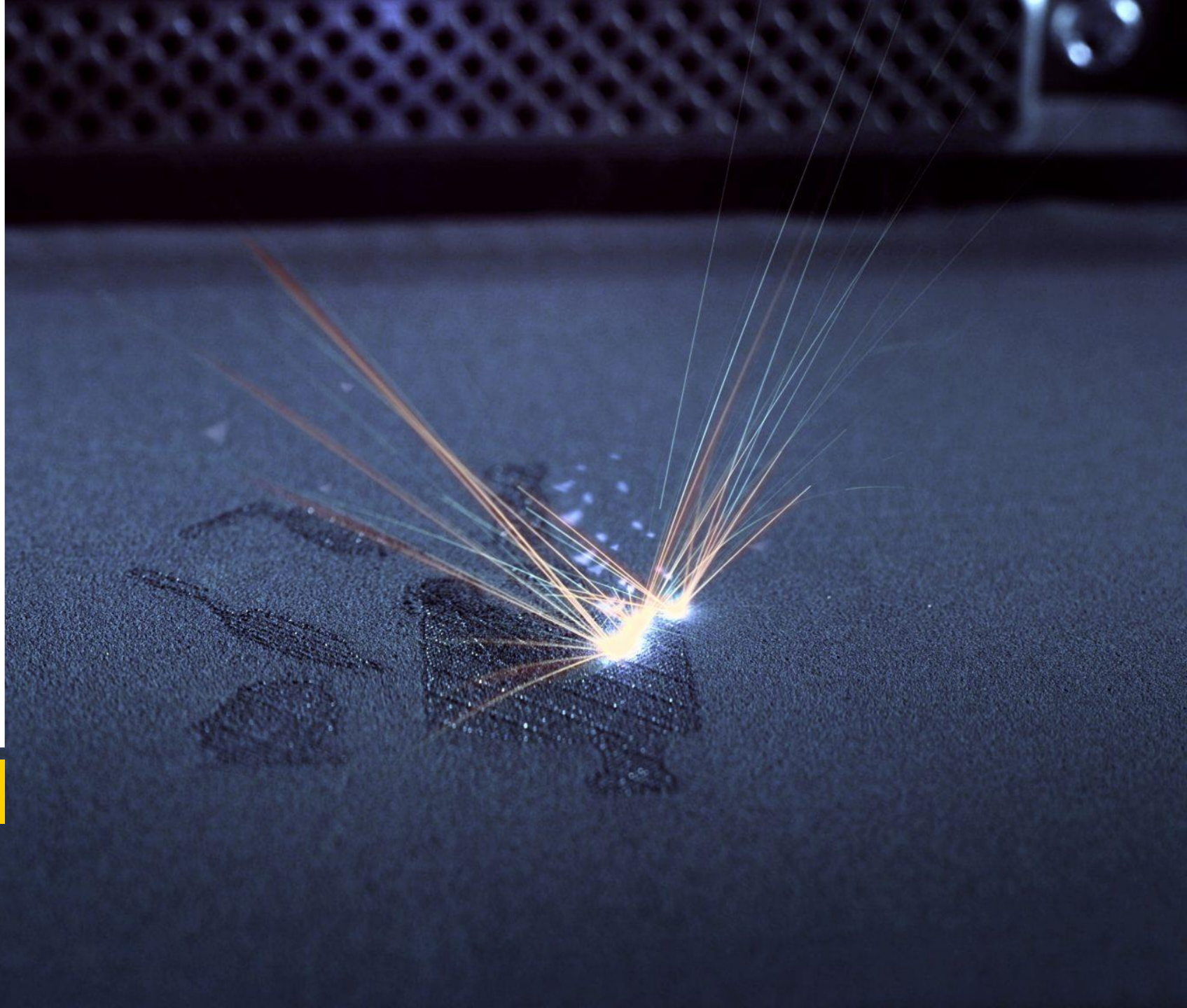

AM Bracket

EASA-FAA, WG1

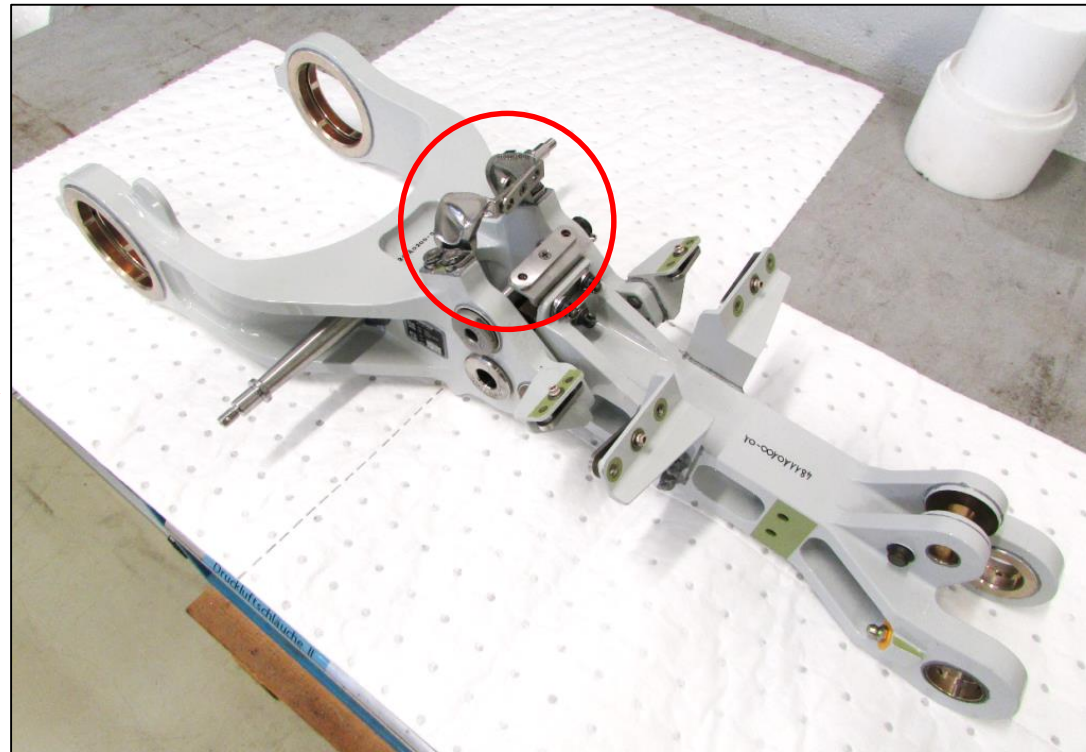
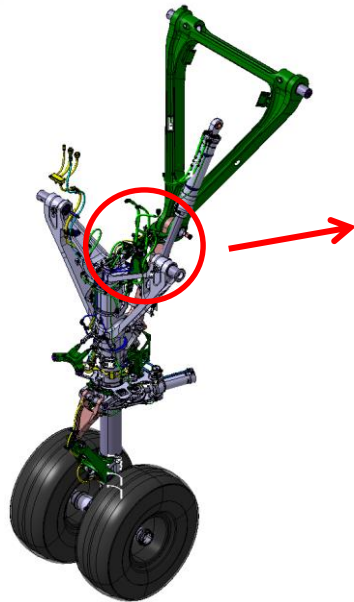
André Danzig, 11/2021

LIEBHERR

Liebherr-Aerospace Lindenberg GmbH



A350XWB NLG Lock Stay Bracket



Bracket for target of proximity switch

Some details

AM Bracket

- Material of substituted conventional part: Ti6Al4V
- AM material: Ti6Al4V
- AM process: L-PBF/M
- Dimension 9cm x 6cm x 3cm, thickness 1cm
- Weight 40g (-40%)



conventional part



AM part

Some details

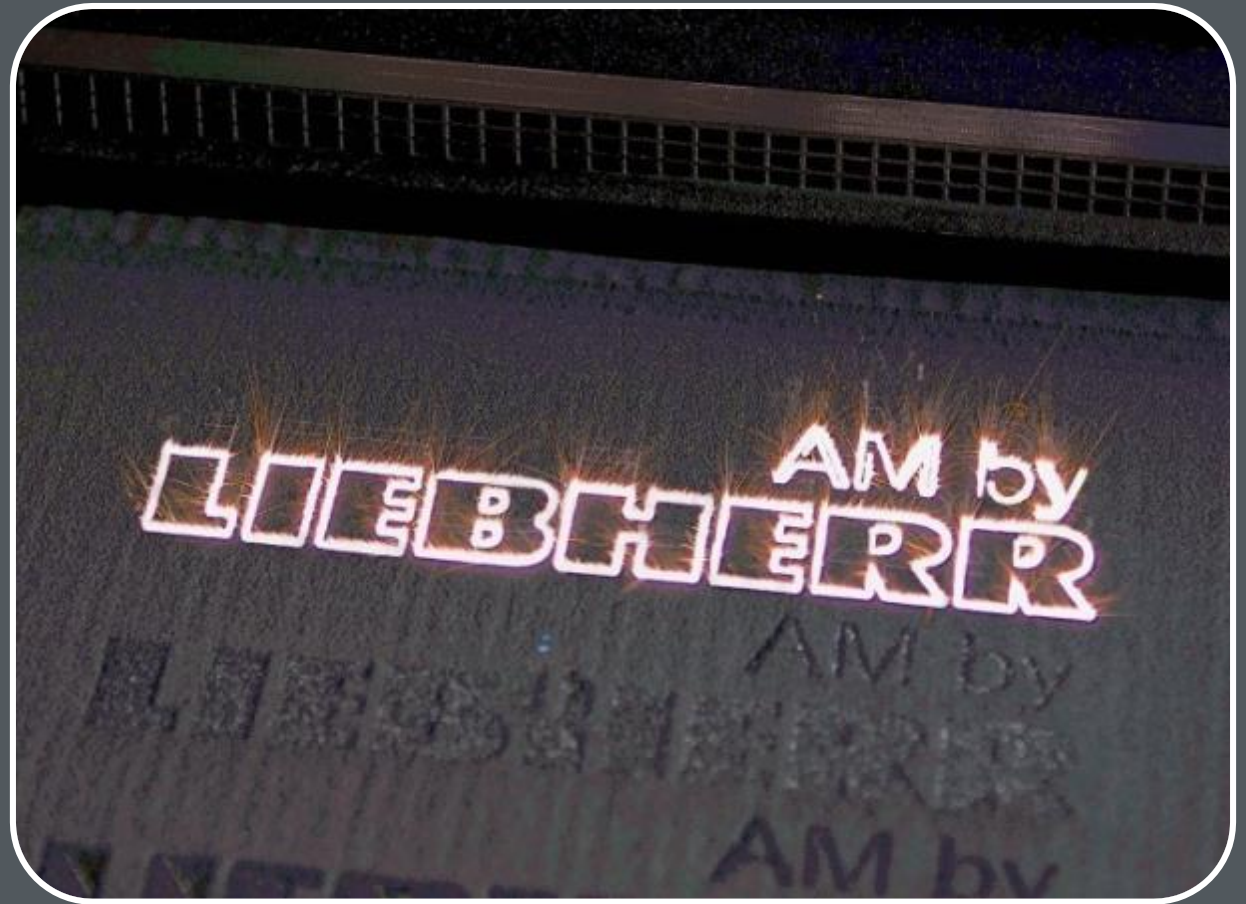
AM Bracket

- AM design restriction: build envelope and interfaces unchanged
- AM design goal: weight reduction, same static and dynamic behaviour
- criticality classification of product remains unchanged- class 2
- Main load & potential failure: Vibrations, operational shock causing missing signal
- Redundant (non AM) sensors exist

AM Bracket

	Test effort
Process Qualification	A few hundred test samples (static and dynamic properties, porosity and microstructure and chemistry)
Part Qualification	Vibrations and operational shock tested
FAI	100% NDT and dimensional inspection, few parts in critical position on building platform cutted and analysed
Serial Production	100% dimensional inspection, witness samples for tensile and porosity/microstructure

**Thank
you.**



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