

Commercial Aviation Airbags



Introducing the Next Generation Seatbelt Airbag – lighter, sleeker with wireless on-board diagnostics

The AmSafe® Seatbelt Airbag is the first and only airbag system certified for use on commercial aircraft. It was developed as a cost-effective method of 16g compliance for difficult-to-certify seat placements. AmSafe has improved on this state-of-the-art technology and developed a new version of the airbag system that is sleeker in design, substantially lighter in weight, contains Built-in Test Equipment diagnostics and is optimised to support fleet-wide retrofits.

Just like the original design, the Seatbelt Airbag looks and operates like a standard AmSafe restraint. In the unlikely event of an otherwise survivable accident, an inflatable bag stored in the lap belt portion of the seatbelt protects passengers of all sizes from traumatic head and neck injury.

The New AmSafe Seatbelt Airbag System

- *30-percent lighter in weight.*
- *Sleek design improvements include compact airbag lap belt packaging, along with AmSafe's new lightweight buckle.*
- *Has an increased service life of more than 40-percent.*
- *Contains wireless on-board diagnostics—manual or through an integrated wireless system.*

In additional to the above improvements, the AmSafe Seatbelt Airbag:

- *Meets the 16g requirement for commercial passenger seats, is a complete solution for FAR/CS/25.562, Head Injury Criteria (HIC), FAR/CS/25.785 and side-facing protection requirements.*
- *Proven to be the most cost-effective solution for compliance to the 2009 16g ruling.*
- *Meets commercial g-force requirements: 16g/part 121 crash worthiness standards.*
- *Documented over 350 million hours of trouble free service*

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System Components

The AmSafe Seatbelt Airbag is a self-contained, modular restraint system. Core components consist of four major assemblies: seatbelt airbag, inflator, electronics module and cable interface.

- **Seatbelt Airbag Assembly** – When sensing the predetermined activation threshold, the airbag is deployed, cushioning the passenger. Deflating within 10 seconds, the system does not impede passenger egress.
- **Inflator Assembly** – The inflator consists of a compressed gas cylinder and gas nozzle optimised for the aviation environment. The inflator has a life limit of 10 years.
- **Electronics Module Assembly (EMA)** – EMA is comprised of the system electronics, crash sensors and an advanced lithium battery. The sensor and electronics module detects and analyses decelerations. The airbag will not deploy inadvertently during normal operations such as hard landing, random vibration or food cart strikes on the seat. Deployment will occur however, when a force is at or above 9g's for approximately 50 milliseconds. The EMA has a life limit of 10 years.
- **Cable Interface Assembly** – The cable interface assembly contains electrical connectors for the EMA, System Diagnostic Tool and Inflator.

Maintenance & Retrofit

AmSafe Seatbelt Airbag system function diagnostics need to be performed at 4,000 flight hours for commercial applications. All maintenance procedures and diagnostics are performed by pushing the test button on the EMA, or by using the wireless software from AmSafe, or can be easily performed by technicians. The AmSafe Seatbelt Airbag can be retrofitted into existing aircraft seats for carriers looking to modify or upgrade their interiors.

The AmSafe Seatbelt Airbag is the only airbag system certified for use on commercial aircraft. It has been in service for over 10 years and has become the most accepted technology solution to certifying challenging seating configurations for over 70 airlines.

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