

ORIGINAL

NO.HQCAA/1901/213/SIB



CIVIL AVIATION AUTHORITY

**AIRCRAFT INCIDENT INVESTIGATION M/S WING AVIATION
FLETCHER FU-24 REG NO.AP-AZG WHICH OCCURRED
ON 27TH SEPTEMBER, 1996**

AT

RAHIM YAR KHAN



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CIVIL AVIATION AUTHORITY
KARACHI, PAKISTAN

AIRCRAFT INCIDENT INVESTIGATION

INVESTIGATION IN RESPECT OF INCIDENT TO M/S WING
AVIATION (PVT) LTD, AIRCRAFT REG NO. AP-AZG OCCURRED
ON 27TH SEPTEMBER, 1996 AT RAHIM YAR KHAN.

Authority:- Director General Civil Aviation Authority
Memorandum No. HQ CAA/1901/213/SIB dated 1st
October, 1996

Composition Of Investigation Team

- | | | |
|-----|--|-----------------------|
| (a) | Air Commodore(Retd)
Rashid A. Bhatti
President SIB | Investigator Incharge |
| (b) | Wg Cdr (Rtd) Sajjad Ahmed
Technical Investigator, SIB CAA | Investigator |

1. AIRCRAFT INFORMATION

- | | | | |
|------|---|---|--|
| 1.1. | Aircraft type | : | Fletcher FU-24 |
| 1.2. | Reg. NO. | : | AP-AZG |
| 1.3. | Engine types, airframe
positions & S.Nos. | : | 10-520-F S.NO. 168036 |
| 1.4 | Certificate of Registration | : | No. 505 |
| 1.5 | Certificate of
Airworthiness No. & date
of expiry, and flight
manual No. | : | NO. 458 03-09-97 |
| 1.6 | Certificate of Safety date
& time (GMT) of issue and
period of validity. | : | C of M 04-09-96.
Valid for 30 days or 50 Hours. |

- 1.7 Date of construction of : 29.06.1962
airframe.
- 1.8 Name address of Owner. : Syed Pervaiz Iqbal, 389B,
Faisal Town, Lahore
- 1.9 Airframe history. (Give : Total time since new 7895:45
flying times since Since C of A 21:00
manufacture, last
overhaul and last periodic
check. List also essential
modifications completed.
- 1.10 Engine history. (Give : Time Since Manufacture
flying time since 590:20 Hours.
manufacture, last
overhaul and last periodic Since C of A : 21:00 Hours.
check. List also essential
modifications completed).

2. CREW INFORMATION

2.1 **Pilot-in-Command**

- 2.1.1. Name : CAPTAIN M.M. Rehman
- 2.1.2. Position in the Cockpit : CAPTAIN
- 2.1.3. Date of Birth : 03.01.1932
- 2.1.4. Type of Lic and No : CPL NO. 116
- 2.1.5. Medical date with : 05-08-96 Fit for CPL renewal by
status Board with following restrictions:-
"Not to act as Pilot In Command
or Co-Pilot of an aircraft engaged
on scheduled International Air
Services or non scheduled
International Air Transport
operation for remuneration or
hire.

2.1.6. **Rating**

- 2.1.6.1. Type(s) held : Beaver DHC-2, Cessna-185,
Cessna 172, FU-24.

- 2.1.6.2. Type current : Cessna-172, Fletcher FU-24

/2.1.7

2.1.7. **Flying Experience**

2.1.7.1. Grand total : 6799 HOURS

2.1.7.2. Total -in - : 6289:35 Hours
Command

2.1.7.3. Total -in - : -
Command
on the type
accident/
incident
occurred

3. SUMMARY

3.1. On 27th September, 1996 M/s Wings Aviation (Pvt) Ltd Fletcher-24 aircraft Reg No. AP-AZG while flying from Kot Adu to Rahim Yar Khan made a forced landing due to engine problem in an open field. The aircraft took-off from Kot Adu at about 1315 hours PST for Rahim Yar Khan. During take-off, climb and cruise the aircraft engine performance remained normal. However, while flying 10 miles short of Rahim Yar Khan at FL-35 the engine started rough running accompanied by intense fuel fluctuation and the engine rpm was reduced to 1500. The pilot selected the emergency fuel pump and the engine accelerated to 2500 rpm. After about 15 seconds the engine rpm again started fluctuating and eventually the aircraft lost height and descended to 1000 ft AGL. Soon after the aircraft power was completely lost and the pilot landed the aircraft safely in an uneven field close to Tando Washi Khan. The aircraft structure had minor damage and the propeller touched the ground, however; no injury to any person was caused.

4. INJURY TO PERSONS

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

/5.

5. DAMAGE TO AIRCRAFT

- 5.1. Engine propeller was deshaped due to touching the ground during landing and the aircraft structure had minor damage.

6. OTHER DAMAGES

- 6.1. None

7. METEOROLOGICAL CONDITION

- 7.1. The weather was fair and visibility was good(Ref Appendix 'F1' and 'F2' to this report .

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. Not relevant.

/ 12.

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. The pilot and the passenger disembarked using the normal exits.

15. **TEST & RESEARCH**

15.1. Engine fuel pump SNO. 33523 removed from the engine was checked and its performance on all power settings was found normal(Ref Appendix 'H' to this report).

16. **OBSERVATIONS**

16.1. The engine driven fuel pump seal which is installed with the locking wire on the pump body was found missing.

16.2. The maintenance set-up of M/s Wings Aviation at Walton Lahore was entirely unsatisfactory in terms of House keeping, tools management, Management charts, POL storage etc and needs improvements.

16.3 M/s Wings Aviation has only two mechanics on its pay roll strength and AME's support is obtained from M/s Aero Tech Systems (Pvt) Ltd .

/ 16.4.

16.4. M/s Wings Aviation has no provision for proper storage of fuel rotary pump, funnels etc recurrently used for transferring fuel from barrels to aircraft.

17. WITNESSES

17.1 Statement of witnesses are given in Appendix 'L1' to 'L6' to this report.

INVESTIGATION

18. On 27th September, 1996 M/s Wings Aviation (Pvt) Ltd FU-24 aircraft Reg No. AP-AZG took-off from Kot Adu for Rahim Yar Khan at about 1345 hours PST. The aircraft was flown by Captain Muhammad Mujib-ur-Rehman CPL No. 116 who was accompanied by Capt Khalid Javaid as passenger. The engine performance during take-off, climb and cruise was normal. However, about 10 miles short of Rahim Yar Khan while flying at 3500 ft AGL the engine started rough running accompanied by fuel flow fluctuation and eventually the engine rpm went down to about 1500. At this stage the Captain selected the emergency fuel pump initially to 'LOW' selection, however; on observing no response of the engine went to "High" setting and the engine picked-up. Soon after the engine accelerated normally to 2500 rpm and fuel pressure increased to 14 psi. After about 15 seconds the engine again started rough running which was followed by rpm fluctuation between maximum and minimum range. By this time the aircraft descended to about 1000 ft AGL and aircraft power was lost. The pilot informed ATC Rahim Yar Khan that he was making a forced landing and executed a safe landing in an open field near Tando Washi Khan. While landing on uneven ground the aircraft structure sustained minor damage and the propeller blade touched the ground. No damage to any person or property was caused due to the incident.

19. On reaching the site the SIB team observed that the Captain of the aircraft had handled the aircraft in a professional manner and executed a safe landing on an uneven sandy ground without causing any damage to any property. However, due to bumpy ground the propeller had touched the ground and was deshaped. The aircraft structure specifically the landing gear area sustained minor damage. Photographs covering site details are given in Appendix 'B1' to 'B4' of this report.
20. During preliminary investigation on site the SIB team observed the following:-
 - 20.1 The aircraft had sufficient fuel in the fuel tanks.
 - 20.2 On selection of emergency fuel pump the cockpit fuel pressure gauge showed pressure of 14 psi.
21. Prior to removal of aircraft from the site samples from engine oil sump, wing fuel tanks and inlet fuel line of fuel injector pump were taken for laboratory analysis. The fuel and oil samples were sent to Army Test Laboratory at Shanti Nagar Sharee Faisal Karachi. While the laboratory analysis of oil sample indicate normal results the fuel samples report indicate presence of fine rust particles and sediments in the fuel obtained from the fuel inlet line of the injector pump. The details of the fuel and oil samples reports are given in Appendix 'J1' to 'J3' to this report.
22. To evaluate the facilities at Kot Adu a visit was arranged and Captain Rehman of M/s Wings Aviation (Pvt) Ltd accompanied the investigation team member. During the visit it was observed that no facility for proper storage of the maintenance equipment specifically the fuel rotary pump used in decanting fuel and allied equipment exists at site. It was also observed that the company was not using any type of boxes for storage of equipment used for fuel transfer. As such, it was inferred that rotary fuel pump and funnels used during fuel transfer from the fuel barrels to aircraft were virtually kept in the open dusty environments after use which was entirely unsatisfactory.

23. After the aircraft was transferred to Walton Airport Lahore the SIB team member visited M/s Wings Aviation (Pvt) Ltd premises at Walton Lahore. It was observed that two mechanics were actually employed by the company and AME Muhammad Sadiq AME Lic No. 205 a temporary employee of M/s Aero Tech Systems (Pvt) Ltd Lahore was asked on as required basis to cater for the maintenance requirements of the aircraft. This arrangement was unsatisfactory as AME Muhammad Sadiq being an outsider provided little supervision and guidance to the mechanics as senior supervisor in Maintenance Management, general house keeping, Tools maintenance, POL maintenance, Safety Practices etc. Additionally, from the suggestion given by AME Sadiq to the investigator to start the engine of subject aircraft without determining engine internal condition reflects the degree of professionalism prevailing at M/s Wings Aviation. Moreover, AME Muhammad Sadiq didn't cooperate in the investigation process and failed to appear before the Investigation Board till to-date despite summoned repeatedly. As such, it is concluded that the organizational safety culture prevailing at M/s Wings Aviation was entirely unsatisfactory and needs immediate improvement.
24. The fuel injector pump SNo. 3352 removed from the Continental engine 10-520-F was tested and its performance on all power settings was found normal.

CONCLUSION

25. M/s Wings Aviation FU-24 aircraft Reg No. AP-AZG while flying from Kot Adu to Rahim Yar Khan executed a forced landing near Tando Washi Khan due to engine cut. During investigation fine rust particles and sediments were reported in the Lab report of the fuel sample taken from the inlet pipe of the fuel injector pump. However, no discrepancy was observed in the fuel injector pump or any other fuel system component. Since the aircraft fuel tanks had
/ enough

enough fuel the engine cut was therefore caused due to fuel contamination.

26. The Maintenance setup of M/s Wings Aviation at Walton Lahore was entirely unsatisfactory and needs immediate improvement.

FINDINGS

27. The Board finds that:-

- 27.1 The documents of the aircraft were in order.
- 27.2 Licence of the Captain was appropriate and valid.
- 27.3. The weather was fair and there was no rain or adverse conditions at the time of occurrence(Ref Appendix 'F1' to 'F2').
- 27.4. On 27th September, 1996 Captain Muhammad Mujib-Ur-Rehman was detailed to fly from Kot Adu to Rahim Yar Khan on Fletcher-24 aircraft Reg No. AP-AZG and estimated ETA at Rahim Yar Khan was 1540 hrs PST.
- 27.5. At about 1330 hrs PST Captain Mujib-Ur-Rehman took-off from Kot Adu for Rahim Yar Khan and was accompanied by Capt Khalid Javaid whom he wanted to show the area where subsequent aerial spray was to be conducted.
- 27.6. The take-off, climb and cruise was normal.
- 27.7. About 10 miles short of Rahim Yar Khan at FL-35 the engine started rough running accompanied by fuel fluctuation and eventually the engine rpm reduced to 1500. Subsequently, on selection of Emergency fuel pump to 'High' setting the engine picked up and its rpm increased to 2500. After about 15 seconds the engine started rough running again, its rpm fluctuated intensely and due to power loss the aircraft came down /to

to about 1000 ft AGL.

- 27.8. At about 1532 hours PST the aircraft made a forced landing in an open field near Tando Washi Khan(Ref Appendix 'B1' to 'B4" of this report.
- 27.9. The aircraft structure sustained minor damage, however; the propeller touched the ground and was deshaped.
- 27.10. No personal injury or loss to any property was caused due to the incident.
- 27.11. Contrary to the instructions given personally by President SIB to the recovery staff of M/s Wings Aviation to shift the aircraft to Rahim Yar Khan airport it was shifted to Walton Airport Lahore without obtaining prior permission.
- 27.12. Lab analysis of the fuel sample obtained from the fuel injector pump reported presence of fine rust particles and sediments(Ref Appendix 'J1' to this report).
- 27.13. The aircraft had substantial amount of fuel in the fuel tanks.
- 27.14. The performance of emergency fuel pump was found satisfactory(Ref Appendix 'H' to this report).
- 27.15. M/s Wings Aviation had no provision for proper storage of rotary fuel pump and allied equipment.
- 27.16. M/s Wings Aviation employed two mechanics and had no qualified AME on its strength. An AME Mr. Muhammad Sadiq working on ad hoc basis in M/s Aero Tech (Pvt) Ltd was providing AME's coverage on as required basis.
- 27.17 The role of AME Muhammad Sadiq as a senior
/supervisor

supervisor in providing professional guidance/ implementing good maintenance practices was virtually non existent.

27.18. Maintenance management specifically House keeping, Tools management, POL storage etc was unsatisfactory.

CAUSES

28. Following are the causes of the incident:-

28.1. Presence of fine particles and sediments in the fuel created choking fuel flow conditions due to which engine was cut.

28.2 Exposure to dusty environments due to improper storage of fuel rotary pump and allied equipment recurrently used in transferring fuel contributed to fuel contamination.

28.3 Unsatisfactory Safety Culture prevailed due to poor maintenance practices at M/s Wings Aviation (Pvt) Ltd.

RECOMMENDATIONS

29. The Board recommends that:-

29.1. M/s Wings Aviation should employ a qualified AME for full time coverage of all maintenance operations and general supervision.

29.2. M/S Wings Aviation should procure wooden boxes for proper storage of rotary fuel pump and allied equipment used in transferring fuel from barrels to the aircraft.

29.3. Management of M/s Wings Aviation must ensure that in future instructions issued by CAA officials are
/complied

complied with.

29.4 Senior Airworthiness Surveyor Lahore must provide adequate surveillance to General Aviation activities at Lahore.

APP 'B1'



AIRCRAFT AT SITE EVIDENCE: PROP DAMAGE

APP 'B2'



AIRCRAFT AT SITE EVIDENCE: BACK GROUND OF
LANDING FIELD & PROP DAMAGE



AIRCRAFT AT SITE EVIDENCE: BUMPY SANDY
FIELD & PROP DAMAGE



AIRCRAFT AT SIGHT. EVIDENCE: BUSHY AND
UNEVEN SANDY FIELD