



NORMAN FILTER COMPANY

4500 SERIES FILTER

PRODUCT ASSEMBLY & CLEANING

WARNING !!!

The System Line Is A High Pressure Line.
Be Sure There Is No Pressure In The Line Before Connecting/Disconnecting Filter Assembly.

I. 4500 SERIES FILTER HOUSING COMPONENTS

- A. Head
- B. Bowl
- C. O-ring
- D. Filter element
- E. Filter element o-ring

II. FILTER HOUSING DISASSEMBLY

- A. Be sure to follow all safety rules, such as wearing protective goggles and gloves.
- B. Use a wrench to engage hex nut on bowl and turn off in counter-clockwise direction.
- C. Pull element off mandrel, *exercising caution when removing element to prevent damage to pleated media*, and remove o-ring from element.
- D. Remove o-ring that is engaged in head that seals head and bowl. When replacing 586 size element, remove element adapter and reuse with replacement element. **Do not discard 586 size element adapter.**

III. CLEANING FILTER HOUSING BOWL

- A. Assess thread and seal areas for physical damage, inspecting full areas. The threads should look smooth with no denting or galled areas and the seal area should have no scratches or dents. If there is any physical damage to either area the bowl should be replaced.
- B. Clean using mild soap and water as the cleaning agent and a fine bristle brush, move the brush in a counter-clockwise direction from the seal area to the end of the thread run. This is repeated until all lubricants and fluids that entrap debris to the thread and seal area surfaces are removed. With a clean air source, blow off any debris.
- C. Re-inspect the threaded and seal areas again, as above, this time looking for debris as well. If the inspection identifies debris in the threaded area, repeat the cleaning above.

IV. FILTER HOUSING HEAD

- A. Remove seal rings from the o-ring groove and assess threads and o-ring grooves for physical damage, inspecting full areas. The threads should look smooth with no denting or galled areas and the seal area should have no scratches or dents. If there is any physical damage to either area the head should be replaced.
- B. Clean using mild soap and water as the cleaning agent using a fine bristle brush, moving the brush in a counter-clockwise direction from the thread endpoint to the seal groove. The seal groove should be brushed to clear debris. Seal ring material might require scraping with a plastic scraper. **DO NOT USE A METAL SCRAPER!**
- C. Repeat until all lubricants and fluids that entrap debris to the thread and seal area surfaces are removed. With a clean air source, blow off any debris.
- D. Re-inspect the threaded and seal areas again, as above, this time looking for debris as well. If the inspection identifies debris in the threaded area repeat the above cleaning procedure.

D. Re-inspect the threaded and seal areas again, as above, this time looking for debris as well. If the inspection identifies debris in the threaded area repeat the above cleaning procedure.

V. RING SEAL INSTALLATION

NEW RING SEALS ARE REQUIRED ANYTIME A BOWL IS REMOVED.

The installation of the ring seals is critical to the filter housing performance. Only use seals provided by Norman Filter Company for this filter housing. *Note: Seals may appear to be identical and may have measurements that appear to be the same. That does not make them the same.*

VI. FILTER HOUSING COMPONENTS

Installation of the o-ring into the o-ring groove in the filter housing head is accomplished by setting one ring seal inner edge into the ring seal groove and progressively rolling the rest of the ring seal into the groove by sliding your thumb along the surface of the seal coaching the seal into the groove. The coaching of the seal into the groove should be done in either the clockwise or counter clockwise direction not both simultaneously. Do not allow any debris to accumulate on the thread, seal groove or seals during the seal installation process.

VII. ASSEMBLY OF FILTER HOUSING HEAD & BOWL

A. Lubricate element o-ring and housing seals.

Housing Material	O-ring Material Code	Lubricant
Stainless	L, N, M, H, K, MN	Halocarbon 32 Grease
Aluminum	L, N, M, H, K, MN	Petroleum Jelly
Stainless / Aluminum	E	Silicone

B. Lubricate stainless steel thread with Halocarbon 32 Grease only. Do not use silicone lubricants on stainless steel threads. Special care must be taken not to mix the applicators use for silicone & Halocarbon 32 lubricants. The mixed silicone lubricants can damage the stainless steel threads.

C. Where EPR (E) seals are used, lubricate only the seal with the silicone.

If the housing is aluminum, lubricate the seal and thread with silicone.

If the housing is stainless steel, install the seal to the head seal groove.

Lubricate the seal by taking the silicone lubricant and rubbing the lubricant on all surfaces of the seal.

D. Inspect the greased surfaces for bristle fragments and debris. Remove any foreign objects.

E. After lubrication, insert the filter housing bowl into the filter housing head. When contact of the thread surfaces is made push the two parts together and turn counter-clockwise until you feel the parts suddenly move closer together. This is when the entrance threads for each part are ready to engage.

F. Now turn clockwise until the seats meet the head seal surface, this is distinguished by the bowl being difficult to turn clockwise. Use a wrench to engage the hex nut on bottom of the bowl and torque to 35 ft. lbs.

G. NOTE: When Teflon™ o-ring is used, the torque will be 160 ft. lbs. When tightening, stop every 1/4 turn for 15-20 seconds to allow the Teflon™ to form to it's new shape.

VIII. DISPOSABLE ELEMENTS

- A. Pull element off mandrel.
- B. Lubricate the o-ring in the new element.
- C. Slip element over mandrel. Teflon™ (M) o-rings are difficult to engage.

IX. CLEANABLE ELEMENTS

- A. Pull element off mandrel, *exercising caution when removing element to prevent damage to pleated media.*
- B. Remove rough external dirt in a separate container with cleaning fluid.
- C. Soak the filter for thirty minutes in a high quality cleaning fluid.
- D. Following the soak, blow through the element from inside to outside with clean compressed air or similar clean gas. DO NOT EXCEED 150 PSI.
- E. Lubricate the new o-ring and install it into the element seal gland.
- F. Slip element over mandrel. Teflon™ (M) o-rings are difficult to engage.

NOTE: The filter element life is based upon cleaning cycles and pressure drop. The estimated life of the element is 3 to 5 cleaning cycles. If the element has exceeded this level, discard and replace with a new element. Cleaning fluids that may be used are acetone, mineral spirits and a variety of others.

Teflon™ is a registered trademark of Dupont Corp.