



Rineer High Torque Vane Motor MV125 Series Repair Manual – Standard Motors



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The data specified only serves to describe the product.

No statements concerning a certain condition or suitability for a certain application can be derived from our information.

The information given does not release the user from the obligation of own judgement and verification. It must be remembered that our products are subject to a natural process of wear and aging.

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The title page contains an illustration of a sample configuration. The product as delivered can differ from the illustration.

Safety Information

About this documentation

Bosch Rexroth Rineer hydraulic motors are designed and manufactured for the sole purpose of power transmission through hydraulic oil. Hydraulics is an inherently dangerous technology, and the improper use or maintenance of the product may result in an increased risk of personal injury and property damage. General hydraulic and mechanical safety practices should be followed when carrying out the steps outlined in this document.

Qualification of personnel

Disassembly, repair, assembly, and installation of Rineer hydraulic motors requires basic hydraulic and mechanical knowledge, as well as knowledge of the corresponding technical terms.

Personal Protective Equipment (PPE)

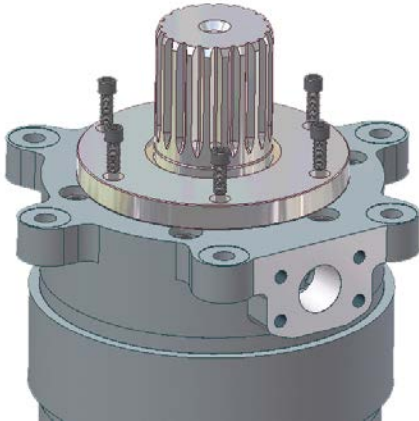
Personal protective equipment is the responsibility of the user of the vane motor. Observe the safety regulations in your country. All pieces of personal protective equipment must be intact.

Illustrated Parts List

ITEM	DESCRIPTION	QTY
1010	STATOR	1
1020	ROTOR	1
1030	VANE, STATOR	16
1040	VANE, ROTOR	6
1050	DISTRIBUTOR PLATE	2
1060	SPRING, ROTOR OUTER	32
1061	SPRING, ROTOR INNER	32
1069	SPRING RETAINER	32
1070	SPRING, STATOR	12
2010	HOUSING, FRONT	1
2020	HOUSING, REAR	1
2030	DOWEL PIN	4
3010	DRIVE SHAFT	1
3020	BALL BEARING	2
3040	SEALING PLATE, FRONT	1
3050	SEALING PLATE, REAR	1
4010	O-RING, MAINBODY	4
4020	O-RING, PEDESTAL	2
4021	O-RING, PEDESTAL	2
4022	O-RING, PEDESTAL	2
4040	O-RING	2
4140	SHAFT SEAL	1
7010	SHCS, MAINBODY	12
7020	SHCS, DISTRIBUTOR PLATE	4
7040	SHCS, SEAL PLATE	12
7910	THREADED PLUG	2

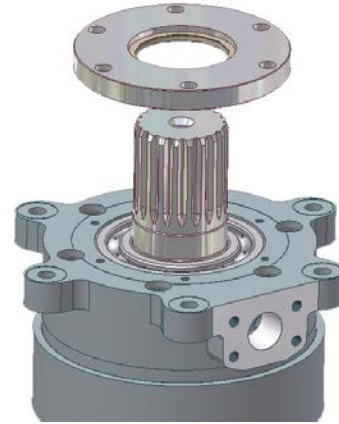
Front Seal Removal

1



- 1) Loosen and remove six (6) 3/8-16 socket head cap screws from the front seal plate.

2



- 1) Remove shaft seal plate, using appropriate removal tools if needed.
- 2) Remove seal plate o-ring.

NOTE:

The shaft seal on a standard motor is pressed in and can be removed in the reverse manner.

Rear Seal Removal

3



- 1) Loosen and remove six (6) 3/8-16 socket head cap screws from the rear seal plate.
- 2) Remove seal plate o-ring.

Shaft Group Disassembly

4



- 1) Press the shaft and front bearing out of the motor, through the front housing, leaving the rear bearing in place.

5



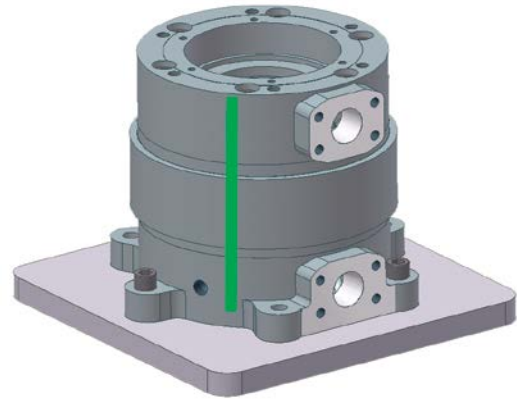
1) Press shaft out of bearing.

NOTE:

Inspect bearing prior to removal to determine if removal and replacement is necessary.

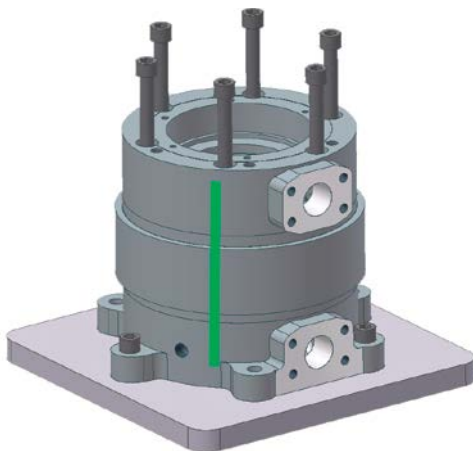
Motor Disassembly

6



- 1) Secure the motor in a suitable mount.
- 2) To ensure proper orientation during reassembly, use a paint pen or permanent marker to mark a line down the side of the motor.

7

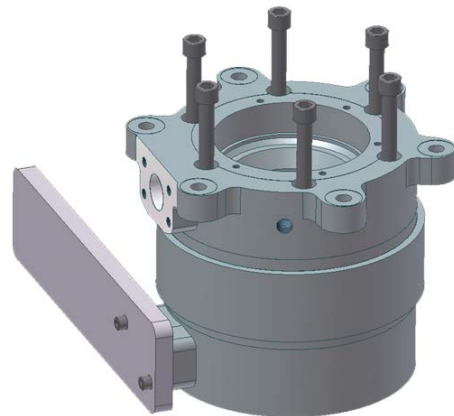


- 1) Loosen and remove the six (6) 5/8-11 main body socket head cap screws from the rear housing.

NOTE:

Any bolt heads showing signs of corrosion or rounding should be replaced.

8

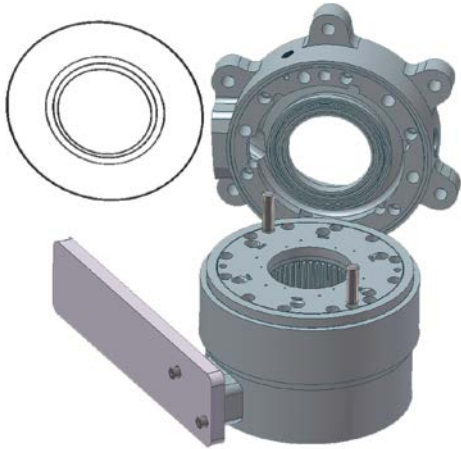


- 1) Turn the motor onto its rear face.
- 2) Attach a support member to the port on the rear housing.
- 2) Loosen and remove the remaining six (6) 5/8-11 main body socket head cap screws.

NOTE:

Take care to ensure the port face experiences no damage.

9



- 1) Remove the front housing.
- 2) Remove o-rings and dowel pins.

10



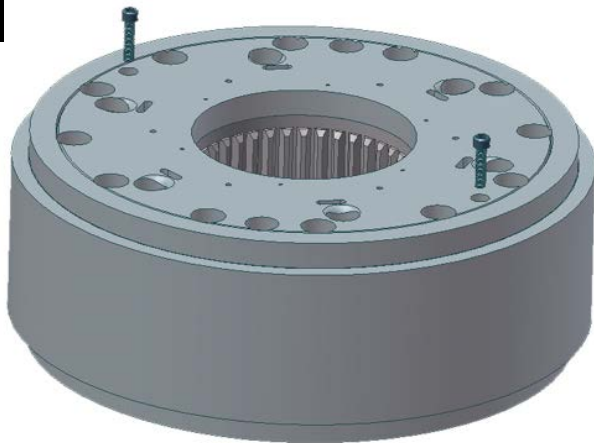
- 1) Remove rotary group from rear housing. Place rotating group on a clean surface for disassembly and inspection.
- 2) Remove dowel pins and o-rings from the rear housing.
- 3) Press rear bearing out of rear housing.

NOTE:

Inspect bearing prior to removal to determine if removal and replacement is necessary.

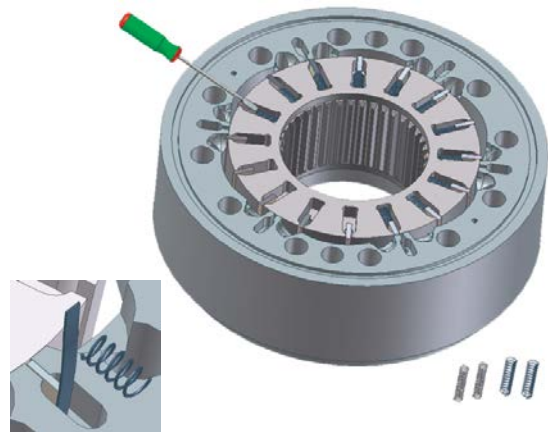
Rotary Group Disassembly

11



- 1) Remove the two (2) 10-32 socket head cap screws.
- 2) Remove the distributor plate.

12



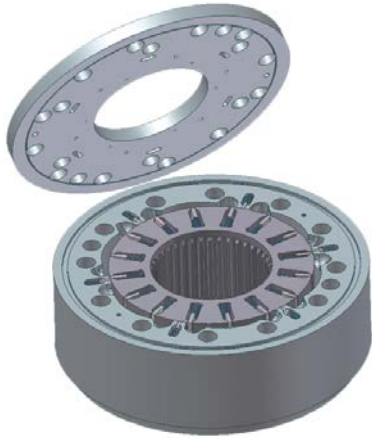
- 1) Using an appropriate removal tool, remove o-rings and all rotor and stator springs.

NOTE:

Some motors may contain flat 'wave' springs in the stator vane slots.

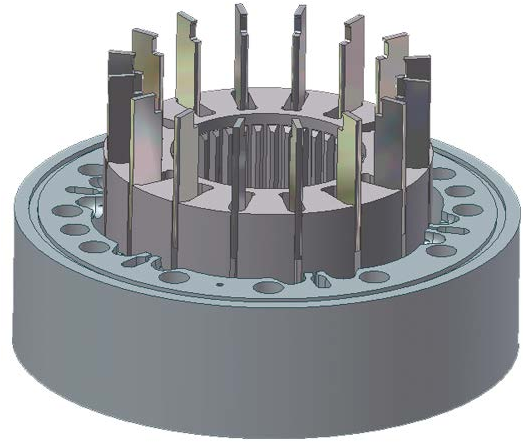
Rineer recommends to replace all springs, o-rings, and seals whenever the motor is disassembled.

13



- 1) Replace distributor plate on rotary group.
- 2) Turn the rotary group over.
- 3) Repeat steps 11 & 12.

14



- 1) Remove the rotor.
- 2) Remove the rotor and stator vanes.
- 3) Separate parts and clean in a suitable manner.

Inspection of Parts

15

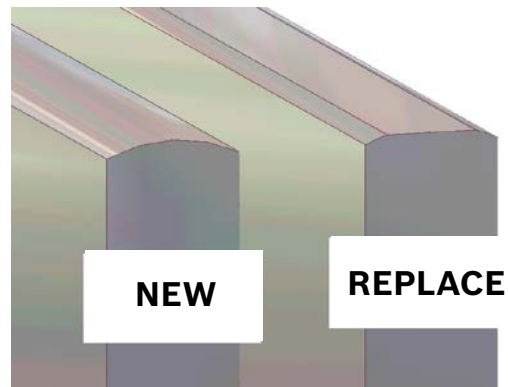


- 1) Inspect all parts and replace any which show signs of damage or excessive wear.

NOTE:

Rineer recommends to replace all springs, o-rings, and seals whenever the motor is disassembled.

16



VANES:

Normal wear results in slight flattening of the vane tips, which does not impact motor performance. Replace vane if radius is reduced by more than 50%.

Clearance between the rotor vanes and rotor vane slots varies based off of the vane selection. Some movement of the vane within the vane slot is expected.

17

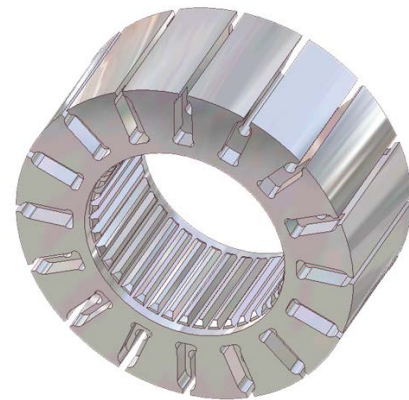


PLATES:

Normal wear results in marking or polishing of the distributor plate surface. This does not impact motor performance.

Replacement of the distributor plate is required if any smearing, galling, or heat cracks are present.

18

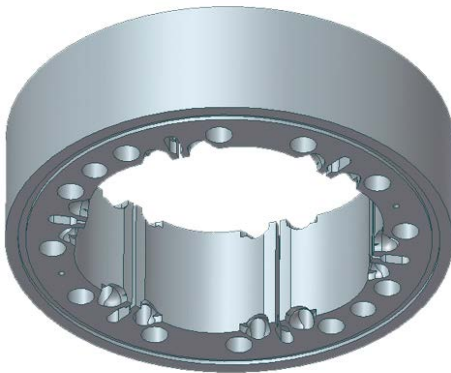


ROTOR:

Normal wear results in the polishing of the rotor faces. This does not impact motor performance.

Some polishing in the slot is normal, but any evidence of wear pocket formation, galling, or heat cracks requires replacement of the rotor.

19

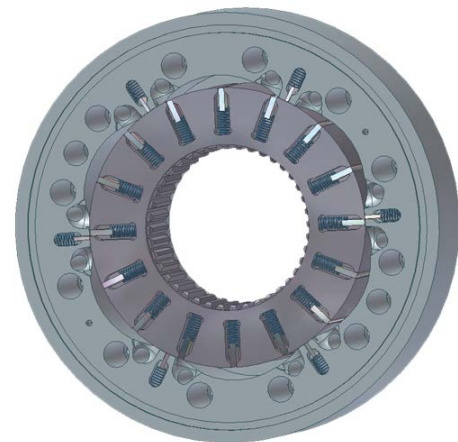


STATOR:

Normal wear results in polishing of the cam form. This does not impact motor performance.

Some expected wear may be visible along the corner of one side of the vane slot. Consult your Rineer representative with any questions or concerns.

20



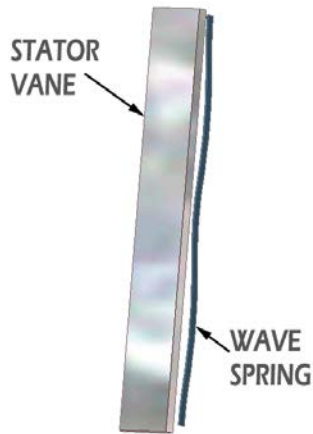
Rotary Group Assembly

- 1) Reassemble the rotary group by following the procedures of steps 14, 13, 12, and 11 in reverse.
- 2) Pour a small amount of hydraulic oil onto the rotor surface.

NOTE:

If wave springs are present, refer to step 21. Ensure the radiused edge of each stator vane points to the rotor, and the radiused edge of each rotor vane points to the stator. Ensure all springs are seated in the spring pocket. Do not allow spring coils to catch on vanes.

21



- 1) If present in motor design, place stator vane and wave spring in the vane slot simultaneously.

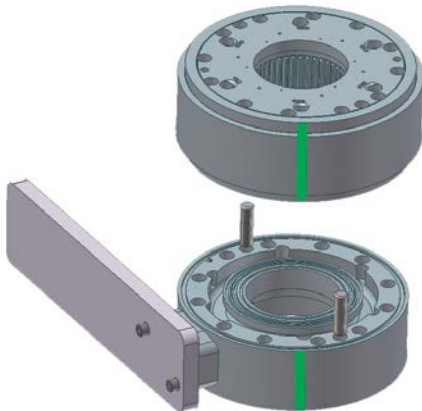
NOTE:

Where present, wave springs in the 125 series do not need to be replaced.

Certain model codes do not contain wave springs, while others may contain two per vane.

Do not let the coil spring loop catch between the wave spring and vane.

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- 1) Reassemble the motor by following the procedures of steps 10 and 9 in reverse.

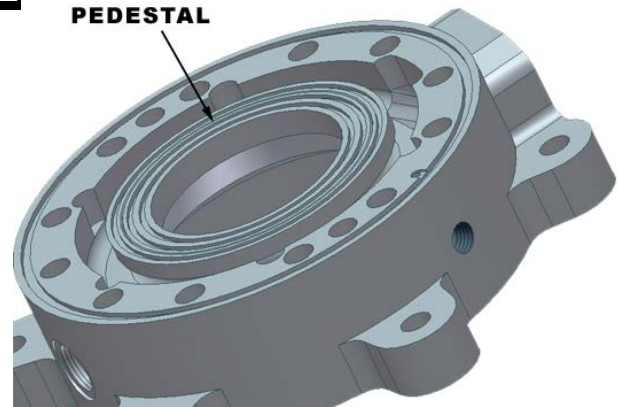
NOTE:

Ensure the o-rings are properly held in place in the corresponding grooves. Grease can be used as needed to help retain o-rings.

Line up the rotary group and housings using the lines created in step 6.

Motor Assembly

22

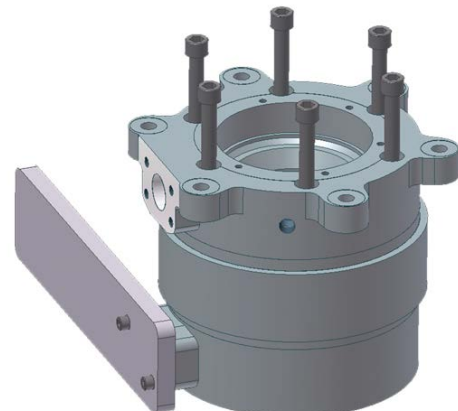


- 1) Using a medium India honing stone, lightly dress all machine surfaces to remove any defects or burrs.

NOTE:

Closely inspect the machined faces on the front and rear housing. Rough handling can cause raised surfaces near the O.D. of the housings. The pedestal surface is 0.002-0.003" below the outer machined surface. Dress these surfaces independently.

24



- 1) Grease the threads of the 5/8-11 socket head cap screws.
- 2) Apply a small amount of grease underneath the head of each screw.
- 3) Insert the screws into the motor.
- 2) Tighten the screws in a star pattern.

NOTE:

Refer to the torque specifications on page 11. Ensure this process is completed for both the front and rear main body socket head cap screws.

Shaft Group Assembly

25



1) Press front bearing onto shaft.

NOTE:

Use a proper pressing method to install the bearing, being sure to press only on the inner race.

26



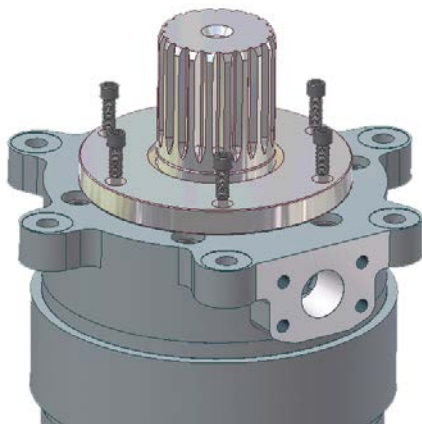
1) Press shaft and bearing assembly into front housing.

NOTE:

Use a proper pressing method to install the assembly, being sure to press only on the outer race of the bearing.

Front Seal Installation

27



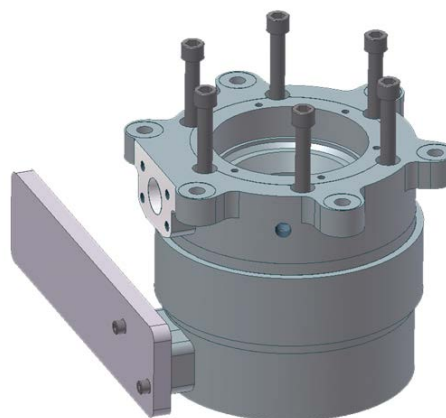
1) Install seal and seal plate by following the procedures of steps 2 and 1 in reverse.

NOTE:

Refer to the torque specifications on page 11.

Rear Seal Installation

28



1) Press rear bearing into rear housing.
2) Install rear seal plate by following the procedures of step 3 in reverse.

NOTE:

Use a proper pressing method to install the assembly. Refer to the torque specifications on page 11.

Torque Specifications*

Main body screws (5/8-11) - Code 61

Single stack: 200 ft-lb

Double stack: 220 ft-lb

4-port: 200 ft-lb

Main body screws (5/8-11) - Code 62

Single stack: 220 ft-lb

Double stack: 240 ft-lb

4-port: 220 ft-lb

Main body stud (5/8-11) - Code 62: 240 ft-lb

Seal plate screws (3/8-16): 45 ft-lb

* Applicable fasteners dependent on motor design. Consult your Rineer representative for clarification.

Lubricant Specifications

Shaft seal: Sta-Lube Moly-Graph

Main body bolt threads: Mobil Mobilgrease CM-S

O-ring retention: Mobil Mobilgrease CM-S

Notes

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