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CIVIL AVIATION AUTHORITY

INCIDENT INVESTIGATION REPORT

WHERE A CO-PILOT HAD A HEART ATTACK AND DIED WHILE OPERATING FLIGHT No. PK-722/040692 FROM NEW YORK TO AMSTERDAM

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KARACHI, PAKISTAN

INCIDENT INVESTIGATION REPORT

INCIDENT IN WHICH CO-PILOT MIAN ABDUL MAALIK HAD A HEART ATTACK AND DIED WHILE OPERATING FLIGHT NO. PK-722/040692 FROM NEW YORK TO AMSTERDAM

Authority:- Director General, Civil Aviation Authority Memorandum No. HQCAA/1901/145/SIB dated 6th June 1992 (Appendix 'A').

COMPOSITION OF INVESTIGATION TEAM

(a)	Air Cdre (R) Abdul Basit Chief Inspector & President S.I.B.	Investigator-in-Charge
(b)	Dr. S.G. Kadir Chief of Avn. Medicine CAA	Investigator
(c)	Sqn. Ldr. Riaz Anwar PAK-7195 Chief Instructor, Aero Medical Institute, PAF	Investigator
(d)	Capt. M. Sadiq, Chief Pilot Co-ordination, PIA	Co-opted Member

S Y N O P S I S

Capt. Mian Maalik was scheduled to operate PIA Flight No. PK-713 as First Officer (F/O) on 29th May 1992, from New-York to Amsterdam.

While positioning for the flight on his way from Karachi to New-York the F/O informed his Captain that lately he was having problems with his back causing frequent pains. As per medical record, he had reported sick for cervical-spondylosis to PIAC doctors in 1979. No specific investigations are on record to ascertain the cause of pain in the back.

The F/O in 1989 reported to PIAC Aircrew Medical Center for "Conjunctival Haemorrhage" for which he was treated & relevant investigation were ordered but the reports are untraceable. In January 1990, his ECG during routine. Medical examination with CAA, revealed some changes which were considered Physiological in the absence of any positive history of Ischeamic Heart disease as per CAA Medical Records. However his ECG became normal during his routine medical in January 1992.

As per Captain Amjad's statement who was operating this flight, the F/O complained of his cervical pain while he was departing Karachi for Frankfurt and the F/O took Dolobid (500mg) tablets. At New-York during his slip he spent most of his time with his brother. His brother, who is doctor in New-York, also knew about his pain and advised him to get himself checked-up. But the F/O wanted to get back to Pakistan before Eid, so he declined his brother's advice. At New York the pain started getting unbearable as it is evident from the actions of F/O. He did not wait for his Captain in the hotel lounge, as per standard practice amongst the aircrew & instead went directly to the transport to relax after checking out from the Hotel.

The flight departed uneventfully from New-York for Amsterdam Approximately two and half hours after take-off, the pain in the back of F/O became unbearable again so much so that F/O excused himself from the cockpit and decided to lie down in the bunk provided adjacent to the cockpit. After sometime the F/O opened the cockpit door and called the Flight Engineer (F.E) for help. The F.E requested the Captain to announce for a doctor. The doctor was made available as he was sitting in upper deck, who administered him pain killing injection but the pain did not subside. Another announcement was made & two more doctors offered their services but by that time the F/O had expired and was declared dead on board the aircraft.

The remaining flight was taken care of by Captain Amjad Faizi who decided to continue and land at Amsterdam. With the assistance of Flight Engineer,a safe landing was made at Amsterdam. Although instructions were passed on to PIAC to perform Autopsy yet the Authorities at Amsterdam did not do so due to some misunderstanding.

Two days later, the body was brought to Karachi where again the autopsy was not performed. Both the personal belongings of the Pilot and his body were handed over to his family in spite of the request to hand-over the personal belonging to CAA for the purpose of investigations.

1. CREW INFORMATION

1.1. PILOT-IN-COMMAND

1.1.1.	Name	:	AMJAD HUSSAIN FAIZI
1.1.2.	Position in the Cockpit	:	Captain
1.1.3.	Date of Birth	:	15.04.1940
1.1.4.	Type of Lic. and No.	:	ALTP No. 306
1.1.5.	Medical date with status	:	14.7.1992 Fit for renewal of ALTP Lic. subjectto use of corrective glasses.

1.1.6. **RATING**

1.1.6.1.	Type(s) held	:	F-27, B-707/720B, DC-10 A-300 and B-747
1.1.6.2.	Type current	:	B-747
1.1.6.3.	Flt. Instructor: Rating		

1.1.7. **FLYING EXPERIENCE**

1.1.7.1.	Grand total	:	12677.00
1.1.7.2.	Total-in-Command	:	8945.00
1.1.7.3.	Total in command/on the type accident/incident occurred	:	439.00

1.2. **CO-PILOT**

1.2.1.	Name	:	ABDUL MALIK
1.2.2.	Position in the Cockpit	:	Co-Pilot
1.2.3.	Date of Birth	:	14.4.1954
1.2.4.	Type of Lic. and No.	:	ALTP No. 628
1.2.5.	Medical date with status	:	20.1.92 Fit for renewal of ALTP Lic. By Board

1.2.6. **RATING**

1.2.6.1.	Type(s) held	:	F-27, B-707/720B, A-300 & B-707
1.2.6.2.	Type current	:	B-747
1.2.6.3.	Flt. Instructor: Rating		

1.2.7. **FLYING EXPERIENCE**

1.2.7.1.	Grand Total	:	7959.00
1.2.7.2.	Total in command	:	4333.00
1.2.7.3.	Total Co-Pilot on the type accident/incident occurred	:	810.00

1.3. FLIGHT ENGINEER

1.3.1.	Name	:	GHULAM QADIR
1.3.2.	Position in the Cockpit	:	Flight Engineer
1.3.3.	Date of Birth	:	20.02.1951
1.3.4.	Type of Lic. and No.	:	Flight Engineer's Lic. No. 160
1.3.5.	Medical date with status	:	8.10.92 (Fit)

1.3.6. **RATING**

1.3.6.1.	Type(s) held	:	B-707/720, A-300
1.3.6.2.	Type current	:	B-747
1.3.6.3.	Flt. Instructor: Rating		

1.3.7. **FLYING EXPERIENCE**

1.3.7.1.	Grand total	:	7648.00 (B-747: 1985:00 Hours)
1.3.7.2.	Total-in-command	:	
1.3.7.3.	Total in Command/ Flt.Engr on the type accident/ incident occurred		

2. **SEQUENCE OF EVENTS OF THE DEATH OF (LATE) CAPTAIN MAIN ABDUL MAALIK**

2.1. Captain Maalik, while going from Karachi to New-York was complaining of back-ache which is evident from the statement of Captain Faizi. During stay at Frankfurt, he had also complained of pain in the back radiating to shoulder while coming back from jogging to the hotel room. In the journey from Amsterdam to New York, he did not complain of pain.

2.2. At New-York Captain Maalik went with his younger brother who also is a Doctor, but he had checked in the hotel. He decided to get himself checked up by a Doctor on his return to Pakistan for Cervical Spondylosis. However, the problem started when the Crew were starting their return journey from New-York to Karachi enroute Amsterdam.

2.3. On the day of his return journey to Amsterdam, he was having the same pain which was of moderate to severe degree which is evident from the fact that he could not wait for Captain Faizi in the hotel's lobby as per protocol and went straight to transport alongwith his Doctor brother. At that time the pain was in the neck and shoulders radiating to both hands and left leg.At this stage the Doctor (brother) advised him to stay back and have a thorough check-up which he refused as he wanted to reach Pakistan before Eid.

2.4. During the flight, he again had an episode of pain between the shoulder blades for which he relaxed in the seat and was also given a massage with a balm by Captain Faizi & for a while his pain was relieved. He

went twice to the passenger's cabin but again experienced pain of severe intensity so much so that he was forced to retire in the aircraft bunk leaving all his operational duties.

2.5. About 3 hours after take off, when he was in the bunk, he felt very weak and was soaked in his sweat. He was so weak that he even could not hold a glass of water to his lips. At that stage a cardiologist, travelling as a passenger, examined him but he expired.

2.6. In Amsterdam body of late Mian Maalik was identified and taken over by Police Officers of National Police Service, Aviation Branch Schiphol Airport. The body was examined by Dr. S. Bakker who conducted "external autopsy" and found no signs of intoxication, injuries and poisning and the cause was attributed to **"acute heart failure"** possibly due to dissection of aorta. Later on the body was placed in a zinc Coffin which was hermetically sealed without special balm-treatment.

2.7. The personal-effects of Mian Maalik revealed presence of some drugs which could have been used for lowering blood pressure and for the treatment of heart diseases indicating that Mian Maalik possibly used to take such medicines concealing his cardian ailment.

3. PAST HISTORY

3.1. His medical records available with PIAC Aircrew Medical Centre revealed he had cervical-spondylosis in 1979 for which he was given appropriate treatment. Thereafter he did not report for any medical asistance.

3.2. Then in 1989 he reported sick when he had sudden "Conjunctival Haemorrhage" for which anti-hypertensive treatment was prescribed. He was advised extensive

investigations but no record of such investigations is available.

3.3. Some medicines alongwith homeopathic pills were found in his personal belonings, as per list provided by PIAC, after his death. He might have taken thesedrugs on the advice of some doctors but the said record is not available.

4. FAMILY HISTORY

4.1. He has not recorded family history of heart disease, but during the investigation, it is revealed that his father and one uncle (brother of father) had a bypass-surgery. It indicates a "strong positive family history of heart' disease. In medical treatment book he had a single recording of 140/92 blood pressure which was recorded during his sudden sick report of conjunctival haemorrhage in 1989.

5. PERSONAL HISTORY

5.1. He was a moderate smoker and used to consume alcohol off and on. He was extremely health concious and used to exercise vigorously. In Frankfurt he had also gone for jogging and exercises in the presence of even spondylosis pain as is evident from the statement of Capt. Faizi. He used to take medication without medical advice as revealed from his Personal-belongings and as stated by his comrades.

6. MEDICAL RECORDS OF PIAC PILOTS

6.1. During scrutiny of medical record of Mian Maalik, documents of some of senior PIAC Pilots were also examined and reviewed in detail. The exmaination of records showed that there are pilots who are having

border line cardiac, visual, hearing and metabolic problems. They have been allowed to fly under ICAO "Flexibility Clause"provided their constant monitoring and surveillance is done by CAA/PIAC medical authorities.

6.2. As per ICAO rules, pilots are required not to exercise licence privileges when they are aware of decrease in their medical fitness likely to render them unable to safely exercise licence privileges. However, this is being frequently violated as some of the pilots conceal their medical problems and are usually involved in self mediciationwhich could result. In inflight incapacitations as happened in the above case.

6.3. A list of few pilots with low-medical category is included in the report with appropriate suggestions so as to prevent recurrence of such incidents in the future.

6.4. The medical examination process for certification besides Medical Standards followed by CAA based on latest International Standards were also reviewed. The standards and certification process is considered most appropriate and comparable with any medical standards followed by advance countries. A list of medical examination problems already discussed with PIAC Management at various meetings is also included in the report so that adequate steps are taken to prevent such violations in the interest of flight safety.

6.5. Another list of airline pilots who are over-weight by more than 30-50lbs. is also included in the report. It is pointed out that obesity, smoking, stress and strain, alcoholism, hypertension, lack of exercises, strong family history etc are considered risk factors for coronary artery diseases and appropriate steps must

be taken to contain such factors amongst pilots through PIAC doctors in the interest of flight safety for travelling Public.

6.6. Aero-Medical studies reveal that flying personnel do age faster than other professionals and a good preventive medicare programme for aircrew will greatly help in the slowing down of this aging process. Thus supervision of aircrew health must be done meticulously so that such incidents are timely identified and inflight incapacitation is avoided.

7. MEDICAL KIT ON BOARD PIAC AIRCRAFTS

7.1. There are three kinds of medical kits available on PIAC aircrafts:-

7.1.1. One medical kit is provided as required under ICAO Annex-6 which has to be kept under different compartments of the aircraft to deal-with any on-board medical emergencies/ incidents. These medical kits are periodically inspected by CAA Airworthiness Branch in consultation with CAA Medical Officers as per Administrative No.19 dated 1st Mar 1983. The list is enclosed as per Appendix-'AC/1'.

7.1.2. Besides these two kits, some simple drugs like Aspro, Buscopan, Nasal Drops, Eye drops etc are available with cabin-crew to use on day to day basis to handle minor ailments encountered by on-board airline passengers. These simple drugs are not subject to CAA's inspection as the same are provided by the operators to facilitate airline passengers.

7.1.3. The other medical kit is a box known as Medical Aid Kit which has been provided by PIAC on their own and is not subject to regular inspections. This kit is considered most modern and sophisticated containing all emergency drugs and essential equipment to deal with any on-board emergencies and is available with cabin-crew. In order to avoid confusion amongst cabin-crew at the time of on-board medical emergencies, this Medical Aid Kit be standarized and re-named as "Medical Aid Kit" for usage at time of on-board emergencies. The contents of the kit are enclosed as per appendix-'AC/II'. This kit must be checked by PIAC doctors periodically and be placed at area easily accessable to all cabin-crew/cockpit-crew.

8. FINDINGS

8.1. Some of PIAC Pilots do not report to their own doctors and are sometimes involved in getting treatment from private practitioners/specialists of their own choice in violation of CAA rules as revealed from personal belongings of late Mian Maalik.

8.2. Some of PIAC Pilots try to conceal their medical problems from PIAC/CAA medical authorities. Even family members of some of the Pilots hesitate to submit such information due to fear of medical disqualification as revealed from medical records.

8.3. At times sickness cases are referred to Aero-Medical Centre after a lapse of 2-4 months period. Aero-Medical Centre at times had received information from Foreign Insurance Companies about sickness of PIAC Pilots. Such information is not forthcoming from PIAC.

8.4. Physician-aircrew relationship which s vital for flight safety does not exist in PIAC/CAA possibly due to lack of confidence and mistrust amongst Physician/aircrew as a result of which subtle ailments of Pilots are undetected.

8.5. There is well staffed PIAC Dispensary located at Karachi Airport where aircrew can get readily treatment/consultation if Pilot wish to report to above centre. However, most of Pilots prefer to utilize aircrew Medical Centre located at Tipu Sultan Road, Karachi.

8.6. PIAC Flight Surgeons sometimes do not maintain followup treatment records of aircrew to ascertain their medical status for further flying duties. As such incomplete reports are brought by pilots for medical examination as a result of which medical record remains incomplete prior to board examination causing problems in ascertaining their medical status.

8.7. Pilots sometimes fail to give correct information at the time of their medical examination at CAA for their illnesses/disability which they had encountered between the last medical and current medical periods as specified in CAA Form 112 duly signed by them.

8.8. CAA has ample powers as specified in Civil Aviation Rules 1978, for taking necessary actions in case aircrew falsify/conceal medical information but the powers have never been exercised as no licence of any Pilot has ever been suspended/cancelled on account of medical information concealment.

8.9. No regulations exist in CAA for penalising Pilots for making incorrect and falsifying statements except suspension of licence as the same are prevalent in FAA

rules where aircrew is fined upto US $ 250,000 and 05 years imprisonment or both in case a falsification statement is made & proved by FAA Medical Authorities.

8.10. Some of PIAC Pilots who are placed under surveillance do not report to PIAC Aircrew Medical Centre Periodically as a result of which their surveillance is not carried out in its true spirit. Only one or two checks are conducted at PIAC Aircrew Medical Centre during the last month of their licence renewals before the next medical is done at CAA Aero Medical Centre. For this, Aircrew should be scheduled on the roster for Medical checks.

8.11. President CAMB and members of the Board are not detailed to attend Seminar/Courses on aviation medicine so as to update and enhance their knowledge in the speciality as specified by ICAO vide para 1.2.4.4.1. of Annex-1 (Personnel Licencing).

8.12. Similarly AMEs directly involved for medical examinations of aircrew are also not detailed by CAA/PIAC to attend various refresher courses and seminars and are thus unaware of the latest aviation medicine knowledge and criteria as specified in Civil Aviation/ICAO rules and recommended practices.

8.13. The establishment of Aero Medical Centre CAA has to be revised so that some of the Senior Doctors are placed at Aero Medical Centre to carryout aircrew medical examinations based on latest international Medical Standards being followed by CAA.

8.14. The medical kit available with 747 aircraft needs updation. Endo-Tracheal tubes, essential drugs required for heart attack be included in the medical kit.

8.15. Internal autopsy was not carried out on Late Captain Mian Abdul Maalik which infact should be done in all such cases for which appropriate SOPs be published in "aircrew handling manual".

8.16. PIAC/CAA Flight Surgeons do not attend Flight Safety meetings regularly which infact must be encouraged for all concerned so as to familiarize aircrew working conditions and flight deck information & develop better working relationship.

8.17. As per rules, Pilots should not exercise their licence privileges at any time when they are aware of decrease in their medical fitness. However, some Pilots do not follow above rules. They sometimes fail to inform licensing authorities, thus compromising flight safety.

8.18. Pilot-in-Command must off load his Co-Pilot and vice versa if either of them is aware of decrease in his medical category to the extent that the same would have prevented the issue or renewal of his medical assessment in the interest of flight safety for travelling public.

8.19. PIAC Scheduling Branch sometimes make a roster with all 3 cockpit crew having low medical category "groupped together", thus endangering flight safety which must be avioded.

8.20. Pilots with defective hearing are required to fly under "Flexibility Clause" subject to air check by CAA Doctors but PIAC Management request that the check should be on small sector.

8.21. Pilots are not given sufficient rest, recreation after long flights to allow their body physiology to recover before they are detailed for next East/West flights as per para 4.2.9.3. of ICAO Annexure 6 which must be followed as per rules.

8.22. Although ECG is conducted on all Pilots however to identify subtle cardiac ailments, ETT should be considered as mandatory on Pilots with known Medical Problems who have crossed 50 years of age so as to prevent in flight incapacitation.

9. CAUSE OF DEATH

9.1. In the absence of initial autopsy report (which was not performed) nothing can be said with certainty. But only the ECG of 29th January 1990, is indicative of subtle cardiac disease but the subsequent ECG done 20th January 1992, is absoultely normal. The cause of his sudden death could be:-

> "Cardiac arrest which was most probably caused by dissection of aorta" as opined by examining doctor at Schiphol International Airport Amsterdam."

10. RECOMMENDATIONS

10.1. Autopsy must be performed in all aircrew cases of inflight deaths so as to ascertain cause of death for which aircrew handling manual be published and notified to all PIAC stations.

10.2. PIA must encourage its cockpit crew to maintain a high standard of medical fitness. The management may considered arranging sports/health club for the PIA staff.

10.3. Surveillance of aircrew with known Medical Problems be carried out meticulously by PIAC. The aircrew must report to their Flight Surgeons every month during the period of surveillance so that proper checks are done.

10.4. Specialized tests like ETT, GTT, Lipid profile etc must be carried out if AME has advised based on his clinical judgement and professional acumen. Such tests recommended by examining doctors must be verified, authenticated and submitted to CAA by PIAC, Chief Flight Surgeon. In order to indentify subtle cardiac ailments, ETT must be considered mandatory on Pilots who have crossed 50 years age with know Medical Problems.

10.5 Members of cockpit should not exercise licence privileges when they are aware of their medical unfitness/decategorization. In such cases Senior Pilot must ground incapacitating Pilot and inform the licensing authorities immediately.

10.6. The emergency medical-kit which is also known as 'Medicaid,' or 'Samsonite Kit' should only be called as Medicaid Kit so as to standardaise the nomenclature for its use in case of on-board emergencies. This kit must be check periodically by PIAC doctors and relevant medical stores be replenished accordingly.