

SUBJECT: T8045 Upgrade Kit, Part Number 177-917

The T8045 diaphragms and hydraulic components have been upgraded to greatly improve reliability of the pump. The upgrade makes numerous improvements to the pump including:

- Increased diaphragm life
- Increased resilience to abnormal operating conditions under high vacuum
- Increased strength of the underfill valve
- Greatly improved ease of service to the hydraulic components

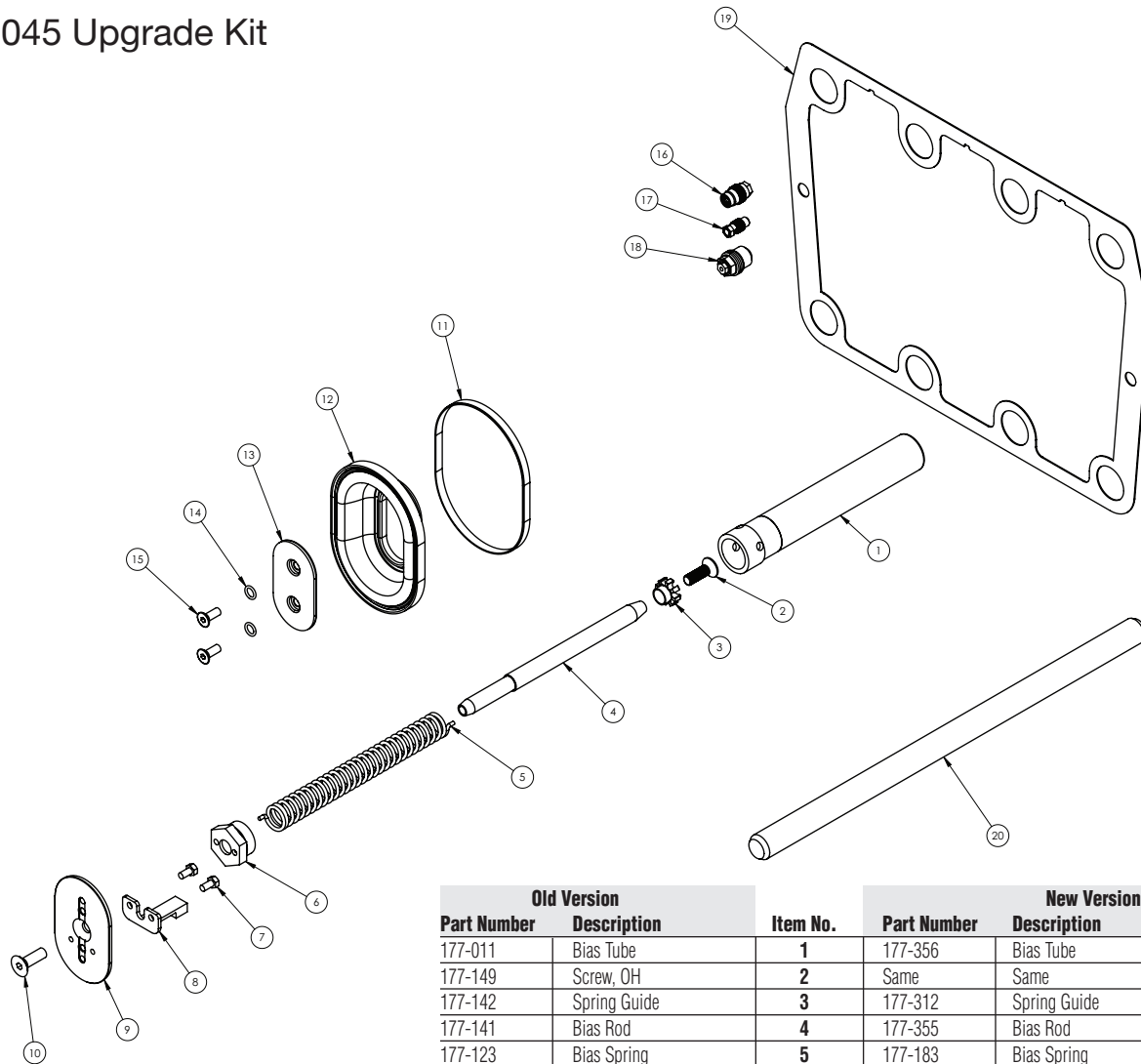
The new diaphragm is only compatible with the new hydraulic components, so customers performing a diaphragm change will need to upgrade their hydraulic components at the same time. For ordering convenience, Wanner has created an upgrade kit that contains all the components needed for a full upgrade. The part number of the Upgrade Kit is 177-917.

Installation of the Upgrade Kit is easy and straight forward as detailed below.

1. Drain oil from the pump.
2. Remove pump manifold (not pictured).
3. Remove old diaphragms (not pictured).
4. Remove spool valve.
5. Remove the diaphragm plate screws (not pictured).
6. Remove the diaphragm plate (not pictured) and place diaphragm pocket side down on a clean sheet of cardboard.
7. Hammer out the old bias tube.
8. Remove old underfill valves (16) and install new underfill valves; torque to 30 ft.-lbs. (40 N-m).
9. Remove old overfill valves (17) and install new overfill valves; torque to 105 in.-lbs. (12 N-m).
10. Remove old airbleed valves (18) and install new airbleed valves; torque to 75 ft.-lbs. (100 N-m).
11. Replace Gasket (19). Reattach the diaphragm plate (not pictured) and torque diaphragm plate screws (not pictured) to 50 ft.-lbs. (68 N-m).
12. Insert new bias tube (1) into the diaphragm plate. Place the Dowel (20) into the bias tube and hammer the metal dowel until the bias tube shoulder hits its seat. You should clearly feel the tube shoulder hit the seat as the dowel will sharply bounce back out of the tube.
13. After hammering the new bias tube in place, inspect the inside of the new bias tube to ensure it is free of debris.
14. Insert the bias rod (4), bias spring (5), and bias tube cap (6). Fasten Bias Tube Cap using Loctite 242 and torque to 50 ft.-lbs. (135 N-m).
15. Reinsert the spool valve (not pictured).
16. Fasten the diaphragm clamp (9) to the bias rod using the Diaphragm Clamp Screw (10). 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.
17. Place two o-rings (14) into the Follower (13).
18. Place the follower into the diaphragm (12).
19. Place the diaphragm and follower into the diaphragm plate with the back-up ring (11).
20. Tighten the follower to the diaphragm clamp using two Follower Screws (15). Apply Loctite and tighten to 60 in.-lbs. (7 N-m).
21. 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.
22. Fill the pump with oil.

**A video demonstration of the instructions
can be seen at:**
<http://youtu.be/DEjqrwpFFF0>

T8045 Upgrade Kit



Old Version			New Version		
Part Number	Description	Item No.	Part Number	Description	QTY
177-011	Bias Tube	1	177-356	Bias Tube	3
177-149	Screw, OH	2	Same	Same	3
177-142	Spring Guide	3	177-312	Spring Guide	3
177-141	Bias Rod	4	177-355	Bias Rod	3
177-123	Bias Spring	5	177-183	Bias Spring	3
177-130	Spacer, Bias Spring	6	177-358	Bias Tube Cap	3
177-049	Ring, Retaining, Internal	7	Same	Same	6
177-050	Screw, Cap, Hex-head	8	Same	Same	3
177-145	Valve Arm	9	177-190	Diaphragm Clamp	3
177-139	Diaphragm Clamp	10	177-359	Diaphragm Clamp Screw	3
N/A	N/A	11	177-167	Back-Up Ring	3
177-138-02	Diaphragm, FKM	12	177-185-02	Diaphragm, FKM	3
N/A	N/A	13	177-186-01	Follower	6
N/A	N/A	14	100-217-02	O-ring, FKM, 70 DURO, -011 UDN	6
177-144-01	Follower Screw	15	177-176	Follower Screw	6
177-904	Underfill Valve	16	Same	Same	3
177-905	Overfill Valve	17	Same	Same	3
177-906	Airbleed Valve	18	Same	Same	3
177-013	Gasket	19	Same	Same	1
N/A	N/A	20	177-809	Dowel	1

Please don't hesitate to contact Wanner Engineering with any questions you might have during this upgrade.

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