

1 Flushing the fuel oil system

1.1 Introduction

A correct manufacturing of the pipes avoids the presence of scales, slag and spelter. It is a fact that the expense for special welding methods, e.g. inert gas welding, is worthwhile when considering the costs of an extensive flushing procedure or the grinding and cleaning work if using normal electric arc welding or welding with electrodes. A thorough cleaning of the pipes before mounting is a must.

It is absolutely essential to ensure that the fuel oil systems are clear of all foreign matter before circulating fuel oil through to the engine. A systematic approach is to be adopted prior to commissioning when the tanks, pipe work, filters, end heaters, pumps, valves and other components are flushed and proved clear by observation and physical inspection. All fuel oil tanks are to be inspected and cleaned by hand to remove all residuals build-debris; special attention is to be paid to very small loose particles of welding matter such as spelter and slag.

The pipes of the entire fuel oil system on the plant side are to be flushed separately.

1.2 Preparation before flushing

1. By-pass the fuel oil connections immediately before the supply unit by means of temporary hoses or pipes as shown in the figure.
2. Install in the by-pass line a temporary filter with a mesh size (sphere passing mesh) of max. 0.03 mm and equipped with magnetic elements.

Alternatively, the plant fuel oil duplex filter, if available, can be used under the condition that the filter inserts are of mesh size (sphere passing mesh) of max. 0.03 mm. After flushing the filter, inserts are to be replaced by the original ones and the filter housing to be cleaned.

1.3 Flushing procedure

1. Fill the daily tank with sufficient marine diesel oil (MDO).
2. Circulate the MDO in the daily tank using the separator(s) and pre-heater(s) to maintain the cleanliness and the MDO temperature at approximately 30 °C. Operate the separator(s) until the flushing procedure is completed.
3. Circulate the MDO through the whole fuel oil system back to the daily tank by running the feed and booster pump.

Both pumps (feed and booster pump) must be in operation to ensure a correct fuel oil circulation through the whole fuel oil system. As the capacity of the booster pump(s) is higher than the one of the feed pump(s), part of the fuel returns, via the mixing tank, directly to the booster pump. The fuel must circulate freely in the return pipe to the daily tank and from the feed pump to the mixing unit.


The main and stand-by pumps are to be alternatively operated. Observe the suction and discharge pressure carefully; do not let run the pumps hot. Observe the pressure drop through the filters too.

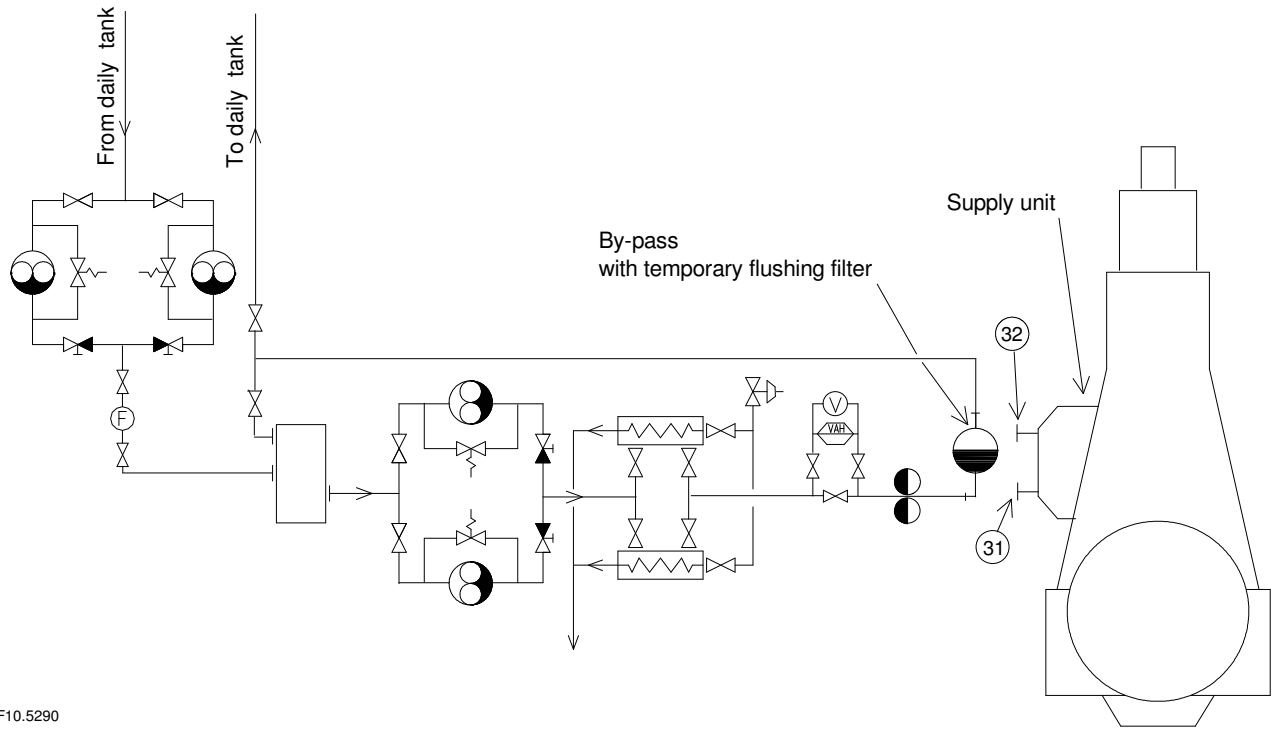
4. During the flushing procedure, the pipes are to be periodically tapped to help loosen any foreign matter that may be present. If available, vibrators are to be used. All pipes used during the engine operation must be flushed, including by-pass lines. Inspect and clean all filters in the fuel oil system periodically.

Drain the dirt of all equipments (mixing unit, end heater, etc.) where dirt can accumulate.


Flushing is to be continued until absolutely no residues can be found in the filters:

No metallic particles adhere to the magnetic inserts and no residues are detected in the bottom of the filter housing. When the fuel oil system proves clean, the temporary flushing equipment can be removed and the engine connected to the fuel oil system.

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FLUSHING-INSTRUCTION_WinGD-2S_FUEL-OIL-SYSTEM

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2016-10-25	GUIDANCE	First web upload

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