

ADFR

AUTOMATIC DEPLOYABLE FLIGHT RECORDER



TAKING THE SEARCH OUT OF SEARCH AND RESCUE

ADFR - A GADSS COMPLIANT SOLUTION

- Provide timely detection of a downed aircraft to Search and Rescue (SAR) authorities
- Provide timely, accurate location of end of flight and post-flight Homing
- Support effective and efficient SAR operations to rescue passengers
- Enable timely retrieval of flight recorder data in all crash scenarios
- Recover flight data without the need for underwater recovery

COMBINES EVERYTHING INTO ONE BOX

- Flight Data Recorder (FDR) - records last 25 hours of data
- Cockpit Voice Recorder (CVR) - records last 25 hours of audio
- Flight Crew-Machine Interface (FCMI) - records last two hours of FCMI (optional)
- Emergency Locator Transmitter (ELT) - 406 and 121.5 MHz signals with autonomous Global Navigation Satellite System (GNSS) position encoding
- All housed in a single, crash survivable Automatic Deployable Flight Recorder (ADFR)

ADFR SYSTEMS ARE CRASH-PROTECTED

- ED-112A minimum operational performance specification for crash protected airborne recorder system
- Federal Aviation Administration Technical Standard Orders (TSOs) - CVR: TSO-C123c / FDR: TSO-C124c / ELT: TSO-C126b - 406 MHz
- European Aviation Safety Agency (EASA): CAT.GEN. MPA.210 'Location of an aircraft in distress - Aeroplanes'

DESIGNED TO PROVIDE ADDED SURVIVABILITY AND RECOVERABILITY

- Maximize data survival with dual-combi recorder installation
- ADFR provides all of the data, all of the time
- Avoids direct impact forces and fire intensity
- Avoids being ensnared within wreckage
- Quickly recoverable in all crash scenarios (land / water / remote locations)
- Floats on water indefinitely - no underwater recovery
- Invaluable for Polar route and free flight incidents
- Immediate localization of aircraft and survivors



 **LEONARDO DRS**

AUTOMATIC DEPLOYABLE FLIGHT RECORDER (ADFR)

FEATURES

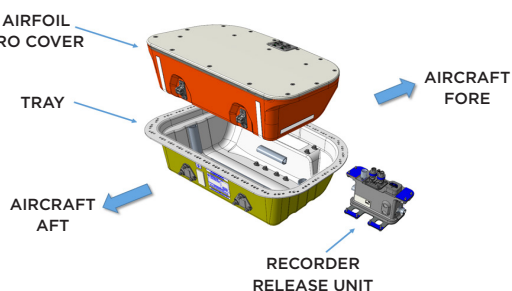
AUTOMATIC DEPLOYABLE FLIGHT RECORDER CONTAINS:

- Crash survivable memory module (Flight Data Recorder / Cockpit Voice Recorder / Data Link Recorder / Flight Crew Machine Interface)
- ELT (automatic deployable / distress tracking) with integral GNSS receiver for real-time position encoding and updates
- Antennas - GNSS, ELT: 406 MHz and 121.5 MHz
- ELT battery pack



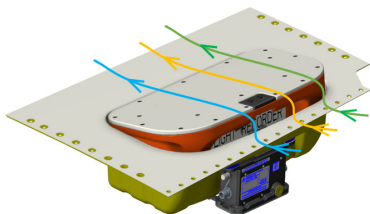
TRAY INSTALLED ON VERTICAL STABILIZER

- Mounts conformal to aircraft skin
- No aerodynamic impact
- Holds ADFR securely to aircraft
- Provides mounting points for release unit and hydrostatic switch sensors



ADFR RELEASES FROM AIRCRAFT WITHIN MILLISECONDS OF CRASH IMPACT

- Floats on water indefinitely
- Aerodynamic forces lift ADFR away from the aircraft



DEPLOYABLE BENEFITS

CRASH SURVIVABLE ELT ENSURES INCIDENT ALERT AND LOCALIZATION OF A DOWNED AIRCRAFT

Designed to provide added survivability and recoverability

Uses the COSPAS-SARSAT (C/S) satellite constellation to assure robust global operations

C/S satellite detects deployable recorder ELT distress transmission on 406 MHz

Provides identification of downed aircraft (country of origin and tail number)

Provides location of downed aircraft within tens of metres utilizing GNSS position calculation and encoding

DIRECTS SEARCH AND RESCUE (SAR) OPERATIONS TO SAVE PASSENGERS AND RECOVER RECORDER

SAR Mission Control Centre receives the initial crash position and are able to track the ADFR as it drifts

Rescue personnel can efficiently direct rescue and recovery operations to save passengers, crew and recover the flight recorder

Position location updates including real-time drift data is critical to locate wreckage of aircraft underwater

150 hours of 121.5 MHz homing frequency to support SAR operations

Complete and timely recovery of all data in all crash scenarios

Quick access to CVR/FDR data and crash location essential to locate wreckage of aircraft underwater

COST AVOIDANCE

Ability to float eliminates large cost of underwater recovery

Quick access to critical CVR/FDR data post incident reduces potential of fleet grounding

Unlike subscription satellite-based solutions - no need for perpetual data communication service fees

GLOBAL COSPAS-SARSAT SATELLITE COVERAGE

COSPAS-SARSAT is a multi-government funded global SAR services

Global coverage for in flight, on water and on land incidents

SECURITY OF DATA

Ability to continue recording all data throughout the distress phase including during rapid changes in flight attitude

Accident investigation authorities maintain control of all data at all times

A tangible, deployable recorder protects all critical black box data from security concerns, including hacking or manipulation of streaming data

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