

SC 123 Machinery Installations - Service Tank Arrangements

(1998)
 (Rev.1
 Apr 1998)
 (Rev.2
 June 2002)
 (Rev.3
 Dec 2005)
 (Rev.4
 Nov 2018)

Reg. II-1/26.11

SOLAS Regulation II-1/26.11 states:

*Two fuel oil service tanks for each **type of fuel** used on board necessary for propulsion and vital systems or **equivalent arrangements** shall be provided on each new ship, with a capacity of at least 8 h at maximum continuous rating of the propulsion plant and normal operating load at sea of the generator plant.*

Interpretation

This requirement was derived from the need to have fuel immediately ready for use in the event of catastrophic contamination (e.g. by water ingress) of the fuel service tank in use.

Arrangements complying with this regulation and acceptable “equivalent arrangements”, for the most commonly utilised fuel systems, are shown below.

A service tank is a fuel oil tank which contains only fuel of a quality ready for use i.e. fuel of a grade and quality that meet the specification required by the equipment manufacturer. A service tank is to be declared as such and not to be used for any other purpose.

Use of a ~~settling~~ settling tank with or without purifiers, or purifiers alone, and one service tank is not acceptable as an “equivalent arrangement” to two service tanks.

Notes:

1. This Unified Interpretation is to be applied by IACS Members and Associates to all ships subject to the relevant SOLAS Regulation.
2. Changes introduced in Rev.2 are to be uniformly implemented by IACS Members and Associates from 1 January 2003.
3. Changes introduced in Rev.3 are to be uniformly implemented by IACS Members and Associate from 1 July 2006.
4. Rev.4 of this UI is to be uniformly implemented by IACS Societies on service tank arrangements on ships contracted for construction on or after 1 January 2020.
5. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No. 29.

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'Type of fuel' is strictly interpreted as the exact grade of fuel. "Equivalent arrangements" to this are described in the examples below where grades of fuel may be grouped according to their sulphur content and viscosity as follows:

- : Residual Marine Fuel (RMF) refers to fuel oils with a sulphur content above 0.1% that require some form of heating to achieve required injection viscosity for combustion.
- : Distillate Marine Fuel (DMF) refers to fuel oils with a sulphur content above 0.1 % that do not require heating to achieve injection viscosity.
- : Low Sulphur Residual Marine Fuel (LSRMF) refers to fuel oils with a sulphur content not exceeding 0.1% that require some form of heating to achieve required injection viscosity for combustion.
- : Low Sulphur Distillate Marine Fuel (LSDMF) refers to fuel oils with a sulphur content not exceeding 0.1% having a minimum viscosity of 1.4 cSt at 40°C.

1. Example 1

1.1 Requirement according to SOLAS - Main and Auxiliary Engines and Boiler(s) operating with Heavy Fuel Oil (HFO) Residual Marine Fuels (RMF and LSRMF) (one fuel ship)

HFO Serv. TK <u>RMF/LSRMF Serv. TK 1</u> Capacity for at least 8 h Main Eng. + Aux. Boiler + Aux. Eng.	HFO Serv. TK <u>RMF/LSRMF Serv. TK 2</u> Capacity for at least 8 h Main Eng. + Aux. Boiler + Aux. Eng.	MDO TK <u>DMF/LSDMF TK</u> For initial cold starting or repair work of Engines/ Boiler <u>or ECA operation</u>
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1.2 Potential equivalent ~~Equivalent~~ arrangement *

HFO Serv. TK <u>RMF/LSRMF Serv. TK</u> Capacity for at least 8 h Main Eng. + Aux. Boiler + Aux. Eng.	HFO Serv. TK <u>DMF/LSDMF Serv. TK</u> Capacity for at least 8 h Main Eng. + Aux. Boiler + Aux. Eng. <u>or ECA operation</u>
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This arrangement only applies where main and auxiliary engines can operate with ~~heavy fuel oil~~ RMF/LSRMF under all load conditions and, in the case of main engines, during manoeuvring.

For pilot burners of Auxiliary Boilers if provided, an additional ~~MDO~~ DMF tank for 8 hours may be necessary.

* Conditions apply - See paragraph 3 below.

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2. Example 2

2.1 Requirement according to SOLAS - Main Engine(s) and Auxiliary Boiler(s) ~~operating with HFO and Auxiliary Engine operating with Marine Diesel Oil (MDO) can operate on both Residual Marine Fuels (RMF and LSRMF) and Distillate Marine fuels (DMF and LSDMF). Auxiliary Engines can only operate on Distillate Marine fuels (DMF and LSDMF) (multiple fuel ship)~~

<p>HFO Serv. TK RMF/LSRMF Serv. TK 1 Capacity for at least 8 h Main Eng.+ Aux. Boiler</p>	<p>HFO Serv. TK RMF/LSRMF Serv. TK 2 Capacity for at least 8 h Main Eng.+ Aux. Boiler</p>	<p>MDO Serv. TK DMF/LSDMF Serv. TK 1 Capacity for at least 8 h Main Eng.+ Aux. Boiler + Aux. Eng.</p>	<p>MDO Serv. TK DMF/LSDMF Serv. TK 2 Capacity for at least 8 h Main Eng.+ Aux. Boiler + Aux. Eng.</p>
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2.2 ~~Potential equivalent~~ Equivalent arrangement *

<p>HFO Serv. TK RMF/LSRMF Serv. TK Capacity for at least 8 h Main Eng.+ Aux. Boiler</p>	<p>MDO Serv. TK DMF/LSDMF Serv. TK 1 Capacity for at least the highest of: 4 h Main Eng. +Aux. Eng. +Aux. Boiler or and 8 h Aux. Eng. +Aux. Boiler</p>	<p>MDO Serv. TK DMF/LSDMF Serv. TK 2 Capacity for at least the highest of: 4 h Main Eng. +Aux. Eng. + Aux. Boiler or and 8 h Aux. Eng. +Aux. Boiler</p>
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*Conditions apply - See paragraph 3 below.

3. The potential equivalent arrangements in 1.2 and 2.2 ~~apply~~ are acceptable, provided the propulsion and vital systems which use the two types of fuel support rapid an emergency fuel changeover and are capable of operating in all normal operating conditions at sea with both types of fuel (MDO and HFO). The emergency fuel changeover, including the following, should be able to be carried out within the time not exceeding 1 hour:

- : Open and shut relevant changeover valves (to/from RMF/LSRMF and DMF/LSDMF service tanks or mixing valves, valves in fuel return pipes to RMF/LSRMF and DMF/LSDMF service tanks)
- : Open and shut off heat tracing of fuel pipes
- : Open and shut valves to fuel heaters and coolers
- : Starting/stopping of pumps (if separate DMF/LSDMF and RMF/LSRMF pumps are provided)
- : Taking into consideration the machinery manufacturers recommendations for safe change over (e.g. prevention of temperature shock)

The emergency changeover procedure is to be kept available on board the ship.

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