FX2B Design Objectives

• Eliminate Flow Separation at SOB
  ▪ Based on OVERFLOW Solutions
    • M=0.75 , CL=0.5 , Rn=3M
    • Central-Difference & Baldwin-Barth
    • Worst-Case Scenario of Separation
• Retrofit Add-On Part to DLR-F6 Model
• Available to Public Domain
  ▪ Not Based on a Proprietary Process
  ▪ Not Constrained by Real-World Factors
  ▪ Not a Drag Minimization Study
Baseline DLR-F6 WB

Note Acute Included-Angle Between Fuselage Geometry And Wing Upper-Surface
FX2B Fairing = FX1 Fairing + FX2 Bump + CATIA Fit

DLR-F6 Fuselage

FX2 Bump

FX1 Fairing
FX2B Fairing Geometry

FX2B Fairing = FX1 Fairing + FX2 Bump + CATIA Fit

Close-Up View

FX1 Fairing
FX2 Bump
Baseline F6 w/o Fairing

Geometry: Baseline
RN = 3 million
Mach = 0.75
Alpha = 0.370 deg
CL = 0.501

Note Large SOB Separation

OVERFLOW Baldwin-Barth
DLR-F6 w/ FX1 Fairing

SOB Separation
Greatly Reduced

OVERFLOW
Baldwin-Barth

Geometry: FX1
RN = 3 million
Mach = 0.75
Alpha = 0.118 deg
CL = 0.501
SOB Separation Is Removed

OVERFLOW Baldwin-Barth

TE Separation Persists Away From SOB

Geometry: FX2
RN = 3 million
Mach = 0.75
Alpha = 0.117 deg
CL = 0.50

FX2B Fairing Geometry
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Medium Grid, Mach = 0.75, $C_L = 0.50$, $R_N = 5.0$ million, Fully Turbulent, SA