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MAINTENANCE RECORDS GROUP CHAIRMAN'S FACTUAL REPORT

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(5 pages)

NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
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MAINTENANCE RECORDS GROUP CHAIRMAN'S FACTUAL REPORT

DCA97MA058

A. ACCIDENT

Location: Agana, Guam

Date: August 6, 1997

Time 0142 Guam standard time

Aircraft: Boeing 747-3B5B, HL7468, Korean Air, Flight 801

B. MAINTENANCE RECORDS GROUP

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C. SUMMARY

On August 6, 1997, at approximately 0142 Guam Local Time, a Boeing 747-3B5B, operated by Korean Air Co. Ltd. as Korean Air flight 801, en route from Seoul, Korea (RKSS) to Agana, Guam, crashed on approach to runway 6 Left at the Guam International Airport (PGUM).

The glide slope associated with the instrument landing system (ILS) to runway 6L was out of service and the crew was conducting a "localizer only" approach to the

runway when the airplane contacted high terrain approximately 3 nautical miles southwest of the airport.

The 0132 reported weather at Guam International indicated that the wind was from 09° at 6 knots; visibility was 7 statute miles with showers and there was a scattered layer of clouds at 1,600 feet, a broken layer at 2,500 feet and an overcast cloud layer at 5,000 feet.

The flight was operated as a scheduled 14 Code of Federal Regulations(CFR) Part 129 passenger flight. There were two pilots, one flight engineer, one purser, thirteen flight attendants and 231 passengers (including six deadheading flight attendants) on board. The airplane was destroyed by impact forces and a post-accident fire. Of the 248 occupants on board, 223 were fatally injured; and 22 passengers and three fight attendants survived the accident with minor to serious injuries. However, 4 survivors succumbed to their injuries in the days preceding the accident.

The maintenance records group was convened on August 10, 1997 and again August 11, 1997 in Tamuning-Tumon, Guam for the purpose of examining the maintenance history of the accident aircraft.

The group reviewed the operator's maintenance program authority to perform maintenance, aircraft operational history since manufacture and maintenance records for the last "A" and "C" checks. The group also reviewed all maintenance discrepancies (squawks) in the aircraft logbook since December, 1996.

D. DETAILS OF THE INVESTIGATION

1. MAINTENANCE PROGRAM DESCRIPTION

The aircraft was maintained under Korean AirLine's (KAL) continuous maintenance program which is approved by the Korean Civil Aviation Bureau (KCAB) (Attachment 1). The KAL maintenance program is a Boeing program with minor alterations. The maintenance program consists of "A" checks at 350 hour intervals and "C" checks at 4,000 hour intervals plus additional "Calendar Cards", "Internal Structural Inspection Program Cards" (ISI), and "Corrosion Prevention and Control Program Cards" (CPC). There are approximately 12 "A" checks between each "C" check and there are six types of "A" checks,

All maintenance of the aircraft since the date of manufacture has been performed by KAL. There is no contract maintenance except for line maintenance at some outlying stations. KAL holds a FAR Part 129 Foreign Air Carrier Operating Certificate and three foreign repair station certificates issued under FAR Part 145. They are certified to perform heavy maintenance on the Boeing 747 airframe and

engines. Boeing Aircraft Company provided to KAL an on-site technical representative to support the operator's Boeing 747 Maintenance Program,

The KCAB reissues airworthiness certificates annually on each aircraft of Korean registry. The last airworthiness certification was issued on the accident aircraft on July 7, 1997

2. AIRCRAFT STATUS ON THE MAINTENANCE PROGRAM

The accident aircraft was delivered to KAL by Boeing on December 12, 1984. It had been operated continuously by KAL and had also been maintained exclusively by KAL up to the date of the accident. The serial number of the aircraft was 22487 and its Boeing line position was 605. At the time of the accident, the aircraft had about 50,105 hours total time in service and 8,552 cycles (Attachment 2).

The aircraft's four Pratt & Whitney JT9D-7R4G2 engines had total time since new of (number 1 through 4, respectively): 26,014; 36,611; 25,904 and 33,809 hours. Their respective times since overhaul were: 4,121; 3,948; 7,997 and 3,893 hours. Overhauls are performed "on condition" using a trend monitoring system. The most recent engine change was replacement of the number 3 engine on June 11, 1997 following a compressor stall incident.

According to the operator, the aircraft's Ground Proximity Warning System (GPWS) was updated in January, 1995 to an Allied Signal Mark 7 GPWS, in accordance with STC SA5106NM, The new system incorporates "mode 7" wind shear logic.

3. DESCRIPTION OF RECENT MAINTENANCE

The last "C" check was performed December 16, 1996, at 47,918 hours, The last "A" check was performed on July 12, 1997 at 49,874 hours. There were six prior "A" checks since the "C" check.

During the "C" check operational/functional test cards were completed for the transponders, radar altimeters, VOR/ILS navigation receivers, central air data computers (CADC's), ground proximity warning system (GPWS), autopilot, ADF, altitude alerter, inertial navigation system (INS), weather radar, DME and high frequency (HP) radios. The pitot-static system leak cheek was performed and the digital flight data recorder (DFDR) was read out. The altimeters are calibrated on a "condition monitored" basis.

Also during the "C" check a 4-inch crack in the keel beam at FS 1350, LBL9 was repaired in accordance with a Boeing recommended repair.

4. DEFERRED MAINTENANCE

According to the operator's records, the aircraft was dispatched on the accident flight with no deferred maintenance iterns. There were no flight crew write-ups (squawks) in the aircraft logbook for the previous 12 flight legs (Attachment 4).

The partially completed aircraft logbook page for the accident flight was recovered from the wreckage (Attachment 3). There were no malfunction entries entered in the logbook while the aircraft was en route to Guam.

5. RECENT DISCREPANCIES (CORRECTED)

According to the operator, KAL generally does not permit their aircraft to depart Seoul with any deferred maintenance items open. A review of the aircraft logbooks from December, 1996 to present revealed that discrepancies written up by the flight crews or maintenance personnel were corrected before the next flight. In a few instances discrepancies were deferred at outlying stations in accordance with the Minimum Equipment List to permit the aircraft to return to Seoul for repair.

Following the "C" check between December 18, 1996 and January 5, 1997, there were five squawks regarding disagreement between the Captain's and First Officer's airspeed indicators of up to 50 knots in cruise. Corrective action was taken by the operator after each squawk and there were no further write-ups after January 5, 1997.

On April 9, 1997, there was a squawk that the GPWS failed the "below glideslope" test. Contamination was cleaned from a connector and there were no further write-ups on the GPWS.

Between May 3, 1997 and June 23, 1997 there were six squawks for erroneous quantity indications on the number 1 fuel quantity indicator. The operator attempted corrective action after each write-up and there were no additional write-ups after June 23, 1997.

The First Officer's altimeter was replaced July 3, 1997.

In July, 1997, there were several write-ups regarding audio clarity of the HP radios.

On July 30, 1997, there was a write-up that, during an autocoupled approach at Seoul, autopilot channel "A" disengaged at a radar rdtitude of 1,000 feet. According to the Boeing representative, the autopilot system is a fail-operational, triply-redundant system and the autopilot would have continued to control the aircraft using the "B and "C" channels. The discrepancy was corrected prior to

the next flight by cleaning a pin on one of the autopilot system electrical connectors.

6. AIRWORTHINESS DIRECTIVE AND SERVICE BULLETIN STATUS

According to the operator, their maintenance program integrate applicable Airworthiness Directives, Boeing Alert Service Bulletins and Boeing Mandatory Service Bulletins into routine “A” and “C” checks.

7. DAMAGE REPAIR HISTORY

According to the operator, the aircraft had no previous major damage history.

Richard B. Parker
Group Chairman
Maintenance Records