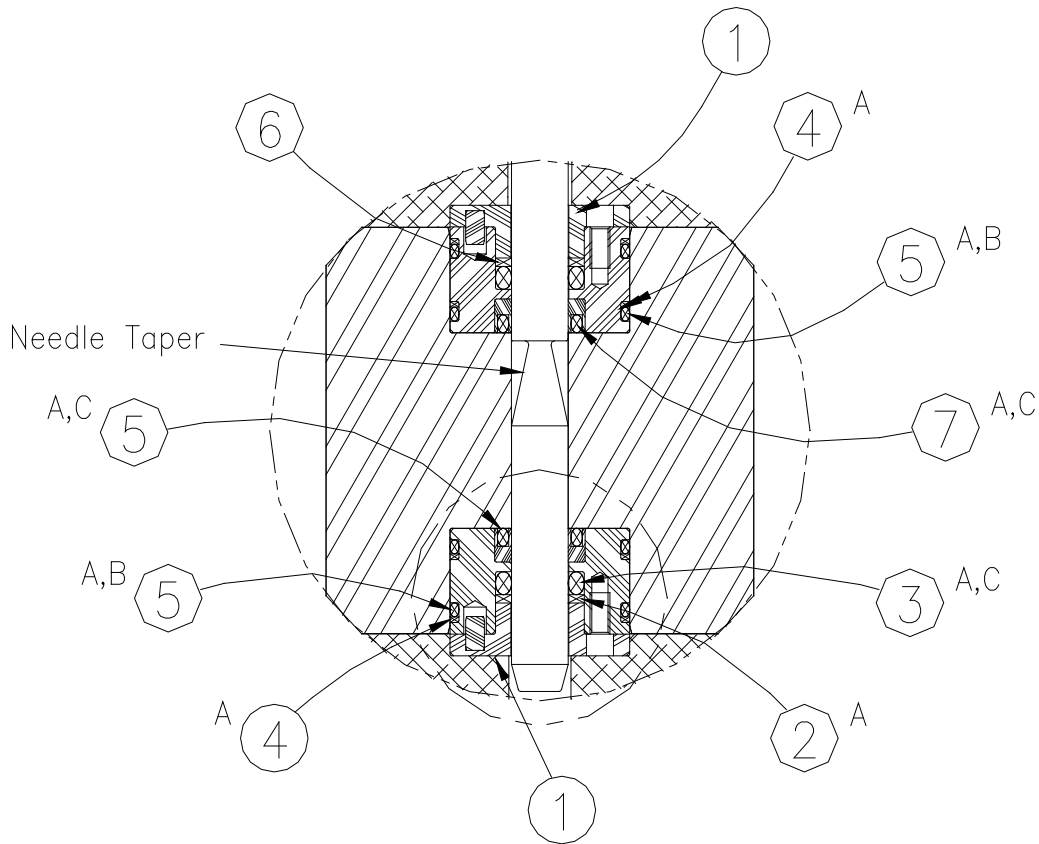
Part #	Description
77052-00	Kit, Weepless MVR Seal Replacement
77048-00	Kit, Weepless MVR Seal Upgrade



- A - All seals must be installed with o-rings toward the needle taper (inward), as shown.
- B - Lightly lubricate o-rings with petroleum jelly before installing guide bushings into housing.
- C - A generous amount of petroleum jelly, on and between the o-ring and u-cup seals, may improve the long term performance, if no compatibility issues exist with the coating material.

Figure 4: 77052-00 Weepless MVR Seal Replacement Kit

77052-00 WEEPLESS MVR SEAL REPLACEMENT KIT (Figure 4)			
Item #	Part #	Description	Qty
1	77049-00	Back-Up Ring for 2-109 O-Ring, High Pressure	2
2	77050-00	O-Ring, .299 I.D. x .103 c/s, Solvent Proof	2
3	76625-00	Back-Up Ring for 2-020 O-Ring, High Pressure	4
4	76626-00	O-Ring, .864 I.D. x .070 c/s, Solvent Proof	4
5	77051-00	Seal, O-Ring Loaded U-Cup	2



A - All seals must be installed with o-rings toward the needle taper (inward), as shown.

B - Lightly lubricate o-rings with petroleum jelly before installing guide bushings into housing.

C - A generous amount of petroleum jelly, on and between the o-ring and u-cup seals, may improve the long term performance, if no compatibility issues exist with the coating material.

Figure 5: 77048-00 Weepless MVR Seal Upgrade Kit

77048-00 WEEPLESS MVR SEAL UPGRADE KIT (Figure 5)			
Item #	Part #	Description	Qty
1	77057-00	Seal Retainer Assembly, Weepless MVR	2
2	77049-00	Back-Up Ring for 2-109 O-Ring, High Pressure	2
3	77050-00	O-Ring, .299 I.D. x .103 c/s, Solvent Proof	2
4	76625-00	Back-Up Ring for 2-020 O-Ring, High Pressure	4
5	76626-00	O-Ring, .864 I.D. x .070 c/s, Solvent Proof	4
6	77055-00	Guide Bushing, Machined, Weepless MVR	2
7	77051-00	Seal, O-Ring Loaded U-Cup	2

WARRANTY POLICIES

LIMITED WARRANTY

Ransburg will replace or repair without charge any part and/or equipment that falls within the specified time (see below) because of faulty workmanship or material, provided that the equipment has been used and maintained in accordance with Ransburg's written safety and operating instructions, and has been used under normal operating conditions. Normal wear items are excluded.

THE USE OF OTHER THAN RANSBURG APPROVED PARTS, VOIDS ALL WARRANTIES.

SPARE PARTS: One hundred and eighty (180) days from date of purchase, except for rebuilt parts (any part number ending in "R") for which the warranty period is ninety (90) days.

EQUIPMENT: When purchased as a complete unit, (i.e., guns, power supplies, control units, etc.), is one (1) year from date of purchase.

WRAPPING THE APPLICATOR IN PLASTIC, SHRINK-WRAP, ETC., WILL VOID THIS WARRANTY.

FLUID HANDLING: One (1) year from date of purchase (i.e., Totalizer, CCV Valves, etc.).

AIR BEARING ROTATORS: Fifteen thousand (15,000) hours or three (3) years, whichever occurs first. Warranty period begins on the date of purchase.

RANSBURG'S ONLY OBLIGATION UNDER

THIS WARRANTY IS TO REPLACE PARTS THAT HAVE FAILED BECAUSE OF FAULTY WORKMANSHIP OR MATERIALS. THERE ARE NO IMPLIED WARRANTIES NOR WARRANTIES OF EITHER MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE. RANSBURG ASSUMES NO LIABILITY FOR INJURY, DAMAGE TO PROPERTY OR FOR CONSEQUENTIAL DAMAGES FOR LOSS OF GOODWILL OR PRODUCTION OR INCOME, WHICH RESULT FROM USE OR MISUSE OF THE EQUIPMENT BY PURCHASER OR OTHERS.

EXCLUSIONS:

If, in Ransburg's opinion the warranty item in question, or other items damaged by this part was improperly installed, operated or maintained, Ransburg will assume no responsibility for repair or replacement of the item or items. The purchaser, therefore will assume all responsibility for any cost of repair or replacement and service related costs if applicable.

APPENDIX

PAINT AND SOLVENT SPECIFICATIONS

	REA™ EVOLVER™ EFM™ EVOLVER™	REM™ / M90™	NO. 2 HAND GUN	TURBODISK™	AEROBELL® II*** AEROBELL® AEROBELL® 33 RMA-101™
RECOMMENDED VISCOSITY USING A ZAHN NO. 2	18 TO 30 SEC	18 TO 30 SEC	20 TO 60 SEC	20 TO 60 SEC	20 TO 60 SEC
PAINT ELECTRICAL RESISTANCE**	.1 MΩ TO ∞	.1 MW TO ∞	.1 TO 1 MΩ	.1 MW TO ∞	.1 MW TO ∞
RECOMMENDED DELIVERY (UP TO)	1000 cc/min	1500 cc/min	180 cc/min	1000 cc/min	500 cc/min

GUIDE TO USABLE SOLVENT SELECTION

Chemical Name	Common Name	Category	Flash Point†† (TCC)	*CAS Number	Evap. Rate†	Elec. Res.**
DICHLOROMETHANE	Methylene Chloride	Chlorinated Solvents		75-09-2	14.5	HIGH
VM & P NAPHTHA	Naptha	Aliphatic Hydrocarbons	65°F	8030-30-6	10	HIGH
ACETONE		Ketones	-18°F	67-64-1	5.6	LOW
METHYL ACETATE		Esters	90°F	79-20-9	5.3	LOW
BENZENE		Aromatic Hydrocarbons	12°F	71-43-2	5.1	HIGH
ETHYL ACETATE		Esters	24°F	141-78-6	3.9	MEDIUM
2-BUTANONE	MEK	Ketones	16°F	78-93-3	3.8	MEDIUM
ISO-PROPYL ACETATE		Esters	35°F	108-21-4	3.4	LOW
ISOPROPYL ALCOHOL	IPA	Alcohols	53°F	67-63-0	2.5	LOW
2-PENTANONE	MPK	Ketones	104°F	107-87-9	2.5	MEDIUM
METHANOL	Methyl Alcohol	Alcohols	50°F	67-56-1	2.1	LOW
PROPYL ACETATE	n-Propyl Acetate	Esters	55°F	109-60-4	2.1	LOW
TOLUOL	Toluene	Aromatic Hydrocarbons	48°F	108-88-3	1.9	HIGH
METHYL ISOBUTYL KETONE	MIBK	Ketones	60°F	108-10-1	1.6	MEDIUM
ISOBUTYL ACETATE		Esters	69°F	110-19-0	1.5	LOW
ETHANOL	Ethyl Alcohol	Alcohols		64-17-5	1.4	LOW
BUTYL ACETATE		Esters	78°F	123-86-4	1.0	LOW
ETHYLBENZENE		Aromatic Hydrocarbons	64°F	100-41-4	.89	HIGH
1-PROPANOL	n-Propyl Alcohol	Alcohols	74°F	71-23-8	.86	LOW
2-BUTANOL	sec.-Butyl Alcohol	Alcohols	72°F	78-92-2	.81	LOW
XYLOL	Xylene	Aromatic Hydrocarbons	79°F	1330-02-07	.80	HIGH
AMYL ACETATE		Esters	106°F	628-63-7	.67	MEDIUM
2-METHYLPROPANOL	iso-Butyl Alcohol	Alcohols	82°F	78-83-1	.62	LOW
METHYL AMYL ACETATE		Esters	96°F	108-84-9	.50	LOW
5-METHYL-2-HEXANONE	MIAK	Ketones	96°F	110-12-3	.50	MEDIUM
1-BUTANOL	n-Butyl Alcohol	Alcohols	95°F	71-36-3	.43	LOW
2-ETHOXYETHANOL		Glycol Ethers	164°F	110-80-5	.38	LOW
2-HEPTANONE	MAK	Ketones	102°F	110-43-0	.40	MEDIUM
CYCLOHEXANONE		Ketones	111°F	108-94-1	.29	MEDIUM
AROMATIC-100	SC#100	Aromatic Hydrocarbons	111°F		.20	HIGH
DIISOBUTYL KETONE	DIBK	Ketones	120°F	108-83-8	.19	MEDIUM
1-PENTANOL	Amyl Alcohol	Alcohols		71-41-0	.15	LOW
DIACETONE ALCOHOL		Ketones	133°F	123-42-2	.12	LOW
2-BUTOXYETHANOL	Butyl Cellosolve	Glycol Ethers	154°F	111-76-2	.07	LOW
CYCLOHEXANOL		Alcohols	111°F	108-93-0	.05	LOW
AROMATIC-150	SC#150	Aromatic Hydrocarbons	149°F		.004	HIGH
AROMATIC-200		Aromatic Hydrocarbons	203°F		.003	HIGH

* CAS Number: Chemical Abstract Service Number.

** Electrical Resistance using the Ransburg Meter.

*** Solvent Base Configuration Only.

† Information Obtained From: <http://solvdb.ncms.org>

†† The lowest temperature at which a volatile fluid will ignite.

Evaporation Rate is Based Upon Butyl Acetate Having a Rate of 1.0

© 2013 Ransburg. All rights reserved.

NOTE: Chart provides resistance and control information that we feel is necessary when using Ransburg equipment.

VISCOSITY CONVERSION CHART																		
Poise	Centipoise	Parlin 7	Parlin 10	Fisher 1	Fisher 2	Ford Cup 3	Ford Cup 4	Gardner - Holdt Bubble	Gardner - Lithographic	Krebs Unit KU	Saybolt Universal SSU	Zahn 1	Zahn 2	Zahn 3	Zahn 4	Zahn 5	Sears Craftsman Cup	Din Cup 4
.1	10	27	11	20			5	A-4			60	30	16					10
.15	15	30	12	25			8	A-3			80	34	17					11
.2	20	32	13	30	15	12	10				100	37	18					12
.25	25	37	14	35	17	15	12	A-2			130	41	19					13
.3	30	43	15	39	18	19	14	A-1			160	44	20					14
.4	40	50	16	50	21	25	18	A			210	52	22				19	15
.5	50	57	17		24	29	22			30	260	60	24				20	16
.6	60	64	18		29	33	25	B		33	320	68	27				21	18
.7	70		20		33	36	28			35	370		30				23	21
.8	80		22		39	41	31	C		37	430		34				24	23
.9	90		23		44	45	32			38	480		37	10			26	25
1.0	100		25		50	50	34	D		40	530		41	12	10		27	27
1.2	120		30		62	58	41	E		43	580		49	14	11		31	31
1.4	140		32			66	45	F		46	690		58	16	13		34	34
1.6	160		37				50	G		48	790		66	18	14		38	38
1.8	180		41				54		000	50	900		74	20	16		40	43
2.0	200		45				58	H		52	1000		82	23	17	10	44	46
2.2	220						62	I		54	1100			25	18	11		51
2.4	240						65	J		56	1200			27	20	12		55
2.6	260						68			58	1280			30	21	13		58
2.8	280						70	K		59	1380			32	22	14		63
3.0	300						74	L		60	1475			34	24	15		68
3.2	320							M			1530			36	25	16		72
3.4	340							N			1630			39	26	17		76
3.6	360							O		62	1730			41	28	18		82
3.8	380										1850			43	29	19		86
4.0	400							P		64	1950			46	30	20		90
4.2	420										2050			48	32	21		95
4.4	440							Q			2160			50	33	22		100
4.6	460							R		66	2270			52	34	23		104
4.8	480								00	67	2380			54	36	24		109
5.0	500							S		68	2480			57	37	25		112
5.5	550							T		69	2660			63	40	27		124
6.0	600							U		71	2900			68	44	30		135
7.0	700									74	3375				51	35		160
8.0	800								0	77	3380				58	40		172
9.0	900							V		81	4300				64	45		195
10.0	1000							W		85	4600					49		218
11.0	1100									88	5200						55	
12.0	1200									92	5620						59	

VISCOSITY CONVERSION CHART (Continued)																		
Poise	Centipoise	Parlin 7	Parlin 10	Fisher 1	Fisher 2	Ford Cup 3	Ford Cup 4	Gardner - Holdt Bubble	Gardner - Lithographic	Krebs Unit KU	Saybolt Universal SSU	Zahn 1	Zahn 2	Zahn 3	Zahn 4	Zahn 5	Sears Craftsman Cup	Din Cup 4
13.0	1300							X		95	6100					64		
14.0	1400								1	96	6480							
15.0	1500									98	7000							
16.0	1600									100	7500							
17.0	1700									101	8000							
18.0	1800							Y			8500							
19.0	1900										9000							
20.0	2000									103	9400							
21.0	2100										9850							
22.0	2200										10300							
23.0	2300							Z	2	105	10750							
24.0	2400									109	11200							
25.0	2500							Z-1		114	11600							
30.0	3000									121	14500							
35.0	3500							Z-2	3	129	16500							
40.0	4000									133	18500							
45.0	4500							Z-3		136	21000							
50.0	5000										23500							
55.0	5500										26000							
60.0	6000							Z-4	4		2800							
65.0	6500										30000							
70.0	7000										32500							
75.0	7500										35000							
80.0	8000										37000							
85.0	8500										39500							
90.0	9000										41000							
95.0	9500										43000							
100.0	10000							Z-5	5		46500							
110.0	11000										51000							
120.0	12000										55005							
130.0	13000										60000							
140.0	14000										65000							
150.0	15000							Z-6			67500							
160.0	16000										74000							
170.0	17000										83500							
180.0	18000										83500							
190.0	19000										88000							
200.0	20000										93000							
300.0	30000										140000							

Note: All viscosity comparisons are as accurate as possible with existing information. Comparisons are made with a material having a specific gravity of 1.0.

VOLUMETRIC CONTENT OF HOSE OR TUBE (English Units)							
I.D. (inches)	cc/ft.	Cross Section (in. ²)	Length				
			5ft. (60")	10ft. (120")	15ft. (180")	25ft. (300")	50ft. (600")
1/8	2.4	.012	.003 gal. .4 fl. oz.	.006 gal. .8 fl. oz.	.010 gal. 1.2 fl. oz.	.016 gal. 2.0 fl. oz.	.032 gal. 4.1 fl. oz.
3/16	5.4	.028	.007 gal. .9 fl. oz.	.014 gal. 1.8 fl. oz.	.022 gal. 2.8 fl. oz.	.036 gal. 4.6 fl. oz.	.072 gal. 9.2 fl. oz.
1/4	9.7	.049	.013 gal. 1.6 fl. oz.	.025 gal. 3.3 fl. oz.	.038 gal. 4.9 fl. oz.	.064 gal. 8.2 fl. oz.	.127 gal. 16.3 fl. oz.
5/16	15.1	.077	.020 gal. 2.5 fl. oz.	.040 gal. 5.1 fl. oz.	.060 gal. 7.6 fl. oz.	.100 gal. 12.7 fl. oz.	.199 gal. 25.5 fl. oz.
3/8	21.7	.110	.029 gal. 3.7 fl. oz.	.057 gal. 7.3 fl. oz.	.086 gal. 11.0 fl. oz.	.143 gal. 18.4 fl. oz.	.287 gal. 36.7 fl. oz.
1/2	38.6	.196	.051 gal. 6.5 fl. oz.	.102 gal. 13.1 fl. oz.	.153 gal. 19.6 fl. oz.	.255 gal. 3.6 fl. oz.	.510 gal. 65.3 fl. oz.

VOLUMETRIC CONTENT OF HOSE OR TUBE (Metric Units)							
I.D. (mm)	cc/m	Cross Section (mm ²)	Length				
			1.5m	3.0m	4.5m	6.0m	7.5m
3.6	10.2	10.2	15.3 cc	30.5 cc	45.8 cc	61.1 cc	76.3 cc
5.6	24.6	24.6	36.9 cc	73.9 cc	110.8 cc	147.8 cc	184.7 cc
6.8	36.3	36.3	54.5 cc	109.0 cc	163.4 cc	217.9 cc	272.4 cc
8.8	60.8	60.8	91.2 cc	182.5 cc	273.7 cc	364.9 cc	456.2 cc

© 2013 Ransburg. All rights reserved.

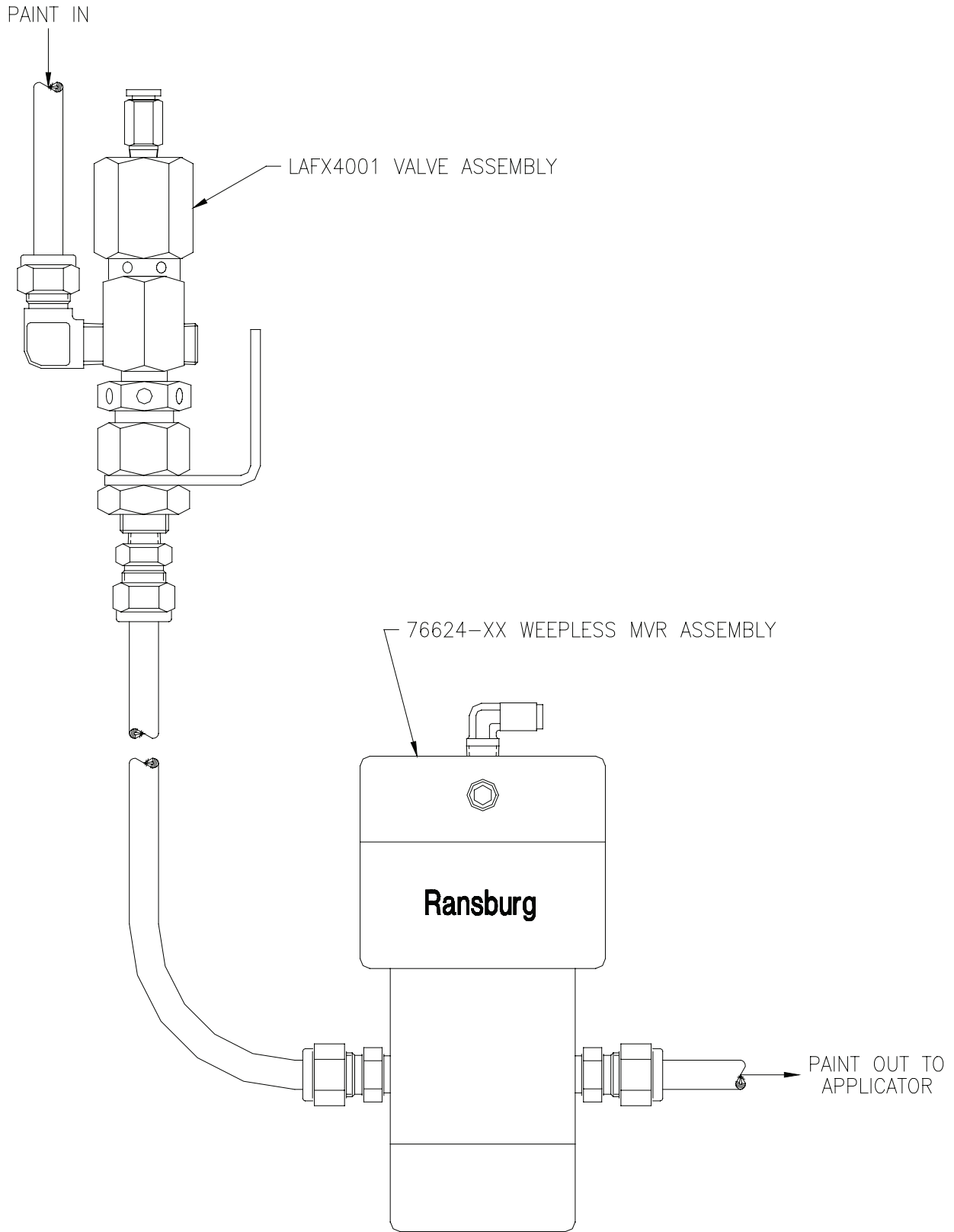
**Subject: Line Pressure Increase During Trigger-Off
-See 76624 Weepless MVR Assembly / LAFX4001 Valve Assembly**

The 76624 Weepless MVR Assembly is designed to be a replacement for the TR-SSMM-XXX “Weeping” MVR Assembly.

In some installations, the elimination of the weep port has resulted in an excessive line pressure increase during the trigger-off time. The result is a burst of fluid immediately after the applicator is triggered-on. This situation is most likely to occur when low viscosity fluids are supplied to the Weepless MVR Assembly at high fluid pressures.

If this condition occurs and the fluid supply pressure is less than 300 psi, it is recommended that an LAFX4001 Valve Assembly be installed between the fluid supply pump and Weepless MVR Assembly. Please find the attached sketch. This valve can then be used as a preliminary shut-off valve to interrupt the fluid pressure to the Weepless MVR Assembly. By delaying the trigger-off at the applicator, the line pressure can be minimized to eliminate the surging at initial trigger-on.

Note that the LAFX4001 valve should be triggered at the same time as the gun is triggered. Also note that if the system already has a color valve stack existing, the color valve in the stack can be used to accomplish these same results.



76624 Weepless MVR Assembly / LAFX4001 Valve Assembly

MANUAL CHANGE SUMMARY

This manual was published to replace Service Manual **LN-9225-00.4**, Weepless MVR Assembly, to make the following changes:

1. Revised "Figure 4: 77052 Weepless MVR Seal Replacement Kit" in the "Parts Identification" section.
2. Revised "Figure 5: 77048-00 Weepless MVR Seal Upgrade Kit" in the "Parts Identification" section.
3. Revised "Volumetric Content of Hose or Tube" Charts (English & Metric Units) in the "Appendix" section.
4. Update "Contact Information" on the "Back Cover."

Service Manual Price: \$20.00 (U.S.)

Manufacturing

1910 North Wayne Street
Angola, Indiana 46703-9100
Telephone: 260/665-8800
Fax: 260/665-8516

Technical/Service Assistance

Telephone: 800/ 233-3366
Fax: 419/ 470-2071

Technical Support Representative will direct you to the appropriate telephone number for ordering Spare Parts.

