

MAINTENANCE & OPERATING INSTRUCTIONS

For DIXON BAYCO

5300/5400 SERIES API RACK COUPLER Model Numbers

5300	BUNA SEALS, BONDED NOSE SEAL
5300SH.....	BUNA SEALS, BONDED NOSE SEAL, SHORT HANDLE
5300BSH.....	FKM-B SEALS, BONDED NOSE SEAL, SHORT HANDLE
5300GSH.....	FKM GFLT SEALS, BONDED NOSE SEAL, SHORT HANDLE
5300B	FKM-B SEALS, BONDED NOSE SEAL
5300G	FKM GFLT SEALS, BONDED NOSE SEAL
5400.....	BUNA SEALS, REPLACEABLE NOSE SEAL
5400B	FKM-B SEALS, REPLACEABLE NOSE SEAL
5400G.....	FKM GFLT SEALS, REPLACEABLE NOSE SEAL

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The Right Connection®

5300/5400 SERIES API RACK COUPLER

Bill of Materials			Qty of Components per Unit								
Item #	Description	Part #	5300	5300SH	5300B	5300BSH	5300G	5400	5400B	5400G	5300GS H
1	Body	-	1	1	1	1	1	1	1	1	1
2	Body Dust Ring	112173	1	1	1	1	1	1	1	1	1
3	Sleeve Assembly	400684	1	1	1	1	1	1	1	1	1
4	Poppet	Use kit 5354K19	1	1	1	1	1	1	1	1	1
5	Bent Link	112151	2	2	2	2	2	2	2	2	2
6	Bent Link Pin	391141	2	2	2	2	2	2	2	2	2
7	Bent Link Washer	112158	2	2	2	2	2	2	2	2	2
8	Cotter Pin	110721	2	2	2	2	2	2	2	2	2
9	Drive link	112148	1	1	1	1	1	1	1	1	1
10	Interlocking Cam	112147	5	5	5	5	5	5	5	5	5
11	Torsion Spring	112149	6	6	6	6	6	6	6	6	6
12	Nose Piece Dust Ring	112174	1	1	1	1	1	1	1	1	1
13	Nose Piece PTFE U-Seal 350 (Optional)*	391138	N/A	N/A	N/A	N/A	N/A	1	1	1	N/A
14		112164	1	1	1	1	1	1	1	1	1
15A	0-Ring 2-350, Baylast	Use kit 5354K7, 5354K8, 5354K13 or 5354K14	1	1	N/A	N/A	N/A	1	N/A	N/A	N/A
15B	0-Ring 2-350, FKM B	Use kit 5354K9, 5354K10, 5354K15 or 5354K16	N/A	N/A	1	1	N/A	N/A	1	N/A	N/A
15C	0-Ring 2-350, FKM GFLT	Use kit 5354K11, 5354K12, 5354K17 or 5354K18	N/A	N/A	N/A	N/A	1	N/A	N/A	1	1
16A	Replaceable Nose Seal, Buna	Use kit 5354K13 or 5354K14	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A
16B	Replaceable Nose Seal, FKM B	Use kit 5354K15 or 5354K16	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A
16C	Replaceable Nose Seal, FKM GFLT	Use kit 5354K17 or 5354K18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A
16D	Bonded Nose Seal, Buna	Use kit 5354K7 or 5354K8	1	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16E	Bonded Nose Seal, FKM B	Use kit 5354K9 or 5354K10	N/A	N/A	1	1	N/A	N/A	N/A	N/A	N/A
16F	Bonded Nose Seal, FKM GFLT	Use kit 5354K11 or 5354K12	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	1
17	Bearing PTFE U-Seal 220 (Optional)*	341790	1	1	1	1	1	1	1	1	1
18		112163	1	1	1	1	1	1	1	1	1
19A	0-Ring 2-220, Baylast	Use kit 5354K1 or 5354K2	1	1	N/A	N/A	N/A	1	N/A	N/A	N/A
19B	0-Ring 2-220, FKM B	Use kit 5354K3 or 5354K4	N/A	N/A	1	1	N/A	N/A	1	N/A	N/A
19C	0-Ring 2-220, FKM GFLT	Use kit 5354K5 or 5354K6	N/A	N/A	N/A	N/A	1	N/A	N/A	1	1
20	PTFE U-Seal 212 (Optional)*	112162	1	1	1	1	1	1	1	1	1
21A	0-Ring 2-212, Baylast	Use kit 5354K1 or 5354K2	2	2	N/A	N/A	N/A	2	N/A	N/A	N/A
21B	0-Ring 2-212, FKM B	Use kit 5354K3 or 5354K4	N/A	N/A	2	2	N/A	N/A	2	N/A	N/A
21C	0-Ring 2-212, FKM GFLT	Use kit 5354K5 or 5354K6	N/A	N/A	N/A	N/A	2	N/A	N/A	2	2
22	Wave Spring Washer	112172	2	2	2	2	2	2	2	2	2
23	Bail	341788	1	1	1	1	1	1	1	1	1
24	Bail Spring	112150	2	2	2	2	2	2	2	2	2
25	Bail Pin	112175	2	2	2	2	2	2	2	2	2
26	Internal Retaining Ring	112176	2	2	2	2	2	2	2	2	2
27	Release	391139	1	1	1	1	1	1	1	1	1
28	Washer	111562	3	3	3	3	3	3	3	3	3
29	Cotter Pin	111563	3	3	3	3	3	3	3	3	3
30	Shaft	391140	1	1	1	1	1	1	1	1	1
31	Shaft Cotter Pin	112307	1	1	1	1	1	1	1	1	1
32	Spacer	391142	1	1	1	1	1	1	1	1	1
33A	Handle	341789	1	N/A	1	N/A	1	1	1	1	N/A
33B	Short Handle	341823	N/A	1	N/A	1	N/A	N/A	N/A	N/A	1
34	Shaft Outside Washer	112160	1	1	1	1	1	1	1	1	1
35	Shaft Inside Washer	112159	1	1	1	1	1	1	1	1	1
36	Clevis Pin	112500	1	1	1	1	1	1	1	1	1
37	Latch	112240	1	1	1	1	1	1	1	1	1

* Items 14, 18 & 20 are optional PTFE U seals. When the U seals are added to the coupler they isolate the main rubber seals from the liquid being conveyed, thereby increasing the longevity of the rubber seals.

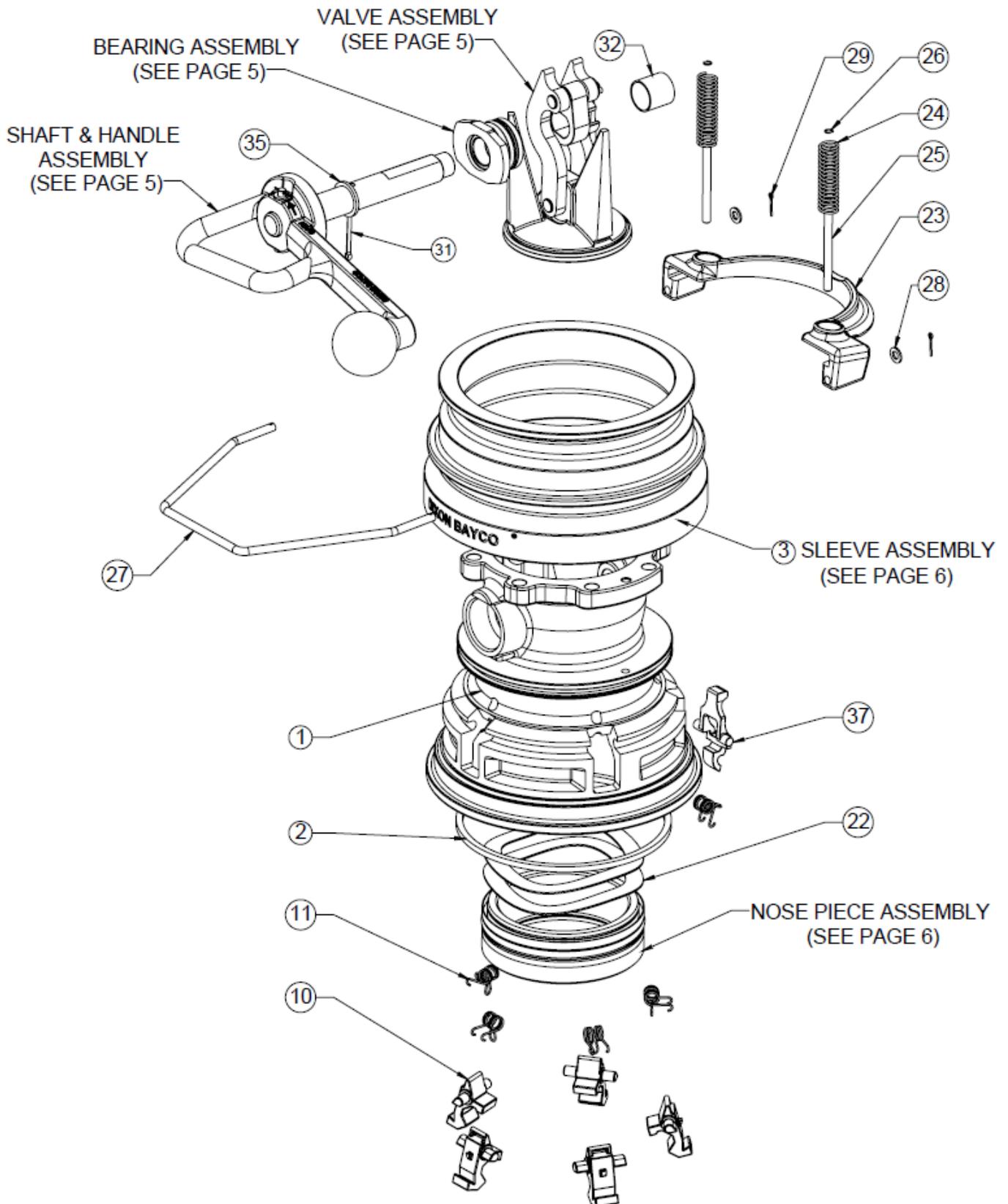
N/A = "Not Applicable"

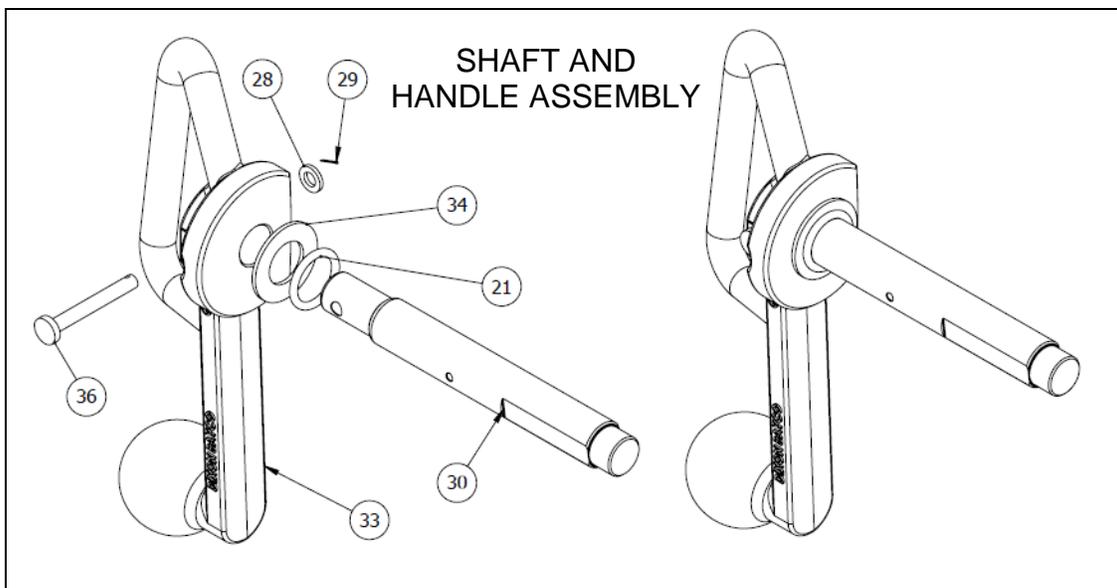
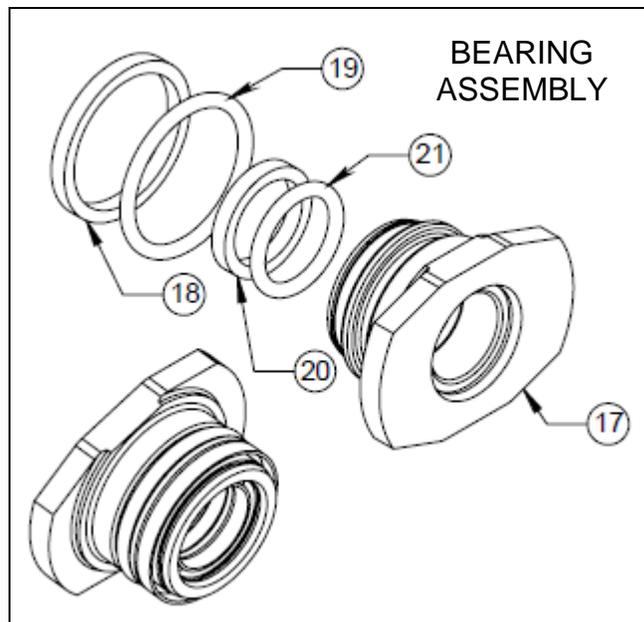
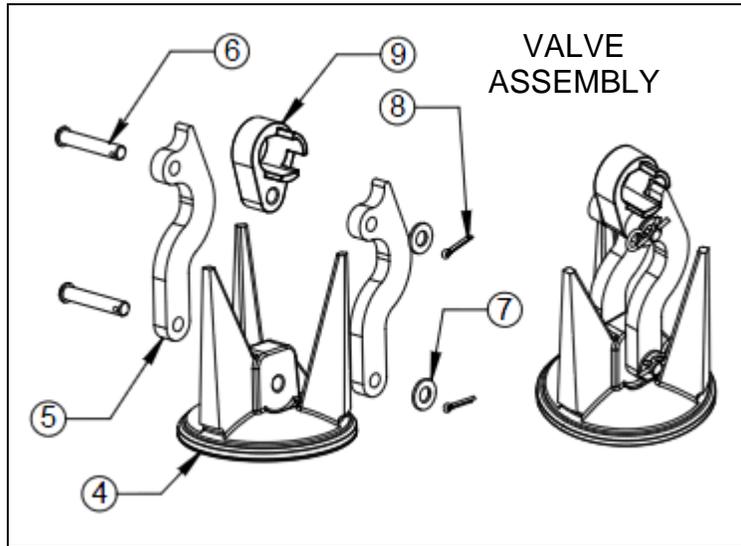
Repair Kits

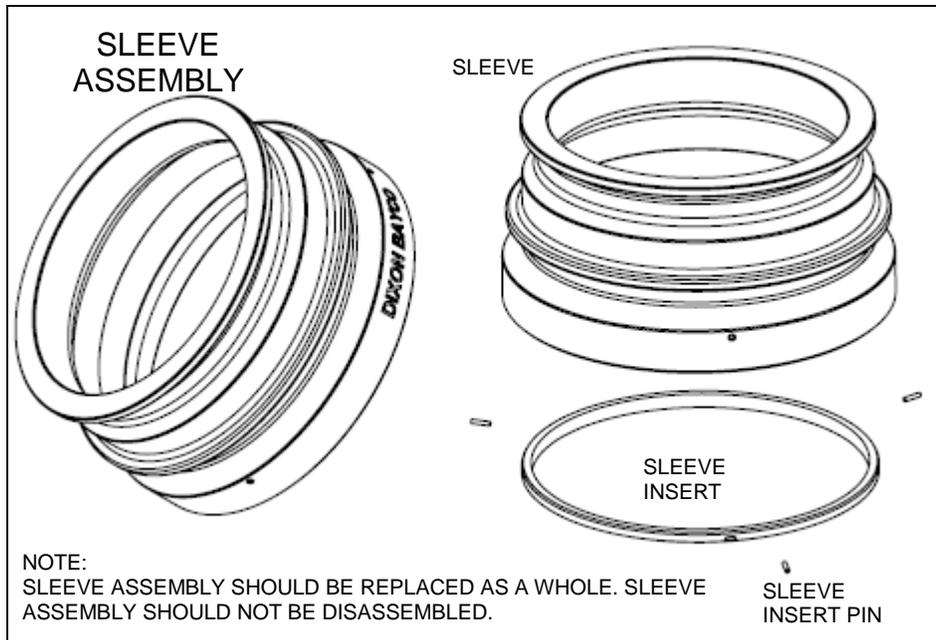
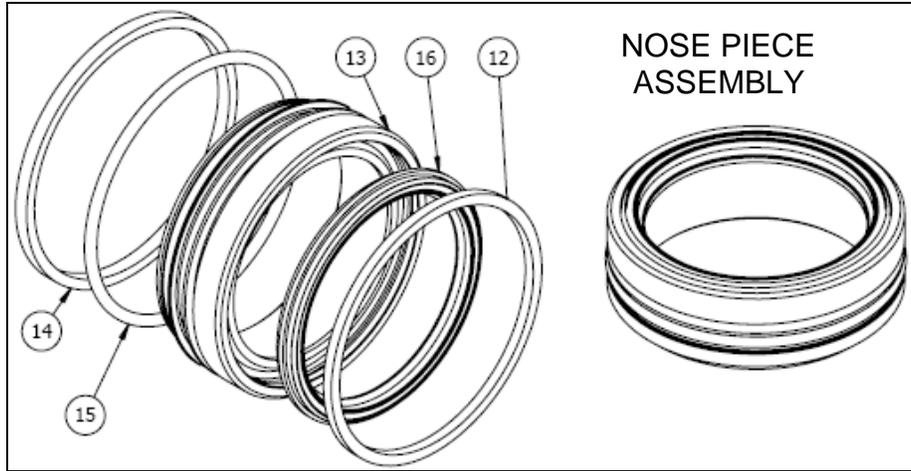
Part #	Description	Includes item #
5354K1	Baylast shaft seal kit: For 5300, 5300SH & 5400	19A, 21A, 31, 34, 35
5354K2	Baylast shaft seal kit with optional PTFE U Seals: For 5300, 5300SH & 5400	18*, 19A, 20*, 21A, 31, 34, 35
5354K3	FKM-B shaft seal kit: For 5300B, 5300BSH & 5400B	19B, 21B, 31, 34, 35
5354K4	FKM-B shaft seal kit with optional PTFE U Seals: For 5300B, 5300BSH & 5400B	18*, 19B, 20*, 21B, 31, 34, 35
5354K5	FKM GFLT shaft seal kit: For 5300G & 5400G, 5300GSH	19C, 21C, 31, 34, 35
5354K6	FKM GFLT shaft seal kit with optional PTFE U Seals: For 5300G & 5400G, 5300GSH	18*, 19C, 20*, 21C, 31, 34, 35
5354K7	Buna bonded nose seal kit: For 5300 & 5300SH	12, 13, 15A, 16D, 28, 29, 31, 36
5354K8	Buna bonded nose seal kit with optional PTFE U seal: For 5300 & 5300SH	12, 13, 14*, 15A, 16D, 31
5354K9	FKM-B bonded nose seal kit: For 5300B & 5300BSH	12, 13, 15B, 16E, 28, 29, 31, 36
5354K10	FKM-B bonded nose seal kit with optional PTFE U seal: For 5300B & 5300BSH	12, 13, 14*, 15B, 16E, 31
5354K11	FKM GFLT bonded nose seal kit: For 5300G, 5300GSH	12, 13, 15C, 16F, 28, 29, 31, 36
5354K12	FKM GFLT bonded nose seal kit with optional PTFE U seal: For 5300G, 5300GSH	12, 13, 14*, 15C, 16F, 31
5354K13	Buna replaceable nose seal kit: For 5400	12, 15A, 16A, 28, 29, 31, 36
5354K14	Buna replaceable nose seal kit with optional PTFE U seal: For 5400	12, 14*, 15A, 16A, 31
5354K15	FKM-B replaceable nose seal kit: For 5400B	12, 15B, 16B, 28, 29, 31, 36
5354K16	FKM-B replaceable nose seal kit with optional PTFE U seal: For 5400B	12, 14*, 15B, 16B, 31
5354K17	FKM GFLT replaceable nose seal kit: For 5400G	12, 15C, 16C, 31
5354K18	FKM GFLT replaceable nose seal kit with optional PTFE U seal: For 5400G	12, 14*, 15C, 16C, 31
5354K19	Valve assembly repair kit: For 5300, 5300SH, 5300B, 5300BSH, 5300G, 5400, 5400B, 5400G, 5300GSH	4, 5, 6, 7, 8, 9, 34, 31, 35
5354K29	Clevis handle repair kit	28, 29, 36

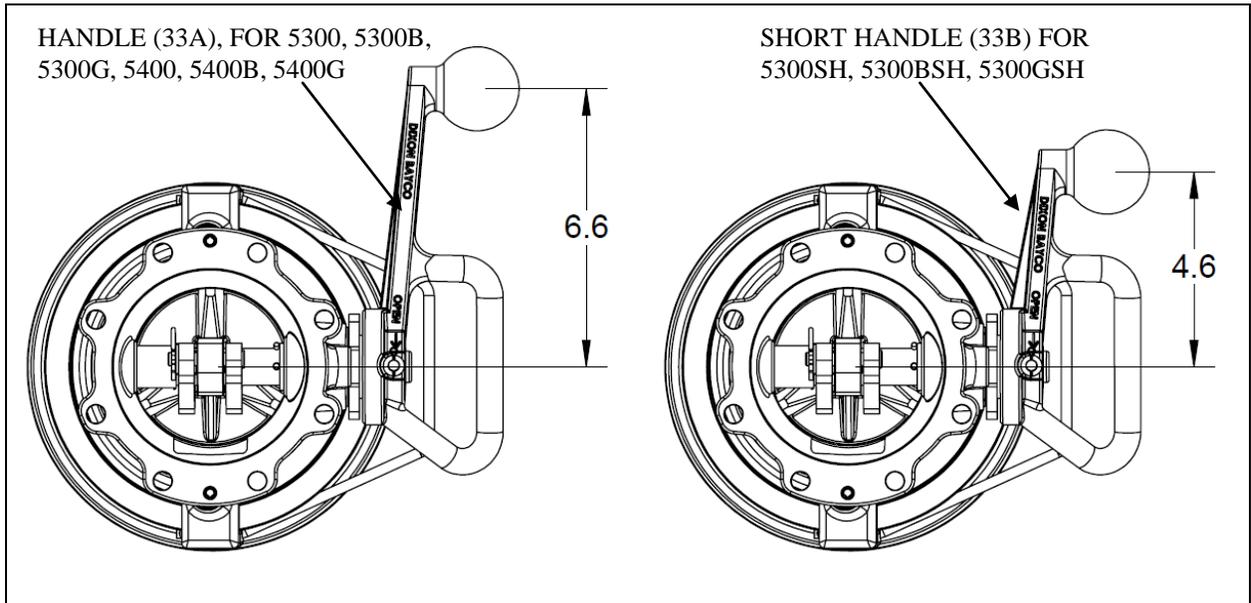
* Items 14, 18 & 20 are optional PTFE U seals. When the U seals are added to the coupler they isolate the main rubber seals from the liquid being conveyed, thereby increasing the longevity of the rubber seals.

API RACK COUPLER – 5300/5300SH/5300B/5300BSH/5300G/5400/5400B/5400G/5300GSH

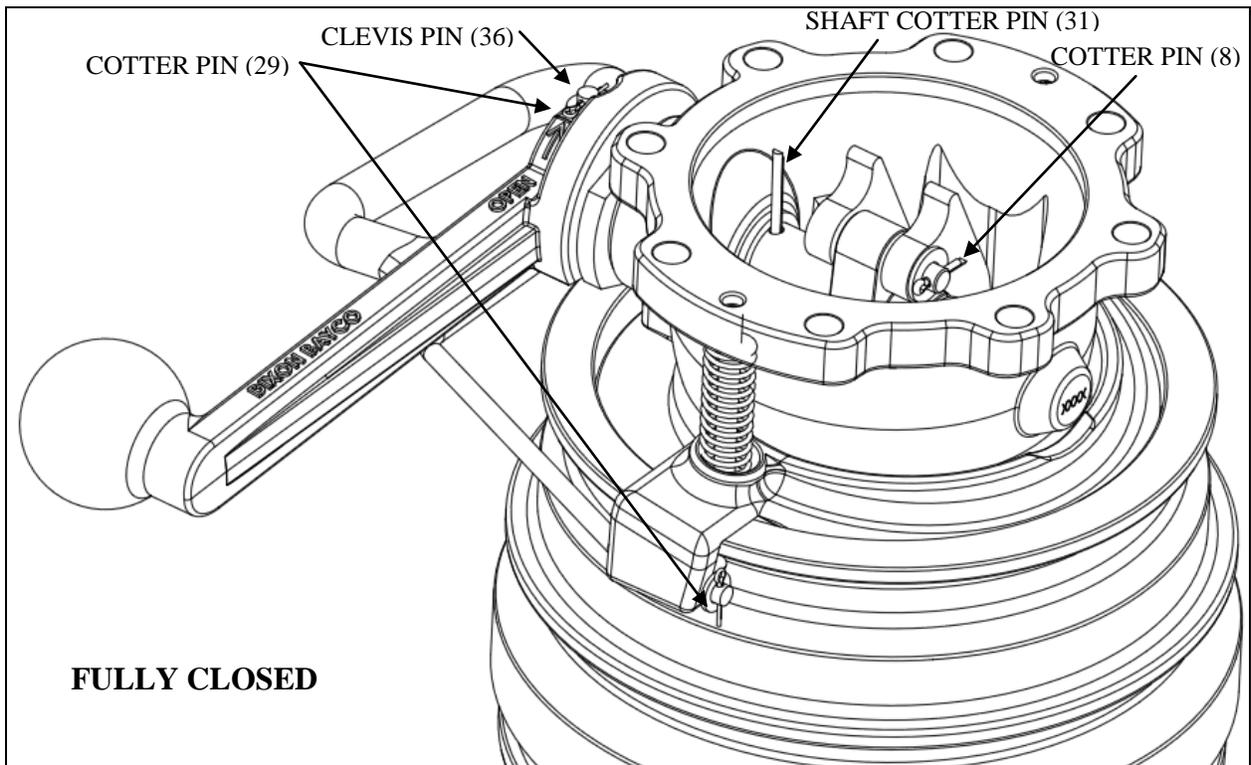








PIN POSITIONS



These instructions and recommendations are provided to ensure proper operation and long service life of the Dixon Bayco API rack coupler. Parts are identified by the item number on the assembly drawing and part list.

SUGGESTED MAINTENANCE SCHEDULE:

1. MONTHLY INSPECTION

Visual inspection of the API rack coupler operation can be done while the API rack coupler is still on the loading arm. All safety precautions that apply to the use of the API rack coupler must be followed.

While the API rack coupler is still on the loading arm, visually examine the API rack coupler for any worn or damaged parts, such as the body (1), sleeve (3), handle (33), bail (23), poppet (4), nose seal (16), interlocking cams (10), latch (37), flange bolts, etc, or any other condition that may affect the operation of the API rack coupler.

Examine the API rack coupler to make sure that the API rack coupler functions well. See Clause 3 in Section **“INSTALL API RACK COUPLER TO LOADING ARM”** for procedures.

Check the handle (33) for free and easy movement of the opening and closing cycle. Operation of the handle (33) normally requires limited effort. If operating the handle (33) involves stronger force, it implies the need to clean and possibly replace the shaft bearing (17) and the shaft (30). When this happens, replace the clevis pin (36) as well.

During service time when the line is filled with liquid product, visually check for evidence of leakage, especially through the shaft seals (18, 19, 20, and 21), nose piece seals (14, 15), nose seal (16) and the flange gasket. Any evidence of leakage means there is a need for further maintenance.

2. YEARLY INSPECTION

For yearly inspection, the API rack coupler should be removed from the loading arm. See Section **“DISMANTLE API RACK COUPLER FROM LOADING ARM”** for procedures of how to dismantle the API rack coupler from the loading arm. See Section **“DISASSEMBLY”** for procedures of how to disassemble the API rack coupler for further maintenance.

It is recommended that all seals (14, 15, 16, 18, 19, 20, and 21) should be inspected every 12 months. Replace any worn or damaged seals. See Section **“REPLACE SEALS”** for procedures.

It is recommended that the valve assembly should be inspected every 12 months. Check the bent links (5), drive link (9) and poppet (4) carefully to make sure that there is no permanent deformation, wear, cracking, or any other damage. Check the bent link pins (6) carefully to make sure there is no permanent deformation such as bending and cracking. Replace any deformed, worn or damaged parts in the valve assembly. See Section **“REPLACE VALVE ASSEMBLY AND PARTS”** for procedures.

Warning: Deformed bent link pins (6), drive link (9) and bent links (5) may cause leakage through poppet (4) seals. Further service of deformed bent link pins (6), drive link (9) and bent links (5) will lead to cracks and breakage, which will cause a complete failure of the API rack coupler.

Visually examine the shaft (30) every 12 months for significant dirt accumulation that could cause shaft seal leakage. Visually examine the shaft (30), shaft inside washer (35), shaft outside washer (34) handle (33) and clevis pin (36) for wear and damage. Replace any worn or damaged parts.

Warning: If the clevis pin (36) breaks, it can cause the poppet to be left in partially open position which may cause spill. Replace the clevis pin (36) when it shows sign of wear or damage.

Visually examine the nose piece assembly every 12 months for significant dirt accumulation that could cause nose piece seal leakage.

Visually examine the body (1), sleeve (3), interlocking cams (10), latch (37) and torsion springs (11) for wear or damage every 12 months. Check the interlocking cam groove on the sleeve (3) for wear and damage. Replace any worn or damaged parts.

Warning: If there is significant wear on the interlocking cam groove of the sleeve (3) or the interlocking cams (10), replace the sleeve (3) or interlocking cams (10) immediately. Failure to replace worn sleeve (3) and interlocking cams (10) can cause failure of interlock, which will result in failure of the API rack coupler.

3. SEAL REPLACEMENT

It is recommended that seals should be replaced with appropriate API rack coupler seal kit every 2 years, or at the first evidence of leakage. See Section “**REPLACE SEALS**” for procedures.

4. OVERHAUL

It is recommended that a complete overhaul of the API rack coupler should be performed every 4 years, or at the first evidence of leakage. Complete overhaul would involve seal inspection and replacement, valve assembly inspection, inspection of body (1), sleeve (3), shaft (30), interlocking cams (10), latch (37) and springs (11, 24). Replace any worn or damaged parts immediately. See corresponding sections for procedures.

CAUTION! WHEN THE API RACK COUPLER POPPET (4) IS UNDER PRESSURE, THE HANDLE (33) OF THE API RACK COUPLER MAY ROTATE VIOLENTLY. PERSONAL INJURIES MAY RESULT IF THIS PRECAUTION IS NOT TAKEN.

INSTALL API RACK COUPLER TO LOADING ARM:

Warning: Read and understand this instruction manual before starting installation.

1. Check the API rack coupler to make sure that there is no damage.
2. Secure the loading arm. Align the TTMA 4” flange of the API rack coupler to the loading arm end flange with TTMA 4” gasket. Insert two bolts into the top bolt holes on the flanges and hand tighten the bolts first. Install the remaining six bolts and tighten all the bolts.
3. Make sure that all other devices for the loading arm are properly installed and ready for use. Make sure that there is no liquid product in the line. Snap the API rack coupler onto an API adapter. Check the followings:
 - Make sure that the nose ring of API adapter is locked by the five interlocking cams (10) of the API rack coupler.
 - Make sure that the sleeve (3) moves fully forward to the outlet of the API rack coupler.

- If the sleeve (3) is in place, check the interlock by pulling back the API rack coupler or bending the API rack coupler sideways without triggering the release (27). The API rack coupler should be locked tightly.
- If the API rack coupler is locked tightly, fully rotate the handle (33) to the open position. Make sure that the handle (33) can rotate freely and the poppet (4) of the API rack coupler can push the poppet of the API adapter to the open position.
- When the poppet (4) of the API rack coupler is in the open position, try to trigger the release (27) to make sure that the sleeve (3) is locked by the interlocking cam surface of the handle (33).
- Rotate the handle (33) to fully closed position. Trigger the release (27). The sleeve (3) should move back and five interlocking cams (10) should unlock the nose ring of the API adapter. The API rack coupler should be able to be removed from the API adapter.
- If there are problems with any of the above, see the following section to dismantle the API rack coupler from the API adapter and remove the API rack coupler from the loading arm. See Section “**DISASSEMBLY**” for further instructions of how to disassemble the API rack coupler to inspect individual parts. Contact the factory if it is a new API rack coupler.

DISMANTLE API RACK COUPLER FROM LOADING ARM:

Warning: Read and understand this instruction manual before starting installation. Make sure that there is adequate personal protection all the time when dismantling the API rack coupler from the loading arm.

1. Shut off all working devices. Drain the loading arm. Dismantle the API rack coupler when it is clean and dry.
2. Secure the loading arm from movement and support the API rack coupler. Make sure that the API rack coupler is fully closed.
3. Loosen the bolts on the TTMA flange of the API rack coupler. Leave the two top bolts on and remove the remaining six bolts first. And then remove the two top bolts.
4. Remove the API rack coupler from the loading arm. Remove the TTMA gasket between the flanges.

REPLACE VALVE ASSEMBLY AND PARTS:

Note: Valve assembly (poppet assembly) and parts can only be replaced when the API rack coupler is off the rack. The design of the Dixon Bayco API rack coupler shaft (30) makes it easy to remove the valve assembly from the API rack coupler as a whole. This makes it easy to replace the whole valve assembly or any individual part of the valve assembly. There is **NO** need to remove the bent link pin (6) from the bent links (5) while the valve assembly is still in the API rack coupler.

Warning: Carefully handle the poppet (4) without damaging the sealing surface when replacing valve assembly or parts. Even the smallest scratches on the sealing surface can cause leakage.

1. When the API rack coupler is off the rack, **DO NOT** remove the handle cotter pin (29), washer (28) and clevis pin (36) from the shaft (30). When the API rack coupler is closed, remove the shaft cotter pin (31) from the shaft (30) by using pliers.
2. Defeat the interlock manually or use an API adapter nose ring so the sleeve (3) can move fully forward to the outlet of the API rack coupler.
3. Turn the handle (33) to open the API rack coupler.

4. Pull out the shaft and handle assembly with the shaft outside washer (34) and dust O-ring (21). The valve assembly will fall free of the shaft (30). The spacer (32) and the shaft inside washer (35) will also fall free of the shaft (30).
5. Inspect all parts of the valve assembly. Replace any damaged parts in the valve assembly. When reassembling the valve assembly, make sure the bent links (5) and the drive link (9) are assembled in the same orientation as shown in the valve assembly figure.
6. Assemble the shaft and handle assembly to the body (1) through the bearing (17). Assemble the shaft inside washer (35), the drive link (9) and the spacer (32) before pushing the other end of the shaft (30) into the shaft (30) end pocket on the body (1). Pay attention to the orientation of the valve assembly.
7. Rotate the handle (33) to fully closed position. Rotate handle back 1 turn & install the shaft cotter pin (31) onto the shaft (30).
8. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

REPLACE SEALS:

Warning: Carefully remove and install parts without damaging any sealing surfaces when replacing seals. Even the smallest scratches on the O-ring groove or other sealing surface will cause leakage.

Note: Remove any burrs and sharp edges that could damage the seals during reassembly.

There are different ways that seals can be replaced in the API rack coupler.

Replace shaft seals in stuffing box while API rack coupler is still on the rack

Note: This is a standard feature of Dixon Bayco the API rack coupler. Shaft seals (18, 19, 20, and 21) can always be replaced while the API rack coupler is still on the rack.

1. Shut off all working devices. Drain the loading arm. Only replace the API rack coupler shaft seals when the API rack coupler is clean and dry.
2. Defeat the interlock manually or use an API adapter nose ring so the sleeve (3) can move fully forward to the outlet of the API rack coupler.
3. Turn the handle (33) to open the API rack coupler.
4. Remove the handle cotter pin (29), the washer (28) and the clevis pin (36).
5. Remove the handle (33), the shaft outside washer (34), the dust O-ring (21) from the shaft (30) end.
6. Remove the bearing assembly from the stuffing box by pulling it out with your hands. When pulling the bearing assembly, loosen the bearing assembly by twisting the flange of the bearing (17). If needed, use flat screw drivers from the back of the flange of the bearing (17) to loosen the bearing assembly. Make sure not to damage the body (1).
7. Remove the O-rings (19, 21) and the u-seals (18, 20, optional) from the bearing assembly, inspect for any wear or damage. Make sure not to damage the bearing (17) or scratch sealing surfaces.
 - If the bearing (17) is good, thoroughly clean the bearing (17) to remove any debris, oil and grease. Lubricate NEW O-rings (21 for inside groove and 19 for outside groove). Install the new O-rings (19, 21) into the grooves. If u-seals (18, 20) are ordered, lubricate NEW u-seals (20 for inside groove and 18 for outside groove). Install the new u-seals (18, 20) into the grooves. Handle the u-seals (18, 20) carefully and make sure not to damage the u-seals (18, 20).

- If the bearing (17) is already damaged or has scratches on the sealing surfaces, replace the bearing assembly with a NEW bearing assembly, which includes the bearing (17), the inside O-ring (21), the outside O-ring (19), the inside u-seal (20, optional) and the outside u-seal (18, optional).
8. Apply grease on the bearing (17) and install the bearing assembly into the stuffing box by pushing with your hands through the shaft (30) end.
 9. Assemble the **NEW** dust O-ring (21), the **NEW** shaft outside washer (34) and the handle (33). Replace the handle (33) if it is damaged.
 10. Assemble the clevis pin (36), the washer (28) and the handle cotter pin (29). Replace with a new part if any of these are worn or damaged.
 11. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

Replace nose seal while API rack coupler is on the rack

Note: While the API rack coupler is still on the rack, nose seal (16) can be replaced only if the API rack coupler has a replaceable nose seal (16) option.

1. Shut off all working devices. Drain the loading arm. Only replace the API rack coupler nose seal (16) when the API rack coupler is clean and dry.
2. While the API rack coupler is closed, defeat the interlock manually so the sleeve (3) can move fully forward to the outlet of the API rack coupler. Rotate the handle (33) to fully open position so the poppet (4) is in the open position.
3. Remove the replaceable nose seal (16) by using your hands or any rubber seal removal device. Inspect the seal groove on the nose piece (13) for any wear and damage. Make sure not to damage the nose piece (13). If there is damage on the nose piece (13) or scratches on sealing surfaces of the nose piece (13), replace the nose piece assembly. See Section “**Replace the seals on the nose piece while API rack coupler is off the rack**” for procedures of how to replace the nose piece assembly.
4. Replace the nose seal (16) with a **NEW** replaceable nose seal (16).
5. Rotate the handle (33) to fully closed position. Make sure the sleeve (3) moves fully backward.
6. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

Replace shaft seals in stuffing box while API rack coupler is off the rack

Note: Shaft seals (18, 19, 20, and 21) can always be replaced while the API rack coupler is still on the rack. While the API rack coupler is off the rack, shaft seals (18, 19, 20, and 21) can be replaced in the same way while the API rack coupler is on the rack. See Section “**Replace shaft seals in stuffing box while API rack coupler is still on the rack**” for procedures. While the API rack coupler is off the rack, shaft seals (18, 19, 20, and 21) can also be replaced using the method described here.

1. When the API rack coupler is off the rack, **DO NOT** remove the handle cotter pin (29), the washer (28) and the clevis pin (36) from the shaft (30). When the API rack coupler is closed, remove the shaft cotter pin (31) from the shaft (30) by using pliers.
2. Defeat the interlock manually or use an API adapter nose ring so the sleeve (3) can move fully forward to the outlet of API rack coupler.
3. Turn the handle (33) to open the API rack coupler.
4. Pull out the shaft and handle assembly with the shaft outside washer (34) and dust O-ring (21). The valve assembly will fall free of the shaft (30). The spacer (32) and the shaft inside washer (35) will also fall free of the shaft (30).

5. Remove the bearing assembly from the stuffing box by pulling it out with your hands. When pulling the bearing assembly, loosen the bearing assembly by twisting the flange of the bearing (17). If needed, use flat screw drivers from the back of the flange of the bearing (17) to loosen the bearing assembly. Make sure not to damage the body (1).
6. Remove the O-rings (19, 21) and the u-seals (18, 20, optional) from the bearing assembly and make sure not to damage the bearing (17) or scratch sealing surfaces.
 - If the bearing (17) is good, thoroughly clean the bearing (17) to remove any debris, oil and grease. Lubricate NEW O-rings (21 for inside groove and 19 for outside groove). Install the new O-rings (19, 21) into the grooves. If u-seals (18, 20) are ordered, lubricate NEW u-seals (20 for inside groove and 18 for outside groove). Install the new u-seals (18, 20) into the grooves. Handle the u-seals (18, 20) carefully and make sure not to damage the u-seals (18, 20).
 - If the bearing (17) is already damaged or has scratches on the sealing surfaces, replace the bearing assembly with a NEW bearing assembly, which includes the bearing (17), the inside O-ring (21), the outside O-ring (19), the inside u-seal (20, optional) and the outside u-seal (18, optional).
7. Apply grease on the bearing (17) and install the bearing assembly into the stuffing box by pushing with your hands.
8. Replace the shaft outside washer (34) and dust O-ring (21) with **NEW** ones on the shaft (30).
9. Assemble the shaft and handle assembly with the shaft outside washer (34) and dust O-ring (21) to the body (1) through the bearing (17). Assemble the shaft inside washer (35), the drive link (9) and the spacer (32) before pushing the other end of the shaft (30) into the shaft (30) end pocket on the body (1). Pay attention to the orientation of the valve assembly.
10. Rotate the handle (33) to fully closed position. Install the shaft cotter pin (31) onto the shaft (30).
11. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

Replace the seals on the nose piece while API rack coupler is off the rack

Note: Nose piece seals, including O-ring (15), nose piece dust ring (12) and optional u-seal (14), can only be replaced when the API rack coupler is off the rack. Bonded nose seal (16) can only be replaced by replacing the nose piece assembly if the API rack coupler has a bonded nose seal (16) option. Nose seal (16) can be replaced when the API rack coupler is still on the rack, if the API rack coupler has a replaceable nose seal (16) option. See Section “**Replace nose seal while API rack coupler is on the rack**” for procedures.

1. When the API rack coupler is off the rack, **DO NOT** remove the handle cotter pin (29), the washer (28) and the clevis pin (36) from the shaft (30). When the API rack coupler is closed, remove the shaft cotter pin (31) from the shaft (30) by using pliers.
2. Defeat the interlock manually or use an API adapter nose ring so the sleeve (3) can move fully forward to the outlet of the API rack coupler.
3. Turn the handle (33) to open the API rack coupler.
4. Pull out the shaft and handle assembly with the shaft outside washer (34) and dust O-ring (21). The valve assembly will fall free of the shaft (30). The spacer (32) and the shaft inside washer (35) will also fall free of the shaft (30).
5. Remove the nose piece assembly, which includes the nose piece (13), nose seal (16), O-ring (15), nose piece dust ring (12), u-seal (14, optional). Remove the wave spring washers (22).
 - If the API rack coupler is equipped with bonded nose seal (16), simply replace the whole nose piece assembly with a new one.

- If the API rack coupler is equipped with replaceable nose seal (16),
 - (1) Remove nose seal (16), O-ring (15), nose piece dust ring (12) and u-seal (14, if applicable) from the nose piece (13).
 - (2) Inspect the nose piece (13) and make sure the nose piece (13) is not damaged. Clean seal surfaces carefully.
 - (3) Replace nose seal (16), O-ring (15), nose piece dust ring (12) and u-seal (14, if applicable) with new ones.
- 6. Assemble the wave spring washers (22) and nose piece assembly.
- 7. Assemble the shaft and handle assembly with the shaft outside washer (34) and dust O-ring (21) to the body (1) through the bearing (17). Assemble the shaft inside washer (35), the drive link (9) and the spacer (32) before pushing the other end of the shaft (30) into the shaft (30) end pocket on the body (1). Pay attention to the orientation of the valve assembly.
- 8. Rotate the handle (33) to the fully closed position. Install the shaft cotter pin (31) onto the shaft (30).
- 9. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

DISASSEMBLY:

Warning: Carefully remove parts without damaging any sealing surfaces when disassembling the API rack coupler. Even the smallest scratches on the O-ring grooves or other sealing surfaces will cause leakage.

1. When the API rack coupler is off the rack and fully closed, remove the shaft cotter pin (31) from the shaft (30) by using pliers.
2. Defeat the interlock manually or use an API adapter nose ring so the sleeve (3) can move fully forward to the outlet of the API rack coupler.
3. Turn the handle (33) to fully open the API rack coupler. Pull out the shaft and handle assembly with shaft outside washer (34) and dust O-ring (21). The valve assembly will fall free of the shaft (30). The spacer (32) and the shaft inside washer (35) will also fall free of the shaft (30).
 - To completely disassemble the shaft and handle assembly, remove the handle cotter pin (29), the washer (28) and the clevis pin (36). Remove the handle (33), the shaft outside washer (34), the dust O-ring (21) from the shaft (30) end.
 - To completely disassemble the valve assembly, remove the bent link cotter pins (8), bent link washers (7) and bent link pins (6).
4. Remove the bearing assembly from the stuffing box simply by pulling it out with your hands. If needed, use flat screw drivers from the back of the flange of the bearing (17) to help the bearing assembly out.
 - To completely disassemble the bearing assembly, remove O-rings (19, 21) and u-seals (18, 20, optional) from the bearing (17).
5. Remove cotter pins (29) and washers (28) from the release (27) ends. Remove the release (27) from the bail (23).
6. Remove the retaining rings from the bail pins (25) by screw drivers or pointers.
7. Turn the API rack coupler upside down and the bail pins (25) will fall out. If the bail pins (25) do not fall out, move the bail springs (24) until the bail pins (25) fall out.
8. Remove the bail springs (24) and the bail (23).
9. Remove the sleeve (3) from the body (1) by pulling the sleeve (3) to the inlet of the body (1).
10. Remove the five interlocking cams (10) from the body (1). Remove the latch (37) from the body. Remove the six torsion springs (11) from the body (1). Remove the body dust ring (2) from the body (1).

11. Remove the nose piece assembly. If needed, use a screw driver and a hammer to push the wave spring washers (22) from the body (1) inlet to help the nose piece assembly out. Remove the wave spring washers (22).

Warning: Use the screw driver and hammer to push the wave spring washers (22) only. Do not use the screw driver and hammer to push the nose piece (13) out from the inlet of the body (1). This will damage the nose piece (13) surface.

- To completely disassemble the nose piece assembly, remove the O-ring (15), nose piece dust ring (12) and u-seal (14, optional) from the nose piece (13). For replaceable nose piece assembly, remove the nose seal (16) from the nose piece (13).

ASSEMBLY:

1. Assemble the bearing assembly if it is disassembled. See Section “**Replace shaft seals in stuffing box while API rack coupler is still on the rack**” for procedures of how to assemble the bearing assembly.
2. Assemble the valve assembly if it is disassembled. See Section “**REPLACE VALVE ASSEMBLY AND PARTS**” for procedures of how to assemble the valve assembly.
3. Assemble the nose piece assembly if it is disassembled. See Section “**Replace the seals on the nose piece while API rack coupler is off the rack**” for procedures of how to assemble the nose piece assembly.
4. Assemble the shaft and handle assembly if it is disassembled. Install the dust O-ring (21), shaft outside washer (34), handle (33), clevis pin (36), washer (28) and handle cotter pin (29) to the shaft (30).
5. Install the body dust ring (2) to the body dust groove.
6. Install the torsion springs (11), the latch (37) and the interlocking cams (10) to the body (1).
7. Install the wave spring washers (22) and the nose piece assembly to the body (1).
8. Install the sleeve (3) to the body (1). Push in the five interlocking cams (10) manually so the sleeve (3) can move fully forward to the outlet of the API rack coupler. Use nose ring of API adapter or ask others for assistance.
9. Install the bearing assembly into the stuffing box by pushing with your hands.
10. Install the shaft and handle assembly to the body (1) through the bearing (17). Assemble the shaft inside washer (35), the drive link (9) of the valve assembly and the spacer (32) before pushing the other end of the shaft (30) into the shaft (30) end pocket on the body (1). Pay attention to the orientation of the valve assembly.
11. Rotate the handle (33) to fully closed position. Install the shaft cotter pin (31) onto the shaft (30).
12. Install the bail (23), bail springs (24), bail pins (25) and internal retaining rings (26) to the body (1).
13. Install the release (27) to the bail (23). Install the washers (28) and cotter pins (29) to the ends of release (27).
14. Rotate the handle (33) to the open position and closed position several times to verify proper operation.
15. When the handle (33) is in the closed position, trigger the release (27) so the sleeve (3) can move fully backward to lock the handle (33). The API rack coupler should not be able to be opened by rotating the handle (33).
16. Check the API rack coupler with an API adapter to make sure all components are assembled properly.

Warning: If the sleeve subassembly (3) and interlocking cams (10) are disassembled and replaced, try coupling and uncoupling the API rack coupler to an API adapter nose ring a few times making sure the locking mechanism functions well before putting the API rack coupler back onto the loading arm.

DIXON WARRANTY:

For Warranty Information, please refer to the inside back cover of the latest Dixon Catalogue.