الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Jetman Accident

Case Study

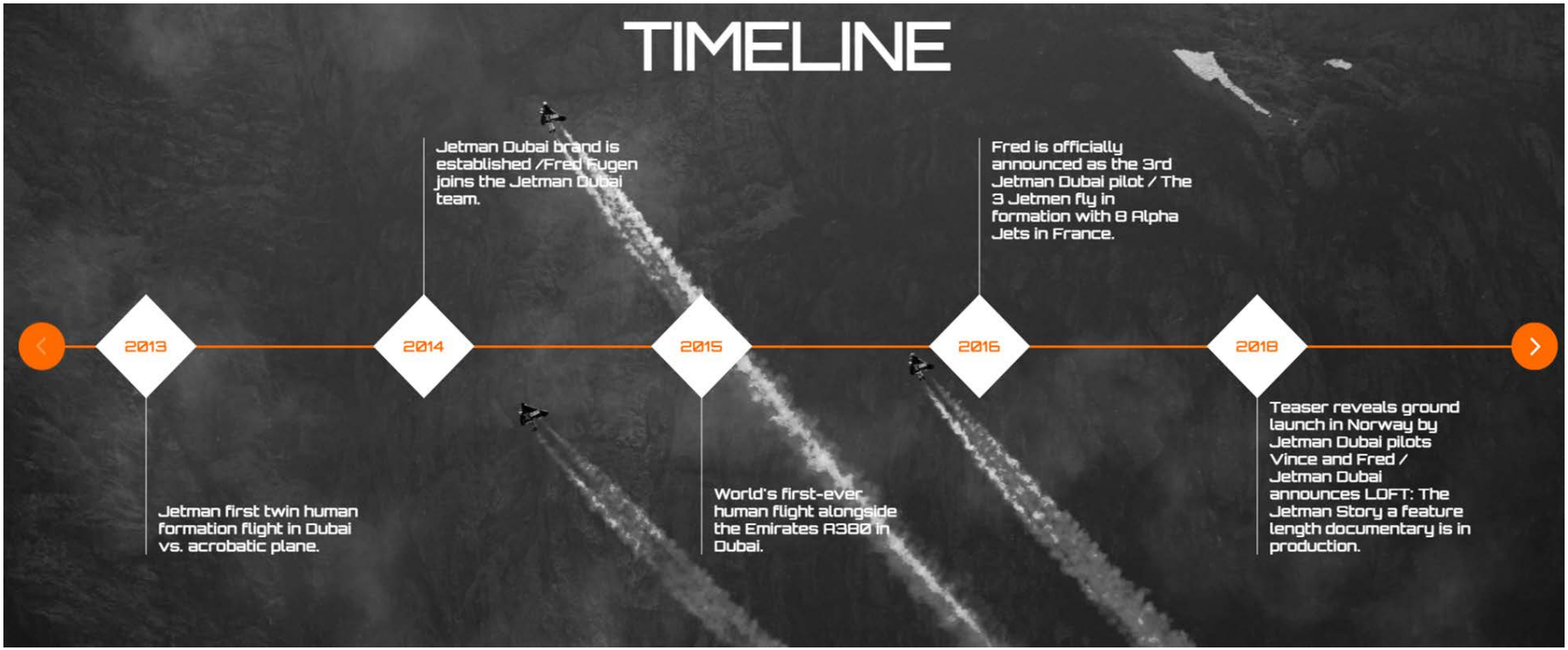
9th November 2023

Objectives

The presentation will discuss the accident investigation file number 12 for the year 2020 going through the following topics:

- What is a Jetwing ?
- Jetwing Parts
- Jetwing Flying
- The Accident Flight
- Investigations & Analysis
- Causes & Safety recommendations
- Q&A

Overview


TIMELINE
2013
Jetman first twin human formation flight in Dubai vs. acrobatic plane.
2014
Jetman Dubai brand is established /Fred Fugen joins the Jetman Dubai team.
2015
World's first-ever human flight alongside the Emirates A380 in Dubai.
2016
Fred is officially announced as the 3rd Jetman Dubai pilot / The 3 Jetmen fly in formation with 8 Alpha Jets in France.
2018
Teaser reveals ground launch in Norway by Jetman Dubai pilots Vince and Fred / Jetman Dubai announces LOFT: The Jetman Story a feature length documentary is in production.

What Is a Jetwing?

Video: https://youtu.be/_VPvKl6ezyc?si=Js5xlAul67ItI-C9

Jetwing Parts

A wing made of Carbon Fiber and powered by jet engines.

It includes the following parts:

- Carbon-Fiber Delta-Shaped wing
- Four JetCat P550-PRO-GL jet engines
- Pilot Harness and Parachutes
- Pyro-rocket emergency parachute
- Maintenance and engine data recording
- Equipped with 4k 360 action camera

Jetwing Specifications

Main Specifications of the Jetwing:

- Max. Distance: 50km
- Max. Flight Duration: 13 min
- Max. Speed: 220kt
- Max. Altitude: 6100ft
- Min. Speed: Hover

How it flies?

Jetwing Flying

- The Jetwing is controlled by body shifting.
- There are no specific procedures for controlling the Jetwing but it can be learned by experience during Skydiving.
- The Jetwing can be flown straight forward and can hover.
- The Jetwing gets deployed from a Helicopter and lands by parachute.

Rehearsals for the National Day

The Plan for the UAE National Day

- The Plan was to perform a flight during the UAE national day.
- The Flight will start from Burj Al Arab going to Burj Khalifa and then land back on Burj Al Arab.

The Accident Flight

Factual Information

- **Date of the Accident:** 17th November 2020
- **Departure point:** A Bell helicopter departed the Jetman Dubai facility at Margham in Dubai.
- **POB:** Two pilots, an engine technician and a Jetwing Pilot onboard.
- **Location:** Margham, Dubai, United Arab Emirates
- **Mission Profile:** Takeoff, triangular flight, and jet-powered landing
- **Mission Aim:** To simulate the flight that will be conducted publicly in the National Day.
- **History**: the Pilot had performed a flight in public, taking off from ground, low-alt hovering above sea and landing by parachute.

What happened?

- The helicopter arrived at 4000 ft AML and hovered for 3 minutes while the Jetman was preparing himself to deploy.
- The Jetman was deployed successfully, performed some maneuvers for 6 minutes and headed back.
- The helicopter at this time was hovering at 800 ft AGL and the Jetman arrived to the helicopter location, hovering slightly above the altitude of the helicopter.
- The Jetman lowered his altitude to reach same altitude of the helicopter, then he back-leaned, back-flipped and then steep descended until impact with ground.

AIFN0012/2020
Investigations

Accident site

- AAIS responded to the Accident site in the desert and collected the Evidences.
- Teardown and Examinations were performed at Jetman Facility.
- Interviews were conducted, Videos from different sources were reviewed.

Analysis

- Jetwing’s performance.
- Pilot’s proficiencies, trainings and experience.
- Helicopter’s Rotor downwash.
- Pilot’s performance during the flight.

Conclusion

Causes

- The loss of the Jetwing control due to an unrecoverable back-leaning attitude during hover, which resulted in an abrupt flip backwards, steep descent, and ground impact.

- The Pilot did not abort the flight by deploying the pyro-rocket emergency parachute as discussed in the pre-flight briefing. The Investigation could not determine the reasons why the Pilot did not abort the flight.

Safety Recommendations to Jetman

- SR02/2021

Explores the development of technology that assist the pilot during the hover by limiting the back-leaning attitude within safe margins.

- SR03/2021

Revise the Hazard Analysis Log to ensure that hazards during Jetwing operations, and in particular during hover, are identified, recorded and mitigated.

- SR04/2021

Revise the Standard Operating Procedures to ensure that newly developed flight maneuvers are included and regularly updated.

Q&A