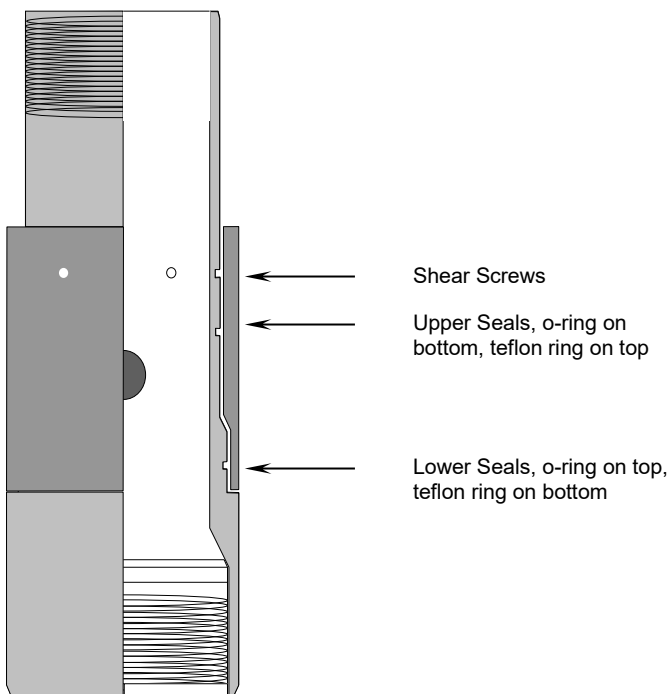


Tubing Drain Repair Procedure

- 1. Clean Parts:** Take the two parts of the Tubing Drain, the mandrel and sleeve, apart and thoroughly clean all surfaces by either scrubbing with a solvent or light sand blasting. Make sure you have removed the broken shear screws from the sleeve.
- 2. Visual Inspection:** Visually inspect both the mandrel and sleeve to ensure all o-ring grooves are completely clean. Also inspect both the pin and box ends of the mandrel to make certain the threads are in good condition. The sleeve should be examined closely to see if it has "egged" after repeated use. If the sleeve is at all out-of-round or the shear screw threads are damaged, the sleeve should be replaced.
- 3. Re-assembly:** Once the mandrel and sleeve have been completely cleaned and inspected the tubing drain can be assembled.



Although a tubing drain is run pin down in operation it is normally assembled pin up. Place the mandrel on the floor and install the large, lower o-ring first (make sure there are no twists in the o-rings) place the teflon ring under the o-ring. Install the smaller upper o-ring in the middle groove on the mandrel (the top groove is where the shear screws will be inserted) and place the teflon ring on top of the o-ring. The teflon rings are split so they will not sit tight in the groove, you must put a layer of grease around both teflon rings so the teflon rings will stick around the mandrel tightly. The teflon rings must not extrude out of the mandrel or they will be damaged when installing the sleeve. Once the seals are properly installed you can place the sleeve over the mandrel. The sleeve should not go on all the way if the seals are correctly installed. You will need a piece of pipe or tubing the same ID as the sleeve. Place the piece of tube over the mandrel and onto the top of the sleeve, use a sledge hammer to lightly tap the sleeve down until the two parts come together. Install the appropriate number of new shear screws (3 min, 6 max). Alternate holes if only using 3 screws. See shear value chart.

- 4. Note:** Only Tri-alta shear screws should be used in a Tri-alta tubing drain. If you use Tri-alta shear screws in another manufacturers tubing drain the shear value of the drain may not be correct. O-ring and teflon ring sizes are as follows:

	<u>Upper</u>	<u>Lower</u>
2-3/8"	229	233
2-7/8"	233	237
3-1/2"	238	242