



NOAA P-3 N43RF
IFEX IOP 1 T.S. DENNIS



Flight ID: 050705I

Sensor or system

Number or Name

INE

2

Accelerometer

2

Temperature Probe

1

Dew Point Probe

2 (Edgetech)

Altitude (for vertical wind)

Radar Altimeter 159

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 170401-170420Z, 195851Z-195900Z, 200839Z-200850Z, 200911Z-200930Z, and 235751Z-235800Z.

Due to spikes in the data, values from radar altimeter 159 were replaced with 232 between 165800Z-171807Z, 214601Z-214800Z, 225401Z-225600Z, 012201Z-013000Z, and 014600Z-014900Z.

Data from the Edgetech dewpoint sensor was replaced with data from the General Eastern dewpoint sensor from 201501Z-205700Z.

The dynamic attack pressure from the nose radome froze-up from 010300Z-010900Z, and the dynamic slip pressure from the nose radome froze-up from 224000Z-234200Z and 003300Z-004800Z. Also, the dynamic pressure from the radome froze-up from 223100Z-011600Z.

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	912.5 mb	910.5 mb
Corrected Tower Pressure	911.2 mb	909.8 mb
Flight Director:	Martin Mayeaux (813) 828-3310 ext. 3086	

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

FLT ID: 0507051	From: MROC	To: MROC
Flt No: 05-030	In: 6154 Z	On: 0146 Z
ETD: 1700 Z	Out: 1652	Off: 1701
ETE: 5+00	Blk Time: 9+02 (9.1) Hrs	Flt Time: 8+45 (8.8) Hrs
Sponsoring Org: HRD	Program: HRD Research	Purpose: Dennis (DR)

AOC Flight Crew

Aircraft Commander: Tebeest	Data System: Lynch
Co-Pilot: Nelson 1	AVAPS: Olney
Navigator: Brakob 1	System Engineer:
Flight Eng: Floyd 1	AA: Barry
Flight Director: Mayeaux 1 Shepherd	AA:
Avionics: San Savi	Crew Chief:

Participating Scientists / Visitors

Name (Last, First)	Activity on Aircraft	Affiliation
Aaron Bansemer	Microphysics	NCAR
Paul Willis	Sci	HRP
Rogers, R	Sci	HRD
Black, M	Sci / PI	HRD
Dodge, P	Sci	HRD
Zipser, E	Sci	University of UTAH

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

Storm Name: Dennis

Mission ID: NOAA 3 WX04A Dennis

12k ft

Nose Radar Force up.

No Transmitting SCMP Data.

Drop Sondes to alt 1000 ft, it looks good, put it in vortex in Remarks

Recco Times
Fix # Fix Time

CFA 7-552

(See reverse for additional remarks)

Doc 506-377-2436

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

FLT ID: 050705±	TIME OFF: 1701 Z	TIME ON: 0346 Z		
	A/C - Takeoff	WX Station - Takeoff	A/C - Land	WX Station - Land
Pressure	912.5	3006	910.5	30.04
ATIS - Takeoff	1400Z 10006KT Canok 25/17 A3006			
ATIS - Land	0100Z 00000KT Canok 22/21 A3000			

Data Source	Number	Data Disposition / Date / Quality
Flight Level Tapes		
Radar Tapes		
Cloud Physics Tapes / Cds		
Video Tapes		
Dropsondes	17	Good: 17 Bad: Total: 17
AXBUT	4	
AXCP		
AXCTD		
SONOBUOY		

REMARKS:

IP 1330 7025
 Eye 1330 6700 2059Z
 East 1330 6500
 N 1510 6700
 S 1150 6700

21Z Center a speed where is strongest convection
14.2N 68.3 29017

28.5° C BT SFC Temp

New Center 14 68
 Re IP 14 7126 CRZ hold 10 mins
 IP 14 6943
 Eye 14 68
 E 14 6630
 N 1540 68-00
 S 1300 68-00

Vortex vs Vortex I

1-PI

Vortex MSG
Fix Drops on MARR
Fix-1cs

DropH's on FD log

Vortex Message Coms/VS Time
 MXSAT/Xchat priorities w/ serial transfer
 Avoiding cells when not scientifically necessary
 Finding center when there is no real presentation
 how to not get behind the ball w/ it is ~~not~~ **caotic**
 Remembering Data when it gets ~~caotic~~ **caotic**

2011/1/1
 ABPC/23

Flight ID : 650705 I

· Launcher S/N: 2

[illegible]

Please Note any Discrepancies

[illegible]

Mission IFEX#2Flt ID 01070SISED Crew Lynch, SANS Souci, OLNEY, BARRPre-Flight 1503ZTake-Off 17:00Landing 01:46

System		Pre-Flight		In-Flight		Post-Flight				
NAV	GPS	1503	FM: 1	088		LAT	LOn	GS	RE	
	INE #1	Time On: 1503	Aligned to: 0	088		-6.3	+1.1	2	6	
	INE #2	Time On: 1503	Aligned to: 0	088		-1.2	+5.3	2	5	
	Diff GPS									
RADAR	MARS Data	Start	Stop	Ready?	HRD?	# DATs ? 1 Given To: R2				
	MARS	17:11	00:14	TL	Y/N					
	MARS Data / Tape Status				LFRec	TARec	EOF's			
	MARS LU8	Clean	yes	TL	21690	36902	53			
	MARS LU9	Clean	yes	TL	-	-				
	RADAR R/T SN	Tail 102/202	LF 102	TL	Mod Switches		ON OFF			
PMS	Nose	JMB					Power OFF			
	ETL DMT DAS	AH								
	NCAR FSSP Ref VDC:	Covers	OFF	WRO			Covers ON			
	NCAR PIP	Covers	OFF	WRO			Covers ON			
TEMP	NCAR CIP	Covers	OFF	WRO			Covers ON			
		Cal High	Cal Low				Cal High Cal Low			
	Temp #1	+30.6	-30.4	TL						
	Temp #2			TL			Power OFF			
PRES	Dewpoint	#1	#2 (Vig)	#3 (TDL)	TL			Power OFF		
	Attack / Slip Angle	AF	OAP	BP	DBP	TL			Power OFF	
	Differential	FO1	FO2	FO3	FO4	TL			Power OFF	
	Absolute	PS1	PS2	BP3	TL			Power OFF		
FLTLVL	Apr-159 SN:	101		JMB			Power OFF			
	Apr-232 SN:	1761		JMB			Power OFF			
	Liquid Water	J&W	KX		28V WOW: ON?		Power OFF			
	Radiometer	602	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	11:51	01:54	TL	0	1	Power OFF			
	RAMS Data / Tape Status				Slow Rec	Fast Rec	Disk Records: 3259			
	RAMS LU8	Clean	yes	TL			✓ TL			
	RAMS LU9	Clean	yes	TL	3259	32585	✓ TL			
	Flight Director Laptop			TL			Power OFF			
	Network:	Server1	Server2	Switches	TL					
	ASDL Mission #:	W204A	Name: DENNIS	TL	Freq: 30	Block: 10	Power OFF			
	C.I. Printer	Start	Stop	Ready?	Paper Bin Stores		Given To: MM			
	PRATE:	30	11:51	01:54	TL	0% 25% 50% 75% 100%	Power OFF			
MISC	Exterior Walk Around	Plugs	Covers	088			Plugs Covers			
	SATCOM: W/S	Inmarsat		088			Power OFF			
	GlobalStar									
	AXBT Internal	# Loaded:	N/A	N/A			# Launched:			
	AXBT External	# Loaded:	4	WRO	28V WOW		# Launched:			
	AVAPS	# On Board:	49	WRO			# Dropped:			
	Video Cameras	Start	Stop	Ready?	Cameras	Mode	# Tapes ? 4 Given To: R2			
	VHS SVHS	11:50	01:48	TL	NOV R D	2 / 12	Lens Cap ? :			
USER	FCU	A-B-C		TL			UPS OFF			
	SFMR:	HRD	AO2	TL						
	HRD Work Station				INOP			Accelerometers		
	NASA SRA				N/A			#1 (2 G): 8205		
	ARL BAT Probe & SST				N/A			#2 (2.5 G): 6087		
	RSMAS Licor				TL			#3 (3 G): 5967		
	AOML Tecu Ozone				N/A			#4 (3.5 G): 2892		
Chang Server				N/A						

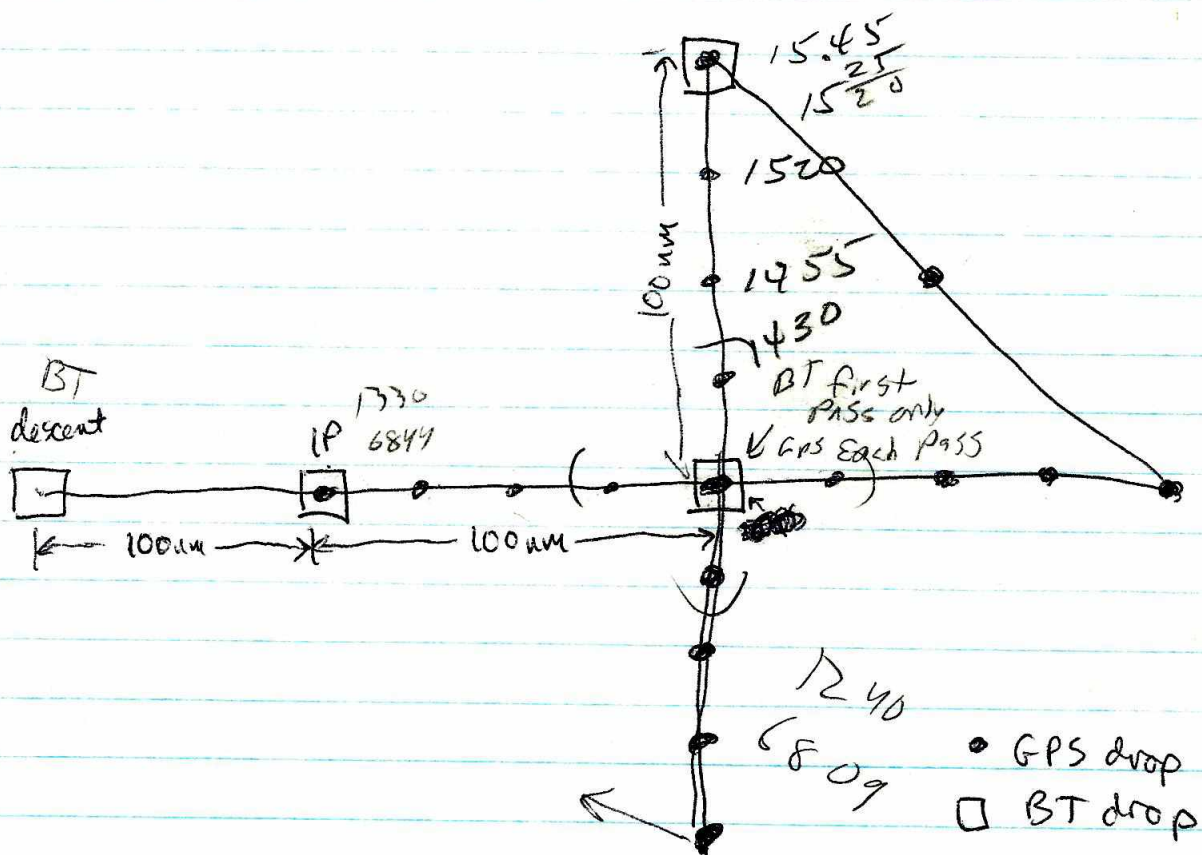
DATE 07/05/07		SCHEDULED RX TIME		AIRCRAFT NUMBER 43		FLIGHT DIRECTOR Mayeana	
WX MISSION IDENTIFIER Noaa3 wx04A Dennis						OB NUMBER 87	
VORTEX DATA MESSAGE							
A	05 12056 Z		DATE and TIME of FIX				
B	14 DEG 10 MIN N S		LATITUDE of FIX				
	68 DEG 05 MIN W E		LONGITUDE of FIX				
C	NA MB NA M		MINIMUM HEIGHT of STANDARD LEVEL				
D	NA KT		ESTIMATE of MAXIMUM SURFACE WIND OBSERVED				
E	NA DEG NA NM		BEARING and RANGE FROM CENTER of MAXIMUM SURFACE WIND				
F	17 DEG 38 KT		MAXIMUM FLIGHT LEVEL WIND NEAR CENTER				
G	241 DEG 19 NM		BEARING and RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND				
H	1005 MB		MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.				
I	7 C 13504M		MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE OUTSIDE EYE				
J	8 C 13516 M		MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE INSIDE EYE				
K	68 C 1 NA C		DEWPOINT TEMP / SEA SURFACE TEMP INSIDE EYE				
L	Poorly Defined		EYE CHARACTER: Closed wall, poorly defined, open SW, etc.				
M	NA		EYE SHAPE/ORIENTATION/DIAMETER: Code eye shape as: C - Circular; CO - Concentric; E - Elliptical. Transmit orientation of the major axis in tens of degrees, i.e., 01-010 to 190; 17 - 170 to 350. Transmit diameter in nautical miles. Examples: C8= Circular eye 8 miles in diameter. E09/15/5=Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5 NM. CO8-14=Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.				
N	1, 2, 3, 7		FIX DETERMINED BY / FIX LEVEL. FIX DETERMINED BY: 1-Penetration; 2-Radar; 3-Wind; 4-Pressure; 5-Temperature. FIX LEVEL (Indicate surface center if visible; indicate both surface and flight level centers ONLY when same): 0-Surface; 1-1500 ft; 9-925mb; 8-850mb; 7-700mb; 5-500mb; 4-400mb; 3-300mb; 2-200mb; NA-Other				
O	1 1 7 NM		NAVIGATION FIX ACCURACY / METEOROLOGICAL ACCURACY				
P	REMARKS MAX FL WIND 39 KT W QUAD 2048 Z SLP from Dropsonde						

INSTRUCTIONS: items A thru G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available for scheduled fixes and at the Flight Director's discretion for unscheduled (intermediate) fixes.

521
957 previously

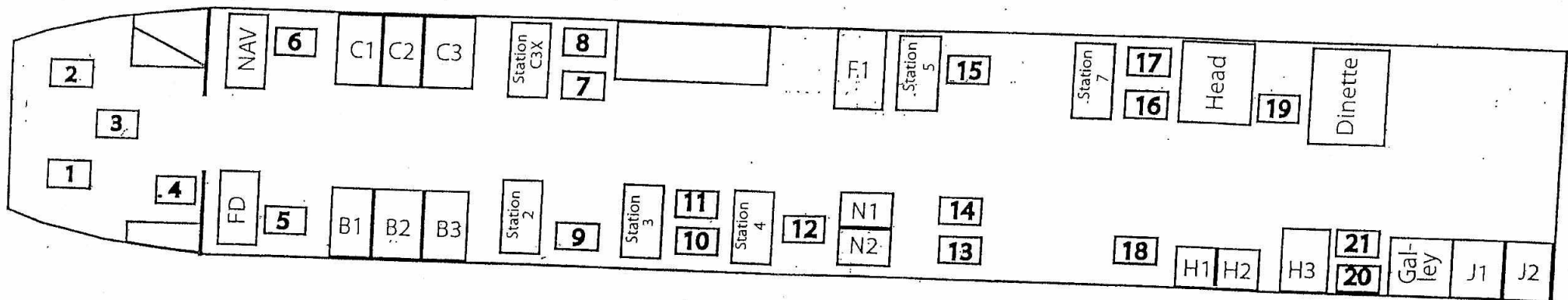
DATE 050705	SCHEDULED RX TIME	AIRCRAFT NUMBER 43	FLIGHT DIRECTOR Mayeaux
WX MISSION IDENTIFIER No 13 W04A Dennis			OB NUMBER 8
VORTEX DATA MESSAGE			
A	05 12269 Z	DATE and TIME of FIX	
B	14 DEG 10 MIN N S	LATITUDE of FIX	
	68 DEG 11 MIN W E	LONGITUDE of FIX	
C	NAMB NA M	MINIMUM HEIGHT of STANDARD LEVEL	
D	NA KT	ESTIMATE of MAXIMUM SURFACE WIND OBSERVED	
E	NA DEG NA NM	BEARING and RANGE FROM CENTER of MAXIMUM SURFACE WIND	
F	70 DEG 42 KT	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER	
G	4 DEG 54 NM	BEARING and RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND	
H	1004 8110 MB	MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.	
I	8 C / 3526 M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE OUTSIDE EYE	
J	8 C / 3486 M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE INSIDE EYE	
K	8 C / NA C	DEWPOINT TEMP / SEA SURFACE TEMP INSIDE EYE	
L	Poorly Defined	EYE CHARACTER: Closed wall, poorly defined, open SW, etc.	
M	NA	EYE SHAPE/ORIENTATION/DIAMETER: Code eye shape as: C - Circular; CO - Concentric; E - Elliptical. Transmit orientation of the major axis in tens of degrees, i.e., 01-010 to 190; 17 - 170 to 350. Transmit diameter in nautical miles. Examples: C8= Circular eye 8 miles in diameter. E09/15/5=Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5 NM. CO8-14=Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.	
N	12,3/7	FIX DETERMINED BY / FIX LEVEL. FIX DETERMINED BY: 1-Penetration; 2-Radar; 3-Wind; 4-Pressure; 5-Temperature. FIX LEVEL (Indicate surface center if visible; indicate both surface and flight level centers ONLY when same): 0-Surface; 1-1500 ft; 9-925mb; 8-850mb; 7-700mb; 5-500mb; 4-400mb; 3-300mb; 2-200mb; NA-Other	
O	1 17 NM	NAVIGATION FIX ACCURACY / METEOROLOGICAL ACCURACY	
P	REMARKS MAX FL WIND 42 KT N QUAD 2200- Z SLP Extrapolated		

INSTRUCTIONS: items A thru G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available for scheduled fixes and at the Flight Director's discretion for unscheduled (intermediate) fixes.



NOAA AIRCRAFT OPERATIONS CENTER

Flight ID 0507051



1. Nelson

PILOT

8. ~~Shepherd~~ BART

STATION C3X

15. Olney

STATION 5

2. Tebeest

COPILOT

9. Ban Semer, A

STATION 2

16. Shepherd

STATION 7

3. Floyd

FLIGHT ENGINEER

10. Dodge, P

STATION 3

17. Zipser, E

STATION 7

4. Black

STATION 1

11. Rogers

STATION 3

18. San Souci

STATION 8

5. Mayeaux

FLIGHT DIRECTOR

12. Lynch

STATION 4

19. _____

DINETTE

6. Brakob

NAVIGATOR

13. _____

PROJECT SEAT

20. _____

GALLEY

7. Willis, P

STATION C3X

14. _____

PROJECT SEAT

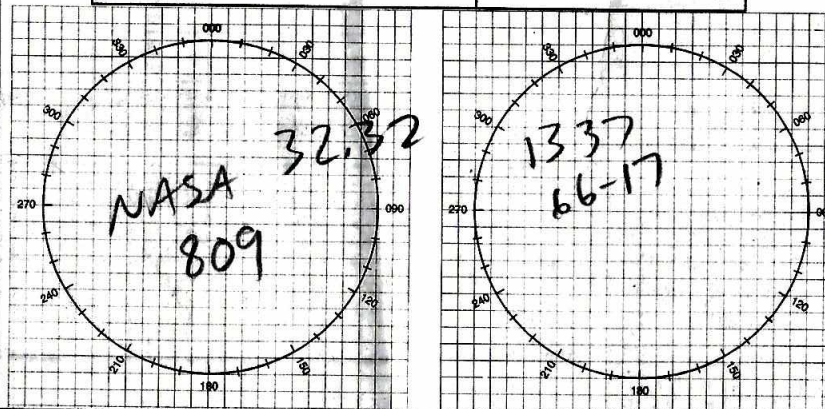
21. _____

GALLEY

070/50 1414 6744 12pm 7ND6 277°/12 * 14-10 68-04 13-55 IP 1+43 long -143 East

CLEARANCES			
FREQ	ALT	HDG	OTHER
	120		VA322 T16 RE
	150		
128.4			
127.1	124.1		CURACAO
116.7	116		T66
124.1			030
			5731

MISSION LOG PAGE 1 OF 1



POSITION REPORT

303.0
1. POSITION
2. TIME 14.455
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

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 243.0 VHF/VOICE 121.5 MF/VOICE 2182 KHZ HF/CW 8364 KHZ MF/CW 500 KHZ
MAYDAY, MAYDAY, MAYDAY
THIS IS NOAA, NOAA, NOAA 43
- POSITION _____ N/S
- HEADING _____ TRUE/MAG
- AT _____ KTS TRUE/INDICATED
- FLIGHT LEVEL OR ALTITUDE _____
- WE ARE A P-3 AIRCRAFT WITH _____ 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
1646	ENG	N	N		N																
1653	TAXI	W	W		W																
1653	BLK																				
1701	T/O																				
1710	XV	10-10.5 84-22.9	10-10.6 84-22.8	-1.1 +1.1	10-10.5 84-22.9	0 0	065	0	065	2L	063	228	110	13	10K	236					310/17 T10 ✓
1805	Δ	11-05.4 80-12.3	11-05.6 80-12.1	-1.2 +1.2	11-05.3 80-11.8	-1.9 +1.0	089	3W	086	2L	084	274	125	15	150	282					
1915	Δ	12-29.0 74-22.7	12-29.1 74-21.5	-1.1 +1.2	12-30.1 74-20.5	-2.1 +2.2	080	7W	073	1L	072	274	090	15	170	286					
2005	Δ	13-09.4 71-33.0	13-09.0 71-32.8	-1.6 +1.2	13-09.7 71-31.5	-2.3 +1.5	019	10W	009	3L	006	283	060	21	170	295					
2117	Δ	14-12.7 66-32.5	14-12.7 66-33.2	-3.0 +1.3	14-15.6 66-31.2	-2.9 +2.3	323	13W	310	3R	313	277	150	30	120	245					
2205	Δ	14-08.9 68-08.7	14-12.5 68-06.9	-2.6 +1.8	14-11.2 68-04.8	-2.3 +3.9	215	12W	203	2L	201	264	340	17	120	245					
2305	Δ	13-19.8 70-47.7	13-24.8 70-47.0	-5.0 +1.7	13-22.6 70-43.1	-2.8 +4.6	303	10W	293	3L	290	301	024	16	200	297					
0005	Δ	11-56.2 75-53.1	12-00.7 75-52.8	-4.5 +1.3	11-57.5 75-49.3	-3 +3.8	259	6W	253	1L	252	340	055	19	220	319					
0105	Δ	10-53.6 81-43.1	10-58.4 81-42.0	-4.8 +1.1	10-53.8 81-38.9	-1.2 +4.2	265	3W	262	1L	261	352	065	27	200	325					2013
0146	LAND	10-57.8 84-12.3	10-56.1 84-12.2	-6.3 +1.1	10-01.0 84-07.0	-11.2 +5.0															2029
0154	BLK																				2100

14-12 68-18 15-20 67-55 NASA 809 21-51 T66 22-24 10 15 23

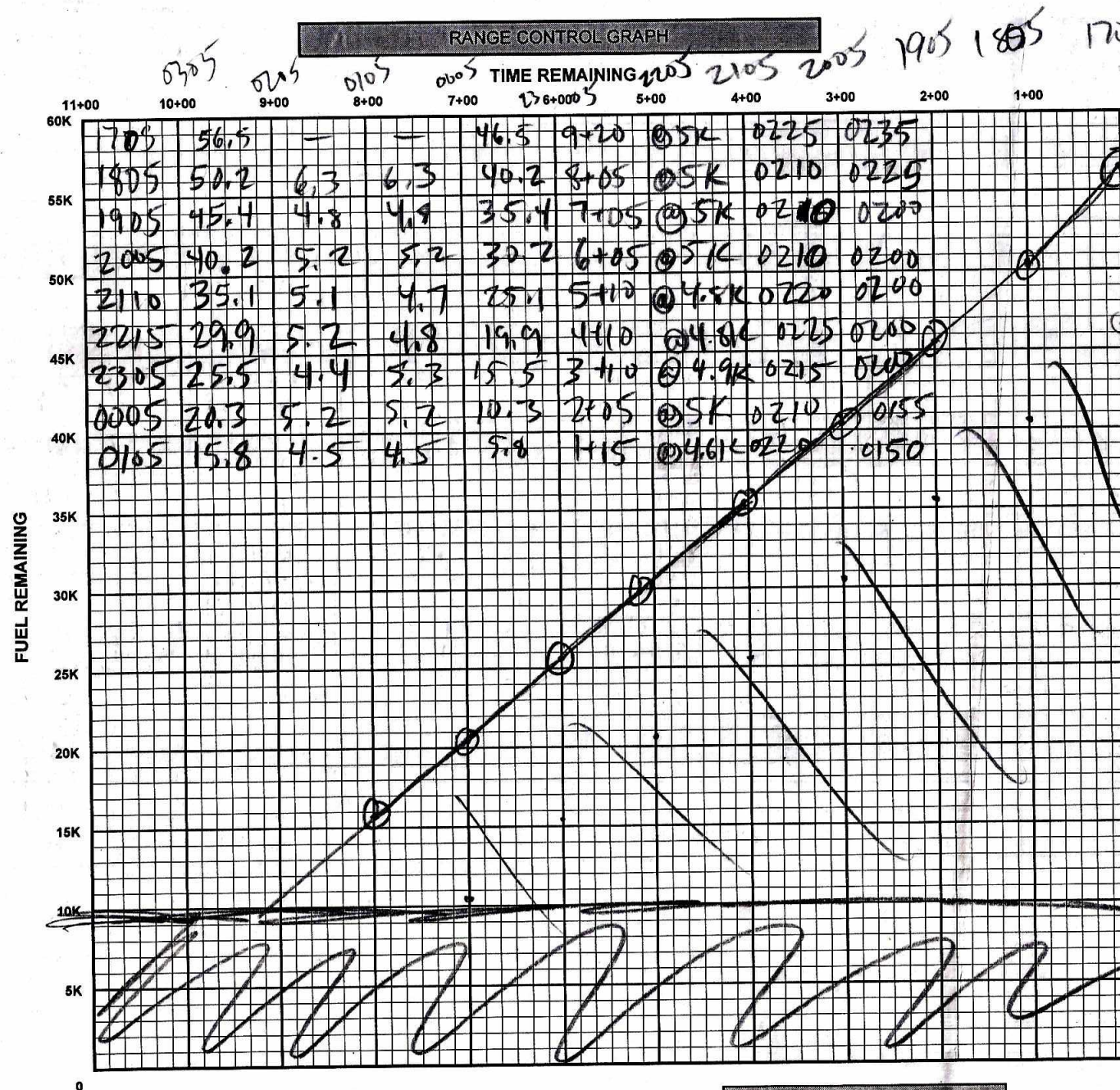
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MISSION LOG	PAGE ____ OF ____
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MISSION LOG	PAGE ____ OF ____
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FIX TYPES
(G) - GPS (I) - INS (R) - RADIO (V) - VISUAL (C) - CELESTIAL (D) - DR

[illegible]



DISTANCE REMAINING

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	9+00
ENROUTE FUEL (6K 5K 4 5K RULE)	46K
RESERVE AT DESTINATION	10K
REQUIRED RAMP	56K
ACTUAL RAMP FUEL	56.5K

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		

P-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
1728	222	150	X	X	+17	288	282

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	

