

Loss of control after cockpit canopy opened during flight, near Kornhorn

Publication date: 16 February 2023

1. About the report

On 13 February 2021, at approximately 15.00 hours local time, the Aerospool Dynamic WT9 (registration PH-4E7), a micro light aircraft (MLA), took off from Drachten Airfield for a local VFR flight. The pilot was the only occupant. The aircraft lost altitude and crashed near Kornhorn. Shortly afterwards, the aircraft caught fire. The pilot was fatally injured and the aircraft was destroyed as a result of the crash and the subsequent fire.

The Dutch Safety Board investigation showed that the cockpit canopy had opened during the flight, after which the aircraft descended. The pilot lost control of the aircraft and the subsequent rapid descent could not be arrested given the relatively short time before the MLA hit the ground. It remained unknown as to why the pilot lost control of the aircraft. There are no indications that the loss of control was caused by a physical problem.

Due to extensive damage, only a limited technical investigation of the aircraft wreckage was possible. This investigation did not reveal any technical abnormalities that could have been a contributing factor to the cause of the accident. It is most likely that the canopy was not properly closed before the aircraft took off.

Further investigation revealed that the unexpected opening of the canopy during flights with this type of aircraft had happened several times in the past. After the manufacturer had been informed of the possibility of the canopy not being closed properly, he issued a Mandatory Service Bulletin in 2008 in which an amendment to the flight manual was specified. This amendment addressed the emergency procedures to be followed by the pilot in the event of the canopy inadvertently opening during various flight phases. Additionally, the manufacturer issued a Recommended Service Bulletin in 2019 to install a canopy lock with safety latch and sensor to prevent unintentional opening of the canopy. This new canopy lock would indicate the insufficient plug-in of the main latch by means of a yellow check light in the cockpit. It would also hold the main latch – and therefore the canopy closed – after the plug-out from the canopy lock socket. This new and recommended locking device and indicator light had not been installed in the PH-4E7.

When the aircraft was purchased in 2009, the flight manual did not contain the amended information as required by the 2008 Mandatory Service Bulletin. The flying club (holder of the aircraft) was not aware of the Mandatory Service Bulletin. Holders of MLA are responsible for regularly checking for notices on the manufacturer's website. Regular maintenance and inspection of the aircraft and associated documentation did not reveal that the mandatory changes had not been included in the flight manual.

The recommendation to install a new lock with safety latch and sensor was considered unnecessary by the flying club.

A previous canopy incident with this aircraft involving a member of the flying club, did not result in raising awareness of the danger of the canopy opening unintentionally. This was due to the way in which the club dealt with safety and the lack of a robust safety reporting system. At the time, tasks and responsibilities, particularly in terms of maintenance, instruction and safety, were not adequately assigned within the flying club.

Microlight aircraft (MLA) are not certified in accordance with international standards and airworthiness requirements, but must comply with national requirements. The responsibility for MLA-oversight rests with the national Civil Aviation Authorities (CAA). Oversight and monitoring compliance with the regulations for MLA is delegated to the Dutch Human Environment and Transport Inspectorate (ILT, Inspectie Leefomgeving en Transport) as part of the CAA. This oversight and monitoring is virtually non-existent. The issue and renewal of a Special Certificate of Airworthiness is an administrative procedure based on self-declaration. Therefore, the safety level of MLA depends almost exclusively on the holders and pilots of these MLA. Active oversight will only be carried out if ILT finds reason to do so. Risk assessment for MLA is optional, according to ILT the risk is assumed to be low.

In response to a recommendation of the Dutch Safety Board in June 2020, the Minister of Infrastructure and Water Management responded that oversight of MLA has not been a priority for the Dutch CAA in the past. The Minister stated that ILT will evaluate whether reassessment of the MLA risk is required and that the oversight program will be looked at in order to capture issues in the MLA sector. Despite these commitments, there have been little or no improvements on the oversight of MLA by ILT.

The Dutch Safety Board stated in its report that the responsibility for flight safety of MLA is a shared responsibility of the holders, the pilots and the government. As it cannot be taken for granted that all holders and pilots are aware of this responsibility, it is the government's task to make them aware of this. To increase the safety of flying MLA, particularly Dynamic WT9 aircraft, the Board made recommendations to manufacturer Aerospool and to the Minister of Infrastructure and Water Management.

Manufacturer Aerospool responded to the recommendations on 31 October 2023. On 15 May 2023, the Dutch Minister of Infrastructure and Water Management responded to the recommendations. Supplementary to this, the Ministry of Infrastructure and Water Management gave a brief update in January 2024.

¹ Dutch Safety Board, *Loss of control with fatal outcome, Pipistrel Alpha Electro, near Stadskanaal airfield*, 10 July 2020.

² See the response of the minister and the Dutch Safety Board's response to this on the website: <https://www.onderzoeksraad.nl/nl/page/12366/verlies-van-controle-met-dodelijke-afloop-pipistrel-alpha-electro>.

2. General conclusion on follow-up to the recommendations

Manufacturer Aerospool does not comply with the recommendation. The company claims that it has taken all the necessary steps, with reference to its Mandatory Service Bulletin (2008) and Recommended Service Bulletin (2019). Aerospool also states that the national aviation authority can make the locking system mandatory, as the Austrian authority Austro Control has done.

Aerospool has a responsibility to make its aircraft as safe as possible. By not complying with the recommendation, the company still gives the pilots and holders of such aircraft too much leeway to choose for themselves whether they will take the relevant safety measures. The investigation has shown that this poses risks. Additionally, it depends on individual national aviation authorities whether they wish to make the locking system mandatory for this type of aircraft.

By making the canopy locking system with safety latch and sensor mandatory for all Dynamic WT9 aircraft (as stated in the recommendation), Aerospool can ensure that these aircraft are safer, regardless of the context and choices of pilots and holders. It will then also no longer depend on the choices of different national aviation authorities as to whether the locking system is made mandatory.

The Minister of Infrastructure and Water Management complies with the recommendations addressed to him by initiating several actions aimed at raising awareness among organisations involved in flying micro light aircraft and calling for MLA holders and pilots to assume their responsibility for safety.

Overview of follow-up per recommendation

In evaluating the extent to which recommendations from aviation reports have been followed up on, the Dutch Safety Board is bound by the assessment criteria of the European classification system, in line with EU Regulation No. 996/2010. The European classifications with the corresponding assessment criteria appear in an appendix to this memorandum.

Recommendations to	(Core of) Recommendation	Compliance
Aerospool	1. Make the installation of the canopy locking system with safety latch and sensor mandatory for all Dynamic WT9 aircraft.	Not adequate
Ministry of Infrastructure and Water Management	2. Make organisations that are involved in flying with micro light aircraft, and holders and pilots of MLA aware that they themselves are largely responsible for safety and that this calls for regulatory compliance and actively assuming this responsibility.	Adequate

3. Follow-up per recommendation

Recommendation 1:

To the manufacturer Aerospool:

To make the installation of the canopy lock with safety latch and sensor mandatory for all Dynamic WT9 aircraft.

Response from Aerospool

Aerospool states that the design of the canopy locking system used in the Dynamic WT9 aircraft, if correctly locked, cannot be opened spontaneously. Aerospool has been in contact with EASA on this issue because the same design of the canopy locking system has been installed in the aircraft's WT9 Dynamic LSA.³ According to Aerospool, if the before flight procedures are carried out correctly, there is no risk of the canopy opening.

In 2008, Aerospool issued a Mandatory Service Bulletin (ZBWT9 10A/2008) containing additional information and procedures for the unsecured cockpit canopy. The company also mentions its Recommended Service Bulletin (DVWT9 10B/2019) that was published in 2019, which provides information on how to safely install the cockpit canopy locking system. According to Aerospool, a safety latch and sensor is available for those who wish to upgrade their aircraft with additional safety equipment.

Aerospool published the Mandatory Service Bulletin and Recommended Service Bulletin on their website.⁴ The safety latch with sensor was implemented in series production starting with aircraft of the type S/N: DY-668/2019.

The company claims that it has taken all the necessary steps. According to the company, it is up to the Dutch aviation authority whether implementation of the recommendation on cockpit canopy locking system (DV WT9 10B/2019) is required for Dynamic WT9 aircraft registered in the Netherlands. Aerospool refers to such a requirement imposed by the Austrian civil aviation authority Austro Control for this type of aircraft.⁵

Assessment of compliance

In accordance with the European classification, the compliance with the recommendation to make the canopy locking system mandatory is classified as not adequate.

³ EASA-certified aircraft, EASA.A.644.

⁴ <https://www.aerospool.sk/index.php/ull-dynamic-wt9-bulletins/>.

⁵ See https://www.austrocontrol.at/jart/prj3/ac/data/dokumente/TD_AOT_ACE_012_2023-04-27_1304694.pdf, p. 14, item 3.

Explanation of the assessment

Aerospool does not take responsibility for making Dynamic WT9 aircraft safer through compliance with the recommendation. Aerospool had already published the Mandatory and Recommended Service Bulletins when the accident at Kornhorn took place and they could not prevent the occurrence. By making the canopy locking system with safety latch and sensor mandatory for all Dynamic WT9 aircraft, Aerospool can make these aircraft safer, regardless of the context and choices of pilots and holders. Also, it will no longer depend on the different national aviation authorities as to whether the locking system is made mandatory.

Recommendation 2:

To the Minister of Infrastructure and Water Management:

Make organizations involved in MLA flying, holders and pilots of MLA aware that they are largely responsible for the safety of MLA flying themselves and that this requires compliance with the regulations and an active fulfilment of this responsibility.

Response from the Minister of Infrastructure and Water Management

In his response letter, the minister says that he intends to put arrangements in place for the recommendation with a number of actions:

- During General Aviation's annual opening of the season on 11 March 2023 in Soesterberg, organised by the Royal Netherlands Aeronautical Association, the Ministry of Infrastructure and Water Management gave a presentation on aviation safety. The presentation also reflected on the Dutch Safety Board's recommendation.
- On 1 May 2023, the Dutch Safety Board's recommendation was discussed in the ordinary sector meeting of the Ministry of Infrastructure and Water Management with the General Aviation sector. The Aircraft Owners and Pilots Association and the Royal Netherlands Aeronautical Association indicated that they will publish an article in their respective club magazines, supplemented with a newsletter and statement on social media, in which they address the importance of proper aircraft maintenance and the pilot and/or owner of the MLA assuming their own responsibility.
- The Ministry of Infrastructure and Water Management published an article on own responsibility in the May 2023 edition of the Aviation Safety Newsletter, titled [*Wanneer is jouw vliegtuig voor het laatst onderhouden?*](#) (When was your aircraft last serviced?). This newsletter was also sent to the General Aviation sector.

- During a roadshow for General Aviation practitioners in the summer of 2023, the Human Environment and Transport Inspectorate (ILT) reflected on the MLA users' own responsibility.⁶ A second platform inspection at Texel airport was scheduled, but because of a summer storm there were no aviation activities that weekend. The inspection therefore had to be cancelled. ILT plans to conduct two to three similar inspection rounds in 2024 as well.
- As part of the Dutch Aviation Safety Programme of the Ministry of Infrastructure and Water Management and the ILT, some actions that focus on safe flying in General Aviation are being carried out, including flying with MLA:
 - clarifying the safety culture in general and unmanned aviation;
 - developing a communication channel for general aviation that includes safety promotion;
 - developing a safety management system light for general aviation.

These action points are long-term and have therefore been included in the Dutch Aviation Safety Action Plan to ensure compliance.

Assessment of compliance

In accordance with the European classification, the follow-up to the recommendation is classified as adequate.

Explanation of the assessment

The actions taken by the Minister of Infrastructure and Water Management are in line with the purpose of the recommendation.

Appendix 1. Assessment criteria for aviation

In assessing responses to recommendations made to the aviation sector, the Safety Board uses the guideline issued by ENCASIA on the EU Regulation on the Investigation and Prevention of Accidents and Incidents in Civil Aviation (Regulation (EU) No 996/2010). ENCASIA is the European Network of Civil Aviation Safety Investigation Authorities. The classifications and associated assessment criteria are as follows:

Category	Guidance
Adequate	<p>The response clearly shows that the safety issue identified by the recommendation has been addressed.</p> <p>The response shows that there is a high probability the action will be taken in the future to address the safety issue or intent.</p> <p>The response may not meet the intent of the recommendation as written but does address the underlying safety issue or has been superseded by other evidence/action.</p>
Partially adequate	<p>The response goes some way to addressing the intent of the recommendation or safety issue in that some action is taking place, but there is:</p> <ul style="list-style-type: none"> • a likelihood the action may not take place, or • little or no likelihood of any further action by the addressee.
Not adequate	<p>The recommendation response did not address the intent or safety issue, or the recommendation was rejected by the addressee and is not likely to be acted upon by them.</p>
Awaiting response	<p>Awaiting the first response from the addressee.</p>
Superseded	<p>The safety recommendation has been superseded.</p>

The recommendations, associated reactions and classifications are included in the European Safety Recommendations Information System (SRIS) database, publicly available via <https://sris.aviationreporting.eu/safety-recommendations>.

⁶ Also see <https://www.ilent.nl/actueel/nieuws/2023/06/13/ilt-inspecteert-kleine-luchtvaart>.