ACAS II Bulletin
# Aircraft without operational TCAS

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In ACAS Bulletin 26, we talked about the risk of operations with TCAS in TA-only mode. In this issue, we will look further – into the cases of flights without operational TCAS II and their implications for pilots and air traffic controllers.

Based on the current equipage mandate, the majority of aircraft operating in European airspace must be equipped with and operate TCAS II version 7.1. However, on some occasions aircraft fly without operational TCAS. According to a monitoring study in core European airspace, 1.4% of TCAS-equipped aircraft operated with TCAS out of service.

TCAS, like any other on-board equipment, is covered in a Minimum Equipment List (MEL) which allows the operation of aircraft with particular equipment temporarily inoperative, subject to specified conditions (more information about MEL on SKYbrary).

The circumstances under which a flight with inoperative TCAS is allowed vary. Generally, EASA rules allow an aircraft to operate with TCAS II out of service for up to 10 days. However, some local authorities and/or operators may introduce more restrictive rectification deadlines. For example, in Germany aircraft are allowed to operate without TCAS II (under MEL exemption) only for up to 3 days.

Naturally, aircraft operating without operational TCAS II or in TA-only mode will have limited or no protection, depending on the equipage of the intruder aircraft. TCAS II equipped aircraft will only provide protection against threats with altitude reporting transponders.
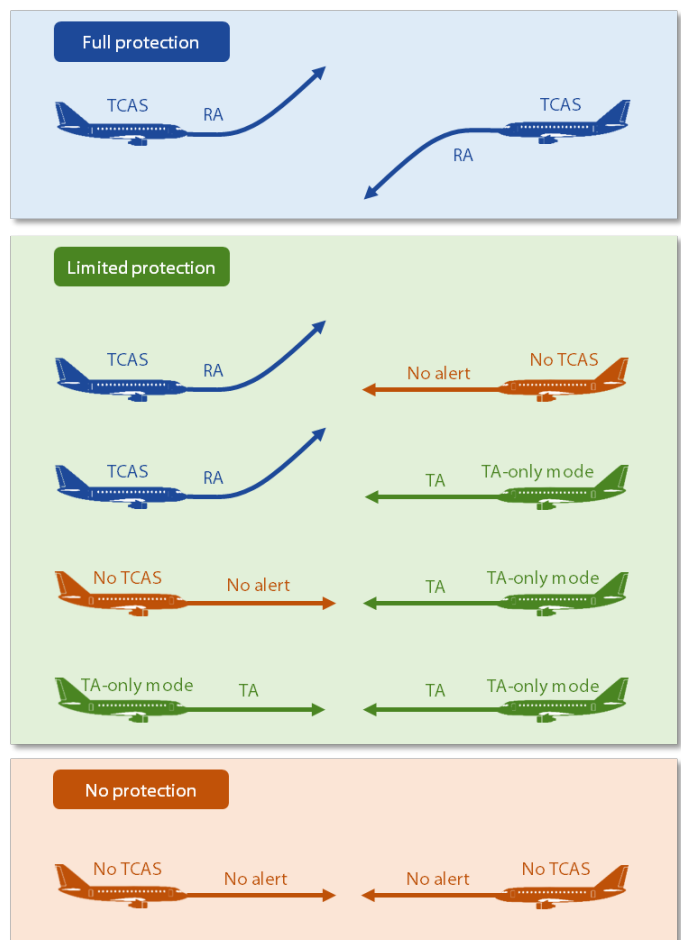
European ACAS mandate:
The carriage of TCAS II version 7.1 is mandated within European Union airspace by all aeroplanes with a maximum certified take-off mass exceeding 5700 kg or authorised to carry more than 19 passengers. Currently, TCAS II version 7.1 is the only permitted collision avoidance system. The mandate does not apply to unmanned aircraft system nor military airplanes.

Source: EU Regulations 1332/2011 and 2016/583.

Aircraft operators should make sure that the aircraft are dispatched subject to requirements published by regulators as more restrictive deadlines are imposed in some circumstances. Some operators may voluntarily decide not to dispatch an aircraft to fly in a certain airspace (e.g. where there is no radar coverage) without TCAS.

Pilots should ensure that their TCAS equipment remains in TA/RA mode throughout the flight, so their aircraft can benefit from TCAS II conflict resolution advice. There is no need to report the TCAS operational status or failures to ATC, except when local rules required this information.

While aircraft operators and pilots should follow regulatory and internal requirements on equipage and serviceability of TCAS II, what about **air traffic controllers**? Should they be concerned about the status of TCAS equipage and serviceability for aircraft in their airspace? Unless specific local rules require different procedures, all aircraft – regardless of their TCAS equipage status – should be treated equally and the applied separation standards should be the same. ATC does not need to police TCAS equipage.

Finally, please note that national regulators may impose more restrictive deadlines or requirements on operations without serviceable TCAS and/or reporting TCAS serviceability to ATC. These requirements are subject to change at any time.

ICAO:

The procedures to be applied for the provision of air traffic services to aircraft equipped with ACAS shall be identical to those applicable to non-ACAS equipped aircraft. In particular, the prevention of collisions, the establishment of appropriate separation and the information which might be provided in relation to conflicting traffic and to possible avoiding action shall conform with the normal ATS procedures and shall exclude consideration of aircraft capabilities dependent on ACAS equipment.

Source: ICAO PANS-ATM Doc 4444, para 15.7.3.1

Learning points:

- To ensure the greatest protection against the risk of midair collision, aircraft should operate TCAS II in full RA mode at all times.

- Aircraft operators should ensure that the TCAS equipage is in line with the requirements for airspace where their aircraft operate.

- EASA MEL allows an aircraft to operate with TCAS II out of service for up to 10 days, subject to any local limitations (e.g., 3 days in Germany).

- ATC should treat all aircraft equally regardless of their TCAS II equipage, unless any local rules impose different requirements.

Further reading:

- Minimum Equipment List (MEL) on SKYbrary

- EUROCONTROL ACAS Guide (section 8.12 on MEL)

- The Assessment of Pilot Compliance with TCAS RAs, TCAS Mode Selection and Serviceability Using ATC Radar Data (EUROCONTROL Study)

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