

CIVIL AVIATION AUTHORITY
KARACHI PAKISTAN

AIRCRAFT INCIDENT REPORT

PIAC B-737 AIRCRAFT REG NO AP-BCD
WHICH OCCURRED ON 7TH MAY 1995
AT KUWAIT AIRPORT

CIVIL AVIATION AUTHORITY

KARACHI PAKISTAN

AIRCRAFT INCIDENT REPORT

PIAC B-737 AIRCRAFT REG NO AP-BCD

WHICH OCCURRED ON 7TH MAY, 1995

AT KUWAIT AIRPORT

CIVIL AVIATION AUTHORITY

KARACHI, PAKISTAN

AIRCRAFT INCIDENT INVESTIGATION

TYRE TREAD SHEDDING INCIDENT DURING TAKE-OFF OF PIAC BOEING (B-737) AIRCRAFT REG NO AP-BCD ON 7TH MAY 1995 AT KUWAIT

Authority: Director General Civil Aviation Authority Memorandum No.
HQ CAA/1901/189/SIB dated 7th May, 1995 (Appendix - 'A')

COMPOSITION OF INVESTIGATION TEAM

- | | | |
|----------------------------------|---|------------------------|
| a) Wg Cdr (Retd) Sajjad Ahmed | : | Investigator-in-Charge |
| Technical Investigator (SIB) CAA | | |
| b) Mr. Muhammad Ali Siddiqui | : | Member |
| Ops. Investigator (SIB) CAA | | |

1. AIRCRAFT INFORMATION

- | | | | |
|--|---|---|--------------------------|
| 1.1. Aircraft type and Maker's S.No. | : | B-737-300 | S.No. 23297 |
| 1.2. Registration Marking | : | AP-BCD | |
| 1.3. Engine types and Airframe position | : | CFM-56-3B | #1 720-205
#2 720-242 |
| 1.4. Certificate of Registration | : | NO: 579 Permanent | |
| 1.5. Certificate of Airworthiness and date of Expiry | : | NO: 532 Valid upto 24.06.96 | |
| 1.6. Certificate of safety date and time (GMT) of issue and period of validity | : | Not applicable however C of M issue date 27.02.95 at 22067 Flt hours. Validity 750 flt hours. | |
| 1.7. Date of Construction of Airframe | : | 1985 | |
| 1.8. Name and Address of Owner | : | PIAC QIAP, Karachi | |

- 1.9. Gross Weights.Maximum permitted by C of A for this flight, at the time of accident. : 61235 Kgs.
- 1.10. Loading. Centre of gravity limits in C of A and centre of gravity position at the time of accident and commencement of flight. : 18.56% MAC.
- 1.11. Airframe history. (Give flying times since manufacture, last overhaul and last periodic check. List also essential modification completed). : As on 7.5.95
TSN 22520.39
TSO 452.59 (Last Chk.'D')
TSLPC 53.42 (Last Chk.'A')
(Please refer appendix 'A' for list of essential modifications).
- 1.12. Engine history. (Give flying time since manufacture, last overhaul and last periodic check. List also essential modifications completed). : As on 7.5.95
LH Engine RH Engine
TSN 18194-14 12240-45
CSN 17728 11853
TSI 3754-29 1138-15
- 1.13. Accessory history. (Give details of operating time since manufacture and overhaul). : Please refer Appendix 'B'
- 1.14. Defects. (List and remark upon any technical defects in airframe engines or accessories, discovered during investigation). : Please refer Appendix 'C'

2. CREW INFORMATION

2.1. Pilot-in-Command

- 2.1.1. Name : Capt.Rafat Jamil
- 2.1.2. Position in the Cockpit : Captain
- 2.1.3. Date of Birth : 25-1-1949
- 2.1.4. Type of Lic. and No. : ATPL NO.485
- 2.1.5. Medical date with status : 10.4.95 Fit for ATPL renewal by Board

2.1.6. **RATING**

- 2.1.6.1. Type(s) held : C-150, 185, Piper Aztec, C-206, DHC-6, F-27, B-707 / 720B, B-747, B-737
- 2.1.6.2. Type current : B-737
- 2.1.7. FLYING EXPERIENCE**
- 2.1.7.1. Grand total : 13753 Hours
- 2.1.7.2. Total-in-Command : 4097 Hours
- 2.1.7.3. Total-in-Command on the type accident/
incident occurred : 1356Hours
- 2.1.8. Where trained :
- 2.1.9. Date of Joining the Org. :

2.2. CO-PILOT

- 2.2.1. Name : Shahid Anwar
- 2.2.2. Position in the Cockpit : Co-Pilot
- 2.2.3. Date of Birth : 24-10-1952
- 2.2.4. Type of Lic.and No. : CPL NO.1599
- 2.2.5. Medical date with status : 22-11-1994 (Fit)
- 2.2.6. RATING**
- 2.2.6.1. Type(s) held : C-172, F-27
- 2.2.6.2. Type current : B-737
- 2.2.7. FLYING EXPERIENCE**
- 2.2.7.1. Grand total : 3709 Hours
- 2.2.7.2. Total-in-Command : 2209:50 Hours
- 2.2.7.3. Co-Pilot on the type accident/
incident occurred : N/A
- 2.2.8. Where trained : PIAC
- 2.2.9. Date of Joining the Org. :

3. SUMMARY

3.1. M/s PIAC Boeing (B-737) aircraft registration No AP-BCD while operating PK-2162 from Kuwait to Karachi on 7th May, 1995 had an incident in which its No 3 tyre tread peeled-off during take-off roll and at lift-off speed the right landing gear unsafe light came 'ON'. However, when the gears were retracted all indications on the landing gear panel were normal. The Captain continued the flight after the First Officer confirmed by seeing through the viewing window that the gears were in fully up position. During the flight all indications were observed to be normal. However, at Karachi when the gears were lowered the right landing gear unsafe light again came 'ON'. The First Officer observed from the viewing window that the left landing gear was fully down, whereas; the right landing gear was in fully up position. Later, the landing gear was lowered using manual procedure and on visual inspection it was observed that right landing gear was in extended position and No.3 tyre was shredded off. At this stage hydraulic system 'A' pressure was also lost. It was confirmed by the ground staff that landing gears were in down and lock position as the aircraft made low passes the Captain made a safe landing.

4. INJURY TO PERSON(S)

4.1. None.

5. DAMAGE TO AIRCRAFT

5.1. The aircraft engine compressor was damaged.

6. OTHER DAMAGE

6.1. None.

7. METEOROLOGICAL CONDITION

7.1. Not relevant.

8. NAVIGATION & LANDING AIDS

8.1. Not relevant.

9. COMMUNICATION

9.1. Not relevant.

10. AERODROME & GROUND FACILITIES

10.1. Not relevant.

11. FLIGHT RECORDERS

11.1. Not relevant.

12. WRECKAGE & IMPACT INFORMATION

12.1. Not relevant.

13. FIRE

13.1. No smoke or fire was caused due to the incident.

14. SURVIVAL ASPECTS

14.1. All crews disembarked using the normal exit.

15. TEST & RESEARCH

15.1. Nil

16. OBSERVATIONS

16.1. There had been 11 cases of tread failure during the period 1st July 1994 to 30th June, 1995 out of these seven cases occurred on Boeing -737 and four on Airbus aircraft. Additionally, seven failed tyres were of tread level six or more and two cases pertained to tread level R-O. Moreover, three tyres suffered side wall burst and eight had tread separation. Refer appendix 'J' to this report.

16.4. Presently, all aircraft tyres at PIAC are being retreaded by Good year (Thiland).

17. WITNESS

17.1. Refer appendix "B" to "H"

18. INVESTIGATION

- 18.1. M/s PIAC Boeing (B-737) aircraft registration No. AP-BCD while operating PK-2162 from Kuwait to Karachi on 7th May, 1995 had an occurrence in which its NO 3 tyre tread peeled-off during take-off roll and at lift-off speed the right landing gear unsafe light came 'ON'. Subsequently, when the gears were retracted all indications on the landing gear panel were normal. The flight was continued after it was physically ascertained that the gears were in full up position. During the flight all indications were observed to be normal. However, at Karachi when the gears were lowered the right landing gear unsafe light again came 'ON' and it was physically ascertained that left landing gear was fully down; whereas, the right landing gear was in fully-up position. Later on landing gear was lowered using manual procedure and on visual inspection it was observed that right landing gear was in extended position and No.3 tyre was shredded off. At this stage hydraulic system 'A' pressure was lost. Subsequently, after conforming from the ground staff that the gears were down and locked a safe landing was carried out.
- 18.2. During post flight inspection smoke was observed from No.3 brake assembly which was due to spillage of hydraulic fluid on its surface. Additionally, small pieces of rubber were found in the right engine intake. Moreover, the 'B' hydraulic system pressure line was found damaged near the right landing gear actuator and the wheel well area.
- 18.3. During the process of recovery of the aircraft right engine was inspected for FOD using a boroscope and no damage was observed on compressor blades. Slight fan blade damage was found on No.2 engine for which complete set of fan blades was replaced. No 2 engine magnetic chip detector, nacelle/inlet were visually checked and were found satisfactory. Additionally, engine vibration survey was carried out during ground run and no abnormality was observed.

- 18.4. From the evidence of tyre pieces which were collected at Kuwait runway it was inferred that the tyre tread had peeled-off. The subject tyre was installed at NO 3 position on 3rd May, 1995; had done 26 landings at the time of incident and was retreaded at R-5 level by Goodyear Thiland. As per para 5-10 of the Goodyear Tyre Manual maximum level of retreading of tyres is based 'ON CONDITION'. However, before retreading is carried out tyres are subjected to various tests like holography etc depending on the tread level.
- 18.5. Presently, aircraft tyres at PIAC are being retreaded by Goodyear Thiland. During the period 1st July, 1994 to 30 June, 1995 there had been marked increase in the tyre tread failure cases. This was pointed out by Manager Engineering Quality Control and was recommended that purchase/retreading of tyres from Goodyear Thiland should be stopped with immediate effect. Refer appendix "K" to this report.
- 18.6. PIAC had been sending failed tyres to Goodyear Thiland but surprisingly most of the investigation reports submitted by Goodyear Thiland had the same stereo type remarks which put validity of these reports questionable.
- 18.7. The storage condition of tyres at PIAC was checked and was found satisfactory.
- 18.8. From the data of failure tyres it has been observed that out of 11 cases of tyre tread failure 8 pertained to tread separation. Which indicate that the tread bonding process at the time of retreading was not proper.

19. FINDINGS

- 19.1. From the foregoing discussion the board finds that the tyre tread separation was due to poor bonding during the retreading process at the factory.

20. CAUSES

- 20.1. Poor bonding of tyres during retreading process at the work center i.e. Goodyear Thailand.
- 20.2. Not taking prompt action by the engineering management to discontinue use of tyres retreaded by Goodyear Thailand at the time it was pointed out by PIAC quality Control to discontinue there use.

21. RECOMMENDATIONS It is recommended that:-

- 21.1. PIAC management should address problems pertaining to aircraft safety by taking prompt corrective action .
- 21.2. The policy of retreading tyres on condition should continue.
- 21.3. Purchase / retreading of tyres from Goodyear Thailand should be stopped.
- 21.4. FAA (USA) should be asked to look into the poor workmanship displayed by Goodyear Thailand and appropriate action should be taken.