



Rotating Element Installation

Take care not to damage any components and avoid contamination (dirt, debris, moisture, etc.) of the unit. Peerless does not recommend reusing gaskets, O-rings, packing rings, or ball bearings.

NOTE: Shaft sleeve set screws do not ship tight or with Loctite applied. Ensure step #7 is completed before startup.

1. Remove upper casing, bearing caps, and casing gasket to prepare for installation of new rotating assembly.
2. Ensure outboard deflector (40B) and coupling key (46) are installed.
3. Affix the new casing gasket (73A) to the lower casing (1A) with lubricant. It is very important that the specified material and thickness are used for casing gasket. Machined surfaces of both casings must be perfectly clean and free from burrs or nicks.
4. For the 12AEF21, follow step a before step b, for all other models follow step b only: a. If the bearings bracket has been removed, install it before setting the rotating element into the lower casing. b. Use slings around the shaft near the bearings to set the rotating element into the lower casing. Verify the rotation of the assembly is correct.
5. Position the casing rings (7) and both bearing housings so that all dowel pins engage in slots in the lower case split surface.
6. Assemble both bearing caps per match marks, and tighten the cap screws.
- 7. Adjust the shaft sleeves (14 and 14A) to center the impeller in the lower casing, and tighten both shaft sleeves with a spanner wrench, then add Loctite 242 (provided with replacement assembly) to the shaft sleeve set screws. Tighten the set screws to a minimum torque of 12 ft-lbs. Apply a 360° bead of thread locker to the first few threads, leaving the first thread-free.**
8. Cover the top side of the casing gasket with a lubricant.
9. Install the gland bolts (17B). Carefully locate the upper casing on the lower casing, making certain the dowel pins engage.

10. Install cap screws and tighten working from the center of the casing to each end, to the torque values in IOM section 8.2.4 Tightening torques. If any cap screws require replacement, use only parts with equal or greater tensile strength. See 8.2.4 Tightening torques.

11. Rotate shaft by hand to check that it turns freely.
12. Push the stuffing box bushings (63) to the rear of the stuffing boxes.
13. Clean the stuffing box to prepare for packing ring installation.
14. Install packing rings and stagger the joints 90° apart. The rings should butt tightly, but not overlap at the joints. When a lantern ring is required, make sure that sufficient packing is inserted below the lantern ring so that the bypass line intersects the packing container bore adjacent to the lantern ring and is not blocked by the packing.
15. Tamp down the individual packing rings, but not too tightly, as this may result in burning the packing and scoring the shaft or shaft sleeve. Insert two packing rings, lantern ring (29), if required, and three packing rings.
16. Replace the water seal piping. The pipe supplying sealing liquid should be fitted tightly so that no air enters. If the pumped liquid is dirty or gritty, clean sealing liquid should be piped to the stuffing box in order to prevent damage to the packing and shaft sleeves. Clear sealing liquid is also required if the stuffing box materials are not completely compatible with the pumped liquid. The sealing liquid should be at a pressure sufficient to ensure a flow of clean liquid into the pump, but not so high as to require excessive tightening of the packing.
17. Insert the packing glands (17), and set the gland bolt nuts finger tight. The stuffing box gland must not be too tight during startup in order to let sufficient liquid lubricate the shaft and the packing.
18. Rotate shaft by hand to check that it turns freely.
19. Replace all drain plugs if removed during disassembly.
20. Re-lubricate the bearings. See section 4.1 Lubricating the pump.
21. Make sure that the pump shaft spins freely.



9. Parts list and sectional drawings

9.1 AEF

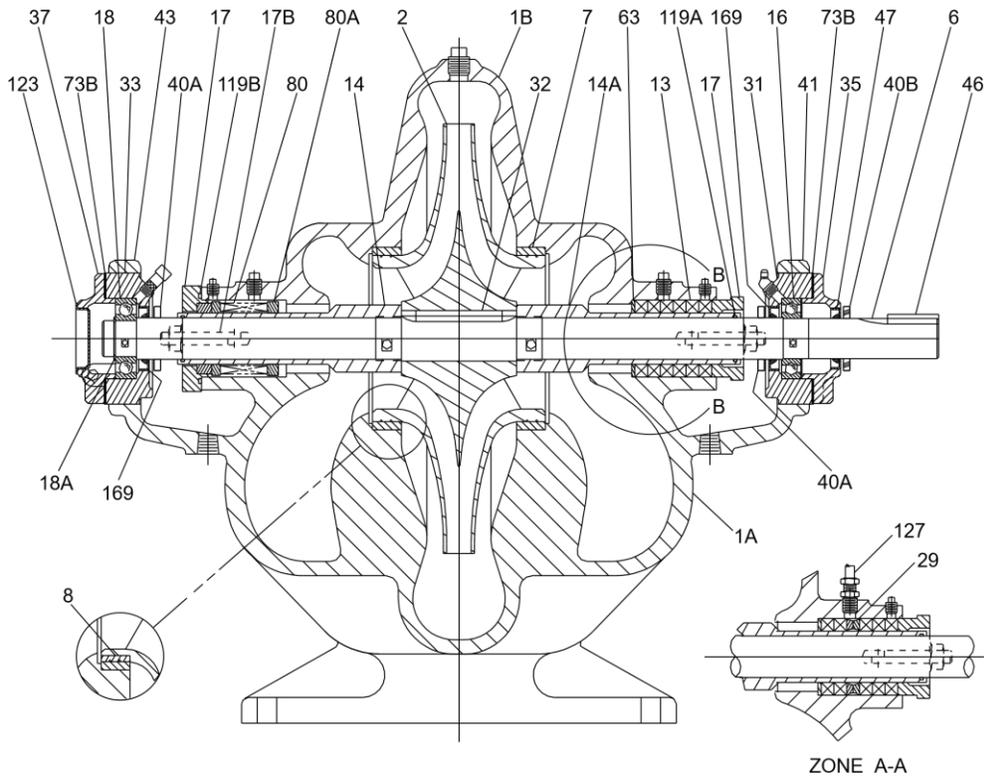


Fig. AEF, packed type

Item No.	Description	Item No.	Description
1A, 1B	Upper and lower casing	33	Outboard bearing housing
2	Impeller	35	Inboard bearing housing cover
6	Shaft	37	Outboard bearing housing cover
7	Casing wear ring	40A	Inboard deflector
8	Impeller wear ring (optional)	40B	Outboard deflector
13	Packing ring	41	Cap, bearing, inboard
14, 14A	Shaft sleeve RH LH	43	Cap, bearing, outboard
14B	Shaft sleeve O-ring	46	Coupling key
16	Inboard ball bearing	47	Inboard bearing cover seal
17	Packing gland	63	Stuffing box bushing
17B	Gland bolt	73A	Volute gasket (not shown)

TM072349



18	Outboard ball bearing	73B	Bearing cover gasket
18A	Bearing lock washer	123	Bearing end cover
29	Lantern ring (optional)	127	Water seal piping
31	Inboard bearing housing	169	Bearing housing seal
32	Impeller key		



4. Preparing the pump for startup

4.1 Lubricating the pump

Before attempting to start the pump, check the following items:

- lubrication fitting at packing, if applicable
- lubrication for pump bearing
- lubrication of the driver
- oil-cooling connections for the driver, if applicable
- coupling, refer to the manufacturer's instructions.

Good practice includes the following:

- Keep lubricant clean, and use a dust-tight cover on the storage container.
- Use the oldest lubricant first.
- Clean the pump lubricant fittings before re-lubricating with grease.
- Use clean dispensing equipment.
- Remove 0.25 in (6.4 mm) of drain pipe plug on the bottom outside of the bearing housing cover. Inject clean, new grease forcing out the old grease through the drain opening.
- Start and run the pump for a short time to eject any excess grease. Reinstall 0.25 in (6.4 mm) of pipe plug. Wipe off any ejected grease.
- Use the proper amount of lubricant. Too much lubricant results in churning, unnecessary power consumption, rapid heating to a high temperature and inadequate lubrication.

! Normal bearing temperatures vary with the seasons and environment and may range from 0 to 250 °F (-18 to 121 °C). A continuous rise from the established, normal operating temperature indicates trouble and probable failure of the bearing. Shut down the pump immediately.

8.2.4 Tightening torques

Proper tightening of fasteners is very important. The torque values depend on the size and grade of the fasteners used. The values in the table below apply to non-lubricated parts.

Fastener size	Torque [lb-ft (Nm)]	Torque [lb-ft (Nm)]
	Medium carbon steel	Medium carbon alloy steel
	SAE J429 Grade 5	SAE J429 Grade 8
	105-120,000 psi Tensile	150,000 psi Tensile
1/4-20	8 (10.8)	9 (12.2)
3/8-16	25 (33.9)	34 (46.1)
1/2-13	62 (84)	83 (112.5)
5/8-11	125 (169.5)	166 (225.1)
3/4-10	225 (305)	295 (400)
7/8-9	325 (441)	477 (646.7)
1-8	465 (630.5)	715 (969.4)

When assembling a pump, cross-tighten the screws in order to avoid misalignment, binding and leakage.

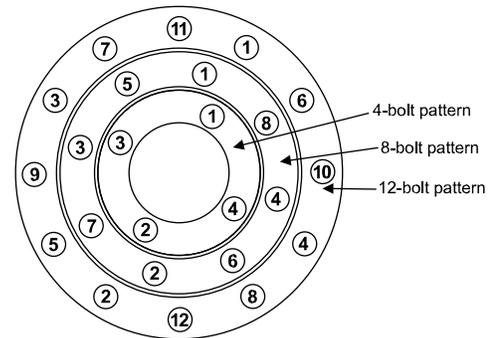


Fig. Tightening pattern for 4-, 8-, or 12-bolt flange



Shaft sleeve set screws: 12 lb-ft (14.7 Nm)

The shown torque value is for clean lubricated threads and gasket joints.