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MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION
Volume II: Appendices

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13. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration Systems Research and Development Service Washington DC 20591		14. Supplementary Notes U.S. Department of Transportation Transportation Systems Center Randall Square Cambridge MA 02142		15. Abstract A program has been carried out to make modifications to the Lockheed-Huntsville Mobile Laser Doppler Velocimeter (LDV) system; to calibrate and operate the system at the John F. Kennedy (JFK) Airport; to obtain a data base of wind, wind shear, and wake vortex measurements; and to assess the basic operational capabilities of the system based on these measurements. The basic operational capabilities, resolution, and integrity of a scanning LDV for the remote sensing of winds, wind shear, and wake vortices at terminal areas have been established. Volume I, 150 pages, contains text.	
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MITRIC CONVERSION FACTORS

Approximate Conversions to Metric Measure

Length	Mass Too Small	Measures by	To Find	Results
LENGTH				
1 in	2.5	cm	centimeters	2.5
1 ft	30	cm	centimeters	30
1 yd	91	cm	centimeters	91
1 mi	1,609	m	meters	1,609
AREA				
1 sq in	6.45	cm ²	square centimeters	6.45
1 sq ft	929	cm ²	square centimeters	929
1 sq yd	846	dm ²	square decimeters	846
1 sq mi	2.6	km ²	square kilometers	2.6
MASS (weight)				
1 lb	454	g	grams	454
1 oz	28.3	g	grams	28.3
1 ton	907	kg	kilograms	907
1 short ton	907	kg	kilograms	907
1 long ton	1,016	kg	kilograms	1,016
VOLUME				
1 cu in	16.4	ml	milliliters	16.4
1 cu ft	28.3	l	liters	28.3
1 cu yd	765	l	liters	765
1 cu mi	1.6	km ³	cubic kilometers	1.6
TEMPERATURE (cent)				
Freezing	32	°C	centigrade	0
Boiling	212	°C	centigrade	100



Approximate Conversions from Metric Measure

Length	Mass Too Small	Measures by	To Find	Results
LENGTH				
1 cm	0.39	in	inches	0.39
1 m	39.4	in	inches	39.4
1 km	0.62	mi	miles	0.62
AREA				
1 sq cm	0.16	sq in	square inches	0.16
1 sq m	1.19	sq yd	square yards	1.19
1 sq km	0.39	sq mi	square miles	0.39
MASS (weight)				
1 g	0.0022	lb	pounds	0.0022
1 kg	2.2	lb	pounds	2.2
1 ton	1.1	ton	tons	1.1
VOLUME				
1 ml	0.034	cu in	cubic inches	0.034
1 l	3.4	cu in	cubic inches	3.4
1 cu m	35.3	cu ft	cubic feet	35.3
1 cu km	0.26	cu mi	cubic miles	0.26
TEMPERATURE (cent)				
Freezing	0	°F	fahrenheit	32
Boiling	100	°F	fahrenheit	212



Appendix A DATA REPORT

This appendix summarizes the wake vortex and wind measurements made with the Lockheed-Huntsville LDV during the research program. The logs for the LDV measurements showing the run identification, time of day, estimated wind, and operator comments are presented on pages A-2 through A-11. The cataloged wake vortex measurements are presented on pages A-12 through A-253 in terms of the trajectory of the wake vortex with respect to the runway centerline. At the start of each new tape, the input parameters selected for the VAD and Vortex Track program are given for the wake trajectory calculations.

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**DATA LOG OF WAKE VORTEX AND WIND VELOCITY MEASUREMENTS
CONDUCTED BY LOCKHEED-HUNTSVILLE AT JFK**

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type or VAD	Start	Stop		
1	1	VAD	10:51	10:57	NW	120° total inc. angle
1	2	VAD	10:03	11:06	NW	60° total inc. angle
2	1	VAD	03:50	03:54	NW	Very clear day; VAD scan heights 50, 60, 70, 80, 100, 200, 250 Changed at three
2	2	747	03:56	03:57	NW	
2	3	707	03:58	04:00	NW	
2	4	727	04:01	04:02	NW	20 dB input atten.
2	5	DC10	04:08	04:09	NW	
2	6	DC9	04:12	04:13	NW	
2	7	707	04:16	04:17	NW	
2	8	727	04:18	04:19	NW	
2	9	707	04:20	04:21	NW	
2	10	707	04:23	04:24	NW	
2	11	DC10	04:24	04:25	NW	
2	12	747	04:34	04:35	NW	
2	13	VAD			NW	Wind at or near run end; Teflon off
2	14	DC8	04:37	04:38	NW	
2	15	DC10	04:39	04:39	NW	
2	16	DC9	04:41	04:42	NW	
2	17	747	04:43	04:44	NW	
2	18	747	04:45	04:46	NW	
2	19	DC8	04:47	04:47	NW	
2	20	707	04:49	04:50	NW	
2	21	VAD	04:55	05:00	NW	
2	22	VAD	05:00	05:03	NW	See run 1 Parity in 21st record

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
3	1	VAD	15:00:25	15:05:40	NW	40, 45, 60, 75, 100, 150, 200, 300 m at 1 rev. per altitude
3	2	747	15:09:35	15:10:35	NW	
3	3	707	15:11:50	15:12:15	NW	12 knots at 340°
3	4	747	15:13:40	15:14:45	NW	Looks good
3	5	747	15:24:00	15:24:55	NW	
3	6	747	15:28:00	15:24:55	NW	360° at knots
3	7	737	15:35:00	15:35:45	NW	
3	8	747	15:37:05	15:38:05	NW	
3	9	747	15:40:30	15:41:35	NW	
3	10	727	15:44:40	15:45:30	N-NE	
3	11	707	15:46:00	15:47:00	N-NE	< 5 knots $\approx$ N.
3	12	707	15:48:55	15:49:40	N-NE	Calm
3	13	707	15:51:00	15:51:40	N-NE	
3	14	747	15:52:15	15:53:10	N-NE	
3	15	747	15:55:15	15:56:30	N-NE	Good! Low! Calm winds
3	16	747	15:58:30	15:59:30	N-NE	
3	17	DC-9	16:01:00	16:14:00	N-NE	
3	18	VAD	16:04:45	16:09:00	N-NE	See Run 1 notes for steps observed wind at $\approx$ 3 mph horiz. comp. 707 passed $\approx$ 16:04:07 about record 57
3	19	DC-9	16:11:30	16:12:10	N-NE	About Run 19
3	20	707	16:14:30	16:16:15	N-NE	Good run!
3	21	707	16:17:45	16:18:40	N-NE	Freq. going about F.S.
3	22	DC-8	16:19:35	16:20:45	N-NE	
3	23	707	16:23:30	16:25:00	N-NE	360° at 8. Good one
3	24	727	16:26:00	16:27:15	N-NE	Good one
3	25	727	16:28:00	16:29:00	N-NE	Good one
3	26	707	16:30:00	16:31:10	Calm	
3	27	DC-10	16:33:00	16:34:20	Calm	Good one

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
JFK						
3	28	727	16:35:00	16:36:00	Calm	Good one, came in high
3	29	DC-10	16:37:00	16:38:30	Calm	Good
3	30	707	16:40:00	16:41:10	Calm	Good
3	31	747	16:44:00	16:45:00	Calm	Good
3	32	DC-10	16:46:30	16:47:30	Calm	Good
3	33	DC-10	16:49:00	16:50:10	Calm	
3	34	747	16:51:30	16:53:30	Calm	Calm. Good! Real Good
3	35	747	16:54:00	16:55:00	Calm	
3	36	VAD	17:57:00	17:00:00	Calm	See run 1 notes for steps
3	37	L-10-11	17:02:00	17:03:30	Calm	
3	38	L-10-11	17:05:00	17:07:00	Calm	Calm
3	39	707	17:11:15	17:12:10	Calm	Calm
3	40	727	17:13:15	17:14:00	Calm	Abort run
3	41	747	17:15:00	17:16:30	Calm	Exceeded max. freq.
3	42	707	17:18:00	17:19:00		
3	43	DC-8	17:25:00	17:26:20		0080 at 5 knots
3	44	747	17:27:00	17:29:00		Real good; hanging high
3	45	727	Missed TM			
3	46	707	17:32:00	17:33:30		
3	47	727	17:35:00	17:35:30		007 at 5
3	48	707	17:37:00	17:38:15		007 at 5
4	1	Wheel	10:04:00	10:09:00		222 m for 1st 30 or 31 records; 322 m for rest. Wheel range (ft) to side of van (542)
4	2	Wheel	10:33:00	10:38:00		Wheel at 328° to side of van. A/C turned on off at record 29 and on
4	3	Wheel	11:15:00	11:20:00		230° distance from wheel to van side
4	4	Abort	11:52:00	11:53:00		30 kHz BW to RE 35
4	5	Wheel	11:55:00	12:00:00		

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments (1) Scanner running clockwise looking down on van (JFK ID 5); (2) Conditions clear; gusty winds toward van from W/SW (JFK ID 6)
	No.	AC Type of VAD	Start	Stop		
4	6	Calib 1	12:02:00			
4	7	Calib 2				
4	8	Calib 3				
4	9	Calib 4		12:03:00		
5	1	VAD	14:10:00	14:15:00	SE	35, 45, 60, 75, 100, 150, 200, 400 m at 1 rev/alt
5	2		14:15:00	14:25:00	230 at 10	2 rev/alt
5	3				Using 226	
5	4		14:25:00	14:40:00	230 at 6	4 rev/alt
5	5		14:41:00	14:46:00		4 rev/alt
5	6		14:46:00	14:56:00		2 rev/alt
5	7		14:56:00	15:11:00	200° at 5	1 rev/alt
5	8		15:12:00	15:17:00	220° at 5	1 rev/alt
5	8		15:17:00	15:27:00	220 at 3	2 rev/alt
5	9		15:27:00	15:42:00		4 rev/alt
5	10					4 rev/alt
5	11					2 rev/alt
5	12					1 rev/alt
6	1	VAD	15:12:00	15:17:00	SW	Alt: 35, 45, 60, 75, 100, 150, 200, 400 m at 1 rev/alt
6	2	747	15:34:00	15:35:00	SW	(280° at 18) azimuth 200°; data bad, need 280.
6	3	707	15:40:00	15:41:00	290° at 16	
6	4	707	15:43:00	15:44:00	290° at 16	
6	5	727	15:46:00	15:47:00	290° at 14	
6	6	707	15:48:00	15:49:00		
6	7	DC-9	15:50:00	15:51:00		
6	8	747	15:52:00	15:53:00	290 at 16	
6	9	747	15:54:00	15:55:00		Good run Vortices blowing
6	10	707	15:55:00	15:56:00	290 at 15	Good run in toward van

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
6	11	707	15:57:00	15:57:00	280 at 16	Good run } Vortices blowing in toward van
6	12	727	15:58:00	15:59:00	280 at 14	
6	13	707	16:01:00	16:02:00		
6	14	707	16:03:00	16:04:00		
6	15	DC-9	16:06:00	16:07:00	280 at 16	Good !
6	16	707	16:08:00	16:09:00	280 at 14	Low ! most hits < 15°
6	17	747	16:10:00	16:11:00		Good run !
6	18	707	16:12:00	16:13:00		Good run !
6	19	DC-10	16:15:00	16:16:00	280 at 14	Good run !
6	20	DC-9	16:17:00	16:18:00		
6	21	707	16:20:00	16:21:00		Blew over fast
6	22	VAD	16:25:00	16:30:00		Alt: 35, 45, 60, 75, 100, 150, 200 400 m at 1 rev/alt.
6	23	707	15:42:00	15:43:00		
7	1	VAD	14:00:00	14:37:00	320 at 18 at 1400	35, 41, 50, 60, 70, 100, 100, 300 m at 1 rev/alt.
7					340 at 18	at 1409
7					320 at 20	at 1412
7					330 at 12	at 1424
7					330 at 20	at 1428
7					330 at 17	at 1432
8	1	VAD	10:01:00	10:07:00	180° at 4	Alt: 35, 41, 50, 60, 70, 100, 200 300, m at 1 rev/alt.
8	2	VAD	10:15:00	10:20:00	180° at 7	Same alt. as above
8	3	RS*	10:53:00	10:53:21		
8	4		10:55:00	10:55:21		
8	5		10:55:55	10:56:15		
8	6		10:57:40	10:58:00		
8	7		10:59:00	10:59:20		

* Range Scan

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
JFK						
8	8	RS [*]	11:01:00	11:01:20		
8	9		11:02:00	11:02:20		
8	10		11:03:00	11:03:20		
8	11		11:04:00	11:04:20		
8	12		11:05:00	11:05:20		
8	13		11:06:00	11:06:20		
8	14		11:07:00	11:07:20		
8	15		11:08:00	11:08:20		
8	16		11:09:00	11:09:20		
8	17		11:10:00	11:10:20		
8	18		11:11:00	11:11:20		
8	19		11:12:00	11:12:20		
8	20		11:14:00	11:14:20		
8	21		11:15:00	11:15:20		
8	22		11:16:00	11:16:20		
8	23		11:17:00	11:17:20		
8	24		11:18:00	11:18:20		
8	25		11:19:00	11:19:20		
8	26					
8	27		11:20:00	11:20:20		
8	28		11:21:00	11:21:20		
8	29		11:22:00	11:22:20		
8	30		11:23:00	11:23:20		
8	31		11:24:00	11:24:20		
8	32		11:25:00	11:25:20		
8	33		11:26:00	11:26:20		
8	34		11:27:00	11:27:20		
8	35		11:28:00	11:28:20		
8	36		11:29:00	11:29:20		

^{*} Range Scan

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
8	37	RC ^o	11:39:00	11:39:20		
8	38		11:31:00	11:31:20		
8	39		11:42:00	11:45:00		
8	40		11:45:30	11:48:30		
8	41	VAD	11:51:00	11:52:30	200 ^o at 7	Halt after 1½ min. winds > full scale
8	42	VAD	11:55:00	12:00:00	200 ^o at 7	Shear running about 1.2 m cycles; gw about 400 kHz
8	43	RC ^o	12:08:30	12:17:00		Azimuth, 310 ^o ; left of Tower 2
8	44		12:44:00	12:47:00		Azimuth, 240 ^o ; to right and top. Tower 1
8	45	VAD	12:56:00	13:01:00	200 ^o at 7	
9	1	VAD	16:29:30	16:31:30	230 at 11	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
9	2	DC-9	16:41:00	16:42:00	230 at 11	Gone in a hurry
9	3	DC-10	16:44:00	16:45:00		Gone in a hurry
9	4	707	16:47:00	16:49:00		Azimuth = 100 ^o Notice azimuth change
9	5	747	16:50:00	16:51:00		Good
9	6	DC-10	16:52:00	16:53:00		Good
9	7	707	16:54:00	16:55:00		Good
9	8	DC-10	16:55:00	16:56:00		Good
11	1	VAD	11:43:00	11:55:00	220 ^o	Alt: 41, 50, 60, 70, 100, 200, 300 (SR 1)
11	2	VAD	12:46:00	12:55:00	200	Ditto
11	3		13:15:00			Ditto plane crash at ~1310
11	4		13:59:00	14:45:00		300 m - 1.4 MHz
11	5		14:52:45			350 - 600 MHz
11						70 - 600 MHz
11						100, two peaks
11						2010 up to 1.8 MHz at 200 ^o

^o Range Scan

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC type of VAD	Start	Stop		
13	1	VAD	14:50:00	14:52:00	220°	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m
13	2	VAD	14:55:00	15:00:00	220°	
13	3	VAD	15:20:00	15:25:00	220°	
13	4	VAD	15:48:00	15:54:00	220°	
13	5	VAD	16:19:00	16:24:00	220°	
13	6	VAD	16:49:00	16:55:00	220	
13	7	VAD	10:41:00	10:52:00	330°	Alt: 35, 41, 50, 60, 70, 100, 200, 300
13	8	707	11:27:00	11:28:00		
13	9	DC-9	11:34:00	11:36:00		
13	10	A 300	11:46:00	11:48:00		Airbus (France)
13	11	VAD	11:52:00	11:55:00		
13	12	DC-8	11:58:00	11:10:00		Alt: 35, 41, 50, 60, 70, 100, 200, 300
13	13	707	12:02:00	12:04:00		
13	14	727	12:08:00	12:09:00		
13	15	727	12:10:00	12:11:00		
13	16	DC-9	12:13:00	12:14:00		
13	17	707	12:16:00	12:17:00		No gas - change prg.
14	1	VAD	14:32:00	14:34:00	320	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
14	2	747	14:39:00	14:40:00		
14	3	VAD	14:49:00	14:52:00	370 at 10	
14	4	707	14:54:00	14:55:00	330 at 13	
14	5	747	14:56:00	14:58:00		Good
14	6	747	14:59:00	15:00:00		
14	7	727	15:01:00	15:02:00	330 at 15	
14	8	DC-9	15:03:00	15:14:00		
14	9	L-10-11	15:06:00	15:08:00	310 at 11	Looks pretty good
14	10	747	15:10:00	15:12:00		Looks good

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
14	11	707	15:14:00	15:15:00		O. K.
14	12	DC-8	15:16:00	15:17:00		
14	13	707	15:20:00	15:21:00		Abort, see nothing. (work- ing on processor)
14	14	707	15:22:00	15:22:00		Abort: nothing
14	15	707	15:25:00	15:26:00		Notice 30 kHz bandwidth
14	16	707	15:34:00	15:35:00		
14	17	707	15:35:00	15:36		Looks good
14	18	707	15:36:00	15:37:00	330 at 10	O. K.
14	19	737	15:38:00	15:39:00		Best yet
14	20	707	15:40:00	15:41:00	340 at 12	Good
14	21	707	15:42:00	15:43:00		
14	22	DC-9	15:44:00	15:44:00		Not good
14	23	DC-9	15:46:00	15:47:00		Not good
14	24	VAD	15:49:00	15:51:00		Alt: 35, 41, 50, 60, 70, 100, 200, 300 at 1 rev/alt.
14	25	747	15:52:00	15:54:00		Azimuth wrong, bad run
14	26	747	15:57:00	15:59:00	350 at 8	Good! Best today
14	27	727	16:02:00	16:03:00		Not very good
14	28	707	16:05:00	16:06:00	340 at 8	Looks better
14	29	DC-9	16:06:00	16:07:00		
14	30				340 at 8	Not a run
14	31	DC-8	16:20:00	16:23:00		
14	32	DC-9	16:23:00	16:24:00		
14	33	707	16:24:00	16:26:00	320 - 10	
14	34	DC-8	16:27:00	16:29:00		
14	35	727	16:29:00	16:30:00		
14	36	DC-10	16:34:00	16:35:00	330 - 06	
14	37	DC-8	16:35:00	16:37:00		
14	38	747	16:37:00	16:40:00	340 - 10	
14	39	DC-8	16:41:00	16:42:00	340 - 10	

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
14	40	707	16:46:00	16:47:00	330 - 10	Alt: 35, 41, 50, 60, 70, 100, 200, 300 at 1 rev/alt.
14	41	727	16:48:00	16:49:00	330 - 8	
14	42	VAD	16:50:00	16:55:00	330 at 7	
14	43	L-10-11	16:57:00	16:58:00		Lots of hits, but all bumped together; do not understand display
14	44	747	17:00:00	17:02:00	330 at 8	
14	45	747	17:02:00	17:04:00		
14	46	707	17:05:00	17:06:00	320 at 8	
14	47	707	17:06:00	17:08:00		
14	48	747	17:21:00	17:23:00		
14	49	707	17:24:00	17:26:00		
14	50	DC-9	17:29:00	17:30:00	320 at 12	
14	51	727	17:35:00	17:36:00	320 at 10	
14	52	707	17:40:00	17:41:00		
14	53	747	17:43:00	17:45:00		Not
14	54	707	17:46:00	17:47:00		Good run
14	55	DC-8	17:48:00	17:49:00		Good run
14	56	VAD	17:51:00	17:49:00		Good run
14	57	707	17:51:00	17:53:00	310 at 10	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
14	58	707	17:54:00	17:56:00		
15	1	VAD	10:50:00	10:55:00	130 at 5	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m
15	2	VAD	11:15:00	11:20:00	140 at 5	20 dB S/N on wind, R04 in use
15	3	VAD	11:30:00	11:35:00		
15	4	VAD	11:45:00	11:55:00		Apparent shear or turbulence at 50 m
15	4	VAD	13:49:00	13:55:00	160 at 6	No wind above 70 m
15	5	VAD	14:49:00	14:55:00	200 at 4	R-13 in use
15	5	VAD	15:46:00	15:55:00	200 at 4	Shear at 100 m

000 00 15
TIME IS 10:21 0

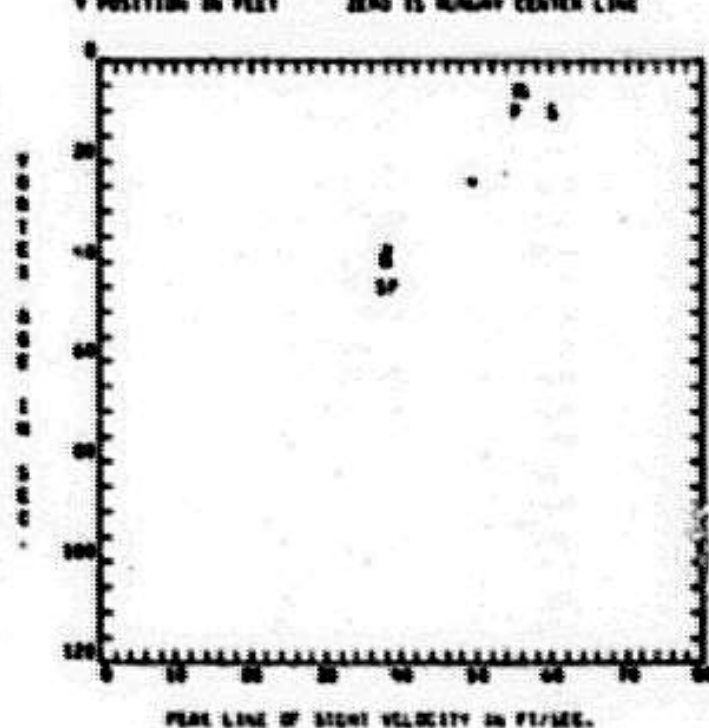
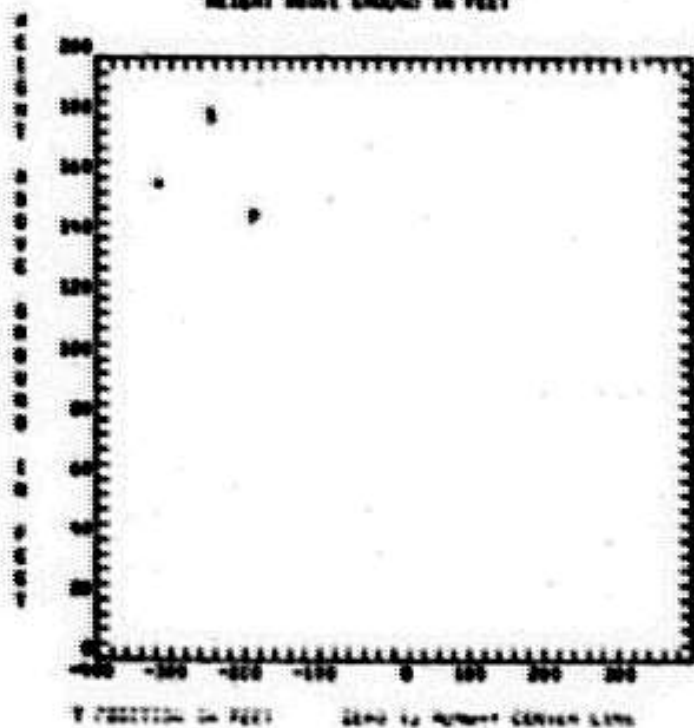
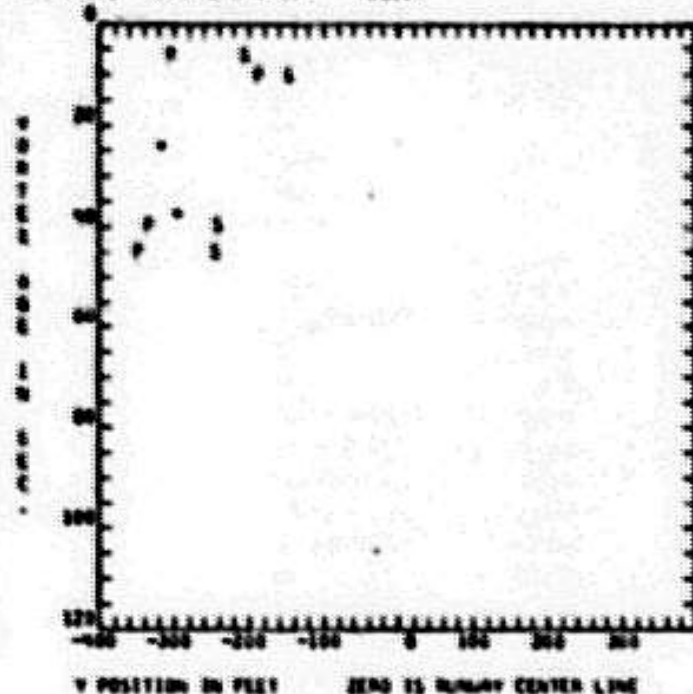
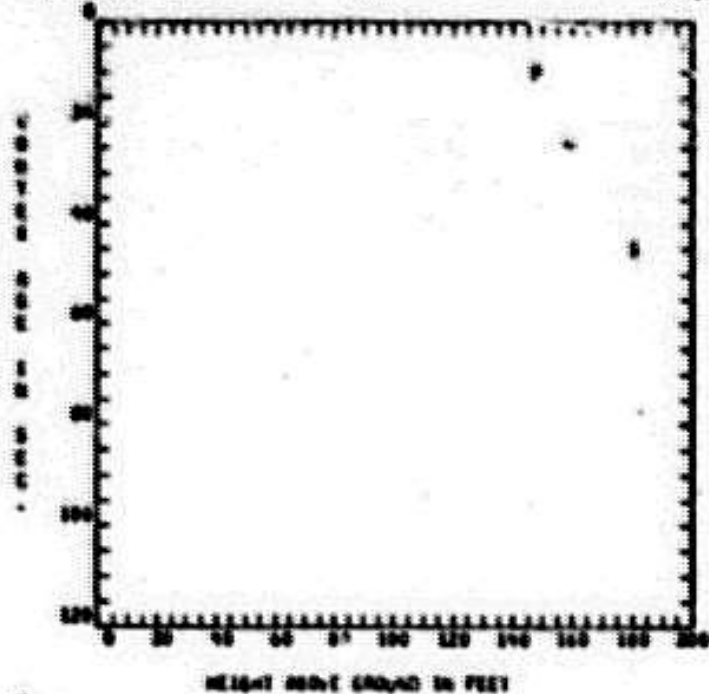
JFK2

0030

10/31/75

JFK RUNWAY 31R

000 00 150000
00310



	SP3				
SP3H	+				
SP3H2	+				
SP3H3	+				
SP3H4	+				
SP3H5	+				
SP3H6	+				
SP3H7	+				
SP3H8	+				
SP3H9	+				
SP3H10	+				
SP3H11	+				
SP3H12	+				
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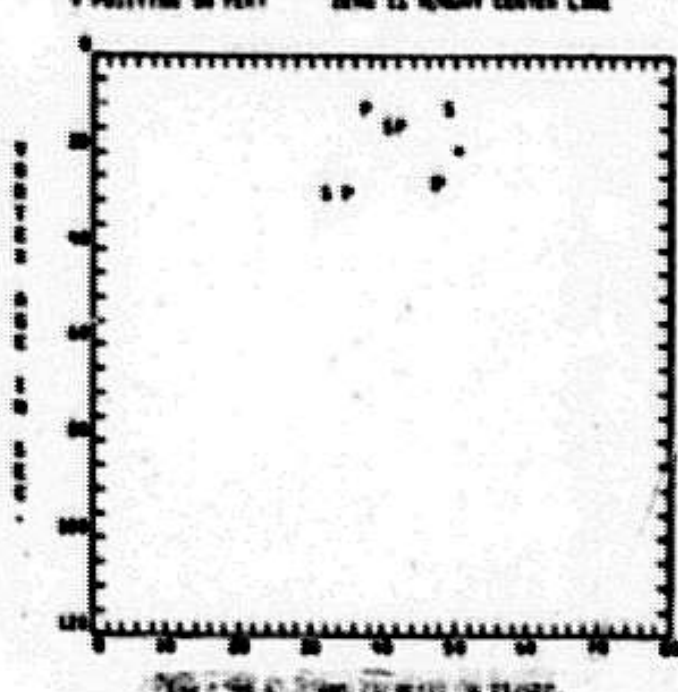
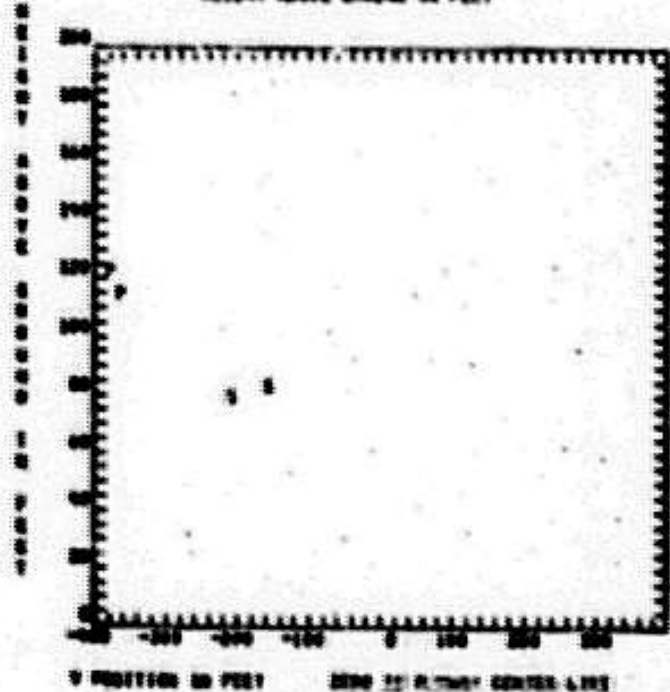
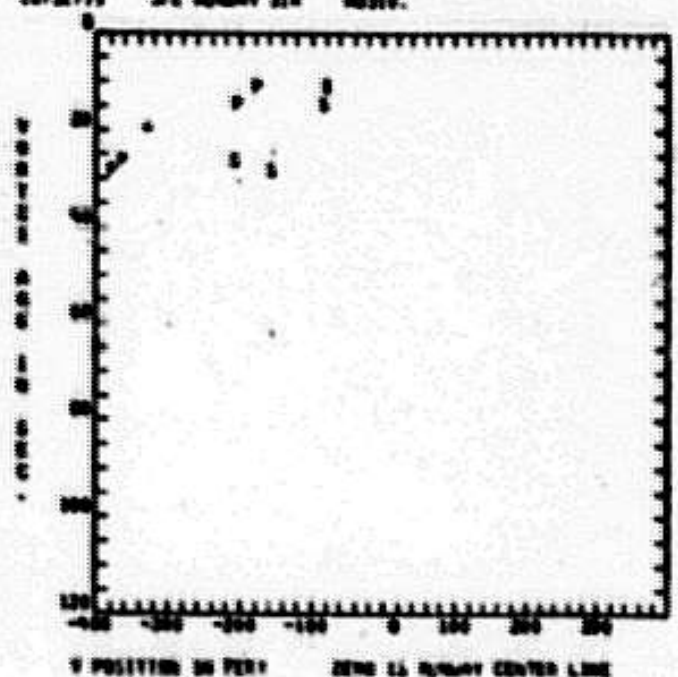
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REF ID: A613

REF ID: A613

REF ID: A613

REF ID: A613



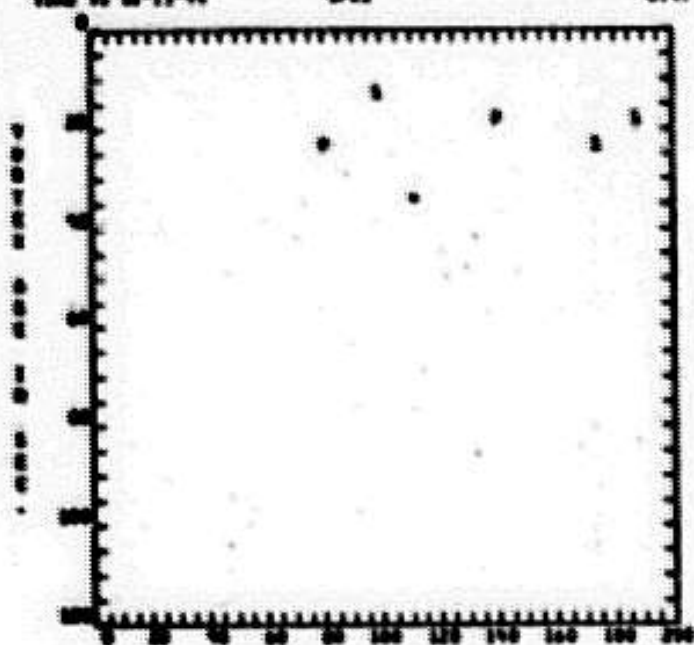
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JPL

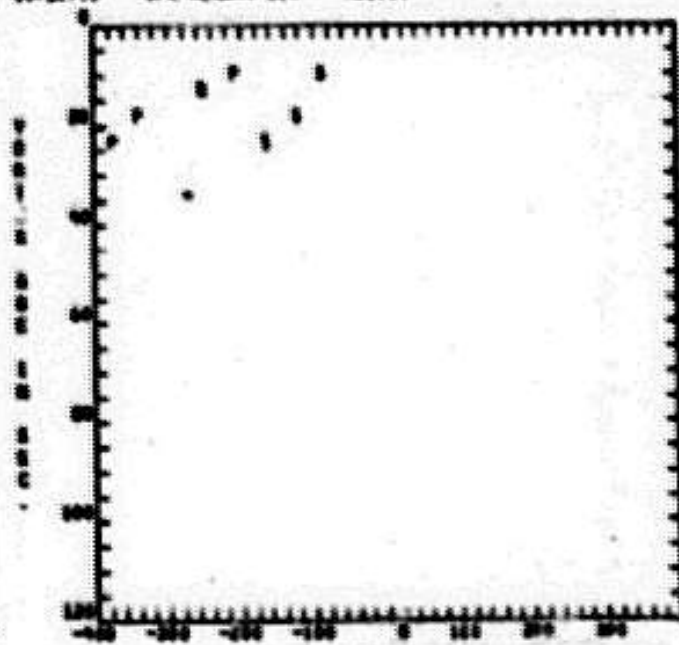
DATE 10/21/75

JPL SUMMARY 310

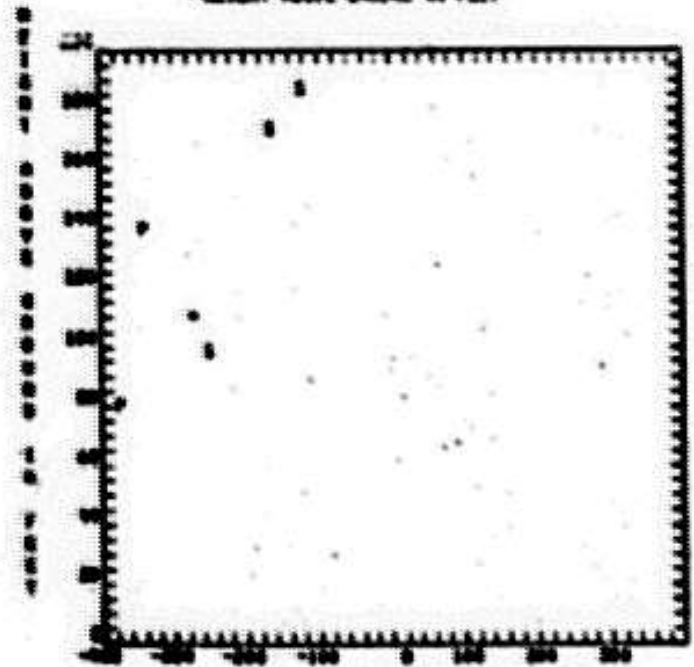
JOB NO. 830400
H0310.



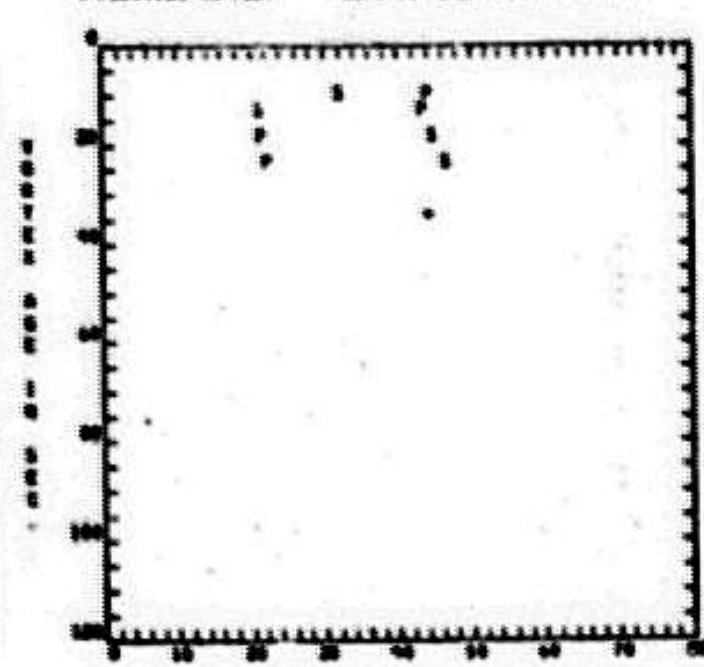
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

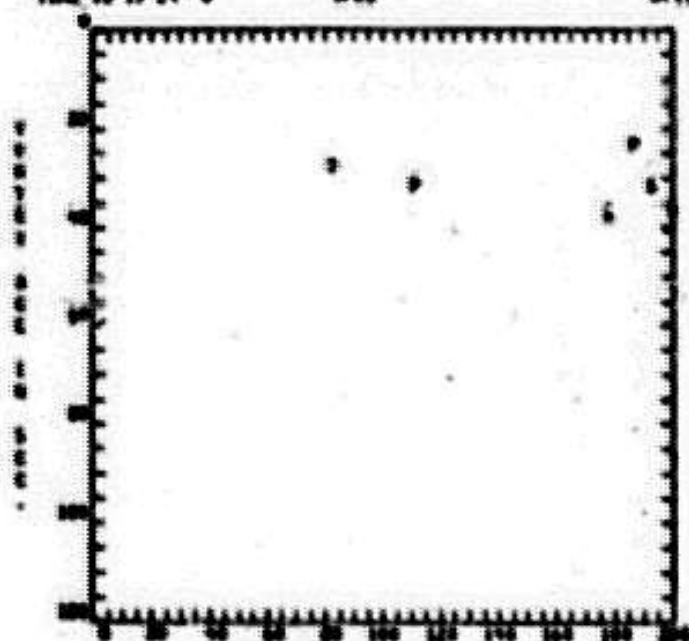
Run No. 1
TIME 15 25 24 0

JPL

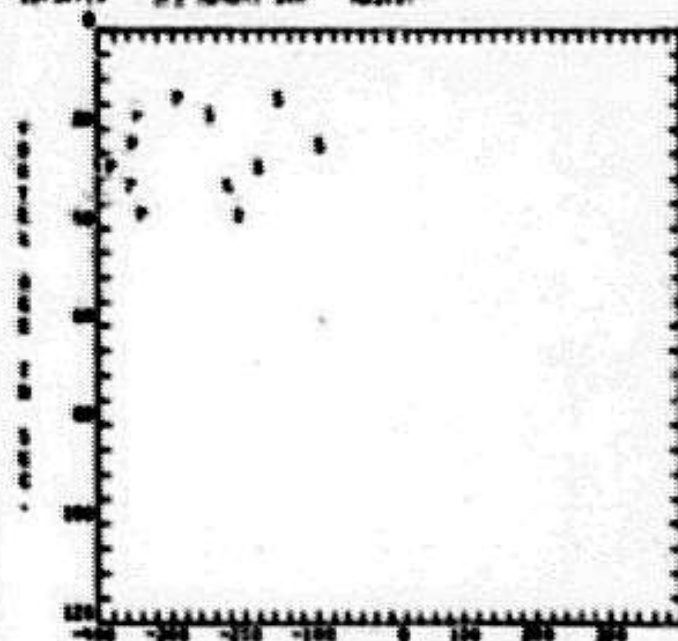
SPY 10/31/78

JPL Runway 31R

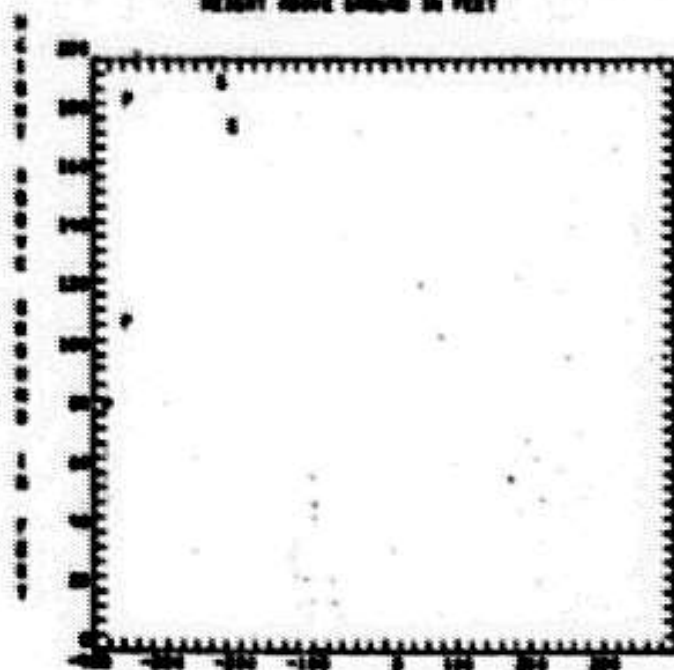
Run No. R30000
HD310



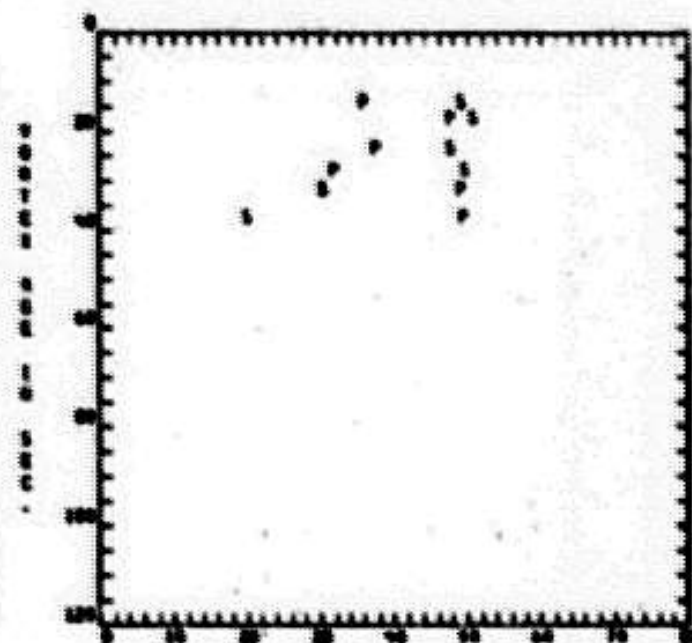
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

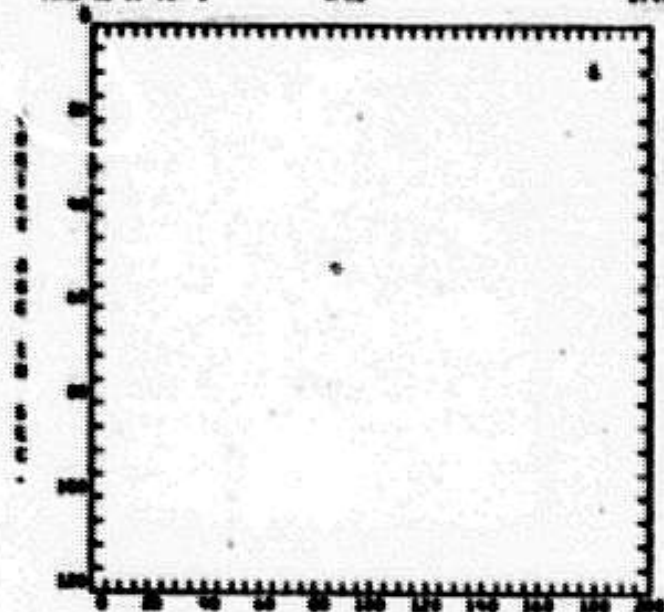
200000
TIME IS 15:40:00

JPL

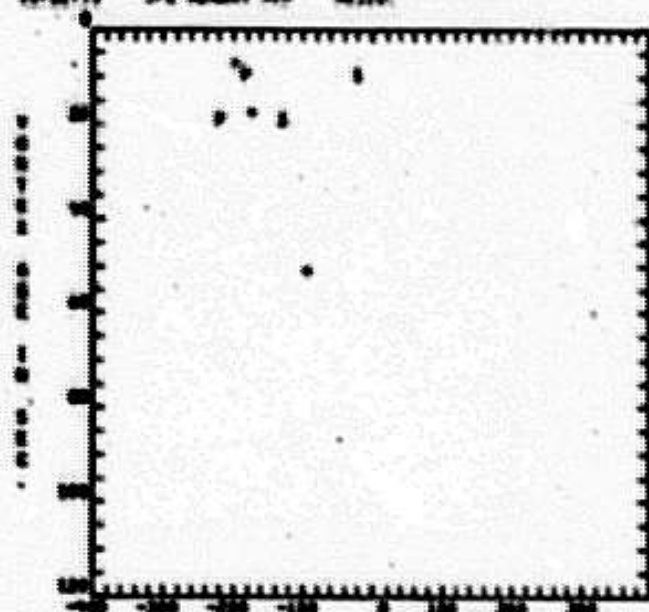
0707 10/20/75

JPL SUMMARY 315

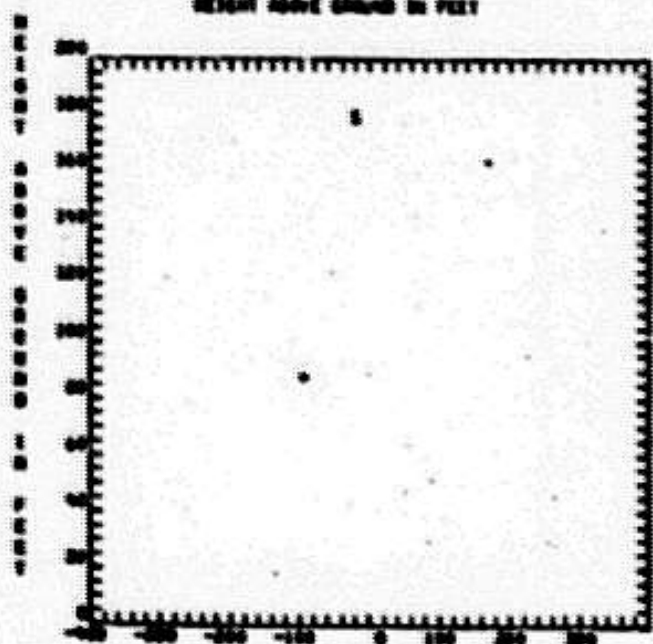
200000
10315



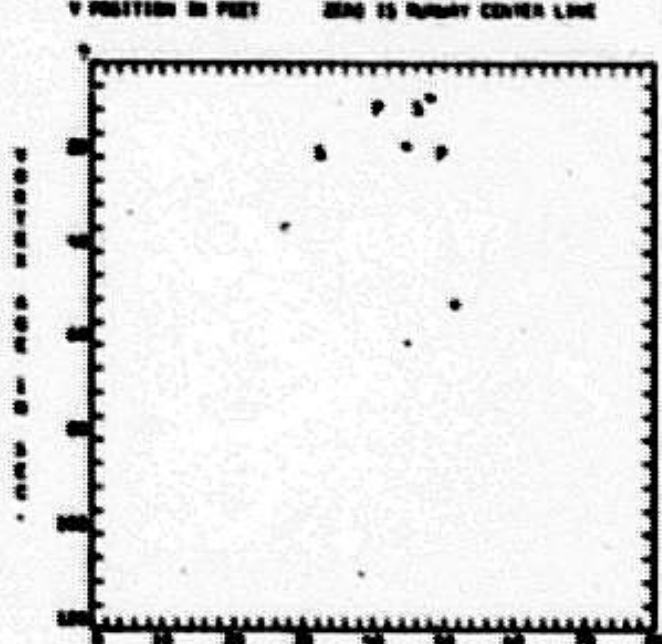
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO 15 RUNWAY CENTER LINE



V POSITION IN FEET ZERO 15 RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

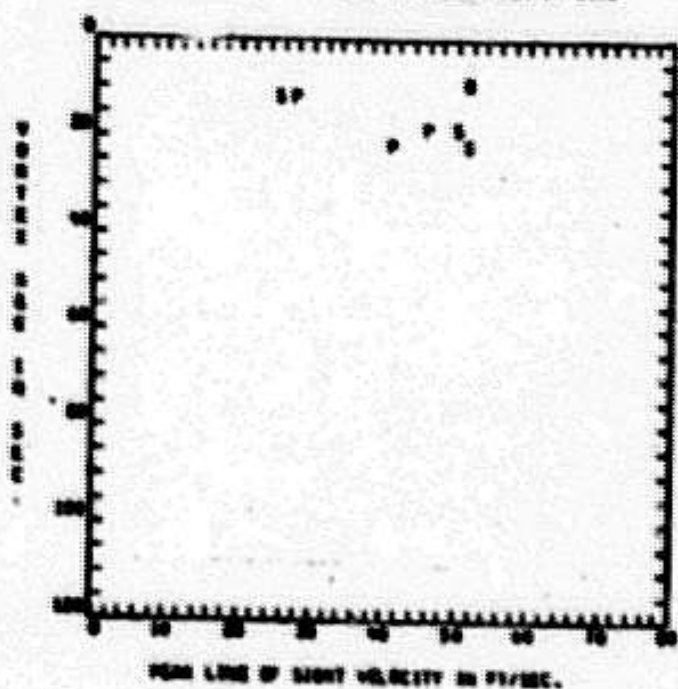
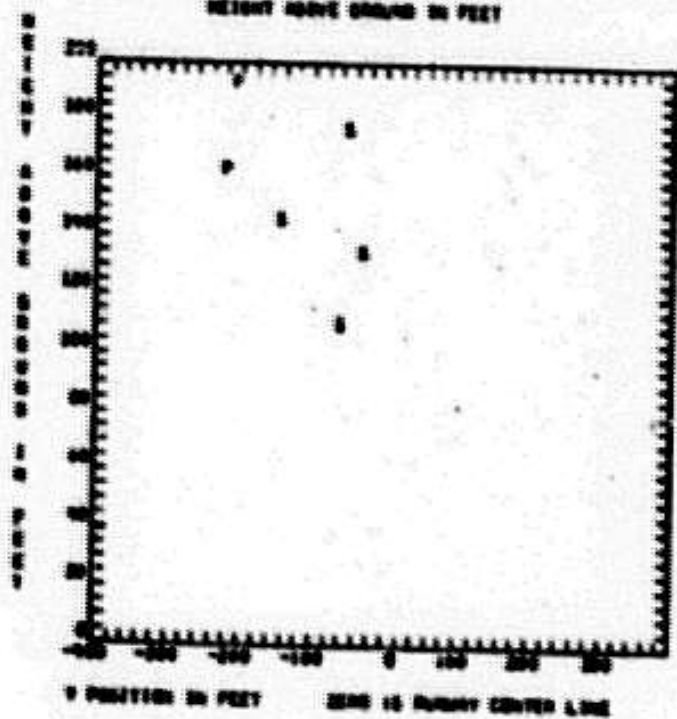
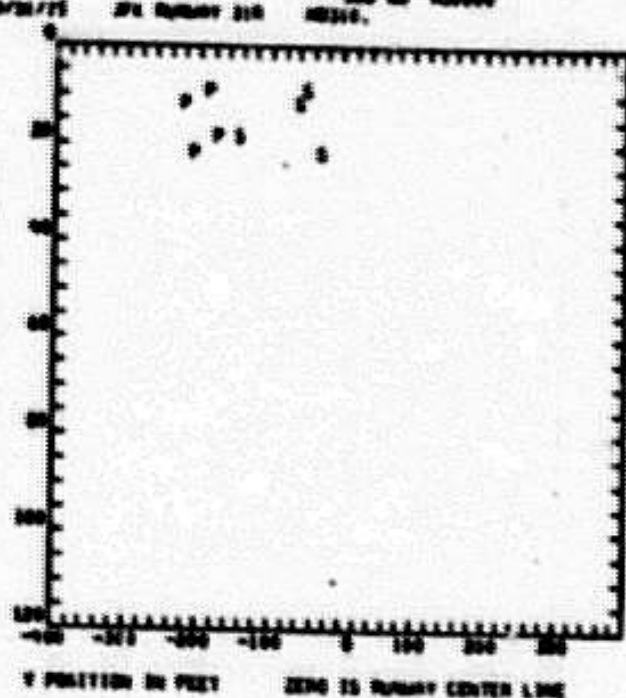
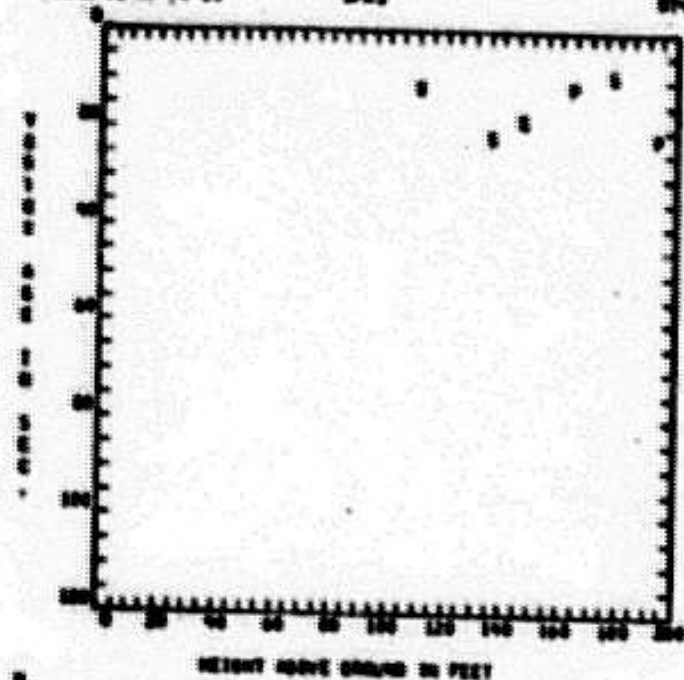
Run No. 10
Time 00 15:40:30

SP-3

SP-1 10/20/75

SP-4 Runway 31R

Run No. 100000



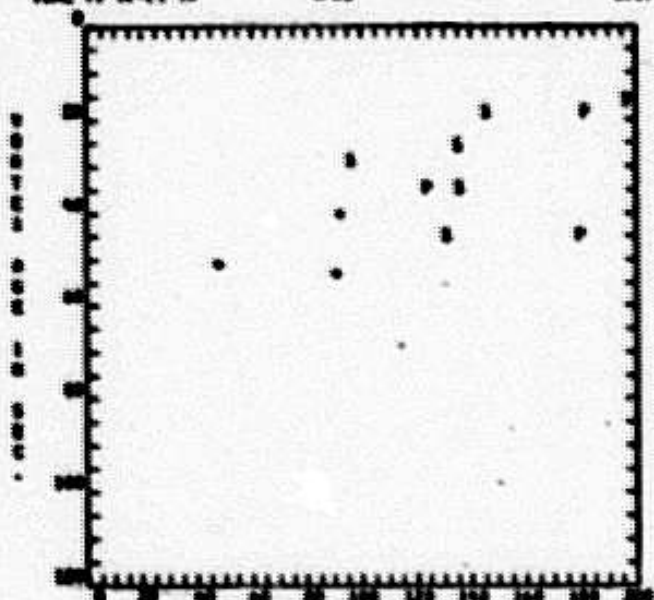
Exp No. 20
Date 15 May 75

JFK

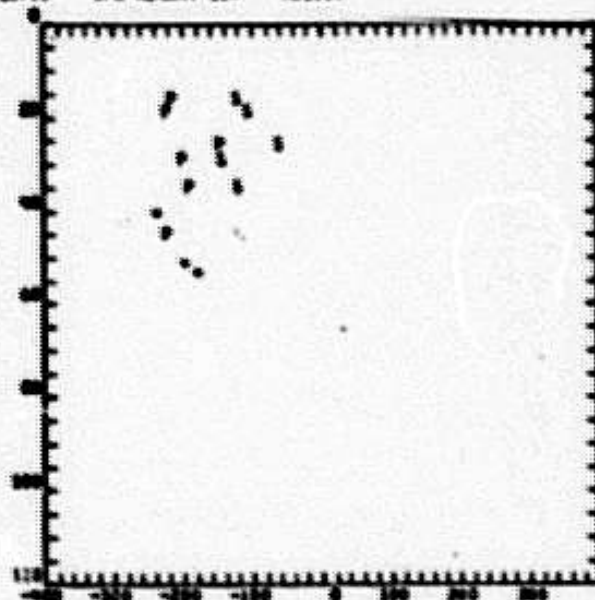
Exp 10/20/75

JFK Runway 31R

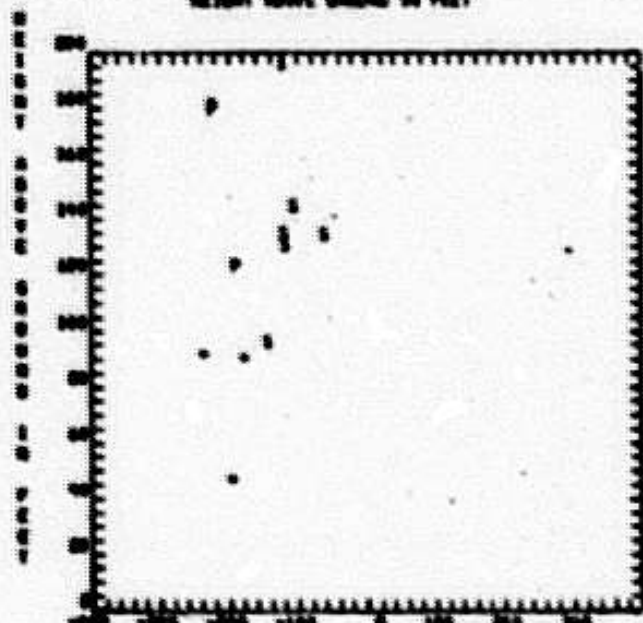
Exp No. 020000
HD310.



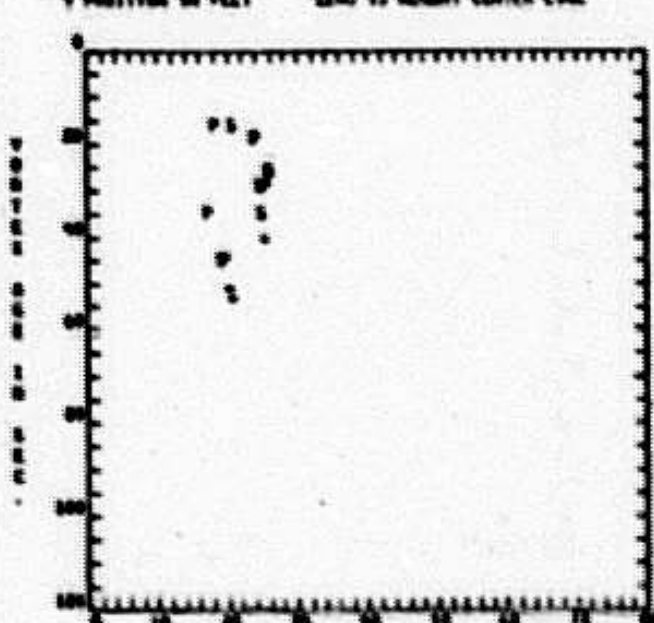
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

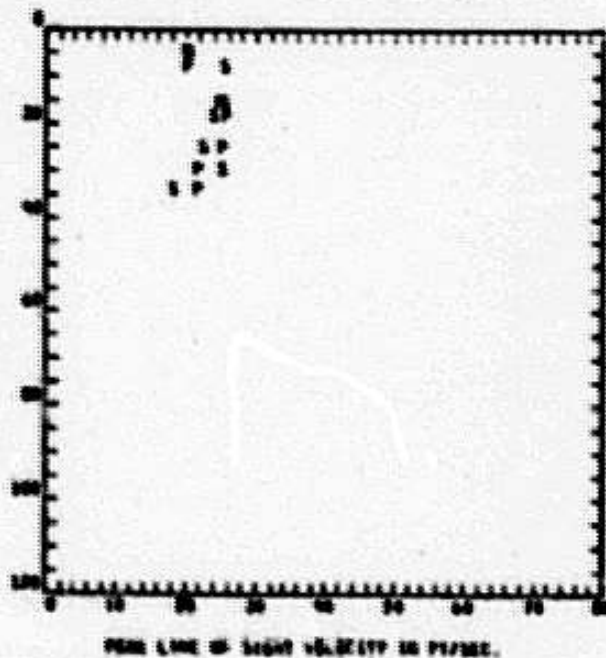
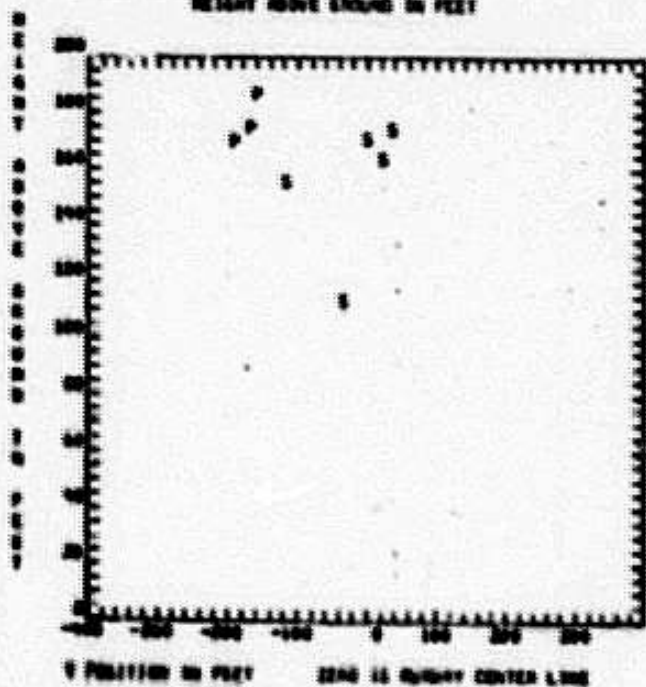
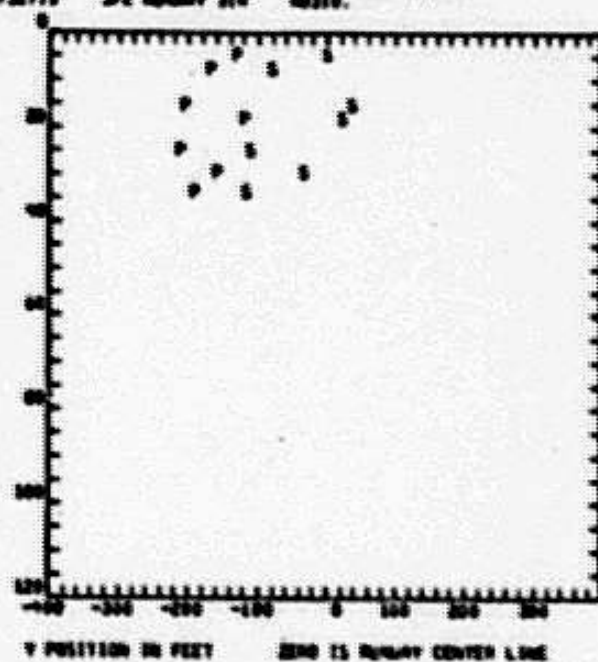
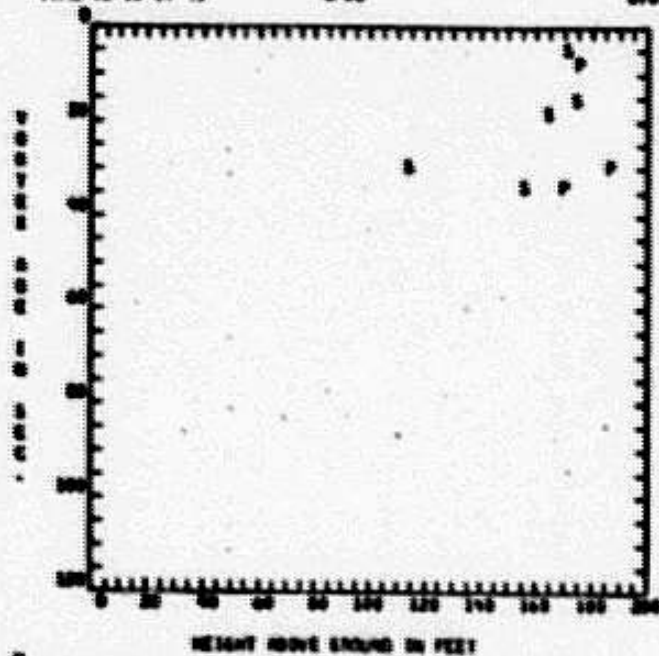
REP NO. 21
TIME IS 16:17:45

JPL3

DATE 10/28/75

JPL RUNWAY 310

REP NO. 030000
10210.



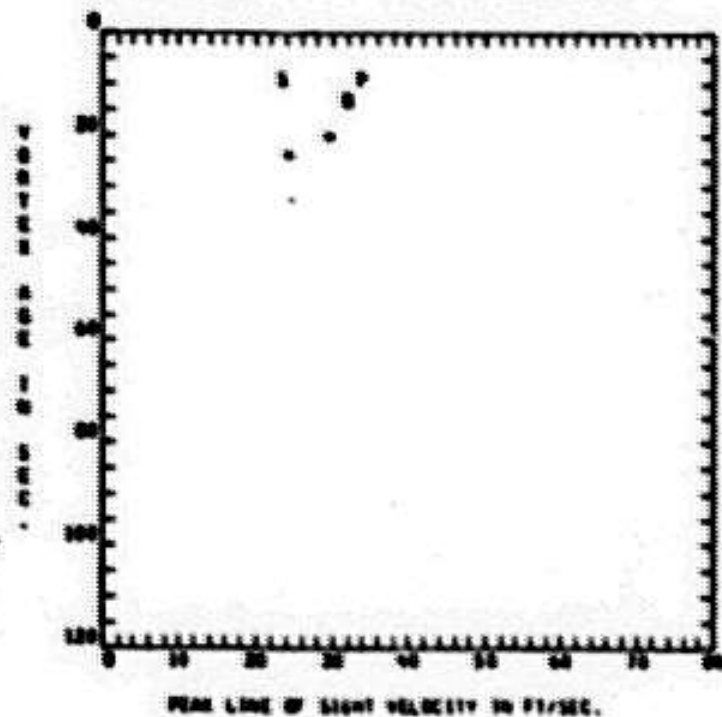
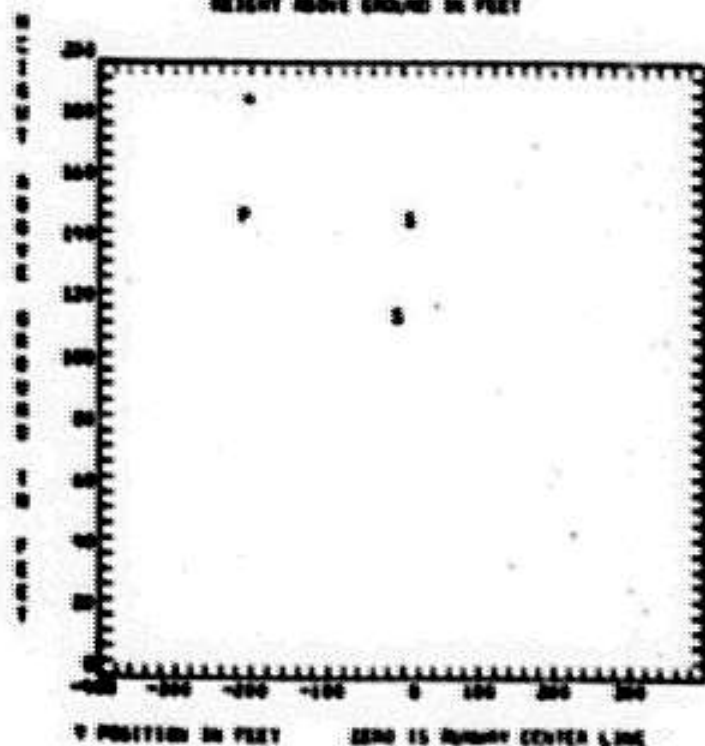
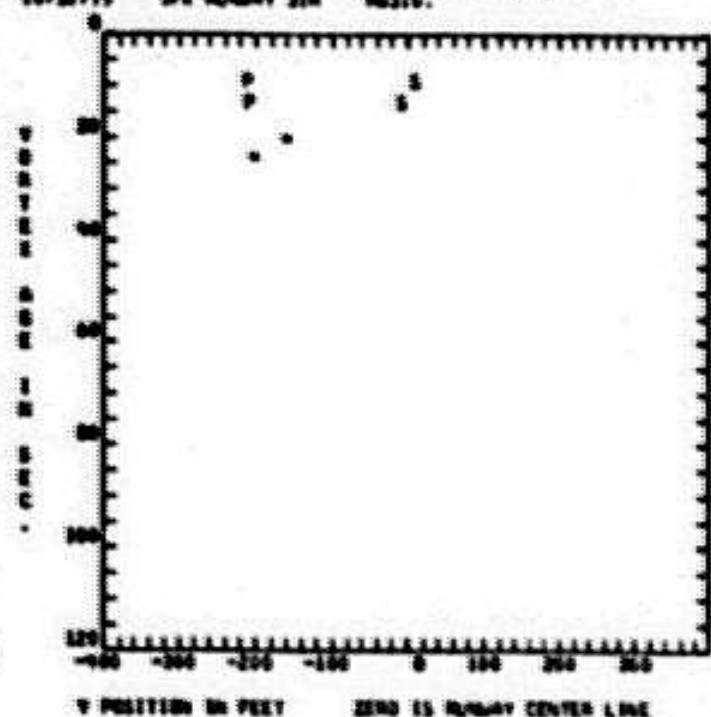
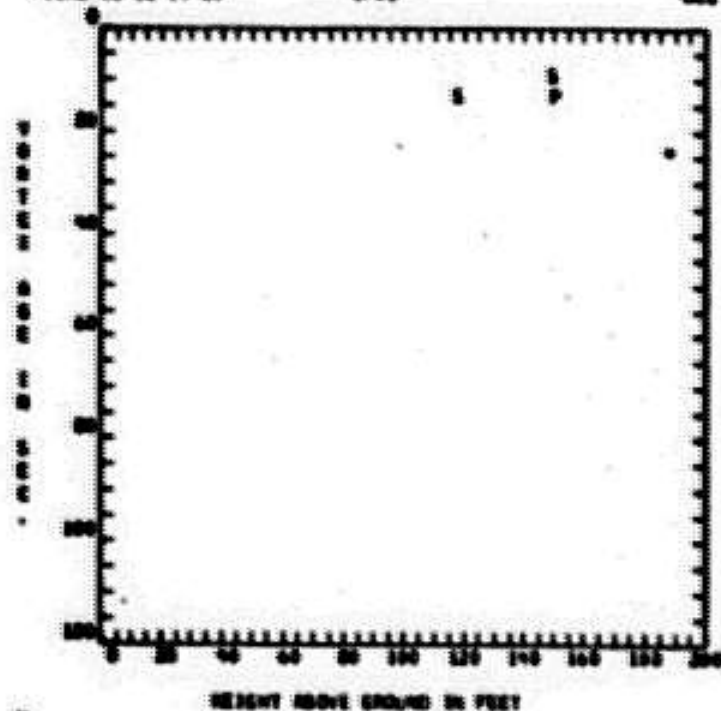
Run No. 22
TIME IS 14:19:25

JFK

DEC 18/26/75

JFK Runway 31R

Run No. 030000
HD310.



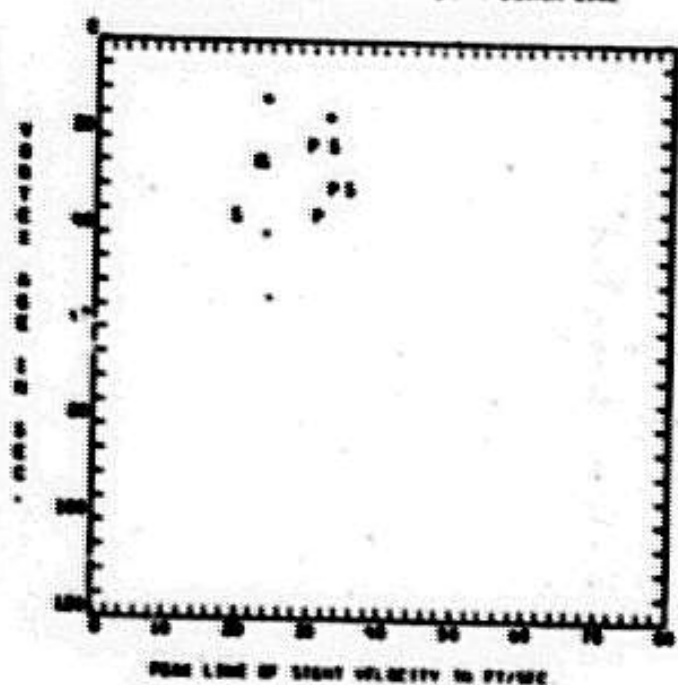
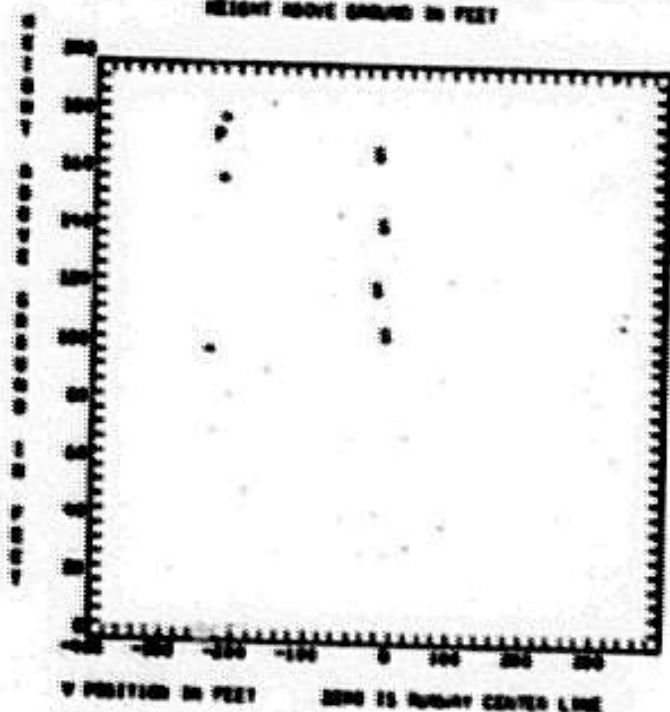
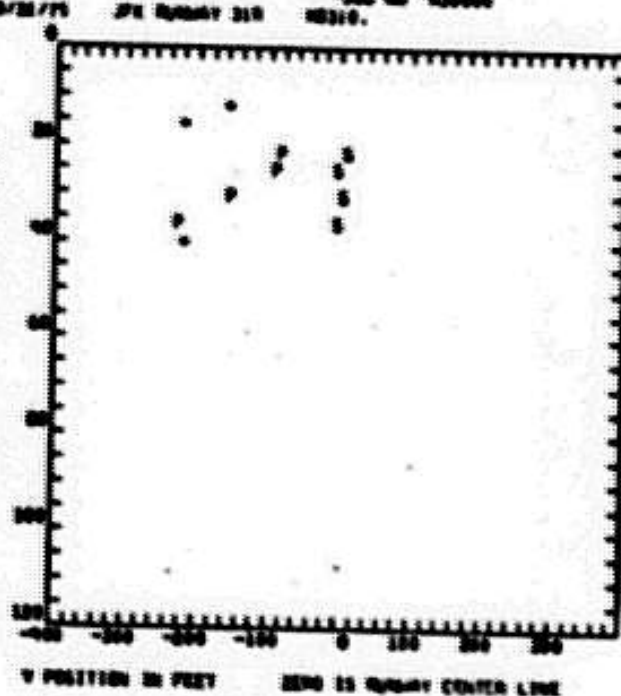
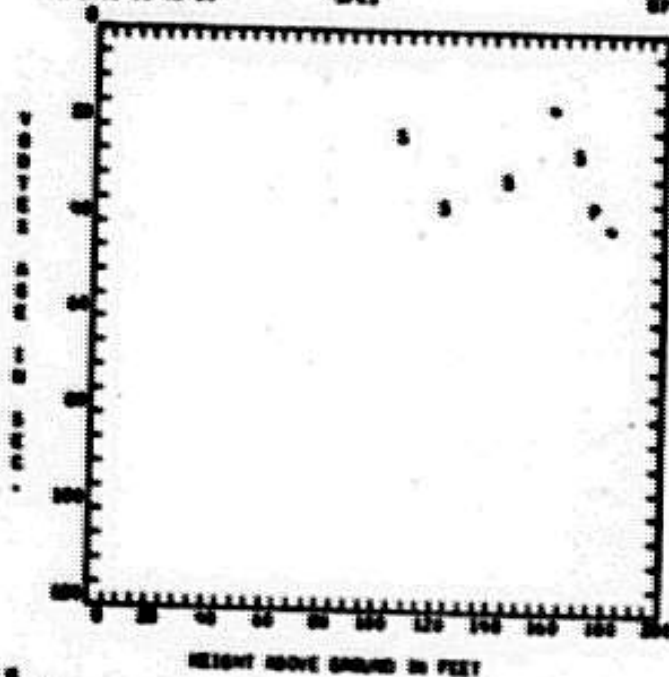
Run No. 23
Time 15 10:13:30

JFK

Spot 10/28/75

JFK Runway 31R

Run No. 000000
Height.



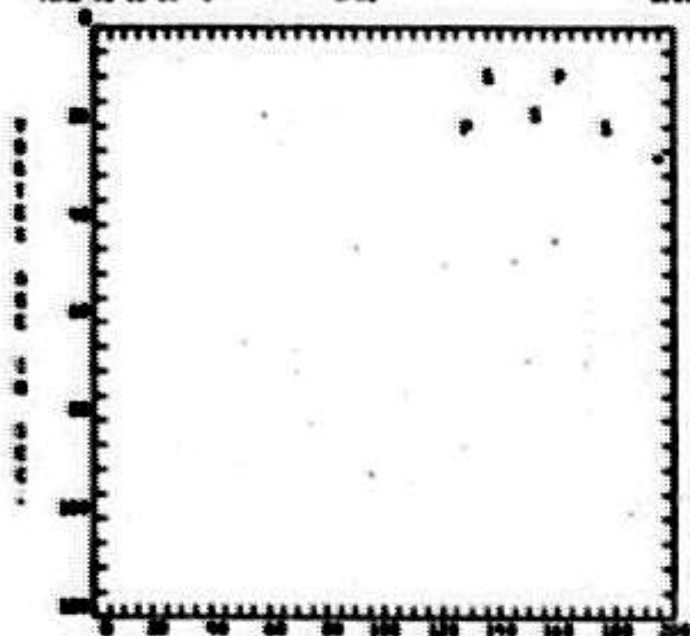
Run No. 20
TIME IS 14:30:00

JPL

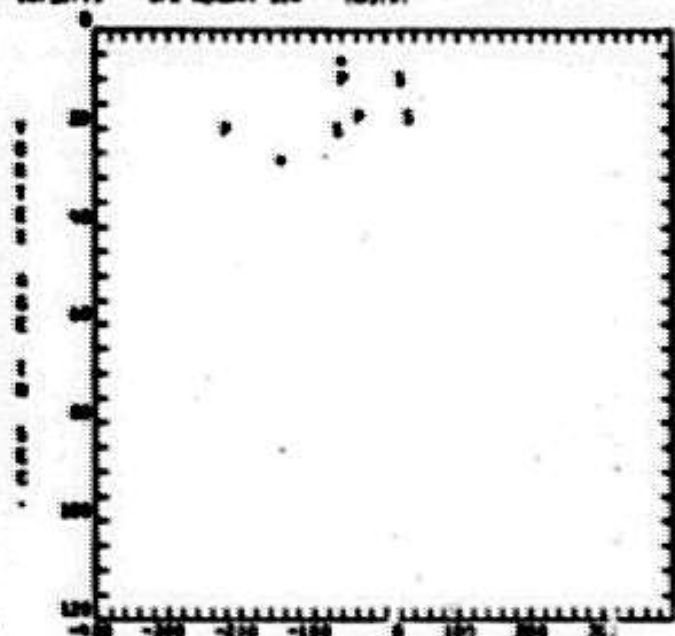
Date: 10/26/79

JPL Runway 31R

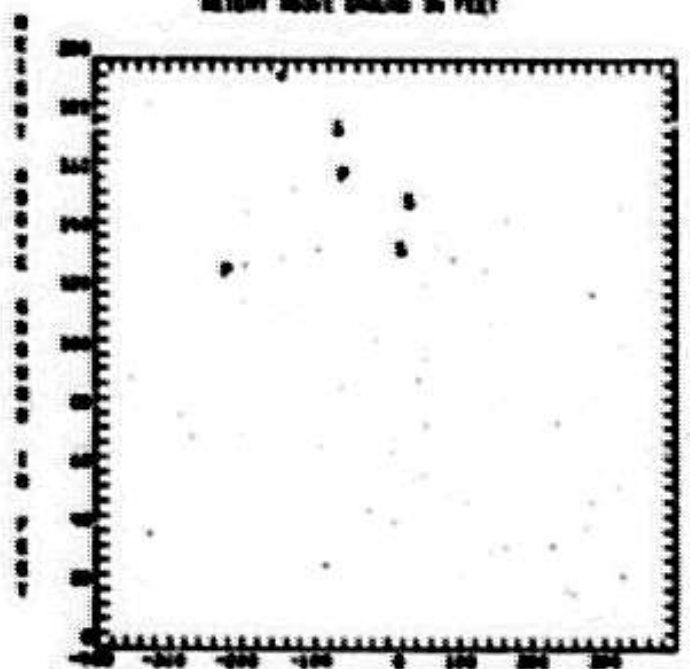
Run No. 200000
HD31R



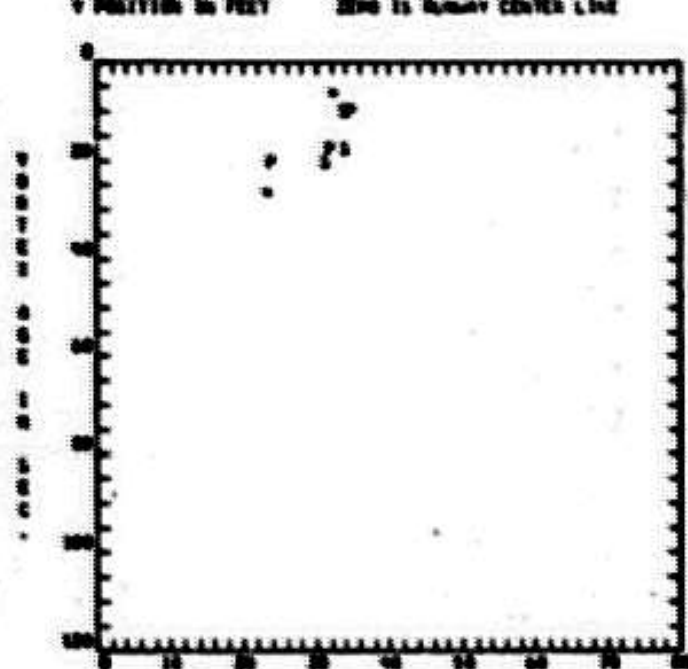
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT./SEC.

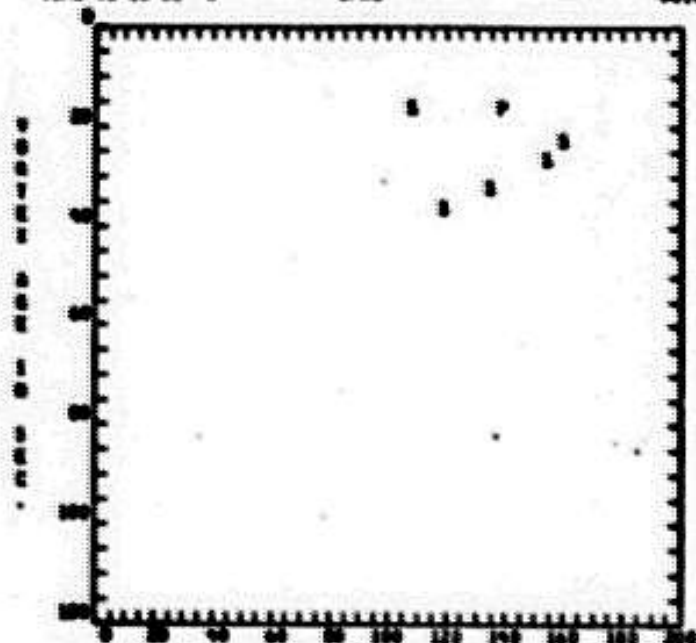
Run No. 27
TIME 15 34'32" 0

JFK

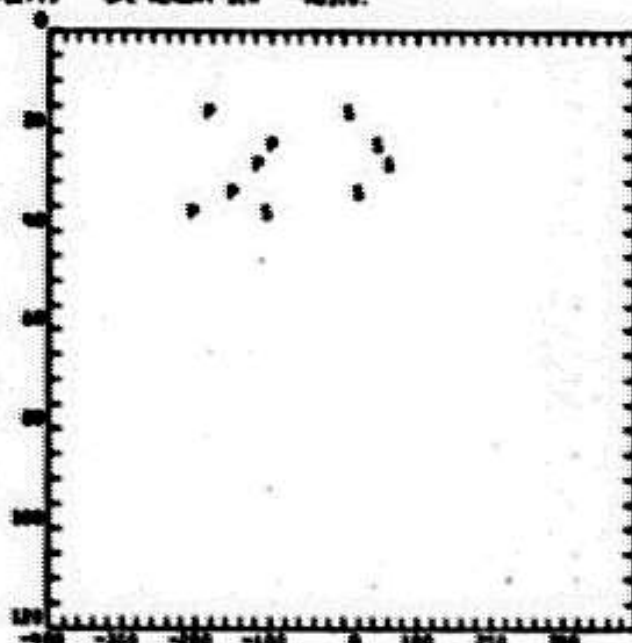
DC10 10/21/75

JFK Runway 31R

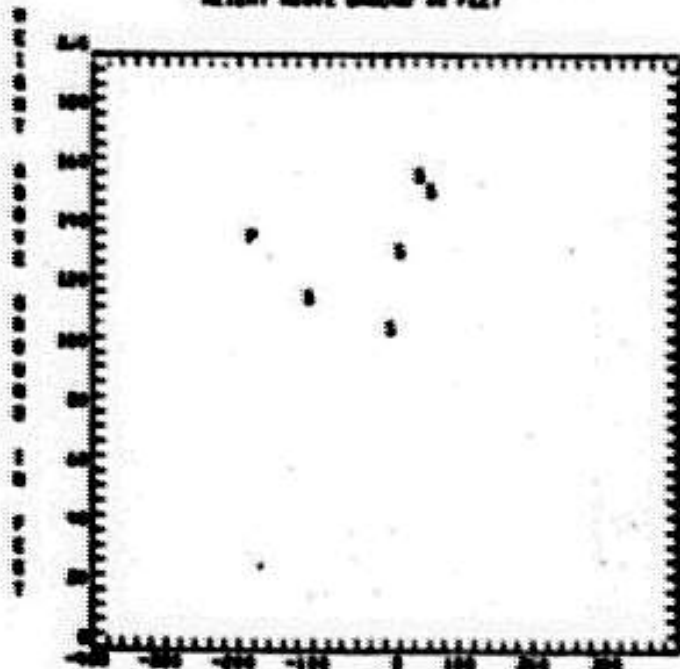
Run No. 230000
10310.



HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

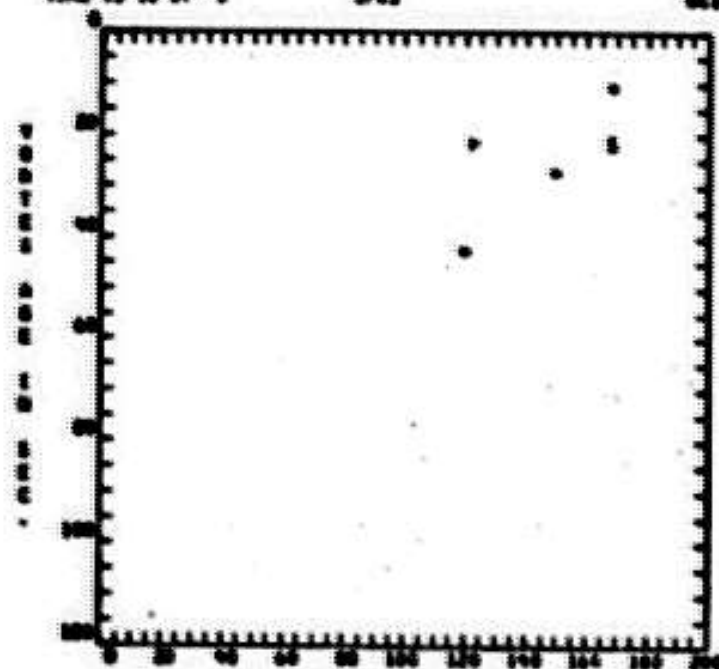
Run No. 39
TIME IS 10:27:0

JFK

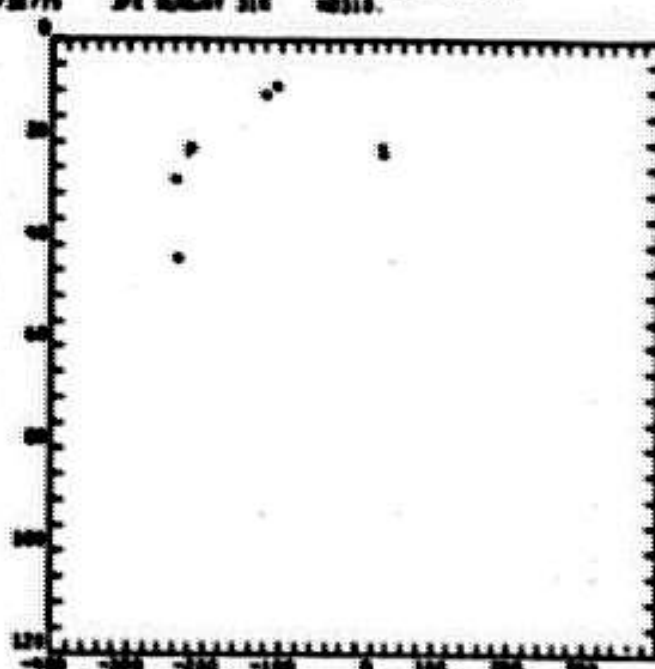
DATE 10/26/75

JFK RUNWAY 31R

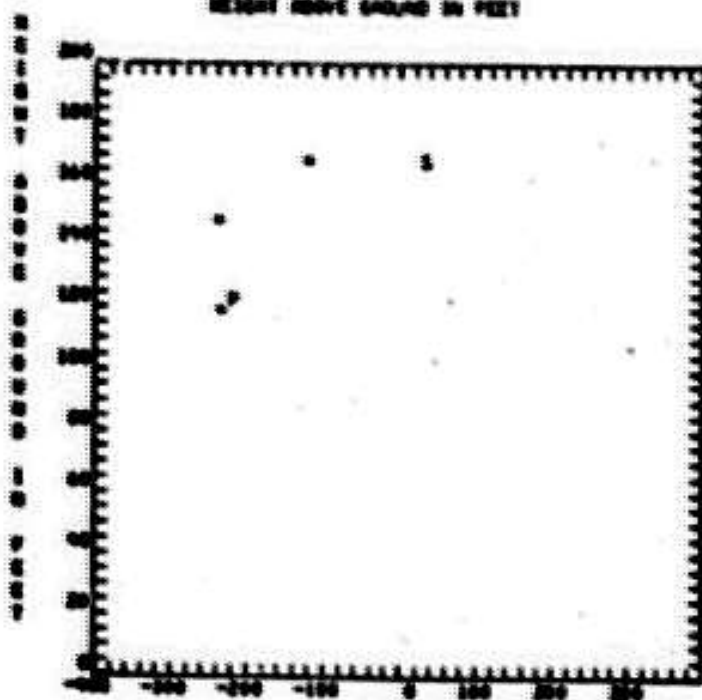
Run No. 020000
HD310.



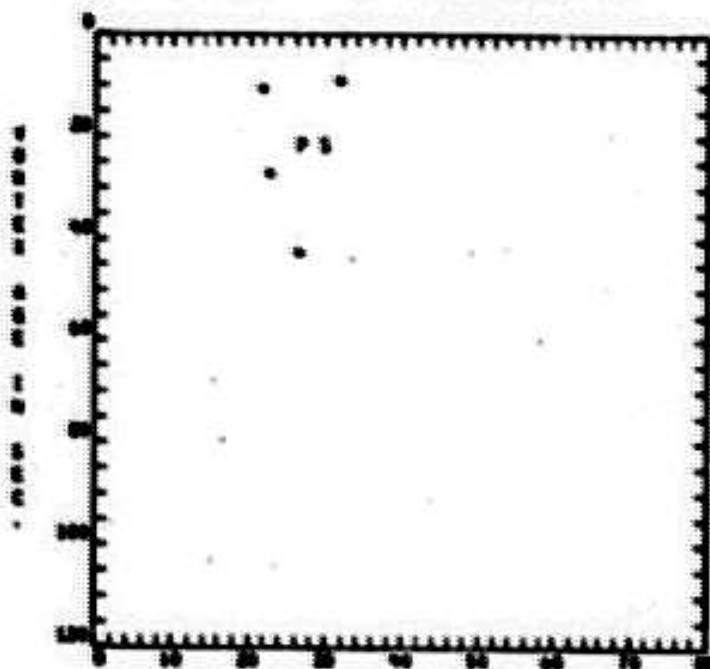
ALTITUDE ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

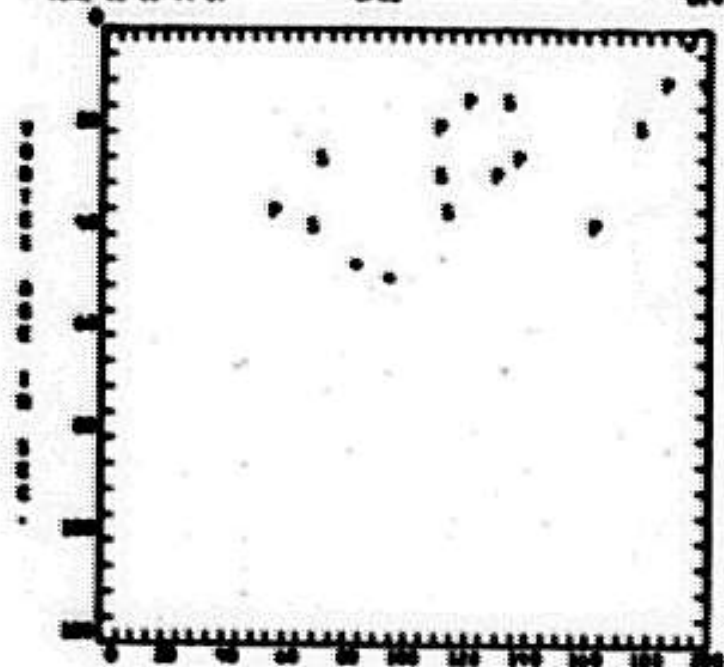
SPOT NO. 36
TIME 06 10 44 37

SPK 3

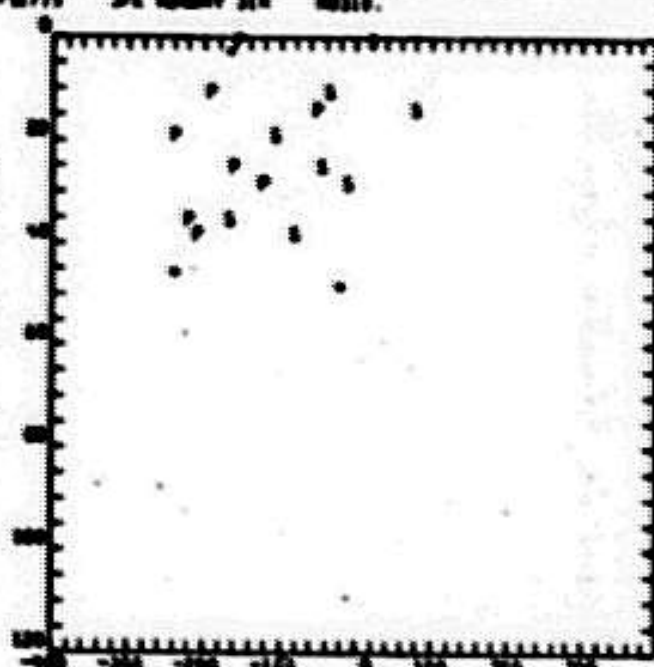
SPOT 14/12/75

SPK NUMBER 318

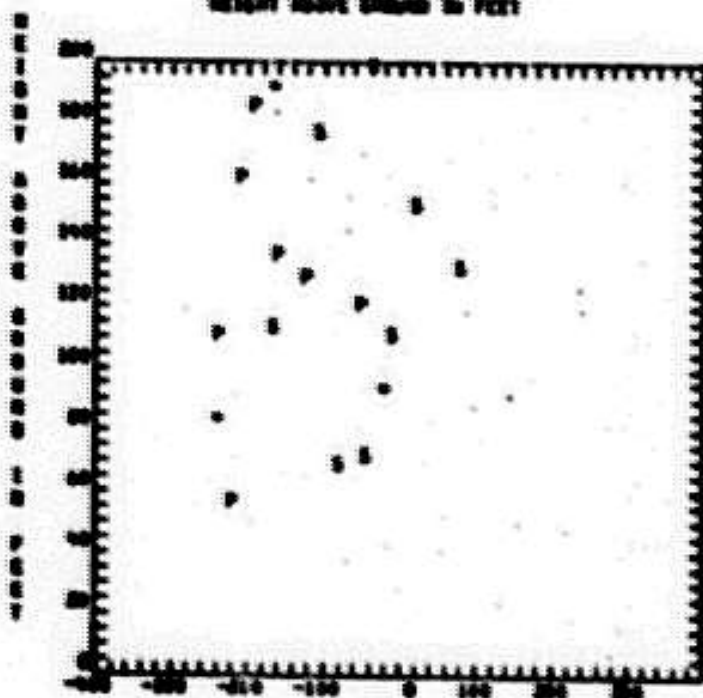
SPOT NO. 030000



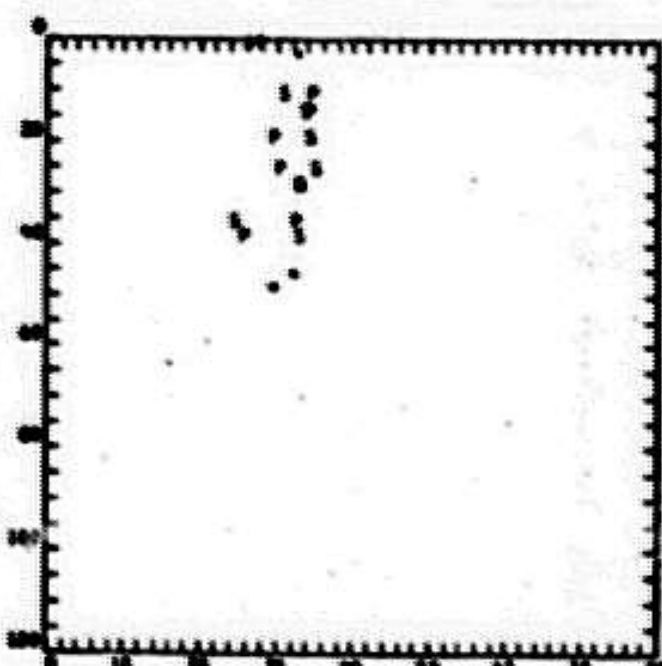
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

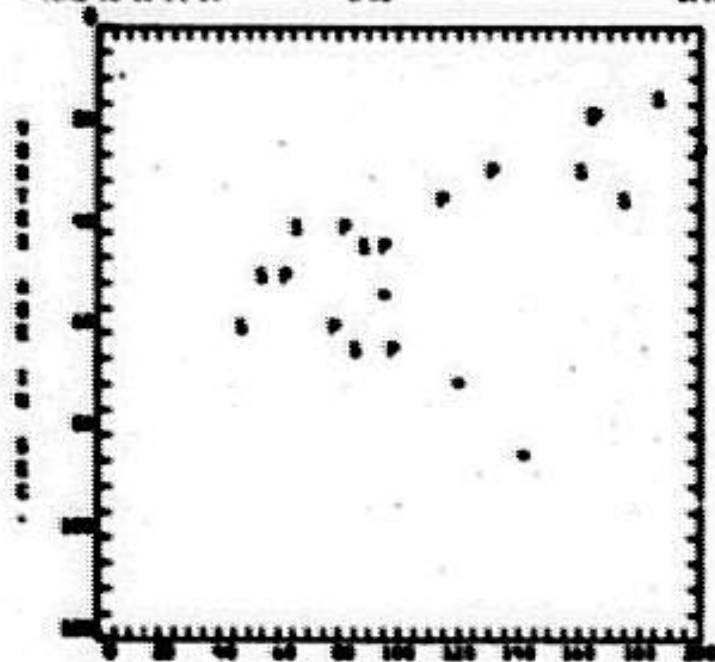
REP NO. 24
TIME 15 1451730

JPL

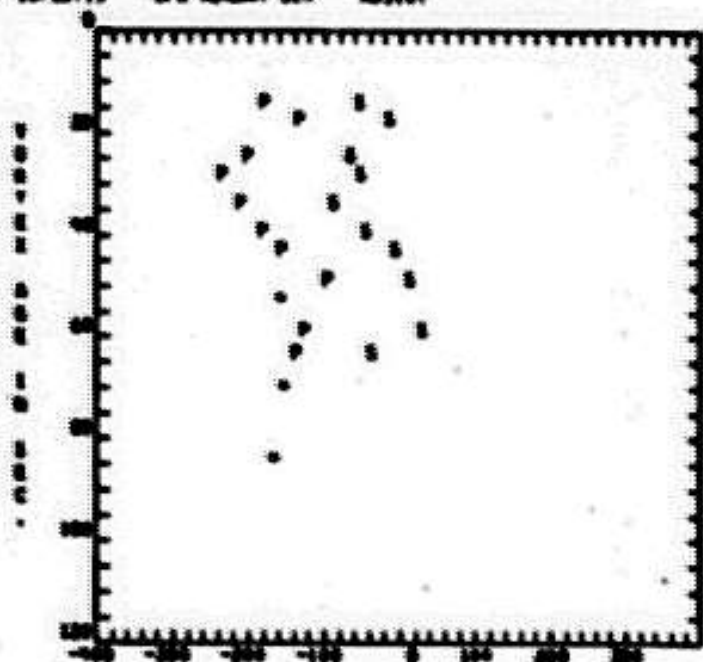
OPVT 10/21/75

JPL Runway 31R

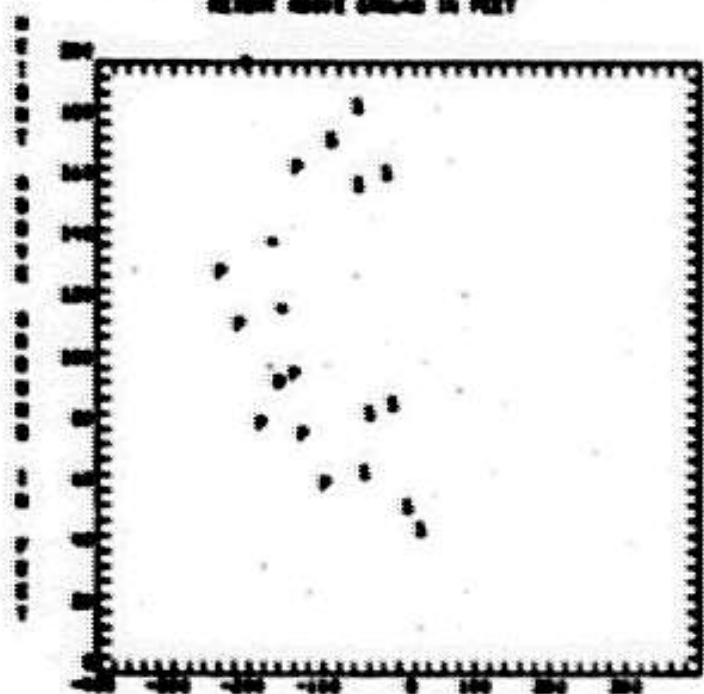
JPL NO 030000
00310.



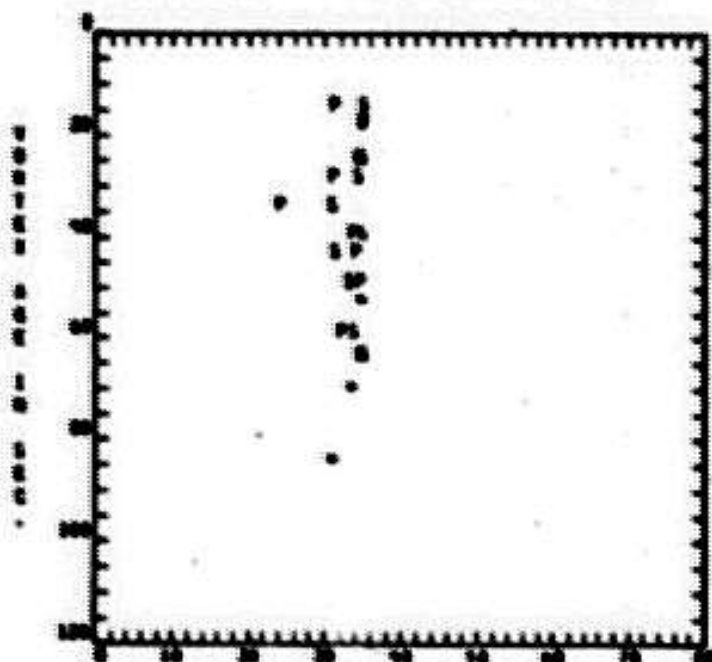
ALTITUDE ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



VELOCITY LINE OF SIGHT VELOCITY IN FT/SEC.

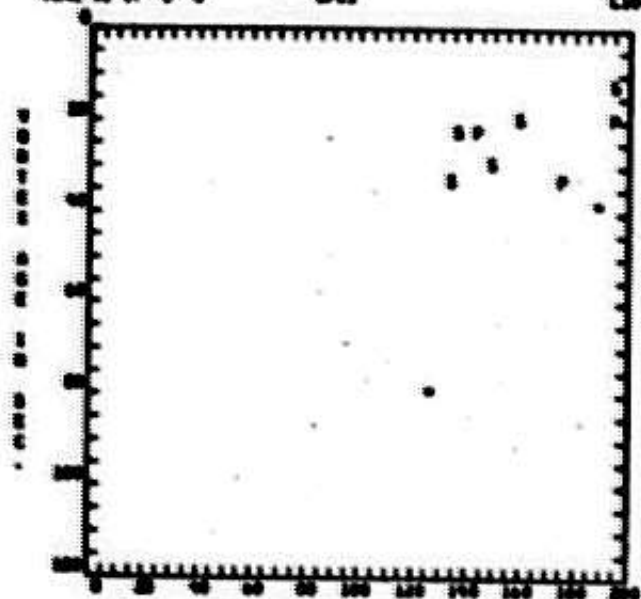
TIME IS 17: 57 0

JPE3

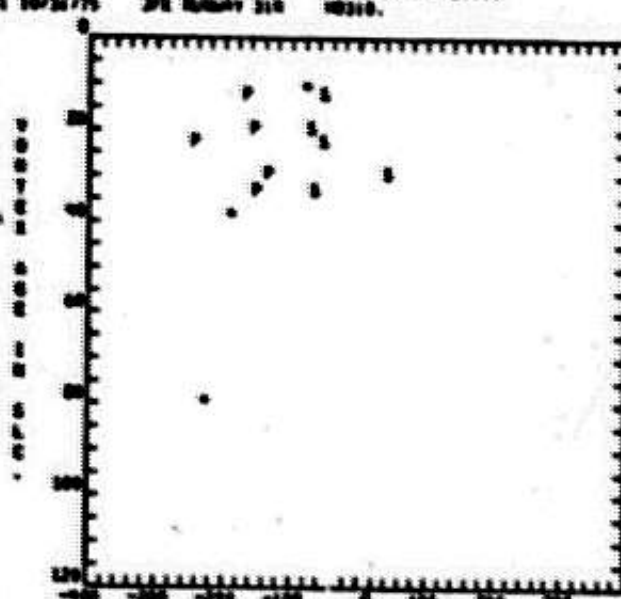
13011 10/24/75

JPE RUNWAY 310

300 00 030000

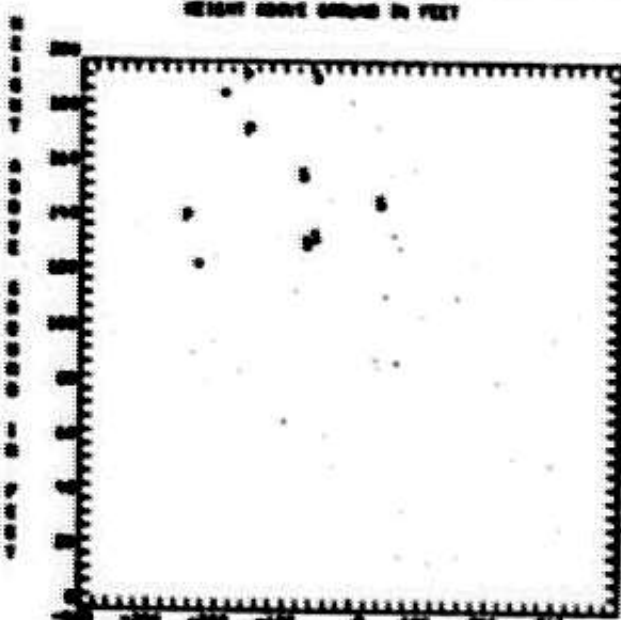


HEIGHT ABOVE GROUND IN FEET



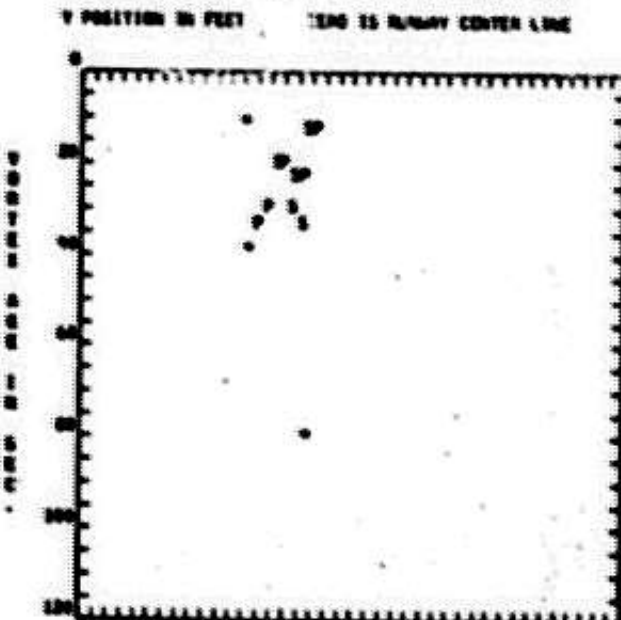
Y POSITION IN FEET

300 00 030000



Y POSITION IN FEET

300 00 030000



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

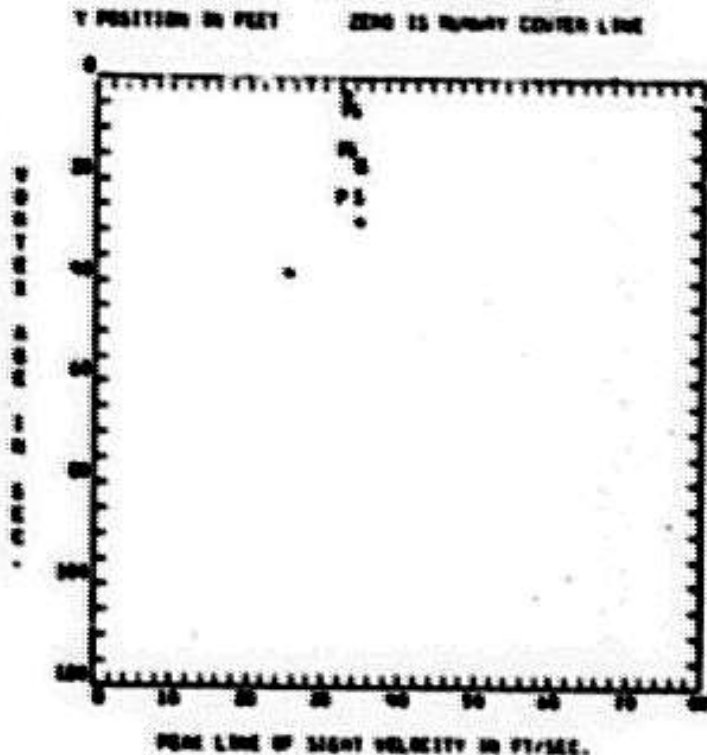
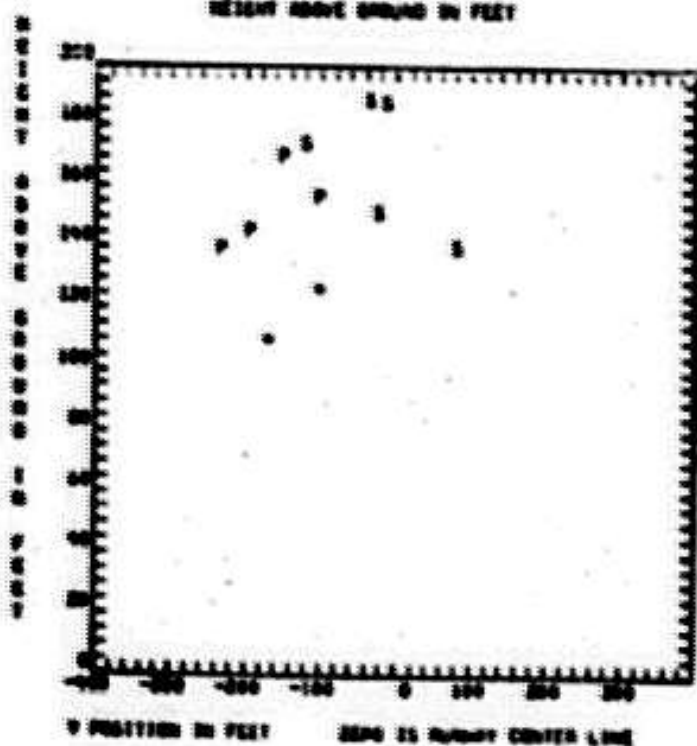
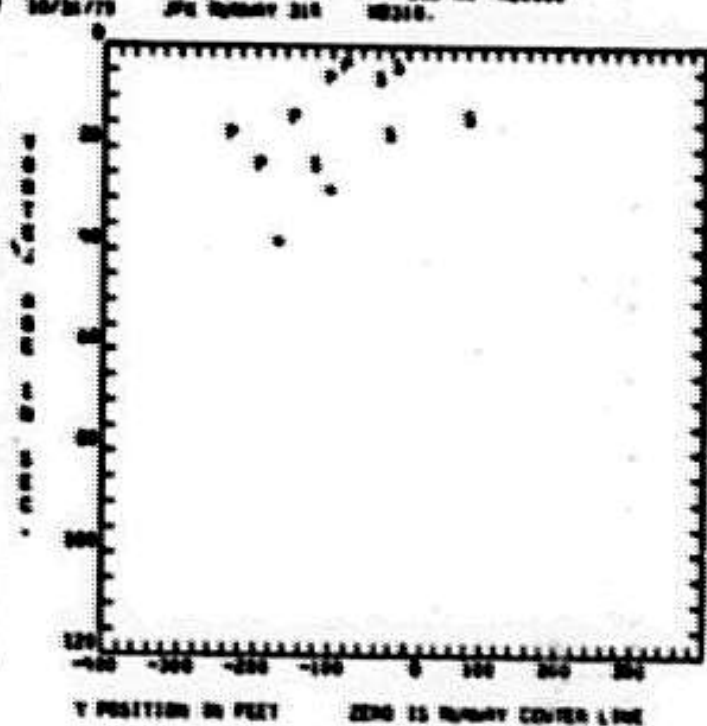
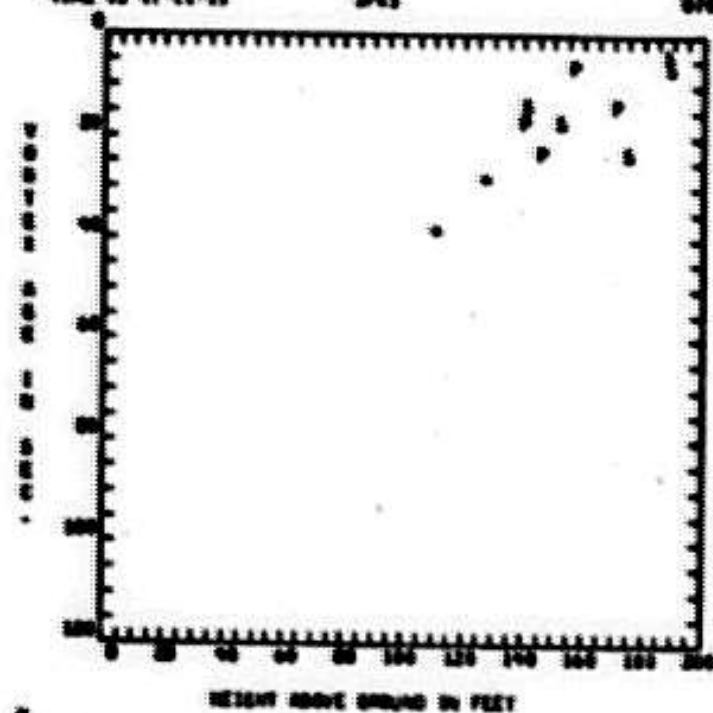
Run No. 39
Time 15 17-11-15

JF13

0707 10/21/79

JF14 Runway 310

Run No. 200000



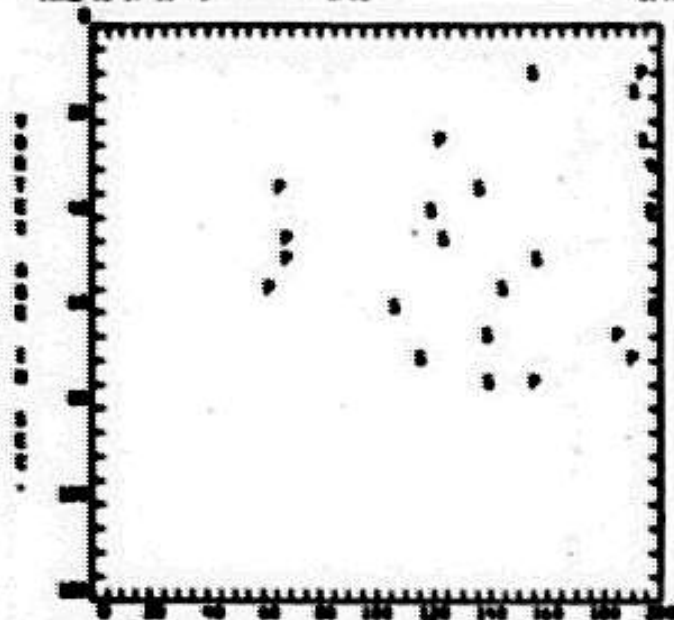
EXP NO. 91
TIME 15 17 15" 0

JPL3

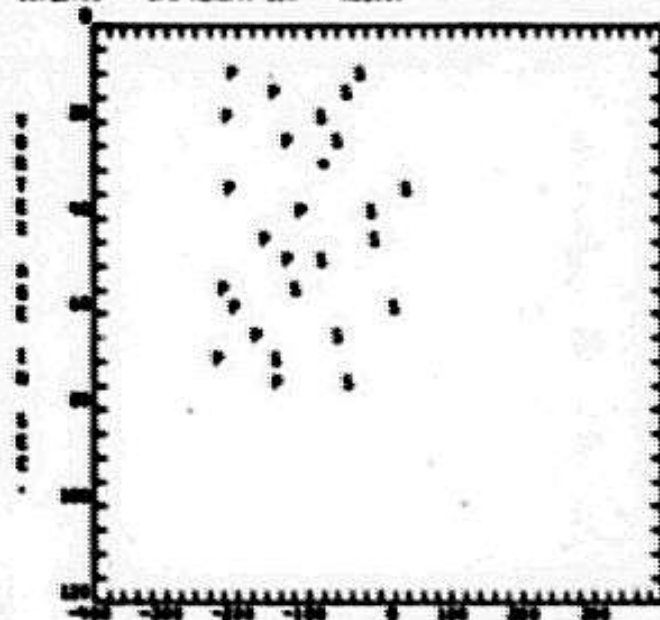
SPY 10/26/75

JPL RUNWAY 31R

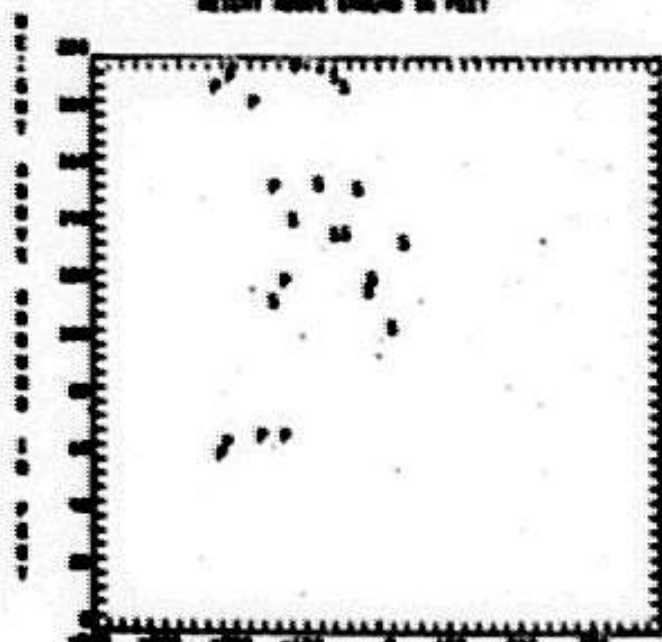
JOB NO 000000
HE310.



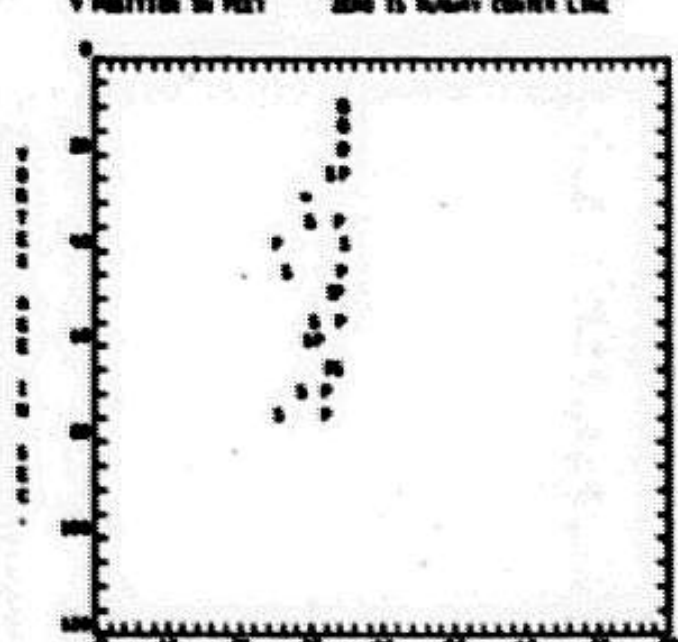
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

EXP NO. 04
TIME IS 17:27:0

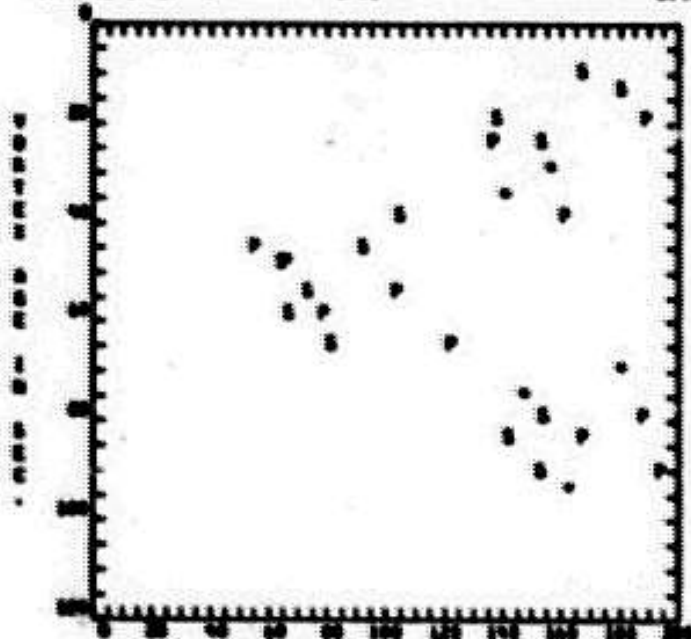
JPL3

DATE 06/26/75

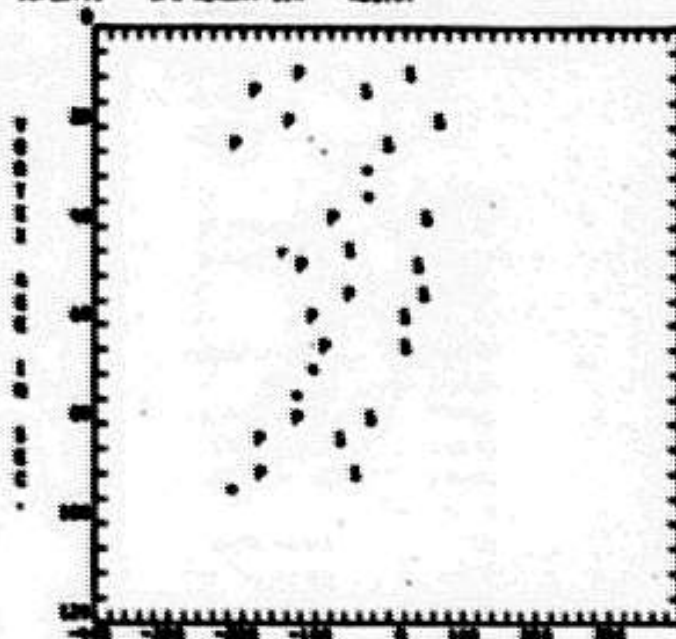
JPL RUNWAY 31R

EXP NO. 030000

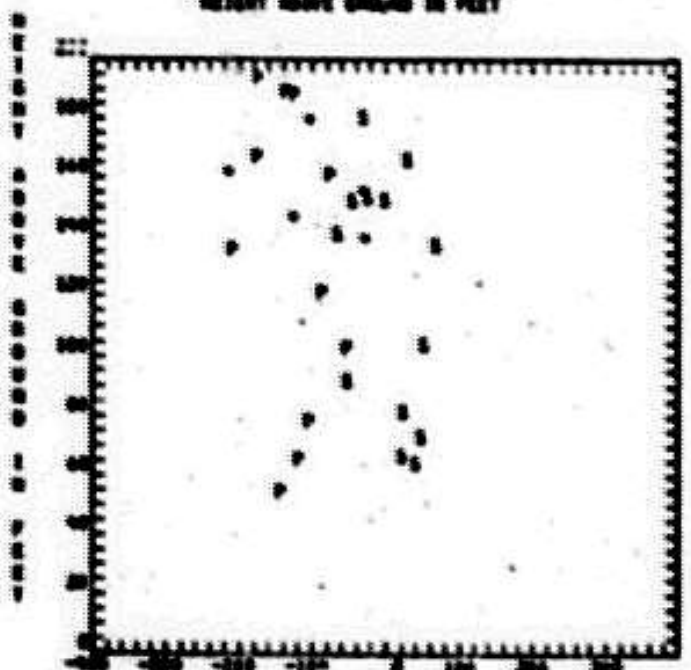
NO. 010



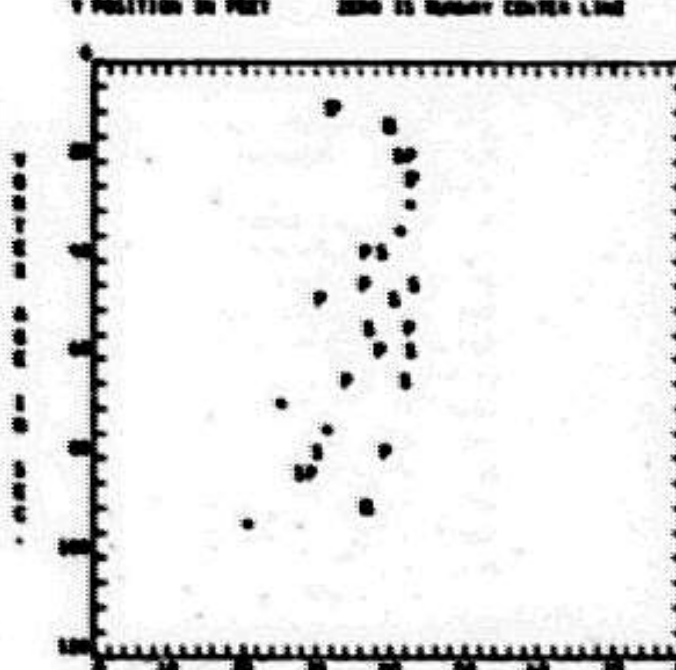
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

		JPL			
AD016					
100000	=	+0			
ISFILE	=	+1.	+1.	+2.	+2.
		+1000.	+1000.	+1000.	+1000.
		+1000.	+1000.	+1000.	+1000.
		+1000.	+1000.	+1000.	+1000.
		+1000.	+1000.	+1000.	+1000.
END		+23			
BLANK	=	.70000000E+01			
BLANK	=	.00000000E+00			
INTVL	=	+2			
NP00F	=	+4			
SPENCY	=	.10000000E+00			
SPENCY	=	.10000000E+00			
SPENCY	=	.50000000E+00			
SPENCY	=	.31415927E+00			
SPENCY	=	.15000000E+01			
NOISEF	=	+0			
ADJ1	=	.00000000E+00			
ADJ2	=	.00000000E+00			
ADJ3	=	.00000000E+00			
ADJ4	=	.00000000E+00			
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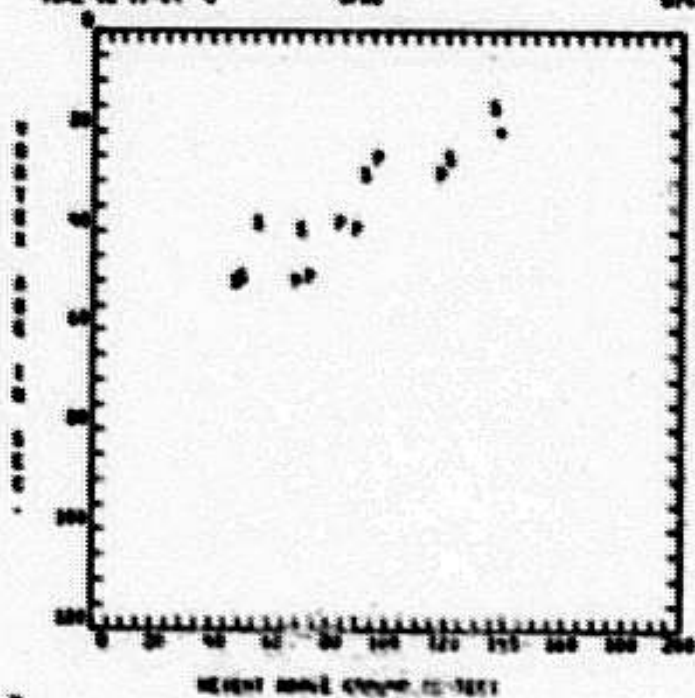
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2765

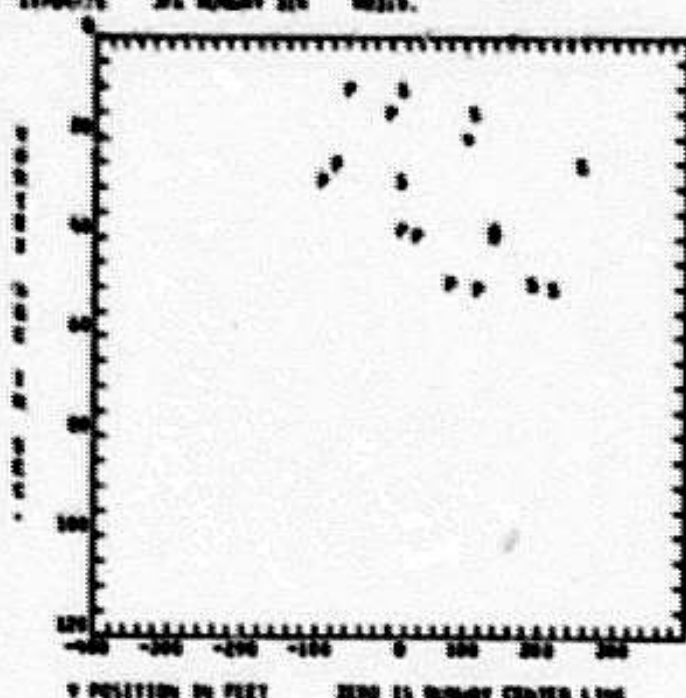
SP4F 214047Z

2765

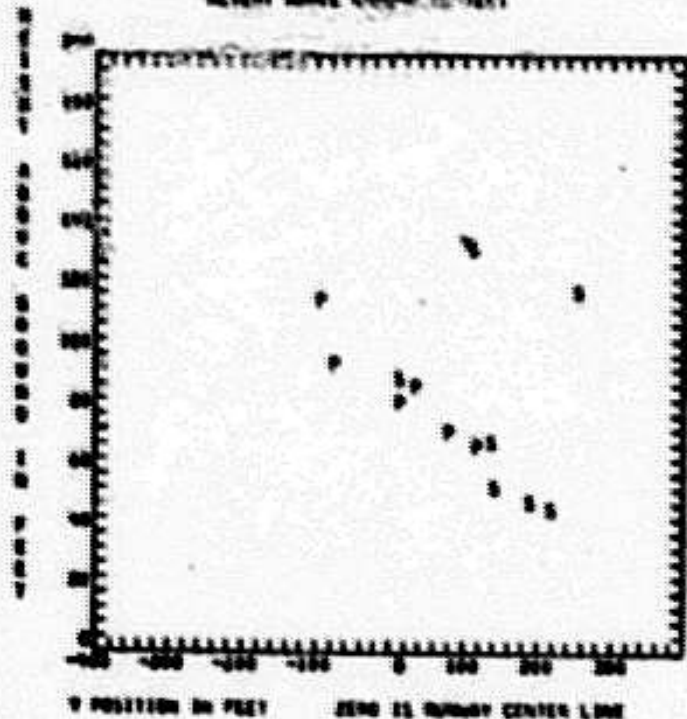
100 00 000000



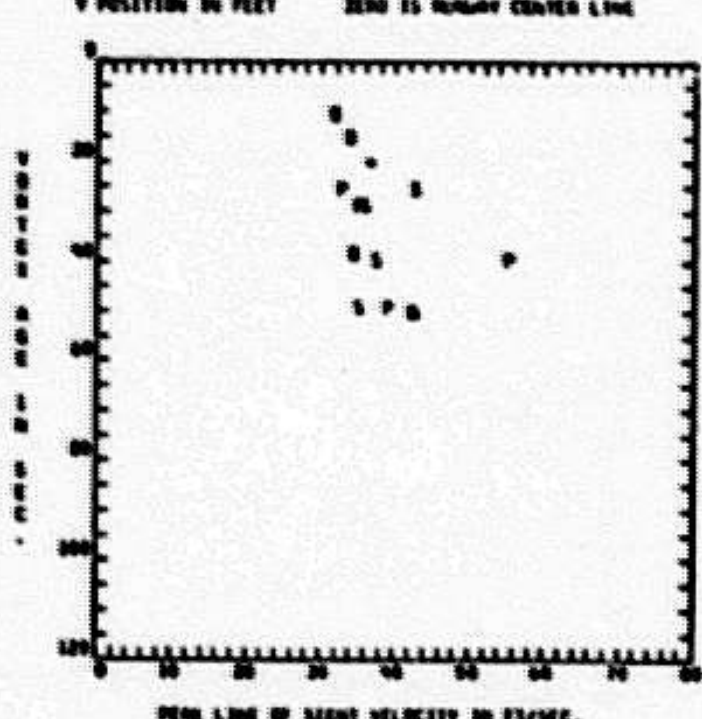
HEIGHT ABOVE RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

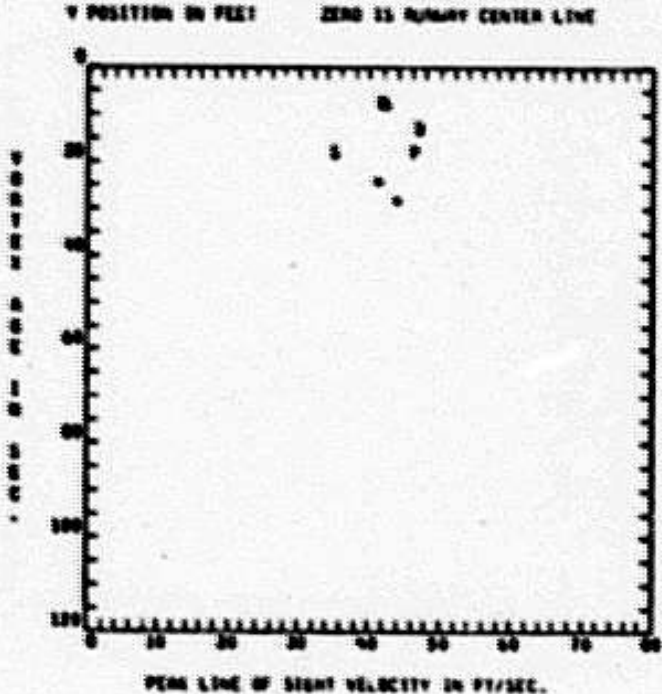
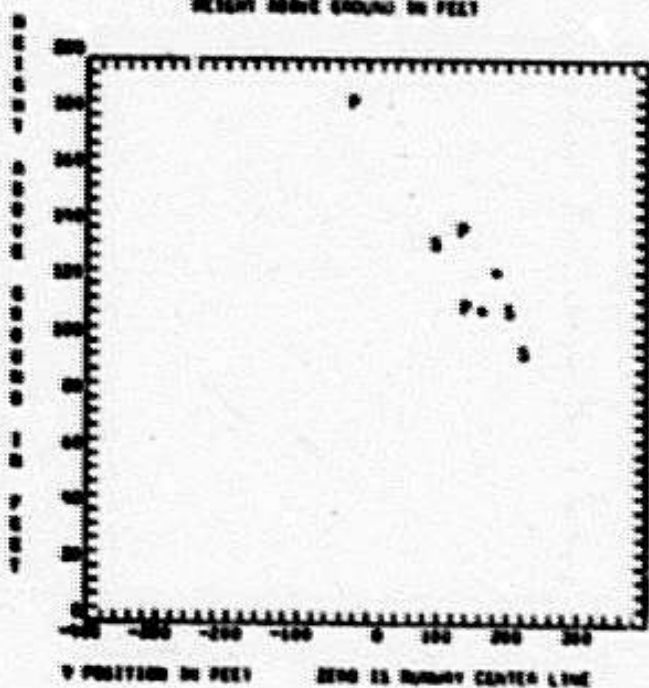
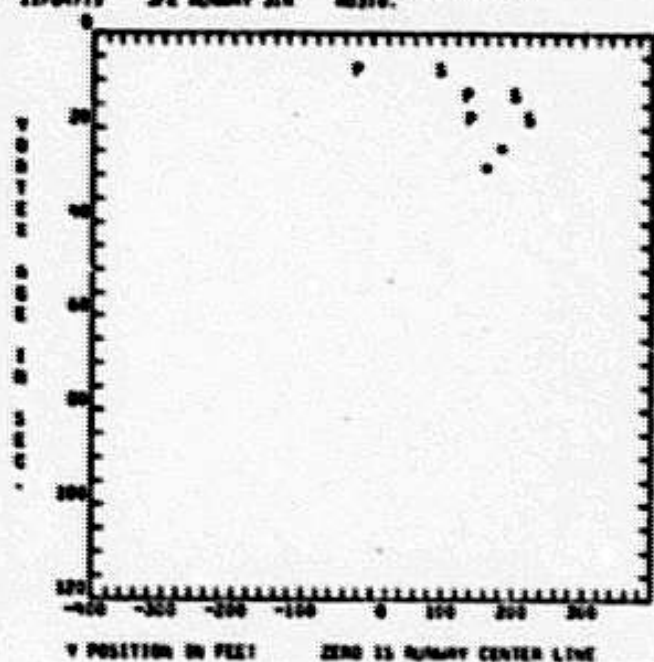
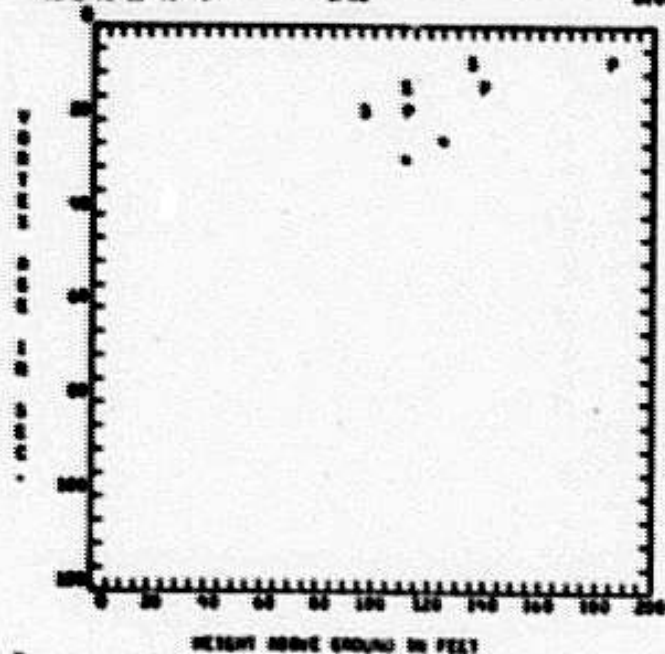
200 00.
TIME IN SECONDS

JFK

2007 11/04/75

JFK RUNWAY 31R

200 00 030000
00310.



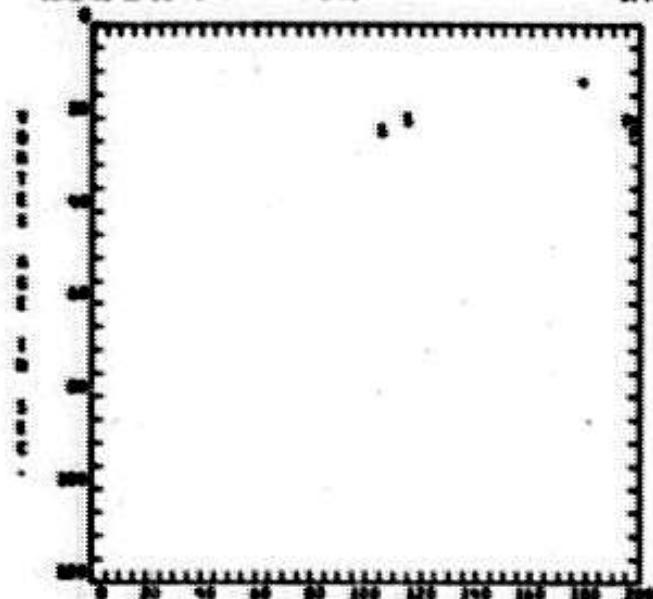
REP NO. 0
TIME IS 15:52:0

JF66

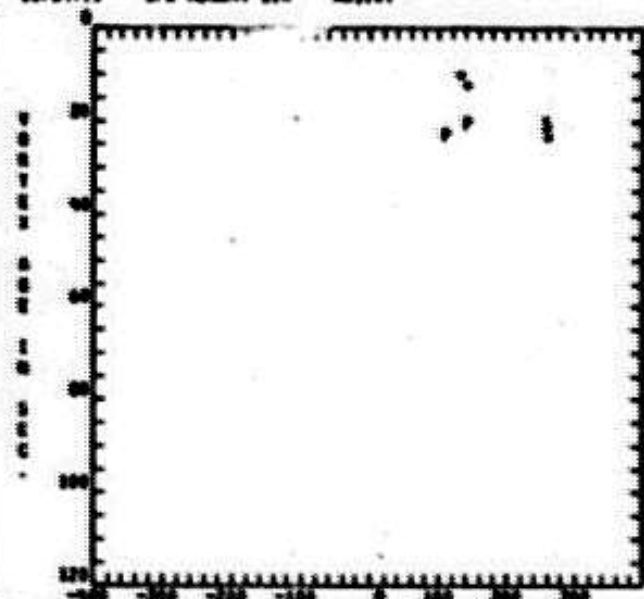
SPOT 11/04/75

JF6 RUMBY 310

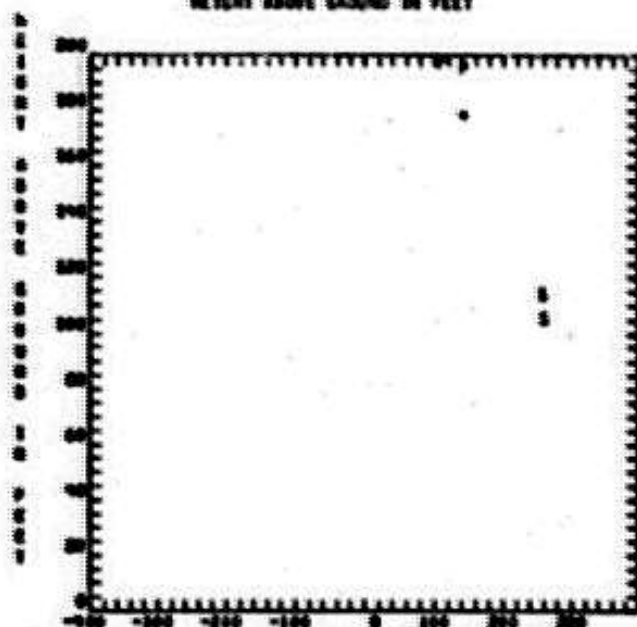
JOB NO 030000
AB310.



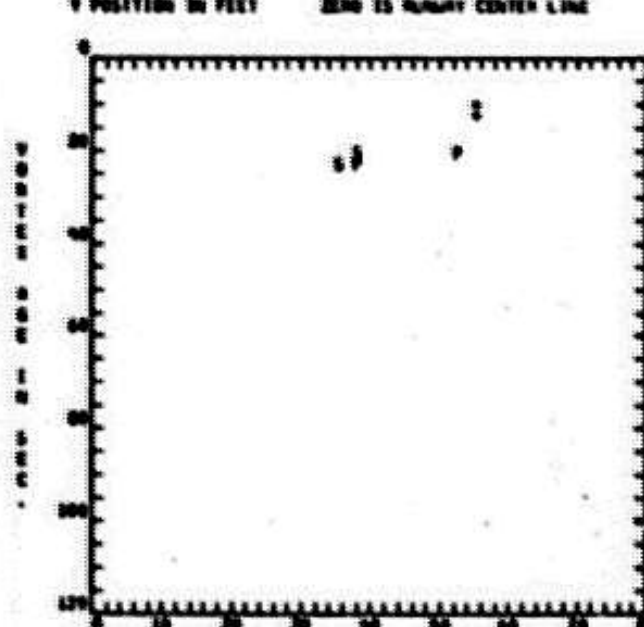
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



PERC LINE OF SIGHT VELOCITY IN FT/SEC.

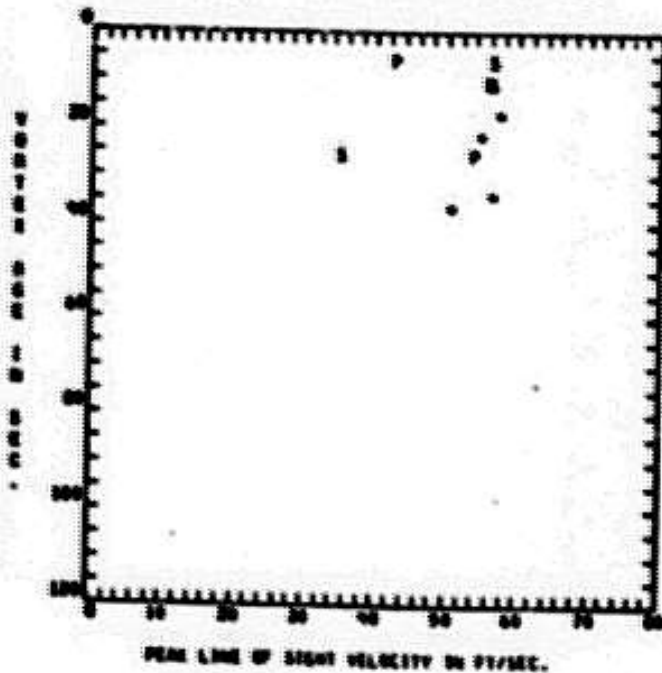
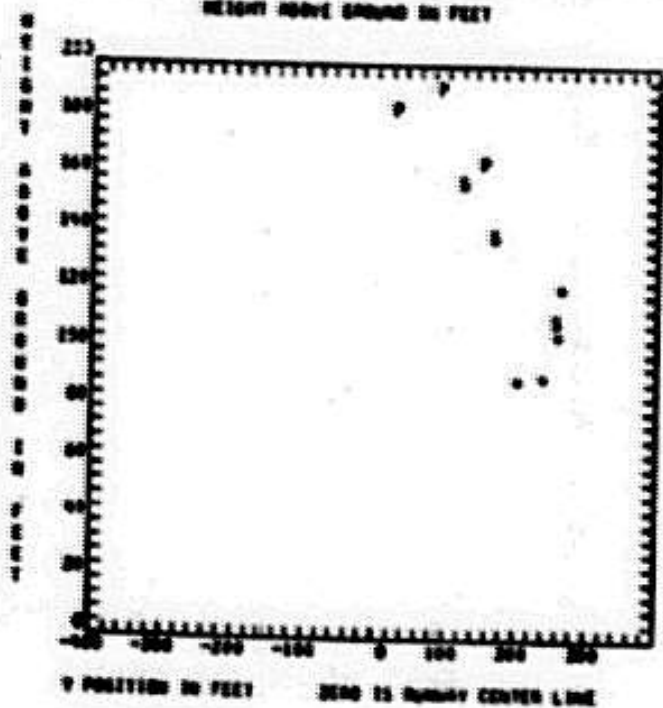
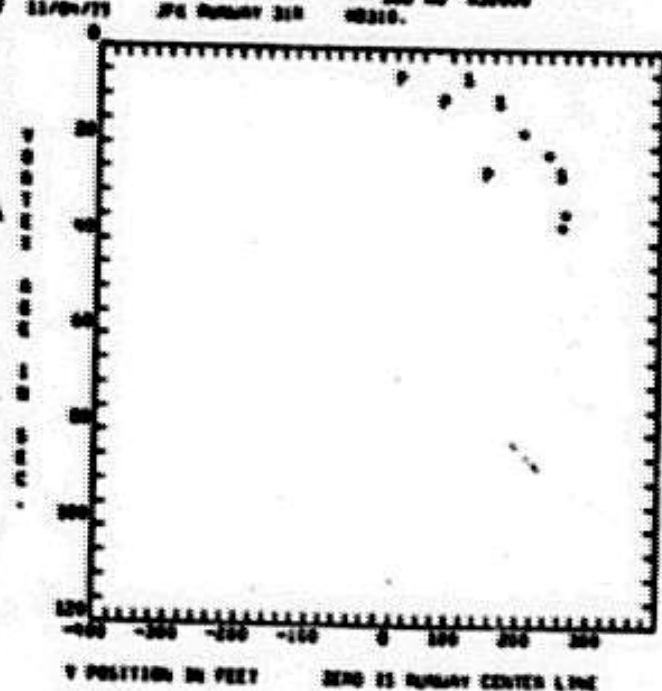
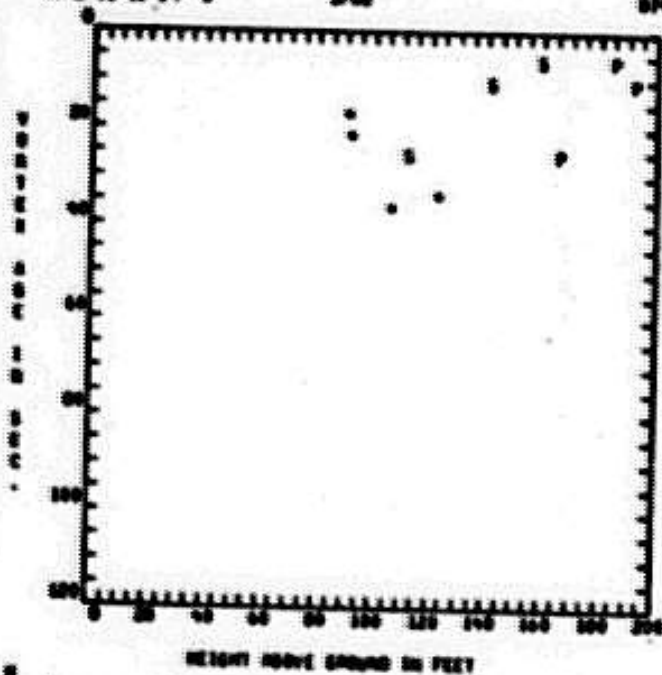
Run No. 1
Time 15 10-54-0

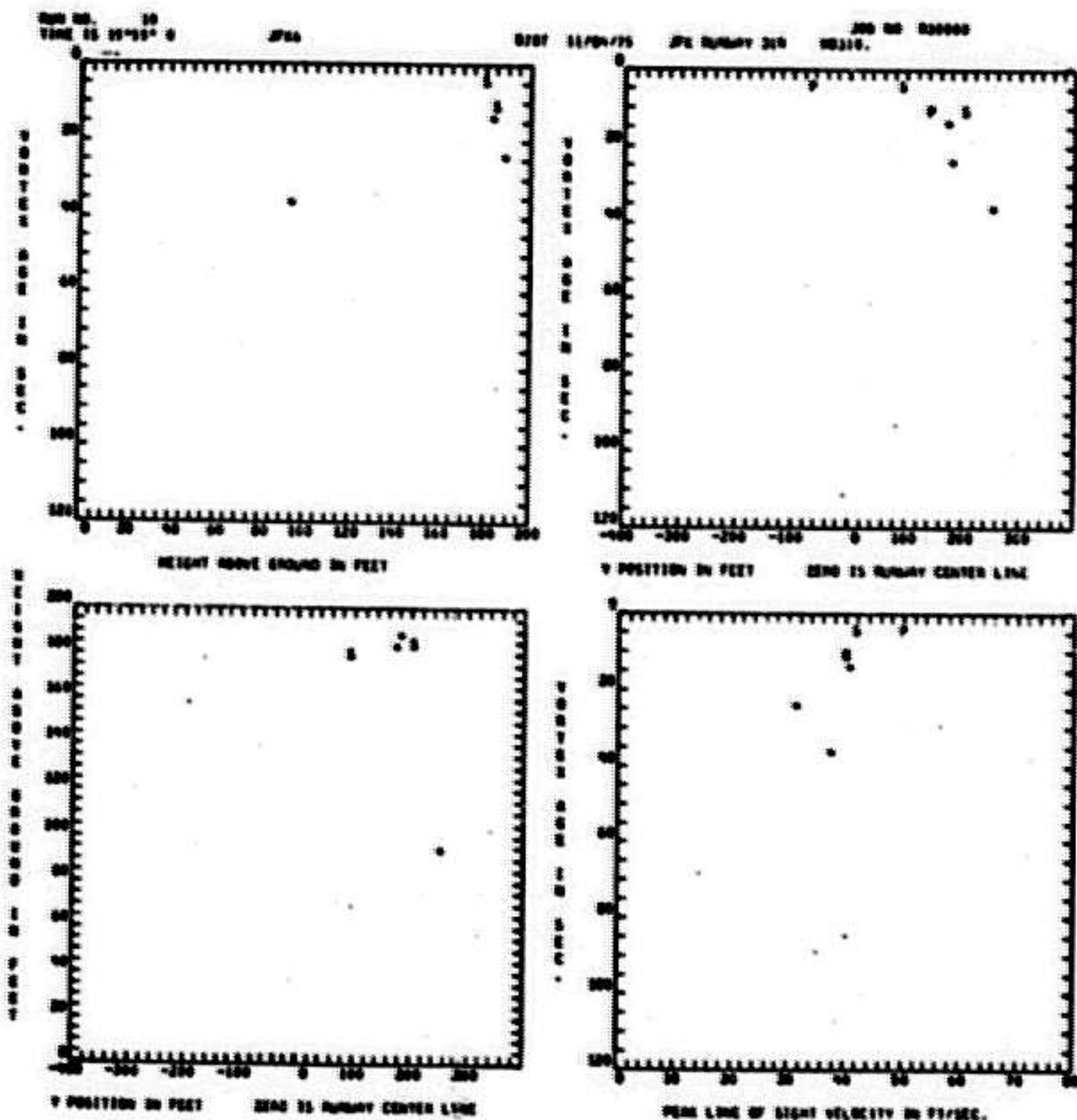
JF06

DP07 11/04/79

JF06 Runway 31R

Run No. 030000
00310.





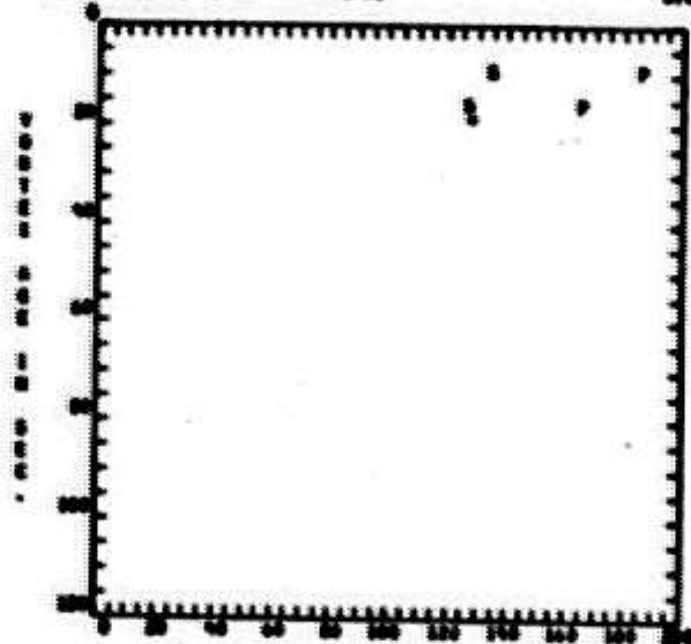
Run No. 13
Time 15 34 1" 0

JPLA

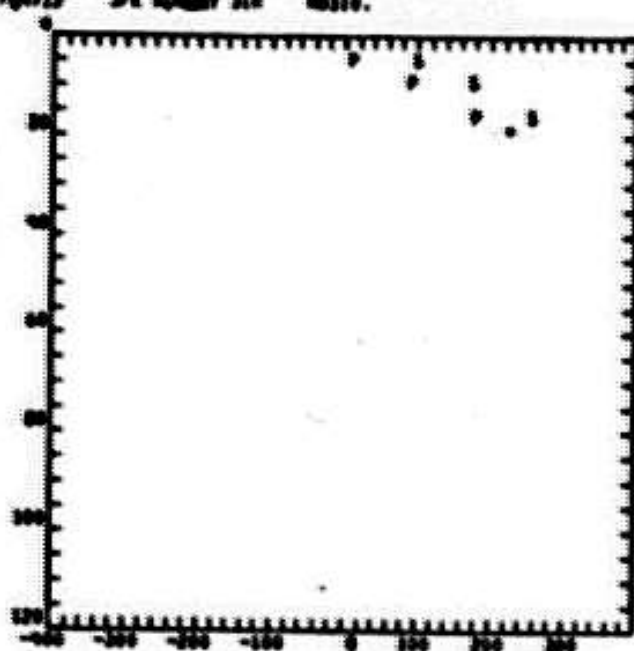
Date 11/20/75

JPL Runway 31A

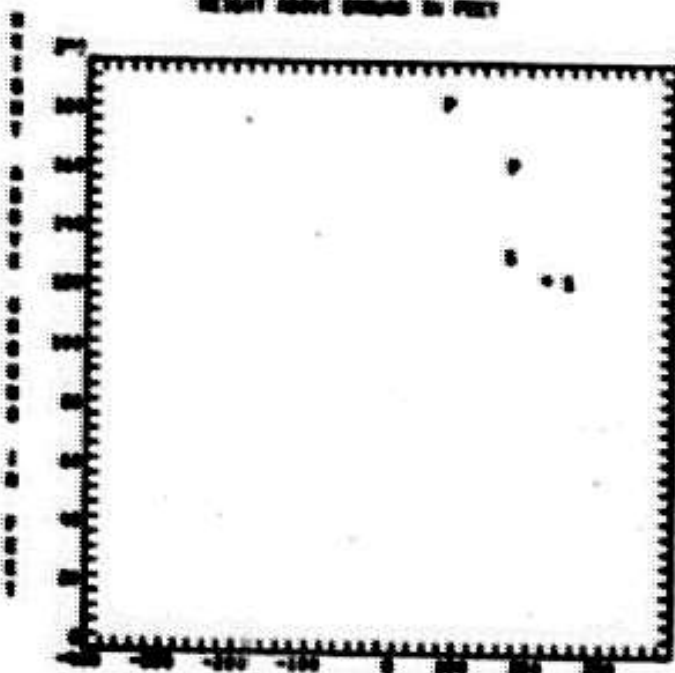
Run No. 000000
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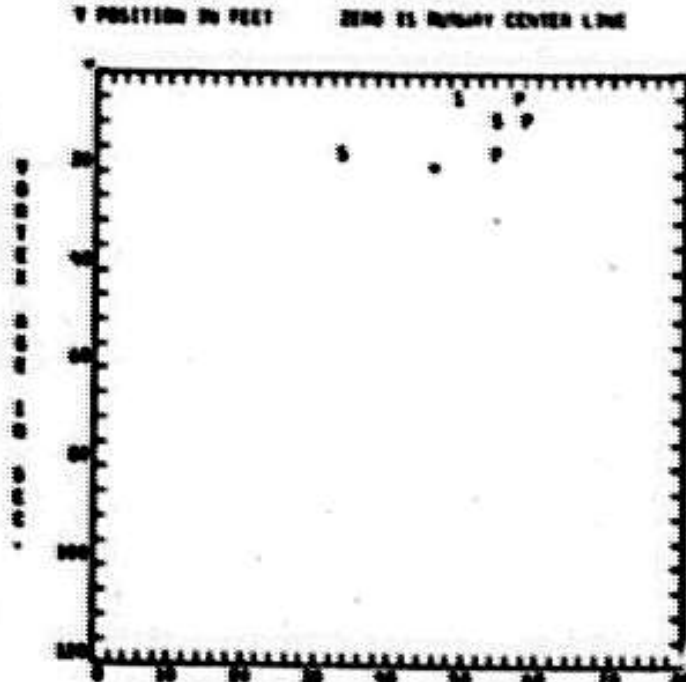
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



LINE OF SIGHT VELOCITY IN FT/SEC.

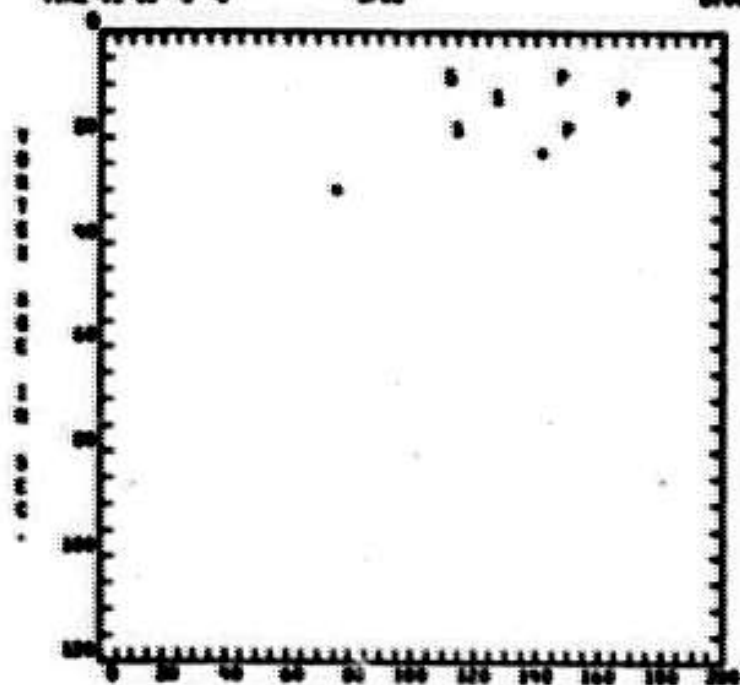
REF ID: A6
1000 25 30° 0'

JPL

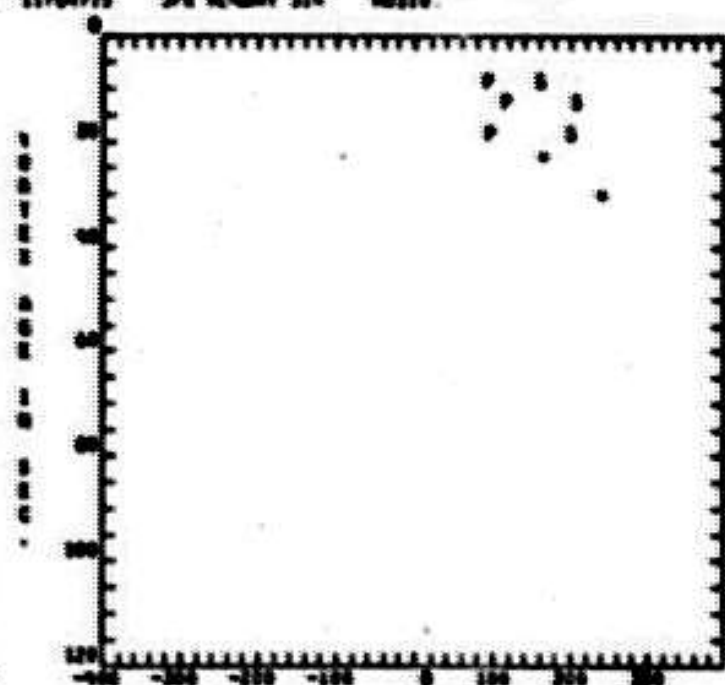
DATE 11/04/75

JPL AIRWAY 310

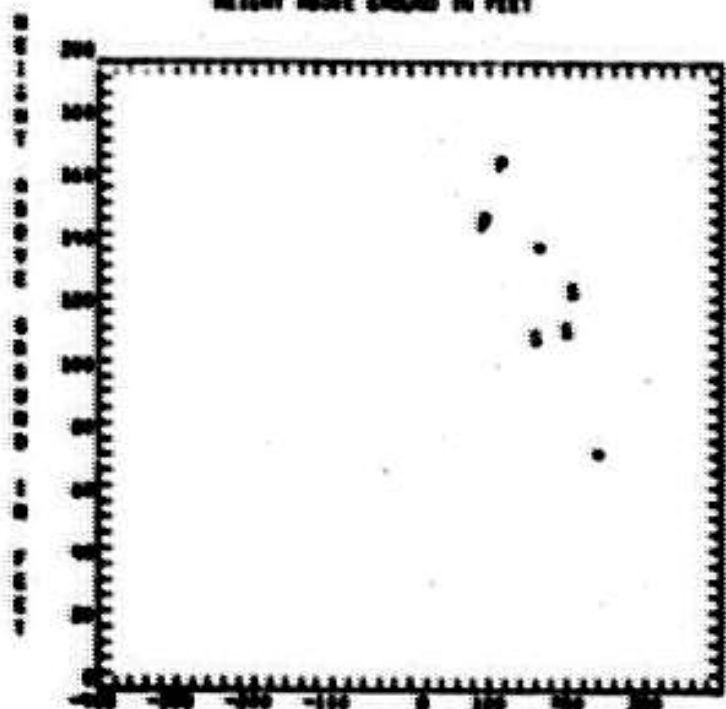
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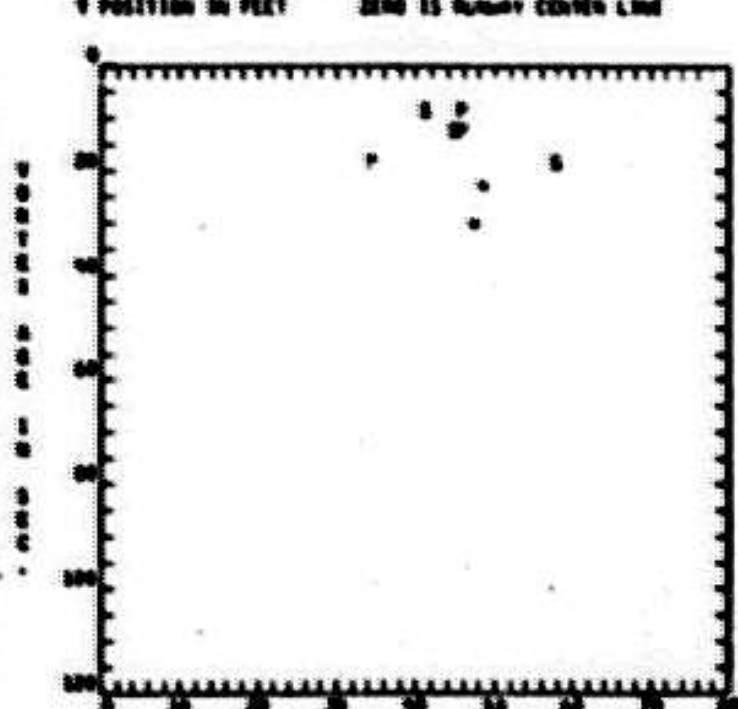
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS AIRWAY CENTER LINE



Y POSITION IN FEET ZERO IS AIRWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

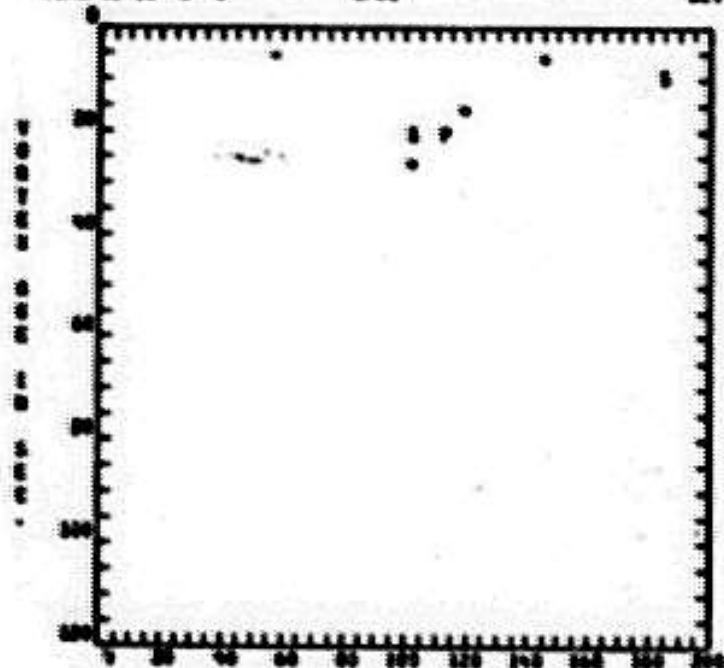
Exp No. 15
TIME IS 14: 00: 0

JF04

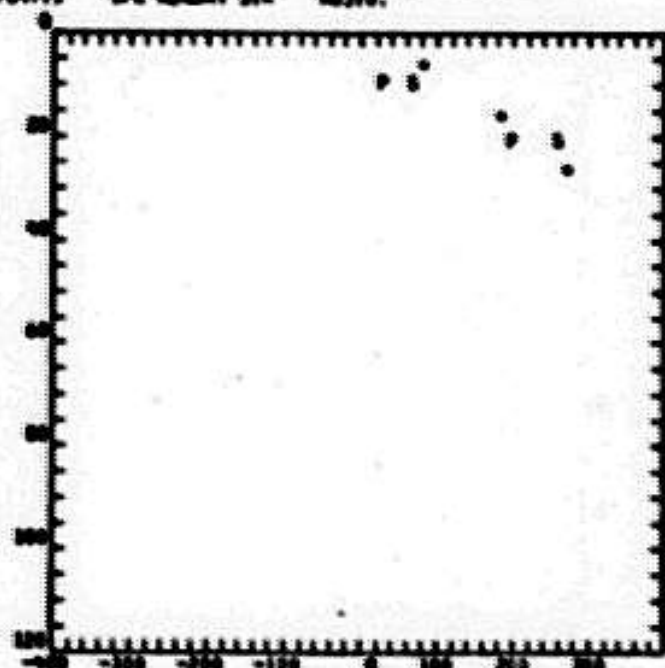
EXP 11/04/75

JF04 Runway 31R

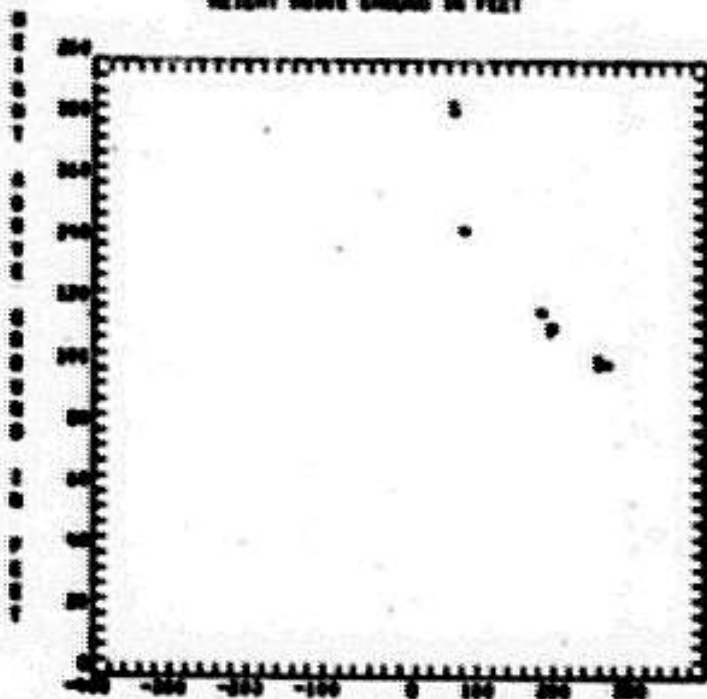
EXP NO 200000
NO210.



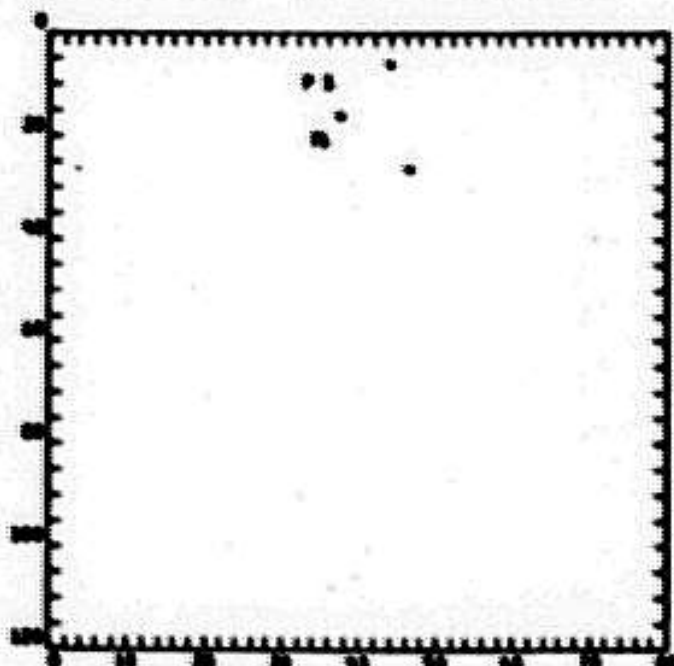
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SL..

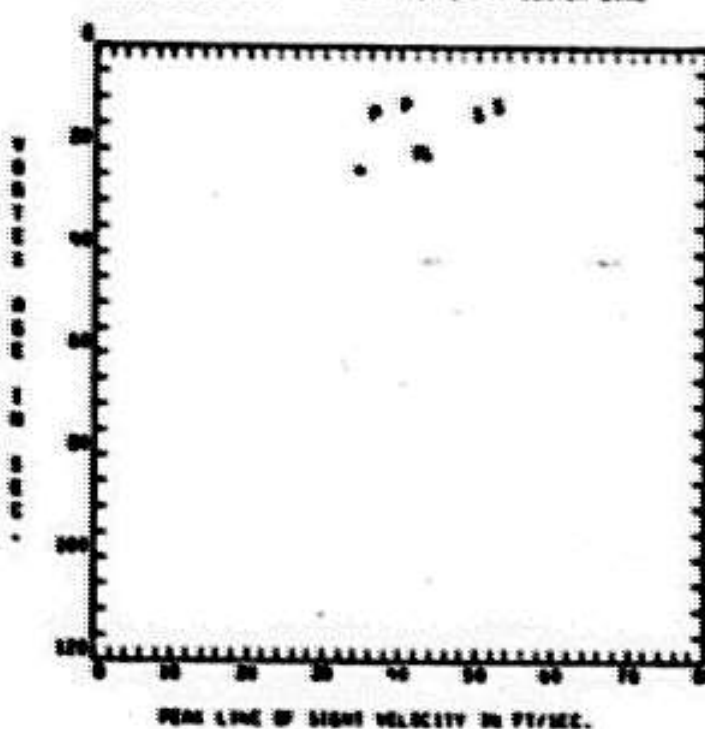
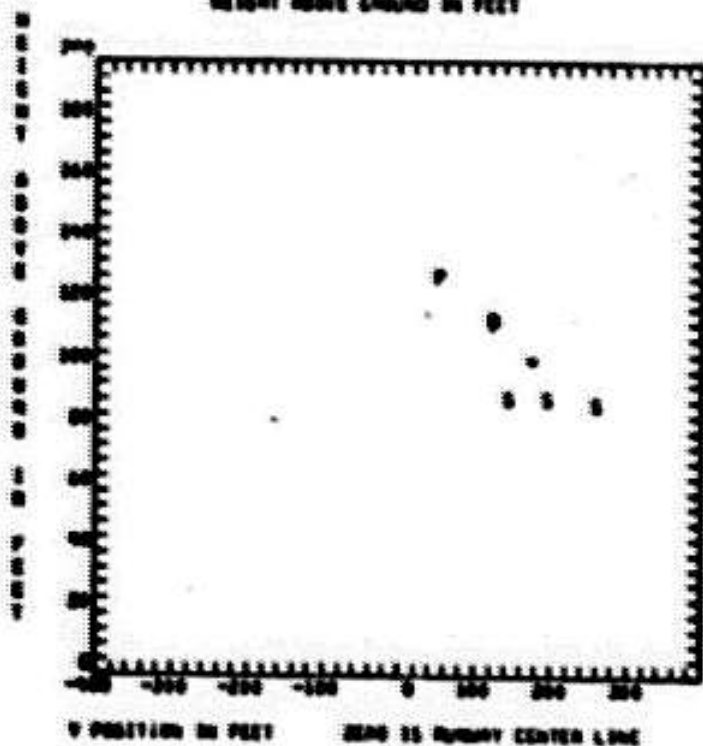
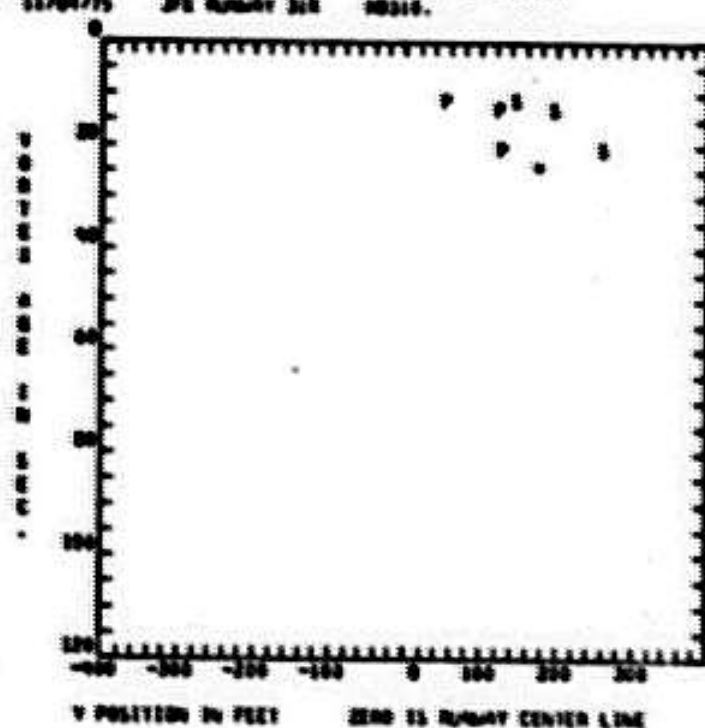
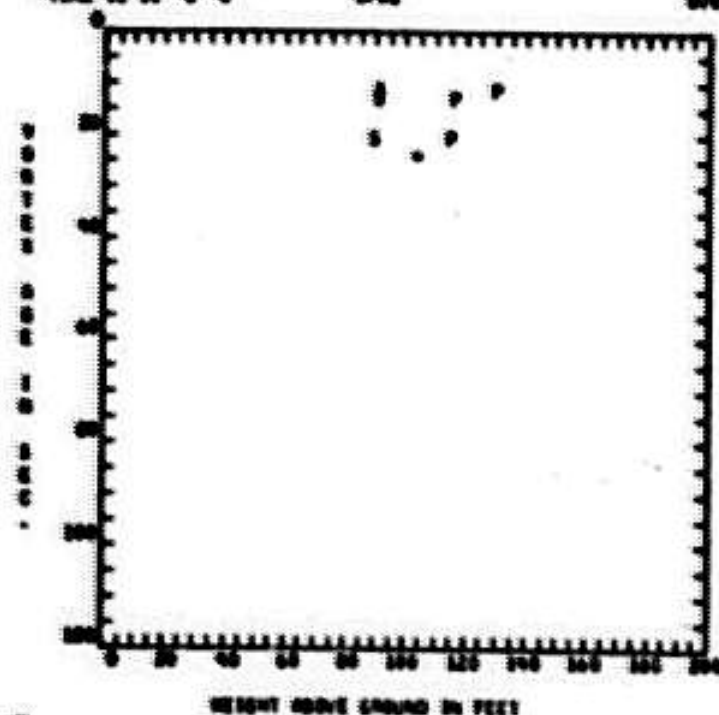
EXP NO. 16
TIME 15 14 27 0

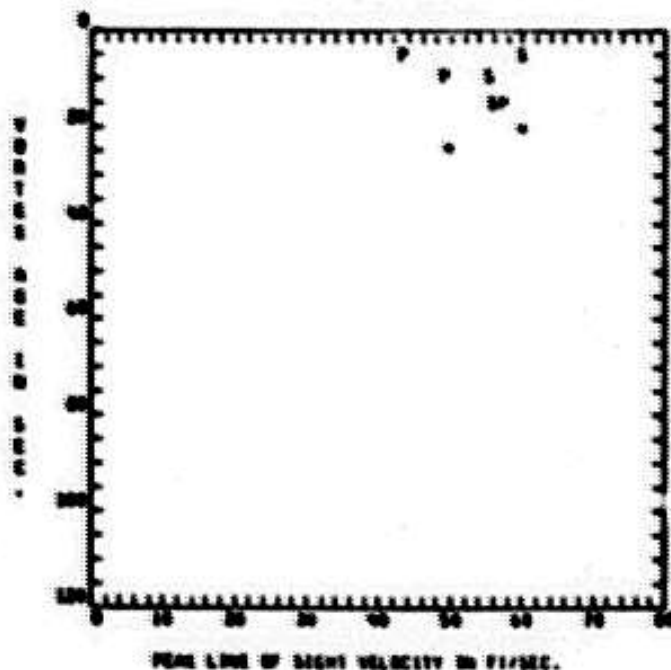
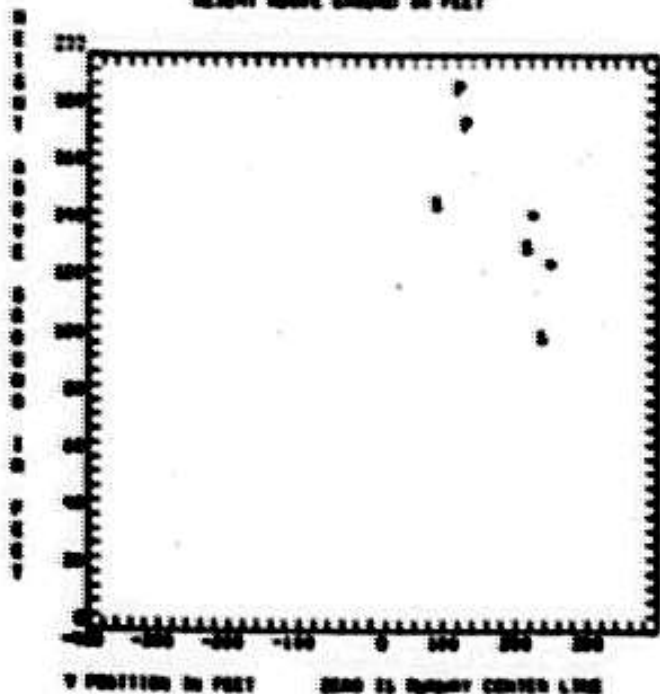
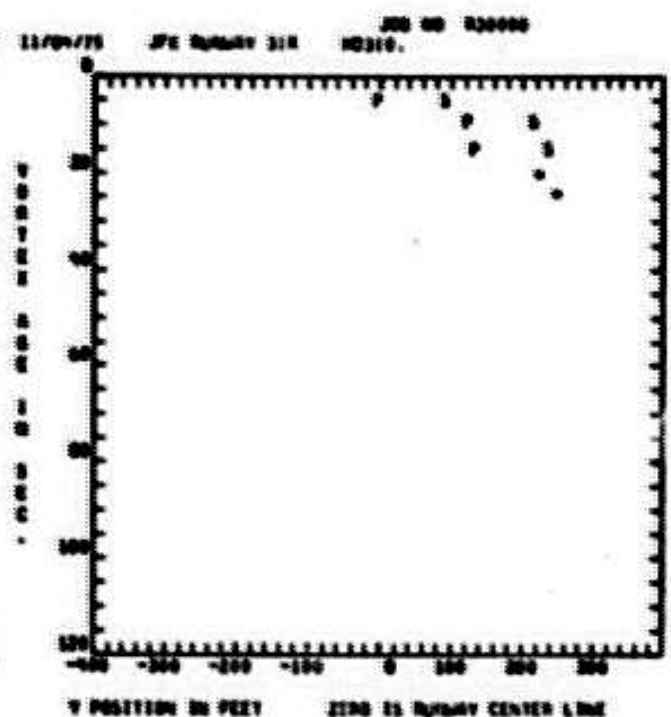
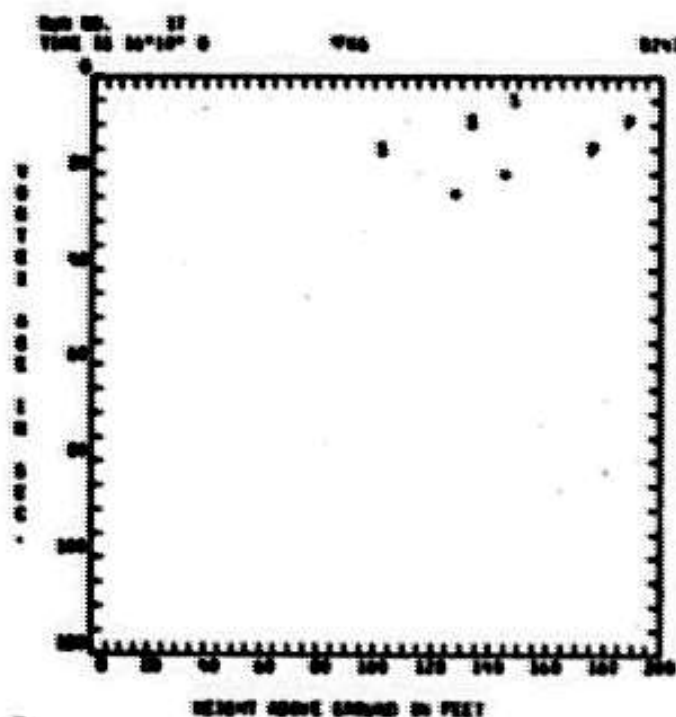
JF26

DATE 11/04/75

JF2 SUMMARY 218

EXP NO. A20000
NO. 115





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		+1000.	+1000.	+1000.	+1000.
		+1000.	+1000.	+1000.	+1000.
		+1000.	+1000.	+1000.	+1000.
SPUN	*	+0			
BLANK	*	.70000000E+01			
BLANK	*	.00000000E+00			
INTVL	*	+2			
SPRNG	*	+0			
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SPRNG2	*	.10000000E+00			
SPRNG3	*	.00000000E+00			
SPRNG4	*	.01415127E+00			
SPRNG5	*	.15000000E+01			
SPRNG6	*	+0			
SPRNG7	*	.00000000E+00			
SPRNG8	*	.00000000E+00			
SPRNG9	*	.00000000E+00			
SPRNG10	*	.00000000E+00			
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SPRNG55	*	.00000000E+00			
SPRNG56	*	.00000000E+00			
SPRNG57	*	.00000000E+00			
SPRNG58	*	.00000000E+00			
SPRNG59	*	.00000000E+00			
SPRNG60	*	.00000000E+00			
SPRNG61	*	.00000000E+00			
SPRNG62	*	.00000000E+00			
SPRNG63	*	.00000000E+00			
SPRNG64	*	.00000000E+00			
SPRNG65	*	.00000000E+00			
SPRNG66	*	.00000000E+00			
SPRNG67	*	.00000000E+00			
SPRNG68	*	.00000000E+00			
SPRNG69	*	.00000000E+00			
SPRNG70	*	.00000000E+00			
SPRNG71	*	.00000000E+00			
SPRNG72	*	.00000000E+00			
SPRNG73	*	.00000000E+00			
SPRNG74	*	.00000000E+00			
SPRNG75	*	.00000000E+00			
SPRNG76	*	.00000000E+00			
SPRNG77	*	.00000000E+00			
SPRNG78	*	.00000000E+00			
SPRNG79	*	.00000000E+00			
SPRNG80	*	.00000000E+00			
SPRNG81	*	.00000000E+00			
SPRNG82	*	.00000000E+00			
SPRNG83	*	.00000000E+00			
SPRNG84	*	.00000000E+00			
SPRNG85	*	.00000000E+00			
SPRNG86	*	.00000000E+00			
SPRNG87	*	.00000000E+00			
SPRNG88	*	.00000000E+00			
SPRNG89	*	.00000000E+00			
SPRNG90	*	.00000000E+00			
SPRNG91	*	.00000000E+00			
SPRNG92	*	.00000000E+00			
SPRNG93	*	.00000000E+00			
SPRNG94	*	.00000000E+00			
SPRNG95	*	.00000000E+00			
SPRNG96	*	.00000000E+00			
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SPRNG98	*	.00000000E+00			
SPRNG99	*	.00000000E+00			
SPRNG100	*	.00000000E+00			

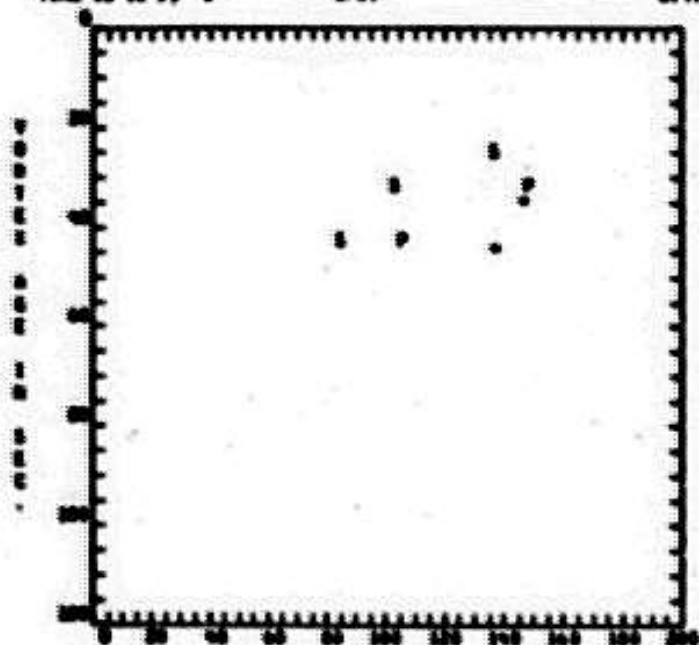
Run No. 3
TIME 15 34:50" 0

JP49

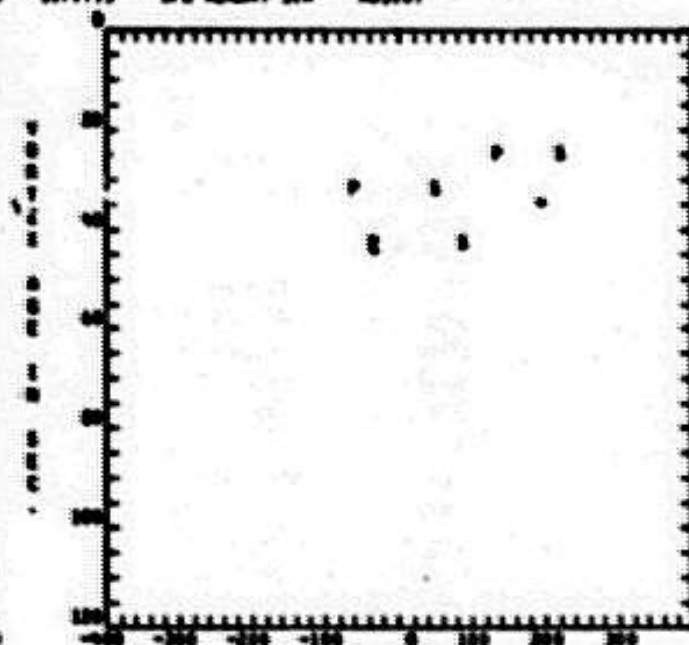
DP47 11/17/75

JP4 Runway 310

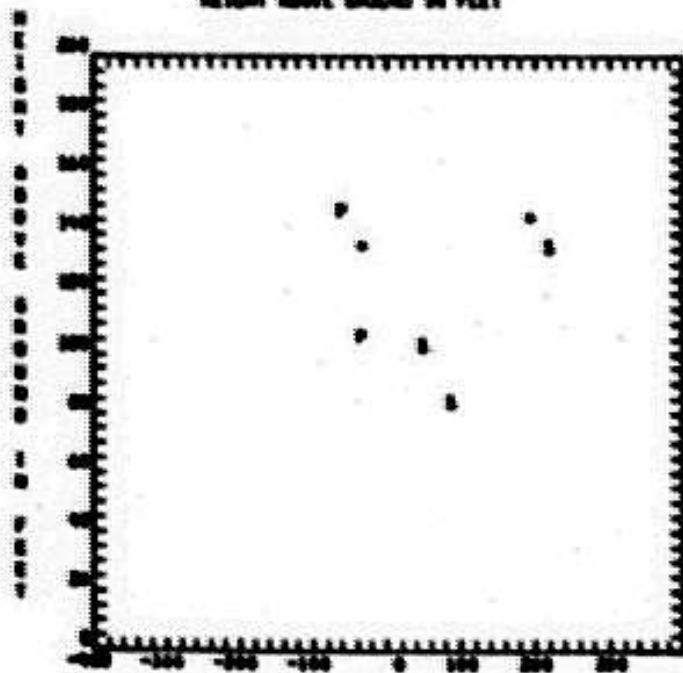
Run No. 000000
00310.



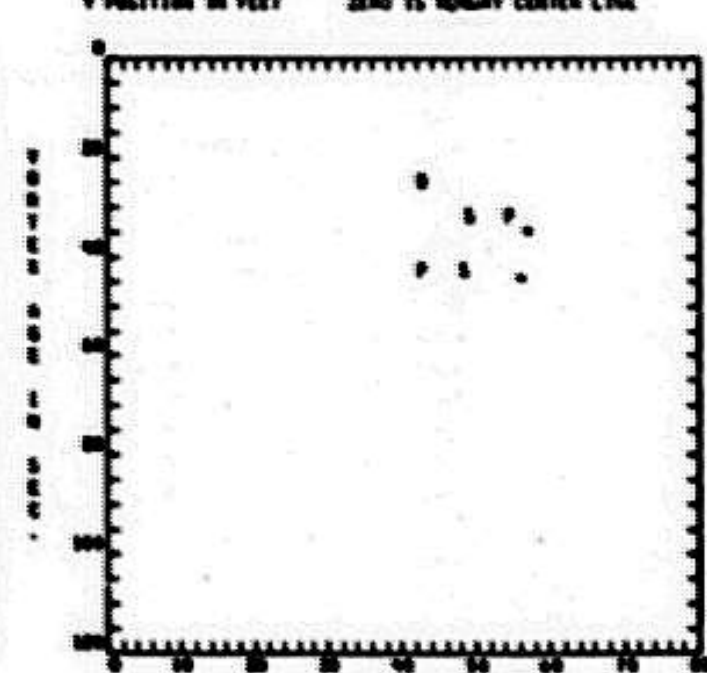
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

		SPR13				
DATA						
SPR13P	*	+0				
SPR13E	*	+1.	+7.	+11.	+11.	
		+1000.	+1000.	+1000.	+1000.	
		+1000.	+1000.	+1000.	+1000.	
		+1000.	+1000.	+1000.	+1000.	
		+1000.	+1000.	+1000.	+1000.	
SPR13	*	+17				
BLANK	*	.70000000E-01				
BLANK	*	.00000000E-00				
SPR13L	*	+2				
SPR13P	*	+4				
SPR13C1	*	.10000000E-10				
SPR13C2	*	.10000000E-00				
SPR13C3	*	.00000000E-00				
SPR13C4	*	.31415927E-00				
SPR13C5	*	.15000000E-01				
SPR13C6	*	+0				
SPR13C7	*	.00000000E-00				
SPR13C8	*	.00000000E-00				
SPR13C9	*	.00000000E-00				
SPR13C10	*	.00000000E-03				
SPR13C11	*	+5				
SPR13C12	*	+2				
SPR13C13	*	.00000000E-00				
SPR13C14	*	+5				
SPR13C15	*	.00000000E-00.	.00000000E-00			
SPR13C16	*	.00000000E-00.	.00000000E-00			
SPR13C17	*	+1				
SPR13C18	*	.40000000E-03				
SPR13C19	*	-.40000000E-03				
SPR13C20	*	.00000000E-03				
SPR13C21	*	.15000000E-03				
SPR13C22	*	.00000000E-03				
SPR13C23	*	+13				
SPR13C24	*	+1				
SPR13C25	*	+0				
SPR13C26	*	+2				
SPR13C27	*	+2				
SPR13C28	*	+2				
SPR13C29	*	+2				
SPR13C30	*	+2				
SPR13C31	*	+2				
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SPR13C95	*	+2				
SPR13C96	*	+2				
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SPR13C98	*	+2				
SPR13C99	*	+2				
SPR13C100	*	+2				

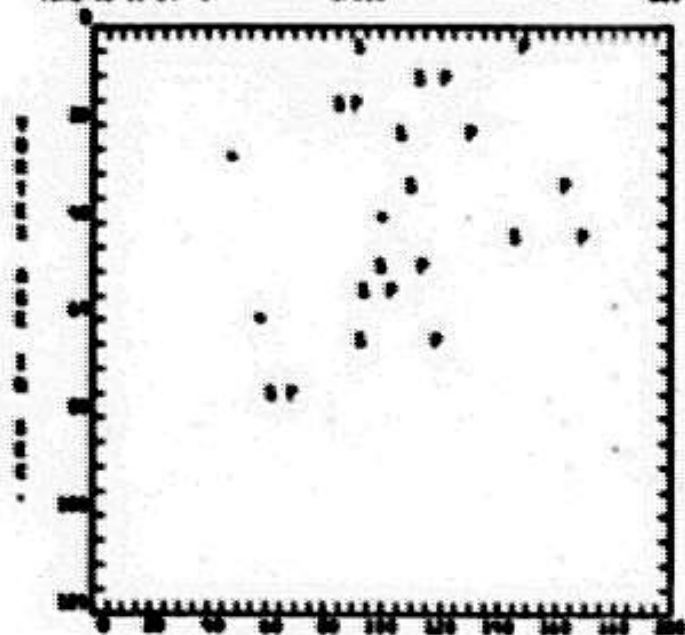
Run No. 1
TIME 05 11:34:0

JPL13

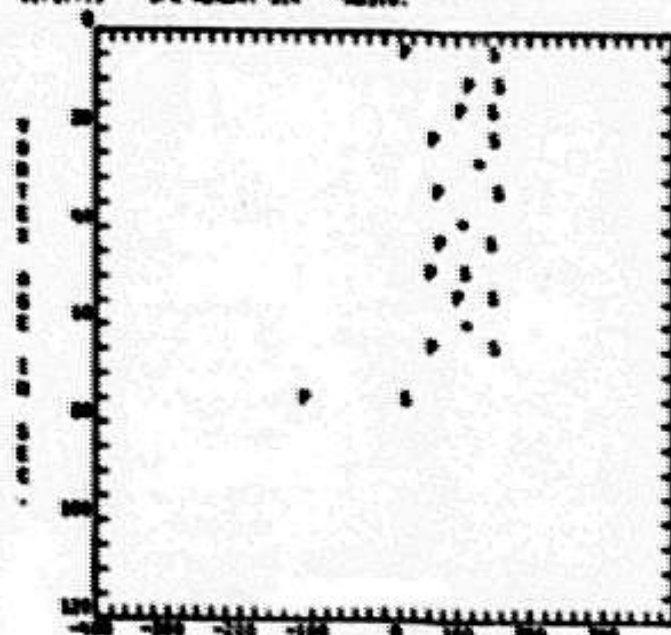
DEC 11/17/75

JPL Runway 31R

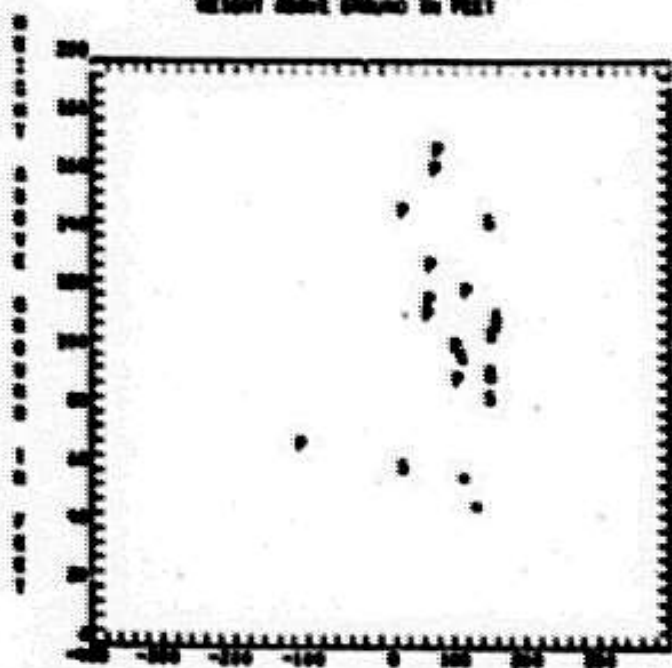
Run No. 030000
HD310.



HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



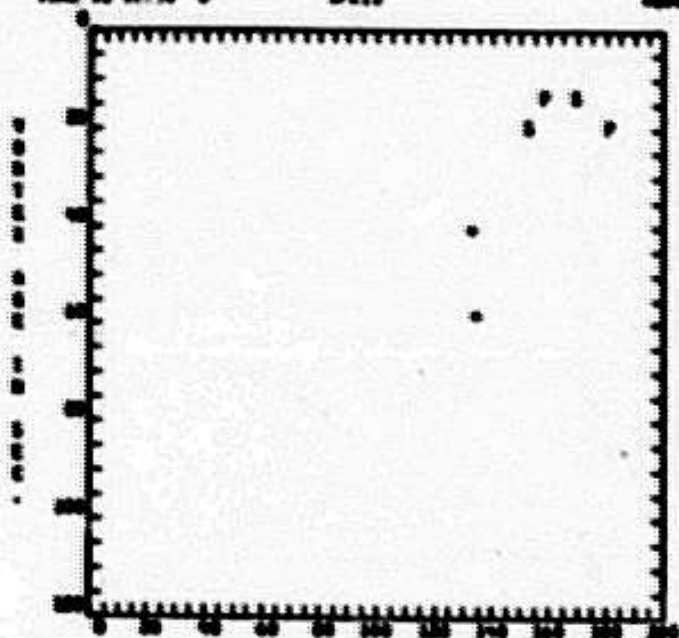
Y POSITION IN FEET ZERO IS Runway CENTER LINE



LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 10
TIME IS 11754.6

JFK13

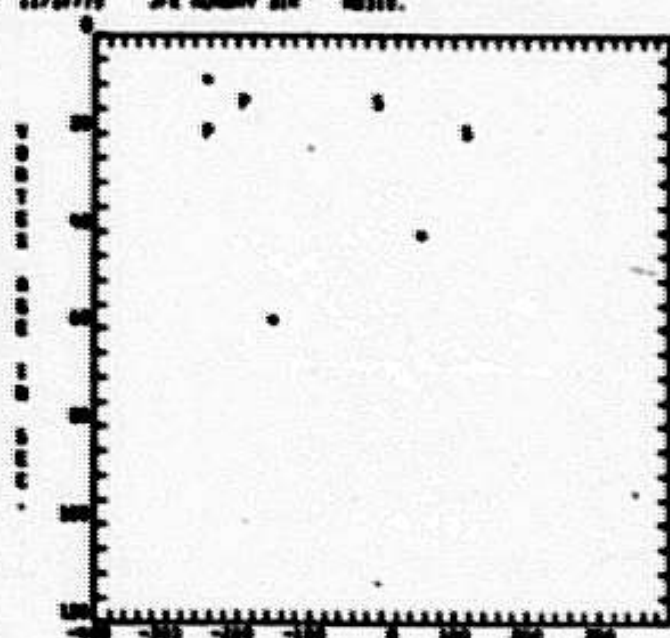


HEIGHT ABOVE GROUND IN FEET

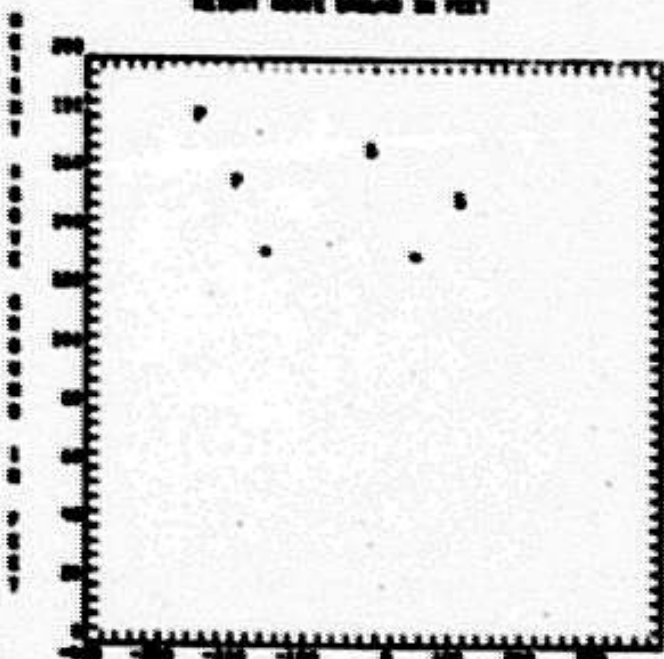
Run No. 11757.75

JFK Runway 31R

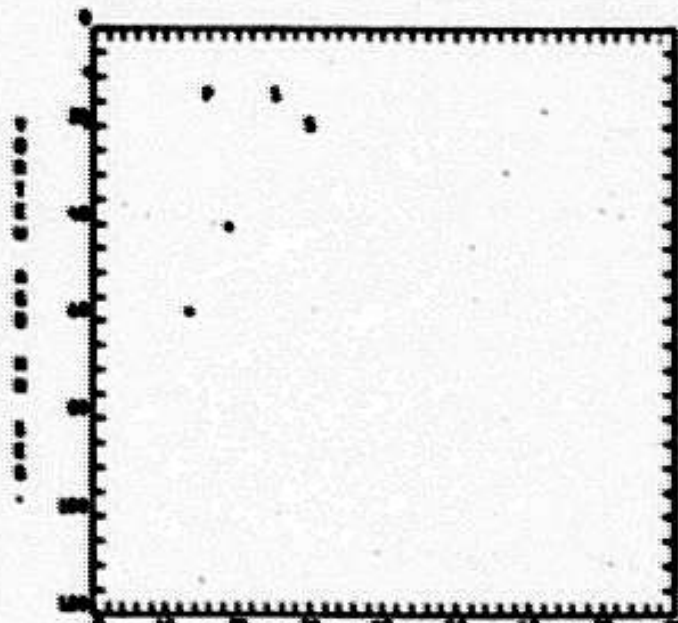
Run No. 120000



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 12
Time 15 12' 0"

JF112

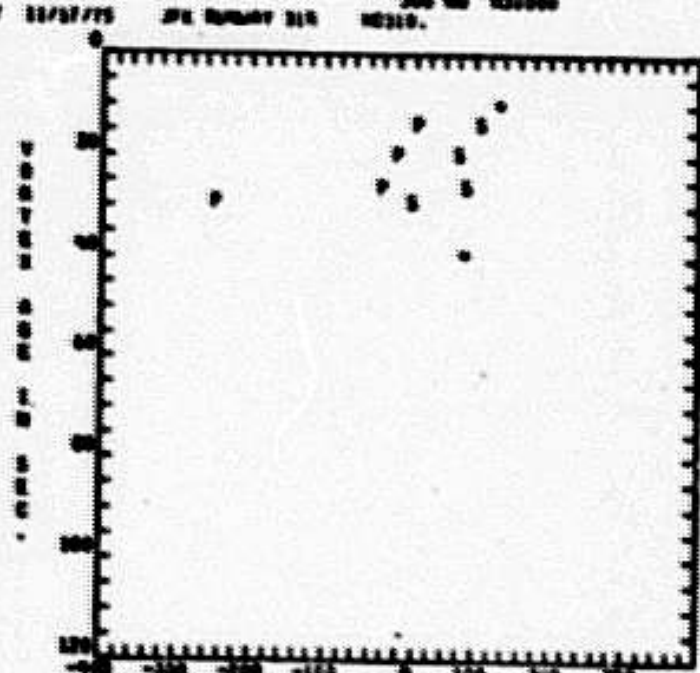
0707 11/17/75

JFK Runway 31R

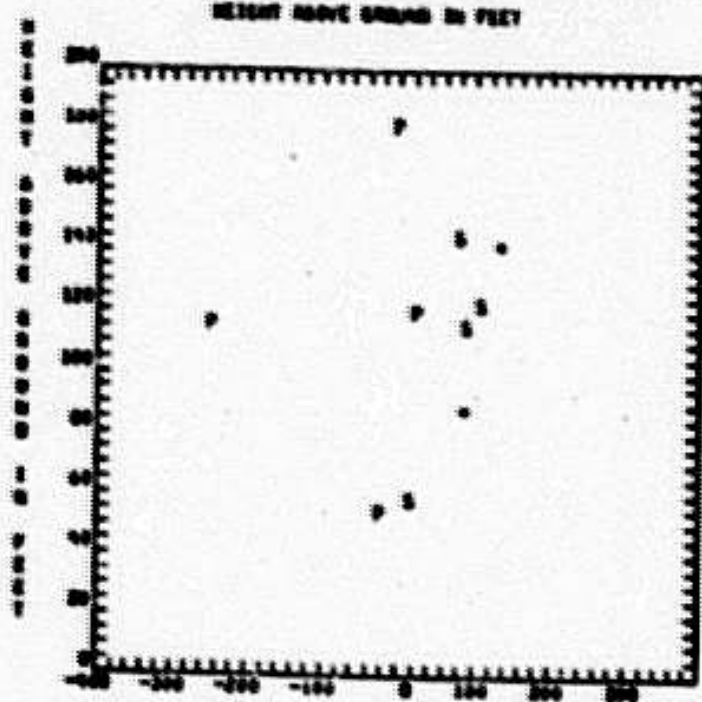
Run No. 120000
HE110.



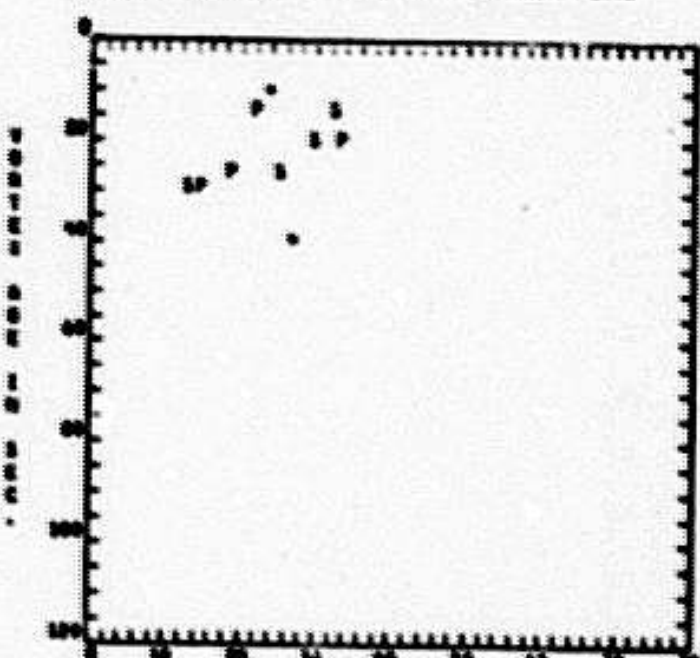
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT ACTIVITY IN FT/SEC.

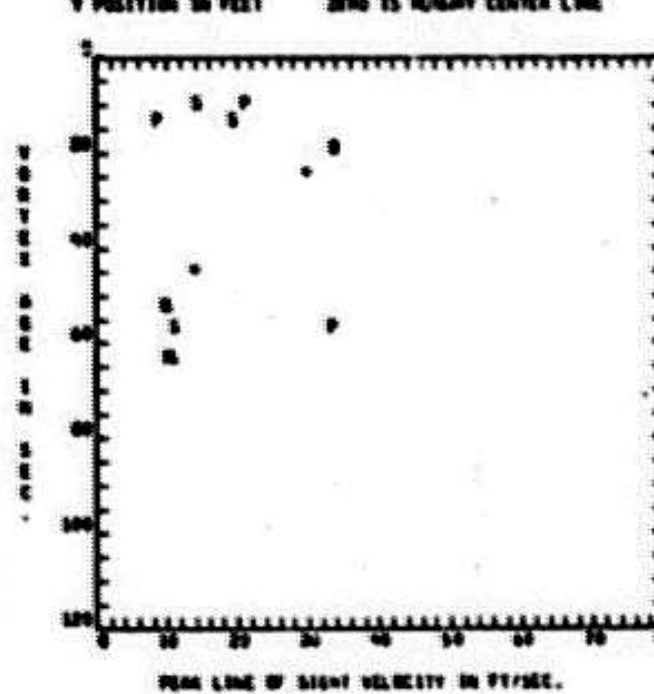
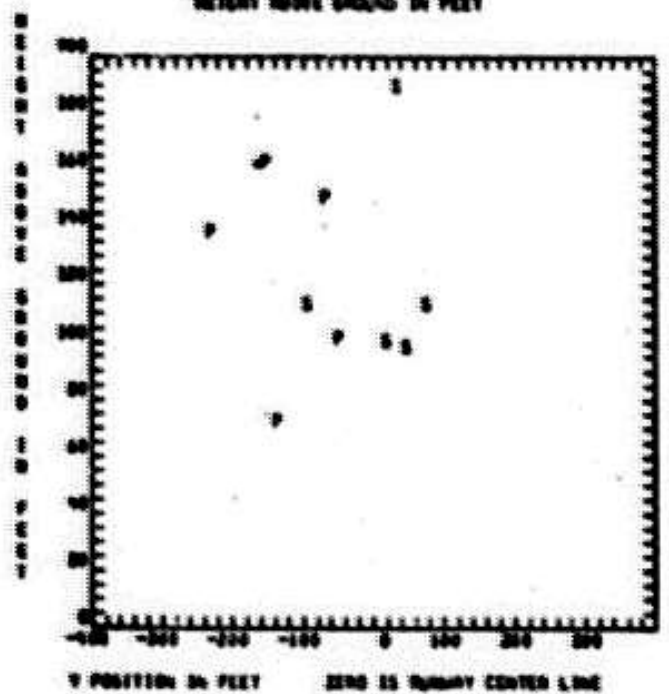
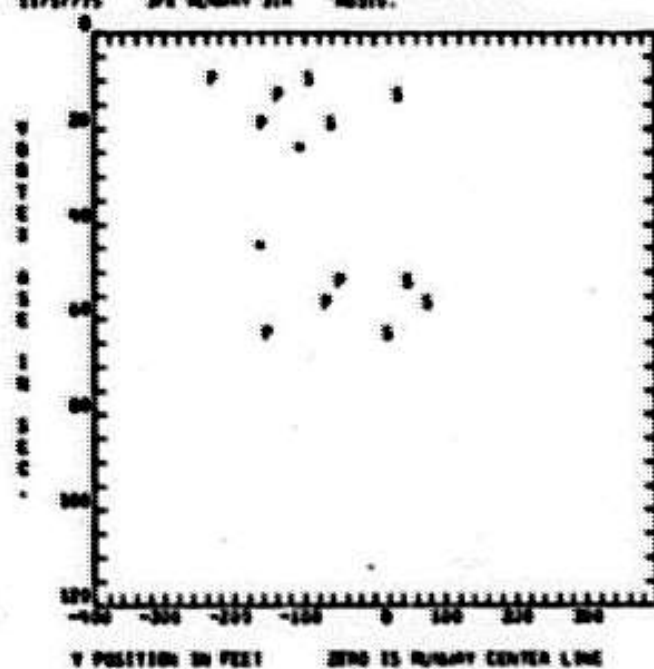
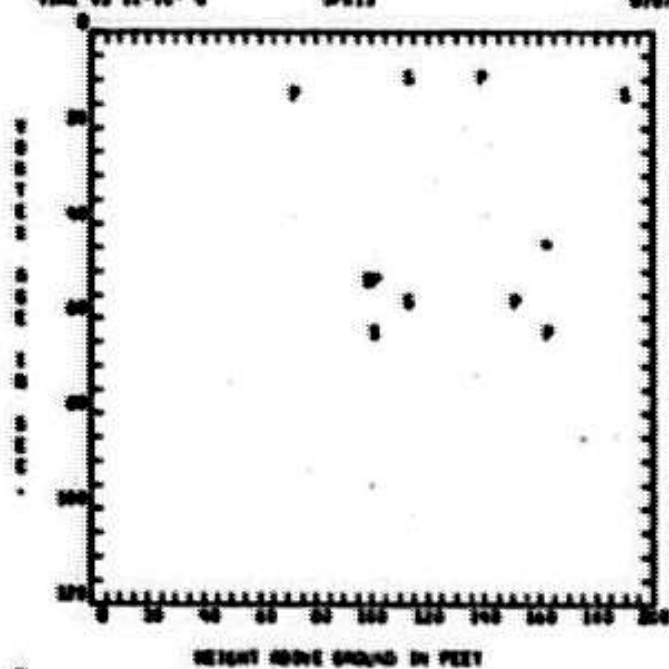
Run No. 17
TIME IS 12:14" 0

JFK13

0107 11/17/75

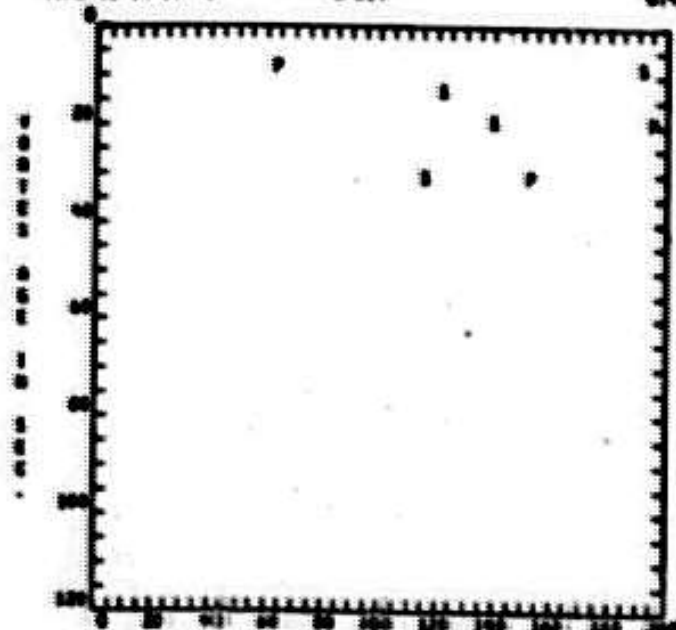
JFK Runway 31A

Run No. 030000
MODE.



Run No. 1
Time 15 34:39.0

JPLN

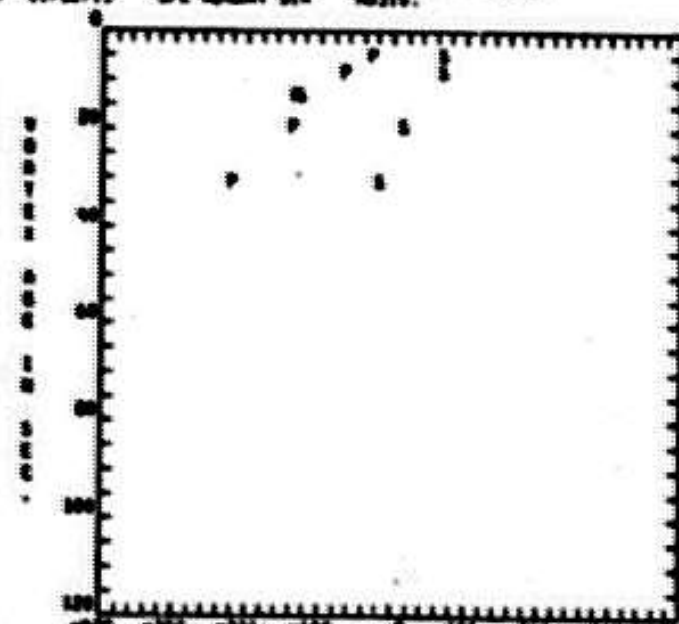


HEIGHT ABOVE GROUND IN FEET

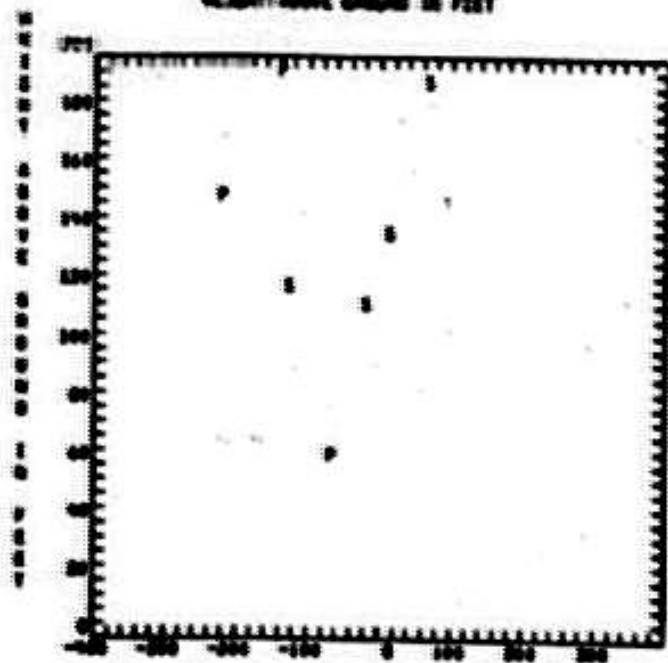
Run No. 2
Time 15 34:39.0

JPLN

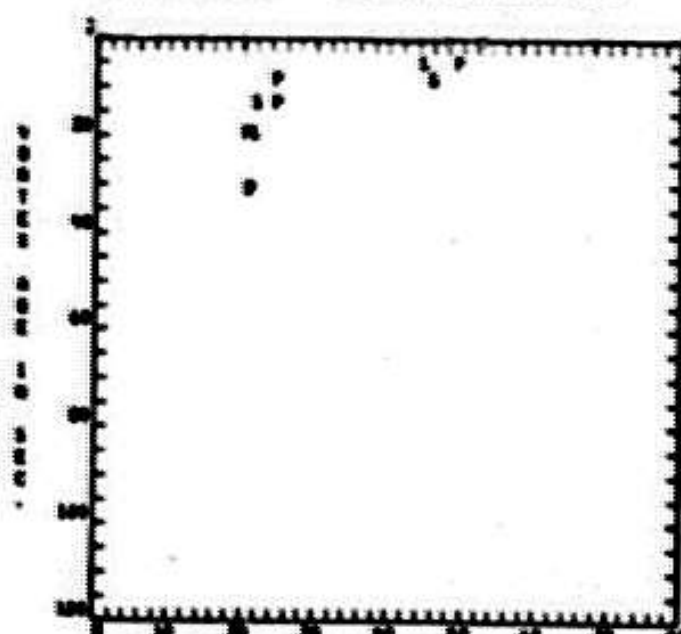
Run No. 3
Time 15 34:39.0



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

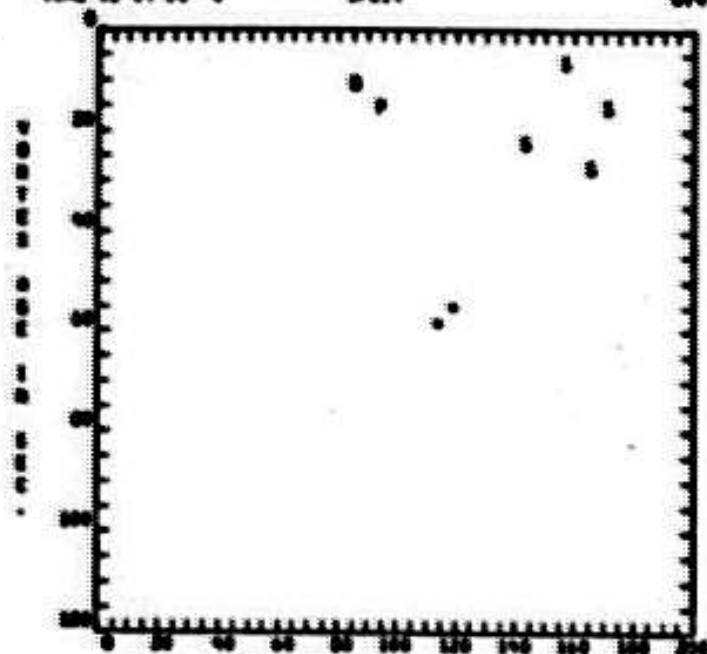
REP NO. 1
TIME 15 04:50 0

JF014

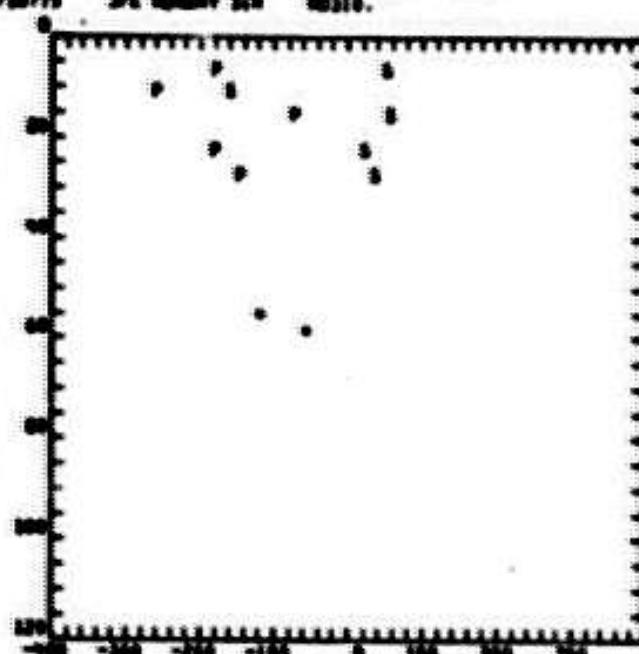
DATE 11/20/79

JF0000000000

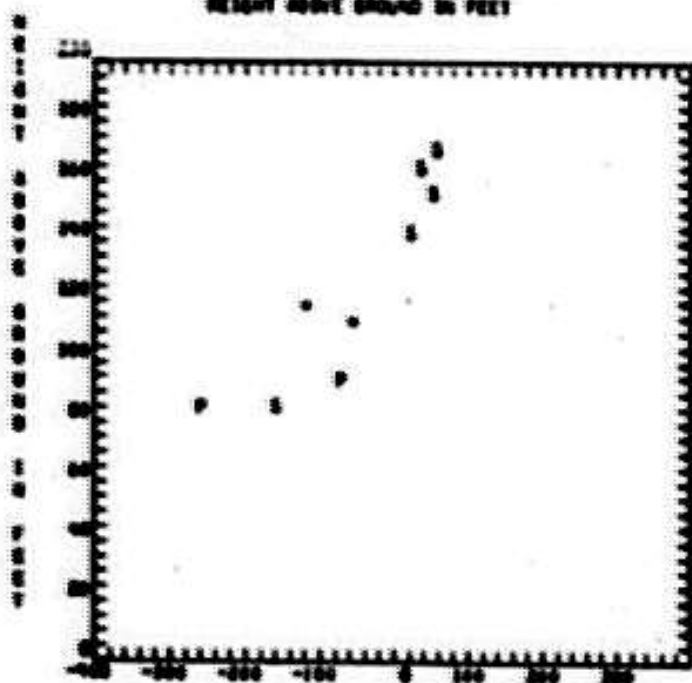
JOB NO 030000
NO210.



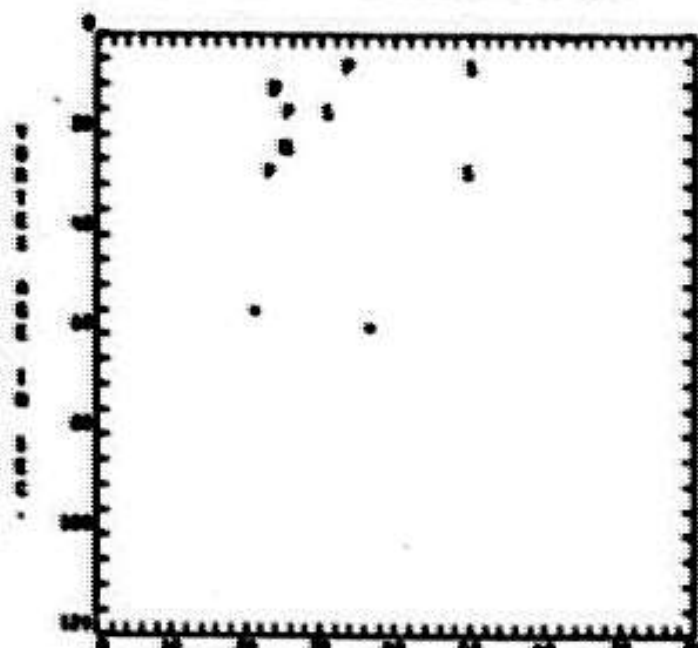
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

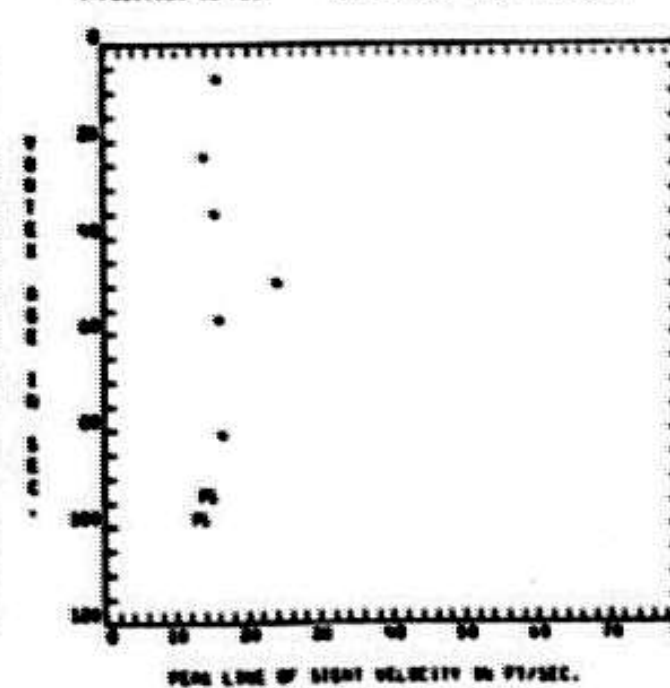
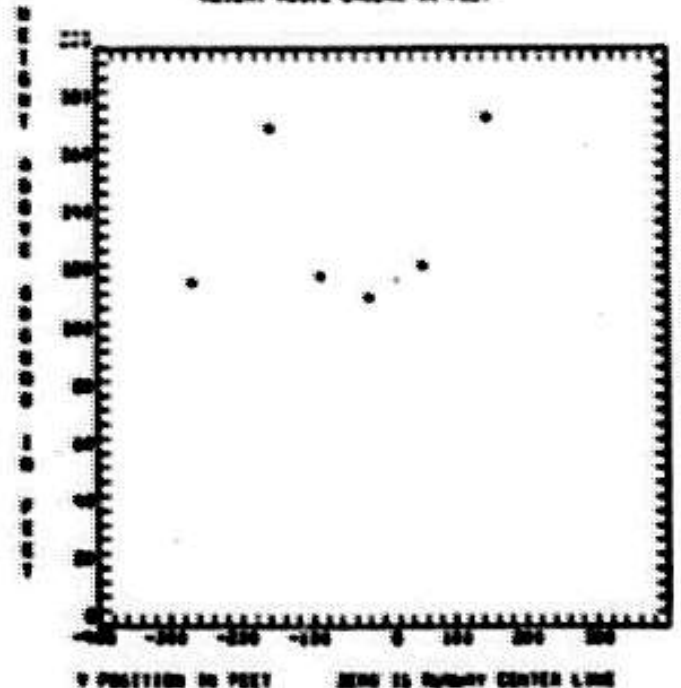
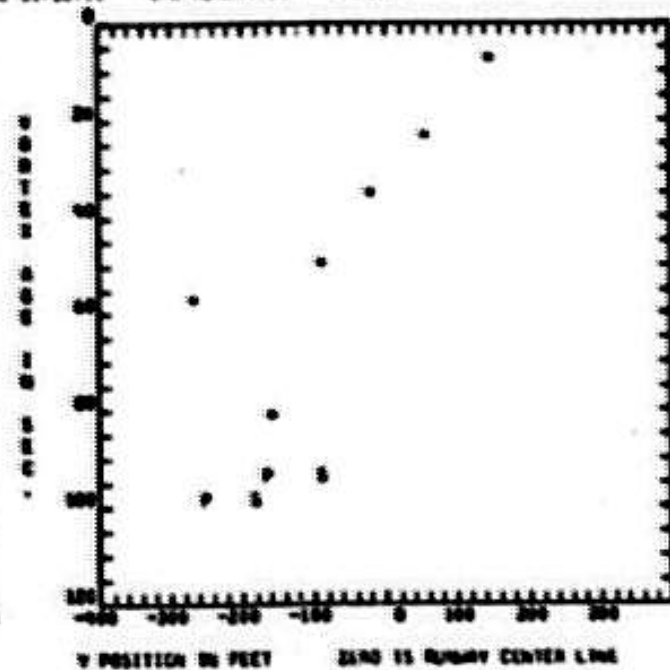
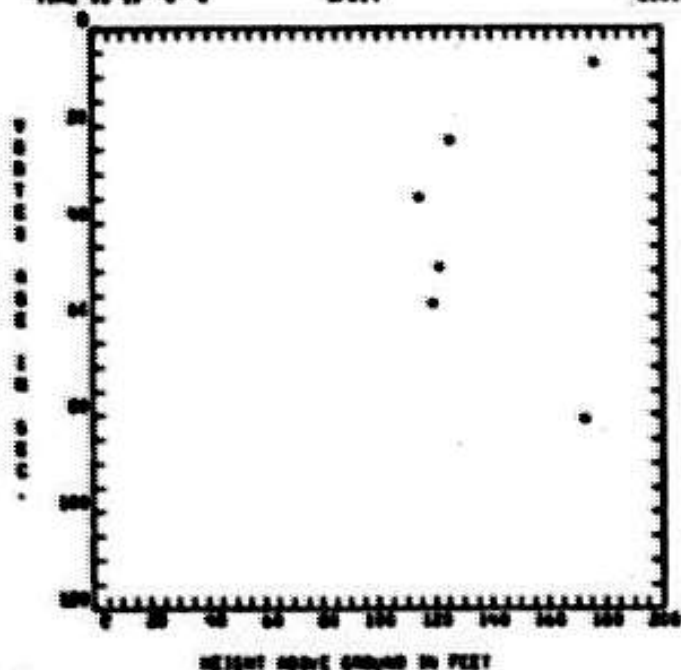
REP NO. 9
TIME 11 35 00

JF019

LO011 11/10/79

JF0 RUMBY 310

JOB NO 030000
NO310.



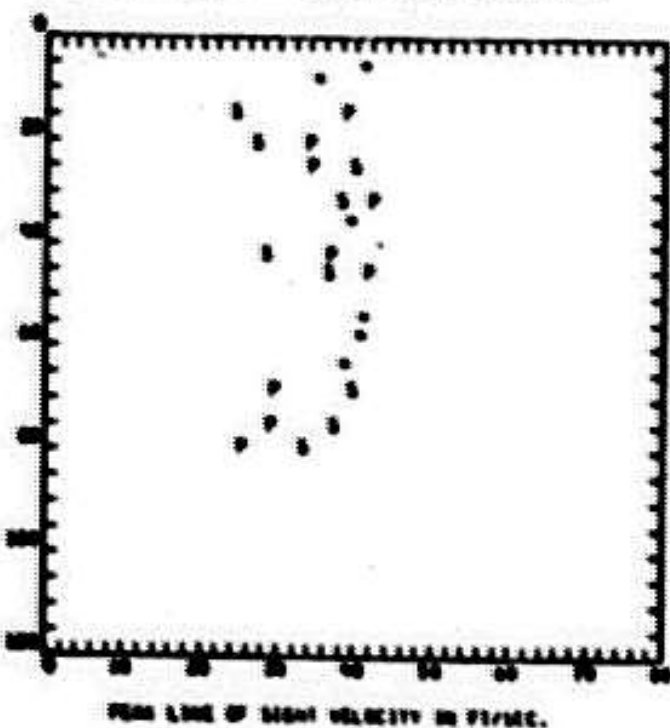
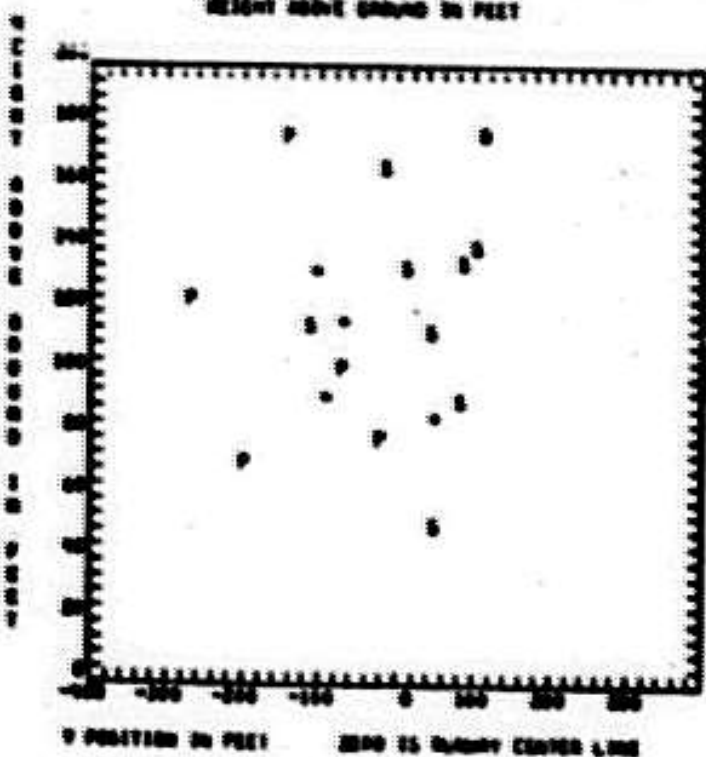
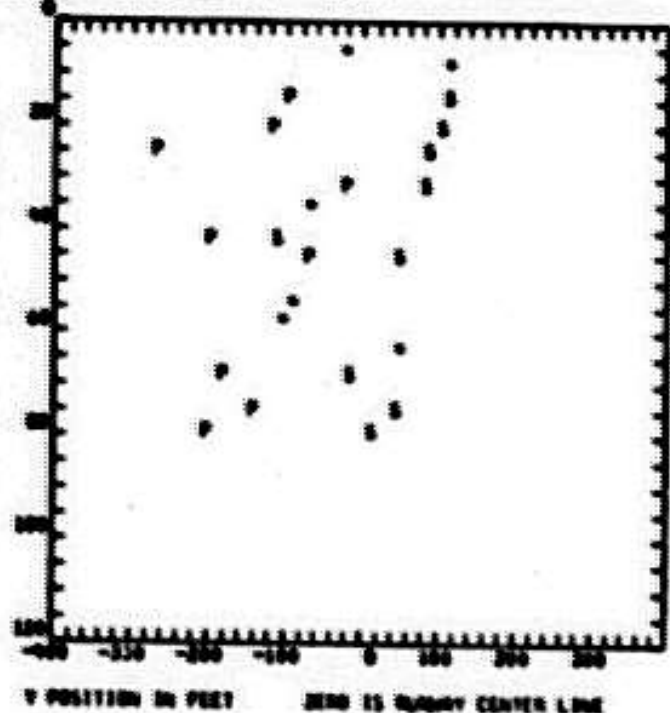
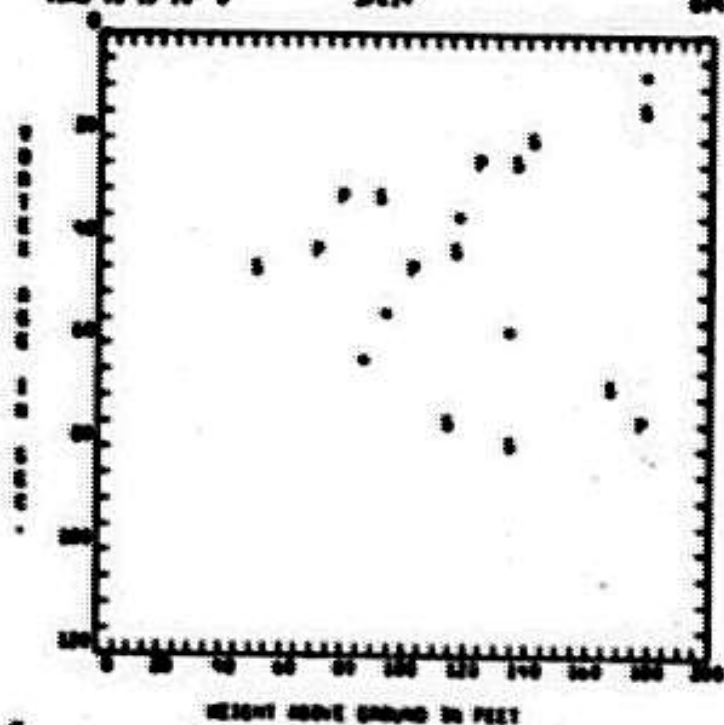
REP NO. 10
TIME IS 10:10" 0

JP014

OP#7 11/10/75

JPL NUMBER 210

REP NO. R00060
10310.



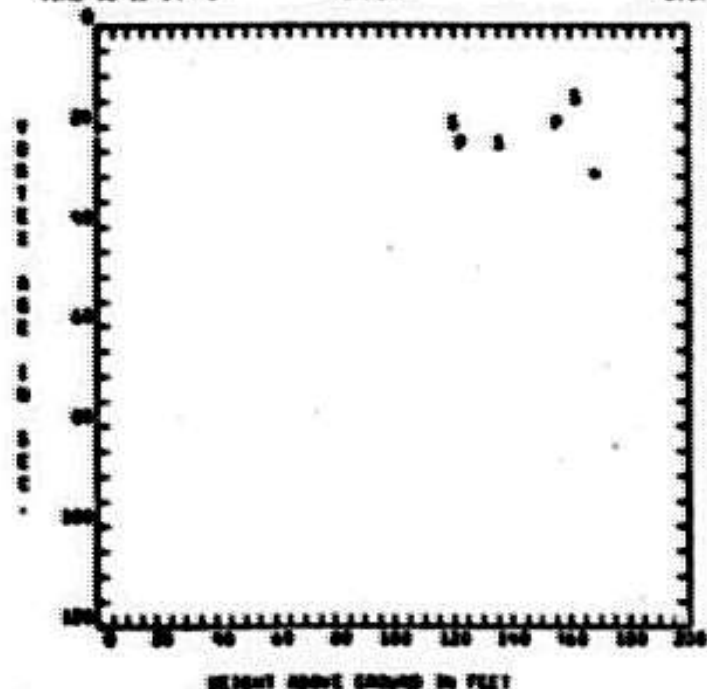
Run No. 11
Time 11 29 14.0

JP-11

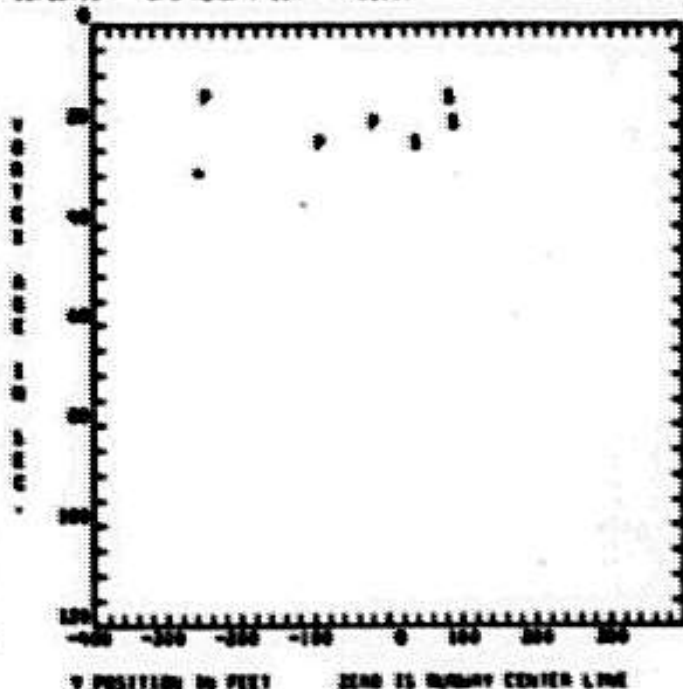
Date 11/10/75

File Number 210

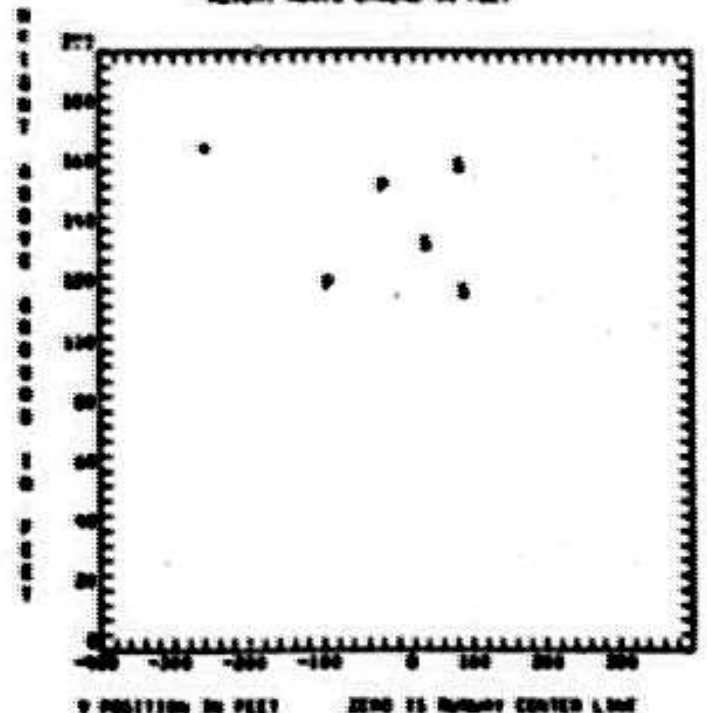
Run No. 030000
HD10.



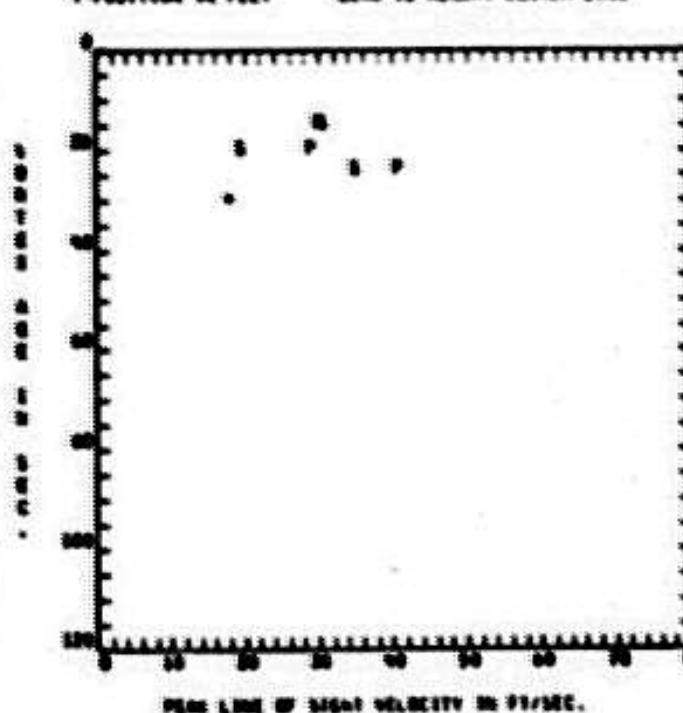
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PLANE LINE OF SIGHT VELOCITY IN FT/SEC.

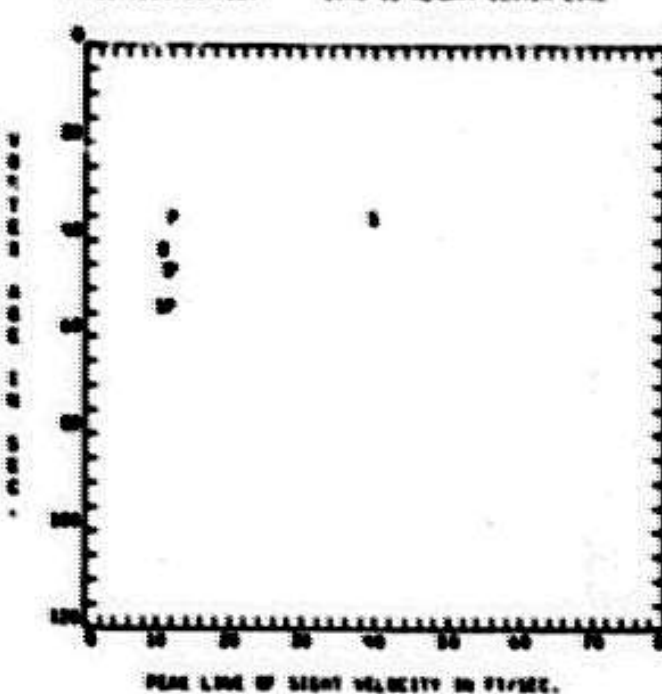
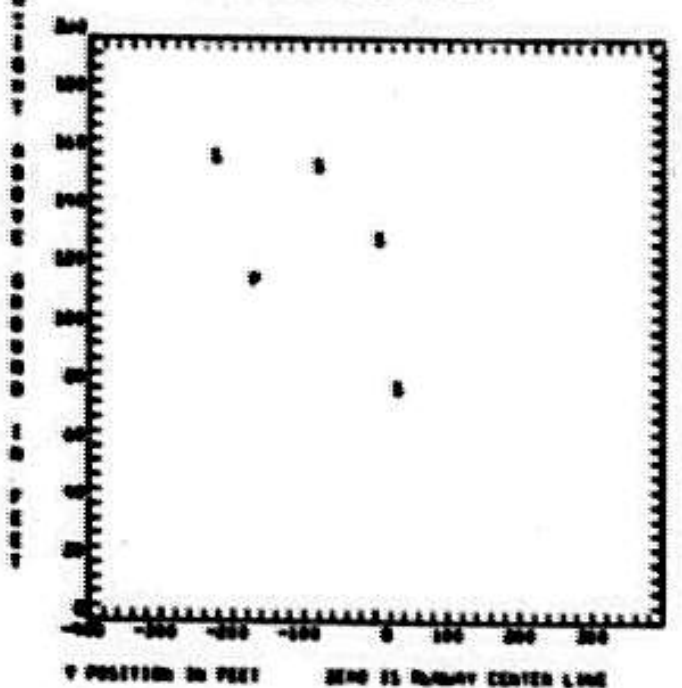
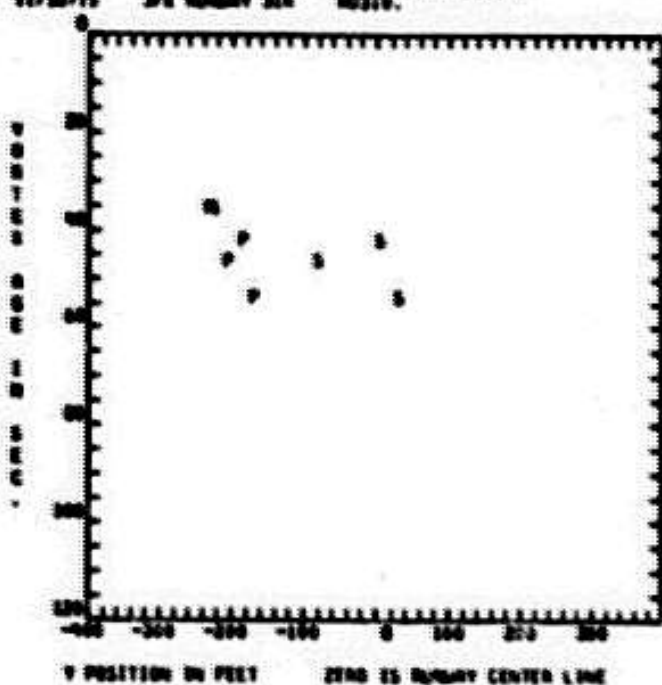
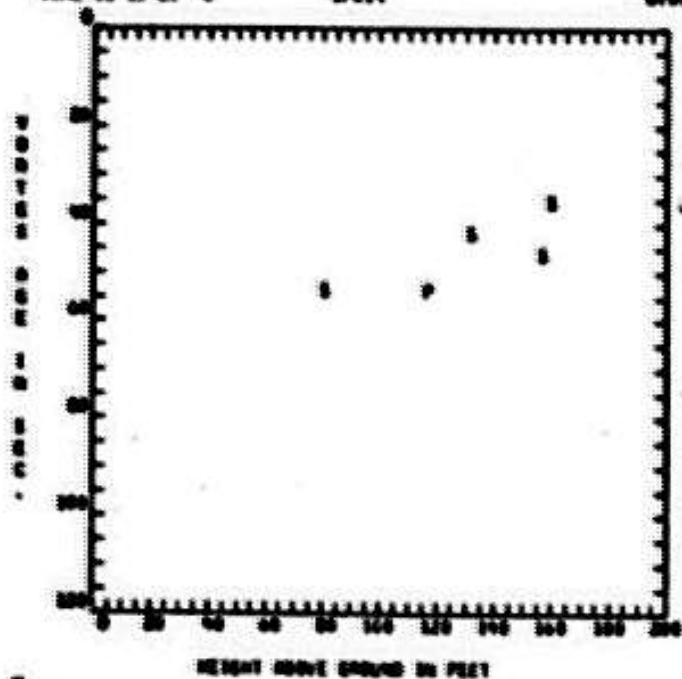
Run No. 15
TIME 15 10*21* 0

JF014

DATE 11/20/75

JF0 Summary 318

Run No. 230000
NO210.



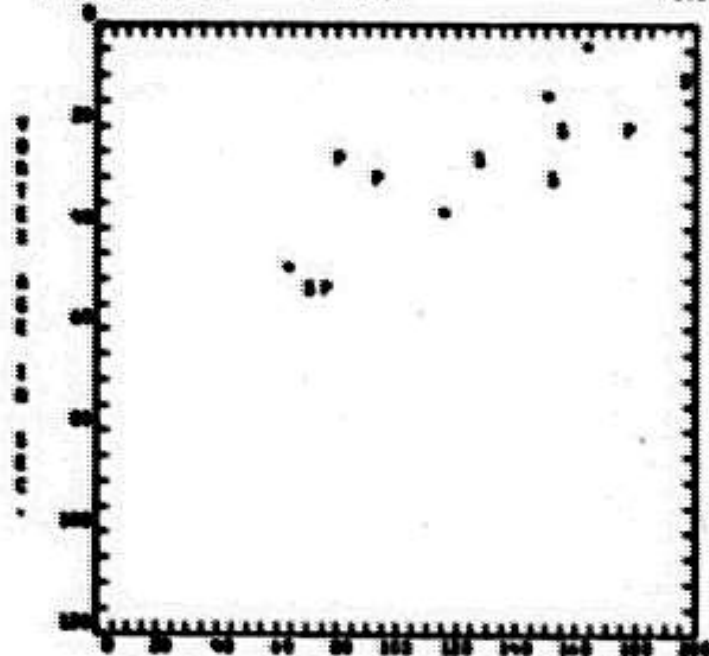
RUN NO. 17
TIME IS 15:35:0

JFK

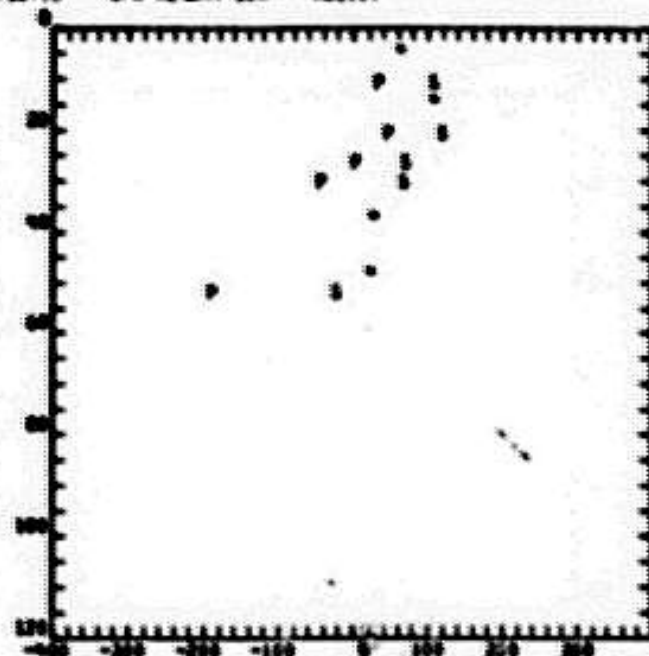
0907 11/10/75

JFK Runway 31R

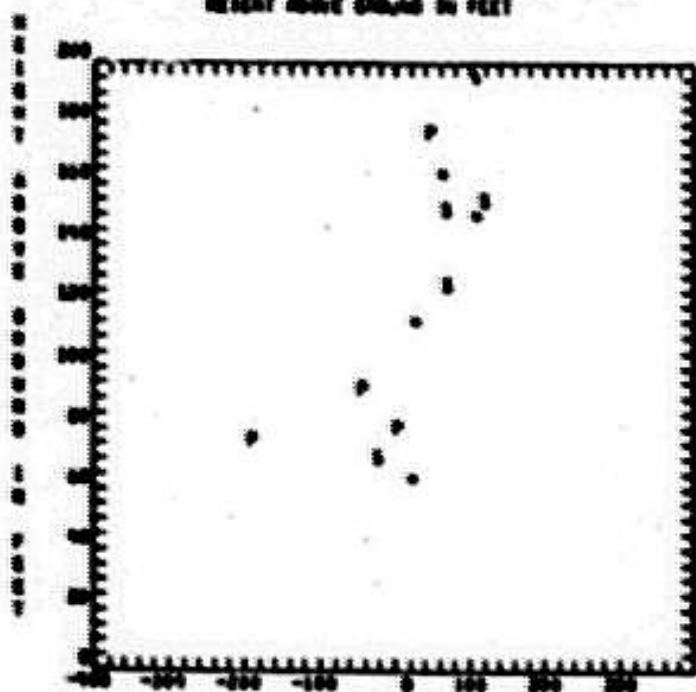
JOB NO. 030000
NO. 10.



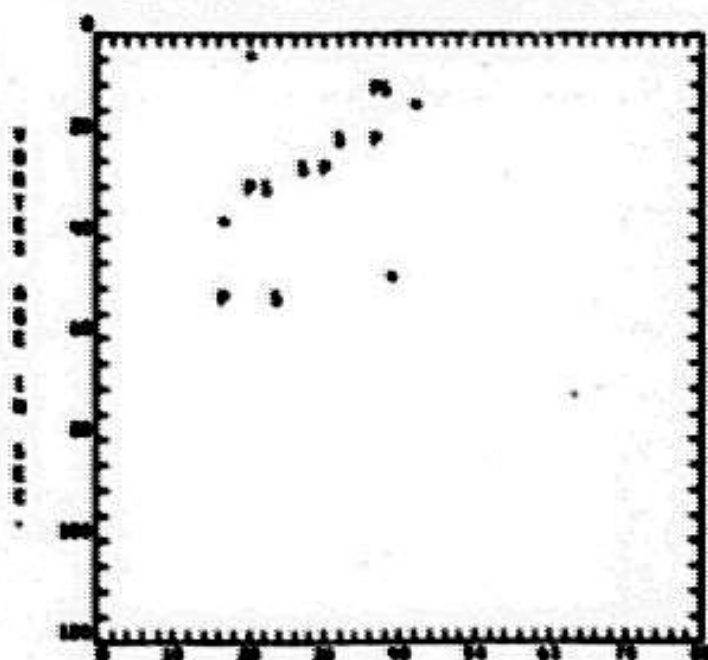
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

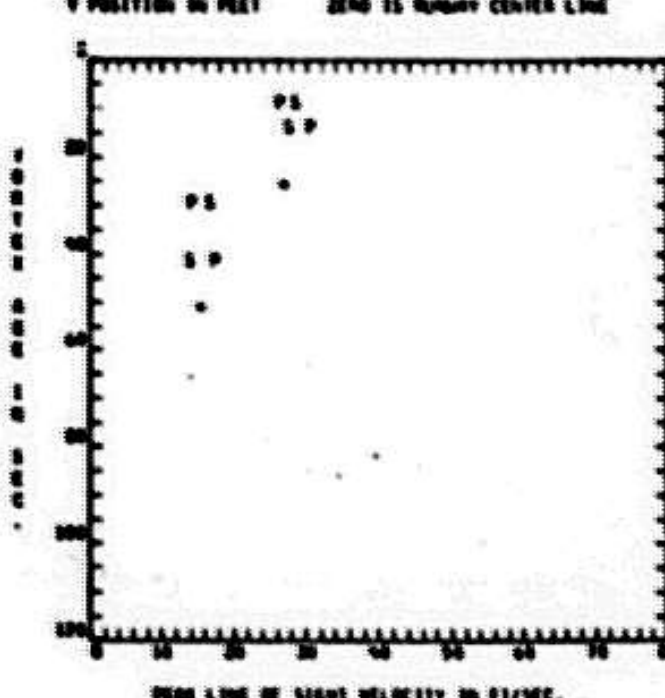
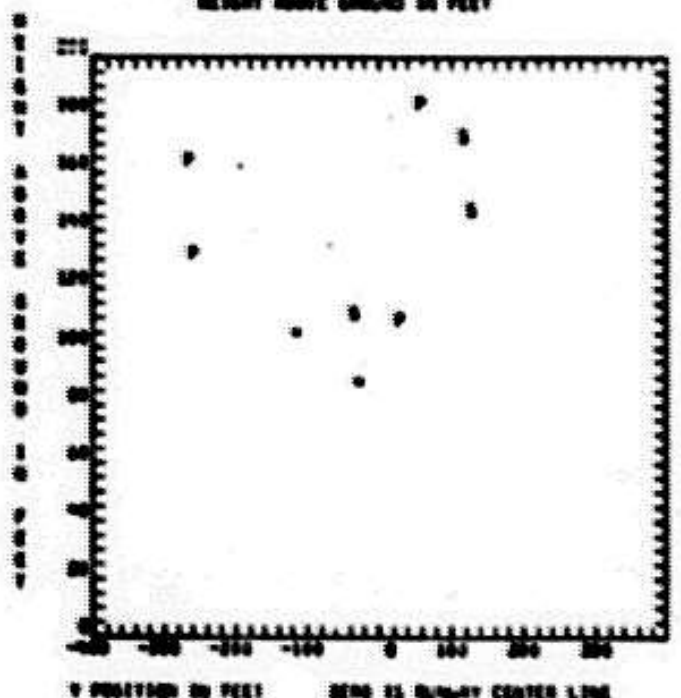
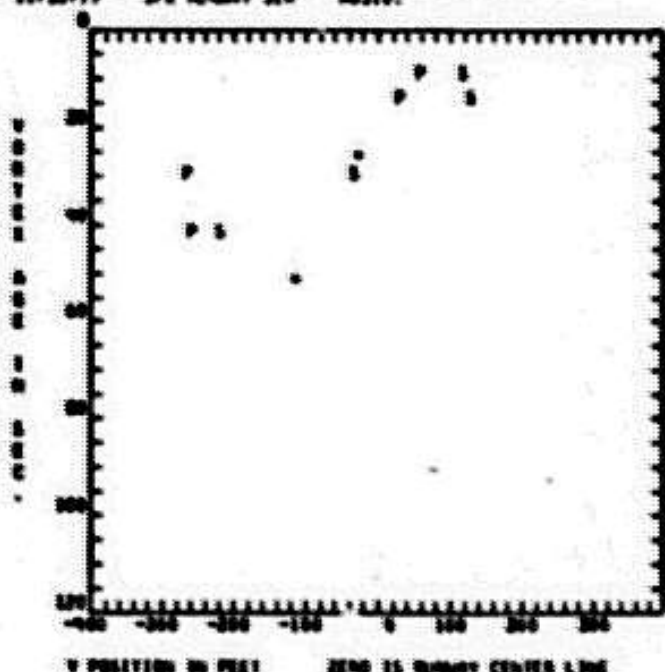
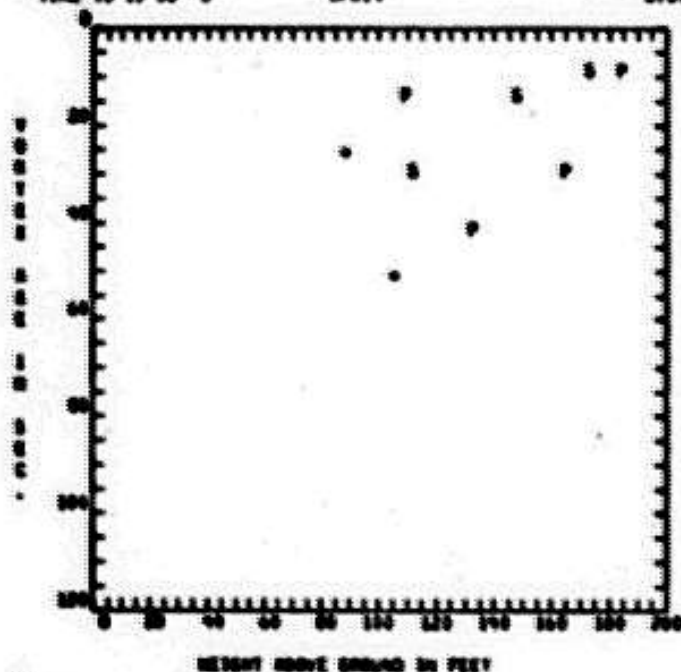
000000 00
TIME IS 10:30:00

JFE14

0707 11/10/75

JFE RUMAY 310

000000 000000



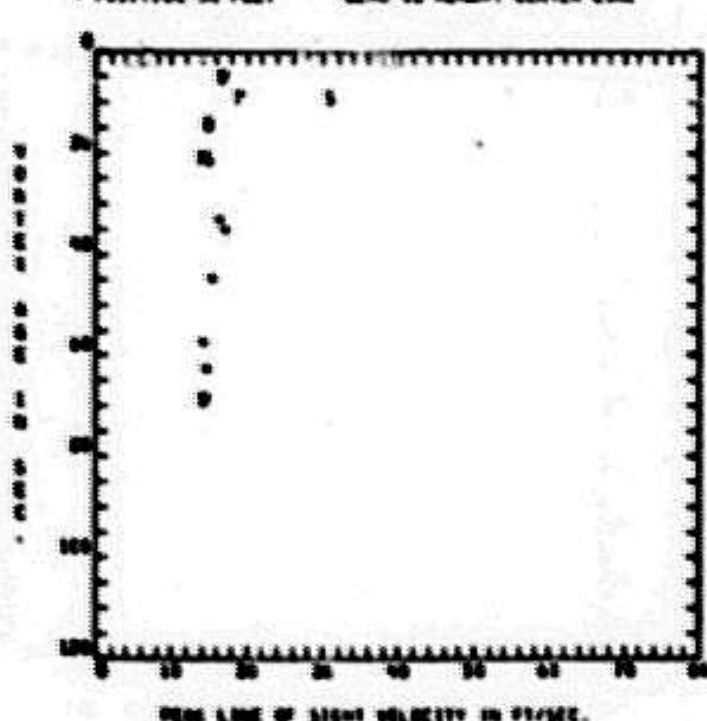
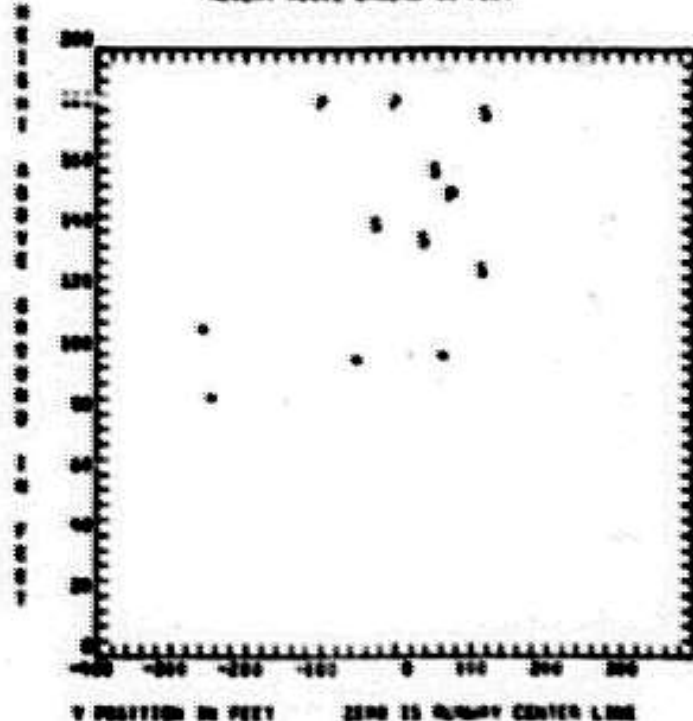
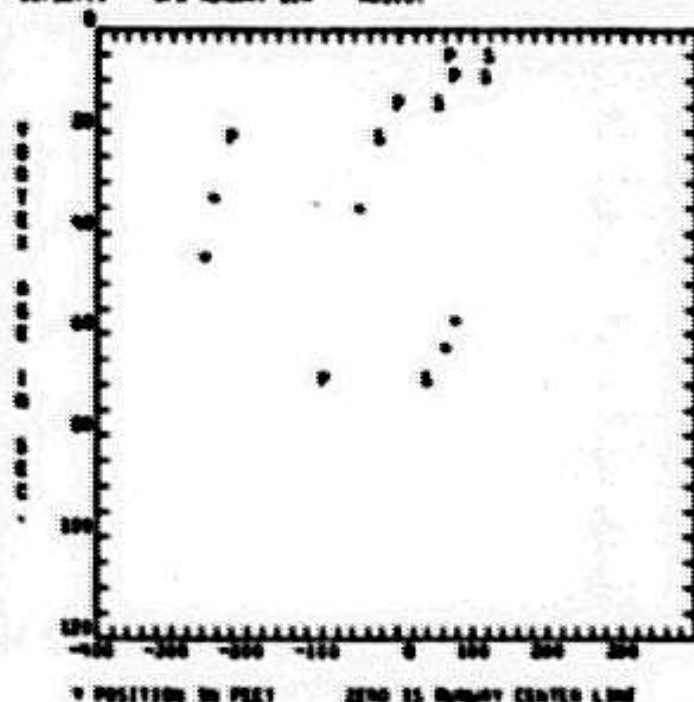
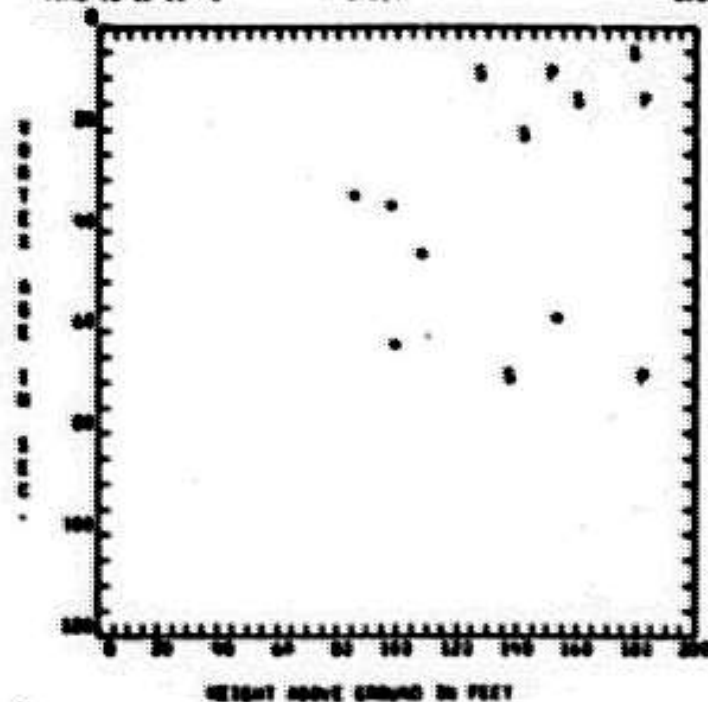
Run No. 19
Time 15 25 20" 0

JF019

Date 11/20/75

JF0 Summary 218

Run No. 030000
HD210.



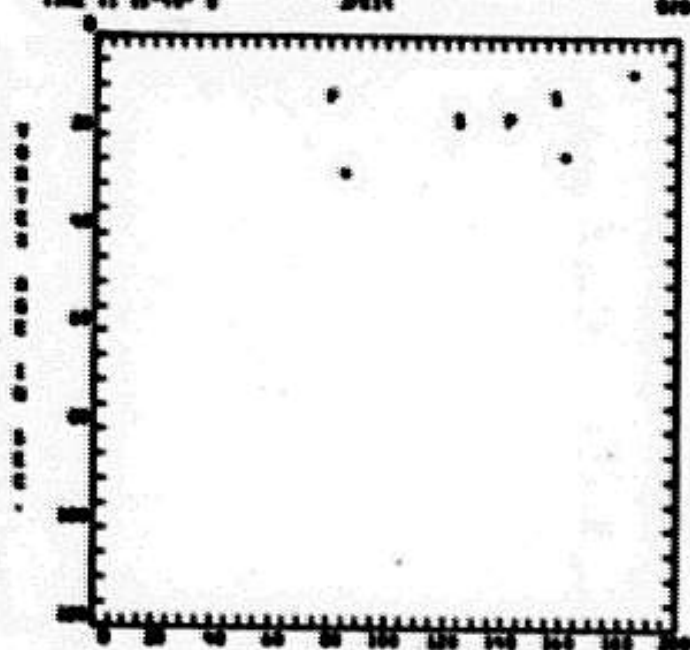
Run No. 20
TIME 15 35 40 0

FEET

0007 11/20/75

FEET Runway 31R

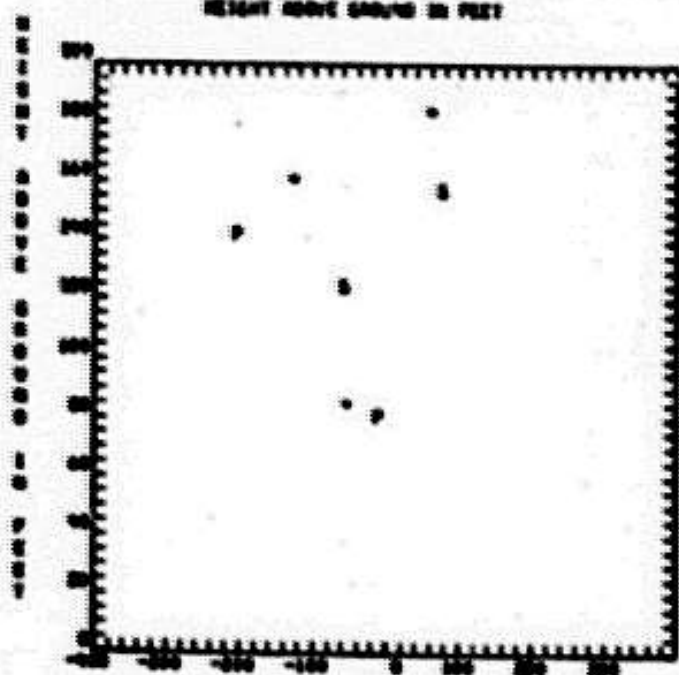
Run No. 000000
10310.



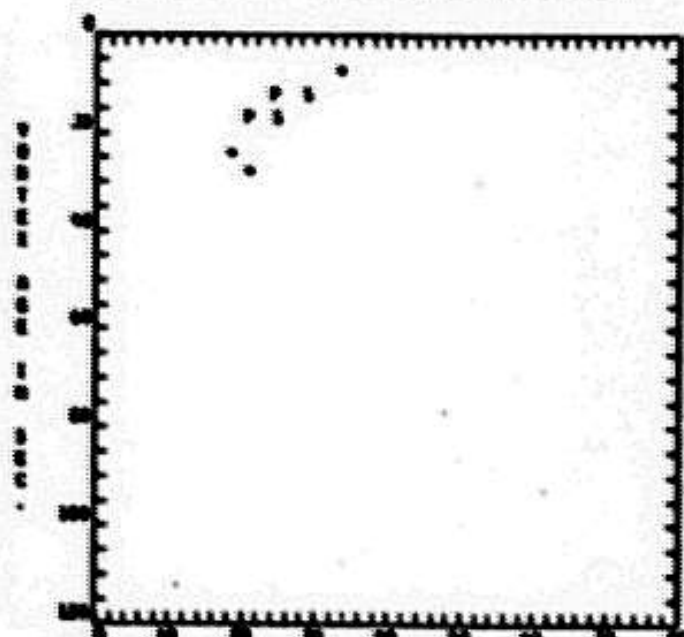
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



LINE OF SIGHT VELOCITY IN FT/SEC.

200 NO. 21
TIME 11 09-42" 0

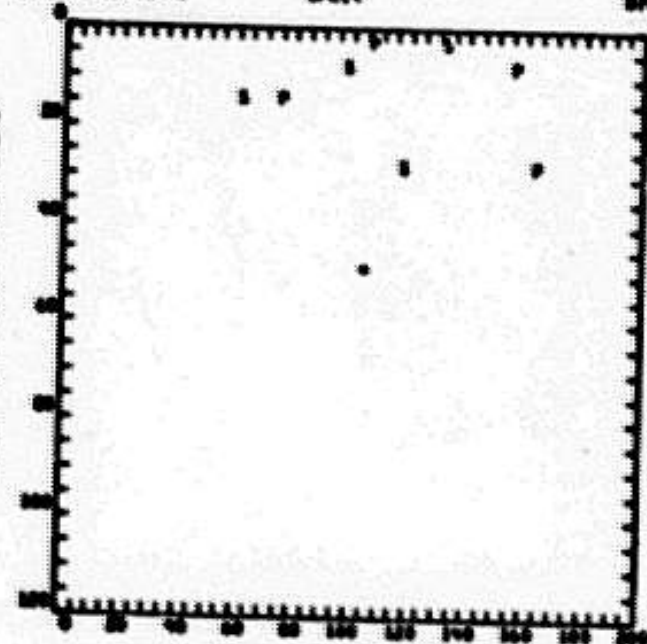
27814

DATE 11/20/75

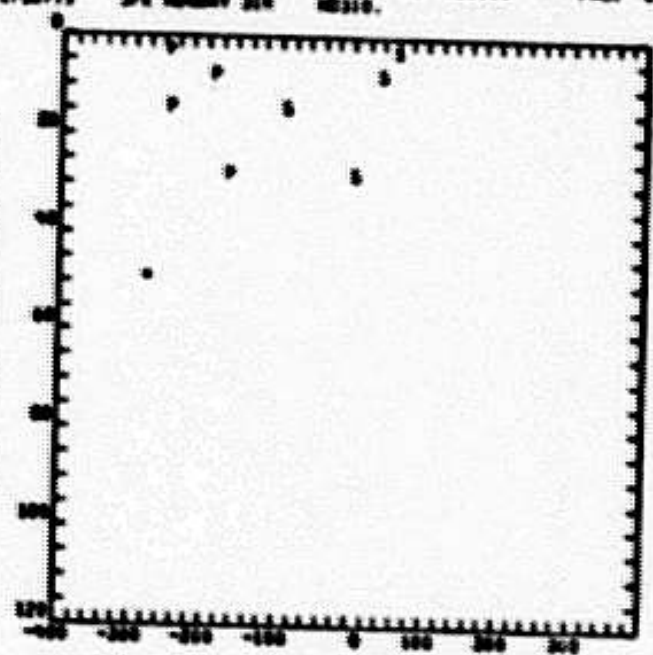
JPL SUMMARY 218

200 NO. 020000

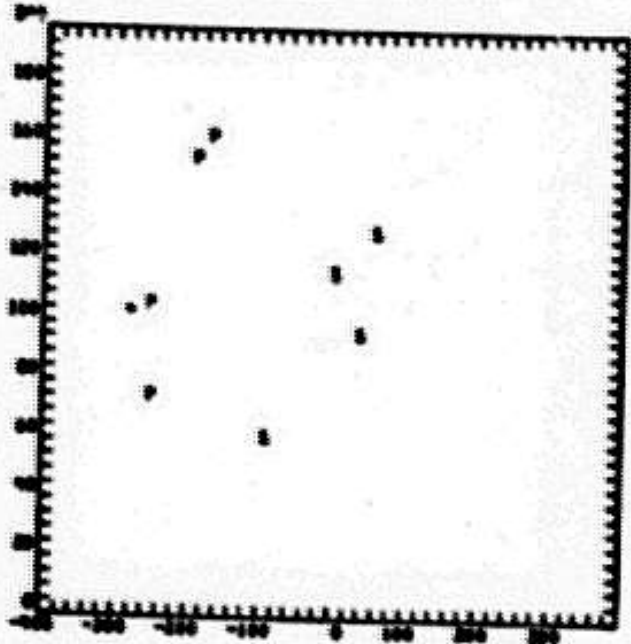
PAGE 20



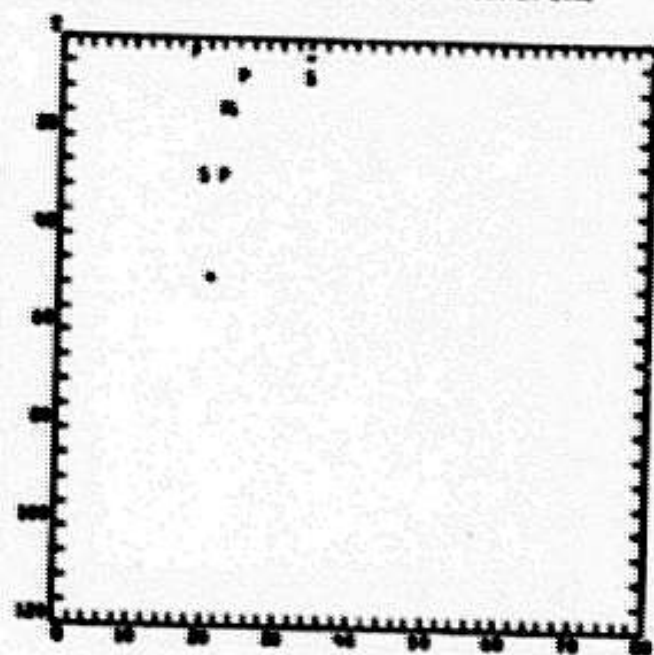
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

FORM NO. 25
FORM IS 11-752-0

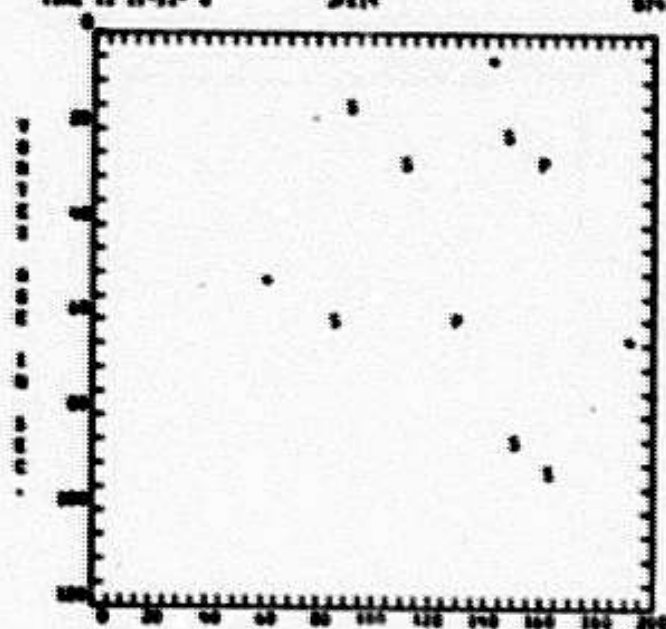
JF114

DATE 11/20/75

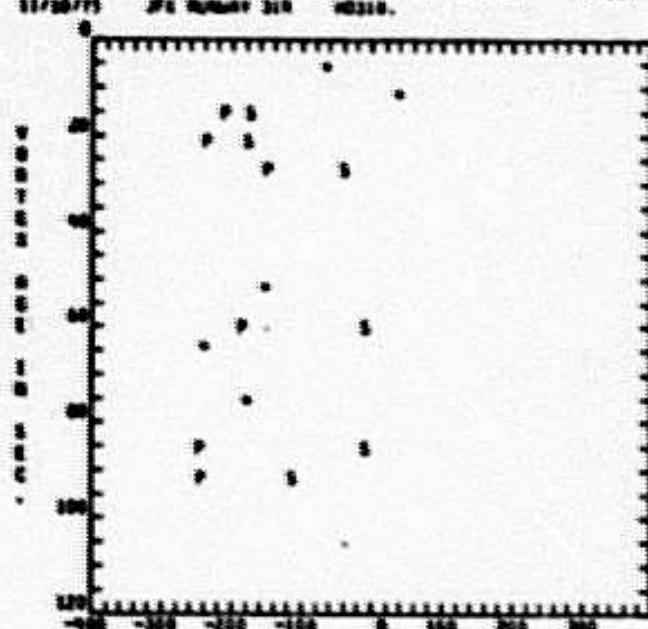
JFK SUMMARY 310

JOB NO 830000

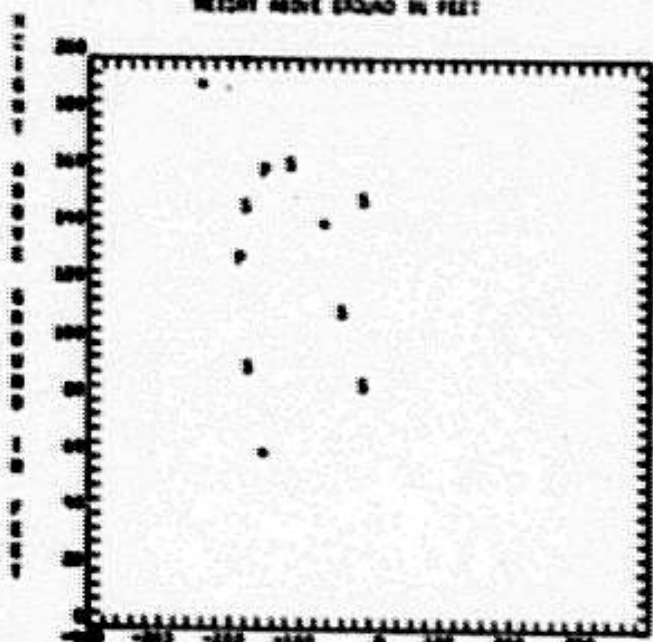
PAGE 23



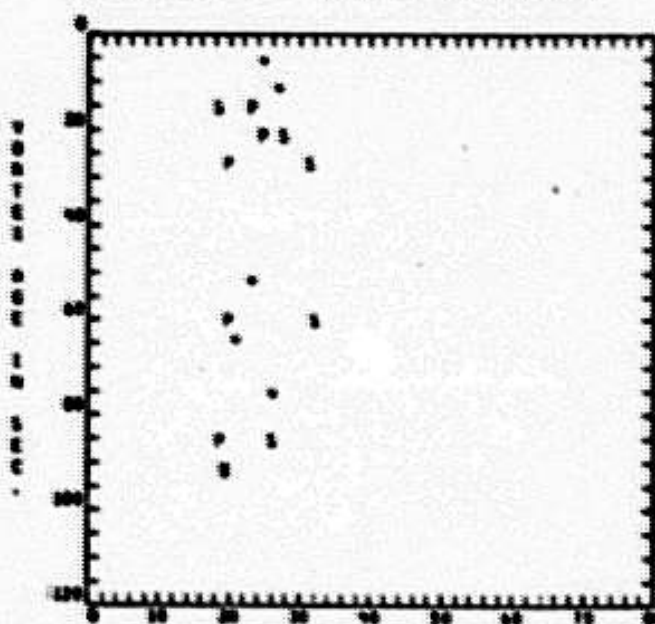
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



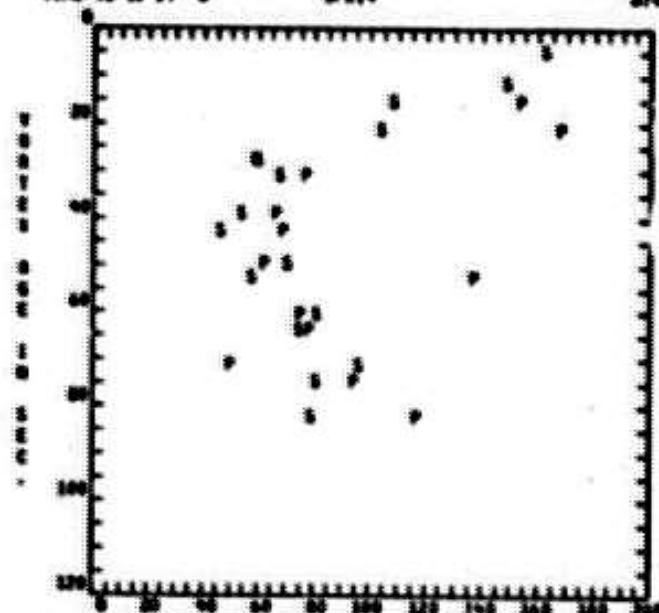
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FEET.

Run No. 26
TIME 15 15'57" 0

JF614

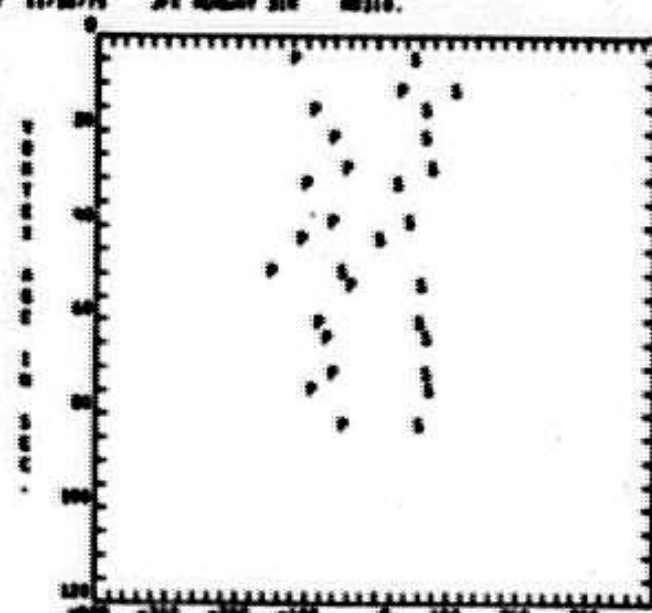


HEIGHT ABOVE GROUND IN FEET

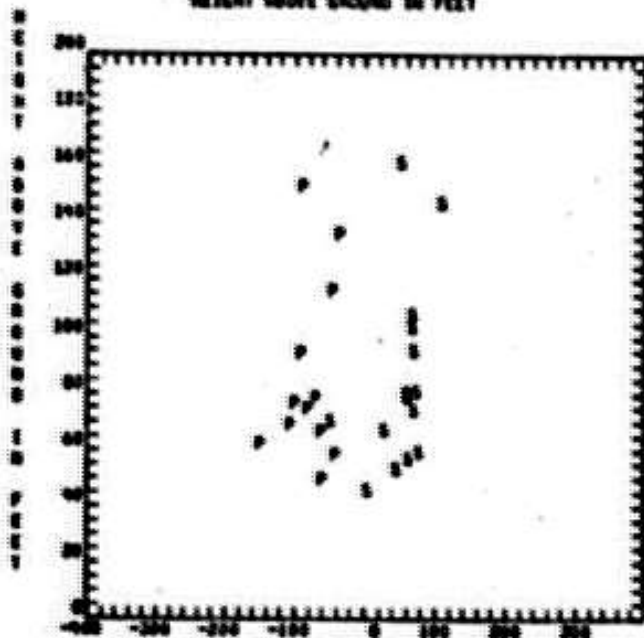
DATE 11/10/75

JF6 Runway 310

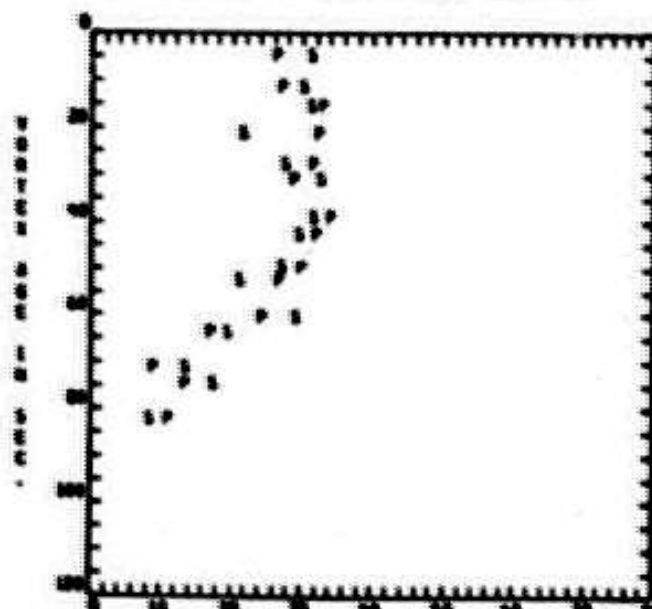
Run No. 030000
00310



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

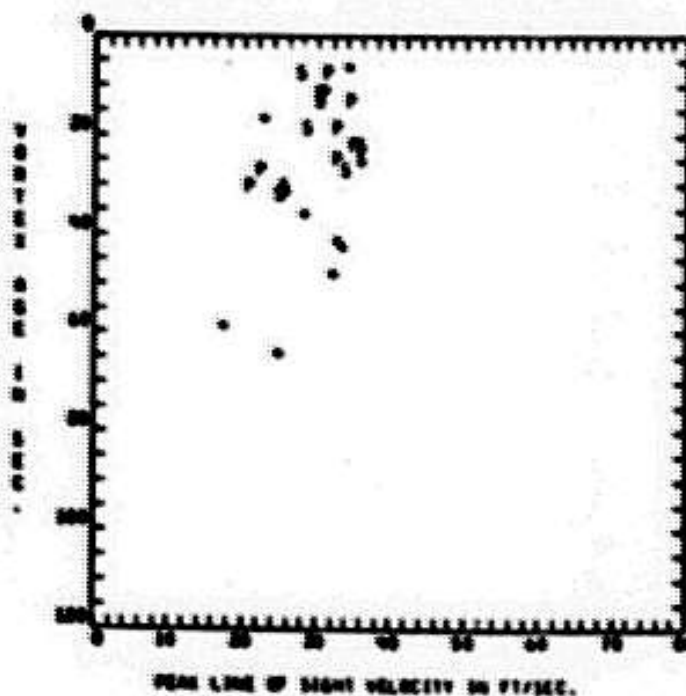
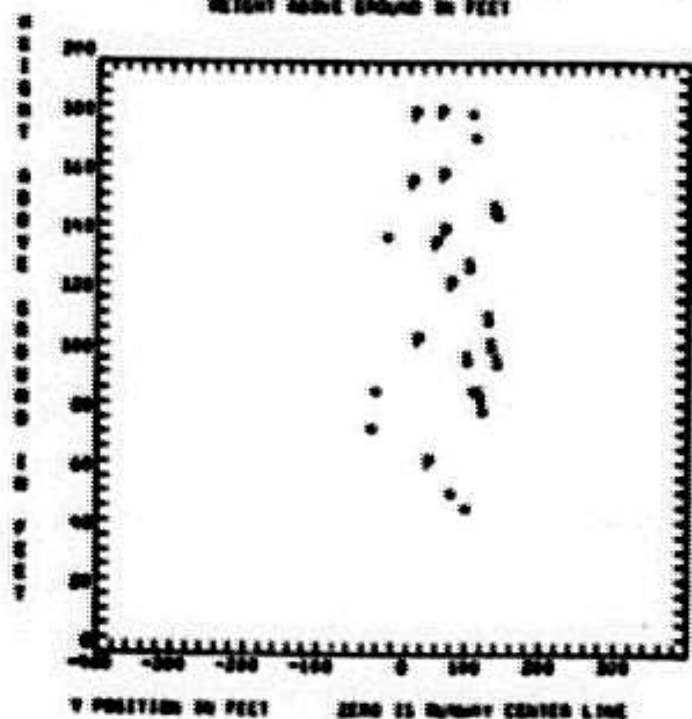
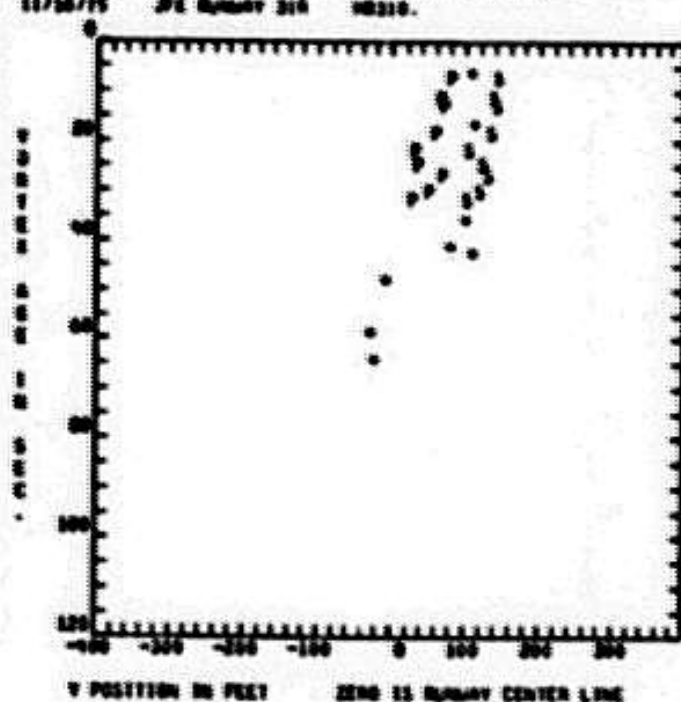
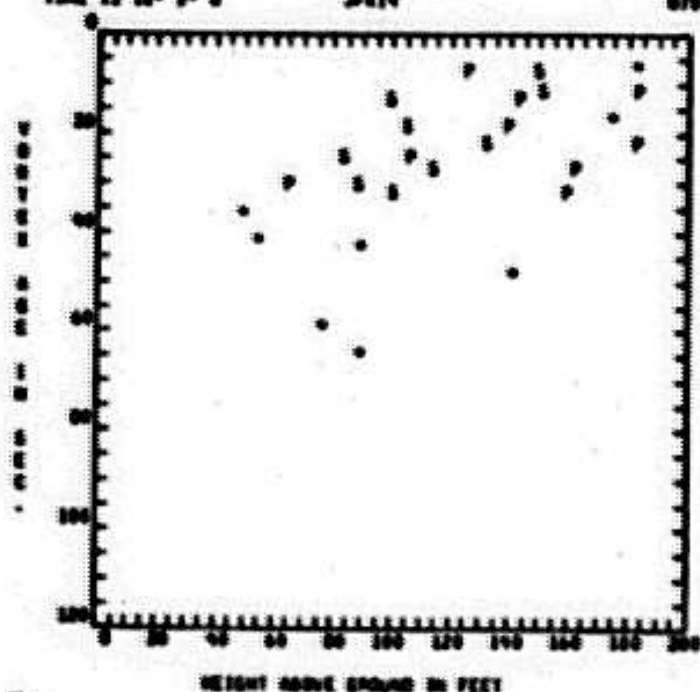
Run ID: 20
TIME IS 14: 5: 0

20014

0701 11/10/75

JPL Summary 210

Run ID: 030000
08210.



Exp No. 30
TIME IS 14:20:00

JPS14

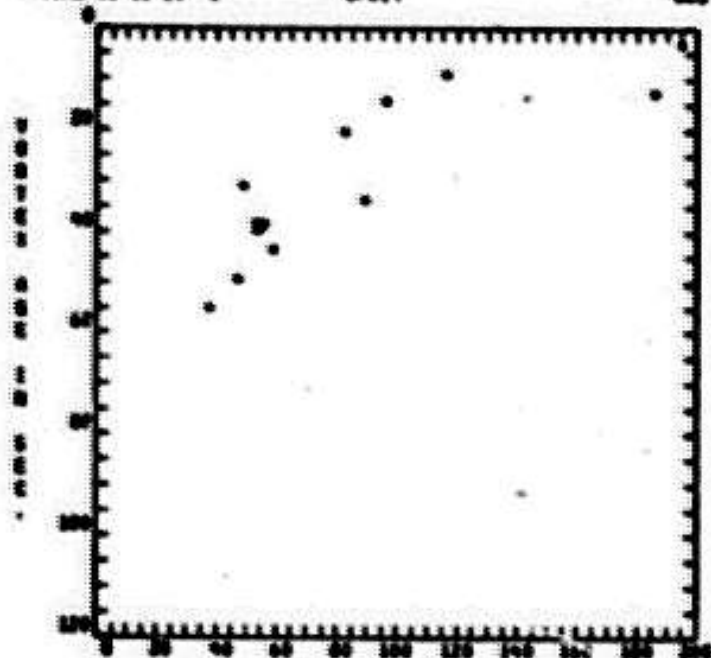
EXP

11/10/75

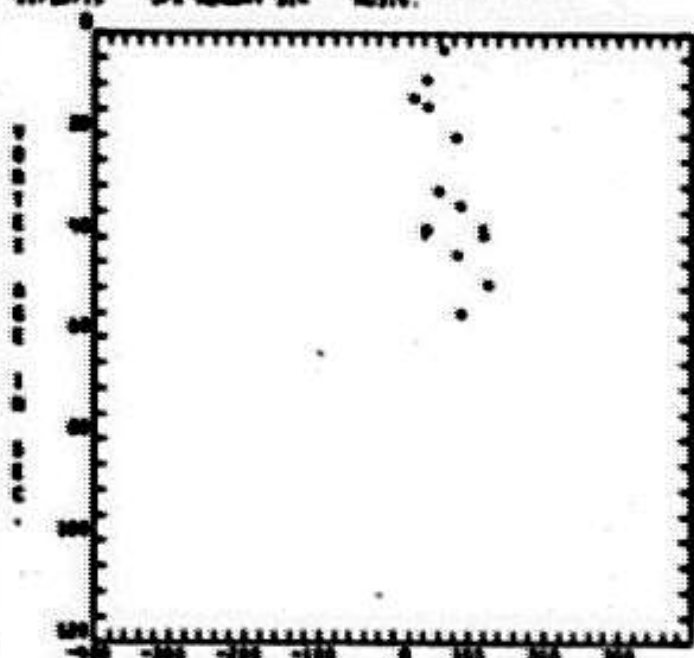
JPL Summary 310

EXP NO 000000

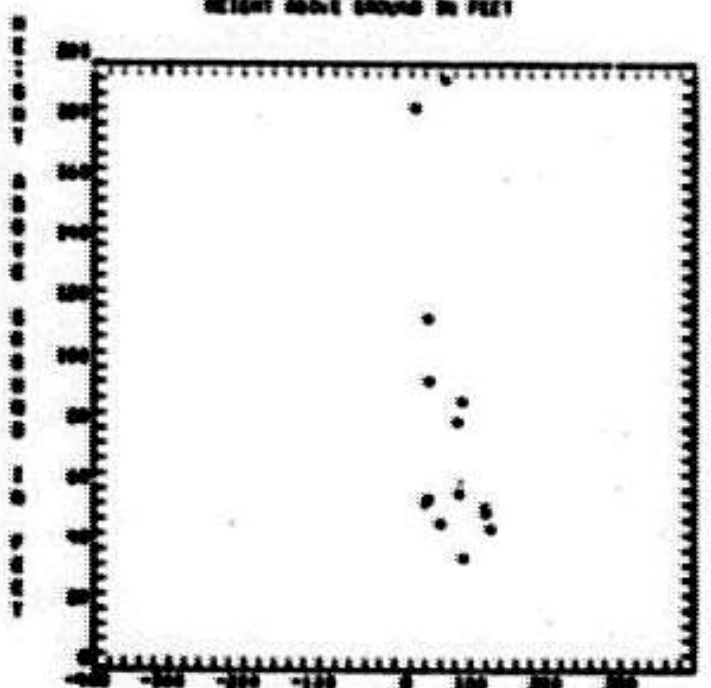
NO310.



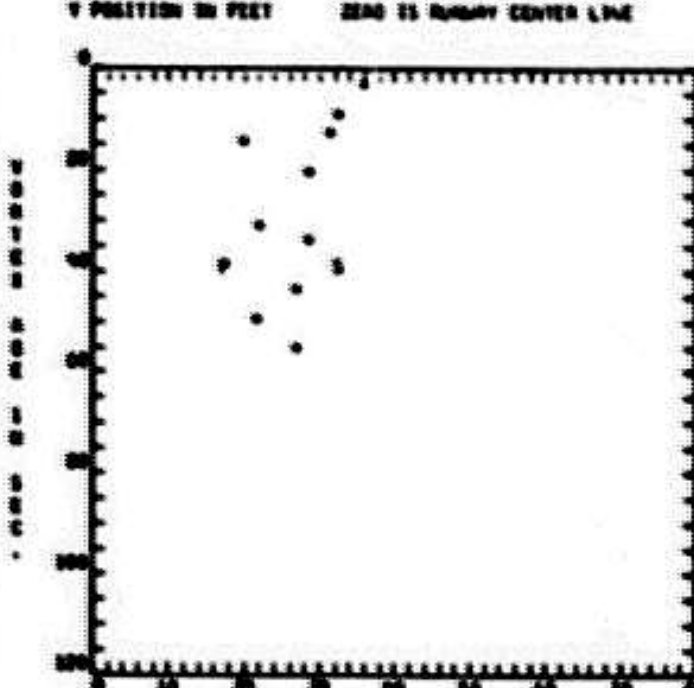
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET X POSITION IN FEET



Y POSITION IN FEET X POSITION IN FEET



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

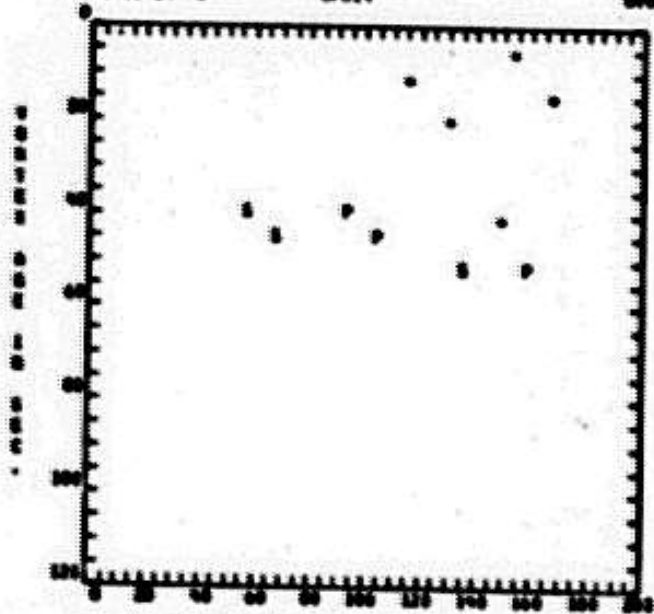
Run No. 00
Time 15 16:24 0

JP014

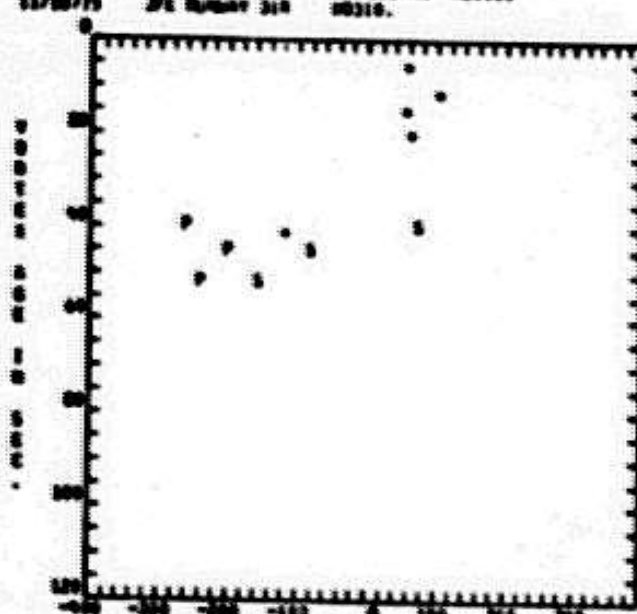
0001 11/10/75

JPL Runway 31R

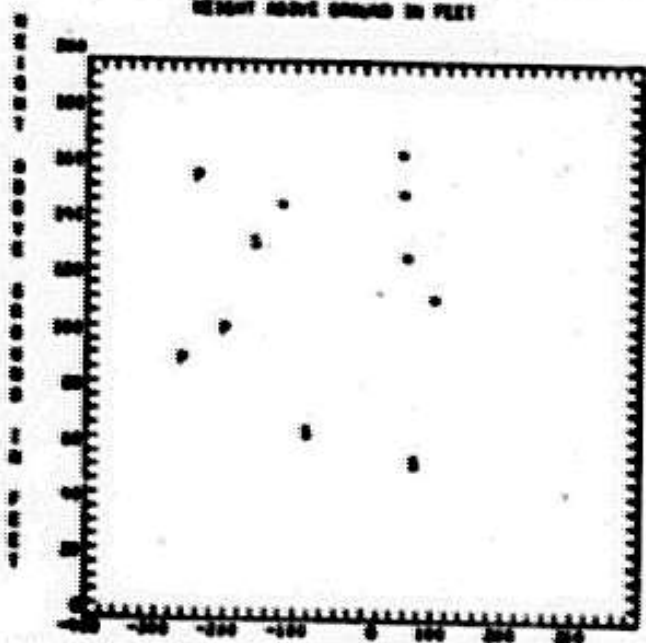
JOB NO 030006
00310.



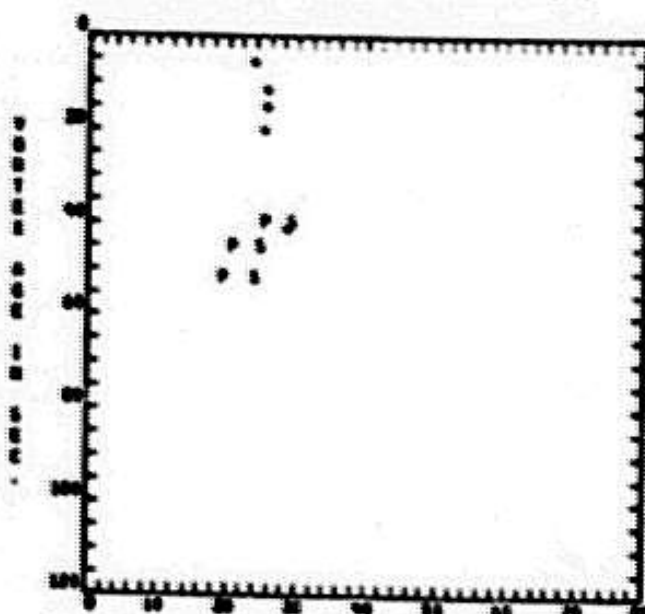
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

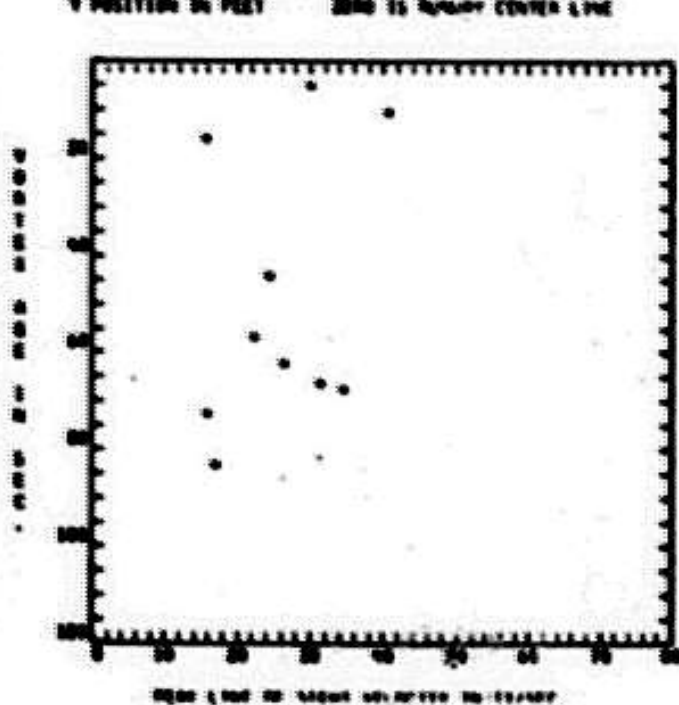
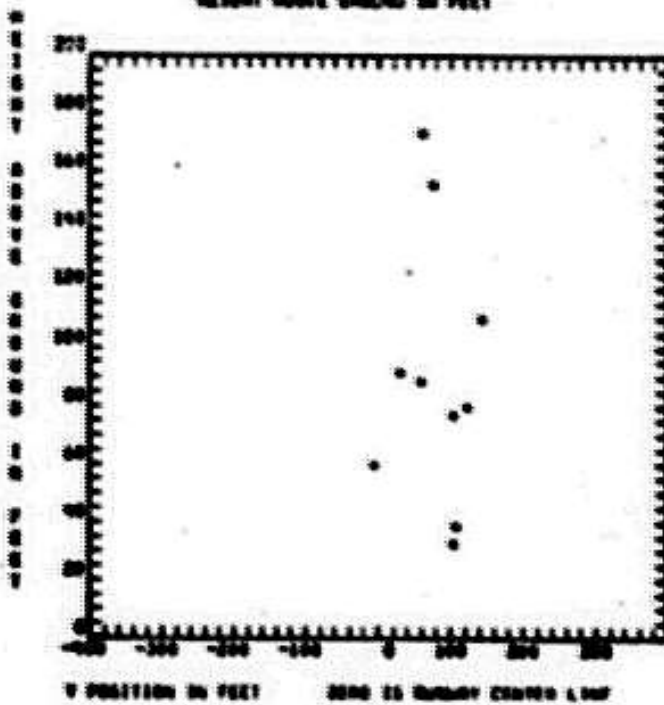
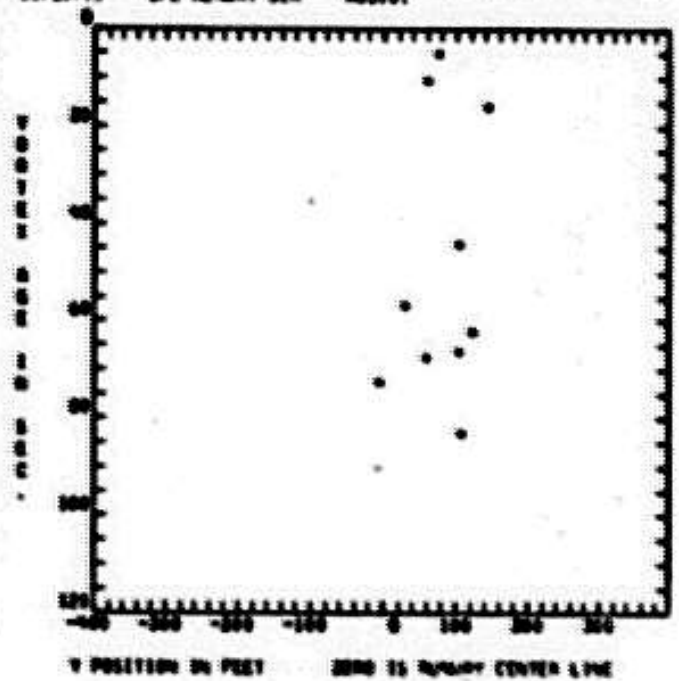
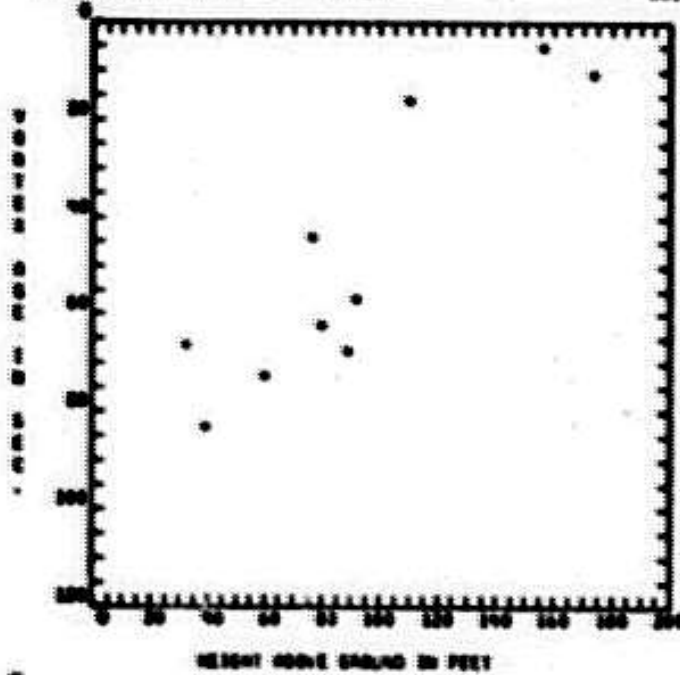
TIME 15 54 24" 0

JFK14

DESO 11/10/79

JFK Runway 31R

200 10 020000
10210.



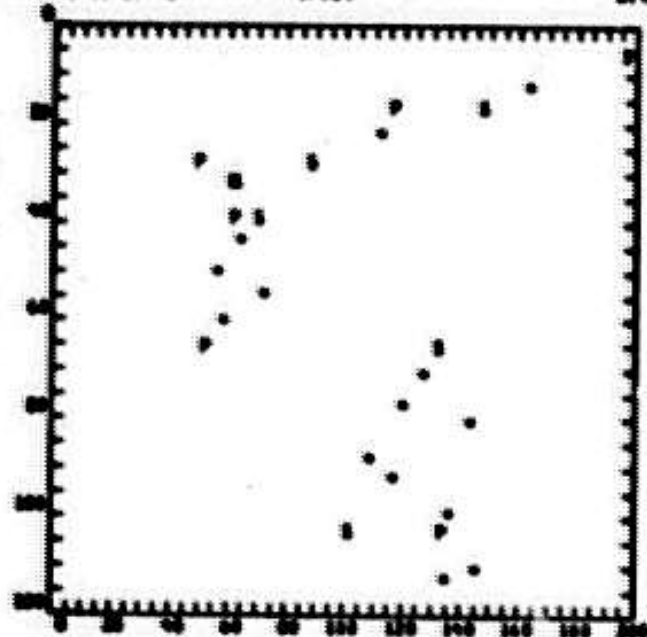
REP NO. 37
TIME IS 16:27:0

JF19

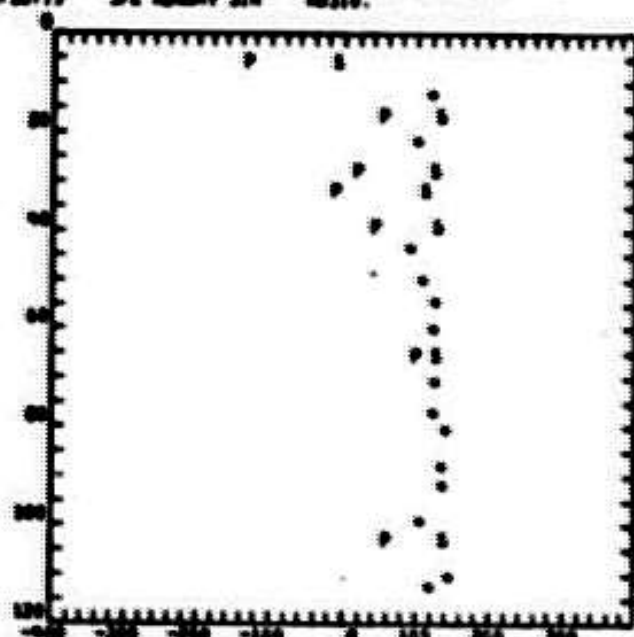
DPY 11/20/75

JF1 Runway 31R

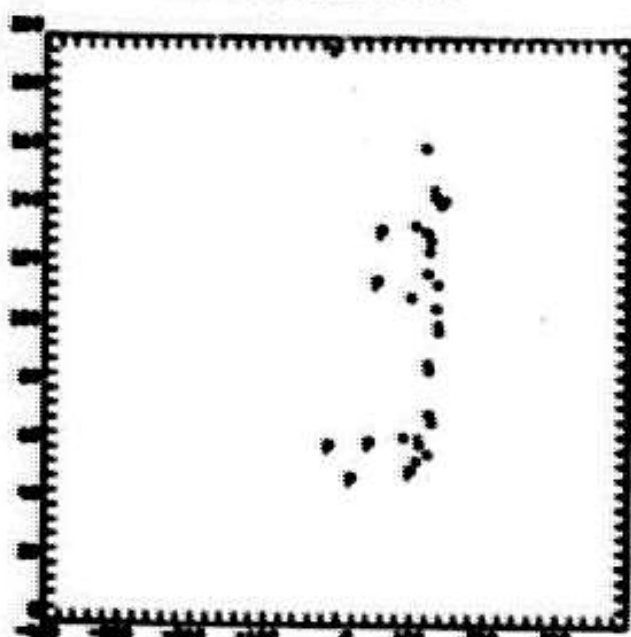
REP NO. 320000
HD310.



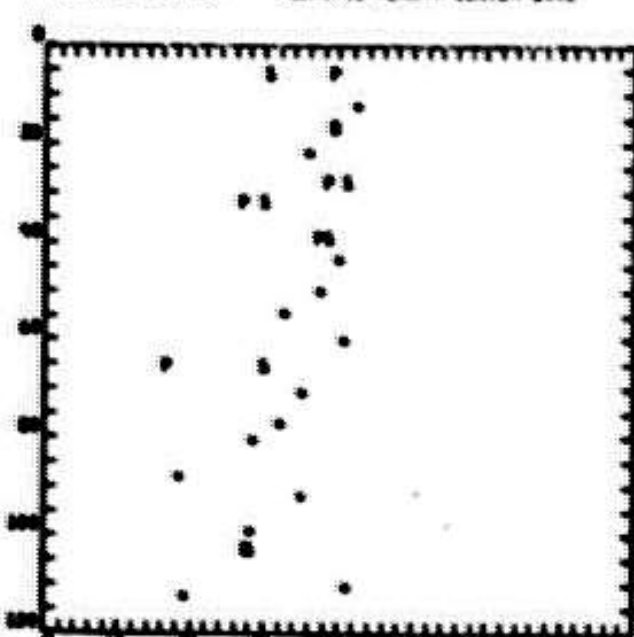
HEIGHT ABOVE GROUND IN FEET



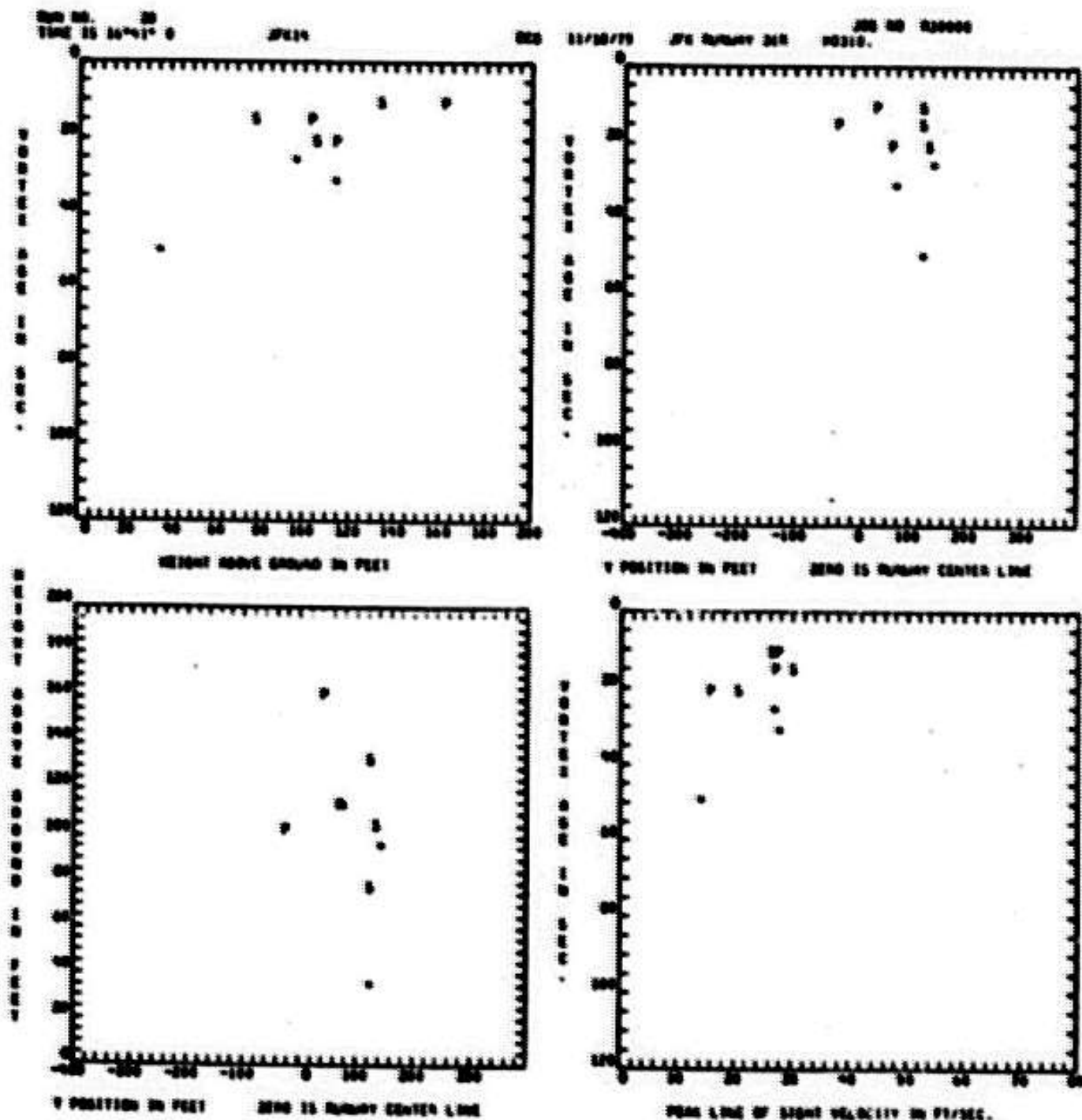
Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.



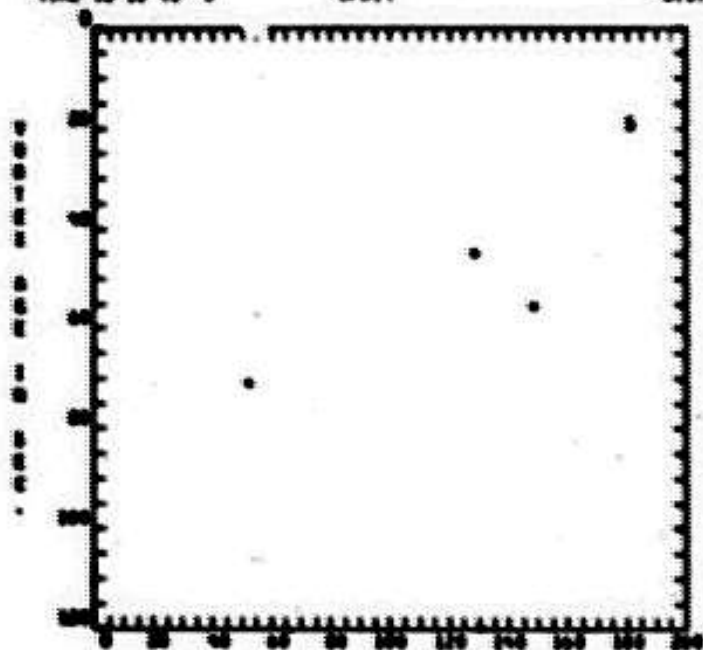
SPOT NO. 20
TIME 10 10 40 0

SPOT 14

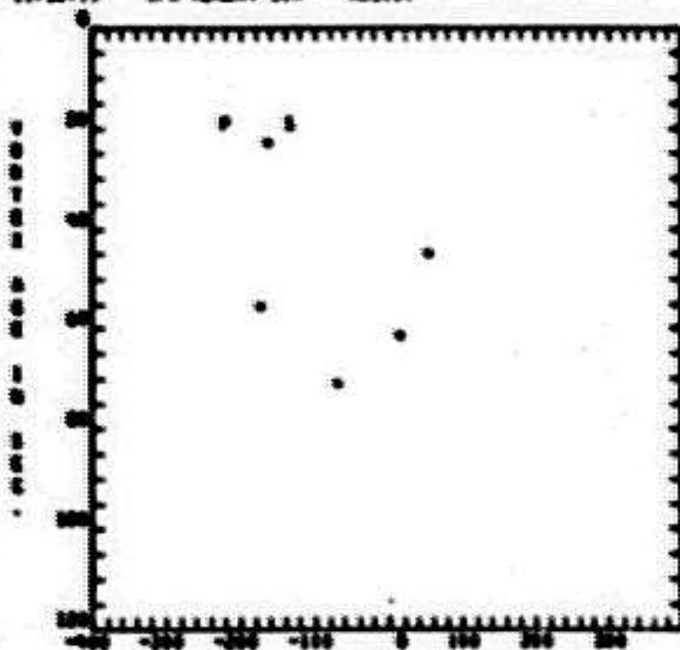
SPOT 11/10/75

JFK Runway 31R

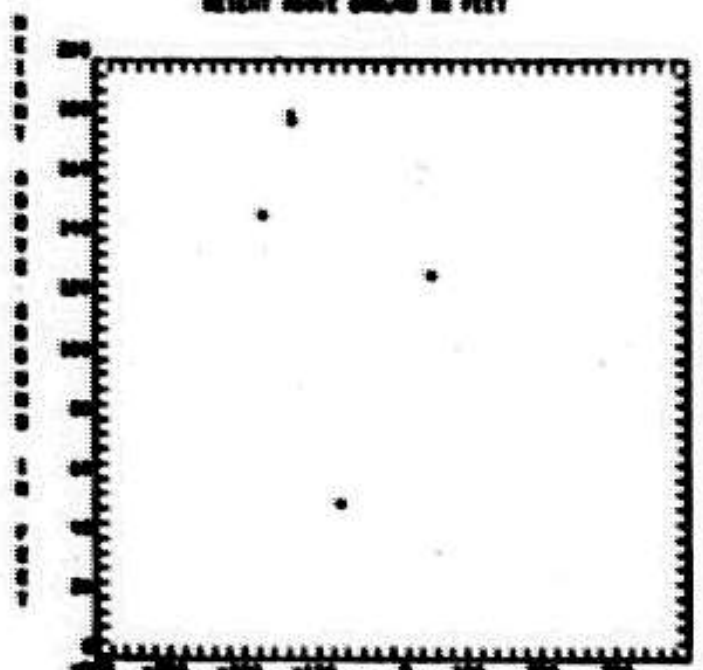
JOB NO 020000
NO. 10.



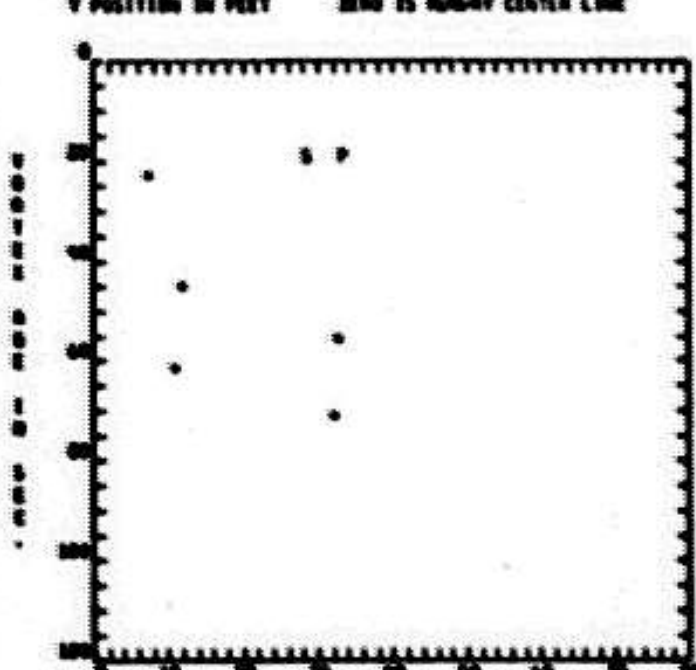
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

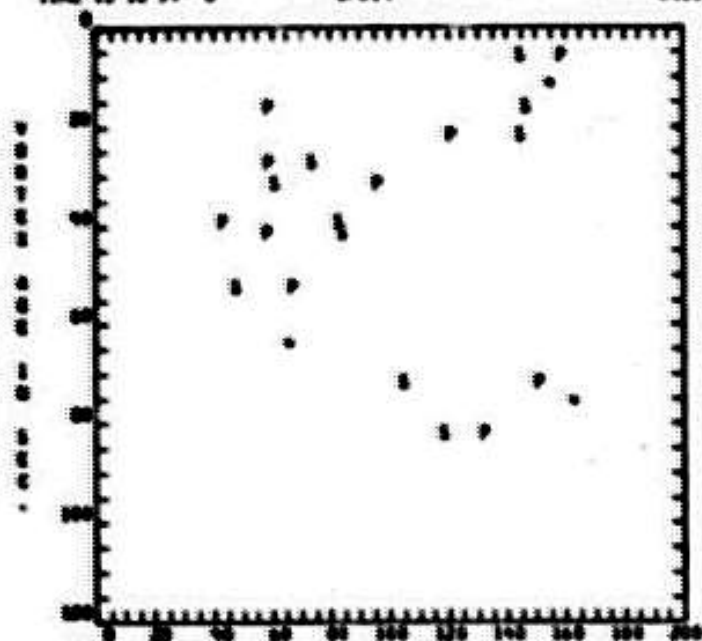
REP NO. 42
TIME IS 16:57:0

JF014

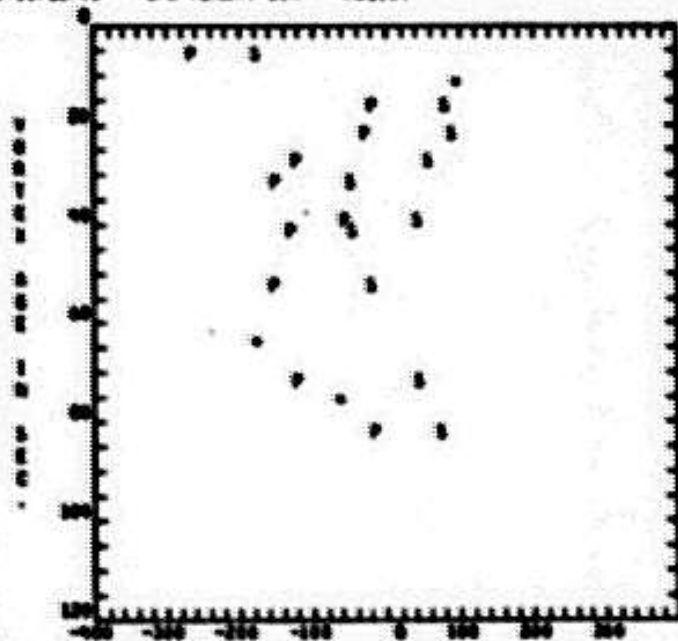
13011 11/20/75

JF0 RUMBY 21K

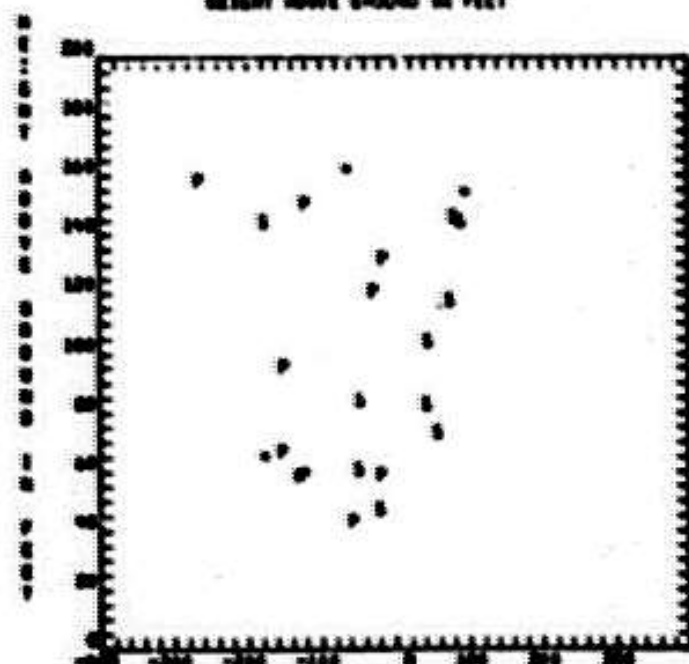
JOB NO 220000
H0310.



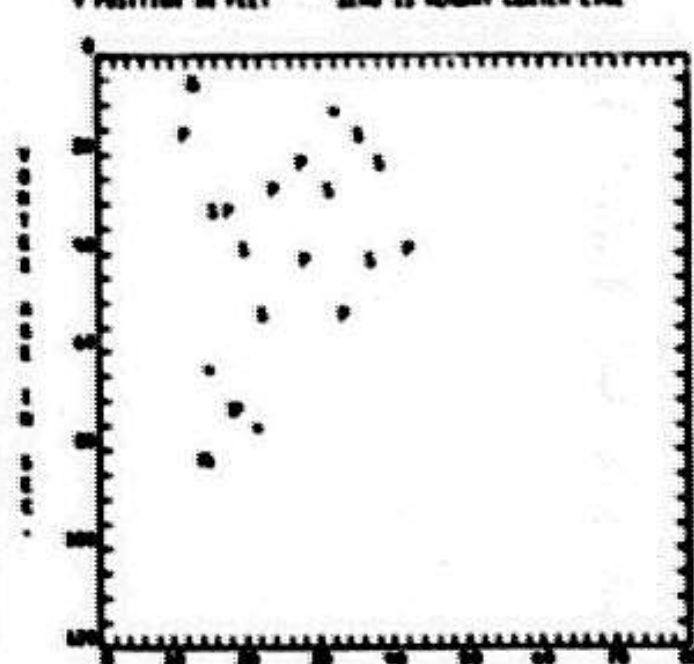
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

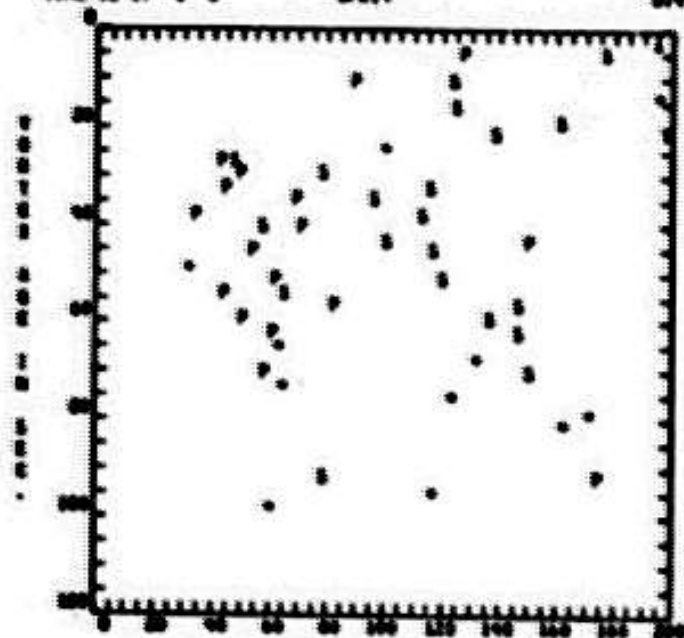
REP NO. 43
TIME IS 17° 0' 0"

2014

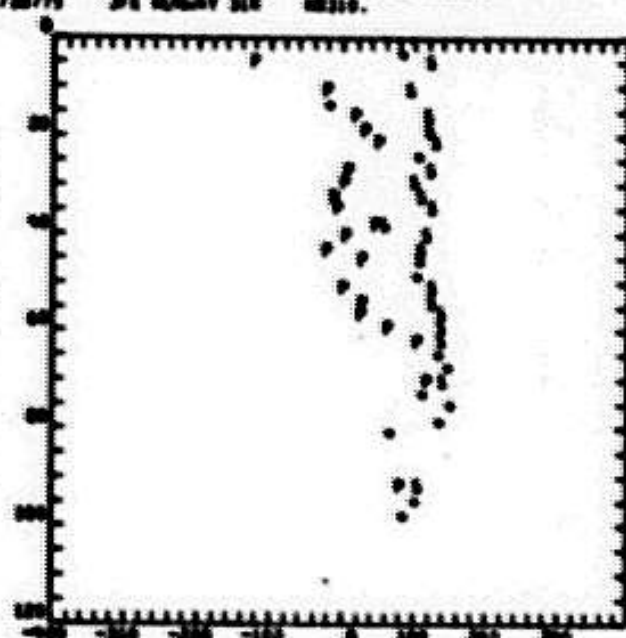
SPOT 11/20/75

JFA RUMBY 315

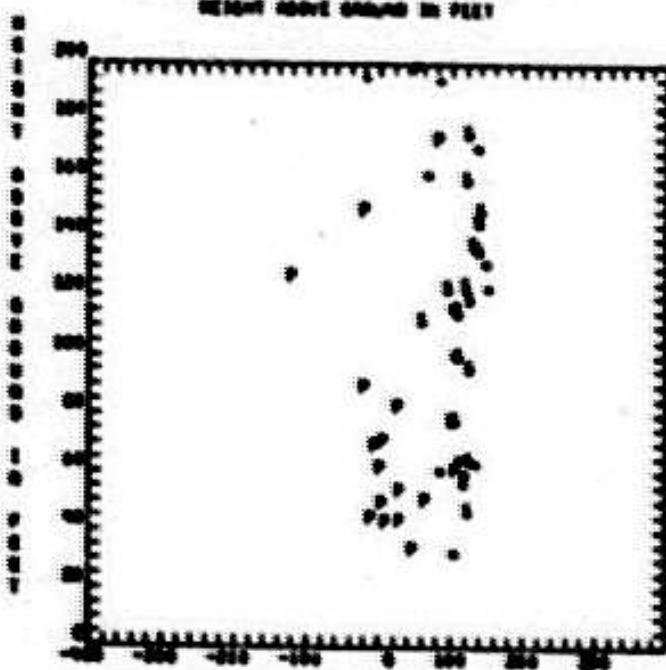
JOB NO 000000
HE310.



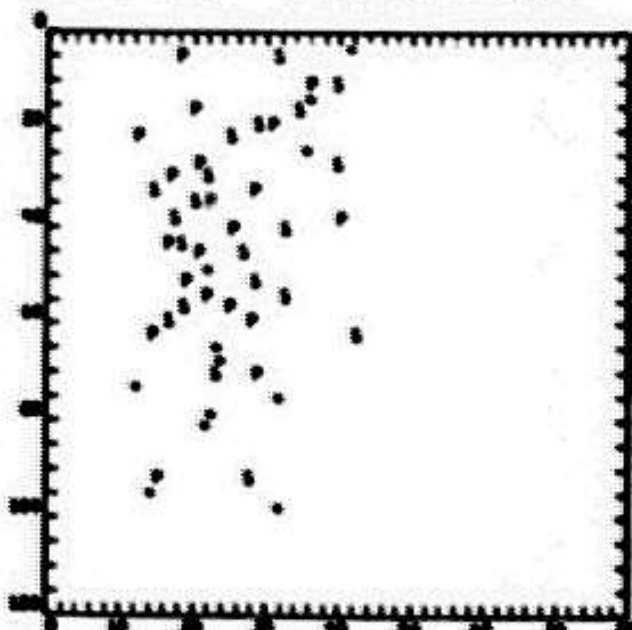
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FEET/SEC.

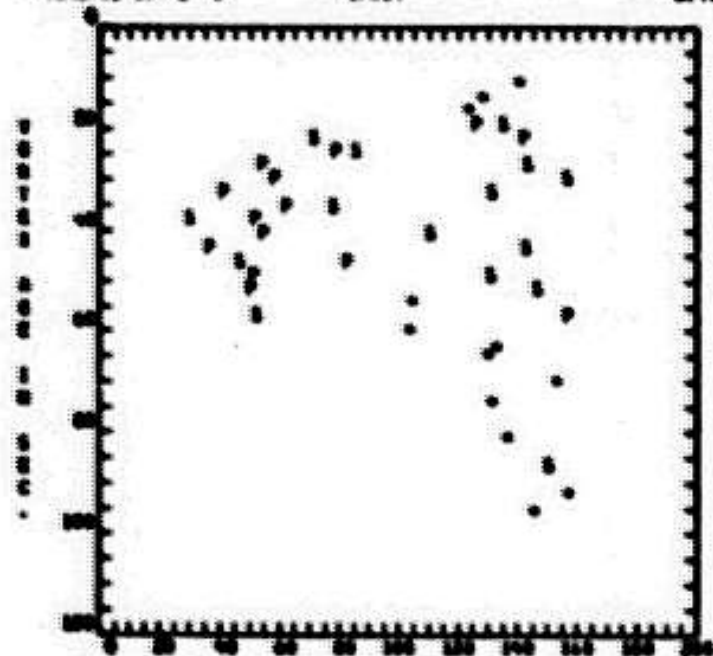
EXP NO. 74
TIME 15 17 27 0

JF214

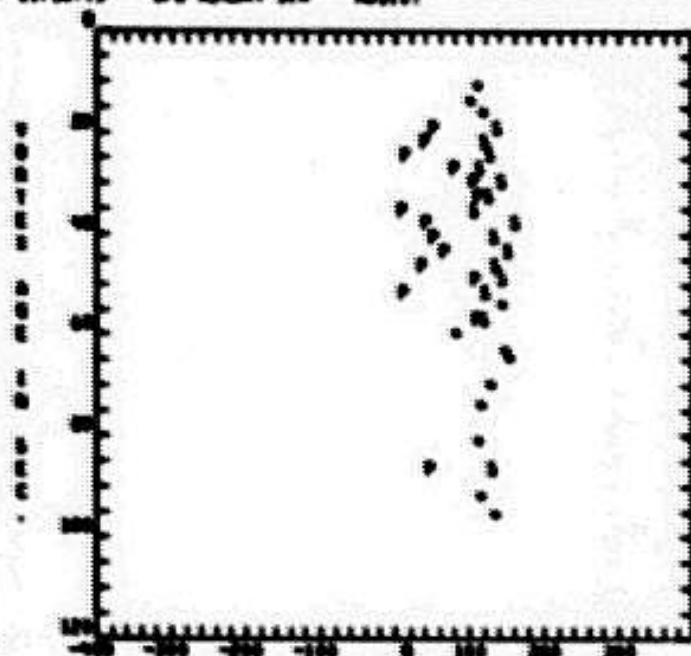
DATE 11/08/75

JPL SURVEY 318

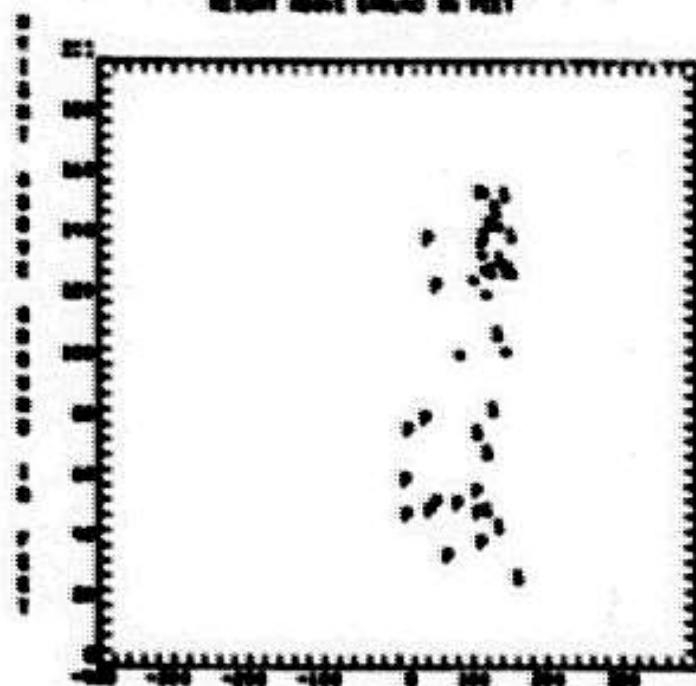
JOB NO 000000
REDSIS.



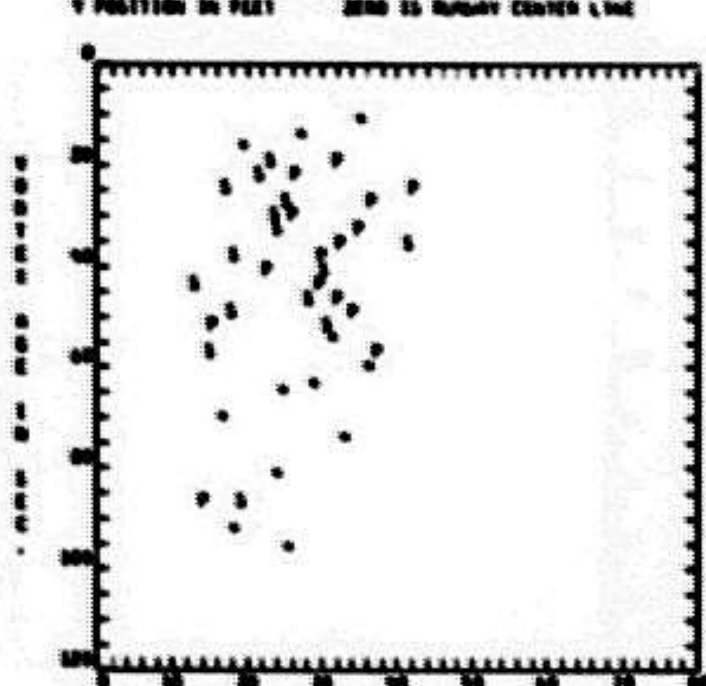
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS SURVEY CENTER LINE



Y POSITION IN FEET ZERO IS SURVEY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

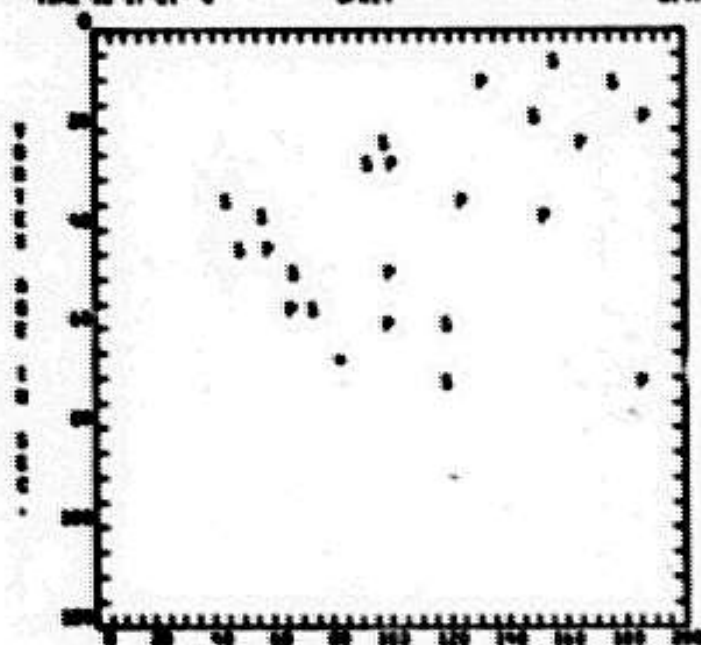
Run No. 47
Time 15 17:21" 0

JP219

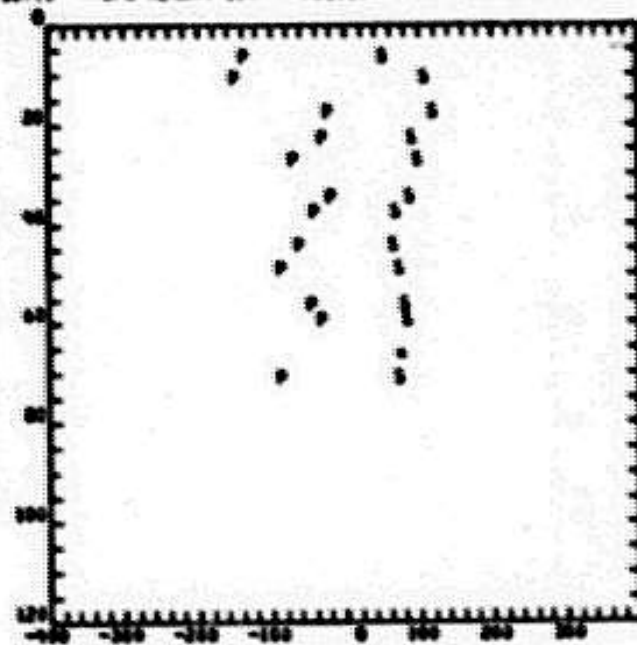
Date 11/10/75

JPL Runway 31R

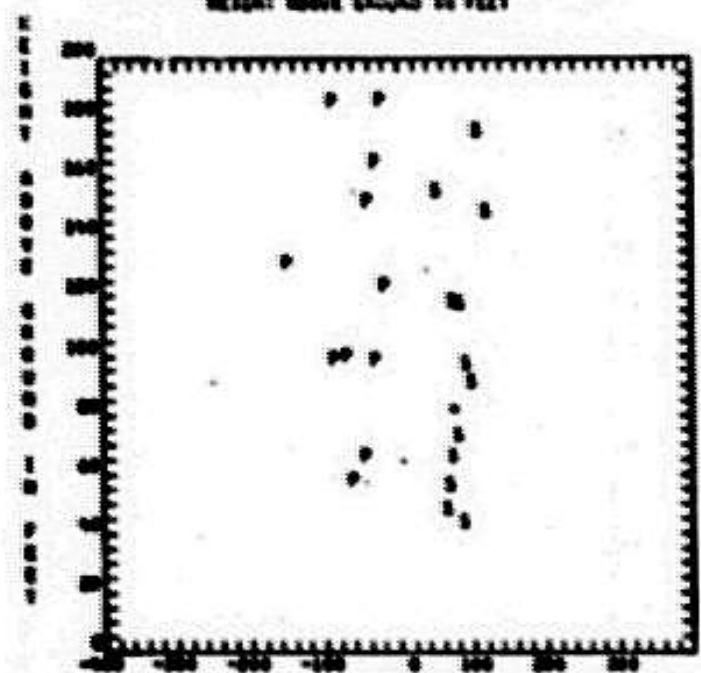
Run No. R00100



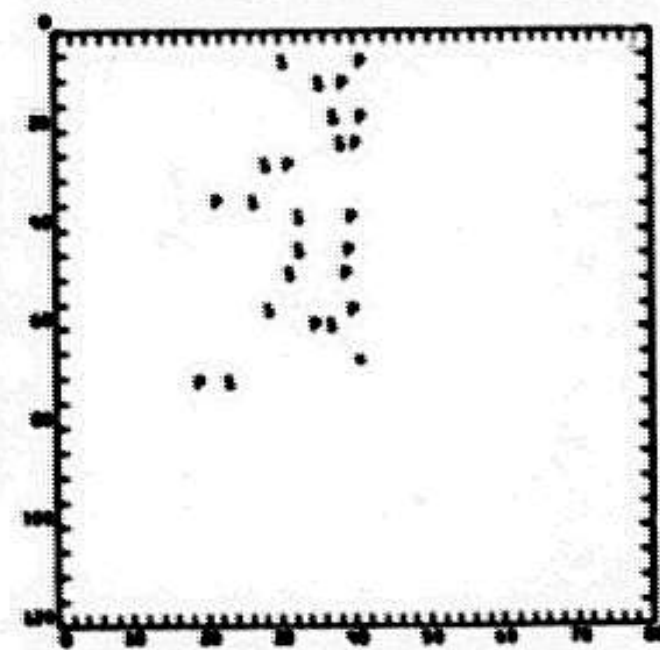
HEIGHT ABOVE GROUND IN FEET



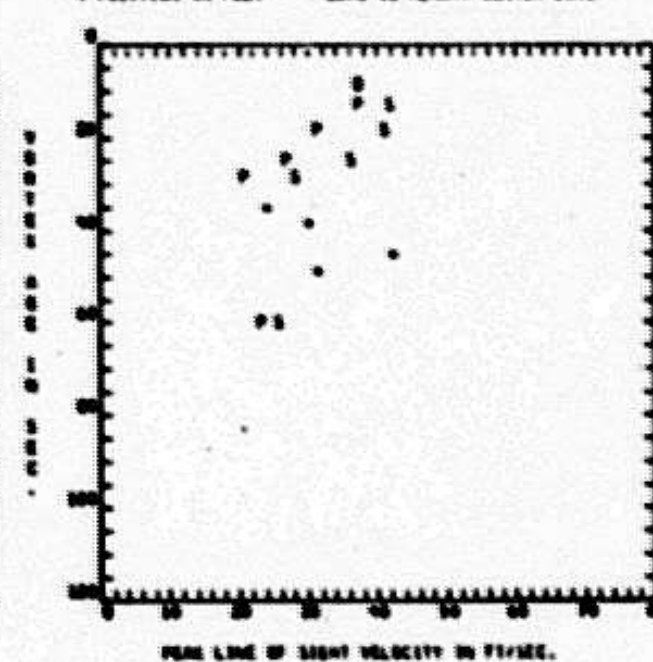
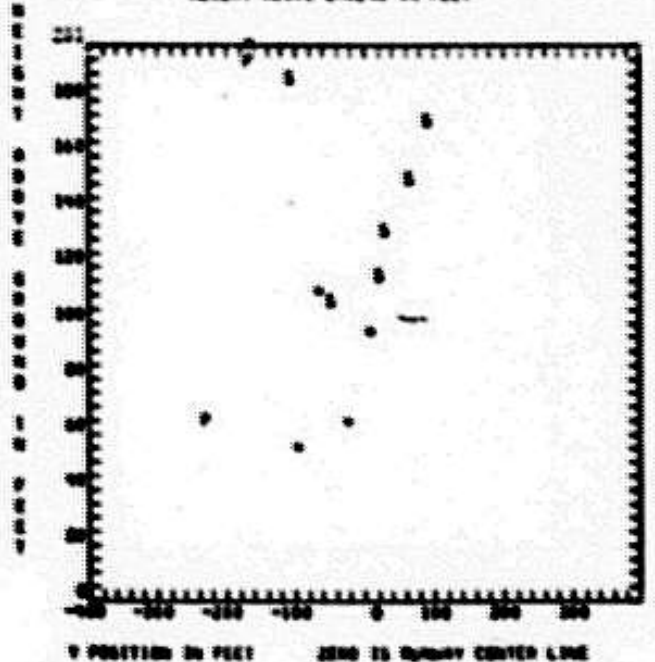
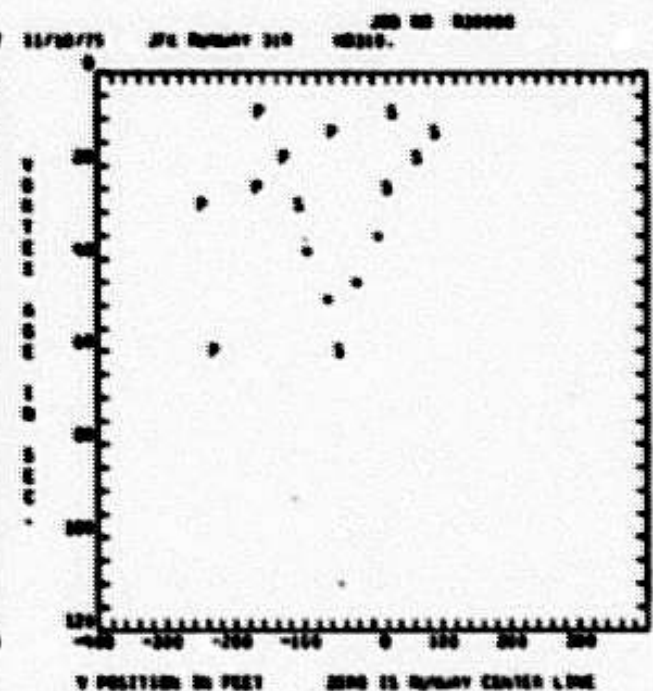
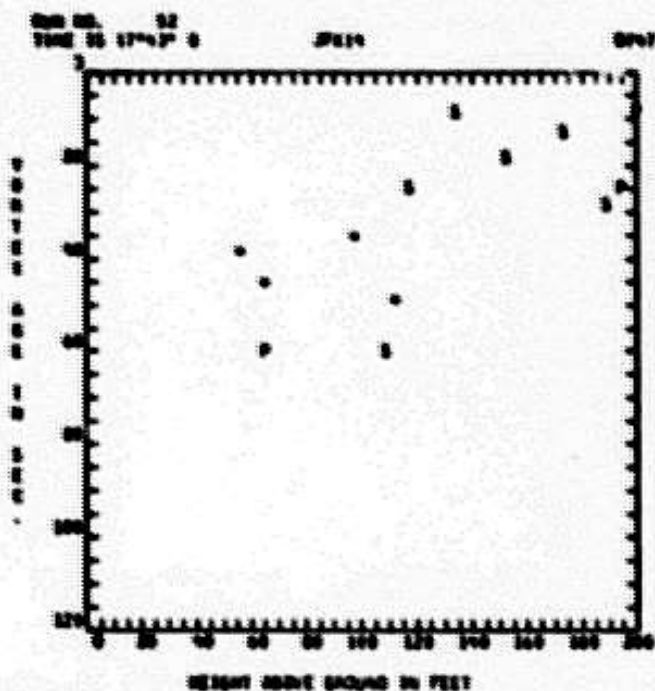
Y POSITION IN FEET ZERO TO Runway CENTER LINE

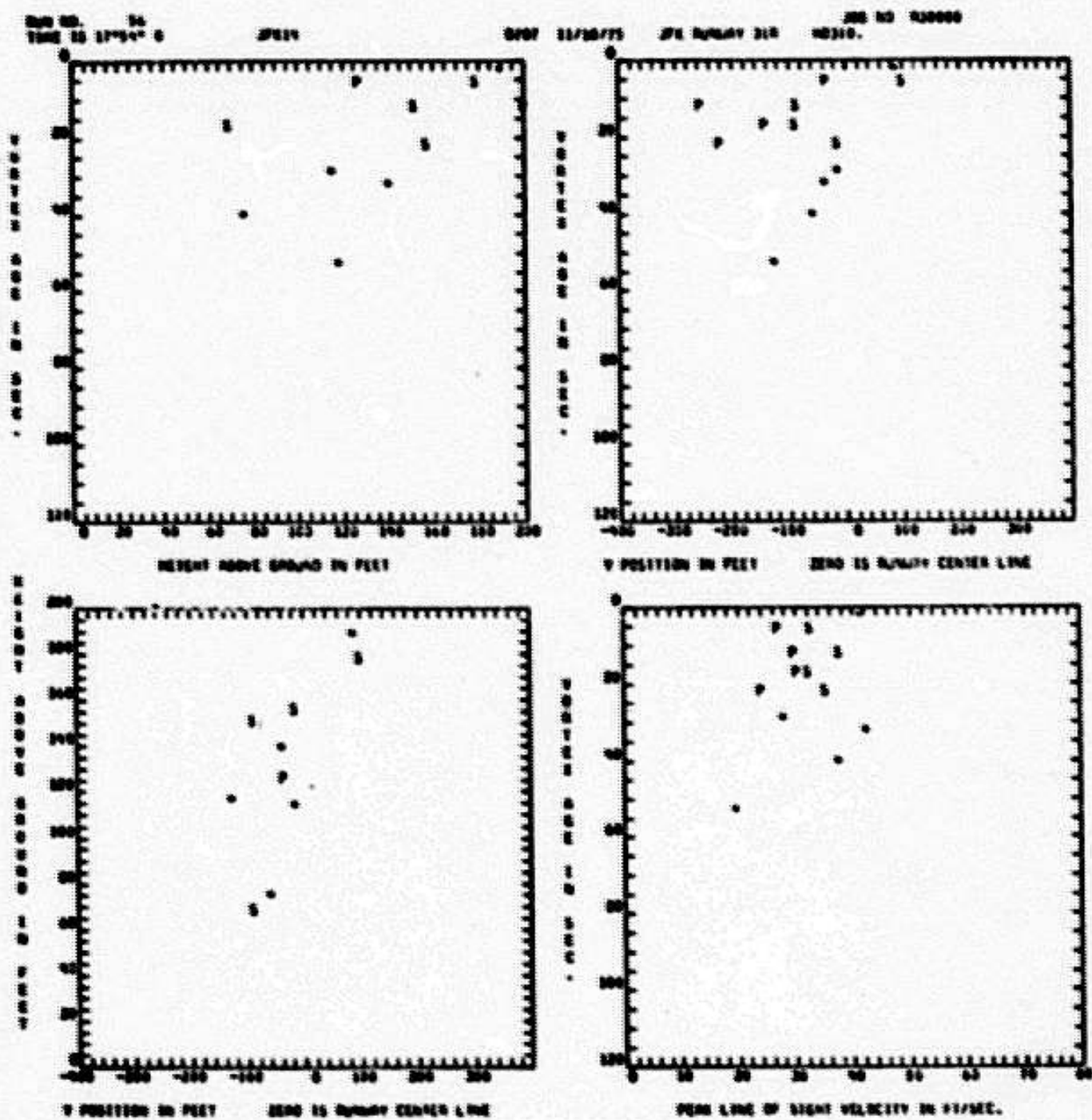


Y POSITION IN FEET ZERO TO Runway CENTER LINE



Beam Line of Sight Relative to Flight





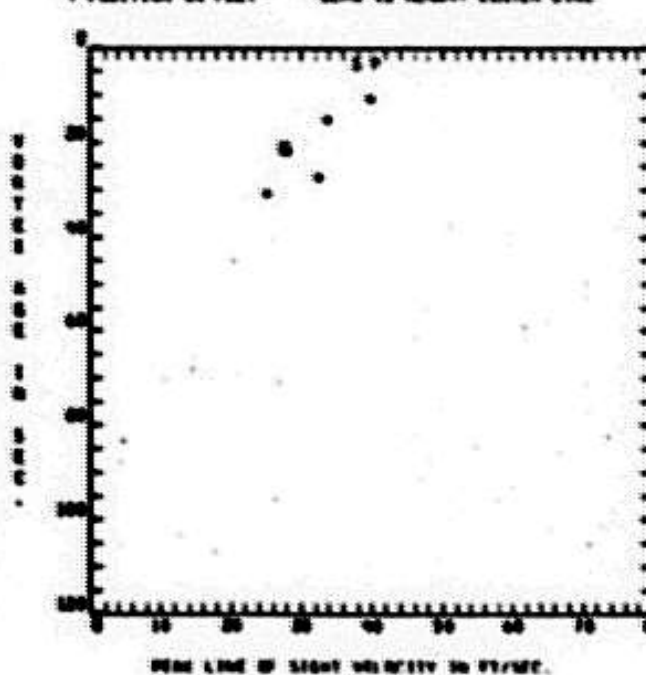
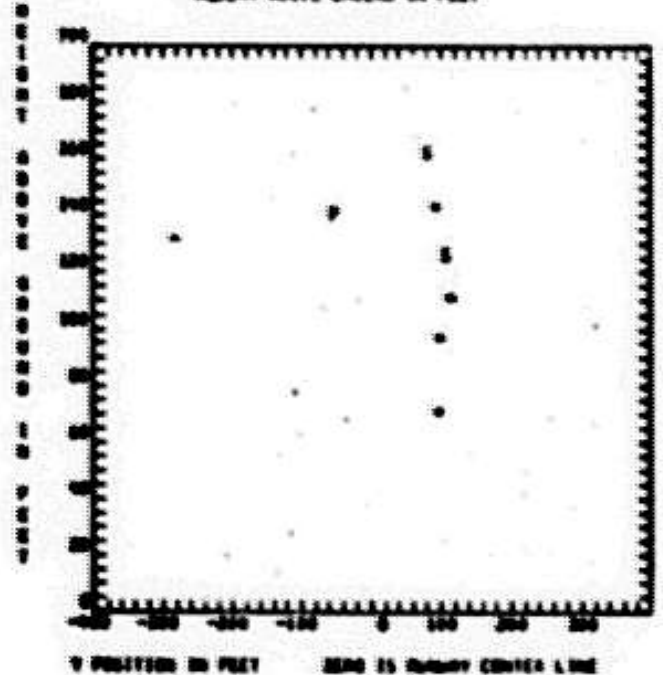
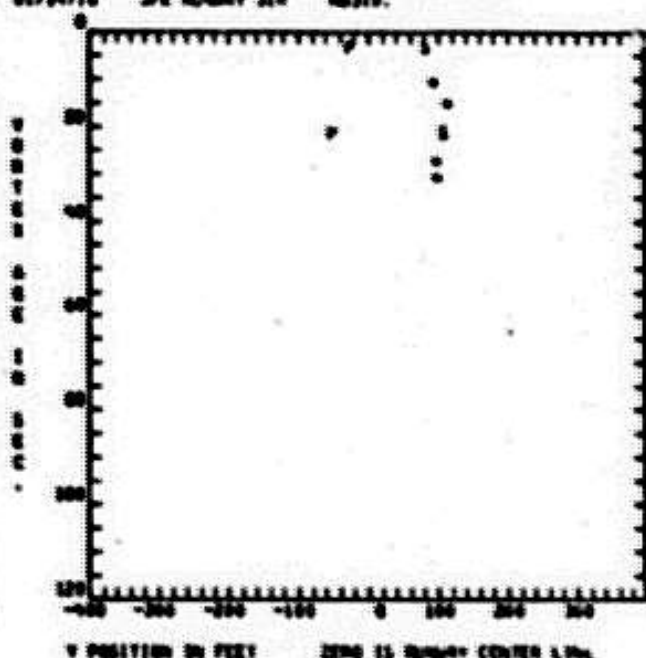
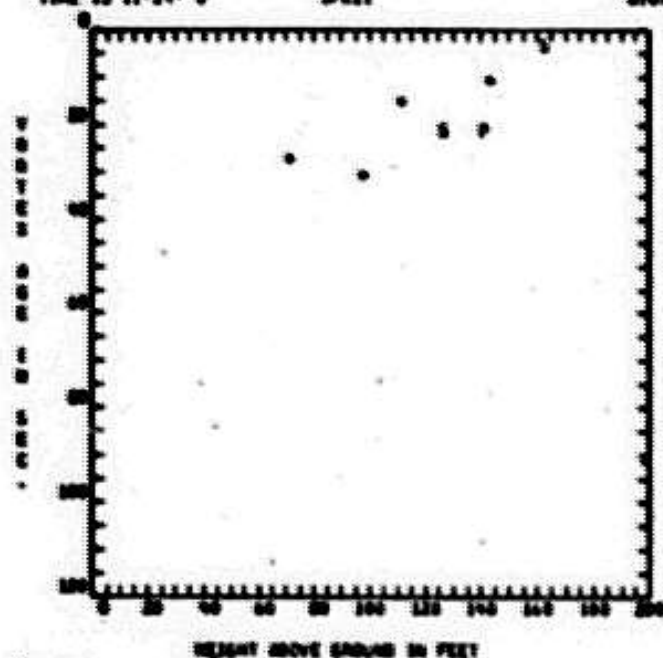
RUN NO. 4
TIME IS 11:24" 0

JPL21

0707 01/24/76

JPL RUNWAY 31R

RUN NO 020000
HD310.



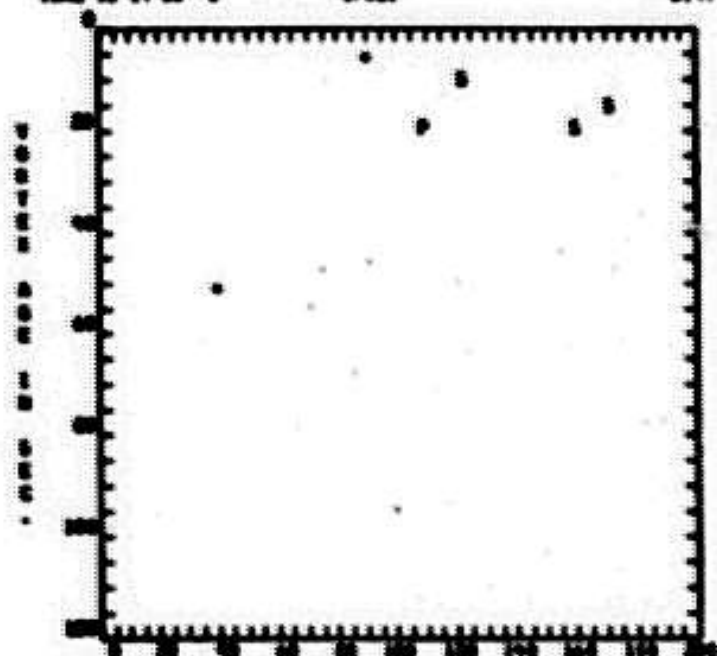
EXP NO. 17
TIME IS 14:30:0

JF21

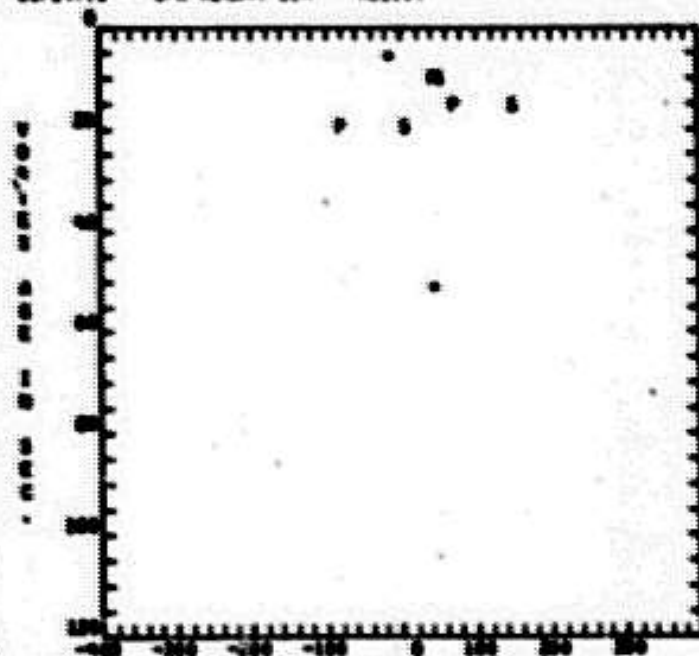
SP47 01/24/76

JF2 SUMMARY 315

EXP NO. 000000
H210.

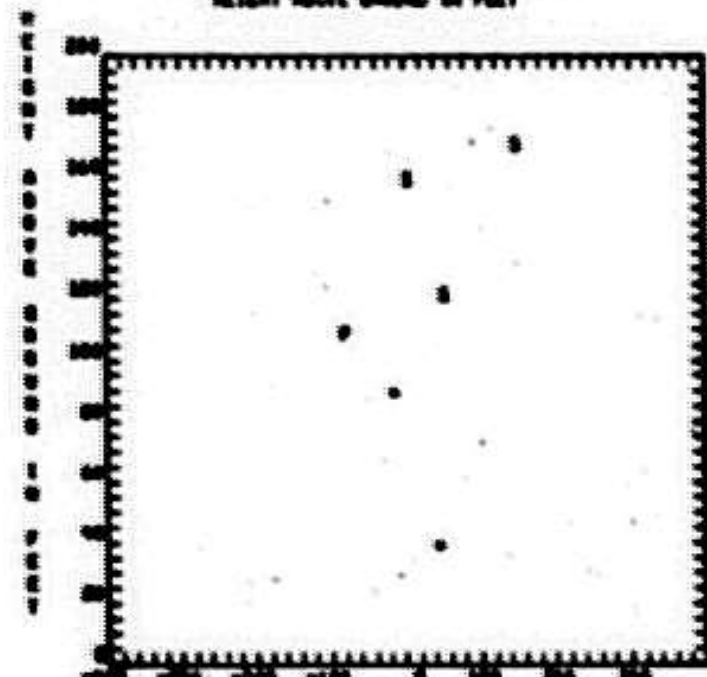


HEIGHT ABOVE GROUND IN FEET



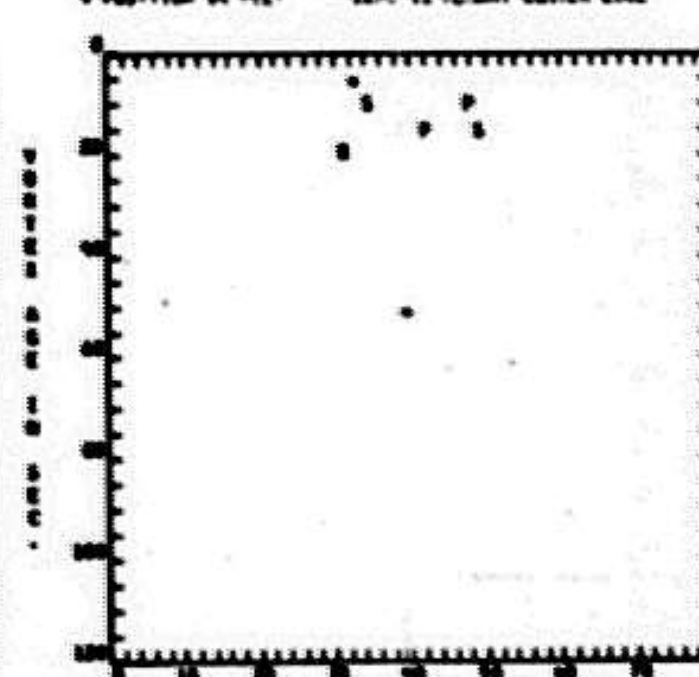
X POSITION IN FEET

ZERO IS FLIGHT CENTER LINE



X POSITION IN FEET

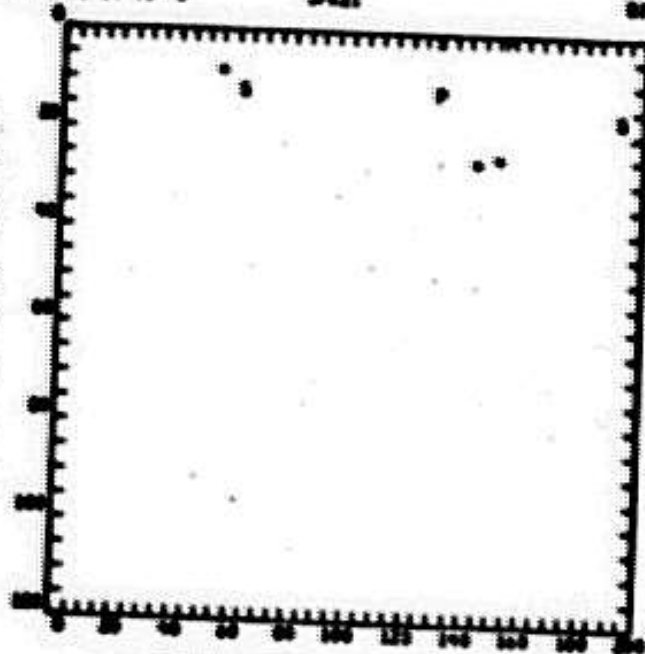
ZERO IS FLIGHT CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

SPOT NO. 10
TIME IS 247410 Z

SPOT



HEIGHT ABOVE GROUND IN FEET

SPOT 06/24/76

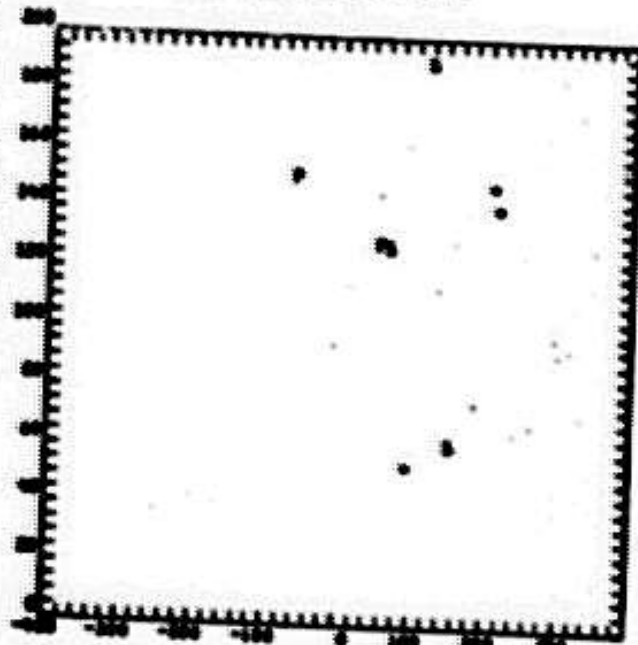
SPOT NUMBER 240

SPOT NO. 000000



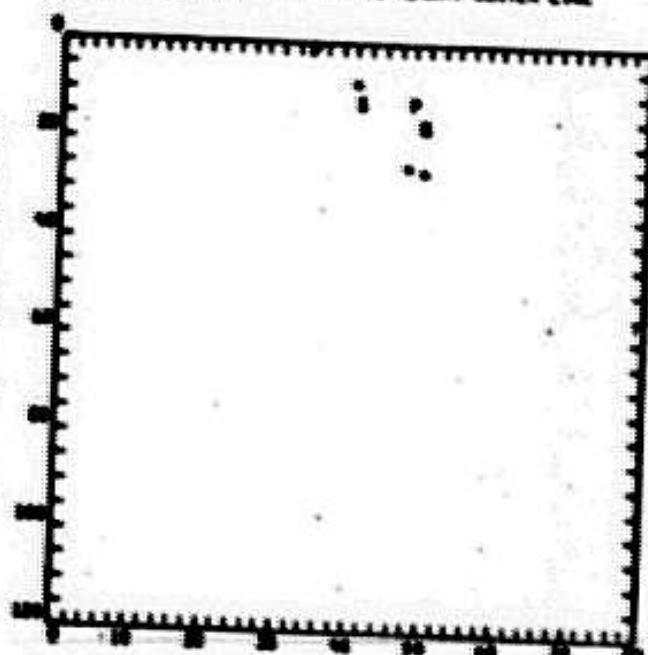
X POSITION IN FEET

ZERO IS RUNWAY CENTER LINE

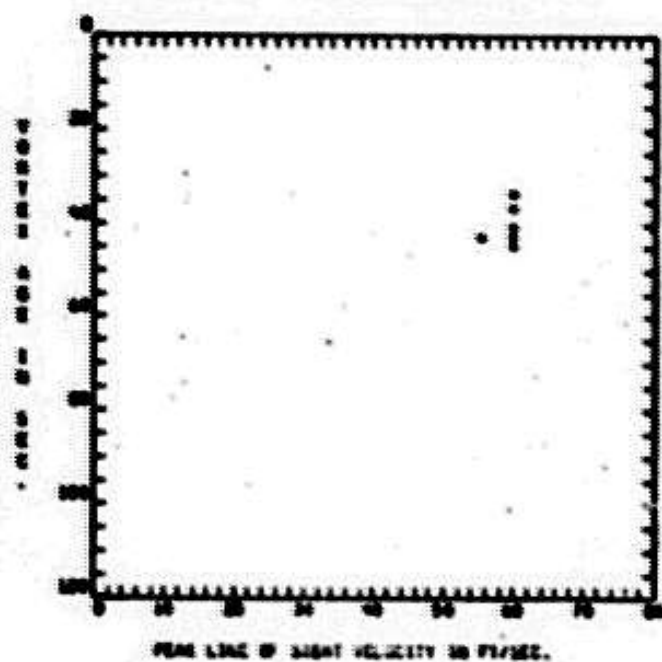
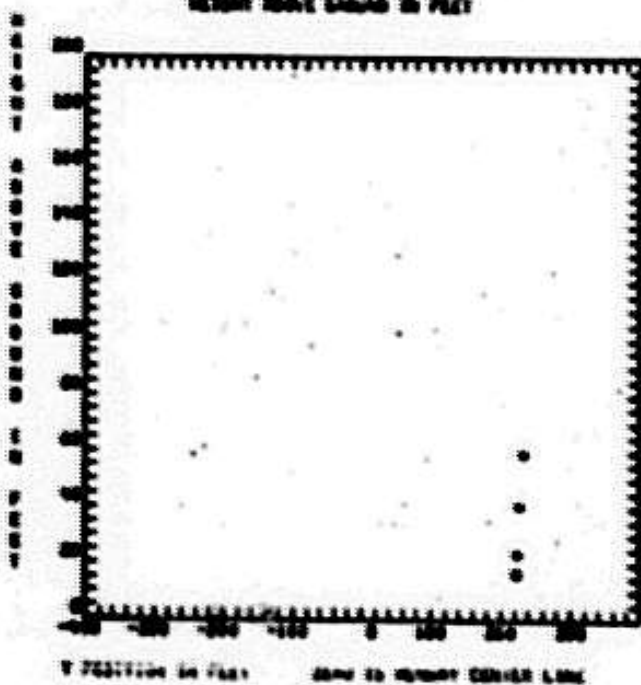
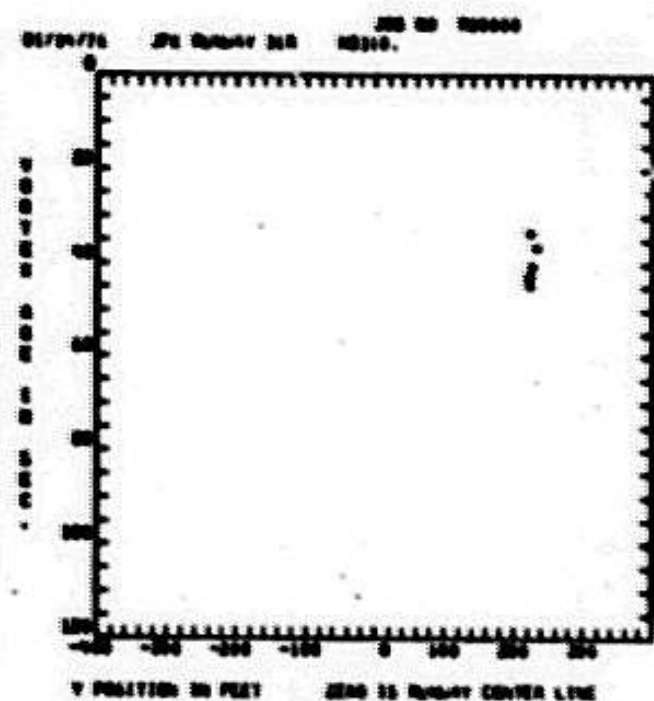
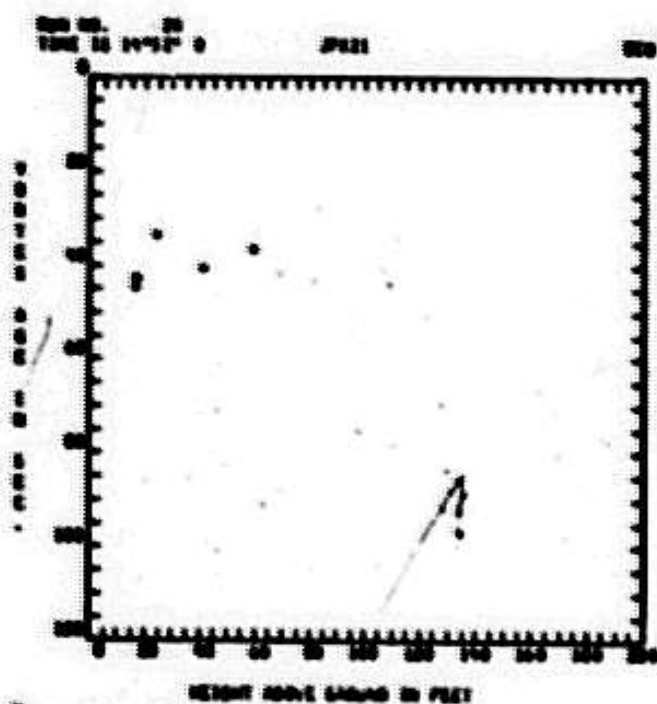


X POSITION IN FEET

ZERO IS RUNWAY CENTER LINE



PERCENT OF LIGHT VELOCITY IN FT/SEC.



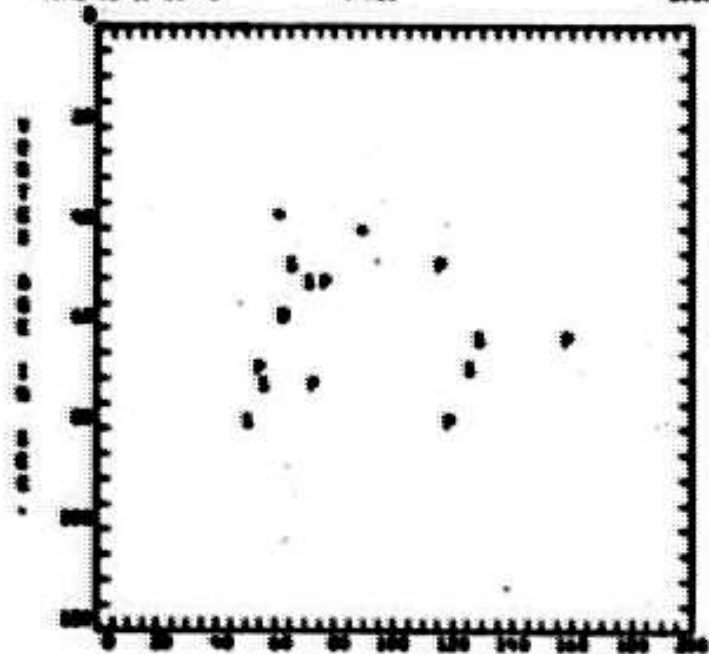
Run No. 24
TIME IS 10:00:0

JP21

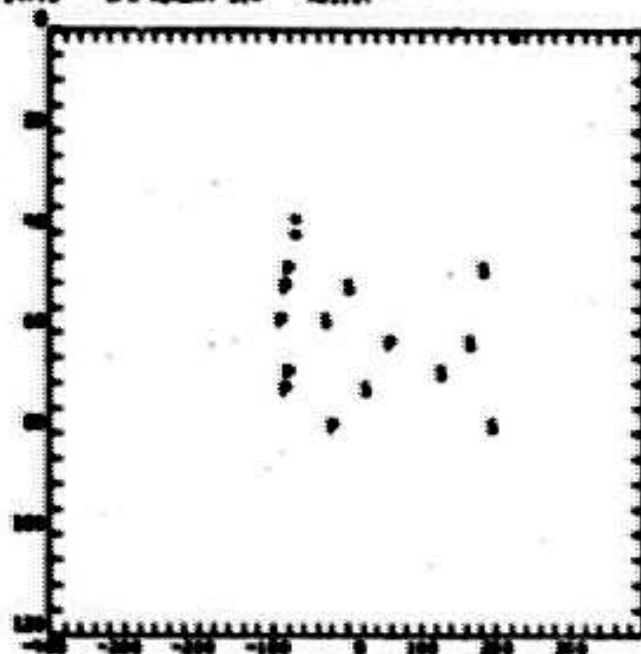
DATE 01/04/76

JPL Runway 310

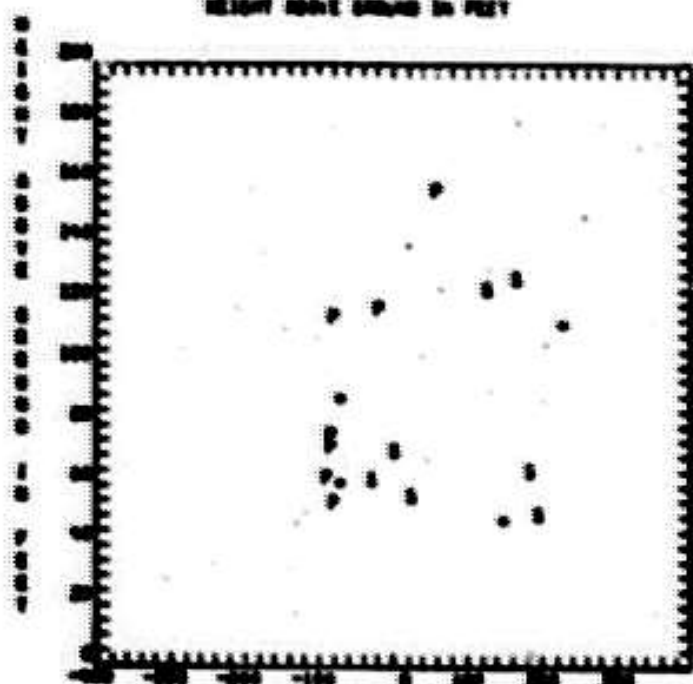
Run No. 200040
HE210.



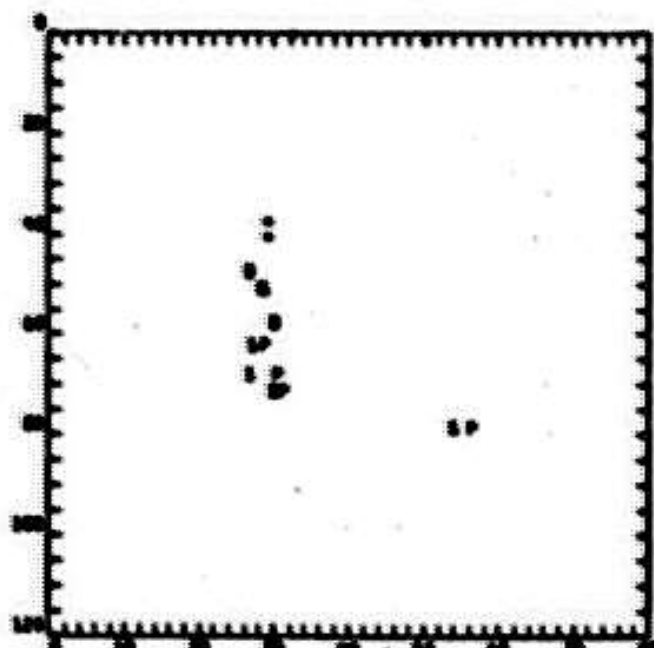
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET Z POSITION IN FEET



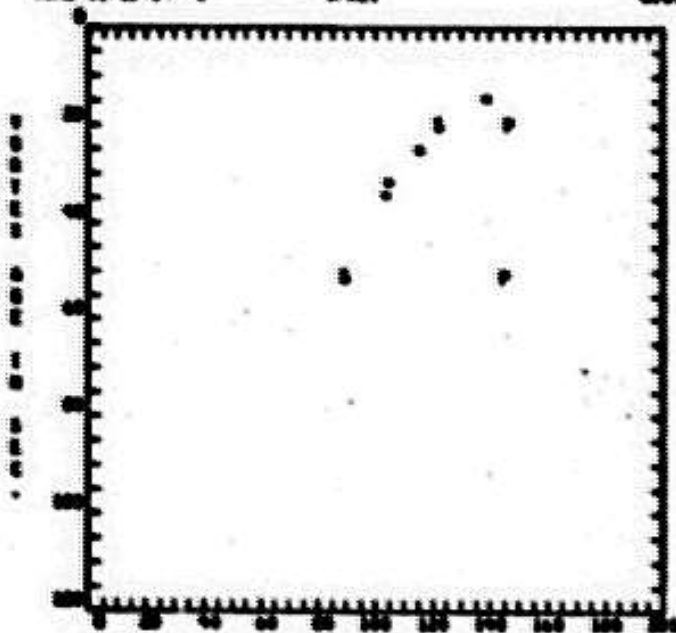
Y POSITION IN FEET Z POSITION IN FEET



PEAK LINE OF SIGHT ELEVATION IN DEGREES

Run No. 30
Time 15 30'30" 0

JPL21

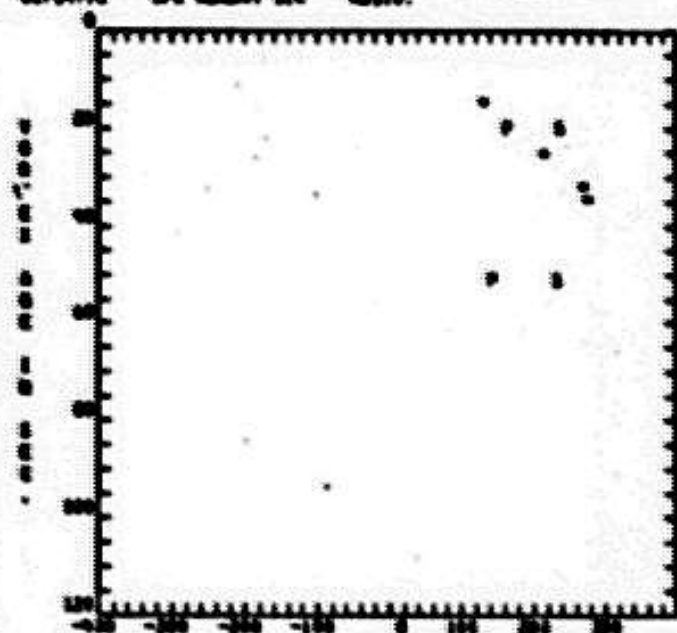


HEIGHT ABOVE GROUND IN FEET

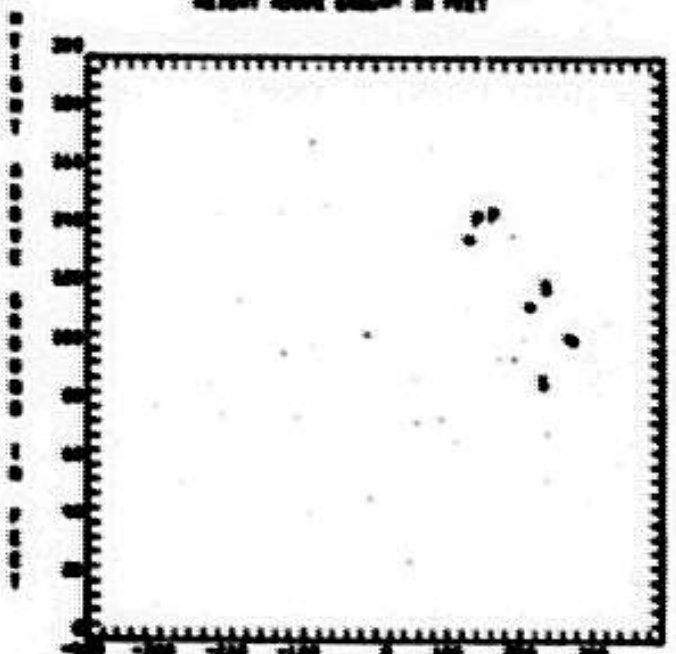
Run No. 30000

JPL Runway 310

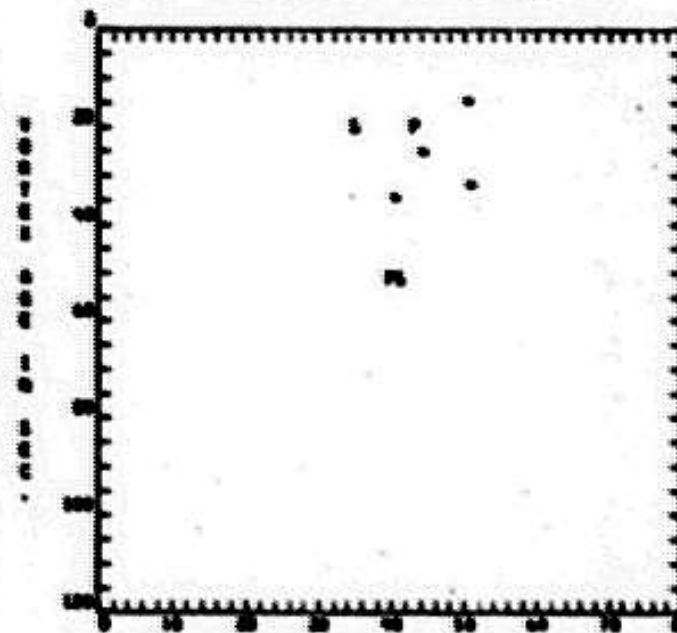
Time 15 30'30" 0



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



HEIGHT ABOVE GROUND IN FEET

SPOT NO. 21
TIME 15 10:37 0

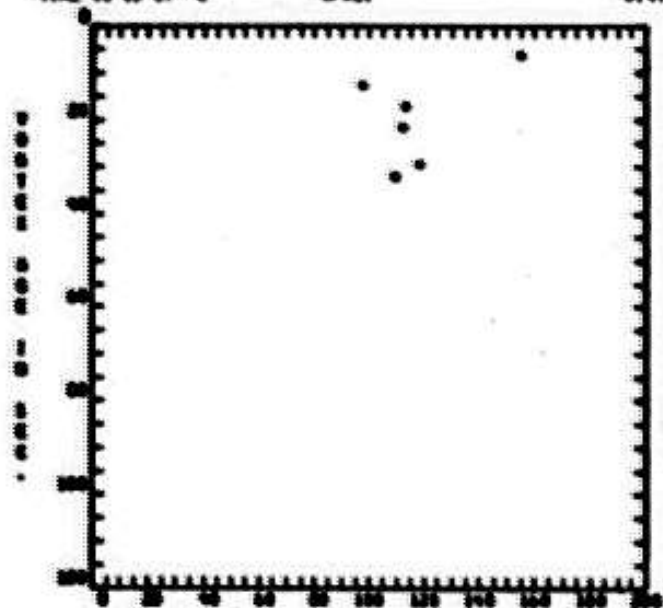
SPOT 21

SPOT 05/04/76

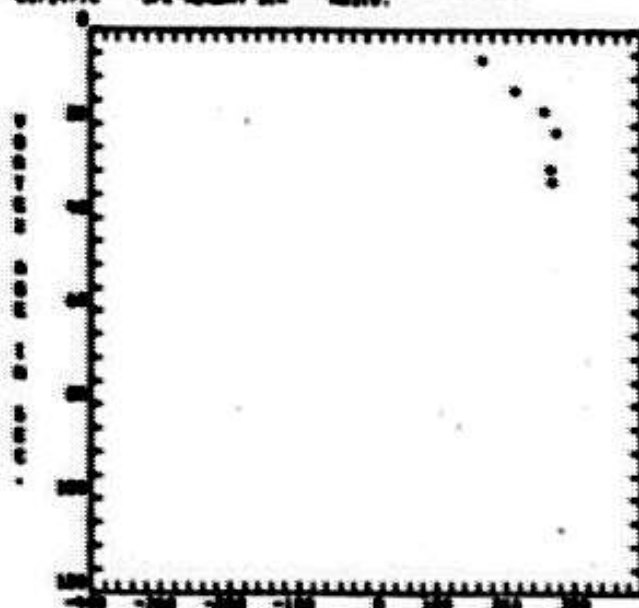
SPOT 05/04/76

SPOT NO. 000000

000000

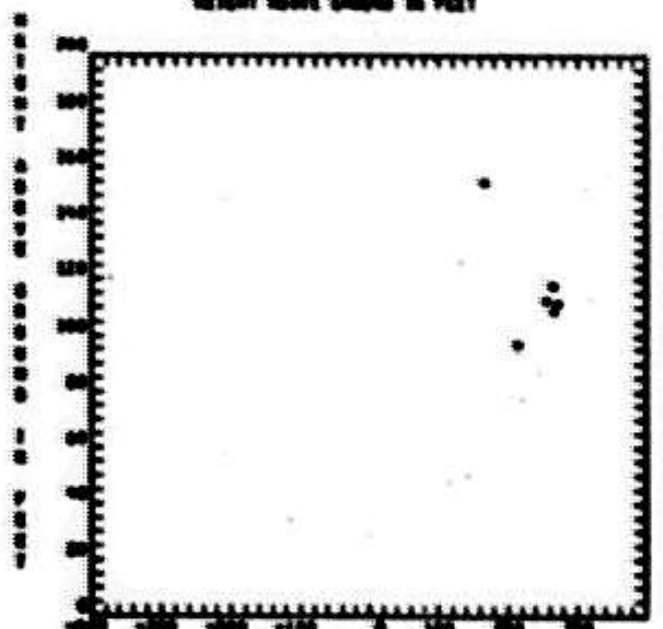


HEIGHT ABOVE GROUND IN FEET



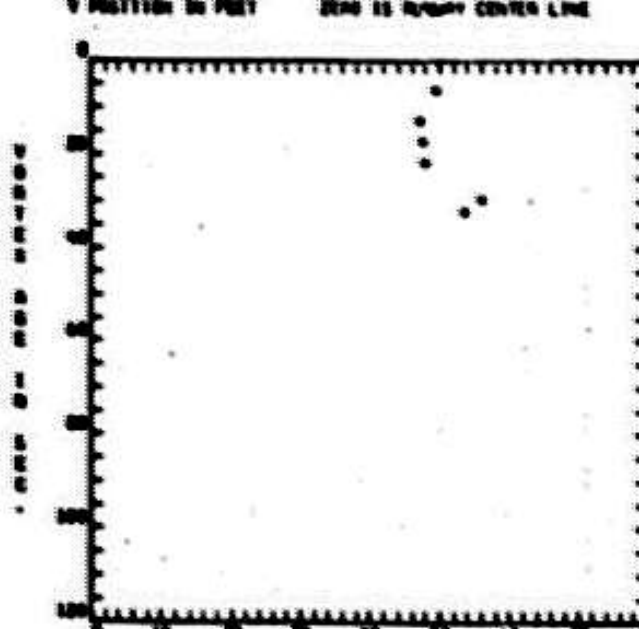
Y POSITION IN FEET

ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET

ZERO IS RUNWAY CENTER LINE



ZERO IS RUNWAY CENTER LINE

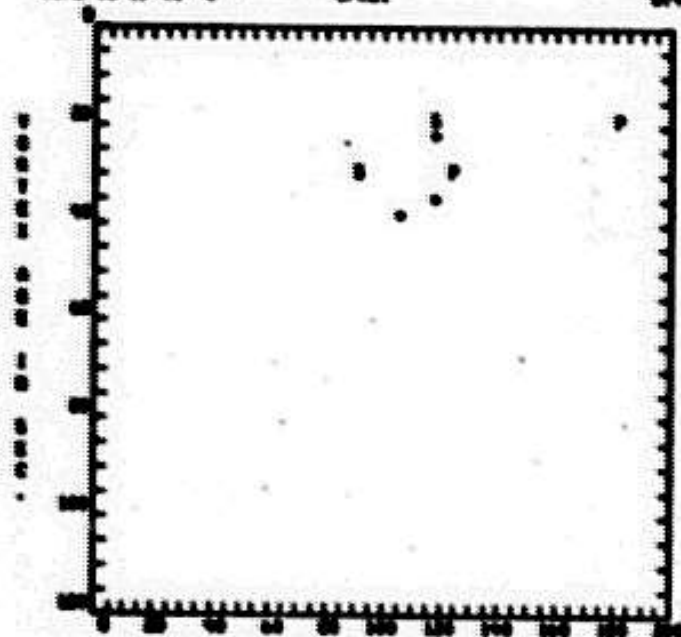
Run No. 21
TIME 25 15:44 0

27021

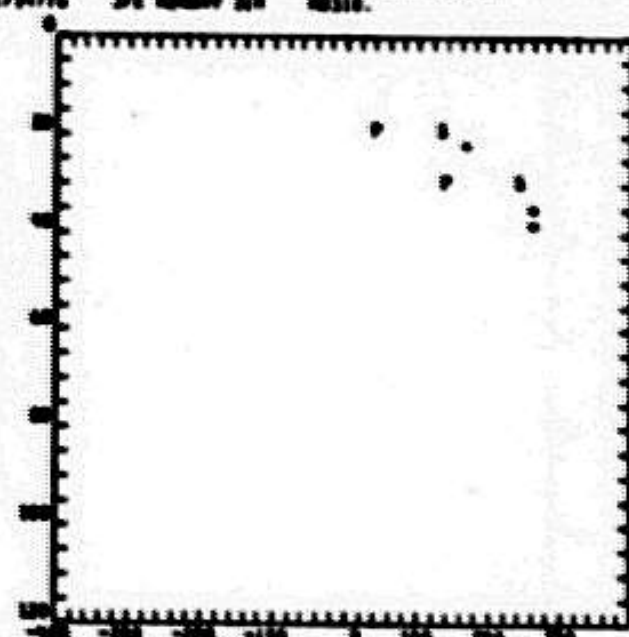
DATE 01/24/76

270 Runway 21R

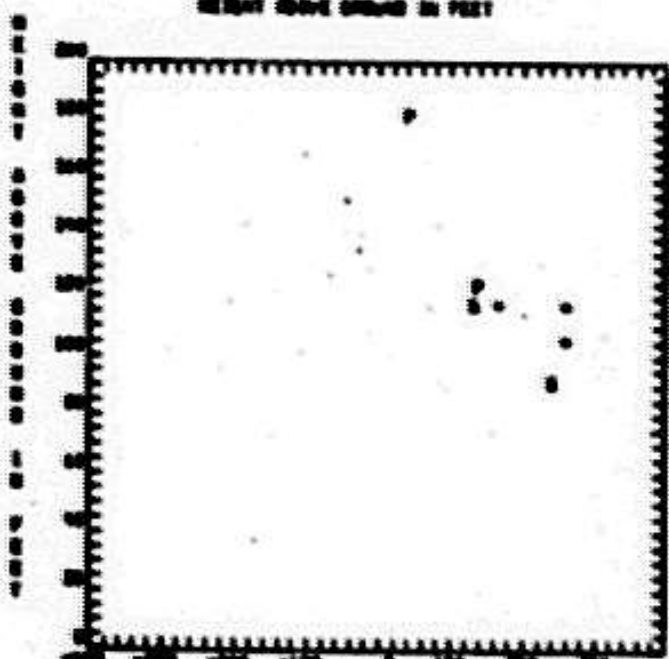
Run No. 230000
TIME 25 16:10 0



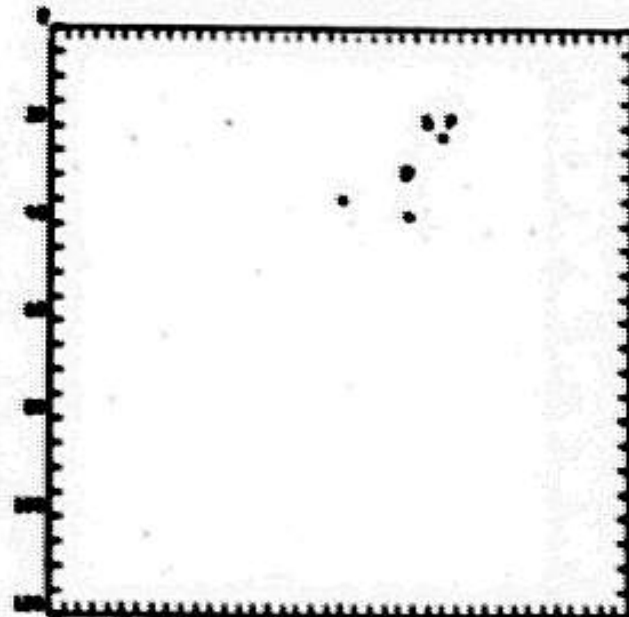
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC

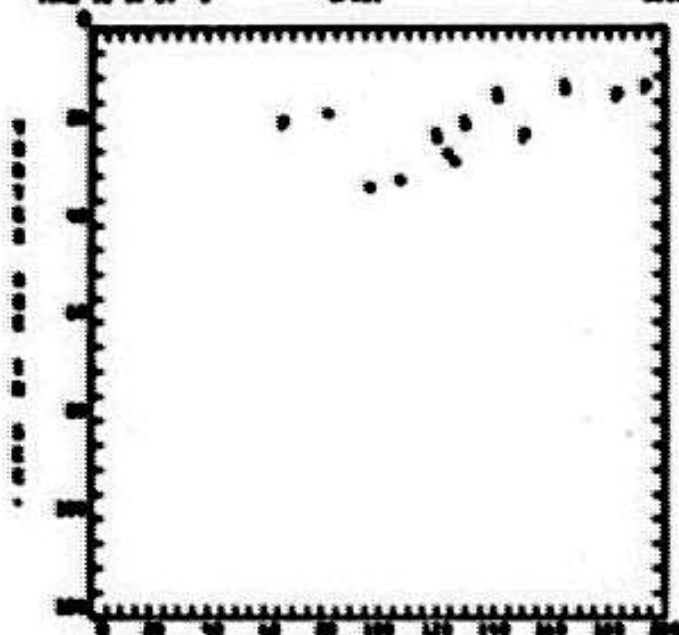
TIME 10 10:00 0

27021

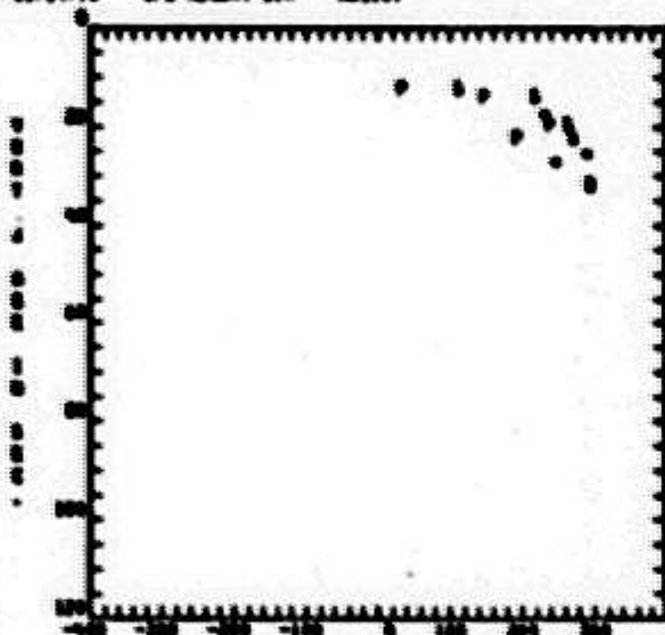
06/06/76

270 270000

270 270000

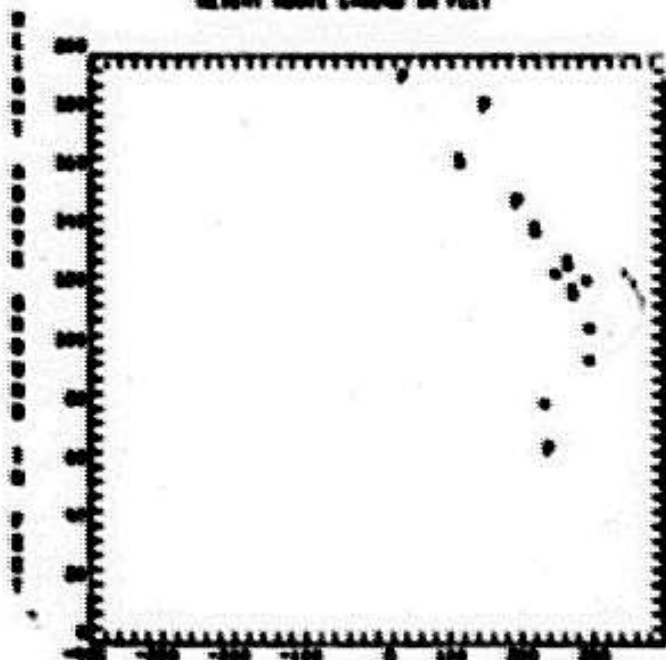


HEIGHT ABOVE GROUND IN FEET



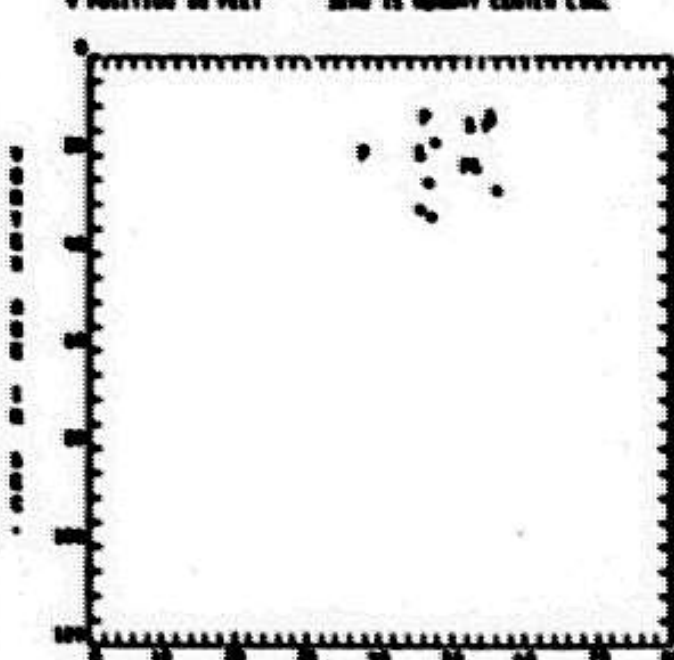
Y POSITION IN FEET

270 IS RUNWAY CENTER LINE



Y POSITION IN FEET

270 IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

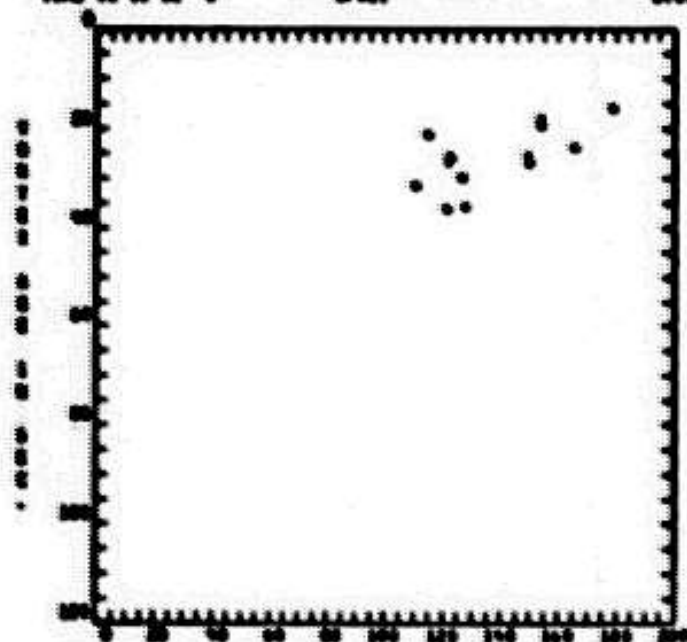
200 00.
TIME 25 34*30" 0

27021

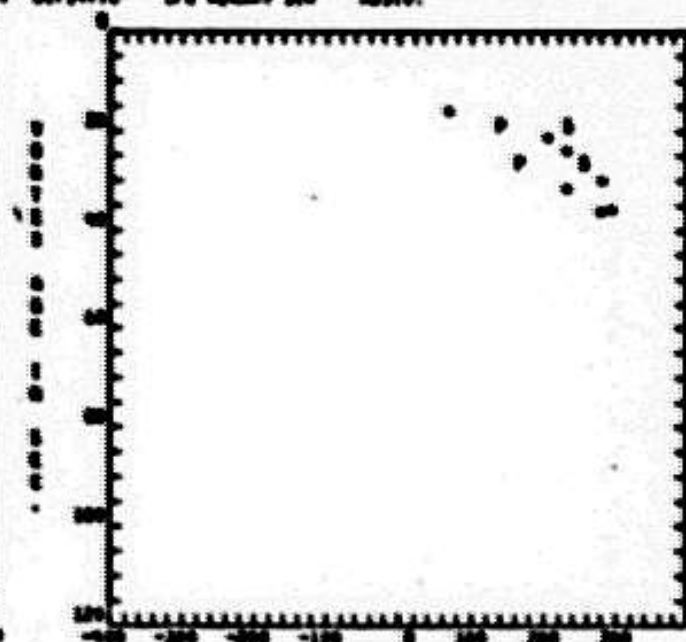
0707 06/04/76

270 00000 210

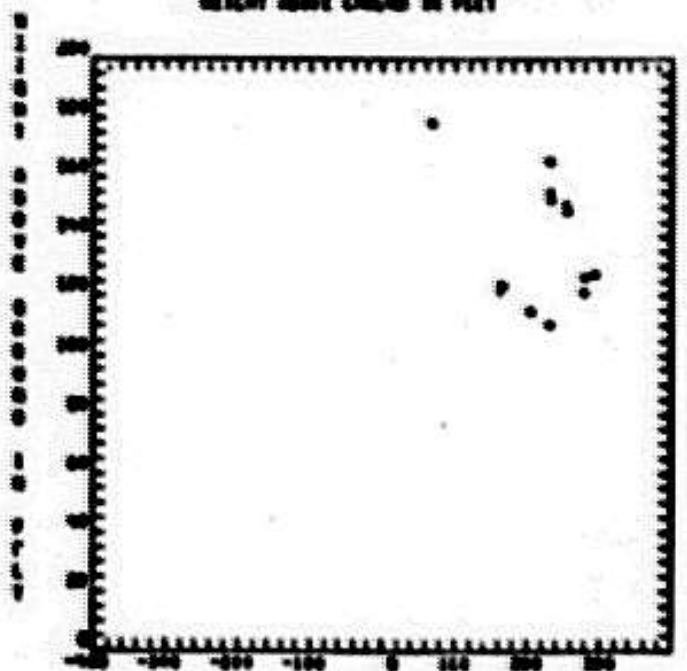
200 00 000000
20010.



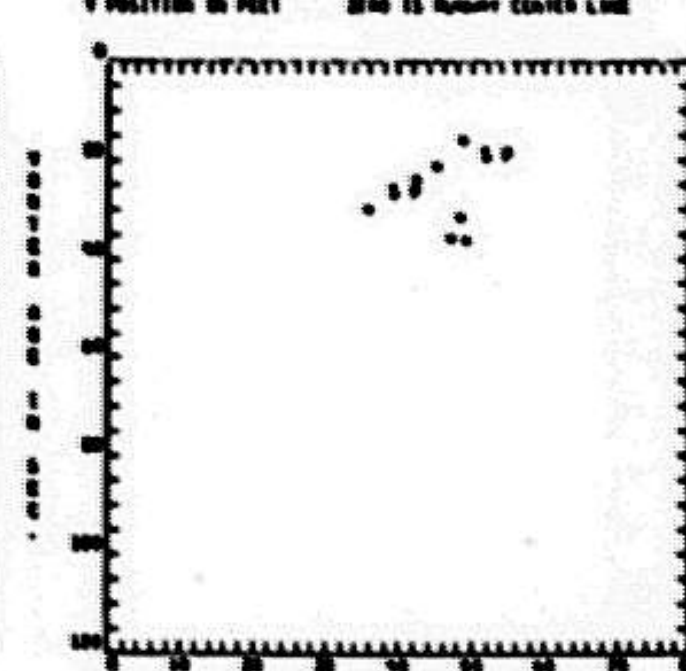
HEIGHT ABOVE GROUND IN FEET



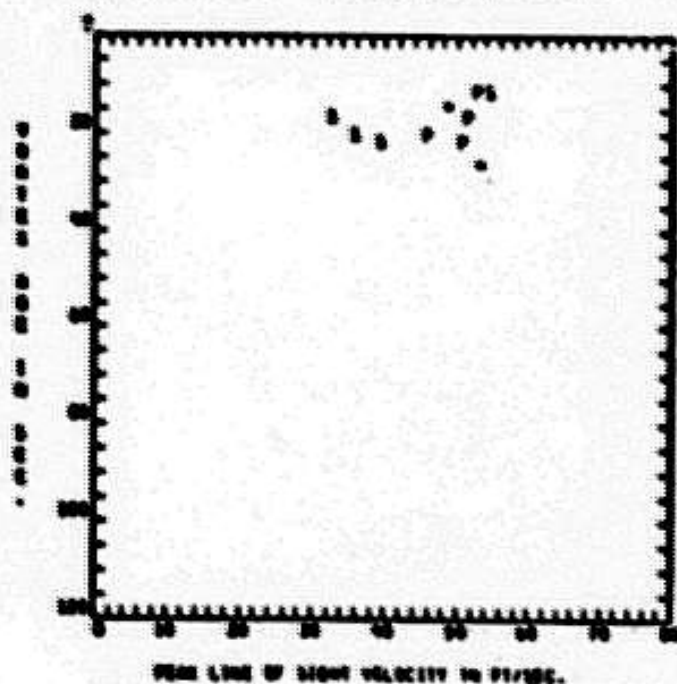
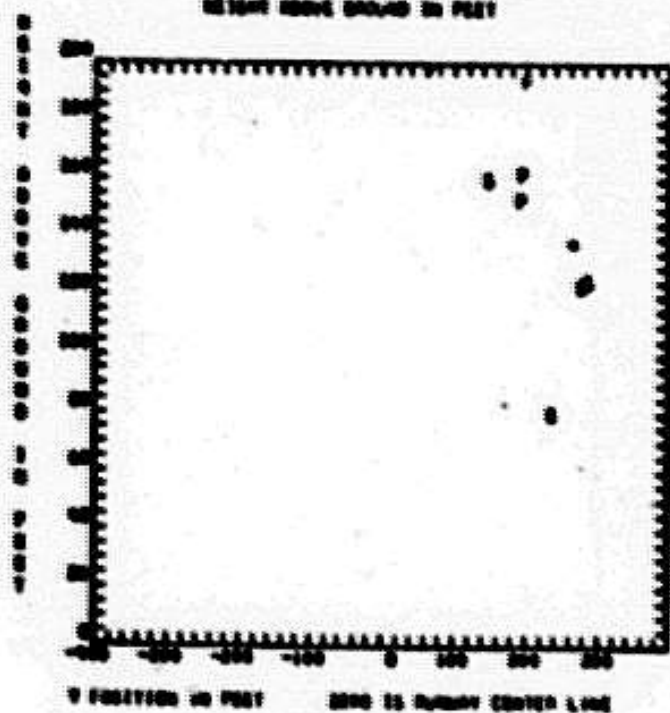
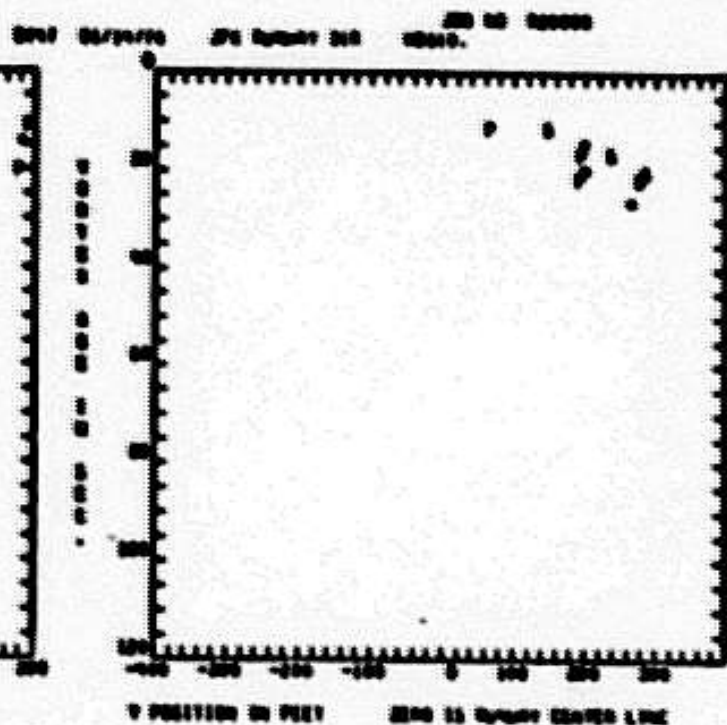
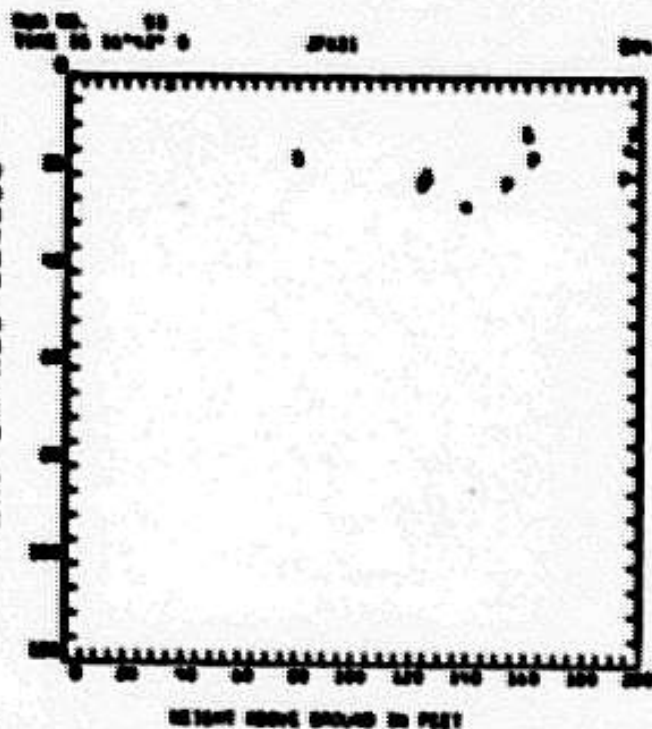
Y POSITION IN FEET 200 IS RUMBLE CENTER LINE

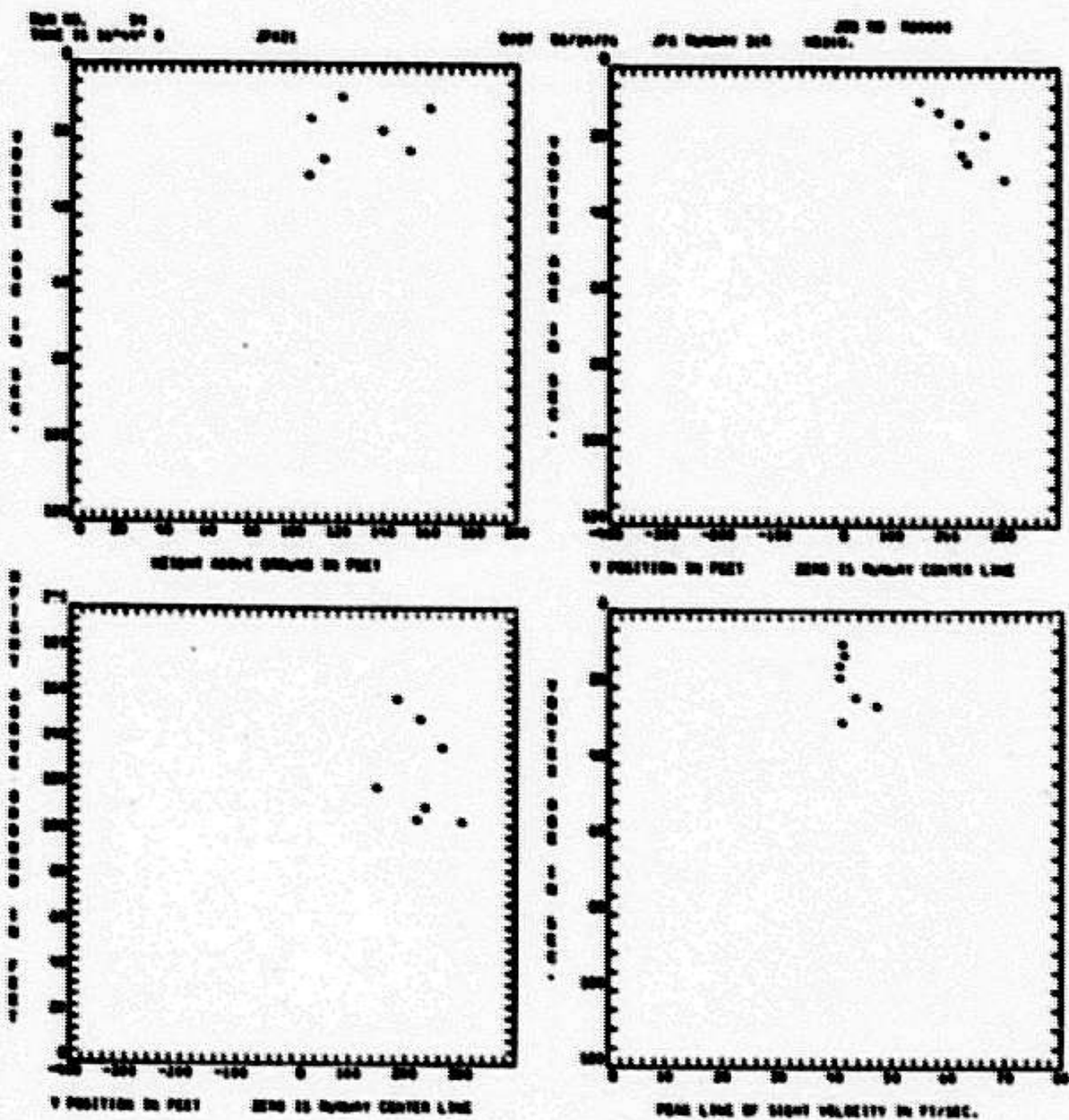


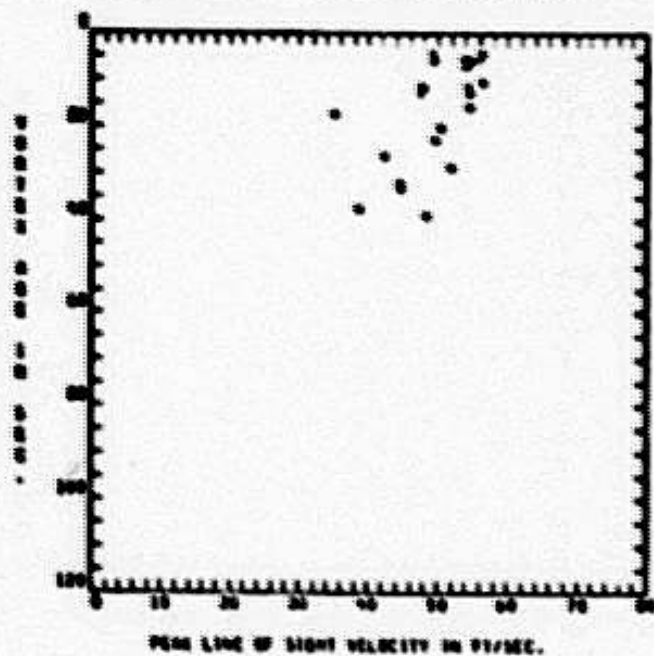
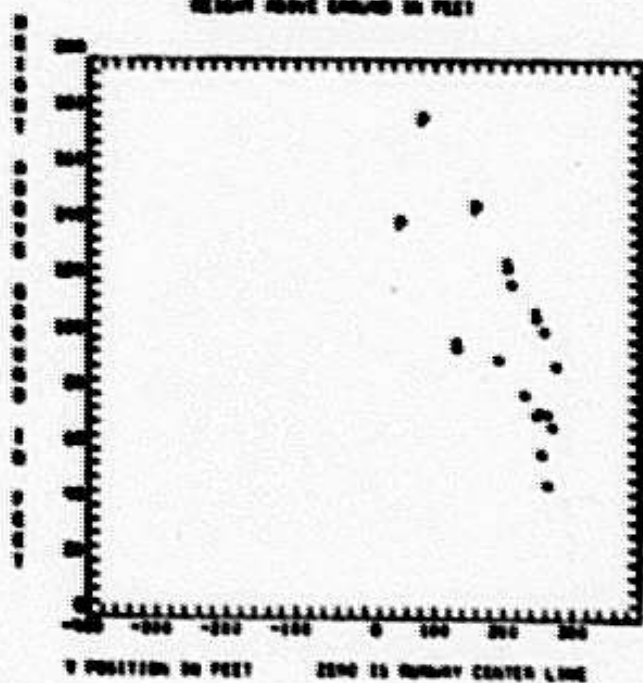
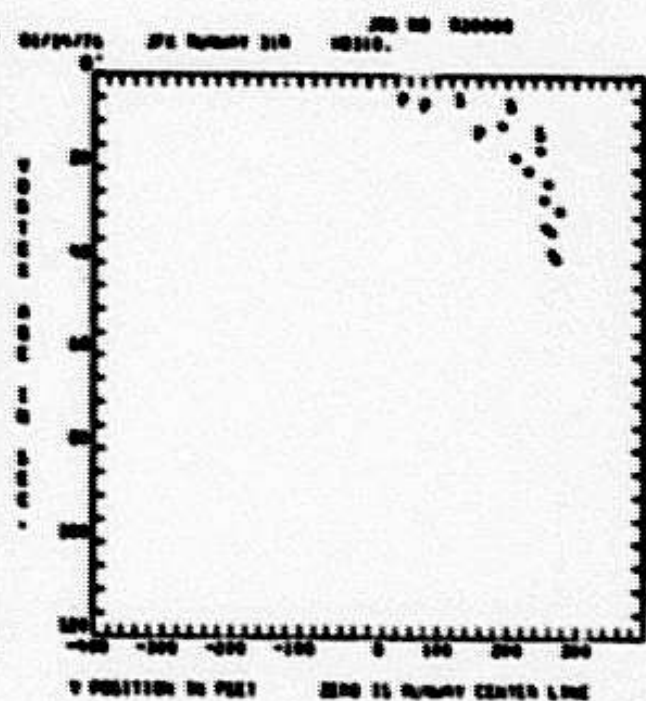
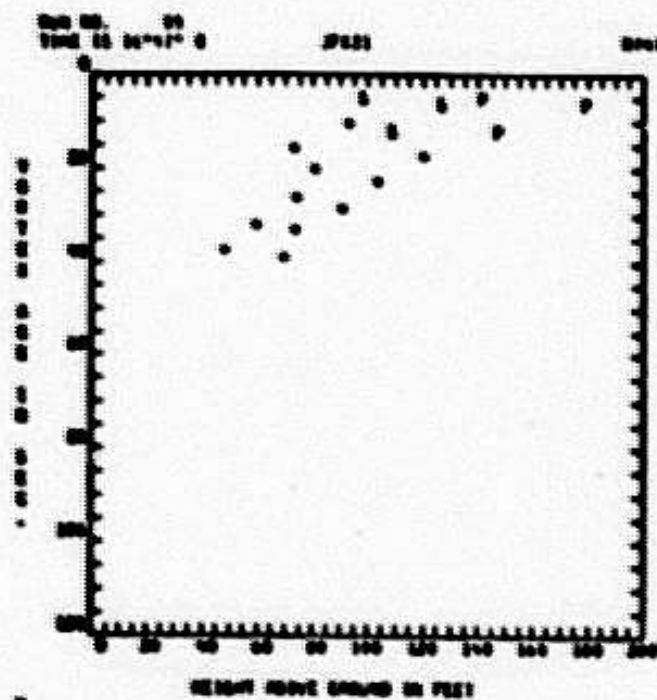
Y POSITION IN FEET 200 IS RUMBLE CENTER LINE



TRUE LINE OF SIGHT VELOCITY IN FT/SEC.





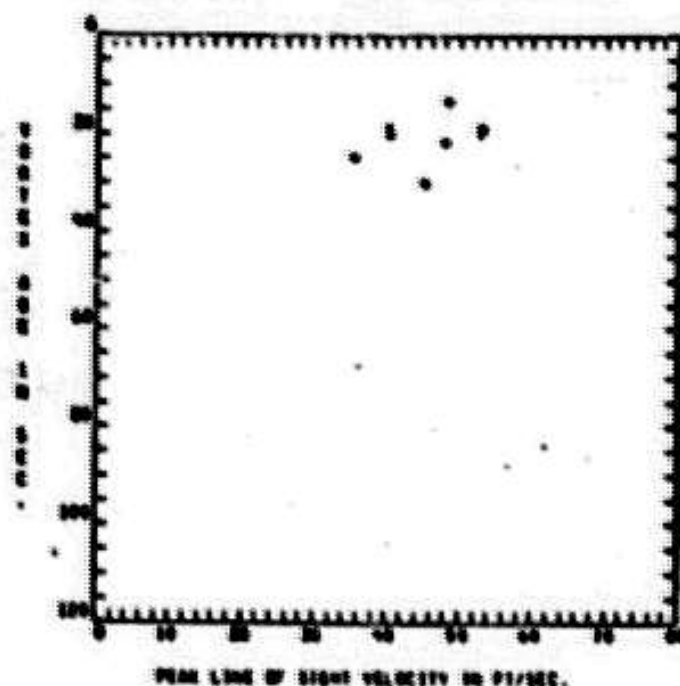
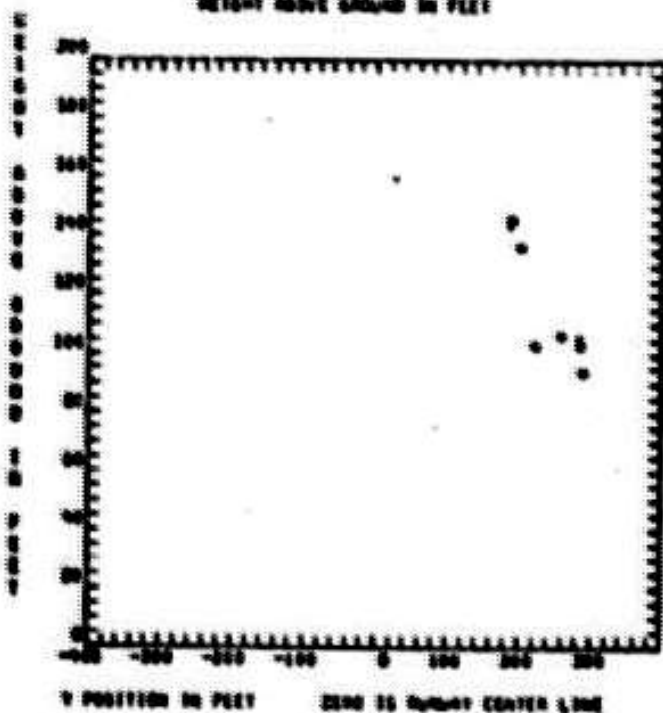
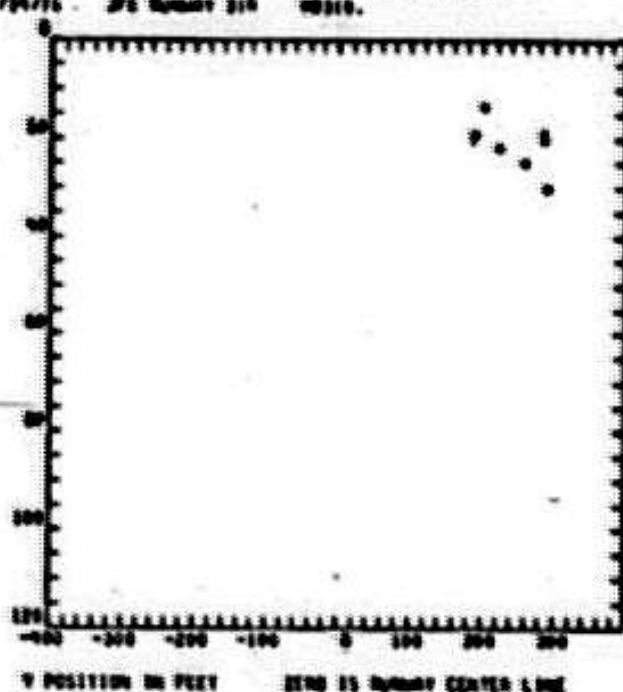
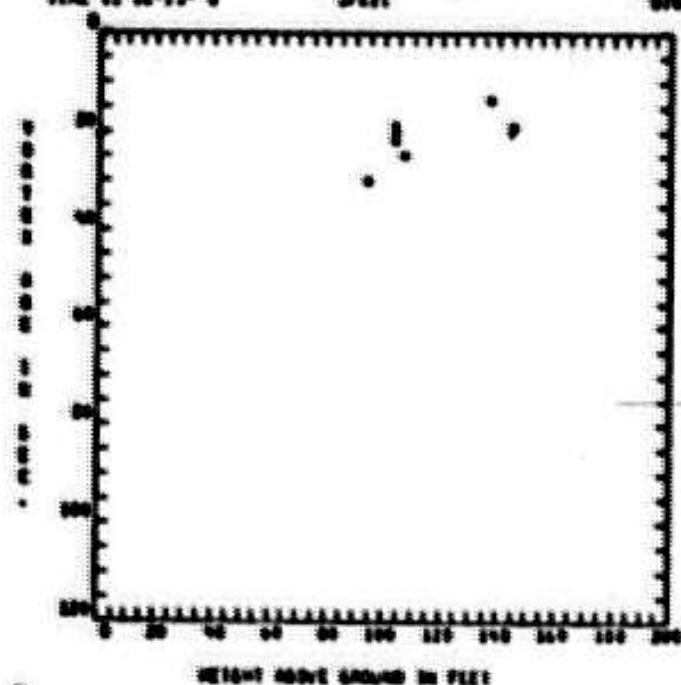


Run No. 30
TIME IS 16:17:0

JP21

0001 01/24/76 JFC Summary 210

Run No. 230000
00010.



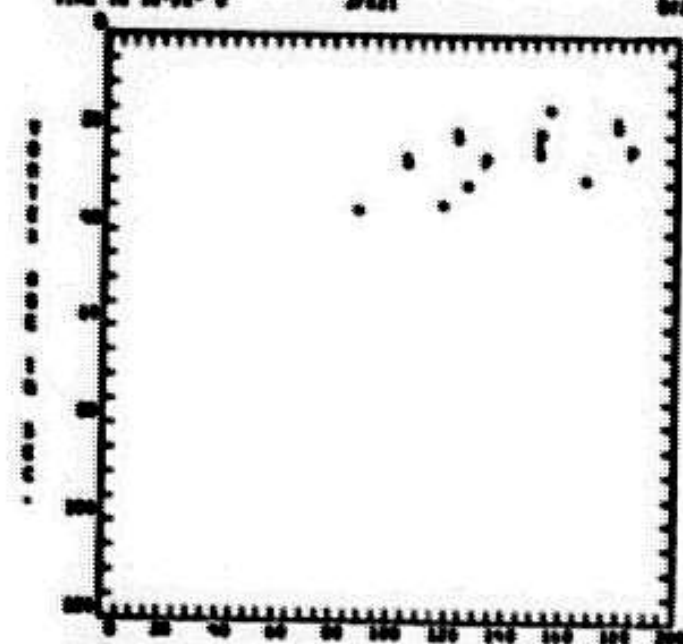
Run ID: 00
Time: 16:50:00.0

JP021

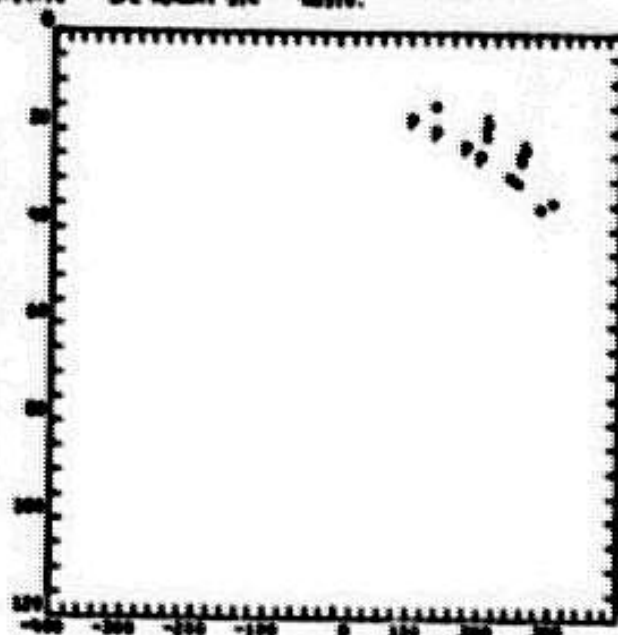
0001 00/04/76

JPL Runway 31R

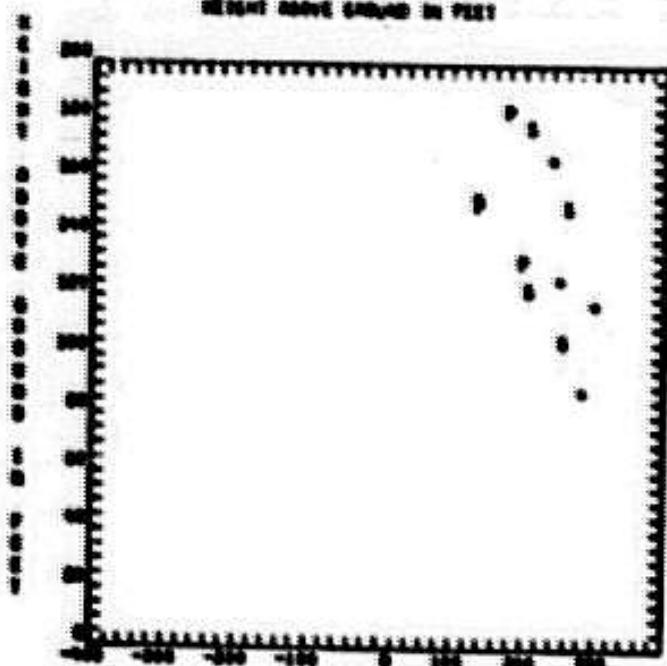
Run ID: 000000
00010.



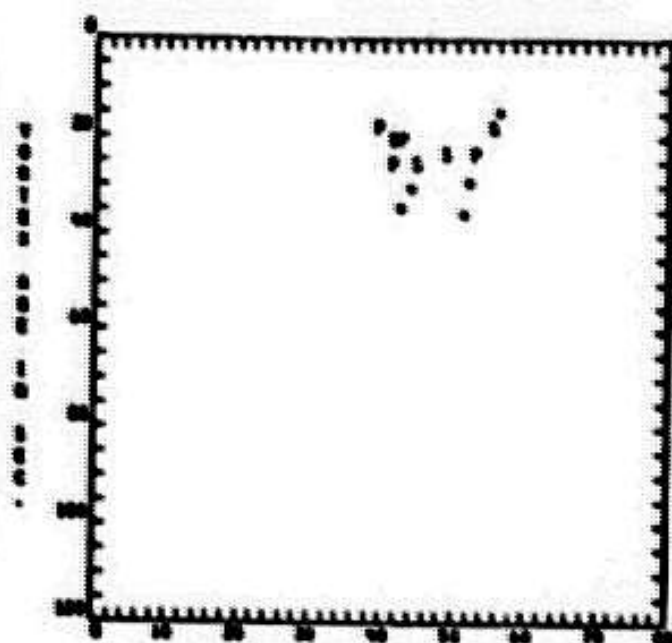
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

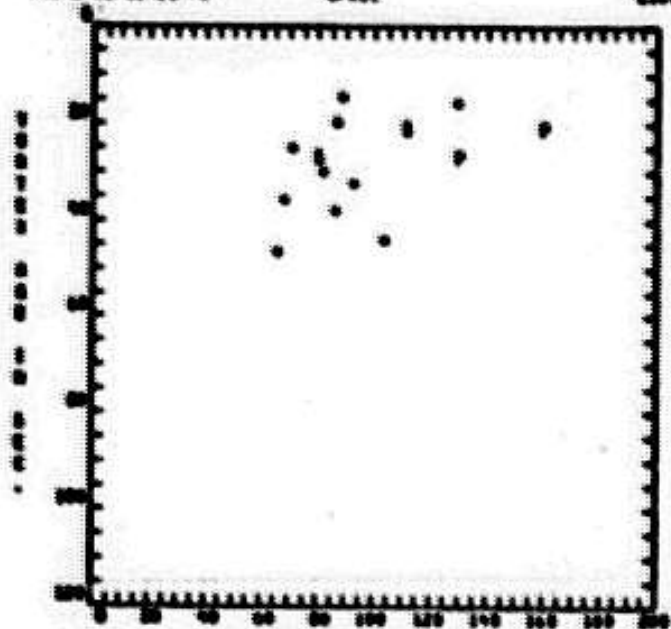
EXP NO. 00
TIME 15 30-40" 0

JP021

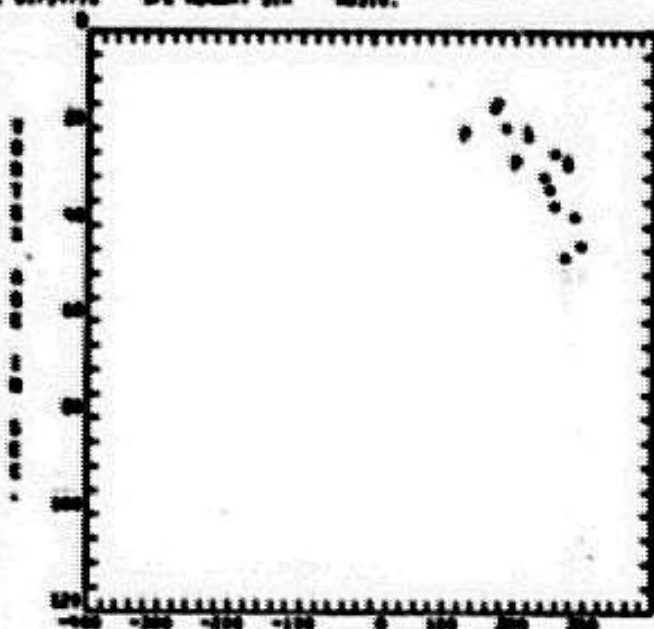
LO011 01/24/76

JP0 04/04/76

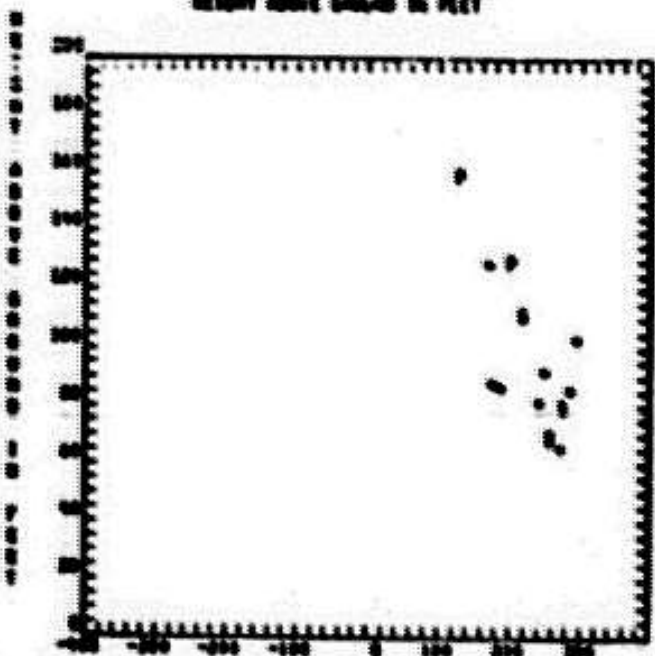
EXP NO. 000000
TIME 15 30-40" 0



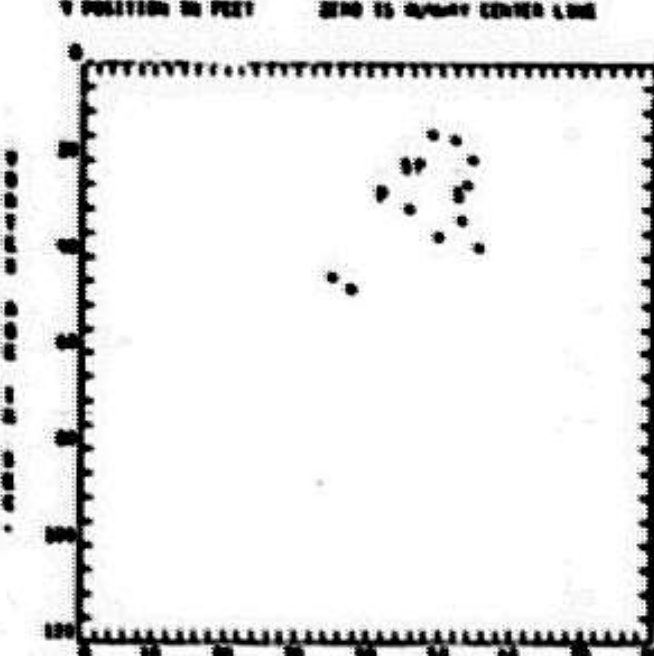
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZONE 15 RUNWAY CENTER LINE



Y POSITION IN FEET ZONE 15 RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

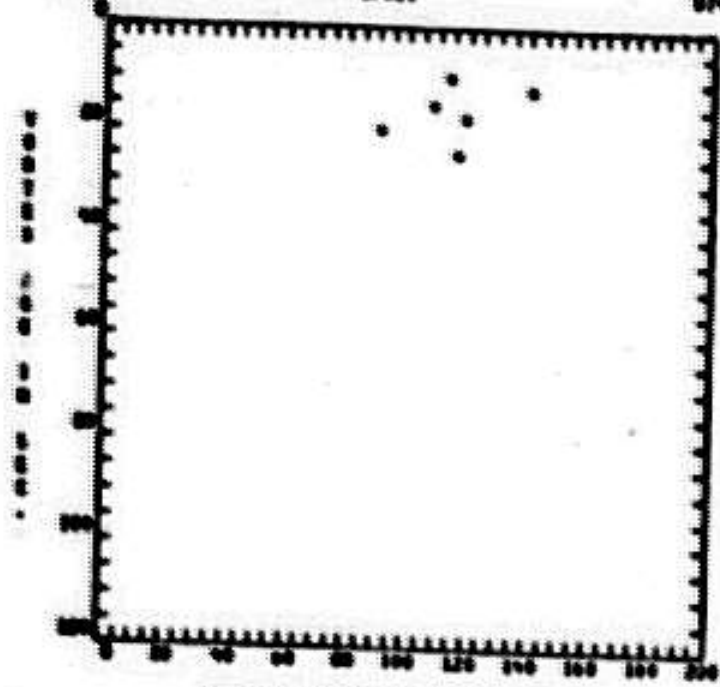
Run No. 52
Time 15 17' 0"

JP21

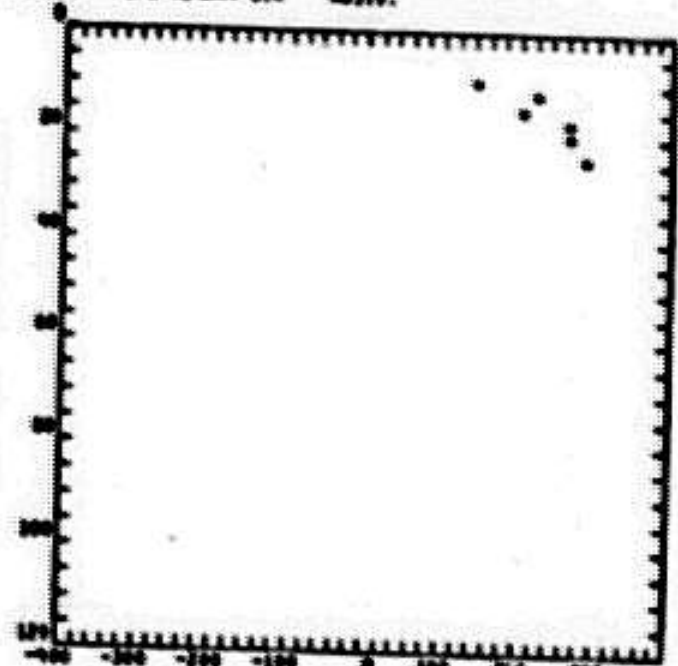
Date 01/14/75

JP's Number 318

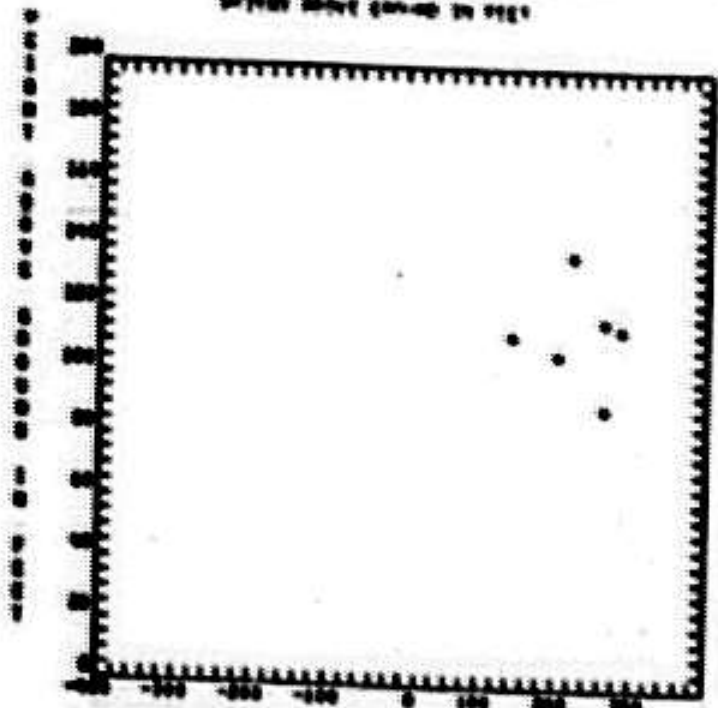
Run No. 530000
ID219.



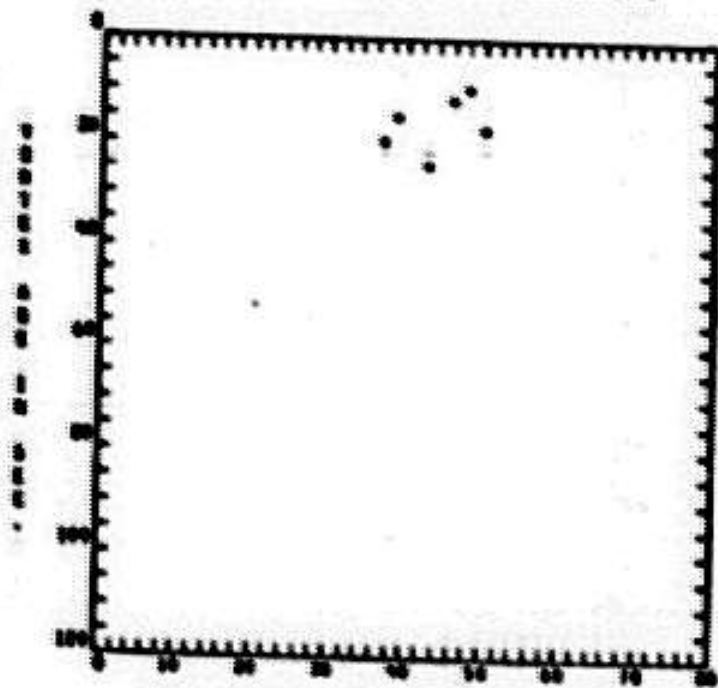
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PERCENTAGE OF LIGHT VELOCITY IN FT/SEC.

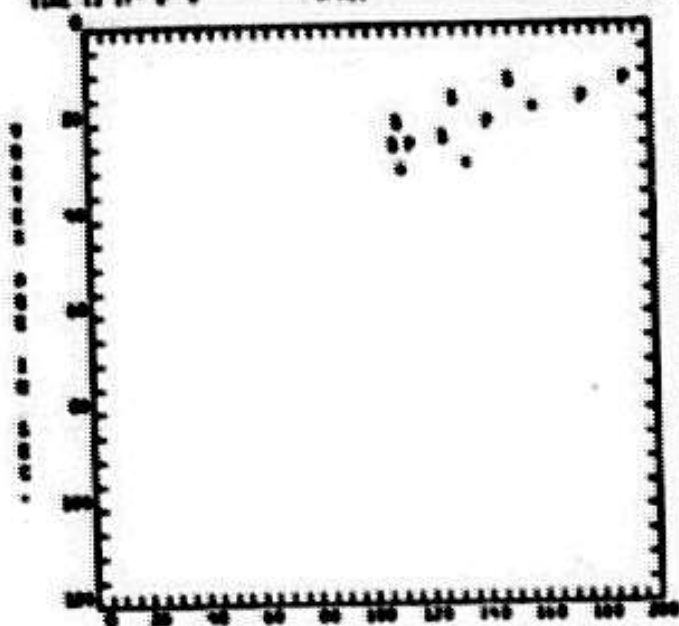
200 000 45
TIME IS 11: 00 0

200 000

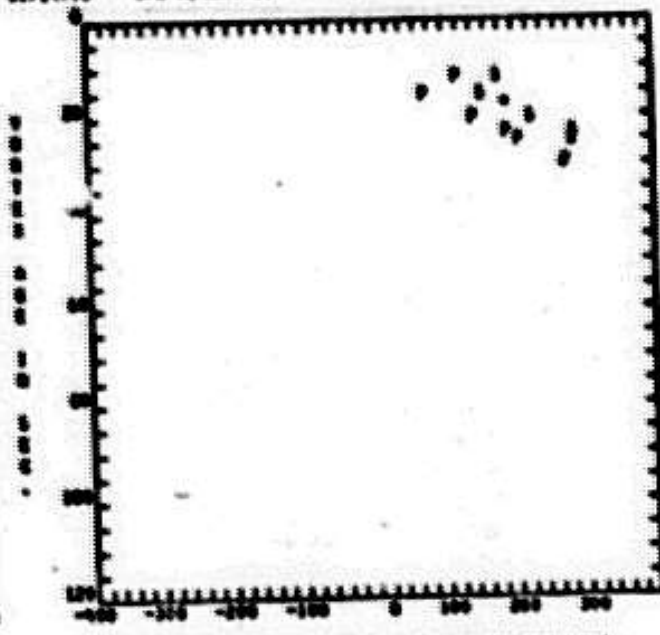
200 000 00/00/70

200 000 000000

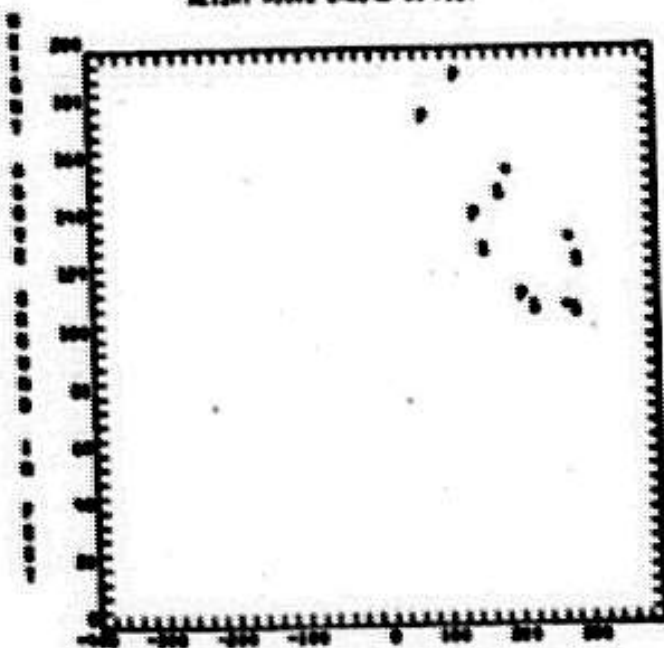
200 000 000000



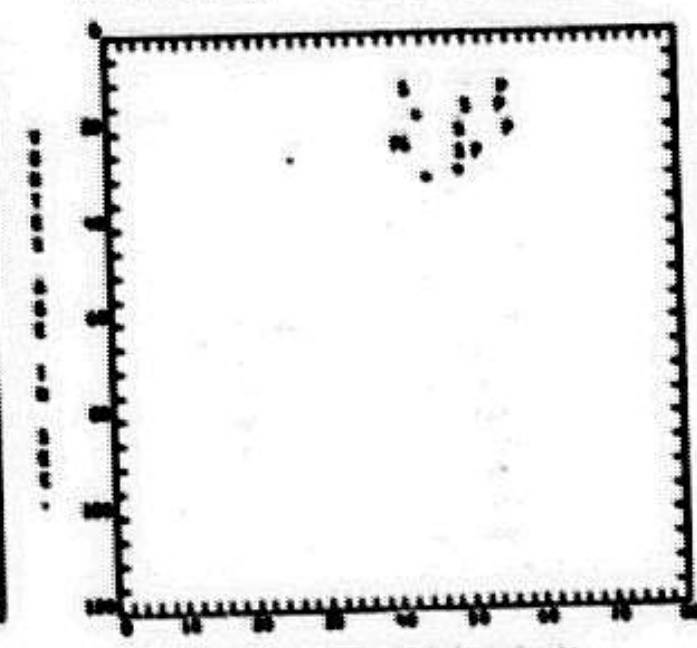
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET TIME IS 00:00:00 CENTER LINE



Y POSITION IN FEET TIME IS 00:00:00 CENTER LINE



TIME OF SIGHT VELOCITY IN FT/SEC.

Run No. 3
TIME IS 11:50

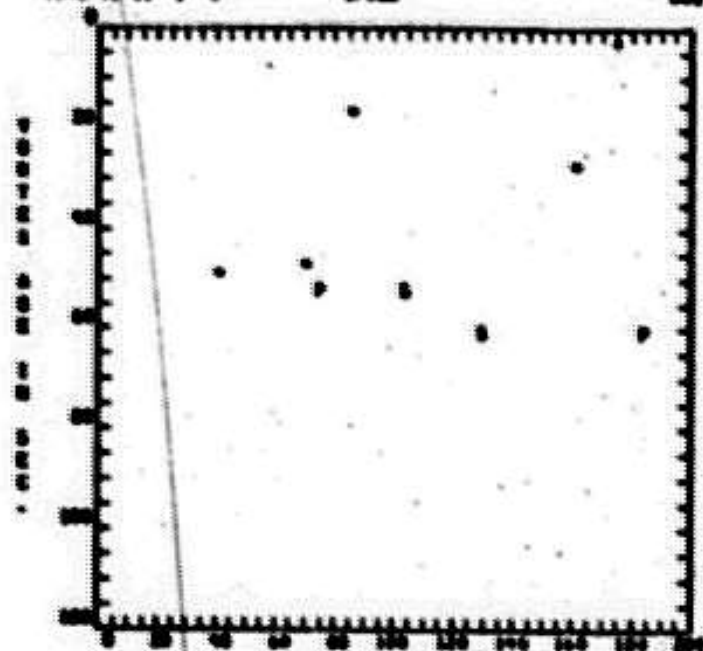
JP22

520

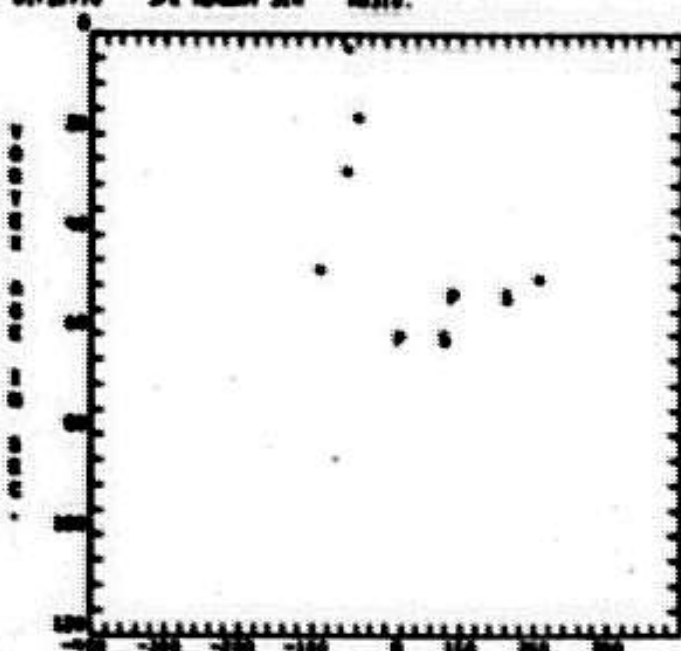
01/25/76

JP22 Runway 310

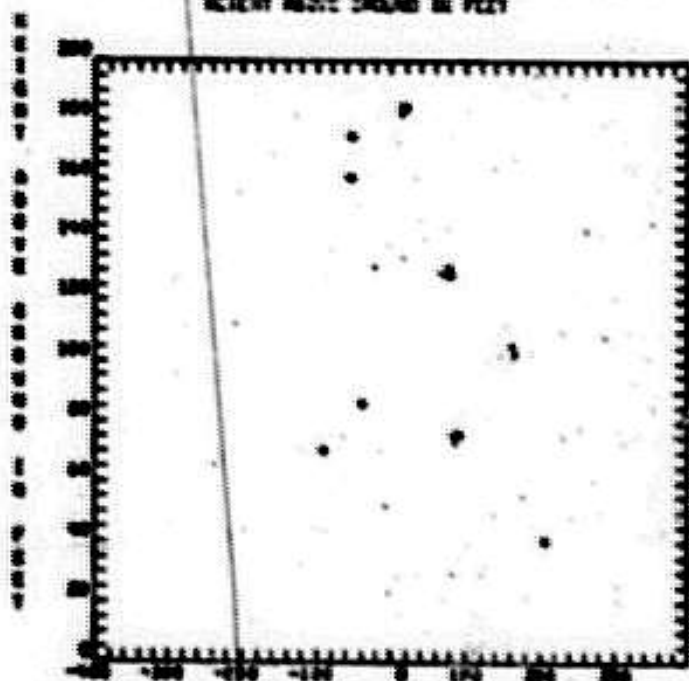
Run No. 230000
NO310.



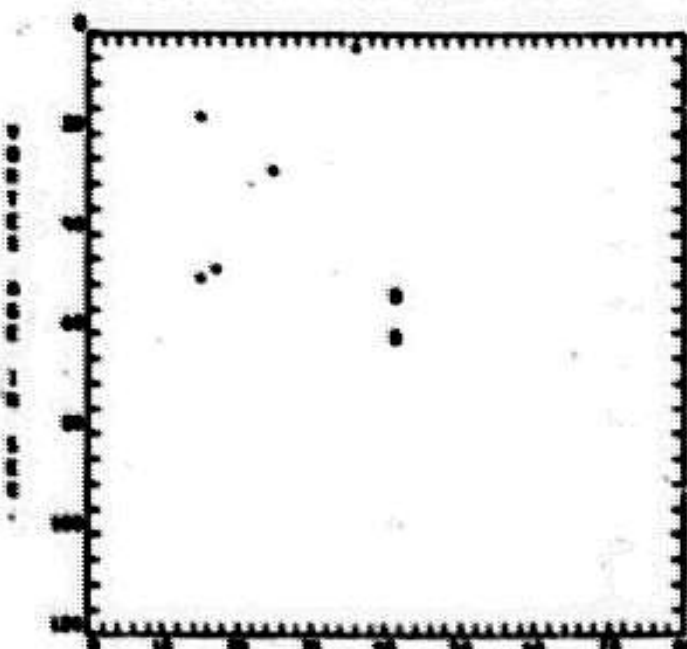
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

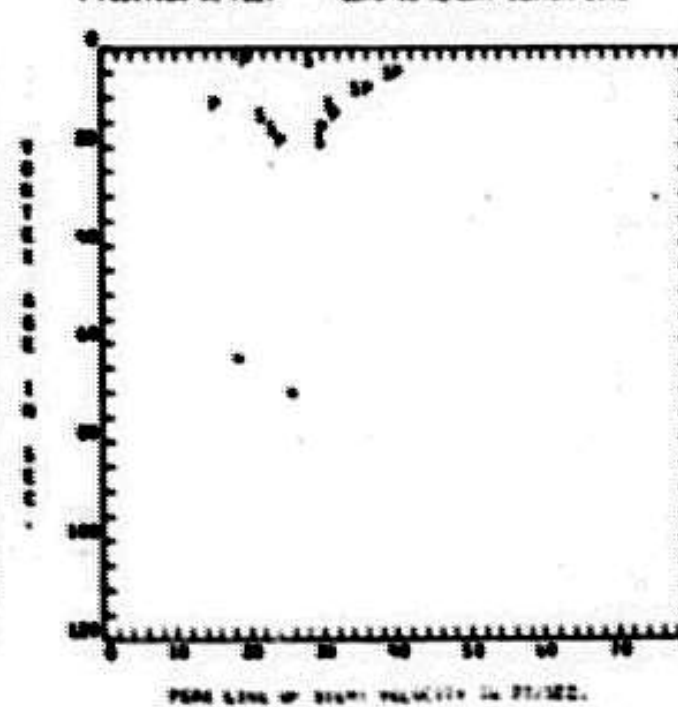
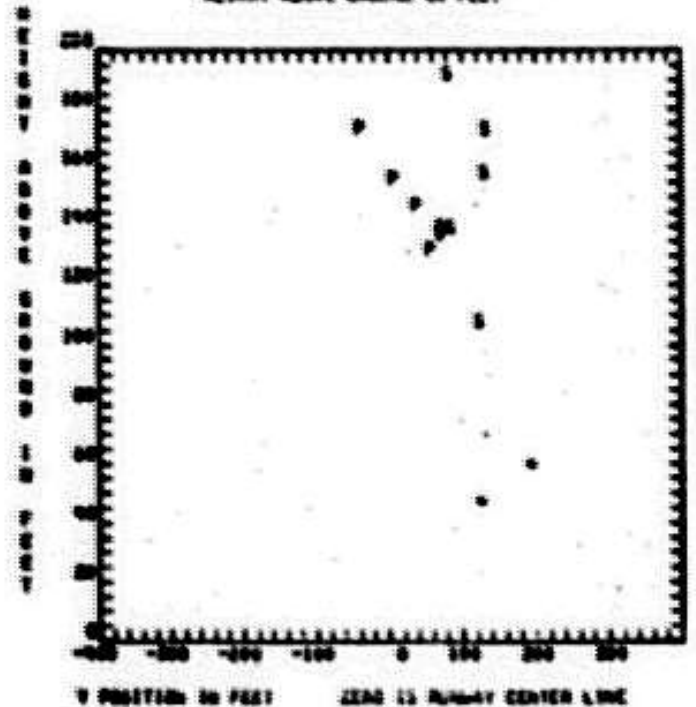
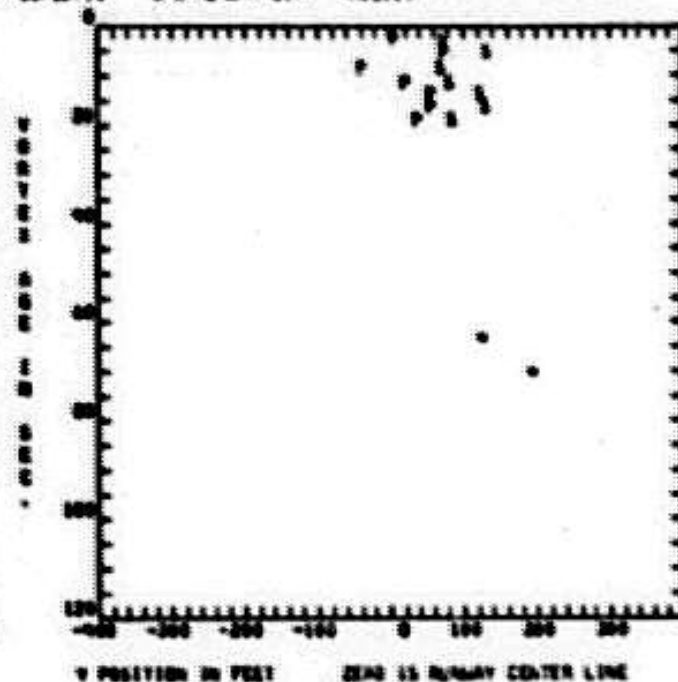
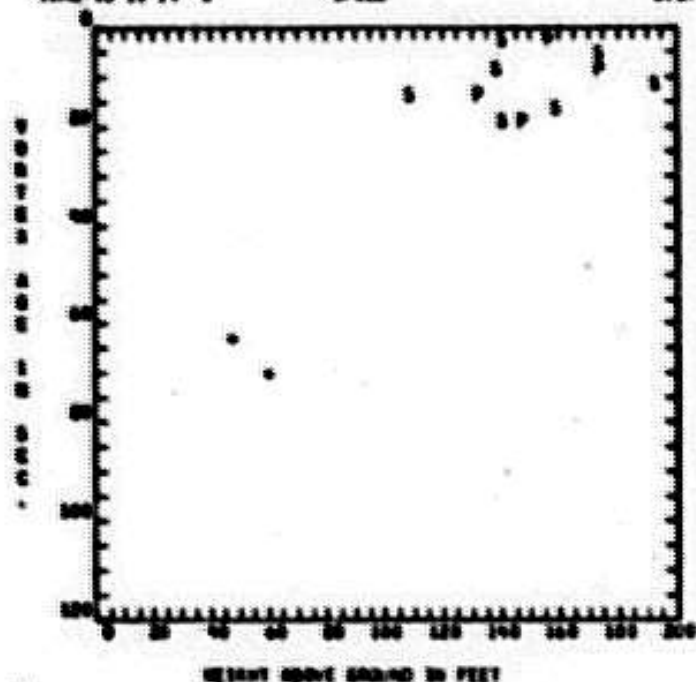
Run No. 3
TIME 15 11:14 0

JFEE

0707 01/20/76

JFL Runway 31R

Run No. 020000
02310



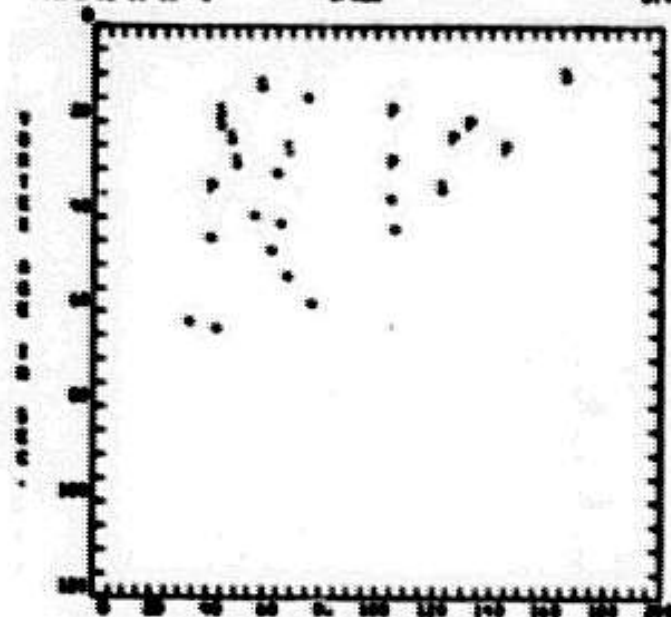
Run No. 1
TIME IS 11:35:0

JPL22

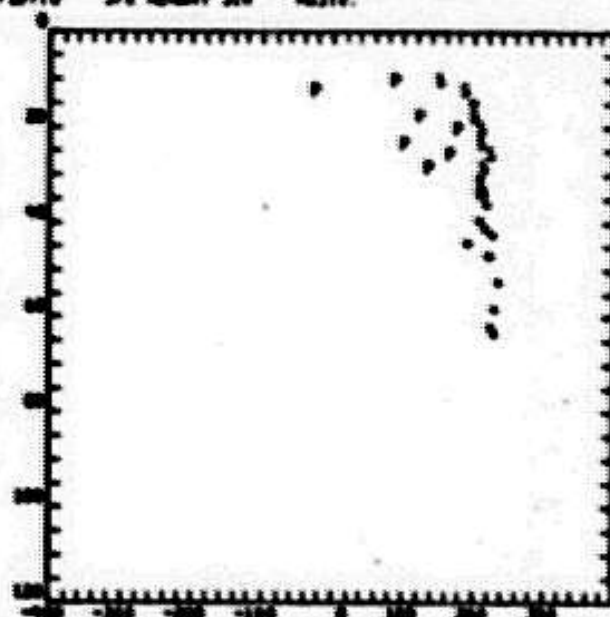
DATE 01/25/76

JPL REPORT 210

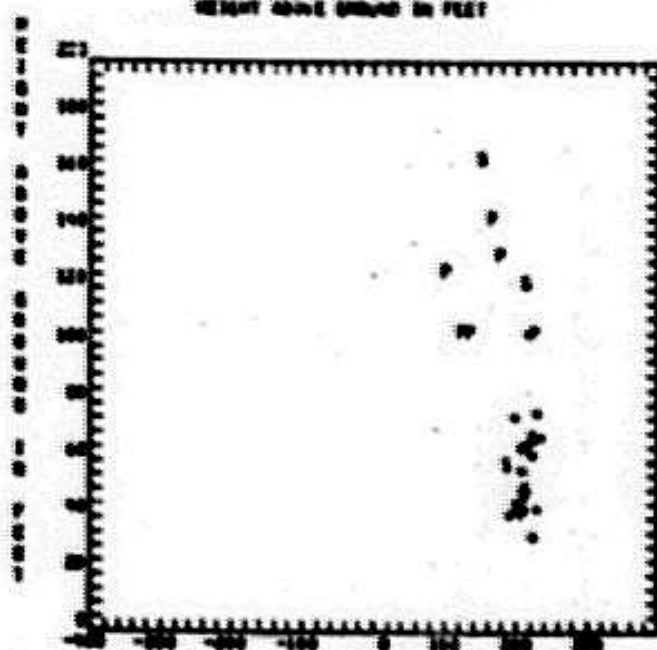
Run No. 020000



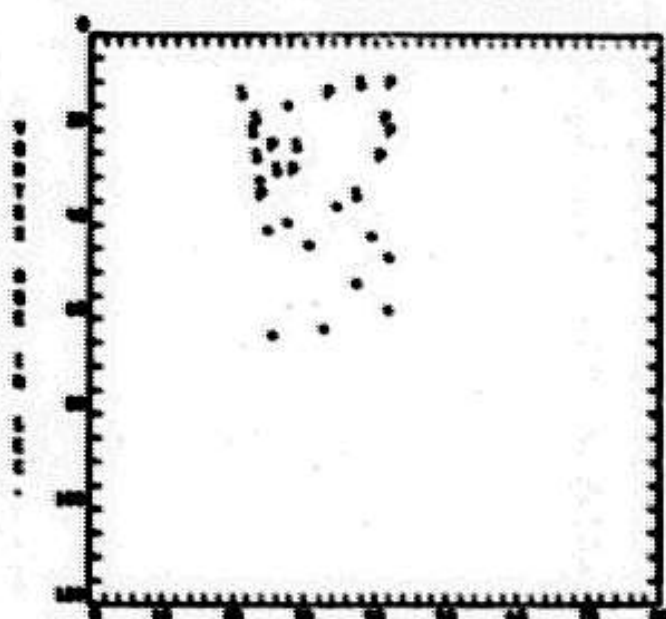
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

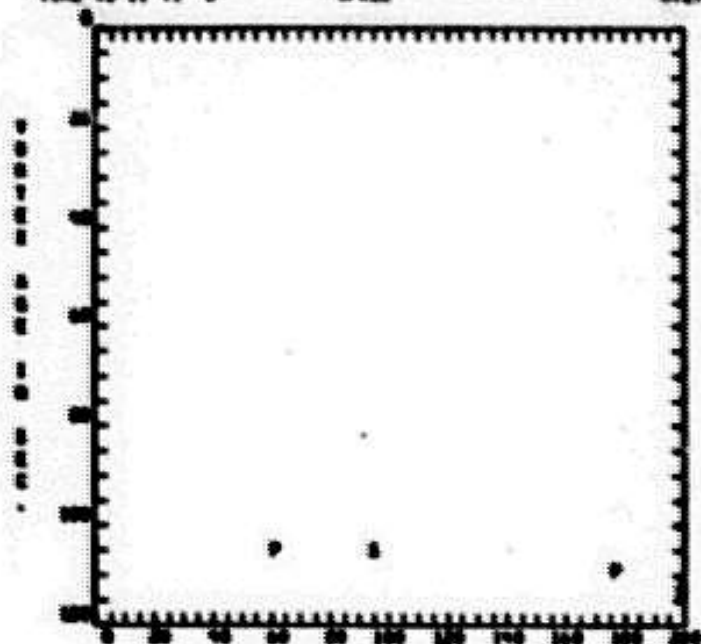
Run No. 0
TIME IS 11:41:0

SPAZZ

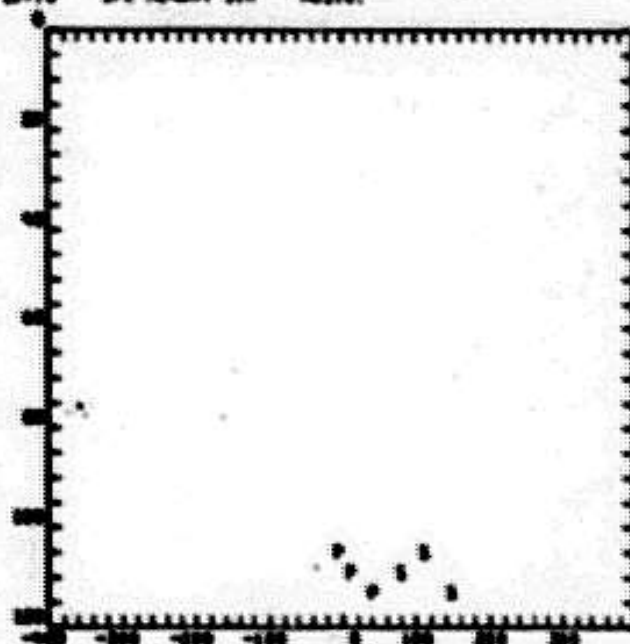
DATE 01/25/76

SPZ Runway 31R

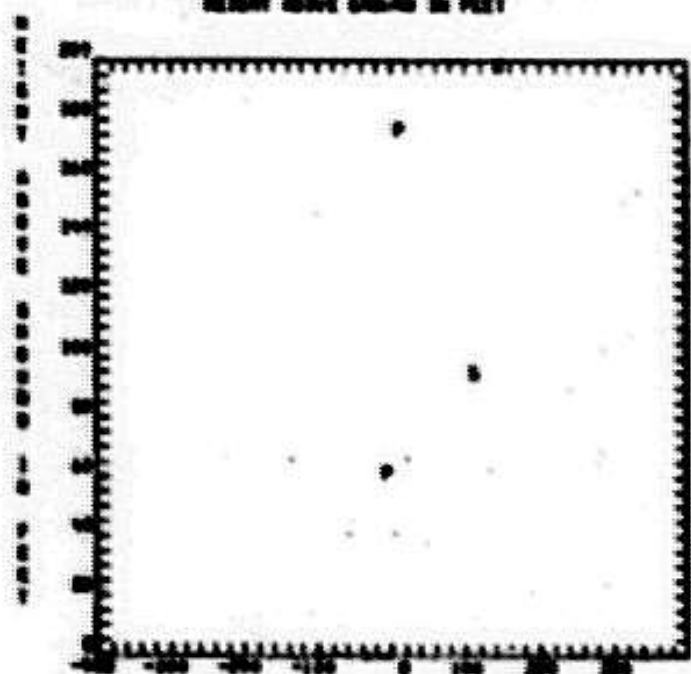
Run No. 030000
NO210.



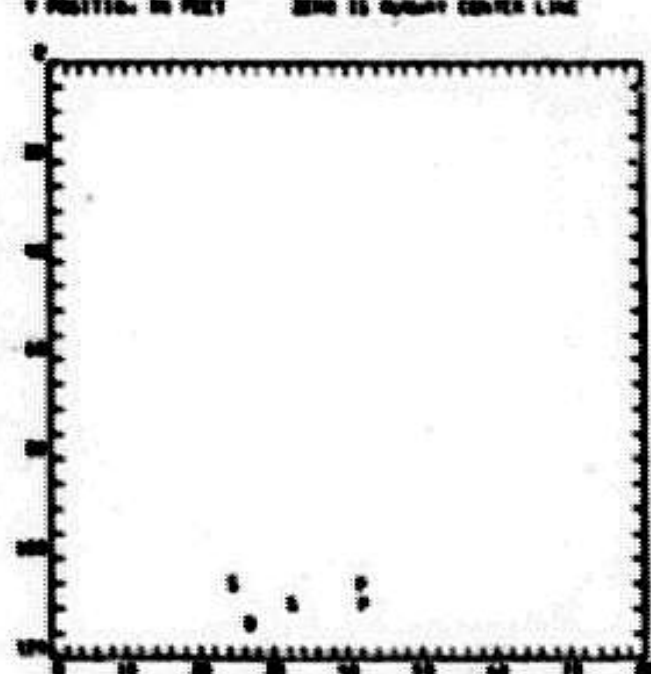
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



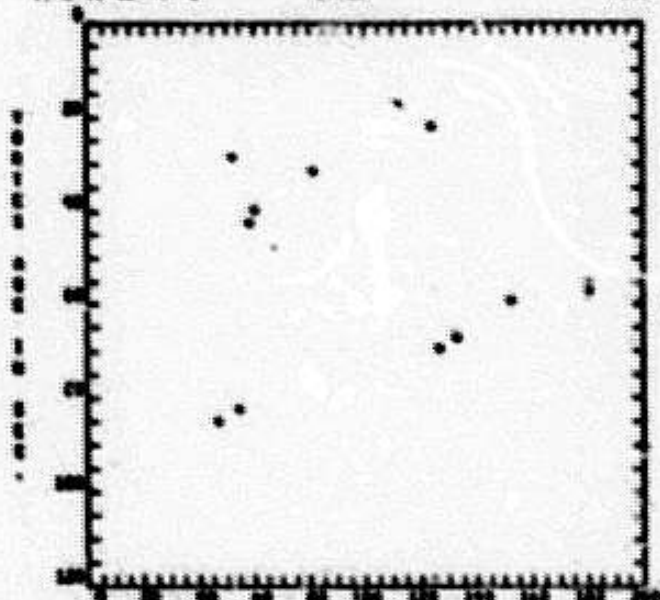
LINE OF SIGHT VELOCITY IN FT/SEC.

3

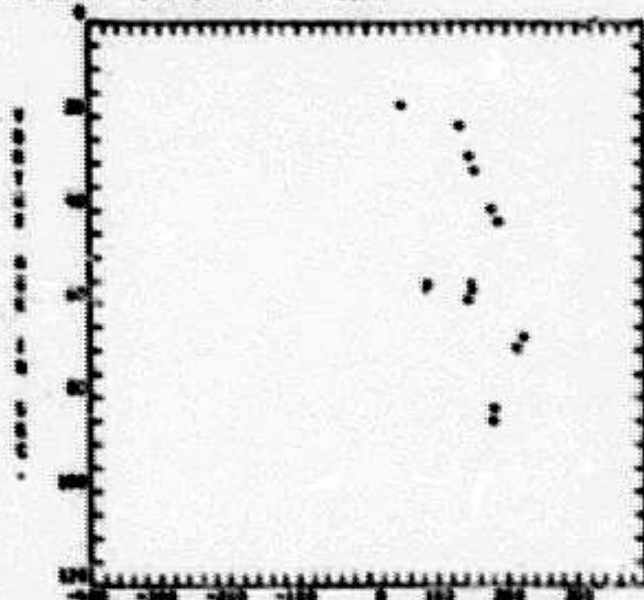
Run No. 1
TIME IS 12:00 P

27122

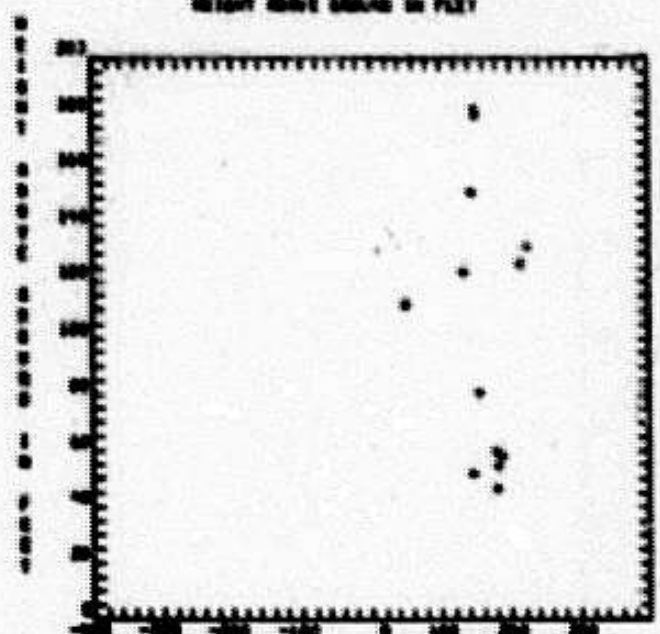
SPOT 01/20/76 JPL Runway 310 Run No. 030000
02310



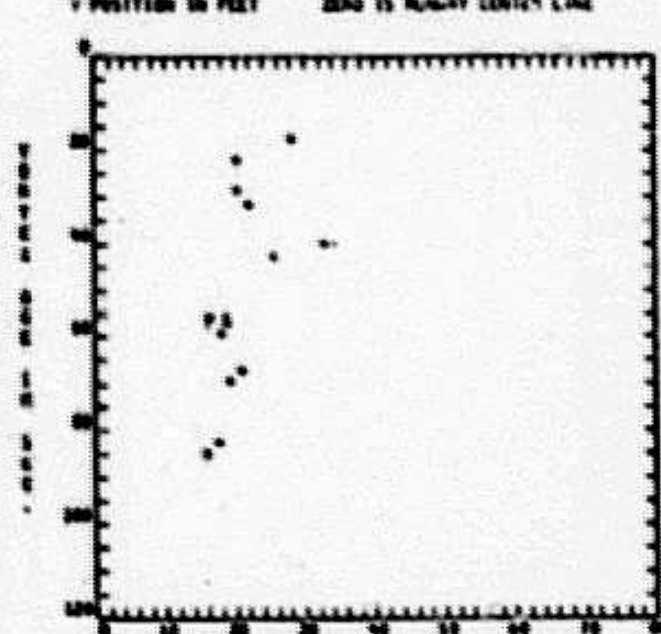
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE

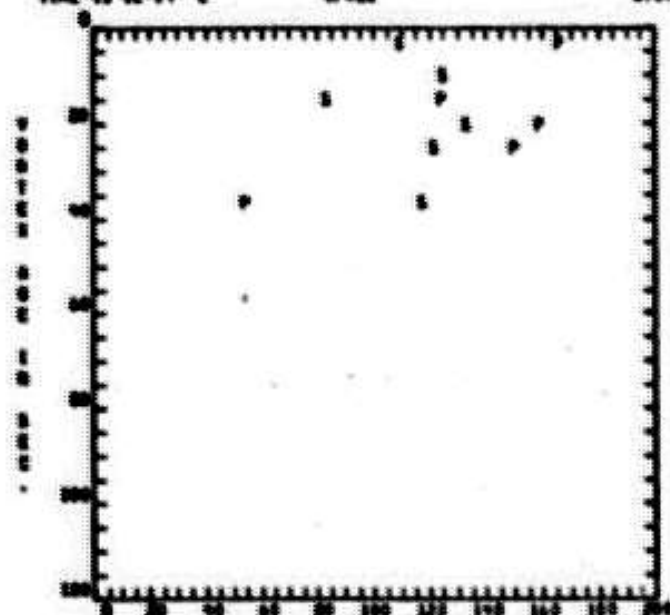
Run No. 10
TIME IS 12:14 PM

279.22

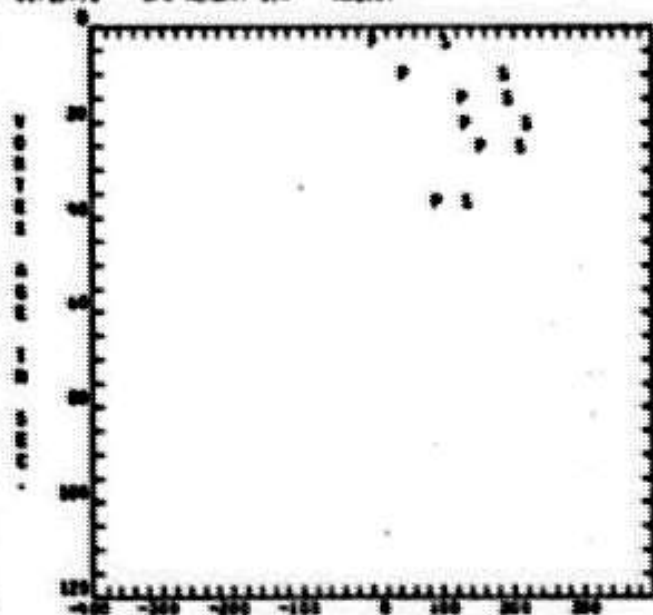
0707 01/25/76

278 RUNWAY 310

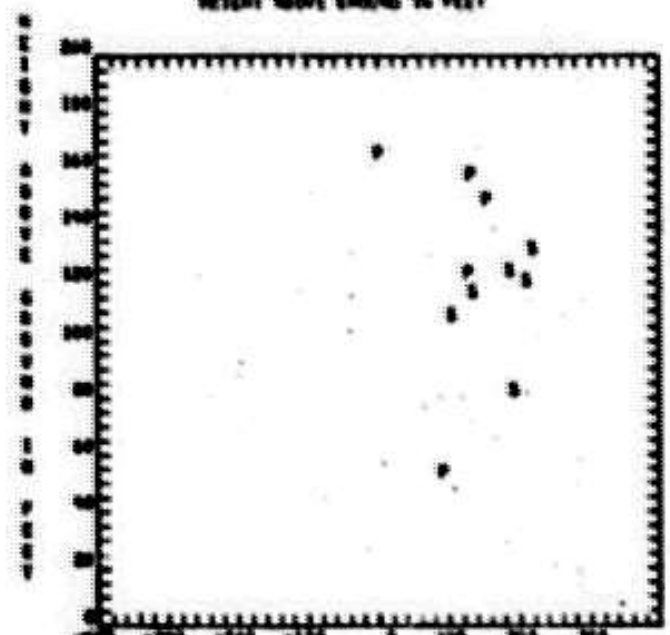
Run No. 0200000
00310



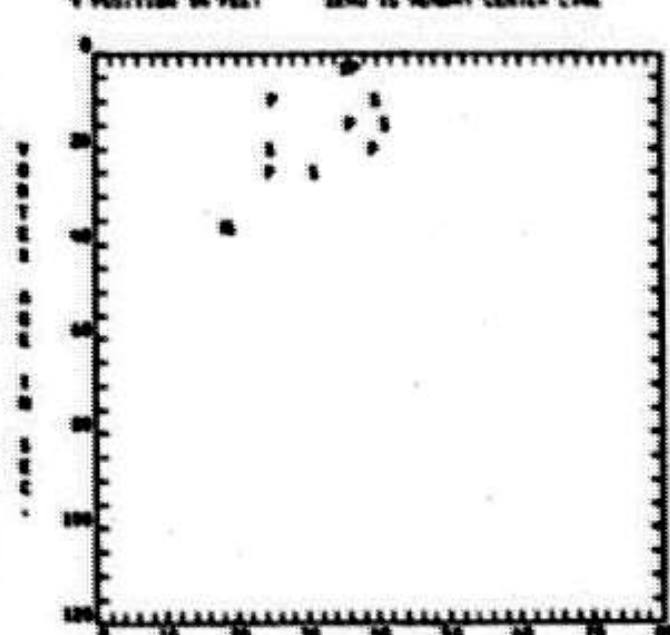
WEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



LINE OF SIGHT VELOCITY IN FT/SEC.

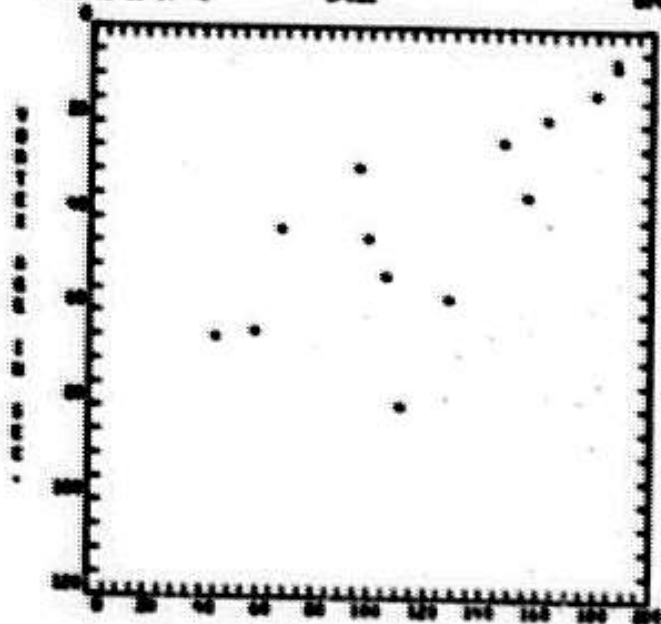
Run No. 20
TIME IS 13:17:0

JF22

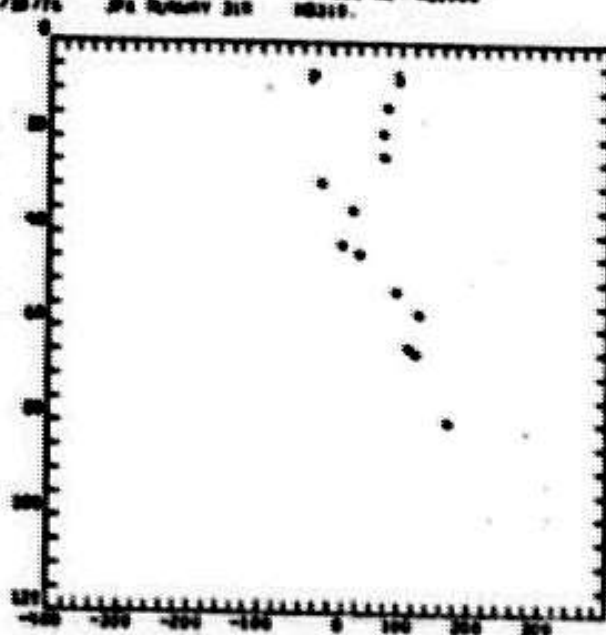
DATE 01/25/76

JFA RUMBY 210

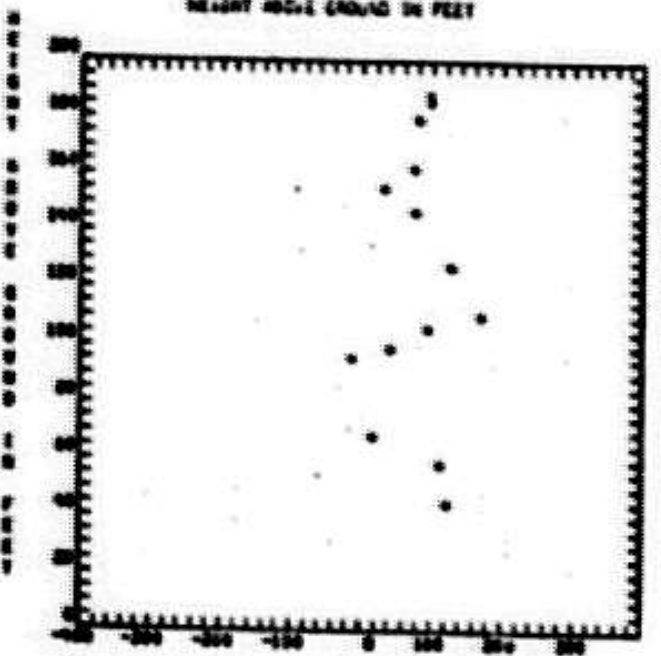
Run No 000000
R0210



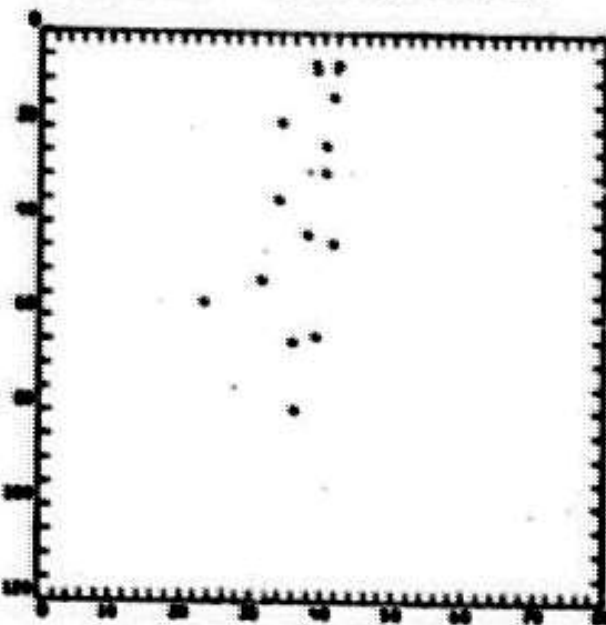
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



LINE OF SIGHT VELOCITY IN FT/SEC.

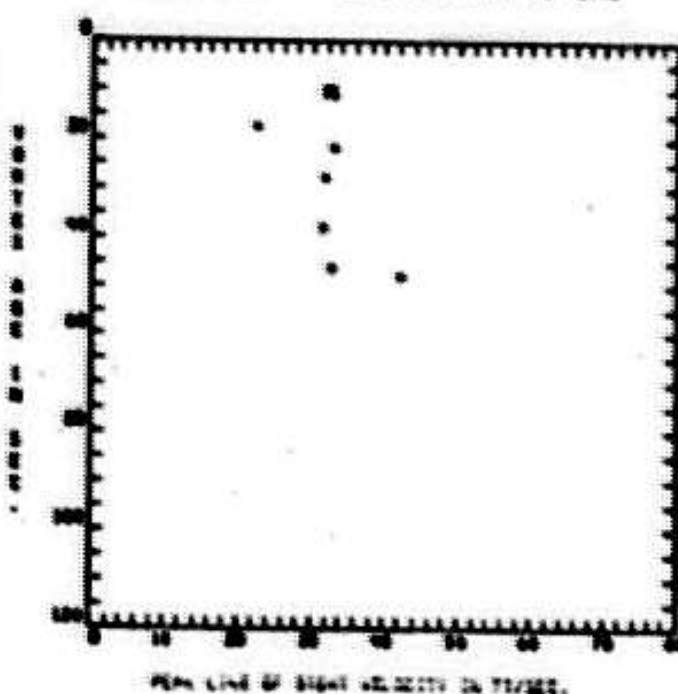
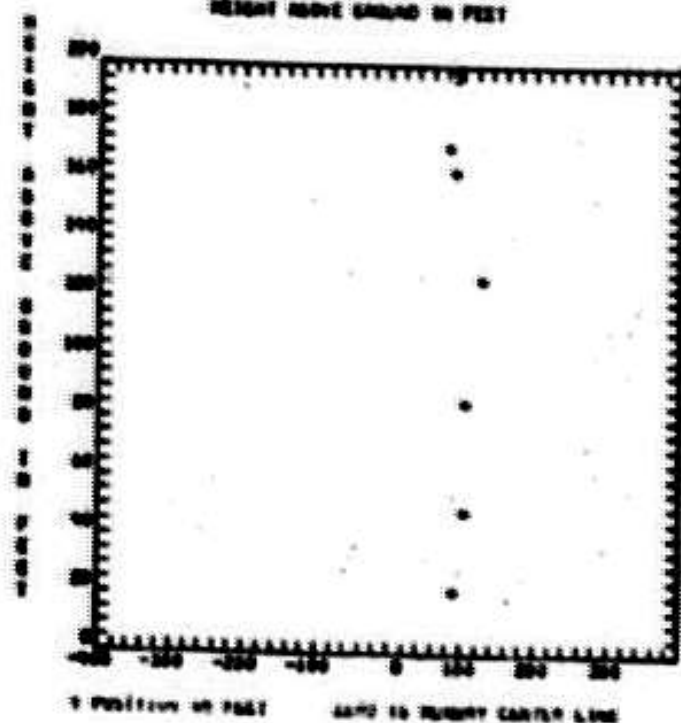
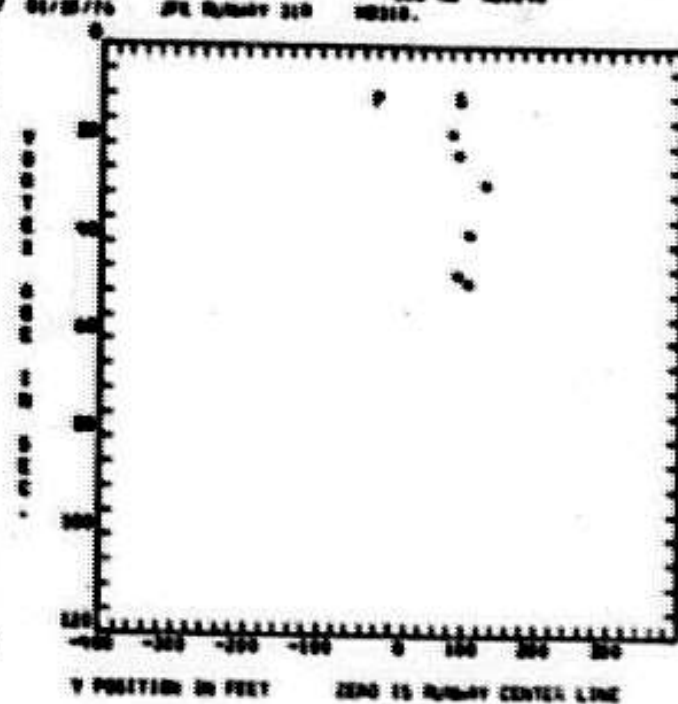
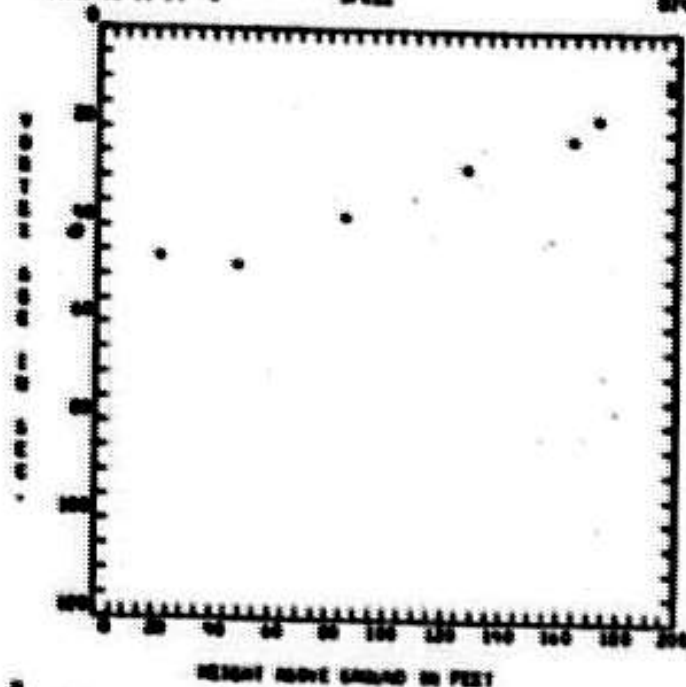
Run No. 26
TIME 22 12 51.0

JP422

SP47 01/25/76

JP4 Runway 310

Run No. 020040



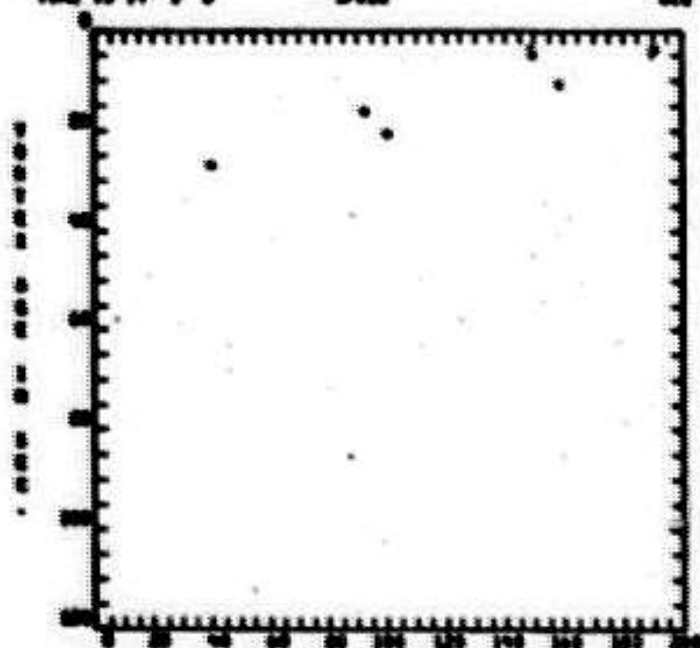
END OF
TIME IS 14: 30

JP122

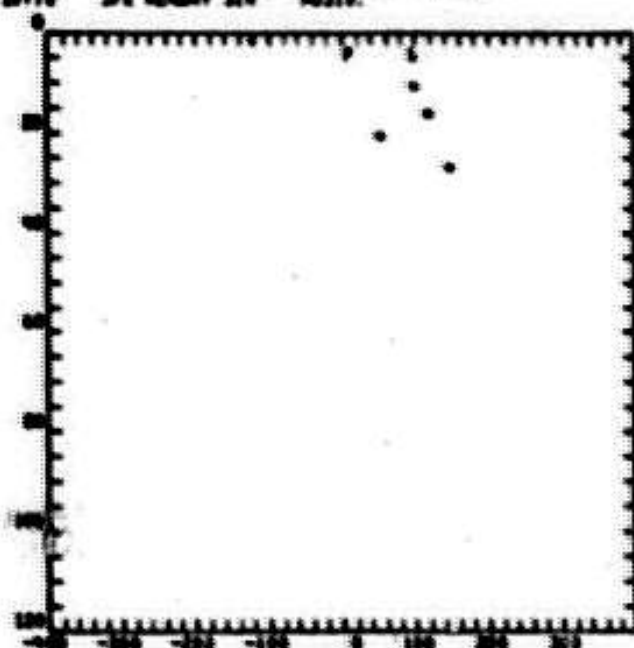
000 01/15/76

JP122 310

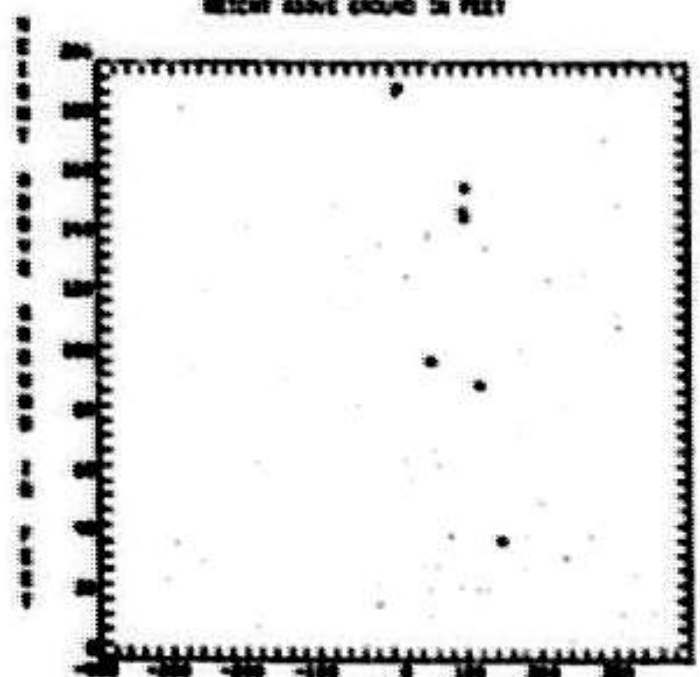
END OF 100000
10015



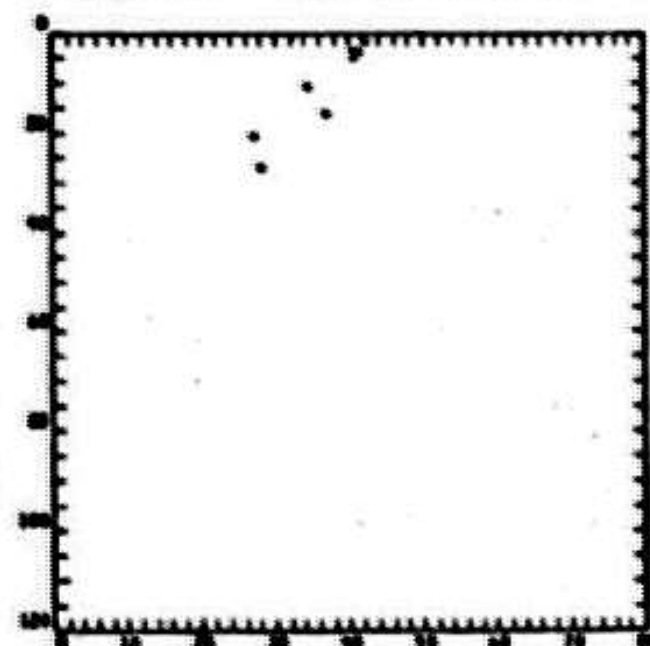
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



HEIGHT ABOVE GROUND IN FEET

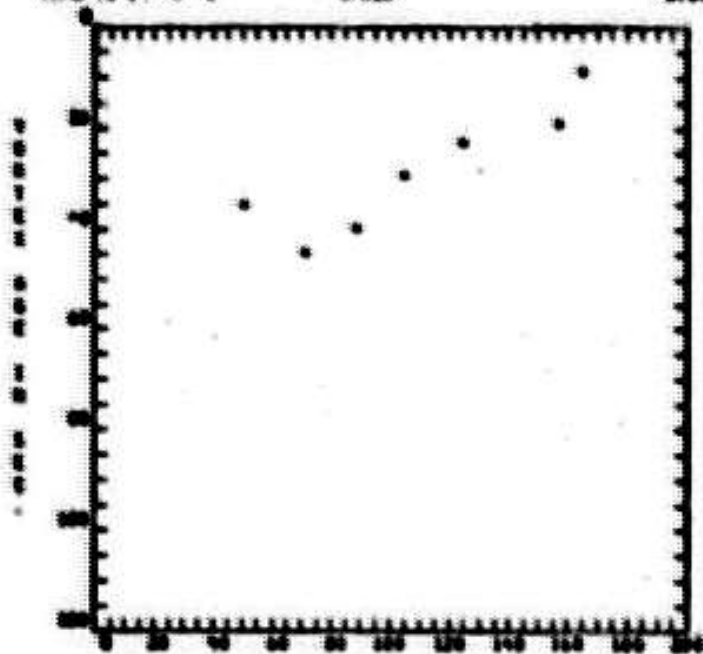
REF NO. 31
TIME 15 14 0

JP22

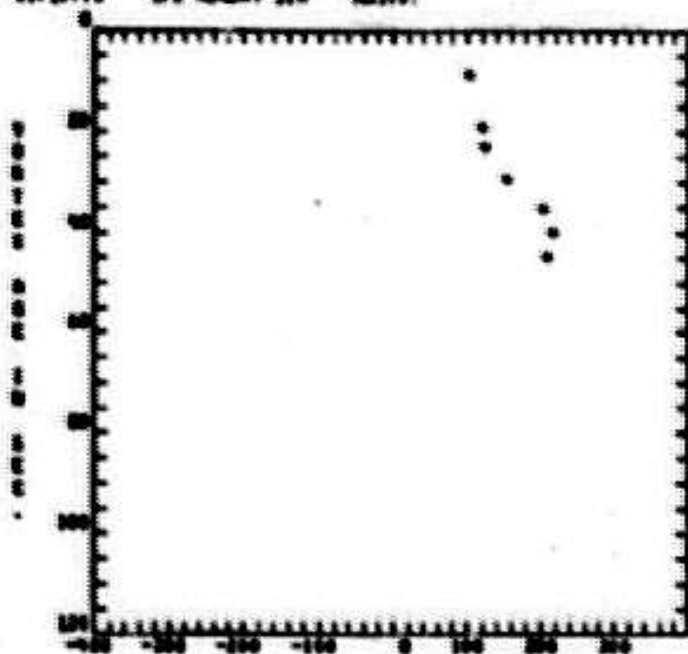
0707 01/10/76

JPL Runway 31R

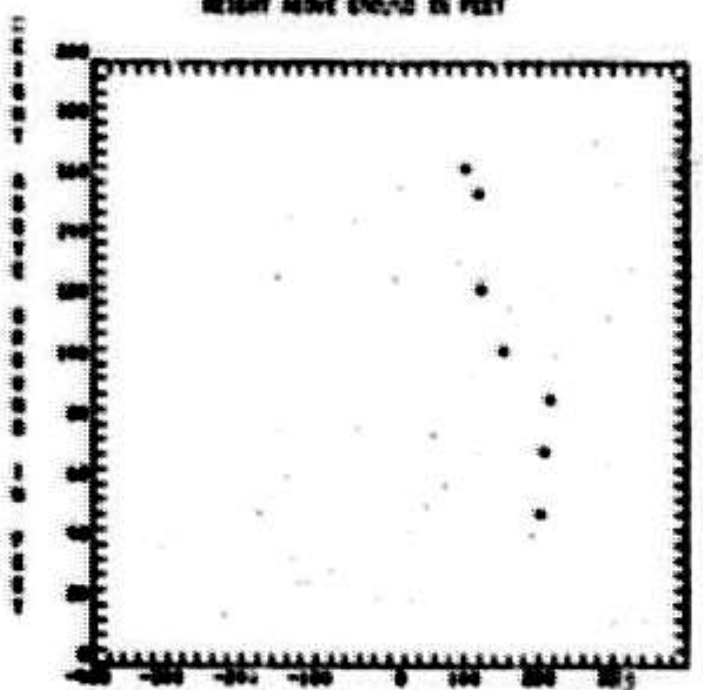
REF NO. 000000
00010



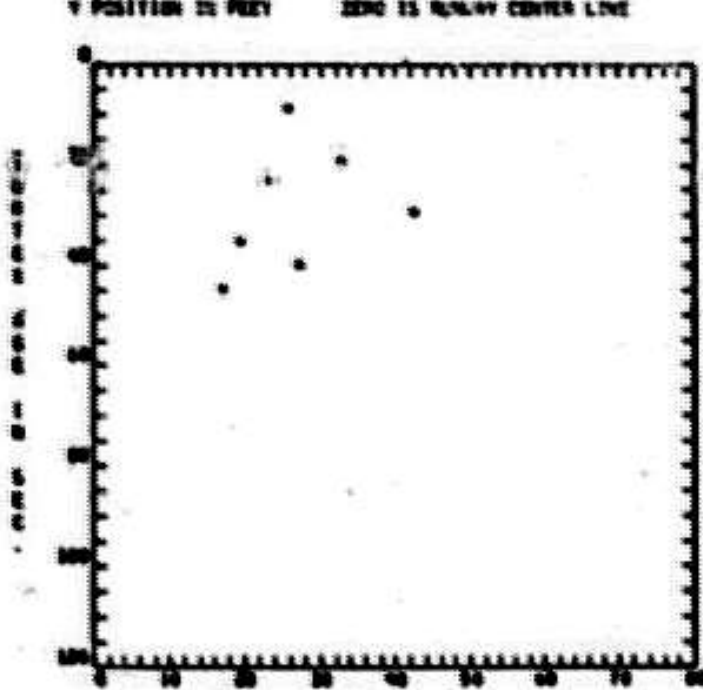
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



ZERO LINE OF SIGHT VELOCITY IN FT/SEC.

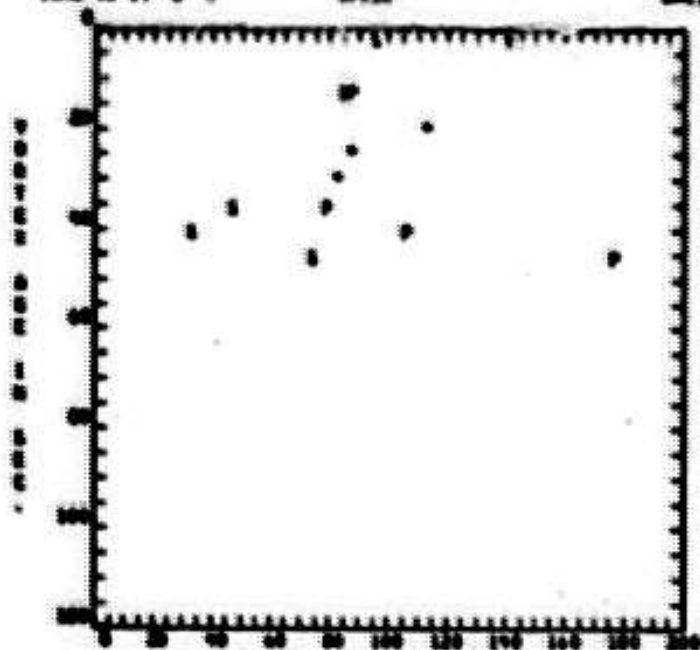
REF ID: A66000
TIME IS 14 00 0

REF ID: A66000

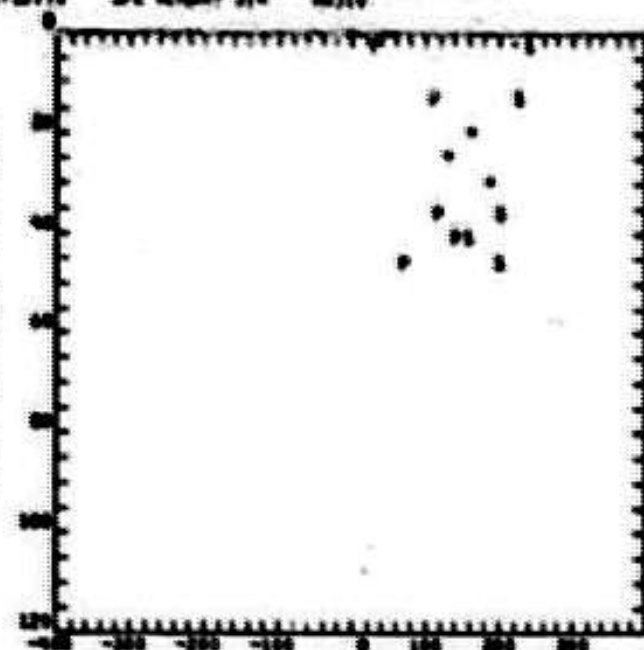
REF ID: A66000

REF ID: A66000

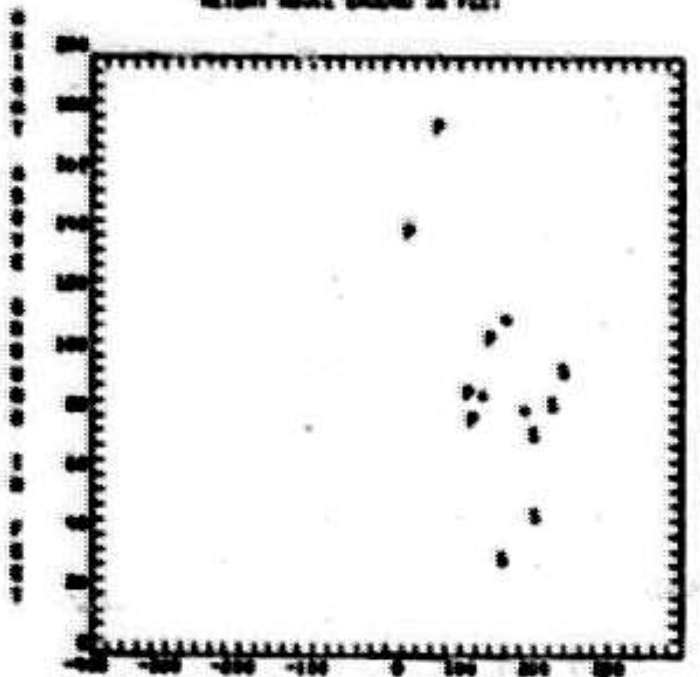
REF ID: A66000



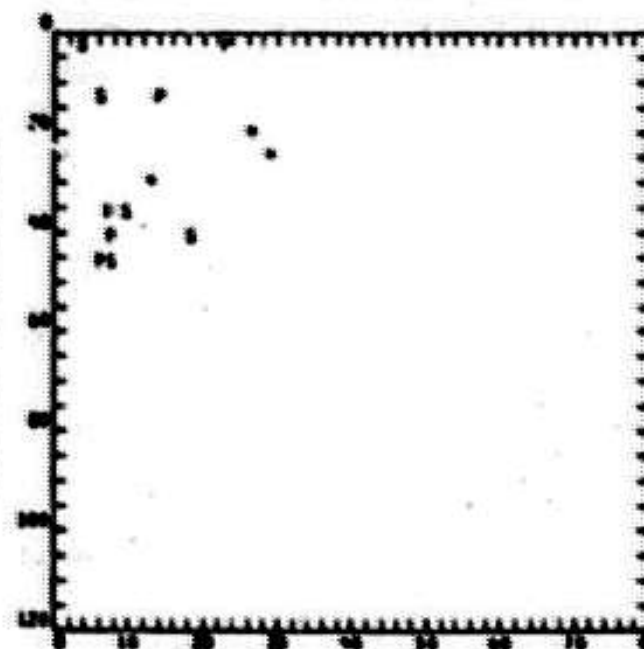
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 24
TIME 21 34'10" 0

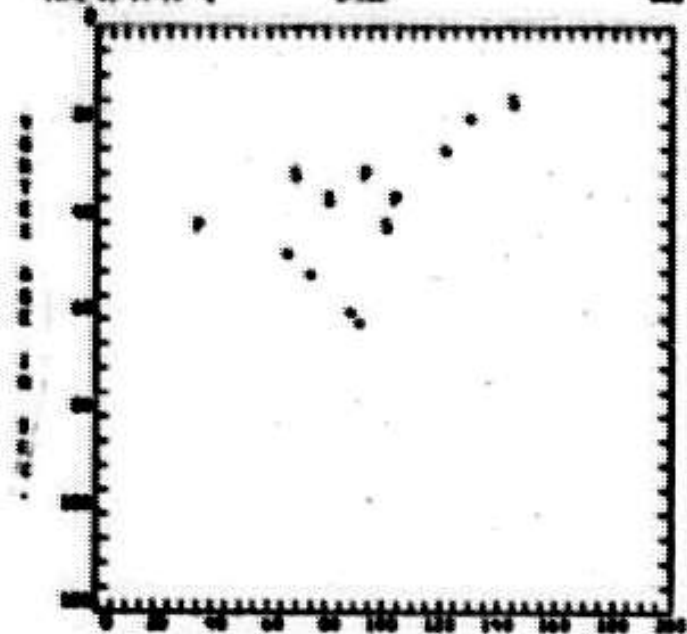
JP122

020

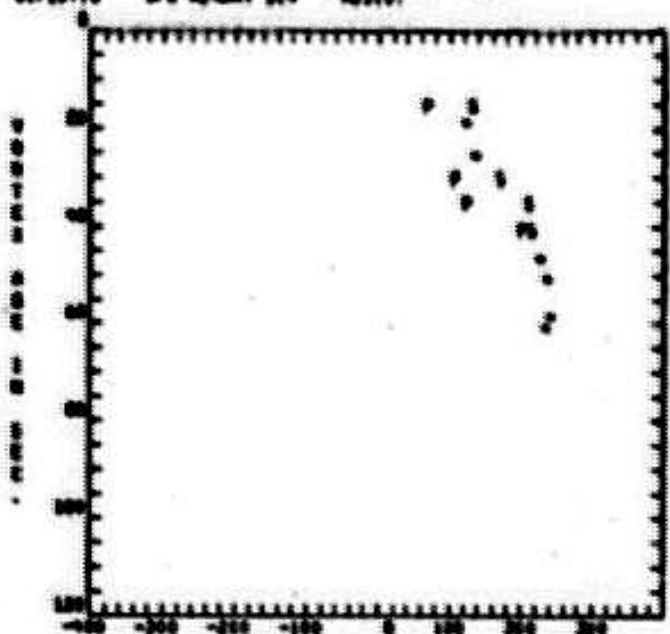
01/25/76

JPL Runway 31R

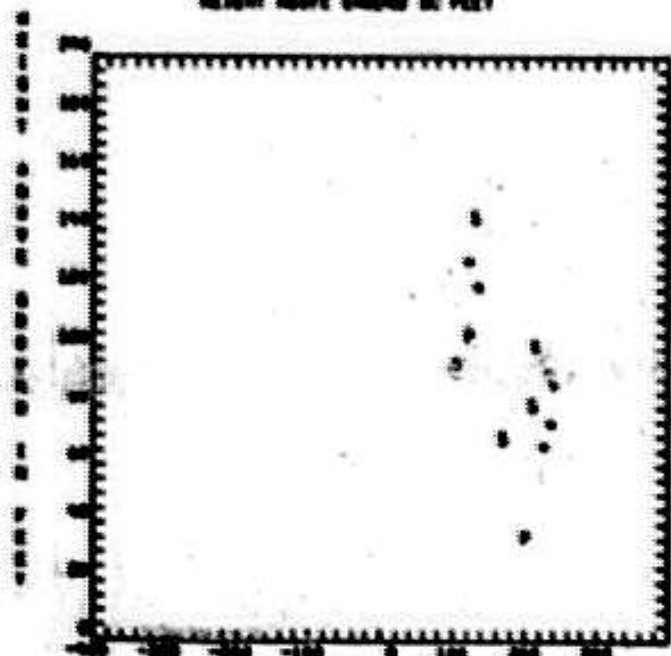
JPL NO 000000
10315.



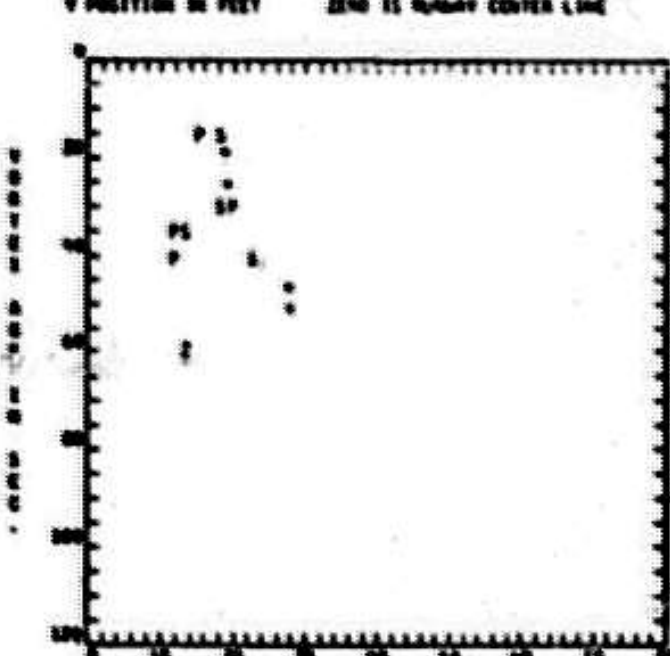
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

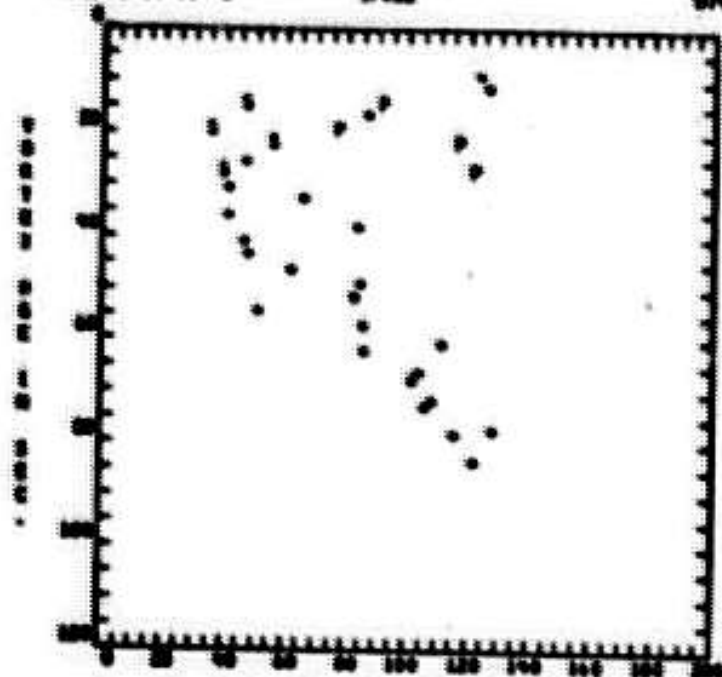
JOB NO. 49
TIME IS 10:41:00

JP422

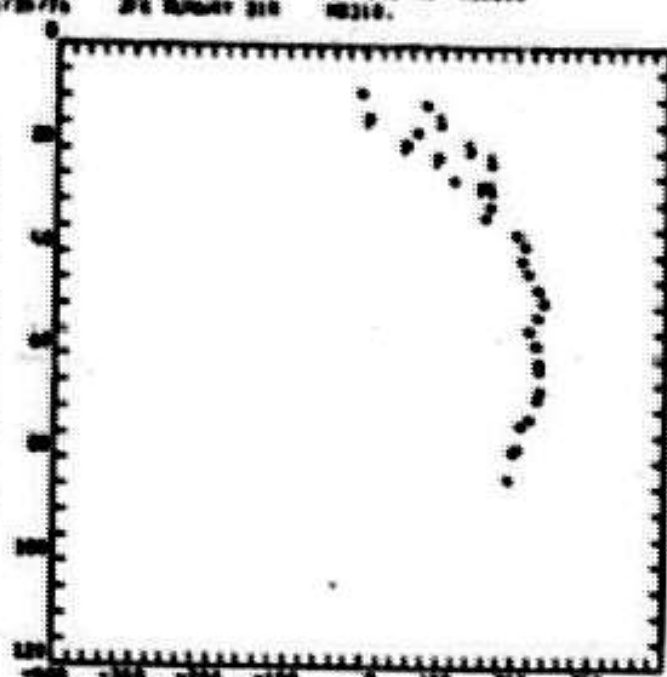
DATE 01/26/76

JFK RUNWAY 31R

JOB NO. 85-300
NO210.



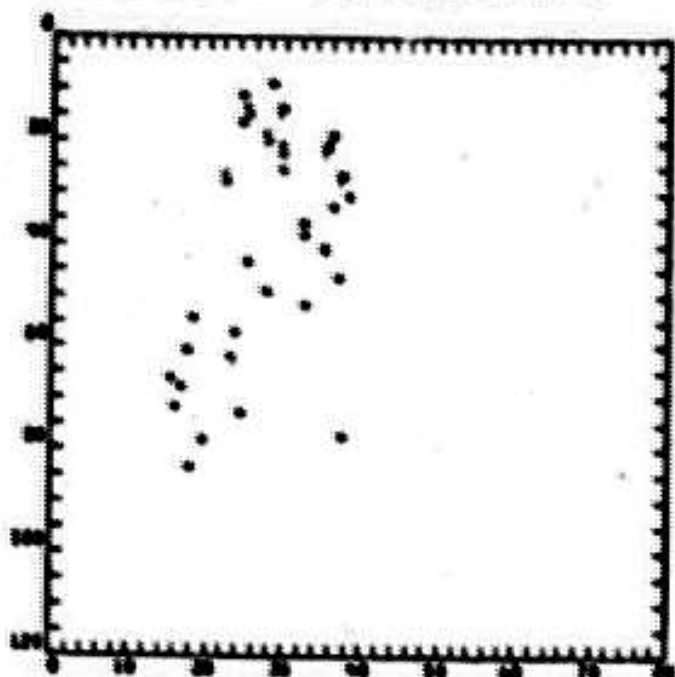
WENT ABOVE 2000 FT IN FEET



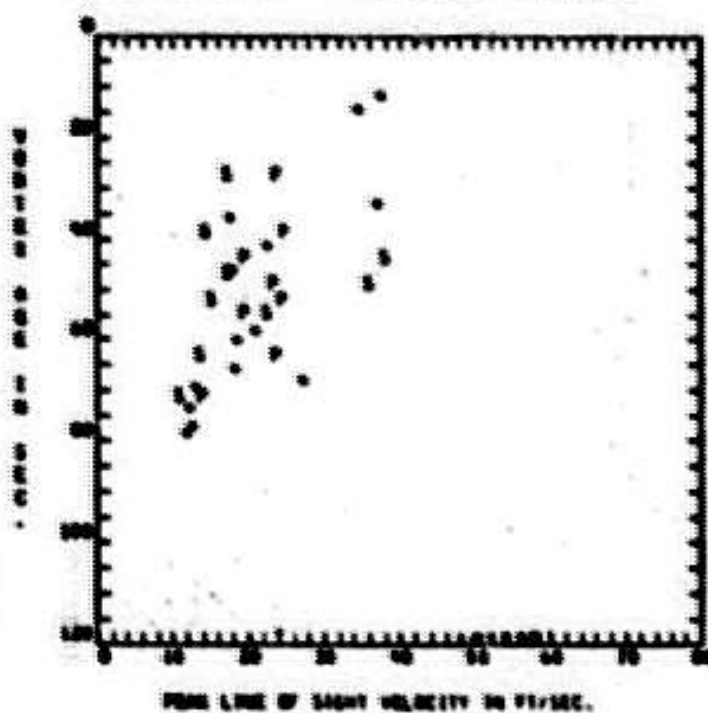
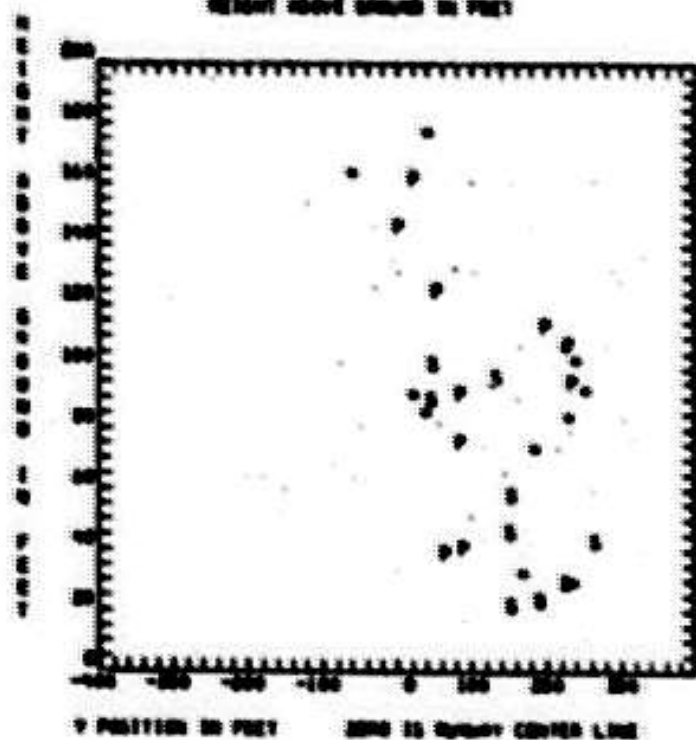
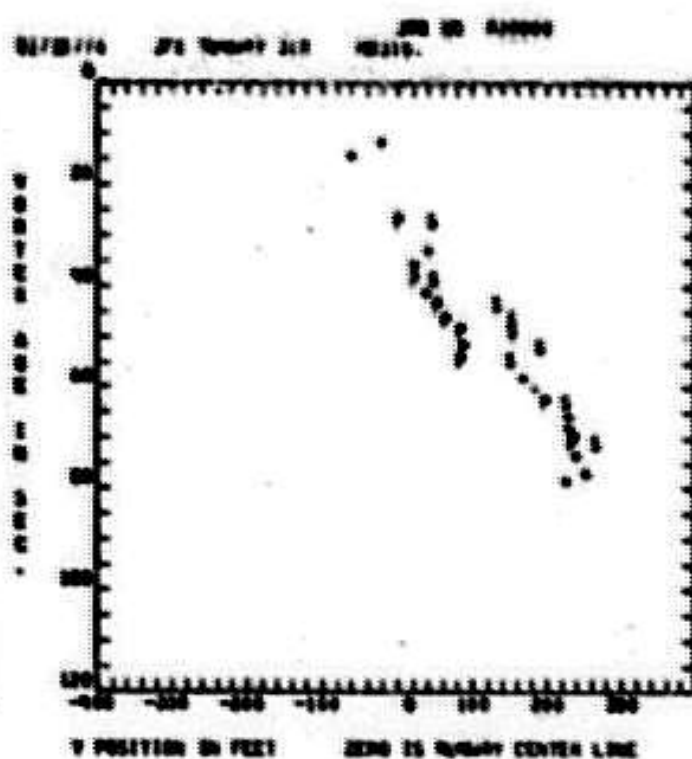
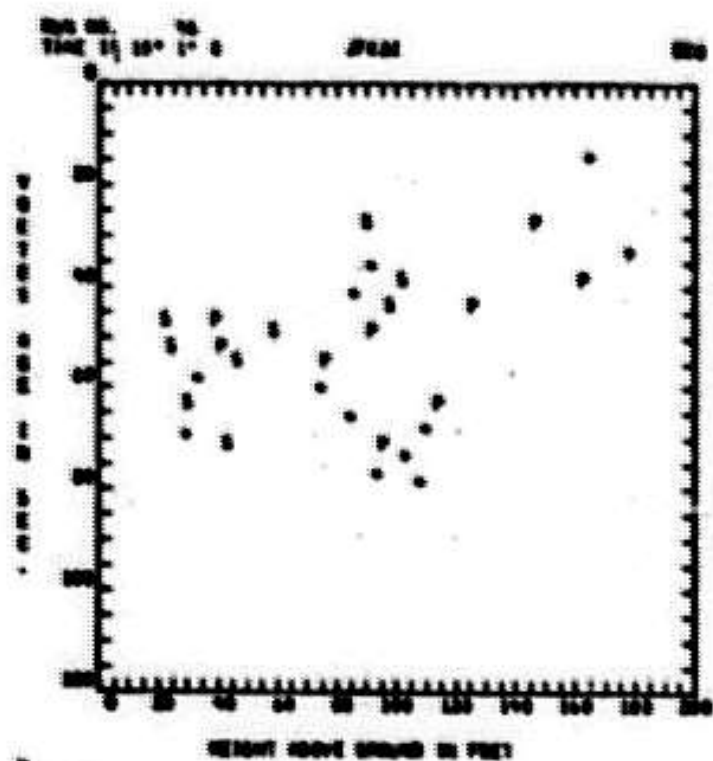
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.



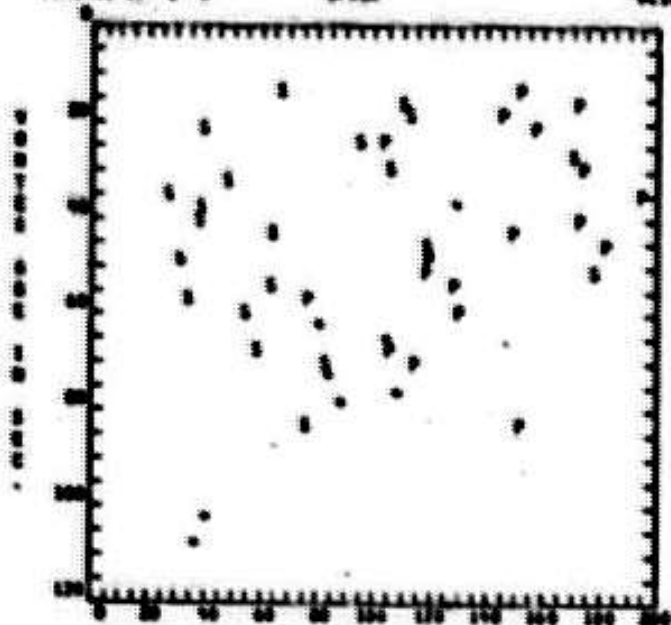
NO. 100 100 100
100 100 100

NO. 100

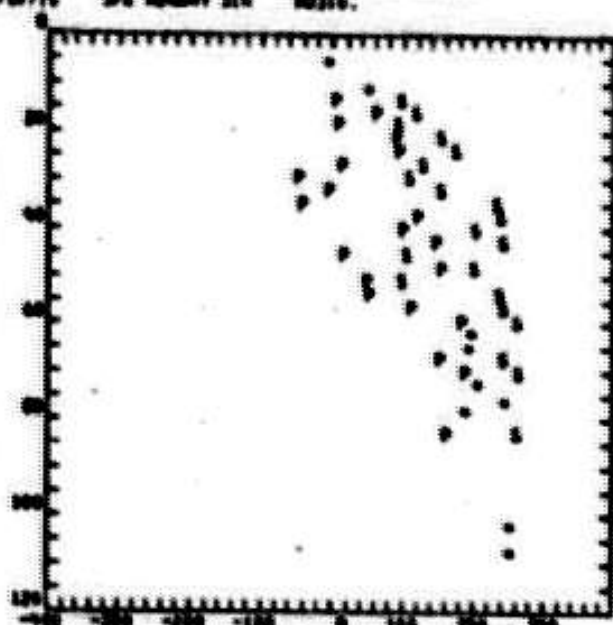
NO. 100 01/01/76

NO. 100 01/01/76

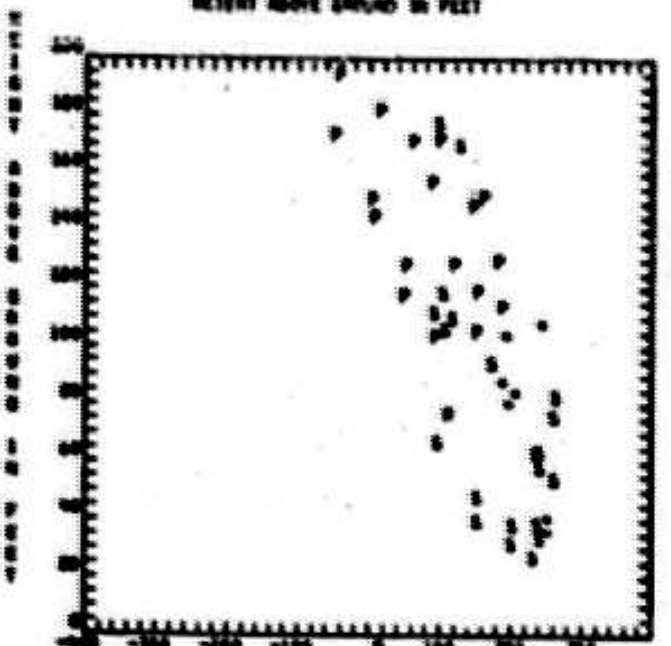
NO. 100 01/01/76



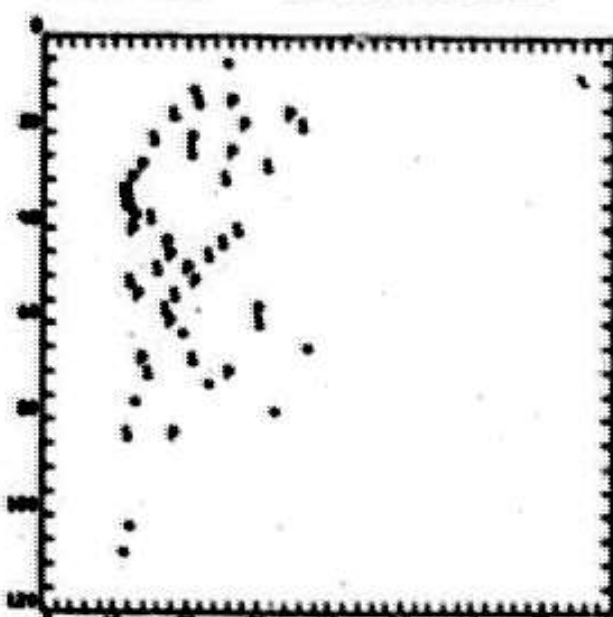
HEIGHT ABOVE GROUND IN FEET



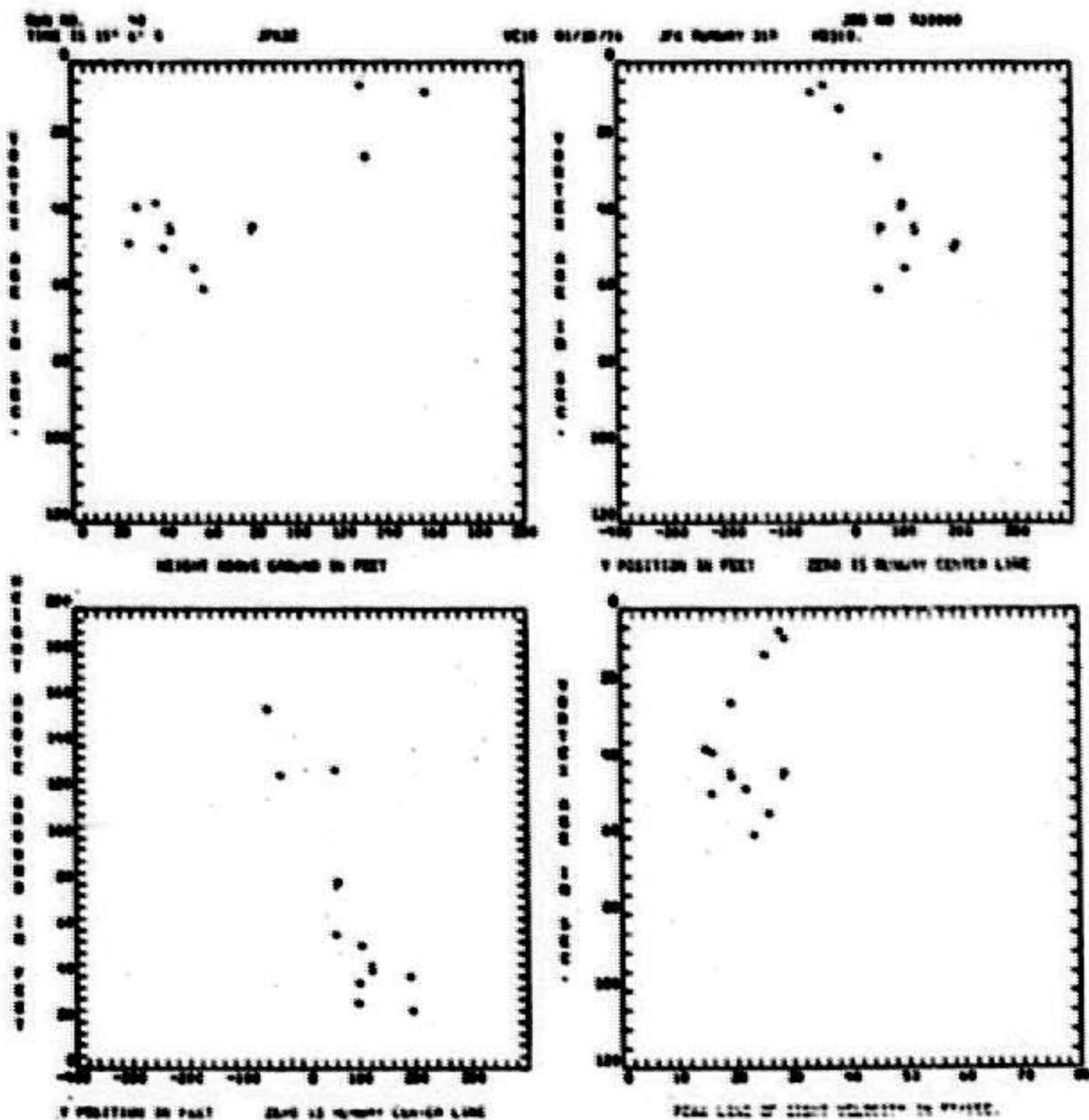
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



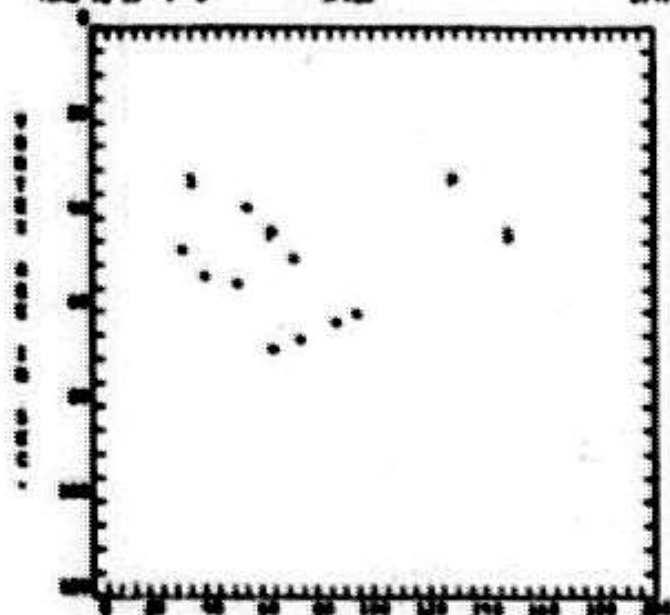
RUN NO. 10
1000 10 10 0

JP32

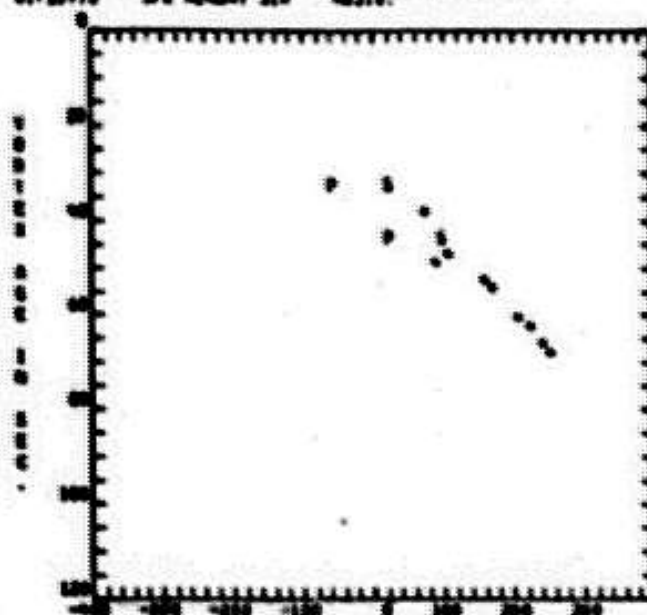
DATE 01/10/76

JPL NUMBER 310

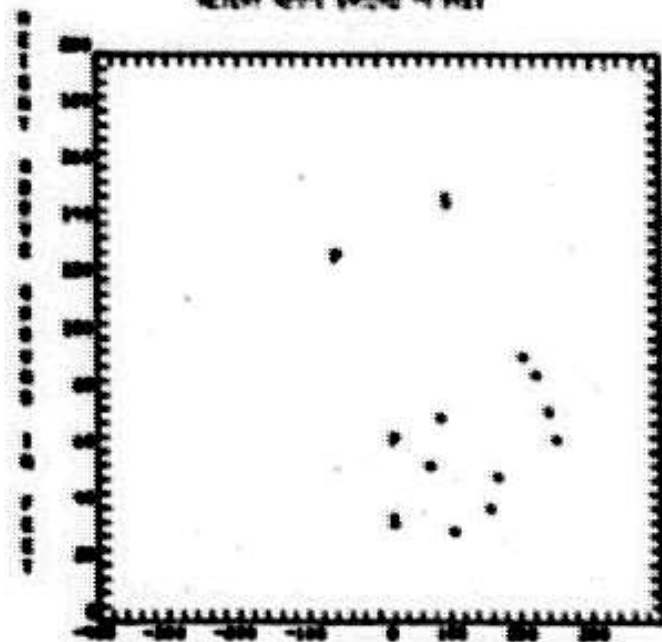
RUN NO. 000000
00000



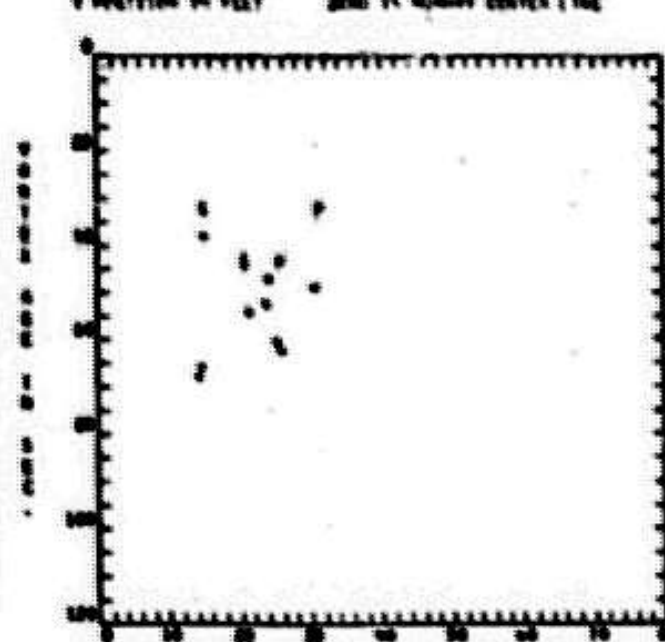
RETENT RET-E SIGNAL IN FEET



Y POSITION IN FEET ZERO IS HUNTER CENTER LINE



Y POSITION IN FEET ZERO IS HUNTER CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC

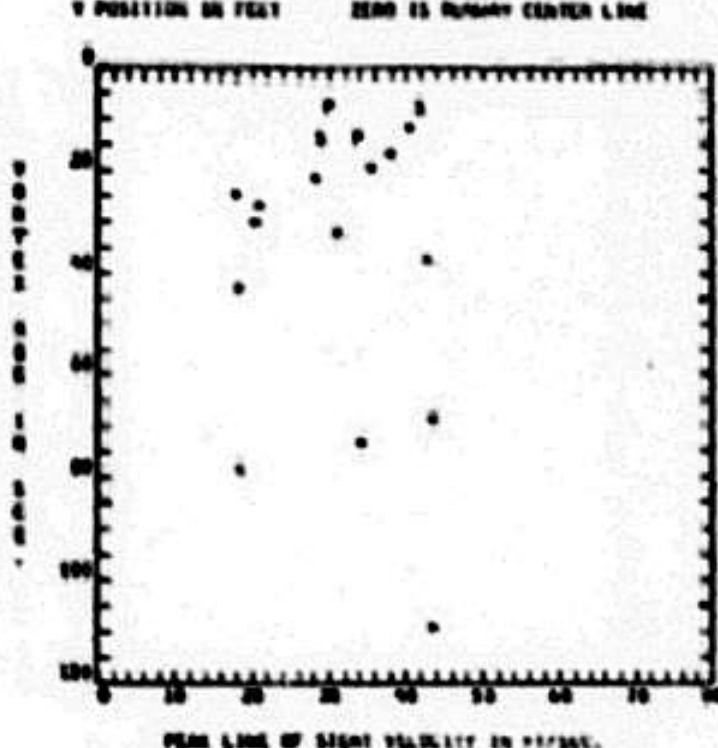
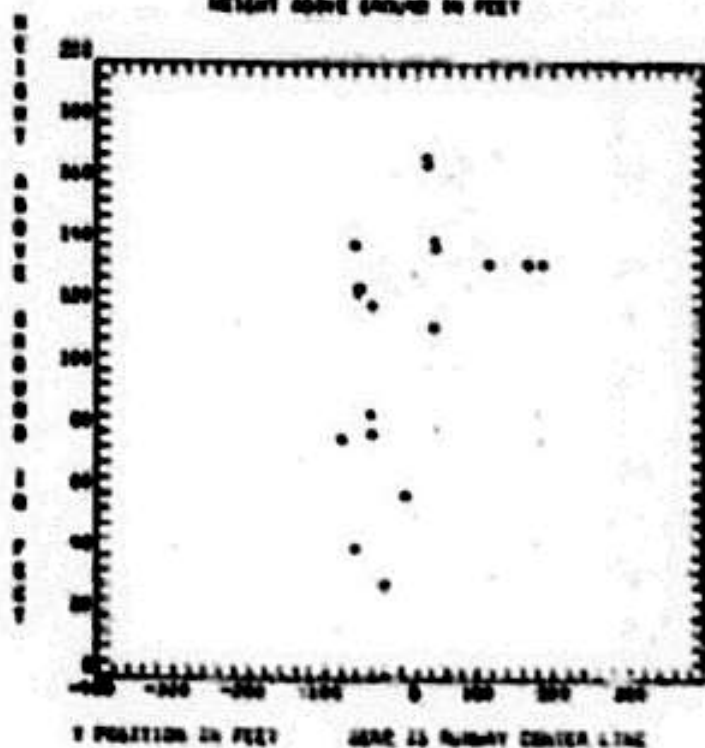
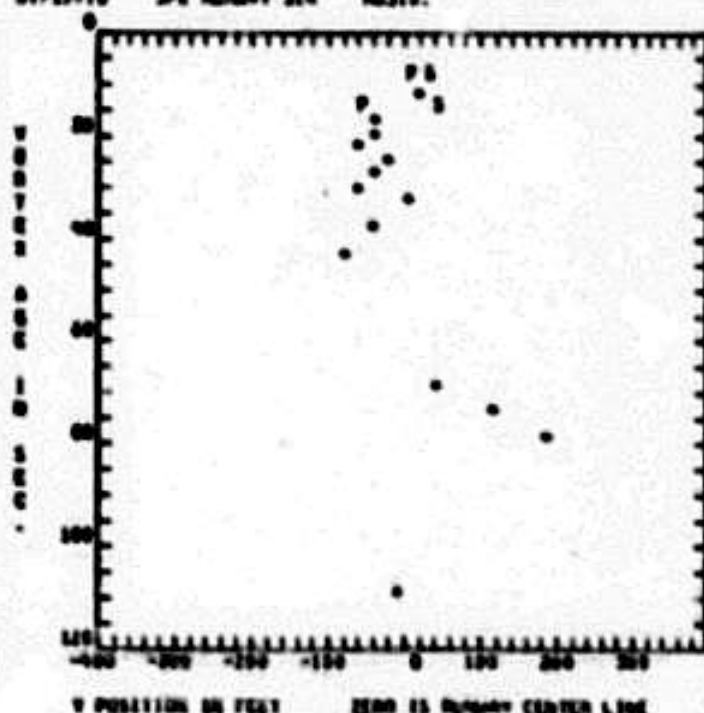
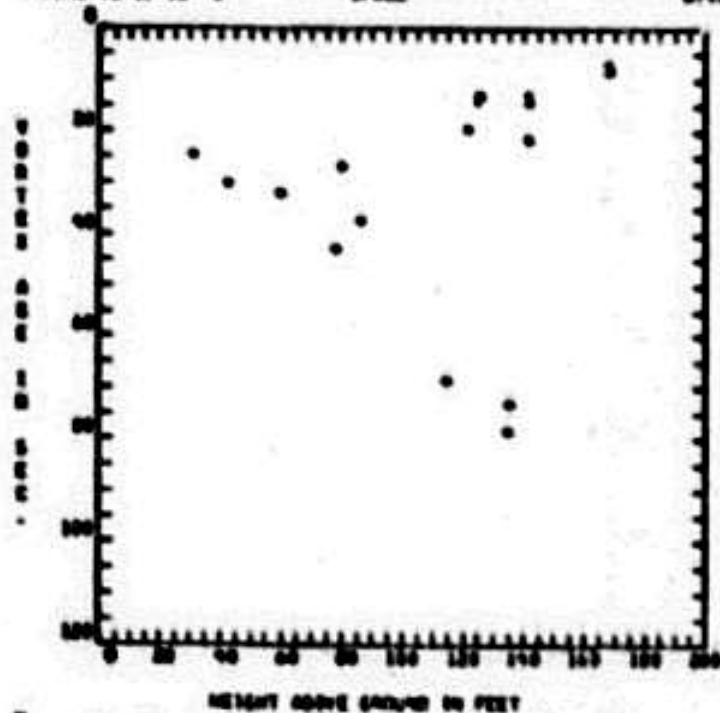
Run No. 10
Time 15 15:12 0

JFE22

0147 01/25/76

JFE Runway 21R

Run No. 000000
HD310.



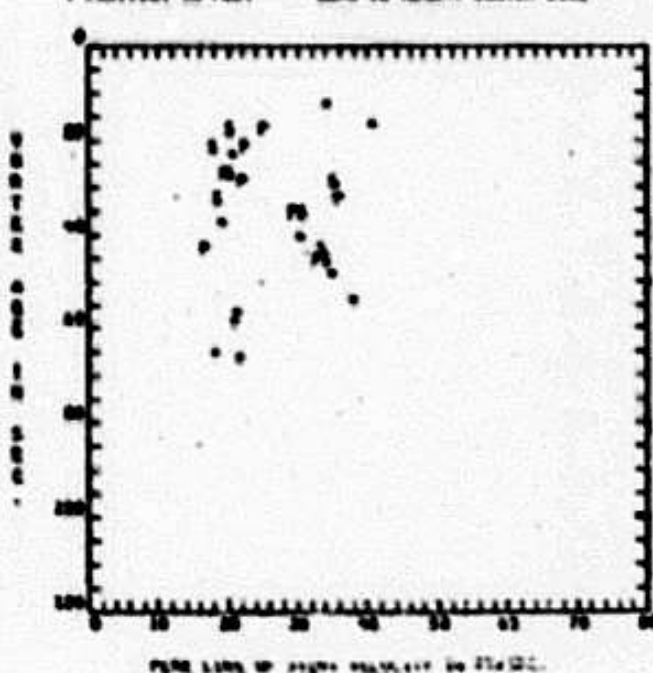
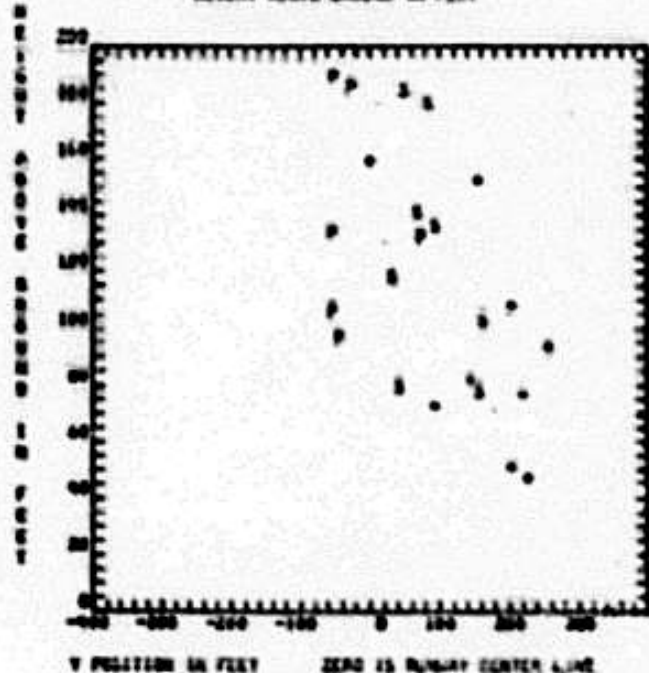
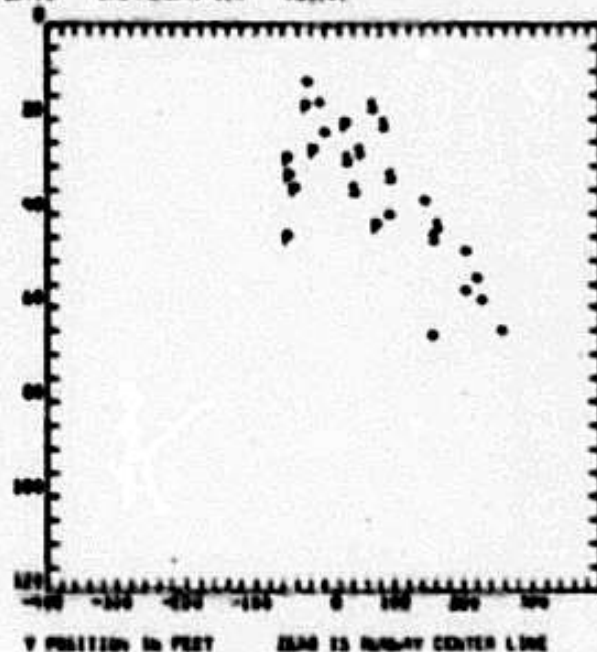
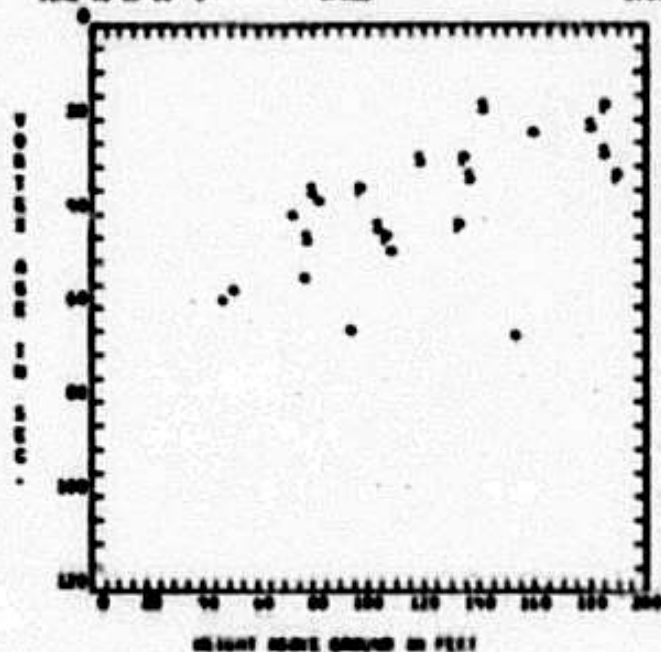
Run No. 91
TIME 11 15 14.0

JF022

0707 01/10/76

JFK Runway 31R

Job No 000000
NC310.



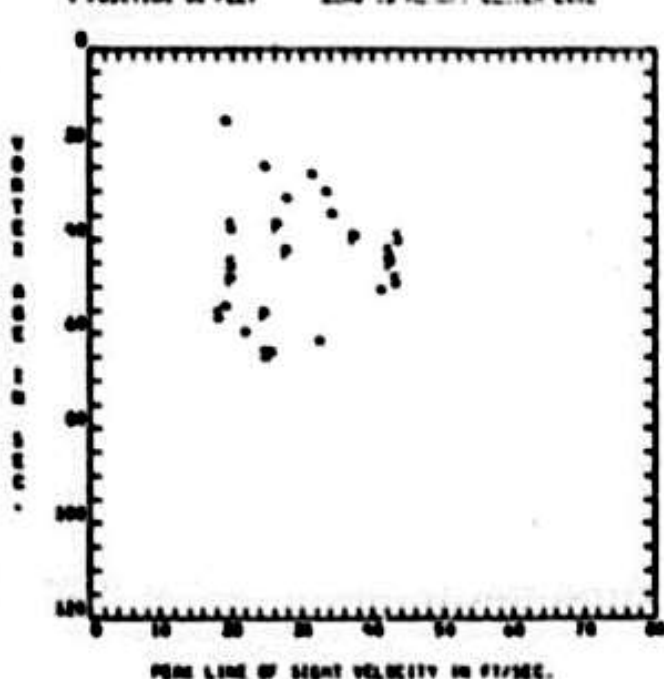
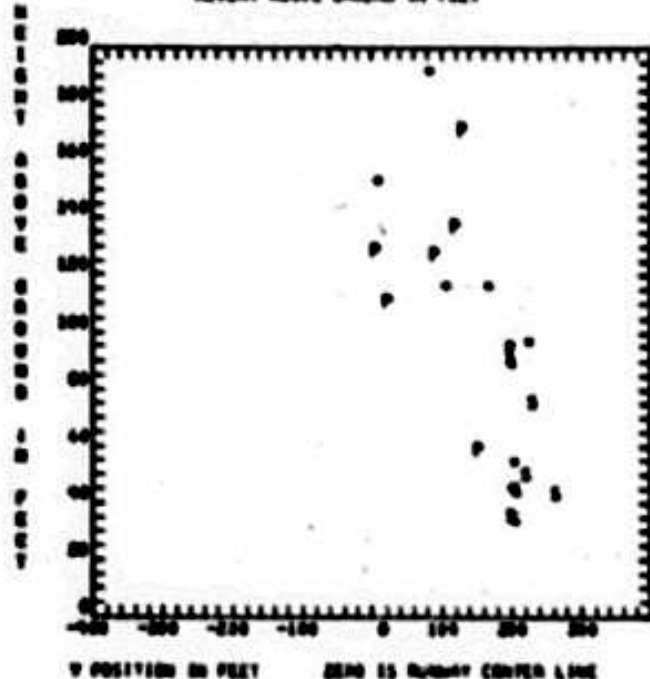
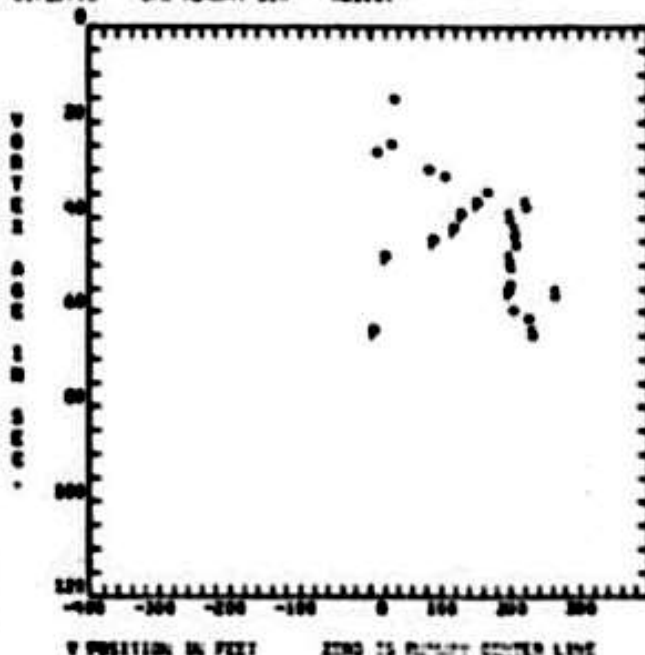
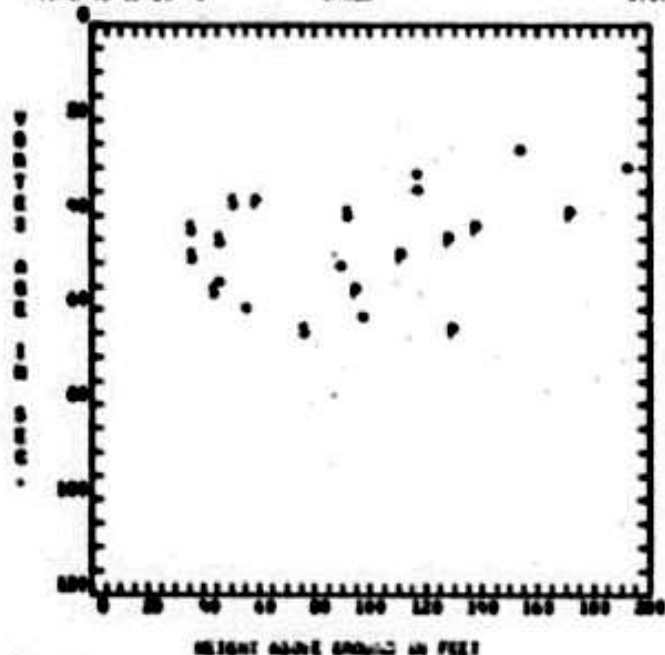
Run No. 92
TIME IS 15:23:0

JFK22

0707 01/20/76

JFK Runway 31R

Run No. 030000
HD310.



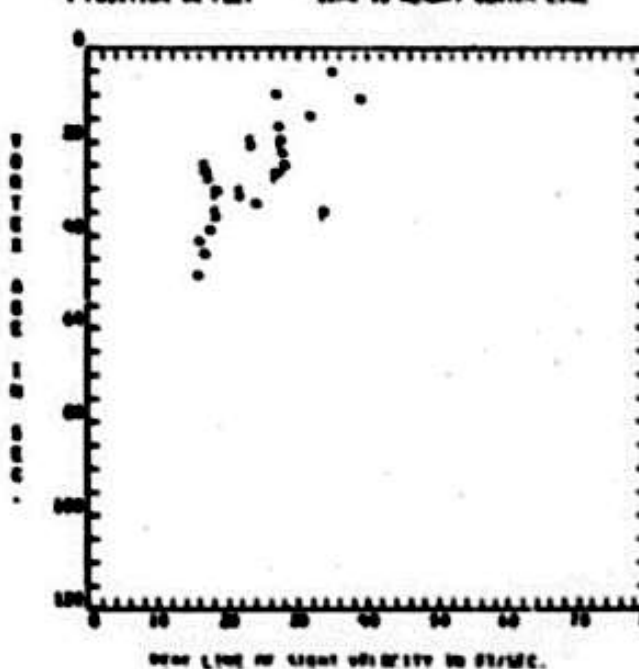
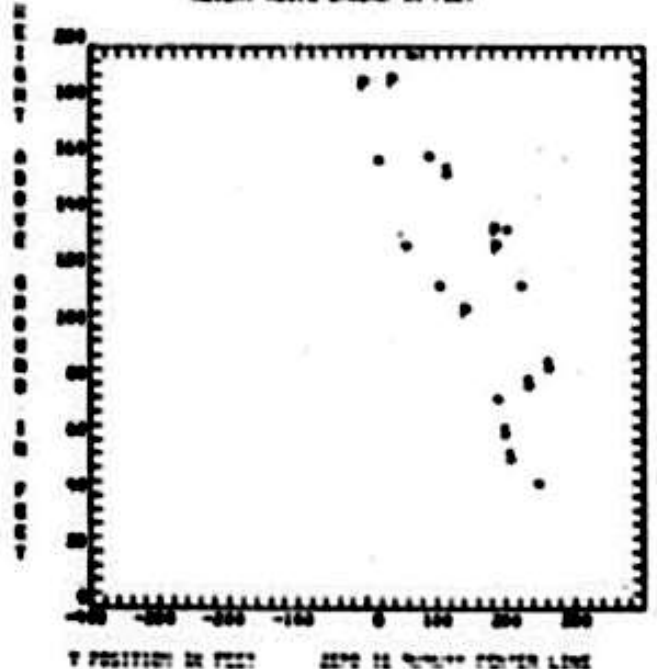
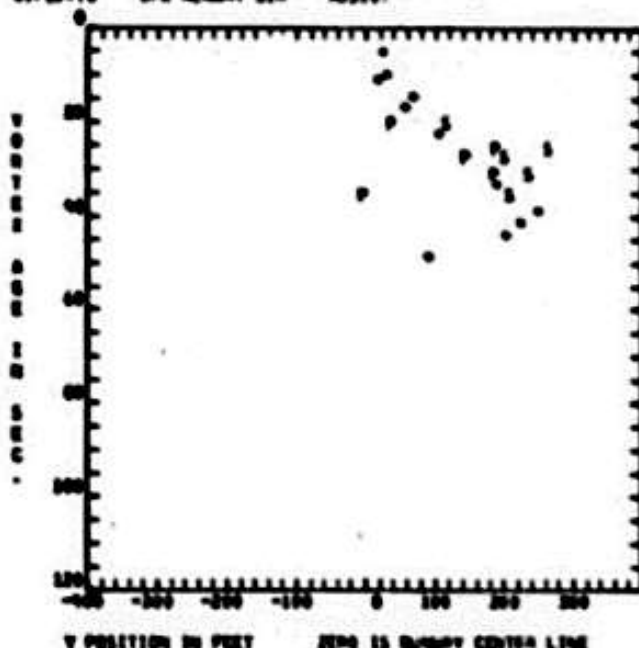
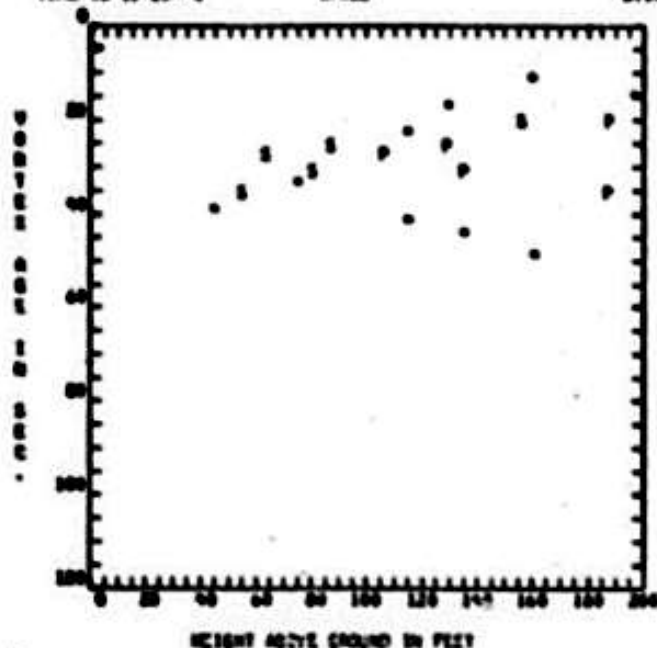
REP NO. 94
TIME IS 10:25:00

JR22

DP07 01/25/76

JPL RUNWAY DIR

JOB NO. R30000
R0310



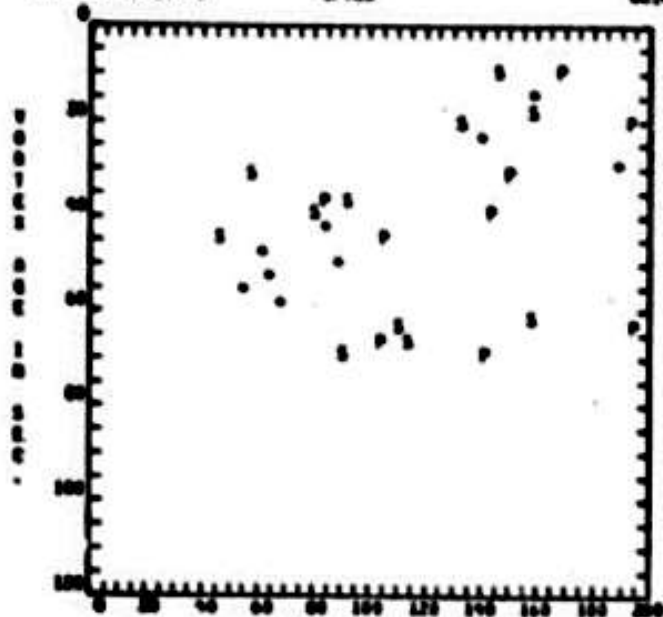
Run No. 99
TIME 15 19 24 0

JF22

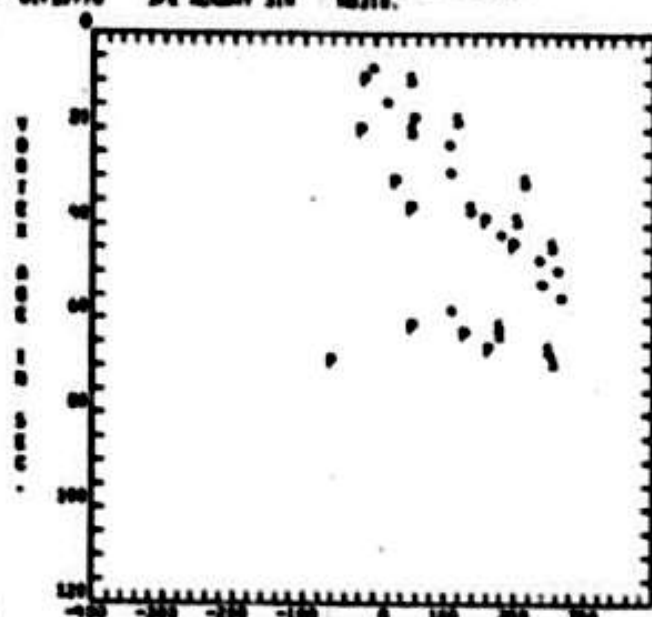
DE10 01/15/76

JF2 Runway 310

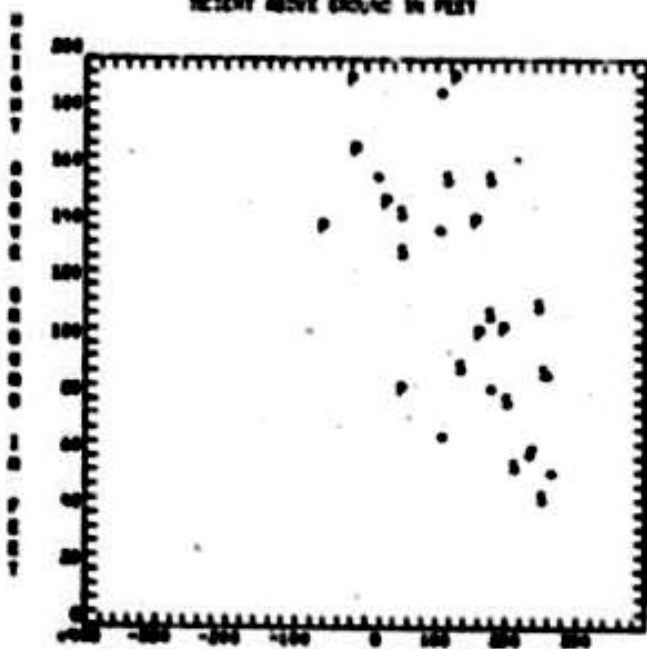
Run No. R20000
10210.



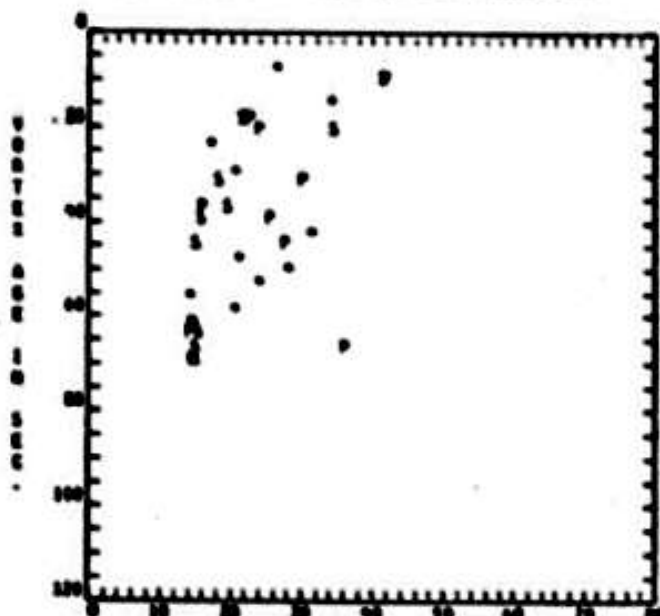
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



HEAD WIND OR CROSSWIND VELOCITY IN FT/SEC.

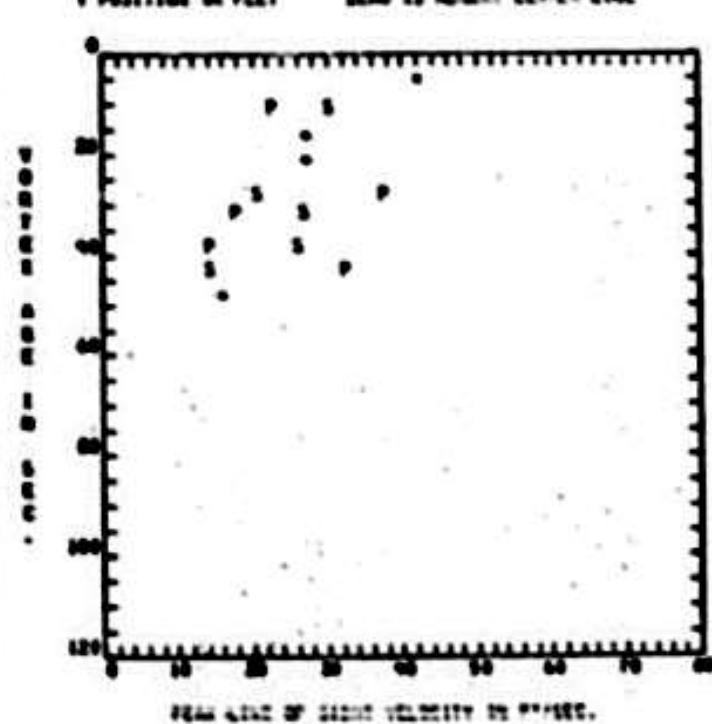
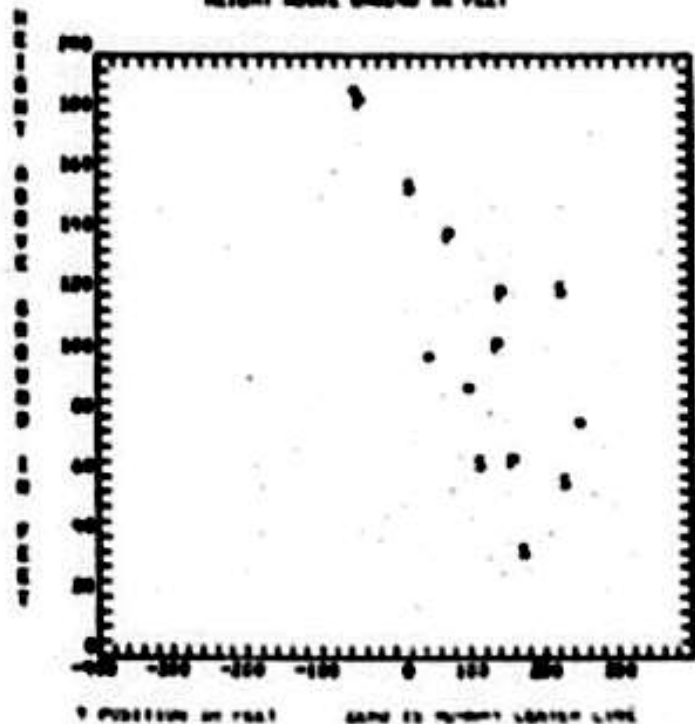
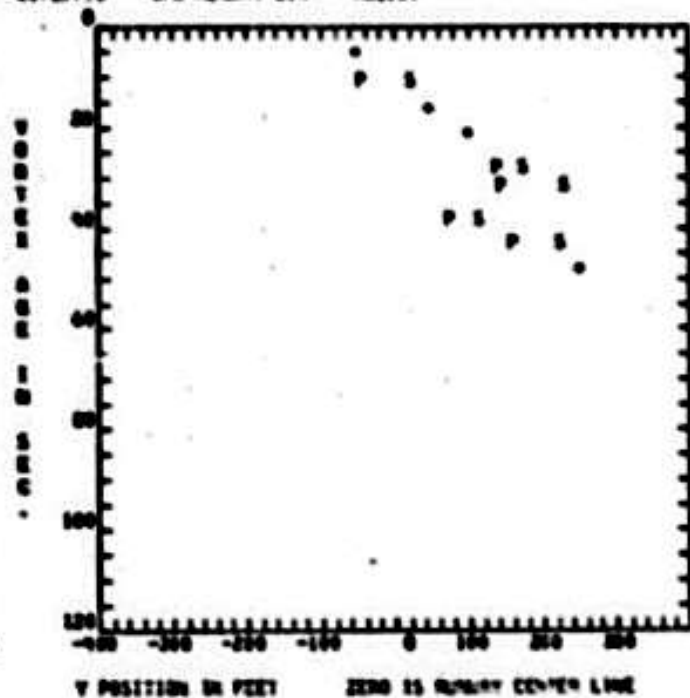
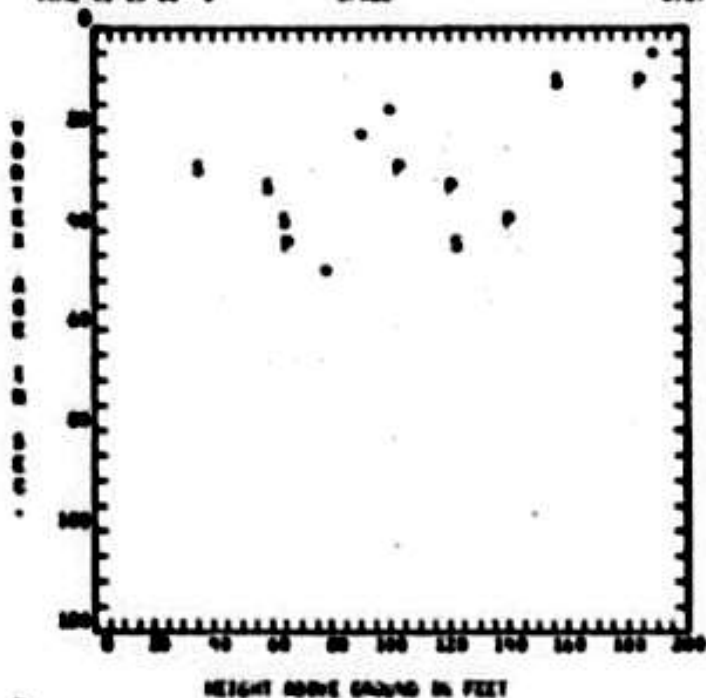
Run No. 97
TIME IS 10:36:0

JF622

0727 01/25/76

JFK Runway 31R

Run No. 020000
HE210.



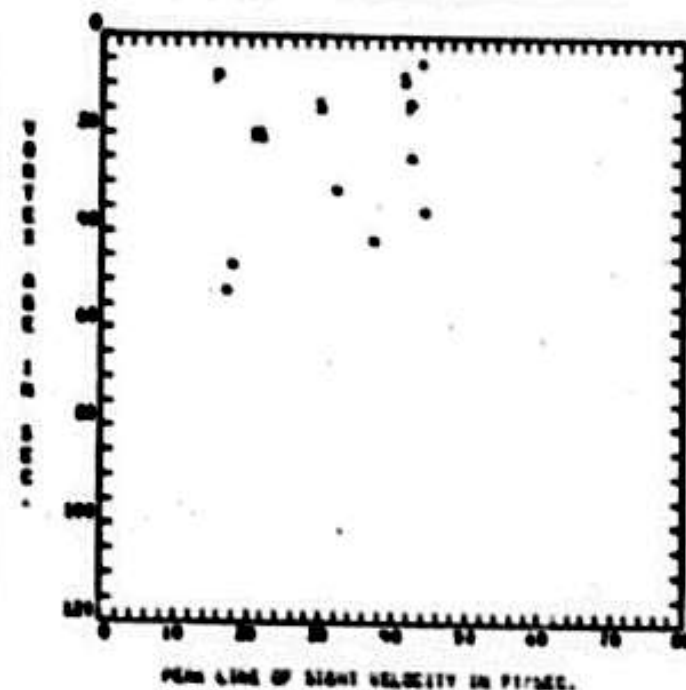
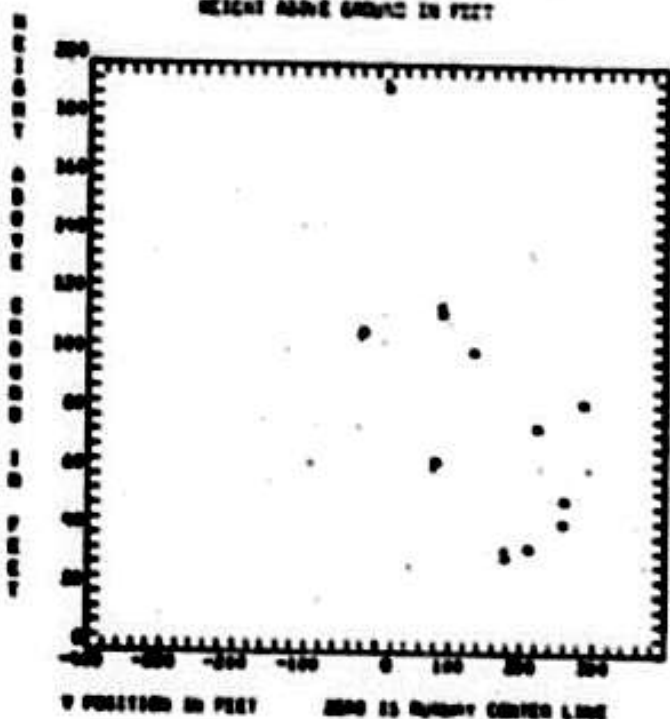
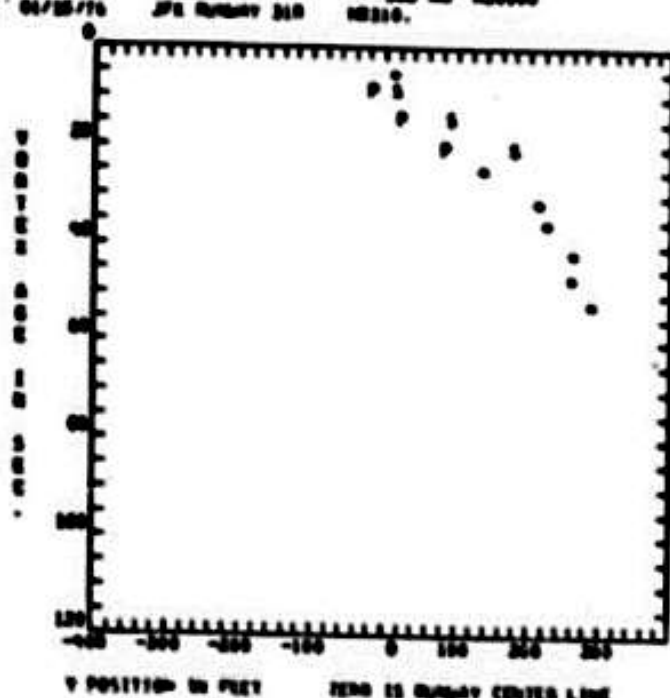
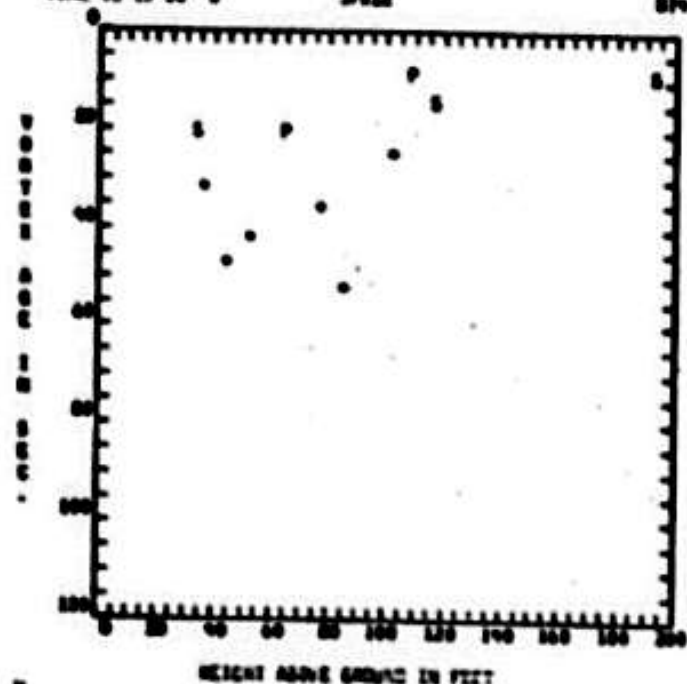
Run No. 90
TIME IS 19:20:00

JF022

SP47 01/25/76

JPL Runway 310

Run No. 020000
00310.



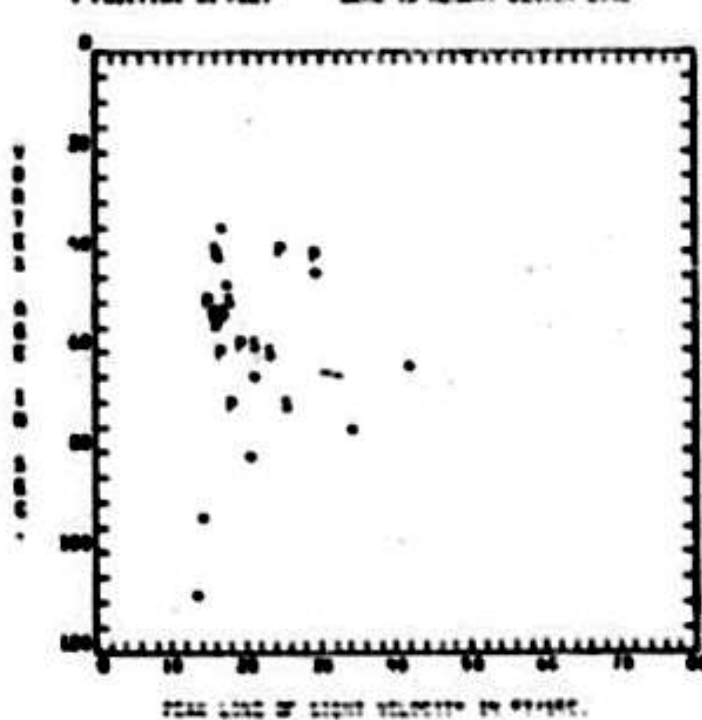
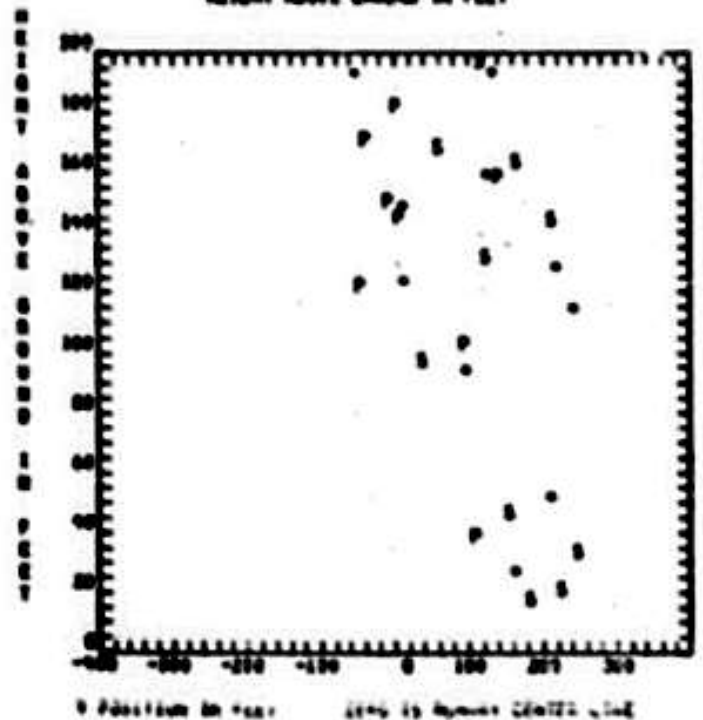
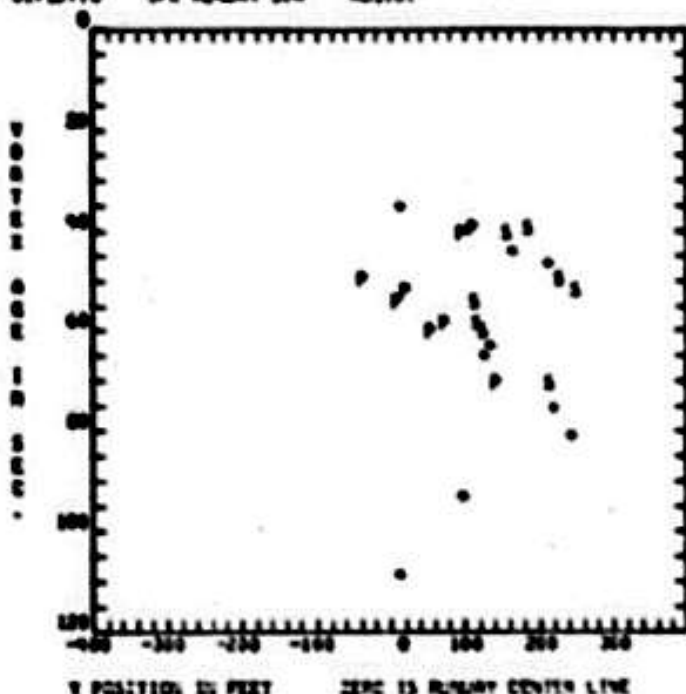
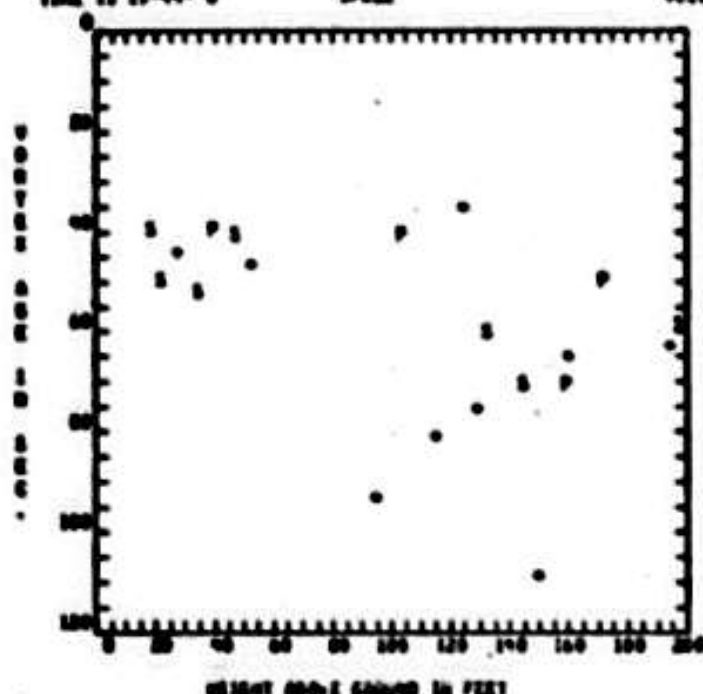
Run No. 64
TIME 15 154400 0

JPG22

VC10 01/15/76

JFK Runway 31R

Run No. 000000
00110.



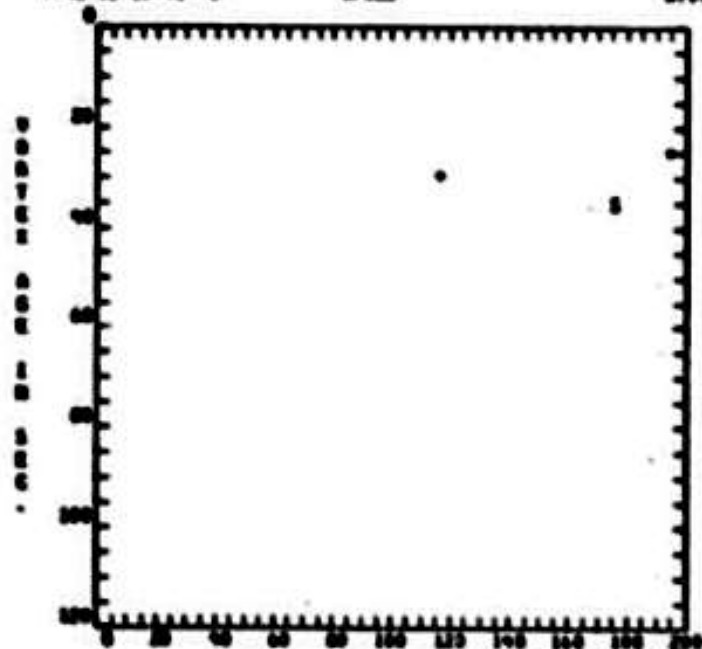
EXP NO. 62
TIME IS 194000 0

27522

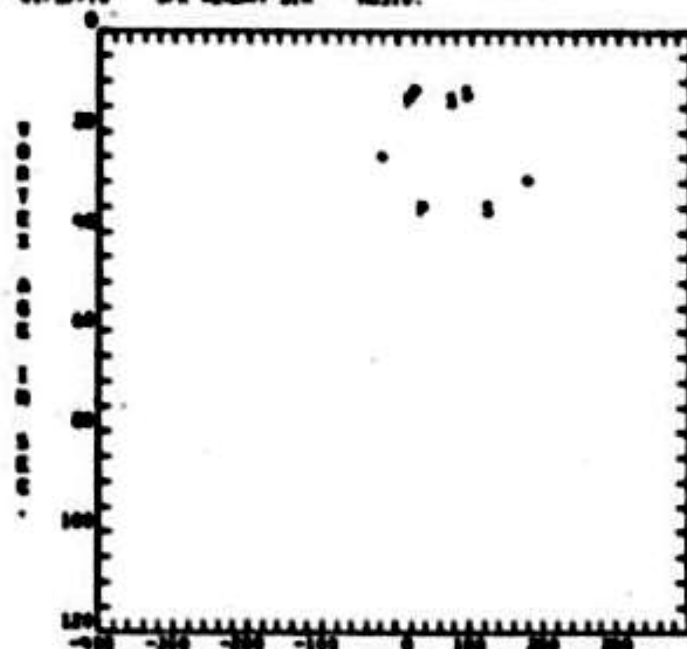
0107 01/15/76

JFK Runway 31R

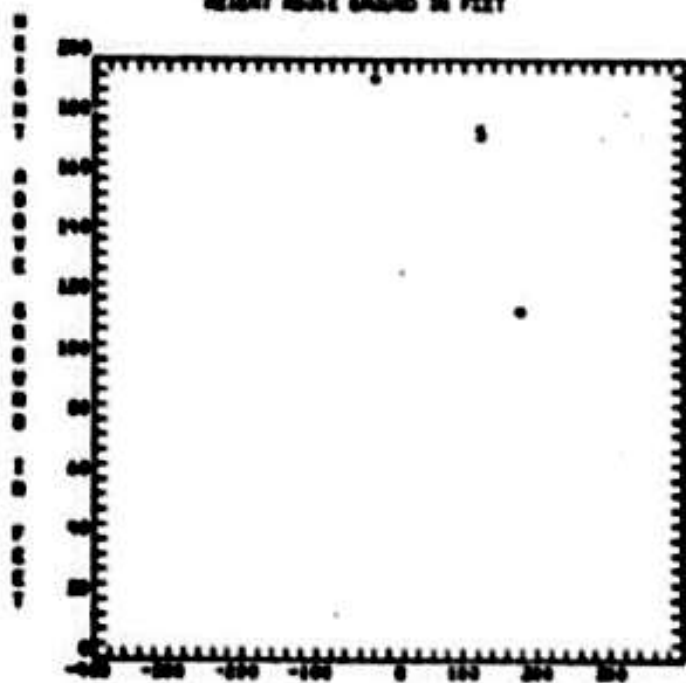
EXP NO 000000
02310.



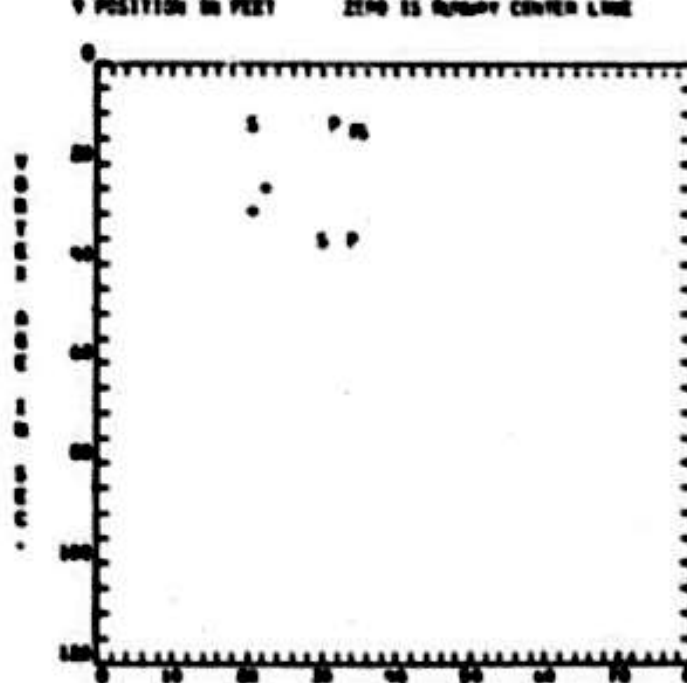
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN M/SEC

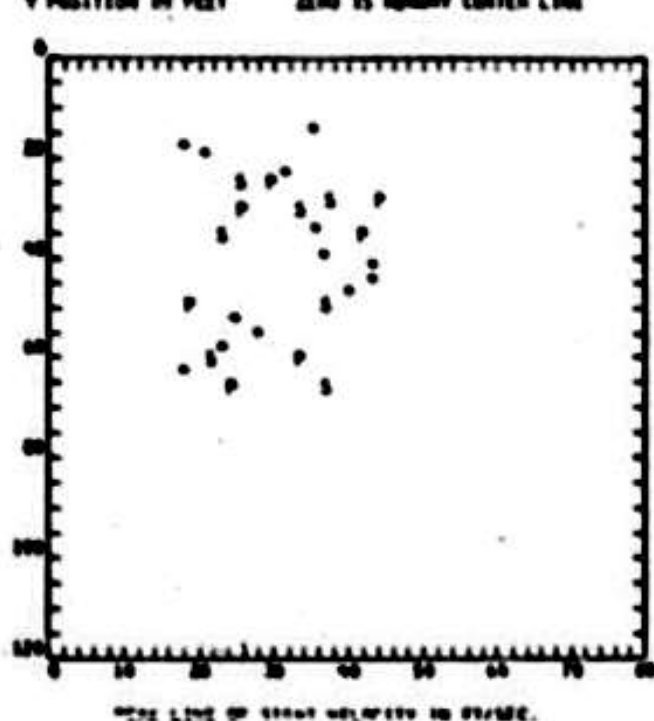
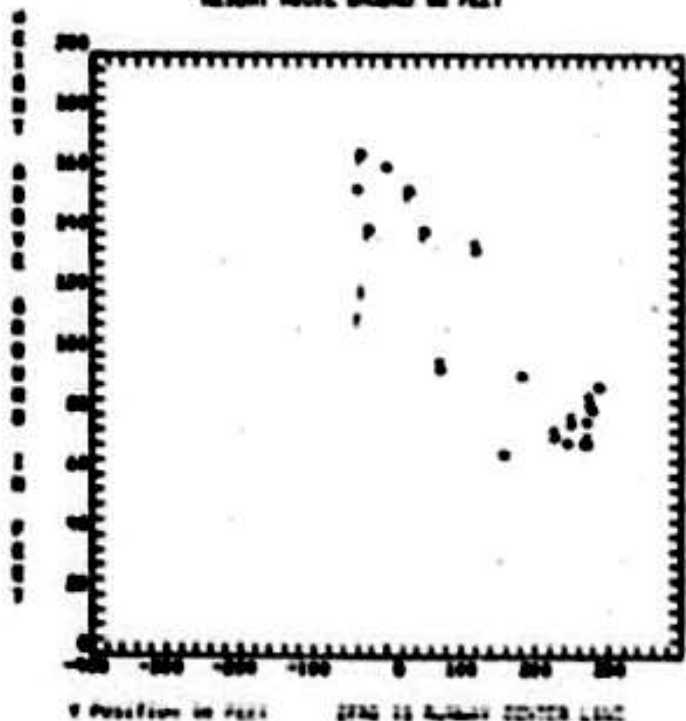
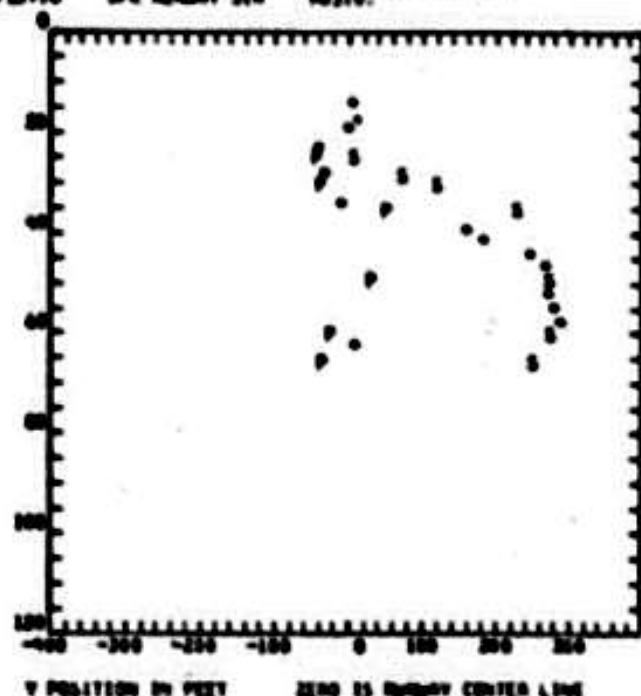
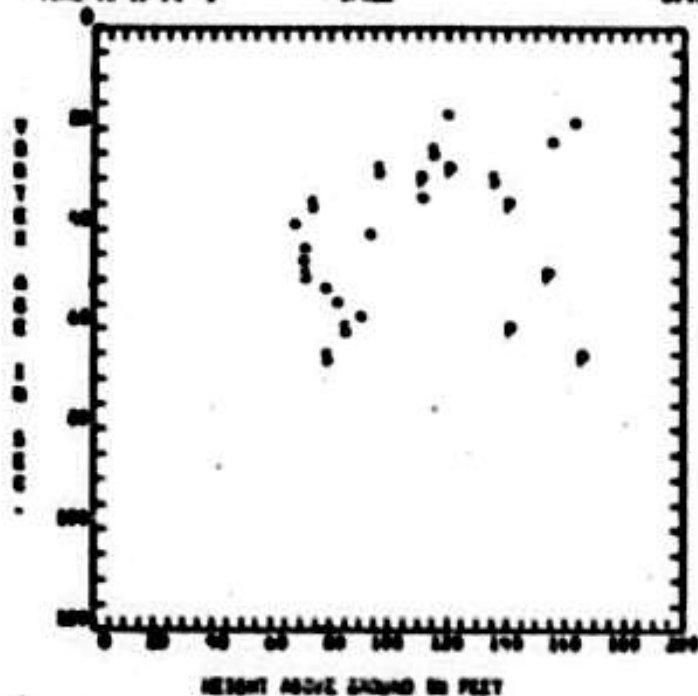
Run No. 03
TIME IS 10:50:00

SP422

SP47 01/10/76

JFK Runway 31R

JOB NO 000000
NO310.



Run No. 05
TIME IS 15:52:00

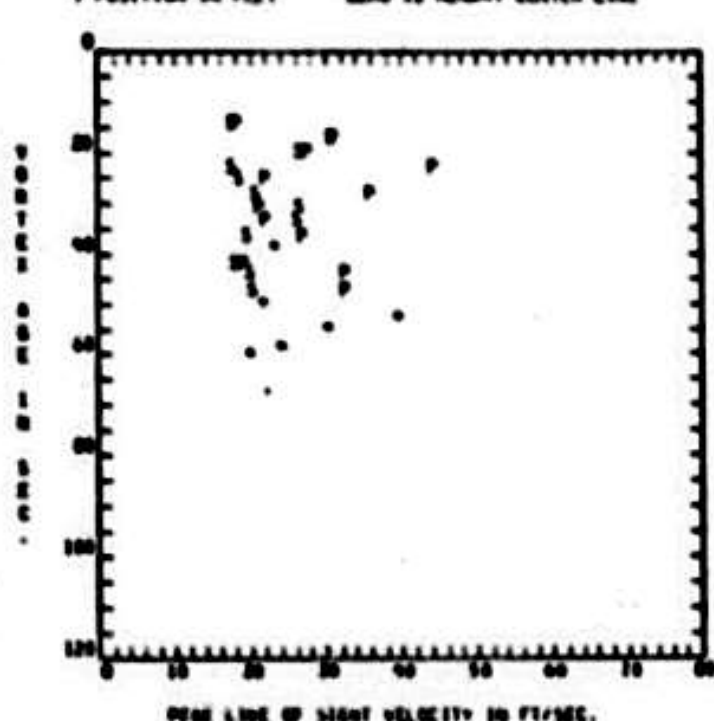
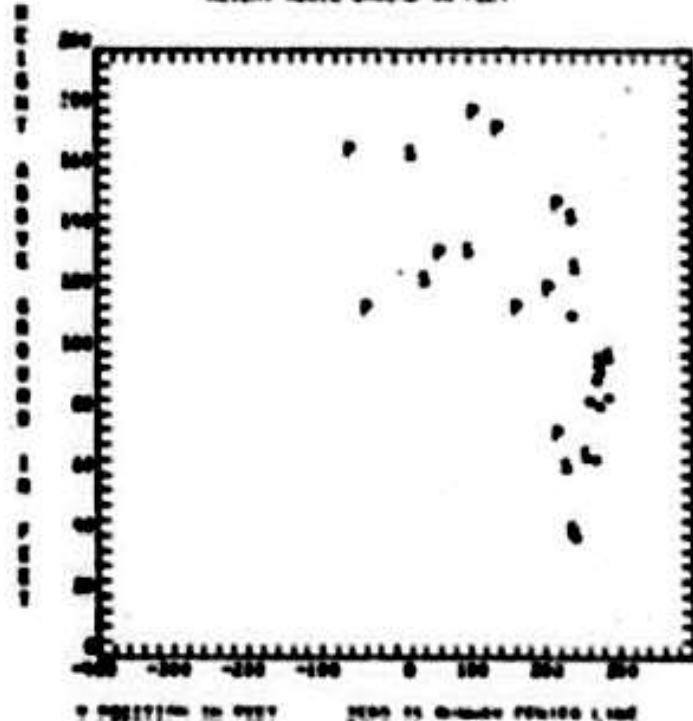
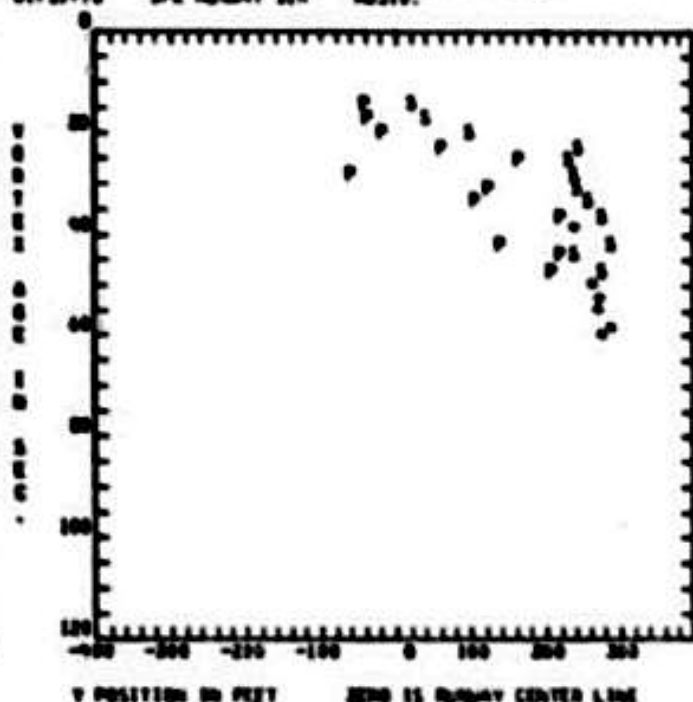
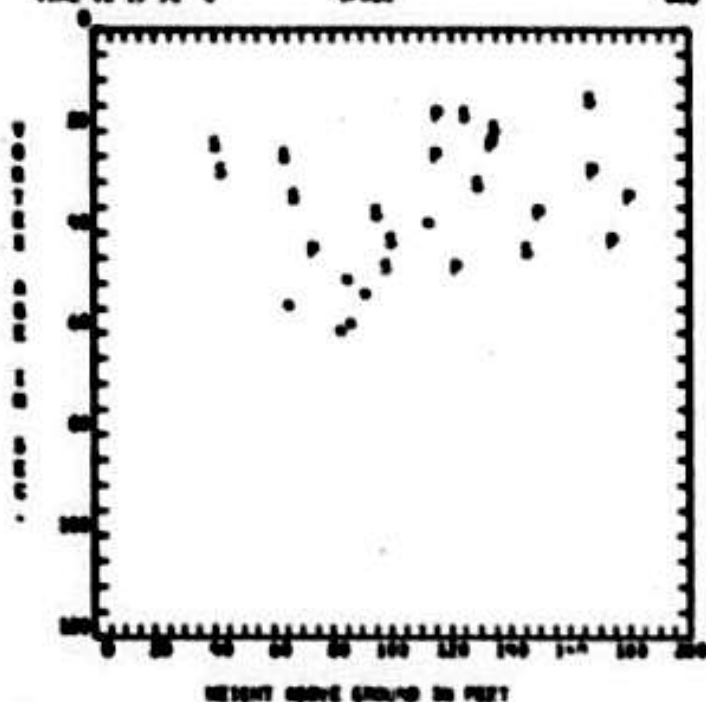
JPL32

020

01/15/76

JPL Runway 31R

Run No. 030000
HD210.



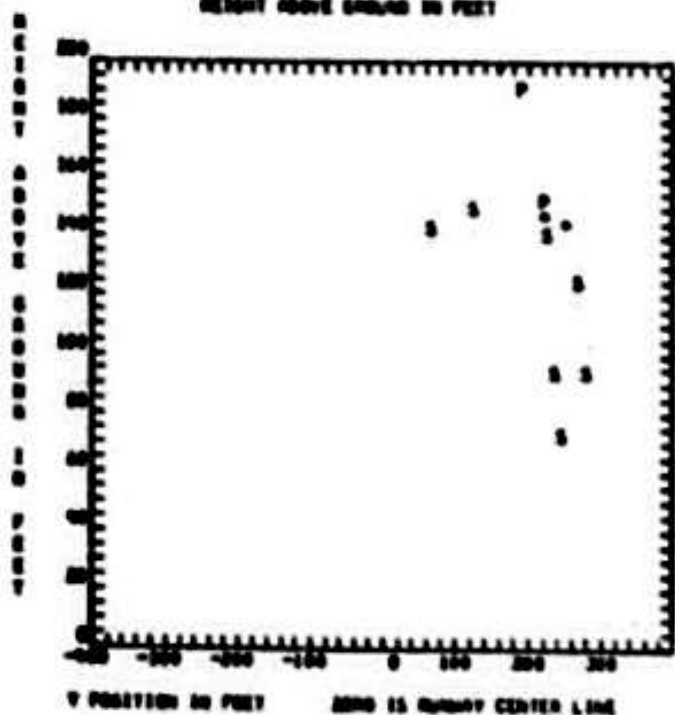
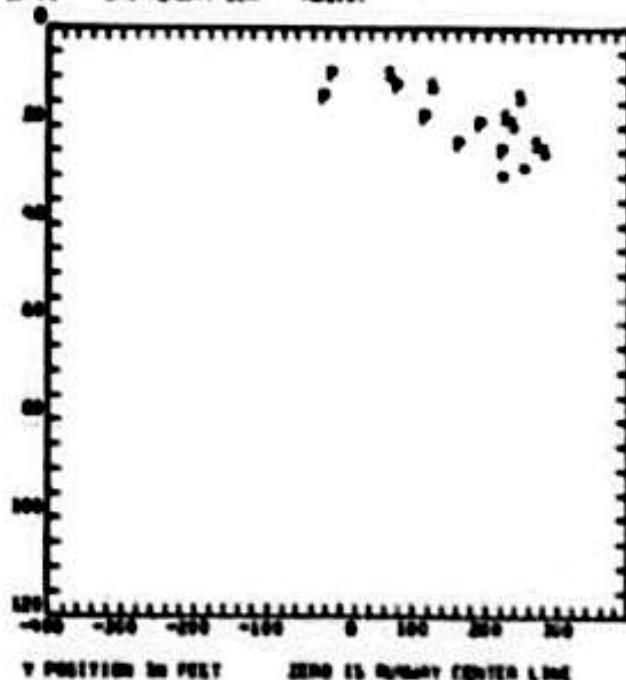
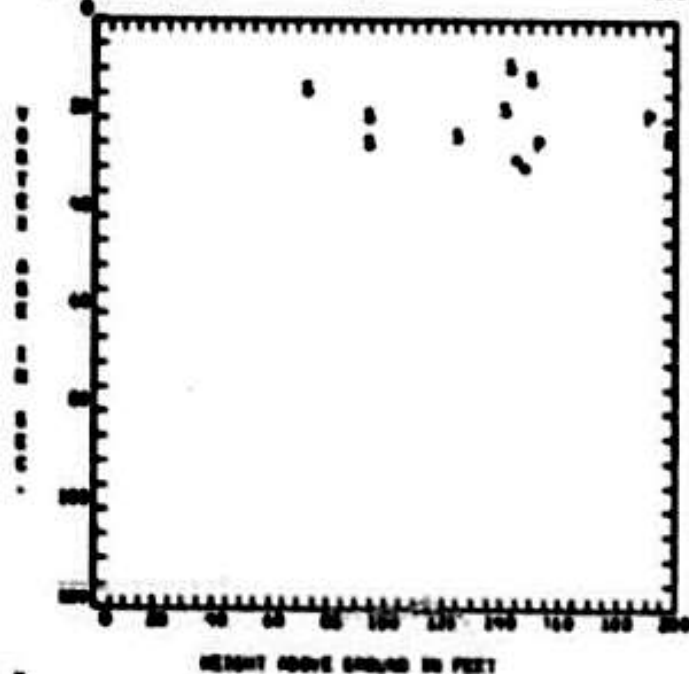
Run No. 66
TIME 15 10 00

JF077

DP07 04/10/76

JFK Runway 31R

Run No. 030000
HD310.



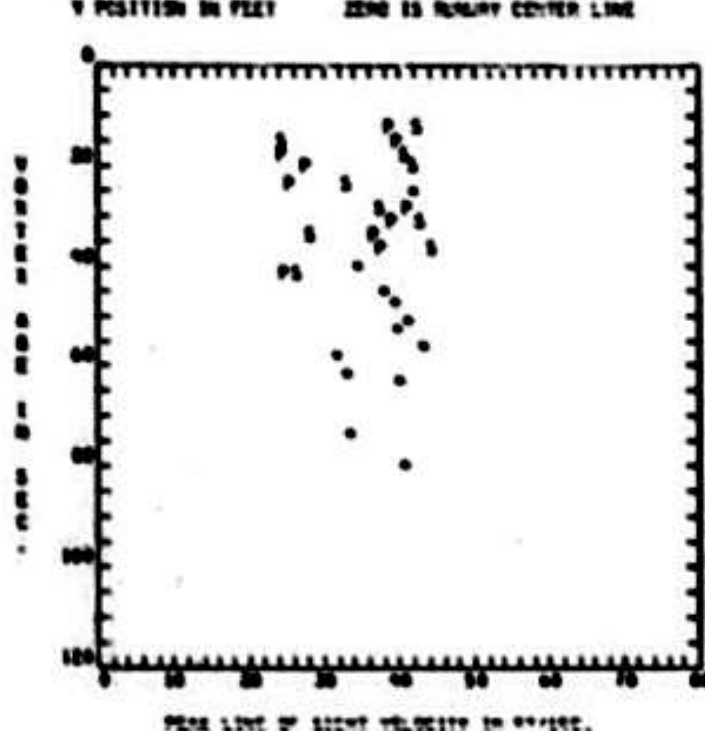
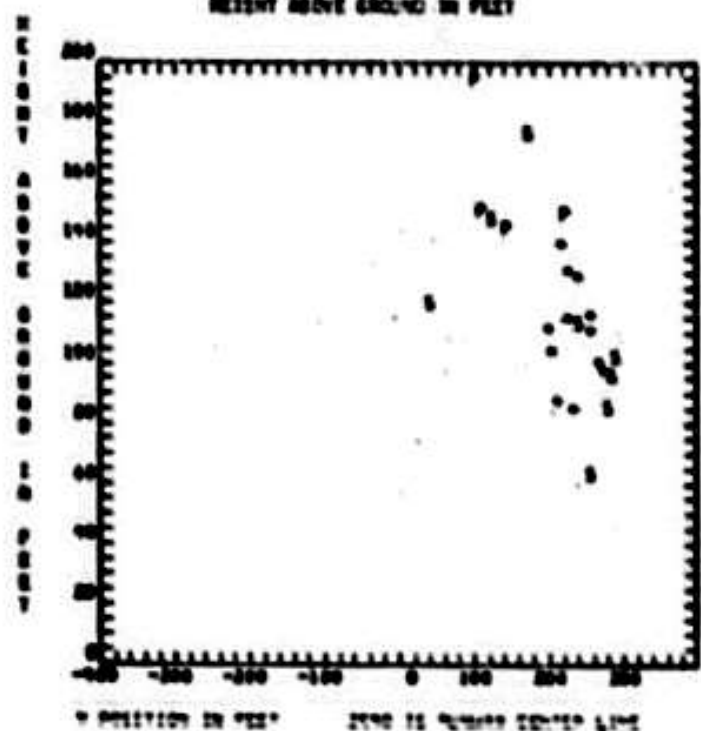
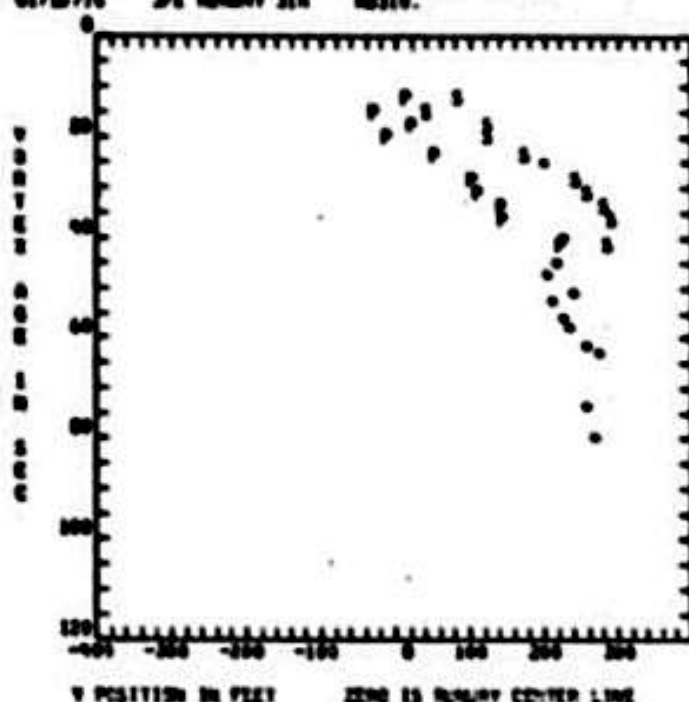
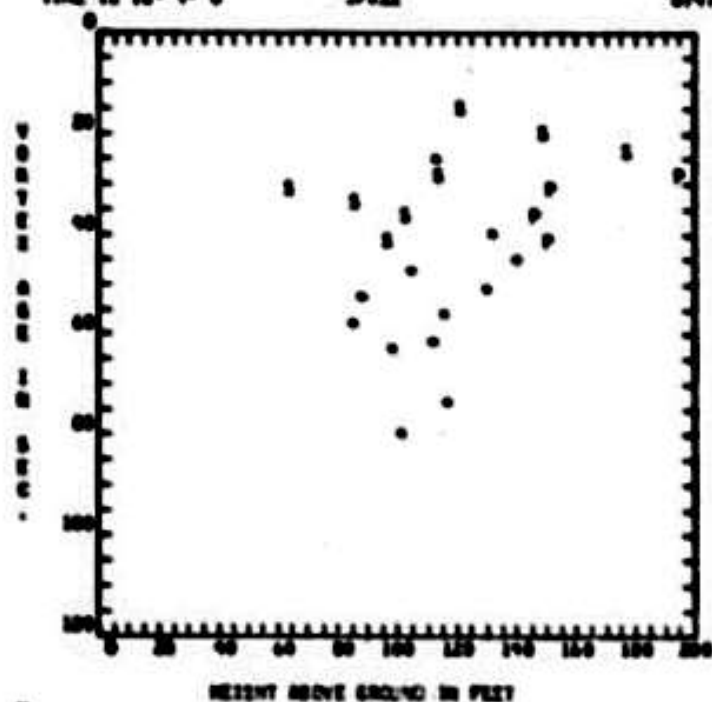
Run No. 07
TIME IS 16:00

JP012

SP47 01/10/76

JP's Runway 31R

Run No. 020000
0210.



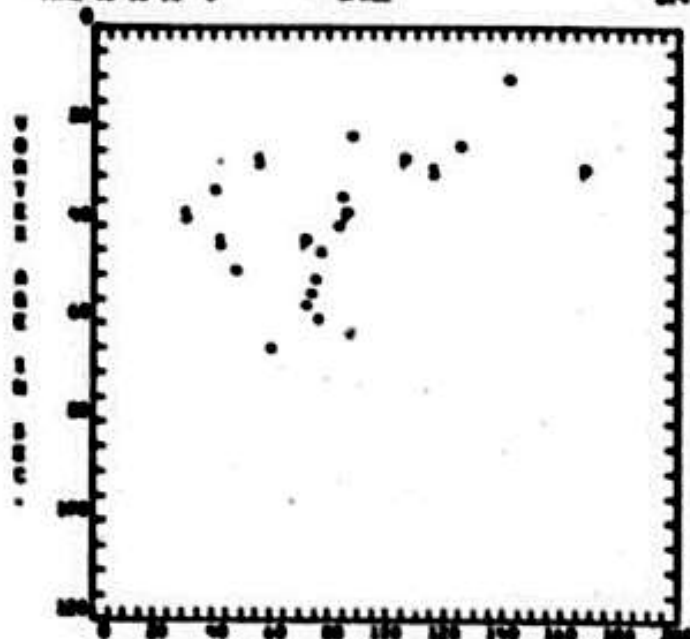
SPR NO. 00
TIME TO 10:12 0

SPR 22

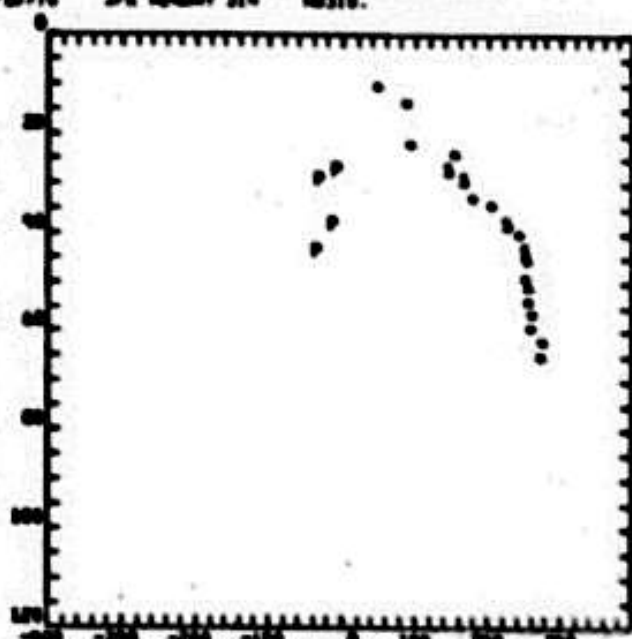
SPR 01/05/76

SPR 01/05/76

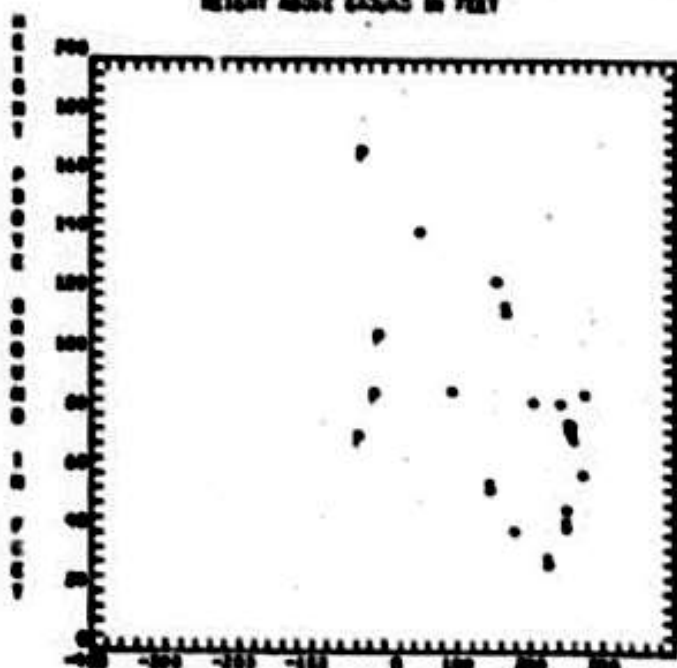
SPR NO. 000000
TIME TO 10:12 0



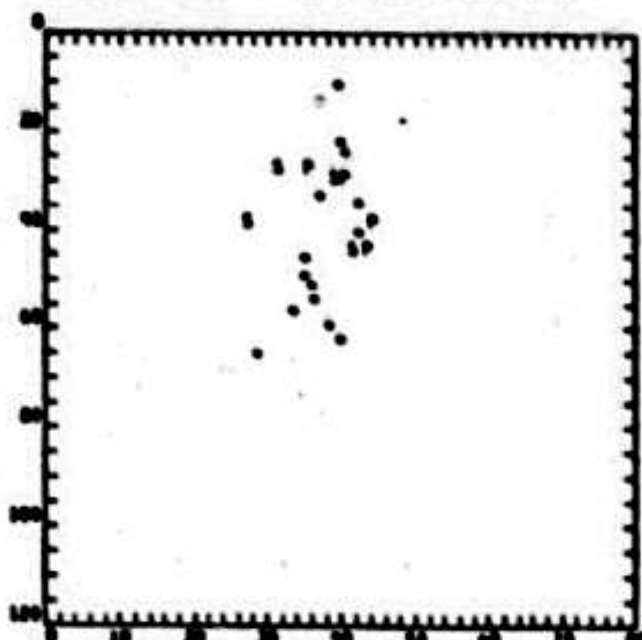
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

Run No. 79
Time 15:17:00

2022

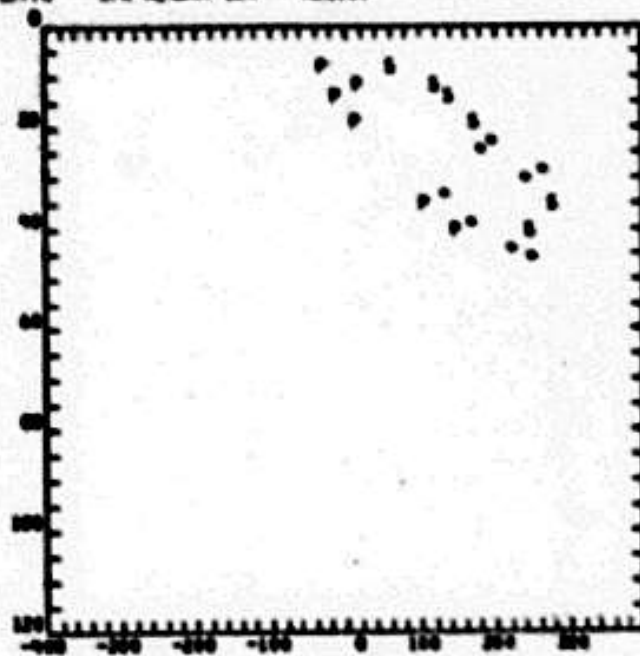
0510 05/15/76

JFK Airport AIR

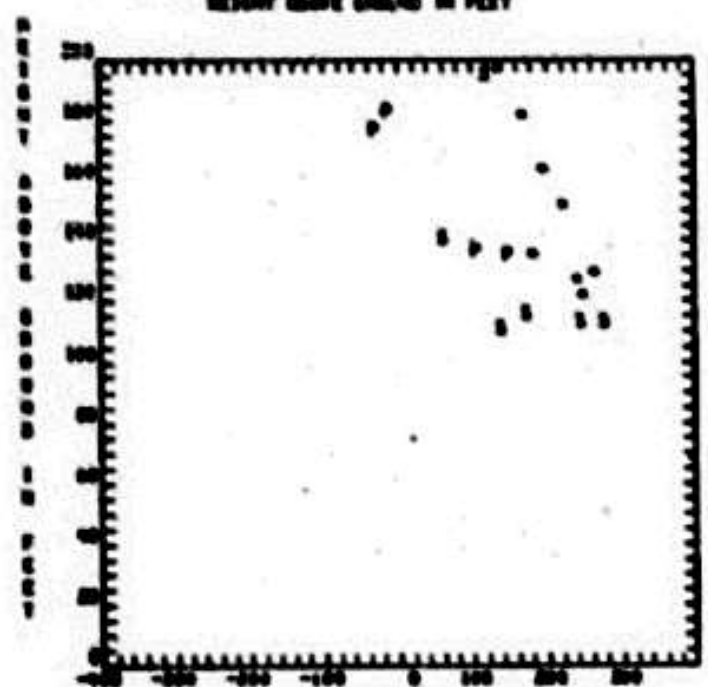
Run No. 830000
0510.



HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN MPH.

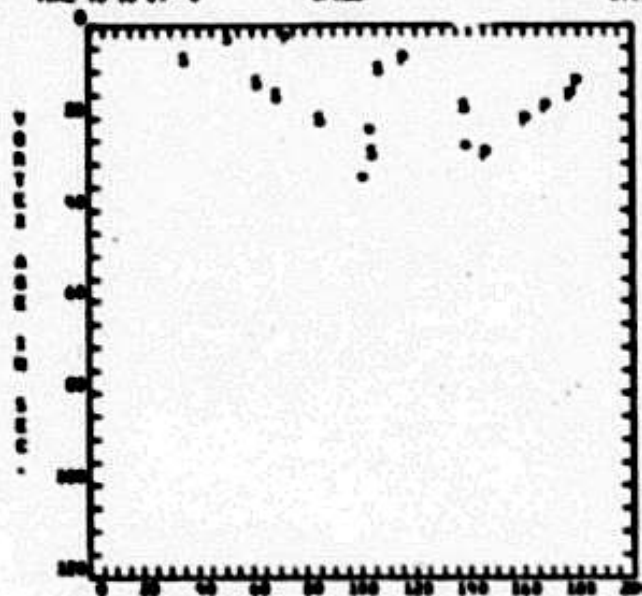
Run No. 72
TIME IS 14:29:0

JPL22

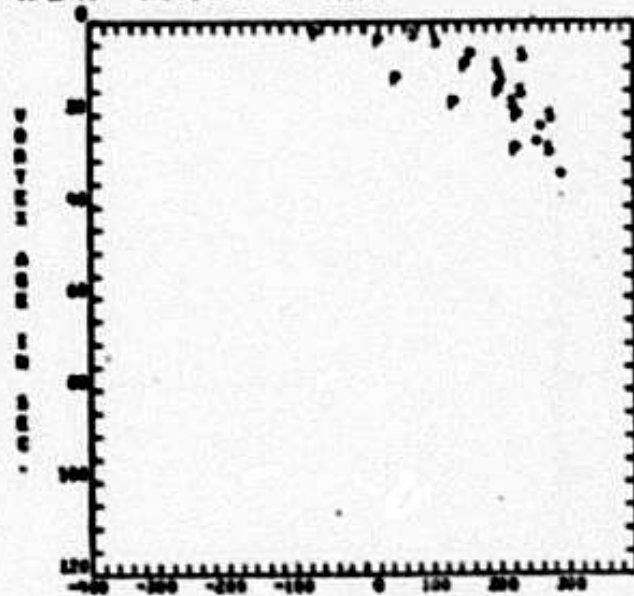
SPOT 01/15/76

JPL Runway 310

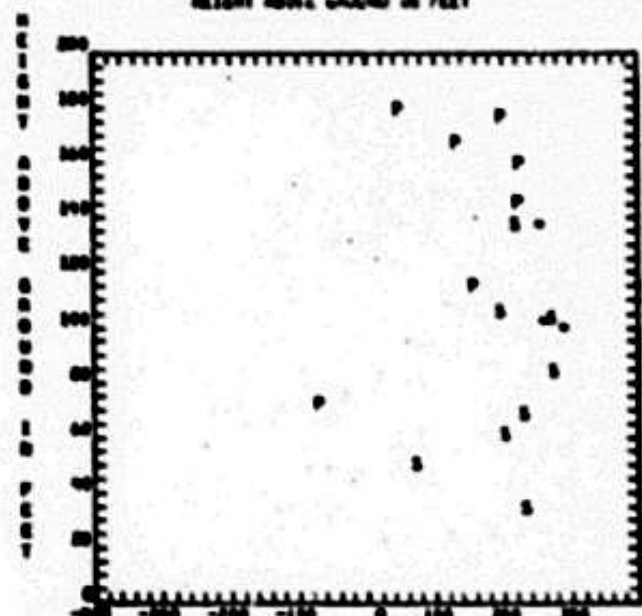
Run No. 030000
HEB10.



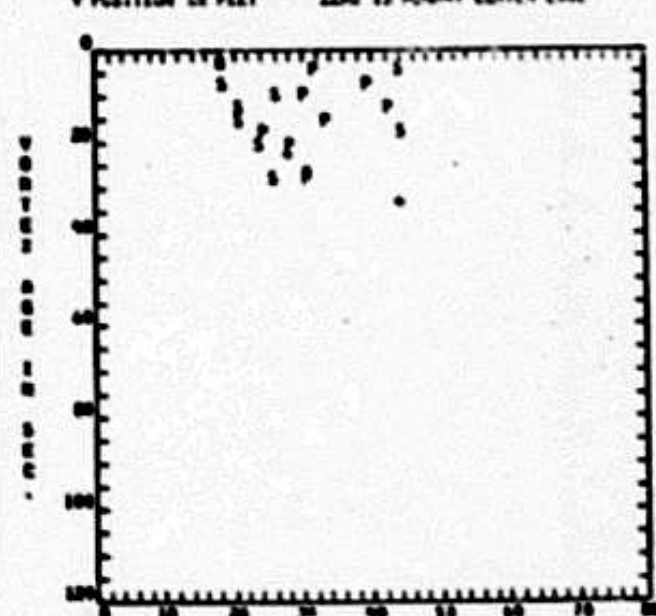
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

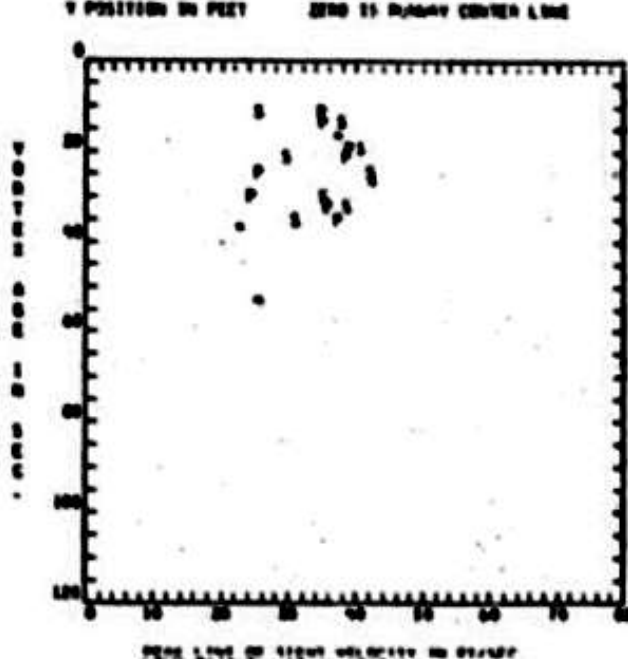
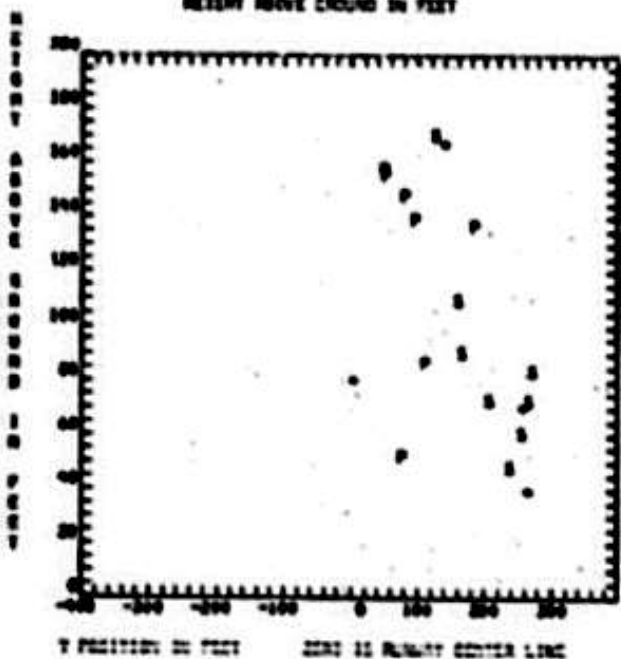
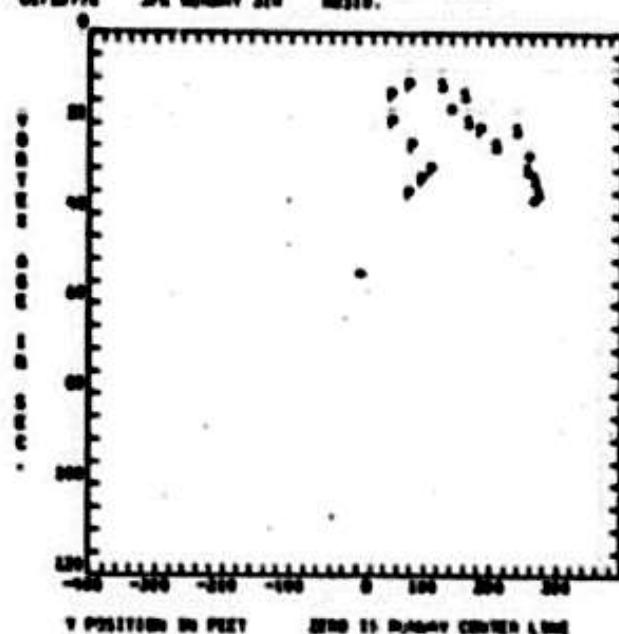
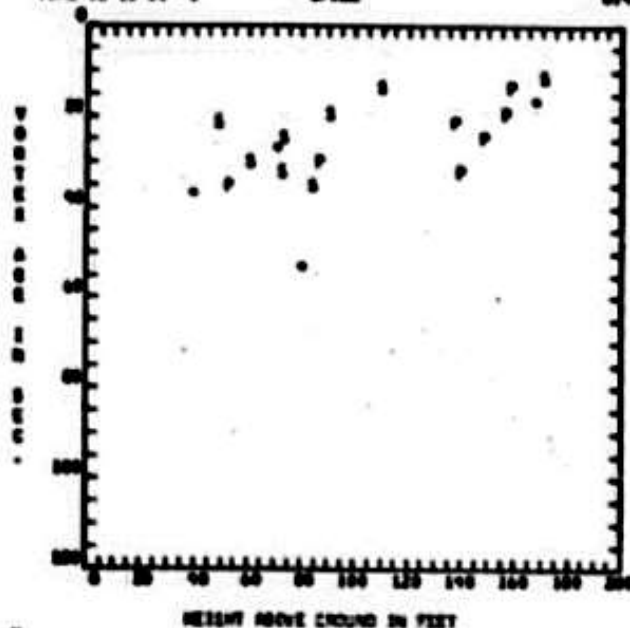
Run No. 74
TIME IS 16:31:0

JP22

SPOT 01/10/76

JPN Runway 31R

Run No. 030000
HE310.



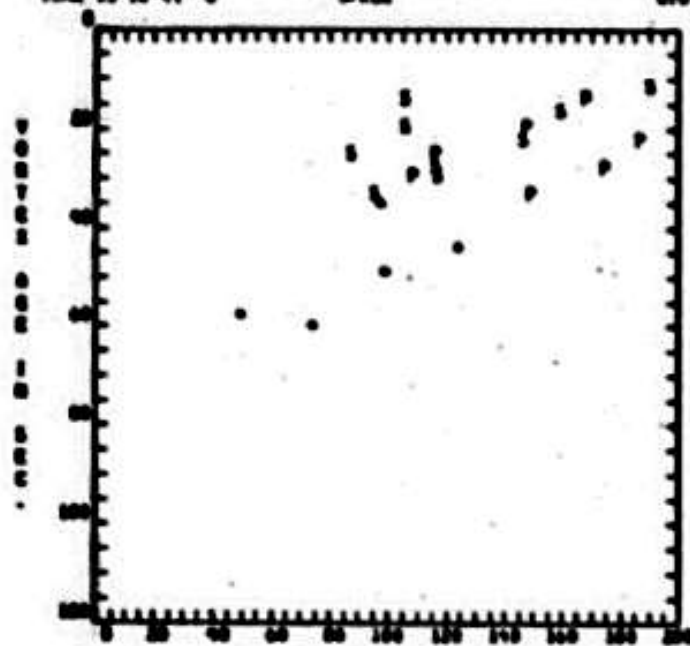
Run No. 79
TIME IS 16:41" 0

JFK22

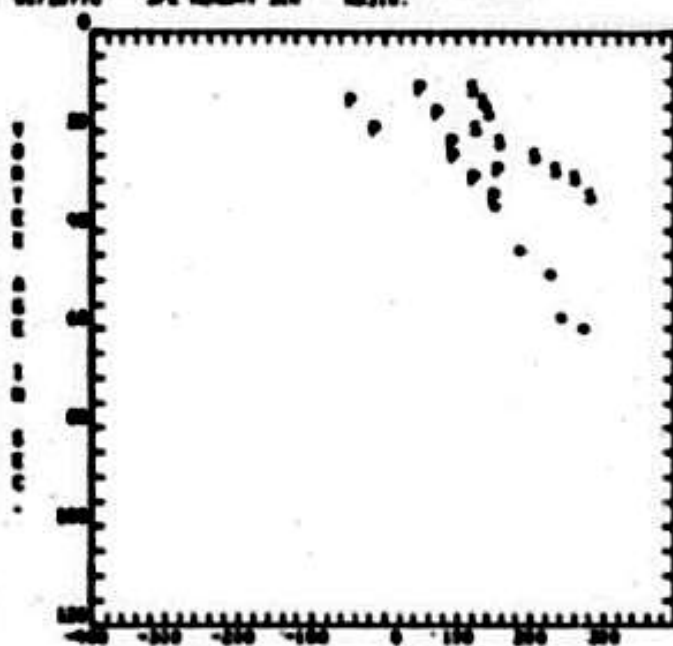
DATE 06/25/76

JFK Runway 31R

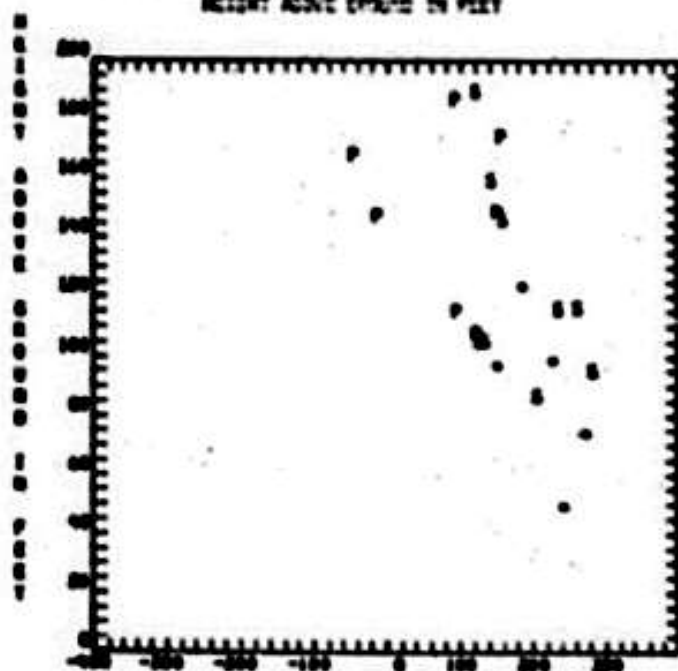
Run No. 000000
ID310.



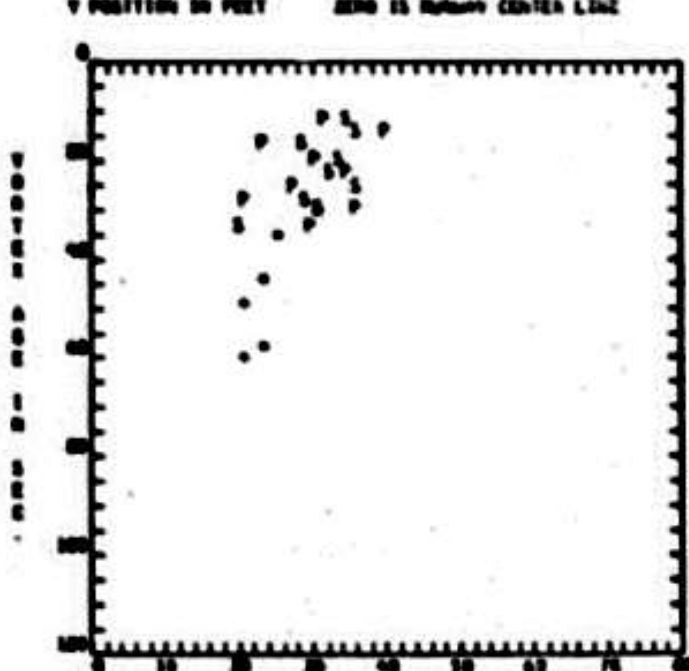
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FPM.

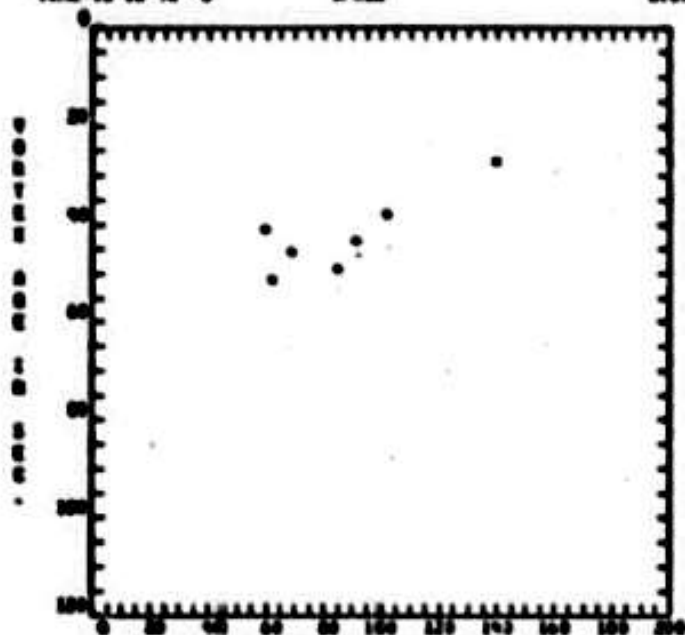
Run No. 00
TIME 15 34-46 0

JFK22

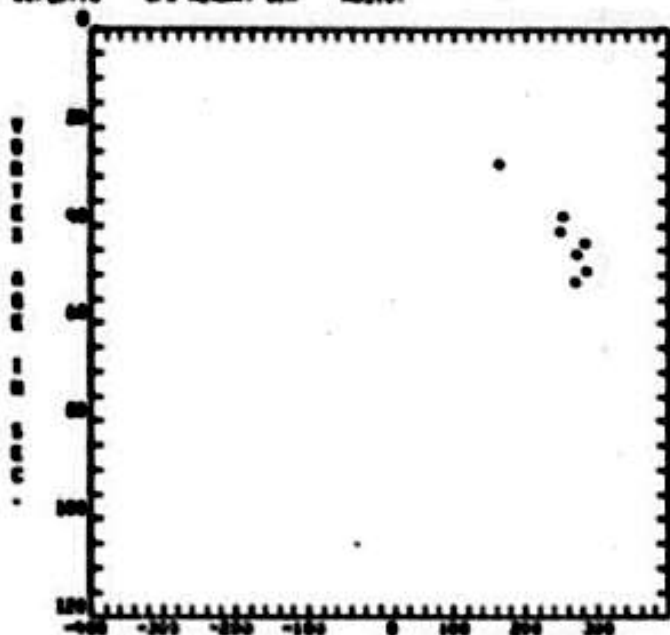
0707 01/20/76

JFK Runway 31R

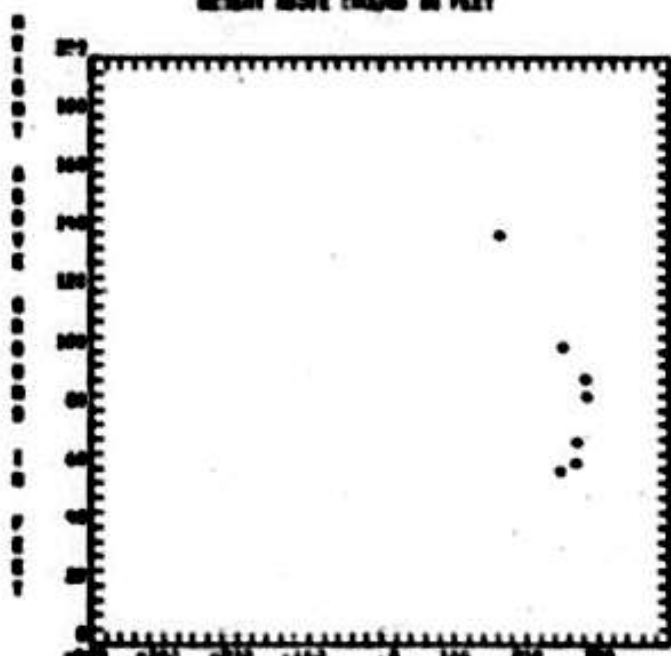
Run No. 020000
08310.



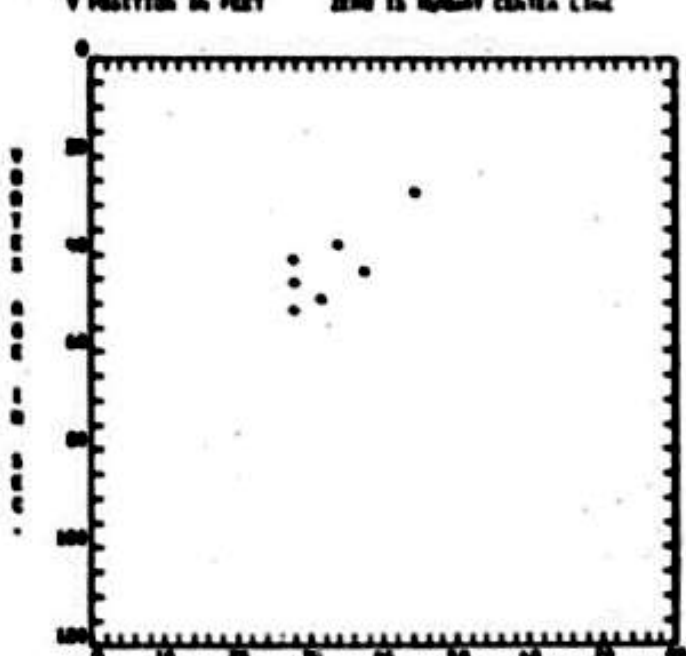
DISTANCE ABOVE THRESHOLD IN FEET



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PERC LINE UP BEHIND VEHICLE IN FEET

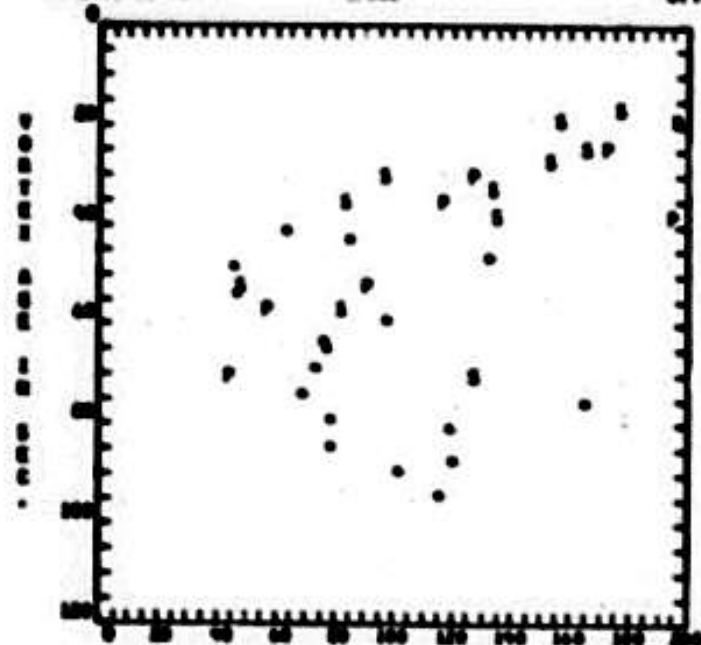
REP NO. 01
TIME IS 10:40 0

JPL22

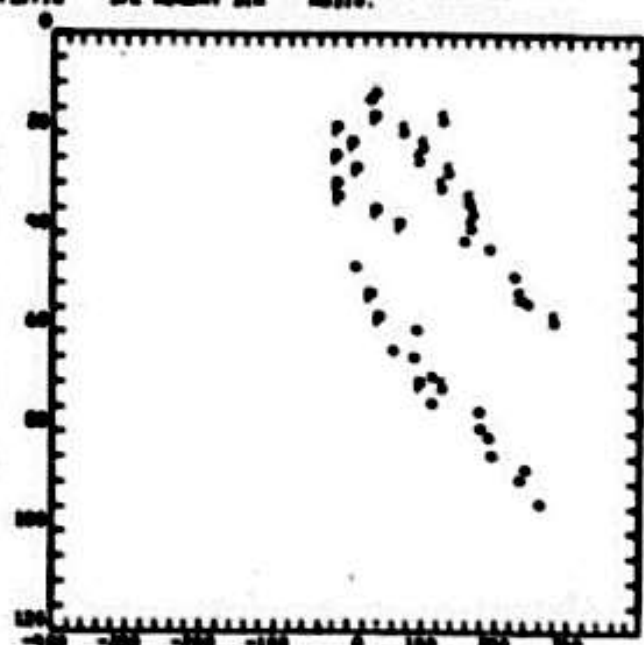
SPOT 04/10/76

JPL 2200000

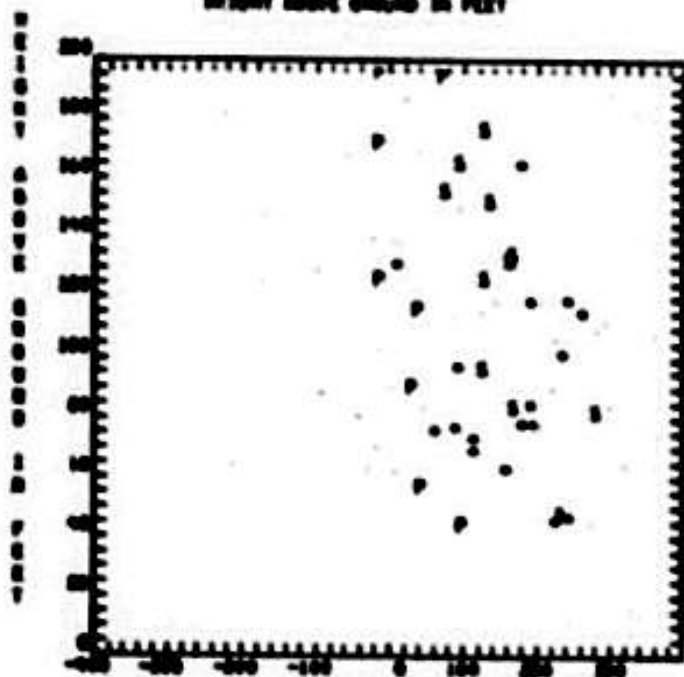
JPL 2200000



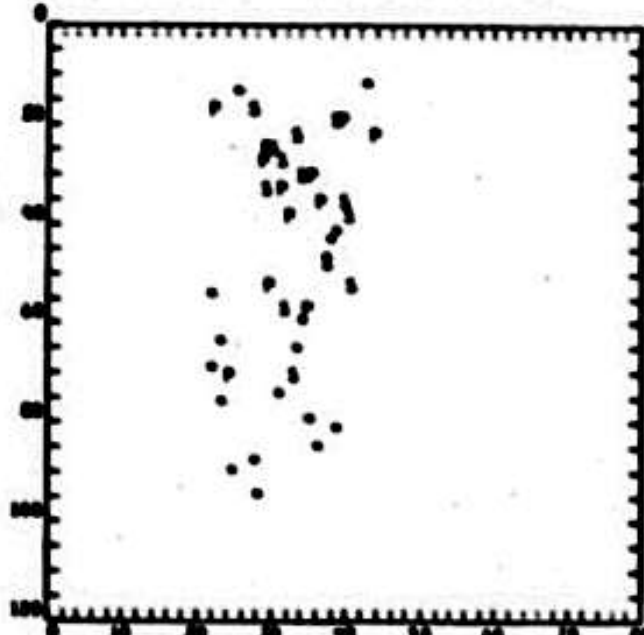
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

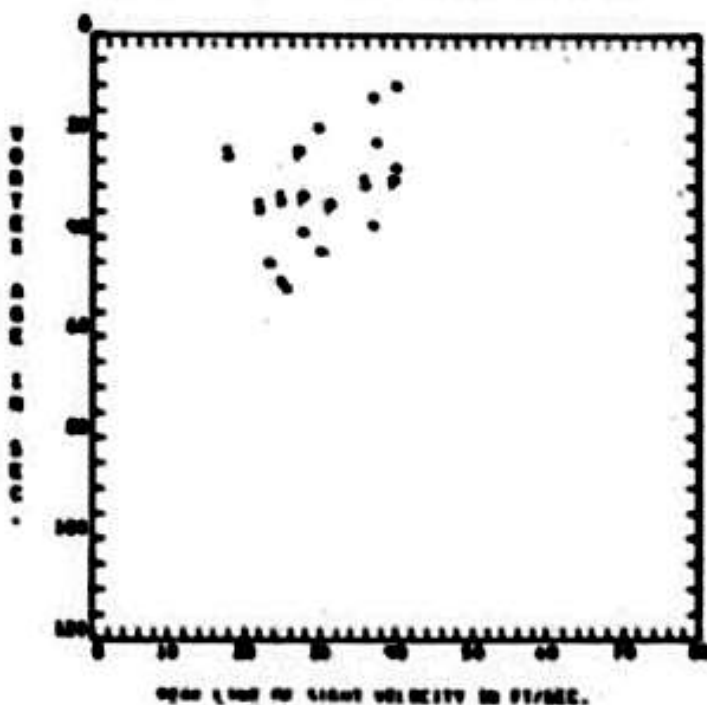
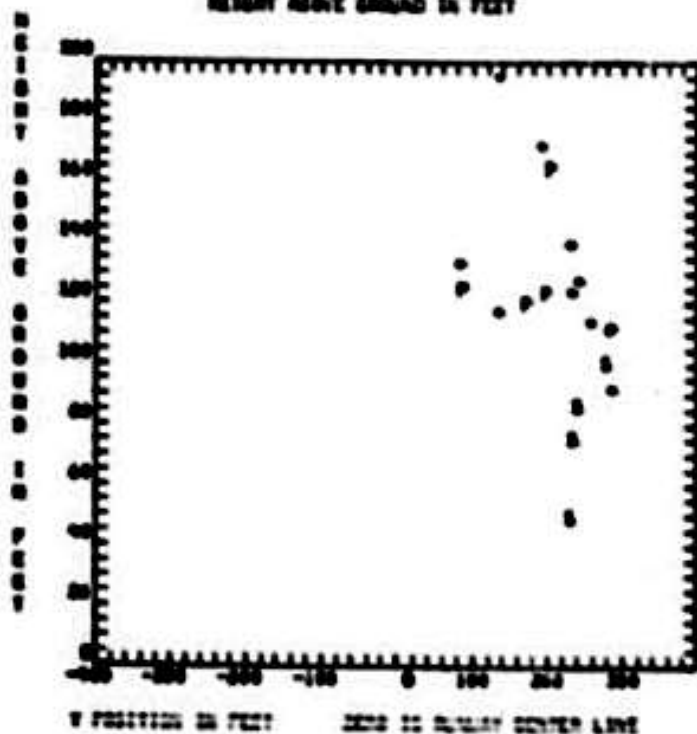
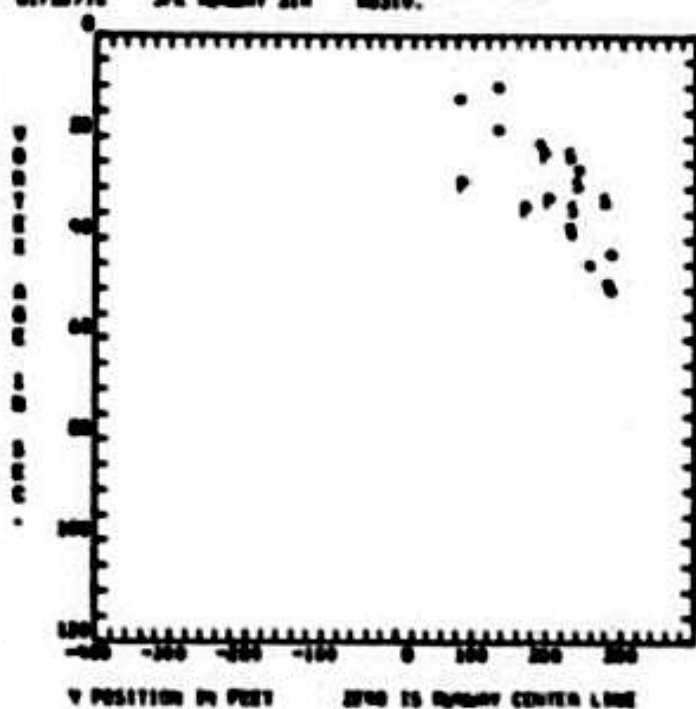
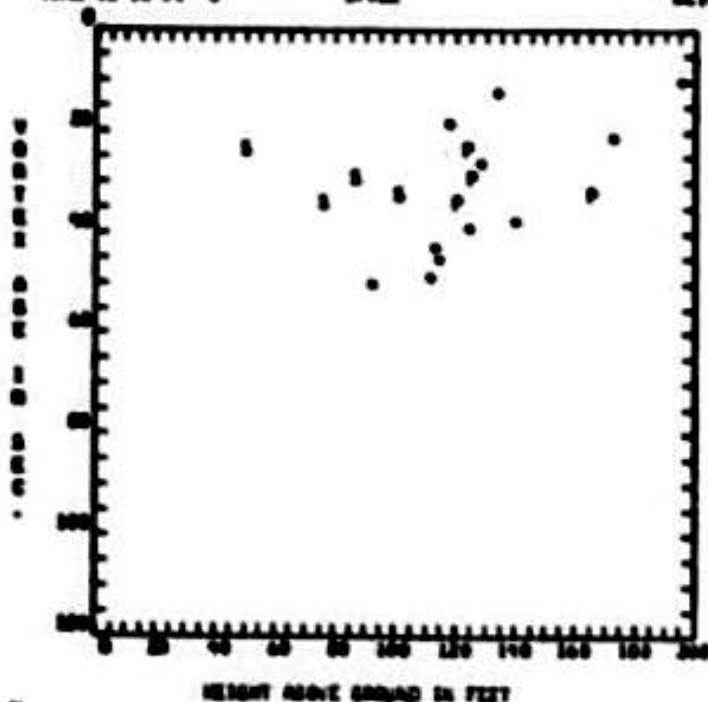
Run No. 02
TIME IS 16:51:0

JF022

DE10 01/20/76

JF022 Runway 31R

Run No. 020000
00310.



Run ID: 01
TIME IS 10:50:00

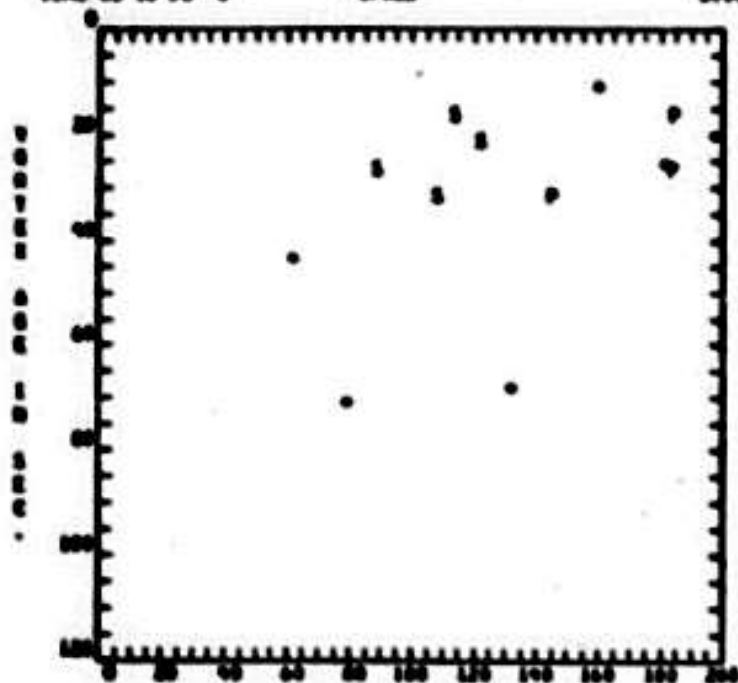
JPL22

0207 01/25/76

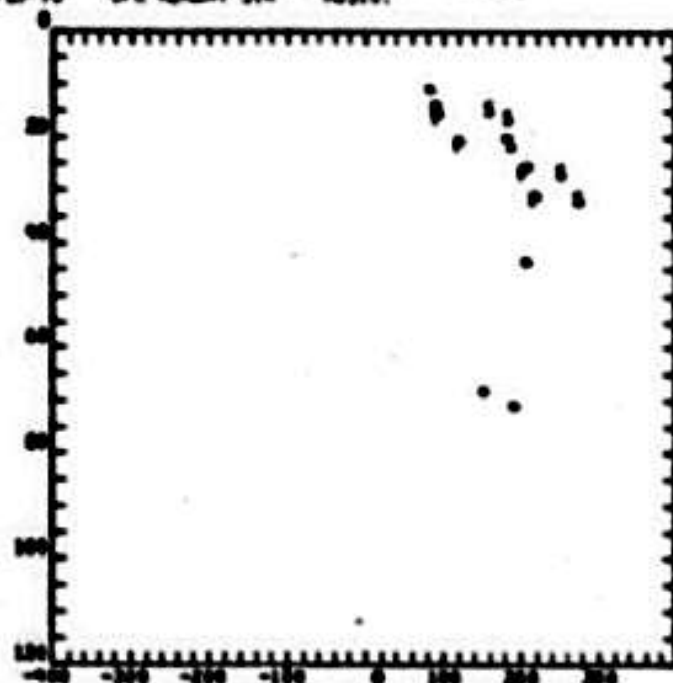
JPL Runway 31R

Run ID: 030000

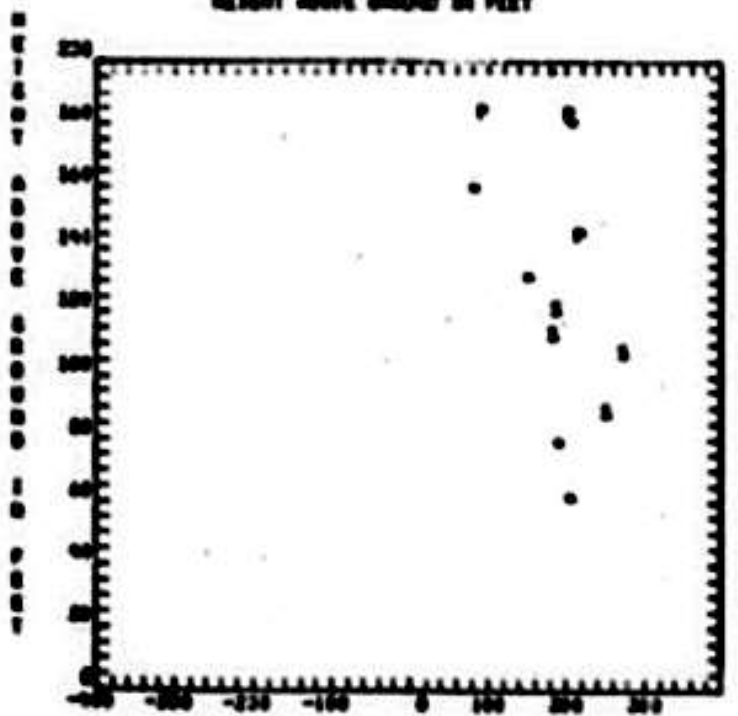
HD310.



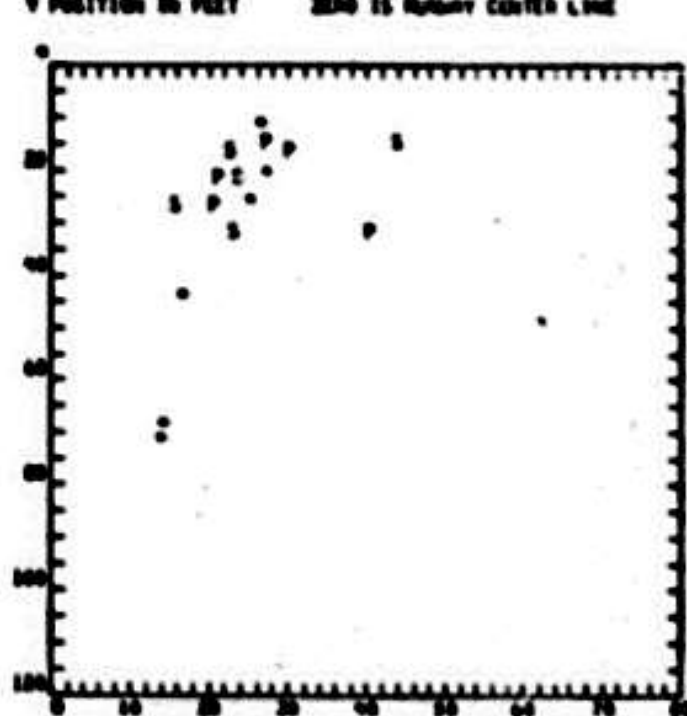
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

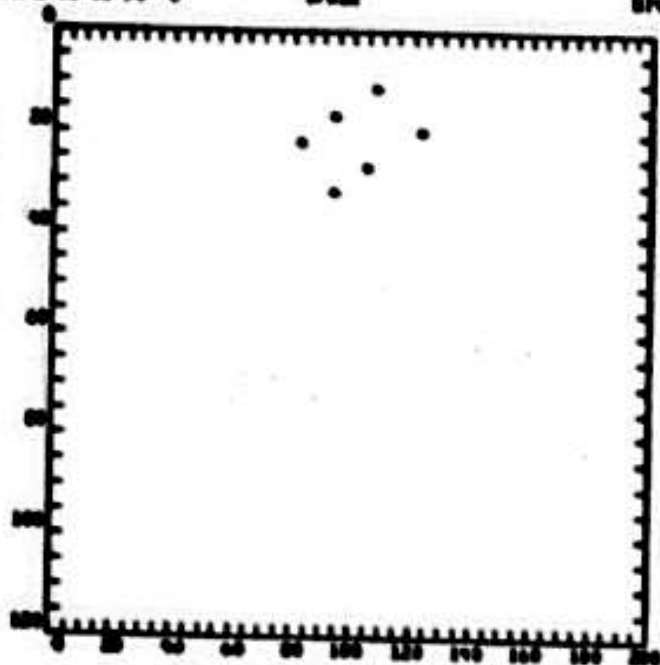
SPOT 00
TIME IS 10:50 0

SPOT

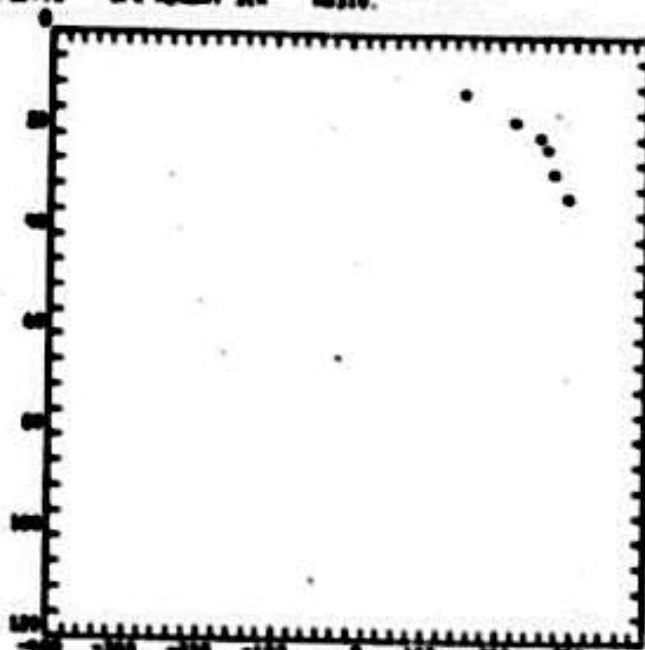
SPOT 01/02/76

SPOT REPORT 310

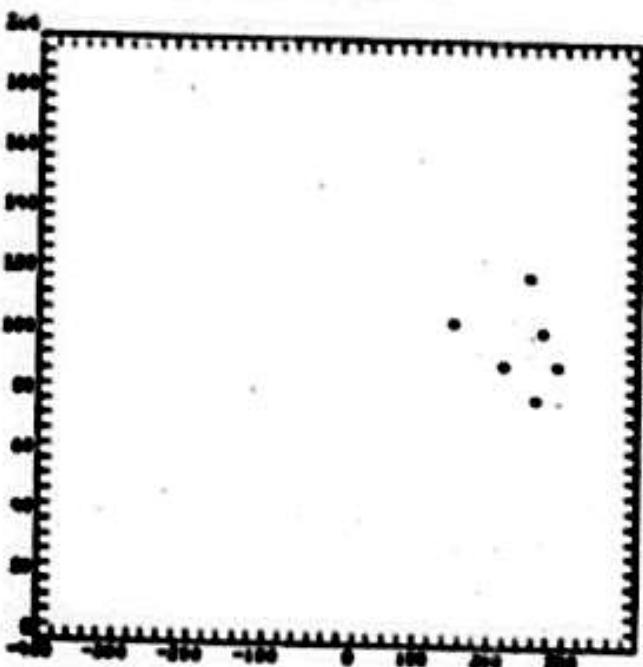
SPOT 00 000000
00310.



HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS REPORT CENTER LINE



Y POSITION IN FEET ZERO IS REPORT CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

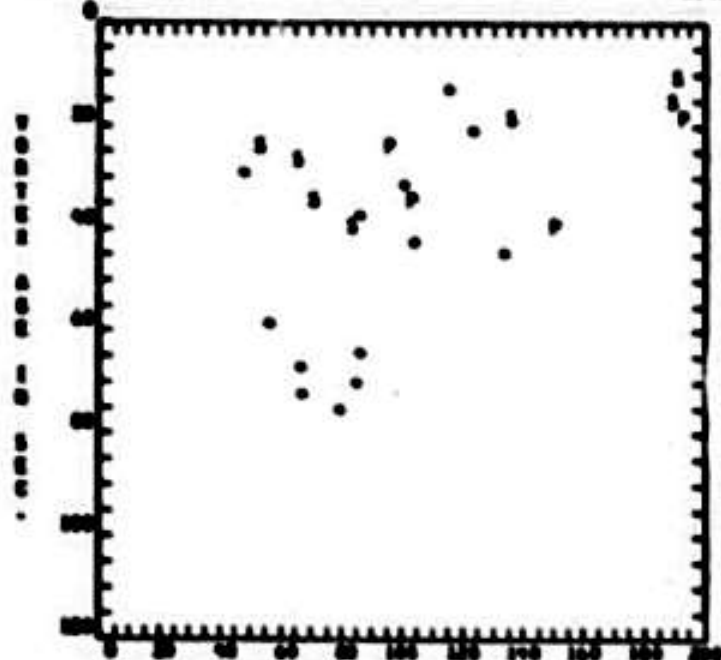
REP ID: 07
TIME 15 17 0

JP22

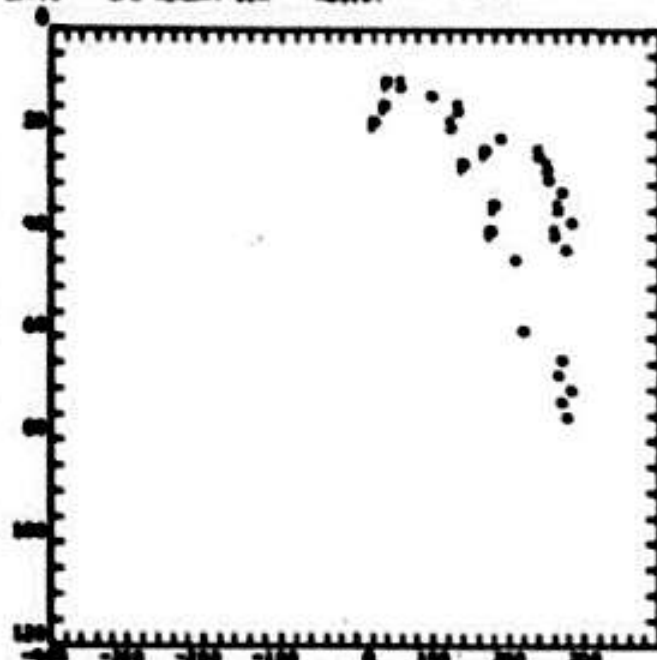
DP47 01/15/76

JP2 Runway 310

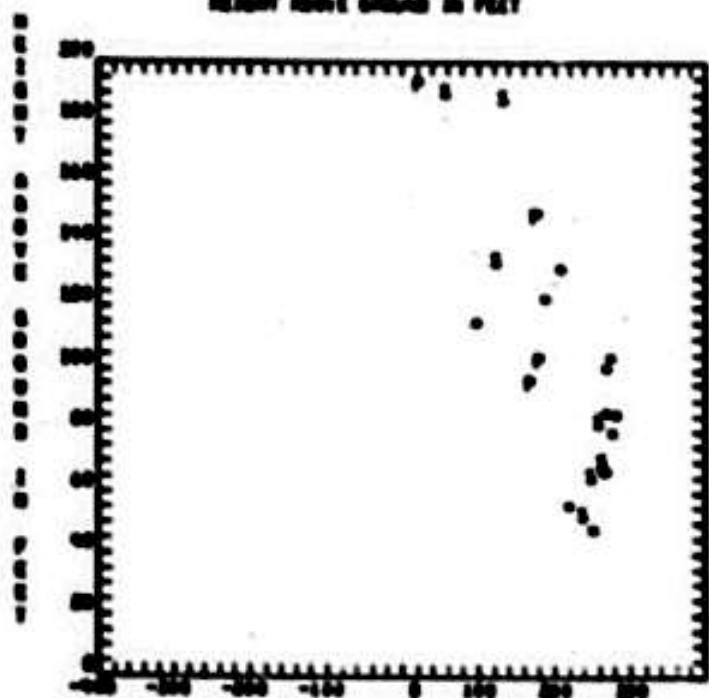
REP ID: 020000
REP ID: 02110



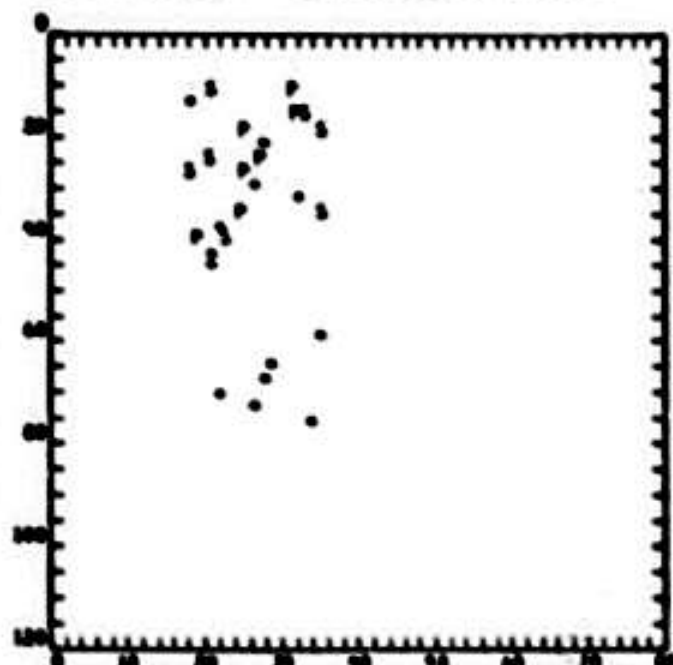
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



HEIGHT ABOVE GROUND IN FEET

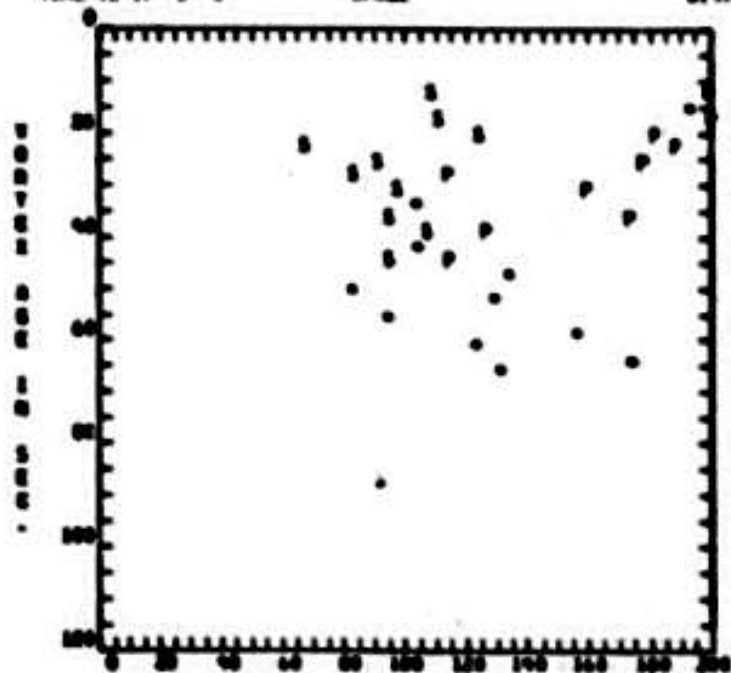
Run No. 00
Time 15 17° 5' 0

JPL32

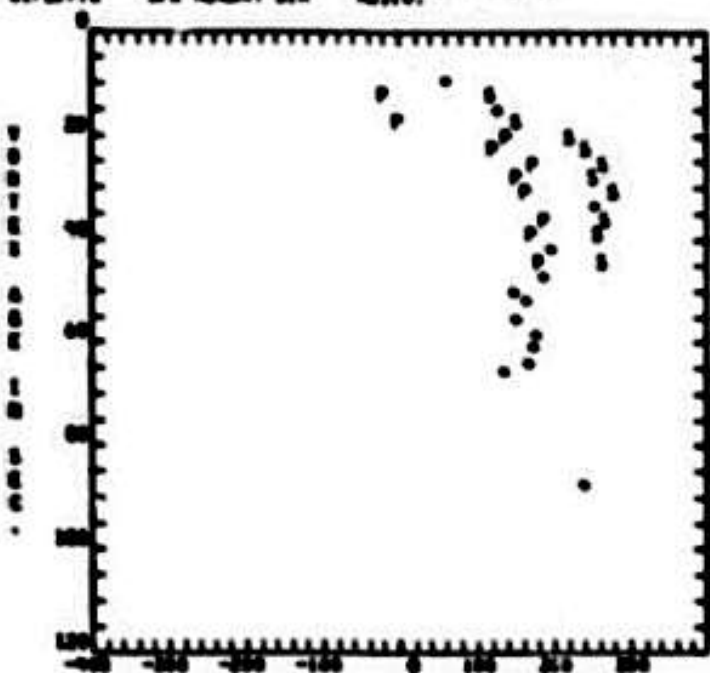
0747 01/05/76

JPL Runway 31R

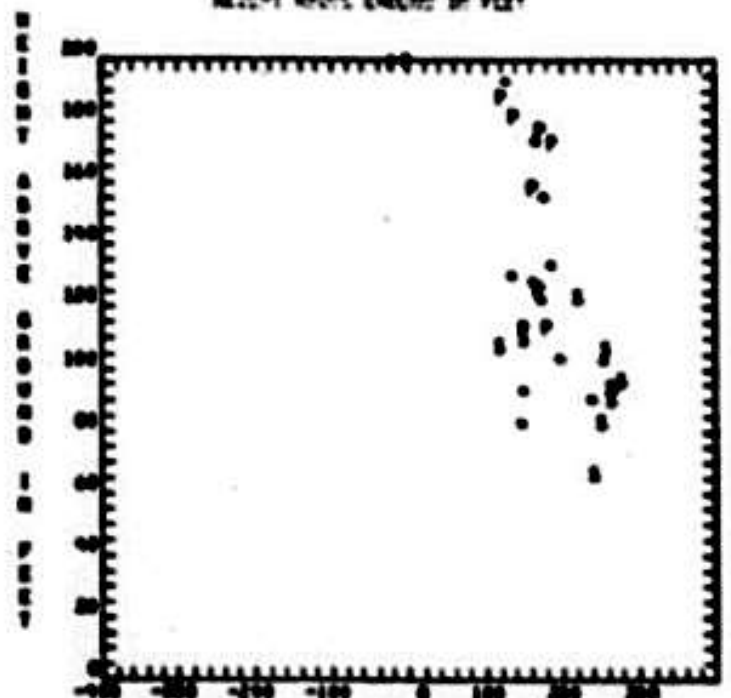
JOB NO 020000
02310.



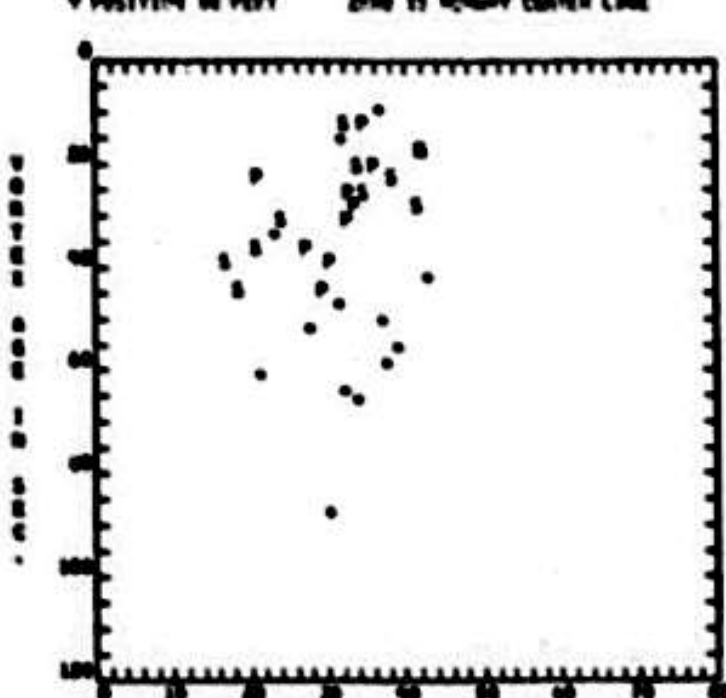
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET JPL Runway CENTER LINE



Y POSITION IN FEET JPL Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

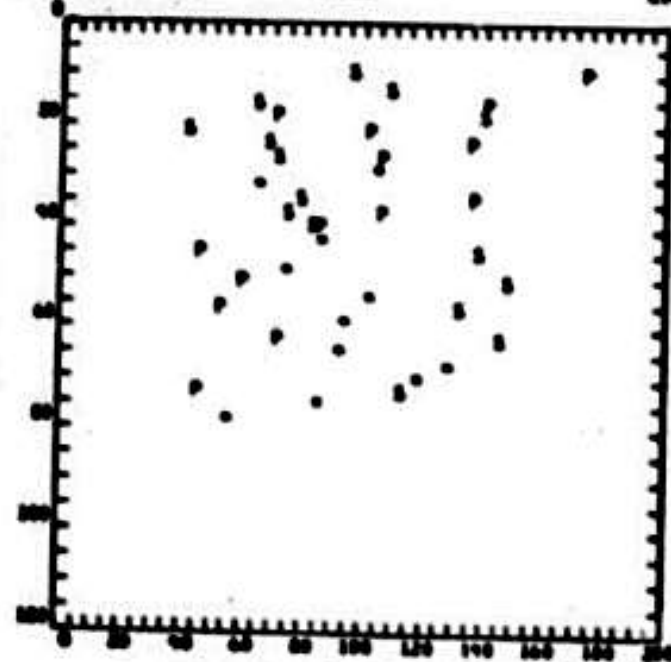
Run No. 00
Time 15 17 0

JFEEZ

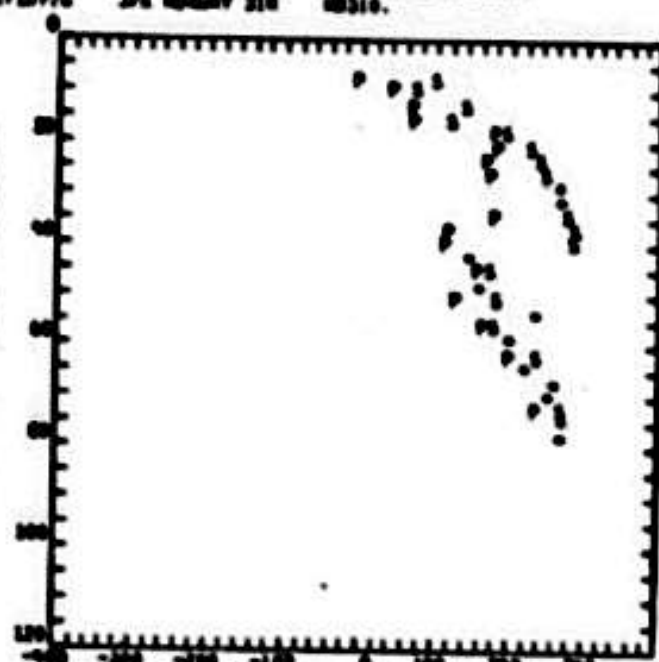
13011 01/10/76

JF's Runway 310

Run No. 000000
00310.



HEIGHT ABOVE GROUND IN FEET



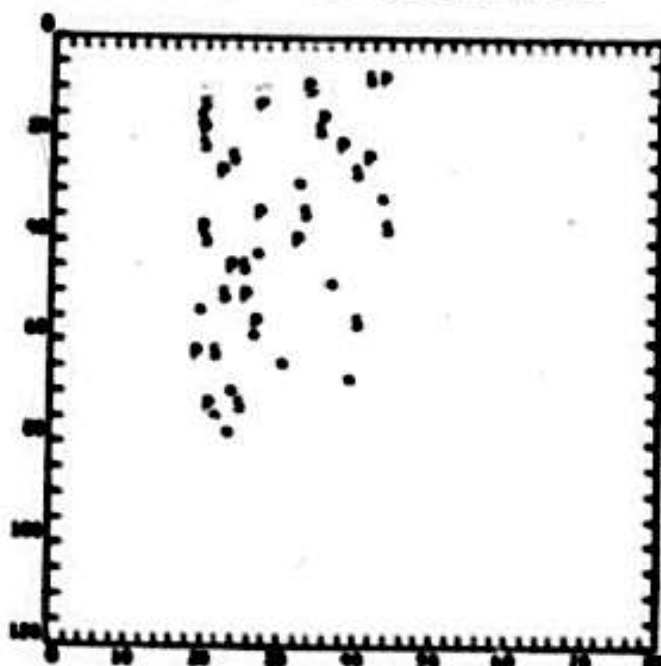
Y POSITION IN FEET

ZERO IS Runway CENTER LINE



Y POSITION IN FEET

ZERO IS Runway CENTER LINE



SPEED OF LIGHT VELOCITY IN FT/SEC.

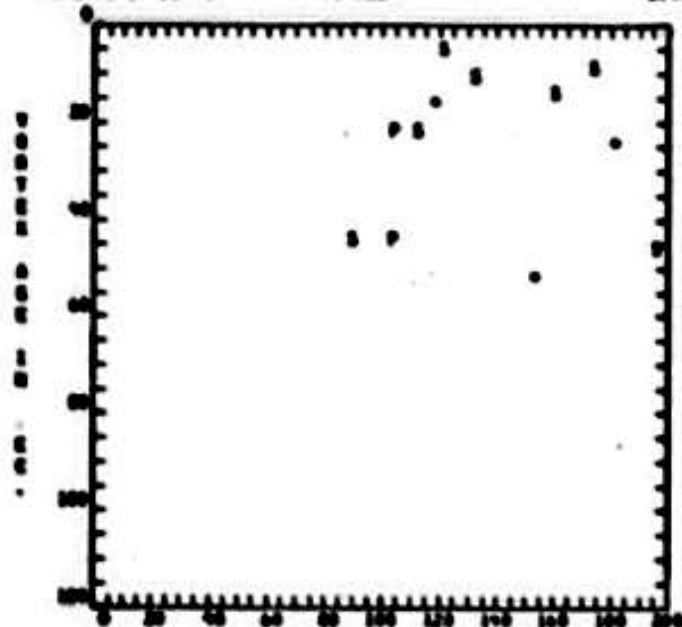
Run No. 00
Time 15 17:10:00

SP422

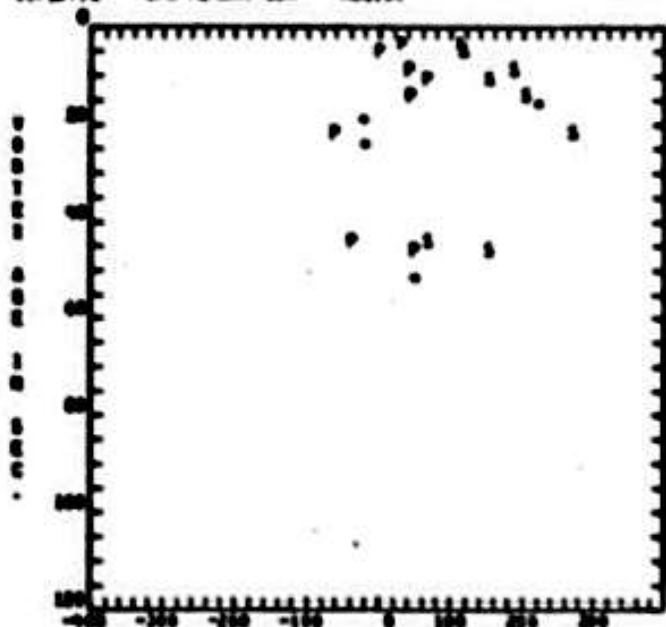
SP47 01/10/76

SP4 Runway 31R

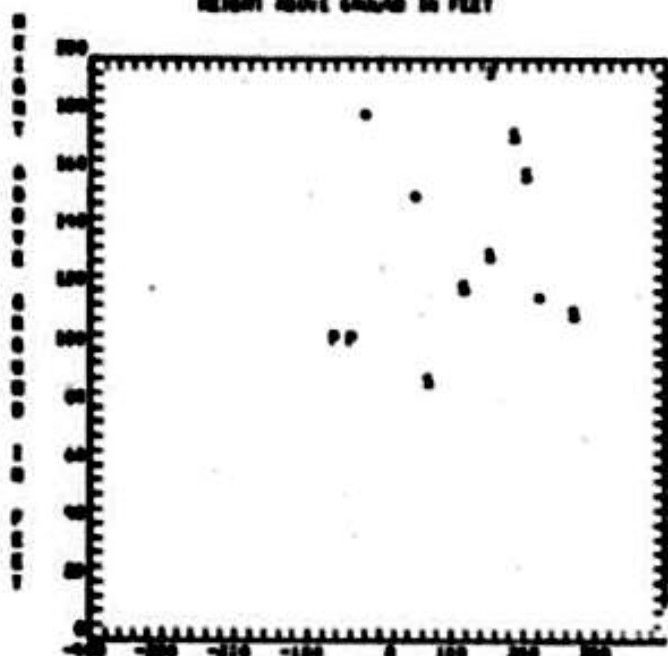
Run No. 020000
Time 15 17:10:00



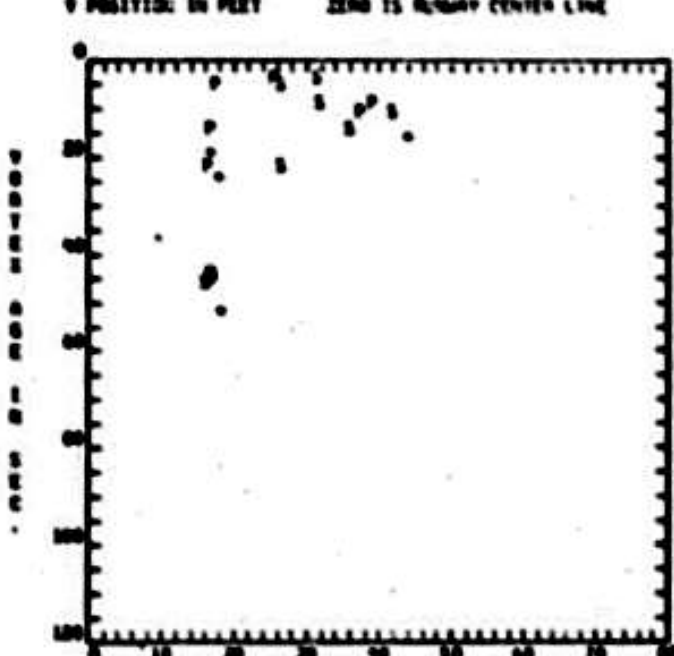
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT HEIGHT IN FEET

01
TIME 15 17-30- 0

07022

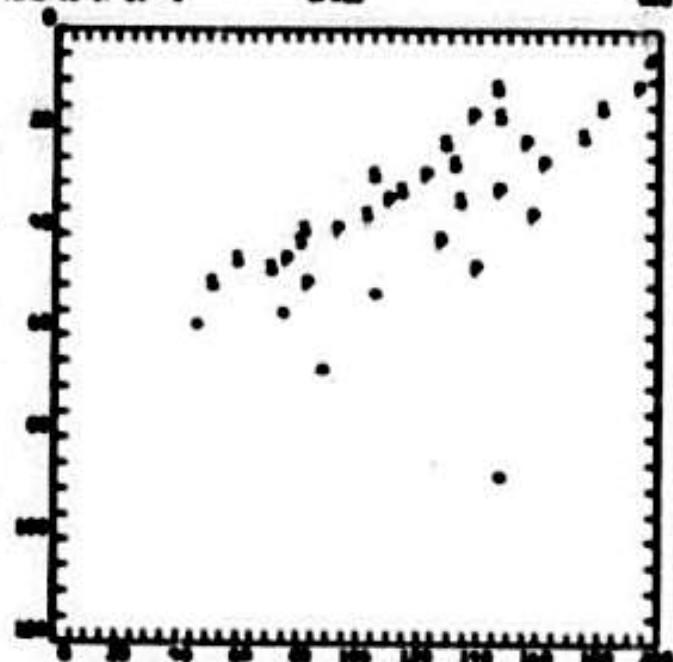
020

01/25/76

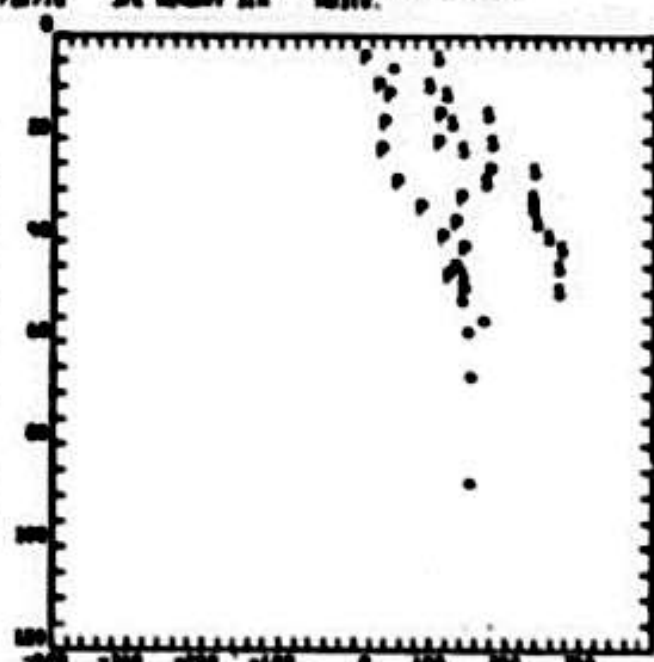
070 070000 310

020 02 000000

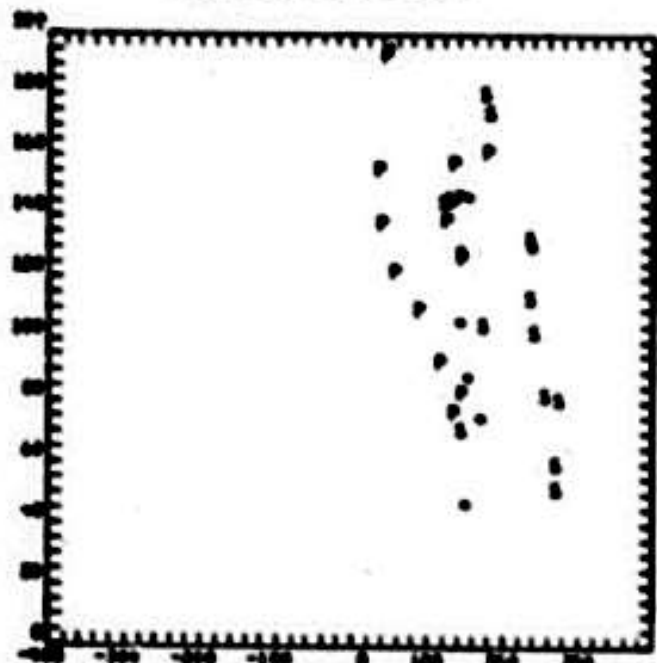
00310



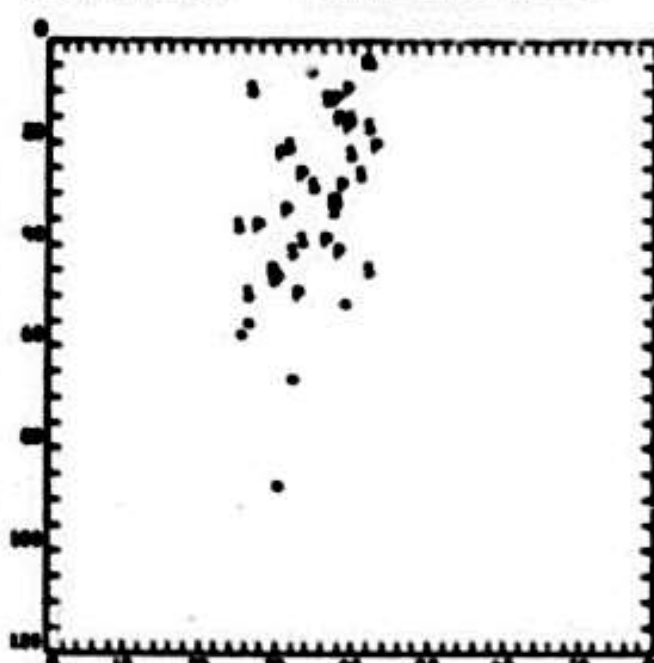
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

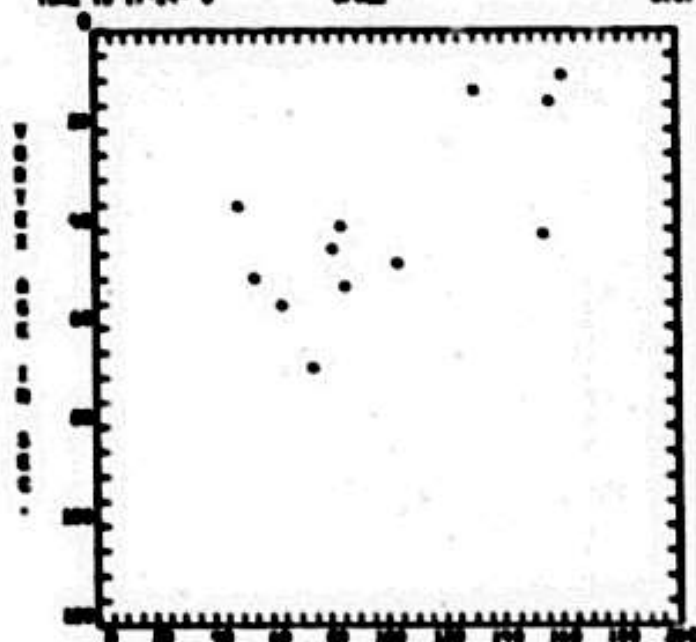
TIME IS 17:00 0

SPR

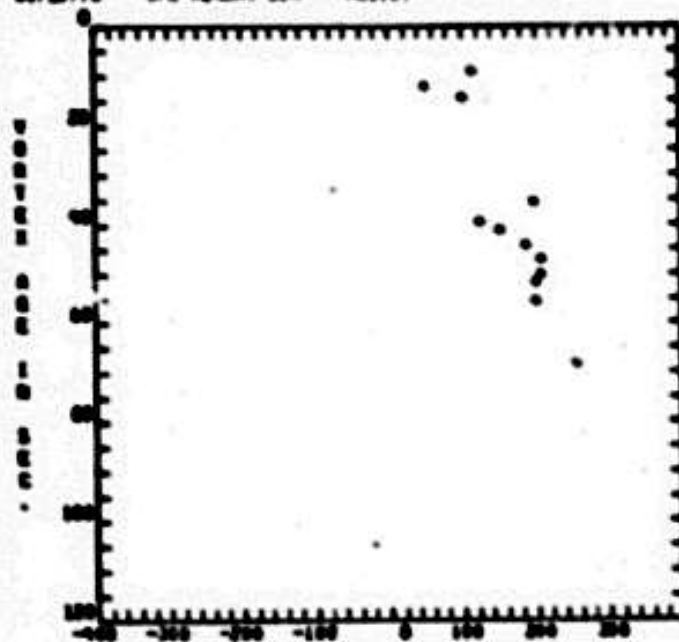
0707 01/15/76

JFK Runway 31R

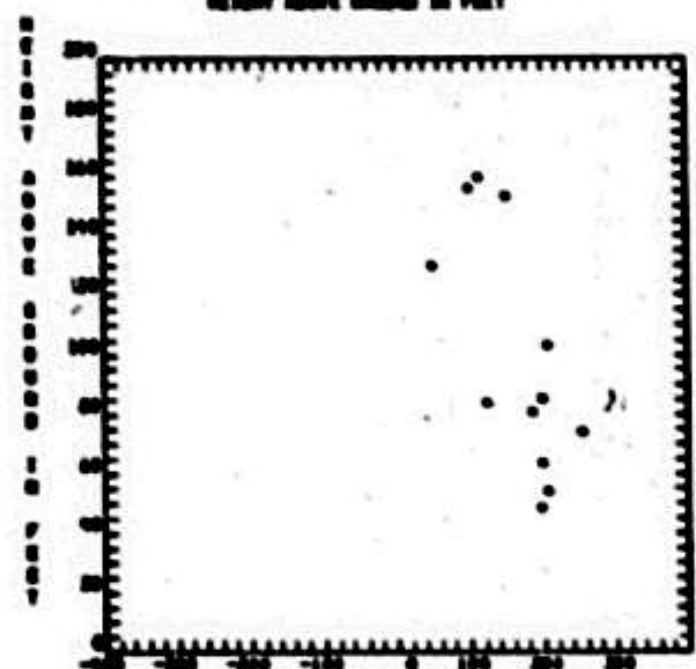
200 00 000000
00110



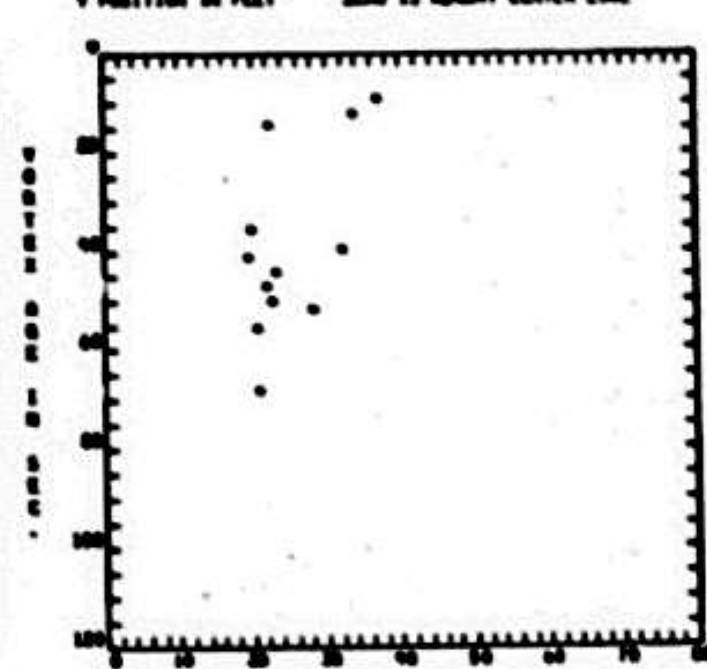
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC

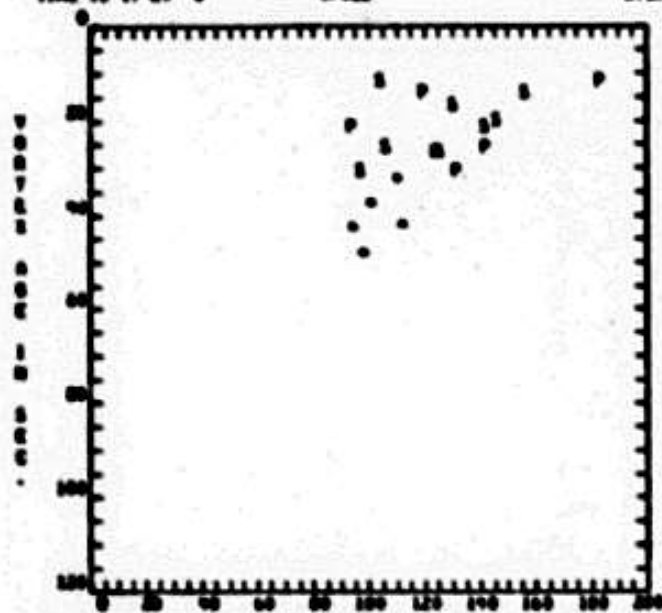
Run No. 02
TIME IS 17:29:0

JF022

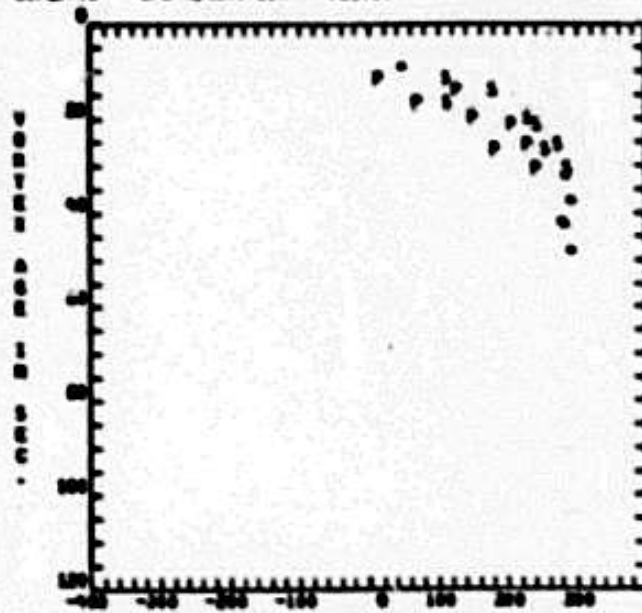
DATE 04/15/76

JFC Runway 21R

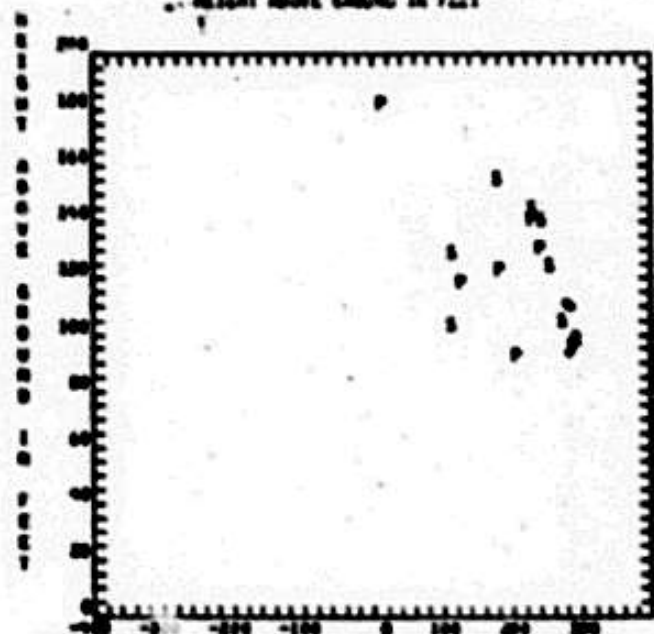
Run No. 020000
HE210.



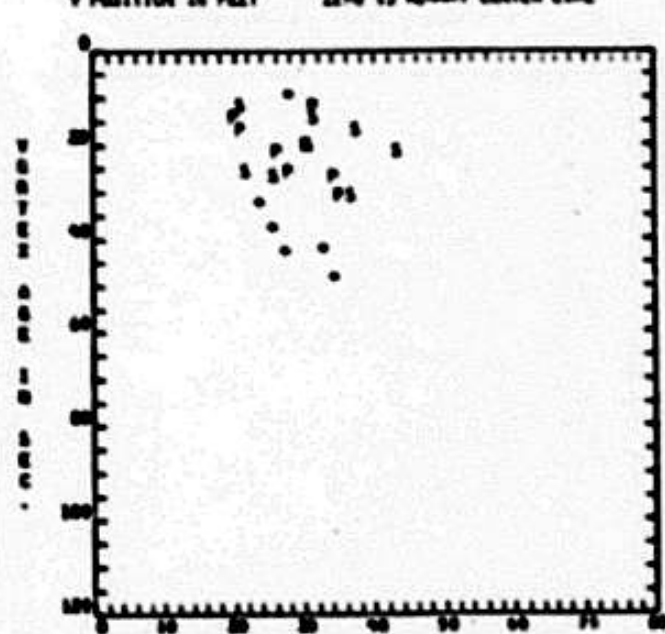
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZEN0 IS Runway CENTER LINE



Y POSITION IN FEET ZEN0 IS Runway CENTER LINE



PERF LINE OR SIGHT VELOCITY IN FT/SEC.

A-147

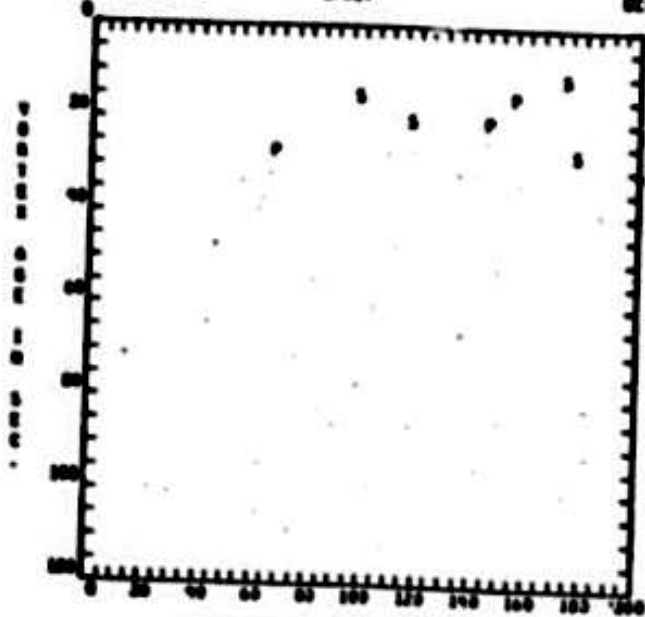
Run No. 1
TIME IS 17:45:0

JP27

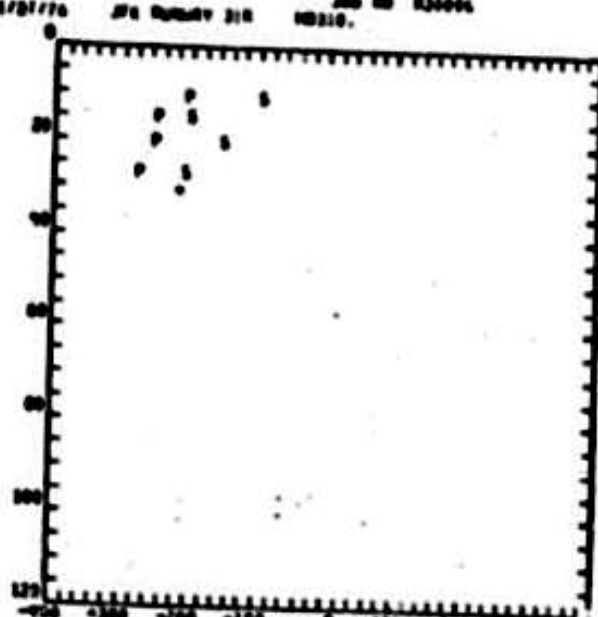
0230 01/01/76

JP28 Runway 31R

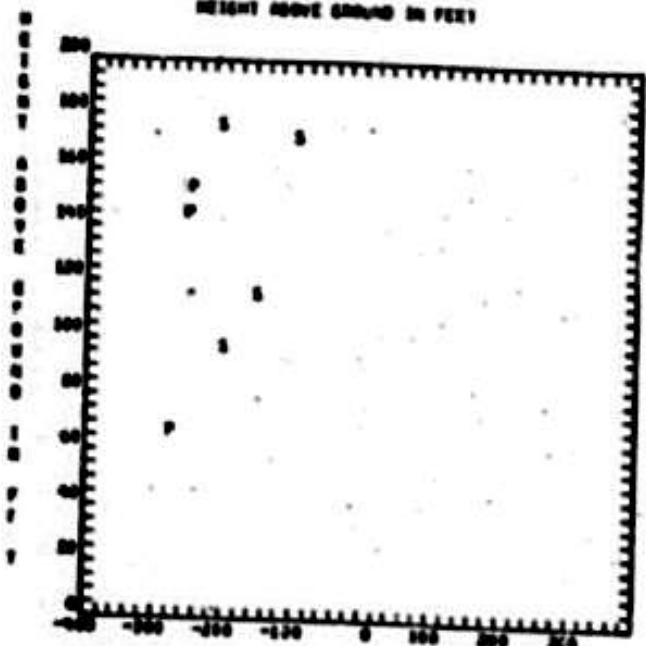
Run No. 024004
02310



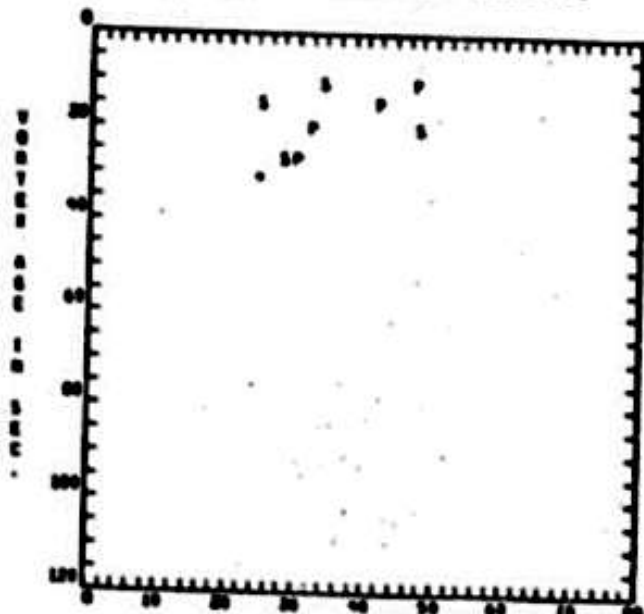
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS Runway CENTER LINE



V POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

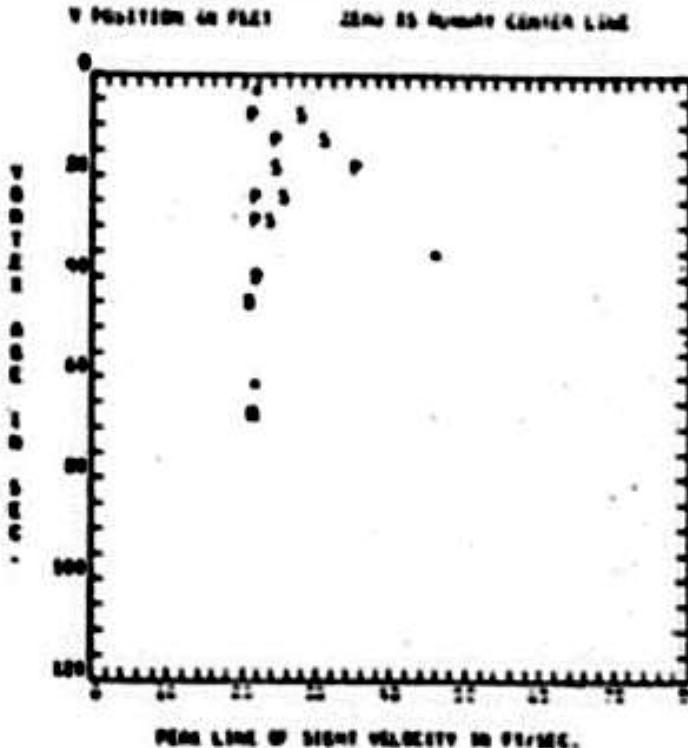
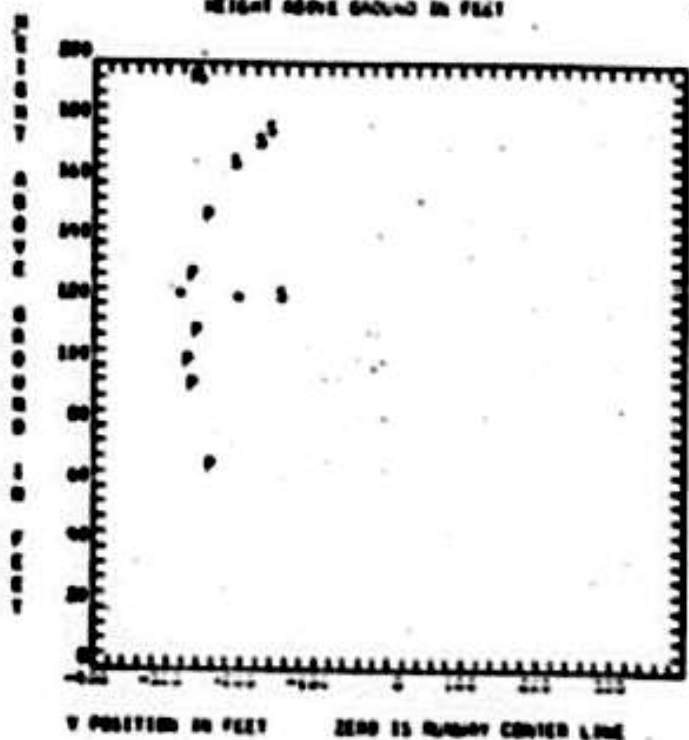
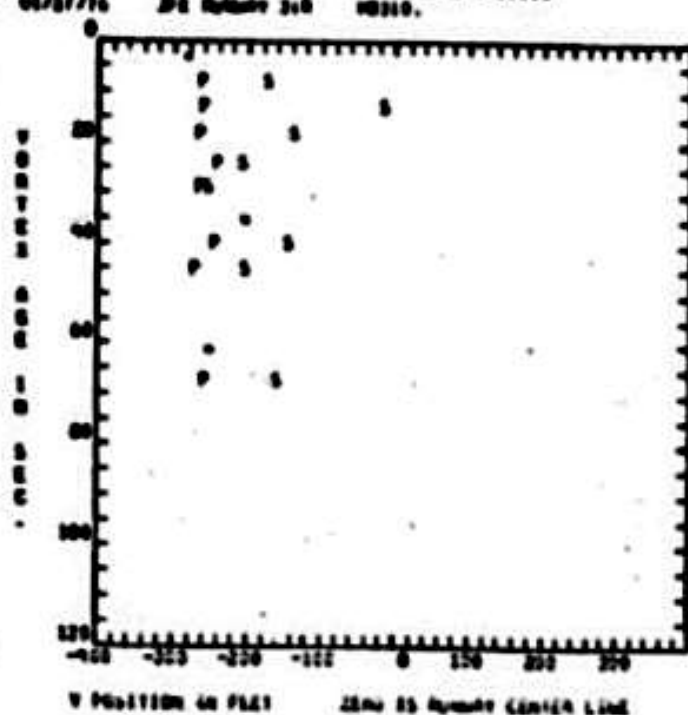
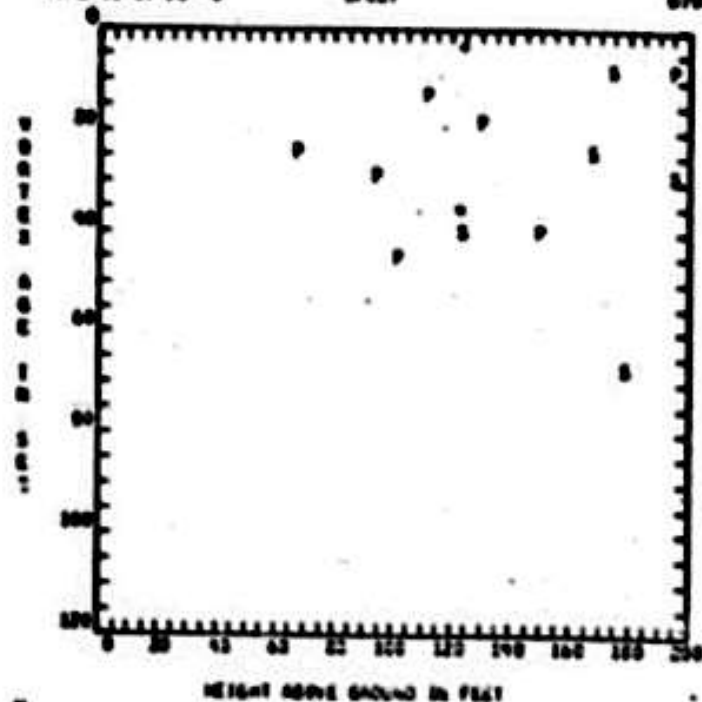
Run No. 5
Time 15 17:50 0

JF021

0707 01/27/76

JF0 Runway 340

JF0 No 030000
00210.



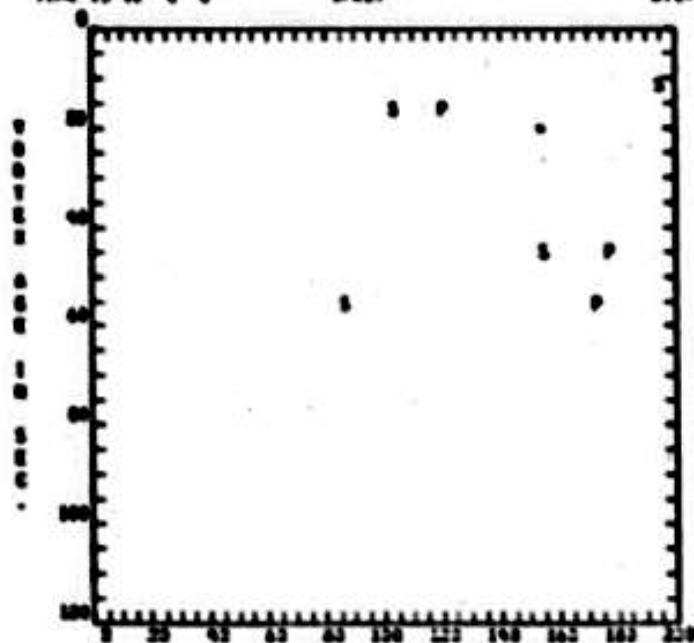
Run No: 6
TIME 15 10 0 0

JF221

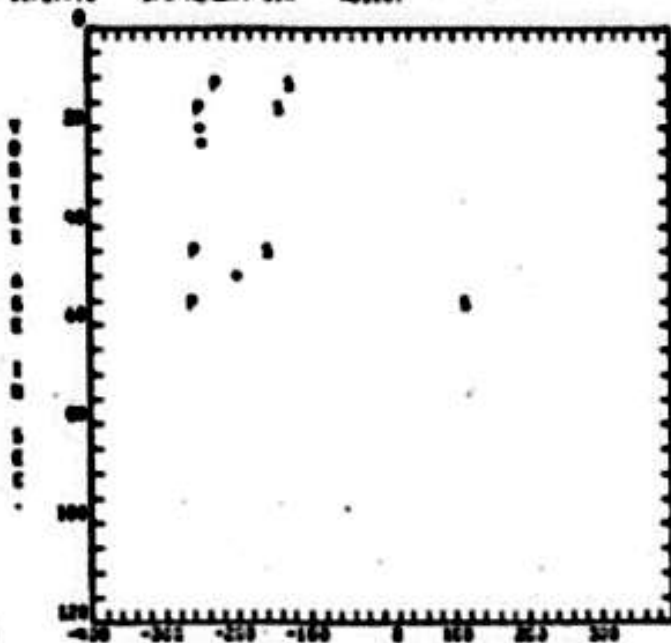
D107 01/27/76

JF6 Runway 31R

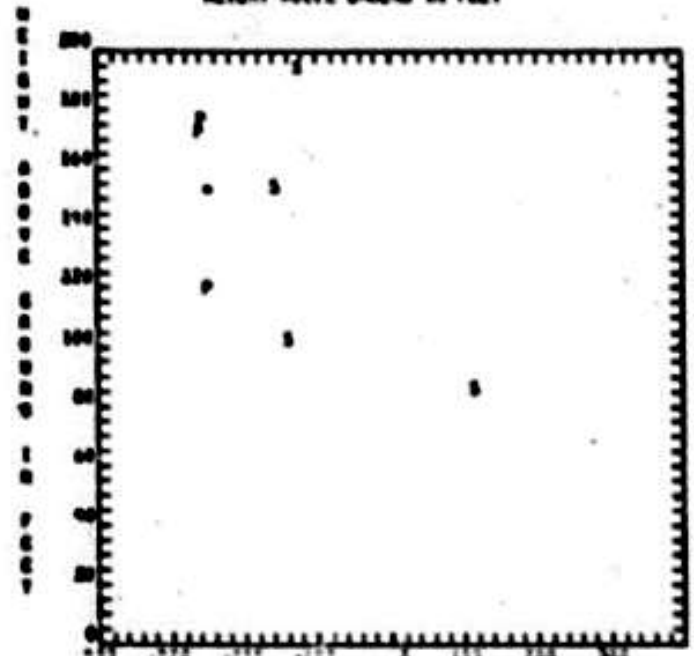
JFO NO 030000
NO310.



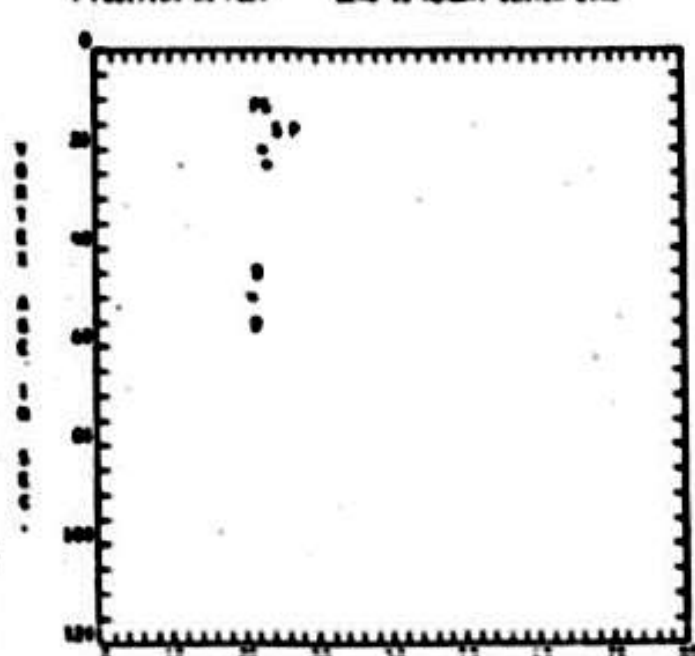
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 1
TIME 15 10' 0"

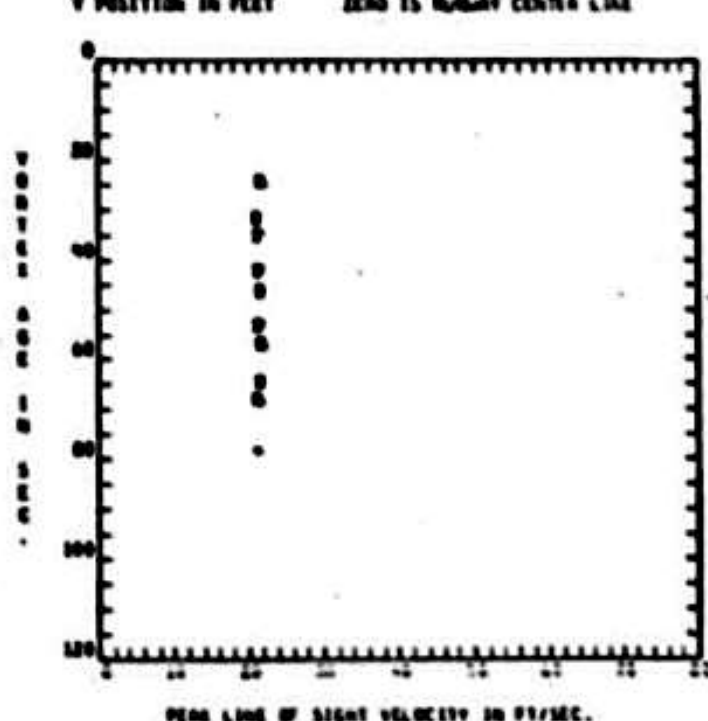
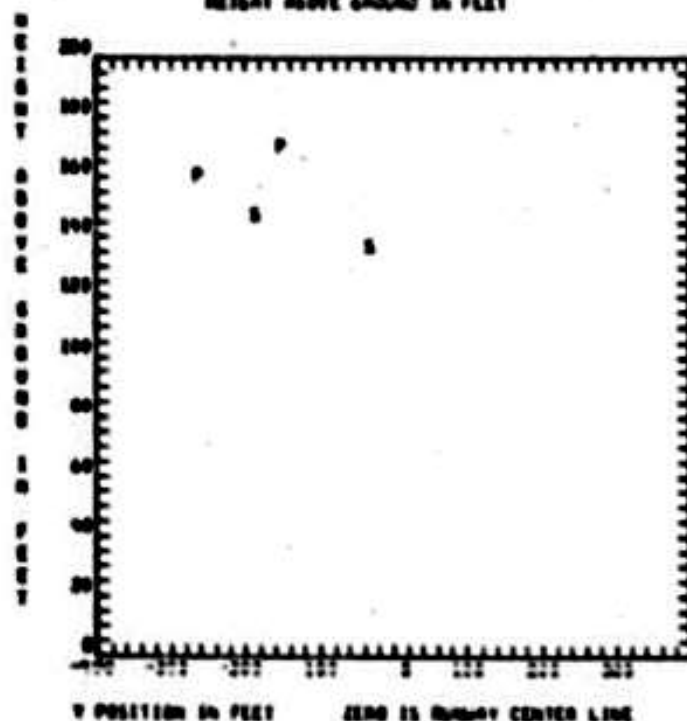
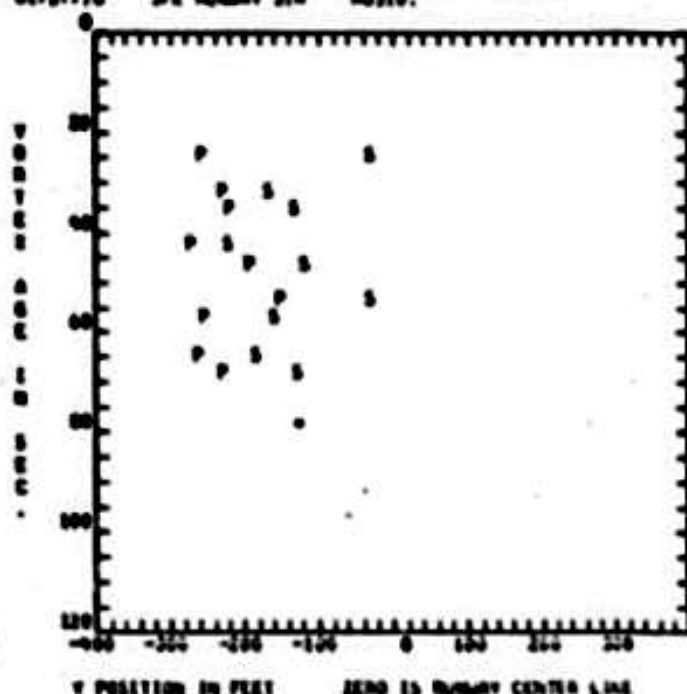
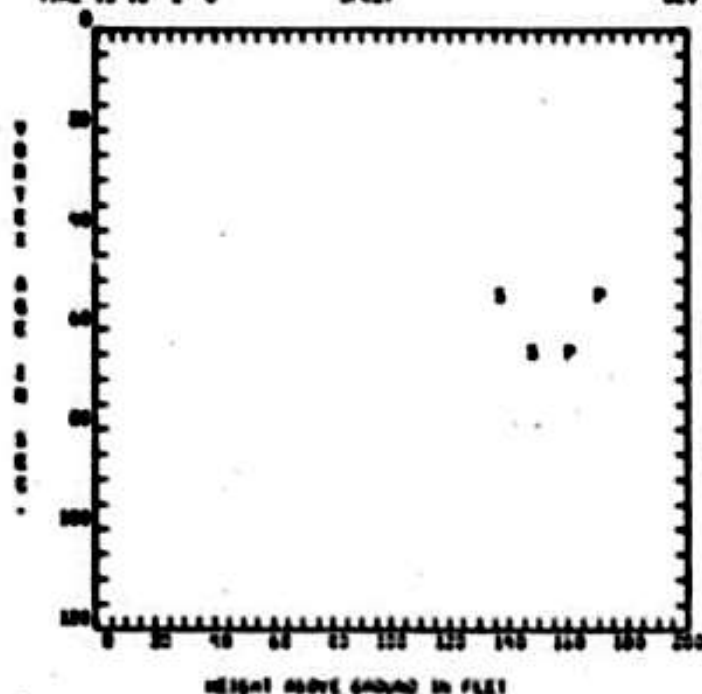
FLIGHT

DEV

01/01/76

JFK Runway 31R

Run No. 030000
HD310.



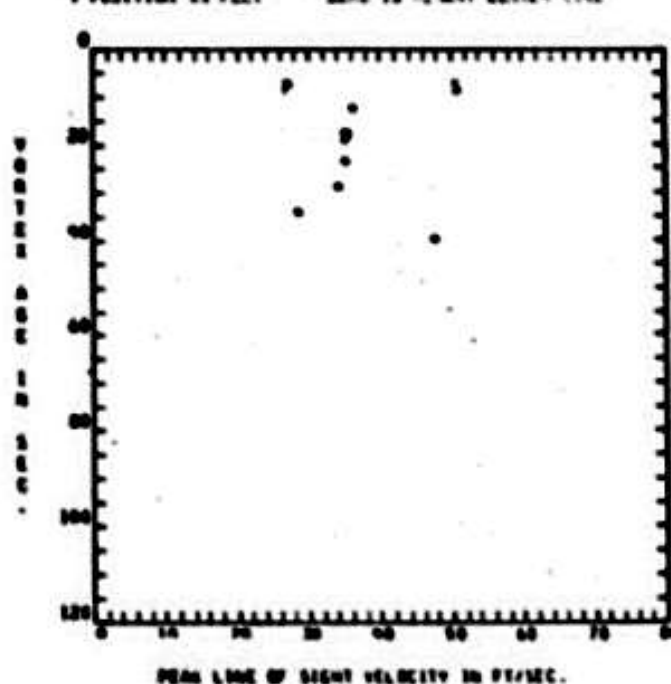
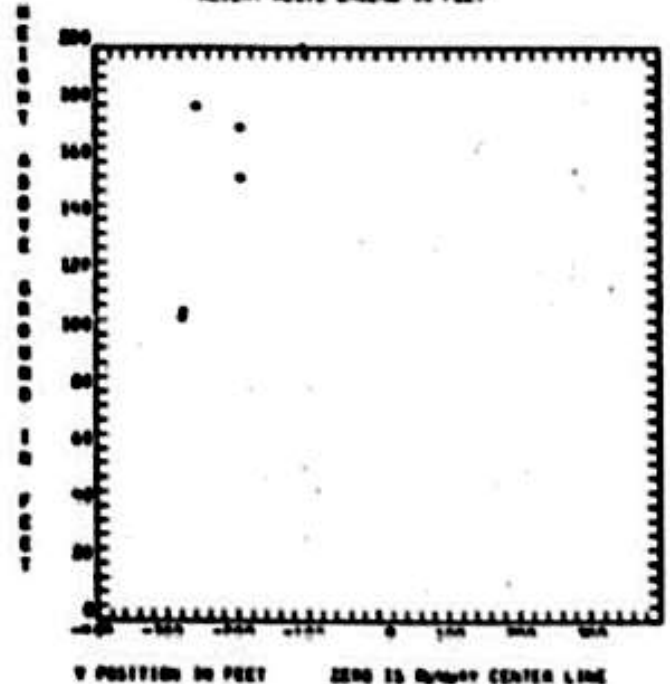
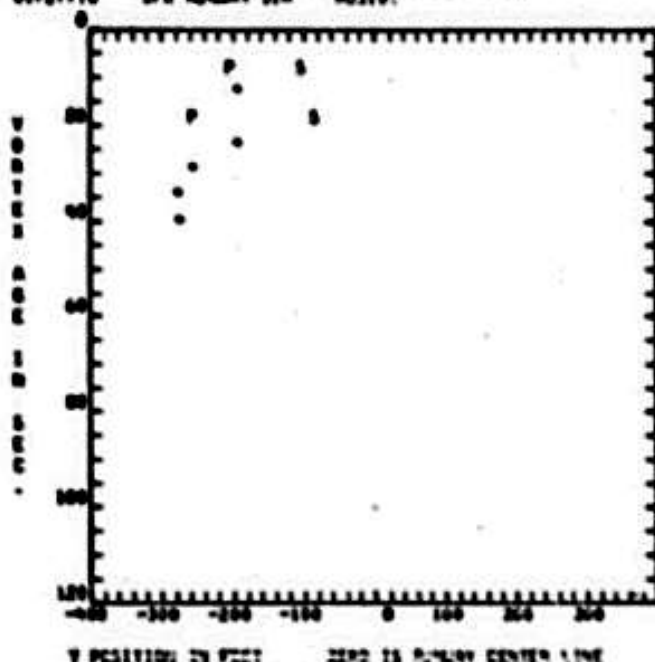
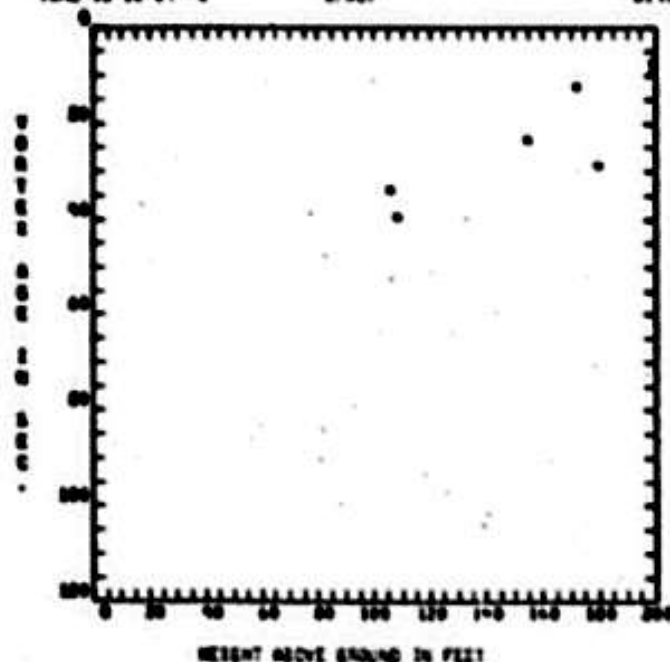
Run No. 13
TIME 15 10 34.0

JF627

0747 01/27/76

JFA Runway 31R

JOB NO 030000
NO310.



Run No. 15
Time 15 10:30" 0

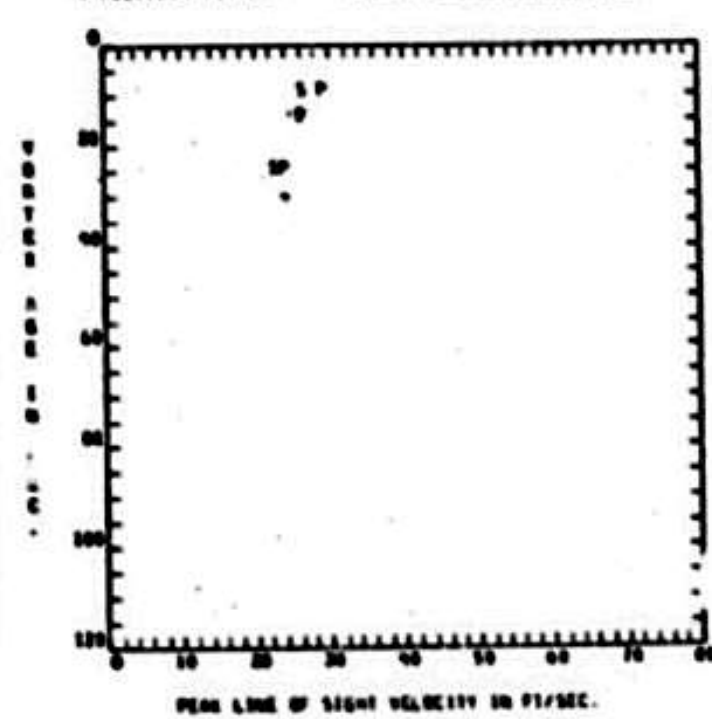
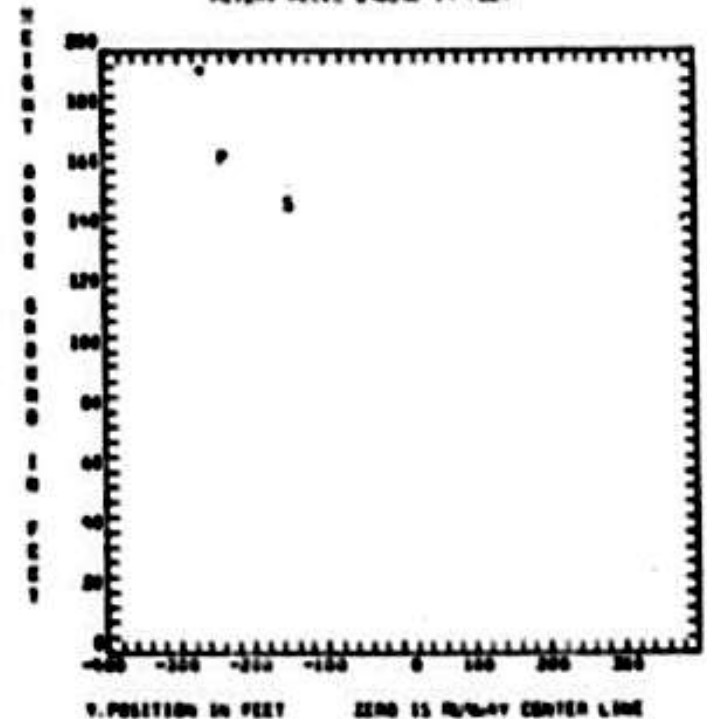
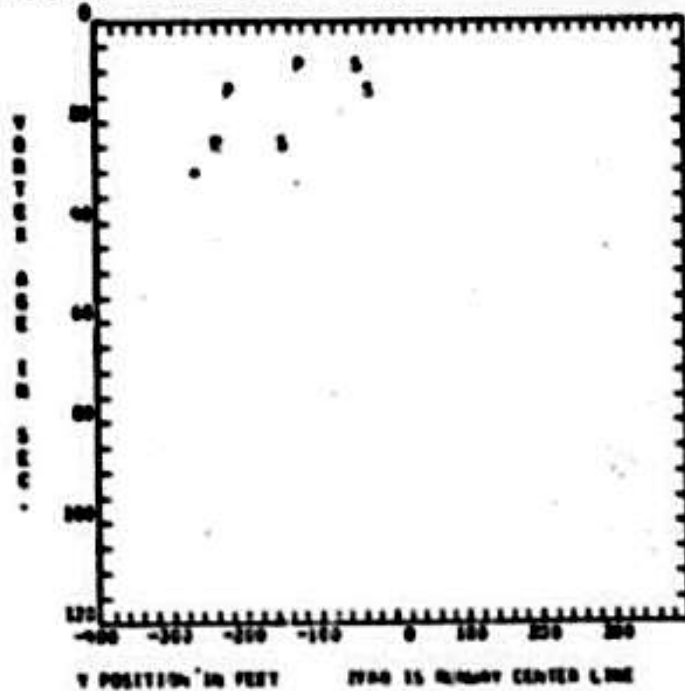
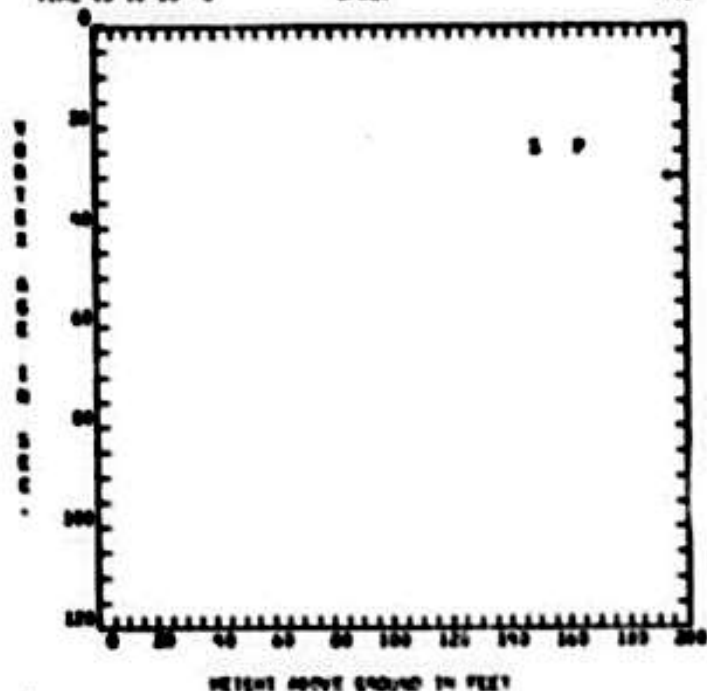
JF427

020

01/31/76

JF4 Runway 31R

Run No. 030000
HD310.



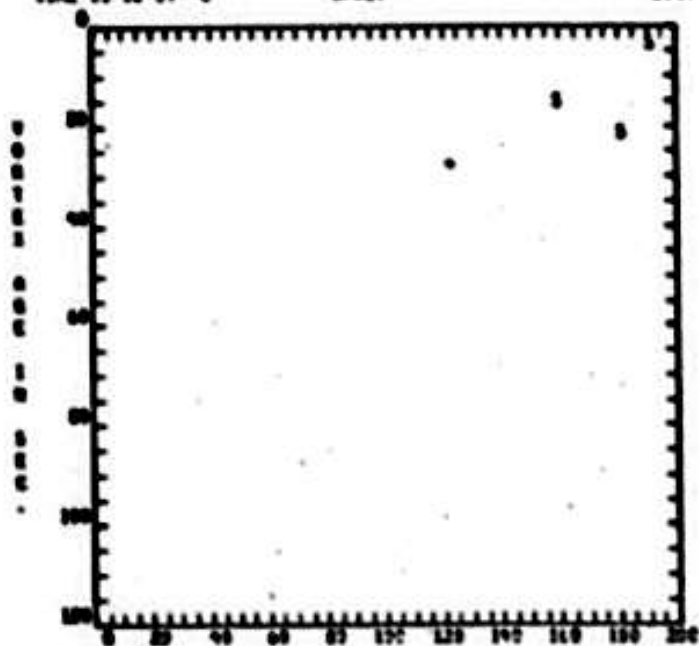
REF ID: A6
TIME IS 10:30:00

REF ID: A6

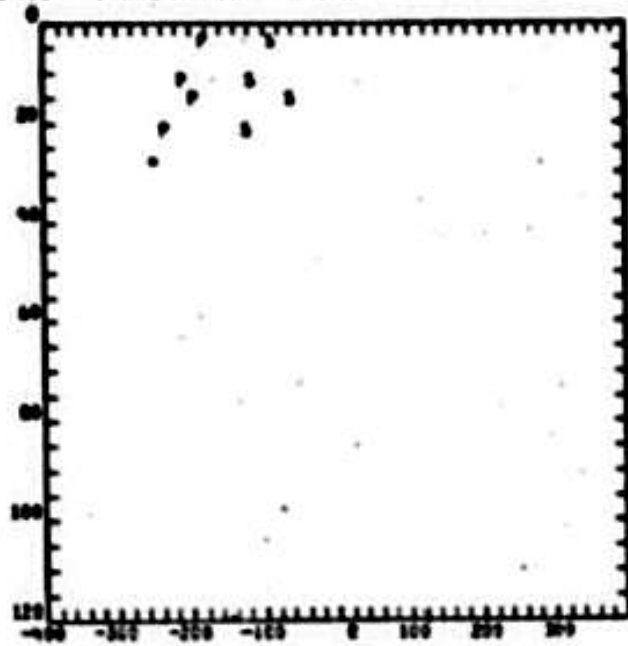
REF ID: A6

REF ID: A6

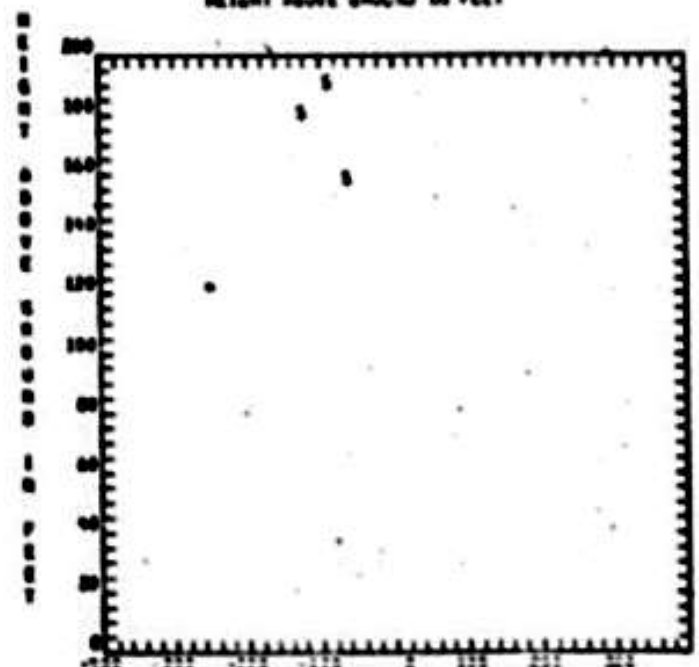
REF ID: A6



HEIGHT ABOVE GROUND IN FEET



HEIGHT ABOVE GROUND IN FEET ZERO IS RUNWAY CENTER LINE



HEIGHT ABOVE GROUND IN FEET ZERO IS RUNWAY CENTER LINE



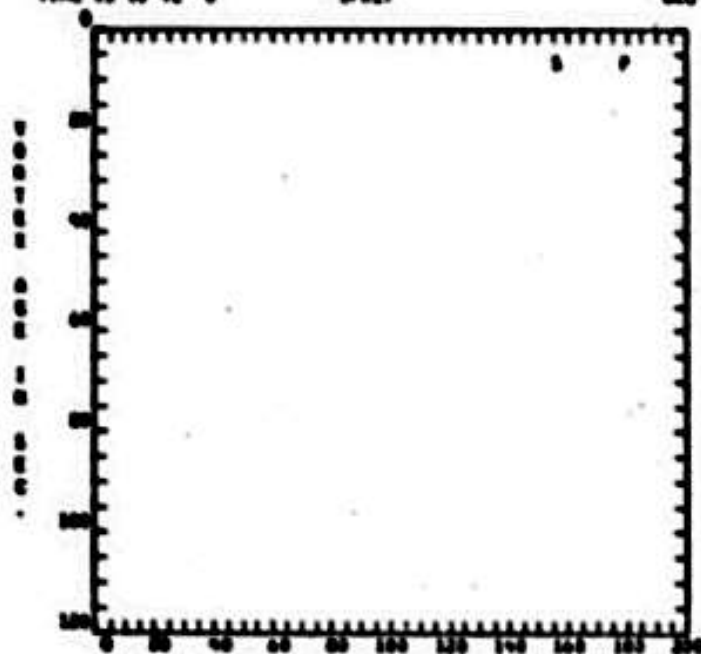
HEIGHT ABOVE GROUND IN FEET ZERO IS RUNWAY CENTER LINE

Run No. 10
TIME IS 10:42:00

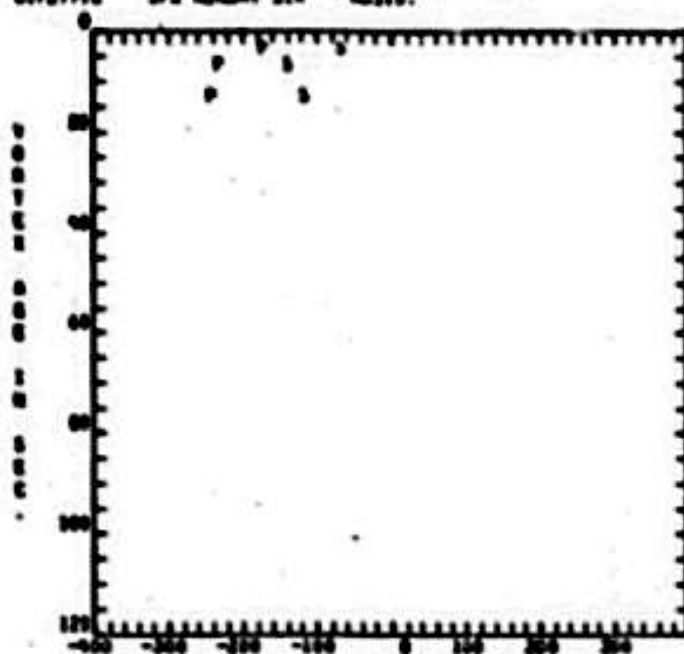
JF427

SEC

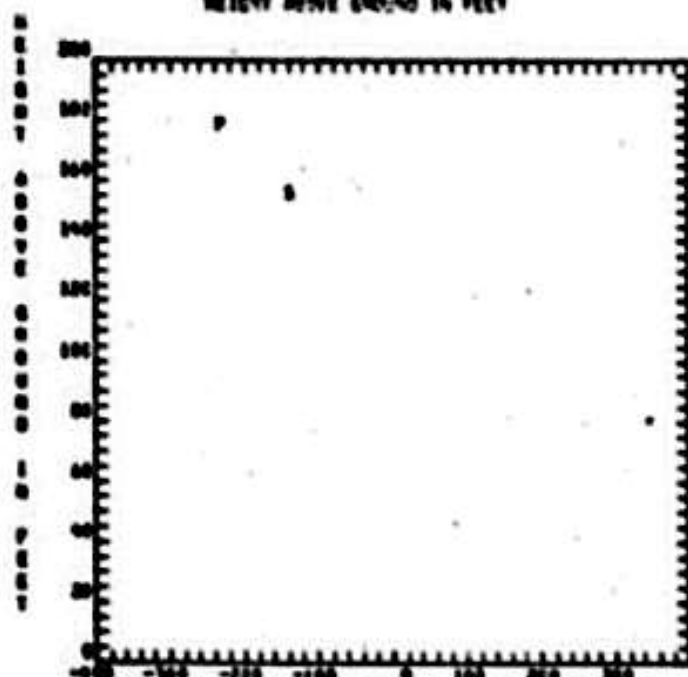
01/21/76 JF4 Runway 31R HD310. Run No. 030400



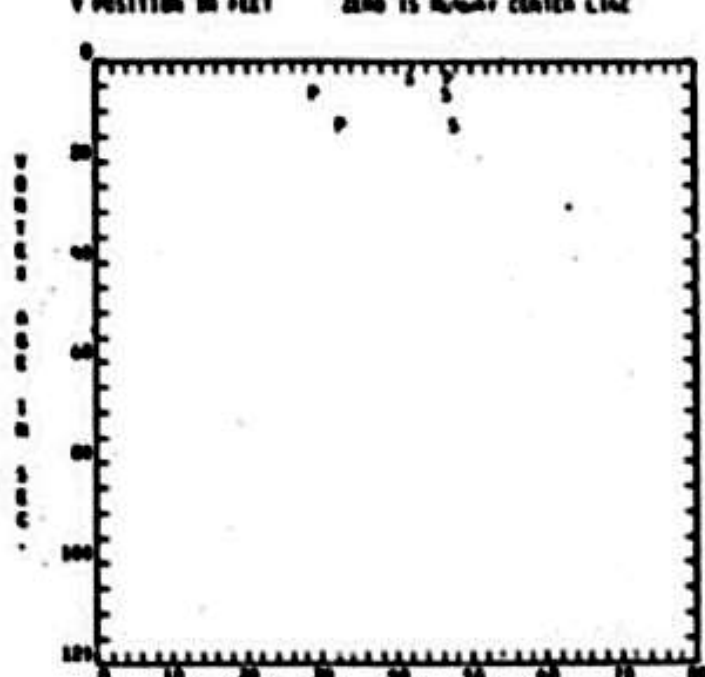
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

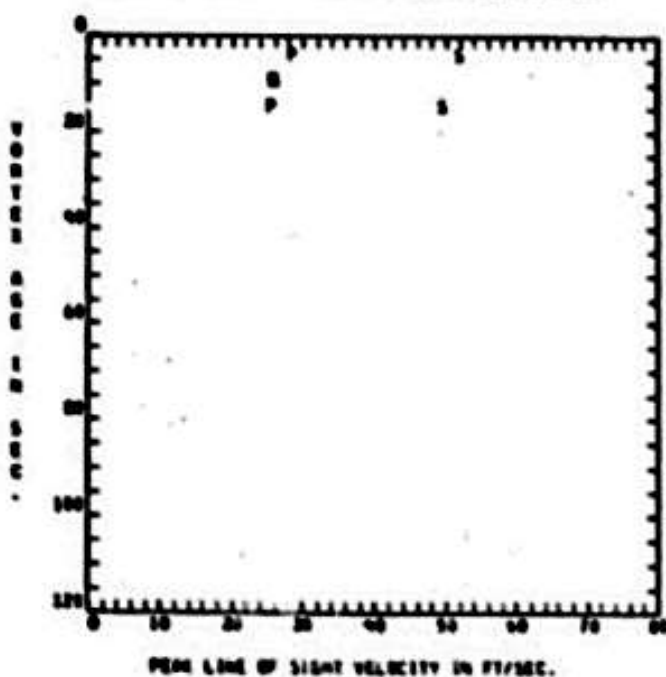
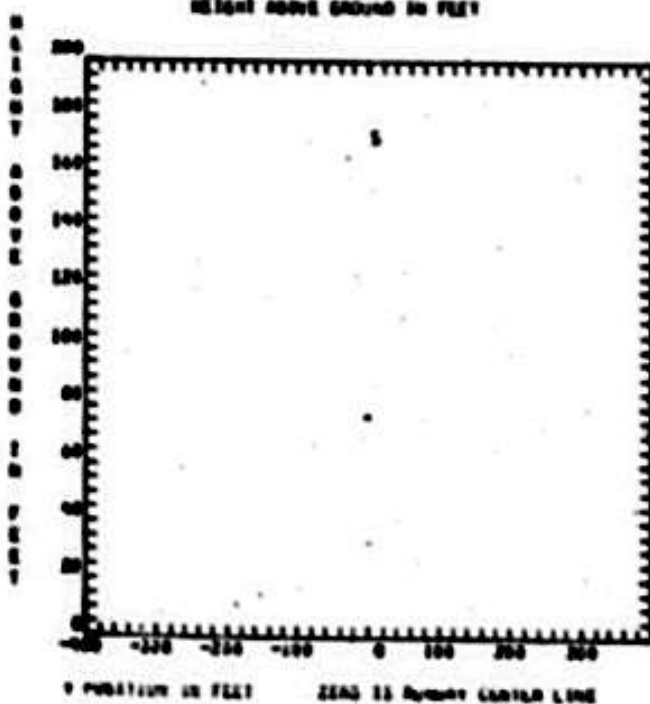
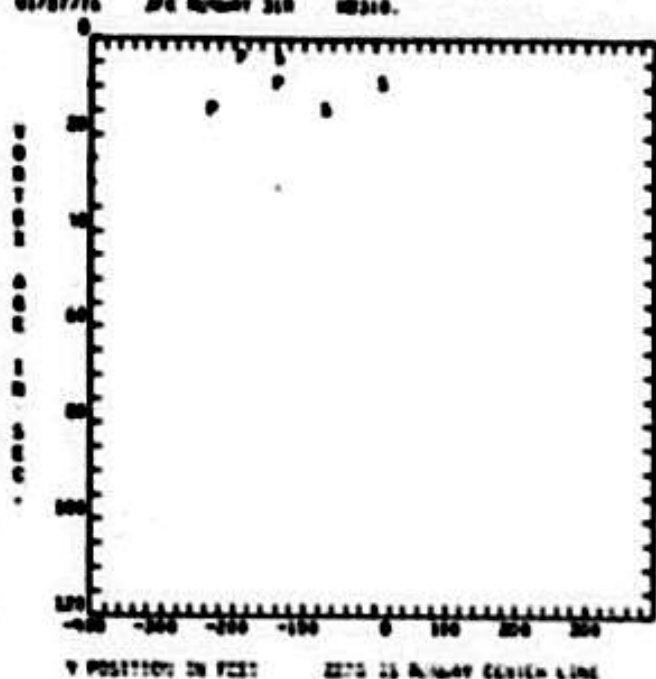
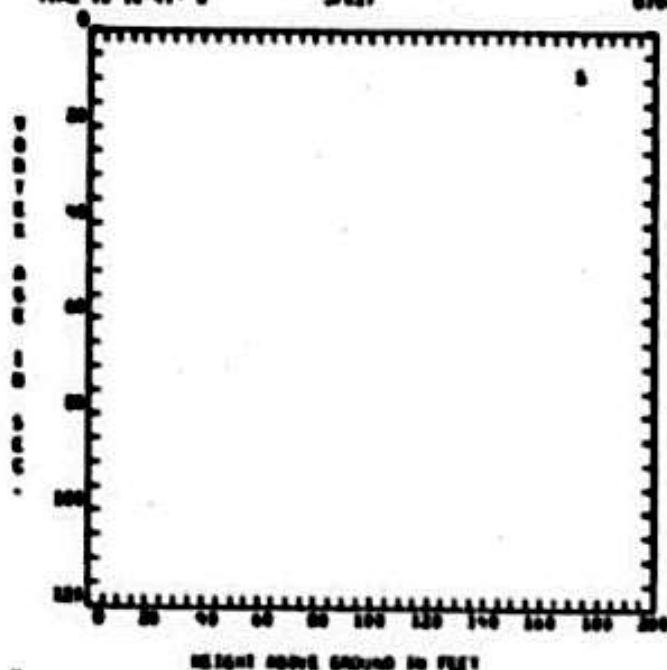
REP NO. 01
TIME IS 10:47:00

0707

0707 01/07/76

APC REPORT 310

REP NO 030000
07310.



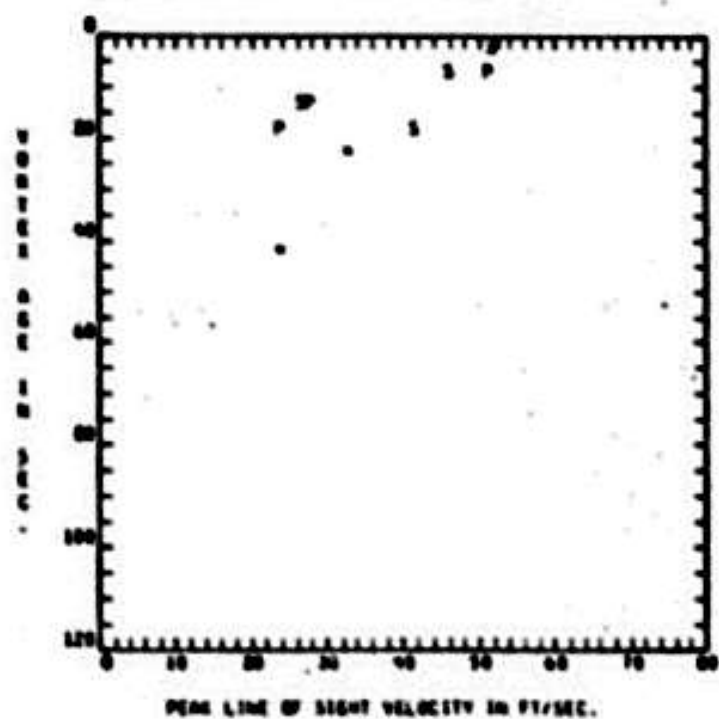
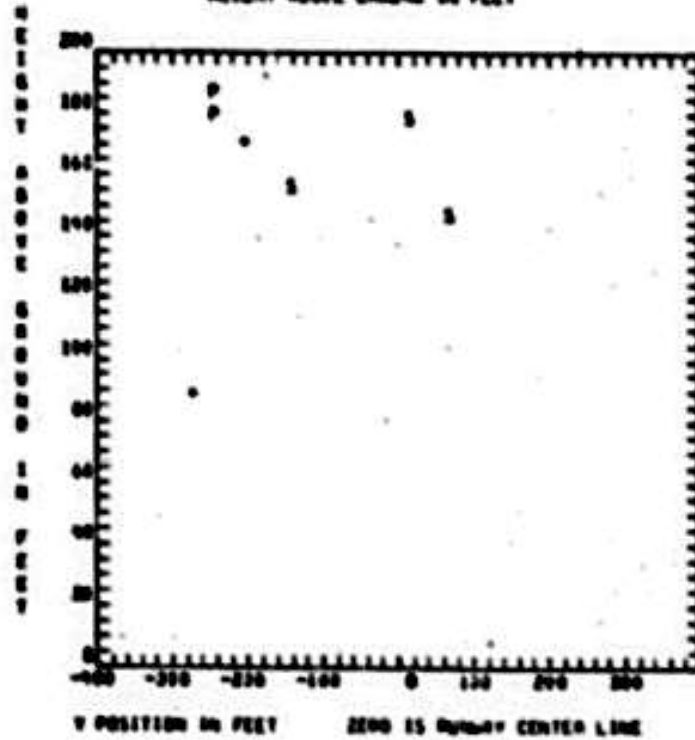
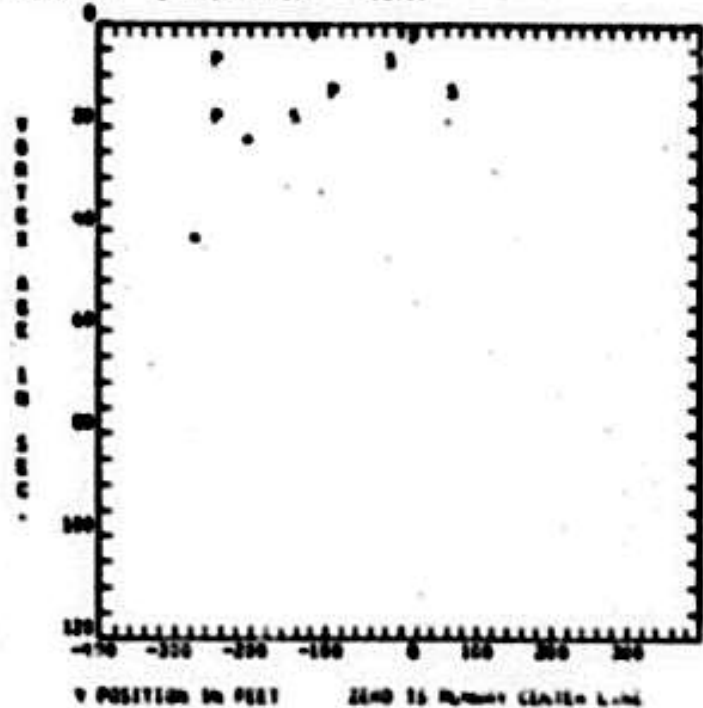
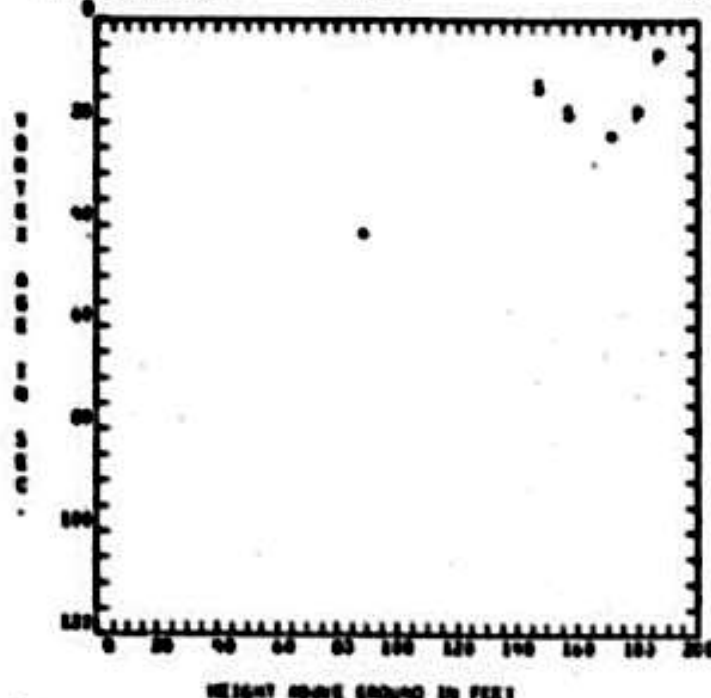
Run No. 22
TIME 15 10:50 0

JF027

0747 01/27/76

JF0 Runway 310

200 MB 030000
NO210.



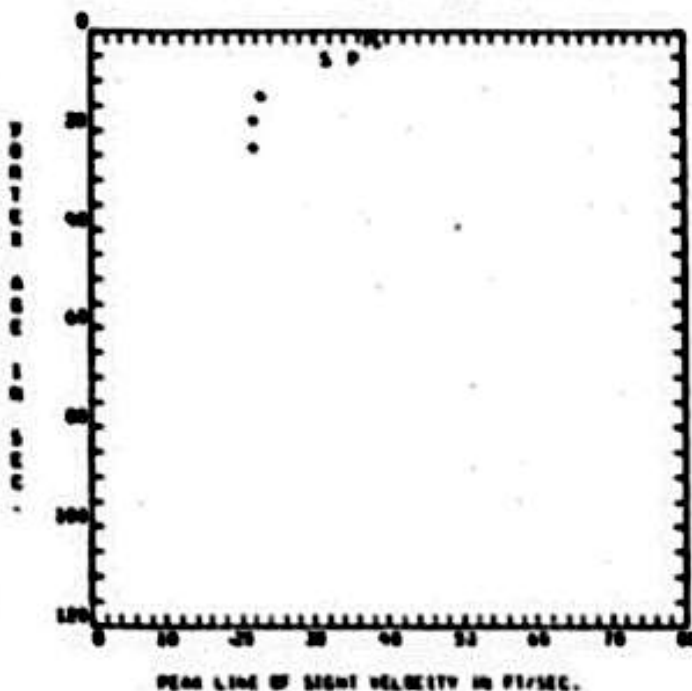
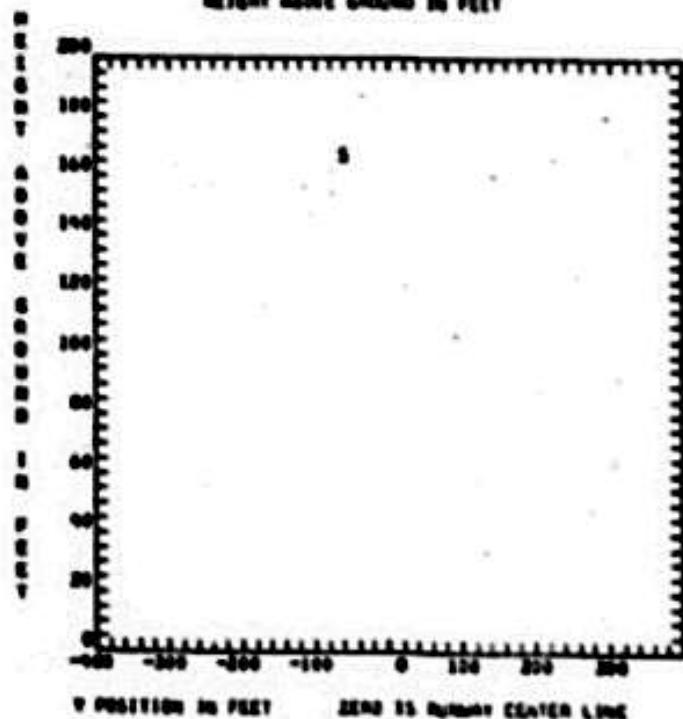
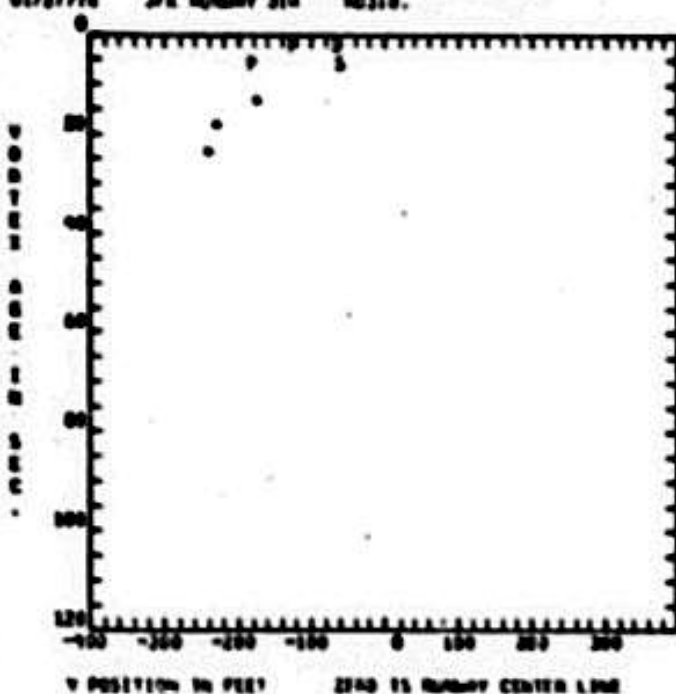
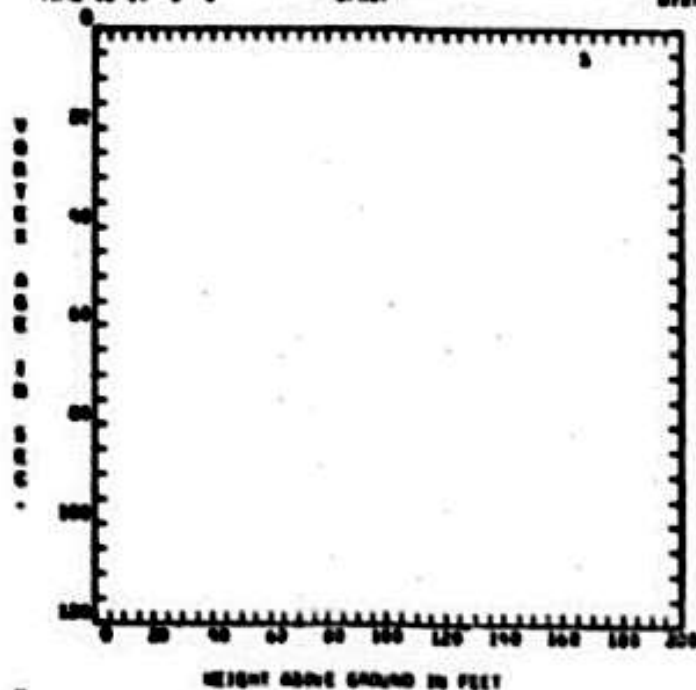
Run ID: 26
TIME IS 19 5 0

JPL27

DATE 01/27/76

JPL Runway 31R

Run ID: 020000
TIME IS 19 5 0



Run No. 27
Time 15 10' 0"

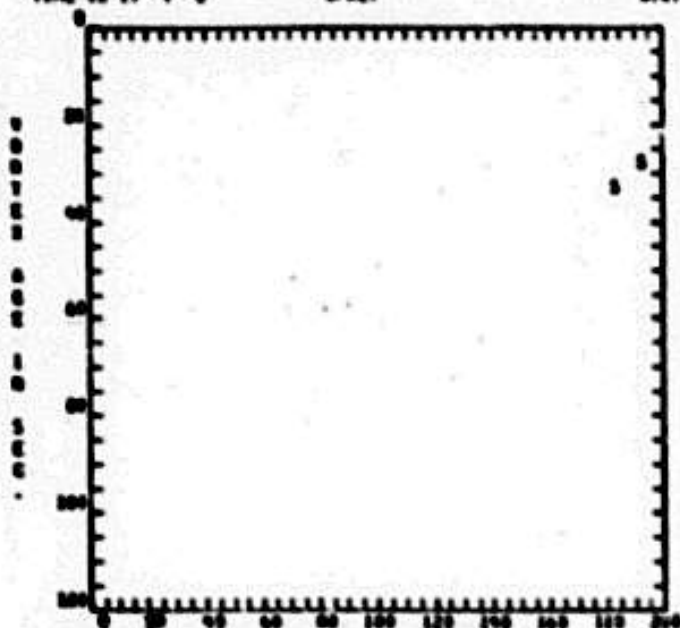
27027

DATE 01/21/76

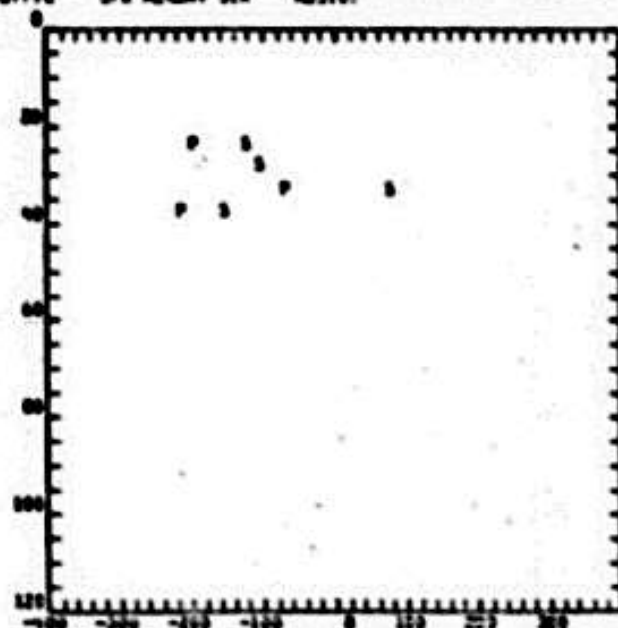
270 Runway 310

Run No. R30000

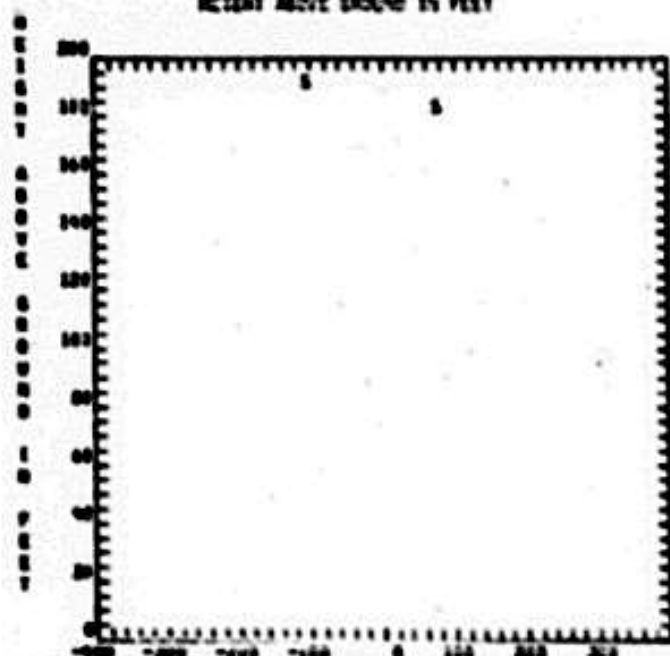
PAGE 23



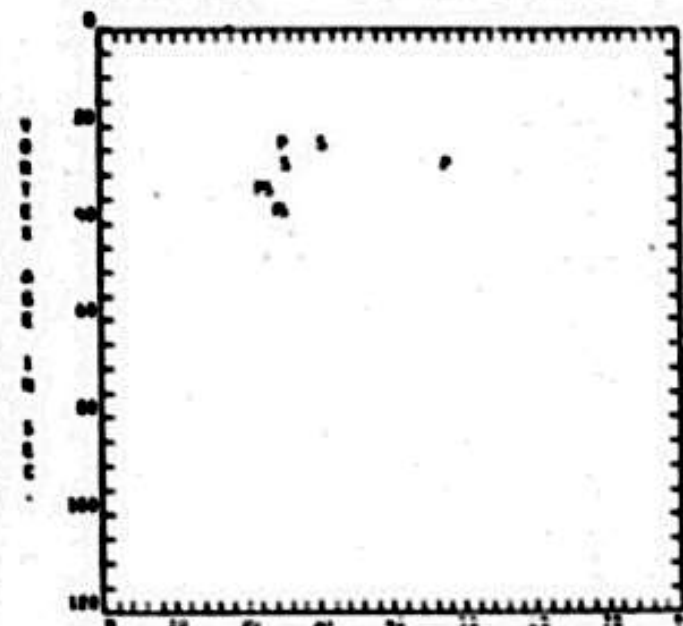
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 20
Time 15 19 00

JF27

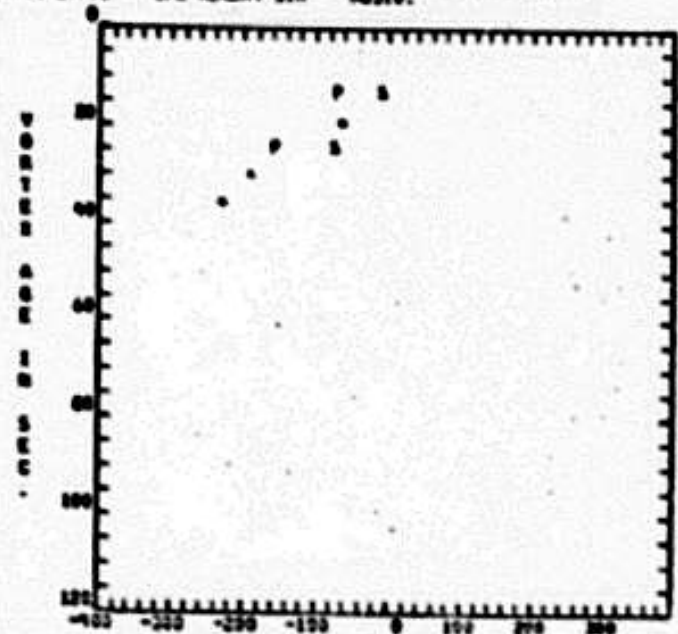


HEIGHT ABOVE GROUND IN FEET

0727 01/27/76

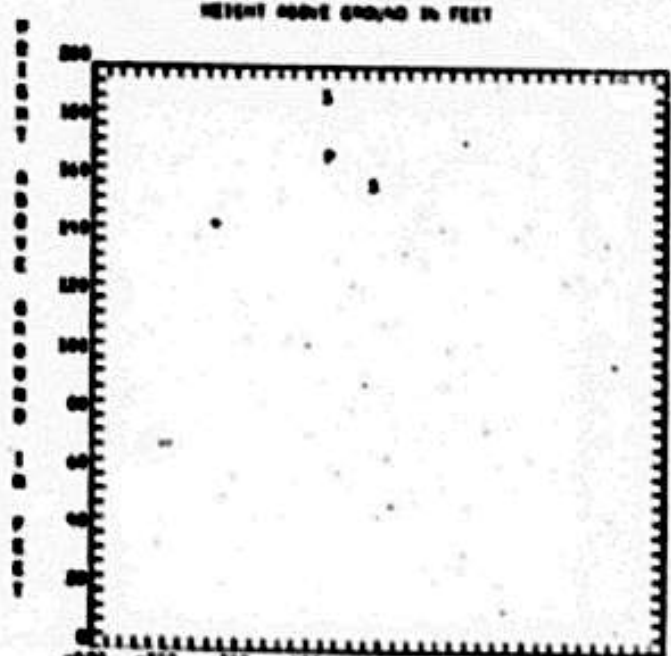
JFE Runway 31R

Run No. 020000
NO310.



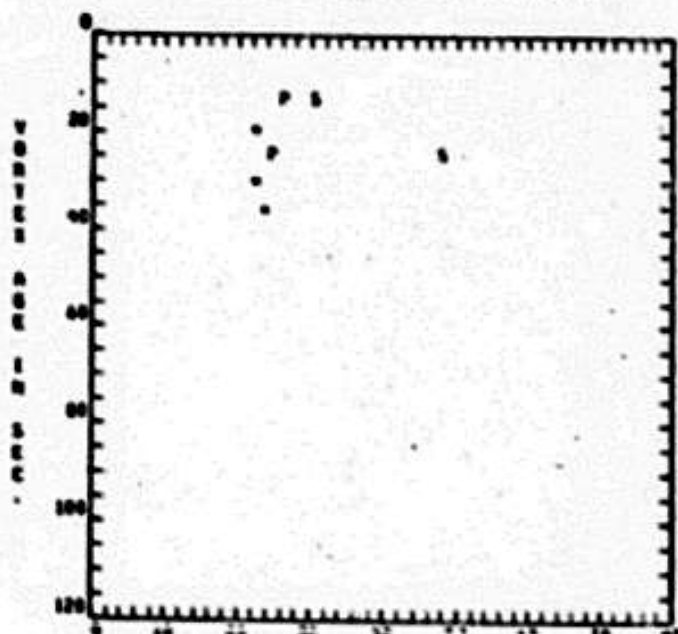
Y POSITION IN FEET

ZERO IS Runway CENTER LINE



Y POSITION IN FEET

ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

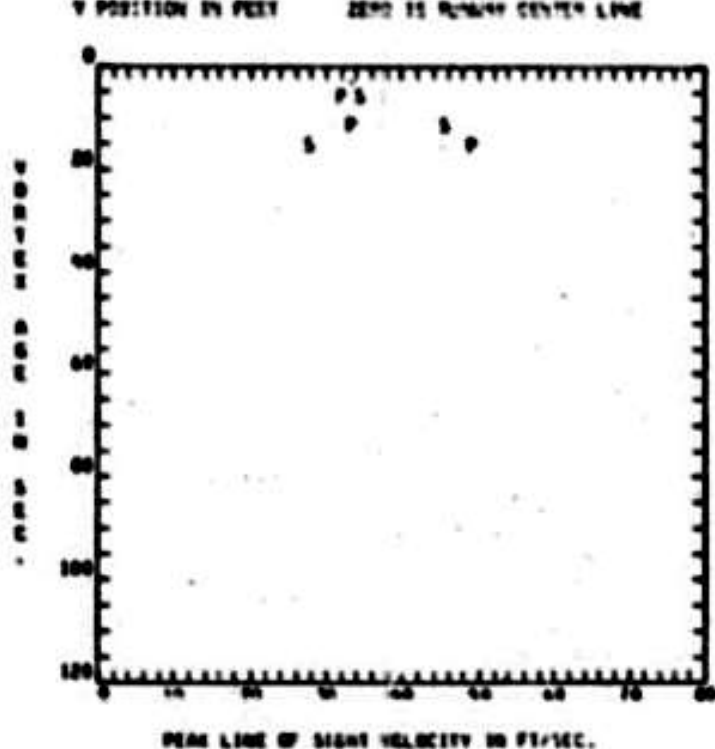
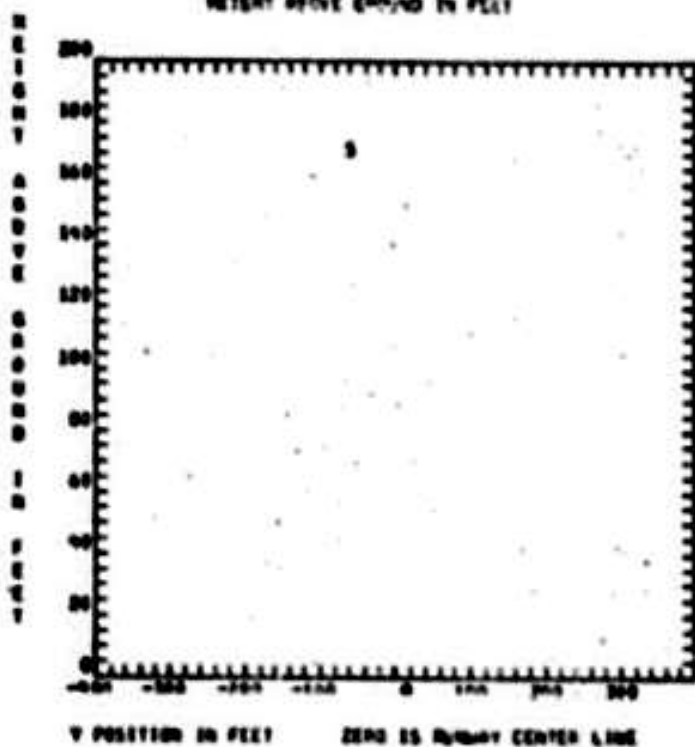
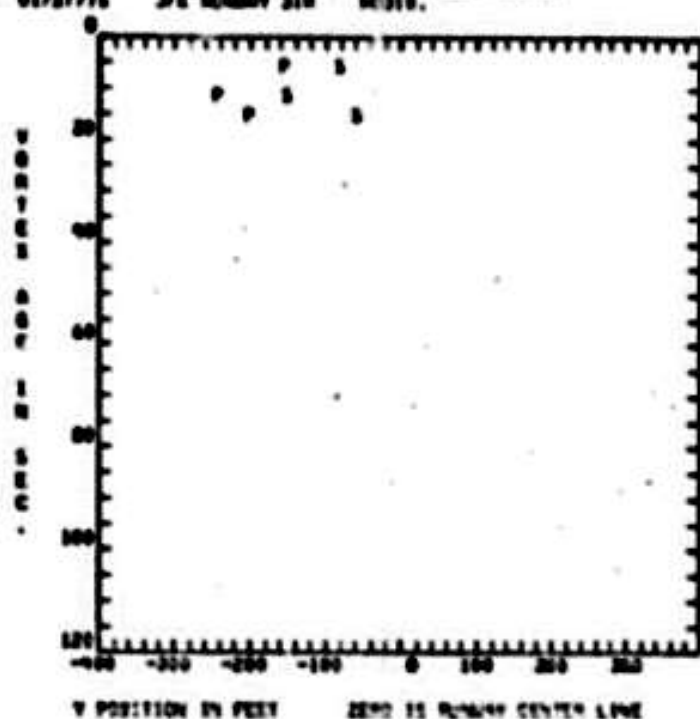
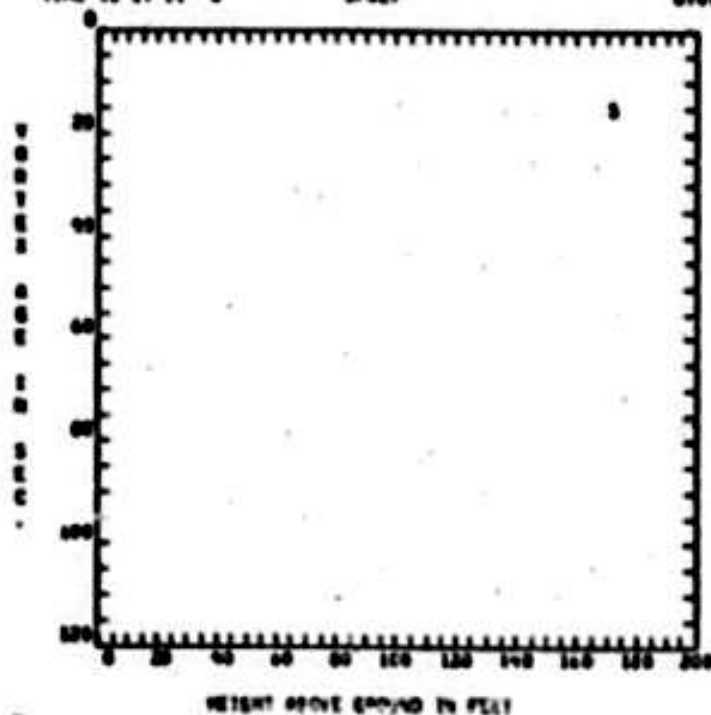
Run no. 29
TIME IS 17:11:00

JFE21

0707 01/27/76

JFE Runway 310

Run no. 030000
M310.



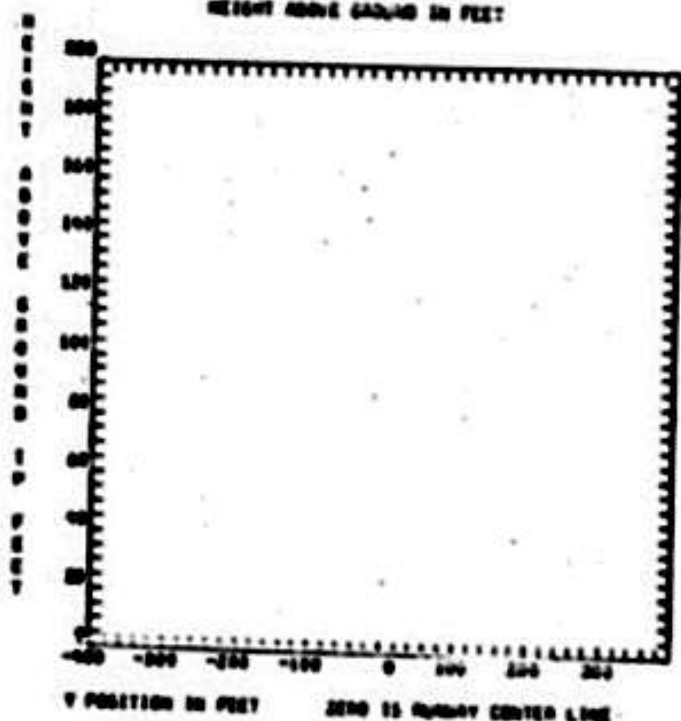
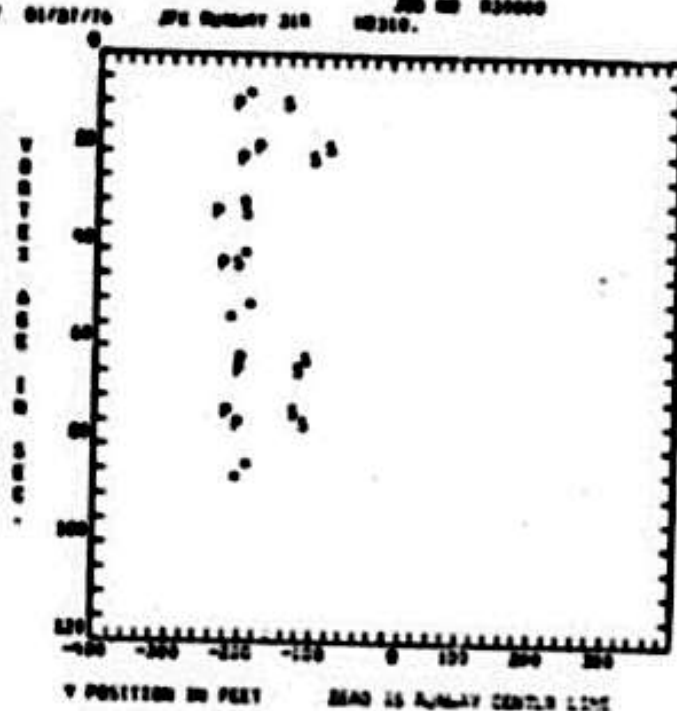
Run No. 30
TIME IS 10:52:0

JF427

SHOT 01/21/76

JFE RUNWAY 310

JED NO 030000
00310.



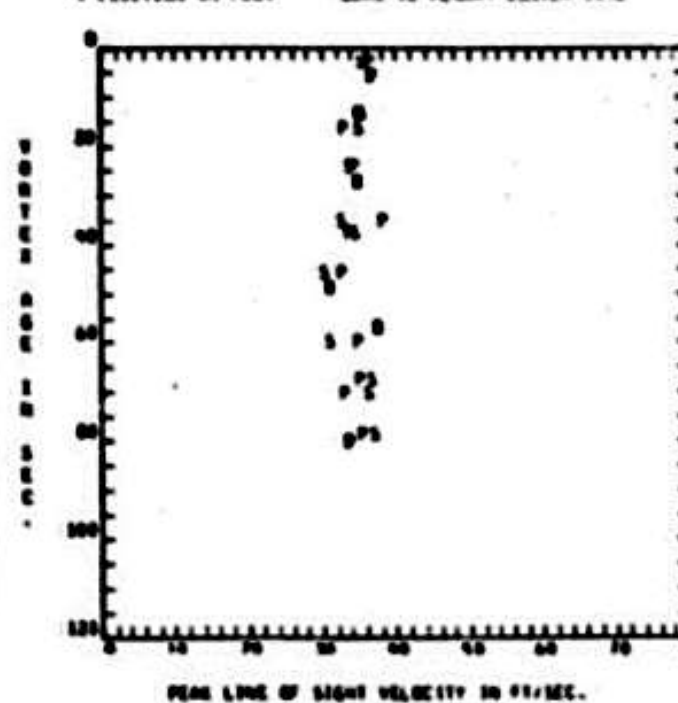
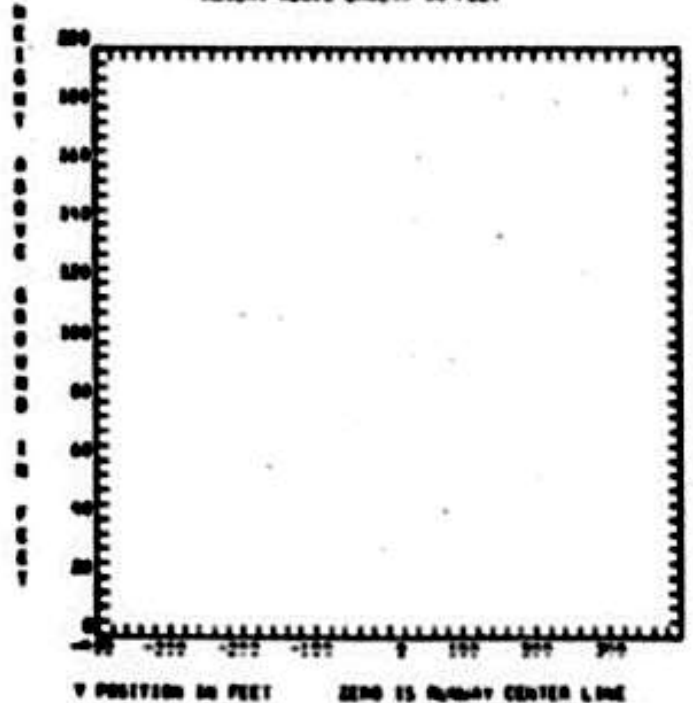
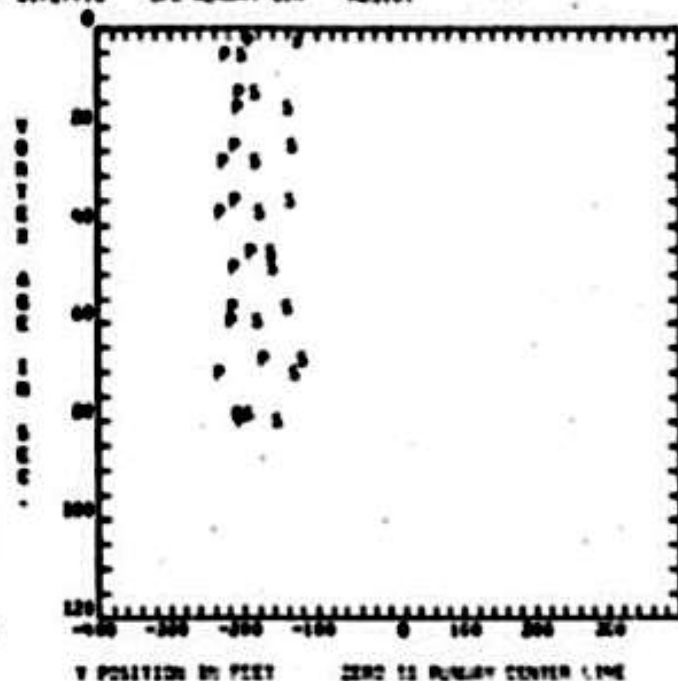
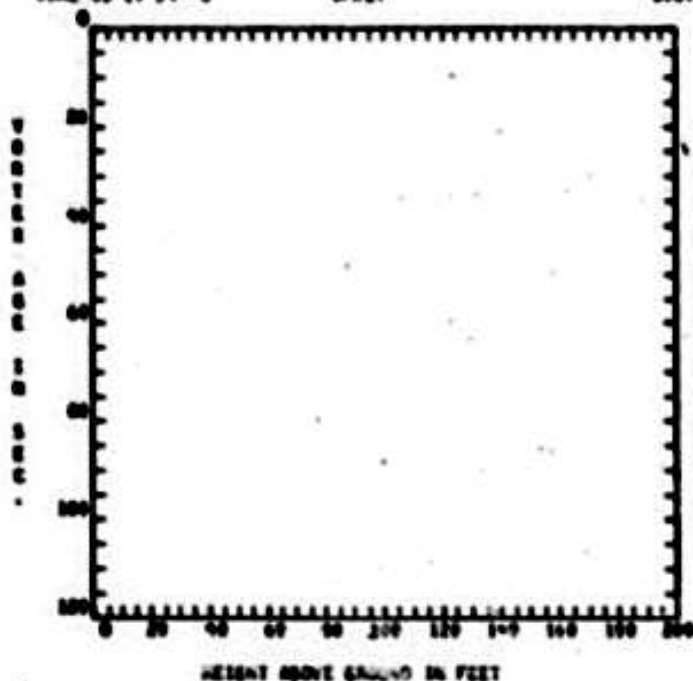
Run No. 32
Time 25 10:54:00

WET

0037 01/27/76

JPL Runway 31R

Run No. 030000
HD310.



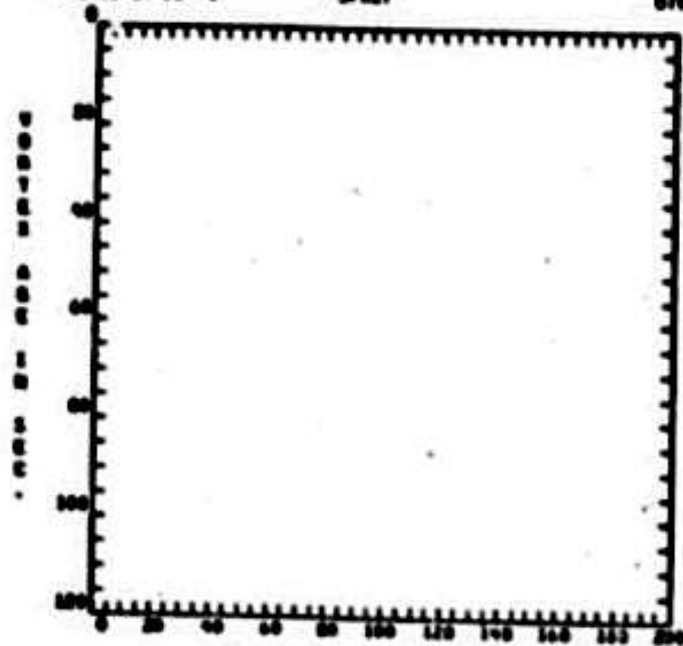
Run No. 30
TIME IS 10:10:00

DATA

0101 01/07/76

APR 04/04/76

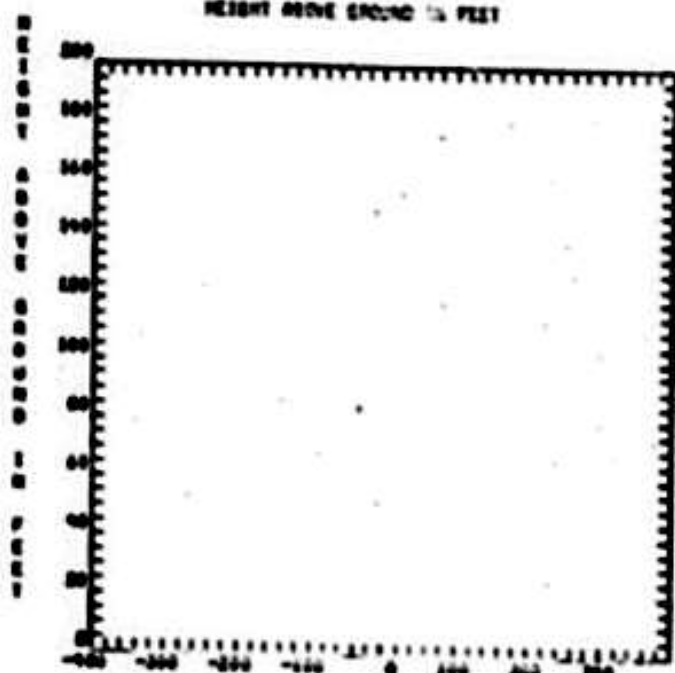
Run No. 020000
RE310.



HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

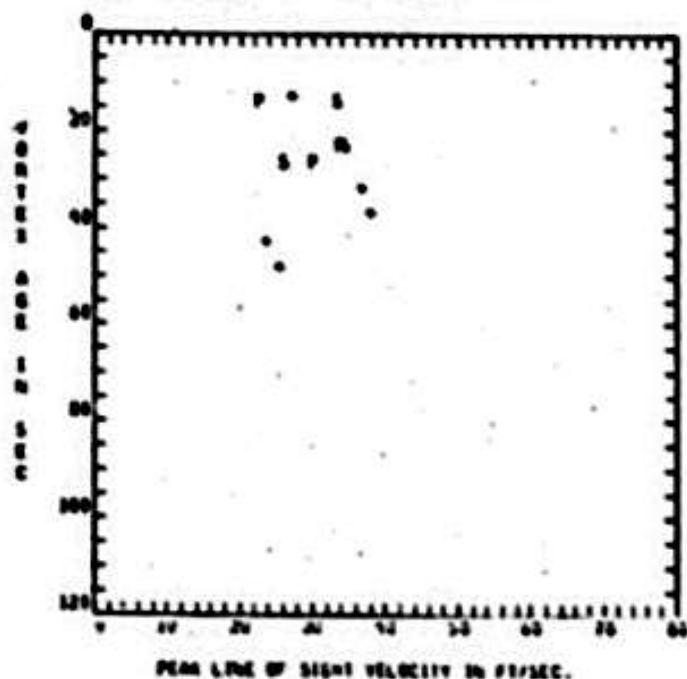
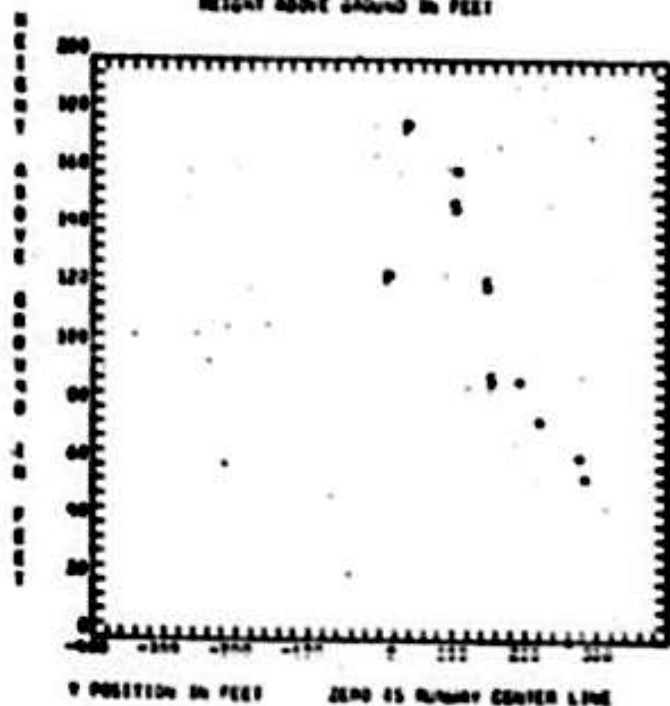
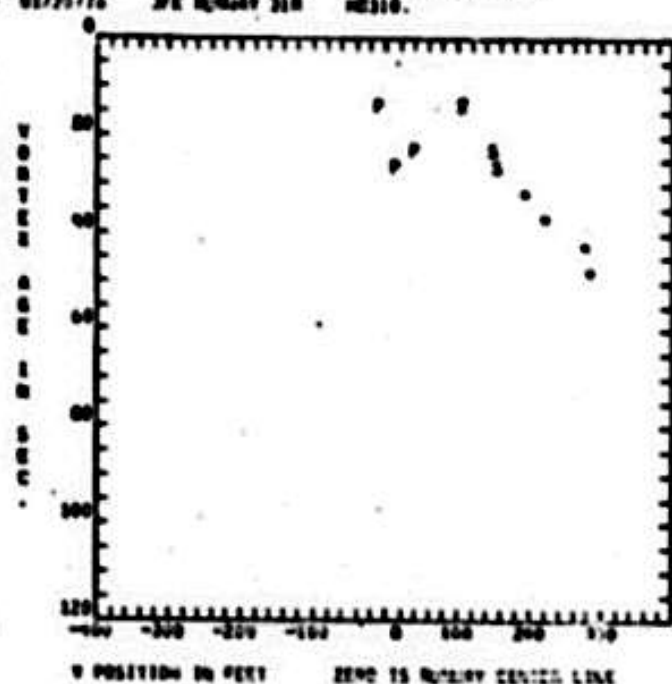
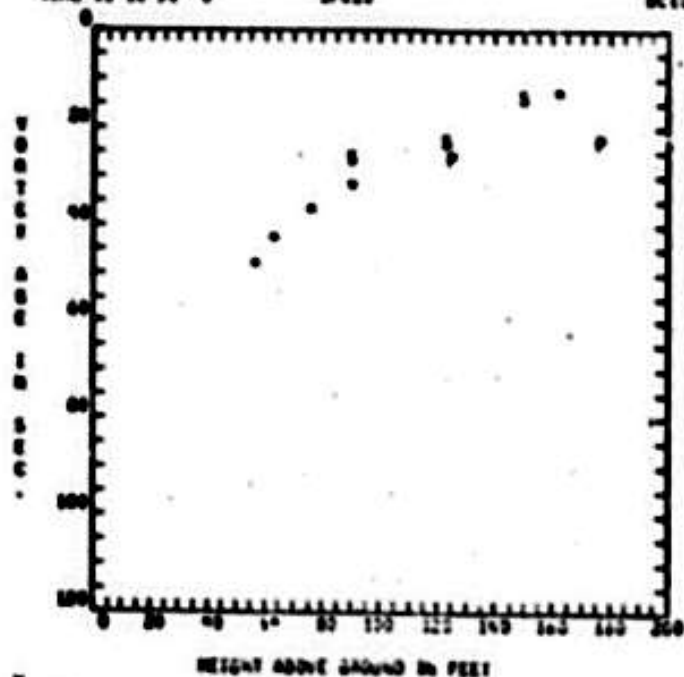
Run No. 2
TIME 25 56:50 0

JF020

DC10 01/20/76

JFE Runway 31R

JOB NO 030C00
HE310.



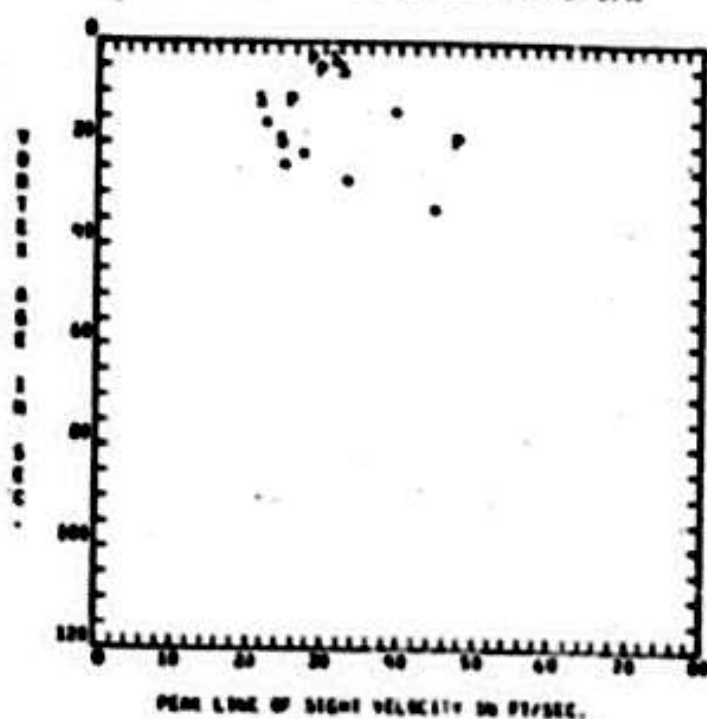
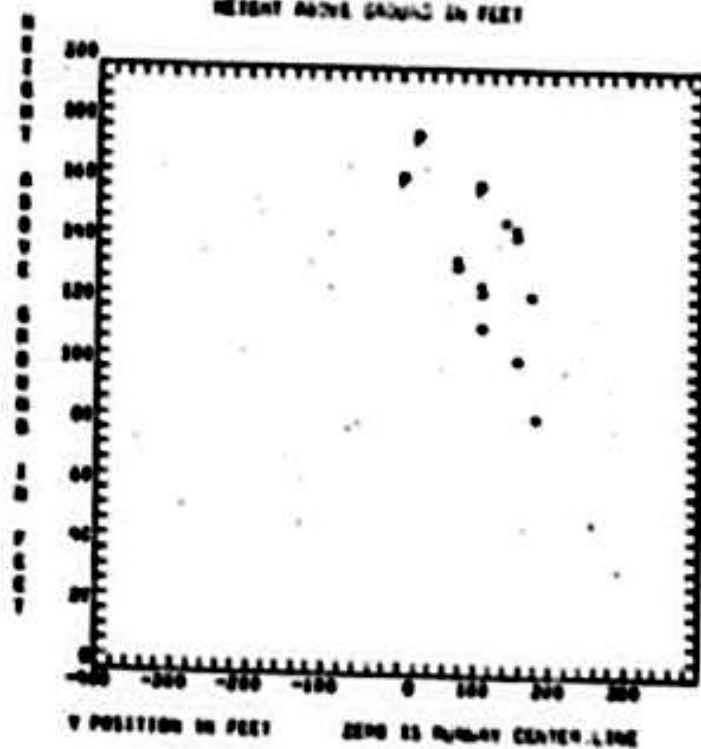
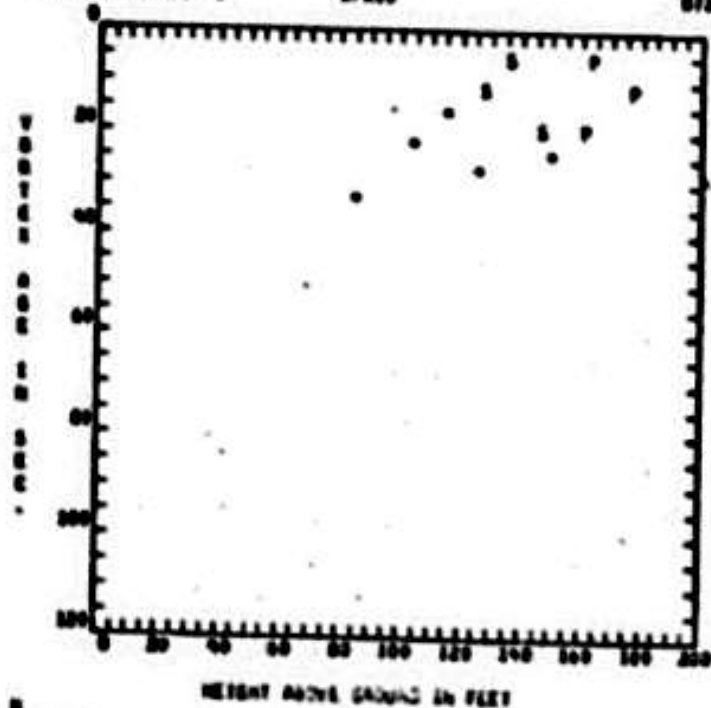
Run No. 3
TIME 15 16:52 0

JFK20

0127 01/24/76

JFK Runway 31R

Run No. 020000
00310.



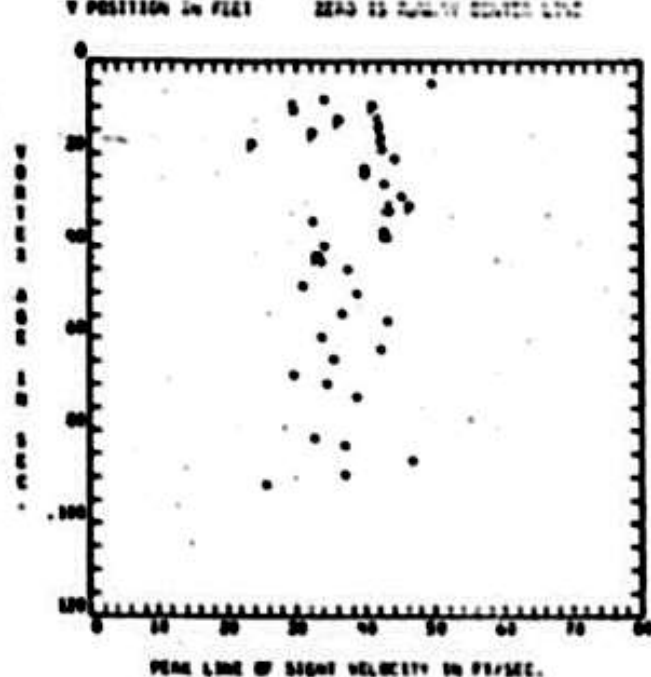
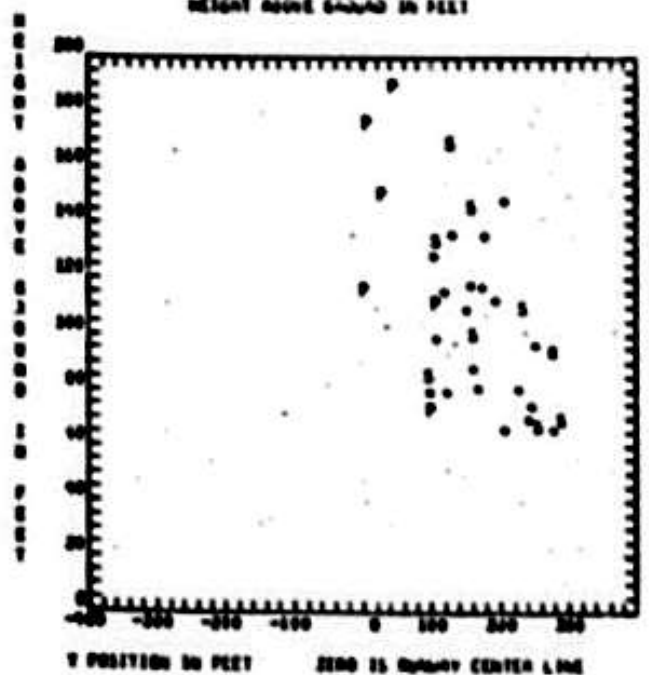
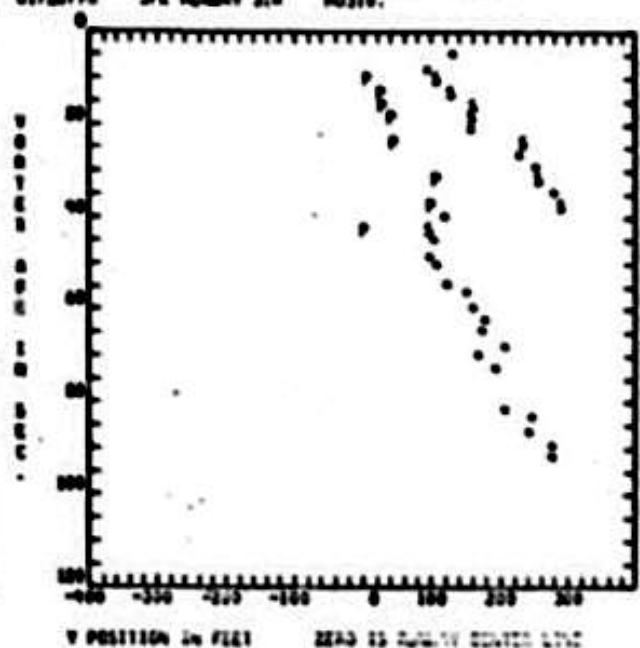
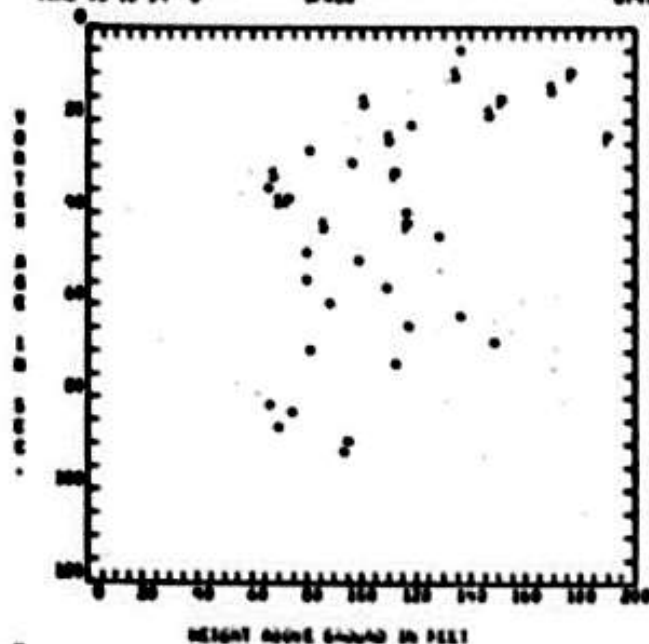
Run No. 1
TIME IS 16:34:0

JP 20

OP 17 01/20/76

JP 10 Runway 310

Run No. R33000
NO 310.



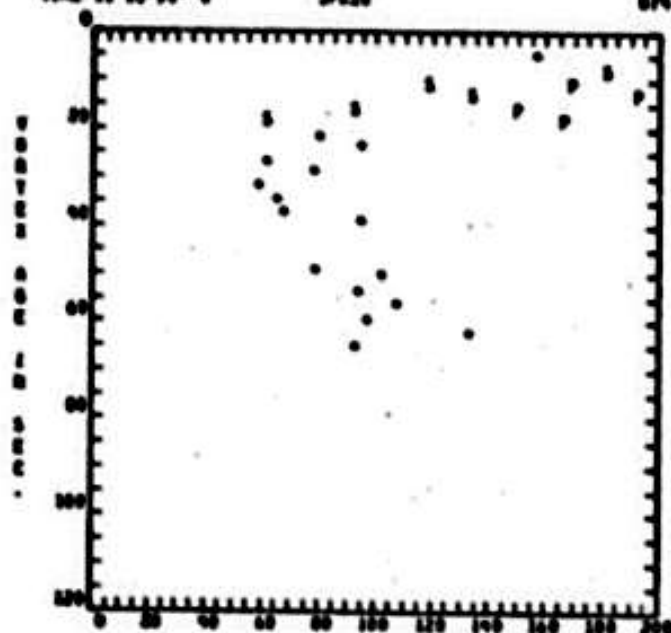
Run No. 5
TIME 11 16:10 0

JF020

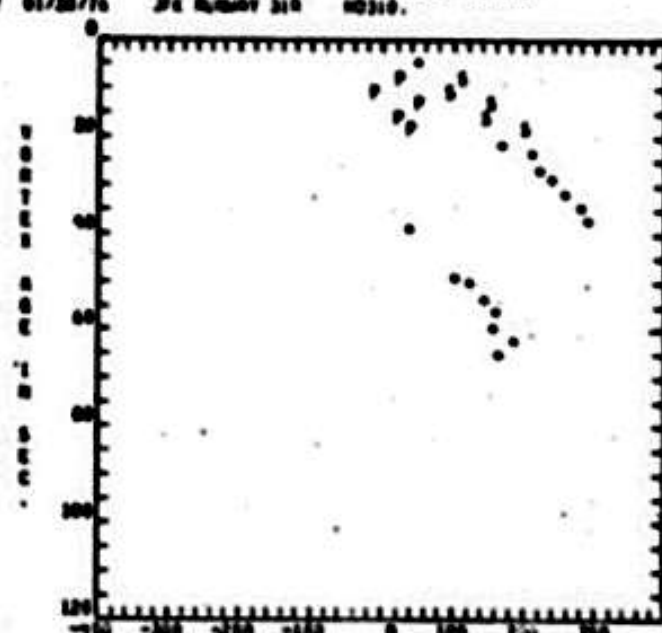
DPST 01/20/76

JFK Runway 31R

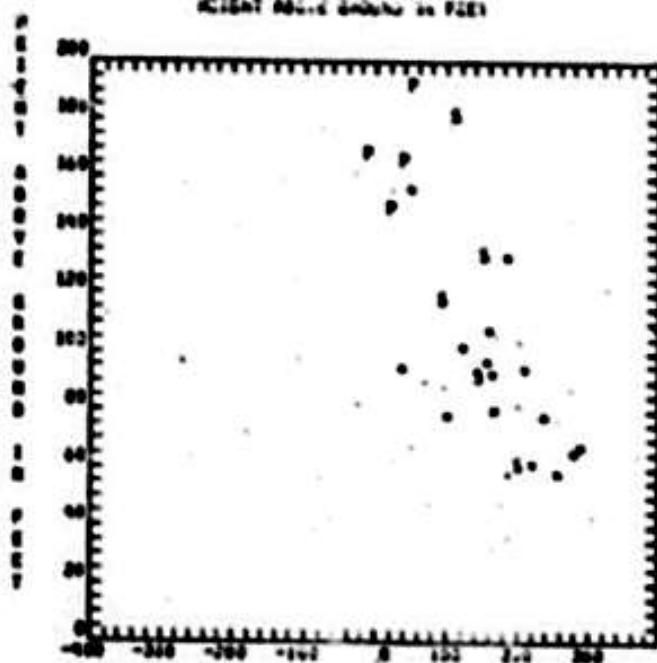
Run ID R30000
R0310.



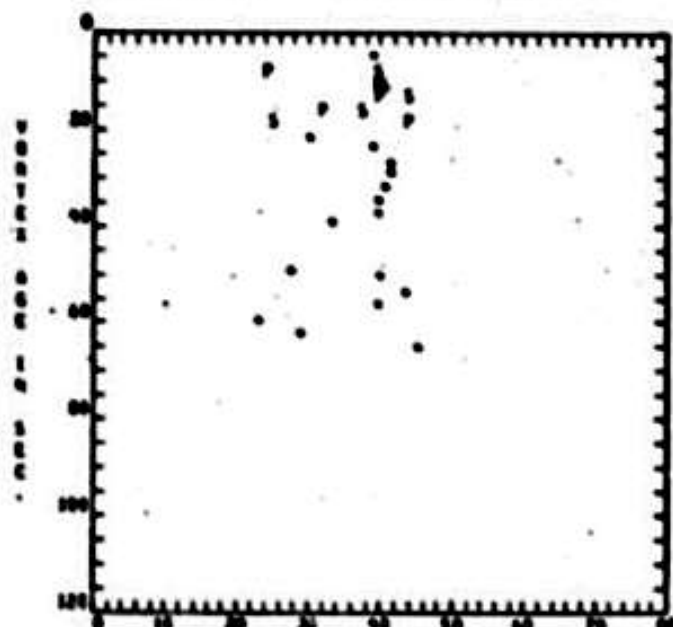
X-POSITION IN FEET



Y-POSITION IN FEET ZERO IS Runway CENTER LINE



Y-POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

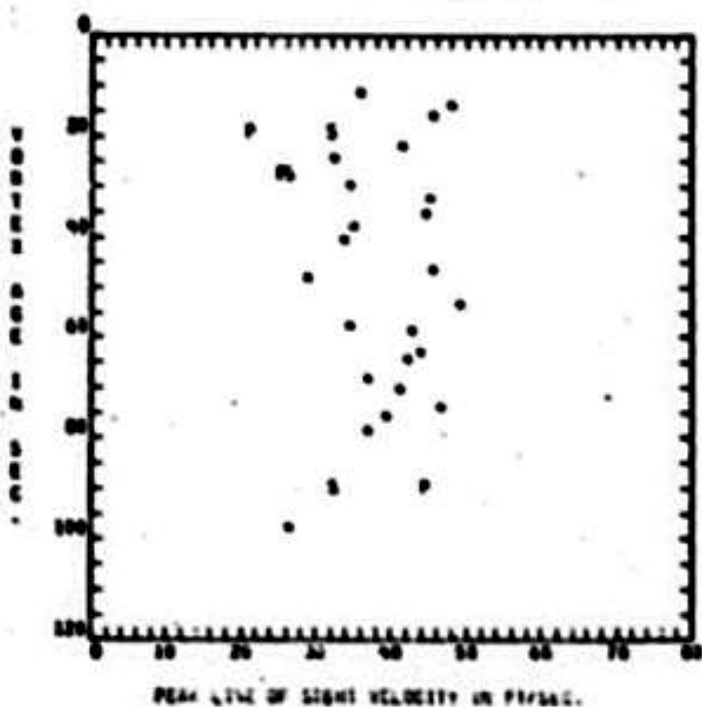
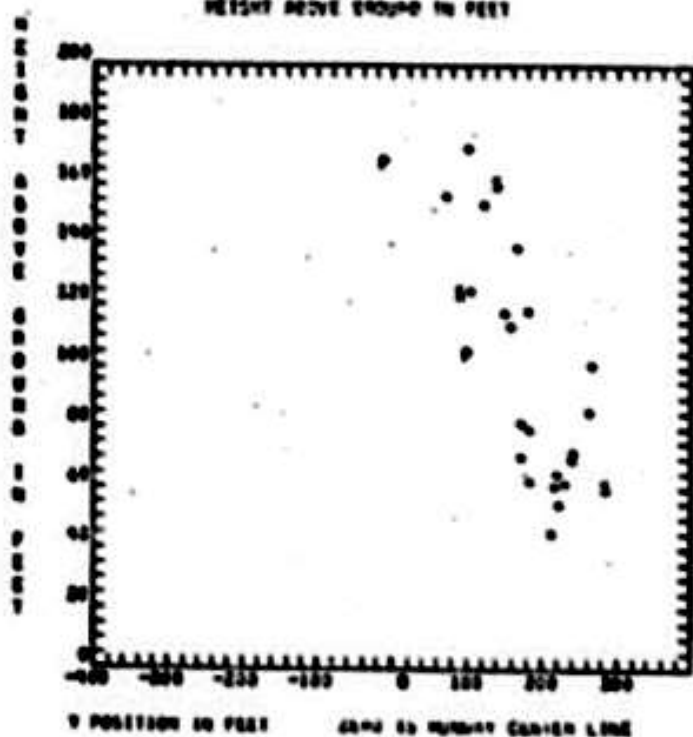
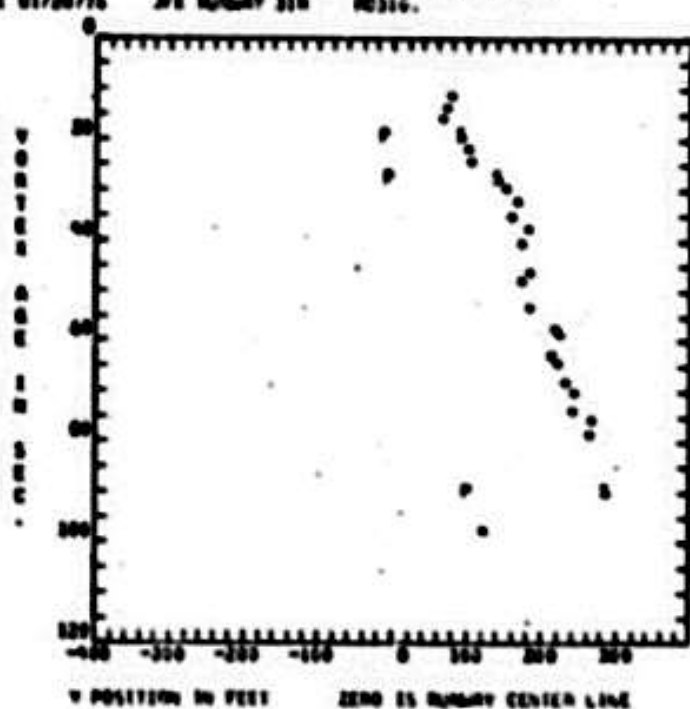
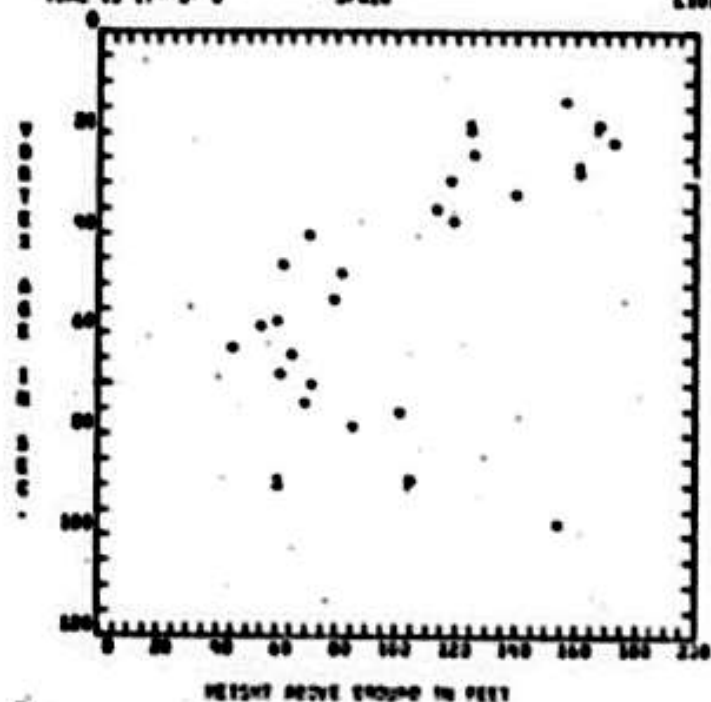
Exp No. 7
TIME IS 17° 3' 0

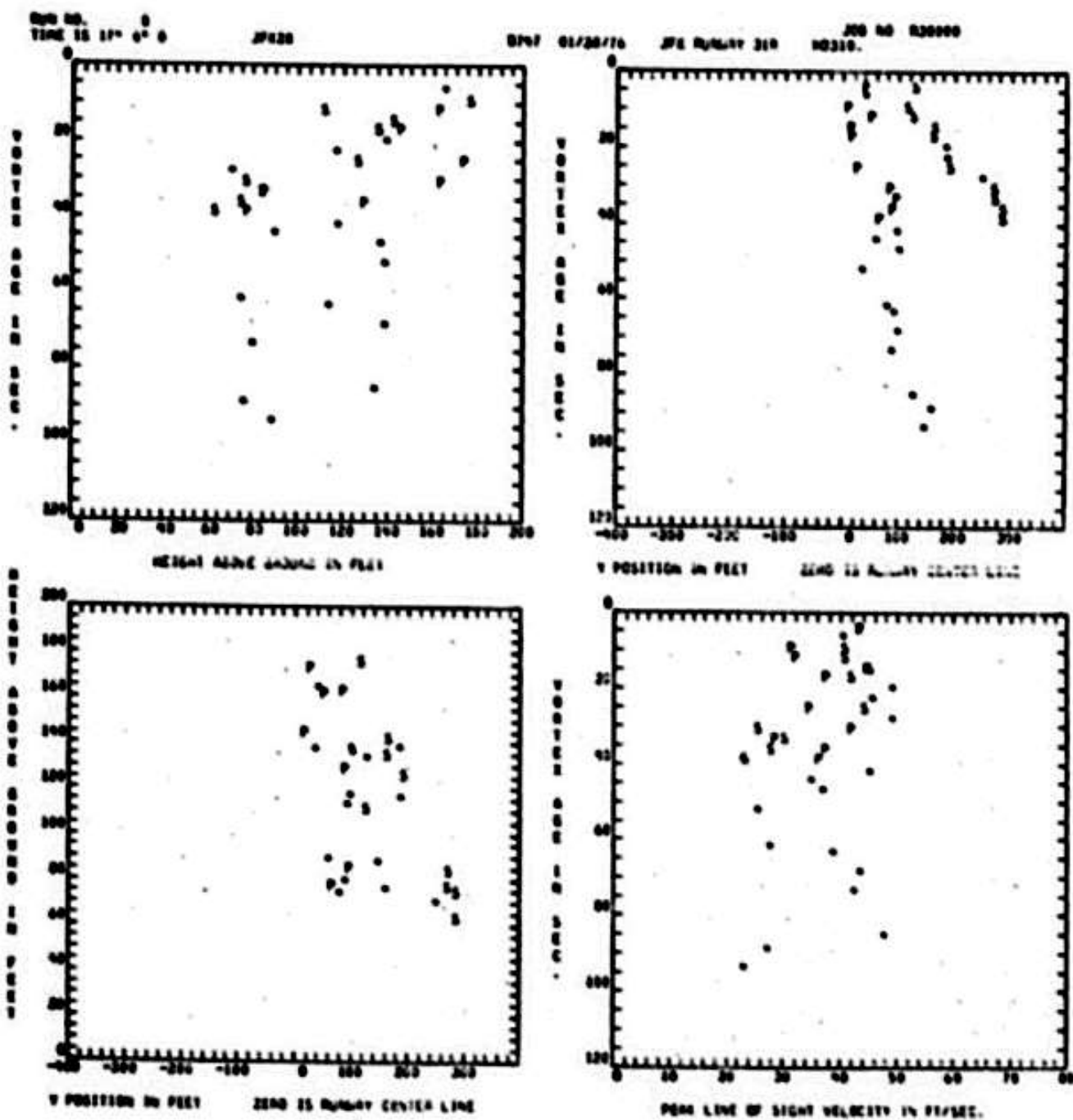
JFK20

LS011 01/20/76

JFK Runway 31R

JOB NO A30000
PC316.





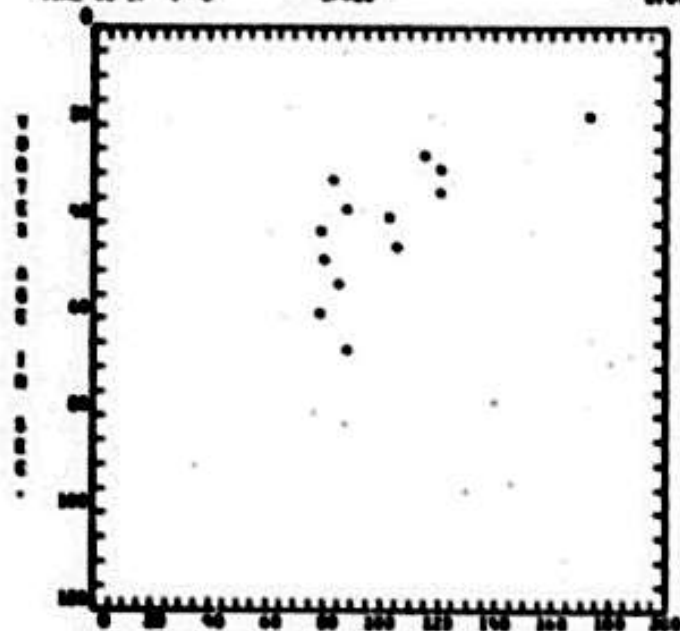
Run No. 1
TIME 15 17 00

JF620

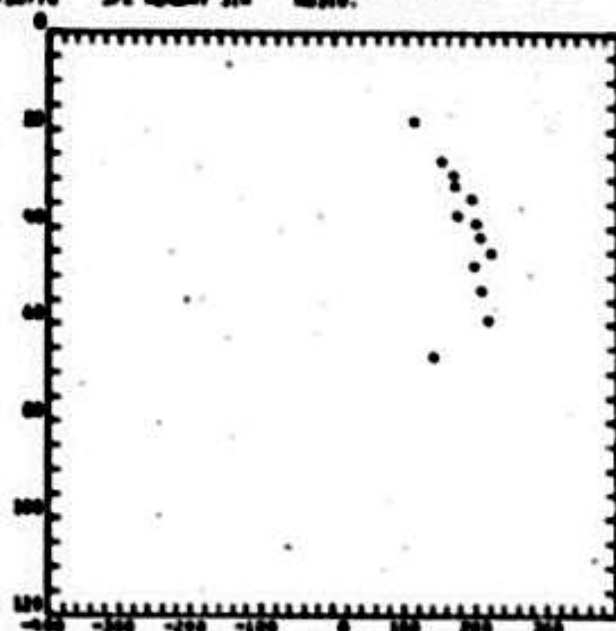
SPOT 01/20/76

JF6 Highway 310

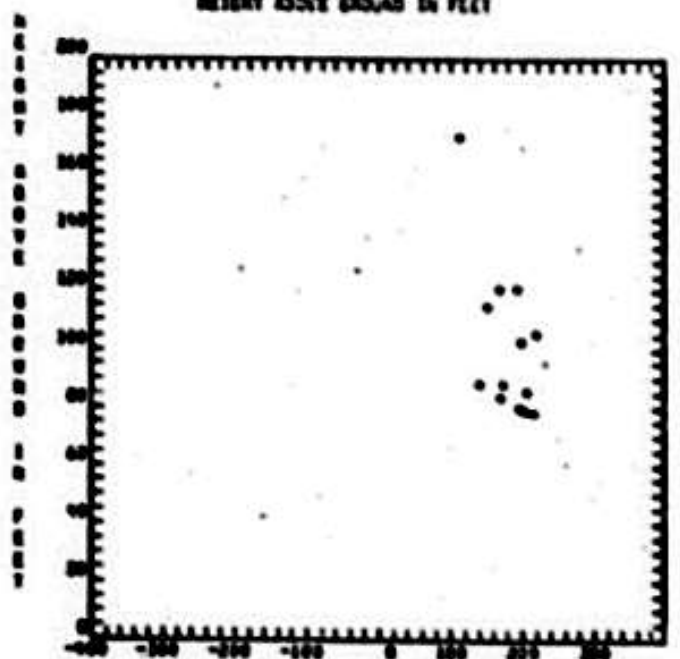
JF6 NO 030000
02010.



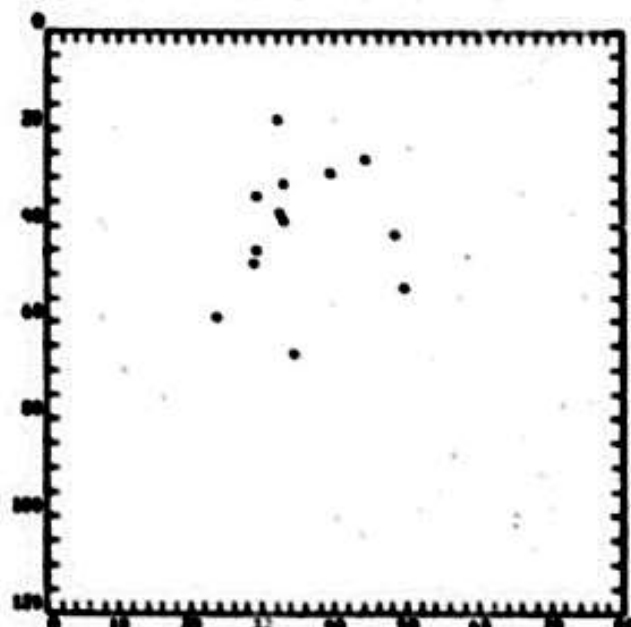
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET LEAD IS HIGHWAY CENTER LINE



Y POSITION IN FEET LEAD IS Highway Center Line



MEAN LINE OF SIGHT OF SIGHT IN FEET

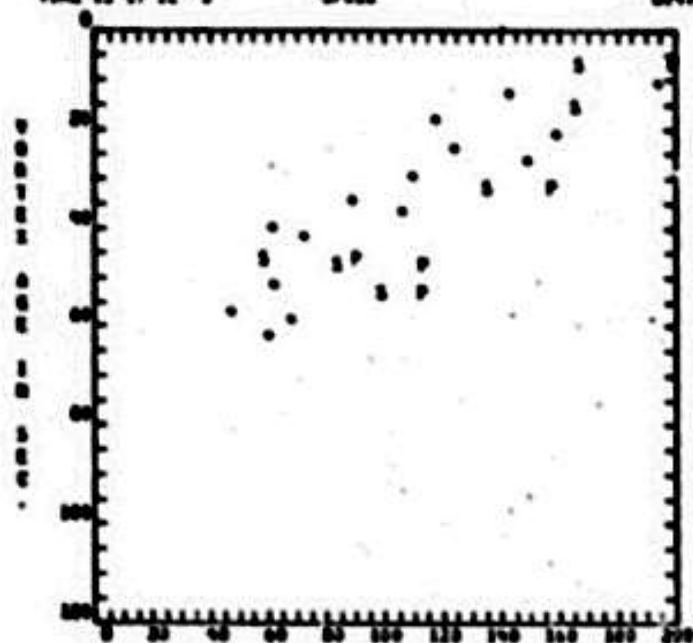
Run No. 11
1500 15 17°12' 0

JP620

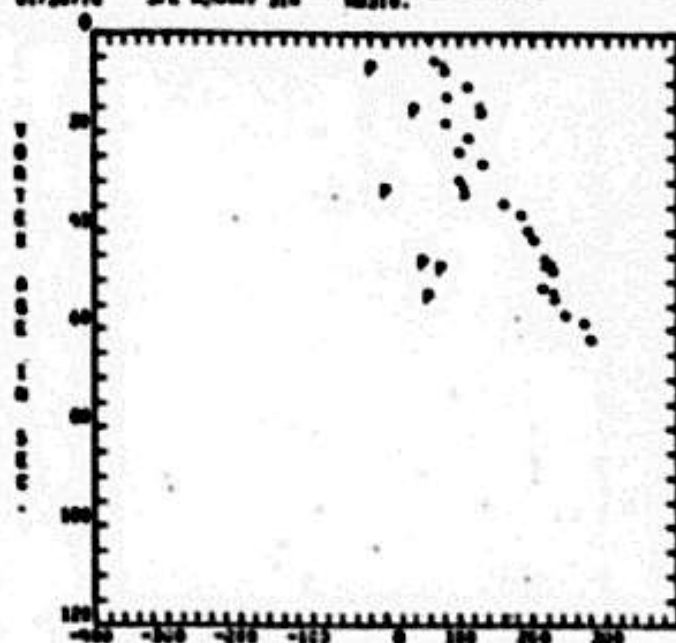
01/20/76

JP6 Runway 310

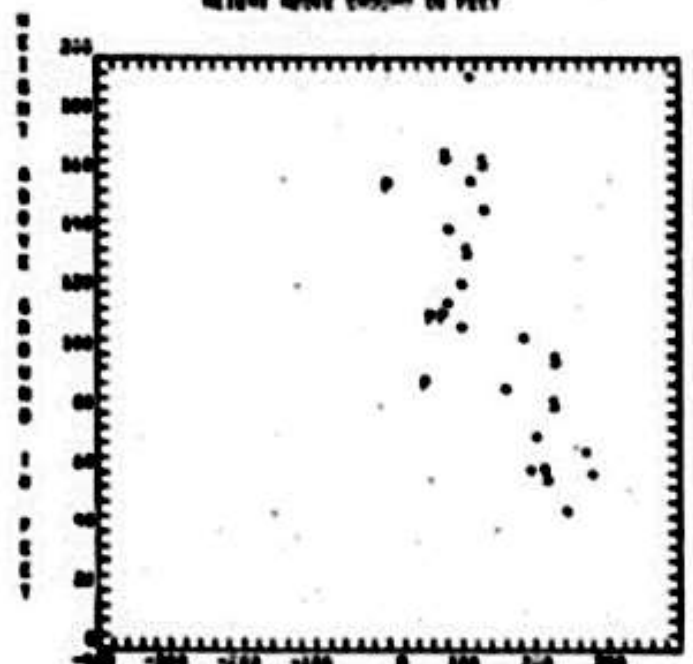
Run No. 030000
02310.



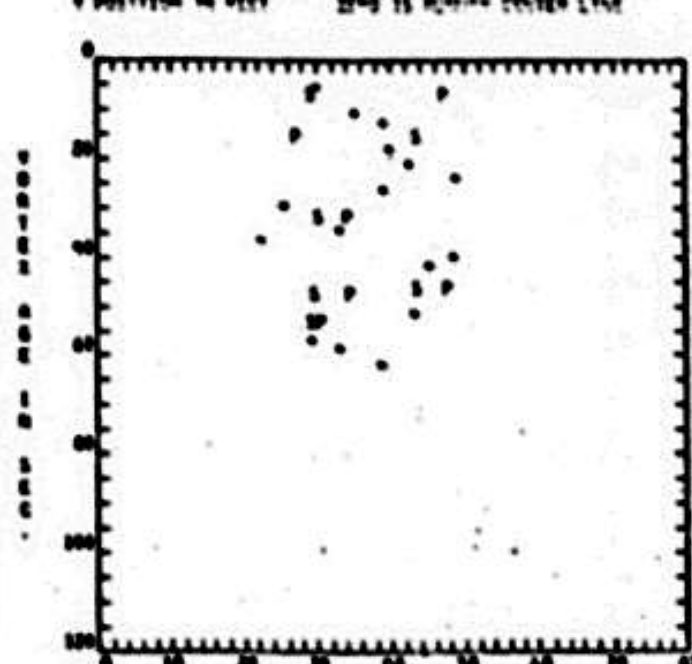
HEIGHT ABOVE RUNWAY IN FEET



Y POSITION IN FEET ZERO 15 RUNWAY CENTER LINE



Y POSITION IN FEET ZERO 15 RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

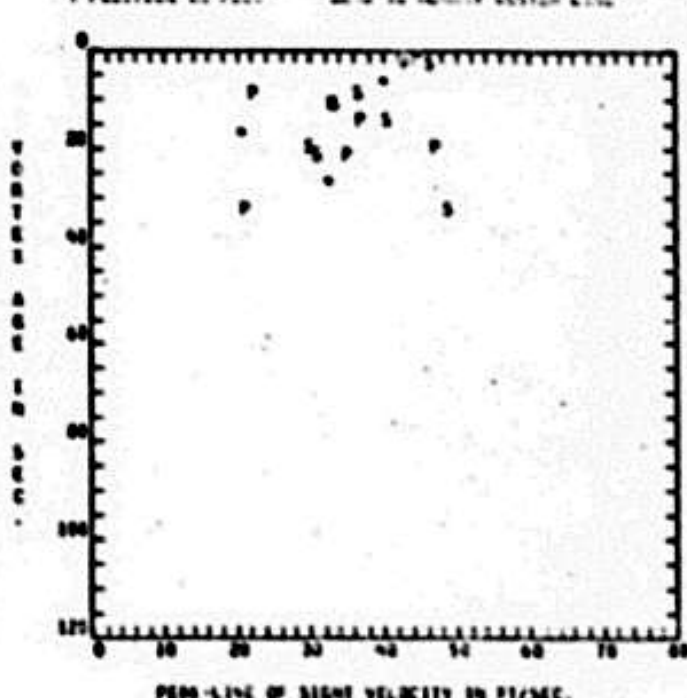
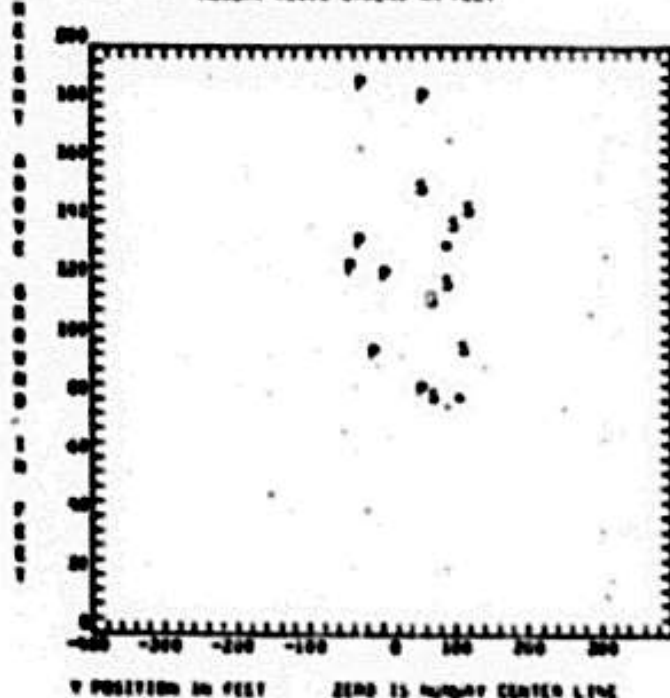
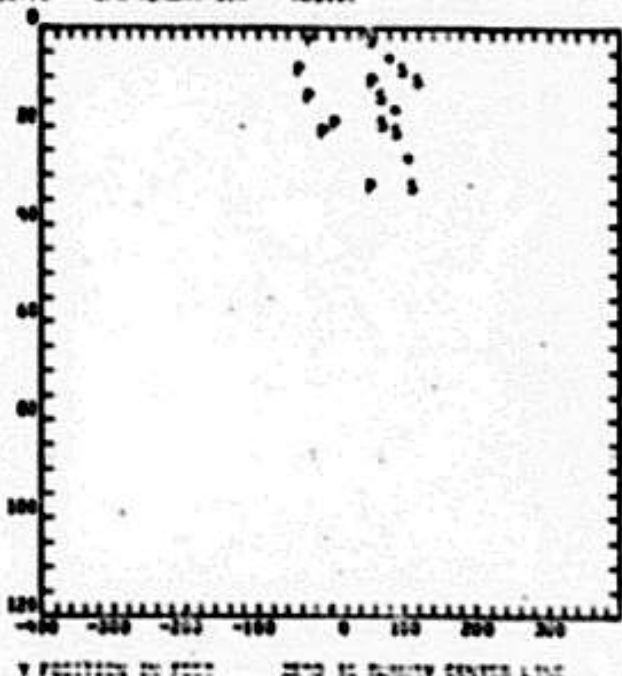
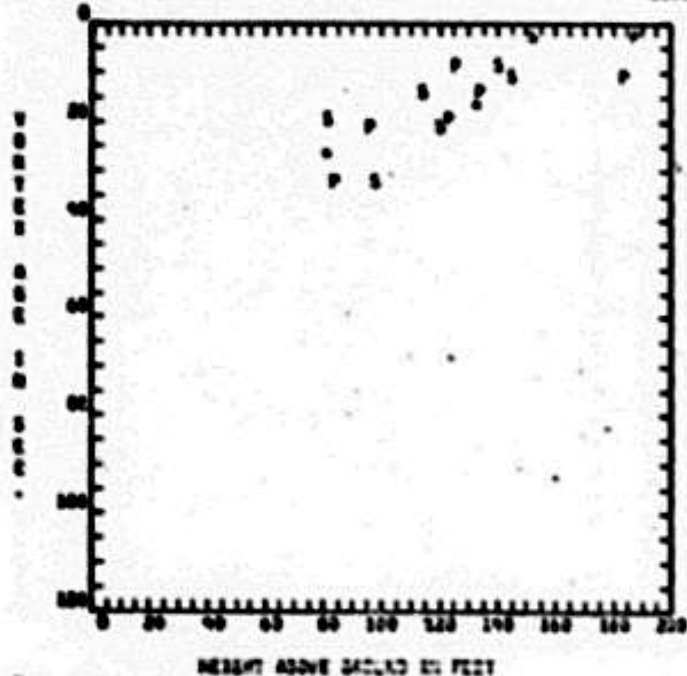
Run NO. 12
TIME IS 17:14:0

JF020

L1011 01/20/76

JFK Runway 31R

Run NO. 030000
HE310.



Run No. 13
TIME IS 17:17.0

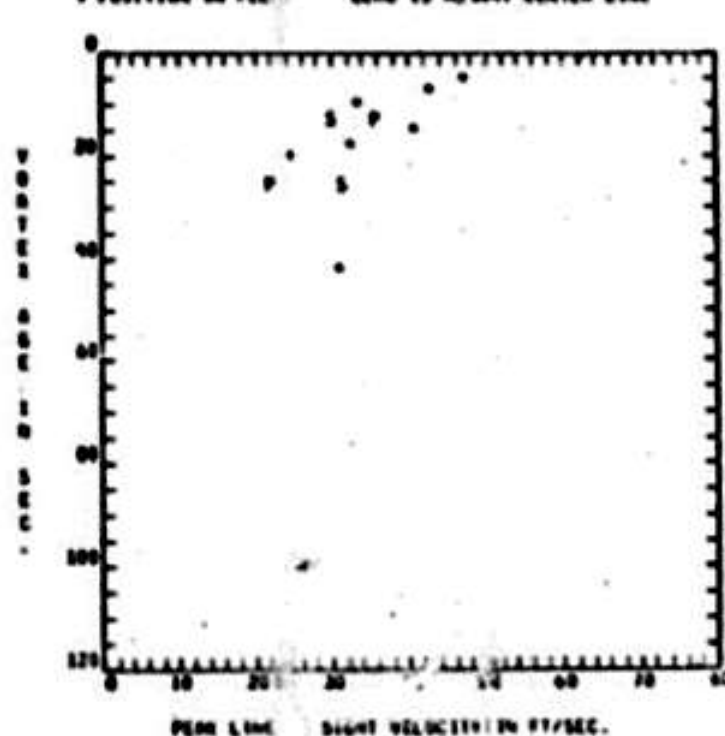
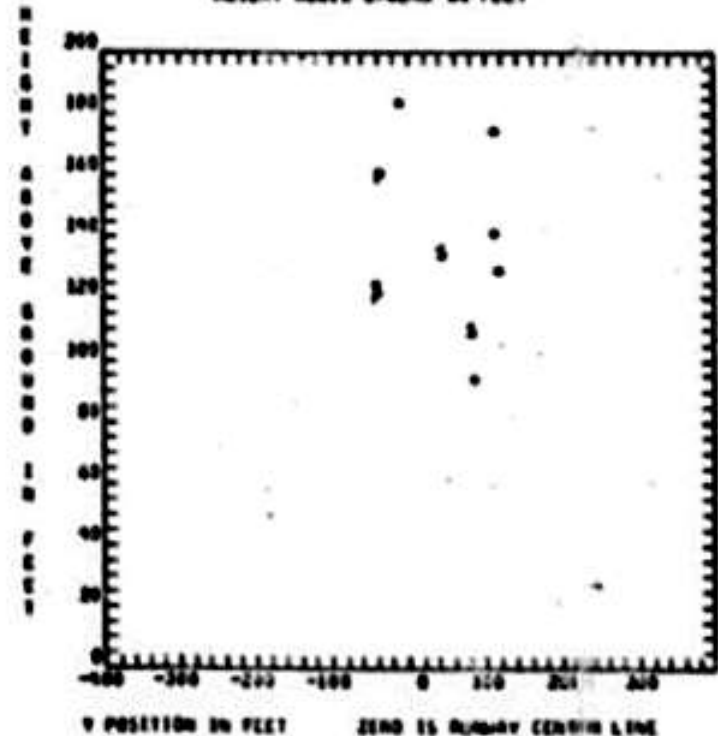
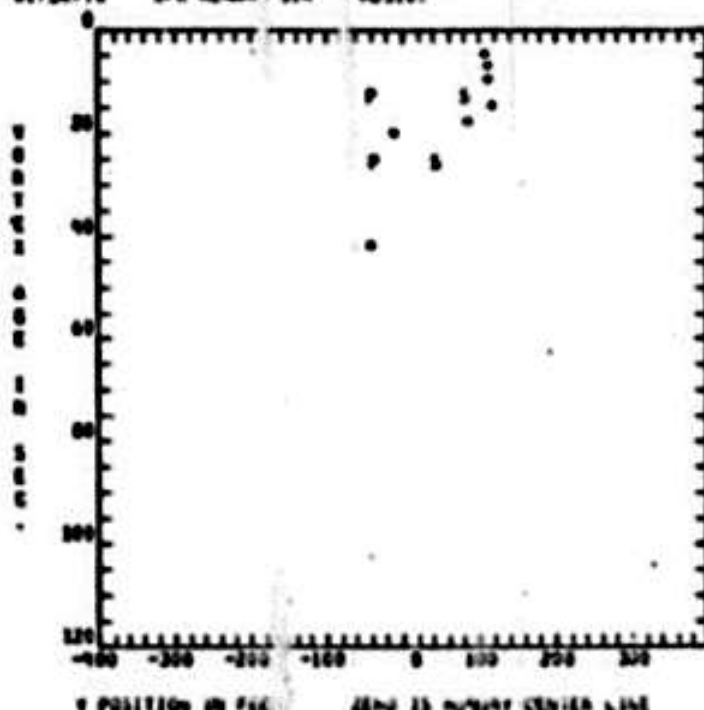
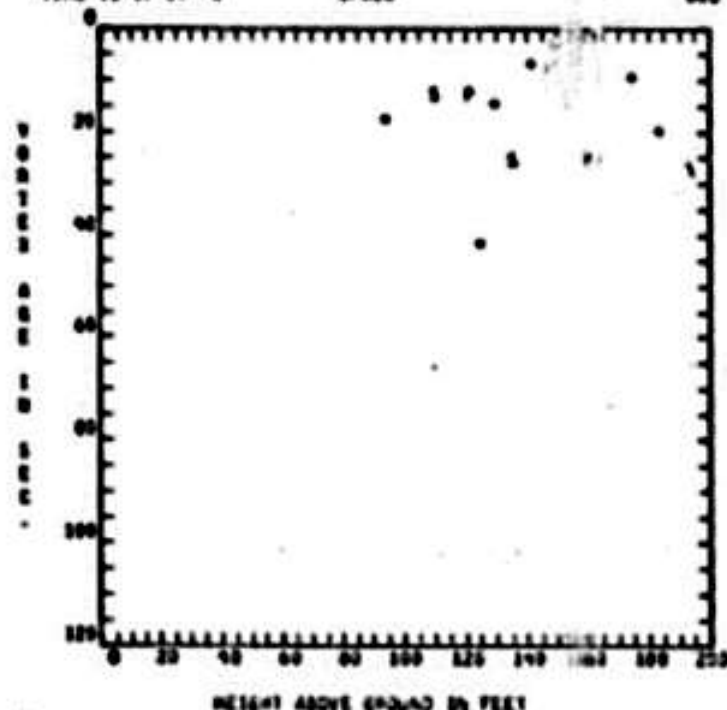
JF828

BCO

01/20/76

JF8 Run No. 310

JOS NO R32000
00310.



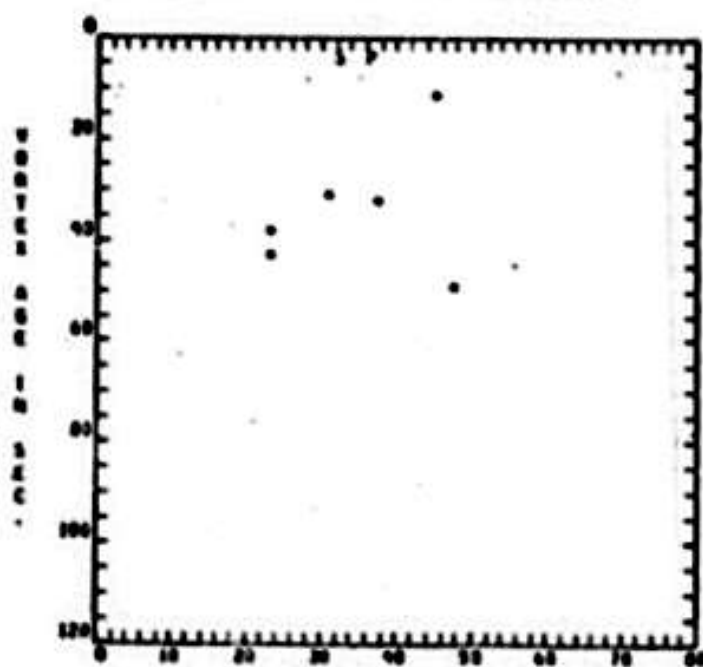
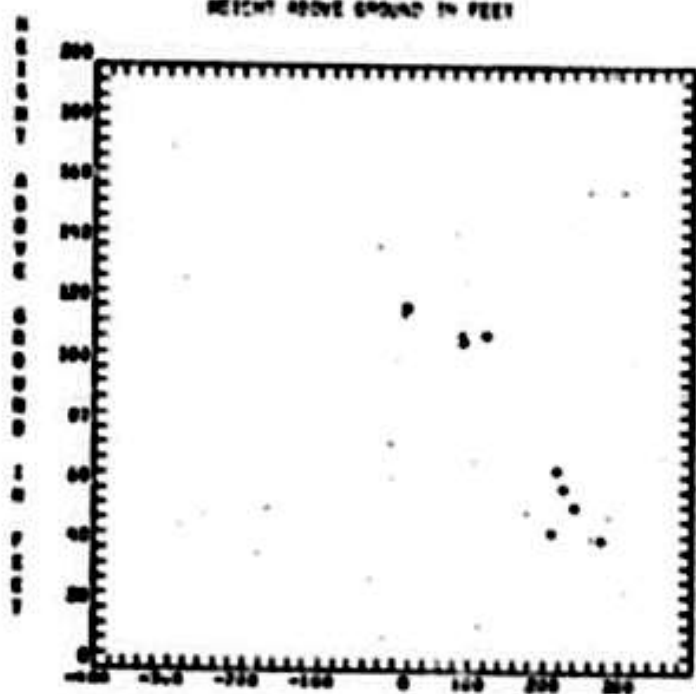
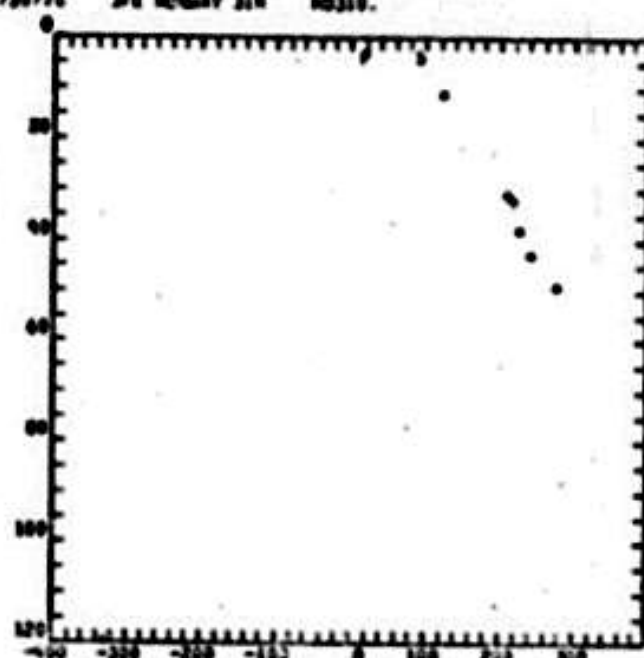
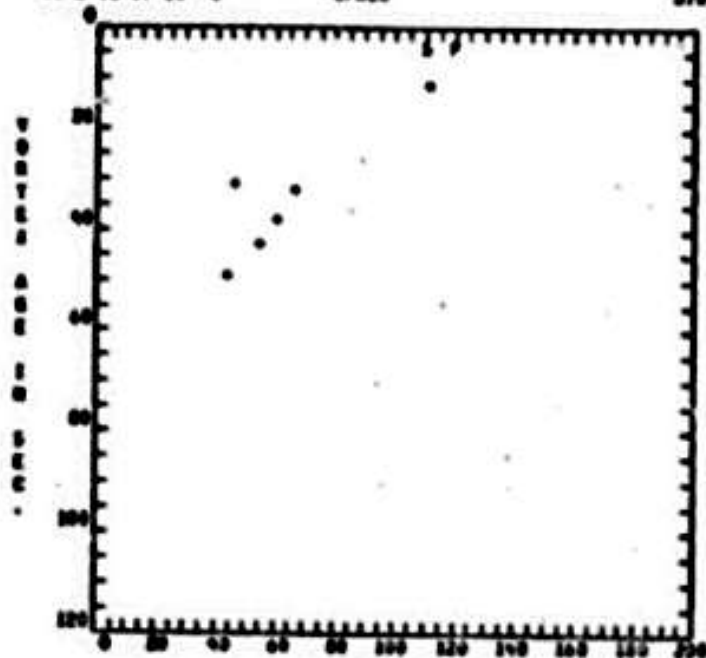
RUN NO. 14
TIME IS 17:20:0

JF620

3707 01/26/76

JF6 RUMAY 210

JOB NO R30000
R0310.



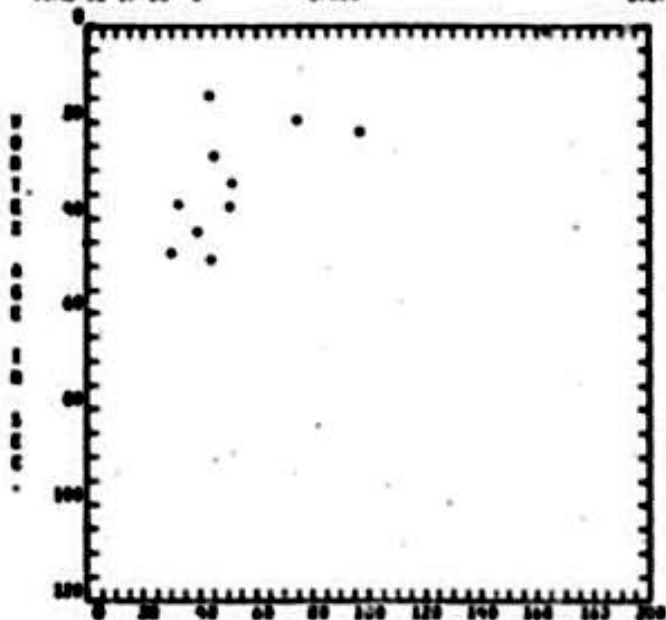
Run NO. 17
TIME IS 17:30:0

20420

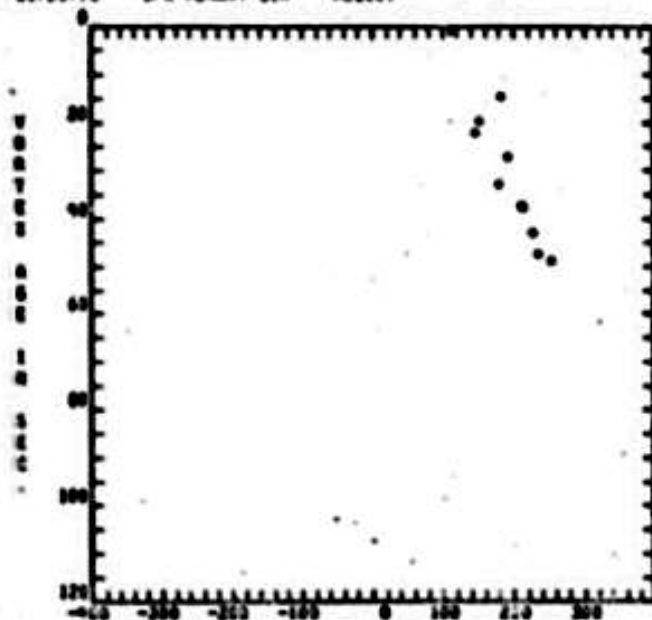
0727 01/28/76

JFK Runway 31R

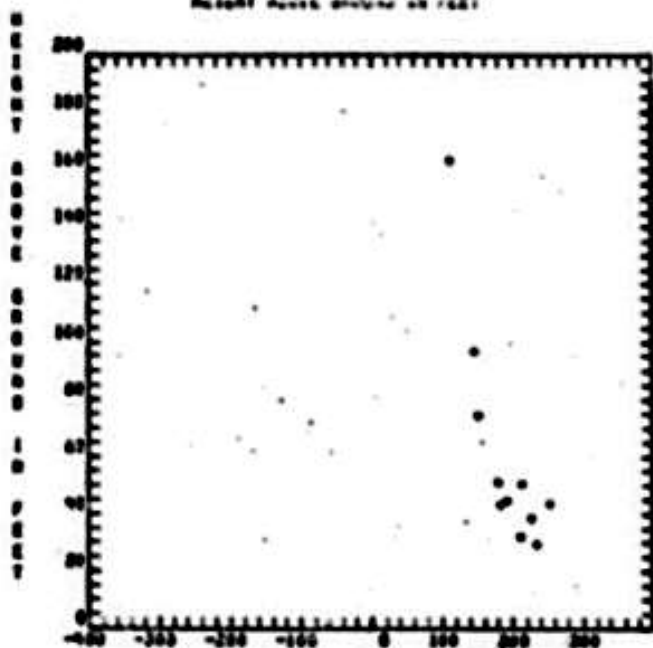
Run NO 030010
NO310.



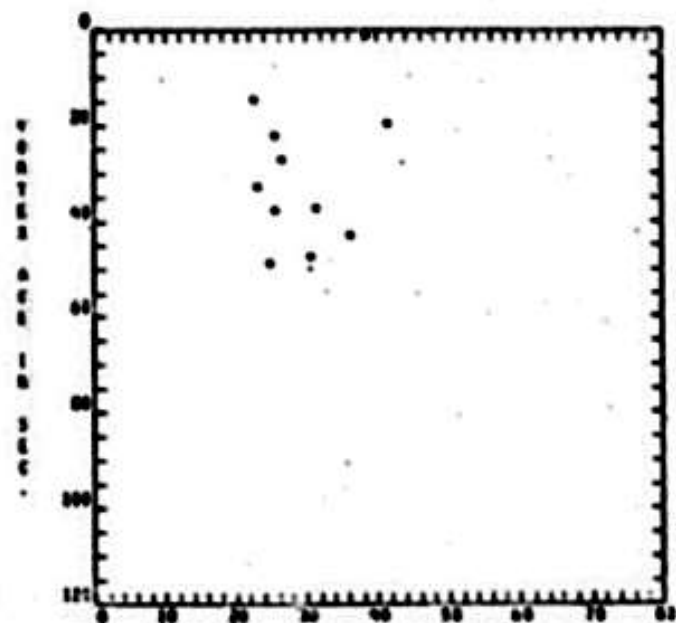
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

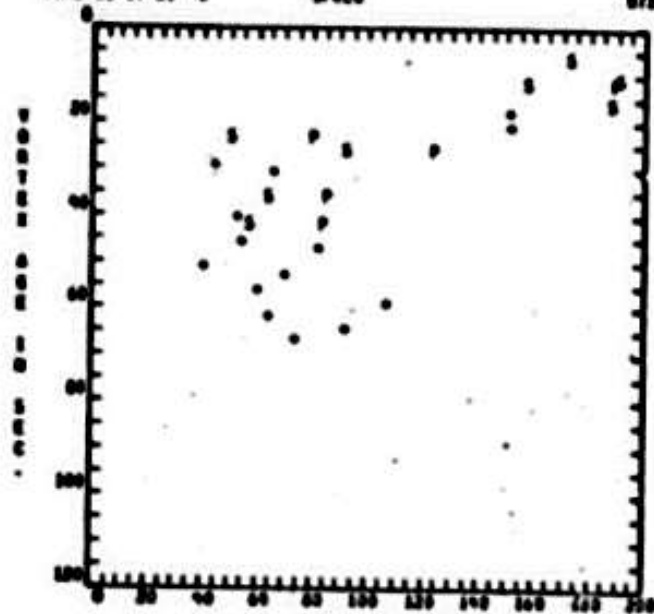
Run No. 10
TIME IS 17:30" 0

JFK

0727 01/30/76

JFK Runway 310

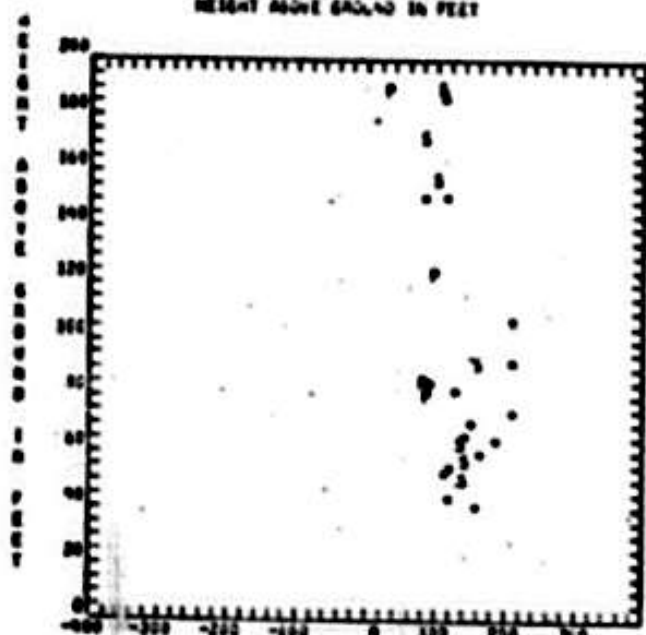
Run No. 030000
MC219.



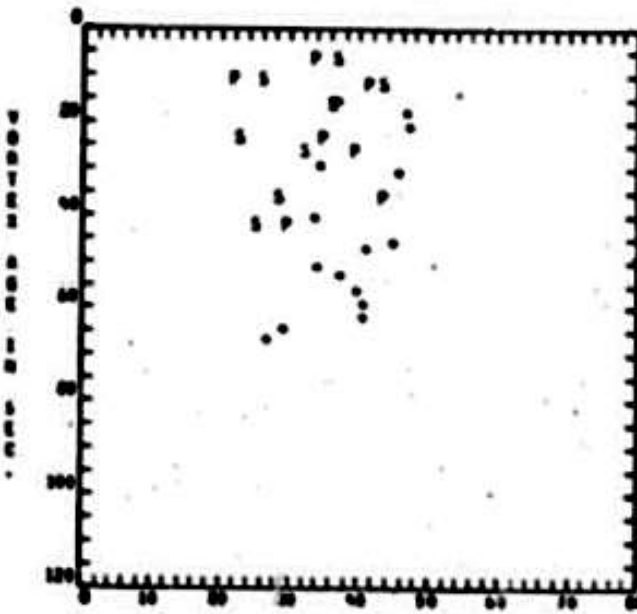
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS ALWAYS CENTER LINE



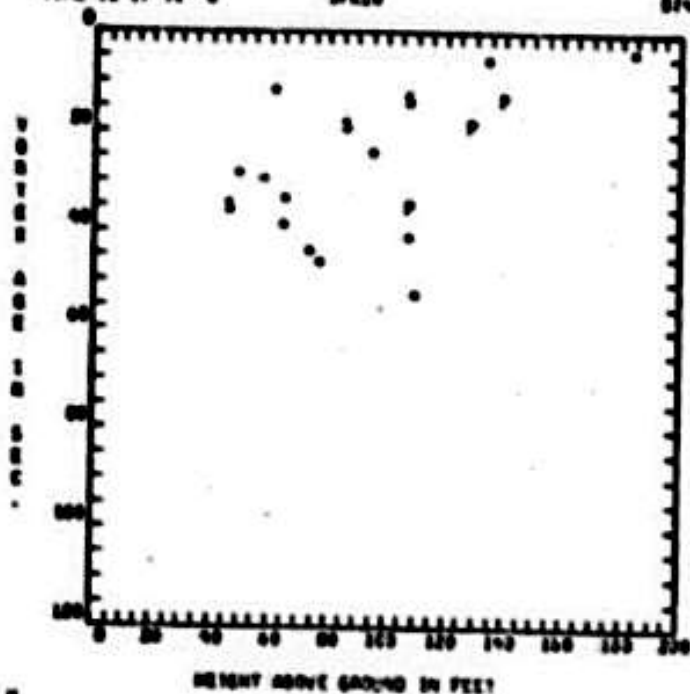
V POSITION IN FEET ZERO IS ALWAYS CENTER LINE



HEIGHT ABOVE GROUND IN FEET

Run No. 19
TIME IS 174510 G

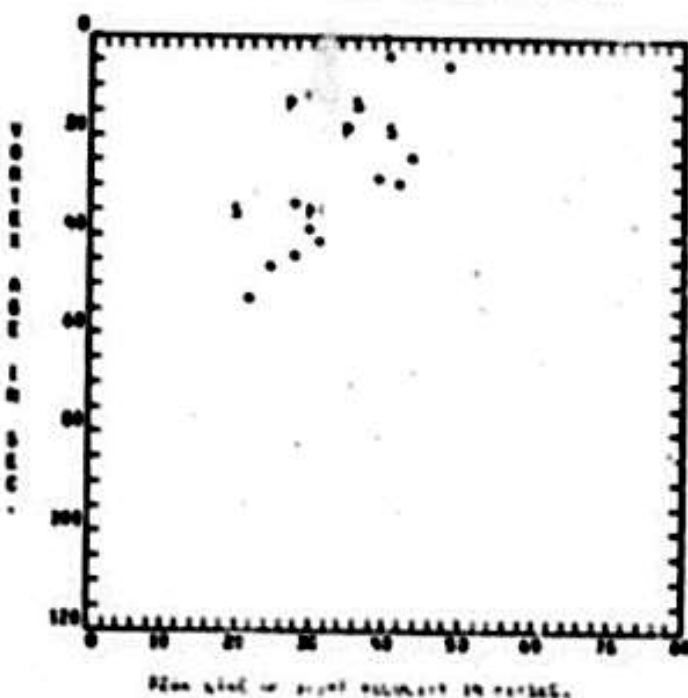
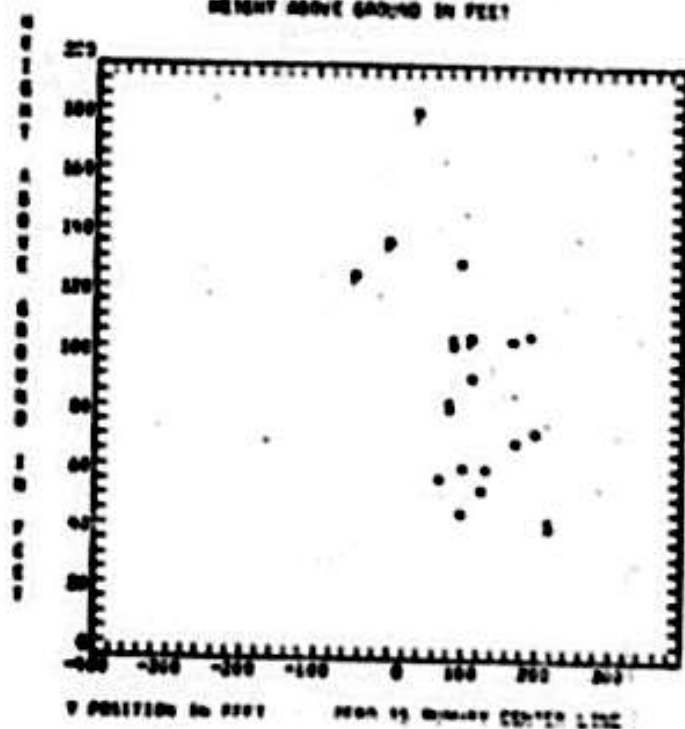
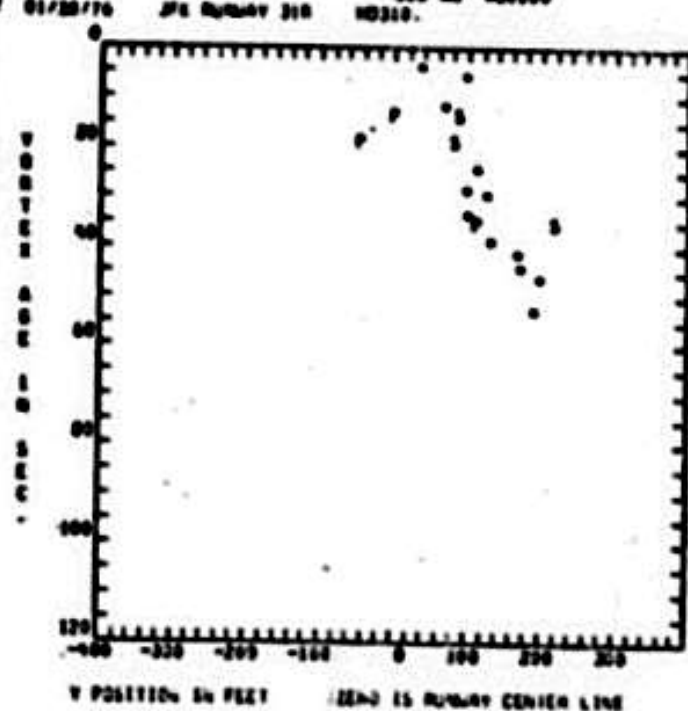
JFK20



DATE 01/20/76

JFK Runway 310

Run No. 030030
NO310.



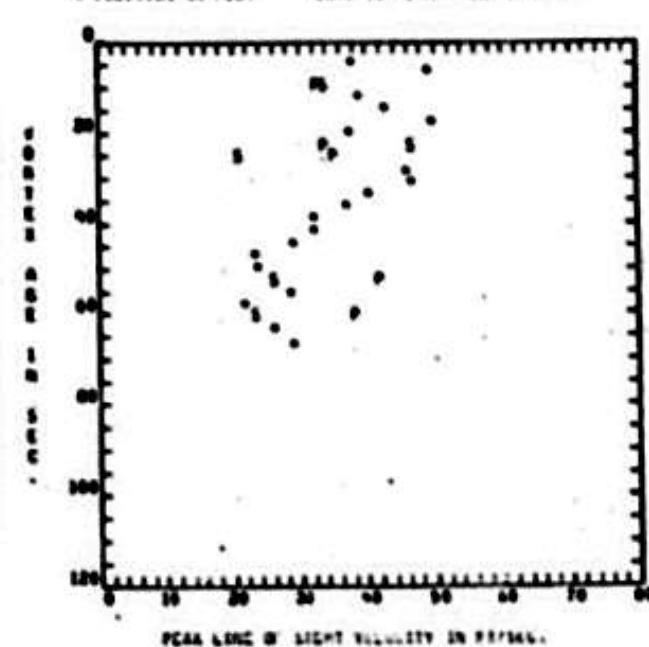
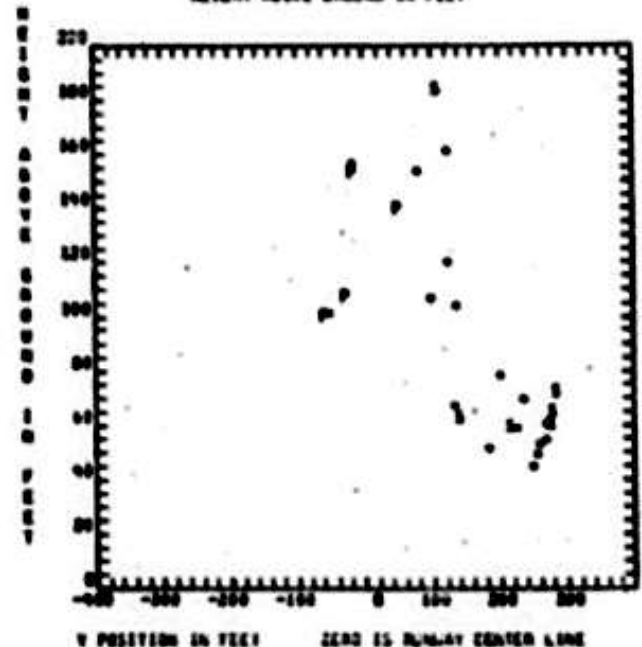
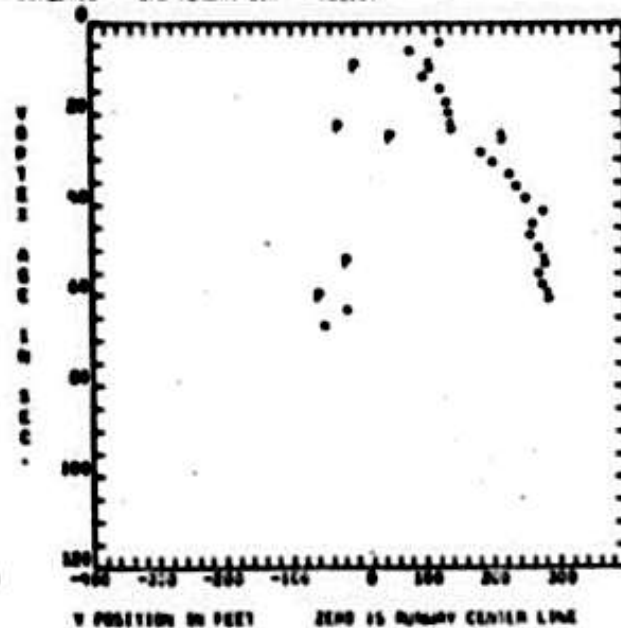
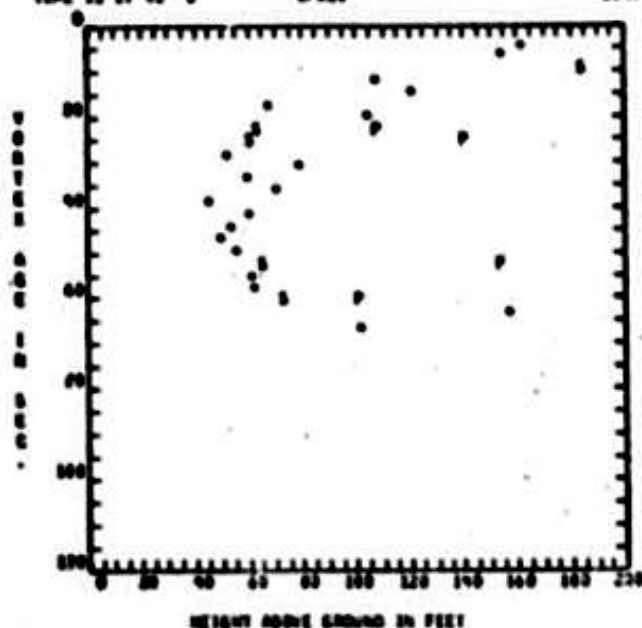
Run ID: 20
TIME: 15 17:42" 0

JF420

DATE: 01/20/76

JFK RUNWAY 31R

JOB NO: R30000
NO: 10



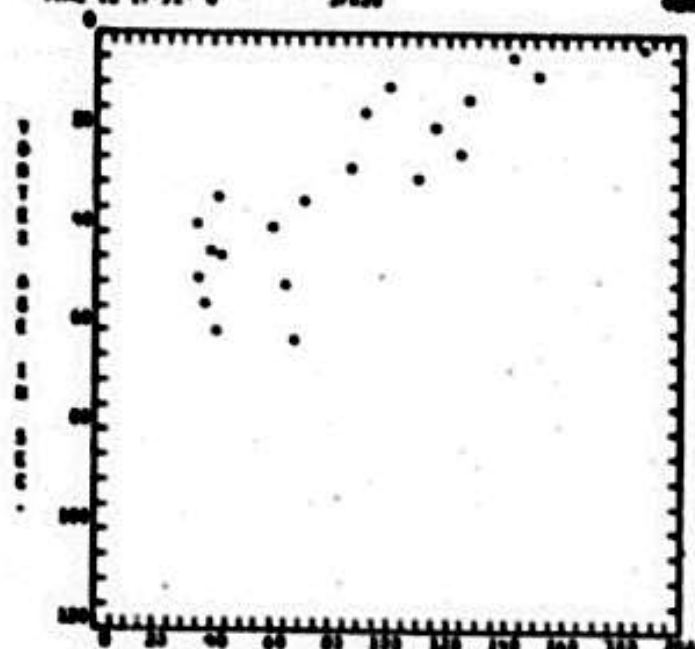
REP NO. 02
TIME IS 17:52:0

JF020

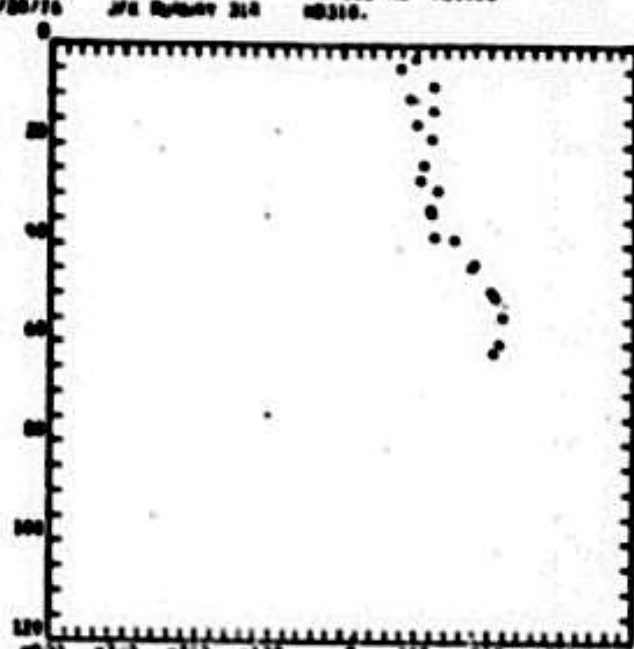
COND. POS/20/76

JF020/210

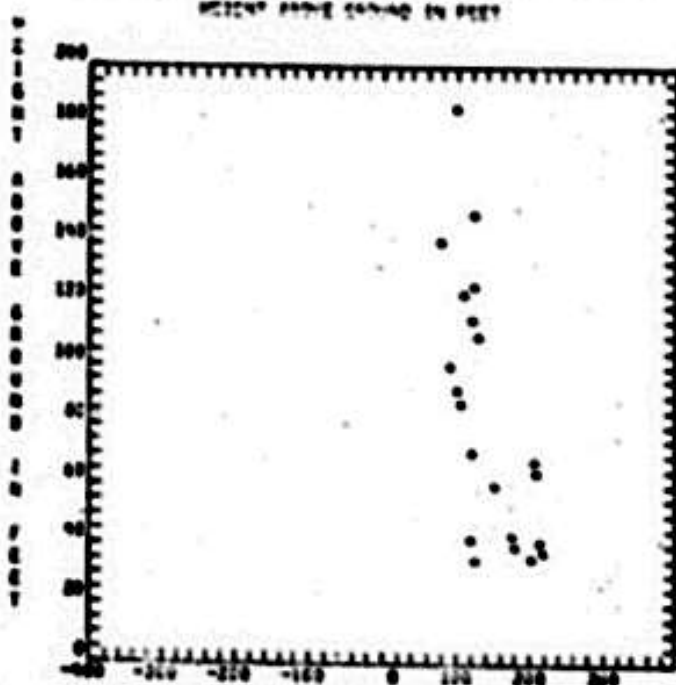
REP NO. 030000
00310.



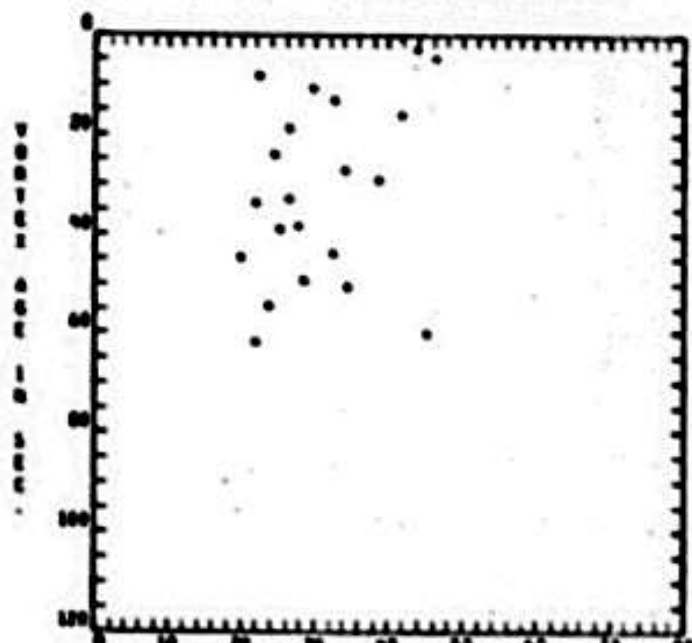
HEIGHT ABOVE RUNWAY IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT ALTITUDE IN FEET

Run No. 23
TIME IS 174500 G

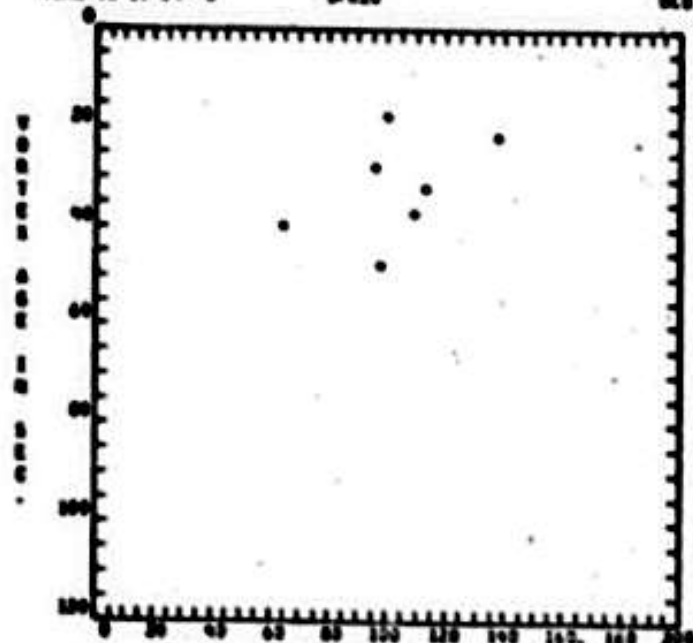
JFK20

DCO

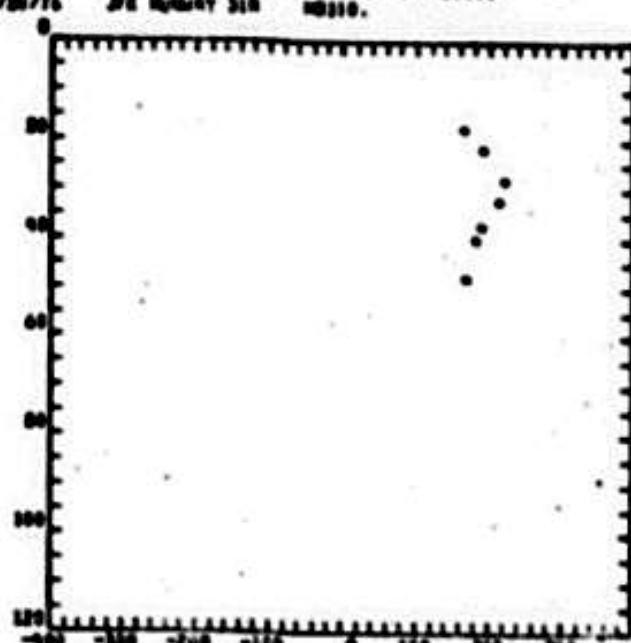
01/20/76

JFK Runway 31R

Run No. 030000
HD310.



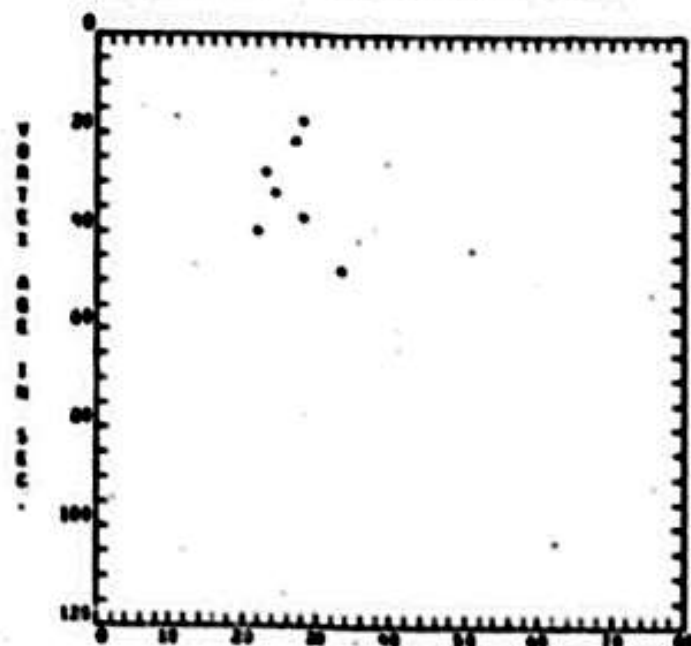
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

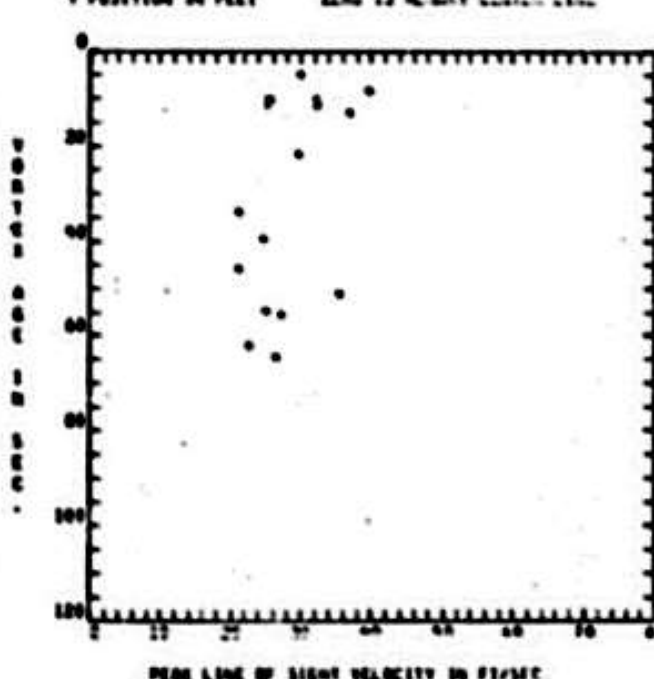
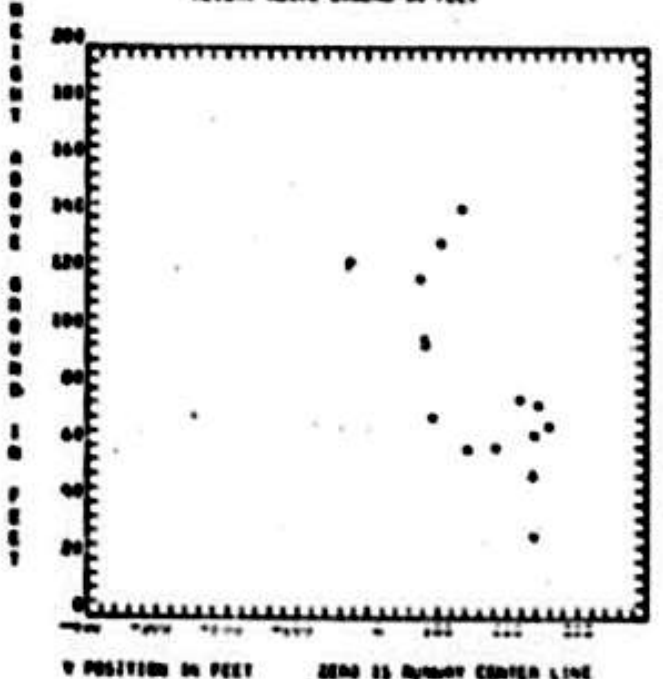
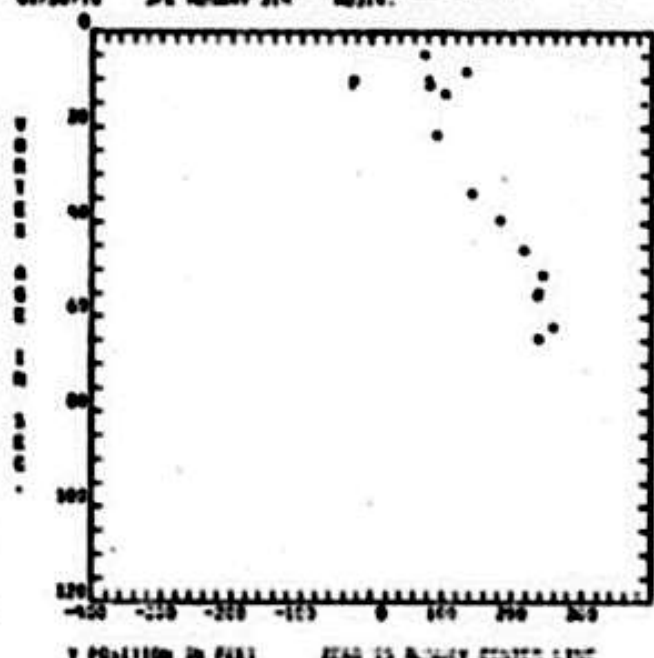
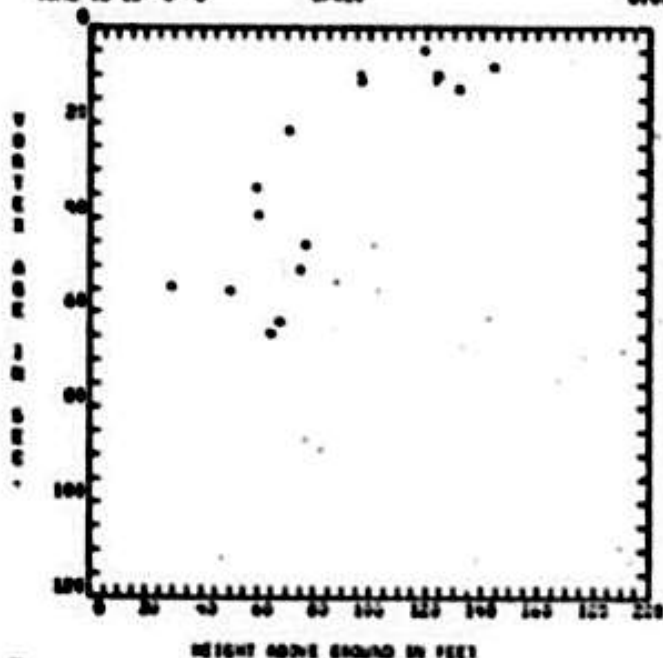
DATE 06/30/76
TIME 15 10 00

JFK

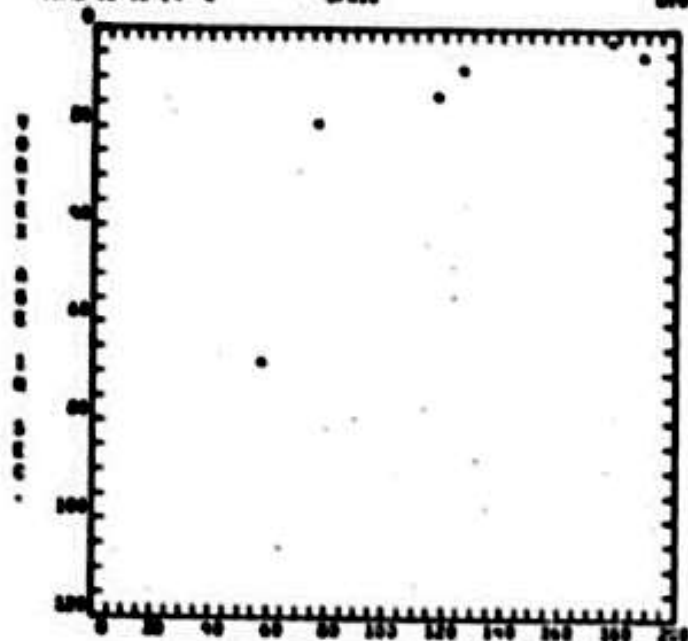
0101 06/30/76

JFK Runway 31R

JOB NO 020000
NO314

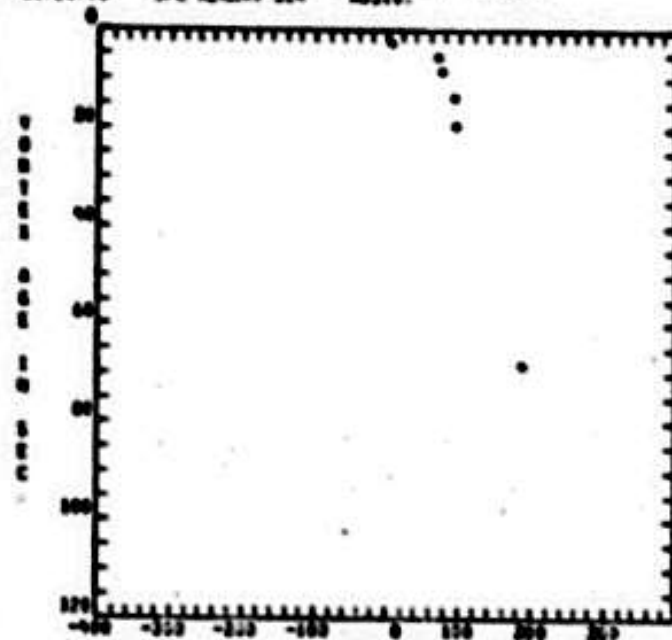


Exp No. 20
TIME IS 10:14:00 JF620

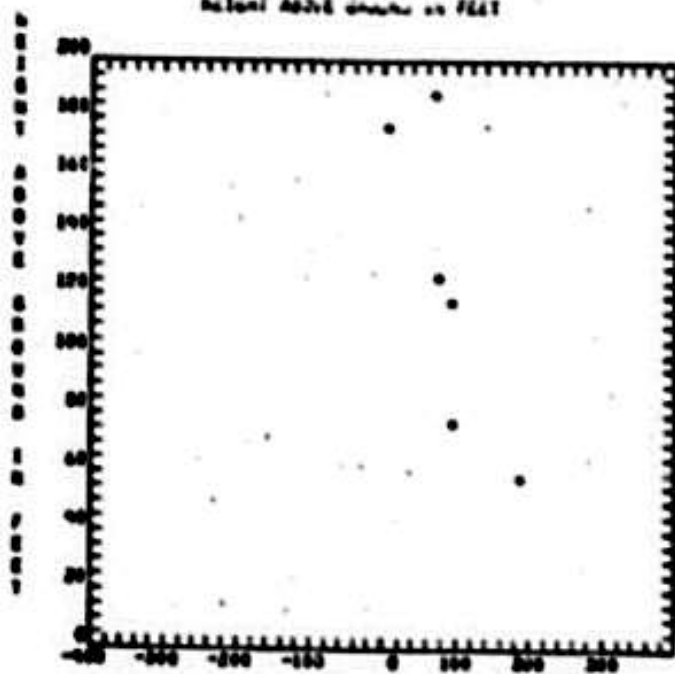


Altitude Above Ground in Feet

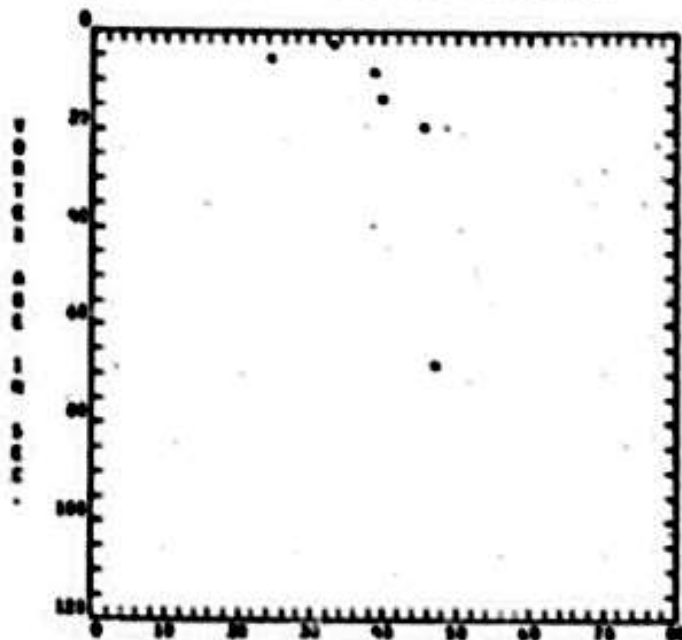
Exp No. 21
TIME IS 10:14:00 JF620



Altitude Above Ground in Feet



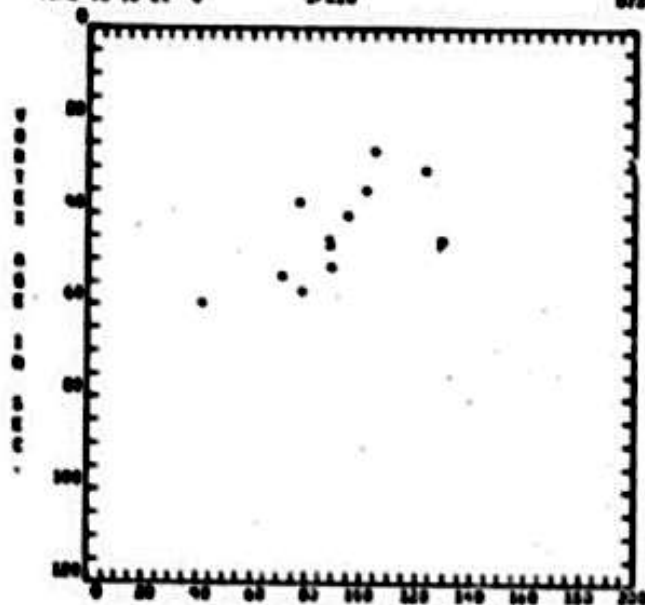
Altitude Above Ground in Feet



Altitude Above Ground in Feet

Run No. 21
TIME IS 10:21:0

JPL20

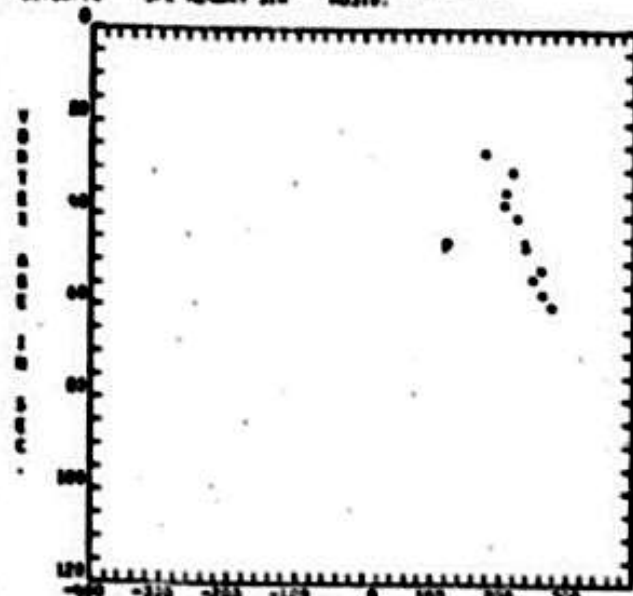


HEIGHT ABOVE GROUND IN FEET

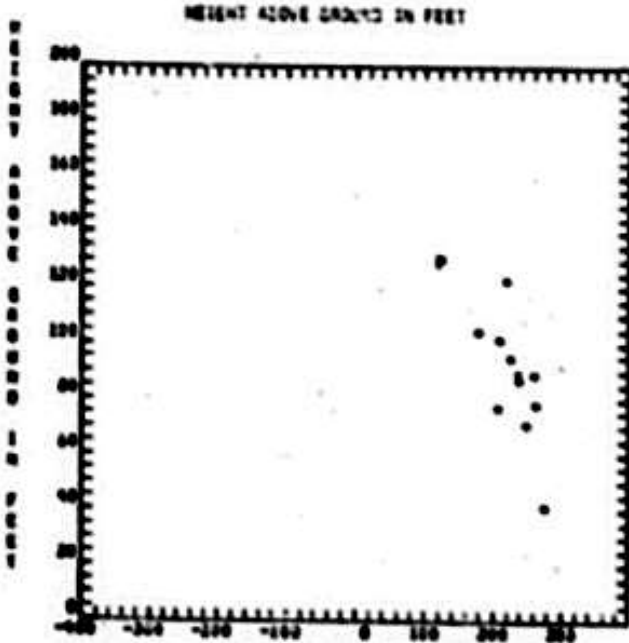
0721 01/20/76

JPL RUMBY 210

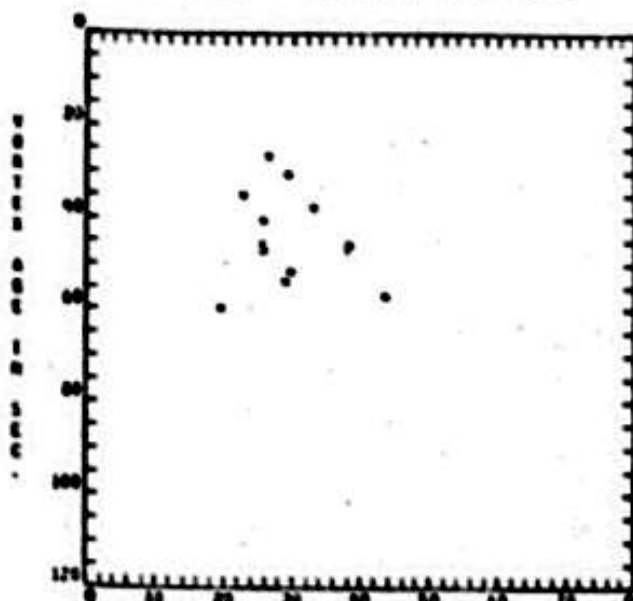
JOB NO 030000
NO210.



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

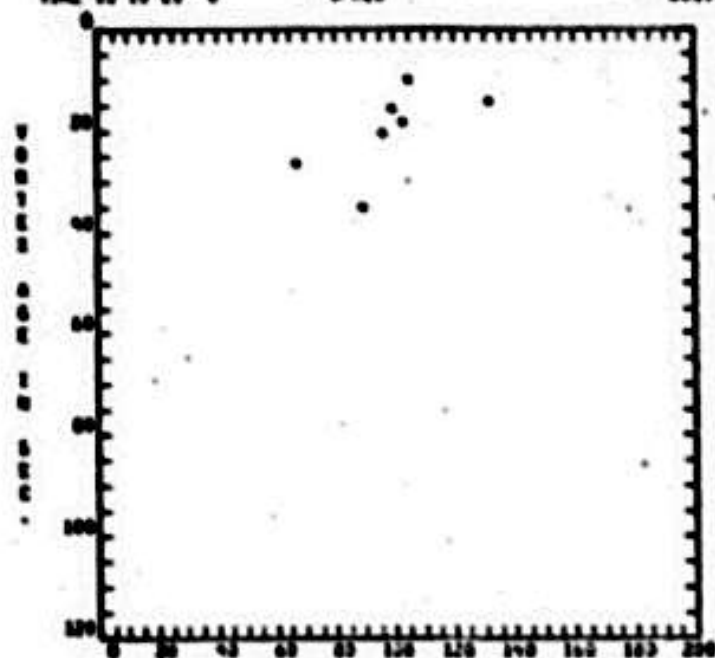
Run ID: 32
TIME IS 10:20:00

JFK20

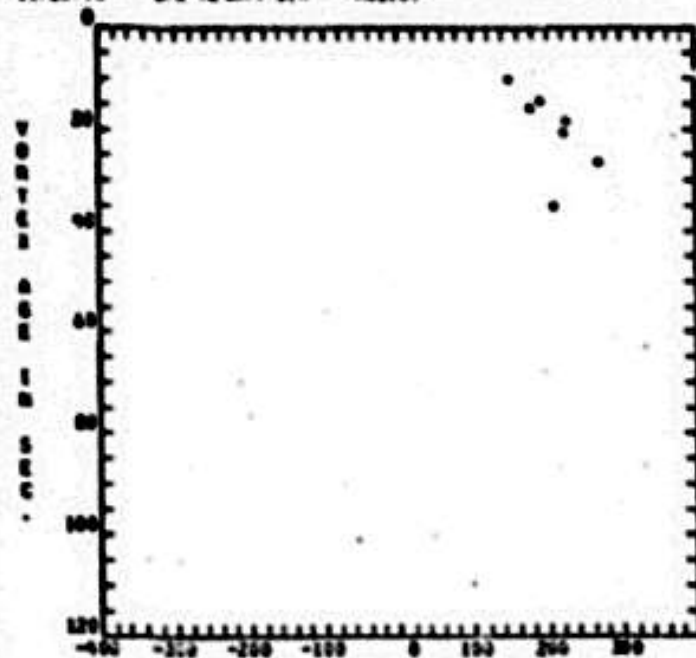
DC10 01/20/76

JFK Runway 31R

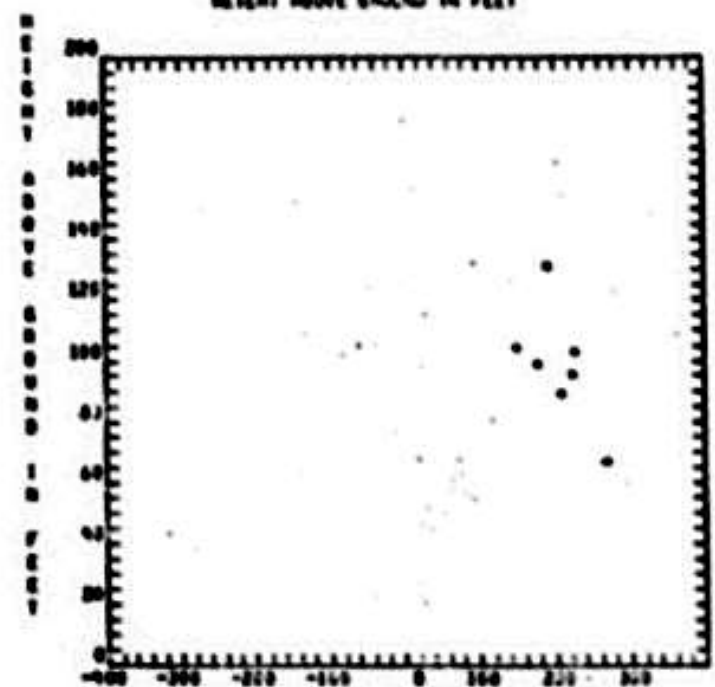
JOB NO. 020000
HD310.



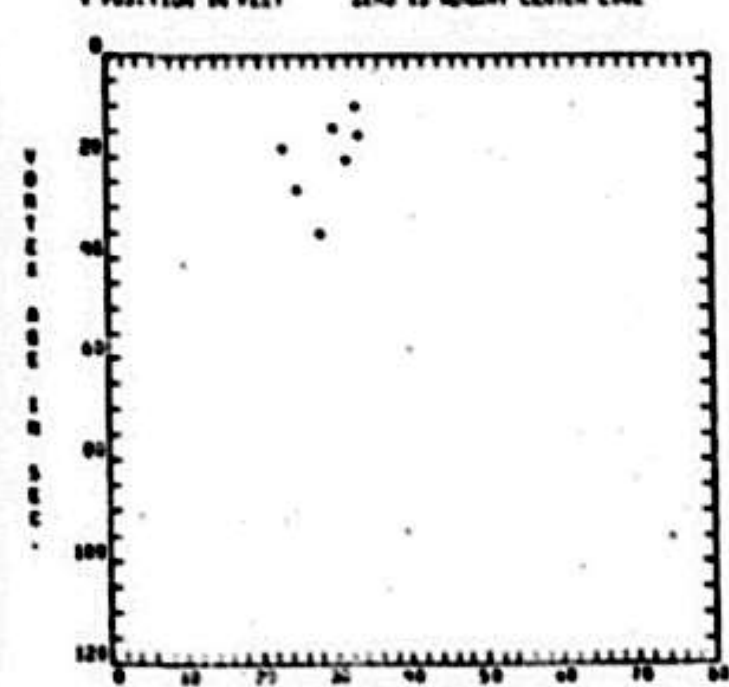
Altitude ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE



Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

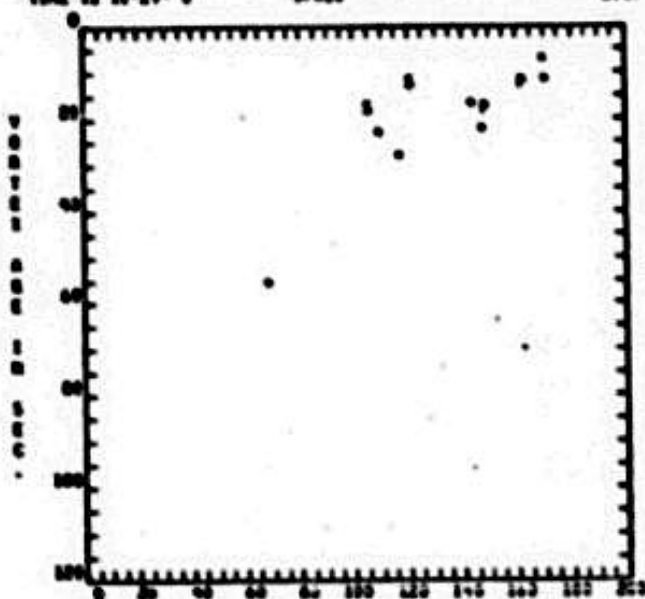
Case No. 32
TIME 25 10°27' 0

JFA20

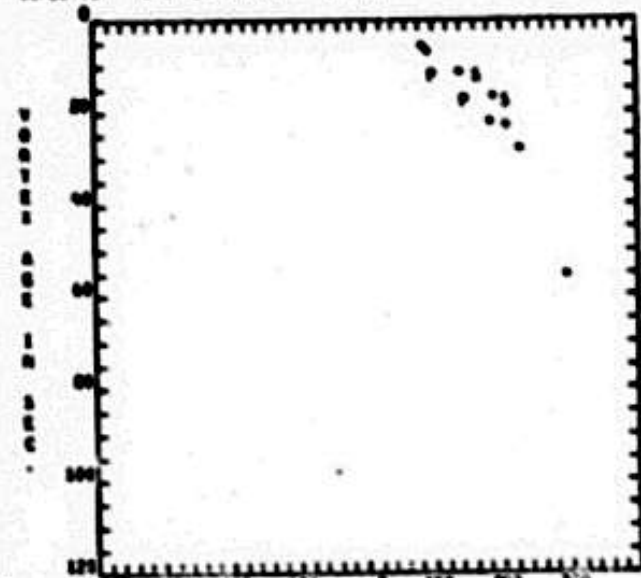
0107 01/20/76

JFK Runway 31R

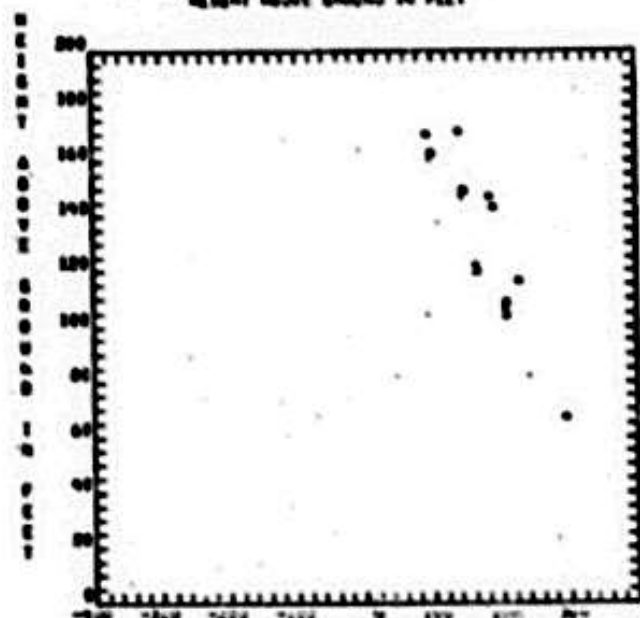
JOS NO 030000
00210.



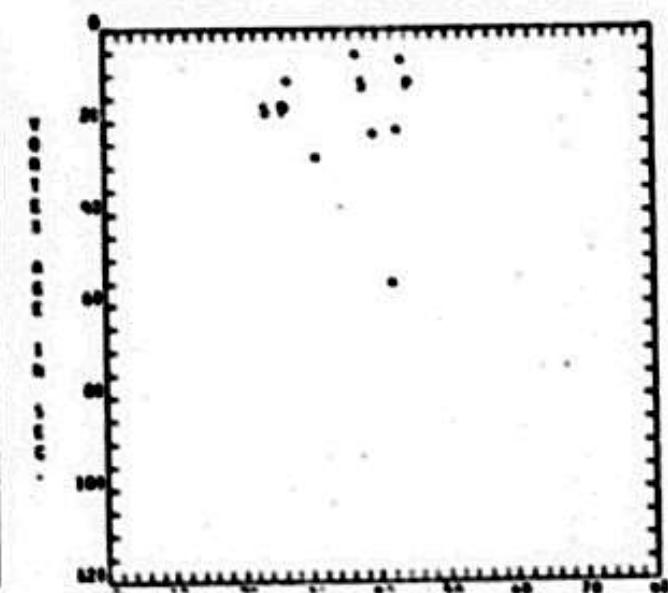
HEIGHT ABOVE GROUND IN FEET



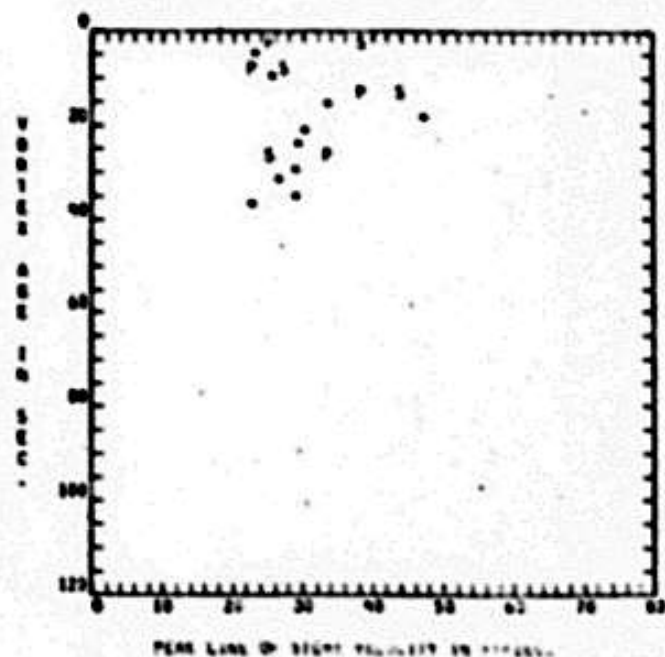
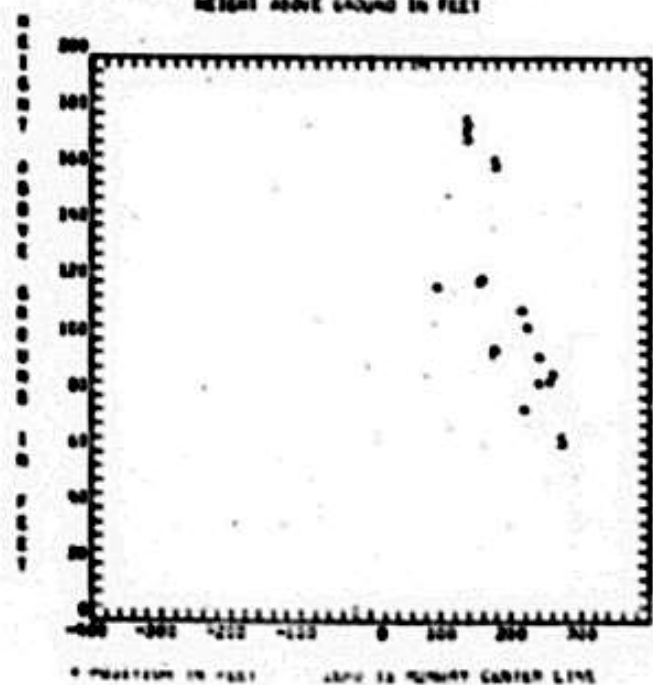
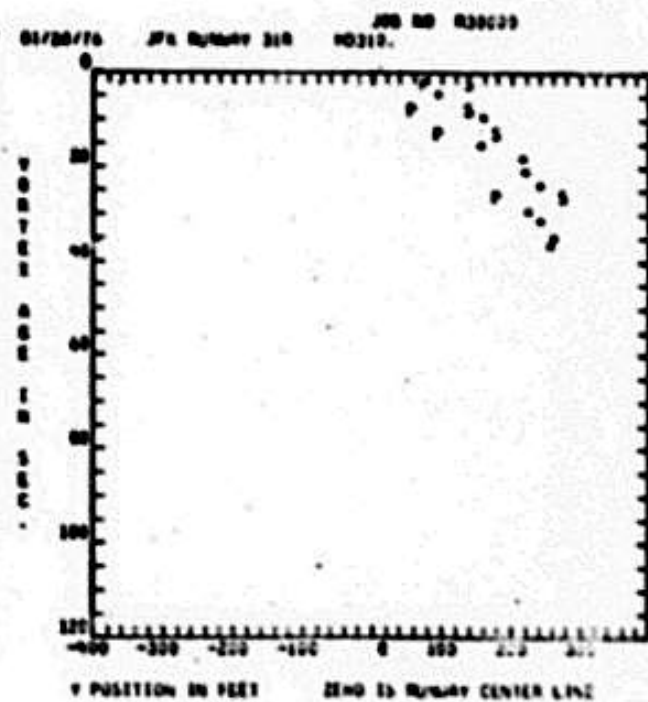
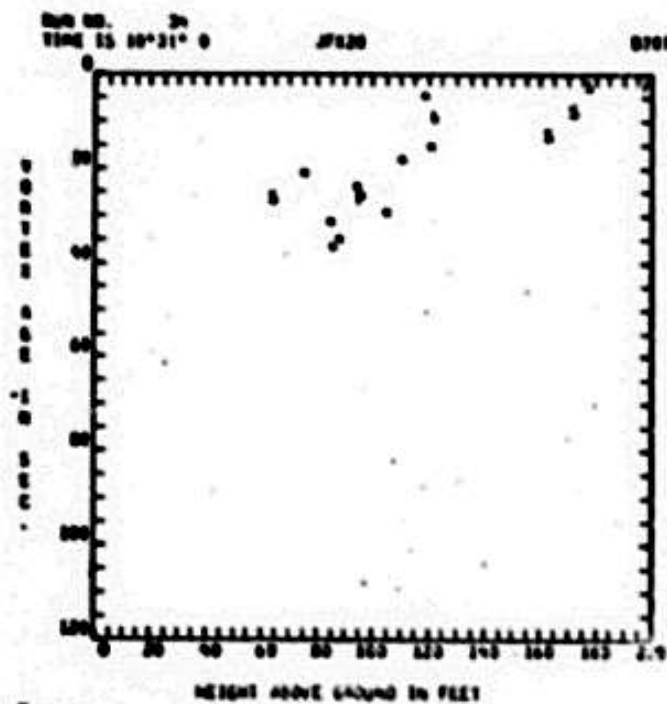
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

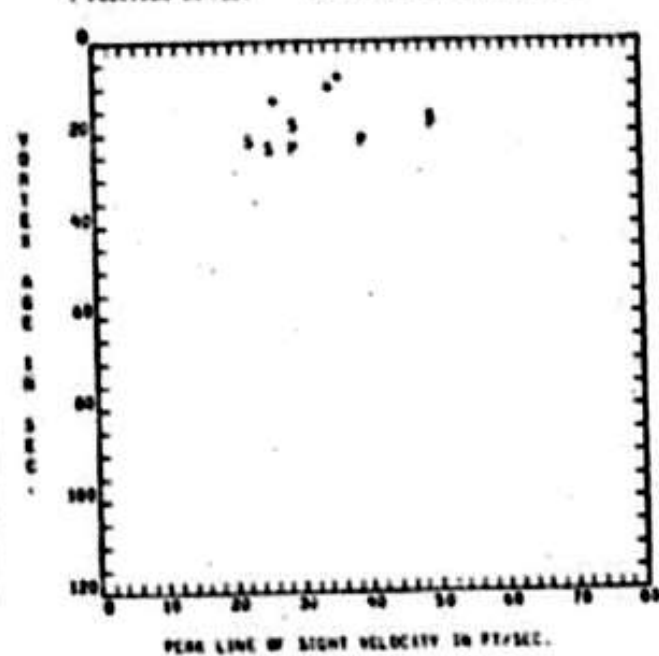
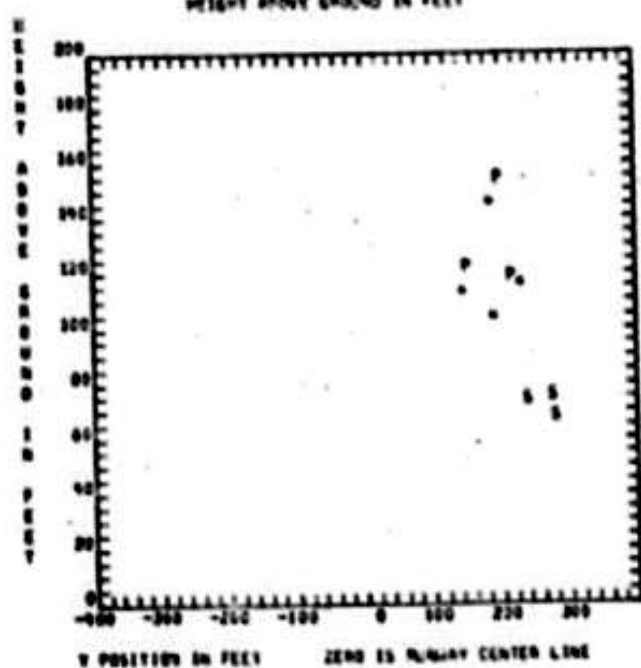
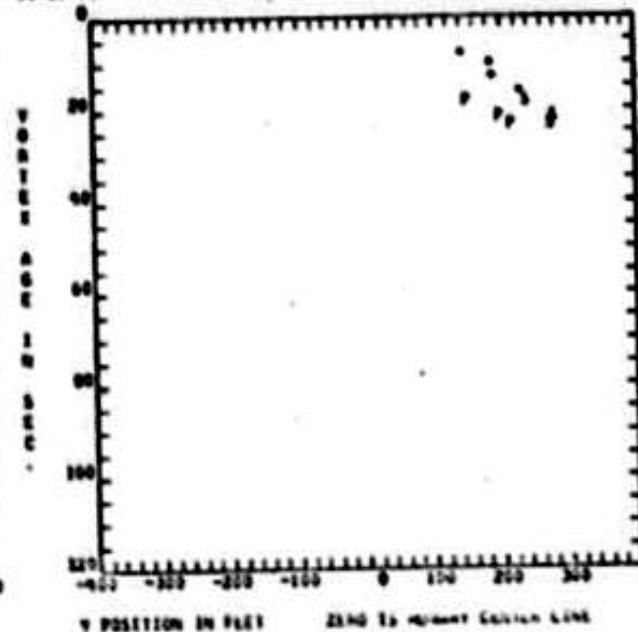
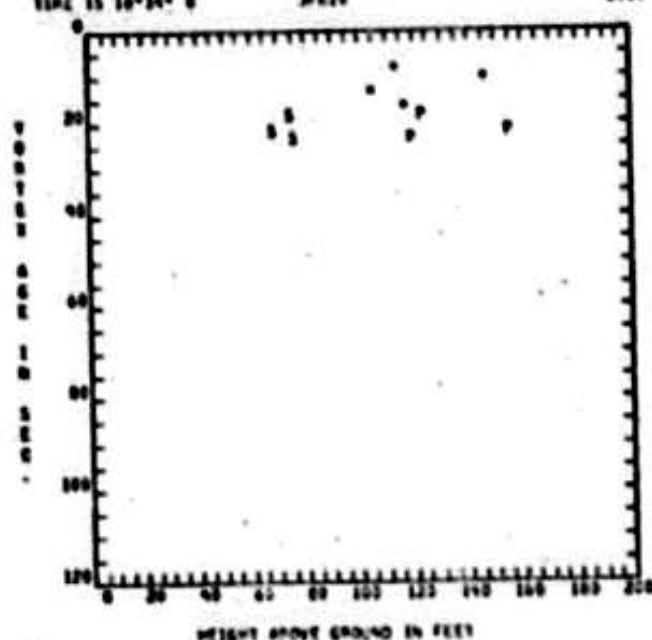


PEAK LINE OF SIGHT VELOCITY IN FT/SEC.



Run No. 25
Time 15 10 34.0 JFE28

0107 01/20/76 JFE Runway 21R POS10. JDB NO 830000



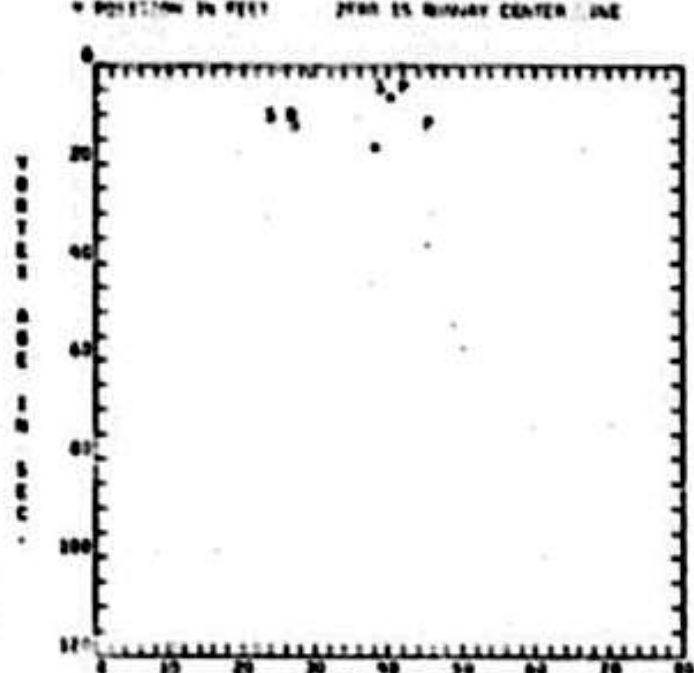
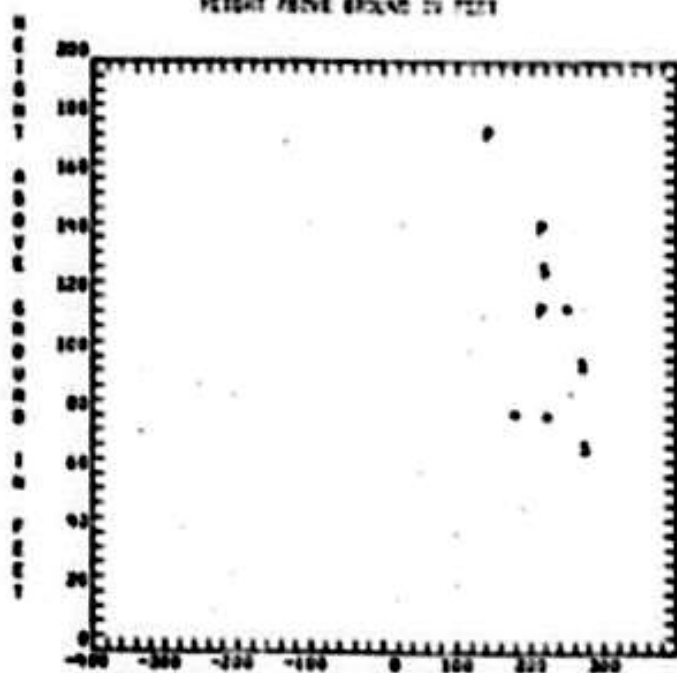
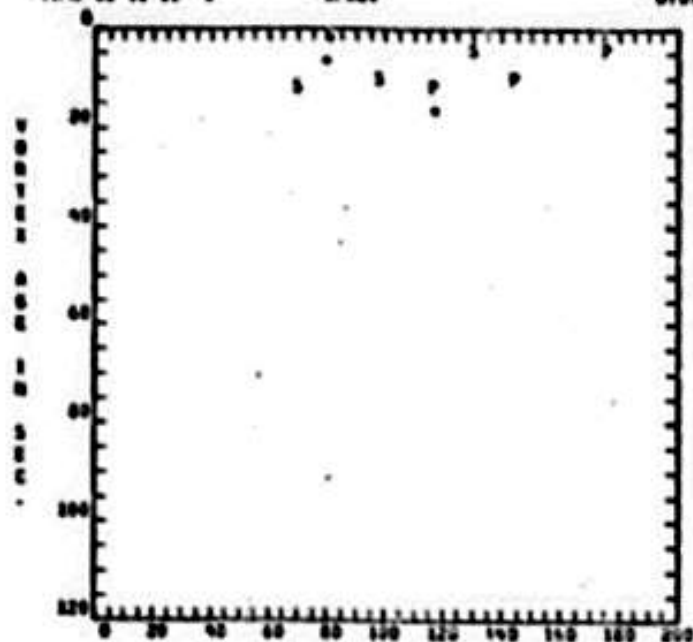
Run No. 26
TIME 15 10 26" 0

JFK26

0101 01/30/76

JFK Runway 31R

Run No. 030000
MC310



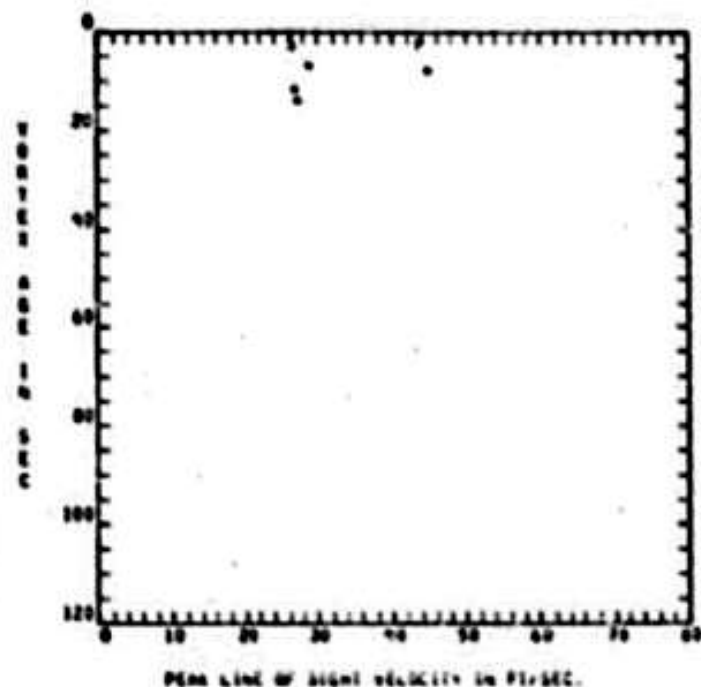
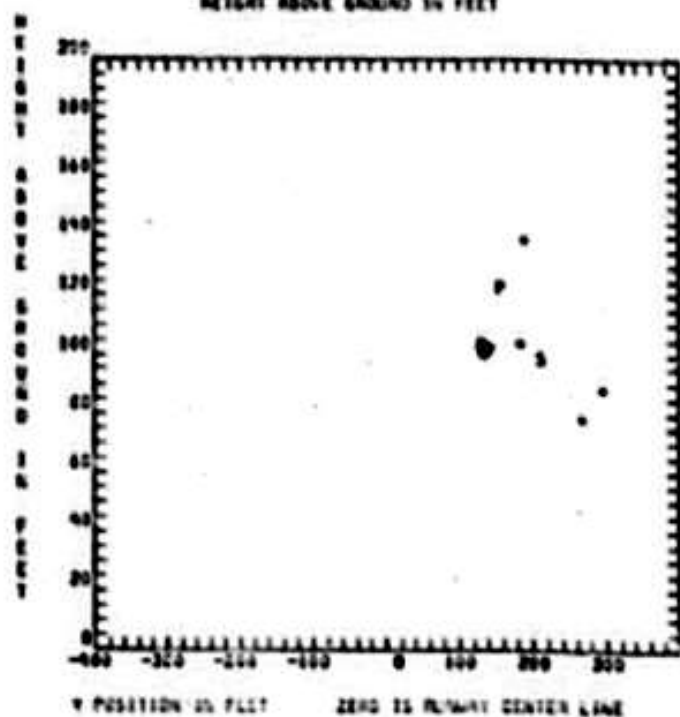
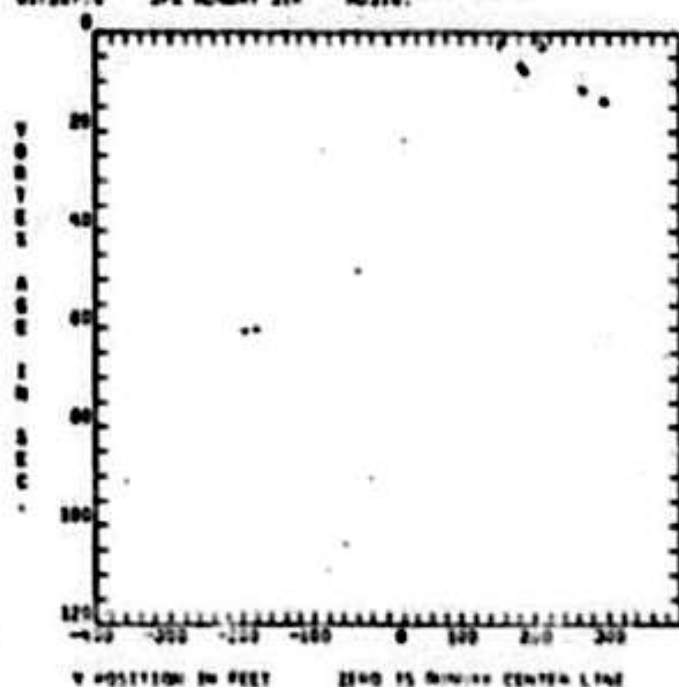
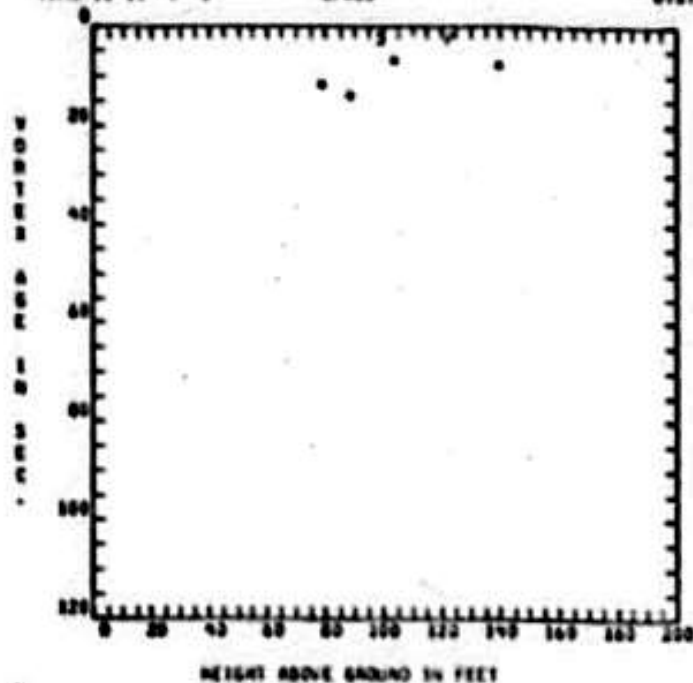
RUN NO. 91
TIME IS 19 27 0

JFK28

0727 01/26/74

JFK RUNWAY 31R

JOB NO R20000
NO 216.



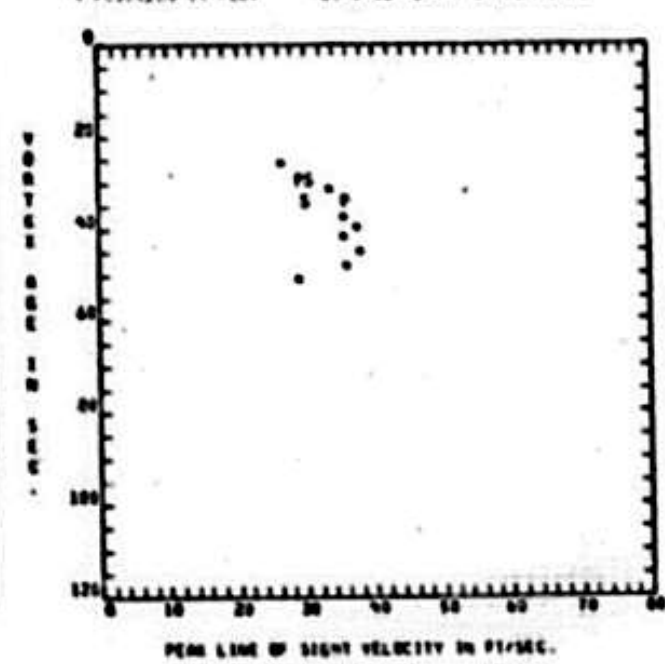
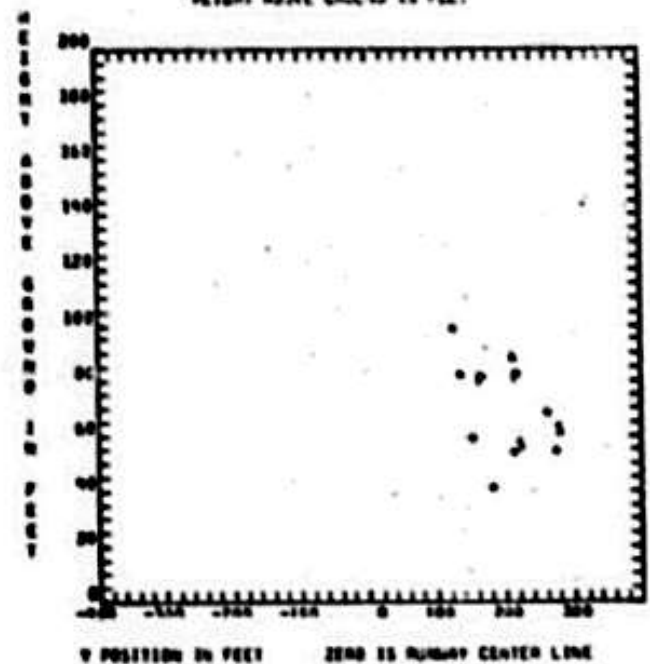
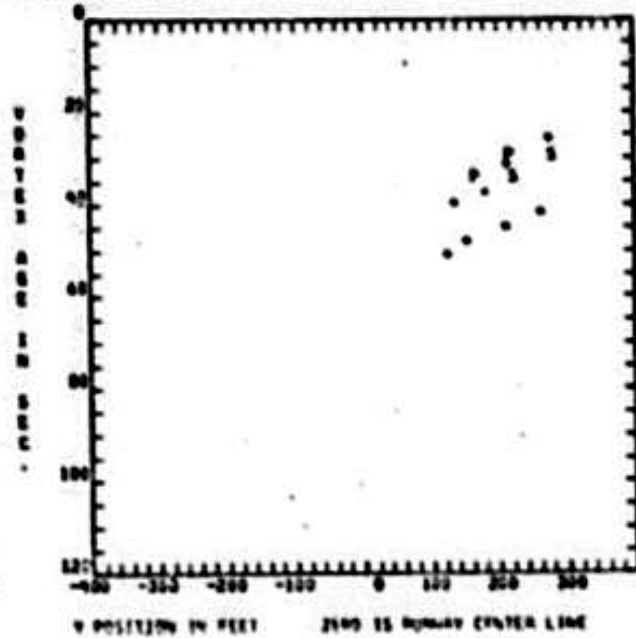
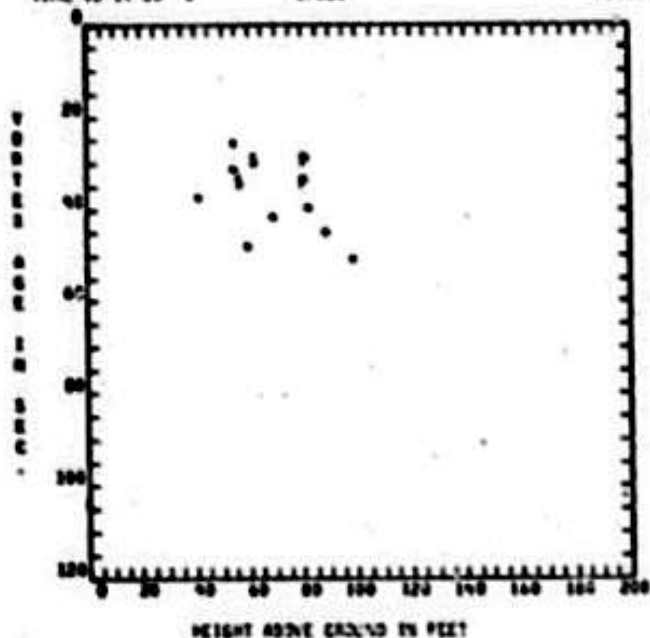
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TIME IS 19:23:0

JFK

0707 01/20/76

JFK Runway 31R

Run ID: 020000
NO. 10



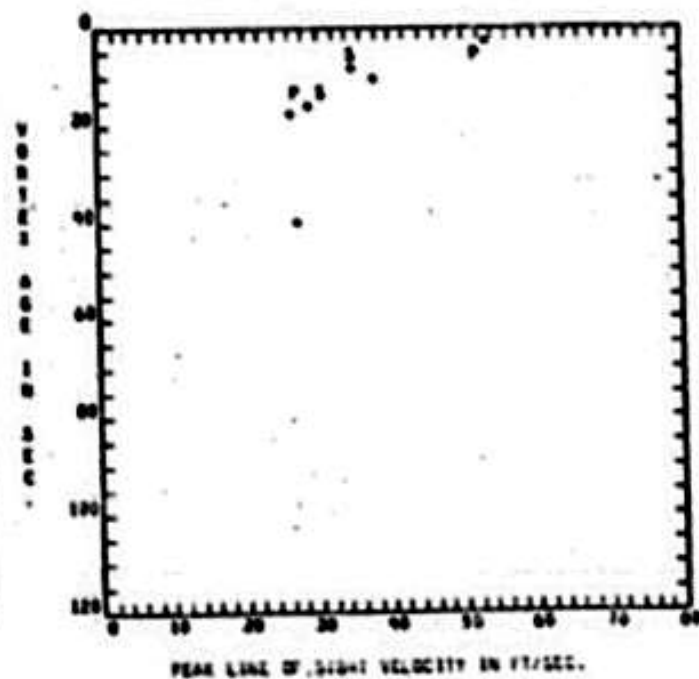
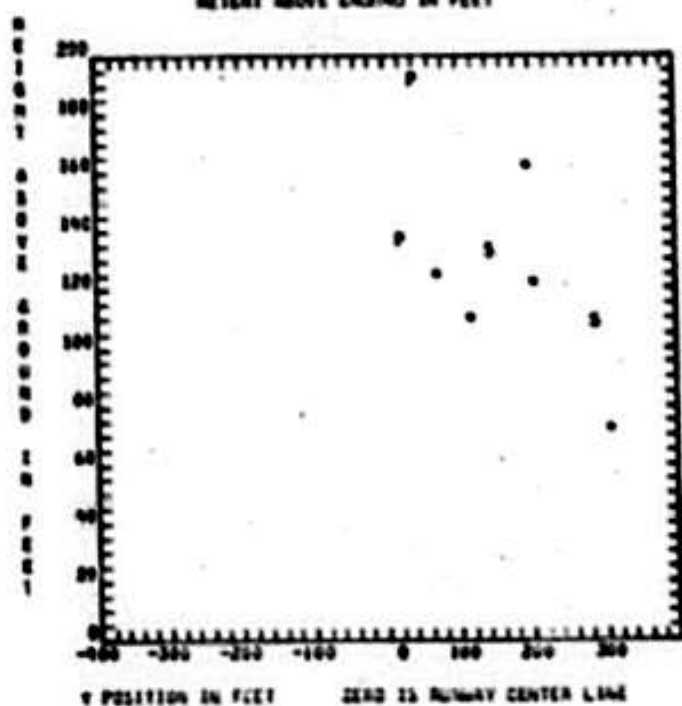
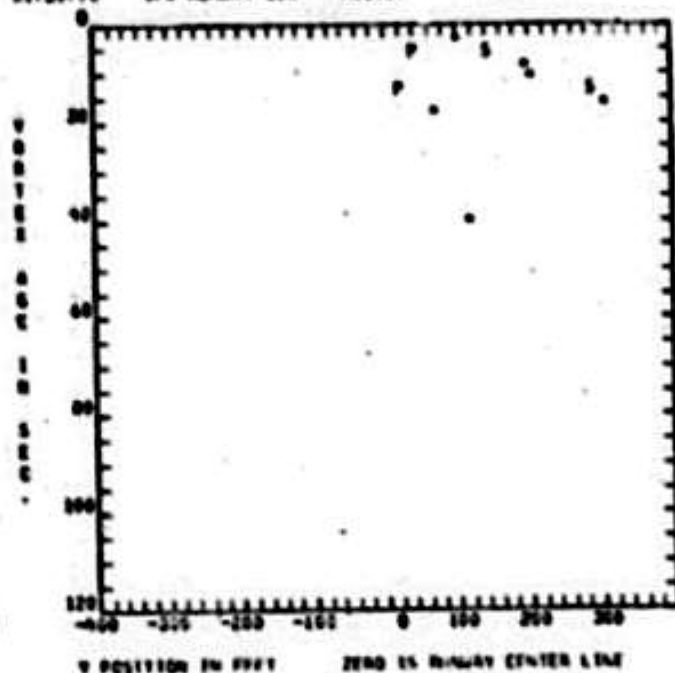
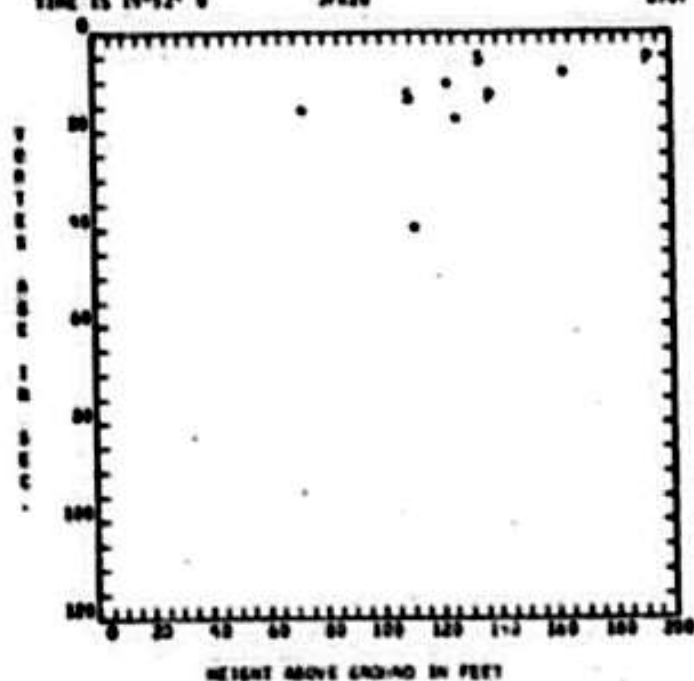
Run No. 54
TIME IS 19:52" 0

JF120

0707 01/20/76

JF1 RUNWAY 31R

Run No. R70000
NO310.



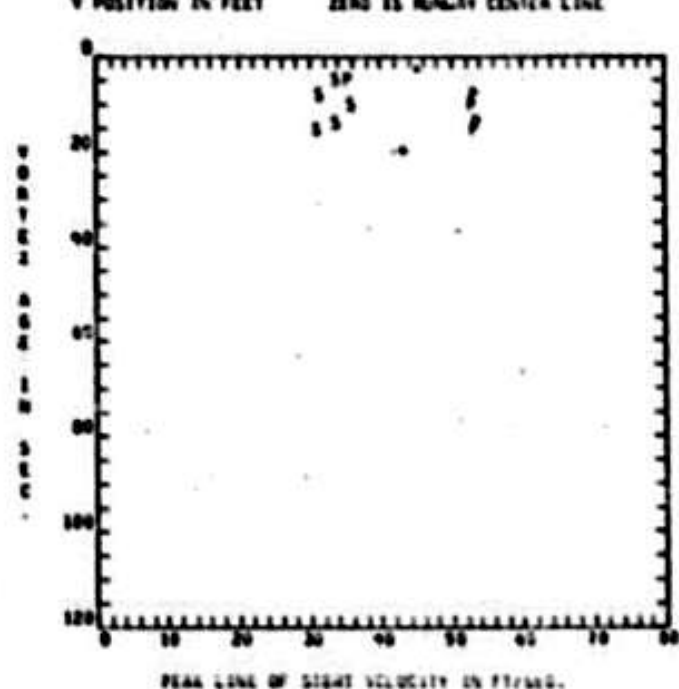
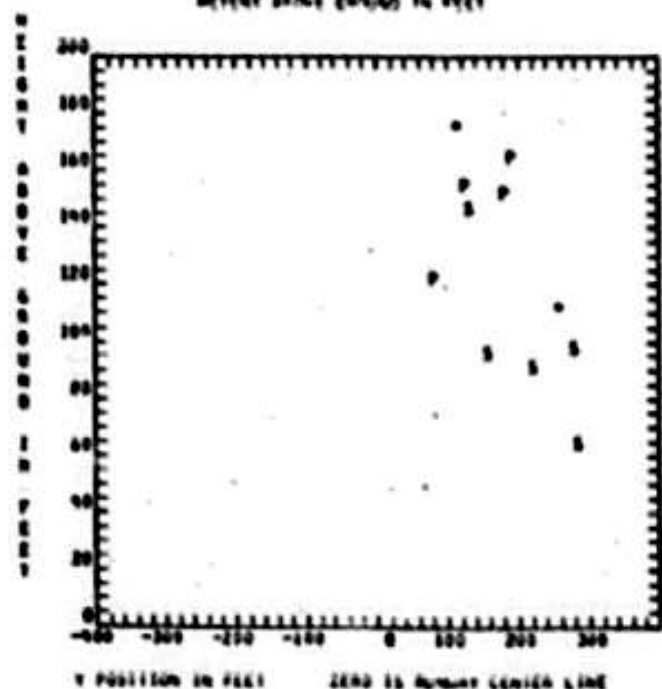
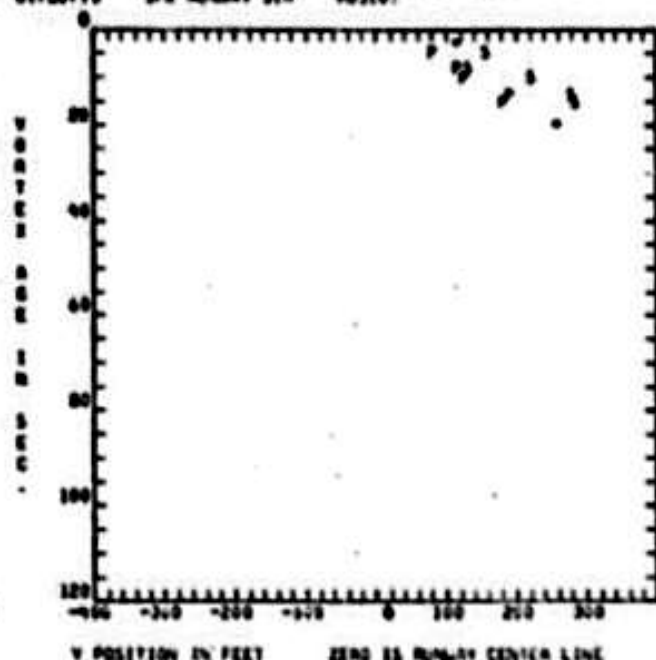
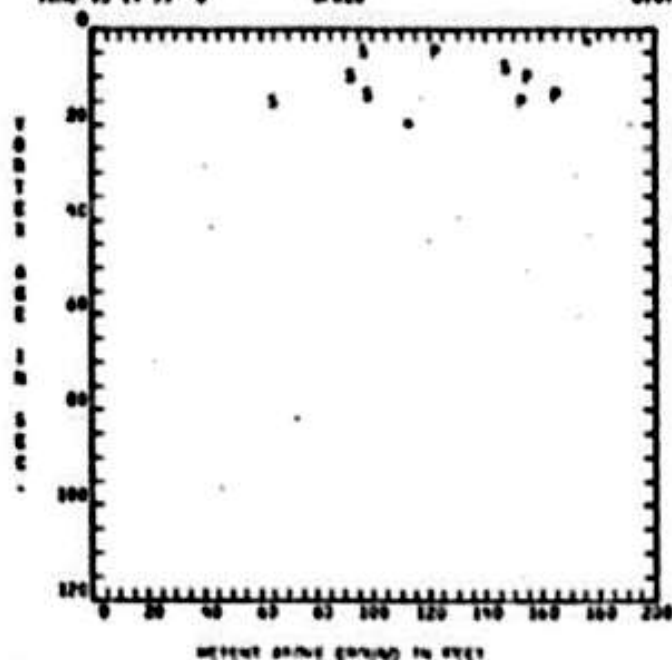
Run No. 97
TIME IS 19:55:0

JFK20

0707 01/20/76

JFK Runway 31R

JOB NO 030000
PD310.



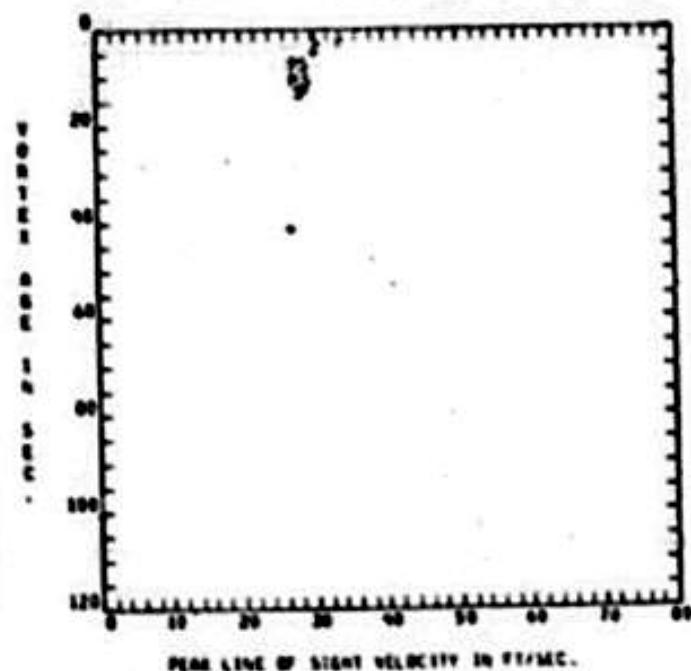
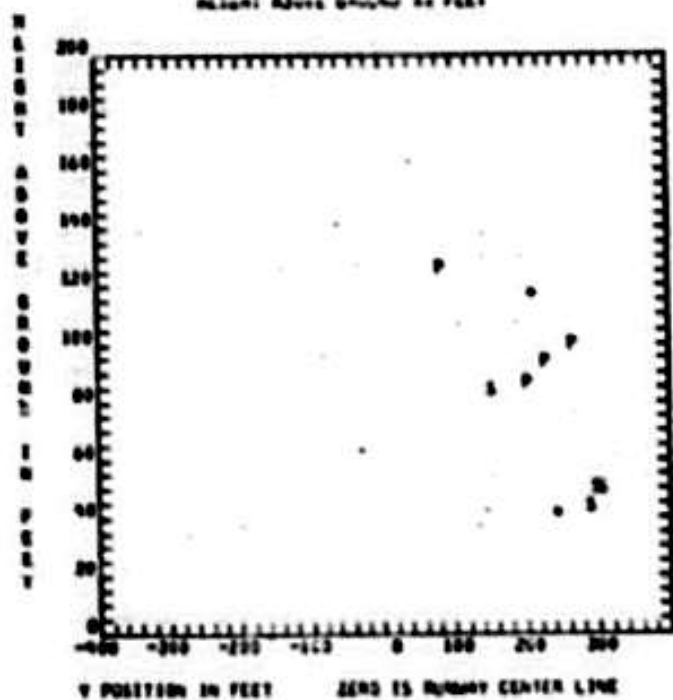
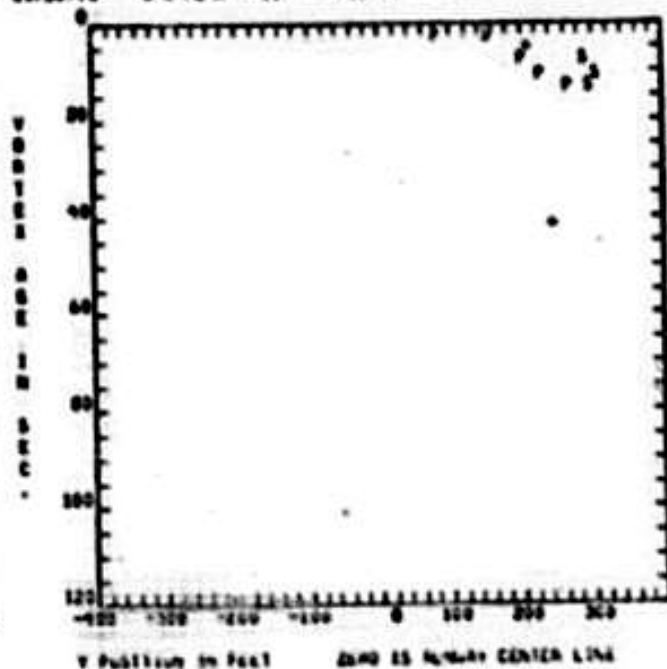
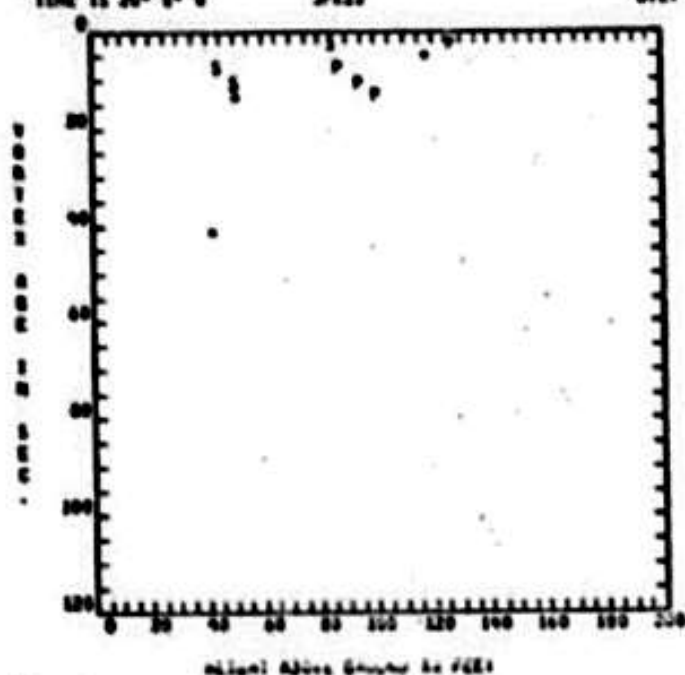
Run No. 01
TIME 15 20 00

JF20

0727 01/20/76

JFE Runway 31R

JOB NO A20000
HD310.



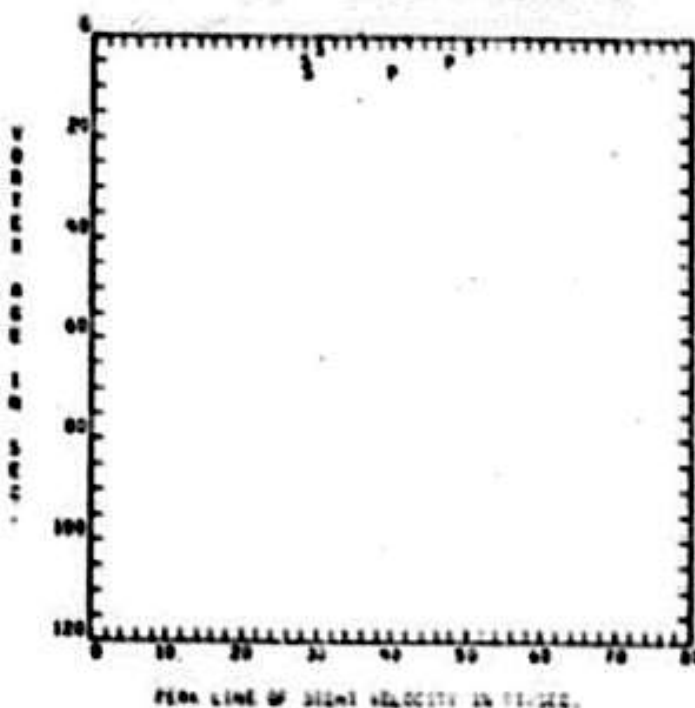
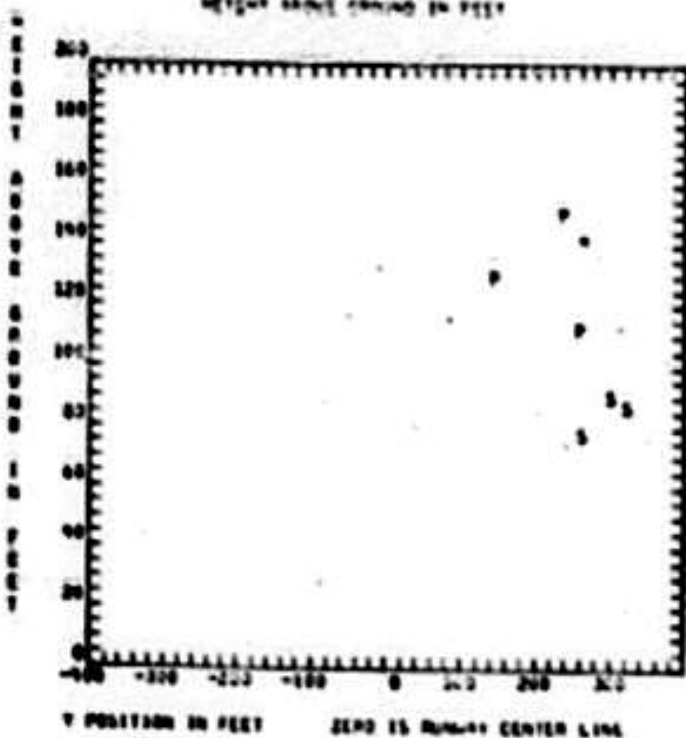
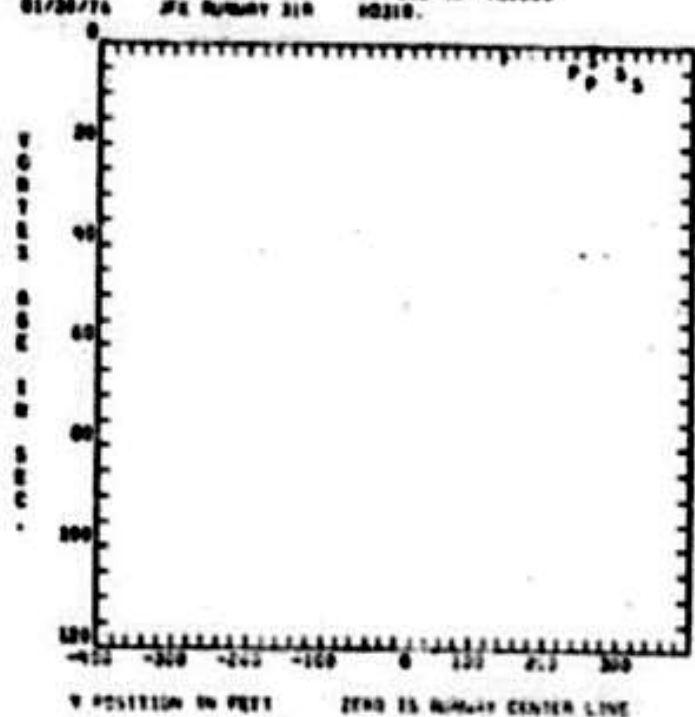
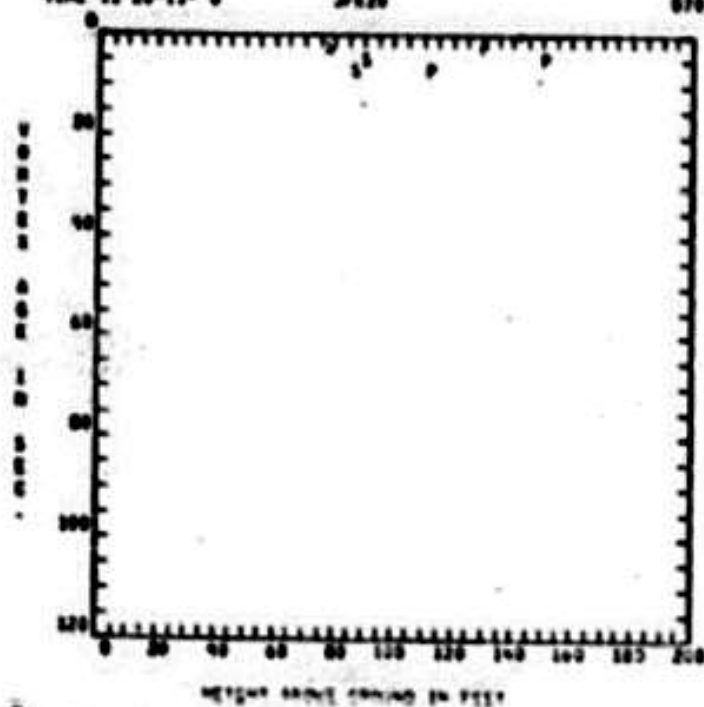
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JF120

0707 01/20/74

JF1 Summary 310

JOB NO 030000
H0210



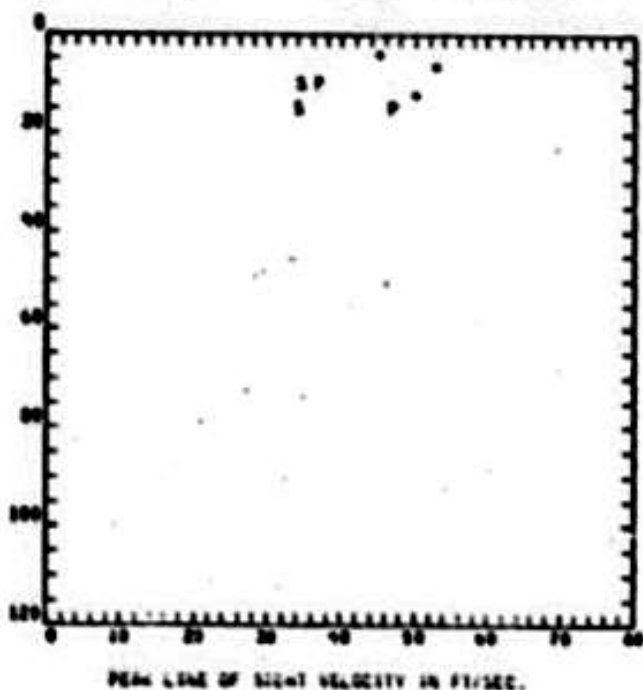
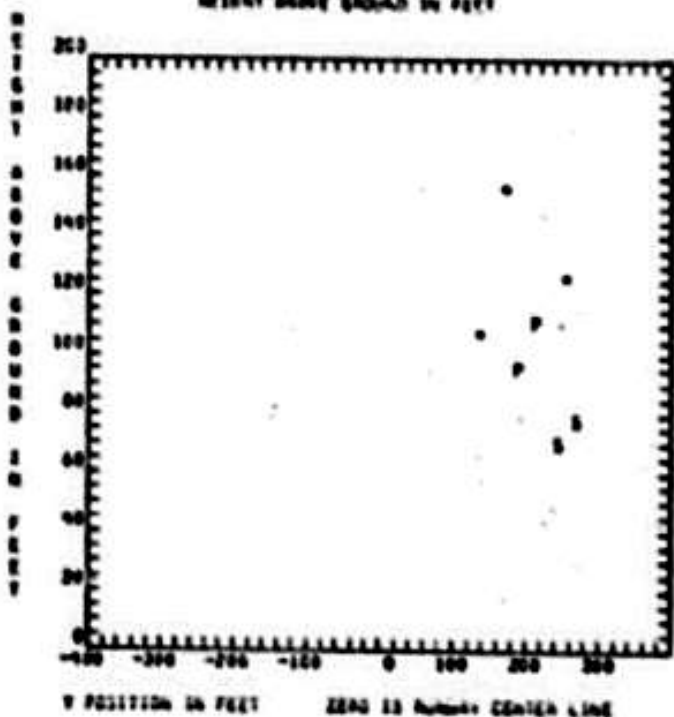
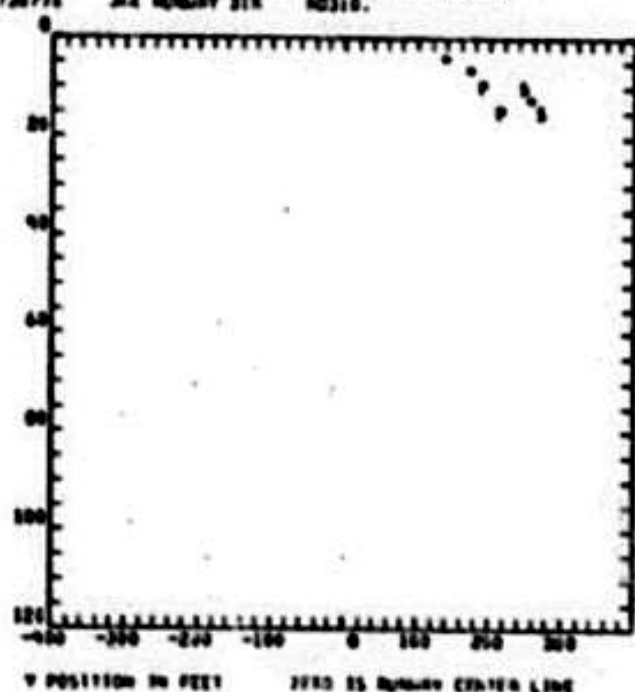
Run No. 66
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JFK20

0727 01/20/76

JFK Runway 31R

JOB NO R30000
NO310.



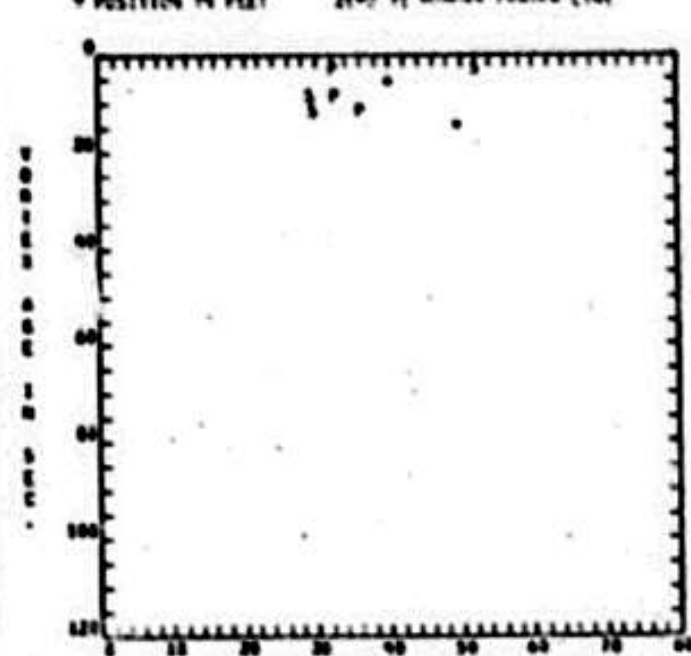
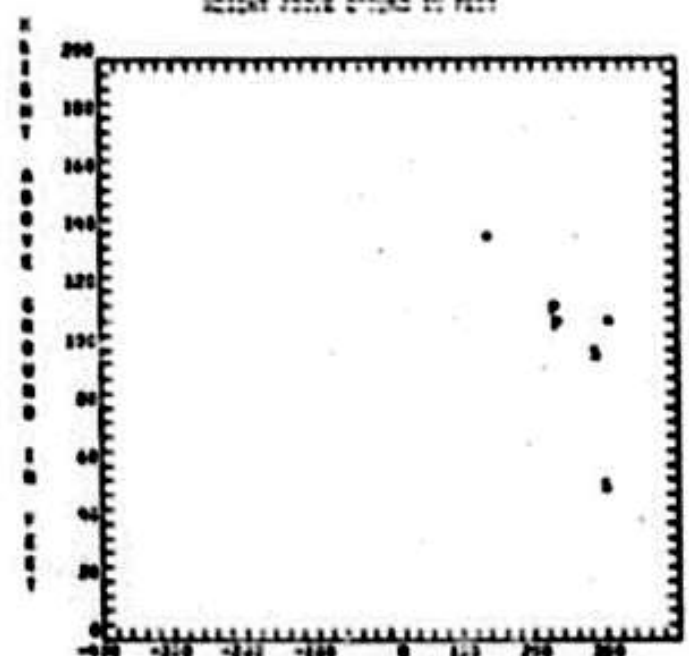
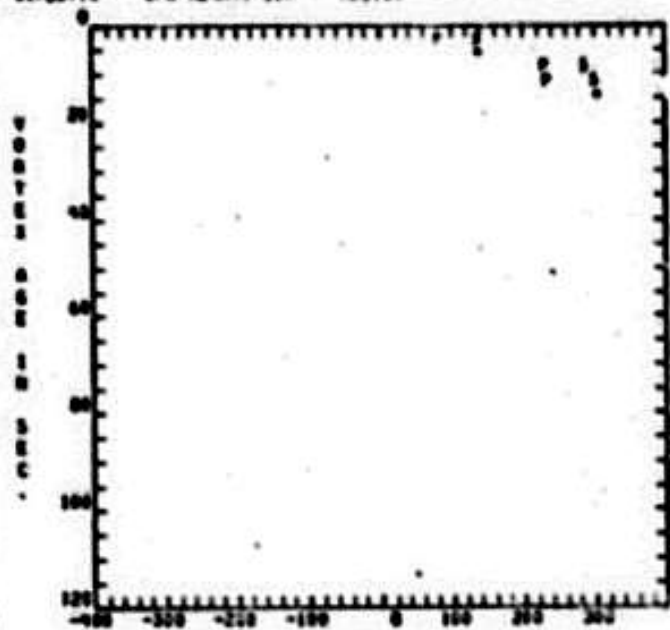
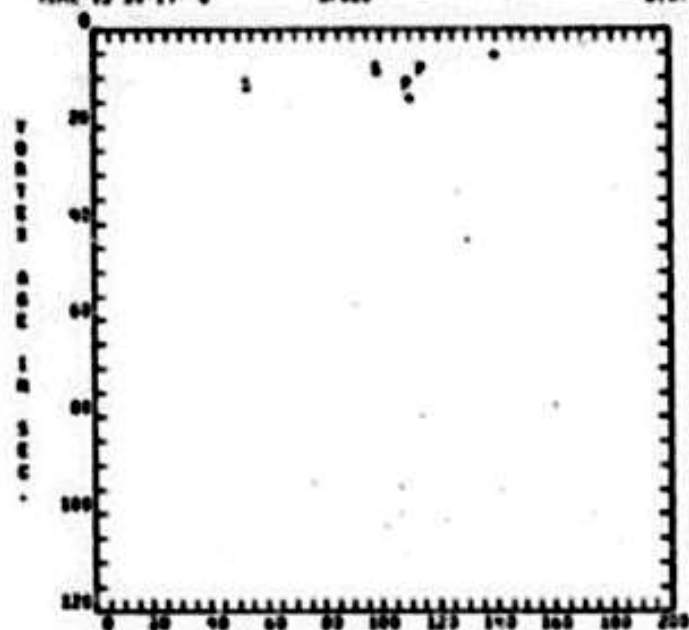
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TIME 15 20 19 0

JF 220

DTOT 01/20/76

JFK RUMBLE 31R

WFO NO. 030070
NO 310.



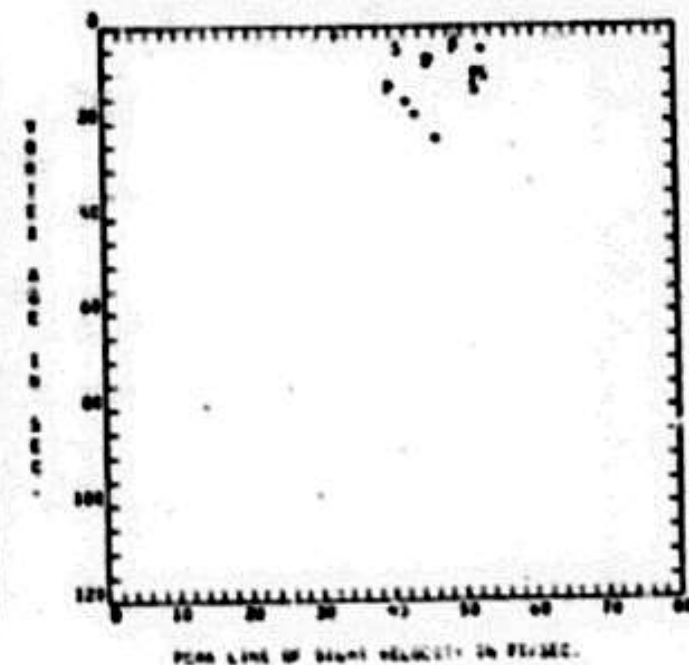
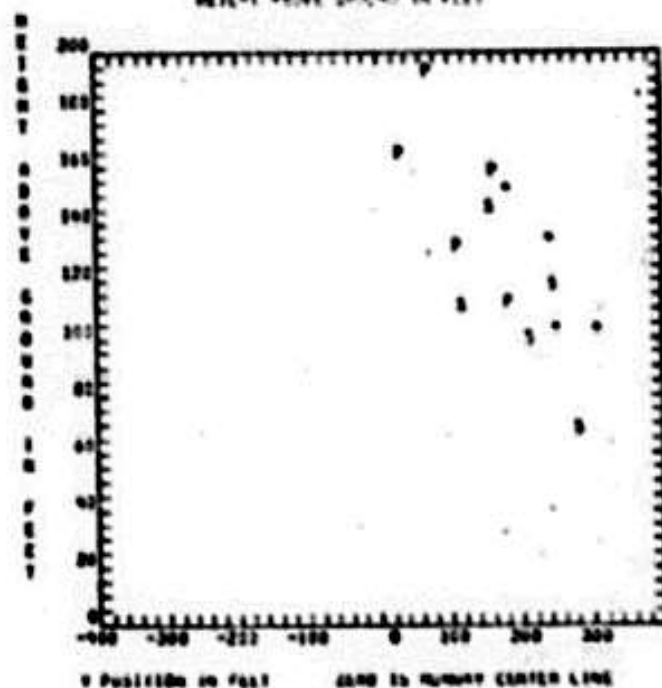
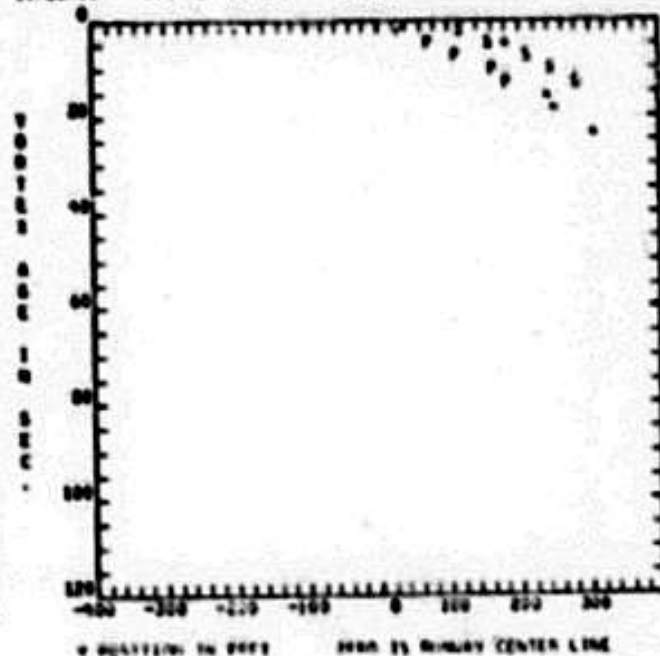
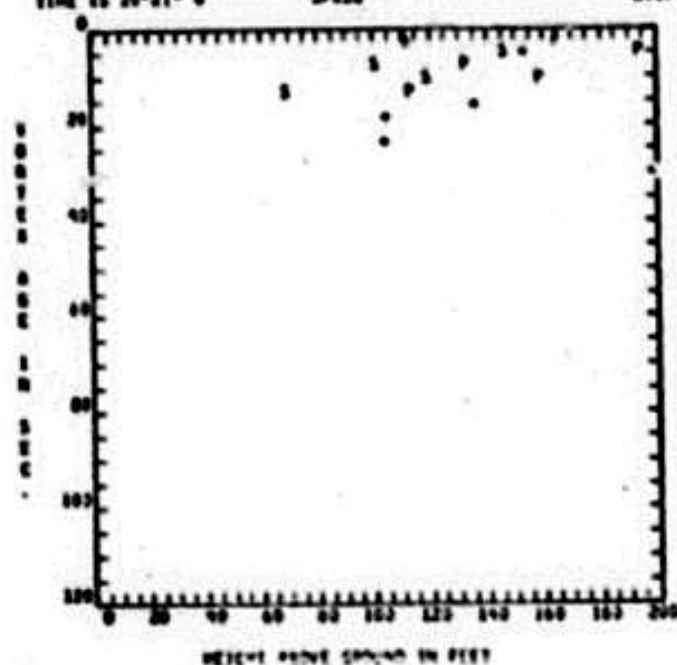
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TIME 15 20'21" 0

20120

0707 01/20/76

JPL 8/10447 316

RUN NO. 826000
NO310.



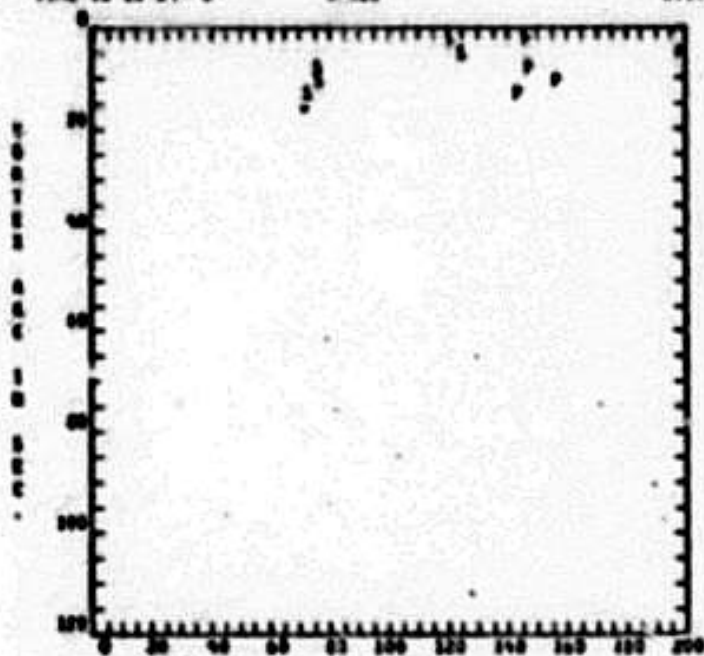
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TIME 13 20'24" 0

JFK20

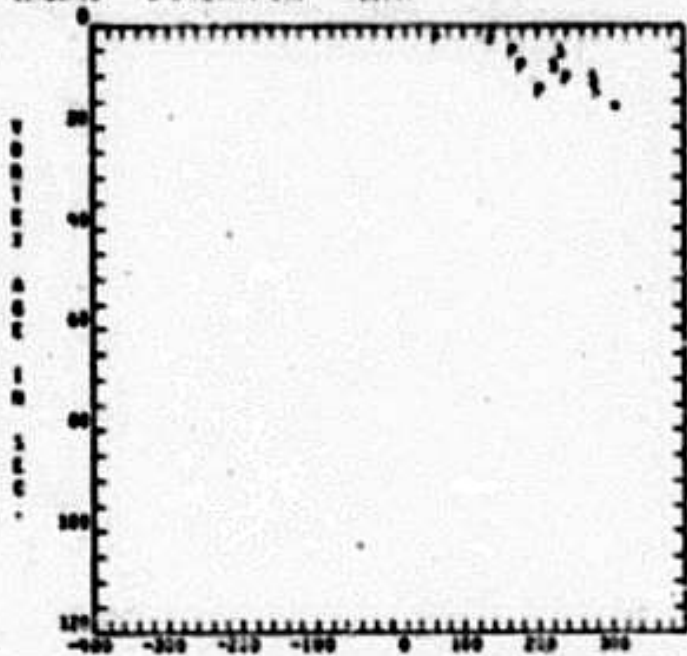
0707 01/20/75

JFK RUNWAY 31R

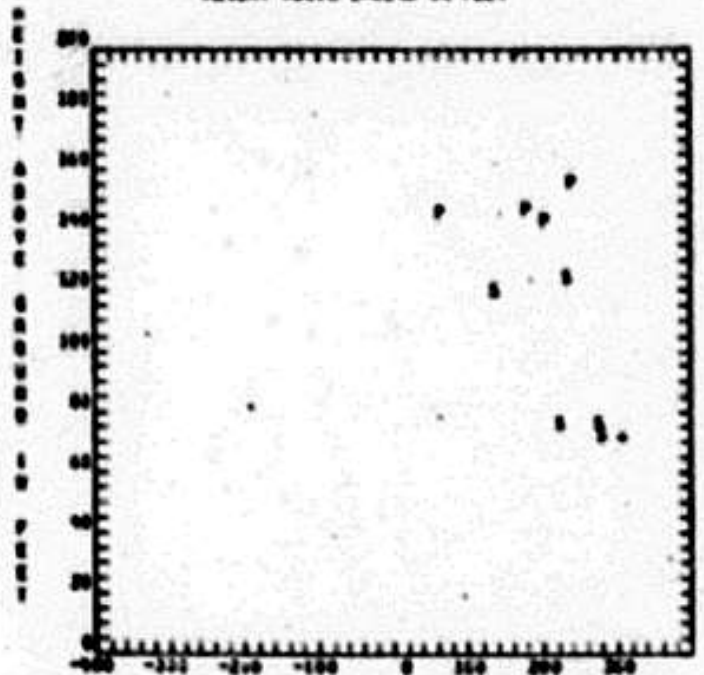
RUN NO. 032940
NO31R



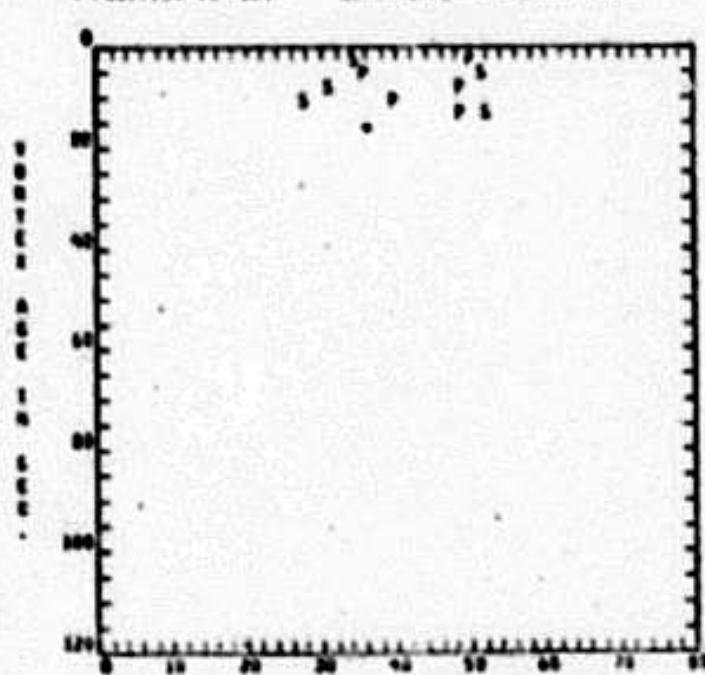
ALTITUDE ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

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                                JPC20
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+ENDUP *                          +0
+END L, E *                      +1,          +1,          +1000,          +1000,
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+BLANK *                          .00000000E+00
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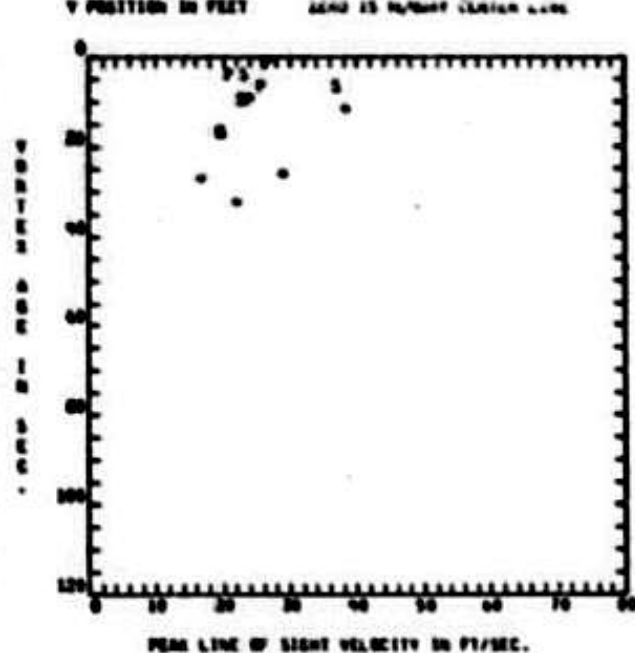
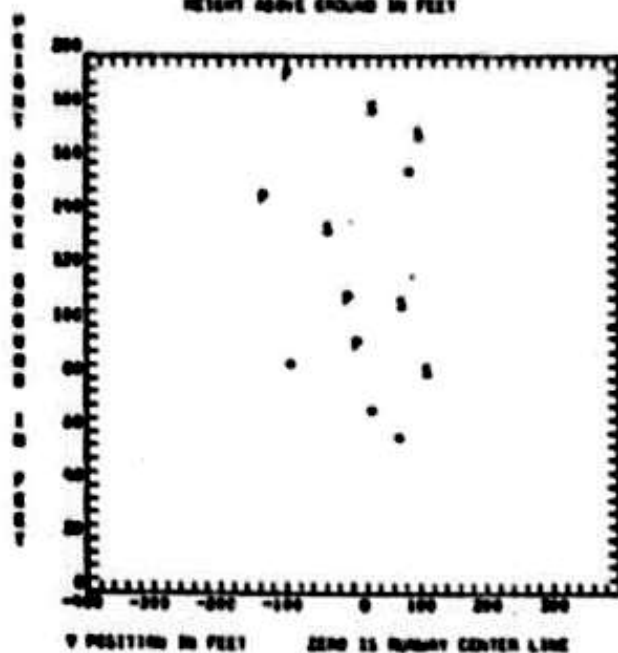
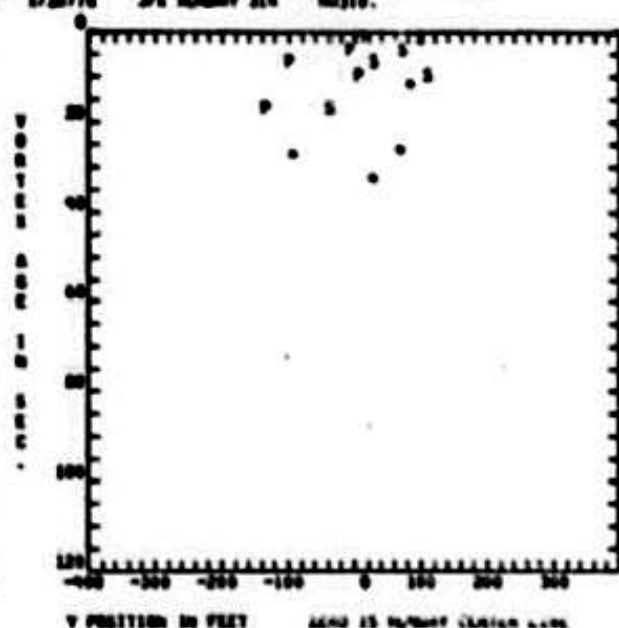
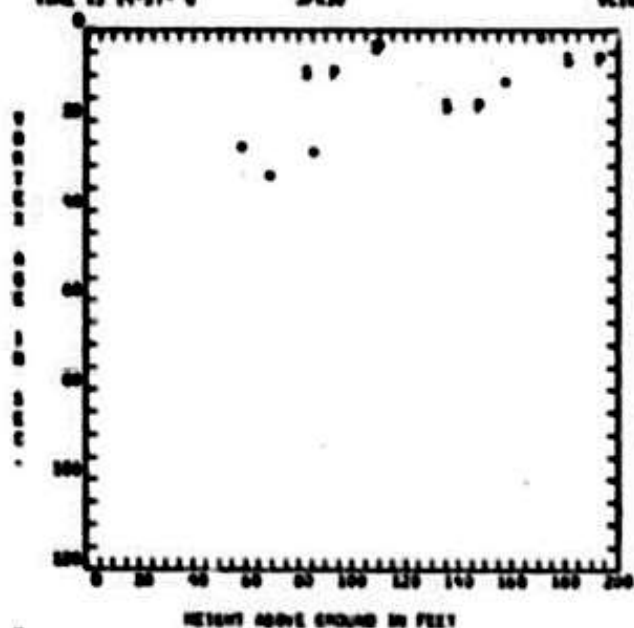
QND NO. 2
TIME IS 14:57:0

JPL30

VC10 1/28/76

JPL Runway 31R

JOB NO 020000



Run No. 3
TIME 15 15 14 0

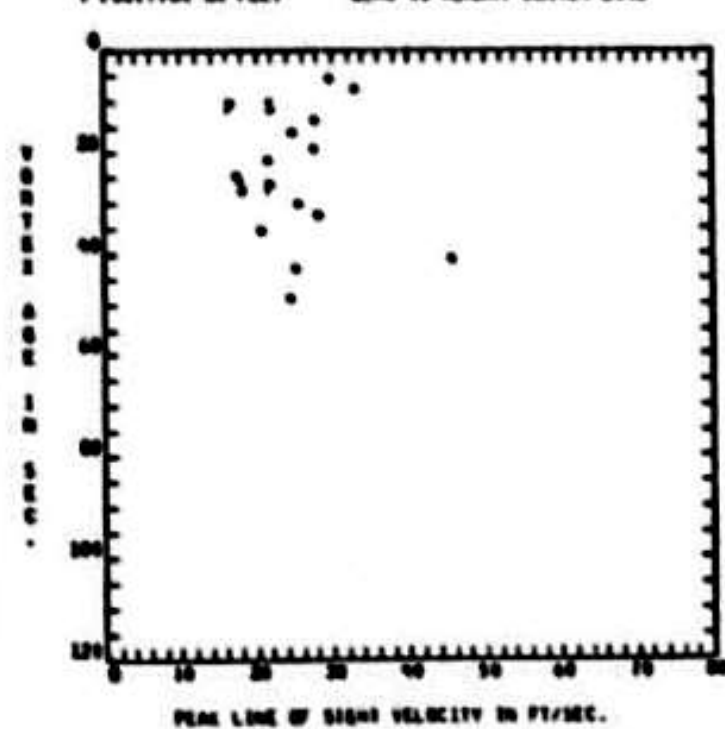
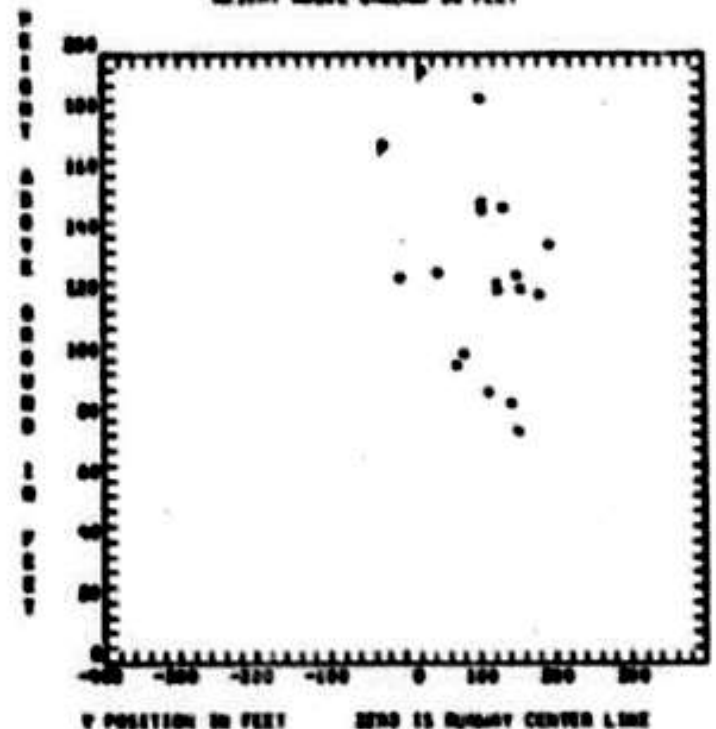
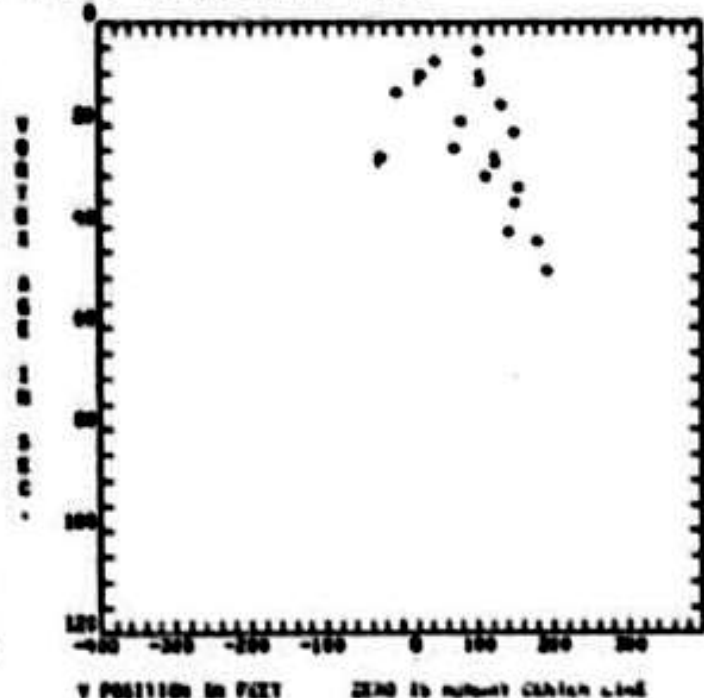
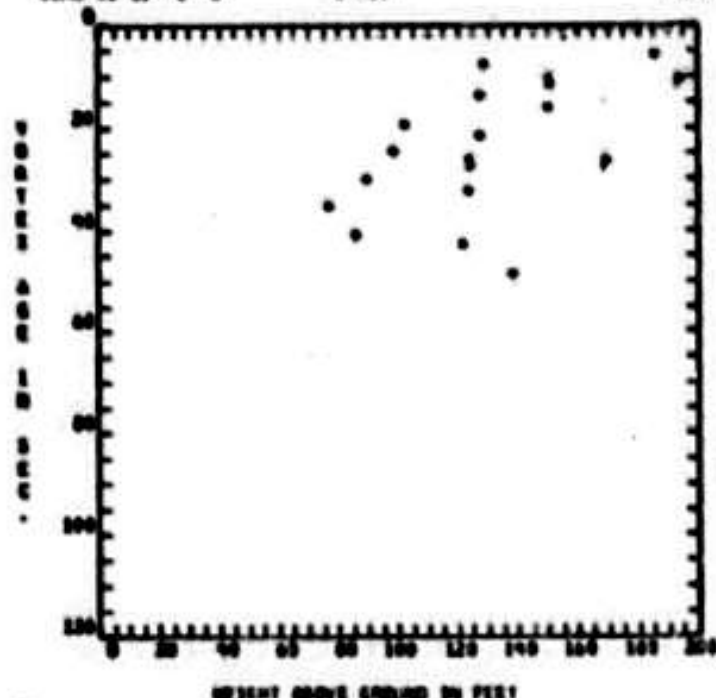
JF130

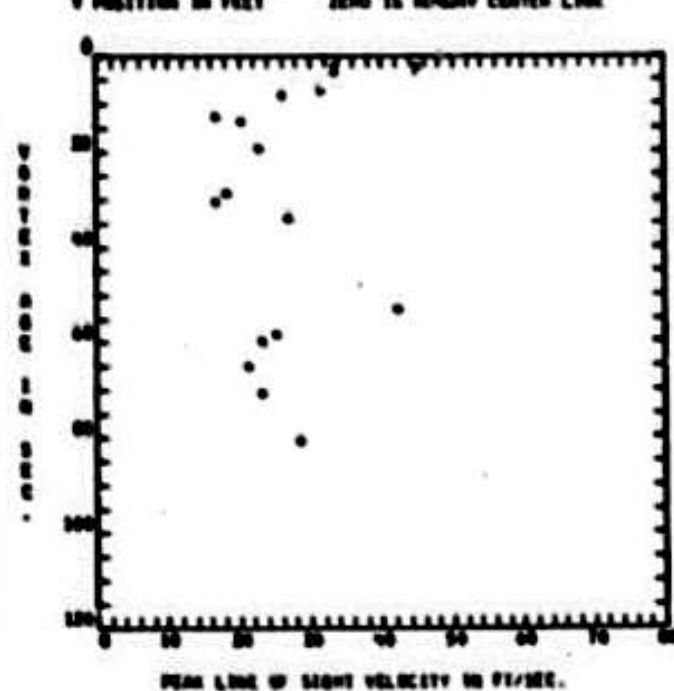
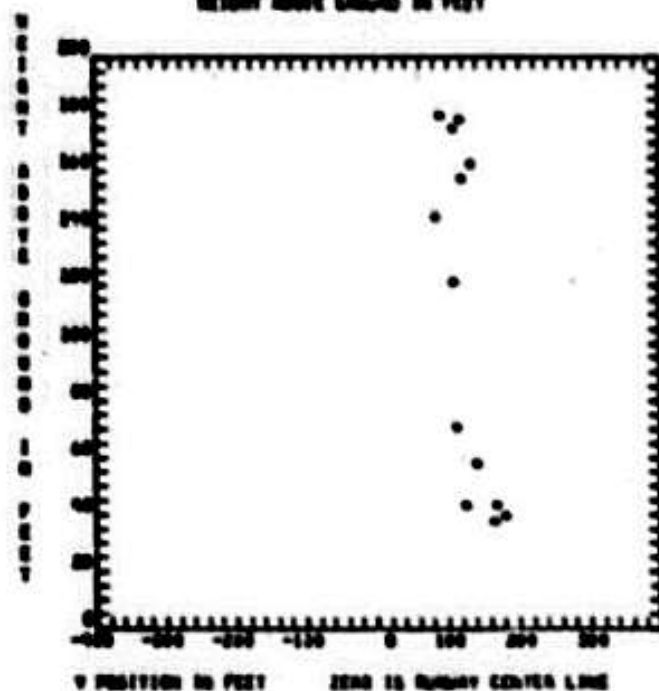
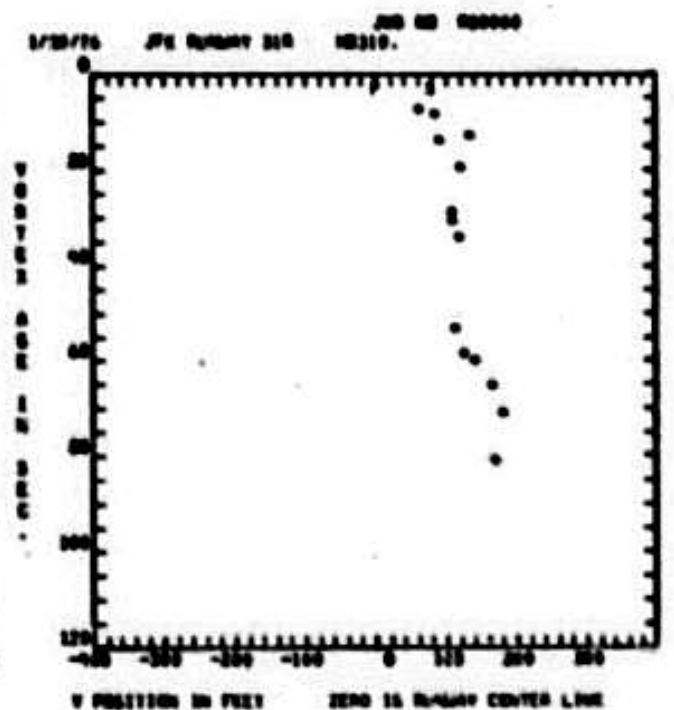
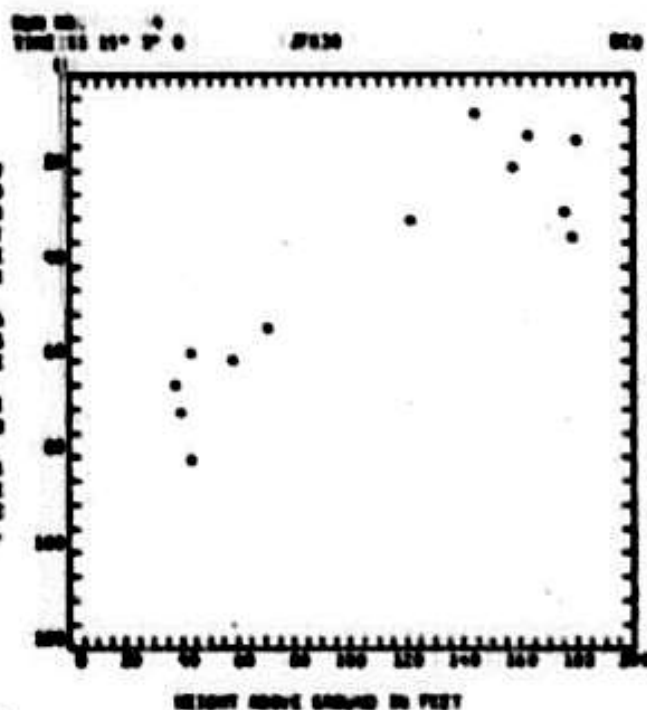
0107

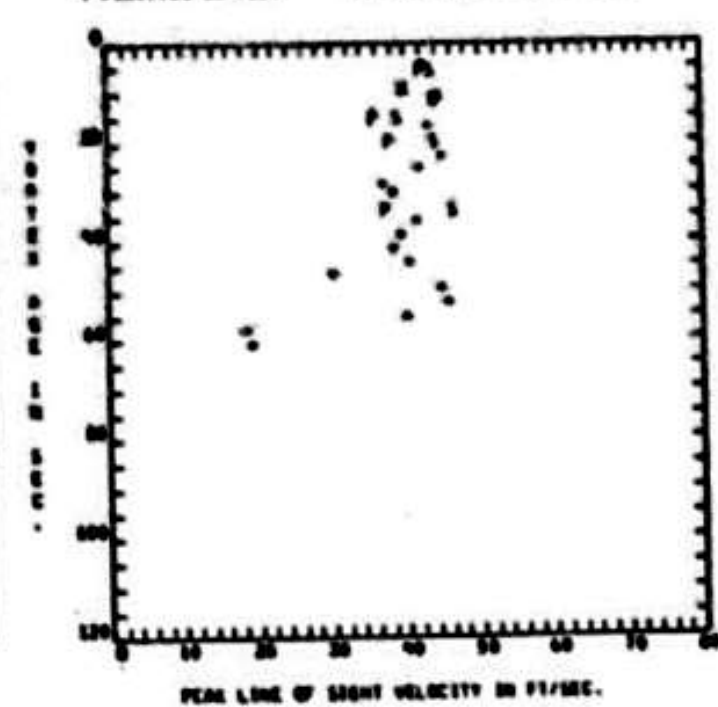
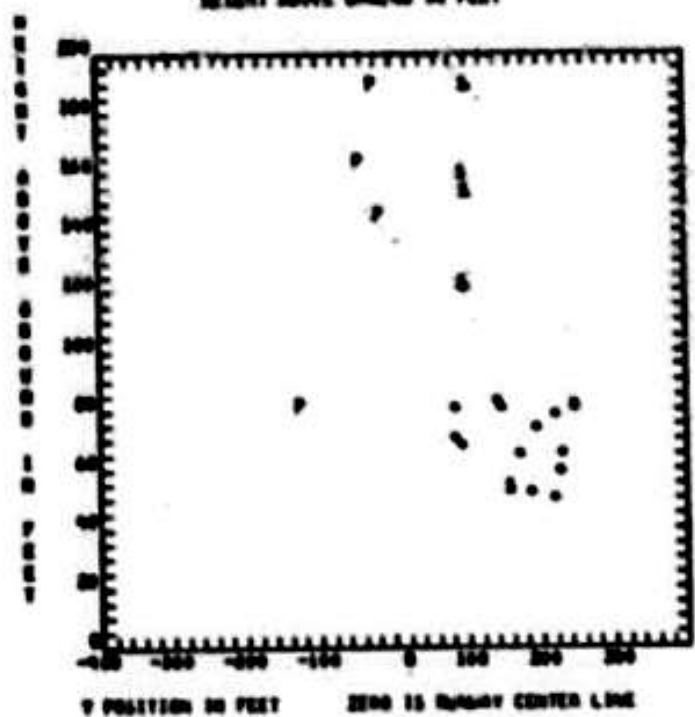
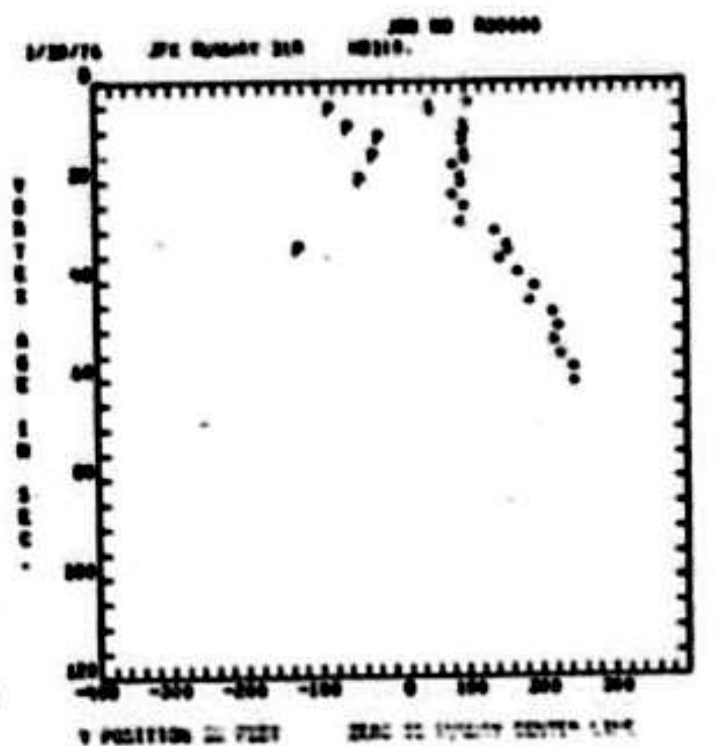
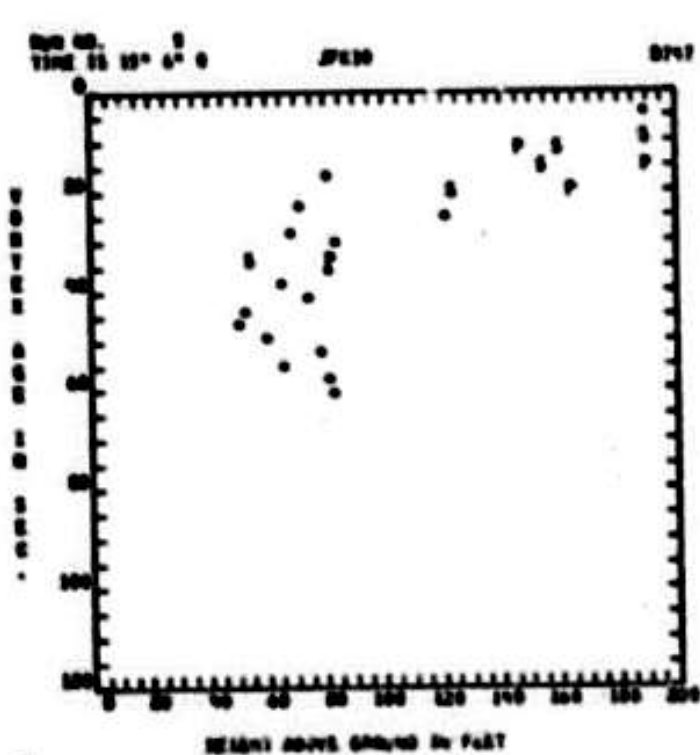
1/20/76

JF1 Runway 31R

Run No. 230000
0210







REP NO. 1
TIME TO 15°11' 0

PL 30

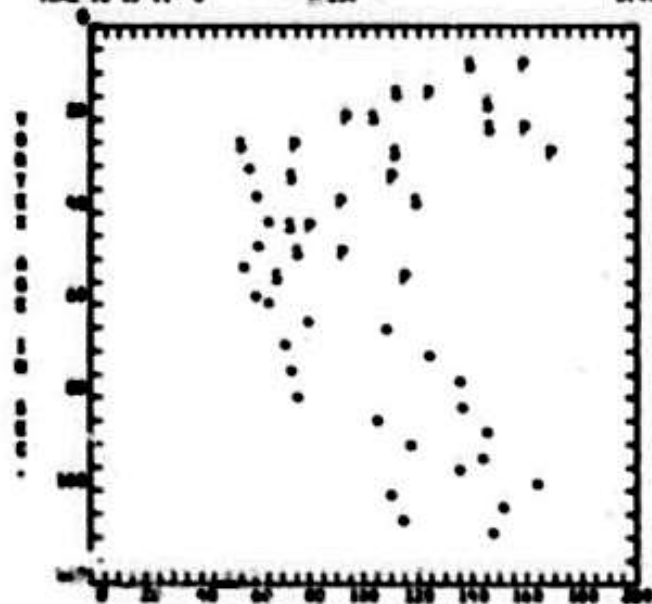
DP47

1/20/76

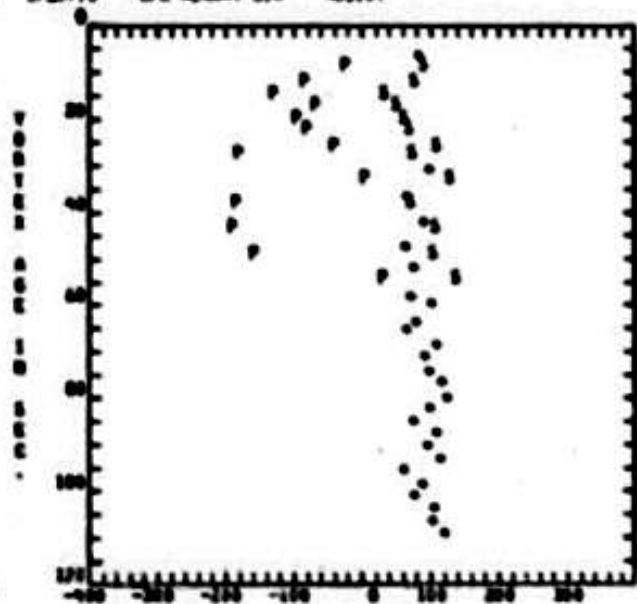
JPL RUMBY 318

JPL NO 020000

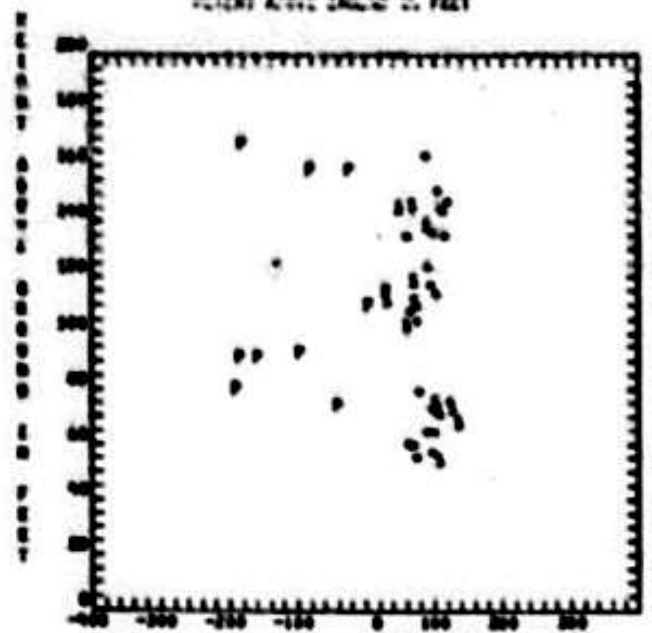
10310.



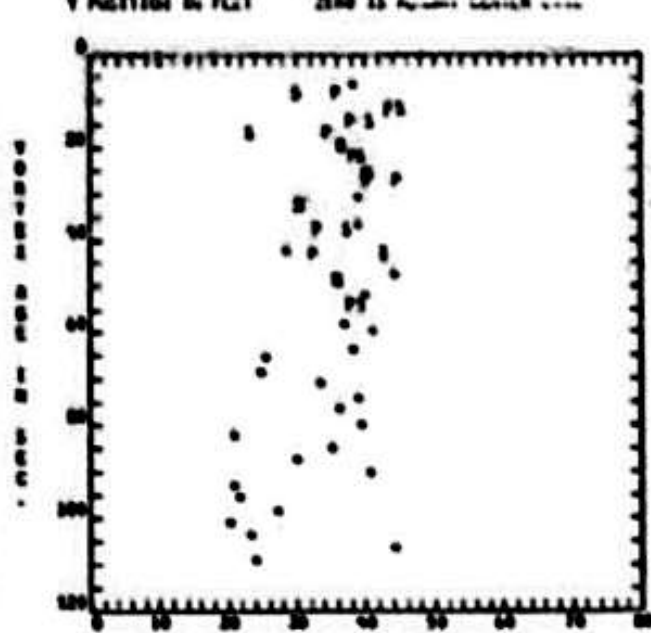
Y POSITION IN FEET



X POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE

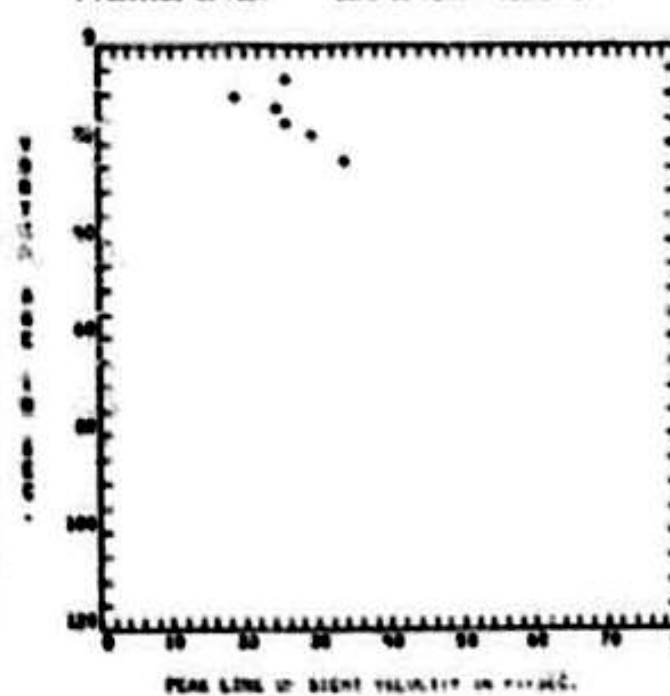
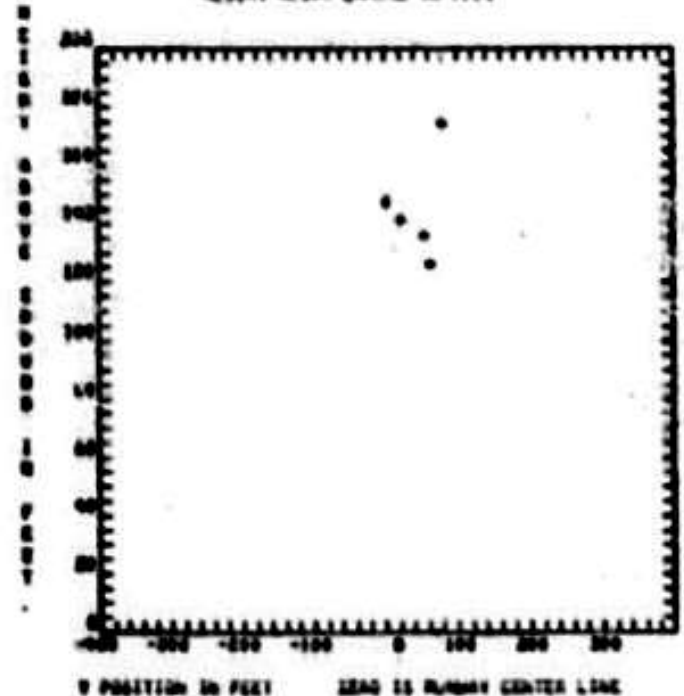
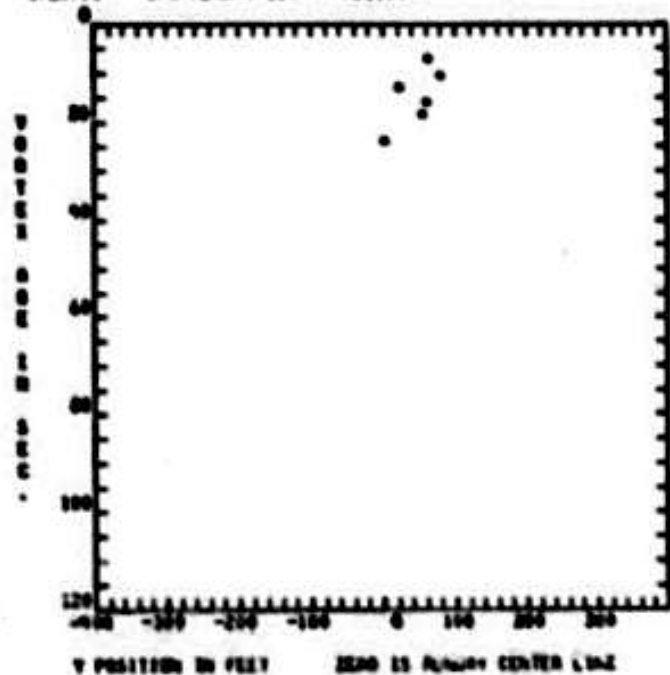
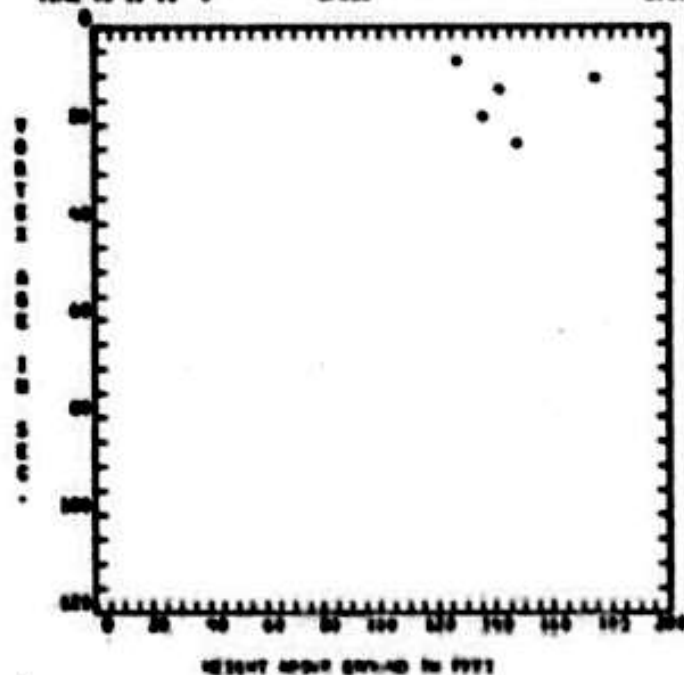
Run No. 7
TIME IS 19:13:0

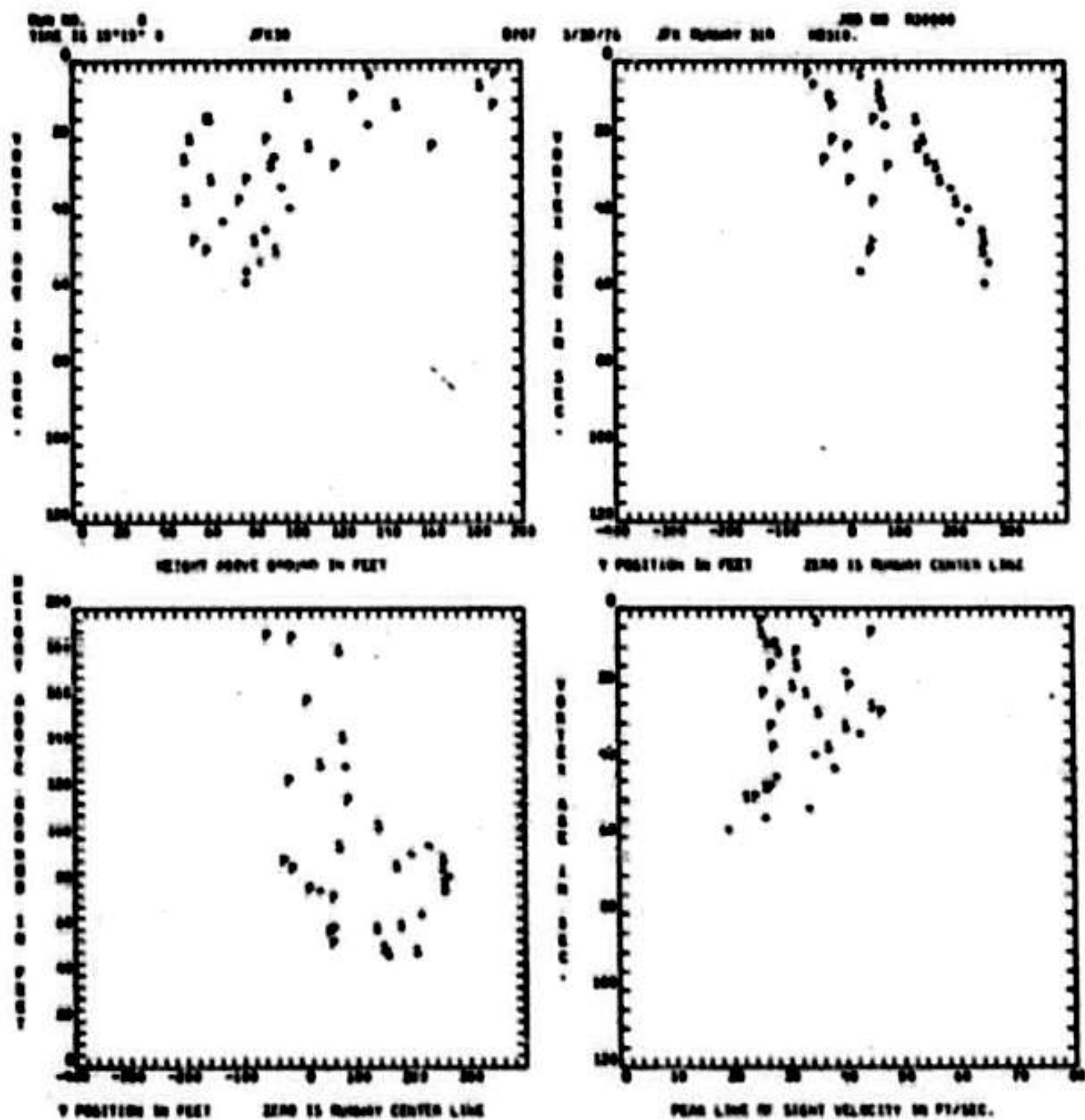
JPL30

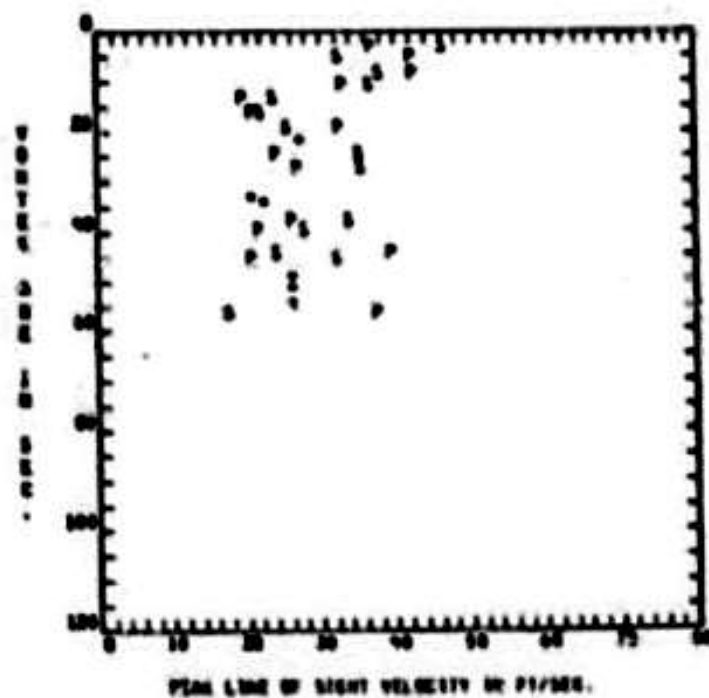
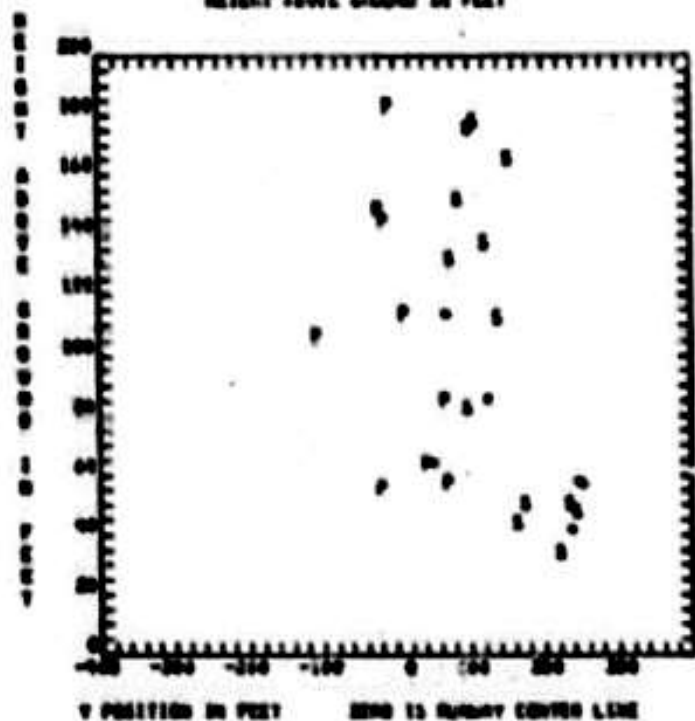
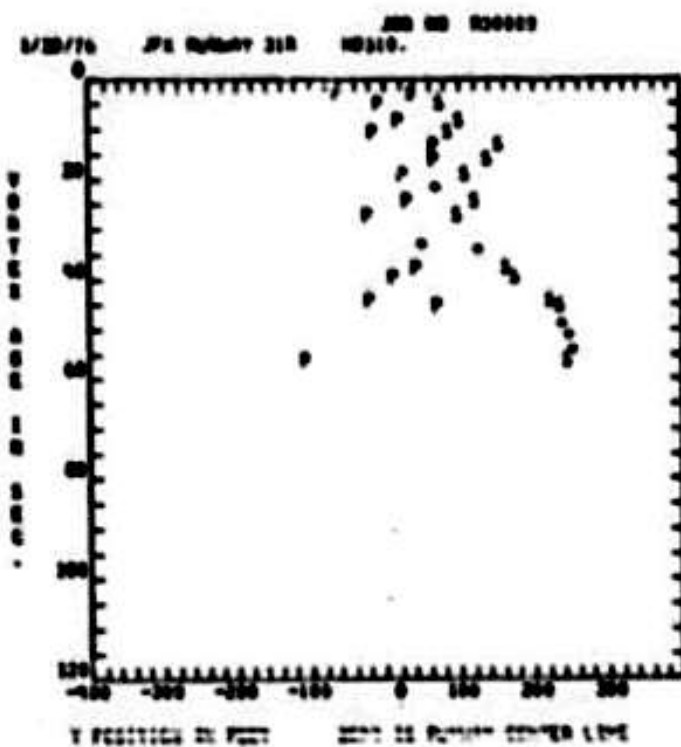
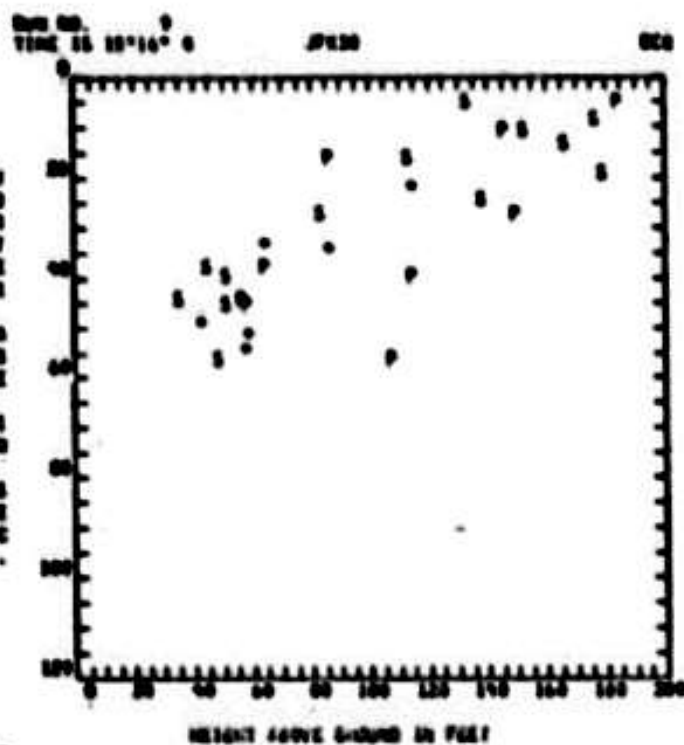
DPOT 5/20/76

JPL Runway 31R

Run No. 030000
HD310.







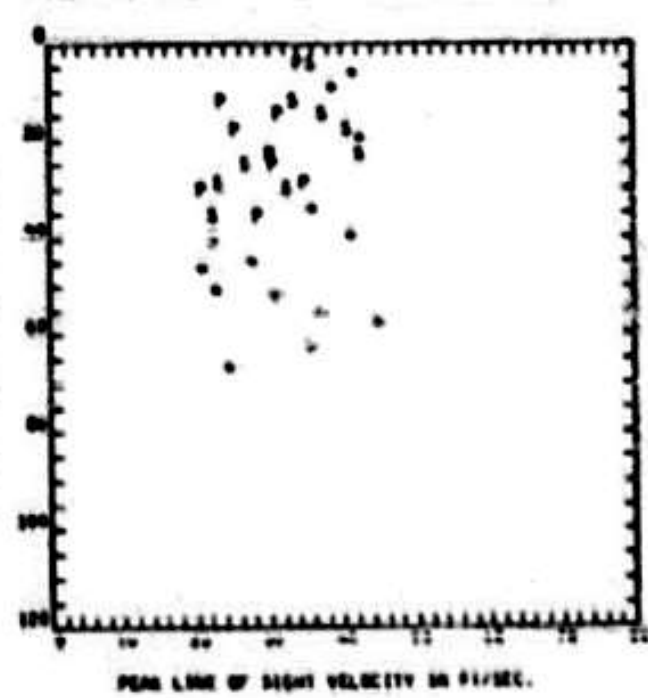
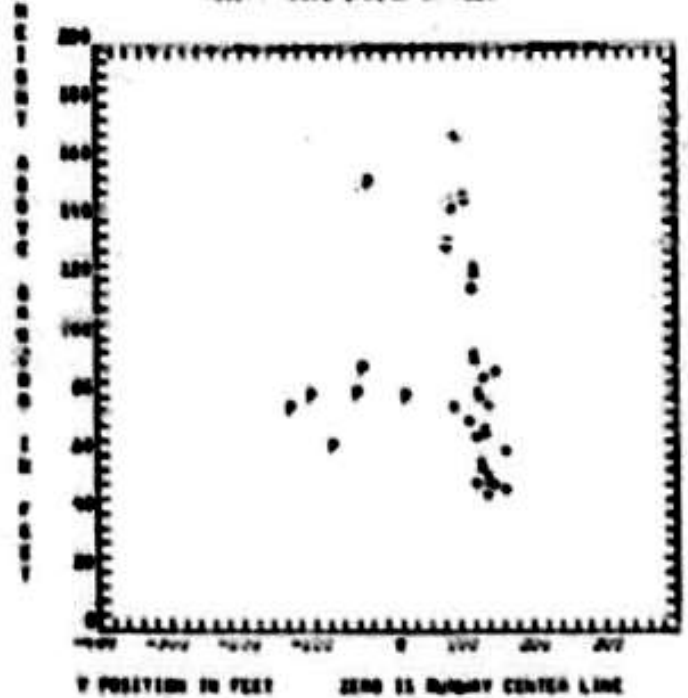
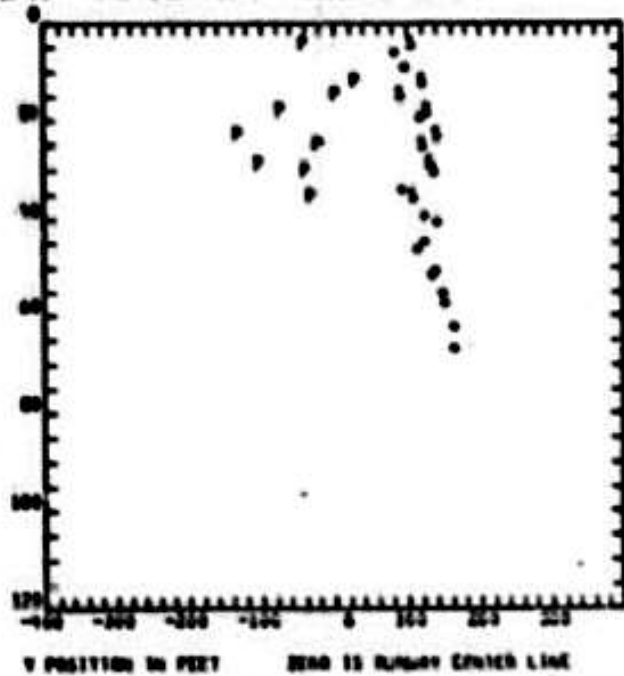
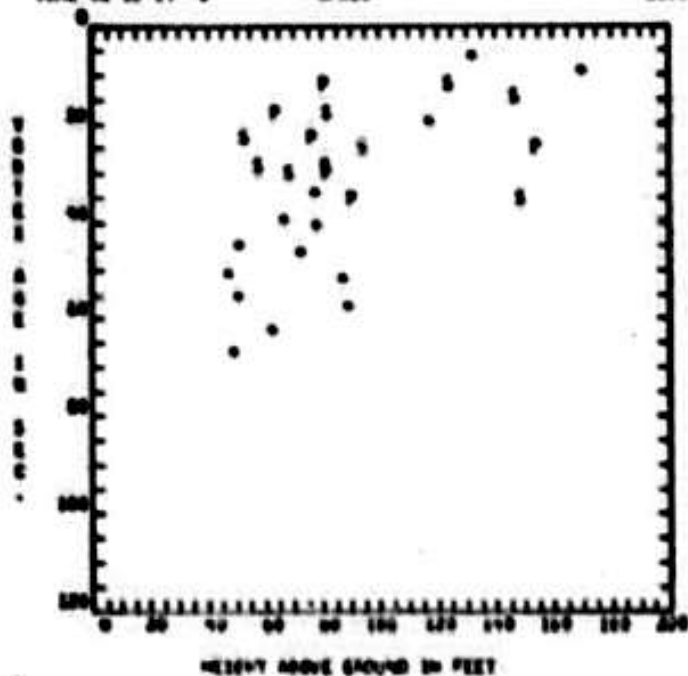
Run No. 10
TIME 15 10*10* 0

JFK20

LS011 1/25/76

JFK Runway 31R

Run No. 030000
HD310.



REP NO. 11
TIME IS 10:21:0

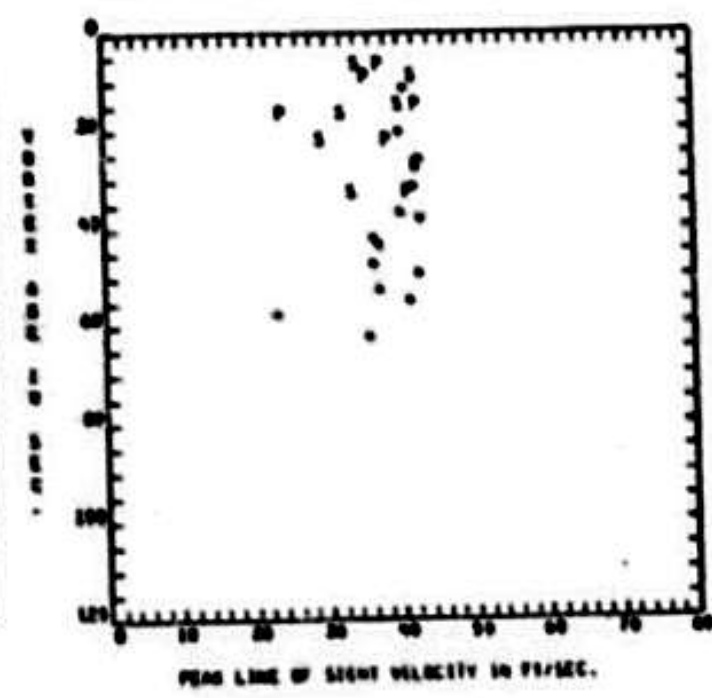
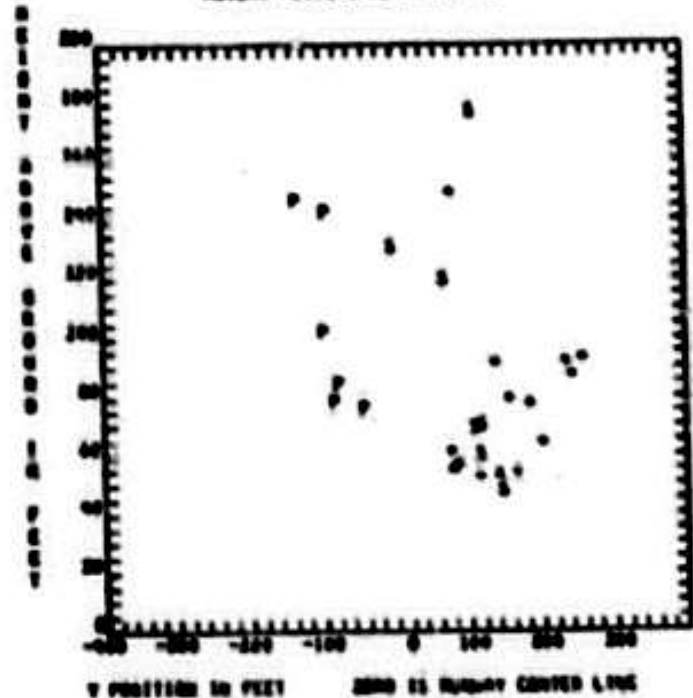
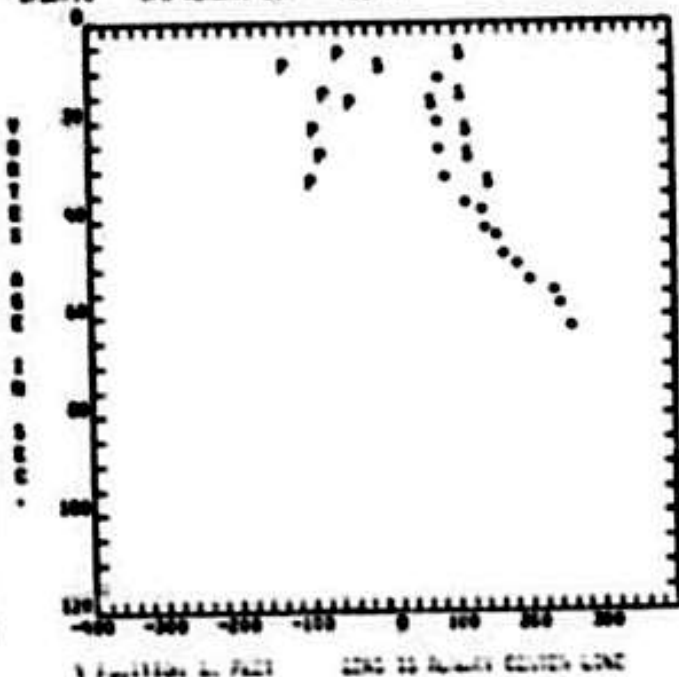
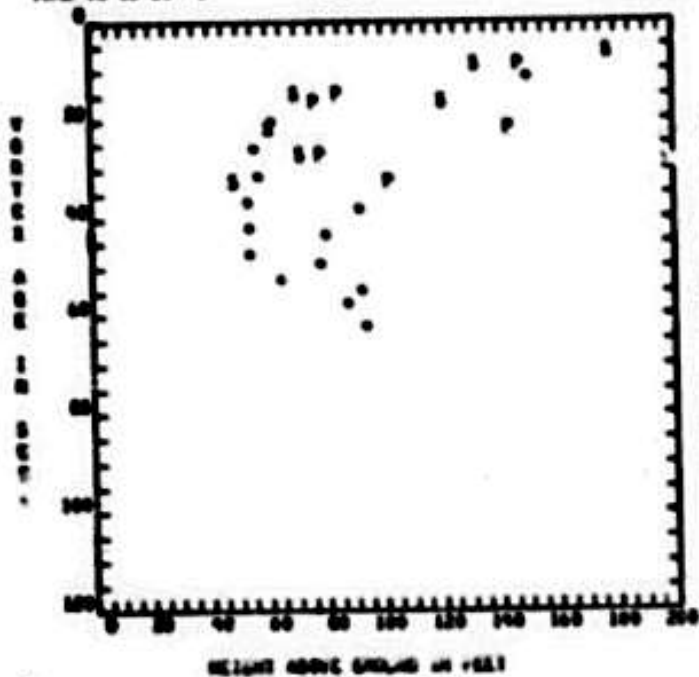
JPL30

0907

1/20/76

JPL RUNWAY 31R

JOB NO. 020000
HD310.



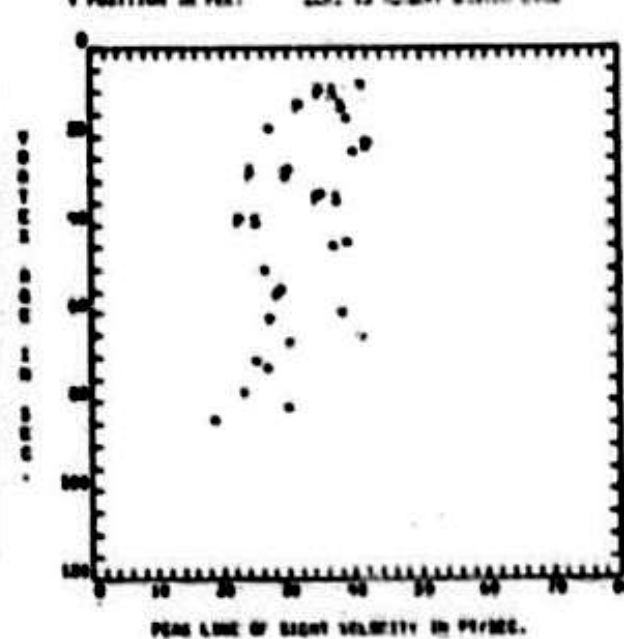
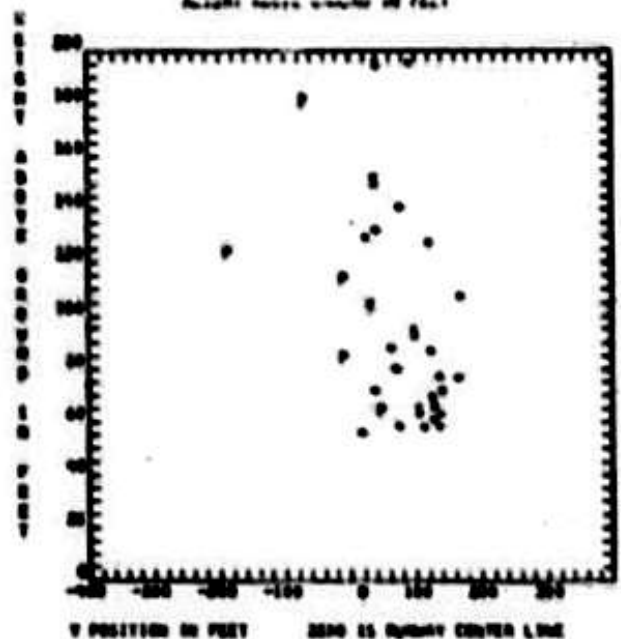
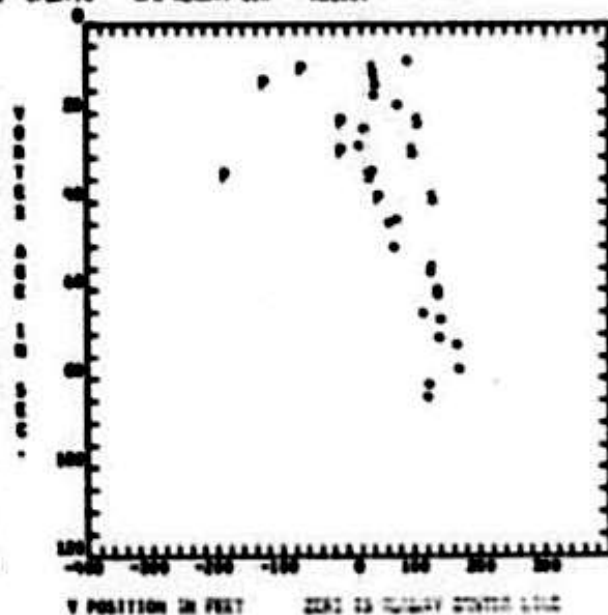
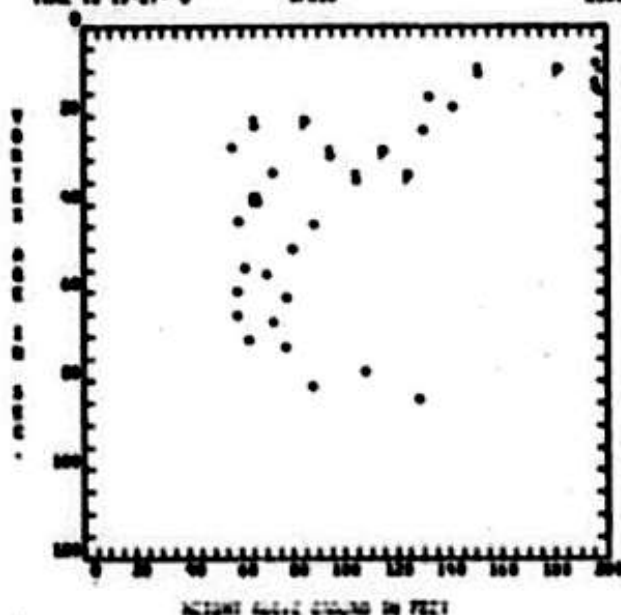
Run No. 12
Time is 19:27:0

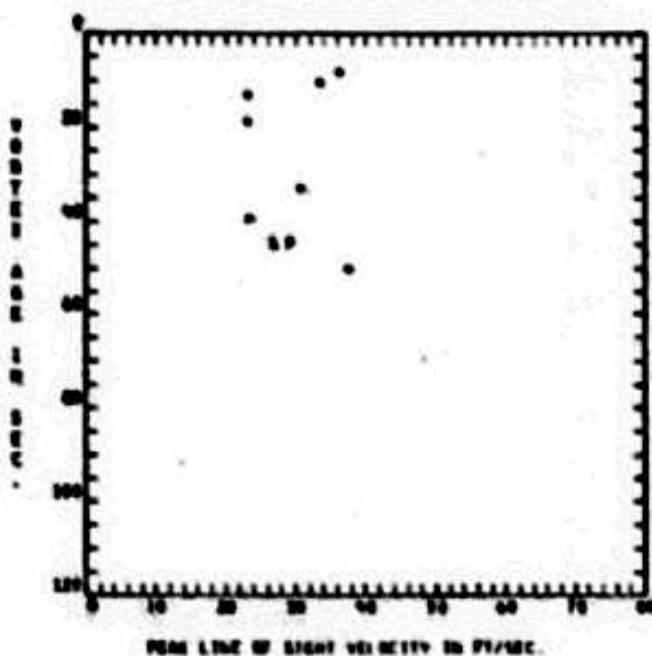
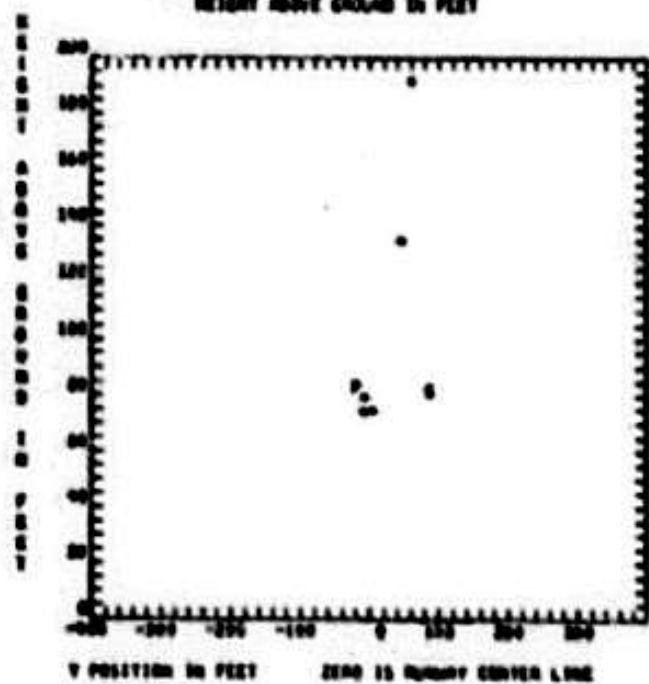
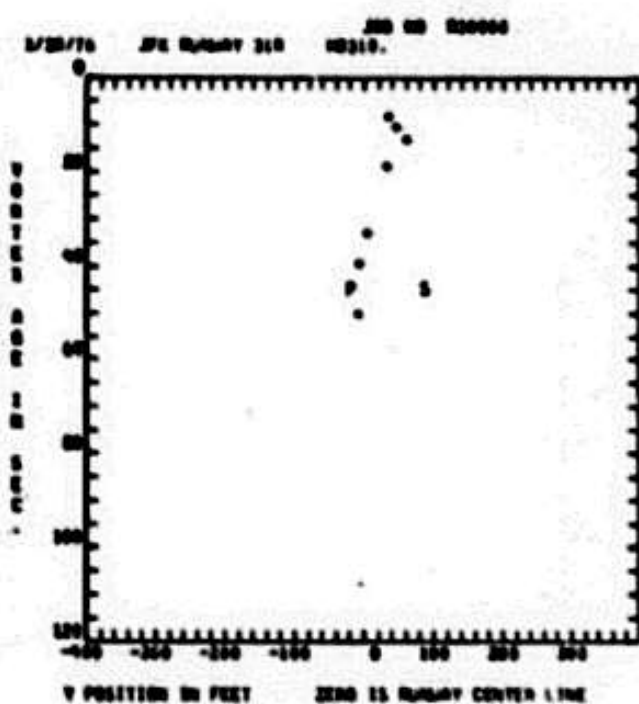
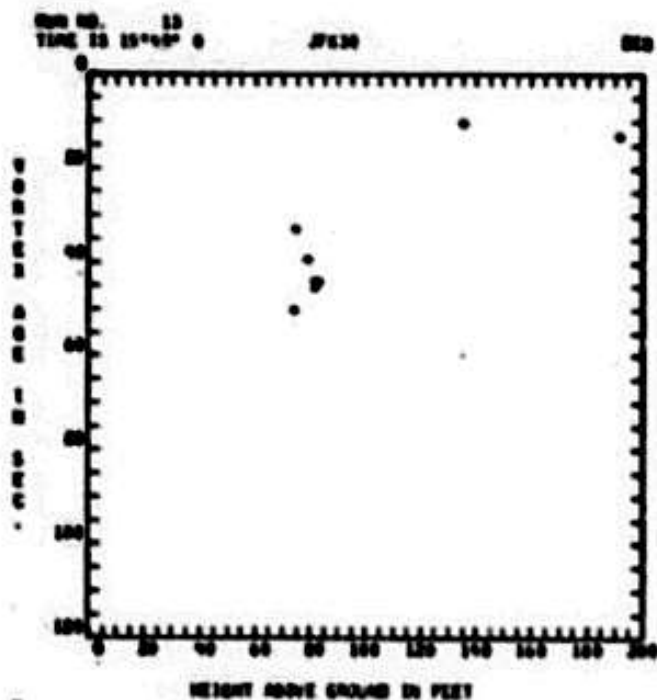
JFK30

L3011 5/20/76

JFK Runway 31R

Run No. 000000
HD310.





Run No. 19
TIME IS 19:41" 0

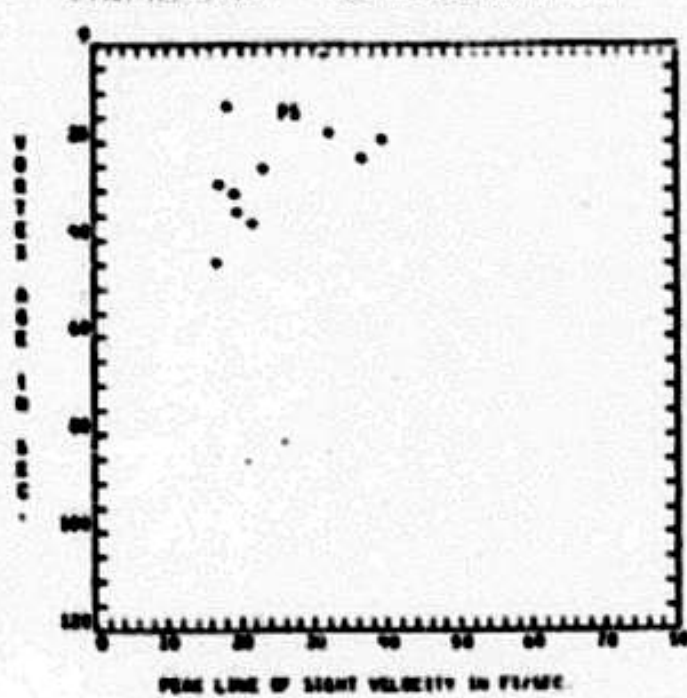
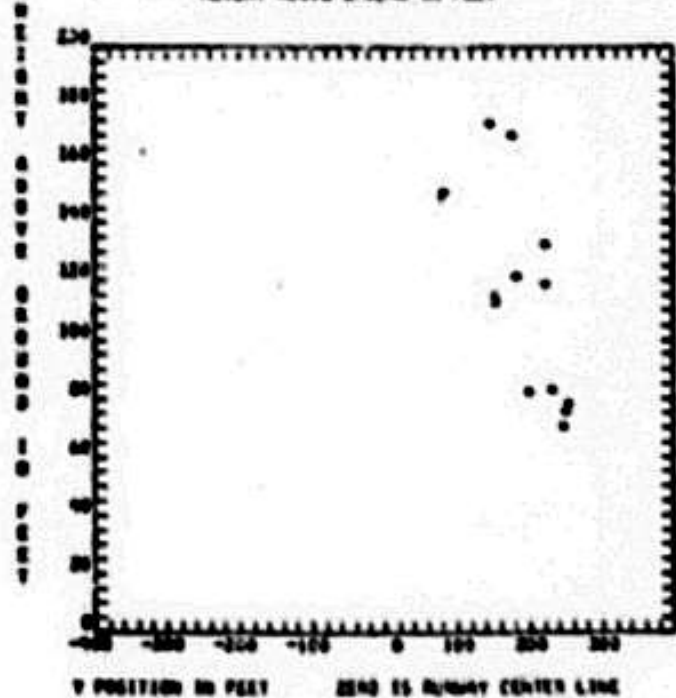
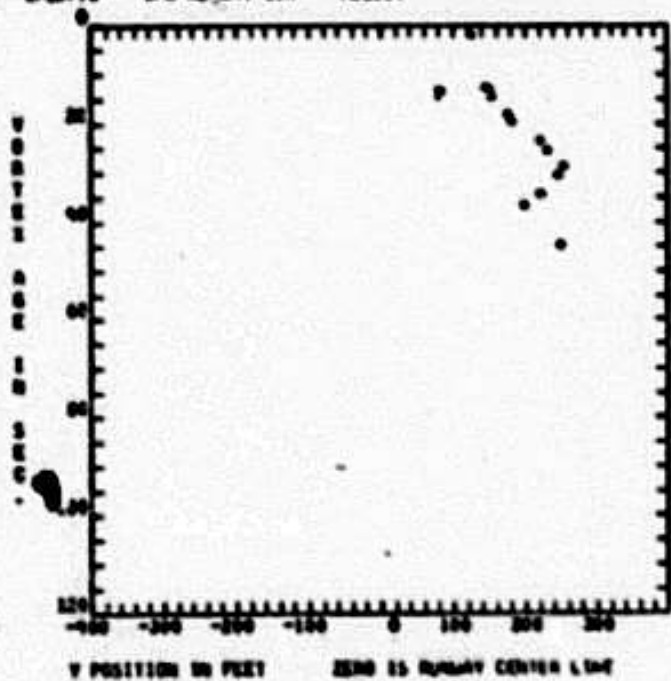
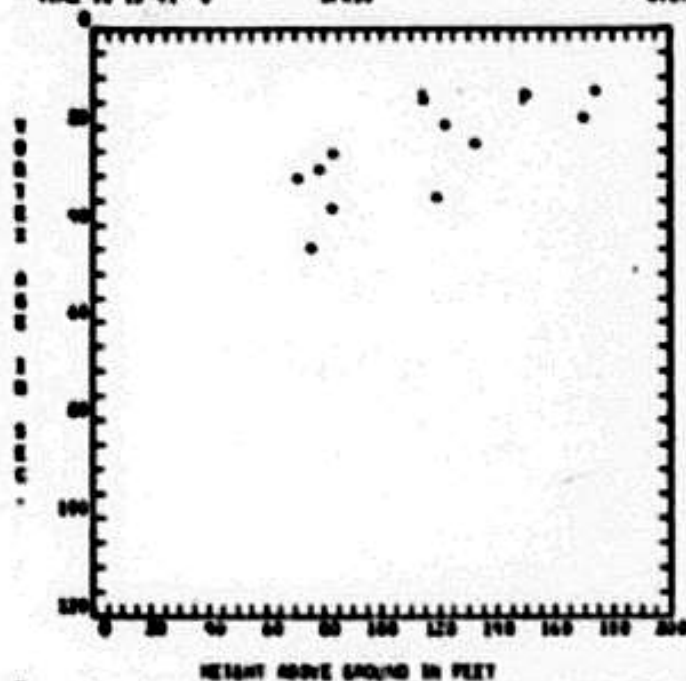
JFK30

0727

1/20/76

JFK Runway 31R

Run No. 020000
08310.



Run No. 15
TIME 15 1543Z 0

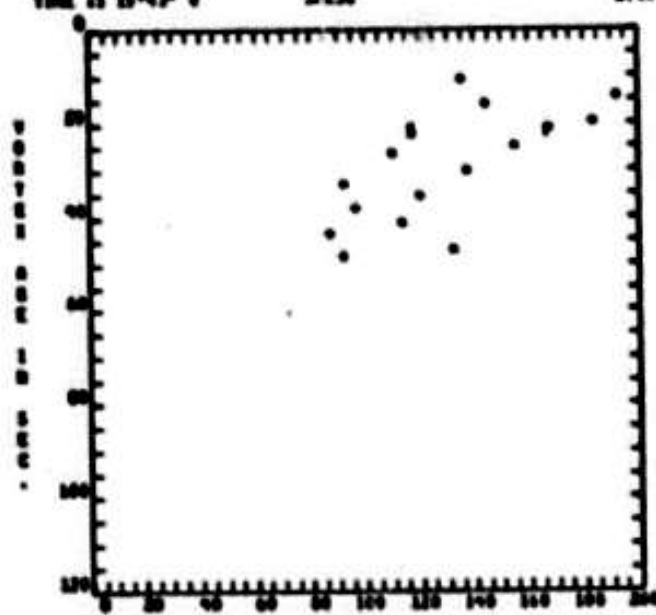
DE 30

DPAT

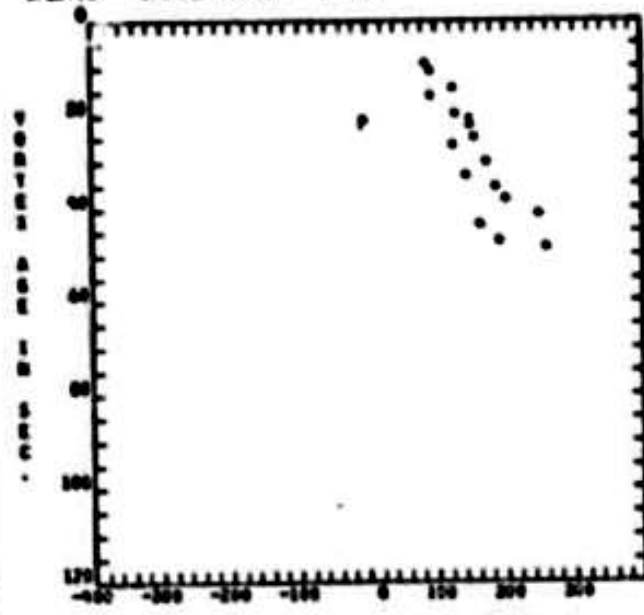
1/20/76

DE Runway 31R

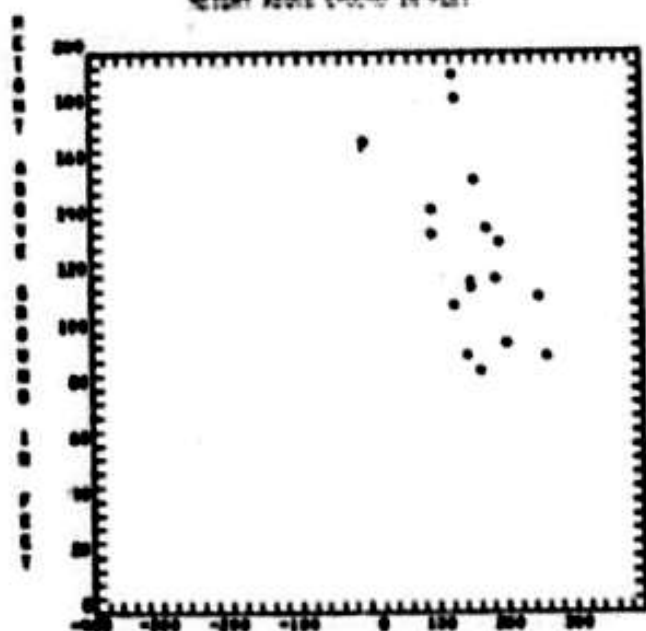
Run No. 030000
HD 31R



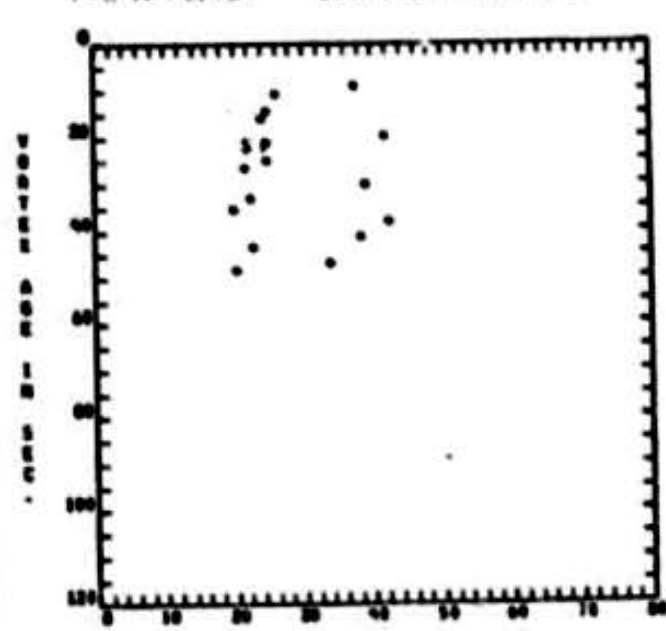
HEIGHT ABOVE GROUND IN FEET



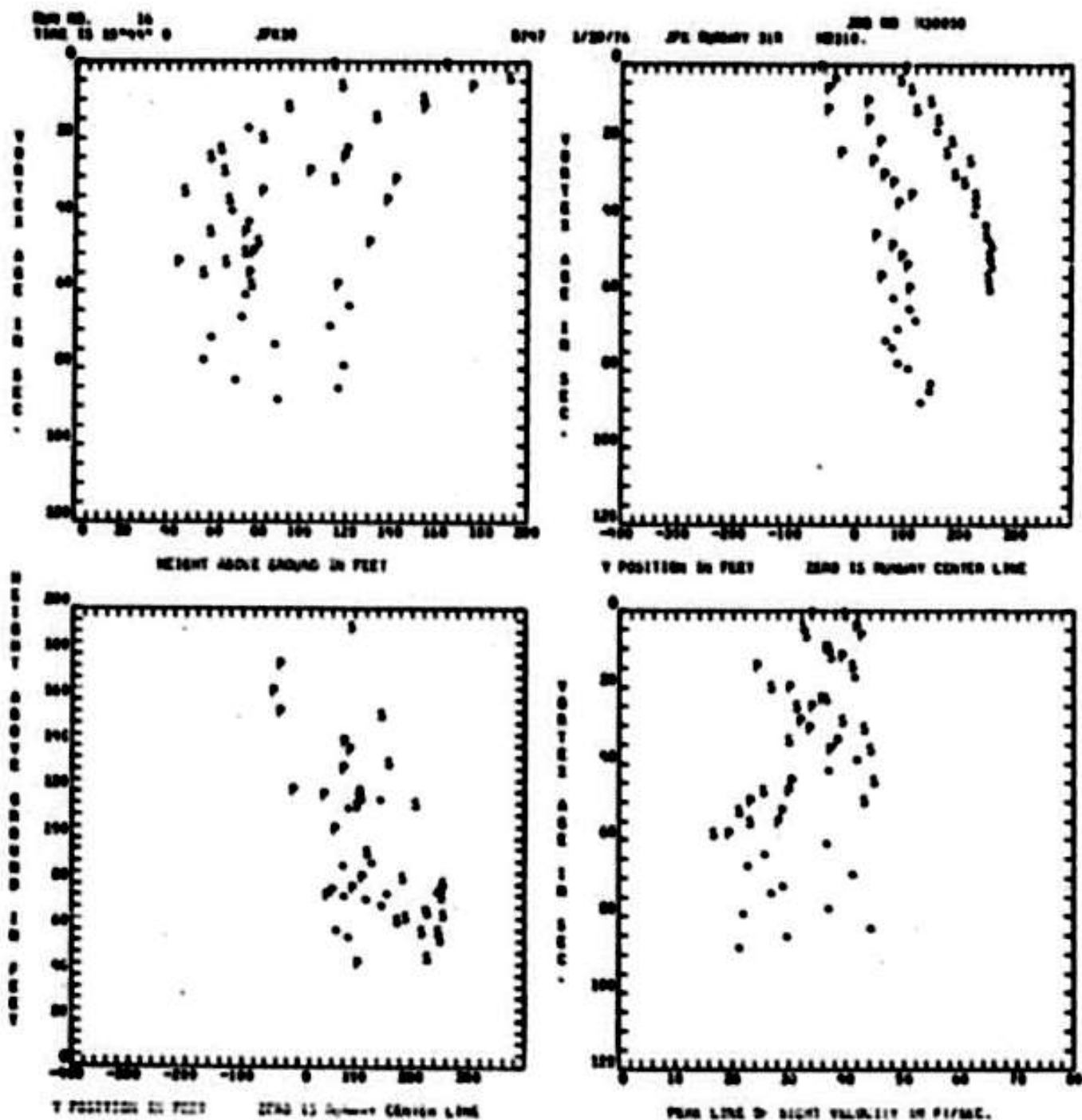
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.



Exp. No. 10
TIME 15 15:40 0

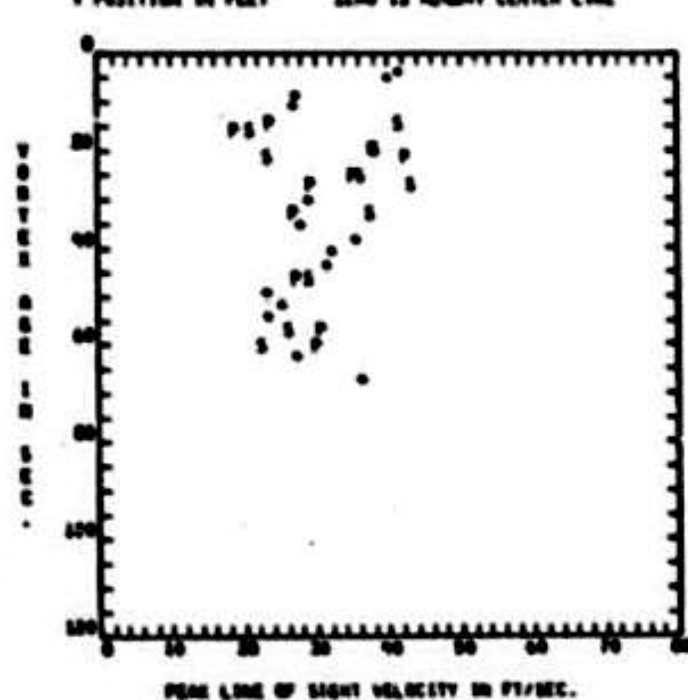
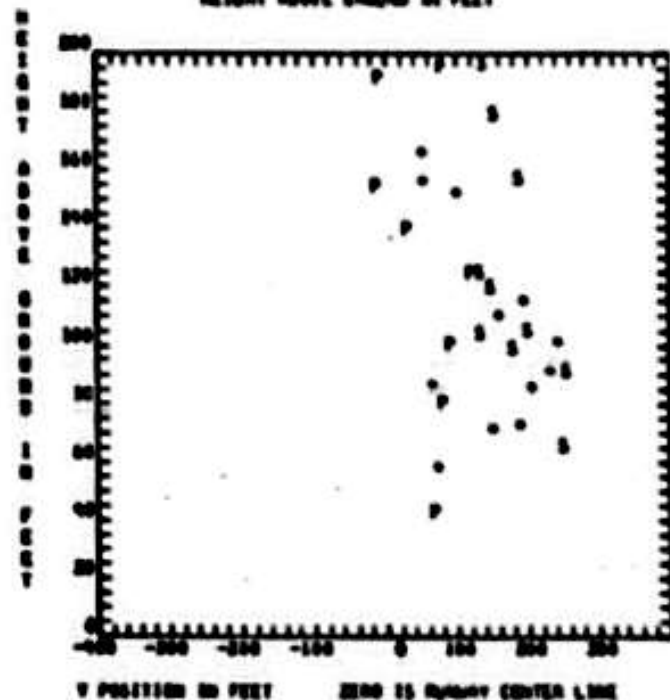
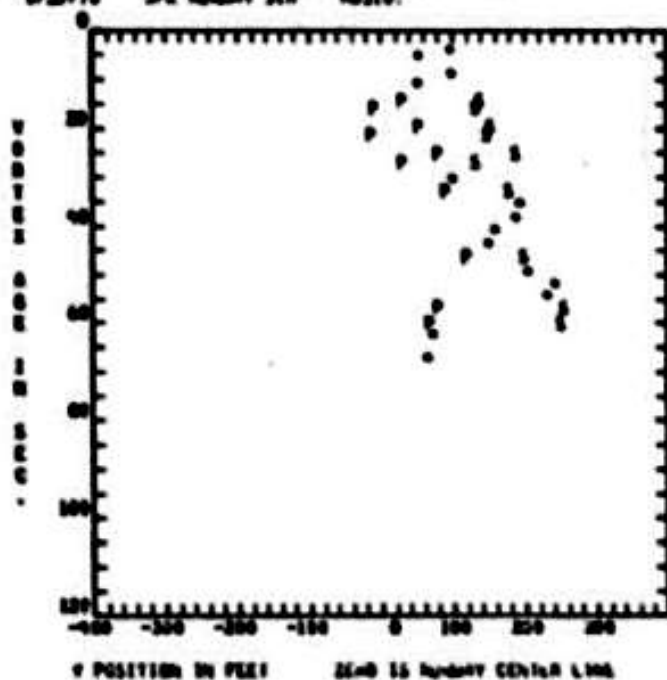
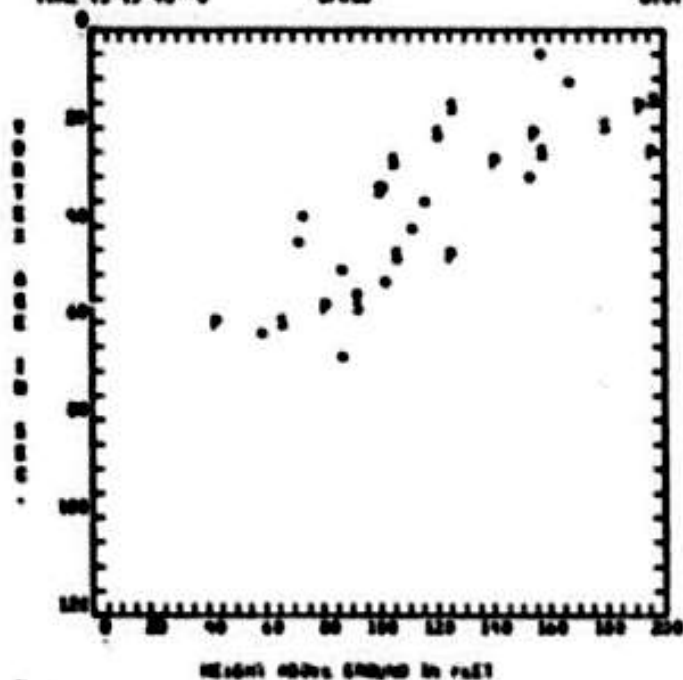
JFK

0707

5/25/76

JFK Runway 31R

200 NO 030000
NO310.



Run No. 19
TIME 15 15:50 0

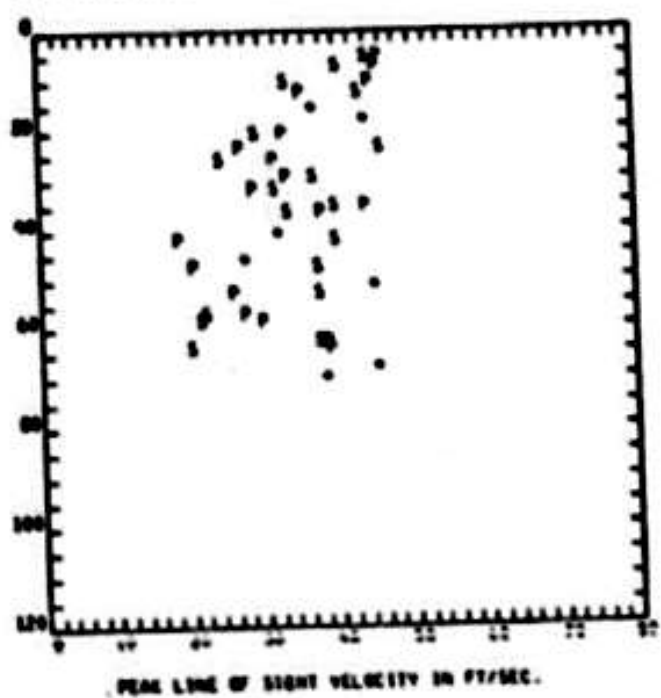
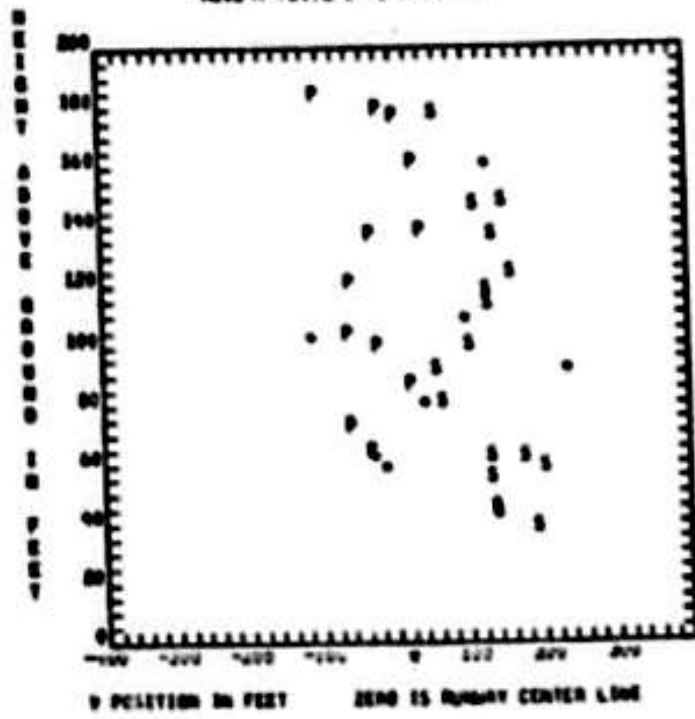
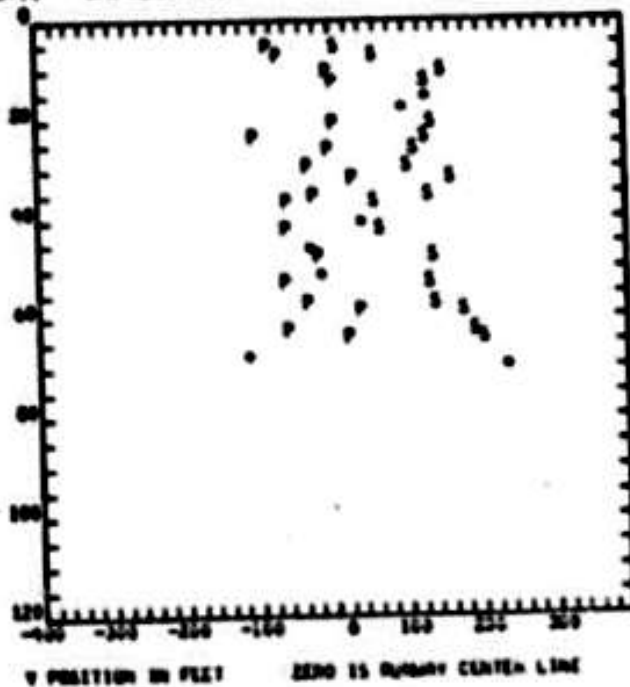
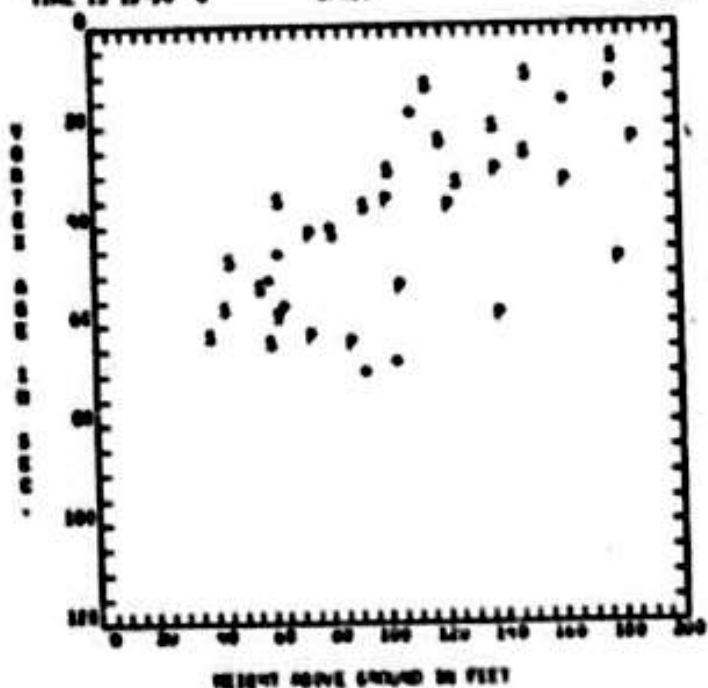
JF030

0747

1/20/76

JFL Runway 31R

JOB NO 030000



Run No. 32
TIME IS 10:54:0

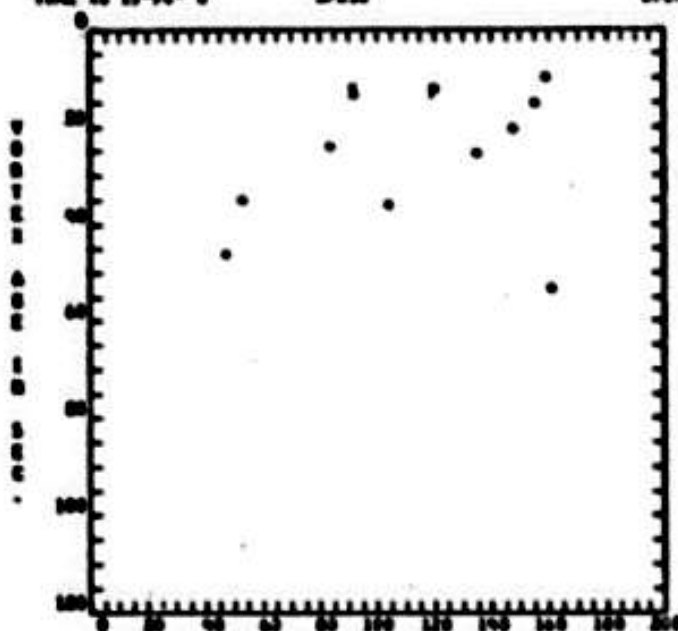
JFE 130

0707

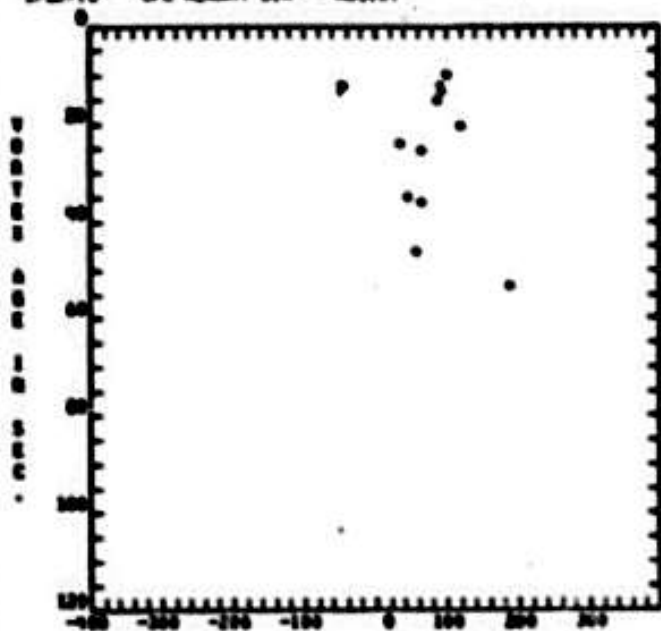
1/20/76

JFE Summary 310

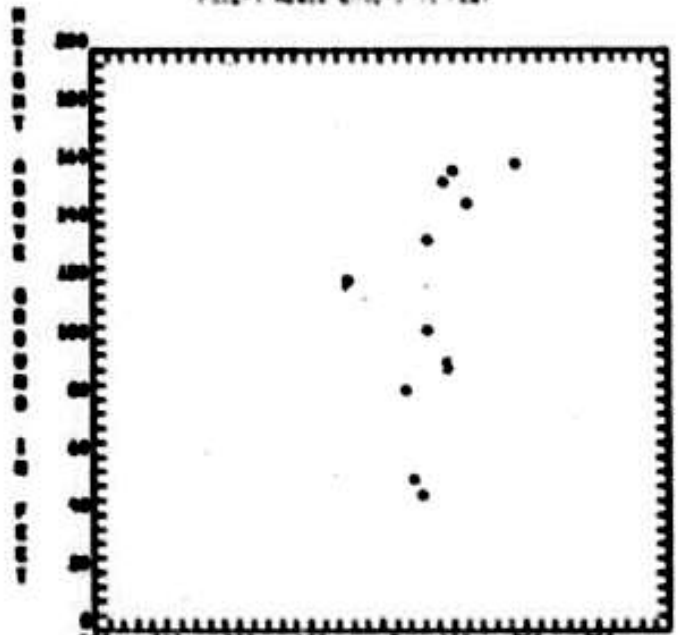
Run No. 000000
HE310.



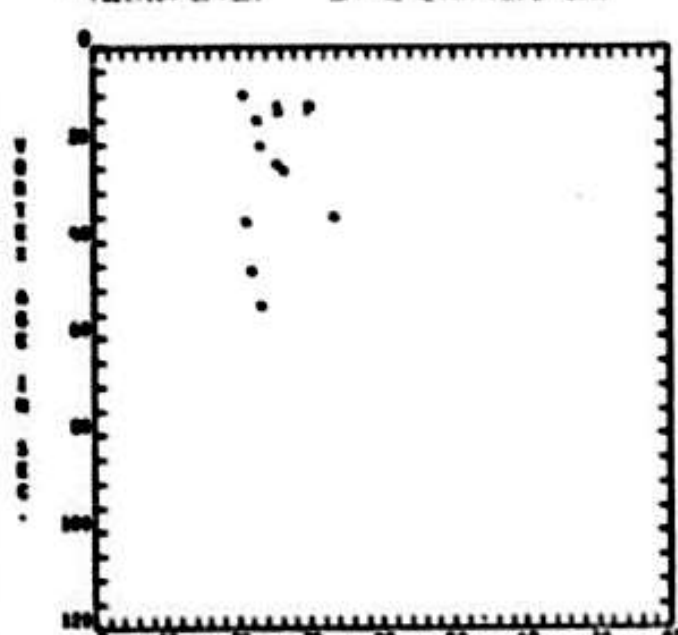
HEIGHT ABOVE GROUND IN FEET



POSITION IN FEET ZERO IS QUARTY CENTER LINE



POSITION IN FEET ZERO IS QUARTY CENTER LINE



PLAN LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 20
TIME IS 30° 1' 0

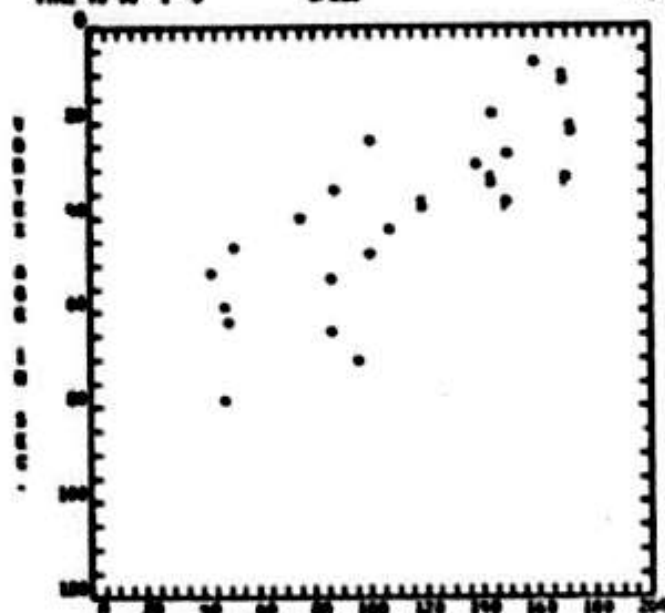
JPL20

0757

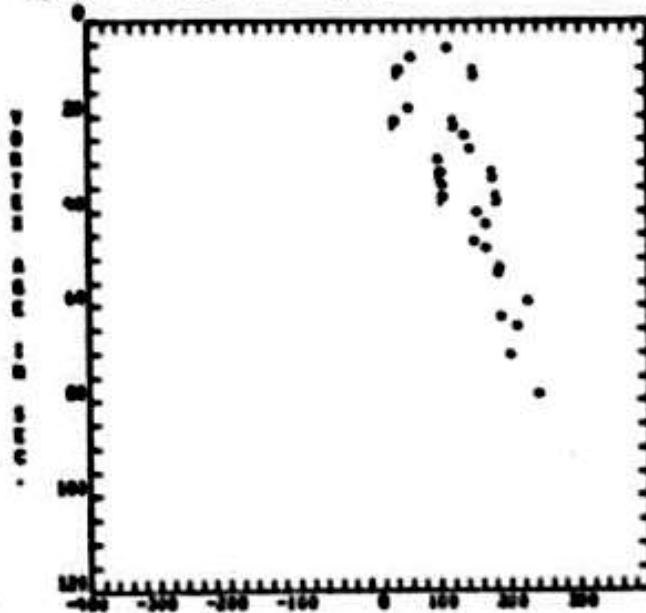
5/20/76

JPL Runway 21R

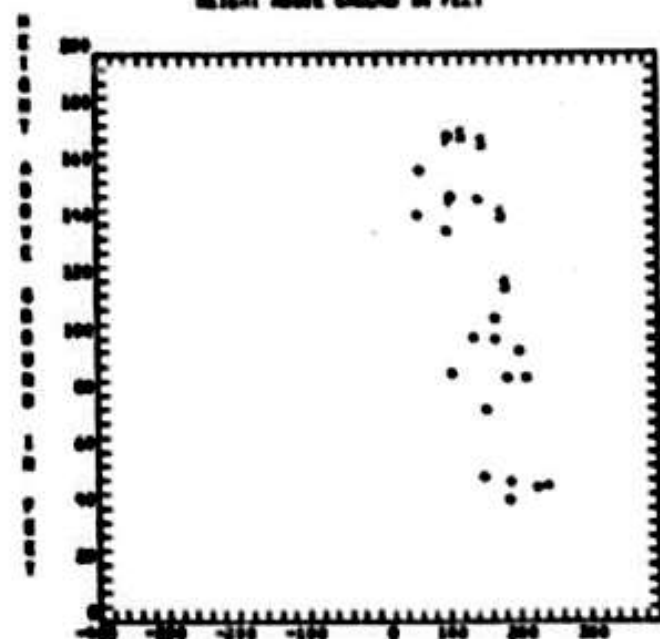
Run No. 020000
10519.



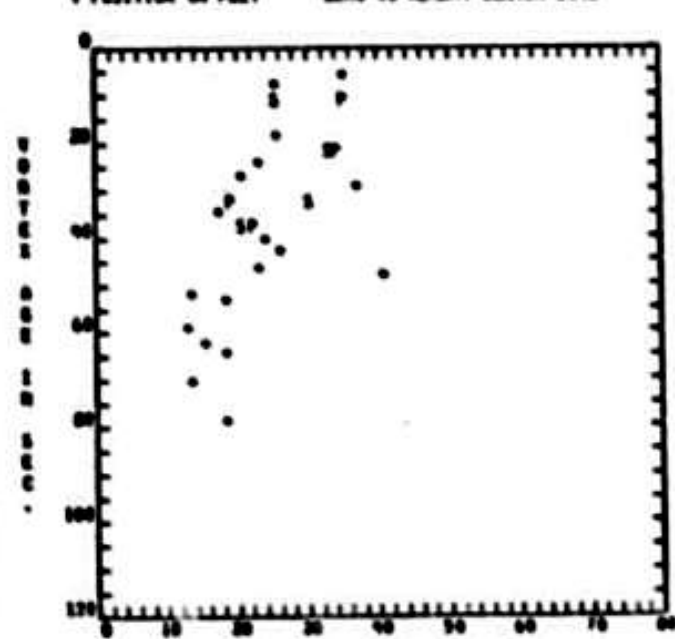
HORIZONTAL AXIS IN FEET



V POSITION IN FEET ZERO IS Runway CENTER LINE



V POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

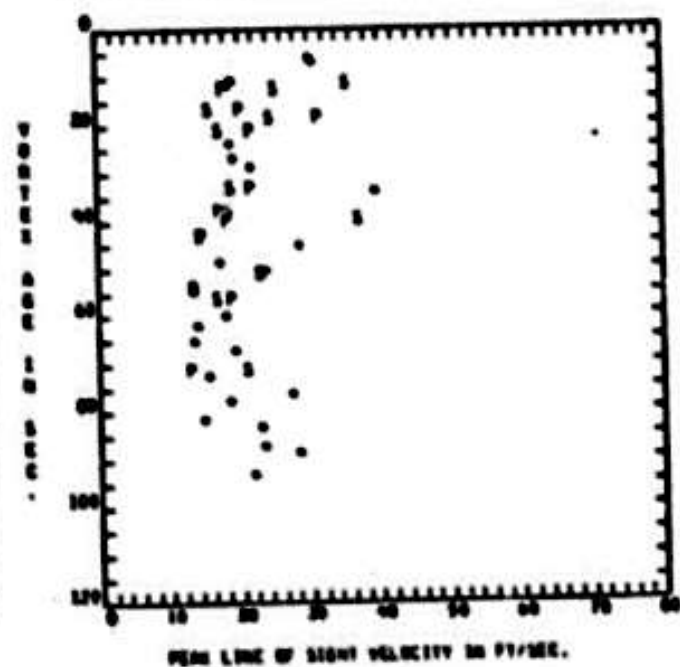
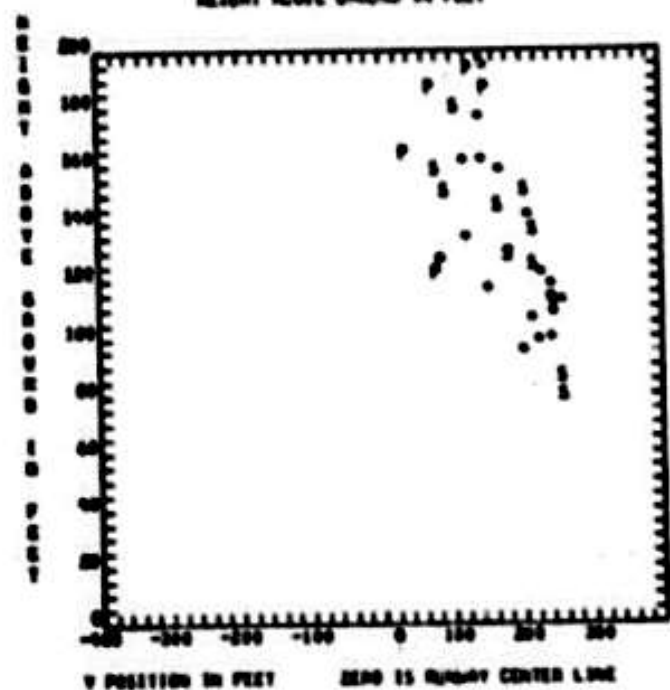
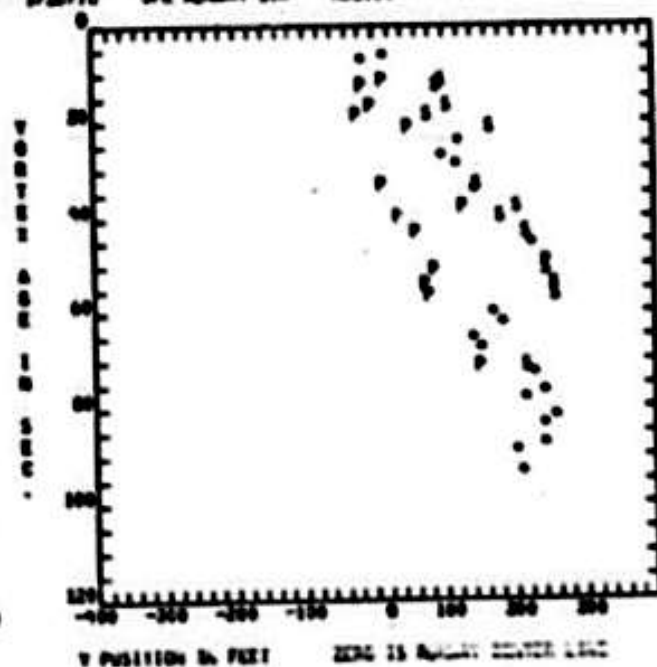
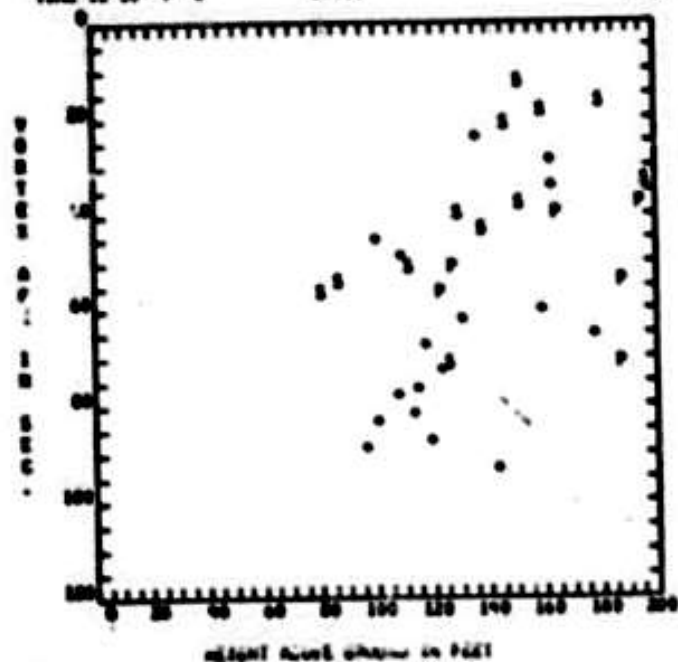
200 000
TIME IS 10-17-0

27030

0010 1/20/76

JPL SUMMARY 318

200 000 000000
00019



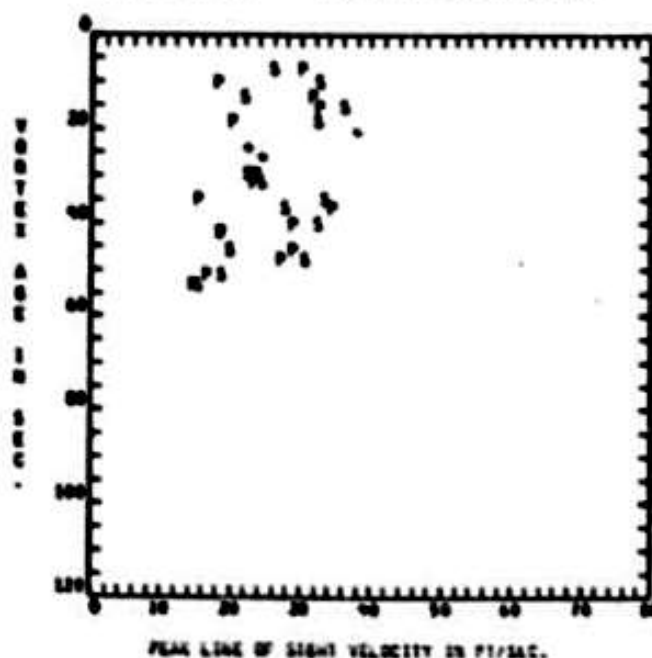
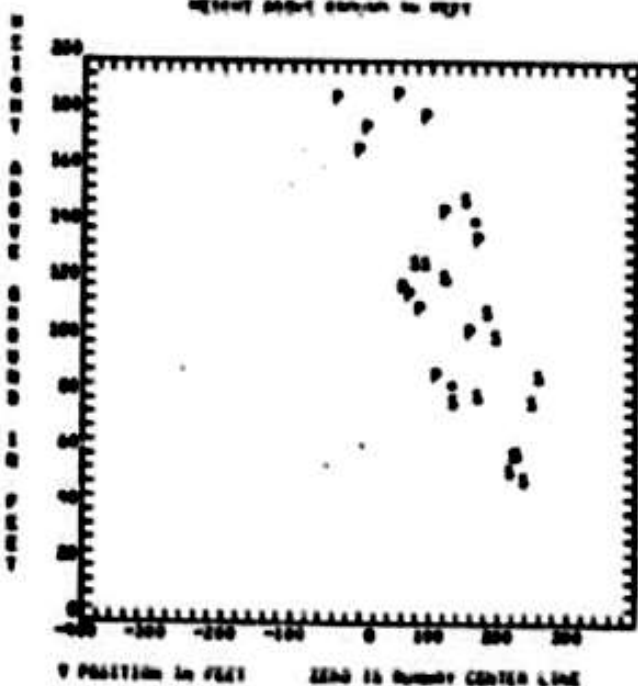
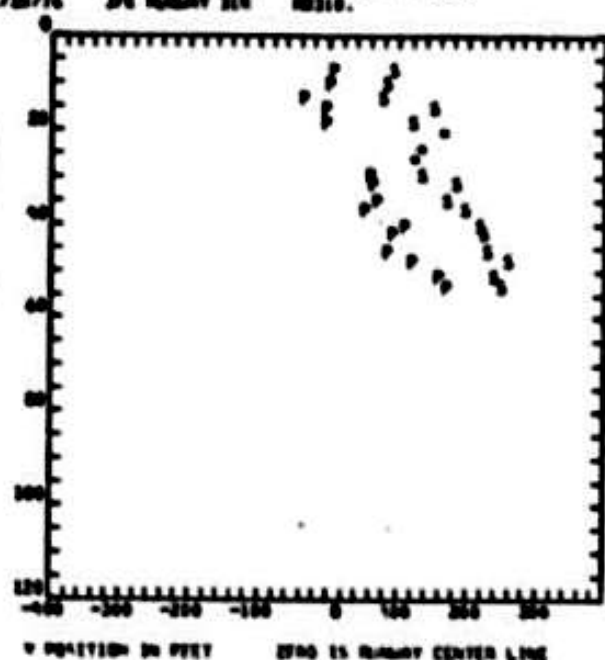
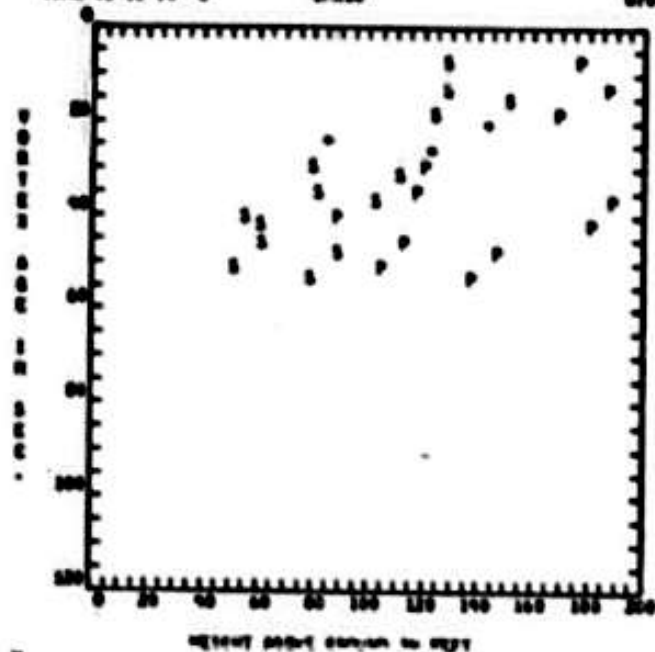
Run No. 25
TIME IS 14:10:00

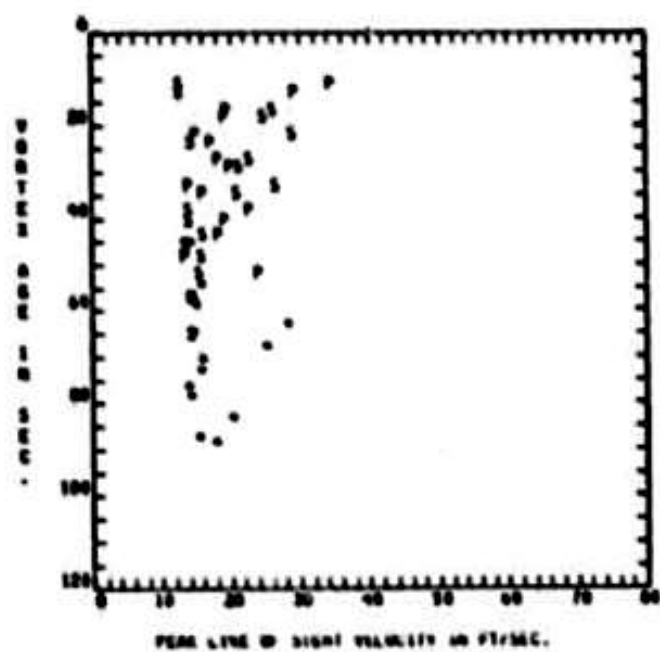
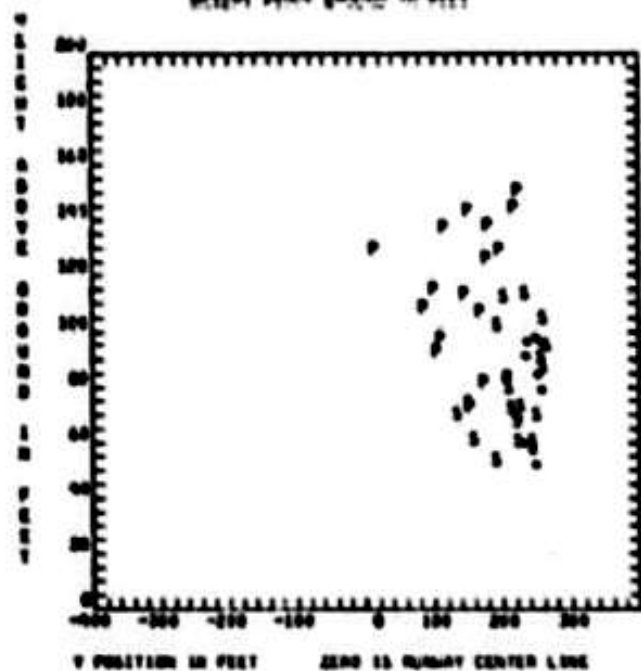
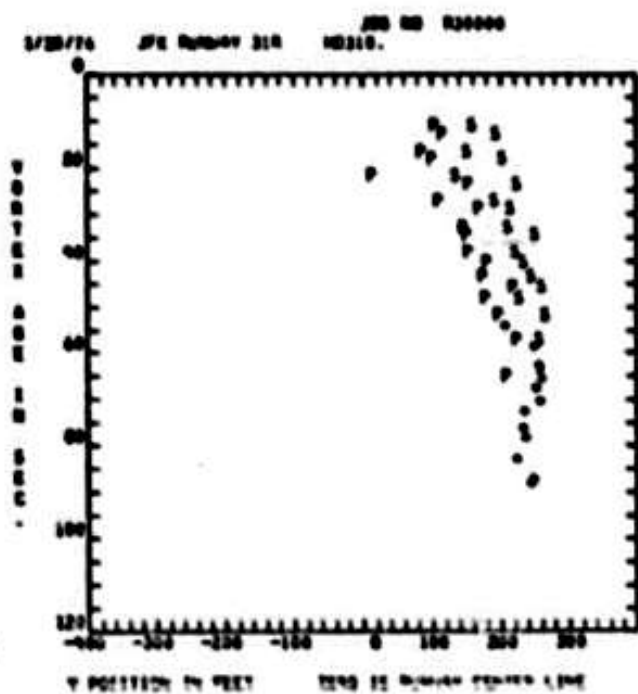
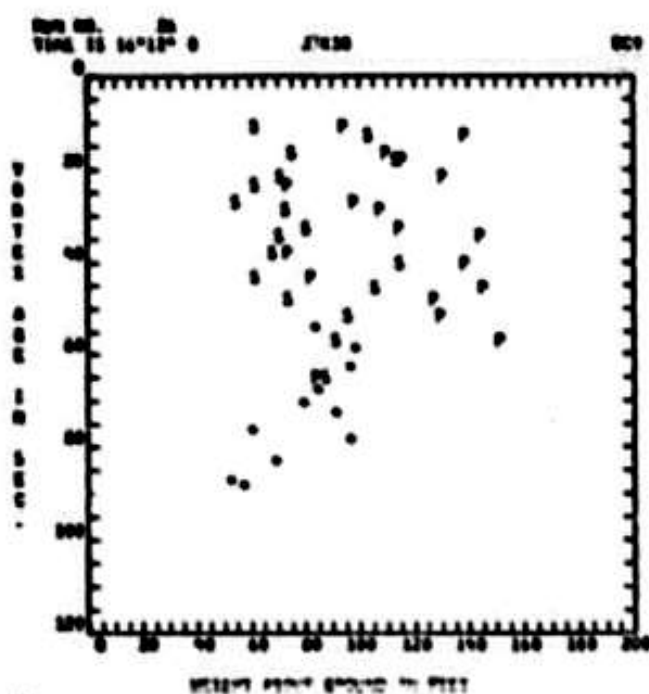
JF230

0707 1/28/76

JF6 Runway 31R

Run No. 000000
02310.





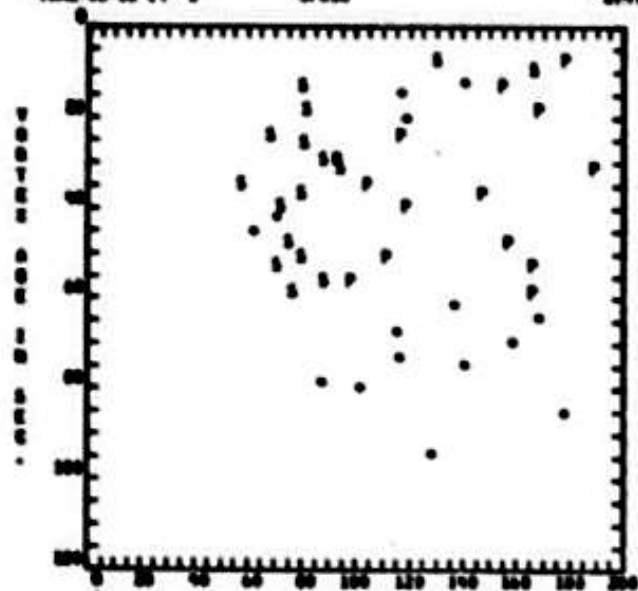
SPOT NO. 27
TIME IS 10:14 0

JFE20

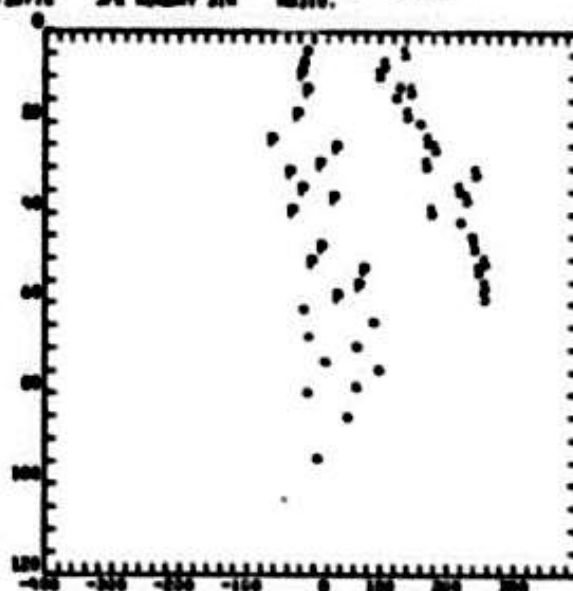
SPOT 1/25/76

JFE RUMBY 210

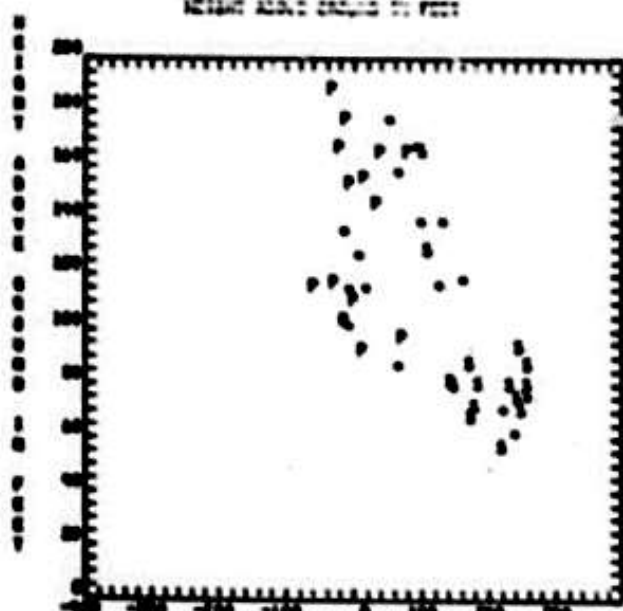
SPOT NO 030000
R0310.



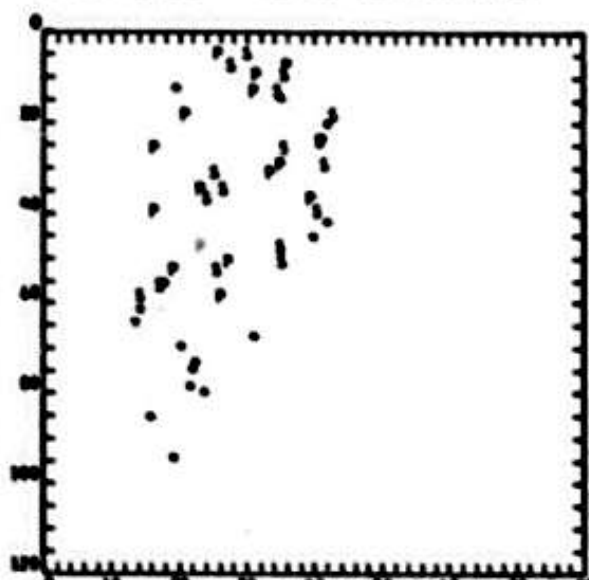
HEIGHT ALONG CENTER LINE IN FEET



Y POSITION IN FEET SPOT IS RUMBY CENTER LINE



Y POSITION IN FEET SPOT IS RUMBY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

REP NO. 20
TIME IS 14:14:00

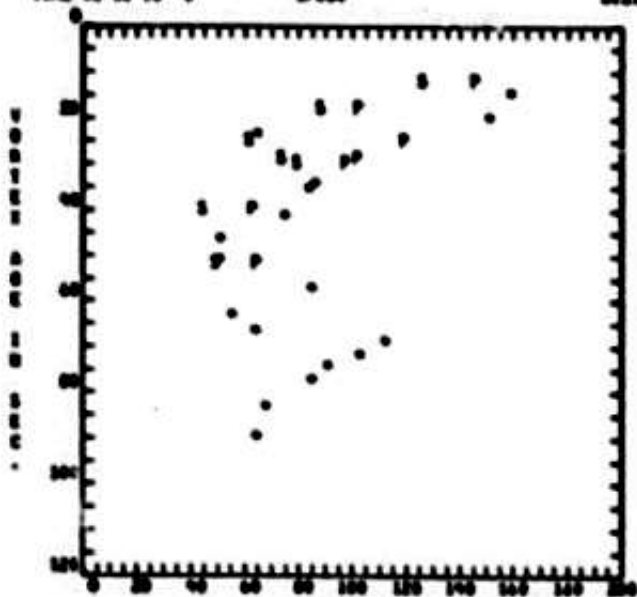
JF030

DATE

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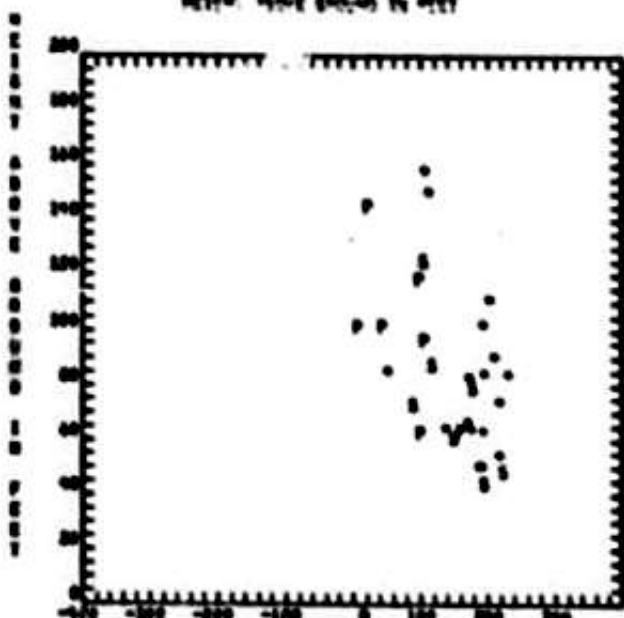
REP NO. 020000
TIME



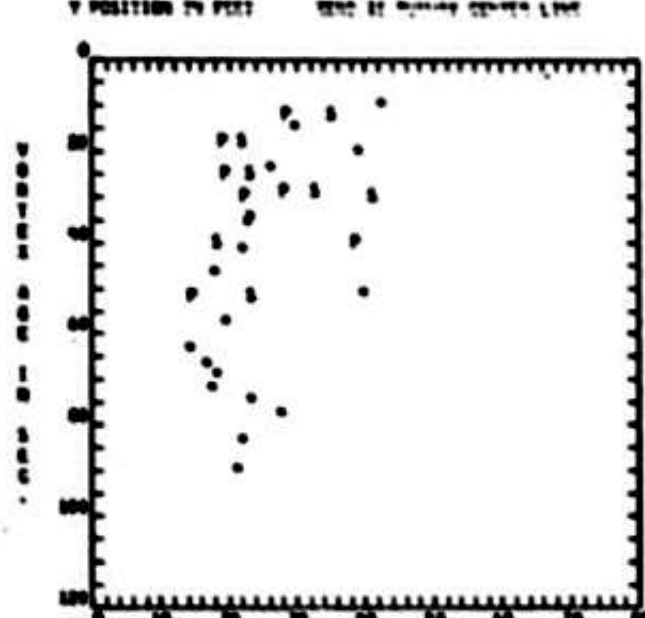
Y POSITION IN FEET



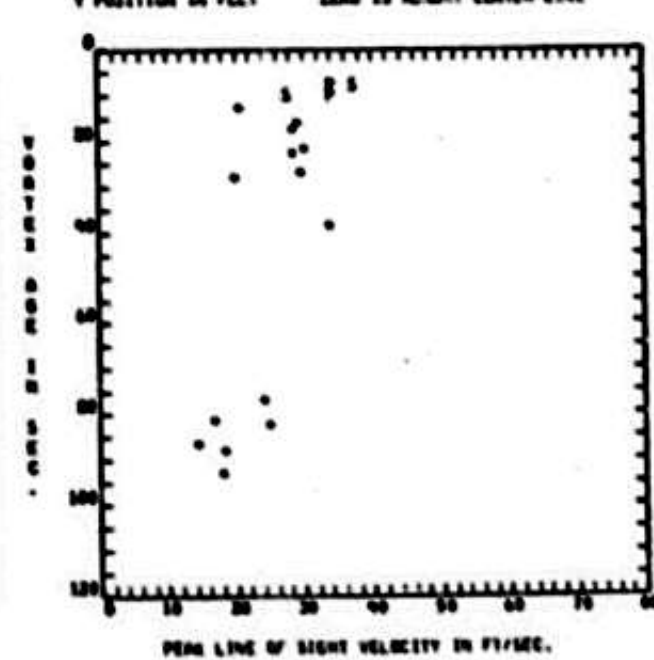
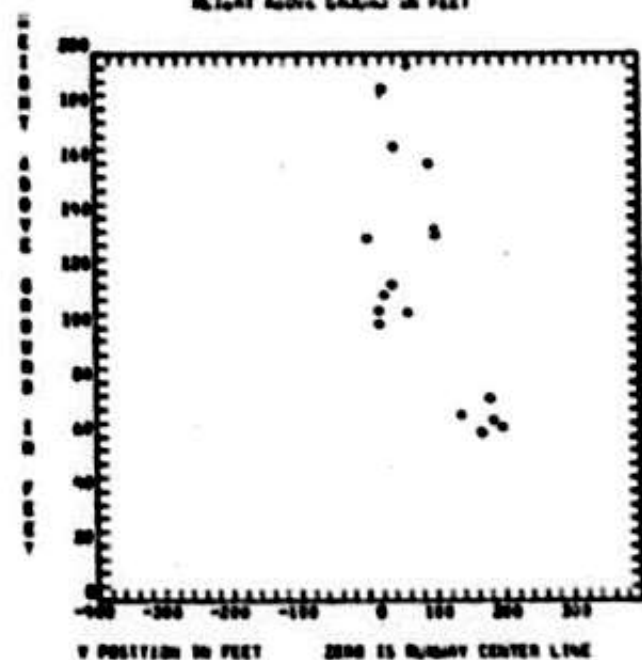
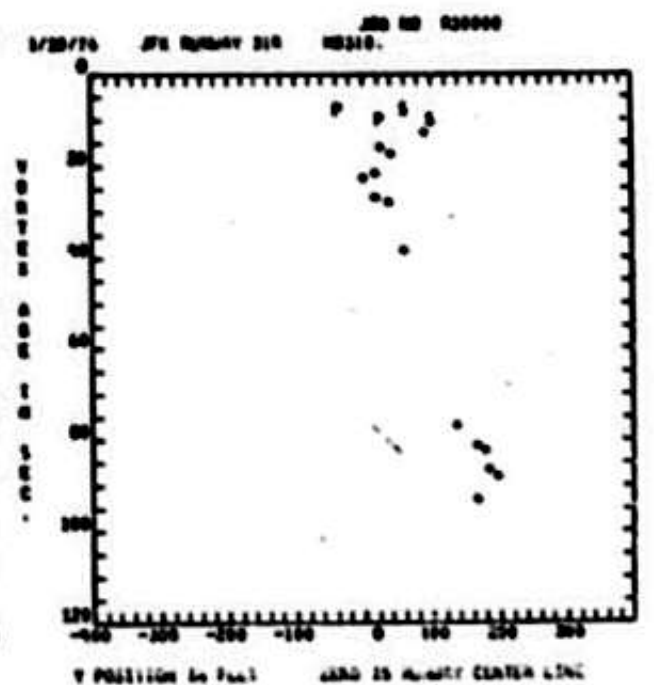
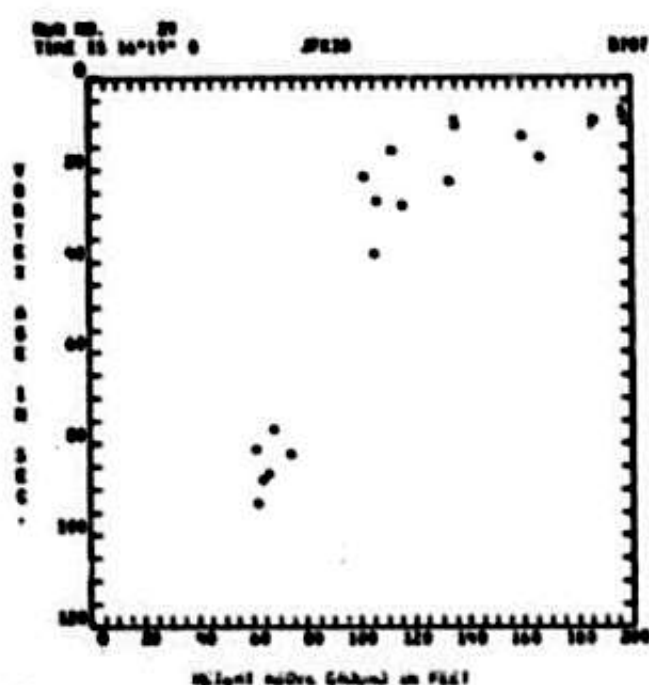
Y POSITION IN FEET



Y POSITION IN FEET



Y POSITION IN FEET



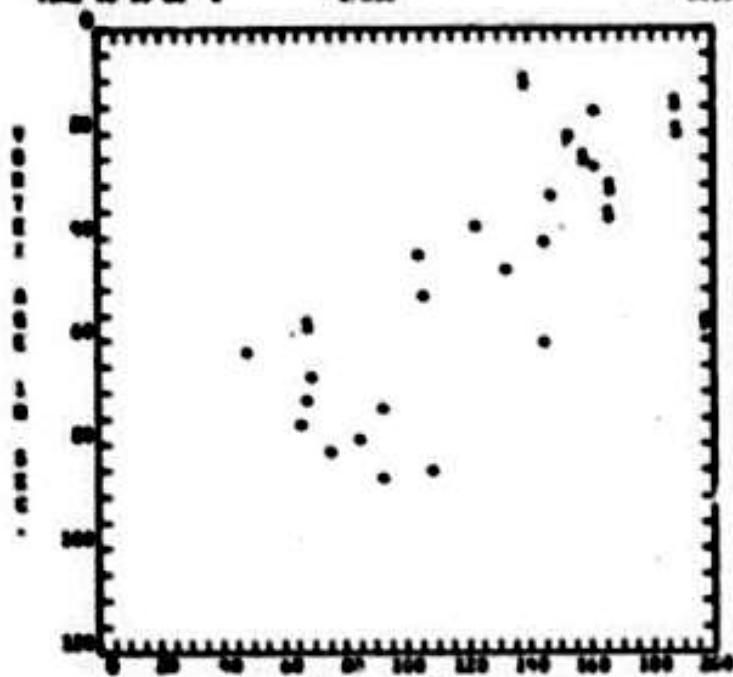
Run No. 34
Time 15 14-22" 0

JF130

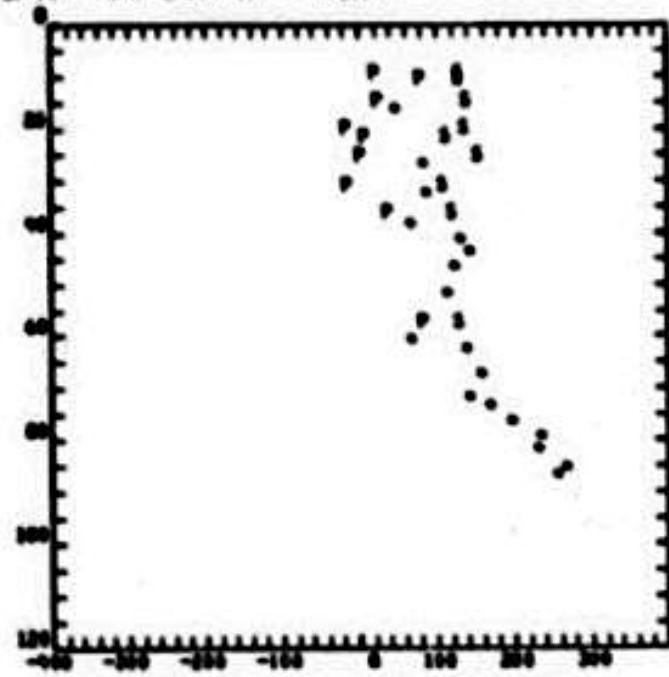
DE10 1/20/16

JFE Mounty 318

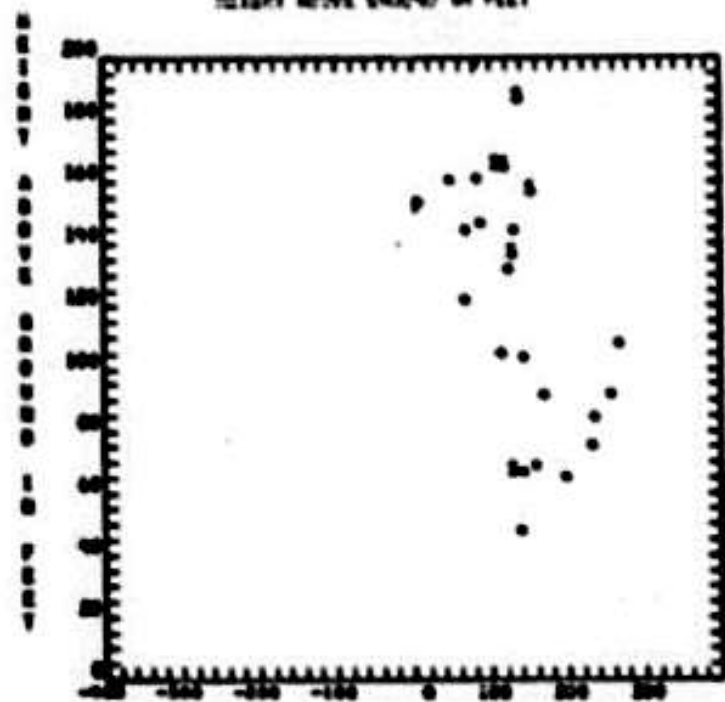
JOB NO 020000
HD310.



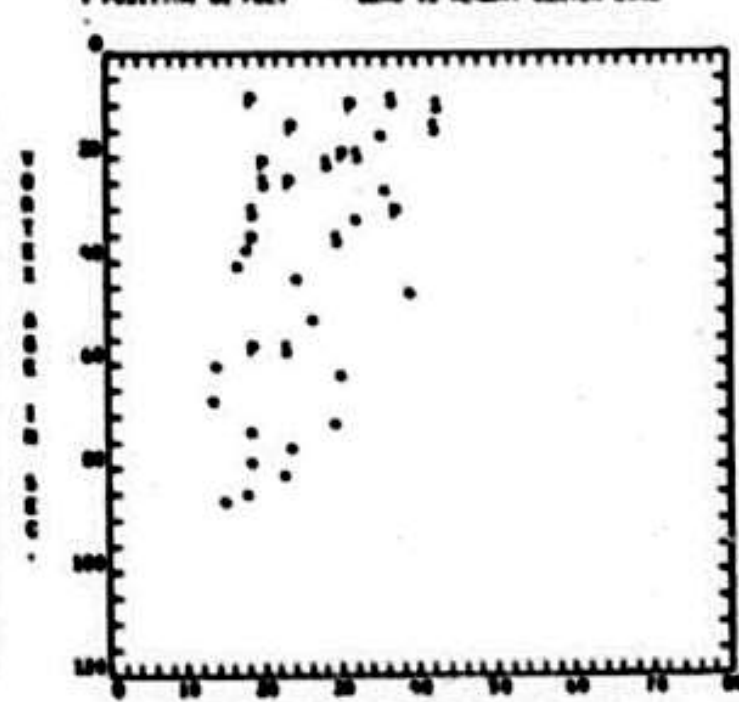
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS Mount Canyon Line



Y POSITION IN FEET ZERO IS Mount CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

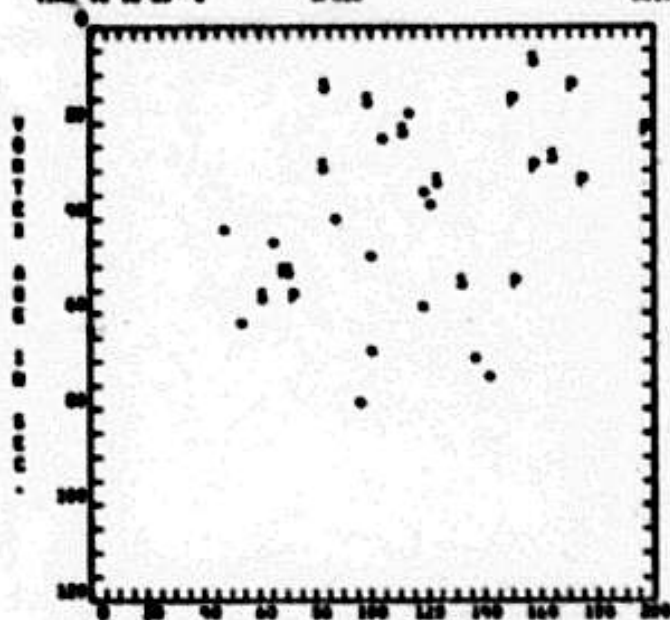
DATE 10/25/76
TIME 10 14 25.0

JFK30

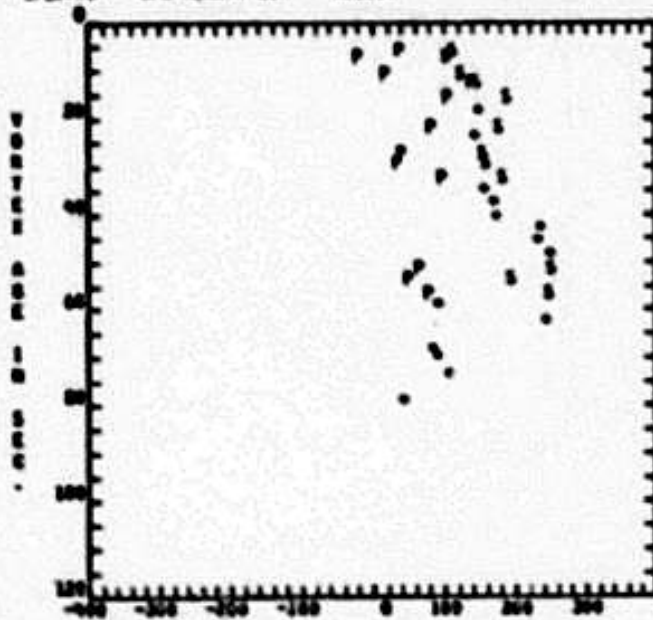
DE 10 1/20/76

JFK Summary 210

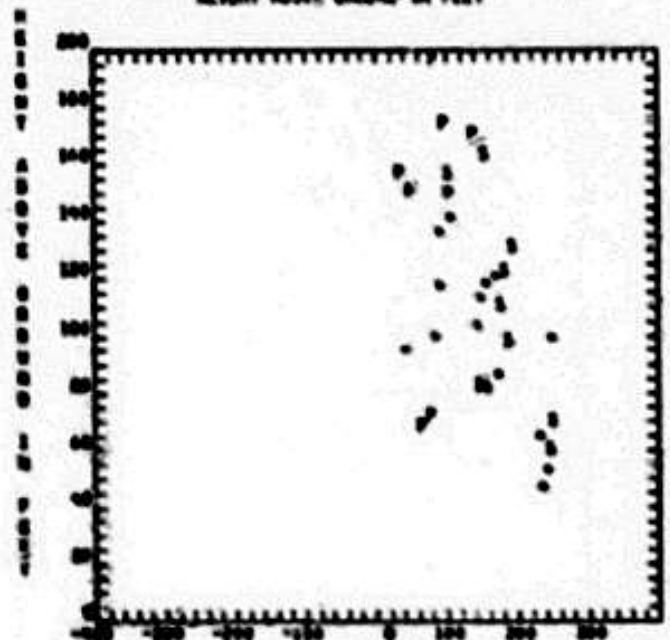
JOB NO R20000
RE310.



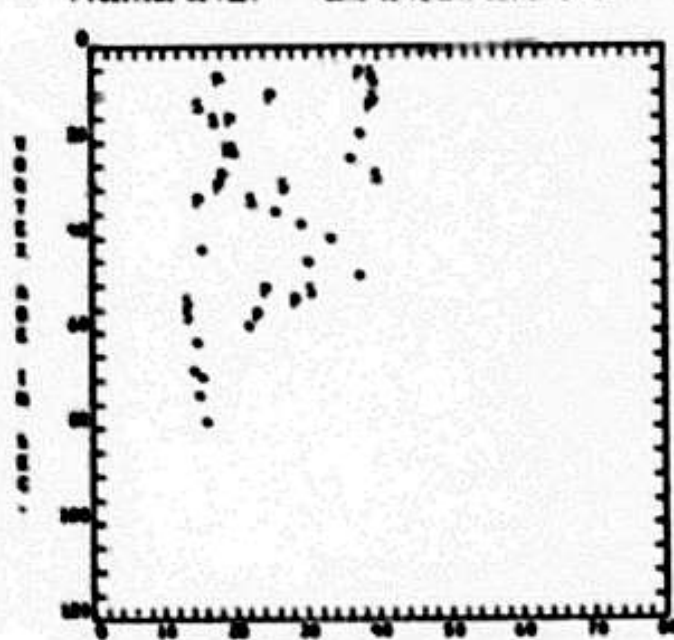
HEIGHT ABOVE GROUND IN FEET



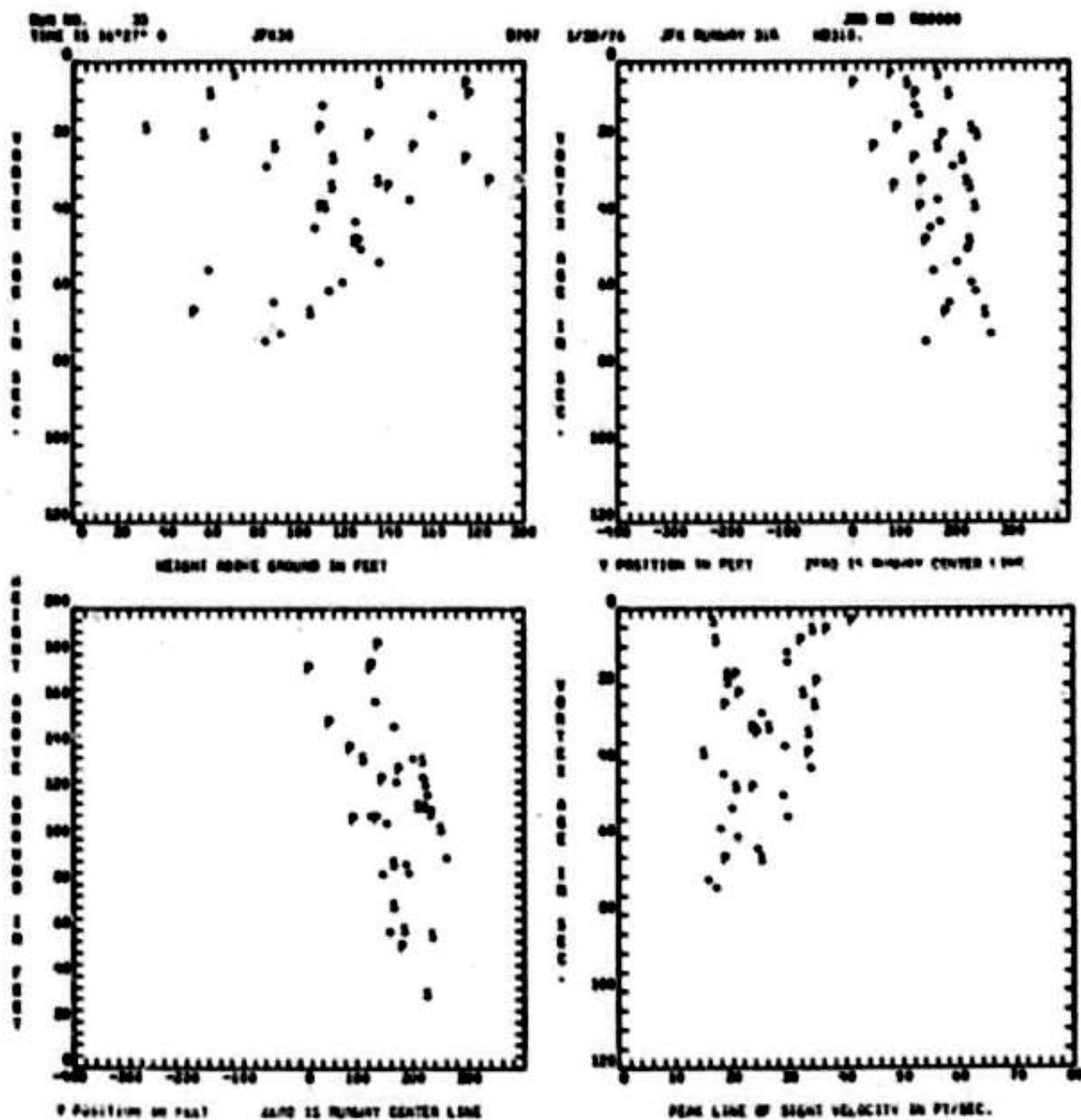
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.



SPOT 15 14-00 0

JF030

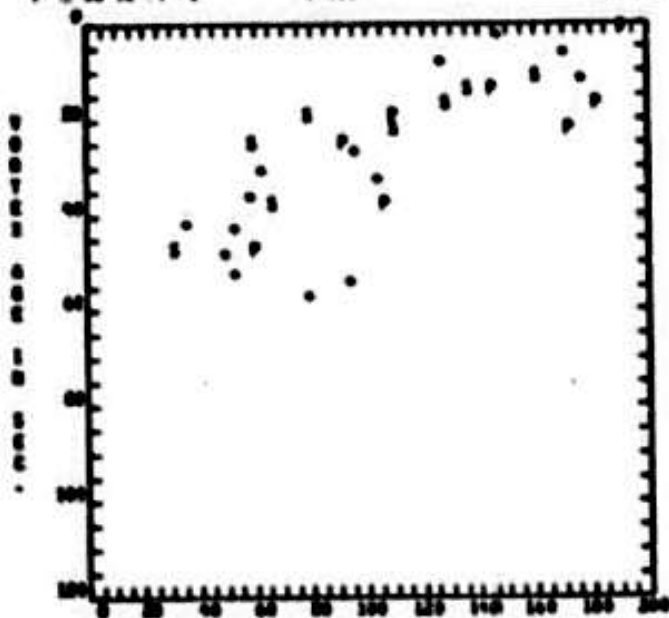
SPOT

1/20/76

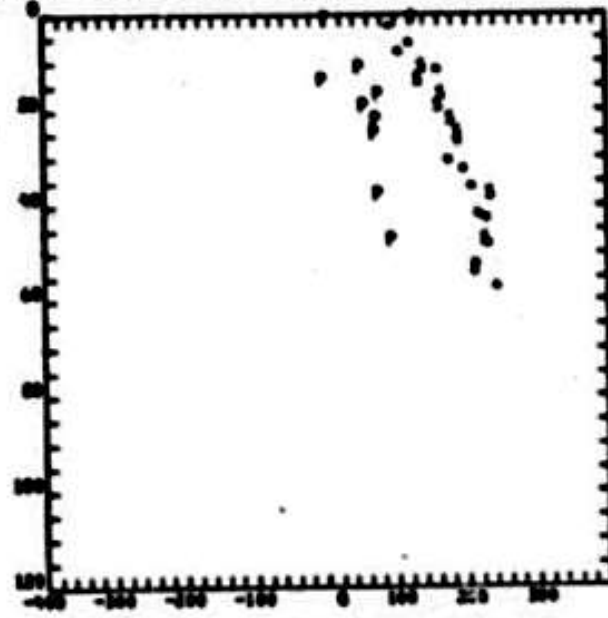
JF00000000

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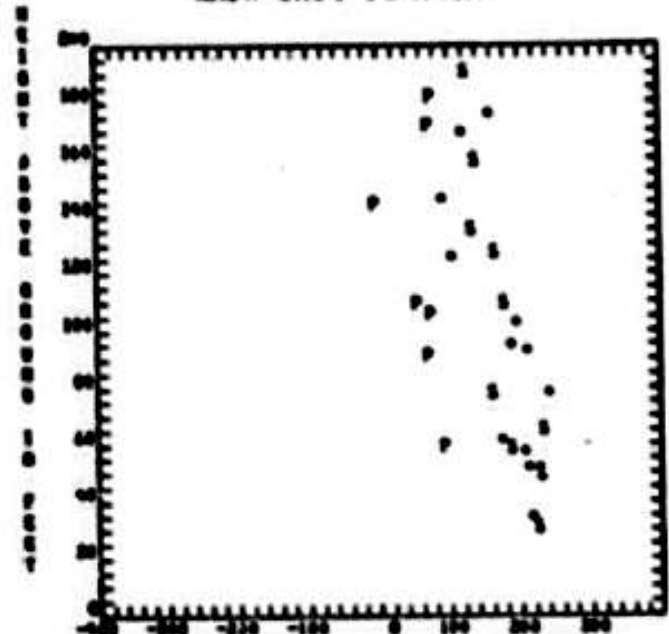
JF00000000



HEIGHT ABOVE GROUND IN FEET



HEIGHT ABOVE GROUND IN FEET



HEIGHT ABOVE GROUND IN FEET



HEIGHT ABOVE GROUND IN FEET

QND NO. 25
TIME IS 16:35:0

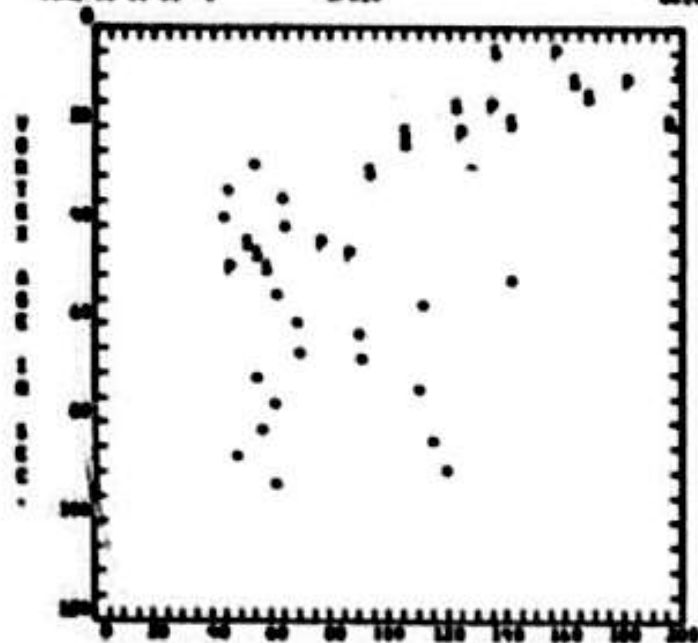
JPL20

OC10

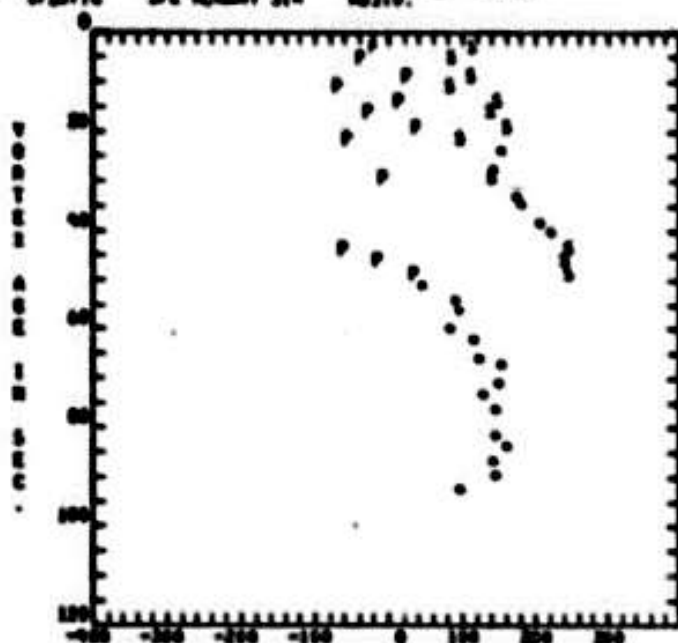
1/20/76

JPL RUNWAY 31R

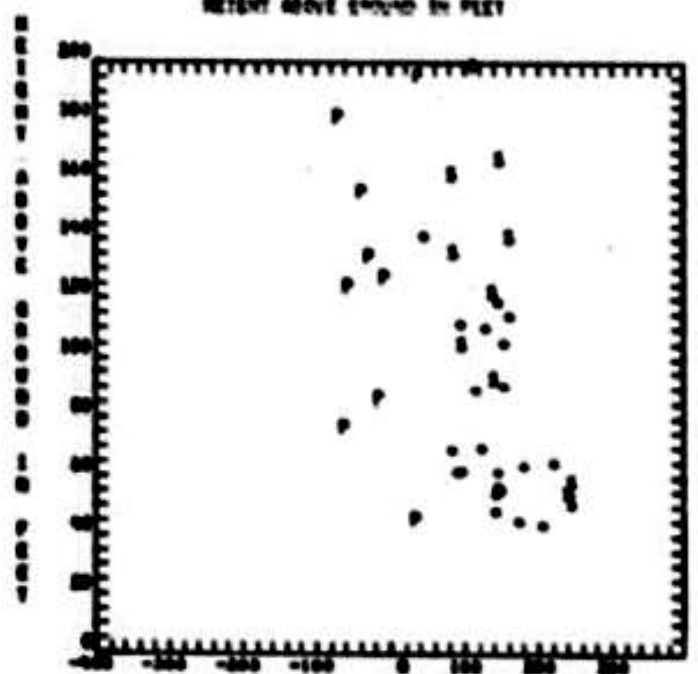
QND NO. 000000
NO310.



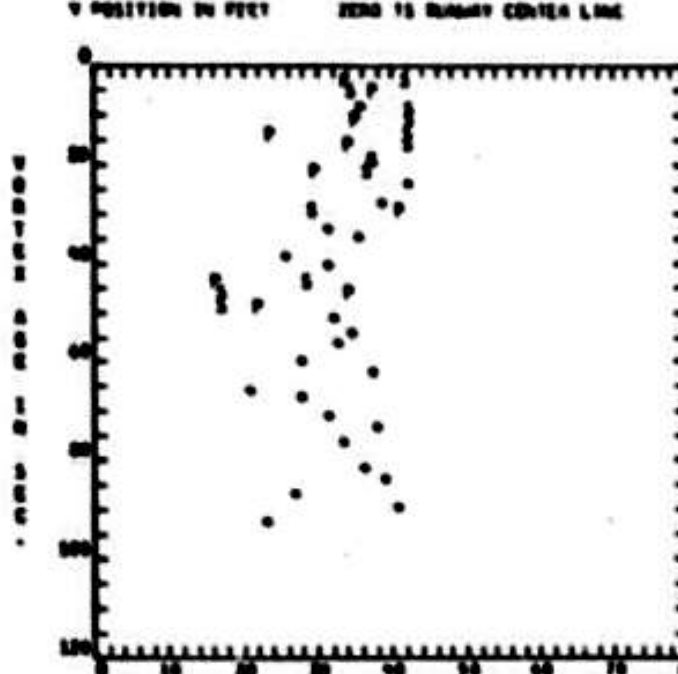
ALTITUDE ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Run No. 37
TIME 15 16:37:0

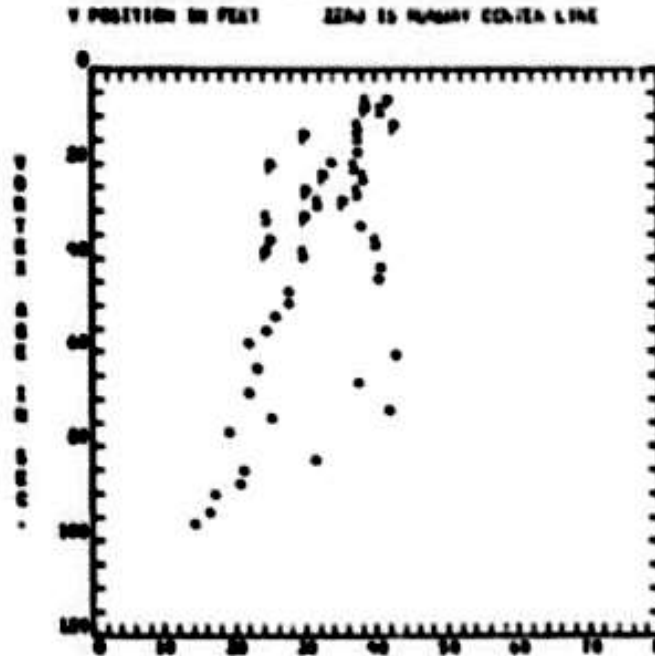
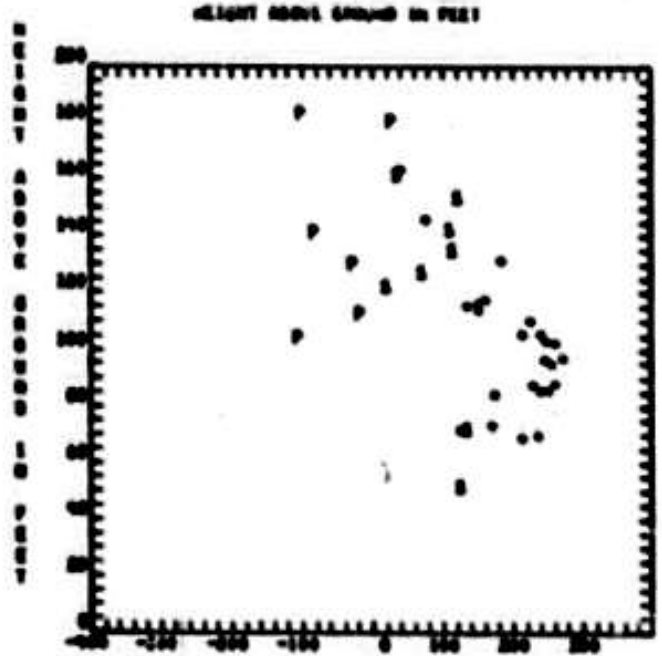
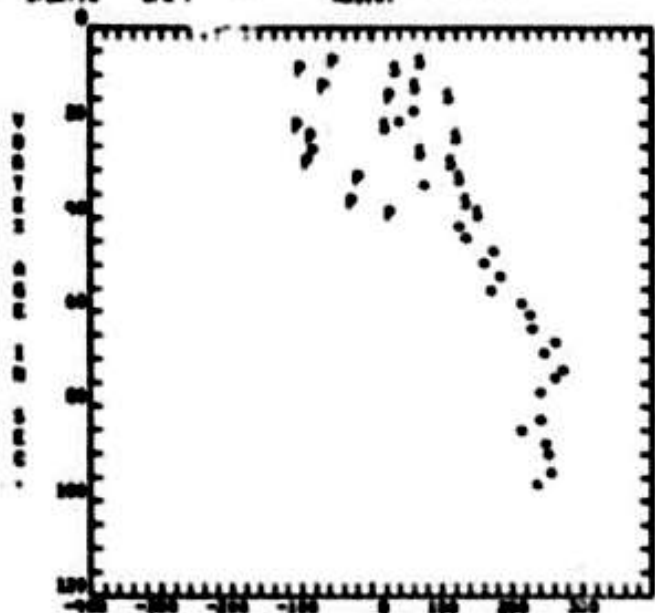
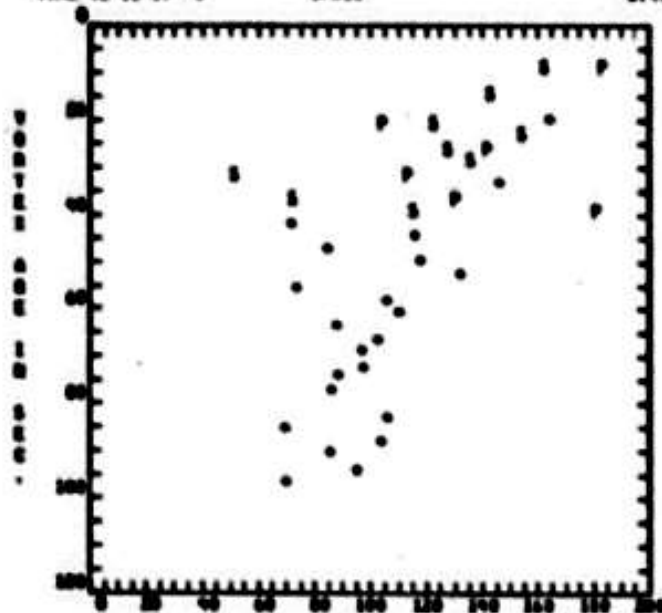
JFK

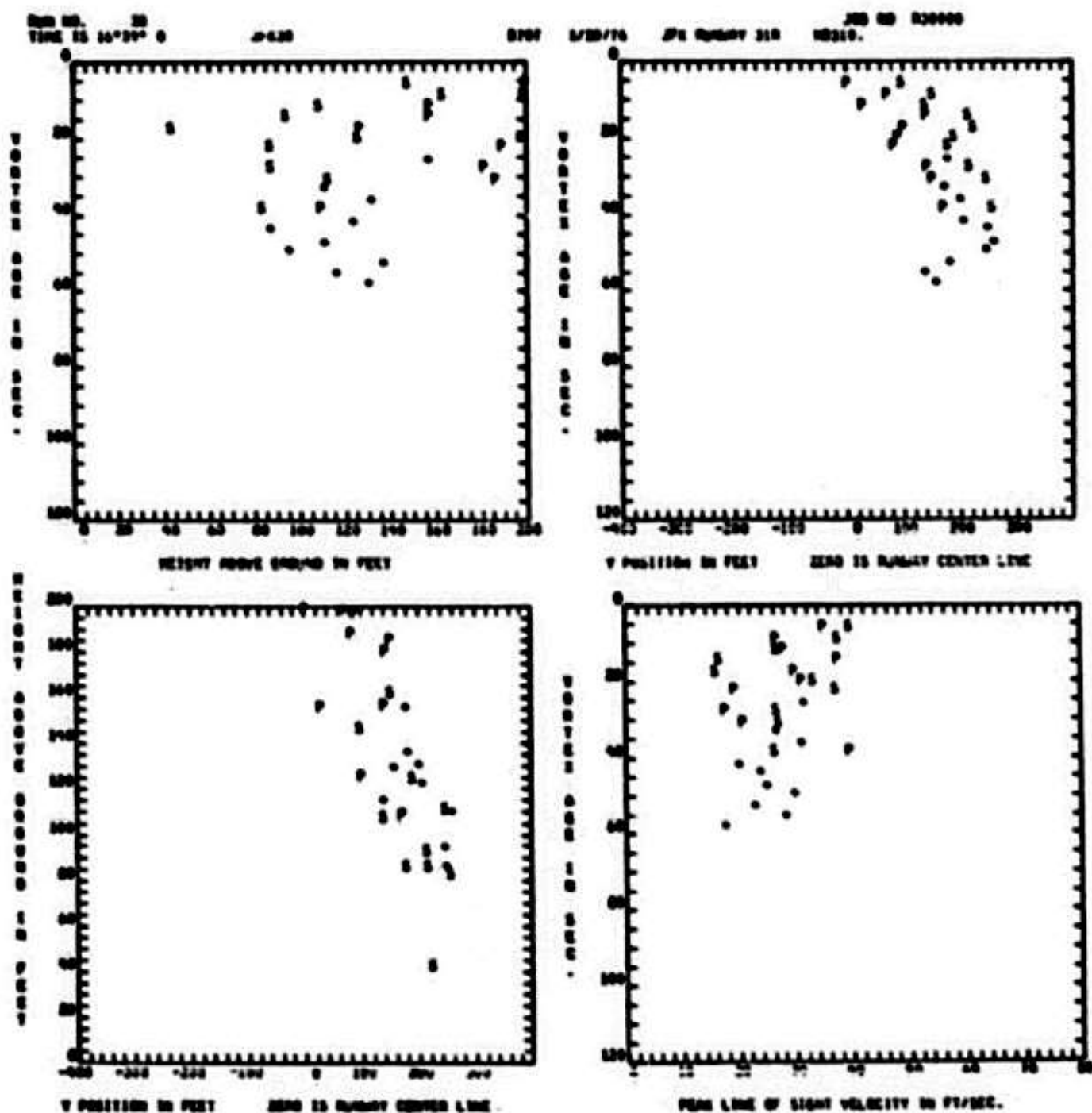
0747

5/20/76

JFK 1

Run No. 030000
08310.





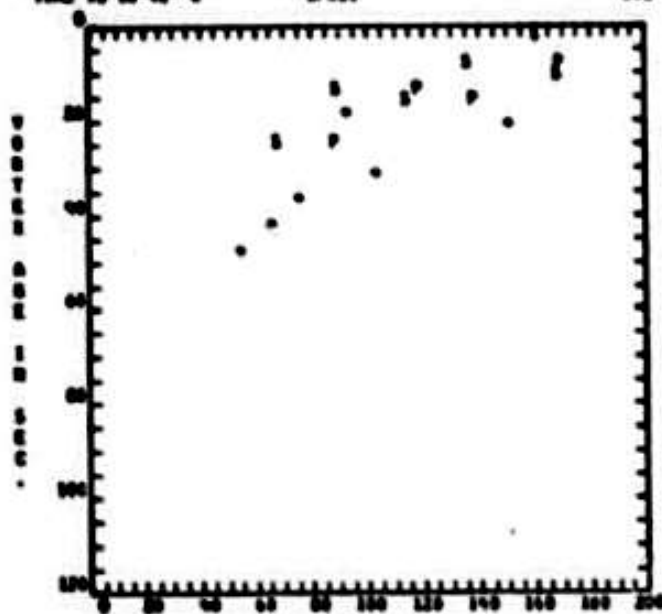
RUN NO. 30
TIME IS 16:42:0

JF430

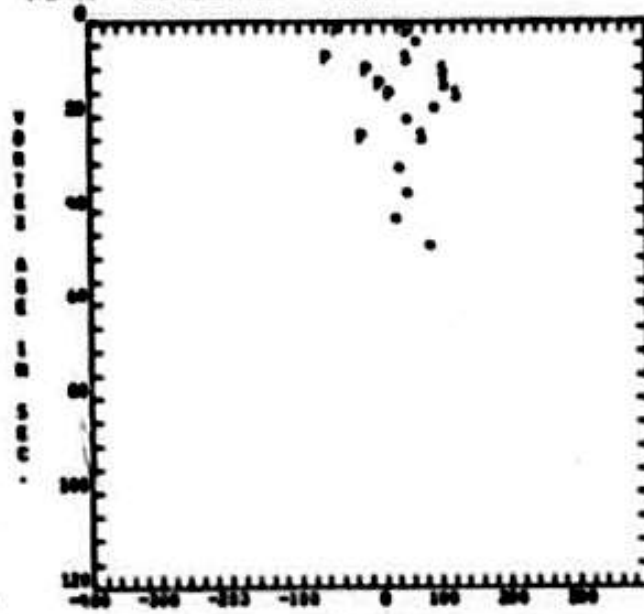
DEC

5/25/76 JF4 RUMBY 318

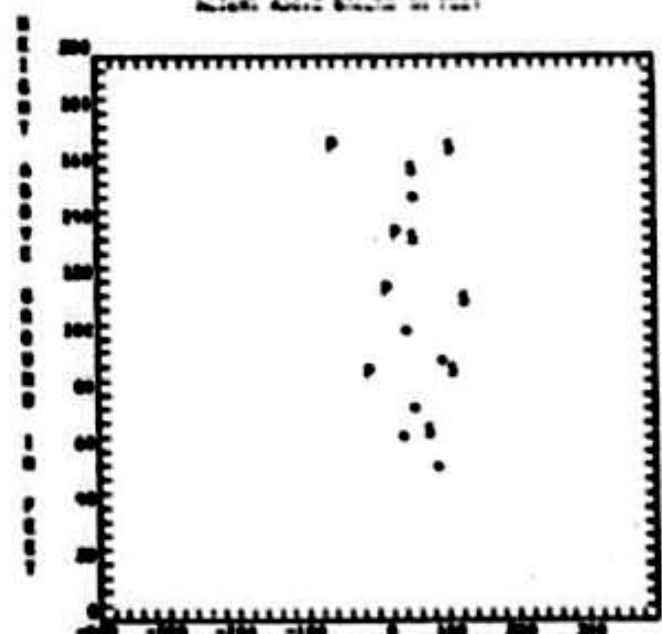
RUN NO 030000
NO318.



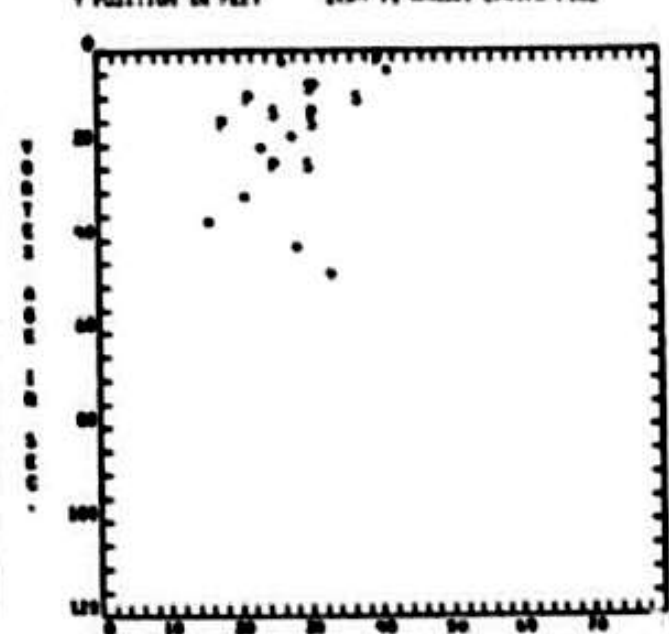
ALONG RUMBY STRIDE IN FEET



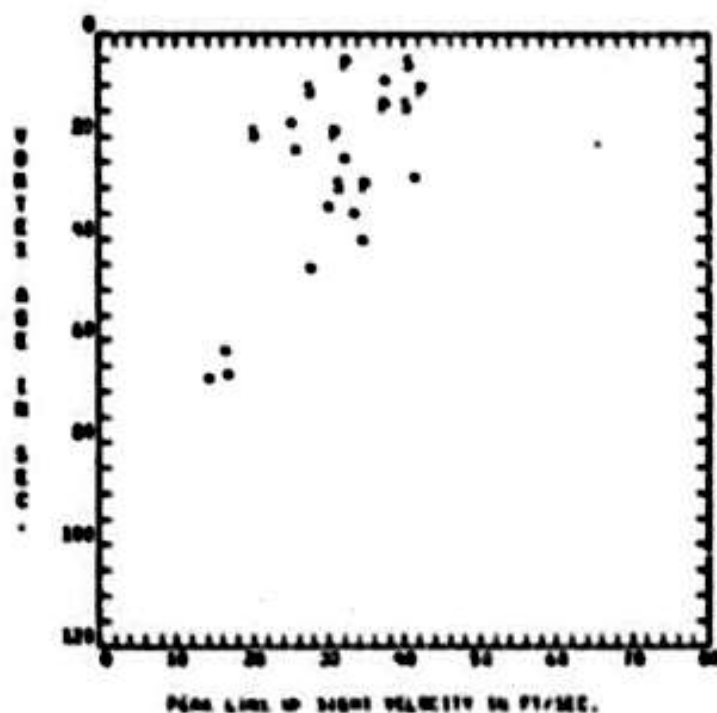
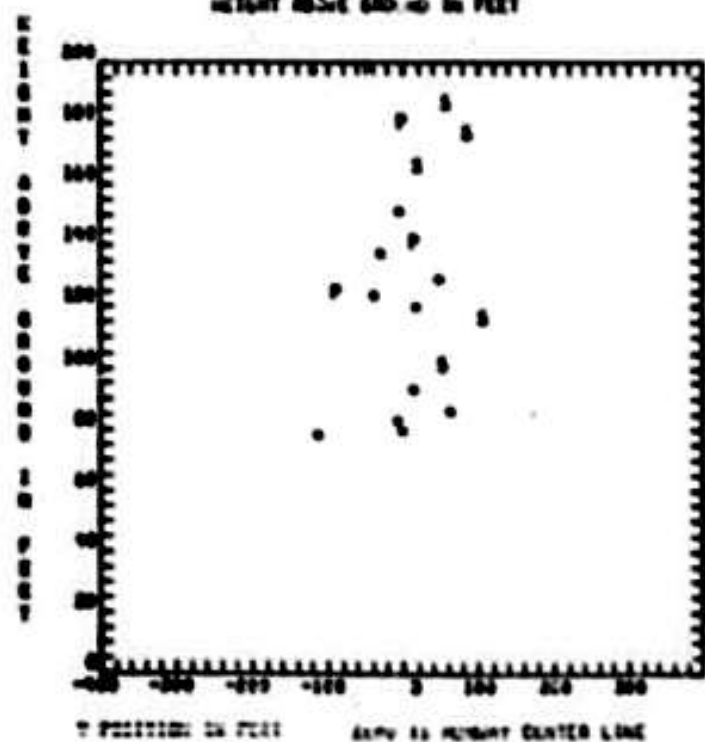
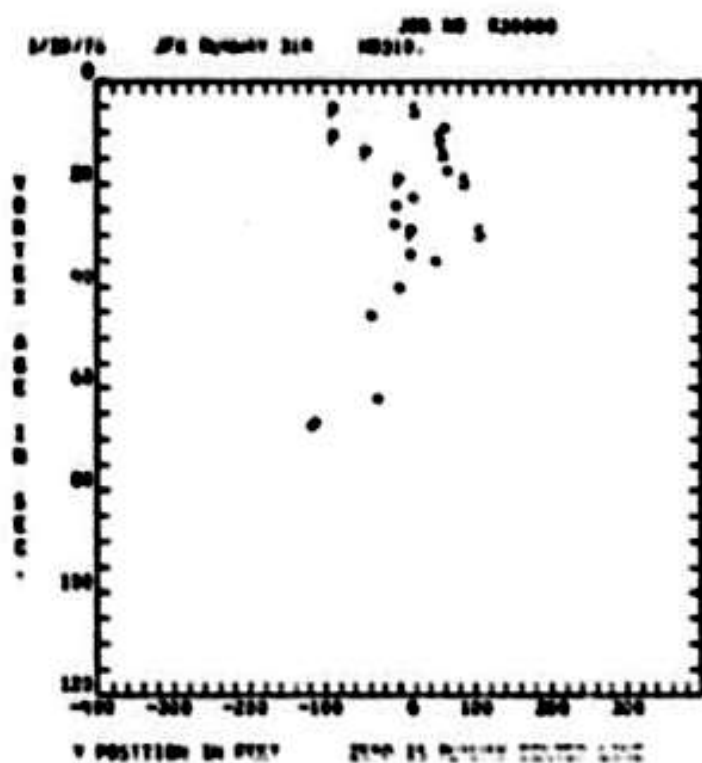
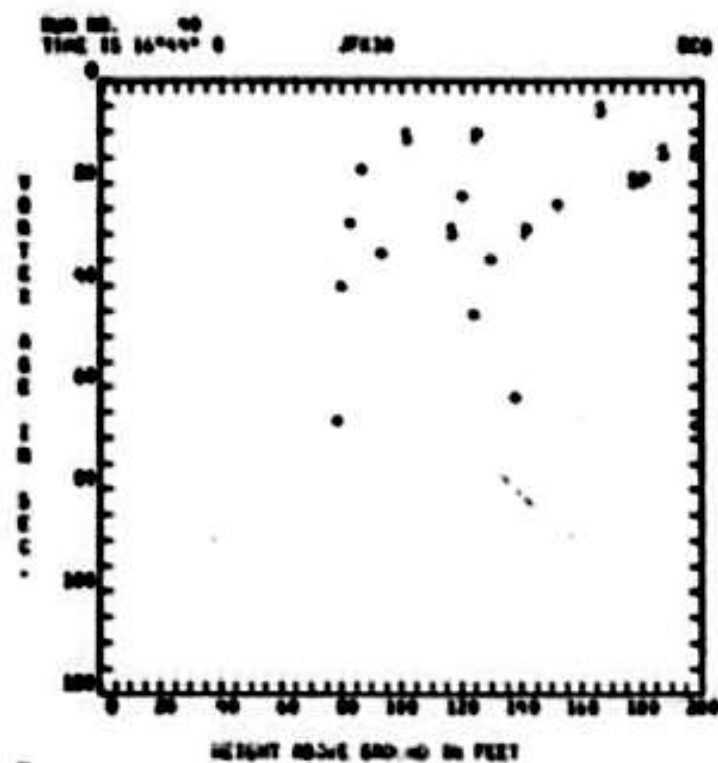
Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



Y POSITION IN FEET ZERO IS RUMBY CENTER LINE



PEAR LINE IN FEET



REP NO. 41
TIME IS 10:40 0

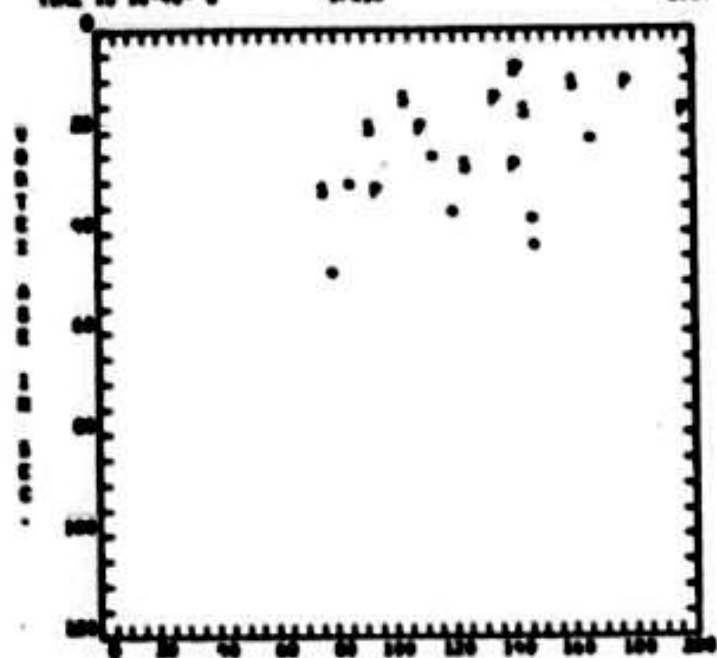
JFK30

0707

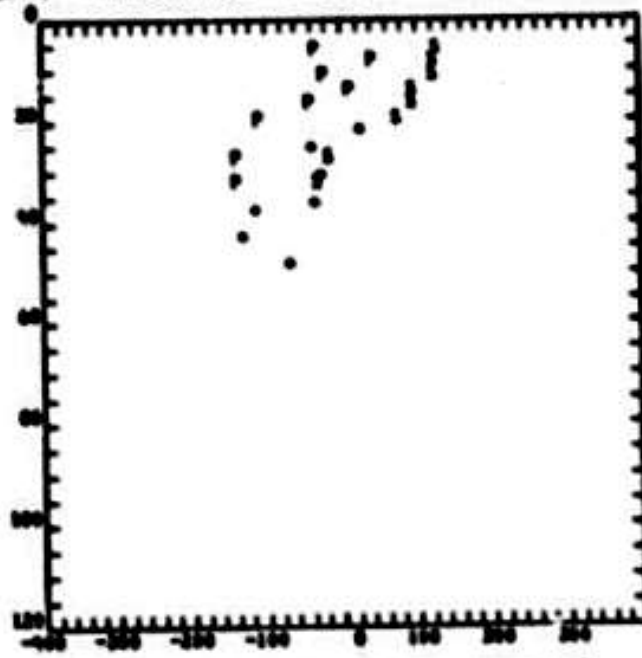
1/20/76

JFK Summary 310

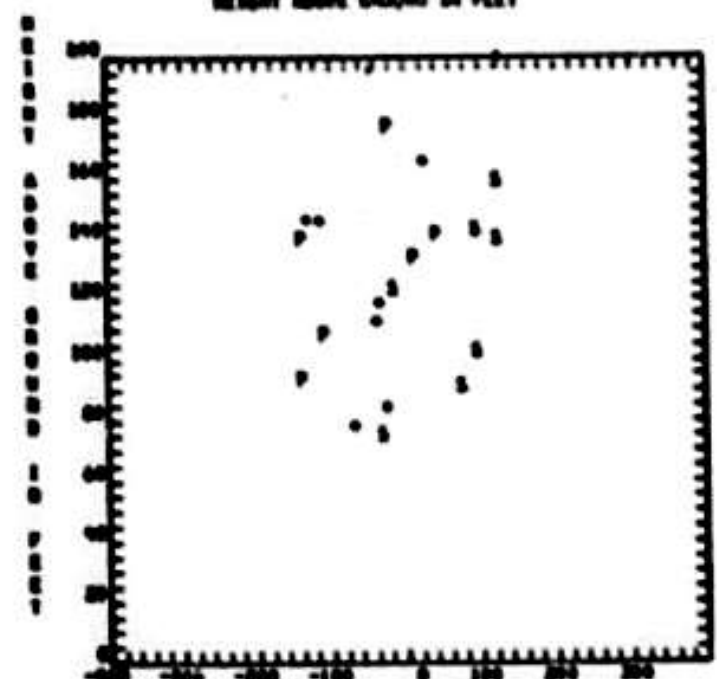
REP NO 000000
REB10.



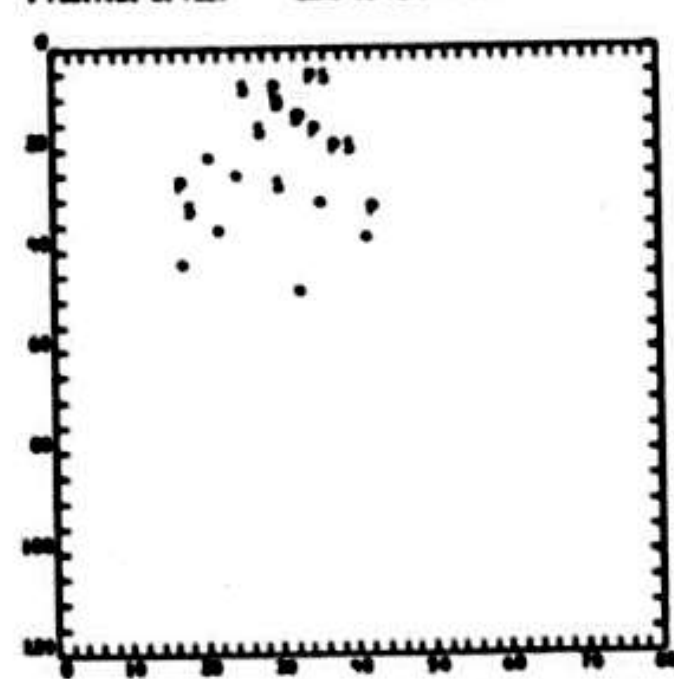
HEIGHT ABOVE GATEWAY IN FEET



Y POSITION IN FEET ZERO IS Runway CENTER LINE

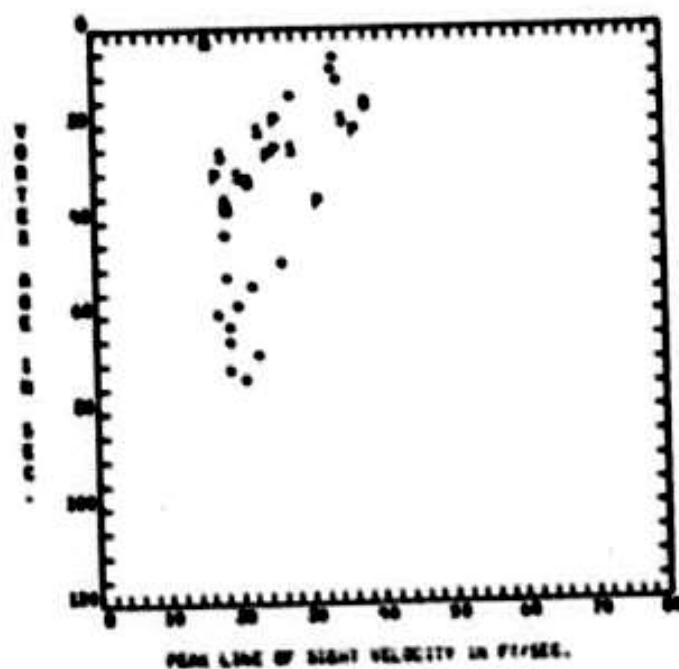
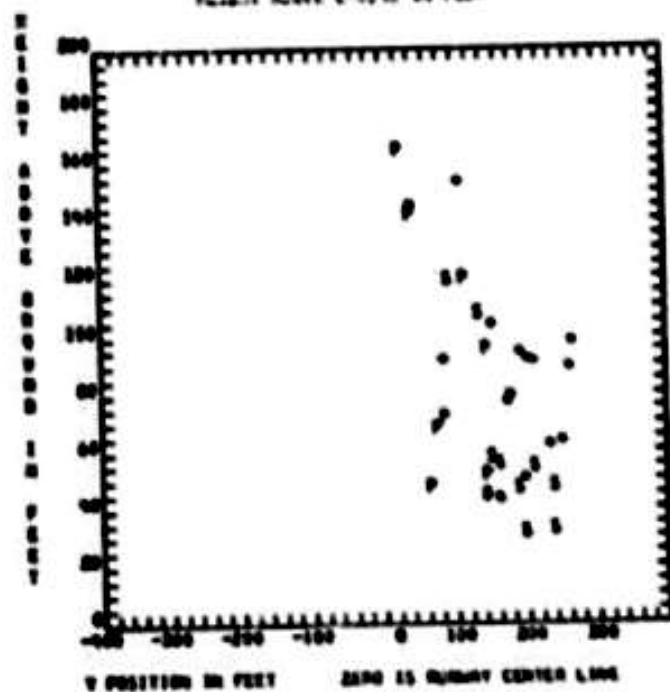
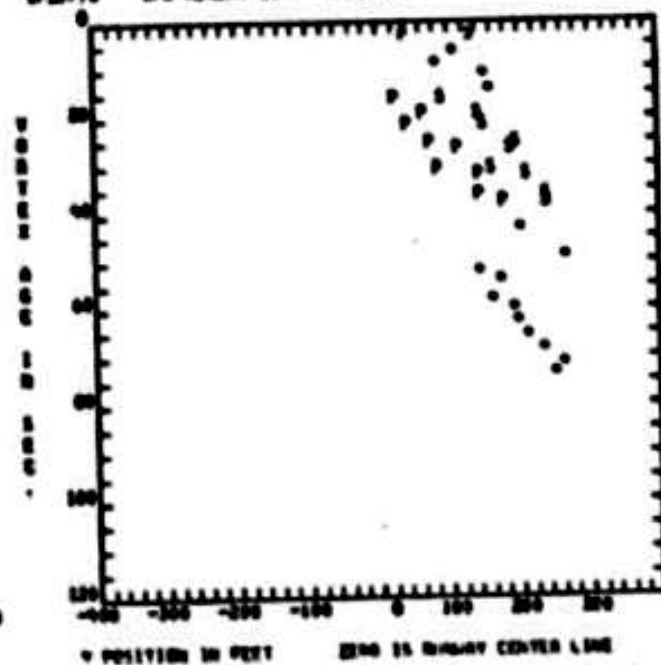
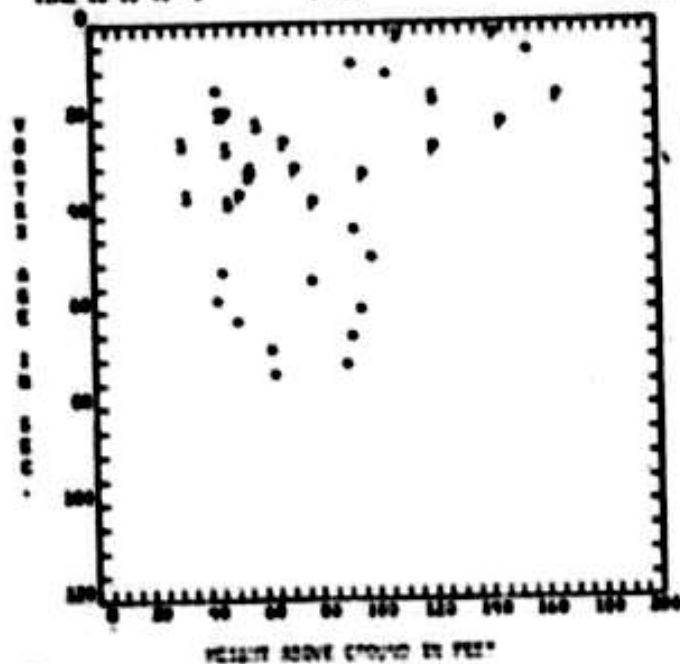


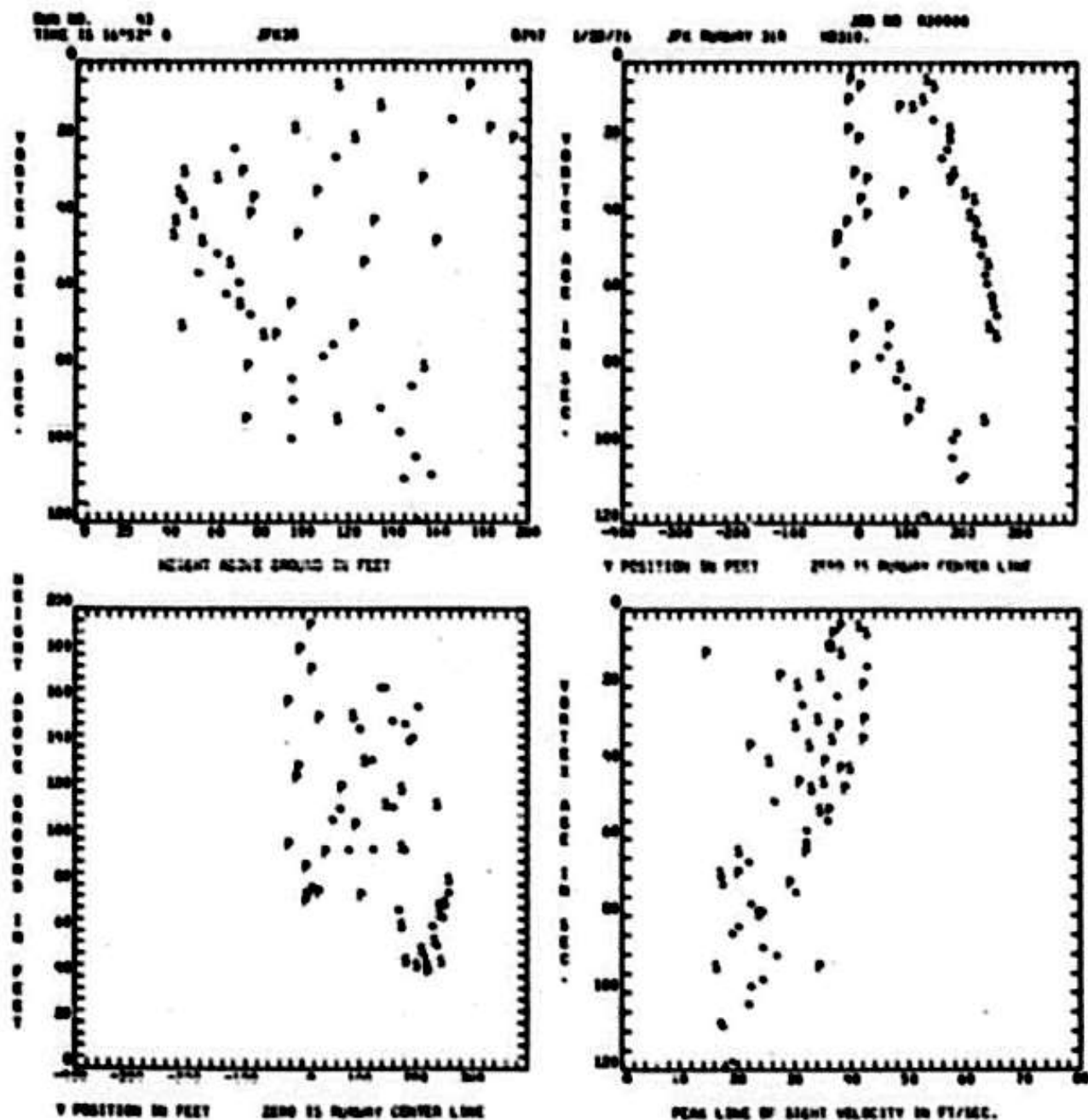
Y POSITION IN FEET ZERO IS Runway CENTER LINE



PEAK LINE OF SIGHT ALTITUDE IN FEET

Run No. 42 JF630 0127 5/20/76 JF6 Runway 31R HES10. JRB NO 020000
 TIME IS 16:40:00





Run No. 99
Time 15 17 00

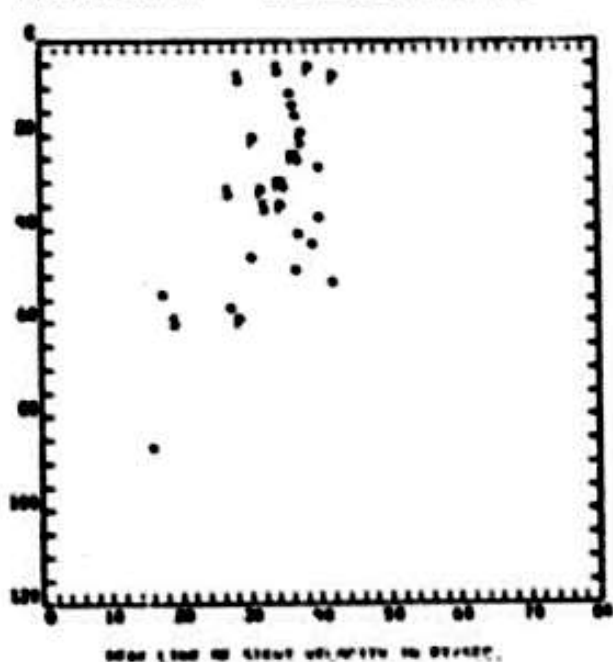
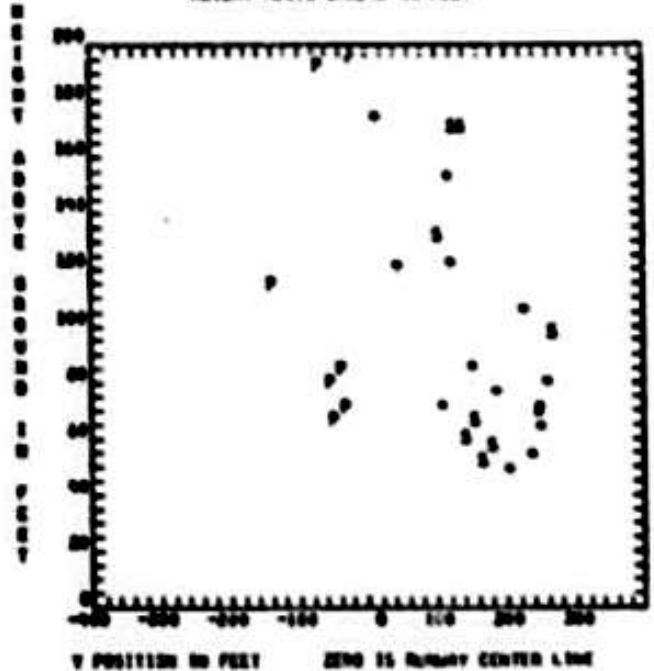
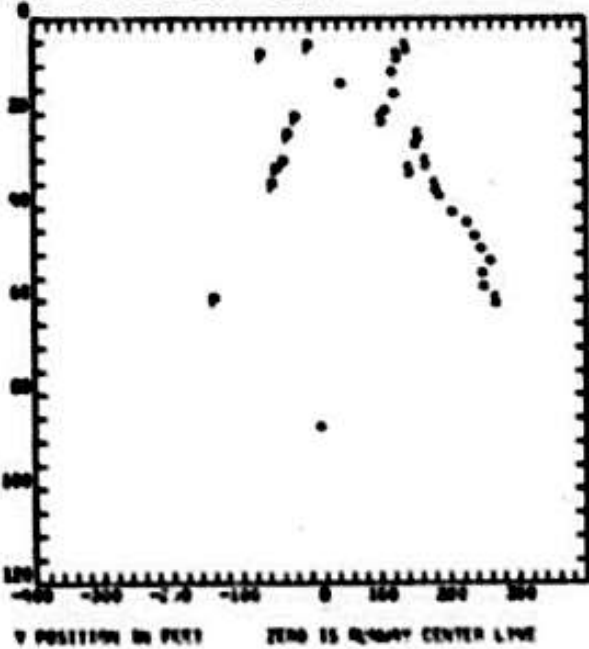
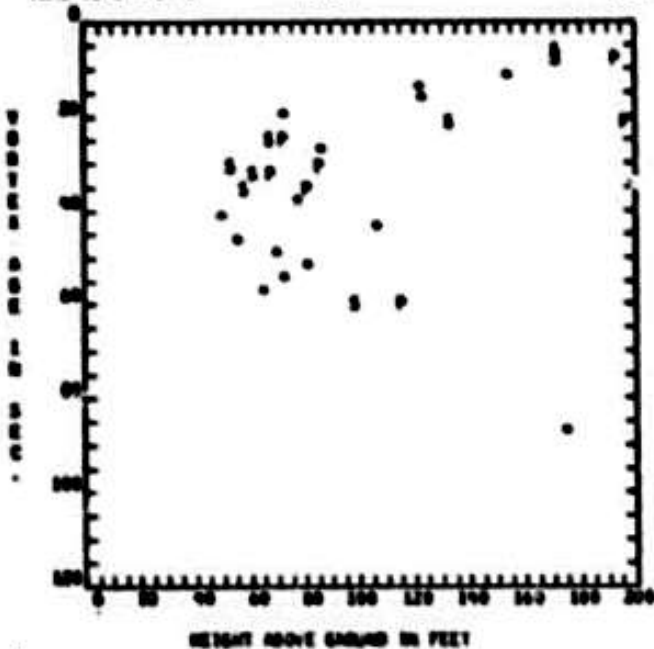
JF10

SP47

1/20/76

JPL Runway 31R

Run No. 020000
HD310.



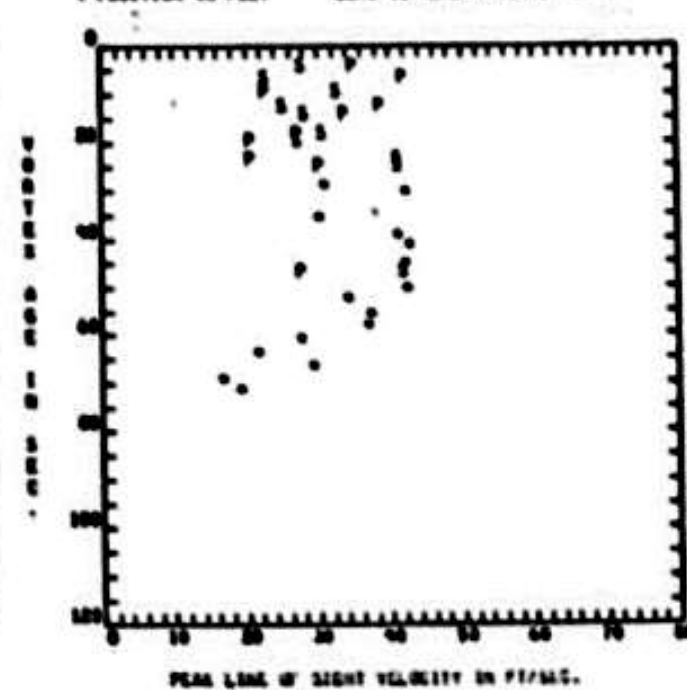
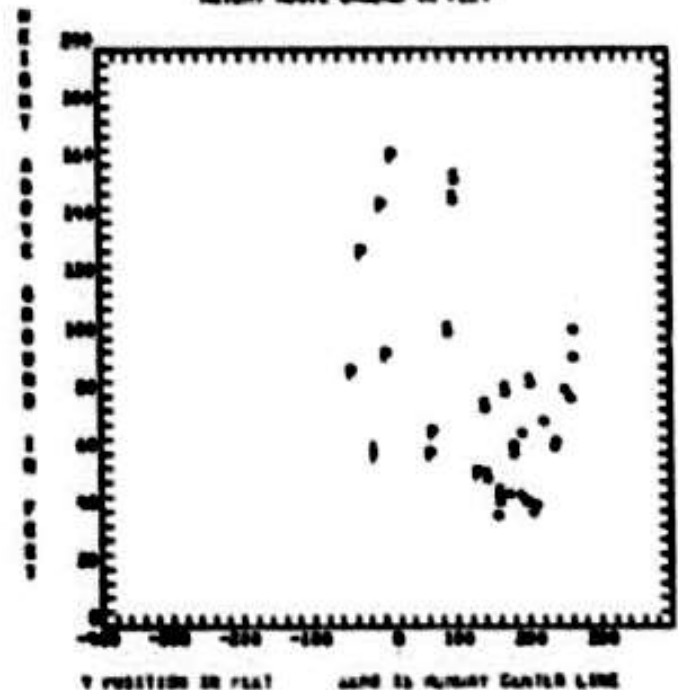
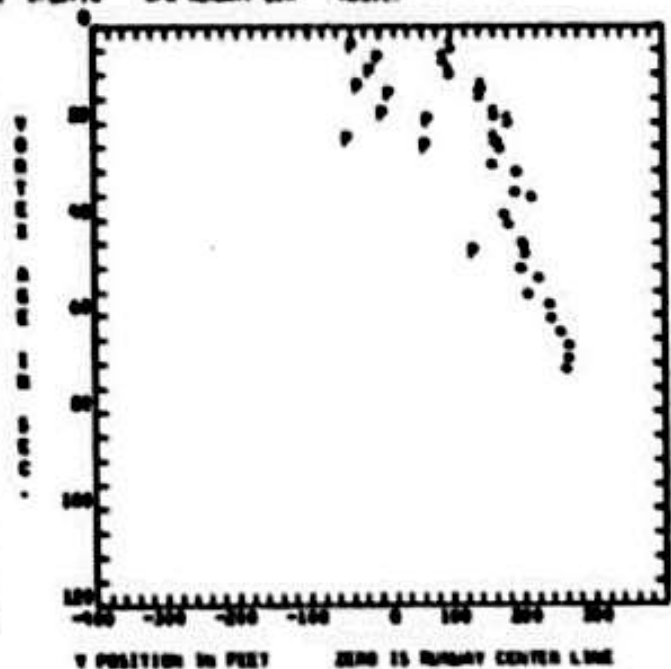
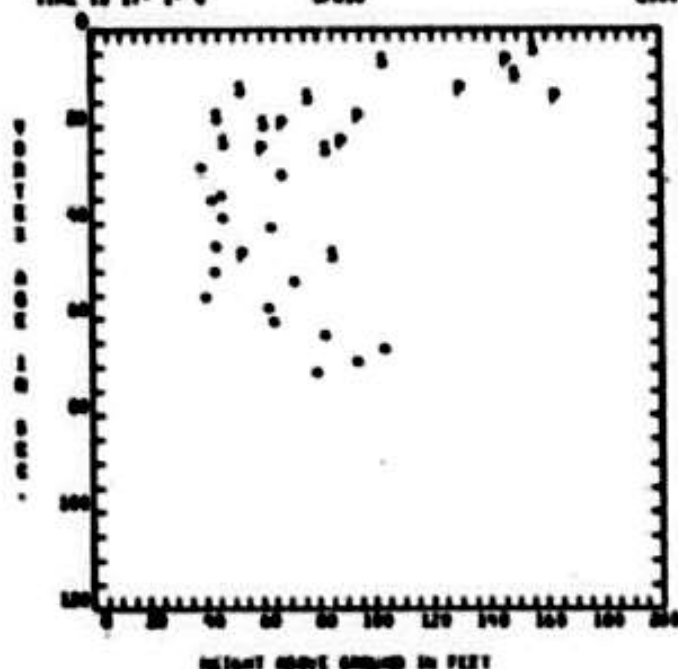
Run No. 45
TIME 15 17 57 0

JPL20

L1011 5/28/76

JPL Runway 31R

Run No. 000000
HD310



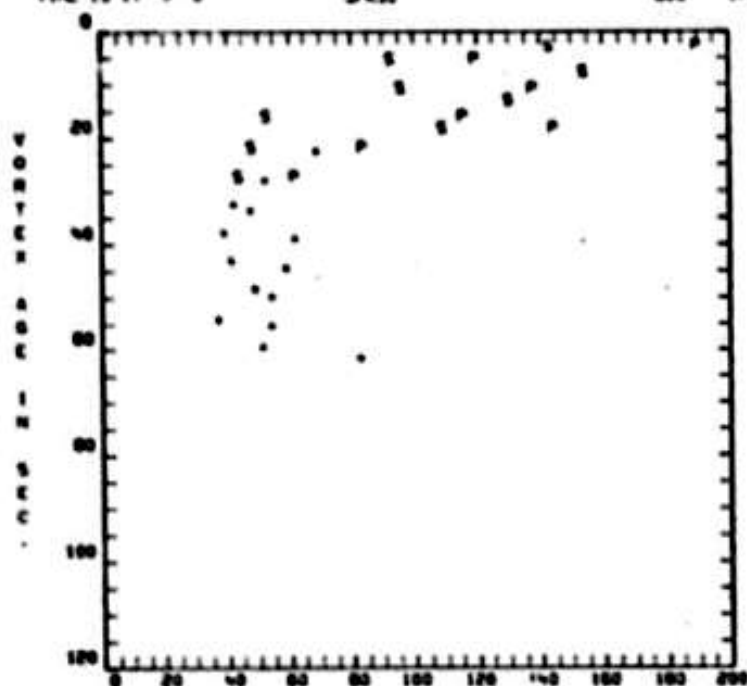
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ICORUP	=	+0			
ISFILE	=	+1,	+45,	+1000,	+1000,
		+1000,	+1000,	+1000,	+1000,
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		+1000,	+1000,	+1000,	+1000,
		+1000,	+1000,	+1000,	+1000,
NRUN	=	+12			
ZLAKR	=	.70000000E+01			
ZLASCN	=	.00000000E+00			
INTVEL	=	+2			
NPBLF	=	+0			
APERT	=	.10000000E+00			
BPERT	=	.10000000E+00			
CPERT	=	.50000000E+00			
RPERT	=	.31415927E+00			
EPERT	=	.15000000E+01			
NOISEF	=	+0			
ADJ1	=	.00000000E+00			
ANDSM	=	.00000000E+00			
WANGLE	=	.00000000E+00			
WINDV	=	.00000000E+00			
LFLIP	=	+3			
ISINE	=	+2			
EDIT	=	.20000000E+00			
NOVAE	=	+0			
VLIN	=	.00000000E+00,	.00000000E+00		
ZLIN	=	.00000000E+00,	.00000000E+00		
ISCALE	=	+1			
VR	=	.40000000E+03			
VL	=	-.40000000E+03			
ZT	=	.20000000E+03			
THAX	=	.12000000E+03			
VHAX	=	.00000000E+00			
NSPLT	=	+12			
JPROF	=	+1			
INLAT	=	+0			
TOP1	=	+2			
TOP2	=	+2			
TOP3	=	+2			
TOP4	=	+1			
END					

STATION 46
TIME 15 17 50

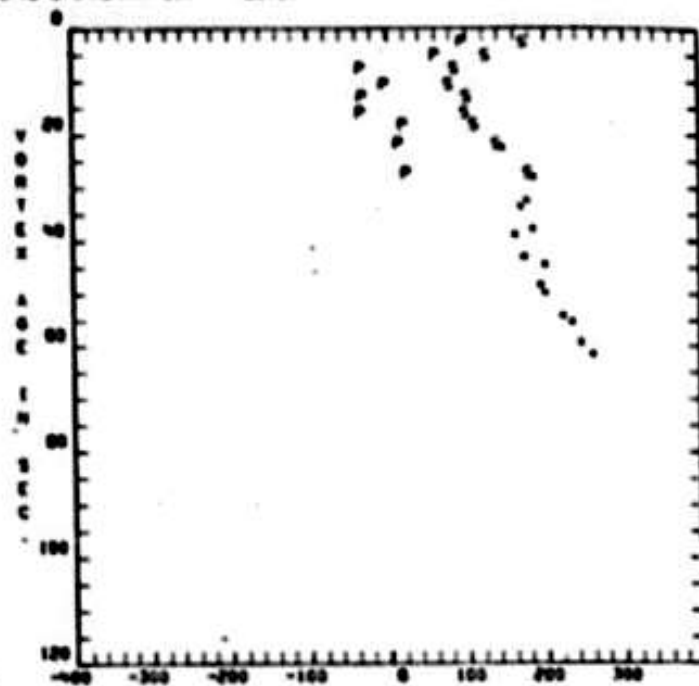
JFK30

DCB 1/31/76 JFK RUNWAY 31R HD310.

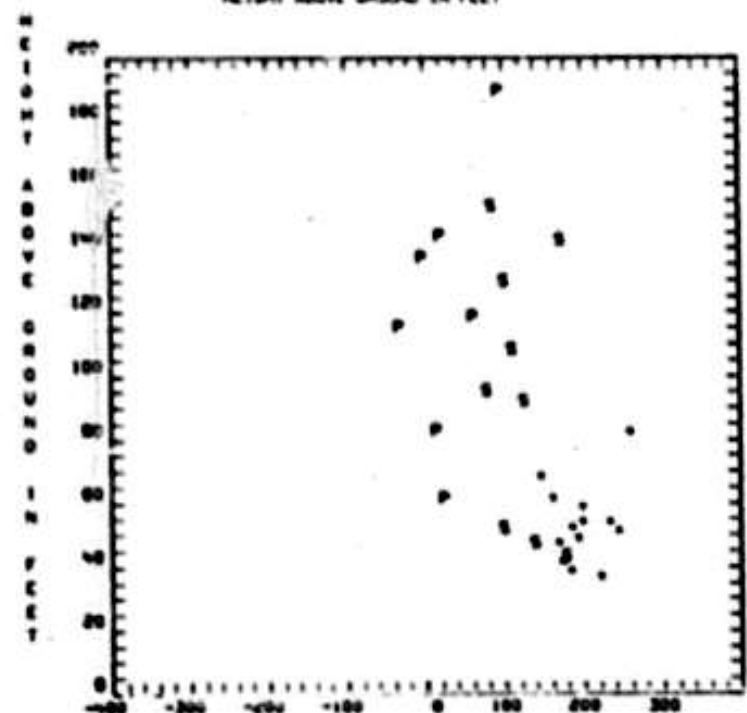
JOB NO R30000



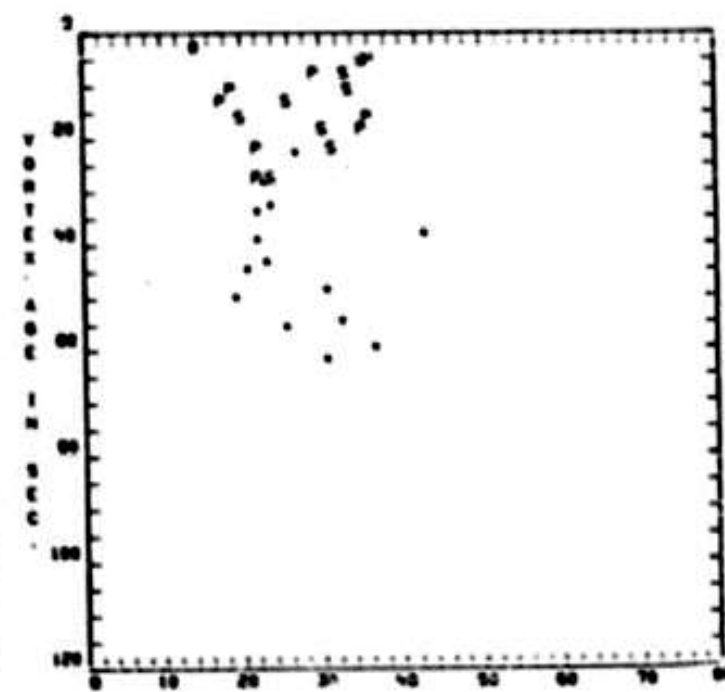
HEIGHT ABOVE GROUND IN FEET



V POSITION IN FEET ZERO IS RUNWAY CENTER LINE



VORTEX AGE IN FEET



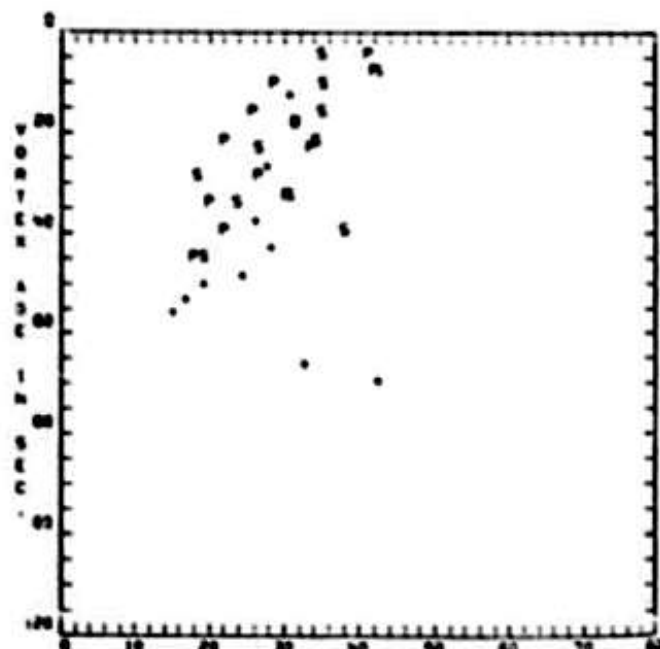
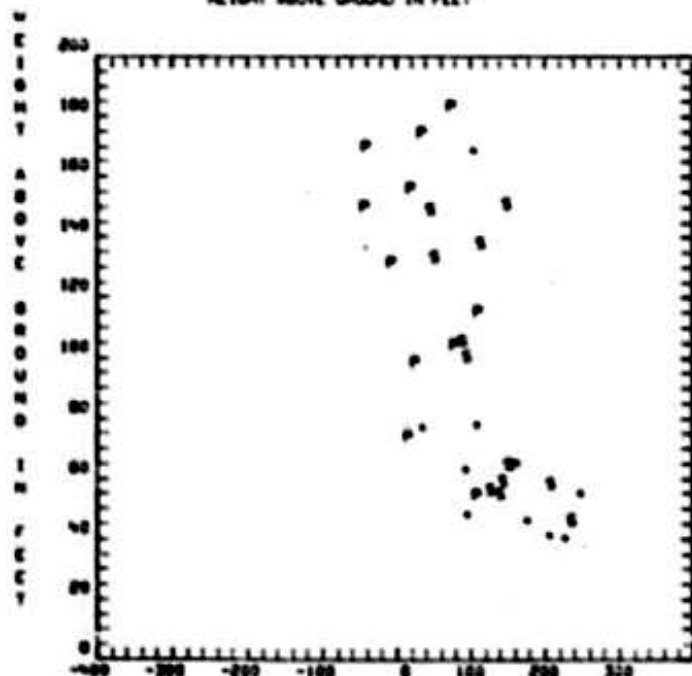
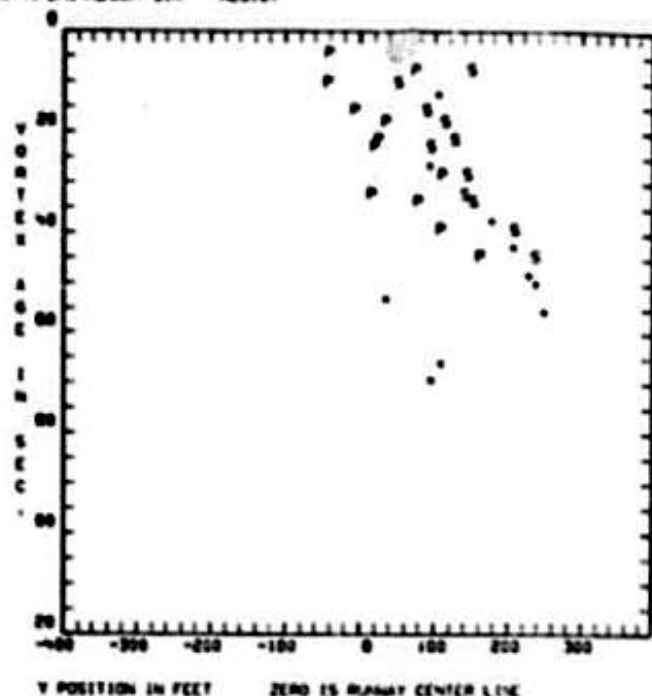
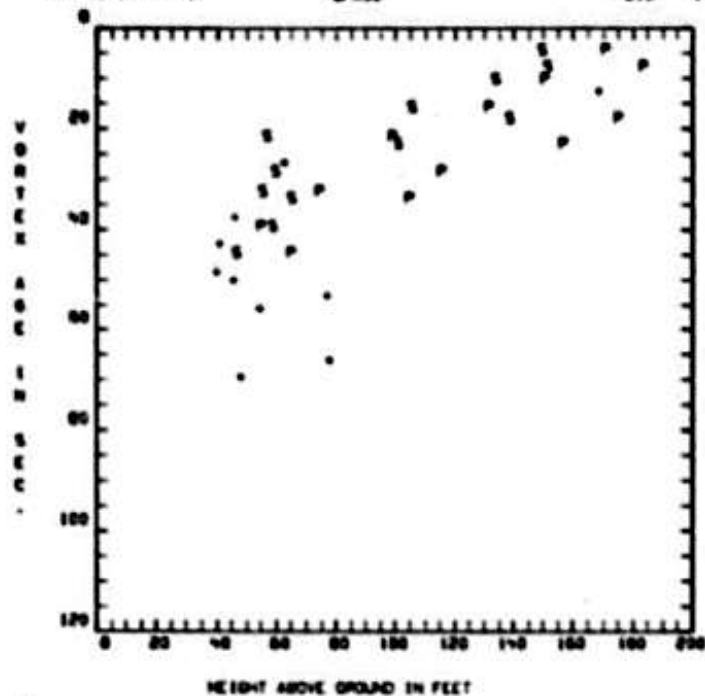
VORTEX AGE IN FEET

SEA NO. 47
TIME 15 17' 7" 0

JFK30

DCO 1/30/76 J-4 RUNWAY 31R HD310.

JOB NO R32201

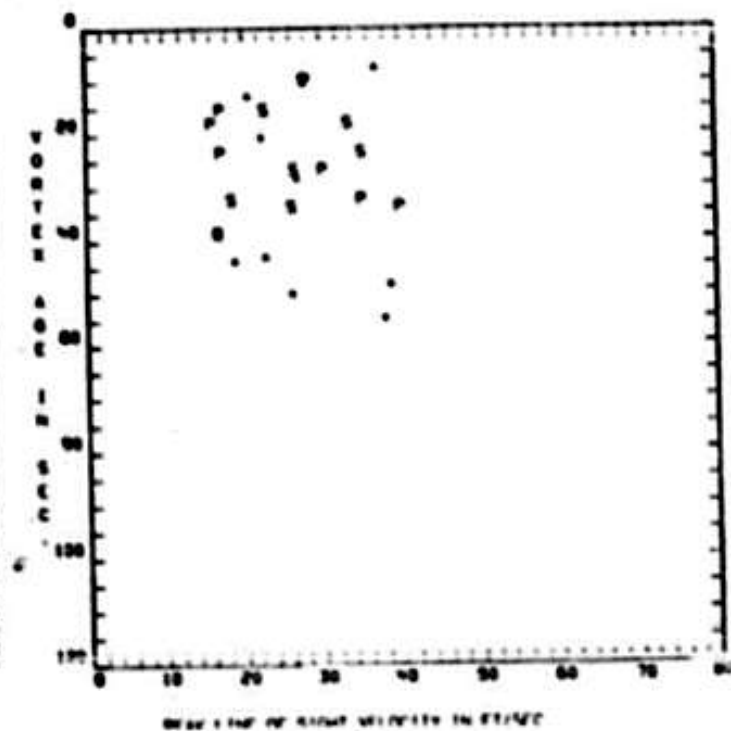
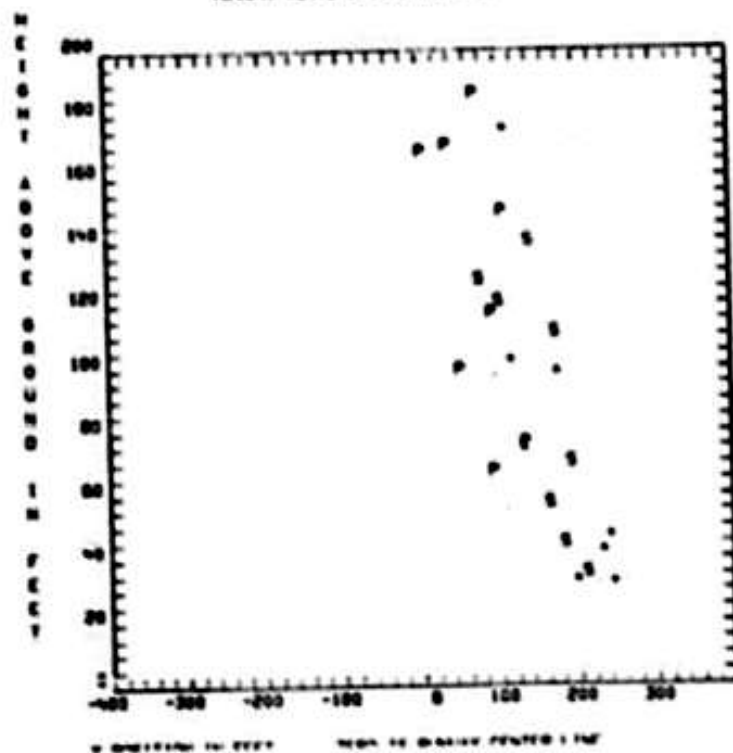
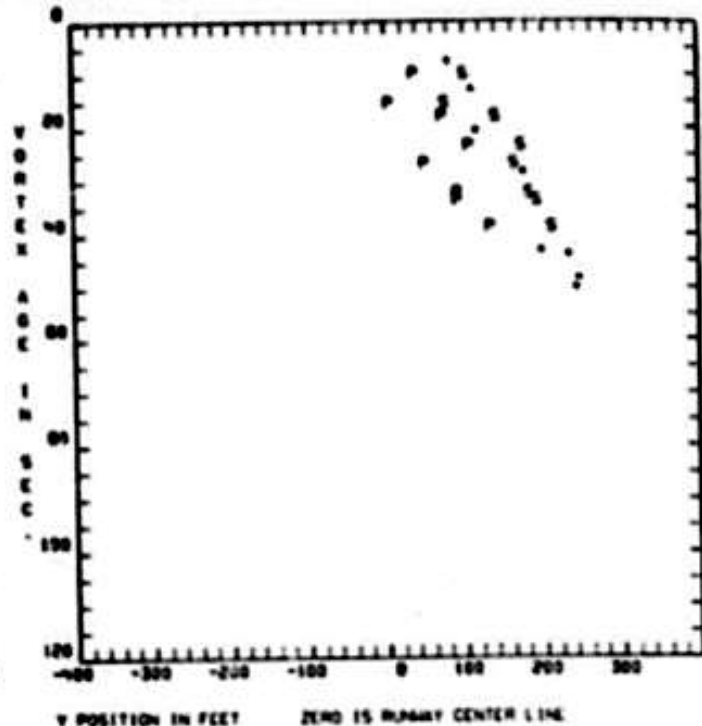
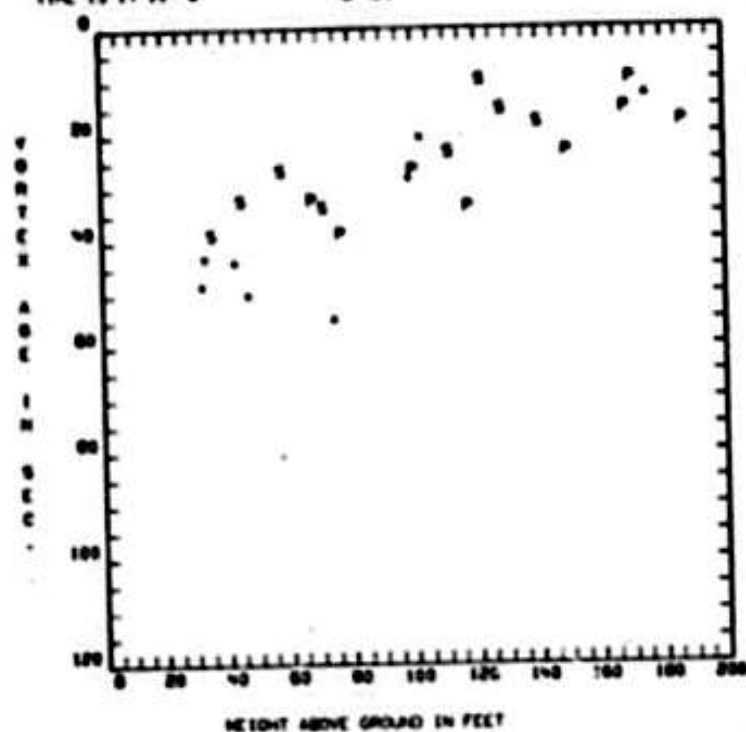


SEASIDE, CA
TIME 15 17:11' 0

JN30

ON 1/30/76 JN RUNWAY 31R HD310.

JOB NO R30000

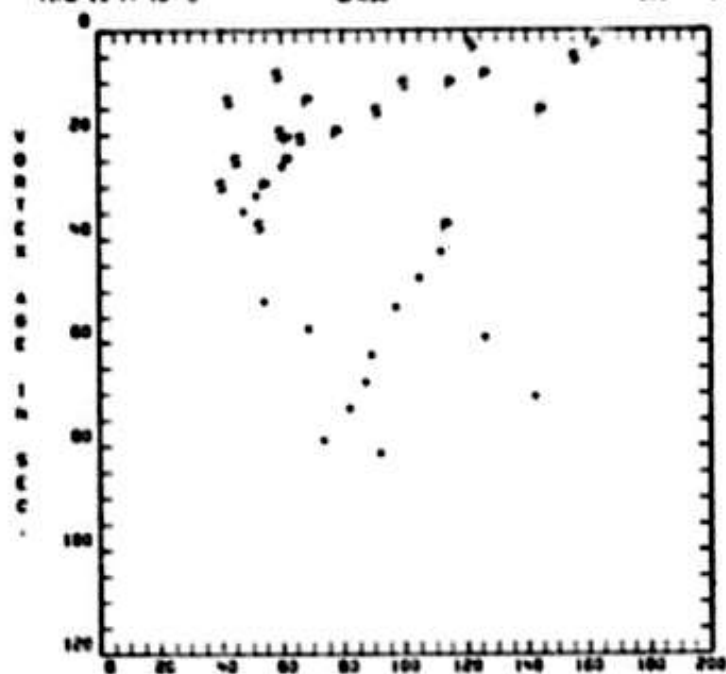


SEA NO. 49
TIME IS 17:18:0

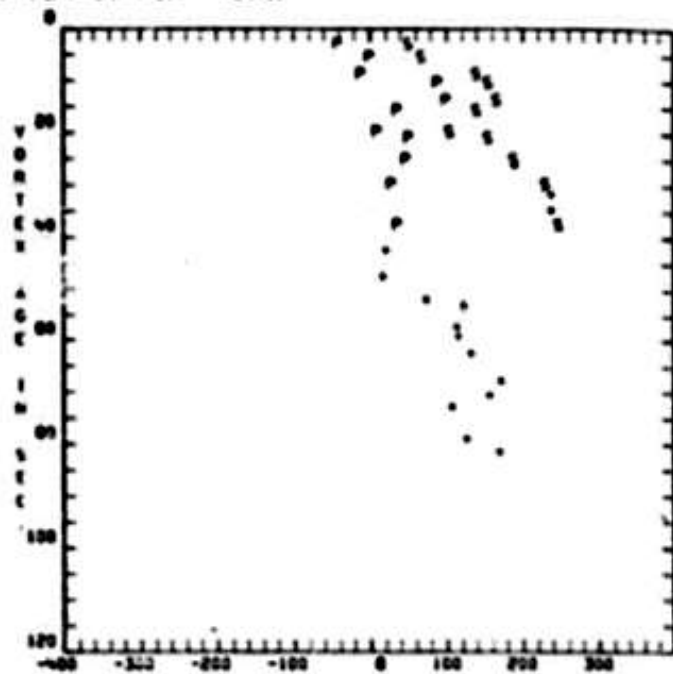
JFK30

DCB 1/30/76 JFK RUNWAY 31R HGS10.

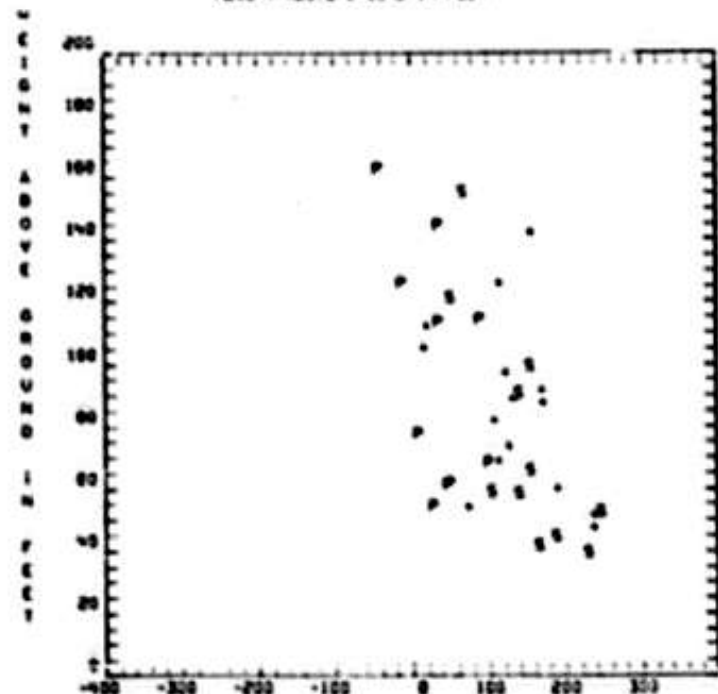
JOB NO R30001



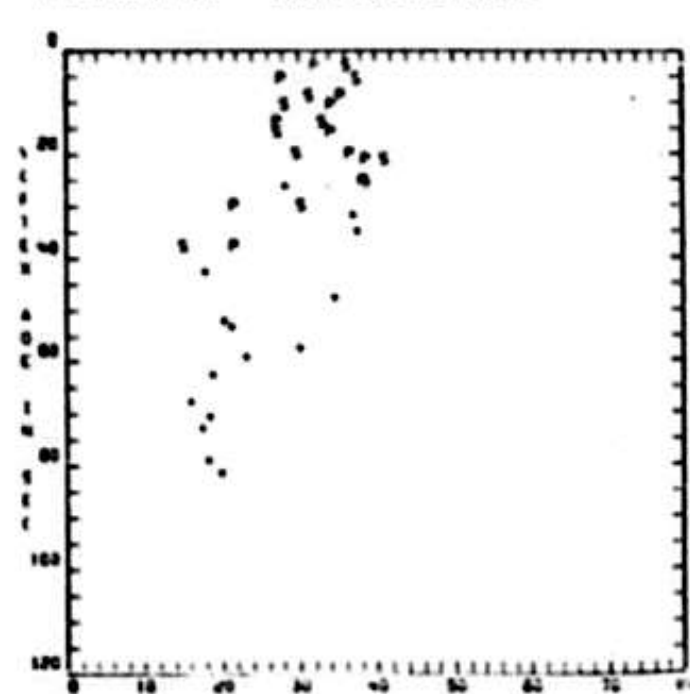
HEIGHT ABOVE GROUND IN FEET



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE



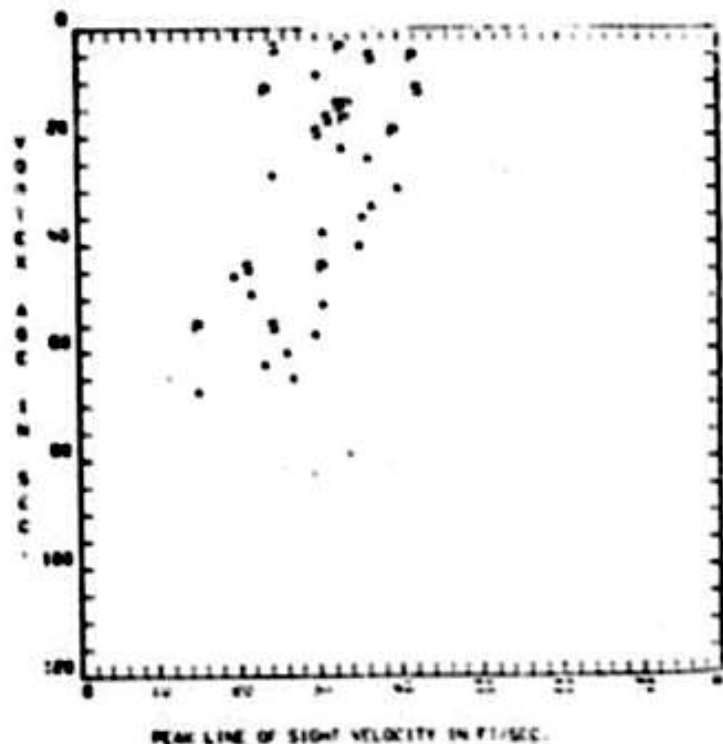
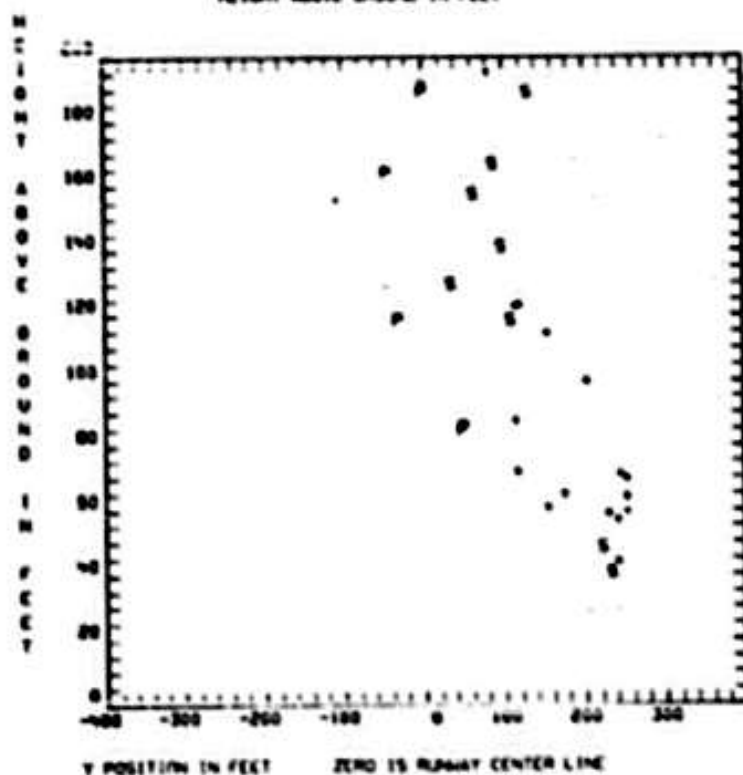
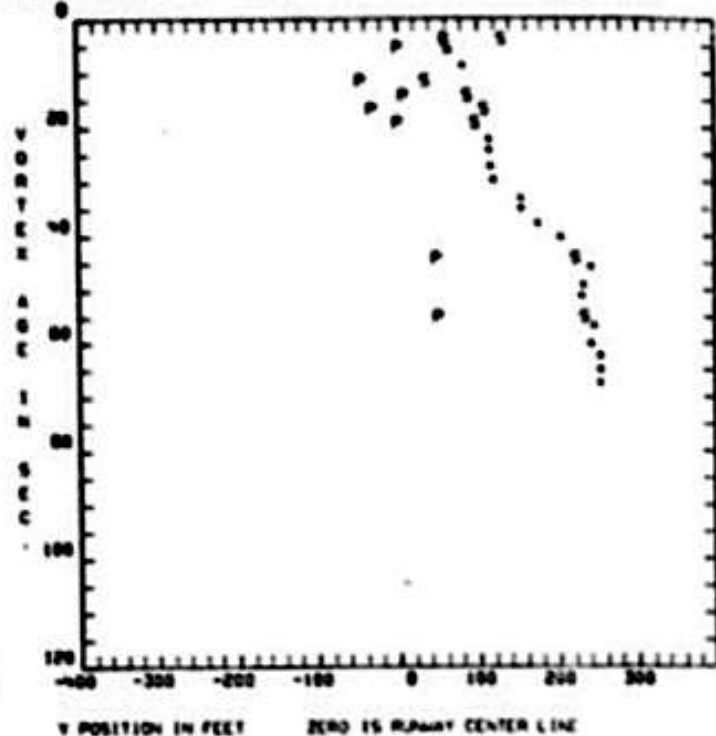
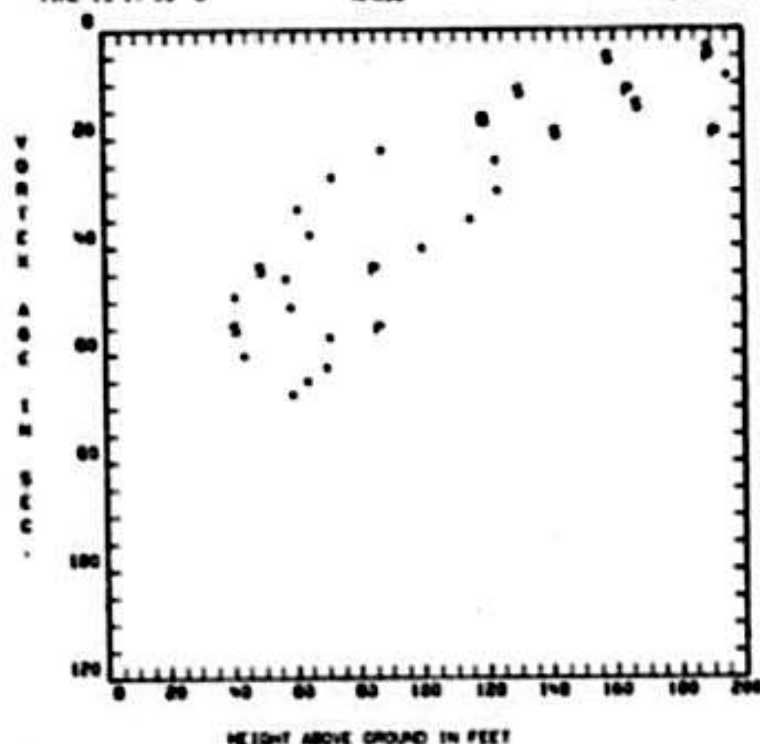
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Q8A40. 50
TIME IS 17:22" 0

.87X30

0707 1/26/76 JPK RUNWAY 31R HD310.

JOB NO R32000

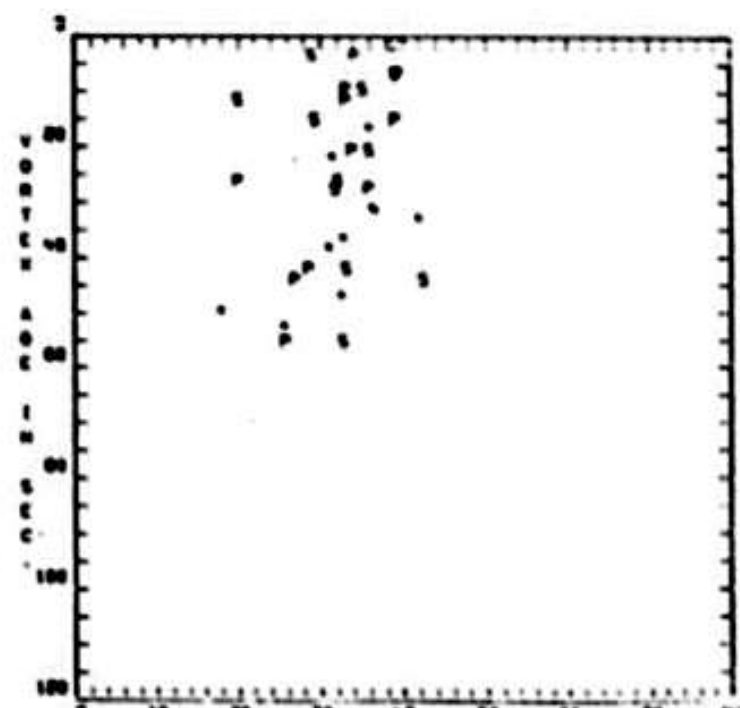
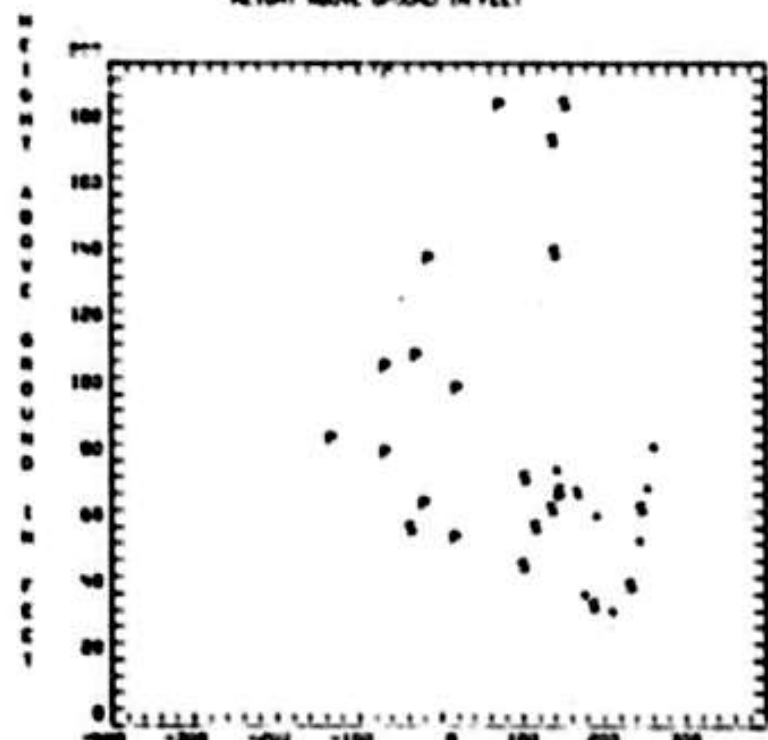
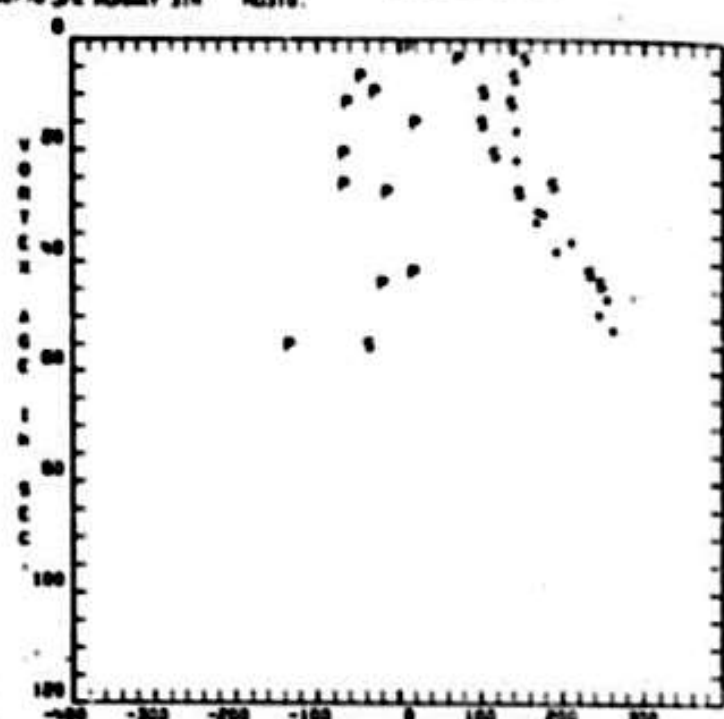
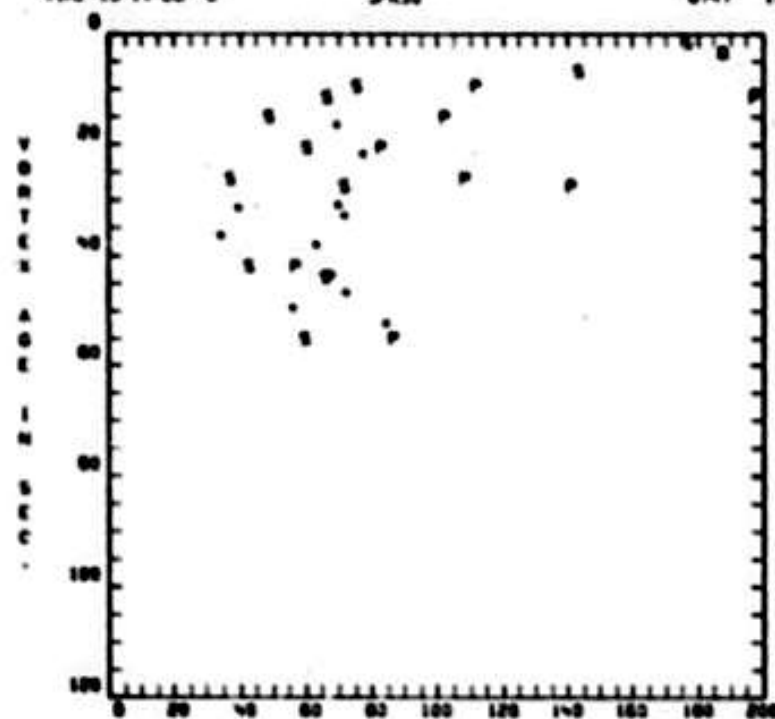


NA/NO. 51
TIME IS 17:25' 0

JFK30

0747 1/30/76 JFK Runway 31R HQ310.

JOB NO R30000

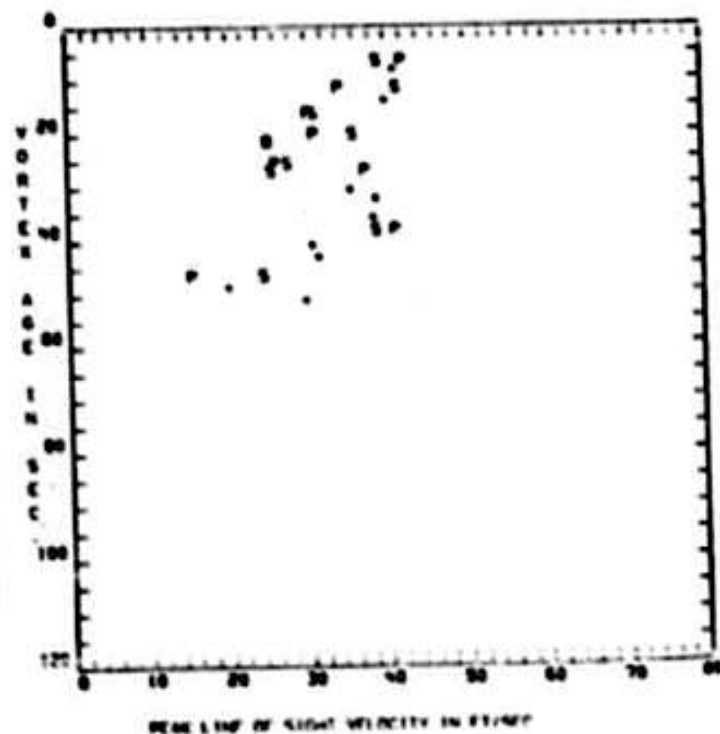
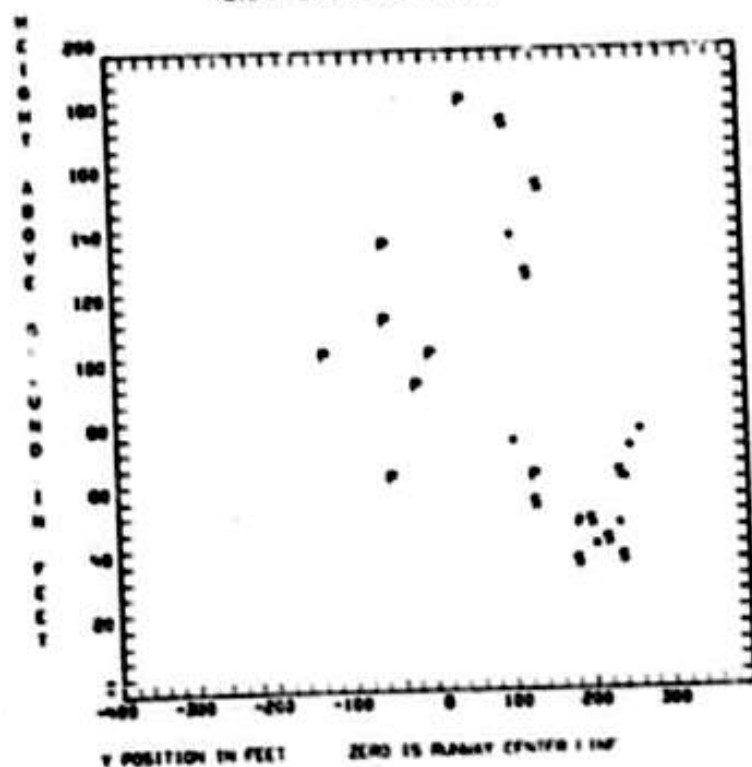
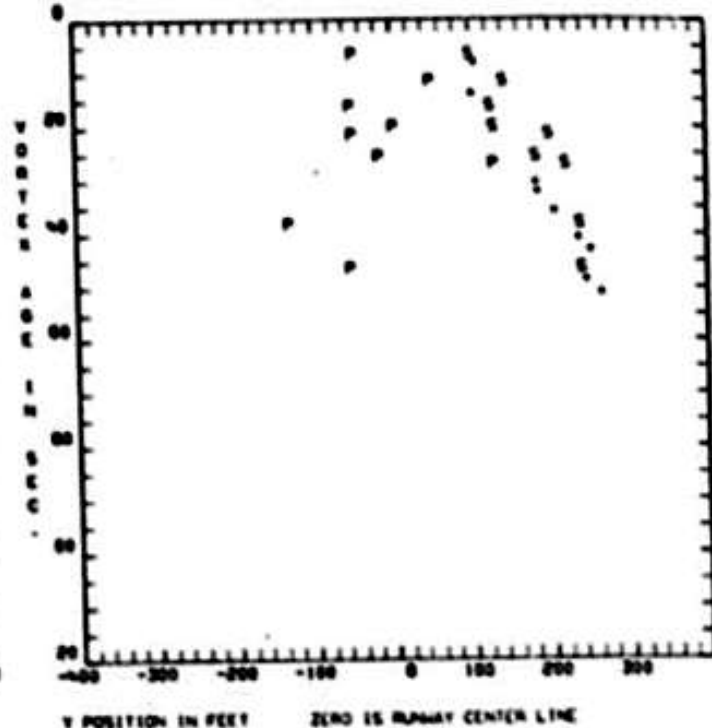
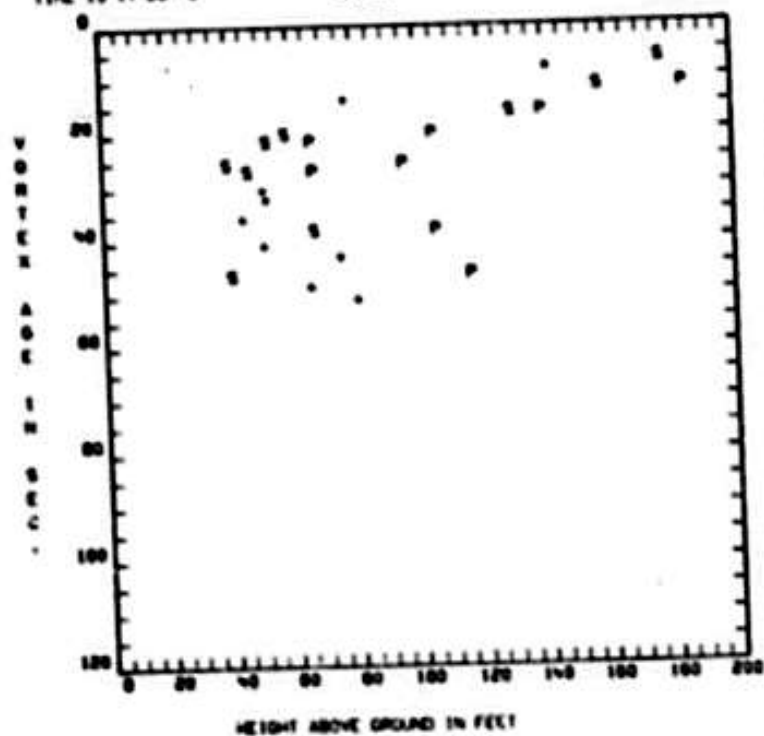


SEALED 52
TIME 15 17:20' 0

JFK30

0747 1/30/76 JFK Runway 31R H0315.

JOB NO R30000

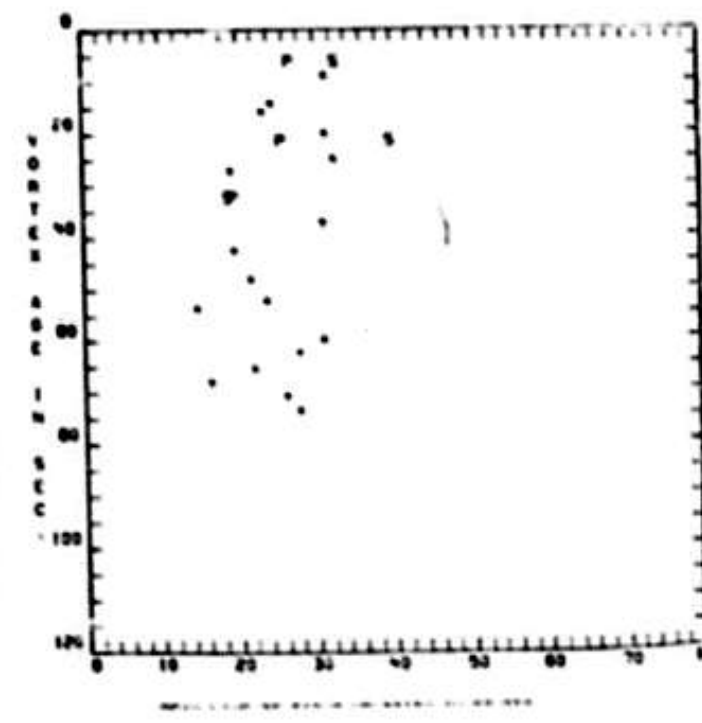
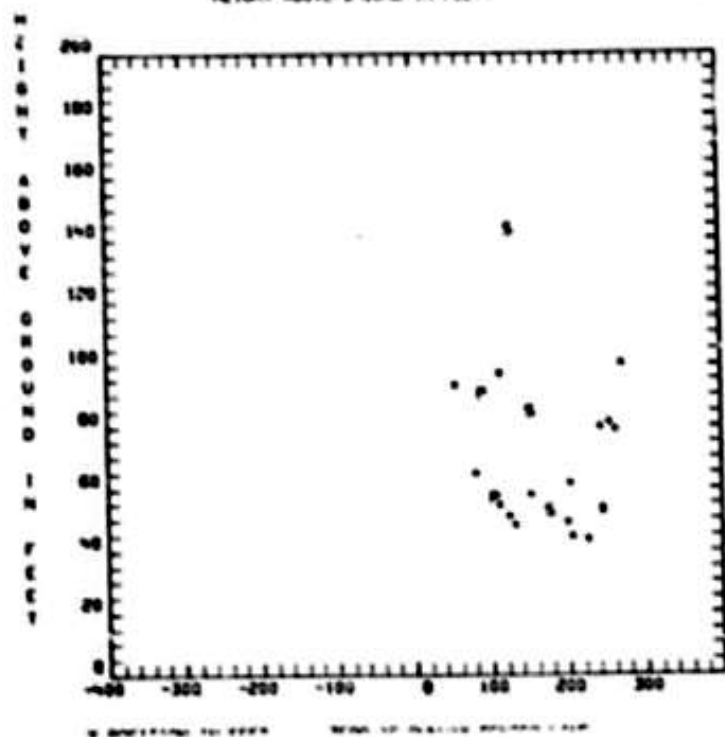
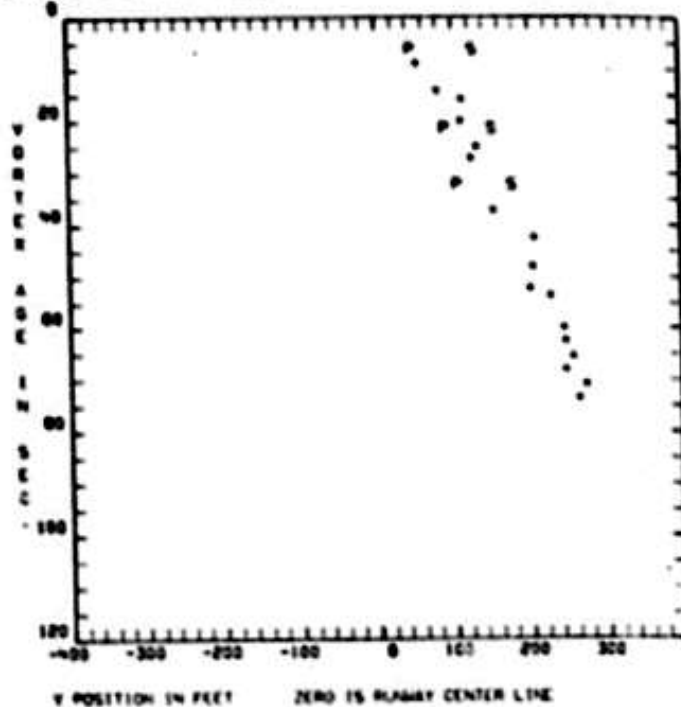
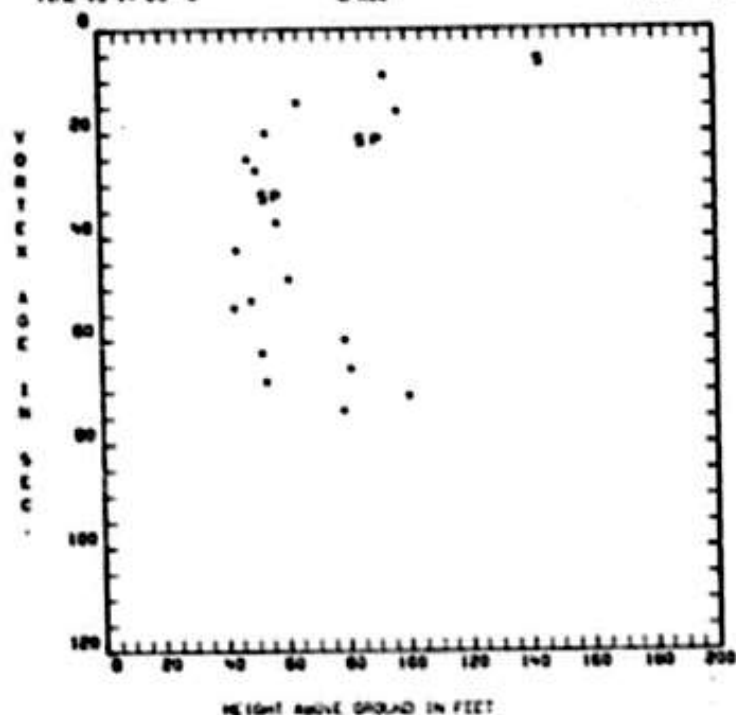


WIND NO. 53
TIME IS 17:20' 0

JFK30

0727 1/30/76 JFK RUNWAY 31R HD310.

JOB NO R32000

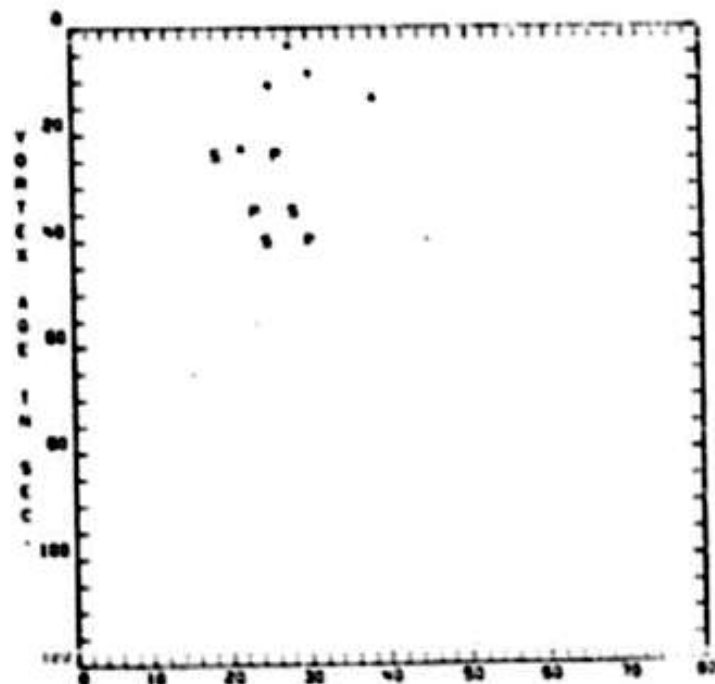
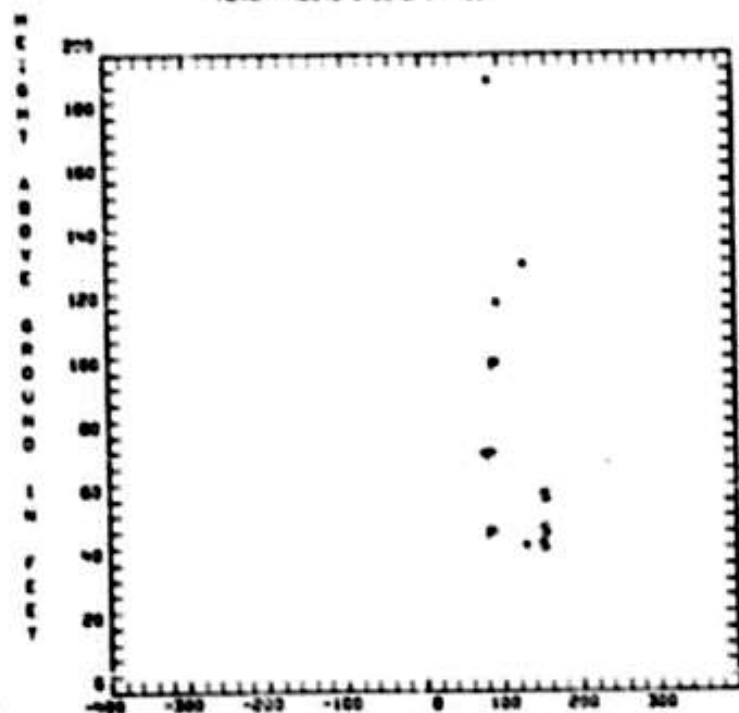
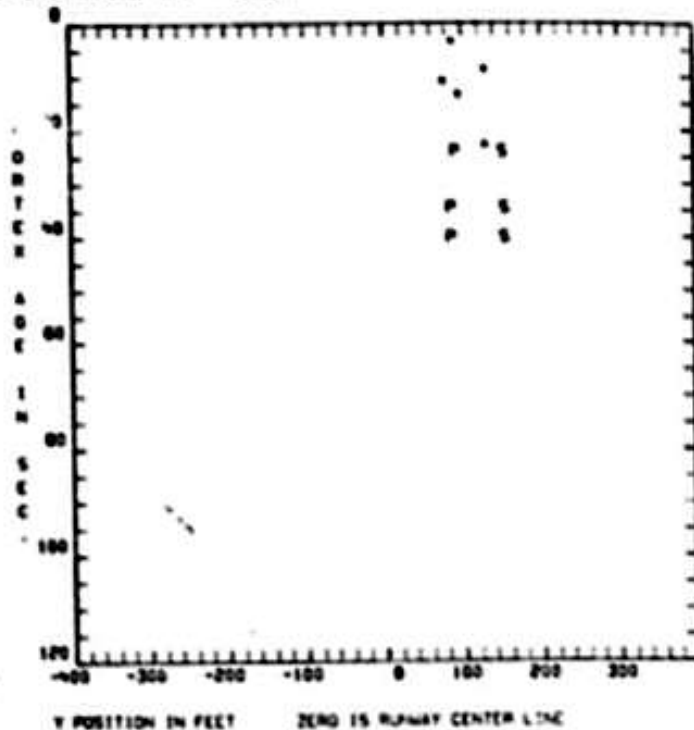
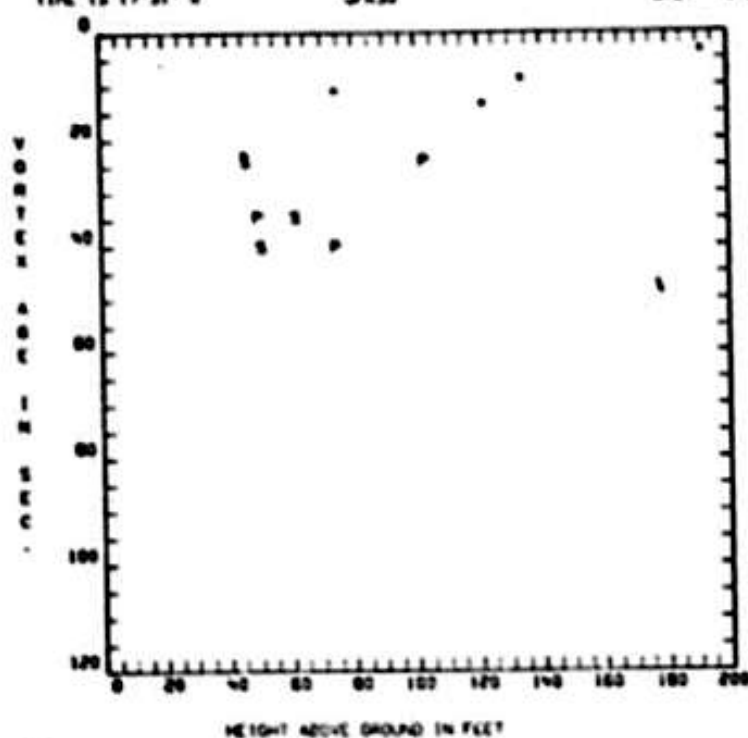


NRANO. 74
TIME 15 17'31" 0

JN30

0727 1/30/76 JN RUMAY 31R HCS10.

JOB NO R30000

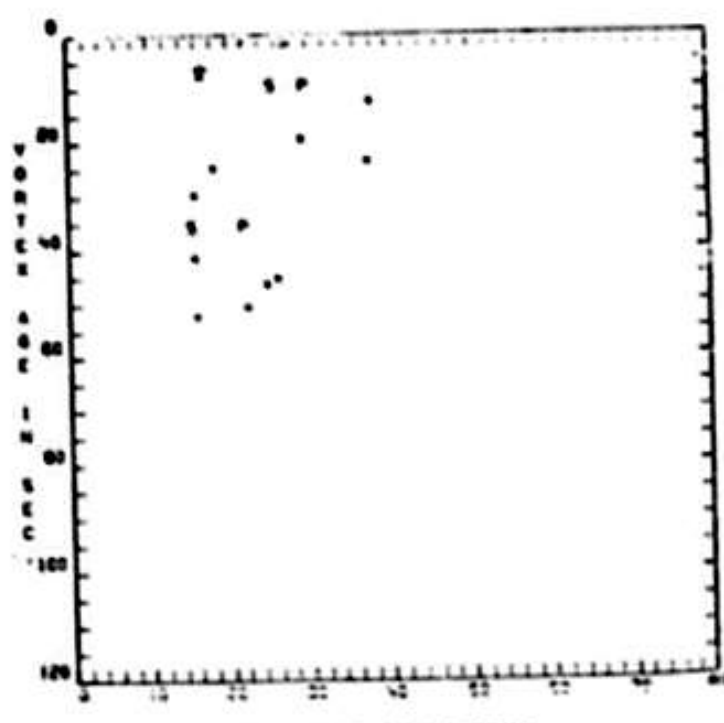
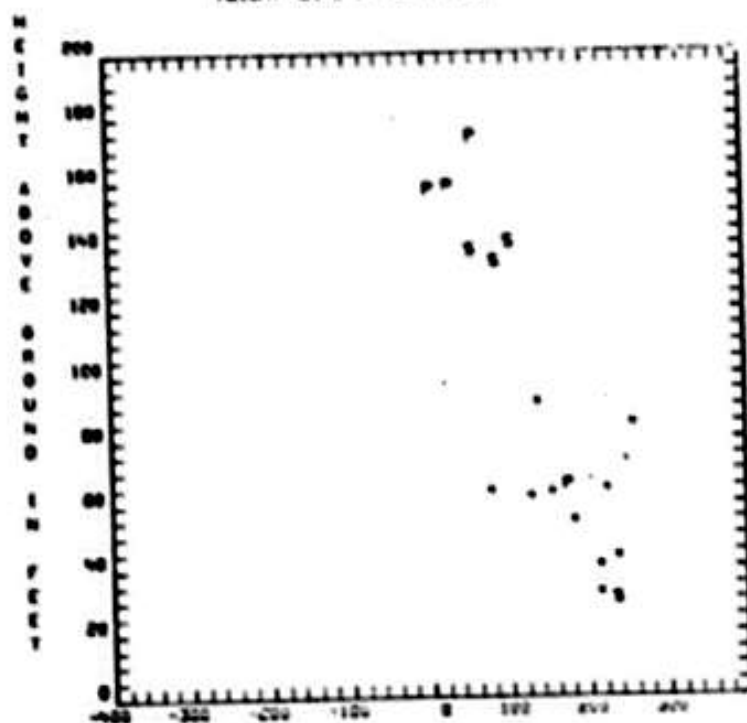
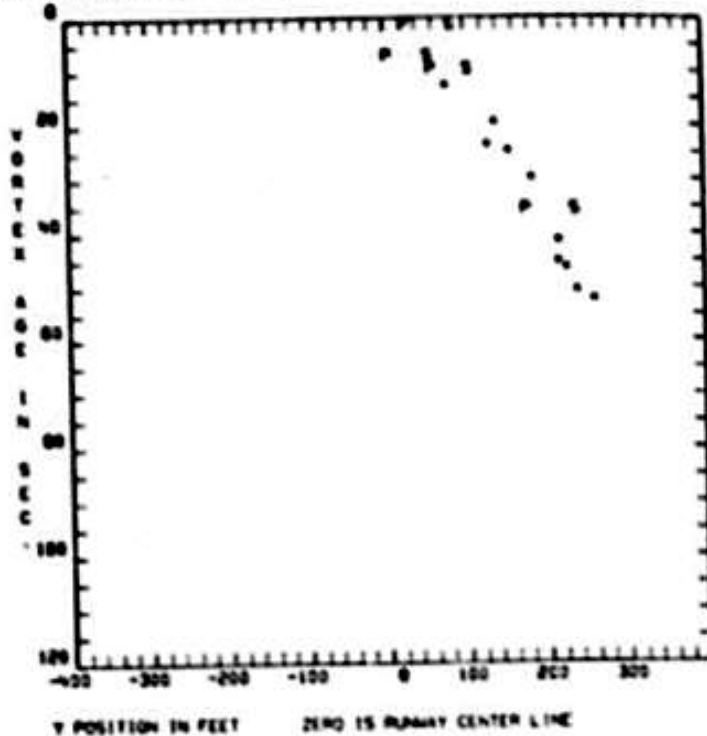
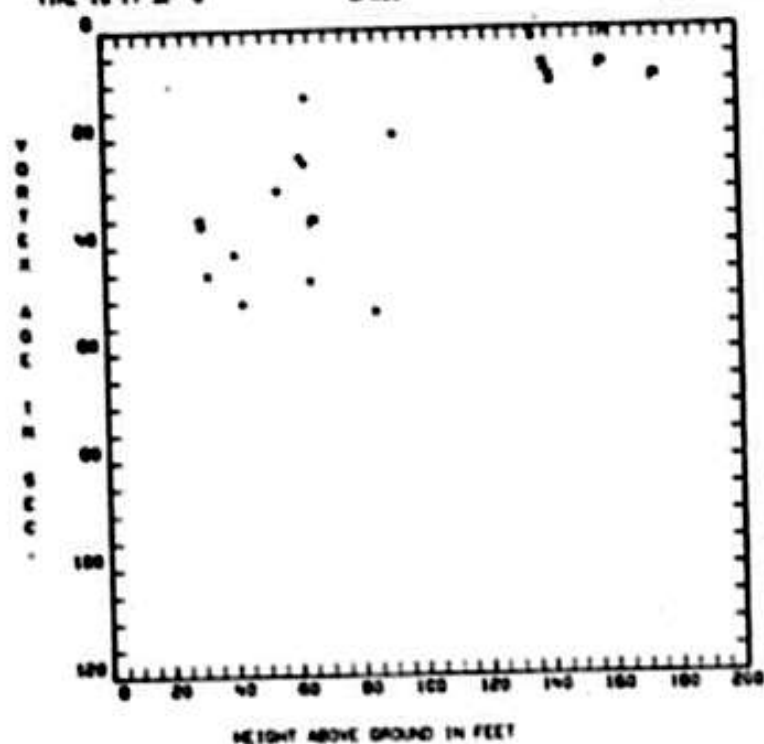


48840. 95
TIME 16 17 30 0

JFK30

0727 1/30/76 JFK RUNWAY 31R HD318.

JOB NO R30000

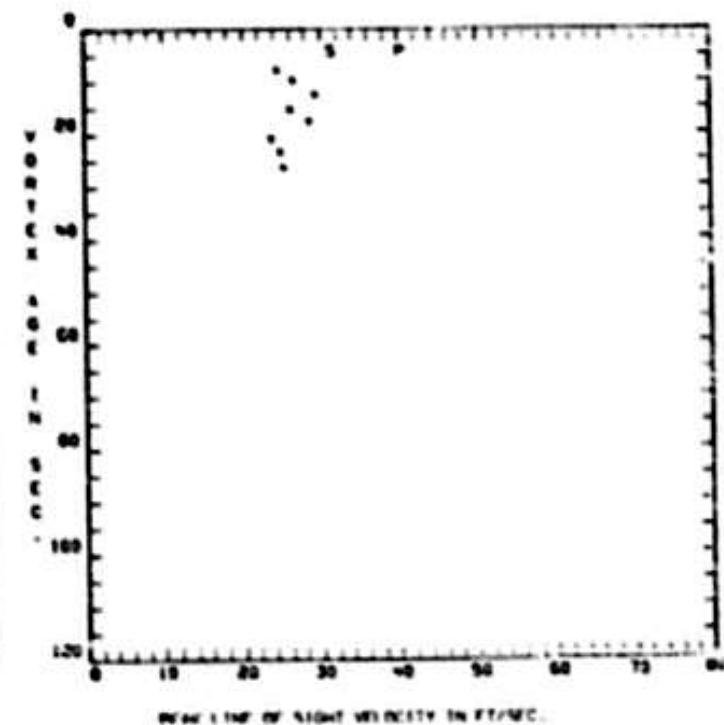
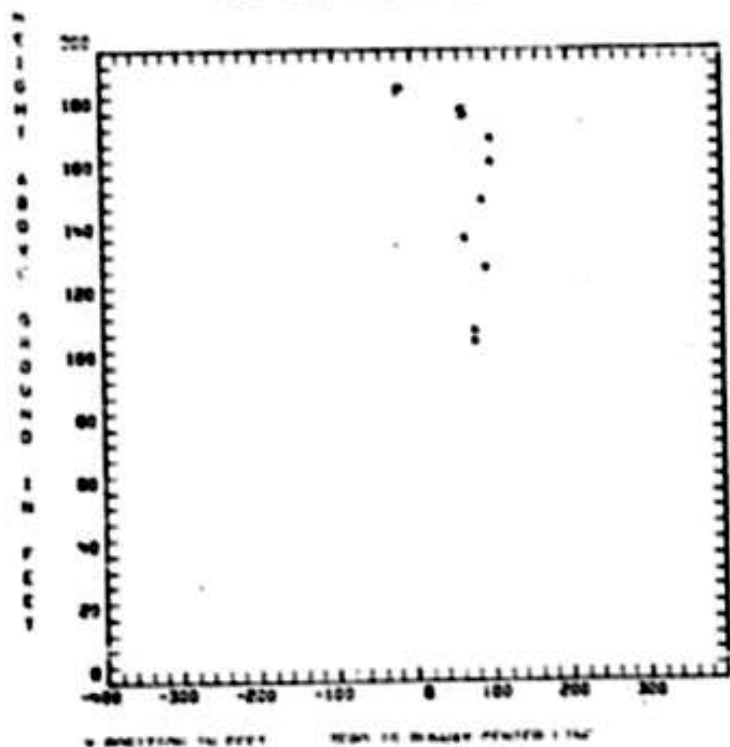
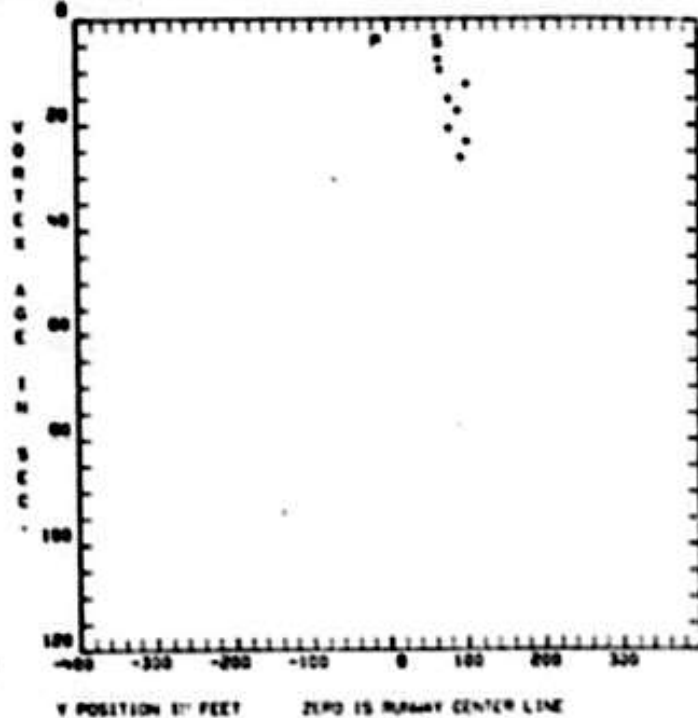
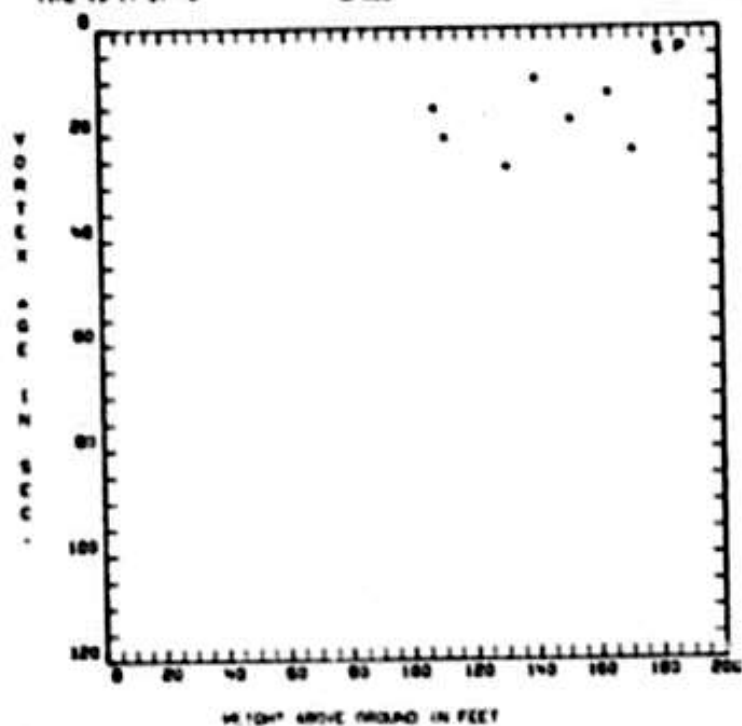


HAAS. SE
TIME 15 17:37 G

JFK30

8767 1/30/76 JFK RUNWAY 31R NO31C.

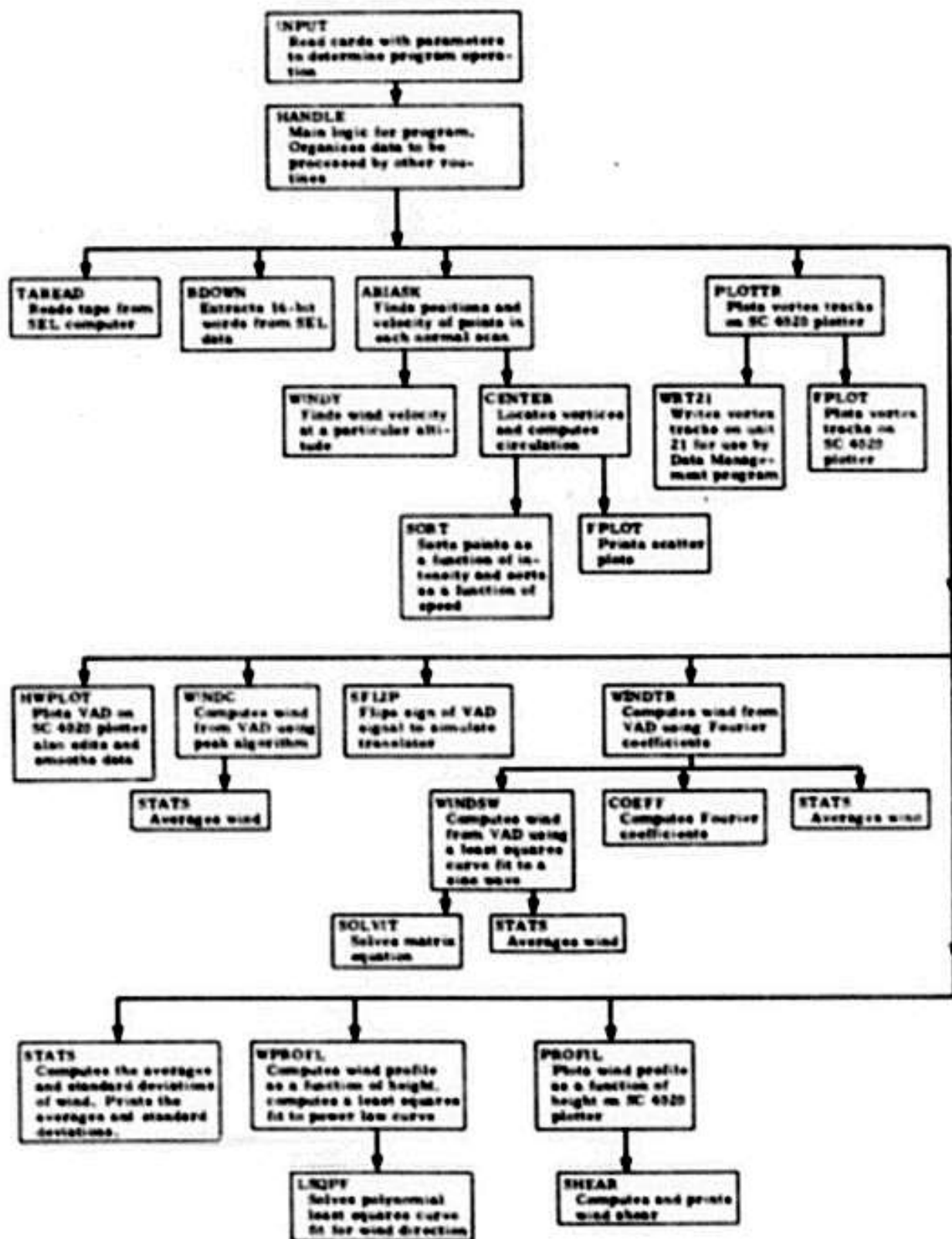
JOB NO R35000



Appendix B
COMPUTER PROGRAM DOCUMENTATION

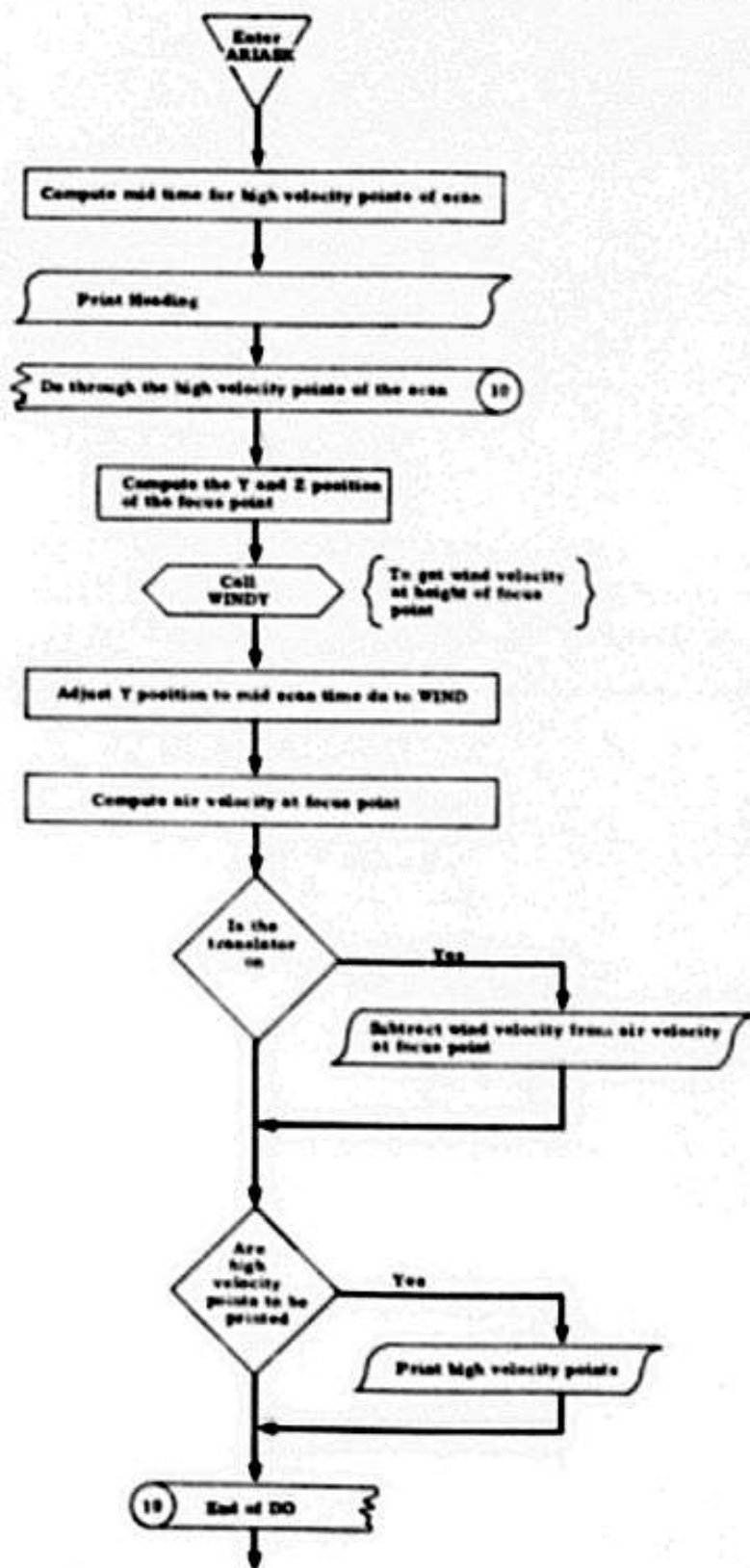
This appendix describes the computer programs developed and utilized during the research program. The discussion of the off-line computer software package includes flow charts of the basic routines and subroutines.

MACRO FLOW CHART OF VAD AND VORTEX TRACK PROGRAM



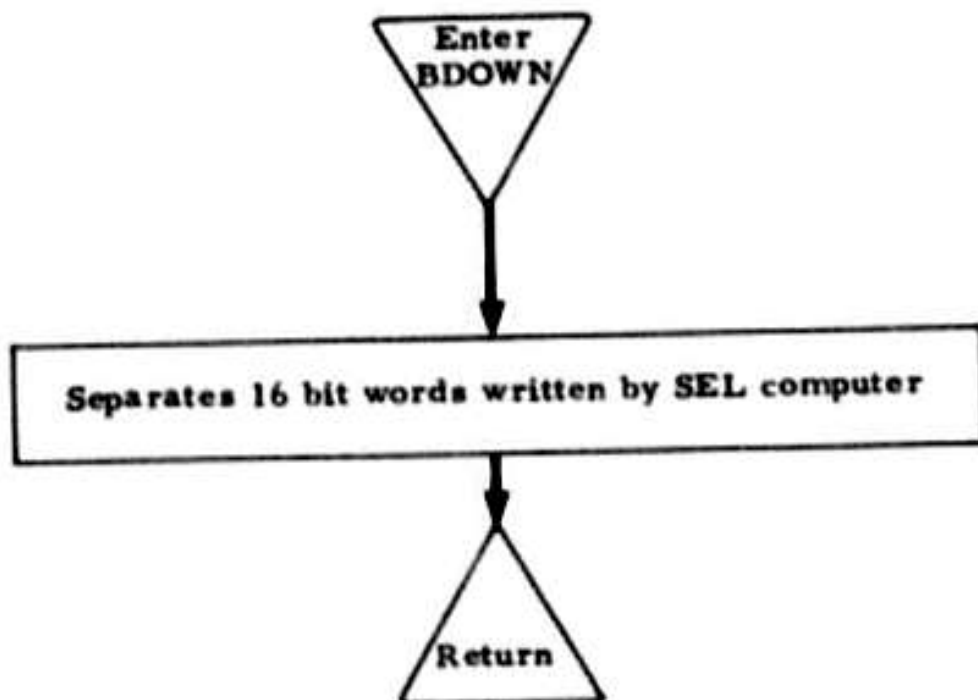
ROUTINE ARIASK

Find position and velocity of points in each normal scan.



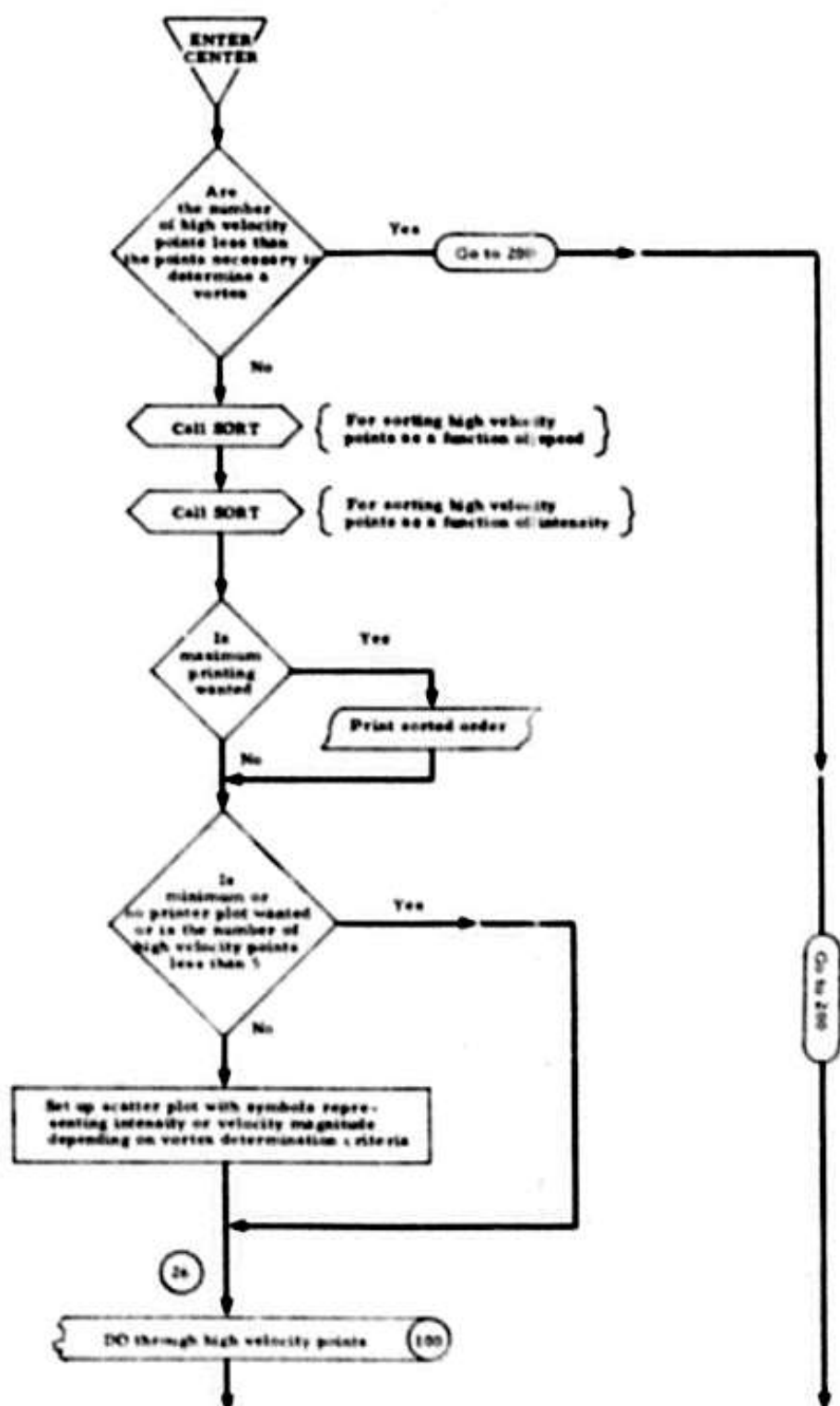
ROUTINE BDOWN

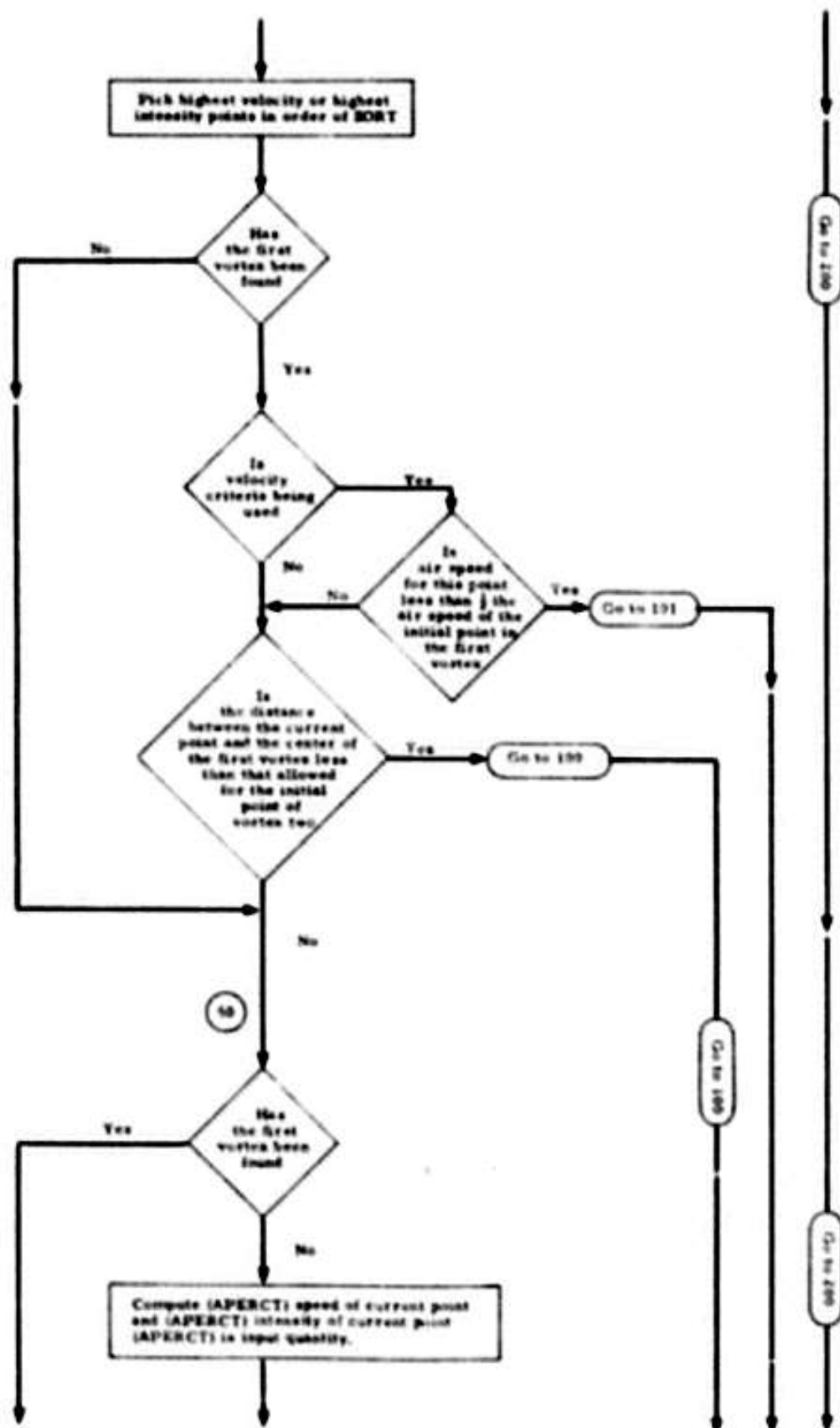
Separates 16 bit
words written by
SEL computer

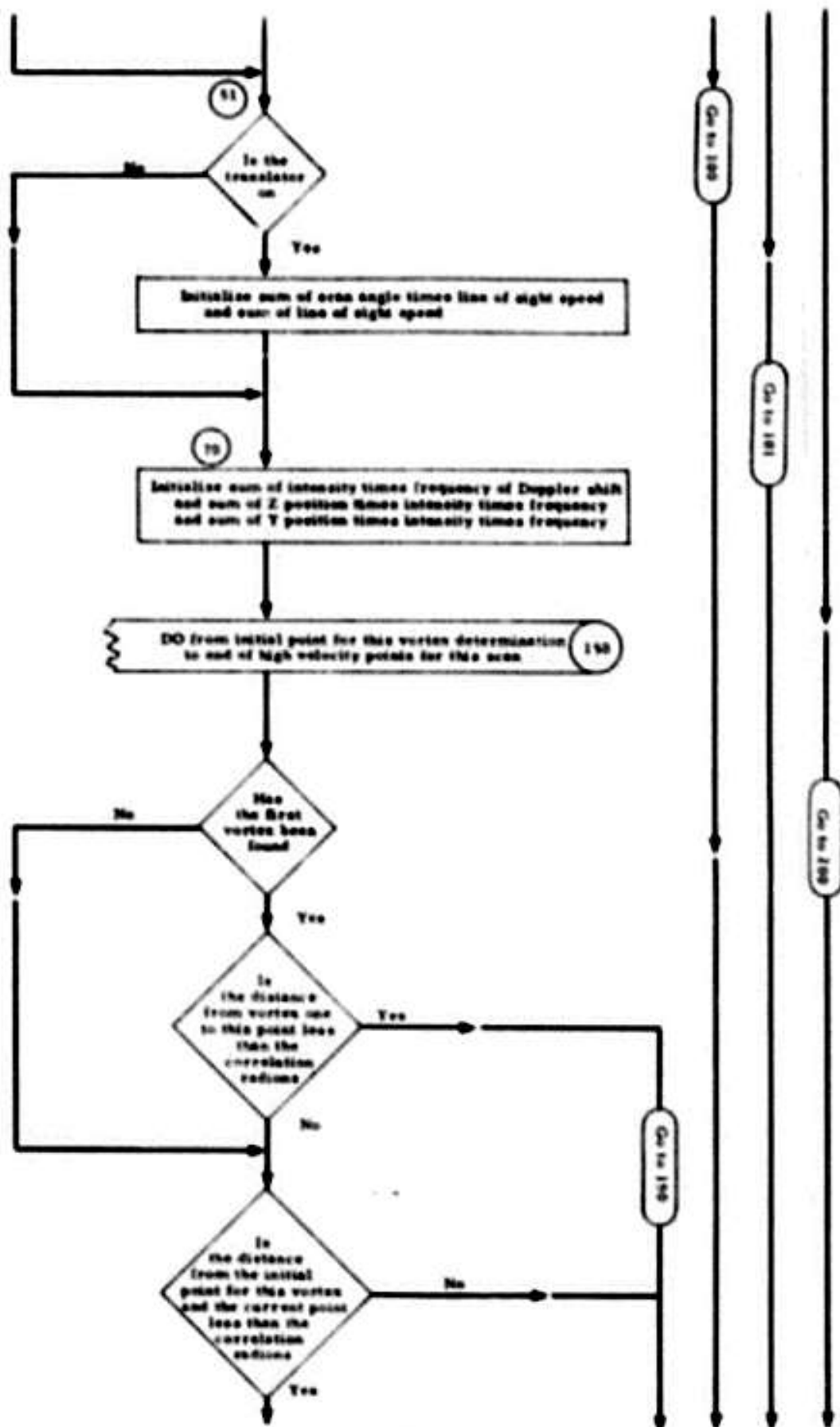


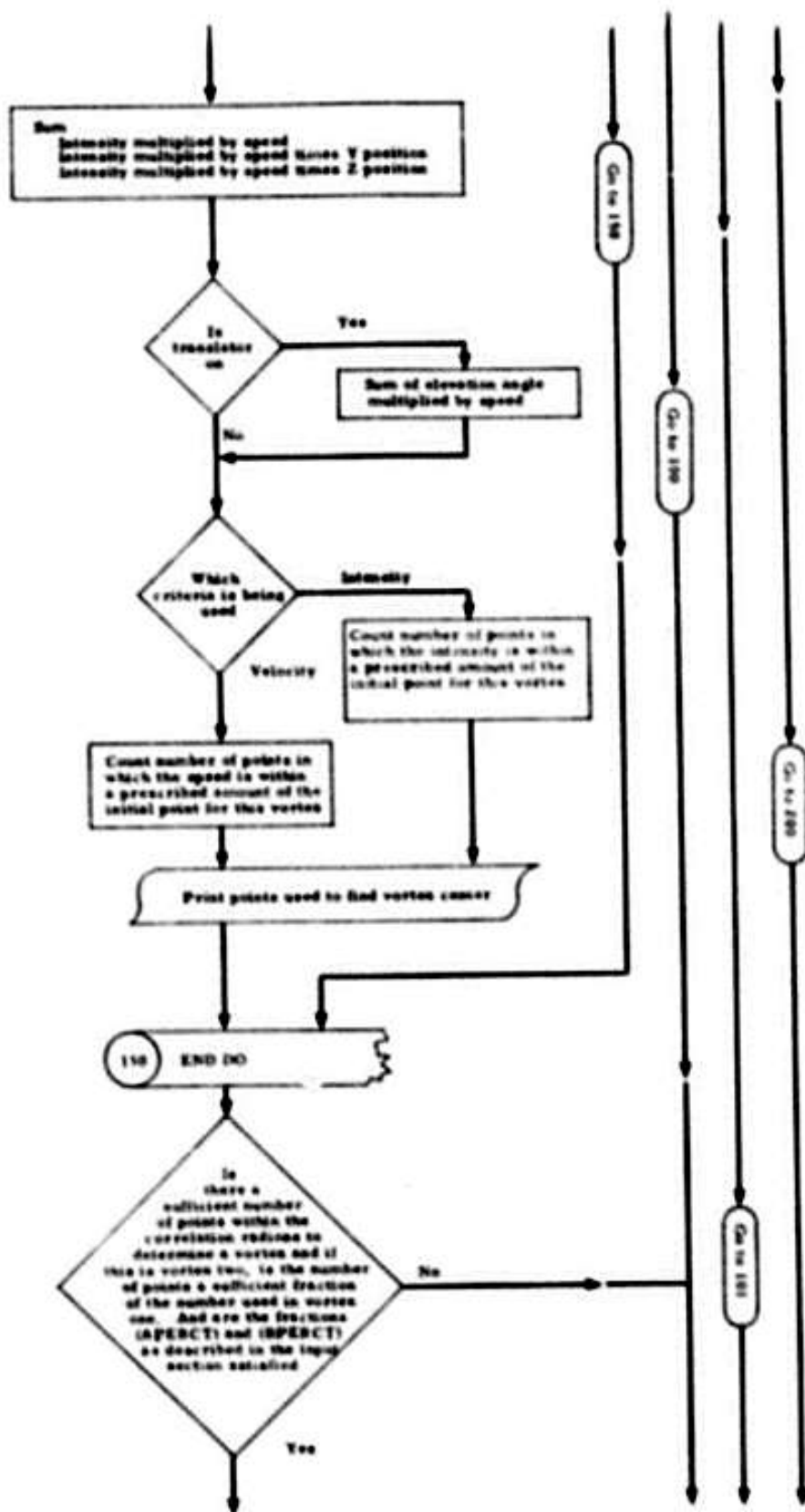
ROUTINE CENTER

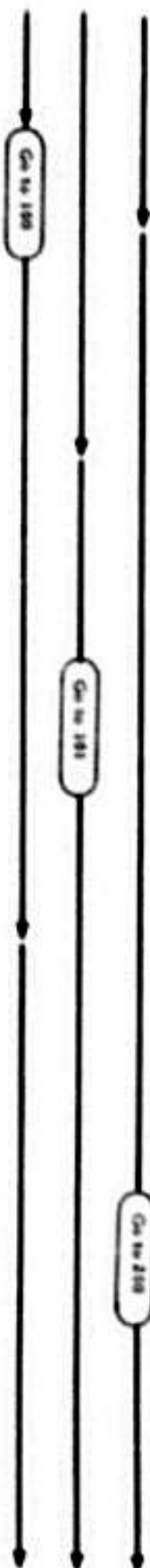
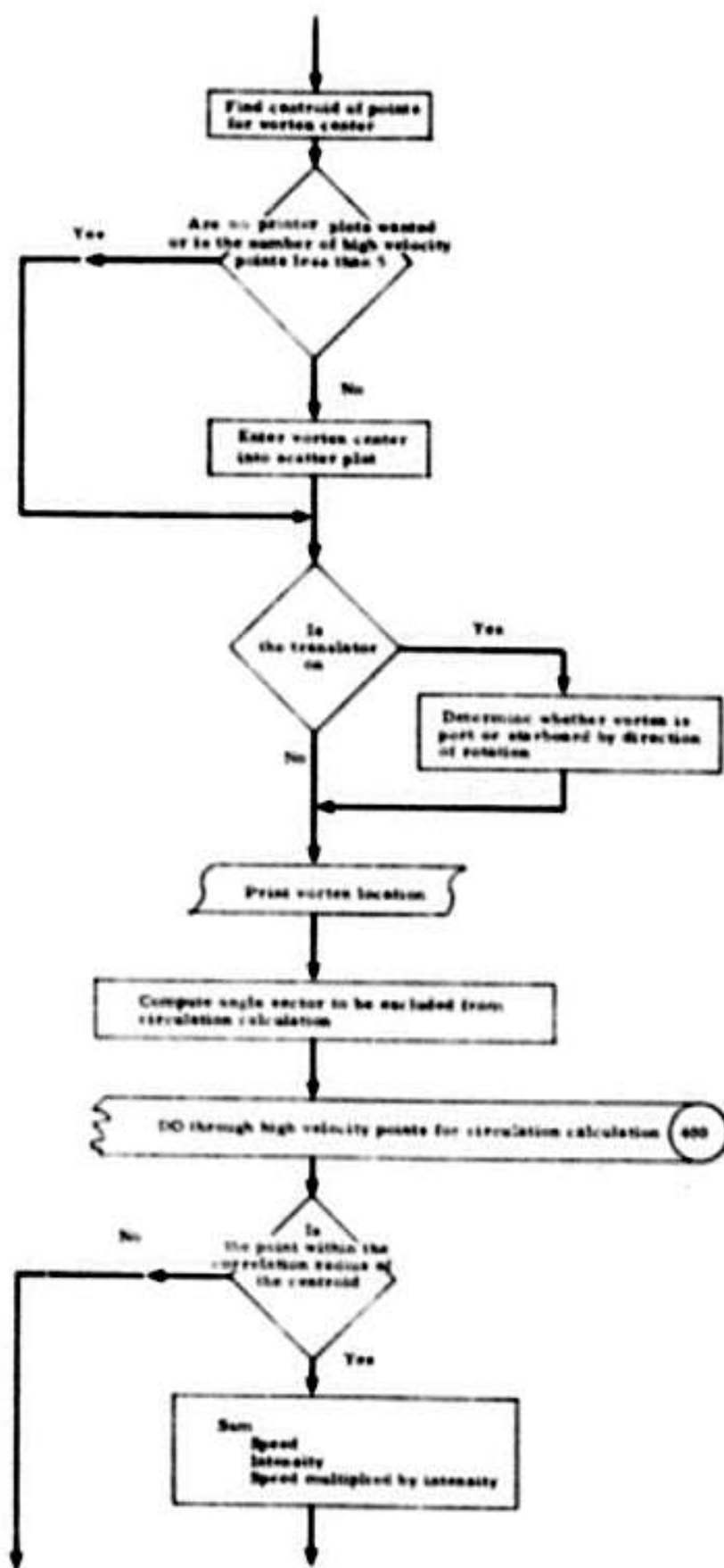
Locate vortices and
compute circulation.

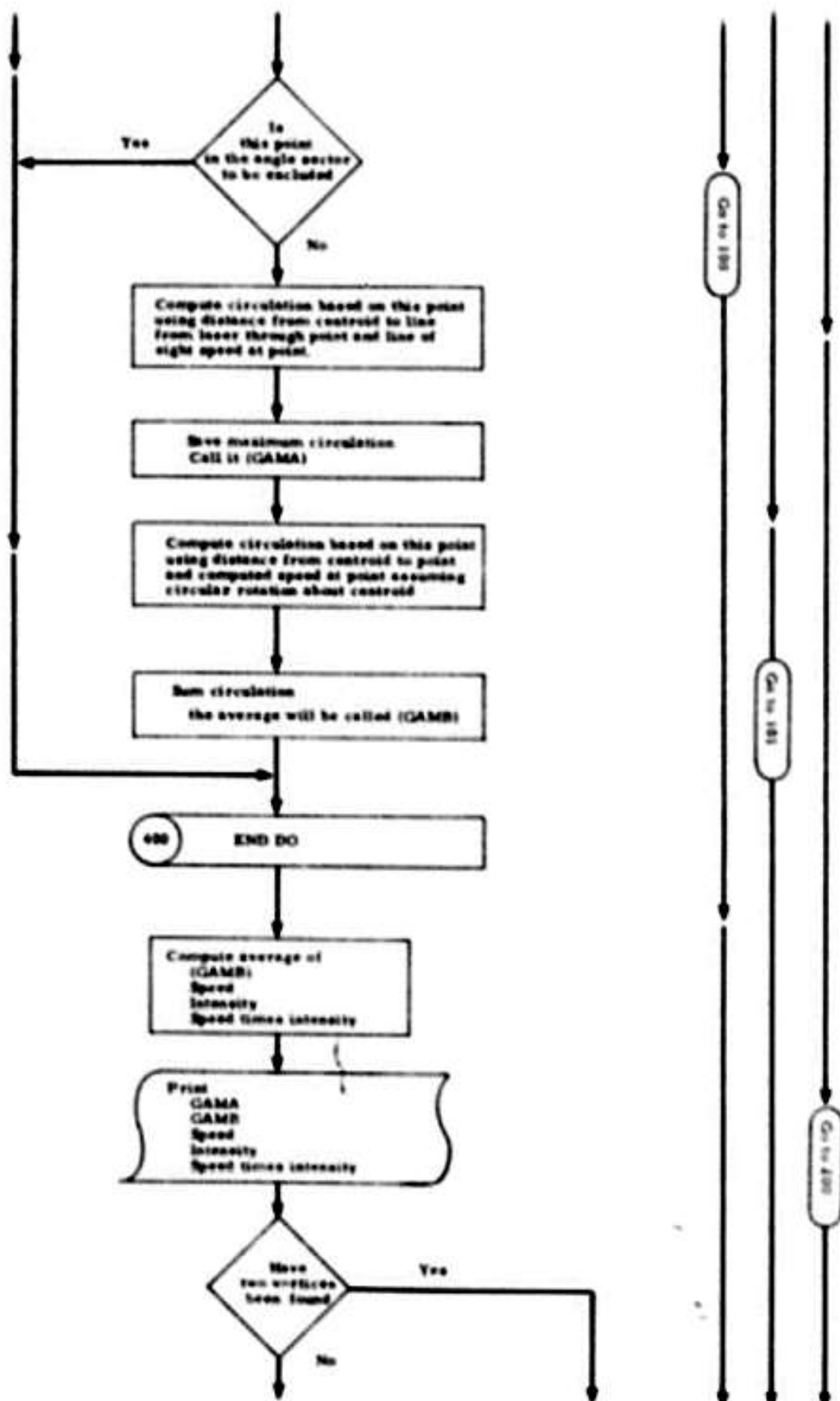


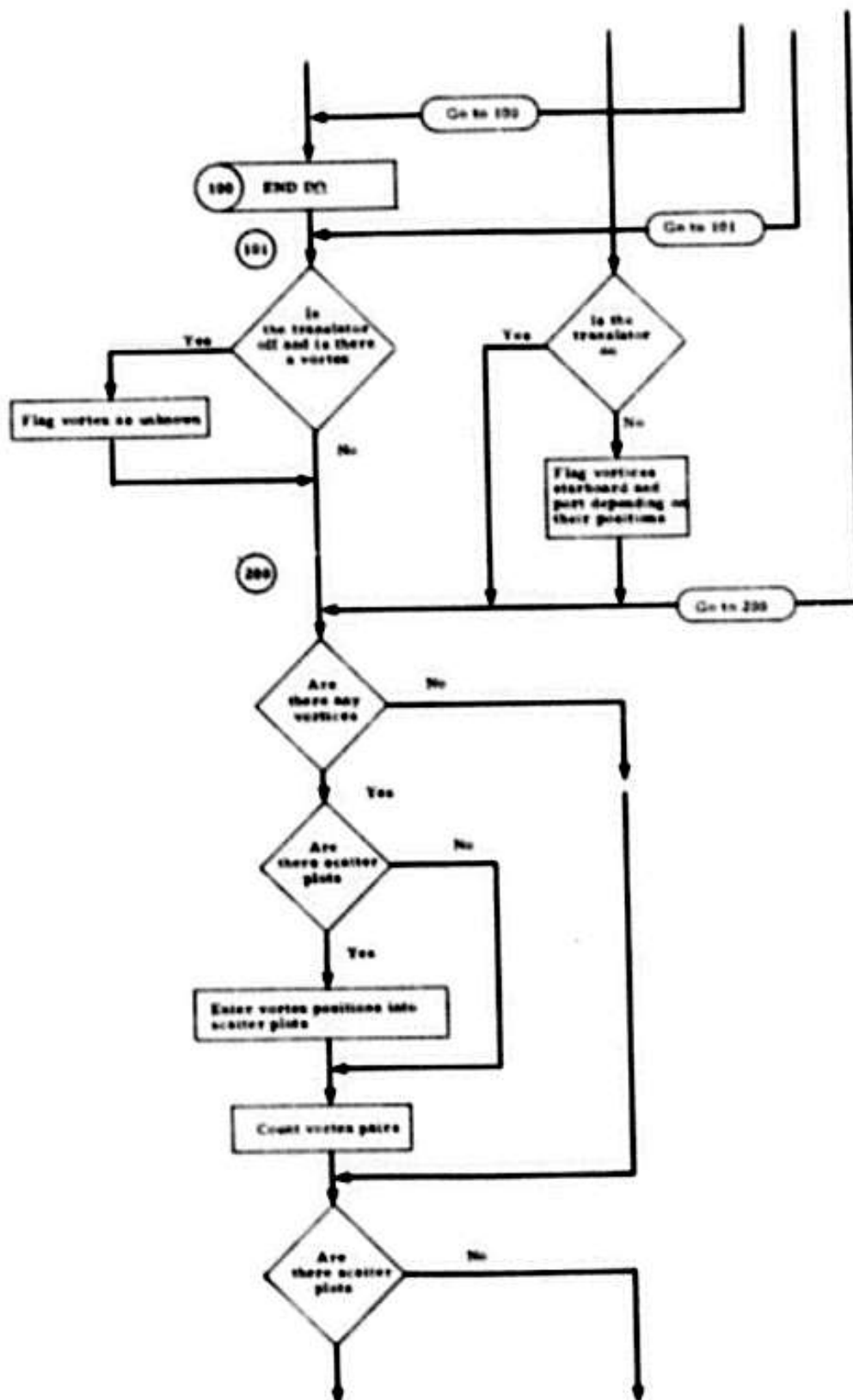


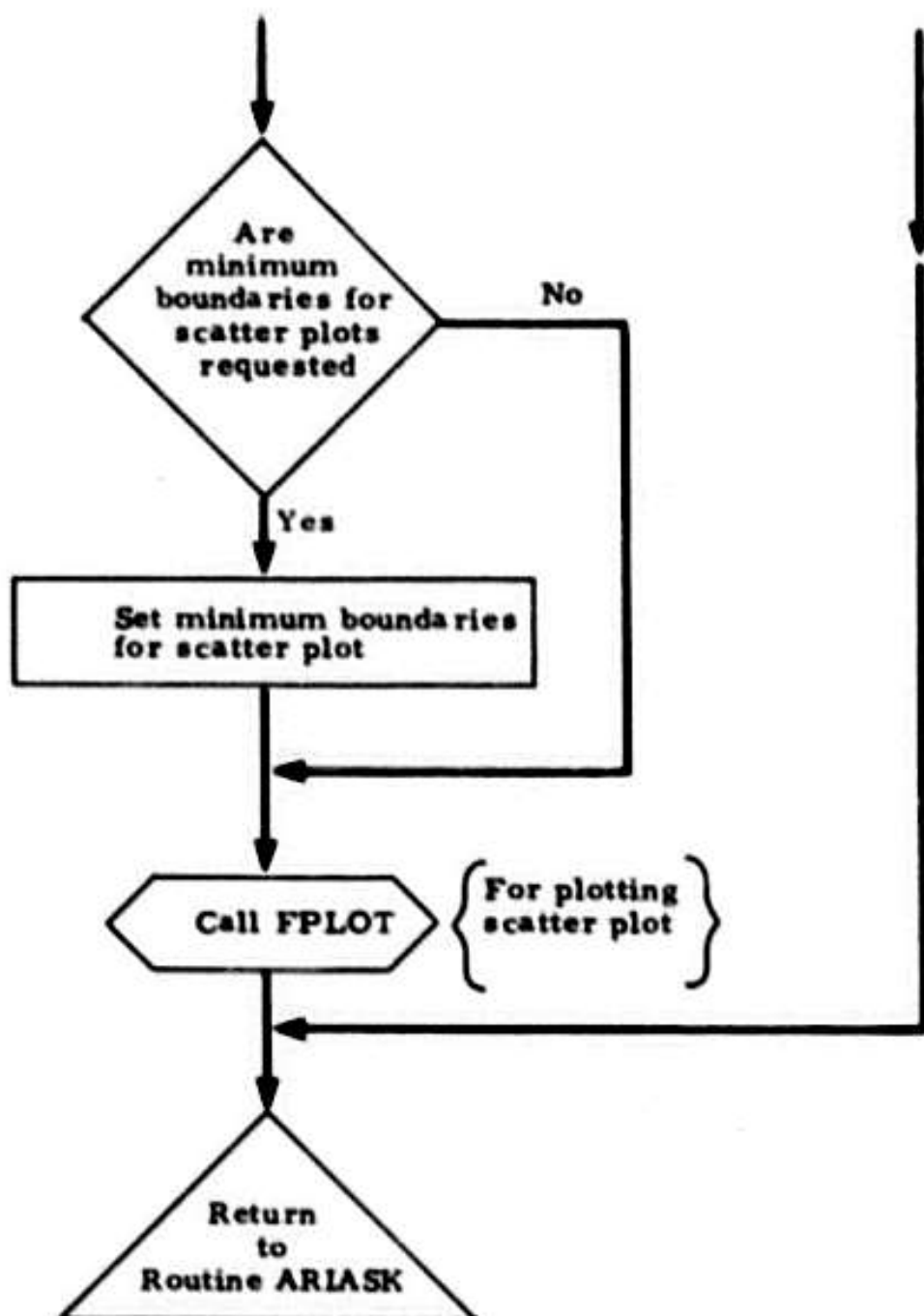






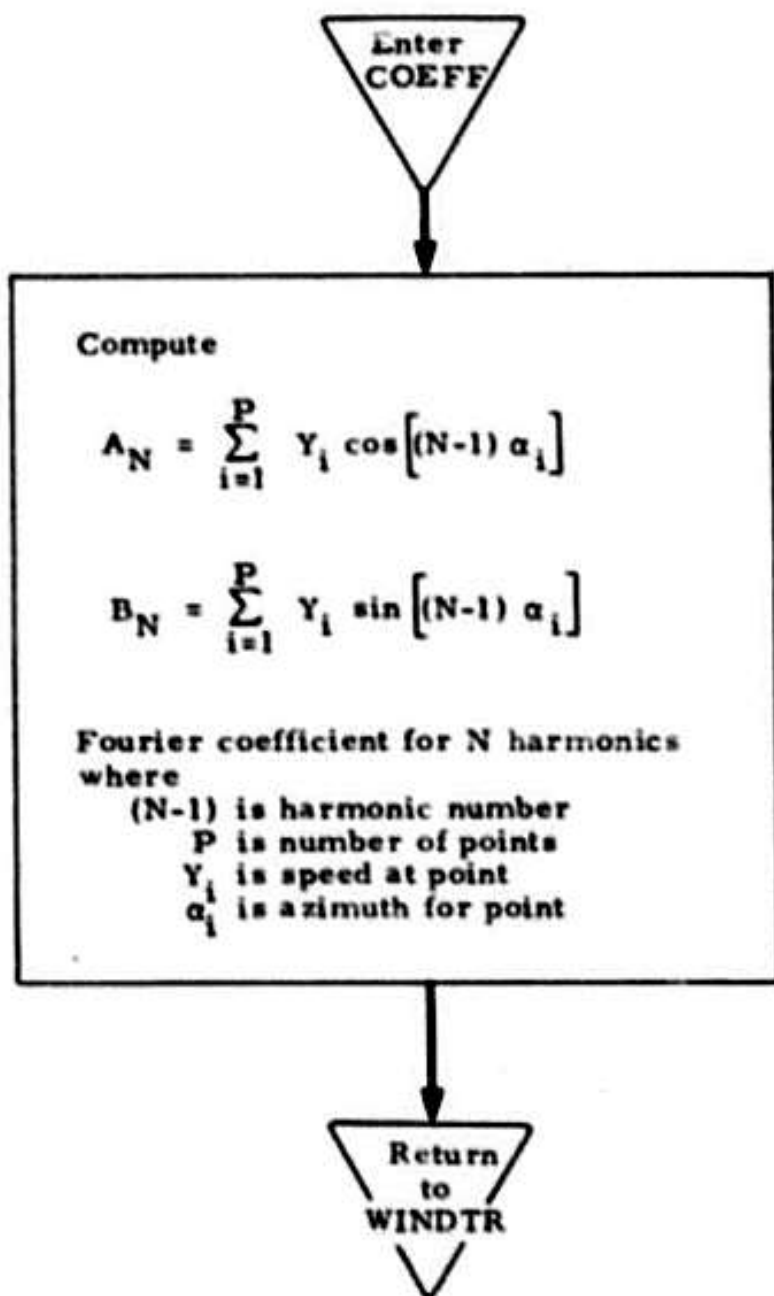






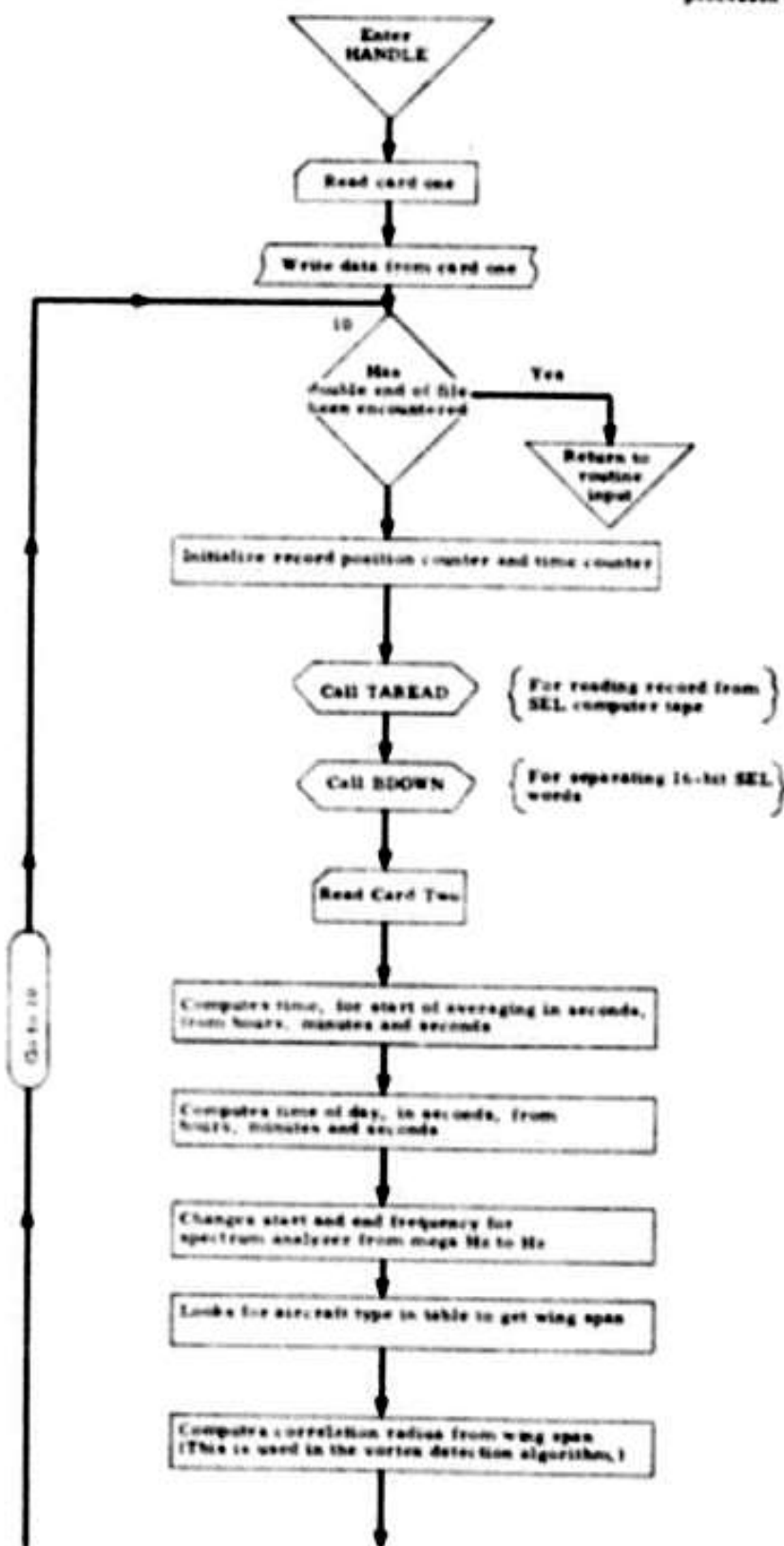
ROUTINE COEFF

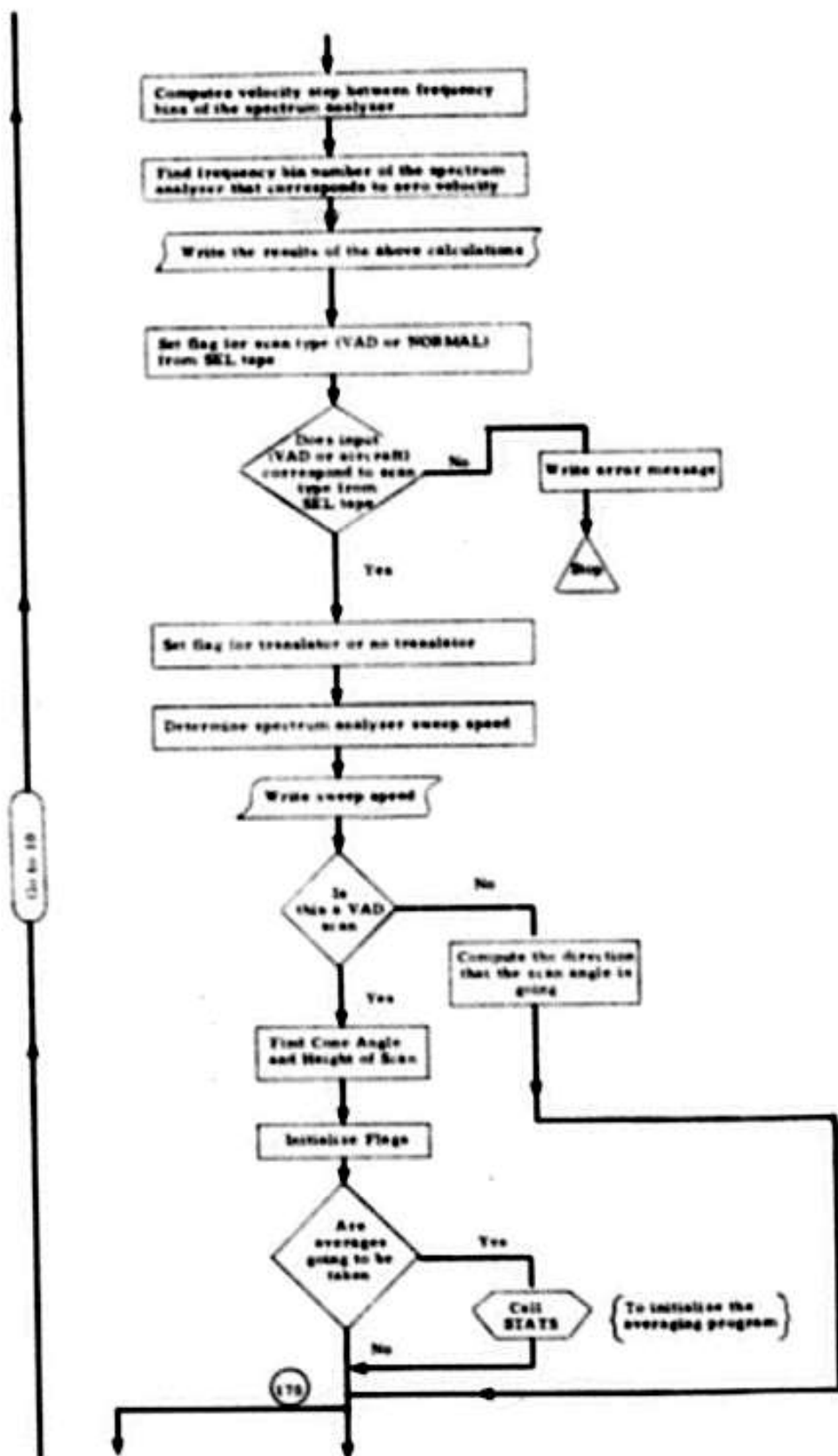
Computes Fourier coefficients
of VAD signal

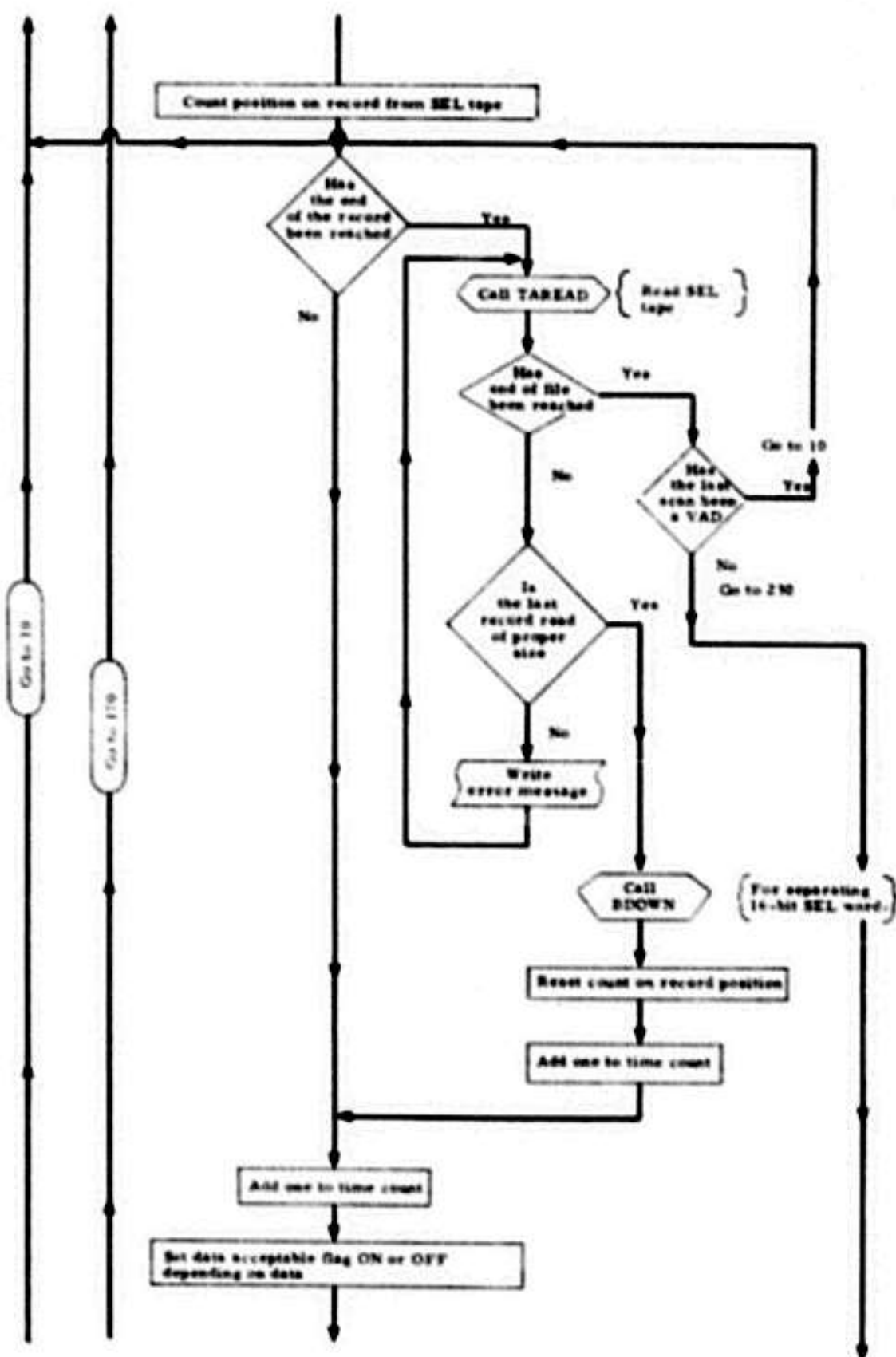


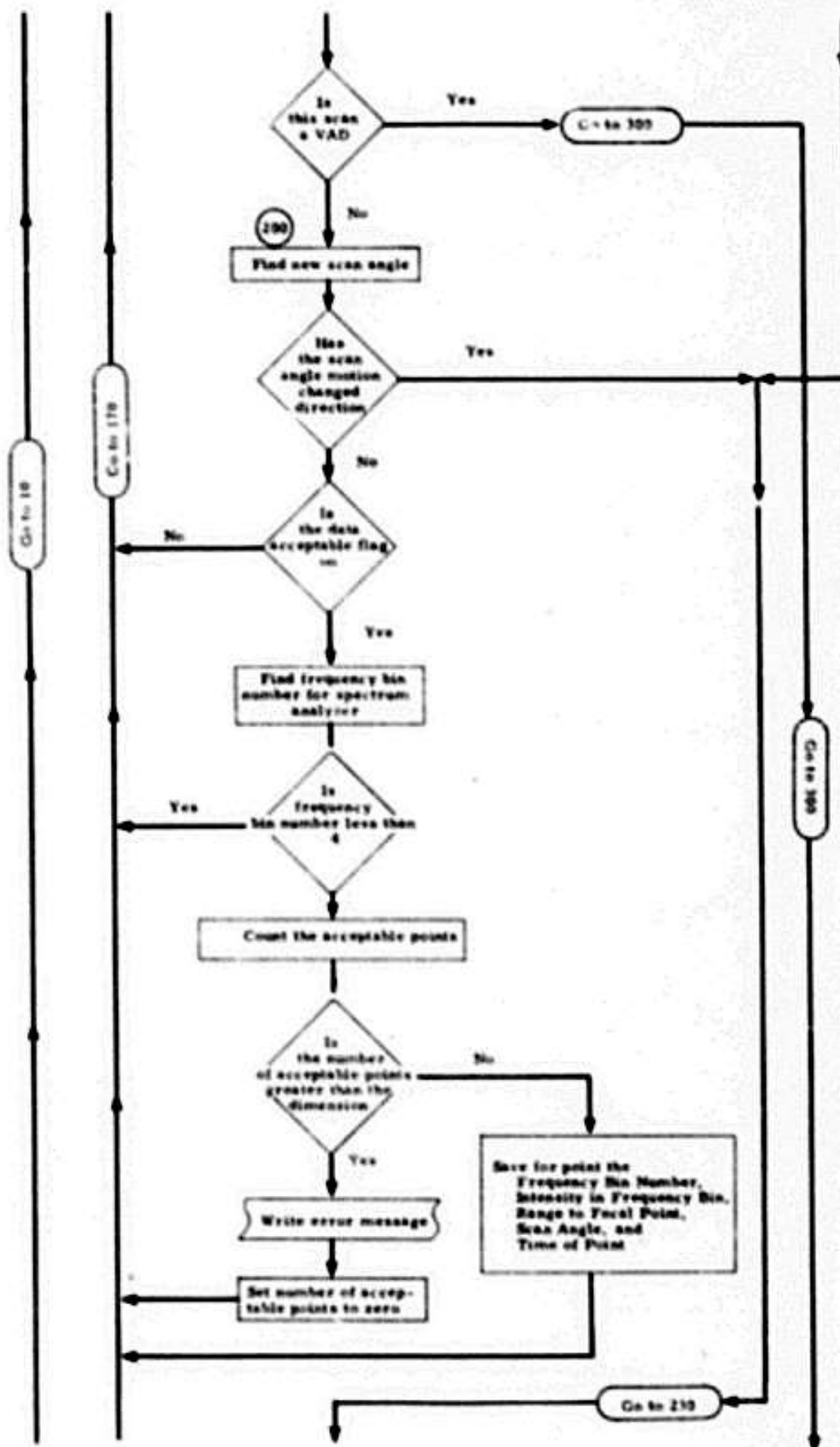
ROUTINE HANDLE

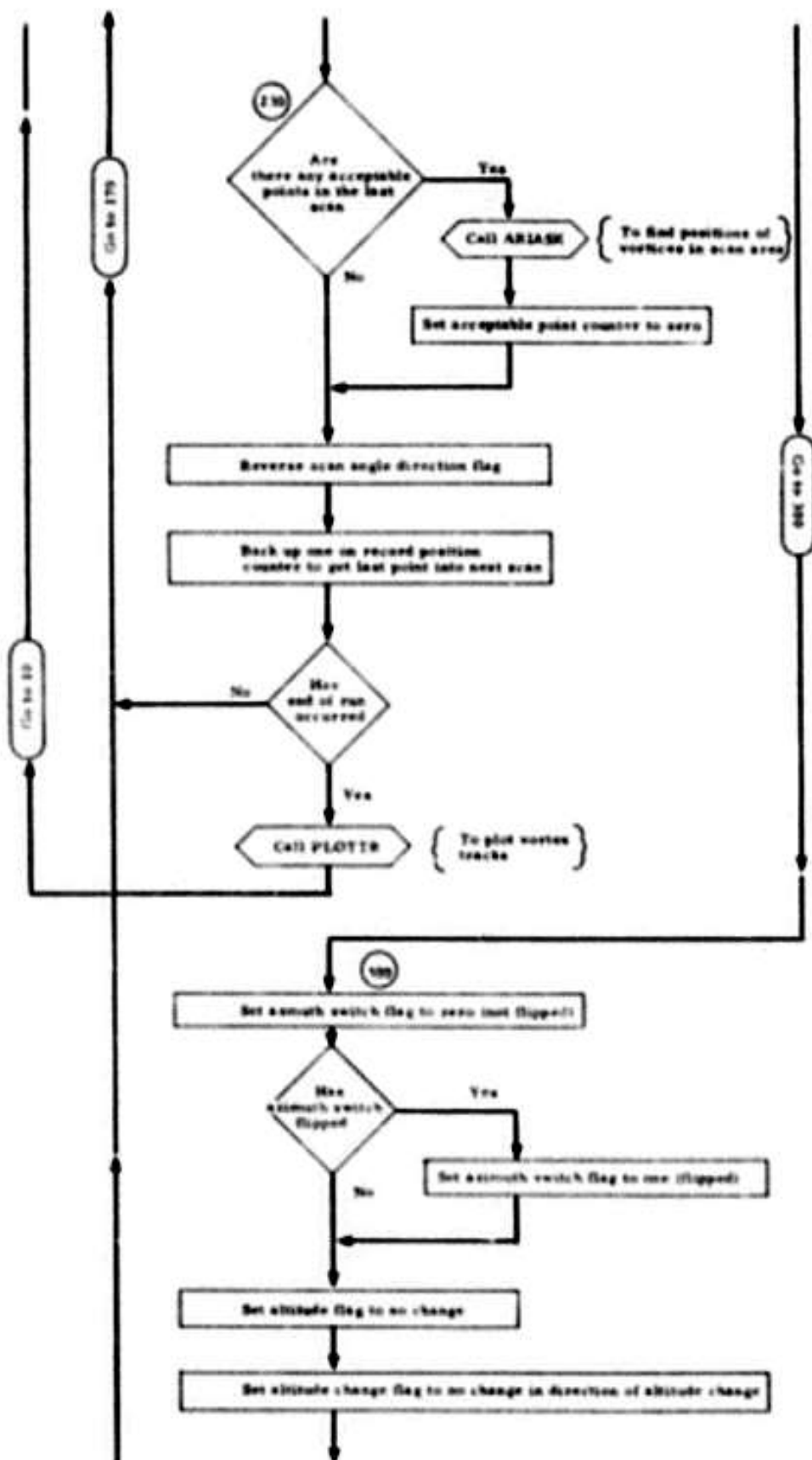
Main logic for program.
Organizes data to be
processed by other routines.

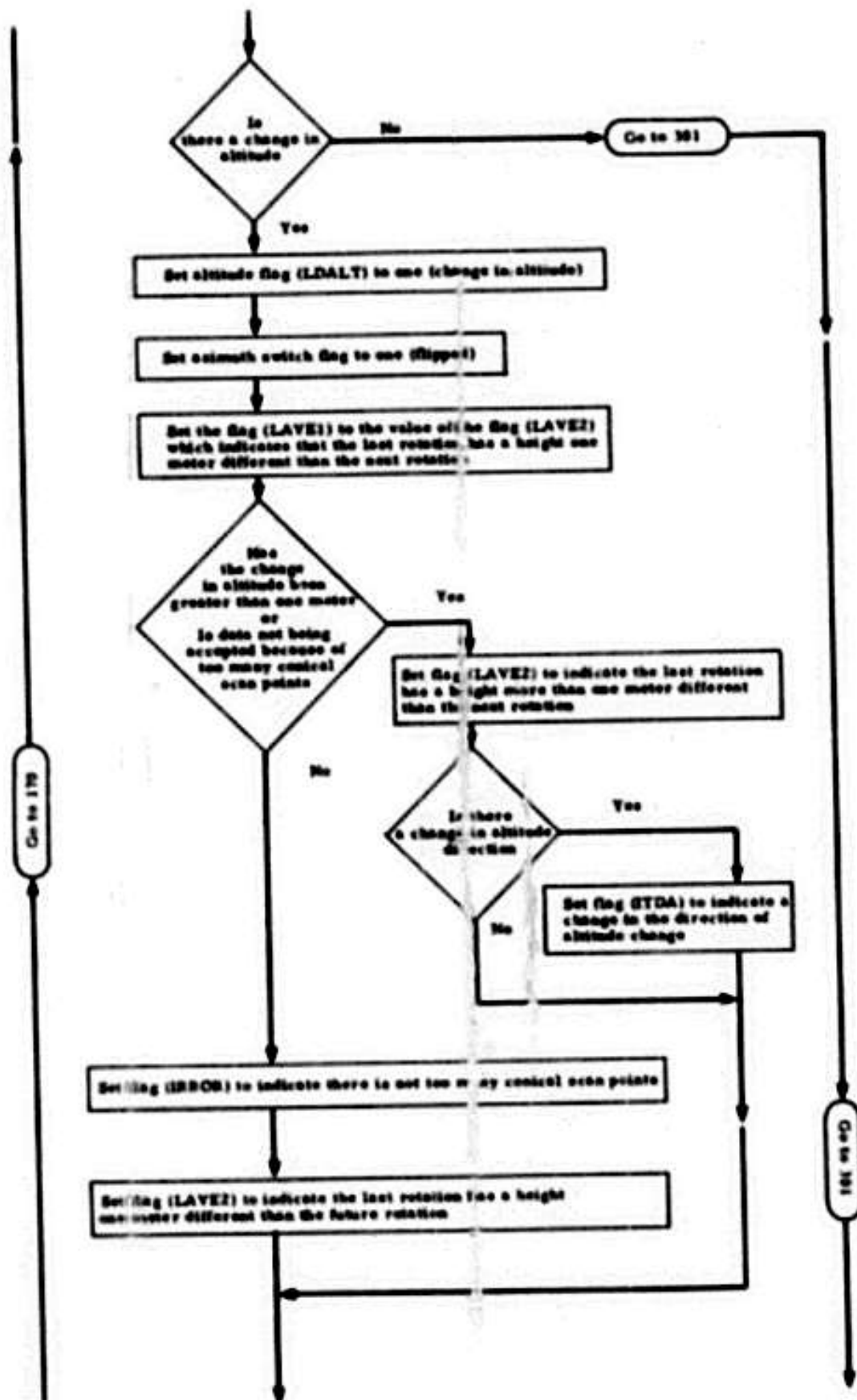


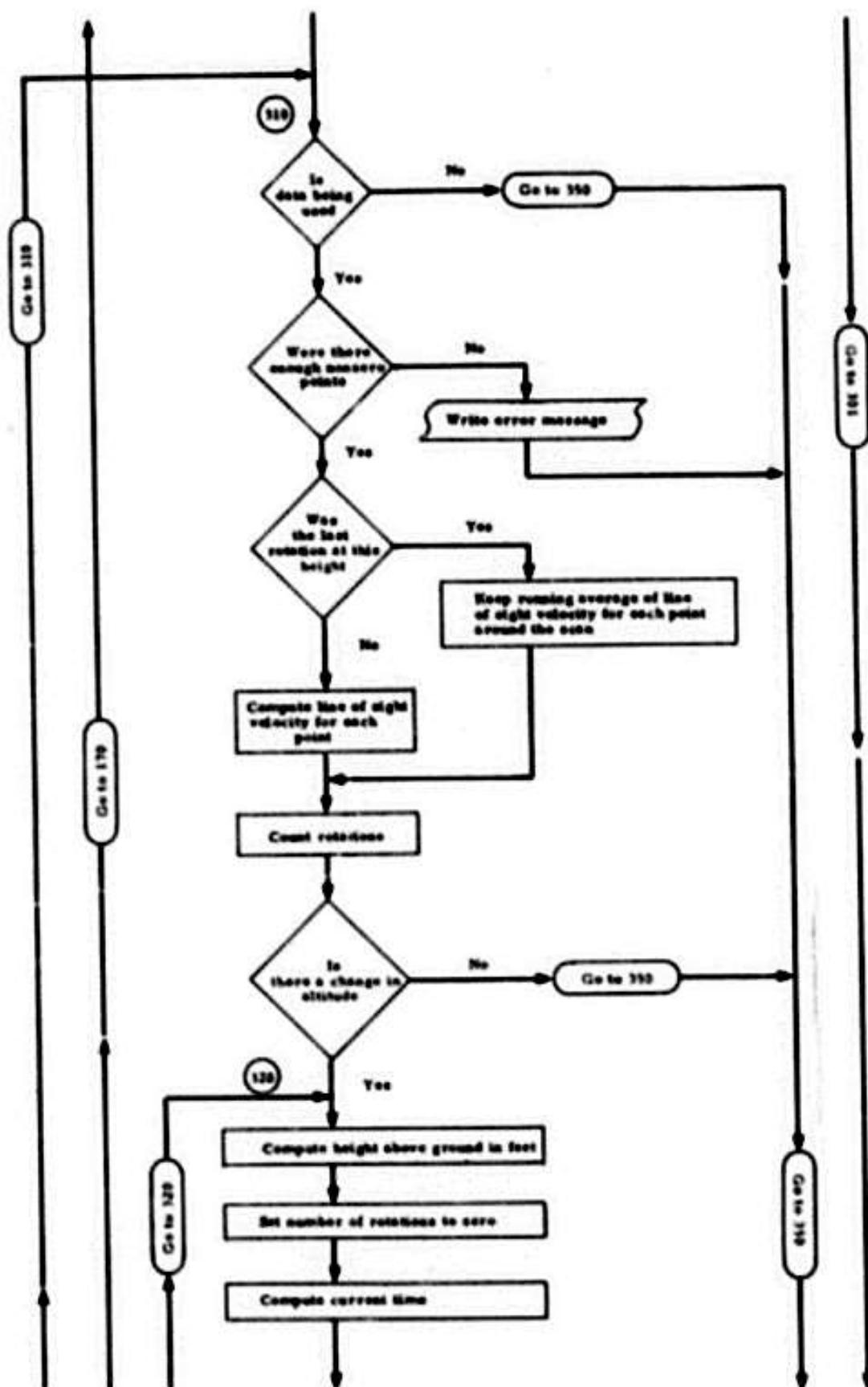


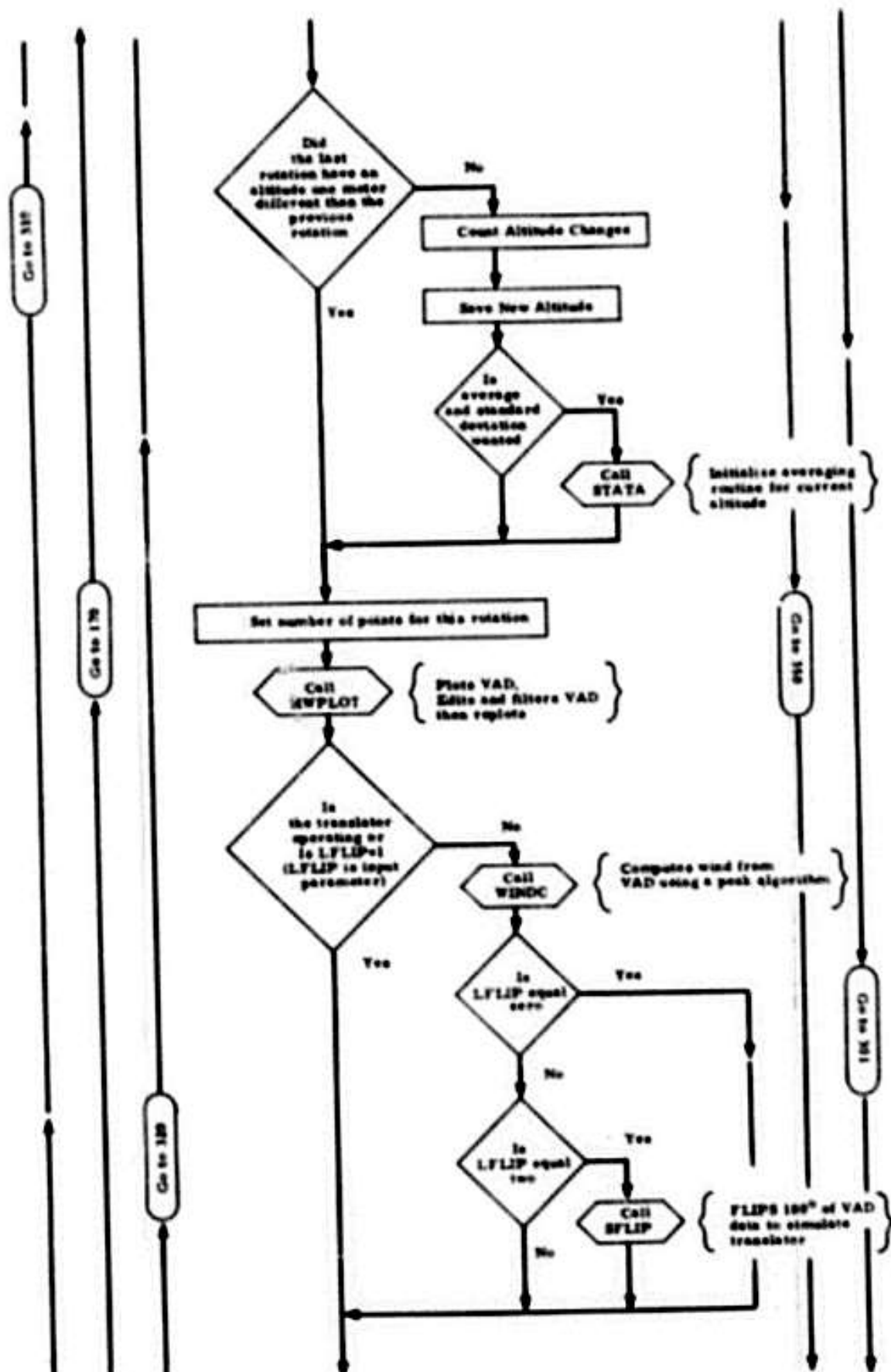


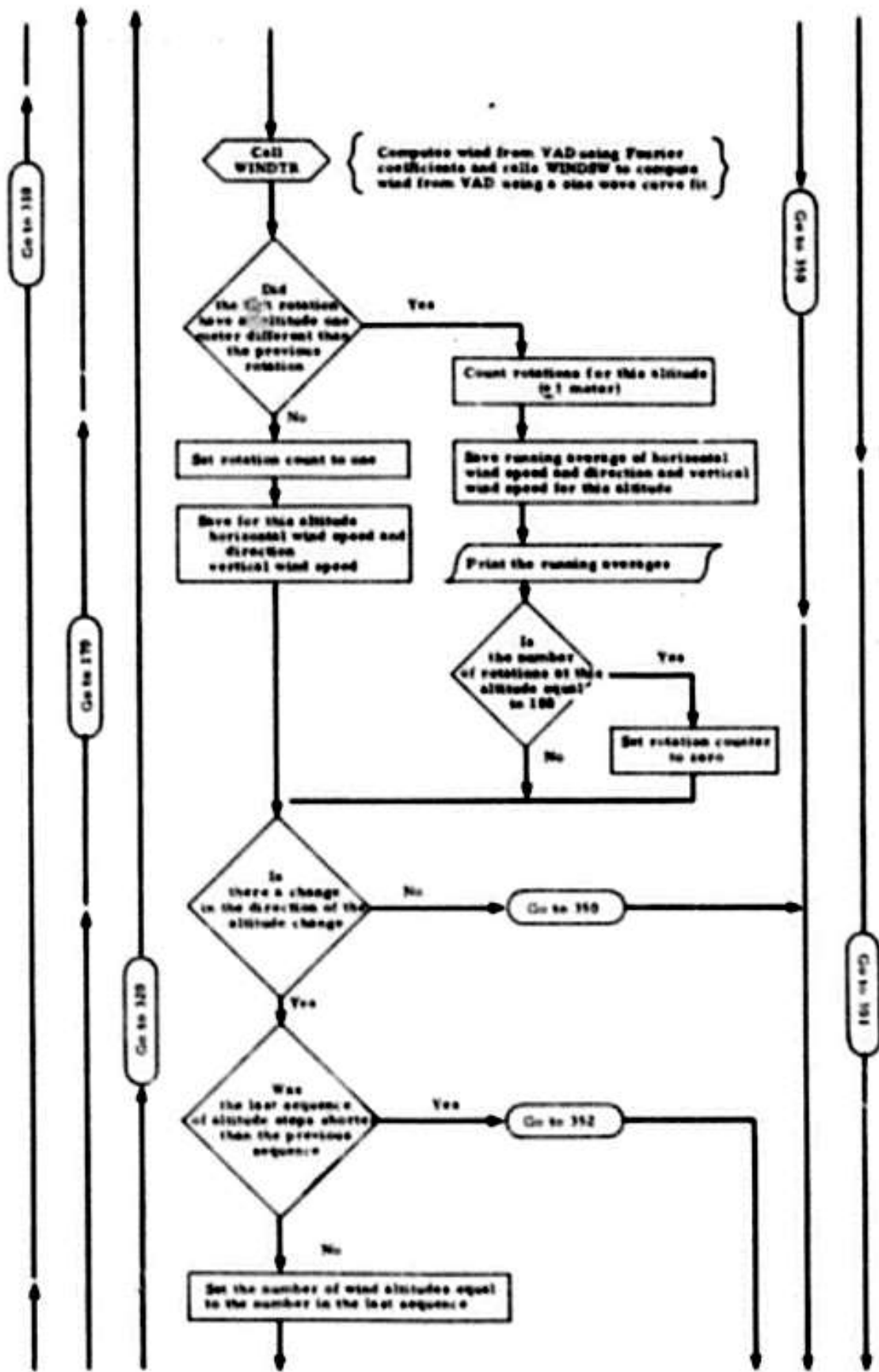


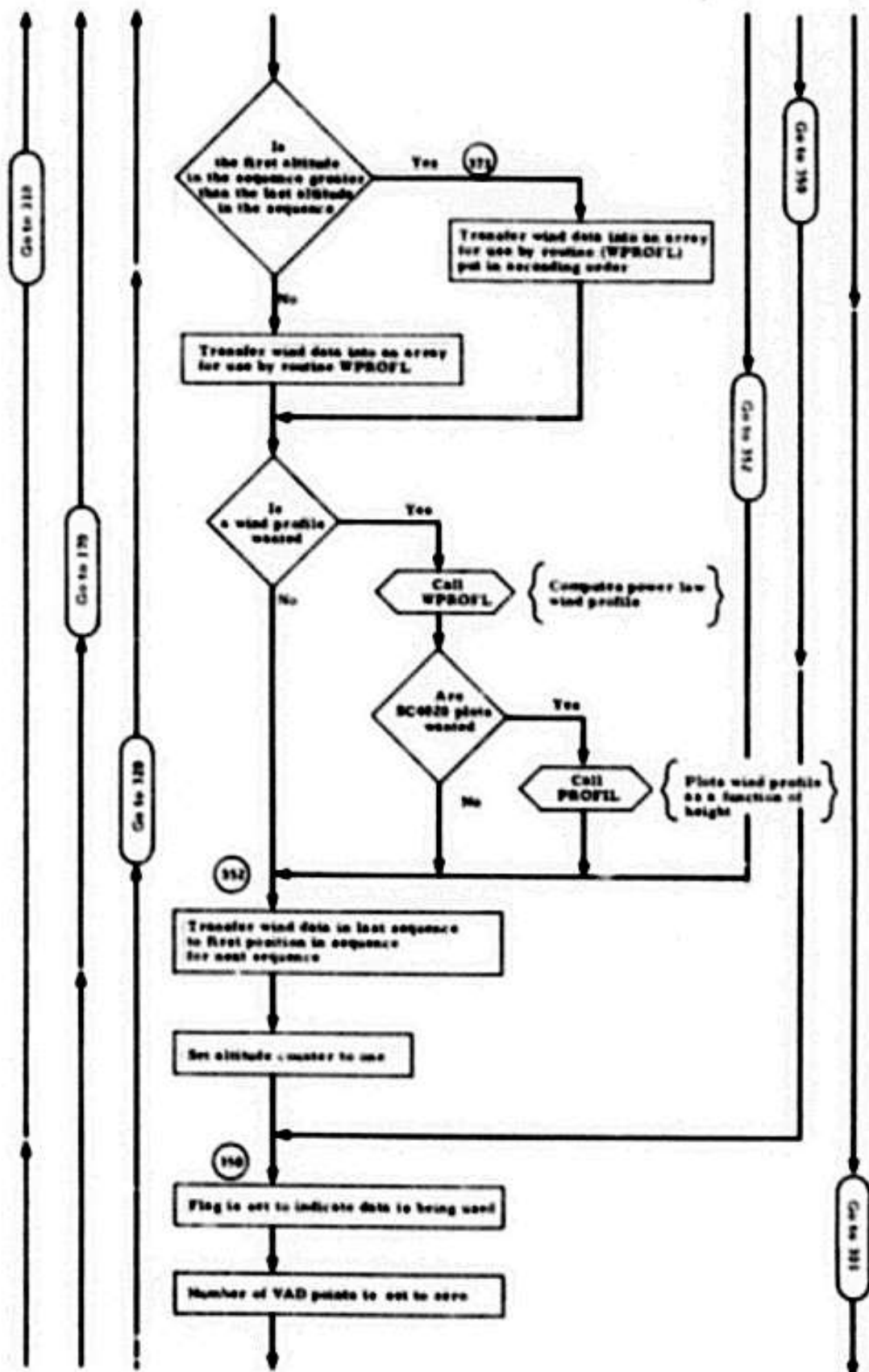


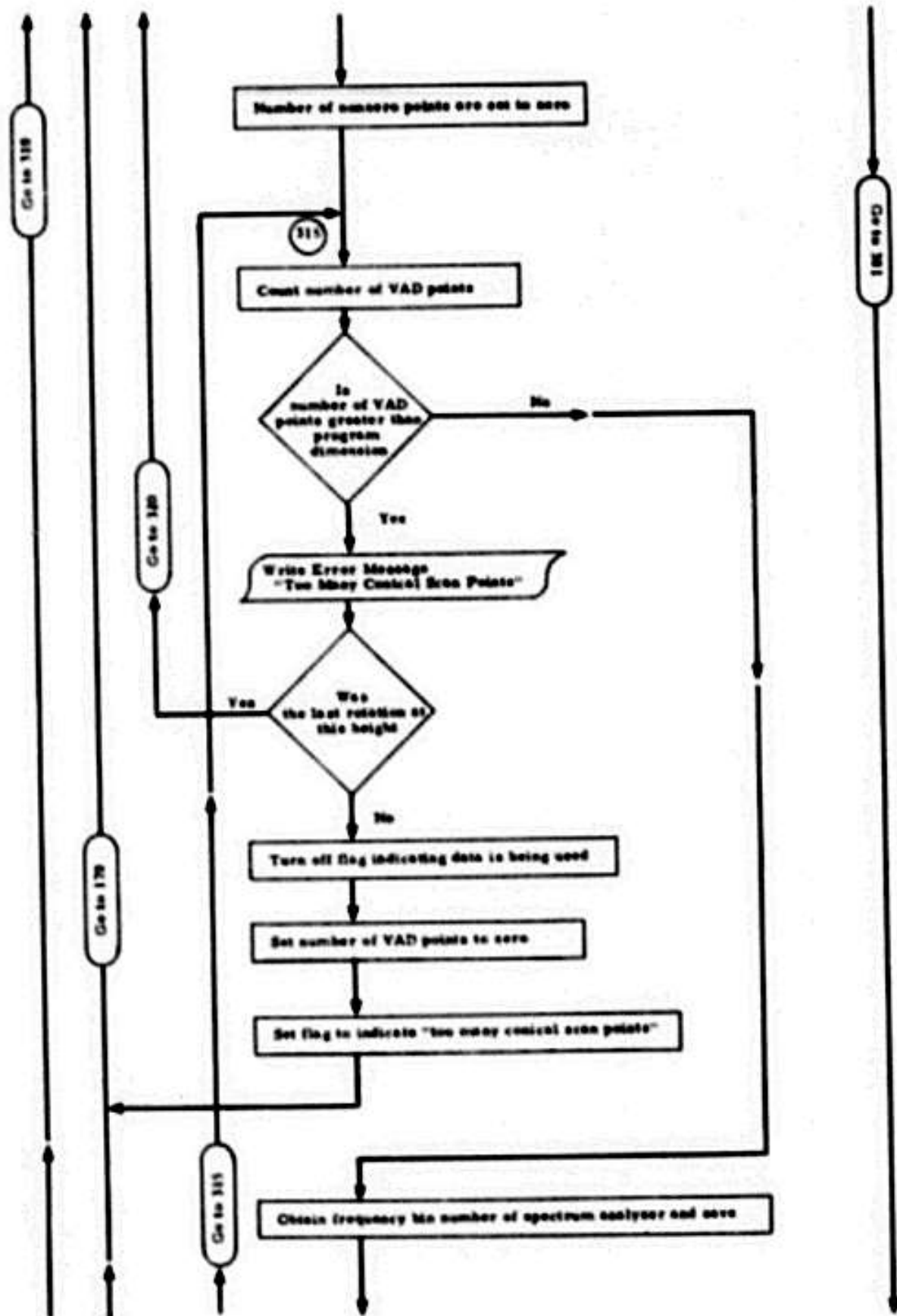


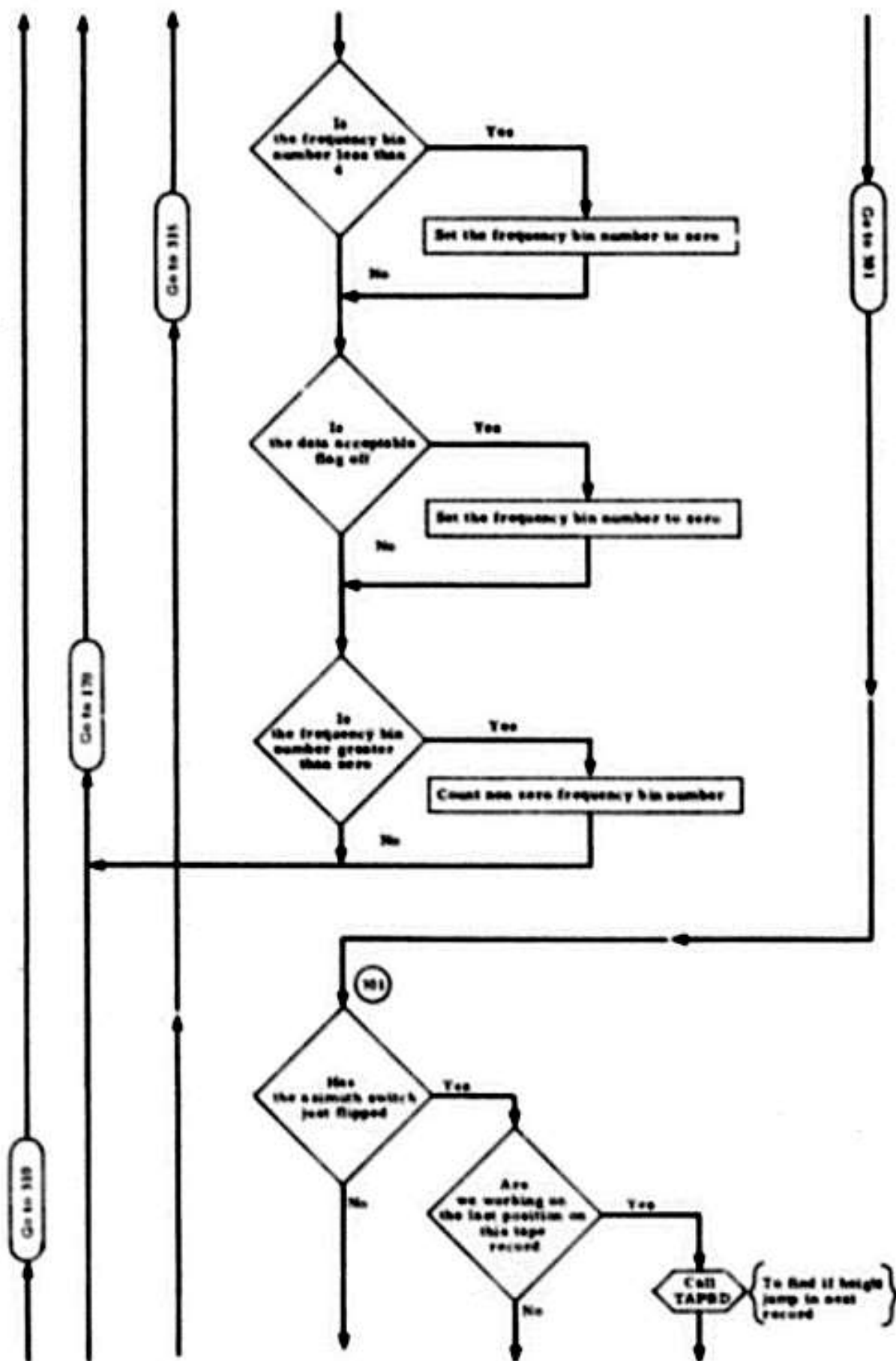


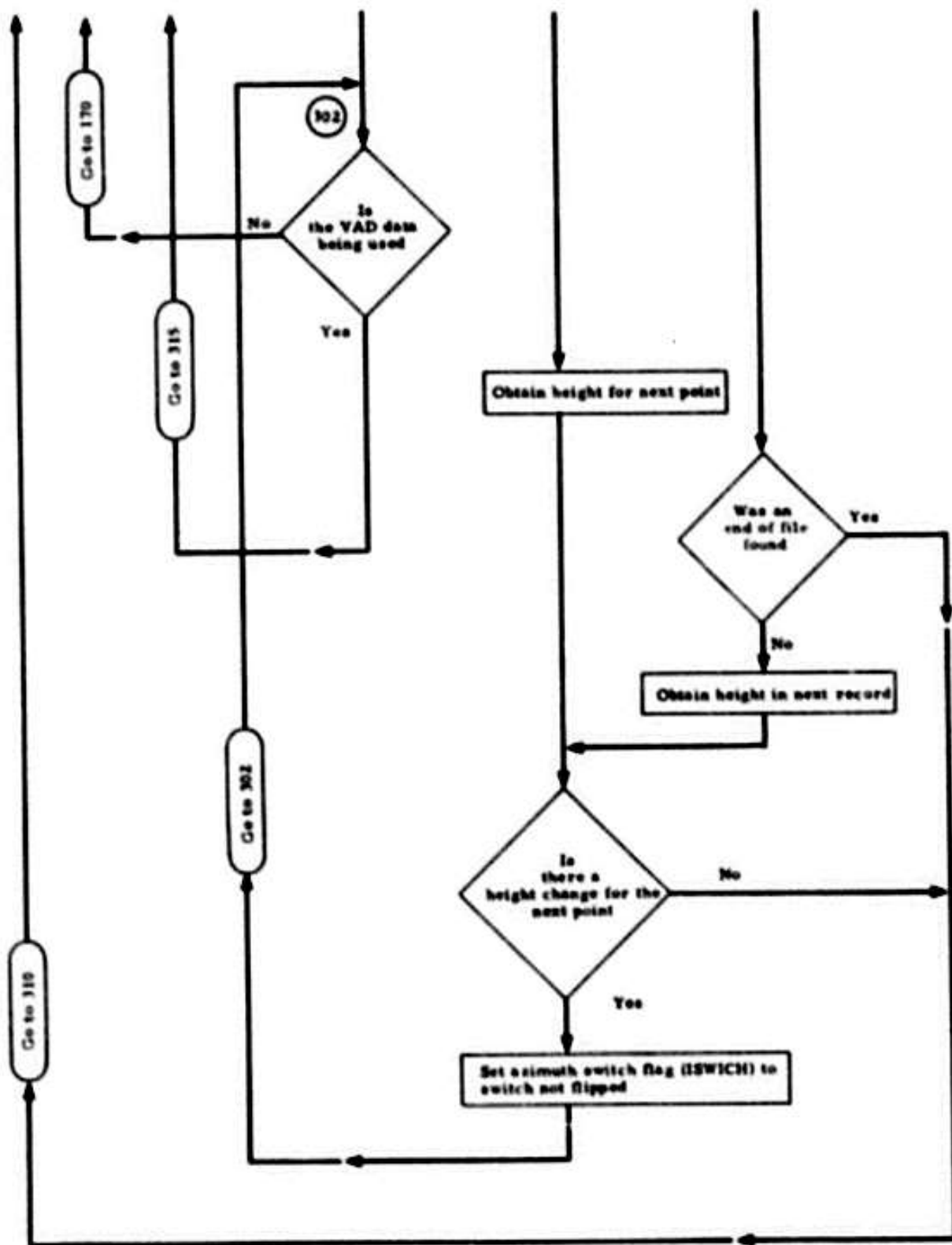






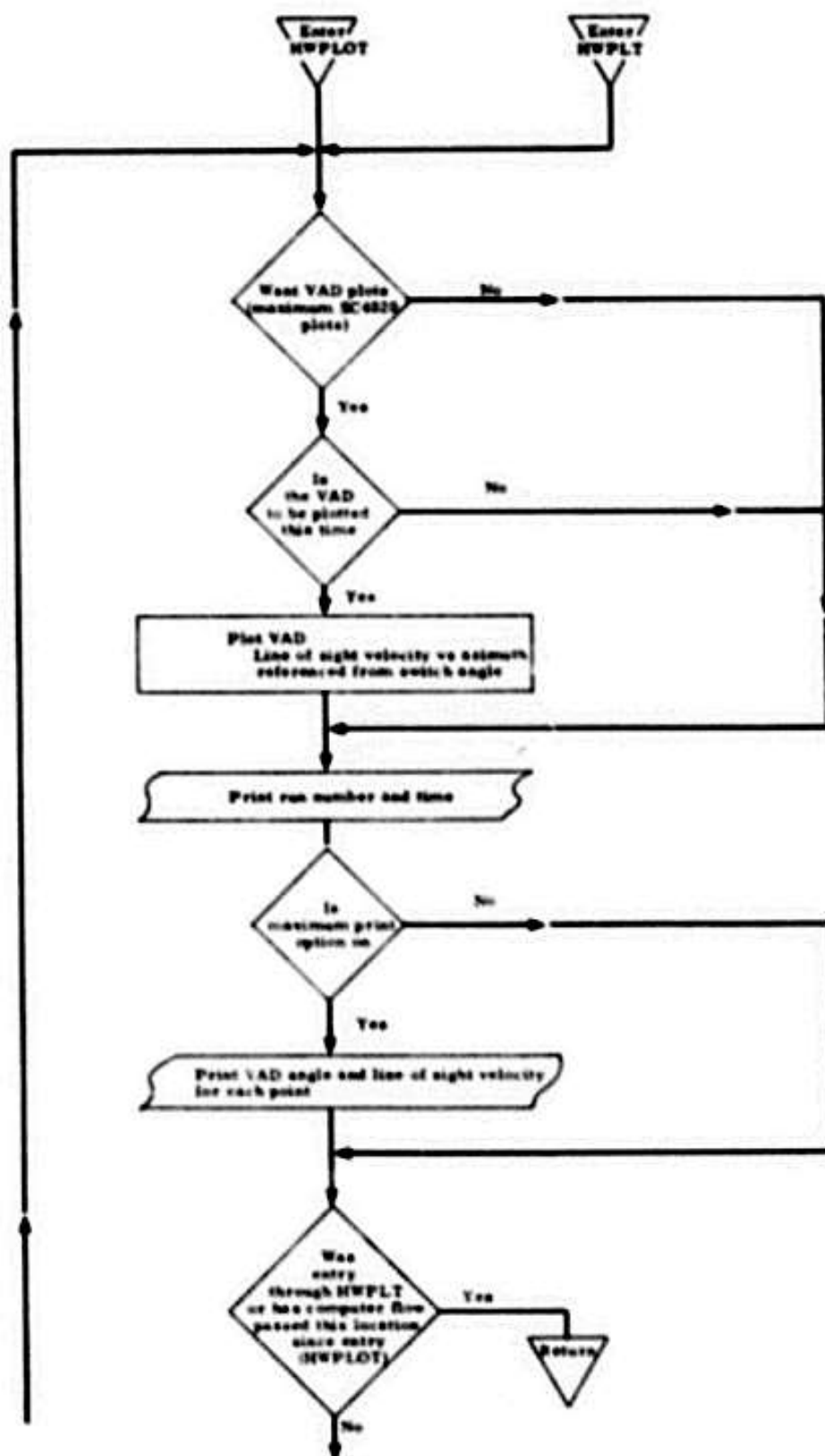


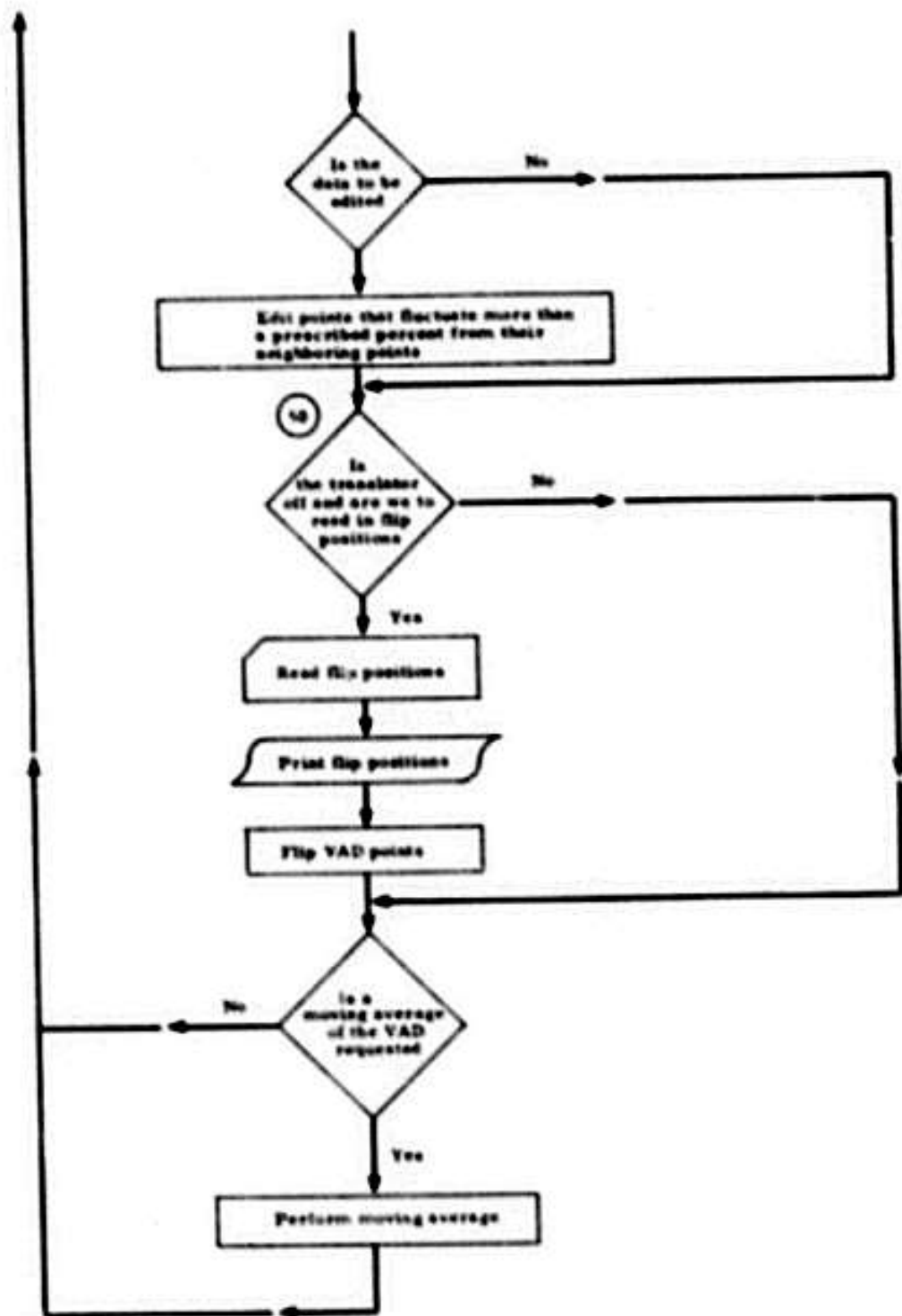




ROUTINE HWPLOT

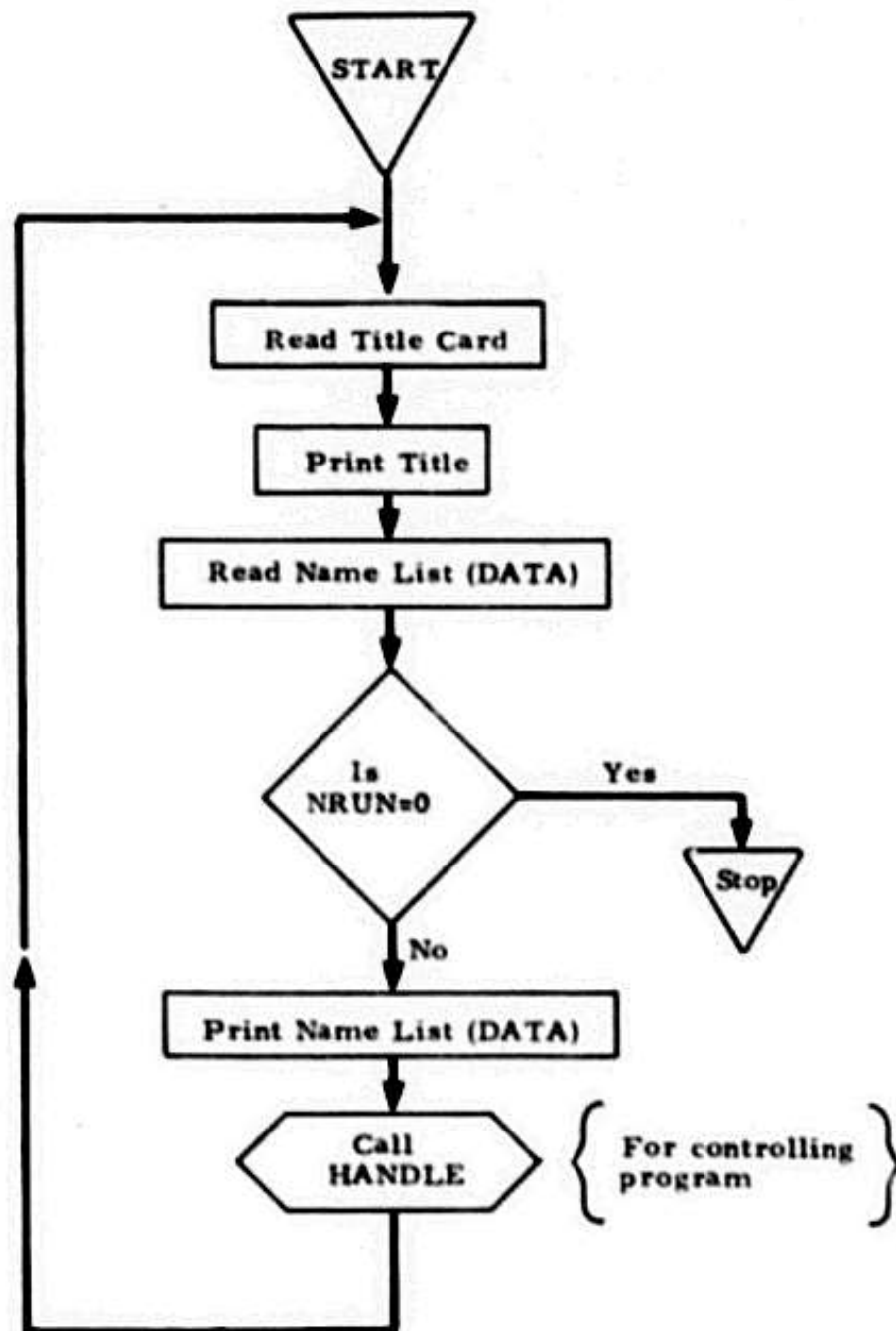
Plots VAD on SC 4020 plotter
(Also edits and smooths data)





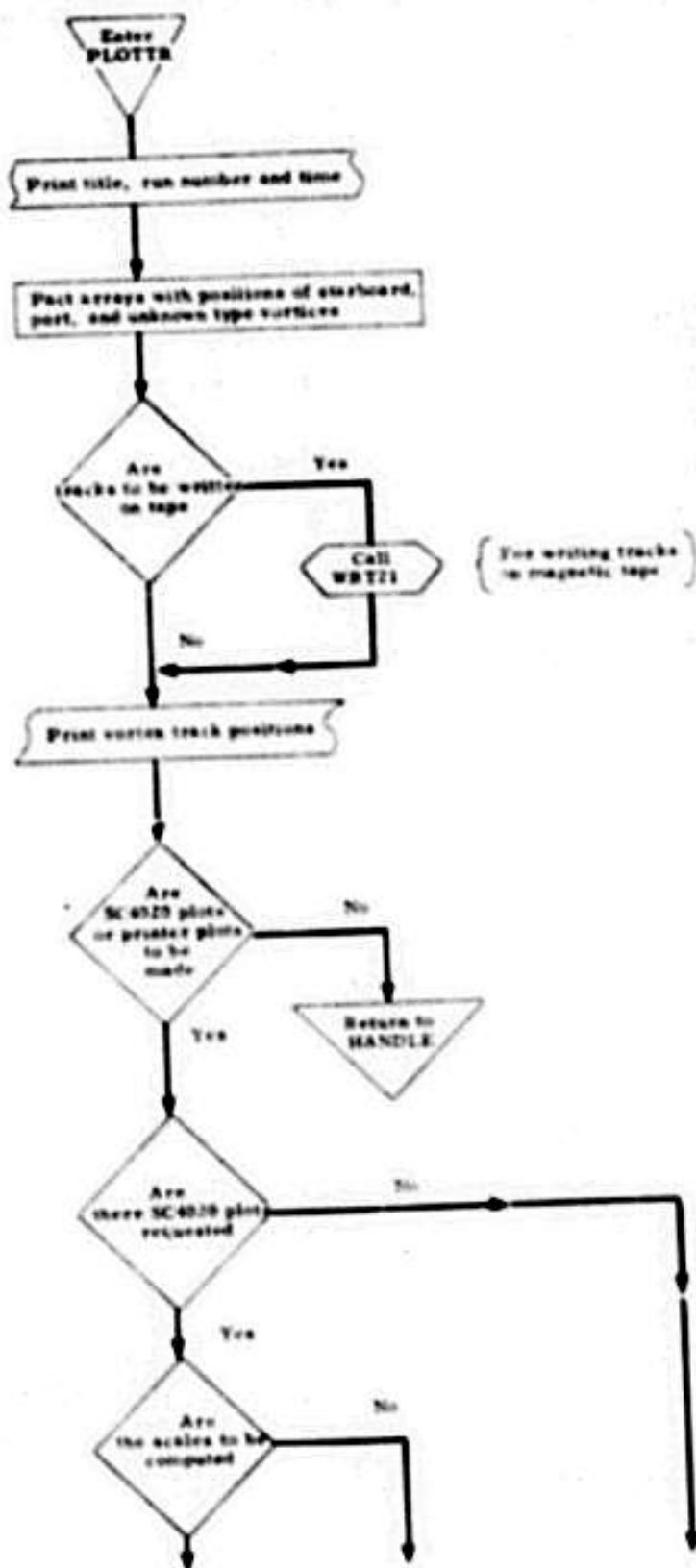
ROUTINE INPUT

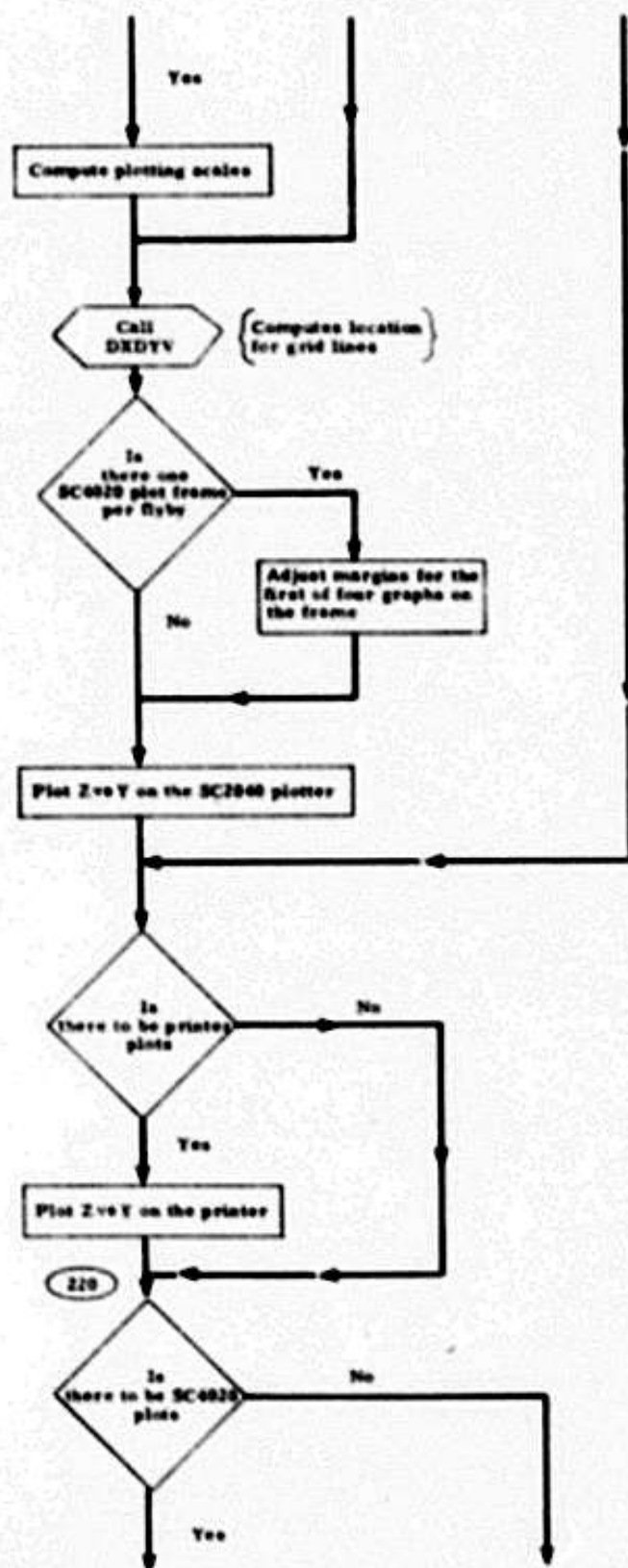
Read cards with parameters
to direct program operation

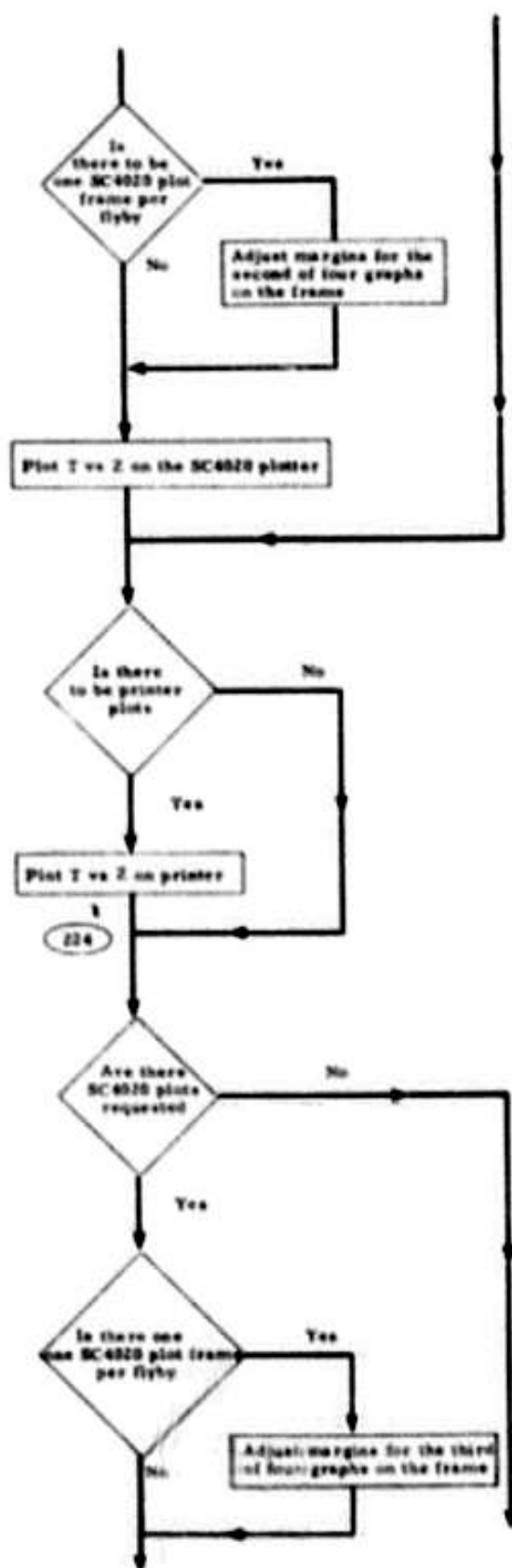


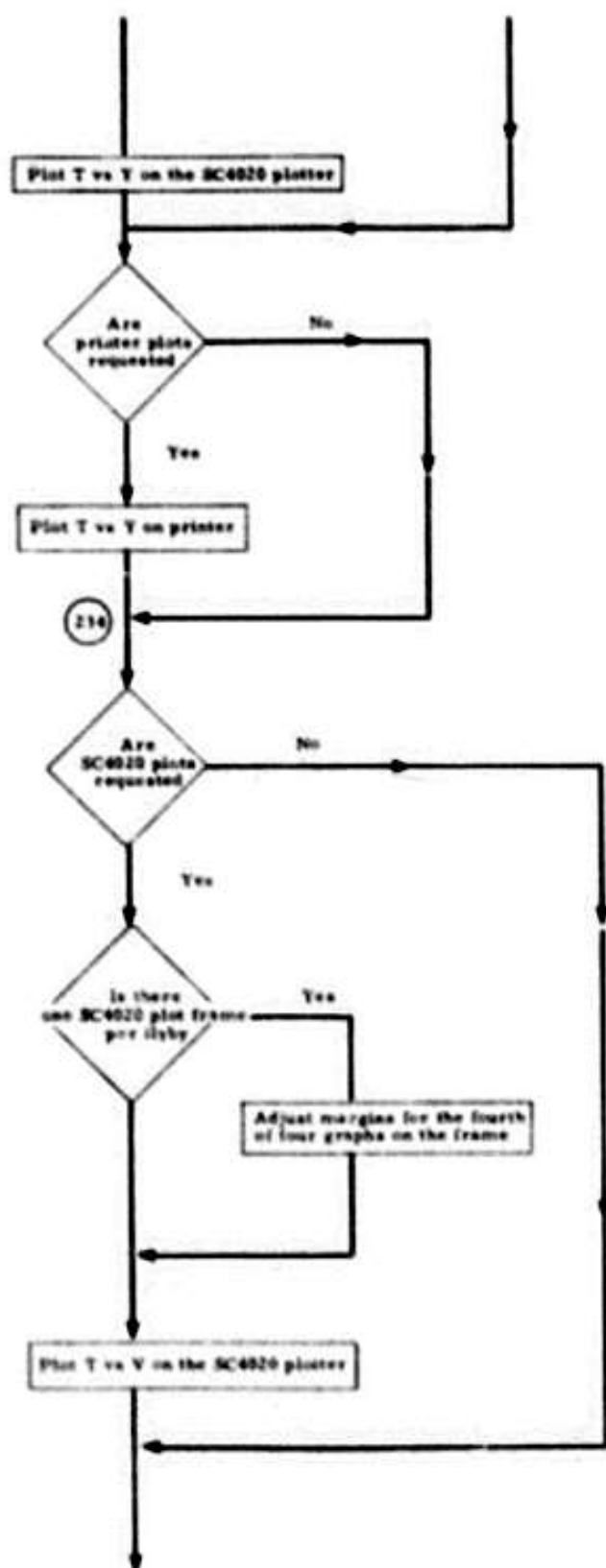
ROUTINE PLOTTR

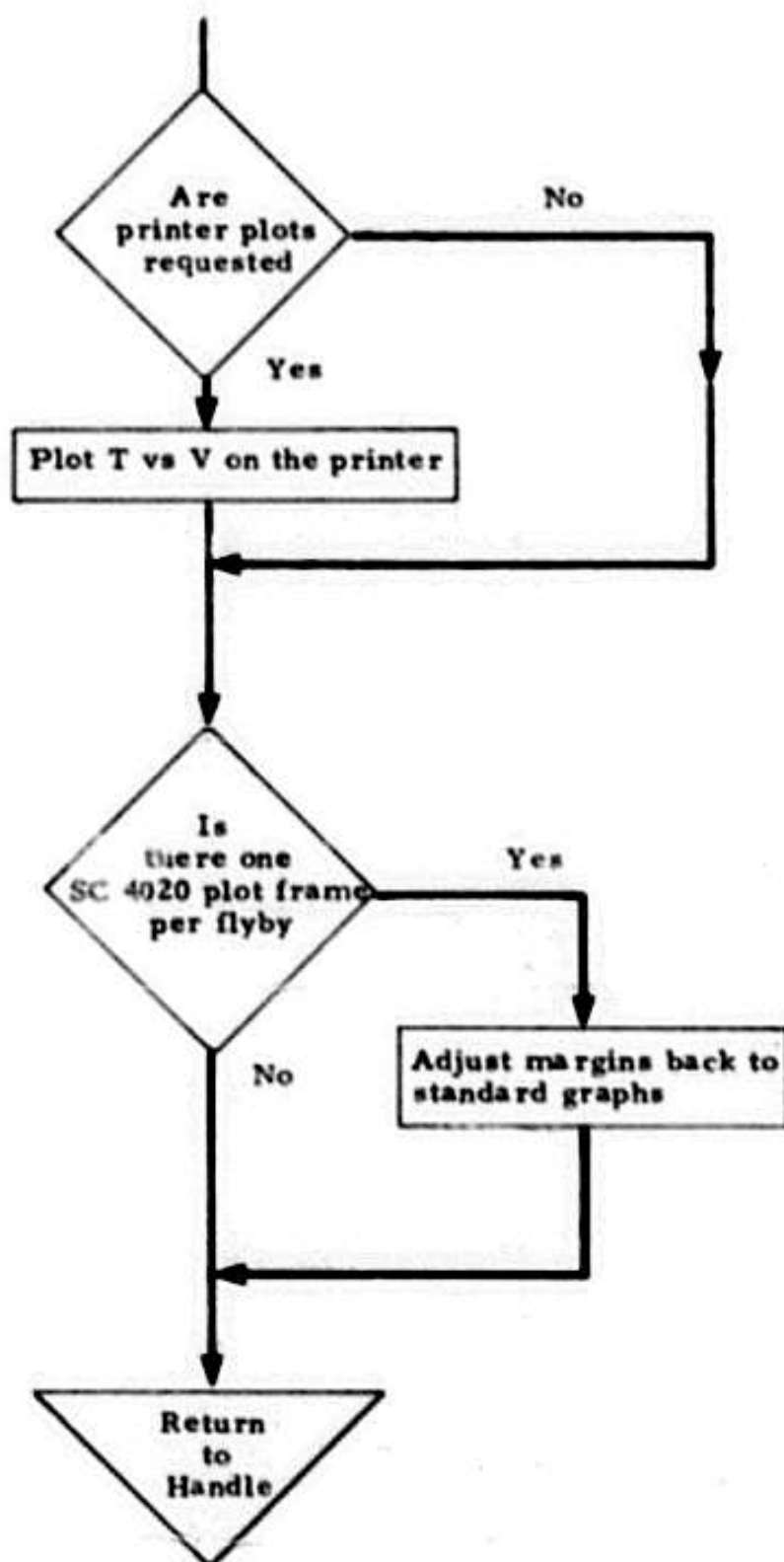
Plot vorticity tracks
on SC4020 plotter





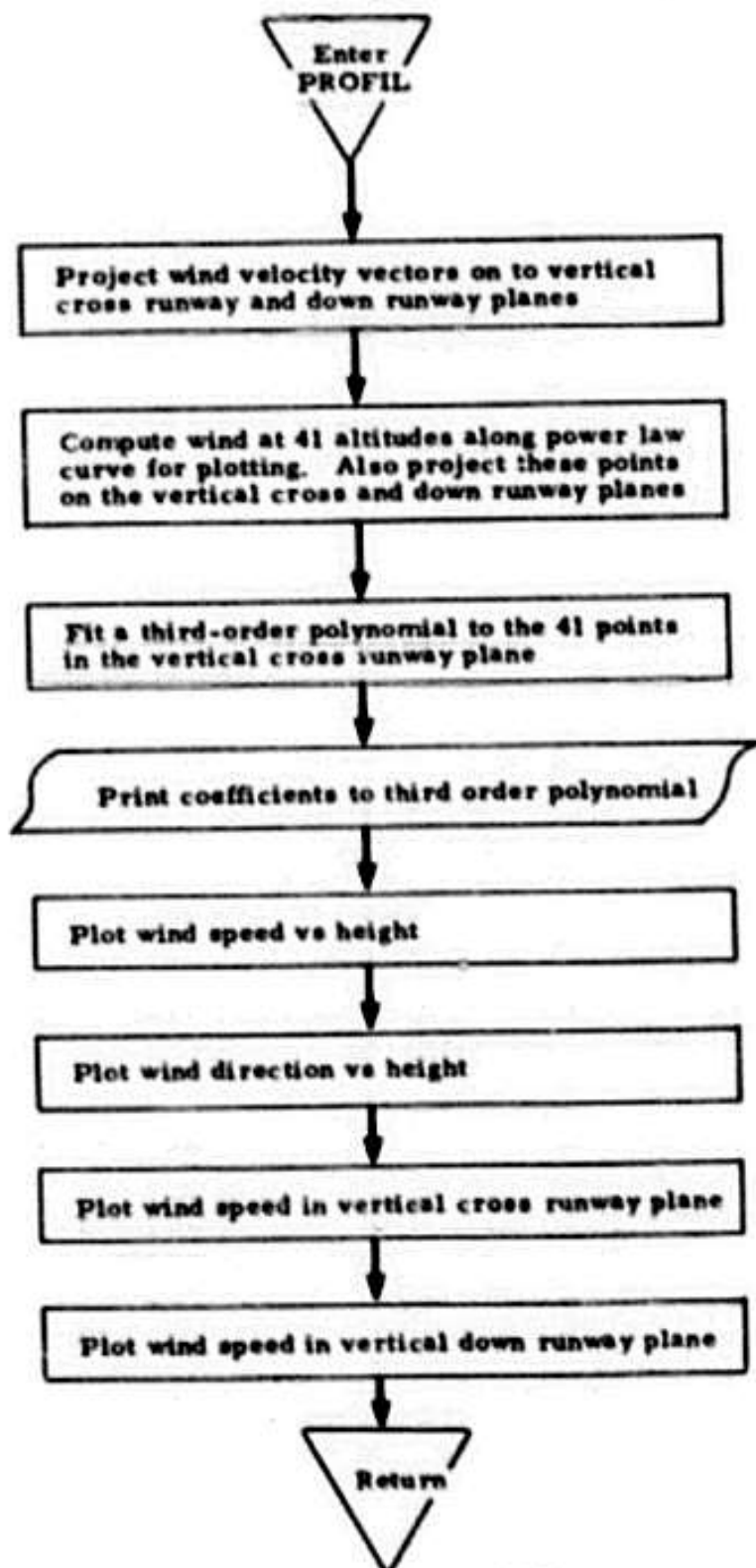






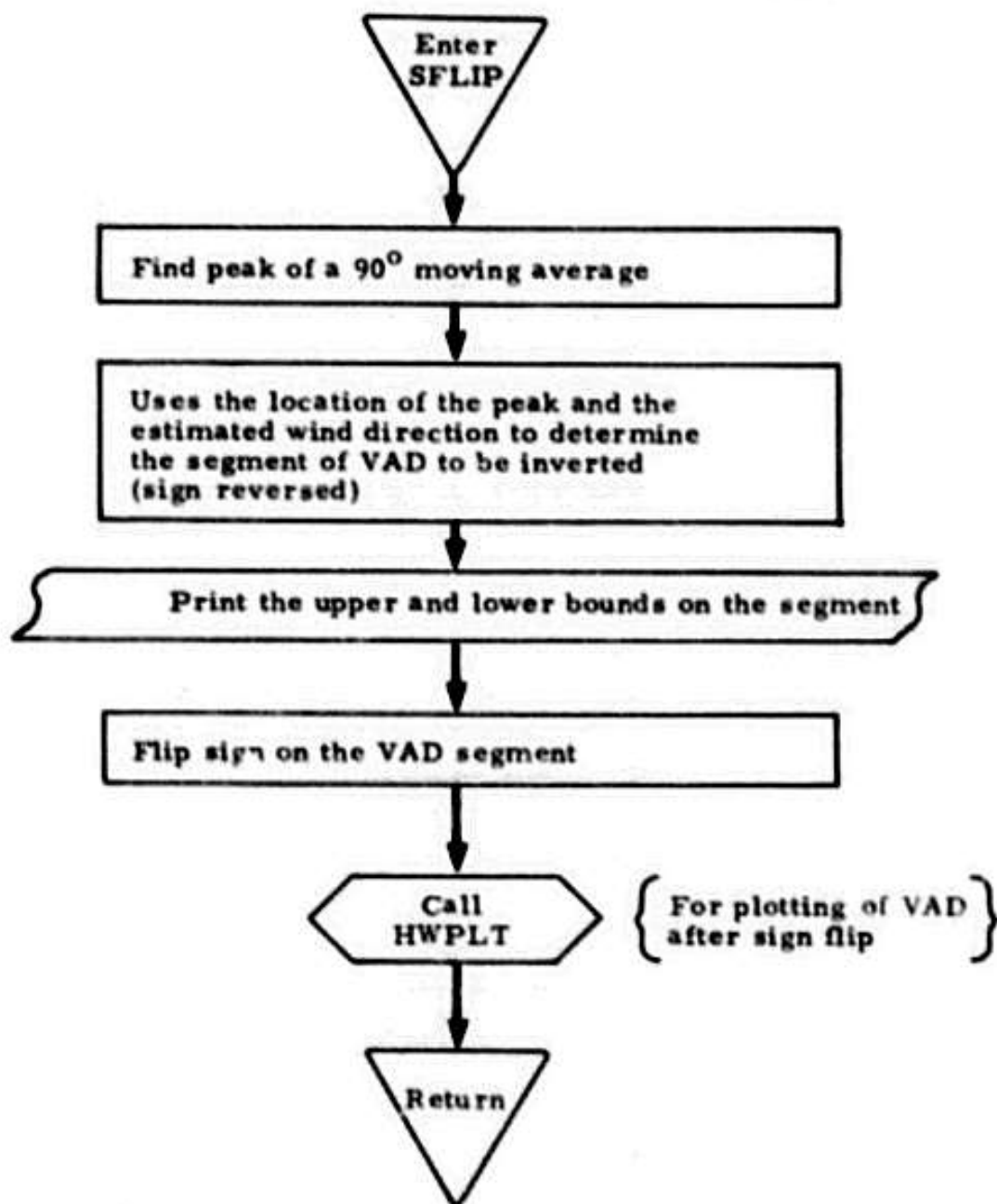
ROUTINE PROFIL

Plots wind profile as a function of height on the SC4020 plotter



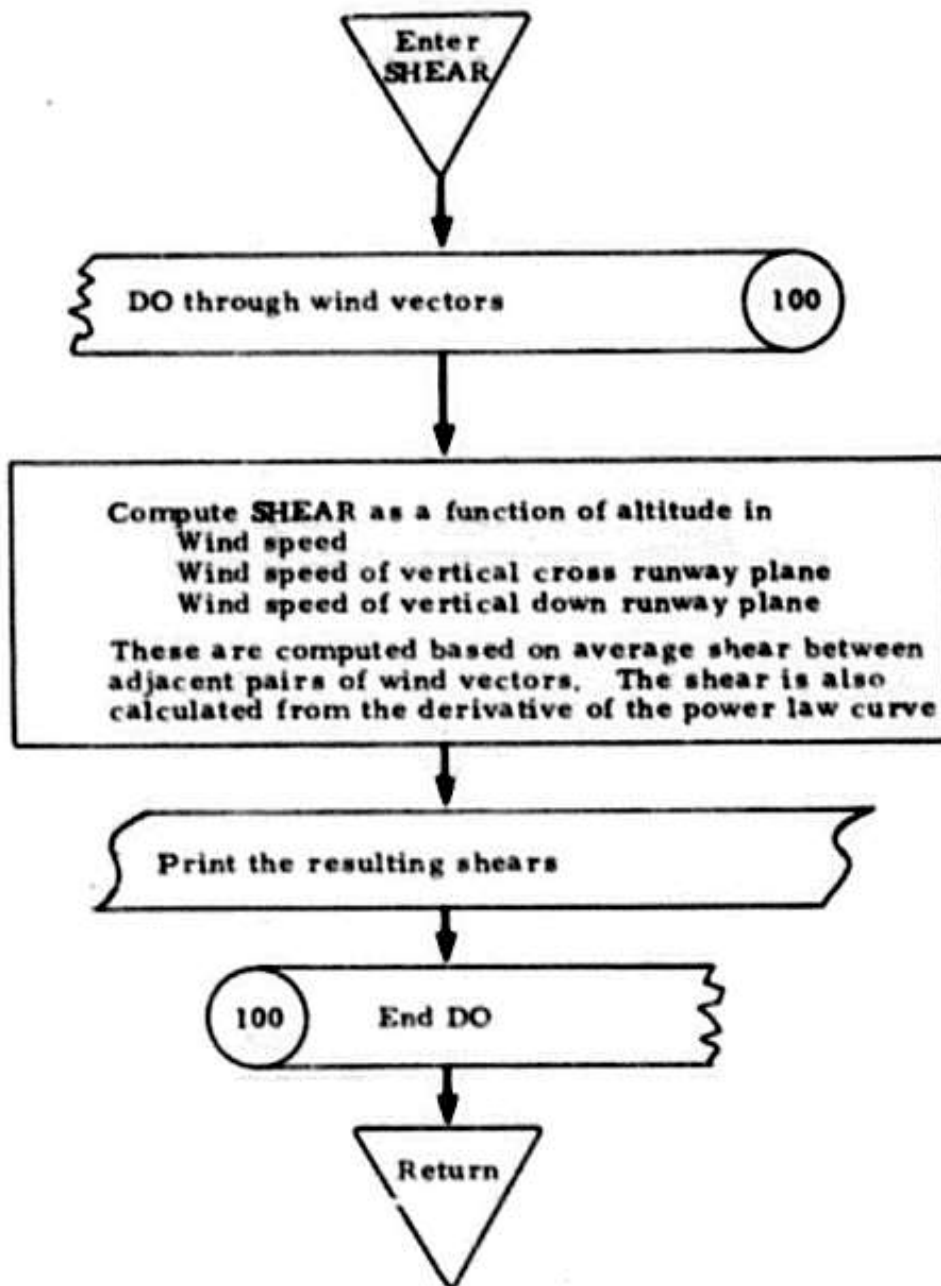
ROUTINE SFLIP

Flip sign of speed
of VAD to simulate
translator



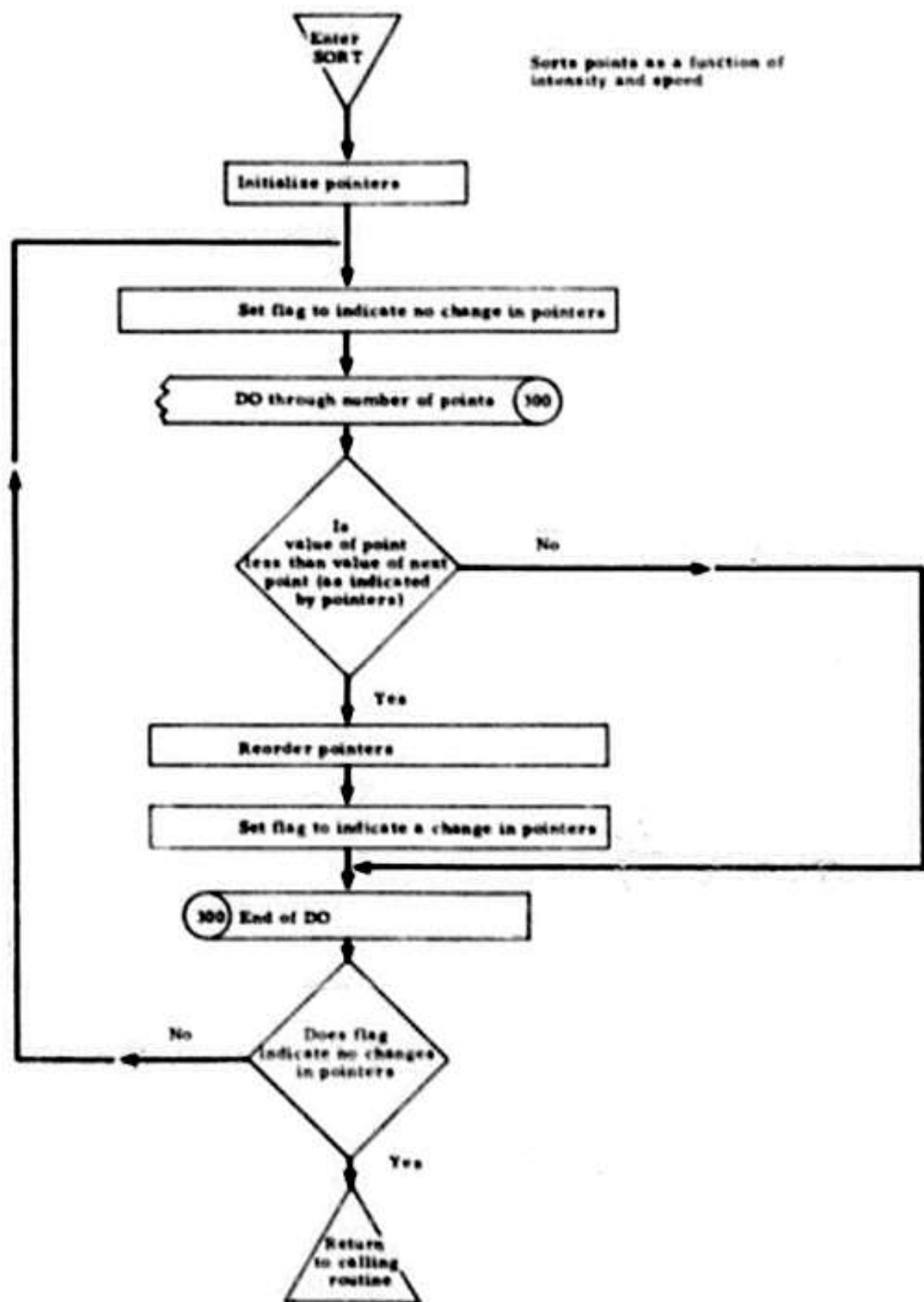
ROUTINE SHEAR

Computes and prints
wind shear



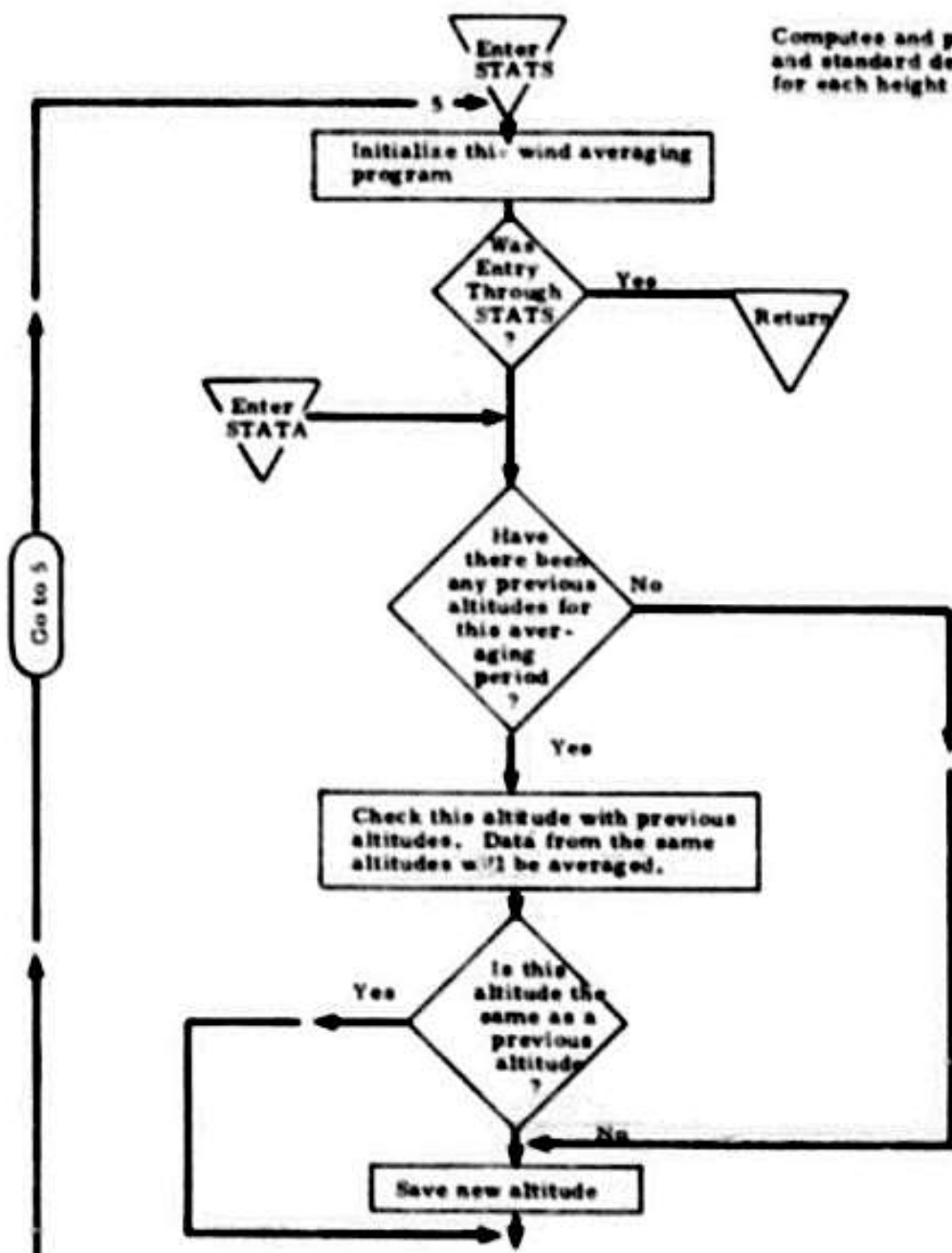
ROUTINE SORT

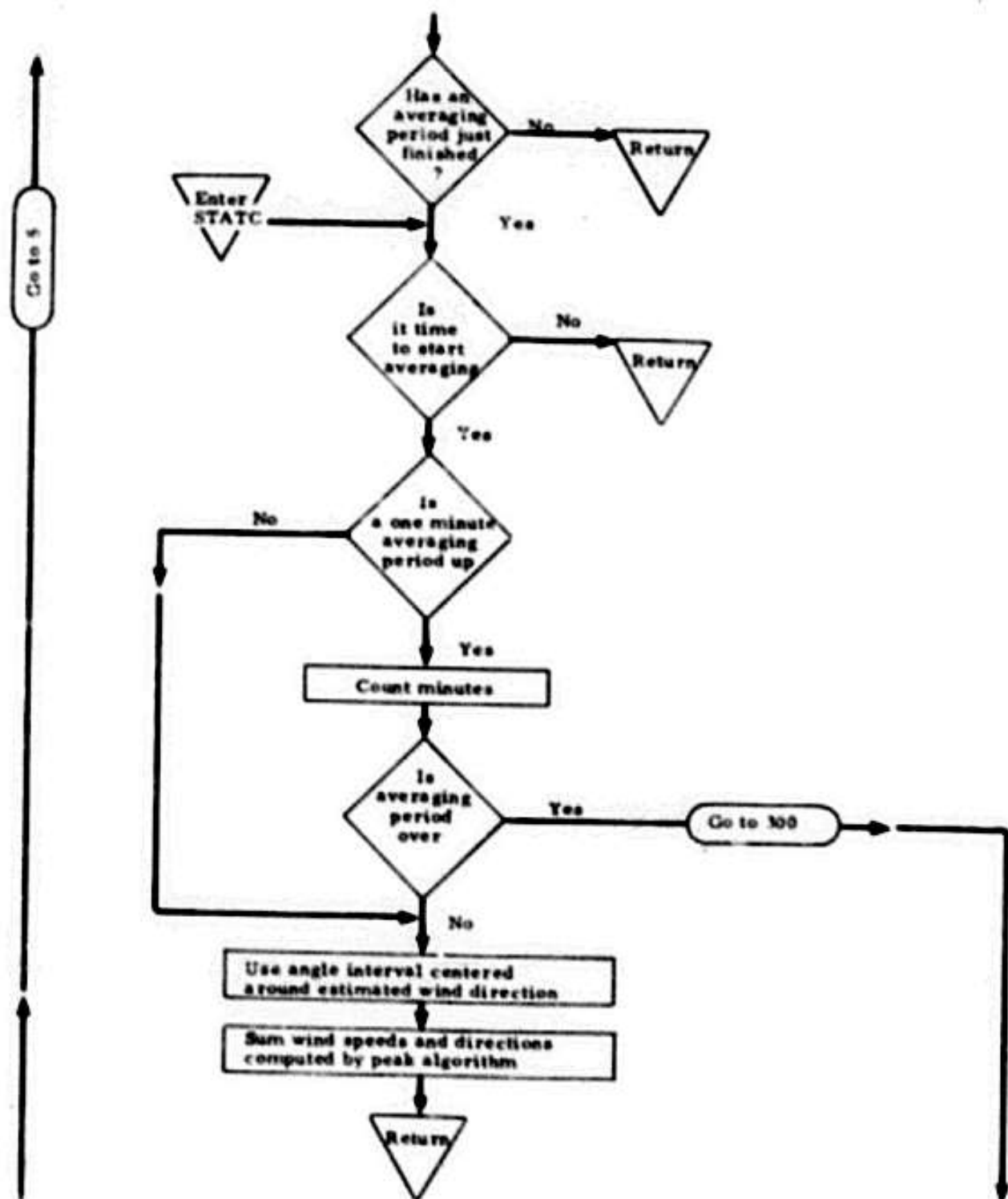
Sorts points as a function of
intensity and speed

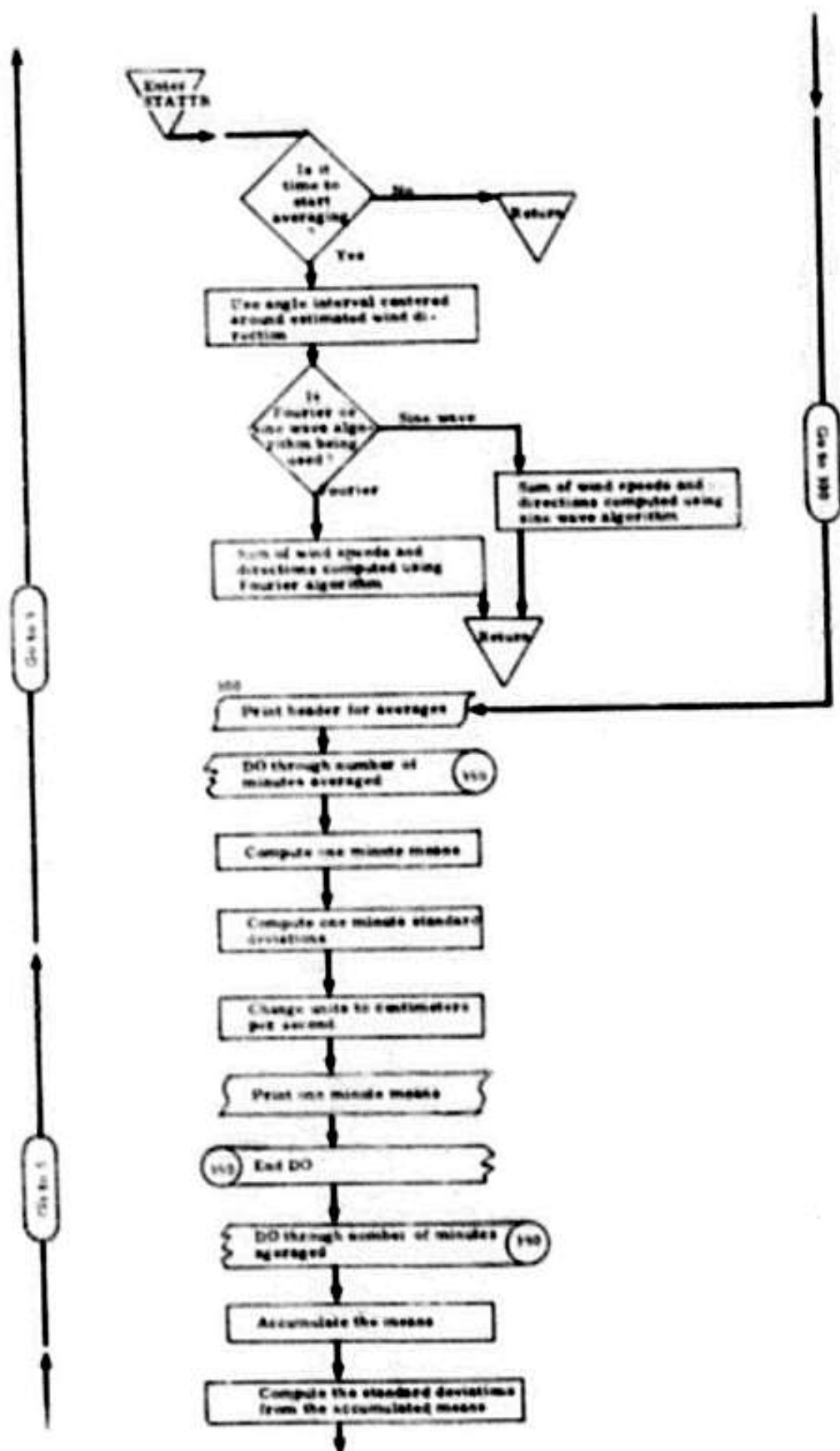


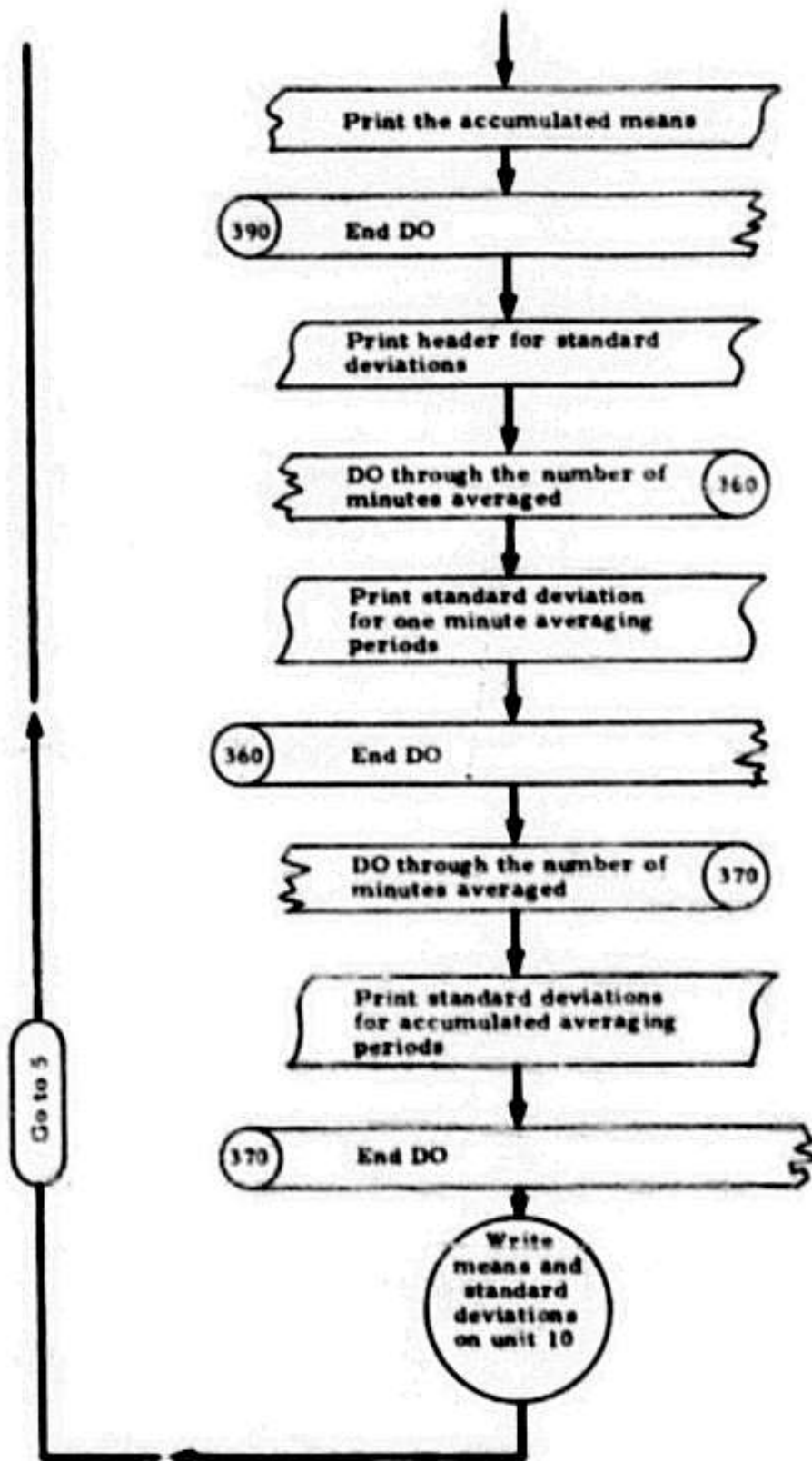
ROUTINE STATS

Compute and prints the averages and standard deviations of the wind for each height represented

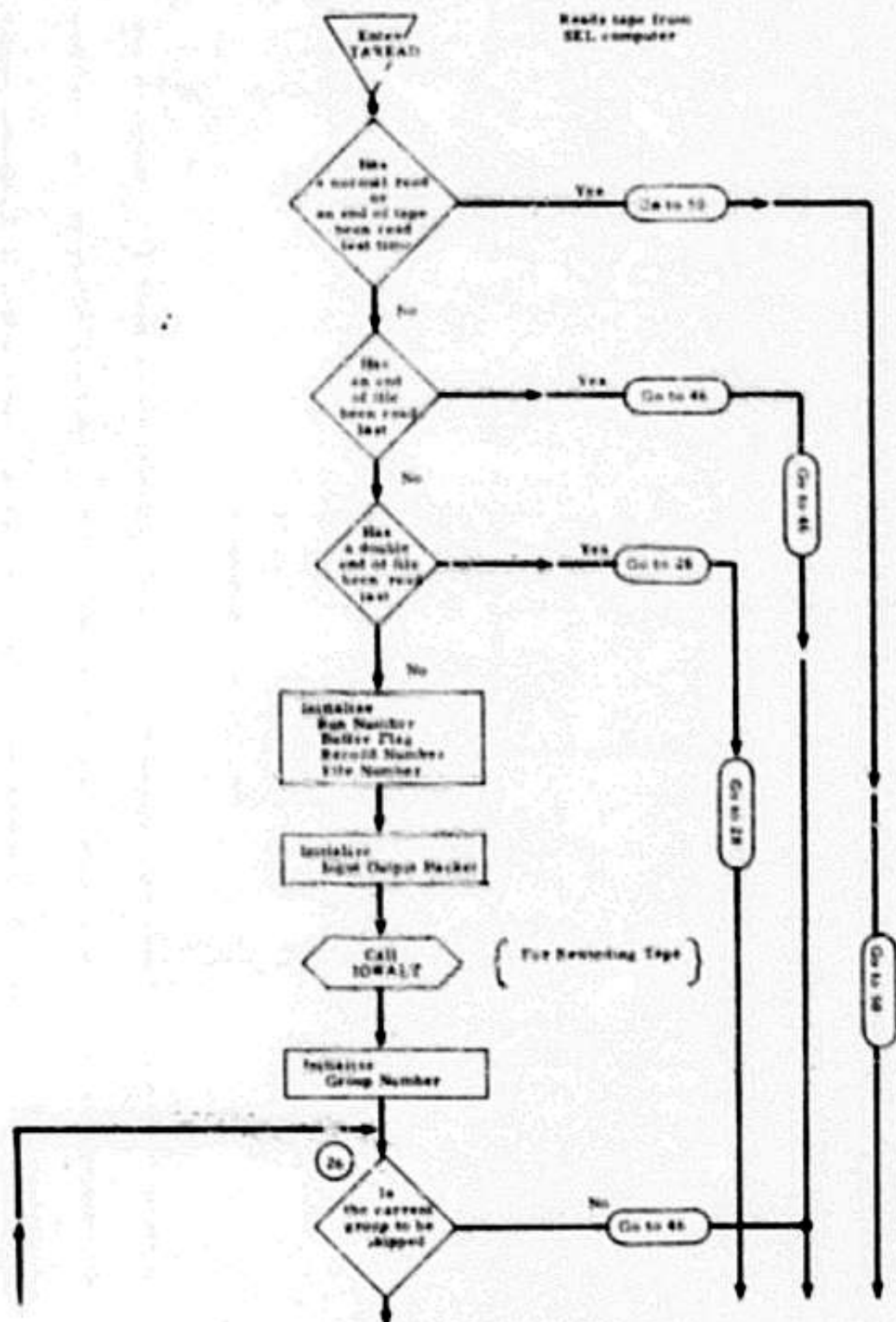


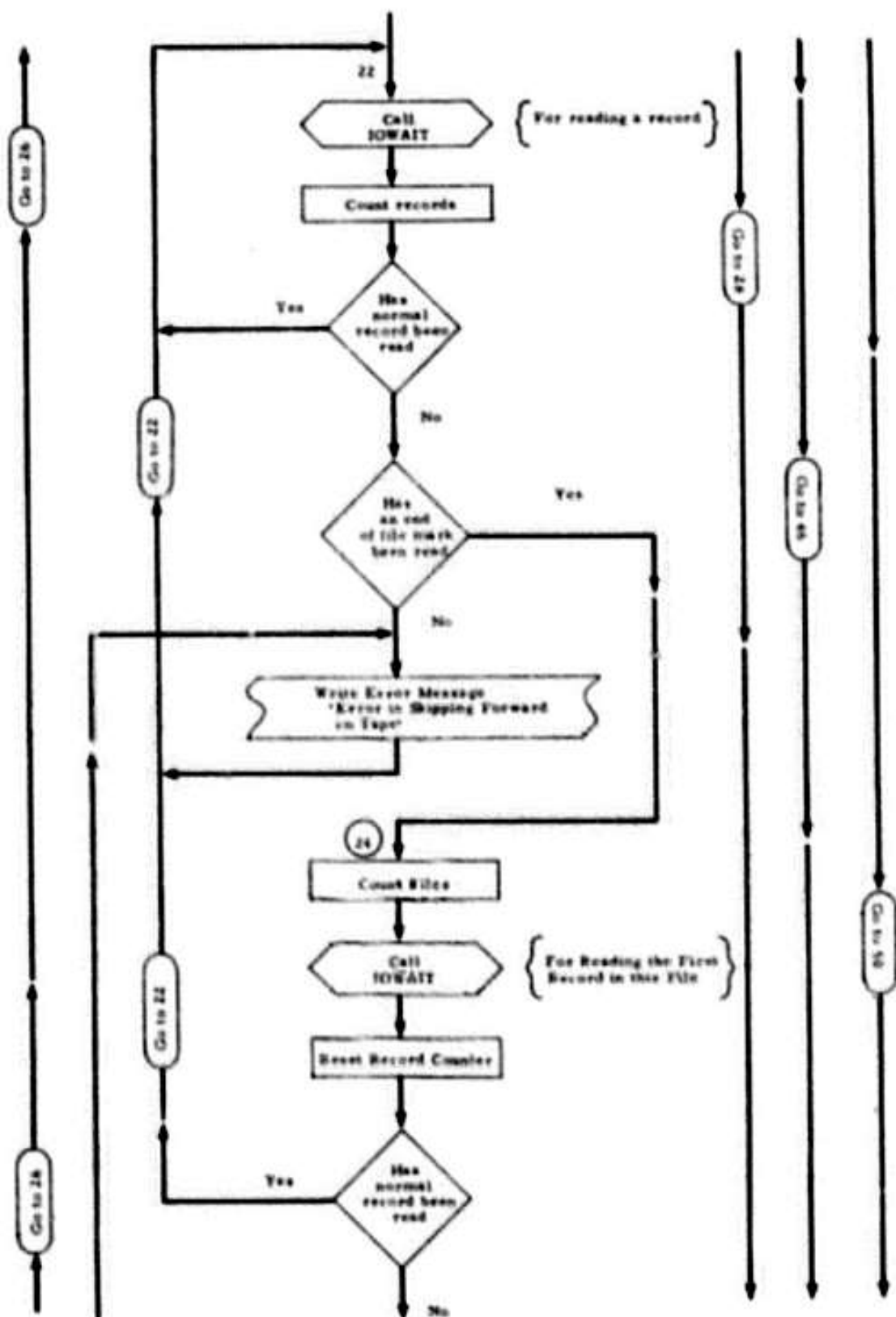


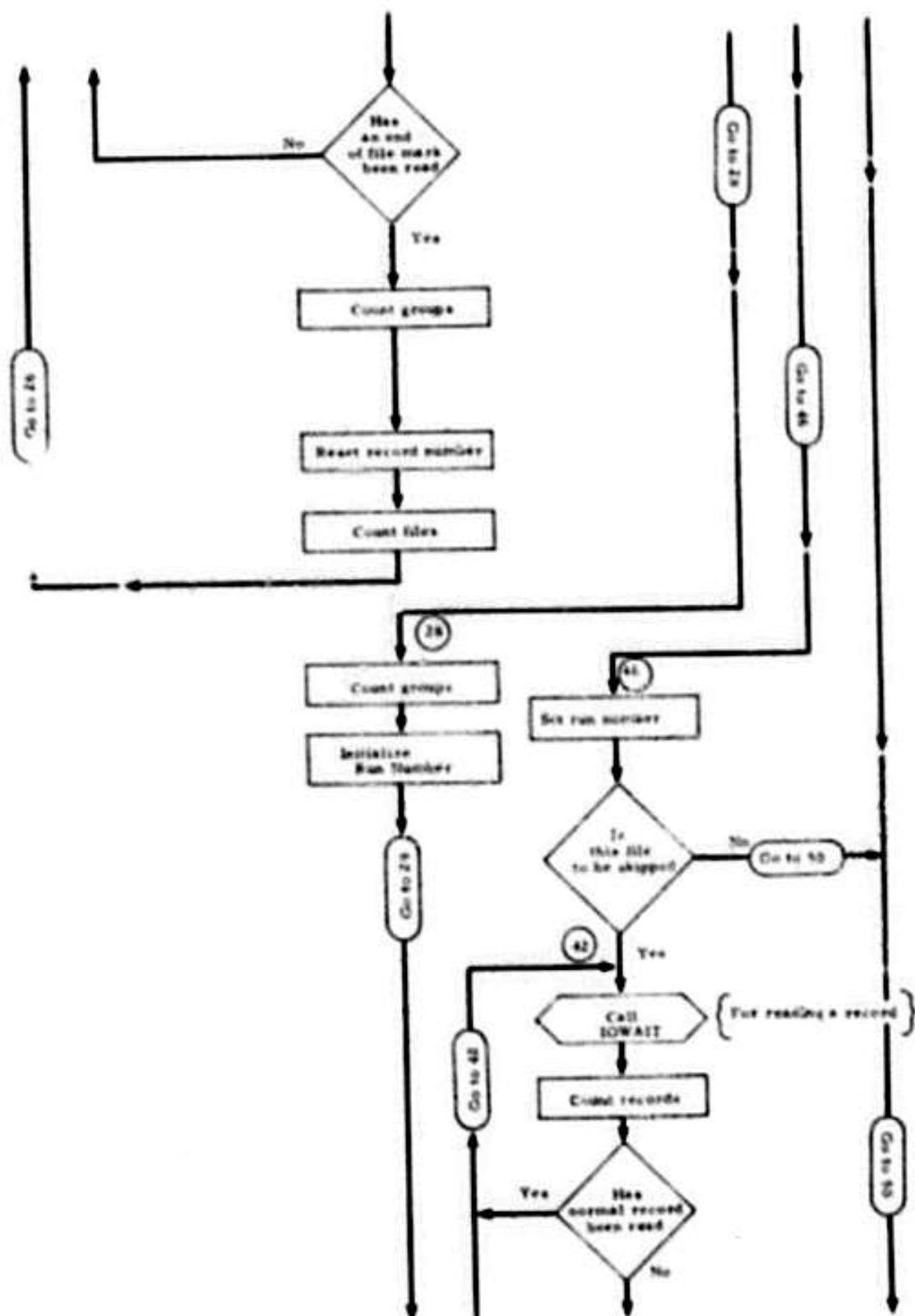


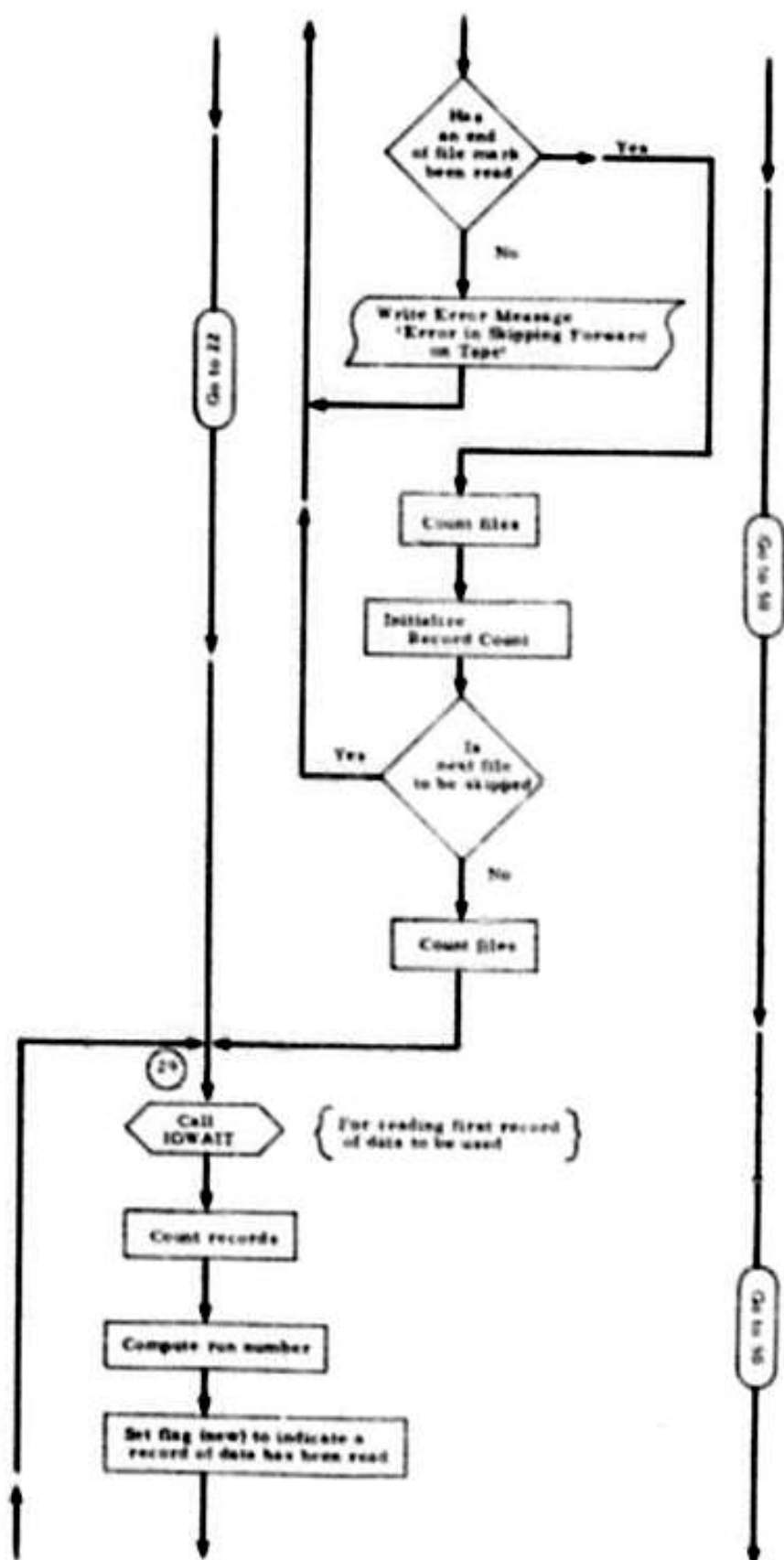


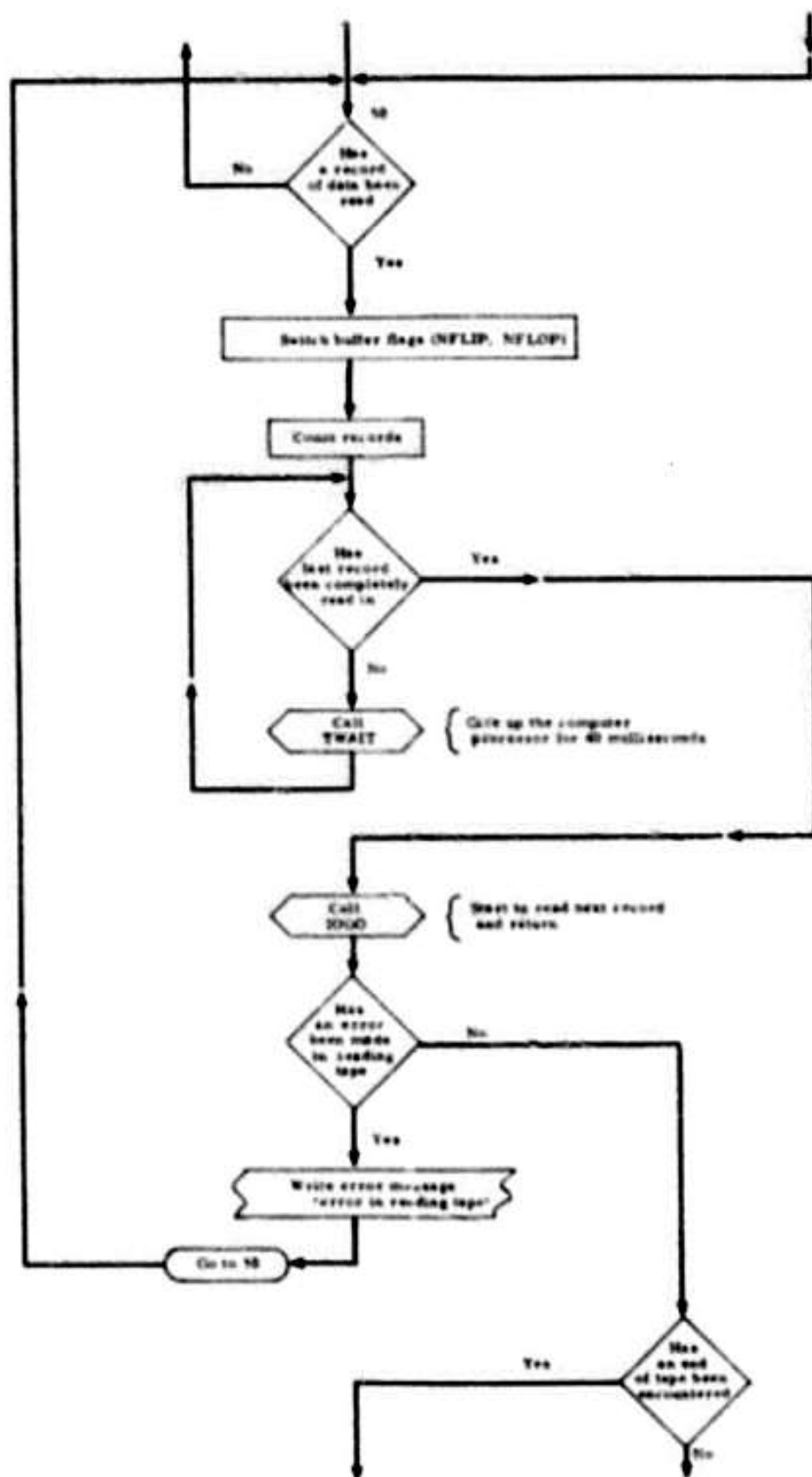
ROUTINE TAREAD

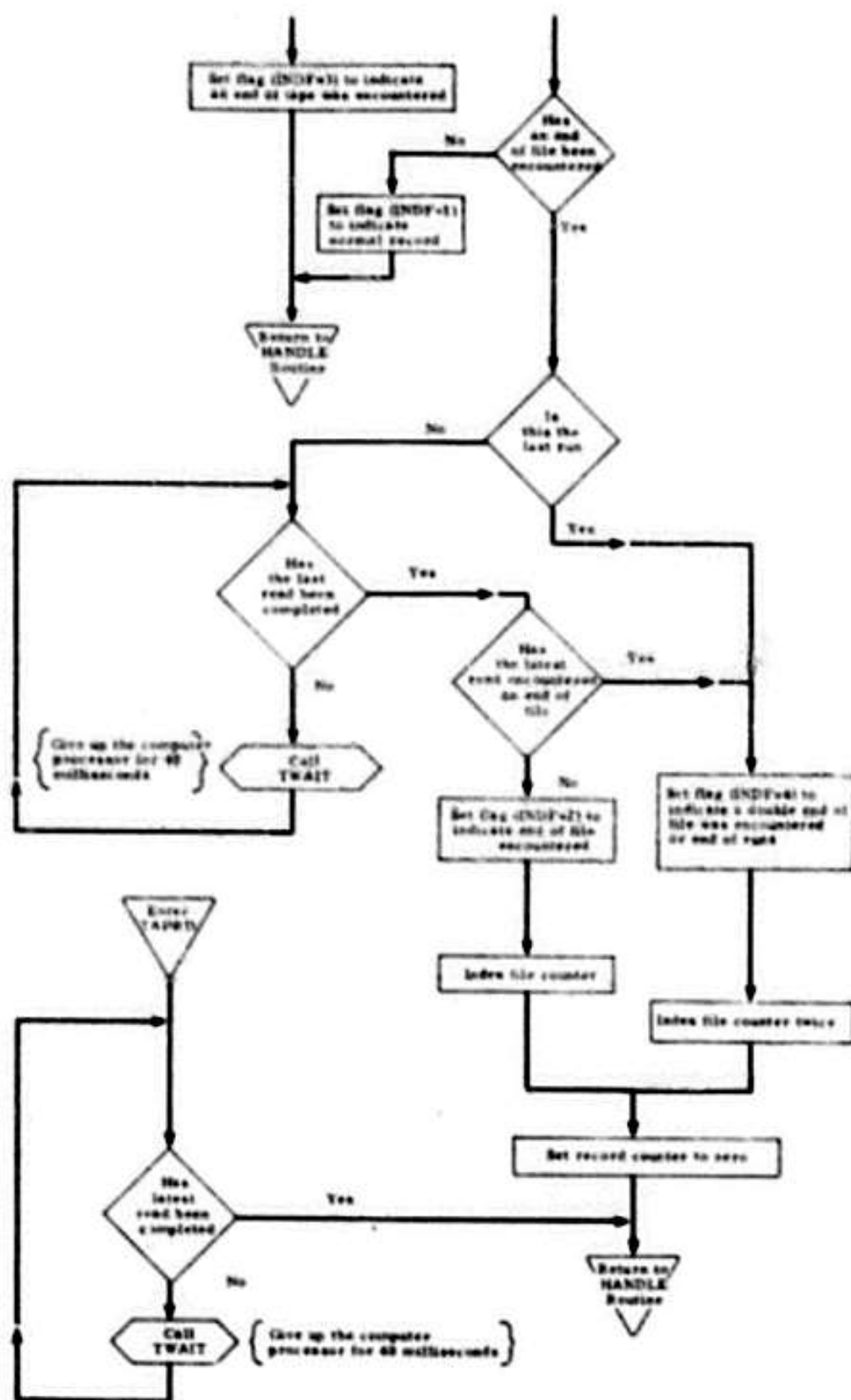






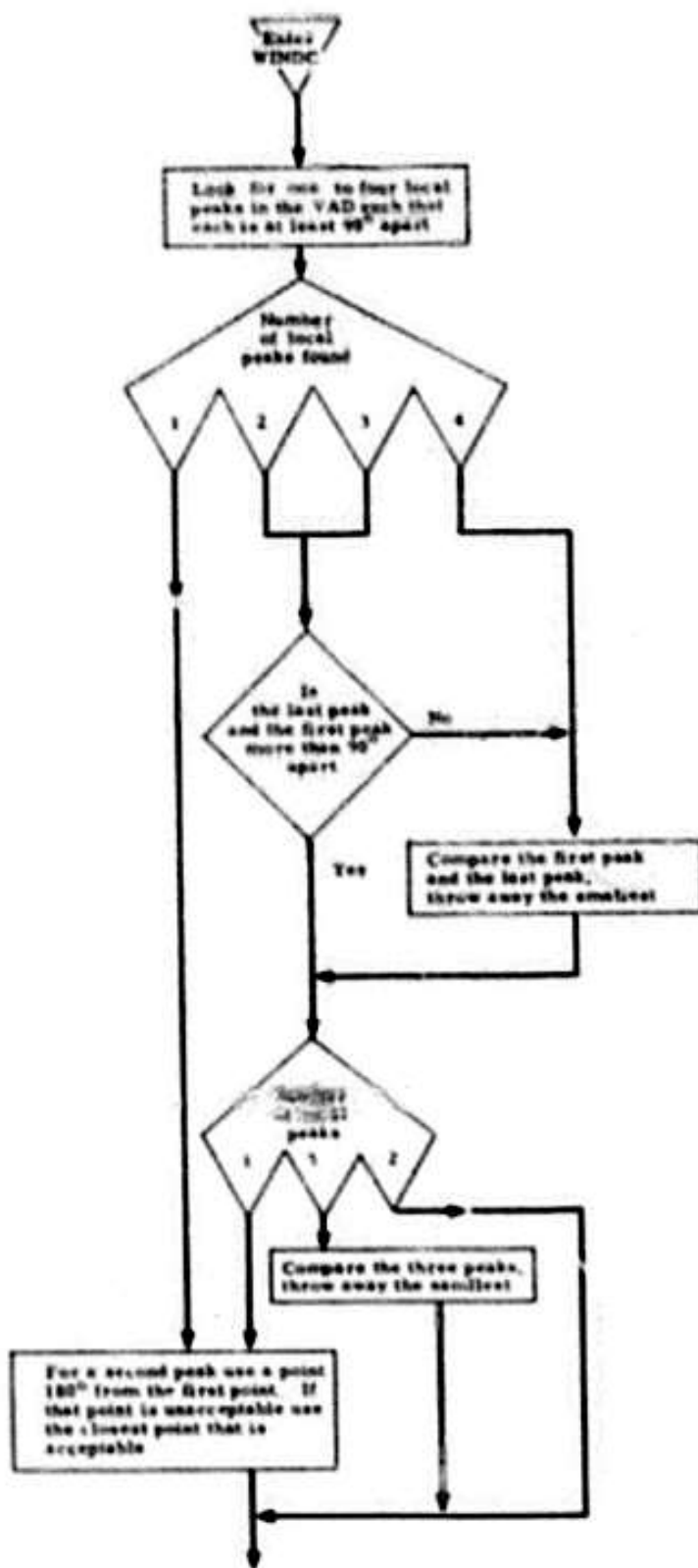


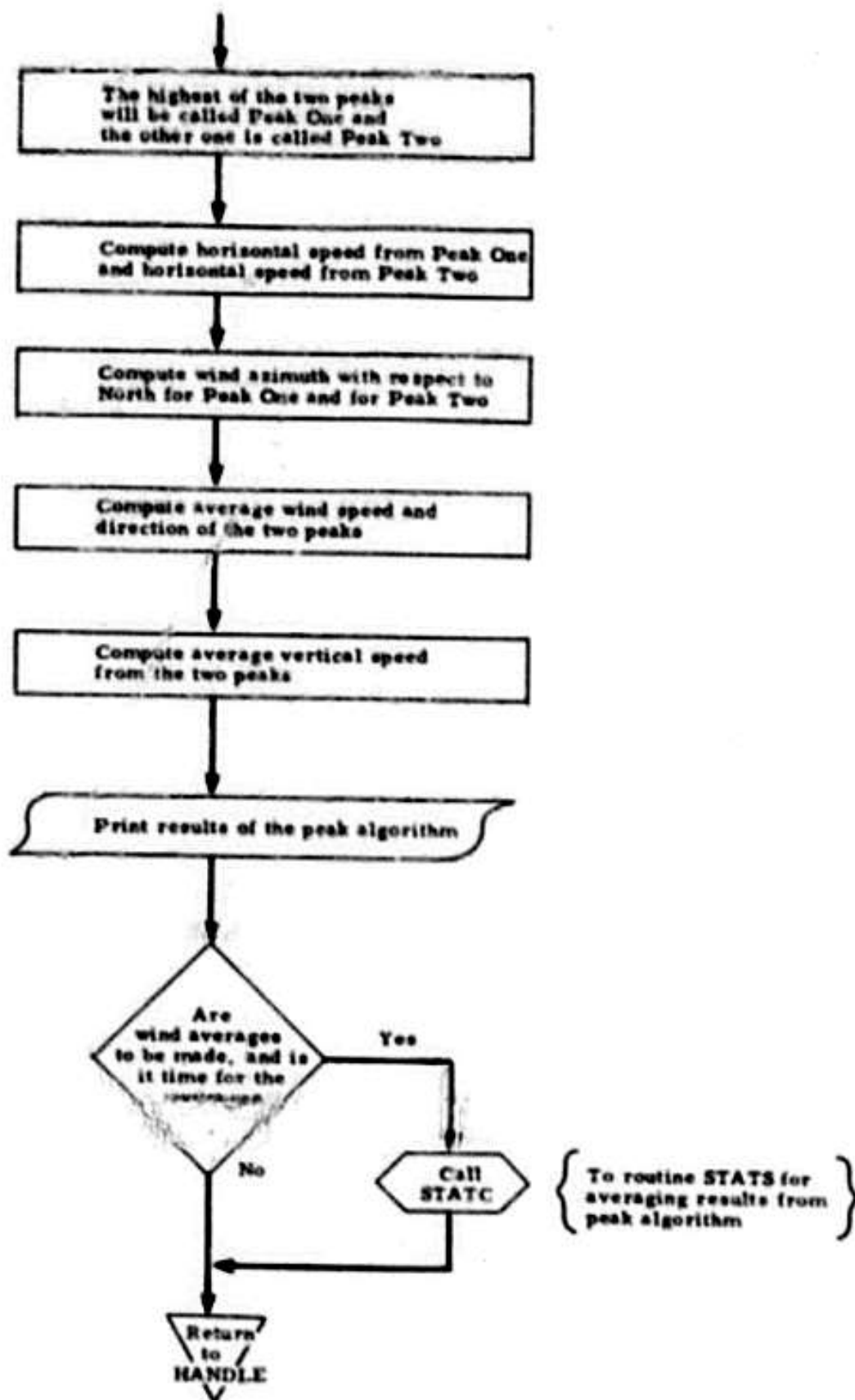




ROUTINE WINDC

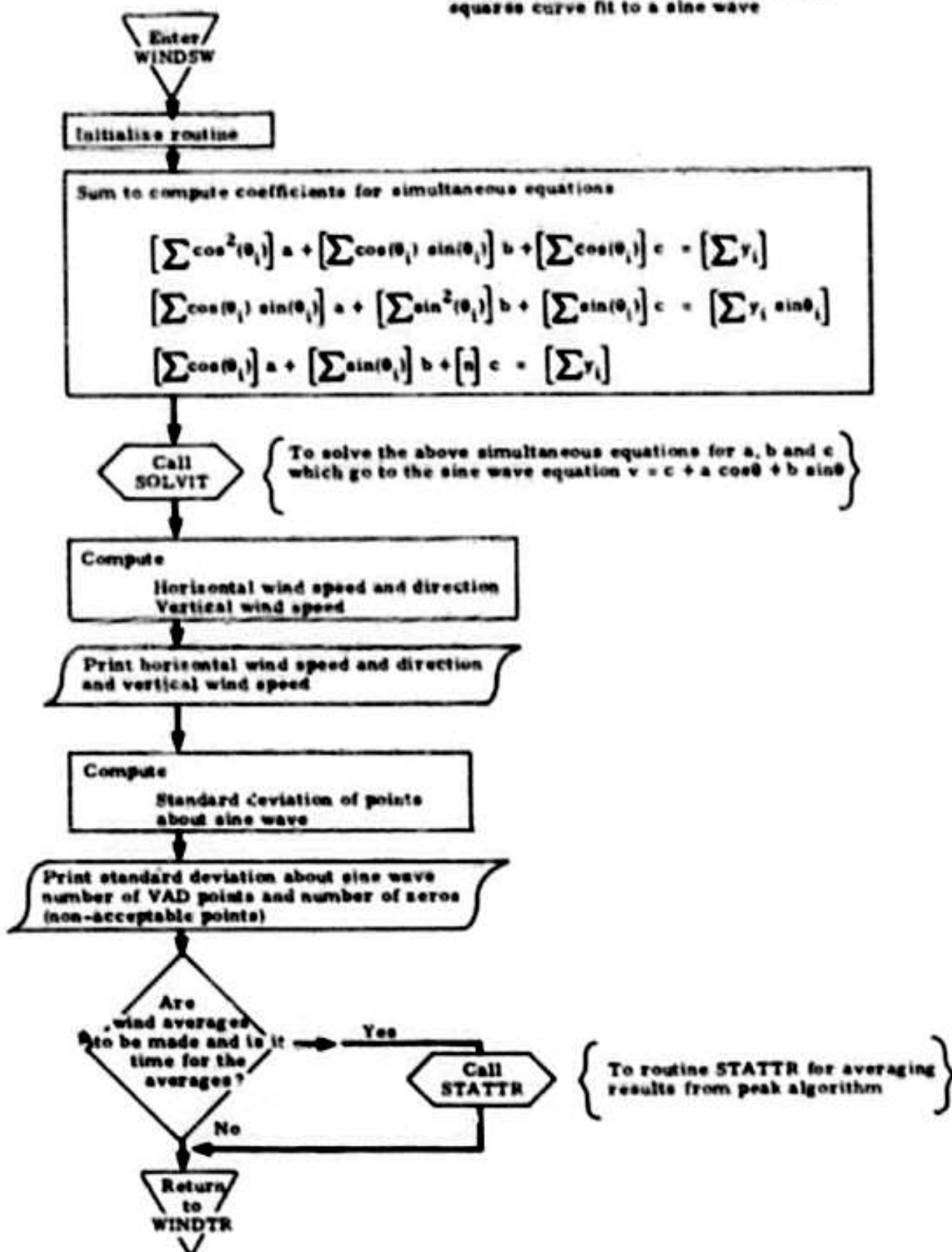
Excerpted from: VAD
using peak_night(rain)





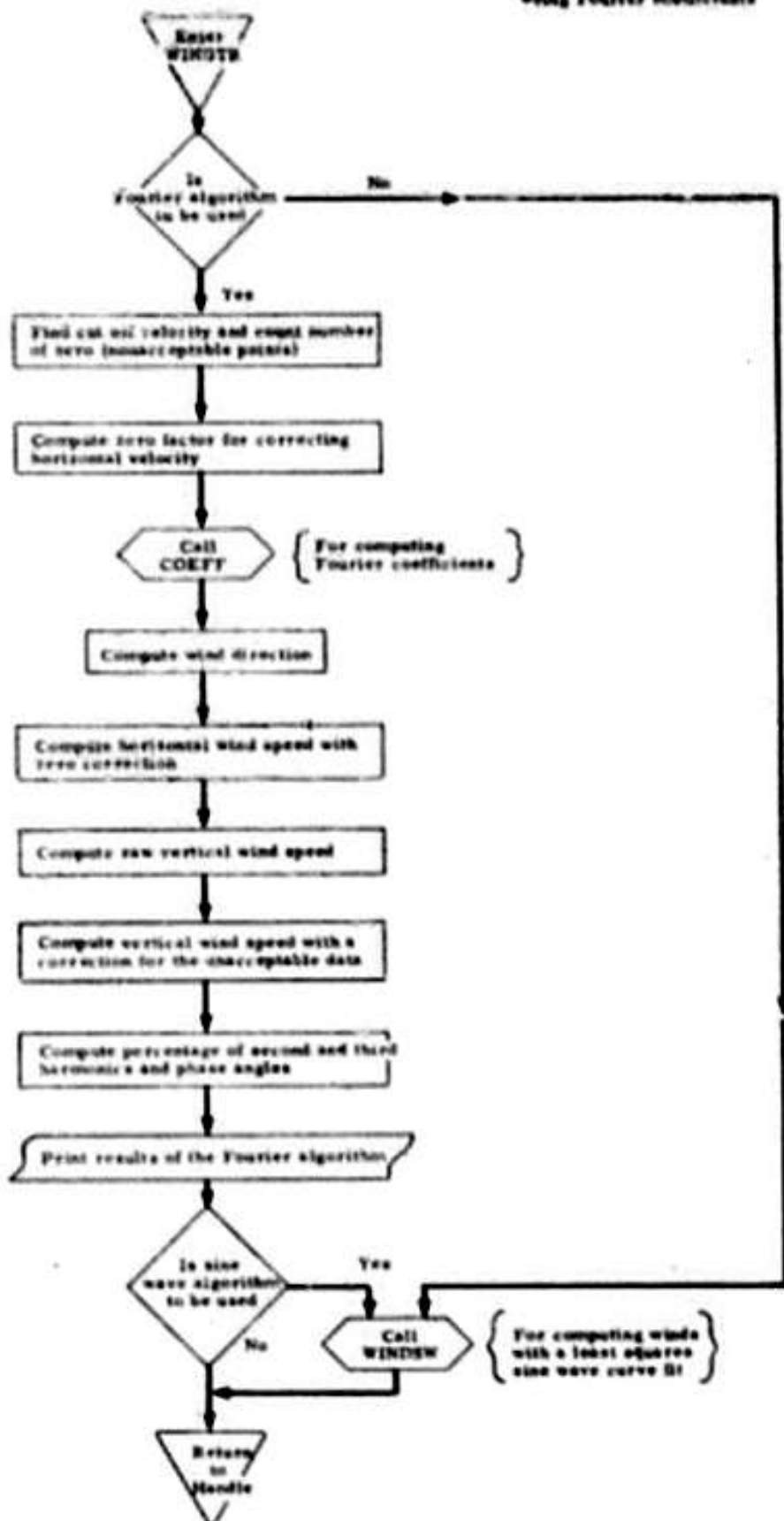
ROUTINE WINDSW

Computes wind from VAD using a least squares curve fit to a sine wave



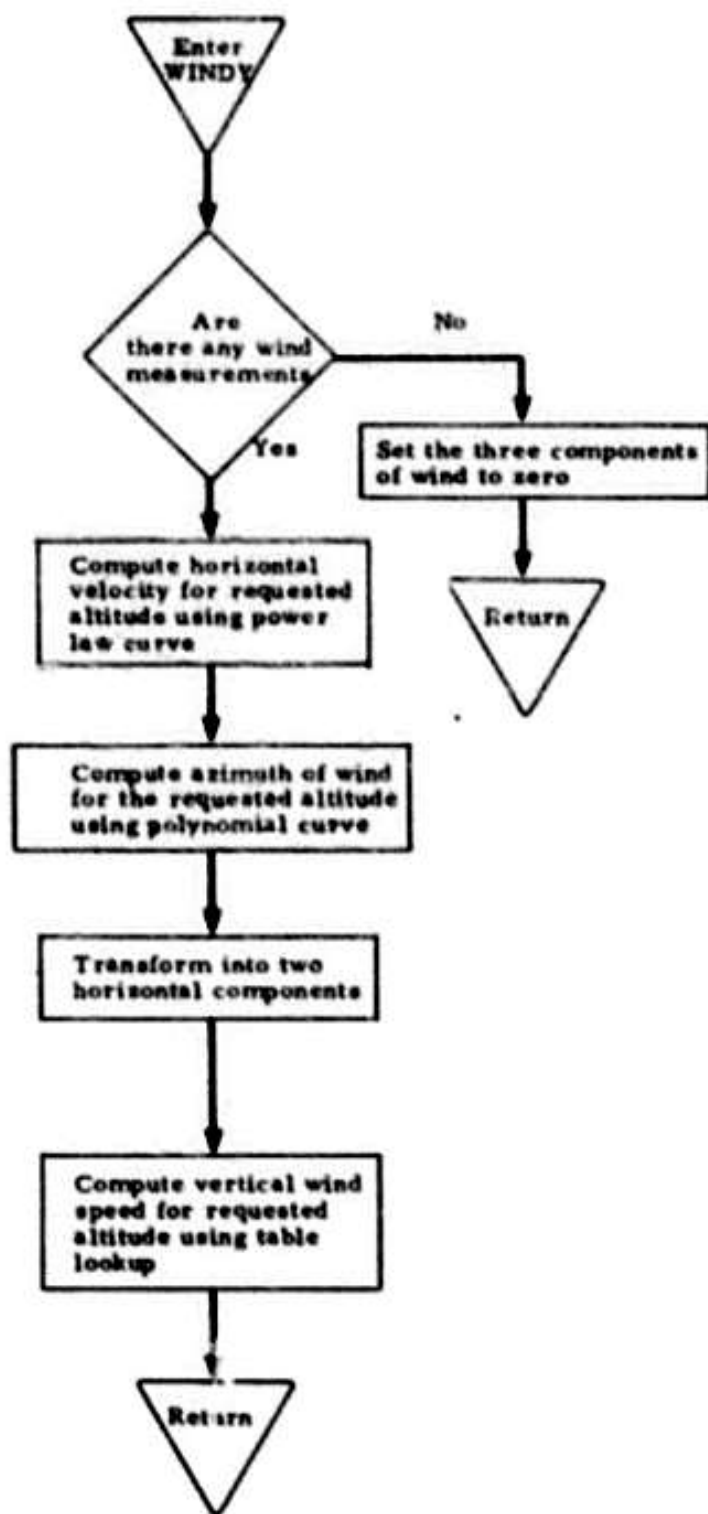
ROUTINE WINDTR

Computes wind from V&B
using Fourier coefficients



ROUTINE WINDY

Finds wind velocity at a particular altitude



ROUTINE WPROFL

Computes wind profile
as a function of height

Enter
WPROFL

Fit a power law curve to horizontal wind velocity at
varying heights using a least squares technique

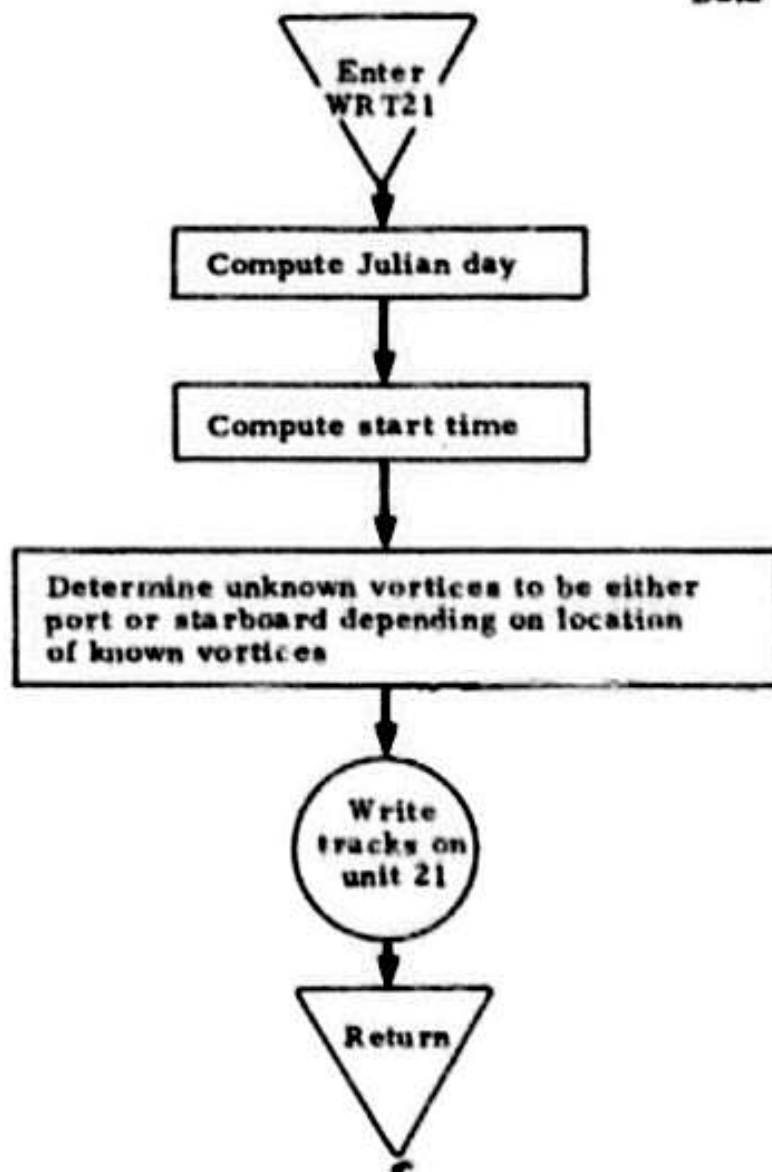
Fit polynomial curve to horizontal wind direction
at varying heights using a least squares technique

Print coefficients for the power law curve
and the polynomial

Return

ROUTINE WRT21

**Writes vortex tracks
on unit 21 for use by
Data Management program**



Appendix B (Continued)

In addition to the flow charts presented on the previous pages, the following library routines are used in the VAD Vortex Track Program; FPLOTT, SOLVIT and LSQPF. Rather than present detailed flow charts for these general library routines, they are described below in terms of the purpose, function and usage.

● Subroutine FPLOTT

Purpose

FPLOTT collects and stores data as they become available, and upon signal, produces a printer plot in practically any orientation and size. FPLOTT should be regarded as a general purpose output routine for displaying output data in graphical form.

Usage

CALL FPLOTT(M1, IPNT, AR, LR, ISTOP, NCU, NCMAX, V1, V2)

Description of Parameters

M1	is the size of the main storage array, and it should never be larger than 800, which corresponds to 400 points to be plotted.
IPNT	is a counter initialized -usually IPNT = 0 - in the calling program. It is incremented by 2 each time a new data point is entered in AR.
AR	is the main storage array. It should be in a dimension statement in the calling program. For example, DIMENSION AR(800).
LR	is an array of bytes used to hold the curve number. It should be dimensioned for M1/2. The type declaration LOGICAL*1 LR(400) should be in the calling program.

ISTOP is the flag used to signal that all data has been entered. ISTOP=0 causes data to be stored. If ISTOP=-1 and NCU=NCMAX the program immediately branches to the plotting section. If ISTOP=1 and NCU = NCMAX a data point is stored and then the plotting section is entered.

NCU is the curve number for which data are being entered. It must be a positive integer less than 21.

NCMAX is the number of curves to appear on the graph. This is the largest value NCU will have.

V1 is the horizontal coordinate of the data point to be plotted.

V2 is the vertical coordinate of the data point to be plotted.

IT(1) causes the standard horizontal size of 120 positions to be used. A positive integer will cause the horizontal size to be modified. Maximum horizontal size is 120 positions.

IT(2) A zero causes the standard vertical size of 58 positions to be used. A positive integer will cause the vertical size to be modified. Maximum vertical size is 238 positions.

IT(3) A zero causes the standard horizontal positive direction - to the right - to be used. A 1 causes reversal.

IT(4) A zero causes the standard vertical positive direction - up - to be used. A 1 causes reversal.

LC(1 to 20) Any symbols placed here will be used as plotting characters.

Remarks

As many as 20 different curves may appear on a single graph.

A maximum of 400 points can be plotted on one graph.

The number of points in each curve is arbitrary, but the total number of points must not be exceeded.

The order in which the points of different curves is computed is arbitrary.

The graph size is adjustable up to 120 x 238 positions.

The standard size is 120 x 58 positions - one page.

The standard horizontal and vertical positive directions can be independently changed.

Scaling of data is automatic, the best even scale factor being selected to maximize graph resolution within the available space.

A border of XXXXXXXX is automatically supplied.

The background grid is arranged so that one of the major divisions will pass through zero. The background grid is marked only at the intersections of the major divisions

If the coordinate of zero appears on a graph, a solid line appears so that this major division stands out.

Numerical values are supplied for all major divisions.

The program plots vertically or horizontally with equal ease.

When collecting data for several curves to appear on a single graph, no plots are made until the signal is given and the last data point for the last curve has been stored.

Should one inadvertently try to store more data than storage has been set aside, data storage is bypassed. Only the data stored are used in making the graph.

A curve with one point, or a curve of a constant can be plotted.

Stored data are undisturbed and available for later use.

● Subroutine SOLVIT

Purpose

Compute a highly accurate solution to the matrix equation $AX = B$ where A is an $N \times N$ matrix, and X and B are vectors.

Usage

CALL SOLVIT (A, N, M, B, X, ACC, MAXIT, IT, IN, W)

Description of Parameters

A	$N \times N$ matrix of coefficients
N	number of rows of A
M	number of rows of array in which A is stored
B	right-hand side of equation $AX = B$
X	solution vector

ACC	accuracy desired
MAXIT	maximum number of iterations to be tried. (10 should be sufficient.) If MAXIT = 0, no iterations will be performed.
IT	internal indicator set by program to: = -1 if matrix is singular = 0 if convergence failed within MAXIT iterations = k the number of iterations it took to converge
IN	to be set = 1 for first entry to the subroutine = 2 for subsequent entries if A has not been changed.
W	N x (N + 5) array used as working storage.

Method

The Gaussian elimination method with partial pivoting is used to decompose the matrix to upper and lower triangular matrices. (These triangular matrices are saved.) From the residual vector $B - AX$, a correction vector is computed and added to X. The process is repeated until the residual vector is within the tolerance.

The initial scaling of each row, to bring the maximum element between 1/2 and 1, is done using factors equal to integral powers of 2 to eliminate round off errors which otherwise might have been introduced.

The method is due to Cleve Moler, JPL, presented at SHARE XXV, Chicago.

Storage Requirements

116 locations.

Restrictions

In most cases, eight digits accuracy can be attained.

W must not be used between calls to SOLVIT when solving for multiple right-hand sides. Matrix A is destroyed.

Note

SOLVIT is only a driver for the deck SIME (entry points SIMEQA and SIMEQB): thus two decks comprise this subroutine. In addition, this subroutine uses the library subroutine LOG2.

● Subroutine LSQPF, LSQPF1

Purpose

This program will fit polynomials of order one through seven to n given points (X_1, Y) , (X_2, Y_2) , ..., (X_n, Y_n) by the method of least squares. The order and spacing of the points is immaterial and the points need not all be distinct.

Usage

- a. CALL LSQPF (X, Y, K, N, M, C, IERR) or
- b. CALL LSQPF1 (X, Y, K, N, M, C, IERR)

Description of Parameters

X	for both entries X is the first location of the block of X_i values (real array)
Y	for both entries Y is the first location of the block of Y_i values (real array)
K	for both entries K is zero if residuals are not needed; is nonzero if residuals are wanted (integer)
N	for both entries N is the number of points to be fitted (integer)
M	for entry (a), M is the highest order polynomial desired. The routine will compute polynomial fits of degree one through M and return all coefficients. For entry (b), the routine computes a polynomial fit of degree M only. $2 \leq M \leq 7$ (integer)

C for both entries, C is the first location of the block where the coefficients, standard deviation, and residuals will be stored.

for entry (a), the dimension of C must be $M(M+5)/2$ if $K = 0$, and $M(M+5)/2 + N * M$ if $K \neq 0$. The coefficients, a_i , the standard deviation, σ , and the residuals, R_j , are stored in the following order beginning at location C:

$A_0^{(1)}, A_1^{(1)}, \sigma^{(1)}, A_0^{(2)}, A_1^{(2)}, A_2^{(2)}, \sigma^{(2)}, \dots, A_0^{(M)},$
 $A_1^{(M)}, \dots, A_m^{(M)}, \sigma^{(M)}, R_1^{(1)}, R_2^{(2)}, R_2^{(2)}, \dots, R_n^{(2)}, \dots$
 $R_1^{(M)}, R_2^{(M)}, \dots, R_n^{(M)}.$

The location of A_0 of polynomial degree $P (1 \leq P \leq M)$ is $C(I)$ where $I = P(P+5)/2 - (P+1)$. The location of R_1 of polynomial degree $P (1 \leq P \leq M)$ is $C(I)$ where $I = M(M+5)/2 + N(P-1)+1$.

For entry (b), the dimension of C must be $(M+2)$ if $K = 0$, and $(M+2+N)$ if $K \neq 0$. The coefficients are stored in $C(1)$ through $C(M+1)$, the standard deviation in $C(M+2)$, and the residuals in $C(M+3)$ through $C(M+2+N)$.
 (real array)

IERR for both entries, IERR is the error flag; it will contain 0 if no error occurred, and some number if an error has occurred. There are two reasons for an error: one of the pivotal elements is zero, or an overflow has occurred.
 (integer)

Method

The method of solution is as follows:

Given a set of n points, (X_i, Y_i) , we require sets of coefficients, a_j , such that

$$\sum_{j=0}^P a_j (X_i)^j$$

is the best least squares fit to Y_i over all i . This is done by first normalizing the X_i to the interval $(-1, +1)$ by use of the formula

$$X'_i = \frac{X_i}{\max(|X_0|, \dots, |X_n|)}$$

We can then work in terms of Chebychev polynomials, T_k , where

$$T_0 = 1$$

$$T_1 = X'_i$$

$$T_k = 2 X' T_{k-1} - T_{k-2}$$

for $k = 2(1)p$. We now seek t_j such that

$$\sum_{j=0}^p t_j T_j(X'_i)$$

gives the best least squares fit. The residuals, R_i^k , are

$$R_i^{(k)} = \sum_{j=0}^k [a_j (X'_i)^j] - Y_i, \quad k = 1(1)p$$

The unbiased estimate of the standard deviation of the k^{th} order polynomial fit is

$$\sigma^{(k)} = \frac{\sum_{i=1}^n |R_i^{(k)}|}{n} \sqrt{n/2}$$

Restrictions

The value of M must be in the range 2 through 7. Care should be exercised in using this routine since considerable loss in accuracy of the coefficients is sometimes involved.

A diagram showing a runway with a landing aircraft. A line labeled "Runway Axis" extends from the top left towards the bottom right. At the bottom right, a small aircraft is labeled "Landing AC". A line labeled "Runway" is parallel to the "Runway Axis" line. A line labeled "Runway Axis" is also shown at the top left, with an angle θ indicated between it and a vertical line.

Runway Animals: 310

Mirror Animals
for Switch: 115

Van X Position:
Ref. # 350fr
Radio Shack

Van Y Position:
Ref. # 400fr
Center of NY

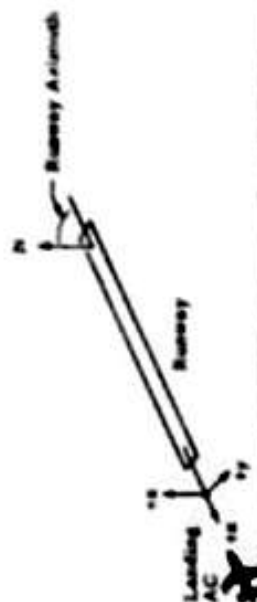
Location: KIA
 Date: 1-19-76
 Sheet 1 of 1

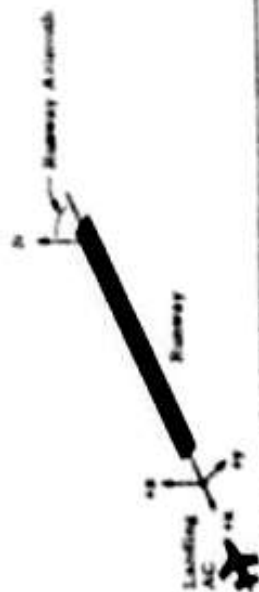
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Location: L19
Date: 6-19-86
Sheet 1 of 2

Van X Positions:
Ref. Pg.

Runway Asimuth 330

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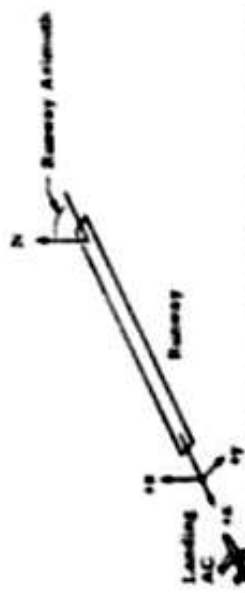


Runway Alignment: 31.2°
 Mirror Alignment: 1.5°
 for Switch

Van X Position: 2.5°
 Ref. Pt. 20.000°
 Van Y Position: 4.0°
 Ref. Pt. 20.000°
 Center of RW

Location: 1.1°
 Date: 1.1.1.1
 Sheet 1 of 1

Run ID	AC Type or VAD	B. W. (MHz)	Spectrum Analyzer				Scanner				Computers		Time		Estimated Wind Azimuth (from)	Comments
			100 dB	Min.	Max.	Rate (mm/s)	Range		Elevation		Tape No.	No. Records	Start	Stop		
							Min.	Max.	Min.	Max.						
0229	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1	21		15.5	15.5	2000.25	3.747
0230	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0231	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0232	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1	21		15.5	15.5	2000.25	3.747
0233	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0234	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0235	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0236	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0237	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0238	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0239	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0240	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0241	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0242	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0243	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0244	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0245	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0246	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0247	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0248	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0249	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0250	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0251	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0252	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0253	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0254	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0255	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747
0256	AC	1.0	1.0	1.0	1.0	1	1.0	1.0	1.0	1			15.5	15.5	2000.25	3.747



Location: KIA Runway Azimuth: 312
 Date: 1-15-76 Ref. Pk. 257
 Sheet 1 of 4 Van Y Position: Waco
 Ref. Pk. 115 Mirror Azimuth for Switch

Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Azimuth (from)	Comments	
	AC Type or VAD	R. W. (MHz)	100 Hz	Freq. Span (MHz)	Rate (min)	Max	Min	Rate	Max	Min	Rate	Start	Stop		
001	AD	50	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
002	DCB	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
003	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
004	DCB	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
005	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
006	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
007	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
008	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
009	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
010	DCB	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
011	DCB	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
012	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
013	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
014	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
015	VAD	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
016	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
017	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
018	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
019	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
020	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
021	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
022	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
023	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
024	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
025	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
026	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
027	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
028	72.7	100	1.0	1.0	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

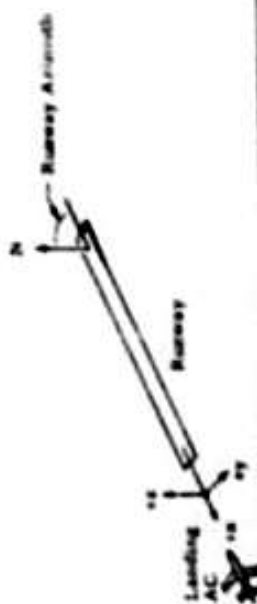
Location: KIA
 Date: 1-15-76
 Sheet 2 of 4

Van X Position:
 Ref. Pt. _____
 Van Y Position:
 Ref. Pt. _____

Runway Azimuth: 210
 Mirror Azimuth
 for Switch _____



Run ID	Spectrum Analyzer					Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments	
	AC Type or VAD	R. W. (kHz)	Freq. Span (MHz)		Rate (in/sec)	Range			Elevation			Type No.	No. Records	Start	Stop			
			Min.	Max.		Min.	Max.	Rate	Min.	Max.	Rate							
028	747	100	4.00	6	1	2.6	1	210	65	30	55	2	1	2.2	18:00	18:05	220/10	
029	DC-8	100	4.00	6	1	2.6	1	210	65	30	55	2	1	2.2	18:05	18:10	220/10	
030	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:10	18:15	220/10	
031	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:15	18:20	220/10	
032	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:20	18:25	220/10	
033	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:25	18:30	220/10	
034	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:30	18:35	220/10	
035	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:35	18:40	220/10	
036	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:40	18:45	220/10	
037	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:45	18:50	220/10	
038	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:50	18:55	220/10	
039	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	18:55	19:00	220/10	
040	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:00	19:05	220/10	
041	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:05	19:10	220/10	
042	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:10	19:15	220/10	
043	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:15	19:20	220/10	
044	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:20	19:25	220/10	
045	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:25	19:30	220/10	
046	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:30	19:35	220/10	
047	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:35	19:40	220/10	
048	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:40	19:45	220/10	
049	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:45	19:50	220/10	
050	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:50	19:55	220/10	
051	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	19:55	20:00	220/10	
052	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	20:00	20:05	220/10	
053	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	20:05	20:10	220/10	
054	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	20:10	20:15	220/10	
055	DC-8	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	20:15	20:20	220/10	
056	707	100	4.00	6	1	2.6	1	160	45	30	55	2	1	-	20:20	20:25	220/10	

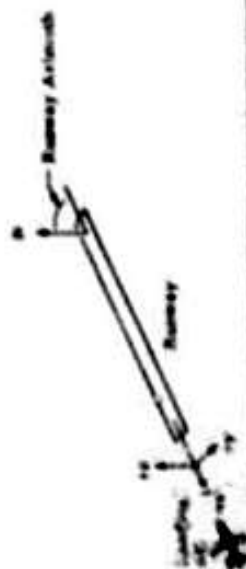


Location: K-1
 Date: 11/11/76
 Sheet 3 of 4

Van X Position: Ref. P.
 Van Y Position: Center of RW

Runway Azimuth: 50.0
 Mirror Azimuth for Switch:

Run ID	Spectrum Analyzer					Scanner					Computer		Time		Estimated Wind Azimuth (from)	Comments	
	AC Type or VAD	R.W. (dBm)	1/200 Hz	Freq. Span (MHz)		Rate (in/sec)	Range			Elevation		Type	No. Records	Start			Stop
				Min.	Max.		Min.	Max.	Min.	Rate							
057	22.7	1.3	1.0	1.7	1.7	1	1.0	1.2	3.8	4.0	0.2	1	2.2	3.34	15.17	0.00 15.15	
062	24.7	1.3	1.0	1.7	2.3	1					1			3.34	15.46	0.00 15.40	
057	25.7	1.3	1.0	1.7	2.3	1	1.0	2.3	1.0	0.0	1.0	1.0		15.46	15.46	0.00 15.47	
060	26.7													3.34	15.46	0.00 15.45	
061	27.7													3.34	15.46	0.00 15.45	
062	28.7									4.5	1.0	1.0	*	15.46	15.50	0.00 15.45	
066	05.8													3.34	15.50	0.00 15.45	
062	11.0	3.8	0.8	1.6	2.0	1								3.34	16.10	0.00 16.05	3.0 4.0 5.0 1.0 2.0 3.0 4.0 5.0
063	22.2	1.2	1.0	1.7	1.7	1	1.0	2.0	1.2	4.0	2.2	1.0		3.34	16.10	0.00 16.05	
063	24.7				1.0									3.34	16.10	0.00 16.05	
068	24.7													3.34	16.10	0.00 16.05	
067	05.7													3.34	16.10	0.00 16.05	
072	05.9													3.34	16.10	0.00 16.05	
071	22.7													3.34	16.10	0.00 16.05	
072	05.7													3.34	16.10	0.00 16.05	
073	24.7	1.1	1.0	1.7	2.3		1.0	2.3	1.2	4.0	2.2	1.0		3.34	16.10	0.00 16.05	
074	24.7													3.34	16.10	0.00 16.05	
075	22.7													3.34	16.10	0.00 16.05	
076	05.0													3.34	16.10	0.00 16.05	
077	22.7													3.34	16.10	0.00 16.05	
078	05.10													3.34	16.10	0.00 16.05	
079	24.7													3.34	16.10	0.00 16.05	
080	22.7													3.34	16.10	0.00 16.05	
081	24.7													3.34	16.10	0.00 16.05	
082	05.10													3.34	16.10	0.00 16.05	
083	22.7													3.34	16.10	0.00 16.05	

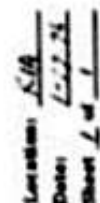


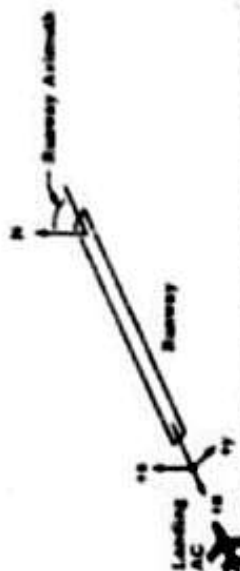
Runway Altimeter $\frac{710}{1000}$

Van N Position:
Ref. 10.

Location: LA
Date: 6/26/78
Sheet 2 of 4

Run ID		Spectrum Analyzer				Scanner				Compass		Type		Proposed		Comments	
No.	AC Type or VAD	R. W. (MHz)	Min.	Max.	Rate (min)	Range		Elevations		Type	Min.	Max.	Min.	Max.	Altitude (feet)		
086	241	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
087	160	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
088	163	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
089	167	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
090	168	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
091	169	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
092	170	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
093	171	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
094	172	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
095	173	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
096	174	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
097	175	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
098	176	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
099	177	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
100	178	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
101	179	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
102	180	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
103	181	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
104	182	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
105	183	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
106	184	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
107	185	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
108	186	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
109	187	110	1.7	2.7	1	1.0	3.0	2.0	4.0	1.0	1.0	1.0	1.0</				

C-9



Location:	<u>L.A.</u>	Van X Position:	<u>23 ft</u>	Runway Azimuth:	<u>316</u>
Date:	<u>2-11-66</u>	Ref. Pt.	<u>Left edge</u>		
Sheet <u>L of 1</u>		Van Y Position:	<u>44 ft</u>	Mirror Azimuth for North:	<u>1</u>
		Ref. Pt.	<u>Center of TV</u>		

Van X Position

Van X Pa

[illegible]

Location: 6-6
 Date: 1-27-81
 Sheet: 1 of 2

Van Y Position:
 Ref. Pt. 1
 Van Y Position:
 Ref. Pt. 1

100
100

Runway Azimuth: 91.2
 Mirror Azimuth
 for Bench: 115



Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Azimuth (From)	Comments
	AC Type or VAD	B.W. (kHz)	Log Lvl	Freq. Span (MHz)	Rate (in/sec)	Min.	Max.	Rate	Min.	Max.	Type No.	Min. Records		
001	1AD	30	4.4	2	2.2	1	-	-	-	-	27	-	2000.00	1000.75.91.00.00.00.00.00
002	1AD	30	4.4	2	2.2	1	-	-	-	-	-	-	2000.11	117.00.00.00.00.00.00.00
003	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
004	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
005	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
006	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
007	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
008	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
009	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
010	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
011	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
012	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
013	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
014	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
015	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
016	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
017	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
018	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
019	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
020	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
021	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
022	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
023	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
024	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
025	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
026	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
027	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
028	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
029	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
030	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
031	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
032	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
033	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
034	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
035	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
036	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
037	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
038	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
039	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00
040	207	100	4.4	1	1.2	3	2.2	2.2	3	3	1	-	2000.11	117.00.00.00.00.00.00.00



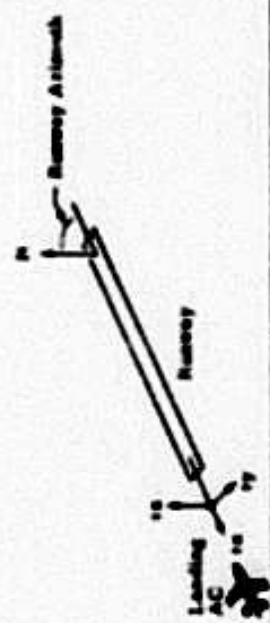
Location: S. 1.4 Van X Position: 200 ft Runway Azimuth: 310
 Date: 1-27-76 Ref. Pn. 200 ft Mirror Azimuth: 115
 Sheet 2 of 2 Van Y Position: Center of RW for South

Run ID	Spectrum Analyzer					Scanner					Computer		Time		Estimated Wind Azimuth (from)	Comments			
	No.	AC Type or VAD	B.W. (kHz)	Freq. Span (MHz)		Rate (msec)	Range			Elevation		Type No.	No. Records	Start			Stop		
				Min.	Max.		Min.	Max.	Rate	Min.	Max.							Rate	
001	76.7	1.0	4.0	1	1.2	3	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.11	9.12	0.00	1.00	1st Run - 100%
002	76.7	1.0	4.0	0	0	2	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.12	9.13	0.00	1.00	2nd Run - 100%
003	76.7	1.0	4.0	1	1.2	3	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.13	9.14	0.00	1.00	3rd Run - 100%
004	76.7	1.0	4.0	1	1.2	3	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.14	9.15	0.00	1.00	4th Run - 100%
005	76.7	1.0	4.0	1	1.2	3	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.15	9.16	0.00	1.00	5th Run - 100%
006	76.7	1.0	4.0	1	1.2	3	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.16	9.17	0.00	1.00	6th Run - 100%
007	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.17	9.18	0.00	1.00	7th Run - 100%
008	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.18	9.19	0.00	1.00	8th Run - 100%
009	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.19	9.20	0.00	1.00	9th Run - 100%
010	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.20	9.21	0.00	1.00	10th Run - 100%
011	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.21	9.22	0.00	1.00	11th Run - 100%
012	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.22	9.23	0.00	1.00	12th Run - 100%
013	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.23	9.24	0.00	1.00	13th Run - 100%
014	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.24	9.25	0.00	1.00	14th Run - 100%
015	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.25	9.26	0.00	1.00	15th Run - 100%
016	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.26	9.27	0.00	1.00	16th Run - 100%
017	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.27	9.28	0.00	1.00	17th Run - 100%
018	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.28	9.29	0.00	1.00	18th Run - 100%
019	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.29	9.30	0.00	1.00	19th Run - 100%
020	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.30	9.31	0.00	1.00	20th Run - 100%
021	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.31	9.32	0.00	1.00	21st Run - 100%
022	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.32	9.33	0.00	1.00	22nd Run - 100%
023	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.33	9.34	0.00	1.00	23rd Run - 100%
024	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.34	9.35	0.00	1.00	24th Run - 100%
025	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.35	9.36	0.00	1.00	25th Run - 100%
026	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.36	9.37	0.00	1.00	26th Run - 100%
027	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.37	9.38	0.00	1.00	27th Run - 100%
028	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.38	9.39	0.00	1.00	28th Run - 100%
029	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.39	9.40	0.00	1.00	29th Run - 100%
030	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.40	9.41	0.00	1.00	30th Run - 100%
031	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.41	9.42	0.00	1.00	31st Run - 100%
032	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.42	9.43	0.00	1.00	32nd Run - 100%
033	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.43	9.44	0.00	1.00	33rd Run - 100%
034	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.44	9.45	0.00	1.00	34th Run - 100%
035	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.45	9.46	0.00	1.00	35th Run - 100%
036	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.46	9.47	0.00	1.00	36th Run - 100%
037	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.47	9.48	0.00	1.00	37th Run - 100%
038	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.48	9.49	0.00	1.00	38th Run - 100%
039	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.49	9.50	0.00	1.00	39th Run - 100%
040	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.50	9.51	0.00	1.00	40th Run - 100%
041	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.51	9.52	0.00	1.00	41st Run - 100%
042	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.52	9.53	0.00	1.00	42nd Run - 100%
043	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.53	9.54	0.00	1.00	43rd Run - 100%
044	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.54	9.55	0.00	1.00	44th Run - 100%
045	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.55	9.56	0.00	1.00	45th Run - 100%
046	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.56	9.57	0.00	1.00	46th Run - 100%
047	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.57	9.58	0.00	1.00	47th Run - 100%
048	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.58	9.59	0.00	1.00	48th Run - 100%
049	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.59	9.60	0.00	1.00	49th Run - 100%
050	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.60	9.61	0.00	1.00	50th Run - 100%
051	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.61	9.62	0.00	1.00	51st Run - 100%
052	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.62	9.63	0.00	1.00	52nd Run - 100%
053	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.63	9.64	0.00	1.00	53rd Run - 100%
054	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.64	9.65	0.00	1.00	54th Run - 100%
055	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.65	9.66	0.00	1.00	55th Run - 100%
056	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.66	9.67	0.00	1.00	56th Run - 100%
057	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.67	9.68	0.00	1.00	57th Run - 100%
058	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.68	9.69	0.00	1.00	58th Run - 100%
059	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.69	9.70	0.00	1.00	59th Run - 100%
060	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.70	9.71	0.00	1.00	60th Run - 100%
061	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.71	9.72	0.00	1.00	61st Run - 100%
062	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.72	9.73	0.00	1.00	62nd Run - 100%
063	76.7	1.0	4.0	2	2.2	4	1	2.2	0.7	3.1	3.0	2.1	1	2.7	9.73	9.74	0.00	1.00	63rd Run - 100%
064	76.7	1.0	4.0	2															

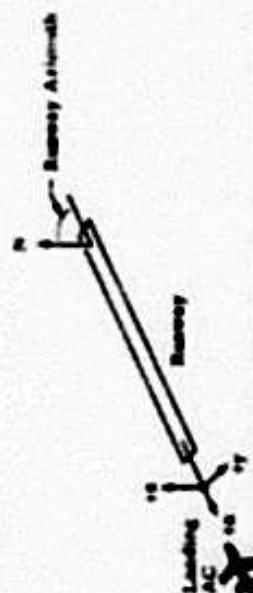
Location: A1A
 Date: 1-28-76
 Sheet 2 of 3

Van X Position:
 Ref. Pt. 200 ft. from runway
 Van Y Position:
 Ref. Pt. 500 ft. from runway

Runway Azimuth: 310
 Mirror Azimuth
 for Switch: 115



Run ID	Spectrum Analyzer				Scanner				Computer		Time	Estimated Wind Azimuth (from)	Comments	
	AC Type or VAD	R. W. (dB)	Freq. Span (MHz)		Rate (min)	Range		Elevation		Type No.				No. Records
			Min.	Max.		Min.	Max.	Min.	Max.					
001	VAD	30	0	3	1	-	-	60	-	25		10:30	4:42	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
002	VAD	30	0	3	1	250	30	9	1	1		10:30	4:51	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
003	VAD	30	0	3	1	250	30	9	1	1		10:30	4:59	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
004	VAD	30	0	3	1	250	30	9	1	1		10:30	5:07	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
005	VAD	30	0	3	1	250	30	9	1	1		10:30	5:19	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
006	VAD	30	0	3	1	250	30	9	1	1		10:30	5:27	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
007	VAD	30	0	3	1	250	30	9	1	1		10:30	5:39	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
008	VAD	30	0	3	1	250	30	9	1	1		10:30	5:47	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
009	VAD	30	0	3	1	250	30	9	1	1		10:30	5:55	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
010	VAD	30	0	3	1	250	30	9	1	1		10:30	6:03	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
011	VAD	30	0	3	1	250	30	9	1	1		10:30	6:11	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
012	VAD	30	0	3	1	250	30	9	1	1		10:30	6:19	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
013	VAD	30	0	3	1	250	30	9	1	1		10:30	6:27	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
014	VAD	30	0	3	1	250	30	9	1	1		10:30	6:35	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
015	VAD	30	0	3	1	250	30	9	1	1		10:30	6:43	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
016	VAD	30	0	3	1	250	30	9	1	1		10:30	6:51	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
017	VAD	30	0	3	1	250	30	9	1	1		10:30	6:59	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
018	VAD	30	0	3	1	250	30	9	1	1		10:30	7:07	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
019	VAD	30	0	3	1	250	30	9	1	1		10:30	7:15	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
020	VAD	30	0	3	1	250	30	9	1	1		10:30	7:23	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
021	VAD	30	0	3	1	250	30	9	1	1		10:30	7:31	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
022	VAD	30	0	3	1	250	30	9	1	1		10:30	7:39	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
023	VAD	30	0	3	1	250	30	9	1	1		10:30	7:47	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
024	VAD	30	0	3	1	250	30	9	1	1		10:30	7:55	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
025	VAD	30	0	3	1	250	30	9	1	1		10:30	8:03	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
026	VAD	30	0	3	1	250	30	9	1	1		10:30	8:11	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
027	VAD	30	0	3	1	250	30	9	1	1		10:30	8:19	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1
028	VAD	30	0	3	1	250	30	9	1	1		10:30	8:27	4.45, 3.4, 2.1, 1.0, 0.5, 0.25, 0.15, 0.1



Location: K/12
 Date: 1-28-51
 Sheet 8 of 9

Van X Position: 3000
 Ref. Pk. 1000
 Van Y Position: 1000
 Ref. Pk. 1000

Runway Azimuth: 9.1
 Minor Azimuth for Sketch: 1.5

Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Azimuth (from)	Comments
	AC Type or VAD	P. W. (dBm)	Min.	Max.	Rate (Hz)	Min.	Max.	Rate	Page No.	No. Records	Start	Stop		
021	72.7	1.0	1	3	1	120	30	3.1	20		1.00	1.15	130/12	
022	72.7	1.0	1	3	1	120	30	3.1			1.15	1.30	130/12	
023	72.7	1.0	1	3	1	120	30	3.1			1.30	1.45	130/12	
024	72.7	1.0	1	3	1	120	30	3.1			1.45	1.60	130/12	
025	72.7	1.0	1	3	1	120	30	3.1			1.60	1.75	130/12	
026	72.7	1.0	1	3	1	120	30	3.1			1.75	1.90	130/12	
027	72.7	1.0	1	3	1	120	30	3.1			1.90	2.05	130/12	
028	72.7	1.0	1	3	1	120	30	3.1			2.05	2.20	130/12	
029	72.7	1.0	1	3	1	120	30	3.1			2.20	2.35	130/12	
030	72.7	1.0	1	3	1	120	30	3.1			2.35	2.50	130/12	
031	72.7	1.0	1	3	1	120	30	3.1			2.50	2.65	130/12	
032	72.7	1.0	1	3	1	120	30	3.1			2.65	2.80	130/12	
033	72.7	1.0	1	3	1	120	30	3.1			2.80	2.95	130/12	
034	72.7	1.0	1	3	1	120	30	3.1			2.95	3.10	130/12	
035	72.7	1.0	1	3	1	120	30	3.1			3.10	3.25	130/12	
036	72.7	1.0	1	3	1	120	30	3.1			3.25	3.40	130/12	
037	72.7	1.0	1	3	1	120	30	3.1			3.40	3.55	130/12	
038	72.7	1.0	1	3	1	120	30	3.1			3.55	3.70	130/12	
039	72.7	1.0	1	3	1	120	30	3.1			3.70	3.85	130/12	
040	72.7	1.0	1	3	1	120	30	3.1			3.85	4.00	130/12	
041	72.7	1.0	1	3	1	120	30	3.1			4.00	4.15	130/12	
042	72.7	1.0	1	3	1	120	30	3.1			4.15	4.30	130/12	
043	72.7	1.0	1	3	1	120	30	3.1			4.30	4.45	130/12	
044	72.7	1.0	1	3	1	120	30	3.1			4.45	4.60	130/12	
045	72.7	1.0	1	3	1	120	30	3.1			4.60	4.75	130/12	
046	72.7	1.0	1	3	1	120	30	3.1			4.75	4.90	130/12	
047	72.7	1.0	1	3	1	120	30	3.1			4.90	5.05	130/12	
048	72.7	1.0	1	3	1	120	30	3.1			5.05	5.20	130/12	
049	72.7	1.0	1	3	1	120	30	3.1			5.20	5.35	130/12	
050	72.7	1.0	1	3	1	120	30	3.1			5.35	5.50	130/12	
051	72.7	1.0	1	3	1	120	30	3.1			5.50	5.65	130/12	
052	72.7	1.0	1	3	1	120	30	3.1			5.65	5.80	130/12	
053	72.7	1.0	1	3	1	120	30	3.1			5.80	5.95	130/12	
054	72.7	1.0	1	3	1	120	30	3.1			5.95	6.10	130/12	
055	72.7	1.0	1	3	1	120	30	3.1			6.10	6.25	130/12	
056	72.7	1.0	1	3	1	120	30	3.1			6.25	6.40	130/12	
057	72.7	1.0	1	3	1	120	30	3.1			6.40	6.55	130/12	
058	72.7	1.0	1	3	1	120	30	3.1			6.55	6.70	130/12	
059	72.7	1.0	1	3	1	120	30	3.1			6.70	6.85	130/12	
060	72.7	1.0	1	3	1	120	30	3.1			6.85	7.00	130/12	
061	72.7	1.0	1	3	1	120	30	3.1			7.00	7.15	130/12	
062	72.7	1.0	1	3	1	120	30	3.1			7.15	7.30	130/12	
063	72.7	1.0	1	3	1	120	30	3.1			7.30	7.45	130/12	
064	72.7	1.0	1	3	1	120	30	3.1			7.45	7.60	130/12	
065	72.7	1.0	1	3	1	120	30	3.1			7.60	7.75	130/12	
066	72.7	1.0	1	3	1	120	30	3.1			7.75	7.90	130/12	
067	72.7	1.0	1	3	1	120	30	3.1			7.90	8.05	130/12	
068	72.7	1.0	1	3	1	120	30	3.1			8.05	8.20	130/12	
069	72.7	1.0	1	3	1	120	30	3.1			8.20	8.35	130/12	
070	72.7	1.0	1	3	1	120	30	3.1			8.35	8.50	130/12	
071	72.7	1.0	1	3	1	120	30	3.1			8.50	8.65	130/12	
072	72.7	1.0	1	3	1	120	30	3.1			8.65	8.80	130/12	
073	72.7	1.0	1	3	1	120	30	3.1			8.80	8.95	130/12	
074	72.7	1.0	1	3	1	120	30	3.1			8.95	9.10	130/12	
075	72.7	1.0	1	3	1	120	30	3.1			9.10	9.25	130/12	
076	72.7	1.0	1	3	1	120	30	3.1			9.25	9.40	130/12	
077	72.7	1.0	1	3	1	120	30	3.1			9.40	9.55	130/12	
078	72.7	1.0	1	3	1	120	30	3.1			9.55	9.70	130/12	
079	72.7	1.0	1	3	1	120	30	3.1			9.70	9.85	130/12	
080	72.7	1.0	1	3	1	120	30	3.1			9.85	10.00	130/12	

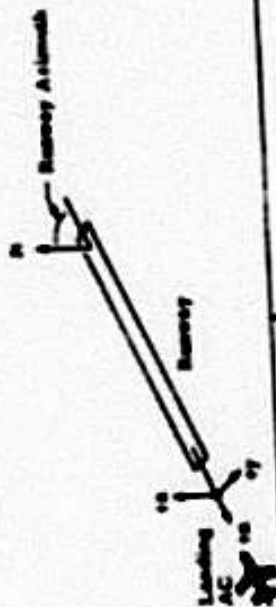


Location: K/A
 Date: 1-28-70
 Sheet 3 of 3

Van X Position: 250
 Ref. Pt. AC
 Van Y Position: 115
 Ref. Pt. AC

Runway Azimuth: 30
 Mirror Azimuth for Switch: 115

Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Azimuth (from)	Comments
	No.	AC Type or VAD	R.W. (dB)	Rate (msec)	Min.	Max.	Rate	Rate	Min.	Max.	Start	Stop		
257	257	257	10	1	1	1	1	1	1	1	1	1	257	257
258	258	258	10	1	1	1	1	1	1	1	1	1	258	258
259	259	259	10	1	1	1	1	1	1	1	1	1	259	259
260	260	260	10	1	1	1	1	1	1	1	1	1	260	260
261	261	261	10	1	1	1	1	1	1	1	1	1	261	261
262	262	262	10	1	1	1	1	1	1	1	1	1	262	262
263	263	263	10	1	1	1	1	1	1	1	1	1	263	263
264	264	264	10	1	1	1	1	1	1	1	1	1	264	264
265	265	265	10	1	1	1	1	1	1	1	1	1	265	265
266	266	266	10	1	1	1	1	1	1	1	1	1	266	266
267	267	267	10	1	1	1	1	1	1	1	1	1	267	267
268	268	268	10	1	1	1	1	1	1	1	1	1	268	268
269	269	269	10	1	1	1	1	1	1	1	1	1	269	269
270	270	270	10	1	1	1	1	1	1	1	1	1	270	270
271	271	271	10	1	1	1	1	1	1	1	1	1	271	271
272	272	272	10	1	1	1	1	1	1	1	1	1	272	272
273	273	273	10	1	1	1	1	1	1	1	1	1	273	273
274	274	274	10	1	1	1	1	1	1	1	1	1	274	274
275	275	275	10	1	1	1	1	1	1	1	1	1	275	275
276	276	276	10	1	1	1	1	1	1	1	1	1	276	276
277	277	277	10	1	1	1	1	1	1	1	1	1	277	277
278	278	278	10	1	1	1	1	1	1	1	1	1	278	278
279	279	279	10	1	1	1	1	1	1	1	1	1	279	279
280	280	280	10	1	1	1	1	1	1	1	1	1	280	280
281	281	281	10	1	1	1	1	1	1	1	1	1	281	281
282	282	282	10	1	1	1	1	1	1	1	1	1	282	282
283	283	283	10	1	1	1	1	1	1	1	1	1	283	283
284	284	284	10	1	1	1	1	1	1	1	1	1	284	284
285	285	285	10	1	1	1	1	1	1	1	1	1	285	285
286	286	286	10	1	1	1	1	1	1	1	1	1	286	286
287	287	287	10	1	1	1	1	1	1	1	1	1	287	287
288	288	288	10	1	1	1	1	1	1	1	1	1	288	288
289	289	289	10	1	1	1	1	1	1	1	1	1	289	289
290	290	290	10	1	1	1	1	1	1	1	1	1	290	290
291	291	291	10	1	1	1	1	1	1	1	1	1	291	291
292	292	292	10	1	1	1	1	1	1	1	1	1	292	292
293	293	293	10	1	1	1	1	1	1	1	1	1	293	293
294	294	294	10	1	1	1	1	1	1	1	1	1	294	294
295	295	295	10	1	1	1	1	1	1	1	1	1	295	295
296	296	296	10	1	1	1	1	1	1	1	1	1	296	296
297	297	297	10	1	1	1	1	1	1	1	1	1	297	297
298	298	298	10	1	1	1	1	1	1	1	1	1	298	298
299	299	299	10	1	1	1	1	1	1	1	1	1	299	299
300	300	300	10	1	1	1	1	1	1	1	1	1	300	300



Runway Altimeter: 210
Mirror Altimeter for Switch: 115

Van X Position: 230 ft
Ref. Pt. 230 ft
Van Y Position: 230 ft
Ref. Pt. 230 ft

Location: 11A
Date: 1-10-76
Sheet 2 of 3

Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Altimeter (ft)	Comments
	AC Type or VAD	B.W. (MHz)	Min.	Max.	Rate (min)	Min.	Max.	Rate	Type	No. Records	Start	Stop		
027	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
030	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
031	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
032	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
033	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
034	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
035	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
036	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
037	747	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
038	747	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
039	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
040	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
041	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
042	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
043	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
044	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
045	DC-10	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
046	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
047	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
048	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
049	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
050	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
051	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
052	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
053	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
054	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
055	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	
056	707	15.0	1.0	1.0	1	1.0	1.0	1	3C	1	16.0	16.0	3.50 ± 1.9	



Survey Azimuth 910
Mirror Azimuth
for Detail 115

Van H Position: 250 ft
Ref. Pt. 250 ft
Van Y Position: 411 ft
Ref. Pt. 411 ft

Location: 411
Date: 1-31-76
Sheet 1 of 1

Run ID	Spectrum Analyzer				Scanner				Computer		Time		Estimated Wind Azimuth (from)	Comments	
	AC Type or VAD	B. W. (kHz)	Min.	Max.	Min.	Max.	Rate	Min.	Max.	Type (No.)	No. Records	Start	Stop		
001	VAD	50	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
002	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
003	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
004	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
005	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
006	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
007	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
008	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
009	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
010	747	1.5	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
011	VAD	50	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5
012	VAD	50	1.5	2.5	1.5	2.5	1.5	1.5	1.5	1	1	1.5	2.5	1.5	1.5

Location: 611
 Date: 2-1-78
 Sheet 1 of 1

Van X Position: 2500
 Ref. Pt. Substation
 Van Y Position: 5000
 Ref. Pt. Substation

Runway Azimuth: 310
 Mirror Azimuth
 for South: 115



Run ID	Spectrum Analysis										Branched			Computer		Time		Estimated Wind Azimuth (from)	Comments
	AC Type or VAS	B.W. (dB)	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Type	No.	Start	Stop		
001	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
002	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
003	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
004	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
005	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
006	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
007	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB
008	VAD	30	100	100	2.5	1	-	-	-	-	-	-	-	21	1	1.5	1.5	1000/10	30.0 dB, 30.0 dB, 30.0 dB, 30.0 dB

Appendix D
REPORT OF INVENTIONS

Under this contract the Lockheed LDV system was modified, calibrated and tested in an airport environment. A base of wind and wake vortex measurements were obtained. The contract objectives were met and no innovation, discovery nor invention was made.