Sara Sae

Engineering Standards/Specifications

Procedure No.

SES 26-716

Title

FLUSHING PROCEDURE HYDRAULIC PUMP/ACCUMULATOR UNITS

V.P. of Manufacturing	V.P. of Engineering	V.P. of QA/QC	V.P. of Sales/ Marketing	Revision Description	Release Date	Rev. Ltr

Written By	Revised By	

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Title

FLUSHING PROCEDURE HYDRAULIC PUMP/ACCUMULATOR UNITS

1.0 If the control system is equipment with a separate skid mounted accumulator bank, connect to the system.

2.0 Connect a "loop-back" manifold or equivalent to outputs to permit circulation of the fluid.

3.0 Ensure the reservoir is clean before filling with clean preservation fluid. Fluid used to flush system should start at least as clean as the desired end level. Refer to quality plan or engineering assembly drawing for cleanliness level required.

4.0 Install disposable filters. Initially start with 60 to 100 micron, then change to 20 to 40 micron and finally to 3 micron as the fluid cleanliness level improves as needed by cleanliness level requirement (ref. 3.0).

5.0 If accumulators are present in the system, set nitrogen pre-charge at 500 psi. Pressurize the accumulators to 1500 psi and discharge back to the reservoir. Charge and discharge the accumulators in accordance with standard field operations or charge cycle operation as needed. Leave the accumulators charged after the last cycle.

6.0 Operate each system function twice to flush the hydraulic lines and actuators. If required, construct special connections to ensure that none of the functions are "dead-ended".

7.0 Circulate fluid for 1 to 2 hours.

8.0 Repeat steps for 4, 5, 6, and 7 changing filters as required to lower the particulate contamination.

9.0 During steps 4, 5, 6, and 7 fluid samples should be collected at low points in the reservoir and visually examine for particulate contamination. If no contamination is evident, collect fluid in sterile sample container and send to laboratory for analysis of cleanliness.

10.0 Continue repeating steps 5, 6, 7, 8, and 9 replacing the filters with lower micron ratings until the desired fluid cleanliness level is achieved.

11.0 Upon completion of the flushing activities, drain fluid and inspect reservoir. Clean reservoir if required.

12.0 Disconnect all flushing equipment from the unit and prepare for final preparation prior to shipping.