

**NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Washington, D.C. 20594

March 09, 2015

**Attachment 19**

**Functional Hazard Assessment Section of Scaled's Document T1B-90E033**

**SYSTEM SAFETY**

**DCA15MA019**

<b>Scaled Composites, LLC</b>	Document Number: <b>T1B-90E033</b>	Revision: <b>Rev C</b>
Title: <b>Functional Hazard Assessment (FHA) for Scaled Model 339, SpaceShipTwo</b>		Effective Date: <b>20-December - 2011</b>

FHA Table Number: 13		PROVIDE AND REMOVE CONFIGURATION FOR ATMOSPHERIC ENTRY				
LINE ITEM NUMBER	Function	Failure Condition	Phase	Effect of Failure on Aircraft/Crew	Class	Mitigation (M), or Procedure (P) /Procedural Mitigation (MP)
13.01	Provide and remove configuration for entry	Feather fails to operate	E	Loss of aircraft	Catastrophic	M,P: The feather locks will be unlocked during boost, giving the ability to abort full trajectory, if the lock will not allow feather operation. Mitigates a Lock Jam failure. See Note in FTA.
13.02		Uncommanded feather operation	B	Probable loss of aircraft	Catastrophic	
13.03			LSS	Probable loss of aircraft	Catastrophic	
13.04			X, E, GSS	Increased workload	Major	
13.05		Misleading feather position indication	B, GSS, LSS	Slight increase in crew workload - crew will verify false reading by cross-check of feather actuator indications & obvious vehicle handling qualities	Minor	
13.06						

MIN: Slight reduction in safety margins or functional capabilities, a slight increase in crew workload or some physical discomfort to pax. MAJ: Reduction in vehicle capability or ability of crew to cope with adverse conditions. Significant reduction in safety margins or functional capabilities. Significant increase in crew workload. Discomfort to flight crew. Physical distress/injuries to pax. HAZ: Large reduction in safety margins or functional capabilities. Physical distress. Higher workload. Flight crew cannot be relied upon to perform tasks accurately or completely. Serious / fatal pax injury. CAT: Multiple fatalities of the occupants. Incapacitation or fatal injury to a flight crewmember. Loss of the vehicle, normally.

### OPERATIONAL PHASES

Ground	Takeoff	Climb	Launch	Boost	Entry	Glide & Cruise	Landing	
GCC = Captive Taxi	TCC = Captive Takeoff	CCC = Captive Climb	X	B	E	GSS = SS2 Glide	LSS = SS2 Landing	LCC = Captive Landing
RSS = SS2 solo Ground	TWK = WK2 Solo Takeoff	CWK = WK2 Solo Climb				GWK = WK2 Cruise & Descent	LWK = WK2 Solo Landing	