

Installation of 50K Horseshoe Transducer and Hydraulic Jack Into the Spool Assembly to Perform a Dynamometer Test

The 50k horseshoe-hydraulic jack assembly consists of 5 parts: the spool and washers, the 50k horseshoe transducer, the hydraulic jack, the pump with hose and the ¼" thick spacer.



A spool assembly is normally installed and left permanently at the well. The spool assembly fits over the polished rod between the carrier bar and the permanent polished rod clamp.

The spool assembly consists of an upper washer, a lower washer and a 5" long, 2" OD, steel tube, that separates the two washers.

The load cell and hydraulic jack are placed into the spool assembly.

The spool is shown between the carrier bar and the permanent polished rod clamp in the following picture.



To install the 50k horseshoe transducer and hydraulic jack and spacer, the pumping unit is stopped at the bottom of the downstroke.

The hydraulic jack and 50k horseshoe transducer are attached together by two bolts so that both the hydraulic jack and horseshoe transducer are installed together. The inner steel tube, which separates the upper washer and lower washer, is 5" in length. Therefore, the horseshoe transducer and hydraulic jack can be placed between the upper and lower washers.

Following is a picture showing the hydraulic jack and horseshoe transducer placed into the spool assembly.



The hydraulic pump is actuated to raise the horseshoe transducer and place the polished rod load onto the horseshoe transducer.

The following picture shows a $\frac{1}{4}$ " spacer plate being inserted between the hydraulic jack and the horseshoe transducer to cause the load to remain on the horseshoe transducer when the pressure in the hydraulic jack is released.



After the spacer is inserted, the hydraulic liquid is bled back into the pump, and the polished rod load is lowered onto the horseshoe transducer, spacer plate, and the hydraulic jack. The entire polished rod load is on the horseshoe transducer.

The following picture shows the horseshoe transducer hydraulic jack assembly installed on a well with the polished rod load being carried on the horseshoe transducer by use of the hydraulic jack and spacer.

The pump hose and fitting are being disconnected from the hydraulic jack.



A cable is attached from the Well Analyzer to the horseshoe transducer to record accurate polished rod load and also acceleration data.

An accelerometer is contained within the 50k horseshoe transducer. The acceleration data is processed to obtain position data, so a string position transducer is not required. The accelerometer does not require as much maintenance as a string type position transducer requires and is easier to use.

After the dynamometer test, the horseshoe transducer, hydraulic jack and spacer are removed in reverse manner leaving the spool on the well for another test when desired.