



NORMAN FILTER COMPANY

4900 SERIES FILTER

PRODUCT INSTALLATION, 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.

INSTALLATION

Mounting- The head has a machine mounted surface to mount to the process or structure. The 4900 Series will require shock mounting fixture to allow the 4900 series housing to move independent of the process or structure where it is to be secured. The purpose is to minimize mechanical loading of the head and field piping. All piping should be stress relieved to the housing fittings.

I. 4900 SERIES FILTER HOUSING COMPONENTS

- A. Head
- B. Bowl
- C. Process O-ring
- D. Primary O-ring
- E. Filter element
- F. 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 and bowl, that seals head and bowl.

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.

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 (2-250) 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. FILTER HOUSING COMPONENTS

Installation of the o-ring (2-250) 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.

VIII. INSTALLATION OF THE O-RING INTO THE TOP SEAL GROOVE OF THE BOWL.

After cleaning the bowl thread and seal groove and applying the correct lubricant. Lightly press the top seal o-ring (2-248) into the o-ring groove. Apply more lubricant over the o-ring, this will help hold the o-ring in place for bowl installation. There will be times that the o-ring will not lay flat. Set the o-ring in hot water for about ten minutes. After the o-ring has been heated, place it between two clean flat objects to cool. This will cause the o-ring to be flat for installation. Proceed with the above installation.

IX. ASSEMBLY OF FILTER HOUSING HEAD & BOWL

A. Lubricate element o-ring and housing seals.

Housing Material	O-ring Material Code	Lubricant
Stainless	L, N, H, K, MN	Halocarbon 32 Grease
Aluminum	L, N, 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 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 slowly, no jerking the wrench, to 130 ft. lbs.

G. NOTE: When Teflon™ coated Viton® (o-ring material code MN) is used, the torque will be 130 ft. lbs. When tightening, stop every 1/4 turn for 15-20 seconds to allow the Teflon™ coated Viton® to form to it's new shape.

X. VISUAL INDICATOR INSTALLATION

Lubricate visual indicator threads and o-ring as directed in above chart. Insert visual indicator into the port & tighten to 35 ft. lbs.

XI. BYPASS VALVE ASSEMBLY

A. Poppet valve— there is a Teflon™ o-ring installed in the valve. The o-ring is the valve seating seal. The o-ring should be replaced only if damaged (replacement no. 49-2-119). Carefully cut the old o-ring out of the valve groove and insert the new o-ring into the groove without lubrication. Allow the valve o-ring seal set for 2 hours to allow Teflon™ to form to the seat.

B. Bypass valve spring and bypass cap- o-ring must be replaced each time cap is removed (replacement no. 4900-2-026). Follow the lubrication identified in the above chart.

C. Install valve into bypass port assuring valve is fully in bypass seat. Set the bypass spring atop of the valve spring shelf, assuring that the spring is centered. Finally, insert extended spring end into bypass cap spring groove, push down to engage the threads and tighten to 90 ft. lbs.

XII. DISPOSABLE ELEMENTS

Pull element off mandrel, lubricate o-ring in new element, slip element over mandrel.

XIII. 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 (2-131) and install it into the element seal gland.

F. Slip element over mandrel. Teflon™ coated Viton® o-rings are difficult to engage.

NOTE: Filter element life is based upon cleaning cycles and pressure drop. Estimated life of element is 3-5 cleaning cycles. If element has exceeded this level, discard & replace. Cleaning fluids that may be used are acetone, mineral spirits and a variety of others.

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