

DOCKET NO. SA-510
EXHIBIT NO. 9X-L

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, DC.

BOEING PRESENTATION MATERIALS
MR. JEAN McGREW

SUBJECT: BOEING COMMERCIAL AIRPLANE GROUP B-737 ROLL TEAM

Pilots from the B-737 fleet have been reporting a larger number of unexpected roll events since June of 1995 than in the past. Investigations by the airlines and Boeing have been able to satisfactorily determine probable cause in only some cases. These events are of concern to Boeing, the regulatory agencies, and the airlines.

In order to rebuild confidence in the 737 lateral flight control systems, Boeing established a 737 roll team comprised of Boeing experts with the following mission:

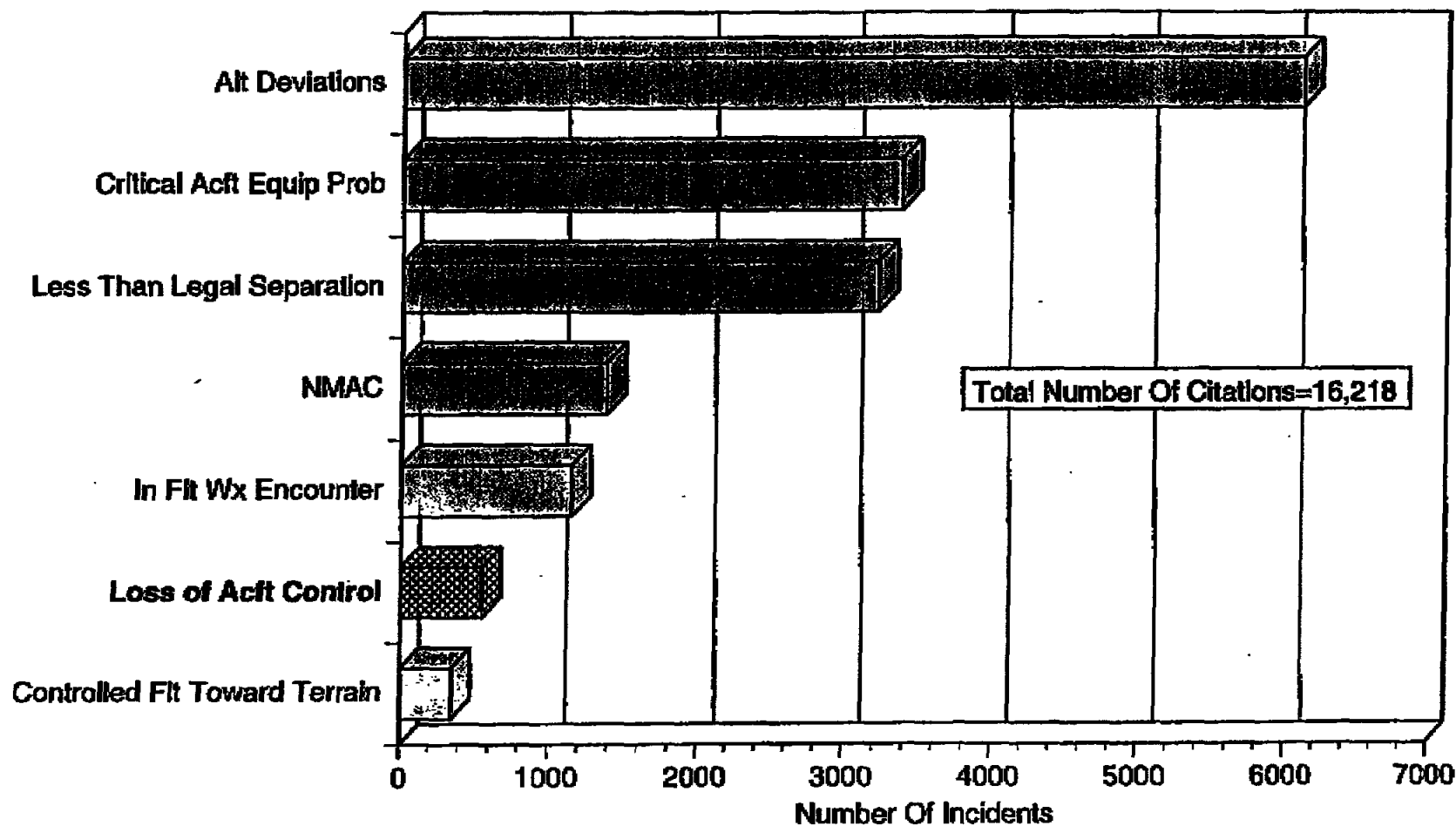
Establish the root cause of the unexpected roll events currently being experienced by the 737 fleet.

The originally expected duration of this team activity was one month. In actuality, the team members dedicated their full time efforts for six weeks.

The expected deliverables were:

Probable root cause(s) of the events and supporting fleet and Boeing data.

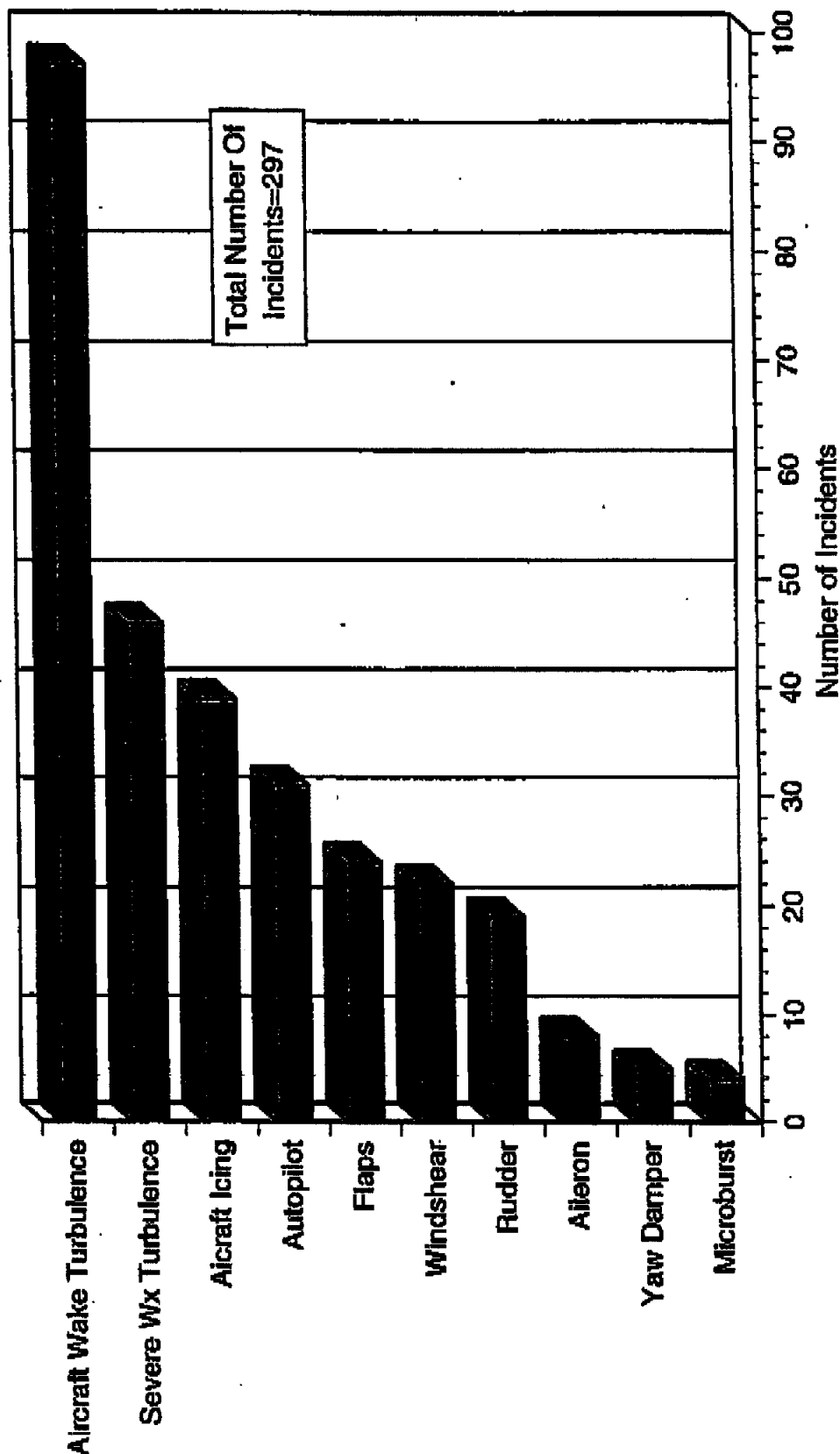
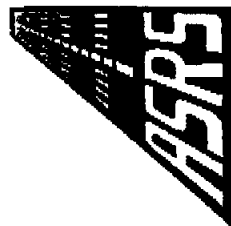
Multi-Engine Turbojet Anomalies Comparison January 1987 - May 1995*



*The ASRS database is current through May 1995.

Data are based on ASRS reports containing references to the above anomalies, and which include reporter narratives.

Multi-Engine Turbojet Loss of Control Factors January 1987 - May 1995*



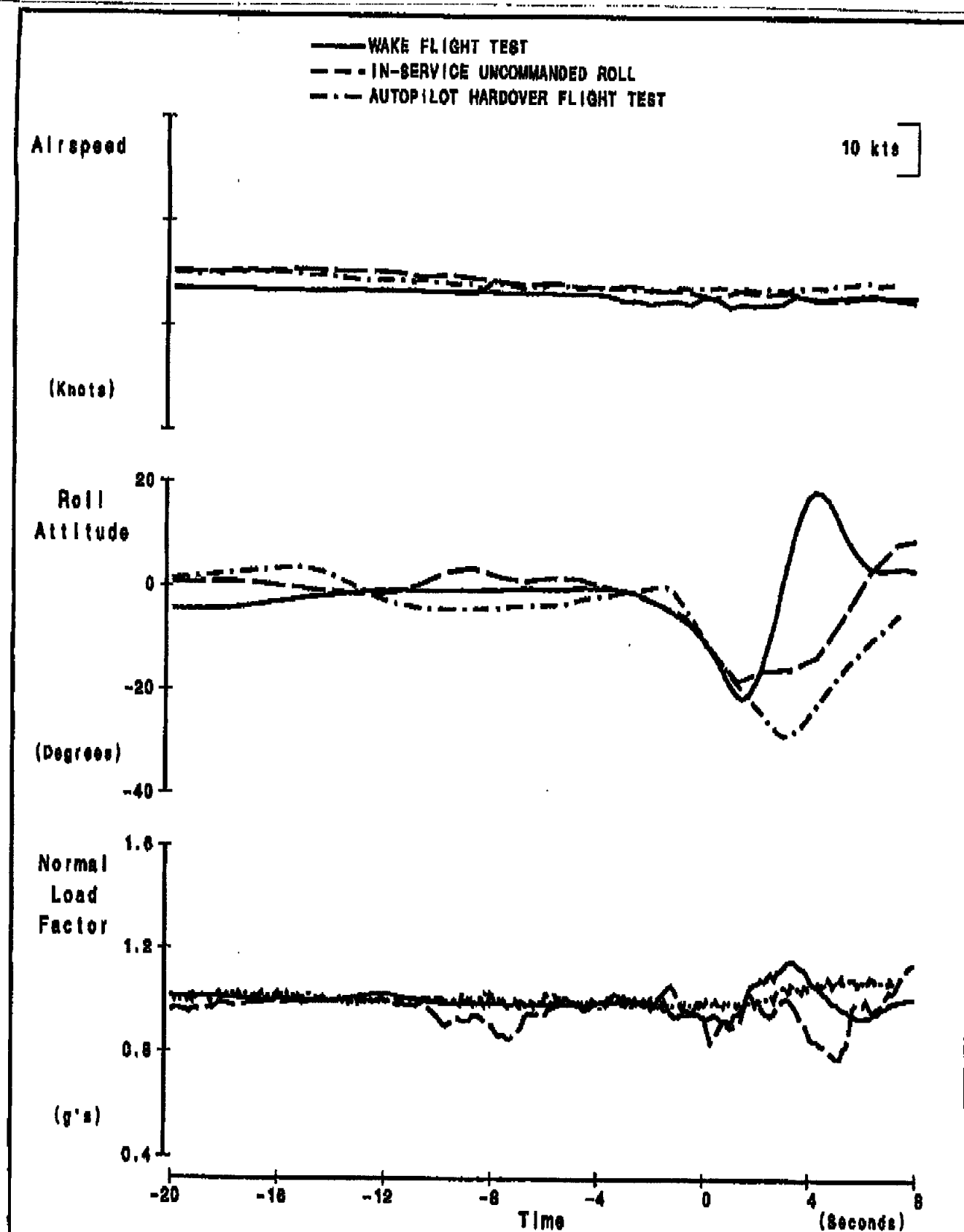
*The ASRS database is current through May 1995.
Data are based on ASRS reports containing any references to loss of control involving the above factors, and which include reporter narratives.

ROLL TEAM REPORT EVENT SUMMARY**14-Nov-95**

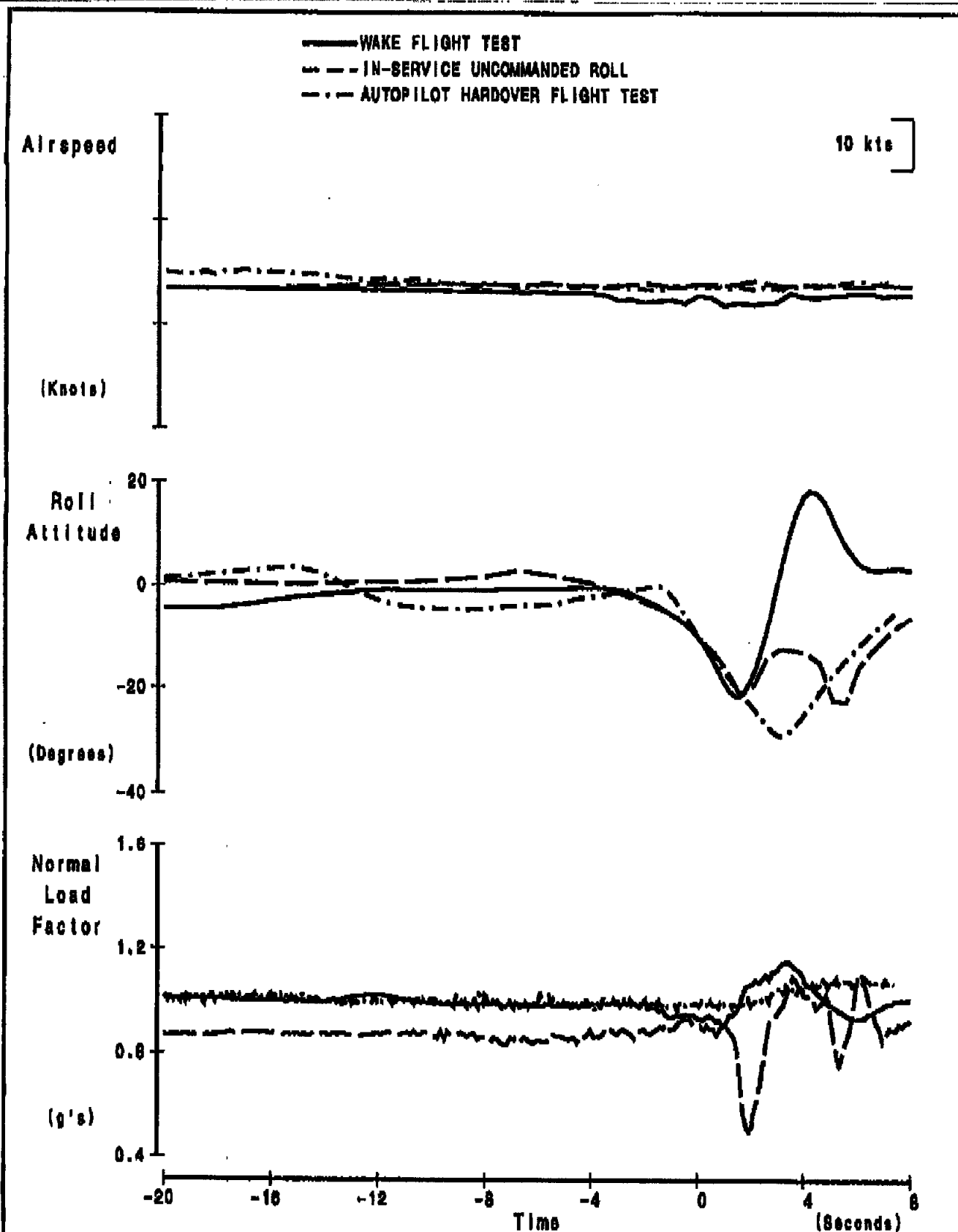
No.	Date	Boeing Conclusions
KNOWN PAST WAKE TURBULENCE EVENTS		
1	23-Apr-93	Wake Turbulence
2	08-Sep-94	Wake Turbulence
3	24-Oct-94	Wake Turbulence
4	12-Jan-94	Wake Turbulence
5	20-Feb-95	Wake Turbulence
RECENT WAKE TURBULENCE EVENTS		
6	26-Jun-95	Wake Turbulence
7	18-Jul-95	Wake Turbulence
8	05-Aug-95	Wake Turbulence
9	25-Aug-95	Wake Turbulence
10	30-Aug-95	Wake Turbulence
11	29-Sep-95	Wake Turbulence
12	30-Sep-95	Wake Turbulence
KNOWN EQUIPEMENT FAULTS		
13	25-Jul-95	A/P Failure & disconnect
14	11-Aug-95	Unequal Gear Strut Service
15	18-Aug-95	Yaw Damper
16	29-Sep-95	Rudder Trim Switch Failure/ Require FDR
23	22-Oct-95	Actuator in Test
KNOWN OPERATIONAL EVENTS		
17	25-Jul-95	Crew FMC interaction/MCP Fault
18	10-Aug-95	Normal Autopilot Maneuver
19	19-Oct-95	Lateral Trim
EVENTS AWAITING RESOLUTION		
20	20-Sep-95	Require FDR
21	29-Sep-95	Require FDR
22	03-Oct-95	Require FDR
24	31-Oct-95	Require FDR
25	06-Nov-95	Require FDR

737 UNCOMMANDED ROLL**ROLL RATE GREATER THAN NORMAL A/P COMMAND**

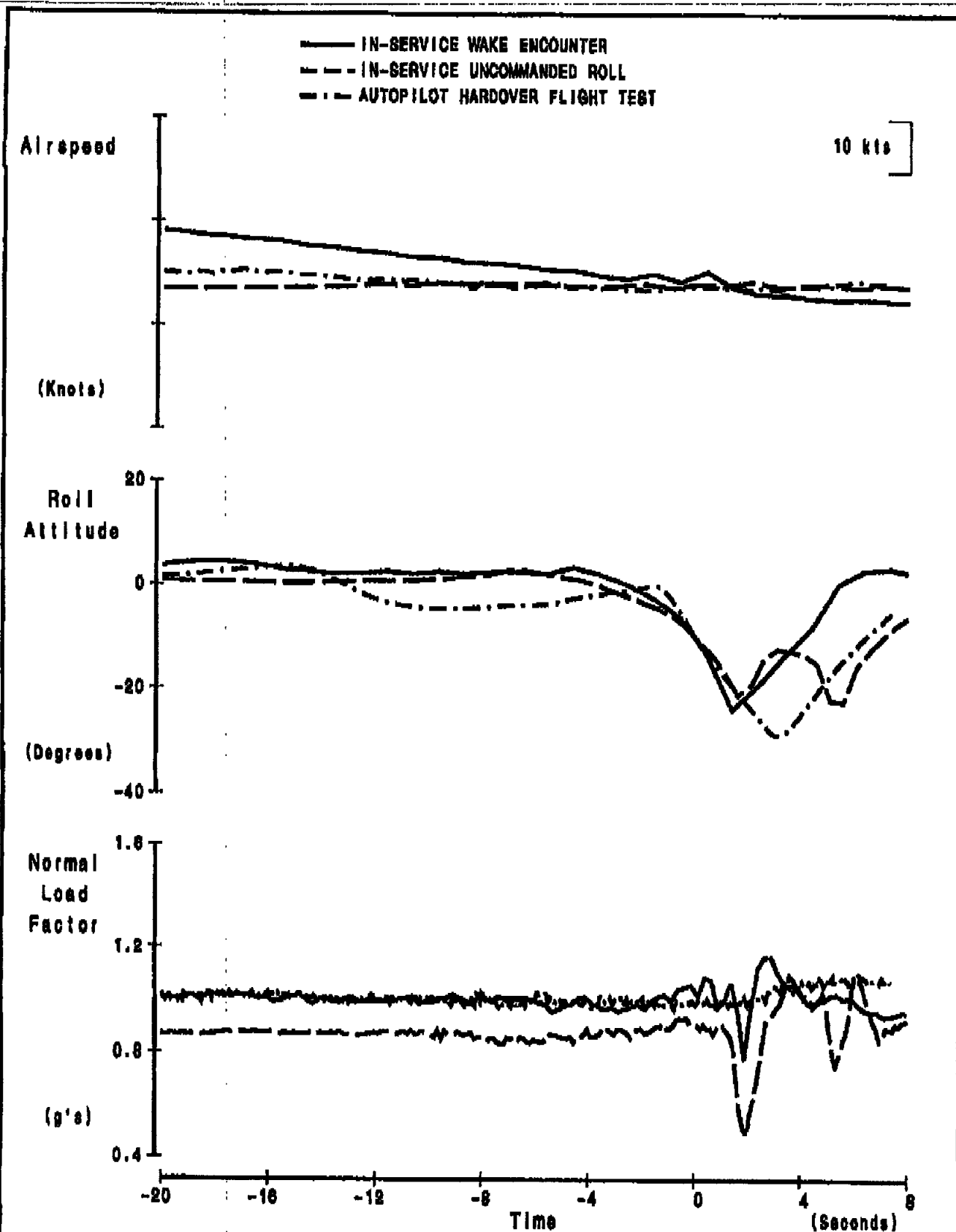
<u>PLOT</u>	<u>DATE</u>	<u>MODEL</u>
6	6/26/95	737-300
4 a	7/18/95	737-300
4 b w/	12/1/94	737-200
4 c w/	10/24/94	737-300
7	8/5/95	737-300
2	8/25/95	737-300
1	8/30/95	737-300
5	9/29/95	737-300
3 a	9/30/95	737-300
3 b w/	12/1/94	737-200
usa 427	9/8/94	737-300
w/	4/23/93	737-500



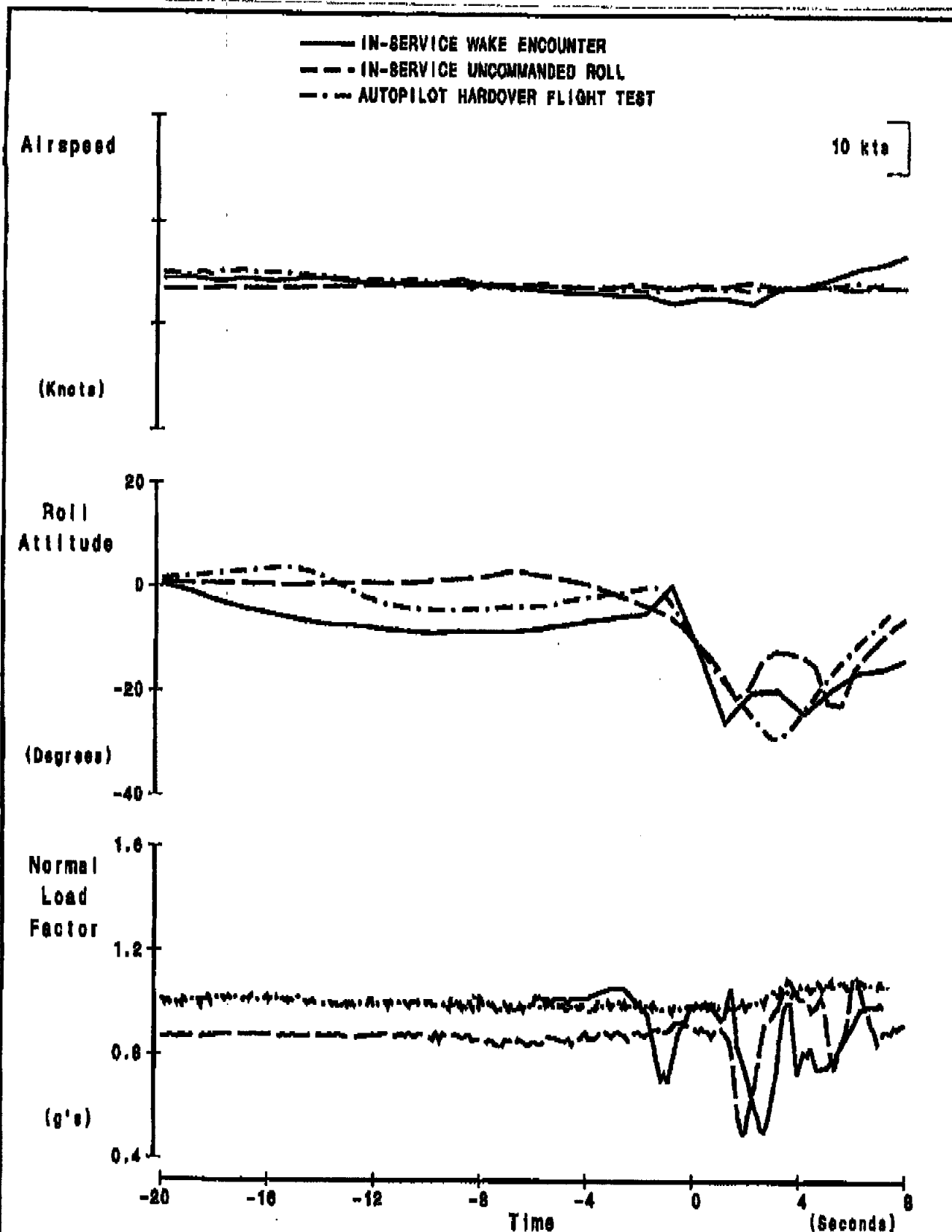
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CHECK						
APPD.						Pilot
APPD.						OB
Pilot	W.K.Henke				BOEING	PAGE ⑦



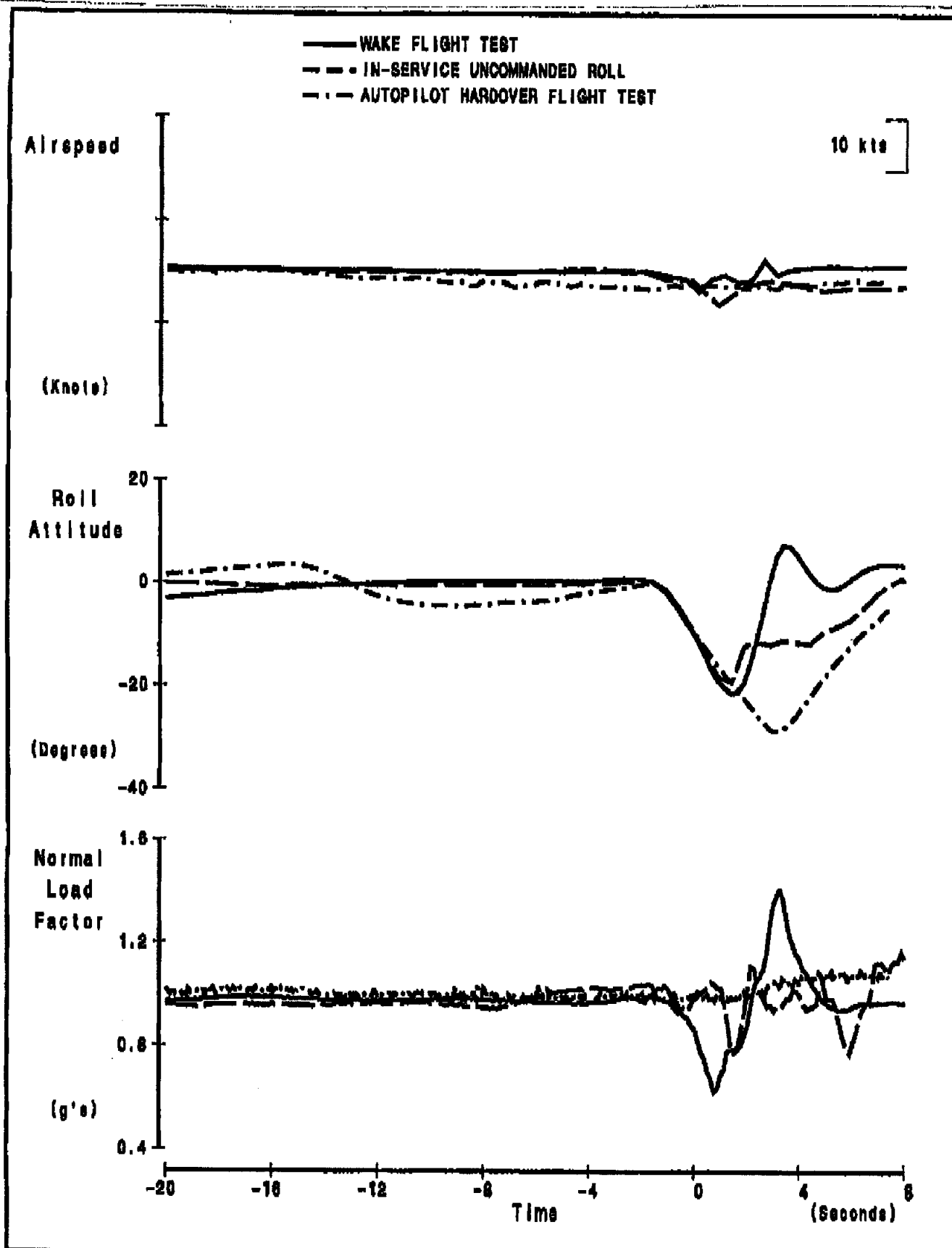
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CHECK						
APPD.						Pilot 048
APPD.						
Pilot	W.K. Henke				BOEING	PAGE 9



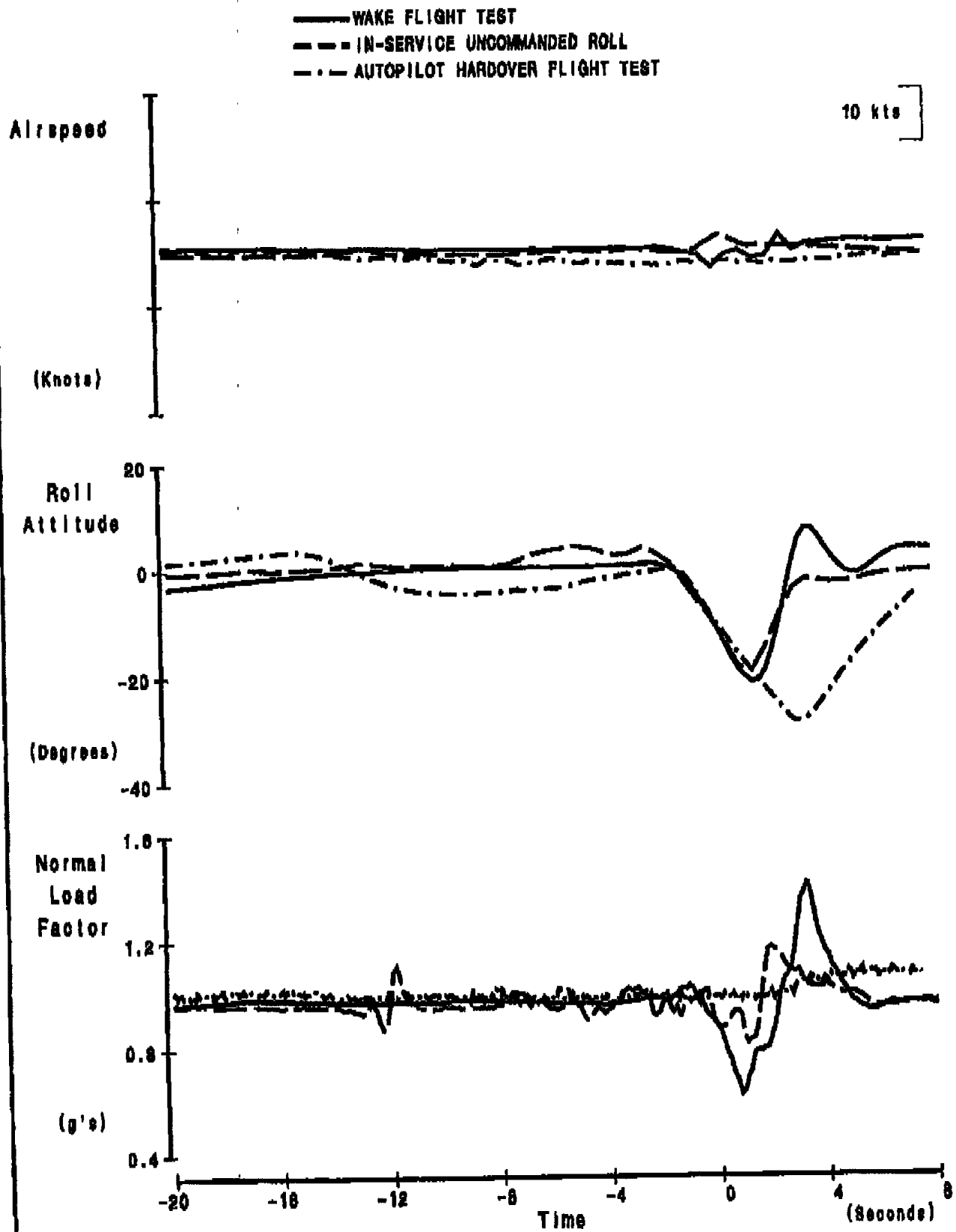
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APPD.						P101 04b
APPD.						
P101	W.K. Honbo				BOEING	PAGE 9



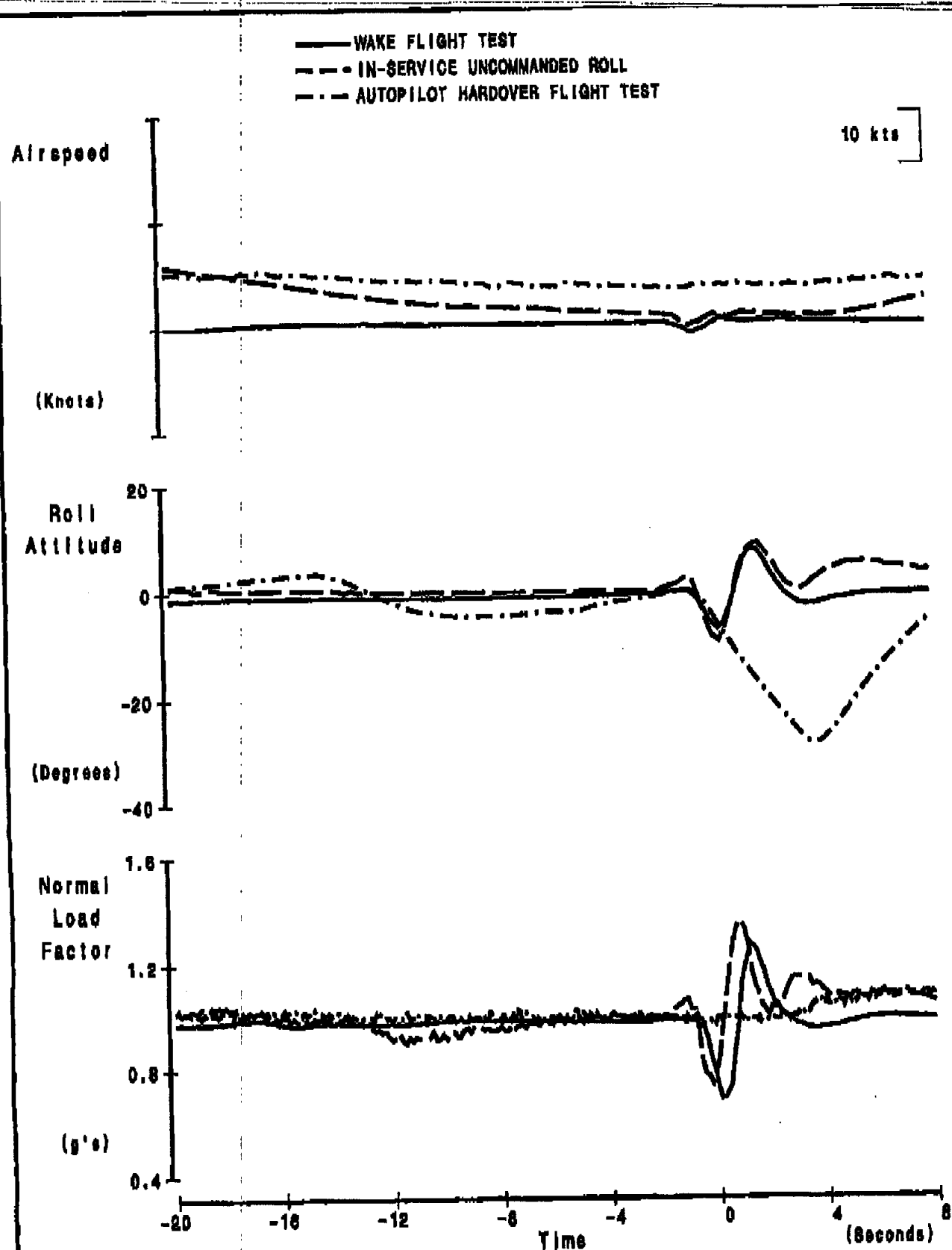
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APPD.						Pilot 046
APPD.						
Pilot	W.K. Menke				BOEING	PAGE 10



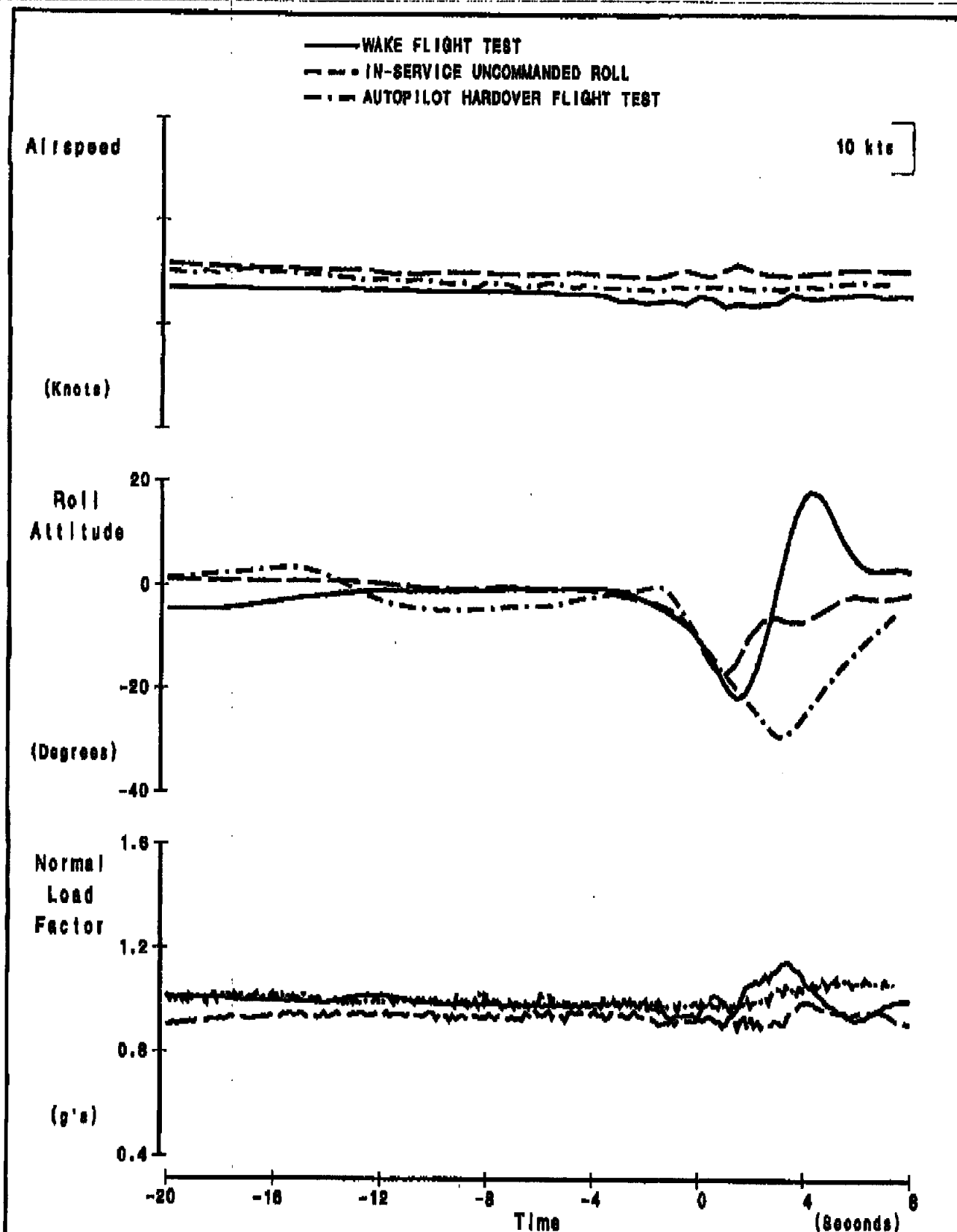
DAIC	M. Swaps	14Nov96	REVISED	DATE	787 UNCOMMANDED ROLL	
CHECK						Pilot 07
APPD.						
APPD.						
Pilot	W.K. Honda				BOEING	PAGE 11



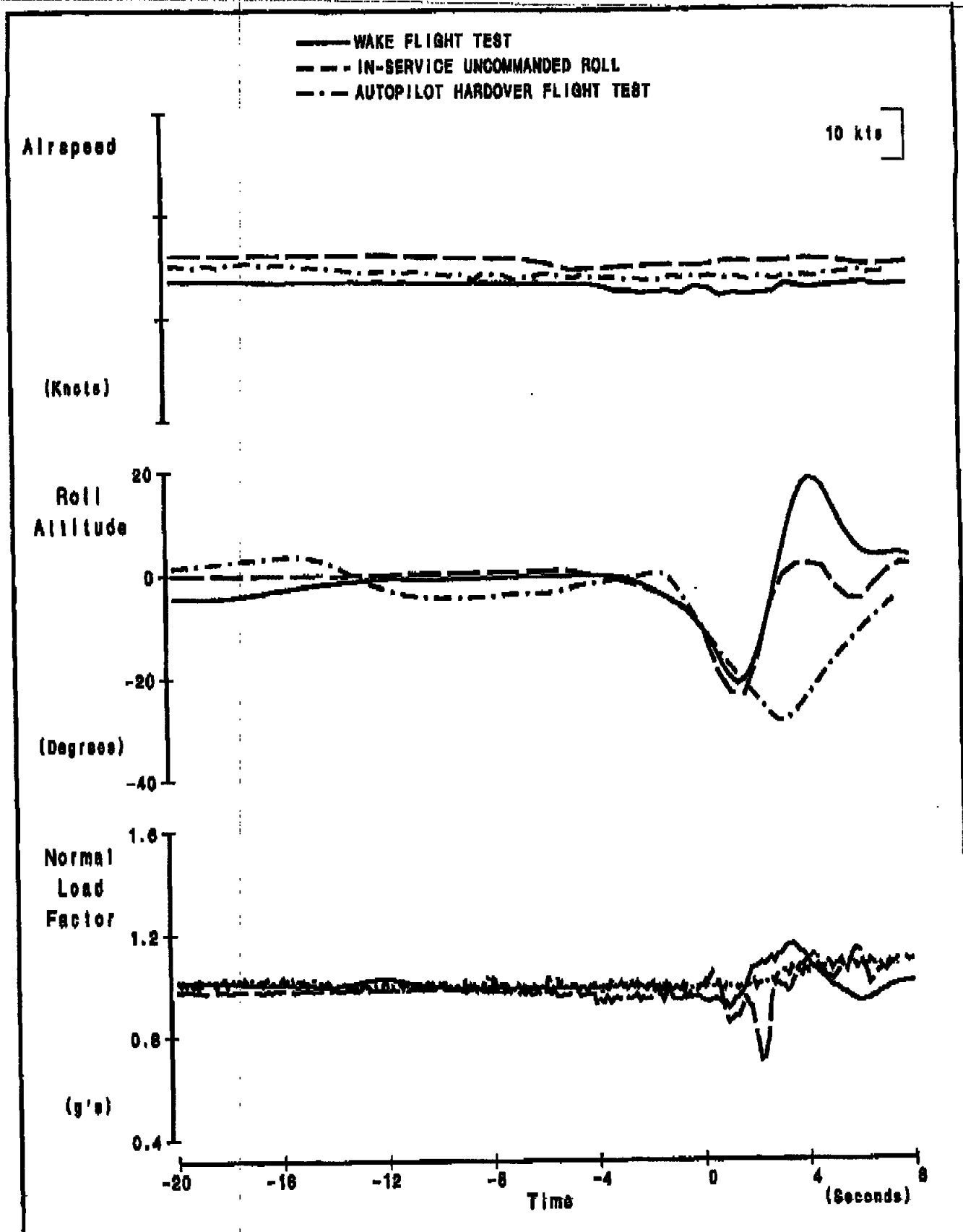
CALC	M. Swapp	14Nov95	REVISED	DATE	737 UNCOMMANDED ROLL	Pilot 02
CHECK						
APPD.						
APPD.						
Pilot	W.K. Henbo				BOEING	PAGE 12



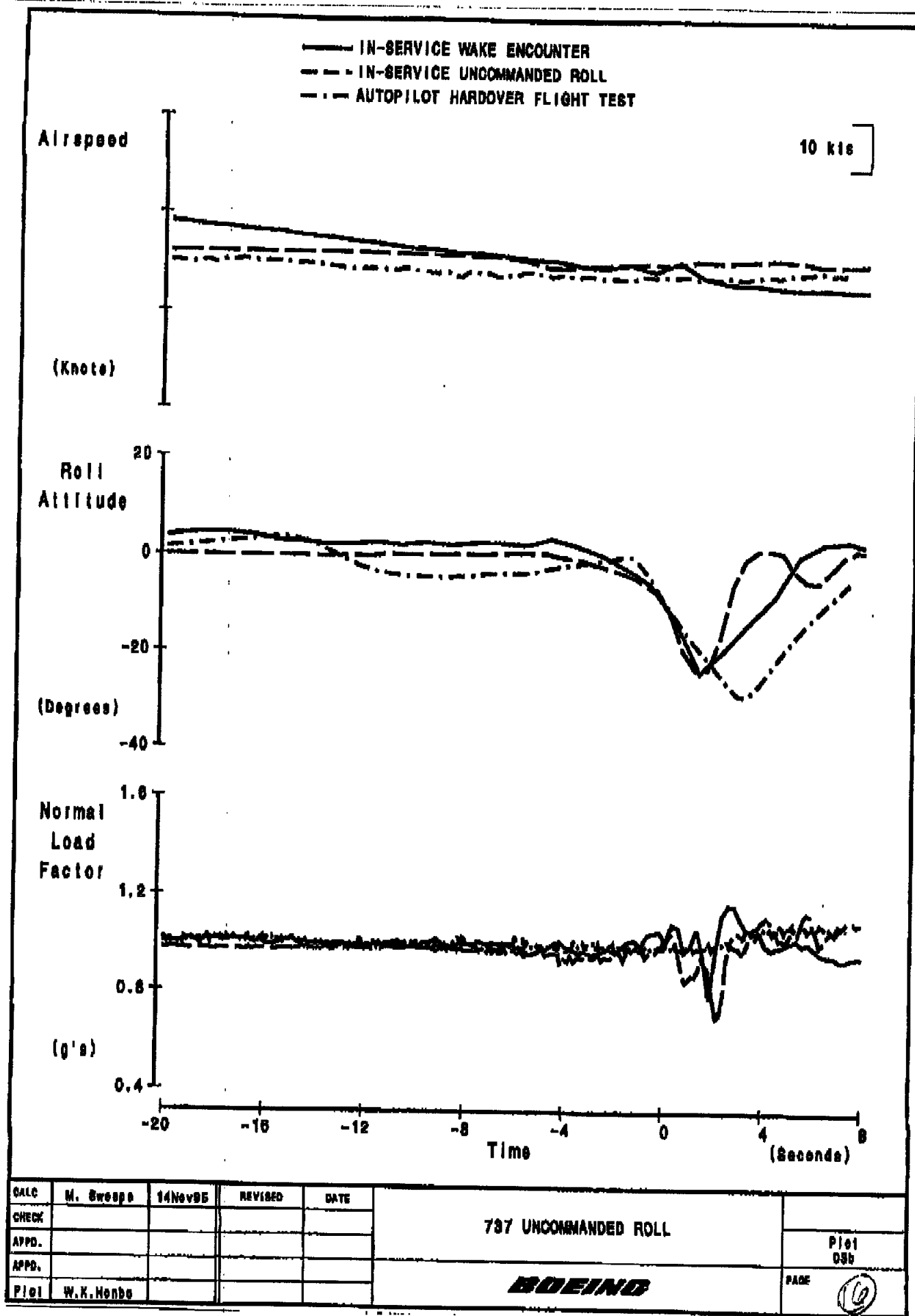
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CHECK						
APPD.						
APPD.						
Plot	W.K.Honbo				BOEING	PAGE 13

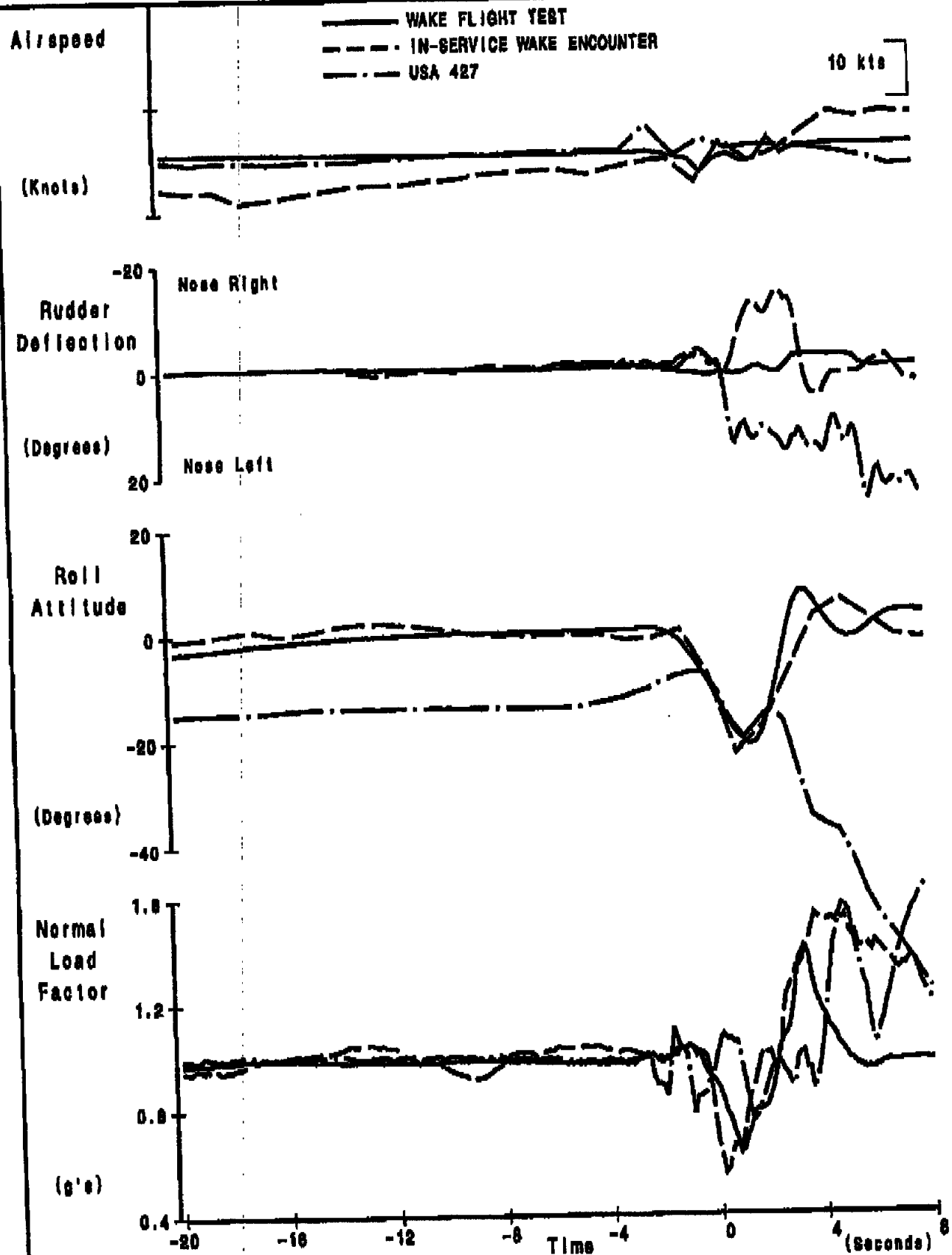


CALC	M. Swapp	14Nov95	REVISED	DATE	737 UNCOMMANDED ROLL	FIG 05
CHECK						
APPD.						
APPD.						
PLOT	W.K. Monbo				BOEING	PAGE 14



CALC	M. Sweeps	14Nov95	REVISED	DATE	737 UNCOMMANDED ROLL	
CHECK						Pilot 03a
APPO.						
APPS.						
Pilot	W.K. Henbo				BOEING	PAGE (15)





CALC	M. Sweeps	14Nov95	REVISED	DATE	787 UNCOMMANDED ROLL	USA 427
CHECK						
APPD.					BOEING	PAGE (17)
APPD.						
Pilot	W.K.Honda					