

Catatan Editorial: Artikel berikut merupakan kutipan dari sumber berita, Aviation Herald by Simon Hradecky, tentang warta laporan akhir kecelakaan fatal dari pesawat udara yang dioperasikan oleh maskapai Lion Air dengan registrasi PK-LQP nomor penerbangan LNI-610 pada 29/10/2018. Supaya tidak bias dan salah mengartikan dalam penerjemahannya kedalam bahasa Indonesia, kami kutip dari sumber asli seutuhnya, hanya ke-9 *probable causes* dari kecelakaan tersebut. Dalam artikel berikut Final Report selengkapnya dari KNKT, dapat diunduh melalui artikel berikut ini. Selamat membacanya.

Crash: Lion B38M near Jakarta on Oct 29th 2018, aircraft lost height and crashed into Java Sea, wrong AoA data

By Simon Hradecky, created Friday, Oct 25th 2019 13:35Z, last updated Friday, Oct 25th 2019 16:05Z

On Oct 25th 2019, after the release of the final report the FAA "issued an order today revoking the repair station certificate of Xtra Aerospace, LLC, of Miramar, FL" (for details and reasons see below, in particular end of analysis).

On Oct 25th 2019 Indonesia's KNKT (also known as NTSC) released their **final report** concluding the probable causes of the crash were:

Contributing factors defines as actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The presentation is based on chronological order and not to show the degree of contribution.

- *During the design and certification of the Boeing 737-8 (MAX), assumptions were made about flight crew response to malfunctions which, even though consistent with current industry guidelines, turned out to be incorrect.*
- *Based on the incorrect assumptions about flight crew response and an incomplete review of associated multiple flight deck effects, MCAS's reliance on a single sensor was deemed appropriate and met all certification requirements.*
- *MCAS was designed to rely on a single AOA sensor, making it vulnerable to erroneous input from that sensor.*
- *The absence of guidance on MCAS or more detailed use of trim in the flight manuals and in flight crew training, made it more difficult for flight crews to properly respond to uncommanded MCAS.*
- *The AOA DISAGREE alert was not correctly enabled during Boeing 737-8 (MAX) development. As a result, it did not appear during flight with the mis-calibrated AOA sensor, could not be documented by the flight crew and was therefore not available to help maintenance identify the mis-calibrated AOA sensor.*
- *The replacement AOA sensor that was installed on the accident aircraft had been mis-calibrated during an earlier repair. This mis-calibration was not detected during the repair.*
- *The investigation could not determine that the installation test of the AOA sensor was performed properly. The mis-calibration was not detected.*

- Lack of documentation in the aircraft flight and maintenance log about the continuous stick shaker and use of the Runaway Stabilizer NNC (Non-Normal Checklist) meant that information was not available to the maintenance crew in Jakarta nor was it available to the accident crew, making it more difficult for each to take the appropriate actions.

- The multiple alerts, repetitive MCAS activations, and distractions related to numerous ATC communications were not able to be effectively managed. This was caused by the difficulty of the situation and performance in manual handling, NNC execution, and flight crew communication, leading to ineffective CRM application and workload management. These performances had previously been identified during training and reappeared during the accident flight.

The KNKT provided an extensive analysis spanning 31 pages. The KNKT provides a key analysis which indicates that normal, intuitive and logic crew reactions actually trigger the accident sequence when they state:

In the event of an MCAS activation with manual electric trim inputs by the flight crew, the MCAS function will reset which can lead to subsequent MCAS activations. With an MCAS command due to an erroneous high AOA signal, and flight crew inputs that do not fully return the aircraft to a trimmed state, subsequent MCAS commands can result in the aircraft becoming significantly miss-trimmed.

(Sumber: Kutipan di atas adalah sebagian dari Aviation Herald)