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Abstract :

In the event of a control surface failure a reconfigured control law redistributes the forces and moments among remaining control surfaces for the aircraft to complete the mission. This requires independent operation of right and left elevators and flaperons and a mathematical model with split control surfaces is essential for the design of reconfigurable control. In this report a split model of AFTI/F16 with split control surfaces at one flight condition has been developed and the model validated through simulation and comparison with the responses of unsplit model to a step elevator and aileron commands in the open loop and to a g-command maneuver in the closed loop system. In the closed loop system a control mixer is introduced to utilize the existing control law of unsplit model and to drive the seven split control surfaces from six command signals.