Safety recommendation no. 582

Date of the publication	23.08.2022
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Safety deficit	On 7 November 2022, the European Union Aviation Safety Agency (EASA) informed the STSB of the measures taken in relation to Safety Recommendation No. 583 as follows: In a motorglider Arcus T built in 2011, which was equipped with an auxiliary engine “Solo Aircraft Engine 2350 D” with serial number 239, the propeller axle broke during engine start and the propeller fell to the ground from a height of about 630 m. At that time, the engine had a total of 72 hours of operation. During the investigation, it was found that the propeller axle was made of ETG88 steel, which is an easily machinable steel. The fracture surface of the propeller axle was heavily coated with corrosion products and the axle failed due to a fatigue fracture. The axle surface showed clear signs of pitting corrosion. The fracture occurred at the transition radius from a smaller to a larger axle diameter. On an identical propeller axle of the engine with serial number 248 with about 56 operating hours, a crack test revealed a crack about 15 mm long at the same location as on the propeller axle of HB-2467.
Safety recommendation	The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer Schempp-Hirth and the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs GmbH, should take appropriate measures to en-sure that the propeller axles of all engine models of the 2350 series have sufficient structural strength. In material science, the term “structural strength” refers to the determined fatigue strength of a component in its actual shape.
Addressees	EASA Europäische Agentur für Flugsicherheit
Stage of the implementation	Implemented. The European Union Aviation Safety Agency (EASA), in cooperation with the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs GmbH, has issued on 15 March 2022 the Airworthiness Directive (AD) 2022-004, further revised on 29 April 2022 that adds to the applicability of the superseded previous AD 2015-005R1 all Solo Model 2350 D engines, all manufacturer serial numbers. Current AD 2022-004 mandates a new major change to Solo 2350D through which a life limit of 30 engine operating hours of the old axles and of 50 engine operating hours of the new axles were introduced.
Investigation report concerning	

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the safety recommendation

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