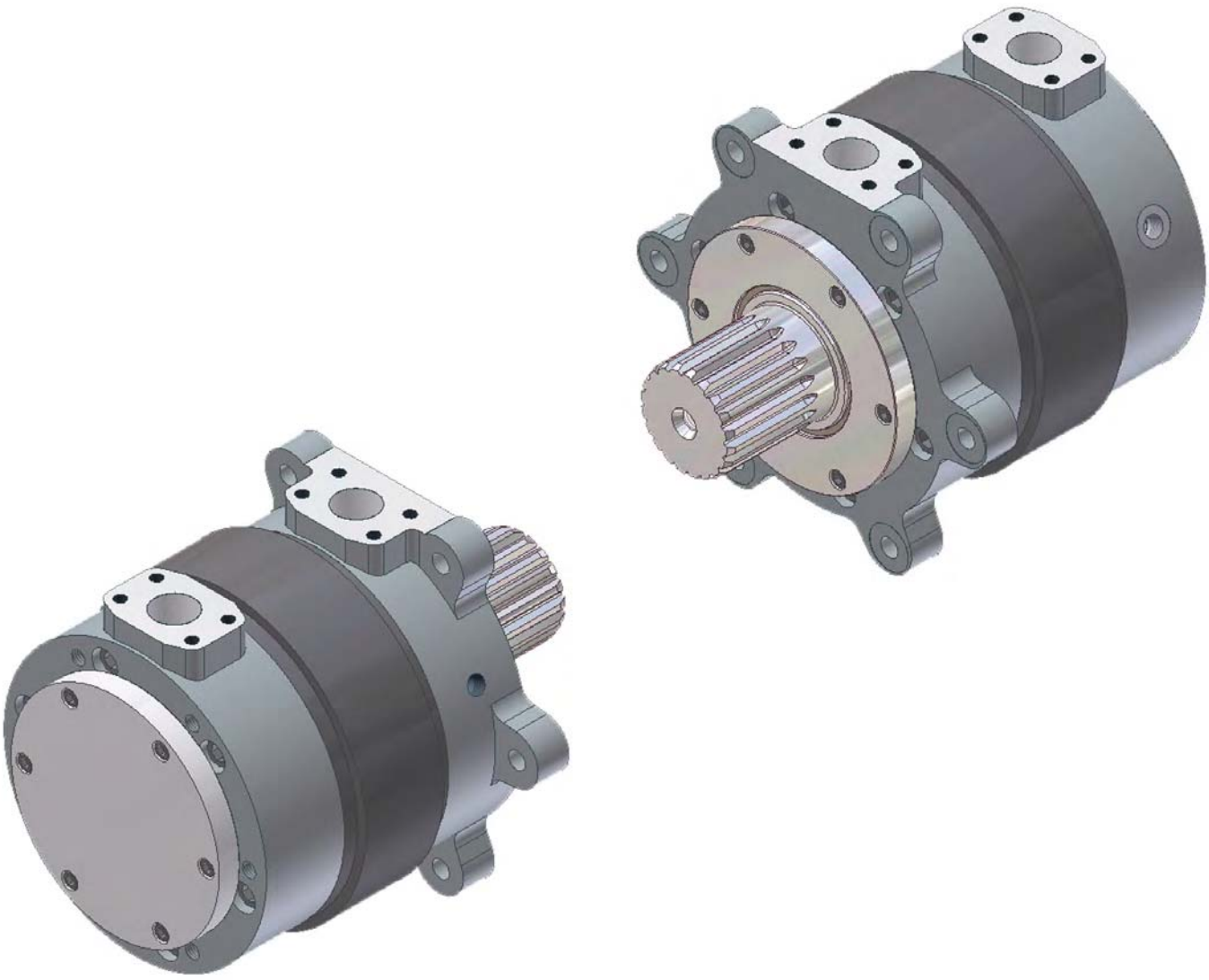
Repair Manual

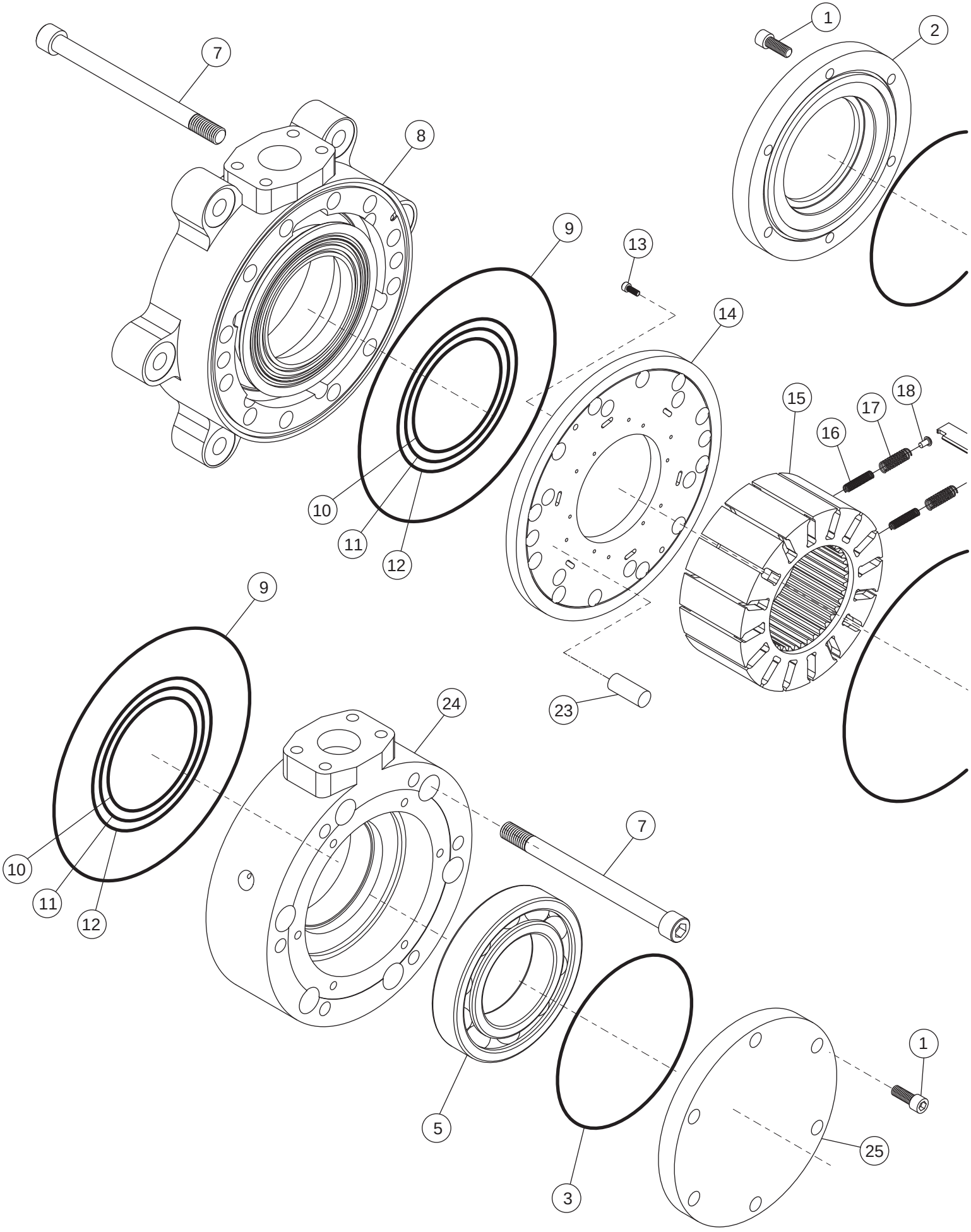
125 Series



125 Series

Key / Spline
Double Stack Key / Spline
4-Port Key / Spline
Thru Key / Spline
Drill Motor - API Thread

Rexroth
Bosch Group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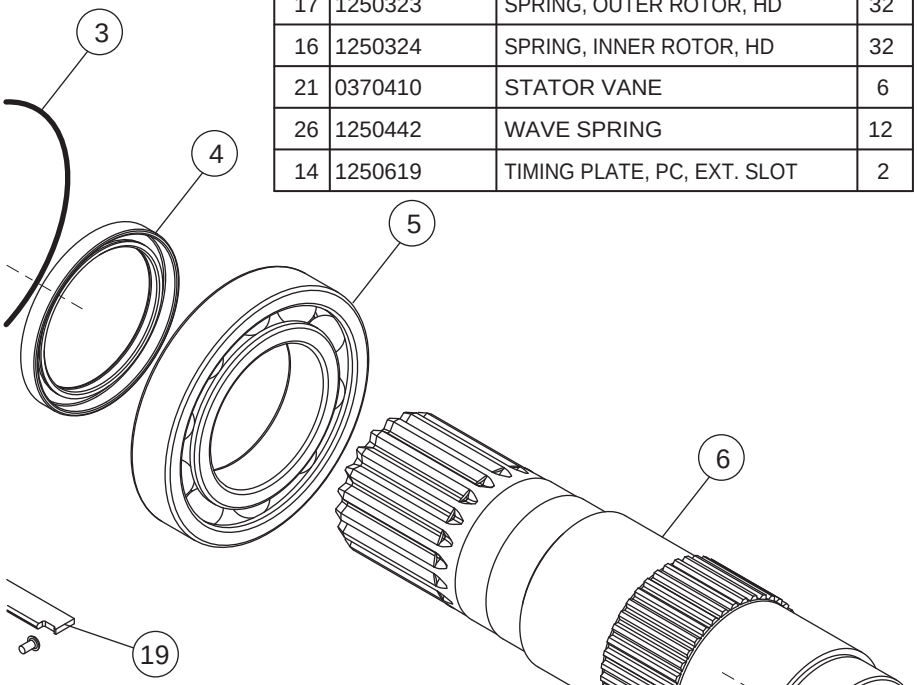
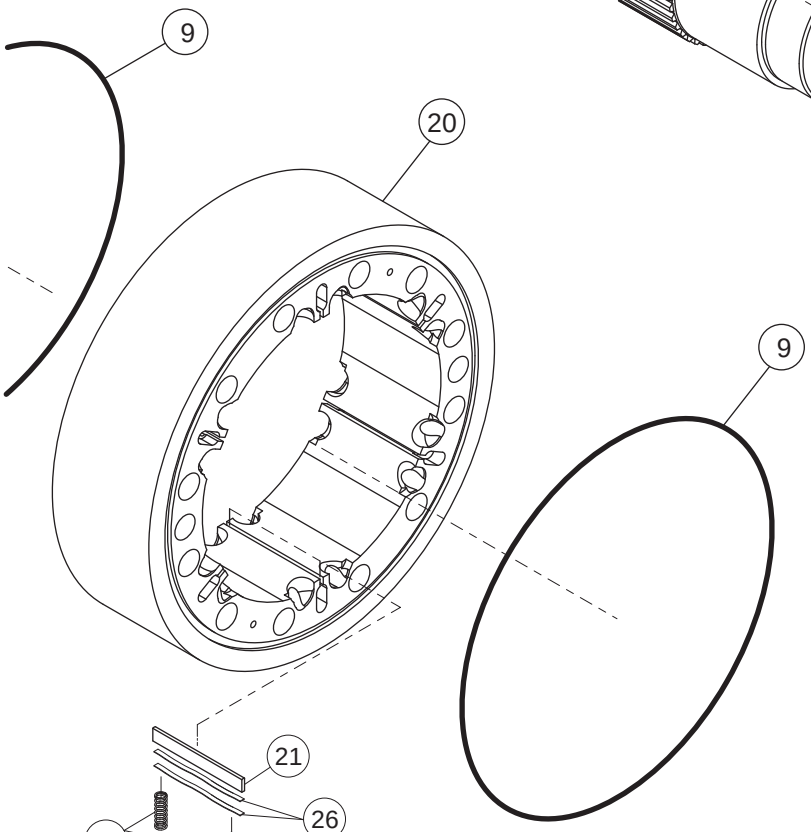
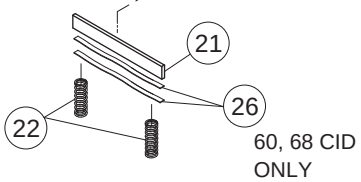
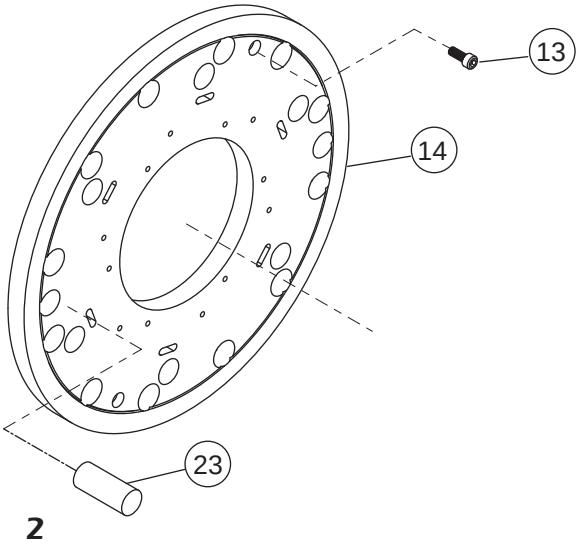
PARTS SUBSTITUTED IN 60 & 68 C.I.D. ROTATING GROUPS			
19	1250317PC	ROTOR VANE	16
17	1250323	SPRING, OUTER ROTOR, HD	32
16	1250324	SPRING, INNER ROTOR, HD	32
21	0370410	STATOR VANE	6
26	1250442	WAVE SPRING	12
14	1250619	TIMING PLATE, PC, EXT. SLOT	2



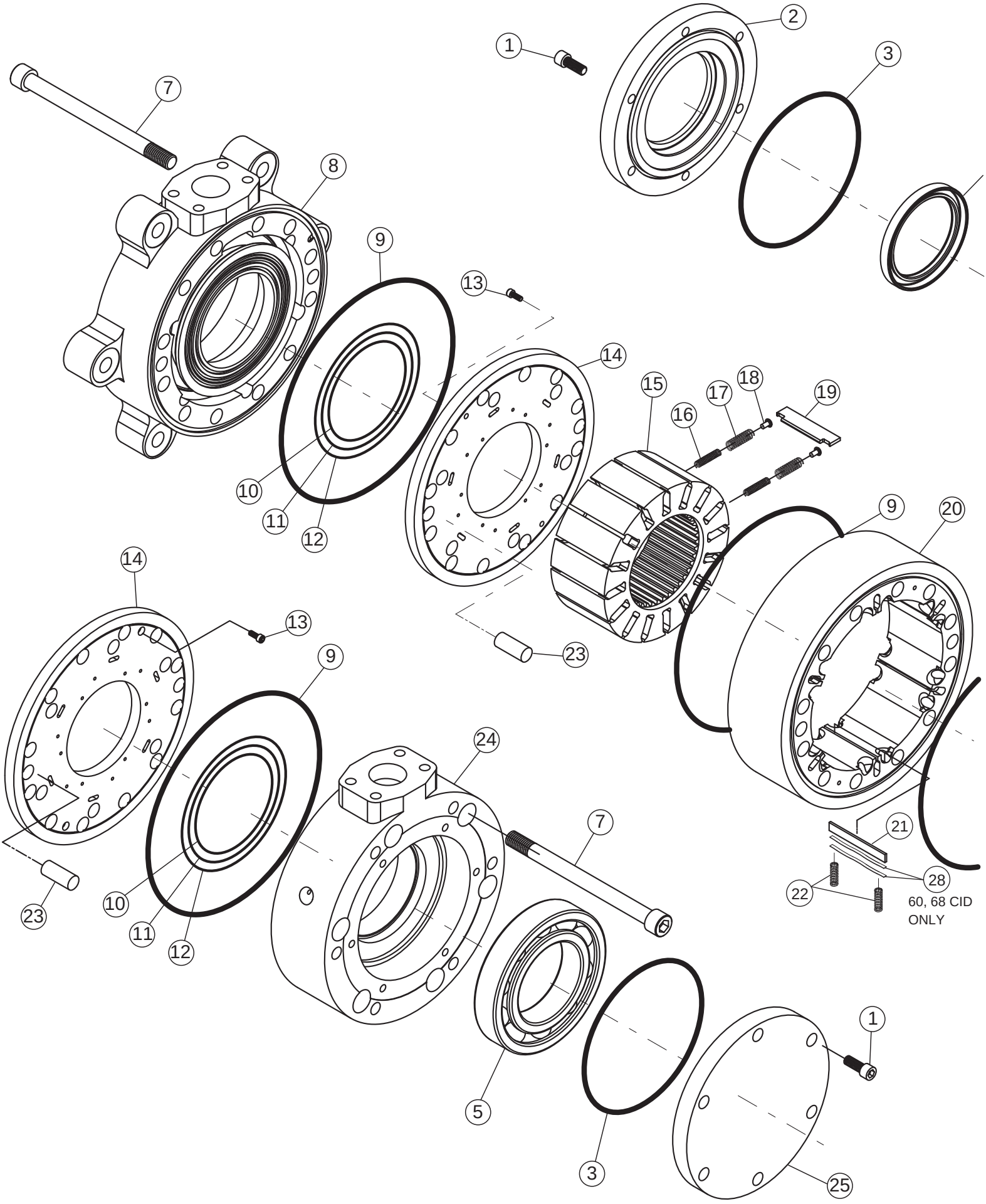




60, 68 CID ONLY



SERIES 125 PC EXPLODED VIEW			
ITEM	PART NO.	DESCRIPTION	QTY
1	1250117	BOLT, SEAL PLATE	12
2	1250162	SEAL PLATE, TCN, 3-1/2	1
3	1250114	O-RING, SEAL PLATE	2
4	1250187	SEAL, TCN, 3-1/2	1
5	1250711	BALL BEARING	2
6	1250702	SHAFT, SPLINED	1
	1250701	SHAFT, KEYED	1
7	0370902	BOLT, 5/8-11 x 8", MAIN	12
8	1251158	FRONT HOUSING, A, PC	1
9	1250610	O-RING, MAIN	4
10	1250877	O-RING, THERMAL, INNER	2
11	1250878	O-RING, THERMAL, MIDDLE	2
12	1250879	O-RING, THERMAL, OUTER	2
13	1250620	PLATE SCREW	4
14	1250618	PLATE, TIMING, PC	2
	1250619	PLATE, TIMING, PC (HI SPD)	2
15	1250315PC	ROTOR, S	1
	1250315PL	ROTOR, L	1
16	1250321	SPRING, INNER ROTOR	32
17	1250320	SPRING, OUTER ROTOR	32
18	1250322	SPRING BUTTON(NOT FOR 60,68)	32
19	1250314PC	VANE, ROTOR, S	16
	1250314PL	VANE, ROTOR, L	16
20	1250406	STATOR, 125 CID	1
	1250401	STATOR, 113 CID	
	1250402	STATOR, 98 CID	
	1250403	STATOR, 82 CID	
	1250404	STATOR, 68 CID	
	1250400	STATOR, 60 CID	
21	1250410	STATOR VANE	6
22	1250420	SPRING, STATOR VANE	12
23	1250440	DOWEL PIN, 5/8 x 2	4
24	1250899	REAR HOUSING, A, PC	1
25	1250817	SEAL PLATE, REAR, BLIND	1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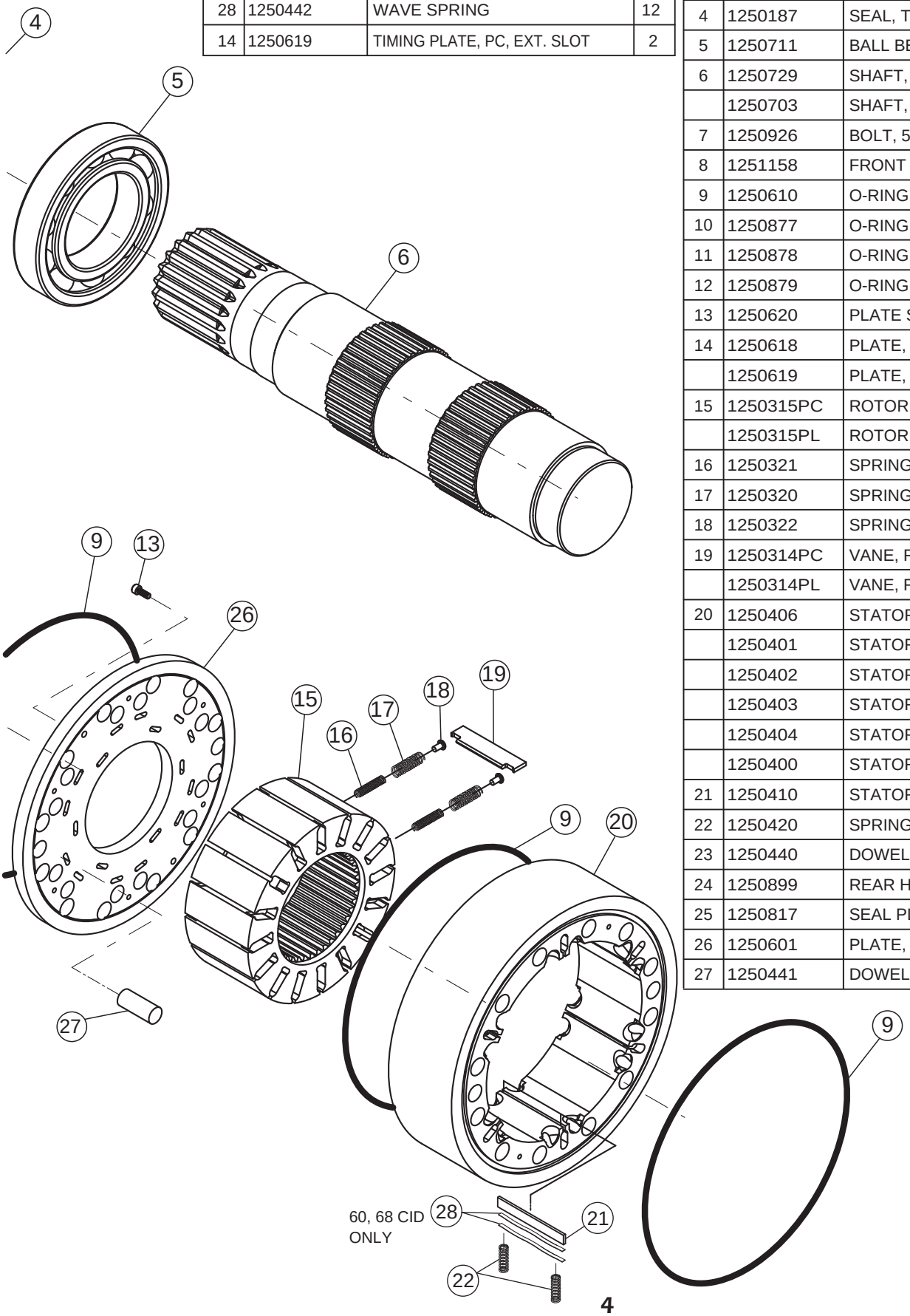
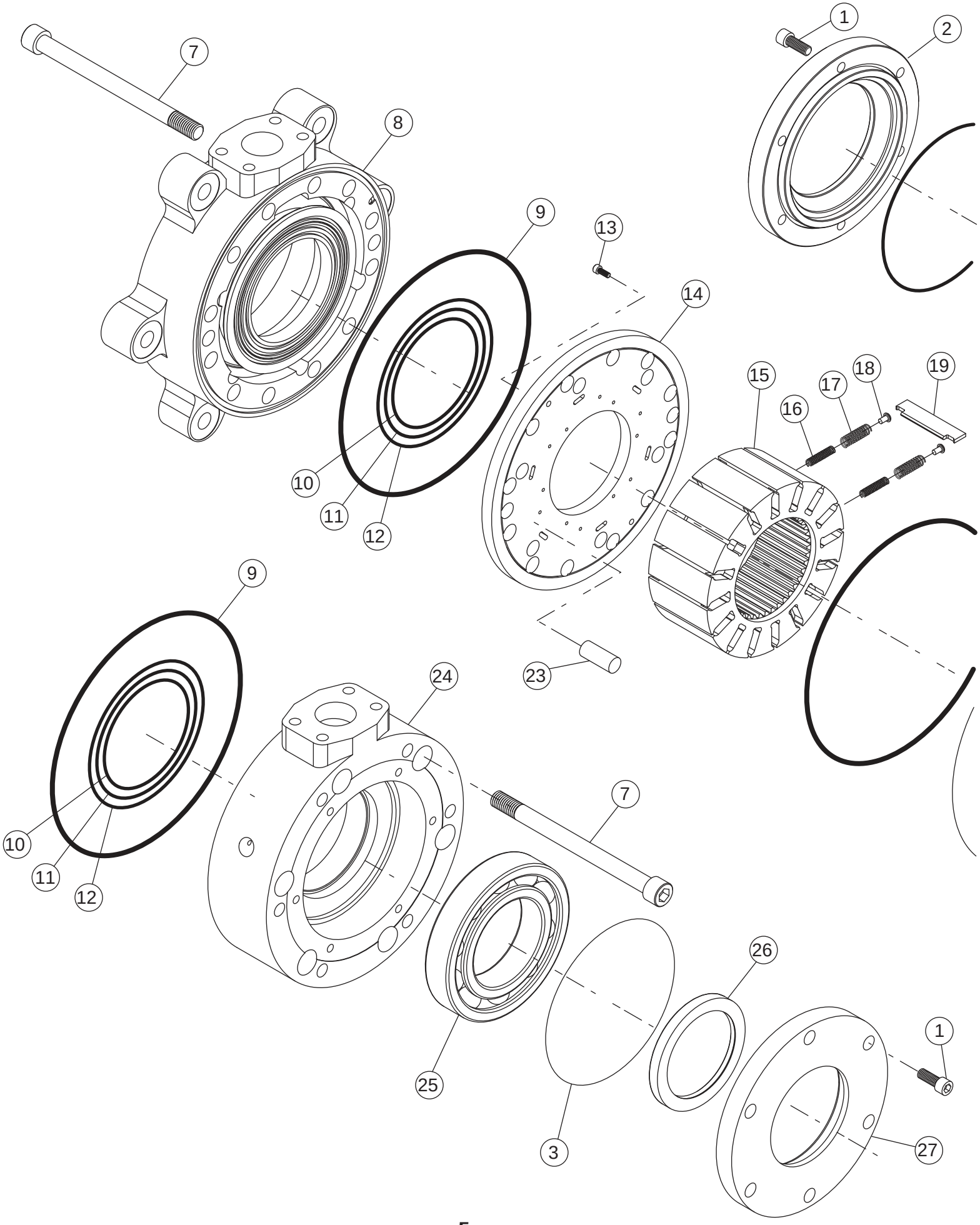
PARTS SUBSTITUTED IN 60 & 68 C.I.D. ROTATING GROUPS			
19	1250317PC	ROTOR VANE	16
17	1250323	SPRING, OUTER ROTOR, HD	32
16	1250324	SPRING, INNER ROTOR, HD	32
21	0370410	STATOR VANE	6
28	1250442	WAVE SPRING	12
14	1250619	TIMING PLATE, PC, EXT. SLOT	2



SERIES 125 PC STACKED EXPLODED VIEW			
ITEM	PART NO.	DESCRIPTION	QTY
1	1250117	BOLT, SEAL PLATE	12
2	1250162	SEAL PLATE, TCN, 3-1/2	1
3	1250114	O-RING, SEAL PLATE	2
4	1250187	SEAL, TCN, 3-1/2	1
5	1250711	BALL BEARING	2
6	1250729	SHAFT, STACKED, SPLINED	1
	1250703	SHAFT, STACKED, KEYED	1
7	1250926	BOLT, 5/8-11x 11.5,MAIN	12
8	1251158	FRONT HOUSING, A, PC	1
9	1250610	O-RING, MAIN	6
10	1250877	O-RING, THERMAL, INNER	2
11	1250878	O-RING, THERMAL, MIDDLE	2
12	1250879	O-RING, THERMAL, OUTER	2
13	1250620	PLATE SCREW	6
14	1250618	PLATE, TIMING, PC	2
	1250619	PLATE, TIMING, PC (HI SPD)	2
15	1250315PC	ROTOR, S	2
	1250315PL	ROTOR, L	2
16	1250321	SPRING, INNER ROTOR	64
17	1250320	SPRING, OUTER ROTOR	64
18	1250322	SPRING BUTTON (NOT FOR 60,68)	64
19	1250314PC	VANE, ROTOR, S	32
	1250314PL	VANE, ROTOR, L	32
20	1250406	STATOR, 125 CID	2
	1250401	STATOR, 113 CID	
	1250402	STATOR, 98 CID	
	1250403	STATOR, 82 CID	
	1250404	STATOR, 68 CID	
	1250400	STATOR, 60 CID	
21	1250410	STATOR VANE	12
22	1250420	SPRING, STATOR VANE	24
23	1250440	DOWEL PIN, 5/8 x 2	4
24	1250899	REAR HOUSING, A, PC	1
25	1250817	SEAL PLATE, REAR, BLIND	1
26	1250601	PLATE, STACKED	1
27	1250441	DOWEL PIN, 5/8 x1-1/2"	2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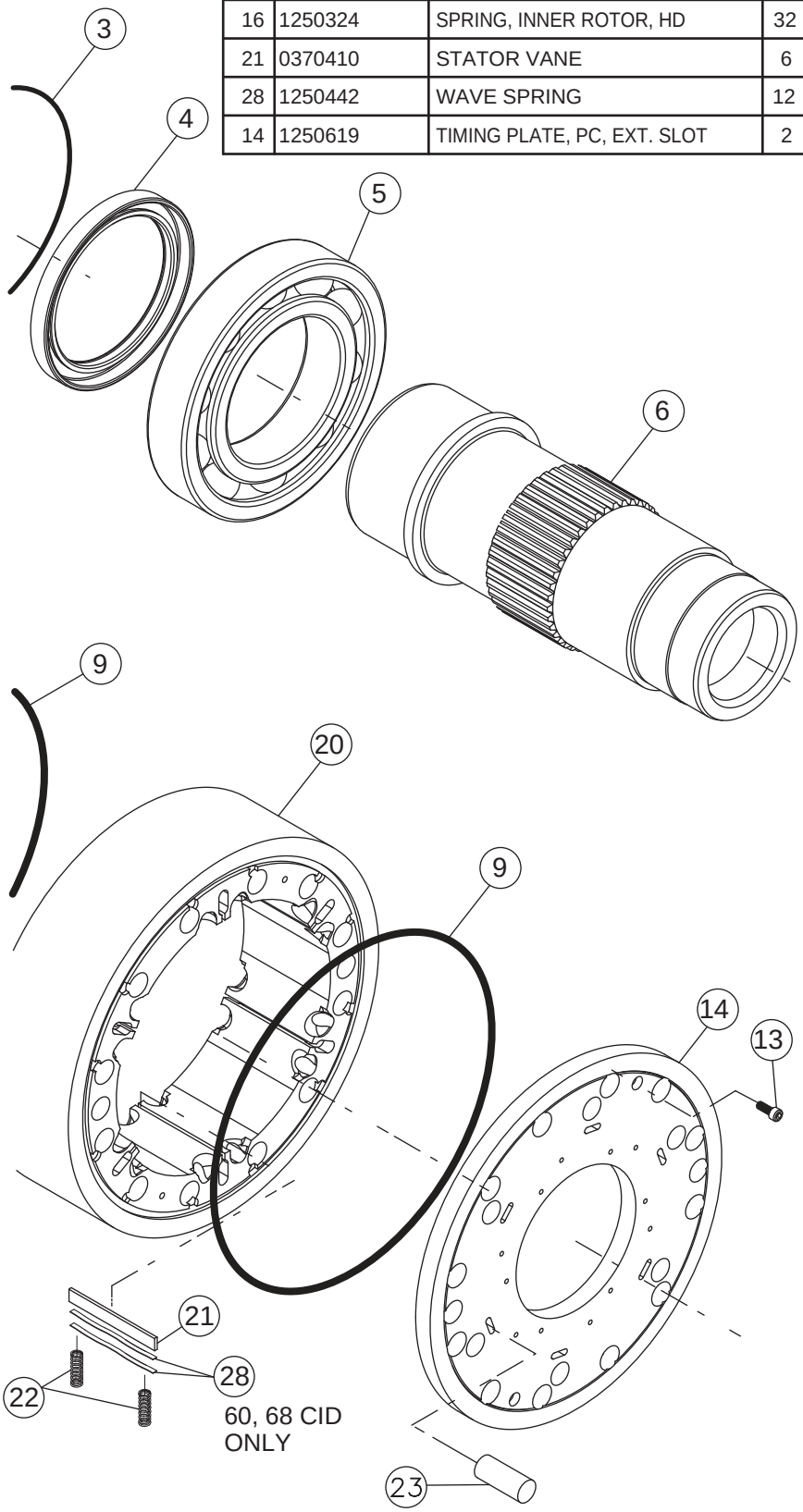
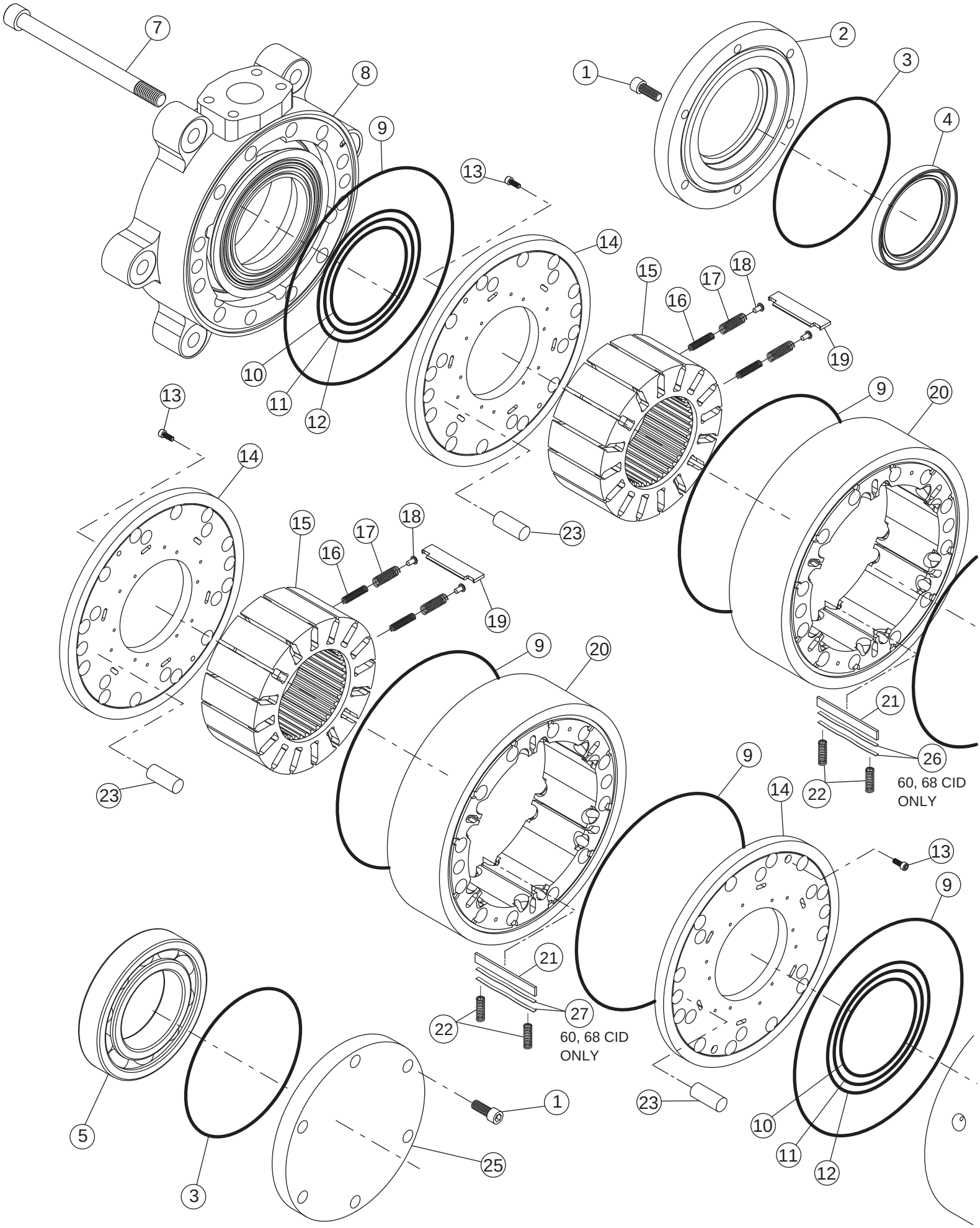
PARTS SUBSTITUTED IN 60 & 68 C.I.D. ROTATING GROUPS			
19	1250317PC	ROTOR VANE	16
17	1250323	SPRING, OUTER ROTOR, HD	32
16	1250324	SPRING, INNER ROTOR, HD	32
21	0370410	STATOR VANE	6
28	1250442	WAVE SPRING	12
14	1250619	TIMING PLATE, PC, EXT. SLOT	2



SERIES 125 PC THRU KEY EXPLODED VIEW			
ITEM	PART NO.	DESCRIPTION	QTY
1	1250117	BOLT, SEAL PLATE	12
2	1251100	SEAL PLATE, TCN, 4-1/8	1
3	1250114	O-RING, SEAL PLATE	2
4	1250196	SEAL, TCN, 4-1/8	1
5	1250710	BALL BEARING	1
6	1250705	SHAFT, THRU KEY	1
	1250706	SHAFT, THRU SPLINE	1
7	0370902	BOLT, 5/8-11 x 8", MAIN	12
8	1251158	FRONT HOUSING, A, PC	1
9	1250610	O-RING, MAIN	4
10	1250877	O-RING, THERMAL, INNER	2
11	1250878	O-RING, THERMAL, MIDDLE	2
12	1250879	O-RING, THERMAL, OUTER	2
13	1250620	PLATE SCREW	4
14	1250618	PLATE, TIMING, PC	2
	1250619	PLATE, TIMING, PC (HI SPD)	2
15	1250315PC	ROTOR, S	1
	1250315PL	ROTOR, L	1
16	1250321	SPRING, INNER ROTOR	32
17	1250320	SPRING, OUTER ROTOR	32
18	1250322	SPRING BUTTON (NOT FOR 60,68)	32
19	1250314PC	VANE, ROTOR, S	16
	1250314PL	VANE, ROTOR, L	16
20	1250406	STATOR, 125 CID	1
	1250401	STATOR, 113 CID	
	1250402	STATOR, 98 CID	
	1250403	STATOR, 82 CID	
	1250404	STATOR, 68 CID	
	1250400	STATOR, 60 CID	
21	1250410	STATOR VANE	6
22	1250420	SPRING, STATOR VANE	12
23	1250440	DOWEL PIN, 5/8 x 2	4
24	1250899	REAR HOUSING, A, PC	1
25	1250711	BALL BEARING	1
26	1250187	SEAL, TCN, 3-1/2	1
27	1250162	SEAL PLATE, TCN, 3-1/2	1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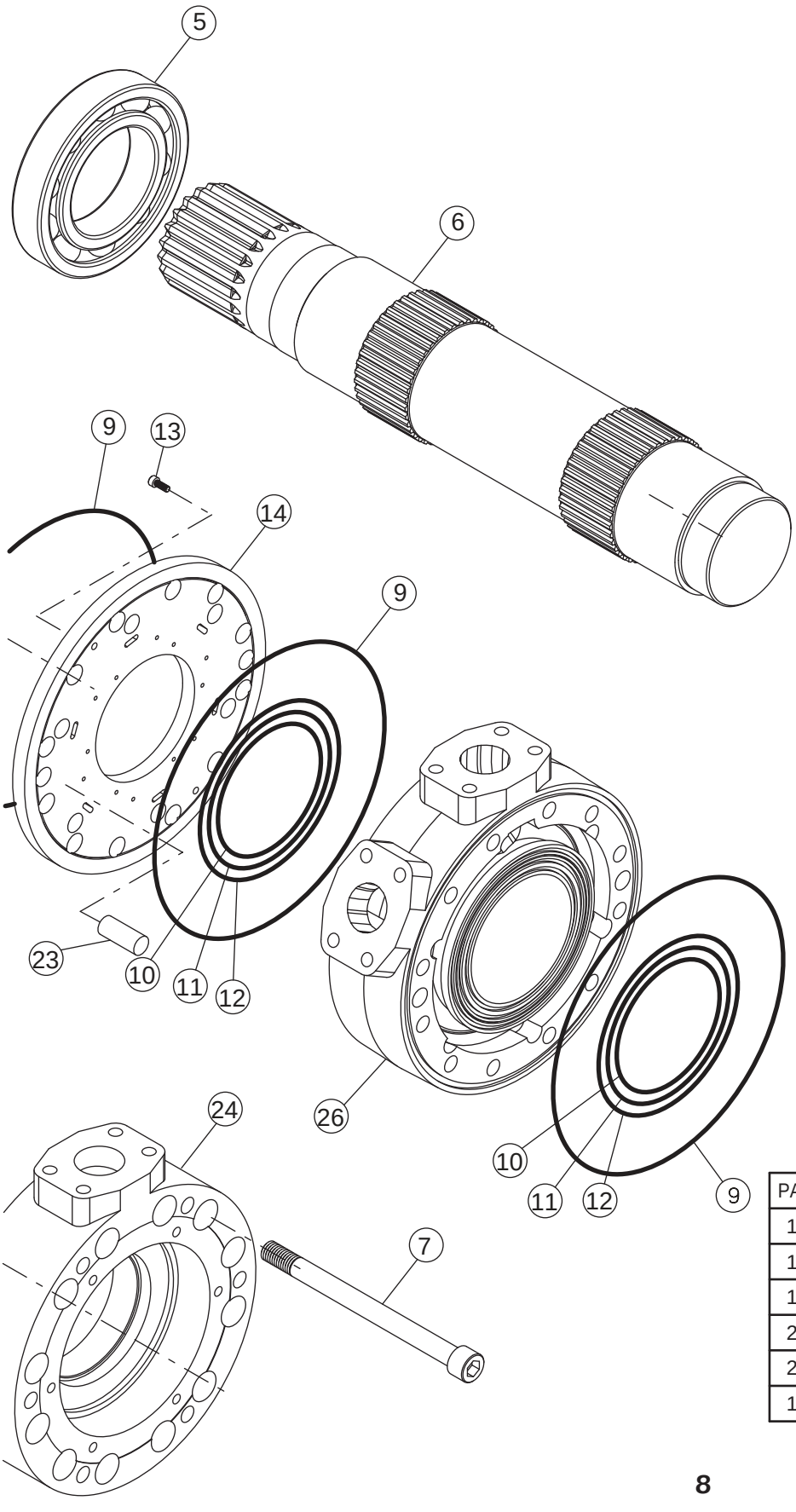
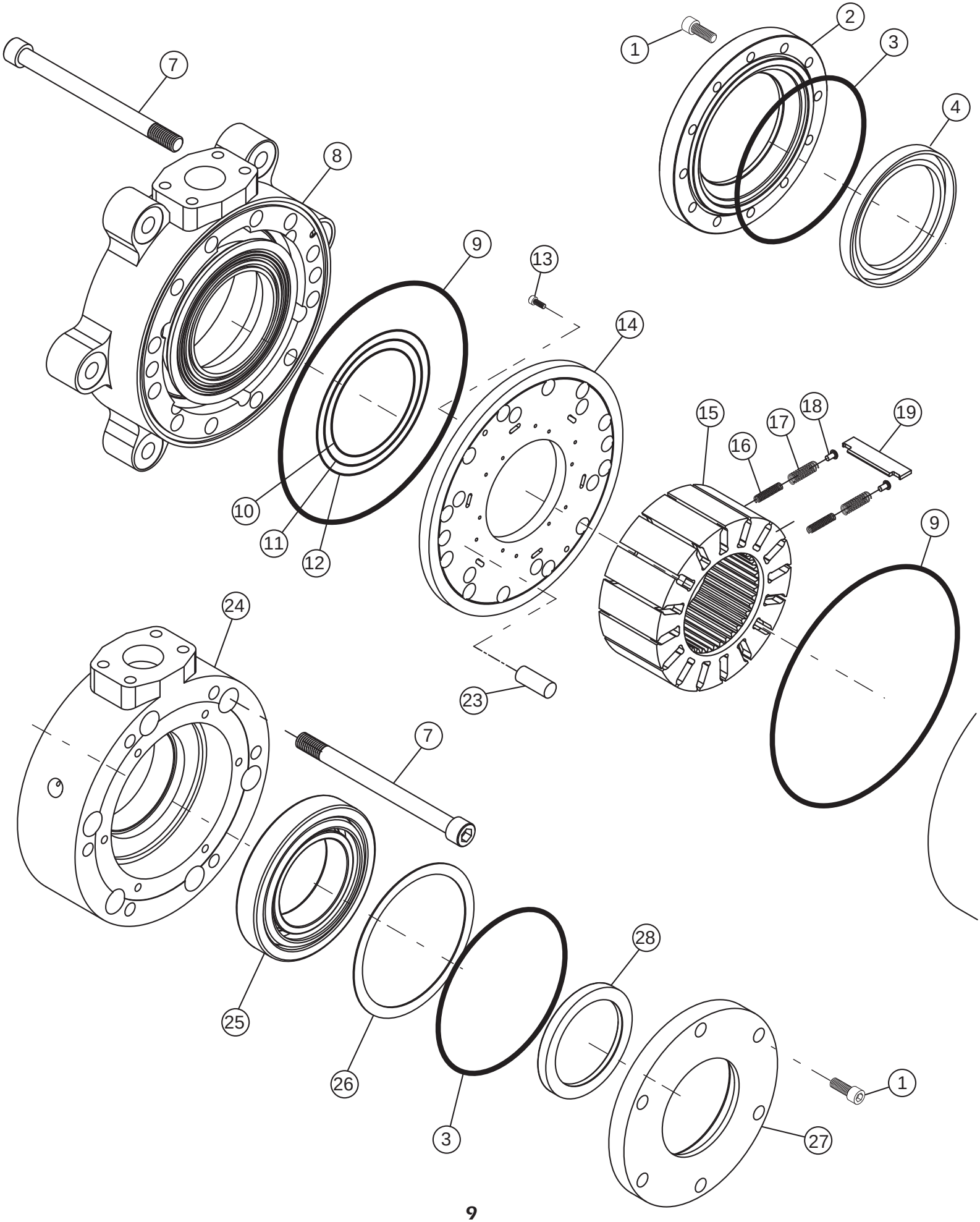


SERIES 125 PC 4-PORT EXPLODED VIEW			
ITEM	PART NO.	DESCRIPTION	QTY
1	1250117	BOLT, SEAL PLATE	12
2	1250162	SEAL PLATE, TCN, 3-1/2	1
3	1250114	O-RING, SEAL PLATE	2
4	1250187	SEAL, TCN, 3-1/2	1
5	1250711	BALL BEARING	2
6	1251743	SHAFT, 4-PORT, SPLINED	1
	1251757	SHAFT, 4-PORT, KEYED	1
7	1250901	BOLT, 5/8-11 x 7", MAIN	24
8	1251155	FRONT HSG., A, PC, M.I.	1
9	1250610	O-RING, MAIN	8
10	1250877	O-RING, THERMAL, INNER	4
11	1250878	O-RING, THERMAL, MIDDLE	4
12	1250879	O-RING, THERMAL, OUTER	4
13	1250620	PLATE SCREW	8
14	1250618	PLATE, TIMING, PC	4
	1250619	PLATE, TIMING, PC (HI SPD)	4
15	1250315PC	ROTOR, S	2
	1250315PL	ROTOR, L	2
16	1250321	SPRING, INNER ROTOR	64
17	1250320	SPRING, OUTER ROTOR	64
18	1250322	SPRING BUTTON (NOT FOR 60,68)	64
19	1250314PC	VANE, ROTOR, S	32
	1250314PL	VANE, ROTOR, L	32
20	1250406	STATOR, 125 CID	2
	1250401	STATOR, 113 CID	
	1250402	STATOR, 98 CID	
	1250403	STATOR, 82 CID	
	1250404	STATOR, 68 CID	
	1250400	STATOR, 60 CID	
21	1250410	STATOR VANE	12
22	1250420	SPRING, STATOR VANE	24
23	1250440	DOWEL PIN, 5/8 x 2	8
24	1250894	REAR HSG., A, PC, M.I.	1
25	1250817	SEAL PLATE, REAR, BLIND	1
26	1250876	CENTER HOUSING, A, PC	1

PARTS SUBSTITUTED IN 60 & 68 C.I.D. ROTATING GROUPS			
19	1250317PC	ROTOR VANE	16
17	1250323	SPRING, OUTER ROTOR, HD	32
16	1250324	SPRING, INNER ROTOR, HD	32
21	0370410	STATOR VANE	6
27	1250442	WAVE SPRING	12
14	1250619	TIMING PLATE, PC, EXT. SLOT	2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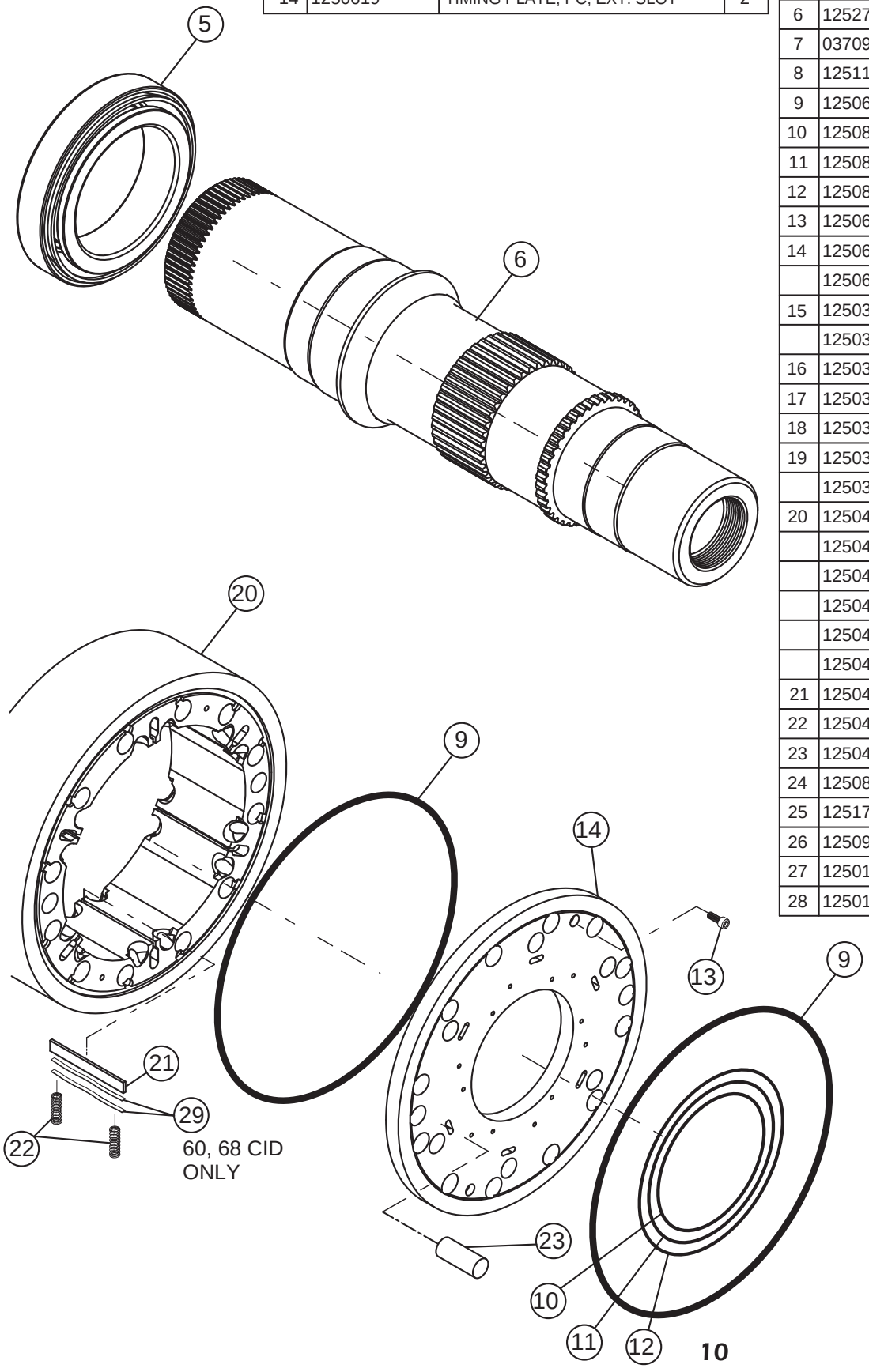
PARTS SUBSTITUTED IN 60 & 68 C.I.D. ROTATING GROUPS			
19	1250317PC	ROTOR VANE	16
17	1250323	SPRING, OUTER ROTOR, HD	32
16	1250324	SPRING, INNER ROTOR, HD	32
21	0370410	STATOR VANE	6
29	1250442	WAVE SPRING	12
14	1250619	TIMING PLATE, PC, EXT. SLOT	2



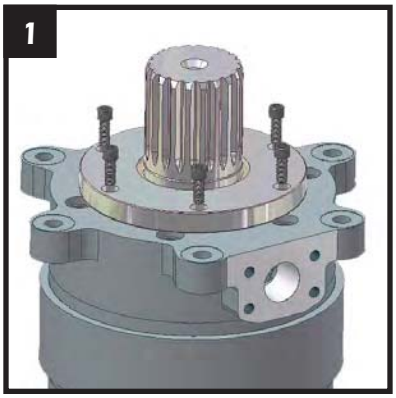
SERIES 125 PC EXPLODED VIEW			
ITEM	PART NO.	DESCRIPTION	QTY
1	1250117	BOLT, SEAL PLATE	18
2	1251154	SEAL PLT, TCN, 4-1/8, TK	1
3	1250114	O-RING, SEAL PLATE	2
4	1250196	SEAL, TCN, 4-1/8	1
5	1251794	BEARING SET	1
6	1252732	SHAFT, TK , DRILL MOTOR	1
7	0370902	BOLT, 5/8-11 x 8", MAIN	12
8	1251158	FRONT HOUSING, A, PC,TK	1
9	1250610	O-RING, MAIN	4
10	1250877	O-RING, THERMAL, INNER	2
11	1250878	O-RING, THERMAL, MIDDLE	2
12	1250879	O-RING, THERMAL, OUTER	2
13	1250620	PLATE SCREW	4
14	1250618	PLATE, TIMING, PC	2
	1250619	PLATE, TIMING, PC (HI SPD)	2
15	1250315PC	ROTOR, S	1
	1250315PL	ROTOR, L	1
16	1250321	SPRING, INNER ROTOR	32
17	1250320	SPRING, OUTER ROTOR	32
18	1250322	SPRING BUTTON (NOT FOR 60,68)	32
19	1250314PC	VANE, ROTOR, S	16
	1250314PL	VANE, ROTOR, L	16
20	1250406	STATOR, 125 CID	1
	1250401	STATOR, 113 CID	
	1250402	STATOR, 98 CID	
	1250403	STATOR, 82 CID	
	1250404	STATOR, 68 CID	
	1250400	STATOR, 60 CID	
21	1250410	STATOR VANE	6
22	1250420	SPRING, STATOR VANE	12
23	1250440	DOWEL PIN, 5/8 x 2	4
24	1250899	REAR HOUSING, A, PC, TK	1
25	1251791	BEARING SET	1
26	1250964	SHIM (FITTED)	VAR
27	1250162	SEAL PLATE, TCN, 3-1/2	1
28	1250187	SEAL, TCN, 3-1/2	1

SUBLOCK COLLAR AVAILABLE
FOR SHAFT - PART #1252711

WARNING: RINEER RECOMMENDS FOLLOWING ALL STANDARD SHOP SAFETY PRACTICES SPECIFICALLY INCLUDING WEARING OF EYE PROTECTION.

Removal of Seal Plate (Front and Rear)

1



Loosen and remove (6) or (12) 3/8-16 seal plate bolts.

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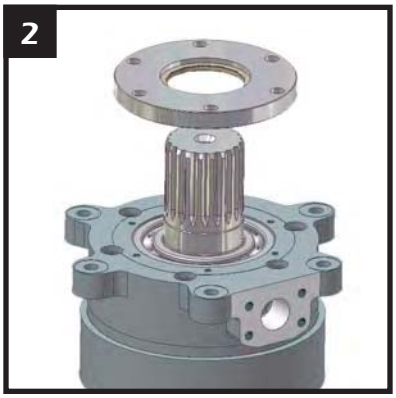


1) Lift up on the seal plate. Protect the shaft seal from being cut by the keyway (keyed shaft) by placing a thin strip of metallic tape over the shaft. Smooth any burrs that may tear or snag the seal.
2) Remove seal plate o-ring from groove in seal plate.

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

3

1) Loosen and remove (6) or (12) 3/8-16 bolts from rear seal plate. If motor has double ended shaft, remove seal plate following same precaution as stated above for front seal.
2) Remove seal plate o-ring from groove in seal plate.

Removal of Shaft and Bearings

4

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

5

Front bearing can be inspected in place on the shaft, or pressed off to be inspected or replaced.

Disassembly of Motor

6

The 125 motors should be positioned as shown in a suitable mount to hold the unit during main bolt removal. To ensure proper orientation during reassembly, use a laquer paint pen or some type of oil/solvent proof marker to mark a line down the side of the motor.

7

Loosen and remove the six 5/8-11 main bolts. Any bolt heads showing heavy corrosion or signs of rounding of the hex form should be replaced.

8

Turn the motor over. Attach some type of plate or bar to the rear housing port pad to secure the motor for removal of remaining 5/8-11 main bolts. Take precautions to ensure that no damage is done to the port face in the area where the o-ring seals.

WARNING: RINEER RECOMMENDS FOLLOWING ALL STANDARD SHOP SAFETY PRACTICES SPECIFICALLY INCLUDING WEARING OF EYE PROTECTION.

9

Remove front housing as shown. Remove o-rings from housing and dowel pins from the rotating group.

10

1) Remove rotating group from rear housing as shown. Place the rotating group on a clean surface for disassembly and inspection.
2) Remove dowel pins and o-rings from the housing.
NOTE: DOUBLE STACK
When disassembling a double stack, the rotating group next to the rear housing has the center plate attached. Remove this rotating group first, then carefully remove front group.

Disassembly of Rotating Group

11

1) Place cartridge on any object which will hold it off the table.

2) Remove two each 10-32 plate screws.

3) Remove timing plate.

12

Using a small screwdriver or pick, remove o-ring and all rotor and stator springs.

Note:
Some series rotating groups may contain additional "wave" springs in the stator vane slot (see inset).

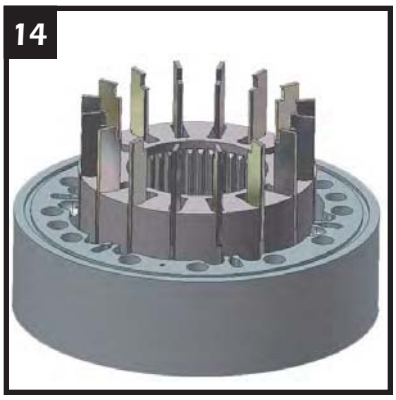
13

1) Replace plate on rotor/stator cartridge.

2) Turn rotor/stator cartridge over.

3) Repeat steps 11 & 12.

14



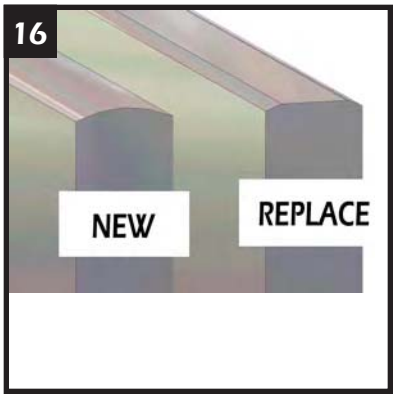
1) Remove the rotor.
2) Remove both the rotor and the stator vanes.
NOTE: On motors manufactured prior to 1987, rotor vane slots and rotor vanes should be numbered so that vanes can be reassembled in the same vane slot.
3) Separate parts and rinse in solvent tank.

Inspection of Parts

15

Inspect all parts and replace any parts which obviously show excessive wear or damage.
We recommend changing all springs and seals whenever the motor has been disassembled.

16



VANES:
Normal wear results in slight flattening of vane tips which does not impair motor performance. Replace vane if radius is reduced by 50%. Clearance between the rotor vane and rotor vane slot varies with the vane selection. The design allows the vane to "lean" slightly in the slot, providing the required mechanical seal.

Assembly of Motor

17

PLATES:
Normal wear results in marking or polishing of the timing plate surface, which does not impair motor performance.
Replacement of the timing plate is required if any smearing, galling, or heat cracks are present.

18

ROTOR: Normal wear results in polishing of rotor faces which does not impair motor performance. Examine the rotor vane slots closely. Polishing down in the slots is normal, but if there is any indication of a "pocket" forming in the wall of the slot, the rotor should be replaced.

19

STATOR: Normal wear results in polishing of cam form which does not impair motor performance. Noticeable wear may be apparent along the corner of one side of the stator vane slot. This does not necessarily require replacement of the stator, but may slightly affect volumetric efficiency.

20

Measure the rotor and stator length to the fourth decimal point and supply measurement when ordering rotor, stator, or vanes.

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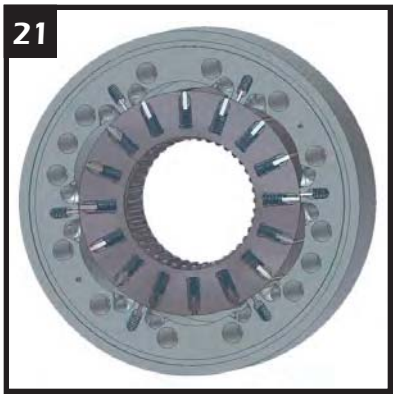
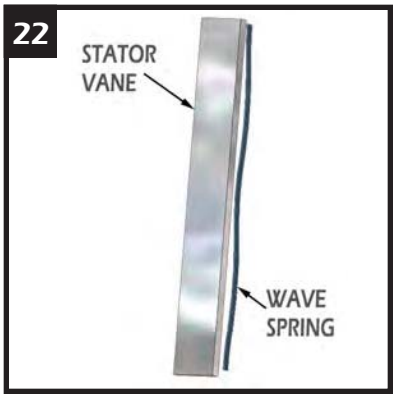


1) Reverse the procedures in steps 13, 12, 11, and 10.
Before installing timing plate onto completed sides of rotating group, pour a small amount of hydraulic oil onto rotor surface.
2) NOTE: Make sure that the radiused edge of each stator vane points to the rotor and the radiused edge of each rotor vane points to the stator.
3) NOTE: Make sure springs are seated in the bottom of the spring pocket in both the rotor and stator.
NOTE: Do not allow the coil of any spring catch on the edge of the rotor or stator vanes.

22



Wave springs in the 125 series do not need to be replaced. Certain model codes do not contain wave springs, while other model codes may contain two per vane. Place the stator vane and wave spring in the stator vane slot simultaneously. Note orientation as shown.
Do not let the coil spring loop catch between the wave spring and vane.

23

Using a medium India honing stone, lightly dress all machine surfaces to remove any raised metal or burrs. Pay particular attention to the front and rear housing machined faces. Rough handling can cause raised surfaces near the O.D. of the housings which will prevent proper seating of the timing plates to the machined surfaces of the housing.
NOTE: The pedestal surface (center of the front and rear housing containing two or three o-rings) is .002-.003 below the outer machined surface. Dress these surfaces independently.

24

Assemble the motor by reversing the previous procedures. Insure that the main body and pedestal o-rings are held in place by using an adequate amount of grease in the o-ring grooves. Line up the housings and rotating group with the paint line made on the motor in step 6.

Motor Assembly Tips

25

Note:
On double stack motors, rotor vane slots must line up.
1) Place both rotors on the spline of the shaft, rotating one rotor until vane slots line up.
2) Mark the end of one spline tooth inside each rotor where they meet with white out. This will allow visual realignment after motor is assembled.
3) When motor is assembled, make sure marks line up before installing shaft. Be careful not to rotate one rotor independently of the other while installing the shaft.

26

Grease the first inch of threads and UNDER the head of the 5/8-11 bolts and insert into motor. Set torque wrench as specified for type of motor to be assembled (see back cover of this manual) and tighten in a star pattern. Install shaft, bearings, and seal plate in reverse order of previous procedures. Rotate shaft to insure no binding is present.

Information:

Bolt Torque -
Single Stack Main Bolts (5/8-11): 200 ft. lbs.
Double Stack Main Bolts (5/8-11): 220 ft. lbs.
4-Port Main Bolts (5/8-11): 200 ft. lbs.
Seal Plate (3/8-16): 45 ft. lbs.

Grease used for bolt threads
and o-ring retention:
Pennzoil 707L RED

Shaft seal assembly lube:
Mobilgrease special
with Moly

Seal Kits:
Standard 125 series seal kit
KT-SE1250948
Standard 125 thru-key seal kit
KT-SE1250947
Standard 125 drill motor seal kit
KT-SE1250947
Standard 125 double stack seal kit
KT-SE1250948DS
Standard 125 4-Port seal kit
KT-SE1250948FP

Note!
The above seal kits are applicable to the motors shown in this repair manual. Any special motor may have seals & O-rings unique to that motor.

125 Series Cross Section