VERTICAL AVIATION SAFETY TEAM

Safety Above All

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The Case for Unified Rotorcraft Accident Data Standards

The Vertical Aviation Safety Team (VAST) has proposed a comprehensive set of rotorcraft accident data standards to enhance the collection, reporting, and analysis of critical accident data across the global rotorcraft industry. This initiative seeks to standardize data to ensure uniformity, improve accident investigations, and support the development of evidence-based safety interventions.

Key Elements of the Proposed Standards:

1. **Accident Context:** Accidents date, time (local and GMT), location, elevation, terrain, and if the accident involved single or multiple aircraft. Identification of the investigating authority.
2. **Aircraft-Specific Data:** Make, model, manufacturer, state of registration, airworthiness, serial number, and total flight hours of the aircraft.
3. **Operational Conditions:** Operational and environmental parameters, including day/night conditions, weather (reported and observed), and use of night vision devices when applicable.
4. **Personnel Data:** Details on crew composition (Including non-pilot crew), qualifications (Including licenses, certificates, ratings and endorsements), recent activity (duty and flight hours), and the extent of injuries and/or fatalities (flight crew, non-flight crew, and passengers).
5. **Safety Equipment and Programs:** Presence and use of safety features such as helmets or other personal protection equipment, wire strike protection, crash-resistant fuel systems, floats, FDM or other recorders, and safety management systems.
6. **Accident Details:** Comprehensive narratives covering the accident description, ground fatalities or injuries, witness accounts, and recommendations from the investigative authority.
7. **Operation:** Type of mission, type of flight plan filed (if any), aircraft certificated for the operation, and phase of flight (takeoff, transit, engaged in work, landing).
8. **Maintenance:** Recent maintenance or deferrals.

Call to Action: All stakeholders involved in accident investigation—including state regulatory agencies and accident investigation authorities—are urged to:

- **Consider and adopt these standards** to promote consistent and accurate data collection.
- **Collaborate internationally** to harmonize accident reporting practices, enhancing data standardization across multiple jurisdictions.
- **Leverage standardized data** for trend analysis and to develop targeted safety improvements.

Why This Matters:

Rotorcraft operations encompass unique challenges, and a standardized approach to accident data can:

- Expedite the identification of systemic safety issues.
- Support timely, data-driven policy and regulatory responses.
- Enhance industry-wide learning and the implementation of preventive measures.

By adopting these standards, regulatory agencies and investigation authorities can collectively advance the global safety performance of rotorcraft operations, reducing accidents and saving lives.

Notes:

1. The *VAST Rotorcraft Accident Data Standards for Industry Acceptance* document is included in Annex I.
2. The European Coordination Centre for Accident and Incident Reporting Systems (ECCAIRS) Data Decoder for Rotorcraft Accidents is referenced in Annex II.

Annex I – VAST Rotorcraft Accident Data Standards for Industry Acceptance

Category	Data Description	
General	Date of Accident	
	Location, including state	
	Time (GMT & Local)	
	Elevation & terrain of crash site	
	Single or multi aircraft involvement	
	Investigation Authority	
Aircraft	Aircraft make/model (Type & Variant)	
	Aircraft manufacturer	
	Aircraft State of Registration & Airworthiness	
	Aircraft total time	
	Aircraft S/N	
Conditions	Day/Night	
	If night, NVGs in use?	
	Reported weather conditions (reporting station near accident location)	
	Observed weather (if reporting station not near accident location)	
Personnel	Number Crew - Pilots	
	Number Crew – Non-Pilot	
	Number of crew fatalities	
	Number of crew injuries	
	Number of passengers aboard	
	Number of passenger fatalities	
	Number of passenger injuries	
Safety	Helmets worn: Yes/No	
	Role-specific PPE in use: Yes/No	
	Installed FDM or Data Recorders: Yes/No	
	ELT Installed: Yes/No/NA	
	Other safety equipment • CRFS: Yes/No/NA • Wire Strike Protection: Yes/No/NA • Floats: Yes/No/NA	
	SMS Program Present: Yes/No	
Fatigue	Previous 24-Hrs: • Duty Hours ( ) • Flight Hours ( )	Previous 7 Days • Duty Hours ( ) • Flight Hours ( )

Category	Data Description
Operation	Operation/Mission at the time of the accident
	Type of Flight Plan: IFR/VFR/None
	Aircraft certified for type of operation: Yes/No
	Phase of flight: Takeoff/Transit/Engaged in work/Landing
Pilot(s) qualification(s)	Certificates/Licenses
	Ratings, endorsements
	Current in Mission: Yes/No
	Total hours: (All aircraft)
	Hours logged in last 90 Days (helicopters)
	Hours in type
	Actual/Sim Instrument Hours
Accident Brief	Short narrative to: • Describe accident • Describe fatalities/injuries on the ground • Address significant witness statements
	If report complete, noteworthy investigative authority recommendations
Optional brief items:	Any recent maintenance, or deferrals

Annex II – ECCAIRS Data Decoder for Rotorcraft Accidents

To support implementation of these rotorcraft accident data standards, the European Union Aviation Safety Agency (EASA) have developed a data decoder to highlight the relevant data fields that can be used in the commonly used IT tool the European Coordination Centre for Accident and Incident Reporting Systems (ECCAIRS) used in collaboration with the ICAO by accident investigation boards across the world to manage accident data records.

The relevant ECCAIRS fields for the different standards are as follows. Full details of the ECCAIRS Taxonomy can be found in the ECCAIRS Taxonomy Browser on the Aviation Reporting Portal:

Accident Context:

- Date of Accident – UTC Date (Attr ID 477)
- Time (local and GMT) – Local Time (Attr ID 457) and UTC Time (Attr ID 478).
- Location – Location of Occurrence (Attr ID 440)
- State/Country – State of Occurrence (Attr ID 454)
- Elevation of Crash Site – Elevation Terrain (Attr ID 93).
- Terrain of Crash Site – Terrain Type (Attr ID 296).
- Single or multi aircraft involvement – From the information on each aircraft, no specific information needed.
- Identification of the investigating authority – Responsible Entity (Attr ID – 453).

Aircraft-Specific Data:

- Make/ Manufacturer and Model – Manufacturer/ Model (Attr ID – 21).
- Aircraft Category (Attr ID – 32).
- Aircraft Propulsion Type (Attr ID – 232).
- Aircraft Mass Group (Attr ID – 319).
- State of registration – State of registry (Attr ID – 281).
- Airworthiness – Airworthiness Cert (Attr ID – 35)
- Serial number – Aircraft Serial Number (Attr ID – 254).
- Total flight hours of the aircraft – Aircraft total time (Attr ID – 291).

Operational Conditions:

- Operational activity - Operational Type (Attr ID – 214).
- Last Departure Point (Attr ID – 167).
- Planned Destination (Attr ID – 228).
- Flight Phase (Attr ID – 121)
- Day/night conditions – Light conditions (Attr ID – 168).
- Weather
    - Weather Relevant (Attr ID – 606).
    - Reported – Weather Report (Attr ID – 177).
    - Observed – Weather Conditions (Attr ID – 127).
- ATM Related Information
    - ATM Relevant (Attr ID – 428).
    - Airspace Type (Attr ID - 15).
    - Airspace Class (Attr ID - 13).
- Use of night vision devices when applicable – To be explained in the Narrative (Attr ID – 425).

Personnel Data:

- Details on crew composition
  - Number of Crew (Attr ID – 147).
  - Number of Cabin Crew (Attr ID – 145).
  - Number of Other Flight Crew (Attr ID – 148).
- Qualifications
  - Flight Crew Licences (Attr ID – 16).
  - Category (Role on the accident flight – Attr ID – 402).
- Recent activity (duty and flight hours)
  - Duty Last 24 Hours (Attr ID – 403).
  - Experience All Aircraft (Attr ID – 410).
  - Experience All Last 24 Hours (Attr ID – 404).
  - Experience All Last 90 Days (Attr ID – 405).
  - Experience This Aircraft (Type – Attr ID – 411).
- Injuries or fatalities.
  - Injury Level (Attr ID – 451).
  - Total Fatalities (Attr ID – 458).
  - Total Serious Injuries (Attr ID – 470).
  - Total Minor Injuries (Attr ID – 467).

Safety Equipment and Programs:

Presence and use of safety features such as helmets, wire strike protection, crash-resistant fuel systems, floats, and safety management systems.

- General information on use of safety features – To be explained in the Narrative (Attr ID – 425).
- Flotation Type Devices Used (Attr ID – 413).
- Flotation Effective (Attr ID – 412).

Accident Details:

Comprehensive narratives covering the accident description, ground fatalities or injuries, witness accounts, and recommendations from the investigative authority.

- Narrative (Attr ID – 425).
- Occurrence Class – Accident, Serious Incident etc (Attr ID – 431).
- Occurrence Category – Type of Event (Attr ID
- Event Types (Attr ID – 390) – Multiple entries should be used to classify event.
- State/ Area of Occurrence (Attr ID – 454).