NOAA P-3 N43RF
IFEX IOP 4 Hurricane Dennis

Flight ID: 050710I

Sensor or system	Number or Name
INE	1
Accelerometer	1
Temperature Probe	1
Dew Point Probe	2 (Edgetech)
Altitude (for vertical wind)	Radar Altimeter 232
Static Pressure	Rosemount Fuselage
Dynamic Pressure	Rosemount Fuselage 1281
Time Source	Micro 99
Constants File	CO3051.CON

Notes:

There were several time/data glitches during this flight which occurred between 151410Z-151440Z, 160441Z-160500Z, 161601Z-161610Z, 165421Z-165430Z, 183051Z-183100Z, and 184721Z-184730Z.

Data from radar altimeter 159 was substituted into radar altimeter 232 from 152908Z-154230Z.

There were numerous times during the flight where the dewpoint temperature exceeded ambient temperature resulting in an RH>100%. This was likely due to rain, a wet-bulb effect on the total temperature sensor, and/or an artificial warming of the dewpoint sensor as it tried to burn off excess moisture. No attempts were made to correct the data from dewpoint sensor 2 in order to bring the relative humidity values below 100%.

The King Liquid Water sensor was not operating during this flight.

The aircraft INE positions were renavigated with respect to GPS.

SPECIAL NOTE!!! Locations 80, 81 and 82 of record five on the standard tape contain vertical ground, vertical air and vertical speeds, respectively, computed using Dave Jorgensen's vertical wind algorithm.
It is recommended that these values be used for vertical wind analysis.

	Takeoff	**Landing**
Aircraft Static Pressure	1017.1 mb	1014.8 mb
Corrected Tower Pressure	1011.8 mb	1013.1 mb

Flight Director: Martin Mayeaux (813) 828-3310 ext. 3086

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

FLT ID: 050710I	From: KNIP	To: KNIP
Flt No: 05 – 033	In: 2053 Z	On: 2049 Z
ETD: 1500 Z	Out: 1453Z	Off: 1500Z
ETE: 8 + 00	Blk Time: 6 + 00 (6.0) Hrs	Flt Time: 5+ 49 (5.8) Hrs
Sponsoring Org: HRD	Program: Ifex	Purpose: Dennis IOP 4

AOC Flight Crew

Aircraft Commander: Tebeest	Data System: Lynch 48
Co-Pilot: Nelson /	AVAPS: Olney Simator - 3
Navigator: Brakob /	System Engineer:
Flight Eng: Floyd /	AA:
Flight Director: Mayeaux / Shepherd	AA:
Avionics: San Souci	Crew Chief: Mitchell, R

Participating Scientists / Visitors

Name (Last, First)	Activity on Aircraft	Affiliation
McFadden, J	pm	AOC
Tucker, L	035	Sen Shelby Staff
Sutton, G	035	"
Black, M	035	HRD
Willis, P	035	"
Valdo, K	035	"
Uhlhorn, E	035	"
Berkowitz, E	035	AOC

Remarks (Storm Name, Mission ID, Recco Times, Fix Times)

Storm Name: Dennis

Mission ID: NOAA3 wx0YR Dennis

29 87 - 17Z
28.4 88.3 / 5Z
29.4 86.8 - 1530 Radial fix
flt pattern, block C for sondes
Jx 3014 8141

Tcab - 10K pressure
8K pressure
Smooth ride/8 miles
2916 8646 1514Z
350/21kts

Landfall 1855Z
3013 86.5.6

(See reverse for additional remarks)

Recco Times

Fix #	Fix Time
1627	1438
1726	1852
3013	1912

5 miles South of Coast
85.6 Longitude

86.5
85.8
86.3
87.2
87.6
87.9
88.2

U.S. DEP'T OF COMMERCE / NMAO / NOAA / AIRCRAFT OPERATIONS CENTER

FLT ID: 050710I	TIME OFF: 1506 Z	TIME ON: 2049 Z

	A/C - Takeoff	WX Station - Takeoff	A/C - Land	WX Station - Land
Pressure	1017.1	2999 (1015.6)	1011.4	2994 (1013.9)

ATIS - Takeoff	1353Z VMC OVC200 7SM 27/24 12010KT A2997
ATIS - Land	1855Z SCT020 SHRA 29/25 M020G26 A2996

Data Source	Number	Data Disposition / Date / Quality
Flight Level Tapes		
Radar Tapes		
Cloud Physics Tapes / Cds		
Video Tapes		
Dropsondes	33	Good: 25 Bad: 8 Total: 33
AXBT		
AXCP		
AXCTD		
SONOBUOY		

REMARKS: 12,000 ft initial, followed by possible 7-8K

NOAA3 WX04A DENNIS

TEAL03

04 17Z – 00Z 10

99 8K

29.4 86.3 930mb 130 NE

N43RF Hurricane / RAINEX '05 Flight Performance Log

Mission IFEX #4 Flt ID 050710i

SED Crew LYNCH, SANSOUCI, OLNEY

Pre-Flight 13:00 Take-Off 15:00 Landing 20:49

	System			Pre-Flight	In-Flight			Post-Flight			
								LAT	LON	CS	RE
NAV	GPS FM: 1										
	INE #1 Time On: 1300Z Aligned to: Ø			TL				+1.5	+.9	2	2
	INE #2 Time On: 1300Z Aligned to: Ø			TL				-3.4	+2.0	0	4
	Diff GPS			TL							
RADAR	MARS Data	Start	Stop	Ready?	HRD?			# DATs ? 1 Given To: MD			
	MARS	15:09	20:27	TL	Y / N						
	MARS Data / Tape Status				LFRec	TARec	EOF's				
	MARS LU8 Clean			TL	29006	48431	45				
	MARS LU9 Clean			TL							
	RADAR R/T SN Tail 102/202 LF 102			TL	Mod Switches ON			Mod Switches OFF			
	Nose			QSS				Power OFF			
PMS	ETL DMT DAS			PLO							
	NCAR FSSP Ref VDC: Covers OFF							Covers ON			
	NCAR PIP Covers OFF							Covers ON			
	NCAR CIP Covers OFF							Covers ON			
TEMP		Cal High	Cal Low					Cal High	Cal Low		
	Temp #1	30.6	-30.4	WRS				—	—		
	Temp #2			TL				Power OFF			
	Dewpoint #1 #2 (Vig) #3 (TDL)			TL				Power OFF			
PRES	Attack / Slip Angle AP DAP BP DBP			D TL				Power OFF			
	Differential PQ1 PQ2 PQ3 PQ4			TL				Power OFF			
	Absolute PS1 PS2 CBPS			TL				Power OFF			
FLTLVL	Apn-159 SN: 101			TL				Power OFF			
	Apn-232 SN: 1761			TL				Power OFF			
	Liquid Water J&W King			TL	28V WOW : ON ?			Power OFF			
	Radiometer CO2 SST			TL	28V WOW: ON ?			Power OFF			
RAMS	RAMS Data	Start	Stop	Ready?	Errors 8:	Errors 9		# DATs ? 2 Given To: MM			
	CPU: A B	14:32	20:57	TL				Power OFF			
	RAMS Data / Tape Status				Slow Rec	Fast Rec		Disk Records: 2191			
	RAMS LU8 Clean			TL							
	RAMS LU9 Clean			TL	2188	21869					
	Flight Director Laptop			TL				Power OFF			
	Network : Server1 Server2 Switches			TL							
	ASDL Mission #: LDX04A Name: DENHIS			TL	Freq: 30 Block: 10			Power OFF			
	C.I. Printer	Start	Stop	Ready?	Paper Bin Stores			Given To: MM			
	PRATE: 10	14:49	20:57	TL	0% 25% 50% 75% 100%			Power OFF			
MISC	Exterior Walk Around Plugs / Covers OFF			WRS				Plugs Covers			
	SATCOM : W/S Inmarsat GlobalStar			TL				Power OFF			
	AXBT Internal — # Loaded : —			N/A				# Launched :			
	AXBT External 3 # Loaded : 3			WRS	28V WOW			# Launched :			
	AVAPS ✓ # On Board : 35			WRS				# Dropped :			
	Video Cameras	Start	Stop	Ready?	Cameras	Mode		# Tapes ? 4 Given To: Raytheon			
	VHS SVHS	14:49	20:58	TL	N L C R D	2 / 12		Lens Cap ? :			
	FCU — A B C —			TL				UPS OFF			
USER	SFMR : HRD AOC			TL							
	HRD Work Station							Accelerometers			
	NASA SRA			NU				#1 (2 G) : 8205			
	ARL BAT Probe & SST			NI				#2 (2.5 G) : 6687			
	RSMAS Licor							#3 (3 G) : 5967			
	AOML Teco Ozone			NI				#4 (3.5 G) : 2892			
	Chang Server			NI							

Please Note any Discrepencies

Item #	Zulu Time	Problem Description	Initials	Status
1	Pre	DAP reading -1.2 on ground	TL	—
2		Found bug in SFMR 4-4- QSFMR now OK	TL	—
3		TDL (Dev #3) reads ≈ 5° high.		—

NOAA • AOC • SED

N43RF AVAPS DROP LOG

Project : Hurricane '05 / RAINEX Mission : DENNIS LANDFALL Flight ID : 050710i

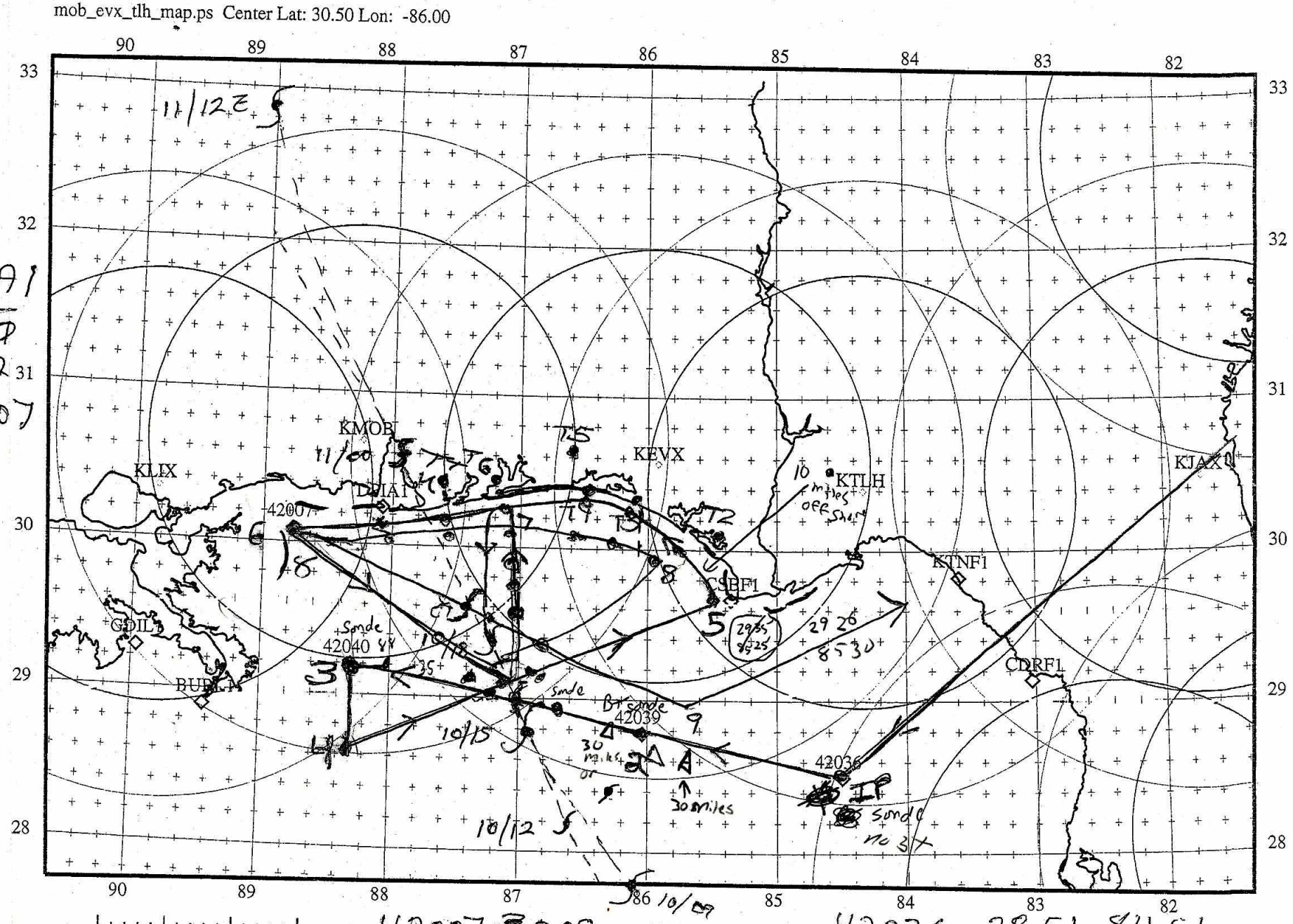
Take Off : _____ Landing : _____ Flt Dir : MARTY ? Launcher S/N: _____

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Winds Time	Operator	Comments	Good ?
1	042815037	1	0	1553	—	OLNEY	NO WINDS	
2	042115003	2	0	1614	33			✓
4	032815006	4	-.8	1628	40			✓
3	042815223	3	.9	1622	56			✓
5	042415307	1	0	1657	100		LATE WINDS	✓
6	040925082	2	0	1705	48			✓
7	042715292	3	.5	1719	46			✓
8	040925081	4	-.7	1721	11			✓
9	042715190	1	0	1729	21			
10	042115179	2	0	1735	33			
11	~~042715187~~	3						
17	042815218	#3	0	1745			NO LAUNCH DS	
12	042815038	#4	0	1746	11			
13	042715185	1	0	1750	15			
14	043615167	2	0	1757				
15	042715157	3	0	1802		↓	NO WINDS	
16	042715283	4	0	1804	27	DSS		
17	042825031	1	.8	1809	22			
18	042215051	2	0	1837			NO DETECT	
19 ~~20~~	042 815 220	3	0	1834				
20 21	042 815 219	1	.6				NO	
21 22	043 615 172							
23	042 715 284							
24	042 715 290							
25	042 825 301						NO DETECT	
26	042 815 224	042815224		1854			NO DETECT	
27	042 815 044			1907				
28	042 715 286			1908				
29	042 815 226			1913				
30	040 925 019			1915				
31	042 815 051						NO DETECT	
32	043 615 091	3		1942				
33	043 615 166			1951	21	↓		
34								

35

Flt Alt = 12,000 ft ~30 sondes
2 AXBTS ~20-30

Wolf 30° 21'
TTU 87° 32'



DPIA1
30.25
~~84.62~~
88.07

42007 30.09 88.77

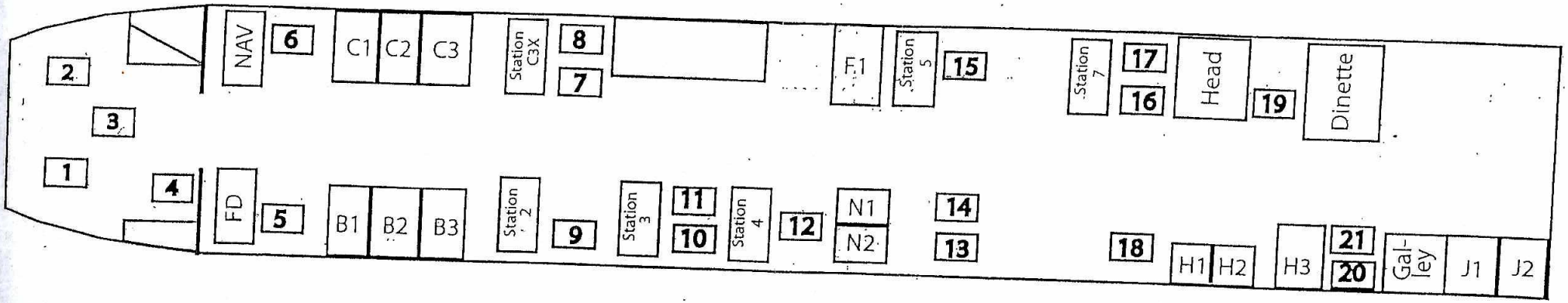
42040 29.21 88.20

42036 28.51 84.51

42039 28.80 86.06

NOAA AIRCRAFT OPERATIONS CENTER

Flight ID 050710I

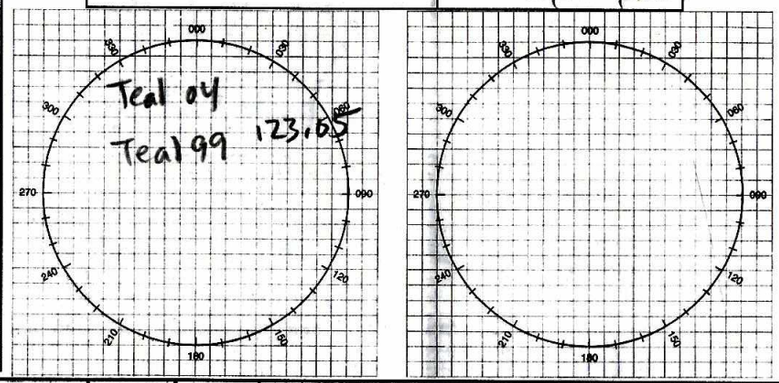


1. Tebeest — PILOT
2. Nelson — COPILOT
3. Floyd — FLIGHT ENGINEER
4. ~~Bertonite~~ Black — STATION 1
5. Mayeaux — FLIGHT DIRECTOR
6. Brakob — NAVIGATOR
7. Berkowitz — STATION C3X
8. ~~Tucker~~ Sutton — STATION C3X
9. Willis — STATION 2
10. Valde — STATION 3
11. Uhlhorn — STATION 3
12. Lynch — STATION 4
13. Tucker — PROJECT SEAT
14. San Souci — PROJECT SEAT
15. Arey — STATION 5
16. Shepherd — STATION 7
17. McFadden — STATION 7
18. ~~San S~~ Mitchell — STATION 8
19. _____ — DINETTE
20. _____ — GALLEY
21. _____ — GALLEY

"F" 1405Z LRSM 7,850 5.5 OVC 6SM 120/11 29.98 PAR09 119.1 124.77 2126

CLEARANCES			
FREQ	ALT	HDG	OTHER
377.7	2K	170	5507 CAF

MISSION LOG PAGE 1 OF ___



POSITION REPORT

1. POSITION
2. TIME (1935)
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

1800 EMERGENCY MESSAGE

TRANSMIT THE FOLLOWING MESSAGE TO ANY AGENCY ON THE AIR-GROUND FREQUENCY IN USE. IF UNABLE TO ESTABLISH COMMS, ATTEMPT CONTACT ON ANY OF THE FOLLOWING EMERGENCY FREQUENCIES:

UHF/VOICE	VHF/VOICE	MF/VOICE	HF/CW	MF/CW
243.0	121.5	2182 KHZ	8364 KHZ	500 KHZ

MAYDAY, MAYDAY, MAYDAY
THIS IS NOAA _____, NOAA _____, NOAA 43

- POSITION _____ N / S _____ E / W AT _____ Z
- HEADING _____ TRUE/MAG
- AT _____ KTS TRUE/INDICATED
- FLIGHT LEVEL OR ALTITUDE _____
- WE ARE A P-3 AIRCRAFT WITH 18 SOULS ON BOARD
- NATURE OF EMERGENCY
- ASSISTANCE DESIRED
- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
1447 1453	ENG TAXI	N W	N W		N W																INS #1 PRI
1453 1500	BLK T/O																				
1510	XV	30-08.8 82-11.9	30-08.6 82-11.8	+.2 +.1	30-08.8 82-11.8	0 +.1	229	5W	224	9R	233	254	150	37	10K	248					
1600	△	28-36.1 85-04.8	28-35.5 85-04.9	+.6 -.1	28-36.5 85-04.5	-.4 +.3	275	3W	272	1R	283	266	193	52	11BK	269					
1700	△	29-15.2 88-05.5	29-14.6 88-05.2	+.6 +.3	29-15.9 88-05.4	-.7 +.1	357	0	357	2R	359	240	340	16	12K	260					
1800	△	30-04.6 87-37.0	30-03.2 87-36.8	+1.4 +.2	30-06.1 87-36.0	-1.5 +1.4	285	1W	254	4L	250	285	030	30	12K	256					
1930	△	30-05.9 87-35.3	30-04.4 87-34.7	+1.5 +.6	30-08.5 87-34.2	-2.6 +1.1	062	1W	061	3R	064	283	275	27	12K	258					
2000	△	29-34.8 85-23.5	29-33.1 85-22.8	+1.7 +.7	29-37.0 85-22.7	-2.2 +.8	130	3W	127	3L	115	249	205	60	12K	254					
2049	LAND	30-13.8 81-40.4	30-12.3 81-39.5	+1.5 +.9	30-17.2 81-38.4	-3.4 +2.0															
2052	BLK																				

NOAA FORM 56-49
(2-95)

MISSION PREFLIGHT LOG

DESTINATION	MISSION	NAVIGATOR	AIRCRAFT COMMANDER	FLIGHT DIRECTOR	SCHEDULED / ACTUAL TAKEOFF Z	DATE OF TAKEOFF
IFEX #4	IFEX #4	LT BRAKOB	LCDR TEBBEST	SHEPHERD	1500 / 1500	10 JUL 05

	WP	LAT / LON	RTE	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS
KNIP	5	N 30-14.1 W 81-40.5						263				12K	290	25 / 25	+10 / +10				→ BOLAP
BOLAP	6	30-11.2 82-08						234				12K	290	60 / 85	+15 / +25				→ CTY
CTY	7	29-35.9 83-02.9						235				✓	✓	60 / 145	+15 / +40				→ ADIZ
ADIZ	8	29-00 84-00						223				✓	✓	40 / 185	+10 / +50				→ IP
IP	1	28-30.6 84-30.6						283				12K	250	130 / 315	+30 / 1+20				→ EYE
EYE	9	29-10 87-00												4+00					→
EYE	9	29-10 87-00						125				12K	250	80 / 80	+20 / +20				→ END
END	1	28-25 85-45						069				10K	290	100 / 180	+20 / +40				→ ADIZ
ADIZ	2	29-00 84-00						054				19K	✓	60 / 240	+15 / +55				→ CTY
CTY	3	29-35.9 83-02.9						058				✓	✓	70 / 310	+15 / 1+10				→ VAQ
VAQ	4	30-12.8 81-53.5						083				✓	✓	10 / 320	+10 / 1+20				→ KNIP
KNIP	5	30-14.1 81-40.5																	

INS PERFORMANCE	INS 1	INS 2
BEGIN ALIGN TIME	1300	1300
ALIGN STATUS (0-5)	0	0
END NAV TIME	2050	2050
START NAV TIME	1430	1430
DELTA T	6+20	6+20

TERMINAL ERRORS	INS 1	INS 2
DELTA LAT	+1.5	-3.4
DELTA LON	+.9	+2.0
RGS	2	0
RADIAL ERROR	2	4

REMARKS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
AIRCRAFT OPERATIONS CENTER

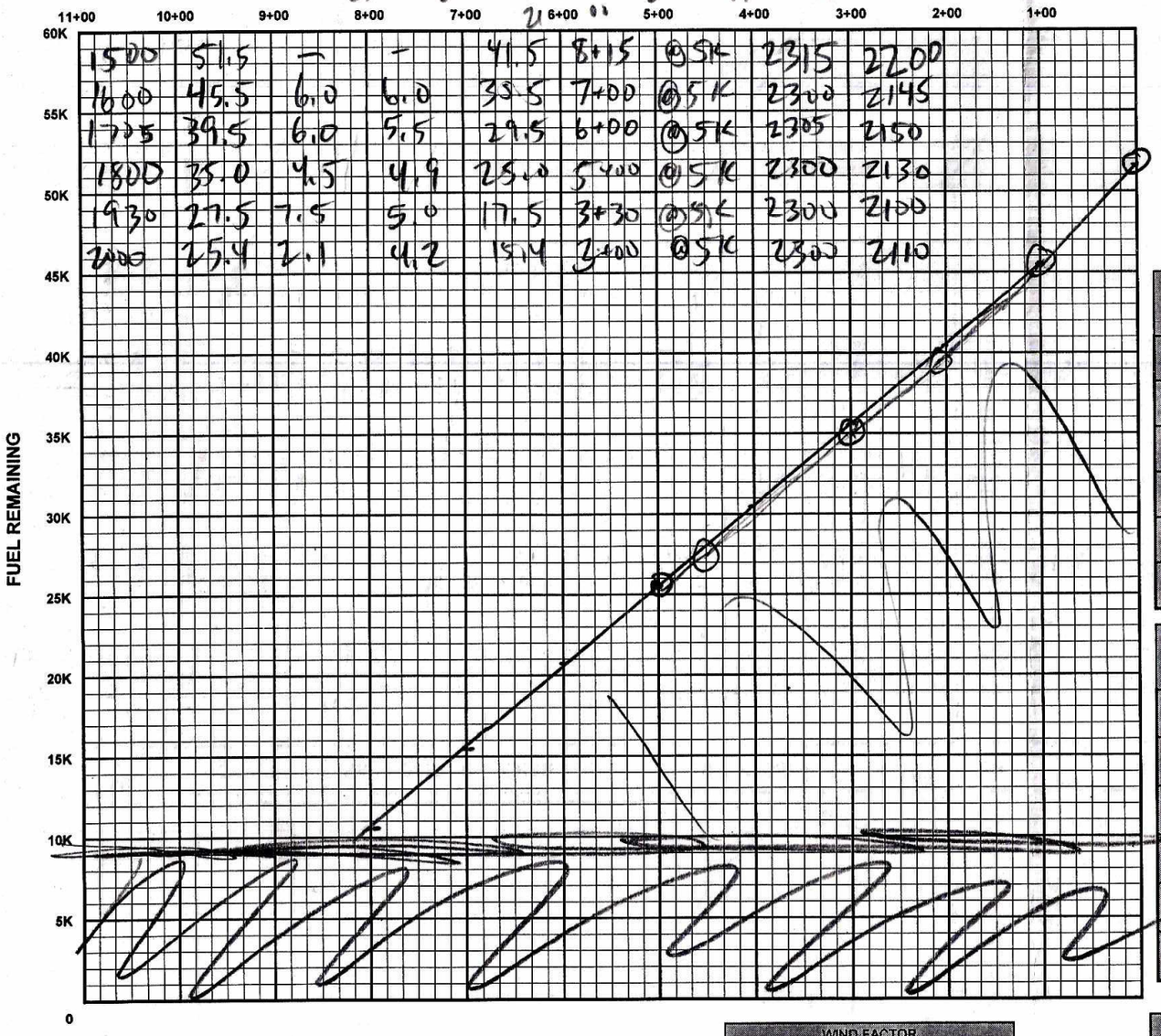
MISSION LOG			PAGE ___ OF ___																		

FIX TYPES
(G) - GPS (I) - INS (R) - RADIO (V) - VISUAL (C) - CELESTIAL (D) - DR

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
1627	(.)	29-30 86-50																			
1718	(.)	29-43 86-51																			
		~~29-53~~ ~~87-31~~																			
1853	G	30-13 86-56																			

85.6

RANGE CONTROL GRAPH



1500	51.5	—	—	41.5	8+15	@5K	2315	2200
1600	45.5	6.0	6.0	35.5	7+00	@5K	2300	2145
1715	39.5	6.0	5.5	29.5	6+00	@5K	2305	2150
1800	35.0	4.5	4.9	25.0	5+00	@5K	2300	2130
1930	27.5	7.5	5.0	17.5	3+30	@5K	2300	2100
2000	25.4	2.1	4.2	15.4	3+00	@5K	2300	2110

ETP = .5(TOTAL DISTANCE x OUTBOUND WIND FACTOR)

WIND FACTOR		
WINDSPEED	HEADWIND	TAILWIND
10	1.03	.97
20	1.06	.94
30	1.10	.92
40	1.14	.89
50	1.18	.87
60	1.22	.85

ENROUTE FUEL	
ENROUTE TIME	7+00
ENROUTE FUEL (6K, 5K 4.5K RULE)	36K
RESERVE AT DESTINATION	10K
REQUIRED RAMP	46K
ACTUAL RAMP FUEL	51.5

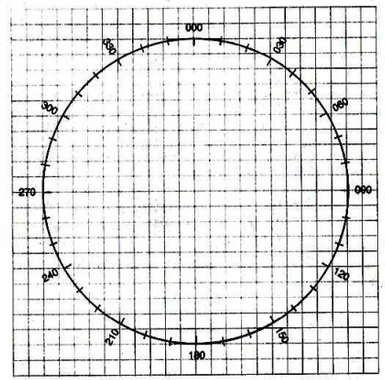
TACTICAL (OFFSTA TO DESTINATION)	4 ENG	3 ENG
DISTANCE (OFFSTA TO DEST)		
ENROUTE TIME (OFFSTA TO DEST)		
BURN RATE (LBS/HR)	4500	5500
ENROUTE FUEL REQUIRED		
RESERVE AT DESTINATION		
FUEL AT OFFSTA		

POINT OF SAFE RETURN	4 ENG	3 ENG
ETP DISTANCE (TO DEPARTURE)		
ENROUTE TIME (TO DEPARTURE)		
BURN RATE (LBS/HR)	4500	5500
FUEL REQUIRED		
RESERVE AT DEPARTURE		
PSR FUEL		

CEX - TRUE BEARING METHOD			
COMPASS TYPE	INS1	INS2	WET
MCH (READING)			
- MTH (SEXTANT)			
CE			
- VAR			
DEV			

CEX - ERB METHOD			
COMPASS TYPE	INS1	INS2	WET
MERB (DIAL 000)			
+ ZN			
= MTH			
MCH (READING)			
CE			
- VAR			
= DEV			

CEX SIGHT	
GMT	
GHA	
CORR	
GHA	
LONG +W -E	
EXACT LHA	
LAT	
BODY	
DEC	
HC / D	
CORR	
HC	
Z	
ZN	



"F" FACTOR	PRESS ALT	200	250	300	350
	10,000	1.0	1.0	.99	.99
	20,000	.99	.98	.97	.97
	30,000	.97	.96	.95	.94
	40,000	.96	.94	.92	.90

TRUE AIRSPEED CROSS-CHECK

TIME	IAS	PRESS ALT	"F" FACTOR	EAS	OAT	TAS	ITAS
1526	200	16K	X	X	+9	261	260

265