28 August 2023

IUMI Policy Agenda

7. Safety of RoRo vessels

Brief description

Due to the “Norman Atlantic” fire just before New Year 2014 and the fire on the “Sorrento” in April 2015, IMO increased its focus on the evacuation and safety of RoRo vessels. The Maritime Safety Committee (MSC) highlighted the need for an international response to the casualty reports from the marine accident investigations and act to enhance the current safety regime.

Marine underwriters have witnessed that the frequency of fires in the Car/RoRo segment is at a level twice the frequency of fires on most other vessel types. Cargo fires are the most frequent type of fires, which could be related to the fire risk of cars in general, as well as challenges with detecting, locating and extinguishing fires on these vessels. Refrigeration units, transportation and charging of electric and other alternative fuel vehicles, stowaways and passengers on ro-ro decks are other factors that potentially increase the fire hazard.

Interferry released in March 2016 Operational Best Practice Guidance on ferry safety for ro-ro passenger ships. The key finding of their review is that more attention should be given on response time in case of an incident.

MSC 97 agreed in November 2016 to include in the 2016-2017 biennial agenda of the Sub-Committee on Ship Systems and Equipment (SSE), with the support of the Sub-Committees on Ship Design and Construction (SDC) and Human Element, Training and Watchkeeping (HTW), an output on “Review SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passengers ships”. SSE agreed in March 2017 on a two-step approach: 1) the development of Interim Guidelines, and 2) the development of amendments to SOLAS and associated codes. The interim guidelines for minimising the incidences and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger vessels were approved by MSC 101 in June 2019. The guidelines cover prevention/ignition, detection/decision, extinguishing fires, containment and integrity of life-saving appliances and evacuation.

Revised guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro and special category paces were issued by MSC in June 2023 (MSC.1/Circ.1430/Rev.3).

In June 2023, MSC 107 approved amendments to SOLAS chapter II-2 and the Fire Safety Systems (FSS) Code for new and existing ro-ro passenger vessels. The amendments will enter into force 1 January 2026 for new ro-ro passenger vessels and from 1 January 2028 for existing ro-ro passenger vessels.

Carriage of alternative fuel vehicles

Carriage of battery electric vehicles (BEVs) present a particular challenge when a fire breaks out. In March 2020 during SSE 7, a document about risks associated with the transport of lithium-ion battery powered vehicles was introduced. As a follow up, interested Member States and international organisations could submit proposals to the Maritime Safety Committee (MSC) for a relevant new output to address these risks. In April 2022, MSC 105 agreed to a new output on the evaluation of the adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of vessels carrying new energy vehicles. The output will also include considerations of the charging of electric vehicles on board vessels. The scope of the application will be considered by the SSE sub-committee. Work will start in March 2024, with SOLAS amendments not expected to enter into force before 1 January 2032.

In view of the serious incidents caused by fires originating in vehicles, a Correspondence Group was established by the IMO sub-committee on Carriage of Cargoes and Containers (CCC) in September 2022. The CG will review the transport provisions in view of improving the carriage regulations, consider appropriate measures to address the hazards and report to CCC 9 in 2023.

IUMI has established a working group which includes car manufacturers and ship operators to consider the risks of the carriage of BEVs and to develop best practice and recommendations for marine insurers.

Relevant authority / organisations and documents

- **IMO – Maritime Safety Committee (MSC) & Sub-Committee on Ship Systems and Equipment (SSE)**
  - ***MSC96/INF.3:*** Electric mobility on ro-ro and ro-pax ships. Report of the Formal Safety Assessment study, 9 February 2016.
  - ***MSC96/16/1:*** Formal Safety Assessment - Considerations on the revision of SOLAS regulation II-2/20 – fire safety in connection with the transport of vehicles with electric generators or electrically powered vehicles, submitted by the EC and Member States, 8 March 2016.
  - ***MSC97/19/3:*** Work programme – Fire safety of ro-ro passenger ships, submitted by EU Member States and the EC, 1 August 2016.
  - ***SSE5/INF.4:*** Information from several relevant studies, submitted by EC and the EU Member States, 8 December 2017.
  - ***SSE6/6/1:*** Review of relevant recent accident investigation reports from the EU, submitted by the EC and EU Member States, 30 November 2018.

- ***SSE7/6/6:*** Draft amendments to SOLAS regulation 11-2/20 regarding ships carrying lithium-ion battery vehicles, submitted by China, 8 January 2020.
- ***MSC104/15/19:*** Proposal for a new output to evaluate the adequacy of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles, submitted by China, 2 July 2021.
- ***CCC8/6/6:*** Special provisions for the transport of vehicles, submitted by the United States, 12 July 2022.
- ***SSE9/INF.6:*** Information on the output of 'Evaluation of fire protection, detection and extinction arrangements in vehicle, special category and ro-ro spaces in order to reduce the fire risk of ships carrying new energy vehicles', submitted by China, 23 December 2022.
- ***MSC107/INF.5:*** Test of the efficiency of a fixed water-based extinguishing system in relation to a lithium-ion battery fire in a vehicle, submitted by Interferry, 6 March 2023.
- ***MSC.1/Circ.1430/Rev.3:*** Revised guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces, 27 June 2023.
- ***CCC9/6/10:*** Proposal for amendments to the IMDG Code on stowage and segregation of lithium battery energy storage cabinets, submitted by China, 19 July 2023.

- **Interferry:** RoRo Deck Fire Safety - Operational Best Practice Guidance, 8 March 2016 (MSC96/6/2).
- **DNV GL:** Fires on Ro-Ro decks, 20 June 2016.
- **European Maritime Safety Agency (EMSA):**
  - FIRESAFE – study investigating cost effective measures for reducing the risk from fires on ro-ro passenger ships, SP Technical Research Institute of Sweden, Bureau Veritas, Stena Rederi, December 2016 (SSE4/INF.8).
  - Guidance on the carriage of AFVs in Ro-Ro spaces, 23 May 2022.
- **IUMI:** Position Paper: Fires on ro-ro passenger vehicle decks, 7 February 2017 (https://iumi.com/opinions/position-papers).
- **Alternative Fuel Vehicle Project:** Report: Safe transportation of alternative fuel vehicles, 13 June 2017.
- **Standard Club:** A master's guide to Fire Safety on Ferries, April 2018.
- **LASH FIRE** international R&D project.
- **UK Government:** Marine Guidance Note (MGN) 653 (M) Electric vehicles onboard passenger roll-on/roll-off (ro-ro) ferries, 21 July 2022.
- **DBI ELBAS Project:** Electric vehicle fires at sea: New technologies and methods for suppression, containment, and extinguishing of battery car fires onboard ships, 2 February 2023.
- **RINA:** Guide for the carriage of alternative fuelled vehicles on board Ro-Ro ships, 1 February 2023.

Timeline / important dates

- MSC 97: 21-25 November 2016.
- IACS/IUMI Technical Cooperation Group: 6 June 2017.
- EMSA FIRESAFE study II, 2018.
- MSC 101: 5-14 June 2019.
- SSE 8: 28 Feb – 4 March 2022.
- LASH FIRE: September 2019 – August 2023.
- LASH FIRE conference, EMSA, 9-11 October 2022.
- LASH FIRE conference, 28 June 2023.
- CCC 9: 18-29 September 2023.
- SSE 10: 4-8 March 2024

IUMI will:

- Support Interferry RoRo Deck Fire Safety Operational Best Practice Guidance.
- Support ongoing work at the IMO to improve safety of RoRo vessels and Car Carriers.
- Provide input to IMO for consideration of risks associated with the transport of new energy vehicles.
- Develop best practice and recommendations in relation to the carriage of BEVs.