



## Safety recommendation no. 556

<b>Date of the publication</b>	20.10.2020
<b>Number of the final report</b>	2364
<b>Safety deficit</b>	<p>A helicopter of the type Airbus Helicopter AS 350 B3 was in slow forward flight during a visual overhead line inspection. During this inspection, the helicopter collided with a black fiberglass cable, approximately 26 mm thick, which led from an antenna mast across a gorge to an overhead line mast. The pilot was able to land the slightly damaged helicopter in close proximity.</p> <p>At the point of collision, the fiberglass cable had a height of about 110 metres above the ground and was neither stored in the aviation obstacle database of the Federal Office of Civil Aviation (FOCA) nor was it marked.</p> <p>The FOCA's aviation obstacle database did not match the actual situation at the time of the accident. In addition to the fiber optic cable, an overhead power line was present that was not stored in the database. In contrast, overhead power lines were entered in the aviation obstacle database that did not exist in reality.</p>
<b>Safety recommendation</b>	<p>The Federal Office for Civil Aviation (FOCA) should take the following measures to prevent cable collisions:</p> <ul style="list-style-type: none"><li>- Ensure an aviation obstacle database that represents the current state as far as possible.</li><li>- Promotion programme for sensor-based, autonomous obstacle warning systems.</li></ul>
<b>Addressees</b>	BAZL Bundesamt für Zivilluftfahrt
<b>Stage of the implementation</b>	<p>Partially implemented. The FOCA is in partial agreement with Safety Recommendation No 556_a.</p> <p>In the FOCA's view, the main problem in the case of the fibre-optic cable cut through by the helicopter, as mentioned in final report no 2364, was that the owner had not reported the cable despite the obligation to obtain approval under the Ordinance on Aviation Infrastructure (AvIO; SR 748.131.1). This opinion was also stated in the final report. Consequently, no conditions could be imposed during the required FOCA approval procedure and the cable was not included in the database of air navigation obstacles. Whilst defaulting owners can be sanctioned in administrative proceedings under the AvIO, the FOCA is constantly making it easier for owners to report air navigation obstructions.</p> <p>Following the full revision of the AvIO, which came into effect on 1 January 2019, approval is now only required for air navigation obstructions above a height of 100m from ground level (apart from a few exceptions such as wind turbines). Furthermore, in order to simplify processes for the owners, registration only is required for obstructions from a height of 25m above ground level. The FOCA has specially developed and introduced a new Obstacle Collection System (OCS), an online tool which allows owners to register their</p>

structures as air navigation obstacles simply and quickly and with the necessary assistance. This can be done free of charge. It is also planned to introduce a Data Collection Service (DCS), a national data collection interface which will simplify internal processes and improve coordination with the various bodies involved. This is currently being developed and will probably replace or integrate the OCS in two years' time.

Furthermore, as already mentioned in the STSB final report under section 4.3 (Measures taken since the accident), the FOCA, in collaboration with the Federal Office of Topography, will carry out a pilot project to improve the accuracy and timeliness of data on air navigation obstacles above 100 metres. This is to be achieved using air laser measurements (surface model). The air navigation obstacle database will be updated with the findings and data obtained. The project was launched in autumn 2020 with a series of workshops; it is planned to incorporate the latest data into the new DCS by the end of 2022.

The FOCA agrees in part with Safety Recommendation No 556\_b. Sensor-based, autonomous obstacle warning systems will become increasingly important. This is true of both manned and unmanned aviation. We thus agree that developments in these systems should be monitored (in order to acquire the necessary skills and understanding) and encouraged. However, the costs of funding a programme to further develop the technology is far beyond the FOCA's means. This technology is now highly specialised and is being further developed by large corporations.

The Hensoldt system provides one example of this technology:

[www.hensoldt.net/what-we-do/air/situational-awareness](http://www.hensoldt.net/what-we-do/air/situational-awareness)

However, the cost and weight of such a system are very high (> CHF 100,000; > 30kg).

In the case of simpler, less reliable systems, the FOCA believes that the effective benefit must again be put in relation to the behaviour of the crew, who should not be tempted to prepare less seriously for a flight or to engage in riskier flight behaviour. Furthermore, EASA approval is required to install such equipment (Minor or Major Change/STC).

Financial support for individual structures and small developments is already provided for under Article 87 of the Federal Constitution. The issue of sensor-based, autonomous obstacle systems has now been made a multi-year priority topic (since November 2020). Such projects can be subsumed under the measures 'accident prevention programmes in civil aviation' and 'research and development projects' in the Safety category.

No further measures are planned by the FOCA Aircraft Safety Division for the time being.

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**Investigation report concerning  
the safety recommendation**

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