



NASA Common Research Model Update

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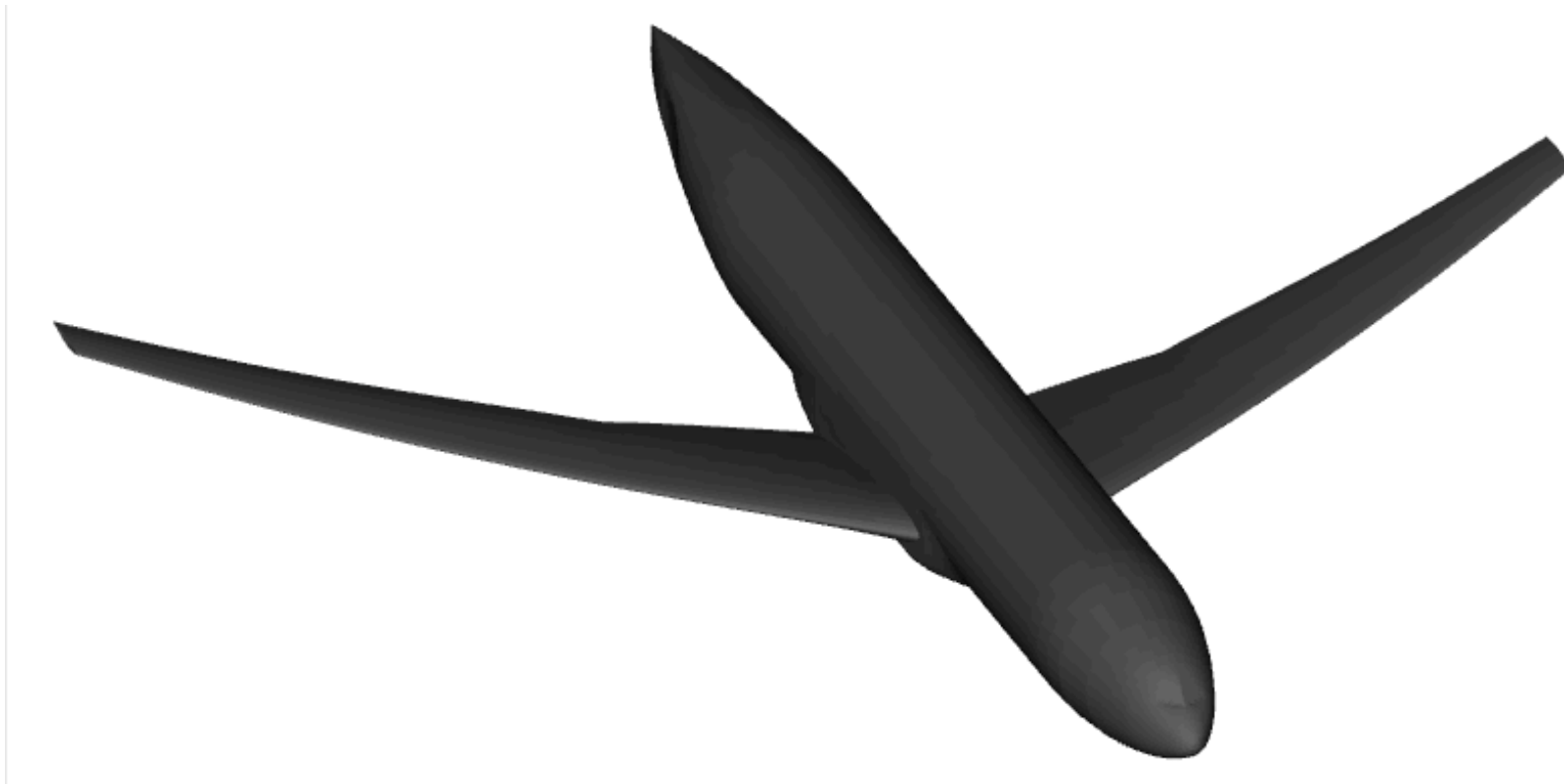
Drag Prediction Workshop IV

June 20th, 2009

NASA Common Research Model for Transport CFD Validation Baseline Configuration



- Wing Body Configuration
 - Was used for DPW4 calculations
 - Will be used for both wind tunnel tests

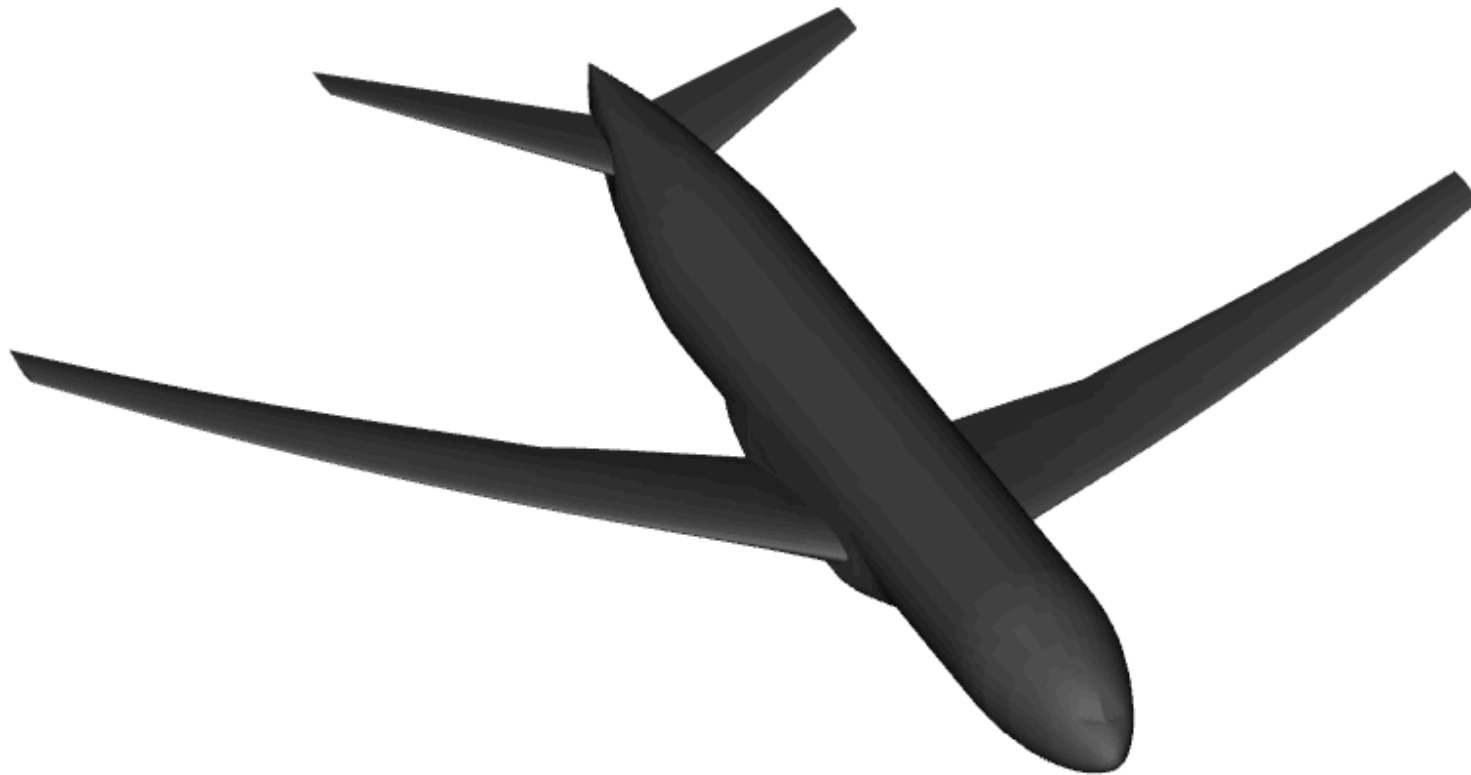


NASA Common Research Model for Transport CFD Validation

Wing Body Tail Configuration



- Wing Body Tail Configuration
 - Three tail settings (0, +2 and -2 deg) were used for DPW4 calculations
 - These tail settings will be used for both wind tunnel tests



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Wing Body Nacelle Pylon Configuration



- Wing Body Nacelle Pylon Configuration
 - Was not used for DPW4 calculations
 - Will be used for both wind tunnel tests



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Draft Test Plan



CONFIGURATION	Re#c Run Type	NTF CRYO			NTF AIR			AMES 11'				
		30	19.8	19.8	5	5	3	5	5	5	5	3
		FPD	PSP	FPD	FPD	PSP	FPD	FPD	PSP	OFI	PIV	FPD
WB	High Q	X		X								
	Mid Q		X	X	X	X		X	X	X	X	
	Low Q						X					X
WBPB	High Q	X										
	Mid Q				X			X	X	X	X	
	Low Q											X
WBT1	High Q	X		X								
	Mid Q			X	X			X	X	X	X	
	Low Q											X
WBT2	High Q	X										
	Mid Q				X			X				
	Low Q											X
WBT3	High Q	X										
	Mid Q				X			X				
	Low Q											X

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Additional Test Requirements



- Kulite
 - Will be placed at ~75% span and ~75% chord
- Wing Root Bending Moment Gauge
 - A half bridge bending gage will be placed on the upper and lower surfaces of both wings at the wing/body intersection
- PSP in NTF
 - Will have both air and nitrogen PSP runs in the NTF test

NASA Common Research Model for Transport CFD Validation Proposed Timeline



- Model Delivery: July 15, 2009
- USS Damper Delivery: June 25, 2009
- NTF Test: Sept 28, 2009 – Nov 6, 2009
- ARC 11' Test: around Dec 09

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Additional Geometry Requirements



- Upper Swept Strut Active Damper
 - Designed to help get to higher angle of attack in both NTF and Ames 11'
 - Will also help hold model steady in Ames 11' for the PIV runs

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Additional Geometry Requirements



- Upper Swept Strut Active Damper

