



Federal Aviation Administration

Memorandum

Date: November 23, 2015

To: Manager, Boeing Aviation Safety Oversight Office, ANM-100B

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Patrice Adjibly, ANM-130S

Subject: INFORMATION: Equivalent Level of Safety Finding for Over speed Aural Warning on Boeing Models 787-8/-9/-10, 747-8/-8F and 767-2C Airplanes (Project Nos. TC6918SE-T, PS06-0496, PS06-0497, PS13-0546, PS14-1031, PS05-0211, PS05-0212 and PS09-0863)

ELOS Memo #: TC6918SE-T-SA-11

Regulatory Ref: § 25.1303(c)(1)

The purpose of this memorandum is to inform the certificate management aircraft certification office of an evaluation made by the Transport Airplane Directorate (TAD) on the establishment of an equivalent level of safety (ELOS) finding for the Model 787-8 airplanes.

This memo was subsequently revised to extend this ELOS to the Boeing Models 747-8/-8F, 787-9, 787-10 and the 767-2C airplanes.

Background

Boeing has submitted a request for an ELOS to Title 14, Code of Federal Regulations (14 CFR) 25.1303(c)(1) for airplane models listed above. Boeing proposes that these model airplanes use a standard *siren* warning to annunciate airplane overspeed, instead of a unique warning aural (e.g. *clacker*), to meet the intent of these regulations.

Applicable regulation(s)

§§ 21.21(b)(1) and 25.1303(c)(1)

Regulation(s) requiring an ELOS

§ 25.1303(c)(1)

Description of compensating design features or alternative standards which allow the granting of the ELOS (including design changes, limitations or equipment need for equivalency)

Section 25.1303(c)(1) was written before the advent of integrated crew alerting systems. The over speed warning requirement was previously implemented on Boeing airplanes using a “*clacker*”. With the advent of integrated crew alerting systems such as the engine indicating and crew alerting system (EICAS), the previously, independently generated over speed warning indication (*clacker*) was integrated into a single system with all other alerting functions and a new concept for crew alerting was established. The FAA has previously granted an ELOS finding utilizing an aural *siren* and an EICAS “OVERSPEED” visual alert to indicate airplane over speed warning.

Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation

The over speed condition is annunciated to the flight crew by the red Master Warning Light, an aural siren, and a unique red EICAS warning message “OVERSPEED”, a discrete alerting light “OVSPD”, and a red and white maximum operating speed pointer (Barber Pole) in view on the pilots’ airspeed indicators. These visual alerts and the aural siren have been demonstrated to assure immediate crew awareness of the specific condition and appropriate crew response on previous Boeing airplanes.

FAA approval and documentation of the ELOS

The FAA has approved the aforementioned ELOS finding in project Issue Papers SA-11 or Administrative Collector Issue Paper G-6. This memorandum provides standardized documentation of the ELOS finding that is nonproprietary and can be made available to the public. The TAD has assigned a unique ELOS memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS memorandum number must be listed in the type certificate data sheet under the certification basis section.

Equivalent Safety Findings have been made for the following regulation(s):
§ 25.1303(c)(1), "Flight and Navigation Instruments" (documented in TAD ELOS Memo
TC6918SE-T-SA-11).



Transport Airplane Directorate,
Aircraft Certification Service

11/24/15

Date

ELOS Originated by Seattle ACO	Project Engineer: Jon Regimbal	Routing Symbol ANM-140S
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