APPENDIX G

Cable Break/Jam Data Summary

Table 5
Cable Break/ Jam Testing Summary Data Table[1]

	Fault			
	Forward Break/ Forward Jam	Forward Break/ Aft Jam	Aft Break/ Forward Jam	Aft Break/ Aft Jam
Final Elevator Position after Fault is Inserted[2]	Left Elevator: **FDR[3]:** -3.34 or –4.75 deg **With Fault Inserted:** -3.87 deg Right Elevator: **FDR:** -3.87 or –4.9 deg **With Fault Inserted:** -5.05 deg	Left Elevator: **FDR:** -3.34 or –4.75 deg **With Fault Inserted:** -3.40 deg Right Elevator: **FDR:** -3.87 or –4.9 deg **With Fault Inserted:** -3.81 deg	Left Elevator: **FDR:** -3.34 or –4.75 deg **With Fault Inserted:** -3.80 deg Right Elevator: **FDR:** -3.87 or –4.9 deg **With Fault Inserted:** -4.90 deg	Left Elevator: **FDR:** -3.34 or –4.75 deg **With Fault Inserted:** -1.19 deg Right Elevator: **FDR:** -3.87 or –4.9 deg **With Fault Inserted:** -1.43 deg
Controllability after Fault is Inserted	**FDR:** No recovery elevator movement noted for approximately 20 sec after the initial dive. **With Fault Inserted:** Both elevators respond to commands from either control column	**FDR:** No recovery elevator movement noted for approximately 20 sec after the initial dive. **With Fault Inserted:** Both elevators respond to commands from either control column	**FDR:** No recovery elevator movement noted for approximately 20 sec after the initial dive. **With Fault Inserted:** Both elevators respond to commands from either control column	**FDR:** No recovery elevator movement noted for approximately 20 sec after the initial dive. **With Fault Inserted:** Both elevators respond to commands from either control column
Amount of Corrective Elevator Available After Fault is Inserted (Listed as amount of left and right elevator deflection available for a given column force)	**With Fault Inserted:** From Capt. Column 25 lb = 1/1.5 deg[4] 50 lb = 1.5/1.5 deg 100 lb = 11/5 deg 150 lb = 22/8.5 deg From F/O Column 25 lb = 0.5/0.5 deg 50 lb = 1/1 deg 100 lb = 1.5/1.5 deg 150 lb = 2.5/2.5 deg	**With Fault Inserted:** From Capt. Column 25 lb = 2/1.5 deg 50 lb = 4/3.5 deg 100lb=12.5/5.5 deg 150 lb = 16/8 deg From F/O Column 25 lb = 2.5/2 deg 50 lb = 3.5/3.5 deg 100lb=7.5/7 deg 150lb=14.5/14 deg	**With Fault Inserted:** From Capt. Column 25 lb = 1.5/2 deg 50 lb = 4/3.5 deg 100 lb = 11/5.5 deg 150 lb = 20/9 deg From F/O Column 25 lb = 1/1.5 deg 50 lb = 2.5/3 deg 100 lb = 5/5 deg 150 lb = 6.5/6.5 deg	**With Fault Inserted:** From Capt. Column 25 lb = 1.5/1 deg 50 lb = 2/1.5 deg 100lb = 9.5/2.5 deg 150lb = 13/3 deg From F/O Column 25lb=0.75/0.75 deg 50 lb = 1/1 deg 100 lb = 3/2.5 deg 150 lb = 4.5/4 deg
Availability of Nose Up Stabilizer Trim After Fault is Inserted	**FDR:** Stab trim did not move until approximately 25 sec after start of dive **With Fault Inserted:** Both ANU[5] and AND[6] trim available from both columns	**FDR:** Stab trim did not move until approximately 25 sec after start of dive **With Fault Inserted:** Not specifically tested, but F/O column position after fault inserted = 11 deg. Approx. 85 pounds was required to move F/O column to 2 deg at which point the stab trim should have been available.	**FDR:** Stab trim did not move until approximately 25 sec after start of dive **With Fault Inserted:** Both ANU and AND trim available from both columns	**FDR:** Stab trim did not move until approximately 25 sec after start of dive **With Fault Inserted:** Not specifically tested, but F/O column position after fault inserted = 9.5 deg. Approx. 65 pounds was required to move F/O column to 2 deg at which point the stab trim should have been available.

Notes for table 5:

(1) For this table, the sign convention has been modified to be consistent with the flight data recorder (FDR) sign convention. Negative elevator position values indicate an aircraft nose down (surface trailing edge down) deflection.

(2) For this criterion, the elevator position test data with the fault inserted has been modified to make it directly comparable with the FDR data. The data included as "With Fault Inserted" was generated by taking the change in elevator position due to the fault and adding it to the FDR elevator position that was present immediately before the dive began. On the FDR, the left elevator position was 0.53 deg, and the right elevator position was –0.17 deg prior to the initial dive. For those faults that resulted in elevator trailing edge up deflections during the tests, a mirror-image trailing edge down deflection has been used under the assumption that breaking/jamming the opposite cable would result in this deflection.

(3) Data from the FDR has been included in this table. When listed in the table, the FDR data represents information from the accident aircraft that addresses the same criteria as the fault data.

(4) For example, 25 pounds of pull force from the captain's control column resulted in 1 deg of left elevator movement and 1.5 deg of right elevator movement. The elevator deflection numbers are listed as positive since they represent a deflection in the corrective direction, which may vary depending on the fault inserted (depending on the fault, the corrective elevator deflection may be either trailing edge up or trailing edge down).

(5) ANU = aircraft nose up;
AND = aircraft nose down.