

SUB-COMMITTEE ON SHIP SYSTEMS AND
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**UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY AND
ENVIRONMENT-RELATED CONVENTIONS**

Fire detection and alarms for boilers in periodically unattended machinery spaces

Submitted by IACS

SUMMARY

Executive summary: The annex to this document provides a draft unified interpretation on fire detection and alarms for boilers in periodically unattended machinery spaces, as required by SOLAS regulation II-1/47.1, on which IACS seeks the view of the Sub-Committee

Strategic direction: 6

High-level action:

Output: 6.1

Action to be taken: Paragraph 7

Related documents: None

Introduction

1 SOLAS regulation II-1/47.1 states:

"Means shall be provided to detect and give alarms at an early stage in case of fires:

.1 in boiler air supply casings and exhausts (uptakes); and

.2 in scavenging air belts of propulsion machinery,

unless the Administration considers this to be unnecessary in a particular case."

2 IACS has discussed the need to clarify the following issues related to the means provided to detect and provide an alarm at an early stage in the event of a fire, as required by SOLAS regulation II-1/47.1:

- .1 the type and design of the boiler that is subject to this regulation; and
- .2 the location(s) within the boiler of this means of fire detection.

Discussion

3 Although it is understood that SOLAS regulation II-1/47.1 is based upon the premise that fires are likely to occur in boiler air supply casings and exhausts (uptakes), it is unclear if the regulation is applicable to oil fired boilers only, since these only have an air supply casing, or also to exhaust gas boilers.

4 This regulation appears to imply that fires are equally likely to occur in both air supply casings and exhausts (uptakes). In the view of IACS this assumption may not be accurate. The main cause of fires is the accumulation of oily soot on surfaces in way of the hot gas flow. Only surfaces in the hot gas flow have such inherent fire risk. For example, in an auxiliary composite boiler, such as the one shown in figure 1 below, the duct from the draft fan to the burner (see "A" in figure 1 below) is considered to correspond to "air supply casings", but there is no reason to expect that fires will occur at such locations. Therefore, it is considered that this location should not be subject to the provisions of SOLAS regulation II-1/47.1.

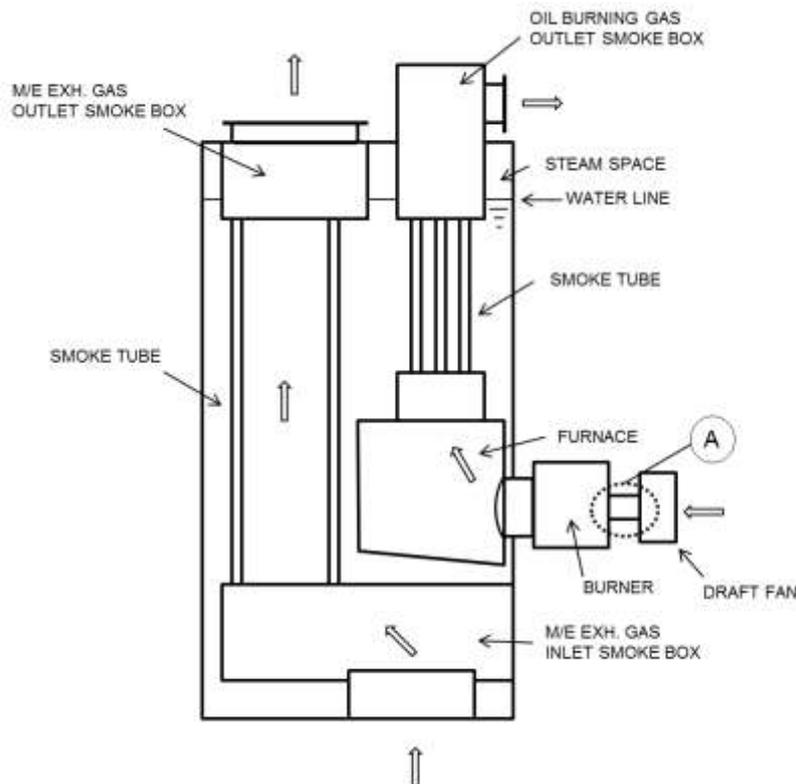


Figure 1: Example of auxiliary composite boiler

It is considered that only boilers with an inherent fire risk should be subject to the provisions of this regulation and, in this context:

- .1 "inherent fire risk in the air supply casing" means a fire risk that is introduced by heat exchangers, e.g. rotary heat exchangers, having surfaces exposed alternately to air and flue gas; and
- .2 "inherent fire risk in the flue gas uptake" means boilers where there is a possibility of accumulation of oily soot on surfaces in way of the hot gas flow.

5 IACS members have also agreed to clarify the location of the means to detect and provide an alarm at an early stage in the event of a fire occurring in the boiler air supply casings and exhausts (uptakes).

6 Taking the above comments and analysis into consideration, IACS has drafted a unified interpretation, as set out in the annex, with a view to clarifying the application of SOLAS regulation II-1/47.1 to different types of boilers; and the cases in which fire is to be detected and an alarm provided.

Action requested of the Sub-Committee

7 The Sub-Committee is invited to consider the foregoing and the draft unified interpretation set out in the annex and to take action as appropriate.

ANNEX

DRAFT UNIFIED INTERPRETATION OF SOLAS REGULATION II-1/47

SOLAS regulation II-1/47.1

"Means shall be provided to detect and give alarms at an early stage in case of fires:

- .1 in boiler air supply casings and exhausts (uptakes); and
- .2 in scavenging air belts of propulsion machinery,

unless the Administration considers this to be unnecessary in a particular case."

Interpretation

1 For the purpose of this interpretation:

- .1 "flue gas" means exhaust gas from boiler furnace or oil engine;
- .2 "flue gas uptake" means the part of the boiler where the flue gases are collected, after passing through the boiler, and led to the funnel;
- .3 "inherent fire risk in the flue gas uptake" means boilers where there is possibility of accumulation of oily soot on surfaces in way of the hot gas flow; and
- .4 "inherent fire risk in the air supply casing" means fire risk introduced by heat exchangers, e.g. rotary heat exchangers, having surfaces exposed alternately to air and flue gas.

2 SOLAS regulation II-1/47.1 applies to oil fired boilers, exhaust gas boilers and composite boilers.

3 For boilers with no inherent fire risk in the air supply casing, it is deemed unnecessary to provide means to detect and give alarms at an early stage in case of fire.

4 For boilers with no inherent fire risk in the flue gas uptake, it is deemed unnecessary to provide means to detect and give alarms at an early stage in case of fire.

5 For boilers with an inherent fire risk in the air supply casing, the means to detect and give alarms at an early stage in cases of fires may be achieved by either providing these means in the air supply casing or in the flue gas uptake, at a representative location.

6 For boilers with an inherent fire risk in the flue gas uptake, these means should be located in the flue gas uptake, at a representative location.