

# **RAP R50: Replacement Procedure Head and Rotor Seal Replacement**

05-05-11

## **Shafer Rotary Vane Actuator Head and Rotor Seal Replacement**

## **SERVICE INSTRUCTIONS**

The purpose of this procedure is to guide the replacement of the Head and Rotor seals in a Shafer Rotary Vane Actuator.

This procedure is to be used in conjunction with the following Maintenance and Service Manual.

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| Shafer Rotary Vane Maintenance and Service Manual | Bulletin RVSM-2/98 |
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**WARNING:** Make sure actuator is isolated before doing any disassembly. In order; turn **OFF** the power gas and bleed off all pressure, including power storage tank. Next, bleed off pilot pressure, disconnect: power gas, pilot tubing and electrical wiring (if equipped).



### ***DISASSEMBLY***

1. Remove tubing from actuator. Mark tubing and fittings for reassembly later.
2. Remove all equipment mounted to top of actuator (limit switches, end of stroke valve, etc.)
3. Before any disassembly, match mark the position indicator, actuator head and actuator body.
4. The position indicator should be removed next. Remove the two mounting bolts retaining the position indicator.
5. Remove the two purge plugs.
6. The Head bolts, can now be removed. Remove the optional shoe bolts if provided.
7. Locate the lift holes in the upper head and install eyebolts.
8. Using a straight upward pull, remove the head.

**Caution:** Care must be taken so that the head is pulled off straight. The head is fitted to a very close tolerances and prying, pounding or pulling side to side will only result in damage to the "soft" bronze head bushing.

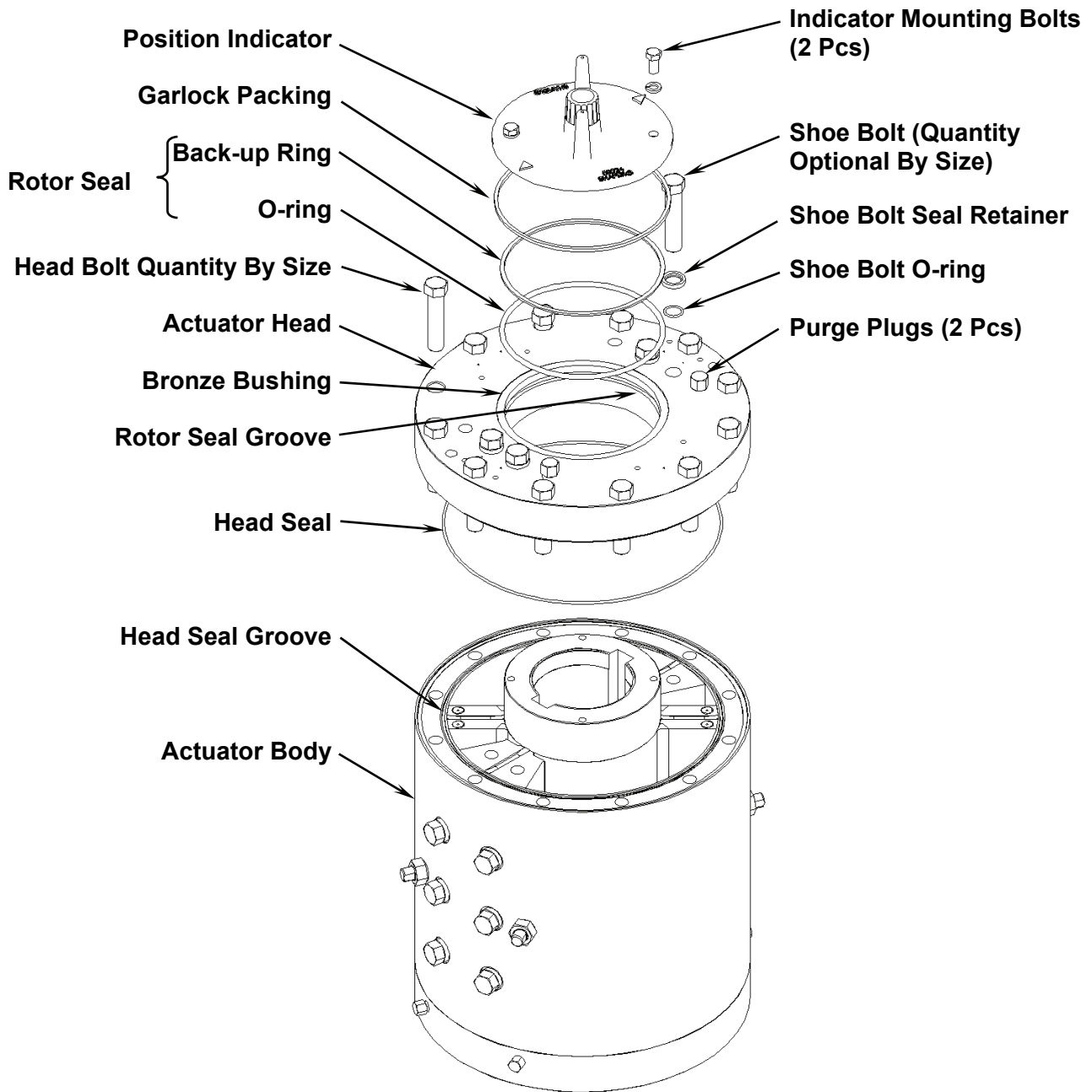
### ***Replace Seals***

1. Remove the old rotor seal (o-ring and back-up ring) from the groove in the head bushing, clean and inspect the groove.
2. Install a new, clean, greased rotor seal (o-ring and back-up ring) in the head bushing with the o-ring toward pressure.

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3. Remove the head seal from the groove in the rotor body, clean and inspect the groove.
4. Install a new, clean head seal in the groove.



**Typical Rotary Vane Actuator Assembly**

## **ASSEMBLY**

1. During assembly grease all o-rings and seals; use Never-Seez<sup>®</sup> on the bolts.
2. Inspect and grease the upper head o-ring and rotor seal.
3. Align the upper head and slowly lower it onto the rotor, using care to keep it straight. Use the same care replacing the upper head as you did to remove it.

**Caution:** *Care must be taken so that the head remains straight during reinstallation. The head is fitted to a very close tolerances and prying, pounding or pulling side to side will only result in damage to the "soft" bronze head bushing.*

4. Install the head bolts and torque. The upper head bolts must be drawn up evenly in a standard cross torque method.
5. Install position indicator.
6. Reinstall purge plugs.
7. Reinstall all equipment mounted to top of actuator (limit switches, end of stroke valve, etc.).
8. Reconnect all tubing removed from the actuator.

If any further information is required, please feel free to contact:

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