

ORIGINAL

NO.HQCAA/1901/203/SIB



CIVIL AVIATION AUTHORITY

AIRCRAFT INCIDENT INVESTIGATION M/S PIAC

BOEING 747 REG.NO.AP-BCN WHICH OCCURRED

ON 13TH APRIL, 1996

AT

QUIAD-E-AZAM INTERNATIONAL AIRPORT

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INVESTIGATION REPORT

INCIDENT TO M/S PIAC BOEING - 747 AIRCRAFT
REG NO AP-BCN AT QIAP KARACHI
ON 13TH APRIL, 1996

Authority:- Director General Civil Aviation Authority Memorandum
No. HQ CAA/1901/203/SIB dated 17th April, 1996.

COMPOSITION OF INVESTIGATION TEAM

- (a) Air Cdre (Retd) Rashid A. Bhatti : Investigator Incharge
Pilot Investigator, SIB CAA
- (b) Wg. Cdr (Retd) Sajjad Ahmed : Investigator
Technical Investigator SIB

1. AIRCRAFT INFORMATION

- 1.1. Aircraft type : Boeing -747
- 1.2. Reg.Mks. : AP-~~BCN~~

2. CREW INFORMATION

2.1 Following sets of crews operated the aircraft :-

<u>Captain</u>	<u>First Officer</u>	<u>Fight Engineer</u>	<u>Sector</u>
Mushir Ahmed	Yousaf Mumsa	Muhammad Nawaz	KAR-JED (PK-1609)
Mohammad Rafiq	Farooq Ahmad	Khalid Assadullah	JED-LHR (PK-1610)
Akbar Afridi	Riaz Ahmed	Hakimullah Jan	LHR-JED (PK-1321)
Mushir Ahmed	Yousaf Mumsa	Muhammad Nawaz	JED-KAR (PK-1322)

3. SUMMARY

- 3.1. On 13th April, 1996 PK-1322 Boeing-747 aircraft
Registration No.AP-BCN on scheduled flight from Jeddah to

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Karachi landed at about 0928 hours (PST). On arrival duty Aircraft Engineer during walk around inspection of the aircraft found extensive scrubbing marks on the under surface of No.1 engine. The Cowl Outer Panels and Cowl Ring had been rubbed at 6' O clock position and several rivets had been sheared off. Nine fan blades were found curled inward at leading edge tips. The reverser blocker doors and their linkages were found bent. The type of damage observed during inspection of No.1 engine indicates that the under surface of the engine had an impact with a large, hard and level surface.

4. INJURY TO PERSONS

4.1. There was no injury to any passenger or the crew members.

5. DAMAGE TO AIRCRAFT

5.1. No.1 engine was substantially damaged.

6. OTHER DAMAGES

6.1. None

7. METEOROLOGICAL CONDITION

7.1. The weather was fair and visibility was good.

8. NAVIGATIONAL & LANDING AIDS

8.1. Not relevant.

9. COMMUNICATIONS

9.1. Not relevant.

10. AERODROME AND GROUND FACILITIES

10.1. Not relevant.

11. **FLIGHT RECORDERS**

11.1. Copy of the DFDR is attached as Appendix F to this report.

12. **WRECKAGE & IMPACT INFORMATION**

12.1. Not relevant.

13. **FIRE**

13.1. No fire was caused in the incident.

14. **SURVIVAL ASPECTS**

14.1 Not a factor in the incident

15. **TEST & RESEARCH**

15.1 Nil

16. **OBSERVATIONS**

16.1 The decision taken by the aircraft engineers to release the aircraft with discrepancy on No.1 engine, gives an impression that such types of malpractices are being followed as a matter of routine. They all appeared to be very confident while releasing the unserviceable aircraft and they knew exactly that the type of damage observed on No.1 engine will not affect the performance of No.1 engine during flight and they succeeded in achieving their objectives. However, this type of attitude towards flight safety one day may result into an avoidable accident.

16.2. The incident under investigation revealed that flight engineers are not performing their duties as per laid down procedures. The pre/post flight inspections are either not being done properly or missing it completely with the hope that the aircraft engineers would take care of any abnormality detected by them during their turn around checks.

16.3. The statements of Captains revealed that they are not responsible for the pre/post flight inspections of the aircraft.

If the flight engineers have not mentioned to the Captain about any abnormality with the aircraft, the Captain assumes that his flight engineer must have carried out his job properly.

17. WITNESSES

17.1 Statement of witnesses are given in appendix 'H to W' to this report.

18. INVESTIGATION

18.1. M/s PIAC Boeing - 747 aircraft Registration No.AP-BCN had operated on 12th and 13th April, 1996 as per following schedule :-

(a) PK-1609 on 12th April, 1996 from Karachi to Jeddah.

(b) PK-1610 on 12th April, 1996 from Jeddah to Lahore

(c) PK-1321 on 12th April, 1996 from Lahore to Jeddah.

(d) PK-1322 on 13th April, 1996 from Jeddah to Karachi.

18.2 On arrival of aircraft at Karachi from Jeddah the ground crew observed that No 1 engine SNo.685991 cowl under surface was scrubbed, cowling ring, fan case and 9 fan blades were damaged the details of which are given in Appendix ' ' to this report. The engine was also inspected by Pratt & Whitney representative who was of the opinion that subject damage was caused due to contact with some hard surface and required engine removal for recovery at overhaul base. A copy of the report is attached as Appendix 'D' to this report.

18.3 Witnesses. With a view to determine the cause of damage to No.1 engine of Boeing-747 Reg.No.AP-BCN the Investigation Team recorded the statements of all the Captains, Co-Pilots and Flight Engineers who operated the aircraft as per schedule given in para 18.1 above. As per their statements, all take-offs and landings were normal and nothing unusual was observed through out the flights Operations. All the Flight Engineers had also mentioned

that they carried out proper pre flight and post flight inspections as per laid down procedures and no discrepancy or damage to No.1 engine was observed.

- 18.4 Mr. Syed Naseem Akhtar Aircraft Engineer of PIAC stated that on 12th April, 1996 he was detailed to accompany the flight number PK-1609 (Karachi-Jeddah) on Boeing-747 aircraft No. AP-BCN for ground handling of subject aircraft at Jeddah. After arrival at Jeddah he carried out the post flight and did not observe any discrepancy in the aircraft. The same aircraft departed for Lahore as PK-1610. He stayed back at Jeddah to receive the same aircraft operating as PK-1321 (Lahore - Jeddah).
- 18.5 Mr. Aftab Ahmed Aircraft Engineer of PIAC stated that he received PK-1610 (Jeddah - Lahore) at Jct. Apron Lahore Airport on 12th April, 1996. He carried out necessary ground checks/inspection and did not observe any evidence of scratch marks on No.1 engine. However, during pre departure checks of PK-1321 (Lahore - Jeddah) he observed scratch marks on under surface of No.1 engine. He further stated that probably due to heavy deposit of dust he could not observe these marks during initial inspection on arrival of PK-1610. Considering the scratches to be minor in nature and also no snag on No.1 engine performance was reported, he cleared the aircraft for further operations due to time constraint. Infact he wanted to make an entry in the Technical Log to that effect, but by that time the aircraft doors had already closed, hence he could not initiate any action at that stage. He feels that he should have made an entry in the Technical Log.
- 18.6 Syed Naseem Akhtar Aircraft engineer at Jeddah, during post flight inspection of PK-1321 (Lahore - Jeddah) observed scrubbed marks on the under surface of No.1 engine cowling and other damages as mentioned in para 1 above. After the inspection he explained on telephone the complete discrepancy of No.1 engine to Mr. Shahswar - Manager Line Maintenance - 1 at Karachi Station. As per statement of Mr. Naseem Akhtar (Aircraft Engineer) Mr. Shahswar advised him not to discuss the subject discrepancy of No.1 engine with any one and also not to make any entry to that effect in the Technical Log. This however, has been denied by Mr. Shahswar as per his statement and he only advised Mr.Naseem Akhtar to inspect the engine thoroughly as per Maintenance Manual and take action accordingly.
- 18.7 Mr. Naseem Akhtar checked the engine rotation and observed no binding of the fan blades. He cleared the aircraft for flight from Jeddah to Karachi (PK-1322). While replying to a question regarding his decision to clear the

aircraft with damaged No.1 engine he said that since no discrepancy was reported by the flight crew of PK-1321 after landing at Jeddah, therefore, keeping in view the larger interest of the PIAC during Haj Operations, he released the aircraft. Additionally, he sincerely thought that this discrepancy would not effect the performance of No.1 engine, which was substantiated by the fact that the aircraft completed its mission safely and no defect was observed or reported by the flight crew at Karachi after operating PK-1322.

18.8 **Pattern of Damage to No.1 Engine.** The pattern of damage to No.1 engine was examined very carefully by the Investigation Team, PIAC Engineering Staff and Mr. David Asst. Manager /Boeing Coordinator. The D-Shaped rubbing of the Nacelle at the 6'O clock position indicates that the under surface of No.1 engine had been dragged against a large, solid and level surface. The possibility of a having this type of damage being caused due to any vehicle was examined but the pattern of damage could not be co-related. The pattern of damage gave very strong indications that No.1 engine may have contacted the runway during landing at Jeddah, Lahore or Karachi.

18.9 **Angle of Bank Limitation During Landing.** The Boeing Company has mentioned that it is possible for a fully loaded B-747 aircraft to drag the out board Nacelle against the runway surface at roll angles greater than 7.0 degrees during landing. A copy of their report on the subject is attached as Appendix 'E' to this report.

18.10 **DFDR Read out** the read outs of DFDR S/ No 2764 installed on B-747 aircraft No.AP-BCN were obtained from PIA AIDS COMPUTER CENTRE to analyse the bank angles during landing of PK-1609, PK-1610, PK-1321 and PK-1322 at their respective destination Airports. The review of DFDR read out of PK-1609 (Karachi - Jeddah) on 12th April, 1996 revealed excessive bank angles just prior to touch down at Jeddah Airport. Boeing was requested to review the DFDR read out of PK-1609 and their views are as follows :-

"Boeing has reviewed the REF/E/DFDR DATA and advises that the airplane roll angle during the landing at Jeddah may have been sufficient to drag the Engine No.1 Fan Cowl just at the point of touch down. Page 3 of the REF/E/DATA shows a 12.8 degrees roll to the right at a Radio Altitude of 21 feet. This was followed by a sharp bank of negative 10.1 degrees to the left at Radio Altitude of 3 feet. It is at this point with the negative 10.1 degree roll to the left that Boeing believes the No.1 engine Fan Cowl may have made

contact with the runway. Review of the landing bank angles at Lahore (PK-1610) and second landing at Jeddah (PK-1321) shows that the roll angle of 10.1 degree is not typical." A copy of the DFDR report is attached as appendix 'F'.

18.11 **PK-1609 Captain's Statement** Captain Musheer Ahmad Suri operated PK-1609 on 12th April, 1996 on B-747 aircraft Reg No.AP-BCN from Karachi to Jeddah. He stated that weather conditions at the time of landing at Jeddah were - visibility 650 meter (RVR) and wind was 190 degree 22 knots. The runway in use was 16 Right and Captain Mumsa (Co-Pilot) was pilot flying at the time of landing. The approach was stable and just short of flare dust storm/dust raising winds came and wind speed increased which was not reported and positive touch down was made from a crabbing approach. During touch down the Captain, Co-Pilot and Flight Engineer did not get any feeling of any part of the aircraft or engine having contacted the runway. Captain Suri also stated that his Flight Engineer carried out the post flight inspection in front of him and he did not observe any discrepancy in No.1 engine.

18.12 Captain Suri was shown the read out of DFDR of PK-1609 and the views of Mr. David, the Boeing Coordinator that it is possible for B-747 aircraft to drag the out board nacelle against the runway surface at roll angles greater than 7.0 degrees during touch down. He said that the wing may have dropped due to gusty wind conditions which we experienced just short of flare out as already mentioned in the statement.

18.13 **B-747 Aircraft AP-BCN Subsequent Operations** From the analysis of DFDR read out of PK-1609 (Karachi - Jeddah) on 12th April, 1996 and the pattern of damage to No.1 engine, the Investigators are of the view that No.1 engine of B-747 aircraft Reg. No.AP-BCN dragged on the runway during touch down at Jeddah Airport. For some reasons this damage to No.1 engine was not noticed during post flight inspection, turn around checks and during final pre flight inspection for the next flight. The same aircraft with damaged No.1 engine operated as PK-1610 (Jeddah - Lahore), PK-1321 (Lahore - Jeddah) and PK-1322 (Jeddah - Karachi).

18.14 The Investigation Team tried to establish as to how B-747 aircraft Reg. No.AP-BCN operated its subsequent missions as per schedule after its No.1 engine had been damaged during landing while operating PK-1609 at Jeddah Airport. This is being discussed in the subsequent paragraphs.

DISCUSSION AND ANALYSIS

18.15 Keeping in view the statements of all Captains, Co-Pilots and Flight Engineers who operated their respective flights, the Aircraft Engineers at Jeddah and Lahore and the evidence obtained from the DFDR read out of PK-1609 on 12th April, 1996 (Karachi-Jeddah) fitted on B-747 aircraft Reg. No.AP-BCN, the Investigators discussed the following aspects to determine as to how the aircraft continued operating/per given schedule after its No.1 engine had been damaged during landing of PK-1609 at Jeddah Airport :-

(a) Was the Captain of PK-1609 (Karachi - Jeddah) aware of the fact that No.1 engine under surface had contacted the runway while landing at Jeddah Airport?

(b) Why Flight Engineers of PK-1609, PK-1610, PK-1321 and PK-1322 could not observe the damage on the under surface of No.1 engine during post flight/pre flight inspections ?

(c) Why Aircraft engineer during ground handling of subject aircraft at Jeddah (PK-1609, PK-1610) could not observe the damage on No.1 engine of B-747 aircraft ?

(d) Why the Aircraft Engineers Mr. Aftab Ahmed and Syed Naseem Akhtar, who observed the damage on No.1 engine during pre-departure checks of PK-1321(Lahore - Jeddah) and during post flight inspection of PK-1321 at Jeddah respectively, did not inform the Captains of PK-1321 (Lahore - Jeddah) and PK-1322(Jeddah - Karachi) accordingly and what forced them not to make entry in the technical log and release the aircraft with discrepancy on No.1 engine.

(e) Was there any management pressure which forced the Engineering/Maintenance Staff to released the aircraft with damaged No.1 engine with the main interest of mission accomplishment during Haj Operations, with the hope that this engine discrepancy will not affect the performance of No.1 engine and they succeeded in achieving their objectives.

18.16 **Captain's Awareness of No.1 Engine Damage.** Captain Musheer Ahmad Suri Operated PK-1609 (Karachi - Jeddah) on 12th April, 1996 and as per DFDR read out during landing of this flight at Jeddah the No.1 engine of B-747

aircraft contacted the runway. However, Captain Suri and his crew has stated that they did not get any feeling that any part of the aircraft or engine may have contacted the runway. Captain also stated that his flight engineer carried out the post flight inspection in front of him and he did not inform him about any discrepancy with No.1 engine. The fact is that the engine had been damaged during landing at Jeddah. The Investigators are of the opinion that either the damage was not noticed by the flight engineer during post flight inspection of PK-1609 or it was noticed but was not communicated or was communicated to the captain and every one kept quiet about it for obvious reasons.

- 18.17 The Investigators tried to analyse about the awareness of the damage to No.1 engine by the Flight Crew of PK-1609. The Investigators are of the view that the Captain Suri and his crew were probably not aware of the damage to No.1 engine. Had they been aware of this damage then they would not have accepted the same B-747 aircraft which came back to Jeddah after operating PK-1610 (Jeddah - Lahore) and PK-1321 (Lahore - Jeddah). Captain Suri and his crew operated the same aircraft as PK-1322 (Jeddah - Karachi) and did not observe any discrepancy pertaining to No.1 engine during flight or during post flight inspection at Karachi. Therefore, it can be assumed that Captain of PK-1609 and his crew were probably not aware of the damage caused to No.1 engine during landing at Jeddah. If this being the fact than it reflects very badly on the performance of flight engineer who carried out the post flight of PK-1609 (Karachi - Jeddah) post flight of PK-1322 (Jeddah - Karachi). Our analysis does not rule out the possibility of Captain's awareness of No.1 engine damage.

- 18.18 **Flight Engineers Failure to Observe Damage to No.1 Engine** As mentioned above that No.1 engine of B 747 aircraft had been damaged during landing of PK-1609 at Jeddah Airport. This damage was not observed during post flight inspection, turn around checks and during final pre flight inspection for the next flight. The same aircraft with damaged No.1 engine operated as PK-1610 (Jeddah - Lahore) PK-1321 Lahore - Jeddah) and PK-1322 (Jeddah - Karachi). The flight engineers of these flights, as per their statements, did not observe any damage during pre/post flight inspections of the aircraft. The Investigators are of the view that, had the flight engineers done the proper pre/post flight inspections of their respective flight, then the damage to the under surface of No.1 engine of the aircraft could not have been missed. Obviously the inspections carried out by the flight engineers were not as per the laid down check list.

engine may have been in the knowledge of senior management at the time of departure of PK-1321, but this fact has not been revealed through the statements of Witnesses. The aircraft again may have been cleared in the interest of mission accomplishment.

18.22 PK-1321 (Lahore - Jeddah) arrived Jeddah at 0240 hours local time on 13th April, 1996. Aircraft Engineer Mr. Syed Naseem Akhtar during post flight inspection observed scrubbed marks on the under surface of No.1 engine cowling and other damages as mentioned in para 1 above. He checked the engine rotation and observed no binding of the fan blades. As per his statement he explained the complete discrepancy of No.1 engine to Mr. Shahswar Manager Line Maintenance - 1 at Karachi Station who advised him not to discuss with any one else and not to make any entry in the Technical Log. This however, has been denied by Mr. Shahswar and as per his statement he only advised Mr. Syed Naseem Akhtar to inspect the engine thoroughly as per maintenance manual and take action accordingly. The Investigators are of the view that Mr. Shahswar may have given some indication to Syed Naseem Akhtar (Aircraft Engineer) which implied that he should keep quiet about it and he acted accordingly. Mr. Naseem Akhtar after ensuring to himself that this type of damage on No.1 engine will not effect the performance of the engine, released the aircraft keeping in view the interest of PIA during Haj Operation.

18.23 **Management Pressure for Mission Accomplishment** The flight schedules for Haj Operations are considered to be the most important missions and Haj Operations are to be completed within the given time frame. The perception of importance often results in over motivation, pressing on with mission and break down in discipline. The discipline break down is evident when a person willfully violates known directives, procedure or restrictions etc. Also, the problem with the subtle discipline break down is where the rules are stretched, limits are pushed, procedures are modified and restrictions are ignored because they are tacitly approved by the supervisors for the sake of mission accomplishment. However, admirable their motives might be and however slightly the limits might be exceeded, failure to adhere to known restrictions is considered a break down in discipline which results into an avoidable incident / accident.

18.24 The statements of Aircraft Engineers Mr. Aftab Ahmed and Syed Naseem Akhtar revealed that they observed the damage on the under surface of No.1 engine during the pre-departure checks of PK-1321 (Lahore - Jeddah) and during post flight inspection of PK-1321 at Jeddah respectively. The detailed inspection of No.1 engine by Syed Naseem Akhtar at

Jeddah revealed that three fan blades were damaged beyond limit. He consulted his Manager Line Maintenance-1 at Karachi who tacitly communicated to him to keep quiet about it and do your best to release the aircraft for the next flight. Mr. Naseem Akhtar realizing the importance of Haj Operation released the aircraft in the larger interest of the PIAC management during Haj Operations.

- 18.25 The Investigators are of the opinion that besides these two Aircraft Engineers who admitted having observed the damage on No.1 engine, there could be some more people amongst the Operation/Engineering Staff who were aware of the damage but have not mentioned about it, at least to the Investigation Team for fear of punishment. If this is a fact, than these supervisors also kept quiet and did not exercise their authority to force the aircraft engineers who released the aircraft with the discrepancy on No.1 engine in the interest of mission accomplishment during Haj Operations.

Findings

19. From the foregoing Investigation and analysis the investigators find that :-
- (a) On 13th April, 1996 PK-1322 Boeing - 747 aircraft Registration No.AP-BCN landed at Karachi Airport at 0928 hours (PST).
 - (b) The Duty Aircraft Engineer during walk around inspection of the aircraft found extensive scrubbing marks on the under surface of No.1 engine and nine fan blades were found damaged.
 - (c) The type of damage observed during inspection of No.1 engine revealed that the under surface of the engine had been dragged against the runway surface.
 - (d) The aircraft B-747 AP-BCN had operated as per following schedule :-
 - (i) PK-1609 on 12th April, 1996 (Karachi - Jeddah)
 - (ii) PK-1610 on 12th April, 1996 (Jeddah - Lahore)
 - (iii) PK-1321 on 12th April, 1996 (Lahore - Jeddah)
 - (iv) PK-1322 on 13th April, 1996 (Jeddah - Karachi)

- (e) The analysis of DFDR read out of PK-1609 revealed excessive bank angles just prior to touch down at Jeddah Airport i.e. 12.8 degree roll to the right at 21 feet followed by sharp bank of 10.1 degree to the left at radio altitude of 3 feet.
- (f) The Boeing Coordinator has mentioned that it is possible for a fully loaded B-747 aircraft to drag the out board engine nacelle against the runway surface at roll angles greater than 7.0 degree during landing.
- (g) No.1 engine contacted the runway when the aircraft was in a 10.1 degree left bank just prior to touch down.
- (h) Captain Musheer Ahmed Suri operated PK-1609 with Captain Yousuf Mumsa as Co-Pilot and Muhammad Nawaz Sahito as Flight Engineer.
- (j) Captain Yousuf Mumsa (Co-Pilot) was the Pilot Flying at the time of landing at Jeddah.
- (k) The weather conditions at the time of landing at Jeddah were - visibility 650 Meter (RVR), Wind reported was 190 degree 22 knots (RW 16).
- (l) During flare out the pilot experienced strong gusty winds due to dust storm that had approached the airfield just about the same time for which there was no warning given by Jeddah ATCO.
- (m) The aircraft right wing dropped suddenly, pilot corrected for it and during correction left wing dropped slightly just before touch down. However, positive landing was made with Wings Level.
- (n) During landing at Jeddah, the Captain, Co-Pilot and Flight Engineer did not get any feeling that any part of the aircraft or engine may have contacted the runway.
- (o) The Flight Engineer Muhammad Nawaz carried out the post flight inspection on arrival of PK-1609 but failed to observe any damage on the under surface of No.1 engine.
- (p) Aircraft Engineer Syed Naseem Akhtar positioned at Jeddah, carried out post flight inspection, turn around checks and final checks before the departure of same aircraft as PK-1610 (Jeddah -Lahore), but failed to observe any damage on the under surface of No.1 engine.
- (q) The Flight Engineer Khalid Asadullah carried out pre flight inspection before the departure of PK-1610 and post

flight inspection after arrival of PK-1610 at Lahore, but failed to observe any damage on No.1 engine.

- (r) Aircraft Engineer Aftab Ahmed carried out necessary ground check/inspection on arrival of PK-1610 at Lahore but did not observe any scratch marks on No.1 engine. However, during pre-departure checks of the aircraft he observed scratch marks on under surface of No.1 engine, but failed to report to the Captain of PK-1321 (Lahore - Jeddah) and cleared the aircraft for further operation.
- (s) Flight Engineer Hakim carried out the pre flight inspection of PK-1321 (Lahore - Jeddah) and post flight inspection on arrival of PK-1321 at Jeddah but failed to observe any damage on No.1 engine of the aircraft.
- (t) Aircraft Engineer Syed Naseem Akhtar during post flight inspection of PK 1321 at Jeddah observed scrubbed marks on the under surface of No.1 engine and other damages as mentioned in para 1 of this report. He checked the engine rotation and observed no binding of the fan blades.
- (u) Aircraft Engineer Syed Naseem Akhtar as per his statement explained the complete discrepancy of No.1 engine to Mr. Shahswar Manager Line Maintenance - 1 at Karachi who advised him not to discuss about the discrepancy to any one else and also do not make any entry in the Technical Log.
- (v) Mr. Shahswar stated that he only advised to Syed Naseem Akhtar to inspect the engine thoroughly as per maintenance manual and take actions accordingly.
- (w) Syed Naseem Akhtar released the aircraft since no discrepancy was reported by the flight crew at Jeddah pertaining to engine vibration/performance etc. This decision was taken in the interest of mission accomplishment during Haj Operations.
- (x) Syed Naseem Akhtar did not inform the Captain of PK-1322 (Jeddah - Karachi) about the discrepancy.
- (y) Flight Engineer Muhammad Nawaz Sahito carried out the pre flight inspection PK-1322 and post flight inspection PK-1322 on arrival at Karachi but failed to observe the damage on No.1 engine.
- (z) The Captains and Co-Pilots of PK-1609, PK-1610, PK-1321 and PK-1322 probably were not aware of the damage to

No.1 engine as no one had reported to them about this damage.

- (aa) Besides two Aircraft Engineers who admitted having observed the damage on No.1 engine and Mr. Shahswar Manager Line Maintenance - 1 at Karachi who was informed about the damage, the Investigators are of the opinion that there could be some more people amongst the operations/engineering staff who were aware of the damage to No.1 engine but have not mentioned about it in the interest of mission accomplishment during Haj Operations.

Cause of Incident and Subsequent Operation of Aircraft After the Incident

20. From the analysis of the available evidence and DFDR read out the cause of incident to PIA B-747 Registration No.AP-BCN while operating PK-1609 (Karachi - Jeddah) on 12th April, 1996 was due to dragging of No.1 engine against the runway surface when left wing dropped just at the time of flare out due to strong gusty winds experienced by the pilot when a dust storm approached Jeddah airfield for which no weather warning was issued by Jeddah ATCO.

21. After landing during post flight inspection, turn around checks and during pre-flight departure checks the flight engineers and aircraft engineer failed to observe the damage on No.1 engine and the aircraft was cleared for next flight. The aircraft engineers at Lahore and Jeddah observed the damage on No.1 engine during pre departure checks of PK-1321 and post flight inspection of PK-1321 respectively but did not inform their respective Captains and the aircraft was cleared for subsequent mission in the interest of mission accomplishment during Haj Operations.

Recommendations

22. The Investigators make the following recommendations based on the observations and findings :-

- (a) M/s PIAC Management should ensure that all flight engineers are briefed properly on the importance of carrying out the pre flight and post flight inspections as per laid down procedures.
- (b) M/s PIAC Management should ensure that all aircraft engineers are briefed on the importance of flight safety and if any discrepancy is observed during the aircraft inspection they must make appropriate entry in the Technical Log and inform the cockpit crew accordingly.

- (c) M/s PIAC Management to ensure that during Haj Operations all operational and engineering supervisors are strictly monitoring all the aspects related to aircraft operations and no malpractices are being followed and aircraft with known discrepancy are not released in the interest of mission accomplishment.
- (d) In the light of incident under investigation where all the flight engineers failed to observe the damage on No.1 engine, it is strongly recommended that the PIAC Management should encourage and motivate the Captains of the aircraft to carry out a quick walk around inspection particularly before the departure of aircraft.
- (e) M/s PIAC Management to take appropriate disciplinary actions against the following Flight/Aircraft engineers for failure to perform their duties as per laid down procedures :-
- (i) Flight Engineer Muhammad Nawaz Sahito (P-30107) PK-1609 and PK-1322
 - (ii) Flight Engineer Khalid Asadullah (P-32360), PK-1610
 - (iii) Flight Engineer Hakimullah Jan Durrani P- PK-1321
 - (iv) Aircraft Engineer Aftab Ahmed (P-17689) Ground Handling of PK-1610 and PK-1321
 - (v) Aircraft Engineer Syed Naseem Akhtar (P-15848), Ground Handling of PK-1609, PK-1610, PK-1321 and PK-1322

B.1



ANOTHER VIEW

B.2



ANOTHER VIEW



B.3

21
UNDER SURFACE DAMAGE OF NO.1 ENGINE



B.4

UNDER SURFACE SCRUB MARKS ON NO.1 ENGINE



B.5

DAMAGED FAN BLADES



B.6

DAMAGED FAN BLADES



B.7

23

UNDER SURFACE DAMAGE OF NO.1 ENGINE



B.8

ANOTHER VIEW OF UNDER SURFACE DAMAGE OF NO.1 ENGINE