

Plan Overview

A Data Management Plan created using DMPTool

DMP ID: <https://doi.org/10.48321/D1TP8B>

Title: Occupant Protection for Legacy Rotorcraft

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Template: Federal Aviation Administration (FAA) Data Management Plan (DMP) Template v1.1

Project abstract:

Rotorcraft aviation has a high injury and fatality rate from what should be survivable crashes. Only 10% of the U.S. fleet are compliant with the latest regulations with respect to the Emergency Landing Dynamic Condition Rule (14 CFR 27/29.562). Regulators are looking to reduce the risk of blunt force trauma in crashes of rotorcraft that do not meet the latest safety certification level. Dynamic research tests are needed to fill the knowledge gap in order to advance the crash safety for the existing rotorcraft fleet. This data can assist rotorcraft and seat manufacturers in the design of retrofit seats and structures and help industry groups in developing a set of guidelines to reduce the risk of injury to occupants.

The Federal Aviation Administration (FAA) will be conducting a series of dynamic tests at the Civil Aviation Medical Institute's (CAMI) accelerator impact sled. The seat used in this test series will be the Reusable Energy Absorbing Lab Seat (REAL) developed by the Department of the Navy. The seat will be pitched back 30 degrees from vertical with zero degrees of roll and yaw. The REAL seat will be evaluated at five seat stroke distances: 2, 4, 6, 8 and 10 inches. Three sled input pulses will be evaluated: 21, 25 and 30 feet per second. Each seat stroke and input pulse combination will be tested three times resulting in a total of 45 tests. Data will be collected by means of an instrumented 50th percentile FAA Hybrid III Anthropomorphic Test Device (ATD). Acceleration measurements on the ATD will be collected at the head, spine and pelvis. Forces on the ATD will be collected at the upper neck and lumbar. Moments will be evaluated at the upper neck and lumbar. The REAL seat will be instrumented to measure seat pan acceleration and seat pan displacement. One channel on the accelerator sled will collect the acceleration results to verify the input pulse. ATD and seat motion during the dynamic test will be collected with two high speed cameras positioned perpendicular to X-Z and Y-Z planes of the sled coordinate systems. Outputs from this test series is anticipated to aid manufacturers of rotorcraft and seats to develop seats for the existing fleet to reduce in blunt force trauma during an accident. This dataset could benefit the general aviation aircraft and Electrical Take Off and Landing (eVTOL) manufactures and designers.

Start date: 10-01-2020

End date: 09-30-2025

Last modified: 01-18-2024

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Occupant Protection for Legacy Rotorcraft

Question not answered.

Question not answered.

Change Log:

5/12/2023 - Initial DMP

5/22/2023 - Finalized DMP

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0. Dataset and Contact Information:

Name of Project: Occupant Protection for Legacy Rotorcraft

Project Number: 12.2 DYN-10087

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U.S. Department of Transportation, Federal Aviation Administration, Civil Aerospace Medical Institute,

URL:https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/cami/

Initial DMP: 5/12/2023

1. Data Description:

This data set includes sled test data used to evaluate the affect of seat stroke versus ATD response.

This project will investigate differences in ATD response versus amount of seat deformation and provide the FAA policy makers with information to update guidance material on the subject.

Sensor output, pre & post test pictures, high speed video, and photometric results are provided.

This data is created by physical experiments. Sensors include load cells and accelerometers. Data set also included

video from high speed cameras and photos from still cameras.

Data from test series scheduled to be collected from 1/1/2023 to 6/1/2023. The dataset will be updated once after the testing is complete and the final report is published.

No existing will be used for this test series.

Aircraft seat manufactures and test laboratories.

Data from the test series could be utilized to determine future requirements for certification testing and seat design for aircraft. Public use would provide a historical record of ATD dynamic response evaluation and datasets.

Data will be made publicly available.

NHSTA, <https://www-nrd.nhtsa.dot.gov/database/veh/>

A quarterly plan review will be conducted while the project is active. Once the test series and the project is complete, a full review will be conducted to ensure all data and external references are correct, all data accessible and the DMP outline is met.

2. Standards Employed:

Sensor output data will be published as ascii text. High speed video will be available in MP4 format. Still photos published as JPEG. Photometric data available as ascii text. Not using proprietary data formats.

Not using proprietary data formats.

Data's file formats are standard formats.

The file formats used are standard to our field.

The database ensures that all fields are properly defined and provides space for the test conditions to be defined.

The current metadata schema plan will follow a generic Metadata Object Description Schema (MODS). Likely to change based on future guidance or updated best practices.

The metadata will reviewed for accuracy prior to publishing to the National Transportation Library (NTL).

Necessary software tools: The file formats will include: .txt files, .csv, .jpeg, .mp4. The .txt and .csv file formats can be open with any text editor, such as Microsoft note pad. A free text editor available from Microsoft is Basic Text Editor. The .jpeg files can be viewed with Microsoft Photos, and a free version of One Photo Viewer is available.

Once the data is published, all quality control measures will be at the direction and guidance from the Transport Research Board.

3. Access Policies:

These data files are in the public domain and can be shared without restriction. The data file contain no sensitive

information. Data will be publicly available through the NHTSA Crash Database, [https://www.nhtsa.gov/research-data/research-testing-databases#/#/](https://www.nhtsa.gov/research-data/research-testing-databases#/).

Not applicable.

No human subjects and/or personal information will be utilized in this research project. No requirements for deidentifying subjects prior to sharing data. No restrictions will be placed on data access.

4. Re-Use, Redistribution, and Derivative Products Policies:

The data are managed by the Federal Aviation Administration, are in the public domain, and may be re-used without restriction.

No intellectual property rights apply to this data set.

No copyrights apply to this data set.

There are no rights transferred to the permanent archive or repository to accompany this dataset described in this DMP.

The data are in the public domain, may be re-used without restriction, and will not be licensed.

5. Archiving and Preservation Plans:

This data set will be archived at the NHSTA database. Prior to archiving the data set will be stored on the CAMI server which is backed up daily.

URLs will be updated once assigned links.

The data is expected to be submitted to the archive within six (6) months of completion of data collection.

The data will be stored on a Federal Aviation Administration server until data is archived.

The FAA-CAMI server which is backed up daily.

Computer security prior to transfer will be accomplished by FAA and the MyIT Service Center. Data will be transferred from a MyIT Service Center controlled computer.

This dataset will be retained in perpetuity.

Yes, persistent identifiers linked to the data are employed by the archive.

Archive location of data is directed by FAA and AVS guidance.

6. Policies Affecting this Data Management Plan:

This data management plan was created to meet the requirements enumerated in the U.S. Department of Transportation's "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research" Version 1.1 << <https://doi.org/10.21949/1520559> >> and guidelines suggested by the DOT Public Access website << <https://doi.org/10.21949/1503647> >>, in effect and current as of May 12, 2023.

Planned Research Outputs

Dataset - "Occupant Protection for Legacy Rotorcraft"

This info is addressed in the plan.

Data paper - "TBD"

This paper will summarize the tests conducted, summarize findings, and draw conclusions.

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Occupant Protection for Legacy Rotorcraft	Dataset	2025-09-29	Open	None specified		Creative Commons Attribution Non Commercial 4.0 International	None specified	No	No
TBD	Data paper	2025-09-29	Open	ROSA P		Creative Commons Attribution 4.0 International	None specified	No	No