NOAA P-3 N43RF
CBLAST 2004
FLIGHT #7

Flight ID: I040907

Sensor or system	Number or Name
INE	2
Accelerometer	2
Temperature Probe	1
Dew Point Probe	2
Altimeter (for vertical wind)	RA-159
Static Pressure	Rosemount (fuselage)
Dynamic Pressure	Rosemount (fuselage)
Time Source	Micro 99
Constants File	CO3043.con

Local Met. Data: Not copied at takeoff

Take off: 1353Z
Land: 2124Z

The RA-232 was substituted for the RA-159 during take off and landing due to spiking (T.O. 135001-135340; 210908-212700 Land).

The RA-159 had multiple spikes and dropouts during high altitude ferry from the storm. The RA-159 was replaced by the Collins GPS altitude in this region (200249-210908).

Dew pointer #2 spiked and was replaced by dew pointer #1 (181129-181335).

There were data gaps noted: 144732-144759; 181638-181643; 181931-181938

The Johnson-Williams liquid water sensor was inoperative during the flight.

There were times during heavy precipitation events (e.g. eye wall penetrations) when the dew point exceeded ambient temperature yielding a RH of greater than 100%. This is probably due to a wet bulb effect on the total temperature probe and/or the dew pointer over heating while trying to remove excess moisture. In these instances, no corrections were attempted.

The aircraft INE positions were re-navigated with respect to GPS.

SPECIAL NOTE: Locations 80, 81, and 82 of record 5 in the standard data contain vertical ground speed, vertical air speed, and vertical wind speed computed using Dr. Dave Jorgensen's vertical wind algorithm. It is recommended that these values be used for vertical wind analysis.

	Take off	**Land**
Aircraft Static Pressure	1011.6 mb	1008.8 mb
Corrected Tower Pressure	1012.9 mb	1010.5 mb

Flight Director: Tom Shepherd
813-828-3310 x3053

U.S. Dept. of Commerce / NMAO / NOAA / Aircraft Operations Center

Flt ID: 040907I	From: TISX	To: TISX
Flt. No: 04	Blk In: 2129 z	Time On: 2124z
ETD: 1400z	Blk Out: 1343 z	Time Off: 1353z
ETE: 9+00	Blk Time: 7+46 7.8 Hrs	Flt Time: 7+31 7.5 Hrs
Sponsoring Org: NOAA/NHC	Program: Hurr 2004	Purpose: H. IVAN

AOC Flight Crew

Aircraft Commander: TEBEEST, R	Data System: LYNCH, T
Co-Pilot: SILAH, M / CHOY, B	AVAPS: TONG, R
Navigator: SIEGEL, P / ADLER, J	System Eng: SMITH, J
Flight Eng: FLOYD, D / KLIPPEL, J	A A: McFADDEN, J
Flight Director: SHEPHERD, T /	A A:
Avionics:	Crew Chief:

Participating Scientists / Visitors

Name (Last, First)	Activity on Aircraft	Affiliation
ROGERS, R	PI	NOAA/HRD
UHORN, E	Sci	/
LEIGHTON, P	Sci	

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

Storm Name: IVAN

Mission ID: NOAA3 0409A IVAN

Penetration number and time

1 - 1552
2 - 1739
3 - 1814
4 - 1928

Recco Times

1439
1515
1632

Fix # Fix Time

(See reverse for additional remarks)

U.S. Dept. of Commerce / NMAO / NOAA / Aircraft Operations Center

Flight ID: 040907I	Time Off: 1353 Z	Time On: Z

	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure	1011.6 mb	29.91 mb	1008.4 mb	29.84 mb

ATIS	Time	Observation
Takeoff	Z	
Land	1953Z	050/13 10sm SCT028 31/24 A2984

	Number	Data Disposition / Date / Quality
Flight Level Tapes		
Radar Tapes		
Cloud Physics Tapes / CDs		
Video Tapes		
Dropsondes	13	Good: 10 Bad: 3 - no launch HRD Sondes.
AXBT		
AXCP		
AXCTD		

Remarks: TEAL 63

IP 1227 6305 6253

EYE 1148 6006

- 1358 Radar up

N43RF Hurricane / CBLAST '04 Flight Performance Log

Mission IVAN-3 FMR Flt ID 040907I

SED Crew Lynch, Smith, Tong

Pre-Flight 12:15 Take-Off 13:53 Landing 21:24

	System			Pre-Flight	In-Flight			Post-Flight			
NAV	GPS	FM: 1		TL				LAT	LON	GS	RE
NAV	INE #1 Time On:	Aligned to: 1		TL				+7.4	+0.9	4	7
NAV	INE #2 Time On:	Aligned to: 0		TL				+1.0	+3.1	4	3
NAV	Diff GPS			TL							
RADAR	MARS Data	Start	Stop	Ready?	HRD?			# DATs ? 1	Given To: Rob		
RADAR	MARS	13:58	20:55	TL	(Y) N						
RADAR	MARS Data / Tape Status				LFRec	TARec	EOF's				
RADAR	MARS LU8	Clean		TL							
RADAR	MARS LU9	Clean		TL							
RADAR	RADAR R/T SN Tail 202 102 LF 102			TL	Mod Switches	(ON)		Mod Switches	(OFF)		
RADAR	Nose							Power	(OFF)		
PMS	FSSP Ref VDC:	Covers	OFF	NU				Covers	~~ON~~		
PMS	Cloud Mono	Covers	OFF					Covers	~~ON~~		
PMS	CIP	Covers	OFF					Covers	~~ON~~		
PMS	SEA Data DAT	Start	Stop:	Ready?	#DATS	Errors	Disk Write	Given To:	—		
PMS	DAT Clean?						Y / N				
TEMP		Cal High	Cal Low					Cal High	Cal Low		
TEMP	Temp #1	30.5	-30.4	TL				30.6	-30.2		
TEMP	Temp #2			TL				Power	(OFF)		
TEMP	Temp #3			NI				Power	(OFF)		
TEMP	Dewpoint (#1) (#2) (#3 (TDL)			TL				Power	(OFF)		
PRES	Attack / Slip Angle (AP) (DAP) (BP) (DBP)			TL (1)				Power	(OFF)		
PRES	Differential (PQ1) (PQ2) (PQ3) (PQ4)			TL				Power	(OFF)		
PRES	Absolute (PS1) (PS2) (QBPS)			TL				Power	(OFF)		
FLTLVL	Apn-159 SN: 66-024			JS				Power	(OFF)		
FLTLVL	Apn-232 SN: 17601			JS				Power	(OFF)		
FLTLVL	Liquid Water (J&W) King NU			JS-NU	28V WOW: (ON)			Power	(OFF)		
FLTLVL	Radiometer (CO2) (SST)			TL	28V WOW: (ON?)			Power	(OFF)		
RAMS	RAMS Data	Start	Stop	Ready?	Errors 8:	Errors 9:		# DATs ? 2	Given To: Sleep		
RAMS	CPU: A (B)	13:41	21:29	TL	0	1		Power	OFF		
RAMS	RAMS Data / Tape Status				Slow Rec	Fast Rec		Disk Records: 2822			
RAMS	RAMS LU8	Clean		TL	2822	28042					
RAMS	RAMS LU9	Clean		TL	2822	28042					
RAMS	Flight Director Laptop			TL				Power	(OFF)		
RAMS	Network			NI							
RAMS	ASDL Mission #: 0409A Name: IVAN				Freq: 30	Block: 10		Power	(OFF)		
RAMS	C.I. Printer	Start	Stop	Ready?	Paper Bin Stores			Given To:			
RAMS	PRATE: 10	13:40	21:29	TL	0% 25% (50%) 75% 100%			Power	(OFF)		
MISC	Exterior Walk Around (Plugs) (Covers)			RT				Plugs	Covers		
MISC	SATCOM (W/S) ~~Inmarsat~~ (GlobalStar)			JS				Power	(OFF)		
MISC	AXBT Internal # Loaded: 0			NU				# Launched: —			
MISC	AXBT External # Loaded: 0			NU	28V ~~WOW~~			# Launched: —			
MISC	AVAPS # On Board: 36			JAS				# Dropped: 13			
MISC	Video Cameras	Start	Stop	Ready?	Cameras		Mode	# Tapes ? 4	Given To: Rob		
MISC	VHS (SVHS)	13:40	21:29	TL	(A) (B) (C) (D)		2 / (12)	Lens Cap ? :			
MISC	FCU	—B—C—D—		TL				UPS	OFF		
USER	SFMR (HRD) (AOC)			TL				Accelerometers			
USER	NASA SRA			NU				#1 (2 G): 8203			
USER	ARL BAT Probe, SST & IRGA			NU				#2 (2.5 G): 66687			
USER	UW PDA			NU				#3 (3 G): 6967			
USER	Scripps MASS, Laser Alt, IR Cam & Sono			NU				#4 (3.5 G): 2892			
USER	RSMAS Licor			TL							

Please Note any Discrepencies

Item #	Zulu Time	Problem Description	Initials	Status
1	Pre	Manually blew out DAP + DBP	RT	OK
	PRE	*. INCLUDE LINE PRESSURE KIT IN DEPLOYMENT KIT *	RT	
3	14:42	Switched to QSFMR - adjusted cal's for Q#1 + ADC # 2 Freq	TL	—
4	14:58	Set tail 'Hurl' setup file to 2ADD/1800 prf + .25 uS P.width - per Paul Leighton	TL	—
*		TI-700 terminal needs new paper	TL	OK

(1)

DATE	SCHEDULED RX TIME	AIRCRAFT NUMBER	FLIGHT DIRECTOR
9/7/04	NONE	N43RF	Shepherd

WX MISSION IDENTIFIER	OB NUMBER
NOAA3 IVAN	KO VT MSG

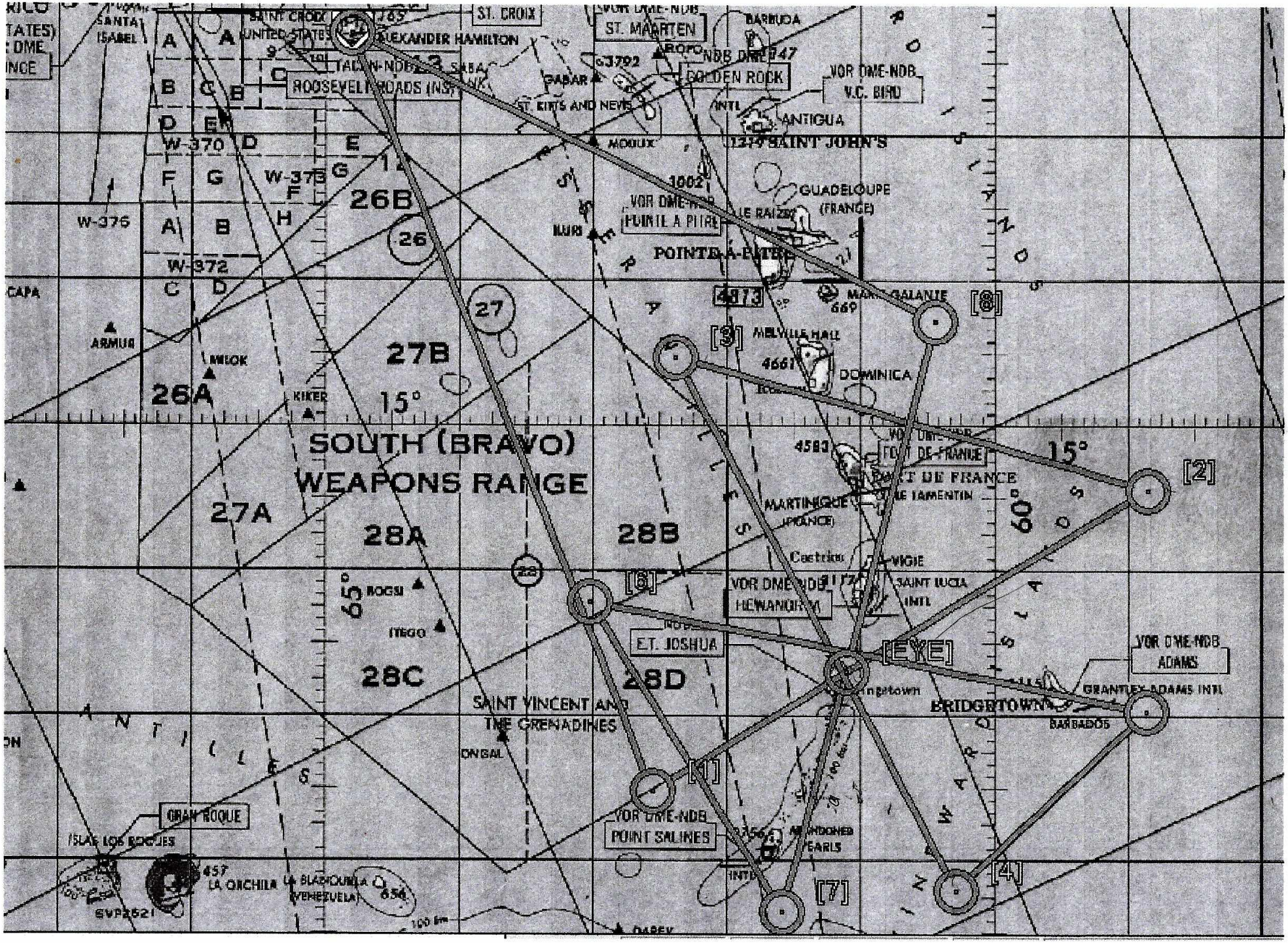
VORTEX DATA MESSAGE

A	071 1552Z	DATE and TIME of FIX
B	11 DEG 44 MIN (N) S	LATITUDE of FIX
	60 DEG 36 MIN (W) E	LONGITUDE of FIX
C	NA MB M	MINIMUM HEIGHT of STANDARD LEVEL
D	NA KT	ESTIMATE of MAXIMUM SURFACE WIND OBSERVED
E	NA DEG NM	BEARING and RANGE FROM CENTER of MAXIMUM SURFACE WIND
F	024 DEG 116 KT	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER
G	298 DEG 7 NM	BEARING and RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND
H	959 MB	MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.
I	14 C / 2450 M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE OUTSIDE EYE
J	21 C / 2443 M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE INSIDE EYE
K	15 C / NA C	DEWPOINT TEMP / SEA SURFACE TEMP INSIDE EYE
L	OPEN E	EYE CHARACTER: Closed wall, poorly defined, open SW, etc.
M	E 03/20/15	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	12345/NA	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 NM	NAVIGATION FIX ACCURACY / METEOROLOGICAL ACCURACY
P	REMARKS	

MAX FL WIND 116 KT W QUAD 1548 Z

SLP EXTRAP from FL data

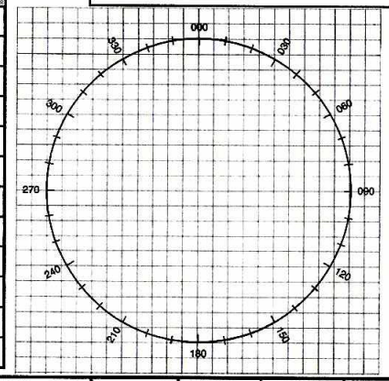
INSTRUCTIONS: Items A thru G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available for scheduled fixes and at the Flight Director's discretion for unscheduled fixes and dropped fixes.

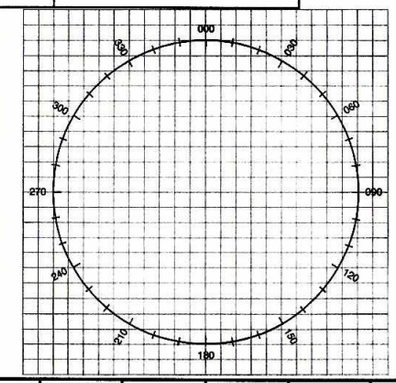

SOUTH (BRAVO)
WEAPONS RANGE
26A
26B
27A
27B
28A
28B
28C
28D
W-370
W-372
W-376
ROOSEVELT ROADS (NS)
ST. CROIX
ST. MAARTEN
GOLDEN ROCK
V.C. BIRD
ANTIGUA
SAINT JOHN'S
GUADELOUPE (FRANCE)
POINTE-A-PITRE
MARIE-GALANTE
MELVILLE HALL
DOMINICA
FORT DE FRANCE
MARTINIQUE (FRANCE)
SAINT LUCIA INTL
ST. JOSHUA
[EYE]
BRIDGETOWN
GRANTLEY ADAMS INTL
BARBADOS
SAINT VINCENT AND THE GRENADINES
POINT SALINES
GRAN ROQUE
ISLAS LOS ROQUES
LA ORCHILA
LA BLANQUILLA (VENEZUELA)
15°
60°
65°

R105 10 000 151K 128.65 2172 1376 21 16W 1580B

CLEARANCES			
FREQ	ALT	HDG	OTHER

MISSION LOG PAGE ___ OF ___





POSITION REPORT

1. POSITION
2. TIME
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	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 16 50 N/S
18 00 E/W AT ____Z
- HEADING 1 (TRUE/MAG)
- AT 240 KTS TRUE/INDICATED
- FLIGHT LEVEL OR ALTITUDE 100
- WE ARE A P-3 AIRCRAFT WITH 11 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
1338 1342	START TAXI																				
1343 1353	BLOCK T/O																				
1358	XV	12 36.7 64 33.3	12 36.6 64 33.2	+.1 +.1	12 36.5 64 33.2	+.2 +.1	155	14W	129	2R	131	218	101	15	↑100	230	PORQE				304/11 COY
1455	△	13 34.3 63 18.1	13 33.5 63 17.9	+.8 +.2	13 34.3 63 17.6	0 +.5	188	14W	164	5R	169	294	67	16	150	288	IP				
1558	△	11 40.1 60 19.7	11 38.4 60 19.5	+1.7 +.2	11 40.2 60 08.8	-.1 +.9	134	15W	119	14L	105	228	184	60	080	246					
1655	△	13 22.2 59 21.2	13 19.5 59 21.2	+2.7 0	13 22.5 59 20.3	-.3 +.9	354	16W	338	7L	331	285	114	52	080	244	3				
1755	△	10 58.2 61 11.0	10 54.7 61 10.1	+3.5 +.9	10 58.9 61 08.9	+.7 +2.1	102	15W	087	5L	082	275	240	37	080	253					
1855	△	12 12.5 62 26.5	12 08.1 62 25.4	+4.4 +1.1	12 13.0 62 23.9	-.5 +2.6	222	14W	208	2R	210	298	033	52	080	243					
1955	△	12 59.7 60 10.8	12 53.4 60 10.5	+6.3 +.3	12 58.9 60 08.4	+.8 +2.4	074	15W	059	9L	050	226	120	42	080	243					
2055	△	16 32.8 63 18.6	16 26.5 63 18.6	+6.3 0	16 33.3 63 16.2	-.5 +2.4	338	14W	324	6L	318	335	071	36	180	320					
2124	LAND	FIX																			
		17 42.0 64 47.6	17 34.6 64 46.7	+7.4 +.9	17 41.0 64 44.5	+1.0 +3.1															

NOAA FORM 56-49
(2-95)

MISSION PREFLIGHT LOG

DESTINATION	MISSION	NAVIGATOR	AIRCRAFT COMMANDER	FLIGHT DIRECTOR	SCHEDULED / ACTUAL TAKEOFF Z	DATE OF TAKEOFF
TISX	IVAN#1	ADLER/SIEGEL	TEBEEST	SHEPHARD	1400 , 1353	07SEP04

	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
COY	1	17 42.1 64 47.9																	
PORQE	2	17 09.6 64 00.9		141															
IP(1)	2	12 26.6 63 04.6		177		105													
3	3	14 11.1 59 56.5				102													
	4																		
5	5	10 20.7 59 46.4																	
6	6	14 11.3 61 43.3																	
FLORI	7																		
	8	13 08.4 59 15.1																	
DUNTA	9	15 36.5 62 11.6																	
2		11 18.4 59 01.6																	

INS PERFORMANCE	INS 1	INS 2
BEGIN ALIGN TIME	1240	1240
ALIGN STATUS (0-5)	1	0
END NAV TIME	2124	2124
START NAV TIME	1327	1327
DELTA T	7+57	7+57

TERMINAL ERRORS	INS 1	INS 2
DELTA LAT	+7.4	+1.0
DELTA LON	+0.9	+3.1
RGS	4	4
RADIAL ERROR	7	3

REMARKS

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

~~COY-DUN~~ DUNTA-COY 196
8 - DUNTA 284

~~6 → COY = 555~~

MISSION LOG	PAGE ___ OF ___

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

18
60
39

	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
EYE1	1552		11 44. 60 36.																			
EYE2	1739		11 46 61 04																			
EYE3	1814		N/A N/A	75																		
EYE4	1939	~ ~	11 55 61 30.																			

-78 172 380 1+24 8@2125 +46 2+12

.6 35 2.5 43.5

~~7-8 = 1+15~~

RANGE CONTROL GRAPH

TIME REMAINING

11+00 10+00 9+00 8+00 7+00 6+00 5+00 4+00 3+00 2+00 1+00

FUEL REMAINING

60K 55K 50K 45K 40K 35K 30K 25K 20K 15K 10K 5K 0

TIME	FUEL	BURN	ACTUAL	USABLE	ETP	ETA
1350	54.0					
1450	48.3	4.9	5.7	38.3	7+50	2240
1550	43.3	4.8	5.0	33.3	6+40	2230
1650	38.2	5.2	5.1	28.2	5+30	2220
1750	33.0	5.2	5.2	23.0	4+25	2215
1850	28.4	4.8	4.6	18.4	4+00	2250
1950	23.6	4.8	4.8	13.6	2+50	2240
2050	18.3	4.8	5.3	8.3	1+35	2225

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	8+30
ENROUTE FUEL (6K, 5K 4.5K RULE)	43.5
RESERVE AT DESTINATION	10
REQUIRED RAMP	53.5
ACTUAL RAMP FUEL	54.0

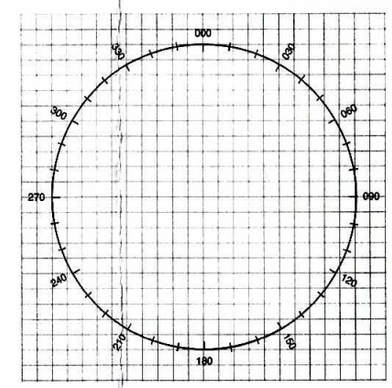
TACTICAL (OFFSTA TO DESTINATION)	4 ENG	3 ENG
DISTANCE (OFFSTA TO DEST)		
ENROUTE TIME (OFFSTA TO DEST)		
BURN RATE (LBS/HR)	4500	5500
ENROUTE FUEL REQUIRED		
RESERVE AT DESTINATION		
FUEL AT OFFSTA		

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