

Pitot Tube Blockage by Mud-dauber Wasp as a Mechanism of a Motion of an Aircraft through MIRCE Functionability Field

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Abstract

MIRCE Mechanics is the discipline of MIRCE Science that focuses on the scientific understanding and description of the phenomena that govern the motion of functionable system types through the MIRCE Functionability field [1]. A full understanding of the mechanisms that generate the motion is essential for the accurate predictions of the functionability performance of functionable system types using MIRCE Science. According to the 2nd Axiom of MIRCE Science the motion of a functionable system type through MIRCE Space is a result of imposed natural phenomena or human activities, which are jointly called functionability actions. Thus, the main objective of this paper is to address pitot tube blockage by mud-dauber wasps as a mechanism that influences the motion of an aircraft through the MIRCE Functionability Field. Although it is not a frequent and globally realised phenomenon, it is a physically observable one, which is experienced by aircraft on the ground in areas where these types of insects are present. The paper also presents a set of a possible prevention and management actions regarding this specific phenomena.

1. Introduction

2. MIRCE Science Fundamentals

3. Pitot Static System

- 3.1 Pitot Tube¹
- 3.2 Airspeed indicator
- 3.3 Altimeter
- 3.4 Machmeter
- 3.5 Variometer

4.0 Airspeed Measurement on Airbus A330

5. Flight Control System on Airbus A330

6. Aircraft Maintenance Manual Parking Procedure for Airbus A330

7. The Observed Motion of A6-EYJ through the MIRCE Functionability Field

7.1 First Negative Functionability Action

7.2 Positive Functionability Actions after the First Rejected Take-off

¹ Henri Pitot, in 1732, invented Pitot tubes to measure the velocity of a flowing liquid or air.

7.3 Second Negative Functionability Action

7.4 Positive Functionability Actions after the Second NFE

8. Mud-dauber Wasps (*Sphecidae*)

9. Pitot Tube Blockage Hazard Management at Brisbane Airport

10. Conclusions

11. References

[1] Knezevic, J., The Origin of MIRCE Science, pp. 232. MIRCE Science, Exeter, UK, 2017, ISBN 978-1-904848-06-6

[2] Australian Transport Safety Bureau, Transport Safety Report, Air data system failure involving Airbus A330-243 A6-EYJ, pp. 24, Aviation Occurrence Investigation AO-2013-212– 6, Final 6 May 2016.

[3] "Reporte Final Accidente Aereo Birgenair, Vuelo ALW-301, Febrero 06,1996" (*PDF*) (in Spanish). DGAC. 25 October 1996. Archived (*PDF*) from the original on 4 September 2014. Retrieved 27 August 2014.

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