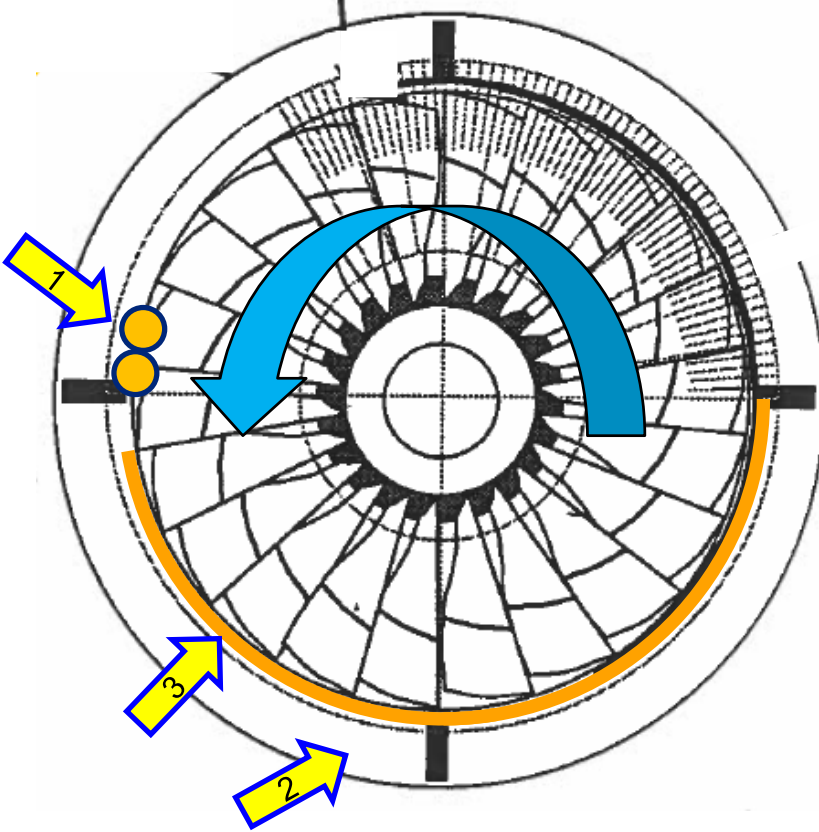


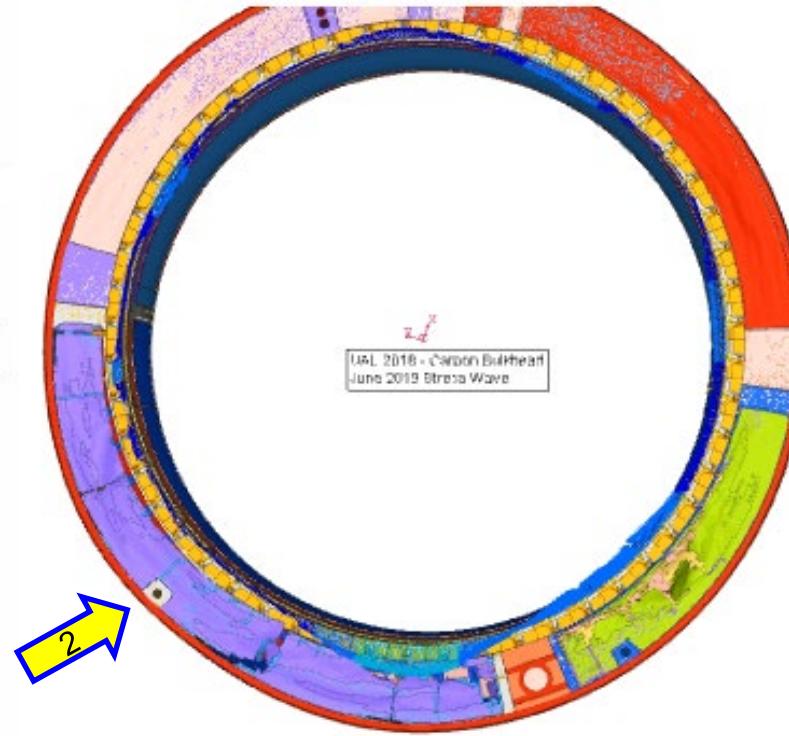
Overview of Failure Sequences and Root Cause Statements

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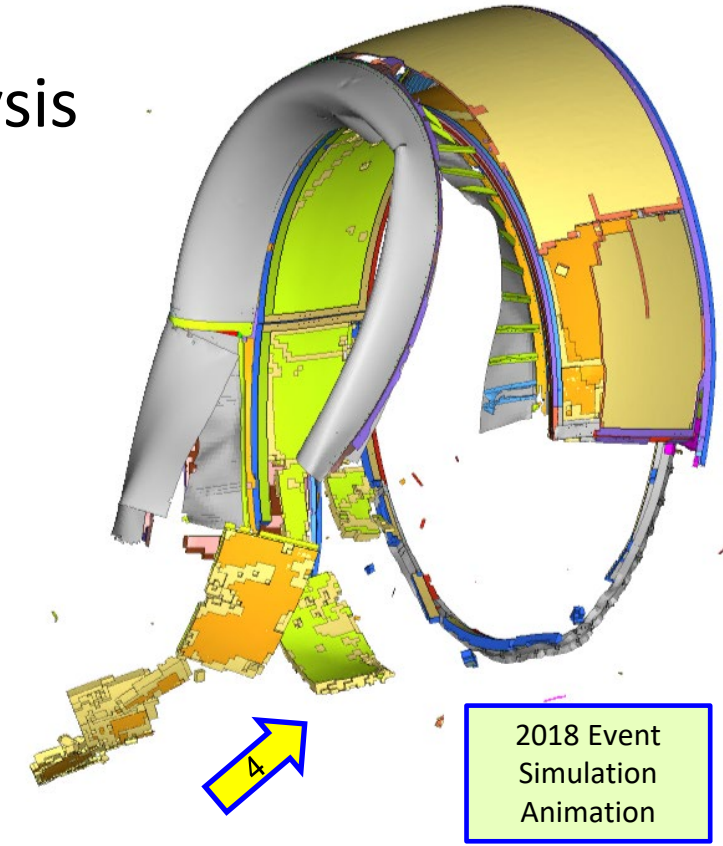
- Plausible Inlet Failure Sequence Consistent with Analysis Simulation and Hardware Observation



Forward
Looking Aft



Aft Looking
Forward



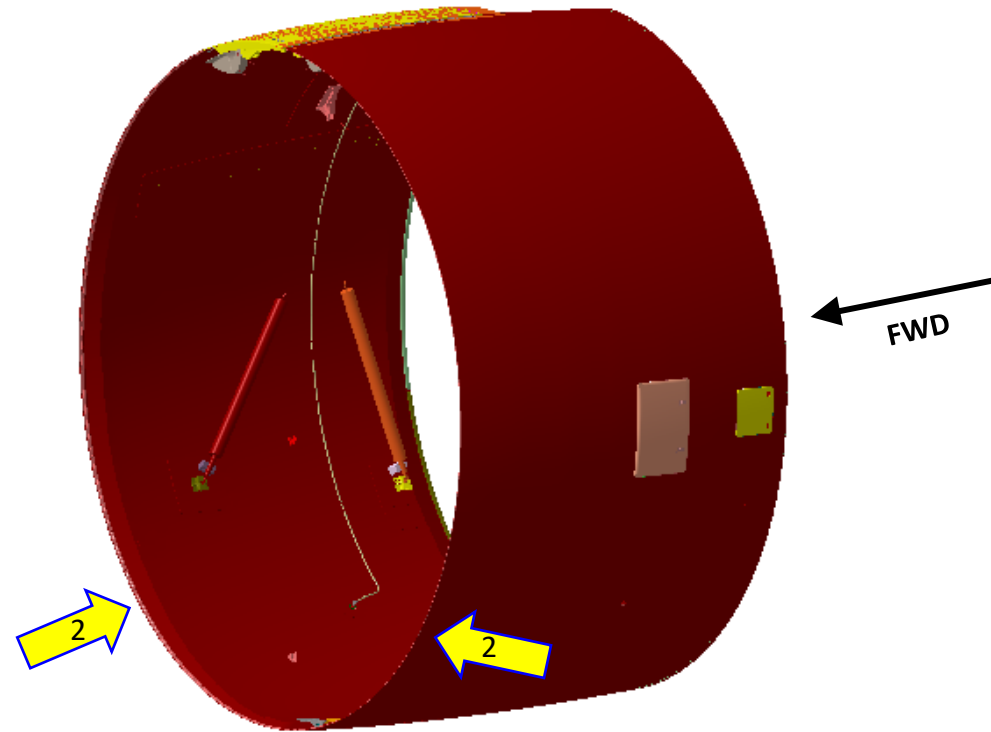
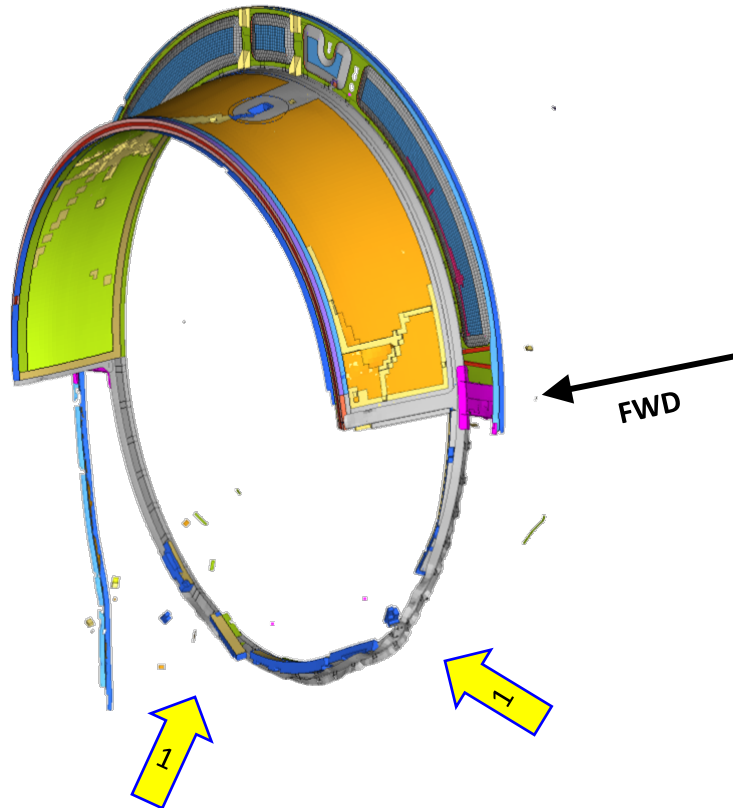
2018 Event
Simulation
Animation

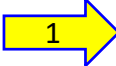
	time (sec)
1 Fan Blades impact fan case	0.005
2 170° structural damage to aft bulkhead (due to displacement wave)	0.025
3 Blade fragments cut through inner barrel	0.025
4 Major portions of inlet depart	<1.00

The analysis information herein was derived from numerical analysis that has not been validated against established structural analysis methods. However, the results herein have been correlated against recorded test data and acquired field notes from events.

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- Plausible Fan Cowl Failure Sequence Consistent with Analysis Simulation and Hardware Observation
- Scenario 1: Instability

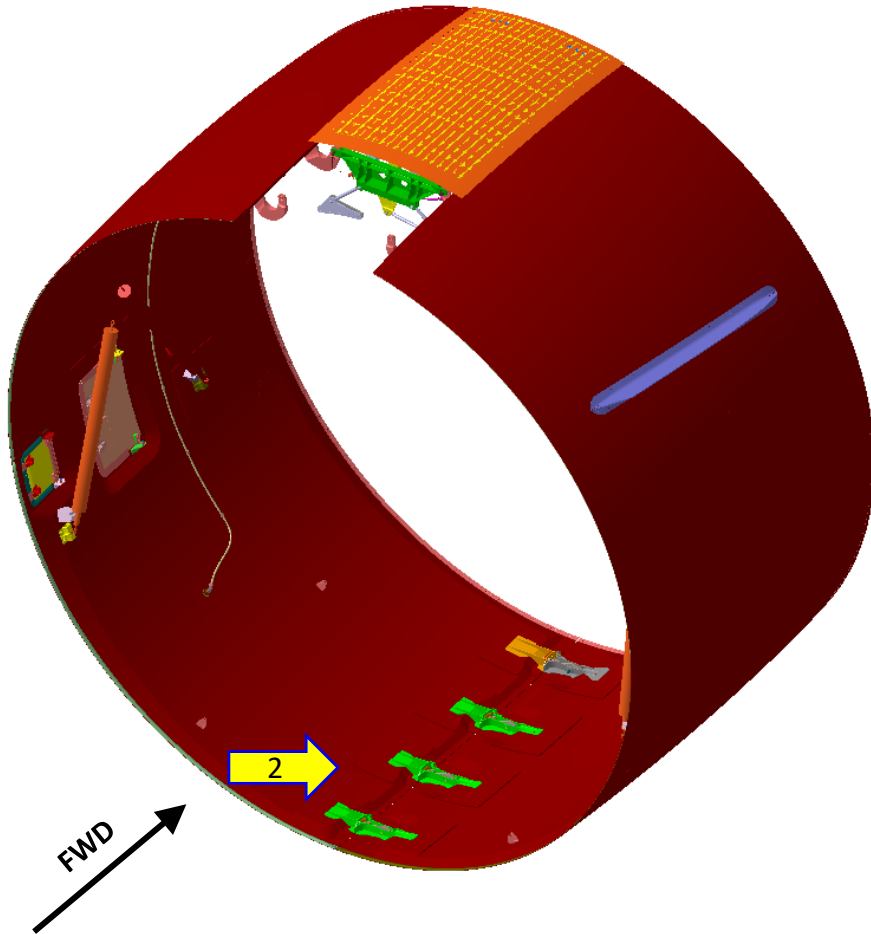


		<u>time (sec)</u>
	Inlet aft bulkhead and v-groove damaged	<1.00
	Front edges of fan cowl destabilized by buffeting	<1.05
	Majority of fan cowl departs	<2.00

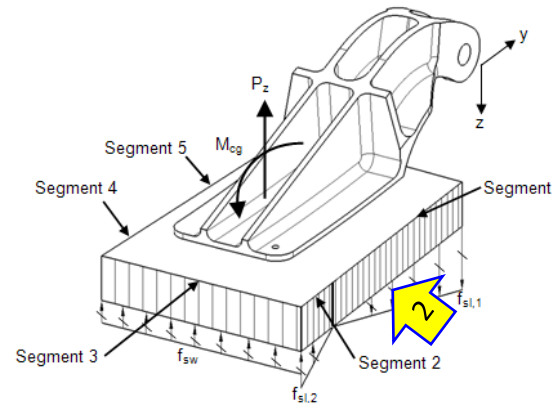
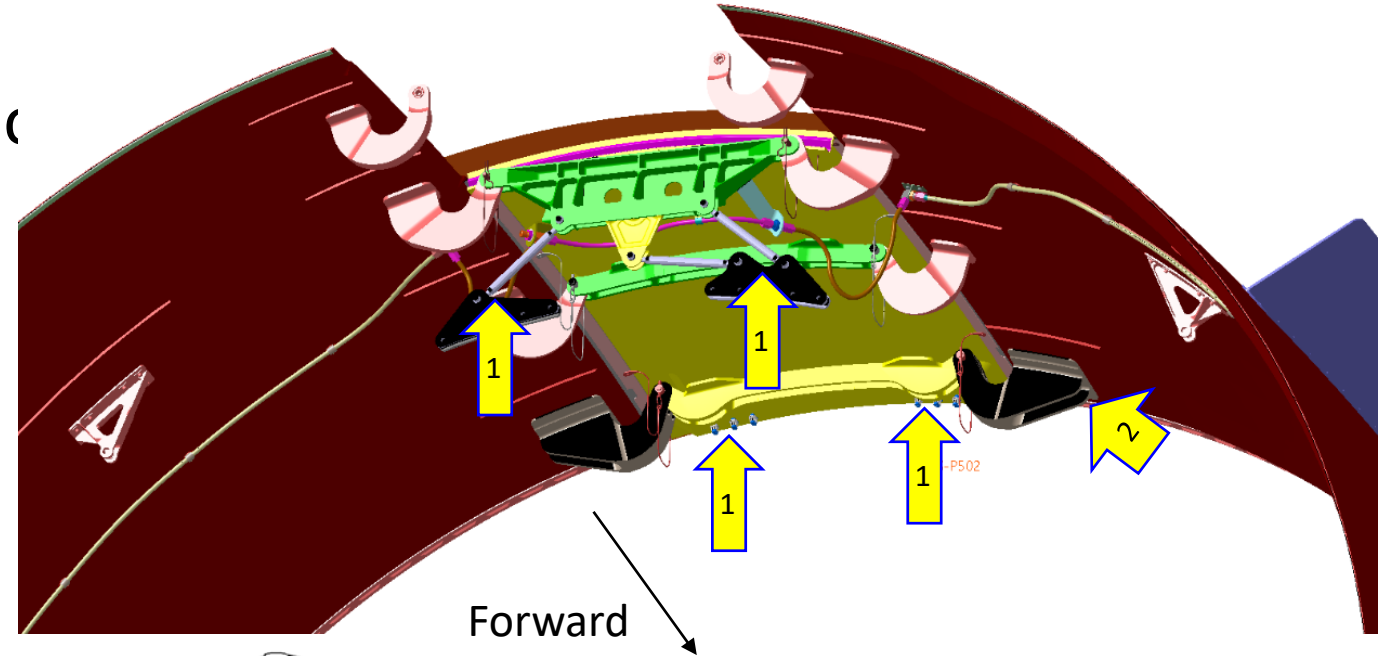
The analysis information herein was derived from numerical analysis that has not been validated against established structural analysis methods. However, the results herein have been correlated against recorded test data and acquired field notes from events.

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- Plausible Fan Cowl Failure Sequence Consistent with Analysis Simulation and Hardware Observation



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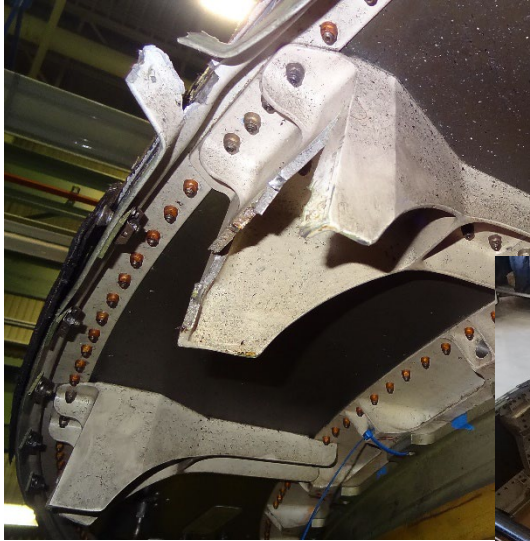
		<u>time (sec)</u>
	Imbalance loads	<0.03
	Low density core failure (moisture ingress)	<0.50
	Majority of fan cowl departs	<1.00

The analysis information herein was derived from numerical analysis that has not been validated against established structural analysis methods. However, the results herein have been correlated against recorded test data and acquired field notes from events.

Hardware Observations of Three Cases Used for Correlation

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- Hardware Observations - 2018 Honolulu



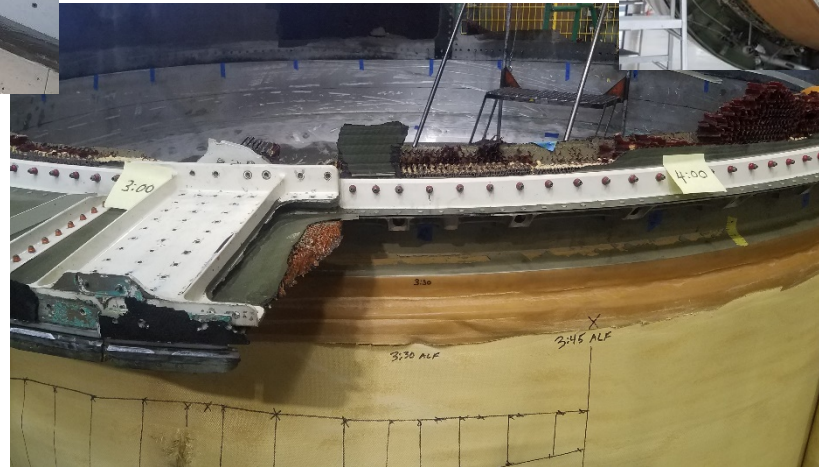
Fan Cowl Support Beam Fitting Attached to Inlet Aft Bulkhead



Fan Cowl Support Beam Fitting Attached to Fan Case



Fan Blade Impact Damage and Witness Marks



Remaining Portions of Inlet Lower Aft Bulkhead