

Safety Information Bulletin

Airworthiness

SIB No.: 2023-10**Issued: 15 September 2023**

Subject: **Aircraft Flight Manual Operational Procedures for Air Data Loss or Erroneous Air Data**

Ref. Publications:

- EASA SIB 2015-17R1, dated 16 October 2015.
- Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile (BEA) Final Report BEA2020-0352 dated 28 October 2022.

Applicability: (Supplemental) Type Certificate Holders of CS-23 product(s) or changes.

Description:

Occurrences have been reported in which the pilot(s) identified erroneous air data provided to the onboard instruments, but that erroneous data was still provided by the transponder to Air Traffic Control (ATC) as well as to the aircraft's Airborne Collision Avoidance System (ACAS).

In most operations, the primary source of altitude information for ATC is coming from the aircraft's onboard systems. Consequently, if the erroneous altitude data is used by the transponder, the ATC will retain that erroneous altitude and may be unable to ensure sufficient vertical separation.

This safety issue, because of its nature, may affect an aircraft independently of the number of available air data probes, i.e. pitot tubes and static ports. It may also affect non-IFR (Instrument Flight Rules) equipped aircraft as they might fly in an airspace where separation or traffic information is ensured by ATC.

Following safety recommendation FRAN-2022-013 from the Final Report BEA2020-0352, EASA conducted a cross-type inquiry on the availability and the completeness of the operational procedures for erroneous air data or air data loss. The outcome highlighted that some fixed wing aircraft do not have (or have incomplete) procedures for Continued Safe Flight and Landing (CSFL) in case of air data loss or erroneous air data.

This SIB is issued to highlight that changes to the aircraft air data system configuration may include specific review of the related Aircraft Flight Manual (AFM) procedures. The section abnormal procedures of each AFM (or, in case of Supplemental Type Certificate, AFM Supplement - AFMS) should include adequate instructions for loss of or miscompare/erroneous air data.

This is information only. Recommendations are not mandatory.



At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Regulation (EU) [748/2012](#), Part 21.A.3B.

Recommendation(s):

EASA recommends design (change) approval holders, i.e. of type certificate or supplemental type certificate, to:

- Ensure that adequate procedures exist for CSFL in case of air data loss or erroneous air data. If the aircraft has only one set of air data probes, erroneous air data should be treated as a loss of air data. If the aircraft configuration includes more than one indicator, the AFM(S) should clearly state that those have the same source and that a failure or obstruction of the air data system would affect the readings of both. If two sets of probes are available, the procedure should guide the pilot in determining the correct air data source, when possible.

The design (change) approval holder should take into account the number and type of instrument(s) available to the pilot in each aircraft configuration. In fact, there may be cases in which the information coming from one source is repeated on multiple indicators and/or displays like on a primary flight display and a stand-by instrument. In this case, the failure/obstruction of one probe may affect multiple indicators. Therefore, a procedure including cross-checking between indicators might lead the pilot to retain the erroneous data. Eventually, cross-checking is only effective when comparing information derived from independent systems. Due attention should be paid if the aircraft configuration is changed, e.g. in case of a new avionic installation.

If three or more sets of probes are available, the procedure should guide the pilot in determining the correct air data source. This may be achieved by cross-checking three instruments displaying information from the three independent air data sources.

In case all air data sources are considered erroneous (i.e. air data loss), the AFM(S) should provide adequate information to ensure CSFL. In line with EASA SIB 2015-17R1, the applicable AFM corrective procedures should include reference to basic “pitch angles and power settings” for different phases of flight. The procedure should identify adequate safe engine power levels (RPM/torque) and aircraft attitude to maintain the aircraft configuration within the approved flight envelope. Alternatively or additionally, especially for high performance aircraft, the approval holder may consider including the use of GNSS speed to give the pilot a qualitative estimate of the air speed. In this case, clear direction should be given on how to compare air data and GPS data (relations between CAS, TAS, GS, height-altitude, etc.).

- Ensure the completeness of the procedures for erroneous air data, including elements to prevent the communication of erroneous data to ATC and other airspace users.

In addition to the elements included in the previous paragraph, when a transponder or ACAS is installed, check:

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- If it is possible for the pilot(s) to determine a good air data source, the AFM(S) procedure includes action(s) for selecting the correct altitude source also on the ATC transponder and ACAS, if available.
- If only one air data source is available, or if it is not possible for the pilot(s) to determine the correct source, the procedure makes clear that all air data sources should be considered erroneous and the function is to be considered lost. In that case the procedure should:
 - Remind the pilot(s) to report to ATC that the transmitted vertical speed and altitude data is erroneous/unknown; and
 - Include instructions to turn off the erroneous air data streaming (e.g. revert to Mode A), if possible.

In view of the above, design (change) approval holders are recommended to introduce or amend the applicable AFM(S) procedures, where possible under their DOA privileges, and in coordination with EASA, as necessary.

Contact:

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