

## **T100 and Q155 Low Pressure Diaphragm Upgrade and Secondary Containment System.**

The T100 & Q155 Low Pressure diaphragms and hydraulic components have been upgraded to greatly improve reliability of the pump. The upgrade makes numerous improvements to the pump including:

- Improved diaphragm sealing under high suction pressure conditions, including for stationary pumps under high suction pressures.
- Addition of the secondary containment system that prevents excess process fluid loss in the event of a diaphragm failure by isolating the hydraulic end from the fluid end under high suction pressure conditions.

The new diaphragm is only compatible with the new hydraulic components, so customers performing a diaphragm upgrade change will need to upgrade their hydraulic components at the same time. For ordering convenience, Wanner has created an upgrade kit that contains all the components needed for a full upgrade. The part number of the Upgrade Kit is 177-921, 177-922, 177-923 & 209-921, 209-922 and 209-923.

### **Installation of the Upgrade Kit is achieved as detailed below.**

1. Ensure you have on hand the T100 or Q155 Series Low Pressure O & M Manual, or scan QR code on page 2.
2. Drain oil from the pump.
3. Remove pump manifold (not pictured, see O & M manual).
4. Remove old diaphragms (not pictured, see O & M manual).
5. Remove spool valve.
6. Insert the bias rod (8), bias spring (9), and reused bias tube cap (not pictured). Fasten bias tube cap using Loctite 242 and torque to 50 ft.-lbs. (135 N-m).
7. Reinsert the spool valve (not pictured, see O & M manual).
8. Fasten the diaphragm clamp (13) to the bias rod using the diaphragm clamp screw (14). Fasten using Loctite 242 and torque to 20 ft.-lbs (27 N-m). Use care not to over-tighten as that can cause the rod to rotate and bind the bias spring. Verify the bias spring is not bound by pulling the diaphragm clamp out and verifying that the clamp has full range of motion.
9. Place screw head plug (15) onto diaphragm clamp screw.



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10. Place the diaphragm (4) into the diaphragm plate with the back-up ring (5). Make sure screw head plug is in place when inserting diaphragm.
11. Place two O-rings (2) into the follower (3).
12. Place the follower into the diaphragm (4).
13. Tighten the follower to the diaphragm clamp using two follower screws (1). Apply Loctite and tighten to 80 in.-lbs. (9 N-m).
14. Reattach the pump manifold (not pictured). The manifold should slide cleanly onto the pump, and the back-up rings should be engaged into the mating grooves in the manifold prior to tightening. Failure to slide the manifold fully back so that the back-up rings and mating grooves engage (prior to tightening) can pinch the back-up rings and cause the pump to leak. If the manifold does not slide easily onto the pump, use "Scotch-Brite" or fine abrasive paper to clean the outer edge of the grooves where the back-up rings fit.
15. Fill the pump with oil.
16. Attach diaphragm kit name plate (16) to existing hole on top of diaphragm plate with provided screw (17).

**Available parts kits:**

| Kit part No. | Pump | Material       |
|--------------|------|----------------|
| 177-922-01   | T100 | HNBR (BUNA-N). |
| 209-922-01   | Q155 |                |
| 177-921-02   | T100 | FKM (VITON).   |
| 209-921-02   | Q155 |                |
| 177-923-04   | T100 | TFE/P (AFLAS)  |
| 209-923-04   | Q155 |                |

**Installation and Operation Manual QR code:**



**IOM Manuals**

[hydra-cell.com/manuals](http://hydra-cell.com/manuals)



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**Parts kits contents:**

| Item No. | Part Number      | Description               | T100        | Q155        |
|----------|------------------|---------------------------|-------------|-------------|
|          |                  |                           | 177-<br>QTY | 209-<br>QTY |
| 1        | 177-176-01       | Screw, M6, FHSS           | 12          | 20          |
| 2        | 100-217-__       | O-ring                    | 12          | 20          |
| 3        | 177-377-01       | Follower, 316 SST         | 3           | 5           |
| 4        | 177-388-__       | Diaphragm                 | 3           | 5           |
| 5        | 177-338          | Ring, Back-Up             | 3           | 5           |
| 6        | 177-149          | Screw, M8, OHMS           | 3           | 5           |
| 7        | 177-312          | Guide, Spring             | 3           | 5           |
| 8        | 177-194          | Rod, Bias                 | 3           | 5           |
| 9        | 177-335          | Spring, Bias              | 3           | 5           |
| 10       | 177-050          | Screw, M5                 | 6           | 10          |
| 11       | 177-367          | Arm, Valve                | 3           | 5           |
| 12       | 177-369          | Support Ring              | 3           | 5           |
| 13       | 177-360          | Clamp, Diaphragm          | 3           | 5           |
| 14       | 177-359          | Screw, M8                 | 3           | 5           |
| 15       | 177-642          | Plug, Screw Head          | 3           | 5           |
| 16       | 177-391/ 209-391 | Name Plate, Diaphragm Kit | 1           | 1           |
| 17       | 177-180          | Screw, M10                | 1           | 1           |

+ Last 2 digits of part numbers with -\_\_ refer to a specific material of construction.



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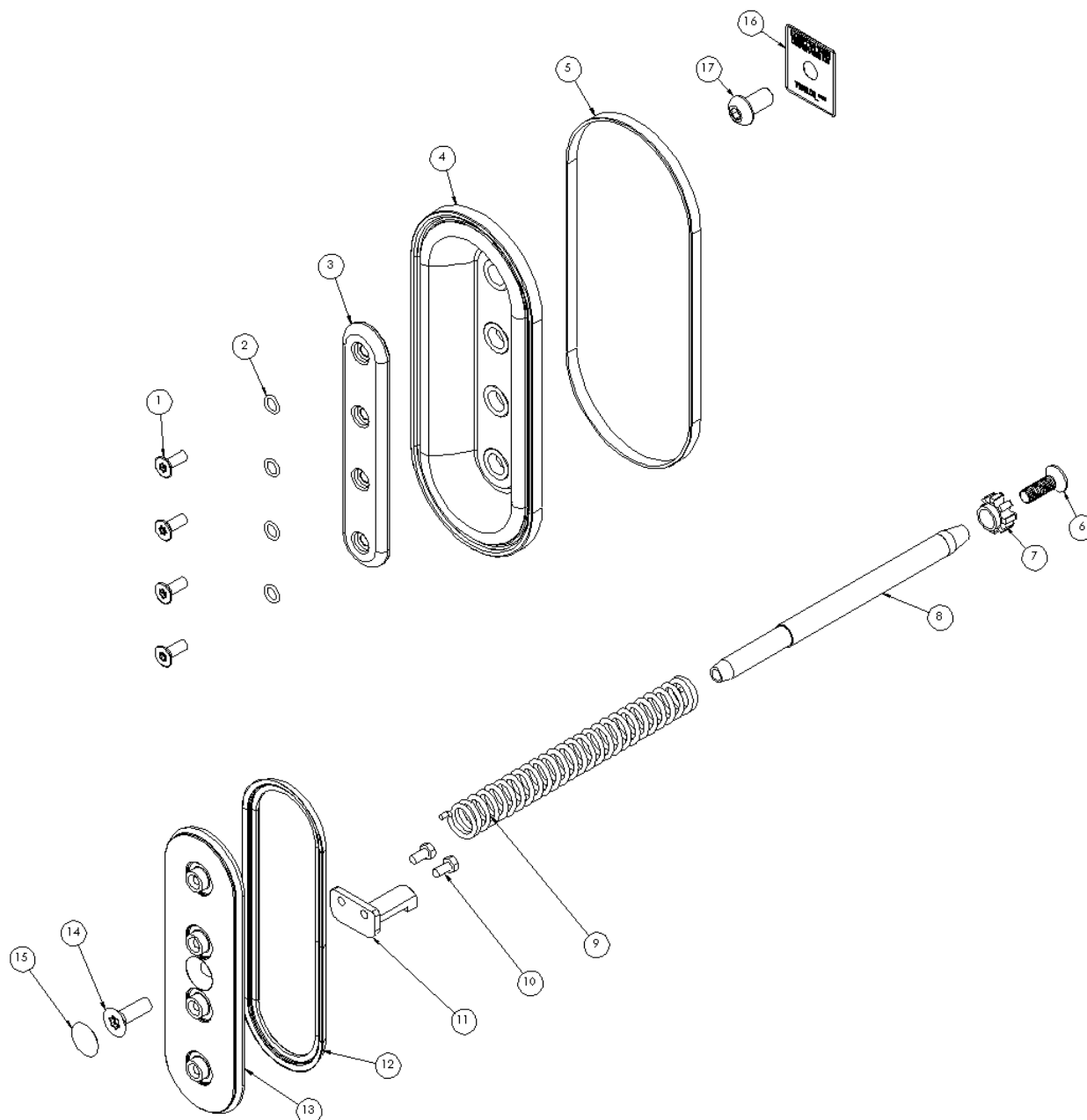
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