

## Flushing Guidelines

# Flushing Guidelines

### *Why does a system need flushed?*

Contamination can be defined as any unwanted substance or energy that enters or contacts the oil in a system.

Contaminants enter a hydraulic system in a variety of ways. They may be;

- Built in during manufacturing and assembly process
- Internally generated during operation
- Introduced through necessary maintenance
- Ingested from outside the system during operation

If not properly flushed out, contaminants from manufacturing and assembly will be left in the system. These contaminants include;

- Dust
- Welding slag
- Rubber particles from hoses and seals
- Metal debris from machined components
- When fluid is added to the system a certain amount of contamination comes with it for example dust particles and water

Contaminants can be harmful to system operation, safety, or service life and reliability. Machines that use fluid as a source of energy depend on the effective elimination of contamination for their successful operation. This is why flushing is such an important consideration.

### *Flushing the System :*

Under ideal conditions a system should be flushed with fluid velocities higher than those likely to be encountered under normal conditions and fluid temperature should be as high as can be achieved without damage to the structure of the fluid

### *Procedure*

- Remove the servo-valve and fit an appropriate flushing block.
- Store the servo-valve carefully manifold side up.
- Do not wipe the manifold face or cover the valve up unless the atmosphere is very dirty.
- Start up the system pump , check for leaks and rectify as necessary.
- Run the system operating control valves to get the oil through all the pipework and valves.
- Run under these conditions for one to two hours depending on the size of the system. The larger the system, the longer should be the running time. Fifty re-circulations of the fluid through the system can be taken as the minimum flushing time. (The flushing time is taken on advice of MJ Pinches and JG Ashby, Automation Advisory Service, Sheffield City Polytechnic )
- Check blocked filter indicators to see if they are activated. If so replace the filter elements.
- Stop the pump.
- Remove the flushing block.
- Replace the servo-valve.
- If possible, decrease the system pressure by adjusting the relief valve .
- Start up the pump.

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- Check for leaks and rectify as necessary.
- Increase the system pressure by means of the relief valve., checking the system for leaks, until system pressure is achieved.
- Check the system and safety circuits are operating normally.

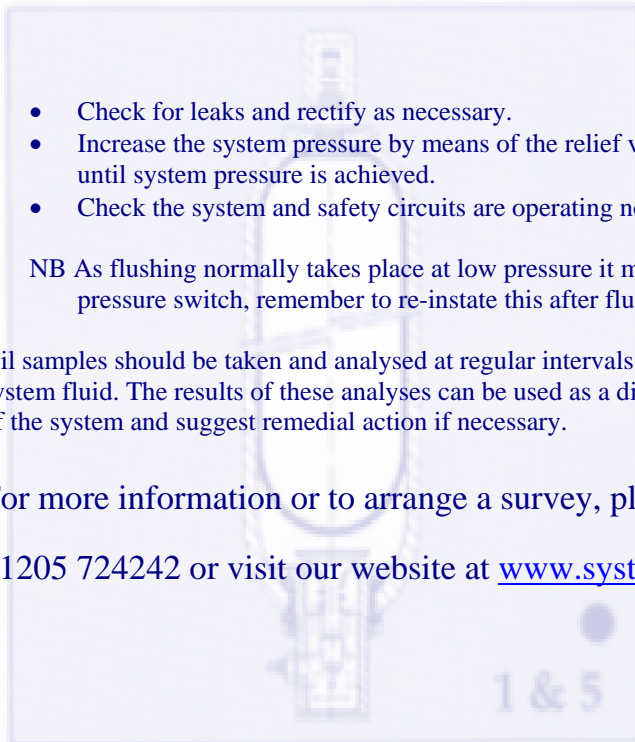
NB As flushing normally takes place at low pressure it may be necessary to link out the system pressure switch, remember to re-instate this after flushing.

Oil samples should be taken and analysed at regular intervals to monitor the condition of the system fluid. The results of these analyses can be used as a diagnostic tool to determine the health of the system and suggest remedial action if necessary.

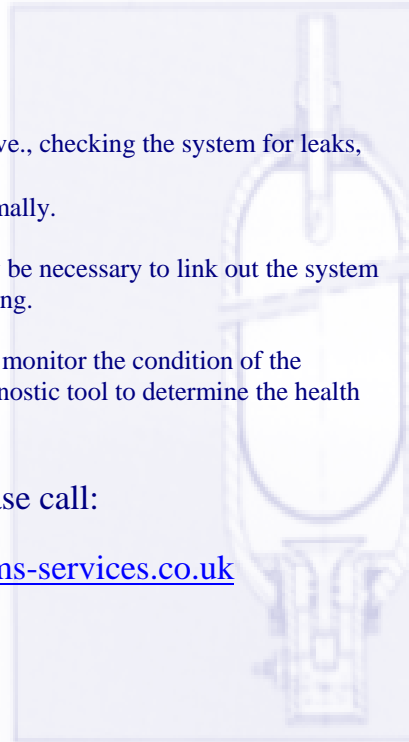
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