Inlet Overview

Cross-Section of Inlet

- Outer Barrel
- Inner Barrel
- Attach Ring
- Aft Bulkhead
- D-Duct
- Splice Joint
- Fwd Bulkhead
- Containment Shield
- Lip Skin
- Attach Ring
- Aft Bulkhead
- A1 Interface
- Forward
Initial Inlet Design: No Containment Shield

Designed to Boeing Specification Control Drawing (SCD, Rev A, June 1994)

CFM56-7 fan case designed to provide containment up to 15° conical spread angle, as defined in AC 20-128

Fan Blade Out (FBO) containment capability not required for Inlet
Revised Inlet Specs: Required Containment Shield

Based on Rig 4 test (Aug 1995), Boeing issued revised design specification (Rev B)

Containment capability for a forward spiraling fan blade fragment

- Dimensions: Specifically defined
- Weight: ~ 2 lbs
- Velocity: ~ 600 mph
- Trajectory: 15° helix angle
Production Inlet Design: Included Containment Shield

Engine Certification test (April 1996)

- Included Inlet containment shield
- No Inlet modifications required after test

Containment shield performed intended function in two bird strikes (2003 & 2009)
Initial vs. Production Inlet Design Comparison

**Initial Design**
- No Containment Shield
- Aft Bulkhead Interface
- Attach Ring
- Inner Barrel

**Production Design**
- Containment Shield
- Aft Bulkhead Interface
- Attach Ring
- Inner Barrel
Fan Cowl Overview

Designed to Boeing SCD (Rev A)

Requirements did not change over time
Laboratory Setup

80-90% of Inlet and Fan Cowl parts recovered

Reconstructed in lab environment
Pensacola vs. Philadelphia Comparison

Pensacola (PNS, Aug 2016)

1. **Fan Cowl**
   - PNS – Intact
   - PHL – Portions departed

2. **Aft Bulkhead**
   - PNS – Intact
   - PHL – Departed

Philadelphia (PHL, April 2018)

3. **Blade Root Impact**
   - PNS – 3:30 o’clock
   - PHL – 6:30 o’clock

4. **Blade Tip Arrested**
   - PNS – Containment shield at 6:30 o’clock
   - PHL – Splice joint at 9 o’clock