Stall on takeoff, Birgenair, Boeing 757, TC-GEN

Micro-summary: This Boeing 757 stalled and crashed shortly after takeoff, due to erroneous airspeed indications from blocked pitot tubes.

Event Date: 1996-02-06 at 0345 UTC

Investigative Body: Director General of Civil Aviation (DGCA), Dominican Republic

Investigative Body's Web Site: http://www.dgac.gov.do/

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2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***

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PRESIDENCIA DE LA REPUBLICA DOMINICANA
SECRETARIA ADMINISTRATIVA DE LA PRESIDENCIA
DIRECCION GENERAL DE AERONAUTICA CIVIL

4139

Santo Domingo, D. N.

OCT 25 1996

Señor
Jorge A. Prellezo
Director Regional del National Transportation
Safety Board,
Southeast Regional Office,
8405 NW 53rd Street, Suite B-103,
Miami, Fl., EUA., 33166.

Distinguido señor Prellezo:

Muy cortésmente, me complace remitirle anexo el informe final del trágico accidente de aviación ocurrido a la aeronave Boeing 757, matrícula TC-GEN, propiedad de la empresa Birgen Air, frente a las costas de Puerto Plata, República Dominicana, el pasado 6 de febrero del año en curso, cuyas investigaciones fueron dirigidas por esta institución, con la participación de técnicos nacionales e internacionales, agradeciéndole emitir sus autorizados comentarios al respecto, a la brevedad posible, en interés de incorporarlos al indicado informe.

En espera de su oportunos comentarios en cuanto al indicado informe, aprovecho la ocasión para saludarle con sentimientos de distinguida consideración y alta estima.

Muy atentamente,

Lic. Vitelio Mejía Ortiz
Director General de Aeronáutica Civil.

VMO/jj.

CONTENIDO

REPORTE FINAL ACCIDENTE AEREO
BIRGENAIR, VUELO ALW-301, FEBRERO 06, 1996.

INFORMACION SOBRE LOS HECHOS.-

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DIRECCION GENERAL DE AERONAUTICA CIVIL
REPUBLICA DOMINICANA

Santo_Domingo
29 de Septiembre 1997

Sres: Robert MacIntosh
National Transportation Safety Board
Major Investigations Division, AS-10
490 L'Enfant Plaza, East, S.W.
Washington, D.C. 20594

Cortesmente le envio copias de los comentarios recibidos sobre el accidente de la aeronave Boeing 757, matricula TC-GEN de la empresa turca Birgenair, en fecha 6 de Febrero de 1996; con la finalidad que puedan incluirlos como apendice del informe final enviado hace unos meses.

Dandole las gracias por su colaboracion durante todo el proceso de investigacion y reiterandole estar plenamente a sus ordenes

Le saluda atentamente,

EMMANUEL SOUFFRONT T.
MAYOR PILOTO, FAD.
PRESIDENTE DE LA JUNTA INVESTIGADORA
DE ACCIDENTES AEREOS DE LA
DIRECCION GENERAL DE AERONAUTICA CIVIL

1.1 RESEÑA DEL VUELO

El 6 de Febrero de 1996, aproximadamente a las 03:45 horas UTC. la aeronave Boeing 757, matrícula TC-GEN operada por la firma Birgenair como un vuelo fletado por la Línea Aérea Alas Nacionales se accidentó minutos después del despegue, del Aeropuerto Internacional Gregorio Luperón, Puerto Plata, República Dominicana. El vuelo se efectuaba bajo un plan de vuelo por instrumentos (IFR). La aeronave se destruyó y los 176 pasajeros y 13 tripulantes perecieron. Dicho vuelo se originó a las 03:40 con destino a Frankfurt, Alemania con escala en Gander, Canadá y Shonefeld Berlín, Alemania.

Aproximadamente 2 ½ horas antes de la salida del vuelo, el Departamento de Operaciones de la empresa Birgenair notificó a la tripulación que debido a una falla mecánica de la aeronave Boeing 767 que estaba asignada al vuelo se tenía que efectuar el cambio de equipo y tripulación.

La nueva tripulación se reportó al aeropuerto aproximadamente a las 02:15. Hubo una demora adicional de más de una hora debido al retraso de una azafata.

Finalmente, el vuelo inicia el despegue aproximadamente a las 03:42:11. A los pocos segundos el primer oficial hizo la llamada standard "80 nudos" (80 kts) a lo cual el Capitán contesta que su indicador de velocidad no estaba trabajando. El primer oficial confirmó que su indicador estaba normal. El Capitán le indicó al primer oficial que le lea las diferentes velocidades para continuar el despegue.

Efectuó un despegue que muestra un patrón normal y a las 03:42:27 el Capitán comunicó que su indicador de velocidad comenzaba a funcionar, en ese momento la aeronave tenía una altura de 576 pies y una velocidad de tierra (GS) de 121 kts, a las 03:44:07 a una altura de 3500 pies y una velocidad de tierra de 273 kts el Capitán ordenó conectar el piloto automático central, en ese momento aparece la confirmación de la auto-potencia (auto-throttle), el Vnav y el Lnav conectado. A las 03:44:25 el EICAS le da un mensaje de aviso quedeciaRudderatio / Mach Airspeed Trim. Luego a las 03:44:28 el Capitán comunicó que algo anormal estaba pasando, repitiendo lo mismo 15 segundos después.

En ese momento el primer oficial reconoce que algo anormal estaba pasando y le comunica al Capitán que su velocímetro estaba indicando 200 kts y disminuyendo.

En ese momento la aeronave tenía 5344 pies de altura con una velocidad de tierra de 327 kts y una actitud de +15.1 grados (pitch attitude) y el Capitán le respondió que los dos indicadores estaban equivocado y preguntó "que podemos hacer?" ordenando inmediatamente chequear unos circuit breakers.

A las 03:45:04 el Capitán comentó que cuando un avión permanece en tierra por un tiempo, es usual que pase algo como asimetría de los elevadores y otras cosas, diciendo 7 segundos más tarde "nosotros no creemos en ellos" (refiriéndose a los mensajes del EICAS).

A las 03:45:28 con 6688 pies de altura con una velocidad de tierra de 352 kts y una actitud de +15.1 grados con el piloto automático central conectado, se activó el sonido de alarma de sobrevelocidad a lo que el Capitán comentó "eso no importa" y ordenó sacar el circuit breaker del sonido de sobrevelocidad interrumpiendo el sonido de la misma.

En ese momento la aeronave tenía una altura de 7040 pies, una velocidad de 349 Kts. y una actitud de +14.8 grados.

A las 03:45:52 el sonido del sacudidor de palanca (stick shaker) se empieza a escuchar, el piloto automático central permanece aún conectado y tanto la auto potencia (auto-throttle) como el Vnav. son desconectados. Con 7132 pies de altura , una velocidad de tierra de 323 Kts. y una actitud de + 18.3 grados , las potencias de ambos motores estaban en marcha lenta (EPR L= 1.144, EPR R = 1.152) , cinco segundos más tarde son restablecidas las potencias de ambos motores (EPR L = 1.620, EPR R = 1.585) hubo un incremento de la actitud a +21.0 grados y luego es desconectado el piloto automático. Esta actitud fue variable desde + 21.0 grados a + 5.0 grados.

A las 03:46:31 con 5984 pies de altura, una velocidad de tierra de 193 Kts. y una actitud de +14.4 grados las potencias de ambos motores vuelve a estar en marcha lenta (EPR L=1.162 EPR R = 1.146) , momentos de gran confusión reinan en la cabina de mando , el Capitán dice "No ascendemos , Que puedo hacer ?" manteniéndose aún las potencias en marcha lenta y el primer oficial le responde , " usted debe parar el descenso, yo estoy seleccionando el altitud hold".

Veintiún (21) segundos más tarde, a las 03:46:52, el Capitán preguntó sobre la posición de las potencias y el primer oficial respondió que ambas estaban retardadas, de inmediato el Capitán ordenó " Potencia, potencia, no hale hacia atrás ", el primer oficial le responde " Okey , están abiertas, están abiertas"

A las 03:46:57 aumentan ambas potencias (EPR L = 1.523, EPR R = 1.646),pero a las 03:46:59 la potencia del motor izquierdo se reduce a marcha lenta y la del motor derecho se mantiene con la potencia máxima (EPR L = 1.251, EPR R = 1.622) .

A las 03:47:03 con una altura de 3520 pies, la velocidad de tierra sin indicación, una actitud de - 53.3 grados incrementándose hasta -80.0 grados y un banqueo de - 99.8 grados, manteniéndose la asimetría de potencia prácticamente igual (EPR L = 1.089, EPR R = 1.626).

A las 03:47:09 el GPWS (Ground Proximity Warning System) empieza a sonar "WHOOP, WHOOP, PULL UP" , encontrándose a una altura de 2368 pies, una actitud de -17.6 grados y un banqueo de -9.0 grados , variando estos parámetros dos segundos más tarde cuando impacta en el Océano Atlántico a unas 14 mn al noroeste de Puerto Plata, con una actitud de -34.3 grados y un banqueo de -34.6 grados; pereciendo todos sus ocupantes y resultando la aeronave destruida en un 100%, producto del impacto.

1.2 LESIONES A PERSONAS

LESIONES	TRIPULANTES	PASAJEROS	TOTAL
Mortales	13	176	189
Graves	0	0	0
Leves	0	0	0
Ilesos	0	0	0
Total	13	176	189

1.3 DAÑOS A LA AERONAVE.

Como resultado del impacto con el agua la aeronave quedo totalmente destruida.

1.4 OTROS DAÑOS.

Ningún otro daño fue causado por o después del impacto.

1.5 INFORMACION SOBRE EL PERSONAL.

PILOTO AL MANDO:

Nombre	Ahmet Erdem
Sexo	Masculino
Fecha de nacimiento	12/03/34.
Edad	62 años

Nacionalidad	Turca
Profesión	Piloto Transporte de Línea Aérea.
Licencia #	312.
Ultimo chequeo médico	12/03/95, válido hasta 12/03/96.

HABILITACIONES:

Multimotores	11/03/68.
Instrumentos CAT II	12/04/94.
Tipos	Viscount 794, DC-9, B-707, B-727, DC-8, B-757-200,
	B-767-200, B-737-300.
	En B-757-200 27/05/92.
Ultimo entrenamiento	12/03/95 United Airline Flight Trainning Center
	SIM. B-757/767.

EXPERIENCIA DE VUELO:

Tiempo total	24,750 hrs.
En B-757	1,875 hrs.
En los últimos 3 meses	Dic. 95.- 59 hrs., 25min.
	Ene.96.- 69 hrs., 00 min.
	Feb.96.- 00 hrs., 00 min.
Tiempo de servicio antes del accidente	NO servicio asignado desde Enero 27 1996.

CAPITAN DE RELEVO:

Nombre	**Muhlis Evrenesoglu.**
Sexo	**Masculino.**
Fecha de nacimiento	**18/07/44.**
Edad	**51 años.**
Nacionalidad	**Turca.**
Profesión	**Piloto Transporte de Línea Aérea.**
Licencia #	**754.**
Ultimo chequeo médico	**29/11/95, válido hasta 29/11/96.**

HABILITACIONES:

Multimotores	**06/02/78.**
Instrumentos CAT II	**13/04/93.**
Tipos	**C-47, C-160, PA-23, B-727, DC-9, B-737-400, A-310, B-757/767, A-300-B-4.**
En B-757	**15/03/95.**
Ultimo entrenamiento	**28/01/96 Pan Am International Flight Academy. SIM. B-757/767.**

EXPERIENCIA DE VUELO:

Tiempo total	**15,000 hrs.**
En B-757	**121 hrs. 30 min.**
En los últimos 3 meses	**Dic.95 48 hrs. 30 min.**

	Ene.96 73 hrs. 00 min.
	Feb. 96 00hrs. 00min.
Tiempo de servicio antes del accidente	**NO servicio asignado desde Enero 27del 1996.**

PRIMER OFICIAL:

Nombre	**Aykut Gergin**
Sexo	**Masculino.**
Fecha de nacimiento	**04/04/61.**
Edad	**34 años.**
Nacionalidad	**Turca**
Profesión	**Piloto Transporte de Línea Aerea.**
Licencia #	**2870.**
Ultimo chequeo médico	**06/12/95, válido hasta 06/12/96.**

HABILITACIONES:

Multimotores	**09/09/93.**
Tipos	**CE-500, AN-24, ATR-42, A-320, B-757/767,A-300.**
En B-757-200	**16/03/95.**
Ultimo entrenamiento	**28/01/96 Pan Am International Flight Academy. SIM. B-757/767.**

EXPERIENCIA DE VUELO:

Tiempo total	**3,500 hrs.**
En B-757	**71 hrs. 45 min.**
En los últimos 3 meses	**71 hrs. 45 min.**
Tiempo de servicio antes del accidente	**NO servicio asignado desde Enero 27 de 1996.**

1.6 INFORMACION DE LA AERONAVE.

AERONAVE

Matrícula	**TC-GEN**
Tipo de aeronave	**B-757-225.**
Modelo	**1985.**
Serie	**SN 22206.**
Certificado de aeronavegabilidad	**#980 DGCA de Turquía.**
Peso máximo de despegue	**108,864 Kg.**
Total de horas del fuselaje	**29,269 hrs.**
Total de ciclos	**13,499 Cyc.**

MOTORES:

Tipo	**RB211-535E4**
Serie	**#1.- 30511, #2.- 30514.**
Total de horas	**#1.- 22,567 hrs. #2.- 24,264 hrs.**
Total de ciclos	**#1.- 10,258 Cyc. #2.- 10,918 Cyc.**

INSPECCIONES :

Chequeo "A" (c/400 hrs.) 16/01/96, a las 29,200.50 hrs y 13,476 ciclos.

Chequeo "C" (c/5000hrs. o 18 meses) 30/05/95, a las 27,012.55hrs.y 12,613 ciclos.

Chequeo "S4C" (c/12,000 Cyc o 18 meses) 25/07/90, a las 17,289 hrs. y 8,689 ciclos.

Chequeo "SA" (c/300 Cyc.) 05/01/96, a las 29,090.50 hrs. y 13,451 ciclos.

Chequeo "SC" (c/18 meses o 3000 cyc)30/05/95, a las 27,012.55 hrs. y 12,613 ciclos.

Combustible utilizado........................ AV-JET.

1.7 INFORMACION METEOROLOGICA

Las condiciones meteorológicas en la terminal aérea de Puerto Plata, entre las 20:00 y las 02:00 hora local señalaba viento del este-suroeste de 10 Kts. , buena visibilidad, de 1 a 4 octavos de nubes bajas a 1800 pies y 4 a 7 octavos de nubes medias a 7000 pies. A las 23:40 hora local (03:40 UTC.) se registra precipitación ligera con algunos núcleos de mayor intensidad hacia el sur y noroeste "NO SE OBSERVAN NUCLEOS DE TORMENTA NI DE PRECIPITACION AL NORTE DE SOSUA" estos núcleos se manifiestan a unos 10 kms. Al sur de la misma.

1.8 AYUDAS PARA LA NAVEGACION

No se reportó ningún problema con las radio-ayudas ni con los radares en uso.

1.9 COMUNICACIONES

No se observó ningún problema en las comunicaciones.

1.10 INFORMACION DE AERODROMO

El Aeropuerto Internacional "Gral. Gregorio Luperón",La Unión, Puerto Plata, República Dominicana esta situado al norte de la isla en las siguientes coordenadas: 19o 45' 28.4"N y 070o 34' 11.8"W.

La pista tiene 3080 mts. de largo y 46 mts. de ancho. La misma esta orientada Este/Oeste (08/26). Tiene una elevación de 16.4 pies en la cabecera 08 y de 15.9 pies en la cabecera 26; su superficie es completa de concreto y posee un espacio de rampa de 41,325 metros cuadrados.

1.11 REGISTRADORES DE VUELO.

La aeronave estaba dotada de un registrador de voces (CVR) marca Fairchild, modelo A-100, serie # 2304 y de un registrador de datos de vuelo (FDR) marca Allied Signal (Sundstrand), modelo UFDR, serie #6596. Ambos localizados en el empenaje de la aeronave.

Ambos registradores se hundieron junto a los restos de la aeronave y fueron localizados a una profundidad de 7200 pies . El 28 de Febrero de 1996 un equipo de la Marina de Los Estados Unidos de Norteamérica auxiliados por un vehículo operado a control remoto a través de un cable de fibra óptica capaz de descender a 20,000 pies de profundidad llamado "CURV III", luego de una rápida operación de aproximadamente 2 hrs., fueron recuperados ambos registradores y transportados inmediatamente a los laboratorios de La National Transportation Safety Board en Washington, D.C.

EVALUACION DE LOS REGISTRADORES:

El exámen de la información grabada en los registradores indicó que el sistema de grabación estaba operando normalmente, pero la secuencia de la información en el registrador de datos de vuelo se perdió a las 03:44:16 por un segundo, y además los valores de velocidad calibrada (CAS) no se correlacionan con los demás parámetros registrados y se deben considerar inválidos. Estas velocidades calibradas si se correlacionan con un "BLOQUEO TOTAL DEL TUBO PITOT DEL CAPITAN". Cuando una aeronave que tiene un tubo pitot bloqueado aumenta su altura la velocidad indicada (IAS) también aumentara; el velocímetro eventualmente podrá exceder la máxima velocidad operacional (IAS) y la computadora de datos afectada mandara un aviso de sobrevelocidad (Overspeed Warning).

1.12 RESTOS DE LA AERONAVE Y EL IMPACTO

Los restos de la aeronave, destruida completamente por el impacto, se hundieron y fue mediante el uso de cámaras submarinas que se pudo ver y preparar un croquis de la localización de los restos.

1.13 INFORMACION MEDICA Y PATOLOGICA

De acuerdo a los resultados de las pruebas toxicológicas efectuadas por el grupo de doctores, se determinó que antes de la ocurrencia de la muerte no hay indicios de inhalación de vapores de combustible, ni monóxido de carbono; esto nos indica que no existió fuego , tampoco fuga de combustible antes del impacto, lo que descarta la posibilidad de fuego o explosión pre-impacto.

1.14 INCENDIO

No hubo ninguna evidencia de incendio en los restos encontrados, ni en los cadáveres rescatados.

1.15 ASPECTO DE SUPERVIVENCIA

Debido a la severidad del impacto, se considera que nadie hubiera podido sobrevivir en este accidente.

1.16 ENSAYOS E INVESTIGACIONES

De acuerdo a los cálculos del fabricante, referente a un bloqueo del sistema pitot,a medida que la aeronave asciende, la presión disminuye y el aire atrapado en el sistema se expande dando como resultado un aumento directamente proporcional de la velocidad indicada (IAS) con relación a la altura. El incremento mostrado por el registrador de datos de vuelo (FDR) se corresponde con la curva del calculo hecho por el fabricante.

También las pruebas efectuadas en el simulador (simulando hielo en el tubo pitot) nos dieron como resultado indicaciones similares a los de la aeronave accidentada; también en dicha simulación se uso la misma selección del piloto automático central y tanto el aviso de sobre-velocidad, como el aviso de perdida (stick shaker) ocurrieron de forma muy similar al patrón del vuelo accidentado

1.17 INFORMACION ORGANICA Y DE DIRECCION

La empresa aérea Birgenair tiene su base de operaciones en Estambul,Turquía; desde donde dirige sus operaciones, su Departamento de Mercadeo, y también su base de mantenimiento. El vuelo accidentado se origina en Puerto Plata y el mismo es despachado por la empresa Airline Services; contratada por Birgenair para esos fines.

El entrenamiento a sus tripulantes es impartido por diferentes escuelas o academias de vuelo, como lo son: United Airline Flight Trainning Center, Pan Am Internacional Fight Academy, etc.

1.18 INFORMACION ADICIONAL

Ninguna.

1.19 USO EFECTIVO DE NUEVAS TECNICAS

Mediante el uso de tecnología avanzada se pudieron localizar las registradoras de vuelo, recuperarlas y observar los restos de la aeronave, debido a que todo se hundió a una profundidad de 7200 pies . Ver reporte anexo.

2. ANALISIS

2.1 GENERALIDADES

Las facilidades en el Aeropuerto Internacional "Gregorio Luperón",Puerto Plata, República Dominicana, los servicios de trafico aéreo y la comunicación aire-tierra fueron totalmente normales y no contribuyeron con el accidente.

La salida fue planificada como un vuelo nocturno, sobre agua, en una aeronave de transporte de pasajeros completamente equipada para vuelos por instrumentos (IFR). Las condiciones meteorológicas existentes y el pronóstico para esta área eran favorables para el vuelo; por tanto tampoco se considera como un factor contribuyente en este accidente.

Los procedimientos de despacho de la aeronave, incluyendo peso y balance y los cálculos de rendimiento (Performance) fueron apropiados para el aeropuerto de salida y dentro de las limitaciones de la aeronave. El tiempo estimado en ruta hasta el destino final requería tres (3) tripulantes los cuales se encontraban a bordo. Por tanto tampoco se considera como un factor contribuyente en este accidente.

La destruccion de la aeronavecomo resultado del impacto con el agua, limito la cantidad de estructura disponible para examen, por consiguiente la informacion de las grabadoras fue muy valiosa para analizar el accidente.

Los datos obtenidos de la s grabadoras de vuelo confirmaron que los motores reflejaron un rendimiento de acuerdo a lo diseñado por el fabricante y a lo certificado por las autoridades aeronáuticas competentes. La estructura de la aeronave, de acuerdo a las evidencias obtenidas, permaneció intacta hasta antes del impacto con el agua. No habiendo evidencias de fuego, explosión, o alguna actividad hostil pre-impacto.

2.2 FACTORES OPERACIONALES

Los miembros de la tripulación estaban correctamente certificados en el B-757 de acuerdo a los requerimientos internacionales; sin embargo, se determinó que los mismos no fueron entrenados para reconocer, analizar y tomar la acción correcta sobre la situación anormal que se les presento en ese vuelo.

Durante la carrera del despegue, el primer oficial tomando como referencia su indicador de velocidad hace el llamado de "80 Kts.". El Capitán le respondió, "Chequeado", pero dos (2) segundos más tarde este dice "Mi indicador de velocidad no trabaja". Mientras la aeronave continúa su aceleración para despegue el Capitán verificó que el velocímetro del primer oficial si estaba funcionando y le ordena "Tu me dices" indicando con esto al primer oficial que le diga las velocidades tomando en cuenta solo su velocímetro. Dos (2) segundos mas tarde el primer oficial dice "V1" y "Rotación", y cuatro (4) segundos después la aeronave se va al aire.

El propósito de hacer un chequeo a los 80 nudos es entre otras cosas para verificar el rendimiento operacional de los motores y de los instrumentos de vuelo. La investigacion concluyó que el Capitán desestimo la falta de indicación de velocidad y contrario a los procedimientos operacionales establecidos, el continuó el despegue.

Cálculos de rendimiento hechos después del accidente nos muestran que la aeronave accidentada hubiera requerido solo 2,280 pies de pista para desacelerar desde 80 nudos; también calculamos que el Capitán pudo acelerar hasta V1 y abortar el despegue quedándole suficiente pista.

En la aeronave B-757 de Birgenair existían cinco (5) indicadores con información de velocidad, disponibles de la siguiente manera: El indicador del Capitán, el indicador del primer oficial, el indicador stand-by y dos indicaciones de velocidad de tierra (GS) en las pantallas EFIS tanto del Capitán como del primer oficial. El registrador de vuelo (FDR) solo graba la velocidad indicada (KIAS) de la computadora de vuelo del Capitán (AIR DATA COMPUTER). La velocidad de tierra grabada fue obtenida de unidades de referencia inercial.

El Registrador de voz en la cabina (CVR) y el Registrador de datos de vuelo (FDR) indicaron que aproximadamente a los 500 pies y en 120 KIAS, el Capitán afirmó: "comenzó a operar".

Los investigadores determinaron que esta indicación fue resultado de una combinación de la reducción de presión del ambiente debido a la trayectoria ascendente de la aeronave y a la expansión del aire bloqueado por una obtrucción el tubo pitot del Capitán. Estos dos (2) factores causaron que el ADC experimentara un aumento en el indicador de la velocidad.

Los investigadores concluyeron que el Capitán le restó importancia a la discrepancia previa de la velocidad del aire experimentado durante el despegue, como resultado de una indicación aparentemente correcta durante la fase inicial del ascenso. El CVR y el FDR indicaron que la actividad en la cabina de la tripulación era normal a medida que los flaps eran rectractados, las llamadas estándares de radio en la salida eran ejecutadas y la lista de chequeo luego del despegue se completó, y los modos de piloto automático fueron elegidos para un ascenso continuo.

Sin embargo, el análisis del FDR indicó que la actitud de cabeceo de la aeronave en el ascenso continuó en aumento lentamente hasta alrededor de 14 grados a medida que la aeronave pasaba alrededor de los 4,300 pies y los 300 KIAS. En este momento, el sistema EICAS inició los mensajes de aviso de relación del timón y compensación de la velocidad mach. El Capitán afirmó "hay algo extraño, hay algunos problemas" y " okay, hay algo mal, lo ven?". Sin embargo, la tripulación de vuelo no buscó clarificar el significado de las alertas o tomar alguna acción correctiva a las mismas.

El primer oficial afirmó "hay algo mal acá en este momento el mío está a sólo doscientos (200) y descendiendo, Señor". La indicación EFIS de la velocidad terrestre en ese tiempo era de alrededor de 212 nudos. El primer oficial articuló doscientos (200), lo que los investigadores concluyeron era la velocidad correcta - una indicación de que el 200 KIAS venia del ADC dedicado al primer oficial y el sistema pitot. Ningún miembro de la tripulación de vuelo mencionó la presencia de un indicador de velocidad de stand-by en la cabina o la indicación de la velocidad terrestre del EFIS.

Inmediatamente a la discusión de esta cabina, los investigadores concluyeron que una confusión adicional se les presentó a la tripulación de vuelo, la cual interfirió con su análisis de las discrepancias de la velocidad aérea y la selección de un curso de acción apropiado.

El Capitán hizo una pregunta, "Ambos están mal, qué podemos hacer?" y "Verifiquemos sus interruptores de circuito". El primer oficial respondió "SI" pero el Capitán dijo "el alterno uno está correcto". Los investigadores concluyeron que esta discusión fue en referencia al indicador de velocidad aérea localizado en el centro del panel de instrumentos.

Aunque las afirmaciones del Capitán y del primer oficial indicaron que ambos miembros reconocían que la indicación del indicador alterno estaba correcto, ellos no parecían comprender la importancia del instrumento de indicación como una fuente instrumental de comparación. Ninguno de los tres miembros de la tripulación de vuelo sugirió un apropiado curso de acción para comparar las indicaciones disponibles o para activar el interruptor del instrumento "selector de fuente" (Alternate Source) a "alterno" para derivar la información de la velocidad del aire del ADC del primer oficial y el sistema pitot

de la parte alta de la derecha dedicado. La fuente alterna, pudo entonces haberse convertido en la referencia de la velocidad relativa del aire para el sistema del piloto automático. La falla de la tripulación de mando para percibir el curso de acción apropiado, o para comprender la disminución de las indicaciones de la velocidad terrestre presentado en las pantallas del EFIS, indicaron una falta de conocimiento de los sistemas de la aeronave y la atmósfera de la cabina desprovistos de las principales fuentes de manejo de los recursos de la tripulación (Crew Resource Management CRM).

En vez de tomar alguna acción definitiva para determinar una referencia válida de la velocidad aérea y el control del aumento de la actitud de cabeceo, el Capitán inició una discusión que condujo a la tripulación a racionalizar la disparidad de la velocidad. El introdujo la información a los demás tripulantes de que como la aeronave no estaba volando y había estado en tierra, que "lo que sucedía era usual" y "no lo creemos". Su resolución prevaleció en la cabina y a ello siguió un período de diecinueve (19) segundos de silencio. El Capitán de revelo entonces dijo, "Puedo reajustar el interruptor del circuito a ver que pasa?".

El Manual de Operaciones de Birgenair, volúmen 3 contiene discusiones y cartas tituladas "Vuelo con velocidad relativa no confiable", que ofrece a la tripulación actitudes de cabeceo de aeronaves recomendadas y ajustes de potencia de empuje del motor (promedio EPR % N1 requerido) para obtener parámetros de ejecución para fases de vuelo ascender, ir en vuelos de crucero y ejecutar un aterrizaje. A medida que el vuelo accidentado continuaba el ascenso de partida, los miembros de la tripulación no discutieron o demostraron estar advertidos de que estos procedimientos estaban disponibles. Nunca enfocaron su atención sobre la descomunal actitud del alto cabeceo que se había desarrollado o a las fuentes alternativas de información de la velocidad relativa que estaba presente en varios indicadores en la cabina.

Durante los dos (2) minutos finales del vuelo, las medidas apropiadas de acción permanecían disponibles para corregir el curso de la aeronave por parte de la tripulación y para evitar la pérdida de control. Una réplica aproximada del vuelo en un simulador para entrenamiento de vuelo proveyó a los investigadores la oportunidad de observar acciones alternativas.

A las 3:45:28 el CVR y el FDR grabaron la activación de la alerta de exceso de velocidad. Esta fue accionada por una indicación de 353 KIAS en el ADC del Capitán y continuó por nueve (9) segundos. En este tiempo la indicación de la velocidad de tierra era de 199 nudos, la altura de 6,700 pies, la actitud de cabeceo era de 15 grados y la aeronave estaba estable en balanceo y completamente recuperable si la actitud de cabeceo se hubiera reducido.

A las 3:45:46 el FDR indicó que la tripulación de vuelo había desconectado el modo VNAV del piloto automático y habia conectado VS, la actitud de cabeceo comenzó a aumentar a más de 15 grados. Unos cuantos segundos después, la tripulación de vuelo desconectó las auto-potencias (auto-throttle) y los valores del EPR comenzaron a descender. Los investigadores concluyeron que la tripulación de vuelo redujo las palancas de potencia de empuje e incrementaron presión positiva a los elevadores.

A las 3:45:52 el FDR indicó que la actitud de cabeceo alcanzaba los 18 grados y el CVR grabó el sonido del sacudidor de palanca (stick-shaker). Los valores del EPR aumentaron a 1.6 (nivel previo) después de la activación del sacudidor de palanca. Un segundo después, el piloto automático se desenganchó debido a la operación más allá de los límites de la autoridad del piloto automático. Por casi un (1) minuto después del desenganche del piloto automático, la aeronave se mantuvo en una actitud de cabeceo de nariz (proa alta).

La aeronave se balanceó hacia la derecha y hacia la izquierda y continuó descendiendo hasta alrededor de los 5,000 pies. Durante este intervalo, la velocidad de tierra EFIS bajó hasta alrededor de 140 nudos. La actitud de cabeceo cambió abruptamente a valores negativos (proa abajo).

Durante una réplica aproximada del perfil del accidente en el simulador de entrenamiento de vuelo, los investigadores calificados en el B-757 pudieron demostrar la recuperación de perfiles de vuelos similares con la aplicación de máxima potencia y aplicación de los mandos de vuelo apropiados para la recuperación de una entrada en pérdida aerodinámica. La compañía Boeing le informó a los investigadores, que los ingenieros, durante los vuelos de prueba, por inadvertencia habían entrado en un perfil de vuelo similar durante la prueba de desarrollo de una aeronave y que pudieron recobrar el control de la aeronave con técnicas de recuperación de entrada en pérdida normal.

La información del registrador de la voz en la cabina (CVR) y el registrador de datos de vuelo (FDR) indicó que la tripulación de vuelo de la aeronave accidentada no inició ninguna acción de control de vuelo hacia la recuperación de la entrada en pérdida después de la activación del sacudidor de palanca (stick shaker) a las 3:45:52. Por el contrario, prevaleció una atmósfera de confusión en la cabina. En dos (2) ocasiones el Capitán de relevo dijo "ADI" (indicador de actitud). Los investigadores piensan que el Capitán de relevo intentaba sugerir a la tripulación de vuelo que maniobraran la aeronave a una actitud de cabeceo conveniente (más baja). La tripulación de vuelo discutió reducir y aumentar la potencia del motor. Durante este período el primer oficial dijo, "pro hacia abajo" "puede que se nivele, altura bien, estoy seleccionando el Altitud Hold Señor". A las 03:46:47 el Capitán dijo "Select, Select" (Seleccione, Seleccione").

Sin embargo, el Registrador de Datos del Vuelo (FDR) indicaba que el piloto automático ya no estaba conectado y por tal razón la función para mantener la altitud no estaba disponible. Los investigadores concluyeron que una atmósfera de confusión continuó entre los tres miembros de la tripulación a medida que la aeronave salía del vuelo controlado y descendía al mar.

Durante el descenso, el sistema de advertencia de proximidad a tierra (GPWS) se activó pero no era de ningún valor para la tripulación de vuelo debido a la anterior pérdida de control. Los datos grabados cesaron a las 03:47:17.

La investigación a la tripulación concluyó que la confusión de la tripulación de vuelo fue el resultado de la falta de conocimiento de los sistemas de la aeronave y una falta de disciplina de procedimiento. La última pérdida de control resultó cuando la tripulación de vuelo dejó de reconocer la activación del sacudidor de palanca (stick-shaker) como una advertencia inminente de una entrada en pérdida aerodinámica debido a que ellos dejaron de ejecutar los procedimientos de la recuperación de pérdida.

2.3 FACTORES DEL MANTENIMIENTO DE LA AERONAVE

La aeronave estaba certificada de acuerdo con los registros internacionales. Las inspecciones requeridas por los estándares internacionales de aeronavegabilidad fueron cumplidos. No obstante, se determinó que la aeronave no era mantenida en tierra, en Puerto Plata, de acuerdo con las prácticas de mantenimiento recomendadas.

Durante el tiempo que duró en tierra, dicho avión no fue volado en veinte (20) días. Durante este período se ejecutó una inspección de motores que requirió una prueba en tierra del motor antes del despegue. Los investigadores creen que las cubiertas de los motores y cubiertas de los pitot no fueron instaladas antes ó después de la prueba en tierra de los motores.

Los análisis procedentes del Registrador de la Voz de cabina (CVR) y Registrador de Datos de Vuelo (FDR) revelaron que no había indicación de velocidad relativa en el indicador del Capitán durante el recorrido de despegue y que la indicación estaba incorrecta durante el ascenso. Las lecturas de velocidad relativa mostradas en el indicador del Capitán, a medida que ascendía la aeronave, eran compatibles con un mal-funcionamiento debido a una obstrucción en el tubo pitot superior izquierdo. La aeronave se estrelló en el mar y los escombros no fueron recuperados. Por tal razón, el motivo exacto de la obstrucción en el sistema pitot no pudo ser determinado.

Sin embargo, las autoridades de investigación concluyeron que la fuente mas probable de obstrucción en el sistema pitot era lodo y/o escombros del nido de un pequeño insecto que se introdujo en el tubo pitot durante el tiempo que la aeronave estuvo en tierra, en Puerto Plata.

A pesar de que la aeronave permaneció en tierra y no fue volada durante un período de veinte (20) días antes del vuelo accidentado, la aeronave fue devuelta para servicio sin una verificación del sistema pitot estático como se recomienda en los procedimientos de mantenimiento del fabricante. Si se hubiera ejecutado esta verificación terrestre como parte del retorno a servicio, se hubiera descubierto el tubo pitot obstruido y se hubiera corregido antes del vuelo. Los investigadores concluyeron que el tubo pitot obstruido no fue la causa probable del accidente, sin embargo, fue un factor contribuyente.

2.4 LA TRIPULACION DE VUELO PARA SERVICIO

Los tres (3) miembros de la tripulación de vuelo tenían su certificación médica actualizada indicando su aptitud para servicio de tripulante aéreo. Sin embargo, el Capitán tenía 62 años de edad, lo que lo excluiría del servicio de piloto al mando en ciertos países.(La edad maxima en Turquia es de 65 anos)

La investigación no pudo verificar las actividades de los miembros de la tripulación de vuelo durante su período fuera de servicio, antes de la llamada para el vuelo accidentado. Las evaluaciones post-mortum no estaban disponibles; por tal razón, la aptitud de la tripulación de vuelo no pudo ser verificada.

2.5 ADMINISTRACION DE AEROLINEA

Las circunstancias de este accidente indican que a pesar de que hubo una inversión en el entrenamiento de la tripulación de vuelo de fuente exterior que reunió los requisitos, los eventos confirman que el esfuerzo de entrenamiento no resultó en la ejecución deseada o esperada de la tripulación de vuelo. Los miembros de la tripulación de vuelo estaban calificados "en el récord" pero no demostraron suficiente aptitud básica de aviación o conocimiento de procedimientos, sistemas de la aeronave y disciplina para reconocer y restaurar información de velocidad relativa confiable al indicador de velocidad relativa (pitot flying) del confiable o al sistema de piloto automático.

Igualmente, no se refirieron a la sección de "vuelo con velocidad relativa no confiable" del Manual de Operaciones del B-757 o reconocer y recuperarse de una entrada en pérdida aerodinámica. Además, hubo una falta completa de administración de recursos de la tripulación en el manejo de las anomalías de la aeronave.

Los investigadores son de opinión que este accidente es una indicación de que los requisitos internacionales para el entrenamiento de tripulantes de vuelo no se han mantenido a la par con el crecimiento y modernización de la industria del transporte aéreo y el desarrollo de las aeronaves.

De igual forma creen además, que autoridades individuales de aeronavegabilidad deberían revisar los requisitos del entrenamiento para mejorar el enfoque a la máxima eficiencia para la tripulación de vuelo.

3.- CONCLUSIONES

La causa probable del accidente fue la falta por parte de la tripulación de vuelo de reconocer la activación del sacudidor de palanca (stick-shaker) como una advertencia inminente de una entrada en pérdida aerodinámica y la falla de la tripulación de ejecutar los procedimientos para recuperación de la entrada en pérdida. Antes de la advertencia de sacudidor de palanca (Stick-shaker), existía una confusión de la tripulación de vuelo debido a indicaciones erróneas de aumento de velocidad relativa y un aviso de sobre-velocidad.

Una serie de eventos contribuyeron al accidente:

*** La disciplina de la tripulación de vuelo, la administración del recurso de la cabina, el cumplimiento con los procedimientos y capacidad básica de aviación.**

*** Poco conocimiento de la aeronave por parte de la tripulación de vuelo: sistemas de la aeronave, indicaciones de velocidad relativa; piloto automático, procedimientos de la aeronave, selector de fuente de instrumento de alternativa, vuelo con velocidad relativa poco confiable.**

*** Prácticas de mantenimiento - la falta de cumplimiento del personal de mecanicos de la empresa Birgenair, al no instalar las cubiertas del sistema pitot mientras la aeronave estuvo parada en tierra, la falla de ejecutar las pruebas para el retorno a servicio del sistema pitot estático después de un buen tiempo en tierra.**

FACTORES ADICIONALES:

* Puede que la tripulación de vuelo no estuviera física y moralmente descansada y preparada para volar en el viaje debido a la llamada inesperada de la tripulación que se encontraba en su tiempo libre.

* El entrenamiento de la compañía Birgenair no incluyó administración de recurso de tripulación y era una combinación de entrenamiento de fuente exterior que le faltaba continuidad y enfoques integrados para llevar al máximo la eficiencia de la tripulación de vuelo

* El Manual de Operaciones del Boeing 757/767 no contiene información detallada señalando los procedimientos de la tripulación de vuelo con las listas de verificación apropiadas, para señalar una discrepancia en las indicaciones de la velocidad relativa, la activación simultánea de la compensación de la velocidad/match y relación del sistemas EICAS, avisos y vuelo con velocidad relativa poco confiables.

* El sistema EICAS de la aeronave B-757/767 de la Boeing no incluye una alerta de "precaución o aviso" cuando una señal de indicación de velocidad relativa errónea es detectada.

4.- RECOMENDACIONES

Como resultado de la investigación la Junta Investigadora de Accidentes Aéreos, (JIAA) organismo investigador de la Dirección General de Aeronáutica Civil de la República Dominicana, hace las siguientes recomendaciones de seguridad:

A La Organización de Aviación Civil Internacional

* Emitir un directivo de aeronavegabilidad requiriendo que el manual de vuelo del Boeing 757/767 sea revisado para notificarle a los pilotos que la activación simultanea de los avisos "MACH/SPD TRIM" and "RUDDER RATIO" es una indicación de discrepancias en la indicación(Velocímetro).

*

***.A La Federal Aviation Administration (FAA)**

*** Requerir al grupo de aeronaves comerciales de Boeing que modifique el sistema de alerta a la tripulación , del Boeing 757/767 para incluir "un aviso de precaución" (CAUTION ALERT) cuando una indicación de velocidad errónea sea detectada.**

*** Requerir al grupo de aeronaves comerciales de Boeing, que modifique el Manual de Operaciones del Boeing 757/767 para incluir en la sección de emergencias un procedimiento detallado sobre "Identificación y Eliminación de una indicación de velocidad errónea"**

*****

Emitir un boletín de información de vuelo (Flight Standard Information Bulletin) dirigido a los inspectores de operaciones para que se aseguren que en los manuales de operaciones de los operadores del Boeing 757/767 se incluyó un procedimiento detallado sobre "Identificación y Eliminación de una indicación de velocidad errónea".

*** Emitir un boletín de información aeronáutica notificándole a los inspectores de operaciones las circunstancia de este accidente, para que estos se aseguren que en los entrenamientos se haga énfasis sobre la importancia de reconocer un malfuncionamiento de la indicación de la velocidad durante la carrera de despegue.**

*** Asegurarse que todos los entrenamientos del Boeing 757/767 tengan en el simulador de vuelo un escenario donde el piloto sea entrenado para responder apropiadamente a los efectos de un "Tubo Pitot Bloqueado".**

*** A La Organizacion de Aviacion Civil Internacional.**

*** Que cada empresa aérea tenga un manual de entrenamiento específico y especializado para el tipo de operación que conduce la línea aérea. Sin tomar en cuenta el entrenamiento genérico que reciben las tripulaciones de vuelo ofrecidos por empresas dedicadas a la venta de entrenamiento (Academias , escuelas, etc.)**

*** Que se establezca como un requisito que todas las empresas aéreas comerciales incluyan dentro de su programa de entrenamiento que las tripulaciones de vuelo sean entrenadas en el "Uso de Administración de Recursos de Cabina" (Crew Resource Manegement CRM).**

***Que sean revisados los requerimientos de entrenamiento existentes para lograr una mayor eficiencia de las tripulaciones de vuelo.**

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National Transportation Safety Board

Office of Aviation Safety
Southeast Regional Office
Miami, Florida

Emmanuel Souffront Tamayo
Mayor Piloto, FAD
Presidente de la junta Investigadora
de Accidentes Aeréos de la
Dirección General de Aeronautica Civil

Noviembre 4, 1996

Estimado Emmanuel:

Por la presente acuso recibo del reporte final del accidente del TC-GEN que se accidentó el pasado Febrero 6 de 1996, cerca de la ciudad de Puerto Plata, Republica Dominicana. Muy agradecido tambiem por la copia del video con la animacion basada en las grabadoras.

El reporte esta muy completo, es un buen reporte con suficiente información y no creo que tengas muchos comentarios al respecto. El analisis borra cualquier duda que el lector pueda tener. Adjunto algunos comentarios que mas que nada son pequenas sugerencias editoriales. Te felicito por que se el trabajo y el esfuerzo que has puesto en producir un buen reporte. Te agradesco que hayas podido venir a trabajar con nosotros a ese fin.

Como siempre es un placer en dirigirme a ti, esperando que volvamos a vernos pronto.

Afectuosamente

Jorge A. Prellezo
Representante Acreditado de
Estados Unidos

Como resultado de una lectura cuidadosa del reporte del accidente de la aeronave Boeing 757 de la linea Birgenair que se accidento el pasado Febrero 6, de 1996 cerca de la ciudad de Puerto Plata, Republica Dominicana, quremos hacer las siguientes recomendaciones que modifican en parte dicho reporte.

En la pagina 13 nota 1- anadir lo siguiente.

1- La destruccion de la aeronave a resultas del impacto con el agua limito la cantidad de extructura disponible para examen. Como consecuencia la informacion de las grabadoras fue muy valiosa para analizar el accidente. (poner aqui el parrafo de los motores.)

En la pagina 13 nota 2- anadir al pricipio de ese parrafo la siguiente declaracion.

2- Los datos obtenidos de la grabadora de vuelo confirmo que los motores .....

En la pagina 20 nota 3 anadir la siguiente aclaracion:

3- La edad maxima en Turquia es de 65 anos de edad.

En la pagina 23 nota 4 cambiar eas recomendacion para la FAA

4-Esa recomendacion debe ser a la FAA.

En la pagina 24 nota 5 esa recomendacion debe ser hecha a la FAA.

5- Esas recomendaciones son para la FAA

En la pagina 24 nota 6 cambiar para que las recomendaciones sean a la OACI

6- Estas para OACI

Al principio del reporte la fecha del 6 de Febrero esta combinada con la hora UTC. Deberia usarse una sola hora/fecha.

1- La destruccion de la aeronave a resultas del impacto con el agua limito la cantidad de extructura disponible para examen. Como consecuencia la informacion de las grabadoras fue muy valiosa para analizar el accidente. (poner aqui el parrafo de los motores.)

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4-Esa recomendacion debe ser a la FAA.

5- Esas recomendaciones son para la FAA

6- Estas para OACI

-

2. ANALISIS

2.1 GENERALIDADES

1 Las facilidades en el Aeropuerto Internacional “Gregorio Luperón”,Puerto Plata, República Dominicana, los servicios de trafico aéreo y la comunicación aire-tierra fueron totalmente normales y no contribuyeron con el accidente.

La salida fue planificada como un vuelo nocturno, sobre agua, en una aeronave de transporte de pasajeros completamente equipada para vuelos por instrumentos (IFR). Las condiciones meteorológicas existentes y el pronóstico para esta área eran favorables para el vuelo; por tanto tampoco se considera como un factor contribuyente en este accidente.

Los procedimientos de despacho de la aeronave, incluyendo peso y balance y los cálculos de rendimiento (Performance) fueron apropiados para el aeropuerto de salida y dentro de las limitaciones de la aeronave. El tiempo estimado en ruta hasta el destino final requería tres (3) tripulantes los cuales se encontraban a bordo. Por tanto tampoco se considera como un factor contribuyente en este accidente.

2 Los motores reflejaron un rendimiento de acuerdo a lo diseñado por el fabricante y a lo certificado por las autoridades aeronáuticas competentes. La estructura de la aeronave, de acuerdo a las evidencias obtenidas, permaneció intacta hasta antes del impacto con el agua. No habiendo evidencias de fuego, explosión, o alguna actividad hostil pre-impacto.

2.2 FACTORES OPERACIONALES

Los miembros de la tripulación estaban correctamente certificados en el B-757 de acuerdo a los requerimientos internacionales; sin embargo, se determinó que los mismos no fueron entrenados para reconocer, analizar y tomar la acción correcta sobre la situación anormal que se les presento en ese vuelo.

Sin embargo, las autoridades de investigación concluyeron que la fuente mas probable de obstrucción en el sistema pitot era lodo y/o escombros del nido de un pequeño insecto que se introdujo en el tubo pitot durante el tiempo que la aeronave estuvo en tierra, en Puerto Plata.

A pesar de que la aeronave permaneció en tierra y no fue volada durante un período de veinte (20) días antes del vuelo accidentado, la aeronave fue devuelta para servicio sin una verificación del sistema pitot estático como se recomienda en los procedimientos de mantenimiento del fabricante. Si se hubiera ejecutado esta verificación terrestre como parte del retorno a servicio, se hubiera descubierto el tubo pitot obstruido y se hubiera corregido antes del vuelo. Los investigadores concluyeron que el tubo pitot obstruido no fue la causa probable del accidente, sin embargo, fue un factor contribuyente.

2.4 LA TRIPULACION DE VUELO PARA SERVICIO

Los tres (3) miembros de la tripulación de vuelo tenían su certificación médica actualizada indicando su aptitud para servicio de tripulante aéreo. Sin
3 embargo, el Capitán tenía 62 años de edad, lo que lo excluiría del servicio de piloto al mando en ciertos países. EDAD MAXIMA EN TURQUIA DE 65 AÑOS

La investigación no pudo verificar las actividades de los miembros de la tripulación de vuelo durante su período fuera de servicio, antes de la llamada para el vuelo accidentado. Las evaluaciones post-mortum no estaban disponibles; por tal razón, la aptitud de la tripulación de vuelo no pudo ser verificada.

Una serie de eventos contribuyeron al accidente:

*** La disciplina de la tripulación de vuelo, la administración del recurso de la cabina, el cumplimiento con los procedimientos y capacidad básica de aviación.**

*** Poco conocimiento de la aeronave por parte de la tripulación de vuelo: sistemas de la aeronave, indicaciones de velocidad relativa; piloto automático, procedimientos de la aeronave, selector de fuente de instrumento de alternativa, vuelo con velocidad relativa poco confiable.**

*** Prácticas de mantenimiento - la falta de cumplimiento, al no instalar las cubiertas del sistema pitot mientras la aeronave estuvo parada en tierra, la falla de ejecutar las pruebas para el retorno a servicio del sistema pitot estático después de un buen tiempo en tierra.**

FACTORES ADICIONALES:

*** Puede que la tripulación de vuelo no estuviera física y moralmente descansada y preparada para volar en el viaje debido a la llamada inesperada de la tripulación que se encontraba en su tiempo libre.**

*** La edad del Capitán (62 años) le excluía de actuar como piloto al mando en ciertos países.** (AUNQUE EN TURQUÍA ERA LEGAL).

*** El entrenamiento de la compañía Birgenair no incluyó administración de recurso de tripulación y era una combinación de entrenamiento de fuente exterior que le faltaba continuidad y enfoques integrados para llevar al máximo la eficiencia de la tripulación de vuelo.**

FAA
REC #4

* El Manual de Operaciones del Boeing 757/767 no contiene información detallada señalando los procedimientos de la tripulación de vuelo con las listas de verificación apropiadas, para señalar una discrepancia en las indicaciones de la velocidad relativa, la activación simultánea de la compensación de la velocidad/match y relación del sistemas EICAS, avisos y vuelo con velocidad relativa poco confiables.

* El sistema EICAS de la aeronave B-757/767 de la Boeing no incluye una alerta de "precaución o aviso" cuando una señal de indicación de velocidad relativa errónea es detectada.

4.- RECOMENDACIONES

Como resultado de la investigación la Junta Investigadora de Accidentes Aéreos, (JIAA) organismo investigador de la Dirección General de Aeronáutica Civil de la República Dominicana, hace las siguientes recomendaciones de seguridad:

A La Organización de Aviación Civil Internacional

* Emitir un directivo de aeronavegabilidad requiriendo que el manual de vuelo del Boeing 757/767 sea revisado para notificarle a los pilotos que la activación simultanea de los avisos "MACH/SPD TRIM" and "RUDDER RATIO" es una indicación de discrepancias en la indicación(Velocímetro).

4
A LA FAA

* Requerir al grupo de aeronaves comerciales de Boeing que modifique el sistema de alerta a la tripulación , del Boeing 757/767 para incluir "un aviso de precaución" (CAUTION ALERT) cuando una indicación de velocidad errónea sea detectada.

5 A LA FAA

* Requerir al grupo de aeronaves comerciales de Boeing, que modifique el Manual de Operaciones del Boeing 757/767 para incluir en la sección de emergencias un procedimiento detallado sobre "Identificación y Eliminación de una indicación de velocidad errónea"

* Emitir un boletín de información de vuelo (Flight Standard Information Bulletin) dirigido a los inspectores de operaciones para que se aseguren que en los manuales de operaciones de los operadores del Boeing 757/767 se incluyó un procedimiento detallado sobre "Identificación y Eliminación de una indicación de velocidad errónea".

* Emitir un boletín de información aeronáutica notificándole a los inspectores de operaciones las circunstancia de este accidente, para que estos se aseguren que en los entrenamientos se haga énfasis sobre la importancia de reconocer un malfuncionamiento de la indicación de la velocidad durante la carrera de despegue.

* Asegurarse que todos los entrenamientos del Boeing 757/767 tengan en el simulador de vuelo un escenario donde el piloto sea entrenado para responder apropiadamente a los efectos de un "Tubo Pitot Bloqueado".

6 A LA OACI

* Que cada empresa aérea tenga un manual de entrenamiento específico y especializado para el tipo de operación que conduce la línea aérea. Sin tomar en cuenta el entrenamiento genérico que reciben las tripulaciones de vuelo ofrecidos por empresas dedicadas a la venta de entrenamiento (Academias , escuelas, etc.)

* Que se establezca como un requisito que todas las empresas aéreas comerciales incluyan dentro de su programa de entrenamiento que las tripulaciones de vuelo sean entrenadas en el "Uso de Administración de Recursos de Cabina" (Crew Resource Manegement CRM).

*Que sean revisados los requerimientos de entrenamiento existentes para lograr una mayor eficiencia de las tripulaciones de vuelo.

Boeing Commercial Airplane Group
P.O. Box 3707
Seattle, WA 98124-2207

RECEIVED
JAN 17 1997
NTSB — MIA

January 16, 1997
B-B600-15936-ASI

Mr. Jorge Prellezo
National Transportation Safety Board, SERA
8405 N.W. 53rd Street
Suite B-103
Miami, Florida 33166

BOEING

Subject: Alas Nacionales/Birgenair 757-200 TC-GEN Accident After Takeoff at Puerto Plata, Dominican Republic - 6 February 1996

Reference: Draft of DGCA Final Report on subject accident

Dear Mr. Prellezo:

We received a copy of the reference draft report and were invited to provide Boeing comments.

We have done an unofficial translation at Boeing of the Analysis, Conclusions, and Recommendations sections. We have enclosed a copy of our translation for your information. The following are our comments on these sections of the draft report:

A. ANALYSIS

On page 18 of the report, it was stated that during a flight test, Boeing had inadvertently entered a similar flight profile (as the Birgenair airplane) and they were able to recover the aircraft control with recovery techniques of entry recovery in normal loss.

Boeing Comment: The data provided from the Boeing flight test was used to identify similarities with the Birgenair FDR data. This sentence seems to emphasize the recovery from the stall condition; Boeing recommends that the paragraph be reworded to emphasize the importance of not getting into a stall condition. We suggest that the sentence be reworded to read:

"The Boeing Company informed the investigators, that during a flight test of an airplane in development, the test crew had inadvertently entered a similar flight profile and recovered the airplane. The data from the flight test was only used to identify similarities with the Birgenair FDR data."

B. CONCLUSIONS

On page 22, under "Additional Factors", the first item states that the flight crew may not have been physically or morally rested and ready to fly due to the unexpected call to the crew, who was not on duty.

Boeing Comment: We suggest the sentence be reworded to state that the pilots may not have been physically or mentally rested...

C. RECOMMENDATIONS

The first recommendation is to issue an airworthiness directive requiring a revision to Boeing's 757/767 flight manual to notify the pilots that simultaneous activation of the MACH/SPD TRIM and RUDDER RATIO messages is an indication of discrepancies in the airspeed indication.

BOEING Boeing Comment: These messages can be generated by a number of causes other than an airspeed discrepancy, and so may not indicate an air data fault. Boeing questions the desirability of using the joint appearance of advisory messages about two different systems as the basis for inferring the status of a third system, especially when the systems do not have an obvious link in most pilot's minds. For these and other reasons, Boeing's training and other materials emphasize early recognition of erroneous airspeed indications (for example, the 80 knot call-out during the takeoff roll, flight crew monitoring all basic flight instruments and pilot familiarity with basic pitch, power and airspeed relationships.)

Thank you for the opportunity to comment on the draft report. If you have any further questions, please do not hesitate to contact me at any time.

Very truly yours,

John W. Purvis
Director, Air Safety Investigation
Org. B-B600, M/S 67-PR
Telex 32-9430, STA DIR PURVIS
Phone (206) 237-8525
Fax (206) 237-8188

Enclosure : Translation as noted

cc: Mr. R. MacIntosh, NTSB

REPUBLIC OF TURKEY
MINISTRY OF TRANSPORT AND COMMUNICATIONS
DIRECTORATE GENERAL OF CIVIL AVIATION

Ankara, 15/04/1997

DGCA: B.11.0.SHG.0.13.04.00/USD-1483
SUBJ: TC-GEN accident report

Mayor Emmanual Suffront
Chief of the Investigation Team
DOMINICAN REPUBLIC
Direccion General de Aeronautica Civil
Fax : (809) 221 8616

Ref.: a) Your letter, 04146, dated 25 October 1996.
b) Our letter, B.11.0.SHG.0.13.00.02/USD-7283 of December 3, 1996.
c) Our letter, B.11.0.SHG.0.13.00.02/USD-563 of January 24, 1997.
d) NTSB's fax message dated 3 April 1997.

Dear Mr. Suffront,

Receipt of the accident report on the accident of aircraft B757-200 with registration marks TC-GEN belonging to Birgenair which crashed into the Atlantic Ocean shortly after take-off from Puerto-Plata airport on February 6, 1996, termed as final and received enclosed with your letter under reference a) was acknowledged per our letter under reference b).

Whereas, the final report of the investigation team formed according to ICAO Annex 13 should have also contained the comments and recommendations of all concerned authorities, it does n[illegible] reflect the opinion and recommendations of the DGCA of the country of registry Turkey.

Despite all this, we have previously per our letter under reference [illegible] brought to your attention that we do not agree with some poi[illegible] raised in the report mentioned above.

ADDRESS [illegible] Cad No.5 [illegible] ANKARA TEL (312) 2126730 FAX (312) 212 46 84 TLX 43659

Meanwhile, from the fax letter sent by NTSB referred to under d) above we have learned that our message conveying our comments and recommendations on the report was not received by you. We therefore enclose once again our comments relating to the report with the request that they be included in the final report.

We kindly request once again that our above comments and suggestions be re-considered and included in the report in accordance with ICAO Annex 13.

We should also appreciate receiving the CVR original sound copy.

Yours sincerely,

Haydar YALÇIN
Accredited Rep.
Turkish DGCA

Encl.: Comments of the Turkish DGCA

ADDRESS: Bosna Hersek Cad.No:5 06338 Emek ANKARA TEL.(312) 2126730 FAX (312) 212 46 84 TLX 44659

REPUBLIC OF TURKEY
MINISTRY OF TRANSPORT AND COMMUNICATIONS

DIRECTORATE GENERAL OF CIVIL AVIATION

Ankara, 24/01/1997

DGCA: B.11.0.SHG.0.13.04.00/USD-563
SUBJ: TC-GEN accident report

Mayor Emmanual Suffront
Chief of the Investigation Team
DOMINICAN REPUBLIC
Direccion General de Aeronautica Civil
Fax : (809) 221-8616

Ref.- Our letter B.11.0.SHG.0.13.00.02/USD-7283 of December 3, 1996.

Dear Mr. Suffront,

As I have stated in my referenced letter in my capacity, according to ICAO Annex 13, as accredited representative of the state of registry, I would like to present below our views and comments on some points in section "2. Analysis" and "3. Conclusions" of your report on the accident of aircraft B757-200 with registration marks TC-GEN belonging to Birgenair which crashed into the Atlantic Ocean shortly after take-off from Puerto-Plata airport on February 7, 1996:

In section **2.2** of your report, headed **"Operational Factors"** it is stated that:

1- "it was determined that the flight crew members although duly licensed to operate B757 type aircraft in accordance with international rules and procedures, were not adequately trained to identify and examine the abnormal situation arisen during the flight and take necessary actions and that their knowledge about flight systems was insufficient. Also the investigators concluded that an atmosphere of confusion among the three members of the cockpit crew was continuing which comes to show that the confusion was due to lack of airplane system knowledge and lack of application procedural discipline."

Whereas, all three members of the flight crew have undergone and successfully completed a training program approved by the U.S. Federal Aviation Administration FAA conforming to international standards and released to operate B757 type aircraft. The pilot in command has a total of 1875 flight hours in this type of aircraft. There was no disorder in the cockpit, but an effort was deployed to identify the source of the irregularity and to find a solution to it which they failed. Therefore your assertion to the effect that they were not adequately trained is unacceptable.

In the safety recommendations A-96-15 and A-96-17 issued by NTSB relating to subject matter it is recommended that the Boeing 757/767 Airplane Flight Manual and Operations Manual be revised. This is a clear evidence that there existed a manufacturer's deficiency requiring remedial action.

2- "During the take off ground roll, although the pilot has established at the checkpoint of 80 knots that the speed indicator was not operative the airplane continued to accelerate contrary to established flight operations procedures."

Whereas, such a situation is left entirely to the decision of the pilot-in-command and there is no such a standard requiring discontinuance of the flight. It would have been more realistic if this situation was stated in the report as "it would have been better if the pilot-in-command had decided without taking any further risk to discontinue the flight as soon as he determined at the checkpoint of 80 knots that the speed indicator was not operative."

3- "However, the flight crew did not seek to clarify the meaning of the advisory alerts or to take any corrective action in response to them."

whereas, this assertion is contradictory with the various sections of the report where it is stated that: "the co-pilot checked his speed indicator and found it to be erroneous, circuit breakers were reset, an air speed indicator in the center of the instrument panel was looked at, the pilot-in-command exchanged opinions with other cockpit crew members to make a choice between alternatives, i.e.whether the flight should go on or turn back, the pilot-in command tried to keep the altitude hold by lowering the nose of the aircraft."

In the safety recommendation A-96-16 issued by **NTSB** relating to subject matter it is recommended that the Boeing Commercial Airplane Group modify the crew alerting system of the Boeing 757/767 to include a "caution" alert when an erroneous airspeed indication is detected.

Therefore the former assertion should be corrected to read that "the flight crew made some efforts to take necessary corrective actions but were unsuccessful" or the like.

Under section **2.3** of your report, headed **"Airplane Maintenance Factors"** it is stated that:

4- "It was determined that the airplane was not maintained on the ground in Puerto Plata according to the recommended maintenance practices."

Whereas, there is no unimplemented measure by the operator's maintenance personnel <u>required</u> by the manufacturer regarding the maintenance on the ground. Therefore, a statement to the effect that "necessary care was not exercised in closing the pitot tubes while the aircraft was on the ground as <u>recommended</u> maintenance procedure of the manufacturer", would have been more appropriate. In fact, as indicated in the report, the pitot tube was not found in the sea. Therefore, this argument remained unconfirmed.

5- It is stated that "an engine inspection was performed that required a ground engine runup. The investigators believe that engine covers and pitot covers were not installed prior to or following the engine runup."

whereas, inasmuch as unattached engine covers may be easily noticed from outside this presumption seems rather grave. Therefore it is kindly requested that this statement be deleted.

In section **2.4** of the report under heading **"Flight Crew Suitability for Duty"** it is stated that;

6- "All 3 flight crew members had current medical certification indicating suitability for air crew duty. However the captain was 62 years of age, which would preclude him from pilot-in-command duty in certain countries."

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Whereas, according to the Turkish Civil Aviation Regulations the flight crew could be assigned an active flight duty until the age of 65 and ICAO has been notified about it as a "national difference". Therefore, the above statement should either be corrected or deleted.

In section 2.5 of the report under heading **"Government and Company Airline Management"** it is stated that:

7- "Investigators believe that this accident is an indication that international requirements for air crew training have not kept pace with the air transport industry, and airplane development. Investigators further believe that individual airworthiness authorities (and the ICAO Air Navigation Committee) should review training requirements to improve the focus to maximize air crew proficiency."

Whereas, the training centers are subject to the periodic inspections of the respective civil aviation authorities. One major reason for the periodic performance of the inspections is to verify whether the technological developments in the air transport industry have been reflected in the training programs. Under this supposition, the training center approved by the U.S. FAA was validated by our authority.

In the safety recommendation A-96-20 issued by NTSB relating to subject matter it is recommended that all Boeing 757/767 training providers include an effective scenario in the flight simulator during which the student is trained to appropriately respond to the effects of a blocked pitot tube. This is another evidence that there existed a manufacturer's deficiency in this field requiring remedial action.

In section 3. of the report under heading **"Additional Factors"** it is pointed out that;

8- "Birgenair company training did not include crew resource management and was a combination of outsourced training which lacked continuity and integrated focus to maximize flightcrew proficiency."

Whereas, to benefit from foreign sources Birgenair has sent its flight crews to get recurrent training to FAA-approved training center.

This problem was due not ... irgenair's training program lack of subject matter but to the fact that the existing training programs of the training providers, as pointed out by the NTSB, did not cover it.

We strongly request that our above comments and suggestions to be considered and included in the report in accordance with ICAO Annex 13.

Yours sincerely,

[signature]

Haydar YALÇIN
Accredited Rep.
Turkish DGCA

ADDRESS [illegible] ANKARA TEL:(312) 212[illegible] FAX:(312) 212 46 84 TLX:44659

TOTAL P.06

BIRGENAIR

TO : DIRECTORATE GENERAL OF CIVIL AVIATION
OF DOMINICAN REPUBLIC

ATT : Mr. Emmanuel M.SOUFFRONT-Mayor Piloto, FAD
President of the Investigation Board of Aircraft Accidents

CC : NTSB

FAA

TURKISH CAA

BOEING COMMERCIAL AIRPLANE GROUP

ROLLS-ROYCE INC.

FLUGUNFALLEUNTERSUCHUNGSSTELLE
BEIM LUFTFAHRT BUNDESAMT

THE MINISTRY OF FOREIGN AFFAIRS OF THE
REPUBLIC OF TURKEY

Page(s) : 21 12 June 1997

Dear Sirs,

We would like to present you attached, our comments for the report issued by Dominican Republic General Directorate of Civil Aviation on November 4, 1996 for the accident of TC-GEN, B757-225.

We do hope those comments will positively contribute for the accomplishment of the final report.

Yours Sincerely,

Mr. Çetin BIRGEN
President, C.E.O.
BIRGENAIR

BIRGENAIR

BIRGENAIR COMMENTS

on the Report of the

Directorate General of Civil Aviation
of the Dominican Republic,
Accident Investigation Commission

relating to the investigation of the accident involving
a Boeing 757-225 aircraft on February 7, 1996
near Puerto Plata

operated by BIRGENAIR

June, 1997

BİRGEN HAVACILIK ÇARTER GRUBU TİC. VE SAN A.Ş.

Merkez

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I. General:

In the opinion of BIRGENAIR the Report of the Directorate General of Civil Aviation of the Dominican Republic, Accident Investigation Commission (later referred to as „AIC") relating to the investigation of the accident involving a BOEING 757-225 aircraft on February 7, 1996 near Puerto Plata operated by BIRGENAIR, is flawed and misleading in many material respects.

This critique is not primarily directed at 'minor' discrepancies, such as the erroneous indication of the date of the accident as the Report refers to UTC which means it took place on February 7, 1996 about 03:45 UTC, rather than February 6 or the erroneous indication of the time the plane was on ground prior to the ill-fated flight, or the partial indication of 'ground speed' (GS). Correctly, it could only mean 'Indicated Airspeed' (IAS).

Still, these examples alone point to an obvious lack of care in dealing with facts, a lack which has elsewhere left an imprint of far weightier consequences.

This drift is clearly reflected in the very first sentence of the **'Conclusions'**, item 3, which in relation to the crew speaks of ***„lack of skill, incompetence"*** and ***„confusion"***, while not mentioning **other essential factors**, as for example the documentation of the manufacturer of the aircraft who provided the information on the operation of the aircraft by approved Training and Operation Manuals.

The Report assumes in part as a fact what is actually untrue and hence comes to inaccurate or downright false conclusions. This refers for example to a poor and partially **false translation** of the original conversation of the cockpit crew (CVR - transcript) and by taking **wrong values** from the FDR printouts (such as altitude, ground speed, indicated airspeed etc.).

In part, the Report takes little or no cognisance of demonstrable facts and thereby slants the picture as to the causes of the accident and the contributing factors.

According to **ICAO Annex 13, 8th edition**, in evaluating an accident, it is not enough to focus on just those factors that belong to a chain of events leading to the accident; **instead, it is also necessary to dwell on those that made it more difficult to institute effective accident-avoidance measures**. The one and only purpose of an accident investigation according to Annex 13 is to prevent future accidents and mishaps. Hence the need to investigate above all those factors, or **lacking** in any one particular instance, that might have avoided the mishap.

The Report at hand falls far short of this basic principle. Had these factors been correctly and appropriately evaluated, the Report would have led in part to different conclusions, or the findings, the analysis and the recommendations would have had a different centre of gravity.

Further, there had been no draft of this Report handed out to the parties involved in the accident investigation prior to the publication of this Report in November 1996 at Santo Domingo. The exchange of information concerning the findings and the research has to be named „very poor". Essential members of the investigation commission , like the representative of the Turkish CAA, have not been informed, neither invited to the final meetings prior to the publication of the Report, which had been held at Miami, USA during September/October 1996.

The Report states under 1.6., last paragraph:

> ***"When the aircraft crashed into the Atlantic Ocean approximately 14 miles north-east of Puerto Plata two seconds later, these parameters changed to - 34.3 degrees pitch attitude and - 34.6 degrees bank."***

Therefore BIRGENAIR objects that the Dominican Authorities would have been legally in charge with the conducted investigation because the aircraft crashed outside the territories of the Dominican Republic.

According to the international regulations set fourth at ICAO Annex 13, 8th edition, chapter 5.3. and 5.3.1, the fact that the crash has occurred 14 (fourteen) nautical miles outbound from the Puerto Plata VOR on the 52 degree (true) places the accident site at least 8 (eight) nautical miles from the shore line. Dominican territorial waters are claimed to be 6 (six) nautical miles. This indicates that the investigation authority in charge with the accident investigation should have been the Turkish CAA as the state of registry of the aircraft and not the Dominican Republic DGAC.

Therefore BIRGENAIR highly objects the investigation authority of the DGAC of Dominican Republic and demands to hand over all materials and pieces of evidence like the FDR and the CVR, respective documents, protocols, research results, film- and photo-materials held in possession of the Dominican Authorities for a review of the investigation under the lead of the Turkish CAA as the state of registry.

Further BIRGENAIR disagrees and objects totally this report, prepared by the Dominican Republic D G A C, A I C.

If the Dominican Authorities disagree about this fact, the following objections should be incorporated and appropriately reflected into the „n e w" Final Accident Report. Further this new Final Accident Report should be presented and discussed prior to publication with all respective parties involved in the accident investigation as there are:

Dominican Republic DGAC, Turkish CAA, NTSB, German Flugunfall-Untersuchungsstelle (FUS), BOEING Commercial Airplane Group, Rolls Royce and BIRGENAIR.

II. In Detail:

1. BIRGENAIR disagrees on the opinion of the AIC that:

"Approximately 2 1/2 hours before the departure the Operations Department notified the crew that the planes and the crew were to be changed due to mechanical malfunction in the BOEING 767 aircraft assigned to the flight.
The new crew reported at the airport at around 02:15 hrs. There has been a further delay of more than an hour due to the delay of a stewardess."

The accident flight was a sub-charter by the Dominican carrier ALAS NACIONALES as a substitution for the BOEING 767 which could not be dispatched because of technical reasons. The respective CEO of ALAS NACIONALES, Captain Peter Dirim himself, decided to change the aircraft, when he had received information on the technical problem of the BOEING 767.

Therefore it was a direct request from ALAS NACIONALES to BIRGENAIR for the substitution of the aircraft. As the accident flight was a substitution aircraft, it was consequently normal to have a delay in departure.

2. BIRGENAIR disagrees on the opinion of the AIC that:

"The take-off presented a normal pattern and at 03:42:27 hrs the Captain announced that his speed indicator was beginning to operate. At this moment the aircraft had an altitude of 576 feet and 121 knots ground speed."

As a matter of fact the Captain never announced that ***„his airspeed indicator began to operate"***. This statement was made by the First Officer and he was possibly not referring to the Captain's airspeed indicator, but to the engagement of the L-NAV mode, as this is a common procedure among BIRGENAIR pilots. At this time the altitude was not 576 feet and the ground speed not 121 knots. According to the data of the FDR published in the Annex of the Report it was 608 feet and 195 knots ground speed, respectively.

In the following paragraphs of the Report continuously the same kind of error is made in ground speed versus indicated airspeed and altitude information.

This alone already puts serious doubt in the qualification of the investigator in charge who had finally approved this Report prior to publication in November 1996.

3. BIRGENAIR disagrees on the opinion of the AIC that:

"At 03:44:07 hrs, at the altitude of 3,500 feet and with a ground speed of 273 knots the Captain ordered to engage the central auto-pilot and at that

instant the confirmation of the engagement of the Auto-Throttle, V-Nav and L-Nav appeared."

According to the Annex FDR print-outs of the Report, the **auto-thrust** „take-off mode" was already engaged at 3:42:12 during the take-off roll, as it is standard procedure in this type of airplane for take-off.

The **auto-throttle** was engaged at 03:43:13 when **„climb-mode"** became operative. The **„L-NAV mode"** was engaged at 03:42:25 and **„V-NAV"** was engaged at 03:43:06, as it is standard procedure for this type of aircraft and described in the respective chapters of the Aircraft Operation Manual and Training Manual. Whenever one of the modes mentioned previously is engaged or becomes operative, it will be displayed in the primary flight display (PFD) in front of the pilots.

As stated already prior, speed and altitude information given for this time do not match those given in the Annex, FDR printout.

4. BIRGENAIR disagrees on the opinion of the AIC that:

"At 03:44:25 the EICAS gave the Captain a warning message indicating 'Rudder Ratio / Mach Airspeed Trim'. Then at 03:44:28 hrs the Captain announced that something abnormal was happening and he repeated the same 15 seconds later."

At this time the Captain read the EICAS **advisory** message 'Rudder Ratio / Mach Airspeed Trim', while the First Officer was occupied with ATC conversation and repeated this message after he had ended the radio communication. An advisory message does not represent a warning or **caution** message.

5. BIRGENAIR disagrees on the opinion of the AIC that:

"At that moment the aircraft had an altitude of 5,344 feet, a ground speed of 327 knots and a pitch attitude of + 15.1 degrees and the Captain told the First Officer that both indicators were wrong and asked „what can we do?", ordering immediately that the circuit breakers be checked."

Again a wrong speed and altitude information is presented in the Report. The values according to the FDR- printout have been:

5,248 feet and a ground speed of 212 knots. The Captain did not ***'order'*** that the circuit breakers should be checked, he merely ***'suggests'*** it to the other crew members, which was then performed.

6. BIRGENAIR disagrees on the opinion of the AIC that:

"At 03:45:04 hrs, the Captain commented that when an aircraft remains on the ground for a certain while, it is usual that elevator asymmetry and other anomalies occur and 7 seconds later he said „we do not believe them" (referring to the EICAS message)"

It is not clear whether the Captain referred to the EICAS messages or if he referred to the airspeed divergence. Here the Captain might as well express his opinion, - based on his experience - that anomalies of the respective nature might occur when an airplane was parked on ground for some time.

That statement might express his thoughts of what could be the cause for the EICAS advisories, as there is **no specific information relating to these problems contained in the respective manuals, nor was any information given in the checklists as to what might have caused this combination of messages.**

7. BIRGENAIR disagrees on the opinion of the AIC that:

"At 03:45:28 Saying „it doesn't matter", the Captain ordered that the circuit breaker of the overspeed signal be disregarded and switched off. At that moment the aircraft had an altitude of 7,040 feet, speed of 349 knots and pitch attitude of + 14.8 degrees."

The Captain rightly says "It doesn't matter" because he was aware that he could not enter an overspeed condition with this pitch and thrust settings, so therefore this warning was clearly identified as an **erroneous overspeed-warning**.

Because the aural warning horn imposes an enormous uncomfortable working condition in the cockpit and contributes to the stress factor, the Captain rightly asked to silence this false warning by pulling the respective circuit breaker.

At that moment the aircraft according to the FDR- printout did not have an altitude of 7,040 feet and a speed of 349 knots (IAS), but 6,784 feet and 353 knots (IAS), 199 knots (GS) respectively.

8. BIRGENAIR disagrees on the opinion of the AIC that:

„At 03:45:52 hrs the sound of the stick shaker was began to be heard. The central Auto-pilot was still engaged whilst the Auto-Throttle and V-Nav were both disengaged...This pitch attitude was variable from +21.0 to + 5.0 degrees."

All the following paragraphs of the Report reflect lack of care in dealing with the factual information of the FDR and CVR readouts. This refers to timing, airspeed, ground speed, EPR settings and disengagement of automated systems like auto-throttle and autopilot systems.

The autopilot-system was disengaged. It was not researched by the AIC whether it disengaged by itself, as designed when the programmed bank and pitch limitations are exceeded, or by manual input of the crew, while the throttles have been adjusted manually back to climb power as described and recommended in the BOEING 757 Training Manual by section 3.18 **„Approach to Stall Recovery"**.

It was further not researched by the AIC either, whether the crew disconnected the auto-throttle system or it disengaged itself because of the overspeed protection built into this system which had already exceeded its maximum speed values by the previous (erroneous) overspeed warning. As well the different technical consequences of these options have not been properly evaluated by the AIC.

9. **BIRGENAIR disagrees on the opinion of the AIC that:**

"At 03:46:31 with an altitude of 5,984 feet, ground speed of 193 knots and pitch attitude of +14.4 degrees, the power setting of both engines returned to slow (EPR L= 1.162 EPR R= 1.146) and great confusion reigned in the cockpit"

This statement is not justified and misleading. The Captain had realised that the aircraft was not following his steering commands and he communicates this to the other crew members. This is clearly reflected by the remark of the Captain at 03:46:23 ***„Disconnect..., is the Autopilot out of the circuit?"***. It is understood that the Captain must have had the impression that the automated system was counteracting on his control inputs.

As a consequence the First Officer proposed to stop the descent by a level-off manoeuvre. For easier reference to the Captain he suggested to engage the altitude hold mode which will display the flight director information on the primary flight display for the selected altitude of 5,000 feet.

Because of a technical and a design related problem there might even be a second option: If the autopilot system was not totally disconnected (as it has been reproduced several times in various BOEING 757 flight simulators after the accident) the autopilot ***could re-engage when normal pitch and bank attitudes are achieved again*** and then will try to maintain the selected altitude. This might happen if the autopilot disconnect button at the control wheel is not pushed after the aural warning and EICAS message referring to autopilot disengagement.

As a consequence the autopilot might try to maintain the climb profile (or the selected altitude) by resetting the horizontal stabiliser. The indication of the stab-trim position is only displayed at the indicator at the centre pedestal, not in the normal visual range of the crew. There is no aural signal which might notify of trim changes performed by this automated feature. When the stab is moved to the full nose up position of + 15 degrees, it will take more than 20 seconds to trim it back to the neutral position.

As well for the auto-throttle system an undesired re-engagement might occur when the auto-throttle is not totally disconnected by pushing the corresponding switch at the glare-shield panel.

These options have never been researched by the AIC nor have they been discussed in the Report.

10. BIRGENAIR disagrees on the opinion of the AIC that:

"Twenty one (21) seconds later, at 03:46:52 hrs., the Captain inquired about the power setting and the First Officer replied that they were at „retard".

Again, the timing given in the Report is wrong. Exactly one (1) second and not twenty one (21) seconds after the First Officer engaged the altitude hold and verbally confirms this, the Captain asked about the power setting and thrust lever position.

11. BIRGENAIR disagrees on the opinion of the AIC that:

"At 3:46:57 the power of both engines increased (EPR L = 1.523,EPR R=1.646) but at 03:46:59 the power of the left engine returned idle and the starboard one remained at maximum (EPR L= 1.251, EPR R= 1.622)."

Again the timing is wrong. Exactly at 3:46:55 the power of both engines increased, but four seconds later the EPR of the left engine dropped down to idle values within two seconds. At the same time the left engine EGT increased sharply, while the right engine EGT shows a modest increase. This might be an indication of quite some evidence that a compressor stall occurred in the left engine.

12. BIRGENAIR disagrees on the opinion of the AIC that:

"At 3:47:03, with an altitude of 3,520 feet, non-indicated ground speed, a pitch attitude of - 53.3 degrees which was increasing until - 80.0 degrees and a bank of - 99.8 degrees, the power asymmetry remained practically the same."

At this point in time there has been no IAS indication. From the data of the FDR it is evident that the aircraft entered a roll which led to a violent 360 degree roll to the left because of the loss of thrust at the left engine and not merely a 'bank of - 99.8 degree'.

13. BIRGENAIR disagrees on the information presented in the Report by the AIC, in reference to section 1.10 „airfield information".

The Report does not say that there are massive rocks placed at the end of the runway 08 at Puerto Plata which impose the risk of a total hull loss in case of an overrun. This fact was known to the crew.

Also it is not mentioned that the fire fighting capacities at Puerto Plata are known to be poor as it would have been demanded in case of an aborted take-off for cooling the brakes and prevention of brake-induced fire

14. BIRGENAIR disagrees on the information presented in the Report by the AIC, in reference to section 1.11 „Flight recording instruments".

The Report hides that contrary to the procedures agreed upon among the parties involved in the accident investigation, specially the representatives of BIRGENAIR and the Turkish CAA, the FDR and the CVR were opened and read out without the presence of the later named members of the official accident investigation commission. Neither the original CVR tape nor the FDR tape, despite several official requests, have so far been made available to them for their own analysis.

According to the equipment log of „TC-GEN" the Flight Data Recorder was a **Sundstrand**, Part No. **980 4100 DXUN** Serial No. 6596. **According to the** readout graphs presented by the NTSB and handed out by the IIC the readouts were performed on a FDR **Allied Signal**, Part. No. ? - **DXUS**, Serial No. 6596.

15. BIRGENAIR disagrees on the opinion of the AIC that:

„Evaluation of Recordings: ...It was also observed that Calibrated Airspeed (CAS) values did not correspond with other recorded parameters and therefore those should be considered invalid."

According to **Annex 2** of the Report, **„Correlacion de la grabadora de voz y de vuelo del BOEING 757, matricula TC-GEN"** at UTC 03:44:16 the Captain had selected the right ADC. The AIC never researched or reproduced the technical backgrounds and their consequences if a pitot system fault has occurred. The false data recorded by the FDR at this moment might be very well related to the respective system features and its design. If so, it further indicates that the Captain was in doubt of his speed indication and switched to his alternate source. As the readings might have not been plausible or at the same time not have given considerable variation because of the speed actually flown with regard to the outside pressure, there is a high probability that he switched back to his original source, which would have been the left ADC.

16. BIRGENAIR disagrees on the information presented in the Report by the AIC, in reference to section 1.17 „Organisation and Administration".

16.1. The Headquarters of BIRGENAIR is located in Istanbul. For the time during which the BOEING 757 performed some additional flights between the Dominican Republic and Germany in the winter of 1995/96, some staff-members of the maintenance- and the operation-department had been transferred and based at Puerto Plata to co-ordinate between ALAS NACIONALES and BIRGENAIR.

16.2. ALAS NACIONALES, not BIRGENAIR, had signed an agreement with AIRLINE SERVICES COMPANY.

16.3 The training of BIRGENAIR Flight-Crews was provided as follows:

Captain **Ahmet Erdem** received his initial type-rating on BOEING 757 in May 1992 at British Caledonian Flight Training from Sussex, England. The simulator-training was performed at the British Caledonian Flight Training Center at Palma de Mallorca, Spain.

His annual proficiency checks were exclusively performed at UNITED AIRLINES FLIGHT TRAINING CENTER at Denver, USA.

Captain Erdem held other type-ratings (e.g. among others: DC 8 and BOEING 737) were he received type rating and training either with UNITED AIRLINES FLIGHT TRAINING CENTER at Denver or directly at BOEING FLIGHT TRAINING CENTER at Seattle, USA.

16.4. For type rating and proficiency checks BIRGENAIR was using the BOEING 757 Flight Crew Training Manual of BOEING COMMERCIAL AIRPLANE GROUP, Seattle Washington, USA, Revision no 8 and from June, 1995, the revision no. 9.

16.5. For Aircraft Operation Manual BIRGENAIR was using the original BOEING Operation Manual with update and revision services provided by BOEING COMMERCIAL AIRPLANE GROUP since 1992. The latest update prior to the accident by BOEING COMMERICAL AIRPLANE GROUP was November 28, 1995.

16.6. The First Officer, **Aykut Gergin** and the Relief Captain **Mulls Evrenesogolu** were only employed by November 1995. Before working with BIRGENAIR they had been employed by AKDENIZ (Turkish Charter Airline). In early 1995 AKDENIZ intended to start an operation with BOEING 757/767 aircraft. Therefore they sent the two pilots to the PAN AM FLIGHT ACEDEMY at Miami for initial training and type-rating which was accomplished successfully at the end of February, 1995.

At the time of the accident these two pilots were still under a 200 hour supervision, which is a company procedure with BIRGENAIR. Both pilots had successfully accomplished their annual proficiency check at the PAN AM FLIGHT ACEDEMY at Miami on January 28, 1996.

16.7. The mechanics of BIRGENAIR received their training in March 1992 at BOEING COMMERCIAL AIRPLANE GROUP, Seattle and, in April 1994, with AIRLINE MAINTENANCE TRAINING INC. at Charlotte, North Carolina, USA. The instructor was Malcom Ready, a former BOEING instructor.

According to the agreements with the Turkish CAA, the type-ratings and proficiency checks performed by an FAA approved training facility in the USA, as it is the case with those mentioned above, are accepted and approved by the Turkish CAA as well.

17. BIRGENAIR disagrees on the information presented in the Report by the AIC, in reference to Analysis in section 2.1 „General".

17.1. ***"...practically cancels weather conditions as a contributing factor in the accident."***

This statement is incorrect. At the time when the aircraft was at the gate, during taxi and take off-roll there was heavy rain reported at Puerto Plata. A research conducted after the accident in general accident history revealed that there have been numerous cases where rain water had entered the pitot tube and had affected the operation of the connected systems. **As the real cause for the presumed pitot-tube blockage was not determined by the accident investigation commission, the weather should without any doubt be considered a possible contributing factor.**

17.2 ***"The performance of the engines was consistent with the values designated by the manufacturer and certified by aviation authorities."***

This statement is incorrect. At 3.46.58 the left engine started to spool down to idle, while the EGT even increased. This is some indication for a possible compressor stall which would have clearly reduced the options available to the crew to recover the aircraft from this critical situation.

18. BIRGENAIR disagrees on the information presented in the Report by the AIC, in reference to the Analysis in section 2.2. „Operational Factors".

18.1. ***"However it is understood that the crew members have not been properly trained to recognize, analyze and correctly intervene in the abnormal circumstances that occurred during that flight."***

This statement should be erased from the Report. The crew failed to resolve the critical and unusual situation because of **<u>lack of appropriate information in Training Manuals and Operation Manuals as provided by the aircraft manufacturer BOEING and the training facilities and having been approved by the FAA.</u>**

According to the official Flight Crew Training Manual, Revision no. 8 of BOEING 757 in combination with the BOEING Aircraft Operation Manual there is **no reference on how to cope with such an abnormal situation.**

In the revision 9 of the BOEING Flight Crew Training Manual for BOEING 757 as of June 1, 1995 Chapter 4.57 for the first time there is a paragraph concerning 'FLIGHT WITH UNREALIABLE AIRSPEED INDICATION'. It says: *<u>"If the flight crew is aware of the problem</u>* **(of unreliable airspeed indication)** *<u>flying without the benefit of valid airspeed information can be safely conducted and should present little difficulty</u>*." It has to be stressed that this revision was not valid and common knowledge at the time when the Captain performed his last check-ride in March, 1995.

But even if it would have been known by him, it clearly could have reduced his conscience for the lethal danger encountered in this particular flight.

BIRGENAIR, like many others Airlines, has no specific procedure which obliges the Captain to abort the take-off if an airspeed indicator is discovered to be malfunctioning at the 80 knots-callout. Company policies among Airlines vary, for example British Airways would have continued the take- off. This is to the sole discretion of the Captain.

The information presented by UNITED AIRLINES as Annex 4 of the Report in reference to the take-off procedures is misleading because the Captain was trained in late March 1995, at what time this information **<u>was not contained in any manual</u>** and should therefore be excluded from the Annexes. As well this information is not valid for the other cockpit crew members because they were trained with PAN AM FLIGHT ACEDEMY according to their procedures, approved by the FAA.

The official **BOEING Flight Crew Training Manual states in chapter 2.16 „Rejected Take-Off"**: ***"The pilot not flying should closely monitor essential instrument throughout the take-off roll and immediately announce the abnormalities such as engine fire, engine failure or any adverse conditions significantly effecting the safety of the flight. The decision to reject the take-off is the responsibility of the Captain and must be made prior to V1 Speed."***

In chapter 2.17 **„Rejected Take-Off"**, it is furthermore clearly stated that ***"the airplane should be stopped if an event occurs that would be considered undesirable for continuing the take-off roll. Examples include master cautions, unusual vibration or tire failure."*** Nothing is said about an airspeed indicator malfunctioning **<u>to constitute a reason to reject a take-off.</u>**

Taking into consideration that it should have been reasonable to abort the take-off once the crew had determined that the Captain's airspeed indicator was not working properly, clear focus should be given to the check and how it was actually performed during the accident flight. After the discovery that the Captain's airspeed indicator was not working at 3:42:26 where the airplane had accelerated to a ground speed of about 97 knots, the evaluation between the Captain and the First Officer in reference to a proper speed indication on the First Officer's instrument took another 6 seconds, by what time the airplane had accelerated to about 132 knots ground speed. At this speed the decision to not abort the take-off was justified, taking into account that the runway was wet from the previous tropical thunderstorm and there was still moderate rain. As well the fire fighting capacity at Puerto Plata for cooling brakes and fire prevention are known to be poor among the pilots. Further massive rocks are placed at the end of runway 08 threshold (see above).

18.2. „EFIS - Ground Speed"

To derive the True Airspeed (TAS) from the Ground Speed (GS) value displayed on the EFIS monitor and calculated by the IRS, it is required for the crew to know the prevailing wind (direction and force) and after mathematical calculation.

18.3. *"But the flight crew did not attempt to clarify the matter, nor did they take any remedial action."*

This conclusion is wrong by saying and is misleading. According to the valid checklist of BOEING Operation Manual it says for „Rudder Ratio": ***„Avoid large rudder inputs above 160 knots, - do not attempt auto-land."*** and for „Mach Airspeed Trim" it simply states: ***„Crew Awareness"***.

Even when not verbally mentioning the standby airspeed indicator, the crew might as well have referred to this by a gesture.

As there are no specific procedures contained in the Operation Manuals which to follow, the crew was trying to evaluate the problem by checking the circuit breaker of the respective systems. Therefore the crew **was trying to clarify the matter,** but their failure to successfully determine the underlying cause and the whole dimension of the problem was made more difficult by the lack of required and appropriate technical background knowledge on the interrelation of the respective aircraft systems, contained in the manuals, provided by the manufacturer and the training facilities and being approved by the FAA.

18.4. ***„The second pilot answered „Yes", but the Captain then said, „Alternate one is correct". Investigators concluded from these words that he was referring to the airspeed indicator in the middle of the control panel...None of the three flight crew members has suggested a comparison of existing indications or switching the „alternate source". Had this been done, the***

automatic pilot would take the airspeed indicated in the alternate source as a reference. Inadequacy of the flight crew in determining an appropriate mode of action and uncomprehending the decrease of ground speed seen on the screens are evidence of lack of full recognition of systems of the aircraft by the crew and the general atmosphere in the flight deck is an indication of their non-performance of Crew Resource Management (CRM) principles."

It had been the Relief-Captain on the observer-seat suggesting to the Captain at 03:44:56 hrs that the „Alternate is correct" which is recognised and repeated by the Captain. In the BOEING terminology, which is used among BIRGENAIR'S flight crews, the **„alternate"** refers to the **alternate air data source**. The „standby airspeed indicator" is referred to as „standby".

Possibly the First Officer understood this as an order to select his alternate source by pushing the button marked „ALTN" on his panel. This is confirmed by his statement later on at 03:45:40 hrs, that his speed is now **350 kts**. This possible mistake is attributed to the misleading panel inscription with BOEING 757 aircraft, where there is no differentiated inscription for the ADC source selected (left or right ADC), which might cause errors in a stress situation.

It is not clear from the information provided in the BOEING Flightcrew Operation Manual, neither from other technical background information given by BOEING (e.g. Maintenance Manual or respective Training Manuals) how the autopilot will use the data provided by the two air data computers. There is no clear-cut drawing or schematic where this information could possibly be derived from.

Therefore the flight crew can not be blamed for the lack of knowledge, because this knowledge simply had not been provided by the manufacturer.

CRM is only obligatory for commercial operators in the USA. In Turkey „CRM" is not required so far. The European JAA is intending to issue a requirement that makes CRM seminars obligatory for all operators only by spring 1998.

Therefore this crew can not be blamed for the lack of Crew Resource Management.

On the opposite, the crew had been merely „e n c o u r a g e d" by the information provided by the manufacturer to perform like they did in this specific situation:

At the time from the appearance of the EICAS advisory messages: „Rudder Ratio/Mach Airspeed Trim" until the pitch up to +21°, with the stickshaker warning, the autopilot was engaged. This is as well reflected in BOEING's own training philosophy that this airplane can be safely flown with automatic features engaged like the autopilot and auto-throttle system.

The BOEING 757 Training Manual, chapter 3.18 „Approach to a stall recovery", says under subchapter „autopilot engaged":

„If an approach to stall is encountered with the autopilot engaged, apply limit thrust and allow the airplane to return to normal speed... If autopilot response is not acceptable it should be disengaged."

Nowhere in the various manuals, prepared by BOEING and approved by the FAA, is there appropriate information on how the ADCs and the autopilot-systems are interconnected and how they exchange data (e.g. the cross-talk feature of the Flight Control Computers (FCC's)). More detailed information could only be derived from the Maintenance Manual and other technical background information, which is usually not available to, neither required knowledge of the flight crew.

The information presented in these manuals (Aircraft Operation Manual and Training Manual) are suggesting to the flight crews to be highly confident in the automated systems and thereby are camouflaging the duty of the crew to avoid a particular dangerous situation, as it happened in the accident flight.

18.5. ***„In an approximate simulation of the flight in the flight simulator the investigators have had a chance to evaluate alternative measures that could be taken." and „During approximate re-creation of the accident profile in the flight simulator, investigators holding a BOEING 757 type certificate demonstrated how stall could be avoided in similar instances by using maximum thrust and appropriate maneuvers."***

BIRGENAIR highly objects these flight simulations because even the most sophisticated flight simulator presents only a mathematical model of the specific situation. This mathematical model first has to be programmed and will not present actual aerodynamic features of the actual aircraft and the responses to manual control inputs as it will be the case with a flight-test in an real aircraft.

Further a pilot who is aware of the situation and about what will happen, will always react accordingly to avoid the mishap, specially in a simulator session.

Real research therefore can only be conducted in a flight test with an aircraft equipped similar to TC-GEN. As a matter of fact such a flight test has never been conducted during the investigation.

As stated earlier the BOEING Training Manual says in chapter 3.18 „Approach to a stall recovery", subchapter „autopilot engaged":

„If an approach to stall is encountered with the autopilot engaged, apply limit thrust and allow the airplane to return to normal speed.

Exactly this was applied by the crew because **„limit thrust"** had been **„climb thrust"** settings which had been set **manually** by the crew **immediately after the disengagement of the auto-throttle and the activation of the stickshaker warning,** while the center-autopilot was still engaged (see above).

18.6. *„However, Flight Data Recorder (FDR) indicates by that time the automatic pilot was disengaged and therefore Altitude Hold function would not take over."*

The „altitude hold mode" will display the flight-director indication on the primary flight display (PFD) which might be used as reference by the pilot flying (see above).

18.7. *„Investigation has provided the conclusion that the agitation encountered between crew members originated from their insufficient familiarity with the aircraft systems and lack of procedural discipline."*

As there have been no specific procedures set fourth in the Boeing 757 Aircraft Operation Manual nor at the Boeing 757 Training Manual, this statement is misleading.

A fault occurring on an aircraft system can only be handled according to a „procedure" when this fault prior has been diagnosed by either the EICAS system or by the crew and therefore is determined as a „fault". Such faults like the EICAS advisory message „Rudder Ratio / Mach Airspeed Trim" do not require specific actions by the crew. This EICAS advisory misled and confused the crew of the accident flight. For the particular fault „Rudder Ratio / Mach Airspeed Trim systems inoperative" a diagnose was given by the aircraft system (EICAS), which had been correct but not complete (as the source of the fault had been an „airspeed disagree") and therefore deceptive. At the time of the accident no procedure did exist about how to handle this specific situation encountered (see above).

The crew of the accident flight can not be blamed for this deficiency, neither could they be held responsible for it. It is natural that such unclear information, in a situation never encountered before, will confuse a flight crew.

19. BIRGENAIR disagrees on the opinion of the AIC stated in section 2.3 „Factors on Maintenance of the aircraft"

"However it is understood that the maintenance of the aircraft was not complied in accordance to recommended maintenance procedures during her stay at Puerto Plata."

As already mentioned before, the aircraft was not on the ground for 20 days, but only for 12 days prior to the ill-fated flight. The pitot-tubes were covered prior to an engine test run which took place 2 days prior to the ill-fated flight. It was known by the BIRGENAIR mechanics that the airplane should be returned to Turkey in a ferry flight within the next 3 days. If therefore the pitot-tubes had not been covered after the engine test run for 2 days, according to the BOEING procedures, set forth in the BOEING Maintenance Manual, this might be justified.

The BOEING 757 Maintenance Manual, chapter 10-11-02, page 201, effective as from September 20th, 1995 under „General A.(1) and (2)" defines a „long term parking" as a parking of more than 60 days. A „short term parking" is defined as a parking from 0 to 60 days. Under section „D" the term of „in excess of 7 days" is mentioned, but no mandatory requirement for the installation of pitot-covers under the task 10-11-02-622-001.

Another term is used in chapter 10-11-01 of the BOEING 757 Maintenance Manual, page 201, effective from December 20th, 1995. Here the Manual speaks of „normal parking" Installation of pitot-covers is mentioned under section 2.5. But this fact is not reflected in the corresponding BOEING 757 Maintenance Planning Document, chapter 30, where the installation of pitot-covers is not mentioned.

Despite these irritating and even conflicting procedures set forth in BOEING's 757 Maintenance Manual and the Maintenance Planning Document, **a blockage of the pitot-tube might occur even within <u>any period of stay on the ground and should therefore be clearly required for all periods of stay on the ground.</u>**

The Report by its conclusion assumes that it is standard practice to recheck the pitot-system in such a case, prior to resumption of service. Apart from the fact that the 'failure to inspect' is once again attributed to the maintenance personnel, the Report fails to take into account that such an inspection would necessitate a recalibration of the pitot system and that airports of the size considered here would as a rule not have available the calibration equipment required.

Lastly, the Report suggests that it is up to the crew to verify the integrity of the pitot-system prior to flight. Realistically speaking, however, the crew is not in a position to make this determination by an outside check prior to take-off To do so, the pilots would need at least a ladder or a platform lift to make an outside inspection of the pitot-system. Yet, even if such unconventional extra equipment were available, it is doubtful that an inspection from the outside would result in successful detection of possible clogging.

Even the maintenance personnel on the ground would not be in a position to perform such a function test, as the discovery of a nest of insects would only be possible by taking apart the pitot-tube, something that not even the investigating authority could have seriously contemplated.

<u>A functional check on the ground is simply not feasible.</u>

As appropriate measures are not described in the manufacturer's Operation Manuals nor the manufacturer's Maintenance Manuals, there has been no implementation by the operators of the aircraft by organisational means.

Further, the recommendations contained in the manufacturer's Maintenance Manuals are too generic to ensure concrete implementation.

But despite these facts an insect, dirt or water might enter and block or affect the pitot-system <u>any time</u> after the covers have been removed, especially during taxi and take-off run.

Further investigation should have been accomplished. Especially efforts should have been taken, <u>as demanded</u> by the official representative of the Turkish CAA to salvage the pitot-tubes from the wreck, when the CURV submersible was still at the crash site.

As a research regarding this matter has never been accomplished and made impossible by the order to secure the salvaging operation, the opinion of the AIC in this respective matter **<u>is nothing more than a pure guess</u>.**

20. BIRGENAIR disagrees on the opinion of the AIC stated in section 2.4, „Flight Crew" that:

„...the Captain was 62 (sixty two) years old, an age considered in some countries as too old to hold a Captain Pilot's certificate."

At the time of the accident, the Captain was 61 years of age. Further this statement is not applicable because according to the Turkish regulations, like some other CAA's, he might very well be the responsible Captain (PIC) as long as he passes the required medical and proficiency checks.

21. BIRGENAIR disagrees on the opinion of the AIC stated in section 2.5 „Management of the Airline Company"

UNITED AIRLINES, PAN AM FLIGHT TRAINING ACEDEMY, Civil Aviation Authorities and the FAA and their approved representatives have to

of caps on the pitot system while the aircraft was stationary; non-performance of pitot-static system checks while the aircraft was delivered to flight line" are not justified and should be revised, taking into account the facts presented in these comments prepared by BIRGENAIR

Further the definitions of the additional factors as ***„physical and psychological unprepared state of a flight crew on leave called unexpectedly on duty by telephone and therefore their unreadiness to fly"*** and ***„the age of the Captain disqualifies him to act as a Captain in some countries"*** are not justified at all and have to be revised.

It is a strict company procedure and principle with BIRGENAIR that no Captain or flight crew member has ever been forced to accept a flight if he made objections.

As already stated earlier, the Captain was only 61 years old. Further he might very well be the responsible Captain (PIC) as long as he passes the required medical and proficiency checks according to the Turkish regulations, as well like with some other CAA's regulations.

23. As for the „Recommendations" BIRGENAIR demands that a recommendation be added to the Final Report:

- the manufacturer BOEING and the FAA, as the responsible oversight authority, should be enforced to communicate and distribute information to <u>all operators, training facilities and other Civil Aviation Authorities</u> immediately if problems on systems of respective aircraft have been made available to them or only identified, which are affecting vital aircraft systems and the ability of flight crews to safely conduct a flight operation. This should apply despite the facts or discussions on proposed airworthiness directives or mandatory regulations to become effective at a later date.

As it has been established by the NTSB and stated in the recommendations as of May, 16th 1996 to the FAA, several operators in the USA have developed procedures for pilots to follow in the event of erroneous airspeed indications. These company procedures have been approved by the FAA long time before the accident but have never been distributed to other operators of the same or similar types of aircraft, neither have the official BOEING Manuals been updated or modified, nor has this information been made available to BIRGENAIR and other operators.

Among those operators who had developed specific procedures for the event of erroneous airspeed indications has been BIRGENAIR's Training Facility, the UNITED FLIGHT TRAINING CENTER at Denver. But these procedures have not been made available, nor have they been trained to BIRGENAIR pilots, when the crews received their additional training or during the past annual proficiency checks.

BIRGENAIR strongly believes that an <u>appropriate</u> and <u>timely</u> distribution of the respective information could have prevented this accident and possibly the accident of an AEROPERU BOEING 757 near Lima, Peru in October, 1996.

Istanbul, June 11th, 1997

Cetin Birgen
President
BIRGENAIR

ANEXOS

ANEXO 1

Plan de Vuelo,
Declaración General ,
Documentos de Despacho

REPUBLICA DOMINICANA

DIRECCION GENERAL DE AERONAUTICA CIVIL

Formulario de plan de vuelo modelo OACI

FLIGHT PLAN
PLAN DE VUELO

PRIORITY / Prioridad: FF

ADDRESSEE (S) / Destinatario (s): SEWER ... R155

FILING TIME / Hora de Depósito: 010142

ORIGINATOR / Remitente:

SPECIFIC IDENTIFICATION OF ADDRESSEE (S) AND/OR ORIGINATOR / Identificación exacta del (de los) destinatario (s) y/o del remitente

3 MESSAGE TYPE / Tipo de mensaje: FF

7 AIRCRAFT IDENTIFICATION / Identificación aeronave: BHY1301

8 FLIGHT RULES / Regla de vuelo: I

TYPE OF FLIGHT / Tipo de vuelo: N

9 NUMBER / Número: 1

TYPE OF AIRCRAFT / Tipo de aeronave: B757

WAKE TURBULENCE CAT / Cat de estela turbulenta: M

10 EQUIPMENT / Equipo: SHIRX/C

13 DEPARTURE AERODROME / Aeródromo de salida: MDPP

TIME / Hora: 0245

15 CRUISING SPEED / Velocidad de crucero: N0473

LEVEL / Nivel: F330

ROUTE: PTA B891 GRANN/M079F330 G432 BDA/N0475F330 A632 ELTIN/M080F370 DCT GRUPI/N0461F370 RZ DCT

16 DESTINATION AERODROME / Aeródromo de destino: CYQX

TOTAL EET / EET Total: HR. MIN. 0413

ALTN AERODROME / Aeródromo alt: CYJT

2ND ALTN AERODROME / 2 aeródromo alt:

18 OTHER INFORMATION / Otros datos: EET/KZMA0009 TJZS0028 KZNY0047 TXKF0131 CZQM0313 CZQX0339 BDA0159 ELTIN0213 RZ0348 REG/TCGEN SEL/HMFG)

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGE) / Información suplementaria (En los mensajes FPL no hay que transmitir estos datos)

19 ENDURANCE / Autonomía: E/ HR. MIN. 0610

PERSONS ON BOARD / Personas a bordo: P/ TBN

EMERGENCY RADIO / Equipo de emergencia: R/ ~~U~~ V E

SURVIVAL EQUIPMENT / Equipo de supervivencia: S / ~~P~~ POLAR / Polar; D DESERT / Desértico; M MARITIME / Marítimo; ~~J~~ JUNGLE / Selva

JACKETS / Chalecos: ~~J~~ / L LIGHT / Luz; F FLUORES / Fluor; U UHF; V VHF

DINGHIES: D — NUMBER / Número: 07 — CAPACITY / Capacidad: 220 — COVER / Cubierta: C — COLOUR / Color: Yellow

AIRCRAFT COLOUR AND MARKINGS / Color y marca de la aeronave: A/ WHITE/RED

REMARKS / Observaciones: N

PILOT IN COMMAND / Piloto al mando: C/ WILAD)

FILED BY / Presentado por: LEW #43

SPACE RESERVED FOR ADDITIONAL REQUIREMENTS / Espacio reservado por requisitos adicionales

OP BY AIRLINE SERVICE

```
****  Message Received   Tue Feb 06 21:03:03 1996   ****

ZCZC 002 070100 FEB 96
QU PDP@PXH PDPLOKT ISTOWKT
YYCSKXH KT/070056 REF: S653
 -- LONG MESSAGE: PART 01 OF 02 ---


FOR ADDITIONAL FLIGHT PLANS-INFORMATION OR QUESTIONS-CONTACT SKYPLAN
             AT YYCSKXH  OR  CALL CANADA 403-275-2511


ACFT TCGEN      CRZ LRC        FLT NO BHY301   FMT 33

COMPUTED FOR MDPP/CYQX  FOR ETD 02.30Z
            FUEL   TIME  DIST   ARRIVE   TAKEOFF  LAND   AV PLD OPNLWT
POA CYQX 034259 04.13 2002  06.51Z   218286 184027 038000 134300
ALT CYJT 005259 00.35 0163   SECONDARY ALT-NIL    FOD 011727
HLD      003512 00.30
RES      002956 00.25
ADD      000000 00.00
REQD     045986 05.43
XTR      000000 00.00
TOT      045986 05.43  UNITS LBS  DXR MAY A

CAPTAIN -               F/O -              F/E -

MDPP DCT PISOS B891 GRANN G432 BDA A632 ELTIN DCT GRUPI DCT RZ DCT
CYQX

 PP/0330/ELTIN/0370
 ND P038  MXSH 03  RTE R02

CPT        FL   SOT  TAS WIND    AW   COMP ZD  ZT  ETA/ATA  CT  ZF  REM
            LAT     LONG          MT   MH

MDPP        N1945.5 W07034.2

PISOS      CLB 01CLB 316 16705 DCT   P02 030 0.05 .. / .. 0.08 03493
            N2005.0 W07010.0      059 060                     042493

POKEG      CLB 02CLB 397 26326 B891  P21 008 0.01 .. / .. 0.09 00390
            N2010.5 W07003.6      058 055                     042103

GRADI      CLB 02CLB 428 27635 B891  P23 032 0.05 .. / .. 0.14 01222
            N2031.3 W06937.9      059 056                     040881

TOC        CLB 03CLB 462 27547 B891  P31 029 0.03 .. / .. 0.17 01011
                                  061 056                     039870

WATRS      330 03M41 473 27954 B891  P33 088 0.11 .. / .. 0.28 01435
            N2147.2 W06802.3      062 056                     038435

GRANN      330 02M42 471 27453 B891  P37 161 0.19 .. / .. 0.47 02545
            N2330.0 W06548.0      063 058                     035890

 SKI       330 03M44 467 26562 G432  P08 211 0.26 .. / .. 1.13 03504
            N2700.0 W06522.9      020 012                     032386

MOFFY      330 02M47 463 24669 G432  P31 144 0.18 .. / .. 1.31 02275
            N2923.0 W06505.0      021 013                     030111

BDA        330 01M51 460 23373 G432  P42 180 0.21 .. / .. 1.52 02743
```

```
.ELTIN      330 01M54 452 22371 A632  P54 180 0.21 .. / .. 2.13 02625
             N3521.0 W06419.0      022 016                      024743

  .UPI.     370 02M58 457 25279 DCT   P52 570 1.08 .. / .. 3.21 08299
---- CONTINUES IN PART 02 ----
```

```
****  Message Received   Tue Feb 06 21:03:11 1996   ****

ZCZC 003 070100 FEB 96
QU POPAPXH POPLOKT ISTOWKT
.YYCSKXH KT/070056 REF: S653
---- LONG MESSAGE: PART 02 OF 02 ----
             N4352.0 W05850.3      045 037                      016444

RZ          370 02M53 461 25381 DCT   P38 227 0.27 .. / .. 3.48 03187
331          N4730.7 W05724.5      038 029                      013257

TOD         370 01M56 458 23976 DCT   P76 029 0.03 .. / .. 3.51 00381
                                   077 076                      012876

CYQX        DSC 00DSC 360 28147 DCT   P30 113 0.22 .. / .. 4.13 01149
             N4856.4 W05434.2      078 072                      011727

   L-BHY301-IN
-B757/M-SHIRX/C
-MDPP0230
-N0473F330 DCT PISOS B891 GRANN/M079F330 G432 BDA/N0452F330 A632
 ELTIN/M080F370 DCT GRUPI/N0461F370 DCT RZ/M080F370 DCT
-CYQX0413 CYJT
-EET/KZMA0009 TJZS0028 KZNY0047 TXKF0131 KZNY0213 CZQM0313 CZQX0339
 BDA0152 ELTIN0213 GRUPI0321 RZ0348
 REG/TCGEN SEL/HMFG PER/M080 RMK/TCAS EQUIPPED)


---- END OF LONG MESSAGE ----
```

**** Message Received Tue Feb 06 23:29:39 1996 ****

ZCZC 009 070320 FEB 96
QU POPAPXH POPLOKT YQXDDXH SXFOPXH FRAAPXH CPYXXXX YYCSKXH ISTAPKT
.ISTOWKT 070321 BIRGENAIR DISP/BHY07 FEB 96

ATTN ALL CONCERN

DUE TO TECHNICAL PROBLEM IN B767/HI660CA.ALAS NACIONALES FLT SCHEDULE
ON 07FEB96 WILL OPERATE WITH B757/TCGEN.PROGRAMME AS FLLW.
PLS TAKE NECC ACTION ACCORDINGLY

ACFT : B757 / TCGEN

07 FEB 1996 - TUESDAY

ALW	301	POP	0330	0800	YQX
ALW	301	YQX	0900	1600	SXF
ALW	302	SXF	1700	1800	FRA
ALW	302	FRA	1900	0200	YQX

08 FEB 1996 - WEDNESDAY

ALW	302	YQX	0300	0800	POP

ALL TIMES UTC

PLS ACK N CFM
BRGDS/SEZER KARVAN
BIRGENAIR ON BEHALF OF ALAS NACIONALES

OFICINA NACIONAL DE METEOROLOGIA

Puerto Plata. R.D.
7 de Febrero 1996.

METAR

070300Z

MDPP 0300 07006KT 6000 -TSRA SCt018CB BRN070 23/21 Q1017.

TAFOR

MDPP 062030Z

060024 07008KT 9999 SCT018 BRN070 BECMG 0204 04006KT
FM0600 36006 KT SCT018 BRN080 PROB 40 TEMPO 1224 6000
+ +RA BRN016 OVC060.

Luis A. Hernandez
Enc. Oficina Nacional de Meteorologia.
Aerp. Puerto Plata R.D

ALAS NACIONALES, S. A.

Puerto Plata, Dominican Republic

I.C.A.O. Annex 9

GENERAL DECLARATION

(OUTWARD/INWARD) ★

Owner or Operator ALAS NACIONALES, S. A.

Marks of Nationality and Registration TC-GEN Flight No. ALW 301 Date 06 FEB. 96

Departure from PUERTO PLATA (Place and Country) Arrival at BERLIN (SCHÖNEFELD) VIA GANDER FRANKFURT (Place and Country)

FLIGHT ROUTING

("Place" Column always to list origin, every en-route stop and destination)

Place	Total number of crew	Number of passengers on this Stage	Cargo
PUERTO PLATA	ERDEM		
	EVRENOSOGLU	Departure Place:	
	GERGIN	Embarking	
	GOLAK	Through on same Flight	
	KUZEY		
GANDER	ASLAN	Arrival Place:	Cargo Manifests attached
	BANAL		
	ISBELIS MATOS	Disembarking	
SCHÖNEFELD	FRANCIA RAMOS	Through on same Flight	
FRANKFURT	N. KURTUL		
	A. POTURNA		
	H. CAYMAZ		
	CIAKTURK		

DECLARATION OF HEALTH

Persons on board known to be suffering from illness other than air sickness or the effects of accidents, as well as those cases of illness disembarked during the flight —

Any other conditions on board which may lead to the spread of disease —

Details of each disinsecting or sanitary treatment (place, date, time, method) during the flight. If no disinsecting has been carried out during the flight give details of most recent disinsecting —

Signed if required

Crew member concerned.

FOR OFFICIAL USE ONLY

MIGRACION ENTRADA APP 187 SALIDA -6 FEB 1996 República Dominicana

I declare that all statements and particulars contained in this General Declaration, and in any supplementary forms required to be presented with this General Declaration are complete, exact and true to the best of my knowledge and that all through passangers will continue/have continued ★ on this flight.

SIGNATURE

Authorised Agent or ~~Pilot-in-Command~~.

★ Delete as necessary.

BIRGENAIR
Birgenair Charter Group Inc.

Station trip file

FLIGHT. N.	ALW 202 BHY 301	REG.	TC-GEN	DATE:	06/02/96 -
ROUTE:	POP-YQX SXF-FRA	CAPT.:	ERDEM	F/AGT:	DESIREE
ATA:	2245/402	PAX IN:	209	CARGO IN:	⊖
ATD:	0330/432	PAX OUT:	176	CARGO OUT:	⊖
DLY (IF ANY):	01HR00MN	REASON:	CHG EQUIP FROM B767 TO 757		

FOR FILING

IN	OUT
1) MVT/LDM/CPM/UCM/	1) MVT/LDM/CPM/UCM/PSM PIR/PVD/FR/ ANY OTHER
2) ANY OTHER MSG.	2) OPERATIONAL FLIGHT PLAN
3) GENERAL DECLARATION	3) LOADING INSTRUCT. SHEET
4) PAX & CARGO MANIFEST	4) PAX & BAGS CONTROL SHEET
	5) GATE CONTROL SHEET
	6) PAX/TOUR OP. BREAKDOWN
	7) BAGS SECURITY CERTFICATE
	8) PASSENGERS MANIFEST
	9) GENERAL DECLARATION
	10) FUEL ORDER
	11) OPERATION RAMP INFO

IMPORTANT

1) TRIP FILE SHOULD BE PREPARED FOR EACH HANDLED FLIGHT !
2) ALL DOCUMENTS CONCERNING THIS FLIGHT SHOULD BE ATTACHED !
3) ALL MESSAGES SHOULD BE SENT INMEDIATLY AS MENTIONED AND CHECKED FOR CORRECTNES !
4) TRIP FILES MUST BE STORED FOR AT LEAST SIX MONTHS !

AIRLINE SERVICE
MANINO'S,S.A.

CONTROL DE EQUIPAJE

FECHA 6-2-96 COMPANIA [illegible] Aereo Nacional VUELO 301

FAR

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

B

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

85

97

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

CONT NU------- SEC-----/-----

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

TOTAL MALETAS --------- CHEQUEADO POR [illegible signature]

13 Tapa

AIRLINE SERVICE

MANNOS S.A.

DATE: 06.02.96

A.L.W.

FLIGHT: 301

ROUTE: POP - SXF FRA

87

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	181	201	221	241	261	281	301	321	341
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	182	202	222	242	262	282	302	322	342
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	183	203	223	243	263	283	303	323	343
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	184	204	224	244	264	284	304	324	344
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	185	205	225	245	265	285	305	325	345
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	186	206	226	246	266	286	306	326	346
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	187	207	227	247	267	287	307	327	347
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	188	208	228	248	268	288	308	328	348
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	189	209	229	249	269	289	309	329	349
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	190	210	230	250	[illegible]	290	310	330	350
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	191	211	231	251	[illegible]	291	311	331	351
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	192	212	232	252	[illegible]	292	312	332	352
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	193	213	233	253	[illegible]	293	313	333	353
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	194	214	234	254	[illegible]	294	314	334	354
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	195	215	235	255	[illegible]	295	315	335	355
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	196	216	236	256	[illegible]	296	316	336	356
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	177	197	217	237	257	[illegible]	297	317	337	357
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	178	198	218	238	258	[illegible]	298	318	338	358
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	179	199	219	239	259	[illegible]	299	319	339	359
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	180	200	220	240	260	[illegible]	300	320	340	

c91

TIME OF BOARDING: 11:05 h.

BOARDING COMPLETED: 11:35 h.

GATE: 2

ACTION TAKEN:

PASSENGERS AT COUNTER: 176

PASSENGERS AT GATE:

PASSENGERS IN TRANSIT:

TOTAL: 176

MISSING SEQ.

AGENTS: Wascar, Luijo, Adalberto

LEAD AGENT: Veruschka, Ricardo, Karem

CARIBBEAN AIRWAYS **TC - GEN**

BOEING 757-225

WEIGHT AND BALANCE LOAD SHEET

Effectivity : APRIL 1992

CARGO COMPARTMENT INDEX TABLES

COMPT. 1 WT-LB	COMPT. 1 INDEX	COMPT. 2 WT-LB	COMPT. 2 INDEX	COMPT. 3 WT-LB	COMPT. 3 INDEX	COMPT. 4 WT-LB	COMPT. 4 INDEX	COMPT. 4 WT-LB	COMPT. 4 INDEX
	0		0		0		+0		18
170	-1	258	-1	313	+1	170	+1	6304	+19
512	-2	774	-2	941	+2	511	+2	6645	+20
853	-3	1290	-3	1569	+3	851	+3	6986	+21
1194	-4	1807	-4	2196	+4	1192	+4	7326	+22
1536	-5	2323	-5	2824	+5	1533	+5	7667	+23
1877	-6	2839	-6	3452	+6	1874	+6	8008	+24
2218	-7	3355	-7	4080	+7	2215	+7	8349	+25
2560	-8	3872	-8	4707	+8	2555	+8	8690	+26
2901	-9	4388	-9	5335	+9	2896	+9	9030	+27
3243	-10	4904	-10	5963	+10	3237	+10	9371	+28
3584	-11	5421	-11	6590	+11	3578	+11	9712	+29
3925	-12	5937	-12	7218	+12	3919	+12	10053	+30
4267	-13	6453	-13	7796		4259	+13	10394	+31
4608	-14	6969	-14			4600	+14	10734	+32
4949	-15	7486	-15			4941	+15	11075	+33
5291	-16	8002	-16			5282	+16	11416	+34
5445		8518	-17			5623	+17	11757	+35
		9035	-18			5963	+18	12097	+36
		9400				6304		12361	

ALL WEIGHTS IN POUNDS

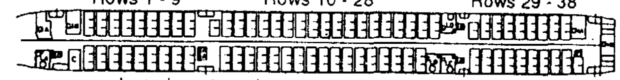
CERTIFIED GROSS WEIGHTS	
Max. Taxi Wt.	241,000 LB
Max. Takeoff Wt.	240,000 LB
Max. Landing Wt.	198,000 LB
Max. Zero Fuel wt.	184,000 LB

FLIGHT 301 A/C REG TC-GEN STATION PoP

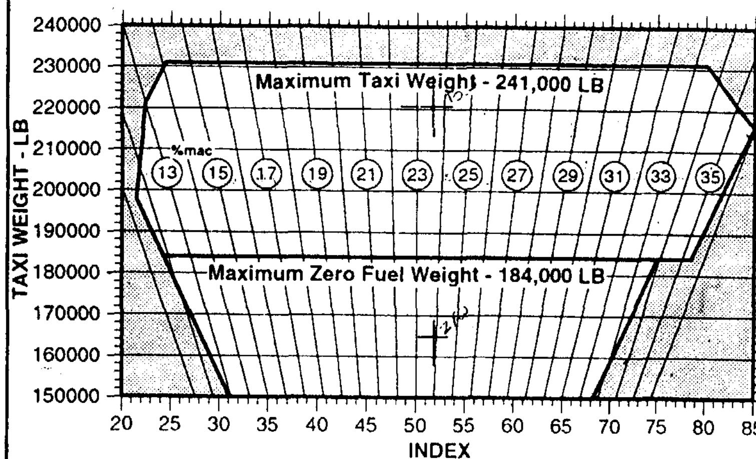
$$I.U. = \frac{WT \times (Arm - 1037.8)}{160{,}000\ LB\text{-}IN.} + 50.0$$

PASSENGER COUNT: 216Y

Compt. 0a Rows 1 - 9 | Compt. 0b Rows 10 - 28 | Compt. 0c Rows 29 - 38



	Forward Hold 1	Forward Hold 2	Aft Hold 3	Aft Hold 4
Max. Weights	5445	9400	7796	12361
Max. Combined	9400		15400	



PASSENGER INDEX TABLES

ZONE 0a NO. OF PAX	ZONE 0a INDEX
1 - 2	-1
3 - 4	-2
5 - 6	-3
7 - 8	-4
9 - 10	-5
11 - 12	-6
13 - 14	-7
15 - 16	-8
17 - 18	-9
19 - 20	-10
21 - 22	-11
23 - 24	-12
25 - 26	-13
27 - 28	-14
29	-15
30 - 31	-16
32 - 33	-17
34 - 35	-18
36 - 37	-19
38 - 39	-20
40 - 41	-21
42 - 43	-22
44 - 45	-23
46 - 47	-24
48 - 49	-25
50 - 51	-26
52 - 53	-27
54	-28

ZONE 0b NO. OF PAX	ZONE 0b INDEX
1 - 10	0
11 - 31	-1
32 - 52	-2
53 - 73	-3
74 - 94	-4
95 - 107	-5

ZONE 0c NO. OF PAX	ZONE 0c INDEX
1	0
2 - 3	+1
4 - 5	+2
6 - 7	+3
8 - 9	+4
10 - 11	+5
12 - 13	+6
14 - 15	+7
16 - 17	+8
18 - 20	+9
21 - 22	+10
23 - 24	+11
25 - 26	+12
27 - 28	+13
29 - 30	+14
31 - 32	+15
33 - 34	+16
35 - 36	+17
37 - 39	+18
40 - 41	+19
42 - 43	+20
44 - 45	+21
46 - 47	+22
48 - 49	+23
50 - 51	+24
52 - 53	+25
54 - 55	+26

PAX WEIGHTS NO. OF PAX	WEIGHT LB
1	170
2	340
3	510
4	680
5	850
6	1020
7	1190
8	1360
9	1530
10	1700
20	3400
30	5100
40	6800
50	8500
60	10200
70	11900
80	13600
90	15300
100	17000

TOTAL FUEL INDEX TABLE

WT-LB	INDEX	WT-LB	INDEX
	0		+4
5025	+1	44495	+3
11379	+2	47370	+2
15960	+3	50330	+1
19268	+4	53281	0
21777	+5	56231	-1
23809	+6	59176	-2
25524	+7	62152	-3
27054	+8	65086	-4
28409	+9	67967	-5
31174	+8	70707	-6
33846	+7	73357	-7
36408	+6	76923	-8
39017	+5	79886	
41723	+4		

	WEIGHT LB	INDEX -	INDEX +
Basic Operating Index	124253		47
Zone 0a 23 pax	5790	22	
Zone 0b 87 pax	14790	4	
Zone 0c 20 pax	3?00		24
Compartment 1			
Compartment 2			
Compartment 3	1455		2
Compartment 4	1235		2
Total Index + and -		24	76
Zero Fuel Wt and Index =	162163		52
Total Fuel +	5003	+/-	5
Taxi Wt and Index =	221163		55

Approval

D043N330 MARCH 25, 1992

ANEXO 2

Correlación "CVR" y "FDR"

CORRELACION DE LA GRABADORA DE VOZ Y DE VUELO DEL BOEING-757, MATRICULA TC-GEN DE BIRGENAIR ACCIDENTADO EN FECHA 06 DE FEBRERO 1996.-

TIEMPO:03:42:11
COCKPIT VOICE RECORDER:

- *CAP. = EPR Select*
- *F/O. = EPR.*

TIEMPO:03:42:11
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.585	*EPR 1.662*
EGT-L= 658°	*EGT 653°*

MH = 080 °

TIEMPO:03:42:15
COCKPIT VOICE RECORDER:

- *F/O. = POWER'S SET.*
- *CAP. = OKAY CHECKED.*

TIEMPO:03:42:15
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.712	*EPR 1.722*
EGT-L= 716°	*EGT 718°*

MH = 081°

TIEMPO:03:42:23
COCKPIT VOICE RECORDER:

- *F/O. = 80 KNOTS*
- *CAP. = CHECKED.*

TIEMPO:03:42:23
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.714	*EPR 1.712*
EGT-L= 751°	*EGT 762°*

MH = 081°

TIEMPO:03:42:27
COCKPIT VOICE RECORDER:

- *CAP. = MY AIRSPEED INDICATOR'S NOT WORKING*
- *F/O. = YES*
- *F/O. = YOURS IS NOT WORKING*
- *F/O. = 120*
- *CAP. = IS YOUR'S WORKING?*
- *F/O. = YES, SIR*
- *CAP. = YOU TELL ME.*

TIEMPO:03:42:27
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.720	*EPR 1.716*
EGT-L= 763°	*EGT 776°*

MH = 081°
GS = 036 KTS

TIEMPO:03:42:35
COCKPIT VOICE RECORDER:

- F/O. = VEE ONE
:36: - F/O. = ROTATE
:43: - CAP. = POSITIVE CLIMB GEAR UP
:43: - F/O. = POSITIVE CLIMB
:46 - F/O. = GEAR IS UP.

TIEMPO:03:42:35
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.718	EPR 1.710
EGT-L= 779°	EGT 794°

MH = 081°
GS = 043 KTS
PA = 0.4°

TIEMPO:03:42:39
COCKPIT VOICE RECORDER:

TIEMPO:03:42:39
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.720	EPR 1.704
EGT-L= 786°	EGT 799°

MH = 080°
GS = 036 KTS
PA = 5.6°

TIEMPO:03:42:43
COCKPIT VOICE RECORDER:

TIEMPO:03:42:43
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.718	EPR 1.702
EGT-L= 792°	EGT 804°

MH = 081°
GS = 061 KTS
PA = 13.2°
ALT=64 Feet

TIEMPO:03:42:47
COCKPIT VOICE RECORDER:

TIEMPO:03:42:47
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.720	*EPR 1.704*
EGT-L= 799°	*EGT 809°*

MH = 082°
GS = 076 KTS
PA = 13.7°
ALT= 160 Feet

TIEMPO:03:42:51
COCKPIT VOICE RECORDER:

- F/O. = L NAV?
- CAP. = YES, PLEASE
:52: - F/O. = L NAV.

TIEMPO:03:42:51
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.718	*EPR 1.704*
EGT-L= 803°	*EGT 813°*

MH = 082°
GS = 090 KTS
PA = 12.5°
ALT= 256 FEET

TIEMPO:03:42:55
COCKPIT VOICE RECORDER:

TIEMPO:03:42:55
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.722	*EPR 1.702*
EGT-L= 811°	*EGT 818°*

MH = 082°
GS = 105 KTS
PA = 10.5°
ALT= 384 Feet

TIEMPO:03:42:59
COCKPIT VOICE RECORDER:

- CAP. = YES

:43:00 - CAP. = IT BEGAN TO OPERATE.

TIEMPO:03:42:59
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.720	EPR 1.702
EGT-L= 815°	EGT 822°

MH = 082°
GS = 121 KTS
PA = 12.7°
ALT= 576 Feet

TIEMPO:03:43:03
COCKPIT VOICE RECORDER:

- CAP. = IS IT POSSIBLE TO TURN OFF THE WIPERS.

- F/O. = OKAY WIPERS OFF.

TIEMPO:03:43:03
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.720	EPR 1.708
EGT-L= 817°	EGT 825°

MH = 083°
GS = 137 KTS
PA = 13.5°
ALT= 768 Feet

TIEMPO:03:43:07
COCKPIT VOICE RECORDER:

- CAP. = CLIMB THRUST.
- F/O. = CLIMB THRUST.

TIEMPO:03:43:07
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.724	EPR 1.708
EGT-L= 820°	EGT 828°

MH = 083°
GS = 153 KTS
PA = 12.7°
ALT= 960 Feet

TIEMPO:03:43:11
COCKPIT VOICE RECORDER:

- *CAP. = V NAV.*
- *F/O. = V NAV.*

TIEMPO:03:43:11
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.573	*EPR 1.675*
EGT-L= 789°	*EGT 824°*

MH = 082 °
GS = 167 KTS
PA = 11.6° *RA= -6.2°*
ALT= 1184 Feet

TIEMPO:03:43:15
COCKPIT VOICE RECORDER:

- *F/O. = OKAY FLAP SPEED.*
- *CAP. = FLAPS FIVE.*

TIEMPO:03:43:15
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.550	*EPR 1.583*
EGT-L= 756°	*EGT 784°*

MH = 078 °
GS = 179 KTS
PA = 11.2° *RA= -17.24°*
ALT= 1376 Feet

TIEMPO:03:43:19
COCKPIT VOICE RECORDER:

- *POP/TWR= THREE ZERO ONE AIRBONE FOUR FIVE SWITCH OVER STO. DGO. ONE TWO FOUR THREE.*

TIEMPO:03:43:19
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.550	*EPR 1.552*
EGT-L= 749°	*EGT 764°*

MH = 071 °
GS = 189 KTS
PA = 10.5° *RA= -21.1°*
ALT= 1536 Feet

TIEMPO:03:43:23
COCKPIT VOICE RECORDER:

- *= ONE TWO FOUR THREE BYE BYE SIR.*

TIEMPO:03:43:23
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.548	*EPR 1.540*
EGT-L= 744°	*EGT 754°*

MH = 063 °
GS = 197 KTS
PA = 9.1° *RA= -23.7°*
ALT= 1696 Feet

TIEMPO:03:43:24
COCKPIT VOICE RECORDER:

- CAP. = FLAPS ONE
- F/O. = FLAPS TO ONE

TIEMPO:03:43:24
FLIGHT DATA RECORDER:

TIEMPO:03:43:27
COCKPIT VOICE RECORDER:

TIEMPO:03:43:27
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.544	*EPR 1.534*
EGT-L= 740°	*EGT 747°*

MH = 054 °
GS = 202 KTS
PA = 9.1 ° *RA= -25.5°*
ALT= 1792 Feet

TIEMPO:03:43:31
<u>*COCKPIT VOICE RECORDER:*</u>

- CAP. = GEAR HANDLE OFF
:32: - F/O. = GEAR HANDLE'S OFF
:33: - CAP. = FLAPS UP
:34: - F/O. = FLAPS UP

TIEMPO:03:43:31
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.542	*EPR 1.528*
EGT-L= 738°	*EGT 742°*

MH = 046 °
GS = 208 KTS
PA = 11.4 ° *RA= -25.0°*
(Nose up, left bank)
ALT= 1920 FEET

TIEMPO:03:43:35
<u>*COCKPIT VOICE RECORDER:*</u>

- CAP. = AFTER TAKE OFF CHECKLIST

TIEMPO:03:43:35
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.544	*EPR 1.530*
EGT-L= 735°	*EGT 739°*

MH = 041 °
GS = 215 KTS
PA = 11.8° *RA= -16.3°*
(Nose up, left bank)
ALT= 2,048 Feet

TIEMPO:03:43:39
<u>*COCKPIT VOICE RECORDER:*</u>

- F/O= AFTER TAKE OFF CHECKLIST,
LANDING GEAR UP AND OFF,
FLAPS ARE UP CHECKED UP,
ALTIMETERS LATER, AFTER
TAKE OFF COMPLETED.

TIEMPO:03:43:39
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.542	*EPR 1.532*
EGT-L= 733°	*EGT 738°*

MH = 039 °
GS = 221 KTS
PA = 12.1° *RA= -4.6°*
(Nose up, left turn)
ALT = 2,208 FEET

TIEMPO:03:43:43
COCKPIT VOICE RECORDER:

TIEMPO:03:43:43
FLIGHT DATA RECORDER:

- *Engines*

LEFT	RIGHT
EPR-L=1.542	EPR 1.532
EGT-L= 732°	EGT 737°

MH = 039 °
GS = 228 KTS
PA = 11.8° *RA= -3.0°*
(Nose up, left turn)
ALT = 2,336 FEET

TIEMPO:03:43:47
COCKPIT VOICE RECORDER:

- *CAP. = OKAY*

:49: - *F/O. = STO.DGO. GOOD EVENING ALPHA LIMA WHISKEY THREE ZERO ONE CLIMBING WITH YOU.*

TIEMPO:03:43:47
FLIGHT DATA RECORDER:

- *Engines*

LEFT	RIGHT
EPR-L=1.542	EPR 1.532
EGT-L= 732°	EGT 737°

MH = 041 °
GS = 236 KTS
PA = 11.6 ° *RA= 9.8°*
(Nose up, right bank)
ALT= 2,528 FEET

TIEMPO:03:43:51
COCKPIT VOICE RECORDER:

TIEMPO:03:43:51
FLIGHT DATA RECORDER:

- *Engines*

LEFT	RIGHT
EPR-L=1.540	EPR 1.532
EGT-L= 730°	EGT 736°

MH = 046 °
GS = 343 KTS
PA = 11.8 ° *RA= 16.0°*
(Nose up, right bank)
ALT= 2,720 FEET

TIEMPO:03:43:55
COCKPIT VOICE RECORDER:

- STO.DGO. CENTER= ALPHA LIMA WISKEY THREE ZERO ONE CLIMB AND MAINTAIN TWO EIGHT ZERO.

TIEMPO:03:43:55
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.542	*EPR 1.532*
EGT-L= 729°	*EGT 735°*

MH = 052 °
GS = 251 KTS
PA = 13.4° *RA=17.6°*
(Nose up, rigth bank)
ALT = 2,912 FEET

TIEMPO:03:43:59
COCKPIT VOICE RECORDER:

TIEMPO:03:43:59
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.540	*EPR 1.530*
EGT-L= 726°	*EGT 732°*

MH = 054 °
GS = 259 KTS
PA = 13.5° *RA=10.5°*
(Nose up, right bank)
ALT = 3,136 FEET

TIEMPO:03:44:01
COCKPIT VOICE RECORDER:

- F/O.= OKAY TWO EIGHT ZERO AND I'LL CALL YOU OVER POKEQ THREE ZERO ONE.

TIEMPO:03:44:01
FLIGHT DATA RECORDER:

TIEMPO:03:44:03
COCKPIT VOICE RECORDER:

TIEMPO:03:44:03
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.540	*EPR 1.530*
EGT-L= 724°	*EGT 731°*

MH = 056 °
GS = 267 KTS
PA = 12.8° *RA=3.5°*
(Nose up, right bank)
ALT =3,328 FEET

TIEMPO:03:44:07
COCKPIT VOICE RECORDER:

- CAP. = CENTER AUTOPILOT ON PLEASE
:08: - F/O. = CENTER AUTOPILOT IS ON COMAND.
:10: - CAP. = THANK YOU.

TIEMPO:03:43:07
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.536	*EPR 1.528*
EGT-L= 722°	*EGT 729°*

MH = 057 °
GS = 273 KTS
PA = 13.0 ° *RA= 1.4°*
(Nose up, right bank)
ALT= 3,520 FEET
Autopilot Engaged, AT Engaged, V Nav, L Nav Engaged.

TIEMPO:03:44:11
COCKPIT VOICE RECORDER:

:12: - CAP. = ONE ZERO ONE THREE.
:13: - F/O. = ONE ZERO ONE THREE.

TIEMPO:03:43:11
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.534	*EPR 1.526*
EGT-L= 720°	*EGT 726*

MH = 058 °
GS = 279 KTS
PA = 11.8 ° *RA= 2.1°*
(Nose up, right bank)
ALT= 3,712 FEET

TIEMPO:03:44:15
COCKPIT VOICE RECORDER:

TIEMPO:03:44:15
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.534	*EPR 1.525*
EGT-L= 718°	*EGT 725°*

MH = 058 °
GS = 284 KTS
PA = 12.1° *RA=-0.5°*
(Nose up, left bank)
ALT =3,840 FEET

TIEMPO:03:44:16
COCKPIT VOICE RECORDER:

TIEMPO:03:44:16
FLIGHT DATA RECORDER:

CAP SELECT CADC RIGHT, AT NOT ENGAGED (IT DESENGAGED) AUTOPILOT ENGAGED, THE PARAMETERS ARE AS FOLLOW:

MH = 057 °
GS = 143 KTS
PA = 12.5° *RA=179.5°*
(Nose up, right bank)
ALT =1,952 FEET

:03:44:17: *CAP SELECT CADC LEFT,*
:03:44:18 *AUTOPILOT ENGAGED, AT ENGAGED.*

:03:44:18 *CENTRO STO. DGO.= 301 WHAT'S YOUR CALL SIGN SIR?*

TIEMPO:03:44:19
COCKPIT VOICE RECORDER:

TIEMPO:03:44:19
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.532	*EPR 1.523*
EGT-L= 716°	*EGT 723°*

MH = 057 °
GS = 290 KTS
PA = 13.2° *RA=-1.2°*
(Nose up, left bank)
ALT = 4,032 FEET

TIEMPO:03:44:21
COCKPIT VOICE RECORDER:

-F/O. = ALW 301 SIR.

TIEMPO:03:44:21
FLIGHT DATA RECORDER:

TIEMPO:03:44:23
COCKPIT VOICE RECORDER:

TIEMPO:03:44:23
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
***EPR-L**=1.530*	*EPR 1.523*
***EGT-L**= 715°*	*EGT 721°*

***MH** = 057 °*
GS = 295 KTS
***PA** = 13.5°* *RA=-0.9°*
***(Nose up**, left bank)*
***ALT** =4,192 FEET*

TIEMPO:03:44:25
COCKPIT VOICE RECORDER:

-CAP. = RUDDER RATIO, MACH AIRSPEED TRIM.

TIEMPO:03:44:25
FLIGHT DATA RECORDER:

TIEMPO:03:44:27
COCKPIT VOICE RECORDER:

- F/O. = YES, TRIM.

TIEMPO:03:43:27
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
***EPR-L**=1.532*	*EPR 1.523*
***EGT-L**= 713°*	*EGT 720*

***MH** = 056 °*
***GS** = 301 KTS*
***PA** = 14.2 °* *RA= -1.1°*
*(Nose **up**, left bank)*
ALT= 4,384 FEET

TIEMPO:03:44:28
COCKPIT VOICE RECORDER:

-CAP. = THERE IS SOMETHING WRONG, THERE ARE SOME PROBLEMS.

TIEMPO:03:44:28
FLIGHT DATA RECORDER:

TIEMPO:03:44:31	***TIEMPO:03:44:31***
COCKPIT VOICE RECORDER:	*FLIGHT DATA RECORDER:*

- STO.DGO. CENTER= ROGER, REPORT BY POKEQ.
- F/O. = OKAY, I'LL CALL YOU BY POKEQ 301.

- Engines

LEFT	*RIGHT*
EPR-L=1.530	*EPR 1.523*
EGT-L= 711°	*EGT 718°*

MH = 057 °
GS = 307 KTS
PA = 15.3° *RA=-0.4°*
(Nose up, left bank)
ALT = 4,576 FEET

TIEMPO:03:44:35	***TIEMPO:03:44:35***
COCKPIT VOICE RECORDER:	*FLIGHT DATA RECORDER:*

- Engines

LEFT	*RIGHT*
EPR-L=1.528	*EPR 1.521*
EGT-L= 709°	*EGT 716°*

MH = 056 °
GS = 313 KTS
PA = 14.9° *RA=-0.2°*
(Nose up, left bank)
ALT = 4,800 FEET

TIEMPO:03:44:37	***TIEMPO:03:44:37***
COCKPIT VOICE RECORDER:	*FLIGHT DATA RECORDER:*

-F/O. = ARE WE CLEARED DIRECT POKEQ SIR?

TIEMPO:03:44:39
COCKPIT VOICE RECORDER:

-STO. DGO. CENTER= AFFIRMATIVE.
:40: - F/O. = OKAY THANK YOU.

TIEMPO:03:44:39
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.528	EPR 1.519
EGT-L= 707°	EGT 713°

MH = 056 °
GS = 318 KTS
PA = 14.6° RA=0.0°
(Nose up,)
ALT = 4,992 FEET

TIEMPO:03:44:43
COCKPIT VOICE RECORDER:

- F/O. = DIRECT POKEQ
- CAP. = OKAY, THERE IS SOMETHING CRASY, DO YOU SEE IT.

TIEMPO:03:44:43
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.526	EPR 1.517
EGT-L= 705°	EGT 711°

MH = 056 °
GS = 323 KTS
PA = 15.1° RA=0.0°
(Nose up,)
ALT = 5,152 FEET

TIEMPO:03:44:46
COCKPIT VOICE RECORDER:

- F/O. = THERE IS SOMETHING CRASY THERE, AT THIS MOMENT TWO HUNDRED ONLY IN MINE AND DECREASING SIR CRASY, DO YOU SEE IT.

TIEMPO:03:44:46
FLIGHT DATA RECORDER:

TIEMPO:03:44:47
COCKPIT VOICE RECORDER:

TIEMPO:03:44:47
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.523	*EPR 1.515*
EGT-L= 702°	*EGT 709°*

MH = 056 °
GS = 327 KTS
PA = 15.1° *RA=0.0°*
(Nose up,)
ALT = 5,344 FEET

TIEMPO:03:44:51
COCKPIT VOICE RECORDER:

- CAP. = BOTH OF THEM ARE WRONG WHAT CAN WE DO.
:44:54:-CAP. = LEST CHECK THEIR CIRCUIT BREAKERS.

TIEMPO:03:43:51
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.523	*EPR 1.513*
EGT-L= 700°	*EGT 706*

MH = 056 °
GS = 331 KTS
PA = 14.8 ° *RA= 0.2°*
(Nose up,)
ALT= 5,504 FEET

TIEMPO:03:44:55
COCKPIT VOICE RECORDER:

- F/O. = YES.

TIEMPO:03:43:55
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.521	*EPR 1.511*
EGT-L= 698°	*EGT 704°*

MH = 056 °
GS = 336 KTS
PA = 14.6 ° *RA= -0.2°*
(Nose up,)
ALT= 5,664 FEET

TIEMPO:03:44:57
COCKPIT VOICE RECORDER:

-CAP. = ALTERNATE IS CORRECT.

TIEMPO:03:44:57
FLIGHT DATA RECORDER:

TIEMPO:03:44:59
COCKPIT VOICE RECORDER:

- F/O. = THE ALTERNATE ONE IS CORRECT.

TIEMPO:03:43:59
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.519	*EPR 1.511*
EGT-L= 696°	*EGT 702°*

MH = 056 °
GS = 339 KTS
PA = 14.9 ° *RA= -0.2°*
(Nose up,)
ALT= 5,824 FEET

TIEMPO:03:45:03
COCKPIT VOICE RECORDER:

TIEMPO:03:45:03
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.519	*EPR 1.511*
EGT-L= 695°	*EGT 700°*

MH = 056 °
GS = 342 KTS
PA = 15.1° *RA=0.0°*
(Nose up,)
ALT = 5,952 FEET

TIEMPO:03:45:04
COCKPIT VOICE RECORDER:

- CAP. = AS AIRCRAFT WAS NOT FLYING AND ON GROUND, SOMETHING HAPPENING IS USUAL.

TIEMPO:03:45:04
FLIGHT DATA RECORDER:

TIEMPO:03:45:07
<u>*COCKPIT VOICE RECORDER:*</u>

- CAP. = SUCH AS ELEVATOR ASYMMETRY AND OTHER THINGS.

TIEMPO:03:45:07
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.517	*EPR 1.509*
EGT-L= 693°	*EGT 699°*

MH = 056 °
GS = 344 KTS
PA = 14.9 ° *RA= -0.2°*
(Nose Up)
ALT= 6,080 FEET

TIEMPO:03:45:11
<u>*COCKPIT VOICE RECORDER:*</u>

- CAP. = WE DON'T BELIVE THEM.

TIEMPO:03:45:11
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.517	*EPR 1.507*
EGT-L= 691°	*EGT 696°*

MH = 056 °
GS = 347 KTS
PA = 14.6 ° *RA= -0.2°*
(Nose Up)
ALT= 6,240 FEET

TIEMPO:03:45:15
<u>*COCKPIT VOICE RECORDER:*</u>

TIEMPO:03:45:15
<u>*FLIGHT DATA RECORDER:*</u>

- Engines

LEFT	*RIGHT*
EPR-L=1.517	*EPR 1.507*
EGT-L= 690°	*EGT 695°*

MH = 056 °
GS = 348 KTS
PA = 15.1° *RA=0.0°*
(Nose up,)
ALT = 6,336 FEET

TIEMPO:03:45:19
COCKPIT VOICE RECORDER:

TIEMPO:03:45:19
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.515	EPR 1.507
EGT-L= 689°	EGT 694°

MH = 056 °
GS = 350 KTS
PA = 14.9° *RA=-0.2°*
(Nose up,)
ALT = 6,464 FEET

TIEMPO:03:45:23
COCKPIT VOICE RECORDER:

- RELIF CAP. = SHALL I RESET ITS CIRCUIT BREAKER?
:24: -CAP. = YES RESET IT
:25: -RELIF CAP. = TO UNDERSTAND THE REASON.

TIEMPO:03:45:23
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.517	EPR 1.507
EGT-L= 688°	EGT 693°

MH = 055 °
GS = 351 KTS
PA = 14.6 ° *RA=-0.4°*
(Nose up, left bank)
ALT= 6,592 FEET

TIEMPO:03:45:27
COCKPIT VOICE RECORDER:

- CAP. = YEAH.

TIEMPO:03:45:27
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.517	EPR 1.509
EGT-L= 687°	EGT 692°

MH = 055 °
GS = 352 KTS
PA = 15.1 ° *RA= -0.4°*
(Nose Up)
ALT= 6,688 FEET

NOTA: OVERSPEED WARNING STARTS, FROM 03:45:28 TO 03:45:37 (9 SEC.) AUTOPILOT ENGAGED, AT ENGAGED L NAV, V NAV ENGAGED.

TIEMPO:03:45:30
COCKPIT VOICE RECORDER:

-CAP. = OKAY IT'S NO MATTER.

TIEMPO:03:45:30
FLIGHT DATA RECORDER:

TIEMPO:03:45:31
COCKPIT VOICE RECORDER:

TIEMPO:03:45:31
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.515	*EPR 1.509*
EGT-L= 686°	*EGT 691°*

MH = 056 °
GS = 352 KTS
PA = 15.1 ° *RA= 0.0°*
(Nose Up)
ALT= 6,784 FEET
OVERSPEED WARNING CONTINUE.

TIEMPO:03:45:35
COCKPIT VOICE RECORDER:

TIEMPO:03:45:35
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.515	*EPR 1.507*
EGT-L= 685°	*EGT 690°*

MH = 056 °
GS = 352 KTS
PA = 14.6 ° *RA= 0.0°*
(Nose Up)
ALT= 6,912 FEET
OVERSPEED WARNING CONTINUE.

TIEMPO:03:45:39
COCKPIT VOICE RECORDER:

-CAP. = PULL THE AIRSPEED, WE WILL SEE.
-CAM. = OVERSPEED WARNING STOPS.

:40: -F/O. = NOW IT IS THREE HUNDRED AND FIFTY, YES

TIEMPO:03:45:39
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.515	*EPR 1.507*
EGT-L= 685°	*EGT 689°*

MH = 056 °
GS = 349 KTS
PA = 14.8° *RA=-0.5°*
(Nose up,)
ALT = 7,040 FEET

TIEMPO:03:45:43
COCKPIT VOICE RECORDER:

TIEMPO:03:45:43
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.517	*EPR 1.507*
EGT-L= 685°	*EGT 689°*

MH = 056 °
GS = 344 KTS
PA = 15.3 ° *RA= 0.0°*
(Nose Up)
ALT= 7,136 FEET

TIEMPO:03:45:46
COCKPIT VOICE RECORDER:

TIEMPO:03:45:46
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.517	*EPR 1.507*
EGT-L= 684°	*EGT 689°*

MH = 056 °
GS = 339 KTS
PA = 14.6 ° *RA=-0.2°*
(Nose Up)
ALT= 7,232 FEET
V NAV DISCONECTED
AUTOPILOT ENGAGED, AT ENGAGED.

TIEMPO:03:45:47
COCKPIT VOICE RECORDER:

- CAP. = LET'S TAKE THAT LIKE THIS.

TIEMPO:03:45:47
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.513	*EPR 1.482*
EGT-L= 684°	*EGT 685°*

MH = 055 °
GS = 337 KTS
PA = 14.8 ° *RA= 0.0°*
(Nose Up)
ALT= 7,232 FEET

TIEMPO:03:45:50
COCKPIT VOICE RECORDER:

- CAM. = SOUND OF FOUR WARNING ALERT TONES.

TIEMPO:03:45:50
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.218	*EPR 1.177*
EGT-L= 580°	*EGT 566°*

MH = 055 °
GS = 330 KTS
PA = 15.8 ° *RA=-0.5°*
(Nose Up)
ALT= 7,264 FEET

TIEMPO:03:45:52
COCKPIT VOICE RECORDER:

- CAM. = SOUND OF STICK SHAKER STARTS AND CONTINUES TO END OF RECORDING.

TIEMPO:03:45:52
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.144	*EPR 1.152*
EGT-L= 552°	*EGT 577°*

MH = 055 °
GS = 323 KTS
PA = 18.3 ° *RA=-0.5°*
(Nose Up)
ALT= 7,232 FEET
AT DESCONECTED, V NAV DESCONECTED. AUTOPILOT ENGAGED, SOUND OF STICK SHAKER.

TIEMPO:03:45:56
<u>*COCKPIT VOICE RECORDER:*</u>

- *CAM.= SOUND OF FOUR WARNING ALERT TONES.*
- *CAP.= GOD, GOD,GOD.*
- *F/O.= GOD, GOD.*

TIEMPO:03:45:56
<u>*FLIGHT DATA RECORDER:*</u>

- *Engines*

LEFT	*RIGHT*
EPR-L=1.620	*EPR 1.585*
EGT-L= 721°	*EGT 700°*

MH = 63 °
GS = 306 KTS
PA = 21.0 ° *RA=16.3°*
(Nose Up, right bank)
ALT= 7,040 FEET
AT DESCONECTED, V NAV DESCONECTED. AUTOPILOT ENGAGED, SOUND OF STICK SHAKER.

TIEMPO:03:45:58
<u>*COCKPIT VOICE RECORDER:*</u>

TIEMPO:03:45:58
<u>*FLIGHT DATA RECORDER:*</u>

- *Engines*

LEFT	*RIGHT*
EPR-L=1.603	*EPR 1.583*
EGT-L= 717°	*EGT 702°*

MH = 072 °
GS = 301 KTS
PA = 18.1 ° *RA=37.8°*
(Nose Up,turning right)
ALT= 7,072 FEET
AUTOPILOT DISENGAGED.

TIEMPO:03:45:59
<u>*COCKPIT VOICE RECORDER:*</u>

- *F/O.= SIR*

:03:46:00:- RELIF. CAP.= ADI.

TIEMPO:03:45:59
<u>*FLIGHT DATA RECORDER:*</u>

- *Engines*

LEFT	*RIGHT*
EPR-L=1.614	*EPR 1.581*
EGT-L= 718°	*EGT 705°*

MH = 080 °
GS = 294 KTS
PA = 13.0 ° *RA=44.0°*
(Nose up, right bank)
ALT= 7,072 FEET

TIEMPO:03:46:05
COCKPIT VOICE RECORDER:

- *CAP. = GOD, GOD,GOD.*

TIEMPO:03:46:05
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.608	*EPR 1.569*
EGT-L= 713°	*EGT 708°*

MH = 092 °
GS = 260 KTS
PA = 10.5 ° *RA=7.6°*
(Nose Up, from right bank to the left).
ALT= 6,560 FEET

TIEMPO:03:46:07
COCKPIT VOICE RECORDER:

- *F/O. = NOSE DOWN.*

TIEMPO:03:46:07
FLIGHT DATA RECORDER:

TIEMPO:03:46:11
COCKPIT VOICE RECORDER:

TIEMPO:03:46:11
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.603	*EPR 1.567*
EGT-L= 716°	*EGT 711°*

MH = 087 °
GS = 246 KTS
PA = 5.3 ° *RA=8.8°*
(Nose Up, right bank)
ALT= 6,688 FEET

TIEMPO:03:46:15
COCKPIT VOICE RECORDER:

TIEMPO:03:46:15
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.597	*EPR 1.562*
EGT-L= 716°	*EGT 712°*

MH = 083 °
GS = 230 KTS
PA = 4.6 ° *RA=-5.1°*
(Nose Up, left bank)
ALT= 6,528 FEET

TIEMPO:03:46:19
COCKPIT VOICE RECORDER:

*- F/O. = BY THE NAME OF **GOD**.*

TIEMPO:03:46:19
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.593	*EPR 1.556*
EGT-L= 717°	*EGT 713°*

MH = 078 °
GS = 214 KTS
PA = 8.1 ° *RA=-11.6°*
(Nose Up, left bank).
ALT= 6,336 FEET

TIEMPO:03:46:23
COCKPIT VOICE RECORDER:

- RELIF. CAP. = NOW.
- F/O. = THRUST

TIEMPO:03:46:23
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.599	*EPR 1.560*
EGT-L= 721°	*EGT 715°*

MH = 085 °
GS = 206 KTS
PA = 8.8 ° *RA=17.1°*
(Nose up, right bank)
ALT= 6,240 FEET

TIEMPO:03:46:25
COCKPIT VOICE RECORDER:

-CAP. = DISCONECT THE AUTOPILOT, IS AUTOPILOT DISCONECTED?

-F/O. = ALREADY DISCONECTED, DISCONECTED, SIR

TIEMPO:03:46:25
FLIGHT DATA RECORDER:

TIEMPO:03:46:27
COCKPIT VOICE RECORDER:

TIEMPO:03:46:27
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.439	*EPR 1.396*
EGT-L= 697°	*EGT 672°*

MH = 082 °
GS = 199 KTS
PA = 10.9 ° *RA=-13.2°*
(Nose Up, left bank).
ALT= 6,080 FEET

TIEMPO:03:46:31
COCKPIT VOICE RECORDER:

- RELIF. CAP. = ADI.

TIEMPO:03:46:31
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.162	*EPR 1.146*
EGT-L= 561°	*EGT 561°*

MH = 083°
GS = 193 KTS
PA = 14.4 ° *RA=9.3°*
(Nose up, right bank)
ALT= 5,984 FEET

TIEMPO:03:46:33
COCKPIT VOICE RECORDER:

*-STO. DGO. CENTER= **301 SQUAWK** THREE **SEVEN SEVEN.***

TIEMPO:03:46:33
FLIGHT DATA RECORDER:

TIEMPO:03:46:35
COCKPIT VOICE RECORDER:

TIEMPO:03:46:35
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.140	*EPR 1.142*
EGT-L= 554°	*EGT 563°*

MH = 070°
GS = 184 KTS
PA = 15.5 ° *RA=-31.1°*
(Nose up, left bank)
ALT= 5,824 FEET

TIEMPO:03:46:36
COCKPIT VOICE RECORDER:

-F/O. = STAND BY.

TIEMPO:03:46:36
FLIGHT DATA RECORDER:

TIEMPO:03:46:39
COCKPIT VOICE RECORDER:

- CAP. = NOT CLIMB? WHAT AM I TO DO.

TIEMPO:03:46:39
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.150	*EPR 1.140*
EGT-L= 564°	*EGT 549°*

MH = 073 °
GS = 174 KTS
PA = 12.7 ° *RA=-6.0°*
(Nose Up, left bank).
ALT= 5,696 FEET

TIEMPO:03:46:43
COCKPIT VOICE RECORDER:

- F/O. = YOU MAY LEVEL OFF, ALTITUD OKAY, I AM SELECTING THE ALTITUD HOLD SIR.

TIEMPO:03:46:43
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.134	*EPR 1.136*
EGT-L= 542°	*EGT 537°*

MH = 077 °
GS = 162 KTS
PA = 9.7 ° *RA= 3.9°*
(Nose Up, right bank).
ALT= 5,472 FEET

TIEMPO:03:46:47
COCKPIT VOICE RECORDER:

- CAP. = SELECT SELECT

:48: - F/O. = ALTITUD HOLD.

TIEMPO:03:46:47
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.130	EPR 1.134
EGT-L= 535°	EGT 527°

MH = 078 °
GS = 144 KTS
PA = 11.6 ° RA= -5.3°
(Nose Up, left bank).
ALT= 5,216 FEET

TIEMPO:03:46:51
COCKPIT VOICE RECORDER:

- F/O. = OKAY, FIVE THOUSAND FEET.

TIEMPO:03:46:51
FLIGHT DATA RECORDER:

- Engines

LEFT	RIGHT
EPR-L=1.126	EPR 1.134
EGT-L= 527°	EGT 518°

MH = 094 °
GS = 122 KTS
PA = 6.3 ° RA= 15.5°
(Nose Up, right bank).
ALT= 4,928 FEET

TIEMPO:03:46:52
COCKPIT VOICE RECORDER:

-CAP. = TRUST LEVERS, TRUST, TRUST,
TRUST, TRUST.

TIEMPO:03:46:52
FLIGHT DATA RECORDER:

TIEMPO:03:46:54
COCKPIT VOICE RECORDER:

- *F/O. = RETARD.*
- *CAP. = TRUST, DON'T PULL BACK,*
  DON'T PULL BACK,
  DON'T PULL BACK.

TIEMPO:03:46:54
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.109	*EPR 1.165*
EGT-L= 535°	*EGT 559°*

MH = 113 °
GS = 103 KTS
PA = -7.9 ° *RA= 48.9°*
(Nose down, right bank).
ALT= 4,704 FEET

TIEMPO:03:46:55
COCKPIT VOICE RECORDER:

TIEMPO:03:46:55
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.165	*EPR 1.310*
EGT-L= 581°	*EGT 620°*

MH = 115.8°
GS = 93 KTS
PA = -14.6 ° *RA= 57.1°*
(Nose down, right bank)
ALT= 4,576 FEET

TIEMPO:03:46:56
COCKPIT VOICE RECORDER:

-F/O. = OKAY, OPEN, OPEN.

TIEMPO:03:46:56
FLIGHT DATA RECORDER:

TIEMPO:03:46:57
COCKPIT VOICE RECORDER:

- *CAP. = DON'T PULL BACK, PLEASE*
  DON'T PULL BACK.

TIEMPO:03:46:57
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.523	*EPR 1.646*
EGT-L= 705°	*EGT 708°*

MH = 117 °
GS = 083 KTS
PA = -10.5 ° *RA= 57.7°*
(Nose down, right bank).
ALT= 4,416 FEET

TIEMPO:03:46:59
COCKPIT VOICE RECORDER:

- F/O. = OPEN SIR, OPEN.

TIEMPO:03:46:59
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.251	*EPR 1.622*
EGT-L= 794°	*EGT 719°*

MH = 089 °
GS = 81 KTS
PA = 6.5 ° *RA= 8.3°*
(Nose up, right bank).
ALT= 4,352 FEET

TIEMPO:03:47:01
COCKPIT VOICE RECORDER:

-F/O. = BY THE NAME OF GOD.

TIEMPO:03:47:01
FLIGHT DATA RECORDER:

TIEMPO:03:47:02
COCKPIT VOICE RECORDER:

-RELIF. CAP. = SIR PULL.

TIEMPO:03:47:02
FLIGHT DATA RECORDER:

TIEMPO:03:47:03
COCKPIT VOICE RECORDER:

- CAP. = WHAT'S HAPENING.

TIEMPO:03:47:03
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.124	*EPR 1.638*
EGT-L= 850°	*EGT 738°*

MH = 67.1 °
GS = 0 KTS
(CAS FLAG TO THE FINAL)
PA = -53.3 ° *RA= -99.8°*
(Nose down, left bank).
ALT= 3,520 FEET

TIEMPO:03:47:04
COCKPIT VOICE RECORDER:

TIEMPO:03:47:04
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.089	*EPR 1.626*
EGT-L= 847°	*EGT 744°*

MH = 169.3 °
GS = 0 KTS
PA = -80 ° *RA= 169.3°*
(Nose down, right bank).
ALT= 3,360 FEET

TIEMPO:03:47:05
COCKPIT VOICE RECORDER:

- F/O. = ***OH, WHAT'S HAPENING.***

TIEMPO:03:47:05
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.115	*EPR 1.601*
EGT-L= 845°	*EGT 748°*

MH = 168 °
GS = 0 KTS
PA = -70 ° *RA= 67°*
(Nose down, right bank).
ALT= 3,296 FEET

TIEMPO:03:47:07
COCKPIT VOICE RECORDER:

TIEMPO:03:47:07
FLIGHT DATA RECORDER:

- Engines

LEFT	*RIGHT*
EPR-L=1.085	*EPR 1.439*
EGT-L= 846°	*EGT 756°*

MH = 132.5 °
GS = 0 KTS
PA = -30.1 ° *RA= 26.4°*
(Nose down, right bank).
ALT= 3,040 FEET

TIEMPO:03:47:09
COCKPIT VOICE RECORDER:

- *CAM.(CPWS)= SINK RATE WARNING PULL UP STARTS AND CONTINUES UNTIL THE END.*

TIEMPO:03:47:09
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.099	*EPR 1.474*
EGT-L= 845°	*EGT 858°*

MH = 96.3 °
GS = 0 KTS
PA = -17.6 ° *RA= -9.0°*
(Nose down, left bank).
ALT= 2,368 FEET

TIEMPO:03:47:11
COCKPIT VOICE RECORDER:

TIEMPO:03:47:11
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.093	*EPR 1.620*
EGT-L= 849°	*EGT 832°*

MH = 67.1 °
GS = 0 KTS
PA = -25.6 ° *RA= -28.8°*
(Nose down, left bank).
ALT= 1,696 FEET

TIEMPO:03:47:13
COCKPIT VOICE RECORDER:

- *F/O.= LET'S DO LIKE THIS.*

TIEMPO:03:47:13
FLIGHT DATA RECORDER:

- *Engines*

LEFT	*RIGHT*
EPR-L=1.124	*EPR 1.651*
EGT-L= 857°	*EGT 808°*

MH = 38.3 °
GS = 0 KTS
PA = -34.3° *RA= -34.6°*
(Nose down, left bank).
ALT= 992 FEET

END OF RECORDING.

National Transportation
Safety Board

TELECOPIER TRANSMITTAL COVER SHEET

FAX # (202) 382-1033

DATE: 9-17-96

TO: Jorge Prellezo

FROM: D.R Grossi

SUBJECT: FDR Factual Summary for Berginair B757 accident

WE ARE TRANSMITTING 7 PAGES, INCLUDING THIS COVER PAGE. IF YOU DO NOT RECEIVE ALL PAGES, PLEASE TELEPHONE (202) 382-6790.

C. SUMMARY

Berginair flight 301, crashed shortly after takeoff from General Gregorio Luperon International Airport, Puerto Plata, Dominican Republic. The airplane was destroyed upon impact with the water, and 176 passengers and 13 crew members received fatal injuries. The wreckage came to rest in the Atlantic Ocean at a depth of approximately 7,000 feet.

The flight data recorder (FDR), a Sundstrand Model UFDR-DXUS (s/n 6596), was recovered from the wreckage by the U. S. Navy and taken to the Safety Board's laboratory in Washington, D.C., for readout and evaluation.

The following FDR data summary references selected flight recorder parameters and related Cockpit Voice Recorder (CVR) information. All times reference local time, unless otherwise noted:

- At 03:42:00, the data are consistent with the start of a rolling takeoff from runway 8 at Purto Plata. Approximately 8 seconds later the EPR values reached 1.5, and the autothrottle (A/T) system was engaged.
- At 03:42:23, the first officer called 80 knots, as the ground speed reached 91 knots the computed airspeed (CAS)[1] recorded by the FDR remained at approximately 35[2] knots.
- At 03:42:26, the CVR recorded the captain stating that his airspeed was not working. The FDR CAS values remained at approximately 35 knots while the ground speed values reached 106 knots.
- At 03:42:30, the CVR recorded the first officer (F/O) referencing 120 knots. During the prior second the FDR recorded a ground speed of 120 knots.
- At 03:42:35, the CVR recorded the F/O calling V_1, as the FDR recorded a ground speed of 147 knots and a CAS value of 43 knots. One second later the CVR recorded the first officer calling "rotation", as the FDR recorded a ground speed of 151 knots and a CAS of 42 knots.
- At 03:42:36, the FDR parameters of Pitch Attitude and Elevator Position registered values that were consistent with rotation.
- At 03:42:40, the CAS and pressure altitude values began to increase. The CVR recorded the captain calling "Positive Rate" three seconds later.
- At 03:42:52, the CVR recorded the F/O calling "LNAV", as the FDR recorded LNAV status changing to "Engage".
- At 03:43:00, the CVR recorded the F/O stating "its beginning to operate", as the FDR recorded a CAS value of 125 knots and a ground speed value of 196 knots.

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[1] The source for the FDR CAS values was the captains or left air data computer.

[2] FDR CAS values less than 30 knot are indicated as "0"

- At 03:43:11, the CVR recorded the F/O calling "VNAV", as the FDR recorded VNAV status changing to "Engage", and the thrust management computer changing from the "Takeoff" to "Climb" mode, as the pressure altitude reached approximately 1,200 feet.
- At 03:43:33, the CVR recorded the captain calling for "Flaps Up", as the FDR recorded a pressure altitude of approximately 2,000 feet, and CAS and Ground Speed values of 213 and 223 knots, respectively.
- At 03:43:38, the CVR recorded the completion of the after takeoff checklist. At this point in the flight the difference between CAS and Ground Speed decrease to 6 knots (CAS = 219, G/S = 225).
- From 03:43:20 to 03:43:52, the CAS and Ground Speed values recorded by the FDR indicated a difference of from 1 to 18 knot. The peak ground speed, 229 knots, was recorded at 03:43:46.
- At 03:44:08, the FDR and CVR data indicated that the Center Auto Pilot (A/P-C) was engaged, as the pressure altitude passed through 3,600 feet. The pitch attitude values recorded a slight decrease from 13° to 12° over the next 6 seconds and then began to increase as the CAS increased to 287 knots. It should be noted that the FDR recorded that the Captain's Digital Air Data Computer (DADC) provided the air data reference to the A/P for the entire flight.
- At 03:44:25, the CVR recorded the crew discussing an EICAS [3] "Rudder Ratio, Mach/Speed Trim" Advisory. At this point in the flight the FDR indicated that the airplane was established on a heading of 56 ° and at a wings level /nose up (15°). attitude while climbing through 4,252 feet at approximately 3,000 feet per minute. The CAS had increased to 298 knot while the Ground Speed had decreased to 223 knots. The A/P and A/T remained engaged.
- At 03:44:46, the F/O noted that his airspeed was decreasing and was now at 200 knots. The FDR recorded values for CAS and Ground Speed of 326 and 212 knots, respectively.
- At 03:45:28, the CVR and the FDR recorded the activation of the "Over Speed Warning". The CAS had increased to the peak value of 353 knots and the Ground Speed decreased to 199 knots, as the pressure altitude passed through 6,720 feet. The pressure altitude values continued to increase as the CAS values decreased to 335 knots over the next 20 seconds until the peak altitude of 7,264 feet was recorded at 03:45:48.

[3] Engine Indicating Crew Alerting System (EICAS) "Rudder Ratio" and "MACH/Speed Trim" advisories will be issue if a DADC failure is detected or the cross comparison limits of the Lt. and Rt. DADC are exceed.

- The CVR and FDR did not record any crew action to directly address the EICAS Advisory or observed anomalous airspeed indications. The A/P and A/T remained engaged. The CVR recorded the crew discussing pulling the circuit breaker to silence the "over speed warning" which stopped at 03:45:39.

- At 03:45:46, the VNAV mode was disengaged and the Vertical Speed Mode was engaged. The pitch attitude and angle of attack[4] (local), which had been steady at approximately 15° and -1°, respectively, began to increase as the peak altitude, 7,264 feet, was reached at 03:45:48.

- At 03:45:47, the EPR values began to decreased and the A/T was disengaged at 03:45:50. The EPR values decreased from 1.517 to 1.1 over the next 6 seconds as the pressure altitude began to decrease.

- At 03:45:52, the Pitch attitude and angle of attack values reached 18° and 3°, respectively, as the CVR recorded the sound of the "Stick Shaker" which continued until the end of the recording. In addition, the elevator position values began to increase at 03:45:48, from the previously steady values of between 0.7° and 1.5°, reaching 3.7° when the sound of the stick shaker was recorded. The EPR values increased to 1.6 following stick shaker activation.

- At 03:45:53, the roll attitude values indicated the start of a right roll, which continued for the next 6 seconds. The A/P-C status changed to disengaged as the roll attitude reached 38° one second before reaching the peak value of 48°. Left wing down aileron and left rudder inputs were recorded until the roll attitude returned to near wings level at 03:46:14. During the recovery to wing level the, nose-up elevator input increased to peak value of 15.9° and then decreased to between 10° and 13°.

- From 03:46:14 to 03:46:49, the roll attitude fluctuated from 17° to -33°, as the altitude decreased from 6,592 to 5,024 feet. The EPR values also decreased during this period reaching 1.14 at 03:46:35. This decrease in thrust coincided with the start of the an increase in the nose up elevator, pitch attitude and angle of attack values.

- At 03:46:49, the pitch attitude and angle of attack had increased to 11° and 15°, respectively, in response to increasing elevator input, which peaked at 18.8° at 03:46:48. The ground speed decreased to approximately 140 knots.

- At 03:46:50, the nose up pitch attitude (11°) began to decrease reaching a nose down attitude in less than three seconds, while nose up elevator input of between 15° and 17° were maintained. A roll to right also started at this time.

- The decrease in pitch attitude and right roll continued for the next 6 seconds, until the nose down pitch attitude and the right roll peaked and began to reverse from -15° and 61°, respectively.

[4] The Angle of Attack values recorded by the FDR are local angle of attack and must be converted to wing angle of attack.

- During the remaining 17 seconds of recorded data, the FDR recorded two additional pitch oscillations in response to nose up elevator inputs. The roll data indicated a continuos left roll through 180°. Thrust on both engine increased and then decreased on left engine. The last recorded pressure altitude value, 992 feet, was recorded at 03:47:13, the end of the FDR recording.

D. DETAILS OF INVESTIGATION

1. Description of Data

This model DFDR accepts input signals from a remote Digital Flight Data Acquisition Unit (DFDAU), and stores the data in a crash survivable memory. The DFDR utilizes a two reel co-planar tape transport that holds 388 feet of ¼ inch wide tape. The 8 track tape moves incrementally a 5 inches per second (ips), while recording on one track at a time in a predetemined bi-directional sequence. Data are written on the tape at the rate of 11.4 kilo bits per second; consequently, since the tape is moving at 5 ips approximately 0.36 inches of tape are required to record a one second segment of data. In order to record 25 hours of flight data the tape is backed up after the recording of each one second segment, incremented with a 0.06 inch inter-record-gap and recorded.

The data stream is passed in 8-bit bytes to one of two RAM[5] buffers where it is held until a full 768 bits have been stored. When the RAM buffer is full, an 8-bit preamble and an 8-bit postamble are added to identify the beginning and the end of each data block. When a recording segment is in one RAM buffer, continuing input data are stored in the other RAM buffer while the recorder simultaneously processes the first segment to tape via the read/write electronics. The oldest data are erased before recording new data. End-of-tape sensors at both ends of the tape provide the signal to reverse the drive motor direction and switch the record electronics to the next track. Recording time for one end-to-end pass of the tape is 3.125 hours, thus the recorder will continuously record and retain the last 25 hours of selected flight data.

The DFDAU provides a means of gathering, conditioning, and converting flight data parameters to digital data. The DFDAU provides a serial binary digital data stream to the DFDR at a rate of 768 bits/sec. A binary, or logical one, is represented by a voltage transition between clock transitions.

The DFDAU input signals are time division multiplexed, with parameter identification established by means of position or time slot addresses in the serial data stream output. This output is a continuous sequence of four second data frames. Each frame consists of four subframes of 64 12-bit words with the first word containing a unique 12-bit synchronization (sync) word identifying it as subframe 1,2,3 or 4. The data stream is "in sync" when successive sync words appear at the proper 64-word intervals. If the data stream is interrupted, sync words will not appear at the proper interval or sequence, and the time reference will be lost until the subframe pattern can be reestablished.

[5] The Random Access Memory (RAM) consist of two static CMOS 256 x 4 chips.

2. Recovery of Flight Recorders from Atlantic Ocean

The U.S. Navy's Cable-controlled Underwater Recovery Vehicle (CURVEIII) was used to locate and recover the flight recorders. On February 28, 1996, both flight recorders were located and recovered in little more than 2 hours after the search of the wreckage began. The recorders were flown back to the Safety Board's flight recorder laboratory in Washington, D.C. the same day.

3. Examination of Recorder

The flight recorder was extensively damaged by impact forces, and showed no evidence of fire damage. There was also evidence of hydra-static pressure damage. However, the crash enclosure was not breached, and the tape recording medium was undamaged with no evidence of excessive wear.

4. Readout and Evaluation

a. NTSB Readout

The original magnetic tape recording medium was removed from the damaged FDR, cleaned and dried; and then mounted on an tape transport for playback. The tape was searched, and the data recorded during the accident flight located and transcribed to a disk file for further processing.

The transcription process utilized the Safety Board's Recovery Analysis and Presentation System (RAPS). RAPS processes the raw analog wave form signal from an original or copy tape. The unshaped Bi Phase data output by the FDR is digitized and decoded into binary data. The RAPS also removes the preamble and postamble from the data stream and performs sync detection. When sync is lost the digitized wave form for the problem data are stored for further analysis.

The data were reduced from the recorded decimal values (0 to 4095) to engineering units (e.g., feet, degrees, knots, etc.) by conversion algorithms obtained from the previous operator Eastern Airlines and airplane manufacturer.

b. Evaluation

An examination of the recovered data indicated that the recorder system operated normally. However, data synchronization was lost at 03:44:16 for one second. In addition, the CAS values were not consistent with the other recorded parameters, and should be considered invalid.

The CAS values where consistent with a total blockage of the captains pitot probe. As an aircraft with a blocked pitot probe increases its altitude; the displayed airspeed will also increase. The airspeed will eventually exceed the Maximum opeating airspeed and the affected air data compute will issue and overspeed warning. The air data computer will continue to compute and transmit output data until an out of range condition exits.

5. CVR/DFDR Time Correlation

The FDR and Cockpit Voice Recorder (CVR) recordings were time correlated by comparing the timing of events common to both recording. The radio transmissions and the start of the GPWS warning provided the correlation points. The elapsed time between correlation points as recorded by the CVR and FDR all agreed to within one second.

A correlation to within one second is acceptable given the resolution of the correlation points. The FDR samples microphone keying once per second for 1/768th of a second. Therefore, if the microphone is keyed just after the microphone discrete is interrogated it will not be recorded until the following second and if it is keyed for less than a second it will not be recorded at all. The radio transmission referenced in the CVR transcript, which are presented to the nearest second, were established by the CVR specialist manually recording the start of each event.

Dennis R. Grossi
National Resource Specialist Flight Data Recorders

ANEXO 3
Records de la Tripulación

Pilot Licence

3

Adresi / Address: T.H.Y. A.O. Pilotu - İstanbul

Doğum Tarihi / Date of birth: 12.3.1934

Doğum yeri / Place of birth:

Milliyeti / Nationality: T.C. (Turkish)

Bu lisansın sahibine I C A O Ek, 1'de belirtilen Nakliye Pilot imtiyazları dahilinde, sınıf ve tertipleri 10 ve 11 inci sayfalarda gösterilmiş bulunan uçaklarda pilotluk yapmak yetkisi verilmiştir.

This Licence authorizes the holder, under the privileges of a Transport Pilot mentioned in I C A O Annex 1, to pilot aircraft of the classes and types specified on pages 10 and 11.

Tarihi / Date: 25.3.1968

Ulaştırma Bakanı
Minister of Communications

T.C. ..13./11./1995

ISTANBUL UNIVERSITESI

CERRAHPASA TIP FAKULTESI DEKANLIGI

SAG :

KONU :

BIRGEN HAVACILIK CARTER GURUBU SAN. VE TIC. A.S.

I S T A N B U L

Sirketimiz Pilotlarindan/~~Ucus Muhendislerinden~~...AHMET F.Y. ..ERDEM...3A).Dekanligimiz SIHHI KURULU tarafindan yapilan muayenesi sonucu(ICAO EK 1'e gore HAVAYOLU NAKLIYE PILOTu [redacted] ELVERISLIDIR.) karari almis bulundugumuzu bilgilerinize arz ve rica ederiz.

Muayene baslama tarihi : 13-11-1995

Muayene bitis tarihi : 13.11.1995

SIHHI KURUL

MUAYENE BASKANI Y.

Prof. Dr.

Nuran YAZICIOGLU

7

LİSANSIN YENİLENMESİ
Renewal of Licence

SIHHİ MUAYENE / MEDICAL EXAMINATION — Tahditler / Limitations	Bu lisans aşağıdaki tarihler (dahil) arasında mutebardir / Periods of validity of Licence — From	To	İmza / Signature
GÖZLÜKLE (With eye glasses)	14.12.1992	24.05.93	H. Sasdey
" (")	25.05.93	07.04.94	İSKENDER Daire Başkanı
" (")	17.03.1994	16.03.1995	Racip TOKAÇ Hava Eğitim Plan Daire Başkanı
" (")	12.03.95	11.03.96	

No 312

11

Bu lisans aşağıda gösterilen sınıfa dahil uçaklar için muteberdir.

This Licence is valid for the following classes of aeroplanes

Tarih Date	Uçağın Sınıfı (Class of aeroplane)	İmza Signature
11.3.1968	Çok Motorlu Kara _ MultiEngine Land	
12.04.1994	CAT: II	Racih TOKAÇ Hava Ecüd Plan Daire Başkanı

11

Bu lisans aşağıda gösterilen tipteki uçaklar için muteberdir.

This Licence is valid for the following types of aircraft

Tarih Date	Uçağın tipi Type of aircraft	İmza Signature
11.3.1968	Viscount 794	
7.6.1971	DC-9	
10.5.1974	B.707	
26.12.1977	(Valid for B-707 according to latest ~~technical~~ control)	
27.1.1978	(Valid for B-727 according to latest technical control)	Murat TUĞRUL Uçuş Standartları Daire Başkanı
13.06.1989	DC-8	
27.5.1992	B-757-200	
21.03.95	B.767.200	Racih TOKAÇ Daire Başkanı
02.08.95	B-737-300	Selçuk KÜRECİ Daire Başkanı

UNITED

TRAINING RECORD AND CERTIFICATION

See Regulations 25-2

NOTE: Print your name next to your signature at least once

Copies to: Domicile, DENTK File, Flight Office

(Check one) Captain [XX] F/O [ ] S/O [ ] IRP [ ]

NAME A. ERDEM

File No/Check Digit: W007-D /

Domicile: BIRGENAIR

A/C Type: 757/767

TRAINING COURSE (Check one) Appendix E [ ] H [ ]

[ ] Rating [ ] Certification (F/O, S/O, IRP) [ ] Requal [ ] Recheck [X] Other (Enter below)

COURSE TITLE

B-757/767 SPECIAL RECURRENT TRAINING 3/10/95

[ ] LOFT ___ / ___ (Enter code)

EXAMS COMPLETED (Check appropriate boxes)

[ ] EMER PROC [ ] FOM [ ] CLASS II NAV [ ] [ ]

EVACUATION [ ] Initial [ ] Transition [ ] Recurrent

(Print Name) ___ (Instructor Signature) ___ (File No) ___ (Date) / /

DITCHING [ ] Initial [ ] Transition [ ] Recurrent

___ (Instructor Signature) ___ (File No) ___ (Date) / /

RECOMMENDATION FOR CHECK	Recommending Instructor Signature	File No	Date
	(Print Name) MICHAEL W. BYRON	123735	03/11/95

Grading Legend: S–Satisfactory U–Unsatisfactory I–Incomplete

	Grade	Check Airman Signature	File No	Date
PREFLIGHT		(Print Name)		/
ORAL EXAM		(Print Name)		/
SIMULATOR CHECK	S	(Print Name) MICHAEL W. BYRON	123735	03/12/95
(Circle one) CATEGORY II/III	S	(Print Name) MICHAEL W. BYRON	123735	03/12/95
PC LANDINGS	S	(Print Name) MICHAEL W. BYRON	123735	03/12/95
AIRPLANE CHECK		(Print Name)		/ /

TIMES (Do not include LOFT)

	Training	Check
SIM PAC	2:00	2:00
A/C PAC	:	:
S/O PANEL	:	:

CHECK AIRMAN Right Seat CAT II/CAT III (Circle one) [ ]

NEW FIRST OFFICER Multi-Engine Rating [ ]

Remarks:

EQUIVALENT PROFICIENCY CHECK COMPLETED.

FAA PHYSICAL Class ___ Dated / /

MANUALS CHECKED [ ]

This flight crewmember has been checked/trained as indicated above. Applicable provisions of all Federal Aviation Regulations and the UA Flight Operations Training Manual have been met when satisfactorily completed. Flight Officer's signature below verifies annual required A/V presentations have been reviewed.

PROGRAM MANAGER CERTIFICATION	Signature	Date
		/ /

Flight Officer Signature	Date	Reviewed by Domicile Manager	Date
	12/03/95		/ /

U0 109A REV 7/90

UNITED AIRLINES FLIGHT TRAINING CENTER
B-757/767
PILOT TRAINING RECORD

Name: (Capt. F/O) A. ERDEM

Domicile: BIRGENAIR

Class No.: W007-D 19 95

☐ Upgrade F/O to Capt.
☐ Requal

☐ Initial
☐ Currency
☐ Special
☐ Transition

Date	Sim	Block Time	Total Block	PAC Time	Total PAC	Landings D	Landings N	Gnd Tng.	Instructor File#	Instructor Signature	Pilot Initial
03/11	767-1	4+00	4+00	2+00	2+00		3	1+30	123735	Michael [signature]	
03/12	767-1 757-1	4+00	8+00	2+00	4+00	1	2	1+30	123735	Michael [signature]	

POST RATING/CERTIFICATION LOFT

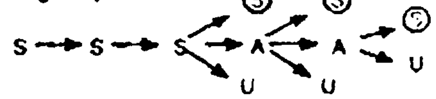
☐ FOM Exam

GRADING LEGEND

S Rating - Satisfactory Proficiency
S Rating - Satisfactory Progress
A Rating - Additional Training Required
U Rating - Unsatisfactory Progress

Comments Required:
After each day's activity and any A or U.

Grading Graphic



S - Maximum of 3 and may be followed only by S, A, or U.
A - Maximum of 2 and may be followed only by S or U.
S or U - May be followed only by S or U.

B – 757/767 FLIGHT TRAINING RECORD

NAME: A. ERDEM

LINE	DATE	3/11	3/12										
	PREFLIGHT												
101	Prestart/Start Procedures	S	S										
102	Taxiing	S	S										
103	Pre–takeoff Checks	S	S										
	TAKEOFFS												
104	Normal D	S	S										
105	Instrument (100 feet)	S	S										
106	Crosswind D	S	S										
107	Engine Failure Before V_2	S	S										
108	Engine Failure After V_2												
109	Rejected	S	S										
110	Go / No–Go Decision	S	S										
	BASIC AND ADVANCED FLIGHT MANEUVERS												
111	Steep Turns	S											
112	Cross Control Maneuvering												
113	Approach to Stalls	S											
114	Slow Flight												
115	Full Stalls												
116	Rolls and Returns												
117	Upset Recoveries												
118	Out–of–Trim Landings												
119	High Altitude Stalls (V/S)												
120	High Speed Demo												
121	Autopilot Override Demo												
122	High Altitude Engine Failure												
123	VMC Demo on Autopilot												
124	Descent Techniques												
125	Speed Brake with Landing Configuration Demo												
	FMC / NAV												
126	Ident/Pos Init	S	S										
127	Route Entry/Runway/SIDs	S	S										
128	Perf. Init.	S	S										
129	Dir. To/Intercept Leg To	S	S										
130	Route Change												
131	Holding												
132	STARS/Approach/Extend Fix	S	S										
133	Use of MCP/AFDS	S	S										

D– Training event normally trained to end level proficiency, S, in a Level D simulator when Level D is required for certification.

B – 757/767 FLIGHT TRAINING RECORD – continued

NAME: A. ERDEM

LINE		DATE	3/11	3/12										
	PRECISION INSTRUMENT APPROACHES													
134	ILS Approach (CAT I)	D	S	S										
135	ILS Autoland (Cat II & III)	D		S										
136	ILS Flight Director with an Engine Inop. (CAT II)		S	S										
137	ILS Raw Data (No F/D, A/P, A/T)		S											
138	ILS Raw Data (Standby Instruments)													
139	ILS Approach (HMG Power)		S											
	NON–PRECISION INSTRUMENT APPROACHES													
140	VOR													
141	NDB													
142	ASR													
143														
144	C/Back Course			S										
45	LDA													
	MISSED APPROACHES													
	From ILS		S	S										
47	With an Engine Inop		S	S										
48	From Non–Precision													
49	Complete Published Missed Approach			S										
50	CAT III Low Altitude Go Around			S										
	LANDINGS AND APPROACHES TO LANDING													
51	Visual	D	S	S										
52	From an ILS	D	S	S										
53	Engine Inoperative	D	S	S										
54	SE ILS Autocouple Manual Go–Around													
55	Crosswind	D	S	S										
56	ling Approach and Landing (Contract Only)													
57	Rejected			S										
8	Night		S	S										
9	Abnormal Flaps		S											
0	Partial Flaps		S											
1	Stabilizer Trim Inoperative		S											
	FLIGHT MANEUVERS AND PROCEDURES													
	Anti–Ice and De–Icing Procedures													
	Area Arrival / Departure		S	S										
	ATC Communications		S	S										
	Holding													
	Windshear			S										

Training event normally trained to end level proficiency, S. In a Level D simulator when ...

B – 757/767 FLIGHT TRAINING RECORD – continued

NAME: A. ERDEM

LINE	DATE	3/11	7/12										
	FLIGHT MANEUVERS AND PROCEDURES – cont'd												
167	CFIT	S											
168	Command	S	S										
169	Judgment	S	S										
170	Cockpit Resource Management	S	S										
	EMERGENCY AND IRREGULAR PROCEDURES												
171	Abnormal Starts	S											
172	In Flight Engine Start												
173	In Flight Engine Shutdown	S	S										
174	EEC Failure	S											
175	Engine Fire, Damage, or Separation	S	S										
176	Engine Overheat												
177	Loss of Both Engines		S										
178	Engine Bleed/ HPSON												
179	FWD Equipment Valve	S											
180	Engine/Wing Anti-Ice Valve Failure												
181	Emergency Quick Return to Landing												
182	Dual Hydraulic System Failure	S											
183	Unscheduled Stabilizer Trim												
184	Jammed Stabilizer												
185	Landing Gear Lever Will Not Move Up												
186	Partial or Gear Up Landing	S											
187	Evacuation	S											
188	Ditching												
189	Rapid Depressurization/Emergency Descent												
190	Trailing Edge Flap Asymmetry/Disagree	S											
191	Leading Edge Flap Asymmetry/Disagree		S										
192	Loss of All Generators												
193	Equipment Cooling Overheat/Smoke	S											
194	ADI/HSI Failure												
195	FMC Failure												
196	APU Fire												
197	Wheel Well Fire in Flight												
198	Other (Specify)												

B I R G E N A I R
Computerized Fax Message

		To	ALAS NACIONALES
Date	13FEB96	Attn	CAPT.H.GUERRA
Pages	:	Copy	
Ref No		From	G.BULAK,MGR CREW PLNG-COOR

Our Fax Number is : 90-212-663 40 65

RE YR FAX DATED 13FEB96

PLEASE FIND HERE UNDER INFORMATION REQUIRED BY INVESTIGATION COMMITTEE

1) TOTAL FLT TIME OF PILOTS :
CAPT A.ERDEM 24750 h
CAPT M.EVRENOSOGLU Over 15000 h
F/O A.GERGIN Over 3500 h

2) TOTAL FLT TIME ON B757 OF EACH PILOT :
CAPT. A.ERDEM 1875 h 00 m

CAPT M EVRENOSOGLU 121 h 30 m
F/O A.GERGIN 71 h 45 m

3) TOTAL TIME LAST 3 MONTHS OF EACH PILOT :

CAPT.	A.ERDEM	DEC95	59 h 25 m
		JAN96	69 h 00 m
		FEB96	NIL
CAPT.	M.EVRENOSLOGLU	DEC95	48 h 30 m
		JAN96	73 h 00 m
		FEB96	NIL
F/O	A.GERGIN	DEC95	NIL
		JAN96	71 h 45 m
		FEB96	NIL

4) DUTY TIME BEFORE ACCIDENT :

NO DUTY ASSIGNMENT SINCE 27JAN96.

5) REST TIME BEFORE ACCIDENT :

LAST FLIGHT ON 27JAN96.

G BULAK

B A C G BIRGENAIR CHARTER GROUP INC.
Domestic Terminal 3rd Floor

11

4

HAVA YOLU NAKLİYE PİLOTU LİSANSI

AIRLINE TRANSPORT PILOT LICENCE

No. 754

Soyadı :
Surname : EVRENESOĞLU

Adı :
Name : Muhlis

İmzası :
Signature of holder :

Adres :
Address :

Doğum tarihi :
Date of birth : 18.07.1944

Doğum yeri :
Place of birth : ANKARA

Milliyeti :
Nationality : T.C. (TURKISH)

Bu lisansın sahibine Pilot Lisans ve Sertifika Talimatında belirtilen Hava Yolu Nakliye Pilot imtiyazları dahilinde sınıf ve tipleri 10 ve 11 inci sayfalarda gösterilmiş bulunan uçaklarda pilotluk yapmak yetkisi verilmiştir.

This licence authorizes the holder the privileges of ATPL pilot, mentioned in the Turkish Regulations for Pilot Licences and Certificates to pilotaircraft of the classes and types specified on pages 10 and 11.

Tarih : 11.08.1995
Date : Yenilenmiştir.
(Renewed)

Ulaştırma Bakanı a.
For Minister of Communications

LİSANSIN YENİLENMESİ
Renewal of Licence

SAĞLIK MUAYENE MEDICAL EXAMINATION Tahditler Limitations
YOK (NONE)
" "
" "
YOK (NONE)

Bu lisans aşağıdaki tarihler (dahil) arasında muteberdir. Periods of validity of Licence		İmza Signature
From	To	
10.9.93	4.6.94	CAN USLU
13.10.94	12.10.95 (B-751)	Raci TOKAÇ Daire Başkanı
13.02.95	12.02.96	
04.10.95	10.07.96	Selçuk KILECİ Daire Başkanı

P.03

10

Bu lisans aşağıda gösterilen sınıfa dahil uçaklar için müteberdir.

This Licence is valid for the following classes of aeroplanes

Tarih Date	Uçağın Sınıfı Class of aeroplane	İmza Signature
[illegible]	[illegible]	Z. altuntaş
13.4.93	The holder of this licence is authorized to operate aircraft under [illegible] to aircraft being equipped accord[illegible]	ÜMİT ÇEDEK Daire Başkanı

Directorate General of Civil Aviation

11

Bu lisans aşağıda gösterilen tipteki uçaklar için müteberdir.

This Licence is valid for the following types of aircraft

Tarih Date	Uçağın tipi Type of aircraft	İmza Signature
[illegible]	[illegible]	Z. altuntaş
[illegible]	[illegible]	Z. altuntaş
[illegible]	[illegible]	Z. altuntaş
3.3.1986	B-727	Hayri KORK[illegible]
23.2.1988	DC-9	Şube Müdürü Teoman Ilge[illegible] Müh.
16.09.1992	B-737-400	Ümit ÇEDEK Şube Müdürü
13.10.94	A-310	Racih TOKA[illegible] Daire Başkanı
15.03.95	B-757/B-767	Racih TOKAÇ Daire Başkanı

Bu lisans aşağıda gösterilen sınıfa dahil
Havaaracı için muteberdir.

This licence is valid for following classes of aircraft

Tarih Date	Havaaracı sınıfı Class of aircraft	İmza Signature
06.02.98	Multi Engine land	Selçuk İLECİ Daire Başkanı
	(See next page)	
13.04.93	CAT II	

Bu lisans aşağıda gösterilen tip
için muteberdir.

This licence is valid for following types

Tarih Date	Havaaracı tipi Type of aircraft	İmza Signature
06.02.98	C-47 / C-160 / PA-23	Selçuk İLECİ Daire Başkanı
03.03.86	B-727	
23.02.88	DC-9	
16.09.92	B-737-400	
13.10.94	A-310	Selçuk İLECİ Daire Başkanı
15.03.95	B-757/B-767	
11.08.95	A-300 B-4	

RECURRENT TRAINING — Signoff Sheet

PAN AM INTERNATIONAL FLIGHT ACADEMY

Trainee Name: Muhlis EVRENOSOGLU   Date Training Commenced: 28-Jan 1996

Position: Captain Pilot   Equipment Type: B-767/B757

GROUND SCHOOL

	Date	Instructor Signature
- Airline Performance		
- Emergency Equipment (Inc. Door Mockups)		
- Systems		

SIMULATOR

MANEUVERS/PROCEDURES

Use of Checklist	S	S
Engine Start and Powerplant Check	S	S
Taxiing	S	S
Rejected Takeoff	–	S
Area Departure & Arrival (w/Icing Conditions)	S	S
Holding Patterns Procedure(Instrument Failure)	S	S
Steep Turns (Rated Only)	S	–
Approach to Stalls	–	–
Takeoff (15 Deg. to 30 Deg. bank)	S	–
Clean	S	–
Landing	S	–
Specific Flight Characteristics	–	–
P[illegible]lant Failure(may be combined w/other maneuver)	–	S
Non-Precision Approach and Missed Approach	–	–
Takeoffs (may be combined)	–	–
Normal	S	–
Instrument	S	–
Crosswind	S	–
Engine Failure After V1	–	S
Normal ILS and Landing (to CAT II if Qualified) CAT II	S	–
Non Precision Approach	S	–
Rejected Landing	–	–
1-Engine Inop Approach & Missed Approach	–	S
2-Engine Inop Approach & Landing	–	–
Windshear Demo	S	–
Cockpit Management	S	S
Judgement	S	S

ABNORMAL & EMERGENCY

(A Minimum of 3 of the Following MUST be Accomplished)

Engine Fire (Must be accomplished)		S
Inflight Start		S
Smoke Source Identification		
Cargo Compartment Fire/Smoke		
Electrical Smoke or Fire		
Hydraulic Failure	S	
One Wing Gear Not Down		
Manual Reversion		
Fuel Jettison		
Electrical Failure		
Wheel Well Fire/Brakes Hot in Flight		
Runaway Stabilizer/Unscheduled Stabilizer Trim		
Jammed Stabilizer Approach	S	
Emergency Descent		
Abnormal Flap Landing	S	
Land Evacuation		S

Period 1 T.A. BRC Instructor Signature 1/28/96 Date

Period 2 T.A. BRC Instructor Signature 1/29/96 Date

PAN AM INTERNATIONAL FLIGHT ACADEMY (PAIFA)

Remarks: B767/B757 Recurrent Training accomplished satisfactorily at the PAN AM INTL. FLT. ACADEMY.

T.A. BRC Instructor Signature 1/29/96 Date

CFII 1796906 ATP

Certificate of Completion

This is to certify that

Muhlis Evrenosoglu

has successfully completed all training requirements
prescribed in the B 757/B 767 training program
for

B 757/B767 Captain

PAN AM
INTERNATIONAL FLIGHT ACADEMY

February 25, 1995

Instructor

Sr. V.P. Operations & Training

Republic of Türkiye
Ministry of Communication
C.I.D.

MEDICAL CERTIFICATE I CLASS

This certifies that (Full name and address)

M.Muhlis EVRENOSOĞLU
AKDENİZ AIRLINES
İSTANBUL TURKEY

D. Birth	Height	Weight	Hair	Eyes	Sex
18.7.1944	1.78	68	BRW	BRW	MALE

Has Full Filled the medical standards prescribed in ICAO Annex I, Chap 6 indicated class of medical Certificate.

LIMITATIONS

Date of Exemination: 29 11. 95

Examiner's Serial No.

Examiner

Signature :

Typed Name : Prof.Dr. Deniz GÜ[illegible]

AIRMAN'S SIGNATURE

T.C.
Ulaştırma Bakanlığı
Sivil Havacılık Genel Müdürlüğü

SAĞLIK SERTİFİKASI I DERECE

Bu sertifika (Tam isim ve adres)

M.Muhlis EVRENOSOĞLU
AKDENİZ AIRLINES
İSTANBUL TURKEY

D. Trh.	Boy	Kilo	S.Rengi	Göz R.	Cinsiyeti
18.7.1944	1.78	68	Kahve	Kahve	Erkek

Bu Sağlık Sertifikası ICAO'nun EK-1 Maddesine Uygun Olarak Yukarıdaki Dereceden Verilmiştir.

LİMİTLER

Muayene Tarihi: 29.11.95

Muayene Eden Uzmanın Sicil No.

Muayene Eden

İmzası :

Adı Soyadı : Prof.Dr. Deniz GÜZELSOY

UÇUCUNUN İMZASI :

MUHL / FLIGHT HOURS DEC95

Date	Flt Nbr	Frm	To	B/Off	B/On	Flt time	Ttl Flt Time
13DEC	KT900	IST	VIE	1025	1235	2 :10	2: 10 GEN
19DEC	AL203	VIE	MUC	0655	0750	0 :55	3: 5 GEN
19DEC	AL203	MUC	KEF	0925	1350	4 :25	7: 30 GEN
19DEC	AL204	KEF	YQX	1455	1820	3 :25	10: 55 GEN
20DEC	AL304	YQX	SXF	0740	1345	6 : 5	17: 0 GEN
21DEC	AL406	CGN	YQX	2055	0325	6 :30	23: 30 GEN
23DEC	AL604	YQX	BSL	0650	1250	6 : 0	29: 30 GEN
25DEC	AL707	CGN	YQX	0735	1350	6 :15	35: 45 GEN
26DEC	AL103	YQX	MUC	0315	0930	6 :15	42: 0 GEN
27DEC	AL305	SXF	YQX	1455	2125	6 :30	48: 30 GEN

TOTAL FLT HRS MUHL - DEC95 : 48 HRS 30 MIN

Aslinin Aynidir

Capt. ERHAN SÜAR
Lic. No. 249

MUHL / FLIGHT HOURS JAN96

Date	Flt Nbr	Frm	To	B/Off	B/On	Flt time	Ttl Flt Time
02JAN	AL201	YQX	POP	1715	2245	5 :30	5: 30 BIR
03JAN	AL202	POP	YQX	0035	0535	5 : 0	10: 30 BIR
04JAN	AL306	YQX	POP	0325	0910	5 :45	16: 15 GEN
06JAN	AL603	POP	POP	0040	0650	6 :10	22: 25 GEN
06JAN	AL603	POP	YQX	0740	1200	4 :20	26: 45 GEN
07JAN	AL704	YQX	POP	0455	0955	5 : 0	31: 45 GEN
09JAN	AL205	POP	YQX	1900	2345	4 :45	36: 30 GEN
10JAN	AL208	YQX	POP	1540	2100	5 :20	41: 50 GEN
15JAN	KT100	EZE	SXM	0745	1510	7 :25	49: 15 GEN
15JAN	KT100	SXM	PUJ	1610	1715	1 : 5	50: 20 GEN
15JAN	KT101	PUJ	POP	1750	1835	0 :45	51: 5 GEN
17JAN	KT2460	POP	YQX	2005	0055	4 :50	55: 55 GEN
18JAN	KT2460	YQX	SXF	0320	0920	6 : 0	61: 55 GEN
[illegible]JAN	KT2460	SXF	DUS	0610	0725	1 :15	63: 10 GEN
20JAN	KT2463	DUS	YQX	0835	1140	3 : 5	66: 15 GEN
22JAN	KT2484	YQX	KEF	1055	1405	3 :10	69: 25 GEN
22JAN	KT2484	KEF	SXF	1545	1920	3 :35	73: 0 GEN

TOTAL FLT HRS MUHL - JAN96 : 73 HRS 0 0 MIN

ASLININ AYNIDIR

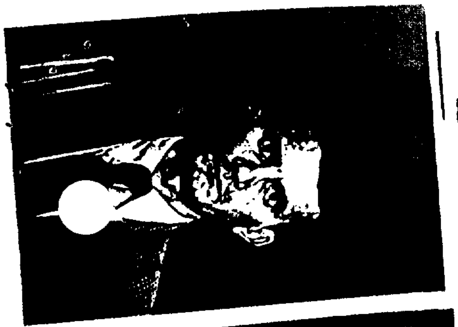
Capt. ERHAN ÇUAR
Lis. No

MUHL /						FLIGHT HOURS FEB96	
Date	Flt Nbr	Frm	To	B/Off	B/On	Flt time	Ttl Flt Time

TOTAL FLT HRS MUHL - FEB96 : 0 HRS 0 0 MIN

ASLININ AYNIDIR

Capt. ERHAN SÜAR
Lis. No. 249



PİLOTU LİSANSI
PILOT LICENCE

Adres : Sultan Hava Yolları İSTANBUL
Address :

Doğum tarihi :
Date of birth : 4.4.1961

Doğum yeri :
Place of birth : İSTANBUL

Milliyeti :
Nationality : T.C. TURKISH

No 1870

Bu lisansın sahibine Pilot Lisans ve Sertifika Talimatında belirtilen Hava Yolu Nakliye Pilot imtiyazları dahilinde sınıf ve tipleri 10 ve 11 inci sayfalarda gösterilmiş bulunan uçaklarda pilotluk yapmak yetkisi verilmiştir.

This licence authorizes the holder the privileges of ATPL pilot, mentioned in the Turkish Regulations for Pilot Licences and Certificates to pilotaircraft of the classes and types specified on pages 10 and 11.

Soyadı :
Surname : GERGİN

Adı :
Name : Aykut

İmzası :
Signature of holder :

Tarih :
Date : 10.9.1993

Erdoğan NAGAŞ
Sivil Havacılık Genel Müdü
Ulaştırma Bakanı a.
For Minister of Communications

T.C.
İSTANBUL ÜNİVERSİTESİ
Cerrahpaşa Tıp Fakültesi Dekanlığı

06/12/ 1995

Sağ. :
KONU : Sağlık Muayene
Sonucu

AKDENİZ HAVA TAŞIMACILIĞI A.Ş.

Şirketiniz birinci pilotlarından Aykut GERGİN 'in Dekanlığımız Sıhhi Kurulu tarafından yapılan muayenesi sonucu, ICAO EK-1'e göre " HAVAYOLU NAKLİYE PİLOTLUĞUNA ELVERİŞLİDİR. " kararı almış bulunduğunu bilgilerinize, arz ve rica ederim.

Sağlık Kurulu Raporu bilahare gönderilecektir.

Sağlık Kurulu Muayenesi Başkanı

Prof. Dr.
Deniz GÜZELSOY

Republic of Turkey
Ministry of Communication
C.I.D.

MEDICAL CERTIFICATE ICAO-Class-1- CLASS

This certifies that (full name and address)

Aykut. GERGIN
BIRGEN-AIR-ISTANBUL

D. Birth	Height	Weight	Hair	Eyes	Sex
4-Apr-1961	1,78	64	Brown	Brown	Male

Has full filled the medical standards prescribed in ICAO Annex I. Chap 6 indicated class of medical Certificate

Date of examination 06 Dec. 1995 Examiner's Serial No.

Signature:

Typed Name: Prof. Dr. Deniz GUZELSOY

Signature

AIRMAN'S SIGNATURE

LİSANSIN YENİLENMESİ
Renewal of Licence

SAĞLIK MUAYENE MEDICAL EXAMINATION
Tahditler Limitations
YOK (NONE)
" "
" "
YOK (NONE)

Bu lisans aşağıdaki tarihler (dahil) arasında muteberdir. Periods of validity of Licence		İmza Signature
From	To	
10.9.93	4.6.94	CAN USLU
13.10.94	12.10.95 (B-751)	Raci TOKAÇ Daire Başkanı
13.02.95	12.02.96	
04.10.95	10.07.96	Selçuk KILECİ Daire Başkanı

... için muteberdir.

... is valid for following classes of aircraft

Tarih Date	Havaaracı sınıfı Class of aircraft	İmza Signature
9.9.93	Multiengine Land (See next Page)	CAN USLU / CAN USLU

İçin muteberdir.

This licence is valid for following types of aircraft

Tarih Date	Havaaracı tipi Type of aircraft	İmza Signature
9.9.93	CE-500	CAN USLU
" " "	AN-24	CAN USLU
10.1.1994	ATR 42	... DEXDEK Daire Başkanı
31.10.94	A-320	Racin TOKAÇ Daire Başkanı
16.03.95	B-757/B-767	Racin TOKAÇ Daire Başkanı
04.10.95	A300 B-4	Daire Başkanı

I. UNITED STATES OF AMERICA XI.
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
THIS CERTIFIES THAT IV. AYKUT GERGIN
V. ATAKOY 5 KISIM E1-1/3 D.90
ISTANBUL TURKEY

DATE OF BIRTH	HEIGHT	WEIGHT	HAIR	EYES	SEX	NATIONALITY VI.
04-04-61	67"	120	BLACK	BROWN	M	TURKEY

IX. HAS BEEN FOUND TO BE PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF
II. FLIGHT INSTRUCTOR III. CERT. NO. 549771465CFI
RATINGS AND LIMITATIONS
XII. AIRPLANE SINGLE ENGINE
ROTORCRAFT-HELICOPTER
XIII. VALID ONLY WHEN ACCOMPANIED BY PILOT
CERTIFICATE NO. 549771465 EXPIRES 05-31-95
VII. SIGNATURE OF HOLDER XIV.
X. DATE OF ISSUE 05-06-93 VIII. ADMINISTRATOR

I. UNITED STATES OF AMERICA XI.
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
THIS CERTIFIES THAT IV. AYKUT GERGIN
V. 120 S CORONADO ST APT 2
LOS ANGELES CA 90057

DATE OF BIRTH	HEIGHT	WEIGHT	HAIR	EYES	SEX	NATIONALITY VI.
04-04-61	67"	120	BLACK	BROWN	M	TURKEY

IX. HAS BEEN FOUND TO BE PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF
II. AIRLINE TRANSPORT PILOT III. CERT. NO. 549771465
RATINGS AND LIMITATIONS
XII. AIRPLANE MULTIENGINE LAND
ROTORCRAFT-HELICOPTER CE-500 R-22
COMMERCIAL PRIVILEGES
XIII. AIRPLANE SINGLE ENGINE LAND & SEA
VII. SIGNATURE OF HOLDER XIV.
X. DATE OF ISSUE 07-16-92 VIII. ADMINISTRATOR

UNITED STATES OF AMERICA
Federal Communications Commission
Restricted Radiotelephone Operator Permit

AYKUT GERGIN

is authorized to operate any radio station which may be operated by a person holding this class of license. This permit is issued in conformity with Paragraphs 3454 and 3945 of the Radio Regulations, Geneva 1987, and is valid for the lifetime of the holder unless suspended by the FCC.

Not Valid Without FCC Seal

10 27 92

FCC Form 753-Part 2

JAN-29-96 MON 08:35 PM LA QUINTA 667 MIAMI FAX NO. 305 594 0550 P.04

... SIGNATURE

Davet Dominn

Certificate of Completion

This is to certify that

Aykut Gergin

has successfully completed all training requirements
prescribed in the B 757/B 767 training program
for

B 757/B767 F/Officer

PAN AM
INTERNATIONAL FLIGHT ACADEMY

Instructor

February 28, 1995

Sr. V.P. Operations & Training

CURRENT TRAINING — Signoff Sheet

PAN AM INTERNATIONAL FLIGHT ACADEMY

Trainee Name: Aykut GERGİN **Date Training Commenced:** 28. Jan. 1996

Position: F/O **Equipment Type:** B767/757

GROUND SCHOOL

	Date	Instructor Signature
- Airline Performance		
- Emergency Equipment (Inc. Door Mockups)		
- Systems		

SIMULATOR

MANEUVERS/PROCEDURES

Use of Checklist	S	S
Engine Start and Powerplant Check	S	S
Taxiing	S	S
Rejected Takeoff	–	S
Area Departure & Arrival (w/Icing Conditions)	S	S
Holding Patterns Procedure(Instrument Failure)	S	S
Steep Turns (Rated Only)	S	–
Approach to Stalls	–	–
Takeoff (15 Deg. to 30 Deg. bank)	S	–
Clean	S	–
La	S	–
Special Flight Characteristics	–	–
Powerplant Failure(may be combined w/other maneuver)	–	S
Non Precision Approach and Missed Approach	–	–
Takeoffs (may be combined)	–	–
Normal	S	–
Instrument	S	–
Crosswind	S	–
Engine Failure After V1	–	S
Normal ILS and Landing (to CAT II if Qualified) /CAT II	S	–
Non Precision Approach	S	–
Rejected Landing	–	–
1-Engine Inop Approach & Missed Approach	–	S
2-Engine Inop Approach & Landing	–	–
Windshear Demo	S	–
Cockpit Management	S	S
Judgement	S	S

ABNORMAL & EMERGENCY

(A Minimum of 3 of the Following MUST be Accomplished)

Engine Fire (Must be accomplished)		S
Inflight Start		S
Smoke Source Identification		
Cargo Compartment Fire/Smoke		
Electrical Smoke or Fire		
Hydraulic Failure	S	
One Wing Gear Not Down		
Manual Reversion		
Fuel Jettison		
Electrical Failure		
Wheel Well Fire/Brakes Hot in Flight		
Runaway Stabilizer/Unscheduled Stabilizer Trim		
Jammed Stabilizer Approach		
Emergency Descent		
Abnormal Flap Landing	S	
Land Evacuation		S

Period 1 T.A. Broe 1/28/96
Instructor Signature Date

Period 2
Instructor Signature Date

PAN AM INTERNATIONAL FLIGHT ACADEMY (PAIFA)

Remarks: B767/B757 Recurrent training accomplished satisfactorily at the PAN AM INTL. FLT. ACADEMY.

T.A. Broe 1/29/96
Instructor Signature Date
CFII 1796906 ATP

GERG / FLIGHT HOURS JAN96

Date	Flt Nbr	Frm	To	B/Off	B/On	Flt time	Ttl Flt Time
07JAN	AL705	POP	YQX	2000	0045	4 :45	4: 45 GEN
08JAN	AL703	YQX	POP	1815	2400	5 :45	10: 30 GEN
14JAN	KT704	POP	PUJ	1440	1530	0 :50	11: 20 GEN
14JAN	KT705	PUJ	POP	1820	1910	0 :50	12: 10 GEN
14JAN	KT706	POP	SXM	2010	2130	1 :20	13: 30 GEN
14JAN	KT706	SXM	EZE	2220	0610	7 :50	21: 20 GEN
15JAN	KT100	EZE	SXM	0745	1510	7 :25	28: 45 GEN
15JAN	KT100	SXM	PUJ	1610	1715	1 : 5	29: 50 GEN
15JAN	KT101	PUJ	POP	1750	1835	0 :45	30: 35 GEN
18JAN	KT2460	YQX	PVR	0155	1000	8 : 5	38: 40 GEN
19JAN	KT2460	PVR	YQX	1535	0205	10 :30	49: 10 GEN
19JAN	KT2461	YQX	GDI	2045	0430	7 :45	56: 55 GEN
19J.	KT2461	GDI	PVR	0520	0600	0 :40	57: 35 GEN
19JAN	KT2461	PVR	ACA	0650	0805	1 :15	58: 50 GEN
23JAN	KT2463	ACA	CUN	0040	0245	2 : 5	60: 55 GEN
[illegible]JAN	KT2484	CUN	YQX	0420	0925	5 : 5	66: 0 GEN
2[illegible]JAN	KT2485	YQX	CUN	0845	1430	5 :45	71: 45 GEN

TOTAL FLT HRS GERG - JAN96 : 71 HRS 45 MIN

ASLININ AYNIDIR

GERG / FLIGHT HOURS FEB96

Date	Flt Nbr	Frm	To	B/Off	B/On	Flt time	Ttl Flt Time

TOTAL FLT HRS GERG - FEB96 : 0 HRS 0 0 MIN

ASLININ AYNIDIR

Lis. No. 249

ANEXO 4

Programas de Entrenamientos
(United y Pan Am)

UAL SERVICES

A division of United Airlines

DENFS Deacon Yantiss
WHQFS Denny Lessard

DENUS Dena Appleton

03/27/96

Deacon, as per our conversation on 03/26/96, the following is the information you requested.

BIRGENAIR
TRAINING SUMMARY

- According to our Accounting Files, the first time UAL conducted training for this customer was in March of 1989. This was a DC-8-61 Transition Course.

- 03/13/89 through 04/05/89 - Captain Erdem received DC-8-61 Transition Training. The course was conducted with UAL instructors, being utilized through a "Vendor", FMP of Miami. Training records for Captain Erdem are not available for this course.

- We began B757 Training with this customer in February of 1992. UAL conducted the ground training only for a group of three crews. The simulator portion was conducted at BOEING. None of the crew members involved in the accident of February 5, 1996 were involved in this training.

- Captain A. Erdem is the only crew member involved in the crash of February 5, 1996 to train with UAL. In addition to the DC-8-61 training course described above, he attended a four day B757/B767 Recurrent Program on March 10, 1995. This class was conducted with UAL instructors, utilizing our manuals, procedures and checklists. The simulator syllabus was provided by Birgenair due to the differences in their program requirements.

- The following information is included for your review:
  - -Correspondence prior to March 1995 B757/B767 Recurrent Training Course
  - -Course Syllabus for Ground and Simulator Training
  - -Current Flight Training Agreement
  - -Recurrent Training Records for Captain A. Erdem

UA TAKEOFF SAFETY POLICY

In the high speed regime, especially at speeds near V_1, a decision to reject should be made only if the failure involved would impair the ability of the airplane to be safely flown.

The "80 knots, thrust set" callout should alert the crew that they are approaching the high speed phase of takeoff. In the high speed regime, the Captain's bias should be to continue the takeoff, unless there is a compelling reason to reject. Conditions that may validate a stop decision include, but are not limited to, engine failure, fires, or any malfunction where there is doubt that the airplane will fly.

Any malfunction that does not impair the ability of the airplane to be safely flown ***does not*** warrant an abort in the high speed phase of takeoff. During the departure briefing, the Captain should clearly communicate this to the flight crew.

This Takeoff Safety Policy does not advocate that a "GO" decision be made at or just after the "80 knots, thrust set" callout. Even though the airplane is approaching the high speed regime, the Captain must make the decision to *stop* or *go* based on the nature and severity of the malfunction and its proximity to V_1. At or beyond V_1, takeoff should be continued due to the possibility of insufficient runway available to stop the airplane if a "STOP" decision is made. Finally, this Takeoff Safety Policy ***is*** intended to call attention to the ever changing decision making challenges possible during the takeoff phase of flight.

PNF ENGINE INDICATIONS .... MONITOR

Observe the EICAS CRT displays are normal.

PNF AIRSPEEDS .... CALL OUT

Call out "80 knots, thrust set" as 80 knots is reached. This call provides:

- Verification that desired thrust is set
- Airspeed indicator cross-check
- An alert that the high speed phase of takeoff is being approached where the "go/no go" decision is more critical

After takeoff thrust is set, the Captain's hand must be on the throttles until V_1 is called. The Captain's hand should be removed from the throttles at V_1 to reinforce the "go" decision and to help prevent an inadvertent, instinctive action to abort the takeoff above V_1.

Call "V_1" 5 knots prior to the calculated V_1 speed. This ensures completion of the callout by V_1 and recognizes reaction time necessary to initiate the abort prior to reaching V_1.

Call out "V_R" and "V_2" as these speeds are reached.

Maintain directional control throughout the takeoff roll by using the rudder to keep the airplane on the runway centerline. Use the ailerons as necessary to maintain a wings level attitude. When controls are properly applied, roll tendency at liftoff is minimized. Use stable control forces and avoid abrupt inputs.

At the start of the takeoff, maintain forward pressure on the control column. Just prior to V_R speed, relax this pressure to begin rotation at V_R speed. Rotate the airplane smoothly and continuously (approximately 3° per second) until a stabilized climb speed of $V_2 + 15$ is reached. During a proper rotation, you will reach V_2 at 35 feet above the runway. In gusty or windshear conditions, consider delaying rotation and increasing initial climbout speed.

Early, rapid or overrotation may cause tail contact with the runway. Pausing during rotation, or late, slow or underrotation increases takeoff ground run.

During night flight, the use of both integral and panel flood lighting is recommended in order to prevent a blackout in the event of power loss to one system.

TAKEOFF

Flight directors and autothrottles are recommended for all takeoffs.

The required field length is virtually the same for rolling and standing takeoffs. A rolling takeoff is recommended because it expedites the takeoff and reduces FOD risk.

For takeoff from a full stop, align the airplane on the runway and set the parking brake. Do not rely on holding the brake pedals since diversion of attention may result in unnoticed airplane movement. On an icy or wet runway, be alert for airplane movement since the locked brakes may be inadequate as thrust is increased.

When the airplane is in the active runway environment (crosses the "hold" line):

F/O WING LIGHTS .... AS REQUIRED

F/O WHITE ANTICOLLISION LIGHTS .... ON

When takeoff clearance has been received:

PNF HDG INDICATOR .... SET
Set assigned heading or runway heading.

C LANDING LIGHTS .... ON

PNF PARKING BRAKE .... VERIFY RELEASED

C, F/O TAKEOFF THRUST .... SET
Following EGT stabilization at approximately 1.10 EPR, PF advance throttles toward the target EPR. If autothrottle is not used: PF advance throttles to approximately 1.10 EPR and allow engines to stabilize; then, advance throttles smoothly toward the target EPR.

Correct throttle technique prolongs engine serviceability and reduces parts replacement. Use slow and steady throttle movement when applying or reducing thrust, while simultaneously monitoring the engine indications to avoid exceeding the associated operating limitations (rpm, EGT or EPR). The ***rate*** at which thrust is applied has a direct relationship to the EGT reached when applying takeoff thrust.

C EPR SWITCH .... PUSH
Observe the EPR stabilize at the EPR reference bugs by 80 knots.

CAUTION

Do not attempt a takeoff if the configuration warning occurs early in the takeoff roll. Discontinue the takeoff and correct the condition.

Should the configuration warning occur when the airplane is committed to takeoff, a rotation speed greater than V_R is recommended.

Proficiency Check (PC) Systems Review

Administration:

- Grade FOM and Systems Review Exams, and discuss any missed items.
- Ensure all manuals are current.
- Ensure all PITs have a current Medical. (1st Class is required if Initial ATP Rating)
- Handout:
  - Blue Non–Precision Approach Plates
  - 757/767 Differences
  - Briefing Card (if required)
  - PC Volume Review Worksheet (Attch F)
- Advise PITs to meet their instructor in the Pilots Lounge for Day 2 and Day 3.

COURSE SYLLABUS

Handbook Review

Handbook Procedural Index – Indexed by EICAS Message.

During extension of flaps one for an approach, the LE (and/or TE) light comes on and the EICAS message "LE DISAGREE" message appears. (I–50)

- What should you do?
- If problem is not solved, what flap setting should be used for landing?
- What is the target airspeed?
- What does the Caution Note say?

During Engine Start:

- What will you see in the way of an electrical load shed?
- Will you always get a load shed when you start the engines? (APU)
- What is the electrical power source priority for the main buses?
- What do you do if the Starter Switch remains in the Ground position after 50% N2? (E–4.1)
- What do you do if the Valve Light fails to cycle on and then off or the light fails to come on at all after the Starter Switch moves to the Auto position at 50% N2? (E–4.1)
- Why does the immediate actions have you remove all the air sources from the aircraft?

During Engine Start, the EGT rises rapidly toward the maximum allowable temperature. (E–1)

- What is the immediate action procedure?
- Why do you motor the engine for 30 seconds or until 180 degrees is reached?
- Then what do you do and why?

During Takeoff in icing conditions, you turn on the Wing Anti–Ice and one of the valve lights stays illuminated.

- What do you do about it and why? (I–64)

During flight, you lose the Left (or Center or Right) Hydraulic System pressure. (I–45 through 49)

- What is the indication that the system pressure has gone low?
- Are there any Immediate Actions?
- Are there any Reference Actions?
- What items are affected by this loss?
- How will the lost item affect operations and landing?
- How will the brakes be affected?

During flight, the Pneumatic Bleed (or Hi Stage or Duct Leak) Light illuminates. (I–69 through 73)

- Are there any Immediate Actions?
- Are there any Reference Actions?
- What does system logic do about a Bleed light on the 767?
- Will the high demand items operate normally on the 767 with a center hydraulic failure?

During flight, the Right (Left) Engine Fire light illuminates. (E–10 & T&R 5–5)

- Are there any Immediate Actions?
- What happens to the system as you perform each step of the Immediate Actions?
- How will you cross–feed the fuel?
- What conditions cause the Fuel Configuration Light to illuminate? (757/767)

During flight, the Forward (Aft) Cargo Fire Warning Light illuminates. (E–12)

- Are there any Immediate Actions?
- Why select the #1 Bottle first?
- When do you discharge the remaining bottle?
- Is the procedure different on the ER aircraft?

Systems Review Items:

Check ride will most likely be in the 767 simulator. To become more familiar with the 767, the following review items are recommended:

- Single Engine Inoperative Takeoff and Landing profiles (T&R p. 12–27 to end of chapter.)
- Autoland Callouts – Handout, T&R 12–33 through 33 and P&P N–24.
- 767 Climb Mode requires use of the TMC Climb Button
- TAI indications and differences. (T&R 4–16 & 11–13)

"T" Procedures for Denver. FOM

- T1 – In case of engine failure on takeoff with South Departure, left turn to 080 at 5850' MSL.
- T2 – In case of engine failure on takeoff with West Departure, begin right turn to 010 deg mag at 5850' MSL.

Windshear indications and procedures. (P&P A–31 through 35)

APU use for takeoff is ***not*** a requirement for any weather condition. MEL requires two electrical power sources for Dispatch, so APU is not a required dispatch item if both engine generators are operative; therefore:

- The APU is ***not*** a required dispatch item.
- With on generator operating, all flight systems will function normally.
- There is no reason to have the APU operating during takeoff.
- The APU ***shall*** be operative (not necessarily running) for eastbound ETOPS operations.
- The APU ***may*** be inoperative for westbound ETOPS operations to position the aircraft for APU repair.
- It is still the Captain's prerogative to accept an aircraft with an inoperative APU.

Crew Caused Delays:

The 767–300 ER Standby Engine Indicator is blank prior to engine start, and may remain blank until the N1 and N2 signals from the RPM sensors stabilize. Adhere to SOP during engine start and leave the Standby Engine Indicate OFF to preclude any confusion about whether or not this is a normal state of affairs.

Delays are being incurred due to Flight Attendants reporting "no galley power" just before pushback.

- What two load sheds are likely during the pushback time frame?
  - Engine Start Load Shed.
  - Additional Load Shed (APU & External Power)

Non–data base airport for departure/arrival (Unable to enter either the departure or the arrival airport)

- Procedure for dispatch to non–data base airport.
  - Destination – Leave blank
  - Route – Load Normally
  - Destination – Insert as Lat/Long waypoint on the Legs or Route pages
- Procedure for dispatch from a non–data base airport.
  - IRS Position – Enter
  - Update Pos Init page, Line 4R "Set IRS Pos" using:
    a. Line 1R "Last Pos" or
    b. Lat/Long from Jeppesen airport page
- Origin Airport boxes – Leave blank
- Route – Load Normally
- SIDs are not in data base.

Airplane Systems Review

- Answer the major airplane systems with emphasis on:
  - The systems not normally used during day–to–day operations.

Final Administration

- Check off "FOM," "EMER PROC" and "MANUALS CHECKED" blocks on Annual Training Form.
- Annotate "System Review Complete. Recommend Oral exam." on Form

FEB. 15. 995

B.757/B.767.200ER TWO PERIODS SIMULATOR DETAIL FOR BIRGENAIR CREW

1. PRD	2. PRD
ALL T/O & LNDS X WIND	ALL T/O & LNDS X WIND
ABNORMAL ENG. STARTS E.1 HUNG START NO STARTER CUT	NORMAL ENG. START.
HEAVY T/O & LNDS 345.000 Lb/278.000 Lb REDUCED THRUST T/O → MAX. THRUST REJECTED TAKEOFFS RTO LOW SP. REGIME — HIGH SP. REGIME BEFORE 80 KT — AT OR ABOVE V1 * ENG. FIRE OR * SEVERA DAMAGE SINGLE ENG. APP & GOAROUND. MAX. LND. WT.	SAME AS
STEEP TURNS. 180°. 250 KT. 15000'	ILS. BACK COURSE APP.
STALLS – CLN / T.O / LND. CONF.	HMG - DISCUSS
EEC OFF – L/R	LEADING EDGE SLAT ASMY. 1-53
EQUIPMENT COOLING OVHT – 1.76	WINDSHEAR
HYD. MALFUNCTIONS	LOSS OF BOTH ENGINES E.2
ALT. FLAP EXT	CAT. II APP & G/A – SINGLE ENG
ALT. GEAR EXT.	CAT III APP & G/A
PARTIAL G/G UP LND.	CAT III APP & LAND.
TRAILING EDGE FLAP ASMY. 1.54	

To MIKE BYRON
BEST REGARDS

DANY ORHUN
CAPT

The Pan Am International Flight Academy is located on the north side of Miami Int'l Airport at 5000 N.W. 36th Street. The facility is three stories with a total usable area of 150,000 square feet. In addition to office/administrative facilities, there are over 78 class/training rooms and 10 simulator bays. Eight of the bays are each 40 x 40 feet and 3 stories high. Two are 25 x 35 feet and two stories high. Each simulator bay has an adjacent individual environmentally controlled computer room and hydraulic room. Currently, nine (9) bays are occupied. The B767-200ER simulator is located in the bay formally occupied by MD82 with the entrance through door 146.

Each simulator bay has three (3) adjacent briefing rooms. These rooms also house procedure trainer mockups and are utilized to train crew members in all procedures prior to entering the simulator phase.

There are 20 fully equipped classrooms each with a rear projection room, TV and VCR. Additionally all lighting as well as audio/visual controls are centralized in each classroom at the instructor's podium. Classrooms can accommodate up to 25 students comfortably.

There are 32 carrel rooms, each equipped with a cockpit mockup. Tape recorded instructions and back lighted instrument panels permit each student to learn at their own pace. The tape is synchronized with color slides projected on the windshield. These rooms accommodate up to 3 students plus instructor. There is one carrel rooms equipped with a B767 cockpit mockup. One carrel room has a B767 functioning CPT.

767 emergency equipment training is conducted in rooms 172 and 182 which has a cabin evacuation trainer, emergency equipment main cabin door trainer and over wing escape hatch trainer. Hands-on emergency equipment training is also conducted in room 182. A fire pit is located in room 189 which is used for demonstration and training in fire fighting equipment.

A 40 feet by 40 feet by 5 feet deep emergency training pool, utilized for survival training including raft inflation and survival gear use, is located on the west side of the building.

Facilities for the demonstration and actual use of emergency escape slides is located adjacent to the pool.

Birgen Air

PAN AM.
SYLABUSS

1.	Airplane-General/Emergency Equipment/Door Mockup		7:30
2.	Airplane Performance and Weight & Balance		7:30
3.	Systems Ground School		30:00
4.	Systems Intregation Training		30:00
5.	Flight Simulator		
	.Briefing		14:00
	.Simulator Training		12:00
	.Line Oriented Flight Training	4:00	
	.Debriefing		3:00
6.	FAA Oral		As Required
7.	FAA Simulator Rating Check		As Required
8.	Pilots not elgibel for advanced simulation as described on pages 2 & 2a must have a check in the aircraft.	As Required	
	.Airplane Training		As Required
	.FAA Airplane Rating Check		As Required

Aircraft-General
- Exterior dimensions
- Doors and windows
- Exterior lighting
- Flightdeck
- Flightdeck lighting
- Door alternate operation
- Minimum equipment list
- Configuration deviation list
- Aircraft limitations
- Servicing
    - -Fuel
    - -Oil
    - -Water
    - -Oxygen
    - -Landing gear

Emergency Equipment/Door Mock-up
- Location of emergency equipment
- Crew coordination
- Human factors
    - -Respiration and circulation
    - -Hypoxia
    - -Decompression
    - -Duration of consciousness without oxygen
    - -Familiarization with first aid kit
- Hands-on training
    - -Each type of fire extinguisher
    - -Portable oxygen
    - -Donning and use of protective breathing equipment
    - -Donning and inflation of life preservers
    - -Main entry door
    - -Crew service door
    - -Overwing emergency exit hatch
    - -Emergency evacuation
    - -Slide jump
    - -Ditching procedures

-Aircraft operating manual performance calculations

- i. Takeoff gross weight limits
- ii. Thrust and performance options
- iii. Landing gross weight limits
- iv. Water, slush, snow and ice corrections
- v. Cruise operating charts
- vi. Conversion charts
- vii. Flight planning
  - a. Weather considerations
  - b. Fuel considerations
  - c. Payload considerations
  - d. Minimum equipment list considerations
  - e. Aircraft configuration considerations

-Aircraft Weight & Balance

- i. Normal procedures
- ii. W & B forms
- iii. W & B procedures
- iv. Airport analysis
- v. Runway/climb limitations
- vi. Landing limitations

Systems ground school is taught using visual equipment in a procedures trainer mockup (cockpit environment). Evaluation quizzes will be programmed into each system lesson after appropriate blocks of learning to permit the instructor to evaluate the trainees progress. Additionally, after completion of each airplane system, the instructor will evaluate the trainee to ascertain satisfactory accomplishment of the objective for that system. If it becomes necessary (due to equipment breakdown, etc.) the lecture method of presentation, with appropriate visual graphics, may be utilized in lieu of the visual method noted above.

Modules cover the following systems:

- -Airconditioning/pressurization
- -Electrical
- -Fire Protection
- -Flight Instruments
- -Hydraulic systems
- -Landing Gear and Brakes
- -Powerplants
- -Autoflight
- -Emergency Equipment
- -Flight Controls/Wing Flaps
- -Fuel Systems
- -Ice and Rain Protection
- -Pneumatics
- -APU

Each module will be constructed with the following outline:

-Description of the system:
  - i. Basic system layout and function
  - ii. Panel location

-Controls and Indicators:
  - i. Function and use of all system controls and indicators

-Normal Operation:
  - i. Preflight checklist
  - ii. Normal checklist
  - iii. Other system operation considerations

-Alternate Operation:
  - i. Alternate checklist
  - ii. Other system operation considerations

-Abnormal Operation:
  - i. Abnormal checklist
  - ii. Other system operation considerations

-Emergency Operation:
  - i. Emergency checklist
  - ii. Other system operation consideration

The instructor will evaluate each trainee to ascertain satisfactory performance. The trainee must be able to perform normal, alternate, abnormal and emergency operation of the system.

The modules are conducted in a Cockpit Procedures Trainer (CPT). The CPT is a full scale cockpit mockpup with functioning panels, controls and indicators. Each module will consist of a 2 hour pre-CPT briefing, 4 hours of CPT operation and 1.5 hours debriefing.

Most of the procedures training is conducted in a flight sequence format. Trainees are required to "role play" their positions and maintain a realistic flight environment. Cockpit management and command are stressed. As procedures are accomplished in the CPT, each trainee must touch the appropriate controls and indicators and make the CPT "come alive" by describing the responses that are observed.

CPT outline
- -Review of all cockpit controls and indicators
- -Checklist management
- -Cockpit management
- -Radio Check
- -Drill and practice on all normal checklist items
- -Drill and practice in normal, alternate, abnormal and emergency procedures in the following systems
    - -Airconditioning and pressurization
    - -APU
    - -Autoflight/AFDS
    - -Electrical
    - -Fire protection
    - -Flight controls and wing flaps
    - -Flight instruments/EFIS
    - -Fuel
    - -Hydraulics
    - -Ice and rain protection
    - -Landing gear and brakes
    - -Navigation/FMC
    - -Pneumatics
    - -Powerplants
    - -Warnings

During each of the procedures training modules, cockpit controls and indicators will be reviewed. Checklist management, cockpit management, preflight preparation, procedural compliance and performance will be reinforced throughout this training. In addition, the following training will be provided:

- -Alternate operation
    - -Instruction in the use of various alternate operating procedures.
    - -Directed drill and practice to proficiency.
- -Abnormal and emergency checklist procedures
    - -Instruction in the use of abnormal and emergency checklist procedures that pertain to that system.
    - -Directed drill and practice to proficiency.

Evaluation - Each trainees will occupy normal cockpit positions and perform assigned duties and functions. Instructor will observe and evaluate the crew-concept performance of assigned problems. All normal checklist will be performed. A representative sampling of alternate, abnormal and emergency procedures will be performed. Knowledge of airplane certificate limitations will be evaluated.

Each trinee will receive a Pre-FAA oral. The instructor must ensure the trainees readiness for the FAA oral.

1. All phase 1 emergency procedures
2. Airplane systems and operations
3. Instrumentation and crossovers
4. Powerplant and airplane limitations
5. Takeoff computations and performance
6. Weight & Balance

Review airplane systems by covering the function of all cockpit controls and indicators. This period provides an opportunity to review and summarize the previous ground school training and reinforce that training where necessary. Instructor will conduct a reverse briefing/ briefing, as appropriate, on the operation of all cockpit controls and indicators. After complete coverage of all cockpit controls and indicators, instructor will highlight individual weak areas to each trainee for further self-study and review.

Conduct a complete review of the flight guidance systems in all modes of operation.

Review the philosophy of Normal Checklist use. Practice cockpit management and Normal Checklist use in a simulated flight sequence. This is the first exposure to normal operation in a flight sequence. During this sequence, trainees must make every effort to "role play" their crew positions and achieve as realistic a flight environment as possible. Cockpit management and command is stressed. One trainee must "fly" the airplane.

Performance Problem Review (Performance problems to be completed before class) Thoroughly review the philosophy of Normal Checklist use with special emphasis on the following:

-Station preparation prior to calling for the checklist.
-The concept of a "check" list vs. a "do" list.
-Effective checklist management being a vital element in overall cockpit management.
-Importance of using proper checklist response terminology.

Normal Flight Sequence. Each trainee perform the following sequence from the left seat with the other trainee occupying the right seat. Instructor will provide ATIS and ATC clearances.

a. Interior safety check.
b. Preliminary cockpit preperation
c. Cockpit preparation
d. Setting radios for departure.
e. Setting FMC & CDU
f. Prestart checklist
f. Engine starting procedures.
g. Pretaxi checklist.
h. Taxi checklist
i. Takeoff Checklist
J. Normal takeoff and area dept. (incl. AFDS/FMC).
k. After takeoff checklist.
l. Climb & cruise procedures.
m. Descent checklist.
n. Approach briefing
o. Approach checklist
p. Setting radios for approach.
q. Approach radio check
r. area arrival and ILS approach. (incl. AFDS/FMC).
s. Landing checklist
t. Blocks & terminal checklist.

Review Normal Checklist use and normal flight sequence from Procedurres Training One to proficiency. Review the philosophy of Abnormal and Emergency Checklist use. Practice cockpit management and Normal Checklist use. To become familiar with Abnormal and Emergency Checklist use and selected alternate operating procedures in a simulated flight sequence. During the flight sequence, trainees must make every effort to "role play" their crew positions and achieve as realistic a flight environment as possible. Cockpit management and command must be stressed. One trainee must "fly" the airplane.

Performance Problem Review. (Performance problems to be completed prior to class).

Thoroughly review the Philosophy of Abnormal and Emergency Checklist use with special emphasis on the following:

-Initial steps of certain Alternate Operation Procedures require immediate action and must be accomplished from memory, such as: aborted engine start, engine stalls/ over temps, excessive RPM, etc.
-"Do" list concept of Abnormal and Emergency Checklists, rather than "check" list concept of the Normal Checklist.
-Use of integrated operating checklists on the Abnormal Checklist.

Flight sequence. The trainees should spend half the time in each pilots seat. Instructor will provide ATIS and ATC clearances.

1. Interior safety check.
2. Preliminary cockpit prep.
3. Cockpit preparation.
4. Setting Radios/FMC/CDU dept
5. Prestart checklist.
6. APU fire.
7. Engine start.
   -Battery start - External air.
   -Hot start -Hung start.
8. Pretaxi checklist.
9. Taxi checklist (bleeds off T/O).
10. Takeoff checklist.
11. Rejected takeoff.
12. Noise restricted takeoff
13. Landing gear handle cannot be positioned "up".
14. After takeoff checklist.
15. Enter icing conditions.
16. Abnormal oil pressure.
17. Engine shutdown checklist.
18. Inflight engine start.
19. Instrument Warnings.
20. Runaway stabilizer.
21. Off schedule descent light on.
22. Inadvertant fuel transfer into center tank.
23. Pack trip off light illuminated (Right pack)
24. Left wing body overheat light on
25. Emergency descent.
26. Descent checklist.
27. Area arrival & VMC approach.
28. Approach checklist.
29. Landing checklist.
30. After landing, blocks, & terminal checklists.

To become proficient in cockpit management and the use of alternate operating procedures, Normal, Abnormal, and Emergency Checklists in a simulated flight sequence. During the flight sequence, trainees must make every effort to "role play" their crew position and achieve as realistic a flight environment as possible. Cockpit Management and command must be stressed. One trainee must "fly" the airplane.

By the end of this period, trainees should be proficient in the use of all checklists and alternate operating procedures as well as the principles of cockpit management.

Performance Problem review (Performance problems to be completed before class). Resolve any questions the trainees may have regarding cockpit management or the use of Normal, Abnormal, or Emergency Checklists.

Flight sequence. The trainee should spend half the time in each pilot seat. Instructor will provide ATIS and ATC clearances.

1. Interior safety check
2. Preliminary cockpit preparation
3. Cockpit preparation.
4. Setting radios for dept.
5. Prestart checklist.
6. APU fire warning-light remains on - land evacuation
7. Engine Start.
   - Starter valve fails to close
   - No EGT rise during start
   - Crossbleed start
   - N1 or N2 inop.
8. Pretaxi checklist
9. Powerback (if appropriate)
10. Taxi checklist.
11. Loss of "C" hydraulic system
12. Takeoff checklist
13. Engine failure after V1
14. After takeoff checklist
15. Master caution light illuminated
    - Abnormal flight controls
    - Yaw damper inop light on
    - feel differential light on
    - Mach trim fail light on
16. Low oil pressure light
17. Engine overheat
18. Engine fire
19. Electrical smoke or fire
20. Descent checklist
21. Reverser unlocked
22. Area arrival & non-precision approach
23. Approach checklist
24. Radio check
25. Asymmetrical flaps
26. Landing checklist
27. After landing, blocks & terminal checklist

To evaluate trainee proficiency in cockpit management and command and the use of alternate operating procedures, Normal, Abnormal and Emergency Checklists in a simulated flight sequence. During the flight sequence trainees must "role play" their crew positions and maintain a realistic flight environment. The trainees should spend half the time in each pilot seat. Instructor will provide ATIS and ATC clearances. Instructor should present the problems/situations and allow the trainee to manage the cockpit and complete the appropriate procedures. Instructors will take notes for later debriefing. Ensure readiness of trainee for the FAA Oral examination.

Flight qequence:

1. Cockpit preparation
2. Radio Check (right seat)
3. Prestart checklist
4. Engine Start (each trainee start one engine)
   - -Hot start
   - -Hung start
   - -No EGT rise during start
5. Pretaxi, Taxi, & T/O checklist
   - -Low brake pressure during taxi
6. T/O & area departure (including AFDS/FMC use)
7. Gear handle will not go up
8. After takeoff checklist
9. Enter icing conditions
   - -One engine anti-ice valve inop
10. EFIS failures
    - -EHSI warning
    - -FD warning
    - -IRS faults
    - -FMC/CDU faults
    - -RMI flag
11. Abnormal and emergency procedure
    - -Engine fire
    - -Wheel well fire
    - -Runaway stabilizer
    - -Main cabin cargo smoke/fire
    - -Emergency descent
    - -Electrical smoke or fire
    - -engine shutdown
    - -Inflight start
    - -Partial flap landing
    - -Airconditioning system
12. Descent checklist
13. Area arrival & autoland ILS approach (incl AFDS/FMC use)
14. Approach checklist
15. Approach radio check
16. Stabilizer trim jammed
17. Landing Checklist
18. Blocks & terminal checklists
19. Normal takeoff
20. ILS approach & landing with failed " L" & "C" hydraulic systems

Pre-FAA oral. Instructor must ensure trainee readiness for FAA oral.

1. All phasse 1 emergency procedures
2. Airplane systems and operation
3. Instrumentation and crossovers
4. Powerplant and airplane limitations
5. Takeoff computations and performance
6. Weight & balance

The four hour Simulator periods are preceded by a two hour briefing. The briefing will review the maneuvers to be covered in the simulator and in addition will deal with the following areas:

- -Operation of communications and navigation radios
- -Cockpit lighting
- -Performance calculations
- -Adverse weather operation
- -Flight conduct chart computations
- -Crew coordination during all flight operations

Each simulator period will be followed by a :30 minute debriefing to review and reinforce the contents of the period.

The following maneuvers and procedures will be accomplished in the simulator:

- -Use of checklist
- -restart and engine start procedures
- -Radio operation
- -Pretakeoff and powerplant checks
- -Rejected takeoff
- -Maximum endurance and maximum range procedures
- -Runaway stabilizer
- -GPWS alert procedure
- -Windshear during takeoff/landing procedure
- -Imminent ground contact maneuver

Normal, alternate and abnormal operation of the following systems:

- -Airconditioning and pressurization
- -APU
- -Autoflight/AFDS
- -Electrical
- -Flight controls and wing flaps
- -Flight instruments/EFIS
- -Fuel
- -Hydraulics
- -Landing gear and brakes
- -Navigation/FMC
- -Pneumatics
- -Powerplant
- -Warnings

Emergency procedures:
- -Engine fire
- -Wheelwell fire
- -APU fire
- -Lower cargo fire
- -Electrical smoke or fire
- -Smoke source identification
- -Engine failure/flameout
- -Emergency descent
- -Equipment isolation
- -Cargo compartment smoke
- -Air conditioning smoke
- -All engines windmilling
- -Land evacuation
- -Flight deck smoke
- -AC or DC deactivation
- -Bus deactivation

Steep turns.
Approach to stalls (clean, takeoff, landing).
Area departure and arrival (including use of navigation radios).
Holding.
Instrument takeoff.
Takeoff with engine failure after V1.
Normal ILS and landing.
Autoland ILS.
Circling approach
One engine inoperative flight director ILS to 100 ft. and missed approach.
Non-precision approach.
Rejected landing and missed approach.
Missed approach from a ILS.

Line oriented flight training will be given to acquaint each pilot with the normal line operation of the airplane. Two specific flight legs will be performed. The flight legs will simulate a normal flight in an area representative of the airplane type and will include all aspects of the flight, from preflight planning to securing the airplane at the completion of the flight.

Introduce the trainee to the simulator & to practice normal operation, airwork, & selected alternate, abnormal & emergency procedures. Crew concept to be utilized unless otherwise specified.

BRIEFING GUIDE

-Review AOM Performance chapter.
-Review AOM Airplane General chapter.
-Discuss use of AOM performance charts.
-Review responses to prestart checklist.
-Review standard and noise restricted takeoff procedure and callouts.
-Review operation of all cockpit lighting.
-Review operation of all communication and navigation radios.
-Review preflight and cockpit preparation scan pattern.
-Review response to prestart checklist.
-Review normal engine starting procedures.
-Brief on maneuvers and procedures to be accomplished in this period.

SIMULATOR GUIDE

PRESTART AND START CHECKLIST (first half of period only).
FULL ENGINE STARTS (hot, hung & N2 inop for start).
TAXI, TAKEOFF (max LGW, VFR).
AREA DEPARTURE (AFDS & FMC use).
BASIC INSTRUMENT FLYING (with and without AFDS).
TURNS WITH AND WITHOUT SPOILERS.
HIGH SINK DEMONSTRATION.
STEEP TURNS.
APPROACH TO STALLS - LOW ALTITUDE.
APPROACH TO STALLS - HIGH ALTITUDE (use rapid climb to altitude).
MACH BUFFET & MACH TRIM FAILURE.
WING - BODY OVERHEAT.
EMERGENCY DESCENT.
AREA ARRIVAL (AFDS & FMC use).
COUPLED ILS APPROACH AND LAND (VFR).
NORMAL TAKEOFF (max TOGW, VFR).
WHEEL WELL FIRE.
SMOKE IN COCKPIT - SMOKE SOURCE IDENTIFICATION (first half of period air conditioning, second half electrical).
ICING CONDITIONS.
ILS WITH AFDS, ALL ENGINES, REJECTED LANDING (VFR).
ANTISKID MALFUNCTION (once each trainee).
REVERSER UNLOCK LIGHT ON INFLIGHT.
ADDITIONAL VFR LANDINGS (as time permits).
BLOCKS CHECKLISTS (shutdown engines)
APU FIRE (once each trainee).

SYSTEM ALTERNATE OPERATION

- AIRCONDITIONING - ELECTRICAL
- FLIGHT INSTRUMENTS - POWERPLANT

Note: Leave engines running after 1st half of period, Begin 2nd half with Training Takeoff checklist.

To practice operation in icing conditions, non-precision approaches & selected alternate, abnormal and emergency procedures. Crew concept to be used unless otherwise specified.

BRIEFING GUIDE

-Review study assignment problem with emphasis on water, slush, & ice corrections.
-Discuss adverse weather condition/operations affecting taxi, climb, descent, holding, approach, landing & after landing.
-Review taxi (including no use of reverse thrust, steering, & braking at low gross weights).
-One engine taxi procedure. Powerback procedure (if appropriate).
-Review adverse weather operation.
-Review crosswind takeoff procedure.
-Review response to Start, Pretaxi, Taxi & Takeoff checklists. Review concept and usage of yoke mounted checklists.
-Brief on maneuvers & procedures to be accomplished in this period.

SIMULATOR GUIDE

PRESTART AND NORMAL START CHECKLISTS (1st half of period).
FULL ENGINE START (INCLUDING NO EGT RISE DURING START, HOT START & MANUAL START. (each pilot start one engines).
TAXI, TAKEOFF (max TOGW, 700 RVR, icing conditions).
ICE & RAIN ALTERNATE OPERATION (Only once each trainee).
GEAR HANDLE WILL NOT GO UP (Only once each trainee)
AREA DEPARTURE (AFDS & FMC use).
AREA ARRIVAL, ICING CONDITIONS, VOR APPROACH (with DME arc if time permits).
REJECTED LANDING AND MISSED APPROACH (clear cargo smoke problem).
"L" HYDRAULIC SYSTEM FAILURE.
NDB APPROACH & REJECTED LANDING WITH FAILED "L" HYDRAULIC SYSTEM.
HYDRAULIC FLUID LOSS "C" SYSTEM (manual gear extension).
ILS APPROACH (VFR) AND LANDING WITH FAILED "L" & "C" HYDRAULICS.
REJECTED TAKEOFF (max TOGW near V1 with crosswind).
NORMAL TAKEOFF (with crosswind)
HOLDING, INSTRUMENT FAILURES (demonstrate all flags and crossovers).
RUNAWAY STABILIZER.
NORMAL TAKEOFF
BACK COURSE ILS APPROACH & LAND, GO-AROUND AFTER TOUCHDOWN.
LOW BRAKE PRESSURE (during taxi for next takeoff. once each trainee).
ADDITIONAL VFR LANDINGS (as time permits).
BLOCKS CHECKLIST (after 2nd half of period).

SYSTEM ALTERNATE OPERATION - AIRPLANE GENERAL - AUTOFLIGHT - APU - ELECTRICAL - HYDRAULIC - LANDING - GEAR & BRAKES - POWERPLANT
Note: leave engines running after first half of period & begin second half with training takeoff checklist.

To practice one-engine inoperative maneuvers, non-precision approach and selected alternate, abnormal & Emergency procedures. Crew concept will be used unless otherwise specified.

BRIEFING GUIDE

-Review study assignment problems. (Problems to be completed prior to period).
-Review AOM chapter on normal operations, climb, cruise and descent.
-Review policy/proceedure for go-arounds.
-GPWS discussion of all operational modes and recovery procedure.
-Brief on all maneuvers and procedures to be accomplished in this period.

SIMULATOR GUIDE

PREFLIGHT AND NORMAL CHECKLIST (first half of period only).
LAND EVACUATION (once for each trainee).
FULL ENGINE START INCLUDING BATTERY START, NO N1, HUNG START & CROSSBLEED START (1st half of period).
TAKEOFF (max TOGW, 700 rvr).
ABBREVIATED AREA DEPARTURE (AFDS & FMC use).
LOSS OF BOTH ENGINE DRIVEN GENERATORS (clear prob. after cklst use).
ENGINE OIL PROBLEM - ENGINE SHUTDOWN.
ASYMMETRIC THRUST YAW CONTROL.
ONE ENGINE INOP FLIGHT DIRECTOR ILS.
ONE ENGINE INOP MISSED APPROACH.
INFLIGHT START.
GPWS DEMO.
ILS APPROACH WITH WINDSHEAR DEMO.
TAKEOFF - ENGINE FAILURE AFTER V1 (max TOGW).
ONE ENGINE INOP VOR APPROACH AND LAND.
TAKEOFF-ENGINE OVERHEAT AFTER V1, THEN ENGINE FIRE (quick start after maneuver
ZERO FLAP APPROACH AND LAND (go around after touchdown).
ASSYMETRIC FLAP APPROACH AND LAND.
TAKEOFF-ENGINE FAILURE AFTER V1 (low LGW, quick start after clean up).
NDB APPROACH - ENGINE FAILURE INSIDE FAF.
ONE ENGINE INOP LANDING (low LGW).
TAKEOFF WINDSHEAR DEMO.
ADDITIONAL VFR LANDINGS (as time permits).
BLOCKS CHECKLIST (after 2nd half of period).

SYSTEM ALTERNATE OPERATION -APU - FIRE PROTECTION - FLIGHT CONTROLS -FUEL -POWERPLANT

Note: leave engines running after first half of period & begin second half of period with training takeoff checklist.

To improve the trainee's proficiency in engine-out maneuvers, non-precision approaches, and selected alternate, abnormal, and emergency procedures.

BRIEFING GUIDE
-Review study assignment problem (problem to be completed prior to beginning of period).
-Determine that trainee is familiar with all aspects of flight conduct chart.
-Review as necessary with emphasis on recognizing an emergency, crew coordination, notification of an emergency.
-Review AOM chapter - Normal Operations, Approach, Landing & After Landing.
-Brief on all maneuvers and procedures to be accomplished in this period.

SIMULATOR GUIDE
PREFLIGHT AND NORMAL CHECKLIST (1st half of period)
FULL ENGINE START (including abnormal starts).
REJECTED TAKEOFF.
ENGINE FIRE.
TAKEOFF - ENGINE FAILURE AFTER V1 (icing conditions, 700 RVR).
1-ENGINE INOP FLIGHT DIRECTOR ILS.
1-ENGINE INOP MISSED APPROACH.
HOLDING.
INFLIGHT ENGINE START.
COUPLED ILS (A/P MALFUNCTION) MISSED APPROACH.
MANUAL STABILIZER TRIM APPROACH & GO-AROUND.
JAMMED STABILIZER APPROACH AND LANDING.
NORMAL TAKEOFF (noise restricted).
VOR APPROACH & REJECTED LANDING.
NDB APPROACH & LANDING WITH SLIPPERY ROLLOUT.
TAKEOFF ENGINE FIRE AFTER V1 (quick start after maneuver completed).
ABNORMAL FLAP LANDING.
TAKEOFF WINDSHEAR DEMO - LANDING WINDSHEAR DEMO.
LOCALIZER ONLY APPROACH AND LAND (one reverser inop on rollout).

SYSTEMS ALTERNATE OPERATION - AIRCONDITIONING - ELECTRICAL - FLIGHT CONTROLS - FUEL - POWERPLANT

Note: leave engines running after first half of period & begin second half of period with training takeoff checklist.

To peak the trainee's proficiency in engine-out maneuvers, non-precision approaches & selected alternate, abnormal, & emergency procedures.

BRIEFING GUIDE
-Review study assignment problem (study assignment to be completed prior to the period).
-Determine that trainee is familiar with all aspects of performance calculations.
-Review all Phase 1 Emergency Procedures.
-Review both missed approach profiles.
-Review use of Brake Energy Chart.
-Brief on all maneuvers and procedures to be accomplished in this period.

SIMULATOR GUIDE

START CHECKLIST (first half of period only)
FULL ENGINE START (include start problem)(first half of period only. Each pilot start one engine.)
TAKEOFF ENGINE FAILURE AFTER V1, MAX TOGW
1-ENGINE INOP FLIGHT DIRECTOR ILS
1-ENGINE INOP MISSED APPROACH
ENGINE FIRE
2-ENGINE INOP APPROACH & LANDING.
LOW BRAKE PRESSURE (during taxi for next takeoff. once each trainee)
TAKEOFF-ENGINE FAILURE AFTER V1, 278,000 lbs. (quick-start after reaching 100 ft.)
JAMMED STABILIZER APPROACH & GO-AROUND (restore)
HYDRAULIC PROBLEMS WITH BOTH "R" & "C" SYSTEMS
ILS APPROACH (VFR) & LAND WITH FAILED "R" & "C" HYDRAULIC SYSTEMS
TAKEOFF-ENGINE FAILURE AFTER V1-MAX LGW (quick start after reaching 800 ft.)
CIRCLING APPROACH & LANDING. SLIPPERY RUNWAY ROLLOUT
REJECTED TAKEOFF (max TOGW, near V1)
LAND EVACUATION (once each trainee)

Note: leave engines running after first half of period & begin second half of period with training takeoff checklist.

To practice normal operation, precision and non-precision approaches, and selected emergency, abnormal and alternate procedures. Review appropriate maneuvers from the previous simulator periods. special emphasis on VFR takeoffs, approaches, and landings.

BRIEFING GUIDE

Discuss those items on the syllabus that have not been completed prior to this simulator period.
Discuss rotation technique.
Review standard and noise takeoff and climb profiles.
Review VFR profiles and speed control.
Review VFR landing and flare technique.
Brief on items to be covered in this simulator period.

SIMULATOR GUIDE

TRAINING TAKEOFF CHECKLIST.
TAKEOFF, ENGINE FAILURE AFTER V1 (takeoff gross weight optional).
ILS, FLIGHT DIRECTOR APPROACH; MISSED APPROACH; ONE ENGINE INOPERATIVE (flown to DH 100 ft. RA)(restore inop engine).
STEEP TURNS.
STALLS.
NON-PRECISION APPROACH (NDB, VOR or LOC as applicable); MISSED APPROACH; FULL STOP LANDING.
STANDARD TAKEOFF; WINDSHEAR DURING TAKEOFF (max TOGW)(reset weight for next maneuver).
CIRCLING APPROACH - MISSED
ILS APPROACH.
ILS APPROACH; TOUCH AND GO LANDINGS (include intercept from above glideslope, maintain 180 knots until FAF, other operational variations as time permits).
VISUAL APPROACHES AND LANDINGS (include approach from high downwind leg (4000-6000 ft.), landing and go-around with stabilizer out of trim, full stop landing on slippery runway with crosswind. Emphasis on flare and touchdown technique.
AFTER LANDING AND BLOCKS CHECKLISTS (after second half of period only).

Note: Leave engines running after first half of period & begin second half of period with training takeoff checklist.

FAA ORAL CHECK
The oral check will be completed after the completion of the CPT training, prior to the begining of simulator training.

FAA SIMULATOR CHECK
The FAA Type rating simulator check will be completed after the completion of simulator training, including LOFT.

Airplane training is to provide training in the maneuvers required by FAR and to confirm proficiency. To accomplish an airplane walk around and locate emergency equipment.

WALKAROUND
Perform a preflight inspection to the extent of, and in accordance with FAR 61 Appendix A.

Locate and inspect interior airplane emergency equipment as outlined on the emergency equipment location diagrams.

The walkaround may be accomplished before or after the flight, as appropriate.

FLIGHT TRAINING

The following sequence is to be accomplished:

Taxiing.
Normal takeoff (crosswind if practical).
Normal ILS with flight director (without hood) to a touch-and-go landing (crosswind if practical).
VFR landing (without use of electronic glide slope).
One-engine inop VFR landing.

FAA AIRPLANE RATING IN-FLIGHT CHECK

An applicant who meets the aeronautical experience requirements of Part 61 applicable to the rating sought, but does not meet the additional prerequisites of Exemption 5495 condition 19 (e) or 19 (f) may accomplish the entire test required by 61.157 in a simulator, except for the following items of appendix A of Part 61, which must be done on a static airplane or in flight, as appropriate:

i. Item no. I(b)(1) - Preflight inspection;
ii. Item no. II(a) - Normal Takeoff;
iii. Item no. III(c)(1) - Normal ILS approach;
iv. Item no. III(e) - Missed Approach; and
v. Item no. v(a) - Normal landing.

The above is normally the flight check, however, as always the FAA inspector giving the aircraft rating check may require additional items if deemed appropriate.

ANEXO 5
Reporte Meteorológico

Atención
Lic. Román Carbuccia
Meteorología
FAX: 549-0904

[SECR]ETARIA DE ESTADO DE AGRICULTURA
[DIRECCION] NACIONAL DE METEOROLOGIA
SANTO DOMINGO, D.N.
APARTADO POSTAL 1153
CABLE: METEOR

DIRECCION NACIONAL
592-1409

DIVISIONES
ADMINISTRATIVA
592-0611
AERONAUTICA
549-0256
AGROMETEOROLOGIA
593-2601
CLIMATOLOGIA
593-7600
COMUNICACIONES
592-1308
HIDROMETEOROLOGIA
593-2601
MEC. INSTRUMENTAL
593-2601
PROG. ENERGETICOS
593-2601
PROG. TECNICA
592-1309
SINOPTICA
542-0144
SONDEOS
593-7600

SERVICIOS 24 HORAS
ESTADO DEL TIEMPO
592-0611
592-1308
PRONOSTICOS
549-0256
549-0483

OFICINAS AEROPUERTOS
AILA
549-0256
A. HERRERA
565-8470
BARAHONA
542-3431
PUERTO PLATA
586-0204
SANTIAGO
582-3933
PUNTA CANA
686-8790

SANTO DOMINGO, D.N.
FEBRERO 13, 1996.

INFORME SOBRE CONDICIONES SINOPTICAS SOBRE R.D. EN FECHA 06/02/96

LAS CONDICIONES GENERALES ESTABLECIDAS UBICABAN UN SISTEMA FRONTAL ESTACIONARIO SOBRE LA REGION NOROESTE DEL PAIS PRONOSTICANDOSE PARA LA COSTA NORTE CIELO CUBIERTO DE NUBES OCASIONALMENTE, AGUACEROS DEBILES A MODERADOS Y FUERTES DURANTE BREVES PERIODOS, RAFAGAS DE VIENTO Y TORMENTA ELECTRICA.
LAS POSIBILIDADES DE PRECIPITACION PARA PUERTO PLATA ESTABAN ESTIMADAS ENTRE 60% Y 70% CON VIENTOS DEL ESTE ENTRE 12 Y 24 MPH.
EL PRONOSTICO PARA LA TERMINAL AEREA DE PUERTO PLATA, ENTRE LAS 20:00 Y 02:00 HORA LOCAL SEÑALABA VIENTO DEL ESTE-SURESTE DE 10KT, BUENA VISIBILIDAD, DE 1 A 4 OCTAVOS DE NUBES BAJAS A 1800 PIES Y DE 4 A 7 OCTAVOS DE NUBES MEDIAS A 7000 PIES.

ANALISIS

ADJUNTO ESQUEMA DE LA PANTALLA DE RADAR EN DONDE SE OBSERVAN ECOS DE PRECIPITACION LIGERA SOBRE EL AREA CON ALGUNOS NUCLEOS DE MAYOR INTENSIDAD HACIA EL SUR Y NOROESTE. NO SE OBSERVAN NUCLEOS DE TORMENTA NI DE PRECIPITACION AL NORTE DE SOSUA, ESTOS SE MANIFIESTAN UNOS 10 KILOMETROS HACIA EL SUR A LAS 23:40 HORA LOCAL.

LIC. MERCEDES E. MEJIA
DIRECTORA
DEPTO. MET. GENERAL

ING. A. CAMPUSANO
ENCARGADO
DIV. MET. SINPTICA

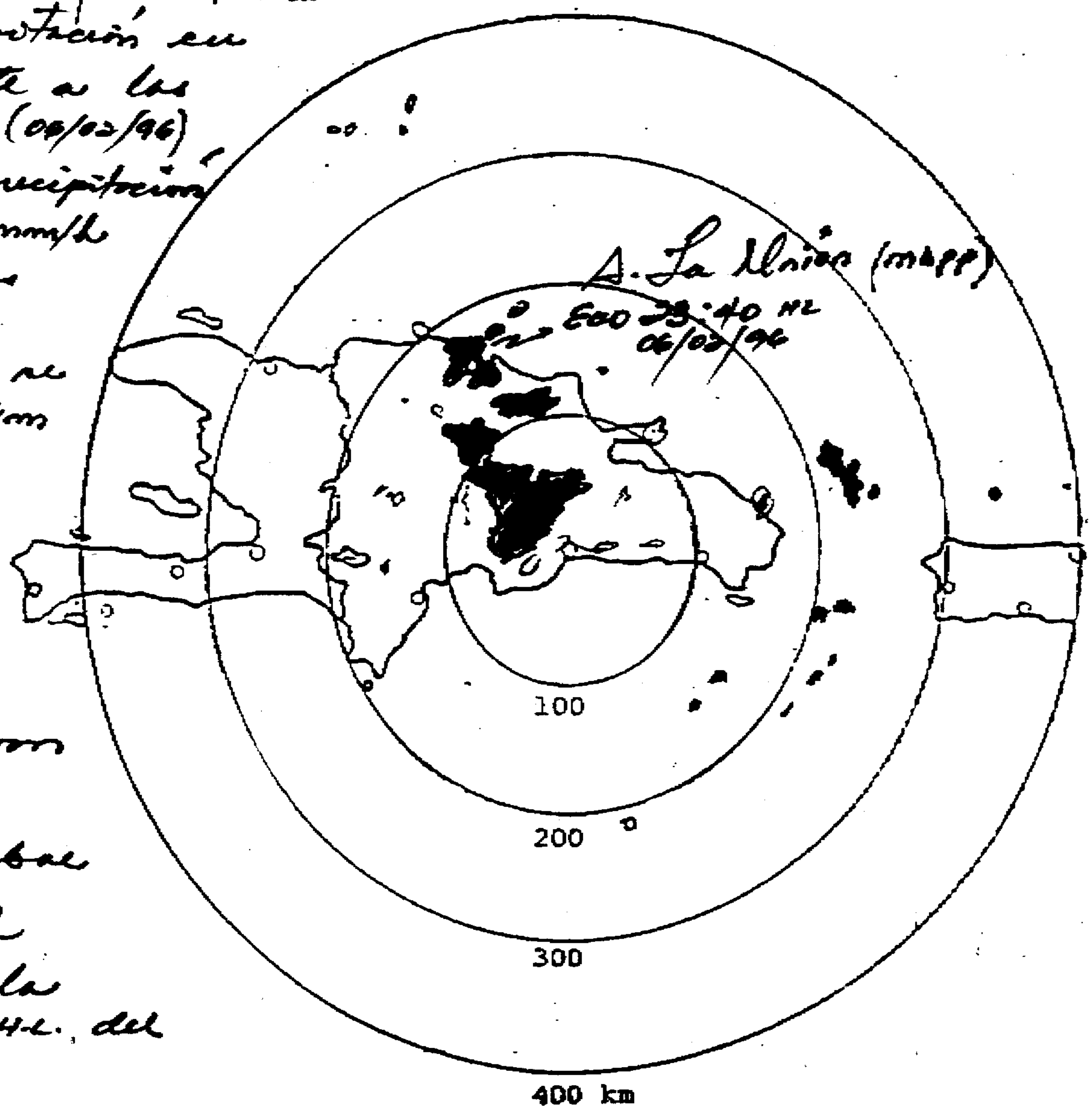
Nacional de ...

Sobre el área de Puerto Plata ecos de precipitación en área creciente a las 22:10:52 H.L. (06/02/96) células con precipitación entre 6 y 8 mm/h Topes máximos 8 Kms.

23:10:53 topes se elevan a los 10 kms

Área en fase decreciente para las 00:10:53 del 07/02/96.

No se observaron núcleos de tormenta sobre el área del accidente a la hora 23:40 H.L. del 06/02/96



Nota:

- No se observaron ecos de precipitación a las 23:55 H.L. a 10 kms al norte de la costa de Sosua
- Se observaron ecos de tormenta a 10 kms. al sur de Sosua a las 23:55 H.L.
- Ecos de precipitación entre 0.1 y 2.09 mm sobre el área de A Cabarete.

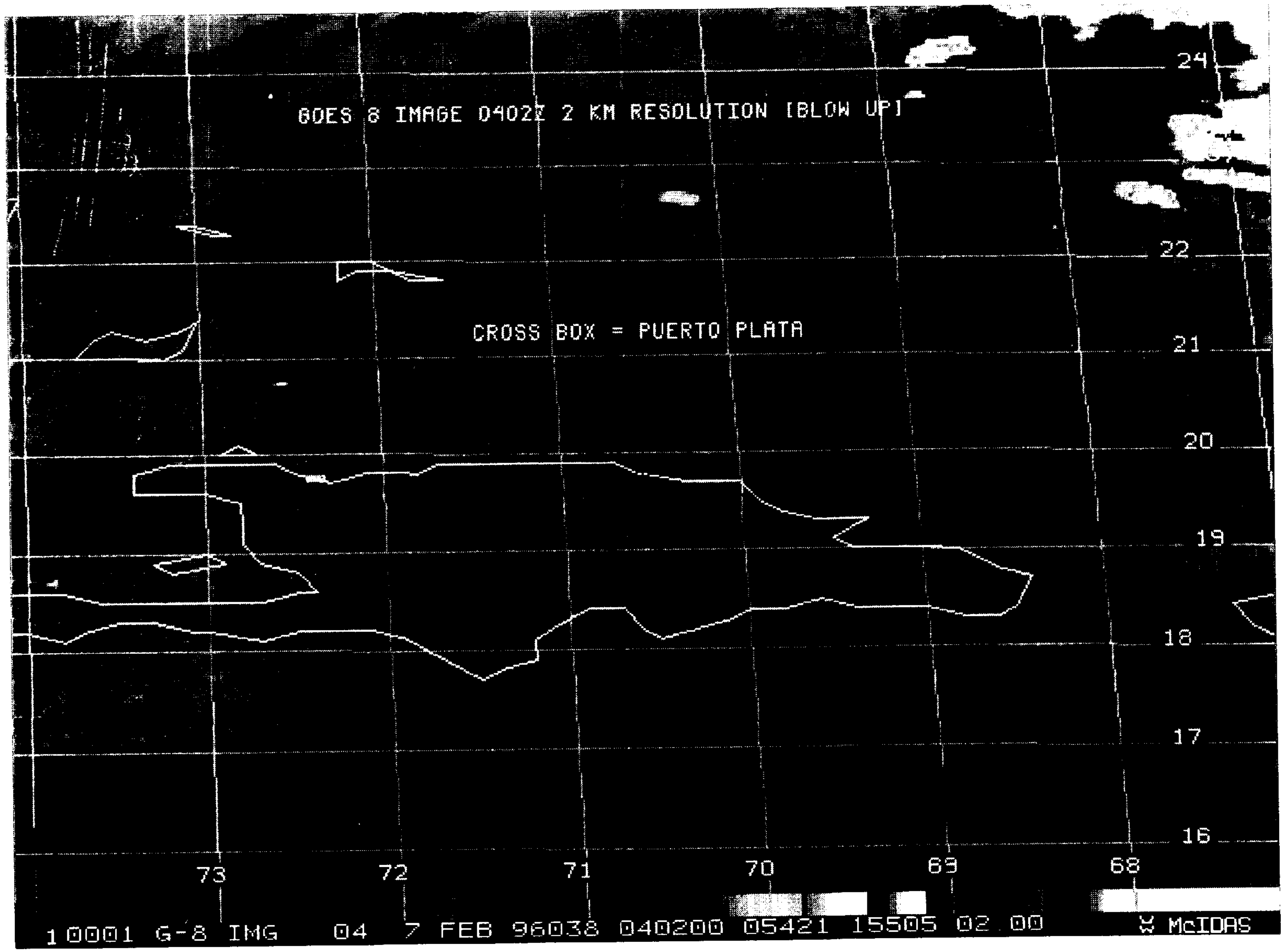
09/02/96

Ecos de precipitación
Radar AS-300
a las 23:40 H.L. ...

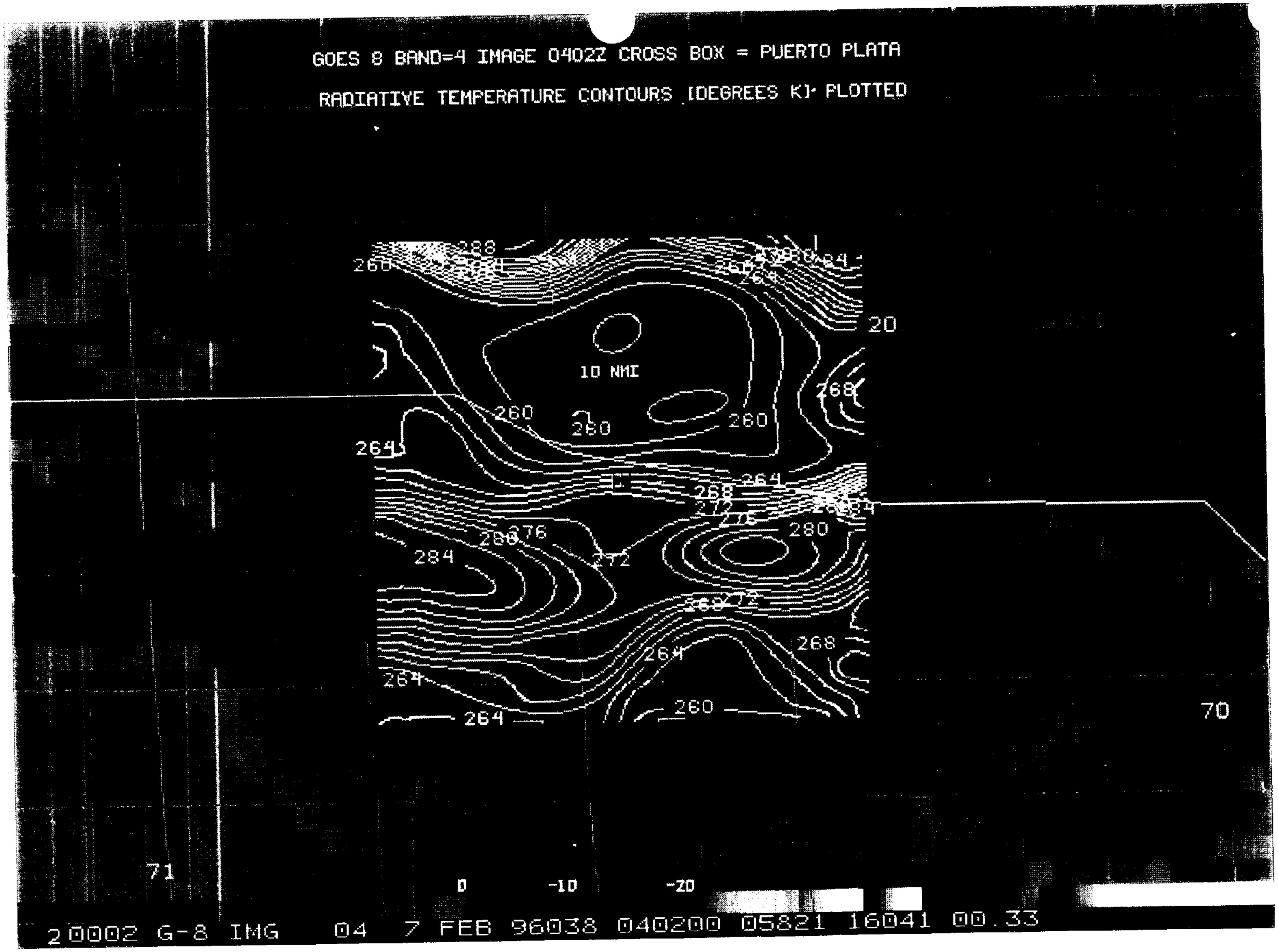
Discussion

Attachment 1 is a GOES 8 infrared satellite image for a time of 0402Z. The image is a 2 times blow up of the 0402Z 4 kilometer resolution GOES 8 infrared image. The cross box = the location of Puerto Plata. The image is color enhanced and is showing colder [higher cloud tops} to the north and northeast of Puerto Plata. The color bar at the bottom of the image shows colors which correspond to colder temperatures from the left to right. Attachment 2 is a 12 times blow up of the 4 kilometer 0402Z GOES 8 infrared image. On the image are contours of radiative temperatures. The image shows a closed cold radiative temperature contour [high cloud top] about 10 nautical miles northeast of Puerto Plata [possibly indicating an area of rain showers]. Again the cross box = the location of Puerto Plata. A 10 nautical miles range ring is also plotted on the image.

NTSB AS-30
2/23/96



GOES 8 IMAGE 0402Z 2 KM RESOLUTION [BLOW UP]
CROSS BOX = PUERTO PLATA
24
22
21
20
19
18
17
16
73
72
71
70
69
68
1 0001 G-8 IMG 04 7 FEB 96038 040200 05421 15505 02.00
McIDAS

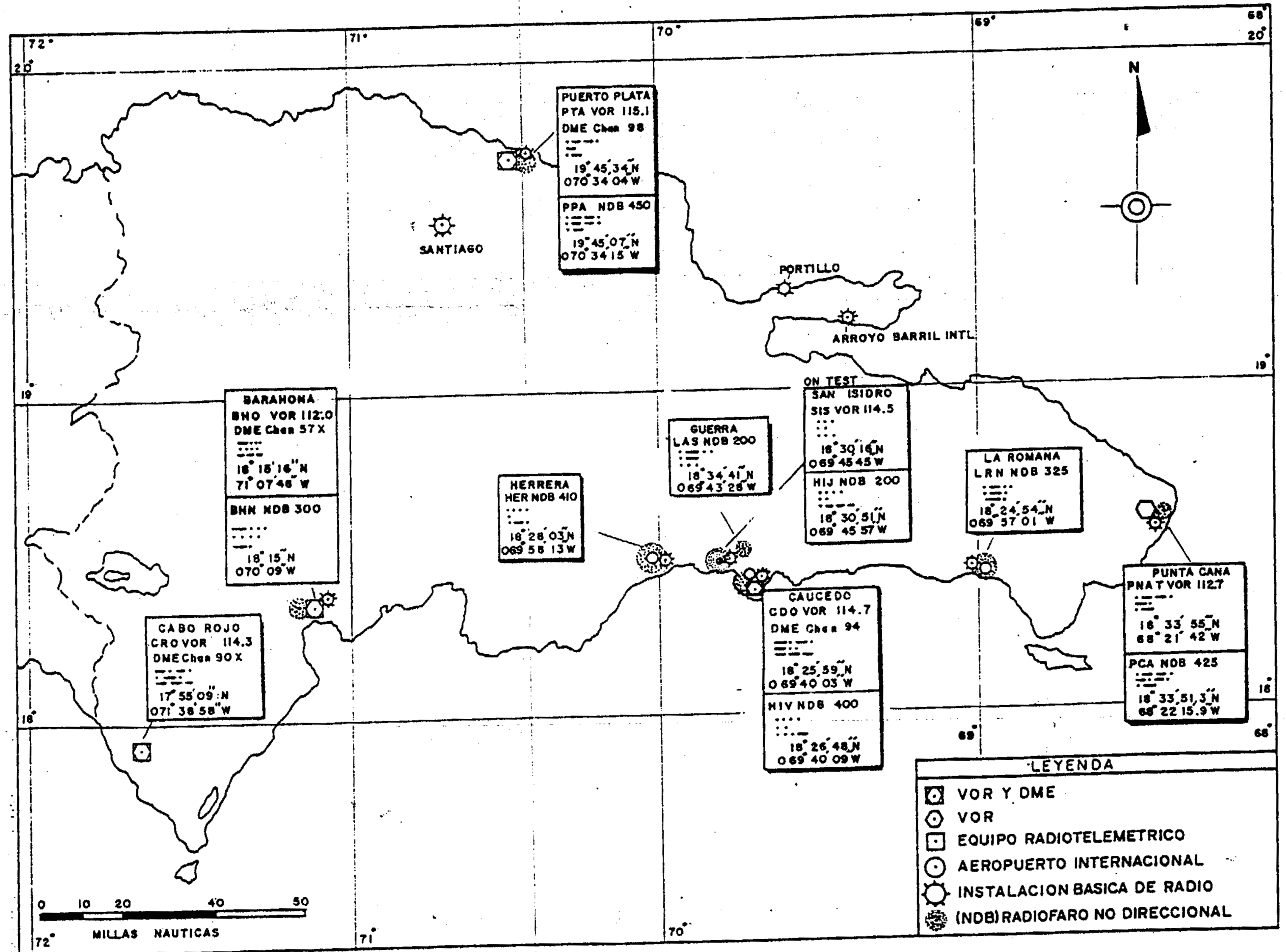

GOES 8 BAND=4 IMAGE 0402Z CROSS BOX = PUERTO PLATA
RADIATIVE TEMPERATURE CONTOURS [DEGREES K] PLOTTED
10 NMI
260
264
268
272
276
280
284
288
20
70
71
0
-10
-20
20002 G-8 IMG 04 7 FEB 96038 040200 05821 16041 00.33

ANEXO 6

Copias del AIP sobre MDPP

MDPP- Aeropuerto Internacional Gregorio Luperón

CARTA DE RADIO-AYUDAS/RADIO FACILITIES CHART



AD2. AERODROMOS
AD2. AERODROMES

MDPP AD 2.1 INDICADOR DE LUGAR Y NOMBRE DEL AERODROMO
MDPP AD 2.1 AERODROME LOCATION INDICATOR AND NAME

MDPP- Aeropuerto Internacional Gregorio Luperón

MDPP AD 2.2 DATOS GEOGRAFICOS Y ADMINISTRATIVOS DEL AEROPUERTO
MDPP AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	Coordenadas de Referencia y lugar en el AD/ Reference coordinates and site at AD	19° 45' 28"N 070° 34' 12"W (centro de la pista 12/30) (center of the rwy 12/30)
2	Dirección y distancia desde (ciudad)/ Direction and distance from (city)	18 Kms al Este de la ciudad de Puerto Plata/ 18 Kms to the East of Puerto Plata city
3	Elevación/Elevation	5 M (16 Ft)
4	VAR MAG, cambio anual/MAG VAR, annual change	9°W (1994); 7' aumento/ of increase
5	Autoridad administrativa del AD, Dirección, Teléfono, Telefax, telex, AFTN/ AD Administration, Address,Telephone, Telefax, Telex, AFTN	Administración General del Aeropuerto Tel: (809) 586-0219 Telefax (809) 586-0122 AFTN MDPPYDYG
6	Tipo(s) de tráfico(s) para los que está autorizado/Type(s) of traffic(s) permitted	IFR/VFR
7	Observaciones/Remarks	NIL

MDPP AD 2.3 HORAS DE OPERACION
MDPP AD 2.3 HOURS OF OPERATION

1	Administración del AD/AD Administration	H24
2	Inmigración y Aduana/Immigration and Customs	H24
3	Salud e higiene/Health and sanitary	H24
4	AIS/ARO	H24
5	Oficina de Notificación de vuelo /Flight Data office	H24
6	Oficina MET/MET office	H24
7	ATS	H24
8	Combustible/Fueling	H24
9	Asistencia en tierra/Handling	H24
10	Seguridad/Security	H24
11	Deshielo/De-icing	NIL
12	Observaciones/Remarks	NIL

MDPP AD 2.4 SERVICIOS DE ASISTENCIA EN TIERRA Y FACILIDADES
MDPP AD 2.4 HANDLING SERVICES AND FACILITIES

1	Facilidad para manejo de carga/Cargo-handling facilities	Disponible/Available
2	Tipos combustibles/Fuel types Tipos de aceite/Oil types	AVGAS 100/130
3	Servicios y facilidades de reabastecimiento de combustible/Fueling facilities capacity	H24 Sin limitaciones H24 Without limitations
4	Instalaciones para deshielo/De-icing	NIL
5	Espacio de hangar disponible para aeronaves visitantes/Hangar space for visiting aircraft	NIL
6	Instalaciones para reparaciones normalmente disponibles/Normally available repair facilities	Reparaciones menores por compañías que operan en el aeropuerto. Small reparations by companies operating at the airport
7	Observaciones/Remarks	NIL

MDPP AD 2.5 INSTALACIONES PARA LOS PASAJEROS
MDPP AD 2.5 PASSENGER FACILITIES

1	Hoteles/Hotels	En la ciudad/ In the city
2	Restaurante/Restaurant	En el AD y en la ciudad At the AD and in the city
3	Transporte/Transportation	Autobuses y Taxis/ Buses and Taxis
4	Servicios médicos/Medical facilities	Primeros auxilios en el AD, Hospitales en la ciudad First aid at AD, Hospitals in the city
5	Bancos y Oficina postal/Banks and Post office	Disponibles en el aeropuerto/Available at the airport
6	Oficina de turismo/Tourist office	Disponible en la ciudad/Available in the city
7	Observaciones/Remarks	NIL

MDPP AD 2.6 SERVICIOS DE RESCATE Y BOMBEROS
MDPP AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	Categoría del AD para extinción de incendios/AD category for fire fighting	Cat AD 8
2	Equipo de rescate/Rescue equipment	Ambulancias/Ambulances
3	Retiro de aeronaves inutilizadas/ Capability for removal of disabled aircraft	B-727, B-707, DC-8; para ACFTs de mayor capacidad se requiere apoyo de otras instituciones/for bigger aircrafts assistance from other official departments is needed.
4	Observaciones/Remarks	NIL

MDPP AD 2.7 DISPONIBILIDAD ESTACIONAL DE LIMPIEZA PARA LA NIEVE
MDPP AD 2.7 SEASONAL AVAILABILITY CLEARING FOR SNOW

1	NIL	NIL
2	NIL	NIL
3	NIL	NIL

MDPP AD 2.8 DATOS DE PUNTOS DE VERIFICACION DE RAMPAS Y CALLES DE RODAJE
MDPP AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS DATA

1	Superficie y resistencia de la rampa/ Apron surface and strength	Superficie de concreto/Concrete surface Resistencia/Strength: 75,000 Lbs SIWL
2	Anchura superficie y resistencia de las calles de rodaje/ Taxiway width, surface and strength	Anchura/Width 23 Mts Superficie concreto/Concrete surface Resistencia/Strength 75,000 Lbs SIWL
3	ACL Punto y elevación/Location and elevation	Plataforma terminal/Terminal apron
4	Puntos de verificación VOR/INS VOR/INS checkpoints	Plataforma terminal/Terminal apron
5	Observaciones/Remarks	NIL

MDPP AD 2.9 GUIA DE MOVIMIENTO EN SUPERFICIE Y SISTEMA DE CONTROL Y SEÑALES
MDPP AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKING

1	Uso de señales ID hacia la plataforma, las pasarelas; y líneas de guías visuales desde las calles de rodaje Use of ID signs, TWY guide lines and visual docking/parking guidance system of aircraft stands	Señales de guia para el carreteo en todas las intersecciones de pistas y calles de rodaje, y en todos los puntos de espera. Líneas de guia hacia la plataforma. Guia de atraque en las pasarelas/Taxiing guidance signs at all intersections with TWY and RWY and at all holding positions. Guidance line to apron. Nose-in guidance at aircrafts stand.
2	Señalamiento y luces de Pistas y Calles de Rodaje RWY and TWY marking and LGT	PISTAS: Marcas de designadores de pistas, luces de borde y umbral, marcas de zona de toma de contacto, línea de centro, señales de distancia fija, extremo de pista y de punto de espera. RWY: Runway designation marks, edge and threshold lights, touch down center line, fixed distance, runway end, and holding position signals. CALLES DE RODAJE: Luces de borde, eje y señal de distancia fija y de punto de espera. TWY: Edge lights, fixed distance signals, and holding position.
3	Barras de parada/Stop bars	NIL
4	Observaciones/Remarks	NIL

MDPP AD 2.6 SERVICIOS DE RESCATE Y BOMBEROS
MDPP AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	Categoría del AD para extinción de incendios/AD category for fire fighting	Cat AD 8
2	Equipo de rescate/Rescue equipment	Ambulancias/Ambulances
3	Retiro de aeronaves inutilizadas/ Capability for removal of disabled aircraft	B-727, B-707, DC-8; para ACFTs de mayor capacidad se requiere apoyo de otras instituciones/for bigger aircrafts assistance from other official departments is needed.
4	Observaciones/Remarks	NIL

MDPP AD 2.7 DISPONIBILIDAD ESTACIONAL DE LIMPIEZA PARA LA NIEVE
MDPP AD 2.7 SEASONAL AVAILABILITY CLEARING FOR SNOW

1	NIL	NIL
2	NIL	NIL
3	NIL	NIL

MDPP AD 2.10 OBSTACULOS DE AERODROMO
MDPP AD 2.10 AERODROME OBSTACLES

En áreas de Aproximación /Despegue In Approach/TKOF areas			En Area del circuito y en el AD In circling area and at AD		OBS RMK
1			2		3
Area afectada de la Pista RWY/Area affected	Tipo de obstáculo Elevación Señalización e Iluminación Obstacle type Elevation Marking/LGT	Coordenadas Coordinates	Tipo de obstáculo Elevación Señalización e Iluminación Obstacle type Elevation Marking/LGT	Coordenadas Coordinates	
a	b	c	a	b	
VER MDPP AD 4 (PLANO DE OBSTACULOS DE AERODROMO) SEE MDPP AD 4 (AERODROME OBSTACLES CHART)					

MDPP AD 2.11 INFORMACION METEOROLOGICA PROPORCIONADA
MDPP AD 2.11. METEOROLOGICAL INFORMATION PROVIDED

1	Oficina MET Asociada/ Associated MET Office	Oficina meteorológica del aeropuerto/ Airport meteorological office.
2	Horas de servicio Oficina MET en horas no laborables/ Hours of service MET Office outside hours	H24
3	Oficina responsable de la preparación de los TAF Períodos de validez/ Office responsible for TAF preparation Period of validity	De Las Àméricas 6 horas/6 hours
4	Tipo de pronóstico de aterrizaje Intervalo de entrega/ Type of landing forecast Interval of issuance	NIL
5	Información/consultas provistas Briefing/Consultation provided	Disponibles/Available
6	Documentación de vuelo/ Flight documentation Lenguaje (s) Language (s)	Disponible en Español Available in Spanish
7	Cartas y otra información disponible para información o consulta/Charts and other information available for briefing or consultation	Cartas Meteorológicas con datos de Vientos, Temperaturas y Tiempo Significativo/Meteorological Charts with data of Winds, Temperatures and Significative weather
8	Equipo suplementario disponible para proveer de información/Supplementary equipment available for providing information	Teléfono y Telefax Telephone and Telefax
9	Dependencia ATS provista con información/ATS units provided with information	Disponible/Available
10	Información adicional (limitación del servicio, etc) Additional information (limitation of service, etc)	Limitado al período entre la salida del sol y las 0300 UTC/Limited at period between sunrise and 0300UTC

MDPP AD 2.12 CARACTERISTICAS FISICAS DE LA PISTA
MDPP AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designadores de No de pista/ Designations rwy Nr	Marcaciones MAG & VER/ TRUE & MAG BRG	Dimensiones de las PISTAS (m)/ Dimensions of RWY (m)	Resistencia (PCN) y superficie de las Pistas y Zonas de parada/ Strength (PCN) and surface of runway and SWY	Coordenadas del umbral/ THR coordinates	Elevaciones del UMBRAL y elevación mayor del TDZ de la PISTA de APP precisión/ THR elevation and highest elevation of TDZ of precision APP RWY
1	2	3	4	5	6
08	083 092	3080x46	Concreto Concrete	19° 45' 12.8"N 070° 35' 02.1"W	NIL
26	343 352	3080x46	Concreto Concrete	19° 45' 43.7"N 070° 33' 22.1"W	NIL
Angulo de Pista y Zona de Parada/ Slope of RWY-SWY	**Dimensiones de (M) la zona de parada/ SWY dimensions (M)**	**Zona libre De Obstáculos dimensiones (M)/ CWY dimensions (M)**	**Dimensiones (M) de franja/ Strip dimensions (M)**	**OFZ**	**OBS RMK**
7	8	9	10	11	12
+.04%	NIL	1000x150	NIL	NIL	NIL
-.03%	90x100	150x100	NIL	NIL	NIL

MDPP AD 2.13 DISTANCIAS DECLARADAS
MDPP AD 2.13 DECLARED DISTANCES

Designador de Pista RWY Designator	TORA (M)	TODA (M)	ASDA (M)	LDA (M)	RMK
1	2	3	4	5	6
08	3,080	4,080	3,080	3,080	NIL
26	3,080	3,230	3,170	3,080	NIL

MDPP AD 2.14 ILUMINACION DE APROXIMACION Y PISTAS
MDPP AD 2.14 APPROACH AND RUNWAY LIGHTING

Desig. PISTA RWY Des.	APCH LGT tipo/type LEN INTST	Luces de umbral color THR LGT color WBAR	VASIS PAPI	TDZ LGT LEN	Luces de línea de centro RWY centre line LGT	Luces de borde de PISTA color RWY edge LGT color	Luces de fin PISTA color RWY end LGT color	Luces de parada color SWY LGT color	OBS RMK
1	2	3	4	5	6	7	8	9	10
08		Verde Green	PAPI	NIL NIL	NIL NIL	Blanco White-LIH	Rojo Red	NIL	NIL
26		Verde Green	PAPI	NIL NIL	NIL NIL	Blanco White	Rojo Red	NIL NIL	NIL NIL

MDPP AD 2.15 OTRA ILUMINACION, Y FUENTE SECUNDARIA DE ENERGIA
MDPP AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

1	Localización, características y horas de operación de ABN/IBN ABN/IBN Location, characteristics, and hours of operation	ABN: En el edificio de la Torre/Tower Building FLGW/GEV2 SEC/IBN:NIL H-SS/SR
2	Localización e iluminación del LDI y el Anemómetro LDI and Anemometer location and lighting	Anemómetro en el edificio de la torre iluminado Lighted anemometer at tower building LDI al Este de la pista, iluminado/LDI at East of RWY lighted
3	Iluminación de línea de centro y borde de las calles de rodaje TWY edge and center line lighting	Borde: de todas las calles de rodaje/Edge all TWY línea de centro/center line: Nil
4	Fuente de energía secundaria/tiempo de conexión Secondary power supply/switch-over time	Disponible conforme a los requisitos del Anexo 14 Capítulo 8 AVBL according to the requirements of ICAO annex 14 Chapter 8
5	Observaciones/Remarks	NIL

MDPP AD 2.16 AREA DE ATERRIZAJE DE HELICOPTEROS
MDPP AD 2.16 HELICOPTER LANDING AREA

1	Observaciones/Remarks	Donde lo indique la Torre de Control/Where indicated by the Control Tower

MDPP AD 2.17 ESPACIO AEREO ATS
MDPP AD 2.17 ATS AIRSPACE

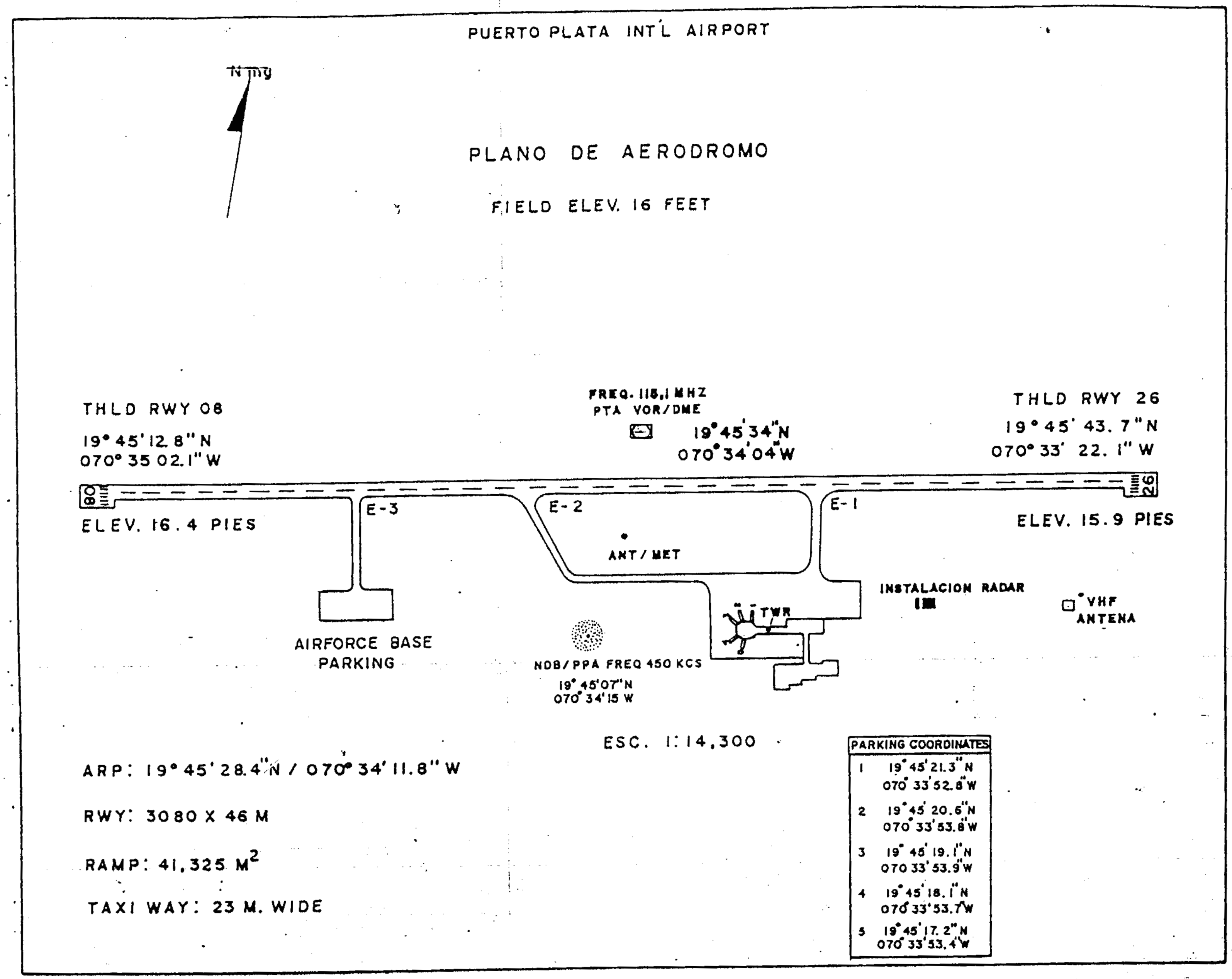
1	Designación y límites laterales Designation and lateral limits	Puerto Plata CTR En un círculo con un radio de 10NM centrado/Centre at 19° 45'32"N 070° 33' 54"W
2	Límites verticales/Vertical limits	Superficie hasta 2000FT MSL/Surface to 2000 FT MSL
3	Clasificación del espacio aéreo Airspace classification	Clasificación/Class D
4	Distintivo de llamada de la dependencia ATS Lenguaje (s) ATS unit call sign languages (s)	Torre Puerto Plata/Puerto Plata tower Español e Inglés/Spanish and English
5	Altitud de transición/Transition altitude	17,000 FT MSL
6	Observaciones/Remarks	NIL

MDPP AD 2.18 FACILIDADES DE COMUNICACIONES ATS
MDPP AD 2.18 ATS COMMUNICATION FACILITIES

Designación del servicio Service designation	Disitintivo de llamada Call sign	Frecuencia Frecuency	Horas de operación Hours of operation	Obs Rmk
1	2	3	4	5
APP	Aproximación Puerto Plata Puerto Plata Approach	119.0 MHZ	H24	Frecuencia Primaria Primary Frequency
TWR	Torre Puerto Plata Puerto Plata Tower	118.0 MHZ	H24	Frecuencia Primaria Primary Frequency
GND	Control Terrestre Ground Control	121.9 MHZ	H24	Frecuencia Primaria Primary Frequency

MDPP AD 2.19 AYUDAS PARA LA NAVEGACION Y EL ATERRIZAJE
MDPP AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Tipo de ayuda y CAT Type of aid and CAT	ID	Frecuencia Frequency	Horas de operación Hours of operation	Lugar de la antena del transmisor y coordenadas Site of transmitting antenna and coordinates	Elevación de la antena del transmisor del DME Elevatión of DME transmitting antenna	OBS RMK
1	2	3	4	5	6	7
VOR/DME (9°W/1994)	PTA	115.1 MHZ	H24	19° 45' 34.0"N 070° 34' 04.0"W	38 Ft	NIL
NDB (9°W/1994)	PPA	450 KHZ	H24	19° 45' 07"N 070° 34' 15"W		
PSR			H24	19° 45' 52.6"N 070° 42' 32.9W		

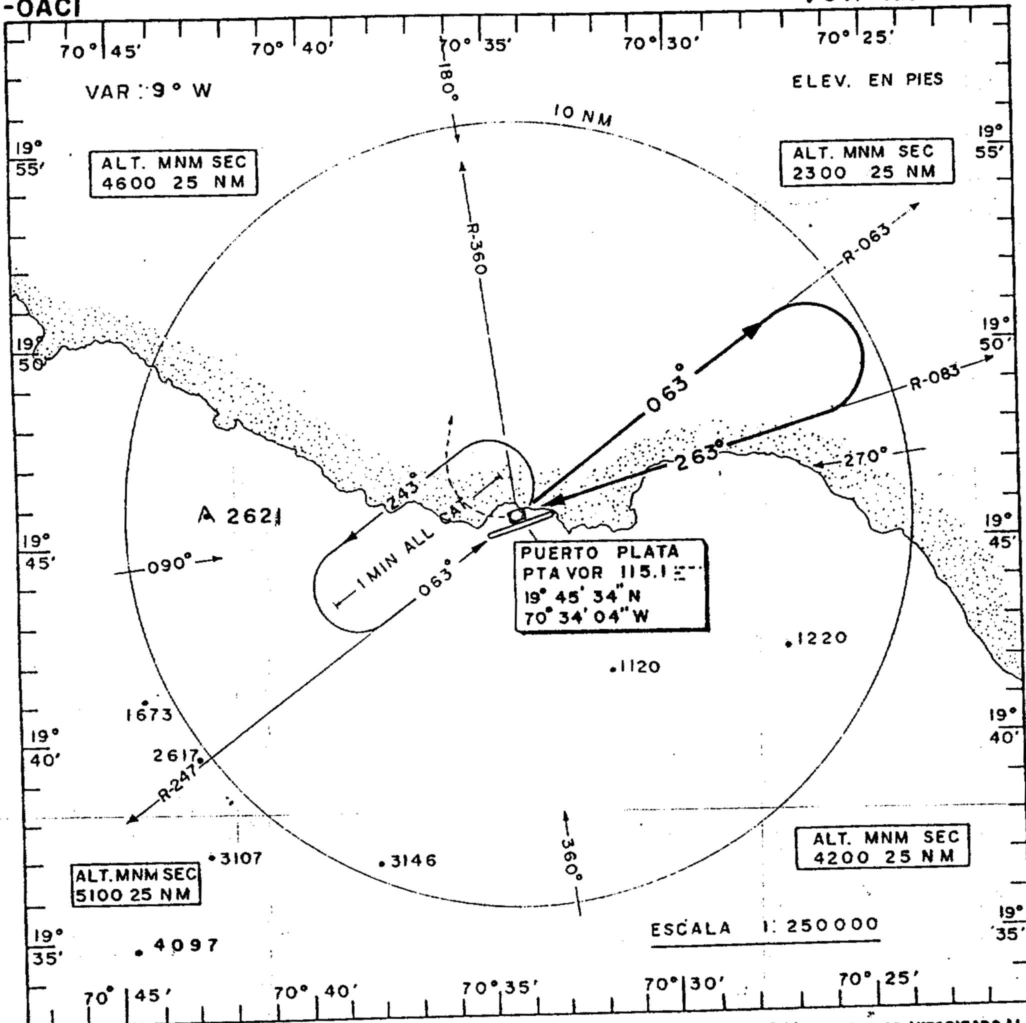

PUERTO PLATA INT'L AIRPORT
N mg
PLANO DE AERODROMO
FIELD ELEV. 16 FEET
THLD RWY 08
19° 45' 12.8" N
070° 35 02.1" W
FREQ. 115,1 MHZ
PTA VOR/DME
19° 45' 34" N
070° 34' 04" W
THLD RWY 26
19° 45' 43.7" N
070° 33' 22.1" W
08
26
E-3
E-2
E-1
ELEV. 16.4 PIES
ELEV. 15.9 PIES
ANT / MET
INSTALACION RADAR
VHF
ANTENA
TWR
AIRFORCE BASE
PARKING
NDB/PPA FREQ 450 KCS
19° 45' 07" N
070° 34' 15 W
ESC. 1:14,300
ARP: 19° 45' 28.4" N / 070° 34' 11.8" W
RWY: 3080 X 46 M
RAMP: 41,325 M2
TAXI WAY: 23 M. WIDE
PARKING COORDINATES
1 19° 45' 21.3" N 070° 33' 52.8" W
2 19° 45' 20.6" N 070° 33' 53.8" W
3 19° 45' 19.1" N 070 33' 53.9" W
4 19° 45' 18.1" N 070° 33' 53.7" W
5 19° 45' 17.2" N 070° 33' 53.4" W

CARTA DE APROXIMACION POR INSTRUMENTOS -OACI

ELEVACION DE AERODROMO 16 FT

APP 119.0
TWR 118.0
121.9 121.5

PUERTO PLATA/INTL
PUERTO PLATA. R.D.
VOR RWY 26



NOTA 1: CIRCUITO NO AUTORIZADO AL S-E DE LA PISTA

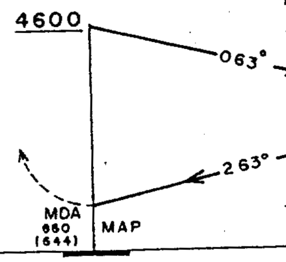
NOTA 2: PROHIBIDO MANIOBRAR A MAS DE 4 NM AL W.

APROX. FRUSTRADA

VIRAR A LA DERECHA
ASCENDER A 4600 FT
EN R-360 Y REGRESAR
AL PATRON DE ESPERA O ACUERDO
INSTRUCCIONES CTA.

MISSED APROACH

RIGHT TURN, CLIMB TO 4,600 FT ON R-360 AND COME BACK TO HOLDING PATTERN, OR IN ACCORDANCE TO ATC INSTRUCTION.



NOTE 1: CIRCUIT NOT AUTHORIZED TO THE S-E OF RWY

NOTE 2: PROHIBITED TO MANEUVER MORE THAN 4 NM TO THE W

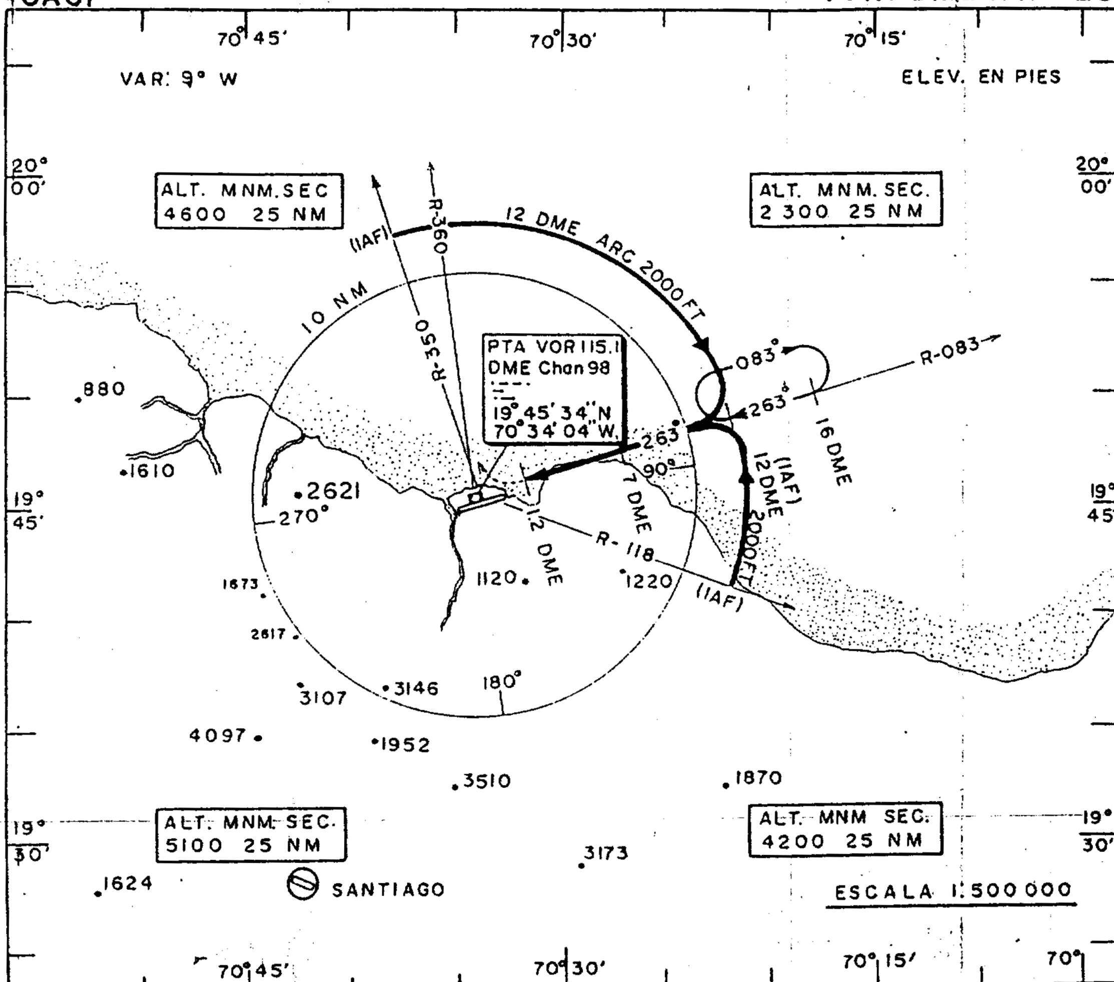
TECHO DE NUBES Y VISIBILIDAD MINIMOS: ATERRIZAJE Y DESPEGUE				
CATEGORIA	A	B	C	D/E
S- VOR 26	660 (644) FT 1.0		660 (644) FT 1¾	660(644) FT 2.0
CIRCULANDO 08	700(684)FT 1.0	800(784)FT 1¼	800(784)FT 2¼	900(884)FT 3.0

CARTA DE APROXIMACION POR INSTRUMENTOS OACI

ELEVACION DE AERODROMO 16 FT

APP 119.0	TWR 118.0
121.9	121.5

PUERTO PLATA INTL
PUERTO PLATA R.D.
VOR/DME RWY 26



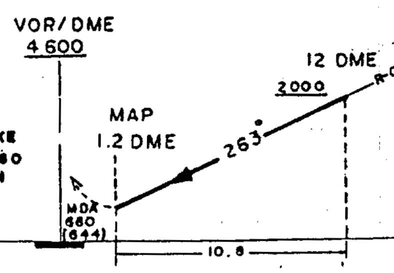
APROXIMACION FRUSTRADA

A 2.3 DME ANTES PTA VOR/DME VIRAR DERECHA ASCENDER A 2000 FT EN EL RADIAL 360 REGRESAR AL PATRON DE ESPERA O ACUERDO INSTRUCCIONES ATC

MISSED APPROACH

AT 2.3 DME BEFORE THE PTA VOR/DME MAKE A RIGHT TURN, CLIMB TO 2,000 FT ON R-360 AND COME BACK TO HOLDING PATTERN, OR IN ACCORDANCE WITH ATC.

ELEV. 16 FT



NOTA 1: PROHIBIDO MANIOBRAR A MÁS DE 4 NM DME AL W.

NOTA 2: CIRCUITO NO AUTORIZADO AL SUR DE LA PISTA.

NOTE 1: PROHIBITE TO MANEUVER MORETHAN 4 NM DME TO THE W.

NOTE 2: CIRCUIT NOT AUTHORIZED TO THE SOUTH OF RWY

TECHO DE NUBES Y VISIBILIDAD MINIMOS: ATERRIZAJE Y DESPEGUE

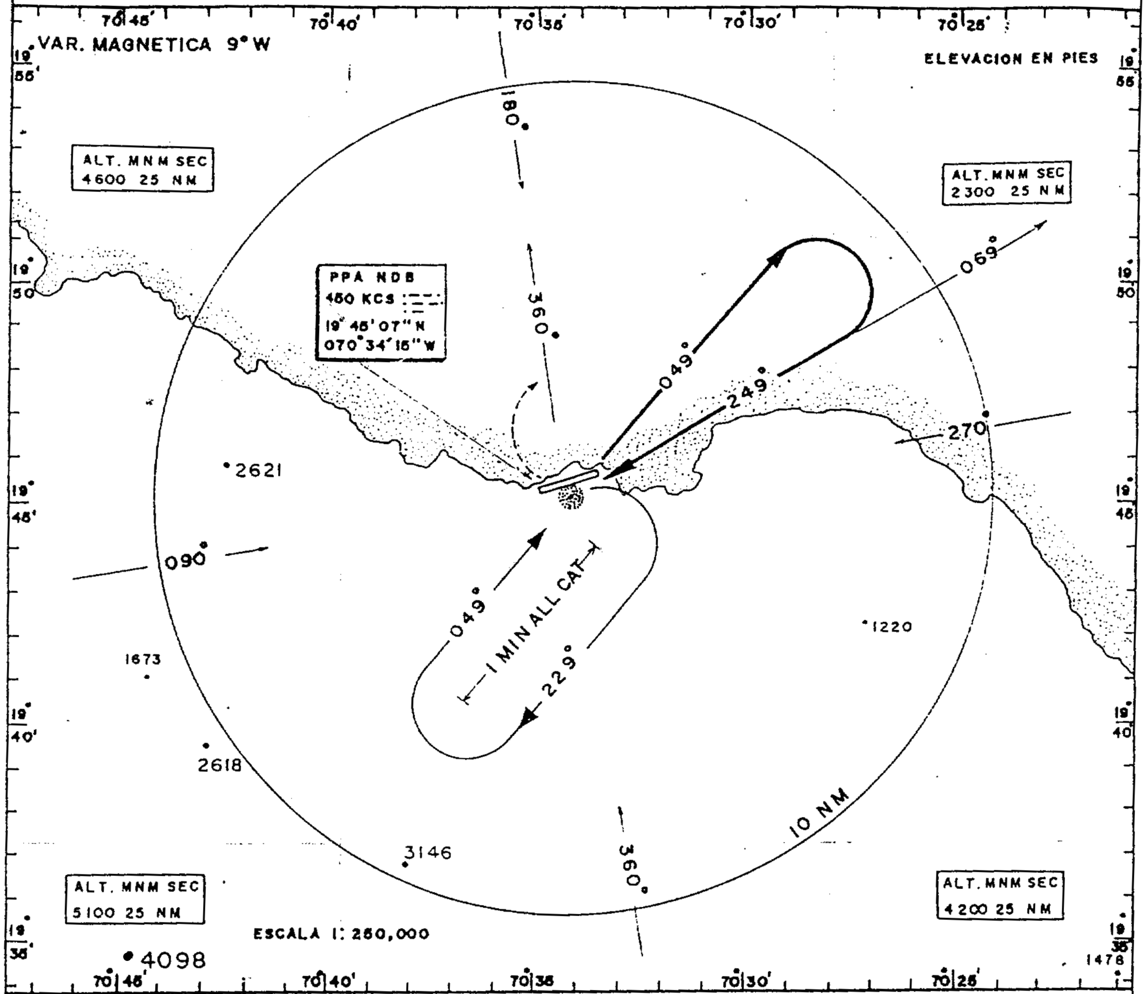
CATEGORIA	A	B	C	D/E
S - VOR 26	660(644)FT 1.0		660 (644) FT 1¾	660(644)FT 2.0
CIRCULANDO 08	700(684) FT 1.0	800(784) FT 1¼	800(784)FT 2¼	900(884)FT 3.0

CARTA DE APROXIMACION POR INSTRUMENTOS

ELEVACION DE AERODROMO 16 FT

APP 119.0
TWR 118.0
121.9 121.5

PUERTO PLATA/INTL
PUERTO PLATA, R.D.
NDB RWY 26



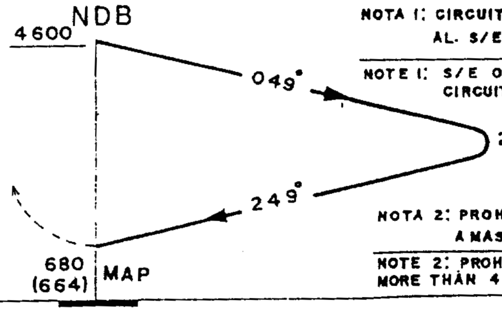
APROXIMACION FRUSTRADA

VIRAR A LA DERECHA, ASCENDER A 4,600 FT EN EL RUMBO 360° Y REGRESAR AL NDB O ACUERDO INSTRUCCIONES CTA

MISSED APPROACH

MAKE A RIGHT TURN CLIMB TO 4,600 FT ON HEADING 360°, RETURN TO NDB OR ACCORDING TO ATC INSTRUCTIONS

ELEV. 16 FT



NOTA 1: CIRCUITO NO AUTORIZADO AL. S/E DE LA PISTA

NOTE 1: S/E OF THE RWY TRAFFIC CIRCUIT NOT AUTHORIZED

NOTA 2: PROHIBIDO MANIOBRAR A MAS DE 4 NM AL W.

NOTE 2: PROHIBITED TO MANEUVER MORE THAN 4 NM TO THE WEST

TECHO DE NUBES Y VISIBILIDAD MINIMOS ATERRIZAJE Y DESPEGUE

CATEGORIA	A	B	C	D/E
S - NDB 26	680 (664)	1.0	680 (664) 1¾	680 (664) 2¼
CIRCULANDO 08	780 (764)	2¼		880 (864) 3.0

DIRECCION GENERAL DE AERONAUTICA CIVIL

ANEXO 7

Secuencia de Posición de la Aeronave (Radar República Dominicana)

NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Washington, D.C. 20594

April 05, 1996

Radar Study

Specialist's Factual Report
by Erin M. Gormley

A. ACCIDENT

Location:	Puerto Plata, Dominican Republic
Date:	February 6, 1996
Time:	2348 Atlantic Standard Time (AST)
Aircraft:	Birgenair, TC-GEN, B-757-200
NTSB Number:	DCA96RA030

B. GROUP

N/A

C. SUMMARY

On February 6, 1996 at about 2348 AST, Alas Nacionales Airlines Flight ALW301, a Boeing 757-200, crashed into the ocean after takeoff from General Gregario Luperon International Airport, Puerto Plata, Dominican Republic.

National Track Analysis Program (NTAP) radar data for the accident aircraft were obtained from the Federal Aviation Administration's (FAA's) Miami Air Route Traffic Control Center (ARTCC) facility. The NTAP radar data provided secondary radar returns which detailed the latitude, longitude and altitude for ALW301 over a period of two minutes and 12 seconds.

Radar data was also received from the De Las Americas Control Center in Santo Domingo, Dominican Republic. The De Las Americas facility is equipped with a Thomson-CSF radar. The Dominican data recorded range, azimuth, altitude, airspeed and aircraft heading for a period of one minute and 48 seconds.

The NTAP radar data for the aircraft begins at 3:45:33[1] and ends at 3:47:45, recording every 12 seconds. The data shows that the aircraft, on a north-easterly heading, climbed from 5200 feet mean sea level (ft msl) up to 7600 ft msl before descending down to 5300 ft msl. The rate of climb data indicates a decreasing pattern from about 2600 feet/minute (ft/min) to about -3000 ft/min. Attachments III-1 to III-6 contain plots of North Range versus East Range, North Range versus Time, East Range versus Time, Altitude versus Time, Altitude versus North Range and Rate of Climb versus Time.

The Dominican radar data is recorded at 5 second intervals from 3:46:00 to 3:47:48. ALW301, heading in a north-easterly direction, climbed from 6100 ft msl to 7300 ft msl before descending to 5300 ft msl. The Rate of Climb versus Time curve in Attachment III-12 shows a decreasing rate of climb trend for the aircraft. North Range versus East Range, North Range versus Time, East Range versus Time, Altitude versus Time, and Altitude versus North Range are found in Attachments III-7 to III-11. Ground Speed versus Time, Attachment III-13, was also plotted for the Dominican radar data.

D. DETAILS OF STUDY

1. NTAP RADAR DATA

NTAP readouts containing pertinent recorded radar data were obtained from the FAA's Miami ARTCC (Attachment I-1). The transponder code assigned to ALW301 was 2000. The NTAP radar data provided secondary data for the beacon code 2000 which includes latitude, longitude, and altitude. There were no primary radar returns recorded during the time period requested.

The latitude and longitude from the NTAP data were entered into the file ALW301.LAT (Attachment II-1). The file was inputted into the LATS computer program which converts the latitude/longitude data into x-y position data. The following coordinates 19°45'00" N, 70°34'00" W, were used as the origin for the data. Attachment II-3 contains the x-y position file, ALW301.XLS. The Rate of Climb versus Time graph is a smoothed curve since altitude data has an accuracy of +/- 50 feet. The x-y position data was rotated using the RTATET program to produce a profile view for the Altitude versus North Range plot.

2. DOMINICAN RADAR DATA

Recorded radar data was obtained from the De Las Americas Control Center in Santo Domingo, Dominican Republic (Attachment I-2). The data was obtained every 5 seconds providing range, azimuth, altitude, airspeed and heading information. It is important to note that the range and azimuth information are only accurate to one tenth of a nautical mile and one degree, respectively. More accurate raw data was requested from the Dominican Republic radar facility but never obtained. No primary targets for the accident aircraft were recorded.

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[1] All times are Coordinated Universal Time (UTC) according to the NTAP radar data.

The range/azimuth data was entered into the file DOMDATA.RA, Attachment II-2. The data was converted into x-y position data using the ROTATET computer program, inputting a magnetic variation of 6.5°W. The x-y position data was entered into the file DOMDATA.XLS which can be found in Attachment II-4. The Rate of Climb versus Time graph is a smoothed curve since altitude has an accuracy of +/- 50 feet. The x-y position data was rotated using the RTATET program to produce a profile view for the Altitude versus North Range plot.

3. GROUND SPEED

Ground speed for the aircraft was calculated from the Dominican radar data using RADTSPED. This program calculates the aircraft's average ground speeds for a three, five and seven point smooth (Attachment III-13). The three resulting sets of data are plotted against time to produce the Ground Speed versus Time curve.

4. PLOTTED DATA

Attachments III-1 to III-13 contain the plots previously referred to in this report.

Erin M. Gormley
Engineering Technician

Enclosures:
Attachments I-1 to I-2: Recorded Radar Data
Attachments II-1 to II-4: Data Files
Attachments III-1 to III-13: Plotted Data

Attachment I
Recorded Radar Data

LST3 - LIST OF PLOT SYMBOLS IN TIME SEQUENCE WITH LAT/LONG CONVERSION

PLOT SYM	CODE	ALT	TIME HHMM	SS	X COORD.	Y COORD.	LATITUDE	LONGITUDE
@			P01		859.5625	149.6250	19 50 40N	070 26 46W
B	2000	058	0345	45	858.3750	149.5625	19 50 36N	070 27 57W
I	2000	066	0346	09	859.1250	150.5000	19 51 33N	070 27 07W
I	2000	073	0346	33	860.2500	151.4375	19 52 24N	070 25 53W
D	2000	070	0346	57	861.0625	152.2500	19 53 13N	070 25 04W
I	2000	064	0347	21	862.1250	152.5000	19 53 25N	070 23 51W
I	2000	053	0347	45	863.1875	152.8750	19 53 45N	070 22 47W

PLOT SYM	CODE	ALT	TIME HHMM	SS	X COORD.	Y COORD.	LATITUDE	LONGITUDE
A	2000	052	0345	33	857.7500	149.0000	19 50 07N	070 28 38W
I	2000	062	0345	57	858.6875	150.0000	19 51 04N	070 27 41W
I	2000	070	0346	21	859.6250	150.8750	19 51 54N	070 26 34W
I	2000	076	0346	45	860.6875	151.9375	19 52 53N	070 25 29W
E	2000	069	0347	09	861.5625	152.3750	19 53 19N	070 24 32W
F	2000		0347	33	862.7500	152.6875	19 53 32N	070 23 11W

I-1

SECUENCIA DE LAS POSICIONES DE LA AERONAVE ACCIDENTADA EN PUERTO PLATA , EL DIA MARTES 6 DE FEBRERO DE 1996, A LAS 11:47:45 P.M., CAPTADAS EN LA PANTALLA RADAR DEL CENTRO DE CONTROL DE LAS AMERICAS EN SANTO DOMINGO.

MATRICULA: TC-GEN
TIPO : B-757
VUELO NO. : ALW-301

AIRCRAFT HEADING

HORA UTC	DISTANCIA (NM)	RADIAL PTA/VOR	ALTITUD (PIES)	VELOCIDAD (GS, TKS)	RUMBO AVION
03:46:00	7.0	058	6,100	141	055
03:46:05	7.3	058	6,200	164	055
03:46:10	7.6	058	6,300	189	055
03:46:15	7.8	058	6,500	199	055
03:46:20	8.2	058	6,600	199	055
03:46:25	8.5	058	6,800	204	055
03:46:30	8.8	058	7,000	206	058
03:46:35	9.3	058	7,000	214	058
03:46:40	9.6	058	7,200	214	058
03:46:45	9.8	058	7,300	219	058
03:46:50	10.1	058	7,300	219	058
03:46:55	10.3	058	7,100	214	058
03:47:00	10.7	058	7,200	209	058
03:47:05	10.7	058	7,000	189	065
03:47:10	10.9	059	6,800	165	078
03:47:15	10.9	059	6,600	147	085
03:47:20	11.3	060	6,400	151	085
03:47:25	11.5	060	6,200	155	085
03:47:30	11.8	062	5,900	158	086
03:47:35	12.0	061	5,800	164	086
03:47:40	12.4	062	5,600	169	082
03:47:45	12.5	062	5,300	172	080
03:47:48	12.4	062	5,300	172	080

---------------------------------FIN DE LA PRESENTACION---------------------------------

Attachment II
Data Files

FILE: ALW301.LAT

Altitude (100ft msl)	Time (hh,mm,ss)	Latitude (deg,min,sec)	Longitude (deg,min,sec)
2,	03, 45, 33,	19, 50, 07,	70, 28, 38
058,	03, 45, 45,	19, 50, 36,	70, 27, 57
062,	03, 45, 57,	19, 51, 04,	70, 27, 41
066,	03, 46, 09,	19, 51, 33,	70, 27, 07
070,	03, 46, 21,	19, 51, 54,	70, 26, 34
073,	03, 46, 33,	19, 52, 24,	70, 25, 53
076,	03, 46, 45,	19, 52, 53,	70, 25, 29
070,	03, 46, 57,	19, 53, 13,	70, 25, 04
069,	03, 47, 09,	19, 53, 19,	70, 24, 32
064,	03, 47, 21,	19, 53, 25,	70, 23, 51
000,	03, 47, 33,	19, 53, 32,	70, 23, 11
053,	03, 47, 45,	19, 53, 45,	70, 22, 47

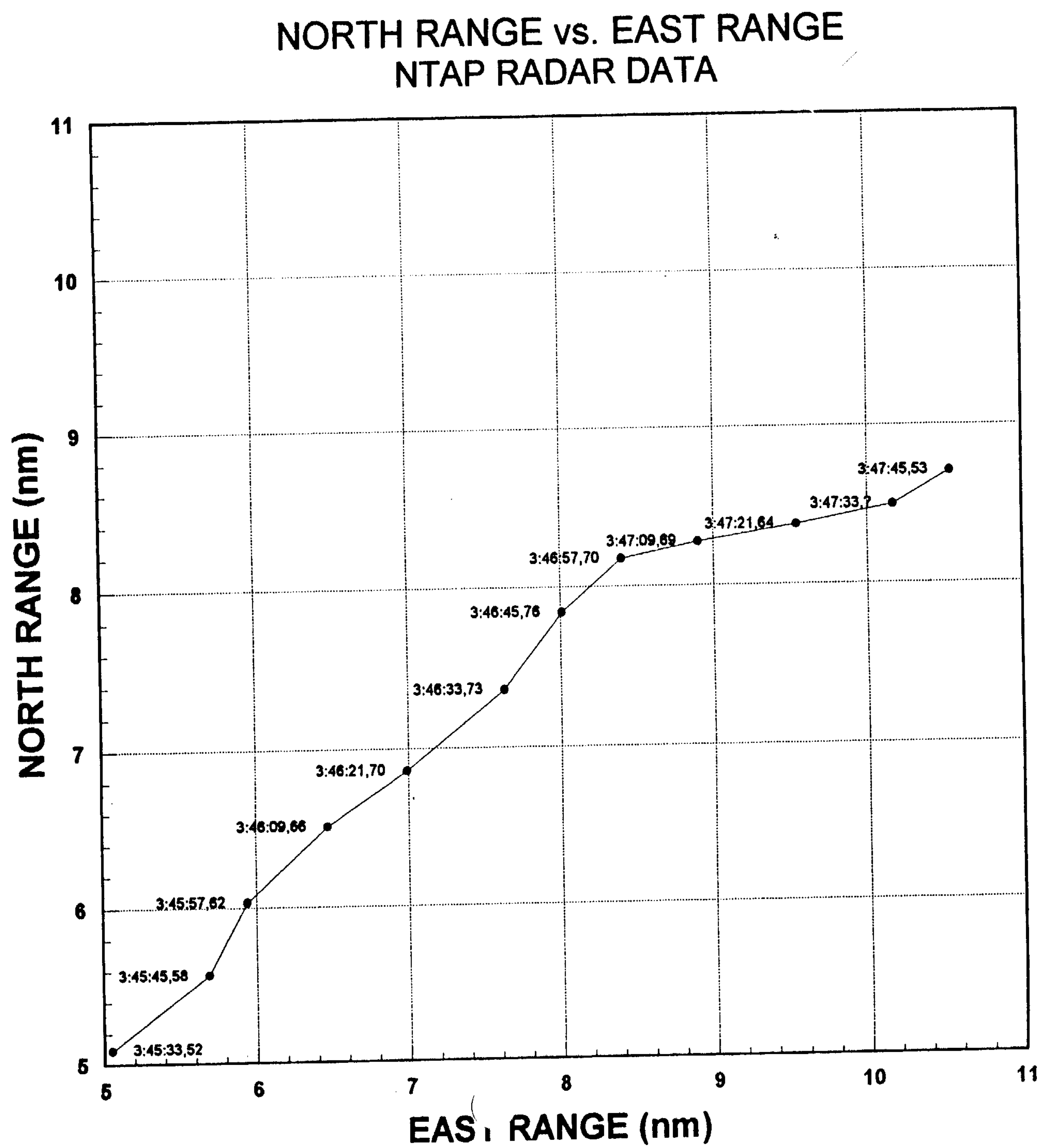
File: DOMDATA.RA

Time (hh,mm,ss)	Range (nm)	Azimuth (deg)	Altitude (100 ft msl)
03, 46, 00,	7.00,	58,	61
03, 46, 05,	7.30,	58,	62
03, 46, 10,	7.60,	58,	63
03, 46, 15,	7.80,	58,	65
03, 46, 20,	8.20,	58,	66
03, 46, 25,	8.50,	58,	68
03, 46, 30,	8.80,	58,	70
03, 46, 35,	9.30,	58,	70
03, 46, 40,	9.60,	58,	72
03, 46, 45,	9.80,	58,	73
03, 46, 50,	10.10,	58,	73
03, 46, 55,	10.30,	58,	71
03, 47, 00,	10.70,	58,	72
03, 47, 05,	10.70,	58,	70
03, 47, 10,	10.90,	59,	68
03, 47, 15,	10.90,	59,	66
03, 47, 20,	11.30,	60,	64
03, 47, 25,	11.50,	60,	62
03, 47, 30,	11.80,	62,	59
03, 47, 35,	12.00,	61,	58
03, 47, 40,	12.40,	62,	56
03, 47, 45,	12.50,	62,	53
03, 47, 48,	12.40,	62,	53

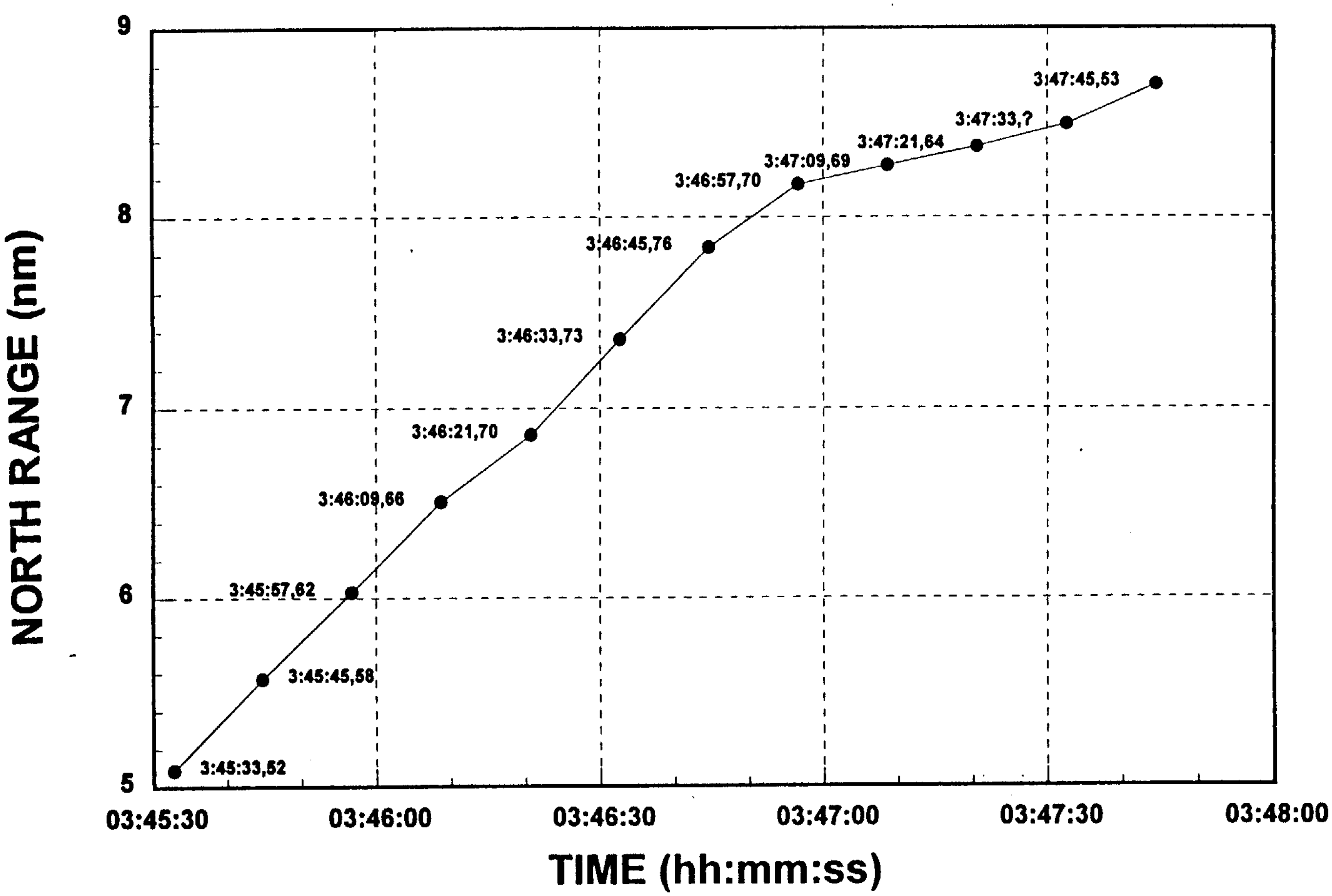
Time				E-W	N-S	Altitude	Time, Altitude
hh	mm	ss	hh:mm:ss	(nm)	(nm)	(ft msl)	hh:mm:ss, alt
3	45	33	3:45:33	5.05	5.09	5200	3:45:33,52
3	45	45	3:45:45	5.69	5.57	5800	3:45:45,58
3	45	57	3:45:57	5.94	6.03	6200	3:45:57,62
3	46	9	3:46:09	6.47	6.51	6600	3:46:09,66
3	46	21	3:46:21	6.99	6.86	7000	3:46:21,70
3	46	33	3:46:33	7.63	7.36	7300	3:46:33,73
3	46	45	3:46:45	8.01	7.84	7600	3:46:45,76
3	46	57	3:46:57	8.4	8.17	7000	3:46:57,70
3	47	9	3:47:09	8.9	8.27	6900	3:47:09,69
3	47	21	3:47:21	9.54	8.37	6400	3:47:21,64
3	47	33	3:47:33	10.17	8.49	?	3:47:33,?
3	47	45	3:47:45	10.54	8.7	5300	3:47:45,53

TIME				E-W	N-S	ALTITUDE	Time, Altitude
hh	mm	ss	hh:mm:ss	(nm)	(nm)	(ft msl)	hh:mm:ss, ft msl
3	46	0	3:46:00	5.4783	4.3576	6100	3:46:00,61
3	46	5	3:46:05	5.713	4.5444	6200	3:46:05,62
3	46	10	3:46:10	5.9478	4.7311	6300	3:46:10,63
3	46	15	3:46:15	6.1043	4.8556	6500	3:46:15,65
3	46	20	3:46:20	6.4174	5.1046	6600	3:46:20,66
3	46	25	3:46:25	6.6522	5.2914	6800	3:46:25,68
3	46	30	3:46:30	6.8869	5.4781	7000	3:46:30,70
3	46	35	3:46:35	7.2783	5.7894	7000	3:46:35,70
3	46	40	3:46:40	7.513	5.9761	7200	3:46:40,72
3	46	45	3:46:45	7.6696	6.1006	7300	3:46:45,73
3	46	50	3:46:50	7.9043	6.2874	7300	3:46:50,73
3	46	55	3:46:55	8.0609	6.4119	7100	3:46:55,71
3	47	0	3:47:00	8.3739	6.6609	7200	3:47:00,72
3	47	5	3:47:05	8.3739	6.6609	7000	3:47:05,70
3	47	10	3:47:10	8.6475	6.6355	6800	3:47:10,68
3	47	15	3:47:15	8.6475	6.6355	6600	3:47:15,66
3	47	20	3:47:20	9.0836	6.7215	6400	3:47:20,64
3	47	25	3:47:25	9.2443	6.8405	6200	3:47:25,62
3	47	30	3:47:30	9.7247	6.6836	5900	3:47:30,59
3	47	35	3:47:35	9.7694	6.9684	5800	3:47:35,58
3	47	40	3:47:40	10.2192	7.0234	5600	3:47:40,56
3	47	45	3:47:45	10.3016	7.0801	5300	3:47:45,53
3	47	48	3:47:48	10.2192	7.0234	5300	3:47:48,53

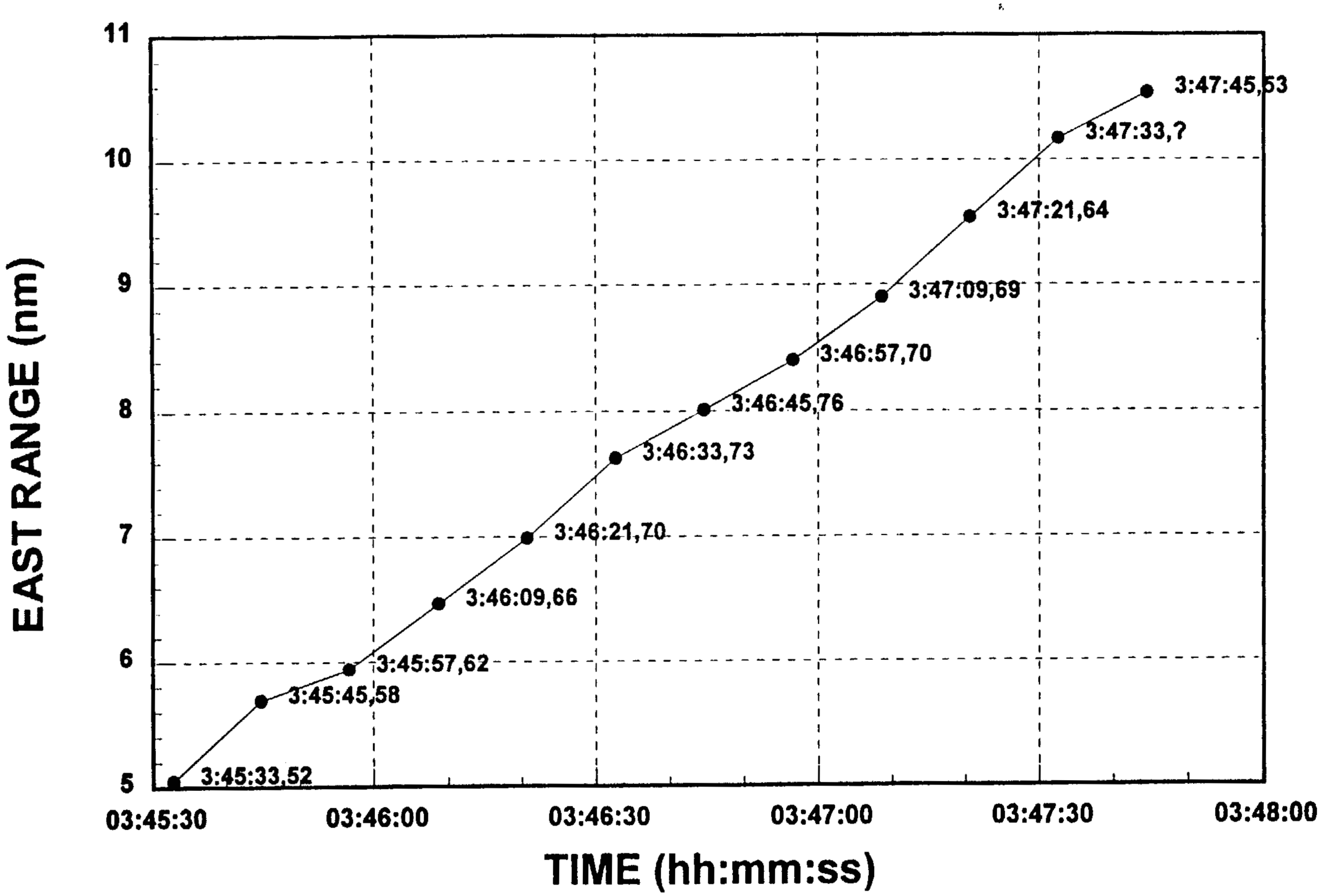
Attachment III
Plotted Data


NORTH RANGE vs. EAST RANGE
NTAP RADAR DATA
NORTH RANGE (nm)
EAS RANGE (nm)
5
6
7
8
9
10
11
3:45:33,52
3:45:45,58
3:45:57,62
3:46:09,66
3:46:21,70
3:46:33,73
3:46:45,76
3:46:57,70
3:47:09,69
3:47:21,64
3:47:33,7
3:47:45,53

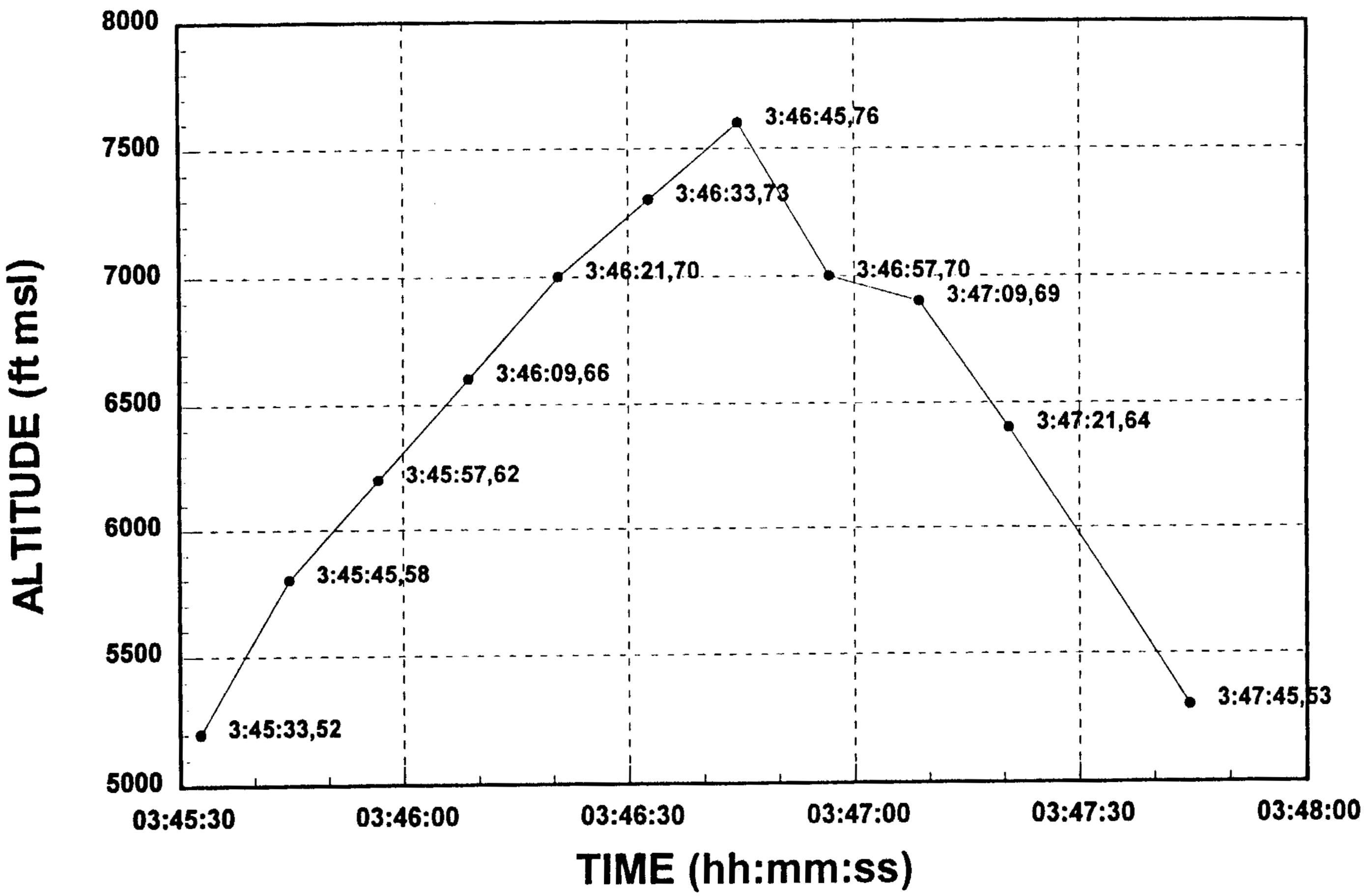
NORTH RANGE vs. TIME
NTAP RADAR DATA

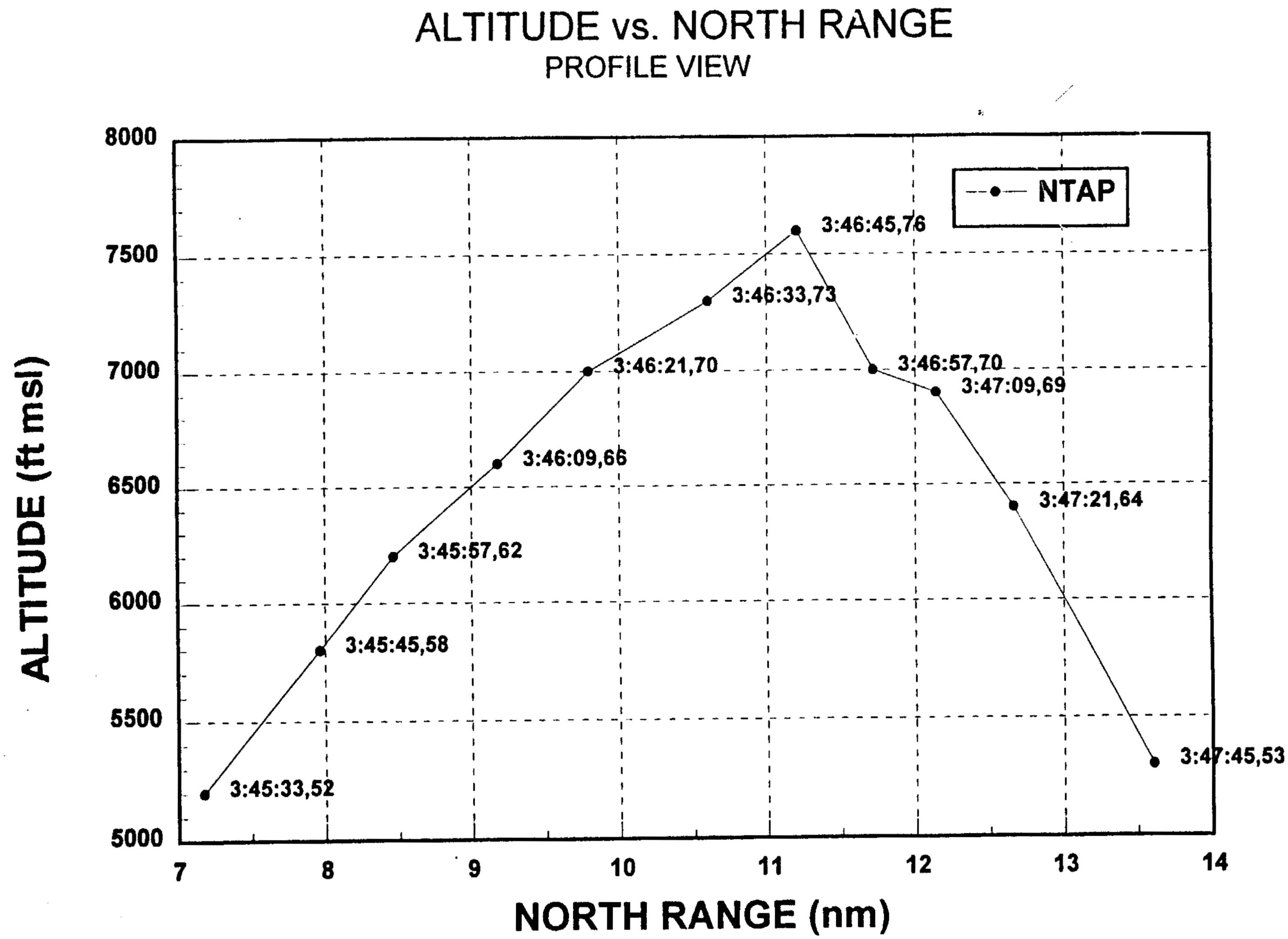


EAST RANGE vs. TIME
NTAP RADAR DATA

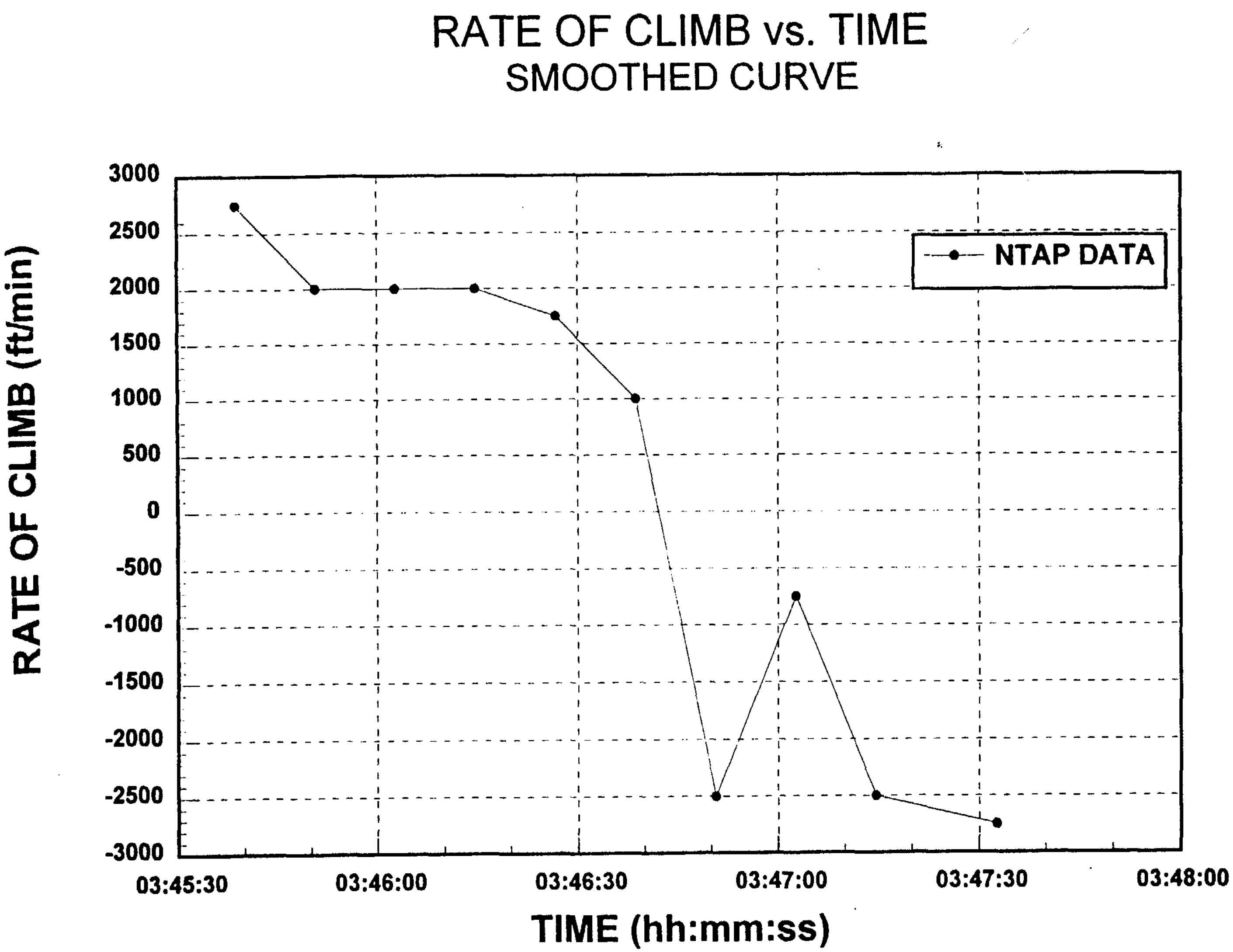


ALTITUDE vs. TIME
NTAP RADAR DATA



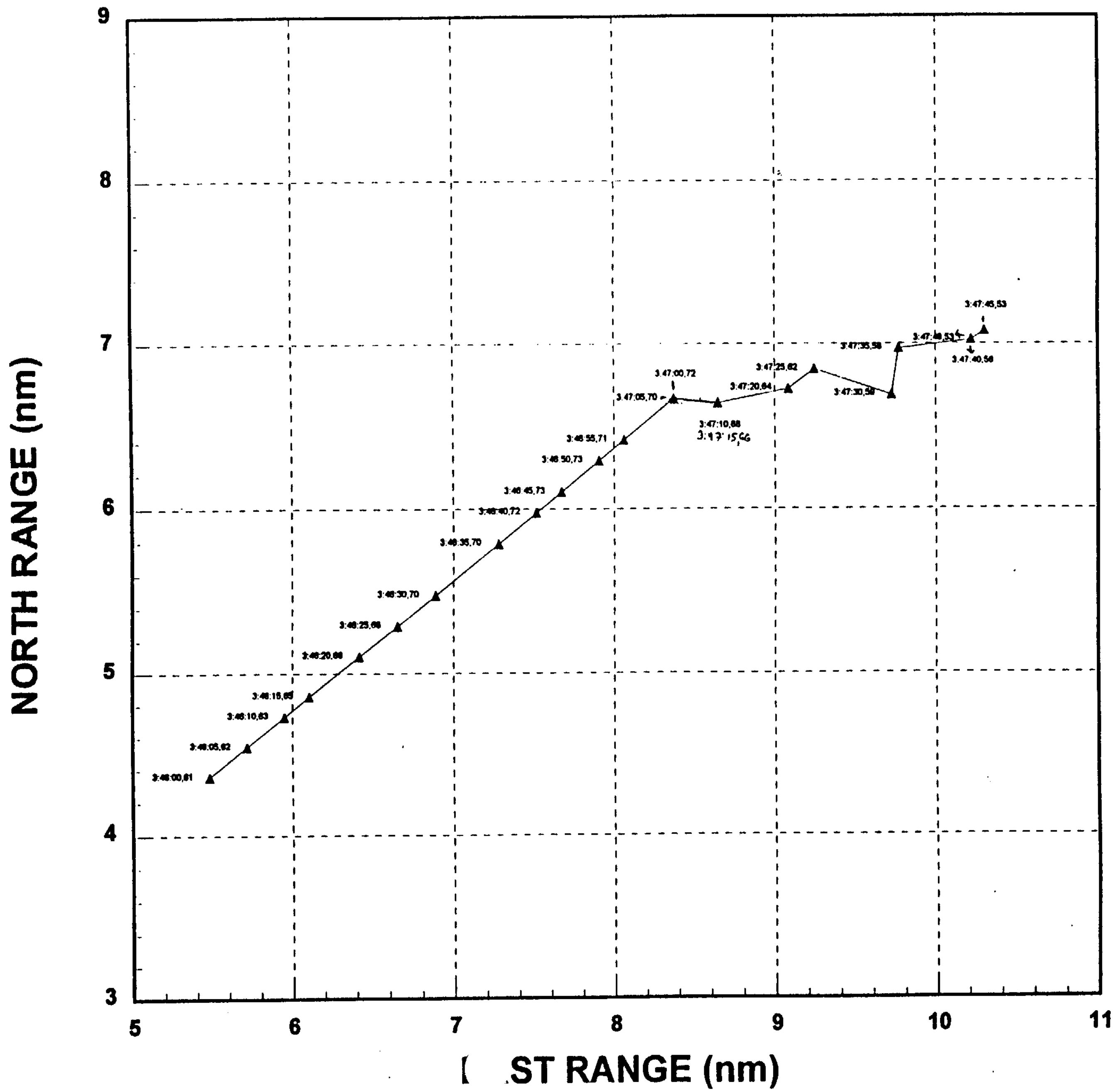


ALTITUDE vs. NORTH RANGE
PROFILE VIEW
NTAP
ALTITUDE (ft msl)
NORTH RANGE (nm)
8000
7500
7000
6500
6000
5500
5000
7
8
9
10
11
12
13
14
3:45:33,52
3:45:45,58
3:45:57,62
3:46:09,66
3:46:21,70
3:46:33,73
3:46:45,76
3:46:57,70
3:47:09,69
3:47:21,64
3:47:45,53

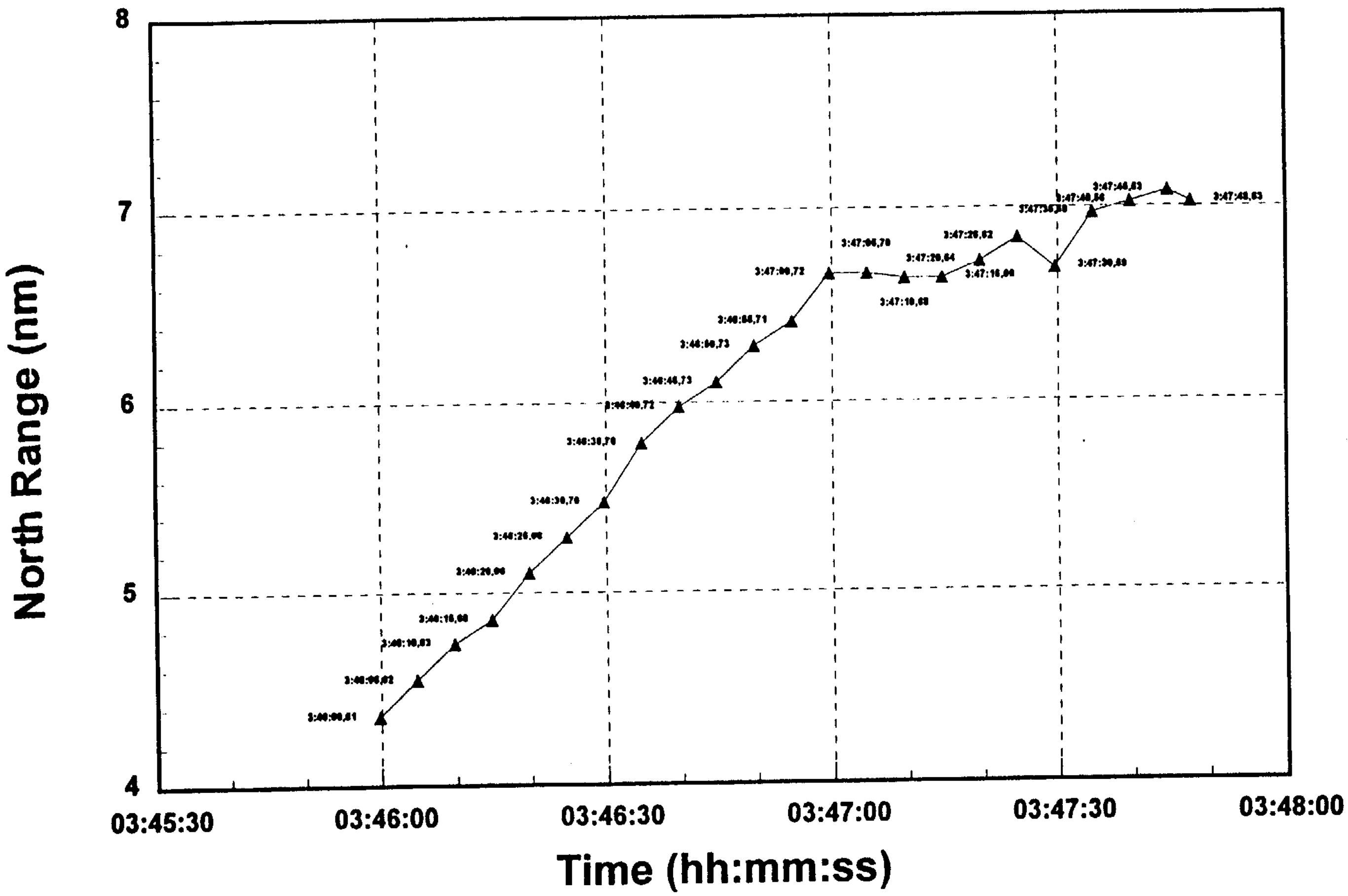


RATE OF CLIMB vs. TIME
SMOOTHED CURVE
NTAP DATA
RATE OF CLIMB (ft/min)
3000
2500
2000
1500
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
03:45:30
03:46:00
03:46:30
03:47:00
03:47:30
03:48:00
TIME (hh:mm:ss)

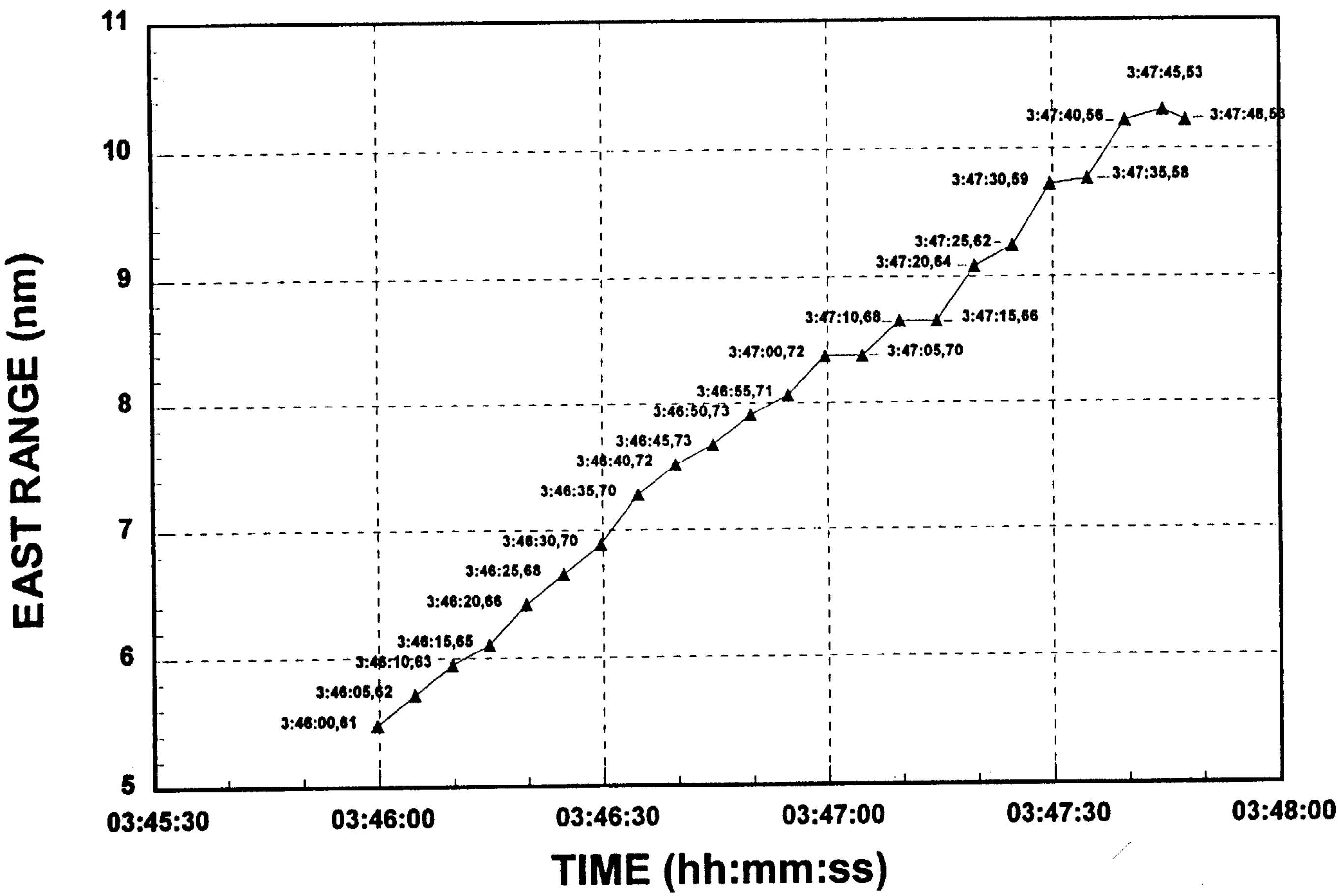
NORTH RANGE vs. EAST RANGE
DOMINICAN RADAR DATA

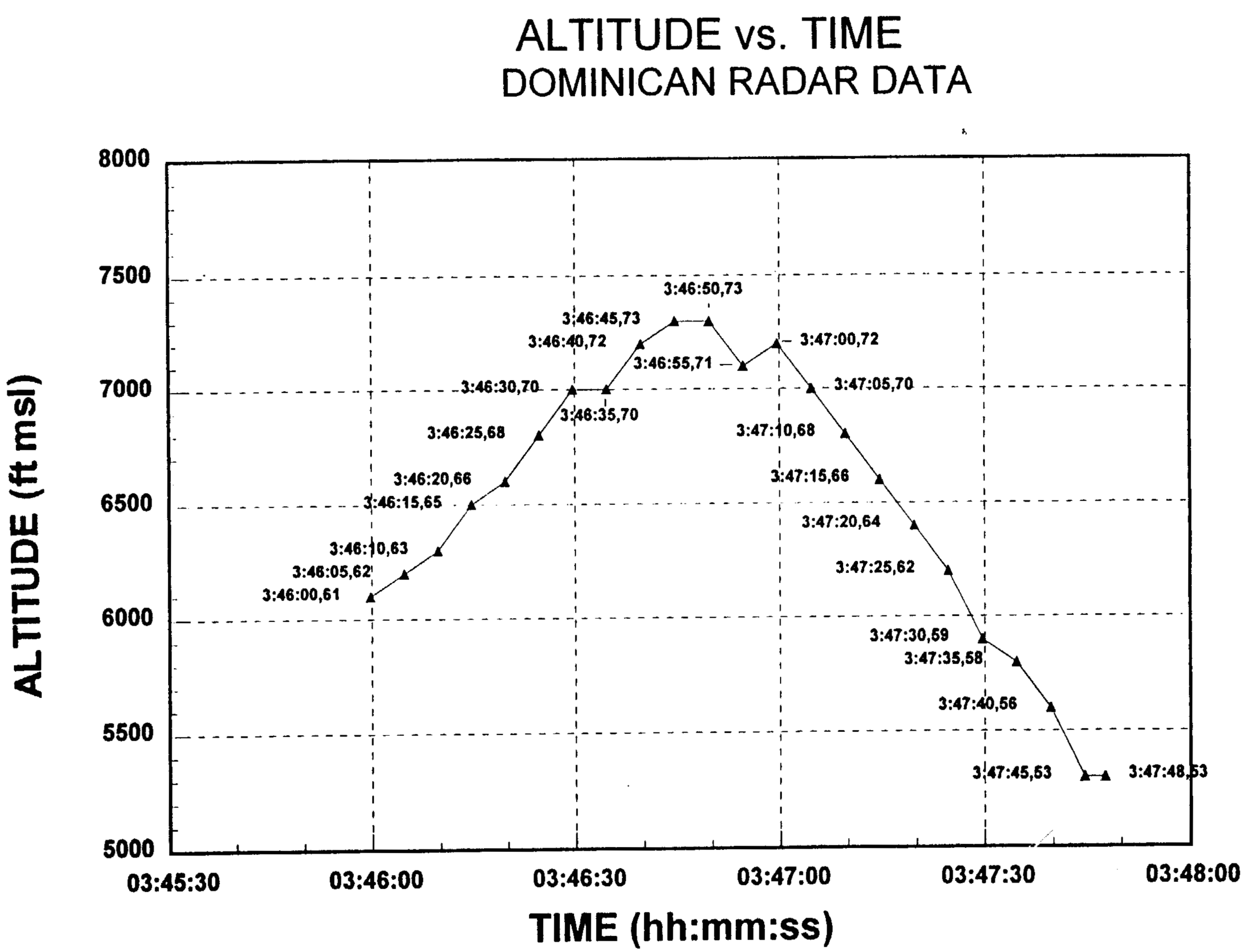


NORTH RANGE vs. TIME
DOMINICAN RADAR DATA



EAST RANGE vs. TIME
DOMINICAN RADAR DATA

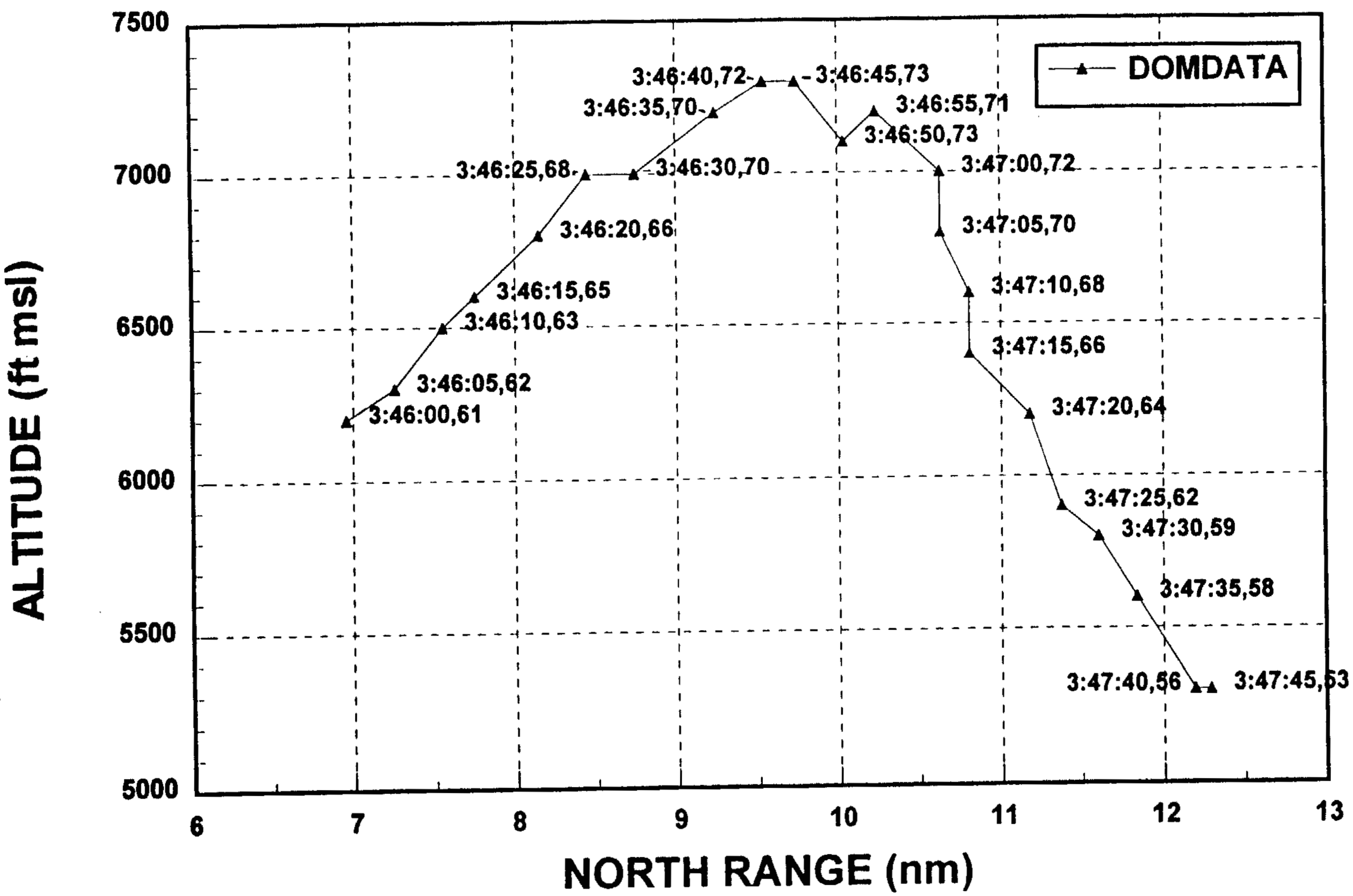




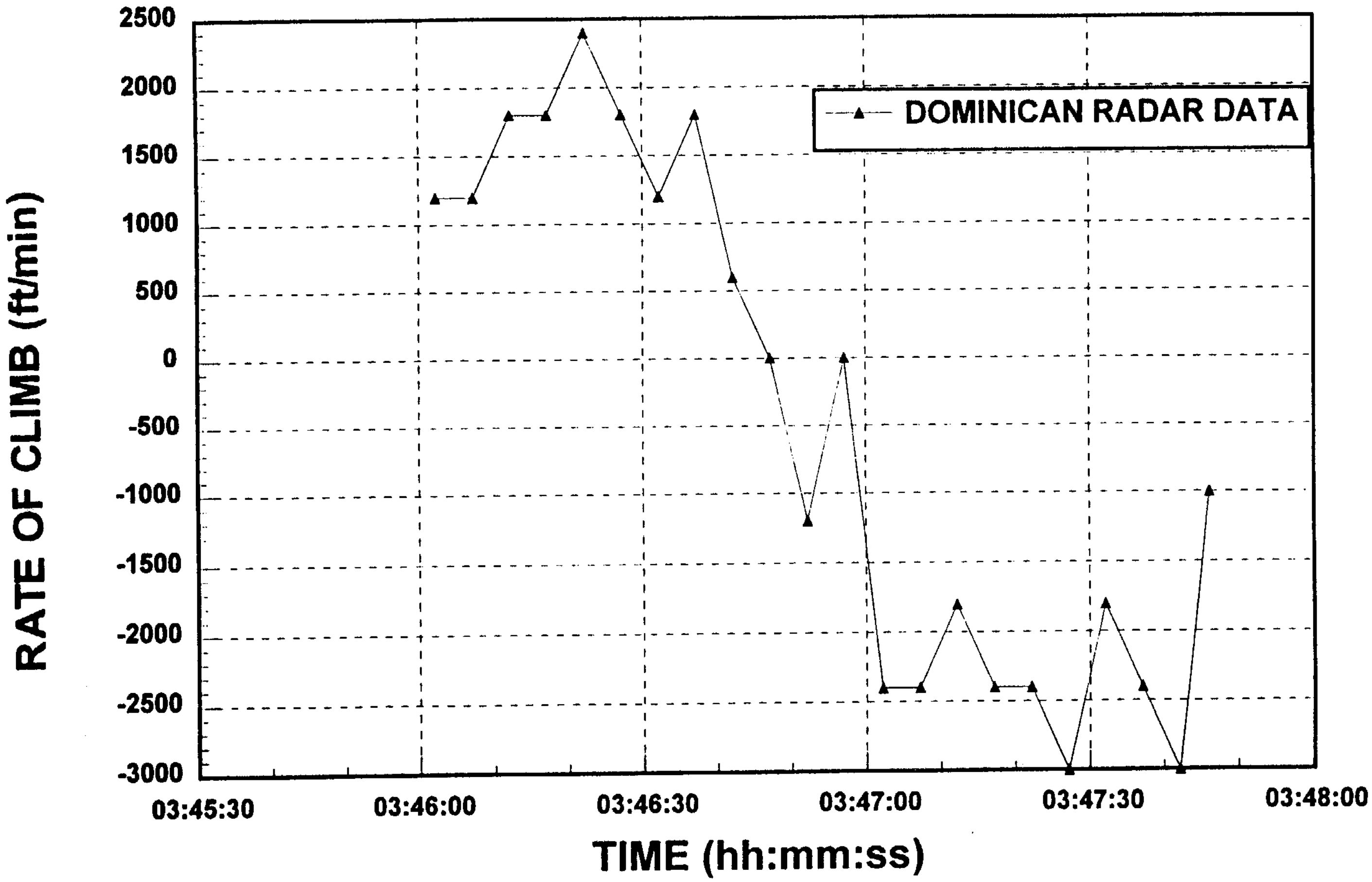
ALTITUDE vs. TIME
DOMINICAN RADAR DATA
ALTITUDE (ft msl)
TIME (hh:mm:ss)
8000
7500
7000
6500
6000
5500
5000
03:45:30
03:46:00
03:46:30
03:47:00
03:47:30
03:48:00
3:46:00,61
3:46:05,62
3:46:10,63
3:46:15,65
3:46:20,66
3:46:25,68
3:46:30,70
3:46:35,70
3:46:40,72
3:46:45,73
3:46:50,73
3:46:55,71
3:47:00,72
3:47:05,70
3:47:10,68
3:47:15,66
3:47:20,64
3:47:25,62
3:47:30,59
3:47:35,58
3:47:40,56
3:47:45,53
3:47:48,53

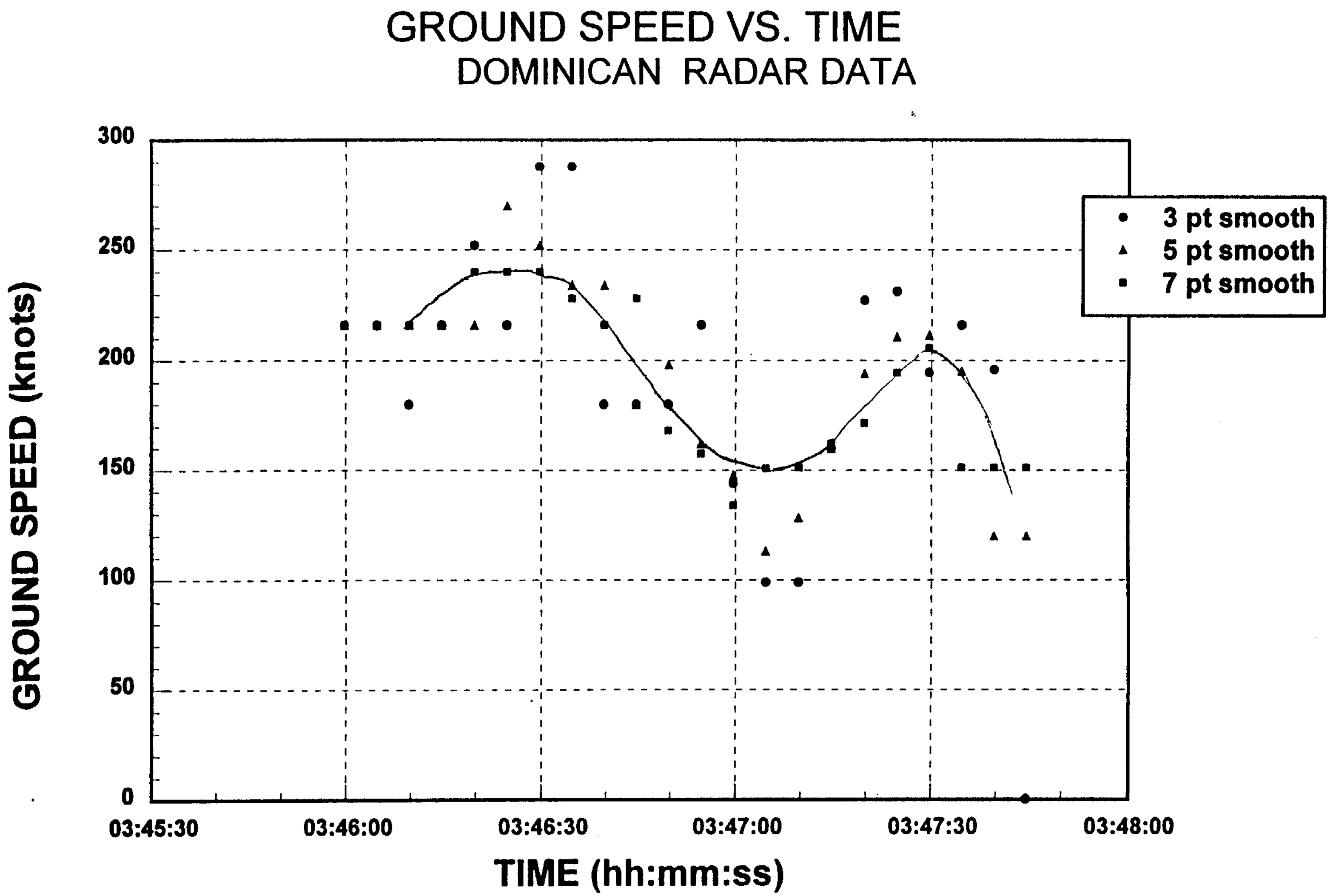
ϕV-III

ALTITUDE vs. NORTH RANGE
PROFILE VIEW



RATE OF CLIMB vs. TIME
SMOOTHED CURVE




GROUND SPEED VS. TIME
DOMINICAN RADAR DATA
GROUND SPEED (knots)
300
250
200
150
100
50
0
03:45:30
03:46:00
03:46:30
03:47:00
03:47:30
03:48:00
TIME (hh:mm:ss)
3 pt smooth
5 pt smooth
7 pt smooth

SECUENCIA DE LAS POSICIONES DE LA AERONAVE ACCIDENTADA EN PUERTO PLATA , EL DIA MARTES 6 DE FEBRERO DE 1996, A LAS 11:47:45 P.M., CAPTADAS EN LA PANTALLA RADAR DEL CENTRO DE CONTROL DE LAS AMERICAS EN SANTO DOMINGO.

MATRICULA: **TC-GEN**
TIPO : **B-757**
VUELO NO. : **ALW-301**

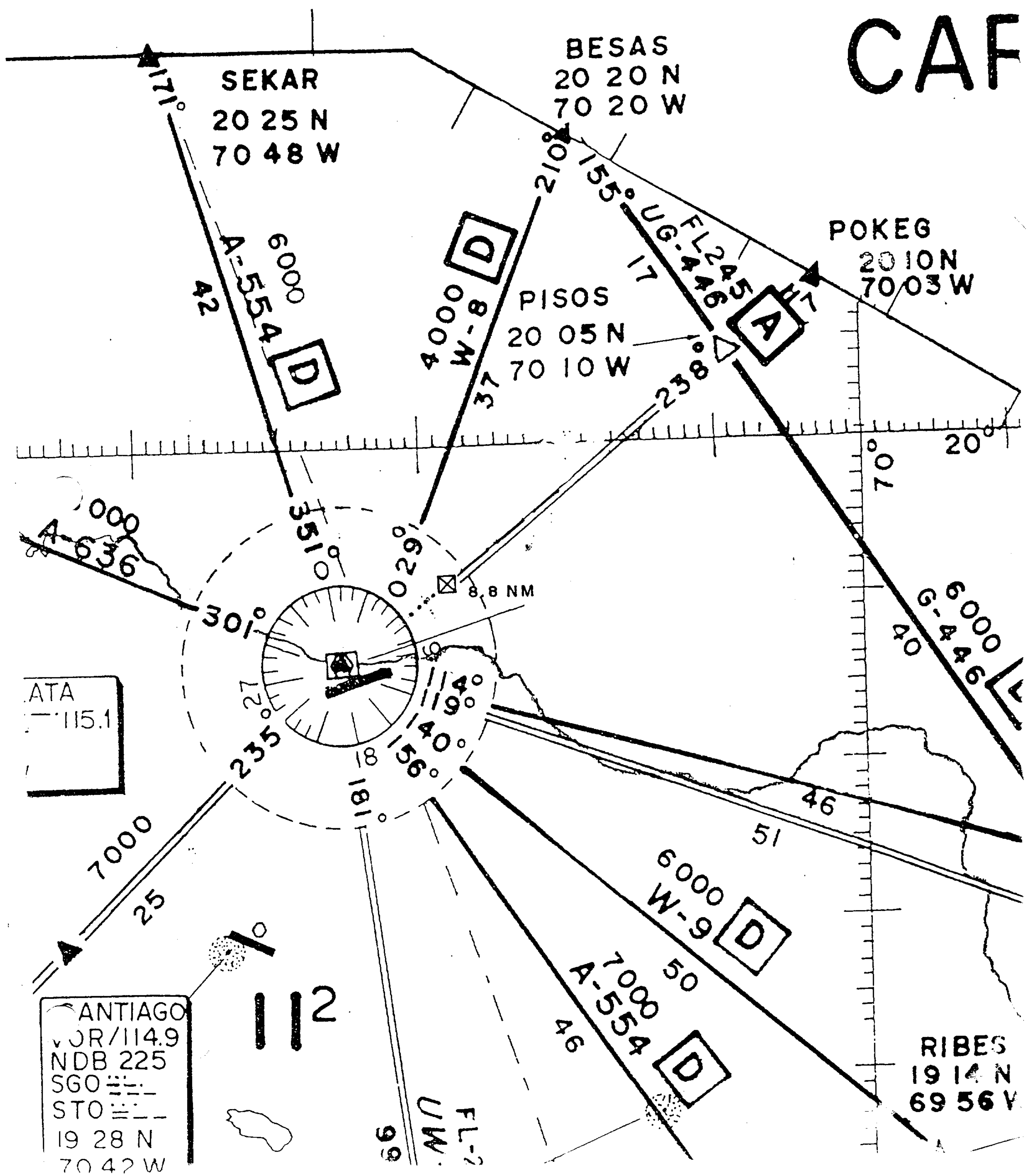
HORA UTC	DISTANCIA (NM)	RADIAL PTA/VOR	ALTITUD (PIES)	VELOCIDAD (GS, TKS)	RUMBO AVION
03:46:00	7.0	058	6,100	141	055
03:46:05	7.3	058	6,200	164	055
03:46:10	7.6	058	6,300	189	055
03:46:15	7.8	058	6,500	199	055
03:46:20	8.2	058	6,600	199	055
03:46:25	8.5	058	6,800	204	055
03:46:30	8.8	058	7,000	206	058
03:46:35	9.3	058	7,000	214	058
03:46:40	9.6	058	7,200	214	058
03:46:45	9.8	058	7,300	219	058
03:46:50	10.1	058	**7,300**	**219**	058
03:46:55	10.3	058	7,100	214	058
03:47:00	10.7	058	7,200	209	058
03:47:05	10.7	058	7,000	189	065
03:47:10	10.9	059	6,800	165	078
03:47:15	10.9	059	6,600	147	085
03:47:20	11.3	060	6,400	151	085
03:47:25	11.5	060	6,200	155	085
03:47:30	11.8	062	5,900	158	086
03:47:35	12.0	061	5,800	164	086
03:47:40	12.4	062	5,600	169	082
03:47:45	12.5	062	5,300	172	080
03:47:48	**12.4**	**062**	**5,300**	**172**	**080**

-----------------------------------FIN DE LA PRESENTACION---------------------------

COORDENADAS GEOGRAFICAS ULTIMA PRESENTACION: **19° 53' 03.132" N**
70° 23' 33.522" W

J. PEREZ
ENC. PROCEDIMIENTOS

SANTO DOMINGO, R. D.
12 DE FEBRERO DE 1996.



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SEKAR
20 25 N
70 48 W
BESAS
20 20 N
70 20 W
POKEG
20 10 N
70 03 W
PISOS
20 05 N
70 10 W
171°
A-554
6000
42
D
210°
4000
W-8
D
37
155°
UG-446
FL245
17
A
238°
351°
029°
301°
A-636
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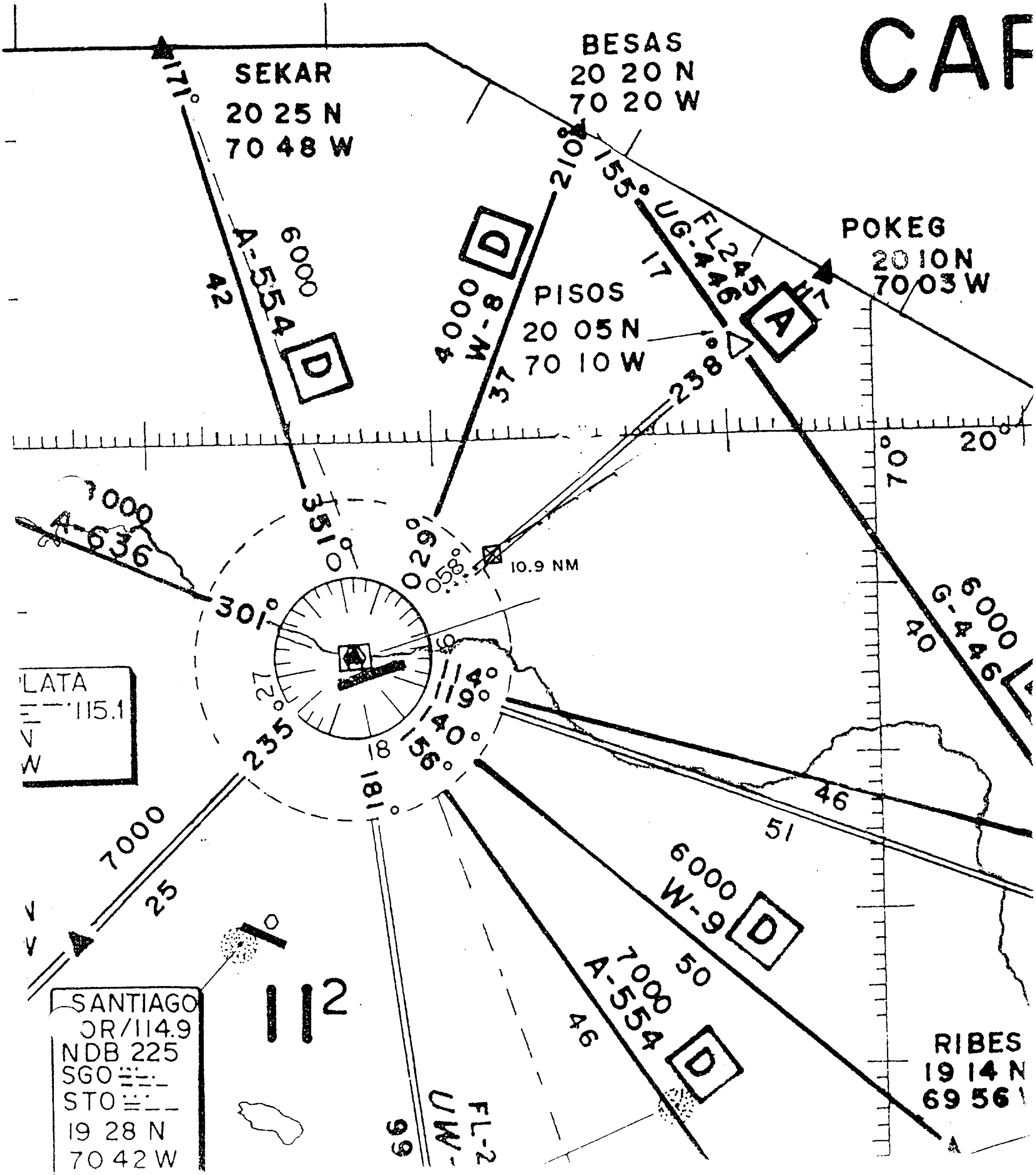
VOR/114.9
NDB 225
SGO
STO
19 28 N
70 42 W
RIBES
19 14 N
69 56 W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SEKAR
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BESAS
20 20 N
70 20 W
POKEG
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70 03 W
PISOS
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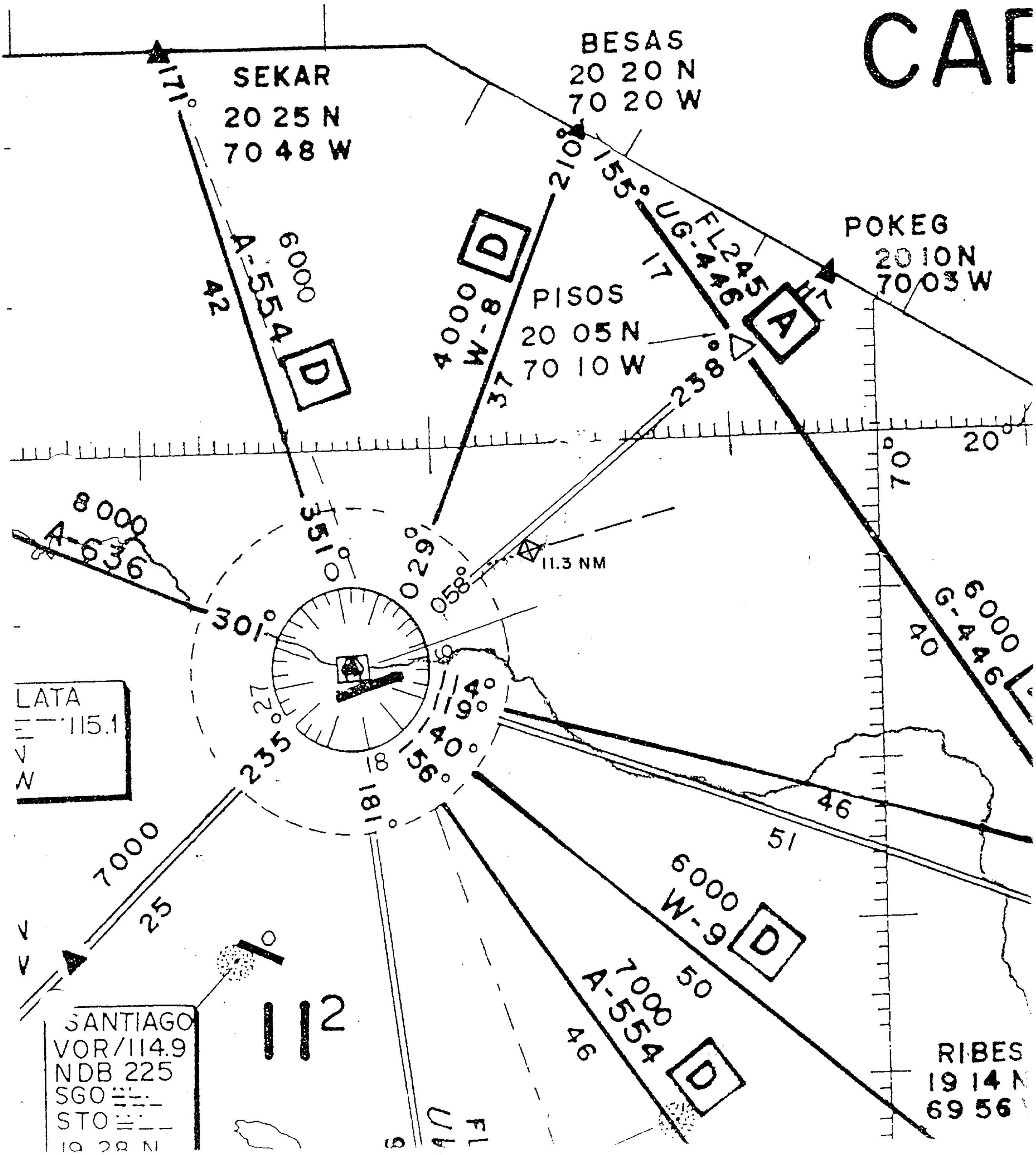

CAF
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70 20 W
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20 05 N
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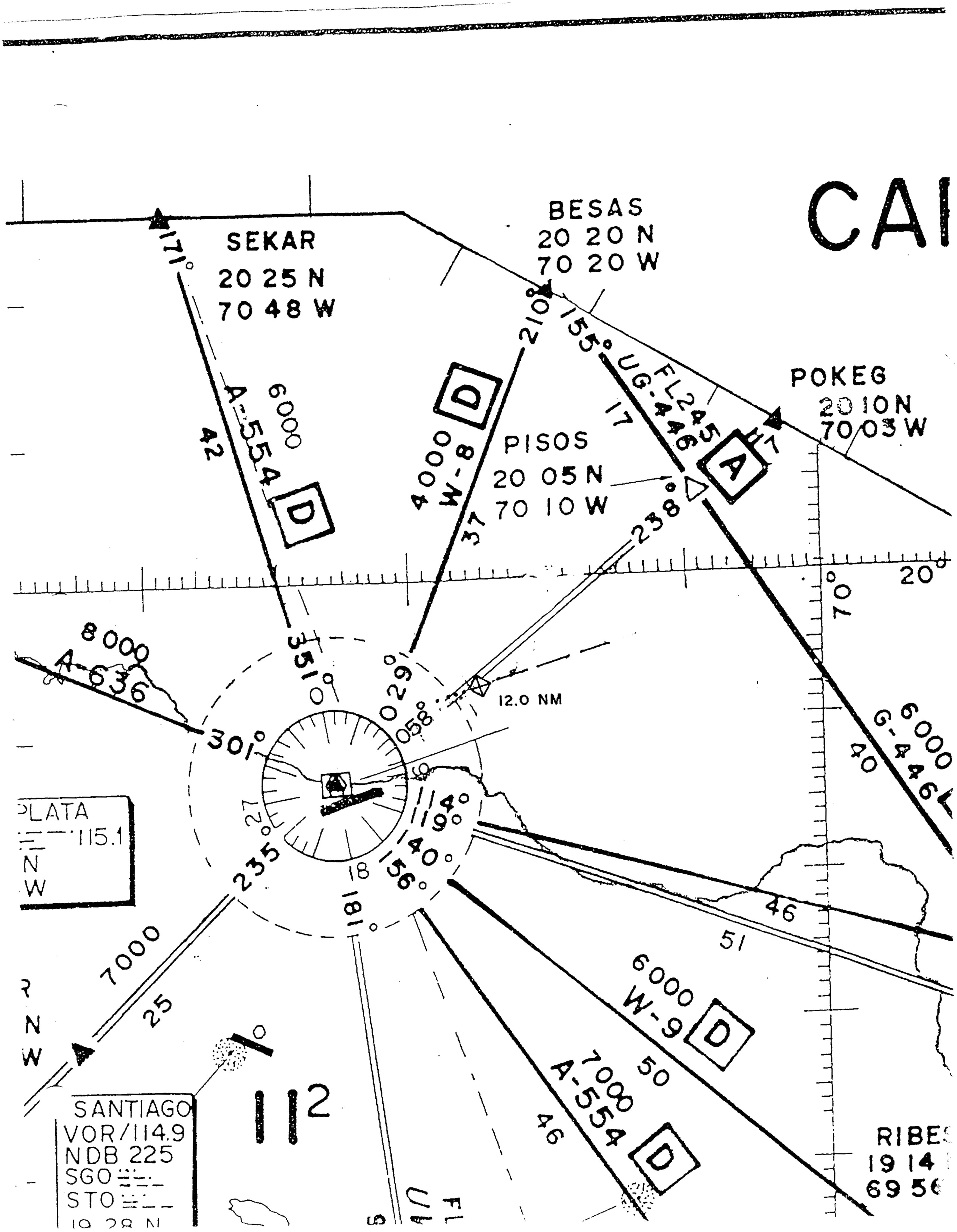

CA
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70 20 W
POKEG
20 10 N
70 03 W
PISOS
20 05 N
70 10 W
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112
RIBES
19 14
69 56

Error

An error occurred while processing this page. See the system log for more details.

ANEXO 8

Parámetros del "FDR" y Transcripción del "CVR"

A

FDR Parameter Listing

Main Title, Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

64
x60
3840

Main Tit. Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13316.00	:56	-64	32.5	0	-10.8	0.4	0.4	1.107	1.081	473	454	46.4	40.0		71.2
13317.00		-64	38.3	0	-10.8	0.2	0.4	1.105	1.085	473	458	46.4	41.2	74.1	
13318.00		-64	43.8	0	-10.8	0.2	0.4	1.105	1.087	470	454	46.0	41.8		72.0
13319.00	03:41:59	-64	48.5	0	-10.8	0.2	0.4	1.107	1.087	472	452	46.0	42.0	74.1	
13320.00		-64	53.3	0	-10.8	0.2	0.5	1.109	1.087	473	451	46.2	42.1		72.0
13321.00		-64	58.0	0	-10.8	0.2	0.5	1.109	1.089	475	451	46.8	42.2	74.5	
13322.00		-64	62.4	0	-10.8	0.2	0.4	1.111	1.101	476	464	47.0	44.0		73.4
13323.00	03:42:03	-64	65.0	0	-10.8	0.2	0.4	1.136	1.128	495	485	50.1	49.0	77.1	
13324.00		-64	69.6	0	-10.8	0.2	0.4	1.154	1.138	504	482	53.9	51.8		76.2
13325.00		-64	72.2	0	-10.8	0.0	0.5	1.179	1.181	507	504	56.4	57.1	80.5	
13326.00		-64	73.8	0	-10.8	0.0	0.4	1.247	1.261	547	532	64.6	67.0		82.2
13327.00	03:42:07	-64	75.8	0	-10.8	0.2	67.7	1.359	1.382	579	577	75.1	78.2	87.8	
13328.00		-64	77.0	0	-10.8	0.2	0.2	1.482	1.489	628	602	85.1	86.4		88.5
13329.00		-64	78.0	0	-10.7	0.2	0.0	1.526	1.493	638	601	90.2	88.2	89.8	
13330.00		-64	79.1	0	-10.6	0.2	0.0	1.528	1.523	639	613	90.5	89.2		88.9
13331.00	03:42:11	-64	80.2	0	-10.4	0.2	-0.2	1.585	1.622	658	653	92.9	94.6	92.4	
13332.00		-64	80.9	0	-9.1	0.2	-0.4	1.702	1.696	695	681	97.5	98.1		92.8
13333.00	:13	-64	81.2	0	-9.0	0.2	-0.2	1.726	1.712	701	697	99.5	99.4	93.1	
13334.00		-64	81.4	30	-8.8	0.2	-0.4	1.724	1.716	709	708	99.8	99.9		93.2
13335.00	03:42:15	-64	81.2	31	-8.2	0.4	0.0	1.712	1.722	716	718	100.1	100.6	93.4	
13336.00		-64	80.5	32	-8.0	0.2	0.0	1.724	1.716	724	723	100.6	100.0		93.2
13337.00		-64	80.0	31	-8.2	0.4	0.2	1.718	1.716	726	730	100.0	100.1	93.4	
13338.00		-64	79.8	32	-8.0	0.4	0.2	1.720	1.712	731	736	100.1	100.2		93.4
13339.00	03:42:19	-32	80.2	33	-7.7	0.2	0.0	1.712	1.708	736	743	100.4	100.4	93.5	
13340.00		-32	80.9	32	-7.7	0.4	-0.2	1.712	1.712	741	748	100.5	100.5		93.5
13341.00		-32	81.2	34	-7.7	0.4	67.5	1.710	1.710	744	753	100.6	100.5	93.6	
13342.00		-32	81.0	34	-7.7	0.4	0.0	1.714	1.714	748	758	100.8	100.8		93.6
13343.00	03:42:23	-32	80.5	35	-7.6	0.4	0.0	1.714	1.712	751	762	100.9	100.8	93.8	
13344.00		-32	79.8	36	-7.7	0.4	0.0	1.716	1.712	754	766	100.9	100.8		93.5
13345.00		-32	79.6	34	-7.8	0.2	0.0	1.720	1.714	758	769	101.1	100.9	93.9	
13346.00		-32	80.2	36	-7.7	0.4	0.0	1.718	1.714	760	772	101.1	100.9		93.6
13347.00	03:42:27	-32	80.5	36	-7.7	0.4	0.0	1.720	1.716	763	776	101.2	101.0	93.9	
13348.00		-32	80.3	37	-7.7	0.4	-0.2	1.716	1.714	765	778	101.1	101.0		93.8
13349.00		-32	80.2	40	-7.6	0.4	-0.2	1.718	1.712	767	781	101.1	101.0	94.0	
13350.00		-32	80.3	40	-7.8	0.4	-0.2	1.714	1.714	770	784	101.2	101.0		93.8
13351.00	03:42:31	-32	80.3	39	-7.5	0.4	-0.2	1.716	1.716	771	787	101.1	101.1	94.0	
13352.00		-32	80.5	39	-7.6	0.4	-0.2	1.720	1.714	773	788	101.2	101.1		93.9
13353.00		0	80.3	43	-7.6	0.4	-0.4	1.718	1.712	775	790	101.4	101.1	94.1	

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13354.00		-32	80.5	42	-7.6 -7.7	0.4	-0.2	1.720	1.712	777	792	101.4	101.1		94.0
13355.00	03:42:35	0	80.7	43	-7.7 -7.5	0.4	-0.2	1.718	1.710	779	794	101.5	101.1	94.2	
13356.00		-32	80.9	42	-7.7 -7.7	0.5	-0.2	1.718	1.712	780	795	101.4	101.1		94.0
13357.00		-32	80.5	39	-7.4 -7.5	0.7	-0.2	1.718	1.710	782	796	101.4	101.0	94.2	
13358.00		-32	80.2	34	-7.0 -6.1	2.6	-0.4	1.718	1.708	784	797	101.5	101.0		94.0
13359.00	03:42:39	-32	80.2	36	-5.0 -3.6	5.6	-0.9	1.720	1.704	786	799	101.5	101.0	94.4	
13360.00		-32	80.3	40	-2.9 -2.1	7.4	-1.6	1.716	1.704	787	800	101.6	100.9		94.0
13361.00		0	80.7	45	-1.8 -1.5	9.0	-1.6	1.718	1.702	789	801	101.8	100.9	94.5	
13362.00		32	80.9	51	-1.3 -0.9	10.5	-0.9	1.718	1.702	791	802	101.9	100.9		94.0
13363.00	03:42:43	64	81.2	61	-0.4 0.3	13.2	0.0	1.718	1.702	792	804	101.8	101.0	94.5	
13364.00		96	81.4	64	0.7 0.5	16.2	-0.5	1.718	1.704	793	804	101.8	100.9		94.0
13365.00		96	81.7	63	-0.9 -2.7	13.7	-0.7	1.720	1.706	795	806	101.8	100.9	94.5	
13366.00		96	81.7	67	-3.5 -3.5	12.1	-0.9	1.716	1.702	795	807	101.5	101.0		94.2
13367.00	03:42:47	160	81.9	76	-2.9 -2.1	13.5	-1.4	1.720	1.704	799	809	101.9	101.0	94.8	
13368.00		160	82.1	78	-1.6 -2.6	13.7	-1.4	1.720	1.704	800	810	102.0	101.1		94.2
13369.00		192	82.1	81	-3.0 -3.7	12.3	-0.7	1.720	1.706	801	811	101.8	101.1	94.8	
13370.00		224	82.1	85	-4.0 -3.9	11.8	0.2	1.722	1.706	803	812	102.0	101.1		94.4
13371.00	03:42:51	256	82.1	90	-3.3 -3.2	12.5	1.2	1.718	1.704	803	813	101.9	101.1	94.8	
13372.00		288	82.4	94	-3.3 -3.7	12.1	1.1	1.718	1.704	805	814	101.9	101.1		94.4
13373.00		320	82.8	98	-4.2 -4.5	11.1	-0.4	1.718	1.702	806	816	102.0	101.1	94.9	
13374.00		352	83.0	101	-4.4 -4.7	10.9	-1.1	1.718	1.702	808	817	102.1	101.1		94.5
13375.00	03:42:55	384	82.4	105	-4.6 -4.9	10.5	0.7	1.722	1.702	811	818	102.4	101.2	95.1	
13376.00		448	81.9	110	-4.8 -4.2	10.9	1.2	1.718	1.702	811	819	102.2	101.2		94.6
13377.00		480	81.7	113	-3.9 -3.7	12.5	0.5	1.720	1.704	813	820	102.4	101.4	95.1	
13378.00		512	82.1	116	-4.0 -4.3	13.0	0.2	1.722	1.702	814	821	102.4	101.4		94.6
13379.00	03:42:59	576	82.4	121	-4.6 -4.8	12.7	0.7	1.720	1.702	815	822	102.4	101.4	95.2	
13380.00		608	82.4	125	-4.9 -5.1	12.5	1.8	1.720	1.704	815	823	102.4	101.4		94.8
13381.00		640	82.4	129	-5.2 -5.1	12.7	2.6	1.720	1.702	816	824	102.4	101.5	95.2	
13382.00		704	82.4	133	-4.9 -5.1	13.4	3.0	1.722	1.706	817	825	102.4	101.5		94.8
13383.00	03:43:03	768	83.0	137	-4.8 -4.8	13.5	1.8	1.720	1.708	817	825	102.4	101.5	95.2	
13384.00		800	83.5	141	-5.0 -5.3	13.4	0.7	1.722	1.708	817	826	102.4	101.6		94.9
13385.00		864	83.7	145	-5.5 -5.7	13.2	0.0	1.722	1.708	818	827	102.5	101.6	95.2	
13386.00		928	83.5	149	-5.5 -5.5	13.0	-0.7	1.720	1.706	818	827	102.4	101.6		94.9
13387.00	03:43:07	960	83.0	153	-5.7 -5.8	12.7	0.0	1.724	1.708	820	828	102.5	101.6	95.4	
13388.00		1024	83.0	157	-5.9 -6.0	12.1	-0.7	1.726	1.708	821	829	102.6	101.8		94.9
13389.00		1088	83.1	160	-6.1 -6.1	12.0	-1.6	1.722	1.706	820	829	102.5	101.6	95.4	
13390.00		1120	83.0	164	-6.1 -6.1 -6.2	11.8	-3.9	1.700	1.708	819	830	102.0	101.8		95.0

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13391.00	03:43:11	1184	81.9	167	-6.2	11.6	-6.2	1.573	1.675	789	824	95.9	100.6	92.2	
13392.00		1216	80.5	170	-6.2	11.2	-7.4	1.542	1.632	769	806	93.0	97.9		93.4
13393.00		1280	79.5	173	-6.2	10.7	-9.5	1.540	1.614	767	798	92.8	96.8	92.0	
13394.00		1312	78.6	176	-5.9	10.9	-14.6	1.540	1.593	764	789	92.8	95.5		92.5
13395.00	03:43:15	1376	77.7	179	-6.0	11.2	-17.4	1.550	1.583	756	784	92.9	94.9	91.6	
13396.00		1408	75.9	181	-6.1	11.1	-17.8	1.550	1.569	754	777	92.9	94.2		92.1
13397.00		1472	74.2	184	-6.2	10.5	-19.2	1.552	1.562	752	772	92.9	93.8	91.6	
13398.00		1504	72.4	187	-5.9	10.5	-20.2	1.552	1.558	750	768	92.9	93.4		91.8
13399.00	03:43:19	1536	70.8	189	-5.5	10.5	-21.1	1.550	1.552	749	764	92.8	93.1	91.5	
13400.00		1600	69.3	191	-5.5	10.0	-21.4	1.550	1.550	748	762	92.8	92.9		91.6
13401.00		1632	67.3	193	-5.5	9.7	-21.8	1.548	1.544	746	758	92.8	92.6	91.6	
13402.00		1664	65.4	195	-5.5	9.1	-23.0	1.548	1.544	745	756	92.8	92.5		91.5
13403.00	03:43:23	1696	62.9	197	-5.0	9.1	-23.7	1.548	1.540	744	754	92.8	92.4	91.6	
13404.00		1728	60.8	198	-4.8	9.1	-24.3	1.548	1.540	743	752	92.8	92.2		91.4
13405.00		1760	58.9	200	-4.7	9.0	-24.8	1.548	1.538	743	750	92.8	92.1	91.5	
13406.00		1760	56.8	201	-4.6	9.0	-25.3	1.546	1.536	742	749	92.6	92.0		91.2
13407.00	03:43:27	1792	54.3	202	-4.5	9.1	-25.5	1.544	1.534	740	747	92.5	91.9	91.4	
13408.00		1824	51.7	204	-3.8	9.8	-25.7	1.546	1.536	739	746	92.4	91.8		91.2
13409.00		1856	49.4	206	-3.3	11.1	-25.8	1.544	1.532	739	745	92.4	91.8	91.4	
13410.00		1888	47.8	207	-3.7	11.6	-25.7	1.544	1.534	738	744	92.4	91.8		91.1
13411.00	03:43:31	1920	45.9	208	-4.6	11.4	-25.0	1.542	1.528	738	742	92.4	91.6	91.2	
13412.00		1952	44.3	210	-3.9	11.6	-21.8	1.546	1.532	736	742	92.2	91.6		91.0
13413.00		1984	42.9	212	-3.4	11.8	-18.3	1.544	1.532	736	741	92.2	91.6	91.2	
13414.00		2016	42.0	213	-4.2	11.8	-16.9	1.540	1.530	736	740	92.4	91.6		91.0
13415.00	03:43:35	2048	41.0	215	-4.0	11.8	-16.3	1.544	1.530	735	739	92.4	91.6	91.2	
13416.00		2080	40.1	216	-3.2	12.0	-14.6	1.544	1.532	735	739	92.2	91.6		91.0
13417.00		2112	39.6	218	-3.7	11.8	-12.0	1.544	1.532	734	738	92.2	91.6	91.2	
13418.00		2144	39.2	219	-3.8	12.0	-7.0	1.544	1.532	734	738	92.2	91.6		91.0
13419.00	03:43:39	2208	39.0	221	-3.0	12.1	-4.6	1.542	1.532	733	738	92.2	91.6	91.2	
13420.00		2240	38.8	223	-3.2	12.3	-1.1	1.542	1.532	733	737	92.2	91.8		90.9
13421.00		2272	38.8	224	-3.8	12.0	-1.9	1.542	1.532	732	737	92.2	91.6	91.1	
13422.00		2304	38.8	226	-3.5	11.6	-2.6	1.544	1.534	732	737	92.2	91.6		91.0
13423.00	03:43:43	2336	38.7	228	-3.3	11.8	-3.0	1.542	1.532	732	737	92.2	91.8	91.2	
13424.00		2400	38.7	230	-3.5	11.8	0.4	1.542	1.532	732	737	92.4	91.9		91.0
13425.00		2432	39.2	232	-4.1	11.4	4.7	1.542	1.532	732	737	92.4	91.8	91.2	
13426.00		2496	40.1	234	-4.0	11.4	7.4	1.542	1.534	732	737	92.4	91.8		91.0
13427.00	03:43:47	2528	41.0	236	-3.9	11.6	9.8	1.542	1.532	732	737	92.4	91.9	91.2	
13428.00		2560	42.2	238	-3.7	11.8	12.0	1.544	1.532	732	737	92.4	91.8		91.0

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13429.00		2624	43.4	239	-3.7 -3.9	11.8	13.0	1.542	1.532	732	737	92.4	91.9	91.2	
13430.00		2656	44.5	242	-4.0 -4.1	11.8	14.4	1.542	1.532	731	737	92.4	91.9		91.0
13431.00	03:43:51	2720	45.9	243	-4.2 -4.0	11.8	16.0	1.540	1.532	730	736	92.4	91.9	91.2	
13432.00		2752	47.5	245	-4.2 -3.9	12.1	17.6	1.542	1.532	730	736	92.2	91.8		91.0
13433.00		2816	48.9	247	-3.6 -3.9	12.8	16.2	1.544	1.530	730	735	92.2	91.8	91.1	
13434.00		2880	50.4	249	-3.8 -3.7	13.2	17.2	1.542	1.532	729	735	92.2	91.8		90.9
13435.00	03:43:55	2912	51.7	251	-3.5 -3.8	13.4	17.6	1.542	1.532	729	735	92.2	91.8	91.1	
13436.00		2976	52.7	253	-3.9 -3.9	13.4	15.1	1.542	1.532	729	734	92.1	91.6		90.9
13437.00		3040	53.3	255	-4.0 -4.4	13.4	10.7	1.542	1.534	728	734	92.1	91.6	91.1	
13438.00		3072	53.6	257	-4.2 -4.1	13.2	9.3	1.540	1.530	727	732	92.0	91.4		90.8
13439.00	03:43:59	3136	54.3	259	-4.1	13.5	10.5	1.540	1.530	726	732	91.9	91.5	91.0	
13440.00		3168	55.0	261	-4.0 -4.0	13.5	10.4	1.540	1.532	726	732	91.9	91.5		90.6
13441.00		3232	55.5	263	-4.2 -4.2	13.4	7.6	1.540	1.532	725	732	91.8	91.5	90.9	
13442.00		3296	55.9	265	-4.2 -4.1	13.0	4.9	1.538	1.532	724	731	91.8	91.4		90.6
13443.00	03:44:03	3328	56.1	267	-4.0	12.8	3.5	1.540	1.530	724	731	91.8	91.4	90.9	
13444.00		3392	56.2	268	-4.0 -4.0	12.8	3.5	1.538	1.530	724	730	91.8	91.4		90.6
13445.00		3424	56.6	270	-3.9 -3.7	13.0	2.8	1.536	1.532	723	730	91.6	91.2	90.8	
13446.00		3488	57.0	272	-3.8 -3.9	13.2	1.8	1.538	1.530	722	730	91.6	91.2		90.5
13447.00	03:44:07	3520	57.1	273	-4.0	13.0	1.4	1.536	1.528	722	729	91.6	91.2	90.8	
13448.00		3584	57.1	275	-4.1 -4.1	12.7	1.8	1.536	1.528	721	728	91.5	91.1		90.4
13449.00		3616	57.1	276	-4.2 -4.0	12.3	1.9	1.536	1.526	720	728	91.5	91.1	90.6	
13450.00		3648	57.3	278	-4.0 -4.1	12.0	2.3	1.534	1.526	720	727	91.4	91.0		90.4
13451.00	03:44:11	3712	57.7	279	-4.0	11.8	2.1	1.534	1.526	720	726	91.4	91.0	90.6	
13452.00		3744	58.0	280	-4.0 -4.0	11.6	1.8	1.534	1.525	719	726	91.4	90.9		90.4
13453.00		3776	58.0	282	-3.9 -4.0	11.6	0.7	1.534	1.526	719	726	91.4	90.9	90.6	
13454.00		3808	57.8	283	-3.9 -3.7	11.8	0.4	1.532	1.525	718	725	91.2	90.9		90.2
13455.00	03:44:15	3840	57.7	284	-3.6 -3.5	12.1	-0.5	1.534	1.525	718	725	91.2	90.8	90.5	
13456.00		1952	57.5	143	-3.6 43.2	12.5	179.5	1.767	1.761	358	362	91.2	45.4		45.1
13457.00		3936	57.3	287	-3.8 -3.4	12.7	-1.1	1.532	1.525	717	724	91.2	90.8	90.5	
13458.00		3968	57.1	288	-3.5 -3.1	13.0	-1.4	1.534	1.521	717	723	91.2	90.6		90.2
13459.00	03:44:19	4032	57.1	290	-3.5 -3.4	13.2	-1.2	1.532	1.523	716	723	91.1	90.6	90.5	
13460.00		4064	57.3	291	-3.5 -3.4	13.4	-1.4	1.530	1.523	716	722	91.1	90.6		90.1
13461.00		4128	57.3	293	-3.5 -3.7	13.4	-1.4	1.532	1.523	715	722	91.1	90.6	90.4	
13462.00		4160	57.0	294	-3.6 -3.4	13.5	-1.1	1.530	1.523	715	721	91.1	90.6		90.1
13463.00	03:44:23	4192	56.6	295	-3.4 -3.4	13.5	-0.9	1.530	1.523	715	721	91.0	90.5	90.4	
13464.00		4256	56.4	297	-3.4 -3.4	13.5	-1.4	1.532	1.521	715	721	91.0	90.5		90.1
13465.00		4288	56.2	298	-3.3 -3.4	13.7	-1.6	1.530	1.523	714	721	91.0	90.5	90.4	

Main Tit) Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13466.00		4352	56.4	300	-3.3	13.9	-1.4	1.530	1.523	714	720	91.0	90.5		90.1
13467.00	03:44:27	4384	56.4	301	-3.3	14.2	-1.1	1.532	1.523	713	720	91.0	90.5	90.2	
13468.00		4448	56.6	302	-3.3	14.4	-0.9	1.532	1.523	713	720	90.9	90.5		90.0
13469.00		4480	56.6	304	-3.2	14.6	-0.9	1.530	1.525	712	719	90.9	90.5	90.2	
13470.00		4544	56.6	305	-3.1	14.9	-0.5	1.530	1.523	712	719	90.8	90.5		90.0
13471.00	03:44:31	4576	56.6	307	-2.9	15.3	-0.4	1.530	1.523	711	718	90.8	90.4	90.1	
13472.00		4640	56.4	308	-3.2	15.1	-0.2	1.530	1.523	711	718	90.8	90.4		89.9
13473.00		4704	56.2	310	-3.3	14.8	-0.4	1.528	1.523	710	717	90.6	90.2	90.1	
13474.00		4736	56.2	311	-3.3	14.6	-0.7	1.528	1.521	709	716	90.6	90.2		89.9
13475.00	03:44:35	4800	56.1	313	-2.8	14.9	-0.2	1.528	1.521	709	716	90.6	90.1	90.1	
13476.00		4832	56.2	314	-2.6	15.1	-0.2	1.530	1.521	709	715	90.6	90.1		89.8
13477.00		4896	56.2	315	-2.6	15.3	0.2	1.526	1.519	708	715	90.5	90.1	90.0	
13478.00		4928	56.1	316	-2.8	14.9	0.4	1.528	1.519	707	714	90.4	90.0		89.8
13479.00	03:44:39	4992	55.9	318	-2.8	14.6	0.0	1.528	1.519	707	713	90.4	90.0	89.9	
13480.00		5024	56.1	319	-2.8	14.8	-0.2	1.526	1.517	706	713	90.4	90.0		89.6
13481.00		5056	56.1	320	-2.4	15.1	0.2	1.526	1.517	706	712	90.4	89.9	89.9	
13482.00		5120	56.1	321	-2.5	15.3	0.0	1.526	1.519	705	712	90.2	89.9		89.6
13483.00	03:44:43	5152	56.1	323	-2.6	15.1	0.0	1.526	1.517	705	711	90.2	89.8	89.9	
13484.00		5216	56.1	324	-2.6	14.8	0.2	1.525	1.517	704	711	90.2	89.8		89.5
13485.00		5248	56.1	325	-2.6	14.6	0.0	1.526	1.517	704	710	90.1	89.8	89.8	
13486.00		5280	56.1	326	-2.4	14.8	-0.2	1.526	1.517	703	710	90.1	89.6		89.5
13487.00	03:44:47	5344	56.1	327	-2.0	15.1	0.0	1.523	1.515	702	709	90.0	89.6	89.6	
13488.00		5376	56.1	328	-2.0	15.3	0.2	1.525	1.517	702	708	90.0	89.6		89.5
13489.00		5408	56.1	329	-2.4	14.9	0.2	1.523	1.513	701	707	90.0	89.5	89.6	
13490.00		5472	56.1	330	-2.4	14.6	0.2	1.523	1.515	701	707	89.9	89.5		89.4
13491.00	03:44:51	5504	55.9	331	-2.1	14.8	0.2	1.523	1.513	700	706	89.9	89.4	89.6	
13492.00		5536	55.9	332	-1.8	15.1	0.4	1.523	1.513	700	706	89.8	89.4		89.4
13493.00		5568	55.7	333	-1.8	15.1	0.2	1.523	1.513	699	705	89.8	89.4	89.5	
13494.00		5632	55.5	334	-2.1	14.9	0.0	1.521	1.511	699	705	89.8	89.4		89.2
13495.00	03:44:55	5664	55.5	336	-2.2	14.6	-0.2	1.521	1.511	698	704	89.6	89.2	89.5	
13496.00		5696	55.5	336	-2.0	14.8	-0.2	1.521	1.513	698	704	89.6	89.2		89.2
13497.00		5728	55.5	337	-1.8	15.1	-0.2	1.521	1.511	697	703	89.6	89.2	89.4	
13498.00		5792	55.7	338	-1.7	15.3	0.0	1.521	1.513	697	703	89.6	89.2		89.2
13499.00	03:44:59	5824	55.7	339	-1.8	14.9	-0.2	1.519	1.511	696	702	89.5	89.1	89.4	
13500.00		5856	55.9	340	-2.0	14.6	-0.2	1.519	1.513	696	702	89.5	89.1		89.1
13501.00		5888	55.9	341	-1.8	14.6	0.0	1.519	1.511	695	701	89.5	89.1	89.4	
13502.00		5920	55.7	341	-1.6	14.8	0.0	1.519	1.511	695	701	89.5	89.1		89.1
13503.00	03:45:03	5952	55.5	342	-1.3	15.1	0.0	1.519	1.511	695	700	89.4	89.0	89.4	

Main Ti) Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13504.00		5984	55.5	342	-1.4	15.3	0.0	1.519	1.511	695	700	89.4	89.0		89.1
13505.00		6048	55.5	343	-1.5	14.9	-0.4	1.517	1.509	694	700	89.4	89.0	89.2	
13506.00		6080	55.5	344	-1.6	14.6	-0.4	1.519	1.509	694	699	89.4	89.0		89.0
13507.00	03:45:07	6080	55.5	344	-1.3	14.9	-0.2	1.517	1.509	693	699	89.2	89.0	89.2	
13508.00		6112	55.5	345	-1.0	15.3	-0.2	1.519	1.509	693	698	89.2	88.9		89.0
13509.00		6144	55.5	345	-1.1	15.3	-0.4	1.517	1.509	692	698	89.2	88.9	89.1	
13510.00		6208	55.5	346	-1.2	14.9	-0.2	1.517	1.509	692	697	89.1	88.8		88.9
13511.00	03:45:11	6240	55.5	347	-1.3	14.6	-0.2	1.517	1.507	691	696	89.1	88.8	89.1	
13512.00		6240	55.5	347	-1.1	14.6	-0.4	1.517	1.507	691	696	89.1	88.8		88.9
13513.00		6272	55.5	347	-0.8	14.9	-0.4	1.517	1.507	691	695	89.1	88.8	89.0	
13514.00		6304	55.7	347	-0.6	15.3	-0.2	1.517	1.507	690	696	89.1	88.8		88.9
13515.00	03:45:15	6336	55.7	348	-0.7	15.1	0.0	1.517	1.507	690	695	89.0	88.8	89.0	
13516.00		6368	55.7	349	-1.0	14.9	0.0	1.515	1.509	690	695	89.0	88.8		88.9
13517.00		6432	55.7	349	-1.1	14.6	-0.2	1.515	1.507	689	694	89.0	88.6	89.0	
13518.00		6432	55.7	350	-1.0	14.6	-0.2	1.515	1.509	689	694	89.0	88.8		88.9
13519.00	03:45:19	6464	55.5	350	-0.6	14.9	-0.2	1.515	1.507	689	694	89.0	88.8	89.0	
13520.00		6496	55.5	350	-0.4	15.3	-0.2	1.517	1.509	689	694	89.0	88.8		88.9
13521.00		6528	55.5	350	-0.5	15.1	0.0	1.513	1.509	688	693	89.0	88.8	89.0	
13522.00		6560	55.5	351	-0.8	14.8	-0.2	1.515	1.509	688	693	89.0	88.8		88.8
13523.00	03:45:23	6592	55.4	351	-0.9	14.6	-0.4	1.517	1.507	688	693	89.0	88.6	89.0	
13524.00		6592	55.4	351	-0.6	14.8	-0.4	1.517	1.507	688	693	89.0	88.8		88.8
13525.00		6624	55.4	352	-0.4	15.1	-0.4	1.517	1.509	687	692	89.0	88.6	88.9	
13526.00		6656	55.4	352	-0.4	15.3	-0.2	1.515	1.509	687	692	88.9	88.6		88.8
13527.00	03:45:27	6688	55.4	352	-0.5	15.1	-0.4	1.517	1.509	687	692	88.9	88.6	88.9	
13528.00		6720	55.5	353	-0.6	14.8	-0.4	1.515	1.509	687	692	88.9	88.6		88.8
13529.00		6752	55.7	353	-0.6	14.6	-0.2	1.517	1.509	687	691	88.9	88.6	88.9	
13530.00		6784	55.9	353	-0.4	14.8	-0.2	1.517	1.507	687	691	88.9	88.6		88.8
13531.00	03:45:31	6784	55.9	352	-0.1	15.1	0.0	1.515	1.509	686	691	88.9	88.6	88.9	
13532.00		6816	55.9	352	-0.1	15.3	0.2	1.517	1.509	686	691	88.9	88.6		88.8
13533.00		6848	55.9	352	-0.2	14.9	0.0	1.517	1.507	686	691	88.9	88.5	88.9	
13534.00		6880	55.9	352	-0.4	14.6	0.0	1.517	1.507	686	690	88.9	88.5		88.6
13535.00	03:45:35	6912	55.9	352	-0.3	14.6	0.0	1.515	1.507	685	690	88.9	88.5	88.9	
13536.00		6912	55.7	351	0.0	14.9	-0.2	1.515	1.509	685	690	88.8	88.5		88.6
13537.00		6944	55.5	350	0.1	15.3	-0.2	1.515	1.507	685	690	88.9	88.5	88.9	
13538.00		7008	55.5	350	-0.1	15.1	-0.4	1.515	1.507	685	689	88.8	88.5		88.6
13539.00	03:45:39	7040	55.5	349	-0.3	14.8	-0.5	1.515	1.507	685	689	88.8	88.4	88.8	
13540.00		7072	55.5	348	-0.3	14.6	-0.7	1.517	1.507	685	689	88.8	88.5		88.6

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13541.00		7072	55.5	346	0.0 0.1	14.9	-0.7	1.517	1.507	685	689	88.8	88.4	88.9	
13542.00		7104	55.7	345	0.3 0.3	15.1	-0.4	1.517	1.507	685	689	88.8	88.5		88.6
13543.00	03:45:43	7136	55.7	344	0.3 0.2	15.3	0.0	1.517	1.507	685	689	88.9	88.5	88.9	
13544.00		7168	55.7	342	0.2 0.0	14.9	0.0	1.517	1.507	685	689	88.9	88.5		88.6
13545.00		7200	55.7	341	0.0 0.0	14.6	-0.2	1.517	1.507	684	689	88.9	88.5	88.9	
13546.00	V.NAU	$\boxed{7232}$	55.7	339	0.1 0.2	14.6	-0.2	1.517	1.507	684	689	88.9	88.5		88.6
13547.00	03:45:47	7232	55.5	337	0.2 0.3	14.8	0.0	1.513	1.482	684	685	88.8	87.9	88.1	
13548.00		7264	55.4	335	0.4 0.4	14.9	-0.2	1.423	1.376	663	656	84.6	81.8		85.8
13549.00		7264	55.2	333	0.7 0.9	15.3	-0.4	1.320	1.263	636	619	77.5	72.6	82.2	
13550.00	stic →	$\boxed{7264}$	55.0	330	1.2 1.8	15.8	-0.5	1.218	1.177	580	566	67.1	62.2		76.9
13551.00	03:45:51	7232	55.0	327	1.9 2.3	16.9	-0.7	1.148	1.130	538	538	56.8	53.5	74.4	
13552.00		7232	55.4	323	2.6 3.1	18.3	-0.5	1.144	1.152	552	577	53.2	53.6		76.2
13553.00	53 →	7168	56.6	319	3.7 4.5	19.5	2.8	1.210	1.253	622	651	59.9	64.2	83.5	
13554.00		7040	58.2	313	5.5 6.2	21.3	7.7	1.400	1.497	695	718	76.0	83.2		89.1
13555.00	03:45:55	7008	60.1	309	6.3 6.6	21.8	10.9	1.566	1.546	742	698	90.8	89.8	90.9	
13556.00		7040	62.6	306	6.3 6.1	20.7	16.3	1.620	1.585	721	700	94.0	92.1		89.9
13557.00		7104	66.6	305	5.8 6.1	19.0	26.9	1.605	1.583	719	701	94.0	92.4	91.1	
13558.00		7072	71.4	301	6.5 6.4	18.1	37.8	1.603	1.583	717	702	93.6	92.1		89.9
13559.00	03:45:59	7104	75.2	298	6.2 6.5	15.5	47.6	1.605	1.579	719	703	93.6	92.0	91.2	
13560.00		7072	80.2	294	6.5 6.8	13.0	43.8	1.614	1.581	718	705	93.9	92.0		90.0
13561.00		6912	84.6	286	7.8 9.0	10.7	35.7	1.616	1.579	712	706	93.8	91.9	90.8	
13562.00		6720	87.7	277	9.9 10.6	10.9	25.3	1.614	1.575	714	707	93.8	92.0		90.0
13563.00	03:46:03	6560	89.6	269	11.3 11.7	11.2	17.6	1.612	1.571	714	707	93.8	92.0	90.6	
13564.00		6560	90.9	264	11.6 11.5	11.2	11.6	1.610	1.571	714	708	93.8	92.1		89.9
13565.00		6560	91.8	260	11.6 11.4	10.5	7.6	1.608	1.569	713	708	93.8	92.1	90.6	
13566.00		6752	91.9	262	10.0 8.4	9.0	5.3	1.608	1.571	714	709	93.6	92.1		89.9
13567.00	03:46:07	6880	91.2	264	7.4 7.8	4.7	6.5	1.608	1.573	714	710	93.6	92.0	90.6	
13568.00		6688	89.6	255	9.2 9.9	6.3	8.4	1.605	1.567	714	710	93.6	91.9		89.9
13569.00		6624	88.2	248	10.4 9.4	7.9	9.0	1.606	1.569	714	710	93.6	91.9	90.6	
13570.00		6720	87.0	249	8.4 7.7	5.8	9.5	1.605	1.567	715	711	93.6	91.8		89.9
13571.00	03:46:11	6688	86.8	246	7.7 8.0	5.3	8.8	1.603	1.567	716	711	93.6	91.8	90.8	
13572.00		6624	86.5	241	8.3 8.6	6.2	8.6	1.603	1.566	716	711	93.5	91.8		89.9
13573.00		6592	85.6	236	8.5 7.9	6.3	5.8	1.601	1.566	716	712	93.5	91.6	90.8	
13574.00		6592	84.4	234	7.4 7.0	5.3	2.1	1.601	1.564	716	712	93.5	91.6		90.0
13575.00	03:46:15	6528	82.4	230	7.1 7.5	4.6	-5.1	1.597	1.562	716	712	93.5	91.6	90.8	
13576.00		6464	81.4	226	7.6 7.5	5.6	-11.1	1.597	1.560	716	712	93.5	91.6		89.9
13577.00		6432	80.2	222	7.4 7.4	6.0	-13.0	1.597	1.556	716	712	93.4	91.5	90.8	
13578.00		6368	78.9	218	7.8	6.9	-13.2	1.593	1.558	716	712	93.4	91.5		89.9

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13579.00	03:46:19	6336	78.6	214	8.4 / 8.2	8.1	-11.6	1.593	1.556	717	713	93.4	91.5	90.8	
13580.00		6336	78.0	214	6.9 / 5.7	6.0	-7.2	1.593	1.556	717	713	93.4	91.5		89.9
13581.00		6272	78.6	210	5.7 / 6.5	7.0	0.2	1.591	1.556	718	713	93.4	91.5	90.8	
13582.00		6240	80.9	207	7.0 / 6.8	9.3	10.5	1.595	1.558	718	714	93.5	91.5		90.0
13583.00	03:46:23	6240	84.7	206	5.8 / 5.3	8.8	17.1	1.599	1.560	721	715	93.8	91.8	90.9	
13584.00		6176	88.8	203	5.0 / 5.7	9.0	15.6	1.591	1.558	719	715	93.5	91.6		90.0
13585.00		6112	89.8	200	6.3 / 6.6	10.4	8.4	1.581	1.517	719	708	93.4	90.2	89.9	
13586.00		6112	87.0	200	6.0 / 5.1	10.0	-3.0	1.519	1.458	707	691	89.8	87.4		88.0
13587.00	03:46:27	6080	81.7	199	4.0 / 4.4	10.9	-13.2	1.439	1.396	697	672	85.4	82.8	88.1	
13588.00		6048	77.3	197	5.2 / 5.7	12.1	-20.9	1.392	1.325	679	652	82.5	78.0		84.8
13589.00		6016	75.9	196	6.0 / 5.8	12.3	-16.0	1.308	1.253	638	621	75.9	71.5	82.4	
13590.00		6016	78.4	195	5.0 / 5.0	12.1	-3.0	1.212	1.171	586	573	67.1	61.8		77.0
13591.00	03:46:31	5984	82.6	193	5.6 / 6.5	14.4	9.3	1.163	1.146	561	561	58.6	55.5	77.1	
13592.00		5920	83.5	190	7.1 / 8.2	16.0	7.6	1.158	1.144	572	575	56.2	54.5		76.6
13593.00		5920	81.0	189	8.4 / 7.1	15.5	-3.3	1.156	1.148	577	578	56.2	55.0	77.9	
13594.00		5888	74.7	188	6.1 / 6.2	13.7	-18.3	1.148	1.144	567	571	55.2	54.8		77.0
13595.00	03:46:35	5824	69.8	184	7.8 / 9.2	15.5	-31.1	1.140	1.142	554	563	53.6	54.2	76.2	
13596.00		5792	67.5	181	10.1 / 10.4	14.4	-33.0	1.138	1.140	553	559	53.1	53.9		76.5
13597.00		5760	68.2	179	10.3 / 10.2	13.2	-25.3	1.138	1.138	554	555	53.1	53.8	76.2	
13598.00		5728	70.0	177	10.6 / 11.0	13.5	-15.1	1.140	1.140	553	552	53.0	53.8		76.4
13599.00	03:46:39	5696	72.2	174	11.2 / 10.6	12.7	-6.0	1.150	1.140	564	549	54.5	53.8	77.2	
13600.00		5664	74.4	173	8.9 / 8.6	9.0	1.2	1.148	1.140	560	546	54.8	53.6		76.4
13601.00		5600	75.9	169	9.4 / 11.1	10.7	4.9	1.140	1.138	547	542	53.6	53.5	75.9	
13602.00		5536	76.8	165	12.4 / 12.5	11.1	6.3	1.136	1.136	542	539	52.9	53.2		76.1
13603.00	03:46:43	5472	76.8	162	12.1 / 12.0	9.7	3.9	1.134	1.136	542	537	52.5	53.1	75.8	
13604.00		5408	76.1	159	12.0 / 12.2	8.8	-0.4	1.132	1.136	540	534	52.2	53.1		76.0
13605.00		5344	75.9	155	12.7 / 13.7	9.3	-4.2	1.134	1.134	538	531	52.0	53.0	75.6	
13606.00		5280	76.5	149	15.0 / 15.9	11.1	-4.7	1.132	1.134	536	529	51.9	52.9		76.0
13607.00	03:46:47	5216	77.9	144	16.6 / 17.0	11.6	-5.3	1.130	1.134	535	527	51.8	52.9	75.5	
13608.00		5152	80.3	138	17.2 / 17.4	11.1	-4.2	1.130	1.132	532	524	51.5	52.8		75.9
13609.00		5088	83.3	133	17.8 / 18.0	10.7	-0.4	1.128	1.136	530	523	51.2	52.6	75.2	
13610.00		5024	88.1	127	18.4 / 18.5	9.5	6.3	1.126	1.134	529	520	51.1	52.6		75.8
13611.00	03:46:51	4928	94.0	122	18.4 / 18.3	6.3	15.5	1.126	1.134	527	518	51.0	52.4	75.1	
13612.00		4864	101.1	117	18.2 / 18.0	2.5	26.4	1.118	1.109	523	499	50.5	49.8		73.5
13613.00		4800	107.9	110	18.0 / 18.0	-2.3	37.6	1.093	1.113	493	498	46.1	47.9	72.5	
13614.00		4704	112.7	103	17.4 / 16.5	-7.9	48.9	1.109	1.165	535	559	47.4	54.6		78.1
13615.00	03:46:55	4576	115.8	93	14.7 / 13.5 / 12.5	-14.6	57.1	1.165	1.310	581	620	54.5	70.0	81.1	

Main Ti[illegible], Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

FDR GMT	UTC (hh:mm:ss)	Pressure Altitude (feet)	Magnetic Heading (deg. mag.)	Computed Airspeed (knots)	Angle of Attack (degrees)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)
13616.00	034656	4480	118.1	85	12.1 12.8	-15.1	61.0	1.290	1.603	634	690	68.0	89.9		90.9
13617.00		4416	116.7	83	13.9 15.7	-10.5	57.7	1.523	1.646	705	708	86.8	97.6	93.1	
13618.00		4448	105.6	87	18.7 21.1	-0.4	38.7	1.618	1.628	738	711	101.6	98.5		92.8
13619.00	03:46:59	4352	89.1	81	22.4 22.5	6.5	8.3	1.251	1.622	794	719	79.9	99.5	89.6	
13620.00		4160	73.7	57	21.6 19.4	1.4	-20.9	1.111	1.640	921	724	52.9	98.8		92.9
13621.00		3872	63.3	0	17.2 15.9	-15.1	-44.3	1.107	1.644	896	729	49.1	98.0	89.9	
13622.00		3712	51.7	0	15.8 15.7	-35.3	-66.3	1.115	1.644	864	734	50.5	97.9		92.9
13623.00	03:47:03	3520	67.1	0	15.5 15.7	-57.3	-99.8	1.124	1.638	850	738	50.8	97.8	90.0	
13624.00		3360	169.3	0	16.5 18.0	-80.0	169.3	1.089	1.626	847	744	50.6	97.9		93.0
13625.00		3296	168.0	0	19.7 21.2	-70.0	67.0	1.115	1.601	845	748	50.6	98.6	89.6	
13626.00		3232	151.9	0	22.9 24.3	-46.8	45.7	1.083	1.534	846	752	49.9	100.9		93.1
13627.00	03:47:07	3040	132.5	0	25.5 26.4	-30.1	26.4	1.085	1.439	846	757	48.4	104.5	88.8	
13628.00		2784	113.6	0	26.9 26.6	-19.2	7.6	1.083	1.478	843	832	47.9	102.4		94.9
13629.00		2368	96.3	0	26.1 25.4	-17.6	-9.0	1.099	1.474	845	858	48.2	100.5	88.6	
13630.00		2080	80.5	0	25.3 25.3	-20.7	-19.9	1.109	1.415	846	873	49.0	98.1		94.6
13631.00	03:47:11	1696	67.1	0	24.2 22.8	-25.0	-28.8	1.093	1.620	849	832	50.9	105.0	89.2	
13632.00		1312	53.8	0	20.8 19.5	-29.5	-33.9	1.117	1.612	854	799	50.6	100.1		93.1
13633.00		992	38.3	0	18.3 17.6	-34.3	-34.6	1.124	1.651	857	808	52.2	101.0	89.8	
13634.00															
13635.00															
13636.00															

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64

360

270

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180

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FDR Parameter Listing

Main Title, Project Title, Project Number
Preliminary Data, Revised: March 02, 1996,

FDR Parameter Listing

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

FDR Subframe Reference Number	UTC (hh:mm:ss)	Pressure Altitude (feet)	Pitch Attitude (Degrees)	Computed Airspeed (counts)	Overspeed (counts)	ADC Invalid (1=fail)	CAS Flag (1=yes)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/T Engage (counts)	A/P CMD C Enga (1=enga)	A/P CWS C Enga (counts)	IAS Limit Oper (1=enga)
1115.00		-64	0.4	0	not ovspd			0.4	33		1.107	Lt.	not disc	not enga	OFF 2	not enga	
1116.00		-64	0.2	0	not ovspd			0.4	38		1.105		not disc		OFF 2		
1117.00		-64	0.2	0	not ovspd		yes	0.4	44	not enga	1.105		not disc		OFF 2		not enga
1118.00	03:41:59	-64	0.2	0	not ovspd	ok		0.4	49		1.107		not disc		OFF 2		
1119.00		-64	0.2	0	not ovspd			0.5	53		1.109	Lt.	not disc	not enga	OFF 2	not enga	
1120.00		-64	0.2	0	not ovspd			0.5	58		1.109		not disc		OFF 2		
1121.00		-64	0.2	0	not ovspd		yes	0.4	62	not enga	1.111		not disc		OFF 2		not enga
1122.00	03:42:03	-64	0.2	0	not ovspd	ok		0.4	65		1.136		not disc		OFF 2		
1123.00		-64	0.2	0	not ovspd			0.4	70		1.154	Lt.	not disc	not enga	enga	not enga	
1124.00		-64	0.0	0	not ovspd			0.5	72		1.179		not disc		enga		
1125.00		-64	0.0	0	not ovspd		yes	0.4	74	not enga	1.247		not disc		OFF 2		not enga
1126.00	03:42:07	-64	0.2	0	not ovspd	ok		67.7	76		1.359		not disc		OFF 2		
1127.00		-64	0.2	0	not ovspd			0.2	77		1.482	Lt.	not disc	not enga	OFF 2	not enga	
1128.00		-64	0.2	0	not ovspd			0.0	78		1.526		not disc		OFF 2		
1129.00		-64	0.2	0	not ovspd		yes	0.0	79	not enga	1.528		not disc		OFF 2		not enga
1130.00	03:42:11	-64	0.2	0	not ovspd	ok		-0.2	80		1.585		not disc		OFF 2		
1131.00		-64	0.2	0	not ovspd			-0.4	81		1.702	Lt.	not disc	enga	OFF 2	not enga	
1132.00		-64	0.2	0	not ovspd			-0.2	81		1.726		not disc		enga		
1133.00		-64	0.2	30	not ovspd		no	-0.4	81	not enga	1.724		not disc		OFF 2		not enga
1134.00	03:42:15	-64	0.4	31	not ovspd	ok		0.0	81		1.712		not disc		OFF 2		
1135.00		-64	0.2	32	not ovspd			0.0	81		1.724	Lt.	not disc	enga	OFF 2	not enga	
1136.00		-64	0.4	31	not ovspd			0.2	80		1.718		not disc		OFF 2		
1137.00		-64	0.4	32	not ovspd		no	0.2	80	not enga	1.720		not disc		OFF 2		not enga
1138.00	03:42:19	-32	0.2	33	not ovspd	ok		0.0	80		1.712		not disc		OFF 2		
1139.00		-32	0.4	32	not ovspd			-0.2	81		1.712	Lt.	not disc	enga	OFF 2	not enga	
1140.00		-32	0.4	34	not ovspd			67.5	81		1.710		not disc		OFF 2		
1141.00		-32	0.4	34	not ovspd		no	0.0	81	not enga	1.714		not disc		OFF 2		not enga
1142.00	03:42:23	-32	0.4	35	not ovspd	ok		0.0	80		1.714		not disc		OFF 2		
1143.00		-32	0.4	36	not ovspd			0.0	80		1.716	Lt.	not disc	enga	OFF 2	not enga	
1144.00		-32	0.2	34	not ovspd			0.0	80		1.720		not disc		OFF 2		
1145.00		-32	0.4	36	not ovspd		no	0.0	80	not enga	1.718		not disc		OFF 2		not enga
1146.00	03:42:27	-32	0.4	36	not ovspd	ok		0.0	81		1.720		not disc		OFF 2		
1147.00		-32	0.4	37	not ovspd			-0.2	80		1.716	Lt.	not disc	enga	OFF 2	not enga	
1148.00		-32	0.4	40	not ovspd			-0.2	80		1.718		not disc		OFF 2		
1149.00		-32	0.4	40	not ovspd		no	-0.2	80	not enga	1.714		not disc		OFF 2		not enga
1150.00	03:42:31	-32	0.4	39	not ovspd	ok		-0.2	80		1.716		not disc		OFF 2		
1151.00		-32	0.4	39	not ovspd			-0.2	80		1.720	Lt.	not disc	enga	OFF 2	not enga	
1152.00		0	0.4	43	not ovspd			-0.4	80		1.718		not disc		OFF 2		
1153.00		-32	0.4	42	not ovspd		no	-0.2	81	not enga	1.720		not disc		OFF 2		not enga
1154.00	03:42:35	0	0.4	43	not ovspd	ok		-0.2	81		1.718		not disc		OFF 2		
1155.00		-32	0.5	42	not ovspd			-0.2	81		1.718	Lt.	not disc	enga	OFF 2	not enga	
1156.00		-32	0.7	39	not ovspd			-0.2	81		1.718		not disc		OFF 2		
1157.00		-32	2.6	34	not ovspd		no	-0.4	80	not enga	[illegible]		not disc		OFF 2		not enga
1158.00	03:42:39	-32	5.6	36	not ovspd	ok		-0.9	80		1.720		not disc		OFF 2		
1159.00		-32	7.4	40	not ovspd			-1.6	80		1.716	Lt.	not disc	enga	OFF 2	not enga	
1160.00		0	9.0	45	not ovspd			-1.6	81		1.718		not disc		OFF 2		
1161.00		32	10.5	51	not ovspd		no	-0.9	81	not enga	1.718		not disc		OFF 2		not enga
1162.00	03:42:43	64	13.2	61	not ovspd	ok		0.0	81		1.718		not disc		OFF 2		
1163.00		96	16.2	64	not ovspd			-0.5	81		[illegible]	Lt.	not disc	enga	OFF 2	not enga	
1164.00		96	13.7	63	not ovspd			-0.7	82		1.720		not disc		OFF 2		
1165.00		96	12.1	67	not ovspd		no	-0.9	82	not enga	1.716		not disc		OFF 2		not enga
1166.00	03:42:47	160	13.5	76	not ovspd	ok		-1.4	82		1.720		not disc		OFF 2		
1167.00		160	13.7	78	not ovspd			-1.4	82		1.720	Lt.	not disc	enga	OFF 2	not enga	
1168.00		192	12.3	81	not ovspd			-0.7	82		1.720		not disc		OFF 2		
1169.00		224	11.8	85	not ovspd		no	0.2	82	not enga	1.722		not disc		OFF 2		not enga
1170.00	03:42:51	256	12.5	90	not ovspd	ok		0.2	82		1.718		not disc		OFF 2		
1171.00		288	12.1	94	not ovspd			[illegible]	83		1.718	Lt.	not disc	enga	OFF 2	not enga	
1172.00		320	11.1	98	not ovspd			-0.4	83		1.718		not disc		OFF 2		
1173.00		352	10.9	101	not ovspd		no	-1.1	83	not enga	[illegible]		not disc		OFF 2		not enga
1174.00	03:42:55	384	10.5	105	not ovspd	ok		-0.7	82		1.722		not disc		OFF 2		
1175.00		448	10.9	110	not ovspd			1.2	82		1.718	Lt.	not disc	enga	OFF 2	not enga	
1176.00		480	12.5	113	not ovspd			0.5	82		1.720		not disc		OFF 2		
1177.00		512	13.0	116	not ovspd		no	0.2	82	not enga	1.722		not disc		OFF 2		not enga
1178.00	03:42:59	576	12.7	121	not ovspd	ok		0.7	82		1.720		not disc		OFF 2		
1179.00		608	12.5	125	not ovspd			1.8	82		1.720	Lt.	not disc	enga	OFF 2	not enga	
1180.00		640	12.7	129	not ovspd			2.6	82		1.720		not disc		OFF 2		
1181.00		704	13.4	133	not ovspd		no	3.0	82	not enga	1.722		not disc		OFF 2		not enga
1182.00	03:43:03	768	13.5	137	not ovspd	ok		1.8	83		1.720		not disc		OFF 2		
1183.00		800	13.4	141	not ovspd			0.7	83		1.722	Lt.	not disc	enga	OFF 2	not enga	
1184.00		864	13.2	145	not ovspd			0.9	84		1.722		not disc		OFF 2		
1185.00		928	13.0	149	not ovspd		no	-0.7	83	not enga	1.720		not disc		OFF 2		not enga
1186.00	03:43:07	960	12.7	153	not ovspd	ok		0.0	83		1.724		not disc		OFF 2		
1187.00		1024	12.1	157	not ovspd			-0.7	83		1.726	Lt.	not disc	enga	OFF 2	not enga	
1188.00		1088	12.0	160	not ovspd			-1.6	83		1.722		not disc		OFF 2		
1189		1120	11.8	164	not ovspd		no	-3.9	83	not enga	1.700		not disc				not enga

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

FDR Subframe Reference Number	UTC (hh:mm:ss)	Pressure Altitude (feet)	Pitch Attitude (Degrees)	Computed Airspeed (counts)	Overspeed (counts)	ADC Invalid (1=fail)	CAS Flag (1=yes)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/T Engage (counts)	A/P CMD C Enga (1=enga)	A/P CWS C Enga (counts)	IAS Limit Oper (1=enga)
1190.00	03:43:11	1184	11.6	167	not ovspd	ok		-6.2	82		1.573		not disc		OFF 2		
1191.00		1216	11.2	170	not ovspd			-7.4	81		1.542	Lt.	not disc	enga	OFF 2	not enga	
1192.00		1280	10.7	173	not ovspd			-9.5	79		1.540		not disc		OFF 2		
1193.00		1312	10.9	176	not ovspd		no	-14.6	79	enga	1.540		not disc		OFF 2		not enga
1194.00	03:43:15	1376	11.2	179	not ovspd	ok		-17.4	78		1.550		not disc		OFF 2		
1195.00		1408	11.1	181	not ovspd			-17.8	76		1.550	Lt.	not disc	enga	OFF 2	not enga	
1196.00		1472	10.5	184	not ovspd			-19.2	74		1.552		not disc		OFF 2		
1197.00		1504	10.5	187	not ovspd		no	-20.2	72	enga	1.552		not disc		OFF 2		not enga
1198.00	03:43:19	1536	10.5	189	not ovspd	ok		-21.1	71		1.550		not disc		OFF 2		
1199.00		1600	10.0	191	not ovspd			-21.4	69		1.550	Lt.	not disc	enga	OFF 2	not enga	
1200.00		1632	9.7	193	not ovspd			-21.8	67		1.548		not disc		OFF 2		
1201.00		1664	9.1	195	not ovspd		no	-23.0	65	enga	1.548		not disc		OFF 2		not enga
1202.00	03:43:23	1696	9.1	197	not ovspd	ok		-23.7	63		1.548		not disc		OFF 2		
1203.00		1728	9.1	198	not ovspd			-24.3	61		1.548	Lt.	not disc	enga	OFF 2	not enga	
1204.00		1760	9.0	200	not ovspd			-24.8	59		1.548		not disc		OFF 2		
1205.00		1760	9.0	201	not ovspd		no	-25.3	57	enga	1.546		not disc		OFF 2		not enga
1206.00	03:43:27	1792	9.1	202	not ovspd	ok		-25.5	54		1.544		not disc		OFF 2		
1207.00		1824	9.8	204	not ovspd			-25.7	52		1.546	Lt.	not disc	enga	OFF 2	not enga	
1208.00		1856	11.1	206	not ovspd			-25.8	49		1.544		not disc		OFF 2		
1209.00		1888	11.6	207	not ovspd		no	-25.7	48	enga	1.544		not disc		OFF 2		not enga
1210.00	03:43:31	1920	11.4	208	not ovspd	ok		-25.0	46		1.542		not disc		OFF 2		
1211.00		1952	11.6	210	not ovspd			-21.8	44		1.546	Lt.	not disc	enga	OFF 2	not enga	
1212.00		1984	11.8	212	not ovspd			-18.3	43		1.544		not disc		OFF 2		
1213.00		2016	11.8	213	not ovspd		no	-16.9	42	enga	1.540		not disc		OFF 2		not enga
1214.00	03:43:35	2048	11.8	215	not ovspd	ok		-16.3	41		1.544		not disc		OFF 2		
1215.00		2080	12.0	216	not ovspd			-14.6	40		1.544	Lt.	not disc	enga	OFF 2	not enga	
1216.00		2112	11.8	218	not ovspd			-12.0	40		1.544		not disc		OFF 2		
1217.00		2144	12.0	219	not ovspd		no	-7.0	39	enga	1.544		not disc		OFF 2		not enga
1218.00	03:43:39	2208	12.1	221	not ovspd	ok		-4.6	39		1.542		not disc		OFF 2		
1219.00		2240	12.3	223	not ovspd			-1.1	39		1.542	Lt.	not disc	enga	OFF 2	not enga	
1220.00		2272	12.0	224	not ovspd			-1.9	39		1.542		not disc		OFF 2		
1221.00		2304	11.6	226	not ovspd		no	-2.6	39	enga	1.544		not disc		OFF 2		not enga
1222.00	03:43:43	2336	11.8	228	not ovspd	ok		-3.0	39		1.542		not disc		OFF 2		
1223.00		2400	11.9	230	not ovspd			0.4	39		1.542	Lt.	not disc	enga	OFF 2	not enga	
1224.00		2432	11.4	232	not ovspd			4.7	39		1.542		not disc		OFF 2		
1225.00		2496	11.4	234	not ovspd		no	7.4	40	enga	1.542		not disc		OFF 2		not enga
1226.00	03:43:47	2528	11.6	236	not ovspd	ok		9.8	41		1.542		not disc		OFF 2		
1227.00		2560	11.8	238	not ovspd			12.0	42		1.544	Lt.	not disc	enga	OFF 2	not enga	
1228.00		2624	11.8	239	not ovspd			13.0	43		1.542		not disc		OFF 2		
1229.00		2656	11.8	242	not ovspd		no	14.4	44	enga	1.542		not disc		OFF 2		not enga
1230.00	03:43:51	2720	11.8	243	not ovspd	ok		16.0	46		1.540		not disc		OFF 2		
1231.00		2752	12.1	245	not ovspd			17.6	47		1.542	Lt.	not disc	enga	OFF 2	not enga	
1232.00		2816	12.8	247	not ovspd			16.2	49		1.544		not disc		OFF 2		
1233.00		2880	13.2	249	not ovspd		no	17.2	50	enga	1.542		not disc		OFF 2		not enga
1234.00	03:43:55	2912	13.4	251	not ovspd	ok		17.6	52		1.542		not disc		OFF 2		
1235.00		2976	13.4	253	not ovspd			15.1	53		1.542	Lt.	not disc	enga	OFF 2	not enga	
1236.00		3040	13.4	255	not ovspd			10.7	53		1.542		not disc		OFF 2		
1237.00		3072	13.2	257	not ovspd		no	9.3	54	enga	1.540		not disc		OFF 2		not enga
1238.00	03:43:59	3136	13.5	259	not ovspd	ok		10.5	54		1.540		not disc		OFF 2		
1239.00		3168	13.5	261	not ovspd			10.4	55		1.540	Lt.	not disc	enga	OFF 2	not enga	
1240.00		3232	13.4	263	not ovspd			7.6	56		1.540		not disc		OFF 2		
1241.00		3296	13.0	265	not ovspd		no	4.9	56	enga	1.538		not disc		OFF 2		not enga
1242.00	03:44:03	3328	12.8	267	not ovspd	ok		3.5	56		1.540		not disc		OFF 2		
1243.00		3392	12.8	268	not ovspd			3.5	56		1.538	Lt.	not disc	enga	OFF 2	not enga	
1244.00		3424	13.0	270	not ovspd			2.8	57		1.536		not disc		OFF 2		
1245.00		3488	13.2	272	not ovspd		no	1.8	57	enga	1.538		not disc		OFF 2		not enga
1246.00	03:44:07	3520	13.0	273	not ovspd	ok		1.4	57		1.536		not disc		OFF 2		
1247.00		3584	12.7	275	not ovspd			1.8	57		1.536	Lt.	not disc	enga	enga	not enga	
1248.00		3616	12.3	276	not ovspd			1.9	57		1.536		not disc		enga		
1249.00		3648	12.0	278	not ovspd		no	2.3	57	enga	1.534		not disc		enga		not enga
1250.00	03:44:11	3712	11.8	279	not ovspd	ok		2.1	58		1.534		not disc		enga		
1251.00		3744	11.6	280	not ovspd			1.8	58		1.534	Lt.	not disc	enga	enga	not enga	
1252.00		3776	11.6	282	not ovspd			0.7	58		1.534		not disc		enga		
1253.00		3808	11.8	283	not ovspd		no	0.4	58	enga	1.532		not disc		enga		not enga
1254.00	03:44:15	3840	12.1	284	not ovspd	ok		-0.5	58		1.534		not disc		enga		
1255.00		1952	12.5	143	not ovspd			179.5	57		1.767	Rt.	not disc	not enga	enga	not enga	
1256.00		3936	12.7	287	not ovspd			-1.1	57		1.532		not disc		enga		
1257.00		3968	13.0	288	not ovspd		no	-1.4	57	enga	1.534		not disc		enga		not enga
1258.00	03:44:19	4032	13.2	290	not ovspd	ok		-1.2	57		1.532		not disc		enga		
1259.00		4064	13.4	291	not ovspd			-1.4	57		1.530	Lt.	not disc	enga	enga	not enga	
1260.00		4128	13.4	293	not ovspd			-1.4	57		1.532		not disc		enga		
1261.00		4160	13.5	294	not ovspd		no	-1.1	57	enga	1.530		not disc		enga		not enga
1262.00	03:44:23	4192	13.5	295	not ovspd	ok		-0.9	57		1.530		not disc		enga		
1263.00		4256	13.5	297	not ovspd			-1.4	56		1.532	Lt.	not disc	enga	enga	not enga	
1264.		4288	13.7	298	not ovspd			-1.6	56		1.530		not disc		enga		

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

EDR Subframe Reference Number	UTC (hh:mm:ss)	Pressure Altitude (feet)	Pitch Attitude (Degrees)	Computed Airspeed (counts)	Overspeed (counts)	ADC Invalid (1=fail)	CAS Flag (1=yes)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/T Engage (counts)	A/P CMD C Enga (1=enga)	A/P CWS C Enga (counts)	IAS Limit Oper (1=enga)
1265.00		4352	13.9	300	not ovspd		no	-1.4	56	enga	1.530		not disc		enga		not enga
1266.00	03:44:27	4384	14.2	301	not ovspd	ok		-1.1	56		1.532		not disc		enga		
1267.00		4448	14.4	302	not ovspd			-0.9	57		1.532	Lt.	not disc	enga	enga	not enga	
1268.00		4480	14.6	304	not ovspd			-0.9	57		1.530		not disc		enga		
1269.00		4544	14.9	305	not ovspd		no	-0.5	57	enga	1.530		not disc		enga		not enga
1270.00	03:44:31	4576	15.3	307	not ovspd	ok		-0.4	57		1.530		not disc		enga		
1271.00		4640	15.1	308	not ovspd			-0.2	56		1.530	Lt.	not disc	enga	enga	not enga	
1272.00		4704	14.8	310	not ovspd			-0.4	56		1.528		not disc		enga		
1273.00		4736	14.6	311	not ovspd		no	-0.7	56	enga	1.528		not disc		enga		not enga
1274.00	03:44:35	4800	14.9	313	not ovspd	ok		-0.2	56		1.528		not disc		enga		
1275.00		4832	15.1	314	not ovspd			-0.2	56		1.530	Lt.	not disc	enga	enga	not enga	
1276.00		4896	15.3	315	not ovspd			-0.2	56		1.526		not disc		enga		
1277.00		4928	14.9	316	not ovspd		no	0.4	56	enga	1.528		not disc		enga		not enga
1278.00	03:44:39	4992	14.6	318	not ovspd	ok		0.0	56		1.528		not disc		enga		
1279.00		5024	14.8	319	not ovspd			-0.2	56		1.526	Lt.	not disc	enga	enga	not enga	
1280.00		5056	15.1	320	not ovspd			0.2	56		1.526		not disc		enga		
1281.00		5120	15.3	321	not ovspd		no	0.0	56	enga	1.526		not disc		enga		not enga
1282.00	03:44:43	5152	15.1	323	not ovspd	ok		0.0	56		1.525		not disc		enga		
1283.00		5216	14.8	324	not ovspd			0.2	56		1.526	Lt.	not disc	enga	enga	not enga	
1284.00		5248	14.6	325	not ovspd			0.0	56		1.526		not disc		enga		
1285.00		5280	14.8	326	not ovspd		no	-0.2	56	enga	1.523		not disc		enga		not enga
1286.00	03:44:47	5344	15.1	327	not ovspd	ok		0.0	56		1.525		not disc		enga		
1287.00		5376	15.3	328	not ovspd			0.2	56		1.523	Lt.	not disc	enga	enga	not enga	
1288.00		5408	14.9	329	not ovspd			0.2	56		1.523		not disc		enga		
1289.00		5472	14.6	330	not ovspd		no	0.2	56	enga	1.523		not disc		enga		not enga
1290.00	03:44:51	5504	14.8	331	not ovspd	ok		0.4	56		1.523		not disc		enga		
1291.00		5536	15.1	332	not ovspd			0.2	56		1.521	Lt.	not disc	enga	enga	not enga	
1292.00		5568	15.1	333	not ovspd			0.0	56		1.521		not disc		enga		
1293.00		5632	14.9	334	not ovspd		no	0.2	56	enga	1.521		not disc		enga		not enga
1294.00	03:44:55	5664	14.6	336	not ovspd	ok		0.2	56		1.521		not disc		enga		
1295.00		5696	14.8	336	not ovspd			-0.2	56		1.521	Lt.	not disc	enga	enga	not enga	
1296.00		5728	15.1	337	not ovspd			-0.2	56		1.519		not disc		enga		
1297.00		5792	15.3	338	not ovspd		no	0.0	56	enga	1.519		not disc		enga		not enga
1298.00	03:44:59	5824	14.9	339	not ovspd	ok		0.2	56		1.519		not disc		enga		
1299.00		5856	14.6	340	not ovspd			-0.2	56		1.519	Lt.	not disc	enga	enga	not enga	
1300.00		5888	14.6	341	not ovspd			0.0	56		1.519		not disc		enga		
1301.00		5920	14.8	341	not ovspd		no	0.0	56	enga	1.519		not disc		enga		not enga
1302.00	03:45:03	5952	15.1	342	not ovspd	ok		0.0	56		1.517		not disc		enga		
1303.00		5984	15.3	342	not ovspd			-0.4	56		1.519	Lt.	not disc	enga	enga	not enga	
1304.00		6048	14.9	343	not ovspd			-0.4	56		1.517		not disc		enga		
1305.00		6080	14.6	344	not ovspd		no	-0.2	56	enga	1.519		not disc		enga		not enga
1306.00	03:45:07	6080	14.9	344	not ovspd	ok		-0.2	56		1.517		not disc		enga		
1307.00		6112	15.3	345	not ovspd			-0.4	56		1.517	Lt.	not disc	enga	enga	not enga	
1308.00		6144	15.3	345	not ovspd			-0.2	56		1.517		not disc		enga		
1309.00		6208	14.9	346	not ovspd		no	-0.2	56	enga	1.517		not disc		enga		not enga
1310.00	03:45:11	6240	14.6	347	not ovspd	ok		-0.4	56		1.517		not disc		enga		
1311.00		6240	14.6	347	not ovspd			-0.4	56		1.517	Lt.	not disc	enga	enga	not enga	
1312.00		6272	14.9	347	not ovspd			-0.2	56		1.517		not disc		enga		
1313.00		6304	15.3	348	not ovspd		no	0.0	56	enga	1.517		not disc		enga		not enga
1314.00	03:45:15	6336	15.1	349	not ovspd	ok		0.0	56		1.515		not disc		enga		
1315.00		6368	14.9	349	not ovspd			-0.2	56		1.515	Lt.	not disc	enga	enga	not enga	
1316.00		6432	14.6	350	not ovspd			-0.2	56		1.515		not disc		enga		
1317.00		6432	14.6	350	not ovspd		no	-0.2	56	enga	1.515		not disc		enga		not enga
1318.00	03:45:19	6464	14.9	350	not ovspd	ok		-0.2	56		1.517		not disc		enga		
1319.00		6496	15.3	350	not ovspd			0.0	56		1.513	Lt.	not disc	enga	enga	not enga	
1320.00		6528	15.1	351	not ovspd			-0.2	55		1.515		not disc		enga		
1321.00		6560	14.8	351	not ovspd		no	-0.4	55	enga	1.517		not disc		enga		not enga
1322.00	03:45:23	6592	14.6	351	not ovspd	ok		-0.4	55		1.517		not disc		enga		
1323.00		6592	14.8	352	not ovspd			-0.4	55		1.517	Lt.	not disc	enga	enga	not enga	
1324.00		6624	15.1	352	not ovspd			-0.2	55		1.515		not disc		enga		
1325.00		6656	15.3	352	not ovspd		no	-0.4	56	enga	1.517		not disc		enga		not enga
1326.00	03:45:27	6688	15.1	353	ovspd	ok		-0.4	56		1.515		not disc		enga		
1327.00		6720	14.8	353	ovspd			-0.2	56		1.517	Lt.	not disc	enga	enga	not enga	
1328.00		6752	14.6	353	ovspd			-0.2	56		1.515		not disc		enga		
1329.00		6784	14.8	352	ovspd		no	0.0	56	enga	1.517		not disc		enga		not enga
1330.00	03:45:31	6784	15.1	352	ovspd	ok		0.2	56		1.517		not disc		enga		
1331.00		6816	15.3	352	ovspd			0.0	56		1.517	Lt.	not disc	enga	enga	not enga	
1332.00		6848	14.9	352	ovspd			0.0	56		1.517		not disc		enga		
1333.00		6880	14.6	352	ovspd		no	0.0	56	enga	1.515		not disc		enga		not enga
1334.00	03:45:35	6912	14.6	351	ovspd	ok		-0.2	56		1.515		not disc		enga		
1335.00		6912	14.9	350	ovspd			-0.2	56		1.515	Lt.	not disc	enga	enga	not enga	
1336.00		6944	15.3	350	not ovspd			-0.4	56		1.515		not disc		enga		
1337.00		7008	15.1	349	not ovspd		no	-0.5	56	enga	1.515		not disc		enga		not enga
1338.00	03:45:39	7040	14.8	348	not ovspd	ok		-0.7	56		1.517		not disc		enga		
1339.00		7072	14.6									Lt.	not disc	enga	enga	not enga	

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

FDR Subframe Reference Number	UTC (hh:mm:ss)	Pressure Altitude (feet)	Pitch Attitude (Degrees)	Computed Airspeed (counts)	Overspeed (counts)	ADC Invalid (1=fail)	CAS Flag (1=yes)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/T Engage (counts)	A/P CMD C Enga (1=enga)	A/P CWS C Enga (counts)	IAS Limit Oper (1=enga)
1340.00		7072	14.9	346	not ovspd			-0.7	56		1.517		not disc		enga		
1341.00		7104	15.1	345	not ovspd		no	-0.4	56	enga	1.517		not disc		enga		not enga
1342.00	03:45:43	7136	15.3	344	not ovspd	ok		0.0	56		1.517		not disc		enga		
1343.00		7168	14.9	342	not ovspd			0.0	56		1.517	Lt.	not disc	enga	enga	not enga	
1344.00		7200	14.6	341	not ovspd			-0.2	56		1.517		not disc		enga		
1345.00		7232	14.6	339	not ovspd		no	-0.2	56	not enga	1.517		not disc		enga		not enga
1346.00	03:45:47	7232	14.8	337	not ovspd	ok		0.0	56		1.513		not disc		enga		
1347.00		7264	14.9	335	not ovspd			-0.2	55		1.423	Lt.	not disc	enga	enga	not enga	
1348.00		7264	15.3	333	not ovspd			-0.4	55		1.320		not disc		enga		
1349.00		7264	15.8	330	not ovspd		no	-0.5	55	not enga	1.218		not disc		enga		not enga
1350.00	03:45:51	7232	16.9	327	not ovspd	ok		-0.7	55		1.148		not disc		enga		
1351.00		7232	18.3	323	not ovspd			-0.5	55		1.144	Lt.	disc	not enga	enga	not enga	
1352.00		7168	19.5	319	not ovspd			2.8	57		1.210		disc		enga		
1353.00		7040	21.3	313	not ovspd		no	7.7	58	not enga	1.400		not disc		enga		not enga
1354.00	03:45:55	7008	21.8	309	not ovspd	ok		10.9	60		1.566		not disc		enga		
1355.00		7040	20.7	306	not ovspd			16.3	63		1.620	Lt.	disc	not enga	enga	not enga	
1356.00		7104	19.0	305	not ovspd			26.9	67		1.605		not disc		enga		
1357.00		7072	18.1	301	not ovspd		no	37.8	71	not enga	1.603		not disc		OFF 2		not enga
1358.00	03:45:59	7104	15.5	298	not ovspd	ok		47.6	75		1.605		not disc		OFF 2		
1359.00		7072	13.0	294	not ovspd			43.8	80		1.614	Lt.	not disc	not enga	OFF 2	not enga	
1360.00		6912	10.7	286	not ovspd			35.7	85		1.616		not disc		OFF 2		
1361.00		6720	10.9	277	not ovspd		no	25.3	88	not enga	1.614		not disc		OFF 2		not enga
1362.00	03:46:03	6560	11.2	269	not ovspd	ok		17.6	90		1.612		not disc		OFF 2		
1363.00		6560	11.2	264	not ovspd			11.6	91		1.610	Lt.	not disc	not enga	OFF 2	not enga	
1364.00		6560	10.5	260	not ovspd			7.6	92		1.608		not disc		OFF 2		
1365.00		6752	9.0	262	not ovspd		no	5.3	92	not enga	1.608		not disc		OFF 2		not enga
1366.00	03:46:07	6880	4.7	264	not ovspd	ok		6.5	91		1.608		not disc		OFF 2		
1367.00		6688	6.3	255	not ovspd			8.4	90		1.605	Lt.	not disc	not enga	OFF 2	not enga	
1368.00		6624	7.9	248	not ovspd			9.0	88		1.606		not disc		OFF 2		
1369.00		6720	5.8	249	not ovspd		no	9.5	82	not enga	1.605		not disc		OFF 2		not enga
1370.00	03:46:11	6688	5.3	246	not ovspd	ok		8.8	87		1.603		not disc		OFF 2		
1371.00		6624	6.2	241	not ovspd			8.6	86		1.603	Lt.	not disc	not enga	OFF 2	not enga	
1372.00		6592	6.3	236	not ovspd			5.8	86		1.601		not disc		OFF 2		
1373.00		6592	5.3	234	not ovspd		no	2.1	84	not enga	1.601		not disc		OFF 2		not enga
1374.00	03:46:15	6528	4.6	230	not ovspd	ok		-5.1	82		1.597		not disc		OFF 2		
1375.00		6464	5.6	226	not ovspd			-11.1	81		1.597	Lt.	not disc	not enga	OFF 2	not enga	
1376.00		6432	6.0	222	not ovspd			-13.0	80		1.597		not disc		OFF 2		
1377.00		6368	6.9	218	not ovspd		no	-13.2	79	not enga	1.593		not disc		OFF 2		not enga
1378.00	03:46:19	6336	8.1	214	not ovspd	ok		-11.6	79		1.593		not disc		OFF 2		
1379.00		6336	6.0	214	not ovspd			-7.2	78		1.593	Lt.	not disc	not enga	OFF 2	not enga	
1380.00		6272	7.0	210	not ovspd			0.2	79		1.591		not disc		OFF 2		
1381.00		6240	9.3	207	not ovspd		no	10.5	81	not enga	1.595		not disc		OFF 2		not enga
1382.00	03:46:23	6240	8.8	206	not ovspd	ok		12.1	85		1.599		not disc		OFF 2		
1383.00		6176	9.0	203	not ovspd			15.6	89		1.591	Lt.	not disc	not enga	OFF 2	not enga	
1384.00		6112	10.4	200	not ovspd			8.4	90		1.581		not disc		OFF 2		
1385.00		6112	10.0	200	not ovspd		no	-3.0	87	not enga	1.519		not disc		OFF 2		not enga
1386.00	03:46:27	6080	10.9	199	not ovspd	ok		-13.2	82		1.439		not disc		OFF 2		
1387.00		6048	12.1	197	not ovspd			-20.9	77		1.392	Lt.	not disc	not enga	enga	not enga	
1388.00		6016	12.3	196	not ovspd			-16.0	76		1.308		not disc		enga		
1389.00		6016	12.1	195	not ovspd		no	-3.0	78	not enga	1.212		not disc		OFF 2		not enga
1390.00	03:46:31	5984	14.4	193	not ovspd	ok		9.3	83		1.163		not disc		OFF 2		
1391.00		5920	16.0	190	not ovspd			7.6	83		1.158	Lt.	not disc	not enga	enga	not enga	
1392.00		5920	15.5	189	not ovspd			-3.3	81		1.156		not disc		OFF 2		
1393.00		5888	13.7	188	not ovspd		no	-18.3	75	not enga	1.148		not disc		OFF 2		not enga
1394.00	03:46:35	5824	15.5	184	not ovspd	ok		-31.1	70		1.140		not disc		OFF 2		
1395.00		5792	14.4	181	not ovspd			-33.0	68		1.138	Lt.	not disc	not enga	OFF 2	not enga	
1396.00		5760	13.2	179	not ovspd			-25.3	68		1.138		not disc		OFF 2		
1397.00		5728	13.5	177	not ovspd		no	-15.1	70	not enga	1.140		not disc		enga		not enga
1398.00	03:46:39	5696	12.7	174	not ovspd	ok		-6.0	72		1.150		not disc		OFF 2		
1399.00		5664	9.0	173	not ovspd			1.2	74		1.148	Lt.	not disc	not enga	OFF 2	not enga	
1400.00		5600	10.7	169	not ovspd			4.9	76		1.140		not disc		OFF 2		
1401.00		5536	11.1	165	not ovspd		no	6.3	77	not enga	1.136		not disc		OFF 2		not enga
1402.00	03:46:43	5472	9.7	162	not ovspd	ok		3.9	77		1.134		not disc		OFF 2		
1403.00		5408	8.8	159	not ovspd			-0.4	76		1.132	Lt.	not disc	not enga	OFF 2	not enga	
1404.00		5344	9.3	155	not ovspd			-4.2	76		1.134		not disc		OFF 2		
1405.00		5280	11.1	149	not ovspd		no	-4.7	76	not enga	1.132		not disc		OFF 2		not enga
1406.00	03:46:47	5216	11.6	144	not ovspd	ok		-5.3	78		1.130		not disc		OFF 2		
1407.00		5152	11.1	138	not ovspd			-4.2	80		1.130	Lt.	not disc	not enga	OFF 2	not enga	
1408.00		5088	10.7	133	not ovspd			-0.4	83		1.128		not disc		OFF 2		
1409.00		5024	9.5	127	not ovspd		no	6.3	88	not enga	1.126		not disc		OFF 2		not enga
1410.00	03:46:51	4928	6.3	122	not ovspd	ok		15.5	94		1.126		not disc		OFF 2		
1411.00		4864	2.5	117	not ovspd			26.4	101		1.118	Lt.	not disc	not enga	OFF 2	not enga	
1412.00		4800	-2.3	110	not ovspd			37.6	108		1.093		not disc		OFF 2		
1413.00		4704	-7.9	103	not ovspd		no	48.9	113	not enga	1.109		not disc		OFF 2		not enga
1414	03:46:55	4576	-14.6	93	not ovspd	ok		57.1	116		1.165		not disc		OFF 2		

Birgenair Flight 301, Boeing 757, TC-GEN, Accident Date: Feb. 6, 1996
Preliminary Data, Revised: March 01, 1996, Tab File No. 2

EDR Subframe Reference Number	UTC (hh:mm:ss)	Pressure Altitude (feet)	Pitch Attitude (Degrees)	Computed Airspeed (counts)	Overspeed (counts)	ADC Invalid (1=fail)	CAS Flag (1=yes)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/T Engage (counts)	A/P CMD C Enga (1=enga)	A/P CWS C Enga (counts)	IAS Limit Oper (1=enga)
1415.00		4480	-15.1	85	not ovspd			61.0	118		1.290	Lt.	not disc	not enga	OFF 2	not enga	
1416.00		4416	-10.5	83	not ovspd			57.7	117		1.523		not disc		OFF 2		
1417.00		4448	-0.4	87	not ovspd		no	38.7	106	not enga	1.618		not disc		OFF 2		not enga
1418.00	03:46:59	4352	6.5	81	not ovspd	ok		8.3	89		1.251		not disc		OFF 2		
1419.00		4160	1.4	57	not ovspd			-20.9	74		1.111	Lt.	not disc	not enga	OFF 2	not enga	
1420.00		3872	-15.1	0	not ovspd			-44.3	63		1.107		not disc		OFF 2		
1421.00		3712	-35.3	0	not ovspd		yes	-66.3	52	not enga	1.115		not disc		OFF 2		not enga
1422.00	03:47:03	3520	-57.3	0	not ovspd	ok		-99.8	67		1.124		not disc		OFF 2		
1423.00		3360	-80.0	0	not ovspd			169.3	169		1.089	Lt.	not disc	not enga	OFF 2	not enga	
1424.00		3296	-70.0	0	not ovspd			67.0	168		1.115		not disc		OFF 2		
1425.00		3232	-46.8	0	not ovspd		yes	45.7	152	not enga	1.083		not disc		OFF 2		not enga
1426.00	03:47:07	3040	-30.1	0	not ovspd	ok		26.4	133		1.085		not disc		OFF 2		
1427.00		2784	-19.2	0	not ovspd			7.6	114		1.083	Lt.	not disc	not enga	OFF 2	not enga	
1428.00		2368	-17.6	0	not ovspd			-9.0	96		1.099		not disc		OFF 2		
1429.00		2080	-20.7	0	not ovspd		yes	-19.9	81	not enga	1.109		not disc		OFF 2		not enga
1430.00	03:47:11	1696	-25.0	0	not ovspd	ok		-28.8	67		1.093		not disc		OFF 2		
1431.00		1312	-29.5	0	not ovspd			-33.9	54		1.117	Lt.	not disc	not enga	OFF 2	not enga	
1432.00		992	-34.3	0	not ovspd			-34.6	38		1.124		not disc		OFF 2		
1433.00																	
1434.00																	
1435.00																	

FDR Parameter Listing

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DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1115.0		-64	0	1.107	1.081	0.35	0.35	33	1.009 1.025 0.995 1.018		inoper	inoper	inoper	on	on	
1116.0		-64	0	1.105	1.085	0.18	0.35	38	1.007 1.013 1.016 0.997	norn						
1117.0		-64	0	1.105	1.087	0.18	0.35	44	1.020 1.009 1.016 1.018							normal
1118.0	03:41:59	-64	0	1.107	1.087	0.18	0.35	49	1.007 1.027 1.007 1.004							
1119.0		-64	0	1.109	1.087	0.18	0.53	53	1.016 1.020 1.016 1.020		inoper	inoper	inoper	on	on	
1120.0		-64	0	1.109	1.089	0.18	0.53	58	1.016 1.007 1.023 1.013	norn						
1121.0		-64	0	1.111	1.101	0.18	0.35	62	1.013 1.009 1.000 1.018							normal
1122.0	03:42:03	-64	0	1.136	1.128	0.18	0.35	65	0.991 1.018 1.016 1.018							
1123.0		-64	0	1.154	1.138	0.18	0.35	70	1.036 1.020 1.018 1.020		inoper	inoper	inoper	on	on	
1124.0		-64	0	1.179	1.181	0.00	0.53	72	1.018 0.997 1.018 1.018	norn						
1125.0		-64	0	1.247	1.261	0.00	0.35	74	1.036 0.979 1.018 1.034							normal
1126.0	03:42:07	-64	0	1.359	1.382	0.18	67.68	76	1.020 1.029 1.041 0.997							
1127.0		-64	0	1.482	1.489	0.18	0.18	77	1.041 0.979 0.981 1.025		inoper	inoper	inoper	on	on	
1128.0		-64	0	1.526	1.493	0.18	0.00	78	0.984 1.013 0.988 1.020	norn						
1129.0		-64	0	1.528	1.523	0.18	0.00	79	0.997 0.997 1.013 1.016							normal
1130.0	03:42:11	-64	0	1.585	1.622	0.18	-0.18	80	0.965 1.036 1.000 1.009							
1131.0		-64	0	1.702	1.696	0.18	-0.35	81	1.057 1.029 0.995 0.945		inoper	inoper	inoper	on	on	
1132.0		-64	0	1.726	1.712	0.18	-0.18	81	0.988 0.997 0.988 0.997	norn						
1133.0		-64	30	1.724	1.716	0.18	-0.35	81	1.052 1.016 0.970							normal

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1134.0	03:42:15	-64	31	1.712	1.722	0.35	0.00	81	1.052 1.016 0.933 1.105							
1135.0		-64	32	1.724	1.716	0.18	0.00	81	0.972 0.981 1.066 0.949		inoper	inoper	inoper	on	on	
1136.0		-64	31	1.718	1.716	0.35	0.18	80	0.968 1.082 0.968 0.922	norn						
1137.0		-64	32	1.720	1.712	0.35	0.18	80	1.137 1.013 0.940 1.055							normal
1138.0	03:42:19	-32	33	1.712	1.708	0.18	0.00	80	1.064 1.016 1.052 1.000							
1139.0		-32	32	1.712	1.712	0.35	-0.18	81	0.968 1.071 1.027 0.963		inoper	inoper	inoper	on	on	
1140.0		-32	34	1.710	1.710	0.35	67.50	81	1.061 0.954 0.963 1.114	norn						
1141.0		-32	34	1.714	1.714	0.35	0.00	81	1.029 1.041 1.087 1.039							normal
1142.0	03:42:23	-32	35	1.714	1.712	0.35	0.00	81	0.995 1.098 1.036 1.109							
1143.0		-32	36	1.716	1.712	0.35	0.00	80	1.071 0.991 1.027 1.039		inoper	inoper	inoper	on	on	
1144.0		-32	34	1.720	1.714	0.18	0.00	80	0.899 0.963 1.052 0.936	norn						
1145.0		-32	36	1.718	1.714	0.35	0.00	80	1.027 1.066 1.036 0.995							normal
1146.0	03:42:27	-32	36	1.720	1.716	0.35	0.00	81	1.082 1.082 1.000 1.011							
1147.0		-32	37	1.716	1.714	0.35	-0.18	80	1.064 1.009 1.000 1.103		inoper	inoper	inoper	on	on	
1148.0		-32	40	1.718	1.712	0.35	-0.18	80	1.043 1.045 1.059 1.009	norn						
1149.0		-32	40	1.714	1.714	0.35	-0.18	80	0.986 1.020 1.034 1.023							normal
1150.0	03:42:31	-32	39	1.716	1.716	0.35	-0.18	80	1.034 1.029 1.045 1.075							
1151.0		-32	39	1.720	1.714	0.35	-0.18	81	0.997 1.045 0.997 1.050		inoper	inoper	inoper	on	on	
1152.0		0	43	1.718	1.712	0.35	-0.35	80	1.036 1.002 0.977	norn						

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1153.0		-32	42	1.720	1.712	0.35	-0.18	81	1.009 1.064 0.974 0.954							normal
1154.0	03:42:35	0	43	1.718	1.710	0.35	-0.18	81	0.986 1.009 0.995 1.023							
1155.0		-32	42	1.718	1.712	0.53	-0.18	81	1.027 0.958 0.961 0.958		inoper	inoper	inoper	on	on	
1156.0		-32	39	1.718	1.710	0.70	-0.18	81	0.997 0.995 1.064 1.027	norn						
1157.0		-32	34	1.718	1.708	2.64	-0.35	80	0.945 0.968 1.039 1.087							normal
1158.0	03:42:39	-32	36	1.720	1.704	5.62	-0.88	80	1.004 1.002 1.061 1.036							
1159.0		-32	40	1.716	1.704	7.38	-1.58	80	0.993 0.991 1.039 1.059		inoper	inoper	inoper	on	on	
1160.0		0	45	1.718	1.702	8.96	-1.58	81	1.077 1.107 1.128 1.119	norn						
1161.0		32	51	1.718	1.702	10.55	-0.88	81	1.128 1.142 1.164 1.192							normal
1162.0	03:42:43	64	61	1.718	1.702	13.18	0.00	81	1.208 1.240 1.281 1.304							
1163.0		96	64	1.718	1.704	16.17	-0.53	81	1.327 1.322 1.270 1.185		inoper	inoper	inoper	on	on	
1164.0		96	63	1.720	1.706	13.71	-0.70	82	1.082 0.977 0.894 0.860	norn						
1165.0		96	67	1.716	1.702	12.13	-0.88	82	0.849 0.881 0.917 0.945							normal
1166.0	03:42:47	160	76	1.720	1.704	13.54	-1.41	82	1.018 1.091 1.132 1.103							
1167.0		160	78	1.720	1.704	13.71	-1.41	82	1.077 1.052 1.020 0.972		inoper	inoper	inoper	off	on	
1168.0		192	81	1.720	1.706	12.30	-0.70	82	0.940 0.929 0.926 0.924	norn						
1169.0		224	85	1.722	1.706	11.78	0.18	82	0.917 0.922 0.924 0.988							normal
1170.0	03:42:51	256	90	1.718	1.704	12.48	1.23	82	1.023 1.020 1.039 1.066							
1171.0		288	94	1.718	1.704	12.13	1.05	82	1.055 1.007 0.958		inoper	inoper	inoper	on	on	

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DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1172.0		320	98	1.718	1.702	11.07	-0.35	83		norn						
1173.0		352	101	1.718	1.702	10.90	-1.05	83								normal
1174.0	03:42:55	384	105	1.722	1.702	10.55	0.70	82								
1175.0		448	110	1.718	1.702	10.90	1.23	82			inoper	inoper	inoper	on	on	
1176.0		480	113	1.720	1.704	12.48	0.53	82		norn						
1177.0		512	116	1.722	1.702	13.01	0.18	82								normal
1178.0	03:42:59	576	121	1.720	1.702	12.66	0.70	82								
1179.0		608	125	1.720	1.704	12.48	1.76	82			inoper	inoper	inoper	on	on	
1180.0		640	129	1.720	1.702	12.66	2.64	82		norn						
1181.0		704	133	1.722	1.706	13.36	2.99	82								normal
1182.0	03:43:03	768	137	1.720	1.708	13.54	1.76	83								
1183.0		800	141	1.722	1.708	13.36	0.70	83			inoper	inoper	inoper	on	on	
1184.0		864	145	1.722	1.708	13.18	0.00	84		norn						
1185.0		928	149	1.720	1.706	13.01	-0.70	83								normal
1186.0	03:43:07	960	153	1.724	1.708	12.66	0.00	83								
1187.0		1024	157	1.726	1.708	12.13	-0.70	83			inoper	inoper	inoper	on	on	
1188.0		1088	160	1.722	1.706	11.95	-1.58	83		norn						
1189.0		1120	164	1.700	1.708	11.78	-3.87	83								normal

Vertical Acceleration (g):
0.952
0.945
0.926
0.961
0.993
1.009
0.995
0.965
0.961
0.956
0.942
0.947
0.970
1.013
1.061
1.100
1.130
1.151
1.153
1.167
1.148
1.112
1.091
1.066
1.059
1.052
1.041
1.043
1.032
1.018
1.013
1.007
1.011
1.007
1.013
1.032
1.041
1.066
1.073
1.055
1.045
1.036
1.059
1.071
1.064
1.029
1.025
0.984
0.981
0.965
0.968
0.965
0.968
0.986
1.032
1.007
1.007
0.977
0.986
0.970
0.979
0.963
0.963
0.970
0.961
0.961
0.965
0.963
0.952
0.977
0.979
0.977
0.970
0.963
0.958

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1190.0	03:43:11	1184	167	1.573	1.675	11.60	-6.15	82	0.952 0.945 0.947 0.963							
1191.0		1216	170	1.542	1.632	11.25	-7.38	81	0.970 0.958 0.945 0.940		inoper	oper	inoper	on	on	
1192.0		1280	173	1.540	1.614	10.72	-9.49	79	0.936 0.956 0.997 1.023	norn						
1193.0		1312	176	1.540	1.593	10.90	-14.59	79	1.029 1.034 1.025 1.034							normal
1194.0	03:43:15	1376	179	1.550	1.583	11.25	-17.40	78	1.020 1.009 0.997 1.004							
1195.0		1408	181	1.550	1.569	11.07	-17.75	76	1.013 1.013 0.988 0.986		inoper	oper	inoper	on	on	
1196.0		1472	184	1.552	1.562	10.55	-19.16	74	0.970 0.984 0.988 0.997	norn						
1197.0		1504	187	1.552	1.558	10.55	-20.21	72	1.007 1.016 1.002 1.013							normal
1198.0	03:43:19	1536	189	1.550	1.552	10.55	-21.09	71	1.004 0.993 0.972 0.963							
1199.0		1600	191	1.550	1.550	10.02	-21.45	69	0.965 0.968 0.949 0.926		inoper	oper	inoper	on	on	
1200.0		1632	193	1.548	1.544	9.67	-21.80	67	0.940 0.947 0.940 0.920	norn						
1201.0		1664	195	1.548	1.544	9.14	-23.03	65	0.945 0.965 0.974 0.986							normal
1202.0	03:43:23	1696	197	1.548	1.540	9.14	-23.73	63	1.034 1.032 1.036 1.034							
1203.0		1728	198	1.548	1.540	9.14	-24.26	61	1.029 1.032 1.039 1.032		inoper	oper	inoper	on	on	
1204.0		1760	200	1.548	1.538	8.96	-24.79	59	1.034 1.034 1.041 1.052	norn						
1205.0		1760	201	1.546	1.536	8.96	-25.31	57	1.052 1.045 1.043 1.061							normal
1206.0	03:43:27	1792	202	1.544	1.534	9.14	-25.49	54	1.073 1.089 1.112 1.142							
1207.0		1824	204	1.546	1.536	9.84	-25.66	52	1.171 1.183 1.201 1.228		inoper	oper	inoper	on	on	
1208.0		1856	206	1.544	1.532	11.07	-25.84	49	1.224 1.235 1.219	norn						

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1209.0		1888	207	1.544	1.534	11.60	-25.66	48	1.180 1.155 1.098 1.055							normal
1210.0	03:43:31	1920	208	1.542	1.528	11.43	-24.96	46	1.025 0.993 0.991 1.025							
1211.0		1952	210	1.546	1.532	11.60	-21.80	44	1.057 1.059 1.064 1.064		inoper	oper	inoper	on	on	
1212.0		1984	212	1.544	1.532	11.78	-18.28	43	1.109 1.105 1.089 1.071	norn						
1213.0		2016	213	1.540	1.530	11.78	-16.88	42	1.009 0.965 0.972 0.968							normal
1214.0	03:43:35	2048	215	1.544	1.530	11.78	-16.35	41	1.013 1.057 1.029 1.100							
1215.0		2080	216	1.544	1.532	11.95	-14.59	40	1.125 1.123 1.071 1.050		inoper	oper	inoper	on	on	
1216.0		2112	218	1.544	1.532	11.78	-11.95	40	1.009 1.025 1.007 1.020	norn						
1217.0		2144	219	1.544	1.532	11.95	-7.03	39	0.981 0.981 0.995 1.032							normal
1218.0	03:43:39	2208	221	1.542	1.532	12.13	-4.57	39	1.091 1.061 1.121 1.123							
1219.0		2240	223	1.542	1.532	12.30	-1.05	39	1.121 1.082 1.034 1.004		inoper	oper	inoper	on	on	
1220.0		2272	224	1.542	1.532	11.95	-1.93	39	0.979 0.938 0.991 1.000	norn						
1221.0		2304	226	1.544	1.534	11.60	-2.64	39	1.000 1.000 1.029 1.071							normal
1222.0	03:43:43	2336	228	1.542	1.532	11.78	-2.99	39	1.071 1.068 1.064 1.045							
1223.0		2400	230	1.542	1.532	11.78	0.35	39	1.066 1.034 1.036 1.004		inoper	oper	inoper	on	on	
1224.0		2432	232	1.542	1.532	11.43	4.75	39	1.016 0.972 0.995 1.004	norn						
1225.0		2496	234	1.542	1.534	11.43	7.38	40	1.032 1.029 1.007 0.993							normal
1226.0	03:43:47	2528	236	1.542	1.532	11.60	9.84	41	1.025 1.077 1.039 1.029							
1227.0		2560	238	1.544	1.532	11.78	11.95	42	1.011 1.020 1.068		inoper	oper	inoper	on	on	

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1228.0		2624	239	1.542	1.532	11.78	13.01	43		norn						
1229.0		2656	242	1.542	1.532	11.78	14.41	44								normal
1230.0	03:43:51	2720	243	1.540	1.532	11.78	16.00	46								
1231.0		2752	245	1.542	1.532	12.13	17.58	47			inoper	oper	inoper	on	on	
1232.0		2816	247	1.544	1.530	12.83	16.17	49		norn						
1233.0		2880	249	1.542	1.532	13.18	17.23	50								normal
1234.0	03:43:55	2912	251	1.542	1.532	13.36	17.58	52								
1235.0		2976	253	1.542	1.532	13.36	15.12	53			inoper	oper	inoper	on	on	
1236.0		3040	255	1.542	1.534	13.36	10.72	53		norn						
1237.0		3072	257	1.540	1.530	13.18	9.32	54								normal
1238.0	03:43:59	3136	259	1.540	1.530	13.54	10.55	54								
1239.0		3168	261	1.540	1.532	13.54	10.37	55			inoper	oper	inoper	on	on	
1240.0		3232	263	1.540	1.532	13.36	7.56	56		norn						
1241.0		3296	265	1.538	1.532	13.01	4.92	56								normal
1242.0	03:44:03	3328	267	1.540	1.530	12.83	3.52	56								
1243.0		3392	268	1.538	1.530	12.83	3.52	56			inoper	oper	inoper	on	on	
1244.0		3424	270	1.536	1.532	13.01	2.81	57		norn						
1245.0		3488	272	1.538	1.530	13.18	1.76	57								normal
1246.0	03:44:07	3520	273	1.536	1.528	13.01	1.41	57								

Vertical Acceleration (g)
1.096
1.066
1.057
1.059
1.068
1.043
1.039
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DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1247.0		3584	275	1.536	1.528	12.66	1.76	57	0.954 0.945 0.924 0.929 0.929 0.936		inoper	oper	inoper	on	on	
1248.0		3616	276	1.536	1.526	12.30	1.93	57	0.929 0.929 0.926 0.940	norn						
1249.0		3648	278	1.534	1.526	11.95	2.29	57	0.940 0.945 0.936 0.936							normal
1250.0	03:44:11	3712	279	1.534	1.526	11.78	2.11	58	0.929 0.931 0.926 0.931							
1251.0		3744	280	1.534	1.525	11.60	1.76	58	0.933 0.954 0.968 0.979		inoper	oper	inoper	on	on	
1252.0		3776	282	1.534	1.526	11.60	0.70	58	0.993 0.981 0.961 0.977	norn						
1253.0		3808	283	1.532	1.525	11.78	0.35	58	0.984 1.007 1.025 1.020							normal
1254.0	03:44:15	3840	284	1.534	1.525	12.13	-0.53	58	1.027 1.045 1.034 1.018							
1255.0		1952	143	1.767	1.761	12.48	179.47	57	1.013 1.007 -1.181 -1.179		inoper	oper	inoper	on	on	
1256.0		3936	287	1.532	1.525	12.66	-1.05	57	1.096 1.029 1.043 1.043	norn						
1257.0		3968	288	1.534	1.521	13.01	-1.41	57	1.032 1.048 1.064 1.043							normal
1258.0	03:44:19	4032	290	1.532	1.523	13.18	-1.23	57	1.027 1.020 1.020 1.007							
1259.0		4064	291	1.530	1.523	13.36	-1.41	57	1.018 1.027 1.023 1.013		inoper	oper	inoper	on	on	
1260.0		4128	293	1.532	1.523	13.36	-1.41	57	1.011 0.986 0.993 0.993	norn						
1261.0		4160	294	1.530	1.523	13.54	-1.05	57	1.000 1.018 1.011 1.009							normal
1262.0	03:44:23	4192	295	1.530	1.523	13.54	-0.88	57	1.004 1.011 1.013 1.004							
1263.0		4256	297	1.532	1.521	13.54	-1.41	56	1.002 1.009 1.018 1.013		inoper	oper	inoper	on	on	
1264.0		4288	298	1.530	1.523	13.71	-1.58	56	1.007 1.007 1.011 1.004 1.002	norn						

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1265.0		4352	300	1.530	1.523	13.89	-1.41	56	0.993 0.997 1.016 1.011							normal
1266.0	03:44:27	4384	301	1.532	1.523	14.24	-1.05	56	1.007 1.018 1.020 1.004							
1267.0		4448	302	1.532	1.523	14.41	-0.88	57	1.016 1.002 1.007 1.007		inoper	oper	inoper	on	on	
1268.0		4480	304	1.530	1.525	14.59	-0.88	57	1.018 1.004 1.007 1.018	norn						
1269.0		4544	305	1.530	1.523	14.94	-0.53	57	1.016 1.013 1.013 1.016							normal
1270.0	03:44:31	4576	307	1.530	1.523	15.29	-0.35	57	1.009 1.007 1.002 0.986							
1271.0		4640	308	1.530	1.523	15.12	-0.18	56	0.977 0.961 0.968 0.965		inoper	oper	inoper	on	on	
1272.0		4704	310	1.528	1.523	14.77	-0.35	56	0.949 0.945 0.920 0.936	norn						
1273.0		4736	311	1.528	1.521	14.59	-0.70	56	0.949 0.981 0.968 0.968							normal
1274.0	03:44:35	4800	313	1.528	1.521	14.94	-0.18	56	0.984 1.000 0.986 0.993							
1275.0		4832	314	1.530	1.521	15.12	-0.18	56	1.004 1.013 1.004 0.995		inoper	oper	inoper	on	on	
1276.0		4896	315	1.526	1.519	15.29	0.18	56	0.981 0.970 0.963 0.954	norn						
1277.0		4928	316	1.528	1.519	14.94	0.35	56	0.949 0.942 0.947 0.945							normal
1278.0	03:44:39	4992	318	1.528	1.519	14.59	0.00	56	0.942 0.954 0.961 0.954							
1279.0		5024	319	1.526	1.517	14.77	-0.18	56	0.961 0.970 0.988 0.995		inoper	oper	inoper	on	on	
1280.0		5056	320	1.526	1.517	15.12	0.18	56	1.009 1.013 1.007 1.000	norn						
1281.0		5120	321	1.526	1.519	15.29	0.00	56	0.988 0.977 0.970 0.963							normal
1282.0	03:44:43	5152	323	1.526	1.517	15.12	0.00	56	0.965 0.958 0.952 0.945							
1283.0		5216	324	1.525	1.517	14.77	0.18	56	0.940 0.936 0.940		inoper	oper	inoper	on	on	

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1284.0		5248	325	1.526	1.517	14.59	0.00	56	0.945 0.952 0.963 0.970	norn						
1285.0		5280	326	1.526	1.517	14.77	-0.18	56	0.977 0.984 0.993 0.997							normal
1286.0	03:44:47	5344	327	1.523	1.515	15.12	0.00	56	1.009 1.016 1.011 1.004							
1287.0		5376	328	1.525	1.517	15.29	0.18	56	1.002 0.991 0.974 0.965		inoper	oper	inoper	on	on	
1288.0		5408	329	1.523	1.513	14.94	0.18	56	0.954 0.940 0.938 0.936	norn						
1289.0		5472	330	1.523	1.515	14.59	0.18	56	0.933 0.938 0.949 0.963							normal
1290.0	03:44:51	5504	331	1.523	1.513	14.77	0.18	56	0.963 0.981 0.993 1.000							
1291.0		5536	332	1.523	1.513	15.12	0.35	56	1.004 1.007 1.009 1.009		inoper	oper	inoper	on	on	
1292.0		5568	333	1.523	1.513	15.12	0.18	56	1.002 0.995 0.981 0.972	norn						
1293.0		5632	334	1.521	1.511	14.94	0.00	56	0.965 0.954 0.942 0.942							normal
1294.0	03:44:55	5664	336	1.521	1.511	14.59	-0.18	56	0.938 0.940 0.949 0.958							
1295.0		5696	336	1.521	1.513	14.77	-0.18	56	0.965 0.970 0.977 0.986		inoper	oper	inoper	on	on	
1296.0		5728	337	1.521	1.511	15.12	-0.18	56	0.991 0.995 0.995 0.997	norn						
1297.0		5792	338	1.521	1.513	15.29	0.00	56	0.988 0.979 0.970 0.968							normal
1298.0	03:44:59	5824	339	1.519	1.511	14.94	-0.18	56	0.958 0.954 0.949 0.940							
1299.0		5856	340	1.519	1.513	14.59	-0.18	56	0.936 0.931 0.936 0.942		inoper	oper	inoper	on	on	
1300.0		5888	341	1.519	1.511	14.59	0.00	56	0.954 0.961 0.965 0.974	norn						
1301.0		5920	341	1.519	1.511	14.77	0.00	56	0.981 0.984 0.986 0.997							normal
1302.0	03:45:03	5952	342	1.519	1.511	15.12	0.00	56	1.002 1.004 0.997							

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1303.0		5984	342	1.519	1.511	15.29	0.00	56	0.991 0.981 0.965 0.965 0.963		inoper	oper	inoper	on	on	
1304.0		6048	343	1.517	1.509	14.94	-0.35	56	0.956 0.947 0.945 0.942	norn						
1305.0		6080	344	1.519	1.509	14.59	-0.35	56	0.940 0.947 0.954 0.963							normal
1306.0	03:45:07	6080	344	1.517	1.509	14.94	-0.18	56	0.970 0.984 0.991 0.993							
1307.0		6112	345	1.519	1.509	15.29	-0.18	56	1.000 1.004 1.002 0.993		inoper	oper	inoper	on	on	
1308.0		6144	345	1.517	1.509	15.29	-0.35	56	0.986 0.986 0.970 0.963	norn						
1309.0		6208	346	1.517	1.509	14.94	-0.18	56	0.956 0.952 0.942 0.936							normal
1310.0	03:45:11	6240	347	1.517	1.507	14.59	-0.18	56	0.933 0.940 0.949 0.954							
1311.0		6240	347	1.517	1.507	14.59	-0.35	56	0.965 0.965 0.979 0.988		inoper	oper	inoper	on	on	
1312.0		6272	347	1.517	1.507	14.94	-0.35	56	0.988 0.995 0.997 1.004	norn						
1313.0		6304	347	1.517	1.507	15.29	-0.18	56	1.009 1.009 1.002 1.000							normal
1314.0	03:45:15	6336	348	1.517	1.507	15.12	0.00	56	0.991 0.986 0.977 0.970							
1315.0		6368	349	1.515	1.509	14.94	0.00	56	0.963 0.956 0.945 0.945		inoper	oper	inoper	on	on	
1316.0		6432	349	1.515	1.507	14.59	-0.18	56	0.940 0.936 0.945 0.949	norn						
1317.0		6432	350	1.515	1.509	14.59	-0.18	56	0.958 0.963 0.965 0.979							normal
1318.0	03:45:19	6464	350	1.515	1.507	14.94	-0.18	56	0.984 0.997 1.007 1.007							
1319.0		6496	350	1.517	1.509	15.29	-0.18	56	1.009 1.007 0.997 0.986		inoper	oper	inoper	on	off	
1320.0		6528	350	1.513	1.509	15.12	0.00	56	0.986 0.984 0.979 0.972	norn						
1321.0		6560	351	1.515	1.509	14.77	-0.18	56	0.965 0.958							normal

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DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1322.0	03:45:23	6592	351	1.517	1.507	14.59	-0.35	55	0.947 0.940 0.945 0.947 0.956 0.958							
1323.0		6592	351	1.517	1.507	14.77	-0.35	55	0.968 0.986 0.991 0.995		inoper	oper	inoper	on	on	
1324.0		6624	352	1.517	1.509	15.12	-0.35	55	0.995 0.997 1.000 0.997	norn						
1325.0		6656	352	1.515	1.509	15.29	-0.18	55	0.995 0.993 0.977 0.972							normal
1326.0	03:45:27	6688	352	1.517	1.509	15.12	-0.35	55	0.968 0.961 0.958 0.952							
1327.0		6720	353	1.515	1.509	14.77	-0.35	56	0.949 0.942 0.936 0.940		inoper	oper	inoper	on	on	
1328.0		6752	353	1.517	1.509	14.59	-0.18	56	0.947 0.949 0.958 0.963	norn						
1329.0		6784	353	1.517	1.507	14.77	-0.18	56	0.977 0.977 0.988 0.988							normal
1330.0	03:45:31	6784	352	1.515	1.509	15.12	0.00	56	1.000 1.002 1.002 0.997							
1331.0		6816	352	1.517	1.509	15.29	0.18	56	0.995 0.991 0.988 0.984		inoper	oper	inoper	on	on	
1332.0		6848	352	1.517	1.507	14.94	0.00	56	0.981 0.970 0.965 0.958	norn						
1333.0		6880	352	1.517	1.507	14.59	0.00	56	0.956 0.954 0.956 0.958							normal
1334.0	03:45:35	6912	352	1.515	1.507	14.59	0.00	56	0.965 0.977 0.981 0.984							
1335.0		6912	351	1.515	1.509	14.94	-0.18	56	0.995 0.997 1.000 1.000		inoper	oper	inoper	on	on	
1336.0		6944	350	1.515	1.507	15.29	-0.18	56	1.002 0.995 0.991 0.981	norn						
1337.0		7008	350	1.515	1.507	15.12	-0.35	56	0.970 0.970 0.958 0.958							normal
1338.0	03:45:39	7040	349	1.515	1.507	14.77	-0.53	56	0.949 0.945 0.942 0.942							
1339.0		7072	348	1.517	1.507	14.59	-0.70	56	0.947 0.952 0.961 0.965 0.977		inoper	oper	inoper	on	on	

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1340.0		7072	346	1.517	1.507	14.94	-0.70	56	0.984 0.986 0.991 0.995	norn						
1341.0		7104	345	1.517	1.507	15.12	-0.35	56	0.993 0.991 0.993 0.986							normal
1342.0	03:45:43	7136	344	1.517	1.507	15.29	0.00	56	0.981 0.979 0.968 0.970							
1343.0		7168	342	1.517	1.507	14.94	0.00	56	0.965 0.958 0.954 0.952		inoper	oper	inoper	on	on	
1344.0		7200	341	1.517	1.507	14.59	-0.18	56	0.952 0.956 0.961 0.970	norn						
VNAV DISC. 1345.0	034546	7232	339	1.517	1.507	14.59	-0.18	56	0.970 0.977 0.979 0.979							normal
1346.0	03:45:47	7232	337	1.513	1.482	14.77	0.00	56	0.981 0.981 0.984 0.986							
1347.0		7264	335	1.423	1.376	14.94	-0.18	55	0.986 0.991 0.993 0.995		oper	oper	inoper	on	on	
1348.0		7264	333	1.320	1.263	15.29	-0.35	55	1.004 1.009 1.016 1.020	norn						
EICAS message 1349.0	034550	7264	330	1.218	1.177	15.82	-0.53	55	1.027 1.034 1.041 1.050							normal
1350.0	03:45:51	7232	327	1.148	1.130	16.88	-0.70	55	1.050 1.055 1.050 1.055							
A/T Disconect 1351.0	034552	7232	323	1.144	1.152	18.28	-0.53	55	1.041 1.059 1.032 1.009		inoper	oper	inoper	on	on	
1352.0		7168	319	1.210	1.253	19.51	2.81	57	1.013 1.018 1.080 0.968	norn						
1353.0		7040	313	1.400	1.497	21.27	7.73	58	0.920 1.020 0.995 0.899							normal
1354.0	03:45:55	7008	309	1.566	1.546	21.80	10.90	60	0.890 0.910 0.885 0.860							
EICAS message 1355.0	03:4556	7040	306	1.620	1.585	20.74	16.35	63	0.878 0.858 0.839 0.881		inoper	oper	inoper	on	on	
1356.0		7104	305	1.605	1.583	18.98	26.89	67	0.798 0.897 0.876 0.920	A/P disc						
1357.0		7072	301	1.603	1.583	18.11	37.79	71	0.942 0.931 0.915 0.661							normal
1358.0	03:45:59	7104	298	1.605	1.579	15.47	47.64	75	0.741 0.737 0.782							

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1359.0	034600	7072	294	1.614	1.581	13.01	43.77	80	0.856 0.842 0.821 0.812		inoper	oper	inoper	on	on	
1360.0		6912	286	1.616	1.579	10.72	35.68	85	0.773 0.801 0.830 0.748	norn						
1361.0		6720	277	1.614	1.575	10.90	25.31	88	0.773 0.872 0.920 0.817							normal
1362.0	03:46:03	6560	269	1.612	1.571	11.25	17.58	90	0.883 0.803 0.915 0.931							
1363.0		6560	264	1.610	1.571	11.25	11.60	91	0.766 0.913 0.796 0.771		inoper	oper	inoper	on	on	
1364.0	034605	6560	260	1.608	1.569	10.55	7.56	92	0.787 0.862 0.890 0.910	norn						
1365.0		6752	262	1.608	1.571	8.96	5.27	92	0.833 0.743 0.787 0.803							normal
1366.0	03:46:07	6880	264	1.608	1.573	4.75	6.50	91	0.794 0.910 0.869 0.869							
1367.0		6688	255	1.605	1.567	6.33	8.44	90	0.837 0.952 0.926 0.972		inoper	oper	inoper	on	on	
1368.0		6624	248	1.606	1.569	7.91	8.96	88	1.039 0.936 0.924 0.915	norn						
1369.0		6720	249	1.605	1.567	5.80	9.49	87	0.853 0.819 0.835 0.881							normal
1370.0	03:46:11	6688	246	1.603	1.567	5.27	8.79	87	0.936 0.961 0.979 0.984							
1371.0		6624	241	1.603	1.566	6.15	8.61	86	1.011 0.963 0.997 1.059		inoper	oper	inoper	on	on	
1372.0		6592	236	1.601	1.566	6.33	5.80	86	1.023 1.050 1.016 0.862	norn						
1373.0		6592	234	1.601	1.564	5.27	2.11	84	0.981 1.066 0.995 1.048							normal
1374.0	03:46:15	6528	230	1.597	1.562	4.57	-5.10	82	1.043 1.016 0.970 1.059							
1375.0		6464	226	1.597	1.560	5.62	-11.07	81	1.103 1.091 1.217 1.105		inoper	oper	inoper	on	on	
1376.0		6432	222	1.597	1.556	5.98	-13.01	80	1.043 1.018 1.052 1.061	norn						
1377.0		6368	218	1.593	1.558	6.86	-13.18	79	1.219 1.059 1.114							normal

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1378.0	03:46:19	6336	214	1.593	1.556	8.09	-11.60	79	1.142 1.077 1.144 1.018							
1379.0		6336	214	1.593	1.556	5.98	-7.21	78	0.995 1.048 1.057 1.151		inoper	oper	inoper	on	on	
1380.0		6272	210	1.591	1.556	7.03	0.18	79	1.164 1.089 1.313 1.178	norn						
1381.0		6240	207	1.595	1.558	9.32	10.55	81	1.267 1.082 1.178 1.244							normal
1382.0	03:46:23	6240	206	1.599	1.560	8.79	17.05	85	1.142 1.064 1.258 1.277							
1383.0		6176	203	1.591	1.558	8.96	15.64	89	1.135 1.240 1.201 1.174		inoper	oper	inoper	on	on	
1384.0		6112	200	1.581	1.517	10.37	8.44	90	1.288 1.176 1.249 1.224	norn						
1385.0		6112	200	1.519	1.458	10.02	-2.99	87	1.050 1.153 1.254 1.144							normal
1386.0	03:46:27	6080	199	1.439	1.396	10.90	-13.18	82	1.091 1.020 1.151 1.217							
1387.0		6048	197	1.392	1.325	12.13	-20.92	77	1.139 1.199 1.228 1.105		inoper	oper	inoper	on	on	
1388.0		6016	196	1.308	1.253	12.30	-16.00	76	1.146 1.144 1.148 1.087	norn						
1389.0		6016	195	1.212	1.171	12.13	-2.99	78	1.016 1.052 0.991 1.096							normal
1390.0	03:46:31	5984	193	1.163	1.146	14.41	9.32	83	1.178 1.187 1.025 1.036							
1391.0		5920	190	1.158	1.144	16.00	7.56	83	0.874 1.032 1.027 1.169		inoper	oper	inoper	on	on	
1392.0		5920	189	1.156	1.148	15.47	-3.34	81	0.931 0.897 0.922 0.956	norn						
1393.0		5888	188	1.148	1.144	13.71	-18.28	75	0.883 0.979 0.872 0.977							normal
1394.0	03:46:35	5824	184	1.140	1.142	15.47	-31.11	70	1.020 1.029 0.970 0.924							
1395.0		5792	181	1.138	1.140	14.41	-33.05	68	1.007 0.872 0.986 0.917		inoper	oper	inoper	on	on	
1396.0		5760	179	1.138	1.138	13.18	-25.31	68	0.908 0.961 0.888	norn						

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1397.0		5728	177	1.140	1.140	13.54	-15.12	70	0.796 0.723 0.904 0.858 0.972 0.821							normal
1398.0	03:46:39	5696	174	1.150	1.140	12.66	-5.98	72	0.926 0.883 0.787 0.773							
1399.0		5664	173	1.148	1.140	8.96	1.23	74	0.837 0.803 0.858 0.826		inoper	oper	inoper	on	on	
1400.0		5600	169	1.140	1.138	10.72	4.92	76	0.858 0.869 0.920	norn						
1401.0		5536	165	1.136	1.136	11.07	6.33	77	0.988 0.970 0.817 0.878							normal
1402.0	03:46:43	5472	162	1.134	1.136	9.67	3.87	77	0.819 0.872 0.858 0.878							
1403.0		5408	159	1.132	1.136	8.79	-0.35	76	0.874 0.826 0.906 0.885		inoper	oper	inoper	on	on	
1404.0		5344	155	1.134	1.134	9.32	-4.22	76	0.977 0.858 0.867 0.899	norn						
1405.0		5280	149	1.132	1.134	11.07	-4.75	76	0.922 0.952 0.926 0.947							normal
1406.0	03:46:47	5216	144	1.130	1.134	11.60	-5.27	78	0.936 0.940 1.000 0.846							
1407.0		5152	138	1.130	1.132	11.07	-4.22	80	0.942 0.881 0.851 0.883		inoper	oper	inoper	on	on	
1408.0		5088	133	1.128	1.136	10.72	-0.35	83	0.910 0.842 0.833 0.968	norn						
1409.0		5024	127	1.126	1.134	9.49	6.33	88	0.963 0.979 0.984 0.945							normal
1410.0	03:46:51	4928	122	1.126	1.134	6.33	15.47	94	0.936 0.904 0.961 0.972							
1411.0		4864	117	1.118	1.109	2.46	26.37	101	1.009 0.885 0.931 0.885		inoper	oper	inoper	on	on	
1412.0		4800	110	1.093	1.113	-2.29	37.62	108	0.963 0.926 1.007 0.892	norn						
1413.0		4704	103	1.109	1.165	-7.91	48.87	113	0.931 0.945 0.936 0.942							normal
1414.0	03:46:55	4576	93	1.165	1.310	-14.59	57.13	116	0.920 0.906 0.817 0.915 0.775 0.846							

DFDR Ref Time in seconds	UTC (hh:mm:ss)	Pressure Altitude (feet)	Computed Airspeed (counts)	EPR-L (ratio)	EPR-R (ratio)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	Magnetic Heading (deg. mag.)	Vertical Acceleration (g)	A/P Warn 2 Bat (1=A/P disc)	IAS Mode Oper (1-oper)	Rating 1 Oper (1-oper)	Rating 2 Oper (1-oper)	Flt Dir On - Capt (1=on)	Flt Dir On - F/O (1=on)	Unsched Stab Move (1-unsched)
1415.0		4480	85	1.290	1.603	-15.12	61.00	118	0.940 1.032 0.936 1.039		inoper	oper	inoper	on	on	
1416.0		4416	83	1.523	1.646	-10.55	57.66	117	1.139 1.176 1.277 1.373	norn						
1417.0		4448	87	1.618	1.628	-0.35	38.67	106	1.421 1.492 1.457 1.432							normal
1418.0	03:46:59	4352	81	1.251	1.622	6.50	8.26	89	1.480 1.478 1.423 1.389							
1419.0		4160	57	1.111	1.640	1.41	-20.92	74	1.345 1.260 1.240 1.201		inoper	oper	inoper	on	on	
1420.0		3872	0	1.107	1.644	-15.12	-44.30	63	1.199 1.190 1.183 1.272	norn						
1421.0		3712	0	1.115	1.644	-35.33	-66.27	52	1.309 1.224 1.199 1.295							normal
1422.0	03:47:03	3520	0	1.124	1.638	-57.30	-99.84	67	1.254 1.368 1.350 1.416							
1423.0		3360	0	1.089	1.626	-79.98	169.28	169	1.455 1.590 1.526 1.508		inoper	oper	inoper	on	on	
1424.0		3296	0	1.115	1.601	-69.96	66.97	168	1.727 1.627 1.617 1.814	norn						
1425.0		3232	0	1.083	1.534	-46.76	45.70	152	1.750 1.700 1.741 1.748							normal
1426.0	03:47:07	3040	0	1.085	1.439	-30.06	26.37	133	1.707 1.700 1.720 1.727							
1427.0		2784	0	1.083	1.478	-19.16	7.56	114	1.652 1.640 1.606 1.613		inoper	oper	inoper	on	on	
1428.0		2368	0	1.099	1.474	-17.58	-8.96	96	1.560 1.455 1.446 1.466	norn						
1429.0		2080	0	1.109	1.415	-20.74	-19.86	81	1.384 1.601 1.583 1.496							normal
1430.0	03:47:11	1696	0	1.093	1.620	-24.96	-28.83	67	1.512 1.434 1.331 1.398							
1431.0		1312	0	1.117	1.612	-29.53	-33.93	54	1.247 1.400 1.389 1.418		inoper	oper	inoper	on	on	
1432.0		992	0	1.124	1.651	-34.28	-34.63	38	1.444 1.579 1.350 1.535	norn						
1433.0																
1434.0																
1435.0																

FDR Parameter Listing

TAB # 6, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, Engine Data

TAB # 6, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, Engine Data

DR GMT	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N2 Actual - L (% rpm)	N2 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)	Fuel Flow Rate - L (pph)	Fuel Flow Rate - R (pph)	Total Air Temp (Deg. C)	Ground Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)
03:42:00	1.109	1.087	473	451	46	42		55.2		72	3232	2776		5	-64	0
03:42:01	1.109	1.089	475	451	47	42	59		74.5		3256	2800	20.2	5	-64	0
03:42:02	1.111	1.101	476	464	47	44		55.6		73	3312	3056		6	-64	0
03:42:03	1.136	1.128	495	485	50	49	62		77.1		3616	3384	20.2	7	-64	0
03:42:04	1.154	1.138	504	482	54	52		62.2		76	3832	3560		7	-64	0
03:42:05	1.179	1.181	507	504	56	57	67		80.5		4288	4232	20.0	9	-64	0
03:42:06	1.247	1.261	547	532	65	67		70.6		82	5080	5160		10	-64	0
03:42:07	1.359	1.382	579	577	75	78	80		87.8		6400	6704	20.0	12	-64	0
03:42:08	1.482	1.489	628	602	85	86		84.2		88	8104	8096		15	-64	0
03:42:09	1.526	1.493	638	601	90	88	88		89.8		9328	8992	20.0	19	-64	0
03:42:10	1.528	1.523	639	613	90	89		85.1		89	10184	9872		23	-64	0
03:42:11	1.585	1.622	658	653	93	95	90		92.4		11296	11272	20.0	28	-64	0
03:42:12	1.702	1.696	695	681	98	98		91.4		93	12544	12592		33	-64	0
03:42:13	1.726	1.712	701	697	100	99	93		93.1		13464	13600	20.2	38	-64	0
03:42:14	1.724	1.716	709	708	100	100		93.8		93	14112	14304		44	-64	30
03:42:15	1.712	1.722	716	718	100	101	93		93.4		14608	14872	20.2	49	-64	31
03:42:16	1.724	1.716	724	723	101	100		94.0		93	14976	15216		54	-64	32
03:42:17	1.718	1.716	726	730	100	100	93		93.4		15216	15480	20.2	60	-64	31
03:42:18	1.720	1.712	731	736	100	100		93.8		93	15368	15688		65	-64	32
03:42:19	1.712	1.708	736	743	100	100	93		93.5		15496	15856	20.5	70	-32	33
03:42:20	1.712	1.712	741	748	100	100		93.9		94	15616	16016		76	-32	32
03:42:21	1.710	1.710	744	753	101	100	93		93.6		15704	16096	20.5	81	-32	34
03:42:22	1.714	1.714	748	758	101	101		93.9		94	15752	16192		86	-32	34
03:42:23	1.714	1.712	751	762	101	101	93		93.8		15832	16256	20.5	91	-32	35
03:42:24	1.716	1.712	754	766	101	101		94.0		94	15904	16328		96	-32	36
03:42:25	1.720	1.714	758	769	101	101	94		93.9		15952	16336	20.8	101	-32	34
03:42:26	1.718	1.714	760	772	101	101		94.0		94	15984	16408		106	-32	36
03:42:27	1.720	1.716	763	776	101	101	94		93.9		15992	16440	20.8	110	-32	36
03:42:28	1.718	1.714	765	778	101	101		94.1		94	16024	16448		115	-32	37
03:42:29	1.718	1.712	767	781	101	101	94		94.0		16096	16528	21.0	120	-32	40
03:42:30	1.714	1.714	770	784	101	101		94.1		94	16144	16576		125	-32	40
03:42:31	1.716	1.716	771	787	101	101	94		94.0		16144	16600	21.2	129	-32	39
03:42:32	1.720	1.714	773	788	101	101		94.1		94	16200	16672		134	-32	39
03:42:33	1.718	1.712	775	790	101	101	94		94.1		16232	16704	21.2	138	0	43
03:42:34	1.720	1.712	777	792	102	101		94.1		94	16264	16712		142	-32	42
03:42:35	1.718	1.710	779	794	101	101	94		94.2		16288	16728	21.5	147	0	43
03:42:36	1.718	1.712	780	795	101	101		94.0		94	16288	16752		151	-32	42
03:42:37	1.718	1.710	782	796	102	101	94		94.2		16288	16776	22.0	155	-32	39
03:42:38	1.718	1.708	784	797	102	101		94.0		94	16328	16800		159	-32	34
03:42:39	1.720	1.704	786	799	102	101	94		94.4		16400	16824	22.2	163	-32	36
03:42:40	1.716	1.704	787	800	102	101		93.9		94	16440	16768		167	-32	40
03:42:41	1.718	1.702	789	801	102	101	94		94.5		16488	16784	22.8	170	0	45
03:42:42	1.718	1.702	791	802	102	101		93.8		94	16520	16808		173	32	51
03:42:43	1.718	1.702	792	804	102	101	94		94.5		16536	16808	22.8	176	64	61
03:42:44	1.718	1.704	793	804	102	101		93.9		94	16544	16792		177	96	64
03:42:45	1.720	1.706	795	806	102	101	94		94.5		16576	16776	23.0	178	96	63
03:42:46	1.716	1.702	795	807	102	101		93.9		94	16560	16792		179	96	67
03:42:47	1.720	1.704	799	809	102	101	94		94.8		16592	16800	23.2	180	160	76
03:42:48	1.720	1.704	800	810	102	101		94.0		94	16616	16808		181	160	78
03:42:49	1.720	1.706	801	811	102	101	94		94.8		16592	16776	23.8	182	192	81
03:42:50	1.722	1.706	803	812	102	101		94.0		94	16624	16808		184	224	85
03:42:51	1.718	1.704	803	813	102	101	94		94.8		16584	16784	24.5	185	256	90
03:42:52	1.718	1.704	805	814	102	101		94.0		94	16584	16816		186	288	94
03:42:53	1.718	1.702	806	816	102	101	94		94.9		16600	16792	24.8	187	320	98
03:42:54	1.718	1.702	808	817	102	101		94.1		94	16624	16800		189	352	101
03:42:55	1.722	1.702	811	818	102	101	94		95.1		16680	16752	25.2	191	384	105
03:42:56	1.718	1.702	813	819	102	101		94.1		95	16672	16768		192	448	110
03:42:57	1.720	1.704	814	820	102	101	94		95.1		16648	16760	26.2	193	480	113
03:42:58	1.722	1.702	815	821	102	101		94.2		95	16648	16752		194	512	116
03:42:59	1.720	1.702	815	822	102	101	94		95.2		16664	16760	26.8	195	576	121
03:43:00	1.720	1.704	816	823	102	102		94.2		95	16664	16792		196	608	125
03:43:01	1.720	1.702	817	824	102	102	94		95.2		16648	16784	27.0	197	640	129
03:43:02	1.722	1.706	817	825	102	102		94.2		95	16624	16792		198	704	133
03:43:03	1.720	1.708	817	825	102	102	94		95.2		[illegible]	16784	27.2	[illegible]	768	137
03:43:04	1.722	1.708	[illegible]	826	102	102		94.4		95	16656	16816		198	800	141
03:43:05	1.722	1.708	818	827	102	102	94		95.2		16608	16800	27.2	199	864	145
03:43:06	1.720	1.706	818	827	102	102		94.4		95	16592	16776		199	928	149
03:43:07	1.724	1.708	820	828	102	102	94		95.4		16616	16752	27.0	200	960	153
03:43:08	1.726	1.708	821	829	103	102		94.5		95	16632	16744		201	1024	157
03:43:09	1.722	1.706	820	829	102	102	94		95.4		16584	16752	27.0	201	1088	160
03:43:10	1.700	1.708	819	830	102	102		94.5		95	16400	16776		202	[illegible]	164
03:43:11	1.573	1.675	789	824	96	101	91		92.2		15472	16480	27.0	203	1184	167
03:43:12	1.542	1.632	769	806	93	98		92.2		93	14568	15880		204	1216	170
03:43:13	1.540	1.614	767	798	93	97	89		92.0		13976	15336	27.0	205	1280	173
03:43:14	1.540	1.593	764	789	93	96		90.1		92	13528	14752		205	1312	176

TAB # 6, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, Engine Data

FDR GMT	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N2 Actual - L (% rpm)	N2 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)	Fuel Flow Rate - (pph)	Fuel Flow Rate - (pph)	Total Air Temp (Deg. C)	Ground Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)
03:43:15	1.550	1.583	756	784	93	95	88		91.6		13128	14272	26.8	205	1376	179
03:43:16	1.550	1.569	754	777	93	94		88.9		92	12864	13880		205	1408	181
03:43:17	1.552	1.562	752	772	93	94	88		91.6		12672	13504	26.8	206	1472	184
03:43:18	1.552	1.558	750	768	93	93		88.1		92	12528	13216		206	1504	187
03:43:19	1.550	1.552	749	764	93	93	88		91.5		12416	12992	26.5	207	1536	189
03:43:20	1.550	1.550	748	762	93	93		87.8		92	12344	12752		208	1600	191
03:43:21	1.548	1.544	746	758	93	93	88		91.6		12288	12584	26.2	208	1632	193
03:43:22	1.548	1.544	745	756	93	92		87.5		92	12224	12488		210	1664	195
03:43:23	1.548	1.540	744	754	93	92	88		91.6		12200	12408	26.0	211	1696	197
03:43:24	1.548	1.540	743	752	93	92		87.4		91	12176	12336		212	1728	198
03:43:25	1.548	1.538	743	750	93	92	88		91.5		12176	12272	26.0	214	1760	200
03:43:26	1.546	1.536	742	749	93	92		87.2		91	12136	12240		215	1760	201
03:43:27	1.544	1.534	740	747	93	92	88		91.4		12112	12184	25.8	217	1792	202
03:43:28	1.546	1.536	739	746	92	92		87.1		91	12096	12144		218	1824	204
03:43:29	1.544	1.532	739	745	92	92	87		91.4		12088	12104	25.8	219	1856	206
03:43:30	1.544	1.534	738	744	92	92		87.0		91	12072	12096		219	1888	207
03:43:31	1.542	1.528	738	742	92	92	87		91.2		12048	12056	25.5	220	1920	208
03:43:32	1.546	1.532	736	742	92	92		86.9		91	12016	12064		221	1952	210
03:43:33	1.544	1.532	736	741	92	92	87		91.2		12008	12008	25.5	222	1984	212
03:43:34	1.540	1.530	736	740	92	92		87.0		91	11992	11976		223	2016	213
03:43:35	1.544	1.530	735	739	92	92	87		91.2		11960	11912	25.8	223	2048	215
03:43:36	1.544	1.532	735	739	92	92		86.9		91	11936	11880		224	2080	216
03:43:37	1.544	1.532	734	738	92	92	87		91.2		11920	11888	25.8	225	2112	218
03:43:38	1.544	1.532	734	738	92	92		86.9		91	11912	11848		225	2144	219
03:43:39	1.542	1.532	733	738	92	92	87		91.2		11888	11864	25.8	226	2208	221
03:43:40	1.542	1.532	733	737	92	92		86.9		91	11872	11824		226	2240	223
03:43:41	1.542	1.532	733	737	92	92	87		91.1		11848	11808	25.2	227	2272	224
03:43:42	1.544	1.534	732	737	92	92		86.9		91	11856	11808		227	2304	226
03:43:43	1.542	1.532	732	737	92	92	87		91.2		11824	11792	25.2	227	2336	228
03:43:44	1.542	1.532	732	737	92	92		86.9		91	11824	11808		228	2400	230
03:43:45	1.542	1.532	732	737	92	92	87		91.2		11808	11800	25.2	228	2432	232
03:43:46	1.542	1.534	732	737	92	92		87.0		91	11808	11808		229	2496	234
03:43:47	1.542	1.532	732	737	92	92	87		91.2		11800	11784	25.2	229	2528	236
03:43:48	1.544	1.532	732	737	92	92		87.0		91	11776	11792		229	2560	238
03:43:49	1.542	1.532	732	737	92	92	87		91.2		11768	11744	25.5	229	2624	239
03:43:50	1.542	1.532	731	737	92	92		87.0		91	11744	11704		229	2656	242
03:43:51	1.540	1.532	730	736	92	92	87		91.2		11712	11704	25.5	229	2720	243
03:43:52	1.542	1.530	730	736	92	92		86.9		91	11680	11680		229	2752	245
03:43:53	1.544	1.532	730	735	92	92	87		91.1		11672	11672	25.2	228	2816	247
03:43:54	1.542	1.532	729	735	92	92		86.9		91	11672	11672		228	2880	249
03:43:55	1.542	1.532	729	735	92	92	87		91.1		11632	11688	24.8	227	2912	251
03:43:56	1.542	1.532	729	734	92	92		86.9		91	11592	11632		227	2976	253
03:43:57	1.542	1.534	728	734	92	92	87		91.1		11568	11560	24.5	226	3040	255
03:43:58	1.540	1.530	727	732	92	92		86.8		91	11536	11504		226	3072	257
03:43:59	1.540	1.530	726	732	92	92	87		91.0		11496	11480	24.0	225	3136	259
03:44:00	1.540	1.532	726	732	92	91		86.6		91	11456	11440		225	3168	261
03:44:01	1.540	1.532	725	732	92	92	87		90.9		11400	11384	23.5	224	3232	263
03:44:02	1.538	1.532	724	731	92	92		86.6		91	11368	11336		224	3296	265
03:44:03	1.540	1.530	724	730	92	92	87		90.9		11320	11272	23.2	224	3328	267
03:44:04	1.538	1.530	724	730	92	91		86.6		91	11280	11272		224	3392	268
03:44:05	1.538	1.532	723	730	92	91	87		90.8		11256	11232	23.0	224	3424	270
03:44:06	1.538	1.530	722	729	92	91		86.5		90	11216	11184		224	3488	272
03:44:07	1.536	1.528	722	728	92	91	87		90.8		11184	11168	22.8	224	3520	273
03:44:08	1.536	1.528	721	728	92	91		86.4		90	11144	11160		224	3584	275
03:44:09	1.536	1.526	720	727	92	91	87		90.6		11104	11080	22.5	224	3616	276
03:44:10	1.534	1.526	720	726	91	91		86.2		90	11072	11008		224	3648	278
03:44:11	1.534	1.526	720	726	91	91	86		90.6		11040	10976	22.2	224	3712	279
03:44:12	1.534	1.525	719	726	91	91		86.2		90	11008	10968		225	3744	280
03:44:13	1.534	1.526	718	725	91	91	86		90.6		10984	10976	22.0	225	3776	282
03:44:14	1.532	1.525	718	725	91	91		86.2		90	10960	10952		225	3808	283
03:44:15	1.534	1.525	718	725	91	91	86		90.5		10928	10936	22.0	225	3840	284
03:44:16	1.767	1.761	358	362	91	45		107.6		45	5456	10896		513	1952	143
03:44:17	1.532	1.525	717	724	91	91	86		90.5		10872	10848	21.8	226	3936	287
03:44:18	1.534	1.521	717	723	91	91		86.1		90	10848	10816		225	3968	288
03:44:19	1.532	1.523	716	723	91	91	86		90.5		10816	10808	21.8	225	4032	290
03:44:20	1.530	1.523	716	722	91	91		86.0		90	10776	10792		225	4064	291
03:44:21	1.532	1.523	715	722	91	91	86		90.4		10768	10760	21.5	225	4128	293
03:44:22	1.530	1.523	715	721	91	90		86.0		90	10736	10728		224	4160	294
03:44:23	1.530	1.523	715	721	91	90	86		90.4		10712	10688	21.2	224	4192	295
03:44:24	1.532	1.521	714	721	91	90		86.0		90	10656	10632		224	4256	297
03:44:25	1.530	1.523	714	720	91	90	86		90.4		10632	10608	21.2	223	4288	298
03:44:26	1.530	1.523	714	720	91	90		86.0		90	10624	10592		223	4352	300
03:44:27	1.532	1.523	713	720	91	90	86		90.2		10592	10568	21.0	223	4384	301
03:44:28	1.532	1.523	713	720	91	90		86.0		90	10552	10536		222	4448	302
03:44:29	1.530	1.525	712	719	91	90	86		90.2		10544	10544	20.8	221	4480	304

TAB # 6, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, Engine Data

FDR GMT	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N2 Actual - L (% rpm)	N2 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)	Fuel Flow Rate - L (pph)	Fuel Flow Rate - R (pph)	Total Air Temp (Deg. C)	Ground Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)
03:44:30	1.530	1.523	712	719	91	90		85.9		90	10488	10512		221	4544	305
03:44:31	1.530	1.523	711	718	91	90	86		90.1		10448	10448	20.5	220	4576	307
03:44:32	1.530	1.523	711	718	91	90		85.9		90	10408	10392		219	4640	308
03:44:33	1.528	1.523	710	717	91	90	86		90.1		10384	10376	20.0	219	4704	310
03:44:34	1.528	1.521	709	716	91	90		85.8		90	10328	10352		218	4736	311
03:44:35	1.528	1.521	709	716	91	90	86		90.1		10288	10344	19.8	218	4800	313
03:44:36	1.530	1.521	709	715	91	90		85.6		90	10256	10336		217	4832	314
03:44:37	1.526	1.519	708	715	90	90	86		90.0		10208	10272	19.2	216	4896	315
03:44:38	1.528	1.519	707	714	90	90		85.6		90	10176	10224		216	4928	316
03:44:39	1.528	1.519	707	713	90	90	86		89.9		10152	10184	19.0	215	4992	318
03:44:40	1.526	1.517	706	713	90	90		85.5		90	10104	10120		215	5024	319
03:44:41	1.526	1.517	706	712	90	90	86		89.9		10048	10088	18.8	215	5056	320
03:44:42	1.526	1.519	705	712	90	90		85.5		90	10032	10048		214	5120	321
03:44:43	1.526	1.517	705	711	90	90	86		89.9		10032	10024	18.5	213	5152	323
03:44:44	1.525	1.517	704	711	90	90		85.4		90	10000	10024		213	5216	324
03:44:45	1.526	1.517	704	710	90	90	86		89.8		9960	9968	18.2	212	5248	325
03:44:46	1.526	1.517	703	710	90	90		85.4		90	9936	9936		212	5280	326
03:44:47	1.523	1.515	702	709	90	90	86		89.6		9912	9896	18.0	211	5344	327
03:44:48	1.525	1.517	702	708	90	90		85.2		90	9864	9856		211	5376	328
03:44:49	1.523	1.513	701	707	90	90	86		89.6		9832	9816	17.8	210	5408	329
03:44:50	1.523	1.515	701	707	90	89		85.1		89	9776	9792		210	5472	330
03:44:51	1.523	1.513	700	706	90	89	85		89.6		9760	9736	17.5	209	5504	331
03:44:52	1.523	1.513	700	706	90	89		85.1		89	9744	9744		209	5536	332
03:44:53	1.523	1.513	699	705	90	89	85		89.5		9712	9704	17.2	208	5568	333
03:44:54	1.521	1.511	699	705	90	89		85.0		89	9672	9696		208	5632	334
03:44:55	1.521	1.511	698	704	90	89	85		89.5		9632	9648	17.2	208	5664	336
03:44:56	1.521	1.513	698	704	90	89		85.0		89	9600	9640		207	5696	336
03:44:57	1.521	1.511	697	703	90	89	85		89.4		9592	9616	17.0	207	5728	337
03:44:58	1.521	1.513	697	703	90	89		85.0		89	9552	9584		207	5792	338
03:44:59	1.519	1.511	696	702	90	89	85		89.4		9528	9560	16.8	206	5824	339
03:45:00	1.519	1.513	696	702	90	89		84.9		89	9496	9528		206	5856	340
03:45:01	1.519	1.511	695	701	90	89	85		89.4		9472	9496	16.5	205	5888	341
03:45:02	1.519	1.511	695	701	90	89		84.9		89	9448	9472		205	5920	341
03:45:03	1.519	1.511	695	700	89	89	85		89.4		9424	9464	16.2	205	5952	342
03:45:04	1.519	1.511	695	700	89	89		84.9		89	9408	9464		204	5984	342
03:45:05	1.517	1.509	694	700	89	89	85		89.2		9376	9424	16.0	204	6048	343
03:45:06	1.519	1.509	694	699	89	89		84.8		89	9360	9384		204	6080	344
03:45:07	1.517	1.509	693	699	89	89	85		89.2		9336	9352	15.8	203	6080	344
03:45:08	1.519	1.509	693	698	89	89		84.8		89	9328	9328		203	6112	345
03:45:09	1.517	1.509	692	698	89	89	85		89.1		9288	9328	15.5	203	6144	345
03:45:10	1.517	1.509	692	697	89	89		84.6		89	9264	9280		202	6208	346
03:45:11	1.517	1.507	691	696	89	89	85		89.1		9264	9264	15.2	202	6240	347
03:45:12	1.517	1.507	691	696	89	89		84.6		89	9216	9224		202	6240	347
03:45:13	1.517	1.507	691	695	89	89	85		89.0		9208	9208	15.2	202	6272	347
03:45:14	1.517	1.507	690	696	89	89		84.6		89	9176	9200		202	6304	347
03:45:15	1.517	1.507	690	695	89	89	85		89.0		9176	9192	15.0	201	6336	348
03:45:16	1.515	1.509	690	695	89	89		84.6		89	9144	9168		201	6368	349
03:45:17	1.515	1.507	689	694	89	89	85		89.0		9144	9160	15.0	201	6432	349
03:45:18	1.515	1.509	689	694	89	89		84.6		89	9120	9152		201	6432	350
03:45:19	1.515	1.507	689	694	89	89	85		89.0		9104	9152	14.8	200	6464	350
03:45:20	1.517	1.509	689	694	89	89		84.6		89	9096	9136		200	6496	350
03:45:21	1.513	1.509	688	693	89	89	85		89.0		9080	9120	14.8	200	6528	350
03:45:22	1.515	1.509	688	693	89	89		84.6		89	9072	9112		200	6560	351
03:45:23	1.517	1.507	688	693	89	89	85		89.0		9064	9096	14.8	199	6592	351
03:45:24	1.517	1.507	688	692	89	89		84.6		89	9048	9080		199	6592	351
03:45:25	1.517	1.509	687	692	89	89	85		88.9		9024	9072	14.5	199	6624	352
03:45:26	1.515	1.509	687	692	89	89		84.6		89	9016	9072		199	6656	352
03:45:27	1.517	1.509	687	692	89	89	85		88.9		9008	9024	14.5	199	6688	352
03:45:28	1.515	1.509	687	691	89	89		84.5		89	8992	9016		199	6720	353
03:45:29	1.517	1.509	687	691	89	89	85		88.9		8984	8992	14.2	199	6752	353
03:45:30	1.517	1.507	687	691	89	89		84.5		89	8968	8984		199	6784	353
03:45:31	1.515	1.509	686	691	89	89	85		88.9		8952	8976	14.2	198	6784	352
03:45:32	1.517	1.509	686	690	89	88		84.5		89	8944	8944		198	6816	352
03:45:33	1.517	1.507	686	690	89	88	85		88.9		8928	8920	14.0	198	6848	352
03:45:34	1.517	1.507	686	690	89	88		84.5		89	8912	8936		198	6880	352
03:45:35	1.515	1.507	685	690	89	88	85		88.9		8888	8912	14.0	198	6912	352
03:45:36	1.515	1.509	685	689	89	88		84.5		89	8888	8904		198	6912	351
03:45:37	1.515	1.507	685	689	89	88	85		88.9		8872	8888	13.8	198	6944	350
03:45:38	1.515	1.507	685	689	89	88		84.4		89	8856	8880		198	7008	350
03:45:39	1.515	1.507	685	689	89	88	85		88.8		8840	8864	13.8	198	7040	349
03:45:40	1.517	1.507	685	689	89	88		84.4		89	8840	8856		198	7072	348
03:45:41	1.517	1.507	685	689	89	88	85		88.9		8832	8848	13.8	198	7072	346
03:45:42	1.517	1.507	685	689	89	88		84.5		89	8824	8840		197	7104	345
03:45:43	1.517	1.507	685	689	89	88	85		88.9		8824	8824	13.8	197	7136	344
03:45:44	1.517	1.507	685	689	89	88		84.5		89	8816	8816		197	7168	342

TAB # 6, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Da February 6, 1996, Revised: March 11, 1996, Engine Data

FDR GMT	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N2 Actual - L (% rpm)	N2 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)	Fuel Flow Rate - L (pph)	Fuel Flow Rate - R (pph)	Total Air Temp (Deg. C)	Ground Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)
03:45:45	1.517	1.507	684	689	89	88	85	84.5	88.9	89	8800	8816	13.8	197	7200	341
03:45:46	1.517	1.507	684	689	89	88					8792	8808		197	7232	339
03:45:47	1.513	1.482	684	685	89	88	85	82.2	88.1	86	8736	8592	13.8	197	7232	337
03:45:48	1.423	1.376	663	656	85	82					8232	7848		197	7264	335
03:45:49	1.320	1.263	636	619	78	73	79	71.2	82.2	77	7208	6608	13.8	196	7264	333
03:45:50	1.218	1.177	580	566	67	62					5856	5280		194	7264	330
03:45:51	1.148	1.130	538	538	57	54	64	60.4	74.4	76	4688	4296	13.8	192	7232	327
03:45:52	1.144	1.152	552	527	53	54					4352	4272		189	7232	323
03:45:53	1.210	1.253	622	651	60	64	68	77.4	83.5	89	4728	4944	14.2	188	7168	319
03:45:54	1.400	1.497	695	718	76	83					5992	6520		184	7040	313
03:45:55	1.566	1.546	742	698	91	90	89	86.4	90.9	90	7384	7296	16.2	181	7008	309
03:45:56	1.620	1.585	721	700	94	92					8424	8136		179	7040	306
03:45:57	1.605	1.583	719	701	94	92	90	87.2	91.1	90	9072	8664	17.2	177	7104	305
03:45:58	1.603	1.583	717	702	94	92					9496	9000		176	7072	301
03:45:59	1.605	1.579	719	703	94	92	90	87.1	91.2	90	9816	9256	17.8	175	7104	298
03:46:00	1.614	1.581	718	705	94	92					9928	9424		175	7072	294
03:46:01	1.616	1.579	712	706	94	92	88	87.0	90.8	90	10040	9544	18.0	175	6912	286
03:46:02	1.614	1.575	714	707	94	92					10128	9616		174	6720	277
03:46:03	1.612	1.571	714	707	94	92	88	87.0	90.6	90	10184	9648	19.0	174	6560	269
03:46:04	1.610	1.571	714	708	94	92					10184	9688		174	6560	264
03:46:05	1.608	1.569	713	708	94	92	88	86.9	90.6	90	10224	[illegible]	21.0	174	6560	260
03:46:06	1.608	1.571	714	709	94	92					10240	9768		175	6752	262
03:46:07	1.608	1.573	714	710	94	92	88	86.9	90.6	90	10240	9784	20.5	176	6880	264
03:46:08	1.605	1.567	714	710	94	92					10232	9832		178	6688	255
03:46:09	1.606	1.569	714	710	94	92	88	86.8	90.6	90	10272	9824	19.2	180	6624	248
03:46:10	1.605	1.567	715	711	94	92					10304	9856		181	6720	249
03:46:11	1.603	1.567	716	711	94	92	88	86.8	90.8	90	10336	9880	19.2	183	6688	246
03:46:12	1.603	1.566	716	711	94	92					10352	9904		186	6624	241
03:46:13	1.601	1.566	716	712	94	92	88	86.8	90.8	90	10344	9912	19.0	188	6592	236
03:46:14	1.601	1.564	716	712	94	92					10392	9912		190	6592	234
03:46:15	1.597	1.562	716	712	94	92	88	86.8	90.8	90	10408	10000	19.2	192	6528	230
03:46:16	1.597	1.560	716	712	93	92					10464	10008		195	6464	226
03:46:17	1.597	1.558	716	712	93	92	88	86.6	90.8	90	10488	10040	19.2	197	6432	222
03:46:18	1.593	1.558	716	712	93	92					10504	10040		198	6368	218
03:46:19	1.593	1.556	717	713	93	92	88	86.6	90.8	90	10536	10104	19.5	200	6336	214
03:46:20	1.593	1.556	717	713	93	92					10528	10096		202	6336	214
03:46:21	1.591	1.556	718	713	94	92	88	86.6	90.8	90	10544	10104	19.5	203	6272	210
03:46:22	1.595	1.558	718	714	94	92					10608	10096		204	6240	207
03:46:23	1.599	1.560	721	715	94	92	88	86.6	90.9	90	10648	10104	19.5	205	6240	206
03:46:24	1.591	1.558	719	715	93	90					10672	10168		206	6176	203
03:46:25	1.581	1.517	719	708	90	87	88	86.8	89.9	90	10624	9888	19.2	207	6112	200
03:46:26	1.519	1.458	707	691	85	83					10400	9360		207	6112	200
03:46:27	1.439	1.396	697	672	82	78	85	84.8	88.1	88	9664	8752	19.8	207	6080	199
03:46:28	1.392	1.325	679	652	76	72					8848	7880		207	6048	197
03:46:29	1.308	1.253	638	621	67	62	78	80.8	82.4	85	7744	6736	20.0	205	6016	196
03:46:30	1.212	1.171	586	573	59	56					6304	5432		204	6016	195
03:46:31	1.163	1.146	561	561	56	54	66	71.0	77.1	77	5304	4664	19.2	201	5984	193
03:46:32	1.158	1.144	572	575	56	55					4728	4264		198	5920	190
03:46:33	1.156	1.148	577	578	55	55	65	62.9	77.9	77	4296	3952	20.2	194	5920	189
03:46:34	1.148	1.144	567	571	54	54					3888	3656		191	5888	188
03:46:35	1.140	1.142	554	563	53	54	63	63.8	76.2	77	3560	3464	20.5	185	5824	184
03:46:36	1.138	1.140	553	559	53	54					3384	3320		184	5792	181
03:46:37	1.138	1.138	554	555	53	54	63	63.1	76.2	76	3264	3232	21.5	181	5760	179
03:46:38	1.140	1.140	553	552	53	54					3216	3168		177	5728	177
03:46:39	1.150	1.140	564	549	54	54	64	62.9	77.2	76	3280	3120	21.8	175	5696	174
03:46:40	1.148	1.140	560	546	55	54					3216	3088		173	5664	173
03:46:41	1.140	1.138	547	542	54	54	63	63.0	75.9	76	3120	3056	21.2	171	5600	169
03:46:42	1.136	1.136	542	539	53	53					3072	3032		169	5536	165
03:46:43	1.134	1.136	542	537	52	53	62	62.8	75.8	76	3048	3032	23.0	167	5472	162
03:46:44	1.132	1.136	540	534	52	53					3032	3032		166	5408	159
03:46:45	1.134	1.134	538	531	52	53	62	62.6	75.6	76	3016	3024	23.8	164	5344	155
03:46:46	1.132	1.134	536	529	52	53					3000	3016		163	5280	149
03:46:47	1.130	1.134	535	527	52	53	62	62.5	75.5	76	2984	3024	25.5	161	5216	144
03:46:48	1.130	1.132	532	524	52	53					2968	3024		158	5152	138
03:46:49	1.128	1.136	530	523	51	53	62	62.4	75.2	76	2968	3024	26.5	156	5088	133
03:46:50	1.126	1.134	529	520	51	53					2960	3008		153	5024	127
03:46:51	1.126	1.134	527	518	51	52	62	62.2	75.1	76	2944	3000	27.2	152	4928	122
03:46:52	1.118	1.109	523	499	50	50					2792	2648		149	4864	117
03:46:53	1.093	1.113	493	498	46	48	61	61.8	72.5	74	2600	2840	27.5	147	4800	110
03:46:54	1.109	1.165	535	559	47	55					2960	3552		144	4704	103
03:46:55	1.165	1.310	581	620	54	70	57	60.9	81.1	78	3608	5008	27.8	141	4576	93
03:46:56	1.290	1.603	634	690	68	90					4904	7520		139	4480	85
03:46:57	1.523	1.646	705	708	87	98	65	82.4	93.1	91	7176	9448	26.5	139	4416	83
03:46:58	1.618	1.628	738	711	102	98					9440	10792		141	4448	87
03:46:59	1.251	1.622	794	719	80	100	88	92.4	89.6	93	10296	11688	27.8	143	4352	81

stickshaker

TAB # 6, Bi-genair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident D : February 6, 1996, Revised: March 11, 1996, Eng e Data

FDR GMT	EPR-L (ratio)	EPR-R (ratio)	EGT - L (Deg. C)	EGT - R (Deg. C)	N1 Actual - L (% rpm)	N1 Actual - R (% rpm)	N2 Actual - L (% rpm)	N2 Actual - R (% rpm)	N3 Actual - L (% rpm)	N3 Actual - R (% rpm)	Fuel Flow Rate - (pph)	Fuel Flow Rate - (pph)	Total Air Temp (Deg. C)	Ground Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)
03:47:00	1.111	1.640	921	724	53	99		92.4		93	9312	12304	29.8	142	4160	57
03:47:01	1.102	1.644	896	729	49	98	62		89.9		8152	12736		139	3872	0
03:47:02	1.115	1.644	864	734	50	98		92.0		93	7376	13040	29.5	133	3712	0
03:47:03	1.124	1.638	850	738	51	98	63		90.0		6800	13272		123	3520	0
03:47:04	1.089	1.626	847	744	51	98		91.9		93	6384	13480	30.0	107	3360	0
03:47:05	1.115	1.601	845	748	51	99	63		89.6		6208	13656		81	3296	0
03:47:06	1.083	1.534	846	752	50	101		92.1		93	5960	13808	32.2	65	3232	0
03:47:07	1.085	1.439	846	757	48	104	62		88.8		5784	13984		63	3040	0
03:47:08	1.083	1.478	843	832	48	102		86.0		95	5584	14312	35.0	69	2784	0
03:47:09	1.099	1.474	845	858	48	100	63		88.6		5472	14488		78	2368	0
03:47:10	1.109	1.415	846	873	49	98		91.4		95	5464	14744	36.0	84	2080	0
03:47:11	1.093	1.620	849	832	51	105	64		89.2		5592	14776		87	1696	0
03:47:12	1.117	1.612	854	799	51	100		92.2		93	5608	14696	36.0	89	1312	0
03:47:13	1.124	1.651	857	808	52	101	64		89.8		5792	15104		91	992	0
03:47:14																
03:47:15																
03:47:16																
03:47:17																
03:47:18																
03:47:19																
03:47:20																

FDR Parameter Listing

TAB#8, Birgenair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, IRU and FLT Controls

TAB#8, B[illegible]nair, Flight 301, Boeing 757-200, tc-gen, Puert[illegible]lata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I[illegible] and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:42:19	1.712	70	0	-32	33	0.000 0.000 0.014 0.029	1.06 1.02 1.05 1.00	0.0	80		0.4	0.2	3.0 2.8
03:42:20	1.712	76		-32	32	0.051 0.039 0.035 0.045	0.97 1.07 1.03 0.96		81	-0.4	0.4	0.2	1.7 1.0
03:42:21	1.710	81	0	-32	34	0.063 0.049 0.049 0.039	1.06 0.95 0.96 1.11	0.0	81		0.4	0.2	-1.5 -4.2
03:42:22	1.714	86		-32	34	0.061 0.053 0.018 0.016	1.03 1.04 1.09 1.04		81	-0.5	0.4	0.2	-5.3 -3.4
03:42:23	1.714	91	0	-32	35	0.025 -0.008 -0.028 -0.004	1.00 1.10 1.04 1.11	0.0	81		0.5	0.2	-2.6 -3.3
03:42:24	1.716	96		-32	36	-0.004 0.000 -0.010 -0.008	1.07 0.99 1.03 1.04		80	0.4	0.5	0.3	-1.8 -1.4
03:42:25	1.720	101	0	-32	34	0.008 -0.002 -0.008 0.000	0.90 0.96 1.05 0.94	0.0	80		0.6	0.3	-0.4 0.4
03:42:26	1.718	106		-32	36	0.008 0.025 0.016 0.035	1.03 1.07 1.04 1.00		80	0.1	0.7	0.4	0.6 -0.1
03:42:27	1.720	110	0	-32	36	0.049 0.029 0.033 0.043	1.08 1.08 1.00 1.01	0.0	81		0.7	0.4	-1.4 -2.0
03:42:28	1.716	115		-32	37	0.037 0.041 0.014 0.018	1.06 1.01 1.00 1.00		80	-0.4	0.8	0.4	-2.6 -1.9
03:42:29	1.718	120	0	-32	40	0.018 0.006 0.025 0.012	1.04 1.05 1.06 1.01	0.0	80		0.8	0.4	-0.9 0.3
03:42:30	1.714	125		-32	40	0.012 0.025 0.029 0.025	0.99 [illegible]		80	0.0	0.8	0.4	0.7 -0.2
03:42:31	1.716	129	0	-32	39	0.043 0.039 0.012 0.018	[illegible] 1.03 1.05 1.08	0.0	80		0.9	0.4	-1.8 -0.6
03:42:32	1.720	134		-32	39	0.029 0.014 0.035 0.037	1.00 1.05 1.00 1.05		81	-0.2	0.9	0.4	-0.1 -0.5
03:42:33	1.718	138	0	0	43	0.022 0.016 0.037 0.014	1.04 1.00 0.98 1.01	0.0	80		0.9	0.4	-1.1 -0.4
03:42:34	1.720	142		-32	42	0.006 0.020 0.016 0.027	1.06 0.97 0.95 0.99		81	-0.2	0.9	0.5	0.0 0.3
03:42:35	1.718	147	0	0	43	0.043 0.049 0.025 0.045	1.01 1.00 1.02 1.03	0.0	81		0.9	0.5	-0.2 -0.5
03:42:36	1.718	151		-32	42	0.031 0.051 0.033 0.025	0.96 0.96 0.96 1.00		81	-0.5	1.0	0.6	-1.0 -1.3
03:42:37	1.718	155	0	-32	39	0.025 0.035 0.039	1.00 1.06 1.03	0.0	81		0.9	0.8	-1.1 -0.9

TAB#8, Bi nair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, II and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:42:38	1.718	159		-32	34	0.012 0.029 -0.002 0.012 0.014	0.94 0.97 1.04 1.09 1.00		80	0.0	0.9	0.7	-1.0 -0.7
03:42:39	1.720	163	0	-32	36	0.018 0.012 0.002 0.002	1.00 1.06 1.04 0.99	0.0	80		0.8	0.9	-0.4 0.0
03:42:40	1.716	167		-32	40	0.010 0.004 0.014 0.027	0.99 1.04 1.06 1.08		80	-0.3	0.4	1.1	0.0 -0.1
03:42:41	1.718	170	0	0	45	0.014 0.037 0.020 0.008	1.11 1.13 1.12 1.13	0.0	81		0.4	1.0	-0.2 -0.1
03:42:42	1.718	173		32	51	0.027 0.012 0.022 0.027	1.14 1.16 1.19 1.21		81	-1.2	0.6	0.2	0.1 0.3
03:42:43	1.718	176	0	64	61	0.029 0.025 0.020 0.018	1.24 1.28 1.30 1.33	0.0	81		3.0	-2.2	0.3 0.4
03:42:44	1.718	177		96	64	0.043 0.002 0.025 0.029	1.32 1.27 1.18 1.08		81	-1.8	3.6	-1.7	0.4 0.4
03:42:45	1.720	178	0	96	63	0.018 0.049 0.029 0.018	0.98 0.89 0.86 0.85	0.0	82		3.3	-1.6	0.4 0.4
03:42:46	1.716	179		96	67	0.016 0.018 0.037 0.018	0.88 0.92 0.94 1.02		82	-2.2	3.3	-1.6	0.4 0.4
03:42:47	1.720	180	0	160	76	0.020 0.045 0.035 0.022	1.09 1.13 1.10 1.08	0.0	82		3.0	-0.6	0.4 0.4
03:42:48	1.720	181		160	78	0.008 0.022 0.025 0.025	1.05 1.02 0.97 0.94		82	-2.7	2.1	-0.4	0.4 0.4
03:42:49	1.720	182	0	192	81	0.033 0.035 0.027 0.043	0.93 0.93 0.92 0.92	0.0	82		2.2	-0.2	0.4 0.4
03:42:50	1.722	184		224	85	0.047 0.035 0.029 0.025	0.92 0.92 0.99 1.02		82	-2.8	1.8	0.1	0.4 0.4
03:42:51	1.718	185	0	256	90	0.018 0.008 0.012 0.016	1.02 1.04 1.07 1.05	0.0	82		1.8	0.0	0.4 0.4
03:42:52	1.718	186		288	94	0.027 0.035 -0.008 0.014	1.01 0.96 0.95 0.94		82	-2.6	3.0	-1.1	0.4 0.4
03:42:53	1.718	187	0	320	98	0.014 0.041 0.029 0.039	0.93 0.96 0.99 1.01	312.9	83		4.4	-0.7	0.4 0.4
03:42:54	1.718	189		352	101	0.035 0.043 0.045 0.053	1.00 0.97 0.96 0.96		83	-3.3	1.7	0.6	0.4 0.4
03:42:55	1.722	191	86	384	105	0.055 0.018 0.020 0.016	0.94 0.95 0.97 1.01	248.9	82		2.1	-1.0	0.4 0.5
03:42:56	1.718	192		448	110	0.012 0.008	1.06 1.10		82	-2.0	2.8	-0.5	0.7

TAB#8, B[illegible]nair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I[illegible] and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:42:57	1.720	193	81	480	113	0.020 0.016 0.016 0.016 0.014 0.010	1.13 1.15 1.15 1.17 1.15 1.11	250.3	82		2.0	0.6	0.7 0.5 0.4
03:42:58	1.722	194		512	116	0.020 0.035 0.035 0.029	1.09 1.07 1.06 1.05		82	-1.9	1.2	0.8	0.4 0.4
03:42:59	1.720	195	75	576	121	0.035 0.037 0.029 0.041	1.04 1.04 1.03 1.02	249.6	82		1.7	0.1	0.4 0.4
03:43:00	1.720	196		608	125	0.039 0.033 0.027 0.027	1.01 1.01 1.01 1.01		82	-2.0	2.0	0.1	0.4 0.4
03:43:01	1.720	197	69	640	129	0.025 0.022 0.016 0.020	1.01 1.03 1.04 1.07	250.3	82		2.0	0.2	0.4 0.4
03:43:02	1.722	198		704	133	0.016 0.020 0.014 0.010	1.07 1.05 1.05 1.04		82	-1.4	3.0	-1.1	0.4 0.4
03:43:03	1.720	198	62	768	137	0.008 0.027 0.027 0.027	1.06 1.07 1.06 1.03	250.3	83		2.5	0.2	0.4 0.4
03:43:04	1.722	199		800	141	0.033 0.037 0.035 0.037	1.02 0.98 0.98 0.97		83	-2.0	2.7	-2.2	0.3 0.4
03:43:05	1.722	199	55	864	145	0.035 0.039 0.049 0.027	0.97 0.97 0.97 0.99	248.2	84		4.9	-1.3	0.4 0.4
03:43:06	1.720	200		928	149	0.035 0.033 0.027 0.037	1.03 1.01 1.01 0.98		83	-2.1	2.8	-0.4	0.4 0.4
03:43:07	1.724	201	48	960	153	0.031 0.022 0.016 0.020	0.99 0.97 0.98 [illegible]	248.9	83		2.6	-0.9	0.4 0.5
03:43:08	1.726	201		1024	157	0.012 0.016 0.016 0.025	[illegible] [illegible] [illegible] 0.96		83	-1.4	3.1	0.1	0.4 0.4
03:43:09	1.722	202	41	1088	160	0.027 0.043 0.022 0.022	0.97 0.96 0.95 0.98	247.5	83		3.3	-3.0	0.4 0.4
03:43:10	1.700	203		1120	164	0.037 0.043 0.037 0.041	0.98 0.98 0.97 0.96		83	-2.0	5.2	-2.4	0.4 0.4
03:43:11	1.573	204	36	1184	167	0.047 0.033 0.029 0.014	0.96 0.95 0.94 0.95	244.0	82		4.0	-0.5	0.4 0.4
03:43:12	1.542	204		1216	170	0.004 0.008 0.012 0.004	0.96 0.97 0.96 0.94		81	-1.2	2.5	-0.7	0.5 0.6
03:43:13	1.540	205	29	1280	173	0.018 0.010 -0.006 0.004	0.94 0.94 0.96 1.00	247.5	79		5.7	-2.7	0.4 0.4
03:43:14	1.540	205		1312	176	0.016 0.029 0.041 0.029 0.045	1.02 1.03 1.03 1.02 1.03		79	-1.1	4.6	-1.4	0.3 0.2

TAB#8, Bi[illegible]nair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident [illegible]e: February 6, 1996, Revised: March 11, 1996, I[illegible] and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:43:15	1.550	205	24	1376	179	0.041 0.035 0.043 0.033	1.02 1.01 1.00 1.00	237.0	78		3.1	-0.7	0.2 0.3
03:43:16	1.550	205		1408	181	0.027 0.035 0.022 0.020	1.01 1.01 0.99 0.99		76	-1.5	3.9	-1.4	0.3 0.4
03:43:17	1.552	206	19	1472	184	0.029 0.022 0.025 0.027	0.97 0.98 0.99 1.00	232.0	74		3.6	-0.7	0.4 0.4
03:43:18	1.552	206		1504	187	0.033 0.035 0.035 0.037	1.01 1.02 1.00 1.01		72	-1.2	3.1	-0.6	0.4 0.4
03:43:19	1.550	207	15	1536	189	0.037 0.035 0.041 0.043	1.00 0.99 0.97 0.96	223.6	71		3.1	-0.8	0.4 0.4
03:43:20	1.550	208		1600	191	0.041 0.047 0.035 0.031	0.97 0.97 0.95 0.93		69	-1.6	3.3	-1.3	0.4 0.4
03:43:21	1.548	208	12	1632	193	0.041 0.031 0.029 0.049	0.94 0.95 0.94 0.92	213.8	67		3.9	-1.4	0.4 0.4
03:43:22	1.548	210		1664	195	0.045 0.041 0.029 0.035	0.94 0.97 0.97 0.99		65	-1.5	3.2	-0.7	0.4 0.4
03:43:23	1.548	211	10	1696	197	0.043 0.045 0.035 0.045	1.03 1.03 1.04 1.03	208.1	63		3.2	-0.9	0.4 0.4
03:43:24	1.548	212		1728	198	0.035 0.029 0.029 0.039	1.03 1.03 1.04 1.03		61	-1.3	3.5	-1.2	0.4 0.4
03:43:25	1.548	214	9	1760	200	0.035 0.039 0.045 0.035	1.03 1.03 1.04 1.05	202.5	59		3.0	-0.7	0.4 0.3
03:43:26	1.546	215		1760	201	0.037 0.043 0.041 0.027	1.05 1.05 1.04 1.06		57	-1.5	2.6	-0.3	0.3 0.2
03:43:27	1.544	217	10	1792	202	0.031 0.043 0.035 0.037	1.07 1.09 1.11 1.14	199.0	54		2.3	-0.2	0.3 0.2
03:43:28	1.546	218		1824	204	0.039 0.025 0.029 0.051	1.17 1.18 1.20 1.23		52	-1.2	2.2	-0.1	0.2 0.1
03:43:29	1.544	219	10	1856	206	0.041 0.041 0.033 0.039	1.22 1.24 1.22 1.18	197.6	49		2.0	-0.1	0.0 0.0
03:43:30	1.544	219		1888	207	0.035 0.035 0.027 0.014	1.16 1.10 1.05 1.02		48	-1.6	2.2	1.4	0.0 0.0
03:43:31	1.542	220	10	1920	208	0.031 0.031 0.037 0.022	0.99 0.99 1.02 1.06	176.5	46		-1.4	4.1	0.0 0.2
03:43:32	1.546	221		1952	210	0.016 0.018 0.010 0.031	1.06 1.06 1.06 1.10		44	-2.0	-2.6	4.0	0.3 0.4
03:43:33	1.544	222	9	1984	212	0.029 0.027	1.09 1.07	161.7	43		-1.1	2.5	0.4 0.4

TAB#8, B[illegible]nair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I[illegible] and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:43:34	1.540	223		2016	213	0.033 0.016 0.025 0.029	1.01 0.97 0.97 0.97		42	-2.6	0.1	1.5	0.2 -0.2
03:43:35	1.544	223	11	2048	215	0.033 0.039 0.022 0.010	1.01 1.06 1.03 1.10	141.3	41		0.3	1.3	-0.3 -0.1
03:43:36	1.544	224		2080	216	0.014 0.018 0.012 0.014	1.13 1.12 1.07 1.05		40	-3.3	-0.1	3.9	0.2 0.3
03:43:37	1.544	225	14	2112	218	0.020 0.037 0.016 0.039	1.01 1.02 1.01 1.02	129.4	40		-3.1	4.2	0.4 0.4
03:43:38	1.544	225		2144	219	0.037 0.031 0.033 0.031	0.98 0.98 1.00 1.03		39	-3.8	-2.0	3.6	0.4 0.4
03:43:39	1.542	226	15	2208	221	0.039 0.016 0.057 0.043	1.09 1.06 1.12 1.12	119.5	39		-0.6	0.3	0.4 0.6
03:43:40	1.542	226		2240	223	0.022 0.020 0.006 0.035	1.12 1.08 1.03 1.00		39	-3.9	3.7	-1.9	0.8 0.6
03:43:41	1.542	227	15	2272	224	0.035 0.014 0.031 0.031	0.98 0.94 0.99 1.00	107.6	39		2.6	-0.5	0.4 0.4
03:43:42	1.544	227		2304	226	0.016 0.025 0.025 0.043	1.00 1.00 1.03 1.07		39	-4.1	2.3	0.3	0.3 0.1
03:43:43	1.542	227	17	2336	228	0.022 0.029 0.022 0.035	1.07 1.07 1.06 1.05	99.1	39		-0.4	3.6	0.2 0.4
03:43:44	1.542	228		2400	230	0.063 0.027 -0.002 0.010	1.07 1.03 1.04 1.00		39	-4.2	-2.8	3.7	0.7 1.1
03:43:45	1.542	228	18	2432	232	0.014 0.029 0.016 0.008	1.02	89.3	39		-1.6	2.6	1.0 0.6
03:43:46	1.542	229		2496	234	0.020 0.020 0.008 0.016	1.03 1.03 1.01 0.99		40	-4.4	-1.1	2.5	0.4 0.4
03:43:47	1.542	229	22	2528	236	0.012 0.018 -0.006 0.018	1.02 1.08 1.04 1.03	84.4	41		-0.7	1.5	0.4 0.4
03:43:48	1.544	229		2560	238	0.020 0.018 0.027 0.018	1.01 1.02 1.07 1.10		42	-4.6	0.4	1.1	0.4 0.4
03:43:49	1.542	229	25	2624	239	0.008 0.016 0.020 0.031	1.07 1.06 1.06 1.07	81.6	43		0.5	1.0	0.4 0.4
03:43:50	1.542	229		2656	242	0.027 0.006 0.014 0.033	1.04 1.04 1.02 1.02		44	-4.7	0.3	1.9	0.4 0.4
03:43:51	1.540	229	28	2720	243	0.014 0.010 0.008 0.027	1.01 1.03 1.05 1.04	75.9	46		-0.4	0.5	0.5 0.6
03:43:52	1.542	228		2752	245	0.025 0.020 0.010	1.03 1.05 1.09		47	-4.6	3.1	-1.2	0.5 0.4

TAB#8, B[illegible]nair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I[illegible]and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:43:53	1.544	228	31	2816	247	0.006 0.012 0.043 0.025	1.13 1.11 1.06 1.08	75.9	49		1.8	-0.3	0.4 0.4
03:43:54	1.542	227		2880	249	0.027 0.033 0.025 0.014	1.10 1.09 1.10 1.09		50	-4.6	2.0	-0.5	0.4 0.5
03:43:55	1.542	227	35	2912	251	0.008 0.020 0.025 0.020	1.11 1.10 1.07 1.06	71.0	52		2.5	-2.8	0.4 0.4
03:43:56	1.542	226		2976	253	0.012 0.037 0.033 0.033	1.05 1.04 1.04 1.04		53	-4.2	5.6	-4.4	0.4 0.2
03:43:57	1.542	226	39	3040	255	0.039 0.031 0.041 0.033	1.03 1.02 1.02 1.01	67.5	53		5.9	-1.2	0.2 0.3
03:43:58	1.540	225		3072	257	0.027 0.014 0.018 0.020	0.96 0.96 0.98 1.00		54	-3.5	1.3	1.2	0.6 0.8
03:43:59	1.540	225	42	3136	259	0.018 0.025 0.018 0.020	1.01 1.01 1.00 1.00	63.3	54		0.4	-0.6	0.7 0.5
03:44:00	1.540	225		3168	261	0.025 0.018 0.012 0.016	1.00 0.99 0.98 0.98		55	-3.2	4.0	-2.6	0.4 0.4
03:44:01	1.540	224	47	3232	263	0.029 0.029 0.033 0.027	0.97 0.96 0.96 0.94	62.6	56		4.3	-2.7	0.3 0.3
03:44:02	1.538	224		3296	265	0.031 0.031 0.031 0.031	0.93 0.94 0.94 0.94		56	-3.0	4.1	-1.8	0.3 0.4
03:44:03	1.540	224	51	3328	267	0.027 0.014 0.018 0.027	0.94 0.95 0.97 0.96	60.5	56		1.8	0.2	0.4 0.4
03:44:04	1.538	224		3392	268	0.018 0.022 0.022 0.027	0.95 0.95 0.96 0.97		56	-2.8	2.2	-1.1	0.4 0.4
03:44:05	1.536	224	54	3424	270	0.025 0.022 0.029 0.031	0.98 0.98 1.00 1.00	60.5	57		2.7	-1.2	0.4 0.4
03:44:06	1.538	224		3488	272	0.027 0.025 0.031 0.033	1.01 1.00 0.99 0.98		57	-3.0	2.4	-0.6	0.4 0.4
03:44:07	1.536	224	58	3520	273	0.029 0.022 0.031 0.029	0.98 0.97 0.96 0.95	60.5	57		1.9	-0.4	0.4 0.4
03:44:08	1.536	224		3584	275	0.029 0.027 0.025 0.027	0.94 0.92 0.93 0.93		57	-2.9	1.8	-0.1	0.4 0.4
03:44:09	1.536	224	62	3616	276	0.025 0.020 0.018 0.018	0.94 0.93 0.93 0.93	59.1	57		1.4	0.2	0.4 0.4
03:44:10	1.534	224		3648	278	0.014 0.012 0.012 0.020	0.94 0.94 0.94 0.94		57	-2.6	1.1	0.4	0.4 0.4
03:44:11	1.534	224	65	3712	279	0.025 0.025	0.94 0.93 0.93	59.1	58		1.0	-0.5	0.4

TAB#8, Bi)nair, Flight 301, Boeing 757-200, tc-gen, Puertc]ata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, IK. and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
						0.035 0.025	0.93 0.93						0.4
03:44:12	1.534	225		3744	280	0.029 0.033 0.029 0.031	0.93 0.95 0.97 0.98		58	-2.9	3.3	-1.5	0.4 0.4
03:44:13	1.534	225	67	3776	282	0.029 0.035 0.035 0.039	0.99 0.98 0.96 0.98	60.5	58		2.9	-1.7	0.4 0.4
03:44:14	1.532	225		3808	283	0.033 0.025 0.029 0.035	0.98 1.01 1.02 1.02		58	-2.8	3.4	-1.4	0.4 0.4
03:44:15	1.534	225	69	3840	284	0.027 0.033 0.033 0.029	1.03 1.05 1.03 1.02	58.4	58		2.6	-0.8	0.4 0.4
03:44:16	1.767	513		1952	143	0.029 0.513 0.513 -0.527	1.01 1.01 -1.18 -1.18		57	181.0	1.1	44.4	0.2 0.2
03:44:17	1.532	226	71	3936	287	0.022 0.010 0.027 0.018	1.10 1.03 1.04 1.04	57.0	57		2.5	-0.7	0.4 0.4
03:44:18	1.534	225		3968	288	0.012 0.014 0.025 0.018	1.03 1.05 1.06 1.04		57	-2.3	1.9	-0.6	0.4 0.4
03:44:19	1.532	225	74	4032	290	0.029 0.027 0.027 0.025	1.03 1.02 1.02 1.01	56.2	57		2.3	-0.7	0.4 0.4
03:44:20	1.530	225		4064	291	0.029 0.022 0.025 0.027	1.02 1.03 1.02 1.01		57	-2.6	2.3	-0.6	0.4 0.4
03:44:21	1.532	225	78	4128	293	0.035 0.035 0.039 0.037	1.01 0.99 0.99 0.99	57.0	57		2.0	-0.5	0.4 0.4
03:44:22	1.530	224		4160	294	0.039 0.037 0.033 0.027	1.00 1.02 1.01		57	-2.6	2.5	-1.3	0.4 0.4
03:44:23	1.530	224	81	4192	295	0.035 0.029 0.027 0.022	1.01 1.00	54.8	57		3.1	-1.1	0.4 0.4
03:44:24	1.532	224		4256	297	0.014 0.020 0.018 0.018	1.00 1.01 1.02 1.01		56	-2.0	1.9	0.0	0.4 0.4
03:44:25	1.530	223	84	4288	298	0.027 0.027 0.020 0.018	1.01 1.01 1.01 1.00	53.4	56		1.2	0.4	0.4 0.4
03:44:26	1.530	223		4352	300	0.025 0.031 0.022 0.018	1.00 0.99 1.00 1.02		56	-2.1	1.0	0.2	0.4 0.4
03:44:27	1.532	223	88	4384	301	0.029 0.039 0.012 0.027	1.01 1.01 1.02 1.02	54.1	56		1.6	-0.1	0.4 0.4
03:44:28	1.532	222		4448	302	0.025 0.022 0.025 0.031	1.00 1.02 1.00 1.01		57	-2.5	1.6	-0.1	0.4 0.4
03:44:29	1.530	221	92	4480	304	0.037 0.033 0.025 0.033 0.025	1.01 1.02 1.00 1.01 1.02	54.8	57		1.4	0.1	0.4 0.4

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:44:30	1.530	221		4544	305	0.022 0.016 0.027 0.029	1.02 1.01 1.01 1.02		57	-2.7	1.6	-0.3	0.4 0.4
03:44:31	1.530	220	96	4576	307	0.031 0.027 0.035 0.039	1.01 1.01 1.00 0.99	54.8	57		2.0	-0.5	0.4 0.4
03:44:32	1.530	219		4640	308	0.037 0.022 0.018 0.037	0.98 0.96 0.97 0.97		56	-2.6	2.1	-0.6	0.4 0.4
03:44:33	1.528	219	101	4704	310	0.027 0.012 0.022 0.031	0.95 0.94 0.92 0.94	53.4	56		1.8	0.3	0.4 0.4
03:44:34	1.528	218		4736	311	0.031 0.027 0.022 0.035	0.95 0.98 0.97 0.97		56	-2.2	0.9	0.3	0.4 0.4
03:44:35	1.528	218	104	4800	313	0.027 0.020 0.029 0.033	0.98 1.00 0.99 0.99	52.7	56		1.9	-0.9	0.4 0.4
03:44:36	1.530	217		4832	314	0.025 0.037 0.033 0.025	1.00 1.01 1.00 1.00		56	-2.3	1.8	-0.3	0.4 0.4
03:44:37	1.526	216	108	4896	315	0.031 0.031 0.025 0.020	0.98 0.97 0.96 0.95	52.7	56		2.4	-1.3	0.4 0.4
03:44:38	1.528	216		4928	316	0.012 0.020 0.025 0.018	0.95 0.94 0.95 0.94		56	-2.0	2.6	-0.9	0.4 0.4
03:44:39	1.528	215	113	4992	318	0.016 0.025 0.031 0.031	0.94 0.95 0.96 0.95	52.0	56		1.9	-0.4	0.4 0.4
03:44:40	1.526	215		5024	319	0.029 0.031 0.033 0.035	0.96 0.97 0.99 1.00		56	-2.0	1.7	-0.4	0.4 0.4
03:44:41	1.526	215	116	5056	320	0.020 0.020 0.029 0.029	1.01 1.01 1.01 1.00	52.0	56		2.1	-0.7	0.4 0.4
03:44:42	1.526	214		5120	321	0.022 0.027 0.022 0.033	0.99 0.98 0.97 0.96		56	-1.9	2.1	-0.6	0.4 0.4
03:44:43	1.526	213	120	5152	323	0.031 0.027 0.029 0.031	0.97 0.96 0.95 0.94	51.3	56		2.0	-0.6	0.4 0.4
03:44:44	1.525	213		5216	324	0.029 0.027 0.029 0.027	0.94 0.94 0.94 0.94		56	-1.9	2.2	-0.7	0.4 0.4
03:44:45	1.526	212	124	5248	325	0.029 0.022 0.029 0.022	0.95 0.96 0.97 0.98	51.3	56		2.1	-0.6	0.4 0.4
03:44:46	1.526	212		5280	326	0.025 0.029 0.025 0.029	0.98 0.99 1.00 1.01		56	-1.8	1.8	-0.4	0.4 0.4
03:44:47	1.523	211	126	5344	327	0.022 0.022 0.035 0.027	1.02 1.01 1.00 1.00	51.3	56		1.9	-0.6	0.4 0.4
03:44:48	1.525	211		5376	328	0.031 0.029 0.031	0.99 0.97 0.97		56	-1.8	2.2	-0.7	0.4 0.4

TAB#8, B[illegible]enair, Flight 301, Boeing 757-200, tc-gen, Puert[illegible] [illegible]lata, Dominican Republic
Accident [illegible]ate: February 6, 1996, Revised: March 11, 1996, I[illegible]and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:44:49	1.523	210	130	5408	329	0.029 0.027 0.022 0.029	0.95 0.94 0.94 0.94	51.3	56		2.2	-0.8	0.4 0.4
03:44:50	1.523	210		5472	330	0.027 0.033 0.025 0.029	0.93 0.94 0.95 0.96		56	-1.7	2.3	-0.8	0.4 0.4
03:44:51	1.523	209	133	5504	331	0.035 0.039 0.029 0.033	0.96 0.98 0.99 1.00	50.6	56		2.3	-1.0	0.4 0.4
03:44:52	1.523	209		5536	332	0.029 0.035 0.027 0.027	1.00 1.01 1.01 1.00		56	-1.4	2.6	-1.3	0.4 0.4
03:44:53	1.523	208	136	5568	333	0.020 0.031 0.031 0.025	1.00 0.98 0.97 0.97	49.9	56		2.6	-1.1	0.4 0.4
03:44:54	1.521	208		5632	334	0.020 0.020 0.022 0.020	0.95 0.94 0.94 0.94		56	-1.1	2.4	-0.9	0.4 0.4
03:44:55	1.521	208	140	5664	336	0.027 0.025 0.029 0.022	0.94 0.95 0.96 0.97	49.2	56		2.1	-0.6	0.4 0.4
03:44:56	1.521	207		5696	336	0.025 0.022 0.029 0.027	0.97 0.98 0.99 0.99		56	-1.1	2.0	-0.6	0.4 0.4
03:44:57	1.521	207	142	5728	337	0.025 0.020 0.025 0.020	1.00 1.00 1.00 0.99	49.2	56		2.0	-0.8	0.4 0.4
03:44:58	1.521	207		5792	338	0.018 0.022 0.020 0.027	0.98 0.97 0.97 0.96		56	-1.1	2.3	-1.0	0.4 0.4
03:44:59	1.519	206	146	5824	339	0.027 0.020 0.027 0.027	0.95 0.95 0.94 0.94	49.2	56		2.4	-0.9	0.4 0.4
03:45:00	1.519	206		5856	340	0.029 0.029 0.029 0.033	[illegible]		56	-1.2	2.2	-0.9	0.4 0.4
03:45:01	1.519	205	148	5888	341	0.031 0.031 0.029 0.027	0.95 0.96 0.97 0.97	49.9	56		2 4	-1.1	0.4 0.4
03:45:02	1.519	205		5920	341	0.031 0.029 0.029 0.022	0.98 0.98 0.99 1.00		56	-1.2	2.6	-1.2	0.4 0.4
03:45:03	1.519	205	149	5952	342	0.016 0.018 0.029 0.029	1.00 1.00 1.00 0.99	49.2	56		2.6	-1.2	0.4 0.4
03:45:04	1.519	204		5984	342	0.025 0.022 0.022 0.029	0.98 0.97 0.97 0.96		56	-0.9	2.6	-1.1	0.4 0.4
03:45:05	1.517	204	153	6048	343	0.025 0.027 0.027 0.020	0.96 0.95 0.94 0.94	49.2	56		2.1	-0.6	0.4 0.4
03:45:06	1.519	204		6080	344	0.027 0.031 0.027 0.025	0.94 0.95 0.95 0.96		56	-0.9	2.1	-0.8	0.4 0.4
03:45:07	1.517	203	154	6080	344	0.029 0.027 0.020	0.97 0.98 0.99	48.5	56		2.4	-1.1	0.4 0.4

TAB#8, B' enair, Flight 301, Boeing 757-200, tc-gen, Puerto Plata, Dominican Republic
Accident ate: February 6, 1996, Revised: March 11, 1996, ' and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:45:08	1.519	203		6112	345		56	-0.8	2.5	-1.1	0.4 0.4
03:45:09	1.517	203	156	6144	345	48.5	56		2.4	-1.0	0.4 0.4
03:45:10	1.517	202		6208	346		56	-0.9	2.5	-1.2	0.4 0.4
03:45:11	1.517	202	159	6240	347	48.5	56		2.7	-1.1	0.4 0.4
03:45:12	1.517	202		6240	347		56	-0.8	2.4	-0.9	0.4 0.4
03:45:13	1.517	202	159	6272	347	48.5	56		2.2	-0.8	0.4 0.4
03:45:14	1.517	202		6304	347		56	-1.0	2.2	-1.0	0.4 0.4
03:45:15	1.517	201	161	6336	348	49.2	56		2.5	-1.3	0.4 0.4
03:45:16	1.515	201		6368	349		56	-1.0	2.7	-1.3	0.4 0.4
03:45:17	1.515	201	164	6432	349	49.2	56		2.5	-1.1	0.4 0.4
03:45:18	1.515	201		6432	350		56	-0.9	2.5	-1.1	0.4 0.4
03:45:19	1.515	200	164	6464	350	49.2	56		2.5	-1.1	0.4 0.4
03:45:20	1.517	200		6496	350		56	-0.9	2.5	-1.3	0.4 0.4
03:45:21	1.513	200	165	6528	350	48.5	56		2.7	-1.5	0.4 0.4
03:45:22	1.515	200		6560	351		56	-0.7	2.8	-1.3	0.4 0.4
03:45:23	1.517	199	168	6592	351	48.5	55		2.4	-1.0	0.4 0.4
03:45:24	1.517	199		6592	351		55	-0.6	2.4	-1.1	0.4 0.4
03:45:25	1.517	199	168	6624	352	48.5	55		2.5	-1.1	0.4 0.4
03:45:26	1.515	199		6656	352		55	-0.5	2.5	-1.1	0.4

Lateral Acceleration (g)	Vertical Acceleration (g)
0.025	0.99
0.025	1.00
0.027	1.00
0.029	1.00
0.027	0.99
0.025	0.99
0.027	0.99
0.025	0.97
0.029	0.96
0.033	0.96
0.027	0.95
0.025	0.94
0.025	0.94
0.016	0.93
0.020	0.94
0.025	0.95
0.020	0.95
0.025	0.97
0.027	0.97
0.025	0.98
0.022	0.99
0.020	0.99
0.025	1.00
0.029	1.00
0.029	1.00
0.033	1.01
0.031	1.01
0.020	1.00
0.027	1.00
0.029	0.99
0.025	0.99
0.027	0.98
0.025	0.97
0.025	0.96
0.029	0.96
0.027	0.94
0.020	0.94
0.025	0.94
0.025	0.94
0.027	0.94
0.027	0.95
0.031	0.96
0.025	0.96
0.022	0.97
0.022	0.98
0.025	0.98
0.029	1.00
0.029	1.01
0.029	1.01
0.025	1.01
0.027	1.01
0.031	1.00
0.027	0.99
0.029	0.99
0.022	0.98
0.025	0.98
0.029	0.97
0.027	0.97
0.031	0.96
0.027	0.95
0.022	0.94
0.031	0.94
0.025	0.95
0.029	0.96
0.031	0.96
0.027	0.97
0.022	0.99
0.018	0.99
0.022	1.00
0.025	1.00
0.033	1.00
0.029	1.00
0.025	1.00
0.018	1.00
0.025	0.99

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
						0.025 0.027 0.022	0.98 0.97 0.97						0.4
03:45:27	1.517	199	169	6688	352	0.027 0.025 0.027 0.018	0.96 0.96 0.95 0.95	48.5	55		2.3	-0.7	0.4 0.4
03:45:28	1.515	199		6720	353	0.027 0.029 0.025 0.027	0.94 0.94 0.94 0.95		56	-0.7	2.0	-0.8	0.4 0.4
03:45:29	1.517	199	171	6752	353	0.025 0.027 0.025 0.022	0.95 0.96 0.96 0.98	49.2	56		2.3	-1.0	0.4 0.4
03:45:30	1.517	199		6784	353	0.027 0.027 0.031 0.029	0.98 0.99 0.99 1.00		56	-1.1	2.5	-1.2	0.4 0.4
03:45:31	1.515	198	170	6784	352	0.029 0.027 0.027 0.027	1.00 1.00 1.00 1.00	49.2	56		2.9	-1.7	0.4 0.4
03:45:32	1.517	198		6816	352	0.025 0.025 0.027 0.029	0.99 0.99 0.98 0.98		56	-1.2	3.2	-1.8	0.4 0.4
03:45:33	1.517	198	171	6848	352	0.029 0.033 0.027 0.029	0.97 0.97 0.96 0.96	49.2	56		3.0	-1.6	0.4 0.4
03:45:34	1.517	198		6880	352	0.025 0.031 0.027 0.027	0.95 0.96 0.96 0.97		56	-1.1	3.2	-1.8	0.4 0.4
03:45:35	1.515	198	171	6912	352	0.027 0.027 0.029 0.025	0.98 0.98 0.98 1.00	49.2	56		3.3	-1.8	0.4 0.4
03:45:36	1.515	198		6912	351	0.022 0.027 0.027 0.027	1.00 1.00 1.00 1.00		56	-0.8	3.3	-1.8	0.4 0.4
03:45:37	1.515	198	169	6944	350	0.027 0.027 0.025 0.031	1.00 0.99 0.98	48.5	56		3.1	-1.7	0.4 0.4
03:45:38	1.515	198		7008	350	0.022 0.022 0.029 0.018	[illegible] 0.96 0.95		56	-0.6	3.0	-1.5	0.4 0.4
03:45:39	1.515	198	170	7040	349	0.018 0.020 0.022 0.029	0.94 0.94 0.94 0.95	48.5	56		2.6	-1.1	0.4 0.4
03:45:40	1.517	198		7072	348	0.025 0.025 0.018 0.025	0.95 0.96 0.97 0.98		56	-0.6	2.2	-0.9	0.4 0.4
03:45:41	1.517	198	167	7072	346	0.025 0.025 0.027 0.033	0.98 0.99 0.99 1.00	48.5	56		2.1	-1.0	0.4 0.4
03:45:42	1.517	197		7104	345	0.029 0.027 0.029 0.025	0.99 0.99 0.99 0.99		56	-0.9	2.5	-1.4	0.4 0.4
03:45:43	1.517	197	164	7136	344	0.027 0.020 0.027 0.022	0.98 0.98 0.97 0.97	49.2	56		3.1	-1.9	0.4 0.4
03:45:44	1.517	197		7168	342	0.022 0.022 0.025 0.020	0.97 0.96 0.95 0.95		56	-0.9	3.3	-1.9	0.4 0.4

TAB#8, B enair, Flight 301, Boeing 757-200, tc-gen, Puert lata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I. and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:45:45	1.517	197	163	7200	341	0.029 0.022 0.027 0.027	0.95 0.96 0.96 0.97	49.2	56		3.1	-1.7	0.4 0.4
03:45:46	1.517	197		7232	339	0.027 0.025 0.027 0.027	0.97 0.98 0.98 0.98		56	-0.8	3.0	-1.8	0.4 0.4
03:45:47	1.513	197	160	7232	337	0.022 0.025 0.029 0.027	0.98 0.98 0.98 0.99	48.5	56		3.2	-1.8	0.4 0.4
03:45:48	1.423	197		7264	335	0.027 0.020 0.022 0.022	0.99 0.99 0.99 1.00		55	-0.5	3.2	-1.6	0.4 0.4
03:45:49	1.320	196	156	7264	333	0.022 0.016 0.020 0.016	1.00 1.01 1.02 1.02	47.8	55		2.7	-1.2	0.4 0.4
03:45:50	1.218	194		7264	330	0.018 0.016 0.014 0.014	1.03 1.03 1.04 1.05		55	-0.3	2.2	-0.7	0.4 0.4
03:45:51	1.148	192	151	7232	327	0.012 0.014 0.018 -0.002	1.05 1.05 1.05 1.05	47.8	55		1.8	-0.5	0.4 0.4
03:45:52	1.144	189		7232	323	-0.008 0.039 0.018 0.029	1.04 1.06 1.03 1.01		55	-0.4	1.9	-1.8	0.4 0.4
03:45:53	1.210	188	145	7168	319	0.033 -0.026 -0.024 -0.014	1.01 1.02 1.08 0.97	50.6	57		5.0	-4.3	0.3 0.3
03:45:54	1.400	184		7040	313	0.080 -0.061 0.037 0.092	0.92 1.02 1.00 0.90		58	-2.3	7.1	-5.3	0.3 0.4
03:45:55	1.566	181	137	7008	309	-0.028 -0.073 0.055 0.130	0.89 0.91 0.89 0.88	55.5	60		7.9	-6.1	0.2 0.1
03:45:56	1.620	179		7040	306	0.045 -0.033 -0.065 -0.045	0.88 0.86 0.84 0.88		63	-4.2	8.5	-6.5	-0.1 0.0
03:45:57	1.605	177	145	7104	305	0.004 0.051 0.002 -0.028	0.80 0.90 0.88 0.92	64.7	67		8.8	-6.8	-0.5 -1.5
03:45:58	1.603	176		7072	301	0.041 -0.026 -0.075 0.027	0.94 0.93 0.91 0.66		71	-7.6	10.7	-13.8	-1.9 -2.3
03:45:59	1.605	175	149	7104	298	-0.022 0.012 0.012 -0.016	0.74 0.74 0.78 0.86	75.9	75		19.1	-18.7	-3.2 -3.4
03:46:00	1.614	175		7072	294	-0.026 -0.098 -0.020 0.006	0.84 0.82 0.81 0.77		80	-8.2	20.5	-19.2	-3.7 -4.0
03:46:01	1.616	175	146	6912	286	-0.037 0.010 0.094 0.049	0.80 0.83 0.75 0.77	87.2	85		20.3	-15.0	-3.8 -3.3
03:46:02	1.614	174		6720	277	0.045 0.041 0.061 0.061	0.87 0.92 0.82 0.88		88	-11.1	16.1	-16.1	-3.2 -3.2
03:46:03	1.612	174	129	6560	269	0.082 0.073 0.112	0.80 0.91 0.93	97.0	90		18.3	-16.3	-3.1 -3.3

TAB#8, B enair, Flight 301, Boeing 757-200, tc-gen, Puert Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I. and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:46:04	1.610	174		6560	264	0.169 0.139 0.151 0.189	0.77 0.91 0.80 0.77		91	-11.7	18.2	-12.0	-3.4 -3.4
03:46:05	1.608	174	120	6560	260	0.126 0.224 0.124 0.134	0.79 0.86 0.89 0.91	100.5	92		14.9	-13.6	-3.3 -3.2
03:46:06	1.608	175		6752	262	0.065 0.116 0.065 0.069	0.83 0.74 0.79 0.80		92	-11.0	17.8	-17.2	-2.8 -2.7
03:46:07	1.608	176	123	6880	264	0.073 0.012 0.039 0.096	0.79 0.91 0.87 0.87	97.0	91		19.5	-16.6	-2.4 -1.7
03:46:08	1.605	178		6688	255	0.016 -0.020 0.014 0.041	0.84 0.95 0.93 0.97		90	-6.8	18.2	-12.2	-0.7 -0.3
03:46:09	1.606	180	96	6624	248	-0.051 0.006 -0.033 -0.045	1.04 0.94 0.92 0.91	88.6	88		15.4	-13.7	-0.3 -0.5
03:46:10	1.605	181		6720	249	0.057 0.016 -0.008 -0.069	0.85 0.82 0.83 0.88		87	-1.8	17.8	-12.7	-0.7 -0.9
03:46:11	1.603	183	90	6688	246	-0.033 0.022 0.059 -0.055	0.94 0.96 0.98 0.98	80.2	87		15.0	-13.4	-1.3 -2.7
03:46:12	1.603	186		6624	241	-0.028 0.128 0.171 0.016	1.01 0.96 1.00 1.06		86	0.3	16.6	-13.7	-3.7 -3.7
03:46:13	1.601	188	74	6592	236	-0.122 0.022 0.039 -0.020	1.02 1.05 1.02 0.86	73.8	86		17.6	-16.8	-3.7 -3.9
03:46:14	1.601	190		6592	234	0.055 0.090 0.027 0.000	0.98 1.07 1.00 1.05		84	2.8	18.5	-10.6	-3.9 -3.9
03:46:15	1.597	192	65	6528	230	-0.092 -0.049 -0.024 0.057	1.04 [illegible] [illegible] [illegible]	64.0	82		9.1	-2.2	-3.6 -3.0
03:46:16	1.597	195		6464	226	0.043 -0.037 -0.020 0.033	1.10 1.09 1.22 1.10		81	4.1	0.9	4.5	-2.4 -1.3
03:46:17	1.597	197	52	6432	222	0.031 0.077 -0.055 -0.037	1.04 1.02 1.05 1.06	59.1	80		-4.0	6.5	-0.5 -0.4
03:46:18	1.593	198		6368	218	0.014 -0.014 0.114 0.024	1.22 1.06 1.11 1.14		79	3.7	-2.9	4.0	-0.4 -0.3
03:46:19	1.593	200	39	6336	214	-0.002 0.039 0.035 0.002	1.08 1.14 1.02 1.00	53.4	79		-0.5	2.3	-0.3 -0.2
03:46:20	1.593	202		6336	214	0.016 0.012 0.055 -0.102	1.05 1.06 1.15 1.16		78	2.8	0.9	0.4	-0.4 -0.5
03:46:21	1.591	203	31	6272	210	-0.061 0.002 0.000 -0.053	1.09 1.31 1.18 1.27	52.7	79		3.5	-4.4	-0.5 -0.7
03:46:22	1.595	204		6240	207	0.002 -0.002 0.010	1.08 1.18 1.24		81	1.3	10.8	-10.5	-1.1 -1.6

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:46:23	1.599	205	21	6240	206	-0.035 -0.069 -0.075 0.059	1.14 1.06 1.26 1.28	80.9	85		15.7	-12.4	-2.1 -2.6
03:46:24	1.591	206		6176	203	0.104 0.067 0.004 0.039	1.13 1.24 1.20 1.17		89	-3.4	12.7	-4.3	-2.8 -2.6
03:46:25	1.581	207	20	6112	200	0.022 -0.037 0.092 0.102	1.29 1.18 1.25 1.22	132.2	90		11.3	-9.1	-3.0 -3.2
03:46:26	1.519	207		6112	200	0.130 0.039 0.071 0.122	1.05 1.15 1.25 1.14		87	-2.3	9.8	-2.5	-1.8 -0.4
03:46:27	1.439	207	10	6080	199	0.169 -0.002 -0.055 -0.069	1.09 1.02 1.15 1.22	47.8	82		-1.0	6.7	1.3 1.8
03:46:28	1.392	207		6048	197	0.031 -0.035 0.035 0.090	1.14 1.20 1.23 1.10		77	4.3	-7.3	8.5	1.7 1.8
03:46:29	1.308	205	20	6016	196	0.004 0.075 -0.030 -0.102	1.15 1.14 1.15 1.09	7.0	76		-2.6	0.5	1.9 1.8
03:46:30	1.212	204		6016	195	-0.014 -0.041 -0.094 -0.057	1.02 1.05 0.99 1.10		78	3.4	6.8	-8.9	1.1 -0.2
03:46:31	1.163	201	9	5984	193	0.006 -0.055 0.020 -0.094	1.18 1.19 1.02 1.04	67.5	83		14.1	-9.9	-1.8 -3.4
03:46:32	1.158	198		5920	190	-0.006 0.043 0.126 0.027	0.87 1.03 1.03 1.17		83	-1.5	12.4	-7.8	-4.4 -4.9
03:46:33	1.156	194	12	5920	189	0.112 0.163 0.022 -0.022	0.93 0.90 0.92 0.96	84.4	81		9.2	-2.7	-4.9 -3.7
03:46:34	1.148	191		5888	188	0.059 0.110 0.084 0.049	0.88 0.98 0.87 0.98		75	2.6	-0.5	7.3	-2.3 -0.8
03:46:35	1.140	185	24	5824	184	0.059 0.102 0.118 0.037	1.02 1.03 0.97 0.92	7.7	70		-9.4	17.2	0.7 6.2
03:46:36	1.138	184		5792	181	-0.041 -0.079 -0.030 -0.055	1.01 0.87 0.99 0.92		68	7.8	-19.2	20.1	9.7 9.0
03:46:37	1.138	181	25	5760	179	-0.094 -0.039 0.045 0.132	0.91 0.96 0.89 0.80	16.2	68		-11.8	5.2	7.3 4.8
03:46:38	1.140	177		5728	177	0.055 0.016 0.061 0.104	0.72 0.90 0.86 0.97		70	2.5	0.1	-0.6	2.2 0.7
03:46:39	1.150	175	17	5696	174	0.027 0.014 -0.069 0.006	0.82 0.93 0.88 0.79	67.5	72		5.4	-6.7	0.0 -0.2
03:46:40	1.148	173		5664	173	-0.087 -0.045 -0.022 -0.039	0.77 0.84 0.80 0.86		74	-2.6	12.0	-11.1	-0.1 -0.4
03:46:41	1.140	171	19	5600	169	-0.071 -0.020 0.004	0.83 0.86 0.87	104.8	76		14.6	-12.7	-0.3

TAB#8, E jenair, Flight 301, Boeing 757-200, tc-gen, Puert Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, 1 and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
						0.084 0.016	0.92 0.99						-0.4
03:46:42	1.136	169		5536	165	0.112 0.049 0.041 0.096	0.97 0.82 0.88 0.82		77	-4.5	15.6	-11.6	-1.1 -1.8
03:46:43	1.134	167	18	5472	162	0.106 0.027 -0.043 0.008	0.87 0.86 0.88 0.87	113.2	77		14.6	-10.7	-3.8 -3.5
03:46:44	1.132	166		5408	159	-0.008 0.008 0.039 -0.024	0.83 0.91 0.89 0.98		76	-3.8	11.0	-5.5	-2.6 -2.0
03:46:45	1.134	164	12	5344	155	0.016 0.110 0.008 0.088	0.86 0.87 0.90 0.92	126.6	76		6.3	-4.4	-2.2 -2.1
03:46:46	1.132	163		5280	149	0.059 0.149 0.147 0.041	0.95 0.93 0.95 0.94		76	-4.4	8.5	-7.6	-2.4 -3.5
03:46:47	1.130	161	14	5216	144	0.075 0.080 -0.065 -0.100	0.94 1.00 0.85 0.94	162.4	78		9.6	-5.7	-4.7 -5.1
03:46:48	1.130	158		5152	138	-0.047 -0.043 -0.092 0.002	0.88 0.85 0.88 0.91		80	-7.7	8.3	-8.2	-5.1 -5.7
03:46:49	1.128	156	27	5088	133	0.039 0.039 0.100 0.022	0.84 0.83 0.97 0.96	176.5	83		11.2	-10.5	-6.2 -6.4
03:46:50	1.126	153		5024	127	0.086 0.037 0.112 0.080	0.98 0.98 0.94 0.94		88	-14.5	17.0	-15.7	-7.0 -7.6
03:46:51	1.126	152	45	4928	122	0.027 0.018 0.008 0.025	0.90 0.96 0.97 1.01	182.8	94		20.0	-19.0	-8.7 -9.0
03:46:52	1.118	149		4864	117	-0.020 0.025 0.055 0.010	0.89 0.93 0.89 [illegible]		101	-22.2	20.7	-19.4	-9.6 -13.3
03:46:53	1.093	147	60	4800	110	0.002 0.163 0.084 0.088	[illegible] 1.01 0.89 0.93	195.5	108		20.7	-19.5	-16.9 -16.9
03:46:54	1.109	144		4704	103	0.004 0.084 0.122 0.065	0.94 0.94 0.94 0.92		113	-26.2	20.7	-19.5	-15.5 -15.1
03:46:55	1.165	141	62	4576	93	0.086 0.045 0.071 0.100	0.91 0.82 0.91 0.78	224.3	116		20.7	-19.4	-14.9 -17.0
03:46:56	1.290	139		4480	85	0.031 0.082 -0.030 0.016	0.85 0.94 1.03 0.94		118	-20.4	20.8	-19.3	-17.9 -15.3
03:46:57	1.523	139	50	4416	83	-0.071 -0.126 -0.187 -0.120	1.04 1.14 1.18 1.28	246.8	117		20.8	-15.8	-13.2 -9.6
03:46:58	1.618	141		4448	87	-0.208 -0.234 -0.179 -0.126	1.37 1.42 1.49 1.46		106	-1.5	9.8	7.2	-2.5 4.2
03:46:59	1.251	143	48	4352	81	-0.185 -0.136 -0.018 -0.114 -0.053	1.43 1.48 1.48 1.42 1.39	308.7	89		-14.5	18.9	12.0 20.5

TAB#8, B enair, Flight 301, Boeing 757-200, tc-gen, Puert 'lata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996, I and FLT Controls

FDR GMT	EPR-L (ratio)	Ground Speed (Knots)	Wind Speed (Knots)	Pressure Altitude (feet)	Computed Airspeed (knots)	Lateral Acceleration (g)	Vertical Acceleration (g)	Wind Direction (deg. true)	Magnetic Heading (deg. mag.)	Drift Angle (degrees)	Aileron Posn - L (degrees)	Aileron Posn - R (degrees)	Rudder Posn (degrees)
03:47:00	1.111	142		4160	57	-0.028 -0.114 -0.079 0.018	1.35 1.26 1.24 1.20		74	27.9	-19.9	20.3	26.5 28.4
03:47:01	1.107	139	77	3872	0	0.016 -0.169 -0.079 -0.039	1.20 1.19 1.18 1.27	312.2	63		-20.7	20.5	28.8 26.9
03:47:02	1.115	133		3712	0	-0.061 -0.010 -0.028 0.002	1.31 1.22 1.20 1.29		52	40.4	-20.7	20.6	26.1 19.8
03:47:03	1.124	123	85	3520	0	-0.022 -0.014 -0.012 -0.047	1.25 1.37 1.35 1.42	272.1	67		-20.7	20.6	17.9 14.2
03:47:04	1.089	107		3360	0	-0.022 -0.079 -0.250 -0.175	1.45 1.59 1.53 1.51		169	-70.0	-20.6	20.6	12.2 14.9
03:47:05	1.115	81	82	3296	0	-0.159 -0.167 -0.130 -0.100	1.73 1.63 1.62 1.81	222.9	168		-20.6	20.7	18.0 17.5
03:47:06	1.083	65		3232	0	-0.189 -0.206 -0.173 -0.185	1.75 1.70 1.74 1.75		152	-47.0	-20.5	20.7	15.4 14.7
03:47:07	1.085	63	38	3040	0	-0.236 -0.153 -0.208 -0.220	1.71 1.70 1.72 1.73	159.6	133		-20.4	20.8	14.8 16.6
03:47:08	1.083	69		2784	0	-0.094 -0.138 -0.179 0.075	1.65 1.64 1.61 1.61		114	8.2	-17.4	11.5	17.5 17.6
03:47:09	1.099	78	33	2368	0	-0.122 -0.071 0.124 0.080	1.56 1.45 1.45 1.47	36.6	96		-7.4	9.8	17.8 17.3
03:47:10	1.109	84		2080	0	-0.024 0.035 0.132 0.039	1.38 1.60 1.58 1.50		81	29.2	-9.8	14.2	15.4 14.0
03:47:11	1.093	87	49	1696	0	-0.161 -0.081 -0.051 -0.004	1.51 1.43 1.33 1.40	352.3	67		-6.3	11.7	12.2 12.0
03:47:12	1.117	89		1312	0	0.033 -0.077 -0.096 -0.208	1.25 1.40 1.39 1.42		54	33.1	-15.6	19.3	14.9 16.6
03:47:13	1.124	91	51	992	0	-0.071 -0.136 -0.077 -0.173	1.44 1.58 1.35 1.54	310.1	38		-20.0	20.4	19.4 20.2
03:47:14													
03:47:15													
03:47:16													
03:47:17													
03:47:18													
03:47:19													
03:47:20													

FDR Parameter Listing

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

FDR Subframe Reference Number	Pressure Altitude (feet)	Computed Airspeed (counts)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/P CMD C Enga (1=enga)	Climb Mode Oper (1-oper)	T/O Mode Oper (1-oper)	CAS Flag (1=yes)	Mach Flag (1=enga)	TAT Flag (1=on)	V/S Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	AOA DIG5 (1-norm)	Vert SPD (Inert.) (FT./MIN.)
03:42:00	-64	0		1.109	Lt.	not disc	Off	inoper	oper			off			norm	0
03:42:01	-64	0		1.109		not disc	Off							not enga		0
03:42:02	-64	0	not enga	1.111		not disc	Off			yes	yes		not enga			0
03:42:03	-64	0		1.136		not disc	enga									-32
03:42:04	-64	0		1.154	Lt.	not disc	enga	inoper	oper			on			norm	-32
03:42:05	-64	0		1.179		not disc	Off							not enga		0
03:42:06	-64	0	not enga	1.247		not disc	Off			yes	yes		not enga			0
03:42:07	-64	0		1.359		not disc	Off									0
03:42:08	-64	0		1.482	Lt.	not disc	Off	inoper	oper			off			norm	0
03:42:09	-64	0		1.526		not disc	Off							not enga		0
03:42:10	-64	0	not enga	1.528		not disc	Off			yes	yes		not enga			0
03:42:11	-64	0		1.585		not disc	enga									-32
03:42:12	-64	0		1.702	Lt.	not disc	Off	inoper	oper			off			norm	0
03:42:13	-64	0		1.726		not disc	Off							not enga		0
03:42:14	-64	30	not enga	1.724		not disc	Off			no	yes		not enga			0
03:42:15	-64	31		1.712		not disc	Off									32
03:42:16	-64	32		1.724	Lt.	not disc	Off	inoper	oper			off			norm	0
03:42:17	-64	31		1.718		not disc	Off							not enga		64
03:42:18	-64	32	not enga	1.720		not disc	Off			no	yes		not enga			32
03:42:19	-32	33		1.712		not disc	Off									32
03:42:20	-32	32		1.712	Lt.	not disc	Off	inoper	oper			off			norm	32
03:42:21	-32	34		1.710		not disc	Off							not enga		32
03:42:22	-32	34	not enga	1.714		not disc	Off			no	yes		not enga			32
03:42:23	-32	35		1.714		not disc	Off									64
03:42:24	-32	36		1.716	Lt.	not disc	Off	inoper	oper			off			norm	32
03:42:25	-32	34		1.720		not disc	Off							not enga		32
03:42:26	-32	36	not enga	1.718		not disc	Off			no	yes		not enga			64
03:42:27	-32	36		1.720		not disc	Off									64
03:42:28	-32	37		1.716	Lt.	not disc	Off	inoper	oper			off			norm	32
03:42:29	-32	40		1.718		not disc	Off							not enga		64
03:42:30	-32	40	not enga	1.714		not disc	Off			no	yes		not enga			64
03:42:31	-32	39		1.716		not disc	Off									64
03:42:32	-32	39		1.720	Lt.	not disc	Off	inoper	oper			off			norm	64
03:42:33	0	43		1.718		not disc	Off							not enga		96
03:42:34	-32	42	not enga	1.720		not disc	Off			no	yes		not enga			96
03:42:35	0	43		1.718		not disc	Off									96
03:42:36	-32	42		1.718	Lt.	not disc	Off	inoper	oper			off			norm	128
03:42:37	-32	39		1.718		not disc	Off							not enga		256
03:42:38	-32	34	not enga	1.718		not disc	Off			no	yes		not enga			288
03:42:39	-32	36		1.720		not disc	Off									256
03:42:40	-32	40		1.716	Lt.	not disc	Off	inoper	oper			off			norm	448
03:42:41	0	45		1.718		not disc	Off							not enga		768
03:42:42	32	51	not enga	1.718		not disc	Off			no	yes		not enga			1312
03:42:43	64	61		1.718		not disc	Off									1792
03:42:44	96	64		1.718	Lt.	not disc	Off	inoper	oper			off			norm	1984
03:42:45	96	63		1.720		not disc	Off							not enga		1984
03:42:46	96	67	not enga	1.716		not disc	Off			no	yes		not enga			2048
03:42:47	160	76		1.720		not disc	Off									2112
03:42:48	160	78		1.720	Lt.	not disc	Off	inoper	oper			off			alt	2112
03:42:49	192	81		1.720		not disc	Off							not enga		2048
03:42:50	224	85	not enga	1.722		not disc	Off			no	no		not enga			2048
03:42:51	256	90		1.718		not disc	Off									2080
03:42:52	288	94		1.718	Lt.	not disc	Off	inoper	oper			off			alt	2080
03:42:53	320	98		1.718		not disc	Off							enga		2048
03:42:54	352	101	not enga	1.718		not disc	Off			no	no		not enga			2016
03:42:55	384	105		1.722		not disc	Off									2144
03:42:56	448	110		1.718	Lt.	not disc	Off	inoper	oper			off			alt	2400
03:42:57	480	113		1.720		not disc	Off							enga		2624
03:42:58	512	116	not enga	1.722		not disc	Off			no	no		not enga			2784
03:42:59	576	121		1.720		not disc	Off									2848
03:43:00	608	125		1.720	Lt.	not disc	Off	inoper	oper			off			alt	2944
03:43:01	640	129		1.720		not disc	Off							enga		3072
03:43:02	704	133	not enga	1.722		not disc	Off			no	no		not enga			3168
03:43:03	768	137		1.720		not disc	Off									3296
03:43:04	800	141		1.722	Lt.	not disc	Off	inoper	oper			off			alt	3296
03:43:05	864	145		1.722		not disc	Off							enga		3296
03:43:06	928	149	not enga	1.720		not disc	Off			no	no		not enga			3296
03:43:07	960	153		1.724		not disc	Off									3264
03:43:08	1024	157		1.726	Lt.	not disc	Off	inoper	oper			off			alt	3232
03:43:09	1088	160		1.722		not disc	Off							enga		3200
03:43:10	1120	164	not enga	1.700		not disc	Off			no	no		not enga			3136
03:43:11	1184	167		1.573		not disc	Off									3040
03:43:12	1216	170		1.542	Lt.	not disc	Off	oper	inoper			off			alt	2944
03:43:13	1280	173		1.540		not disc	Off							enga		2912
03:43:14	1312	176	enga	1.540		not disc	Off			no	no		not enga			2848

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

FDR Subframe Reference Number	Pressure Altitude (feet)	Computed Airspeed (counts)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/P CMD C Enga (1=enga)	Climb Mode Oper (1-oper)	T/O Mode Oper (1-oper)	CAS Flag (1=yes)	Mach Flag (1=enga)	TAT Flag (1=on)	V/S Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	AOA DIG5 (1-norm)	Vert SPD (Inert.) (FT./MIN.)
03:43:15	1376	179		1.550		not disc	Off									2784
03:43:16	1408	181		1.550	Lt.	not disc	Off	oper	inoper			off			alt	2688
03:43:17	1472	184		1.552		not disc	Off							enga		2592
03:43:18	1504	187	enga	1.552		not disc	Off			no	no		not enga			2496
03:43:19	1536	189		1.550		not disc	Off									2336
03:43:20	1600	191		1.550	Lt.	not disc	Off	oper	inoper			off			alt	2144
03:43:21	1632	193		1.548		not disc	Off							enga		1920
03:43:22	1664	195	enga	1.548		not disc	Off			no	no		not enga			1728
03:43:23	1696	197		1.548		not disc	Off									1632
03:43:24	1728	198		1.548	Lt.	not disc	Off	oper	inoper			off			alt	1568
03:43:25	1760	200		1.548		not disc	Off							enga		1472
03:43:26	1760	201	enga	1.546		not disc	Off			no	no		not enga			1440
03:43:27	1792	202		1.544		not disc	Off									1504
03:43:28	1824	204		1.546	Lt.	not disc	Off	oper	inoper			off			alt	1696
03:43:29	1856	206		1.544		not disc	Off							enga		1856
03:43:30	1888	207	enga	1.544		not disc	Off			no	no		not enga			1824
03:43:31	1920	208		1.542		not disc	Off									1760
03:43:32	1952	210		1.546	Lt.	not disc	Off	oper	inoper			off			alt	1792
03:43:33	1984	212		1.544		not disc	Off							enga		1824
03:43:34	2016	213	enga	1.540		not disc	Off			no	no		not enga			1760
03:43:35	2048	215		1.544		not disc	Off									1856
03:43:36	2080	216		1.544	Lt.	not disc	Off	oper	inoper			off			alt	1952
03:43:37	2112	218		1.544		not disc	Off							enga		1952
03:43:38	2144	219	enga	1.544		not disc	Off			no	no		not enga			2016
03:43:39	2208	221		1.542		not disc	Off									2240
03:43:40	2240	223		1.542	Lt.	not disc	Off	oper	inoper			off			alt	2304
03:43:41	2272	224		1.542		not disc	Off							enga		2304
03:43:42	2304	226	enga	1.544		not disc	Off			no	no		not enga			2432
03:43:43	2336	228		1.542		not disc	Off									2528
03:43:44	2400	230		1.542	Lt.	not disc	Off	oper	inoper			off			alt	2624
03:43:45	2432	232		1.542		not disc	Off							enga		2656
03:43:46	2496	234	enga	1.542		not disc	Off			no	no		not enga			2688
03:43:47	2528	236		1.542		not disc	Off									2752
03:43:48	2560	238		1.544	Lt.	not disc	Off	oper	inoper			off			alt	2816
03:43:49	2624	239		1.542		not disc	Off							enga		2912
03:43:50	2656	242	enga	1.542		not disc	Off			no	no		not enga			2944
03:43:51	2720	243		1.540		not disc	Off									2944
03:43:52	2752	245		1.542	Lt.	not disc	Off	oper	inoper			off			alt	3040
03:43:53	2816	247		1.544		not disc	Off							enga		3136
03:43:54	2880	249	enga	1.542		not disc	Off			no	no		not enga			3232
03:43:55	2912	251		1.542		not disc	Off									3264
03:43:56	2976	253		1.542	Lt.	not disc	Off	oper	inoper			off			alt	3296
03:43:57	3040	255		1.542		not disc	Off							enga		3264
03:43:58	3072	257	enga	1.540		not disc	Off			no	no		not enga			3264
03:43:59	3136	259		1.540		not disc	Off									3232
03:44:00	3168	261		1.540	Lt.	not disc	Off	oper	inoper			off			alt	3136
03:44:01	3232	263		1.540		not disc	Off							enga		3040
03:44:02	3296	265	enga	1.538		not disc	Off			no	no		not enga			2944
03:44:03	3328	267		1.541		not disc	Off									2880
03:44:04	3392	268		1.538	Lt.	not disc	Off	oper	inoper			off			alt	2848
03:44:05	3424	270		1.536		not disc	Off							enga		2848
03:44:06	3488	272	enga	1.538		not disc	Off			no	no		not enga			2816
03:44:07	3520	273		1.536		not disc	Off									2720
03:44:08	3584	275		1.536	Lt.	not disc	enga	oper	inoper			off			alt	2624
03:44:09	3616	276		1.536		not disc	enga							enga		2496
03:44:10	3648	278	enga	1.534		not disc	enga			no	no		not enga			2400
03:44:11	3712	279		1.534		not disc	enga									2304
03:44:12	3744	280		1.534	Lt.	not disc	enga	oper	inoper			off			alt	2272
03:44:13	3776	282		1.534		not disc	enga							enga		2272
03:44:14	3808	283	enga	1.532		not disc	enga			no	no		not enga			2304
03:44:15	3840	284		1.534		not disc	enga									2400
03:44:16	1952	143		1.767	Rt.	not disc	enga	oper	inoper			off			alt	2432
03:44:17	3936	287		1.532		not disc	enga							enga		2528
03:44:18	3968	288	enga	1.534		not disc	enga			no	no		not enga			2624
03:44:19	4032	290		1.532		not disc	enga									2688
03:44:20	4064	291		1.530	Lt.	not disc	enga	oper	inoper			off			alt	2752
03:44:21	4128	293		1.532		not disc	enga							enga		2784
03:44:22	4160	294	enga	1.530		not disc	enga			no	no		not enga			2816
03:44:23	4192	295		1.530		not disc	enga									2848
03:44:24	4256	297		1.532	Lt.	not disc	enga	oper	inoper			off			alt	2880
03:44:25	4288	298		1.530		not disc	enga							enga		2912
03:44:26	4352	300	enga	1.530		not disc	enga			no	no		not enga			2944
03:44:27	4384	301		1.532		not disc	enga									3008
03:44:28	4448	302		1.532	Lt.	not disc	enga	oper	inoper			off			alt	3040
03:44:29	4480	304		1.530		not disc	enga							enga		3072

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

FDR Subframe Reference Number	Pressure Altitude (feet)	Computed Airspeed (counts)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/P CMD C Enga (1=enga)	Climb Mode Oper (1-oper)	T/O Mode Oper (1-oper)	CAS Flag (1=yes)	Mach Flag (1=enga)	TAT Flag (1=on)	V/S Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	AOA DIG5 (1-norm)	Vert SPD (Inert.) (FT./MIN.)
03:44:30	4544	305	enga	1.530		not disc	enga			no	no		not enga			3104
03:44:31	4576	307		1.530		not disc	enga									3104
03:44:32	4640	308		1.530	Lt.	not disc	enga	oper	inoper			off			alt	3072
03:44:33	4704	310		1.528		not disc	enga							enga		2976
03:44:34	4736	311	enga	1.528		not disc	enga			no	no		not enga			2944
03:44:35	4800	313		1.530		not disc	enga									2944
03:44:36	4832	314		1.526	Lt.	not disc	enga	oper	inoper			off			alt	2944
03:44:37	4896	315		1.528		not disc	enga							enga		2880
03:44:38	4928	316	enga	1.528		not disc	enga			no	no		not enga			2816
03:44:39	4992	318		1.526		not disc	enga									2752
03:44:40	5024	319		1.526	Lt.	not disc	enga	oper	inoper			off			alt	2752
03:44:41	5056	320		1.526		not disc	enga							enga		2752
03:44:42	5120	321	enga	1.526		not disc	enga			no	no		not enga			2688
03:44:43	5152	323		1.525		not disc	enga									2624
03:44:44	5216	324		1.526	Lt.	not disc	enga	oper	inoper			off			alt	2560
03:44:45	5248	325		1.526		not disc	enga							enga		2528
03:44:46	5280	326	enga	1.523		not disc	enga			no	no		not enga			2528
03:44:47	5344	327		1.525		not disc	enga									2528
03:44:48	5376	328		1.523	Lt.	not disc	enga	oper	inoper			off			alt	2496
03:44:49	5408	329		1.523		not disc	enga							enga		2432
03:44:50	5472	330	enga	1.523		not disc	enga			no	no		not enga			2368
03:44:51	5504	331		1.523		not disc	enga									2400
03:44:52	5536	332		1.523	Lt.	not disc	enga	oper	inoper			off			alt	2400
03:44:53	5568	333		1.521		not disc	enga							enga		2368
03:44:54	5632	334	enga	1.521		not disc	enga			no	no		not enga			2304
03:44:55	5664	336		1.521		not disc	enga									2272
03:44:56	5696	336		1.521	Lt.	not disc	enga	oper	inoper			off			alt	2272
03:44:57	5728	337		1.521		not disc	enga							enga		2240
03:44:58	5792	338	enga	1.519		not disc	enga			no	no		not enga			2208
03:44:59	5824	339		1.519		not disc	enga									2144
03:45:00	5856	340		1.519	Lt.	not disc	enga	oper	inoper			off			alt	2080
03:45:01	5888	341		1.519		not disc	enga							enga		2048
03:45:02	5920	341	enga	1.519		not disc	enga			no	no		not enga			2080
03:45:03	5952	342		1.519		not disc	enga									2048
03:45:04	5984	342		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1984
03:45:05	6048	343		1.519		not disc	enga							enga		1952
03:45:06	6080	344	enga	1.517		not disc	enga			no	no		not enga			1920
03:45:07	6080	344		1.519		not disc	enga									1920
03:45:08	6112	345		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1888
03:45:09	6144	345		1.517		not disc	enga							enga		1856
03:45:10	6208	346	enga	1.517		not disc	enga			no	no		not enga			1792
03:45:11	6240	347		1.517		not disc	enga									1760
03:45:12	6240	347		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1760
03:45:13	6272	347		1.517		not disc	enga							enga		1792
03:45:14	6304	347	enga	1.517		not disc	enga			no	no		not enga			1792
03:45:15	6336	348		1.517		not disc	enga									1760
03:45:16	6368	349		1.515	Lt.	not disc	enga	oper	inoper			off			alt	1696
03:45:17	6432	349		1.515		not disc	enga							enga		1664
03:45:18	6432	350	enga	1.515		not disc	enga			no	no		not enga			1632
03:45:19	6464	350		1.515		not disc	enga									1664
03:45:20	6496	350		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1664
03:45:21	6528	350		1.513		not disc	enga							enga		1664
03:45:22	6560	351	enga	1.515		not disc	enga			no	no		not enga			1632
03:45:23	6592	351		1.517		not disc	enga									1600
03:45:24	6592	351		1.517	Lt	not disc	enga	oper	inoper			off			alt	1600
03:45:25	6624	352		1.517		not disc	enga							enga		1600
03:45:26	6656	352	enga	1.515		not disc	enga			no	no		not enga			1600
03:45:27	6688	352		1.517		not disc	enga									1536
03:45:28	6720	353		1.515	Lt.	not disc	enga	oper	inoper			off			alt	1504
03:45:29	6752	353		1.517		not disc	enga							enga		1472
03:45:30	6784	353	enga	1.517		not disc	enga			no	no		not enga			1472
03:45:31	6784	352		1.515		not disc	enga									1504
03:45:32	6816	352		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1472
03:45:33	6848	352		1.517		not disc	enga							enga		1472
03:45:34	6880	352	enga	1.517		not disc	enga			no	no		not enga			1440
03:45:35	6912	352		1.515		not disc	enga									1472
03:45:36	6912	351		1.515	Lt.	not disc	enga	oper	inoper			off			alt	1472
03:45:37	6944	350		1.515		not disc	enga							enga		1472
03:45:38	7008	350	enga	1.515		not disc	enga			no	no		not enga			1440
03:45:39	7040	349		1.515		not disc	enga									1408
03:45:40	7072	348		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1376
03:45:41	7072	346		1.517		not disc	enga							enga		1408
03:45:42	7104	345	enga	1.517		not disc	enga			no	no		not enga			1408
03:45:43	7136	344		1.517		not disc	enga									1376
03:45:44	7168	342		1.517	Lt.	not disc	enga	oper	inoper			off			alt	1344

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

FDR Subframe Reference Number	Pressure Altitude (feet)	Computed Airspeed (counts)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/P CMD C Enga (1=enga)	Climb Mode Oper (1-oper)	T/O Mode Oper (1-oper)	CAS Flag (1=yes)	Mach Flag (1=enga)	TAT Flag (1=on)	V/S Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	AOA DIG5 (1-norm)	Vert SPD (Inert.) (FT./MIN.)
03:45:45	7200	341		1.517		not disc	enga							enga		1344
03:45:46	7232	339	not enga	1.517		not disc	enga			no	no		enga			1344
03:45:47	7232	337		1.513		not disc	enga									1376
03:45:48	7264	335		1.423	Lt.	not disc	enga	oper	inoper			off			alt	1408
03:45:49	7264	333		1.320		not disc	enga							enga		1440
03:45:50	7264	330	not enga	1.218		not disc	enga			no	no		enga			1504
03:45:51	7232	327		1.148		not disc	enga									1568
03:45:52	7232	323		1.144	Lt.	disc	enga	oper	inoper			off			alt	1600
03:45:53	7168	319		1.210		disc	enga							enga		1504
03:45:54	7040	313	not enga	1.400		not disc	enga			no	no		enga			1024
03:45:55	7008	309		1.566		not disc	enga									544
03:45:56	7040	306		1.620	Lt.	disc	enga	oper	inoper			off			alt	64
03:45:57	7104	305		1.605		not disc	enga							enga		-448
03:45:58	7072	301	not enga	1.603		not disc	Off			no	no		enga			-1312
03:45:59	7104	298		1.605		not disc	Off									-2144
03:46:00	7072	294		1.614	Lt.	not disc	Off	oper	inoper			off			alt	-2720
03:46:01	6912	286		1.616		not disc	Off							enga		-3264
03:46:02	6720	277	not enga	1.614		not disc	Off			no	no		enga			-3776
03:46:03	6560	269		1.612		not disc	Off									-4320
03:46:04	6560	264		1.610	Lt.	not disc	Off	oper	inoper			off			alt	-4768
03:46:05	6560	260		1.608		not disc	Off							enga		-5312
03:46:06	6752	262	not enga	1.608		not disc	Off			no	no		enga			-5504
03:46:07	6880	264		1.608		not disc	Off									-5408
03:46:08	6688	255		1.605	Lt.	not disc	Off	oper	inoper			off			alt	-5600
03:46:09	6624	248		1.606		not disc	Off							enga		-5760
03:46:10	6720	249	not enga	1.605		not disc	Off			no	no		enga			-5696
03:46:11	6688	246		1.603		not disc	Off									-5600
03:46:12	6624	241		1.603	Lt.	not disc	Off	oper	inoper			off			alt	-5504
03:46:13	6592	236		1.601		not disc	Off							enga		-5408
03:46:14	6592	234	not enga	1.601		not disc	Off			no	no		enga			-5088
03:46:15	6528	230		1.597		not disc	Off									-4736
03:46:16	6464	226		1.597	Lt.	not disc	Off	oper	inoper			off			alt	-4480
03:46:17	6432	222		1.597		not disc	Off							enga		-4128
03:46:18	6368	218	not enga	1.593		not disc	Off			no	no		enga			-3968
03:46:19	6336	214		1.593		not disc	Off									-3776
03:46:20	6336	214		1.593	Lt.	not disc	Off	oper	inoper			off			alt	-3232
03:46:21	6272	210		1.591		not disc	Off							enga		-2880
03:46:22	6240	207	not enga	1.595		not disc	Off			no	no		enga			-2592
03:46:23	6240	206		1.599		not disc	Off									-2016
03:46:24	6176	203		1.591	Lt.	not disc	Off	oper	inoper			off			alt	-1632
03:46:25	6112	200		1.581		not disc	Off							enga		-1376
03:46:26	6112	200	not enga	1.519		not disc	Off			no	no		enga			-800
03:46:27	6080	199		1.439		not disc	Off									-448
03:46:28	6048	197		1.392	Lt.	not disc	enga	oper	inoper			on			alt	-288
03:46:29	6016	196		1.308		not disc	enga							enga		-32
03:46:30	6016	195	not enga	1.212		not disc	Off			no	no		enga			192
03:46:31	5984	193		1.163		not disc	Off									256
03:46:32	5920	190		1.158	Lt.	not disc	enga	oper	inoper			on			alt	-32
03:46:33	5920	189		1.156		not disc	Off							enga		0
03:46:34	5888	188	not enga	1.148		not disc	Off			no	no		enga			-320
03:46:35	5824	184		1.140		not disc	Off									-832
03:46:36	5792	181		1.138	Lt.	not disc	Off	oper	inoper			off			alt	-1248
03:46:37	5760	179		1.138		not disc	Off							enga		-1568
03:46:38	5728	177	not enga	1.140		not disc	enga			no	no		enga			-2080
03:46:39	5696	174		1.150		not disc	Off									-2400
03:46:40	5664	173		1.148	Lt.	not disc	Off	oper	inoper			off			alt	-2592
03:46:41	5600	169		1.140		not disc	Off							enga		-3040
03:46:42	5536	165	not enga	1.136		not disc	Off			no	no		enga			-3328
03:46:43	5472	162		1.134		not disc	Off									-3584
03:46:44	5408	159		1.132	Lt.	not disc	Off	oper	inoper			off			alt	-3776
03:46:45	5344	155		1.134		not disc	Off							enga		-4000
03:46:46	5280	149	not enga	1.132		not disc	Off			no	no		not enga			-4256
03:46:47	5216	144		1.130		not disc	Off									-4416
03:46:48	5152	138		1.130	Lt.	not disc	Off	oper	inoper			off			alt	-4608
03:46:49	5088	133		1.128		not disc	Off							enga		-4864
03:46:50	5024	127	not enga	1.126		not disc	Off			no	no		not enga			-5120
03:46:51	4928	122		1.126		not disc	Off									-5376
03:46:52	4864	117		1.118	Lt.	not disc	Off	oper	inoper			off			alt	-5824
03:46:53	4800	110		1.093		not disc	Off							enga		-6496
03:46:54	4704	103	not enga	1.109		not disc	Off			no	no		not enga			-7328
03:46:55	4576	93		1.165		not disc	Off									-8128
03:46:56	4480	85		1.290	Lt.	not disc	Off	oper	inoper			off			alt	-8768
03:46:57	4416	83		1.523		not disc	Off							enga		-8896
03:46:58	4448	87	not enga	1.618		not disc	Off			no	no		not enga			-8512
03:46:59	4352	81		1.251		not disc	Off									-8288

TAB #11, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 11, 1996,

FDR Subframe Reference Number	Pressure Altitude (feet)	Computed Airspeed (counts)	V-Nav Mode Oper (1=enga)	EPR-L (ratio)	Capt's ADC Switch (1-norm)	A/T Disconnect (1-disc)	A/P CMD C Enga (1=enga)	Climb Mode Oper (1-oper)	T/O Mode Oper (1-oper)	CAS Flag (1=yes)	Mach Flag (1=enga)	TAT Flag (1=on)	V/S Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	AOA DIG5 (1-norm)	Vert SPD (Inert.) (FT./MIN.)
03:47:00	4160	57		1.111	Lt.	not disc	Off	oper	inoper			off			alt	-8576
03:47:01	3872	0		1.102		not disc	Off							enga		-9504
03:47:02	3712	0	not enga	1.115		not disc	Off			yes	yes		not enga			-11264
03:47:03	3520	0		1.124		not disc	Off									-13408
03:47:04	3360	0		1.089	Lt.	not disc	Off	oper	inoper			off			alt	-15072
03:47:05	3296	0		1.115		not disc	Off							enga		-15840
03:47:06	3232	0	not enga	1.083		not disc	Off			yes	yes		not enga			-15648
03:47:07	3040	0		1.085		not disc	Off									-14880
03:47:08	2784	0		1.083	Lt.	not disc	Off	oper	inoper			off			alt	-14048
03:47:09	2368	0		1.099		not disc	Off							enga		-13312
03:47:10	2080	0	not enga	1.109		not disc	Off			yes	yes		not enga			-12960
03:47:11	1696	0		1.093		not disc	Off									-13056
03:47:12	1312	0		1.117	Lt.	not disc	Off	oper	inoper			off			alt	-13312
03:47:13	992	0		1.124		not disc	Off							enga		-13728
03:47:14																
03:47:15																
03:47:16																
03:47:17																
03:47:18																
03:47:19																
03:47:20																

FDR Parameter Listing

TAB #1a, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 05, 1996,

TAB #1a, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 05, 1996,

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:42:00	-64	0	0	1	1.109	1.087	0	4	-11			not	oper	inoper	not	
03:42:01	-64	0	0	1	1.109	1.089	0		-11		not enga	not				
03:42:02	-64	0	0	0	1.111	1.101	0	4	-11	not		not				not enga
03:42:03	-64	0	0	0	1.136	1.128	0		-11			enga				
03:42:04	-64	0	0	0	1.154	1.138	0	4	-11			enga	oper	inoper	not	
03:42:05	-64	0	0	1	1.179	1.181	0		-11		not enga	not				
03:42:06	-64	0	0	0	1.247	1.261	0	4	-11	not		not				not enga
03:42:07	-64	0	0	68	1.359	1.382	0		-11			not				
03:42:08	-64	0	0	0	1.482	1.489	0	4	-11			not	oper	inoper	not	
03:42:09	-64	0	0	0	1.526	1.493	0		-11		not enga	not				
03:42:10	-64	0	0	0	1.528	1.523	0	4	-11	not		not				not enga
03:42:11	-64	0	0	0	1.585	1.622	1		-10			enga				
03:42:12	-64	0	0	0	1.702	1.696	1	4	-9			not	oper	inoper	enga	
03:42:13	-64	0	0	0	1.726	1.712	1		-9		not enga	not				
03:42:14	-64	30	0	0	1.724	1.716	0	4	-9	not		not				not enga
03:42:15	-64	31	0	0	1.712	1.722	0		-8			not				
03:42:16	-64	32	0	0	1.724	1.716	0	4	-8			not	oper	inoper	enga	
03:42:17	-64	31	0	0	1.718	1.716	0		-8		not enga	not				
03:42:18	-64	32	0	0	1.720	1.712	0	4	-8	not		not				not enga
03:42:19	-32	33	0	0	1.712	1.708	0		-8			not				
03:42:20	-32	32	0	0	1.712	1.712	0	4	-8			not	oper	inoper	enga	
03:42:21	-32	34	0	68	1.710	1.710	1		-8		not enga	not				
03:42:22	-32	34	0	0	1.714	1.714	1	4	-8	not		not				not enga
03:42:23	-32	35	0	0	1.714	1.712	0		-8			not				
03:42:24	-32	36	0	0	1.716	1.712	0	4	-8			not	oper	inoper	enga	
03:42:25	-32	34	0	0	1.720	1.714	0		-8		not enga	not				
03:42:26	-32	36	0	0	1.718	1.714	0	4	-8	not		not				not enga
03:42:27	-32	36	0	0	1.720	1.716	0		-8			not				
03:42:28	-32	37	0	0	1.716	1.714	0	4	-8			not	oper	inoper	enga	
03:42:29	-32	40	0	0	1.718	1.712	0		-8		not enga	not				
03:42:30	-32	40	0	0	1.714	1.714	0	4	-8	not		not				not enga
03:42:31	-32	39	0	0	1.716	1.716	0		-7			not				
03:42:32	-32	39	0	0	1.720	1.714	0	4	-8			not	oper	inoper	enga	
03:42:33	0	43	0	0	1.718	1.712	0		-8		not enga	not				
03:42:34	-32	42	0	0	1.720	1.712	0	4	-8	not		not				not enga
03:42:35	0	43	0	0	1.718	1.710	0		-7			not				
03:42:36	-32	42	1	0	1.718	1.712	2	4	-8			not	oper	inoper	enga	
03:42:37	-32	39	1	0	1.718	1.710	8		-7		not enga	not				

TAB #1a, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident Date: February 6, 1996, Revised: March 05, 1996,

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:42:38	-32	34	3	0	1.718	1.708	8	4	-6	not		not				not enga
03:42:39	-32	36	6	-1	1.720	1.704	8		-4			not				
03:42:40	-32	40	7	-2	1.716	1.704	10	4	-2			not	oper	inoper	enga	
03:42:41	0	45	9	-2	1.718	1.702	11		-1		not enga	not				
03:42:42	32	51	11	-1	1.718	1.702	11	4	-1	not		not				not enga
03:42:43	64	61	13	0	1.718	1.702	6		0			not				
03:42:44	96	64	16	-1	1.718	1.704	0	4	1			not	oper	inoper	enga	
03:42:45	96	63	14	-1	1.720	1.706	4		-3		not enga	not				
3:42:46	96	67	12	-1	1.716	1.702	4	4	-4	not		not				not enga
03:42:47	160	76	14	-1	1.720	1.704	1		-2			not				
03:42:48	160	78	14	-1	1.720	1.704	1	4	-3			not	oper	inoper	enga	
03:42:49	192	81	12	-1	1.720	1.706	2		-4		not enga	not				
03:42:50	224	85	12	0	1.722	1.706	2	4	-4	not		not				not enga
03:42:51	256	90	12	1	1.718	1.704	0		-3			not				
03:42:52	288	94	12	1	1.718	1.704	1	4	-4			not	oper	inoper	enga	
03:42:53	320	98	11	0	1.718	1.702	1		-4		enga	not				
03:42:54	352	101	11	-1	1.718	1.702	1	4	-5	not		not				not enga
03:42:55	384	105	11	1	1.722	1.702	3		-5			not				
03:42:56	448	110	11	1	1.718	1.702	2	4	-4			not	oper	inoper	enga	
03:42:57	480	113	12	1	1.720	1.704	1		-4		enga	not				
03:42:58	512	116	13	0	1.722	1.702	1	4	-4	not		not				not enga
03:42:59	576	121	13	1	1.720	1.702	1		-5			not				
03:43:00	608	125	12	2	1.720	1.704	1	4	-5			not	oper	inoper	enga	
03:43:01	640	129	13	3	1.720	1.702	1		-5		enga	not				
03:43:02	704	133	13	3	1.722	1.706	1	4	-5	not		not				not enga
03:43:03	768	137	14	2	1.720	1.708	0		-5			not				
03:43:04	800	141	13	1	1.722	1.708	0	4	-5			not	oper	inoper	enga	
03:43:05	864	145	13	0	1.722	1.708	0		-5		enga	not				
03:43:06	928	149	13	-1	1.720	1.706	0	4	-6	not		not				not enga
03:43:07	960	153	13	0	1.724	1.708	0		-6			not				
03:43:08	1024	157	12	-1	1.726	1.708	0	4	-6			not	oper	inoper	enga	
03:43:09	1088	160	12	-2	1.722	1.706	0		-6		enga	not				
03:43:10	1120	164	12	-4	1.700	1.708	0	4	-6	not		not				not enga
03:43:11	1184	167	12	-6	1.573	1.675	0		-6			not				
03:43:12	1216	170	11	-7	1.542	1.632	0	4	-6			not	inoper	oper	enga	
03:43:13	1280	173	11	-9	1.540	1.614	1		-6		enga	not				
03:43:14	1312	176	11	-15	1.540	1.593	1	4	-6	enga		not				not enga

#3

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:43:53	2816	247	13	16	1.544	1.530	1		-4		enga	not				
03:43:54	2880	249	13	17	1.542	1.532	1	5	-4	enga		not				not enga
03:43:55	2912	251	13	18	1.542	1.532	1		-4			not				
03:43:56	2976	253	13	15	1.542	1.532	0	5	-4			not	inoper	oper	enga	
03:43:57	3040	255	13	11	1.542	1.534	0		-4		enga	not				
03:43:58	3072	257	13	9	1.540	1.530	0	5	-4	enga		not				not enga
03:43:59	3136	259	14	11	1.540	1.530	0		-4			not				
03:44:00	3168	261	14	10	1.540	1.532	1	5	-4			not	inoper	oper	enga	
3:44:01	3232	263	13	8	1.540	1.532	1		-4		enga	not				
03:44:02	3296	265	13	5	1.538	1.532	1	5	-4	enga		not				not enga
03:44:03	3328	267	13	4	1.540	1.530	1		-4			not				
03:44:04	3392	268	13	4	1.538	1.530	1	5	-4			not	inoper	oper	enga	
03:44:05	3424	270	13	3	1.536	1.532	1		-4		enga	not				
03:44:06	3488	272	13	2	1.538	1.530	1	5	-4	enga		not				not enga
03:44:07	3520	273	13	1	1.536	1.528	1		-4			not				
03:44:08	3584	275	13	2	1.536	1.528	1	5	-4			enga	inoper	oper	enga	
03:44:09	3616	276	12	2	1.536	1.526	1		-4		enga	enga				
03:44:10	3648	278	12	2	1.534	1.526	1	5	-4	enga		enga				not enga
03:44:11	3712	279	12	2	1.534	1.526	1		-4			enga				
03:44:12	3744	280	12	2	1.534	1.525	1	5	-4			enga	inoper	oper	enga	
03:44:13	3776	282	12	1	1.534	1.526	1		-4		enga	enga				
03:44:14	3808	283	12	0	1.532	1.525	1	5	-4	enga		enga				not enga
03:44:15	3840	284	12	-1	1.534	1.525	1		-4			enga				
03:44:16	1952	143	12	179	1.767	1.761	1	6	43			enga	inoper	oper	not	
03:44:17	3936	287	13	-1	1.532	1.525	1		-3		enga	enga				
03:44:18	3968	288	13	-1	1.534	1.521	1	5	-3	enga		enga				not enga
03:44:19	4032	290	13	-1	1.532	1.523	1		-3			enga				
03:44:20	4064	291	13	-1	1.530	1.523	1	5	-3			enga	inoper	oper	enga	
03:44:21	4128	293	13	-1	1.532	1.523	1		-4		enga	enga				
03:44:22	4160	294	14	-1	1.530	1.523	1	5	-3	enga		enga				not enga
03:44:23	4192	295	14	-1	1.530	1.523	1		-3			enga				
03:44:24	4256	297	14	-1	1.532	1.521	1	5	-3			enga	inoper	oper	enga	
03:44:25	4288	298	14	-2	1.530	1.523	1		-3		enga	enga				
03:44:26	4352	300	14	-1	1.530	1.523	1	5	-3	enga		enga				not enga
03:44:27	4384	301	14	-1	1.532	1.523	1		-3			enga				
03:44:28	4448	302	14	-1	1.532	1.523	1	5	-3			enga	inoper	oper	enga	
03:44:29	4480	304	15	-1	1.530	1.525	1		-3		enga	enga				

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:44:30	4544	305	15	-1	1.530	1.523	1	5	-3	enga		enga				not enga
03:44:31	4576	307	15	0	1.530	1.523	1		-3			enga				
03:44:32	4640	308	15	0	1.530	1.523	0	5	-3			enga	inoper	oper	enga	
03:44:33	4704	310	15	0	1.528	1.523	1		-3		enga	enga				
03:44:34	4736	311	15	-1	1.528	1.521	1	5	-3	enga		enga				not enga
03:44:35	4800	313	15	0	1.528	1.521	1		-3			enga				
03:44:36	4832	314	15	0	1.530	1.521	1	5	-3			enga	inoper	oper	enga	
03:44:37	4896	315	15	0	1.526	1.519	1		-3		enga	enga				
03:44:38	4928	316	15	0	1.528	1.519	1	5	-3	enga		enga				not enga
03:44:39	4992	318	15	0	1.528	1.519	1		-3			enga				
03:44:40	5024	319	15	0	1.526	1.517	1	5	-3			enga	inoper	oper	enga	
03:44:41	5056	320	15	0	1.526	1.517	1		-2		enga	enga				
03:44:42	5120	321	15	0	1.526	1.519	1	5	-2	enga		enga				not enga
03:44:43	5152	323	15	0	1.526	1.517	1		-3			enga				
03:44:44	5216	324	15	0	1.525	1.517	1	5	-3			enga	inoper	oper	enga	
03:44:45	5248	325	15	0	1.526	1.517	1		-3		enga	enga				
03:44:46	5280	326	15	0	1.526	1.517	2	5	-2	enga		enga				not enga
03:44:47	5344	327	15	0	1.523	1.515	1		-2			enga				
03:44:48	5376	328	15	0	1.525	1.517	1	5	-2			enga	inoper	oper	enga	
03:44:49	5408	329	15	0	1.523	1.513	1		-2		enga	enga				
03:44:50	5472	330	15	0	1.523	1.515	1	5	-2	enga		enga				not enga
03:44:51	5504	331	15	0	1.523	1.513	1		-2			enga				
03:44:52	5536	332	15	0	1.523	1.513	1	5	-2			enga	inoper	oper	enga	
03:44:53	5568	333	15	0	1.523	1.513	1		-2		enga	enga				
03:44:54	5632	334	15	0	1.521	1.511	1	5	-2	enga		enga				not enga
03:44:55	5664	336	15	0	1.521	1.511	1		-2			enga				
03:44:56	5696	336	15	0	1.521	1.513	1	5	-2			enga	inoper	oper	enga	
03:44:57	5728	337	15	0	1.521	1.511	1		-2		enga	enga				
03:44:58	5792	338	15	0	1.521	1.513	1	5	-2	enga		enga				not enga
03:44:59	5824	339	15	0	1.519	1.511	1		-2			enga				
03:45:00	5856	340	15	0	1.519	1.513	1	5	-2			enga	inoper	oper	enga	
03:45:01	5888	341	15	0	1.519	1.511	1		-2		enga	enga				
03:45:02	5920	341	15	0	1.519	1.511	1	5	-2	enga		enga				not enga
03:45:03	5952	342	15	0	1.519	1.511	1		-1			enga				
03:45:04	5984	342	15	0	1.519	1.511	1	5	-1			enga	inoper	oper	enga	
03:45:05	6048	343	15	0	1.517	1.509	1		-1		enga	enga				
03:45:06	6080	344	15	0	1.519	1.509	1	6	-2	enga		enga				not enga
03:45:07	6080	344	15	0	1.517	1.509	1		-1			enga				

TAB #1a, Birgenair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident D) February 6, 1996, Revised: March 05, 1996,

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:45:08	6112	345	15	0	1.519	1.509	0	6	-1			enga	inoper	oper	enga	
03:45:09	6144	345	15	0	1.517	1.509	0		-1		enga	enga				
03:45:10	6208	346	15	0	1.517	1.509	0	6	-1	enga		enga				not enga
03:45:11	6240	347	15	0	1.517	1.507	1		-1			enga				
03:45:12	6240	347	15	0	1.517	1.507	1	6	-1			enga	inoper	oper	enga	
03:45:13	6272	347	15	0	1.517	1.507	1		-1		enga	enga				
03:45:14	6304	347	15	0	1.517	1.507	0	6	-1	enga		enga				not enga
03:45:15	6336	348	15	0	1.517	1.507	0		-1			enga				
03:45:16	6368	349	15	0	1.515	1.509	0	6	-1			enga	inoper	oper	enga	
03:45:17	6432	349	15	0	1.515	1.507	1		-1		enga	enga				
03:45:18	6432	350	15	0	1.515	1.509	1	6	-1	enga		enga				not enga
03:45:19	6464	350	15	0	1.515	1.507	1		-1			enga				
03:45:20	6496	350	15	0	1.517	1.509	0	6	0			enga	inoper	oper	enga	
03:45:21	6528	350	15	0	1.513	1.509	0		-1		enga	enga				
03:45:22	6560	351	15	0	1.515	1.509	1	6	-1	enga		enga				not enga
03:45:23	6592	351	15	0	1.517	1.507	1		-1			enga				
03:45:24	6592	351	15	0	1.517	1.507	1	6	-1			enga	inoper	oper	enga	
03:45:25	6624	352	15	0	1.517	1.509	1		0		enga	enga				
03:45:26	6656	352	15	0	1.515	1.509	1	6	0	enga		enga				not enga
03:45:27	6688	352	15	0	1.517	1.509	0		-1			enga				
03:45:28	6720	353	15	0	1.515	1.509	1	6	-1			enga	inoper	oper	enga	
03:45:29	6752	353	15	0	1.517	1.509	1		-1		enga	enga				
03:45:30	6784	353	15	0	1.517	1.507	1	6	0	enga		enga				not enga
03:45:31	6784	352	15	0	1.515	1.509	1		0			enga				
03:45:32	6816	352	15	0	1.517	1.509	1	6	0			enga	inoper	oper	enga	
03:45:33	6848	352	15	0	1.517	1.507	1		0		enga	enga				
03:45:34	6880	352	15	0	1.517	1.507	1	6	0	enga		enga				not enga
03:45:35	6912	352	15	0	1.515	1.507	1		0			enga				
03:45:36	6912	351	15	0	1.515	1.509	1	6	0			enga	inoper	oper	enga	
03:45:37	6944	350	15	0	1.515	1.507	1		0		enga	enga				
03:45:38	7008	350	15	0	1.515	1.507	1	6	0	enga		enga				not enga
03:45:39	7040	349	15	-1	1.515	1.507	1		0			enga				
03:45:40	7072	348	15	-1	1.517	1.507	1	6	0			enga	inoper	oper	enga	
03:45:41	7072	346	15	-1	1.517	1.507	1		0		enga	enga				
03:45:42	7104	345	15	0	1.517	1.507	1	6	0	enga		enga				not enga
03:45:43	7136	344	15	0	1.517	1.507	1		0			enga				
03:45:44	7168	342	15	0	1.517	1.507	1	6	0			enga	inoper	oper	enga	

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FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:46:23	6240	206	9	17	1.599	1.560	5		6 5			not				
03:46:24	6176	203	9	16	1.591	1.558	4	10	5 6			not	inoper	oper	not	
03:46:25	6112	200	10	8	1.581	1.517	5		6 7		enga	not				
03:46:26	6112	200	10	-3	1.519	1.458	6	10	6 5	not		not				enga
03:46:27	6080	199	11	-13	1.439	1.396	4		4 4			not				
03:46:28	6048	197	12	-21	1.392	1.325	4	10	5 6			enga	inoper	oper	not	
03:46:29	6016	196	12	-16	1.308	1.253	7		6 6		enga	enga				
03:46:30	6016	195	12	-3	1.212	1.171	7	10	5 5	not		not				enga
03:46:31	5984	193	14	9	1.163	1.146	9		6 7			not				
03:46:32	5920	190	16	8	1.158	1.144	5	10	7 8			enga	inoper	oper	not	
03:46:33	5920	189	15	-3	1.156	1.148	11		8 7		enga	not				
03:46:34	5888	188	14	-18	1.148	1.144	11	10	6 6	not		not				enga
03:46:35	5824	184	15	-31	1.140	1.142	10		8 9			not				
03:46:36	5792	181	14	-33	1.138	1.140	12	10	10 10			not	inoper	oper	not	
03:46:37	5760	179	13	-25	1.138	1.138	13		10 11		enga	not				
03:46:38	5728	177	14	-15	1.140	1.140	9	11	11 11	not		enga				enga
03:46:39	5696	174	13	-6	1.150	1.140	12		11 11			not				
03:46:40	5664	173	9	1	1.148	1.140	15	11	9 9			not	inoper	oper	not	
03:46:41	5600	169	11	5	1.140	1.138	10		9 11		enga	not				
03:46:42	5536	165	11	6	1.136	1.136	12	12	12 12	not		not				enga
03:46:43	5472	162	10	4	1.134	1.136	13		12 12			not				
03:46:44	5408	159	9	0	1.132	1.136	15	13	12 12			not	inoper	oper	not	
03:46:45	5344	155	9	-4	1.134	1.134	16		13 14		enga	not				
03:46:46	5280	149	11	-5	1.132	1.134	17	13	15 16	not		not				not enga
03:46:47	5216	144	12	-5	1.130	1.134	19		17 17			not				
03:46:48	5152	138	11	-4	1.130	1.132	19	14	17 17			not	inoper	oper	not	
03:46:49	5088	133	11	0	1.128	1.136	17		18 18		enga	not				
03:46:50	5024	127	9	6	1.126	1.134	17	15	18 18	not		not				not enga
03:46:51	4928	122	6	15	1.126	1.134	16		18 18			not				
03:46:52	4864	117	2	26	1.118	1.109	17	15	18 18			not	inoper	oper	not	
03:46:53	4800	110	-2	38	1.093	1.113	15		18 18		enga	not				
03:46:54	4704	103	-8	49	1.109	1.165	11	15	17 17	not		not				not enga
03:46:55	4576	93	-15	57	1.165	1.310	10		15 13			not				
03:46:56	4480	85	-15	61	1.290	1.603	11	15	12 12			not	inoper	oper	not	
03:46:57	4416	83	-11	58	1.523	1.646	13		13 14		enga	not				
03:46:58	4448	87	0	39	1.618	1.628	14	15	16 19	not		not				not enga
03:46:59	4352	81	7	8	1.251	1.622	9		21 22 23			not				

TAB #1a, B[illegible]genair, Flight 301, Boeing 757-200, TC-GEN, Puerto Plata, Dominican Republic
Accident D[illegible]: February 6, 1996, Revised: March 05, 1996,

FDR GMT	Pressure Altitude (feet)	Computed Airspeed (knots)	Pitch Attitude (Degrees)	Roll Attitude (Degrees)	EPR-L (ratio)	EPR-R (ratio)	Elevator Posn - R (degrees)	Horizontal Stabilizer (trim units)	Angle of Attack (degrees)	V-Nav Mode Oper (1=enga)	L-Nav Mode Oper (1=enga)	A/P CMD C Enga (1=enga)	T/O Mode Oper (1-oper)	Climb Mode Oper (1-oper)	A/T Engage (1-enga)	V/S Mode Oper (1=enga)
03:47:00	4160	57	1	-21	1.111	1.640	8	15	22 19			not	inoper	oper	not	
03:47:01	3872	0	-15	-44	1.107	1.644	9		17 16		enga	not				
03:47:02	3712	0	-35	-66	1.115	1.644	8	15	16 16	not		not				not enga
03:47:03	3520	0	-57	-100	1.124	1.638	12		15 16			not				
03:47:04	3360	0	-80	169	1.089	1.626	14	15	18 20			not	inoper	oper	not	
03:47:05	3296	0	-70	67	1.115	1.601	15		21 23		enga	not				
03:47:06	3232	0	-47	46	1.083	1.534	19	15	24 26	not		not				not enga
03:47:07	3040	0	-30	26	1.085	1.439	21		26 27			not				
03:47:08	2784	0	-19	8	1.083	1.478	23	15	27 26			not	inoper	oper	not	
03:47:09	2368	0	-18	-9	1.099	1.474	30		25 25		enga	not				
03:47:10	2080	0	-21	-20	1.109	1.415	31	15	25 24	not		not				not enga
03:47:11	1696	0	-25	-29	1.093	1.620	27		23 21			not				
03:47:12	1312	0	-30	-34	1.117	1.612	23	15	20 18			not	inoper	oper	not	
03:47:13	992	0	-34	-35	1.124	1.651	21		18		enga	not				
03:47:14																
03:47:15																
03:47:16																
03:47:17																
03:47:18																
03:47:19																
03:47:20																

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE	CONTENT	TIME and SOURCE	CONTENT
>0259:43 {00:05}	start of recording.		
>0300:10 {00:32} CAM-2	should we perform some checklist.		
>0300:13 {00:35} CAM-1	up to starting nothing missing however.		
>0300:36 {00:58} CAM-2	before start checklist, gear pins.		
>0300:37 {00:59} CAM-1	three removed onboard.		
>0300:40 {01:02} CAM-2	oxygen mask.		
>0300:41 {01:03} CAM-1	checked.		
>0300:42 {01:04} CAM-2	passenger sign.		
>0300:44 {01:06} CAM-1	on.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0300:46 {01:08} CAM-2	flight instruments.		
>0300:48 {01:10} CAM-1	set one zero one seven		
>0300:51 {01:13} CAM-2	one zero one seven.		
>0300:52 {01:14} CAM-1	airspeed bugs.		
>0300:53 {01:15} CAM-1	set on the left.		
>0300:55 {01:17} CAM-2	set right.		
>0300:56 {01:18} CAM-2	CDU.		
>0300:57 {01:19} CAM-1	set.		
>0300:58 {01:20} CAM-2	takeoff thrust reference.		
>0301:01 {01:23}			

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
CAM-1	no deration climb one.		
>0301:04 {01:26} CAM-2	parking brake.		
>0301:04 {01:26} CAM-1	set pressure.		
>0301:06 {01:28} CAM-2	fuel control.		
>0301:07 {01:29} CAM-1	cutout.		
>0301:08 {01:30} CAM-2	weight and balance and fuel load.		
>0301:09 {01:31} CAM-1	onboard, fifty five thousand.		
>0301:12 {01:34} CAM-2	before start checklist complete to the line.		
>0301:15 {01:37} CAM-1	okay thank you.		
>0301:15	{01:37}((28 minutes and 6 seconds of general conversation		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0330:14 {30:36} CAM-4	some one from operations came and said that there areone hundred seventy six passengers on board, one extra he should take a boarding ticket, he found the seat number, for this reason he entered the cabin and he is taking it now..		
>0330:23 {30:45} HOT-1	okay okay.		
>0330:31 {30:53} HOT-1	there is an excess passenger (sound of laugh).		
>0330:33 {30:55} HOT-2	let it be excess not missing.		
>0330:35 {30:57} HOT-1	let it be excess not missing.		
>0330:40 {31:02} HOT-1	okay we started, we canceled. I think it will be three thirty five.		
>0330:53 {31:15} HOT-1	isn't there anything.		
>0330:55 {31:17} HOT-3	no.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0331:24 {31:46} HOT-2	shall I open the packs again it's becoming warm?		
>0331:26 {31:48} HOT-1	open open.		
>0331:28 {31:50} HOT-2	it becomes hot all of a sudden.		
>0331:30 {31:52} HOT-1	it becomes hot all of a sudden.		
>0331:32 {31:54} HOT-2	be we can do something during start.		
>0331:53 {32:15} HOT-1	(sound of whistling).		
>0331:58 {32:20} HOT-1	door has been closed		
>0331:59 {32:21} HOT-2	the door has been closed.		
>0332:08 {32:30} HOT-1	yes three thirty two how ever three thirty is still valid.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0332:10 HOT-2	{32:32} three thirty is still valid.		
>0332:12 HOT-1	{32:34} hello - hello.		
>0332:21 INT-5	{32:43} go ahead captain Ahmet.		
>0332:22 INT-1	{32:44} okay Hakan, I have my push back clearance Brakes are released, to push, runway zero eight to west.		
>0332:30 HOT-2	{32:52} four fifteen - thirty - three.		
>0332:38 HOT-1	{33:00} right engine.		
>0332:40 INT-5	{33:02} right engine is clear.		
>0332:41 HOT-1	{33:03} okay right hand engine please.		
>0332:45	{33:07}		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	CONTENT	TIME and SOURCE	CONTENT
HOT-2	valve open.		
>0332:50 {33:12} HOT-1	N- three.		
>0332:57 {33:19} HOT-1	oil pressure.		
>0333:00 {33:22} HOT-1	N- two.		
>0333:03 {33:25} HOT-1	N-one.		
>0333:04 {33:26} HOT-1	fuel, flow normal.		
>0333:06 {33:28} HOT-2	time.		
>0333:10 {33:32} HOT-1	light up, six seconds.		
>0333:19 {33:41} CAM	((sound of momentary power interruption to CVR)).		
>0333:20 {33:42}			

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE	CONTENT
HOT-1	forty six, good.
>0333:23 {33:45} INT-1	left engine.
>0333:23 {33:45} INT-5	*.
>0333:25 {33:47} HOT-2	clear.
>0333:26 {33:48} HOT-1	left engine.
>0333:28 {33:50} HOT-2	open.
>0333:35 {33:57} HOT-1	N-three
>0333:37 {33:59} INT-5	N-one
>0333:38 {34:00} INT-1	okay.
>0333:39 {34:01} HOT-1	oil pressure.

AIR-GROUND COMMUNICATION

TIME and SOURCE	CONTENT

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0333:42 {34:04} HOT-1	N-two.		
>0333:43 {34:05} HOT-1	N-one.		
>0333:45 {34:07} HOT-1	fuel.		
>0333:48 {34:10} HOT-1	flow normal.		
>0333:52 {34:14} HOT-1	light up.		
>0333:54 {34:16} HOT-1	five seconds.		
>0334:00 {34:22} HOT-1	forty, six, closed.		
>0334:06 {34:28} HOT-2	valve's, closed		
>0334:08 {34:30} HOT-2	APU off.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0334:09 HOT-1	{34:31} okay after start.		
>0334:10 HOT-2	{34:32} bleed air.		
>0334:13 HOT-1	{34:35} isolation.		
>0334:14 HOT-2	{34:36} isolation.		
>0334:15 HOT-1	{34:37} isolation off.		
>0334:16 HOT-1	{34:38} keep on order.		
>0334:17 HOT-2	{34:39} yes.		
>0334:18 HOT-1	{34:40} from here.		
>0334:19 HOT-1	{34:41} engine anti-ice, bleed is on, isolation's off then wewill go up.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0334:25 HOT-2	{34:47} recall.		
>0334:27 HOT-1	{34:49} there is nothing like center bleed on this aircraft don't believe it.		
>0334:28 HOT-2	{34:50} okay sir.		
>0334:34 HOT-2	{34:56} after start, APU selector.		
>0334:36 HOT-1	{34:58} off.		
>0334:37 HOT-2	{34:59} engine anti-ice.		
>0334:39 HOT-1	{35:01} off.		
>0334:40 HOT-2	{35:02} bleed air switch.		
>0334:40	{35:02}		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
HOT-1	high.		
>0334:41 {35:03} HOT-2	isolation.		
>0334:41 {35:03} HOT-1	off.		
>0334:42 {35:04} HOT-2	air conditioning packs.		
>0334:43 {35:05} HOT-1	auto.		
>0334:44 {35:06} HOT-2	recall.		
>0334:45 {35:07} HOT-1	recall.		
>0334:45 {35:07} HOT-2	secondary engine displays.		
>0334:47 {35:09} HOT-1	on.		
>0334:47 {35:09}			

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
HOT-2	after start completed.		
>0334:49 {35:11} HOT-1	thank you.		
>0334:54 {35:16} HOT-1	flaps fifteen.		
>0334:55 {35:17} HOT-2	flaps to fiftee n		
>0334:56 {35:18} CAM	((sound of flap handle being moved)).		
>0335:19 {35:41} CAM	((sound of windshield wipers start)).		
>0335:38 {36:00} INT-5	brakes set.		
>0335:40 {36:02} HOT-1	parking brakes set.		
>0336:14 {36:36} INT-5	* have a nice flight.		
>0336:19 {36:41} HOT-1	thanks have a nice day.		

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE | **CONTENT**

>0336:24 {36:46}
HOT-1 let's ask for taxi.

>0336:25 {36:47}
HOT-2 yes.

>0336:42 {37:04}
HOT-2 right side is clear.

>0336:53 {37:15}
HOT-1 taxi checklist please.

>0336:54 {37:16}
HOT-2 taxi checklist.

AIR-GROUND COMMUNICATION

TIME and SOURCE | **CONTENT**

>0336:55 {36:47}
RDO-2 Puerto Plata alpha lima whiskey three zero one request taxi.

>0337:05 {36:57}
TWR three zero one cleared to taxi and backtrack runway zero eight.

>0337:09 {37:01}
RDO-2 cleared to taxi and backtrack runway zero eight three zero one.

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	CONTENT	TIME and SOURCE	CONTENT
>0336:58 HOT-2	{37:20} flaps.		
>0336:59 HOT-1	{37:21} fifteen fifteen.		
>0337:00 HOT-2	{37:22} fifteen, takeoff briefing.		
>0337:01 HOT-1	{37:23} standard left hand seat takeoff.		
>0337:04 HOT-2	{37:26} NCP panel setting.		
>0337:06 HOT-1	{37:28} initially thirty three thousand set.		
>0337:09 HOT-2	{37:31} thirty three thousand okay taxi checklist completed.		
>0337:14 HOT-1	{37:36} LNAV, climb thrust one thousand feet VNAV, if if otherwise directed.		
>0337:21 HOT-2	{37:43} okay.		

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE	CONTENT
>0337:26 {37:48} HOT-1	sometimes he says runway heading, at that time you do heading select according to the clearance.
>0337:28 {37:50} HOT-2	okay.
>0337:37 {37:59} HOT-1	lets operate that and see what we have in front of us.
>0338:29 {38:51} HOT-1	white anti-collision on.
>0338:31 {38:53} HOT-2	okay white anti-collision on.

AIR-GROUND COMMUNICATION

TIME and SOURCE	CONTENT
>0339:05 {38:57} TWR	three zero one ATC clearance.
>0339:09 {39:01} RDO-2	three zero one go ahead sir.
>0339:12 {39:04} TWR	three zero one you're cleared by Santo Domingo to your destination flight plan route climb to and maintain flightlevel two eight zero climb on course..

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
		>0339:23 {39:15} RDO-2	three zero one cleared to destination flight plan route climb and maintain two eight zero on course three zero one.
>0339:02 {39:24} HOT-2	doesn't he give squawk from here.		
>0339:04 {39:26} HOT-1	excuse me.		
>0339:05 {39:27} HOT-2	doesn't he give squawk from here or will he give later.		
>0339:06 {39:28} HOT-1	he will give later.		
>0339:08 {39:30} HOT-2	Santo Domingo.		
>0339:09 {39:31} HOT-1	after takeoff from two thousand, as we change to approach control he will give it.		
>0339:13 {39:35} HOT-2	okay.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0339:16 {39:38} HOT-1	then as we talked before as soon as after takeoff, LNAV.		
>0339:19 {39:41} HOT-2	LNAV.		
>0339:20 {39:42} HOT-1	one thousand climb thrust VNAV.		
>0339:21 {39:43} HOT-2	climb thrust VNAV.		
>0339:26 {39:48} PA-?	((sound of female flight attendant making a cabin announcement in German)).		
>0340:15 {40:37} CAM-4	have a nice flight.		
>0340:16 {40:38} HOT-1	thank you.		
>0340:34 {40:56} HOT-1	before takeoff checks please.		
>0340:35 {40:57} HOT-2	okay.		

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE	CONTENT
>0340:40 {41:02} PA-2	cabin crew take your seats for takeoff.
>0340:48 {41:10} HOT-2	cabin announcement is completed, exterior lights.
>0340:52 {41:14} HOT-1	checked.
>0340:53 {41:15} HOT-2	set, transponder is on.
>0340:55 {41:17} HOT-1	okay.
>0340:55 {41:17} HOT-2	before takeoff checklist's completed.
>0340:57 {41:19} HOT-1	thank you.
>0341:14 {41:36} HOT-1	ready for takeoff.

AIR-GROUND COMMUNICATION

TIME and SOURCE	CONTENT
>0341:46 {41:38} RDO-2	Alpha Lima Whiskey three zero one ready for takeoff.

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE | **CONTENT**

>0341:27 {41:49}
HOT-1 okay okay we can take forty.

>0341:29 {41:51}
HOT-2 forty okay I am starting

>0341:38 {42:00}
CAM-3 have a nice flight.

>0341:39 {42:01}
HOT-1 have a nice flight.

>0341:40 {42:02}
HOT-2 have a nice flight.

>0342:08 {42:30}
CAM ((sound of increasing engine noise)).

AIR-GROUND COMMUNICATION

TIME and SOURCE | **CONTENT**

>0341:50 {41:42}
TWR three zero one cleared for takeoff runway zero eight.

>0341:53 {41:45}
RDO-2 cleared for takeoff runway zero eight three zero one thank you.

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0342:09 {42:31} HOT-1	EPR select.		
>0342:10 {42:32} HOT-2	EPR.		
>0342:16 {42:38} HOT-2	power's set.		
>0342:18 {42:40} HOT-1	okay checked.		
>0342:23 {42:45} HOT-2	eighty knots.		
>0342:24 {42:46} HOT-1	checked.		
>0342:26 {42:48} HOT-1	my airspeed indicator's not working.		
>0342:28 {42:50} HOT-2	yes.		
>0342:29 {42:51} HOT-2	yours is not working.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0342:30 {42:52} HOT-2	one twenty.		
>0342:32 {42:54} HOT-1	is yours working?		
>0342:32 {42:54} HOT-2	yes sir.		
>0342:33 {42:55} HOT-1	you tell me.		
>0342:35 {42:57} HOT-2	Vee one.		
>0342:36 {42:58} HOT-2	rotate.		
>0342:43 {43:05} HOT-1	Positive climb gear up		
>0342:43 {43:05} HOT-2	positive climb.		
>0342:44 {43:06} CAM	((sound of landing gear handle being moved)).		
>0342:46 {43:08}			

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
HOT-2	gear is up.		
>0342:50 {43:12} HOT-2	LNAV.		
>0342:51 {43:13} HOT-1	yes please.		
>0342:52 {43:14} HOT-2	LNAV.		
>0342:59 {43:21} HOT-1	yes.		
>0343:00 {43:22} HOT-2	it began to operate.		
>0343:02 {43:24} HOT-1	is it possible to turn off the wipers.		
>0343:03 {43:25} HOT-2	okay wipers off.		
>0343:05 {43:27} CAM	((sound of windshield wipers stops)).		
>0343:08 {43:30}			

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE	CONTENT
HOT-1	climb thrust.
>0343:09 {43:31} HOT-2	climb thrust.
>0343:10 {43:32} HOT-1	VNAV.
>0343:11 {43:33} HOT-2	VNAV.
>0343:16 {43:38} HOT-2	okay flap speed.
>0343:17 {43:39} HOT-1	flaps five.
>0343:24 {43:46} HOT-1	flaps one.

AIR-GROUND COMMUNICATION

TIME and SOURCE	CONTENT
>0343:48 {43:40} TWR	three zero one airborne four five switch over Santo Domingo one two four three.
>0343:52 {43:44} RDO-2	one two four three bye bye sir.

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	TIME and SOURCE	CONTENT
>0343:25 {43:47} HOT-2	flaps to one.		
>0343:30 {43:52} HOT-1	gear handle off.		
>0343:32 {43:54} HOT-2	gear handle's off.		
>0343:33 {43:55} HOT-1	flaps up.		
>0343:34 {43:56} HOT-2	flaps up.		
>0343:36 {43:58} HOT-1	after takeoff checklist.		
>0343:38 {44:00} HOT-2	after takeoff checklist landing gear up and off, flapsare up checked up, altimeters later, after takeoff completed.		
>0343:47 {44:09} HOT-1	okay.		
		>0344:19 {44:11} RDO-2	Santo Domingo good evening Alpha lima whiskey three zero one climbing with you.

INTRA-COCKPIT COMMUNICATION

TIME and
SOURCE **CONTENT**

>0344:07 {44:29}
HOT-1 center autopilot on please.

>0344:08 {44:30}
HOT-2 center autopilot is on command.

>0344:10 {44:32}
HOT-1 thank you.

>0344:12 {44:34}
HOT-1 one zero one three.

>0344:13 {44:35}
HOT-2 one zero one three.

AIR-GROUND COMMUNICATION

TIME and
SOURCE **CONTENT**

>0344:25 {44:17}
DEP alpha lima whiskey three zero one climb and maintain two eight zero report Pokeg

>0344:31 {44:23}
RDO-2 okay two eight zero and I'll call you over Pokeg three zero one.

>0344:47 {44:39}
DEP three zero one what's your call sign sir.

>0344:51 {44:43}

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE | **CONTENT**

>0344:25 {44:47}
HOT-1 rudder ratio, mach airspeed trim.

>0344:27 {44:49}
HOT-2 yes trim.

>0344:28 {44:50}
HOT-1 there is something wrong there are some problems.

>0344:43 {45:05}

AIR-GROUND COMMUNICATION

TIME and SOURCE | **CONTENT**

RDO-2 alpha lima whiskey three zero one sir.

>0345:00 {44:52}
DEP roger report by Pokeg.

>0345:01 {44:53}
RDO-2 okay I'll call you by Pokeg three zero one.

>0345:07 {44:59}
RDO-2 are we cleared direct to Pokeg sir.

>0345:09 {45:01}
DEP Affirmative.

>0345:10 {45:02}
RDO-2 okay thank you.

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
HOT-2	direct Pokeg.		
>0344:44 {45:06} HOT-1	okay there is something crazy do you see it.		
>0344:46 {45:08} HOT-2	there is something crazy there at this moment two hundred only is mine and decreasing sir.		
>0344:52 {45:14} HOT-1	both of them are wrong. what can we do?		
>0344:54 {45:16} HOT-1	let's check their circuit breakers.		
>0344:55 {45:17} HOT-2	yes.		
>0344:57 {45:19} HOT-1	alternate is correct.		
>0344:59 {45:21} HOT-2	the alternate one is correct.		
>0345:04 {45:26} HOT-1	as aircraft was not flying and on ground something happening is usual.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0345:07 HOT-1	{45:29} such as elevator asymmetry and other things.		
>0345:11 HOT-1	{45:33} we don't believe them.		
>0345:23 CAM-3	{45:45} shall I reset its circuit breaker.		
>0345:24 HOT-1	{45:46} yes reset it.		
>0345:25 CAM-3	{45:47} to understand the reason.		
>0345:27 HOT-1	{45:49} yeah.		
>0345:28 CAM	{45:50} ((sound of aircraft overspeed warning starts))		
>0345:30 HOT-1	{45:52} okay it's no matter.		
>0345:39 HOT-1	{46:01} pull the airspeed we will see.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0345:39 {46:01} CAM	((overspeed warning stops)).		
>0345:40 {46:02} HOT-2	now it is three hundred and fifty yes.		
>0345:47 {46:09} HOT-1	let's take that like this.		
>0345:50 {46:12} CAM	((sound of four warning allert tones)).		
>0345:52 {46:14} CAM	((sound of stick shaker starts and continues to end of recording)).		
>0345:56 {46:18} CAM	((sound of four warning alert tones)).		
>0345:56 {46:18} HOT-1	God God God.		
>0345:57 {46:19} HOT-2	God God.		
>0345:59 {46:21} HOT-2	sir.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0346:00 {46:22} CAM-3	* ADI.		
>0346:05 {46:27} HOT-1	God God God.		
>0346:07 {46:29} HOT-2	nose down.		
>0346:19 {46:41} HOT-2	by the name of God (bismillahirrahmanirraii).		
>0346:22 {46:44} CAM-3	now *.		
>0346:23 {46:45}. HOT-2	thrust.		
>0346:25 {46:47} HOT-1	disconnect the auto-pilot, is auto-pilot disconnected?		
>0346:25 {46:47} HOT-2	already disconnected, disconnected sir.		
>0346:31 {46:53} CAM-3	* ADI *.		

INTRA-COCKPIT COMMUNICATION

TIME and SOURCE | **CONTENT**

>0346:38 {47:00}
CAM-3 *.

>0346:39 {47:01}
HOT-1 not climb? what am I to do?

>0346:43 {47:05}
HOT-2 you may level off, altitude okay, I am selecting the altitude hold sir.

>0346:47 {47:09}
HOT-1 select select.

>0346:48 {47:10}
HOT-2 altitude hold.

>0346:51 {47:13}
HOT-2 okay, five thousand feet.

>0346:52 {47:14}
HOT-1 thrust levers, thrust thrust thrust thrust.

AIR-GROUND COMMUNICATION

TIME and SOURCE | **CONTENT**

>0347:03 {46:55}
DEP three zero one squawk three seven seven *.

>0347:06 {46:58}
RDO-2 standby

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0346:54 HOT-2	{47:16} retard.		
>0346:54 HOT-1	{47:16} thrust, don't pull back, don't pull back, don't pullback, don't pull back.		
>0346:56 HOT-2	{47:18} okay open open.		
>0346:57 HOT-1	{47:19} don't pull back, please don't pull back.		
>0346:59 HOT-2	{47:21} open sir, open.		
>0347:01 HOT-2	{47:23} by the name of God (bismillahirrahmanirraii).		
>0347:02 CAM-3 p	{47:24} sir pull u		
>0347:03 HOT-1	{47:25} what's happening.		
>0347:05 HOT-2	{47:27} oh what's happening.		

INTRA-COCKPIT COMMUNICATION		AIR-GROUND COMMUNICATION	
TIME and SOURCE	**CONTENT**	**TIME and SOURCE**	**CONTENT**
>0347:06 {47:28} CAM-3	*.		
>0347:09 {47:31} GPWS	((sink rate whoop whoop pull up warning starts and continues until the end)).		
>0347:13 {47:35} HOT-2	let's do like this.		
>0347:14 {47:36} CAM-3	*.		
>0347:17 {47:39}((end of recording)) .			

ANEXO 9

Transcripción Comunicación Aire-Tierra (MDPPy MDSD)

PRESIDENCIA DE LA REPUBLICA DOMINICANA
SECRETARIA ADMINISTRATIVA DE LA PRESIDENCIA
DIRECCION GENERAL DE AERONAUTICA CIVIL

TRANSCRIPCION CINTA DEL VUELO BHY-301 DE FECHA 6/2/96.

AERONAVE:	03:30 PUERTO PLATA TWR ALW 301 GATE #2 RQST START ENGINE.
TORRE:	03:30 BHY-301 CLEARED TO START.
AERONAVE:	03:39 TWR ALW 301 RQST TAXI INST.
TORRE:	03:39 BHY 301 CLEARED TO TAXI AND BACK TRACK RWY 08 WIND CALM ALT. 29.95.
TORRE:	03:41 BHY 301 SANTO DOMINGO ATC CLEARED TO DEST VIA FLP ROUTE CLIMB AND MAINTAIN FL 280.
AERONAVE:	03:43 TWR BHY 301 READY FOR TAKE OFF.
TORRE:	03:43 BHY 301 CLEARED FOR TAKE OFF RWY 08 WIND CALM.
TORRE:	03:45 BHY 301 AIRBORNE 03:45 CTC SANTO DOMINGO CONTROL 124.3.
AERONAVE:	03:45 TWR BHY 301 ROGER 124.3.

DOY FE, QUE TODO LO DICHO CORRESPONDE AL CONTENIDO DE LA CINTA.

MUY ATENTAMENTE,

GILBERTO GARCIA FAJARDO
CONTROLADOR TRANSITO AEREO.

GGF/lcms

TRANSCRIPCION DE LAS COMUNICACIONES ENTRE EL ALW301 Y EL CENTRO DE CONTROL LAS AMERICAS, EN FECHA 07/02/96.

035100	ALW301	:	SANTO DOMINGO GOOD EVENING ALW301 CLIMBING WITH YOU.
035104	ACC	:	ALW301 CLIMB AND MAINTAIN 280 REPORT POKEG.
035112	ALW301	:	OK. 280 AND I´LL CALL YOU OVER POKEG.
035130	ACC	:	301 WAHT´S YOUR CALL SIGN, SIR?
035132	ALW301	:	ALW301, SIR
035142	ACC	:	ROGER, REPORT BY POKEG.
035143	ALW301	:	I´LL CALL YOU OVER POKEG 301.
035149	ALW301	:	ARE WE CLEARED DIRECT TO POKEG, SIR?.
035152	ACC	:	AFFIRMATIVE.
035153	ALW301	:	OK. THANK YOU.
035343	ACC	:	301 SQUAWK 3772, OVER.
035348	ALW301	:	STAND BY.
040840	ACC	:	ALW301 SANTO DOMINGO
040855	ACC	:	ALW301 SANTO DOMINGO.
040910	ACC	:	ALW301 SANTO DOMINGO.
041030	ACC	:	ALW301 SANTO DOMINGO.

DOY FE QUE TODO LO ANTE EXPUESTO ES UNA COPIA FIEL DE LA GRABADORA EN FECHA 07/02/96.

FEDERICO CARLOS RAMIREZ
ENCARGADO SECCION TRANSITO AEREO

FCR/YG.

ANEXO 10
Informe Patológico

18/09 '96 12:47 ☏49 531 2355246

Flugunfalluntersuchungsstelle
beim Luftfahrt-Bundesamt
Accidents Investigation Bureau
at the LBA, Germany

TELEFAX / FACSIMILE

Postfach 30 54 D-38020 Braunschweig Hausanschrift: Lilienthalplatz 6 D-38108 Braunschweig	FAX-Nr.: (national) (0531) 23 55-246 From abroad: +49 531 23 55-246	Datum/Date: 18.09.96
Referat/Bearbeiter: (from:) Sachbearbeiter Name	Telefon: (national) (0531) 23 55-500 From abroad: +49 531 23 55-500	Geschäftszeichen/Reference: IV - BX001/96
Seiten, einschl. Deckblatt: 8 (Pages, including cover letter)		

Empfänger/Addressee: FAX-Nr.: 001 - 305 - 597 - 46 14

NTSB
Southeast Regional Office
Geo Prellezo, Bob MacIntosh

Birgenair accident on February 6, 1996

your telephone call on Sept. 17

Dear Bob,

I contacted the doctors who were involved in the identification of the victims and was informed by them that there is no report available describing the injuries until now. The only report is the attached Tox.-Nr.: F - 540 und 541/96 - report which deals with the question if passengers inhaled jet-fuel-gases or carbon monoxide. This report is in German language but the marked passages are translated in English language.

I asked the doctor which was responsible for the identification if he is willing to write a short report about the injuries and perhaps the conclusions and he agreed on principle. This will take about 3 weeks however. I could not achieve a shorter period. If you can accept I will send you this report as soon as it is available.

Best regards

(P. Schlegel)

Prof. Dr.rer.nat. Dr.med.habil. G
Leiter der Abt. II, Forensische Toxikologie
Zentrum der Rechtsmedizin

Kennedyallee 104
60596 Frankfurt/Main
Tel.: 069 / 63017573
Fax: 069 / 63015882

Tox-Nr.: F-540 und 541/96
(Bei Ladungen oder Rückfragen bitte stets angeben!)

An das
Luftfahrtbundesamt
z.Hd. Herrn Hasenfuß
Postfach 3054

38020 Braunschweig

04.03.1996 Schm/Ap

<u>Betr.:</u> Flugunfall am 06.02.96 in Puerto Plata, Dominikanische Republik

Hier: **Untersuchungen von Leichenasservaten mit der Identifizierungsnummer "48" und "49".**

Untersuchungsauftrag:

Untersuchungen zum Nachweis von Flugbenzin und/oder weiteren flüchtigen Bestandteilen aus z.B. Hydraulikölen, außerdem soll auf Bestandteile von Brandgasen untersucht werden, soweit die Beschaffenheit des Probenmaterials dies noch zuläßt. Auftrag vom 16.02.96 durch das Luftfahrtbundesamt über Herrn Priv.-Doz. Dr. Fritz-Ulrich Lutz, Zentrum der Rechtsmedizin, Mitglied der Identifizierungskommission des Bundeskriminalamtes. 1

Nach uns vorliegenden Informationen wurde zur Vorgeschichte bekannt, daß am 06.02.96 die Boeing 757 nach dem Start in Puerto Plata kurzzeitig später ins Meer stürzte. Die Absturzursache ist bislang unbekannt, die im Meer treibenden Leichen- und Wrackteile wurden gesichert und die Leichen bzw. Leichenteile durch die Identifizierungskommission des Bundeskriminalamtes untersucht.

Flugunfalluntersuchungsstelle
beim
Luftfahrt-Bundesamt
Postfach 3054
38020 Braunschweig

Untersuchungsmaterial:

1. Leiche mit der Identifizierungsnummer „48"

a) ca. 1 ml Blut im stark autolytischen Zustand
b) 8 ml Urin (pH-Wert: 6,0)

2. Kindesleiche mit der Identifizierungsnummer „59"

a) 18 ml Blut
b) 2 ml Urin
c) 127 g Lungengewebe

12

Untersuchungen der Asservate mit der Identifizierungsnummer „48":

1. Anteile der Blutprobe wurden gaschromatographisch nach dem Head-space-Verfahren auf flüchtige Bestandteile untersucht.

   Ergebnis: Nachweis geringer Anteile an Acetaldehyd, Methanol, Aceton, Ethanol, Isopropanol, tert. Butanol und n-Butanol.
   Hinweise für die Anwesenheit von Kohlenwasserstoffen, wie sie in Benzingemischen vorliegen, haben die Untersuchungen nicht ergeben.

2. Weitere Anteile der Blutprobe wurden in einem mit einem Septum verschlossenen Ampullenglas auf 70° Celsius erwärmt und die überstehende Gasphase gaschromatographisch-massenspektrometrisch auf flüchtige Lösungsmittel, insbesondere auf Benzinanteile, untersucht.

   Ergebnis: Keine Hinweise für die Anwesenheit von Benzinbestandteilen.

3. Die Untersuchungen des Blutes auf Kohlenmonoxid erfolgten mittels Hämoximeter als auch photometrisch nach Hämolyse in verdünntem Ammoniak nach der Quotientenmethode (Hüfner).

Ergebnis: In beiden Verfahren konnten aufgrund der starken autolytischen Zersetzung des Blutes keine sicher verwertbaren Ergebnisse erhalten werden. Die Befunde sprechen aber trotzdem dafür, daß keine relevanten Mengen an Kohlenmonoxid vorlagen, zumal auch die Aufnahme der UV-Absorptionskurven vor und nach Reduktion mit Natriumdithionit keine typische Absorptionskurve für Kohlenodixhämoglobin ergab.

4. Weitere Anteile der Urinprobe wurden in einem mit einem Septum verschlossenen Ampullenglas auf 70° Celsius erwärmt und die überstehende Gasphase gaschromatographisch-massenspektrometrisch auf flüchtige Lösungsmittel, insbesondere auf Benzinanteile, untersucht.

   Ergebnis: Keine Hinweise für die Anwesenheit von Benzinbestandteilen.

5. Weitere Anteile der Urinprobe wurden in einem mit einem Septum verschlossenen Ampullenglas auf 70° Celsius erwärmt und die überstehende Gasphase gaschromatographisch-massenspektrometrisch auf flüchtige Lösungsmittel, insbesondere auf Benzinanteile, untersucht.

   Ergebnis: Keine Hinweise für die Anwesenheit von Benzinbestandteilen.

Bewertung:

Die bei den toxikologischen Untersuchungen erhobenen Befunde zeigen, daß die Leiche mit der Identifizierungsnummer "48" vor Eintritt des Todes keine benzinhaltigen Dämpfe in relevanter Menge eingeatmet hat. Es haben sich auch keine Hinweise dafür ergeben, daß Kohlenmonoxid, ein Bestandteil von Brandgasen, aufgenommen wurde. Diese Befunde sprechen dafür, daß in dem Bereich, wo sich der Verstorbene unmittelbar vor Eintritt des Todes aufhielt, kein Brand oder Austritt von Benzin vorlag. Die im Probenmaterial gemessenen geringen Anteile an Acetaldehyd, Aceton, Ethanol und anderen Alkoholen lassen einerseits an die Aufnahme von geringen Mengen von Spirituosen denken, es ist jedoch auch möglich, daß diese Alkohole fäulnisbedingt postmortal gebildet wurden.

3

Flugunfalluntersuchungsstelle
beim
Luftfahrt-Bundesamt
Postfach 3054
38020 Braunschweig

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Untersuchungen der Asservate der Kindesleiche mit der Indentifizierungsnummer "59":

1. Anteile der Blutprobe wurden gaschromatographisch nach dem Head-space-Verfahren auf flüchtige Bestandteile untersucht.

   Ergebnis: Nachweis von geringen Anteilen an Acetaldehyd und Ethanol. Keine Hinweise für die Anwesenheit von Benzinbestandteilen.

2. Weitere Anteile der Blutprobe wurden in einem mit einem Septum verschlossenen Ampullenglas auf 70° Celsius erwärmt und die überstehende Gasphase gaschromatographisch-massenspektrometrisch auf flüchtige Lösungsmittel, insbesondere auf Benzinanteile, untersucht.

   Ergebnis: Negativ, insbesondere keine Hinweise für Bestandteile von Benzin.

3. Anteile der Urinprobe wurden gaschromatographisch nach dem Head-space-Verfahren auf flüchtige Bestandteile untersucht.

   Ergebnis: Nachweis geringer Anteile an Acetaldehyd, Ethanol und n-Butanol. Keine Hinweise für Benzin.

4. Weitere Anteile des Urins wurden in einem mit einem Septum verschlossenen Ampullenglas auf 70° Celsius erwärmt und die überstehende Gasphase gaschromatographisch-massenspektrometrisch auf flüchtige Lösungsmittel, insbesondere auf Benzinanteile, untersucht.

   Ergebnis: Negativ, keine Hinweise für Benzinbestandteile.

5. Anteile der tiefgefrorenen, asservierten Lunge wurden direkt entnommen und in gefrorenem Zustand in GC-Probengläser verbracht. Es erfolgten gaschromatographische und gaschromatographisch-massenspektrometrische Untersuchungen wie unter Nr. 1 und 2. bei Blut beschrieben.

Ergebnis: Nachweis geringer Anteile an Acetaldehyd und Ethanol.

6. Anteile der Blutprobe wurden photometrisch auf Kohlenmonoxid untersucht.

Ergebnis: Das Blut enthielt ca. 2 % Kohlenoxidhämoglobin.

Flugunfalluntersuchungsstelle
beim
Luftfahrt-Bundesamt
Postfach 3054
38020 Braunschweig

Bewertung:

Die bei den toxikologischen Untersuchungen erhobenen Befunde haben keinen Anhalt dafür ergeben, daß das verstorbene Kind unmittelbar vor Eintritt des Todes Brandgase oder Benzindämpfe eingeatmet hat. Der geringe, festgestellte Alkoholgehalt im gesamten Probenmaterial dürfte postmortal durch Gärung entstanden sein. Der Kohlenoxidhämoglobingehalt des Blutes von nur 2 % läßt sich durch Einatmen von zigarettenrauchhaltiger Luft erklären oder auch durch postmortale Zersetzung des Hämoglobins. 5

Zusammenfassung:

Die Untersuchungen der Asservate mit den Identifizierungsnummern "48" und "59" haben keine Hinweise für die Aufnahme von Benzin oder Kohlenmonoxid aus Brandgasen ergeben. Diese Befunde sprechen möglicherweise dafür, daß innerhalb des Flugzeuges vor Eintritt des Todes keine Exposition gegenüber brand- und/oder explosionsbedingen flüchtigen Gasen vorgelegen hat. 6

(Prof. Dr. G. Kauert)

Die Abt. II, Forensische Toxikologie, des Zentrums der Rechtsmedizin nimmt regelmäßig mit Erfolg an Ringversuchen der GTFCH (Ges. f. Toxikologische u. Forensische Chemie) und anderer Fachgesellschaften zur Qualitätssicherung toxikologischer Untersuchungen (Blut, Urin, Haare) teil.

Flugunfalluntersuchungsstelle
beim
Luftfahrt-Bundesamt
Postfach 3054
38020 Braunschweig

Translation of Particular Passages of the Report of Toxicological Examinations of "Tox-No.: F-540 and 541/96".

Passage 1
Order of Examination

The examinations should prove the existence of aircraft fuel and/or other volatile fractions, e. g. of hydraulic oils, in addition should be proved for components of gaseous substances due to burning as far as the state of the biological materials would permit this. The order dated 16. 02. 1996 has been delivered by the Air Accident Investigation Bureau through the Privat Lecturer Mr. Doctor Fritz-Ulrich Lutz, Center of Forensic Medicine, Member of the Identification Committee of the Federal Office of Criminal Investigation.

Passage 2
Examinations of the Biological Materials with the Identification Number "48"

Passage 3
Result of the Examination

The findings of the toxicological examinations show that the corpse, identification number "48", prior to the occurence of the death did not inhale, in a significant quantity, vapours containing gasoline. Furthermore there are no indications of the intake of carbon monoxide which is a component of gases arising from burning. These findings indicate that there was no fire and no fuel leakage in the area where the deceased stayed immediately prior to the occuring death. The slight components of acetaldehyde, acetone, ethanol and other alcohols measured in the organic substances, on the one hand let think that there have been taken little quantities of alcoholic drinks, but it is also possible that these alcoholics have postmortally developed due to decomposition.

Passage 4
Examinations of the Biological Materials of the Child's Corpse with the Identification Number "59"

Passage 5
Result of the Examination

The findings of the toxicological examinations did not give any clue that the deceased child has inhaled gases having been caused by burning, or gasoline vapours immediately prior to the occuring death. The slight alcoholic content detected in the whole biological materials may well have been developed postmortally by decomposition. The content of carboxyhemoglobin of the blood is only 2 per cent; this may be explained by the inhalation of air containing smoke of cigarettes, or by the postmortal decomposition of the hemoglobin, too.

Passage 6
Summary

The examinations of the biological materials with the identification numbers "48" and "59" did not give any indication for the fact that from the gases developing by fire have been intaken gasoline or carbon monoxide. These findings, possibly, point to the fact that within the aircraft there did not exist any exposure against volatile gases which have been developed by fire or explosion.

Flugunfalluntersuchungsstelle
beim
Luftfahrt-Bundesamt
Postfach 3054
38020 Braunschweig

RECEIVED

SEP 17 1996

FSDO-15

September 9, 1996

Robert C. Tullius
44 Victory Lane
Sebring, FL 33870

Mr. Ernest Wilson
Federal Aviation Administration
Southern Region Flight Standards District Office
9677 Tradeport Drive, Suite 100
Orlando, Florida 32827-5397

RE.: Canadair T-33 Accident (N 99195) at Punta Gorda (PGD), Florida, on 09-07-96.

Dear Mr. Wilson:

This letter will confirm our telephone conversation of September 9, 1996, wherein I informed you of an accident involving my Canadair T-33 aircraft that occurred September 7, 1996. As required by §§830.5, and 830.6, of the Federal Aviation Regulations, I notified the NTSB Field Office in Miami, Florida, as soon as possible and this letter serves as confirmation of that notification. Section 830.6 of the regulations requests the following information:

(a) Type aircraft - Canadair T-33, Registration No. - N 99195, Nationality - United States of America.

(b) Owner/Operator - Robert C. Tullius, Trustee.

(c) Pilot-in-command - Cuthbert Van Wyck Trice, III.

(d) Date of accident - September 07, 1996; Time of accident - 0945 (local).

(e) Last point of departure - Punta Gorda (PGD), Florida; Point of intended landing - Orlando Executive. (ORL), Orlando, Florida.

(f) Position of aircraft - approximately 1 mile from the departure end of runway 15 at Punta Gorda (PGD).

(g) Number of persons on board - one. Injuries - none. Fatalities - none.

(h) Nature of the accident - loss of power on takeoff, emergency landing executed on airport property. Weather - clear. Damage to aircraft - destroyed.

(i) No explosives, radioactive materials, or other dangerous articles were carried on this aircraft.

Thank you for your assistance with this matter. If I may be of further service please do not hesitate to contact me.

Sincerely,

R.C. Tullius

Robert C. Tullius

ANEXO 11
Información de Mantenimiento

Contents of File:

Section 1:
1. Aircraft Technical Data (Aircraft General Identification and Maintenance Status)
2. Certificate of Airworthiness
3. Certificate of Registration
4. Noise Certificate
5. Weight and Bàlance report dtd 30.May.95
6. Aircraft Insurance
7. Licenses of Birgenair Technicians who were performing the maintenance of B757-200, TC-GEN at Puerto Plata

Section 2:
1. Certificate of Release to Service for both engines after Shop Visit
2. Engine Disk Status
3. Hard Time Components List on the Aircraft

Section 3:
1. Airworthiness Directives List (Only Applicable and Open ADs) including copies of ADs and last compliance work orders for repetative ADs.
2. Complete List of Airframe ADs
3. Complete List of Appliance and Engine ADs
4. List of SBs (List of modifications embodied on the aircraft
5. List of SLs which have been applied on the aircraft

Section 4:
1. Invoices of the fuel refueled from Puerto Plata Airport
2. Flightplan for the last flight
3. The weight and balance sheet for the last flight.
4. Flight logs of last 30 days

Section 5:
1. List of previous maintenances including dates, Hrs and Cycles
2. Last Daily Check before the flight
3. A6 Check dated 16.Jan.1996
4. Last C Check (C7 by GAMCO of U.A.E) Relaese Pages + Master Tally List

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC GEN	B757T360204		001	4.02.96	Y. Cemal

DISCREPANCY : #1 - 30T11

Replace damaged P-clip on the Hyd Case drain line (E.D.P.)

CORRECTIVE ACTION	TECH	INSP
P-CLIP REPLACED WITH NEW ITEM (6FEB96)	2334 [signature] 2342 [signature]	[signature]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B767AF96 0126		001	26.01.96	C.SASMAZ

DISCREPANCY : INSTALL THE MODIFIED HP. FUEL PUMP TO THE #2 ENGINE

CORRECTIVE ACTION :	TECH	INSP
HP FUEL PUMP REPLACEDWITH THE OVERHAULED AND MODIFIED ONE (AMM 73-11-03) ENGINE OPERATED AND B757 MM 71-00-00 TEST 1 AND TEST 2 PERFORMED SATISFACTORY	[illegible]	[illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
FUEL PUMP	GP200 MK6		B364	-
	GP202 MK1		-	B596

FORM NO 00 1

UNITED KINGDOM

Authorised release certificate — Airworthiness approval tag

Civil Aviation Authority

3. Certificate ref. no. 3026259

Organisation

Lucas Aerospace Ltd. Customer Support Division
The Radleys Marston Green Birmingham B33 0HZ
Telephone: 021-779-6531
Telex: 333150 Fax: 021-779-5712

Lucas

5. Work order/Contract 95-2-RO-06
4

Item	7. Description	8. Part no.	9. Eligibility (*)	10. Qty.	11. Serial/Batch no.	12. Status/Work
01	H.P. GEAR PUMP	GP 202MK1	RB211-535	1	B596	OVERHAULE[D] AND MODIF[IED]

Remarks

Repair card B60315
BUILT TO MANUAL 73-11-03 TRANS 13
TESTED TO T305 ISSUE 1
MODS EMBODIED CP6936 AND CP6973
LAST MOD INCORPORATED CP6973
RETURNED AFTER OVERHAUL AND MODIFICATION
RELEASED AT ZERO HOURS

New parts

Certifies that the part(s) identified above except as otherwise specified in block 13 was (were) manufactured/inspected in accordance with the airworthiness regulations of the stated country and/or in the case of parts to be exported with the approved design data and with the notified special requirements of the importing country.

15. Used parts

Certifies that the work specified above except as otherwise specified in block 13 was carried out in accordance with the airworthiness regulations of the stated country and the notified special requirements of the importing country and in respect to that work the part(s) is (are) in condition for safe operation and considered ready for release to service. (see over)

Signed J. Turvey

JLMG 35

18. Date 09/12/95

19. Issued by or on behalf of the Civil Aviation Authority under reference no. AI/9345/91

Name JANET TURVEY

UNITED KINGDOM

uthorised release certificate — Airworthiness approval tag

Civil Aviation Authority

Organisation

Lucas Aerospace Ltd. Customer Support Division
The Radleys Marston Green Birmingham B33 0HZ
Telephone: 021-779-6531
Telex: 333150 Fax: 021-779-5712

Lucas

5. Wor der/Contr

6. Item	7. Description	8. Part no.	9. Eligibility (*)	10. Qty.	11. Serial/Batch no.	12. Status/W
01	H.P. GEAR PUMP	GP 202MK1	RB211-535	1	B596	OVERHAU AND M

3. Remarks

Repair card B60315
BUILT TO MANUAL 73-11-03 TRANS 13
TESTED TO T305 ISSUE 1
MODS EMBODIED CP6936 AND CP6973
LAST MOD INCORPORATED CP6973
RETURNED AFTER OVERHAUL AND MODIFICATION
RELEASED AT ZERO HOURS

AMM 73-11 ... OPERATED

ew parts

Certifies that the part(s) identified above except as otherwise specified in block 13 was (were) manufactured/inspected in accordance with the airworthiness regulations of the stated country and/or in the case of parts to be exported with the approved design data and with the notified special requirements of the importing country.

15. Used parts

Certifies that the work specified above except as otherwise specifie block 13 was carried out in accordance with the airworthiness regula of the stated country and the notified special requirements of the impo country and in respect to that work the part(s) is (are) in condition for operation and considered ready for release to service. (see over)

gned J Turvey

JLMG 35

18. Date 09/12/95

19. Issued by or on behalf of the Civil Aviation Authority under reference no. AI/9345/91

lame J... TURVEY

SERVICEABLE UNIT

THIS EQUIPMENT HAS BEEN REPAIRED AND INSPECTED IN ACCORDANCE WITH THE CUSTOMERS REQUIREMENTS AND IS APPROVED FOR RETURN TO SERVICE

REF. RELEASE NOTE: 3026259

PERTINENT DETAILS OF THE REPAIR ARE ON FILE AT THIS AGENCY UNDER REPAIR

CARD No. 860315

INHIBITED WITH OM-13

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757 TY60126		002	26.1.96	A. AYAZ.

* DISCREPANCY : #1 TIRE IS OUT OF LIMIT.

CORRECTIVE ACTION : #1 TIRE REPLACED

TECH	INSP
[illegible]	[illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
MAIN WHEEL ASSY.	3-1423	1		1223

FORM NO 004

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757T960109		001	9.1-96	B. Sesigin

DISCREPANCY : WXR U/S

CORRECTIVE ACTION: WXR Transreceiver fail
Founded
T/R Changed Test performed
Bite: 34-7. OK

TECH	INSP

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
WXR Transreceiver	2041217-0411	#1	1553	
	2041217-0413	#1		1197

FORM NO CO-1

UNITED STATES

2.

FAA FORM 8130-3

AIRWORTHINESS APPROVAL TAG
U.S. Department of Transportation
Federal Aviation Administration

3. System Tracking Ref. No.: AG112195132424AC143

ation BFGoodrich Aerospace Component Overhaul & Repair
817 Dessau Road
Austin, Texas 78753

(512) 251-3441
(512) 990-1271 (FAX)
FAA Repair Station No. UZ2R232L

5. Work Order, Contract, or Invoice Number: W.O. # AC143

7. Description	8. Part Number	9. Elig.*	10. Qty.	11. Serial/Batch Number	12. Status/Work
RT	2041217-0413		1	1197	OVERHAUL

ks 1) Work order no. AC143 indicates the actual work performed. All work was performed in accordance with FAA approved data.

2) Item 1 was manufactured by BENDIX

Limited life parts must be accompanied by maintenance history including total time/total cycles/time since new

New ☐ Newly Overhauled ☐

the new or newly overhauled part(s) identified above, except as otherwise specified in ... manufactured in accordance with FAA approved design data and airworthiness.

... of parts to be exported, the special requirements of the importing country have been met.

15. FAA Authorization No.:

(Typed or Printed)

18. Date:

19. **Return to Service in Accordance with FAR 43.9**

Certifies that the work specified in block 13 (or attached) was carried out in accordance with FAA airworthiness regulations and in respect to the work performed the part(s) is(are) approved for return to service.

20. Authorized Signature:

...ertificate Number: UZ2R232L

22. Name (Typed or Printed):

23. Date:

Aerospace 07060-1 12/04/95

Component Overhaul & Repair, Inc.
617 DESSAU ROAD
AUSTIN, TEXAS 78753-9710
PHONE: 512-251-3441

SHIP TO 10631-00001
AVIATION SALES COMPANY
6905 N.W. 25 STREET
MIAMI FL 33122

CUSTOMER PO#: R110124595RX

INVOICE NO.	SHIP VIA	WAY BILL #
07060-1	AIRBORN ON	NA

PART NUMBER	DESCRIPTION	COND	UNIT	QTY
2041217041S			EA	1
	OVERHAUL			
RT				
S/N	ORDERED P/N 2041217041S			
177				

he undersigned hereby certifies that the mater-
al shipped against the above customer order is
n accordance with applicable manufacturer's
pecifications for the part number listed. Evi-
ence of prior purchase from acceptable sources
overing all of the above listed parts/material
re on file subject to your examination.

uthorized Signature: C Towers

FILLED BY	SHIPPED BY	DATE SHIPPED

PREPARED BY C TOWERS

CUSTOMER: BIRGENAIR CHART
PURCHASE ORDER NO: 96-2-PO-003
PART NUMBER: 2041217-0413
DESCRIPTION: TRANSCVR
INVOICE NUMBER: 0459893-001
TIMES/CYCLES: UNK/N/A

DATE: 01/08/96
S/N: 1197
QUANTITY: 1
TAG DATE IF OHC/~~SVC~~: 12/4/95

THE UNDERSIGNED HEREBY CERTIFIES THAT THE MATERIAL SHIPPED AGAINST THE ABOVE PURCHASE ORDER IS IN OVERHAULED CONDITION AND WAS ORIGINALLY MANUFACTURED BY BENDIX OR ONE OF THEIR AUTHORIZED LICENSEES: THAT IT WAS NOT OBTAINED FROM ANY U.S. GOVERNMENT OR MILITARY SOURCE. WE FURTHER CERTIFY THE MATERIAL COVERED UNDER THIS CERTIFICATION WAS REMOVED FROM A SERVICEABLE UNIT AND WAS NOT SUBJECTED TO EXTREME STRESS OR HEAT OR IMMERSED IN SALT WATER (AS IN A MAJOR ENGINE FAILURE, ACCIDENT INCIDENT, OR FIRE).

THIS MATERIAL IS TRACEABLE FROM THE STOCK OF: (CHECK ONE)

(✓) 121 OPERATOR - AIR CARRIER CARNIVAL A/L
( ) 135 OPERATOR - CARGO OR CHARTER
( ) 145 FAA AUTHORIZED REPAIR STATION
( ) CAA AUTHORIZED SOURCE
( ) ORIGINAL EQUIPMENT MANUFACTURER
( ) FAA/PMA PARTS MANUFACTURER
( ) 129 OPERATOR/FOREIGN CARRIER AUTHORIZED TO OPERATE IN THE U.S.A.
( ) U.S. AIRCRAFT MANUFACTURER
( ) FOREIGN AIRCRAFT MANUFACTURER HOLDING FAA TYPE CERTIFICATE

AUTHORIZED SIGNATURE: [signature] TITLE: Q.C. INSPECTOR

COMPANY NAME: AVIATION SALES COMPANY

ADDRESS: 6905 NW 25 STREET, MIAMI, FL. 33122

Component Overhaul & Repair,   R U S H
F.A.A. REPAIR STATION #: UZ2R232L
AUSTIN, TEXAS

WORK ORDER
AND INSPECTION REPORT

SERIAL #: 1197   CUSTOMER: AVIATION SALES COMPANY   10631   W/O#: AC143
Date Recd: 11/16/95   Promised Date: 11/22/95   S/O#: 09060-001
PART NUMBER: 2041217-0413   ATA: 34-41-33   Exp Date: 11/22/95
SHORT P/N: 20412170413   NOMENCLATURE: RT
UNIT MODEL#: RTA4A   CUST PO#: R110124595RX   CT: AB
STOCK #: 20412170413   CND: J IVDP 1   Mfr: BDX   Section: XP
TECH DATA: AB0300-6000
Acft Make: Model: Tail #: UNK   TSU

WORK INSTRUCTIONS

U S H BENCH CHECK, TEST & ADVISE COST TO OVERHAUL

REASON FOR REMOVAL

OTHER
NO FAILURE GIVEN.

PRELIMINARY INSPECTION

V (Verified) N (No Trouble Found) O (Other) C (Customer Resp)

NO FAULTS FOUND.

REASON FOR FAILURE

OVERHAUL + INSPECT AND TEST.

WORK ACCOMPLISHED

OH (Ovhl) RO (Rep Only) BC (Bench Ck) RB (Rep & BC) NT (not SERV@CIA)

INSPECTED AND CLEANED. BENCH TESTED. UNIT MEETS BENDIX TEST SPECIFICATIONS AND IS IN OVERHAULED CONDITION.

	PART NO.	PART NAME	QTY	PART NO.	PART NAME	QTY	PART NO.	PART NAME

Technician NAME: Ronald [signature]   EMP# 8263   Dated: 11/22/95

Line Inspector: [signature]   Dated: 11/22/95

Final Inspection: The Aircraft and/or component identified was serviced and Inspected in accordance with current Federal Aviation Administration Regulations and was found airworthy for return to service, with respect to work performed.

Final Inspector: [signature]   Dated: DEC 04 1995   Cert#: 2420550

[illegible] #[illegible]1197 CUSTOMER: AVIATION SALES COMPANY [illegible]

Recd: 11/16/95 Promised Date: 11/22/95
[illegible] 2041217-0413 NOMENCLATURE: RT
[illegible] P/N: 20412170413 UNIT MODEL: RT44A
OCK #: 20412170413 CND: JIVDF 1 MFR: GDX Section: [illegible]
[illegible] PO#: [illegible]1012459SRX TECH DATA: AB0300-6000
[illegible] Make: Model: Part #: UNK Type Time: [illegible]

WORK INSTRUCTIONS

BENCH CHECK
BENCH CHECK, TEST & ADVISE COST TO OVERHAUL

REASON FOR REMOVAL

OTHER:
NO FAILURE GIVEN.

PRELIMINARY INSPECTION

PRELIMINARY INSPECTION NO TROUBLE FOUND
NO FAULTS FOUND

REASON FOR FAILURE

OVERHAULED - INSPECT AND TEST

WORK ACCOMPLISHED

UNIT MEETS OVERHAUL SPECIFICATIONS
INSPECTED AND CLEANED, BENCH TESTED, ALL RESULTS [illegible] SPECS [illegible]
TO IN OK CONDITION

Technician: 08267 RONALD [illegible] Dated: 11/22/95

[illegible] Inspection: The [illegible] and/or component [illegible] was [illegible]
and inspected in accordance with current Federal Aviation Administration Regulations and was found airworthy for return to service
with respect to work performed.

[illegible] Inspector: 08222 GENE CAMPBELL Dated: 11/22/95 [illegible]

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
~~HL660~~ TC-GEN	B757T961601		001	16-01-96	H. AKAN

DISCREPANCY : AFT. EQ. COOLING/LAV. GALLEY EXH. FAN #1 U/S

CORRECTIVE ACTION : AFT EQ COOLING / LAV GALLEY EXH. FAN #1 REPLACED.

TECH	INSP
Hikan Akan 2342	[illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
FAN	731378		0686	2120

FORM NO CO-1

AVIATION SALES COMPANY

MATERIAL CERTIFICATION

SALES ORDER: 0459675-001 DATED: 01/05/96
CUSTOMER: BIRGENAIR CHARTER GROUP,I P.O.: 96-2-PO-001

QTY	PART NUMBER	DESCRIPT	SOURCE	SERIAL NO
1	731378	FAN	AGES-AVIATION ACCESSORIES CO. AVENSA A/L	2120

THE UNDERSIGNED HEREBY CERTIFIES THAT THE MATERIAL SHIPPED AGAINST THE ABOVE PURCHASE ORDER IS IN NEW SURPLUS(UNUSED) CONDITION AND WAS ORIGINALL MANUFACTURED BY SUNDSTRAND OR ONE OF THEIR AUTHORIZED LICENSEES; THAT IT WAS NOT OBTAINED FROM ANY U.S.GOVERNMENT, MILITARY SOURCE; AND WAS OBTAINED FROM THE STOCK OF SEE ABOVE

ALL USED PARTS WERE REMOVED FROM A SERVICEABLE UNIT THAT HAD NOT BEEN SUBJECTED TO SEVERE STRESS OR HEAT (AS IN MAJOR ENGINE FAILURE, ACCIDENT OR FIRE).

AUTHORIZED SIGNATURE: T Budow STAMP #:

Q.C.INSPECTOR: TED BUDOWSKI

ID 19/76

P.O.BOX 522914] MIAMI, FL, 33152] TELEPHONE (305)592-4055
TELEX 51-5547 AVSALESCO MIA] FAX (305)5996626

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757 9A 960105	AD 95-26-15	002	05 01 96	C ŞAŞMAZ

DISCREPANCY : REVISE THE LIMITATIONS SECTION OF THE FAA- APPROVED AIRPLANE FLIGHT MANUAL BY INSERTING A COPY OF THE AD 95-26-15, DTD. DEC, 29 1995

CORRECTIVE ACTION : A COPY OF THE AD 95-26-15 IS INSERTED TO THE AFM

TECH	INSP
	[illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO 00-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	875794 DEC 105	AD 90-23-06	003	05 01 96	C. ŞAŞMAZ

DISCREPANCY : PERFORM A VISUAL INSP OF WING LE SLAT TE WEDGE ~~VISUAL INSP~~ FOR ICK DELEMINATION IAW THE AD 90-23-06

CORRECTIVE ACTION	TECH	INSP
INSP PERFORMED. NO DELEMINATION WAS FOUND	1323	177

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO CQ-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757S1A96010S		005	05.01.96	A AYAZ

DISCREPANCY : AFT CARGO LOADER IS U/S

CORRECTIVE ACTION : LOADER REPAIRED

TECH	INSP
[illegible signature]	G. Bozer

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO CQ-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757SM960105		004	05.01.96	N.AYAZ

DISCREPANCY : AFT LH TOILET DOOR BELLOWS ARE TORN.

CORRECTIVE ACTION	TECH	INSP
THE BELLOW IS REPLACED WITH A NEW ONE.	[illegible]	G. Bilgic

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO 00-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757T960104		001	04.01.96	J. AYAZ

DISCREPANCY : #4 TIRE PRESS IS LOW

CORRECTIVE ACTION : #4 TIRE REPLACED WITH A NEW ONE

TECH	INSP
1822	G. [illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
WHEEL ASSY	3-1428	4	1655	3164

BIRGENAIR

SERVICEABLE TAG

CRIPTION 757-200 Main wheel Assy	
P/N : 3-1428	S/N : 3767
◯ NEW ◯ OVERHAUL ◯ REPAIR ⊗ ~~MODIFY~~ TEST	
TSN :	TSO :
CSN :	CSO :
APPROVAL BASIC :	
INSTALLED DATE :	INSTALLED BY :
REMARKS : New tire installed	
BIRGENAIR	
AP DATE : 22-11-95	APP. BY :

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
~~B7~~ TC-GEN	B757T951222		001	22-12-95	C ŞAŞMAZ

DISCREPANCY : REPLACE #2 ENG STARTER S/O VALVE

CORRECTIVE ACTION : REPLACED

TECH	INSP
[signature]	

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
STARTER S/O VALVE	774987-1	#2	LA48520	531126

1. UNITED STATES	2. **FAA Form 8130-3** Airworthiness Approval Tag US Department of Transportation Federal Aviation Administration	3. SYSTEM TRACKING REF. NO. RC16669

4 ORGANIZATION:	5. WORK ORDER, CONTRACT, OR INVOICE NUMBER:
Hamilton Support Systems 97 Newberry Road, East Windsor, Ct. 06088 SI3R842L	Rc16669

6. ITEM	7. DESCRIPTION	8. PART NO.	9. ELIGIBILITY *	10. QTY	11. SERIAL/BATCH NO.	12. STATUS/WORK
1	STARTER SHUTOFF VALVE	774987-1	VARIOUS See * below	1	831126	REP. & MOD.

13. REMARKS

REPAIRED, TESTED, INSPECTED AND ACCEPTED TO C.M.M. 80-13-02.
MODIFIED FROM P/N 774987-1 L2 TO P/N 774987-1 L6. I.A.W. S/B'S
80-3011 AND OTHER APPROVED DATA ON FILE AT THIS REPAIR STATION.
(REF. P.O. WASR-387)

Work performed by Hamilton Support Systems SI3R8421 Date 12-09-94 TT. UNK TSO. UNK TSR. -0-

Limited life parts [illegible] history [illegible] total cycles/time since new

14. New ☐
Newly Overhauled ☐

Certifies that the new or newly overhauled parts identified above except as otherwise specified in block 13 was (were) manufactured in accordance with FAA approved design data and airworthiness regulations

NOTE: In case of parts to be exported the special requirements of the importing country have been met

19. **Return to service in accordance with FAR 43.9**

Certifies that the work specified in block 13 (or attached) above was carried out in accordance with FAA airworthiness regulations and in respect to the work performed the part(s) is (are) approved for return to service

15. Signature:	16. FAA Authorization No.	20. Authorized Signature:	21. Certificate Number: SI3R8421
17. Name (typed or printed):	18. Date:	22. Name (typed or printed): FRANK T. ROBERTS	23. Date: 12-09-94

SPAIRCRAFT INC.

MATERIAL CERTIFICATION

TO (Customer): BIRGENAIR

RE:

Purchase Order Number: 95-2-PO-204 Dated: OCT-7-94

Part Number: 774987-1 Part Description: Valve

Quantity: 1 Serial Numbers: 831126

****

THE UNDERSIGNED HEREBY CERTIFIES THAT THE MATERIAL SHIPPED AGAINST THE ABOVE PURCHASE ORDER NUMBER:

1) is in Overhauled condition,

2) was originally manufactured by Hamilton Standard,
or one of their authorized licensees;
or, otherwise, an approved FAA P.M.A. source:

Manufacturer: __________

Alternate Part Number: __________,

3) was NOT obtained from any U.S. government or military source, and

4) was obtained from the stock of: LeisureAir.

All used parts were removed from a serviceable unit that had not been subjected to severe stress, heat or incident involved aircraft to the best of our knowledge.

****

AUTHORIZED SIGNATURE: [signature] TITLE: QUALITY CONTROL

7876 Deering Ave., Canoga Park, CA 91304-5005
(818) 713-8200 / Fax (818) 702-0729 / SITA LAXGHCR / Tlx 4949166

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757T951229		001	29-12-95	B. SESİGÜR

DISCREPANCY : No 1 HF Transmition on some frequencies

CORRECTIVE ACTION : #1 and #2 HF Transmitters swapped Ground test ok.
Follow and wide place which freks no transmition

TECH	INSP
591 [signature]	

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO 00-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-CEW	B757T951229		062	29-12-95	[illegible]

DISCREPANCY : #R IRU Fail shown DC Fail

CORRECTIVE ACTION	TECH	INSP
#R IRU changed performed Ground test ok.		[illegible]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P/N	POS	S/N OFF	S/N ON
IRU	HG 1055 AD04	#R	474/03	
	HG 1055 AD04			[illegible]

FORM NO CC-1

...NTRY ...D KINGDOM	2. Civil Aviation Authority A Member of the JAA	JAA FORM ONE AUTHORISED RELEASE CERTIFICATE	3. CERTIFICATE REF. NO. 66826
...ANISATION	Honeywell Avionics Systems Limited, Edison Road, Basingstoke, Hampshire, England, RG21 6QD.		5. WORK ORDER / CONTRACT 580167

...1	7. DESCRIPTION	8. PART NO.	9. ELIGIBILITY *	10. QTY.	11. SERIAL / BATCH NO.	12. STATUS / WORK
	INERTIAL REF. UNIT	HG1050AD04	UNKNOWN	1	1462/01	REPAIRED MODIFIED

...ARKS

...ertinent details of work carried out are held at this repair facility under work order stated in block 5.

MODIFICATION STATUS :- 1 & 2
I.A.W. :- 95-8158D TR22

...fe parts will normally be accompanied by maintenance history including life used.

☐ Airworthiness ☐ Conformity only	19. ☑ JAR-145.50 Release to Service ☐ Other regulation specified in block 13
...that the part(s) identified above except as ~~otherwise specified in block 13~~ was (were) manufactured/inspected in ...ce with the applicable ~~design data and~~ with the airworthiness regulations of the stated country. (see below)	Certifies that the work specified above except as otherwise specified in block 13 was carried out in accordance with JAR-145 and in respect to that work, the part(s) is (are) considered ready for release to service. (see below)

...ATURE	16. APPROVAL REFERENCE NUMBER	20. SIGNATURE	21. APPROVAL REFERENCE NUMBER CAA.00116
...E	18. DATE (d/m/y)	22. NAME L. SIDDALS	23. DATE (d/m/y) 21 DEC 95

...NSTALLER RESPONSIBILITIES

...nportant to understand that the existence of the Document alone does not automatically constitute authority to install the part/component/assembly.
...e the user/installer works in accordance with the national regulations of an Airworthiness Authority different from the Airworthiness Authority specified in block 2 it is essential that the user/installer ensures that his/her ...rthiness Authority accepts parts/components/assemblies from the Airworthiness Authority specified in block 2.
...ments 14 and 19 do not constitute installation certification. In all cases the aircraft maintenance record must contain an installation certification issued in accordance with the national regulation by the user/installer before t... ...ft may be flown.

* Installer must cross-check eligibility with applicable technical data

Honeywell

PRODUCT SUPPORT SERVICE REPAIR REPORT

CUSTOMER: BIRGENAIR — AB — 580167

95-4FOP R.0 -00

AREA 2

APPROVED CERTIFICATE No 66826

LRU/SRU PART No	LRU SRU SERIAL No	SUMAR No
29 HG1050AD04	1462/01	J560167

PRODUCT LINE	DATE REC'D	LRU SRU MODEL AND NAME	SPEX	CUSTOMER
3341	95 11 27	IRU	5	00600 E

AIRCRAFT TAIL No	CUSTOMER REJECTION	UNIT OPERATING HOURS	DATE
UNK	NONE	UNK	95

REASON FOR REMOVAL OR REJECTION: R/H IRS FAULT LAMP ILLUMINATED

INCOMING MOD STATUS: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

OUTGOING MOD STATUS: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

CONFORMS: Y N — 95 12 21

LOCATION	REPAIR TIME (HOURS / TENTHS)	WARRANTY REPAIR AUTHORIZED BY/DATE	TECHNICIAN
038			D. Coveator

SUMAR-DIV=A RMKS=UCH CUST PART NUM:

6 A — FAILED PART NUMBER: MODS IN — DISPOSITION: RPL RWK CAL EX
WHY SERVICE WAS PERFORMED (REASON FOR DISPOSITION): 1

6 B — FAILED PART NUMBER: MODS OUT — DISPOSITION: RPL RWK CAL EX
WHY SERVICE WAS PERFORMED (REASON FOR DISPOSITION): 1,2

C — FAILED PART NUMBER: — DISPOSITION: RPL RWK CAL EX
WHY SERVICE WAS PERFORMED (REASON FOR DISPOSITION):

GOODS INWARDS

CONDITION	SEALS INTACT	VISIBLE DAMAGE	PACKING	INSUFFICIENT		
	BROKEN	NO			0425	0425

COMMENT: SEALS -
PHY. DAM -

LAST REPAIR	DATE	SRP No	F.T. DATE
	90 06 01	40089X-1	/ /

ALL WORK TO BE CARRIED OUT IAW GF23

MOD STATUS — SIGNED

INSTRUCTIONS

WORKSHOP INSTRUCTION	TRT	OTHER
REPAIR	25	PLSE EST COST OF REPAIR

SUMAR	DEFECT REPORT	RFQ
YES	YES	NO

CUSTOMER LIAISON: WRIGHT — 951123

FAULT FOUND

X, Y, Z gyro's all failing for low lim.
Extracter handle broken on A5 cca.
Pin Broken in rear connecter (J1B-K15)
Requires mod 2.
Low voltage power supply causing Power Variation fails.
Poor nav performance caused by Y accelerometer.

MOD STATUS: 1 + 2

X, Y & Z gyro's replaced.
Y accelerometer replaced.
L.V.P.S replaced.
CCA extracter replaced.
Mod 2 fitted i.a.w 21-3341-003
Pin J1B-K15 replaced. final test on a.t.e.

Avionics Systems Limited

Dam..... + Mod.....

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC GEN	B757T951229		003	29.12.95	SESIGUR

DISCREPANCY : ATC # 2 Transponder u/s

CORRECTIVE ACTION	TECH	INSP
ATC TRANSPONDER REPLACED Ground Test ok.		

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
ATC Transponder	C66-E1127-1301	# 2	5940	8458

FORM NO.00.1

LliedSignal Deutschland GmbH

AlliedSignal Deutschland GmbH
Air Transport Avionics
Hahnstr. 40
D-60528 Frankfurt/Main 71
Tel: (49)(69)66901526
Fax: (49)(69)6668543
Tlx: 412441

SERVICE SHOP REPORT

ADMINISTRATION

BIRGENAIR
TECHNICAL DEPARTMENT
ATATÜRK AIRPORT
ISTANBUL
TURKEY

FW-A-48895 L

07.11.95

COST EST. REQUIRED: N
LAST REP/RET DATE : 02.09.94
LAST TRACK NO. : 45338

T NO: 066-01127-1301	TYPE: TRA-67A	SERIAL NO. : 8458
TYPE: --- / AC REG: ---	AC S/N: ---	DATE REMOVE:
. DOC.NO: 95-2-RQ-056	REPL. BY P/N:	REPL.BY S/N:

REASON FOR REMOVAL

REVIATED REJECT REASON : FOR REPAIR
ITIONAL INFORMATION :

LITY: Be DATE : 23.11.95 VERIFIED :
LIM. ANALYS. REMARKS:
Fault code "43".

TEST AND REPAIR

E ABBR. PRIM. REP. WORK : Repl. test oscillator
: ADD. :
: x REPAIRS: Replaced defective test oscillator board and realigned it.
: :
: : Installed M2151 R1 (no parts) M2156 R1 (foc).
: :
: : Functional test performed.
:

1. COUNTRY STAAT F.R. GERMANY	2. LUFTFAHRT – BUNDESAMT AUTHORIZED RELEASE CERTIFICATE – AIRWORTHINESS APPROVAL TAG PRÜFSCHEIN – GERÄTEANHÄNGER	3. CERTIFICATE REF. NO. PRÜFSCHEIN-NR. 180-9-95
4. ORGANIZATION ANERKANNTER BETRIEB	AlliedSignal Deutschland GmbH Air Transport Avionics Hahnstrasse 40 D-60528 Frankfurt/Main 71	5. WORK ORDER/CONTRACT ARBEITSAUFTRAG/VERTRAG FW-A-48895

6. ITEM LFD. NR.	7. DESCRIPTION BESCHREIBUNG	8. PART NO. TEILE-NR.	9. ELIGIBILITY (*) VERWENDBARKEIT	10. QTY. ANZAHL	11. SERIAL/BATCH NO. WERK/LOS-NR.	12. STATUS/WORK STAND/ARBEIT
1	TRA-67A	066-01127-1701	various	1	8458	repaired modified inspected

13. REMARKS: BEMERKUNGEN: Installed M2151101, M2156101.

14. **NEW PARTS:** Certifies that the part(s) identified above except as otherwise specified in block 13 was (were) manufactured/inspected in accordance with the airworthiness regulations of the stated country and/or in the case of parts to be exported with the approved design data and with the notified special requirements of the importing country.

NEUE TEILE: Es wird bescheinigt, daß das/die genannte(n) Teil(e), außer wenn anders in Rubrik 13 festgelegt, in Übereinstimmung mit den geltenden Vorschriften des genannten Staates und/oder bei Ausfuhr von Teilen mit den zugelassenen Musterunterlagen und mit den bekanntgegebenen Sonderforderungen des Einfuhrstaates hergestellt/geprüft wurde(n).

15. **USED PARTS:** Certifies that the work specified above except as otherwise specified in block 13 was carried out in accordance with the airworthiness regulations of the stated country and the notified special requirements of the importing country and in respect to that work the part(s) is (are) in condition for safe operation and considered ready for release to service.

GEBRAUCHTE TEILE: Es wird bescheinigt, daß die oben aufgeführten Arbeiten, außer wenn anders in Rubrik 13 angegeben, in Übereinstimmung mit den geltendenVorschriften des genannten Staates und den bekanntgegebenen Sonderforderungen des Einfuhrstaates durchgeführt worden sind und daß das Teil/die Teile sich in einem betriebssicheren Zustand befindet/befinden und für den Betrieb freigegeben ist/sind.

16. SIGNATURE UNTERSCHRIFT

17. NAME NAME H.R. Hanck

18. DATE DATUM 21.12.95

19. ISSUED BY OR ON BEHALF OF THE LUFTFAHRT-BUNDESAMT UNDER AUTHORIZATION REFERENCE
AUSGESTELLT DURCH ODER FÜR DAS LUFTFAHRT-BUNDESAMT IM RAHMEN DER ANERKENNUNG NR.

[redacted]-LBA-0104
FAA-BE5Y 750M
LBA-II A78

Form One/LBA-Muster Nr. 19

20. (*) Cross-check eligibility for more details with parts catalog – Für nähere Einzelheiten Gegenkontrolle mit Teile-Katalog vornehmen.

NOTE

1. It is important to understand that the existence of the Document alone does not automatically constitute authority to install the part/component/assembly.
2. Where the user/installer works in accordance with the national regulations of an Airworthiness Authority different than the Airworthiness Authority specified in block 2 it is essential that the user/installer ensures that his/her Airworthiness Authority accepts parts/components/assemblies from the Airworthiness Authority specified in block 2.
3. Statements 14 and 15 do not constitute installation certification. In all cases the aircraft maintenance record must contain an installation certification issued in accordance with the national regulation by the user/installer before the aircraft may be flown.

ANMERKUNG:

1. Es ist wichtig, darauf hinzuweisen, daß die Bestätigung in dieser Prüfbescheinigung nicht automatisch die Genehmigung einschließt, das Teil/die Baugruppe/Komponente einzubauen.
2. Wenn der Verwender/die einbauende Stelle nach den nationalen Vorschriften einer Luftfahrtbehörde arbeitet, welche nicht die in Rubrik 2 genannte ist, muß der Verwender/die einbauende Stelle sicherstellen, daß seine/ihre Luftfahrtbehörde die Teile/Baugruppen/Komponenten von der in Rubrik 2 genannten Luftfahrtbehörde akzeptiert.
3. Bemerkungen 14 und 15 beinhalten nicht die Einbaugenehmigung. Auf jeden Fall müssen die Aufzeichnungen über die Instandhaltung des Luftfahrzeuges einen in Übereinstimmung mit den nationalen Vorschriften durch den Verwender/die einbauende Stelle ausgestellten Freigabevermerk für den Einbau enthalten, bevor das Luftfahrzeug wieder betrieben werden kann.

AlliedSignal Deutschland GmbH

AlliedSignal Deutschland GmbH
Air Transport Avionics
Hahnstrasse 40
D-60528 Frankfurt/Main
Tel:(49)(69)66901526
Fax:(49)(69)6668543
Tlx:412441

Erfüllungsort und
Gerichtsstand ist
Raunheim

Amtsgericht
Rüsselsheim
Reg.Nr. HRB 2986

AlliedSignal Deutschland GmbH, ATA, Hahnstr.40, 60528 Frankfurt/Main

BIRGENAIR
TECHNICAL DEPARTMENT
ATATÜRK AIRPORT
ISTANBUL
TURKEY

PROFORMA RECHNUNG / INVOICE No. FW-A-48895

Wir bitten um Zahlung nach Erhalt der Rechnung auf unser Konto / payable on receipt of this invoice to our account DEUTSCHE BANK 7903 800 BLZ 500 700 10.

Ihr Auftrag / Your Order	Unser Zeichen / Our Ref.	Frankfurt/Main,
95-2-RO-056		27.12.95

Das nachstehende Gerät / The below listed equipment

Teil-Nr. / Part No.	Beschreibung / Description	Ser.-Nr. / S/N
066-01127-1301	TRA-67A	8458

haben wir in Ihrem Auftrag repariert. / has been repaired in accordance with your order.

Pos	Qty	Country of origin : USA	DM-Each	DM-Total
		P.N. / T.N. — TYPE / BEZEICH. — S.N./ S.N.		
1	1	066-01127-1301 TRA-67A 8458 RETURNED AFTER FREE-OF-CHARGE WARRANTY REPAIR AND MODIFICATION		
		VALUE OF ITEM FOR CUSTOMS PURPOSES ONLY: DM 8509,00		
			TOTAL	0,00

Die Ware bleibt bis zur vollständigen Bezahlung unser Eigentum.

AIRCRAFT TECHNICAL DATA

A/C TYPE: B757-225
A/C REG: TC-GEN
A/C S/N: 22206
A/C LINE NO: 31
A/C VAR NO: NA017
A/C TSN (As of 7.Feb.96): 29269 Hrs
A/C CSN (As of 7.Feb.96): 13499 Cyc

ENGINES:

TYPE: RB211-535E4
ENGINE S/N: #1 30511, #2 30514
ENGINE TSN (As of 7.Feb.96): #1 22567 Hrs, #2 24264 Hrs
ENGINE CSN (As of 7.Feb.96): #1 10258 Cyc, #2 10918 Cyc

APU:
TYPE: GARRETT GTCP331-200
APU P/N: 3800298-1-5
APU S/N: P1689

A/C MAINTENANCE STATUS

CHECK TYPE	LAST DONE			DUE			REMAINING		
	DATE	HRS	CYC	DATE	HRS	CYC	TIME	HRS	CYC
A	16.1.96	29200.50	13476		29600.50			304	
C	30.5.95	27012.55	12613	30.11.96	32012.55		303 DAY	2716	
S4C	25.7.90	17289	8689	25.3.97		20889	418 DAY		7190
SA	05.1.96	29090.50	13451			13751			252
SC	30.5.95	27012.55	12613	30.11.96		15613	303 DAY		2114

MAINTENANCE INTERVALS

A CHK: 400 HRS
C CHK: 5000 HRS OR 18 MONTHS WHICHEVER COMES FIRST
S4C CHK: 12000 CYC OR 72 MONTHS " " "
SA CHK: 300 CYC
SC CHK: 18 MONTHS OR 3000 CYC " " "

1-1 GENERAL

Birgenair B757-200 is maintained in an airworthy condition by a system of maintenance activities which are closely related to Boeing's Maintenance Planning Data D622N001 and FAA's MRB. All Boeing's Specified Maintenance activities are carried out at intervals specified by Boeing and FAA for these activities, the relevant task cards or Birgenair's Task Cards to be completed during each maintenance stop.

The following Maintenance check interval shall be performed:

Transit Check (TR)	:	Before each flight
Daily Check (DY)	:	Before first flight of the day
A Check (System/Zonal) (A)	:	400 flight hours
A Check (Structural) (SA)	:	300 flight cycles
C Check (System/Zonal)	:	5000 flight hours or 18 months (Whichever come first)
C Check (Structural) (SC)	:	3000 flight cycles or 18 months (Whichever comes first)
4C Check (Structures)	:	12000 flight cycles or 72 months (Whichever comes first)

1-2 The Transit Check (TR)

TR Check is intented to assure continious serviceability of a transiting Aircraft. This check is planned for use prior to each flight and is basically a "walk-around" inspection which requires a check of the aircraft interior and exterior for obvious damages, leaks, proper operating equipment, security of attachment and required servicing.
Transit Check will be performed by Licensed aircraft technician or cockpit crew according to Birgenair B757 TRANSIT CHECK CARD.

1-3 The Daily Check (DLY)

DLY Check, more comprehensive than the Transit Check, is intented for in-service airplanes. A daily check should normally be performed before the first flight of the day (check should not exceed 48 elapsed hours). Daily check must be performed if a ground stop of 4 or more hours takes place on a designated station 24 calender hours have elapsed since the preceeding check.
Daily check will be performed by licenced Aircraft Technician According to BIRGENAIR DAILY CHECK CARD.

1-4 A Check

There are two different A Check intervals specified for B757 Aircraft Maintenance.

For the System Maintenance (Including Lubrication) and Zonal Inspection Programs, the A check interval is 400 Flight Hours. The System/Zonal A check is desinated "A".

Note : The Systems/Zonal A check interval may be further escalated from 400 up to 500 flight hours after completing next C check provided that the "A" and "C" check findings are satisfactory and escalation is approved by the Turkish CAA.

For the Structural Inspection Program, the A check interval is 300 flight cycles. The Structural A check is designated "SA".
A and SA check will be performed by Birgenair's licenced technician or any certified maintenance base, depending work load.

1-5 C Check

There are two different C Check intervals specified for B757 Maintenance.
For the System Maintenance (including lubrication) and Zonal Inspection Programs, the C Check interval is 5000 flight Hours.

Note : The System/Zonal C check may be further escalated from 5000 up to 6000 flight hours or 18 months (whichever come first) completing next C check provided that the "A" and "C" check findings are satisfactory and escalation is approved by the Turkish CAA.
For the Structural Inspection Program, the Structural C check is to be repeated at intervals of 18 months (calendar time) or 3000 flight cycles (whicever comes first).

1-6 Check With Fixed Flight Hours Intervals

Some check intervals specified in flight hours or cycles. Birgenair will transfer such inspections to the closest "More frequent" Daily or A or C check.

Note : Task specified to be accomplished at a given letter check are unique and are therefore not redundant with other tasks at different letter checks. For example (assuming 400 hrs A check, 5000 hrs C check):
1-The C check task do not satisfy the A check task requirements.
2-Normally during the C check, all lesser checks which become due are also accomplished; i.e. the C check package of work would include the 1A+2A+3A+4A+6A+1C check tasks.
3-The 6A check package would normally consist of the 1A+2A+3A+6A+ check tasks.

1-7 Short-Term escalation

Time limitations for aircraft inspections or component inspections, check or replacements may be individually extended under the following conditions:

1- The need for escalation results from some unforeseen event that inhibits accomplishing the task at the scheduled period.
2- Short-term escalations shall not exceed 10 percent of the limit without invidual CAA approval.
3- The escalation does not result in exceeding the following:
   a) Intervals specified by FAA and CAA Airworthiness Directives.
   b) Life limits.
   c) Limitations specified by Minimum Equipment Lists or Configurations Deviation Lists.
   d) Special Structural Inspection Program or damage tolerance requirements.

1-8 Supplementary Inspection Requirement.

An order maintenance activities has been developed by Birgenair to improve requlatory or reliability, as well as to increase passenger comfort by giving attention cosmatics and other subjects not directly involving the aircraft's systems. Besides the tasks developed by Birgeniar, suplementary inspection requirements originating from;

- Service Letter or Service Bulletines issued by Boeing.
- Service Letter or Service Bulletines issued by Engine or Component Manufactures.
- Technical order issued by Birgenair originating from Civil Aviation Authorities.

Interval revision procedures allow quick response to such requirements. As soon as the new requirements is incorporated in the MPD. It is to be removed from Supplementary Inspection Requirement.

1-9 Engine Maintenance Program

The Rolls Royce RB211-535E4 Engine Maintenance Program is monitored "on condition". It is based on Chip Detector Inspections, Barescope Inspections, Oil Consumption, Crew Alerting System (EICAS) and cruise performance program, which continously monitor engine and associated system limitation and parameter.

T. C.
ULAŞTIRMA BAKANLIĞI
SİVİL HAVACILIK GENEL MÜDÜRLÜĞÜ
Republic of Turkey
Ministry of Transportand Communications
General Directorate of Civil Aviation

HAVA ARACI TESCİL SERTİFİKASI
CERTIFICATE OF REGISTRATION

SERTİFİKA NO
SERTIFICATE NO : 980

1. Milliyeti ve tescil işaretleri (Nationality and Registration marks) T. C.	2. İmalatçısı, tipi ve modeli (Manufacturer, type and model)	3. Seri Numarası (Serial number)
GEN	BOEING B757-225	22206

4. İmalat Yılı (Year of Manufacture)	5. Sahibinin Adı - Adresi (Name and Address of Owner)
1985	BIRGEN HAVACILIK ÇARTER GRUBU TIC.VE SAN.A.Ş. Cumhuriyet Cad.No:111 Kat:4 ELMADAĞ / İSTANBUL

6. Azami kalkış ağırlığı Max. Take-off weight)	7. İşleticinin Adı-Adresi (Name and Address of Operator)
108864 kg.	BIRGEN HAVACILIK ÇARTER GRUBU TIC.VE SAN.A.Ş. Cumhuriyet Cad. No:111 Kat:4 ELMADAĞ / İSTANBUL

Bu Sertifika

Yukarıda belirtilen hava aracına 7 ARALIK 1944 tarihli Uluslararası Sivil Havacılık Antlaşması ve Ulaştırma Bakanlığı 19 EKİM 1983 tarih ve 2920 sayılı Türk Sivil Havacılık Kanunu hükümlerine uygun olarak verilmiştir.

This Certificate is issued, pursuant to the Convention on International Civil Aviation dated 7 th December 1944 and the regulations given by or by virtue of the Turkish Laws in respect of above mentioned aircraft.

Verildiği tarih ve yer
(Place and date of issue)
SHGM - ANKARA
01.06.1995

S. [illegible]
[illegible]et ÜNEL
Sivil Havacılık
For Min[illegible]ication
ULAŞTIRMA BAKANI A.

T.C.
ULAŞTIRMA BAKANLIĞI
SİVİL HAVACILIK GENEL MÜDÜRLÜĞÜ

REPUBLIC OF TURKEY
MINISTRY OF COMMUNICATIONS
General Directorate of Civil Aviation

GÜRÜLTÜ SERTİFİKASI

NOISE CERTIFICATE

SERTİFİKA NO
CERTIFICATE NO :........................

1. Milliyeti ve tescil işareti (Nationality and Registration marks)	2. İmalatçısı, tipi ve modeli. (Manufacturer, type and model)	3. Seri Numarası (Serial number)
T.C. GEN	BOEING B 757,225	22206

4. İmalat Yılı (Year of Manufacture)	5. Motor Tipi (Engine Type)	6. Propeller Tipi (Propeller Type)
1985	RB211-535E4	-

7. İlave Değişiklikler (Additional Modifications)	8. Azami Gürültü Sertifikasyon Ağırlığı (Max Noise Certification weight)
-	108864 kg.

Bu sertifika,
Yukarıda belirtilen hava aracına 7 ARALIK 1944 tarihli Milletlerarası Sivil Havacılık Antlaşması ve Ulaştırma Bakanlığı 19 EKİM 1983 tarih ve 2920 sayılı Türk Sivil Havacılık Kanunu hükümlerine uygun olarak verilmiştir.

This Noise Certificate is issued, pursuant to the Convention on International Civil Aviation dated 7.th December 1944 and the regulations given by or by virtue of the Turkish laws in recpect of above mentioned aircraft.)

Verildiği tarih ve yer.
(Place and date of issue)

11.03.1993
SHGM-ANKARA

For
ÜMİT ÇENDEK
DAİRE BAŞKANI
ULAŞTIRMA BAKANI A.
Minister of Communication

Ölçüm Noktaları (Measurement Points)	Gürültü Düzeyleri (Noise Levels)	Gürültü Limitleri (Noise Limits)	%90 Emniyet Sınırı (90 Percent Confidence)
Yanal Gürültü Ölçüm Noktası (Side-Line Noise Measurement Point)	93.1	98.2	
Yaklaşma Gürültü Ölçüm Noktası (Approach Noise Measurement Point)	95.0	101.8	
Uçuş Gürültü Ölçüm Noktası (Start take off Measurement Point)	84.8	93.7	

Gürültü değerleri ICAO Ek 16 Bölüm 3 şartlarını sağlamaktadır.

The noise levels are in compliance with the requirements of ICAO Annex 16 Chapter 3

AIRCRAFT WEIGHT AND BALANCE REPORT

W & B REPORT NO : 4 | REGISTRATION : TC - GEN | DATE : 30/05/

DESCRIPTION :

a) Interior Configuration from 216 to 219 pax per GAMCO EO GE25-001 and Birgenair's installation Triple seat and Windscreen
b) Service Bulletin aplication while C7 Check.

EQUIPMENT LIST DEDUCTION

ITEM	DESCRIPTION	WEIGHT LBS	ARM INC	MOMENT IN-LBS
01	CLOSET ASSY LH	118.50	393.00	46570.50
02	OXYGEN BOTTLES 4 EA	24.96	406.00	10133.76
03	SEAT ASSY LH	79.40	440.00	34936.00
04	OVERHAED PANEL	2.00	395.00	[illegible]90
	TOTAL	224.86	411.06	92430.26

EQUIPMENT LIST ADDITION

ITEM	DESCRIPTION	WEIGHT LBS	ARM INC	MOMENT IN-LBS
01	WINDSCREEN	35.05	374.00	13109.22
02	TRIPLE SEAT LH	79.40	411.00	32633.40
03	TRIPLE SEAT LH	57.00	440.00	25080.00
04	SEAT BELT ROW 1	0.70	411.00	287.70
05	LIFE VEST ROW 1	1.30	398.00	517.40
06	PSU ASSY BOEING P/N 417N3100-441D	10.50	395.00	4147.50
07	O2 BOTTLE 2EA	12.48	441.50	5509.92
08	O2 BOTTLE 2EA	12.48	499.00	6227.52
09	SB 757-25-0130	0.60	1791.60	1074.96
10	SB 757-26A0020	21.40	1190.00	25466.00
11	SB RB 211-73-B046	1.40	904.00	1265.60
	TOTAL	224.39	500.73	112358.20

Prepared by: [signature] | Approved by: [signature]

AIRCRAFT WEIGHT and BALANCE REPORT

W&B REPORT NO : 4 REGISTRATION: TC-GEN DATE: 20/12/1995

OPERATING EMPTY WEIGHT CALCULATION

ITEM	WEIGHT Lbs	ARM In	MOMENT In-Lbs	MAC %
BASIC EMPTY WEIGHT	128772.86	1033.05	133028821.31	20.60
CREW	340.00	248.00	84320.00	
PILOT(2)	66.00	285.00	18810.00	
FLT CREW BAGGAGE	130.00	349.00	45370.00	
FLT ATTENDANT(1) DR 1	260.00	701.00	182260.00	
FLT ATTENDANT(2) DR 2	130.00	1324.00	172120.00	
FLT ATTENDANT(1) DR 3	130.00	1620.00	210600.00	
FLT ATTENDANT(1) DR 4	165.00	399.00	65835.00	
F/A BAGGAGE				
MANUAL & FORM IN COCKPIT	17.00	298.00	5066.00	
CATERING EQUIPMENT	516.00	316.00	163056.00	
GALLEY 1A	657.00	390.00	256230.00	
GALLEY 1B	476.00	1621.00	771596.00	
GALLEY 4A	1594.00	1700.00	2709800.00	
GALLEY 4B				
POTABLE WATER	447.00	1624.20	726017.40	
LAVATORY FLUID	25.00	314.00	7850.00	
LAVATORY A	25.00	1262.00	31550.00	
LAVATORY B	25.00	1297.00	32425.00	
LAVATORY C	25.00	1297.00	32425.00	
LAVATORY D				
FLY AWAY KIT IN FWD CARGO	240.00	510.00	122400.00	
MAIN WHEEL & TIRE	103.00	510.00	52530.00	
NOSE WHEEL & TIRE	165.00	510.00	84150.00	
MISSELENOUS				
OPERATING EMPTY WEIGHT REVENUE CONFIGURATION	134606.86	1033.46	136803231.71	20.61

FOR LOAD CHART BASIC OPERATING EMPTY WEIGHT C.G. IN %MAC

$$C\ OF\ G = \frac{1033.46-991.30}{1997} = 20.61\ \%\ MAC$$

Prepared by :

Approved by :

BASIC EMPTY WEIGHT CALCULATION

ITEM	WEIGHT LBS	ARM INC	MOMENT IN-LBS
BASIC EMPTY WEIGHT FROM REPORT 3	128772.96	1033.05	133028821.31
DEDUCTION	224.86	411.06	92430.26
ADDITION	224.39	500.73	112356.80
BASIC EMPTY WEIGHT	128772.96	1033.20	133048749.85

C.G = $\frac{1033.21 - 991.9}{1997}$ =20.69 %MAC

Prepared by:

Approved by:

BIRGENAIR

B757 " A " CHECK

DATE : 16.1.96 A/C : TC-GEN

PHASE : A6 STA : Pcp

ITEM	ZONE	WORK DESCRIPTION - 5-AIRCRAFT INTERIOR	MECH	INSP
5-08	211-212	CHECK FOLLOWING UNITS' COOLING AIR INLET SCREENS FOR CONTAMINATION AND CLEAN AS REQUIRED. * EICAS DISPLAY UNIT * ELECTRONIC ATTITUDE DIRECTOR INDICATOR (EDAI) * ELECTRONIC HORIZONTAL SITUATION INDICATOR (EHSI) * FLIGHT MANAGEMENT COMPUTER ON THE CONTROL DISPLAY UNIT MPD REF : 31-41-01-4A AMP CARD : 31-008-01 34-22-00-6A 34-016-01 34-22-00-6B 34-017-01 34-61-02-2A 34-019-01 PHASE : 3A	[redacted]	
5-09	200	CHECK THE PASSENGER CABIN INTERIOR FOR GENERAL CONDITION PHASE : 1A	[redacted]	
5-10	200	CHECK LAVATORIES (AD 74-08-09) * GENERAL CONDITION and PLACARD LEGIBILITY. * LAVATORY WASTE CONTAINER DOORS FOR OPERATION, LATCHING AND PROPER SEALING. * GENERAL VISUAL INSPECTION OF LAVATORY FIRE EXTINGUISHER FOR EVIDENCE OF LEAKAGE/DISCHARGE. * CHECK LAVATORY FLUSH PUMP AND TIMER OPERATION. * CHECK SMOKE DETECTOR IN EACH LAVATORY. LAV A LAV B PHASE : 1A LAV C LAV D	[redacted]	
5-11		CHECK PORTABLE FIRE EXTINGUISHERS FOR CONDITION AND SECURITY OF INSTALLATION. MPD REF : 26-26-02-6B AMP CARD : 26-013-02 PHASE : 1A	[redacted]	

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757[illegible]060105	AD 90-23-06	003	05.01.96	C ŞAŞMAZ

DISCREPANCY : PERFORM A VISUAL INSP OF WING LE SLAT TE WEDGE ~~VISUAL INSP~~ IAW FOR DELEMINATION IAW THE AD 90-23-06

CORRECTIVE ACTION : INSP PERFORMED. NO DELEMINATION WAS FOUND

TECH	INSP
[illegible] 1823	F. [illegible] 877

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO 00-1

BOEING AIRPLANE COMPANY
AIRWORTHINESS DIRECTIVE
LARGE AIRCRAFT

93-09-01 **BOEING:** Amendment 39-8568. Docket 92-NM-209-AD. AP. P.

Applicability: Model 747-400 series airplanes, passenger and combi configurations, line positions 696 through 906, inclusive; Model 757 series airplanes, line numbers 1 through 488, inclusive; and Model 767 series airplanes, line numbers 1 through 421, inclusive; certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To prevent an improper electrical connection of the fire extinguishing system due to a damaged discharge cartridge or electrical connector on the fire extinguisher bottle, accomplish the following:

(a) Within 120 days after the effective date of this AD, conduct a detailed visual inspection to detect damage to the discharge cartridges and the electrical connectors on each fire extinguisher bottle installed in auxiliary power unit (APU), cargo compartment, and engine fire extinguishing systems, in accordance with Boeing Alert Service Bulletin 747-26A2210, dated October 29, 1992 (for Model 747-400 series airplanes); Boeing Alert Service Bulletin 757-26A0032, dated October 22, 1992, as amended by Notice of Status Change 757-26A0032 NSC 2, dated February 4, 1993 (for Model 757 series airplanes); or Boeing Alert Service Bulletin 767-26A0089, dated October 22, 1992 (for Model 767 series airplanes); as applicable. The operational tests of the discharge cartridges specified in the Accomplishment Instructions of the applicable service bulletin are not required to be performed prior to accomplishing the detailed visual inspection required by this paragraph. Since an operational test of the fire extinguishing system can be successfully completed even if there is a damaged pin or connector, this inspection must be performed by visually examining the discharge cartridge and the electrical connector.

(b) If any damage is detected during the inspection required by paragraph (a) of this AD, prior to further flight, replace the damaged item with a serviceable part and perform an operational test of the bottle discharge cartridge circuit in accordance with Boeing Alert Service Bulletin 747-26A2210, dated October 29, 1992 (for Model 747-400 series airplanes); Boeing Alert Service Bulletin 757-26A0032, dated October 22, 1992, as amended by Notice of Status Change 757-26A0032 NSC 2, dated February 4, 1993 (for Model 757 series airplanes); or Boeing Alert Service Bulletin 767-26A0089, dated October 22, 1992 (for Model 767 series airplanes); as applicable. Any discrepancy detected as a result of the operational test must be corrected prior to further flight.

(c) The cross-wiring end-to-end functional tests required by AD 89-03-51, Amendment 39-6213, do not have to be accomplished following performance of the inspection required by paragraph (a) of this AD, if the inspection is accomplished one discharge cartridge at a time.

(d) As of the effective date of this AD, no person shall install a fire extinguisher bottle on any airplane unless the discharge cartridge and electrical connector have been inspected in accordance with this AD.

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

NOTE: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

(f) Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate the airplane to a location where the requirements of this AD can be accomplished.

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757T941108	AD93-08-01	008	08.Nov.94	U.KALKAN

DISCREPANCY : According to AD 93-08-01 Paragraph "d" and reference SB 757-26A 0032 dtd 22.10.94 perform the inspection of discharge cartridges and electrical connecters of the Engine, Cargo, APU Fire Ext. Bottles. Also perform operational tests of discharge circuits IAW MM 26-21-00, 26-22-00 and 26-23-00

CORRECTIVE ACTION :	TECH	INSP
Following inspections and operational test had been completed.		
1- Engine Fire Ext. Bottles No.1 and No.2, electrical connectors, discharge cartridges have been inspected. No defects found.		BIRGENAIR 1287
2- Engine Fire Bottles squib tests circuit operational tests performed according to MM 26-21-00 page 503. Green lights illuminated.		BIRGENAIR 1287
Continued →		BIRGENAIR 1287

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO 00-1

CORRECTIVE ACTION : (CONT...)	TECH	INSP
3- Engine Fire Bottles No.1 and No.2 ~~Bottle~~ Pressure Switches tested IAW MM 26-21-00 Page 501		BIRGENAIR 1287
4- The fire extinguishing system test for Eng #1 and #2 have been performed IAW MM Pages 503 thru 511 with test equipment A26001-165. The system operates normally.		BIRGENAIR 1287
Cargo 5- Fwd and Aft Cargo Bottles No 1 and No 2 electrical connectors, squib cartridges have been inspected. No defects found.		BIRGENAIR 1287
6- Cargo Fire Bottles squib test circuit operational tests performed on P61 panel IAW MM 26-23-00 page 504. All green lights illuminated.		BIRGENAIR 1287
7 Cargo Fire Bottle pressure switches tested IAW MM 26-23-00 page 501-503. Found OK		BIRGENAIR 1287
8. Cargo Fire extinguishing System Test performed IAW MM 26-23-00 page 504 thru 518 by using test equipment A26001-165. Operation normal.		BIRGENAIR 1287
APU 9- APU fire bottle, electrical connectors, squib cartridges have been inspected. No defects found.		BIRGENAIR 1287
10- APU squib test circuit have been tested on P61 panel. Green lights illuminated. Operates normally		BIRGENAIR 1287
11- ~~Continued~~		BIRGENAIR 1287

Continued on Page 3.

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEM	B757T94110-1	AD 93-08-01	008 Sheet 2	08. Nov. 94	U. KALKAN

DISCREPANCY :

Continued from page 2 of 3.

CORRECTIVE ACTION : Continued

11- APU Fire Extinguishing System Test Performed IAW MM 26-22-00 page 504 thru 511. ~~[illegible]~~ The system control on P8 panel in the cockpit operates normally. However during APU Remote Fire Panel system test the bottle discharge light didn't illuminate on the

TECH	INSP
[signature]	BIRGEN 1287

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

FORM NO OO-1

CORRECTIVE ACTION : (CONT...)	TECH	INSP
test equipmet A26001-165 and		
there wasn't any indication on the		
voltmeter.(Showed 0 V dc).		
The P62 Panel (APU remote Control)		
S484 Switch (Apu fire Shutdown)		
The wire between #3 Contact and		BIRGENAIR
TBLA8 found cut intentionally.		
The wiring repaired ~~properly~~ temporarily.		BIRGENAIR 1287
System operates normally but		
TBLA8 must be replaced in the		
first opportunity. Terminal block ordered.		BIRGENAIR
Will be installed when arrives		

Applicable to TC-GEN. Material instead

Mod. planned for 2C3

BW 94-14

Applicable to GEN.

BOEING AIRPLANE COMPANY
AIRWORTHINESS DIRECTIVE
LARGE AIRCRAFT

94-13-02 BOEING: Amendment 39-8942. Docket 93-NM-111-AD.

Applicability: Model 757 series airplanes equipped with Rolls-Royce RB211-535E4/E4B engines; certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To prevent deployment of a thrust reverser in flight and subsequent reduced controllability of the airplane, accomplish the following:

(a) For airplanes on which the sync-lock feature was not installed during production or as a modification in accordance with Boeing Service Bulletin 757-78-0032: Within 4,000 hours time-in-service after the effective date of this AD, and thereafter at intervals not to exceed 4,000 hours time-in-service until the modification required by paragraph (b) of this AD is accomplished; accomplish paragraphs (a)(1) and (a)(2) of this AD to verify proper operation of the thrust reverser system. Prior to further flight, repair any discrepancy found, in accordance with the procedures described in the Boeing 757 Maintenance Manual.

(1) Perform a "Thrust Reverser-Auto Restow Test" in accordance with the procedures described in Section 78-31-00 of the Boeing 757 Maintenance Manual.

(2) Perform an "Actuator Lock and Crossover Shaft Integrity Test" in accordance with the procedures described in Section 78-31-00 of the Boeing 757 Maintenance Manual.

(b) For airplanes on which the sync-lock feature was not installed during production or as a modification in accordance with Boeing Service Bulletin 757-78-0032: Within 5 years after the effective date of this AD, accomplish the requirements of either paragraph (b)(1) or (b)(2) of this AD. Accomplishment of either of these installations constitutes terminating action for the tests required by paragraph (a) of this AD.

(1) Install an additional thrust reverser system locking feature (sync-lock installation) in accordance with Boeing Service Bulletin 757-78-0032, Revision 2, dated May 12, 1994.

NOTE 1: Revision 2 of Boeing Service Bulletin 757-78-0032 references Rolls-Royce Service Bulletins RB.211-78-9613 and RB.211-78-9627 as additional sources of service information. The intent of paragraph (b)(1) of this AD is that the appropriate revision levels of the Rolls-Royce service bulletins to be used in conjunction with Boeing Service Bulletin 757-78-0032 are as follows: Rolls-Royce Service Bulletin RB.211-78-9613, dated December 3, 1992, or Revision 1, dated March 5, 1993, or Revision 2, dated October 1, 1993; and Rolls-Royce Service Bulletin RB.211-78-9627, dated December 3, 1992.

(2) Install a revised thrust reverser sync-lock in accordance with Boeing Service Bulletin 757-78-0032, Revision 2, dated May 12, 1994, and Rolls-Royce Service Bulletin RB.211-78-9822, dated October 1, 1993.

NOTE 2: Rolls-Royce Service Bulletin RB.211-78-9822 references Rolls-Royce Service Bulletin RB.211-78-9613 as an additional source of service information for airplanes equipped with Rolls-Royce RB211-535E4/E4B engines. Rolls-Royce Service Bulletin RB.211-78-9613 references Rolls-Royce Service Bulletin RB.211-78-9627 as an additional source of service information. The FAA's intent is that the appropriate revision levels to be used in conjunction with Rolls-Royce Service Bulletin RB.211-78-9822 are as follows: Rolls-Royce Service Bulletin RB.211-78-9613, Revision 2, dated October 1, 1993; and Rolls-Royce Service Bulletin RB.211-78-9627, dated December 3, 1992.

(c) Within 4,000 hours time-in-service after accomplishing the modification required by paragraph (b) of this AD, or within 4,000 hours time-in-service after the effective date of this AD, whichever occurs later; and thereafter at intervals not to exceed 4,000 hours time-in-service: Accomplish the "Thrust Reverser Sync-Lock Integrity Test" specified below to verify that the sync-locks have not failed in the "unlocked" state. Prior to further flight, repair any discrepancy found, in accordance with procedures described in the Boeing 757 Maintenance Manual.

1. **General**

A. Use this procedure to test the integrity of the thrust reverser sync locks. The procedure must be performed on each engine.

2. **Thrust Reverser Sync Lock Test**

A. Prepare for the thrust reverser sync lock test.

(1) Open the AUTO SPEEDBRAKE circuit breaker on the overhead circuit breaker panel, P11.

(2) Do steps 2.A.(2)(a) through 2.A.(2)(f) to supply power to the thrust reverser system:

(a) Make sure the thrust levers are in the idle position.

(b) Make sure the thrust reversers are retracted and locked.

(c) Make sure these circuit breakers on the main power distribution panel, P6, are closed:

1) L ENG SYNC LOCK
2) R ENG SYNC LOCK-ALTN

(d) Make sure these circuit breakers on the overhead circuit breaker panel, P11, are closed:

1) LANDING GEAR POS SYS 1
2) T/R IND R
3) T/R CONT-ALTN-R
4) T/R IND L
5) T/R CONT L
6) R ENG SYNC LOCK
7) T/R CONT R
8) EICAS CMPTR LEFT
9) EICAS UPPER IND
10) EICAS CMPTR RIGHT
11) EICAS LOWER IND
12) EICAS DISPLAY SW
13) EICAS PILOTS DSP
14) AIR/GND SYS 1
15) AIR/GND SYS 2
16) LANDING GEAR POS SYS 2
17) PROX SW TEST

(e) Supply electrical power.

(f) Supply pressure to the left (for the left engine) or right (for the right engine) hydraulic system.

B. Do the thrust reverser sync lock test.

(1) Use the SENSOR CHANNEL SELECT thumb switches to set the PSEU code for the auto-restow proximity sensor.

(a) On PSEU (-17), The left engine code is 433.

(b) On PSEU (-16), The left engine code is 105.

(c) The right engine PSEU code is 099.

NOTE: Step 2.B.(2) will cause the Hydraulic Isolation Valve (HIV) to open for approximately 5 seconds. Steps 2.B.(3) through 2.B.(5) must be done during this 5 second time. Steps 2.B.(2) through 2.B.(5) may be repeated if necessary.

(2) Push the TARGET TEST switch on the PSEU and hold for one second.

(3) Make sure the TARGET NEAR light on the PSEU comes on after approximately four seconds.

(4) Make sure that the EICAS Advisory message L(R) REV ISLN VAL shows for approximately 3 seconds and then does not show.

(5) Make sure the sync lock manual unlock lever on the right sleeve of the reverser does not extend.

(6) Push and release the RESET switch on the PSEU.

(7) Open the applicable circuit breaker(s):
(a) For the left engine;
L ENG SYNC LOCK (Panel P6)
(b) For the right engine:
R ENG SYNC LOCK (Panel P11)
R ENG SYNC LOCK-ALTN (Panel P6)
(8) Move the left (right) reverse thrust lever up and rearward to the reverse thrust position.
(9) Make sure that the thrust reverser does not extend.
(10) Move the left (right) reverse thrust lever to the forward and down position.
C. Put the airplane back to its usual condition.
(1) Remove hydraulic pressure.
(2) Close the applicable circuit breaker(s).
(a) For the left engine;
L ENG SYNC LOCK (Panel P6)
(b) For the right engine;
R ENG SYNC LOCK (Panel P11)
R ENG SYNC LOCK-ALTN (Panel P6)
(3) Close the AUTO SPEEDBRAKE circuit breaker on the overhead circuit breaker panel, P11.
(4) Remove electrical power.
D. Repeat the thrust reverser sync lock test on the other engine.

(d) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

NOTE 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

(e) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(f) The modification shall be done in accordance with Boeing Service Bulletin 757-78-0032, Revision 2, dated May 12, 1994; and/or Rolls-Royce Service Bulletin RB.211-78-9822, dated October 1, 1993. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207; and Rolls-Royce plc, P.O. Box 31, Derby DE24 8BJ, England, ATTN: Technical Publications Department. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(g) This amendment becomes effective on July 20, 1994.

FOR FURTHER INFORMATION CONTACT:
Jeffrey Duven, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Transport Airplane Directorate, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (206) 227-2688; fax (206) 227-1181.

☐ AEROPUERTO LAS AMERICAS ☐ AEROPUERTO PUERTO PLATA

☐ AEROPUERTO HERRERA ☐

A CUENTA DE ____________________

DIRECCION ____________________

FECHA: ____________ FACTURA No. 34045

AVION No.			VUELO No.	
TARJETA CREDITO No.			UNIDAD ABAST. No.	
PLANTA	CREDITO	CONTADO	PREPAGO	No. DE CUENTA

PRODUCTO	CODIGO
☐ TURBO FUEL ☐ AV GAS	☐ 1020190 ☐ 0520490
☐ ACEITE	☐

	PRECIO	
GLS.		
IMPUESTO		
TOTAL		

Certifico que todas las tapas de llenado han sido chequeadas y encontradas debidamente cerradas. Al realizar las pruebas Hydrokit de detección de agua se ha encontrado el producto libre de agua.

Los productos señalados arriba se recibieron en buenas condiciones.

____

PILOTO O INGENIERO DE VUELO

POR EL SUPLIDOR: ____________________

VENTA No.	LECTURA FINAL EN GALONES
1 1	4 4 8 1 8 6 5
1 5 1	4 4 8 1 8 6 3
No. DE VENTA PREVIA	LECTURA INICIAL EN GALONES

GALONES ENTREGADOS: 02

OBSERVACIONES: ____________________

ESSO STANDARD OIL S. A. LIMITED
Apartado Postal 1026 * Tel.: (809) 565-661,
Fax: (809) 567 - 1596 * Telex RCA 4102
Santo Domingo, República Dominicana

2 GALLONES

7550 Gallons

☐ AEROPUERTO LAS AMERICAS ☐ AEROPUERTO PUERTO PLATA
☐ AEROPUERTO HERRERA ☐

A CUENTA DE

DIRECCION

FECHA

FACTURA No. 34044

AVION No.	VUELO No.

TARJETA CREDITO No.	UNIDAD ABAST. No.

PLANTA	CREDITO	CONTADO	PREPAGO	No. DE CUENTA

PRODUCTO	CODIGO
☐ TURBO FUEL ☐ AV GAS	☐ 1020100 ☐
☐ ACEITE	☐

	PRECIO	
GLS.		
IMPUESTO		
TOTAL		

Certifico que todas las tapas de llenado han sido chequeadas y encontradas debidamente cerradas. Al realizar las pruebas Hydrokit de detección de agua se ha encontrado el producto libre de agua.

Los productos señalados arriba se recibieron en buenas condiciones.

FIRMA O INGENIERO DE VUELO

POR EL SUPLIDOR:

VENTA No.	LECTURA FINAL EN GALONES
[illegible]	1 5 9 6 1 [illegible]
No. DE VENTA PREVIA	LECTURA INICIAL EN GALONES

GALONES ENTREGADOS: ➡ 7550

OBSERVACIONES:

ESSO STANDARD OIL S. A. LIMITED
Apartado Postal 1026 * Tel.: (809) 565 661,
Fax: (809) 567 - 1596 * Telex RCA 4102
Santo Domingo, República Dominica

~~Fuel Fuel~~

ture Fuel

00 pounds (CANCUN

7400. { = 7550 US Gallons
= 02 US Gallons

5.000 pounds

7600 LBS → TAKEN FROM CANCUN
4760 LBS → " " POP

```
ACFT ICGEN      CKL LM          FLT NO AL0301    FMT 33

COMPUTED FOR MDPP/CYQX  FOR ETD 02.30Z
               FUEL   TIME  DIST   ARRIVE   TAKEOFF  LAND   AV PLD OPNLWT
 IA CYQX    034259 04.13 2002   06.51Z    219286 184027 038000 134300
        YJT 005259 00.35 0163   SECONDARY ALT-NIL     FOD 011727
HLD         003512 00.30
RES         002956 00.25
ADD         000000 00.00
REQD        045986 05.43
XTR         000000 00.00
TOT         045986 05.43  UNITS LBS  DXR MAY A

CAPTAIN -                 F/O -                    F/E -

MDPP DCT PISOS B891 GRANN G432 BDA A632 ELTIN DCT GRUPI DCT RZ DCT
CYQX

MDPP/0330/ELTIN/0370
WIND P038  MXSH 03  RTE R02

CPT          FL   SOT  TAS WIND   AW   COMP ZD  ZT   ETA/ATA  CT   ZF   REM
              LAT       LONG          MT  MH

MDPP          N1945.5 W07034.2

PISOS        CLB 01CLB 316 16705 DCT   P02 030 0.05 .. / .. 0.08 03493
              N2005.0 W07010.0       059 060                         042493

POKEG        CLB 02CLB 397 26326 B891  P21 008 0.01 .. / .. 0.09 00390
              N2010.5 W07003.6       058 055                         042103

GRADI        CLB 02CLB 428 27635 B891  P23 032 0.05 .. / .. 0.14 01222
              N2031.3 W06937.9       059 056                         040881

TOC          CLB 03CLB 462 27547 B891  P31 029 0.03 .. / .. 0.17 01011
                                     061 056                         039870

WATRS        330 03M41 473 27954 B891  P33 088 0.11 .. / .. 0.28 01435
              N2147.2 W06802.3       062 056                         038435

GRANN        330 02M42 471 27453 B891  P37 161 0.19 .. / .. 0.47 02545
              N2330.0 W06548.0       063 058                         035890

OWSKI        330 03M44 467 26562 G432  P08 211 0.26 .. / .. 1.13 03504
              N2700.0 W06522.9       020 012                         032386

MOFFY        330 02M47 463 24669 G432  P31 144 0.18 .. / .. 1.31 02275
              N2923.0 W06505.0       021 013                         030111

BDA          330 01M51 460 23373 G432  P47 180 0.21 .. / .. 1.52 02743
113.90        N3221.8 W06440.7       022 015                         027368

ELTIN        330 01M54 452 22371 A632  P54 180 0.21 .. / .. 2.13 02625
              N3521.0 W06419.0       022 016                         024743

GRUPI        370 02M58 457 25279 DCT   P52 570 1.08 .. / .. 3.21 08299
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----- CONTINUES IN PART 02 -----

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1L40 008 070250 FEB 96
QU POPAPXH
.ISTOWKT 070251 BIRGENAIR DISP/BH107
---- LONG MESSAGE: PART 02 OF 02 ----
          N4352.0-W05850.3        045 037                       016444

RZ        370 02M53 461 25381 DCT   P38 227 0.27 .. / .. 3.48 03187
331        N4730.7 W05724.5       038 027                       013257

TOD       370 01M56 458 23976 DCT   P76 02778.03 .. / .. 3.51 00381
                                  073 076                       012876

CYUX      DSC 00DSC 3A0 28147 DCT   P30 113 0.22 .. / .. 4.13 01149
           N4856.4 W05434.2       078 072                       011727

(FPL-ALW301-IN
-B757/M-SHIRX/C
 MDAP0230
-N0474F330 DCT PISOS B891 GRANN/M079F330 G432 BDA/N0452F330 A632
 ELTIN/M080F370 DCT GRUPI/N0461F370 DCT RZ/M080F370 DCT
-CYUX0413 CYJT
-EET/KZMA0009 TJZS0028 KZNY0047 TXKF0131-KZNY0213 CZQM0313 CZQX0339
   BDA0152 ELTIN0213 GRUPI0321 RZ0348
 REG/TCGEN SEL/HMFG PER/M080 RMK/TCAS EQUIPPED)

---- END OF LONG MESSAGE ----
```

CARIBBEAN AIRWAYS **TC - GEN**

BOEING 757-225

WEIGHT AND BALANCE LOAD SHEET

Effectivity : APRIL 1992

CARGO COMPARTMENT INDEX TABLES

COMPT. 1 WT-LB	INDEX	COMPT. 2 WT-LB	INDEX	COMPT. 3 WT-LB	INDEX	COMPT. 4 WT-LB	INDEX	COMPT. 4 WT-LB	INDEX
	0		0		0		+ 0		+ 18
170	- 1	258	- 1	313	+ 1	170	+ 1	6304	+ 19
512	- 2	774	- 2	941	+ 2	511	+ 2	6645	+ 20
853	- 3	1290	- 3	1569	+ 3	851	+ 3	6986	+ 21
1194	- 4	1807	- 4	2196	+ 4	1192	+ 4	7326	+ 22
1536	- 5	2323	- 5	2824	+ 5	1533	+ 5	7667	+ 23
1877	- 6	2839	- 6	3452	+ 6	1874	+ 6	8008	+ 24
2218	- 7	3355	- 7	4080	+ 7	2215	+ 7	8349	+ 25
2560	- 8	3872	- 8	4707	+ 8	2555	+ 8	8690	+ 26
2901	- 9	4388	- 9	5335	+ 9	2896	+ 9	9030	+ 27
3243	- 10	4904	- 10	5963	+ 10	3237	+ 10	9371	+ 28
3584	- 11	5421	- 11	6590	+ 11	3578	+ 11	9712	+ 29
3925	- 12	5937	- 12	7218	+ 12	3919	+ 12	10053	+ 30
4267	- 13	6453	- 13	7796		4259	+ 13	10394	+ 31
4608	- 14	6969	- 14			4600	+ 14	10734	+ 32
4949	- 15	7486	- 15			4941	+ 15	11075	+ 33
5291	- 16	8002	- 16			5282	+ 16	11416	+ 34
5445		8518	- 17			5623	+ 17	11757	+ 35
		9035	- 18			5963	+ 18	12097	+ 36
		9400				6304		12361	

ALL WEIGHTS IN POUNDS

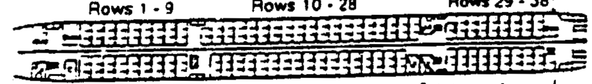
CERTIFIED GROSS WEIGHTS	
Max. Taxi Wt.	241,000 LB
Max. Takeoff Wt.	240,000 LB
Max. Landing Wt.	198,000 LB
Max. Zero Fuel wt.	184,000 LB

FLIGHT 301 A/C REG TC-GEN STATION KAT

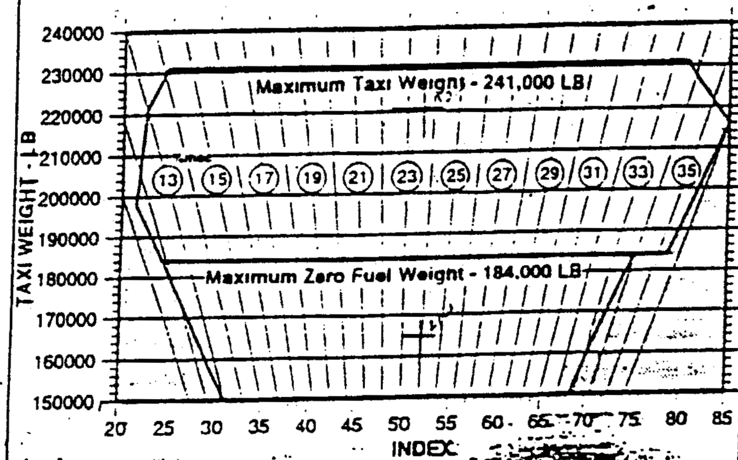
$$I.U. = \frac{WT \times (Arm - 1037.8)}{160{,}000\ LB\text{-}IN.} + 50.0$$

PASSENGER COUNT: 216Y

Compt. 0a Rows 1 - 9 | Compt. 0b Rows 10 - 28 | Compt. 0c Rows 29 - 38



	1	2	3	4
Max. Weights	5445	9400	7796	12361
Max. Combined	9400		15400	
	Forward Hold		Aft Hold	



PASSENGER INDEX TABLES

ZONE 0a NO. OF PAX	INDEX
1 - 2	- 1
3 - 4	- 2
5 - 6	- 3
7 - 8	- 4
9 - 10	- 5
11 - 12	- 6
13 - 14	- 7
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17 - 18	- 9
19 - 20	- 10
21 - 22	- 11
23 - 24	- 12
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29	- 15
30 - 31	- 16
32 - 33	- 17
34 - 35	- 18
36 - 37	- 19
38 - 39	- 20
40 - 41	- 21
42 - 43	- 22
44 - 45	- 23
46 - 47	- 24
48 - 49	- 25
50 - 51	- 26
52 - 53	- 27
54	- 28

ZONE 0b NO. OF PAX	INDEX
1 - 10	0
11 - 31	1
32 - 52	2
53 - 73	3
74 - 94	4
95 - 107	5

ZONE 0c NO. OF PAX	INDEX
1	0
2 - 3	+ 1
4 - 5	+ 2
6 - 7	+ 3
8 - 9	+ 4
10 - 11	+ 5
12 - 13	+ 6
14 - 15	+ 7
16 - 17	+ 8
18 - 20	+ 9
21 - 22	+ 10
23 - 24	+ 11
25 - 26	+ 12
27 - 28	+ 13
29 - 30	+ 14
31 - 32	+ 15
33 - 34	+ 16
35 - 36	+ 17
37 - 39	+ 18
40 - 41	+ 19
42 - 43	+ 20
44 - 45	+ 21
46 - 47	+ 22
48 - 49	+ 23
50 - 51	+ 24
52 - 53	+ 25
54 - 55	+ 26

PAX WEIGHTS

NO. OF PAX	WEIGHT LB
1	170
2	340
3	510
4	680
5	850
6	1020
7	1190
8	1360
9	1530
10	1700
20	3400
30	5100
40	6800
50	8500
60	10200
70	11900
80	13600
90	15300
100	17000

TOTAL FUEL INDEX TABLE

WT-LB	INDEX	WT-LB	INDEX
	0		- 4
5029	- 1	44486	- 3
11379	- 2	47370	- 2
15960	- 3	50338	- 1
19268	- 4	53287	0
21777	- 5	56231	+ 1
23808	- 6	59170	+ 2
25624	- 7	62152	+ 3
27084	- 8	65088	+ 4
28409	- 9	67982	+ 5
31174	- 8	70707	+ 6
33846	- 7	73357	+ 7
36408	- 6	76823	+ 8
38017	- 5	79888	
41723	- 4		

Approval -

	WEIGHT LB	INDEX
Basic Operating Index	134253	42
Zone 0a __ pax	[illegible]	[illegible]
Zone 0b __ pax	[illegible]	[illegible]
Zone 0c __ pax	[illegible]	[illegible]
Compartment 1		
Compartment 2		
Compartment 3	[illegible]	12
Compartment 4	[illegible]	[illegible]
Total index - and -		[illegible]
Zero Fuel Wt and Index =	[illegible]	[illegible]
Total Fuel =	[illegible]	[illegible]
Taxi Wt and Index =	[illegible]	[illegible]

[illegible] MARCH 25, 1992

B I R G E N   A I R

AIRCRAFT MAINTENANCE SYSTEM

7. 18:50

MAINTENANCE CHECK LIST

[Dates Btw 01/01/85 - 01/01/98]

REGISTER	CHECK	LAST DONE DATE	HOUR	CYCLE	REPORT NO	STATION	REMARKS
TC-GEN	100	30/07/93	21001.00	10598	16	IST	100 HRS CHECK PERF.
		07/08/93	21079.13	10629	29	IST	100 HRS CHECK PERFORMED
		15/08/93	21161.51	10662	42	IST	100 HRS CHECK PERFORMED
		26/08/93	21256.51	10701	57	IST	100HRS CHK PERF IN 1A CHK
		19/09/93	2135[illegible].44	10749	[illegible]	IST	100 HRS CHK PER[illegible]
		08/10/93	21447.41	10791	94	IST	100 HRS CHK PERFORMED
		22/10/93	21528.11	10825	110	IST	
		28/10/93	21568.50	10843	116	IST	A CHECK PERFORMED,ALSO.
		10/11/93	21659.30	10871	133	AUA	FIRST 100HRS CHK IN AUA.
		19/11/93	21742.45	10893	145	AUA	100 hrs check
		26/12/93	21827.20	10912	156	PAE	C6 CHECK,TRAMCO.
		04/01/94	21943.41	10943	174	YQX	
		14/01/94	22071.44	10976	L4371	AUA	
		23/01/94	22132.24	10991	L4379	BOS	
		12/02/94	22396.23	11059	L4419	BOS	
		01/03/94	22621.18	11118	275	AUA	
		11/03/94	22751.00	11153	285	BOS	
		11/04/94	23067.52	11242	328	AUA	
		19/04/94	23149.38	11263	340	AUA	
		06/05/94	23245.30	11294	356	IST	100 HRS PERFORMED IN A5
		19/05/94	23331.05	11334	368	IST	
		30/05/94	23423.35	11381	382	IST	
		09/06/94	23503.40	11425	394	ADB	
		20/06/94	23611.20	11475	410	IST	100HRS CHK PERF DURING A6
		26/06/94	23689.00	11508	421	IST	
		05/07/94	23776.55	11548	437	IST	
		13/07/94	23870.55	11585	452	IST	
		21/07/94	23965.35	11618	467	ADA	
		25/07/94	24021.10	11642	475	IST	100 HRS PERFORMED IN A7
		02/08/94	24116.40	11682	490	AYT	100 HRS CHECK PERFORMED
		08/08/94	24202.25	11718	503	AYT	100 HRS CHECK PERFORMED
		15/08/94	24287.25	11752	515	AYT	100 HOURS CHECK PERFORMED
		22/08/94	24382.55	11790	530	AYT	100 HRS CHECK PERFORMED
		26/08/94	24406.55	11801	534	IST	100 HRS PERFORMED IN A8
		02/09/94	24498.50	11839	547	IST	100 HRS PERFORMED
		10/09/94	24574.45	11874	560	IST	100 HRS CHECK PERFORMED
		14/09/94	24623.10	11895	566	IST	
		19/09/94	24687.25	11923	575	AYT	100 HRS CHECK PERFORMED
		28/09/94	24787.40	11971	592	IST	100 HRS CHECK PERFORMED
	A	26/08/93	21256.51	10701	57	IST	1A & 100 HRS CHK PERF.
		28/10/93	21568.50	10843	116	IST	AD92-01-06,92-08-11 insp.
		26/12/93	21827.20	10912	156	PAE	DURING C6 CHECK,TRAMCO
		23/01/94	22132.24	10991	L4379	BOS	A1 CHECK PERFORMED
		12/02/94	22396.23	11059	L4419	BOS	A2 CHECK PERFORMED
		11/03/94	22751.00	11153	285	BOS	A3 CHECK PERFORMED
		19/04/94	23149.38	11263	340	AUA	A4 CHECK PERFORMED
		06/05/94	23245.30	11294	356	IST	A5 CHECK PERFORMED
		20/06/94	23611.20	11475	410	IST	A6 CHECK PERFORMED

B I R G E N   A I R
AIRCRAFT MAINTENANCE SYSTEM

MAINTENANCE CHECK LIST
[Dates Btw 01/01/85 - 01/01/98]

A/C REGISTER	CHECK	LAST DONE DATE	HOUR	CYCLE	REPORT NO	STATION	REMARKS
TC-GEN	A	25/07/94	24021.10	11642	475	IST	A7 PERF.%10 ESCALLATION
		26/08/94	24406.55	11801	534	IST	A8 CHECK PERFORMED
		28/09/94	24787.40	11971	592	IST	A9 CHECK PERFORMED
		26/10/94	25139.15	12115	642	IST	A10 CHECK PERFORMED
		17/12/94	25366.10	12219	680	IST	A11 CHECK PERFORMED
		18/01/95	25755.16	12311	737	POP	A12 CHECK PERFORMED
		17/02/95	26097.31	12395	788	POP	A13 CHECK PERFORMED
		17/03/95	264[illegible].20	1247[illegible]	836	POP	A14 CHECK PERFORMED
		19/04/95	26831.40	12570	895	POP	A15 CHECK PERFORMED
		30/05/95	27012.55	12613	924	AUH	DURING C7 CHECK BY GAMCO
		10/07/95	27374.20	12767	986	IST	A1 CHECK PERFORMED.
		08/08/95	27707.25	12904	1040	IST	A2 CHECK PERFORMED
		13/09/95	28094.30	13078	1100	IST	A3 CHECK ,PERFORMED
		18/10/95	28493.22	13244	1163	IST	A4 CHECK PERFORMED
		18/12/95	28863.55	13405	1224	IST	A5 CHECK PERFORMED
		16/01/96	29200.50	13476	1280	POP	A6 CHECK PERFORMED
	C	14/05/92	18861.00	9442	1	CCC	
		26/12/93	21827.20	10912	156	PAE	C6 CK PERFORMED BY TRAMCO
		30/05/95	27012.55	12613	924	AUH	C7 CHK PERFORMED BY GAMCO
	S4C	25/07/90	17289.00	8689	1	ATL	LAST DONE AT EAL.
	SA	26/08/93	21256.51	10701	1	IST	
		28/10/93	21568.50	10844	116	IST	SA PERFORMED WITH A CHECK
		26/12/93	21827.20	10912	156	PAE	C6 CHECK,TRAMCO.
		24/03/94	22910.45	11198	305	YQX	
		06/05/94	23245.30	11294	356	IST	PERFORMED DURING A5 CHK
		13/07/94	23876.55	11587	453	ADB	SA CHECK PERFORMED
		10/09/94	24574.45	11874	560	IST	SA CHECK PERFORMED
		26/10/94	25139.15	12115	642	IST	PERFORMED DURING A10 CHK
		17/12/94	25366.10	12219	678	IST	SA CHECK PERFORMED IN A11
		31/03/95	26610.55	12516	659	POP	SA CHECK PERFORMED
		30/05/95	27012.55	12613	924	AUH	DURING C7 CHK BY GAMCO
		08/08/95	27707.25	12904	1040	IST	PERFORMED DURING A2 CHECK
		04/10/95	28318.00	13172	1137	AYT	S1A CHK PERFORMED
		05/01/96	29090.50	13451	1262	POP	S1A PERFORMED AT POP
	SC	26/05/92	18861.00	9442	1	CCC	
		26/12/93	21827.20	10912	156	PAE	C6 CHECK,TRAMCO.
		30/05/95	27012.55	12613	924	AUH	DURING C7 CHK BY GAMCO

BIRGENAIR

DATE : 11.JAN.96 A/C : TC - GEN
PHASE : AG STA : AGP

" A " CHECK
'A" CHECK TALLY SHEET

CARD NO	DESCRIPTION	SEGMENT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1-01/1-06	ARRIVAL CHECKING	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
2	OPERATIONAL CHECK															
2-01	SYSTEM OPERATIONAL CHECK															
A	..... STANDBY ENGINE INDICATOR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
B	..... STALL WARNING SYST. & AUTO SLATS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
C	..... BPCU BITE				**				**				**			
D	..... E/E COOLING SMOKE & LOW FLOW	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
E	..... VOICE RECORDER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
F	..... VOICE RECORDER 4 CHANNEL OPERATION			**			**			**			**			**
G	..... MAIN BATTERY CHARGER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
H	..... STANDBY POWER SYSTEM	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
I	..... WHEEL WELL FIRE DETECTION SYSTEM	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
J	..... WING & BODY DUCT LEAK DETECTION	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
K	..... ENGINE FUEL CROSSFEED VALVE	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
L	..... INSTRUMENT SOURCE SELECT PANEL	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
M	..... CENTER EFIS SYMBOL GENERATOR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
N	..... EMERGENCY LIGHT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
O	..... TE FLAP/SLAT ALTERNATE DRIVE SYSTEM					**					**					**
	..... TCAS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
2-02	......AIR DATA CMPTR ISOLATIN & OVERSPEED				**				**				**			
2-03	..... ANNUNCIATOR INDICATOR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
3-01	ZONAL INSPECTION	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
4-01	STRUCTURAL INSPECTION															
5-	AIRCRAFT INTERIOR															
5-01	IN. COCKPIT EMERGENCY EQUIPMENT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
5-02	IN. COCKPIT SEAT & SEAT BELT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
5-03	IN. CREW OXYGEN PRESSURE TRANSDUCER					**					**					**
5-04	OP. CREW OXYGEN MASK/REGULATION					**					**					**
5-05	VC. CREW OXYGEN MASK/REGULATOR					**					**					**
5-06	DS. CABIN ZONE TEMPARATURE SENSOR FILTER		**		**		**		**		**		**		**	
5-07	DS. GALLEY VENTILATION FILTER		**		**		**		**		**		**		**	
5-08	IN. COOLING AIR SCREENS			**			**			**			**			**
5-09	IN. PASSENGER CABIN	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
5-10	IN. LAVATORIES	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
5-11	IN. PORTABLE FIRE EXTINGUISHER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

"A" CHECK TALLY SHEET

	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		SEGMENT														
	IN. DOOR MOUNTED ESCAPE SLIDE	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	IN. EMERGENCY POWER RESERVOIR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	IN. POWER MEGAPHONE	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	RS. COCKPIT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	RS. LAVATORIES	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	RS. GALLEY	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
3	RS. PASSENGER CABIN	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
9	IN. RAIN REPELLENT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	AVIONIC and CARGO COMPARTMENT															
01	IN.AVIONIC COMPARTMENT GENERAL COND.	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
02	DS. RECIRCULATION AIR PREFILTERS						**						**			
-03	VC. AFT.CARGO HEATER						**						**			
-04	VC. CARGO COMPARTMENT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
-05	RS. FWD and AFT E/E COOLING AIR CLEANER			**			**			**			**			**
-06	RS. EQUIPMENT COOLING SENSOR				**				**				**			
-07	CARGO SMOKE DETECTOR ORIFICES		**		**		**		**		**		**		**	
6-08	TEST MAIN BATTERY		**		**		**		**		**		**		**	
6-09	SV. TEST APU BATTERY		**		**		**		**		**		**		**	
7	HYD.SYST.FILTER and L/G MAINTENANCE															
7-01	IN . ACMP and EDP CASE DRAIN FILTER DIF.PRES.	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-02	IN. HYD.SYST RETURN FILTER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-03	IN. HYD.SYST.EDP.PRESS.FLTR.DIFF.PRESS IND.	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-04	SV .PARKING BRAKE ACCUMULATOR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-05	VC. LANDING GEAR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-06	IN. BRAKE FOR WEAR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-07	WHEEL and TIRE SERVICEABILITY	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
7-08	SV. EXPOSED PORTION OF STRUTS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
8	LUBRICATION															
8-01	LU. ELEVATOR PCA		**		**		**		**		**		**		**	
8-02	LU. RUDDER PCA		**		**		**		**		**		**		**	
8-03	LU. AILERON PCA and ROD BEARING		**		**		**		**		**		**		**	
8-04	LU. WING SPOILER SYSTEM				**				**				**			
8-05	LU. INBRD TRAILING EDGE FLAP MECHANISM				**				**				**			
8-06	LU. TRAILING EDFE FLAP TRANSMISSION SYSTEM		**		**		**		**		**		**		**	
8-07	LU. OUTBRD TRAILING EDGE FLAP MECHANISM				**				**				**			
	LU. INBRD LEADING EDGE SLATS TRACK ROLLER				**				**				**			
8-10	LU. NOSE LANDING GEAR		**		**		**		**		**		**		**	

"A" CHECK TALLY SHEET

TASK	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		SEGMENT														
8-11	LU. NOSE L/G DOOR and ACTUATING MECHANISM		**		**		**		**		**		**		**	
8-12	LU. MAIN LANDING GEAR		**		**		**		**		**		**		**	
8-13	LU. MAIN LANDING GEAR DOOR SYSTEM		**		**		**		**		**		**		**	
8-14	LU. MAIN LANDING GEAR WING COMPONENTS		**		**		**		**		**		**		**	
8-15	LU. PASSENGER DOORS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
8-16	LU. PASSENGER DOORS MECHANISMS				**				**				**			
9	ENGINE SERVICING and FILTER MAINTENANCE															
9-01	IN. IDG SCAVENGE OIL DIFF.PRESS IND.	**	**	**	**		**	**	**	**		**	**	**	**	
9-02	DS. IDG SCAVENGE OIL FILTER					**					**					**
9-03	SV. IDG TOP UP LEVEL	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
9-04	SV. STARTER OIL CHANGING	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
9-05	IN. OIL PRESSURE FILTER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
9-05B	DS. OIL PRESSURE FILTER REPLACEMENT		**		**		**		**		**		**		**	
9-06	DS. SCAVENGE OIL FILTER	**		**		**		**		**		**		**		**
10	ENGINE INSPECTION															
10-01	VC. LP.COMPRESSOR-FAN COWL	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
10-02	VC. LP COMPRESSOR FAN CASE	**		**		**		**		**		**		**		**
10-03	VC.. LP.COMPRESSOR FAN	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
10-03B	IN. FAN BLADES TAB TESTING	**		**		**		**		**		**		**		**
10-04	. C DUCT AREA															
A	VC. C DUCT HINGE,LATCH & THERMAL BLANKET			**			**			**			**			**
B	VC. HPC. Stg 6 SOLEPLATE WELDING			**			**			**			**			**
C	VC. P1 TUBE and TUBE RETAINIG CLIPS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
D	FC. LOWER TROTTLE CONTROL BOX GEAR					**					**					**
10-05	TRUST REVERSER & EXHAUST SYSTEM	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
11	ENGINE INSPECTION & MAINTENANCE															
11-01	IN. AUDIBLE CHECK ENGINE IGNITERS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
11-02	DS. IGNITER PLUGS REPLACEMENT	**		**		**		**		**		**		**		**
11-03	IN. #1 ENG. OIL PRESSURE TRANSMITTER HARNES PLUG					**					**					**
11-04	VC. HS.GEARBOX RADIAL DRIVE SHROUD TUBE	**		**		**		**		**		**		**		**
11-05	SV. WASH FAN BLADE		**			**			**			**			**	
12	ENGINE INSPECTION 3															
12-01	IN. MCDS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

RGENAIR

B757 " A " CHECK

"A" CHECK TALLY SHEET

RD O	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		SEGMEN T														
-02	SV. CLEAN & INSTALL MCD	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
-03	- REMOVE BORESCOPE PLUG	**		**		**		**		**		**		**		**
2-04	IN. HPC. Stg 6 BLADE LOCKPLATE	**		**		**		**		**		**		**		**
2-05	IN. HPC. Stg 3 ROTOR BLADE	**		**		**	*	**		**		**		**		**
2-06	IN. COMBUSTION LINER., HPT NGV	**		**		**	*	**		**		**		**		**
2-07	IN. Stg 3 TURBINE BLADE	**		**		**	*	**		**		**		**		**
12-08	IN. TORQUE & CONDITION OF QAD	**				**				**				**		
	APU INSPECTION & MAINTENANCE															
13-01	IN. AIR INLET SCREEN	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-02	IN. VARIABLE IGV.ASSY.	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-03	IN. Stg. 3 TURBINE BLADE	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-04	IN. THERMOCOUBLE PROBES	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-05	REMOVE IGNITER PLUG	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-06	IN. BORESCOPE INSPECT OF TURBINE	**		**		**		**		**		**		**		**
13-07	IN. BORESCOPE INSPECT IGV & LOAD COMP.ROTOR	**		**		**		**		**		**		**		**
13-08	RS. INSTAL IGNITER PLUG	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-09	VC. DIFF.PRES.IND.FILTER OF FCU,OILPRESS,SCAVENGE	**	**		**	**		**	**		**	**		**	**	
13-10	IN. MCD	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-11	IN. PRES. & SCAVENGE OIL FILTER			**			**			**			**			**
13-12	IN. LP & HP FUEL FILTER			**			**			**			**			**
13-13	IN. PNEUMATIC DUCTING & CONNECTION	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-14	IN. FUEL & OIL LINES	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-15	VC. HARNESS ASSY.	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
[illegible]6	IN. STARTER BRUSH INDICATOR	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-17	RS. RECONNECT IGV.ACTUATOR FUEL PRESS LINE	**		**		**		**		**		**		**		**
13-18	RS. PRESSURE FILTER			**			**			**			**			**
13-19	DS. SURGE VALVE FILTER	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-20	RS. HP FUEL FILTER			**			**			**			**			**
13-21	RS. GENERATOR SCAVENGE FILTER			**			**			**			**			**
13-22	RS. LP FUEL FILTER			**			**			**			**			**
13-23	RECORD APU TIME	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-24	IN. LEAKAGE	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
13-25	OP. ECU SELF TEST	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

DATE 16.1.96 A/C : TC-GEN

BIRGENAIR

B757 " A " CHECK

PHASE : A1 STA : ADP

ITEM	WORK DESCRIPTION - 1 - ARRIVAL CHECKING		MECH	INSP
1-01	AIRCRAFT CHOKED, GEAR DOWNLOCKED AND AIRCRAFT STATIC GROUNDED.			
1-02	CHECK AIRCRAFT LOG BOOK FOR WRITE UPS			
1-03	CHECK OPEN ITEM LIST, REVIEW AND ATTACH TO WORKSHEETS			
1-04	CHECK ENGINE OIL LEVEL AND SERVICE AS NECESSARY RECORD OIL UP LIFT ON COVERPAGE NOTE : USE ONLY MOBIL JET OIL II * OIL SERVICE MUST BE PERFORMED WITHIN 20 MIN. AFTER ENGINE SHUTDOWN (MPD REF #B12-13-11-3A)	LH		
		RH		
1-05	IF OAT IS BELOW THAN 5'C , DRAIN WATER AND WASTE SYSTEM.			
1-06	PERFORM A READOUT OF ALL EICAS MAINTENANCE MESSAGE. * INTERROGATE THE EICAS MAINTENANCE MESSAGE PAGE (NOT STATUS PAGES) FOR INDICATION OF SYSTEMS MALFUNCTIONS. RECORD ANY MAINTENANCE MESSAGES AND TAKE CORRECTIVE ACTION. ________________ ________________ ________________ ________________ ________________ ________________ * CHECK AUTO EVENTS OR MAN EVENTS. IF ANY HAVE OCCURRED, RECORD PARAMETERS AND NOFITY MAINTENANCE MANAGER IMMEDIATELY. ECS/MSG ________________ ________________ ELEC/HYD ________________ ________________ PERF/APU ________________ ________________ EMG/EXCD ________________ ________________			

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B757 " A " CHECK

DATE : 16 / 96 A/C : TC-GEL

PHASE : 1A STA : [illegible]

ITEM	ZONE	WORK DESCRIPTION - 2 - OPERATIONAL CHECK	MECH	INSP
2-01	212	**PERFORM THE FOLLOWING SYSTEM OPERATIONAL CHECK :**	[redacted]	
A		STANDBY ENGINE INDICATOR BY ACTUATING TEST SWITCH. MPD REF : R77-41-01-4A AMP.CARD : 77-110-01 PHASE : 1A		
B		STALL WARNING SYSTEM AND AUTO SLATS. MPD REF : 27-32-00-5A AMP.CARD : 27-036-03 PHASE : 1A		
C	119	~~PERFORM BPCU BITE/ PERIODIC TEST INCLUDING CHECK BUS TIE BREAKER OPERATIONAL STATUS. MPD REF : 24-22-00-5A AMP.CARD : 24-006-01 PHASE : 4A~~		
D		E/E COOLING SMOKE/LOW FLOW DETECTION SYSTEM WITH TEST SWITCH MPD REF : 21-58-00-5B AMP.CARD : 21-030-06 PHASE : 1A		
E		VOICE RECORDER BY PRESSING TEST SWITCH ON CVR PANEL MPD REF : 23-71-00-5A AMP.CARD : 23-003-01 PHASE : 1A		
F		FUNCTIONALLY CHECK THE VOICE RECORDER FOR PROPER 4 CHANNEL OPERATION MPD REF : 23-71-00-5B AMP.CARD : 23-004-01 PHASE : 3A		
G		VERIFY MAIN BATTERY CHARGER OPERATION MPD REF : 24-30-00-5A AMP.CARD : 24-009-01 24-30-00-5C PHASE :1A		
H		OPERATION OF STANDBY POWER SYSTEM MPD REF : 24-33-00-6A AMP.CARD : 24-012-01 PHASE : 1A		

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B757 " A " CHECK

PHASE : A6 STA : PCP

ITEM	ZONE	WORK DESCRIPTION - 2 - OPERATIONAL CHECK	MECH	INSP
I		WHEEL WELL FIRE DETECTION SYSTEM WITH TEST SWITCH MPD REF : 26-17-00-5A AMP.CARD : 26-019-01 PHASE : 1A	[redacted]	
J		WING AND BODY DUCT LEAK DETECTION SYSTEM WITH TEST SWITCH MPD REF : 26-18-00-5A AMP.CARD : 26-018-01 PHASE : 1A	[redacted]	
K		OPERATION OF ENGINE FUEL CROSSFEED VALVE MPD REF : 28-22-02-4A AMP.CARD : 28-006-01 PHASE : 1A	[redacted]	
L		OPERATE INSTRUMENT SELECTANEL TO VERIFY PROPER OPERATION MPD REF : 34-22-00-5A AMP.CARD : 34-008-01 PHASE : 1A	[redacted]	
M		VERIFY CENTER EFIS SYMBOL GENERATOR OPERATION MPD REF : 34-22-00-5B AMP.CARD : 34-009-01 PHASE : 1A	[redacted]	
N		OPERATION OF EMERGENCY LIGHTS USING TEST SWITCHES MPD REF : 33-51-00-5A AMP.CARD : 33-001-01 PHASE : 1A	[redacted]	
O		TE FLAP/SLAT ALTERNATE (ELECTRIC) DRIVE SYSTEM MPD REF : 27-51-00-5A AMP.CHECK : 27-063-01 PHASE : 5A	[redacted]	
P		OPERATION OF TRAFFIC ALERT & COLLISION AVOIDANCE SYSTEM MPD REF : 34-45-00-5A AMP. CARD : 34-018-00 PHASE : 1A	[redacted]	
2-02	212	PROPER OPERATION OF AIRDATA COMPUTER ISOLATION AND OVERSPEED ANNUNCIATION INCLUDING AURAL WARNINGS. MPD REF : 34-12-00-6A AMP CARD : 34-012-01 PHASE : 4A	[redacted]	

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B757 " A " CHECK

PHASE : A6 STA : PUP

ITEM	ZONE	WORK DESCRIPTION -3-ZONAL INSPECTION	MECH	INSP
		ZONAL INSPECTION **Zonal Inspection Serves two primary purposes :** **Assures that all Systems/ Components/ Installations contained in a zone receive adequate surveillance to determine security of installation and general condition.** **Provides packaging of a number of general visual inspection tasks of a general nature generated against maintenance significant items into one or more zonal surveillance tasks.**	[redacted]	
3-01		PERFORM GENERAL VISUAL INSPECTION OF FOLLOWING ZONES.		
A	100	LOWER HALF OF FUSELAGE EXTERNAL		
B	115-116	NLG WHEEL WELL . (Related Task 7-05)		
C	143	LEFT MLG WHEEL (Related Task 7-05)		
[illegible]	144	RIGHT MLG WHELL WELL (Related Task 7-05)		
E	300	EMPENNAGE - EXTERNAL AS VIEWED FROM THE GROUND		
F	400	PWR PLNT & NACELLE STRUT		
G	500	LEFT WING - EXTERNAL AS VIEWED FROM THE GROUND		
H	551	LEFT REAR SPAR TO LNDG GEAR SUPPORT BEAM AS VIEWED FROM THE GROUNG		
I	600	RIGHT WING - EXTERNAL AS VIEWED FROM THE GROUND		
J	651	RIGHT REAR SPAR TO LNDG GEAR SUPPORT BEAM AS VIEWED FROM THE GROUND		
K	710	NOSE LANDING GEAR AND DOORS - EXTERNAL.		
L	730	LEFT MLG & DOORS - EXTERNAL		
M	740	RIGHT MLG & DOOR - EXTERNAL		
		MPD REF: 0600-100, 115, 116, 143, 144, 300, 400, 500, 551, 600, 651, 710, 730,740-01Z AMP CARD: 06-001-01, 06-005-01, 06-018-01-1, -2, 06-047-01, 06-062-01, 06-071-01, -2 06-085-01-1, -2, 06-095-01, 06-097-01-1, -2 PHASE : 1A		

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B757 " A " CHECK

DATE 16.1.36 A/C : TC-CCN

PHASE : A STA : POP

ITEM	ZONE	WORK DESCRIPTION -2-OPERATIONAL CHECK	MECH	INSP
2-03	211-212	VERIFY PROPER OPERATION OF THE FOLLOWING ANNUNCIATOR INDICATOR BY PRESSING MASTER DIM AND TEST SWITCH		
A		CAUTION AND INDICATOR LIGHTS		
B		A/P DISC		
C		AUTOPILOT		
D		A/T DISC		
E		PITOT STATIC PROBE HEAT		
F		MASTER CAUTION AND MASTER WARNING LIGHTS		
G		ALT ALERT ANNUNCIATOR		
		MPD REF : 33-16-00-5A 22-10-00-5A 22-10-00-5B 22-32-00-5A 30-31-00-A 31-51-00-5A 34-16-00-5A PHASE : 1A AMP.CARD : 33-006-C1		

BIRGENAIR

PHASE : A/C STA : POP

B757 " A " CHECK

ITEM	ZONE	WORK DESCRIPTION - 5-AIRCRAFT INTERIOR	MECH	INSP
5-[illegible]	211-212	CHECK THE COCKPIT EMERGENCY EQUIPMENT FOR PROPER/SECURE INSTALLATION, QUANTITY AND GENERAL CONDITION, CHECK PRESSURE ON PORTABLE OXYGEN CYLINDER GAUGE. PHASE : 1A		
5-02	211-212	CHECK THE COCKPIT SEAT AND SEATBELTS FOR SECURITY OF ATTACHMENT, GENERAL CONDITION AND CLEANLINESS. PHASE : 1A		
5-03		~~CHECK CREW OXYGEN (HIGH) PRESSURE TRANSDUCER / INDICATOR BY COMPARING CYLINDER PRESSURE GAUGE WITH FLIGHT DECK INDICATION~~ ~~MPD REF : 35-11-00-5A AMP CARD : 35-005-01~~ ~~PHASE : 5A~~		
5-04	211-212	~~OPERATIONALLY CHECK THE CREW OXYGEN MASK/REGULATION.~~ ~~MPD REF : 35-11-00-5B AMP CARD : 35-015-01~~ ~~PHASE : 5A~~		
5-05	211-212	~~VISUALLY CHECK CREW OXYGEN MASK/REGULATOR ASSEMBLY FOR CONDITION AND VERIFY OPERATION OF MASK MICROPHONE.~~ ~~MPD REF : 35-11-00-B AMP CARD : 35-005-01~~ ~~PHASE : 5A~~		
5-06	211-234 254	REPLACE CABIN ZONE TEMPERATURE SENSOR FILTER (3 PLACES) **FILTER P/N : 232N1635-2** MPD REF : 21-61-11-4A AMP CARD :21-025-01 PHASE : 2A		
5-07	224-225 254	CHANGE GALLEY VENTILATION FILTER (5 PLACES) **FILTER P/N : 411N3210-90** MPD REF : 21-26-03-4A AMP CARD : 21-006-01 PHASE : 2A	[illegible]	

BIRGENAIR

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B757 " A " CHECK

PHASE : A C STA : POP

ITEM	ZONE	WORK DESCRIPTION - 5-AIRCRAFT INTERIOR	MECH	INSP
5-08	211-212	CHECK FOLLOWING UNITS' COOLING AIR INLET SCREENS FOR CONTAMINATION AND CLEAN AS REQUIRED. * EICAS DISPLAY UNIT * ELECTRONIC ATTITUDE DIRECTOR INDICATOR (EDAI) * ELECTRONIC HORIZONTAL SITUATION INDICATOR (EHSI) * FLIGHT MANAGEMENT COMPUTER ON THE CONTROL DISPLAY UNIT MPD REF : 31-41-01-4A AMP CARD : 31-008-01 34-22-00-6A 34-016-01 34-22-00-6B 34-017-01 34-61-02-2A 34-019-01 PHASE : 3A	[redacted]	
5-09	200	CHECK THE PASSENGER CABIN INTERIOR FOR GENERAL CONDITION PHASE : 1A	[redacted]	
5-10	200	CHECK LAVATORIES (AD 74-08-09) * GENERAL CONDITION and PLACARD LEGIBILITY. * LAVATORY WASTE CONTAINER DOORS FOR OPERATION, LATCHING AND PROPER SEALING. * GENERAL VISUAL INSPECTION OF LAVATORY FIRE EXTINGUISHER FOR EVIDENCE OF LEAKAGE/DISCHARGE. * CHECK LAVATORY FLUSH PUMP AND TIMER OPERATION. * CHECK SMOKE DETECTOR IN EACH LAVATORY. LAV A LAV B PHASE : 1A LAV C LAV D	[redacted]	
5-11		CHECK PORTABLE FIRE EXTINGUISHERS FOR CONDITION AND SECURITY OF INSTALLATION. MPD REF : 26-26-02-6B AMP CARD : 26-013-02 PHASE : 1A	[redacted]	

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ITEM	ZONE	WORK DESCRIPTION - 5-AIRCRAFT INTERIOR		MECH	INSP
5-12	831 832 835 836 841 842 845 846	CHECK NO. 1, 2, 4 PASSENGER AND NO.3 EMERGENCY DOOR-MOUNTED ESCAPE SLIDE INFLATION BOTTLES FOR PROPER PRESSURE MPD REF : 25-66-01-6A AMP CARD : 25-014-01, -2 25-66-03-6A PHASE : 1A	1 2 3 4	[redacted]	
5-13	223 224 233 234 253 254	CHECK THE EMERGENCY POWER RESERVOIR PRESSURE GAGE FOR REQUIRED PRESSURE. MPD REF : 52-11-30-6A AMP CARD : 52-004-01 PHASE : 1A	1 2 4		
5-14	200	CHECK POWER MEGAPHONE FOR CONDITION AND AUDIO FUNCTION. MPD REF : 25-63-00-A AMP CARD : 25-010-01 PHASE : 2A			
5-15	211-212	CLEAN COCKPIT, REMOVE ALL TRASH AND DEBRIS. * WINDSHIELD, SIDEWALLS AND FLOOR. * SEATS. PHASE :1A			
5-16		CLEAN LAVATORIES, REMOVE ALL TRASH AND DEBRIS. USE ONLY APPROVED CLEANERS. * WASH BASINS AND CABINETS. * TOILETS. * FLOOR AND SIDEWALLS. * DRY ALL SURFACES THROUGHLY. PHASE : 1A	LAV A LAV B LAV C LAV D		

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B757 " A " CHECK

PHASE : A6 STA : POP

I	ZONE	WORK DESCRIPTION - 5-AIRCRAFT INTERIOR	MECH	INSP
5-17	221 222 223 224	CLEAN GALLEYS, REMOVE ALL TRASH AND DEBRIS. USE ONLY APPROVED CLEANERS AND DRY ALL SURFACES THOROUGHLY. * OVEN. * BAR CART. * TRASH CONTAINER. * ICE CHEST/REFRIGERATED CONTAINER(S). * FLOOR AND SIDEWALL PANELS. FWD GALLEY		
		PHASE : 1A AFT GALLEY		
5-18	200	CLEAN PASSENGER CABIN, REMOVE ALL TRASH AND DEBRIS FROM SEAT-BACK POCKETS. * WINDOWS. * SIDEWALL PANELS AND OVERHEAD BINS/PSU'S. * VACUUM SEATS AND FLOOR CARPET. * SIDEWALL PANELS AND OVERHEAD BINS/PSU'S. * FLIGHT ATTENDANT SEATS. PHASE :1A		
5-19	211	CHECK THE RAIN REPELLENT CAN FOR CORRECT FLUID LEVEL. PHASE : 1A		

ITEM	ZONE	WORK DESCRIPTION - 6- AVIONIC & CARGO COMPARTMENT		MECH	INSP
6	119-120	CHECK AVIONICS COMPARTMENT FOR GENERAL CONDITION AND SECURITY. PHASE : 1A			
6-02	125-126	CHANGE RECIRCULATION AIR PREFILTERS **FILTER P/N : S210N701-20 or ABO469939** MPD REF : 21-25-02-4A AMP CARD : 21-003-01 PHASE : 6A	LEFT	2.5	
			RIGHT	NOT AVAILABLE CLEANED	
6-03	152	VISUALLY CHECK THE AFT CARGO HEATER FOR CONDITION AND BLOCKAGE; CLEAN AS REQUIRED MPD REF : 21-44-05-2A AMP CARD : 21-034-01 PHASE : 6A			
6-04	120-150	VISUALLY CHECK THE CARGO COMPARTMENTS, THE FOLLOWING * INTERIOR LINING AND FLOORING TO VERIFY INTEGRITY OF COMPARTMENT SEALING. * CARGO DOOR SKIN, FRAME, STOPS, LATCHES AND FUSELAGE SKIN ADJACENT TO DOOR STRUCTURE. * CARGO DOOR SEALS AND PRESSURE PLATES. • ACE CARGO LOADING SYSTEM, AREA BEHIND AND UNDER SYSTEM FOR CLEANLINESS. • PROPER OPERATION AND CONDITION OF CARGO LIGHTING. MPD REF : 25-50-00-6A AMP CARD : 25-030-01 PHASE : 1A	FWD		
			AFT		
6-05	121-162	CLEAN THE FWD AND AFT E/E COOLING CENTRIFUGAL AIR CLEANER MPD REF : 21-58-21-2A AMP CARD : 21-028-01 PHASE : 3A	FWD	[illegible]	
			AFT	[illegible]	
6-06	119-120	CLEAN EQUIPMENT COOLING EXHAUST DUCT SMOKE SENSOR MPD REF : 21-58-19-2B AMP CARD : 21-039-01 PHASE : 4A			

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PHASE : A6 STA : PCP

ITEM	ZONE	WORK DESCRIPTION - 6- AVIONIC & CARGO COMPARTMENT	MECH	INSP
6-07	121-153	CHECK CARGO SMOKE DETECTOR AIR SAMPLING ORIFICES FOR BLOCKAGE FWD MPD REF : 26-16-00-A AMP CARD : 26-016-01 PHASE : 2A AFT		
6-08	114	TEST (OFF-AIRCRAFT) THE MAIN BATTERY CAPACITY AND RECONDITION THE BATTERY. MPD REF : 24-31-01-4A AMP CARD : 24-008-01 PHASE : 5A		
6-09	154	TEST (OFF-AIRCRAFT) THE APU BATTERY CAPACITY AND RECONDITION THE BATTERY. MPD REF : 24-31-03-4A AMP CARD : 24-010-01 PHASE : 5A		

ITEM	ZONE	WORK DESCRIPTION -7- HYD. SYST. FILTER and L/G MAINTENANCE		MECH	INSP
7-01	143-144 197	INSPECT HYDRAULIC SYSTEM ACMP AND EDP CASE DRAIN FILTER DIFFERENTIAL PRESSURE INDICATOR FOR POSITION. IF RED INDICATOR BUTTON CAME OUT, REPLACE FILTER ELEMENT AND SET RED INDICATOR FILTER P/N : 654T0035-2 L/R 654N0035-3 C MPD REF : 29-11-00-6C AMP CARD : 29-005-C1 PHASE : 1A	L C R		
7-02		INSPECT HYDRAULIC SYSTEM RETURN FILTER DIFFERANTIAL PRESSURE INDICATOR FOR POSITION IF RED INDICATOR BUTTON CAME OUT, REPLACE FILTER ELEMENT AND SET RED INDICATOR FILTER KIT P/N : 654T0032-5 L/R 654N0035-1 C MPD REF : 29-11-00-6D AMP CARD : 29-005-C1 PHASE : 1A	L C R		
7-03	444	INSPECT HYDRAULIC SYSTEM RIGHT EDP PRESSURE FILTER DIFFERENTIAL PRESSURE INDICATOR FOR POSITION. IF RED INDICATOR BUTTON CAME OUT REPLACE FILTER ELEMENT AND SET RED INDICATOR FILTER KIT P/N : 654T0035-4 MPD REF : 29-11-00-6B AMP CARD : 29-018-01 PHASE : 1A			
7-04	197	SERVICE , PARKING BRAKE ACCUMULATOR AS NECESSARY. MPD REF : 12-15-04-3A AMP CARD : 32-046-01 PHASE : 1A			

ITEM	ZONE	WORK DESCRIPTION -7- HYD. SYST. FILTER and L/G MAINTENANCE	MECH	INSP
7-05		VISUALLY CHECK THE LANDING GEAR, WHEELS, STRUTS, GEAR DOORS AND WELLS, AND HYDRAULIC COMPARTMENTS, COMPONENTS AND LINES FOR CONDITION, EVIDENCE OF LEAKAGE, SCORING AND PROPER EXTENSION (AS APPLICABLE).		
A		NOSE L/G WITH PARTICULAR EMPHASIS ON GEAR OPERATING MECHANISM, WHELL WELL DOORS AND OPERATING MECHANISM, WHEEL WELL STRUCTURE - DOOR HINGES. FITTINGS, BULKHEADS, TOP AND SIDE PANELS, AND SUPPORTS, GEAR ASSEMBLY AND HYDRAULIC LINES AND FITTINGS.		
B		MAIN L/G WITH PARTICULAR EMPHASIS ON GEAR , WHELL WELL DOORS AND OPERATING MECHANISM, WHEEL WELL STRUCTURE - DOOR HINGES. FITTINGS, BULKHEADS, TOP AND SIDE PANELS, AND SUPPORTS, GEAR ASSEMBLY AND HYDRAULIC LINES AND FITTINGS.		
		LH		
		RH		
7-06		CHECK AND RECORD BELOW; BRAKES FOR WEAR WITH HYDRAULIC PRESSURE ON AND BRAKES SET #1 .... #2 .... #5....... #6 .... #3 .... #4 .... #7....... #8.......		
7-07		* CHECK WHEEL TIRE SERVICEABILITY. *RECORD TIRE PRESSURE NOSE (150 ± 5 PSI) ; MAIN (150+5 PSI) NLG #1 .... #2 .... MLG #1......... #2.......... #5......... #6........... #3........ #4........ #7........ #8.........		
7-08		WIPE EXPOSED PORTION OF STRUTS WITH MIL-H-5606 NLG		
		LMG		
		RMG		

BIRGENAIR

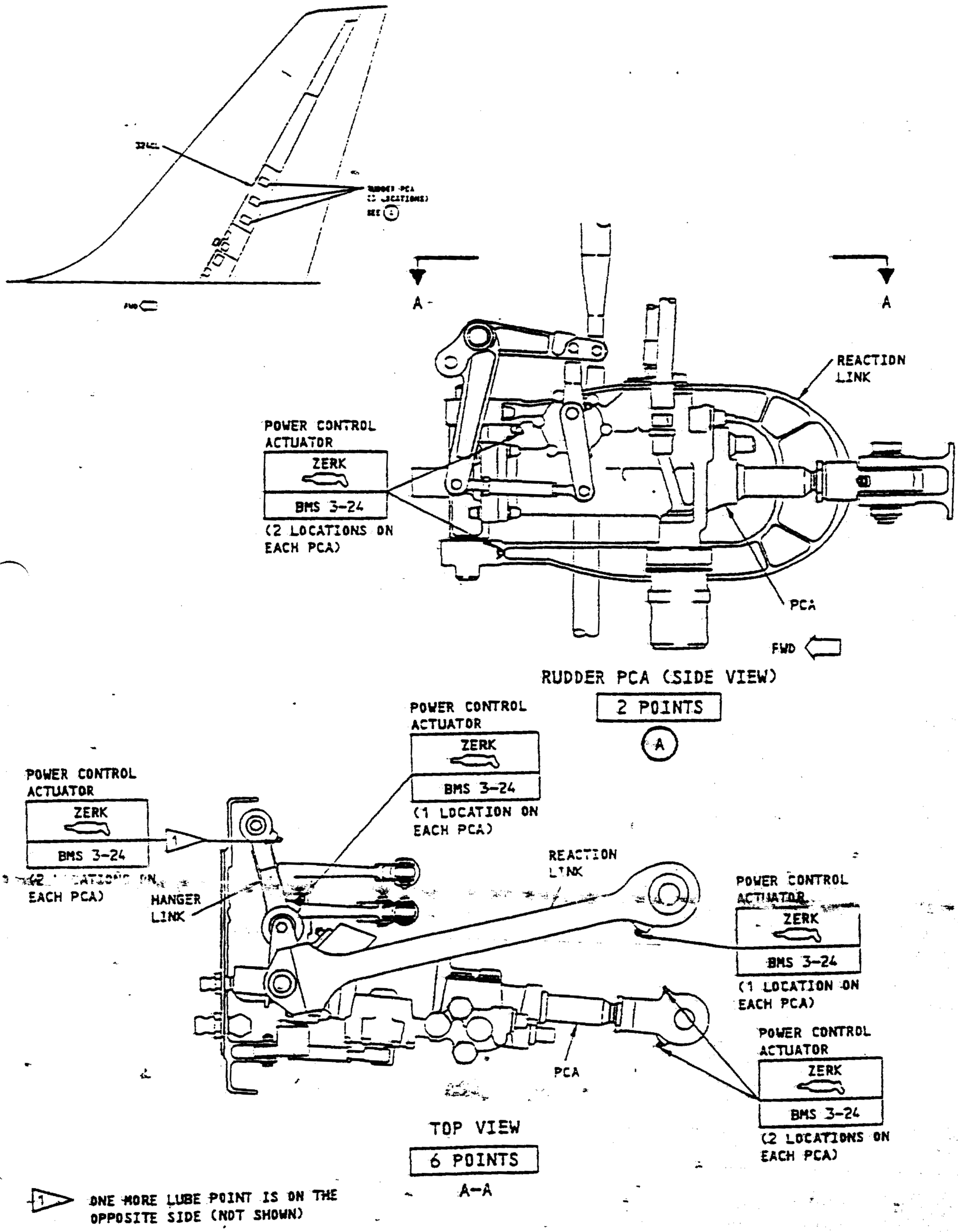
DATE : [illegible]

B757 " A " CHECK

PHASE : AG STA : PCP

ITEM	ZONE	WORK DESCRIPTION - 8 - LUBRICATION		MECH	INSP
		LUBRICATE FOLLOWING COMPONENTS NOTE : USING GREASE SHOWN ON FIGURES			
8-01	335-345	THE ELEVATOR POWER CONTROL ACTUATOR (6 Ea) as per figure : 1	LH	RAP H. Salgın	
		REFERENCE : AD 89-03-05 MPD REF : 12-21-04-3A AMP.CARD : 12-001-01 PHASE : 2A	RH	RAP H. Salgın	
8-02	324	THE RUDDER POWER CONTROL ACTUATOR (3 Ea) as per figure : 2 MPD REF : 12-21-06-3A AMP.CARD : 12-003-03 PHASE : 2A See NRC 004			
8-03	543-643	THE AILERON POWER CONTROL ACTUATOR AND ROD BEARING as per figure : 3	LH	[illegible]	
		MPD REF : 12-21-07-3D AMP.CARD : 12-006-04-2,-1 PHASE : 2A	RH	RAP H. Salgın	
8-04	552-652 553-653 554-654 561-661	~~THE WING SPOILER SYSTEM (6 unit per wing)~~ ~~As per figure : 4~~			
A B	562-662 563-663 564-664	~~* POWER CONTROL ACTUATOR (PCA)~~ ~~* HINGES~~			
	565-665	~~MPD REF : 12-2[illegible]-3B AMP.CARD : 12-022-C1-1,-2~~	LH		
		~~PHASE : 4A~~	RH		

FIGURE DESCRIPTION : LUBRICATION OF RUDDER POWER-CONTROL-ACTUATOR

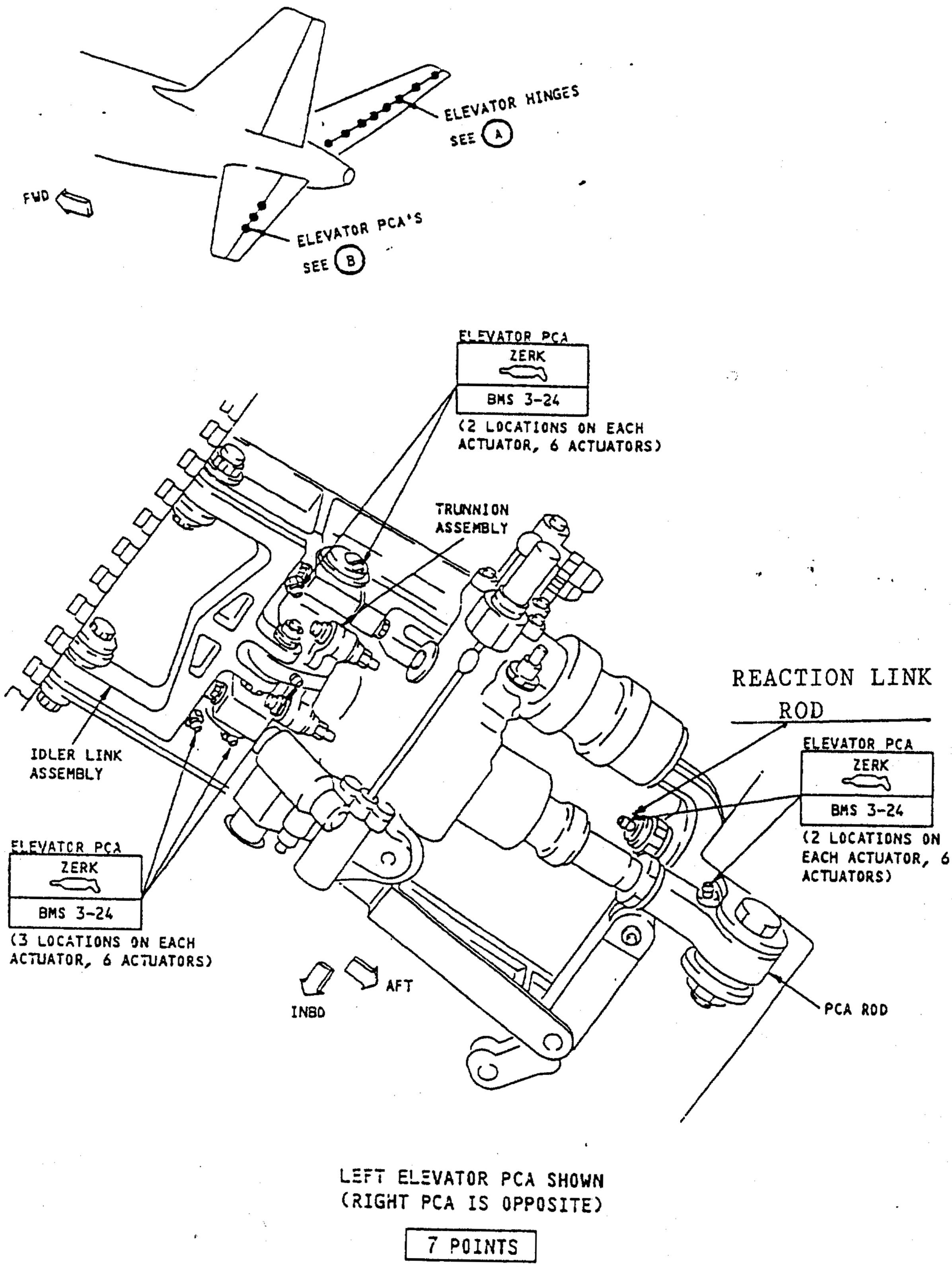


BIRGENAIR

B757 LUBRICATION FIGURES

Task Nbr : LUB.1
Figure Nbr : 1
Sheet Nbr : 1

FIGURE DESCRIPTION : LUBRICATION OF ELEVATOR POWER-CONTROL-ACTUATOR (**PCA**)

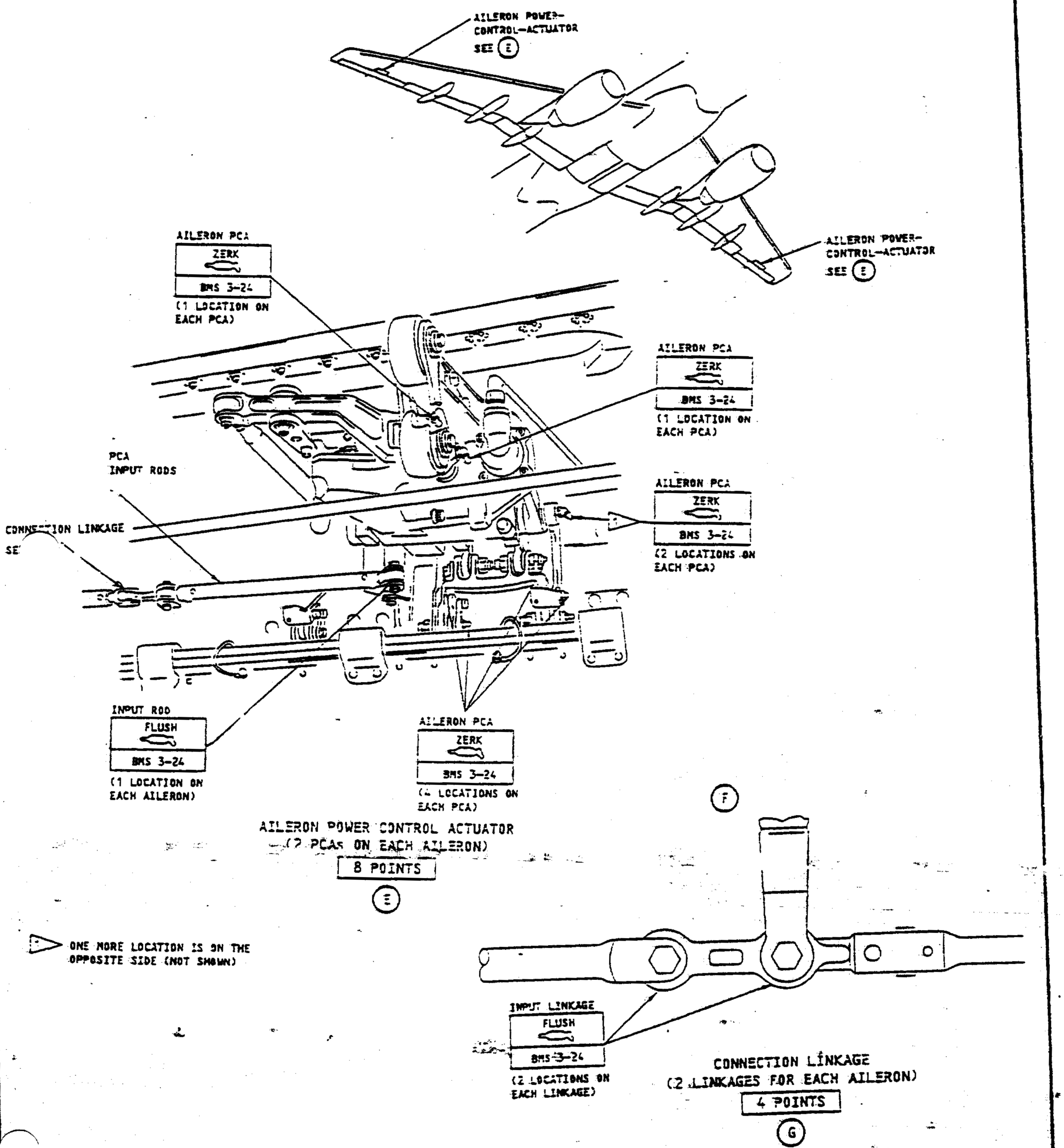


LEFT ELEVATOR PCA SHOWN
(RIGHT PCA IS OPPOSITE)

7 POINTS

B

GURE SCRIPTION :AILERON and AILERON - TRIM - CONTROL SYSTEM LUBRICATION



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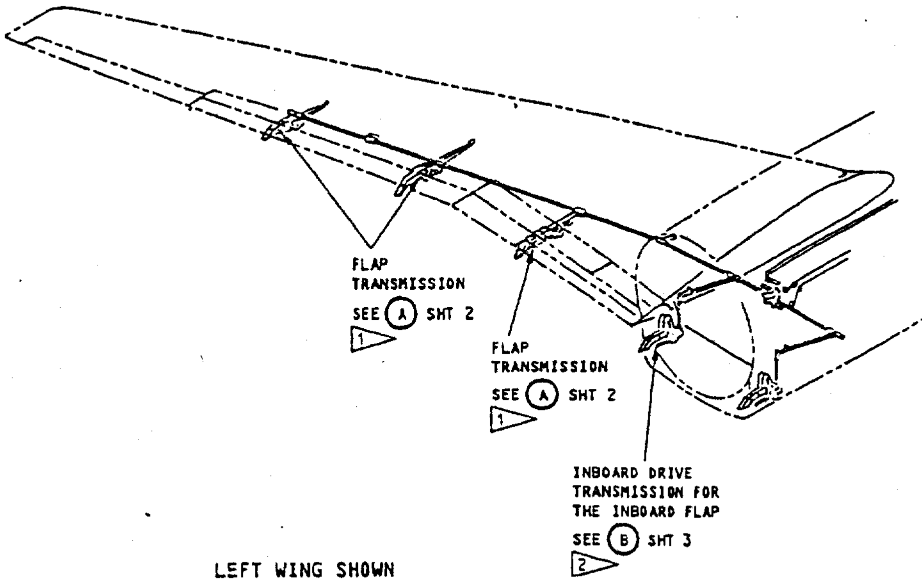
PHASE : A6 STA : PCP

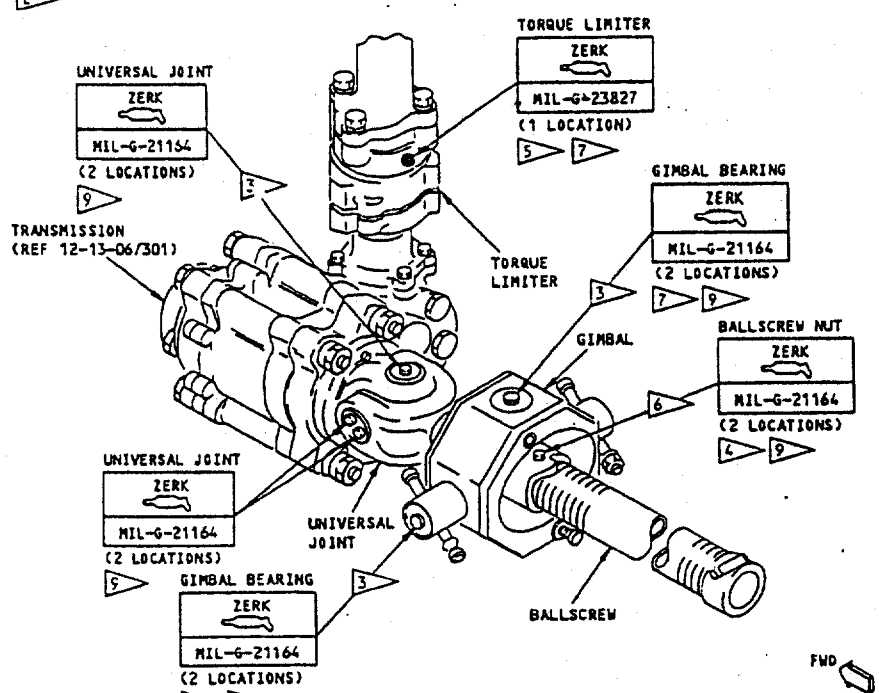
B757 " A " CHECK

ITEM	ZONE	WORK DESCRIPTION - 8-LUBRICATION		MECH	INSP
8-06	143-144 553-653	TRAILING EDGE FLAP TRANSMISSION SYSTEM as per figure : 6	LH		
A	555-655 556-656	GIMBAL BEARINGS (4 gimbal per wing)			
B	566-666 572-672	UNIVERSAL JOINTS (4 transmissions per wing) MPD REF: 12-21-09-3A,-3B,3C AMP.CARD: 12-012-01-1, -2 PHASE : 2A 12-012-C1-1, -2	RH		
8-07	573-673 574-674	OUTBOARD TRAILING EDGE FLAP MECHANISM. as per figure : 7			
A		MAIN FLAP TRACK,AFT FAIRING LINKAGE AND PIVOT POINTS AND FWD FAIRING ATTACH POINTS. (4 flap track per wing)			
B		MAIN FLAP CARRIAGE ASSEMBLY FWD/AFT ATTACH FITTING AND CARRIAGE ROLLERS. (4 assemblies per wing)			
C		AFT FLAP LINKAGES PUSHROD END BEARINGS AND BELLCRANKS. (4 assemblies per wing)			
D		AFT FLAP SUPPORT ROLLERS.			
E		AFT FLAP SUPPORT ASSEMBLIES. (4 assemblies per wing)	LH		
		MPD REF : 12-21-09-3K,-3L,-3M,-3N,-3O AMP CARD : 12-014-C1-1,2 PHASE : 4A	RH		

FI[GU]RE DESCRIPTION : LUBRICATION FOR THE TE FLAP DRIVE TRANSMISSION



LEFT WING SHOWN
(RIGHT WING OPPOSITE)



1 FULLY EXTEND THE FLAPS TO LUBRICATE

2 GET ACCESS THROUGH THE WHEEL WELL OF THE MAIN GEAR TO LUBRICATE

3 ONE MORE LUBE POINT ON THE OPPOSITE SIDE (NOT SHOWN)

4 CAUTION: USE A HAND PUMP TO LUBRICATE THE BALLSCREW. PRESSURE PUMPS MAY DAMAGE THE SEALS AND CAUSE FAILURE.
LUBRICATE UNTIL GREASE FLOWS OUT FROM THE BLEED HOLE

5 FILL WITH GREASE UNTIL THE GREASE FLOWS OUT FROM THE LOWER VENT HOLES OF THE TORQUE LIMITER

6 ONE MORE LUBE POINT ON OPPOSITE SIDE (NOT SHOWN). LUBRICATE ONE SIDE ONLY

7 NOT INSTALLED ON ALL AIRPLANES

8 USE THE NEEDLE ADAPTER ON THE GREASE GUN. INSERT THE NEEDLE ADAPTER THROUGH THE TRANSMISSION SUPPORT TO GET TO THE LUBE POINT. TURN THE U-JOINT WITH THE ALTERNATE TE-FLAP DRIVE (REF 27-51-00/201) TO GET TO ALL U-JOINT LUBE POINTS

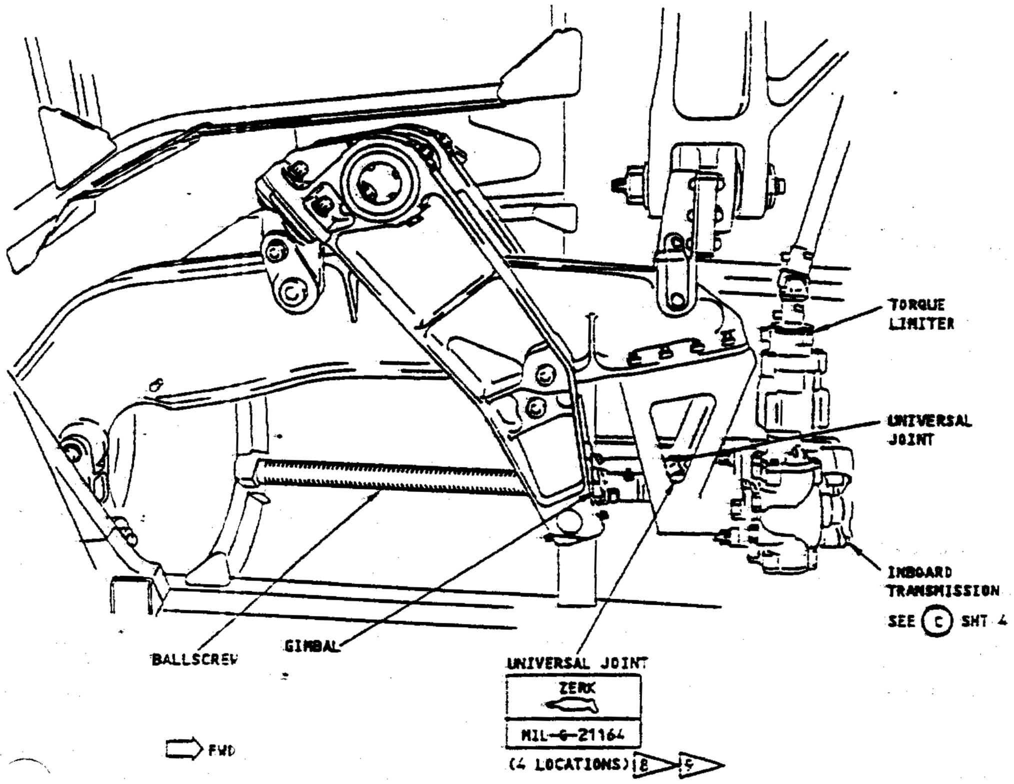
9 MIL-G-21164 RECOMENDED MIL-G-23827 OPTIONAL

FLAP TRANSMISSION
(3 FLAP TRANSMISSIONS ON EACH WING)

10 POINTS

A 1

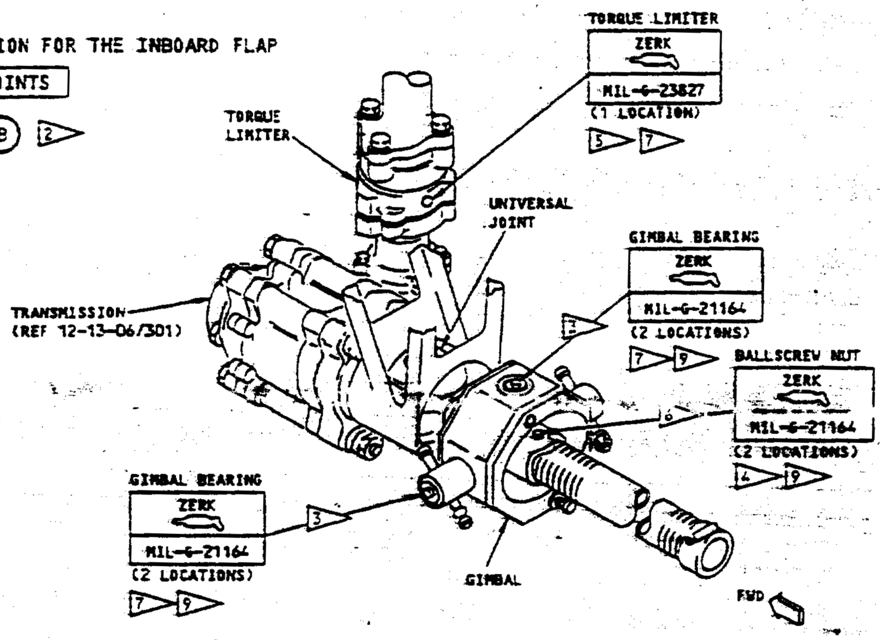
FIG[illegible]E DESCRIPTION : LUBRICATION FOR THE TE FLAP DRIVE TRANSMISSION



INBOARD DRIVE TRANSMISSION FOR THE INBOARD FLAP

4 POINTS

B 2



INBOARD TRANSMISSION
(1 INBOARD TRANSMISSION ON EACH WING)

6 POINTS

C

B[illegible]GENAIR	DATE : 16/1/[illegible] A/C : TC-GEN
B757 " A " CHECK	PHASE : A6 STA : [illegible]

ITEM	ZONE	WORK DESCRIPTION - 8 - LUBRICATION	MECH	INSP
8-10	115-116 711	THE NOSE WHEEL LANDING GEAR: As per figure : 10	2330	
A		RETRACT ACTUATOR		
B		ALTERNATE UPLOCK RELEASE ACTUATOR		
C		LOCK LINK ASSEMBLY		
D		LOCK ACTUATOR		
E		GEAR OPERATED SEQUENCE VALVE LINKAGE		
F		TRUNNION FITTING		
G		DRUG STRUT ASSEMBLY		
H		SPRING CARTRIDGE		
I		TORSION LINK ASSEMBLY		
J		STEERING ACTUATORS, TRUNNION AND STERING COLLAR		
K		OUTER CYLINDER AND GLAND NUT		
L		INNER CYLINDER AND TOW FITTING		
		MPD REF : 12-21-12-3A,B,C,D,E,F,G,H,I,J,K,M,N,O AMP CARD : 12-023-C1 PHASE : 2A		
8-11	713-714 715-716	THE NOSE WHEEL LANDING GEAR DOORS AND ACTUATING MECHANISM : As per figure : 11	2330	
A		FORWARD DOOR OPERATING RODS AND BELCRANK		
B		FORWARD DOOR ACTUATOR		
C		FORWARD DOOR HINGES		
D		AFT DOOR HINGES		
E		AFT DOOR OPERATING RODS AND BELCRANK		
		MPD REF : 12-21-13-3A,B,C,D,E,F AMP CARD : 12-026-C1 PHASE : 2A		

BIRGENAIR

DATE : 16/11/96 A/C : TC-CEN

B757 " A " CHECK PHASE : AC STA : PDP

ITEM	ZONE	WORK DESCRIPTION - 9-ENGINE SERVICING & FILTER MAINT.		MECH	INSP
9-01	411-412	CHECK THE IDG SCAVENGE OIL DIFFERENTIAL PRESSURE INDICATOR FOR POSITION. IF INDICATOR EXTENDED, EXAMINE SCAVENGE FILTER IF IT IS CONTAMINATED, REPLACE IT. MPD REF : 12-13-03-3D AMP CARD : 24-001-04-1, -2 PHASE : A1 CHECK EXCEPT A5	L ENG R ENG		
9-02	411-412	~~REPLACE IDG SCAVENGE OIL FILTER **FILTER P/N : 654T0035-1A** MPD REF : 24-11-02-2A AMP CARD : 24-016-01-1, -2 PHASE : A5~~	~~L ENG~~ R ENG		
9-03	411-412	CHECK THE IDG OIL LEVEL AND SERVICE TOP UP LEVEL MPD REF : 12-13-03-3E AMP CARD : 24-001-02-1, -2 PHASE : 1A	L ENG R ENG	596	
9-04		CHANGE THE STARTER OIL. MPD REF : 12-22-02-3A/3B AMP CARD : 80-101-C1-1, -2 PHASE : 1A	L ENG R ENG	596	
9-05	411-412	REMOVE OIL PRESSURE FILTER. FLUSH OUT THE FILTER AND RECORD BELOW. CLEAN / CARBON PART / BRONZE PART ENGINE #1 ✓ ---------- ---------- ENGINE #2 ✓ ---------- ---------- R&R REF : NTO 387 MPD REF : R79-21-07-4A PHASE : 1A AMP CARD: 79-101-03-1, -2	L ENG R ENG	598 596	
9-05	411-412	REPLACE SHOP CLEANED OIL PRESSURE FILTER **FILTER P/N : 11-10638** PHASE : 1A	L ENG R ENG	596	
9-06	411-412	~~REPLACE SCAVENGE OIL FILTER. **SCAVENGE FILTER P/N : QA03963** MPD REF : R79-21-08-4A AMP CARD : 79-101-04-1, -2 PHASE : 2A~~	~~L ENG~~ R ENG		

BIRGENAIR

DATE : 16/1/96 A/C : TC-GEN

B757 " A " CHECK

PHASE : AG STA : POP

ITEM	ZONE	WORK DESCRIPTION -10- ENGINE INSPECTION		MECH	INSP
		LP COMPRESSOR - FAN COWL			
10-01	411-412	VISUALLY INSPECT; NOSE COWL, HINGED COWL PANELS, HINGED COWL LATCHES AND GAS GENERATOR FAIRINGS FOR CONDITION AND LATCH FIT AND SECURITY. GENERALLY INSPECT, HINGED COWL PANEL INNER SURFACE FOIL,CONTACT STRIPS, BANDING LEADS AND. PROTECTIVE SHIELD FOR CONDITION AND SECURITY. MPD REF : R71-11-04-6A AMP CARD : 71-137-01-1 PHASE : 1A 71-137-01-2	L ENG		
			R ENG		
10-02	411	LP COMPRESSOR (FAN) CASE			
A	421	GENERALLY INSPECT; KEVLAR PROTECTIVE COATING. * INSPECT FOR SURFACE INDENTATIONS, PUNCHES OR CUTS. * INSPECT FOR SEPERATION OF ADJACENT LINERS AND EDGES OF COVERING FROM COMPRESSOR CASING. * INSPECT LAYERS FOR DAMAGE INCLUDING CRACKS, CUTS, PUNCHES * EXAMINE FOR HYDRAULIC OIL CONTAMINATION. * INSPECT KEVLAR WRAPPING GRIPPER (32 EA) FOR SECURITY AND CRACKS.			
B		GENERALLY INSPECT LP COMPRESSOR CASE-FRONT, AS ENTERING AIR INTAKE * ATTRITION LINING FOR LP BLADE TIP RUB, EROSION, IMPACT DAMAGE AND CIRCUMFERENTIAL SCOVING. * EXAMINE THE FRONT ACOUSTIC LINING FOR DENTS, BUDGES, CRACKS AND AREAS THAT ARE UNBONDED. * INSPECT ICE IMPACY PANEL FOR DAMAGE AND MISSING GLASS REINFORCED COMPOSITE (GRC) SKINNING.			
C		GENERALLY INSPECT; ENGINE INLET FOR SPLITTER FAIRINGS SECURITY AND DAMAGE.			
D		GENERALLY INSPECT, OGV IN-FILL PANELS FOR CRACKS, EROSION, LIFTING AND SECURITY OF ATTACHMENT. MPD REF : R72-34-10-6B AMP.CARD : 72-112-04-1, -2 PHASE : 2A	L ENG		
			R ENG		

16/1/96

BIRGENAIR

DATE : A/C : TC-GEN

B757 " A " CHECK

PHASE : A6 STA : PUP

ITEM	ZONE	WORK DESCRIPTION -10- ENGINE INSPECTION		MECH	INSP
10-03	411-412	**LP COMPRESSOR - FAN**		[redacted]	
A		GENERALLY INSPECT ENGINE INLET. 1- FAN BLADES FOR CRACKS, SURFACE DAMAGE, BENDS, AND BURNS. 2- ROTATING FAIRING (SPINNER) FOR SECURITY, DAMAGE AND DETERIORATION. * RUBBER NOSE CAP * OUTER SURFACE OF SPINNER NOTE : WARN POLIURATHANE WARNISH IS PERMITTED * INNER SURFACE AND FLANGE (IF SPINNER HAS BEEN REMOVED)	L ENG		
		REF : MM 72-35-01 PAGE 601 PHASE : 1A	R ENG		
B		PERFORM FAN BLADE TAB TEST IN ACCORDANCE WITH R&R SB-RB211-72-9660. RECORD THE RESULTS ON THE BELOW	L ENG		
		REF : RR SB 211-72-9660 PHASE: 2A	R ENG		

ITEM	ZONE	WORK DESCRIPTION -10- ENGINE INSPECTION		MECH	INSP
10-04 A		**C DUCT AREA** GENERALLY INSPECT; FAN "C" DUCT HINGE AND LATCH ACCESS PANEL FOR CONDITION. GENERAL INSPECT; "C" DUCT INSULATION (THERMAL BLANKET) FOR DAMAGE, CONDITION AND SECURITY. MPD REF : R78-31-00-A AMP CARD : 71-139-51-1 PHASE : 3A	L ENG R ENG	[redacted]	
B		INSPECT THE H.P.C. STG 6 SOLEPLATE WELD FOR CRACKING. **Figure: 16** * THROUGHLY CLEAN THE AREA TO BE INSPECTED USING A SWAB MOISTENED IN TRICHLOROETHANE AND ALLOW TO DRY. * VISUALLY INSPECT THE AREA WITH GOOD DIFFUSED LIGHTING. * FLUORESCENT PENETRANT INSPECT. * IF NO SUSPECT PENETRANT INDICATION ARE FOUND, RETURN TO SERVICE. * IF SUSPECT PENETRANT INDICATION ARE PRESENT, REMOVE PROTECTIVE PAINT USING FIRE GRADE ABRASIVE PAPER OR SIMILAR. THROUGHLY CLEAN THE AREA AND REPEAT THE DYE PENETRANT INSPECTION. * IF CRACK INDICATION IS CONFIRMED, MEASURE AND RECORD EACH CRACK LENGHTH AND POSITION AND INFORM MAINTENANCE MANAGER. REF : AD 86-07-01 INTERVAL NOTE : INTERVAL MUST NOT EXCEED 500 CYC	L ENG R ENG	[redacted]	
C		VISUAL INSPECT P1 TUBES AND TUBE RETAINING CLIPS AT THE LOCATION SHOWN IN **Figure :17** * REMOVE CLIPS FROM P1 TUBES FOR INSPECTION. * INSPECT TUBE RETAINING CLIPS FOR EVIDENCE OF DISTRESS. * INSPECT P1 TUBE, (USING A MIRROR) FOR EVIDENCE OF DISTRESS. * INSPECT P1 TUBES FLEXIBLE SECTIONS FOR EVIDENCE OF RED STAINING AND/OR OUTER WIRE BRAID DISTRESS. * CHECK ALL P1 TUBE CONNECTIONS FOR TIGHTNESS. MPD RED : R73-21-13-B AMP CARD : 73-112-02-1, -2 PHASE : 1A	L ENG R ENG	[redacted]	
D		FUNCTIONALLY CHECK THE LOWER THROTTLE CONTROL BOX GEAR SECTOR FORK END WEAR. MPD REF : R73-21-01-2A AMP CARD : 73-113-01 REF : ~~RR SB~~ RB211 73-9362/ 76-9395 PHASE : 5A	L ENG R ENG	[redacted]	

B*RGENAIR

DATE: 16/1/96 A/C : TC-GEN

B757 " A " CHECK

PHASE : A6 STA : POP.

ITEM	ZONE	WORK DESCRIPTION -10- ENGINE INSPECTION	MECH	INSP
10-05		**THRUST REVERSER AND EXHAUST SYSTEM** GENERALLY INSPECT; FOLLOWING THRUST REVERSER SYSTEM ITEMS FOR CONDITION AND OPERATION. • UNLOCK INDICATION SYSTEM FOR OPERATION. • BLOCKER DOORS AND DRAG LINKS (WITH TRANSLATING SLEEVE STOWED). • ACCESS PANELS. • TRANSLATING COWL AND INNER WALL. • COLD STREAM EXHAUST NOZZLE. • EXHAUST COLLECTOR AFTER-BODY, EXHAUST COPE, GAS GENERATOR NOZZLE AND INTERFACE FAIRING. • EXHAUST COMMON NOZZLE ASSEMBLY FOR SIDE SUPPORT STRUT DISTRESS AND CRACKS. L ENG MPD REF : POWERPLANT ZONAL CHECK R ENG PHASE : 1A	[redacted]	

Rev:Org Date : 01/10/1994

EO : 2-00 MPD-004

BIRGENAIR Technical Department

BIRGENAIR

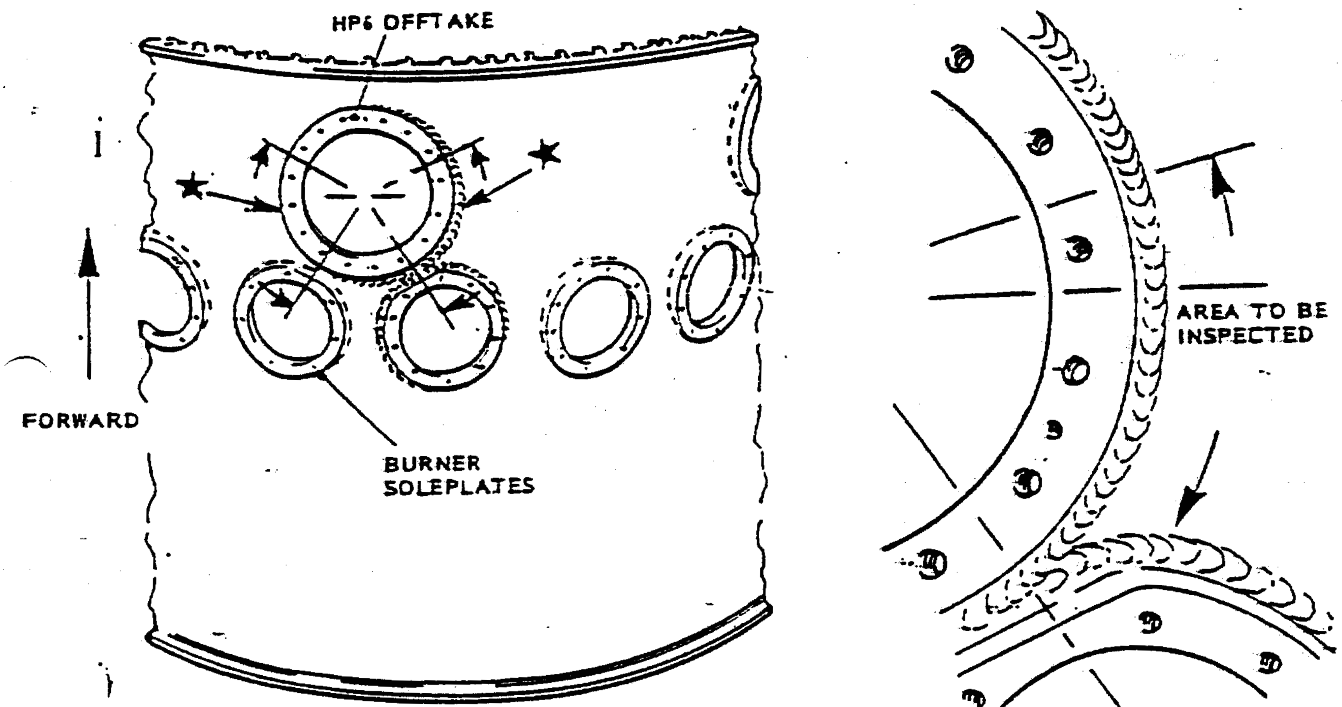
B757 INSPECTION FIGURES

Task Nbr : 10-04B

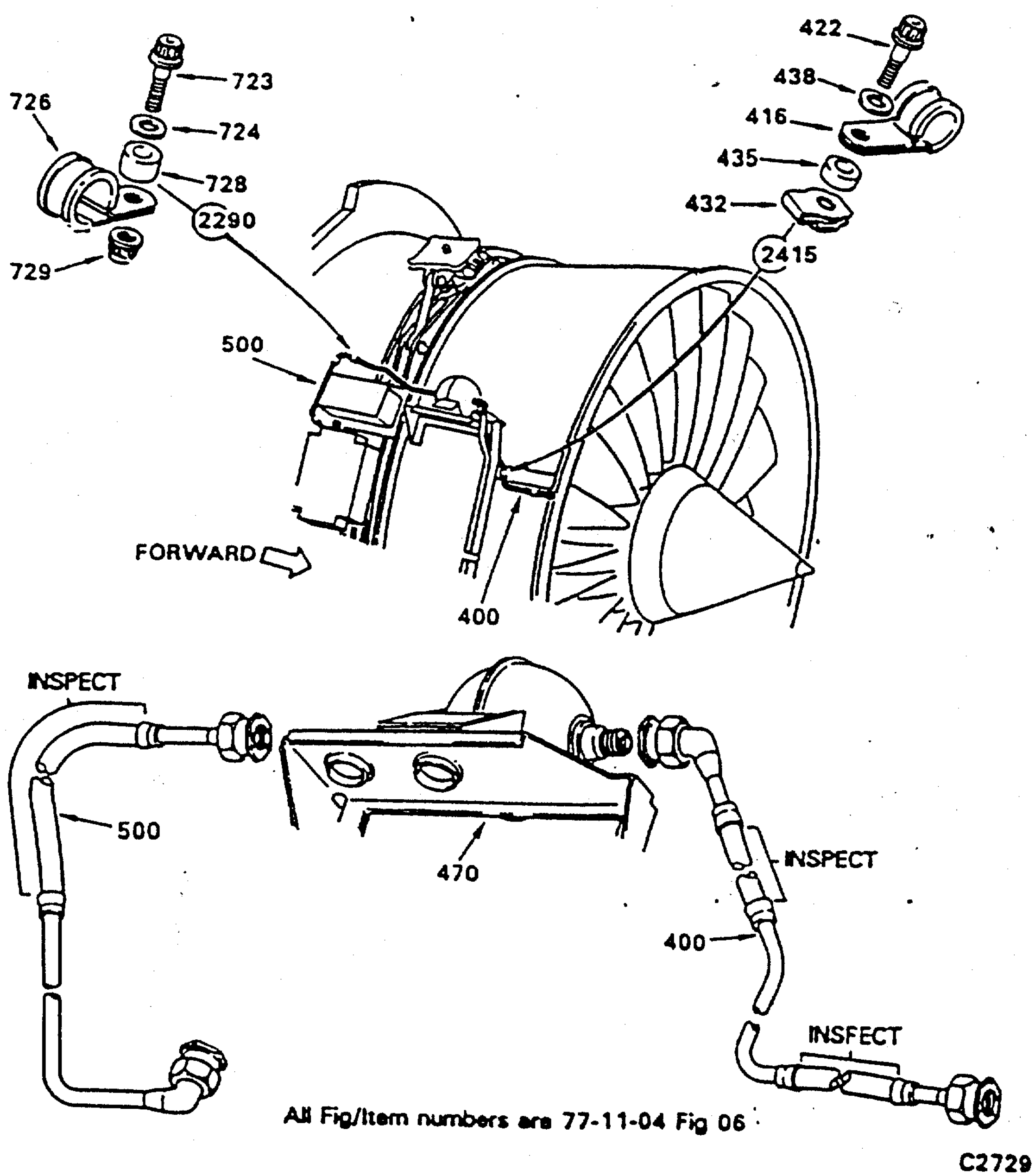
Figure Nbr : 16

Sheet Nbr : 1

INSPECTION OF H.P.C. Stg 6 SOLEPLATE WELD FOR CRACKING



VIEWED FROM ABOVE-HP.6 SOLEPLATE IS AT ENGINE T.D.C



Fuel system air tubes - Post S.B.77-8941

RGENAIR DATE : A6 A/C : TC-GEN

B757 " A " CHECK PHASE : A6 STA : POP

ITEM	ZONE	WORK DESCRIPTION -11- ENGINE INSPECTION and MAINTENANCE	MECH	INSP
11-01	211-411 421	AUDIBLE CHECK ENGINE IGNITERS WITH IGNITION SYSTEM START SWITCH IN "GND" MODE, IF ALTERNATE STARTING PROCEDURES NOT USED. L ENG MPD REF : R74-00-00-5A AMP CARD : 74-101-01 PHASE : 1A R ENG		
11-02		~~* REMOVE IGNITER PLUGS AND ROUTE TO SHOP FOR INSPECTION.~~ ~~* INSTALL, INSPECTED IGNITER PLUG. L ENG~~ ~~MPD REF : R74-21-02-6A AMP.CARD : 74-105-01-1, -2~~ ~~PHASE : 2A R ENG~~		
11-03	410	~~CHECK THE ENGINE 1 OIL PRESSURE TRANSMITTER HARNESS PLUG FOR SECURITY AS PER FOLLOWING TASK~~ ~~* UNSCREW HARNESS PLUG D 1324 FROM OIL PRESSURE TRANSMITTER.~~ ~~* USING A SPARE PIN HELD IN PLIERS, INSERT PIN INTO EACH HARNESS PLUG SOCKET IN TURN AND, USING HAND PRESSURE ONLY, ATTEMPT TO PUSH SOCKET BACK INTO CONNECTOR.~~ ~~* IF SOCKET PUSHES BACK, REPLACE PLUG IN ACCORDANCE WITH R&R CMM 71-51-03, DISASSEMBLY/ASSEMBLY AND STORAGE.~~ ~~* INFORM TO MAINTENANCE MANAGER.~~ ~~* IF SOCKET RETENTION IS SATISFACTORY.~~ ~~* CHECK WIRE BETWEEN REAR OF PLUG AND RUBBER BUSH IN BACKCLAM P. THIS CABLE SHOULD BE STRAIGHT, BUT NOT PULLED TIGHT~~ ~~* IF COOLING OF THE WIRE IS PRESENT SUCH THAT THE WIRE HAS WORN THE REAR OF THE PLUG, THEN THE PLUG AND SOCKET ARE TO BE REPLACED IN ACCORDANCE WITH R&R CMM, 71-51-03~~ ~~* IF WIRE IS SATISFACTORY, CLEAN AND REINSTALL PLUG ONTO OIL PRESSURE TRANSMITTER IN ACCORDANCE WITH R&R AMM 70-50-02~~ ~~NOTE : CARE SHOULD BE TAKEN WHEN REPLACING THE PLUG TO ENSURE THAT THE PINS ON THE TRANSMITTER ARE NOT DAMAGED.~~ ~~MPD REF : R71-51-00-A AMP. CARD : 71-140-01-1~~ ~~PHASE : 5A REF : RR SB-RB211-71-8955~~		
11-04		~~VISUALLY CHECK AROUND HS GEARBOX RADIAL DRIVE SHROUD TUBE FOR OIL LEAKS/~~ ~~* THIS INVOLVES VIEWING THE AREA AROUND THE SHROUD TUBE THROUGH THE GAP AT THE REAR OF THE SHROUD TUBE FAIRING.~~ ~~* IF ANY OIL LEAK IS EVIDENT THEN BOTH CENTER AND LOWER, PACKING MUST BE REPLACED IN ACCORDANCE WITH MM 72-62-01-A~~ ~~L ENG~~ ~~MPD REF : R72-62-01-A AMP. CARD : 72-132-01-1, -2~~ ~~PHASE : 2A R&R SB : RB211-72-8672 R ENG~~		

ITEM	ZONE	WORK DESCRIPTION - 12 - ENGINE INSPECTION 3	MECH	INSP
12-01		REMOVE THE MAGNETIC CHIP DETECTOR AND CHECK FOR METAL CONTAMINATION IDENTIFY, HOLD AND REPORT CONDITION OF MCD. CLEAN / FUZZ / FLAKES ENG #1 MASTER : ✓ INT. GEAR BOX : ✓ EXT. GEAR BOX : ✓ STARTER : ✓ ENG #2 MASTER : ✓ INT. GEAR BOX : ✓ EXT. GEAR BOX : ✓ STARTER : ✓ PHASE : 1A	598 598	
12-02		CLEAN AND INSTALL MCD. ENG #1 MASTER PACKING P/N BAYONET TYPE 44066 — INT. GEAR BOX SCREW TYPE AS43008-908 EXT. GEAR BOX FOR STARTER P/N NAS 1595-2 OR — STARTER M83248-1-902 ENG #2 MASTER INT. GEAR BOX EXT. GEAR BOX PHASE : 1A — STARTER	598	

RH ENGINE BORESCOPE INSPECTION INTERVAL CHANGED TO 1A

BIRGENAIR

DATE : 4/1/96 A/C : TC-GEN

B757 " A " CHECK

PHASE: A6 STA : POP

ITEM	ZONE	WORK DESCRIPTION - 12 - ENGINE INSPECTION 3		MECH	INSP
12-03		REMOVE THE APPLICABLE BORESCOPE ACCESS PLUGS FOR INSPECTION AS PER FIGURE : 18	L ENG	Hüseyin	[redacted]
		PHASE : 2A	R ENG	Hüseyin	[redacted]
12-04		INSPECT AND REPORT H.P. COMPRESSOR STG 6 BLADE LOCKPLATES IN ACCORDANCE WITH R&R SB RB211-72-8671 EMM 72-00-00	L ENG	[redacted]	
		NOTE : INSPECTION OF THE H.P.6 LOCKPLATES IS POSSIBLE BY ACCESS THROUGH A FUEL SPRAY NOZZLE APERTURE USING A FLEXIBLE BORESCOPE. PHASE : 2A	R ENG	[redacted]	
12-05		INSPECT AND REPORT; HPC STAGE 3 ROTOR BLADES FOR TIP RELEASE.	L ENG	[redacted]	BIRGENAIR 296
		REF : R&R NTO374 PHASE : 2A	R ENG	[redacted]	BIRGENAIR 296
12-0		INSTALL BORESCOPE PLUG AS FOLLOW • APPLY JOINTING COMPOUND (**Thixotropic Dry Film Lubricant**) TO CLEANED MATING FACES OF ACCESS DETAIL.	L ENG	Hüseyin	BIRGENAIR
		• APPLY CLEAN ENGINE OIL TO THE THREADS OF BOLTS and INSTALL. • TIGHTEN THE BOLT TO **60±10 Lb-Inch**	R ENG	Hüseyin	BIRGENAIR 296
12-06		INSPECT and REPORT COMBUSTION LINER HP NGVs and FUEL SPRAY NOZZLE • FRONT LINER INNER and OUTER WALLS. • INNER AND OUTER RING METERING PANELS and REAR INNER AND OUTER LINERS. • FRONT COMBUSTION LINER HEATSHIELDS. • FUEL SPRAY NOZZLES. • HP NOZZLE GUIDE VANES. 01	L ENG	[redacted]	BIRGENAIR
		MPD REF : R72-00-00-6A -6B AMP CARD : 72-118-C4-1 72-118-C4-2 PHASE : 2A	R ENG	[redacted]	BIRGENAIR 296
12-06A		INSTALL BORESCOPE PLUG AS FOLLOW • APPLY DRY FILM LUBRICANT (**Thixotropic Dry Film Lubricant**) TO THE CLEANED MATING FACES OF ACCESS DETAIL. • APPLY CLEAN ENGINE OIL TO THE THREAD OF BOLTS AND INSTALL. • TIGHTEN THE BOLTS TO **60 ±10 Lb-Inch**	L ENG	Hüseyin	BIRGENAIR 296
			R ENG	Hüseyin	BIRGENAIR 296

A6

BIRGENAIR

BORESCOPE INSPECTION REPORT — RB 211-535E4

ENGINE					AIRCRAFT		
Model	Pos	S/N	TSN	CSN	A/C Reg	Date	Location
RB.211-535E4	1	30711	22567	10258	TC GEN	04.02.98	P.o.P.

Description of Inspection Required:		Inspection Completed:
L.P. Compressor Rotor Blades (Fan)	Nil	
I.P. Compressor Rotor Blades Stg 1 thru 6	Nil	
H.P. Compressor Rotor Blades Stg 1 thru 6	Same as dated 04.12.97 Insp. All blades within limits I.a.w. m/m. 72.00.00 P.630 No progress.	BIRGENAIR 206
Combustion Chamber and HPT N.G.V.	Same as dated 04.12.97 Insp. No progress.	BIRGENAIR 206
H.P. Turbine Blades	Same as 04.12.97 Insp. No progress.	BIRGENAIR 206
I.P. Turbine Blades	Nil	
L.P. Turbine Blades Stg. 1-2-3	Nil.	

Remarks:

A5

BIRGENAIR

BORESCOPE INSPECTION REPORT RB 211-535E4

ENGINE					AIRCRAFT		
Model	Pos	S/N	TSN	CSN	A/C Reg	Date	Location
RB.211-535E4	1	30311	22104	10152	TC-GEN	04.12.95	IST.

Description of Inspection Required: Rutin (AT) Inspection.

Inspection Completed:

L.P. Compressor Rotor Blades (Fan)

Nil.

I.P. Compressor Rotor Blades Stg 1 thru 6

Nil.

H.P.Compressor Rotor Blades Stg 1 thru 6

3rd. Stg. 2 blades have missing materials on L/E.
4 blades have dents. (See next page.)

Combustion Chamber and HPT N.G.V.

- Several cracks on Inner Ring metering panels.
- Radial Crack on Rear edge of Radial ramp.
- N.G.V. Good shape.

H.P.Turbine Blades

Small Quantity of burns on Rear Non-Interlock face

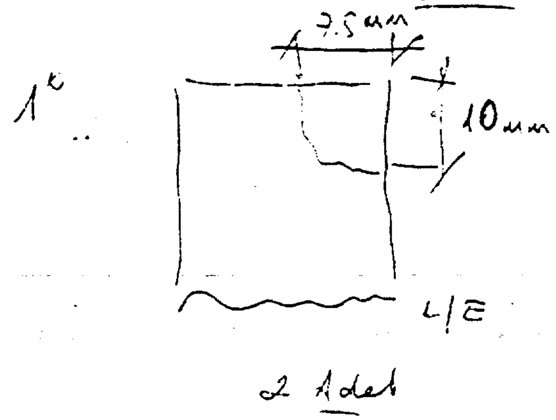
I.P.Turbine Blades

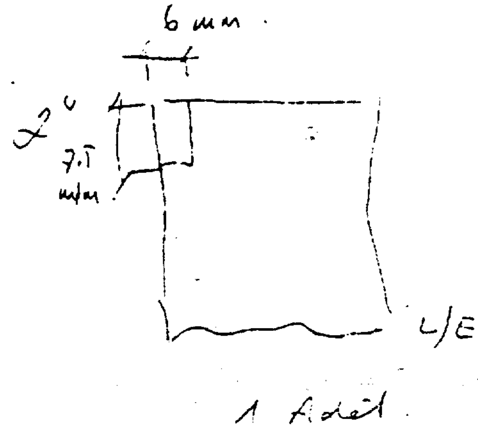
Nil.

L.P.Turbine Blades Stg.1-2-3

Nil.

3rd. Stg.





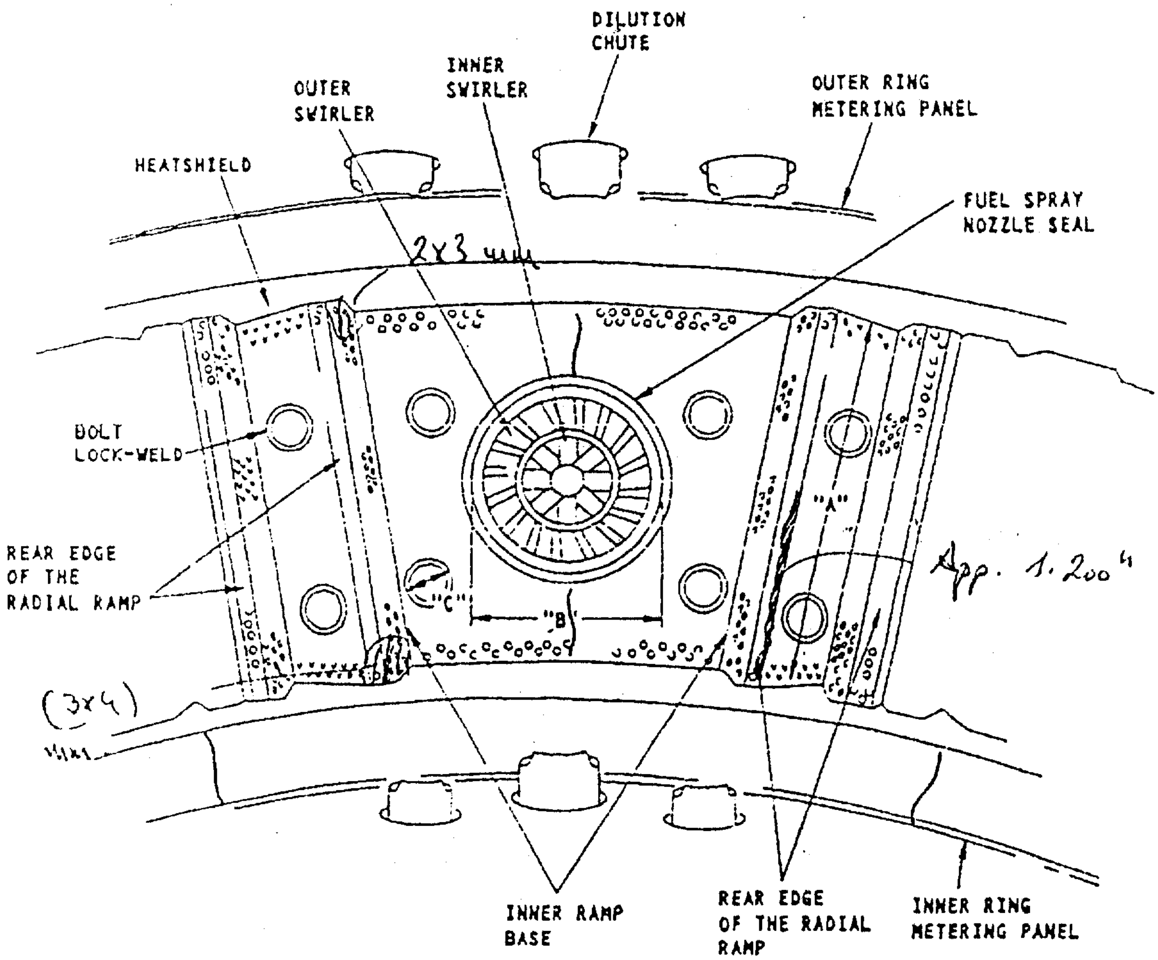
3° - Zone B. L/E Dent 2.5 mm.

4° - Zone B L/E Teak 2mm

5° - Zone A L/E Dent 1mm.

6° - Zone A L/E Dent 1.5 mm.

#1. 30511



USE THE DIMENSIONS SPECIFIED AS A GUIDE WHEN YOU ASSESS THE DAMAGE

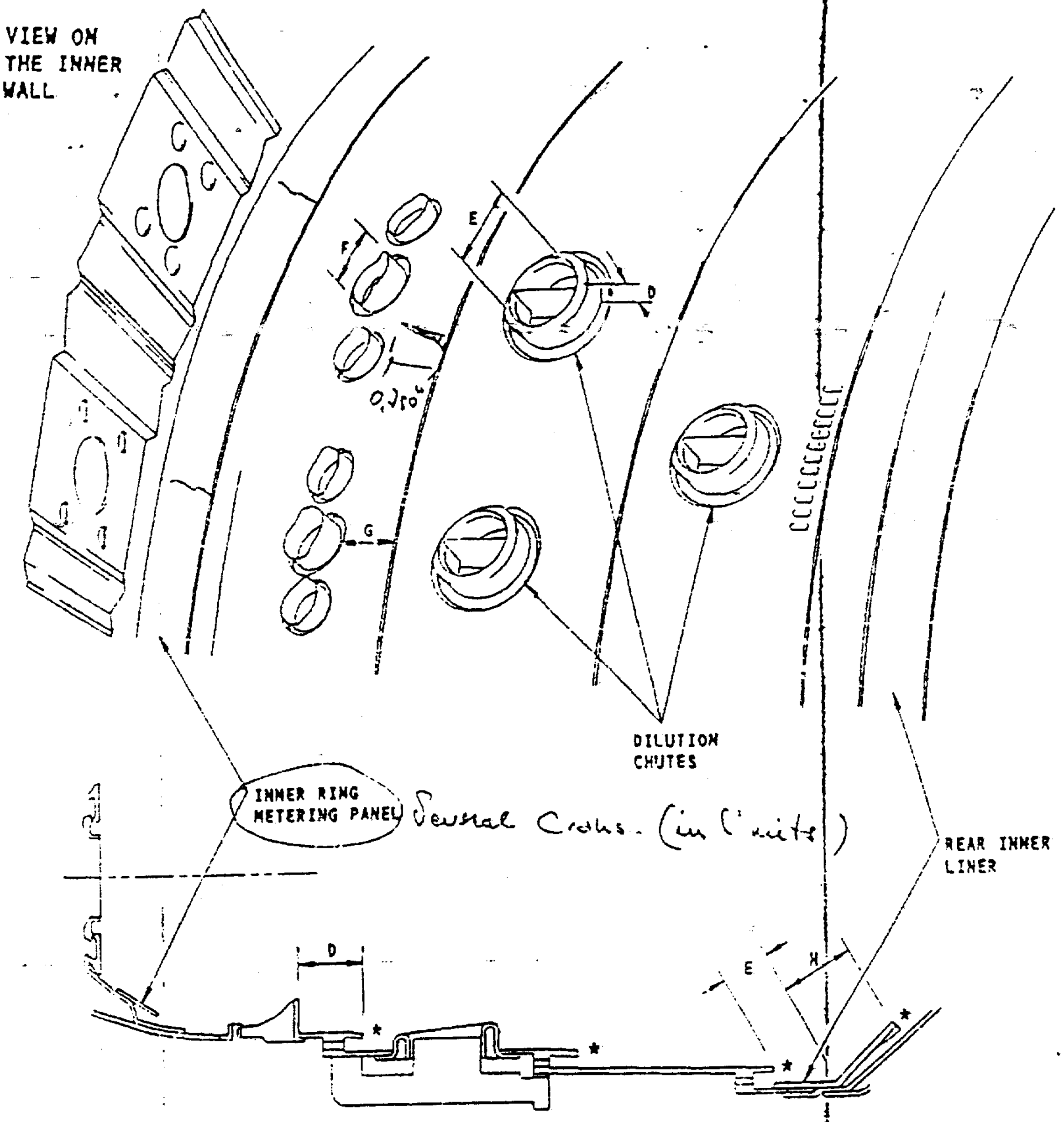
"A" = 2.650 INCH (67.36 mm)

"B" = 1.500 INCH (38.1 mm)

"C" = 0.250 INCH (6.35 mm)

66853A

Front Combustion Liner Heatshield
Figure 606



USE THE DIMENSIONS SPECIFIED AS A GUIDE WHEN YOU ASSESS THE DAMAGE

D = 0.375 INCH (9.53 mm)
E = 1.000 INCH DIA (25.4 mm)
F = 0.700 INCH DIA (17.78 mm)
G = 0.900 INCH (22.86 mm)
H = 1.000 INCH (25.4 mm)
* COOLING LIPS

595368

Front Combustion Liner Inner and Outer Walls
Figure 605 (Sheet 2)

A6

BIRGENAIR

BORESCOPE INSPECTION REPORT RB 211-535E4

ENGINE					AIRCRAFT		
Model	Pos	S/N	TSN	CSN	A/C Reg	Date	Location
RB 211 535E4	2	30514	22164	10918	TC-GEN	4.01.96	P.-P.

Description of Inspection Required:		Inspection Completed:
L.P. Compressor Rotor Blades (Fan)	Nil.	/
I.P. Compressor Rotor Blades Stg 1 thru 6	Nil.	/
H.P.Compressor Rotor Blades Stg 1 thru 6	Same as dated 04.12.95 Inspection. All blades within limits 3.dw. m/m. 72.00.00 No progress. P.630.	BIRGENAIR 296
Combustion Chamber and HPT N.G.V.	Same as dated 04.12.95 Inspection No progress.	BIRGENAIR 296
H.P.Turbine Blades	Same as dated 04.12.95 No progress. Insp.	BIRGENAIR 296
I.P.Turbine Blades	Nil	/
L.P.Turbine Blades Stg.1-2-3	Nil.	/
Remarks:		

BIRGENAIR

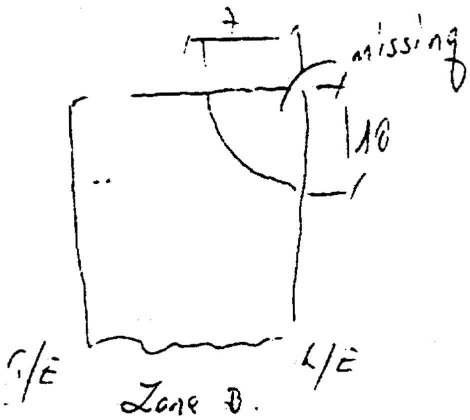
BORESCOPE INSPECTION REPORT					RB 211-535E4		
ENGINE					AIRCRAFT		
Model	Pos	S/N	TSN	CSN	A/C Reg	Date	Location
RB.211.535E4	2	30514	23801	10812.	TC-GEN	04.12.95	IST.

Description of Inspection Required: Rutin (A5) Inspection.	Inspection Completed:
L.P. Compressor Rotor Blades (Fan) Nil.	
I.P. Compressor Rotor Blades Stg 1 thru 6 Nil.	
H.P.Compressor Rotor Blades Stg 1 thru 6 3rd Stg. HPC ; 12 blades have damaged. (See next page) 4th Stg. 4 blades have damaged. (See next page) 5th " . 1 bades have damaged (See next page) All blades within limits I.a.w. M/M. 72.00.00 P.630	BIRGENAIR 1995
Combustion Chamber and HPT N.G.V. Several Cracks on Inner Ring metering panel. Radial Cracks on Rear edge of the radial ramps. (See nex page). - Small Quantity of burns on N.G.V.'s.	BIRGENAIR
H.P.Turbine Blades Small quantity of burns on Rear Non-Interlock faces.	BIRGENAIR
I.P.Turbine Blades Nil.	
L.P.Turbine Blades Stg.1-2-3 Nil.	

Remarks:

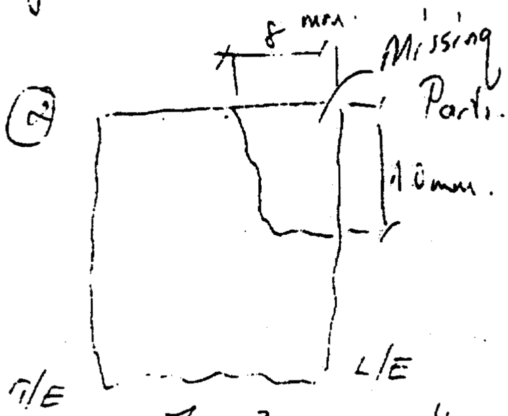
3rd Stage.

①



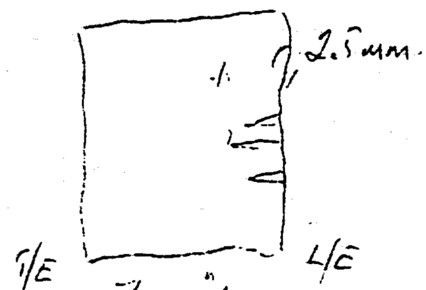
Zone B.

②



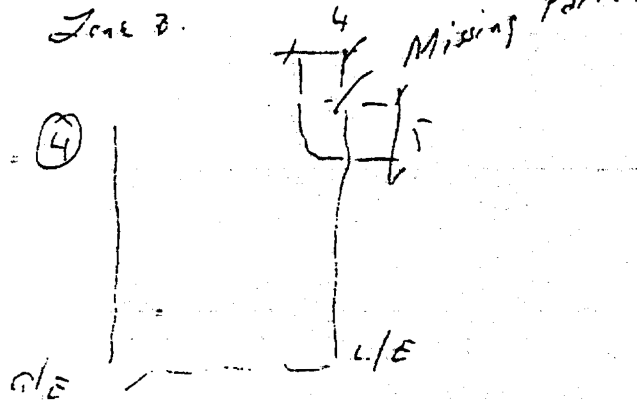
Zone B.

③



Zone "A"
Peak and Dent.

④



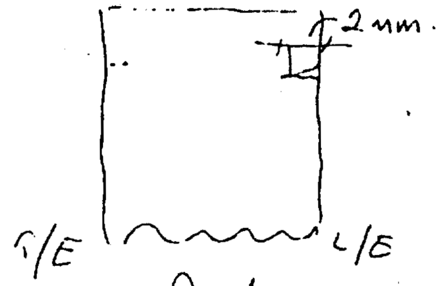
Zone B.

⑤ – Three blades have nicks in Leading edge and Zone "B" Ranging from 2mm Long x 2mm deep.

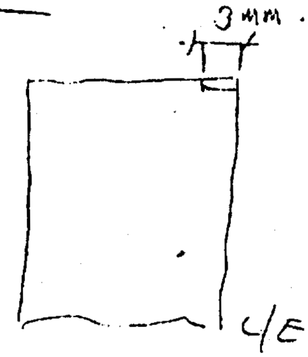
– One blade has nicks in Leading edge Zone "A" Ranging from 2mm Long x 2mm deep.

– Four blades have bends and Tears in Leading edge and Zone "B" Ranging from 2mm Long x 2.5 mm deep.

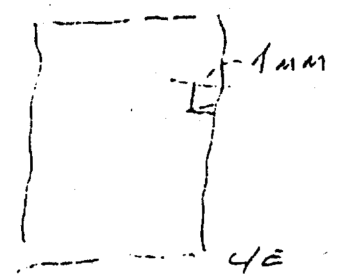
Fig 4



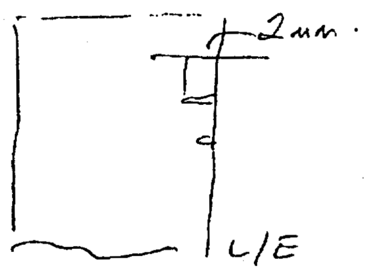
Tear
Zone B.



Tear
Zone B.



Dent.
Zone B.



Zone A
Tear Dent.

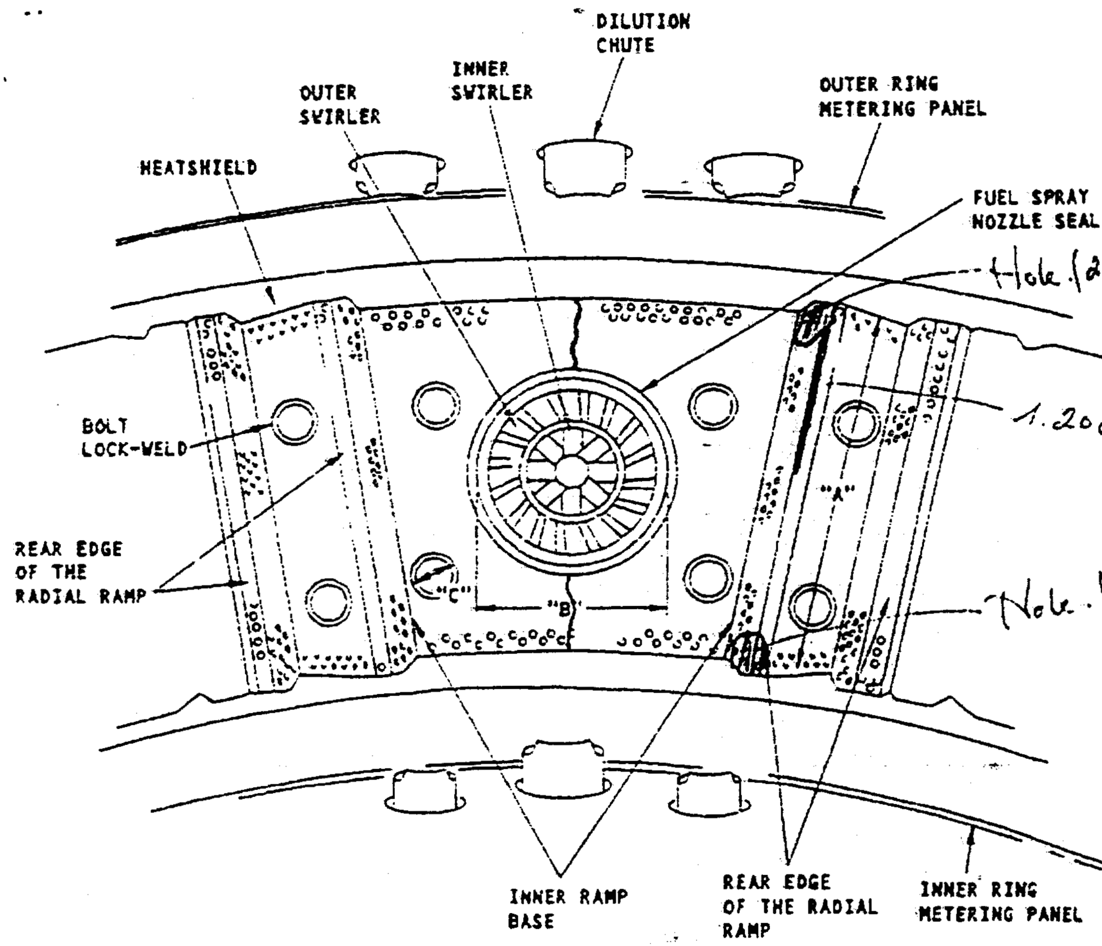
Fig 5

- One blade has dent in trailing edge and Zone B. Ranging from 1.5 mm long X 1 mm deep.

#2. Engine: 30714

T/T - 23801 Hrs.
T/C - 10812 Cyc.
TSSU - 11518
CSSU - 4769.

#2. Port.



USE THE DIMENSIONS SPECIFIED AS A GUIDE WHEN YOU ASSESS THE DAMAGE

"A" = 2.650 INCH (67.36 mm)

"B" = 1.500 INCH (38.1 mm)

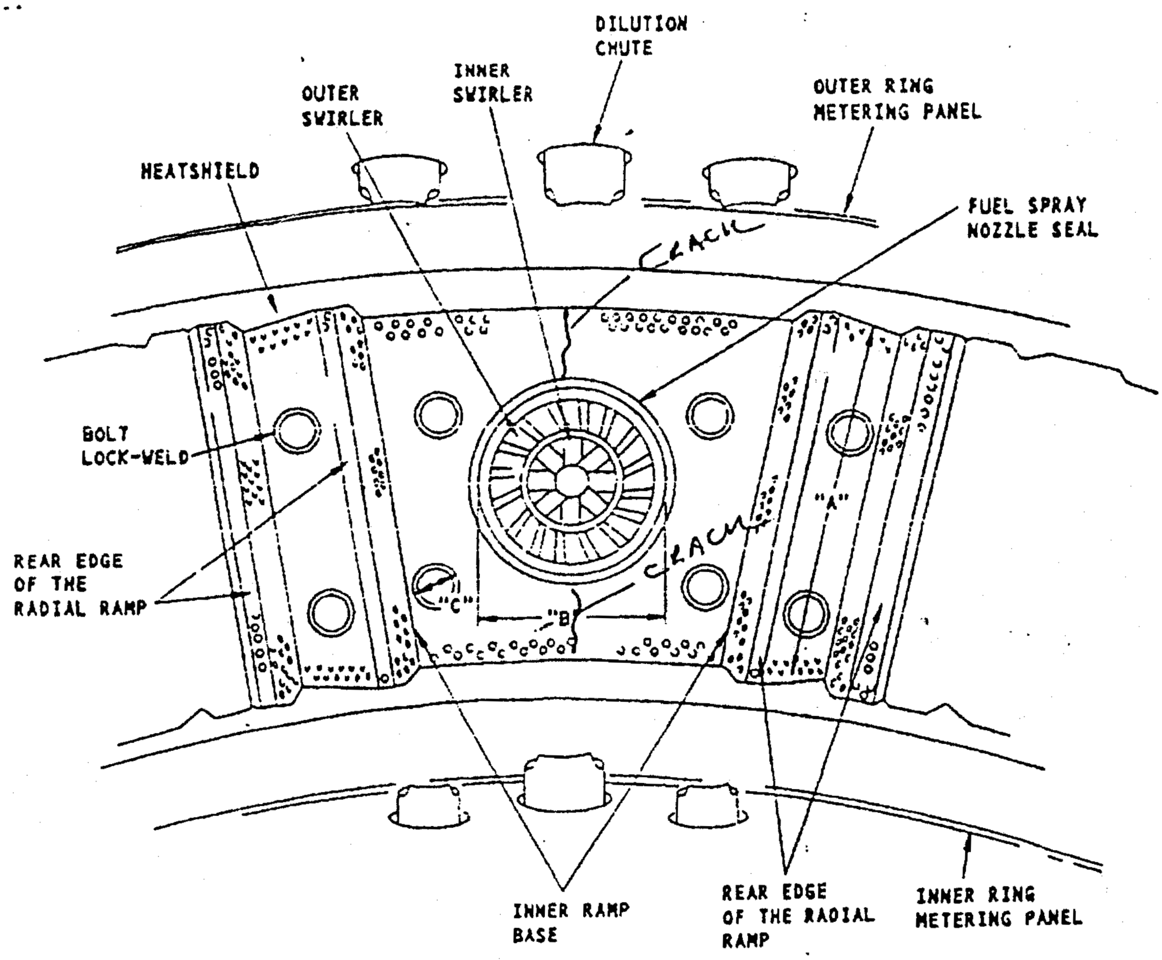
"C" = 0.250 INCH (6.35 mm)

66853A

Front Combustion Liner Heatshield
Figure 606

#2 Engine 30514

#7 Port.



USE THE DIMENSIONS SPECIFIED AS A GUIDE WHEN YOU ASSESS THE DAMAGE

"A" = 2.650 INCH (67.36 mm)

"B" = 1.500 INCH (38.1 mm)

"C" = 0.250 INCH (6.35 mm)

66853A

Front Combustion Liner Heatshield
Figure 606

DATE : 16/11/86 A/C : TC-GEN

BIRGENAIR

B757 " A " CHECKE

PHASE: A6 STA : ADP

ITEM	ZONE	WORK DESCRIPTION - 12 - ENGINE INSPECTION 3		MECH	INSP
12-07		INSPECT AND REPORT TURBINE BLADES TO DETECT DAMAGE OR CRACKING. MPD REF : R72-00-00-6C AMP CARD : 72-118C4-1 PHASE : 2A 72-118-C4-2	L ENG	[redacted]	BIRGENAIR 206
			R ENG		BIRGENAIR 206
12-07A		INSTALL BORESCOPE PLUG AS FOLLOW * APPLY DRY FILM LUBRICANT (**Thixotropic Dry Film Lubricant**) TO THE THREADS AND CLEANED MATING FACES OF HPNGV BLANKING PLUG. * INSTALL HPNGV BLANKING PLUG AND TIGHTEN TO **370** POUND-INCH. * APPLY DRY FILM LUBURICANT TO CLEANED MATING FACES OF OF HPNGV BLANKEING COVER. * APPLY CLEAN ENGINE OIL TO THE THREADS OF BOLT AND INSTALL. * TIGHTED THE BOLTS TO . **60±10** Lb-Inch	L ENG		BIRGENAIR
			R ENG		BIRGENAIR 206
12-08	411-412	CHECK TORQUE AND CONDITION OF ENGINE IDG QUICK ATTACH DETACH (QAD) COUPLING. DO A CHECK OF THE TORQUE VALUE OF THE TENSION BOLT. IF THE TORQUE VALUE IS LESS THAN **240** POUND-INCHES, TIGHTEN TO **240-260** POUND-INCHES. CONTINUE TO ALTERNATIVELLY, HIT LIGHTLY THE EDGE OF THE QAD COUPLING AND TORQUE THE QAD TENSION BOLT UNTIL A MINIMUM OF **240** POUND-INCHES IS MEASURED As Per Figure : 19	L ENG	[redacted]	
		MPD REF : 24-11-03-6A AMP CARD : 24-005-01-1, -2 PHASE : 4A	R ENG		

16/1/96.

BIRGENAIR

DATE : A/C : TC-GEN

B757 " A " CHECK

PHASE: A6 STA: POP

ITEM	ZONE	WORK DESCRIPTION - 13 - APU INSPECTION & MAINTENANCE	MECH	INSP
13-01	315-316	INSPECT AIR INLET SCREEN FOR FOREIGN OBJECT DAMAGE AND SECURITY OF THE ENGINE INLET ACOUSTIC BAFFLE.		[illegible]
13-02		INSPECT VARIABLE IGV ASSEMBLY THROUGH LOWER PLENUM PANEL AND AIR INLET		BIRGENAIR 296
13-03		INSPECT STAGE 3 TURBINE BLADES.		BIRGENAIR 296
13-04		INSPECT THERMOCOUPLE PROBES FOR BREAKS AND DAMAGE.		BIRGENAIR 296
13-05		REMOVE IGNITER PLUGS AND ROUTE THE UNITS TO SHOP FOR INSPECTION.	[illegible]	
13-06		BORESCOPE INSPECT STAGES 1 NGV'S, STAGE 1 TURBINE BLADES, FUEL NOZZLES AND COMBUSTION LINER, USING IGNITER PLUG OR FUEL NOZZLE PORT FOR ACCESS. IF A BORESCOPE IS NOT AVAILABLE, TURN THE ENGINE (WITH A SQUARE DRIVE ON THE END OF THE STARTER MOTOR) AS NECESSARY TO SEE ALL OF THE COMPRESSOR BLADES. RECORD CONDITION : GOOD .... FAIR .... POOR .... AMM REF : 49-21-00 PAGE 604 PHASE : 2A		
13-07		DISCONNECT IGV ACTUATOR FUEL PRESSURE LINE AND BORESCOPE INSPECT IGVs' AND THE DRIVEN LOAD COMPRESSOR ROTORS. PHASE : 2A		
13-08		INSTALL SERVICEABLE IGNITER PLUG.		BIRGENAIR 296
13-09		ENSURE THAT THE FUEL CONTROL, OIL PRESSURE AND SCAVENGE FILTER DIFFERENTIAL PRESSURE INDICATORS ARE NOT EXTENDED. PHASE : 1A EXCEPT 3A		

BIRGENAIR

APU BORESCOPE INSPECTION REPORT

APU				AIRCRAFT		
Model	S/N	TSN	CSN	A/C Reg	Date	Location
GTCP.331-200	P.1684	/	/	T.C.GEV	4.02.96	P.OP.

	Inspection Completed
Description of Inspection Required: Rutin "A" Check Inspection.	
Engine Compressor No damaged.	BIRGENAIR 296
Load Compressor No damaged.	BIRGENAIR 296
Combustor No damaged.	BIRGENAIR 296
Turbine Nil.	
Remarks M/M 49-21-00	

BIRGENAIR Technical Department

DATE : 9 16/1/96 A/C : TC-GEN

BIRGENAIR

B757 " A " CHECK PHASE: A6 STA : PDP

ITEM	ZONE	WORK DESCRIPTION - APU MAINTENANCE	MECH	INSP
13-19		REPLACE SURGE VALVE FILTER ELEMENT WITH A SHOP CLEANED UNIT. **FILTER P/N : 111790-2**	598	
13-20		INSTALL SERVICEABLE HP FUEL FILTER ELEMENT. **FILTER P/N : 977392 - 5** **PACKING P/N : S9412 - 014, S9412 - 558** PHASE : 3A		
13-21		INSTALL NEW GENERATOR SCAVENGE FILTER ELEMENT. **FILTER P/N :654T0035-8** PHASE : 3A		
13-22		INSTALL SERVICEABLE LP FUEL FILTER ELEMENT. **FILTER P/N : 654T0035-9** PHASE : 3A		
13-23		RECORD : APU HRS : ... 9250 .... APU CYL: 1100		
13-24		EXAMINE ANY LEAKAGE BY MOTORING THE APU		
13-25		PERFORM APU CONTROL UNIT (ECU) SYSTEM SELF TEST. ACCESS : DOOR COVERING E6 RACK MUST BE OPENED.		

MPD REF :	49-27-04-2A	AMP CARD : 49-016-C1	FOR ITEM 11
	-2B		
	49-27-03-2A	AMP.CARD : 49-024-C1	FOR ITEM 18, 19
	-2B	49-025-C1	FOR ITEM 10
	-2C	49-033-01	FOR ITEM 10
	-2D		
	49-31-04-A		
	49-53-06-2A	AMP.CARD : 49-063-01	FOR ITEM 21
	49-41-01-2A	AMP CARD : 49-064-01	FOR ITEM 16
	49-61-05-2A	AMP CARD: 49-051-01	FOR ITEM 25

ALL PHASE 1A (EXCEPTIONS,INDICATED ON ITEMS)

BIRGENAIR

A/C: K-GEN DATE A 6/1/96 HRS:

STA: POP PHASE: A6 . CYC:

SCHEDULED WORK SUMMARY

ITEM NBR	ENTERED BY	WORK DESCRIPTION	INSPCTD BY	FINDING

BIRGENAIR

NON-ROUTINE ITEM SUMMARY

A/C : TC-GEN DATE : 16 JAN 96 HRS : 29200

STA : POP PHASE : A6 CYC : 13476

ITEM NBR	ENTERED BY	DISCREPANCY	CORRECTIVE ACTION	INSPCTD BY
001	H. SALEIN	FLAP LEVER IND. LIGHT U/S	REPLACED LIGHTPLATE	✓
002	H. AKAN	"AFT CARGO SMOKE DET" EICAS MSG.	PILOT LAMP U/S.	✓
003	H. AKAN	RH EDP (HYD) BYPASS SW SCREWS LOOSE.	TIGHTENED	✓

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC/GEN	B759A6960116		001	16.01.1996	H. Salgın

DISCREPANCY : FLAP LEVER ILLUMINATED INDICATOR PANEL HAS BROKEN

CORRECTIVE ACTION : FLAP LEVER ILLUMINATED INDIC. PANEL CHANGED WITH NEW ONE. CHECK O.K.

TECH	INSP
2846	

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON
FLAP LEVER ILL. IND.	BOEING S231T100-526	FLT. DECK		

FORM NO PP-1

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757A6960116		002	16.01.96	H. AKAN

DISCREPANCY : ON EICAS STATUS PAGE "AFT CARGO SMOKE DET" MESS. APPEARS.

CORRECTIVE ACTION : ON SMOKE DETECTOR PILOT LAMB (M 382) REPLACED CHECK O.K.

TECH	INSP
Hakan Akan 2342	[signature]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757A6960116		003.	16.1.96	H. AKAN

DISCREPANCY : R/H ENGINE HYD. PUMP. BYPASS SWITCH SCREWS LOOSEN.

CORRECTIVE ACTION : LOOSEN SCREWS FIXED

TECH	INSP
Hakan Akan 2342	[illegible signature]

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

BIRGENAIR

NONROUTINE ITEM

A/C REG	WORK ORDER NO	REFERENCE	ITEM NO	DATE	RECORDED BY
TC-GEN	B757A6960116		004	16.1.96	U. KALKAN

DISCREPANCY : DEFERRED ITEM FROM A6 CHECK. LUBRICATE THE RUDDER PCAs AT NEXT CONVENIENT TIME WHEN ACCESS STAND AVAILABLE

CORRECTIVE ACTION :	TECH	INSP
RUDDER ACTUATORS		

UNSCHEDULED CHANGE OR TRANSFER OF COMPONENT

NAME	P / N	POS	S/N OFF	S/N ON

BIRGENAIR

DEFERRED ITEMS LIST

ITEM NBR	DEFERRED BY	DEFERRED DISCREPANCY DESCRIPTION	REMARKS
004	S.K.	RUDDER ACTUATOR LUBRICATION –	
		~~NONE~~	

LAST C CHECK (C7) RECORDS

GAMCO
P.O. Box 46450
Abu Dhabi, U.A.E.

LOG BOOK CERTIFICATE

AIRCRAFT TYPE ...B757-200... TOTAL AF HOURS/CYCLES ...27012.55/ 12613...

AIRCRAFT SERIAL NO. ...22206... WORK CODE/JOB No: ...101484...

OPERATOR: ...BERGENAIR... DATE: ...30-5-95...

SUMMARY OF WORK PERFORMED

AIRCRAFT REGN. NO. TC-GEN.

Routine Checks 1A+2A+3A+4A+5A-6A+S1A+1C+S1C+3C+S3C+(S3C+S1C Corrosion) +15 MONTHS CHECK + 2 YEARS CHECK + 30 MONTHS CHECK + 3 YEARS CHECK

NO.1; NO.2 AND APU. BORO. INSPECTION.

THE FOLLOWING S.Bs. AND ADs CARRIED OUT :

757 54-0024	757 25-0130	AD 90-23-06
757 54-0027	757 25A-0108	AD 74-08-09
757 56-0007	757 27A-0086	RB 211-72-9164
757 26-A0020	757 53 0053	RB 211-77-8669
757 53-015	757 54 0022	RB 211-72-8672
757 57-0032	757 53-0062	RB 211-71-8955
SL 757-SL-53-015	757 53-A0052	RB 211-76-9395
SL 757 53-12-A		RB 211-71-7101
BOEING TELEX M 7272950155	757 57-0035 R4, PART III ONLY.	

NO.5 AND NO.7 SLATS REPAIRED IAW SRM 51-70-10.
EO GE-25-001. RELOCATION OF SAFETY EQUIPMENT AND ADDITIONAL PSU IN PASSENGER CABIN.

BOTH ENGINE GROUND RUN, LEAK CHECKS SATISFACTORY.

N.B REFER TO ATTACHED LIST DATED 29.05.95 OF OUTSTANDING WORK.

CERTIFICATION:

ISSUED IN ACCORDANCE WITH : U.K. JAR 145 APPROVAL NO. 00429 AND TURKISH M/O TRANSPORT & COMMUNICATIONS APPROVAL REF. NO. DGCA : B.11.0.SHG.0.13.00.02/ USD-2504.

I hereby certify that the work specified except as otherwise specified was carried out in accordance with BAC/BB-SUL/002 and in respect to that work the aircraft/aircraft component is considered ready for release to service.

Signature (GAMCO) Stamp PETER ABU YOUNES GAMCO MANAGER QUALITY ASSURANCE Date 30-5-95

...Cont'd..2

NRC 3081 3046	NO.2 ENG. SER.NO.30514 EXTERNAL HS GEAR BOX METAL PARTICLES FOUND. REF TO RB211 FAX MESSAGE DXB/069/94 AND DBY/4.426/95 06 MODULE DM 3536 TO BE CHANGED OR AIRCRAFT TO CONTINUE OPERATION UP TO 5 FLIGHTS, PROVIDED HSGB/MCDS INSPECTED PRIOR TO EACH FLIGHT. N.B.: MCD INSPECTION RECORDS TO BE MAINTAINED.
NRC 4009	RIGHT EICAS FAILED TEST. DISCRETE CODE 295.
NRC 4010	RANGE MARKS RIGHT EHCI INTERMITTENT.
NRC 4121	LEFT 1ST ROW SEAT SIGNS MISSING (1ST CLASS). A)ATTENDANT CALL B)READING LIGHT C)NO SMOKING SIGNS.
TASK CARD	25-016-02 EMERGENCY EXIT ESCAPE SLIDE DEPLOYMENT NOT CARRIED OUT.
TASK CARD	25-016-01 L4 SLIDE H.S.T. DUE 31 MAY 1995
NRC 3021	No 1 ENGINE "C" DUCT THERMAL BLANKETS TEMP REPAIRED.
NRC 4049	No 3 AND No 5 MONITORS TO BE REPLACED No 3 MONITOR SER No 211 No 5 MONITOR SER No 0231
NRC 4058	AUTO BRAKE (ANTI SKID CONTROL BOX AT FAULT.

THE FOLLOWING OUTSTANDING WORK HAS BEEN DEFERRED ON BIRGENAIR B757-200 AIRCRAFT REGISTRATION TC-GEN.

DATE: 29TH MAY 1995

NRC 1002	SL 757-SL-53-12A CUSTOMER TO INFORM BOEING ABOUT FINDINGS.
NRC 1008	FLAP JACK SCREW. BOX LEAKING POSITIONS NO.7 AND 8. OIL LEVEL TO BE CHECKED DAILY UNTIL REPLACEMENT.
NRC 1036	THE CONTENT OF SB 757-53-0062 PARTIALLY COMPLIED DUE TO NO KIT AVAILABILITY. FURTHER INSPECTION TO BE CARRIED OUT AS PER SB REQUIREMENTS.
NRC 3002	SB 757-54A0020R5 LEFT MIDSPAR FUSE PIN INSP. NOT ACCOMPLISHED
NRC 3003	SB 757-54A0020R5 RIGHT MIDSPAR FUSE PIN INSP. NOT ACCOMPLISHED.
NRC 3029	SB RB 211-72-8671 NOT COMPLIED (NO TOOLS)
NRC 3049	NOTICE TO OPERATOR 432 ISSUE 1 TO COMPLY. WITHIN 1000 FLIGHT HOURS PRIOR TO REPAIR.
NRC 3058	NO 2' ENG. EEC VIBRATION MOUNTINGS QUANTITY 4 DAMAGED.
NRC 3073	LEFT ENG. FFG LEVER ARM WORN BEYOND LIMITS.

Santo Domingo, R.D.

Al	:	*Presidente de la Junta Investigadora de Accidentes Aéreos, D.G.A.C.*
Asunto	:	*Informe sobre Inspección a las Compañías Esso y Texaco.*
Anexo	:	*Listado de aeronaves servidas por la misma unidad que sirvió la aeronave matrícula TC-GEN y la página del manual de política de la TEXACO y la ESSO.*

1.- En fecha 7/2/96, realizamos una inspección a las instalaciones de la TEXACO y la ESSO en el Aeropuerto Internacional de Puerto Plata, encontrando lo siguiente:

* *Los filtros de entrada y salida de los depósitos fueron cambiados el 17/1/96.}*
* *Los filtros de la unidad que dio servicio a la aeronave TC-GEN, fueron cambiados el 20/1/94.*
* *Según el manual de política de las empresas TEXACO y ESSO , los elementos de filtros pueden ser cambiados cada tres (3) años, basados en la confiabilidad del mantenimiento desplegado en dicha estación de servicio.*

Los que le informamos para su conocimiento y fines de lugar.

Atentamente,

MIGUEL ISACIO DIAZ
Miembro

GABRIEL SILVINO RAMIREZ
Miembro

ANDRES HERNANDEZ CERIZ
Miembro

DELIVERIES OF REFUELER 7287 DURING THE PREVIOUS 48 HOURS TO THE DELIVERY OF BIRGENAIR.

DATE	AIRLINE	TICKET NUMBER	USG
02/05/96	AMERICAN AIRLINE	165966	2009
02/05/96	AMERICAN AIRLINE	165967	270
02/05/96	AMERICAN AIRLINE	165968	1227
02/05/96	AIR TRANSAT	34004	3790
02/05/96	ORIENTAL DE AVIACION	34006	319
02/05/96	AMERICAN AIRLINES	165975	3553
02/05/96	HAPAG LLOYD	165979	6018
02/05/96	CONDOR	34020	4007
02/05/96	UVAIR	165982	350
02/06/96	AMERICAN AIRLINE	165991	1754
02/06/96	AMERICAN AIRLINE	165995	5148
02/06/96	LEISURE AIR	34030	8531
02/06/96	CULBRO CORP.	166005	300
02/06/96	MALEV	34035	9804
02/06/96	BRITANNIA	34042	7412

RUBEN A. DIAZ
JOINT VENTURE SUPERVISOR

APPENDIX A1

FILTRATION EQUIPMENT - ROUTINE MAINTENANCE CHECKS

A1.1 GENERAL

All filter and strainer vessels shall have a drain connection at the lowest point of each chamber : the main sump drain line shall be fitted with a wheel valve or cock to facilitate regular checks.

All filters shall be equipped with direct reading differential pressure gauges to indicate the pressure loss across the unit.

All filters shall be fitted with air eliminators and pressure relief valves.

All filters shall have the dates of inspection and element changes stencilled on the body and shall carry a plate showing the correct designation of the elements installed.

A1.2 ROUTINE CHECKS ON ALL FILTERS

A1.2.1 Daily, at the start of the morning shift, a visual check for water and sediment shall be made on a one-litre samples drawn from filter drains with filter under pressure. The result shall be recorded.

A1.2.2 During all pumping operations, the differential pressure should be observed to ensure that the maximum limit is not exceeded.

A1.2.3 Once a week, when pumping at the highest flow rate normally used, the differential pressure shall be noted and recorded on a graph. This check shall always be carried out at approximately the same flow rate.

For airport depot jet fuel filtration, both receipt and hydrant delivery/fueller loading, a colorimetric filter membrane test shall be carried out from a point immediately downstream of each filter every month.

In case of unsatisfactory results, additional filter membrane checks may be necessary.

All filter membrane tests shall be carried out at a flow rate of at least 50% of the rated flow of the equipment and according to ASTM D 2276/IP216. All results shall be recorded and the colorimetric membranes retained for 2 years.

A1.2.4 Every twelve months all filters shall be opened and inspected internally for cleanliness of vessel, element appearance and proper fitting of elements. During inspection any elements found to show signs of microbiological growth or gross surfactant contamination or to be ruptured or seriously damaged shall be replaced.
The results shall be recorded.

A1.2.5 Additional filter inspections may be necessary, to check for element seal leakage, etc., if abnormal solids or water are found downstream of the filter. In such cases (abnormal or problem situations), it is best to replace any elements that fall into any of the categories described above.

.../...

A1.3 ELEMENT CHANGE CRITERIA

A1.3.1 Micro-Filters (MF)

MF elements shall be replaced : -
- if the differential pressure reaches the manufacturer's recommended maximum 15 lbs.
- if flow rate falls to unacceptably low levels
- if abnormal filter membranes are obtained
- if unusual sediment is found downstream of the filter
- if there is a sudden drop in differential pressure without any obvious cause being found.
- after two years (*)

A1.3.2 FS Coalescer Elements (First Stage)

Coalescer elements shall be changed : -
- if the differential pressure reaches the manufacturer's recommended maximum
- when filter membrane tests indicate elements are not performing
- if there is a sudden drop in pressure differential
- if unusual sediment or traces of free water are found downstream of filter
- after two years (*)
- it is not mandatory to perform routine single element tests, however, if a test is carried out and the element fails, all the coalescer elements in the vessel must be replaced.

A1.3.3 FS Separator Elements (Second Stage)

Paper separator elements shall be changed : -
- whenever the coalescer elements on the same unit are changed.

Teflon and Synthetic elements shall be : -
- inspected and tested in accordance with manufacturer's recommendations annually and/or when coalescer elements are changed
- changed if washing in accordance with the manufacturer's instructions fails to restore them.

A1.3.4 Monitor Type Elements

Monitor type elements shall be replaced : -
- if the differential pressure reaches the manufacturer's recommended maximum
- if flow rate falls to an unacceptably low level
- if abnormal filter membrane results are obtained
- if unusual sediment or more than trace of free water are found downstream of the vessel
- if there is a sudden drop in differential pressure without any obvious cause being found.
- after three years (*)

(*)May be modified with the unanimous agreement of all participants at the location concerned.

.../...

ANEXO 12

Informe de Localización y Rescate de los Registradores

U.S. NAVY SUPERVISOR OF SALVAGE

NAVAL SEA SYSTEMS COMMAND

BIRGENAIR BOEING 757 BLACK BOX

SEARCH AND RECOVERY OPERATIONS

PUERTO PLATA, DOMINICAN REPUBLIC

FEBRUARY/MARCH 1996

PERFORMED FOR:
SEA OOC
NAVAL SEA SYSTEMS COMMAND
OFFICE OF THE DIRECTOR OF OCEAN ENGINEERING
SUPERVISOR OF SALVAGE AND DIVING
2531 JEFFERSON DAVIS HWY.
ARLINGTON, VA 22242-5160

UNDER:
CONTRACT N00024-96-D-4102
DELIVERY ORDER 0006

BY:
OCEANEERING INTERNATIONAL, INC.
501 PRINCE GEORGE'S BLVD.
UPPER MARLBORO, MD 20774

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1.0 EXECUTIVE SUMMARY

On 07 February 1996, Oceaneering International, Inc. (OII) was tasked to assist the Supervisor of Salvage and Diving (SUPSALV, USN) in the search for a 757 airliner owned by BIRGENAIR which crashed into the sea shortly after take off from Puerto Plata, Dominican Republic at 2334 on 06 February. Initially, Oceaneering was to provide personnel and equipment to conduct twenty four hour operations utilizing SUPSALV's Pinger Locator System (PLS30) and Shallow Water/Intermediate Search Sonar (SWISS).

Two Oceaneering Project Managers (PMs) were dispatched on 09 and 10 February to Puerto Plata to collect loss data and establish local logistics to support the potential recovery operation. Shortly thereafter, the Supervisor of Salvage and Diving and his head of operations arrived to establish Command and Control for the task. As there were no USN fleet assets immediately available, the PLS30, SWISS, and a satellite communications van were trucked to Miami and mobilized on board the R/V SEAWARD EXPLORER which then sailed to Puerto Plata. This was the most suitable and cost efficient vessel available in the commercial marketplace.

On 14 February, the PMs joined the vessel upon its arrival and were immediately underway to the search area. Once on scene, the PLS30 towfish was deployed. The pingers were heard on the first run over the high probability site determined by loss data analysis. Six runs were made to precisely localize the pinger area. The SWISS side scan towfish was then deployed to map the debris field. A 45 kHz pinger was dropped on the localized position to fix the site in case the recorders' pingers' batteries failed. The vessel then sailed for Miami to demobilize the search equipment.

As soon as the location and depth of the pingers were ascertained, SUPSALV directed OII to begin mobilization of the CURV III and 15 kip FADOSS system. CURV III was trucked, during a snow storm, directly to the only suitable, commercial vessel available, M/V MARION C II in Salem, New Jersey and loaded on board under adverse weather conditions. The vessel sailed on 22 February with an abbreviated vehicle crew to complete hookups and testing. SUPSALV, a SUPSALVREP and an OII PM also arrived in Puerto Plata to establish the Command Center in Cabarete, which was approximately 8 nautical miles from the crash site. The remaining team members traveled to Puerto Plata and joined the ship on 27 February, completed wet tests, and were underway that night.

After arriving on scene early on 28 February and achieving consistent vessel station keeping over the site, the CURV III was launched at 0515. The pingers were heard as the vehicle descended to the sea floor. CURV landed near the inverted tailed section and homed in on the pings from the Flight Data Recorder (FDR) lying on the sea floor. After the FDR was secured in the starboard arm, attention was turned to the Cockpit Voice Recorder location. This proved more difficult as the sound source was localized to a pile of debris. However, the reflective tape on the CVR was spotted and the manipulator operator deftly cleared debris and secured the recorder in the port arm. CURV then returned to the surface and was recovered to the deck at 1239 completing the successful mission in one, short dive. The "Black Boxes" were prepared for shipment by the NTSB representative on board and sent to the beach via rib boat for the trip to the NTSB laboratory in Washington, DC

The CURV team surveyed and photo documented the debris field until 1730 on 01 March 1996 when the word was passed to secure operations. The CURV was made ready for the return voyage to Annapolis, MD with a minimum crew. The remaining personnel returned home to prepare for demobilization. The recovery equipment was demobilized immediately upon arrival and trucked to the Oceaneering facility for refurbishment to return the system to Ready For Issue (RFI) status.

Project:	BIRGENAIR 757, Puerto Plata, Dominican Republic Search mobilized: OII, MD; ESSM, VA; Miami, FL Demobilized: as above Recovery mobilized:OII, MD;ESSM, VA;Salem, NJ Demobilized: OII, MD;ESSM, VA;Annapolis, MD
Date:	08 Feb - 08 Mar 1996
Sponsor:	NTSB
OOC Reps:	Search Offshore: L. Wolford Search Onshore: CAPT R. McCord, T. Salmon Recovery Offshore: K. Cooper Recovery Onshore: CAPT R. McCord, P. Hankins
OII PMs:	Search: R. Albaugh, J. Finke Recovery: M. Unzicker, J. Finke Onshore: R. Albaugh
Support Ships:	Search: R/V SEAWARD EXPLORER Recovery: M/V MARION C II
Systems Employed:	Search: Pinger Locator System 30(PLS30, Shallow Water/Intermediate Search Sonar (SWISS, Precise Lightweight Gps Receiver (PLGR), ODOM Echotrac 3200 MKI Echosounder (12kHz), 150 KW generator Recovery: CURV III, 15 kip FADOSS, Line spoolers and Kevlar lift lines, Rib boat(22'loa)
Depth/Dives/TBT:	PLS30 Search: 7020 fsw/2/8.5 hrs SWISS Search: 7020 fsw/5/25 hrs CURV III Recovery: 7020 fsw/2/33 hrs
Results:	Successful search and recovery

CHRONOLOGY (All Times Local)

07 February 1996, Wednesday
In the late evening, the SUPSALV office gave Oceaneering International's search and recovery Undersea Operations Contract Manager verbal authorization to mobilize personnel and equipment to assist in the search for the lost 757 offshore Puerto Plata, Dominican Republic.

08 February 1996, Thursday
SUPSALVREP notified OII Undersea Operations Contract Manager of an emergency press conference scheduled for midday at the OII facility. The SWISS system, at ESSM returning from the last Okinawa task, was trucked to Miami. The PLS30 and 20 were sent from Upper Marlboro. A press conference was held in the ROV lab with CAPT McCord and the media. Final preparations were made before the search PM departed.

09 February 1996, Friday
The search PM departed for Puerto Plata to collect loss data from the accident board. The remaining search personnel and the SUPSALVREP traveled to Miami to mobilize arriving equipment aboard the search vessel R/V SEAWARD EXPLORER.

10 February 1996, Saturday
The search PM met with the US Embassy recommended agent and moved hotels. A recovery PM traveled to Puerto Plata to assist in setting up local logistics for the potential heavy recovery effort. The search PM met with the investigation team and gathered preliminary data. The search vessel mobilization was completed very late in the evening. Torrential downpours caused major flooding in Puerto Plata and power outages.

11 February 1996, Sunday
The search vessel was underway from Miami at first light. SUPSALV and a SUPSALVREP traveled to Puerto Plata via Santo Domingo. Loss data was collected from the USCG in San Juan. Crane, welding and material assets were investigated. Torrential rains and power outages continued.

12 February 1996, Monday
Loss data was plotted and refined to develop search area. Search and Recovery logistics were expanded. Torrential Rains and power outages continued.

13 February 1996, Tuesday

Vessel progress slowed due to bad weather. Final plots were constructed for the search. Search and recovery options and scenarios were discussed. Sites for a recovery Command Center were scouted.

14 February 1996, Wednesday

R/V SEAWARD EXPLORER arrived in Puerto Plata and picked up the OII PMs. The vessel proceeded to the search area and deployed the PLS towfish at 2300. At 2333, a pinger was detected and a rough position was calculated. Water depth was sounded in the 7200 fsw range.

15 February 1996, Thursday

AM watch: Completed five more PLS lines to localize pingers' position and started bathymetry runs to establish depth and gradient.

PM watch: Completed bathymetry runs and found slight grade at a average 6970 fsw depth using 4920 f/s as the speed of sound and 10 feet for draft in the echosounder. Launched SWISS side scan towfish to try to get an acoustic picture to map the debris field. Lost signal at 1400 meters and recovered towfish. Cable damaged during PLS runs had shorted out, necessitating retermination.

16 February 1996, Friday

AM watch: Ran more bathymetric lines, while termination curing, at slowest speed possible to hold steerage. 2.5 knots possible in present weather and current conditions which may allow towfish to get to sea floor. Launched towfish to attempt sonar mapping.

USA: Representatives from NAVSEA SEA 91 held several meetings with NTSB which resulted in the Supervisor of Salvage being tasked to recover flight recorders located by the search team.

PM watch: Continued the time consuming, deep side scan sonar runs on the aircraft debris. All the towcable was used at speeds of 2.5 knots. Two lines completed.

USA: The SUPSALV office tasked OII to assist with the recovery. A meeting was called at OII to formalize mobilization plan late in the day. The vessel MARION C II was chartered based upon her capability to conduct the operations, immediate availability in Atlantic City, NJ, and reasonable cost. Full mobilization would begin the following day.

17 February 1996, Saturday
AM watch: Dropped a 45 kHz pinger on the refined pinger position as backup and reference for CURV. One successful sonar run completed.

USA: A heavy lift subcontractor commenced moving the Constant Tension Winch (CTW) to the exterior of the shop to facilitate truck loading. A crane contractor was turned on to conduct mobilization lifts. Line spoolers, line and ancillary support equipment was identified for transportation. ESSM was contacted and the 15 KIP FADOSS was mobilized to support this operation. Trucks were arranged for delivery of the FADOSS to OII on Monday.

PM watch: Ran a sonar line along axis of debris field. Search operation terminated. Made SWISS ready for sea and sailed for port.

USA: By late afternoon, all transportation and a ship mobilization yard identified. CURV equipment was ready for transportation.

18 February 1996, Sunday
AM watch: Vessel sailed for Miami at first light with minimal demobilization crew. PM went through invoices with agent. Personnel departed for home throughout the day.

USA: Facility mobilization and truck loading continued on Sunday. SUPSALVREP, OII PM, and four team members traveled to mobe site in NJ. During the transit a preliminary deck plan was established using paper cut outs of scaled CURV equipment foot prints. It was determined the mobilization could be conducted at the yard, however it was felt that the yard was only a marginal facility at best. Team members remained for trucks while SUPSALVREP and PM continued on to Atlantic City, NJ to meet the M/V MARION C II. The vessel was inspected and it was decided to leave the A frame installed for use in salvage. REP and PM returned to Salem and found several truck loads of CURV equipment off loaded.

19 February 1996, Monday, (Presidents Day)
The full mobe team arrived at the MARION C. Burners set to work immediately cutting off welds holding cable laying equipment. A barge mounted crane, and the vessel crane, supported off loading the cable gear. The barge listing during lifts required more counter weight and the mobe was slowed. By 1600 all equipment was removed from the deck and a revised deck plan put in to motion. It was decided that the crew would split in two shifts and continue work on a 24 hour basis. Crane service (operators) was set up for 24 hour operations. The traction winch container was loaded at 2400 as the high tide allowed additional trailers to be backed on to the barge acting as counter weights.

20 February 1996, Tuesday
Mobe progressed with welding down the TW, unloading shipping containers, and adding chains to deck equipment. Onloading of CURV and yellow gear continued during the morning. A steady rain continued through the night which slowed welding and electrical operations. After hours of repositioning of cranes, additional fork lifts assisting removal of the crane, movement of ballast on and off the barge, the crane was finally positioned on top of the TW container. ESSM personnel arrived in the afternoon to assist with the FADOSS equipment. Several of the components were welded to the deck, however the FADOSS traction winch was on the pier waiting for crane time.

21 February 1996, Wednesday
Crew arrived at ship and found area covered in a cloud of heavy fog. Periodic rain also continued through most of the day. Interconnection of cables, welding, and connection of the generator, continued. At 1700 fuel truck arrived and all welding was discontinued. It was estimated that 8-9 hours would be required to take on 37,500 gallons of fuel. CURV work continued with inter-connection of vans and hydraulics. At 2120 a fuel spill resulted in the deck being covered with diesel. All work was stopped immediately. OII personnel assisted the ship's crew to block all over board drains. Ship's crew continued clean up work and the CURV crew returned to system interconnections. ESSM personnel completed operational checks of all FADOSS equipment and the RIB boat. By 2300 all equipment was loaded on MARION C.

22 February 1996, Thursday
Upon arrival at MARION C, USCG personnel were changing shifts. It was determined that the deck was unsafe to work on, no welding could be conducted until hazmat approved cleanup was completed. By noon the CURV LLA was secured to the crane and CURV lifting lines attached. Umbilical routing through the level wind, TW, CTW and crane was held up waiting for the pollution contractor to complete cleaning the deck to provide a safe walking area. USGC approved walking area. By 1700, the umbilical was passed to CURV in preparation for connection of power and fiber optic leads. At 1800, the on board crew was supplemented by three additional personnel who had arrived to ride the ship and perform final hook ups and tests while underway. Computer and all topside checks were completed by 2100. The MARION C departed at 2330.

23 February 1996, Friday
Mobilization personnel returned to Del Stevedores to complete clean up of the yard, load containers with support equipment, and close the open top containers. Personnel then returned to the facility. Three PLGR's were delivered to OII by the SUPSALVREP.

24-25 February 1996, Saturday And Sunday
Vessel was underway to operations area. Work continued on the CURV as weather permitted.

26 February 1996, Monday
SUPSALV, his support staff and contractors traveled to Puerto Plata. The recovery team was met by the OII agent and moved to prearranged hotels. Vessel continued in transit with an ETA of late tomorrow -Independence Day in the Dominican Republic.

27 February 1996, Tuesday
MARION C berthed port to pier side in Puerto Plata harbor. After completing vehicle deck checks, TW motors were started to start a wet test. High loads on the electrical system caused electrical spikes causing the UPS to trip off line. A second 480 volt cable was installed from the generator to the TW, and cables re-routed from the ship power panel to the ops van. This split the electrical load and wet test work continued. By 2000 cable work was completed allowing CURV wet tests to start at 2030. In water tests were completed by 2130. MARION C got underway for the ops site at 2200.

28 February 1996, Wednesday
MARION C arrived on scene and commenced practicing station keeping. CURV was rigged for deployment and was launched at 0500. CURV landed on the bottom near the tail section of the plane. CURV homed in on the pinger. At 0800, the first flight recorder was positively identified, grasped with the starboard manipulator and secured. By 0950, the second recorder was located in debris. The port arm was used to clear debris and secure the recorder. CURV was recovered on deck at 1239, with both recorders intact. The NTSB representative placed the recorders in fresh water filled coolers. The coolers were delivered to the beach via rib boat en route to the NTSB laboratory in Washington DC.

29 February 1996, Thursday
Shipboard and Command center operations continued while awaiting the results of the Recorder analysis. CURV was launched to perform a survey and photo documentation of the debris field.

01 March 1996, Friday
Shipboard and Command center operations continued while awaiting the results of the Recorder analysis. CURV continued to perform a survey and photo documentation of the debris field. Command center personnel visited the vessel to review tapes. As there may be interest in the data boxes in cockpit mass, CURV was rigged to remove these. All CURV checks were completed and the dive launch was in process when the NTSB called to secure operations. MARION C returned to Puerto Plata for partial demobilization and to be made ready for sea.

02 March 1996, Saturday
The CURV team commenced demobilization of equipment in preparation for ship transit to US demobilization site. Vessel got underway in the early evening.

03 March 1996, Sunday
The OII logistics PM met with the agent to finalize invoices.

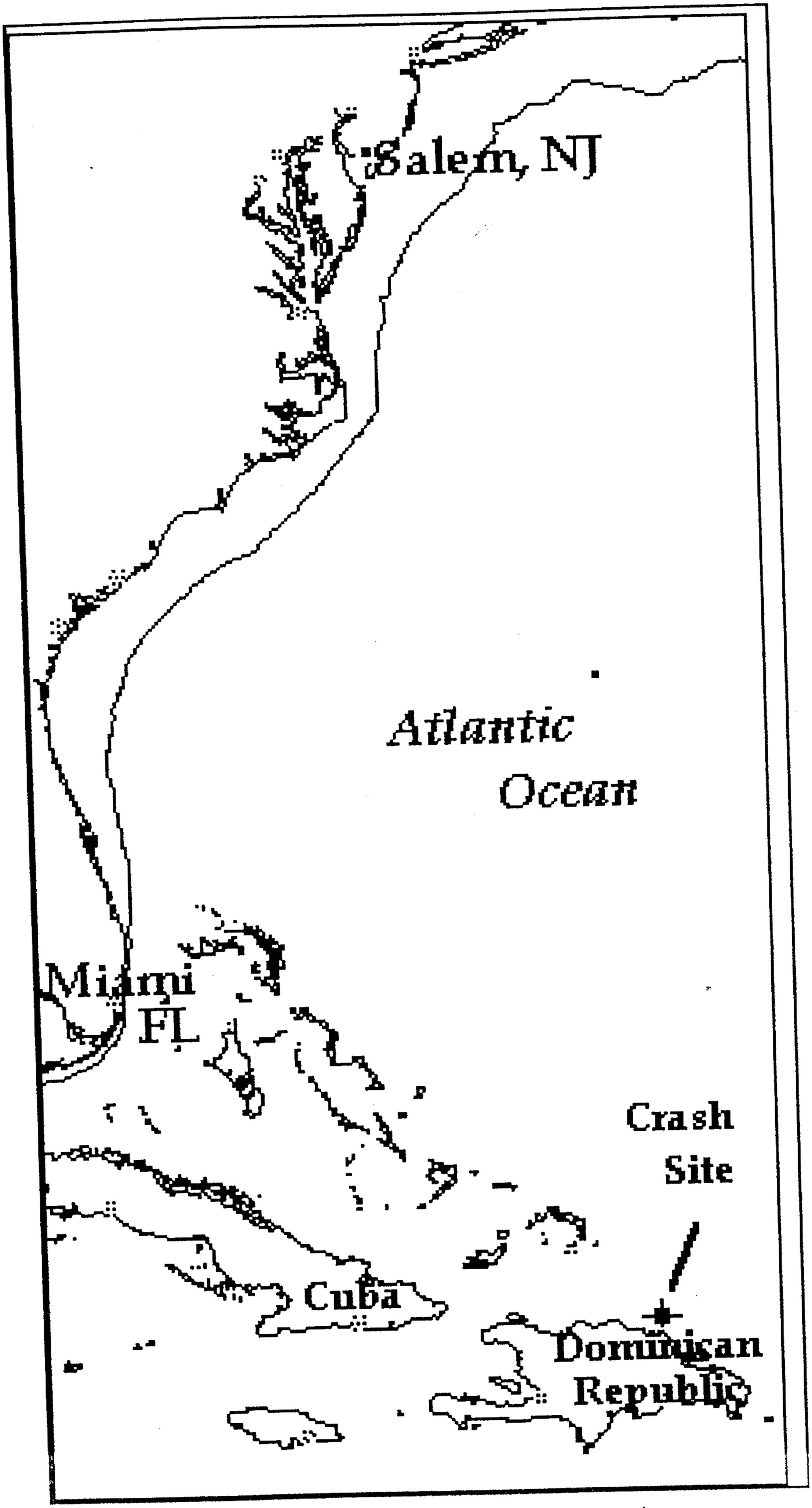
07 March 1996, Thursday
Vessel arrived in Annapolis, MD for demobilization. CURV hut and vehicle rushed to facility to prepare for the media event tomorrow.

08 March 1996, Friday
Media event held at OII facility in ROV laboratory. CURV system back in facility for post operational refurbishment.

3.0 PROBLEMS ENCOUNTERED/LESSONS LEARNED

This very successful operation was accomplished utilizing SUPSALV, OII and commercial assets. The mobilizations were from Maryland, Delaware, and Florida to the Dominican Republic which required a great amount of coordination and long, arduous hours. The task was complicated by a few minor operational issues which were handled by the SUPSALV contractors on scene and caused very little impact to the overall operation. The standard work and upgrade lists will be submitted to the appropriate system representative for evaluation. An all hands, team debriefing will be held covering these issues. Participation throughout all levels will help ensure the overall improvement of the systems and their operation.

APPENDIX A



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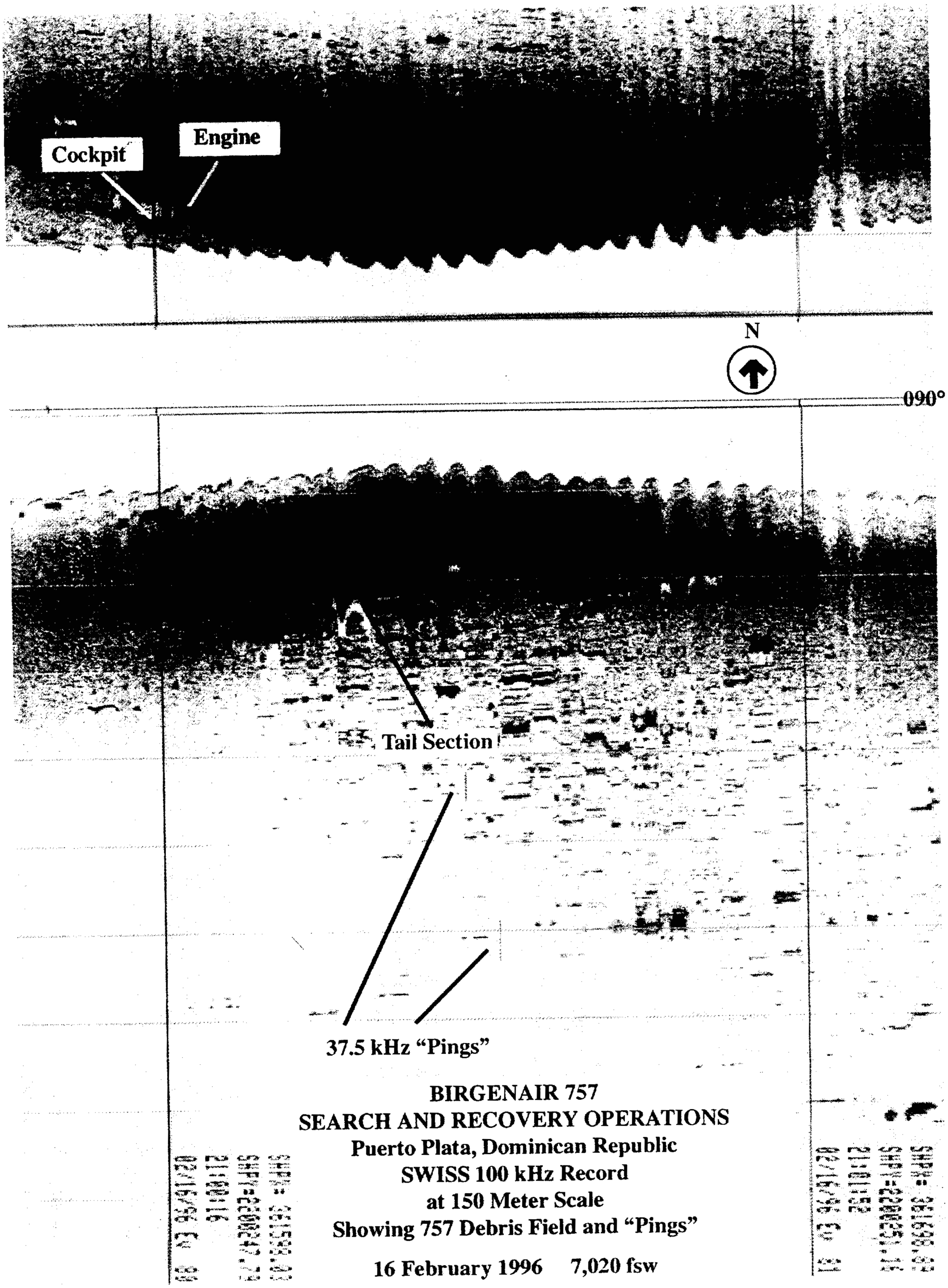
Atlantic
Ocean
Miami
FL
Crash
Site
Cuba
Dominican
Republic



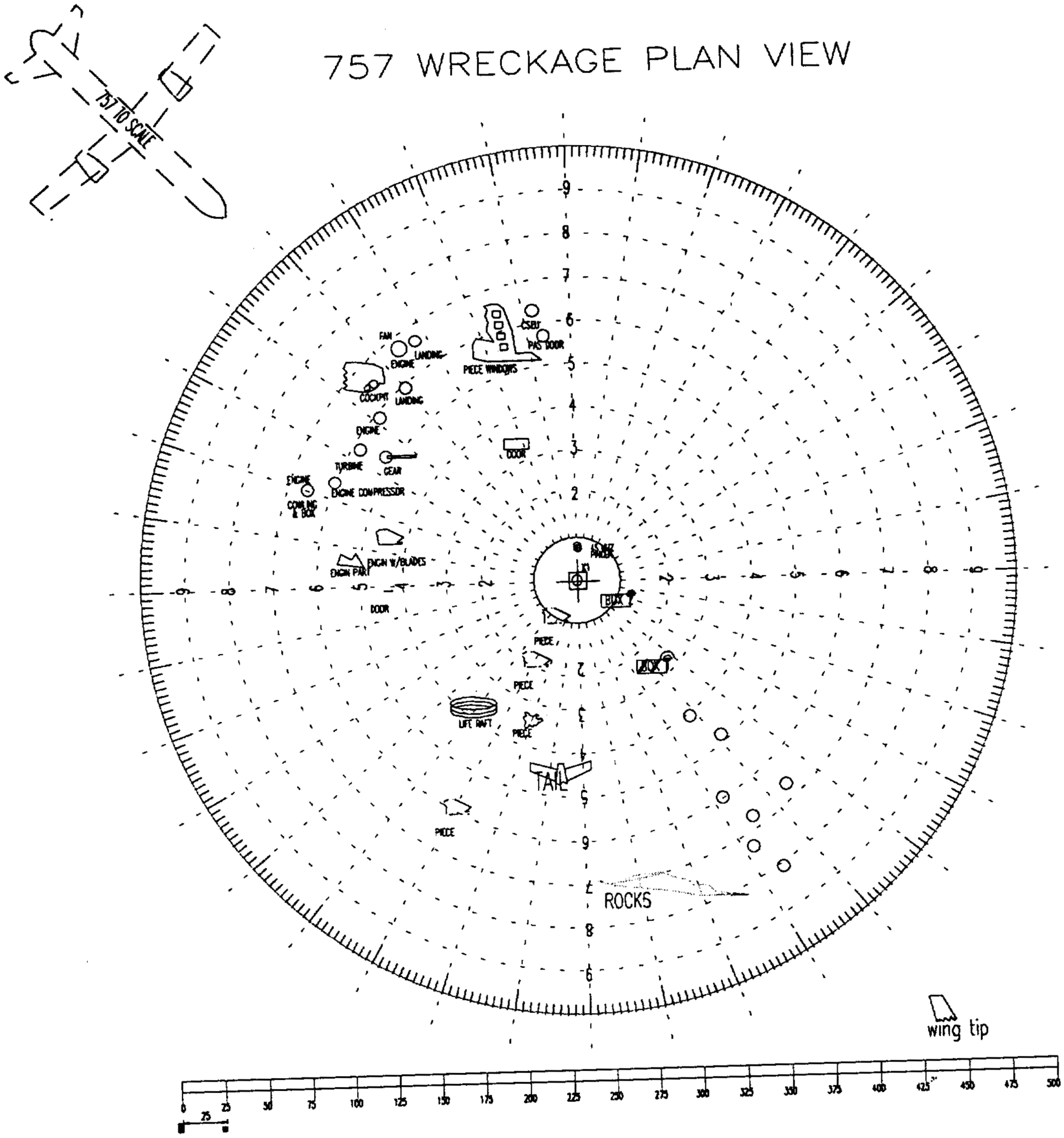
BIRGENAIR 757
SEARCH AND RECOVERY OPERATIONS
Puerto Plata, Dominican Republic
SWISS 100 kHz Record
at 150 Meter Scale
Showing 757 Debris Field and "Pings"

16 February 1996 7,020 fsw


Tail Section

NOTES:

757 WRECKAGE PLAN VIEW



NAVY SUPSALV UNITED STATES NAVY SUPERVISOR OF DIVING & SALVAGE	OCEANEERING TECHNOLOGIES
	OCEANEERING TECHNOLOGIES 501 PRINCE GEORGE'S BLVD, UPPER MARLBORO, MD 20772
	D.O. 0006 N00024-96-D-4102
	TITLE BIRGENAIR 757 DEBRIS FIELD PLOT DOMINICAN REPUBLIC
	DATE FEBUARY 28, 1996
	POSITION N 19° 53' 36.3" W 070° 21' 27.6"
	DRAWN BY J. FINKE
	REV 1
	SCALE: FEET
	SHT 1 OF