Allied Systems

How to Replace Cartridge-Style Cylinder Gland Packing

Fluid leakage around the piston rod at the gland area will normally indicate a need to replace gland seals. First, remove the cylinder from the machine to which it is mounted or, if this is not feasible, disconnect the piston rod from rod clevis, knuckle or machine member to which it is fastened.

The gland is a unique cartridge design consisting of a bronze gland, primary lipseal and double lip wiperseal. It is threaded into the gland retainer plate, and all sizes are removable without disturbing the tie rod torque.

To remove the gland (Refer to Figures 1 & 2):

1. Inspect the worn piston rod to make sure it is free of burrs or other displaced metal that would prevent sliding the gland off of the rod.



Figure 1: Cylinder Gland Cartridge Kit Installation

2. For most cylinders, unscrew the gland (right hand thread) from gland retainer plate. On 7" and 8" bore series, all rectangular head mounting-style cylinders with socket head capscrews, and 8" bore low pressure hydraulic cylinders, remove the socket head capscrews securing the round or square retainer plates. The gland protrudes from the face of the retainer and can be removed with vice grip pliers.



Figure 2: Gland Cartridge Kit O-Ring Installation

- 3. Slide the gland off of the piston rod and remove the seals. Thoroughly clean the gland and seal grooves. Inspect gland bore for wear. If the bore is worn, replace it using the gland cartridge kit, complete with seals (refer to hydraulic cylinder parts coverage for kit part number).
- 4. If gland is not worn, replace seals only using rod seal kit (refer to hydraulic cylinder parts coverage for kit part number). Lubricate gland seal grooves and all new seals. Install wiperseal, Item 40, in groove closest to end of gland. Install lipseal, Item 41, in seal groove. Lips of seal should point toward the long bearing side of the gland.
- 5. An O-ring, Item 45, is supplied with each gland cartridge kit. It serves as a seal between the gland and the head. This O-ring is a static seal and does not normally require replacement. The original O-ring may be left in place, unless it is known to be leaking (fluid flow around gland thread).

Retainer Bolt Torque for Cylinders with Round or Small Square Gland Retainer

Screw Size	Torque	
#10	15 in-lbs.	17 cm-kg
1/4"	60 in-lbs.	69 cm-kg
5/16"	10 ft-lbs.	14 N•m
3/18"	20 ft-lbs.	27 N•m
7/16	35 ft-lbs.	48 N•m



Installation

Before installing a new gland, inspect the surface of the piston rod for scratches, burrs, dents or other damage.

NOTE: A damaged piston rod surface will result in premature rod seal failure.

Lubricate the bore of the gland and the seals, and slide the gland over the end of the piston rod. Thread the gland into the retainer until it is sealed firmly against the head. The gland-to-head O-ring, Item 45, serves as a torque prevailing lock.

NOTE: The seals are pressure actuated, so no further adjustments are necessary.

When replacing a gland on a rod that is threaded to the full diameter or shaped in such a way that it could damage the seals, a slight rotary motion of the gland will help prevent damage. In addition, because full-diameter threads are usually supplied with the crest of the threads slightly truncated, a piece of shim stock or other thin, tough material can be wrapped around the threads to help protect the gland seals when they are being passed over the threads.