

Appendix B

Summary of Investigated Failure Possibilities

This appendix lists scenarios considered and eliminated as possible causes of Flight 427.

Scenarios	Status
In-flight collision	No (radar track)
Thrust reverser extension	No (actuators locked, no vibration or noise)
Engine malfunctions	No (parameters normal)
Internal explosion	No (no indications)
Internal fire	No (no indications)
Landing gear extension	No (gear in place)
Decompression	No (doors or locks in place)
Structural failure	No (no indications)
Tire/wheel internal burst	No (no indications)
Maintenance action	No (no open items)
Bird impact	No (black light check)
HIRF/EMI	No (no indications)
Laterai system	No (ailerons operative, based on analysis)
Effect of fluid in the E/E bay	No (examination of electrical impedance)
Elevator malfunction	No (system intact)
Flap malfunction	No (system intact)
Rudder servo overtravel	No (tolerance correct)
Rudder trim actuator	No (functional, in null position, too slow)
Slat malfunction	No (insufficient aerodynamic load)
Autopilot malfunction	No (kinematic analysis)
Standby actuator induced	No (within service limits, test demo)
Cable failure induced	No (all overload failures, test demo)
Auxiliary tank failure induced	No (no failure indication)
Thumps heard on CVR	No (wake vortex test sounds)
Rudder PCU control rod interference	No (in-service survey shows no contact)
Rudder blowdown authority	No (flight test, two additional degrees)
Standby actuator PCU linkage/valve jam	No (testing complete, rudder controllable)