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Title : 1:4.405 SCALE LCA HIGH SPEED
AIR-INTAKE MODEL: REVISED
ANALYSIS AND DESIGN

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Abstract :

As a follow up of the recommendations of the design review committee a few modifications were made in the structural design of the LCA wing. The important among them being the addition of three more bolts on the rear side of the port wing to strengthen the wing attachments. Steel leading edge proposed in the original design was replaced by an aluminium alloy leading edge. A revised finite element analysis of the wing establishes that in general the stress levels are low over a large portion of the wing. The stress values in the wing bolts show that the bolts have adequate factor of safety. The splitter plate analysis results point to the adequate strength of them, and the natural frequency spectrum shows that the fundamental frequency of the old model is much above the buzz frequency. The latter observation leads to the conclusion that the buzz noticed in the model is not due to any resonance phenomenon.