DOCKET NO. **SA-510**
EXHIBIT NO. **10B**

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

GROUP CHAIRMAN'S REPORT OF INVESTIGATION
ANCILLARY FLIGHT DATA RECORDER STUDY

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, D.C. 20594

December 19, 1994

ANCILLARY FLIGHT DATA RECORDER STUDY

DCA-94-MA-076

A. ACCIDENT

Location : Aliquippa, Pennsylvania

Date : September 8, 1994

Time : 1904 Eastern Daylight Time (EDT)

Airplane : Boeing B737-300, N513AU

B. GROUP

Chairman : K. Jeremy Akel, National Transportation Safety Board
Member : Roy Beiber, USAir, Inc.
Member : H. Keith Hagy, Airline Pilots Association
Member : Martin D. Ingham, Boeing Commercial Airplane Group
Member : Jean-Marc Lapene, Bureau Enquetes - Accidents
Member : Frank Rock, Federal Aviation Administration

C. SUMMARY

On September 8, 1994, at 1904 Eastern Daylight Time (EDT), USAir flight 427, a Boeing B737-300, N513AU, crashed while maneuvering to land at Pittsburgh International Airport, Pittsburgh, Pennsylvania. The airplane was being operated on an instrument flight rules (IFR) flight plan under the provisions of Title 14, Code of Federal Regulation (CFR), Part 121, on a regularly scheduled flight from Chicago-O'Hare International Airport, Chicago, Illinois, to Pittsburgh. The airplane was destroyed by impact forces and fire near Aliquippa, Pennsylvania. All 132 persons on board the airplane were fatally injured.

Flight Recorder data from selected incidents/accidents involving Boeing B737 airplanes were co-plotted with flight recorder data from USAir 427. The following are a

summary of those incidents/accidents:

1. **DCA-91-MA-023** - United Airlines, B737-200 Colorado Springs, Colorado, 3/3/91

2. **DCA-92-RA-038** - Compania Panamena de Aviacion, B737-200, HP 1205, La Palma, Panama, 6/6/92

3. **DCA-93-IA-044** - United Airlines, B737-500, N905UA Denver, Colorado, 4/23/93

4. **DCA-94-WA-039** - Sahara India Airlines, B737-200, New Delhi, India, 3/8/94

5. **DCA-94-WA-050** - Continental Airlines, B737-300, N17344, San Pedro Sula, Honduras, 4/12/94

6. **DCA-94-MA-076(Ancillary)** - USAir, B737-300, N374US, Philadelphia, Pennsylvania, 11/24/94

D. DETAILS OF THE INVESTIGATION

1. Description of Data

Nine composite plots from each incident/accident were generated. The following are the data parameters compared to those of USAir 427:

- Pressure Altitude
- Indicated Airspeed
- Magnetic Heading
- Pitch Attitude
- Roll Attitude
- Normal Acceleration
- Heading Rate
- Pitch Rate
- Roll Rate

Pitch and roll attitude data were not recorded on the flight recorder installed aboard the airplane involved in the accident on March 3, 1991 in Colorado Springs, Colorado. Those data were derived during the course of that investigation (see flight path study, DCA-91-MA-023).

The incident on April 12, 1994 in San Pedro Sula, Honduras, involved multiple roll excursions. Data representing the first two excursions were co-plotted with the data from USAir 427.

E. DATA TABLES

Attachments I-VII contain tabular data from the six incidents/accidents identified above. Attachment VIII contains tabular data from USAir 427. All rate data were derived from their respective parameters and are in degrees per second.

F. DATA PLOTS

Attachments I-VII contain plots of the tabular data associated with the incidents/accidents identified above. Invalid data points are circled on the data plots.

[redacted]

K. Jeremy Akel
Aerospace Engineer

Attachments

I. DCA-91-MA-023 tabular and plotted data
II. DCA-93-IA-044 tabular and plotted data
III. DCA-94-WA-050 tabular and plotted data, 1st excursion
IV. DCA-94-WA-050 tabular and plotted data, 2nd excursion
V. DCA-92-RA-038 tabular and plotted data
VI. DCA-94-WA-039 tabular and plotted data
VII. DCA-94-MA-076 (Ancillary) tabular and plotted data
VIII. DCA-94-MA-076 tabular data

ATTACHMENT I
DCA-91-MA-023 tabular and plotted data

TIME	ALT	IAS	HEAD	(S)PITCH	(S)ROLL	TIME	VACC	(S)rollrate	(S)pitchrate	headrate
0	7749	158.88	314.61	-6.8	4	0	1.0232	0	0	0
1	7728	157.55	314.16	-6.1	4	0.125	1.0617	0	0.7	-0.45
2	7691	158.04	315.5	-5.4	4	0.25	1.1676	0	0.7	1.34
3	7686	159.71	316.4	-3.7	4	0.375	1.1484	0	1.7	0.9
4	7661	155.56	316.4	-3.9	4	0.5	1.1484	0	-0.2	0
5	7627	157.38	316.4	-4.6	4	0.625	1.1291	0	-0.7	0
6	7613	153.59	318.19	-4.6	4	0.75	1.1098	0	0	1.79
7	7572	152.61	318.19	-6.1	4	0.875	1.0424	0	-1.5	0
8	7528	153.59	319.08	-6.8	4	1	1.0521	0	-0.7	0.89
9	7475	154.25	318.19	-7.9	4	1.125	1.0521	0	-1.1	-0.89
10	7417	151.64	318.64	-8	4	1.25	1.0617	0	-0.1	0.45
11	7394	151.64	319.97	-6.3	4	1.375	1.0424	0	1.7	1.33
12	7349	153.59	320.42	-5.5	4	1.5	1.1098	0	0.8	0.45
13	7338	153.59	320.42	-5.3	4	1.625	1.1195	0	0.2	0
14	7304	152.94	321.74	-5.7	21.3	1.75	1.1965	17.3	-0.4	1.32
15	7261	149.05	325.25	-5.9	22	1.875	1.235	0.7	-0.2	3.51
16	7240	150.99	327.83	-6.4	22	2	1.2735	0	-0.5	2.58
17	7202	150.34	329.94	-5.8	22	2.125	1.2928	0	0.6	2.11
18	7191	152.61	332.01	-6.6	22	2.25	1.3121	0	-0.8	2.07
19	7157	153.59	333.23	-7.9	22	2.375	1.3121	0	-1.3	1.22
20	7105	150.34	335.62	-8.3	11.9	2.5	1.3121	-10.1	-0.4	2.39
21	7084	157.88	335.62	-7.8	0	2.625	1.2832	-11.9	0.5	0
22	7055	156.22	335.62	-7.6	5.3	2.75	1.2735	5.3	0.2	0
23	7020	159.37	338.32	-7.3	16.7	2.875	1.1772	11.4	0.3	2.7
24	6975	158.21	341.27	-6.8	28.1	3	1.0521	11.4	0.5	2.95
25	6948	159.54	345.77	-6.6	39.5	3.125	1.0617	11.4	0.2	4.5
26	6918	160.88	350.47	-7.5	51	3.25	1.0232	11.5	-0.9	4.7
27	6869	160.21	356.5	-10.3	62.4	3.375	0.9365	11.4	-2.8	6.03
28	6820	161.54	355.22	-14.4	73.8	3.5	0.9365	11.4	-4.1	-1.28
29	6762	167.58	349.27	-19.4	90	3.625	0.9172	16.2	-5	-5.95
30	6665	178.28	350.47	-26.1	111.8	3.75	0.8884	21.8	-6.7	1.2
31	6527	185.78	306.17	-36.7	133.6	3.875	1.0232	21.8	-10.6	-44.3
32	6293	198.88	213.13	-51.6	155.4	4	0.975	21.8	-14.9	-93.04
33	5972	213.02	183.57	-70.2	177.1	4.125	0.8884	21.7	-18.6	-29.56
34	5731	226	190.2	-76.9	178	4.25	0.8884	0.9	-6.7	6.63

4.375	0.8691
4.5	0.8884
4.625	0.7728
4.75	0.8402
4.875	0.8595
5	0.9269
5.125	0.9076
5.25	0.9558
5.375	1.0135
5.5	1.0328
5.625	1.0906
5.75	1.0809
5.875	1.0135
6	0.9172
6.125	0.9654
6.25	0.7921
6.375	0.7728
6.5	0.7439
6.625	0.5995
6.75	0.5995
6.875	0.6669
7	0.7246
7.125	0.8017
7.25	0.8113
7.375	1.0521
7.5	1.0424
7.625	1.0135
7.75	0.8787
7.875	0.7921
8	0.8691
8.125	0.715
8.25	0.7535
8.375	0.8595
8.5	0.7824
8.625	0.8017
8.75	0.8691

8.875	0.8209
9	0.9172
9.125	0.8691
9.25	0.898
9.375	1.0039
9.5	1.0328
9.625	1.0232
9.75	1.0809
9.875	1.1002
10	1.1484
10.125	1.2254
10.25	1.2639
10.375	1.2832
10.5	1.2735
10.625	1.3121
10.75	1.3217
10.875	1.235
11	1.2061
11.125	1.1676
11.25	1.2158
11.375	1.1965
11.5	1.1387
11.625	1.0424
11.75	1.0328
11.875	1.0617
12	1.0232
12.125	1.0232
12.25	1.0328
12.375	1.0617
12.5	1.0617
12.625	1.0232
12.75	1.0135
12.875	0.9269
13	0.8884
13.125	0.8787
13.25	0.9558

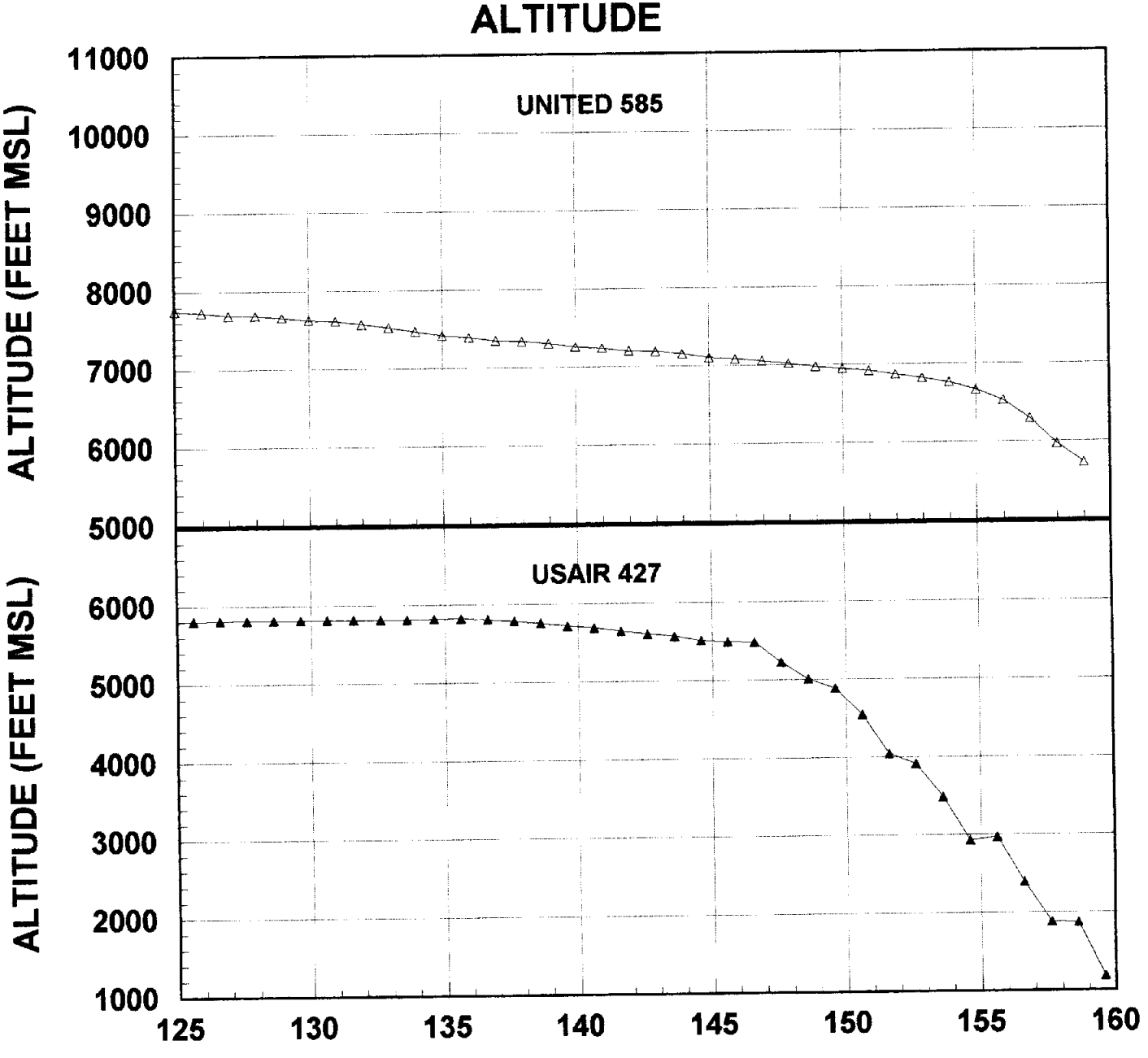
13.375	1.0135
13.5	1.0232
13.625	0.9269
13.75	1.0039
13.875	0.9654
14	1.0232
14.125	1.0328
14.25	1.0328
14.375	1.0232
14.5	1.0424
14.625	1.0617
14.75	1.0713
14.875	1.0424
15	1.0232
15.125	0.9172
15.25	0.8691
15.375	0.9847
15.5	0.9461
15.625	1.0809
15.75	1.0521
15.875	1.1098
16	1.1676
16.125	1.1772
16.25	1.1676
16.375	1.2061
16.5	1.235
16.625	1.2061
16.75	1.1676
16.875	1.0906
17	1.0713
17.125	1.0521
17.25	0.9654
17.375	1.0232
17.5	0.898
17.625	0.8402
17.75	0.8017

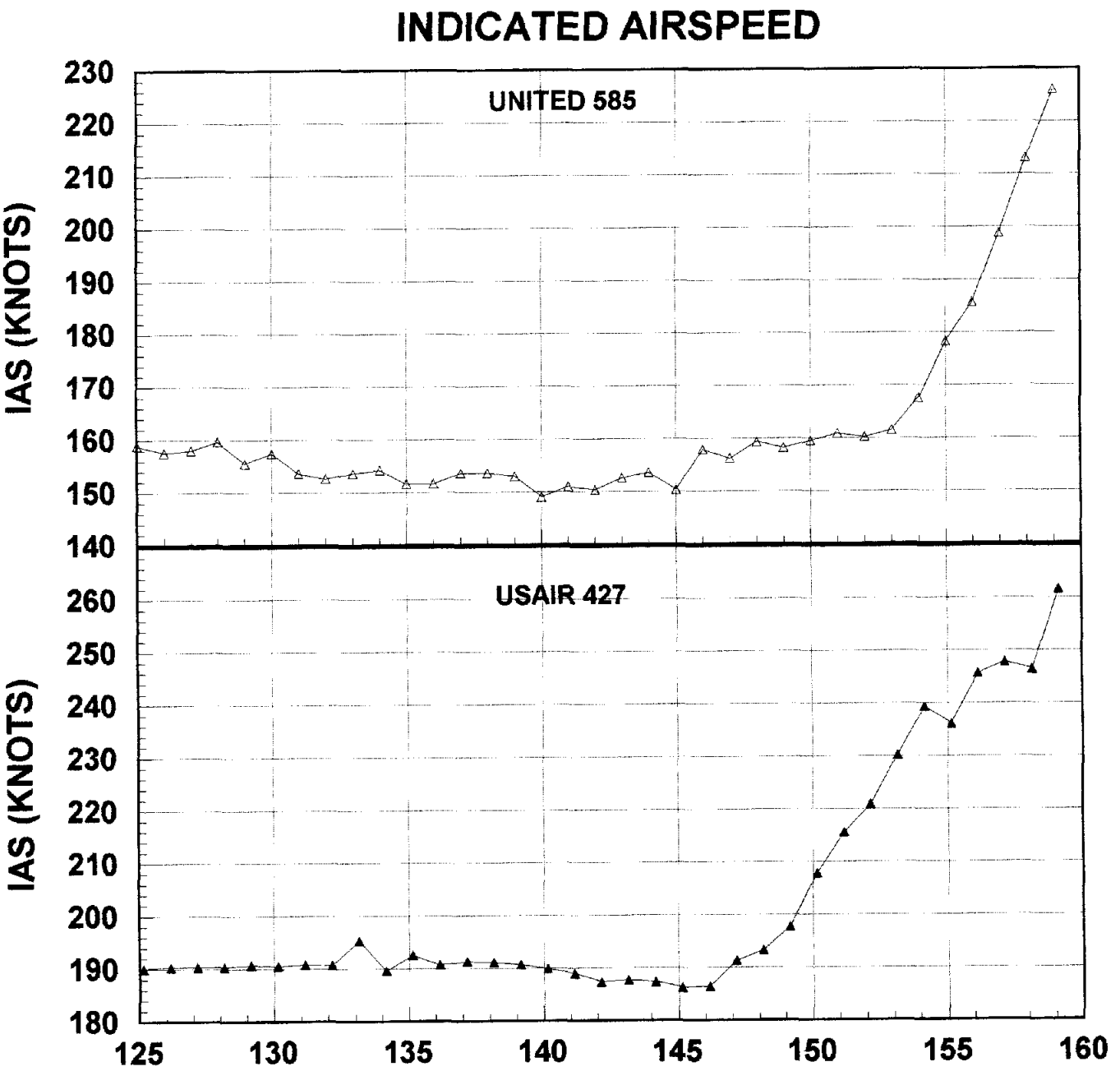
17.875	0.715
18	0.5898
18.125	0.6572
18.25	0.7535
18.375	0.8595
18.5	1.0713
18.625	1.0617
18.75	0.9943
18.875	0.8209
19	0.9461
19.125	0.8209
19.25	0.8017
19.375	0.9172
19.5	0.9558
19.625	0.898
19.75	0.9943
19.875	1.1002
20	1.1195
20.125	1.1098
20.25	1.0521
20.375	1.0713
20.5	1.0906
20.625	1.0328
20.75	1.0809
20.875	1.0521
21	1.0039
21.125	1.0039
21.25	0.9943
21.375	0.9654
21.5	1.0232
21.625	0.9654
21.75	1.0713
21.875	1.1098
22	1.0809
22.125	1.0906
22.25	1.0809

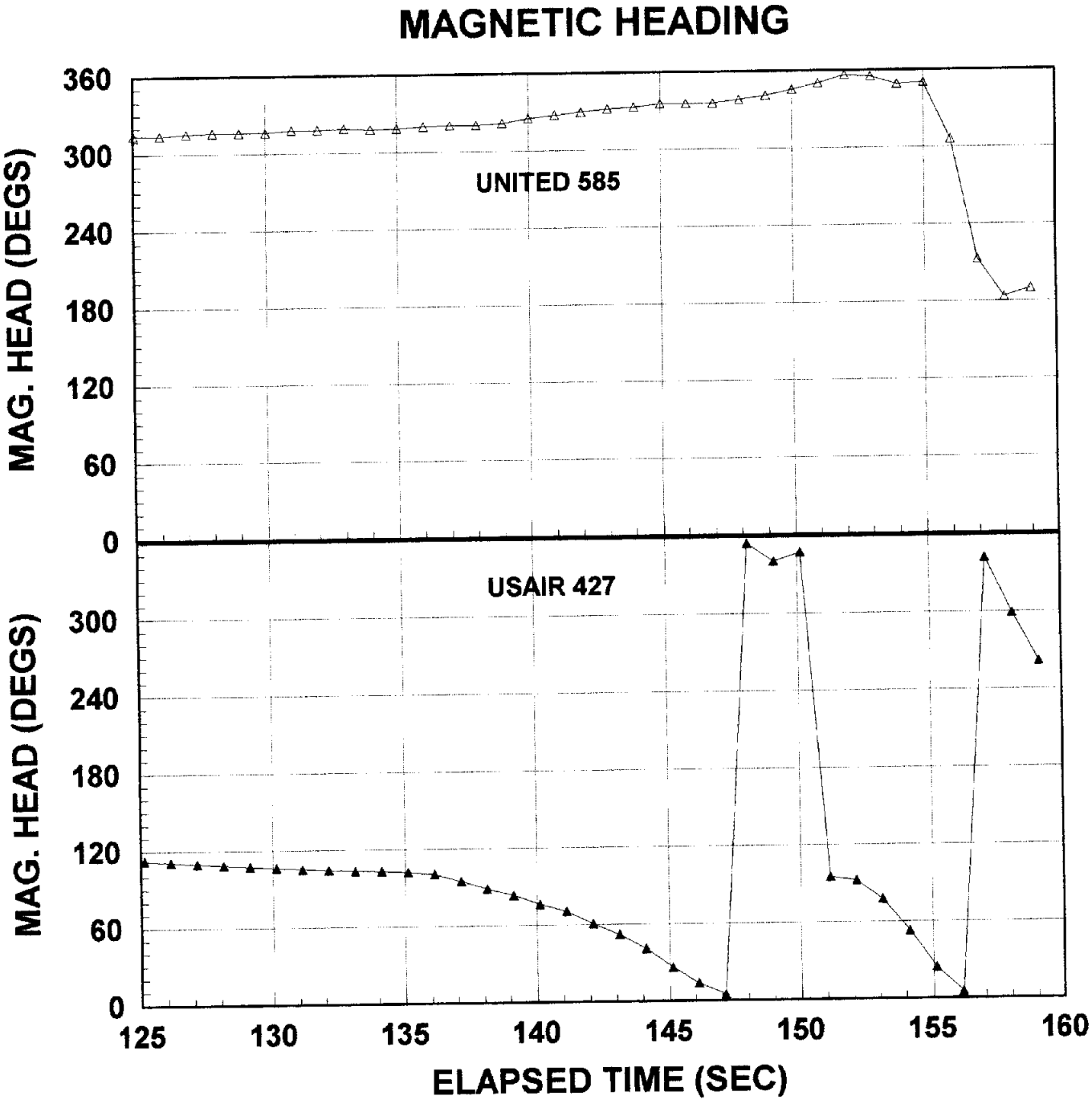
22.375	1.0713
22.5	1.0906
22.625	1.0521
22.75	1.0617
22.875	1.0135
23	1.0135
23.125	1.0424
23.25	1.0713
23.375	1.158
23.5	1.2254
23.625	1.235
23.75	1.2735
23.875	1.3024
24	1.2543
24.125	1.2254
24.25	1.2735
24.375	1.2735
24.5	1.2639
24.625	1.2447
24.75	1.2254
24.875	1.2254
25	1.2928
25.125	1.3217
25.25	1.2832
25.375	1.1965
25.5	1.1772
25.625	1.1965
25.75	1.1098
25.875	1.0232
26	1.0809
26.125	1.0617
26.25	0.9943
26.375	0.9847
26.5	0.9172
26.625	0.8498
26.75	0.8787

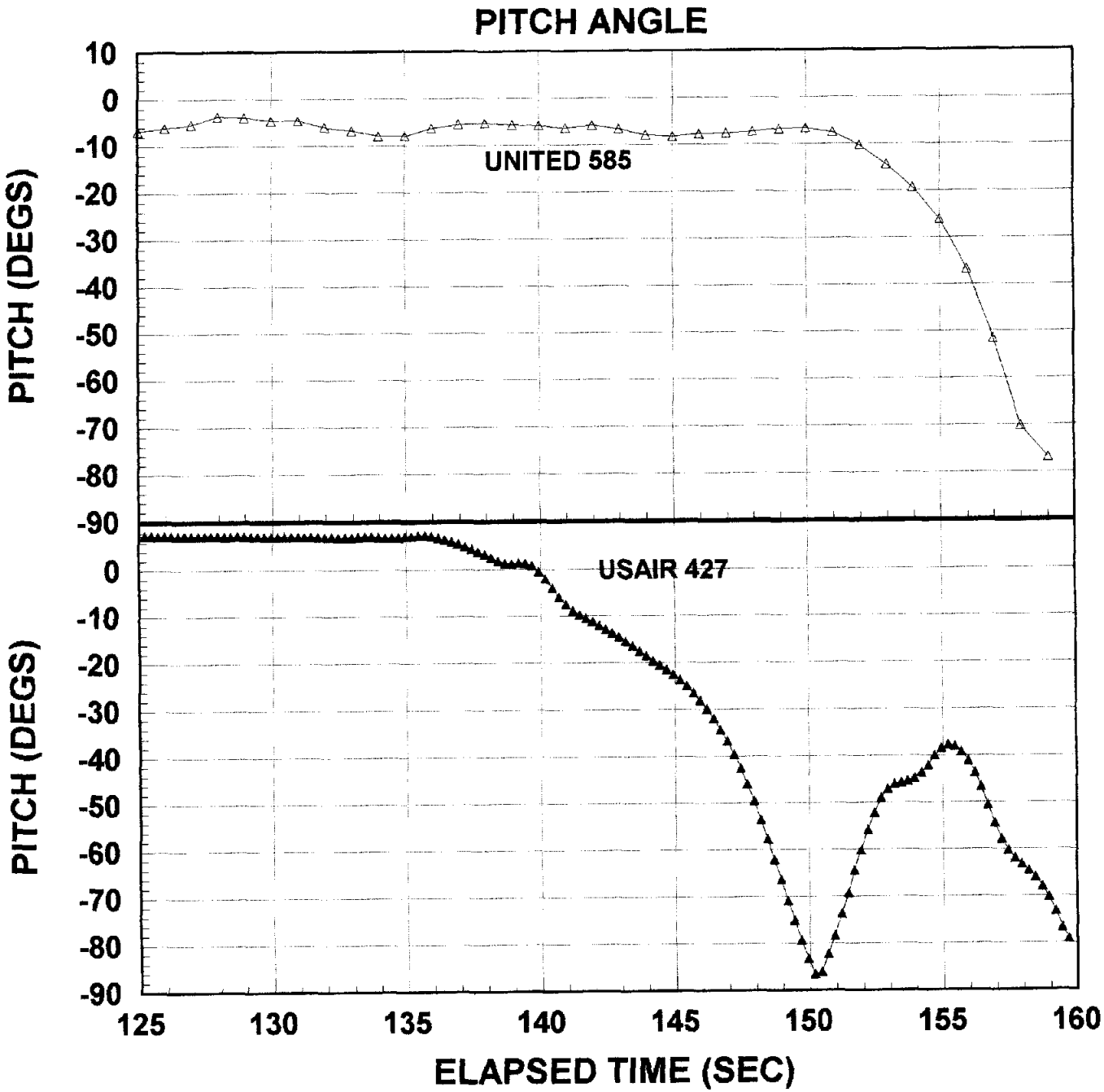
26.875	0.9943
27	0.9172
27.125	0.8113
27.25	0.7824
27.375	0.7921
27.5	0.7632
27.625	0.7632
27.75	0.7824
27.875	0.8113
28	0.7343
28.125	0.715
28.25	0.6861
28.375	0.6958
28.5	0.7535
28.625	0.9172
28.75	0.9172
28.875	0.8402
29	0.715
29.125	0.8402
29.25	0.9269
29.375	1.0809
29.5	1.1098
29.625	1.235
29.75	1.4084
29.875	1.5335
30	1.6876
30.125	1.8417
30.25	1.9284
30.375	1.8513
30.5	1.7454
30.625	1.9091
30.75	1.9765
30.875	2.1306
31	2.2076
31.125	2.2558
31.25	2.4099

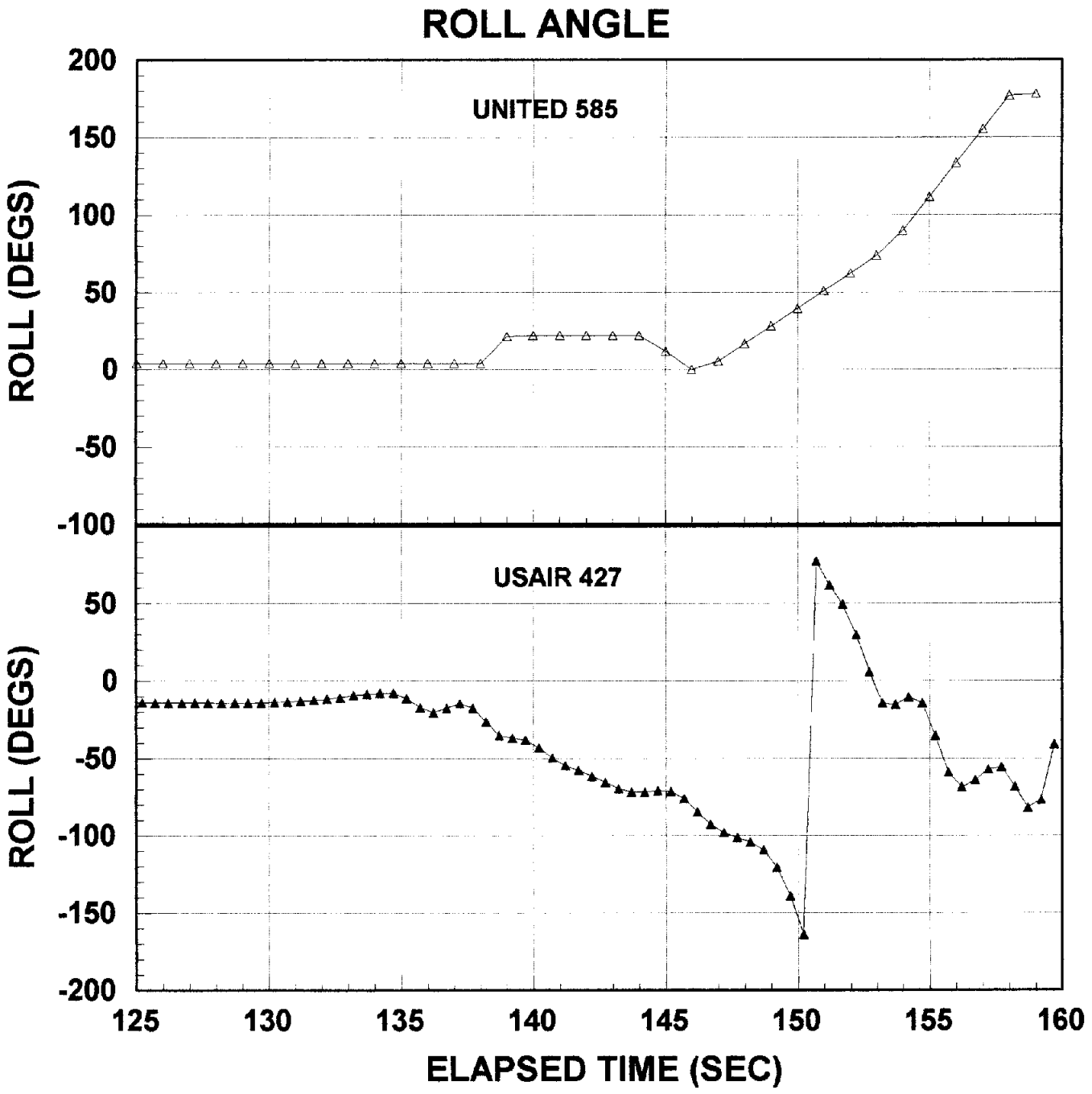
31.375	2.4099
31.5	2.4965
31.625	2.6025
31.75	2.6602
31.875	2.8432
32	3.0454
32.125	3.2188
32.25	3.2669
32.375	3.344
32.5	3.2766
32.625	3.2477
32.75	3.1032
32.875	3.1225
33	3.0358
33.125	3.0647
33.25	3.1128
33.375	3.1514
33.5	3.3343
33.625	3.4692
33.75	3.6714
33.875	3.8158
34	3.8929
34.125	3.9314
34.25	4.0855
34.375	0
34.5	0
34.625	0
34.75	0
34.875	0

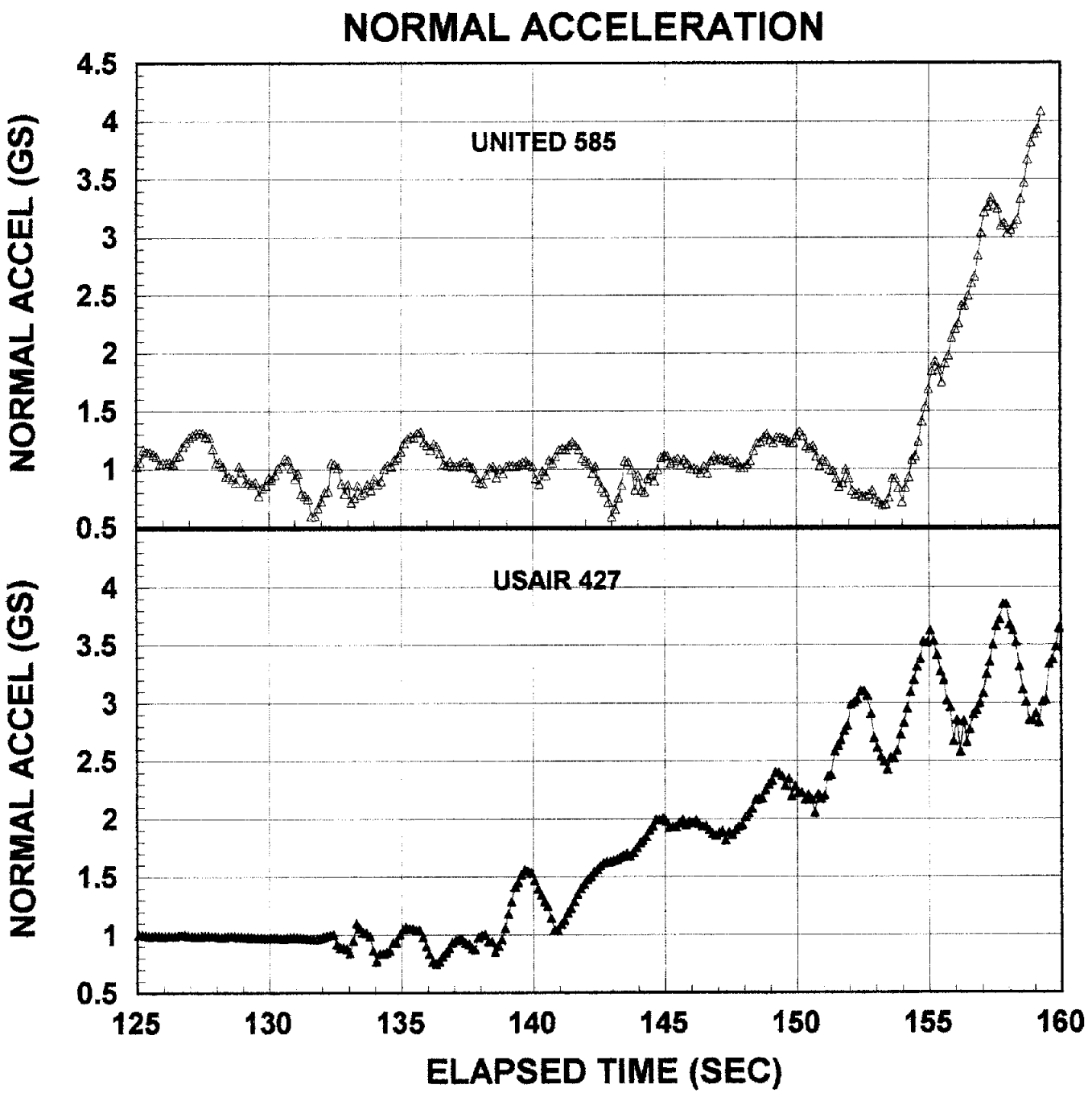

ALTITUDE
UNITED 585
USAIR 427
ALTITUDE (FEET MSL)
ALTITUDE (FEET MSL)
11000
10000
9000
8000
7000
6000
5000
6000
5000
4000
3000
2000
1000
125
130
135
140
145
150
155
160

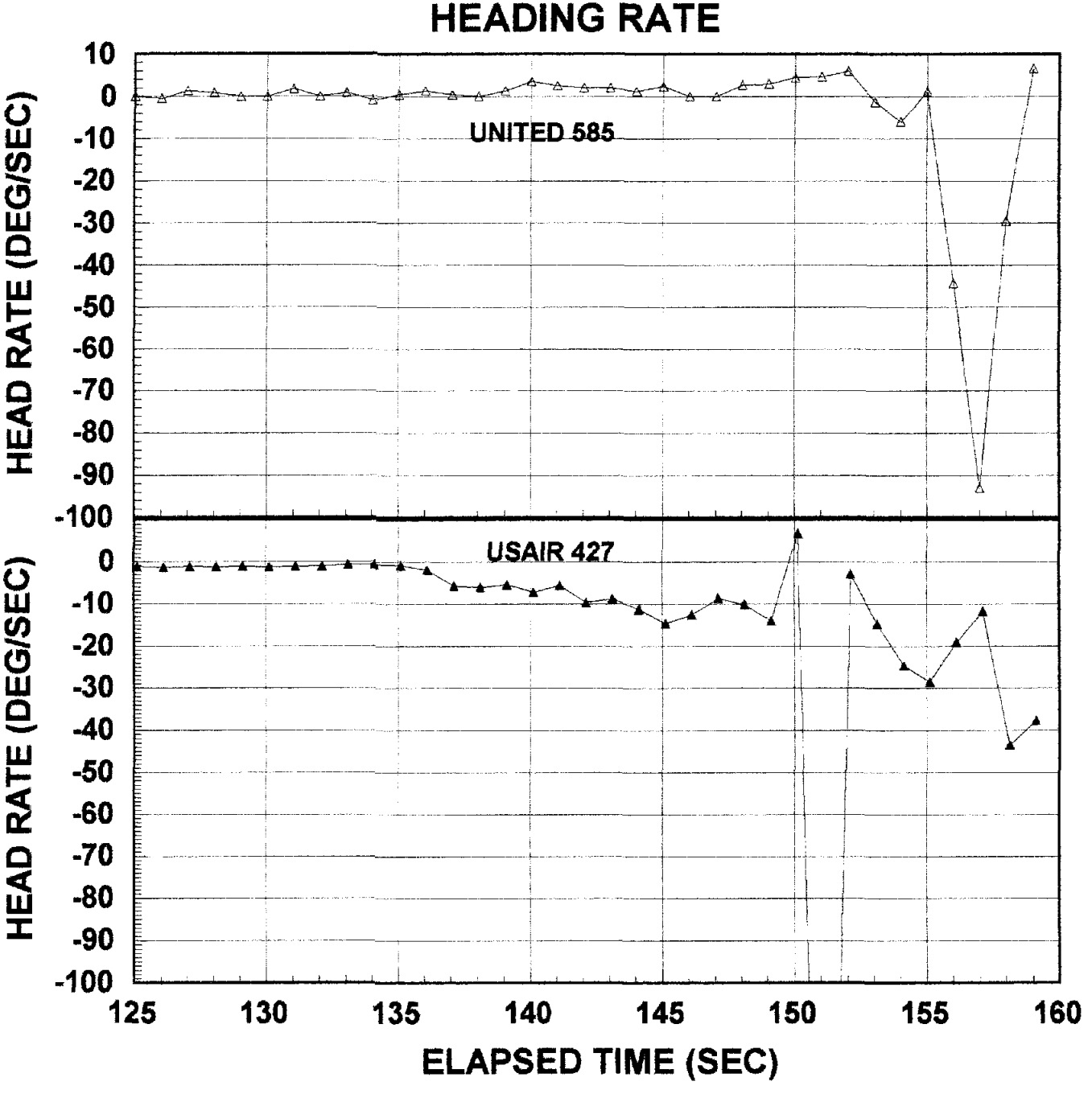

INDICATED AIRSPEED
UNITED 585
IAS (KNOTS)
230
220
210
200
190
180
170
160
150
140
USAIR 427
IAS (KNOTS)
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160

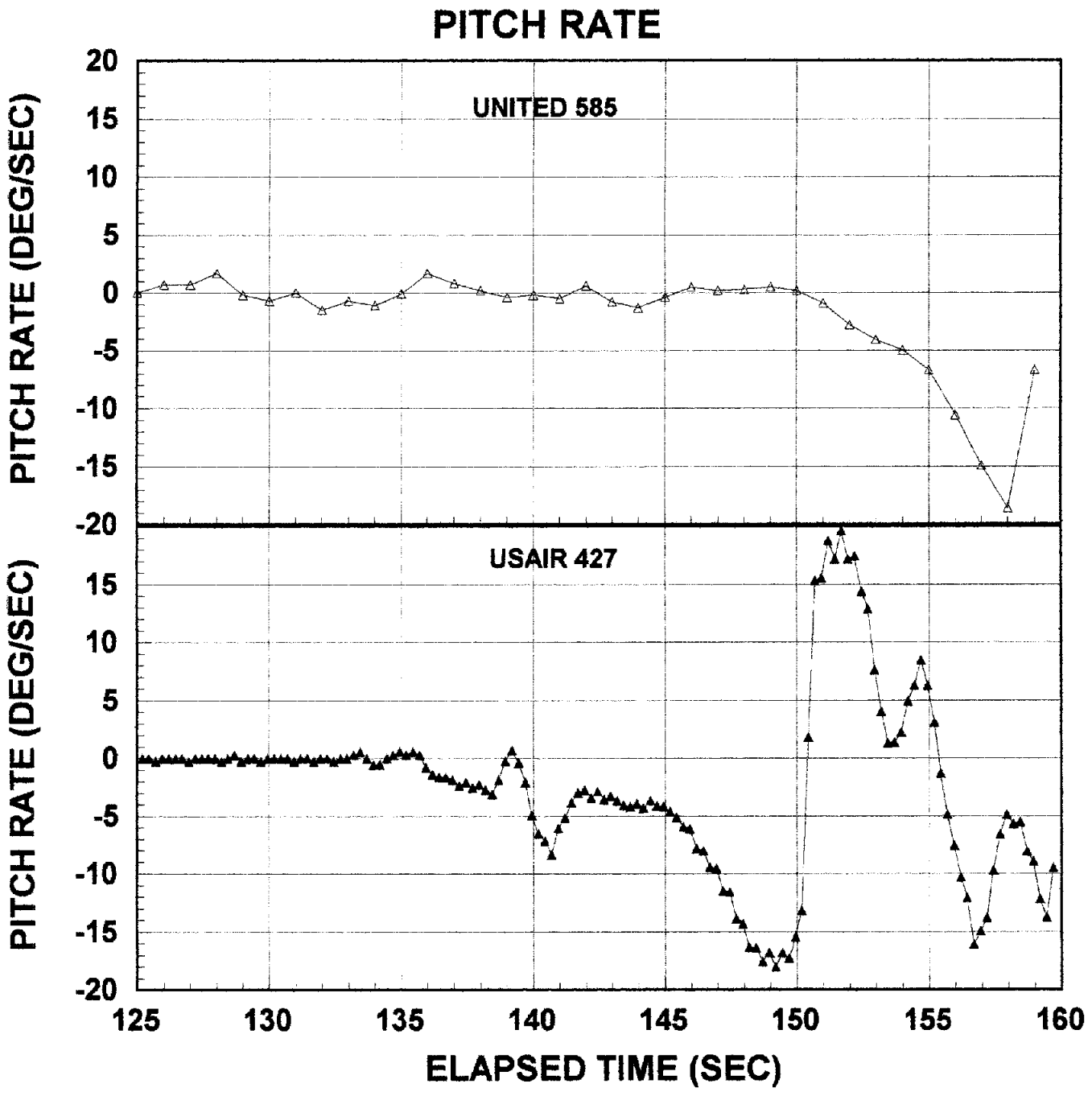

MAGNETIC HEADING
MAG. HEAD (DEGS)
360
300
240
180
120
60
0
UNITED 585
MAG. HEAD (DEGS)
300
240
180
120
60
0
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

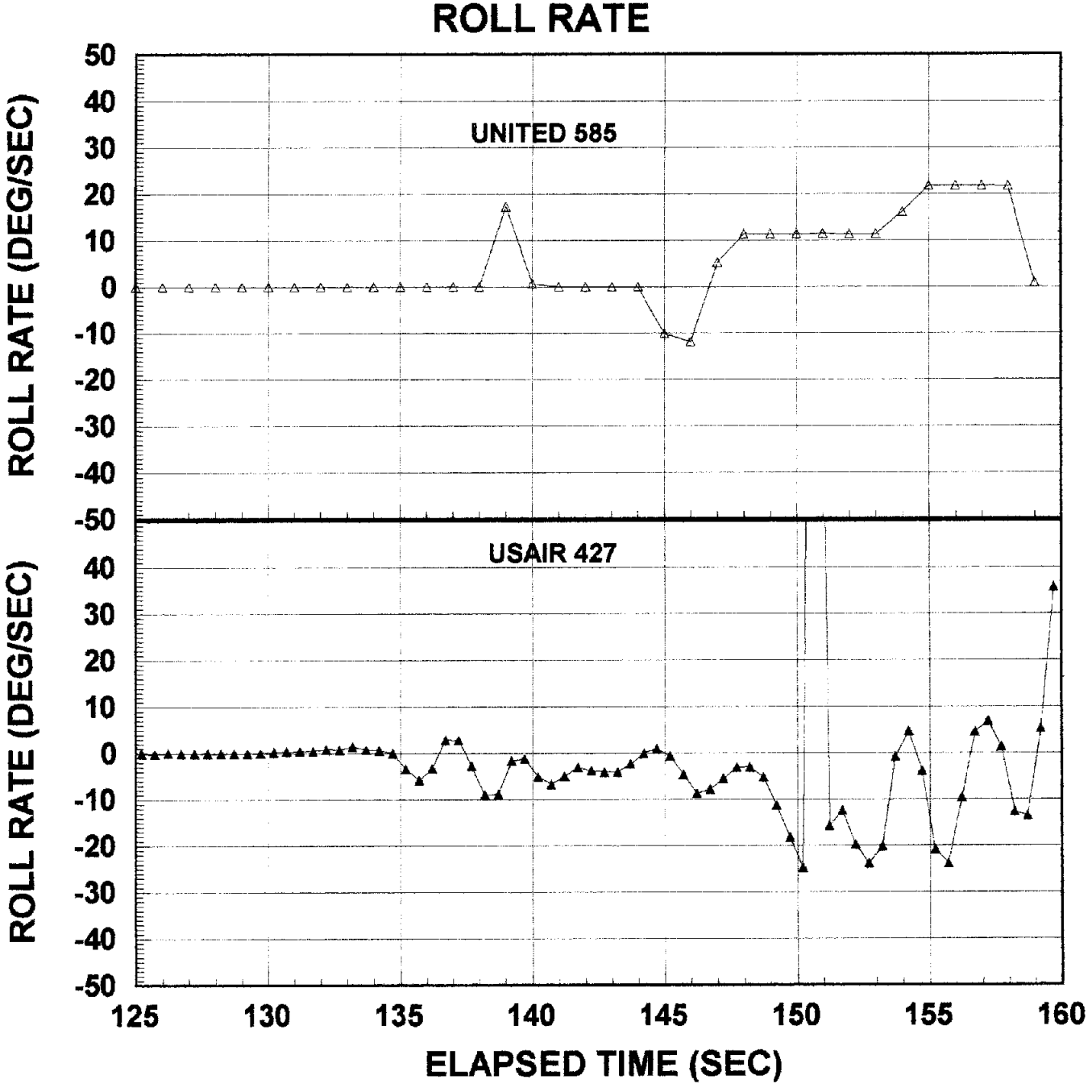

PITCH ANGLE
UNITED 585
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
UNITED 585
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
200
150
100
50
0
-50
-100
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
UNITED 585
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
UNITED 585
USAIR 427
HEAD RATE (DEG/SEC)
HEAD RATE (DEG/SEC)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
UNITED 585
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
UNITED 585
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT II
DCA-94-IA-044 tabular and plotted data

time	alt	kias	head	pitch	roll	time	vacc	headrate	pitchrate	rollrate
10	6624	134.63	267.36	2.109	2.285	10	1.0426	0.08	0.439	0.703
11	6624	134.88	267.54	2.109	2.197	10.125	1.0426	0.18	0	-0.088
12	6624	134.88	267.63	1.538	1.846	10.25	1.0403	0.09	-0.571	-0.351
13	6592	135.5	267.63	1.055	1.143	10.375	1.0334	0	-0.483	-0.703
14	6592	135.75	267.72	0	0.264	10.5	1.0403	0.09	-1.055	-0.879
15	6560	136.63	267.8	0.22	-0.088	10.625	1.0334	0.08	0.22	-0.352
16	6560	137	267.98	0.835	-0.176	10.75	1.0311	0.18	0.615	-0.088
17	6528	137.25	268.16	1.055	-0.264	10.875	1.0288	0.18	0.22	-0.088
18	6528	137.25	267.98	1.318	-0.264	11	1.0288	-0.18	0.263	0
19	6496	136.38	267.63	1.318	-0.176	11.125	1.0174	-0.35	0	0.088
20	6496	137.63	267.28	1.055	-1.406	11.25	1.0082	-0.35	-0.263	-1.23
21	6496	138.5	267.1	0.308	-1.055	11.375	0.9968	-0.18	-0.747	0.351
22	6496	138.88	267.01	-0.088	0.439	11.5	0.9968	-0.09	-0.396	1.494
23	6432	134.75	266.05	0.088	-8.086	11.625	0.9899	-0.96	0.176	-8.525
24	6432	142.13	265.69	-0.088	-23.027	11.75	0.9831	-0.36	-0.176	-14.941
25	6432	138.25	263.32	2.329	-18.018	11.875	0.9762	-2.37	2.417	5.009
26	6400	140.25	262.35	5.01	-7.91	12	0.9808	-0.97	2.681	10.108
27	6400	143.88	266.84	7.559	2.9	12.125	0.9808	4.49	2.549	10.81
28	6400	147.38	266.66	8.525	5.977	12.25	0.9785	-0.18	0.966	3.077
29	6432	146.5	262.44	9.316	2.637	12.375	0.9808	-4.22	0.791	-3.34
30	6432	147.5	260.07	11.47	-0.791	12.5	0.9785	-2.37	2.154	-3.428
31	6496	147	259.72	13.052	-1.582	12.625	0.9716	-0.35	1.582	-0.791
32	6560	148.75	259.28	14.81	0.352	12.75	0.9648	-0.44	1.758	1.934
33	6592	148.5	259.28	15.029	0	12.875	0.9602	0	0.219	-0.352
34	6656	149.63	259.37	16.304	1.055	13	0.9487	0.09	1.275	1.055
35	6720	149.38	259.63	15.732	0.439	13.125	0.9442	0.26	-0.572	-0.616
36	6784	148.25	259.89	16.655	0.967	13.25	0.9373	0.26	0.923	0.528
37	6848	148.5	260.25	17.007	1.055	13.375	0.935	0.36	0.352	0.088
38	6912	148.25	260.51	16.875	1.406	13.5	0.9304	0.26	-0.132	0.351
39	6976	150	260.86	16.479	1.494	13.625	0.9258	0.35	-0.396	0.088
40	7008	153.38	261.3	15.82	0.527	13.75	0.9098	0.44	-0.659	-0.967
41	7072	157.13	261.21	14.59	1.758	13.875	0.9098	-0.09	-1.23	1.231
42	7136	157.13	260.95	15.513	3.34	14	0.9144	-0.26	0.923	1.582
43	7168	157.38	260.6	15.161	2.373	14.125	0.9167	-0.35	-0.352	-0.967
44	7232	156	260.51	14.458	2.109	14.25	0.919	-0.09	-0.703	-0.264

45	7264	157.75	260.42	13.052	1.318	14.375	0.9258	-0.09	-1.406	-0.791
						14.5	0.9327			
						14.625	0.9442			
						14.75	0.9556			
						14.875	0.9602			
						15	0.9693			
						15.125	0.9808			
						15.25	0.9991			
						15.375	1.006			
						15.5	1.0082			
						15.625	1.0105			
						15.75	1.0105			
						15.875	1.0105			
						16	1.0105			
						16.125	1.0082			
						16.25	0.9945			
						16.375	1.0037			
						16.5	1.0082			
						16.625	1.0128			
						16.75	1.0174			
						16.875	1.0151			
						17	1.0266			
						17.125	1.0288			
						17.25	1.0243			
						17.375	1.0243			
						17.5	1.0243			
						17.625	1.0243			
						17.75	1.0266			
						17.875	1.0266			
						18	1.0311			
						18.125	1.0311			
						18.25	1.0288			
						18.375	1.0266			
						18.5	1.0334			
						18.625	1.0311			
						18.75	1.0243			

						18.875	1.0174			
						19	1.0197			
						19.125	1.0128			
						19.25	1.0105			
						19.375	1.006			
						19.5	1.0128			
						19.625	1.0128			
						19.75	1.0151			
						19.875	1.0082			
						20	1.0037			
						20.125	0.9991			
						20.25	0.9968			
						20.375	0.9945			
						20.5	0.9876			
						20.625	0.9831			
						20.75	0.9785			
						20.875	0.9739			
						21	0.9716			
						21.125	0.9854			
						21.25	0.9831			
						21.375	1.0037			
						21.5	1.0151			
						21.625	1.0243			
						21.75	1.022			
						21.875	1.0266			
						22	1.0288			
						22.125	1.022			
						22.25	1.0105			
						22.375	1.0082			
						22.5	0.9968			
						22.625	0.9854			
						22.75	0.919			
						22.875	0.7954			
						23	0.6718			
						23.125	0.61			
						23.25	0.5482			

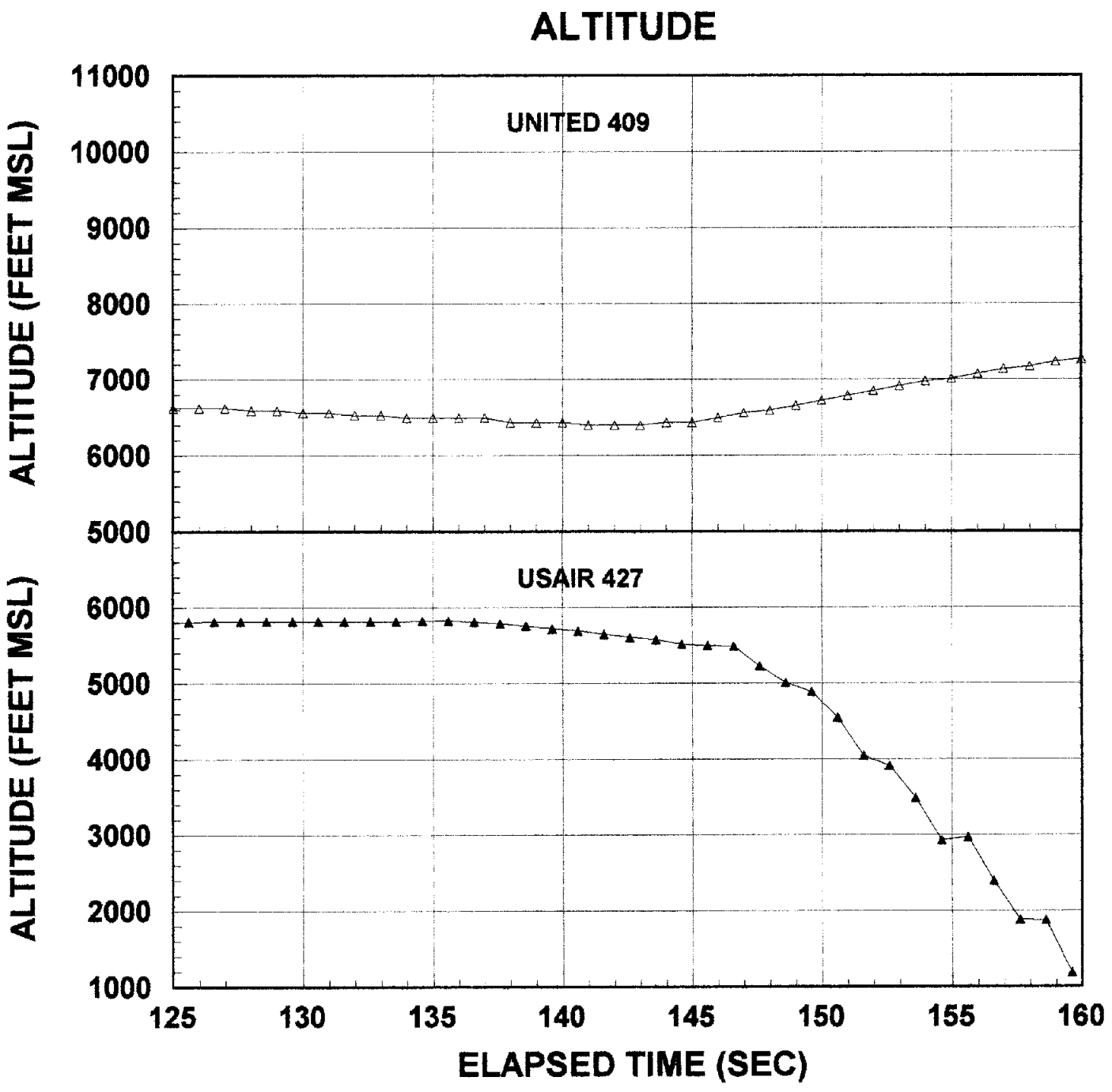
						23.375	0.5642			
						23.5	0.6237			
						23.625	0.6512			
						23.75	0.6443			
						23.875	0.6489			
						24	0.7084			
						24.125	0.7908			
						24.25	0.8457			
						24.375	0.8778			
						24.5	0.9281			
						24.625	0.9785			
						24.75	1.0128			
						24.875	0.9991			
						25	1.0037			
						25.125	0.9579			
						25.25	0.9419			
						25.375	0.9876			
						25.5	1.141			
						25.625	1.2211			
						25.75	1.2532			
						25.875	1.2806			
						26	1.3241			
						26.125	1.3333			
						26.25	1.3493			
						26.375	1.4065			
						26.5	1.4294			
						26.625	1.4775			
						26.75	1.5255			
						26.875	1.5141			
						27	1.5004			
						27.125	1.5049			
						27.25	1.5026			
						27.375	1.5095			
						27.5	1.4981			
						27.625	1.521			
						27.75	1.5072			

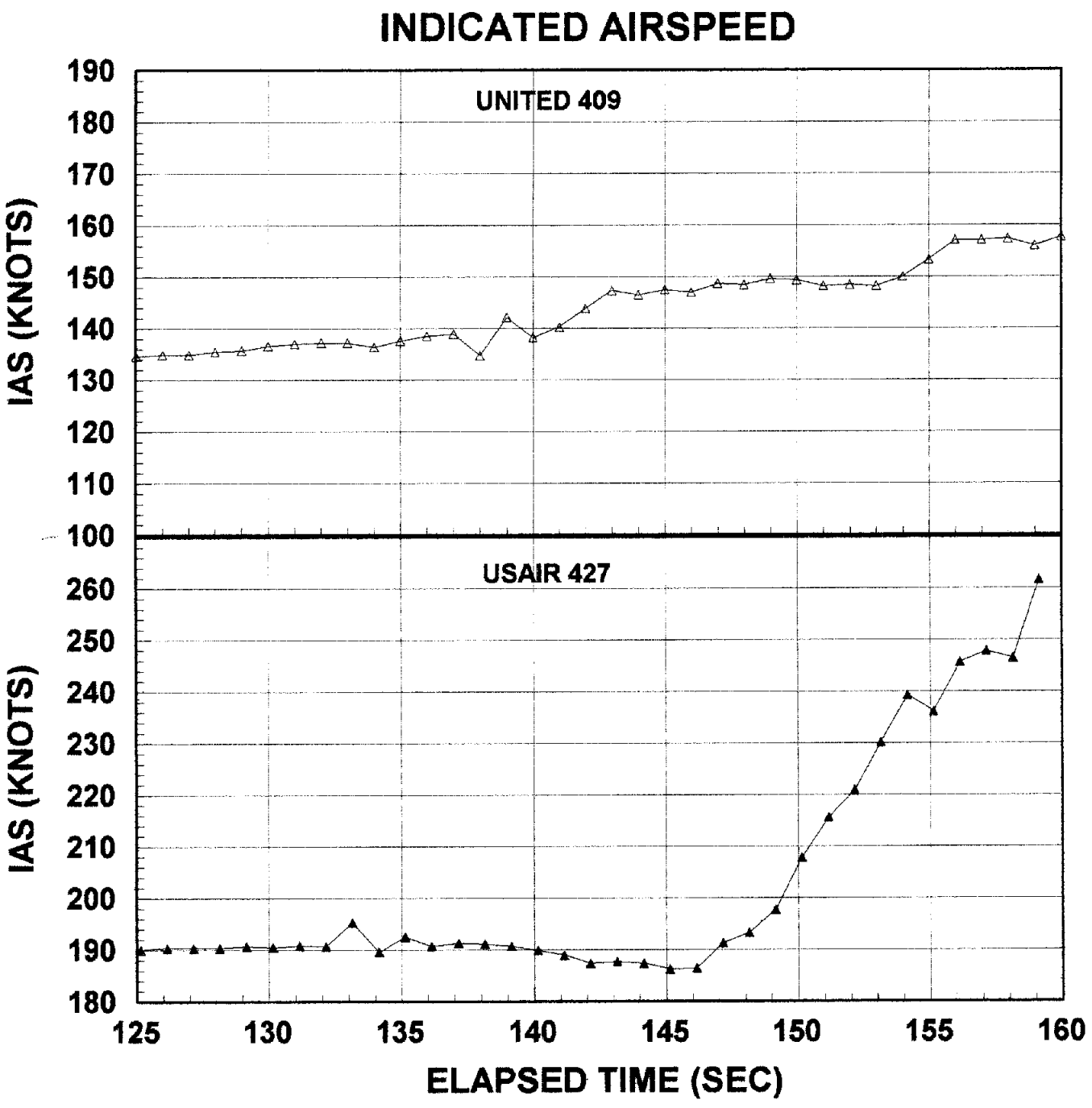
27.875	1.521
28	1.466
28.125	1.4454
28.25	1.4569
28.375	1.3996
28.5	1.4019
28.625	1.3905
28.75	1.4065
28.875	1.3905
29	1.4202
29.125	1.4088
29.25	1.3951
29.375	1.3745
29.5	1.3653
29.625	1.347
29.75	1.3264
29.875	1.3172
30	1.331
30.125	1.3287
30.25	1.3516
30.375	1.3676
30.5	1.347
30.625	1.3035
30.75	1.2623
30.875	1.2326
31	1.2074
31.125	1.1982
31.25	1.2211
31.375	1.2692
31.5	1.3081
31.625	1.2966
31.75	1.3012
31.875	1.2852
32	1.2715
32.125	1.2463
32.25	1.2142

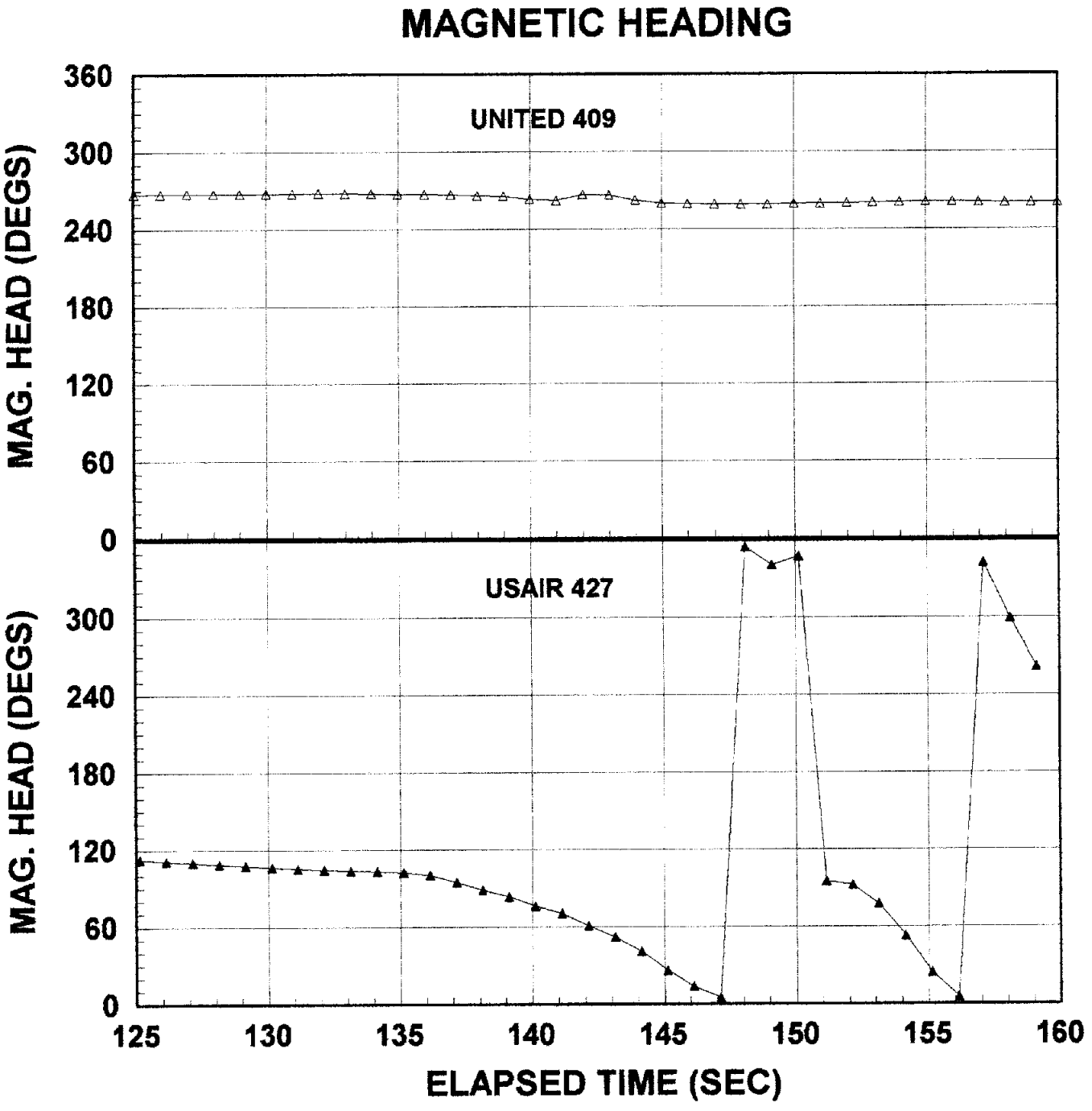
						32.375	1.157			
						32.5	1.1135			
						32.625	1.0815			
						32.75	1.0655			
						32.875	1.0678			
						33	1.0838			
						33.125	1.1296			
						33.25	1.157			
						33.375	1.1662			
						33.5	1.1799			
						33.625	1.1776			
						33.75	1.1753			
						33.875	1.1639			
						34	1.141			
						34.125	1.1181			
						34.25	1.0929			
						34.375	1.0655			
						34.5	1.0472			
						34.625	1.0128			
						34.75	0.9922			
						34.875	0.9693			
						35	0.9396			
						35.125	0.919			
						35.25	0.9213			
						35.375	0.9396			
						35.5	0.9556			
						35.625	0.9762			
						35.75	0.9693			
						35.875	0.9602			
						36	0.9396			
						36.125	0.935			
						36.25	0.9281			
						36.375	0.9167			
						36.5	0.9007			
						36.625	0.8869			
						36.75	0.8846			

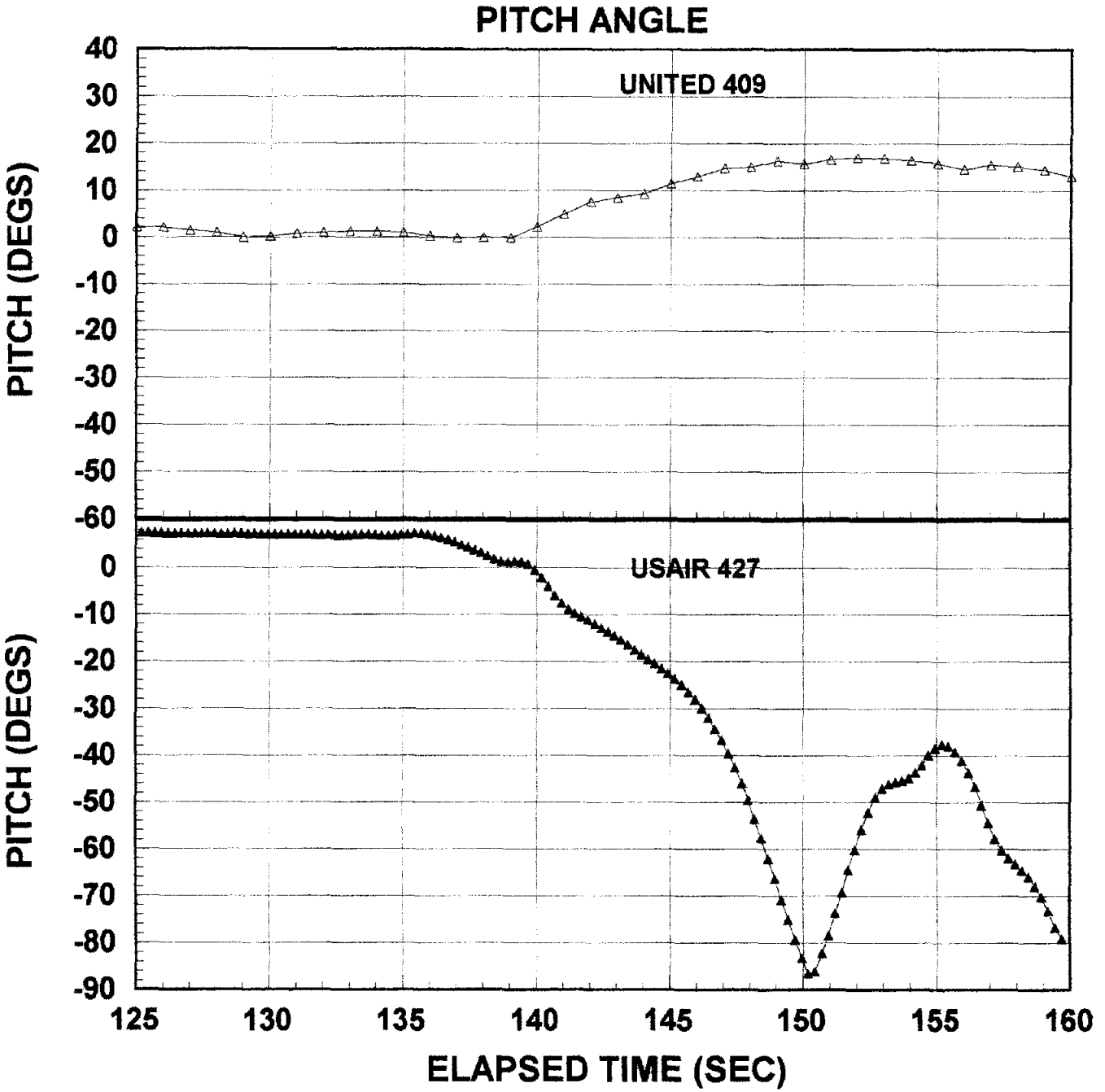
36.875	0.8869
37	0.8801
37.125	0.8732
37.25	0.8663
37.375	0.8686
37.5	0.8663
37.625	0.8503
37.75	0.8457
37.875	0.8297
38	0.8366
38.125	0.8457
38.25	0.8412
38.375	0.8503
38.5	0.8618
38.625	0.8618
38.75	0.8755
38.875	0.8663
39	0.8732
39.125	0.8892
39.25	0.9144
39.375	0.9121
39.5	0.8961
39.625	0.8846
39.75	0.8846
39.875	0.9281
40	0.9808
40.125	0.9396
40.25	0.9281
40.375	0.9144
40.5	0.9419
40.625	0.9419
40.75	0.9167
40.875	0.9052
41	0.8915
41.125	0.8915
41.25	0.9052

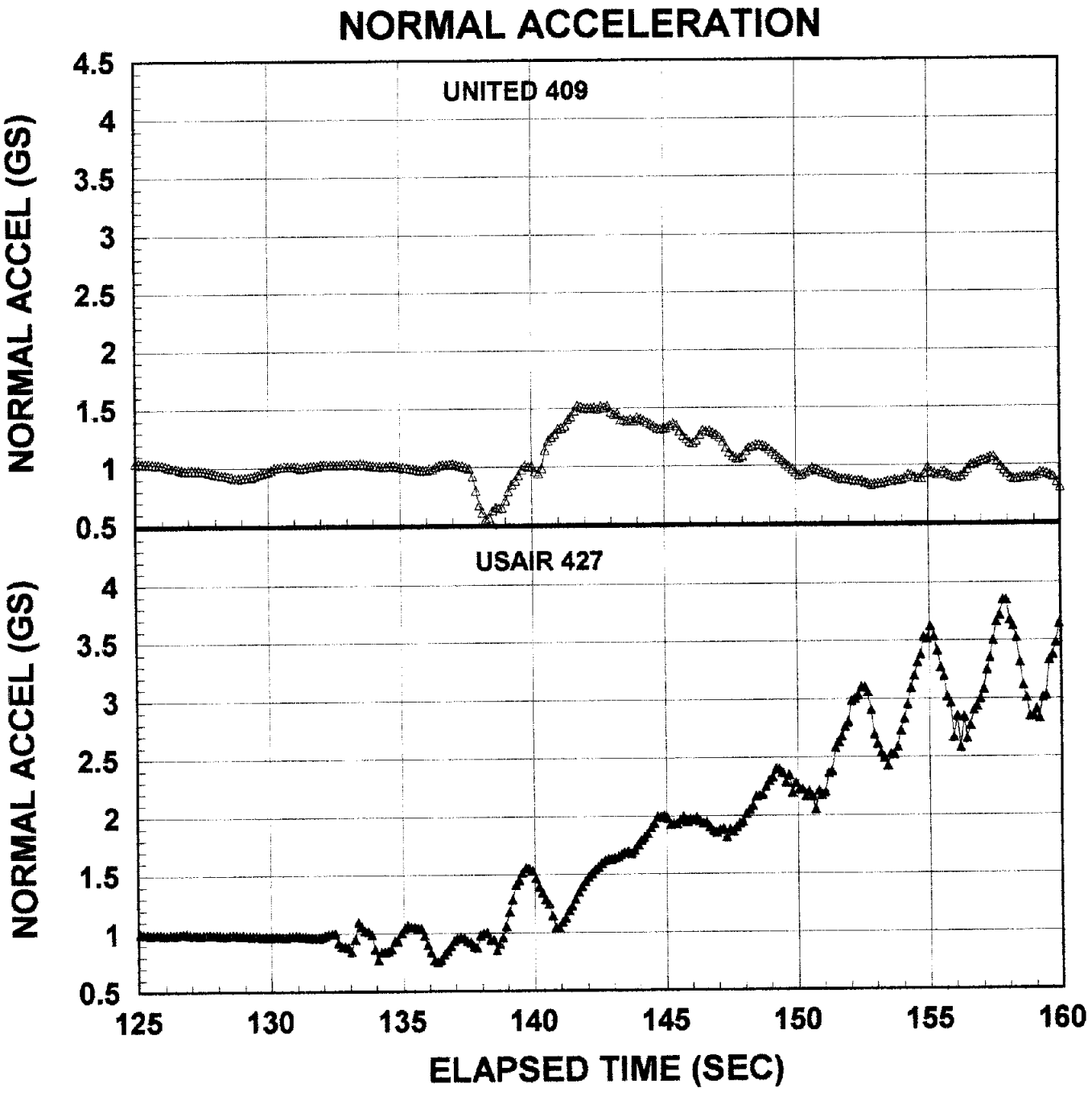
41.375	0.9327
41.5	0.9602
41.625	0.9991
41.75	1.006
41.875	1.0197
42	1.0334
42.125	1.038
42.25	1.054
42.375	1.0632
42.5	1.0655
42.625	1.0243
42.75	0.9808
42.875	0.9533
43	0.9236
43.125	0.8892
43.25	0.8755
43.375	0.8778
43.5	0.8869
43.625	0.8938
43.75	0.8892
43.875	0.8892
44	0.8892
44.125	0.9075
44.25	0.9327
44.375	0.9304
44.5	0.919
44.625	0.9052
44.75	0.8961
44.875	0.8457
45	0.8022
45.125	0.7771
45.25	0.7427
45.375	0.7061
45.5	0.7404
45.625	0.7656
45.75	0.7885

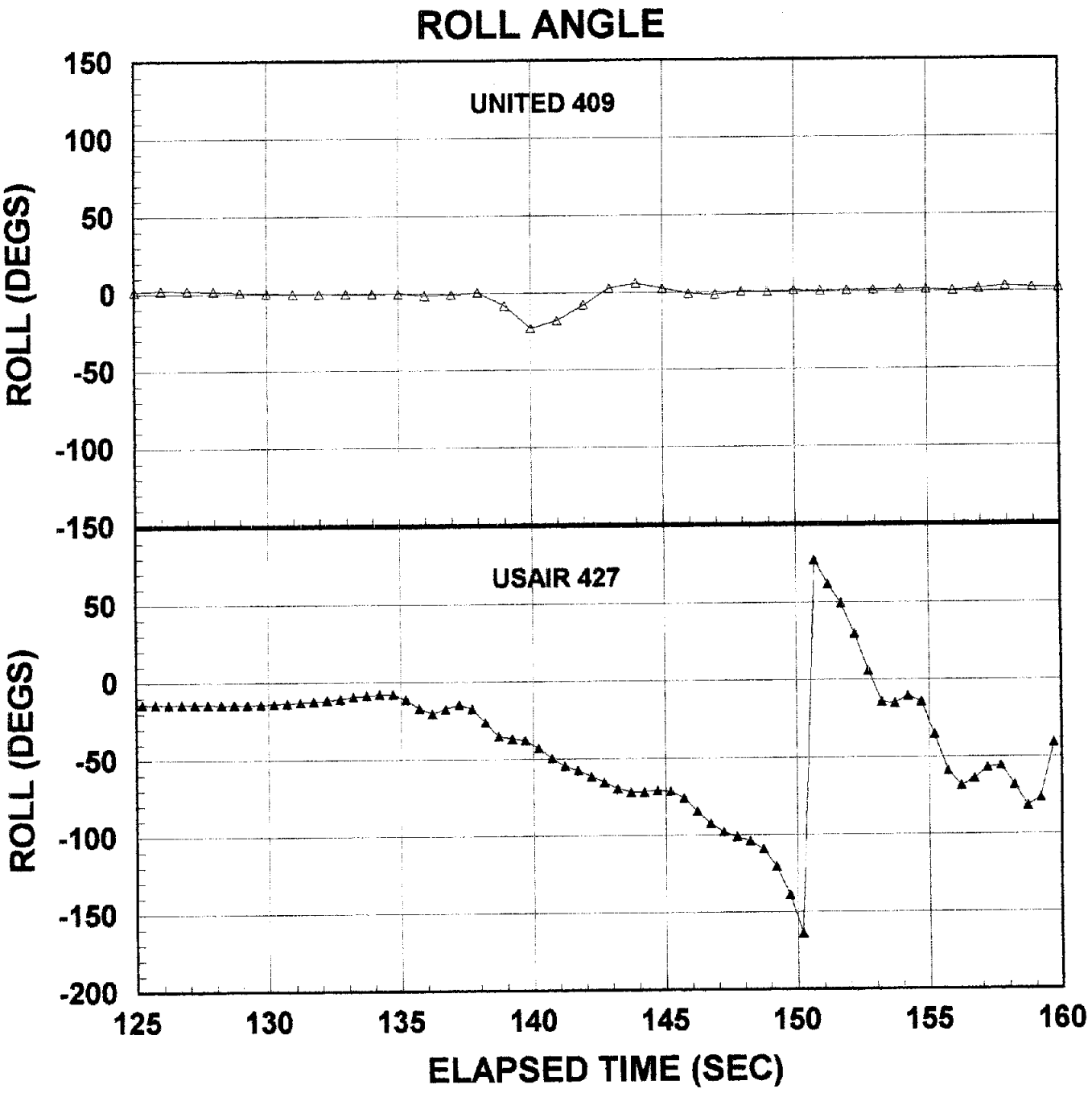

ALTITUDE
UNITED 409
USAIR 427
ALTITUDE (FEET MSL)
ALTITUDE (FEET MSL)
11000
10000
9000
8000
7000
6000
5000
6000
5000
4000
3000
2000
1000
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

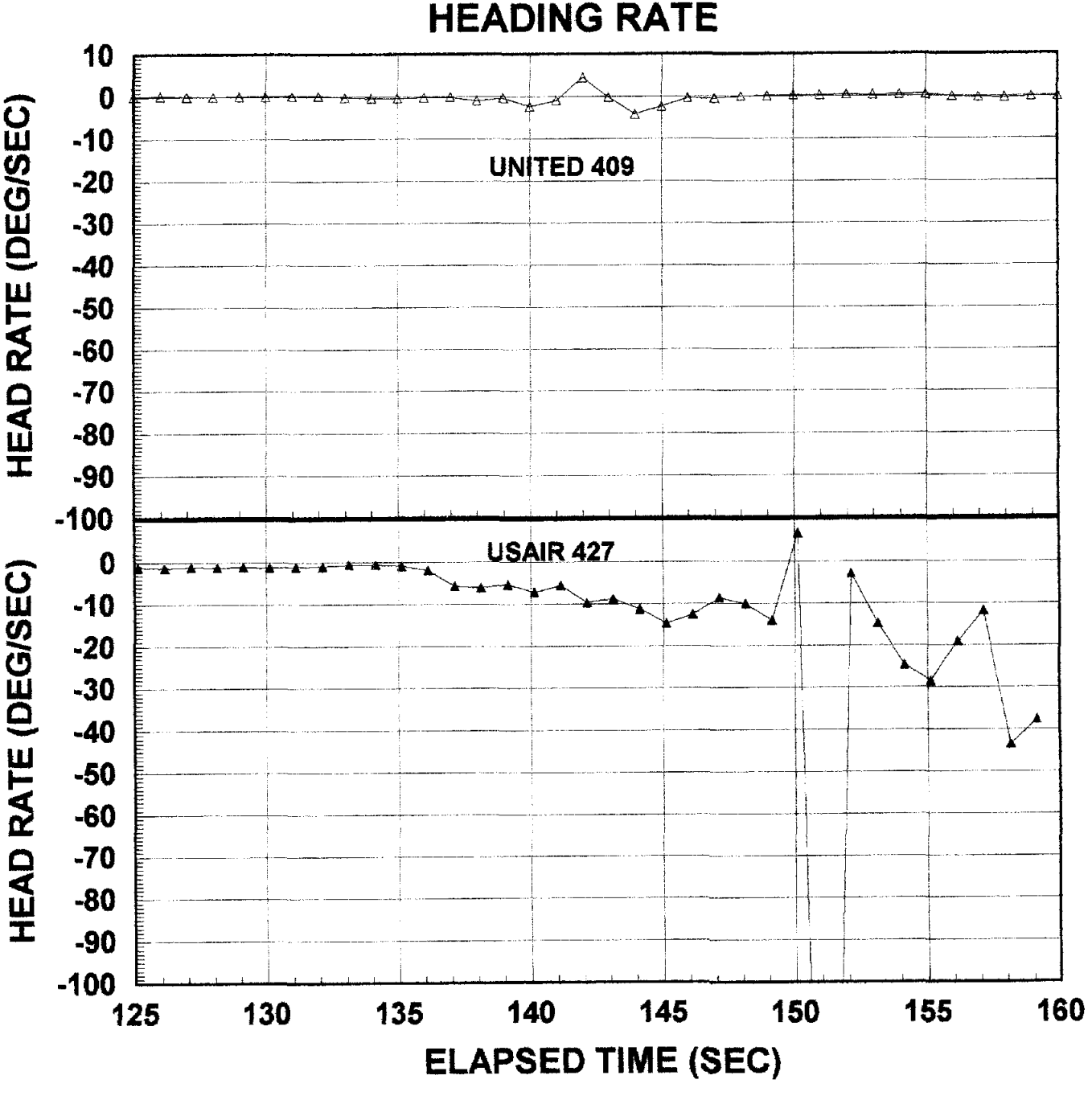

INDICATED AIRSPEED
UNITED 409
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
190
180
170
160
150
140
130
120
110
100
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

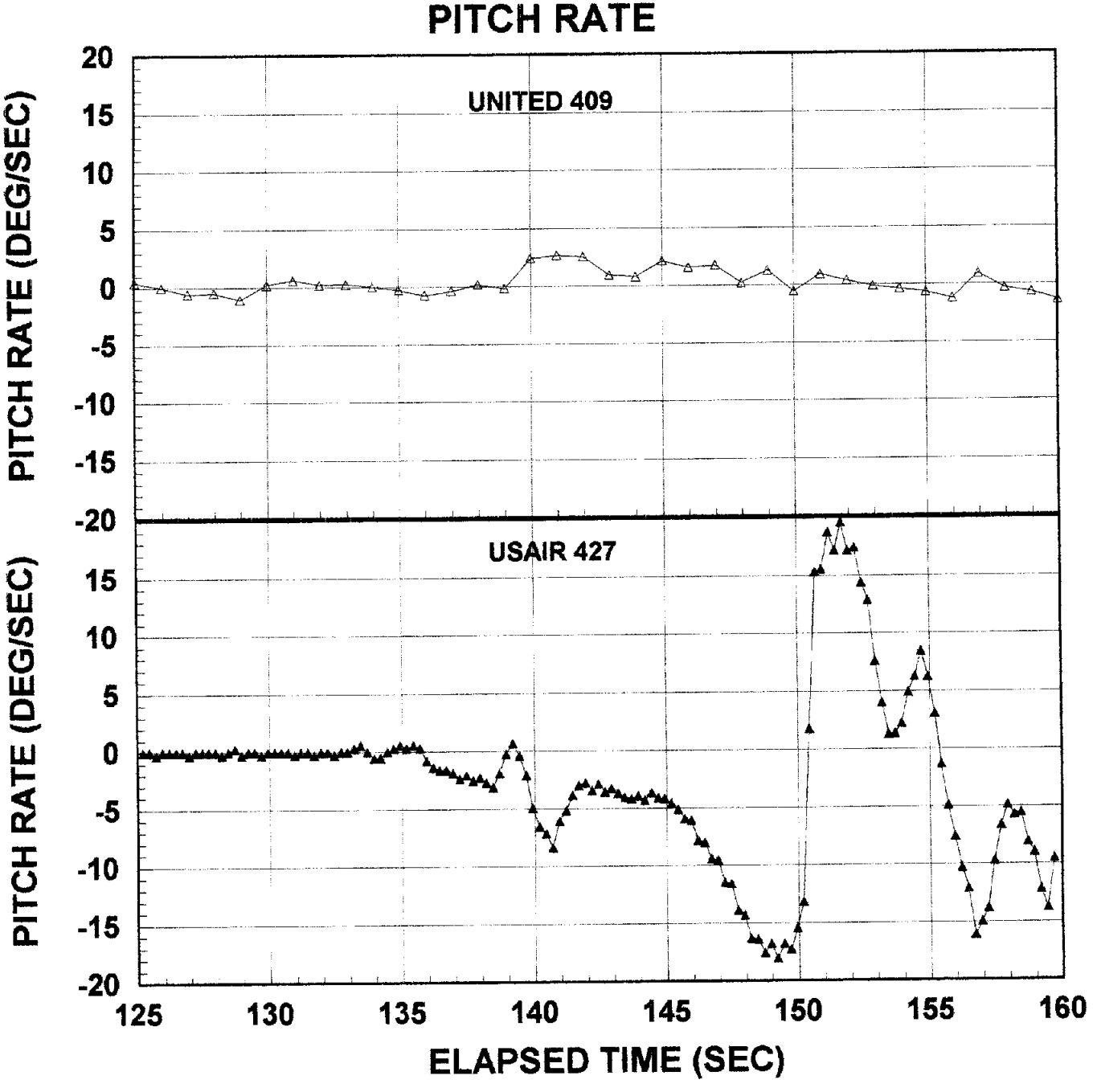

MAGNETIC HEADING
UNITED 409
USAIR 427
MAG. HEAD (DEGS)
MAG. HEAD (DEGS)
360
300
240
180
120
60
0
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

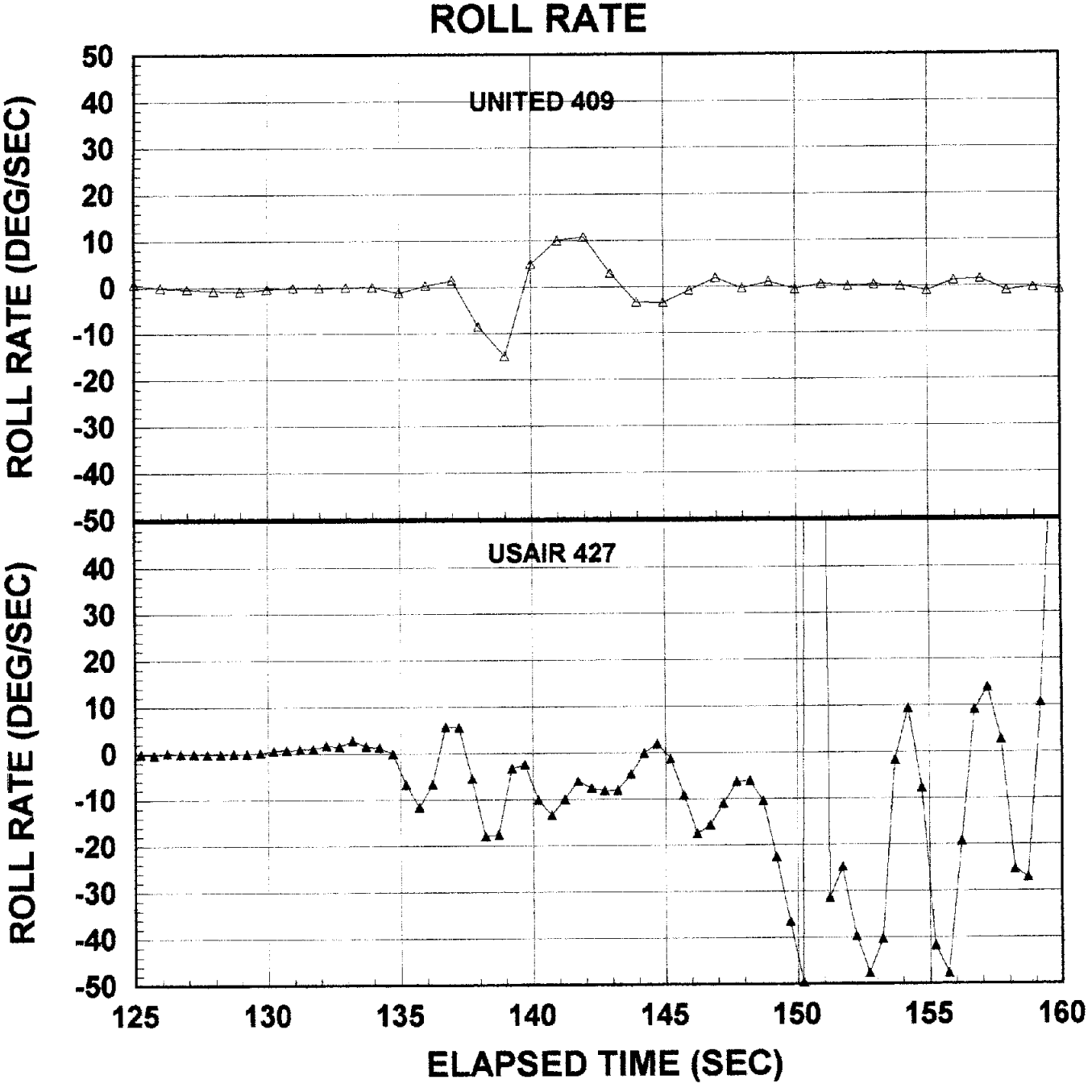

PITCH ANGLE
UNITED 409
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
UNITED 409
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
UNITED 409
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
150
100
50
0
-50
-100
-150
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
HEAD RATE (DEG/SEC)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
UNITED 409
HEAD RATE (DEG/SEC)
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
UNITED 409
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
UNITED 409
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT III
DCA-94-WA-050 tabular and plotted data
1ST EXCURSION

TIME	ALT	IAS	HEAD	TIME	PITCH	ROLL	TIME	VACC	headrate	pitchrate	rollrate
55	37001	231.67	158.76	55	3.58	0	55	1.0024	0.39	1.8	0
56	37002	232.44	158.37	55.25	3.91	0	55.125	0.984	-0.39	1.32	0
57	37002	231.97	158.37	55.5	3.58	0	55.25	0.9932	0	-1.32	0
58	36999	231.82	158.37	55.75	3.13	0	55.375	1.0024	0	-1.8	0
59	37005	232.59	158.37	56	3.58	-0.34	55.5	0.9932	0	1.8	-1.36
60	37004	232.75	158.76	56.25	3.46	-0.34	55.625	1.0024	0.39	-0.48	0
61	36999	231.97	158.76	56.5	3.13	-0.34	55.75	1.0024	0	-1.32	0
62	37005	232.13	158.37	56.75	3.13	-0.34	55.875	1.0024	-0.39	0	0
63	37006	232.13	158.37	57	3.13	-0.34	56	1.0024	0	0	0
64	37005	231.67	159.15	57.25	3.46	-0.34	56.125	1.0115	0.78	1.32	0
65	37005	232.9	158.76	57.5	3.13	-0.78	56.25	0.9932	-0.39	-1.32	-1.76
66	37009	231.97	159.15	57.75	3.58	-0.34	56.375	0.984	0.39	1.8	1.76
67	37006	232.28	159.94	58	3.69	-0.34	56.5	0.9749	0.79	0.44	0
68	37005	232.75	160.33	58.25	3.91	0	56.625	0.9657	0.39	0.88	1.36
69	37005	232.59	160.73	58.5	3.58	0	56.75	0.9749	0.4	-1.32	0
70	37007	232.9	161.13	58.75	3.13	0	56.875	0.9657	0.4	-1.8	0
71	37005	232.13	161.53	59	3.24	0	57	0.9932	0.4	0.44	0
72	37003	232.9	161.94	59.25	3.91	-0.34	57.125	0.9932	0.41	2.68	-1.36
73	37001	232.28	162.75	59.5	3.13	-0.34	57.25	0.984	0.81	-3.12	0
74	36997	232.13	163.16	59.75	3.13	0	57.375	0.9749	0.41	0	1.36
75	36998	232.75	163.57	60	3.24	-0.78	57.5	1.0298	0.41	0.44	-3.12
76	36999	232.28	163.98	60.25	3.91	-0.34	57.625	1.0024	0.41	2.68	1.76
77	36995	231.97	164.4	60.5	3.13	-0.34	57.75	0.9932	0.42	-3.12	0
78	36997	232.59	164.81	60.75	3.58	0	57.875	1.0207	0.41	1.8	1.36
79	36999	232.13	165.23	61	3.24	0.45	58	1.0207	0.42	-1.36	1.8
80	36996	231.97	166.07	61.25	3.46	0.45	58.125	1.0024	0.84	0.88	0
81	36998	232.13	166.49	61.5	3.13	0.45	58.25	0.9932	0.42	-1.32	0
82	36999	231.82	166.49	61.75	3.13	0.45	58.375	0.984	0	0	0
83	36999	231.67	167.34	62	3.69	0	58.5	0.9932	0.85	2.24	-1.8
84	36997	231.51	167.77	62.25	3.46	0	58.625	1.0024	0.43	-0.92	0
85	36997	232.13	167.77	62.5	3.13	-0.34	58.75	0.9932	0	-1.32	-1.36
86	36998	232.13	167.77	62.75	3.13	-0.78	58.875	0.9749	0	0	-1.76
87	36997	231.97	168.2	63	3.24	-0.78	59	0.984	0.43	0.44	0
88	36999	232.13	167.77	63.25	3.46	-0.34	59.125	0.9932	-0.43	0.88	1.76
89	36999	231.97	167.77	63.5	3.58	0	59.25	0.984	0	0.48	1.36

90	36997	231.97	167.77	63.75	3.13	0.45	59.375	1.0024	0	-1.8	1.8
				64	3.24	1.34	59.5	1.0024		0.44	3.56
				64.25	3.46	2.24	59.625	1.0024		0.88	3.6
				64.5	3.13	3.13	59.75	0.9932		-1.32	3.56
				64.75	3.13	3.58	59.875	0.9932		0	1.8
				65	3.24	4.47	60	1.0115		0.44	3.56
				65.25	3.91	4.47	60.125	1.0115		2.68	0
				65.5	3.58	4.91	60.25	1.0115		-1.32	1.76
				65.75	3.58	5.36	60.375	1.0115		0	1.8
				66	3.69	5.8	60.5	1.0024		0.44	1.76
				66.25	3.91	6.24	60.625	1.0024		0.88	1.76
				66.5	3.13	6.68	60.75	0.984		-3.12	1.76
				66.75	3.13	7.13	60.875	0.984		0	1.8
				67	3.24	8	61	0.9566		0.44	3.48
				67.25	3.46	8.88	61.125	0.9749		0.88	3.52
				67.5	3.13	9.32	61.25	0.984		-1.32	1.76
				67.75	3.13	9.75	61.375	0.984		0	1.72
				68	3.69	9.75	61.5	1.0024		2.24	0
				68.25	3.46	10.19	61.625	1.0207		-0.92	1.76
				68.5	3.58	10.19	61.75	1.0115		0.48	0
				68.75	3.58	10.19	61.875	0.984		0	0
				69	3.69	10.19	62	1.0024		0.44	0
				69.25	3.91	10.19	62.125	0.9932		0.88	0
				69.5	3.58	9.75	62.25	1.0024		-1.32	-1.76
				69.75	3.58	10.19	62.375	0.9932		0	1.76
				70	3.24	9.75	62.5	1.0024		-1.36	-1.76
				70.25	3.91	10.19	62.625	1.0115		2.68	1.76
				70.5	3.13	10.19	62.75	1.0024		-3.12	0
				70.75	3.58	10.62	62.875	0.9932		1.8	1.72
				71	3.24	10.62	63	0.9932		-1.36	0
				71.25	3.46	11.05	63.125	0.9932		0.88	1.72
				71.5	3.58	11.05	63.25	0.984		0.48	0
				71.75	3.13	10.62	63.375	0.9932		-1.8	-1.72
				72	3.24	10.62	63.5	0.9932		0.44	0
				72.25	3.91	10.62	63.625	0.984		2.68	0
				72.5	3.13	11.05	63.75	0.984		-3.12	1.72

				72.75	3.13	10.62	63.875	0.9474		0	-1.72
				73	3.24	11.05	64	0.9932		0.44	1.72
				73.25	3.91	11.48	64.125	0.9932		2.68	1.72
				73.5	3.13	11.48	64.25	0.9749		-3.12	0
				73.75	3.13	11.05	64.375	0.9566		0	-1.72
				74	3.24	11.05	64.5	0.9566		0.44	0
				74.25	3.46	11.48	64.625	0.9566		0.88	1.72
				74.5	3.13	11.05	64.75	0.9474		-1.32	-1.72
				74.75	3.58	11.05	64.875	0.9566		1.8	0
				75	3.69	10.62	65	0.9932		0.44	-1.72
				75.25	3.91	10.62	65.125	0.984		0.88	0
				75.5	3.58	10.19	65.25	0.984		-1.32	-1.72
				75.75	3.58	10.19	65.375	0.984		0	0
				76	3.69	10.19	65.5	0.984		0.44	0
				76.25	3.91	10.19	65.625	1.0298		0.88	0
				76.5	3.58	10.19	65.75	1.0207		-1.32	0
				76.75	3.13	10.62	65.875	1.039		-1.8	1.72
				77	3.24	11.05	66	1.0115		0.44	1.72
				77.25	3.46	11.48	66.125	1.0207		0.88	1.72
				77.5	3.13	11.05	66.25	0.9932		-1.32	-1.72
				77.75	3.58	11.05	66.375	1.0298		1.8	0
				78	3.69	10.62	66.5	1.039		0.44	-1.72
				78.25	3.91	10.62	66.625	1.0024		0.88	0
				78.5	3.58	10.19	66.75	1.0115		-1.32	-1.72
				78.75	3.58	10.19	66.875	0.9749		0	0
				79	3.69	10.19	67	0.9566		0.44	0
				79.25	3.91	10.19	67.125	0.9474		0.88	0
				79.5	3.58	10.19	67.25	0.9566		-1.32	0
				79.75	3.58	10.19	67.375	0.9566		0	0
				80	3.69	10.62	67.5	0.9657		0.44	1.72
				80.25	3.91	10.62	67.625	0.984		0.88	0
				80.5	3.58	10.62	67.75	0.9932		-1.32	0
				80.75	3.58	10.62	67.875	1.0024		0	0
				81	3.69	10.62	68	1.0115		0.44	0
				81.25	3.91	10.62	68.125	1.0207		0.88	0
				81.5	3.58	11.48	68.25	1.0298		-1.32	3.44

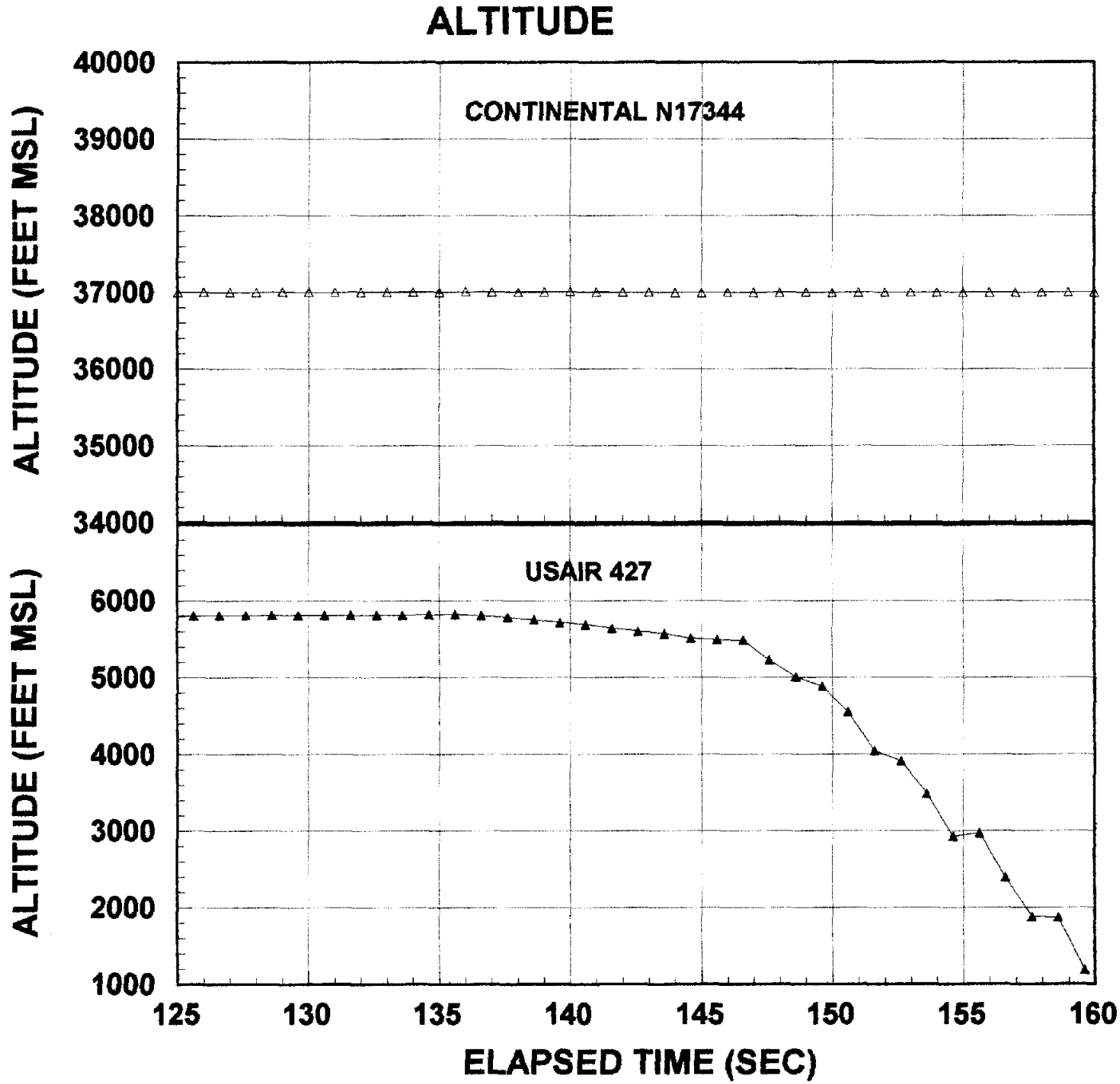
			81.75	3.58	10.62	68.375	1.039		0	-3.44
			82	3.69	10.19	68.5	1.0298		0.44	-1.72
			82.25	3.91	9.75	68.625	1.0298		0.88	-1.76
			82.5	3.58	9.75	68.75	1.0207		-1.32	0
			82.75	3.58	9.75	68.875	1.0115		0	0
			83	3.69	9.75	69	1.0024		0.44	0
			83.25	3.91	9.75	69.125	1.0024		0.88	0
			83.5	3.58	9.75	69.25	0.9932		-1.32	0
			83.75	3.58	9.32	69.375	0.9932		0	-1.72
			84	3.69	9.32	69.5	1.0024		0.44	0
			84.25	3.91	8.88	69.625	1.0207		0.88	-1.76
			84.5	3.13	8	69.75	1.0207		-3.12	-3.52
			84.75	3.13	7.57	69.875	1.0115		0	-1.72
			85	3.24	6.68	70	1.0024		0.44	-3.56
			85.25	3.46	6.24	70.125	1.0024		0.88	-1.76
			85.5	3.13	5.36	70.25	1.0024		-1.32	-3.52
			85.75	3.13	4.47	70.375	0.9932		0	-3.56
			86	3.24	4.02	70.5	0.984		0.44	-1.8
			86.25	3.46	3.13	70.625	0.9932		0.88	-3.56
			86.5	3.13	2.68	70.75	0.9749		-1.32	-1.8
			86.75	3.13	2.24	70.875	0.984		0	-1.76
			87	3.24	1.79	71	0.984		0.44	-1.8
			87.25	3.46	1.79	71.125	1.0207		0.88	0
			87.5	3.13	1.79	71.25	1.0207		-1.32	0
			87.75	3.13	1.34	71.375	1.0115		0	-1.8
			88	3.24	0.9	71.5	1.0115		0.44	-1.76
			88.25	3.46	0.9	71.625	1.0207		0.88	0
			88.5	3.13	0.45	71.75	1.0115		-1.32	-1.8
			88.75	3.13	0	71.875	1.0024		0	-1.8
			89	3.69	0	72	1.0207		2.24	0
			89.25	3.46	0	72.125	1.0024		-0.92	0
			89.5	3.13	-0.34	72.25	1.0024		-1.32	-1.36
			89.75	3.13	-0.34	72.375	1.0024		0	0
			90	3.24	-0.34	72.5	1.0207		0.44	0
						72.625	1.0298			
						72.75	1.0207			

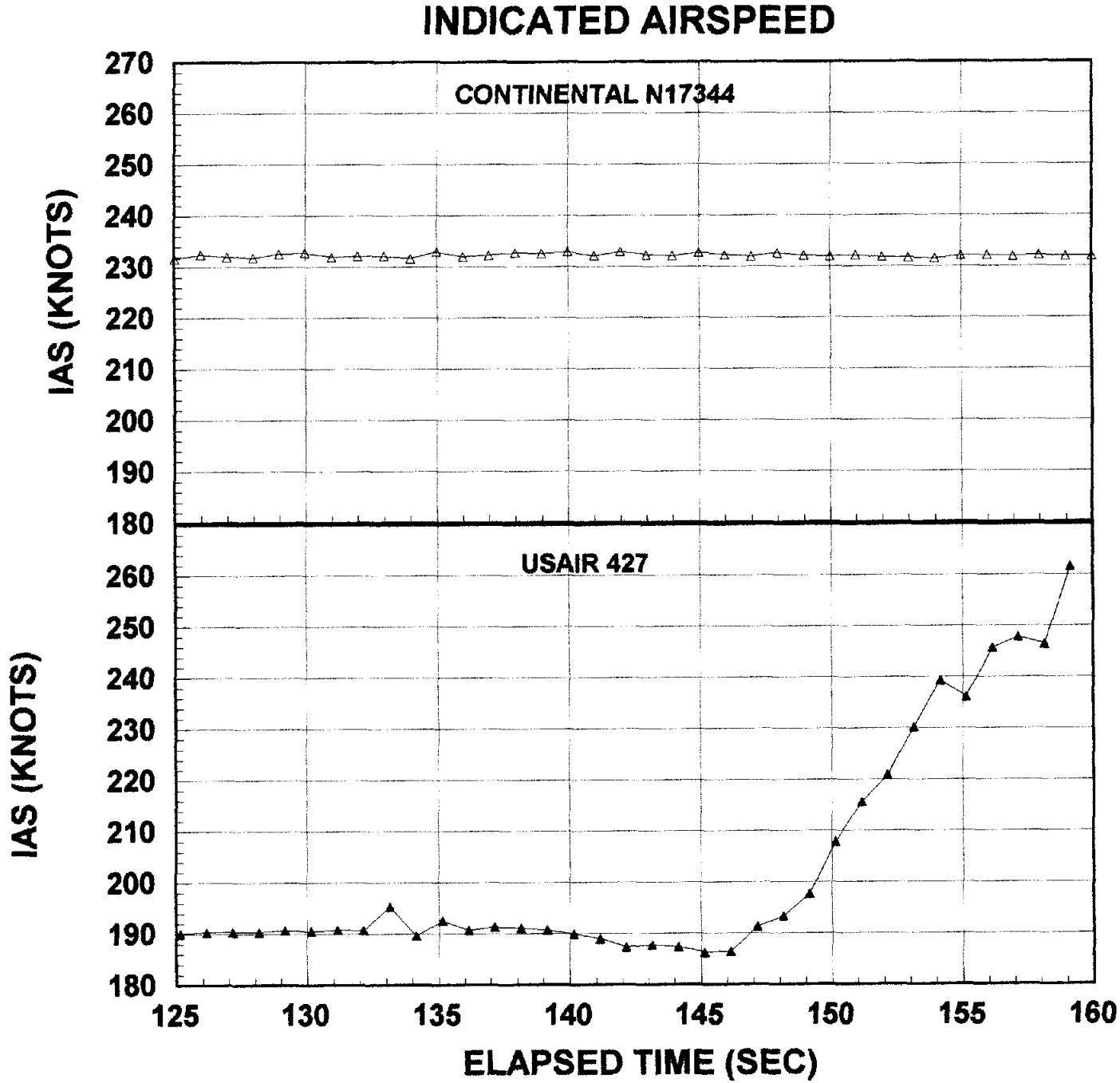
72.875	1.0298
73	1.0207
73.125	1.0207
73.25	1.0115
73.375	1.0207
73.5	1.0207
73.625	1.0115
73.75	1.0024
73.875	1.0207
74	0.9932
74.125	1.0207
74.25	1.0115
74.375	1.0115
74.5	0.9932
74.625	1.0024
74.75	0.9932
74.875	1.0115
75	1.0481
75.125	1.0115
75.25	1.0207
75.375	1.0024
75.5	1.0481
75.625	1.039
75.75	1.0207
75.875	1.039
76	1.0207
76.125	1.0298
76.25	1.0298
76.375	1.0481
76.5	1.039
76.625	1.0298
76.75	1.0115
76.875	1.0024
77	1.0115
77.125	0.9932
77.25	1.0024

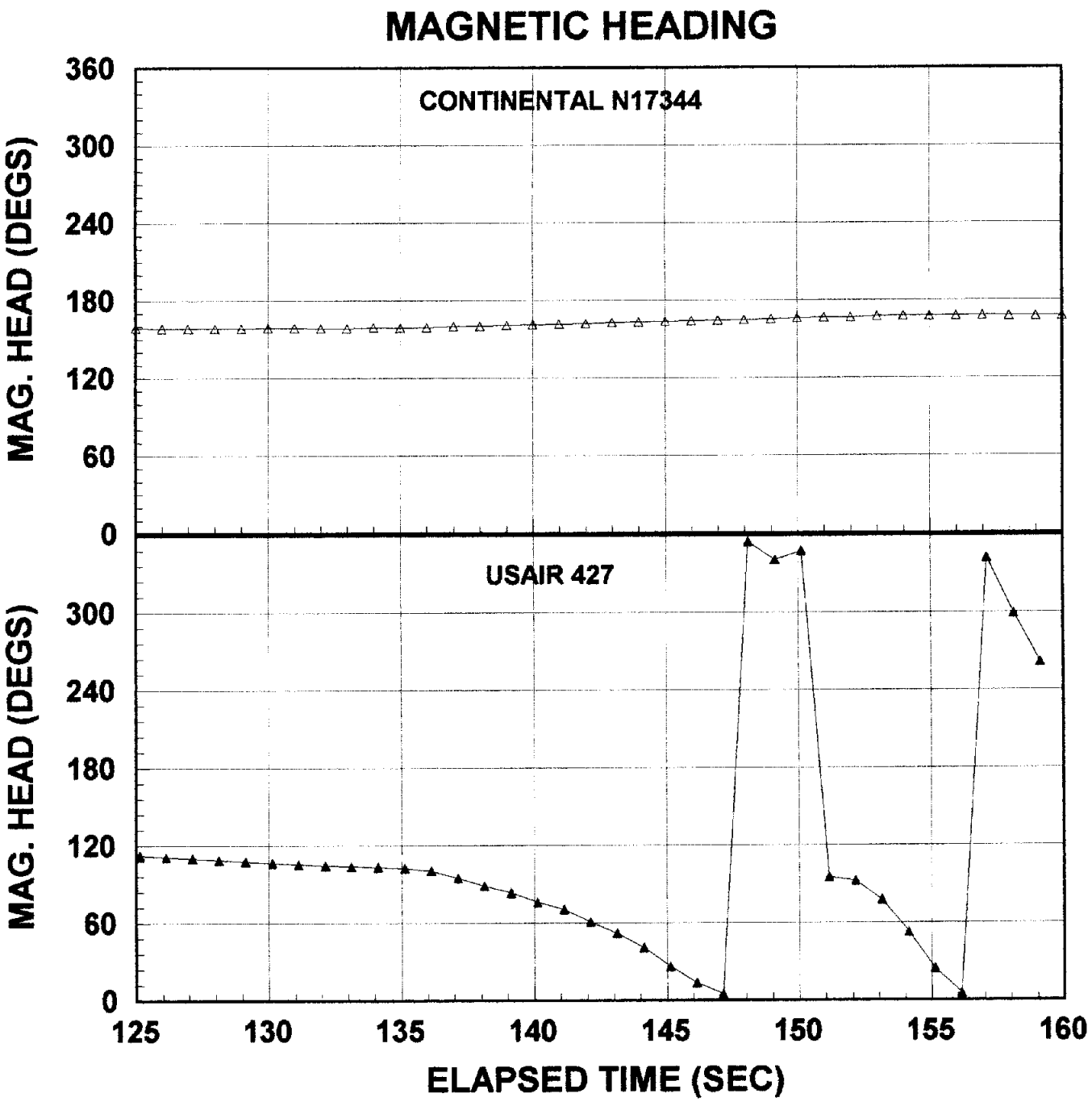
77.375	1.0298
77.5	1.0207
77.625	1.0298
77.75	0.9932
77.875	1.0115
78	1.0207
78.125	1.0298
78.25	1.0298
78.375	1.0207
78.5	1.0298
78.625	1.0298
78.75	1.039
78.875	1.0115
79	1.0115
79.125	1.0298
79.25	0.9932
79.375	1.0024
79.5	1.0024
79.625	0.9932
79.75	0.9932
79.875	1.0115
80	1.0207
80.125	1.0207
80.25	1.0024
80.375	1.0024
80.5	1.0024
80.625	1.0024
80.75	0.9932
80.875	0.9932
81	1.0115
81.125	1.0115
81.25	1.0298
81.375	1.0115
81.5	1.0481
81.625	1.0481
81.75	1.0207

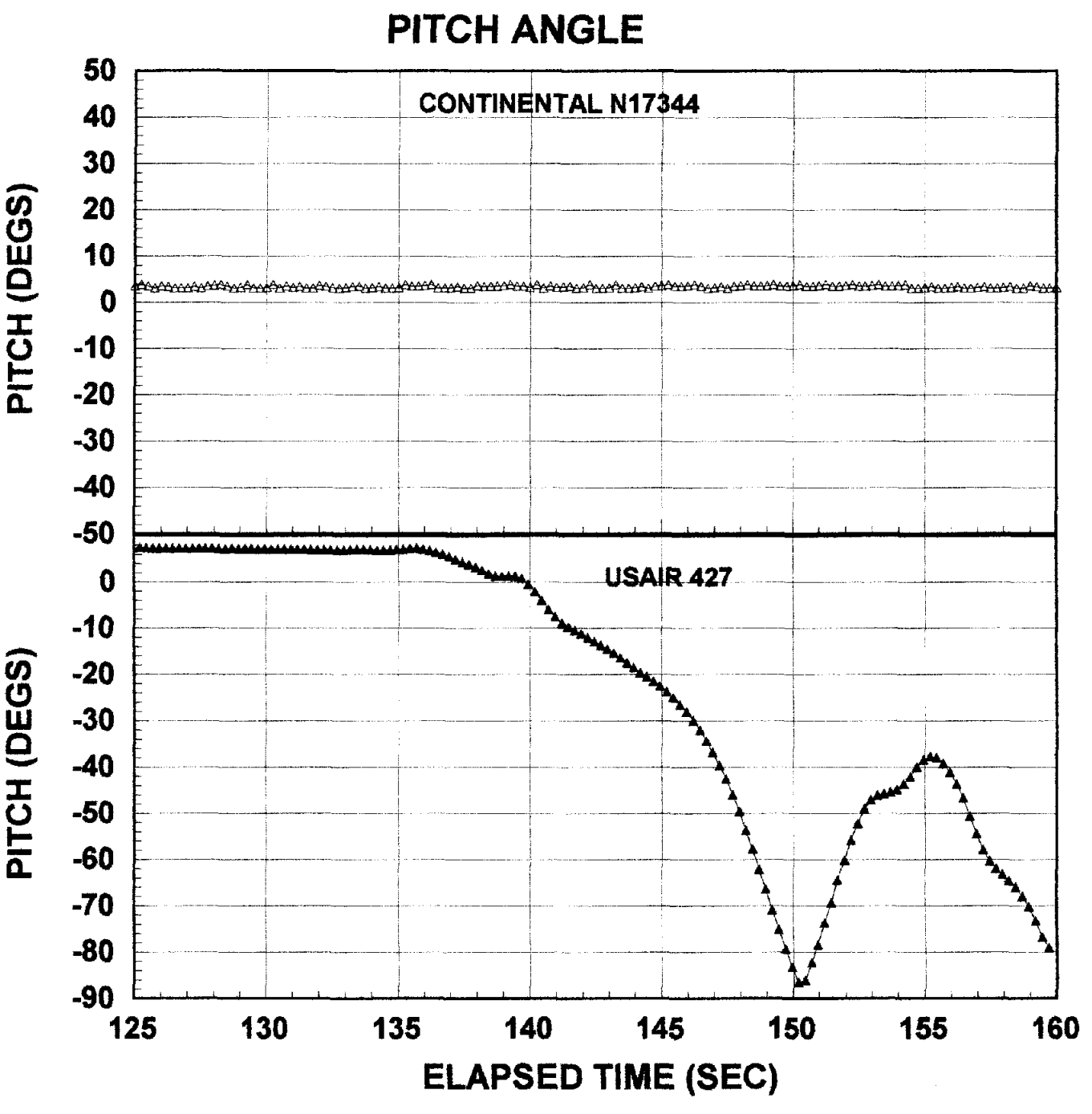
81.875	1.0115
82	0.984
82.125	1.0024
82.25	1.0024
82.375	1.0024
82.5	1.0024
82.625	1.0024
82.75	1.0115
82.875	1.0024
83	0.9932
83.125	0.9932
83.25	1.0024
83.375	1.0024
83.5	1.0024
83.625	1.0115
83.75	1.0115
83.875	1.0298
84	1.0298
84.125	1.039
84.25	1.039
84.375	1.0298
84.5	1.0024
84.625	0.9932
84.75	0.9932
84.875	0.984
85	0.9932
85.125	0.9932
85.25	0.984
85.375	0.984
85.5	0.984
85.625	0.9932
85.75	0.984
85.875	0.9932
86	1.0024
86.125	0.984
86.25	1.0024

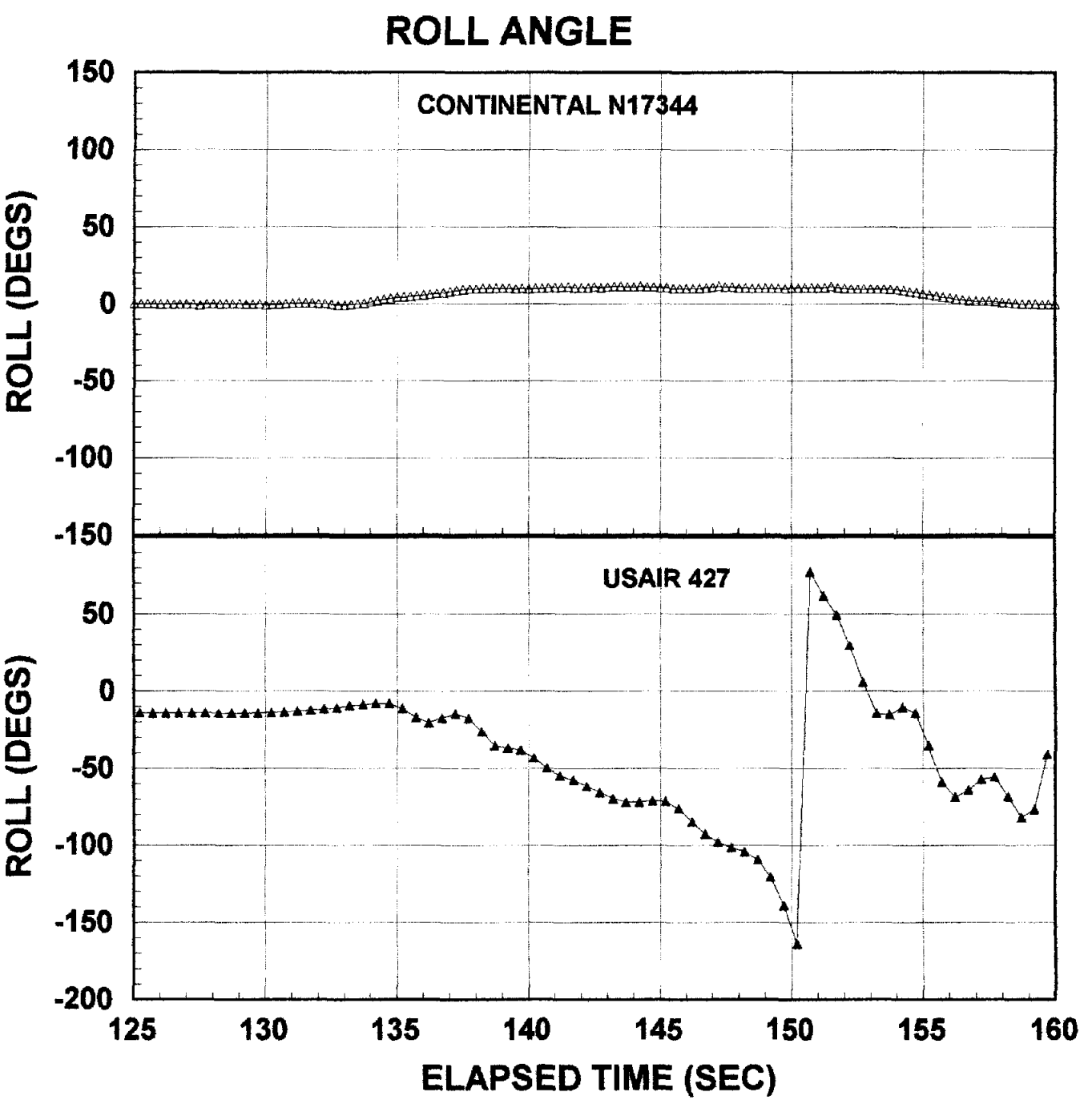
86.375	1.0024
86.5	1.0024
86.625	0.9932
86.75	1.0115
86.875	1.0115
87	1.0024
87.125	1.0024
87.25	1.0024
87.375	0.9932
87.5	1.0024
87.625	1.0024
87.75	0.9932
87.875	1.0024
88	0.9932
88.125	1.0024
88.25	0.9932
88.375	0.984
88.5	1.0024
88.625	0.984
88.75	1.0024
88.875	0.9932
89	1.0024
89.125	0.9932
89.25	1.0024
89.375	0.9932
89.5	0.9932
89.625	1.0024
89.75	0.9932
89.875	0.9932
90	0.9932

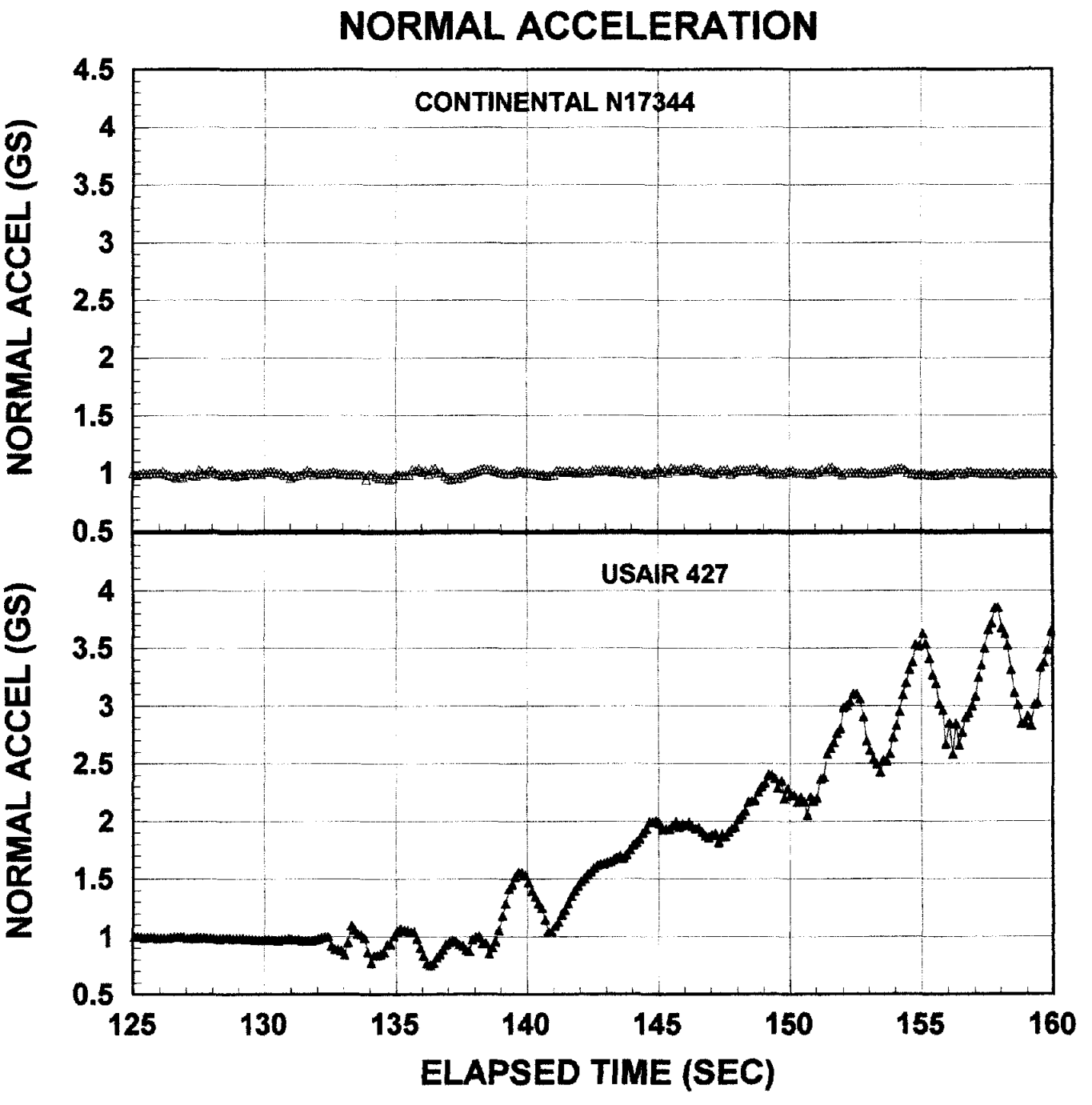

ALTITUDE
CONTINENTAL N17344
USAIR 427
ALTITUDE (FEET MSL)
ALTITUDE (FEET MSL)
40000
39000
38000
37000
36000
35000
34000
6000
5000
4000
3000
2000
1000
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

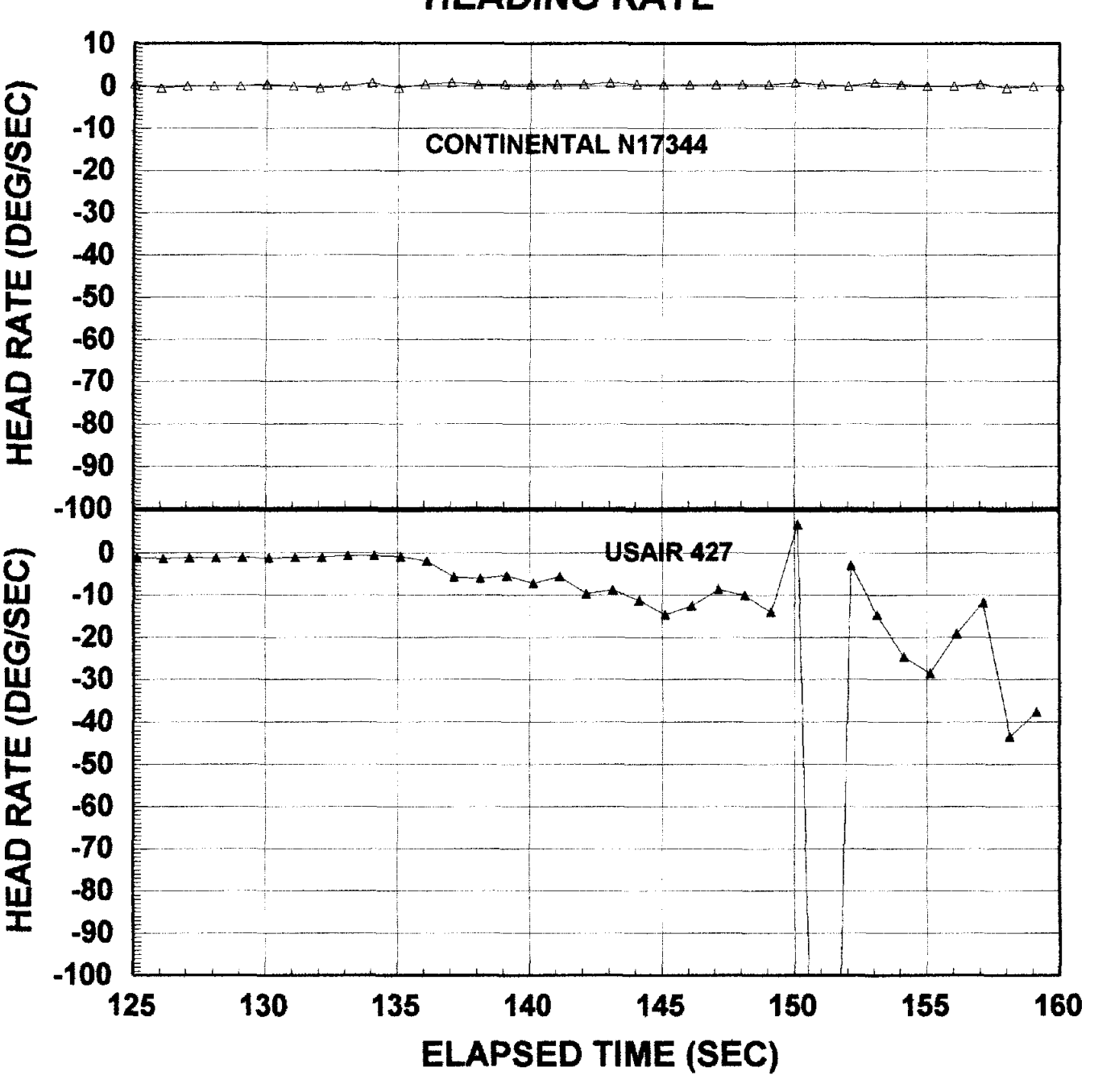

INDICATED AIRSPEED
CONTINENTAL N17344
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
270
260
250
240
230
220
210
200
190
180
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

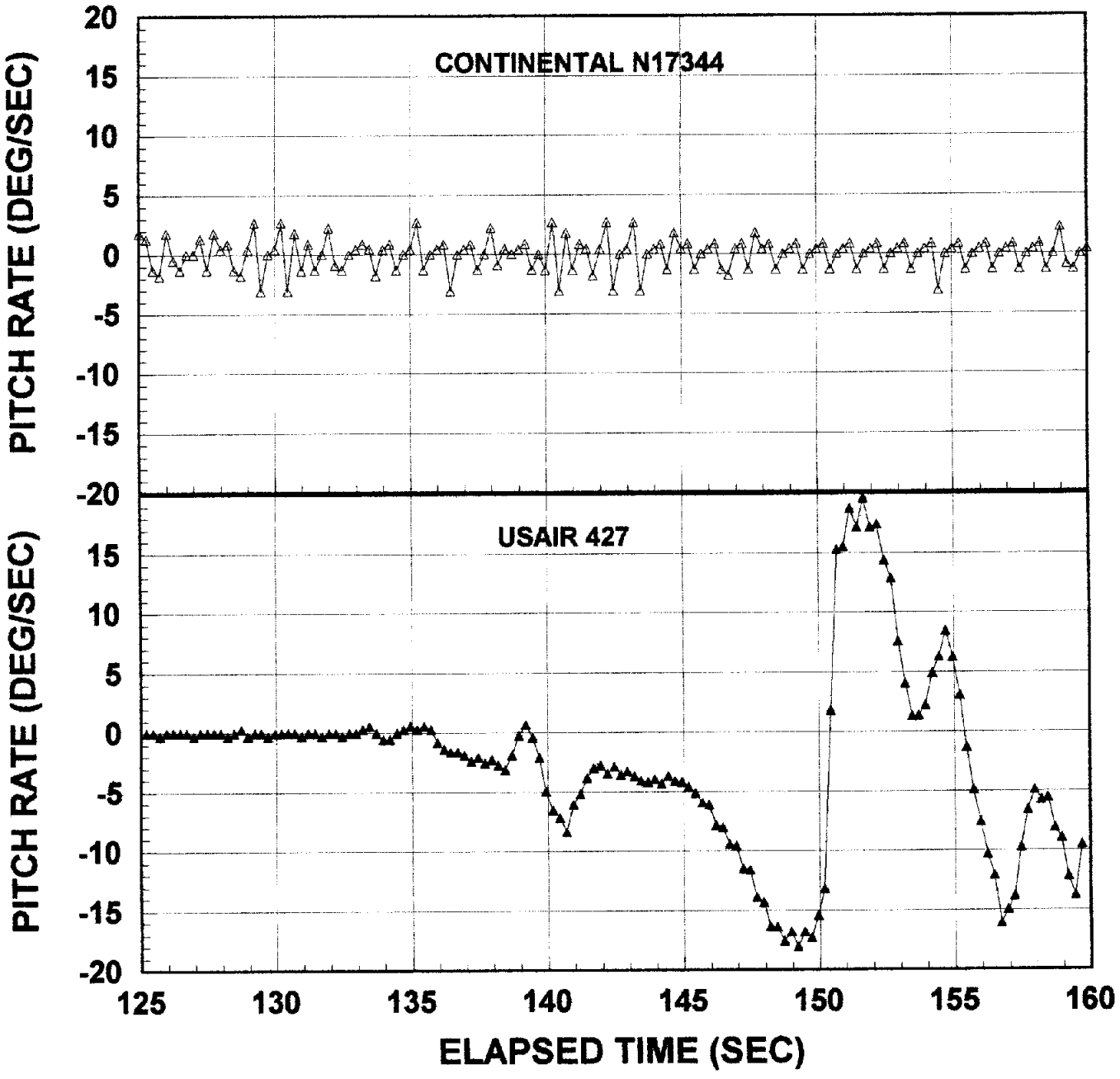

MAGNETIC HEADING
CONTINENTAL N17344
USAIR 427
MAG. HEAD (DEGS)
MAG. HEAD (DEGS)
360
300
240
180
120
60
0
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

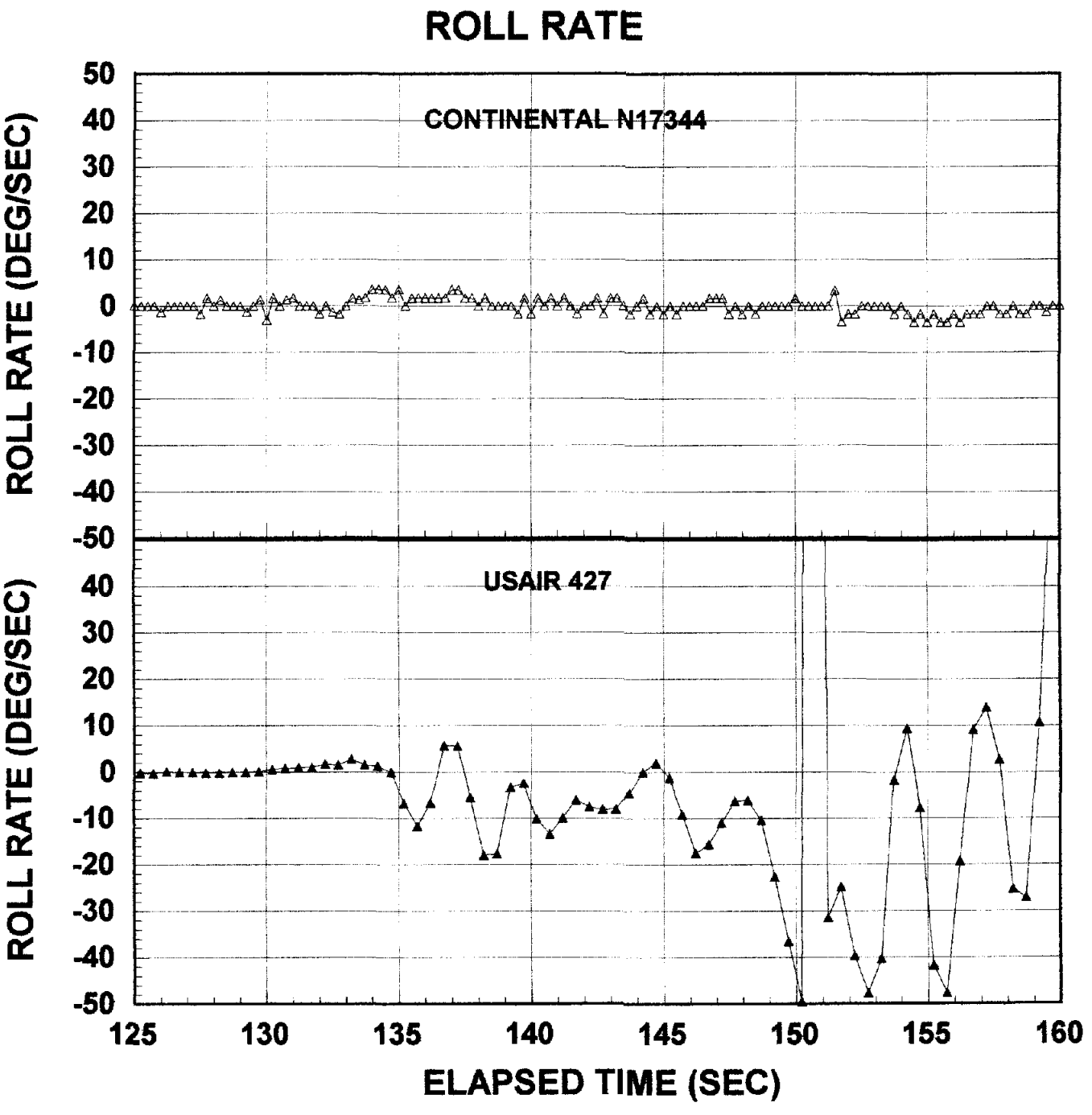

PITCH ANGLE
CONTINENTAL N17344
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
50
40
30
20
10
0
-10
-20
-30
-40
-50
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
CONTINENTAL N17344
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
150
100
50
0
-50
-100
-150
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
CONTINENTAL N17344
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
HEAD RATE (DEG/SEC)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
CONTINENTAL N17344
HEAD RATE (DEG/SEC)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
CONTINENTAL N17344
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
CONTINENTAL N17344
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT IV
DCA-94-WA-050 tabular and plotted data
2ND EXCURSION

TIME	ALT	IAS	HEAD	TIME	PITCH	ROLL	TIME	VACC	headrate	pitchrate	rollrate
35	36998	230.89	166.92	35	3.24	0	35	1.0024	0	0.44	0
36	36998	230.89	166.92	35.25	3.91	-0.34	35.125	0.9932	0	2.68	-1.36
37	36995	230.74	166.92	35.5	3.13	0	35.25	0.9932	0	-3.12	1.36
38	36998	230.89	166.92	35.75	3.13	0	35.375	0.9932	0	0	0
39	36998	230.89	167.34	36	3.24	0	35.5	0.9932	0.42	0.44	0
40	36996	230.74	166.92	36.25	3.46	-0.34	35.625	0.9932	-0.42	0.88	-1.36
41	36997	230.89	166.92	36.5	3.58	-0.34	35.75	0.9932	0	0.48	0
42	36997	230.89	166.92	36.75	3.58	0	35.875	0.9932	0	0	1.36
43	36997	230.89	166.92	37	3.24	0	36	1.0024	0	-1.36	0
44	36997	230.89	166.92	37.25	3.46	0	36.125	1.0024	0	0.88	0
45	36998	230.89	166.92	37.5	3.58	0	36.25	0.9932	0	0.48	0
46	37002	230.58	165.65	37.75	3.58	0	36.375	1.0024	-1.27	0	0
47	37017	231.05	163.57	38	3.69	0	36.5	0.9932	-2.08	0.44	0
48	37021	230.89	164.4	38.25	3.91	0	36.625	0.9932	0.83	0.88	0
49	37015	231.05	164.81	38.5	3.13	0	36.75	0.9932	0.41	-3.12	0
50	37001	231.05	162.75	38.75	3.13	0	36.875	0.9932	-2.06	0	0
51	37008	231.51	162.75	39	3.24	-0.34	37	0.9932	0	0.44	-1.36
52	36991	231.82	163.57	39.25	3.91	0	37.125	0.9932	0.82	2.68	1.36
53	36967	231.82	163.16	39.5	3.58	0	37.25	1.0024	-0.41	-1.32	0
54	36953	232.28	162.34	39.75	3.58	0	37.375	1.0024	-0.82	0	0
55	36931	232.44	162.75	40	3.69	0	37.5	0.9932	0.41	0.44	0
56	36911	232.28	162.75	40.25	3.91	0	37.625	0.9932	0	0.88	0
57	36902	232.59	162.34	40.5	3.58	0	37.75	0.9932	-0.41	-1.32	0
58	36893	232.9	162.34	40.75	3.13	0	37.875	0.9932	0	-1.8	0
59	36879	232.75	162.34	41	3.69	0	38	0.9932	0	2.24	0
60	36870	232.9	161.94	41.25	3.46	0	38.125	0.9932	-0.4	-0.92	0
61	36862	233.21	161.53	41.5	3.58	0	38.25	0.9932	-0.41	0.48	0
62	36848	233.21	161.94	41.75	3.13	0.45	38.375	1.0024	0.41	-1.8	1.8
63	36840	233.36	161.13	42	3.69	0	38.5	0.9932	-0.81	2.24	-1.8
64	36837	233.51	161.13	42.25	3.91	0	38.625	0.9932	0	0.88	0
65	36826	233.51	161.53	42.5	3.58	0	38.75	0.9932	0.4	-1.32	0
66	36815	233.67	161.13	42.75	3.58	0	38.875	0.9932	-0.4	0	0
67	36807	233.36	161.13	43	3.69	0	39	0.9932	0	0.44	0
68	36795	233.51	161.53	43.25	3.46	0	39.125	1.0024	0.4	-0.92	0
69	36783	233.82	161.94	43.5	3.13	0	39.25	0.9932	0.41	-1.32	0

70	36774	234.13	161.53	43.75	3.58	0	39.375	1.0024	-0.41	1.8	0
				44	3.69	0	39.5	1.0024		0.44	0
				44.25	3.46	-0.34	39.625	0.9932		-0.92	-1.36
				44.5	3.58	-0.34	39.75	0.9932		0.48	0
				44.75	3.58	-0.34	39.875	0.9932		0	0
				45	3.69	-0.34	40	0.9932		0.44	0
				45.25	3.91	-0.34	40.125	0.9932		0.88	0
				45.5	3.58	-0.34	40.25	0.9932		-1.32	0
				45.75	3.13	-0.34	40.375	1.0024		-1.8	0
				46	3.69	-0.78	40.5	1.0024		2.24	-1.76
				46.25	3.91	-2.57	40.625	0.9932		0.88	-7.16
				46.5	3.58	-3.91	40.75	1.0024		-1.32	-5.36
				46.75	3.13	-5.69	40.875	1.0024		-1.8	-7.12
				47	3.24	-7.46	41	1.0115		0.44	-7.08
				47.25	3.46	-8.77	41.125	1.0024		0.88	-5.24
				47.5	2.68	-8.77	41.25	0.984		-3.12	0
				47.75	2.68	-8.33	41.375	1.0024		0	1.76
				48	2.35	-8.33	41.5	0.984		-1.32	0
				48.25	2.57	-7.89	41.625	0.9932		0.88	1.76
				48.5	2.24	-7.89	41.75	0.984		-1.32	0
				48.75	2.24	-8.77	41.875	0.9932		0	-3.52
				49	2.35	-8.77	42	0.9932		0.44	0
				49.25	3.02	-9.21	42.125	0.9932		2.68	-1.76
				49.5	2.68	-9.21	42.25	0.9932		-1.36	0
				49.75	2.68	-8.77	42.375	0.984		0	1.76
				50	2.8	-8.33	42.5	1.0115		0.48	1.76
				50.25	2.57	-7.46	42.625	0.9932		-0.92	3.48
				50.5	1.79	-7.01	42.75	0.9932		-3.12	1.8
				50.75	1.34	-6.57	42.875	0.984		-1.8	1.76
				51	1.45	-5.69	43	0.9932		0.44	3.52
				51.25	1.68	-5.24	43.125	1.0024		0.92	1.8
				51.5	1.79	-3.91	43.25	1.0024		0.44	5.32
				51.75	1.79	-2.57	43.375	0.9932		0	5.36
				52	2.35	-0.78	43.5	0.984		2.24	7.16
				52.25	2.57	0.45	43.625	0.9932		0.88	4.92
				52.5	2.24	1.34	43.75	0.9932		-1.32	3.56

				52.75	2.24	1.34	43.875	0.9932		0	0
				53	2.35	0.9	44	0.9932		0.44	-1.76
				53.25	2.57	0.45	44.125	0.9932		0.88	-1.8
				53.5	2.24	-0.34	44.25	0.9932		-1.32	-3.16
				53.75	2.24	-1.23	44.375	0.9932		0	-3.56
				54	2.35	-2.13	44.5	0.9932		0.44	-3.6
				54.25	2.57	-2.57	44.625	0.9932		0.88	-1.76
				54.5	2.24	-3.02	44.75	0.9932		-1.32	-1.8
				54.75	2.24	-2.57	44.875	0.9932		0	1.8
				55	2.8	-2.57	45	0.9932		2.24	0
				55.25	3.02	-1.68	45.125	0.9932		0.88	3.56
				55.5	2.68	-0.78	45.25	0.9932		-1.36	3.6
				55.75	2.68	-0.34	45.375	0.984		0	1.76
				56	2.8	0.45	45.5	1.0024		0.48	3.16
				56.25	3.02	0.45	45.625	1.0115		0.88	0
				56.5	2.68	0.9	45.75	1.0024		-1.36	1.8
				56.75	2.68	0.45	45.875	1.0298		0	-1.8
				57	2.8	-0.34	46	1.0207		0.48	-3.16
				57.25	3.02	-0.78	46.125	1.0207		0.88	-1.76
				57.5	2.68	-1.68	46.25	1.0207		-1.36	-3.6
				57.75	2.68	-2.13	46.375	1.0298		0	-1.8
				58	2.8	-2.13	46.5	1.0115		0.48	0
				58.25	3.02	-2.13	46.625	1.0024		0.88	0
				58.5	2.68	-1.68	46.75	1.0207		-1.36	1.8
				58.75	2.68	-1.23	46.875	1.0207		0	1.8
				59	2.8	-0.78	47	0.9932		0.48	1.8
				59.25	3.02	-0.78	47.125	0.9657		0.88	0
				59.5	2.68	-0.78	47.25	0.9291		-1.36	0
				59.75	2.68	-0.78	47.375	0.8833		0	0
				60	2.8	-0.78	47.5	0.8741		0.48	0
				60.25	3.02	-1.23	47.625	0.8558		0.88	-1.8
				60.5	2.68	-1.23	47.75	0.8467		-1.36	0
				60.75	2.68	-2.13	47.875	0.8558		0	-3.6
				61	2.8	-3.02	48	0.865		0.48	-3.56
				61.25	3.02	-3.46	48.125	0.865		0.88	-1.76
				61.5	2.68	-3.91	48.25	0.8467		-1.36	-1.8

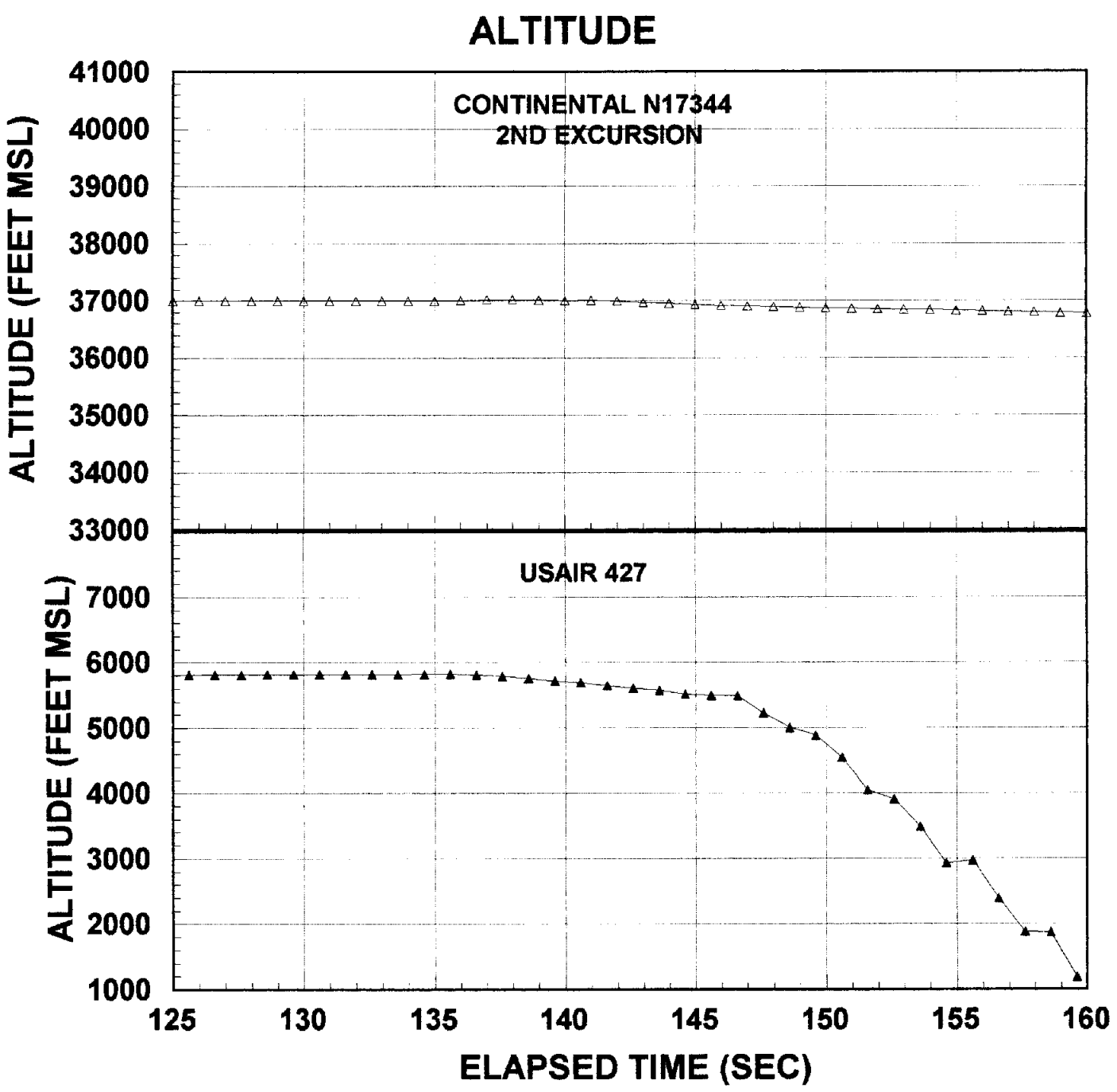
				61.75	2.68	-3.46	48.375	0.8375		0	1.8
				62	2.8	-3.02	48.5	0.8467		0.48	1.76
				62.25	3.02	-2.57	48.625	0.8558		0.88	1.8
				62.5	2.68	-2.13	48.75	0.8833		-1.36	1.76
				62.75	2.68	-1.68	48.875	0.9016		0	1.8
				63	2.8	-1.23	49	0.9382		0.48	1.8
				63.25	3.02	-1.23	49.125	0.984		0.88	0
				63.5	2.68	-0.78	49.25	1.0024		-1.36	1.8
				63.75	2.68	-0.78	49.375	1.0207		0	0
				64	2.8	-0.78	49.5	1.039		0.48	0
				64.25	3.02	-0.78	49.625	1.0207		0.88	0
				64.5	2.68	-0.78	49.75	0.984		-1.36	0
				64.75	2.68	-0.34	49.875	0.9749		0	1.76
				65	2.8	0	50	0.9566		0.48	1.36
				65.25	3.02	0.45	50.125	0.9291		0.88	1.8
				65.5	2.68	0.9	50.25	0.9108		-1.36	1.8
				65.75	2.68	1.34	50.375	0.8833		0	1.76
				66	2.8	1.79	50.5	0.8558		0.48	1.8
				66.25	3.02	2.24	50.625	0.8375		0.88	1.8
				66.5	2.68	2.68	50.75	0.81		-1.36	1.76
				66.75	2.68	2.68	50.875	0.7917		0	0
				67	2.8	2.68	51	0.7826		0.48	0
				67.25	3.02	3.13	51.125	0.7917		0.88	1.8
				67.5	2.68	3.13	51.25	0.7917		-1.36	0
				67.75	2.68	3.13	51.375	0.8284		0	0
				68	2.8	3.13	51.5	0.8467		0.48	0
				68.25	3.02	4.02	51.625	0.865		0.88	3.56
				68.5	2.68	3.58	51.75	0.8833		-1.36	-1.76
				68.75	2.68	4.02	51.875	0.9108		0	1.76
				69	2.8	4.47	52	0.9382		0.48	1.8
				69.25	3.02	4.47	52.125	0.9657		0.88	0
				69.5	2.68	4.47	52.25	0.9932		-1.36	0
				69.75	2.68	4.47	52.375	1.0298		0	0
				70	2.8	4.02	52.5	1.0573		0.48	-1.8
							52.625	1.0481			
							52.75	1.0481			

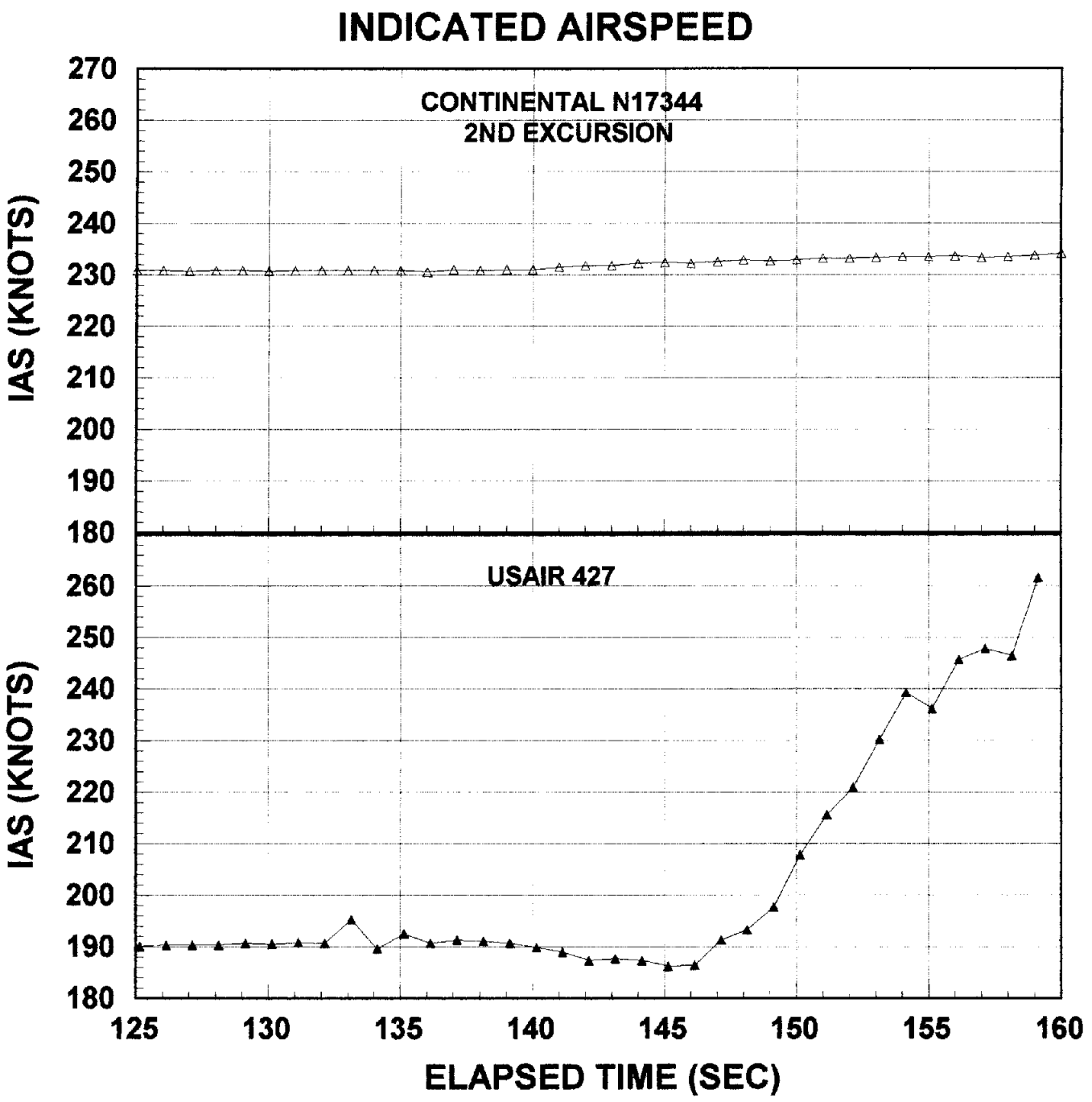
52.875	1.039
53	1.039
53.125	1.0298
53.25	1.0207
53.375	1.0024
53.5	0.984
53.625	0.9749
53.75	0.9749
53.875	0.9749
54	0.9932
54.125	0.984
54.25	0.9932
54.375	1.0024
54.5	1.0024
54.625	1.0207
54.75	1.0298
54.875	1.0207
55	1.039
55.125	1.0481
55.25	1.0665
55.375	1.0665
55.5	1.0756
55.625	1.0756
55.75	1.0756
55.875	1.0756
56	1.0756
56.125	1.0848
56.25	1.0848
56.375	1.0756
56.5	1.0665
56.625	1.0665
56.75	1.0481
56.875	1.0481
57	1.0481
57.125	1.039
57.25	1.0298

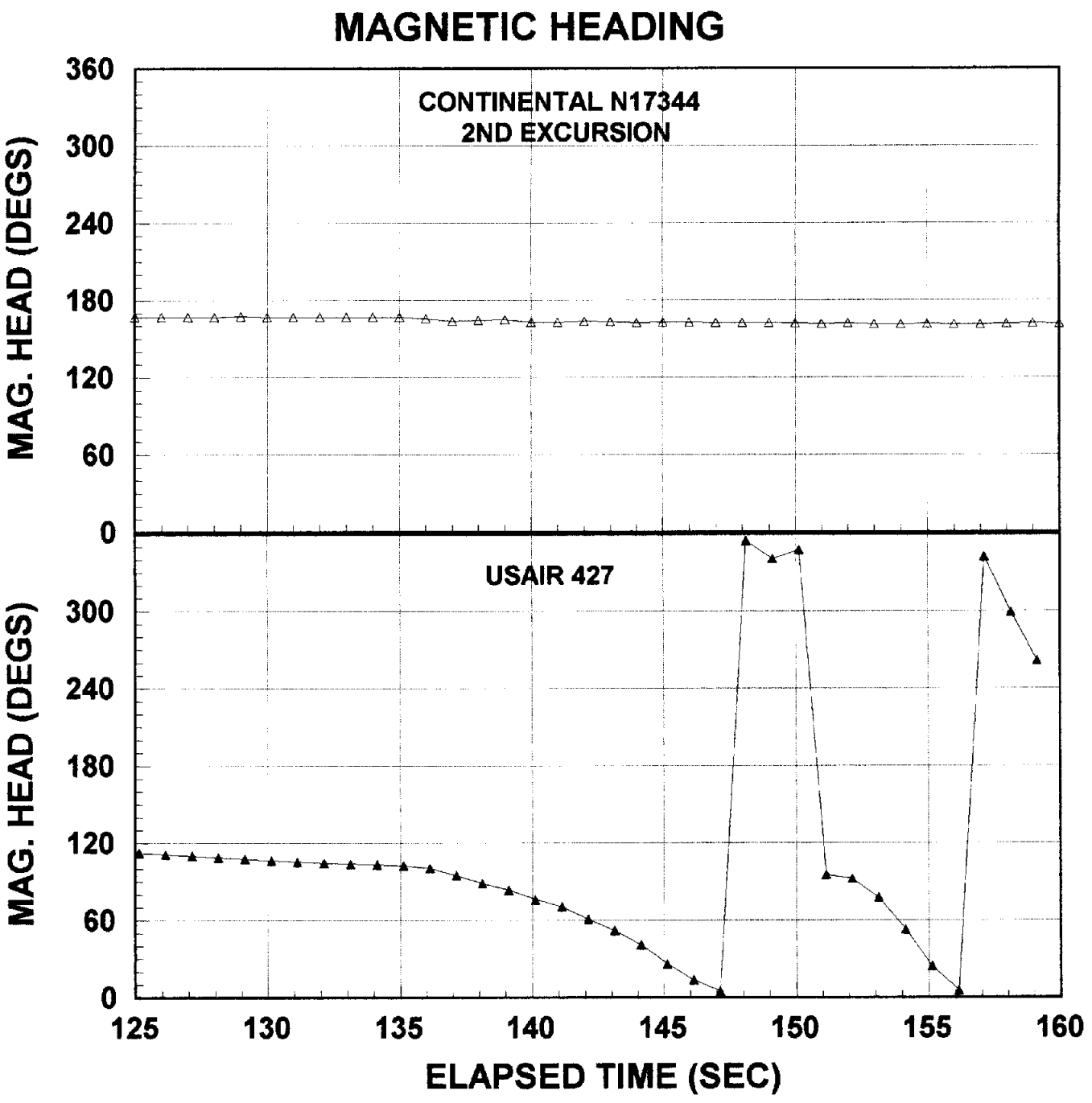
57.375	1.0207
57.5	1.0115
57.625	1.0024
57.75	1.0024
57.875	1.0024
58	1.0024
58.125	1.0024
58.25	1.0024
58.375	1.0024
58.5	1.0115
58.625	1.0024
58.75	1.0207
58.875	1.0207
59	1.0207
59.125	1.0207
59.25	1.0115
59.375	1.0207
59.5	1.0298
59.625	1.0207
59.75	1.0115
59.875	1.0207
60	1.0115
60.125	1.0115
60.25	1.0115
60.375	1.0115
60.5	1.0115
60.625	1.0024
60.75	1.0207
60.875	1.0207
61	1.0207
61.125	1.0207
61.25	1.0024
61.375	0.984
61.5	0.984
61.625	0.984
61.75	0.984

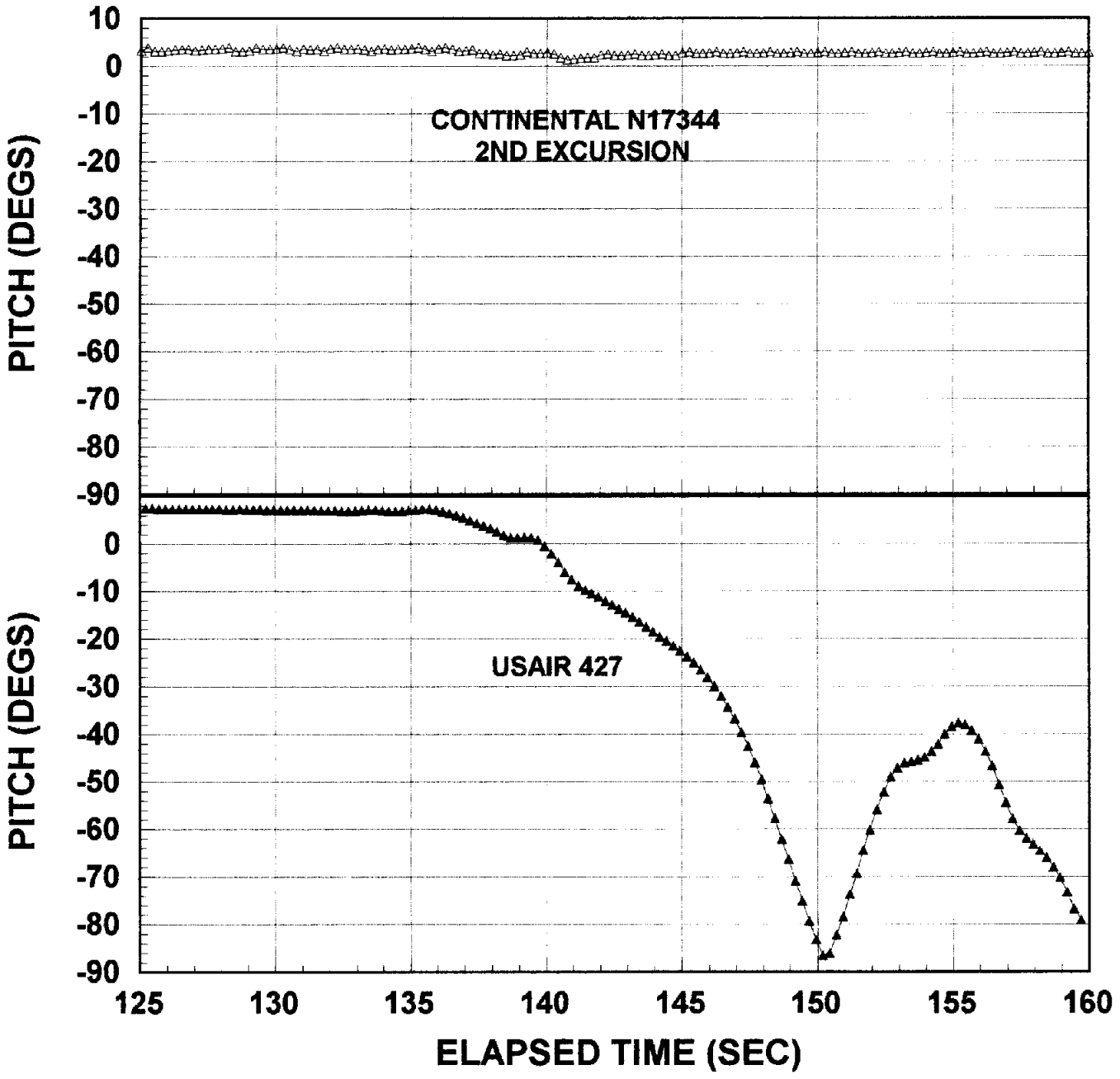
61.875	0.9932
62	1.0024
62.125	1.0207
62.25	1.0207
62.375	1.0298
62.5	1.0207
62.625	1.0115
62.75	1.0115
62.875	1.0024
63	1.0024
63.125	0.9932
63.25	0.9932
63.375	0.9932
63.5	0.9932
63.625	0.9932
63.75	0.9932
63.875	0.9932
64	0.984
64.125	0.984
64.25	0.984
64.375	0.9749
64.5	0.9749
64.625	0.9566
64.75	0.9657
64.875	0.9657
65	0.9657
65.125	0.9657
65.25	0.9657
65.375	0.9749
65.5	0.9749
65.625	0.9657
65.75	0.9657
65.875	0.9749
66	0.9657
66.125	0.9657
66.25	0.9657

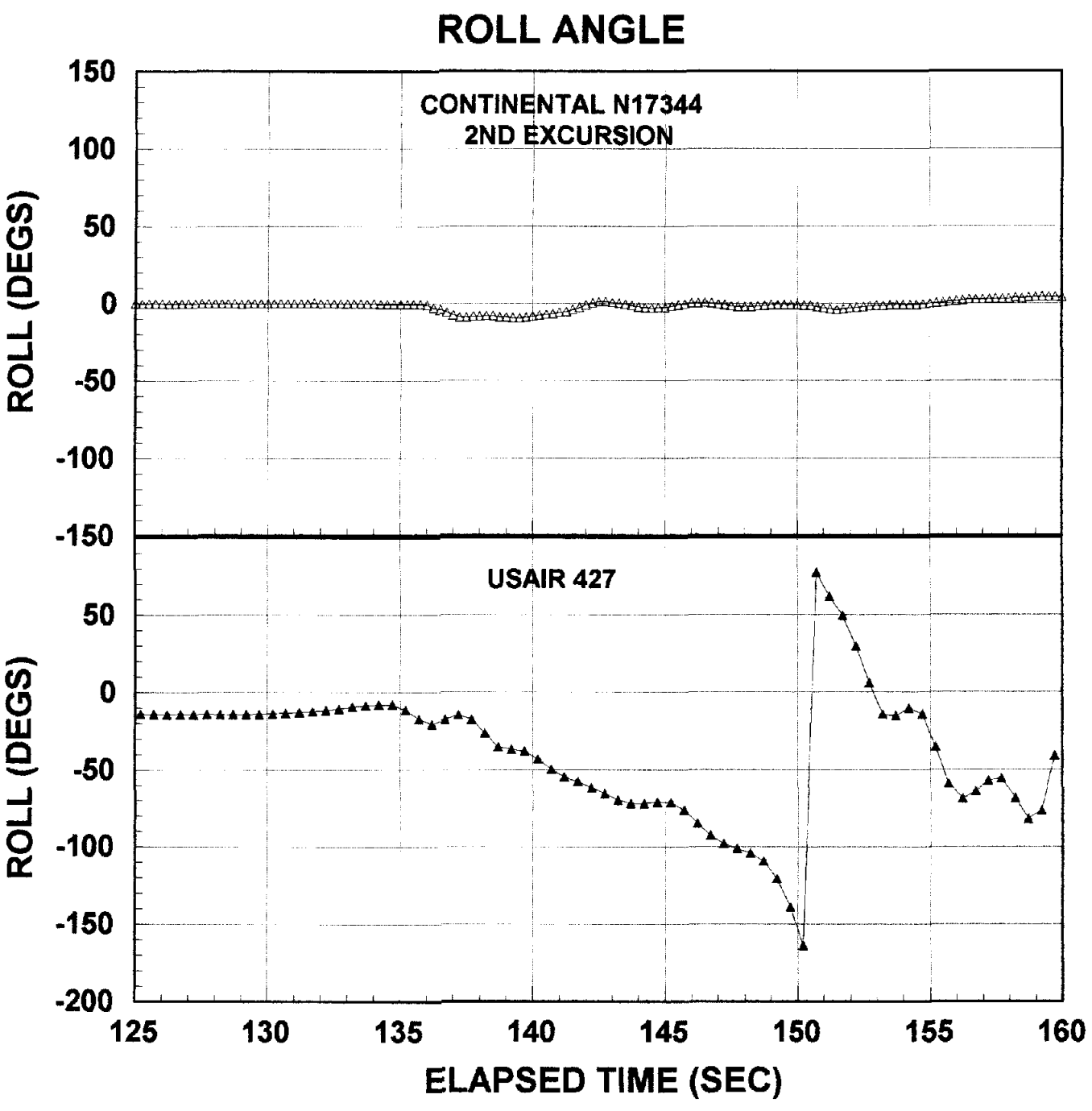
66.375	0.9566
66.5	0.9749
66.625	0.9749
66.75	0.9657
66.875	0.9749
67	0.9749
67.125	0.9749
67.25	0.9657
67.375	0.9932
67.5	0.984
67.625	0.9932
67.75	0.9932
67.875	1.0024
68	0.9932
68.125	0.9932
68.25	0.9932
68.375	1.0024
68.5	0.9932
68.625	1.0024
68.75	0.9932
68.875	0.9932
69	0.9932
69.125	1.0115
69.25	1.0115
69.375	1.0024
69.5	1.0024
69.625	1.0115
69.75	1.0024
69.875	1.0024
70	1.0024

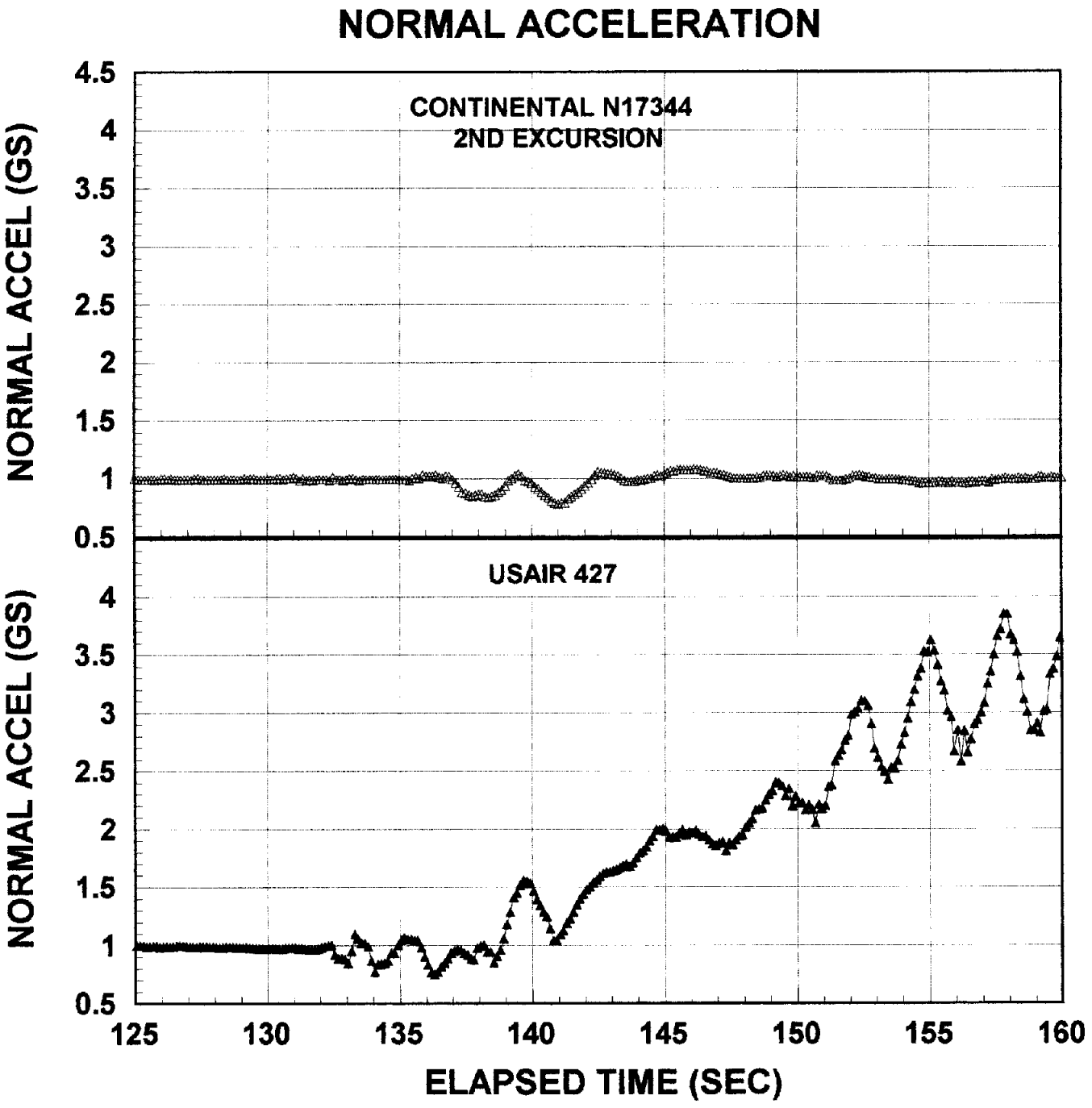

ALTITUDE
CONTINENTAL N17344
2ND EXCURSION
ALTITUDE (FEET MSL)
41000
40000
39000
38000
37000
36000
35000
34000
33000
USAIR 427
ALTITUDE (FEET MSL)
7000
6000
5000
4000
3000
2000
1000
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

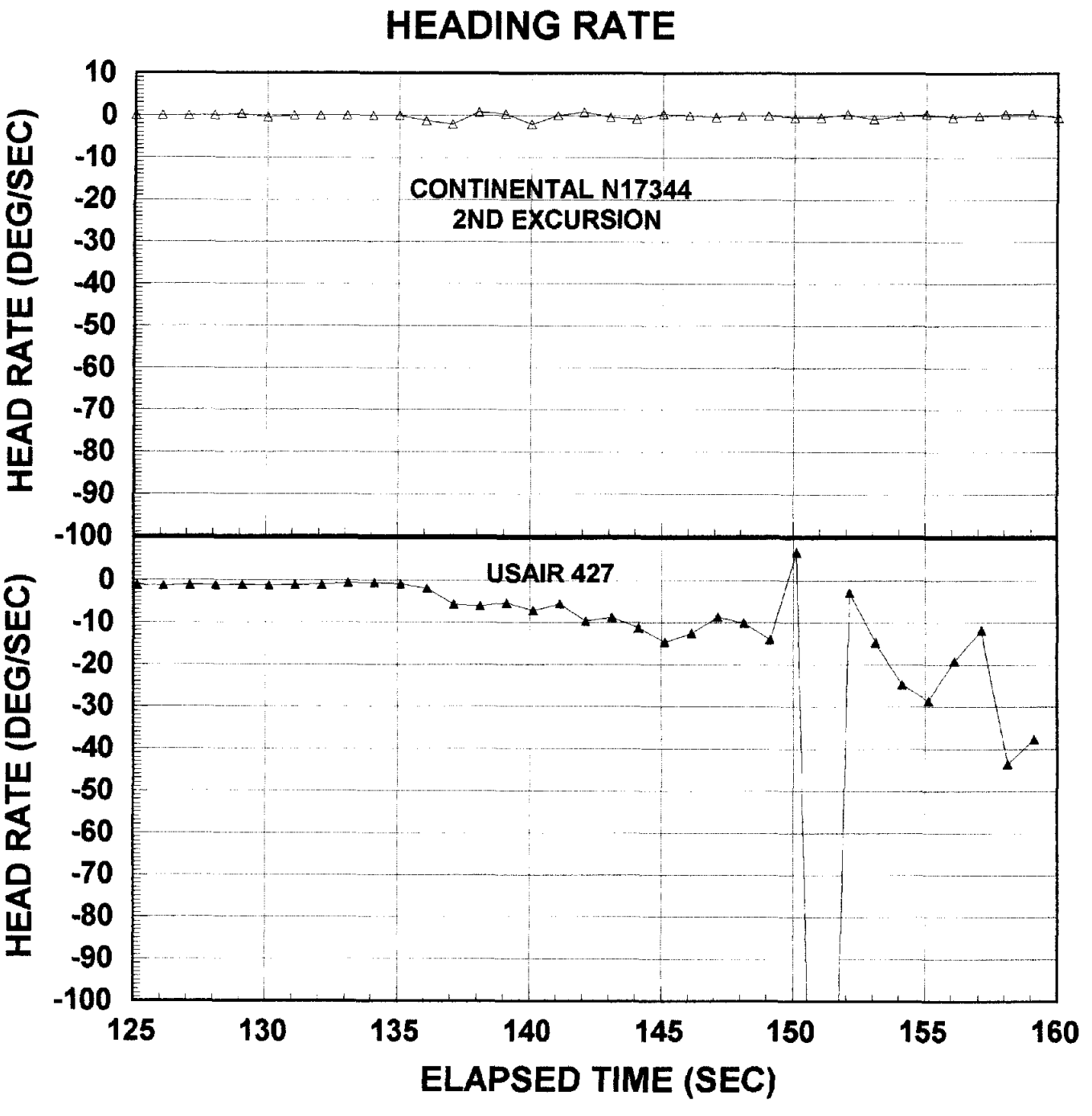

INDICATED AIRSPEED
CONTINENTAL N17344
2ND EXCURSION
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
270
260
250
240
230
220
210
200
190
180
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

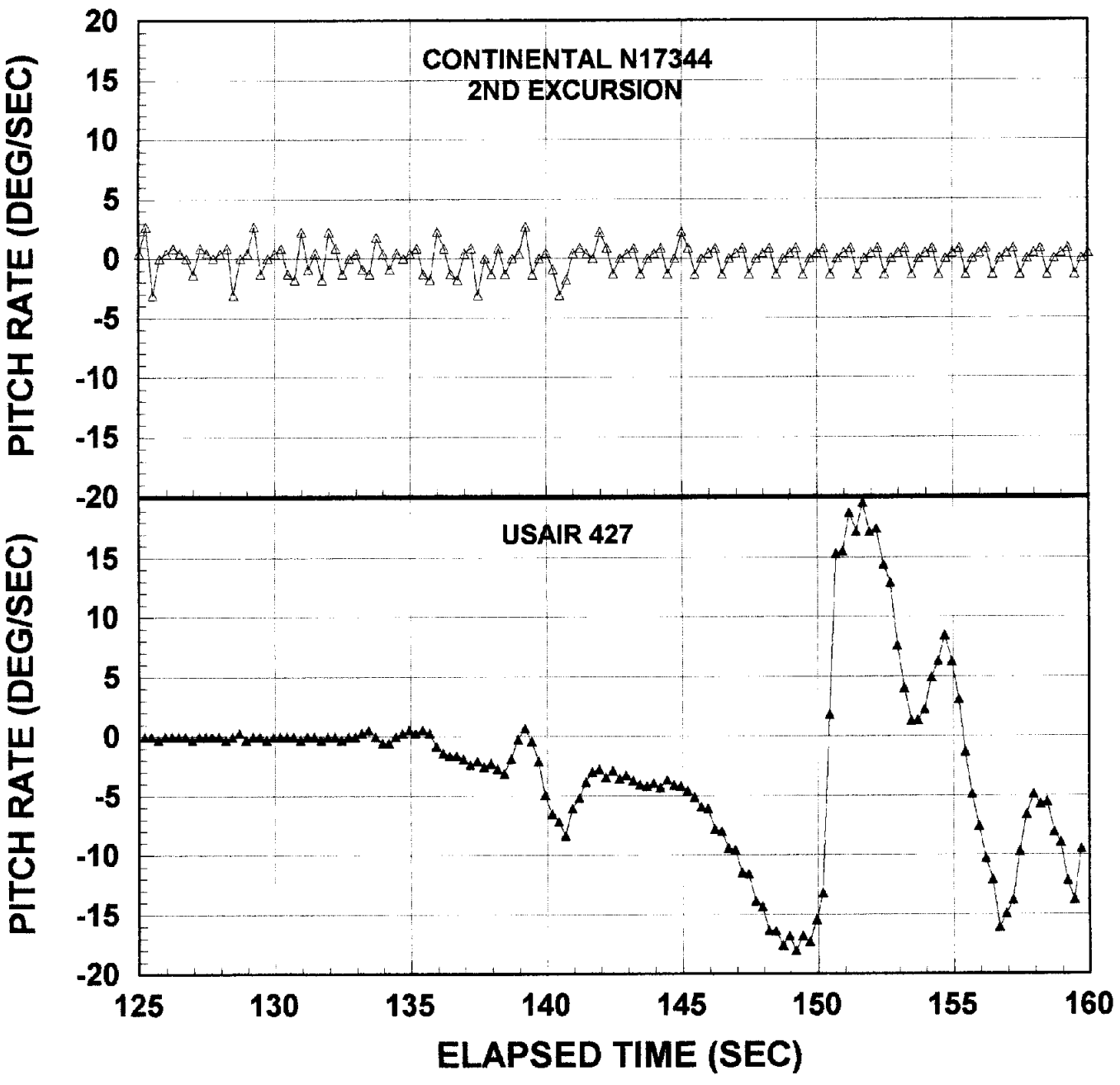

MAGNETIC HEADING
CONTINENTAL N17344
2ND EXCURSION
MAG. HEAD (DEGS)
360
300
240
180
120
60
0
USAIR 427
MAG. HEAD (DEGS)
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH ANGLE
CONTINENTAL N17344
2ND EXCURSION
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

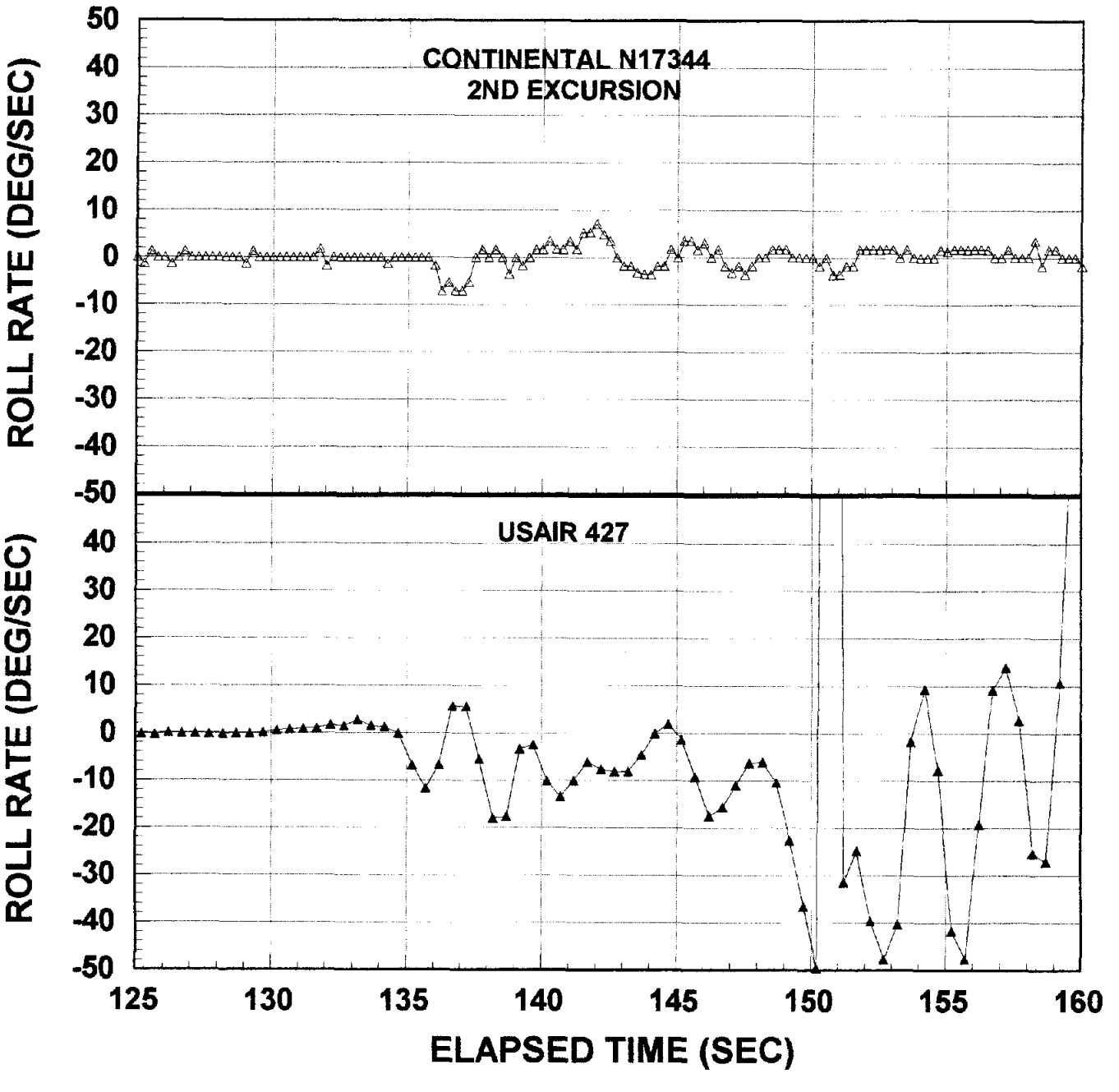

ROLL ANGLE
CONTINENTAL N17344
2ND EXCURSION
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
150
100
50
0
-50
-100
-150
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
CONTINENTAL N17344
2ND EXCURSION
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
HEAD RATE (DEG/SEC)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
CONTINENTAL N17344
2ND EXCURSION
HEAD RATE (DEG/SEC)
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
CONTINENTAL N17344
2ND EXCURSION
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ROLL RATE


CONTINENTAL N17344
2ND EXCURSION
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT V
DCA-92-RA-038 tabular and plotted data

TIME	ALT	IAS	HEAD	TIME	PITCH	ROLL	TIME	VACC	headrate	pitchrate	rollrate
18	24416	330.15	133.39	18	3.13	-36.798	18	1.1564	0.48	3.572	-2.312
19	24440	329.28	133.63	18.25	2.237	-36.51	18.083	1.2146	0.24	-3.572	1.152
20	24440	328.91	132.91	18.5	3.13	-36.51	18.167	1.2728	-0.72	3.572	0
21	24489	328.04	131.94	18.75	2.684	-36.798	18.25	1.2437	-0.97	-1.784	-1.152
22	24489	327.29	130.42	19	2.684	-36.22	18.333	1.2728	-1.52	0	2.312
23	24489	327.66	130.42	19.25	2.237	-36.51	18.417	1.2292	0	-1.788	-1.16
24	24465	327.91	128.55	19.5	2.237	-36.51	18.5	1.1709	-1.87	0	0
25	24440	327.91	127.44	19.75	2.237	-36.798	18.583	1.2292	-1.11	0	-1.152
26	24367	329.03	123.59	20	2.237	-36.798	19	1.2874	-3.85	0	0
27	24319	329.65	119.36	20.25	1.79	-36.51	19.083	1.3165	-4.23	-1.788	1.152
28	24246	332.13	111.72	20.5	1.79	-35.927	19.167	1.2583	-7.64	0	2.332
29	24101	334.58	95.36	20.75	1.343	-36.22	19.25	1.302	-16.36	-1.788	-1.172
30	23910	337.97	90	21	1.343	-36.798	19.333	1.1418	-5.36	0	-2.312
31	23720	343	83.87	21.25	0.895	-35.336	19.417	1.2146	-6.13	-1.792	5.848
32	23485	349.22	86.54	21.5	0.895	-36.51	19.5	1.1564	2.67	0	-4.696
33	23182	358.26	83.43	21.75	1.343	-36.22	19.583	1.2	-3.11	1.792	1.16
34	22839	363.73	72.75	22	0.895	-36.51	20	1.1127	-10.68	-1.792	-1.16
35	22389	368.9	52.07	22.25	0.895	-35.927	20.083	1.1272	-20.68	0	2.332
36	21958	376.12	38	22.5	0.448	-36.51	20.167	1.1418	-14.07	-1.788	-2.332
37	21443	386.71	22.11	22.75	0.448	-35.927	20.25	1.0399	-15.89	0	2.332
38	20849	394.77	11.91	23	0	-36.22	20.333	1.0399	-10.2	-1.792	-1.172
39	20225	402.54	8	23.25	26.565	-36.51	20.417	1.0836	-3.91	106.26	-1.16
40	19530	413.22	6.68	23.5	0	-36.51	20.5	1.069	-1.32	-106.26	0
41	18835	424.7	5.36	23.75	0	-36.798	20.583	1.1127	-1.32	0	-1.152
42	18017	435.56	4.02	24	-0.783	-36.798	21	1.1418	-1.34	-3.132	0
43	17187	445.86	2.68	24.25	-0.336	-36.798	21.083	1.1709	-1.34	1.788	0
44	16328	453.66	0.45	24.5	-1.231	-35.927	21.167	1.0836	-2.23	-3.58	3.484
45	15462	464.51	0	24.75	-1.231	-36.798	21.25	1.0399	-0.45	0	-3.484
46	14573	473.75	359.66	25	-2.125	-36.22	21.333	1.0253	359.66	-3.576	2.312
47	13665	483.45	358.77	25.25	-2.572	-36.22	21.417	1.0253	-0.89	-1.788	0
48	12758	486.38	358.32	25.5	-3.019	-36.22	21.5	1.0399	-0.45	-1.788	0
49	11781	486.38	357.43	25.75	-3.465	-35.927	21.583	0.9962	-0.89	-1.784	1.172
50	10849	486.45	356.54	26	-3.911	-36.22	22	1.0253	-0.89	-1.784	-1.172
51	9965	486.45	356.54	26.25	-4.801	-35.927	22.083	0.938	0	-3.56	1.172
				26.5	-4.801	-37.084	22.167	0.9525		0	-4.628

				26.75	-5.688	-36.22	22.25	0.9234		-3.548	3.456
				27	-6.131	-36.51	22.333	1.0544		-1.772	-1.16
				27.25	-7.895	-36.22	22.417	1.0544		-7.056	1.16
				27.5	-7.895	-33.819	22.5	1.0544		0	9.604
				27.75	-9.644	-4.356	22.583	1.0253		-6.996	117.852
				28	-11.374	25.481	23	0.938		-6.92	119.348
				28.25	-12.232	53.49	23.083	0.938		-3.432	112.036
				28.5	-13.931	83.869	23.167	0.9234		-6.796	121.516
				28.75	-15.189	112.109	23.25	0.938		-5.032	112.96
				29	-15.605	115.481	23.333	0.8652		-1.664	13.488
				29.25	-16.019	116.922	23.417	0.836		-1.656	5.764
				29.5	-17.252	117.277	23.5	0.8797		-4.932	1.42
				29.75	-18.469	117.629	23.583	0.9234		-4.868	1.408
				30	-20.064	117.979	24	0.9962		-6.38	1.4
				30.25	-20.458	118.673	24.083	0.9816		-1.576	2.776
				30.5	-22.013	119.358	24.167	0.9671		-6.22	2.74
				30.75	-22.397	121.03	24.25	0.9816		-1.536	6.688
				31	-23.535	121.357	24.333	1.0544		-4.552	1.308
				31.25	-24.284	119.697	24.417	0.9671		-2.996	-6.64
				31.5	-23.535	118.673	24.5	0.9816		2.996	-4.096
				31.75	-24.284	114.376	24.583	1.069		-2.996	-17.188
				32	-25.389	112.109	25	1.2		-4.42	-9.068
				32.25	-26.833	110.556	25.083	1.2437		-5.776	-6.212
				32.5	-27.541	112.493	25.167	1.2		-2.832	7.748
				32.75	-30.947	114.376	25.25	1.302		-13.624	7.532
				33	-30.284	115.844	25.333	1.5204		2.652	5.872
				33.25	-31.601	115.481	25.417	1.4621		-5.268	-1.452
				33.5	-31.925	115.115	25.5	1.4184		-1.296	-1.464
				33.75	-34.127	112.874	25.583	1.4039		-8.808	-8.964
				34	-34.736	112.109	26	1.2437		-2.436	-3.06
				34.25	-36.51	111.337	26.083	1.0836		-7.096	-3.088
				34.5	-37.084	110.947	26.167	1.1272		-2.296	-1.56
				34.75	-39.296	110.556	26.25	1.1272		-8.848	-1.564
				35	-40.091	113.253	26.333	1.0544		-3.18	10.788
				35.25	-41.122	112.109	26.417	1.0836		-4.124	-4.576
				35.5	-41.627	113.629	26.5	1.1127		-2.02	6.08

				35.75	-43.093	114.376	26.583	1.2292		-5.864	2.988
				36	-43.801	115.844	27	1.3456		-2.832	5.872
				36.25	-44.944	116.206	27.083	1.3748		-4.572	1.448
				36.5	-46.375	116.206	27.167	1.3748		-5.724	0
				36.75	-47.571	116.922	27.25	1.3456		-4.784	2.864
				37	-49.069	117.277	27.333	1.3165		-5.992	1.42
				37.25	-50.106	117.979	27.417	1.3456		-4.148	2.808
				37.5	-51.45	118.327	27.5	1.3456		-5.376	1.392
				37.75	-53.13	119.358	27.583	1.302		-6.72	4.124
				38	-54.888	120.033	28	1.1418		-7.032	2.7
				38.25	-56.104	119.697	28.083	1.1709		-4.864	-1.344
				38.5	-57.995	120.368	28.167	1.2146		-7.564	2.684
				38.75	-59.632	121.357	28.25	1.2146		-6.548	3.956
				39	-60.983	122.005	28.333	1.1272		-5.404	2.592
				39.25	-61.673	121.682	28.417	1.1127		-2.76	-1.292
				39.5	-62.723	121.682	28.5	1.1564		-4.2	0
				39.75	-63.794	122.326	28.583	1.1564		-4.284	2.576
				40	-64.885	121.682	29	1.1855		-4.364	-2.576
				40.25	-66.371	120.7	29.083	1.3311		-5.944	-3.928
				40.5	-65.996	119.017	29.167	1.302		1.5	-6.732
				40.75	-67.126	118.327	29.25	1.4476		-4.52	-2.76
				41	-69.053	115.844	29.333	1.4621		-7.708	-9.932
				41.25	-70.63	114.004	29.417	1.4621		-6.308	-7.36
				41.5	-71.834	112.493	29.5	1.6223		-4.816	-6.044
				41.75	-72.646	111.337	29.583	1.5786		-3.248	-4.624
				42	-74.291	109.767	30	1.2874		-6.58	-6.28
				42.25	-74.291	106.535	30.083	1.2		0	-12.928
				42.5	-75.543	102.339	30.167	1.2874		-5.008	-16.784
				42.75	-76.809	98.005	30.25	1.2146		-5.064	-17.336
				43	-77.661	91.79	30.333	1.2		-3.408	-24.86
				43.25	-77.661	86.535	30.417	1.2437		0	-21.02
				43.5	-78.518	81.666	30.5	1.2292		-3.428	-19.476
				43.75	-78.518	77.341	30.583	1.302		0	-17.3
				44	-78.089	71.13	31	1.3456		1.716	-24.844
				44.25	-78.089	67.221	31.083	1.3456		0	-15.636
				44.5	-79.38	64.246	31.167	1.433		-5.164	-11.9

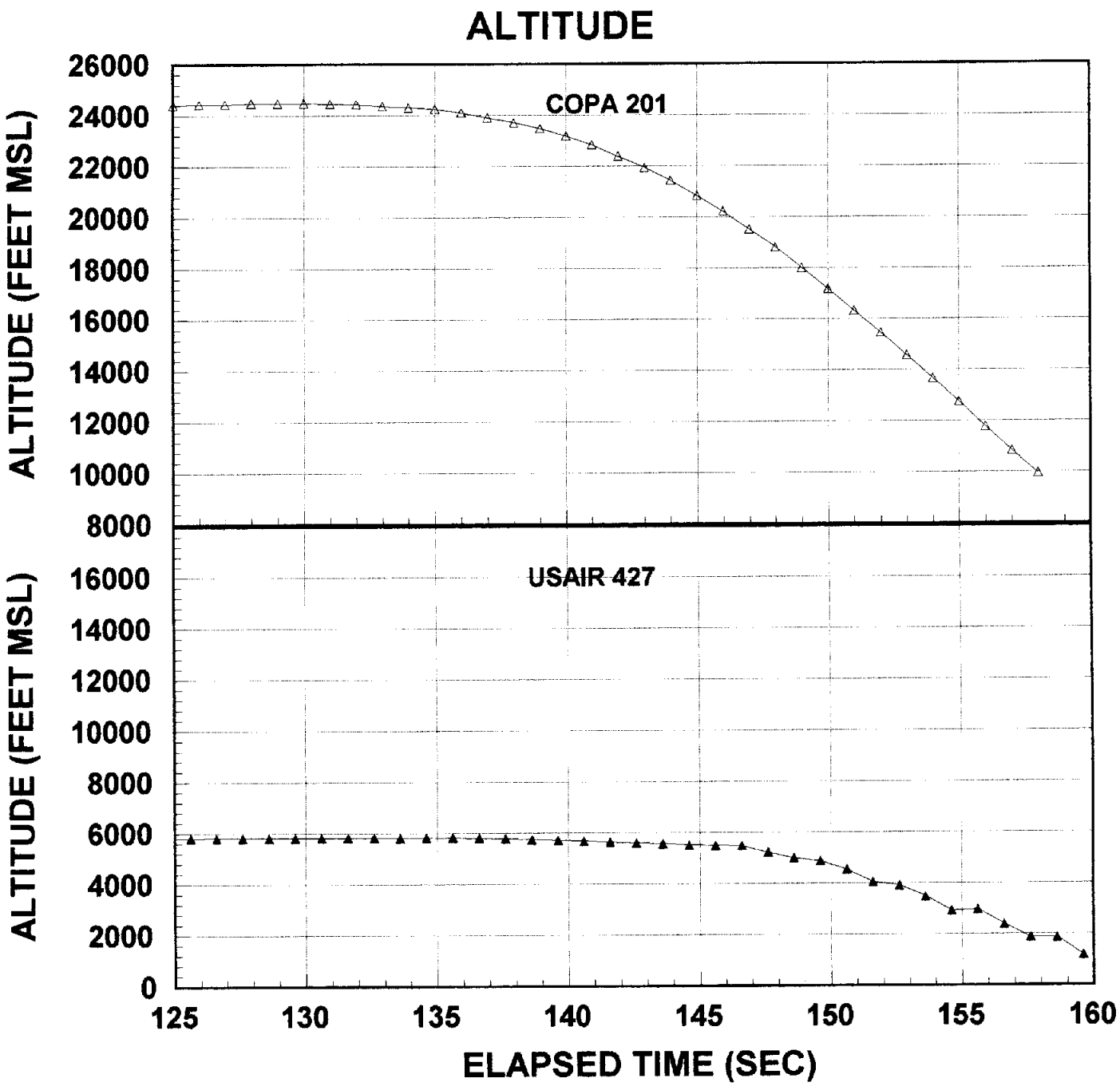
				44.75	-78.089	60.727	31.25	1.4039		5.164	-14.076
				45	-77.661	57.435	31.333	1.2874		1.712	-13.168
				45.25	-78.089	54.664	31.417	1.3602		-1.712	-11.084
				45.5	-77.234	50.172	31.5	1.3602		3.42	-17.968
				45.75	-76.809	45.737	31.583	1.4039		1.7	-17.74
				46	-76.386	41.186	32	1.5495		1.692	-18.204
				46.25	-75.964	37.72	32.083	1.4912		1.688	-13.864
				46.5	-75.543	35.41	32.167	1.4039		1.684	-9.24
				46.75	-74.707	35.112	32.25	1.5058		3.344	-1.192
				47	-73.877	33.587	32.333	1.4621		3.32	-6.1
				47.25	-72.646	32.005	32.417	1.4621		4.924	-6.328
				47.5	-73.055	29.017	32.5	1.5349		-1.636	-11.952
				47.75	-71.431	26.565	32.583	1.4039		6.496	-9.808
				48	-71.431	26.206	33	1.1418		0	-1.436
				48.25	-70.63	25.115	33.083	1.2		3.204	-4.364
				48.5	-69.444	25.481	33.167	1.2292		4.744	1.464
				48.75	-68.663	24.004	33.25	1.2146		3.124	-5.908
				49	-67.507	22.874	33.333	1.3748		4.624	-4.52
				49.25	-67.126	19.767	33.417	1.4476		1.524	-12.428
				49.5	-66.747	19.767	33.5	1.5932		1.516	0
				49.75	-65.624	18.97	33.583	1.7388		4.492	-3.188
				50	-65.253	16.945	34	1.9135		1.484	-8.1
				50.25	-64.156	16.123	34.083	1.9426		4.388	-3.288
				50.5	-63.794	15.709	34.167	1.7242		1.448	-1.656
				50.75	-63.078	14.876	34.25	1.7096		2.864	-3.332
				51	-63.078	13.614	34.333	2.0445		0	-5.048
				51.25	-62.371	13.614	34.417	2.2484		2.828	0
				51.5	-66.747	14.876	34.5	1.7096		-17.504	5.048
							34.583	2.1464			
							35	2.2192			
							35.083	2.4959			
							35.167	2.0882			
							35.25	2.1901			
							35.333	3.1656			
							35.417	2.9472			
							35.5	2.6852			

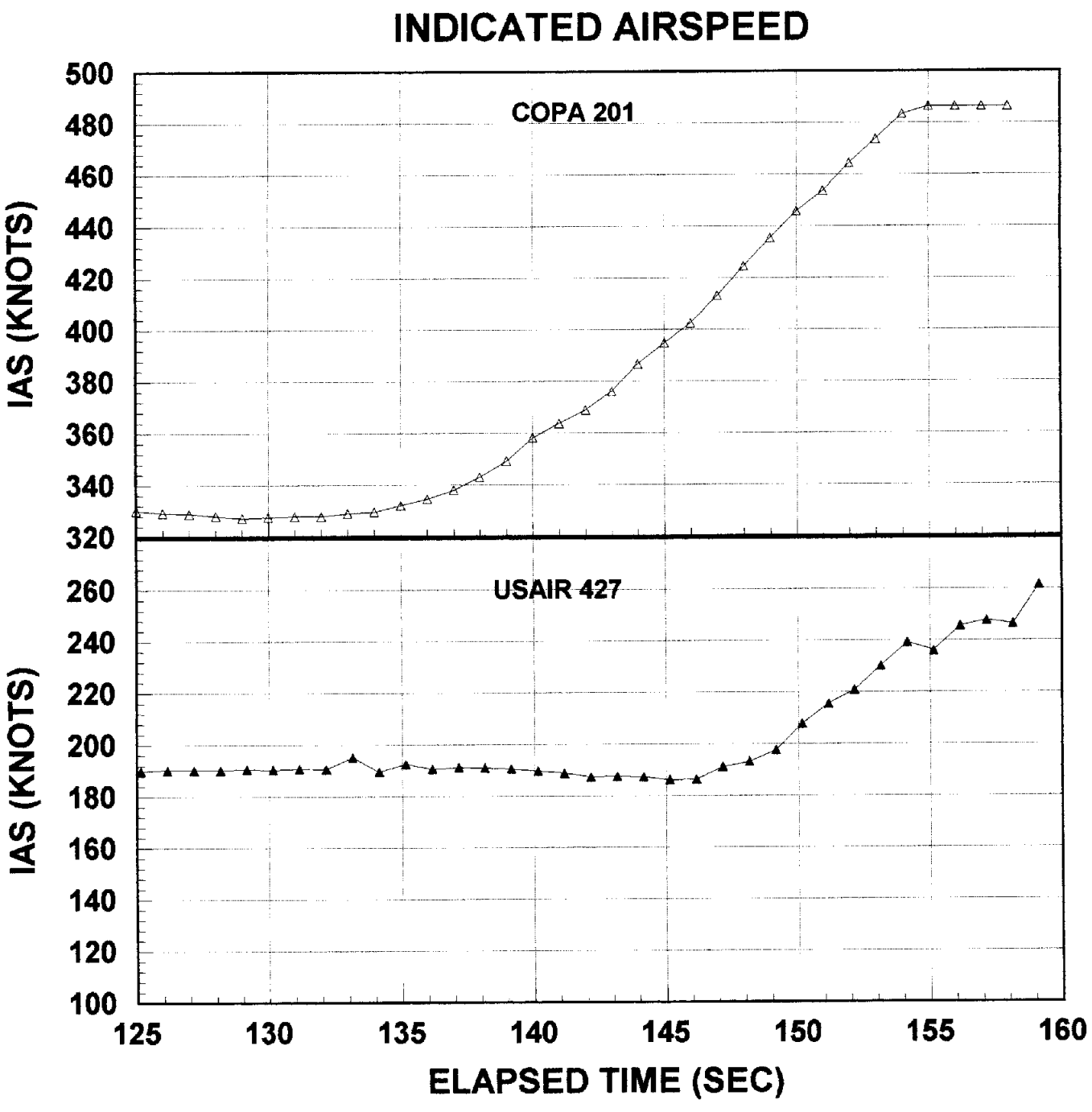
							35.583	4.345			
							36	1.4767			
							36.083	1.8989			
							36.167	2.292			
							36.25	2.9472			
							36.333	1.8407			
							36.417	1.5058			
							36.5	1.7824			
							36.583	2.2629			
							37	2.525			
							37.083	2.3503			
							37.167	1.8552			
							37.25	1.797			
							37.333	2.6852			
							37.417	2.4231			
							37.5	2.9618			
							37.583	1.9135			
							38	2.5687			
							38.083	2.8016			
							38.167	2.0445			
							38.25	2.2629			
							38.333	2.3212			
							38.417	2.0008			
							38.5	2.3503			
							38.583	2.4959			
							39	2.8599			
							39.083	3.5005			
							39.167	2.2484			
							39.25	2.6706			
							39.333	2.03			
							39.417	2.8453			
							39.5	2.6124			
							39.583	2.8599			
							40	2.4813			
							40.083	2.8162			
							40.167	2.2192			

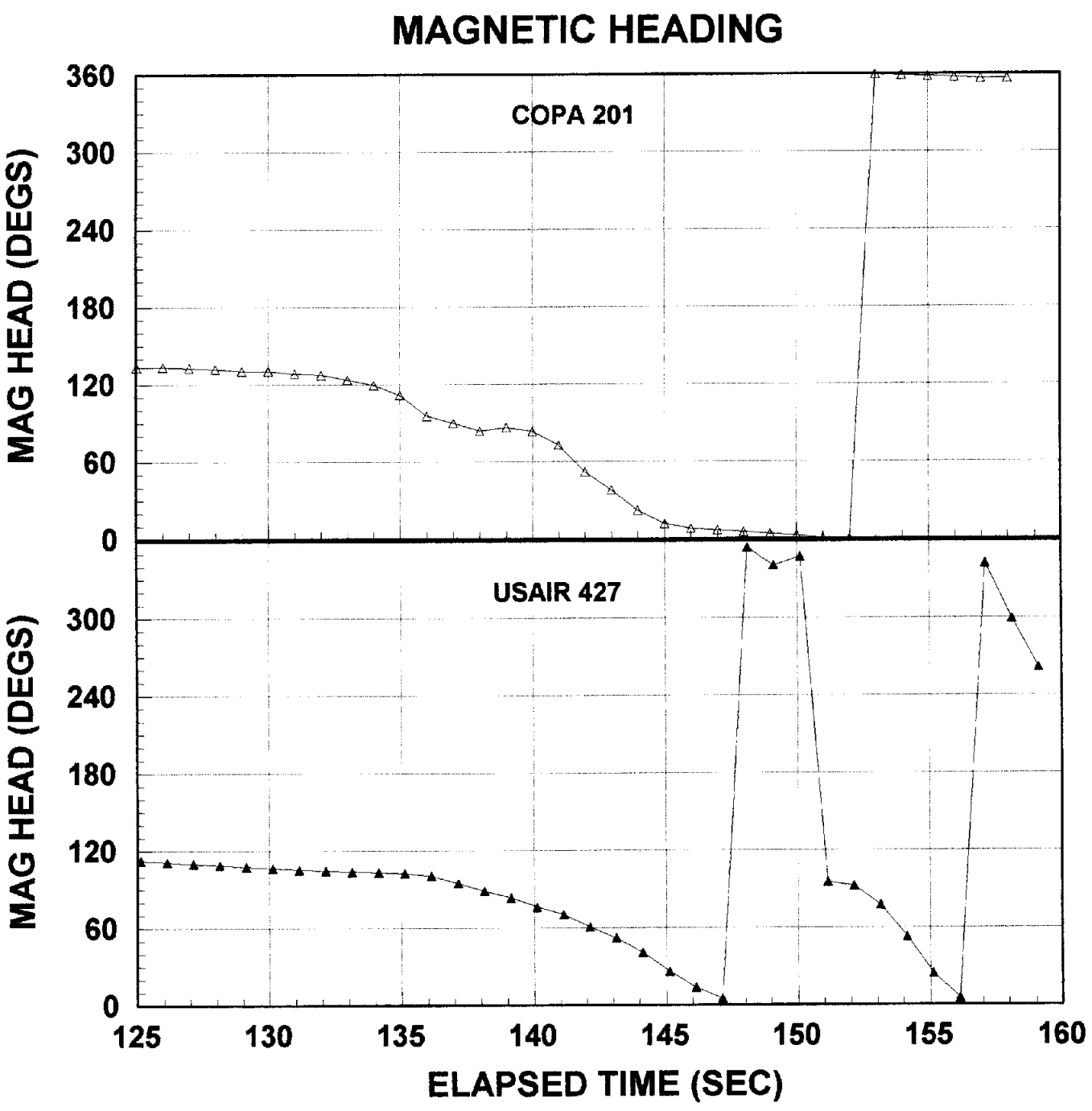
40.25	1.9572
40.333	2.2192
40.417	2.4085
40.5	2.525
40.583	2.2338
41	1.3748
41.083	1.4912
41.167	1.3748
41.25	1.7824
41.333	1.2874
41.417	1.0399
41.5	1.6223
41.583	1.3165
42	2.9036
42.083	2.1464
42.167	1.4184
42.25	1.7679
42.333	2.3648
42.417	1.6951
42.5	1.4621
42.583	3.3112
43	2.0591
43.083	2.0882
43.167	2.3503
43.25	1.5786
43.333	2.6706
43.417	2.6269
43.5	2.0882
43.583	2.7725
44	2.2775
44.083	2.3794
44.167	3.1948
44.25	3.1511
44.333	2.7871
44.417	3.3258
44.5	3.4277

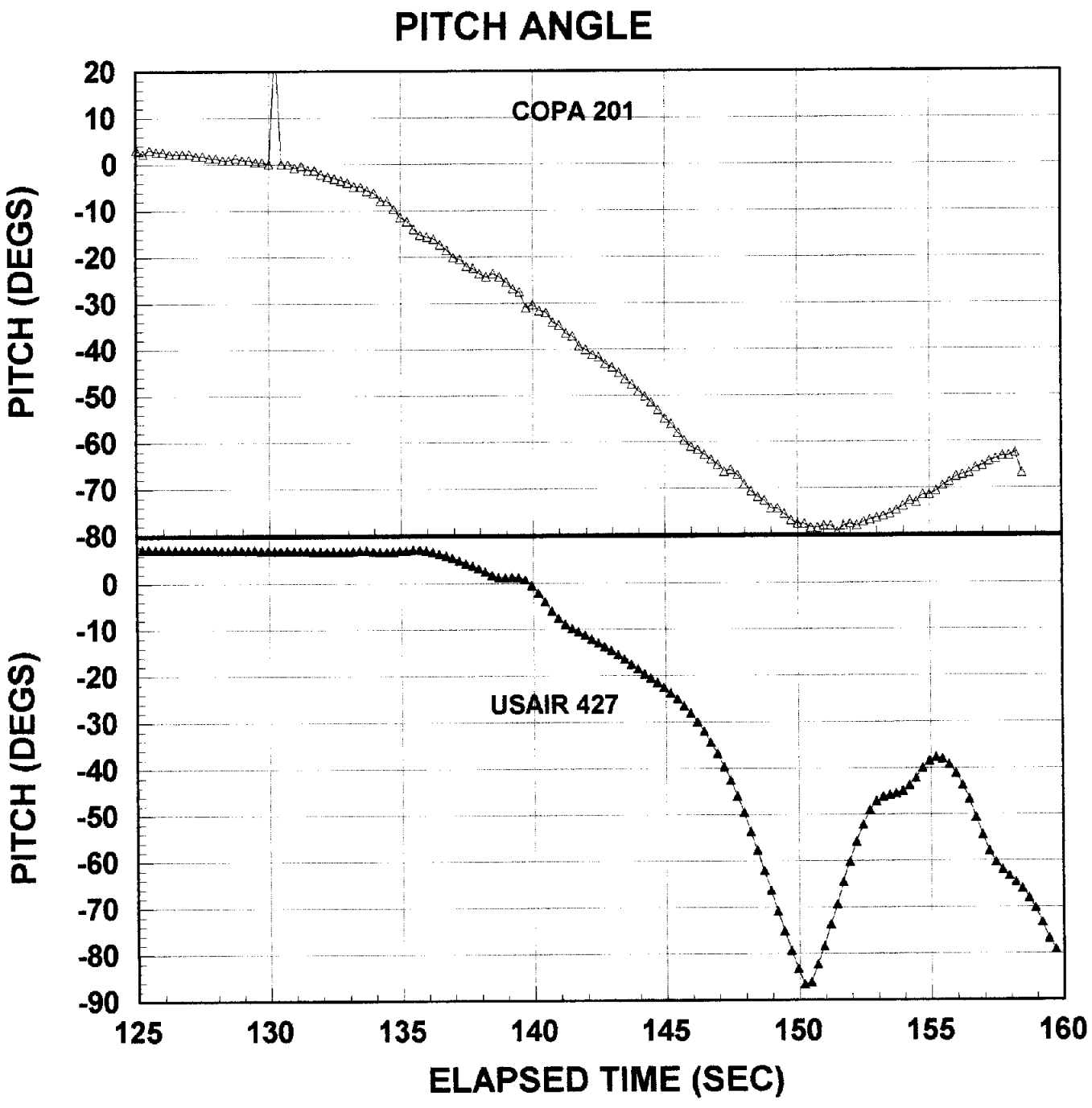
							44.583	2.7725			
							45	1.9426			
							45.083	2.5687			
							45.167	2.6269			
							45.25	2.9909			
							45.333	2.2047			
							45.417	2.6124			
							45.5	3.7626			
							45.583	2.7434			
							46	2.6852			
							46.083	0.9816			
							46.167	1.666			
							46.25	1.7533			
							46.333	1.7679			
							46.417	2.0008			
							46.5	2.3794			
							46.583	1.6368			
							47	3.1365			
							47.083	1.9572			
							47.167	1.6223			
							47.25	1.9135			
							47.333	2.2775			
							47.417	2.1028			
							47.5	2.5687			
							47.583	2.0736			
							48	2.5832			
							48.083	1.6805			
							48.167	2.0591			
							48.25	2.0882			
							48.333	1.8552			
							48.417	1.6514			
							48.5	2.3503			
							48.583	2.394			
							49	1.8407			
							49.083	1.928			
							49.167	2.1756			

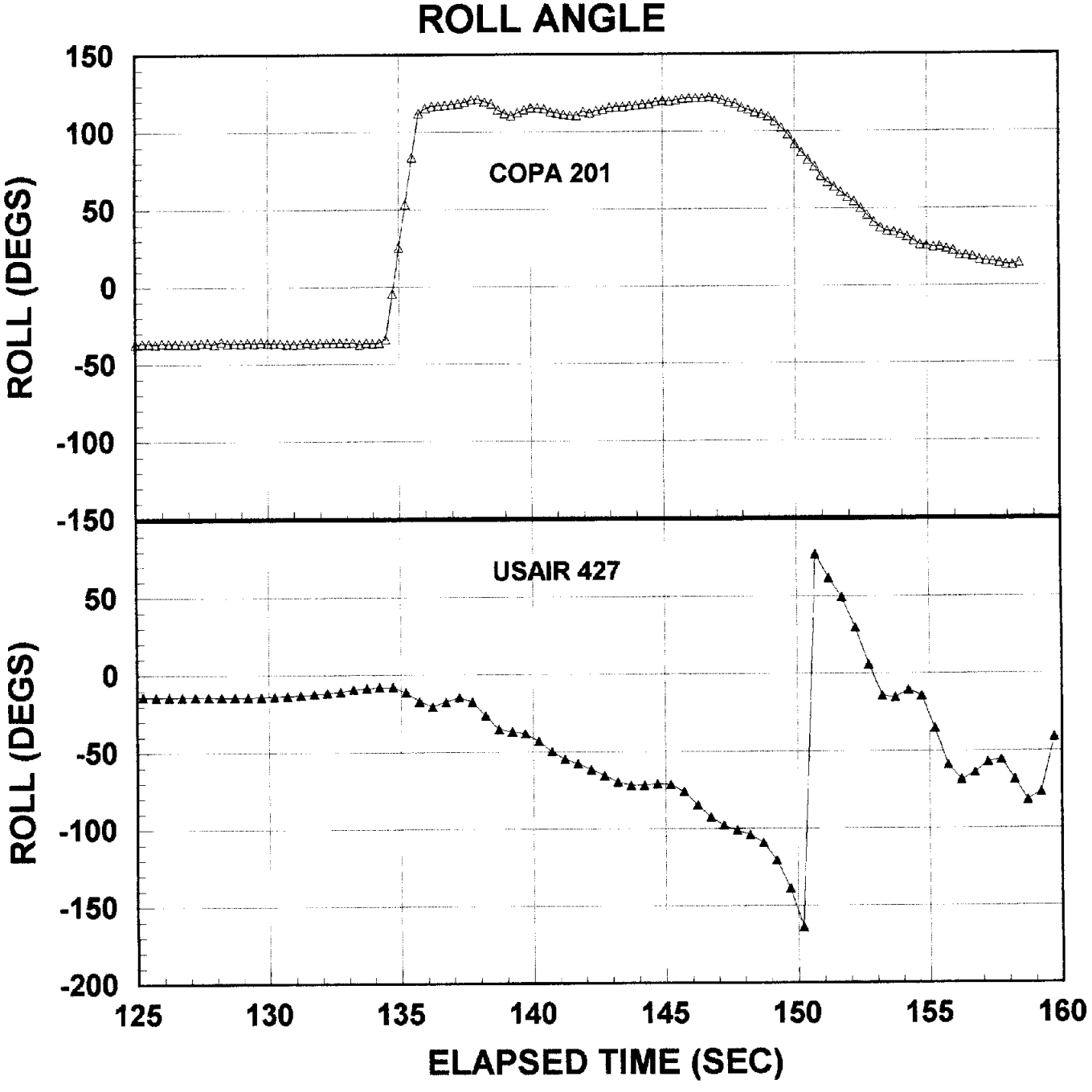
							49.25	2.3212			
							49.333	2.2775			
							49.417	2.292			
							49.5	2.1756			
							49.583	2.2484			
							50	2.292			
							50.083	1.9572			
							50.167	1.797			
							50.25	1.8116			
							50.333	2.0882			
							50.417	2.3648			
							50.5	1.7679			
							50.583	1.8698			
							51	2.0882			
							51.083	2.5541			
							51.167	2.161			
							51.25	2.2775			
							51.333	2.2484			
							51.417	1.7242			
							51.5	1.4912			
							51.583	2.161			
							52	1.7242			
							52.083	1.4476			
							52.167	0.5157			
							52.25	0.4866			
							52.333	-0.6636			
							52.417	-1.2752			
							52.5	-1.712			
							52.583	-3.5465			

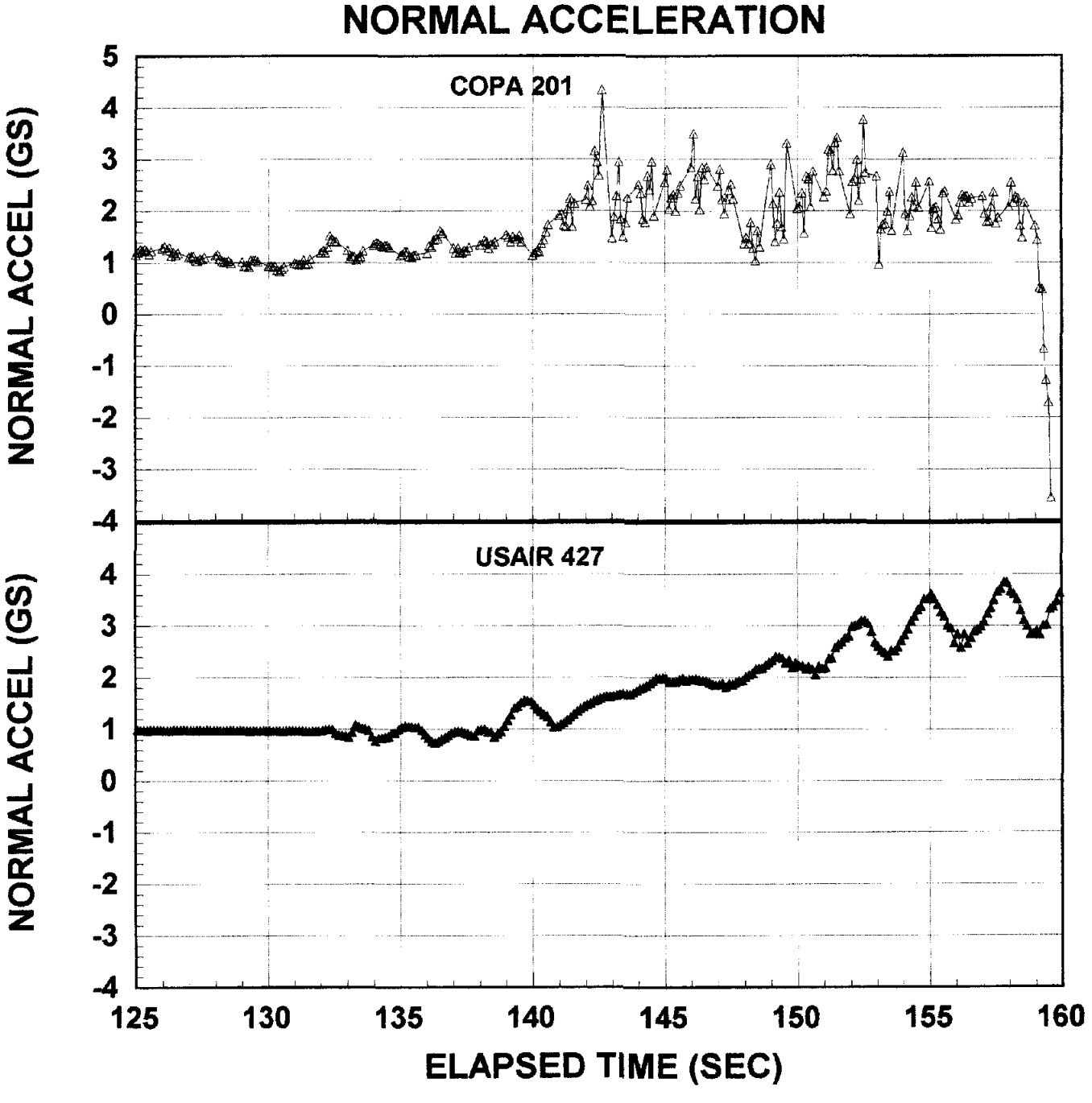

ALTITUDE
COPA 201
USAIR 427
ALTITUDE (FEET MSL)
ALTITUDE (FEET MSL)
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
16000
14000
12000
10000
8000
6000
4000
2000
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

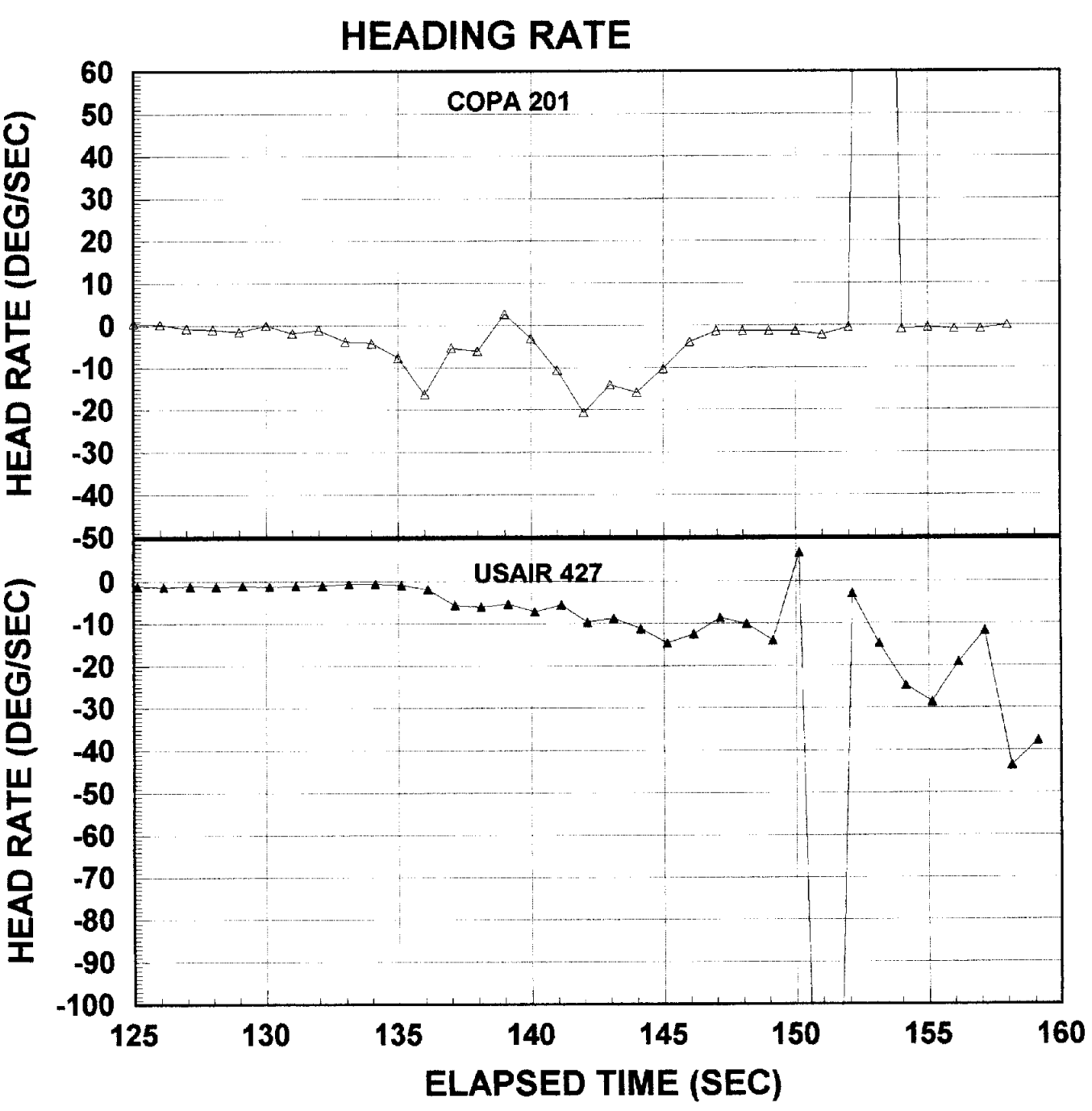

INDICATED AIRSPEED
COPA 201
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
500
480
460
440
420
400
380
360
340
320
260
240
220
200
180
160
140
120
100
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

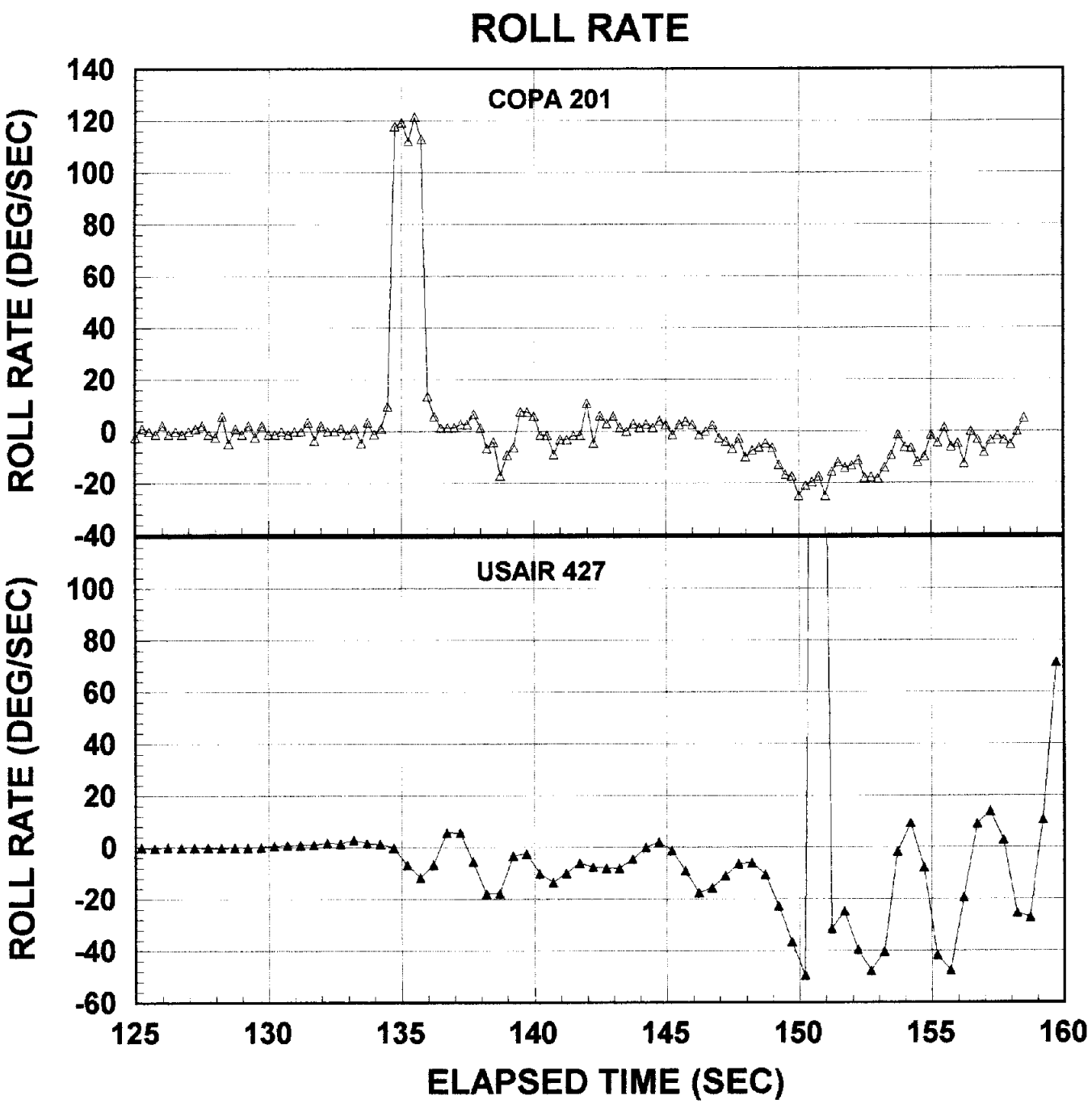

MAGNETIC HEADING
COPA 201
USAIR 427
MAG HEAD (DEGS)
MAG HEAD (DEGS)
360
300
240
180
120
60
0
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

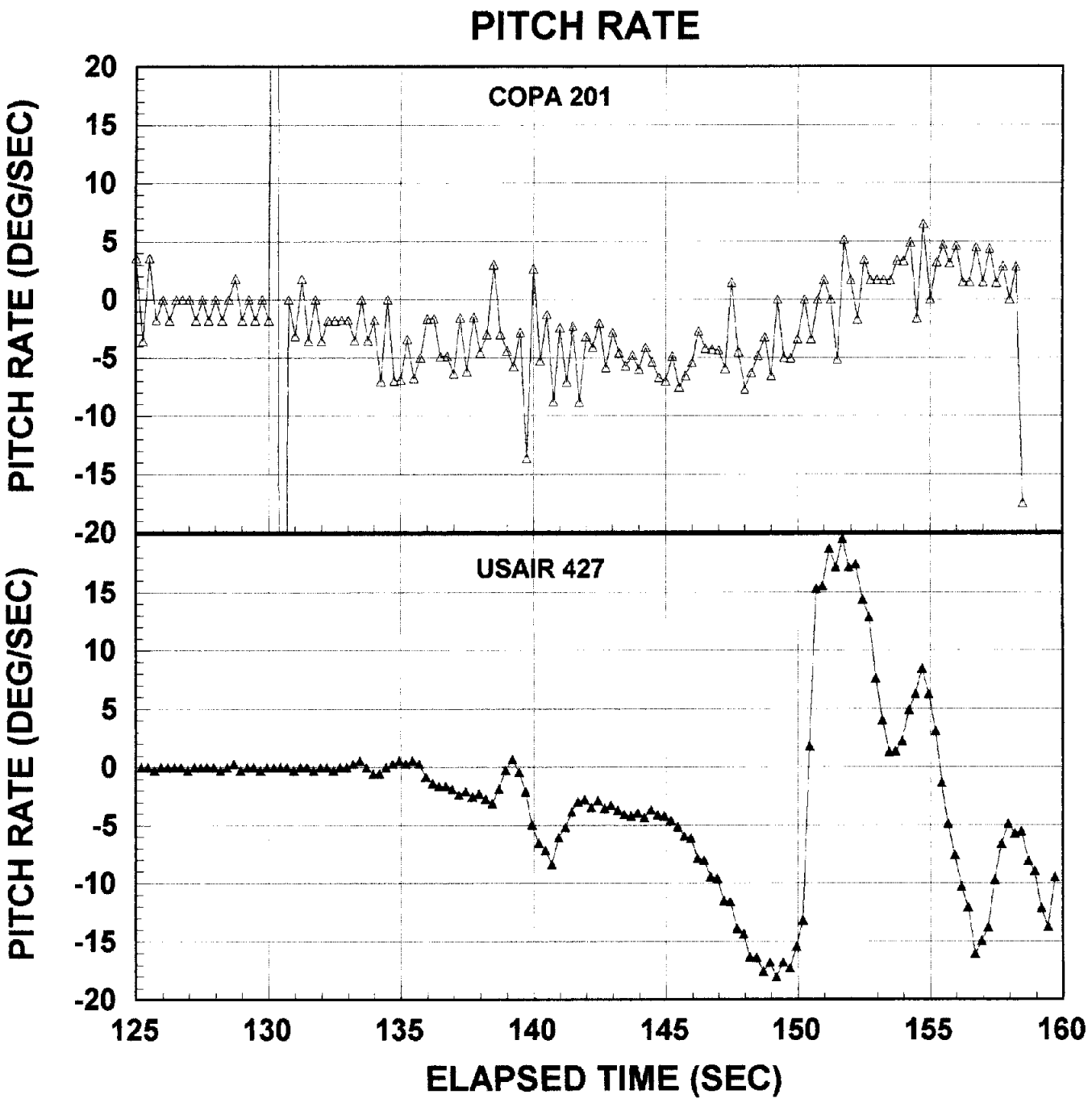

PITCH ANGLE
COPA 201
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
COPA 201
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
150
100
50
0
-50
-100
-150
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
COPA 201
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
5
4
3
2
1
0
-1
-2
-3
-4
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
COPA 201
USAIR 427
HEAD RATE (DEG/SEC)
HEAD RATE (DEG/SEC)
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
COPA 201
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
140
120
100
80
60
40
20
0
-20
-40
100
80
60
40
20
0
-20
-40
-60
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
COPA 201
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT VI
DCA-94-WA-039 tabular and plotted data

TIME	ALT	TIME	IAS	HEAD	TIME	PITCH	ROLL	TIME	VACC	headrate	pitchrate	rollrate
25	762.33	25	122.5	285.5	25	0.45	0	25	1.014	2.31	0	5.36
26	763.37	25.5	123.43	285.4	25.25	0.56	0	25.125	1.012	-0.1	0.44	0
27	759.22	26	126.52	284.88	25.5	0.78	0	25.25	0.966	-0.52	0.88	0
28	760.26	26.5	128.34	284.98	25.75	0.45	0	25.375	0.962	0.1	-1.32	0
29	754.07	27	128.49	284.77	26	0.45	0	25.5	0.946	-0.21	0	0
30	744.93	27.5	131.31	284.46	26.25	0.56	0	25.625	1.012	-0.31	0.44	0
31	748.97	28	134.49	284.14	26.5	0.78	0	25.75	1.023	-0.32	0.88	0
32	767.56	28.5	135.63	284.04	26.75	0.45	0	25.875	1.019	-0.1	-1.32	0
33	788.94	29	137.85	283.83	27	1.34	0	26	1.023	-0.21	3.56	0
34	816.76	29.5	142.02	283.3	27.25	0.56	0.45	26.125	0.962	-0.53	-3.12	1.8
35	849.37	30	142.54	282.45	27.5	1.23	0	26.25	0.982	-0.85	2.68	-1.8
36	888.54	30.5	144.21	282.23	27.75	0.9	0.45	26.375	0.971	-0.22	-1.32	1.8
37	927.05	31	144.72	281.59	28	2.68	0	26.5	0.998	-0.64	7.12	-1.8
38	968.6	31.5	142.67	281.37	28.25	1.45	0	26.625	1.033	-0.22	-4.92	0
39	1010.39	32	145.85	280.94	28.5	1.68	0	26.75	0.982	-0.43	0.92	0
40	1056.52	32.5	145.85	280.3	28.75	1.34	0	26.875	0.982	-0.64	-1.36	0
41	1090.53	33	147.58	279.97	29	5.36	0	27	1.023	-0.33	16.08	0
42	1119.08	33.5	148.3	279.21	29.25	2.8	0	27.125	1.017	-0.76	-10.24	0
43	1154.1	34	149.73	278.44	29.5	3.91	0	27.25	1.007	-0.77	4.44	0
44	1189.5	34.5	148.18	276.57	29.75	4.47	0.45	27.375	0.978	-1.87	2.24	1.8
45	1215.83	35	147.21	274.91	30	11.05	0.45	27.5	1.049	-1.66	26.32	0
46	1239.12	35.5	145.73	272.24	30.25	6.79	0.45	27.625	1.033	-2.67	-17.04	0
47	1259.33	36	146.6	265.64	30.5	8.77	0.45	27.75	0.968	-6.6	7.92	0
48	1257.77	36.5	146.47	252.95	30.75	10.19	0	27.875	0.946	-12.69	5.68	-1.8
49	1257.77	37	146.23	242.37	31	11.48	0	28	0.946	-10.58	5.16	0
50	1316.68	37.5	145.23	247.32	31.25	12.02	0	28.125	1.023	4.95	2.16	0
51	1308.95	38	143.19	299.02	31.5	12.23	0	28.25	1.06	51.7	0.84	0
52	1263.99	38.5	143.57	311	31.75	7.13	-0.45	28.375	1.044	11.98	-20.4	-1.8
53	1211.17	39	143.19	259.16	32	14.04	-0.45	28.5	1.028	-51.84	27.64	0
54	1208.07	39.5	142.8	207.37	32.25	11.59	-1.34	28.625	1.033	-51.79	-9.8	-3.56
		40	141.49		32.5	12.66	-1.79	28.75	0.998		4.28	-1.8
		40.5	142.93		32.75	13.19	-2.68	28.875	0.948		2.12	-3.56
		41	141.62		33	17.76	-3.13	29	1.003		18.28	-1.8
		41.5	142.02		33.25	15.4	-3.13	29.125	1.017		-9.44	0
		42	141.49		33.5	16.43	-4.47	29.25	1.007		4.12	-5.36

		42.5	138.67		33.75	16.95	-4.47	29.375	0.987		2.08	0
		43	139.76		34	18.97	-4.91	29.5	1.01		8.08	-1.76
		43.5	137.3		34.25	17.86	-5.36	29.625	1.012		-4.44	-1.8
		44	136.05		34.5	18.47	-5.36	29.75	0.946		2.44	0
		44.5	135.91		34.75	18.17	-5.8	29.875	0.888		-1.2	-1.76
		45	136.19		35	20.16	-6.24	30	0.936		7.96	-1.76
		45.5	135.06		35.25	19.47	-6.68	30.125	1.085		-2.76	-1.76
		46	133.92		35.5	19.67	-7.13	30.25	1.085		0.8	-1.8
		46.5	135.06		35.75	19.77	-7.13	30.375	1.126		0.4	0
		47	133.63		36	20.56	-7.57	30.5	1.184		3.16	-1.76
		47.5	129.68		36.25	20.65	-7.57	30.625	1.216		0.36	0
		48	127.73		36.5	20.85	-7.57	30.75	1.245		0.8	0
		48.5	125.45		36.75	20.56	-7.57	30.875	1.271		-1.16	0
		49	126.06		37	18.57	-7.57	31	1.303		-7.96	0
		49.5	126.82		37.25	20.26	-7.57	31.125	1.275		6.76	0
		50	129.39		37.5	19.67	-7.57	31.25	1.239		-2.36	0
		50.5	131.16		37.75	18.97	-7.57	31.375	1.218		-2.8	0
		51	133.2		38	18.57	-8	31.5	1.168		-1.6	-1.72
		51.5	136.33		38.25	18.67	-7.57	31.625	1.115		0.4	1.72
		52	139.89		38.5	18.87	-7.57	31.75	1.071		0.8	0
		52.5	141.89		38.75	18.57	-6.68	31.875	1.044		-1.2	3.56
		53	143.7		39	18.97	-6.24	32	1.053		1.6	1.76
		53.5	147.58		39.25	18.67	-5.8	32.125	1.014		-1.2	1.76
		54	149.02		39.5	19.27	-5.36	32.25	1.053		2.4	1.76
					39.75	18.17	-4.47	32.375	1.078		-4.4	3.56
					40	16.53	-3.58	32.5	1.106		-6.56	3.56
					40.25	18.67	-3.13	32.625	1.142		8.56	1.8
					40.5	18.06	-2.68	32.75	1.181		-2.44	1.8
					40.75	16.95	-2.24	32.875	1.22		-4.44	1.76
					41	15.71	-1.79	33	1.243		-4.96	1.8
					41.25	16.23	-1.34	33.125	1.287		2.08	1.8
					41.5	16.43	0	33.25	1.291		0.8	5.36
					41.75	15.71	-0.9	33.375	1.298		-2.88	-3.6
					42	16.53	-0.9	33.5	1.307		3.28	0
					42.25	15.81	-0.9	33.625	1.337		-2.88	0
					42.5	16.02	-0.9	33.75	1.323		0.84	0

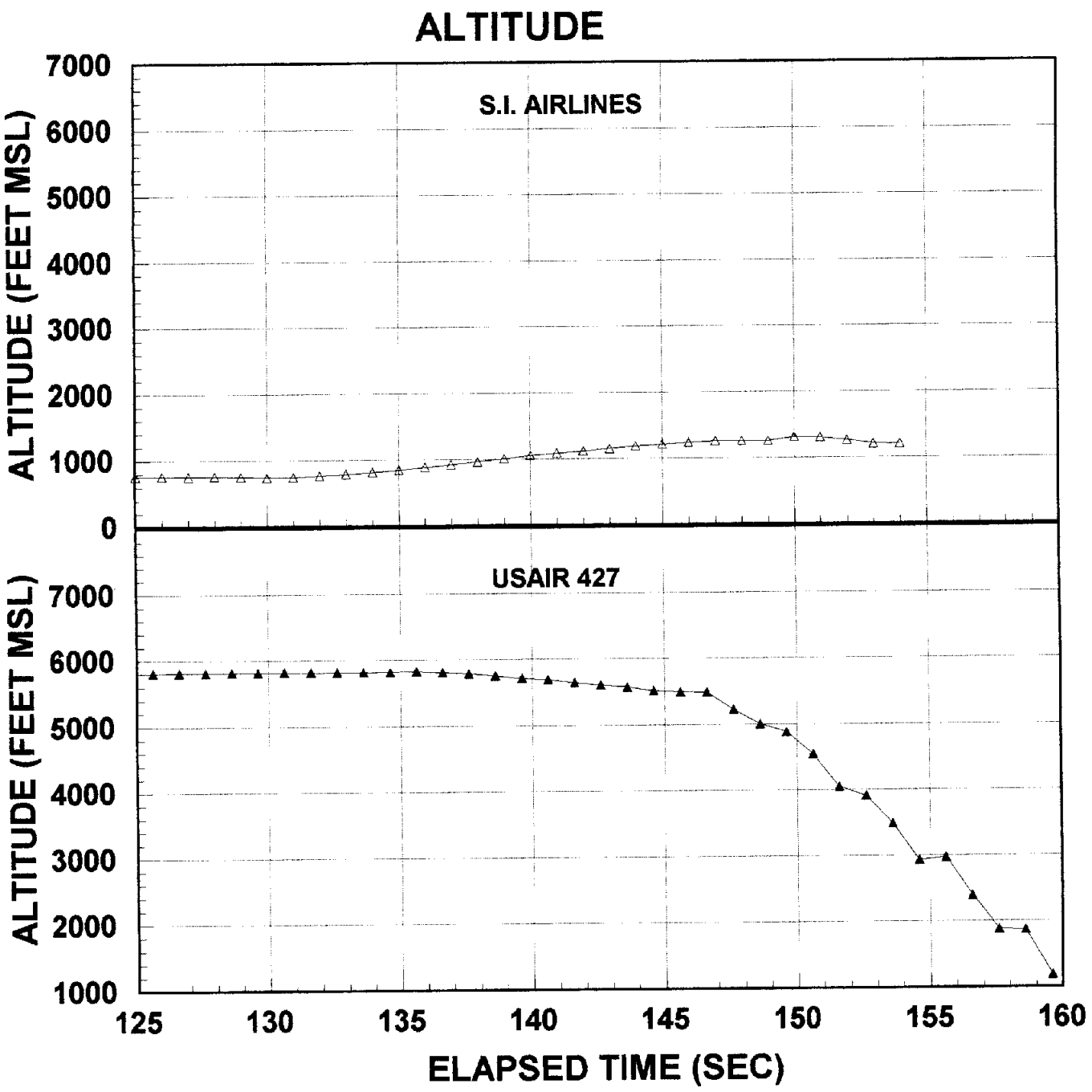
				42.75	15.71	-14.04	33.875	1.291		-1.24	-52.56
				43	17.76	-1.79	34	1.271		8.2	49
				43.25	17.05	-1.34	34.125	1.284		-2.84	1.8
				43.5	17.66	0	34.25	1.323		2.44	5.36
				43.75	17.76	-1.34	34.375	1.312		0.4	-5.36
				44	16.12	-1.34	34.5	1.296		-6.56	0
				44.25	17.46	-1.79	34.625	1.271		5.36	-1.8
				44.5	17.66	-2.68	34.75	1.193		0.8	-3.56
				44.75	16.95	-3.13	34.875	1.179		-2.84	-1.8
				45	13.61	-3.58	35	1.225		-13.36	-1.8
				45.25	15.81	-4.47	35.125	1.2		8.8	-3.56
				45.5	15.19	-5.8	35.25	1.168		-2.48	-5.32
				45.75	14.46	-7.13	35.375	1.147		-2.92	-5.32
				46	14.04	-8.44	35.5	1.161		-1.68	-5.24
				46.25	14.14	-10.19	35.625	1.174		0.4	-7
				46.5	14.35	-11.48	35.75	1.225		0.84	-5.16
				46.75	14.04	-13.19	35.875	1.197		-1.24	-6.84
				47	11.05	-15.29	36	1.181		-11.96	-8.4
				47.25	13.72	-18.97	36.125	1.2		10.68	-14.72
				47.5	13.08	-22.49	36.25	1.209		-2.56	-14.08
				47.75	12.34	-27.28	36.375	1.193		-2.96	-19.16
				48	2.68	-31.68	36.5	1.158		-38.64	-17.6
				48.25	9.43	-38	36.625	1.09		27	-25.28
				48.5	7.89	-44.78	36.75	1.069		-6.16	-27.12
				48.75	4.91	-50.64	36.875	1.06		-11.92	-23.44
				49	-4.02	-58.97	37	1.01		-35.72	-33.32
				49.25	0.56	-65.62	37.125	1.003		18.32	-26.6
				49.5	-1.01	-73.88	37.25	0.982		-6.28	-33.04
				49.75	-3.13	-81.12	37.375	0.966		-8.48	-28.96
				50	-8	-90	37.5	0.936		-19.48	-35.52
				50.25	-4.36	-97.12	37.625	0.904		14.56	-28.48
				50.5	-5.02	-101	37.75	0.936		-2.64	-15.52
				50.75	-6.24	-101.4	37.875	0.904		-4.88	-1.6
				51	-13.61	-101.9	38	0.909		-29.48	-2
				51.25	-7.89	-98.44	38.125	0.884		22.88	13.84
				51.5	-9.43	-93.58	38.25	0.854		-6.16	19.44

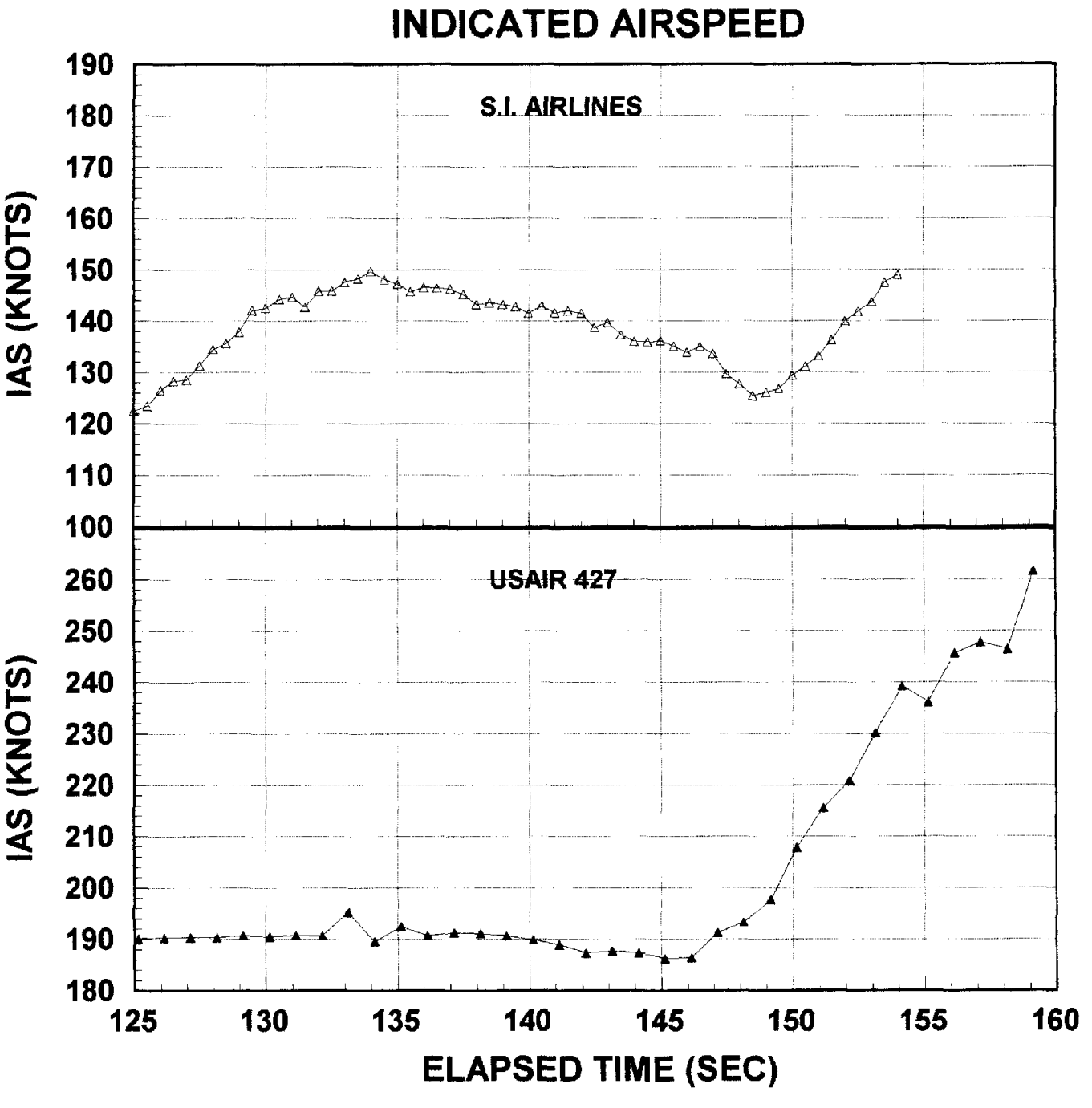
					51.75	-11.48	96.24	38.375	0.859		-8.2	759.28
					52	-20.16	-82	38.5	0.875		-34.72	-712.96
					52.25	-15.6	-74.29	38.625	0.888		18.24	30.84
					52.5	-17.46	-60.3	38.75	0.9		-7.44	55.96
					52.75	-18.57	-64.16	38.875	0.87		-4.44	-15.44
					53	-19.77	-62.02	39	0.879		-4.8	8.56
					53.25	-20.06	-59.3	39.125	0.934		-1.16	10.88
					53.5	-19.87	-59.97	39.25	0.971		0.76	-2.68
					53.75	-19.77	-62.37	39.375	0.971		0.4	-9.6
					54	-18.87	-65.62	39.5	1.017		3.6	-13
					54.25	-18.67	-69.84	39.625	1.023		0.8	-16.88
					54.5	-18.97	-73.88	39.75	0.982		-1.2	-16.16
					54.75	-19.37	-76.39	39.875	0.962		-1.6	-10.04
								40	0.946			
								40.125	0.879			
								40.25	0.868			
								40.375	0.863			
								40.5	0.817			
								40.625	0.833			
								40.75	0.813			
								40.875	0.808			
								41	0.845			
								41.125	0.879			
								41.25	0.854			
								41.375	0.838			
								41.5	0.838			
								41.625	0.843			
								41.75	0.829			
								41.875	0.808			
								42	0.813			
								42.125	0.829			
								42.25	0.82			
								42.375	0.827			
								42.5	0.843			
								42.625	0.859			
								42.75	0.909			

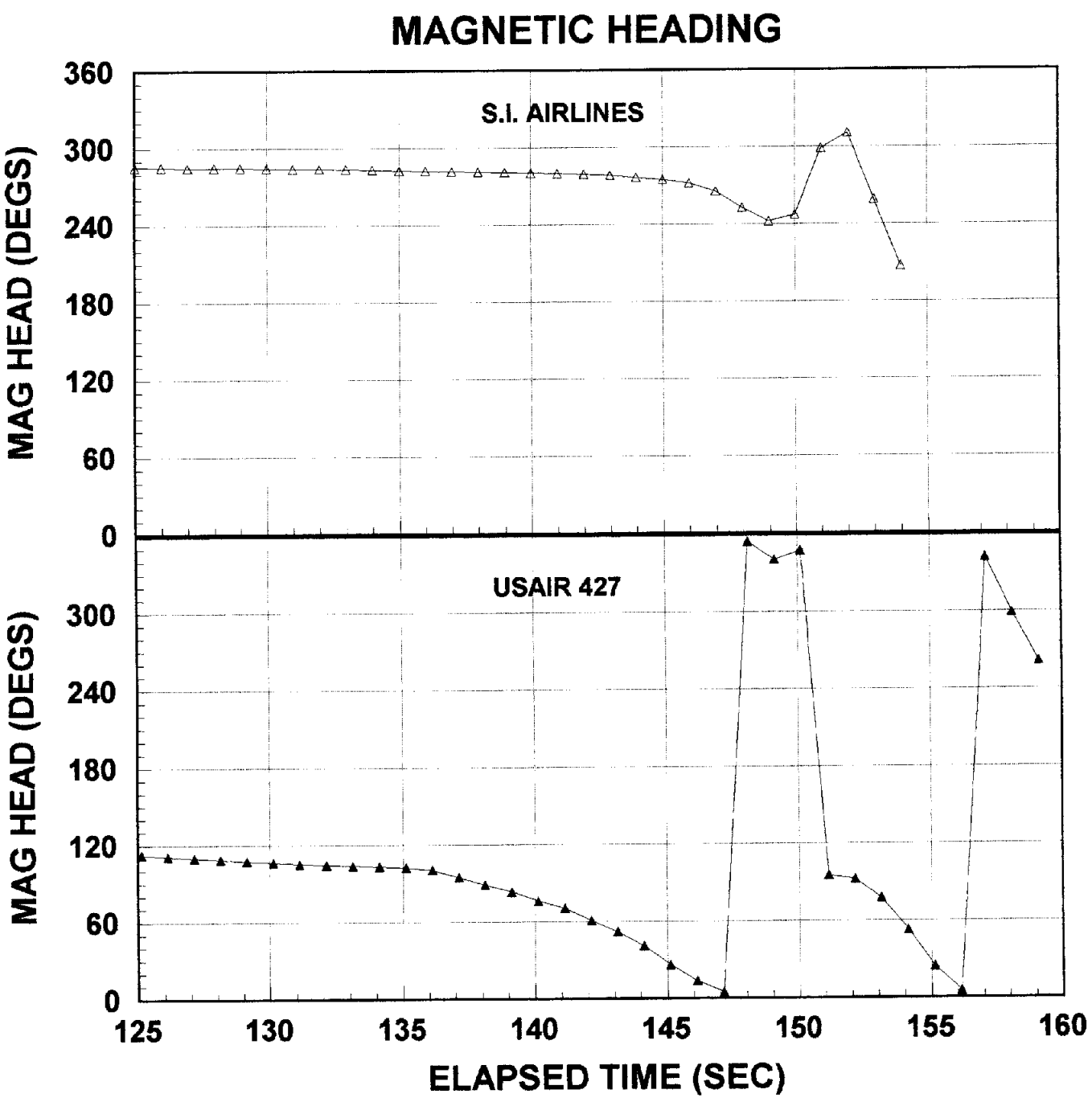
42.875	0.93
43	0.982
43.125	0.982
43.25	0.994
43.375	1.033
43.5	1.019
43.625	1.007
43.75	1.049
43.875	0.996
44	0.971
44.125	1.003
44.25	1.007
44.375	1.007
44.5	0.962
44.625	0.957
44.75	0.952
44.875	0.884
45	0.868
45.125	0.865
45.25	0.833
45.375	0.833
45.5	0.797
45.625	0.829
45.75	0.845
45.875	0.895
46	0.916
46.125	0.941
46.25	0.93
46.375	0.941
46.5	0.941
46.625	0.92
46.75	0.925
46.875	0.93
47	0.95
47.125	0.982
47.25	0.978

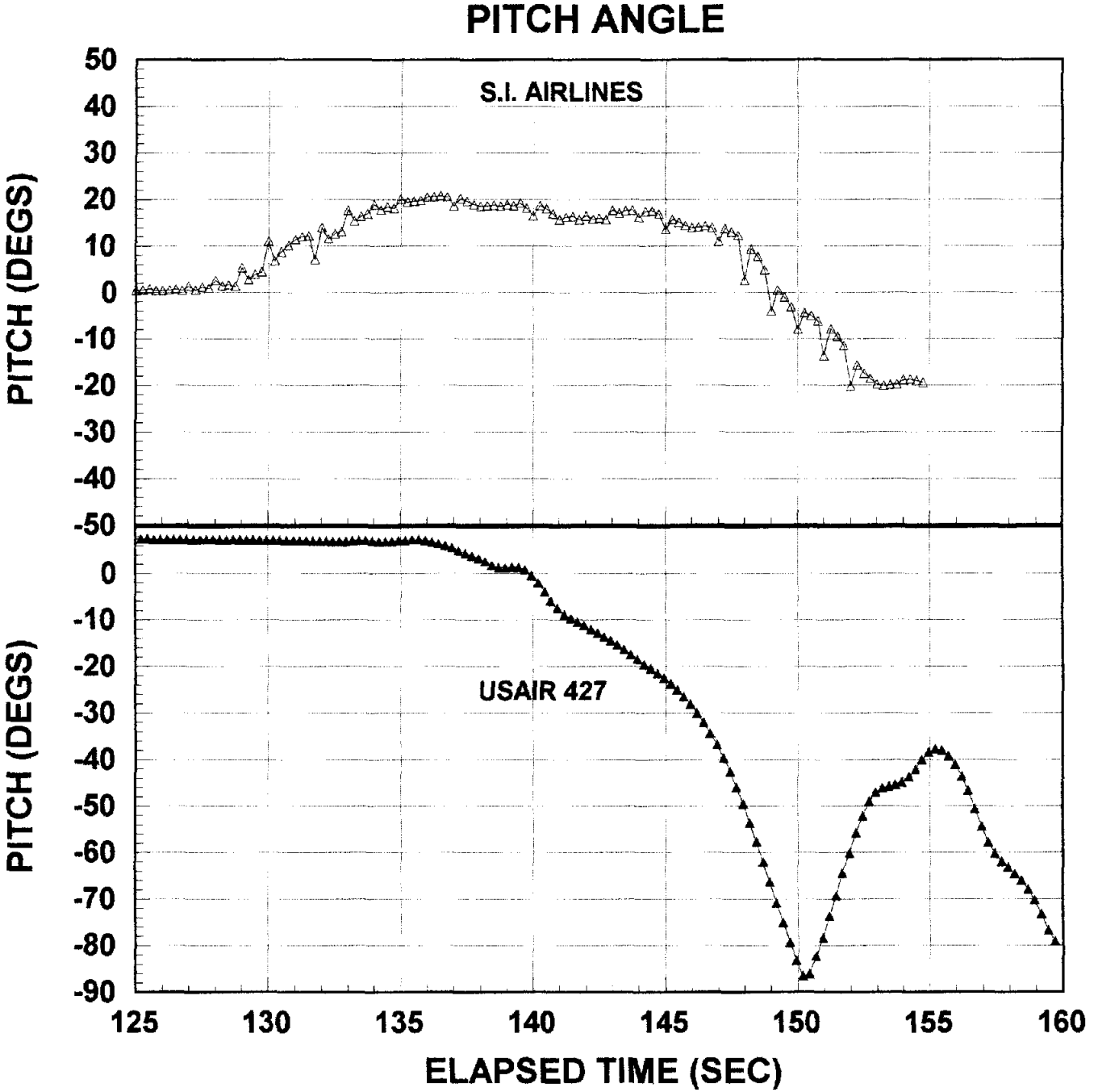
47.375	1.003
47.5	1.044
47.625	1.074
47.75	1.094
47.875	1.106
48	1.099
48.125	1.126
48.25	1.154
48.375	1.142
48.5	1.161
48.625	1.188
48.75	1.188
48.875	1.184
49	1.195
49.125	1.168
49.25	1.209
49.375	1.193
49.5	1.136
49.625	1.193
49.75	1.136
49.875	1.126
50	1.163
50.125	1.229
50.25	1.142
50.375	1.163
50.5	1.147
50.625	1.085
50.75	1.069
50.875	1.147
51	1.197
51.125	1.188
51.25	1.163
51.375	1.163
51.5	1.239
51.625	1.275
51.75	1.3

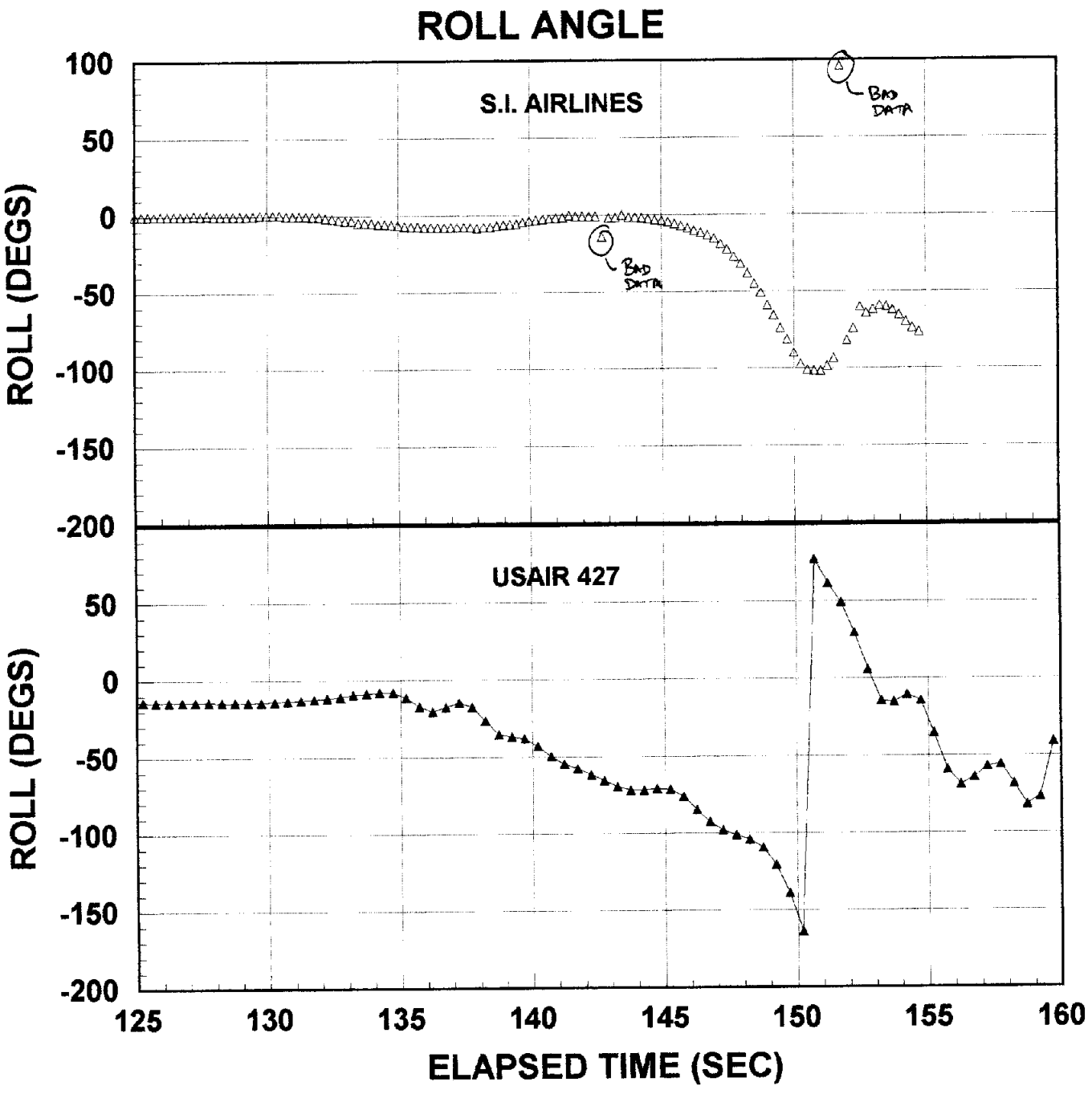
								51.875	1.374			
								52	1.419			
								52.125	1.445			
								52.25	1.477			
								52.375	1.522			
								52.5	1.527			
								52.625	1.55			
								52.75	1.568			
								52.875	1.6			
								53	1.605			
								53.125	1.593			
								53.25	1.58			
								53.375	1.511			
								53.5	1.477			
								53.625	1.518			
								53.75	1.589			
								53.875	1.559			
								54	1.559			
								54.125	1.6			
								54.25	1.758			
								54.375	1.596			
								54.5	1.573			
								54.625	1.728			
								54.75	1.532			
								54.875	1.486			

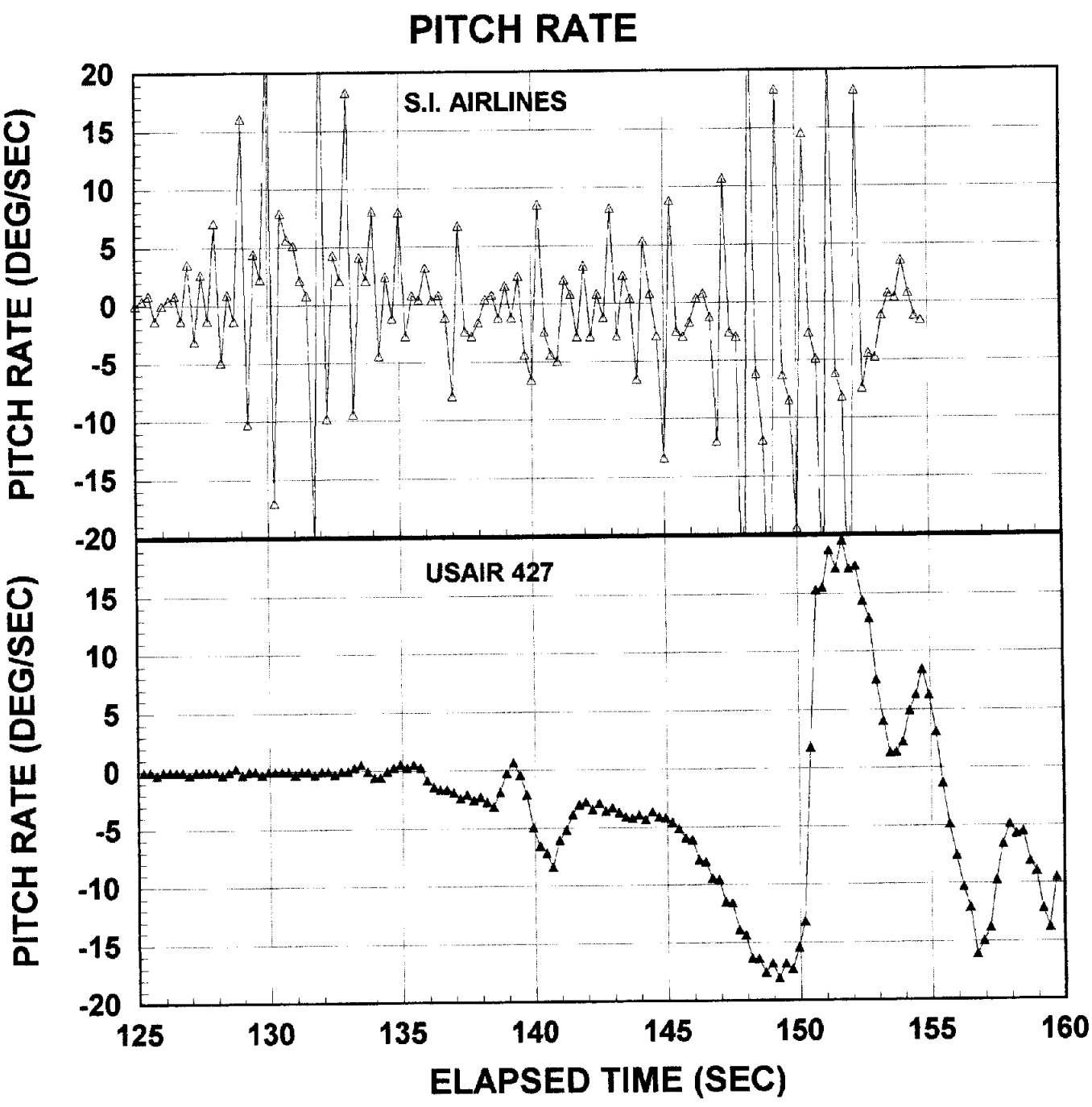

ALTITUDE
S.I. AIRLINES
USAIR 427
ALTITUDE (FEET MSL)
ALTITUDE (FEET MSL)
7000
6000
5000
4000
3000
2000
1000
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

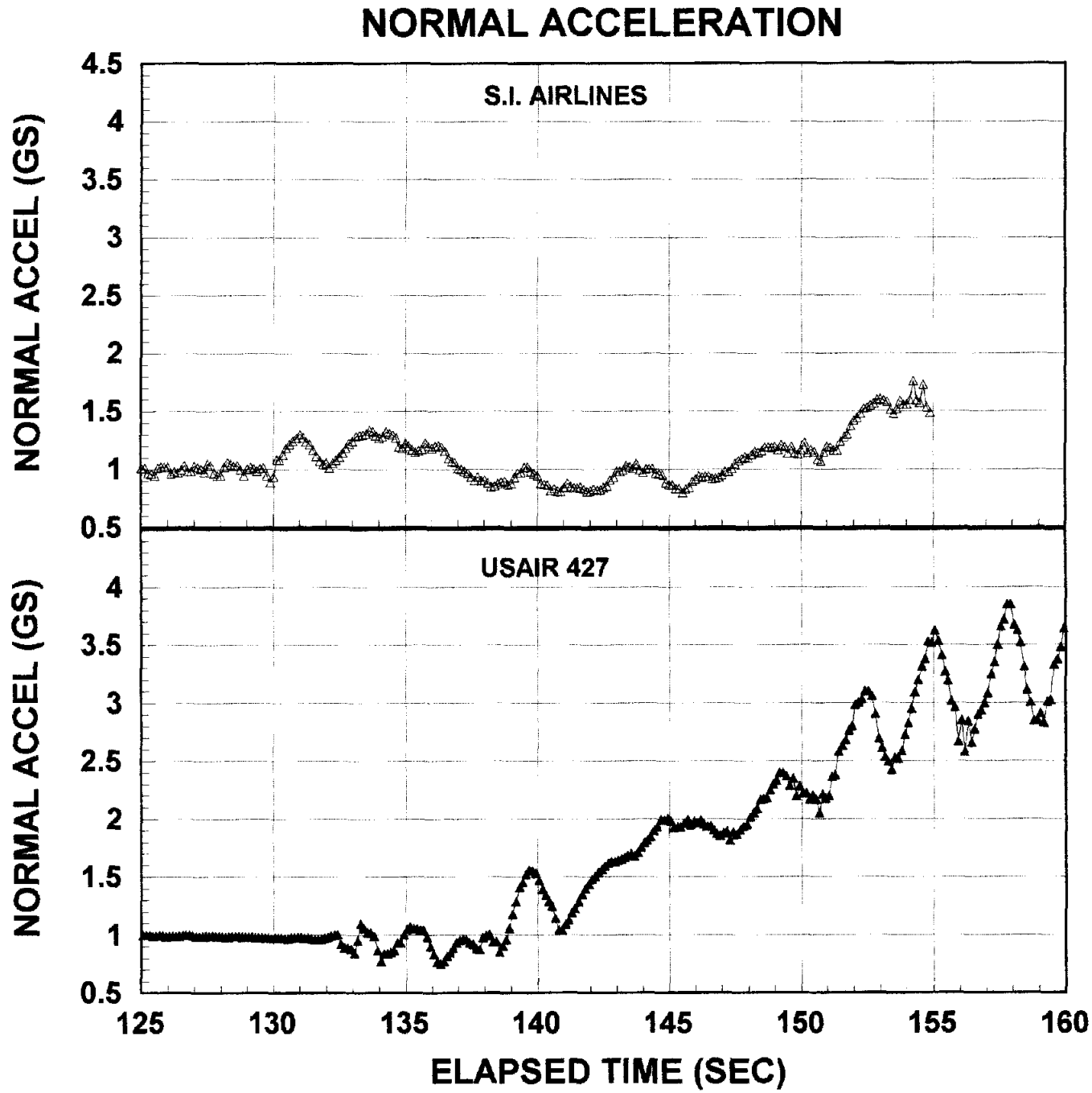

INDICATED AIRSPEED
S.I. AIRLINES
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
190
180
170
160
150
140
130
120
110
100
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

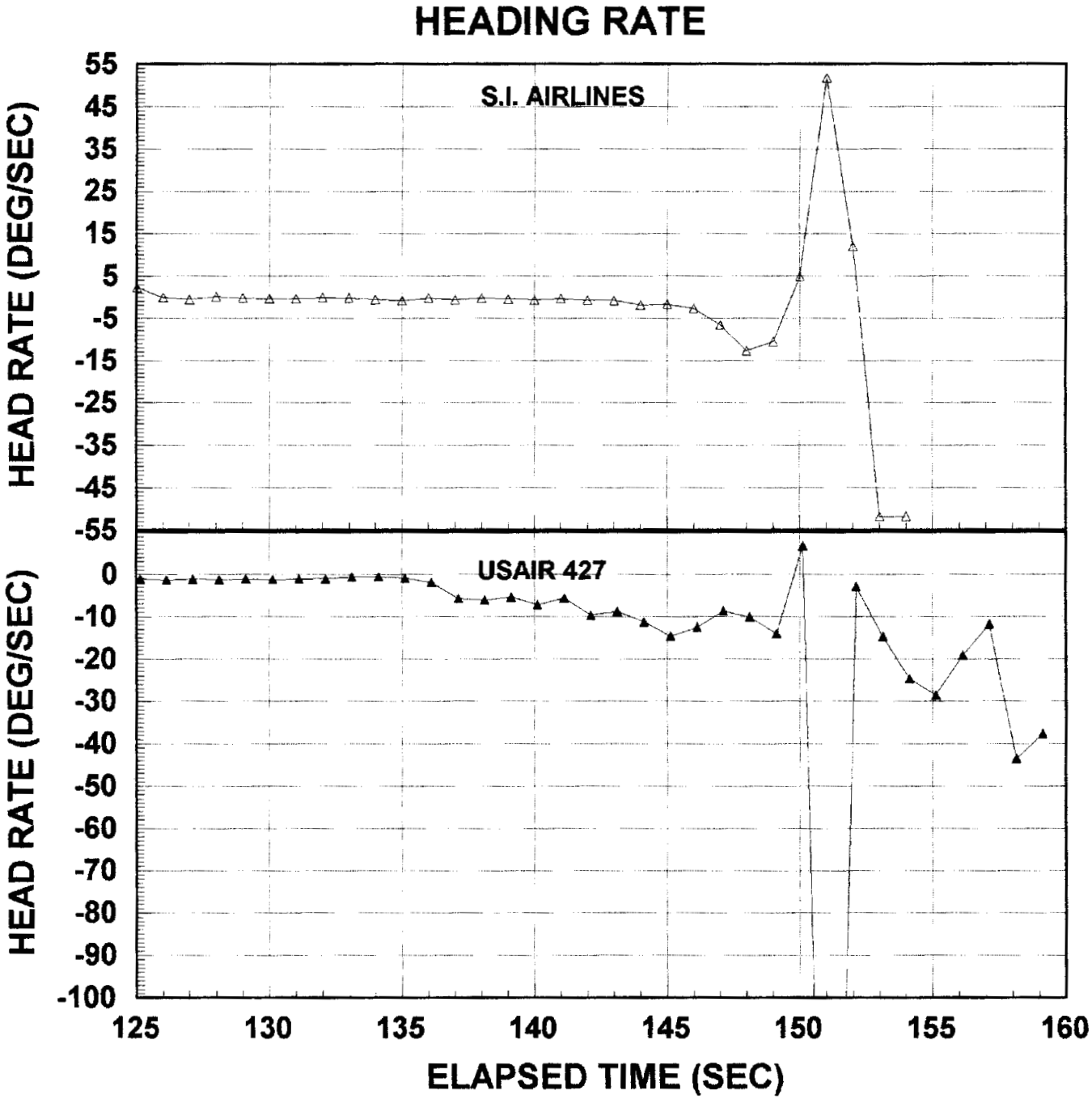

MAGNETIC HEADING
S.I. AIRLINES
USAIR 427
MAG HEAD (DEGS)
MAG HEAD (DEGS)
360
300
240
180
120
60
0
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

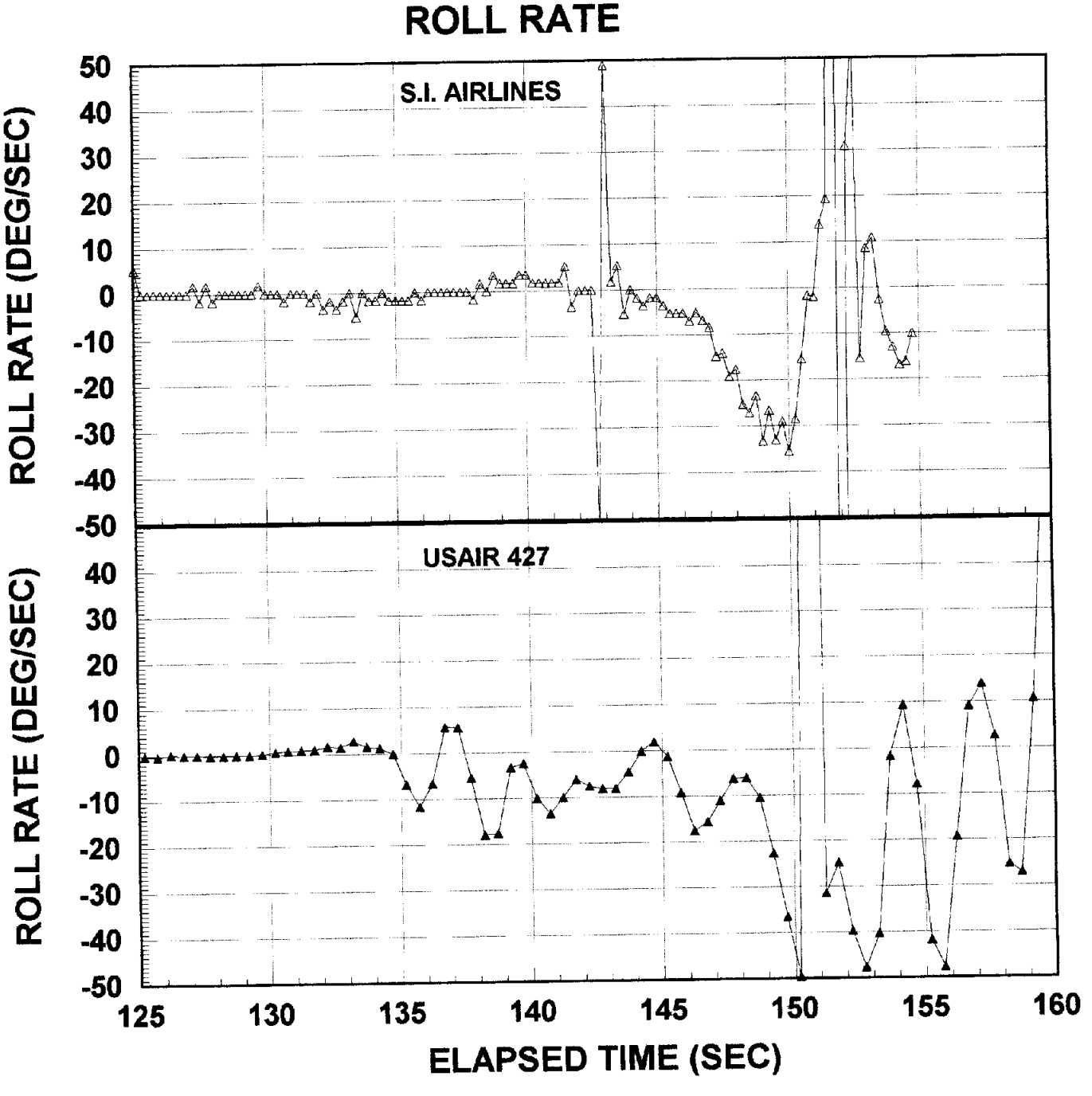

PITCH ANGLE
S.I. AIRLINES
USAIR 427
PITCH (DEGS)
PITCH (DEGS)
50
40
30
20
10
0
-10
-20
-30
-40
-50
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
S.I. AIRLINES
BAD DATA
BAD DATA
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
100
50
0
-50
-100
-150
-200
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
S.I. AIRLINES
USAIR 427
PITCH RATE (DEG/SEC)
PITCH RATE (DEG/SEC)
20
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
S.I. AIRLINES
USAIR 427
NORMAL ACCEL (GS)
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
S.I. AIRLINES
USAIR 427
HEAD RATE (DEG/SEC)
HEAD RATE (DEG/SEC)
55
45
35
25
15
5
-5
-15
-25
-35
-45
-55
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
S.I. AIRLINES
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT VII
DCA-94-MA-076(Ancillary) tabular and plotted data

TIME	ALT	IAS	HEAD	TIME	PITCH	TIME	ROLL	TIME	VACC	headrate	rollrate	pitchrate
0	3594	180.93	315.11	0	1.85	0	-17.81	0	1.037	0	0	0
1	3997	180.93	313.55	0.25	1.91	0.5	-17.55	0.125	1.042	-1.56	0.52	0.24
2	3547	180.93	311.76	0.5	1.97	1	-17.28	0.25	1.042	-1.79	0.54	0.24
3	3526	180.77	310.09	0.75	1.97	1.5	-17.11	0.375	1.042	-1.67	0.34	0
4	3506	180.77	308.54	1	1.97	2	-16.85	0.5	1.039	-1.55	0.52	0
5	3484	180.61	307.21	1.25	2.09	2.5	-16.5	0.625	1.042	-1.33	0.7	0.48
6	3467	180.61	305.57	1.5	2.15	3	-16.24	0.75	1.046	-1.64	0.52	0.24
7	3448	180.61	304.38	1.75	2.21	3.5	-16.07	0.875	1.042	-1.19	0.34	0.24
8	3430	180.61	303.09	2	2.27	4	-15.98	1	1.044	-1.29	0.18	0.24
9	3410	180.44	302.13	2.25	2.27	4.5	-15.73	1.125	1.044	-0.96	0.5	0
10	3387	180.61	300.86	2.5	2.39	5	-15.3	1.25	1.042	-1.27	0.86	0.48
11	3365	462.03	299.6	2.75	2.39	5.5	-14.88	1.375	1.046	-1.26	0.84	0
12	3343	180.77	241.84	3	2.51	6	-14.47	1.5	1.044	-57.76	0.82	0.48
13	3320	462.03	297.04	3.25	2.51	6.5	-14.22	1.625	1.042	55.2	0.5	0
14	3298	180.77	295.43	3.5	2.51	7	-13.97	1.75	1.042	-1.61	0.5	0
15	18276	180.93	294.05	3.75	2.45	7.5	-13.89	1.875	1.039	-1.38	0.16	-0.24
16	3256	179.45	292.6	4	2.33	8	-13.64	2	1.039	-1.45	0.5	-0.48
17	3238	180.93	263.07	4.25	2.33	8.5	-13.56	2.125	1.042	-29.53	0.16	0
18	3210	180.61	290.16	4.5	2.33	9	-13.4	2.25	1.046	27.09	0.32	0
19	3192	180.11	289.25	4.75	2.39	9.5	-13.24	2.375	1.046	-0.91	0.32	0.24
20	3176	181.1	288.43	5	2.45	10	-13.08	2.5	1.051	-0.82	0.32	0.24
21	3161	181.26	287.72	5.25	2.51	10.5	-13.08	2.625	1.051	-0.71	0	0.24
22	3147	182.41	287.02	5.5	2.63	11	-13.4	2.75	1.054	-0.7	-0.64	0.48
23	3133	182.9	285.98	5.75	2.63	11.5	-13.81	2.875	1.054	-1.04	-0.82	0
24	3122	182.57	284.55	6	2.63	12	-13.97	3	1.056	-1.43	-0.32	0
25	3108	183.06	283.48	6.25	2.57	12.5	-14.22	3.125	1.056	-1.07	-0.5	-0.24
26	3099	184.19	282.04	6.5	2.51	13	-14.72	3.25	1.056	-1.44	-1	-0.24
27	3089	183.22	280.8	6.75	2.39	13.5	-15.13	3.375	1.061	-1.24	-0.82	-0.48
28	3080	183.87	241.84	7	2.33	14	-15.64	3.5	1.063	-38.96	-1.02	-0.24
29	3072	185.81	279.15	7.25	2.21	14.5	-15.9	3.625	1.056	37.31	-0.52	-0.48
30	3063	185.97	277.92	7.5	2.15	15	-15.98	3.75	1.051	-1.23	-0.16	-0.24
31	3055	186.29	276.79	7.75	1.91	15.5	-15.73	3.875	1.037	-1.13	0.5	-0.96
32	3051	186.45	275.84	8	1.79	16	-11.26	4	1.02	-0.95	8.94	-0.48
33	3046	428.46	274.91	8.25	1.61	16.5	-10.49	4.125	1.011	-0.93	1.54	-0.72
34	3041	186.77	274.13	8.5	1.49	17	-13.24	4.25	1.008	-0.78	-5.5	-0.48

35	3038	187.25	273.31	8.75	1.37	17.5	-12.2	4.375	1.008	-0.82	2.08	-0.48
				9	1.26	18	-10.26	4.5	1.003		3.88	-0.44
				9.25	1.26	18.5	-8.93	4.625	1.008		2.66	0
				9.5	1.32	19	-8.42	4.75	1.011		1.02	0.24
				9.75	1.43	19.5	-8.56	4.875	1.013		-0.28	0.44
				10	1.61	20	-9.15	5	1.015		-1.18	0.72
				10.25	1.67	20.5	-9.66	5.125	1.018		-1.02	0.24
				10.5	1.79	21	-10.04	5.25	1.018		-0.76	0.48
				10.75	1.79	21.5	-9.89	5.375	1.023		0.3	0
				11	1.85	22	-9.59	5.5	1.027		0.6	0.24
				11.25	1.79	22.5	-9.15	5.625	1.034		0.88	-0.24
				11.5	1.79	23	-8.85	5.75	1.039		0.6	0
				11.75	1.67	23.5	-9.44	5.875	1.039		-1.18	-0.48
				12	1.61	24	-10.49	6	1.037		-2.1	-0.24
				12.25	1.61	24.5	-11.34	6.125	1.032		-1.7	0
				12.5	1.61	25	-11.8	6.25	1.027		-0.92	0
				12.75	1.61	25.5	-11.65	6.375	1.027		0.3	0
				13	1.73	26	-11.8	6.5	1.018		-0.3	0.48
				13.25	1.79	26.5	-12.43	6.625	1.008		-1.26	0.24
				13.5	1.91	27	-13.08	6.75	1.003		-1.3	0.48
				13.75	1.97	27.5	-13.32	6.875	0.994		-0.48	0.24
				14	2.09	28	-13.24	7	0.987		0.16	0.48
				14.25	2.09	28.5	-12.83	7.125	0.989		0.82	0
				14.5	2.09	29	-12.36	7.25	0.984		0.94	0
				14.75	2.15	29.5	-11.8	7.375	0.982		1.12	0.24
				15	2.09	30	-11.26	7.5	0.979		1.08	-0.24
				15.25	2.09	30.5	-10.87	7.625	0.972		0.78	0
				15.5	2.03	31	-10.49	7.75	0.963		0.76	-0.24
				15.75	2.03	31.5	-10.34	7.875	0.956		0.3	0
				16	1.79	32	-10.26	8	0.951		0.16	-0.96
				16.25	1.79	32.5	-10.19	8.125	0.941		0.14	0
				16.5	2.15	33	-10.11	8.25	0.936		0.16	1.44
				16.75	2.51	33.5	-10.04	8.375	0.934		0.14	1.44
				17	2.82	34	-9.81	8.5	0.929		0.46	1.24
				17.25	3.06	34.5	-9.59	8.625	0.927		0.44	0.96
				17.5	3.25	35	-9.37	8.75	0.922		0.44	0.76

				17.75	3.37			8.875	0.922			0.48
				18	3.37			9	0.92			0
				18.25	3.31			9.125	0.922			-0.24
				18.5	3			9.25	0.922			-1.24
				18.75	2.69			9.375	0.927			-1.24
				19	2.33			9.5	0.932			-1.44
				19.25	2.15			9.625	0.939			-0.72
				19.5	1.97			9.75	0.951			-0.72
				19.75	2.09			9.875	0.963			0.48
				20	2.33			10	0.97			0.96
				20.25	2.63			10.125	0.987			1.2
				20.5	3.06			10.25	1.001			1.72
				20.75	3.37			10.375	1.006			1.24
				21	3.69			10.5	1.011			1.28
				21.25	3.88			10.625	1.02			0.76
				21.5	3.81			10.75	1.03			-0.28
				21.75	3.69			10.875	1.03			-0.48
				22	3.37			11	1.025			-1.28
				22.25	3.19			11.125	1.02			-0.72
				22.5	3.12			11.25	1.018			-0.28
				22.75	3.06			11.375	1.013			-0.24
				23	3.06			11.5	1.008			0
				23.25	3.12			11.625	1.001			0.24
				23.5	3.12			11.75	0.994			0
				23.75	3.12			11.875	0.994			0
				24	3.19			12	0.984			0.28
				24.25	3.31			12.125	0.982			0.48
				24.5	3.37			12.25	0.979			0.24
				24.75	3.5			12.375	0.979			0.52
				25	3.56			12.5	0.979			0.24
				25.25	3.69			12.625	0.984			0.52
				25.5	3.81			12.75	0.984			0.48
				25.75	4			12.875	0.984			0.76
				26	4.07			13	0.987			0.28
				26.25	4.13			13.125	0.994			0.24
				26.5	29.71			13.25	0.999			102.32

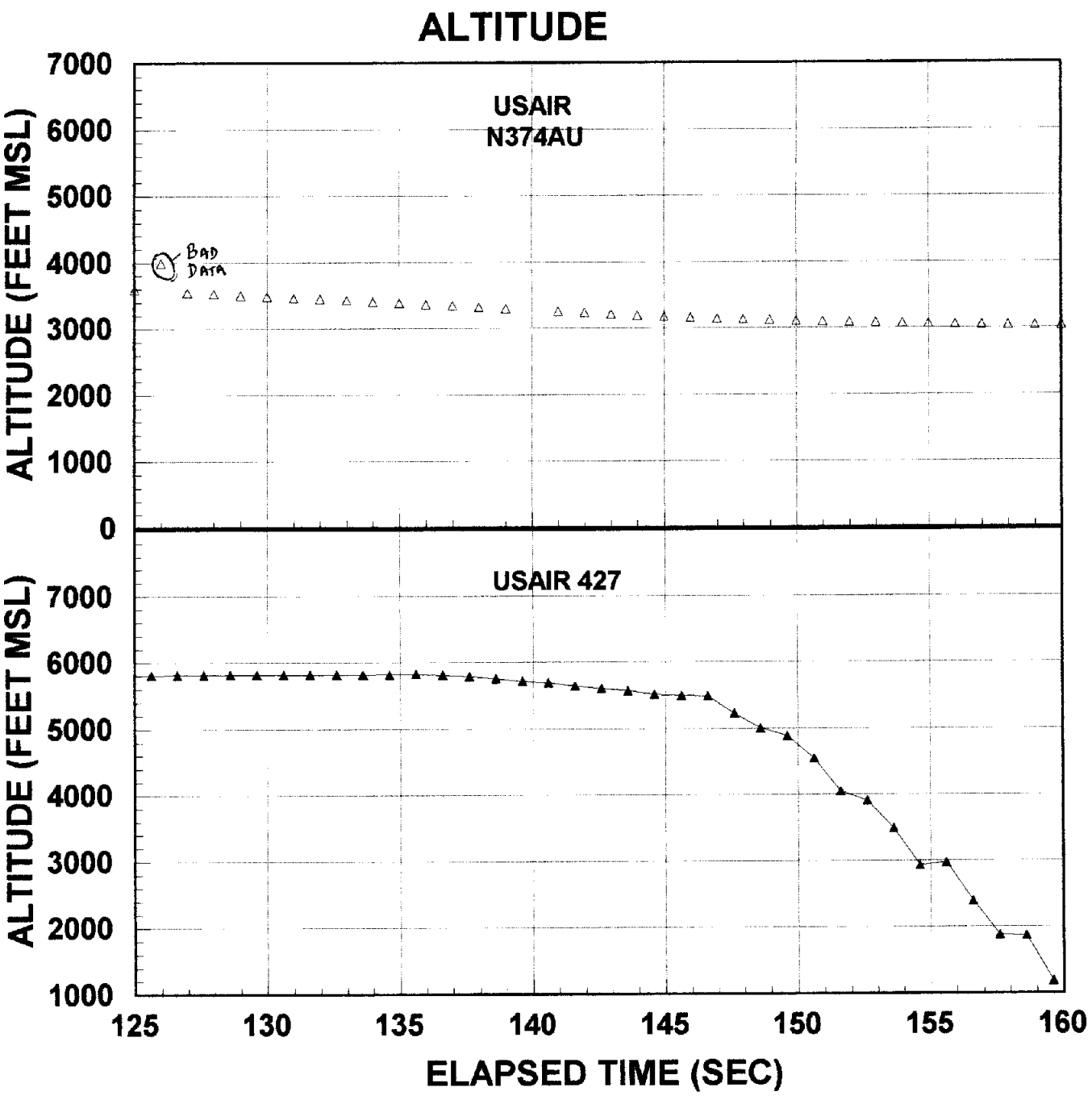
				26.75	4.07			13.375	1.003			-102.56
				27	3.88			13.5	1.003			-0.76
				27.25	3.75			13.625	1.015			-0.52
				27.5	3.62			13.75	1.027			-0.52
				27.75	3.5			13.875	1.032			-0.48
				28	3.44			14	1.027			-0.24
				28.25	3.44			14.125	1.03			0
				28.5	3.44			14.25	1.039			0
				28.75	3.5			14.375	1.039			0.24
				29	3.56			14.5	1.042			0.24
				29.25	3.69			14.625	1.039			0.52
				29.5	3.81			14.75	1.034			0.48
				29.75	3.88			14.875	1.032			0.28
				30	4			15	1.034			0.48
				30.25	4.13			15.125	1.027			0.52
				30.5	4.26			15.25	1.025			0.52
				30.75	4.39			15.375	1.02			0.52
				31	4.45			15.5	1.02			0.24
				31.25	4.39			15.625	1.011			-0.24
				31.5	4.33			15.75	0.946			-0.24
				31.75	4.26			15.875	0.838			-0.28
				32	4.26			16	0.779			0
				32.25	4.33			16.125	0.759			0.28
				32.5	4.45			16.25	0.685			0.48
				32.75	4.52			16.375	0.838			0.28
				33	4.45			16.5	1.039			-0.28
				33.25	4.33			16.625	1.101			-0.48
				33.5	4.13			16.75	1.19			-0.8
				33.75	3.94			16.875	1.211			-0.76
				34	3.75			17	1.14			-0.76
				34.25	3.75			17.125	1.14			0
				34.5	3.81			17.25	1.121			0.24
				34.75	3.94			17.375	1.106			0.52
				35	4.13			17.5	1.104			0.76
								17.625	1.128			
								17.75	1.128			

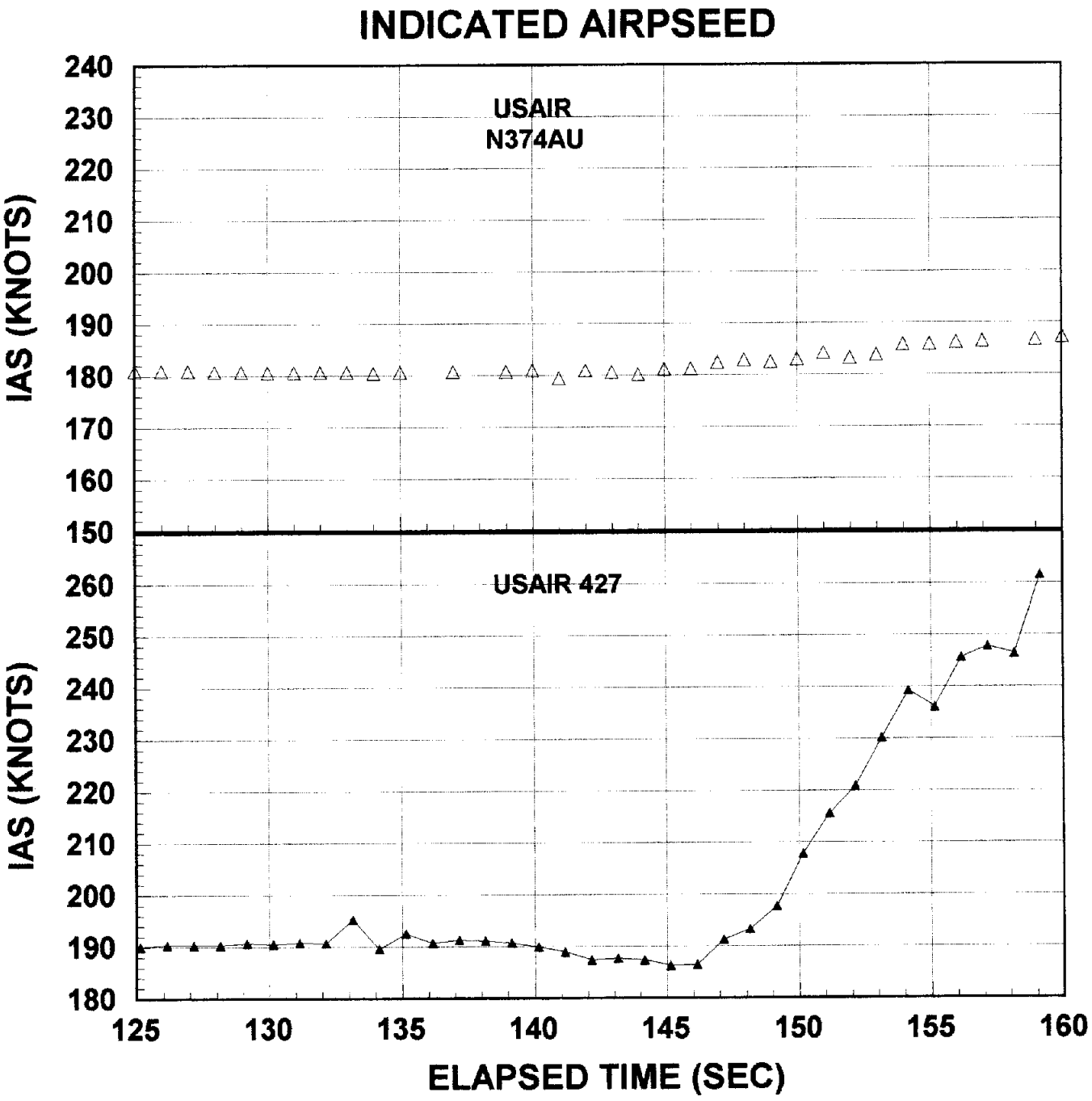
17.875	1.128
18	1.142
18.125	1.123
18.25	1.109
18.375	1.092
18.5	1.066
18.625	1.056
18.75	1.042
18.875	1.013
19	0.987
19.125	0.972
19.25	0.951
19.375	0.948
19.5	0.941
19.625	0.924
19.75	0.922
19.875	0.939
20	0.944
20.125	0.953
20.25	0.977
20.375	0.999
20.5	1.025
20.625	1.046
20.75	1.073
20.875	1.089
21	1.099
21.125	1.116
21.25	1.123
21.375	1.123
21.5	1.118
21.625	1.099
21.75	1.07
21.875	1.046
22	1.025
22.125	0.999
22.25	0.984

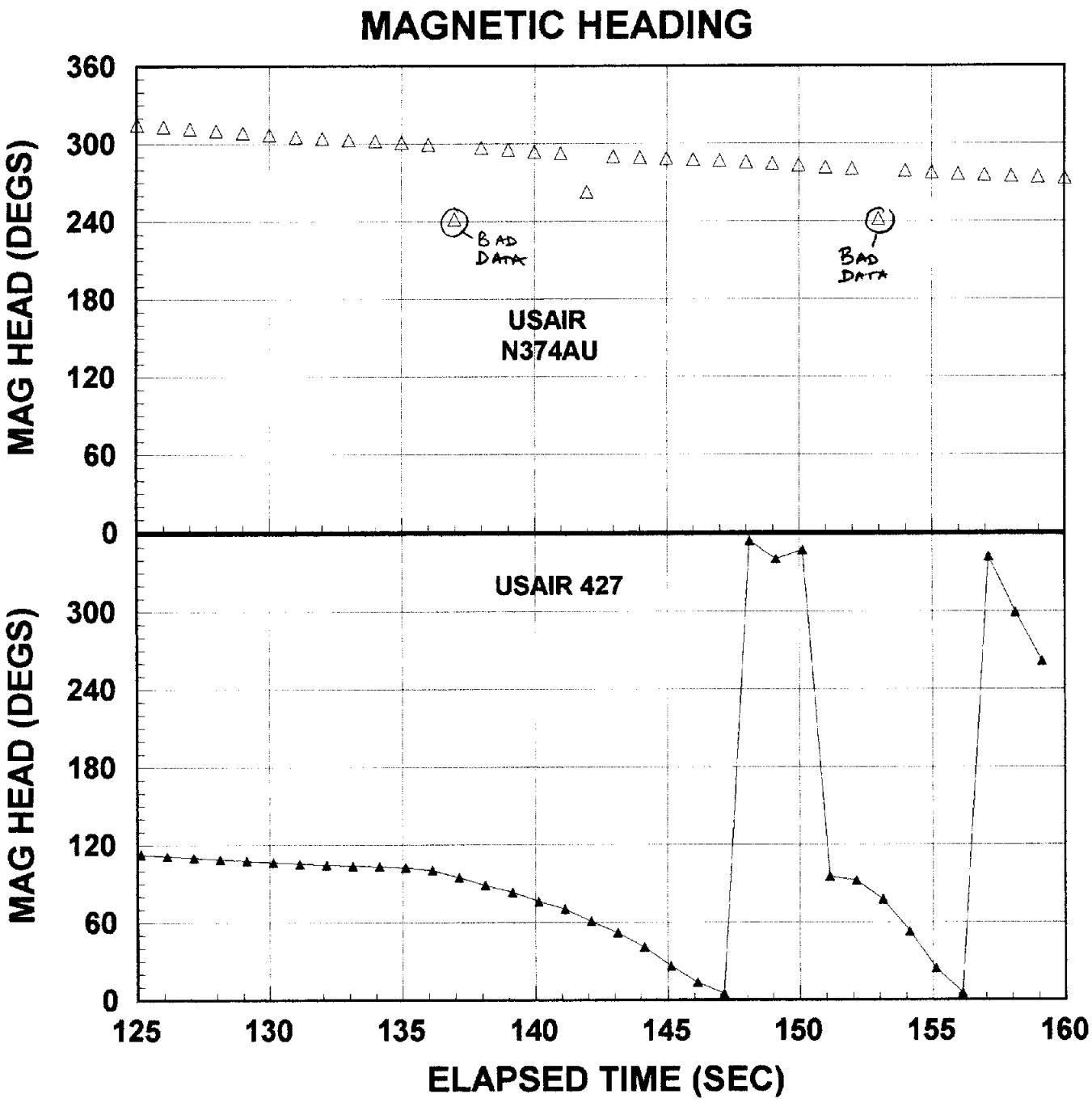
22.375	0.97
22.5	0.972
22.625	0.979
22.75	0.977
22.875	0.979
23	0.977
23.125	0.979
23.25	0.984
23.375	0.994
23.5	0.996
23.625	0.994
23.75	0.991
23.875	0.996
24	0.996
24.125	1.003
24.25	0.999
24.375	1.006
24.5	1.011
24.625	1.011
24.75	1.008
24.875	1.006
25	1.006
25.125	1.006
25.25	1.013
25.375	1.02
25.5	1.032
25.625	1.044
25.75	1.056
25.875	1.061
26	1.061
26.125	1.063
26.25	1.066
26.375	1.061
26.5	1.058
26.625	1.049
26.75	1.046

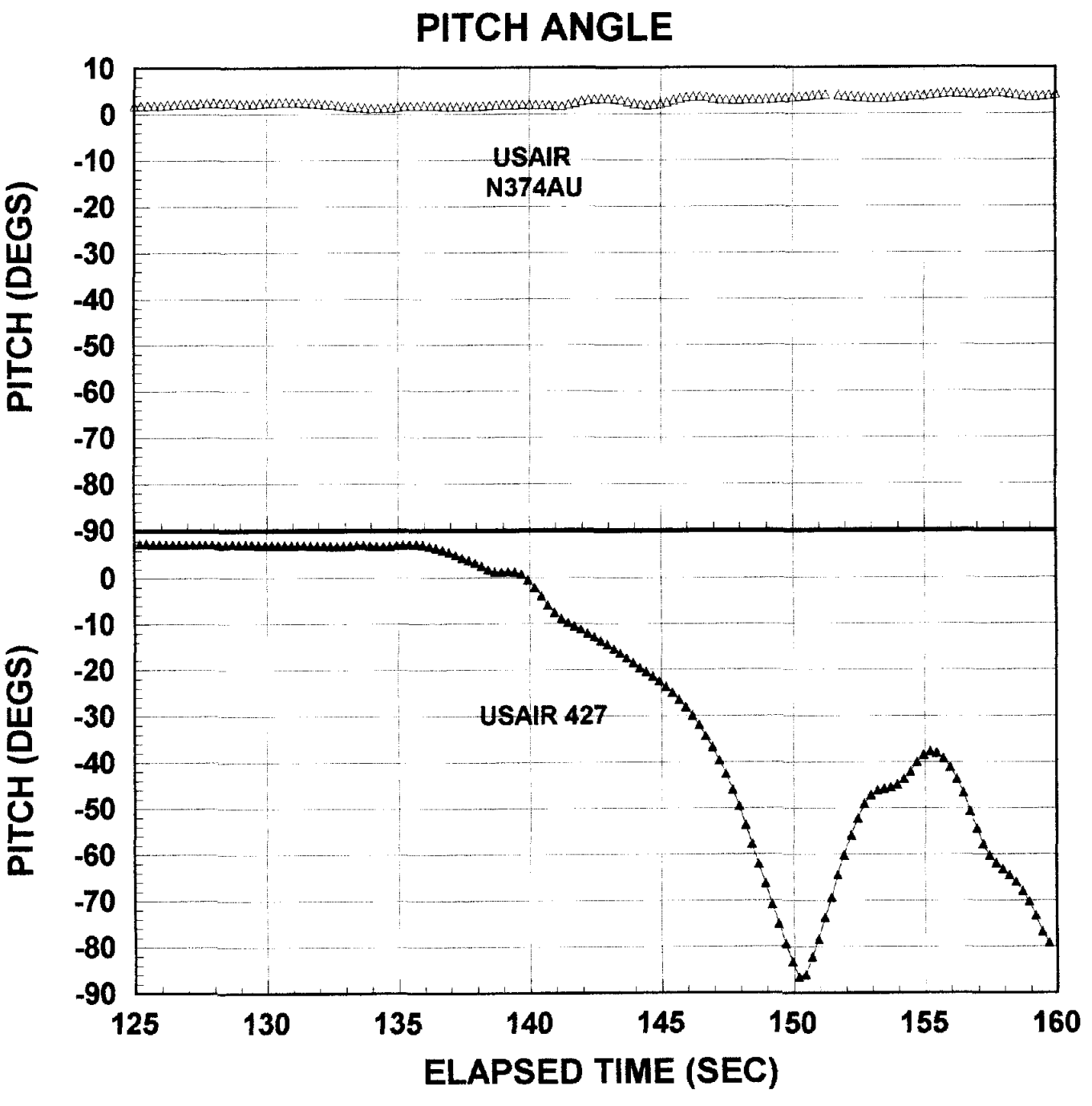
26.875	1.034
27	1.025
27.125	1.006
27.25	0.991
27.375	0.984
27.5	0.987
27.625	0.979
27.75	0.979
27.875	0.979
28	0.977
28.125	0.963
28.25	0.958
28.375	0.96
28.5	0.972
28.625	0.979
28.75	0.987
28.875	0.989
29	0.984
29.125	0.979
29.25	0.987
29.375	0.999
29.5	1.008
29.625	1.015
29.75	1.02
29.875	1.025
30	1.037
30.125	1.032
30.25	1.03
30.375	1.039
30.5	1.039
30.625	1.046
30.75	1.051
30.875	1.054
31	1.061
31.125	1.054
31.25	1.046

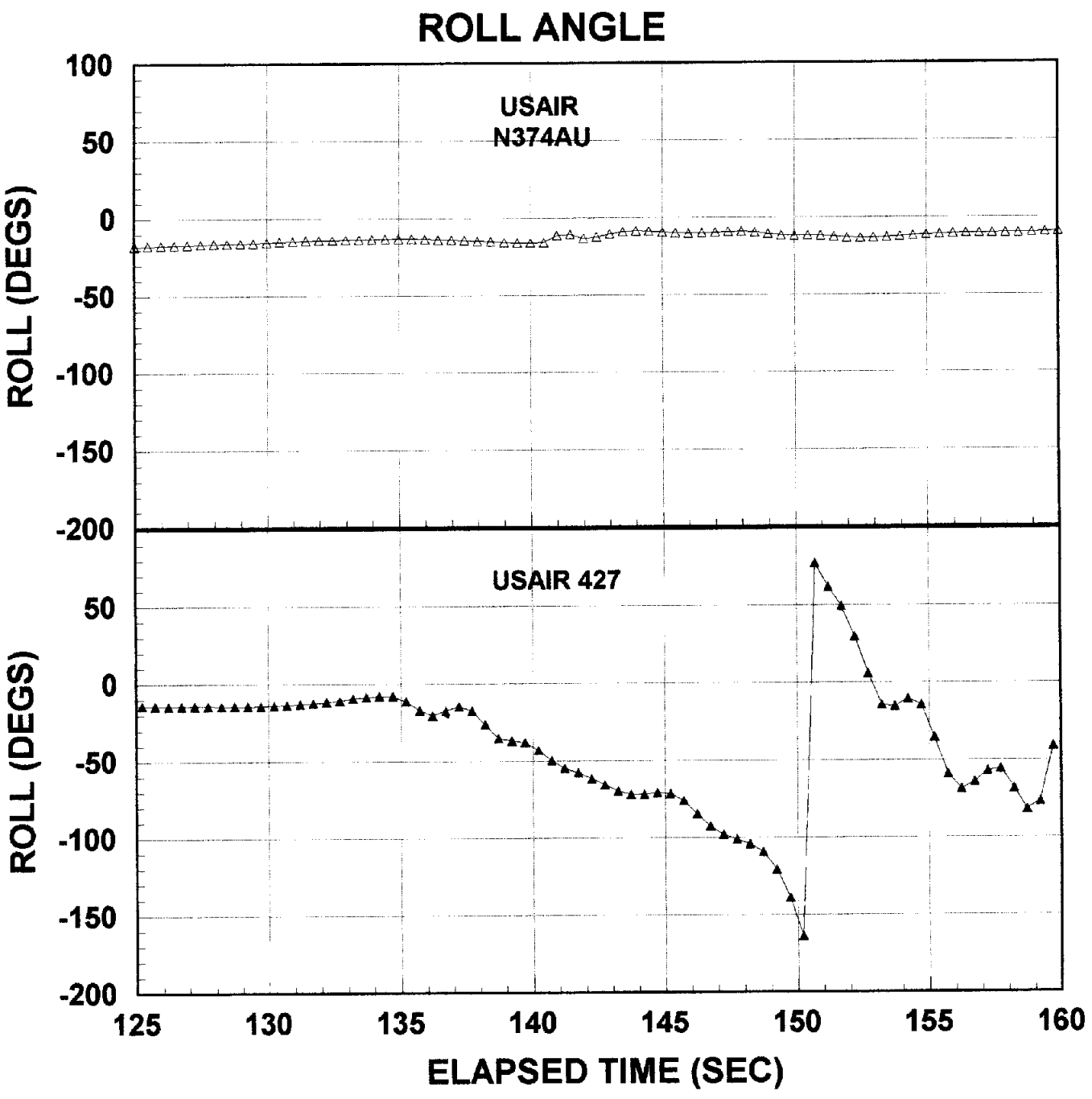
31.375	1.039
31.5	1.027
31.625	1.013
31.75	1.001
31.875	0.999
32	0.994
32.125	0.991
32.25	0.994
32.375	0.999
32.5	1.003
32.625	1.013
32.75	1.032
32.875	1.034
33	1.042
33.125	1.03
33.25	1.02
33.375	1.008
33.5	0.987
33.625	0.97
33.75	0.958
33.875	0.944
34	0.936
34.125	0.924
34.25	0.924
34.375	0.927
34.5	0.936
34.625	0.936
34.75	0.948
34.875	0.96

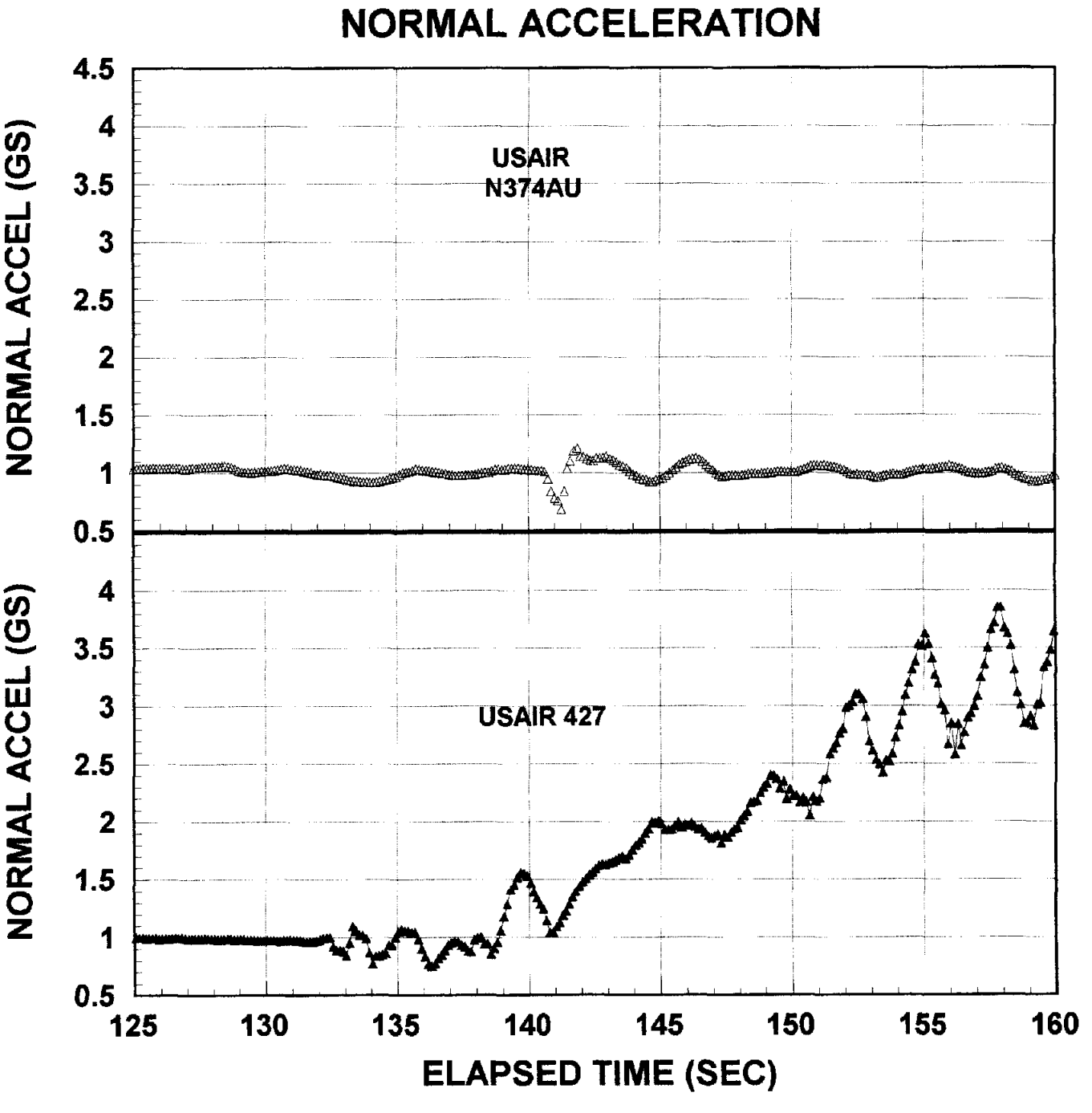

ALTITUDE
USAIR
N374AU
BAD DATA
ALTITUDE (FEET MSL)
7000
6000
5000
4000
3000
2000
1000
0
USAIR 427
ALTITUDE (FEET MSL)
7000
6000
5000
4000
3000
2000
1000
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

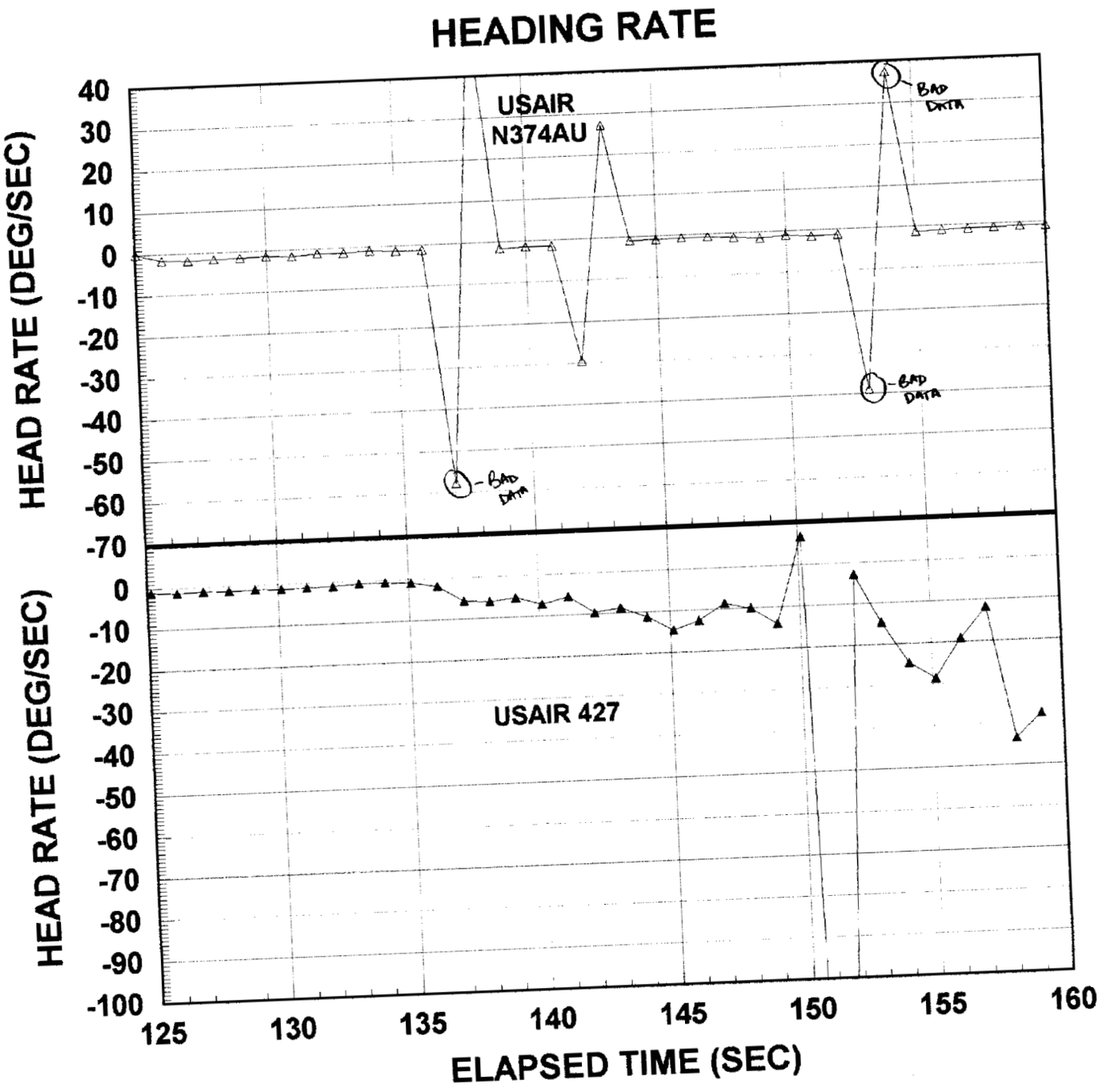

INDICATED AIRPSEED
USAIR
N374AU
USAIR 427
IAS (KNOTS)
IAS (KNOTS)
240
230
220
210
200
190
180
170
160
150
260
250
240
230
220
210
200
190
180
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

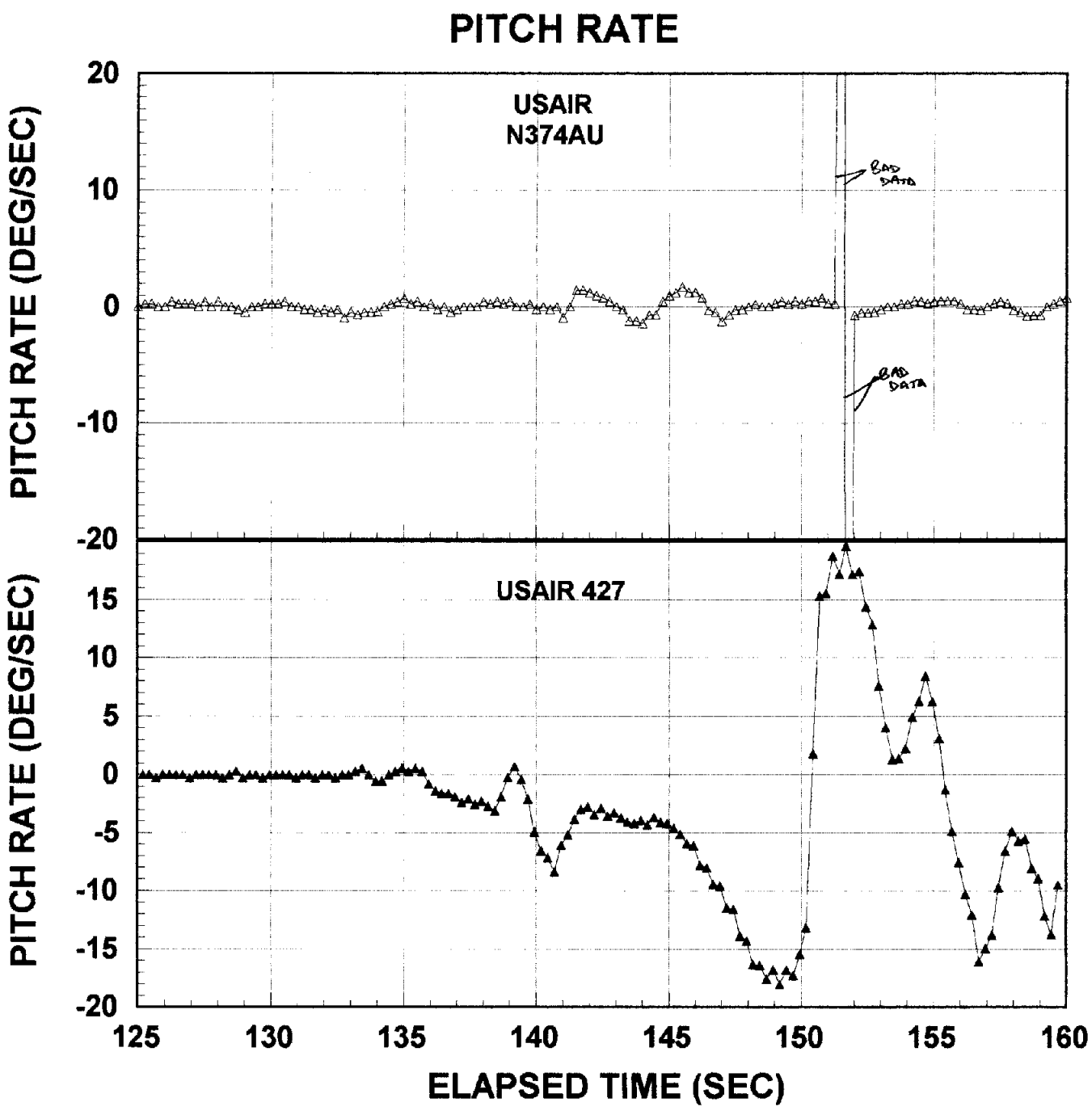

MAGNETIC HEADING
MAG HEAD (DEGS)
360
300
240
180
120
60
0
BAD DATA
BAD DATA
USAIR
N374AU
USAIR 427
MAG HEAD (DEGS)
300
240
180
120
60
0
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

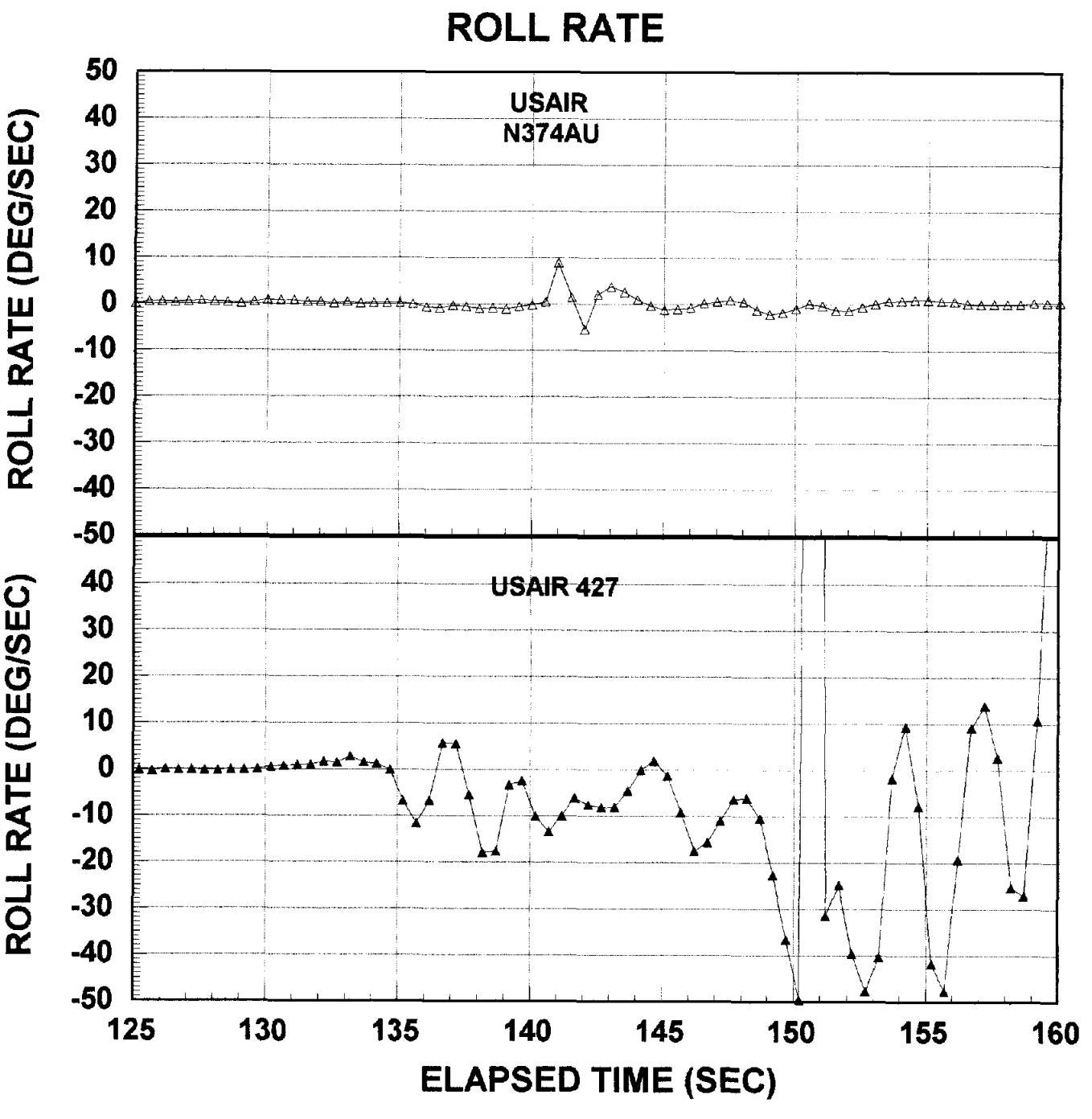

PITCH ANGLE
PITCH (DEGS)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
USAIR
N374AU
PITCH (DEGS)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL ANGLE
USAIR
N374AU
USAIR 427
ROLL (DEGS)
ROLL (DEGS)
100
50
0
-50
-100
-150
-200
50
0
-50
-100
-150
-200
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


NORMAL ACCELERATION
NORMAL ACCEL (GS)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
USAIR
N374AU
NORMAL ACCEL (GS)
4
3.5
3
2.5
2
1.5
1
0.5
USAIR 427
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


HEADING RATE
USAIR
N374AU
BAD DATA
BAD DATA
BAD DATA
USAIR 427
HEAD RATE (DEG/SEC)
HEAD RATE (DEG/SEC)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


PITCH RATE
USAIR
N374AU
BAD DATA
BAD DATA
PITCH RATE (DEG/SEC)
20
10
0
-10
-20
USAIR 427
PITCH RATE (DEG/SEC)
15
10
5
0
-5
-10
-15
-20
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)


ROLL RATE
USAIR
N374AU
USAIR 427
ROLL RATE (DEG/SEC)
ROLL RATE (DEG/SEC)
50
40
30
20
10
0
-10
-20
-30
-40
-50
125
130
135
140
145
150
155
160
ELAPSED TIME (SEC)

ATTACHMENT VIII
DCA-94-MA-076 tabular data

USAIR 427

etime	alt	etime	ias	etime	heading	etime	roll	etime	pitch	etime	vacc	headrate	rollrate	pitchrate
125.6	5812	125.141	190.07	125.125	112.54	125.203	-13.9	125.1875	7.5	125.047	1.001	-1.15	-0.16	0
126.6	5814	126.141	190.38	126.125	111.21	125.703	-14.07	125.4375	7.5	125.172	1.001	-1.33	-0.34	0
127.6	5815	127.141	190.38	127.125	110.09	126.203	-13.99	125.6875	7.43	125.297	0.999	-1.12	0.16	-0.28
128.6	5816	128.141	190.38	128.125	108.91	126.703	-13.99	125.9375	7.43	125.422	0.991	-1.18	0	0
129.6	5816	129.141	190.7	129.125	107.83	127.203	-13.99	126.1875	7.43	125.547	0.994	-1.08	0	0
130.6	5818	130.141	190.54	130.125	106.61	127.703	-14.07	126.4375	7.43	125.672	0.996	-1.22	-0.16	0
131.6	5818	131.141	190.85	131.125	105.58	128.203	-14.15	126.6875	7.43	125.797	0.996	-1.03	-0.16	0
132.6	5818	132.141	190.7	132.125	104.57	128.703	-14.15	126.9375	7.36	125.922	0.987	-1.01	0	-0.28
133.6	5816	133.141	195.3	133.125	103.99	129.203	-14.15	127.1875	7.36	126.047	0.991	-0.58	0	0
134.6	5822	134.141	189.6	134.125	103.41	129.703	-14.07	127.4375	7.36	126.172	0.991	-0.58	0.16	0
135.6	5827	135.141	192.56	135.125	102.53	130.203	-13.74	127.6875	7.36	126.297	0.989	-0.88	0.66	0
136.6	5812	136.141	190.7	136.125	100.58	130.703	-13.33	127.9375	7.36	126.422	0.994	-1.95	0.82	0
137.6	5790	137.141	191.32	137.125	94.91	131.203	-12.85	128.1875	7.29	126.547	0.999	-5.67	0.96	-0.28
138.6	5758	138.141	191.16	138.125	88.86	131.703	-12.29	128.4375	7.29	126.672	0.999	-6.05	1.12	0
139.6	5719	139.141	190.7	139.125	83.47	132.203	-11.43	128.6875	7.36	126.797	1.001	-5.39	1.72	0.28
140.6	5694	140.141	189.91	140.125	76.26	132.703	-10.66	128.9375	7.29	126.922	0.996	-7.21	1.54	-0.28
141.6	5646	141.141	188.97	141.125	70.64	133.203	-9.23	129.1875	7.29	127.047	0.989	-5.62	2.86	0
142.6	5606	142.141	187.38	142.125	60.98	133.703	-8.43	129.4375	7.29	127.172	0.989	-9.66	1.6	0
143.6	5573	143.141	187.7	143.125	52.19	134.203	-7.78	129.6875	7.22	127.297	0.987	-8.79	1.3	-0.28
144.6	5516	144.141	187.38	144.125	40.92	134.703	-7.78	129.9375	7.22	127.422	0.994	-11.27	0	0
145.6	5495	145.141	186.27	145.125	26.26	135.203	-11.12	130.1875	7.22	127.547	0.991	-14.66	-6.68	0
146.6	5489	146.141	186.43	146.125	13.74	135.703	-16.95	130.4375	7.22	127.672	0.994	-12.52	-11.66	0
147.6	5228	147.141	191.32	147.125	5.11	136.203	-20.28	130.6875	7.22	127.797	0.989	-8.63	-6.66	0
148.6	5007	148.141	193.33	148.125	355.02	136.703	-17.39	130.9375	7.15	127.922	0.989	-10.09	5.78	-0.28
149.6	4889	149.141	197.7	149.125	341	137.203	-14.57	131.1875	7.15	128.047	0.987	-14.02	5.64	0
150.6	4550	150.141	207.85	150.125	347.79	137.703	-17.3	131.4375	7.15	128.172	0.984	6.79	-5.46	0
151.6	4051	151.141	215.61	151.125	95.31	138.203	-26.26	131.6875	7.08	128.297	0.982	-252.48	-17.92	-0.28
152.6	3913	152.141	220.93	152.125	92.45	138.703	-35.08	131.9375	7.08	128.422	0.989	-2.86	-17.64	0
153.6	3492	153.141	230.22	153.125	77.71	139.203	-36.71	132.1875	7.08	128.547	0.989	-14.74	-3.26	0
154.6	2929	154.141	239.32	154.125	53.07	139.703	-37.92	132.4375	7.01	128.672	0.989	-24.64	-2.42	-0.28
155.6	2972	155.141	236.19	155.125	24.57	140.203	-42.93	132.6875	7.01	128.797	0.984	-28.5	-10.02	0
156.6	2397	156.141	245.72	156.125	5.44	140.703	-49.64	132.9375	7.01	128.922	0.987	-19.13	-13.42	0
157.6	1880	157.141	247.86	157.125	342.78	141.203	-54.6	133.1875	7.08	129.047	0.984	-11.78	-9.92	0.28
158.6	1874	158.141	246.5	158.125	299.3	141.703	-57.62	133.4375	7.22	129.172	0.982	-43.48	-6.04	0.56
159.6	1188	159.141	261.7	159.125	261.7	142.203	-61.4	133.6875	7.22	129.297	0.979	-37.6	-7.56	0
						142.703	-65.43	133.9375	7.08	129.422	0.977		-8.06	-0.56
						143.203	-69.44	134.1875	6.94	129.547	0.979		-8.02	-0.56
						143.703	-71.72	134.4375	6.94	129.672	0.975		-4.56	0
						144.203	-71.72	134.6875	7.01	129.797	0.975		0	0.28
						144.703	-70.73	134.9375	7.15	129.922	0.972		1.98	0.56
						145.203	-71.36	135.1875	7.22	130.047	0.975		-1.26	0.28
						145.703	-75.93	135.4375	7.36	130.172	0.975		-9.14	0.56
						146.203	-84.69	135.6875	7.43	130.297	0.975		-17.52	0.28

						146.703	-92.51	135.9375	7.22	130.422	0.972		-15.64	-0.84
						147.203	-98	136.1875	6.87	130.547	0.97		-10.98	-1.4
						147.703	-101.12	136.4375	6.46	130.672	0.977		-6.24	-1.64
						148.203	-104.15	136.6875	6.05	130.797	0.979		-6.06	-1.64
						148.703	-109.36	136.9375	5.58	130.922	0.982		-10.42	-1.88
						149.203	-120.69	137.1875	4.98	131.047	0.977		-22.66	-2.4
						149.703	-138.97	137.4375	4.46	131.172	0.975		-36.56	-2.08
						150.203	-163.74	137.6875	3.82	131.297	0.977		-49.54	-2.56
						150.703	77.63	137.9375	3.25	131.422	0.97		482.74	-2.28
						151.203	61.91	138.1875	2.57	131.547	0.963		-31.44	-2.72
						151.703	49.53	138.4375	1.79	131.672	0.965		-24.76	-3.12
						152.203	29.74	138.6875	1.32	131.797	0.963		-39.58	-1.88
						152.703	5.91	138.9375	1.26	131.922	0.972		-47.66	-0.24
						153.203	-14.23	139.1875	1.43	132.047	0.984		-40.28	0.68
						153.703	-15.07	139.4375	1.32	132.172	0.994		-1.68	-0.44
						154.203	-10.35	139.6875	0.79	132.297	0.999		9.44	-2.12
						154.703	-14.23	139.9375	-0.45	132.422	1.003		-7.76	-4.96
						155.203	-35.08	140.1875	-2.09	132.547	0.922		-41.7	-6.56
						155.703	-58.89	140.4375	-3.88	132.672	0.889		-47.62	-7.16
						156.203	-68.51	140.6875	-5.98	132.797	0.889		-19.24	-8.4
						156.703	-63.94	140.9375	-7.5	132.922	0.879		9.14	-6.08
						157.203	-56.98	141.1875	-8.79	133.047	0.845		13.92	-5.16
						157.703	-55.58	141.4375	-9.75	133.172	0.951		2.8	-3.84
						158.203	-68.25	141.6875	-10.5	133.297	1.099		-25.34	-3
						158.703	-81.79	141.9375	-11.19	133.422	1.058		-27.08	-2.76
						159.203	-76.44	142.1875	-12.05	133.547	1.023		10.7	-3.44
						159.703	-40.73	142.4375	-12.77	133.672	1.018		71.42	-2.88
								142.6875	-13.66	133.797	0.989			-3.56
								142.9375	-14.48	133.922	0.867			-3.28
								143.1875	-15.41	134.047	0.774			-3.72
								143.4375	-16.43	134.172	0.838			-4.08
								143.6875	-17.48	134.297	0.841			-4.2
								143.9375	-18.46	134.422	0.85			-3.92
								144.1875	-19.54	134.547	0.865			-4.32
								144.4375	-20.46	134.672	0.934			-3.68
								144.6875	-21.49	134.797	0.934			-4.12
								144.9375	-22.54	134.922	1.003			-4.2
								145.1875	-23.69	135.047	1.049			-4.6
								145.4375	-24.97	135.172	1.07			-5.12
								145.6875	-26.46	135.297	1.054			-5.96
								145.9375	-27.99	135.422	1.054			-6.12
								146.1875	-29.95	135.547	1.042			-7.84
								146.4375	-31.96	135.672	1.044			-8.04
								146.6875	-34.32	135.797	0.984			-9.44

								146.9375	-36.71	135.922	0.903				-9.56
								147.1875	-39.58	136.047	0.834				-11.48
								147.4375	-42.48	136.172	0.767				-11.6
								147.6875	-45.95	136.297	0.752				-13.88
								147.9375	-49.53	136.422	0.771				-14.32
								148.1875	-53.62	136.547	0.817				-16.36
								148.4375	-57.72	136.672	0.85				-16.4
								148.6875	-62.11	136.797	0.889				-17.56
								148.9375	-66.31	136.922	0.934				-16.8
								149.1875	-70.82	137.047	0.953				-18.04
								149.4375	-75.02	137.172	0.963				-16.8
								149.6875	-79.34	137.297	0.96				-17.28
								149.9375	-83.2	137.422	0.934				-15.44
								150.1875	-86.5	137.547	0.92				-13.2
								150.4375	-86.05	137.672	0.886				1.8
								150.6875	-82.22	137.797	0.874				15.32
								150.9375	-78.34	137.922	0.977				15.52
								151.1875	-73.65	138.047	0.996				18.76
								151.4375	-69.35	138.172	1.006				17.2
								151.6875	-64.44	138.297	0.944				19.64
								151.9375	-60.15	138.422	0.944				17.16
								152.1875	-55.79	138.547	0.855				17.44
								152.4375	-52.19	138.672	0.905				14.4
								152.6875	-48.97	138.797	0.96				12.88
								152.9375	-47.07	138.922	1.058				7.6
								153.1875	-46.06	139.047	1.18				4.04
								153.4375	-45.73	139.172	1.288				1.32
								153.6875	-45.39	139.297	1.412				1.36
								153.9375	-44.83	139.422	1.451				2.24
								154.1875	-43.6	139.547	1.52				4.92
								154.4375	-42.03	139.672	1.561				6.28
								154.6875	-39.92	139.797	1.554				8.44
								154.9375	-38.36	139.922	1.534				6.24
								155.1875	-37.59	140.047	1.472				3.08
								155.4375	-37.92	140.172	1.396				-1.32
								155.6875	-39.14	140.297	1.345				-4.88
								155.9375	-41.03	140.422	1.288				-7.56
								156.1875	-43.6	140.547	1.247				-10.28
								156.4375	-46.62	140.672	1.145				-12.08
								156.6875	-50.64	140.797	1.042				-16.08
								156.9375	-54.38	140.922	1.046				-14.96
								157.1875	-57.83	141.047	1.092				-13.8
								157.4375	-60.26	141.172	1.13				-9.72
								157.6875	-61.91	141.297	1.19				-6.6

								157.9375	-63.13	141.422	1.233			-4.88
								158.1875	-64.56	141.547	1.288			-5.72
								158.4375	-65.94	141.672	1.35			-5.52
								158.6875	-67.96	141.797	1.398			-8.08
								158.9375	-70.2	141.922	1.441			-8.96
								159.1875	-73.24	142.047	1.479			-12.16
								159.4375	-76.68	142.172	1.508			-13.76
								159.6875	-79.05	142.297	1.544			-9.48
								159.9375	0	142.422	1.566			316.2
										142.547	1.594			
										142.672	1.621			
										142.797	1.632			
										142.922	1.63			
										143.047	1.642			
										143.172	1.654			
										143.297	1.671			
										143.422	1.687			
										143.547	1.702			
										143.672	1.678			
										143.797	1.711			
										143.922	1.754			
										144.047	1.795			
										144.172	1.819			
										144.297	1.848			
										144.422	1.9			
										144.547	1.939			
										144.672	1.996			
										144.797	1.991			
										144.922	2.006			
										145.047	1.982			
										145.172	1.929			
										145.297	1.934			
										145.422	1.931			
										145.547	1.963			
										145.672	1.996			
										145.797	1.951			
										145.922	1.979			
										146.047	1.967			
										146.172	1.991			
										146.297	1.958			
										146.422	1.936			
										146.547	1.941			
										146.672	1.905			
										146.797	1.874			

146.922	1.857
147.047	1.879
147.172	1.893
147.297	1.817
147.422	1.886
147.547	1.865
147.672	1.908
147.797	1.936
147.922	1.951
148.047	2.015
148.172	2.053
148.297	2.089
148.422	2.168
148.547	2.175
148.672	2.183
148.797	2.252
148.922	2.302
149.047	2.333
149.172	2.405
149.297	2.4
149.422	2.372
149.547	2.288
149.672	2.35
149.797	2.199
149.922	2.286
150.047	2.226
150.172	2.226
150.297	2.168
150.422	2.211
150.547	2.168
150.672	2.053
150.797	2.216
150.922	2.178
151.047	2.202
151.172	2.367
151.297	2.381
151.422	2.589
151.547	2.637
151.672	2.683
151.797	2.764
151.922	2.805
152.047	2.986
152.172	3.006
152.297	3.037

152.422	3.106
152.547	3.104
152.672	3.061
152.797	2.905
152.922	2.699
153.047	2.616
153.172	2.539
153.297	2.498
153.422	2.427
153.547	2.532
153.672	2.525
153.797	2.592
153.922	2.73
154.047	2.833
154.172	2.951
154.297	3.096
154.422	3.199
154.547	3.316
154.672	3.383
154.797	3.532
154.922	3.522
155.047	3.625
155.172	3.537
155.297	3.415
155.422	3.273
155.547	3.195
155.672	3.02
155.797	2.967
155.922	2.671
156.047	2.852
156.172	2.585
156.297	2.845
156.422	2.663
156.547	2.773
156.672	2.903
156.797	2.939
156.922	3.001
157.047	3.087
157.172	3.25
157.297	3.357
157.422	3.503
157.547	3.661
157.672	3.723
157.797	3.852

157.922	3.852
158.047	3.675
158.172	3.628
158.297	3.525
158.422	3.316
158.547	3.118
158.672	3.008
158.797	2.85
158.922	2.855
159.047	2.912
159.172	2.833
159.297	3.013
159.422	3.029
159.547	3.333
159.672	3.376
159.797	3.484
159.922	3.647