



## TORQUE REQUIREMENTS FOR SMITH PUMP FASTENERS

Smith pumps utilize a comparatively large number of screws, which can be in different sizes or styles for various components on the same unit. It is important to note that the Smith pump assembly requires the use of flat washer-type screw heads in direct, positive contact with the pump casings, flanges, and retainer plates. Lock washers are not necessary, as they interfere with contact face seating, cause undue additional stress on the fasteners, and may lead to casing leaks. Most fasteners used in Smith pumps are hex-head, plated, grade 5 *cap screws*, but with a few models, in addition to the usual cap screws, some others can also be either hex-head, stainless steel cap screws, plated socket-head cap screws, or plated Fillister-head machine screws.

The design application is such that the tightening sequence is not as important as is the actual torque value to which the screws are finally tightened. Make sure that none of these fasteners are missing, and that they are all in good condition. The screws and appropriate threaded holes must be clean, dry, and fit properly together. When installed, the screws must form maximum thread contact without bottoming-out in the casing. Do not apply tape, anti-seize compounds, oil, sealant, or any other such substances to the threads before installing the screws. All screw and casing threads should be free of deformities and debris such as dirt, paint, or rust. If the threaded holes are damaged, replace the casing. If it is necessary to replace the screws, do not substitute inferior items. All screws for a given component must first be tightened slightly more than "hand tight", successively around the bolt circle, and then properly torqued. Avoid overstressing: *do not overtighten the fasteners; never install lock washers; and do not use casing gaskets.* See bulletins "AL-1", "AL-97", and others, for proper reassembly procedure. Contact the factory if there are any questions.

The recommended torque values are expressed, as follows:

Fillister-head machine screws can be snugly tightened by hand with a standard manual screwdriver.

1/4 - 20T stainless steel or grade 5 plated steel cap screws: 10 - 15 ft-lbs (14 -20 N · m).

3/8-16T pump body cap screws: 20-25 ft-lbs (27-34 N · m).

3/8-16T flange cap screws: 30 ft-lbs (41 N · m).

3/8-16T flange socket head cap screws: 30 ft-lbs (41 N · m).

7/16-14T pump body cap screws: 25-30 ft-lbs ( 34-41 N · m).

7/16-14T flange cap screws: 35 ft-lbs (47 N · m).



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