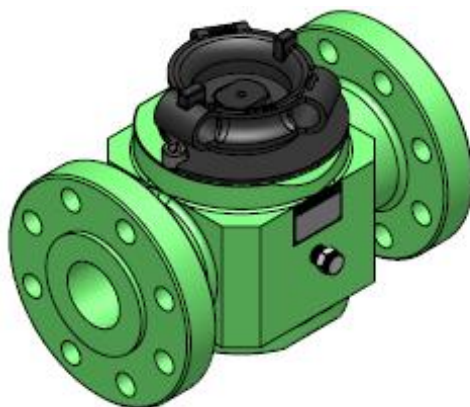


Red Deer Ironworks



Flanged Top Entry Plug Valve Maintenance Manual

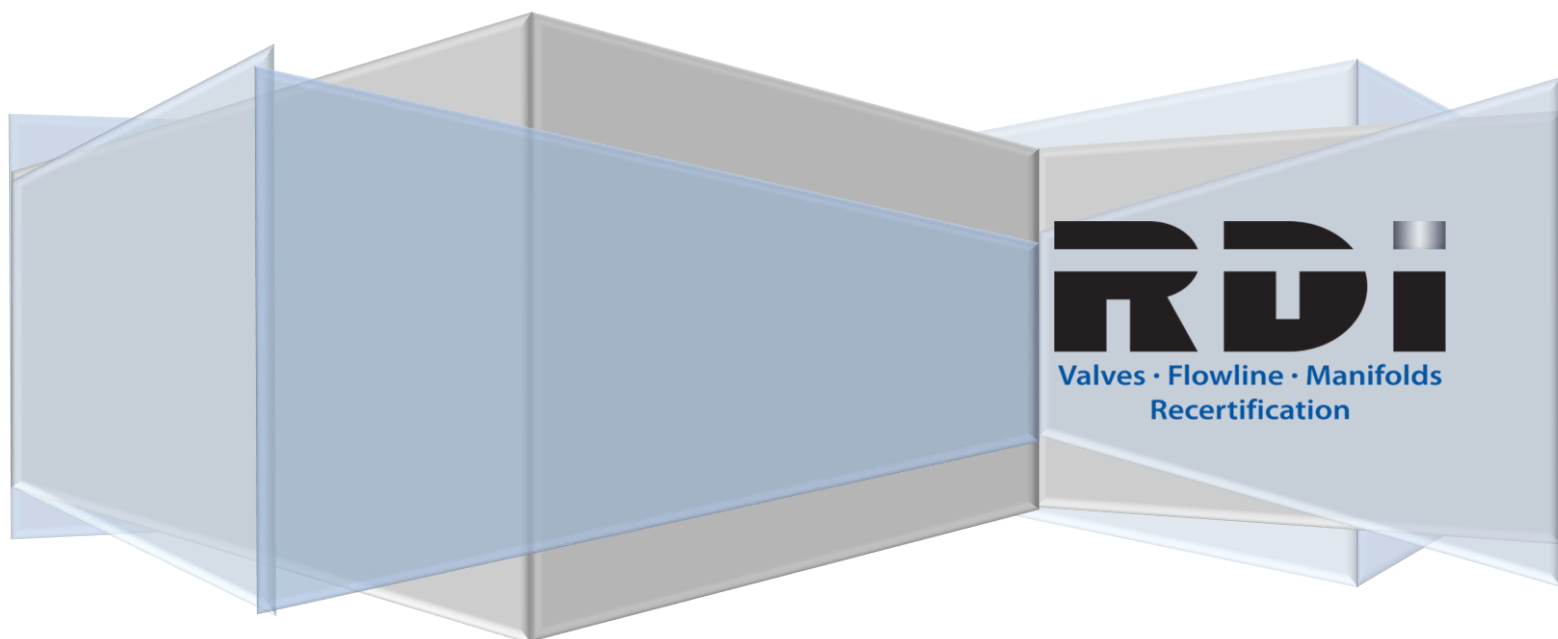
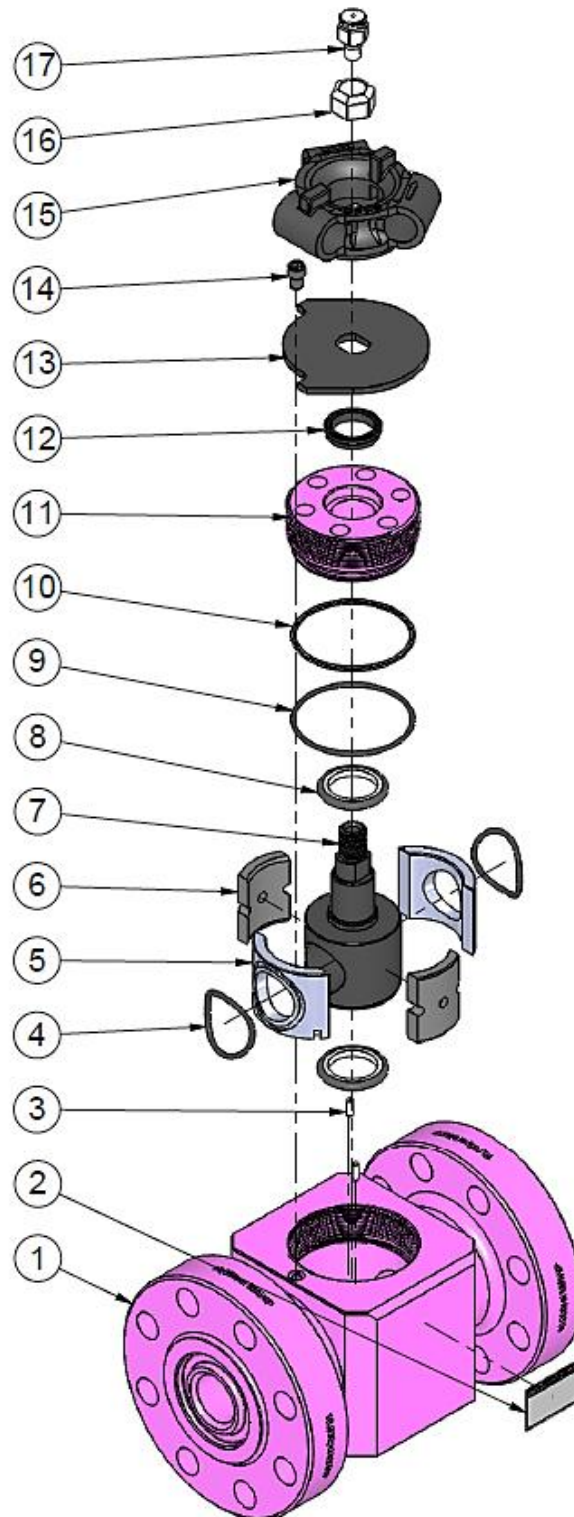


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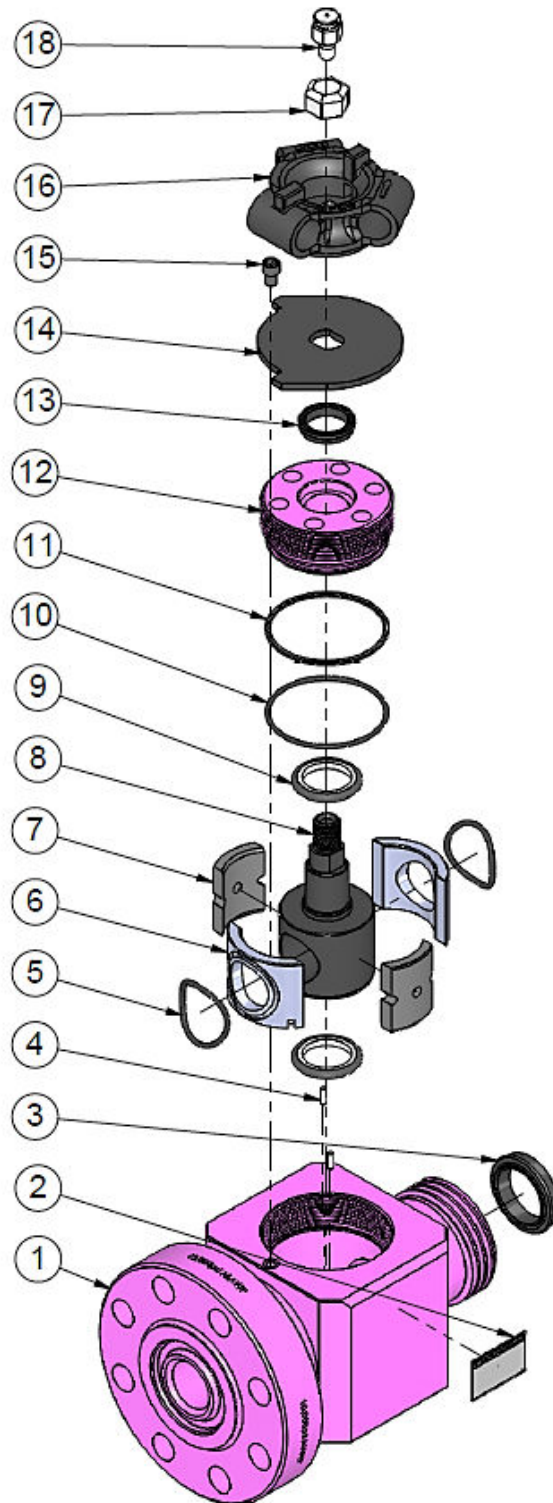
Exploded View - 2" 15K Flanged Plug Valves



Parts Listing - 2" 15K Flanged Plug Valves

Item	Qty	Description	Part # Sour (H ₂ S) PVFL215K	Part # Standard PVFL215KSTD
1	1	Plug Valve Flanged	PVFL215K	PVFL215KSTD
2	1	Name Plate	VLVTAG	VLVTAG
3	2	Roll Pin - 3/16in OD x 5/8in L - PV 2x2 Fig 1502	PV215PIN	PV215PIN
4	2	O-Ring 4mm X 54mm	OR-H80-40054	OR-H80-40054
5	2	Seat Carrier	PV215FINSEATCARR	PV215FINSEATCARR
6	2	Seat Spacer Body	PV2X2SPACERGLASSPHEN	PV2X2SPACERGLASSPHEN
7	1	Plug Body	PV215FINPLUG	PV215FINPLUG
8	2	Plug Seal - 2in Plug	PV2602ORSEAL	PV2602ORSEAL
9	1	O-Ring 239	OR-H90-239	OR-H90-239
10	1	Back Up O-Ring 239 - 2in Plug Valve Cap	ORB-NXX-239	ORB-NXX-239
11	1	Cap - 2in Fig 1502 Plug Valve	PV215BODCAP	PV215BODCAPSTD
12	1	Weather Seal - 2in Plug Valve	PV2602WSEAL	PV2602WSEAL
13	1	Stop Plate Body	PV215HDLSTOP	PV215HDLSTOP
14	1	Cap Screw, Socket Head, Hex, 3/8-16 X 1/2x1/2 Thread Length	SHCS 0.375-16x0.5x0.5-N	SHCS 0.375-16x0.5x0.5-N
15	1	Plug Valve Handle	PVHDL2X2	PVHDL2X2
16	1	Nylon Lock Nut - 7/8-9 UNC	PV2HNDLNUT	PV2HNDLNUT
17	1	Grease Fitting 1/4in NPT (GBH14)	SH-013	SH-013

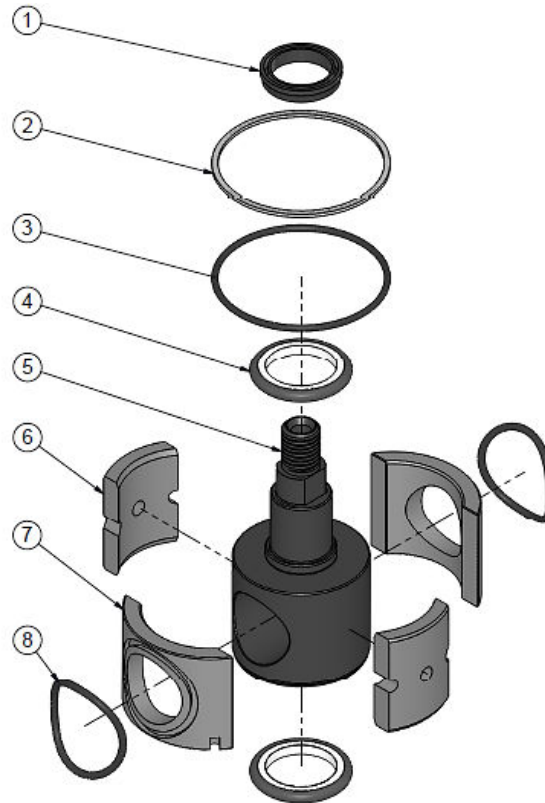
Exploded View - 2" 15KX215F Flanged Plug Valves



Parts Listing - 2" 15KX215F Flanged Plug Valves

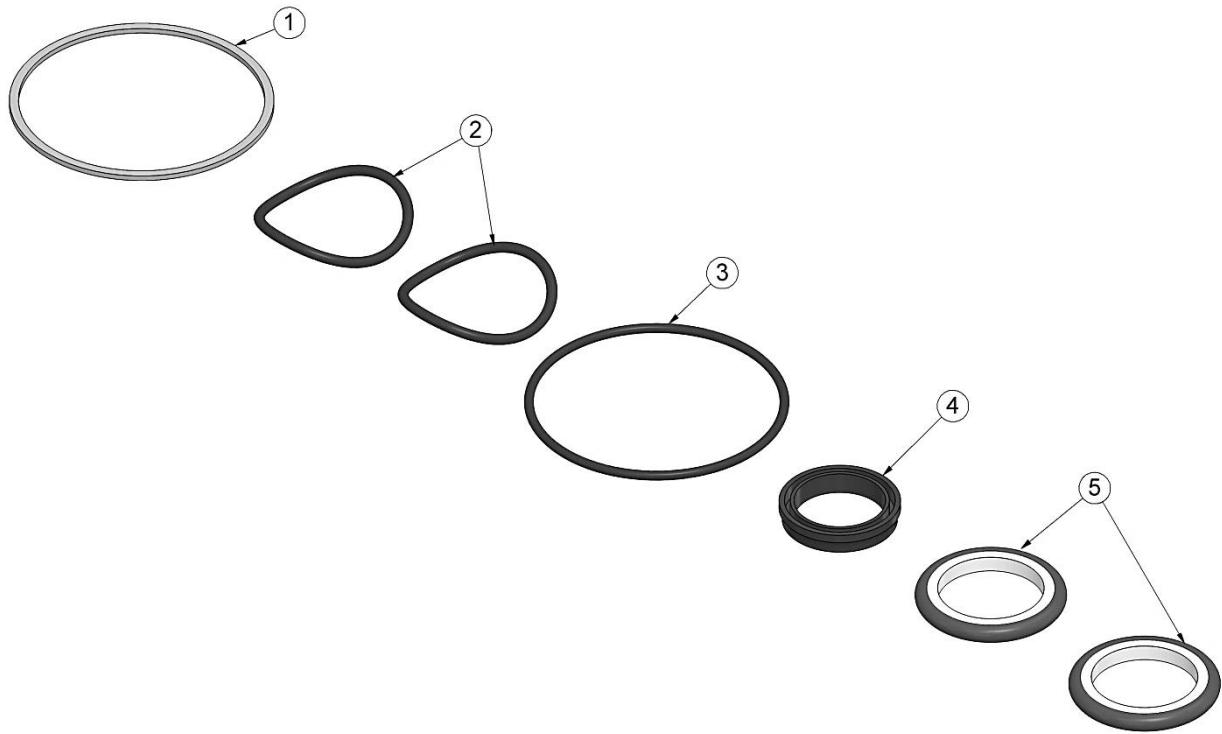
Item	Qty	Description	Part # Sour (H ₂ S) PVFL215KX215F	Part # Standard PVFL215KX215FSTD
1	1	2.0625in 15K x 2in Fig 1502 F Plug Valve Flanged	PVFL215KX215F	PVFL215KX215FSTD
2	1	Name Plate	VLVTAG	VLVTAG
3	1	Union Seal - 2in	SEAL2	SEAL2STD
4	2	Roll Pin - 3/16in OD x 5/8in L - PV 2x2 Fig 1502	PV215PIN	PV215PIN
5	2	O-Ring 4mm X 54mm	OR-H80-40054	OR-H80-40054
6	2	Seat Carrier	PV215FINSEATCARR	PV215FINSEATCARR
7	2	Seat Spacer Body	PV2X2SPACERGLASSPHEN	PV2X2SPACERGLASSPHEN
8	1	Plug Body	PV215FINPLUG	PV215FINPLUG
9	2	Plug Seal - 2in Plug	PV2602ORSEAL	PV2602ORSEAL
10	1	O-Ring 239	OR-H90-239	OR-H90-239
11	1	Back Up O-Ring 239 - 2in Plug Valve Cap	ORB-NXX-239	ORB-NXX-239
12	1	Cap - 2in Fig 1502 Plug Valve	PV215BODCAP	PV215BODCAPSTD
13	1	Weather Seal - 2in Plug Valve	PV2602WSEAL	PV2602WSEAL
14	1	Stop Plate Body	PV215HDLSTOP	PV215HDLSTOP
15	1	Cap Screw, Socket Head, Hex, 3/8-16 X 1/2x1/2 Thread Length	SHCS 0.375-16x0.5x0.5-N	SHCS 0.375-16x0.5x0.5-N
16	1	Plug Valve Handle	PVHDL2X2	PVHDL2X2
17	1	Nylon Lock Nut - 7/8-9 UNC	PV2HNDLNUT	PV2HNDLNUT
18	1	Grease Fitting 1/4in NPT (GBH14)	SH-013	SH-013

Major Repair Kit Parts Listing - 2" 15K and 2" 15KX215F Flanged Plug Valves



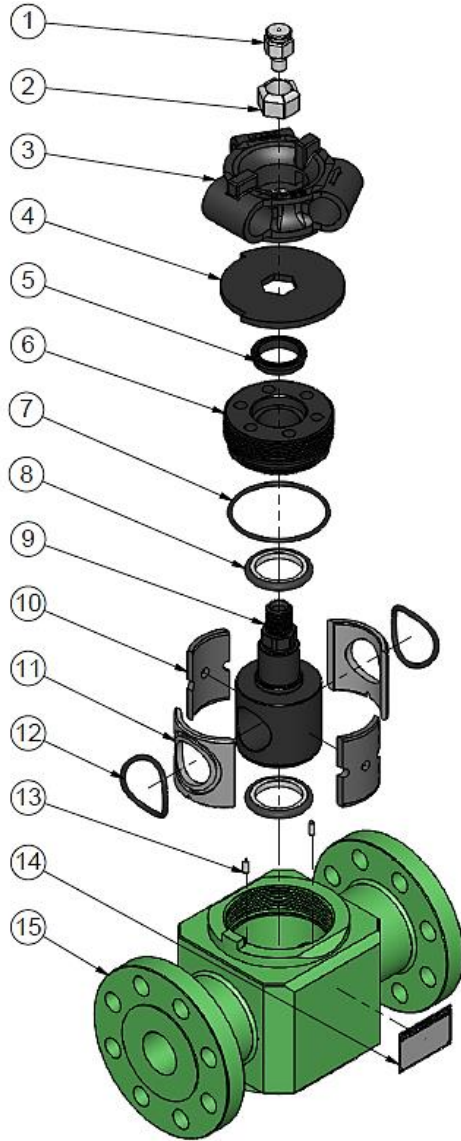
Item	Qty	Description	Part #
		Major Repair Kit	PVRK215MAJ
1	1	Weather Seal - 2in Plug Valve	PV2602WSEAL
2	1	Back Up O-Ring 239 - 2in Plug Valve Cap	ORB-NXX-239
3	1	O-Ring 239	OR-H90-239
4	2	Plug Seal - 2in Plug	PV2602ORSEAL
5	1	Plug Body	PV215FINPLUG
6	2	Seat Spacer Body	PV2X2SPACERGLASSPHEN
7	2	Seat Carrier	PV215FINSEATCARR
8	2	O-Ring 4mm X 54mm	OR-H80-40054

Minor Repair Kit Parts Listing - 2" 15K and 2" 15KX215F Flanged Plug Valves

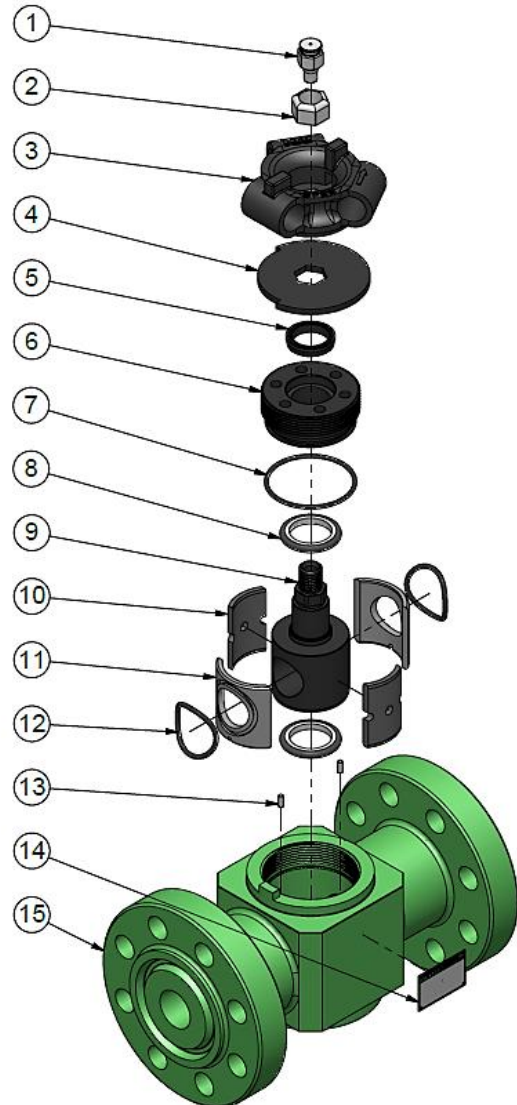


Item	Qty	Description	Part #
		Minor Repair Kit	PVRK215MIN
1	1	Back Up O-Ring 239 - 2in Plug Valve Cap	ORB-NXX-239
2	2	O-Ring 4mm X 54mm	OR-H80-40054
3	1	O-Ring 239	OR-H90-239
4	1	Weather Seal - 2in Plug Valve	PV2602WSEAL
5	2	Plug Seal - 2in Plug	PV2602ORSEAL

Exploded View - 2" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves



Raised Face

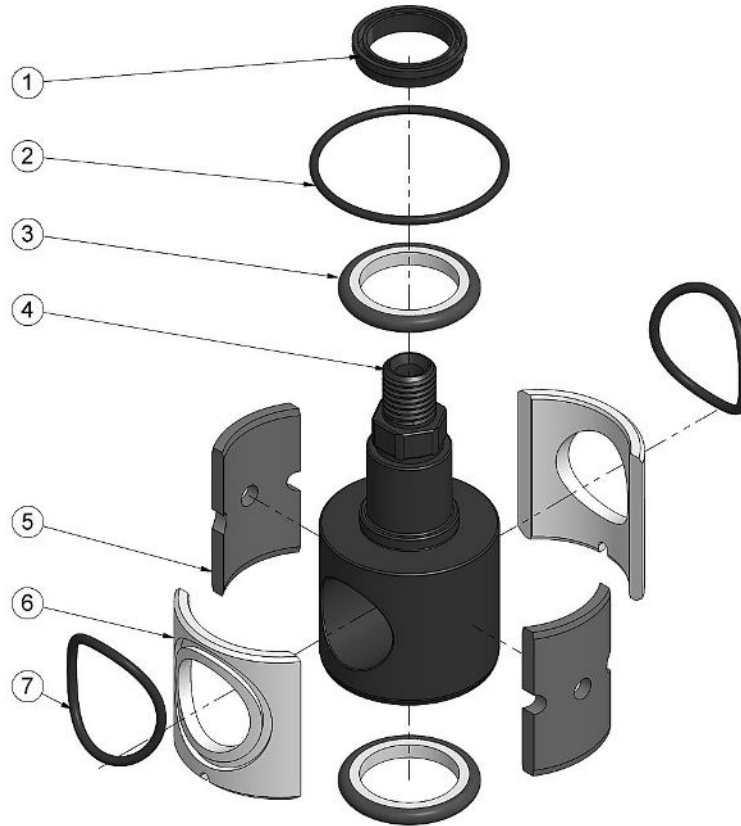


Ring Type Joint

Parts Listing - 2" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves

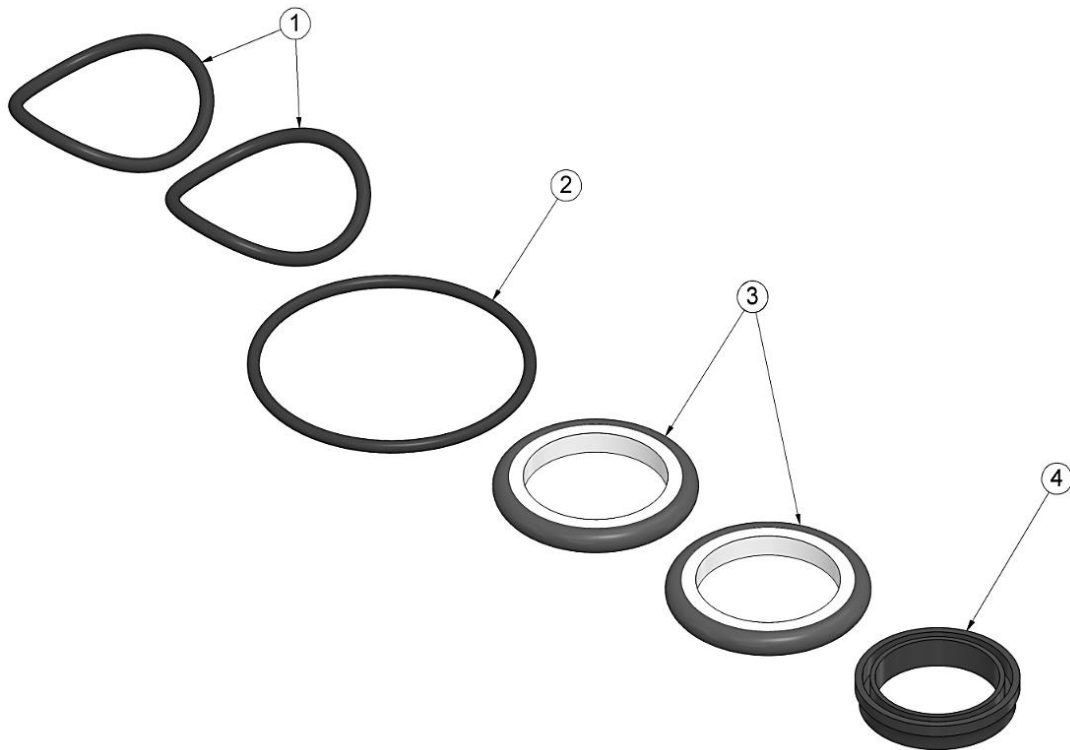
Item Qty Description			Part # PV2150RFTE, PV2300RFTE, PV2600RFTE, PV2900RFTE, PV21500RTJTE, PV22500RTJTE
1	1	Grease Fitting 1/4in NPT (GBH14)	SH-013
2	1	Nylon Lock Nut - 7/8-9 UNC	PV2HNDLNUT
3	1	Plug Valve Handle	PV26HNDL
4	1	Stop Plate Body	PV26HDLSTOP
5	1	Weather Seal - 2in Plug Valve	PV2602WSEAL
6	1	Cap Body	PV26BODCAP
7	1	O-Ring 234	OR-H90-234
8	2	Plug Seal - 2in Plug	PV2602ORSEAL
9	1	Plug Body	PV26FINPLUG
10	2	Seat Carrier Spacer	PV2602SPACER
11	2	Seat Carrier	PV26FINSEATCARR
12	2	O-Ring 4mm x 50mm	OR-H90-40050
13	2	Pin - 3/16in OD x 1/2in L	PV26PIN
14	1	Name Plate	VLVTAG
15	1	Plug Valve Body	PV2150RFTE, PV2300RFTE, PV2600RFTE, PV2900RFTE, PV21500RTJTE, PV22500RTJTE

Major Repair Kit Parts Listing - 2" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves



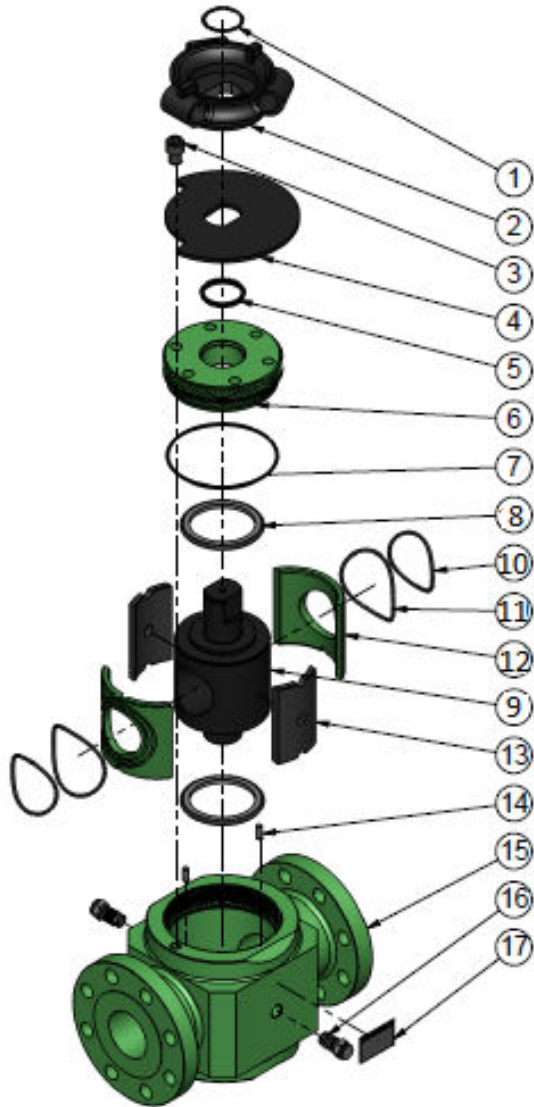
Item	Qty	Description	Part #
		Major Repair Kit	PVRK26MAJ
1	1	Weather Seal - 2in Plug Valve	PV2602WSEAL
2	1	O-Ring 234	OR-H90-234
3	2	Plug Seal - 2in Plug	PV2602ORSEAL
4	1	Plug Body	PV26FINPLUG
5	2	Seat Carrier Spacer	PV2602SPACER
6	2	Seat Carrier	PV26FINSEATCARR
7	2	O-Ring 4mm x 50mm	OR-H90-40050

Minor Repair Kit Parts Listing - 2" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves

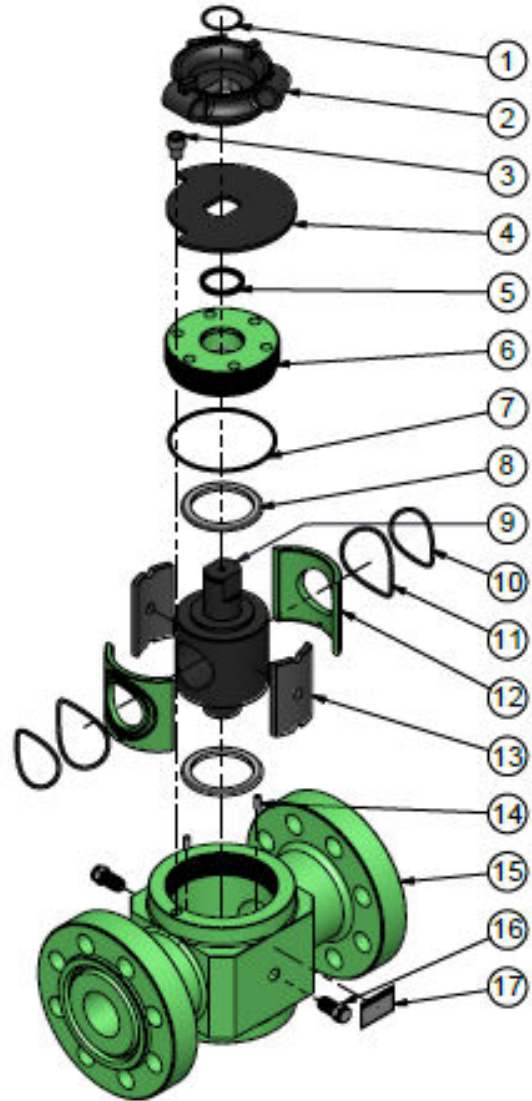


Item	Qty	Description	Part #
		Minor Repair Kit	PVRK26MIN
1	2	O-Ring 4mm x 50mm	OR-H90-40050
2	1	O-Ring 234	OR-H90-234
3	2	Plug Seal - 2in Plug	PV2602ORSEAL
4	1	Weather Seal - 2in Plug Valve	PV2602WSEAL

Exploded View - 3" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves

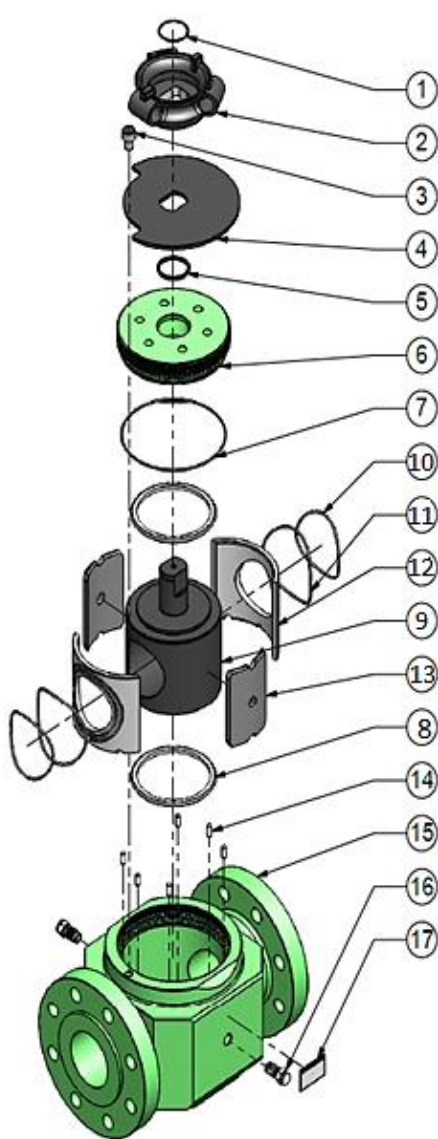


Raised Face

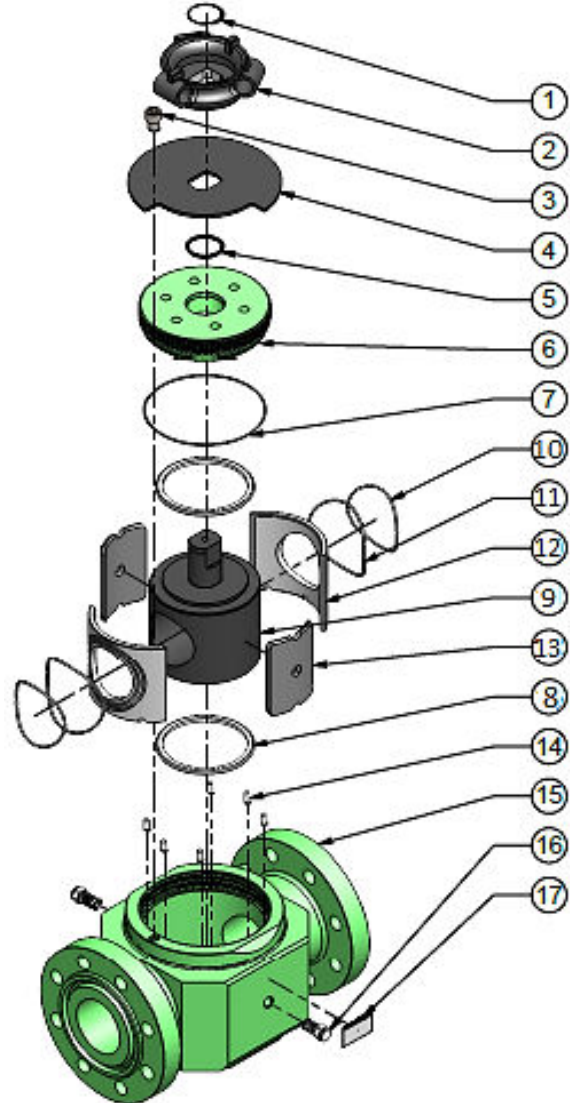


Ring Type Joint

Exploded View - 4" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves



Raised Face

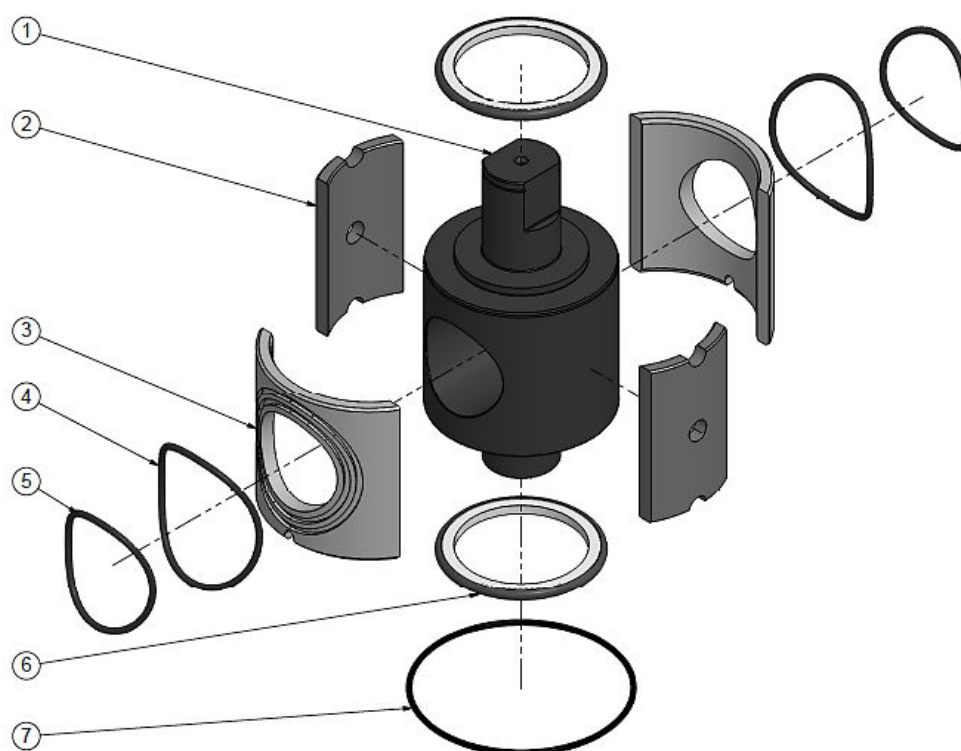


Ring Type Joint

Parts Listing - 3" and 4" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves

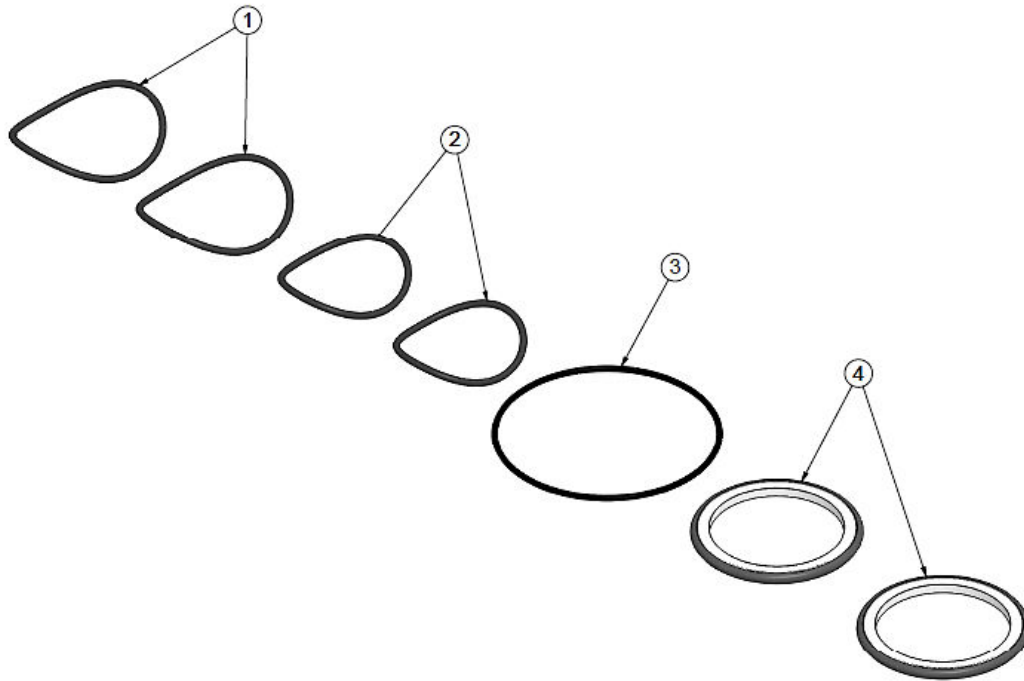
			Part # PV3150RFTE, PV3300RFTE, PV3600RFTE, PV3900RFTE, PV3600RTJTE, PV3900RTJTE, PV31500RTJTE or PV32500RTJTE	Part # PV4150RFTE, PV4300RFTE, PV4600RFTE, PV4900RFTE, PV4600RTJTE or PV4900RTJTE
Item	Qty	Description		
1	1	Spiral Retaining Ring RS 200	SNAPRINGRS200	SNAPRINGRS200
2	1	Plug Valve Handle	PV3HANDLE	PV3HANDLE
3	1	Cap Screw, Socket Head, Hex, 5/8-11 x 3/4 x 3/4 Thread Length	SHCS 0.625-11x0.75x0.75-N	SHCS 0.625-11x0.75x0.75-N
4	1	Stop Plate Body	PV3HDLSTOP	PV4HDLSTOP
5	1	Weather Seal - 3in TE Plug Valve	PV3600WSEAL	PV3600WSEAL
6	1	Cap Body	PV3CAPBODTE	PV4CAPBODTE
7	1	O-Ring 253	OR-H90-253	
	1	O-Ring 263		OR-H90-263
8	2	Plug Seal - 3in Plug	PV3PLUGSEALS	
	2	Plug Seal - 4in Plug		PV4PLUGSEALS
9	1	Plug Body	PV3FINPLUG	PV4PLUG
10	2	O-Ring 4mm X 78mm	OR-H80-40078	
	2	O-Ring 4mm X 102mm		OR-V75-40102
11	2	O-Ring 4mm X 96mm	OR-H80-40096	
	2	O-Ring 4mm X 118mm		OR-V75-40118
12	2	Seat Carrier	PV3FINSEATCARR	PV4SEATCARR
13	2	Seat Carrier Spacer	PV3SPACERGLASSPHENOLIC	PV4SPACER
14	2	Roll Pin - 0.3125in DIA x 0.75in Long	PV3PIN	
	6	Roll Pin - 0.3125in DIA x 0.75in Long		PV3PIN
15	1	Plug Valve Body	PV3150RFTE, PV3300RFTE, PV3600RFTE, PV3900RFTE, PV3600RTJTE, PV3900RTJTE, PV31500RTJTE or PV32500RTJTE	PV4150RFTE, PV4300RFTE, PV4600RFTE, PV4900RFTE, PV4600RTJTE or PV4900RTJTE
16	2	3/4" - 16 TPI Giant Button Head Grease Fitting (GBH34BT)	SH-016	SH-016
17	1	Name Plate	VLVTAG	VLVTAG

Major Repair Kit Parts Listing - 3" and 4" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves



Item	Qty	Description	Part # 3"	Part# 4"
		Major Repair Kit	PVRK3MAJ	PVRK4MAJ
1	1	Plug Body	PV3FINPLUG	PV4PLUG
2	2	Seat Carrier Spacer	PV3SPACERGLASSPHENOLIC	PV4SPACER
3	2	Seat Carrier	PV3FINSEATCARR	PV4SEATCARR
4	2	O-Ring 4mm x 96mm	OR-H80-40096	
	2	O-Ring 4mm X 118mm		OR-V75-40118
5	2	O-Ring 4mm X 78mm	OR-H80-40078	
	2	O-Ring 4mm X 102mm		OR-V75-40102
6	2	Plug Seal - 3in Plug	PV3PLUGSEALS	
	2	Plug Seal - 4in Plug		PV4PLUGSEALS
7	1	O-Ring 253	OR-H90-253	
	1	O-Ring 263		OR-H90-263

Minor Repair Kit Parts Listing - 3" and 4" Raised Face (RF) and Ring Type Joint (RTJ) Flanged Top Entry Plug Valves



Item	Qty	Description	Part # 3"	Part# 4"
		Minor Repair Kit	PVRK36MIN	PVRK4MIN
1	2	O-Ring 4mm x 96mm	OR-H80-40096	
	2	O-Ring 4mm X 118mm		OR-V75-40118
2	2	O-Ring 4mm X 78mm	OR-H80-40078	
	2	O-Ring 4mm X 102mm		OR-V75-40102
3	1	O-Ring 253	OR-H90-253	
	1	O-Ring 263		OR-H90-263
4	2	Plug Seal - 3in Plug	PV3PLUGSEALS	
	2	Plug Seal - 4in Plug		PV4PLUGSEALS

Assembly Procedure

Pictorial – PV4150RFTE

It is important that the workstation is clean and free of any contaminants such as metal shavings, dirt, etc. Do not sand or de-burr any items while at the assembly workstation.

Note: RDI-6430 (assembly grease), RDI-2015 (performance grease) and Nikal (anti-seize compound) are used in this procedure. Use of grease other than that listed in this manual is not recommended as it may adversely affect the performance and functionality of the Plug Valve.

1. Clean and inspect all parts for any damage (i.e. dents, scratches, sharp edges and burrs), particularly on the sealing areas and threads prior to assembly.



2. Insert the six **Roll Pins (# 14)** into the pin holes in the bottom of the **Plug Valve Body (#15)**.

Note: Insert **Pins** small end first.



3. Punch the six **Roll Pins** using a flat head punch until fully engaged.

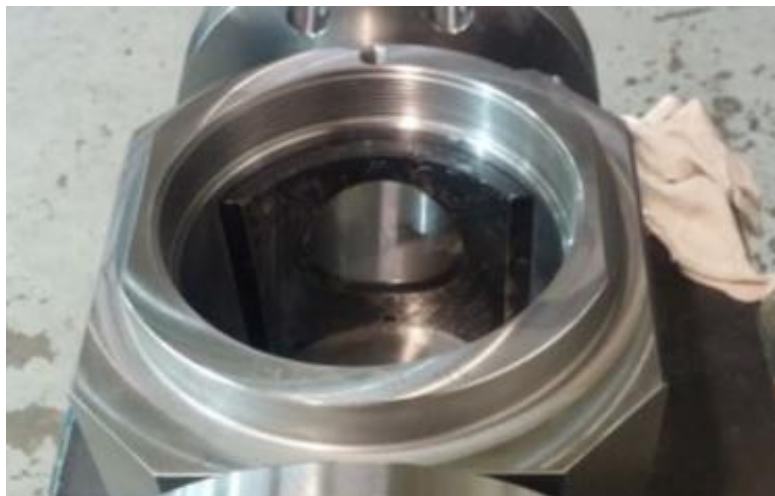
Use an air nozzle to blow out the inside of the **Valve** to remove any contaminants.



4. Coat **O-Rings 4mm x 102mm (#10)** & **O-Rings 4mm x 118mm (#11)** with **assembly grease** then install them into the grooves of the **Seat Carriers (#12)** respectively, then **grease** the sealing surface of the **Seat Carriers**.



5. **Grease** the internal wall of the **Plug Valve Body**. Place the **Seat Carriers** upright flush against the wall with the notch facing down and engaged onto the **Roll Pins**.



6. **Grease** both sides of the **Seat Carrier Spacers (#13)** then insert them between the **Seat Carriers** and flush to the wall of the **Plug Valve Body**.



7. **Grease** the bottom sealing surface of the **Plug Body (#9)** then install the first **Plug Seal (#8)**.



8. Apply a liberal amount of **assembly grease** on the **Plug Body** including the **Plug Seal** that was just installed.



9. Press the **Plug Body** between the **Seat Carriers** by applying downward pressure until fully engaged.



10. Coat the second **Plug Seal** with **grease** then install on the **Plug Body**.

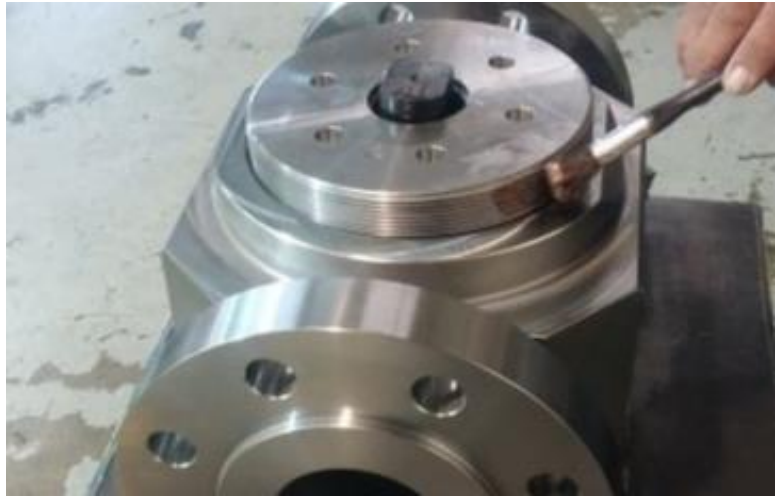


11. Coat **O-Ring 263 (#7)** with **grease** then install into the groove of the **Cap Body (#6)**.

Note: Ensure the **O-Ring** is flush around the groove.



12. **Grease** the sealing surface of the **Cap Body**. Apply **anti-seize compound** on the inside threads of the **Plug Valve Body** and the corresponding threads of the **Cap Body** then install.



13. Tighten clockwise the **Cap Body** till snug with the use of a cap wrench.



14. Install the **Weather Seal (#5)** over the end of the **Plug Body** and into the pocket of the **Cap Body**.



15. Apply **anti-seize compound** on the threads of the **Cap Screw (#3)**, then screw in clockwise and tighten snugly on top of the **Plug Valve Body**.



16. In the open position (plug bore aligned with valve bore), slide the **Stop Plate Body (#4)** onto the **Plug Body** with the orientation as shown. This will ensure that the position of the **Plug** (open or close) correlates to the arrow on the **Plug Valve Handle**.



17. Install the **Plug Valve Handle (#2)** over the **Stop Plate Body**.



18. Secure the **Plug Valve Handle** with **Spiral Retaining Ring** (**#1**).



19. Apply **anti-seize compound** on the threads of the two **Grease Fittings** (**#16**) and install them into the **Plug Body**.



Note: **Grease** the **Plug Valve** with **RDI 2015 performance grease** before and after Hydro Test. Remove excess **grease** from the bore of the **Plug Valve** with a clean rag. Make a final inspection on the **Plug Valve**. Ensure that the bores are in perfect alignment and the **Plug Valve Handle** corresponds to open/close position of the **Plug** when turning.

Note: Ensure the **Plug Valve** is left in the open position. Refer to **Greasing Instructions**.

Greasing Instructions

Ensure you have the most recent version of the RDI Greasing Instructions by visiting:

<https://rdironworks.com/products/plug-valves/>

or contact our sales team, toll-free:

1.855.973.4766

Tear-Down Procedure

WARNING: If the **Plug Valve Handle** or the **Cap Body** is hard to cycle or turn and the **Plug Valve** seems to be stuck or locked, there may be pressure trapped in the **Valve**, also known as “pressure locking”. If this happens, **DO NOT** continue to tear-down a **Pressure Locked Plug Valve**. (See Pressure Relieving Procedure for instructions).

Refer to the steps in the Assembly Procedure to tear-down the Plug Valve.

Thoroughly degrease and clean all parts that are disassembled. Check for any damage, replace as necessary.

Pressure Relieving Procedure

Pressure locking is caused by a rapid decrease in line pressure which traps fluid at the original line pressure. The trapped pressure causes a net upward force of the plug due to a differential in pressure area from top to bottom.

Best Practice for relieving trapped pressure in a **Plug Valve**. Connect the **Valve** and bring it to its last highest pressure. This will set the internal components in equilibrium and allow you to actuate the **Valve** while gradually decreasing the in-line pressure. This will ensure the **Plug** maintains freedom of rotation.

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<https://rdironworks.com/contact-a-location-near-you/>.



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