

Flight Crew's Statements
Wake Turbulence Encounter

WORKING PAPER

JANUARY 1995

Background: Flight was operating as a through flight from [redacted]. The aircraft was a Boeing 737. The only MEL item was an inoperative APU (49-1). All other aircraft systems were operating normally.

The general weather pattern over much of [redacted] was a 2,000 to 3,000 foot thick lower cloud layer and clear above. The estimated winds aloft at the time and altitude of the encounter were from the Southwest at about 20 knots.

Flight was cleared to [redacted] on the [redacted] Arrival. After crossing [redacted] Intersection the flight was cleared to 6,000. At approximately 15 DME north of VOR (116.6), the aircraft encountered an area of disturbed air consistent with a wake vortex. At the time of the encounter both crew members recall airspeed to be between 230 and 250 knot. Clean configuration. Autopilot on with Altitude Hold and CWS for Roll. The pilot flying was the First Officer. The aircraft was in clear air with a overcast cloud deck several thousand feet below. Proceeding traffic was an [redacted] and that traffic was observed on the TCAS to be at least 5 miles ahead just prior to the encounter. No other traffic was noted by the flight crew.

First Officer's Description of Event: At approximately 11:50 CST, 15 NM north of the [redacted] VOR and level at 6,000 feet. I was at the controls slowing from 250 knots in clear air. Our IAS was approximately 240 knots and the aircraft began to roll to the right. I countered the roll with aileron input stopping the roll at about 20 degrees bank and then the aircraft began to roll left feeling very sluggish on the controls. The aircraft continued through wings level into a left bank giving a feeling of overcontrol of the initial input to correct the initial right bank. I applied right aileron, but the aircraft kept rolling left. I believe I had close to or full right aileron with roll slowly continuing left. At this point, Captain [redacted] stated, "use some rudder input." As the aircraft continued its left bank, he stated, "I have the aircraft" and took control. He maintained the aileron input and applied rudder and stopped the roll at approximately 30 degrees of bank. The autopilot was in Altitude Hold and CWS--Roll at all times. After recovery, we felt no further effects of vortices for the rest of the flight.

Captain's Statement: The above background information is consistent with my recollection of the event and my notes taken after landing. The First Officer, who was pilot flying, reduced thrust slightly to start a gradual speed reduction as we neared our turn to downwind point. I believe the aircraft was somewhere between 230-240 knots; clean configuration; autopilot engaged with ALT Hold and CWS-Roll.

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We first encountered a couple of bumps approximately equal to light to moderate turbulence. A few seconds into the event, the aircraft started to roll right. I did not know at this point whether the FO was turning for some reason or if it was either the autopilot or an outside force. I looked at his yoke and noted he had it to the left.

Before I could say anything the airplane began to roll left which was consistent with the control inputs I saw the FO making except it seemed he had more left aileron in than the roll rate would indicate. We continued the left roll back through wings level and then started a left bank. I asked him if he was trying to turn out of it and he said no. I then looked at the yoke again and noted that he had close to full right aileron input and the aircraft was still rolling slowly to the left. I told him to put some rudder in to regain full control. He did not respond immediately as he was very busy trying to roll the airplane back to wings level.

It also occurred to me that since I did not say right rudder that I best take the airplane before the left bank continued. I told him "I have the aircraft." As I took the yoke, I noted full right aileron was not stopping the slow rolling tendency to the left. I applied (pressured) right rudder pedal and estimate that total rudder pedal movement was about an inch. The airplane immediately responded to the rudder input and the wings leveled. I neutralized the ailerons as the wings leveled. The airplane did not feel as if it was responding to aileron but rather the rudder input. We continued to get some light chop or buffeting for a few more seconds and then flew out of the disturbed air. I believe the entire event lasted 10-15 seconds. The flight continued without incident. No passengers nor did the Flight Attendants comment on the encounter. At no time would I characterize the event as a total loss of control. However, the airplane was not responding or was only very marginally responding to roll inputs. What the end result of the encounter would have been with no right rudder input can only be speculated. I would guess that left bank would have continued to increase slowly to some higher value and that might have led to changes in the other two flight axes. I do not feel that we would have lost the airplane in this encounter.

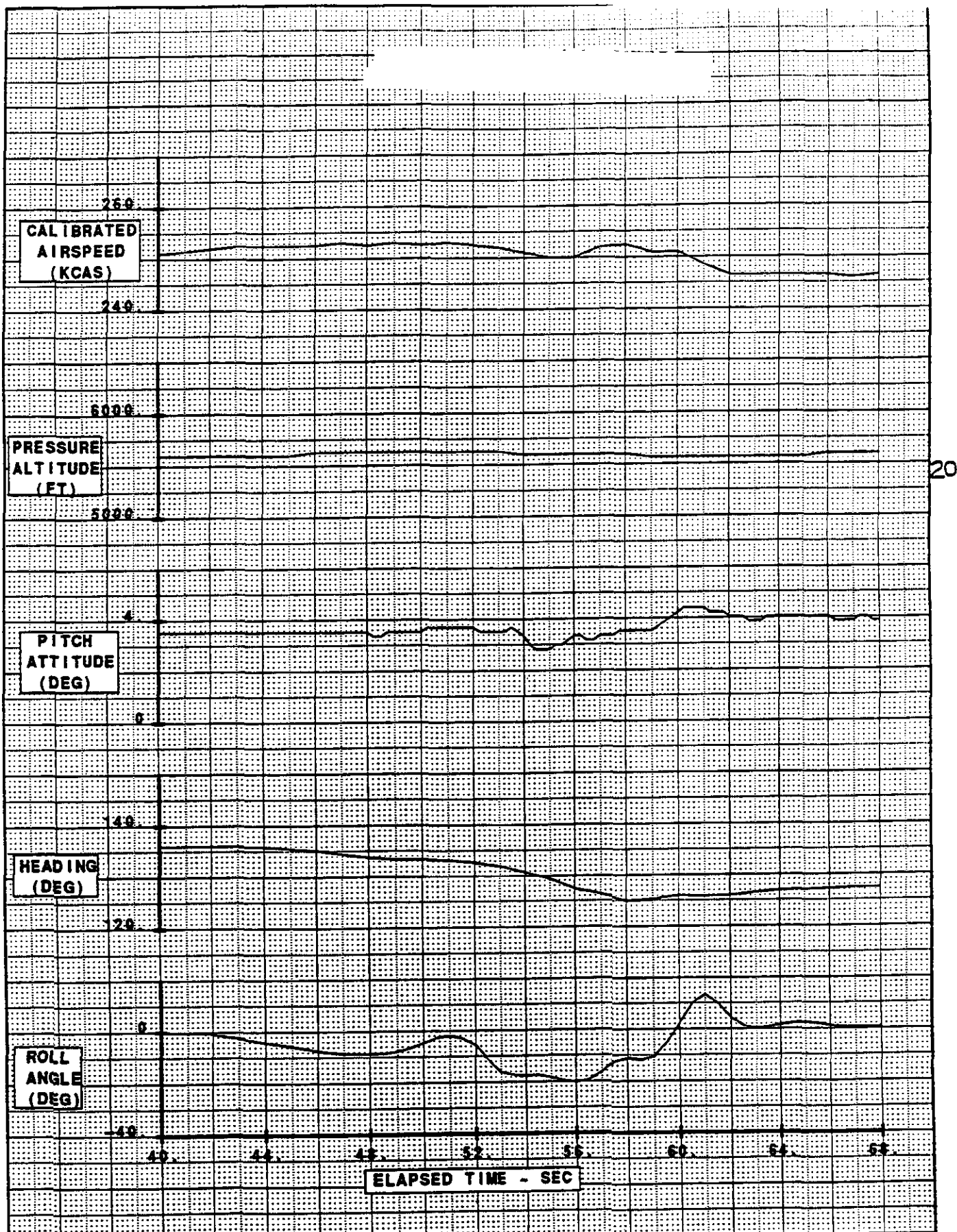
Upon landing I called our Manager and recommended that we consider pulling the FDR to develop hard data about the encounter and to attempt to get the radar data from ATC. It was my thoughts that this data would be consistent to some degree with other FDR readouts from other wake encounters for the B-737. We then agreed it would be worthwhile.

was then called and he authorized and arranged for the FDR to be pulled in when the aircraft

On January I called a contact at FAA Headquarters in Washington, DC to ask for the radar data. Apparently that request generated interest both in the FAA and the NTSB. On January I spoke to both

Assistant POI for in detail about the incident. I was later informed by

that the NTSB would like to formally investigate this encounter as an incident and was asked to prepare the above statement. I would like to note that and I had all discussed



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