MBB-BK 117 C-2, G-MPSB	North Weald Airfield, Essex	12 March 2021	Serious Incident

Investigation Synopsis

This serious incident occurred during the demonstration of an engine failure after takeoff emergency procedure on a revalidation flight for the commander's type rating instructor qualification. The engine failure was simulated by the commander reducing Engine No 1's throttle to idle. Shortly afterwards the commander increased the throttle setting, but Engine No 1 did not respond. During attempts to resolve the problem, the throttle setting for Engine No 2 was inadvertently reduced, resulting in insufficient power being available for continued safe flight. The commander rejected the takeoff and executed a firm landing within the airfield boundary.

While the aircraft's skid assembly was deformed as a result of the landing, the touchdown forces did not exceed the manufacturer's threshold for it to be classified as a 'hard landing.' The subsequent engineering investigation did not find any evidence of malfunction in the engine control systems. Engine No 1 probably did not respond because the rotor rpm droop compensation had been inadvertently trimmed in the wrong direction.

Safety Recommendation 2024-002

Justification

Safety action proposed by the helicopter manufacturer has not been taken

Therefore, the following safety recommendation was made:

> **Safety Recommendation 2024-002**
>
> It is recommended that Airbus Helicopters Deutschland GmbH develop formal guidance to pilots delivering simulated one engine inoperative training in MBB-BK 117 helicopters using the one engine at idle technique.

Date Safety Recommendation made: 13 March 2024

LATEST RESPONSE

Response received: 05 July 2024

Please Note: The corresponding one engine inoperative (OEI) training procedure is limited to those MBB-BK117 versions only with a Twist Grip installed. To be precise – the Flight Crew OEI Training Material/Guideline will be limited to the MBB-BK117 C-2 version.

At this point in time Airbus Helicopters (AH) is developing a dedicated OEI Training Material/Guideline in collaboration between the project & flight safety pilots of the flight test department and the corresponding AHD ATO chief flight instructor team. As soon as a reliable publication date is defined and a document draft version is available, AH will promptly pass this information on to the AAIB.

Safety Recommendation Status	**Open**
AAIB Assessment	**Adequate**
Action Status	**Planned Action Ongoing Update Due** 01 December 2024

Feedback rationale

The AAIB awaits the draft guidance when available but requests an update on progress by 1 December 2024. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

Safety Recommendation 2024-003

Justification

Safety action proposed by the helicopter manufacturer has not been taken

Therefore, the following safety recommendation was made:

> **Safety Recommendation 2024-003**
>
> It is recommended that Airbus Helicopters Deutschland GmbH review the appropriateness and scope of the MBB-BK 117 rotorcraft flight manual limitation requiring the use of the manufacturer's training device when conducting one engine inoperative training at maximum training gross mass.

Date Safety Recommendation made: 13 March 2024

LATEST RESPONSE

Response received: 05 July 2024

It is intended by Airbus Helicopters to enhance the document by a dedicated CAUTION within the Rotorcraft Flight Manual Section 9. Flight Manual Supplements, Sub-chapter 9.1 Special Operations, 9.1-3 OEI Training, A.4. Normal Procedures:

"OEI training without the training device (P/N B032M0820101), with manipulation of the twist-grip, bears a greater risk to exceed engine limitations as well as the risk of an inadvertent operation of the wrong twist grip."

Please Note: The reference with regard to operating weight and the usage of the OEI training device as defined within the chapter Rotorcraft Flight Manual Section 9. Flight Manual Supplements, Sub-chapter 9.1 Special Operations, 9.1-3 OEI Training, D.2. Limitations - "For CAT A Training with max. training gross mass the OEI Training device must be installed and operating." - will remain unchanged.

The upissue of the Rotorcraft Flight Manual will be scheduled within the next common washup revision. As soon as a reliable authority approval and publication date is defined, Airbus Helicopters will share this information with the AAIB accordingly.

Safety Recommendation Status **Open**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Ongoing Update Due** 28 February 2025

Feedback rationale

The AAIB invites Airbus Helicopters to reconsider how the Rotorcraft Flight Manual expresses the requirement to use the training device at maximum training gross mass. As currently written, it appears that the training device would not be required at maximum training gross mass minus 1 kg, which would, in effect, mean the device was never required. There might, for example, be a mass that is less than the training gross mass above which the device is required but below which it is not.

The AAIB requests a further response on this issue by the end of February 2025. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A