µHoubolt Test Protocol

[1ST STATIC FIRE]

[30.04.2022]

LEAD	MISSION CONTROL	PAD	RANGE SAFETY	FIREFIGHTER
DANIEL FRANK	MARKUS PINTER	GEORG MIKULA	ANDREAS UNGERSBÖCK	MARCUS ROTH

TESTTYPE	First static fire of µHoubolt
TESTGOAL	Successful tanking, Ignition and utilization of our new checklist
CHANGES	-
ADDITIONAL INFO	-

Fails and Learnings

1. Minor leaks in the tanking system. Fixed by retightening pipe connections.
2. Combustion chamber burnt through. Other methods need to be considered.
3. Some checklist items were out of order or at the wrong location. They were corrected during the test procedure.

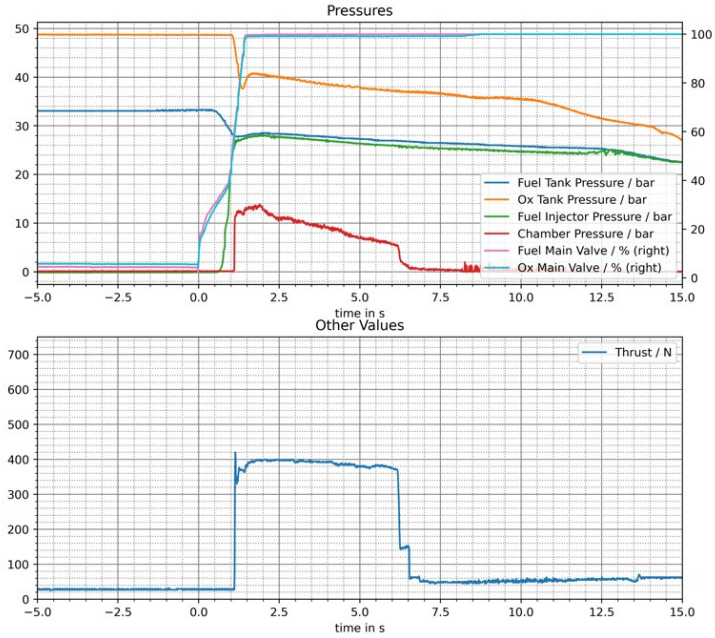
Test summary

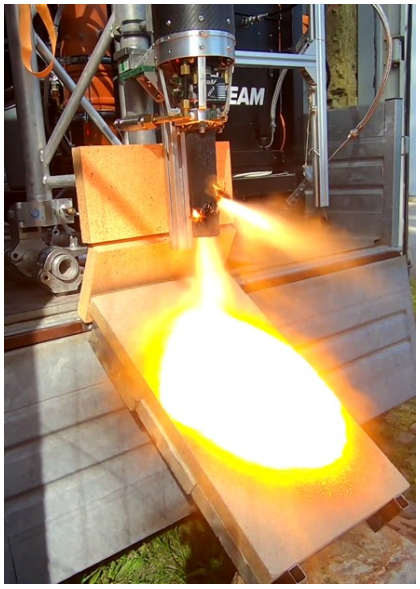
We conducted the first static fire test with an ablative combustion chamber and nozzle made of carbon fibre and epoxy resin. Our focus lied on verifying the adapted checklists previously used for hot fires on our TS02 test stand. A few items were out of order or at the wrong position, but it was recognized and corrected during the test procedures.

The tanking system had minor leaks, so the tanking was aborted. After that we filled the rocket without any issues. The umbilical-retract worked flawlessly.

Engine start-up worked as expected, but after a few seconds of burn time the ablative combustion chamber failed which resulted in a major pressure drop as can be observed in the diagram. The main valves were kept open to simulate a full duration burn until the tanks were empty.

Diagrams and Pictures

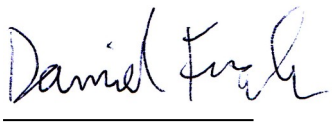




Signature 1

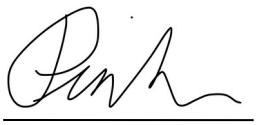
Georg Mikula

Signature 2



Daniel Frank

Signature 3



Markus Pinter