CRASHED LANDING OF FLETCHER FU 24-950 AIRCRAFT REG.MARK AP-BAD ON 19-9-1992 AT PASRUR

Authority: Director General CAA letter No. HQCAA/1901/147/SIB dated 24-9-1992.

1. AIRCRAFT INFORMATION

1.1	Registration	:	AP-BAD
1.2	Aircraft type and maker's serial No.	:	Fletcher FU 24-950 S. No. 232.
1.3	Engine type, airframe positions and maker's serial Nos.	:	Avco Lycoming I0-720 AIB fuselage mounted. S. No. L-824-54.
1.4	Certificate of registration No. & validity.		527, valid.
1.5	Certificate of Airworthiness No. and date of expiry, and Flight Manual No.	:	479, 8-8-1993. AIR 134
1.6	Certificate of safety date and time (GMT) of issue and period of validity.	:	14-9-1992 valid upto 13-10-1992 or 50 hrs.
1.7	Date of construction of airframe.	:	19-4-1977.
1.8	Name and address of owner.	:	Department of Plant Protection, Hamilton Hangar No. 301, Quaid-e-Azam Int. Airport.
1.9	Gross weights. Maximum permitted by C. of A. for this flight, at the time of accident.	:	2116.1 Kg AUW, 2469 Kg MTOW
1.10	Leading centre of gravity limits in C. of A. and centre of gravity position at the time of accident and commencement of flight.	:	Within limits.
1.11	Airframe history.(Give flying times since manufacture, last overhaul and last periodic check. List also essential modifications completed).	:	
1.11.1	Time since manufacture.	:	1032-40 hrs.
1.11.2	Time since last C. of A.	:	51.55 hrs.
1.11.3	Time since last Check I.	:	3-10 hrs.
1.11.4	Modification status.	:	Upto date.

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1.12 Engine history. (Give flying time since manufacture, last overhaul and last periodic check. List also essential modifications completed).

1.12.1	Time since new/ manufacture.	:	1032-35 hrs.
1.12.2	Time since ins- tallation.	:	1026-10 hrs.
1.12.3	Time since last C. of A.	:	51-55 hrs.
1.12.4	Modification status.	:	Upto date.

1.13 Propeller history. (Give details of operating life and operating time since manufacture and overhaul).

1.13.1	Type and S. No.	:	Hartzell variable pitch S. No. DY-726.
1.13.2	Time since manu-facture.	:	458-40 hrs.
1.13.3	Time since last overhaul.	:	51-55 hrs.
1.13.4	Time since new CSU.	:	S. No. 9669U 188-55 hrs.
1.13.5	Modification status.	:	Upto date.

1.14 Defect. (List and remark upon any technical defects in airframe engines or accessories, discovered during investigation). : NIL

2. CREW INFORMATION

2.1 PILOT-IN-COMMAND.

2.1.1	Name	:	Muhammad Rashid-uz-Zafar Khan
2.1.2	Date of Birth	:	03.04.1945
2.1.4	Type of Licence held and No.	:	CPL No.485
2.1.5	Medical date with status.	:	07.12.92

2.1.6 Rating:-

2.1.6.1.	Type(s) held:	Beaver DHC-2,FU-24 and C-185
2.1.6.2.	Type current:	As above
2.1.6.3.	Assist/Flight Instructor Rating:	
2.1.6.4.	Check Rating.	

2.1.7. Flying Experience:-

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2.1.7.1. Grand total: 2965:25 hrs.

2.1.7.2. Total in Command: 2715:15 hrs.

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

2.1.8. Where trained: Deptt.of Plant Protection

2.1.9. Date of joining the organization:

3. SUMMARY OF ACCIDENT

Fletcher FU 24-950 aircraft AP-BAD belonging to Department of Plant Protection took off from Pasrur airstrip (abandoned airstrip) at about 1220 hrs PST with Mr S. Rasheeduz Zafar Khan as pilot for 4th Aerial spray mission. The aircraft went upto approximately 50 feet AGL and then crash landed into field about 1000 ft from the airstrip. The Captain was unhurt and the aircraft sustained major damage.

4. INJURY TO PERSON(S)

None.

5. DAMAGE TO AIRCRAFT

Damage to aircraft is attached as Appendix 'A'.

6. OTHER DAMAGES

None.

7. METEOROLOGICAL CONDITION

Not a factor to this accident. All operation in day/VFR.

8. NAVIGATION & LANDING AIDS (VISUAL/NON-VISUAL)

Not a factor in this accident. It is an abandoned airfield.

9. COMMUNICATIONS (INCLUDING RADIO COMMUNICATIONS)

Not a factor in this accident. All operation is outside controlled airspaced.

10. AERODROME AND GROUND FACILITY

Not a factor in this accident.

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11. FLIGHT RECORDER

Not applicable.

12. WRECKAGE AND IMPACT INFORMATION

Sketch of the aircraft at crash site is attached as Appendix 'B'. Location of broken parts are also shown in the sketch. The aircraft first impacted on kachcha field about 950 ft from edge of runway end 13 and about 300 ft left of central line. After initial impact the aircraft bounced up and then crashed landed at a distance of about 50 ft. During these impacts all the three landing gears separated from the fuselage and were found lying separately from the fuselage.

13. FIRE

No fire occurred.

14. SURVIVAL ASPECTS

This was a survivable accident. The pilot came out of the aircraft through normal exit. He did not sustain any injury.

15. TEST AND RESEARCH

Fuel sample was taken from both fuel tanks, engine's fuel filter and injector manifold. The engine alongwith its mounts was removed from the aircraft and was taken to D.P.P. base at Lahore for further tests and investigation.

16. OBSERVATIONS

16.1 It was a clear sunny day without any appreciable wind. The pilot had already carried out three sorties of about one hour each, using the same aircraft in the same locality. During these sorties, the pilot did not report any abnormality what so ever. However, during fourth sortie immediately after take off, the aircraft engine reportedly failed and aircraft crash landed in the field ahead.

16.2 Position of different controls and indications observed in the cockpit are given below:-

(1) Throttle lever-at-full forward position (Fully opened).

(2) Mixture lever - towards idle cut-off.
(Pilot stated that he brought the mix: control on idle cut-off after landing).

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(3) Propeller Pitch lever - at rearward (Decreased RPM position).

(4) Ignition switch = at BOTH position.

(5) Master switch = ON.

(6) Alternator switch = ON.

(7) Beacon switch = ON.

(8) Fuel selector = on forward tank selection.

(9) Flap control lever = 20^{o}down position.

17. INVESTIGATIONS

17.1 The aircraft flew three consecutive agricultural spray missions between 0600 hrs and 1130 hrs on 19 September, 1992 before it took off at about 1220 hrs. The aircraft was fully serviceable even at the time of take off when this accident occurred. The temperature, pressures and mag drops were within the prescribed limits. It had adequate fuel for the mission. This was pilot's fourth successive mission within a span of about 3½ hrs. He took his breakfast at about 0530 hrs and from then on he remained actively busy on flying duties under the field coditions before he met this accident.

17.2 Fuel samples taken from the aircraft were checked for any contamination and found free of water, sediments etc. Operation of Aux. fuel pump was checked and found satisfactory. Engine alongwith its mounts was removed from the aircraft and transported to D.P.P. base at Walton Aerodrome, Lahore. At Lahore the engine was cleaned externally with water to remove dirt, mud etc. Similarly starter and generator were also found blocked with mud and were replaced. The engine was installed on another aircraft of the same type (registration mark AP-AZU) for test. The engine was started by following normal starting procedure. The engine behaved normally and all the parameters were within limits. The exact readings are given below:-

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Max. RPM	:	2500
Manifold press.	:	25 mHg
Fuel press.	:	5 PSI
Oil temp.	:	$80^{o}C$
Cyl. temp.	:	$175^{o}C$
Oil press.	:	75 PSI
Suction	:	4.6 PSI
Mag drop	:	L50) R75) at 2000 RPM.

17.3 Considering the prevailing circumstances there are only two possibilities that could have been the cause factor in this accident:-

(a) Fuel starvation or a sudden malfunction in the aircraft ignition system causing the engine to have abruptly got cut. or

(b) Unwittingly the pilot brought the mixture lever towards the idle cut off position immediately after lift off and caused the engine to cut.

17.4 The type of damage to the propeller blades and the statements of the pilot as well as the evidence from the eye witnesses proves beyond doubt that the engine appeared to have suddenly failed immediately after take off and the pilot had no choice except to crash land straight ahead in the paddy field. The height at which the engine cut is estimated to be about 50 feet A.G.L. and the speed of the aircraft about 120 KPH. Thus the pilot virtually had no time to attempt to restart and did better in concentrating to put the aircraft back on ground safely.

17.5 The pilot had been deployed for the spray operation since 16 August 1992 and had flown about 60 hrs in the field environments. Though the accommodation was arranged by the Deptt. of Plant Protection, the food and refreshment etc. was left to be managed by the pilots themselves. The Board observed that arrangements for tea/refreshments were not satisfactory,in fact lack of facilities for rest/ shade was quite apparent. Only tree shade was being used

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for respite. Thus probability of the pilot having suffered from fatique and low sugar level which would adversely affect the state of proficiency of a person and more so of a flier, particularly under the hot and humid weather condition that prevailed during the month of August and September in these central parts of Punjab is high. Since the altitude and the speed were marginal no corrective measure could be initiated to help retrieve from the ensuing situation except to leave the engine controls where ever they were and let the aircraft down. Thus the pilot most probably became slave of his own unintended act.

18. WITNESSES

Statements of pilot-in-command Mr Muhammad Rasheeduz Zaman Khan, Aircraft Maintenance Engineer Mr S. Zahid H. Zaidi AME-983 and Asstt. Entamologist Mr M.I. Baig are attached as appendices 'C', 'D' and 'E' respectively.

19. FINDINGS

19.1 Aircraft was fully serviceable at the time of take off and had been serviced with adequate quantity of fuel for the mission.

19.2 Fuel was found to be free of contamination. No abnormality i.e. rough running etc was reported by pilot. Moreover, engine started normally and behaved normally when it was installed on another aircraft at Lahore. It is, therefore, clear that there was no technical problem. The cause of accident appears to be inadvertent leaning of "mixture" through "mixture lever". The pilot's statement that he brought the "mixture lever" to "idle cut off" after landing to prevent fire is not corraborated by position of "fuel selector", "master switch" and "ignition switch". Most probably the pilot inadvertently brought "mixture lever" to "idle cut off" while changing "propeller pitch" by "propeller pitch lever". It would be worth mentioning here

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that "throttle lever", "mixture lever" and "propeller pitch lever" are all located on the left wall of the cockpit in one console.

19.3 Chamois leather was not used to refuel the aircraft. However, the fuel was found to be free of contamination.

19.4 Cholinestrase enzyme check of the pilots had not been done since last one year.

20. RECOMMENDATIONS

20.1 Mr Rasheeduz Zaman may be blamed for the accident.

20.2 Deptt. of Plant Protection must ensure that adequate arrangements for rest and refreshment in the field are made.

20.3 A special medical cover must be provided for the air crew and other staff handling the chemicals during spray in field.

20.4 Cholinestrase enzyme check must be carried out of each air crew employed by the Deptt. of Plant Protection every 6 months as provided under the rules.

20.5 Chamois leather must be used during refueling of aircraft in field.

Photograph showing the aircraft lying in kachcha field.

Photograph showing the aircraft with prop bent rearward.

Photograph showing the aircraft in partially disassembled condition

Photograph showing close up of the aircraft in partially disassembled condition.