µHoubolt Test Protocol

[2ND STATIC FIRE]

[14.05.2022]

LEAD	MISSION CONTROL	PAD	RANGE SAFETY	FIREFIGHTER
DANIEL FRANK	GEORG MIKULA	ANDREAS UNGERSBÖCK	TARAS WEINL	MICHAEL POHN

TESTTYPE	Second static fire of µHoubolt
TESTGOAL	Successful test of new combustion chamber
CHANGES	New combustion chamber, New batch of igniters
ADDITIONAL INFO	-

Fails and Learnings

1. Igniter failed at first try. New igniters were installed, and a second test has been conducted on the same day.
2. Hard start of engine. Probably due to underperforming igniters. Further inspection and comparison to old batches will be done.
3. Due to the explosion of the combustion chamber, the new prototype couldn't be tested. Further tests will be carried out.

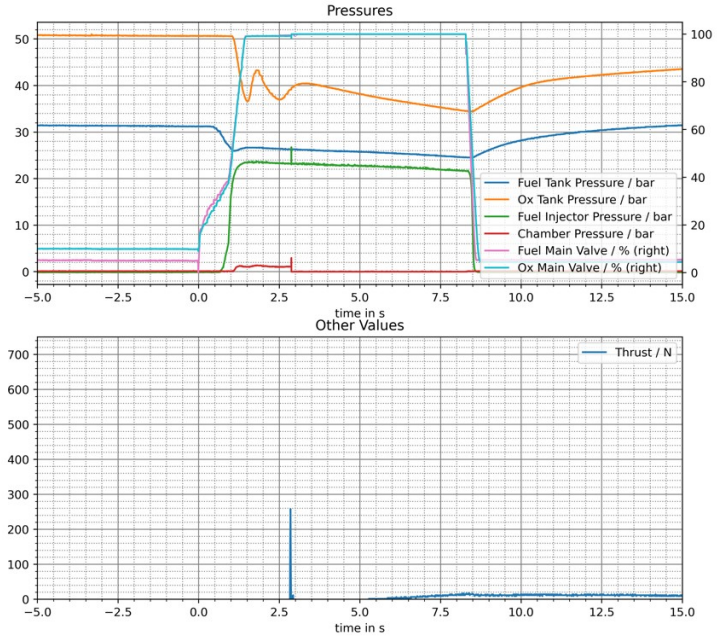
Test summary

For the second test we used a similar ablative combustion chamber made of carbon fibre and epoxy resin to exclude any manufacturing flaws of the previous chamber.

Tanking went flawlessly but engine start-up failed due to a malfunction of the igniters. The test was aborted, and the oxidizer tank was emptied.

After making a second igniter batch the test samples behaved as expected. Tanking went as expected and igniters ignited but they didn't produce a hot enough flame because they were installed upside down, which resulted in a hard start and in an explosion of the combustion chamber.

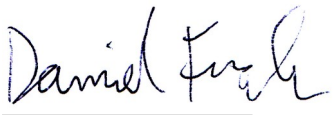
Diagrams and Pictures



Signature 1

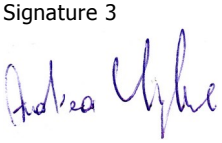
Georg Mikula

Signature 2



Daniel Frank

Signature 3



Andreas Ungersböck