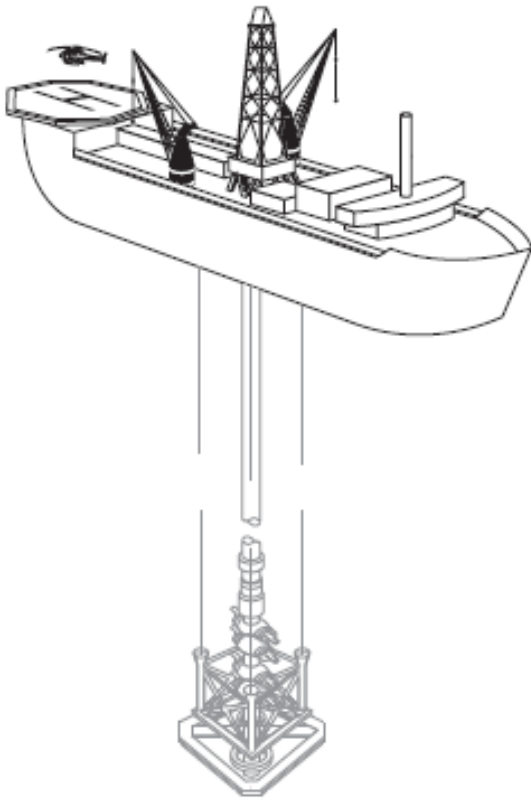
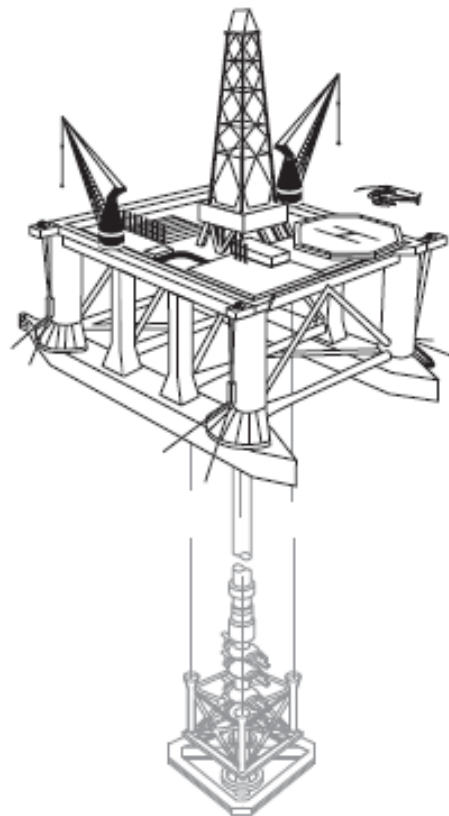


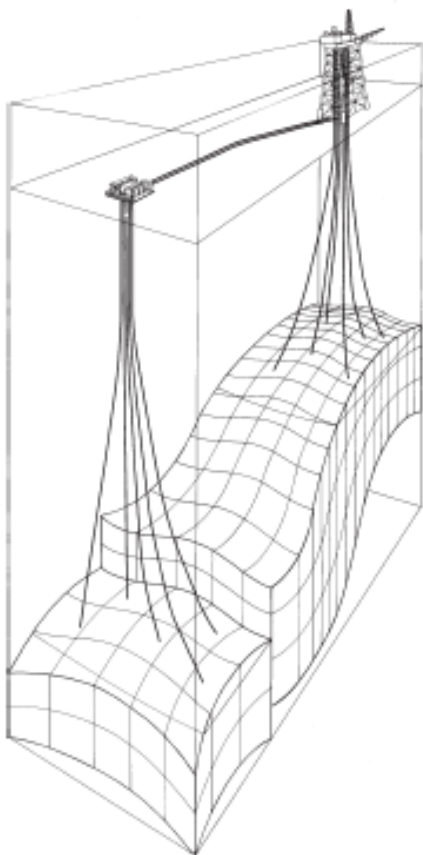
**Figure 3** Drilling rig components



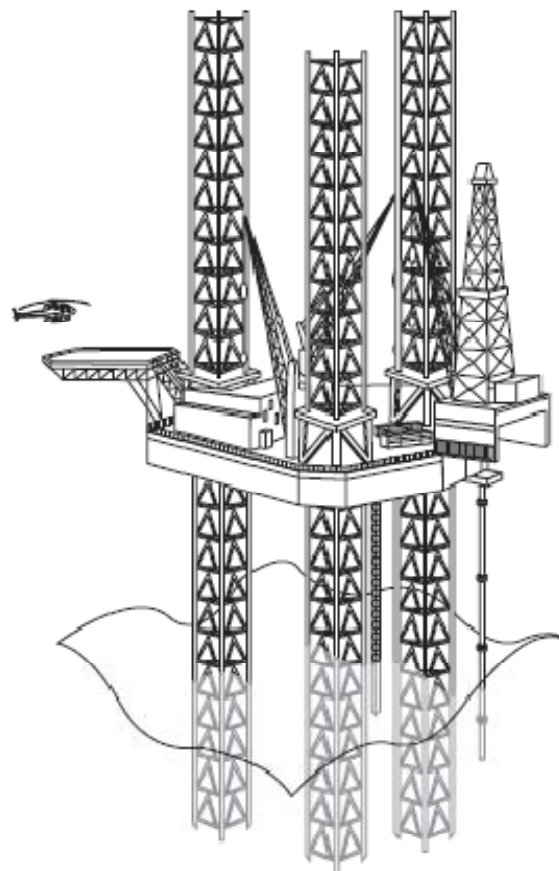
**Figure 8** Drillship



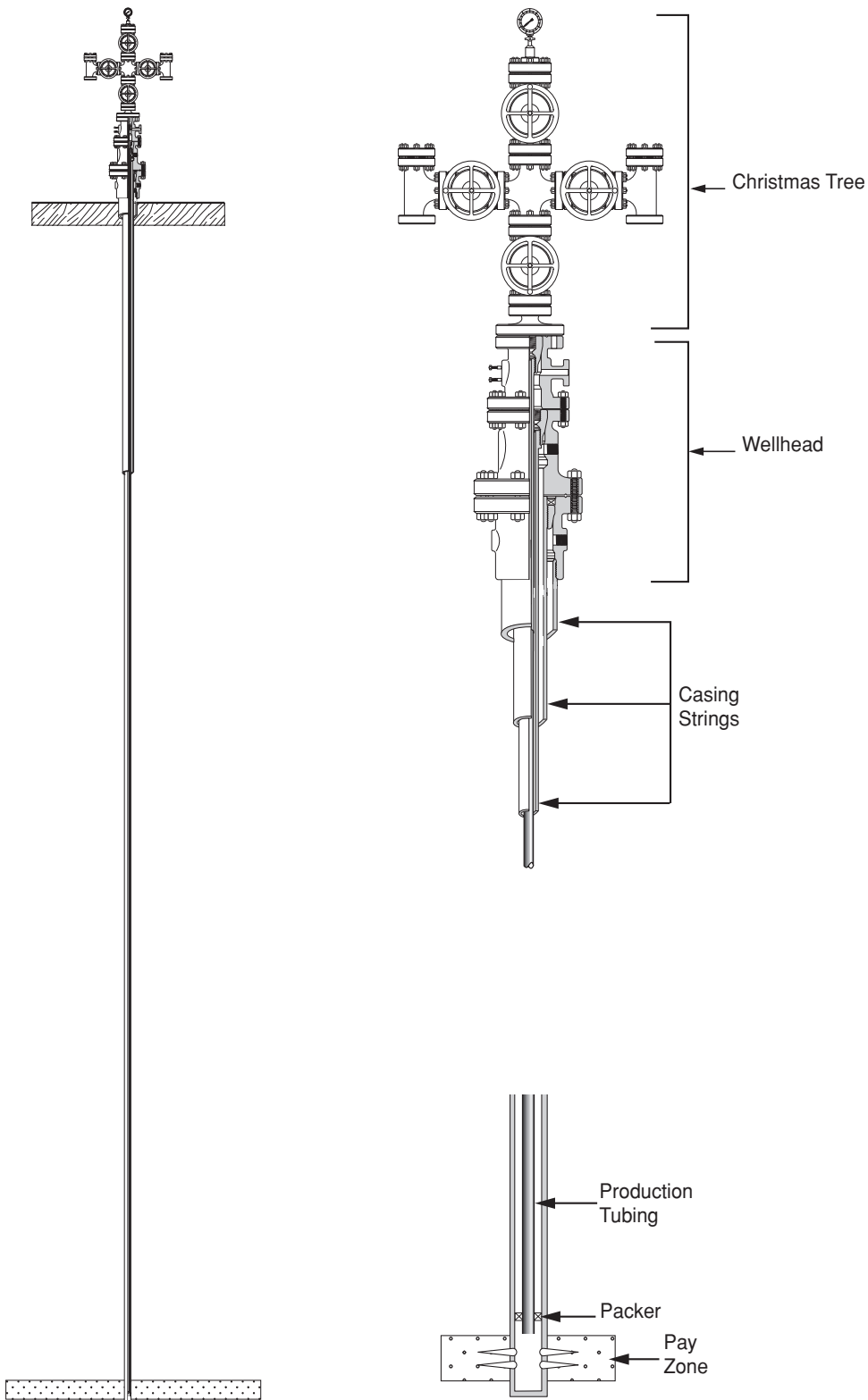
**Figure 7** Semi- submersible rig



**Figure 9** Fixed platform (Steel Jacket)

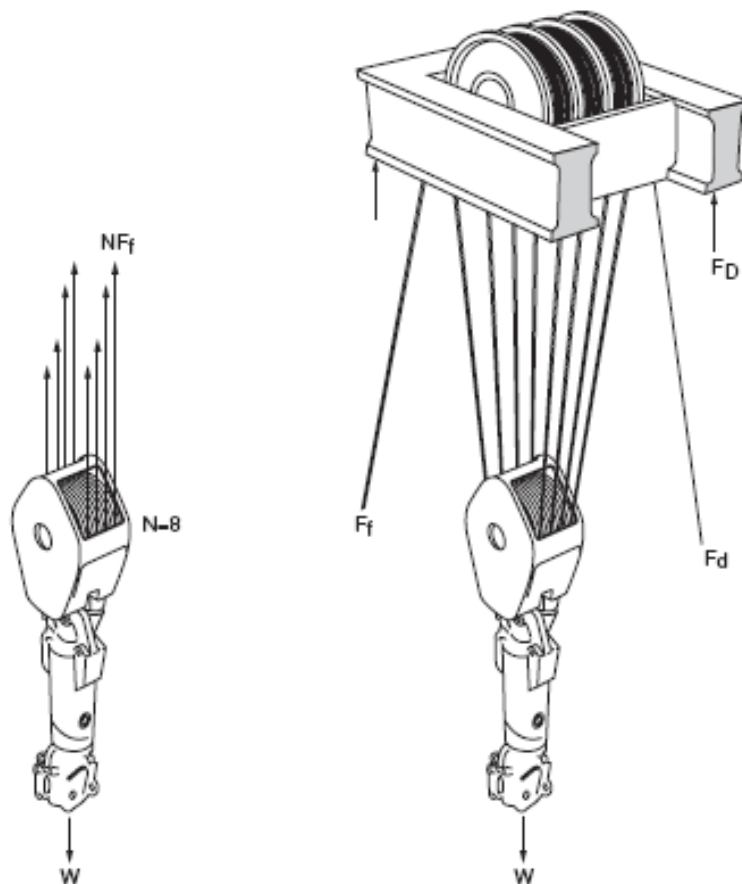
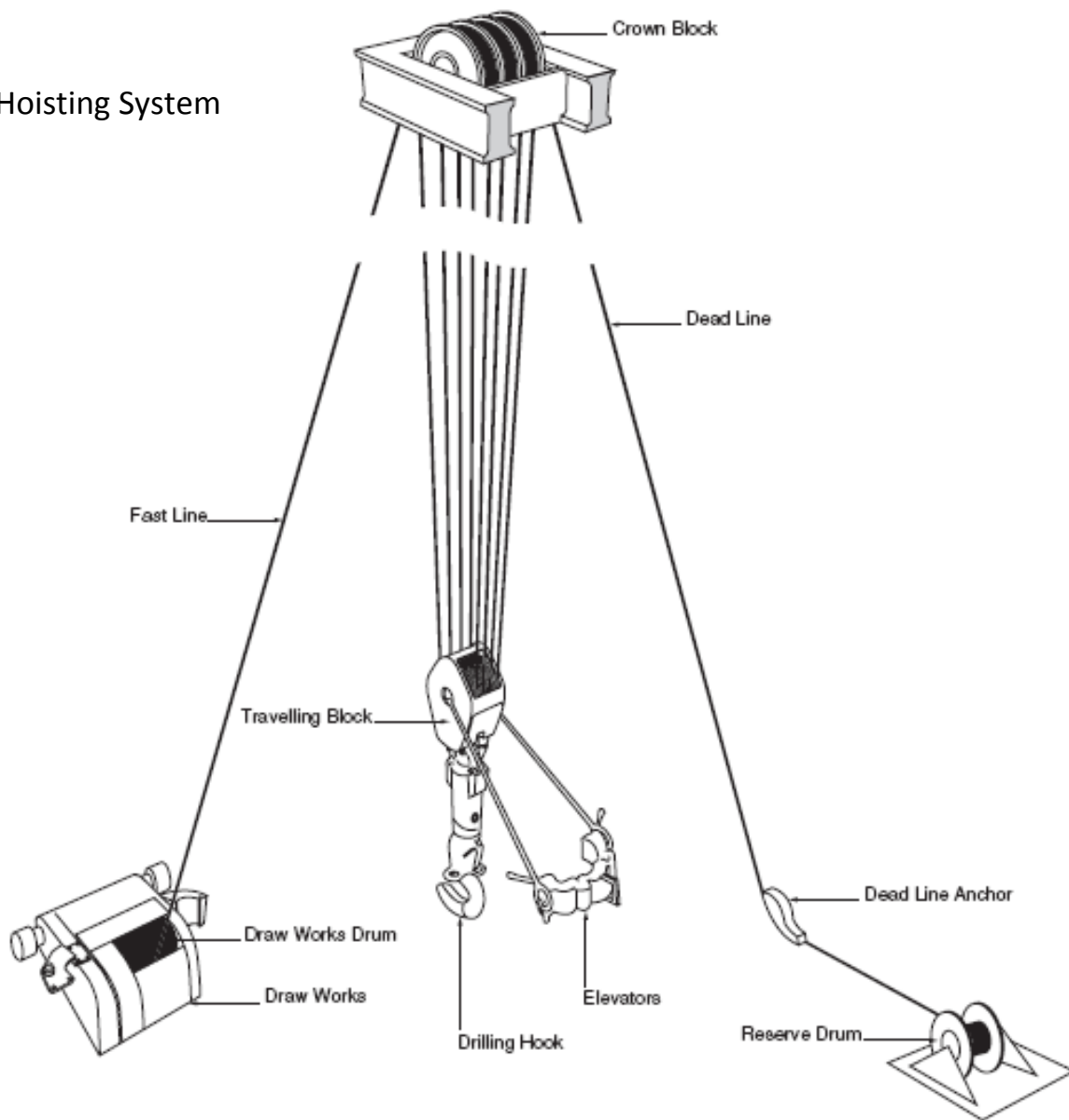


**Figure 6** Jack-up rig



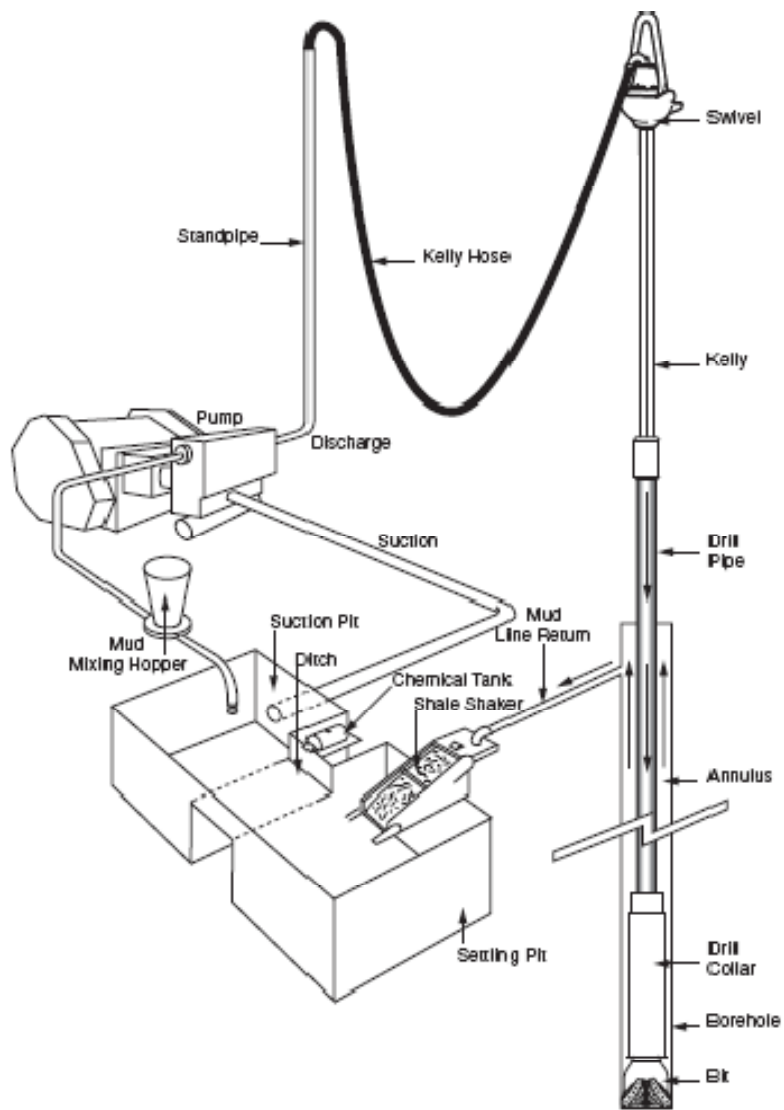
*Figure 5* Completion schematic

# Hoisting System



(a) Free body diagram of traveling block

(b) Free body diagram of crown block



Circulating system

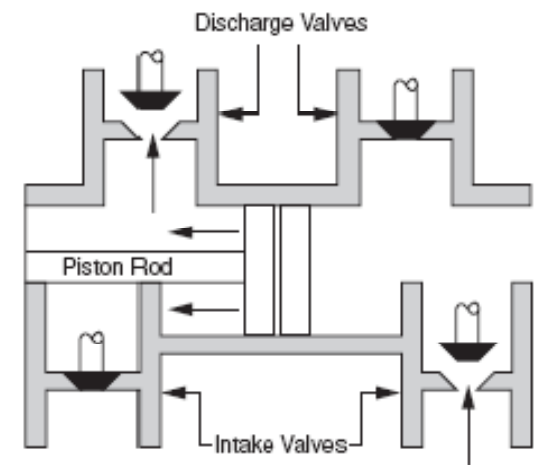
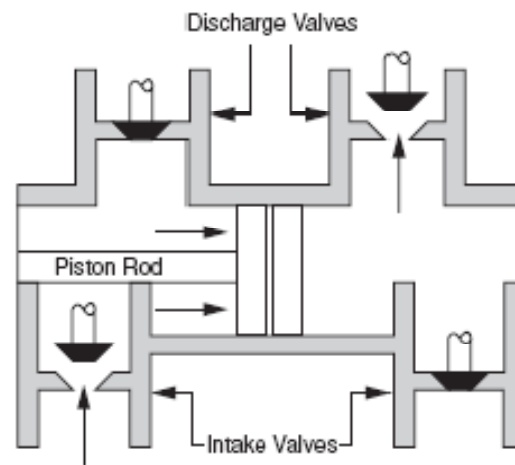
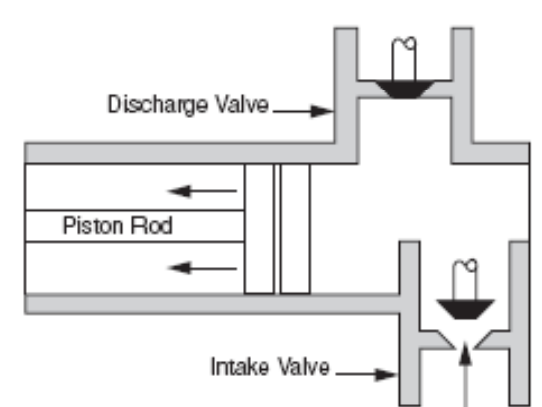
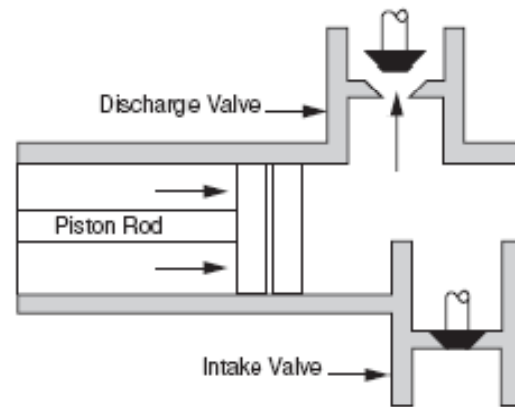
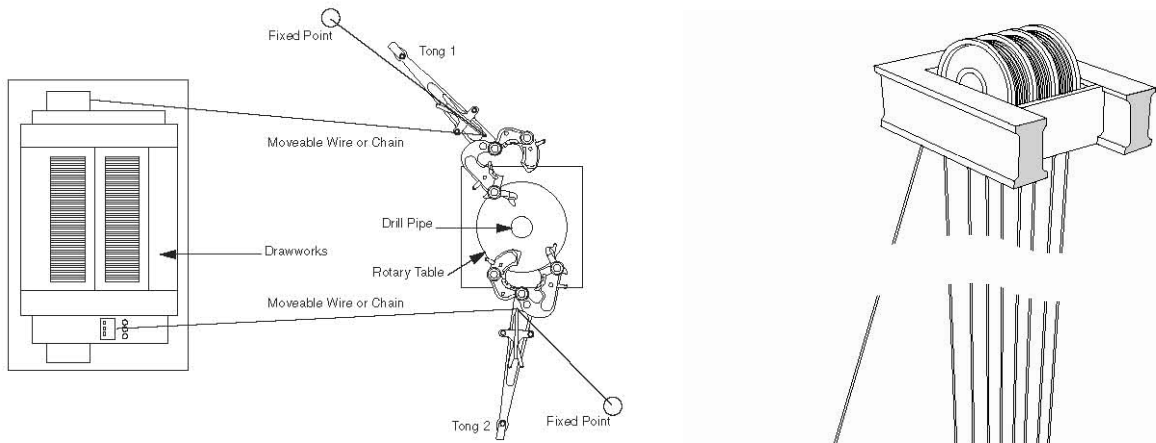


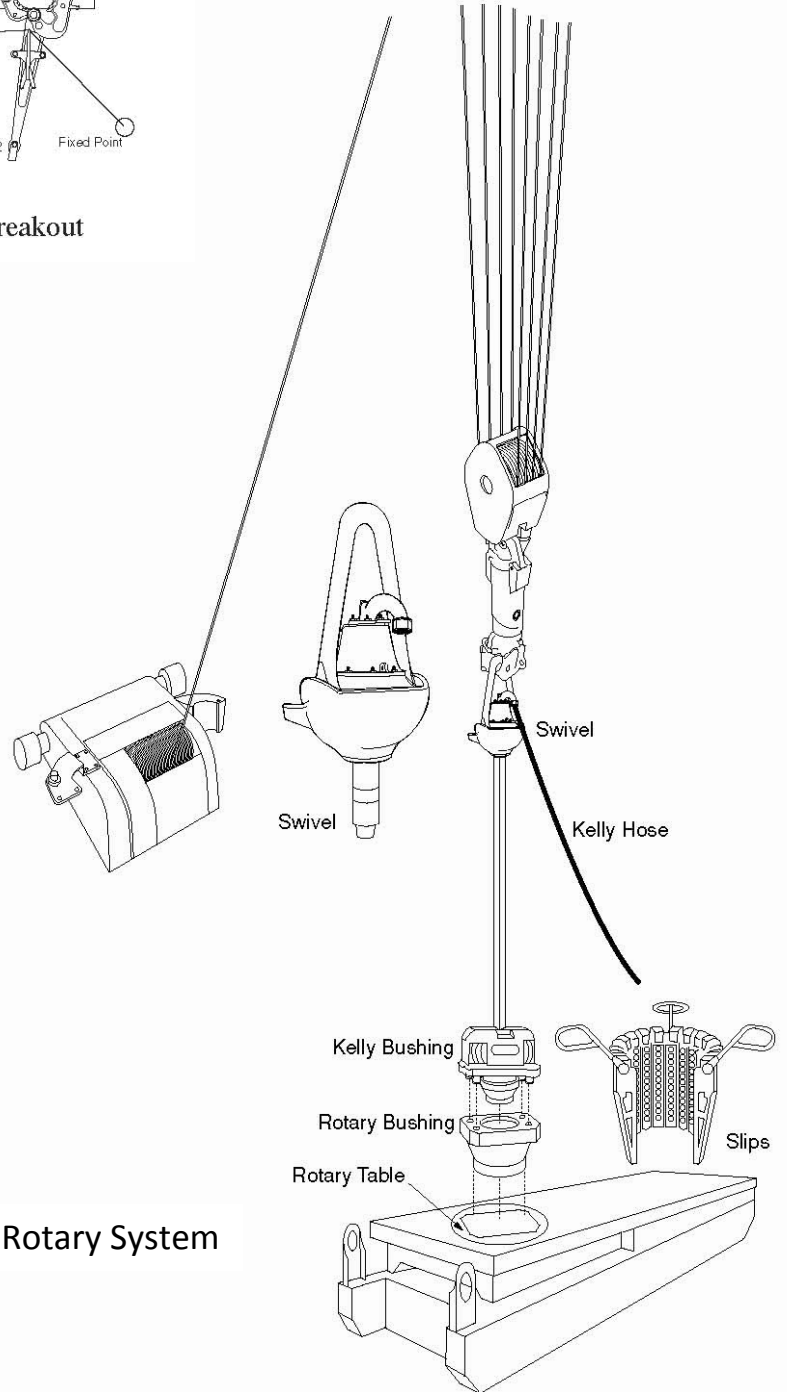
Figure 7 Duplex pump



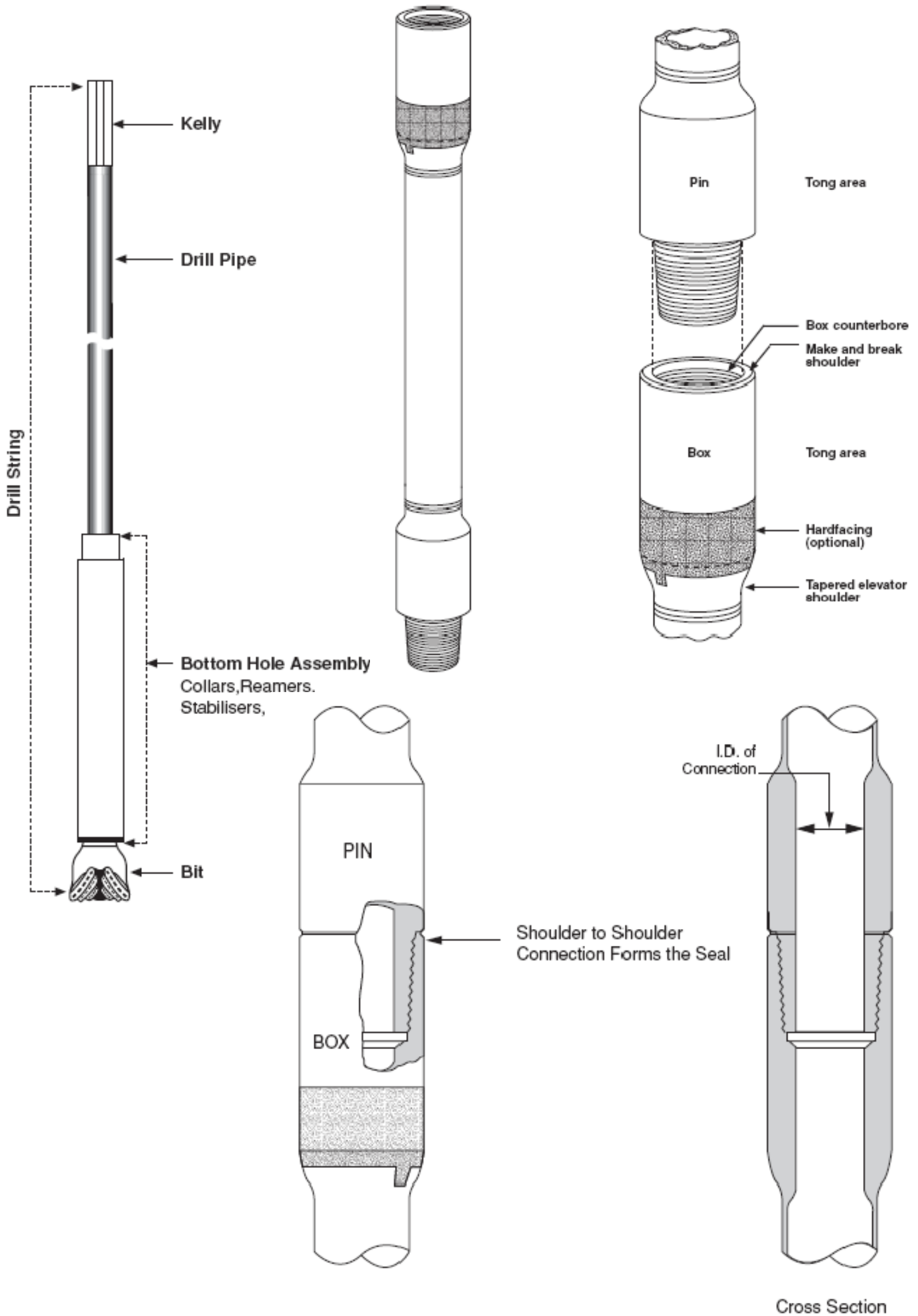
Triplex pump



Tubing makeup and breakout



Rotary System





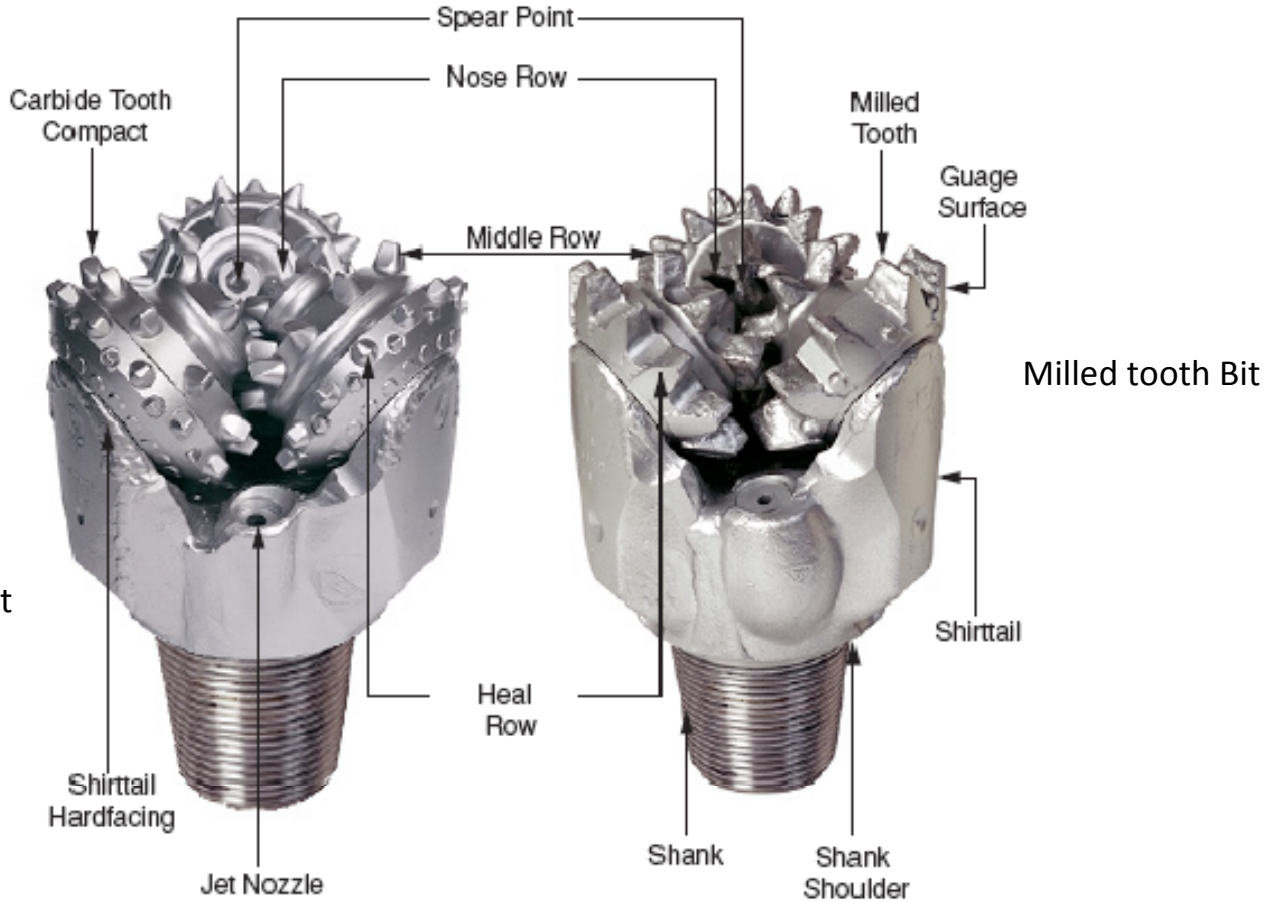
Drag Bit



Roller Cone Bit (Rock Bit)



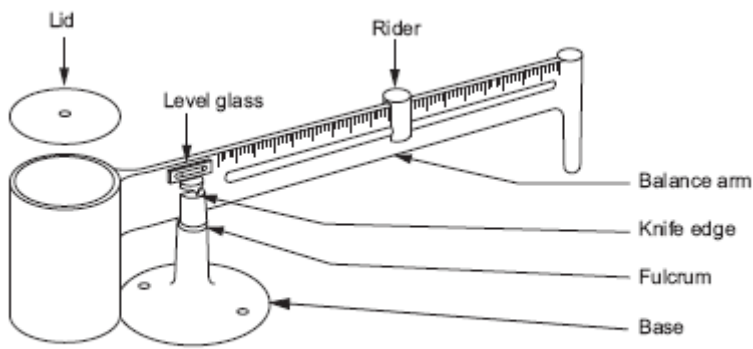
Diamond Bit



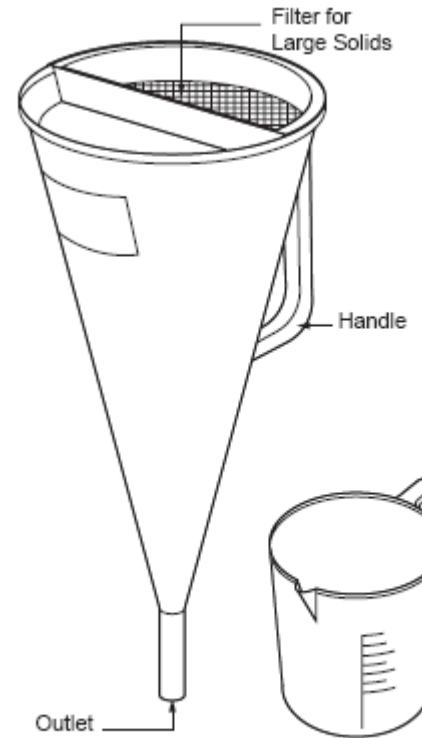
PDC Bits



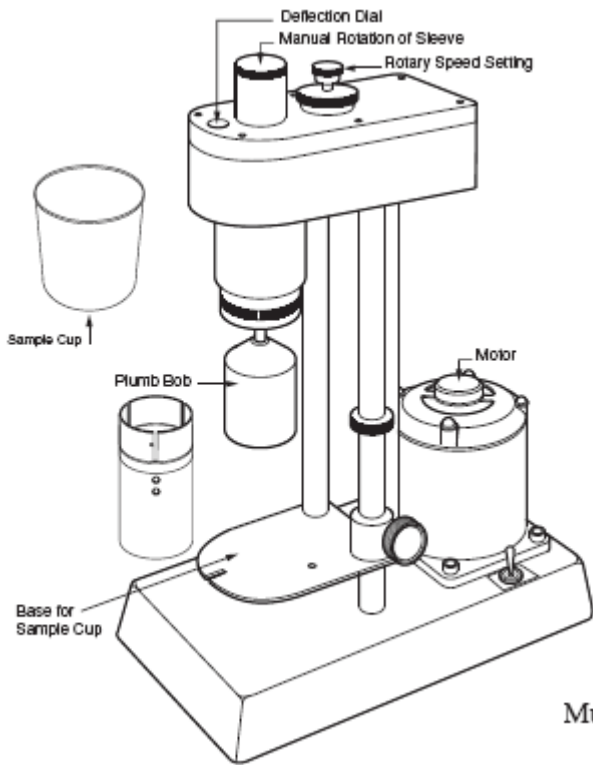




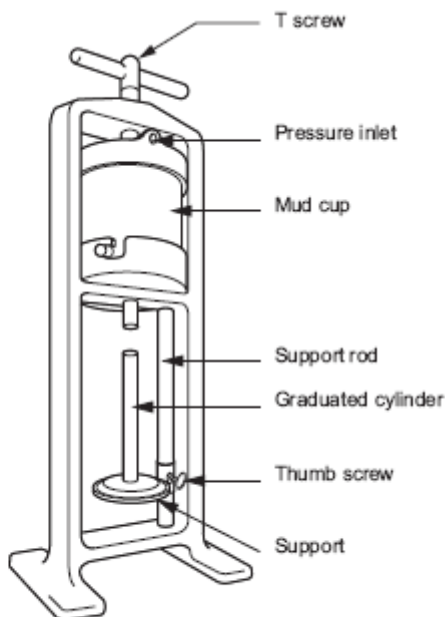
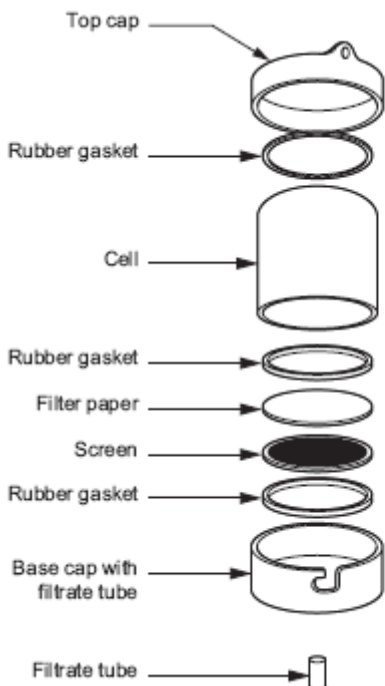
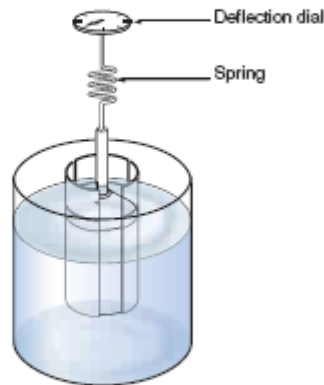
Mud balance



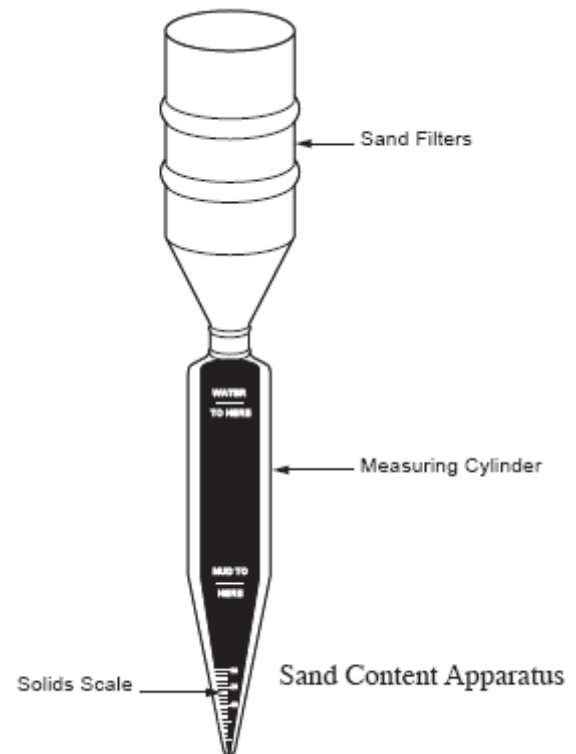
Marsh funnel and graduated cup



Multi-rate viscometer



Filter press apparatus



Sand Content Apparatus