Rineer High Torque Vane Motor
MV037 Series
Repair Manual – Standard Motors

Overview of contents

RA 10550-01-S031, edition: 2025-09, **Bosch Rexroth Corporation**

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 remembered that our products are subject to a natural process of wear and aging.

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

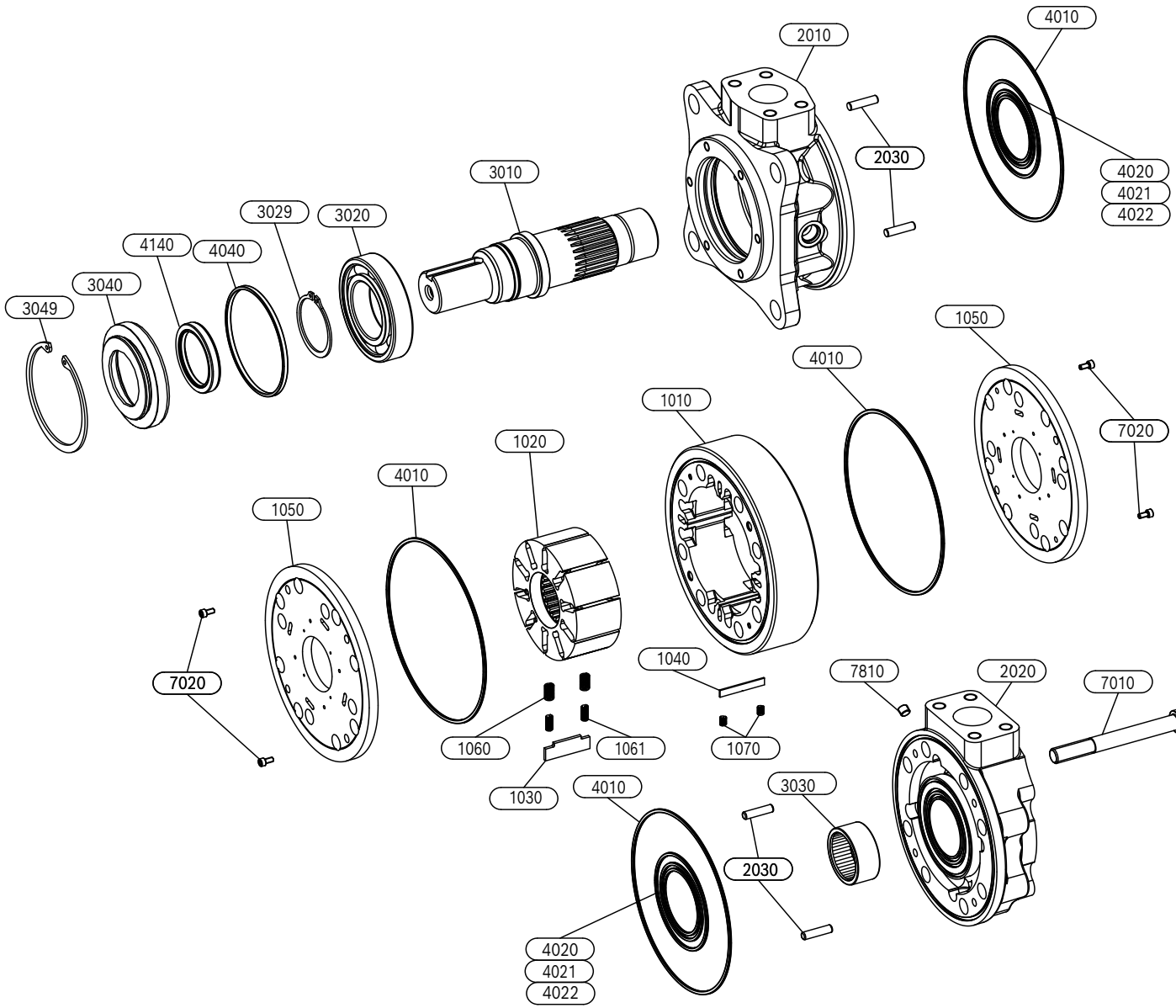
Safety Information

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, ROTOR	10
1040	VANE, STATOR	4
1050	DISTRIBUTOR PLATE	2
1060	SPRING, ROTOR OUTER	20
1061	SPRING, ROTOR INNER	20
1070	SPRING, STATOR	8
2010	HOUSING, FRONT	1
2020	HOUSING, REAR	1
2030	DOWEL PIN	4
3010	DRIVE SHAFT	1
3020	BALL BEARING	1
3029	RETAINING RING, SHAFT	1
3030	NEEDLE BEARING	1
3040	SEALING PLATE	1
3049	RETAINING RING, SEAL PLATE	1
4010	O-RING, MAINBODY	4
4020	O-RING, PEDESTAL	2
4021	O-RING, PEDESTAL	2
4022	O-RING, PEDESTAL	2
4040	O-RING, SEAL PLATE	1
4140	SHAFT SEAL	1
7010	SHCS, MAINBODY	8
7020	SHCS, DISTRIBUTOR PLATE	4
7810	THREADED PLUG, NPT	1

Seal Plate Removal

1

1) Remove seal plate retaining ring or socket head cap screws (dependent on motor design).

WARNING:
Use caution when removing retaining ring. If released accidentally, it can become an airborne hazard.

2

1) Pry out shaft seal plate with appropriate removal tools.
2) Remove seal plate o-ring from groove in bearing bore.

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

Shaft Group Disassembly

3

1) Remove shaft from the motor.

NOTE:
The end of the shaft is tapped with a 1/2-13 hole on a standard series motor. This hole can be used to remove the shaft with an appropriate removal tool.

4

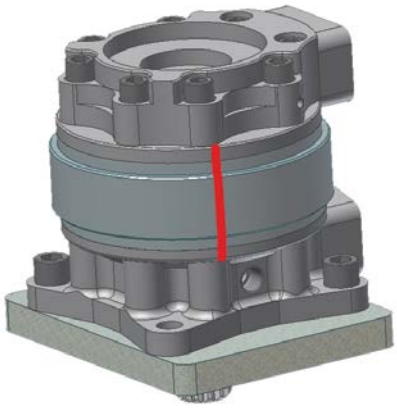
1) Remove bearing retaining ring or lock nut and washer from shaft (dependent on motor design).
2) Press shaft out of bearing

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

WARNING:
Use caution when removing retaining ring. If released accidentally, it can become an airborne hazard.

Housing and Rotary Group Removal

5



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

6

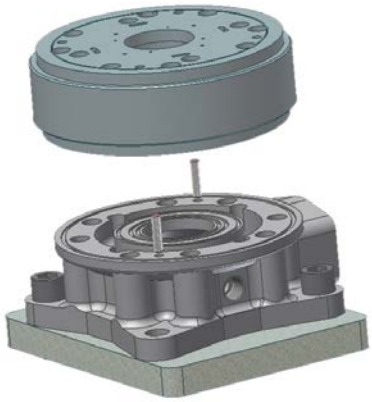
1) Loosen and remove the eight (8) 5/8-11 main body socket head cap screws.

NOTE:
Any bolt heads showing corrosion or rounding of the internal hex should be replaced.

7

1) Remove rear housing.
2) Remove o-rings from housing.
3) Remove dowel pins from the rotary group.

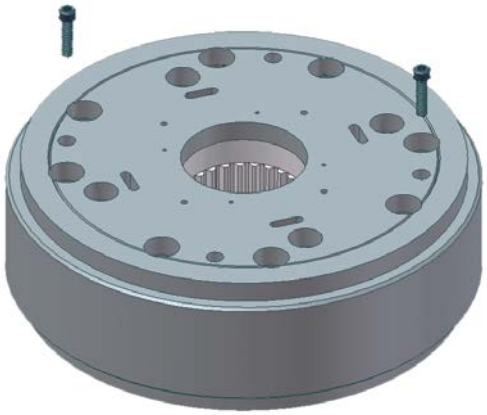
8



1) Remove rotary group from front housing.
2) Place rotary group on a clean surface for disassembly and inspection.
3) Remove o-rings from front housing.
4) Remove dowel pins from front housing.

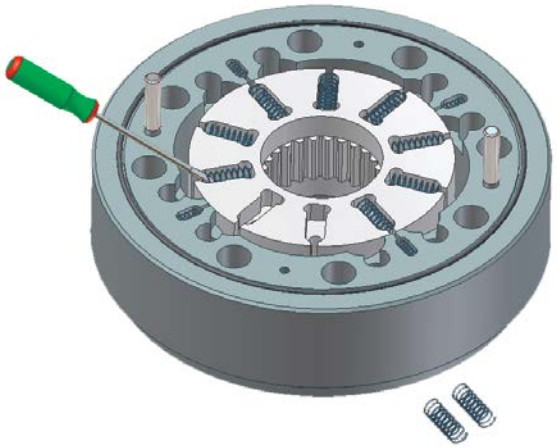
Rotary Group Disassembly

9



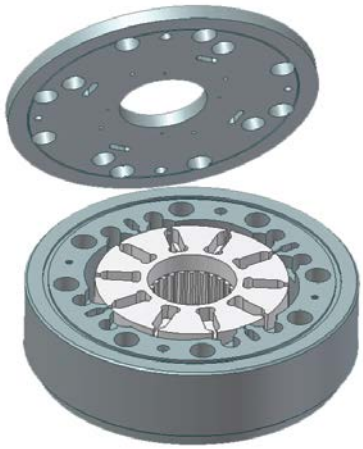
1) Remove the two 10-32 screws.
2) Remove the distributor plate.

10



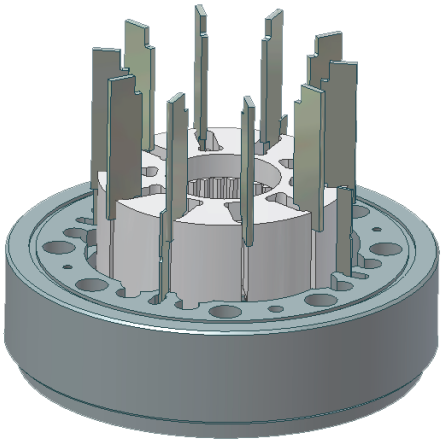
1) Using an appropriate removal tool, remove all rotor and stator springs.
2) Remove the main body o-ring.

11



1) Reinstall distributor plate on rotary group.
2) Holding the distributor plate in place, turn the rotary group over.
3) Repeat steps 9 & 10.

12



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

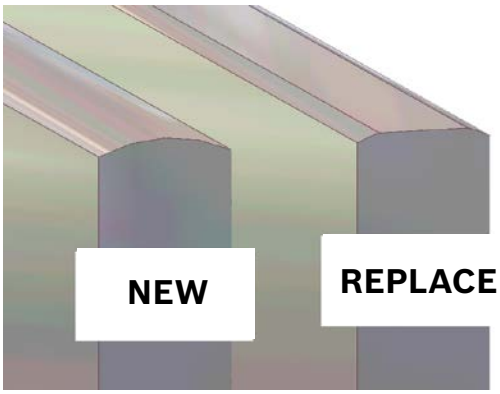
Inspection of Parts

13

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.

14



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.

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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.

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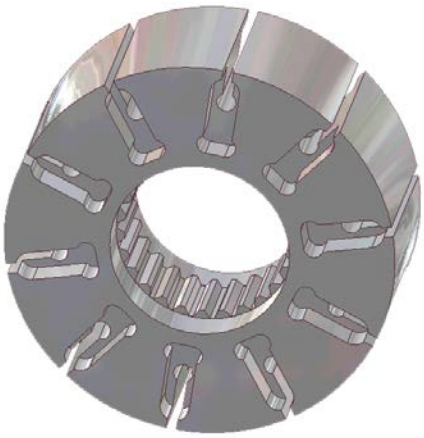
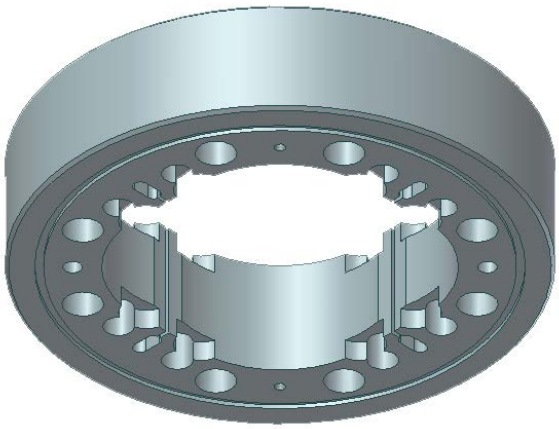


ROTOR:
Normal wear results in the polishing of the rotor faces. This does not impact motor performance.

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

17



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.

Rotary Group Assembly

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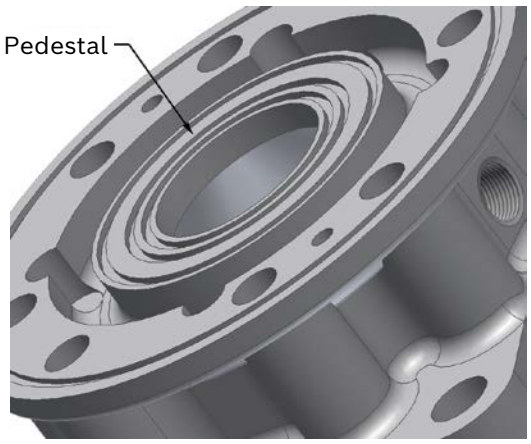
1) Reassemble the rotary group by following the procedures of steps 12, 11, 10, and 9 in reverse.
2) Pour a small amount of hydraulic oil onto the rotor surface.

NOTE:
Ensure the radiused edge of each stator vane points to the rotor.
Ensure 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.

Motor Assembly

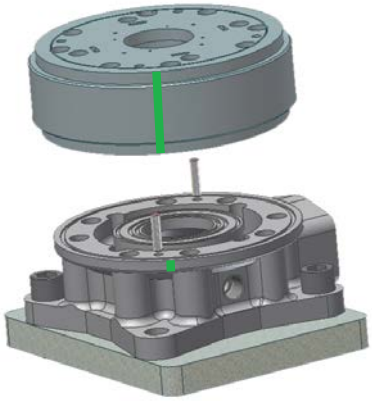
19



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 caused 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.

20



1) Reassemble the motor by following the procedures of steps 8 and 7 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 5.

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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 10.

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1) Install shaft assembly, seal plate, and retaining ring by following the procedures of steps 4, 3, 2, and 1 in reverse.
2) Rotate shaft by hand to ensure no binding is present.

WARNING:
Use caution when removing retaining ring. If released accidentally, it can become an airborne hazard.

Torque Specifications*

Main body screws (5/8-11) - Code 61
- Single stack: 200 ft-lb
- Double stack: 200 ft-lb
- 4-port: 200 ft-lb

Main body screws (5/8-11) - Code 62
- Single stack: 220 ft-lb
- Double stack: 200 ft-lb
- 4-port: 220 ft-lb

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

Seal plate screws (5/16-18): 25 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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