

ATTACHMENT 1: B737-200 ADV THREE-VIEW DRAWING

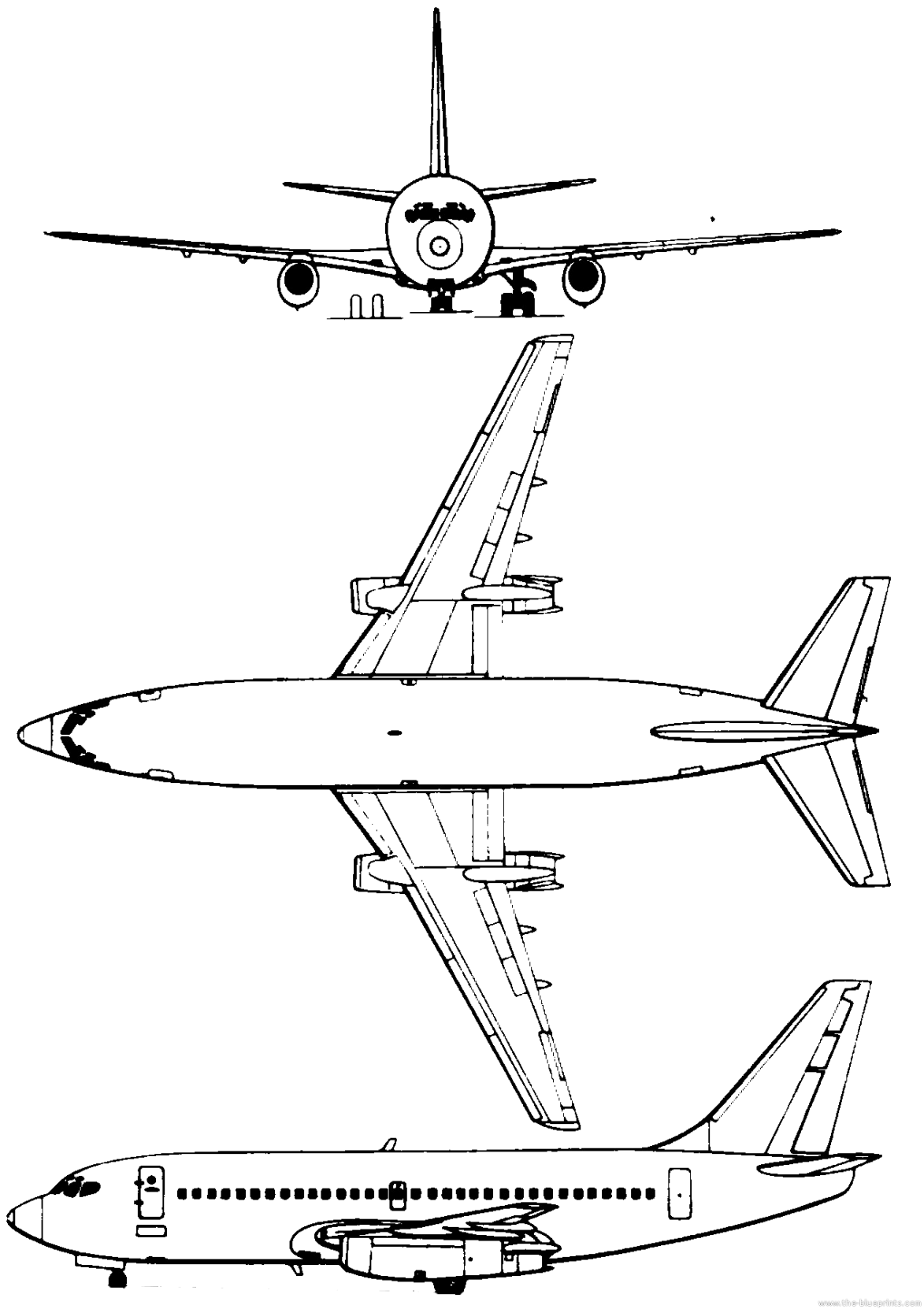
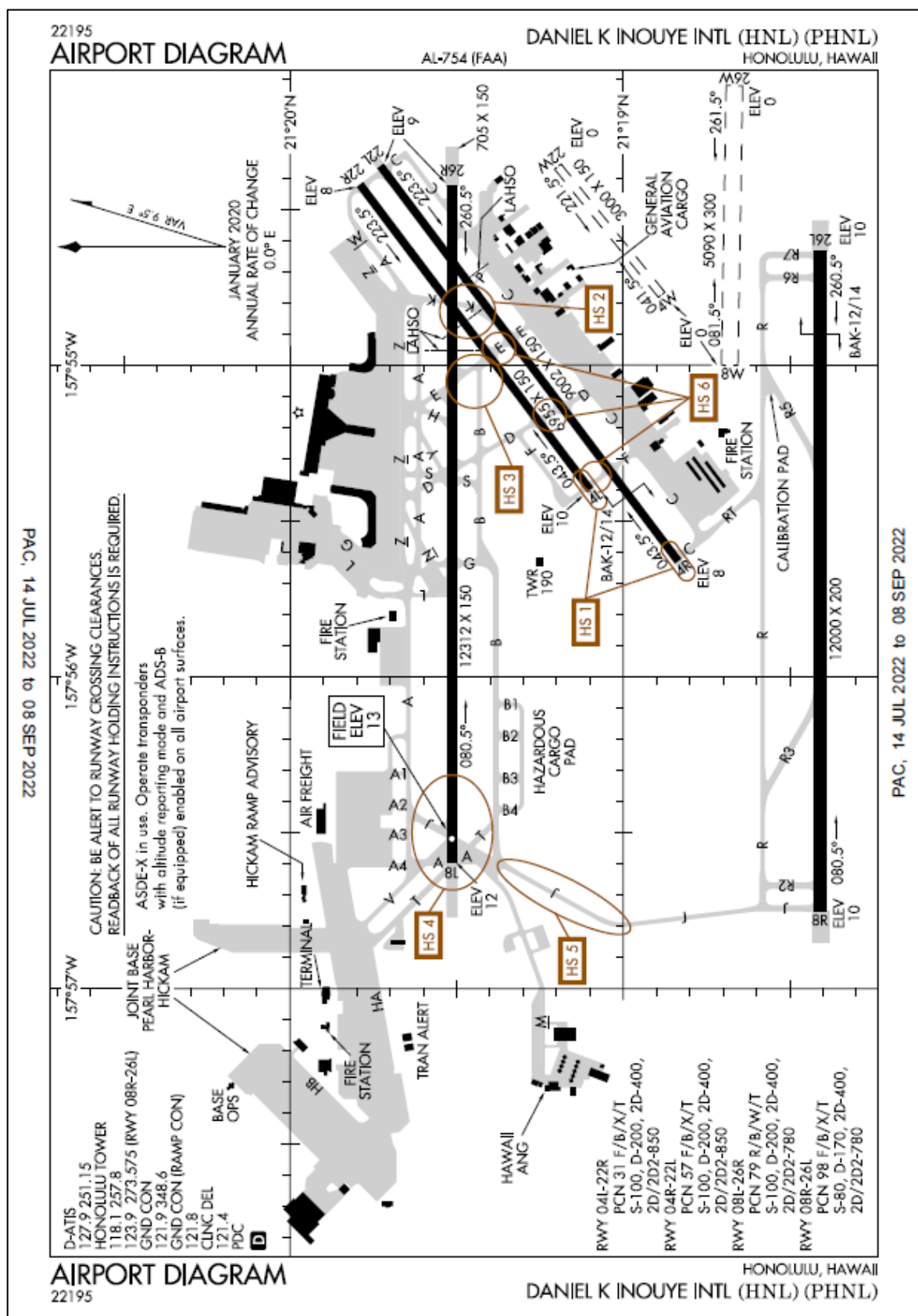


Figure A1.1: Boeing 737-200 ADV three-view engineering drawing.

ATTACHMENT 2: AIRPORT DIAGRAM (HNL)



ATTACHMENT 3: WEIGHT AND BALANCE DATA (N810TA)

AIRCRAFT WEIGHT AND BALANCE WEIGHING REPORT

REGISTRATION: N810TA
AIRCRAFT MODEL: 737-200
SERIAL NUMBER: 21116
WEIGHING DATE: April 19, 2021

EQUIPMENT:
DUE DATE:
PERFORMED BY:
A&P and RII No.:

ELECTRONIC WEIGHING KIT
TYPE: 64001-08J5
S/N : 1265G4
September 16, 2021

AIRCRAFT JACKING POINTS

LOCATION		*A NOSE GEAR JACK POINT	B NOSE GEAR WHEELS	C FORWARD BODY JACK POINT	D WING PANEL JACK POINT	E MAIN GEAR WHEELS	*F MAIN GEAR JACK POINT	G AFT BODY JACK POINT
ARM – IN.		250.0 ^①	250.2 ^①	258.9	579.8	698.0 ^①	698.1 ^①	1127.1
DISTANCE FROM CENTER LINE – IN.	RIGHT	0	0	NO JACK POINT	114.5	101.8	101.8	10.9
	LEFT	0	0	47.7	114.5	101.8	101.8	NO JACK POINT

① BALANCE ARMS ARE FOR GEARS IN FULLY COMPRESSED POSITION.
 ARMS FOR ALTERNATE OLEO EXTENSIONS ARE SHOWN IN THE WEIGHT AND BALANCE CONTROL
 LOADING MANUAL (D6-15066-3) SECTION 80-10 PAGES 5-6.

*RAI LOAD CELLS TO BE POSITIONED AT NOSE GEAR AND MAIN GEAR JACK POINTS/COLUMN A&F

Page 1



Figure A3.1: Copy of N810TA aircraft jacking points record (content sourced from NTSB Maintenance/Human Performance Group Chairman's Factual Report, Attachment 3, Weight and Balance)

**AIRCRAFT WEIGHT AND BALANCE
WEIGHING REPORT
WEIGHING SCALE CALCULATIONS**

REACTION POINT	SERIAL NUMBER	1 st (LBS)	2 nd (LBS)	MEAN WEIGHT (LBS)	ARM(IN)	MOMENT (LBS. IN)
LEFT WING PANEL JACK POINT	50824733 (RED)	26130	26130	51395.00	579.80	29798821.00
RIGHT WING PANEL JACK POINT	50824731 (YEL)	25260	25270			
SUB TOTAL (WING PANEL JACK POINT)	X	51390	51400			
AFT BODY JACK POINT	50538323 (BLU)	8160	8160	8160.00	1127.10	9197136.00
TOLERENCE BETWEEN 1 ST & 2 ND READING +/- 30LBS MAX		59550	59560	59555.00	654.79	38995957.00
TOTAL:						
MINUS(-) APPENDIX A (i.e Chocks)				3.45	744.54	2568.66
PLUS(+) APPENDIX B				168.10	598.60	100624.66
AIRCRAFT EMPTY WEIGHT:				59719.65	654.63	39094013.00
PERCENT MAC = ((ARM-625.6)/1.345)		21.58%				

NOTE: USE FIRST SCALE READINGS FOR CALCULATIONS

APPENDIX A			
ITEMS WEIGHED BUT NOT PART OF THE BASIC EMPTY WEIGHT (BEW)			
ITEM	WEIGHT(LBS)	ARM(IN)	MOMENT (LBS.IN)
1) PLUMB BOB	0.20	685.00	137.00
2) WING JACK PAD (2EA)	2.25	579.80	1304.55
3) AFT BODY JACK PAD	1.00	1127.10	1127.10
TOTAL	3.45	744.54	2568.65
APPENDIX B			
ITEMS NOT WEIGHED BUT PART OF THE BASIC EMPTY WEIGHT (BEW)			
ITEM	WEIGHT(LBS)	ARM(IN)	MOMENT(LBS.IN)
1) DRAINABLE UNUSABLE FUEL	+168.10	598.60	100624.66
TOTAL	+168.10	598.60	100624.66

This weighing is carried out in accordance with the Weight and Balance and Loading Manual (D6-15066-3) for Boeing 737-200 aircrafts in Cargo Configuration. This aircraft basic empty weight (BEW) includes all the standard equipment not normally varying between aircraft configurations (Ref. D6-15066-3 Section 10-30 Page 1). But, excludes operational items removed for weighing (Ref. RAI Weight and Balance Manual Chapter 3 Item 3.4 Listing). These items re-installed after weighing now become part of the aircrafts basic operating weight (BOW).

Calculations Reviewed and Confirmed By:  Date: April 19, 2021

Page 2

Figure A3.2: Copy of N810TA aircraft empty weight record (content sourced from NTSB Maintenance/Human Performance Group Chairman's Factual Report, Attachment 3, Weight and Balance)

				Boeing 737-200 Load Manifest					
Date	7-2-21 / 0:54	A/C	810TA	Empty %MAC	19.1	Loaded %MAC	19.1	Stabilizer Trim	5.2
From	HNL	To	OGG	Captain's Signature		[Redacted]			
PIC	Okai, Henry	SIC	Ryan, Gregory	Load Supervisor's Signature		[Redacted]			
I certify the aircraft is loaded in accordance with this load plan and all company procedures.									
1 - max 8,000	2 - max 8,000	3 - max 8,000	4 - max 8,000	5 - max 8,000	6 - max 8,000	7 - max 8,000			
1910	3103	2716	2758	3042	3084	3284			
Dest. OGG	Dest. OGG	Dest. OGG	Dest. OGG	Dest. OGG	Dest. OGG	Dest. OGG			
PAG45072-HAZ	SAA4054-NORPAC	SAA34562-AIR	SAA4076-GRD	SAA3026-GRD	SAA3006-GRD	SAA4052-GRD			
Verified (Init): [Redacted]	Init: [Redacted]	Init: [Redacted]	Init: [Redacted]	Init: [Redacted]	Init: [Redacted]	Init: [Redacted]			
L1 - max 2,146	L2 - max 1,083	L3 - max 2,257	Center Tank Fuel		0	L4 - max 4,040	L5 - max 1,083	L6 - max 2,376	
0	0	0				0	0	0	
Dest. -	Dest. -	Dest. -	Wing Tank Fuel		14,000	Dest. -	Dest. -	Dest. -	
Lower Fwd Comp's Verified (Initials): [Redacted]						Lower Aft Comp's Verified (Initials): [Redacted]			
Basic Operating Weight		60,160	Engine Bleeds		On	V1			
ACM		0	Antiskid		On	VR			
Cargo Weight		19,897	Flaps		5				
Zero Fuel Weight		80,057	Runway		08RDP				
Fuel Weight		14,000	Wet Runway?		No	V2			
Taxi Weight		94,057	Wind Component		8				
Taxi Fuel Burn		500	Temperature		26	VREF 30			
Maximum Takeoff Weight		105,330	Wind Component		0				
Takeoff Weight		93,557	Temperature		24	VREF 40			
Enroute Fuel Burn		4,000	Max Thrust		98.8% 2.01				
Landing Weight		89,557	Reduced Thrust				wx = Auto Wx Refresh - 1036 UTC 02 Jul Rev: 2/9/18-R		

Figure A3.3: Copy of N810TA aircraft load manifest (content sourced from NTSB Operational Factors/Human Performance Factual, Attachment 9, Accident Flight Weight & Balance and Load Manifest [Excerpts])

7/6/2021

Inbound Manifest

TRANSAIR Inbound Manifest
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Country

UNITED STATES

Flight Number

73MAM2

Flight Date

02-JUL-21

Off

OGG

ETA

0153

AWB Number	Destination	Pieces	Gross Weight	Nature of Goods	Consignee Name and Number	Instructions
356 HNL 11543055	OGG	2	1785 LB	CHILLED SEAFOOD		4 PLTS STC 93 BOXES
356 HNL 11543313	OGG	4	4 LB	PHARMACEUTICAL HAZ		
356 HNL 11543350	OGG	2	525 LB	MCK PHARMACEUTICAL		
356 HNL 11543394	OGG	1	105 LB	PHARMACEUTICAL HAZ		
356 HNL 11543420	OGG	4	1825 LB	BERG PHARMACEUTICAL		
356 HNL 11543512	OGG	1	2259 LB	FX AIR		
356 HNL 11543534	OGG	4	12168 LB	GENERAL FREIGHT		
356 HNL 11543560	OGG	1	1226 LB	TARE WEIGHT		

Inbound Manifest Totals

Pieces	Weight	Prepared By
19	19897 LB	

Print AWB's

Help

Print Manifest

Figure A3.4: Copy of N810TA aircraft freight inbound manifest (content sourced from NTSB Operational Factors/Human Performance Factual, Attachment 9, Accident Flight Weight & Balance and Load Manifest [Excerpts])

ATTACHMENT 4: COCKPIT VOICE RECORDER (CVR) EVENTS (PARAPHRASED)

CVR Paraphrasing for Vehicle Performance Group

TIME HST	OBSERVATION
01:11:23.5	ATIS K was heard including: 1053Z 06013KT 10SM FEW025 SCT045 26/18 3004, with notes for landing and departing runways, LAHSO operations in effect, taxiway closures, birdstrike hazard, and cranes in the vicinity.
01:15:28.3	The FO gave a departure briefing, including flaps 5, runway 8R dry, takeoff EPR setting of 2.01, V speeds of (group consensus but not 100% certain, 126/132/147).
01:19:03.6	During the before start checklist, the FO mentioned a fuel quantity of 14,500 lbs.
01:24:49.1	During the taxi checklist, the FO mentioned a pitch trim setting of 5.2 units.
01:33:08.7	An increase in ambient noise consistent with engine spool up for takeoff was heard.
01:33:20.6	Set reduced thrust call.
01:33:25.5	80 knot call.
01:33:35.1	V1 call.
01:33:36.7	Rotate call.
01:33:37.6	V2 call.
01:33:45.0	Positive rate call.
01:33:46.0	Gear up call.
01:33:52.1	A "thud" sound was recorded.
01:33:54.7	A low frequency vibration sound was recorded decreasing in pitch from ~115Hz to ~105Hz.
01:33:55.7	Crew reacted to loss of power.
01:34:00.8	Crew's initial identification of anomaly as engine 2.
01:34:05.9	CA called "500" and "800".
01:34:21.5	Call of flaps coming up.
01:35:11.0	Level at 2,000 comment.
01:35:22.8	Sound of click.
01:35:29.6	Multiple sounds of clicks.
01:35:32.7	The crew discussed a 210 degree heading.
01:35:47.2	Multiple sounds of clicks.
01:36:33.8	The crew discussed a 240 degree heading.
01:37:13.1	Transfer of control from FO to CA.
01:37:48.2	Ambiguous question from CA about EGT. FO reported engine 1 is failed.
01:37:56.9	FO reported engine 2 still functioning.
01:39:06.1	FO mentioned engine 2 running hot.
01:40:02.8	CA confirmed the aircraft is clean.
01:40:11.0	Sounds possibly consistent with momentary stick shaker.
01:40:13.0	CA mentioned they're in a descent.
01:40:17.2	Sounds of increasing pitch, consistent with increasing engine thrust.
01:40:32.0	FO confirmed the aircraft is clean (specifically flaps and speedbrakes).
01:40:41.4	CA confirmed they're struggling to hold altitude and instructed FO to finish as much of the checklist as possible.
01:41:10.4	FO commented that they're in a descent.
01:41:54.0	Flaps 1 call.
01:41:58.2	EGPWS 500' callout.
01:41:59.5	EGPWS Too Low Gear callout.
01:42:36.1	EGPWS Too Low Gear callout.
01:42:37.8	EGPWS Too Low Terrain callout.
01:42:40.9	EGPWS Too Low Gear callout.
01:42:43.7	EGPWS Terrain Terrain callout.
01:42:45.8	EGPWS Pull Up callout.
01:42:47.6	EGPWS Pull Up callout.

01:42:48.8	EGPWS Pull Up callout.
01:43:08.6	EGPWS Too Low Terrain callout.
01:43:11.1	EGPWS 300' callout.
01:43:12.3	EGPWS Too Low Gear callout.
01:43:17.6	FO called out a heading of 60 degrees.
01:43:46.7	EGPWS Too Low Terrain callout.
01:43:48.7	EGPWS Too Low Gear callout.
01:43:50.6	EGPWS Too Low Gear callout.
01:43:55.2	EGPWS Too Low Gear callout.
01:44:06.8	EGPWS Too Low Gear callout.
01:44:08.5	EGPWS Too Low Terrain callout.
01:44:28.0	Sound similar to stick shaker, approximately 1.7 seconds.
01:44:33.9	EGPWS Too Low Gear callout.
01:44:35.9	EGPWS Too Low Gear callout.
01:44:37.8	EGPWS Too Low Gear callout.
01:44:39.6	EGPWS Too Low Gear callout.
01:44:39.8	Sound similar to stick shaker, approximately 1.6 seconds.
01:44:41.6	EGPWS Terrain Terrain callout.
01:44:43.1	EGPWS Pull Up callout.
01:44:44.7	EGPWS Pull Up callout.
01:44:46.2	EGPWS Pull Up callout.
01:44:47.8	EGPWS Pull Up callout.
01:44:49.3	EGPWS Pull Up callout.
01:44:50.8	EGPWS Pull Up callout.
01:44:51.7	Transfer of control from CA to FO.
01:44:52.3	EGPWS Pull Up callout.
01:44:54.0	EGPWS Pull Up callout.
01:44:55.3	Sound similar to stick shaker, approximately 2.6 seconds.
01:44:55.4	EGPWS Pull Up callout.
01:44:57.2	EGPWS Pull Up callout.
01:44:58.4	EGPWS Pull Up callout.
01:44:59.9	Sound similar to stick shaker, approximately 3.3 seconds.
01:45:00.1	EGPWS Pull Up callout.
01:45:01.7	EGPWS Pull Up callout.
01:45:03.2	EGPWS Pull Up callout.
01:45:04.9	EGPWS Pull Up callout.
01:45:06.4	EGPWS Pull Up callout.
01:45:06.4	Sound similar to stick shaker, approximately 4.1 seconds.
01:45:07.9	EGPWS Pull Up callout.
01:45:09.6	EGPWS Too Low Terrain callout.
01:45:12.0	Sound similar to stick shaker, remains active throughout the duration of the recording.
01:45:12.4	EGPWS Terrain Terrain callout.
01:45:13.7	EGPWS Pull Up callout.
01:45:14.9	EGPWS Pull Up callout.
01:45:16.3	EGPWS Pull Up callout.
01:45:17.0	Sounds consistent with impact.
01:45:17.3	End of recording.