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McAlester Engineering

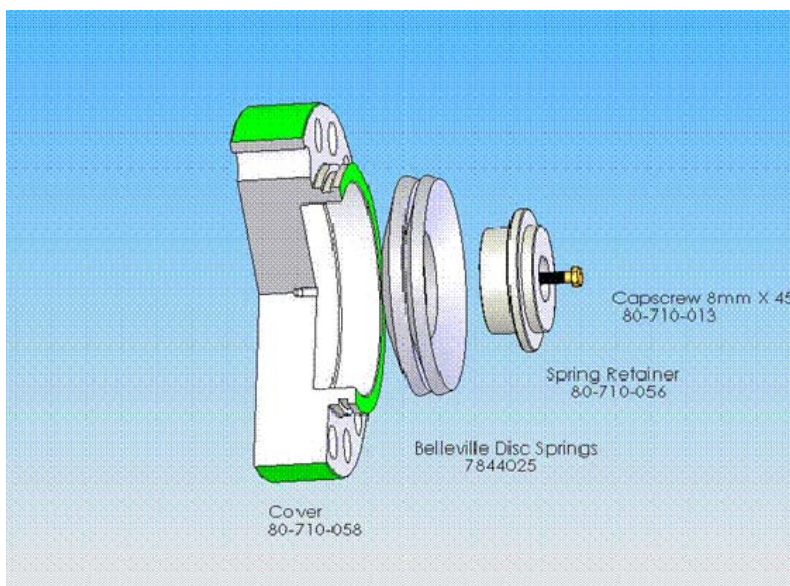
PRODUCT: HEX 240 DRILLING PUMP**SUBJECT:** CAGE LOADING SPRINGS

Correct installation of the cage loading Belleville Disc springs (7844025) in the fluid end modules is absolutely essential to prevent washout of the cages and cylinder at the sealing grooves. Refer to the illustration below for the proper installation direction for these disc springs.

During normal operation of the pump, these springs provide a static preload on the cages. This prevents the cages from moving slightly while pumping. Any movement can open the seal joint and quickly result in small washout places on the adjacent parts. Continued operation then causes severe damage to the module and cages.

The two springs must be nested together to double the spring load at the same amount of deflection. The outer edge of the springs should push against the cage when the cylinder cover is installed. The 8 mm center capscrew is used only to retain the springs to the cover. The cylinder cover will fully compress the springs against the cages when it is installed.

See below for an illustration on the correct way to install the springs.



Arrangement of Belleville Disc Springs