



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

DEC 10 2018

Ms. Ann-Charlott Söderquist
Administrator
Swedish Accident Investigation Authority
P.O. Box 6014
SE- 102 31 Stockholm
Sweden

Dear Ms. Söderquist:

This is in final response to Federal Aviation Administration (FAA) Safety Recommendation 17.113 received on October 16, 2017. The Swedish Accident Investigation Authority (SHK) issued this recommendation on December 12, 2016, as a result of an accident occurring on January 8, 2016, in which a CL-600-2B19 aircraft, registered as SE-DUX and operated by West Atlantic Sweden AB, crashed during a commercial cargo flight from Oslo/Gardermoen Airport to Tromsø/Langnes Airport.

17.113. Ensure that a general system of initial standard calls for the handling of abnormal and emergency procedures and also for unusual and unexpected situations is implemented throughout the commercial air transport industry. [RL 2016:11 R6]

FAA Comment. The FAA reviewed the following information in our evaluation of this safety recommendation:

- The SHK Accident report, RL 2016:11e.
- Advanced Qualification Program (AQP) data from Title 14, Code of Federal Regulations (14 CFR) Part 121 operators. AQP is a data-driven training system that drives continuous improvement in aircrew training. We reviewed the AQP data for any negative trends in Crew Resource Management (CRM), Threat and Error Management (TEM), checklist usage and deviations from standard operation procedures, including standard call-outs. A majority of part 121 operators train under AQP. Our review did not identify negative trends in these areas.
- Crew Resource Management. 14 CFR section 121.404 has required CRM training since March 19, 1998, which mitigates risks when applied effectively. The core of this training is to use all resources, as well as each crewmember, in order to accomplish the goal of risk mitigation. As stated in Advisory Circular (AC) 120-51, Crew Resource Management Training, “CRM training has been conceived to prevent aviation accidents by improving crew performance through better crew coordination.”

Section 121.404 requires CRM to be part of all air carrier indoctrination, upgrade, transition, and recurrent training programs. These courses are designed using scenario-based training combined with simulator events, as well as studies of accidents caused by a breakdown in CRM. Flight crew CRM effectiveness is evaluated as part of the normal training cycle through voluntary safety programs such as Aviation Safety Action Program (ASAP) and Line Operational Safety Audits (LOSA). AQP programs are designed to use CRM as a primary evaluation tool. We found no trends in surveillance data that show a breakdown in CRM that would correlate to the SHK's findings.

- Extended Envelope Training (EET) and Stall and Upset Recovery. By March 12, 2019, 14 CFR section 121.423 will require certificate holders to have in their approved training program the following maneuvers: 1) manually controlled slow flight; 2) manually controlled loss of reliable airspeed; 3) manually controlled instrument departure and arrival; 4) bounced landing recovery; 5) upset recovery maneuvers; and 6) recovery from full stall and stick pusher activation (if equipped). This training will be required every 24 months (except for bounced landing, which will be required every 36 months). All new hire, upgrade, requalification, and transition pilots in training, as of March 12, 2019, must receive EET. All pilots currently qualified as pilot-in-command or second-in-command on March 12, 2019, must complete the EET recurrent training within 12 calendar months. A majority of part 121 operators are already training in these maneuvers.
- Safety Assurance System (SAS). We sampled data from several part 135 and 121 operators looking for negative trends in the following SAS elements: 1) Manual Management; 2) Training of Flight Crewmembers; and 3) Airman Duties/Flight Deck Procedures. We did not discover trends that would directly relate to this safety recommendation.
- Safety Management System (SMS). All part 121 operators are required by regulation to have a SMS program. SMS is a formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.
- Standard Operating Procedures (SOPs). The FAA published the following guidance to address SOPs, Pilot Flying, and Pilot Monitoring duties: 1) SAFO 15011, Roles and Responsibilities for Pilot Flying and Pilot Monitoring; 2) AC 120-51, CRM Training; 3) AC 120-54, Advanced Qualification Program; and 4) AC 120-71, Standard Operating Procedures and Pilot Monitoring Duties for Flight Deck Crewmembers. We sampled operator's Quick Reference Handbooks (QRH) to evaluate if they developed SOPs to address the general handling of abnormal and emergency procedures. All handbooks we evaluated contained either a statement or SOP outlining something similar to the following:

The thought process that should be followed in all emergencies/abnormal procedures is:

FLY THE AIRCRAFT

Cancel the Aural

Identify the Malfunction

Read the Checklist

DO NOT HURRY

General

This section of the manual supplies the procedures and guidance needed to successfully handle an emergency or non-normal situation.

In the event of an abnormal situation, the primary duty of the pilot flying (PF) is to fly the aircraft, confirm the identified malfunction, and call for the appropriate memory items or checklists. The duty of the pilot monitoring (PM) is to clearly identify the malfunction and complete all appropriate checklists as requested. To allow the PM an uninterrupted opportunity to complete all required checklists, responsibility for radio communications shall be assumed by the PF. Depending on the nature and severity of the malfunction, the PM may be required to maintain (or re-assume) responsibility for the radios. When an abnormal situation occurs, special care must be taken to correctly identify the problem. In the event an incorrect procedure is applied to a situation; not only will the original problem exist, but a secondary problem or operating restriction may be created.

- Threat and Error Management (TEM). Threats are external issues beyond the control of the flight crews, while errors are unintentional actions. Whether the negative event is a threat or an error does not matter; the desired result of every flight is a safe outcome.

TEM uses CRM, training, and resources such as the QRH to mitigate risk and avoid negative events. LOSAs are effective in monitoring TEM in normal operations. ASAP is also effective in alerting air carriers to issues, how the crews used TEM, and the result from using TEM.

Following our review of each area of information discussed in the letter above, we believe that we provide sufficient guidance so that operators develop effective programs that address the safety issues identified by this recommendation. Part 121 and 135 operators have training and flight crew procedures in place that address this recommendation. Our review of surveillance data does not identify a risk that could be mitigated by adding additional guidance or regulation. Therefore, additional action is redundant and burdensome to operators.

I believe the FAA has effectively addressed this safety recommendation and consider our actions complete.

The FAA would like to thank the Swedish Accident Investigation Authority for submitting FAA Safety Recommendation 17.113 and its continued interest in aviation safety. If you have any questions, or need additional information regarding these safety recommendations, please contact the FAA Safety Recommendations Program staff at 9-AVP-FAA-SafetyRecs@faa.gov. Alternatively, you may contact Mr. Joshua Parker, AVP-420, at (202) 267-1538.

Sincerely,



Steven J. Gottlieb
Aviation Safety
Executive Director
Office of Accident Investigation and Prevention