



# Manzel<sup>®</sup> MVB Pump Disassembly & Assembly Procedures

**Disassembly and assembly of the MVB Pump should be done in a clean area. Refer to the attached drawing.**

## DISASSEMBLY PROCEDURES

1. Place pump upside down in vise with pump body in soft-jaw vise for protection.
2. Depress item (6) piston guide and remove (9H) self locking ring and (6) piston guide.
3. Withdraw piston assembly and item (4) piston return spring.  
**Note:** unless item (5) cylinder and piston set are to be replaced, there is no need to remove items (9F & 1) retaining ring and spring retainer from piston.
4. With the bottom of the piston visible remove items (9F) retainer ring, (1) retainer spring, and (4) piston return spring.
5. Remove pump from vise and turn over. Replace pump in soft-jaw vise with adjustment nut facing upward.
6. Loosen item (9J) set screw to relieve locking force on cylinder & piston assembly. Removal is not necessary.
7. Remove item (9D) pipe plug. Unthread and remove item (5) Cylinder.  
**Note:** Care should be taken when removing cylinder assembly. Do not cut O-rings.
8. Replace O-ring and backup rings as necessary.
9. Remove MVB Pump from vise.
10. Place item (5) cylinder assembly in vise and remove indicator port adaptor.
11. Remove cylinder assembly from vise and remove items (9A) check ball, (3) outlet spring, and (8G) indicator port O-ring.
12. Inspect components and replace as needed.

## ASSEMBLY PROCEDURES

1. Place item (5) cylinder assembly in soft jaw vice and replace items (9A) outlet check ball and (3) outlet check spring. Tread in indicator port adaptor and torque to 12ft. Lbs.
2. Remove cylinder assembly from vise.
3. Place pump housing in soft jaw vice with flange end facing down.
4. Tread in item (5) cylinder exercising care not to cut o-rings.
5. Apply a small amount of pipe sealant to item (9D) pipe plug and while holding indicator port adapter with a wrench, tighten pipe plug.
6. Remove pump housing from vise and turn over so that flange end faces up.
7. Replace item (4) piston return spring.
8. Lightly oil piston and insert into cylinder bore.
9. Insert item (6) piston guide and depress slightly to allow item (9H) self-locking ring to be installed.

### PISTON KITS 563918 (1/4") AND 563919 (3/8") CONTENTS

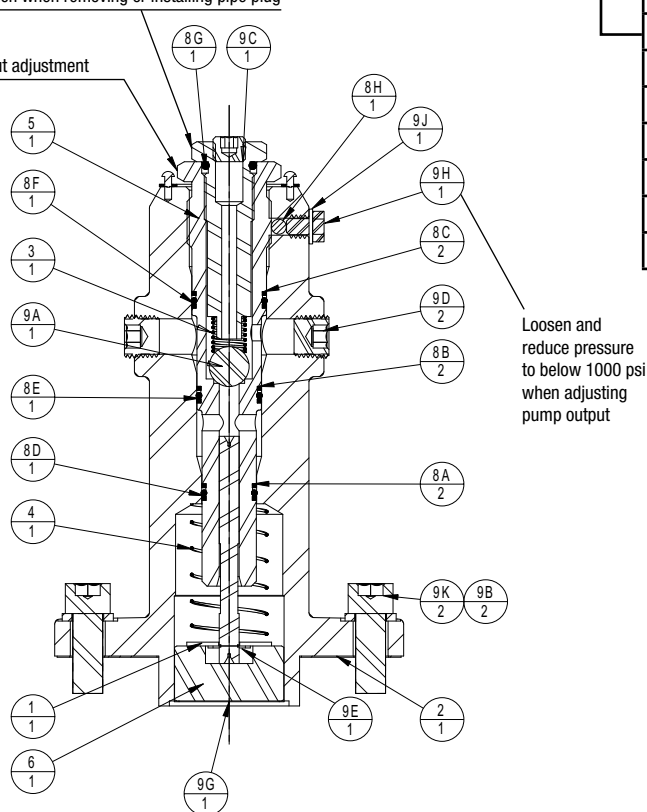
ITEM	Qty	Description	Part No.	Old Part No.
1*	1	Retainer-Spring, 0.261/0.266	556495	418-700-348
1**	1	Retainer-Spring, 0.386/0.391	556496	418-700-350
2	1	MVB Pump Gasket	556726	439-073-033
3	1	Spring-Outlet Check Valve	-	458-005-871
4	1	Piston Return Spring	557012	458-200-040
5*	1	Cylinder & Piston 1/4 dia	-	477-020-564
5**	1	Cylinder & Piston 3/8 dia	-	477-040-129
6	1	Piston Guide	-	484-040-090
8	1	MVB Pump Seal Kit	558015	560-003-004
9	1	MVB Pump Hardware Kit	558016	560-003-005

\*Included with 1/4 in Piston Kit only. \*\*Included with 3/8 in Piston Kit only.

Indicator port adapter

\*Hold with 13/16 wrench when removing or installing pipe plug

1-1/8 hex for output adjustment



### MVB SEAL KIT 558015 CONTENTS

ITEM	Qty	Description	Part No.	Old Part No.
8A	2	Backup Ring -015	-	423-700-053
8B	2	Backup Ring -017	-	423-700-040
8C	2	Backup Ring -019	-	423-700-039
8D	1	O-Ring -015 Viton A 70	-	422-040-150
8E	1	O-Ring -017 Viton A 70	-	422-040-170
8F	1	O-Ring -019 Viton A 70	-	422-040-190
8G	1	O-Ring -112 Viton A 70	-	422-041-120
8H	1	3/16 Polyurethane Ball	-	401-700-010

### MVB HARDWARE KIT 558016 CONTENTS

ITEM	Qty	Description	Part No.	Old Part No.
9A	1	1/2 Chrome Steel Ball	-	401-030-130
9B	2	3/8 Washer, Lock	-	421-010-030
9C	1	Plug, 1/8 Pipe	557349	503-485-000
9D	2	Plug, Pipe, 1/4-18 NPSF	557391	508-975-000
9E	1	Retaining Ring, RE-25	-	418-150-060
9F	1	Retaining Ring, SHF-37 0.375 dia	-	418-700-513
9G	1	Self-Locking Ring, 1-1/2 Hole	558666	418-141-500
9H	1	Cap Screw, Hex Head, 1/4 x 0.37	-	-
9J	1	Direction Tag	-	-
9K	2	SHCS, 3/8-16 x 1	558674	419-170-050

### PUMP OUTPUT ADJUSTMENT CHART - CU.IN. PER STROKE

Piston	Full Stroke*	Adjustment Screw Turns - Counter Clockwise From Full Stroke														
		1/4	1/2	3/4	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3	3-1/4	3-1/2	3-3/4 Min
.250	.012	.0114	.0107	.0100	.0095	.0089	.0082	.0076	.0070	.0063	.0057	.0051	.0044	.0038	.0031	.0025
.3750	.0300	.0284	.0268	.0252	.0236	.0220	.0204	.0188	.0172	.0156	.0140	.0124	.0108	.0092	.0076	.0060

\*Full stroke is when adjustment screw is tight against pump body

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