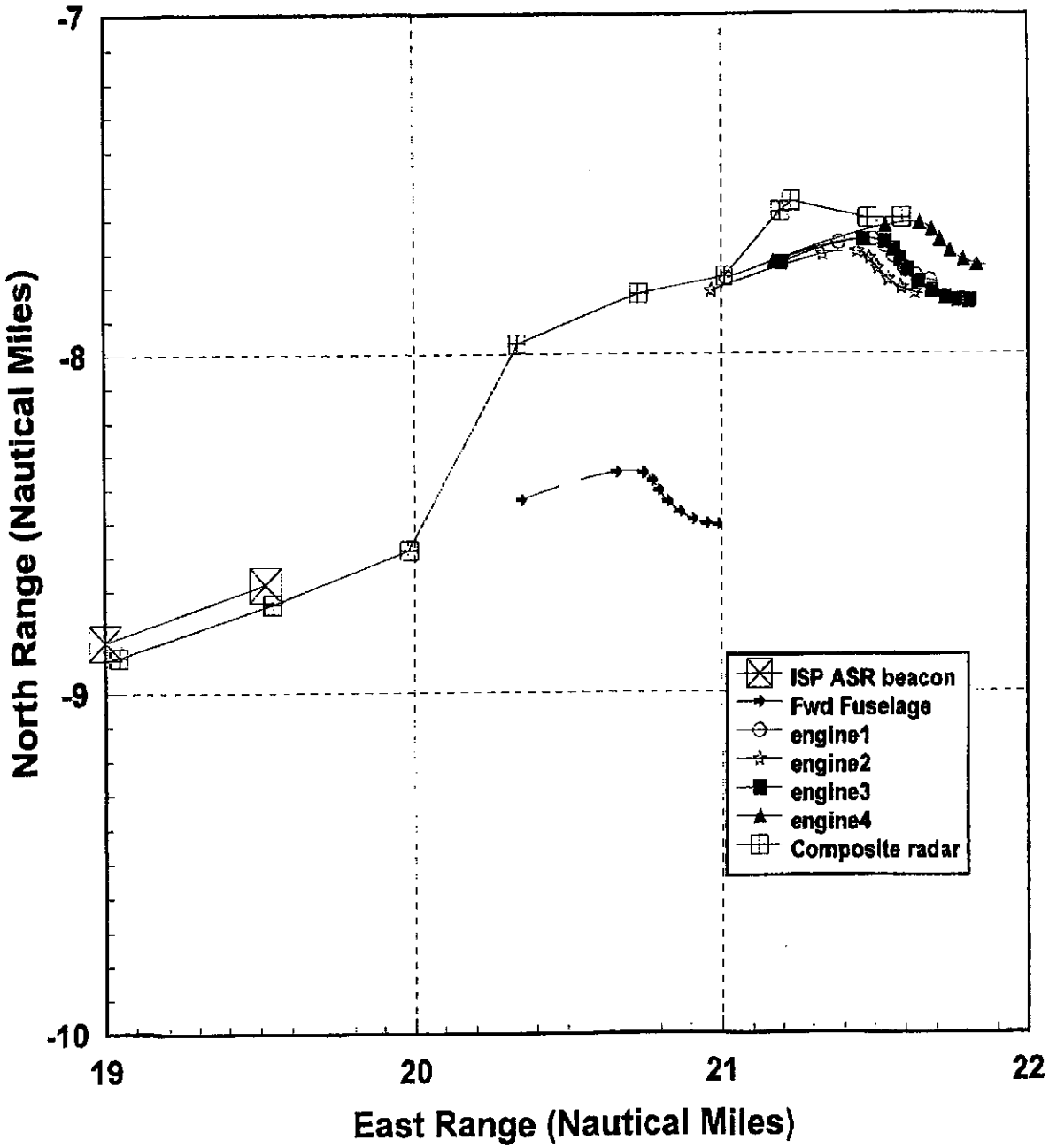
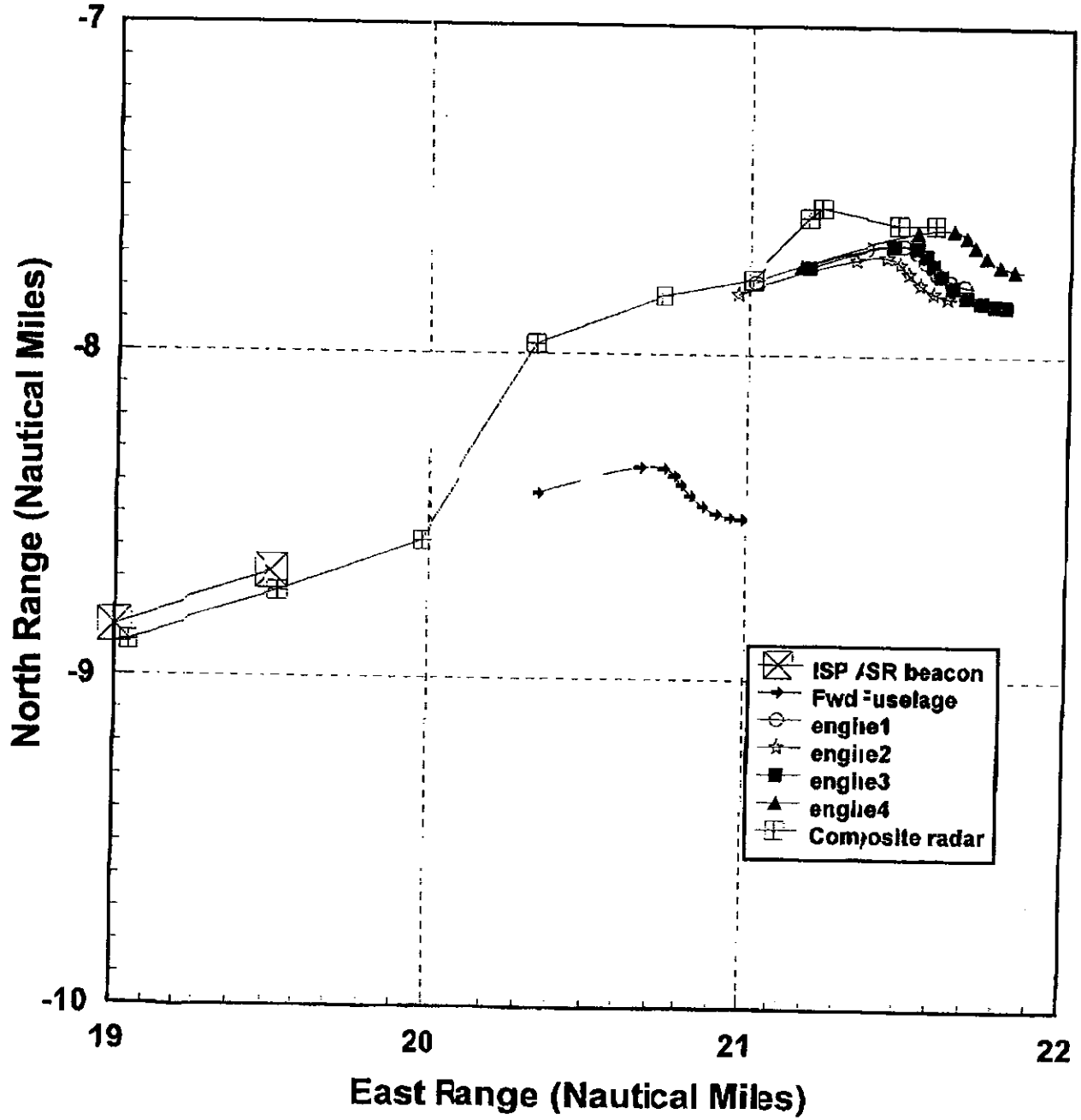
TWA 800 Engine Parts

Required Trajectories If the engines Separated from the main wreckage with the last FDR velocity



TWA 800 Engine Parts

Required Trajectories If the engines Separated from the main wreckage with the last FDR velocity



432	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
433		AGA	2	792	0	0!B
434	EPR	Eng	1	275	0	0!B
435	EPR	Eng	2	275	0	0!B
436	EPR	Eng	3	275	0	0!B
437	EPR	Eng	4	275	0	0!B
438		CAS		283	0	0!B
439	na	-	-	000	0	0!B
440	na	-	-	000	0	0!B
441	na	-	-	000	0	0!B
442	Vert	Acc	3	337	0	0!B
443	Long	Acc	3	338	0	0!B
444	na	-	-	000	0	0!B
445	na	-	-	000	0	0!B
446	na	-	-	000	0	0!B
447	na	-	-	000	0	0!B
448	na	-	-	000	0	0!B
449	na	-	-	000	0	0!B
450	na	-	-	000	0	0!B
451	na	-	-	000	0	0!B
452	na	-	-	000	0	0!B
453	na	-	-	000	0	0!B
454	na	-	-	000	0	0!B
455	na	-	-	000	0	0!B
456	na	-	-	000	0	0!B
457	na	-	-	000	0	0!B
458	na	-	-	000	0	0!B
459	na	-	-	000	0	0!B
460	na	-	-	000	0	0!B
461	na	-	-	000	0	0!B
462	na	-	-	000	0	0!B
463	na	-	-	000	0	0!B
464	na	-	-	000	0	0!B
939	LEF-Tr_L1			011	0	0
939	LEF-Ex_L1			010	0	0
939	LEF-Tr_L2			009	0	0
939	LEF-Ex_L2			007	0	0
939	LEF-Tr_L3			006	0	0
939	LEF-Ex_L3			005	0	0
939	LEF-Tr_L4			003	0	0
939	LEF-Ex_L4			002	0	0
939	Micro_Op			001	0	0
940	LEF-Tr_R1			011	0	0
940	LEF-Ex_R1			010	0	0
940	LEF-Tr_R2			009	0	0
940	LEF-Ex_R2			007	0	0
940	LEF-Tr_R3			006	0	0
940	LEF-Ex_R3			005	0	0
940	LEF-Tr_R4			003	0	0
940	LEF-Ex_R4			002	0	0
941	TR-Ntrans_1			011	0	0
941	TR-Ntrans_2			010	0	0
941	TR-Ntrans_3			009	0	0
941	TR-Ntrans_4			007	0	0
941	TR-Dploy_1			006	0	0
941	TR-Dploy_2			005	0	0

941 TR-Cplcy_4 002 0 0

340	na	-	-	000	0	0!B
341	na	-	-	000	0	0!B
342	Vert	Acc	3	337	0	0!B
343	Long	Acc	3	338	0	0!B
344	na	-	-	000	0	0!B
345	na	-	-	000	0	0!B
346	na	-	-	000	0	0!B
347	na	-	-	000	0	0!B
348	na	-	-	000	0	0!B
349	na	-	-	000	0	0!B
350	na	-	-	000	0	0!B
351	na	-	-	000	0	0!B
352	na	-	-	000	0	0!B
353	na	-	-	000	0	0!B
354	na	-	-	000	0	0!B
355	na	-	-	000	0	0!B
356	na	-	-	000	0	0!B
357	na	-	-	000	0	0!B
358	na	-	-	000	0	0!B
359	na	-	-	000	0	0!B
360	na	-	-	000	0	0!B
361	na	-	-	000	0	0!B
362	na	-	-	000	0	0!B
363	na	-	-	000	0	0!B
364	na	-	-	000	0	0!B
401	Sync	Word		108	0	0!B
402	Flight	Number		107	0	0!B
403	Flight	Leg		107	0	0!B
404		Month		107	0	0!B
405		Day		107	0	0!B
406		Hour		107	0	0!B
407		Minute		107	0	0!B
408		Second		107	0	0!B
409		A/C	ID	107	0	0!B
410		A/C		107	0	0!B
411	Vert	Acc	1	337	0	0!B
412	Long	Acc	1	338	0	0!B
413	Rudder	Up	1	528	0	0!B
414	Rudder	Low	1	528	0	0!B
415		AOA	1	792	0	0!B
416	Alt	Coarse		289	0	0!B
417	Alt	Fine		290	0	0!B
418	Magnet	Head		271	0	0!B
419	Pitch	Att		270	0	1!B
420	Roll	Att		270	0	1!B
421	Elev	Right		280	0	0!B
422	Elev	Left		279	0	0!B
423	Flaps	RI		527	0	0!B
424	Flaps	LI		527	0	0!B
425	Flaps	LO		527	0	0!B
426	Flaps	RO		527	0	0!B
427	Pitch	Trim		295	0	0!B
428	Ctrl	Wheel		296	0	1!B
429	Vert	Acc	2	337	0	0!B
430	Long	Acc	2	338	0	0!B
431	Rudder	Up	2	528	0	0!B

248	na	-	-	000	0	01B
249	na	-	-	000	0	01B
250	na	-	-	000	0	01B
251	na	-	-	000	0	01B
252	na	-	-	000	0	01B
253	na	-	-	000	0	01B
254	na	-	-	000	0	01B
255	na	-	-	000	0	01B
256	na	-	-	000	0	01B
257	na	-	-	000	0	01B
258	na	-	-	000	0	01B
259	na	-	-	000	0	01B
260	na	-	-	000	0	01B
261	na	-	-	000	0	01B
262	na	-	-	000	0	01B
263	na	-	-	000	0	01B
264	na	-	-	000	0	01B
301	Sync		Word	108	0	01B
302	Flight		Number	107	0	01B
303	Flight		Leg	107	0	01B
304			Month	107	0	01B
305			Day	107	0	01B
306			Hour	107	0	01B
307			Minute	107	0	01B
308			Second	107	0	01B
309			A/C ID	107	0	01B
310			A/C	107	0	01B
311	Vert		Acc 1	337	0	01B
312	Long		Acc 1	338	0	01B
313	Rudder		Up 1	528	0	01B
314	Rudder		Low 1	528	0	01B
315			AOA 1	292	0	01B
316	Alt		Coarse	289	0	01B
317	Alt		Fine	290	0	01B
318	Magnet		Head	271	0	01B
319	Pitch		Att	270	0	11B
320	Roll		Att	270	0	11B
321	Elev		Right	280	0	01B
322	Elev		Left	279	0	01B
323	Flaps		RI	527	0	01B
324	Flaps		LI	527	0	01B
325	Flaps		LO	527	0	01B
326	Flaps		RO	527	0	01B
327	Pitch		Trim	295	0	01B
328	Ctrl		Wheel	295	0	11B
329	Vert		Acc 2	337	0	01B
330	Long		Acc 2	338	0	01B
331	Rudder		Up 2	528	0	01B
332	Rudder		Low 2	528	0	01B
333			AOA 2	292	0	01B
334	EPR		Eng 1	275	0	01B
335	EPR		Eng 2	275	0	01B
336	EPR		Eng 3	275	0	01B
337	EPR		Eng 4	275	0	01B
338			CAS	233	0	01B
339	na	-	-	000	0	01B

156	na	-	-	000	0	0!B
157	na	-	-	000	0	0!B
158	na	-	-	000	0	0!B
159	na	-	-	000	0	0!B
160	na	-	-	000	0	0!B
161	na	-	-	000	0	0!B
162	na	-	-	000	0	0!B
163	na	-	-	000	0	0!B
164	na	-	-	000	0	0!B
201	Sync		Word	108	0	0!B
202	Flight		Number	107	0	0!B
203	Flight		Leg	107	0	0!B
204			Month	107	0	0!B
205			Day	107	0	0!B
206			Hour	107	0	0!B
207			Minute	107	0	0!B
208			Second	107	0	0!B
209			A/C ID	107	0	0!B
210			A/C	107	0	0!B
211	Vert		Acc 1	337	0	0!B
212	Long		Acc 1	338	0	0!B
213	Rudder		Up 1	528	0	0!B
214	Rudder		Low 1	528	0	0!B
215			AOA 1	792	0	0!B
216	Alt		Coarse	289	0	0!B
217	Alt		Fine	290	0	0!B
218	Magnet		Head	271	0	0!B
219	Pitch		Att	270	0	1!B
220	Roll		Att	270	0	1!B
221	Elev		Right	280	0	0!B
222	Elev		Left	279	0	0!B
223	Flaps		RI	527	0	0!B
224	Flaps		LI	527	0	0!B
225	Flaps		LO	527	0	0!B
226	Flaps		RO	527	0	0!B
227	Pitch		Trim	295	0	0!B
228	Ctrl		Wheel	296	0	1!B
229	Vert		Acc 2	337	0	0!B
230	Long		Acc 2	338	0	0!B
231	Rudder		Up 2	528	0	0!B
232	Rudder		Low 2	528	0	0!B
233			AOA 2	292	0	0!B
234	EPR		Eng 1	275	0	0!B
235	EPR		Eng 2	275	0	0!B
236	EPR		Eng 3	275	0	0!B
237	EPR		Eng 4	275	0	0!B
238			CAS	283	0	0!B
239	na	-	-	000	0	0!B
240	na	-	-	000	0	0!B
241	na	-	-	000	0	0!B
242	Vert		Acc 3	337	0	0!B
243	Long		Acc 3	338	0	0!B
244	na	-	-	000	0	0!B
245	na	-	-	000	0	0!B
246	na	-	-	000	0	0!B
247	na	-	-	000	0	0!B

100	[illegible]		[illegible]			
101	Sync		Word	108	0	0!B
102	Flight		Number	107	0	0
103	Flight		Nr/Leg	107	0	0
104	Date		Mo/Day	107	0	0
105	Date		Day/Hr	107	0	0
106	GMT		Min:Sec	107	0	0**
107	Sec		A/C Nr	107	0	0**
108			Second	107	0	0!B**
109			A/C ID	107	0	0!B**
110			A/C	107	0	0!B**
111	Vert		Acc 1	337	0	0!B
112	Long		Acc 1	338	0	0!B
113	Rudder		Up 1	279	0	0!B
114	Rudder		Low 1	280	0	0!B
115			AOA 1	792	0	0!B
116	Alt		Coarse	289	0	0!B
117	Alt		Fine	790	0	0!B
118	Magnet		Head	271	0	0!B
119	Pitch		Att	270	0	1!B
120	Roll		Att	270	0	1!B
121	Elev		Right	280	0	0!B
122	Elev		Left	279	0	0!B
123	Flaps		RI	527	0	0!B
124	Flaps		LI	527	0	0!B
125	Flaps		LO	527	0	0!B
126	Flaps		RO	527	0	0!B
127	Pitch		Trim	795	0	0!B
128	Ctrl		Wheel	549	0	1!B
129	Vert		Acc 2	337	0	0!B
130	Long		Acc 2	338	0	0!B
131	Rudder		Up 2	279	0	0!B
132	Rudder		Low 2	280	0	0!B
133			AOA 2	792	0	0!B
134	EPR		Eng 1	275	0	0!B
135	EPR		Eng 2	275	0	0!B
136	EPR		Eng 3	275	0	0!B
137	EPR		Eng 4	275	0	0!B
138			CAS	283	0	0!B
139	na	-	-	000	0	0!B
140	na	-	-	000	0	0!B
141	na	-	-	000	0	0!B
142	Vert		Acc 3	337	0	0!B
143	Long		Acc 3	338	0	0!B
144	na	-	-	000	0	0!B
145	na	-	-	000	0	0!B
146	na	-	-	000	0	0!B
147	na	-	-	000	0	0!B
148	na	-	-	000	0	0!B
149	na	-	-	000	0	0!B
150	na	-	-	000	0	0!B
151	na	-	-	000	0	0!B
152	na	-	-	000	0	0!B
153	na	-	-	000	0	0!B
154	na	-	-	000	0	0!B
155	na	-	-	000	0	0!B

TWA Flt. 800, B747-131, Climb From 13,000 to End of Data
Plot No. 8, Created: May 27, 1999, Vehicle Recorders Division RE-40

LOCAL TIME (ref. CVR)	IAS (KNOTS)	Pitch Angle (degrees)	Elevator Position Right (degrees)	Mag. Heading (degrees)	Roll Angle (degrees)	Rudder Position (upper) (degrees)	Angle of Attack (degrees)	EPR Engine 1 (ratio)	EPR Engine 2 (ratio)	EPR Engine 3 (ratio)	EPR Engine 4 (ratio)	Long. Accel (g)	Vert. Accel. (g)	VHF	Pitch Trim Stab. Pos (degrees)	MSL Alt. (FEET)
20:29:40	284.5	2.2 2.2	0.4 0.3	81.4 81.4	1.1 1.4	0.7 0.7 0.7	3.2 3.2 3.2	1.12	1.05	1.07	1.11	0.07 0.07 0.07 0.07 0.07	0.96 0.96 0.95 0.96 0.95	Off	3.7 3.7	12832.0 12832.0
20:29:41	287.0 281.5	2.2	0.3	81.4	1.4	0.7 0.7 0.7	3.9 3.9 3.9	1.12 1.12	1.05 1.05	1.07 1.07	1.11 1.11	0.07 0.06 0.07	0.94 0.94 0.93	Off Off	3.7	12832.0
20:29:42	275.0	2.2 2.2	0.4 0.7	81.4 81.4	1.1 0.7	0.7 0.7 0.8	3.2 3.2 3.2	1.12	1.05	1.06	1.11	0.06 0.06 0.06 0.06 0.06	0.93 0.93 0.92 0.92 0.92	Off	3.7 3.7	12832.0 12832.0
20:29:43	292.5 280.0	2.2	0.7	81.4	0.7	0.7 0.7	3.2 3.2	1.12 1.12	1.05 1.05	1.07 1.06	1.11 1.11	0.06 0.07	0.93 0.93	Off Off	3.8	12832.0
20:29:44	284.0	2.9 2.9	0.7 0.4	81.4 81.4	0.7 1.1	0.7 0.7 0.7	3.2 3.2 3.4 3.4	1.12	1.05	1.06	1.11	0.07 0.07 0.07 0.07 0.07 0.07	0.96 0.97 0.97 0.98 1.00 1.01	Off	4.0 4.0	12827.0 12827.0
20:29:45	283.5 277.5	3.2	0.4	81.4	1.1	0.7 0.7 0.7	3.7 3.4 3.4	1.12 1.12	1.06 1.05	1.07 1.07	1.11 1.11	0.08 0.08 0.08 0.08 0.08	1.02 1.01 1.02 1.01 1.00	Off Off	4.0	12822.0
20:29:46	276.5	3.2 3.2	0.2 0.0	81.4 81.4	0.7 0.7	0.7 0.6 0.6	3.4 4.4 3.4	1.11	1.05	1.07	1.11	0.08 0.07 0.07 0.07	1.00 1.00 1.00 0.99	Off	4.0	12822.0 12822.0
20:29:47	265.5 282.0	3.2	0.3	81.4	0.0	0.7 0.6 0.6	3.4 3.4 3.4	1.11 1.11	1.05 1.05	1.07 1.06	1.11 1.11	0.07 0.07 0.07 0.07 0.07	0.98 0.98 0.98 0.98 0.98	Off Off	4.0 4.0	12822.0
20:29:48	282.5	3.2 3.6	0.5 0.7	81.4 81.7	-0.7 -1.1	0.6 0.7 0.7	3.4 3.4 3.4	1.11	1.05	1.06	1.11	0.07 0.07 0.07 0.07	0.98 0.98 0.98 0.99	Off	4.0	12822.0 12827.0
20:29:49	282.0 282.0	4.0	0.7	81.7	-1.4	0.7 0.7 0.7	3.4 3.4 3.7	1.11 1.11	1.05 1.06	1.07 1.07	1.11 1.11	0.08 0.08 0.08 0.08 0.08	1.00 1.02 1.03 1.04 1.05	Off Off	4.0 4.0	12827.0
20:29:50	279.0	4.0 4.3	0.5 0.5	81.4 81.4	-1.1 -1.1	0.8 0.7 0.7	3.7 3.7 3.4	1.11	1.05	1.07	1.11	0.08 0.08 0.08 0.08 0.08	1.06 1.06 1.05 1.04 1.03	Off	4.0	12832.0 12837.0
20:29:51	288.0 264.0	4.3	0.4	81.4	-0.7	0.7 0.7 0.7	4.4 3.7 3.7	1.11 1.11	1.05 1.05	1.07 1.07	1.11 1.11	0.08 0.08 0.08 0.08 0.08	1.02 1.01 1.01 1.01 1.01	Off Off	4.0 4.0	12842.0
20:29:52	281.5	4.0 4.3	0.5	81.4 81.4	-0.7 -0.4	0.7 0.7 0.7	3.7 3.7 3.7	1.11	1.05	1.07	1.11	0.08 0.08 0.08 0.08 0.08	1.01 1.01 1.01 1.01 1.00	Off	4.0	12852.0 12862.0
20:29:53	281.0 281.0	4.3	0.3 0.2	81.4	0.0	0.7 0.7 0.7	3.4 3.4 3.4	1.11 1.11	1.06 1.06	1.07 1.07	1.11 1.11	0.08 0.08 0.08 0.08 0.08	1.01 1.01 1.01 1.00 1.00	Off Off	4.0 3.9	12872.0
20:29:54	281.0	4.3 4.0	0.1	81.4 81.4	0.4 0.0	0.7 0.7 0.7	3.4 3.4 3.4	1.12	1.06	1.07	1.11	0.08 0.07 0.07 0.07 0.07	0.99 0.98 0.98 0.98 0.97	Off	3.9	12882.0 12892.0
20:29:55	280.0 278.5	4.0	0.3 0.2	81.4	0.0	0.6 0.5 0.6	3.4 3.4 4.1	1.12 1.12	1.06 1.06	1.07 1.07	1.11 1.11	0.07 0.07 0.07 0.07	0.96 0.95 0.95 0.95	Off Off	3.9 3.8	12902.0
20:29:56	281.0	4.0	0.2	81.4 81.7	0.0	0.6 0.5 0.6	3.2 3.2 3.2	1.12	1.06	1.07	1.11	0.07 0.07 0.07 0.07 0.07	0.94 0.94 0.93 0.93 0.92	Off	3.8	12917.0 12957.0
20:29:57	281.0 281.0	3.6 3.6	0.2 0.2	81.7	0.0 0.0	0.7 0.7 0.7	3.2 3.2 3.2	1.12 1.12	1.06 1.06	1.07 1.07	1.11 1.11	0.07 0.07 0.07 0.07	0.92 0.92 0.92 0.92	Off Off	3.7 3.6	12942.0
20:29:58	281.5	3.6	0.3	81.7	0.7	0.7 0.7 0.7	3.2 3.2 2.9	1.12	1.06	1.07	1.10	0.06 0.06 0.06 0.06 0.06	0.91 0.89 0.88 0.86 0.86	Off	3.6	12952.0 12962.0
20:29:59	281.5 280.0	2.9 2.9	0.3 0.0	81.7 81.7	0.7 0.7	0.7 0.7 0.7	2.9 2.9 2.7	1.12 1.12	1.06 1.06	1.07 1.07	1.11 1.11	0.06 0.06 0.06 0.06 0.06	0.85 0.84 0.84 0.84 0.84	Off Off	3.6 3.6	12972.0
20:30:00	279.0	2.5	0.2	81.7	0.7	0.7 0.7 0.7	2.9 3.9 2.9	1.12	1.06	1.07	1.11	0.06 0.06 0.06 0.06 0.06	0.84 0.83 0.83 0.84 0.84	Off	3.6	12982.0
20:30:01	282.0 282.5	2.5 2.2	0.2 0.2	81.7 77.8	0.7 0.7	0.7 0.6 0.6	2.9 3.2 2.9	1.12 1.12	1.06 1.06	1.07 1.07	1.11 1.11	0.06 0.06 0.06 0.06 0.06	0.84 0.84 0.84 0.85 0.85	Off Off	3.6 3.6	12982.0 13022.0
20:30:02	283.0	2.2	0.4	81.7	0.7	0.6 0.6 0.6	3.2 2.9	1.12	1.06	1.07	1.11	0.06 0.06 0.06 0.06 0.06	0.85 0.86 0.87 0.87	Off	3.6	12987.0
20:30:03	282.5 283.0	1.8 1.8	0.5 0.6	81.7 81.7	0.4 0.0	0.6 0.7 0.7	3.2 2.9 3.2 2.9	1.12 1.12	1.06 1.06	1.07 1.07	1.11 1.11	0.06 0.06 0.06 0.06 0.06	0.87 0.87 0.88 0.89 0.89	Off Off	3.5 3.6	12992.0 12992.0
20:30:04	278.5	1.8	0.9	82.1	0.4	0.7 0.7	3.2 3.2	1.12	1.06	1.07	1.11	0.06 0.07 0.07	0.90 0.92 0.93	Off	3.7	12992.0

LOCAL TIME (ref. CVR)	IAS (KNOTS)	Pitch Angle (degrees)	Elevator Position Right (degrees)	Mag. Heading (degrees)	Roll Angle (degrees)	Rudder Position (upper) (degrees)	Angle of Attack (degrees)	EPR Engine 1 (ratio)	EPR Engine 2 (ratio)	EPR Engine 3 (ratio)	EPR Engine 4 (ratio)	Long. Accel (g)	Vert. Accel. (g)	VHF	Pitch Trim Stab Pos (degrees)	MSL Alt. (FEET)
												0.07	0.93			
20:30:05	279.0	2.2	0.6	81.7	0.0	0.8	3.2	1.12	1.06	1.07	1.11	0.07	0.94	Off	3.7	12987.0
	282.0	2.2	0.8	81.7	0.7	0.7	3.2	1.12	1.06	1.07	1.11	0.07	0.94	Off	3.7	12987.0
						0.7	3.2					0.07	0.95			
						0.7	3.2					0.07	0.97			
												0.07	0.97			
20:30:06	279.5	2.2	0.7	77.8	0.7	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	13017.0
						0.7	3.2					0.07	0.96			
												0.07	0.97			
													0.97			
20:30:07	278.5	2.2	0.6	81.7	0.7	0.7	3.2	1.12	1.06	1.07	1.11	0.07	0.96	Off	3.7	12982.0
	278.5	2.2	0.7	81.7	0.7	0.7	3.2	1.12	1.06	1.07	1.11	0.07	0.96	Off	3.7	12977.0
						0.7	3.4					0.07	0.96			
						0.6	3.4					0.07	0.96			
												0.07	0.95			
20:30:08	282.0	2.2	0.7	81.7	0.7	0.6	3.4	1.12	1.06	1.07	1.11	0.07	0.95	Off	3.7	12972.0
						0.6	3.4					0.07	0.95			
												0.07	0.96			
												0.07				
20:30:09	280.5	2.5	0.9	81.7	0.4	0.6	3.4	1.12	1.06	1.07	1.11	0.07	0.96	Off	3.7	12972.0
	277.5	2.5	0.9	82.1	0.0	0.6	3.4	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	12972.0
						0.6	3.9					0.07	0.97			
						0.7	3.4					0.07	0.97			
												0.07	0.98			
20:30:10	282.5	2.9	0.9	82.1	0.0	0.7	4.4	1.12	1.06	1.07	1.11	0.07	0.98	Off	3.7	12967.0
						0.7	3.4					0.07	0.98			
												0.07	0.98			
												0.07	0.98			
20:30:11	282.0	2.9	0.7	77.8	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98	Off	3.7	12997.0
	281.0	2.9	0.7	82.1	0.0	0.7	3.2	1.12	1.06	1.07	1.11	0.07	0.98	Off	3.7	12962.0
						0.7	3.2					0.07	0.98			
						0.7	3.4					0.07	0.98			
												0.07	0.97			
20:30:12	277.5	2.9	0.9	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	12962.0
						0.7	3.4					0.07	0.97			
												0.07	0.97			
												0.07	0.98			
20:30:13	283.0	2.9	0.8	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98	Off	3.7	12962.0
	282.5	2.9	0.9	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98		3.7	12957.0
						0.7	3.4					0.07	0.98			
						0.7	3.4					0.07	0.98			
												0.07	0.98			
20:30:14	279.5	2.9	0.7	82.1	0.0	0.7	3.9	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	12962.0
						0.6	3.4					0.07	0.97	Off		
												0.07	0.97			
												0.07	0.97			
20:30:15	282.5	2.9	0.7	82.1	0.0	0.7	4.4	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	12957.0
		2.9	0.7	78.1	0.0	0.7	3.2	1.12	1.06	1.07		0.07	0.97		3.7	12987.0
						0.7	3.4					0.07	0.97			
						0.7	3.4					0.07	0.97			
												0.07	0.97			
20:30:16	278.5	2.9	0.5	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.97	Off	3.7	12962.0
	280.0					0.7	3.4				1.11	0.07	0.97	Off		
												0.07	0.98			
												0.07	0.98			
20:30:17	277.5	2.9	0.8	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98	Off	3.7	12962.0
		3.2	0.7	82.1	0.4	0.8	3.4	1.12	1.06			0.08	0.98		3.7	12962.0
						0.7	3.4					0.08	0.99			
						0.7	93.2					0.08	0.99			
												0.08	1.00			
20:30:18	282.0	3.2	0.7	82.1	0.7	0.7	3.4	1.12	1.06	1.07	1.11	0.08	1.00	Off	3.7	12962.0
	282.0					0.7	3.4			1.07	1.11	0.08	1.00	Off		
												0.08	1.00			
												0.08	1.00			
20:30:19	277.5	3.2	0.7	82.1	0.4	0.7	3.4	1.12	1.06	1.07	1.11	0.08	0.99	Key	3.7	12962.0
		2.9	0.7	82.1	0.4	0.6	3.7					0.08	0.99		3.7	12962.0
						0.7	4.4					0.08	0.99			
						0.6	3.4					0.07	0.98			
												0.08	0.98			
20:30:20	281.0	3.2	0.9	82.1	0.4	0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98	Key	3.7	12967.0
	269.5					0.7	3.4	1.12	1.06	1.07	1.11	0.07	0.98	Key		
												0.08	0.98			
												0.08	0.99			
20:30:21	455.0	3.6	0.9	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.08	0.99	Key	3.7	12972.0
		3.6	0.7	82.1	0.0	0.6	3.4					0.08	0.99		3.7	12977.0
						0.6	3.4					0.08	0.99			
						0.7						0.08	1.00			
												0.08	1.00			
20:30:22	277.5	3.6	0.7	82.1	0.0	0.6	3.7	1.12	1.06	1.07	1.11	0.08	1.00	Key	3.7	12982.0
	281.5					0.6	3.4	1.12	1.06	1.07	1.11	0.08	0.99	Key		
							3.4					0.08	0.99			
												0.08	0.98			
20:30:23	279.5	3.6	0.7	82.1	0.0	0.7	3.4	1.12	1.06	1.07	1.11	0.08	0.98	Key	3.7	12987.0
		3.6	0.6	82.4	0.0	0.7	3.2					0.08	0.98		3.7	12992.0
						0.7	3.9					0.08	0.98			
												0.08	0.98			
												0.08	0.98			
20:30:24	287.5	3.6	0.7	82.4	-0.4	0.7	3.4	1.13	1.07	1.08	1.12	0.08	0.98	Off	3.7	13002.0
	278.5					0.7	4.4	1.14	1.09	1.09	1.14	0.08	0.98	Off		
						0.7	3.4					0.08	0.98			
												0.08	0.98			
20:30:25	269.0	3.6	0.6	82.4	-0.4	0.7	3.4	1.15	1.10	1.10	1.15	0.08	0.98	Off	3.7	13012.0
		4.0	0.5	82.4	0.0	0.7	3.2					0.08	0.98		3.7	13017.0
						0.7	3.2					0.08	0.98			
												0.08	0.97			
													0.97			
20:30:26	277.0	4.0	0.4	82.1	-0.4	0.7	3.4	1.17	1.11	1.12	1.17	0.08	0.97	Off	3.7	13027.0
	280.5					0.7	3.4	1.18	1.12	1.12	1.18	0.08	0.96	Off		
						0.7	3.4					0.08	0.95			
												0.09	0.94			
												0.08				
20:30:27	280.5	4.0	0.8	82.1	-0.7	0.6	3.2	1.18	1.12	1.14	1.18	0.08	0.94	Off	3.7	13032.0
		4.0	0.7	82.1	-0.7	0.7	3.4					0.09	0.94		3.7	13042.0
						0.7	3.4					0.09	0.95			
												0.09	0.95			
20:30:28	280.5	3.6	0.5	82.1	-1.1	0.6	3.4	1.19	1.12	1.15	1.19	0.09	0.96	Off	3.7	13047.0
	278.5					0.7	3.4	1.19	1.13	1.16	1.19	0.09	0.97	Off		
						0.7	3.9					0.09	0.97			
												0.09	0.97			
												0.09	0.97			
20:30:29	278.0	3.6	0.6	82.1	-1.1	0.7	4.1	1.19	1.13	1.16	1.19	0.09	0.97	Off	3.7	13052.0
		4.0	0.7	82.1	-1.4	0.7	3.9					0.09	0.97			13062.0

LOCAL TIME (ref. CVR)	IAS (KNOTS)	Pitch Angle (degrees)	Elevator Position Right (degrees)	Mag. Heading (degrees)	Roll Angle (degrees)	Rudder Position (upper) (degrees)	Angle of Attack (degrees)	EPR Engine 1 (ratio)	EPR Engine 2 (ratio)	EPR Engine 3 (ratio)	EPR Engine 4 (ratio)	Long. Accel (g)	Vert. Accel. (g)	VHF	Pitch Trim Stab. Pos (degrees)	MSL Alt. (FEET)
						0.7	3.4					0.09	0.97			
20:30:30	262.5	4.0	0.6	81.7	-1.8	0.7	3.4	1.21	1.15	1.19	1.21	0.09	0.97			
	281.0					0.7	3.4	1.24	1.17	1.21	1.24	0.09	0.97	Off	3.7	13072.0
						0.7	3.4					0.10	0.97	Off	3.7	
						0.7	3.4					0.10	0.97			
												0.10	0.97			
												0.10	0.98			
20:30:31	280.5	4.0	0.9	81.7	-1.8	0.7	3.4	1.25	1.18	1.22	1.25	0.10	0.98	Off	3.7	13077.0
		4.0	0.9	81.7	-2.2	0.7	3.4					0.10	0.98			13087.0
						0.7	3.4					0.10	0.98			
20:30:32	280.5	4.3	0.7	81.7	-2.2	0.7	3.4	1.26	1.20	1.23	1.26	0.11	0.98			
	280.5					0.6	3.4	1.27	1.23	1.24	1.28	0.11	0.99	Off	3.7	13092.0
						0.7	3.4					0.11	0.99	Off	3.7	
												0.11	1.00			
												0.11	1.00			
												0.11	1.00			
20:30:33	277.0	4.3	0.7	81.7	-2.2	0.6	3.4	1.28	1.24	1.25	1.29	0.11	1.00	Off	3.7	13102.0
		4.3	0.7	81.7	-1.8	0.7	3.9					0.11	1.00			13112.0
						0.7	3.4					0.11	1.00			
												0.11	1.00			
20:30:34	286.0	4.3	0.7	81.7	-2.2	0.7	4.4	1.29	1.24	1.25	1.30	0.11	0.99	Off	3.7	13127.0
	260.0					0.7	3.4	1.29	1.25	1.25	1.31	0.11	0.99	Off	3.7	
						0.7	3.4					0.11	0.99			
												0.11	0.98			
												0.11	0.98			
20:30:35	275.0	4.3	0.5	81.4	-1.8	0.7	3.4	1.29	1.24	1.25	1.32	0.11	0.98	Off	3.7	13137.0
		4.7		81.4	-1.4	0.7	3.4					0.11	0.98			13147.0
						0.7	3.4					0.11	0.98			
												0.11	0.98			
20:30:36	279.5	4.7	0.7	81.4	-0.7	0.6	3.4	1.29	1.24	1.25	1.32	0.11	0.98	Off	3.7	13162.0
	279.5		0.5			0.6	3.4	1.29	1.24	1.26	1.32	0.11	0.98	Off	3.7	
						0.6	3.4					0.11	0.98			
												0.11	0.98			
												0.11	0.98			
20:30:37	280.0	4.7	0.3	81.4	-0.7	0.6	3.4	1.29	1.25	1.27	1.32	0.11	0.98	Off	3.7	13172.0
		4.3		81.4	-0.4	0.6	3.4					0.11	0.98			13187.0
						0.6	3.4					0.11	0.97			
												0.11	0.96			
20:30:38	277.0	4.3	0.2	81.4	-0.4	0.5	3.2	1.29	1.25	1.27	1.32	0.11	0.94	Off	3.5	13202.0
	277.5		0.2			0.6	3.2	1.29	1.26	1.27	1.32	0.11	0.92	Off	3.5	
						0.6	3.9					0.11	0.91			
												0.11	0.89			
20:30:39	259.0	4.0	0.1	81.4	0.0	0.6	3.2	1.29	1.26	1.28	1.32	0.11	0.88			
				81.4		0.6	2.9					0.11	0.87	Off	3.5	13217.0
						0.7	2.9					0.10	0.86			13232.0
												0.10	0.86			
20:30:40	277.5	3.6	0.3	81.4	0.0	0.7	2.9	1.29	1.27	1.28	1.32	0.10	0.86	Off	3.5	13242.0
	281.0	3.6	0.3		0.0	0.7	2.9	1.29	1.27	1.28	1.32	0.10	0.86	Off	3.5	
						0.7	2.9					0.10	0.87			
												0.10	0.86			
20:30:41	281.5	3.6	0.3	81.4	0.0	0.6	2.7	1.29	1.28	1.29	1.32	0.10	0.86			
						0.7	2.9					0.10	0.85	Off	3.5	13257.0
						0.7	2.7					0.10	0.85			13262.0
												0.10	0.84			
												0.10	0.84			
20:30:42	281.5	3.2	0.2	81.4	0.0	0.7	2.7	1.29	1.29	1.29	1.32	0.10	0.84	Off	3.5	13272.0
	282.0	2.9	0.3	81.4	0.0	0.7	2.7	1.29	1.30	1.30	1.32	0.10	0.83	Off	3.5	
						0.7	2.7					0.10	0.83			
												0.10	0.84			
20:30:43	278.5	2.9	0.3	81.4	0.0	0.7	2.7	1.29	1.30	1.30	1.32	0.10	0.83			
						0.6	3.9					0.10	0.84	Off	3.5	13277.0
						0.7	2.7					0.10	0.85			
												0.10	0.85			
20:30:44	282.5	2.5	0.3	81.4	0.0	0.6	2.7	1.29	1.30	1.30	1.32	0.10	0.86			
	283.0	2.5	0.3	77.4	0.0	0.6	2.7	1.29	1.31	1.30	1.32	0.10	0.86	Off	3.5	13282.0
						0.7	2.7					0.11	0.86	Off	3.5	13337.0
												0.10	0.87			
												0.11	0.87			
20:30:45	283.5	2.2	0.2	81.4	0.0	0.7	2.9	1.29	1.31	1.30	1.32	0.11	0.88			
						0.6	2.7					0.11	0.87	Off	3.5	13287.0
						0.7						0.11	0.88			
												0.11	0.88			
20:30:46	284.0	1.8	0.2	81.4	0.0	0.7	2.7	1.29	1.31	1.29	1.32	0.11	0.88			
	284.5	1.8	0.6	81.4	0.0	0.6	2.9	1.29	1.31	1.30	1.32	0.11	0.88	Off	3.5	13292.0
						0.7	2.9					0.11	0.88	Off	3.4	13292.0
							2.7					0.11	0.88			
												0.11	0.89			
20:30:47	283.5	1.8	0.5	81.4	0.0	0.7	3.2	1.29	1.31	1.31	1.32	0.11	0.90			
						0.6	3.2					0.11	0.90	Off	3.5	13287.0
												0.11	0.92			
												0.11	0.94			
20:30:48	286.0	2.2	0.7	81.4	0.7	0.7	3.2	1.29	1.31	1.31	1.32	0.11	0.95			
	286.5	2.2	0.7	81.4	1.4	0.7	4.1	1.29	1.31	1.31	1.32	0.11	0.98	Off	3.5	13287.0
						0.7	3.4					0.11	0.98	Off	3.6	13282.0
						0.7	3.2					0.11	0.99			
												0.11	1.00			
												0.12	1.01			
20:30:49	287.0	2.5	0.7	77.4	1.4	0.7	3.2	1.29	1.31	1.32	1.32	0.12	1.02	Off	3.6	13332.0
						0.7	3.4					0.12	1.03			
												0.12	1.04			
													1.04			
20:30:50	287.5	2.9	0.7	81.4	1.4	0.7	3.2	1.29	1.30	1.31	1.32	0.12	1.04	Off	3.8	13277.0
	288.0	2.9	0.7	81.4	1.4	0.6	3.4	1.29	1.30	1.31	1.31	0.12	1.04	Off	3.8	13277.0
						0.7	3.4					0.12	1.05			
						0.6	3.4					0.12	1.07			
												0.12	1.08			
20:30:51	288.5	3.2	0.5	81.4	1.4	0.6	3.4	1.30	1.30	1.31	1.32	0.12	1.09	Off	3.8	13277.0
						0.6	3.4					0.12	1.09			
												0.12	1.09			
												0.12				
20:30:52	287.5	3.6	0.7	81.4	1.1	0.7	3.4	1.30	1.30	1.32	1.32	0.12	1.10	Off	3.8	13277.0
	297.0	4.0	0.5	81.4	0.7	0.7	3.4	1.31	1.30	1.32	1.32	0.12	1.10	Off	3.8	13282.0
						0.6	3.7					0.12	1.09			
						0.7	3.4					0.12	1.09			
												0.12	1.11			
20:30:53	288.0	4.0	0.5	81.7	0.7	0.7	3.4	1.31	1.30	1.32	1.32	0.12	1.11	Off	3.9	13292.0
						0.6	3.7					0.12	1.11			
												0.13	1.11			
												0.12	1.11			
20:30:54	287.5	4.3	0.4	77.8	0.4	0.7	3.7	1.31	1.30	1.32	1.32	0.12	1.11	Off	3.9	13357.0
	289.5	4.3	0.3	81.7	0.7	0.7	3.4	1.31	1.30	1.32	1.32	0.13	1.11	Off	3.9	13312.0

LOCAL TIME (ref. CVR)	IAS (KNOTS)	Pitch Angle (degrees)	Elevator Position Right (degrees)	Mag. Heading (degrees)	Roll Angle (degrees)	Rudder Position (upper) (degrees)	Angle of Attack (degrees)	EPR Engine 1 (ratio)	EPR Engine 2 (ratio)	EPR Engine 3 (ratio)	EPR Engine 4 (ratio)	Long. Accel (g)	Vert. Accel. (g)	VHF	Pitch Trim Stab Pos (degrees)	MSL Alt. (FEET)
						0.7	3.4					0.13	1.11			
						0.7	3.4					0.12	1.11			
20:30:55	286.0	4.7	0.3	81.7	0.7	0.7	3.7	1.31	1.30	1.32	1.32	0.12	1.10	Off	3.9	13327.0
						0.7	3.4					0.12	1.10			
												0.12	1.09			
												0.12	1.08			
20:30:56	289.5	5.0	0.2	81.7	0.7	0.7	3.4	1.31	1.30	1.31	1.31	0.12	1.08			
	296.0	5.0	0.3	81.7	0.7	0.7	3.4	1.31	1.30	1.31	1.31	0.12	1.07	Off	3.9	13342.0
						0.7	3.4					0.12	1.06		3.8	13362.0
						0.7	3.2					0.12	1.06			
												0.12	1.05			
20:30:57	287.0	5.0	0.2	81.7	1.4	0.7	3.2	1.32	1.30	1.31	1.31	0.12	1.04	Off	3.7	13382.0
						0.7	3.2					0.12	1.04	Off		
												0.12	1.03			
												0.11	1.02			
20:30:58	286.5	5.0	0.0	81.7	1.1	0.7	3.9	1.31	1.29	1.31	1.31	0.11	1.00			
		5.0	0.3	77.4	1.1	0.7	3.2	1.31	1.29	1.31		0.11	0.99	Off	3.7	13402.0
						0.7	3.2					0.11	0.98		3.6	13487.0
						0.7	3.2					0.11	0.97			
												0.11	0.97			
20:30:59	295.0	5.0	0.0	81.7	0.7	0.6	3.2	1.31	1.29	1.31	1.31	0.11	0.97			
	288.0					0.6	3.2				1.31	0.11	0.97	Off	3.5	13447.0
												0.11	0.97	Off		
												0.11	0.96			
20:31:00	285.5	5.0	0.2	81.7	0.0	0.6	2.9	1.31	1.29	1.31	1.30	0.11	0.96			
		5.0	0.0	81.7	-0.4	0.6	2.9	1.31	1.29			0.11	0.95	Off	3.5	13467.0
						0.6	2.9					0.11	0.95		3.6	13492.0
						0.7	2.9					0.11	0.94			
												0.11	0.93			
20:31:01	288.5	4.7	0.2	81.7	-0.7	0.6	2.7	1.31	1.29	1.31	1.30	0.11	0.93			
	284.5					0.6	2.7			1.30	1.30	0.11	0.92	Off	3.6	13512.0
												0.10	0.92	Off		
												0.10	0.92			
20:31:02	295.5	4.7	0.3	82.1	-0.4	0.7	3.2	1.31	1.29	1.30	1.29	0.10	0.92			
		4.3	0.0	82.1	0.0	0.7	2.7					0.10	0.92	Off	3.5	13537.0
						0.7	3.7					0.10	0.92		3.5	13557.0
						0.7	2.7					0.10	0.93			
												0.10	0.93			
20:31:03	289.0	4.7	0.1	78.1	0.0	0.7	2.9	1.31	1.29	1.30	1.29	0.10	0.93			
	296.0					0.7	2.7	1.31	1.29	1.30	1.29	0.10	0.92	Off	3.5	13637.0
												0.10	0.91	Off		
												0.10	0.90			
20:31:04	296.0	4.3	0.3	82.1	0.4	0.7	2.7	1.31	1.29	1.30	1.30	0.10	0.90			
		4.3	0.2	82.1	0.7	0.7	2.7					0.10	0.89	Off	3.5	13597.0
						0.7	2.7					0.10	0.89		3.5	13617.0
						0.6						0.10	0.89			
												0.10	0.89			
20:31:05	287.0	4.3	0.3	82.1	0.7	0.7	2.7	1.31	1.29	1.30	1.29	0.10	0.89	Off	3.5	13637.0
	289.0					0.6	2.7	1.31	1.29	1.29	1.30	0.10	0.89	Off		
							2.7					0.10	0.89			
												0.10	0.90			
20:31:06	289.5	4.3	0.0	82.1	0.7	0.6	2.7	1.31	1.30	1.30	1.29	0.10	0.90	Off	3.5	13652.0
		4.3	0.4	82.1	0.7	0.6	2.9					0.10	0.91		3.5	13667.0
						0.6	2.7					0.10	0.91			
												0.10	0.91			
20:31:07	296.5	4.0	0.4	82.1	0.7	0.6	2.7	1.31	1.30	1.30	1.29	0.10	0.92			
	287.0					0.6	3.9	1.31	1.30	1.29	1.29	0.10	0.92	Off	3.5	13682.0
						0.6	2.9					0.10	0.92	Off		
												0.10	0.92			
20:31:08	279.5	4.0	0.4	82.4	0.7	0.6	2.7	1.31	1.29	1.29	1.29	0.10	0.92			
		4.0	0.4	82.1	0.7	0.7	2.9					0.10	0.91	Off	3.5	13702.0
						0.6	2.9					0.10	0.92		3.4	13717.0
												0.10	0.91			
												0.10	0.91			
20:31:09	287.5	4.0	0.3	82.4	0.4	0.6	2.9	1.31	1.29	1.29	1.29	0.10	0.90	Off	3.4	13732.0
	297.5					0.7	2.7	1.31	1.29	1.29	1.29	0.10	0.90	Off		
						0.7	2.7					0.10	0.90			
												0.10	0.90			
20:31:10	290.5	3.6	0.1	82.4	0.4	0.6	2.7	1.31	1.29	1.29	1.30	0.10	0.90	Off	3.4	13747.0
		3.6	0.4	82.4	0.0	0.7	2.7					0.10	0.90		3.4	13757.0
						0.7	2.7					0.10	0.90			
												0.10	0.90			
20:31:11	287.5	3.6	0.1	82.4	0.0	0.7	2.7	1.30	1.29	1.30	1.30	0.10	0.90	Off	3.4	13772.0
	298.0					0.7	2.7	1.30	1.29	1.29	1.29	0.10	0.90	Off		
						0.7	2.7					0.10	0.90			
												0.10	0.90			
20:31:12	100.5	8.3	11.2	163.4	144.0	77.8	105.9	1.14	2.46	2.36	2.44	0.18	-0.89	Key	3.5	10127.0
		2.2	-0.2	275.8	-0.4	-36.5	29.6					0.18	-0.89			
						0.7	2.9					0.05	1.02			
20:31:13	299.0	2.2	-0.4	275.8	-0.4	0.6	2.7	1.43	1.44	1.42	1.44	0.05	1.01	Off	4.2	
	409.5					0.7	2.5	1.42	1.43	1.42	1.44	0.05	1.01	Off	4.2	
						0.7	2.5					0.05	1.01			
												0.05	1.02			
												0.05	1.01			
20:31:14	412.0	2.2	-0.2	275.8	-0.4	0.7	2.5	1.42	1.44	1.42	1.44	0.05	1.01	Off	4.2	
		2.2	-0.4	275.8	-0.7	0.5	2.5					0.05	1.02			
						0.6	2.5					0.05	1.02			
												0.05	1.02			
20:31:15	299.0	2.2	-0.4	275.8	-0.7	0.6	2.5	1.42	1.44	1.42	1.44	0.05	1.01	Off	4.2	
	299.0					0.6	3.2	1.42	1.44	1.42	1.44	0.05	1.01	Off	4.2	
						0.7	2.7					0.05	1.01			
												0.05	1.01			
20:31:16	299.5	2.2	-0.4	275.8	-0.4	0.7	2.7	1.42	1.43	1.42	1.44	0.05	1.01			
		2.2	-0.4	275.8	-0.4	0.7	2.7					0.05	1.02	Off	4.2	
						0.7	2.5					0.05	1.02			
												0.05	1.02			
20:31:17	299.5	2.2	-0.2	275.8	-0.7	0.7	2.7	1.42	1.43	1.42	1.44	0.05	1.02			
	299.5					0.6	2.5	1.42	1.43	1.42	1.44	0.05	1.02	Off	4.2	
						0.6	2.7					0.05	1.02	Off	4.2	
												0.05	1.02			
20:31:18	409.5	2.2	-0.2	275.8	-0.7	0.6	2.7	1.42	1.43	1.42	1.44	0.05	1.02			
		2.2		275.8	-0.4	0.5	2.7					0.05	1.02	Off	4.2	
						0.7	2.7					0.05	1.02			
												0.05	1.01			
20:31:19	409.5	2.2	-0.3	275.8	-0.4	0.7	2.7	1.42	1.43	1.42	1.44	0.05	1.02			
	299.5		-0.2			0.6	2.7	1.42	1.43	1.42	1.44	0.05	1.02	Off	4.2	
												0.05	1.02	Off	4.2	

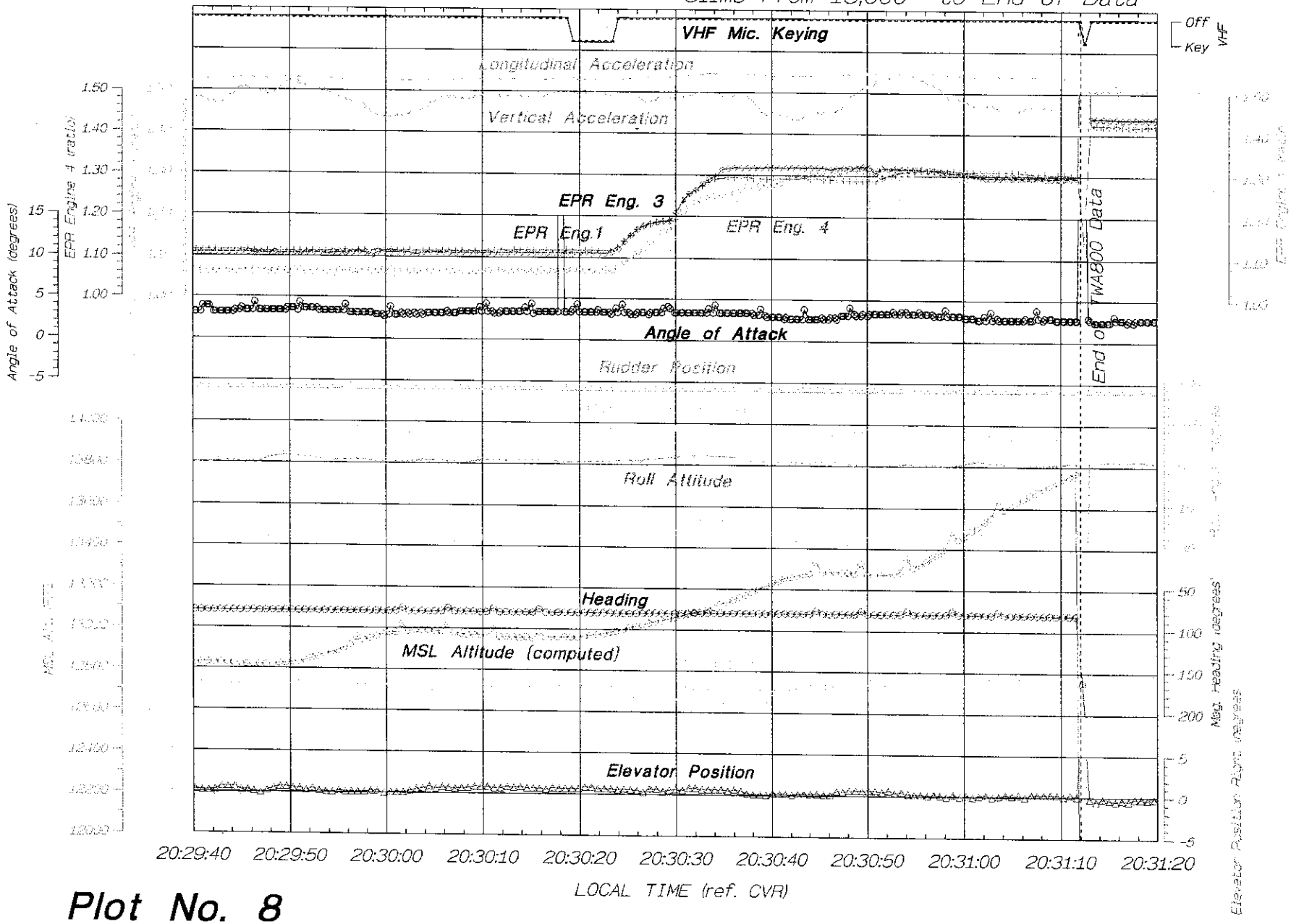
TWA Flt. 800, B747-131, Climb From 13,000 to End of Data
Plot No. 8, Created: May 27, 1999, Vehicle Recorders Division RE-40

LOCAL TIME (ref. CVR)	IAS (KNOTS)	Pitch Angle (degrees)	Elevator Position Right (degrees)	Mag. Heading (degrees)	Roll Angle (degrees)	Rudder Position (upper) (degrees)	Angle of Attack (degrees)	EPR Engine 1 (ratio)	EPR Engine 2 (ratio)	EPR Engine 3 (ratio)	EPR Engine 4 (ratio)	Long. Accel (g)	Vert. Accel. (g)	VHF	Pitch Trim Stab Pos (degrees)	MSL Alt. (FEET)
						0.7	2.7					0.05	1.02			
												0.05	1.02			
												0.05	1.02			
20:31:20	299.5	2.2	-0.2	275.8	-0.4	0.7	3.2	1.42	1.44	1.42	1.44	0.05	1.02	Off	4.2	

TWA Flt. 800

B747-131

Climb From 13,000 to End of Data

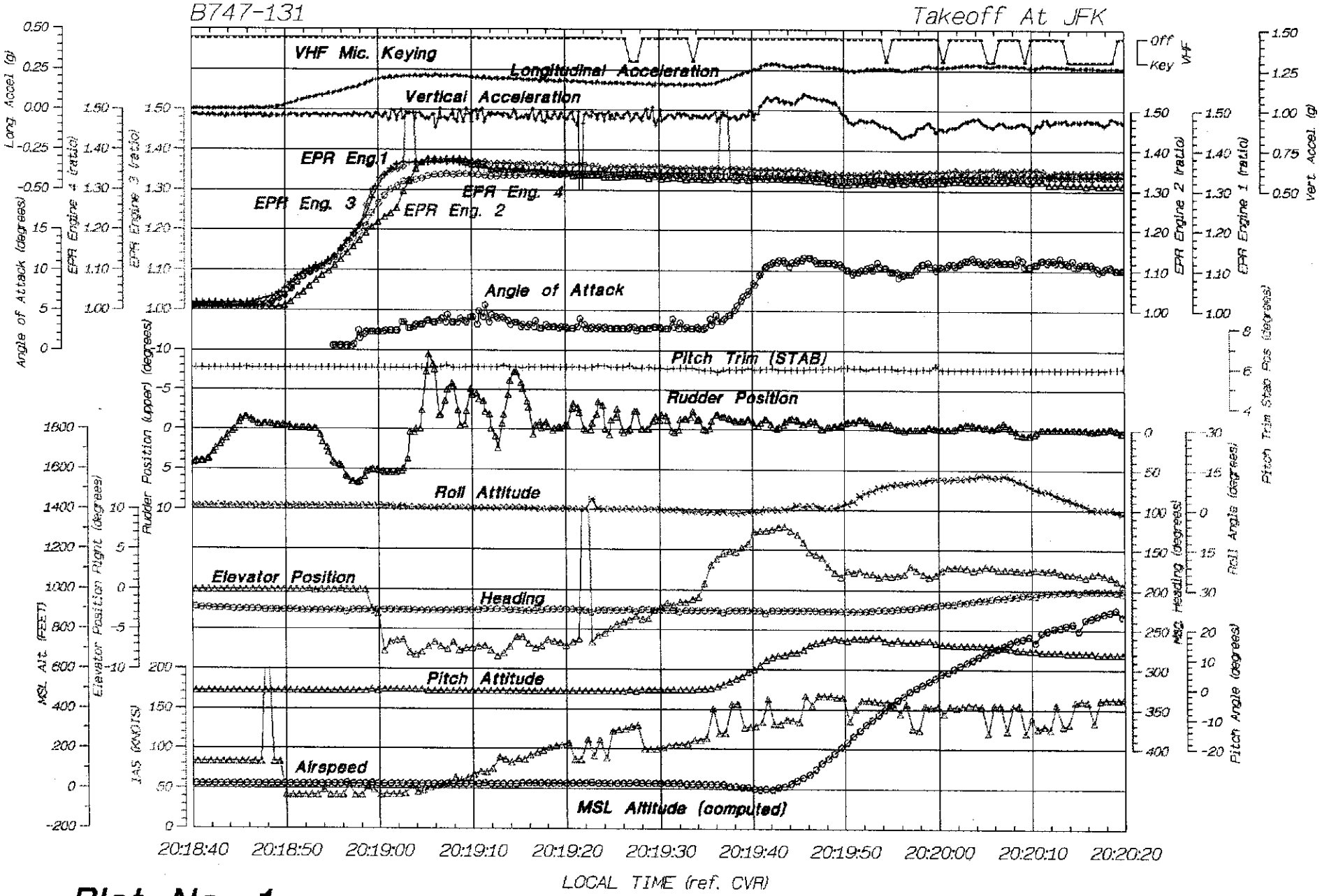


Plot No. 8

Revised: February 04, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

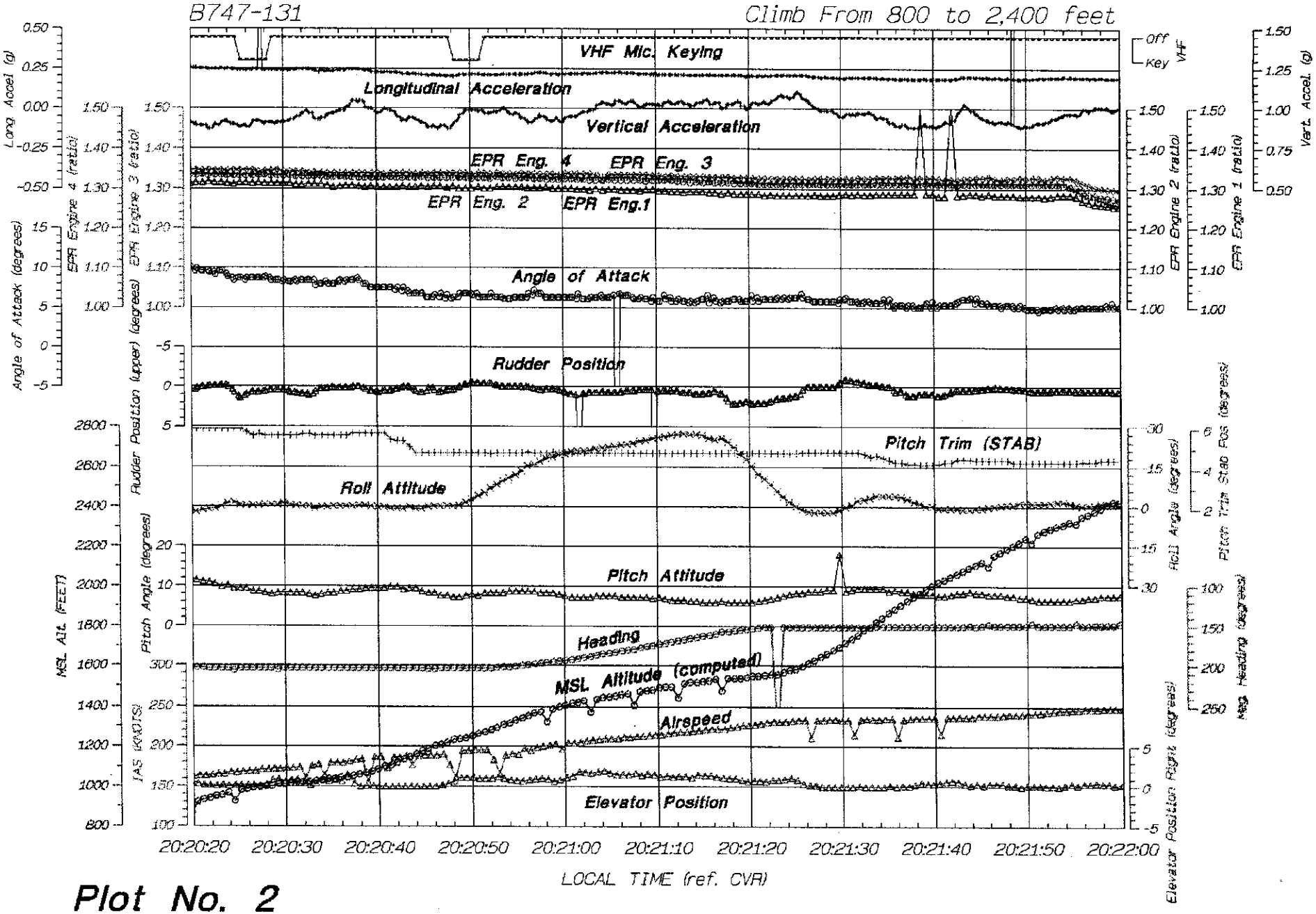


Plot No. 1

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

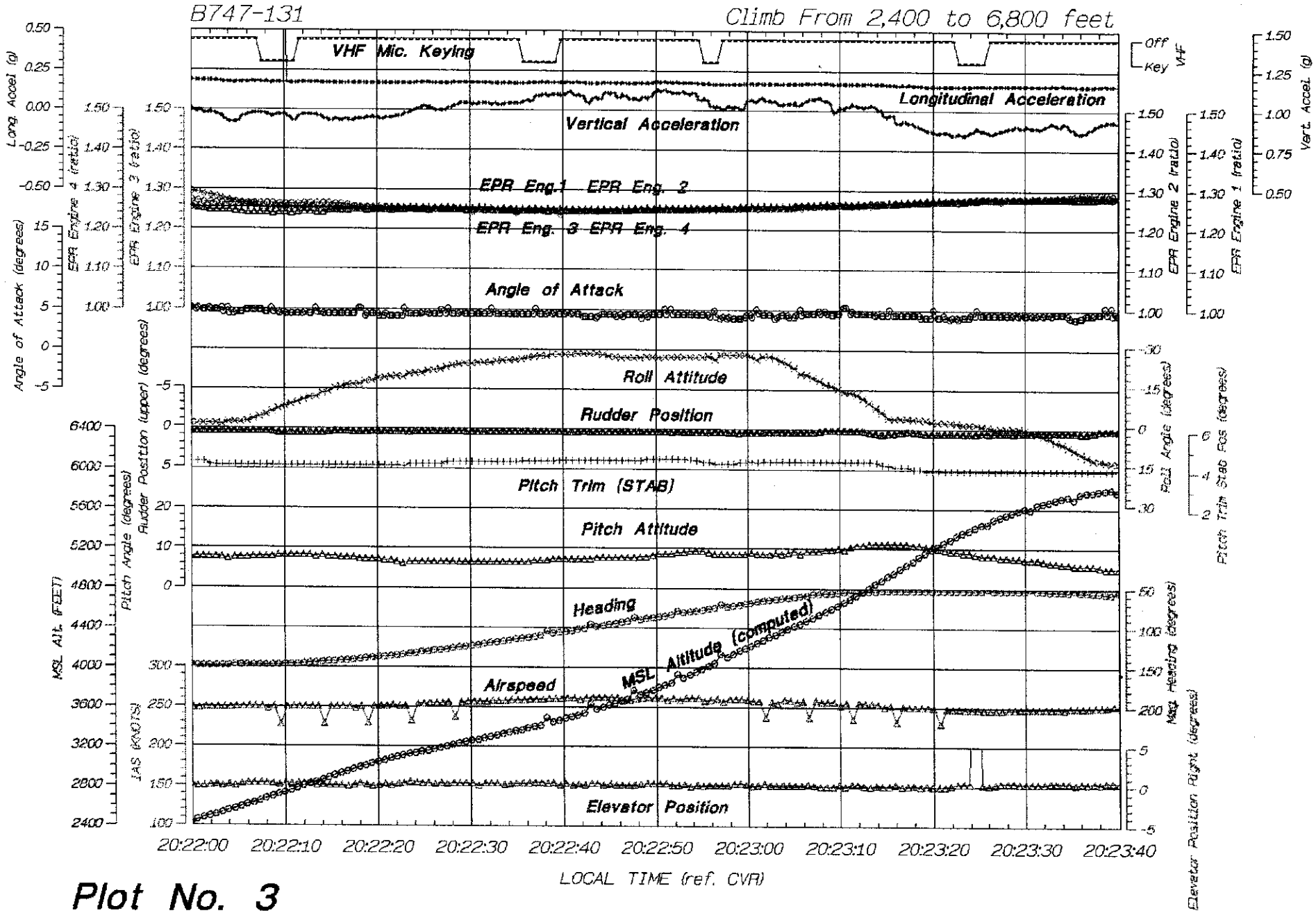


Plot No. 2

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

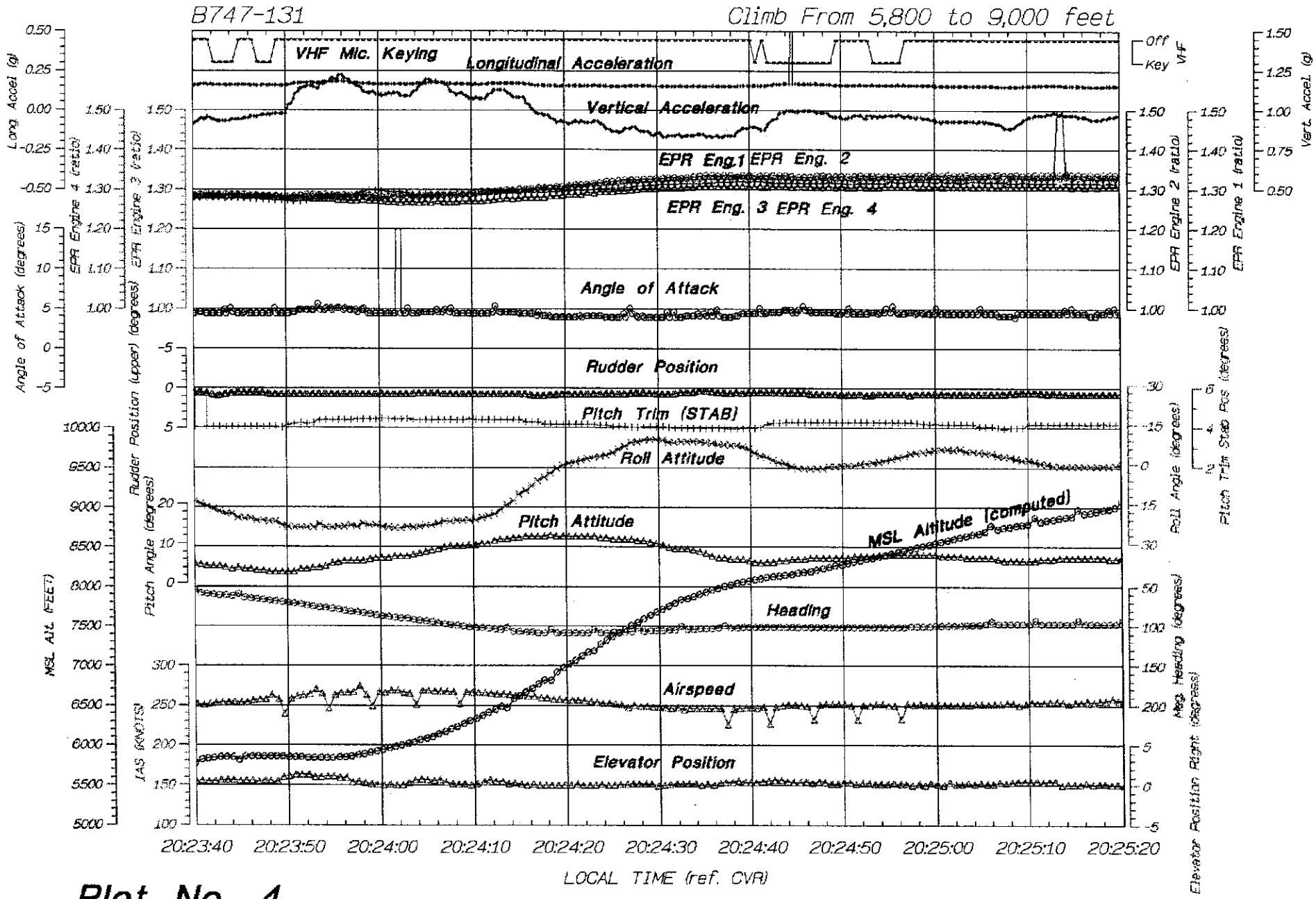


Plot No. 3

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

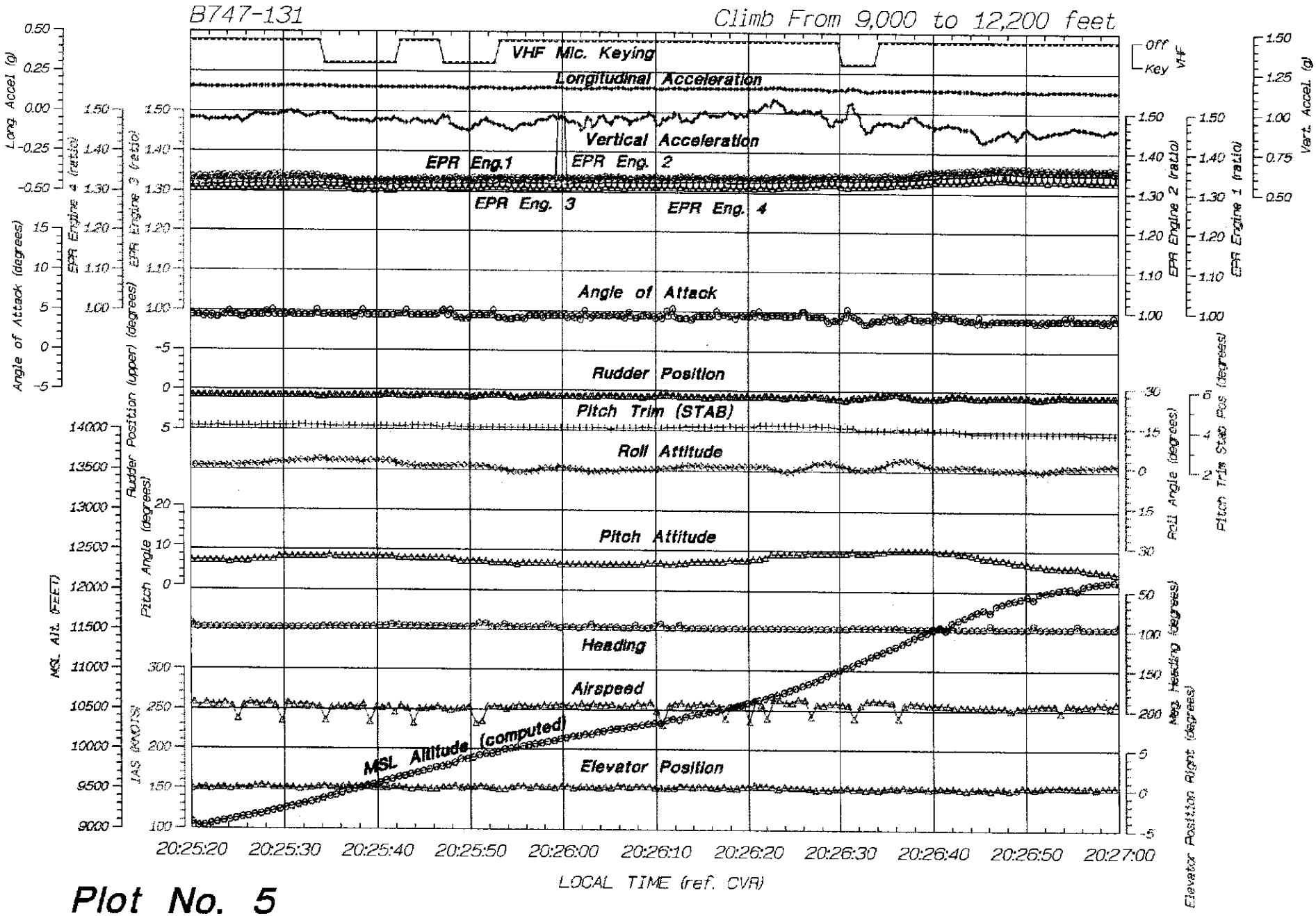


Plot No. 4

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800



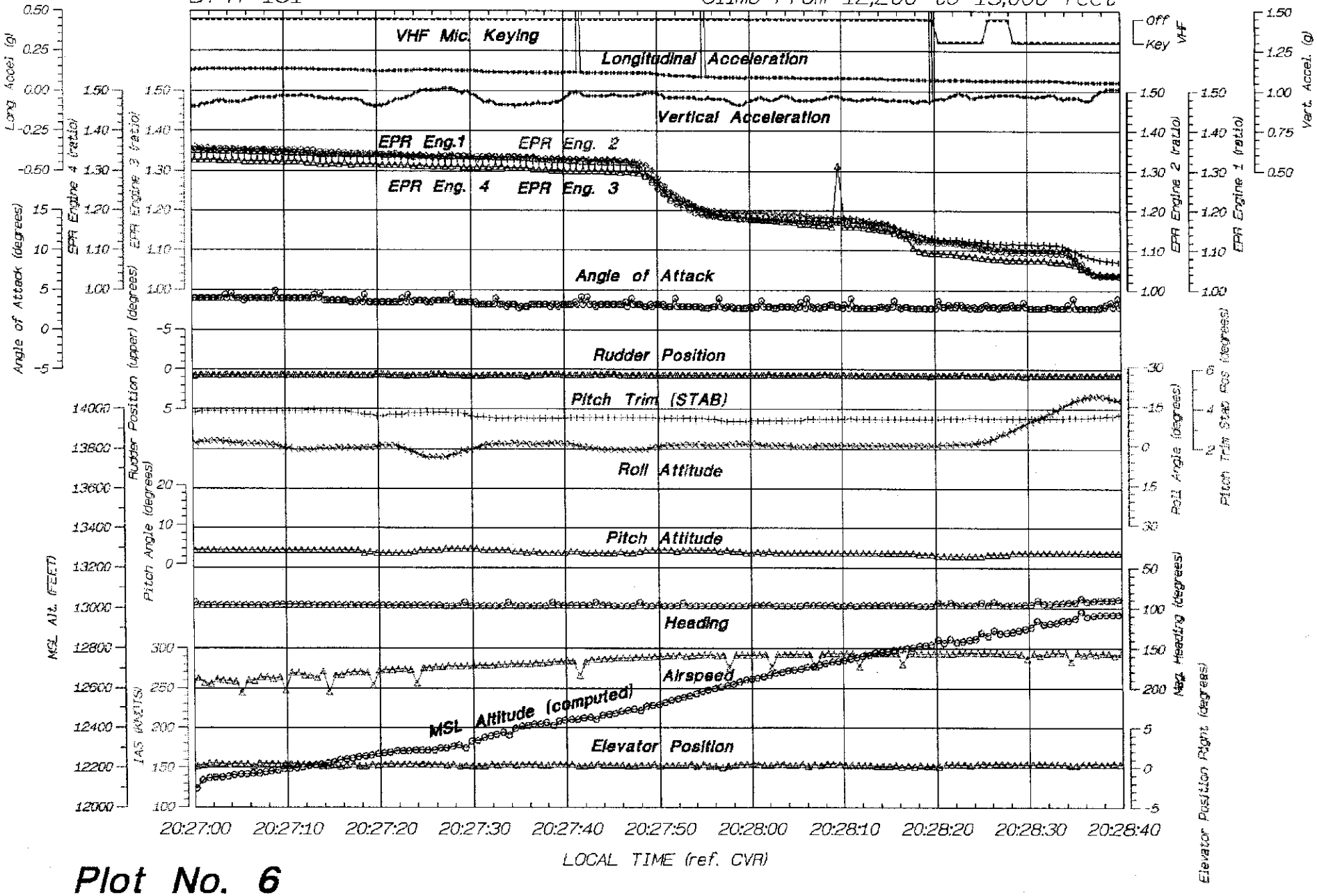
Plot No. 5

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

B747-131 Climb From 12,200 to 13,000 feet

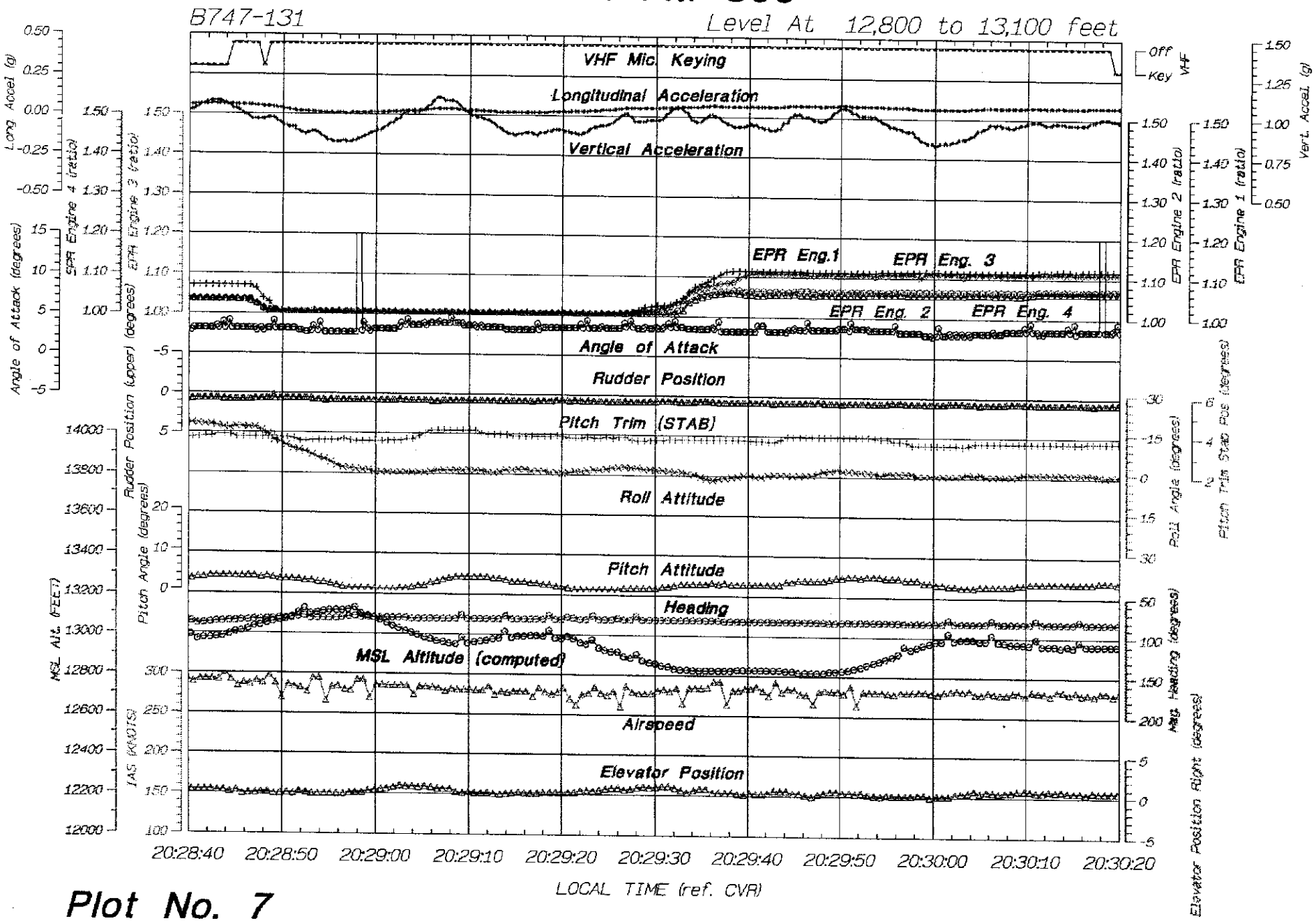


Plot No. 6

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

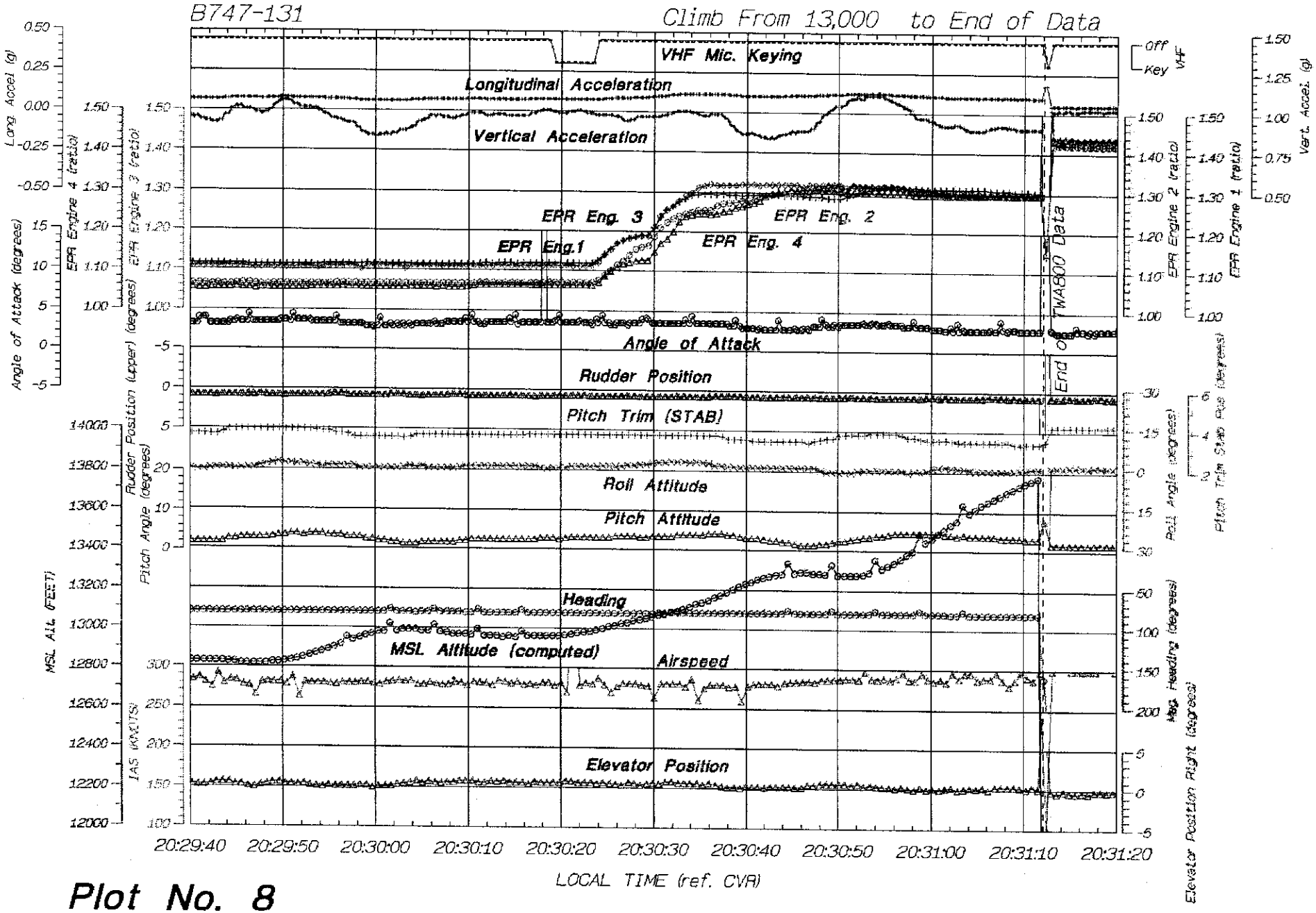


Plot No. 7

Revised: January 28, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800



Plot No. 8

Revised: February 04, 1997

National Transportation Safety Board/ VPD

TWA Flt. 800

B747-131, Takeoff to End of Data
Tabular Data No. 1, Created: January 09, 1997

National Transportatin Safety Board

C:\LONG\RADAR.BRF

Safety Board engineers have nearly completed recovery of data from the contaminated area of the FDR tapes. All recovered data end abruptly with no identified signatures. The airplane was in a stable, wings-level climb. Heading was steady. The engine pressure ratios were stable. The longitudinal and vertical accelerometers did not indicate any abrupt maneuvers. They did indicate that the air was smooth.

Time correlation between CVR and FDR data show that both recordings ended at nearly the same time, within a fraction of a second.

CVR and FDR data have been compared to radar data from the Islip, New York Terminal Approach Control Radar (TRACON).

The data show that the transponder was operating properly until about 2031 and 8 seconds while the airplane was climbing through 13,700 feet. This is approximately coincident with the ending of the CVR and FDR. After that time, only primary radar targets were recorded.

Primary targets are radar reflections from objects, typically airplanes, metal parts, smoke, ships, etc. Primary returns do not include altitude information.

One sequence of primary targets continued on from the transponder track for about 41 seconds and 2 1/2 nautical miles, to near the position where the engines and large pieces of wreckage have been found.

In addition, there were 3 separate sequences of primary targets drifting to the southeast, two of which lasted for 20 minutes and moved 5 to 6 miles. The movement was consistent with the wind. One sequence emanated from the area of the last transponder return. Another emanated from the area of the wreckage, 2 1/2 miles to the east. The third was a short sequence of primaries about 1/2 way in between.

SUGGESTED SEARCH AREAS - John Clark 10/4/96

The Navy has used side-scan sonar to search the 25 square mile area defined on graph 1. In addition, they have used ROVs and divers to search specific targets and selected areas within the 25 square mile box. The task is to identify smaller areas in which to use a scallop trawler for wreckage recovery and to identify additional areas in which to use side-scanning sonar.

The purpose of using the scallop trawler is to thoroughly sweep selected areas and recover small pieces that may be on the surface or may be slightly buried by silting. Key pieces such as the scavenge pump or side walls of the center tank are still missing. The scavenge pump may be in two pieces.

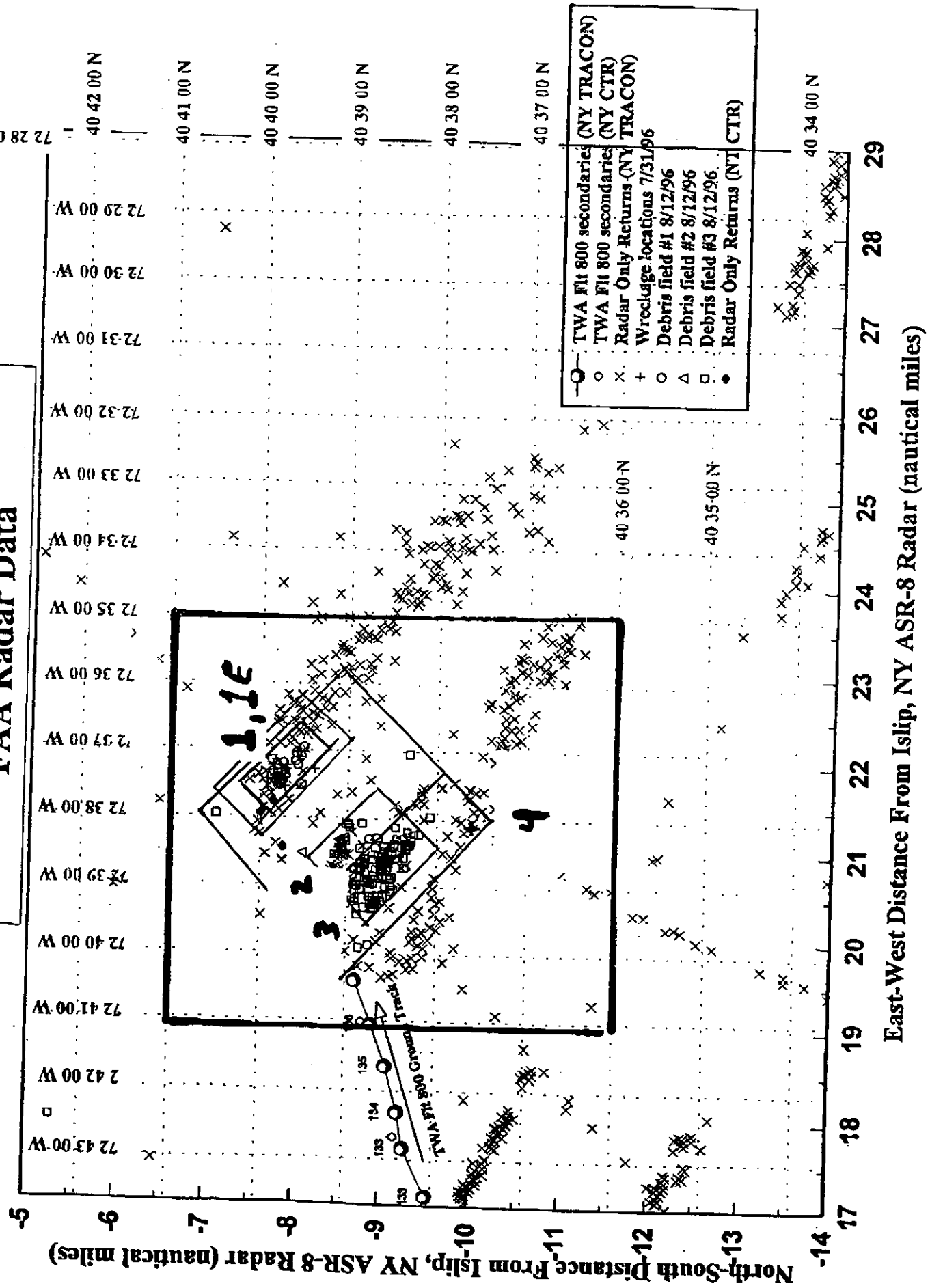
Trajectory predictions are not suitable for use in this effort in that the debris field is much more suitable for predicting where various parts may be located. Therefore, the prime search area for the scavenge pump or its parts should be in area 1. That area should be searched during the trial runs once the damage during recovery is determined. If the key parts are not found, the search area could be expanded to an area similar to 1E. The area could be expanded again based on the results of the first series of recoveries.

There may still be critical parts in area 2. Area 3 has yielded parts from the initial separation. Again, depending on the results, the scallop-trawler search may be expanded into area 4 or the entire 5 square mile area that is a subset of the 25 square mile area.

Radar data show two distinct patterns drifting for 20 minutes from the area of the initial event and the final event. The initial pattern shows targets drifting over an area mostly covered by the Navy with side-scanning sonar. However, that area could be expanded slightly as denoted by area A on graph 1. Area A could contain pieces that were initially ejected from the airplane if those pieces did not float on the ocean surface and did not drift with the ocean currents. Area B may contain other pieces that were ejected during the final event, again if they did not float or drift. The defined search areas should be modified as necessary based on results of the search.

2

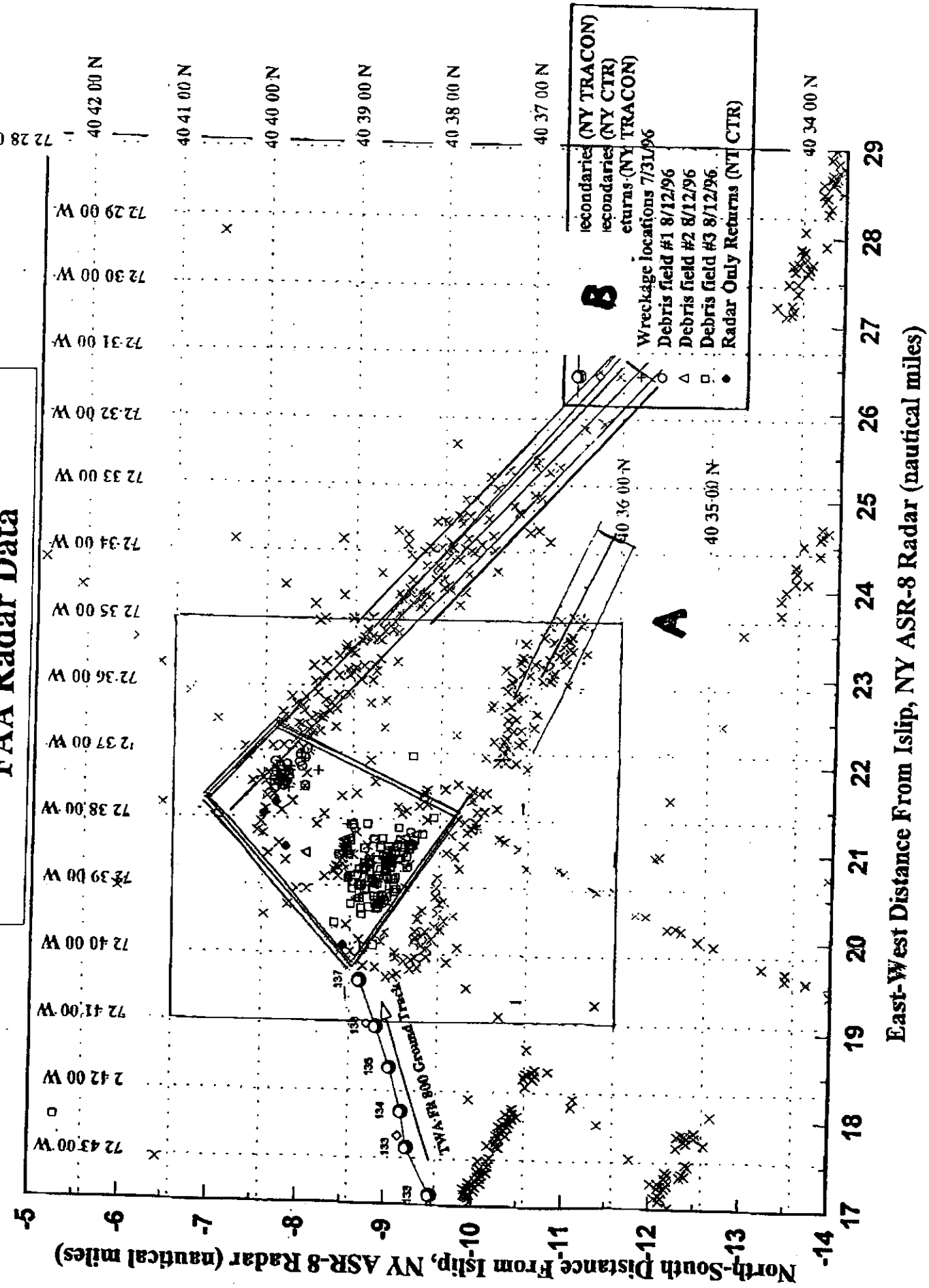
TWA747 out of JFK, July 17, 1996
FAA Radar Data



CJ, NTSB RE-60

1

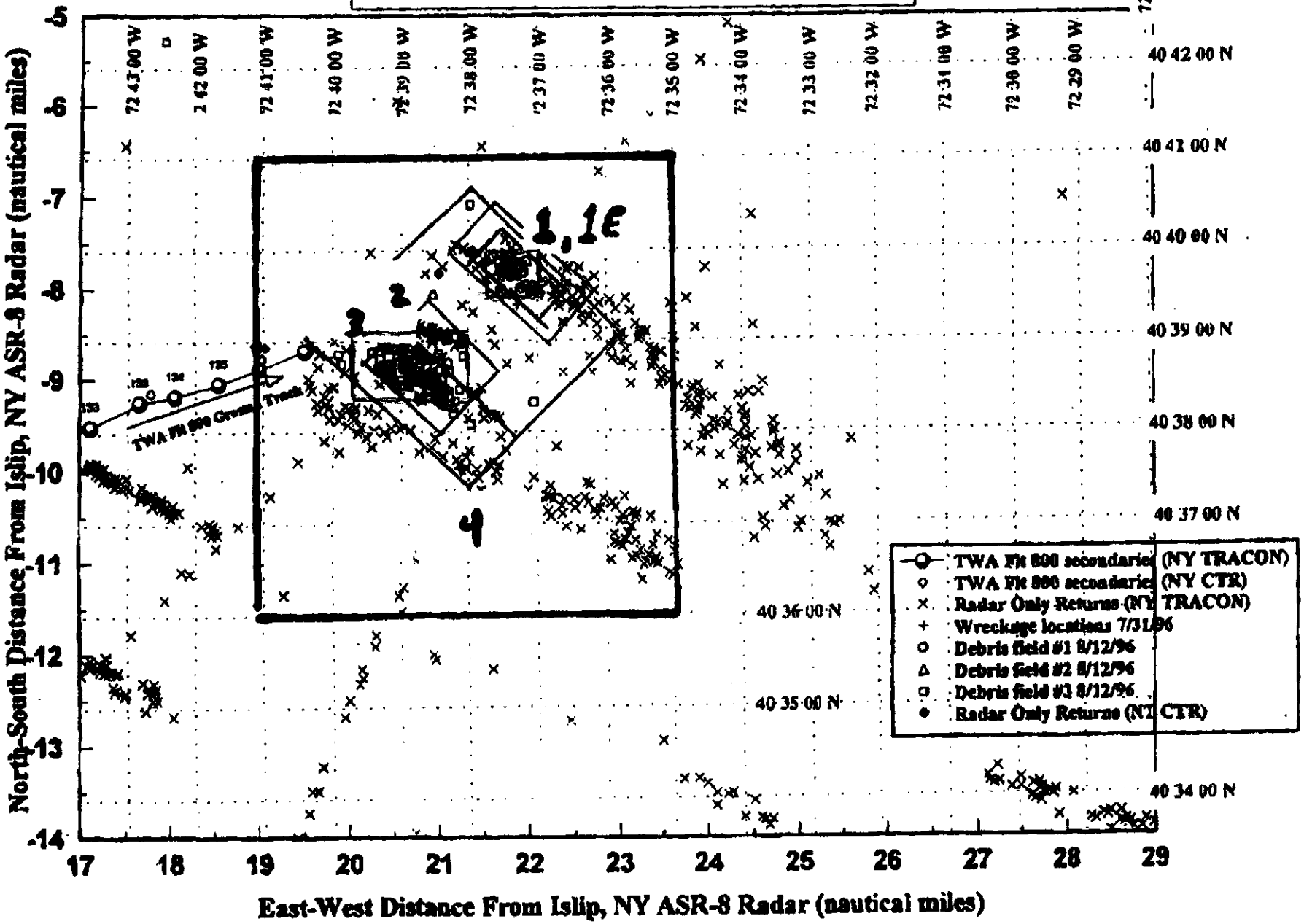
TWA747 out of JFK, July 17, 1996
FAA Radar Data



CJ, NTSB RE-60

TWA747 out of JFK, July 17, 1996
FAA Radar Data

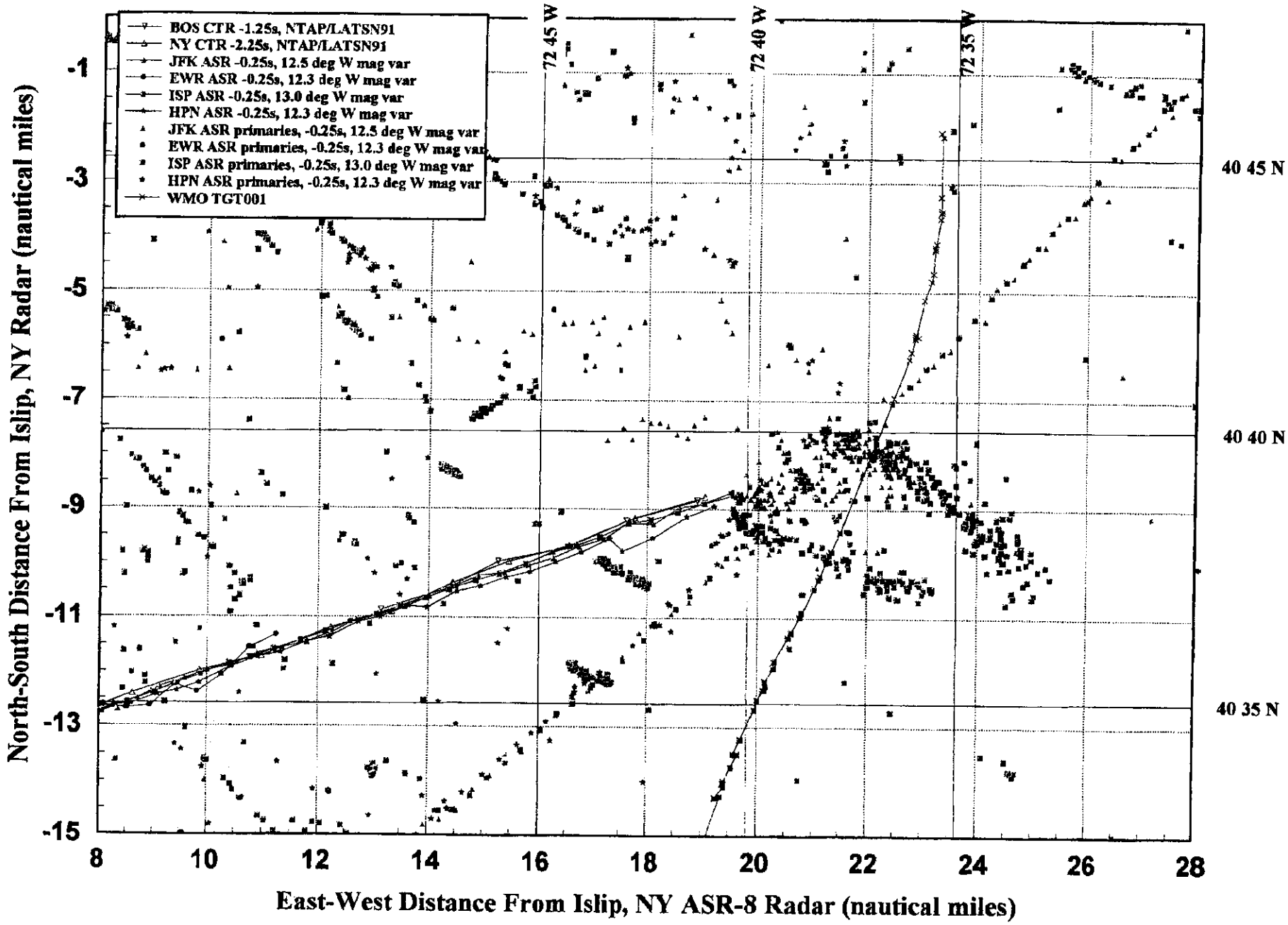
2



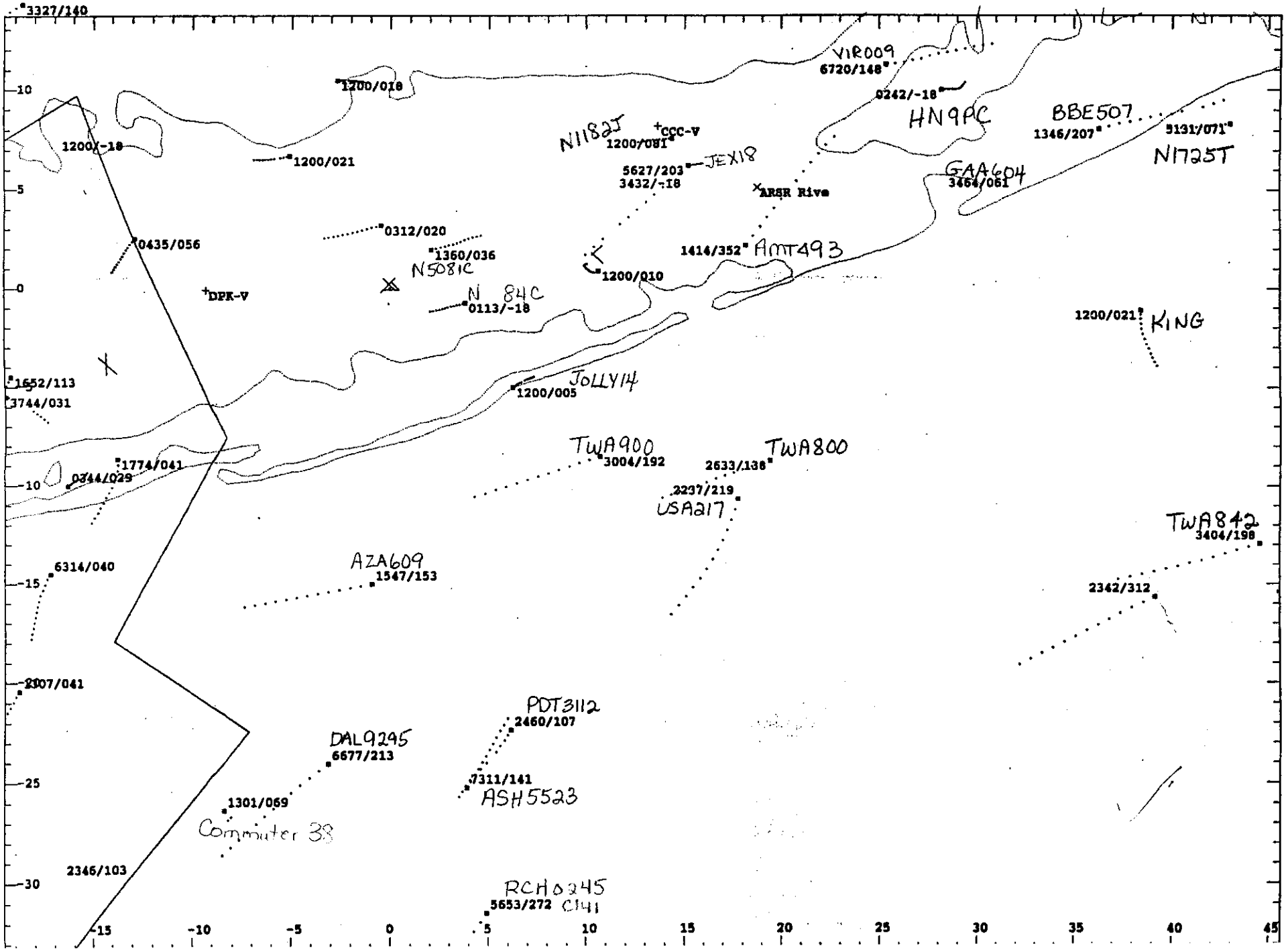
CJ, NTSB RE-60

OCT-4-98 FRI 11:49 AM L INMS SPECIAL

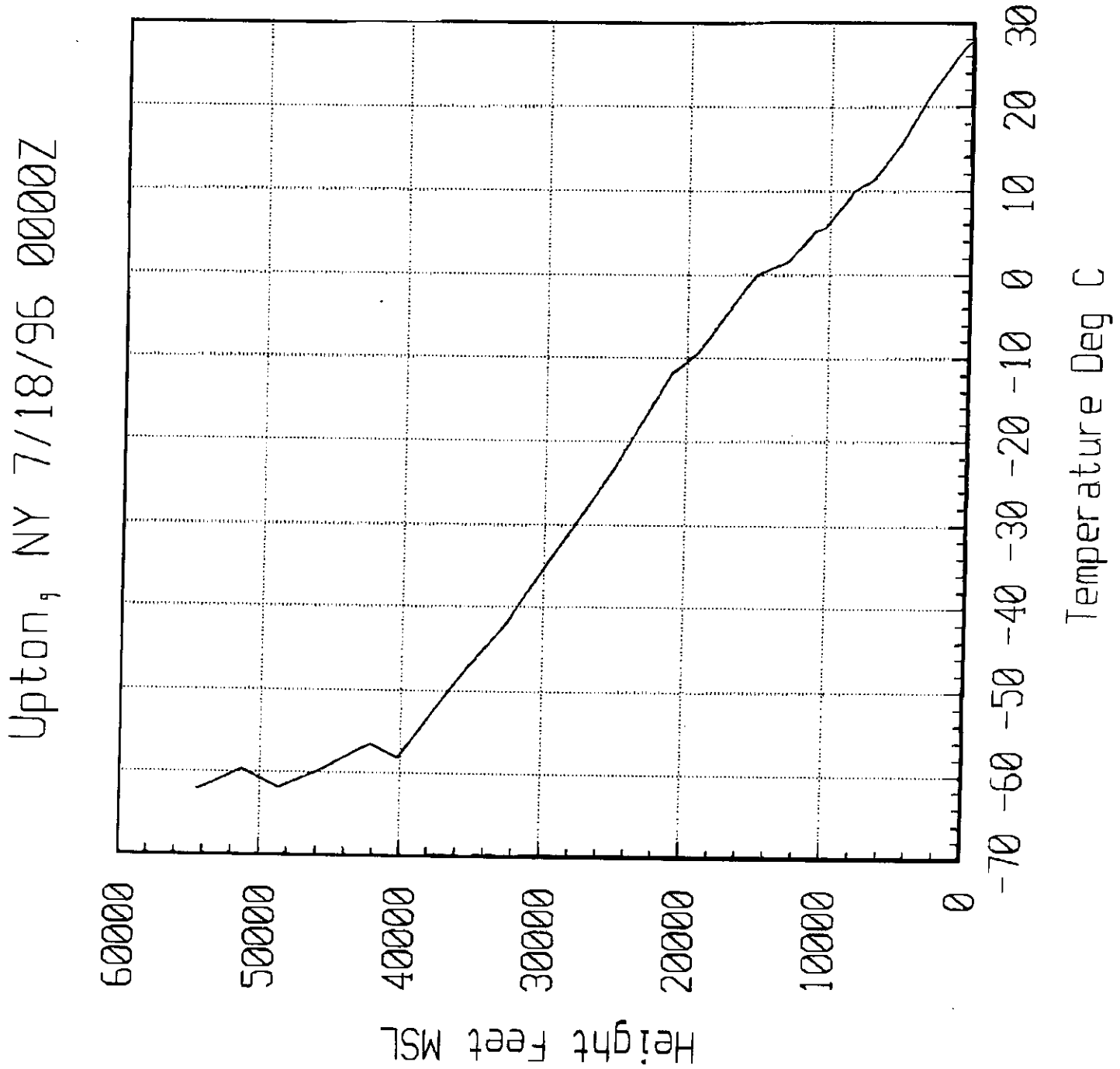
TWA 747 Out of JFK, July 17, 1996
FAA Radar Data From NYTRACON, NYCTR, and BOSCTR



MEGADATA csfA MEGADATA Plan Position (ticks=1NM, r-c=10NM) 96/07/17 20:31:13



1


Upton, NY 7/18/96 0000Z
Height Feet MSL
60000
50000
40000
30000
20000
10000
0
-70 -60 -50 -40 -30 -20 -10 0 10 20 30
Temperature Deg C

UPTON, N.Y.

STATION:72501 DAY/TIME:96200 000000 LAT/LONG:408500 728500

LEVEL	TEMP (°C)	DEW PT (°C)	DIR (°True)	SPEED (m/sec⁻¹)	HEIGHT (meters)
1015.0	27.8	20.8	240.0	2.5	20.0
1000.0	27.2	18.2	255.0	4.6	152.3
982.9	26.1	16.9	270.0	6.6	304.0
949.4	23.9	14.2	280.0	7.7	609.0
925.0	22.2	12.2	285.0	8.7	837.5
916.8	21.5	11.9	285.0	9.2	914.0
884.9	18.6	10.7	290.0	9.7	1219.0
850.0	15.4	9.4	305.0	10.2	1564.9
823.8	13.5	8.0	310.0	10.8	1829.0
794.5	11.3	6.3	315.0	9.7	2134.0
793.0	11.2	6.2	315.3	9.6	2150.4
766.0	10.3	-1.4	320.0	8.2	2439.0
757.0	10.0	-4.0	323.3	7.7	2538.0
748.0	9.2	1.2	326.5	7.2	2637.3
738.5	8.4	1.7	330.0	6.6	2743.0
723.0	7.2	2.4	332.9	6.3	2918.6
711.7	6.3	0.9	335.0	6.1	3048.0
700.0	5.4	-0.6	325.0	6.1	3184.2
699.0	5.4	-0.6	324.7	6.1	3196.0
686.0	5.2	-12.8	320.1	6.1	3349.5
685.7	5.2	-12.9	320.0	6.1	3353.0
676.0	4.4	-16.6	310.5	6.9	3469.2
660.4	3.3	-17.0	295.0	8.2	3658.0
636.0	1.5	-17.6	290.0	8.7	3963.0
634.0	1.4	-17.6	290.8	8.8	3988.5
612.3	0.8	-20.4	300.0	9.7	4268.0
586.0	0.0	-24.0	302.9	10.9	4620.7
567.3	-1.9	-23.0	305.0	11.8	4878.0
545.9	-4.2	-21.8	315.0	15.9	5182.0
530.0	-5.9	-20.9	315.0	17.1	5416.5
500.0	-9.3	-28.3	315.0	19.5	5870.1
485.5	-10.4	-30.2	310.0	20.0	6097.0
466.6	-11.8	-32.7	305.0	20.5	6402.0
465.0	-11.9	-32.9	304.8	20.5	6428.6
400.0	-22.5	-35.5	295.0	20.5	7558.2
396.5	-23.0	-36.0	295.0	20.5	7621.0
363.9	-27.9	-40.6	295.0	20.5	8231.0
319.9	-35.2	-47.5	305.0	20.0	9146.0
306.5	-37.7	-49.8	315.0	19.0	9451.0
300.0	-38.9	-50.9	315.0	19.0	9602.3
286.0	-41.9	-51.9	300.8	18.6	9928.2
280.4	-42.7	-52.9	295.0	18.5	10060.0
256.0	-46.5	-57.3	280.0	21.0	10670.0
250.0	-47.5	-58.5	280.0	21.6	10828.8
200.0	-58.1	-67.1	310.0	24.6	12269.6
182.0	-56.5	-65.5	313.6	29.0	12866.1
175.1	-57.2	-66.2	315.0	30.8	13109.0
151.4	-59.9	-68.9	300.0	25.7	14024.0
150.0	-60.1	-69.1	300.0	25.7	14083.4
133.0	-61.9	-70.9	312.9	23.4	14831.2
124.5	-60.8	-69.8	320.0	22.1	15243.0
118.5	-59.9	-68.9	320.0	20.0	15548.0
117.0	-59.7	-68.7	318.7	19.3	15628.7
102.3	-61.8	-70.8	305.0	12.3	16463.0
100.0	-62.1	-71.1	305.0	11.3	16605.1
93.3	-62.5	-71.5			17033.6
25.9	-49.7	-62.7			25184.4

JFK 254 at 44 NMiles from upton

Acc. site ≈ 15 NMiles SE of Upton

24.7 -49.7 -62.7 25495.0

PARCEL: DEW PT.= 288.7 POT. TEMP= 301.1 EQUIV.POT.TEMP= 334.9 MIX= 12.3
PRECIP.WATER= 30.4 CONV.TEMP= 30.9 FCST MAX= 0.0 LIFTED INDEX= -0.6
TOTALS= 43.4 EQUIL.PRES.= 253.8 K-INDEX= 28.1 SWEAT INDEX=190.4

TWA Flight 800
Cockpit Voice Recorder Group Summary of CVR recording.

1 The crew had a pre-flight conversation about late passenger arrival and baggage. The final resolution was that the passenger was onboard the aircraft all of the time.

2. The aircraft was designated as a "lifeguard" flight. This status change was brought about at the last minute. Ground control questioned why they weren't informed about the status prior to calling for ground clearance.

3. The crew discussed an erratic number four fuel flow gauge. This discussion was about 2 minutes prior to the end of the recording.

4. Last conversation on the recording was a callout by Captain for climb power.

5. Normal delayed engine start. Initial started number 1,2,4 engines. Delayed engine start of number 3 was accomplished about 5 minutes prior to take off.

6. Left seat captain was receiving B747 initial line operating experience. Right seat Pilot was a Check Captain instructing the left seat pilot.

7. Flight engineer was in training status. He was seated at the flight engineer's panel. Jump seat was occupied by instructor Flight engineer who was supervising flight engineer.

8. During the climbout the flight was cleared to 19000 feet and asked to expedite their climb out of 15,000. The flight was subsequently told to stop climb at 13,000 ft because of crossing traffic.

9. Recording ends with a loud unknown noise. This noise is heard on all of the four CVR channels.

10. Flight appeared routine during ground operations, takeoff and the climbout.

C:\LONG\RADAR.BRF

Safety Board engineers have nearly completed recovery of data from the contaminated area of the FDR tapes. All recovered data end abruptly with no identified signatures. The airplane was in a stable, wings-level climb. Heading was steady. The engine pressure ratios were stable. The longitudinal and vertical accelerometers did not indicate any abrupt maneuvers. They did indicate that the air was smooth.

Time correlation between CVR and FDR data show that both recordings ended at nearly the same time, within a fraction of a second.

CVR and FDR data have been compared to radar data from the Islip, New York Terminal Approach Control Radar (TRACON).

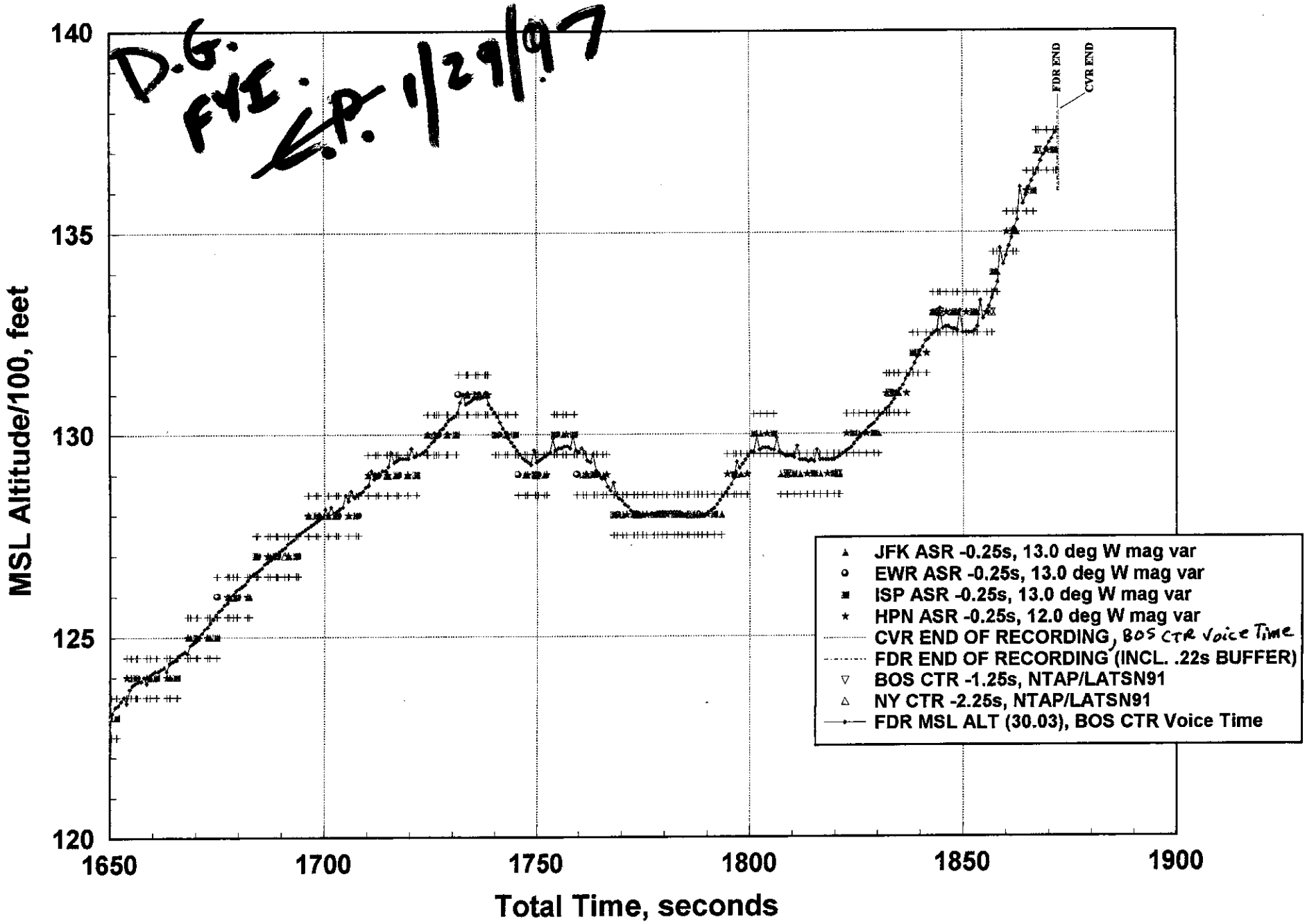
The data show that the transponder was operating properly until about 2031 and 8 seconds while the airplane was climbing through 13,700 feet. This is approximately coincident with the ending of the CVR and FDR. After that time, only primary radar targets were recorded.

Primary targets are radar reflections from objects, typically airplanes, metal parts, smoke, ships, etc. Primary returns do not include altitude information.

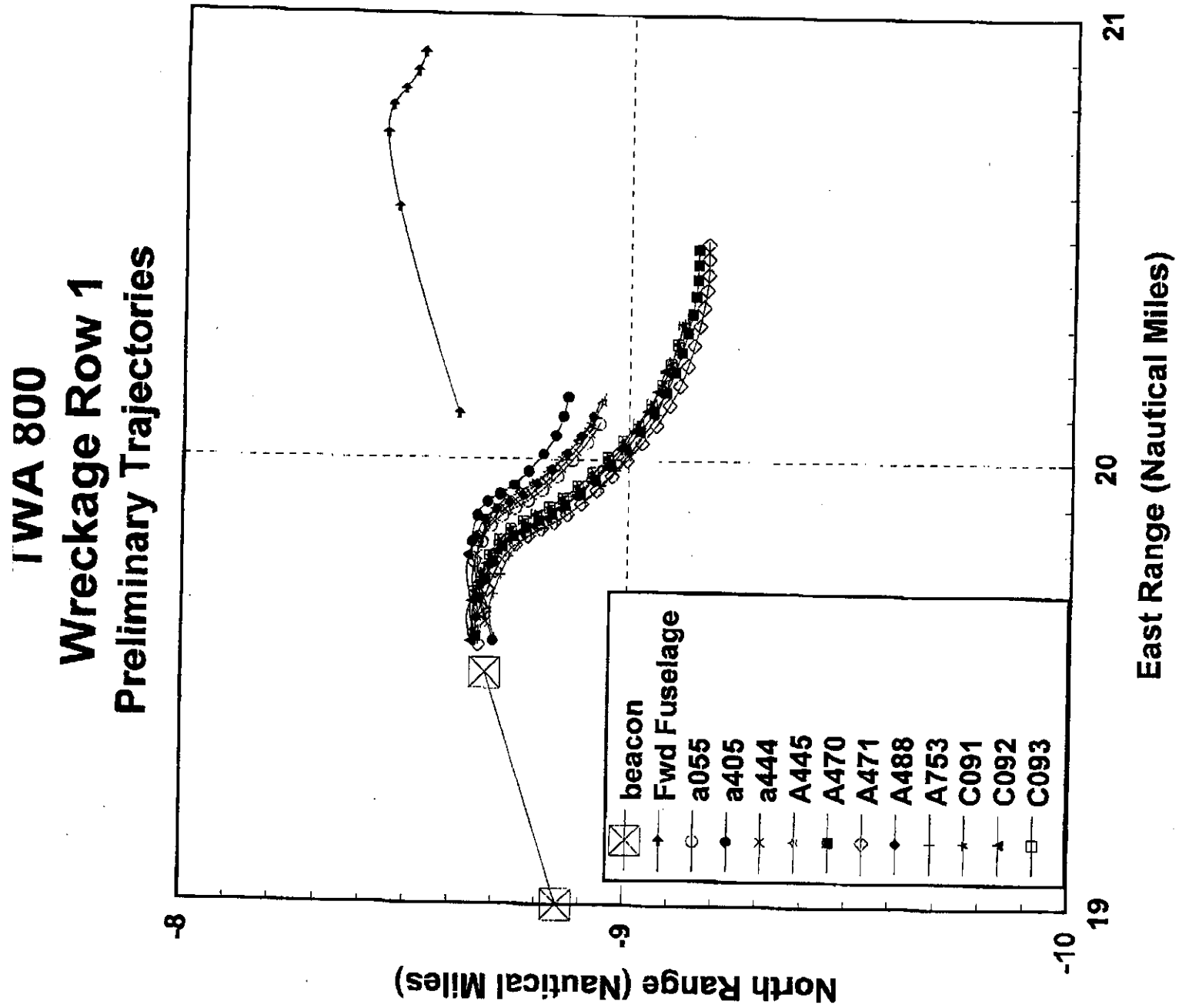
One sequence of primary targets continued on from the transponder track for about 41 seconds and 2 1/2 nautical miles, to near the position where the engines and large pieces of wreckage have been found.

In addition, there were 3 separate sequences of primary targets drifting to the southeast, two of which lasted for 20 minutes and moved 5 to 6 miles. The movement was consistent with the wind. One sequence emanated from the area of the last transponder return. Another emanated from the area of the wreckage, 2 1/2 miles to the east. The third was a short sequence of primaries about 1/2 way in between.

TWA 747 out of JFK, 7/17/96



This is the plot John Clark mentioned in the telecon today. It shows the trajectories of items on the first row (west side) of the red zone wreckage scatter. These pieces were the first out. As John said these pieces should be located. I will take my measurements and John wants them looked over carefully.


TWA 800
Wreckage Row 1
Preliminary Trajectories
beacon
Fwd Fuselage
a055
a405
a444
A445
A470
A471
A488
A753
C091
C092
C093
-8
-9
-10
North Range (Nautical Miles)
19
20
21
East Range (Nautical Miles)