

(Trouble shooting the Rod Knuckle)

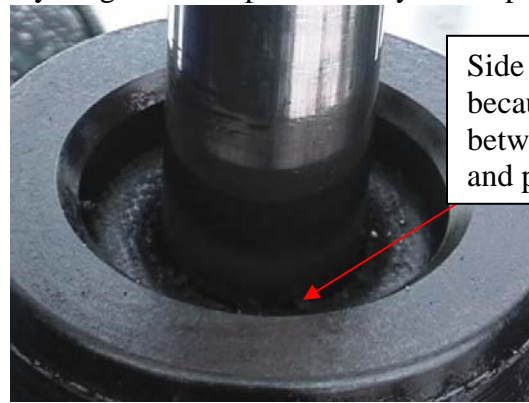
1. I can not keep oil in the oil chamber?



Above misalignment is easy to see before anything is taken apart and may be the problem.

Bottom split ring

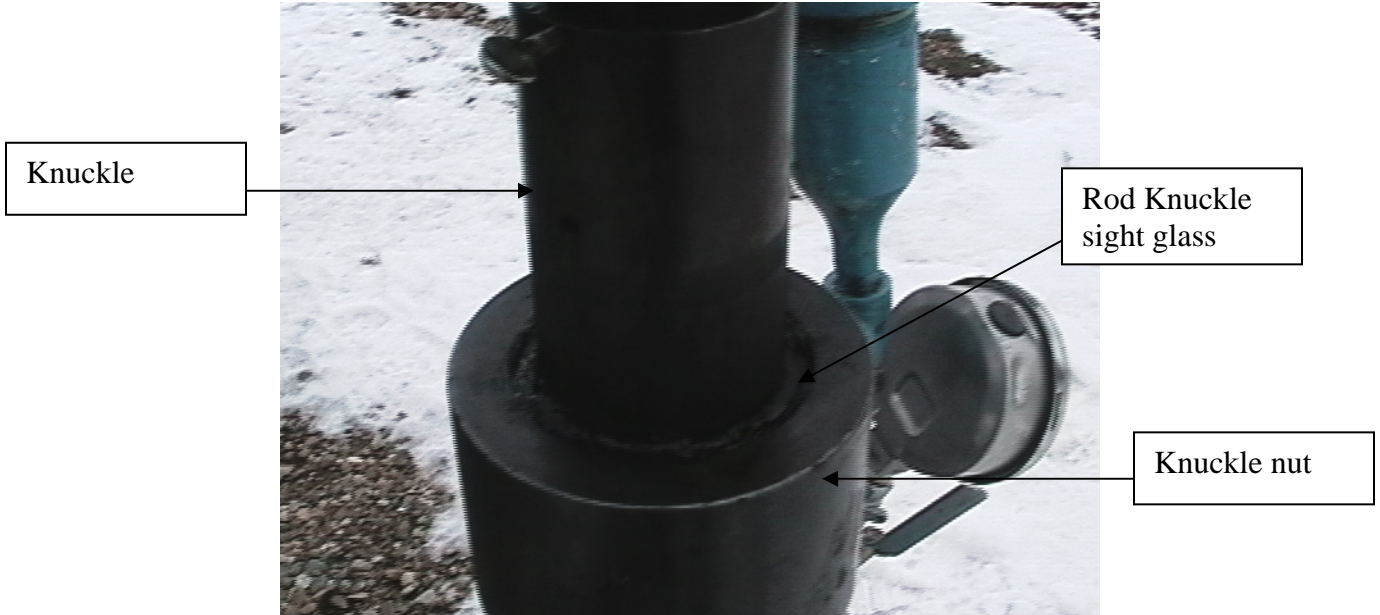
Flow tee adaptor



Side load is evident because of gap between polish rod and packing.

This can be caused by miss alignment either by well head or pump jack as you can see the picture on the right the gap between the polish rod and the bottom packing; this picture shows pump jack misalignment. After we took the 4 rings of packing out and the bottom split ring you can see on the left picture much the well is out of alignment. All the brass components in the Rod Knuckle are design help straighten the rod so it goes in a parallel motion when going inside the well head. The brass components were also designed to eliminate wear on the side of the stuffing box which decreases rod breakages and polish rod scoring. So if there is wear on any of the parts you will have to replace them before installing new packing or it will wear-out packing prematurely in the Rod Knuckle. Rod Knuckle alignment is key to its success and should be maintained daily by operations staff. The Rod Knuckle was designed so that it is easy to see if the pumping unit and the wellhead are lined-up properly. If you can see misalignment as in the top picture then the polished rod is bending with each stroke which will cause premature failures on Packing, components and polished rods.

2. How can I check alignment while the pumping unit and the Rod Knuckle are operating?

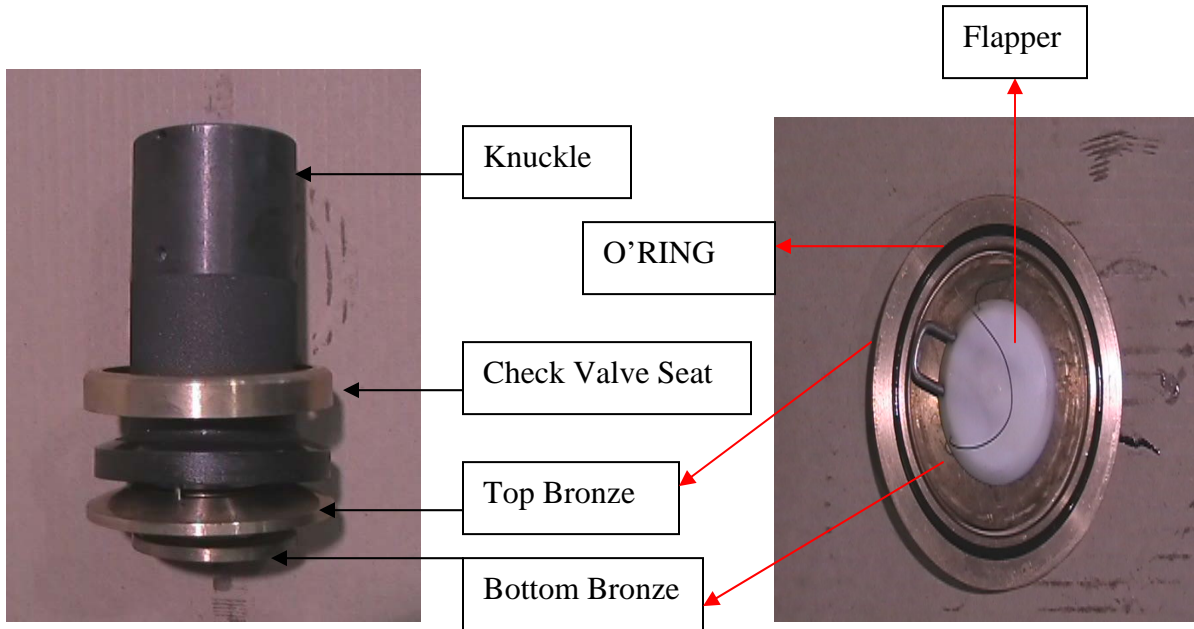


It is simple! By using the “sight glass” built into the Rod Knuckle. This should be used as an **alignment tool not an alignment fix**. The gap around the Knuckle and top of the Knuckle nut should be the same all around and should be used to maintain alignment on a daily bases.



Here is an example on how easy it is to visually maintain alignment (see in the above picture). This picture shows extreme side load on the lower (primary) packing and parts. Eventually the lower parts wear-out and the lower Rod Knuckle packing becomes impossible to seal over the long term until the worn parts are replaced. The Knuckle (RK7883-025) and upper (secondary) packing was designed to follow the polish rod wherever it goes so that when the

primary packing wears-out secondary (top) packing will still seal. If rod break occurs the check valve will close and form a seal to reduce or eliminate potential blow-outs. The Rod Knuckle has had great success preventing this type of blow-out. Proper maintenance is the key.

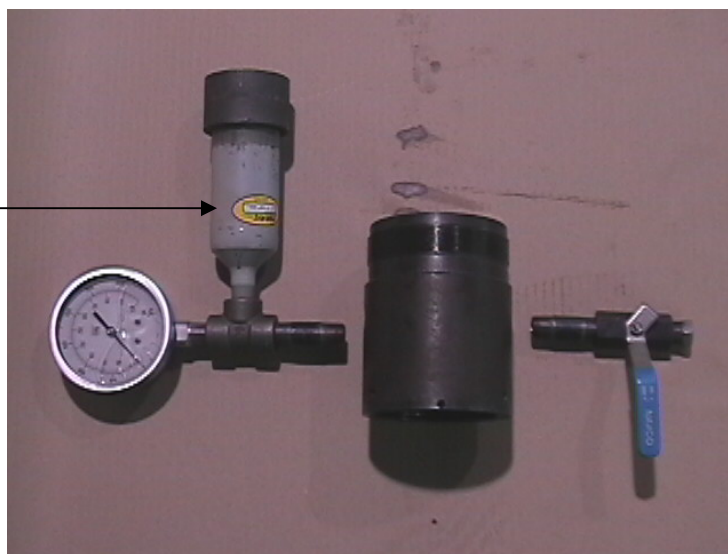


3. I can not keep the check valve from melting inside the control chamber?

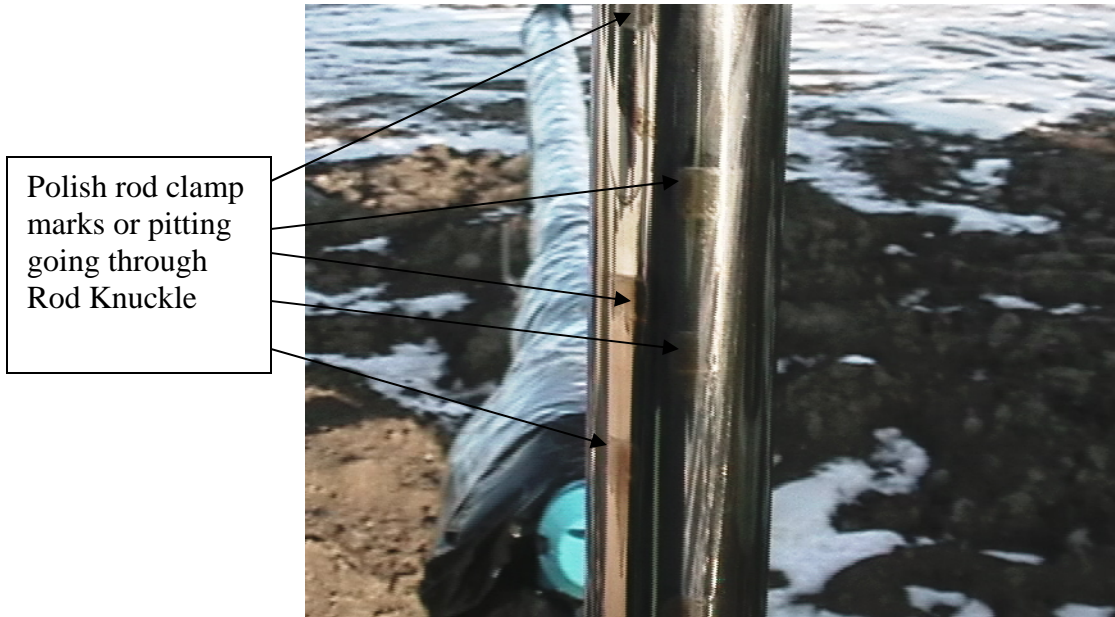


This problem only occurs on wells with fluid pumping problems (i.e. the problem is the well does not pump enough fluid to cool and lubricate the polished rod). The regular service check valves are resistant to corrosion and have a melting point of 178°C or 352°F . This temperature should not occur in a conventional well if the pump is functioning properly. If melting is a problem the well needs to be optimized (i.e. Dynamometer and fluid level to find the problem). Please note there are different check-valve and packing materials available for every application.

Gravity feed
oil bath



4. My well is in perfect alignment, the bottom packing is always tightened, oil is always added and I come to check the well the next day and there is pressure in the Control Chamber?



Polish Rod condition is another factor in running any type of stuffing box. If you see severe rod clamp marks (caused by over tightening of the rod clamps), bubbled, scored or pitted polished rod it should be changed out. A polish rod with any of these flaws will decrease packing life and cause any packing to leak or seep slightly.