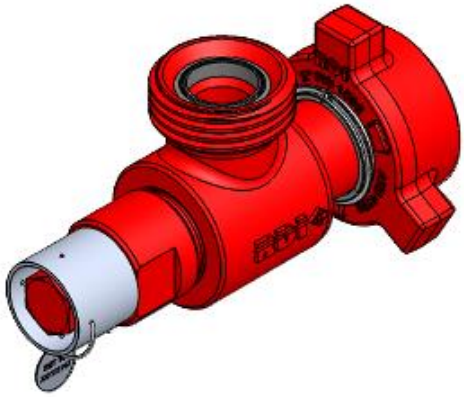
# Red Deer Ironworks



# 2” 1502STD Pressure Relief Valve Maintenance Manual

## Parts Covered: PRV21502STD

Valves · Flowline · Manifolds
Recertification

# DISCLAIMER

This 2” 1502STD Pressure Relief Valve is only designed to relieve short pressure spikes and is not designed to relieve any significant fluid flow for any extended duration. This Pressure Relief Valve has a restricted outlet, so it is not designed to dump large volumes of fluid. The Pressure Relief Valve is designed to indicate an over pressure event but is not designed to relieve the entire system pressure. If there is constant flow from the outlet of the Pressure Relief Valve, this indicates an over pressure event is occurring. In the case of an overpressure event, other methods must be used to relieve the system of pressure.

This Pressure Relief Valve is designed to operate in General Service environments (AA, BB, CC) up to 15,000 psi as in API 6A 21$^{st}$ edition. All Pressure Relief Valves are initially set and tested at 15,000 psi. The relief pressure is then adjusted at RDI as per the customer’s requirements. If a relief pressure is not specified by the user, the relief pressure will be set to 0 psi, and it will be the user’s responsibility to set the desired relief pressure.

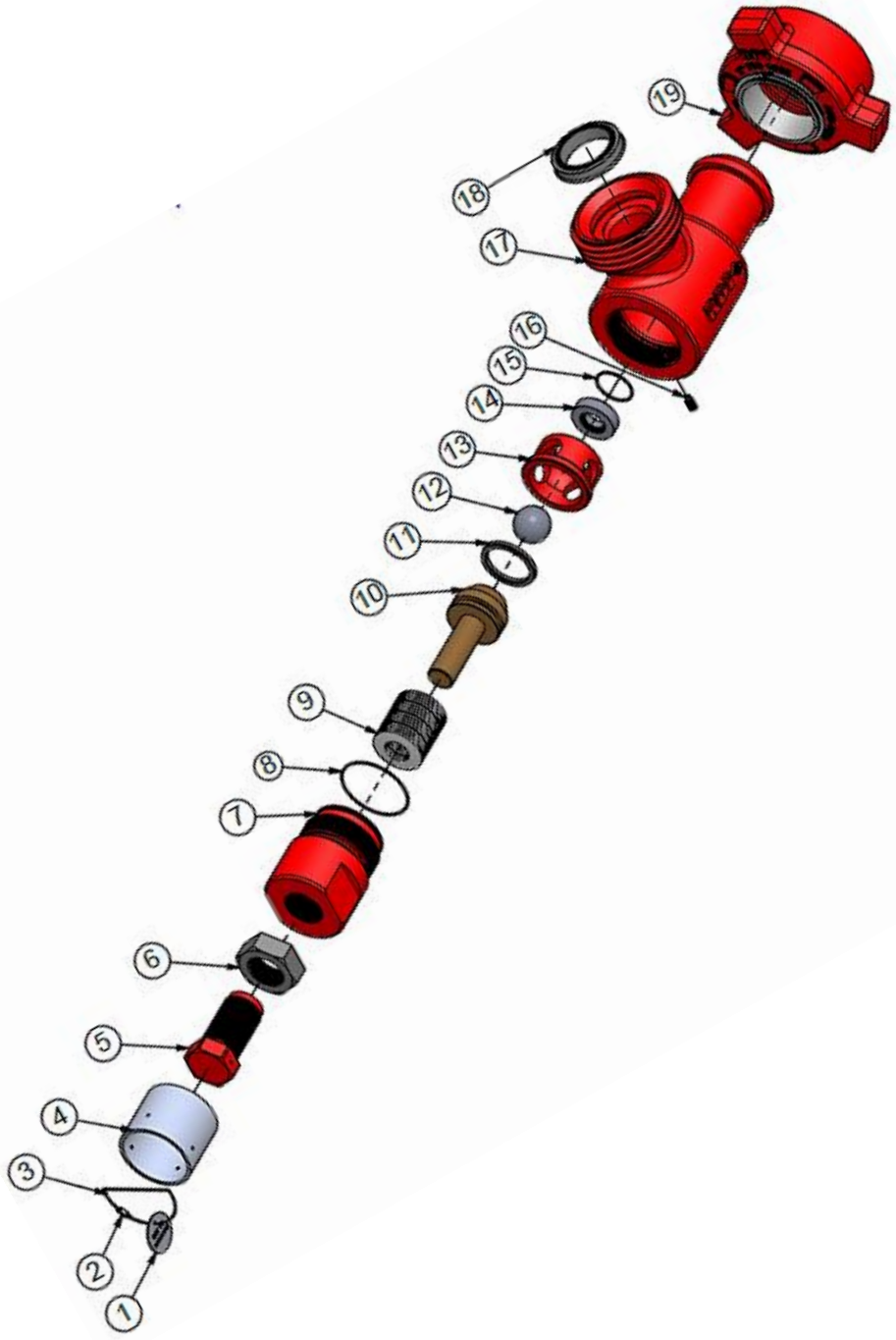
**WARNING**: Only qualified Service Technicians should perform the relieving pressure setting procedure.

**WARNING**: **NEVER** adjust the relief pressure while the Pressure Relief Valve is in operation. Attempting to adjust the relief pressure while the valve is in use could result in damage to equipment and the environment and could result in serious injury or death.

**WARNING**: Debris can accumulate in the inlet of the valve if proper precautions are not taken. Failure to prevent the accumulation of debris can result in the valve failing to relieve pressure or the valve failing to close after an overpressure event has occurred. Mounting the valve with the inlet facing downwards, while on a higher elevated line can greatly reduce the chance of debris accumulating in the valve.

# Table of Contents

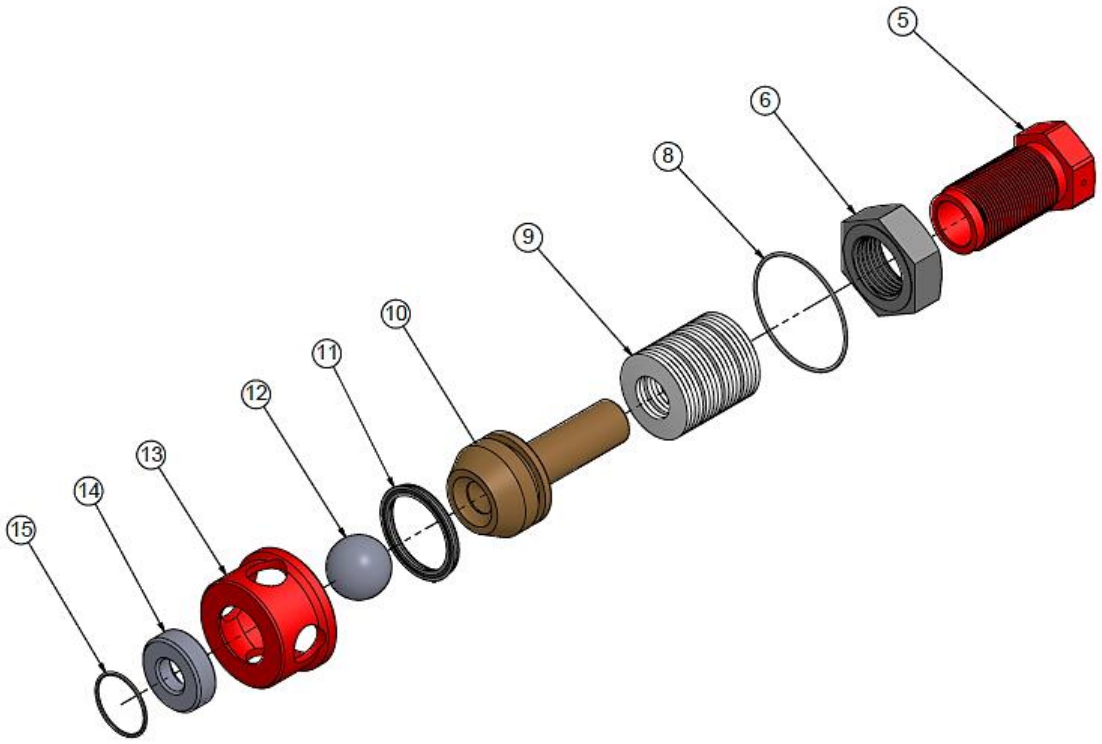
# Exploded View - 2” 1502STD Pressure Relief Valve



# Parts Listing - 2” 1502STD Pressure Relief Valve

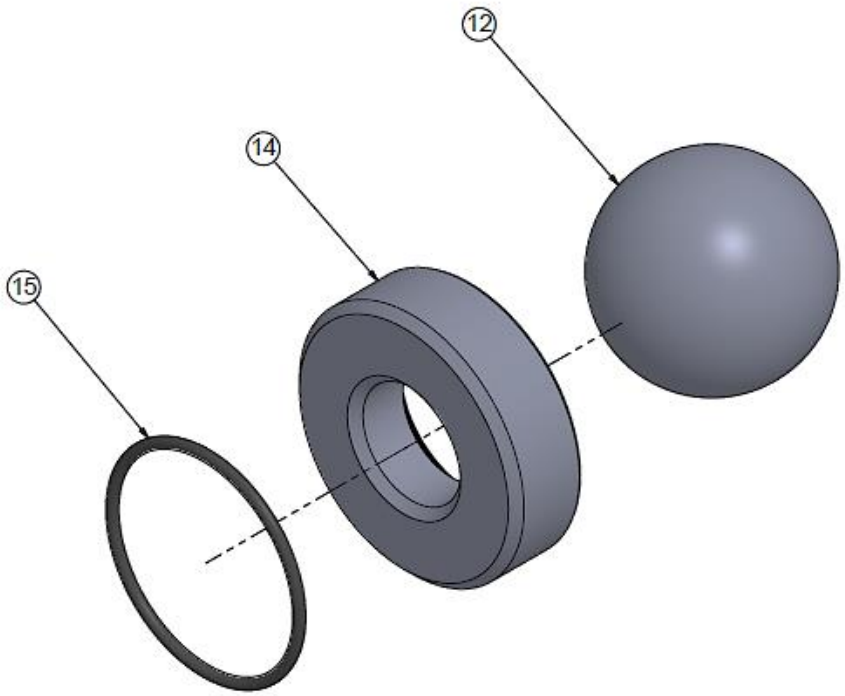
| Item | Qty | Description | Part # |
|---|---|---|---|
| 1 | 1 | Factory Seal Tag, 1.50” DIA X O.04375” (19ga) Thick | PRV2SEALTAG |
| 2 | 1 | Aluminum Oval Compression Sleeve, 1/16” DIA Rope, 3/8” L | PRV2CSLEEVE |
| 3 | 1 | Galvanized Wire Rope - 1/16” DIA, 7x7 Strand Core | PRV2WROPE |
| 4 | 1 | Factory Seal Cap | PRV2SEALCAP |
| 5 | 1 | Adjusting Screw | PRV2ADJSCREWSTD |
| 6 | 1 | Thin Hex Nut, 1-1/2-12 (Jamb Nut) | HNUTT 1.500-12-D-N |
| 7 | 1 | Cap | PRV2CAPSTD |
| 8 | 1 | O-Ring 038 | OR-N70-038 |
| 9 | 16 | Disk Spring | PRV2DISKSPRING |
| 10 | 1 | Keeper | PRV2KEEPER |
| 11 | 1 | Loaded U-Cup, 1 3/4” X 2 1/8” X 3/16” | PRV2CUPPACK |
| 12 | 1 | Ball | PRV2BALL |
| 13 | 1 | Spider | PRV2SPIDERSTD |
| 14 | 1 | Seat | PRV2SEAT |
| 15 | 1 | O-Ring 028 | OR-N90-028 |
| 16 | 1 | Set Screw, Socket Head, Brass Tip 5/16-18 X 3/32 X 3/16 | SSSFTSKT- 0.3125-18x0.5-HX-Cx0.3125x.0.1875 |
| 17 | 1 | Pressure Relief Valve Body | PVR21502STD |
| 18 | 1 | Union Seal | SEAL2STD |
| 19 | 1 | Wingnut Kit - 2in FIG 1502 15,000PSI Standard Service | WNKIT21502STD |

# Major Repair Kit Parts Listing - 2” 1502STD Pressure Relief Valve



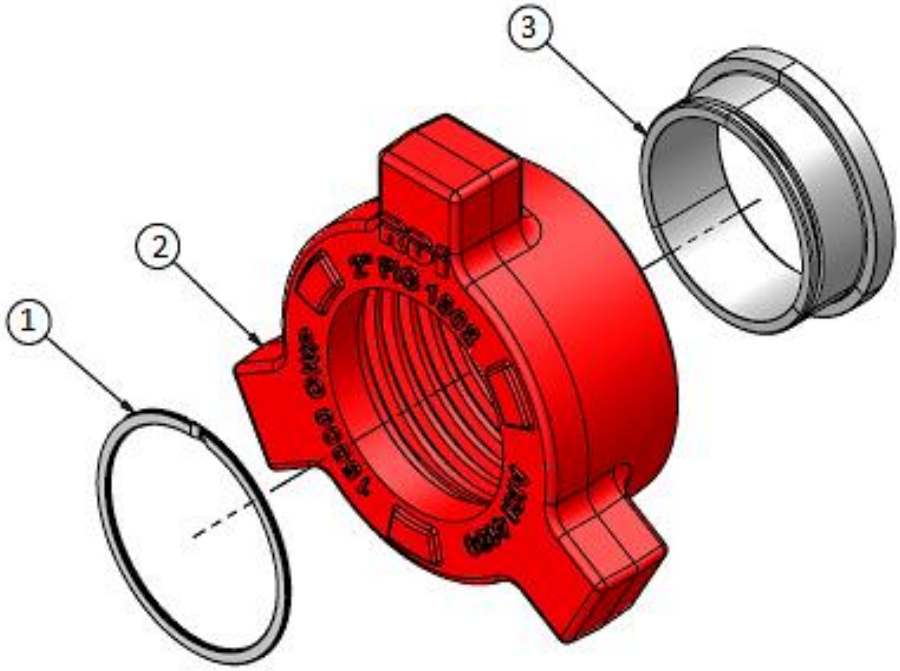

| Item | Qty | Description | Part # |
|---|---|---|---|
| | | **Major Repair Kit** | **PRV21502STDMAJ** |
| 5 | 1 | Adjusting Screw | PRV2ADJSCREWSTD |
| 6 | 1 | Thin Hex Nut, 1-1/2-12 (Jamb Nut) | HNUTT 1.500-12-D-N |
| 8 | 1 | O-Ring 038 | OR-N70-038 |
| 9 | 16 | Disk Spring | PRV2DISKSPRING |
| 10 | 1 | Keeper | PRV2KEEPER |
| 11 | 1 | Loaded U-Cup, 1 3/4” X 2 1/8” X 3/16” | PRV2CUPPACK |
| 12 | 1 | Ball | PRV2BALL |
| 13 | 1 | Spider | PRV2SPIDERSTD |
| 14 | 1 | Seat | PRV2SEAT |
| 15 | 1 | O-Ring 028 | OR-N90-028 |

# Minor Repair Kit Parts Listing - 2” 1502STD Pressure Relief Valve




| Item | Qty | Description | Part # |
|---|---|---|---|
| | | **Minor Repair Kit** | **PRV21502STDMIN** |
| 12 | 1 | Ball | PRV2BALL |
| 14 | 1 | Seat | PRV2SEAT |
| 15 | 1 | O-Ring 028 | OR-N90-028 |

# Wingnut Kit Parts Listing - 2” 1502STD Pressure Relief Valve




| Item | Qty | Description | Part # |
|---|---|---|---|
| | | **Wingnut Kit** | **WNKIT21502STD** |
| 19.1 | 1 | Spiral Retaining Ring | SNAPRINGWST334 |
| 19.2 | 1 | Wingnut Body | WN215DETSTD |
| 19.3 | 1 | Segment Set (3) | SEG21502 |

# Assembly Procedure

**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.**

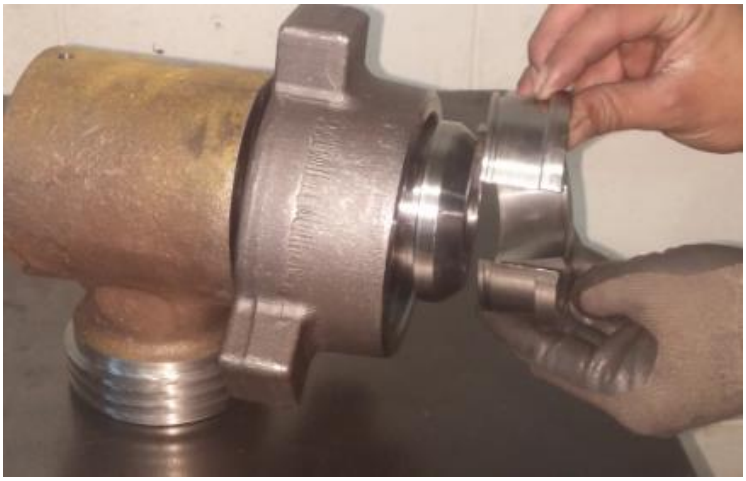
**Note: RDI-6430 (assembly grease) and Nikal (anti-seize compound) are used in this procedure. Use of grease other than listed in this manual is not recommended as it may adversely affect the performance and functionality of the Valve.**

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. Install the **Spiral Retaining Ring (#19.1)** onto the male end of the **Pressure Relief Valve (PRV) Body (#17)**.

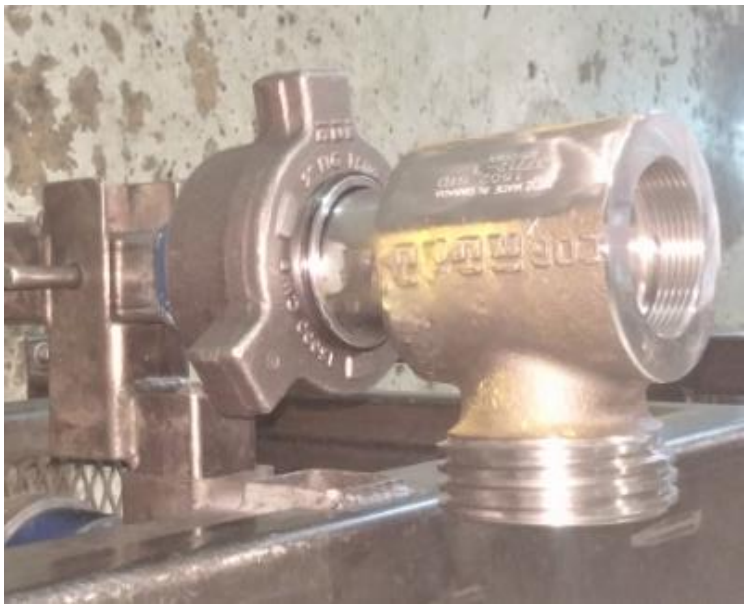
   Refer to **Wingnut Kit Parts Listing**.

3. Slide the **Wingnut Body (#19.2)** onto the male end up against the **PRV Body** and **Spiral Retaining Ring.** Place the **Segment Set (3) (#19.3)** around the male end and pull the **Wingnut Body** over the **Segments** to hold them in place.



4. Pry the **Spiral Retaining Ring** around into the groove of the **Segments** to secure the **Wingnut.**

Mount the **PRV Body** on a bench receiver.



5. Coat **O-Ring 028 (#15**) with **grease** then install into the groove in the **PRV Body**.

6. Coat the **Seat (#14)** with **grease** and place on top of the **O-Ring 028** with bevel side facing up.

7. Coat the **Spider (#13)** with **grease** and place on top of the **Seat.**

8. Coat the **Ball (#12)** with **grease** and place in **Spider.**

9. Coat the **Loaded U-Cup (#11)** with **grease** then install into the groove of the **Keeper (#10)** with concave side facing down.

**10.** Apply **anti-seize compound** on the internal threads of the **PRV Body.**

**11.** Place the **Keeper** on top of the **Ball**.

**12.** Apply a liberal amount of grease on the **Disk Springs (16 pcs) (#9)** and slide them onto the **Keeper** with the first two concave springs facing up then two concave springs facing down - repeat the sequence for the rest of the springs.

**13. Coat O-Ring 038 (#8)** with grease and install it into the groove of the **Cap (#7)**.

**14.** Apply **anti-seize compound** on the threads of the **Cap** then thread it into the **PRV Body** and tighten snugly.

**15.** Apply **anti-seize compound** on the threads of the **Adjusting Screw (#5)** then thread the **Hex Nut (#6)** all the way onto the **Adjusting Screw.** Install the **Adjusting Screw** into the **Cap** until it just touches the **Keeper.**

Note: The **Set Pressure** is set through a Hydro Test prior to locking the **Hex Nut** against the **PRV Body** and the installation of the **Set Screw (#16).** The **Factory Seal Cap (#4), Galvanized Wire Rope (#3), Compression Sleeve (#2)** and **Seal Tag (#1)** are installed after painting.

# Maintenance Schedule

Once the Pressure Relief Valve is installed in operation, it may be subjected to harsh conditions such as sand, rocks and chemicals which may cause pitting and washing in the body that will affect the performance of the valve. To ensure proper reliable operation, RDI recommends the following maintenance schedule for service.

Under normal pressure operation, the valve is recommended for service:

- At least every three (3) months.
- After every frac job or every 25 stages.
- After every overpressure event while in operation.
- An annual inspection whether the valve has been used or not.

# Tear-Down Procedure

Refer to the steps in the Assembly Procedure to tear-down the Valve.
Thoroughly degrease and clean all parts that are disassembled. Check for any damage, replace as necessary with RDI Repair Kit only.

**WARNING**: Only qualified Service Technician should perform the Tear-Down, Assembly and Relieving Pressure Setting procedures.

# RDI Sales & Service Centers

For a list of our locations visit our website @
https://rdironworks.com/contact-a-location-near-you/.

**Toll Free Phone: 855.973.4766**
**Email: info@rdironworks.com**

Valves · Flowline · Manifolds
Recertification

RDIRONWORKS.COM