AmSafe Aviation Inflatable Restraint (AAIR®)

First-Responder Reference Guide

AmSafe Aviation Inflatable Restraints (AAIR®) General Information

- The AAIR® System is a self-contained (not connected to aircraft power systems), aircraft restraint system with an airbag built into the restraint webbing which is designed to deploy in a significant crash event to provide enhanced torso and head protection for aircraft crew and passengers. The crash pulse required to deploy the system is a function of acceleration and impact energy. A severe longitudinal deceleration sustained over a period of 40-50 ms is a typical condition for the sensor to activate the airbag system.
    - The AAIR® three-point restraint system includes the airbag incorporated into the lap belt portion of the restraint.
    - The AAIR® four/five -point restraint system includes the airbag incorporated into the shoulder strap portion of the restraint.
- The AAIR® System is an FAA-approved and certified product and is installed on a variety of General Aviation aircraft and multiple foreign Commercial Aviation aircraft.
    - See Appendix A for installed applications and configuration information.
- Both the AAIR four- and five-point restraint systems include the following components:
    - Electronic Module Assembly (EMA) – Sensing system & power supply
    - Inflator Assembly – Gas canister containing 6250 psi compressed helium to inflate the airbag during a crash event. When the gas is released into the Seatbelt Airbag Assembly (SAA) via the inflator hose, the gas will be released at ambient temperature.
    - Seatbelt Airbag Assembly (SAA) – aircraft restraint system with airbag built into the webbing to provide enhanced occupant protection during an aircraft crash event.
    - Interface Cable Assembly – Cable which connects the EMA, inflator, and SAA.
- Passengers are not hindered by the deflated airbag when trying to egress after a crash event because the airbag is designed to deflate in less than 10 seconds (as shown in the picture below).

Scenario 1: Aircraft crash event occurs which causes the AAIR® to deploy

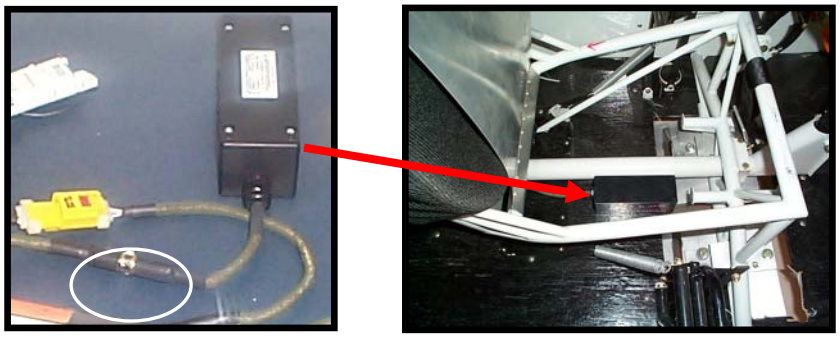
When the AAIR® System is deployed in an aircraft crash event, the system is rendered inert because the helium-filled inflator assembly has expended its contents.

NOTE: Some aircraft have multiple seat placements. Depending upon the particular crash event criteria, all airbags may not have deployed. Be sure to check all seat positions in the aircraft for AAIR® System placements.

Scenario 2: Aircraft crash event occurs where AAIR® does not deploy

If an aircraft crash event occurs where the AAIR® System is not deployed, be sure to follow the steps below to reduce the risk of deploying the system:

- Disconnect the cable assembly from the Electronic Module Assembly (EMA). The EMA is typically installed under the seat and in some cases is attached to or secured below the floor of the seat. Disconnect from the cable assembly by depressing locking mechanism which releases connector halves.
    - Shown below



- Disconnect the connector from the Inflator Assembly which is typically installed on, below, or just behind the seat. Disconnect by squeezing both sides of the connector and gently pulling away from the Inflator.
    - Shown below

- If access to either of these connectors is not possible due to deformation of the seat assembly or the fuselage, it is acceptable to cut the cable that connects to the inflator assembly.

Scenario 3: Aircraft crash event occurs where AAIR® does not deploy and there is a fire.

If a fire occurs after an aircraft crash event, the Inflator Assembly will auto-ignite at approximately 230° C or 446° F and will release the stored helium gas to inert the system and reduce the risk of injury to emergency personnel.

Information requested by AmSafe to assist in accident investigation

- Photos
    - Deployed Airbag
    - Instrument Panel (or any other area of contact between the occupant and the aircraft interior)
    - Installed AAIR equipment
- Occupant Info
    - Injuries, type and severity
    - Name
    - Seat position
    - Contact info

- Crash Information
    - Aircraft Type
    - Aircraft 'N' Number
    - Severity
    - Location
    - Witnesses
    - Time of accident
    - FAA on-site contacts
    - OEM on-site contacts
    - NTSB on-site contacts

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