

Application:

Typically installed between the water main and a building's water distribution system, on the water service line, to reduce and maintain incoming water pressure (see Fig. 1). All models are suitable for no-lead potable water installations, in full compliance of all lead-free plumbing laws.

Installation Requirements:

- MUST** be installed in accordance with all local codes and ordinances.
- MUST** be installed in an accessible location on the service line, with sufficient clearance for maintenance and adjustment.
- Models with brass bonnets are designed for outdoor use. Models with reinforced plastic bonnets should not be installed outdoors where prolonged exposure to sunlight and temperature extremes could result in damage.
- Prior to installation, the service line **MUST** be flushed, to remove all loose scale, dirt, debris or other foreign matter. Failure to do so could result in damage or clogging of the valve.

Basic Installation:

- Connection types vary between each model and may include FNPT, Sweat, PEX, CPVC solvent-weld or Press-connection types. Where applicable, the installation tool manufacturers' instructions should be followed. In all other cases, good industry practice should be followed (e.g. proper thread engagement and tightening, or correct soldering technique).
- The T-6800NL model's end connections are marked "IN" and "OUT". All models have a flow direction arrow cast onto their bodies. Make sure to install them with the arrow pointing in the direction of flow (see Fig. 2). Valve inlet ("IN"): Upstream, high-pressure service line. Valve outlet ("OUT"): Downstream, reduced-pressure distribution system.
- All models can be installed in the vertical or horizontal positions, upright or inverted. When installed horizontally, it is recommended that they're oriented upright, positioning the adjustment bolt upward, which eases servicing and adjustment.
- When placing into service, apply water pressure gradually. Check for leaks at all connections.

Maintenance Instructions:

Inspect the entire system annually. Make sure all safety and control valves are functioning correctly and that the entire system is leak-free.

See Figures 3 and 4 for numbered component identification, for the following maintenance procedures:

To clean the inlet strainer screen (18):

Model T-6800NL

- Shut off water supply and relieve system pressure.
- Loosen and remove the strainer service cap (28) by turning counter-clockwise.
- Remove and clean or replace the mesh strainer screen (18)
- Re-install the mesh strainer, making sure it is seated properly.
- Inspect the strainer cap O-ring (27) for damage. Replace if necessary. Re-install the strainer cap.

Models T-6801NL, T-6802NL and T-6803NL

- Shut off water supply and relieve system pressure.
- Loosen locknut (2) first, and then adjustment bolt (1) by turning both counter-clockwise at least two complete revolutions.
- Loosen and detach the bonnet (3) by un-threading it counter-clockwise.
- Remove the following components that are contained within the bonnet: anti-friction ring (4), spring disc (5) and spring (6).
- With a pair of pliers, grip the 13 MM diaphragm nut, **from the top, using the tips of the pliers' jaws (don't grip the nut's flats from the side, as if loosening the nut).**
- Firmly pull out the entire carrier assembly from the body of the valve. The carrier assembly is comprised of parts 7, 8, 9, 10, 11, 12, 13, 18 (strainer screen) 19, 20, 21, 22, 24, 25 and 26 assembled as one piece. See Figure 4.
- Remove and clean or replace the mesh strainer screen (18)
- Re-install the clean mesh strainer into the body (14) making sure it is centrally-seated into the machined pocket.
- Inspect the upper sleeve O-ring (27) verifying that it is free of debris or damage and properly seated within the body (14).
- Re-install the carrier assembly into the body (14). Make sure to seat it in completely, by firmly pushing down onto the top of the stem with your thumb.
- Once seated, with your fingertips, work the outer edges of the diaphragm (9) into the body until its entire circumference is evenly-seated. **CAUTION!** The female threads that accept the male threads of the bonnet (3) are sharp! Be careful not to cut your fingers when pushing the diaphragm down. **DO NOT** use tools or sharp objects to seat the diaphragm! Remaining assembly is in the reverse-order.

To replace the plunger seat (T-6800NL: 22, T-6801NL, T-6802NL & T-6803NL 21):

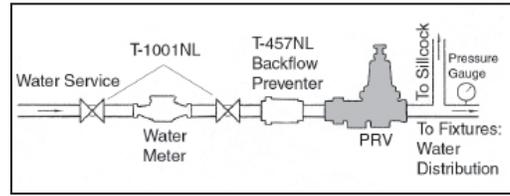
Model T-6800NL

- Shut off water supply and relieve system pressure.
- Loosen locknut (2) first, and then adjustment bolt (1) by turning both counter-clockwise at least two complete revolutions.
- Loosen and detach the bonnet (3) by un-threading it counter-clockwise.
- Remove the following components that are contained within the bonnet: anti-friction ring (4), spring disc (5) and spring (6).
- Loosen and remove the service cap (25) by turning counter-clockwise.
- Hold the diaphragm nut (7) with a 17 MM wrench. With a large flat-blade screwdriver, loosen counter-clockwise and detach the plunger (23) from the stem (10).
- Remove the plunger washer (21) and plunger seat (22) by separating them from the plunger. Replace with the correct seat material and size. Re-assembly is in the reverse-order.

Models T-6801NL, T-6802NL and T-6803NL

- Shut off water supply and relieve system pressure.
- Loosen locknut (2) first, and then adjustment bolt (1) by turning both counter-clockwise at least two complete revolutions.

Figure 1 (Typical Installation)



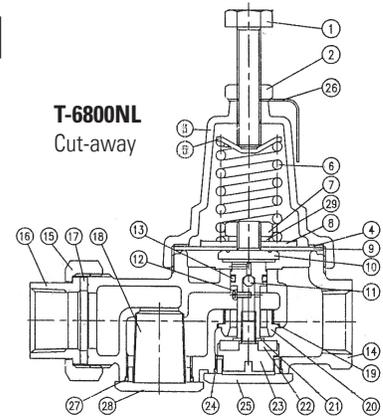
WARNING:

Conduct a thorough inspection of the PRV for external leaks after the final installation and adjustment.

Figure 2



Figure 3



No.	Part	Material	Specification
1	Adjustment bolt	Cadmium Plated Steel	ASTM A283-D
2	Lock Nut	Cadmium Plated Steel	AISI-1010
3	Bonnet	Cast brass or Polycarbonate resin, glass-fiber reinforced	ASTM B584 UNS C85700 (brass) Commercial grade (resin)
4	Anti-friction ring	Zinc Plated Steel	ASTM A283-D
5	Spring disc	Zinc Plated Steel	ASTM A283-D
6	Spring	Cold Drawn Steel Wire	ASTM A227M-91
7	Diaphragm nut	Cadmium Plated Steel	AISI-1010
8	Diaphragm disc	Zinc Plated Steel	ASTM A283-D
9	Diaphragm	Reinforced NBR (Buna-N) Rubber	Commercial grade, Nylon-reinforced
10	Stem	Lead-Free Forged Brass	UNS Alloy C46400
11	Check ball	NBR (Buna-N) Rubber	Commercial grade
12	Ball retaining screw	Stainless Steel	AISI 304
13	Stem O-ring	NBR (Buna-N) Rubber	Commercial grade
14	Body	Lead-Free Cast Brass	UNS Alloy C87850 Eco Brass
15	Union nut	Cast Brass	ASTM B584 UNS C85700
16	Union tail piece	Lead-Free Forged Brass	UNS Alloy C46400
17	Union washer	NBR (Buna-N) Rubber	Commercial grade
18	Strainer screen	Stainless Steel	AISI 304
19	Seat O-ring	NBR (Buna-N) Rubber	Commercial grade
20	Seat	Stainless Steel	AISI 304
21	Plunger washer	Stainless Steel	AISI 304
22	Plunger seat	NBR (Buna-N) Rubber	Commercial grade
23	Plunger	Lead-Free Forged Brass	UNS Alloy C46400
24	Service cap O-ring	NBR (Buna-N) Rubber	Commercial grade
25	Service cap	Lead-Free Forged Brass	UNS Alloy C46400
26	Name plate	Aluminum	ASTM B209 1100
27	Strainer cap O-ring	NBR (Buna-N) Rubber	Commercial grade
28	Strainer service cap	Lead-Free Forged Brass	UNS Alloy C46400
29	Spring washer	Cold Drawn Steel	ASTM A227M-91

- C. Loosen and detach the bonnet (3) by un-threading it counter-clockwise.
- D. Remove the following components that are contained within the bonnet: anti-friction ring (4), spring disc (5) and spring (6).
- E. With a pair of pliers, grip the diaphragm nut (7), **from the top, using the tips of the pliers' jaws (don't grip the nut's flats from the side, as if loosening the nut).**
- F. Firmly pull out the entire carrier assembly from the body of the valve. The carrier assembly is comprised of parts 7, 8, 9, 10, 11, 12, 13, 18 (strainer screen) 19, 20, 21, 22, 24, 25 and 26 assembled as one piece. See Figure 4.
- G. Hold the diaphragm nut (7) with a 13 MM wrench. With a large flat-blade screwdriver, loosen counter-clockwise and detach the plunger (22) from the stem (10).
- H. Remove the plunger washer (20) and plunger seat (21) by separating them from the plunger. Replace with the correct seat material and size. Re-assembly is in the reverse-order.

To replace the diaphragm (9):

Model T-6800NL

- A. Shut off water supply and relieve system pressure.
- B. Loosen locknut (2) first, and then adjustment bolt (1) by turning both counter-clockwise at least two complete revolutions.
- C. Loosen and detach the bonnet (3) by un-threading it counter-clockwise.
- D. Remove the following components that are contained within the bonnet: anti-friction ring (4), spring disc (5) and spring (6).
- E. Loosen and remove the service cap (25) by turning counter-clockwise.
- F. Hold the diaphragm nut (7) with a 17 MM wrench. With a large flat-blade screwdriver, loosen counter-clockwise and detach the plunger (23) from the stem (10).
- G. Using your index finger, push the bottom of the stem (10, where the plunger was installed) upward to detach the stem and diaphragm (9) assembly out of the valve's body.
- H. Secure the 22 MM hex-shaped portion of the stem (10) that is directly underneath the diaphragm (9) using a 22 MM deep-well socket and ratchet or breaker-bar. Prevent the stem from rotating as you loosen counter-clockwise, and detach the diaphragm nut (7) using a 17 MM wrench.
- I. Remove the spring washer (29), diaphragm disc (8) and diaphragm (9) by lifting them off of the stem. Replace with the correct diaphragm. Re-assembly is in the reverse-order. Apply one drop of low-strength thread-locking compound to the male threads of the stem prior to attaching the diaphragm nut.

Models T-6801NL, T-6802NL and T-6803NL

- A. Shut off water supply and relieve system pressure.
- B. Loosen locknut (2) first, and then adjustment bolt (1) by turning both counter-clockwise at least two complete revolutions.
- C. Loosen and detach the bonnet (3) by un-threading it counter-clockwise.
- D. Remove the following components that are contained within the bonnet: anti-friction ring (4), spring disc (5) and spring (6).
- E. With a pair of pliers, grip the diaphragm nut (7), **from the top, using the tips of the pliers' jaws (don't grip the nut's flats from the side, as if loosening the nut).**
- F. Firmly pull out the entire carrier assembly from the body of the valve. The carrier assembly is comprised of parts 7, 8, 9, 10, 11, 12, 13, 18, 19, 20, 21, 22, 24, 25 and 26 assembled as one piece. See Figure 4.
- G. Hold the diaphragm nut (7) with a 13 MM wrench. With a large flat-blade screwdriver, loosen counter-clockwise and detach the plunger (22) from the stem (10).
- H. With one hand, hold the carrier assembly firmly. With the thumb of the free hand, push the bottom of the stem (10) and diaphragm (9) out of the carrier sleeve (24)
- I. Secure the 18 MM hex-shaped portion of the stem (10) that is directly underneath the diaphragm (9) using an 18 MM deep-well socket and ratchet or breaker-bar. Prevent the stem from rotating as you loosen counter-clockwise, and detach the diaphragm nut (7) using a 13 MM wrench.
- J. Remove the spring washer (25), diaphragm disc (8) and diaphragm (9) by lifting them off of the stem. Replace with the correct diaphragm. Re-assembly is in the reverse-order. Apply one drop of low-strength thread-locking compound to the male threads of the stem prior to attaching the diaphragm nut.

Adjustment:

CAUTION! Post-adjusted pressure **MUST** be verified! A pressure gauge should be installed downstream to verify the pressure setting. All models are **factory pre-set at 50 psi**.

To adjust the pressure:

1. With a 17 MM (13 MM on Models T-6801NL, T-6802NL & T-6803NL) open-end wrench, loosen the locknut (2) by turning counter-clockwise.
2. With a 17 MM (13 MM on Models T-6801NL, T-6802NL & T-6803NL) wrench or socket, turn the adjustment bolt (1) **CLOCKWISE** to INCREASE the outlet pressure or **COUNTER-CLOCKWISE** to DECREASE outlet pressure.
3. After adjustment and pressure verification, tighten the locknut by turning clockwise until it is firmly-seated against the top of the bonnet. **DO NOT OVER-TIGHTEN!**

Maximum inlet pressure: 300 CWP

Maximum temperature: 180° F

Reduced pressure adjustment range: 25 to 75 psi.

By-pass Feature:

All models feature a built-in thermal expansion by-pass. This feature prevents downstream pressure from rising to more than 10 psi above the supply pressure.

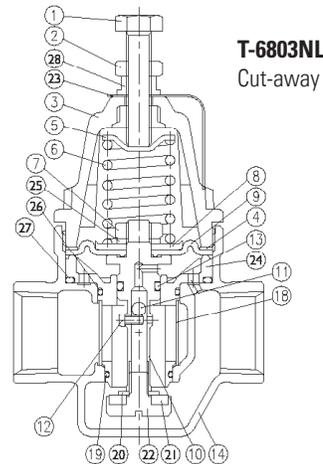
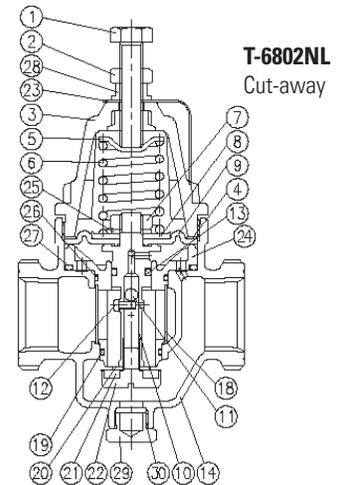
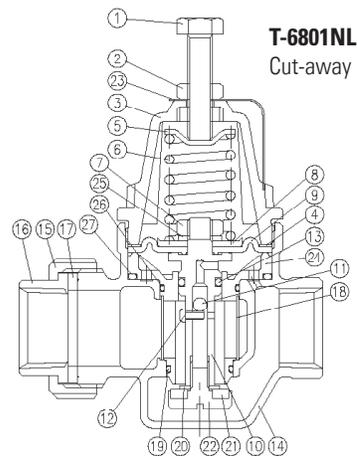
Troubleshooting - High System Pressure:

WARNING! All plumbing components within the distribution system **MUST** be protected against excess pressure, where the addition of a pressure relief valve of the appropriate type, may be required. The installer is responsible for knowing and complying with all local or National code requirements pertaining to pressure relief.

If the downstream system pressure is higher than the set pressure under no flow conditions, the cause could be thermal expansion, pressure creep or dirt/debris on the seat.

Thermal expansion occurs whenever water is heated in a closed system. The system is closed when supply pressure exceeds 150 psi, or a check valve or backflow preventer is installed in the supply piping.

Figure 4



ANSI / NSF 61-F and 61-G
ANSI / NSF 372



• Certified to ASSE
1003 Standard

Please contact Legend Technical at 800-752-2082 with additional questions.

No.	Part	Material	Specification
1	Adjustment bolt	Cadmium Plated Steel	ASTM A283-D
2	Lock Nut	Cadmium Plated Steel	AISI-1010
3	Bonnet	Cast brass or Polycarbonate resin, glass-fiber reinforced	ASTM B584 C85700 (brass) Commercial grade (resin)
4	Anti-friction ring	Stainless steel	AISI 304
5	Spring disc	Zinc Plated Steel	ASTM A283-D
6	Spring	Cold Drawn Steel Wire	ASTM A227M-91
7	Diaphragm nut	Cadmium Plated Steel	AISI-1010
8	Diaphragm disc	Zinc Plated Steel	ASTM A283-D
9	Diaphragm	Reinforced NBR (Buna-N) Rubber	Commercial grade, Nylon-reinforced
10	Stem	Lead-Free Forged Brass	UNS Alloy C46400
11	Check-ball	NBR (Buna-N) Rubber	Commercial grade
12	Ball retaining screw	Stainless Steel	AISI 304
13	Stem O-ring	NBR (Buna-N) Rubber	Commercial grade
14	Body	Lead-Free Cast Brass	UNS Alloy C87850 Eco Brass
15	Union nut	Cast Brass	ASTM B584 UNS C85700
16	Union tailpiece	Lead-Free Forged Brass	UNS Alloy C46400
17	Union washer	NBR (Buna-N) Rubber	Commercial grade
18	Strainer screen	Stainless Steel	AISI 304
19	Seat O-ring	NBR (Buna-N) Rubber	Commercial grade
20	Plunger washer	Stainless Steel	AISI 304
21	Plunger seat	NBR (Buna-N) Rubber	Commercial grade
22	Plunger	Lead-Free Forged Brass	UNS Alloy C46400
23	Identification plate	Aluminum	ASTM B209 1100
24	Carrier sleeve	Polycarbonate resin	Commercial grade
25	Spring washer	Cold-drawn steel	ASTM A227M-91
26	Body sleeve O-ring	NBR (Buna-N) Rubber	Commercial grade
27	Upper sleeve O-ring	NBR (Buna-N) Rubber	Commercial grade
28	Thrust collar	Polycarbonate resin, glass-fiber reinforced	Commercial grade
29	Plug	Lead-Free Forged Brass	UNS Alloy C46400
30	Plug O-ring	NBR rubber	Commercial grade

Note: Shaded components make up the carrier assembly. See step F.