NO HQCAA/1901/270/SIB

CAA

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CIVIL AVIATION AUTHORITY PAKISTAN

INVESTIGATION REPORT

ON

AIRCRAFT INCIDENT TO M/S AERO ASIA YAK-42D

REGISTRATION NO RA-42425

ON 12TH FEBRUARY 2002

AT

LAHORE AIRPORT

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FINAL REPORT

INCIDENT INVESTIGATION IN RESPECT TO M/S AERO ASIA YAK 42D REGISTRATION # RA–42425 OCCURRED ON 12 FEBRUARY 2002 AT LAHORE AIRPORT

SYNOPSIS

On being notified of the incident to YAK-42D at Lahore airport on 12 February 2002, SIB was tasked to carry out the investigation vide Director General Civil Aviation Authority Memorandum No. HQCAA/1901/270/SIB dated 16 February 2002 (Appendix 'A'). The investigation team comprised Lt Col (Retd) Saleem Khan, Actg. Ops Investigator (Investigator Incharge), and Engineer Luqman Rasheed Sheikh, Airworthiness Surveyor CAA, Lahore Airport, (Technical Investigator). This report is being released under the authority of DG CAA, Pakistan.

Brief Resume: RSO-445 was a scheduled, Aero Asia flight from Muscat to Lahore. The flight was uneventful till it contacted Lahore approach at 0107UTC. The RVR was below the prescribed limit for ILS. The aircraft was cleared to land runway 36R. At flare out, the Captain lost contact with the runway lights due to fog. After touch down he drifted to the right of the runway on to the unprepared surface, where he rolled for about 5400 feet before entering the runway. During this excursion, the aircraft knocked down a taxiway designator board at the airport and sustained damage to its right landing gear door and a few hydraulic lines. There was no injury to any person on board or on ground.

1. FACTUAL INFORMATION

1.1 HISTORY OF THE FLIGHT

1.1.1 RSO-445 was a wet lease scheduled passenger flight from Muscat to Lahore, which took off from Muscat at 2216 UTC.

1.1.2 The incident took place on landing at Lahore. The landing time was 0121 UTC. It was dawn and the visibility was restricted due to fog.

1.1.3 Flight preparation is a non-factor in the incident.

1.1.4 RSO-445 made an uneventful journey from Muscat till it contacted Lahore approach control. On contact, Lahore approach controller instructed RSO-445 to use 'B' Procedure for an ILS DME Approach Runway 36R. The reported MET visibility was given as 300 meters and the RVR was 100 meters, mid 150, and 18L 100. The weather report was acknowledged by RSO-445 at 0109 UTC. At 0115 UTC, when RSO-445 was seven miles from touch down, he was handed over to Lahore aerodrome control where he was given a landing clearance

"when field in sight". The Pilot claimed to have had visual contact with the approach lights at 2 or 1.5 DME and could see the runway lights up to a height of 10 meters. Just below this height he lost complete visual contact with the runway. The aircraft touched down at 0121 UTC, went to the right and entered the unprepared surface on the right side of runway 36. During the landing roll, the pilot saw the runway edge lights, so he turned on to the hard shoulder and returned to the unprepared surface as he could not see any lights on his left hand side. During the landing roll the aircraft collided with and broke a taxiway designator board of the new airport terminal complex, which is under completion. The board was not lighted. Near taxiway 'D' the horizontal visibility improved and the aircraft came back on the main runway. The Pilot did not report the incident to the ATC on R/T (radiotelephony). He, however, went personally to the ATC at 0215 UTC and reported the incident to the duty controller. This was done almost 54 minutes after touch down.

1.2 INJURY TO PERSONS: There was no injury to any of the 120 souls on board.

1.3 DAMAGE TO AIRCRAFT: The right landing gear door was damaged along with some hydraulic pipes mounted on the right landing gear. (Appendix 'B' & 'J-8').

1.4 OTHER DAMAGE: One taxiway designator board was destroyed completely as a result of its collision with the right landing gear of the aircraft. The taxiway designator board was the property of NTCL.

1.5 PERSONNEL INFORMATION:

1.5.1 Pilot-in-Command

1.5.1.1 Name: Viktor Boikov
1.5.1.2 Position in the Cockpit: Left seat
1.5.1.3 Date of birth: 29.03.1955
1.5.1.4 Type of Licence held and No: First Class Airline Pilot Licence # 004495, valid upto 10.10.2002.
1.5.1.5 Medical Certificate valid upto 10.04.2002.
1.5.1.6 Rating type held: YAK-42
1.5.1.7 Type current: YAK-42
1.5.1.8 Assist./Flight Instructor Rating: Nil
1.5.1.9 Check Rating: Nil
1.5.1.10 Flying Experience:
1.5.1.11 Grand total: 10015 hours
1.5.1.12 Total on YAK-42: 6200 hours
1.5.1.13 Total in command (YAK-42) : 4890 hours
1.5.1.14 Where trained: The Civil Aviation College, Ulianovsk, Russia
1.5.1.15 Date of joining the Organization: 1985

1.5.2 Co-Pilot:

1.5.2.1 Name: Serguei Kamentsev
1.5.2.2 Position in Cockpit: Right seat
1.5.2.3 Date of birth: 31.05.1961
1.5.2.4 Type of Licence held and No: First Class Airline Co-Pilot License # 004156, valid till 26.09.2002
1.5.2.5 Medical Certificate valid till 26.09.2002
1.5.2.6 Rating types held: L410, YAK42
1.5.2.7 Type current: YAK 42
1.5.2.8 Assist/Flight Instructor rating: Nil
1.5.2.9 Check Rating: Nil
1.5.2.10 Flying Experience:
1.5.2.11 Grand Total: 4900 hours
1.5.2.12 Total in Command on YAK-42: Nil
1.5.2.13 Total as Co-pilot on YAK-42: 1800 hours
1.5.2.14 Where trained: The Civil Aviation College, Ulianovsk, Russia
1.5.2.15 Date of joining the Organization: 1985

1.5.3 Flight Engineer:

1.5.3.1 Name: Ildar Gloukhov
1.5.3.2 Position in Cockpit: Back seat
1.5.3.3 Date of birth: 10.02.1958
1.5.3.4 Type of Licence held and No: First Class Airline Flight Engineer Licence # 002287 issued on 17.01.1997 valid till 03.10.2002
1.5.3.5 Medical Certificate valid till 03.10.2002
1.5.3.6 Rating types held: YAK42, YAK40
1.5.3.7 Types current: YAK42
1.5.3.8 Assist/Flight Instructor Rating: Flight engineer-Instructor
1.5.3.9 Check Rating: Nil
1.5.3.10 Flying Experience:
1.5.3.11 Grand Total: 7800 hours
1.5.3.12 Total in Command: 7800 hours
1.5.3.13 Total as Flight Engineer on the type incident occurred: 6300 hours
1.5.3.14 Where trained: The Civil Aviation College, Ulianovsk, Russia
1.5.3.15 Date of joining the Organization: 1978

1.6 AIRCRAFT INFORMATION:

1.6.1 The aircraft was airworthy and there was no snag reported before this incident.
1.6.2 The mass and center of gravity of the aircraft were not in question.
1.6.3 The type of fuel used was JET A-1.

1.7 METEOROLOGICAL INFORMATION:

1.7.1 The prevalent weather reported by the MET for Lahore at 0100 UTC was surface wind calm, foggy conditions, visibility 300 meters, temperature 6 degree 'C' and relative humidity 92%.(Appendix C-1 to C-3).

1.7.2 Lahore approach control gave the weather brief to the pilot reporting MET visibility as 300 meters, RVR runway 36R 100 meters, mid 150 and 18L 100 (Appendix 'D').

1.7.3 The time of landing was 0121 UTC (0621LT) and it was still dark. The prevalent fog on the runway had reduced visibility to such an extent that the ATCO could not see the runway from the tower. The aircraft also taxied back via taxiway 'H' by following the "follow me" vehicle provided by the ATC. (Refer to statement of Assistant ATCO Appendix 'G-1').

1.8 AIDS TO NAVIGATION:

1.8.1 ILS-Ground equipment and on board ILS were both serviceable.

1.8.2 Visual Ground Aids. The strobe light for runway 36R were visible to the pilot from 3 DME, the approach lights from 2 or 1.5 DME and the runway lights from a height of 10 meters. The runway edge lights were also visible to the pilot intermittently after flare out. No power break down at the runway was reported. The visual ground aids were fully serviceable. (Refer to Captain Boikov's statement Appendix 'G-2').

1.8.3 Runway Lighting. Flash lights, approach lights, runway edge lights and taxiway lights were all serviceable and operating at 100% intensity.

1.9 COMMUNICATIONS:

1.9.1 There was a good two-way communication of the aircraft on R/T with Lahore approach and control tower. (Refer Appendix "D-1" and "D-2").

1.9.2 Radar was serviceable and available. Radar video trace attached as Appendix "D-3".

1.10 AERODROME INFORMATION:

1.10.1 Lahore runway is 11040 feet long and 150 feet wide, with a 25 feet hard shoulder either sides of runway 36R. (Sketch attached as Appendix "E-1 to E-3").

1.10.2 The runway surface at the time of the incident was moist due to the effect of fog.

1.10.3 The runway was not visible to the air traffic controller from the control tower due to a layer of fog on the surface.

1.11 FLIGHT RECORDERS:

1.11.1 Flight Recorder installed on YAK-42D records the flight parameters both graphically and digitally. This was downloaded and the print out is placed at Appendix " F ".

1.11.2 The FDR indicates correct landing speed and altitudes required for the approach. The approach was as close to perfect as can be desired.

1.11.3 The cockpit voice recorder is available on the aircraft and indicates no abnormality experienced by the pilot till touch down.

1.12 WRECKAGE AND IMPACT INFORMATION:

1.12.1 Sketch of the initial touch down and subsequent ground roll is placed as Appendix " E-1 ". The aircraft initially touched down at 1520 feet down the runway with its nose inclined slightly to the right. The right landing gear went off the runway and the hard shoulder at about 2500 feet from threshold. This was followed by the left landing gear which went off the runway and the hard shoulder at 2750 feet from the threshold. The aircraft remained on the unprepared surface up to a distance of 4880 feet from the threshold, came on to the hard shoulder between 4880-5400 feet (approx) and returned to the unprepared surface for the second time. From 5400 feet to about 6000 feet from the threshold the aircraft again remained on the unprepared surface. The total landing roll of the aircraft on the unprepared surface was approximately 2980 feet. The aircraft was about 55 feet away from the edge line of the runway while rolling to a stop. During the landing roll the aircraft knocked down a taxiway designator board belonging to new terminal complex (NTCL).

1.13 MEDICAL AND PATHOLOGICAL INFORMATION:

1.13.1 The blood and urine samples of the cockpit crew indicate that the pilots were not under the influence of any drugs/alcohol and their sugar level was also normal. (Refer to Appendix "H-1 & H-2").

1.14 FIRE:

1.14.1 There was no fire as a result of this incident.

1.15 SURVIVAL ASPECTS:

1.15.1 There were no injuries to any one on board.

1.16 TESTS AND RESEARCH:

1.16.1 None carried out.

1.17 ORGANIZATIONAL AND MANAGEMENT INFORMATION:

1.17.1 The Pilots had been in the cockpit for almost 10 hours and their duty time was about 11 hours, which was with in the company duty time limitation.

1.18 ADDITIONAL INFORMATION:

1.18.1 Nil.

1.19 USEFUL OR EFFECTIVE INVESTIGATION TECHNIQUES:

1.19.1 Nil.

2. ANALYSIS

2.1 VISIBILITY:

2.1.1 The reported MET visibility at Lahore was 300 meters and the RVR runway 36R was reported as 100 meters, mid 150 and 18L 100. Both these (Met visibility and the RVR) were below the minimum prescribed visibility for landing at Lahore. The minimum RVR for ILS CAT-II is 350 meters and for CAT-I is 600 meters. YAK-42 is certified for CAT-I ILS Approach only.

2.2 PILOT PERFORMANCE:

2.2.1 **Competence/Handling:** The radar video trace (Appendix "D-3") convincingly asserts that the pilot was clear of the procedures and demonstrated good handling of the instrument approach.

2.2.2 **Lack of Knowledge of ILS Minimas:** The captain of the aircraft was not aware of the fact that a CAT-I certified aircraft could not land under conditions, which were below the minimas prescribed for CAT-II approach. Technically, the aircraft should not have landed in the existing visibility conditions at Lahore.

2.2.3 **Decision Making:** While the captain's decision not to go around after touch down is appreciated, his decision-making vis-à-vis landing on a runway where the visibility was reported below minima shows that his knowledge about ILS Minimas was not commensurate with his experience.

2.2.4 **Incident Reporting:** Satisfactory two way communication existed between flight RSO-445 and the ground facilities at Lahore i.e. Lahore approach control and air traffic control, well before the landing was executed. There is no justified for the pilot not to report the incident to the ATC. Going personally to the ATC almost 54 minutes after touch down seems like an after-thought.

3. CONCLUSION

3.1 FINDINGS:

3.1.1 Flight RSO-445 was a scheduled flight from Muscat to Lahore.

3.1.2 It was a regular public transport wet lease flight with 120 souls on board.

3.1.3 Captain Viktor Biokov, the commander of the aircraft, was the pilot flying.

3.1.4 The aircraft contacted Lahore approach control at 0107 UTC and was cleared for 'B' Procedure ILS DME, runway 36R.

3.1.5 Lahore approach control gave the reported Met visibility as 300 meters, RVR runway 36R (beginning) 100 meters, mid 150 and 18 L (36R end) 100 meters.

3.1.6 The aircraft duly acknowledged this call.

3.1.7 ILS CAT II is installed at Lahore and its minima are decision altitude 807 feet and RVR 350 meters, which is applicable to CAT-II aircraft with qualified crew for CAT-II approach.

3.1.8 YAK-42D is CAT-I aircraft and its charted minimas are: decision altitude 923 feet and RVR 600 meters.

3.1.9 The pilot claims that he had visual contact with the runway flashlights at about 3 DME and he could see the runway approach lights from a distance of 2 or 1.5 DME.

3.1.10 At about 10 or 5 meters height from ground the PF suddenly lost complete visual contact with the runway due to a layer of fog.

3.1.11 By this time the PF had committed himself to land and could not go around.

3.1.12 A go around required full power from all the engines whereas # 2 engine was at idle and would have required about 12 seconds to generate full power.

3.1.13 The aircraft touched down nearly on the center line about 1520 feet from the threshold with the nose biased to the right.

3.1.14 The aircraft went off the runway at about 2500 feet from the threshold.

3.1.15 The aircraft straightened out and rolled almost parallel to the runway about 63 feet right of the runway edge line.

3.1.16 It crossed taxiway 'T' and over ran a taxiway designator board, which was broken completely.

3.1.17 The taxiway designator board belongs to new terminal complex (NTC), a project nearing completion at Lahore.

3.1.18 At about 4500 feet from the threshold the aircraft came on to the hard shoulder momentarily and returned to the unprepared surface at about 4800 feet from the threshold.

3.1.19 The aircraft finally came back on to the main runway at about 5400 feet from the threshold.

3.1.20 At this point (5400 feet from threshold) the pilot claims that the visibility was about 600 meters (1800 feet approx).

3.1.21 The aircraft taxied back from taxiway 'D' to the parking bay following a 'Follow Me' vehicle, as the visibility was again restricted beyond taxiway 'D'.

3.1.22 The pilot did not inform the ATC about the incident on RT.

3.1.23 The incident was reported to the ATCO at about 0715 LT (0215 UTC), about 54 minutes after touch down, by the Captain of the aircraft personally.

3.1.24 Aircraft inspection revealed that the right landing gear door had been damaged along with a few hydraulic lines.

3.1.25 Runway inspection revealed that one taxiway designator board belonging to NTC was broken completely and no foreign objects were found on the runway.

3.2 CAUSE:

3.2.1 Lack of knowledge of the captain of the aircraft, leading to incorrect decision to land in less than adequate visibility conditions.

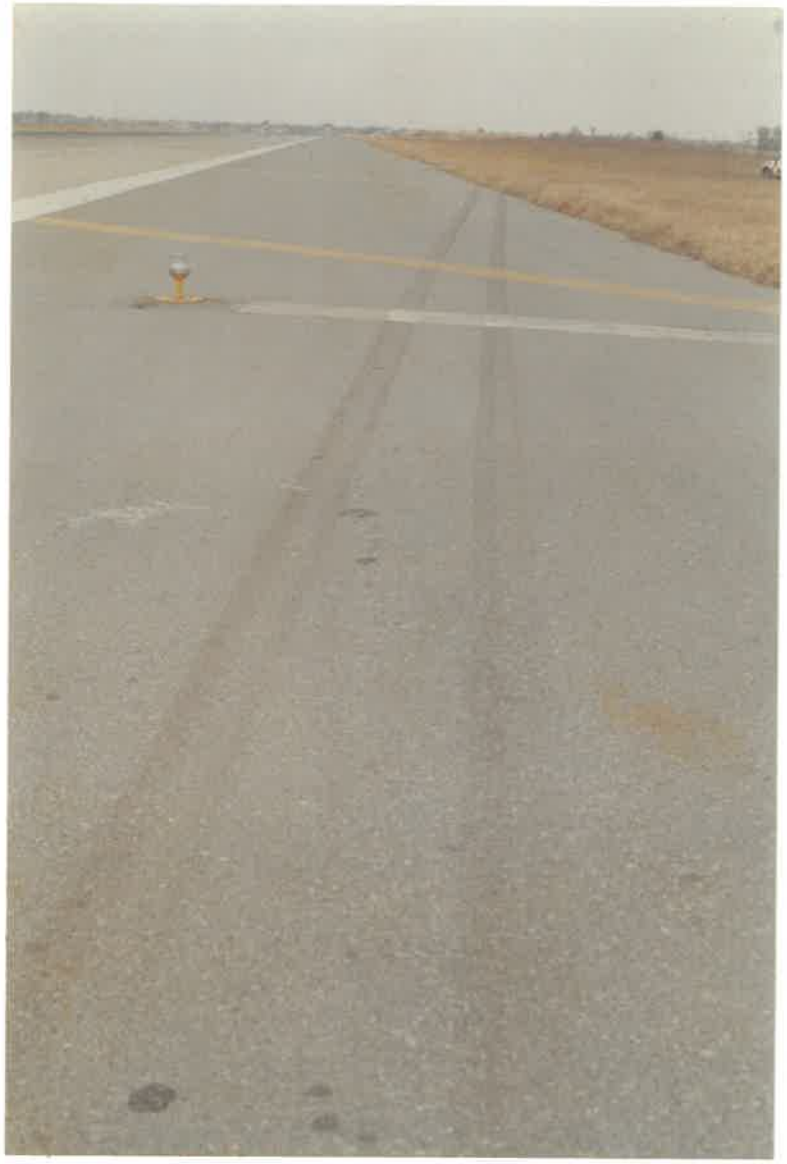
4. SAFETY RECOMMENDATIONS

4.1 Appropriate measures be taken by CAA Russia in respect of the cockpit crew involved in this incident.

4.2 Aero Asia to ensure that their pilots are aware of the limitations applicable to their operations in poor visibility conditions.

4.3 Aero Asia to compensate the new terminal complex project for the damage caused to the taxiway designator board.

4.4 Reporting of incidents, immediately on their occurrence, must be (re) emphasized on the crew by the operators.



AIRCRAFT ENTERING THE UNPREPARED SURFACE

TYRE MARKS ON UNPREPARED SURFACE

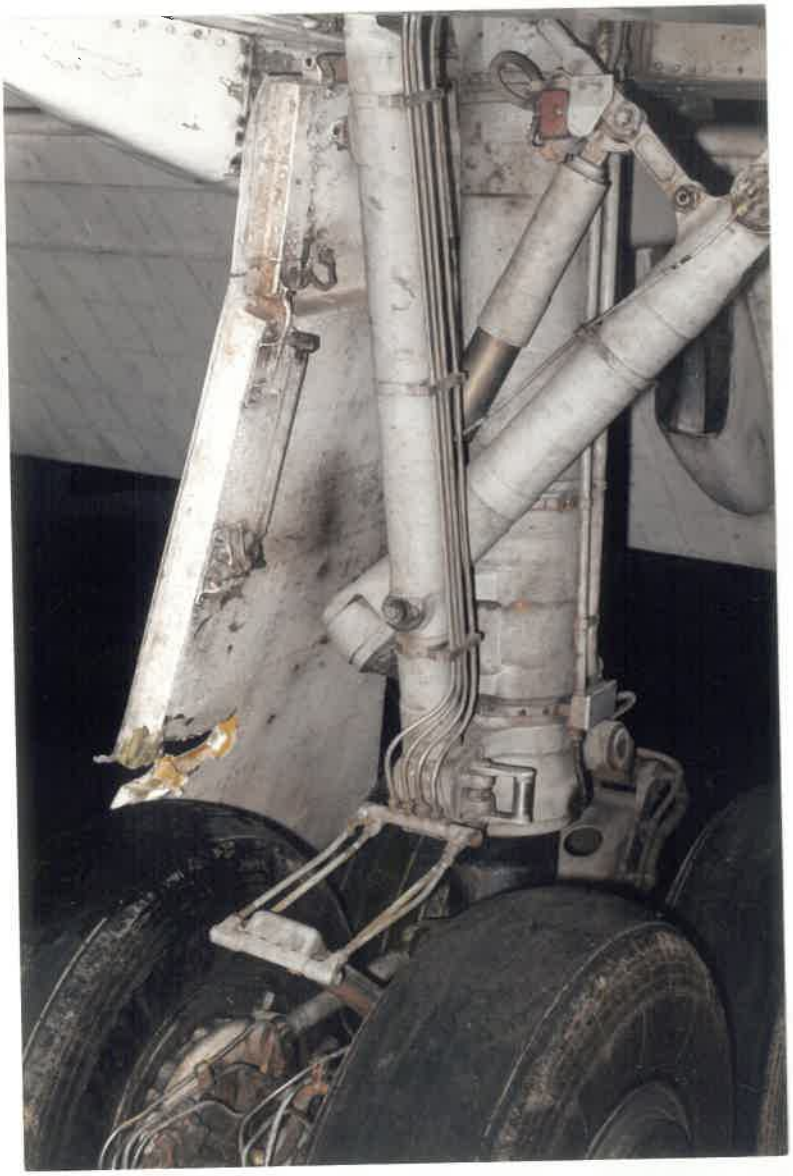
TYRE MARKS ON UNPREPARED SURFACE

AIRCRAFT CROSSING TAXYWAY 'T'

AIRCRAFT ENTERS HARD SHOULDER MOMENTARILY

AIRCRAFT ENTERS HARD SHOULDER MOMENTARILY

DESTROYED TAXYWAY DESIGNATOR BOARD



DAMAGED LANDING GEAR DOOR (RIGHT WHEEL)

DAMAGED PIPES - RIGHT LANDING GEAR

LEAKAGE FROM DAMAGED PIPES - RIGHT LANDING GEAR

BROKEN LANDING GEAR DOOR HINGE