

This document is a translation made by SHK of the original response in Swedish to the safety recommendation. In case of discrepancies between this translation and the Swedish original text, the Swedish text shall prevail in the interpretation of the response.

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Carl Johan Frödin, carljohan.frodin@mil.se

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## **The Swedish Armed Forces' actions in response to SHK investigation RM 2021:01, Serious incident with a JAS 39 above Lake Vänern on 17 December 2020**

### **Background**

In its final report RM 2021:01, the Swedish Accident Investigation Authority (SHK) issued three recommendations to the Swedish Armed Forces (SAF) to implement no later than 16 March 2022. The Armed Forces requested that the response period be extended until 8 April 2022, which was accepted by SHK. The statement describes the action SAF has taken or plans to take, as well as the division of responsibility for each recommendation.

### **Safety recommendations**

- 1) In consultation with Saab AB, review the warning logic for the air/oxygen system to more clearly distinguish between pressure problems and oxygen concentration problems in aircraft JAS 39 Gripen C/D. (RM 2021:01 R1)
- 2) In consultation with Saab AB, review the classification of the warnings so that they are adapted to the time-critical nature of the warnings in JAS 39 Gripen C/D. (RM 2021:01 R2)
- 3) Review the possibility of conducting a study to measure the blood oxygen concentration of pilots during flights with the JAS 39 C/D Gripen. (RM 2021:01 R3)

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**Response to recommendation 2021:01 R1**

The work to change the alarm logic in OBOGS<sup>1</sup> has already been initiated by Saab AB more than a year ago. Saab AB has drawn up a proposal and work meetings take place every six weeks involving participants from Saab/FMV/SAF. According to Saab AB, this change will result in fewer alarms and a safer system. In the work that takes place in future, SAF would like to see simulations from past events that demonstrate the difference between the current and the proposed logic.

Saab AB plans to introduce a changed alarm logic in conjunction with Block 2.2 at the end of 2023. At present, Block 2.2 is not something that SAF has decided to introduce.

Responsible: Commander, Swedish Air Force

**Response to recommendation 2021:01 R2**

SAF intends to ensure that the relevant parts of the AOM<sup>2</sup> that describe the classification of warnings, are clarified and that the training section under CT<sup>3</sup> – the training phase – is developed.

Saab AB is currently analysing the possibility of changing the activation logic of, among other things, BEOS (emergency oxygen), which likely will entail one or more new alarms and, with this, a somewhat more intuitive logic. They are considering updating the description for oxygen systems and warning alarms connected to this in the Flight Manual, which then can be introduced into the AOM.

When changes are made to logic and warning alarms, the process will also include a review of the classification of the alarms concerned, but this is unlikely to involve any major changes.

Responsible: Commander, Swedish Air Force

**Response to recommendation 2021:01 R3**

The Swedish Air Force Staff has, with assistance from the Air Force Chief Surgeon, investigated the possibility of conducting a study to measure the blood oxygen concentration during flight. The plan is to carry out a study in 2022.

Responsible: Commander, Swedish Air Force

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<sup>1</sup> On-board oxygen generation system

<sup>2</sup> Aircraft operations manual

<sup>3</sup> Conversion training

### **Statement**

Major General Carl-Johan Edström, Sara Göransson Livijn, defence lawyer, Magnus Liljegren, air safety inspector, and Major Carl Johan Frödin have participated in the preparation of this matter.

This statement has been decided on by Supreme Commander Micael Bydén. Lieutenant Colonel Andreas Dahlberg has participated in the final preparation and as rapporteur.

[signature]  
Micael Bydén

[signature]  
Andreas Dahlberg

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