POEING COMMERCIAL AIRPLANE COMPANY
P.O. Box 3707
Seattle, Washington 98124

A Division of The Boeing Company

June 1979
M-7020-4877
ATA: 0211

Attention:

Subject: Operations, Flight Perform, Approach, Roll Maneuver, Model 737

Reference: .979

22

Gentlemen:

The referenced correspondence reported that airplane encountered several sudden roll maneuvers during the final approach to on January 1979. It was initially suspected by Airways that the reported roll maneuvers were caused by an apparent lateral control malfunction. To facilitate our analysis, copies of the pertinent flight data recorder traces were provided. We have completed our review of this information. The results of our review follow:

Our analysis of the flight data recorder traces substantiates a normal approach until the initiation of the procedural turn required to position the aircraft for the downwind leg of the final approach to . Specifically, airplane was directed on a heading of 180 degrees and began a right turn to position for the downwind leg heading of 040 degrees for approach to Runway 22. This turn began at approximately 185 knots indicated airspeed with trailing edge flaps at 25 and the landing gear down. During this relatively steep 35 degree right turn, indicated airspeed reduced to 150 knots and the trailing edge flaps were reportedly raised to the flaps 15 position. Presumably in an attempt to coordinate this turn, the flight crew applied and continued to

maintain small but excessive amounts of right rudder control, approximately 3 to 5 degrees. This in turn required excessive left control wheel input, approximately 30 degrees, to hold the 35 degree right bank. Typically, very little rudder control is required to coordinate turns of this magnitude on 737 aircraft in similar situations.

When positioning the airplane for the downwind leg, several rudder control and lateral control oscillations occurred. Two rapid left and right roll maneuvers appear to have resulted primarily from several sudden left rudder control inputs. The rudder control and lateral control inputs shifted to an out of phase condition during the attempt to establish a 10 degree right bank. Control inputs increased in magnitude while holding this bank until 15 degrees of right rudder control and 40 to 50 degrees left control wheel were applied. Several small amplitude sudden roll maneuvers also occurred during the downwind leg as these control inputs oscillated.

As the airplane turned to final approach, the right rudder sideslip condition, resulting from cross control, was gradually changed to a full left rudder and full right control wheel sideslip. Several additional small amplitude roll maneuvers occurred as control inputs were rapidly oscillating. This cross control continued to exist to a lesser extent until the airplane landed.

In conclusion, it would appear that the reported roll maneuvers were caused by rudder control and lateral control oscillations which were introduced by the flight crew. We believe that these oscillations were the result of the cross controlled situation which existed during the final approach to

A summary of the pertinent information obtained from the flight data recorder is attached.

Very truly yours,

707/727/737 CUSTOMER SUPPORT ENGINEERING

[redacted]

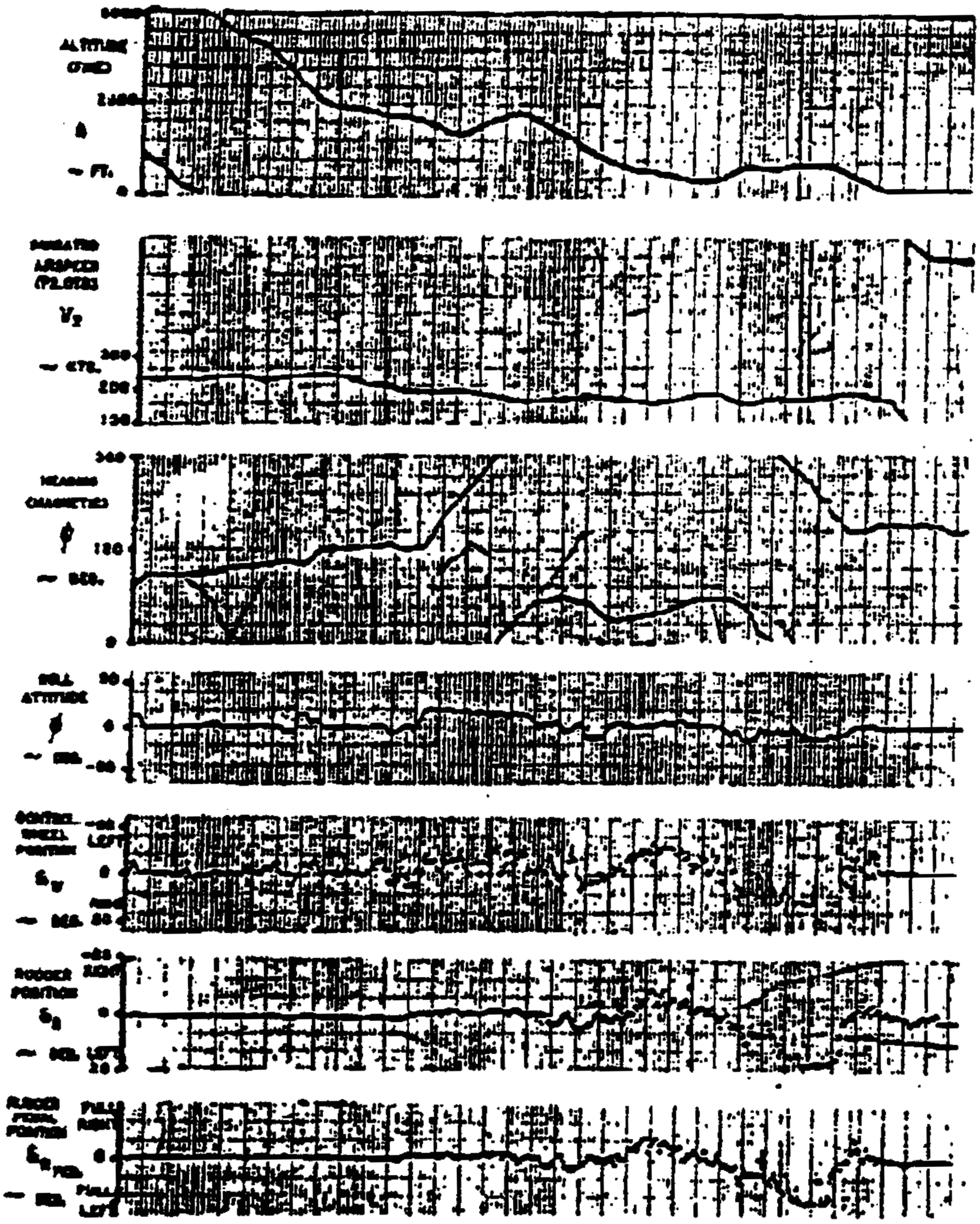
for D. L. Monchil
Director

Attachment

BOEING

02-06-95 08:27 AM *BOEING CUST SERV INC 202/06

APPROACH ROLL INCIDENT
FLIGHT RECORDER TRACES



ENGR.	HARRINGTON	5.10.79	REVISED	DATE	FLIGHT DATA RECORDER TRACES	737
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