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**INQUIRY INTO THE CIRCUMSTANCES
WHICH RESULTED IN THE FORCED
LANDING OF M/S. AGA KHAN
FOUNDATION HELICOPTER
BELL 412-SP REGISTRATION NUMBER
HB-XTA ON 16TH FEBRUARY, 2003
NEAR ISLAMABAD.**

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CIVIL AVIATION AUTHORITY

PROCEEDINGS OF INQUIRY INTO THE CIRCUMSTANCES
WHICH RESULTED IN THE FORCED LANDING OF M/S
AGA KHAN FOUNDATION HELICOPTER BELL 412-SP,
SWISS REGISTRATION NO. HB-XTA NEAR ISLAMABAD
ON 16TH FEB, 2003.

1. **AUTHORITY ORDERING INQUIRY :**

Director General, Civil Aviation Authority, Memorandum reference
No. HQCAA/1901/281/SIB dated 20th February, 2003.

2. **COMPOSITION OF THE INVESTIGATION TEAM :**

Investigator Incharge : Wg. Cdr. (Retd) S. Aftab Hussain, Flight
Inspector (Helicopter) / C.M. (Exams.)

3. Terms of Reference :-

- (a) To investigate the circumstances under which the
Helicopter Bell 412-SP HB-XTA Forced Landed near
Islamabad on 16th Feb, 2003.
- (b) To determine any irregularity or violation of procedures.
- (c) To look into the adequacy of existing procedures.
- (d) To recommend measures to avoid recurrence of a similar
incident.

4. General Information

- (a) Date and time of incident : 16th February, 2003 at about 0734
UTC, 1234 PST.

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- (b) Place of incident : About 10 NM west of Islamabad Airport near Sangjani between Golra and GT Road.
- (c) Type of Mission : Private operations (passenger)
- (d) Duration of Mission : 3:18 minutes
- (e) Stage of Flight : Diverting back to Islamabad
- (f) Airfield and time of take off : Islamabad / 0452 UTC, 0952 PST
- (g) Intended Destination : Gilgit

5. Aircraft information

- (a) Owner of the Helicopter : Aga Khan Foundation
- (b) Description of Helicopter :
1. Type : Bell 412-SP
 2. Year of Manufacture : Engine : 1987
: Airframe : 1988
: Total Hours Flown - 6417 hr.
 3. Damage : NIL
 4. Engines : Two pratt & Whitney (PT6T-3B) Turbojet engines
 5. Rotors : Four bladed Rotor System
 6. Maximum ceiling of Helicopter : 14000 feet density altitude
 7. Was Helicopter Fit to fly before the incident : Yes
 8. Date of DI : 16th February, 2003
 9. CG of Helicopter : Within limits
 10. Helicopter capacity : 02 pilots + 11 passengers

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6. General Crew Information and experience :

(a) PIC

- | | | | |
|-------|--|---|--|
| i. | Name | : | Capt. Kaleem Bokhari |
| ii. | Duty | : | As PIC of Helicopter |
| iii. | Where seated | : | Right seat |
| iv. | Status | : | Employed as a pilot in Aga Khan Foundation |
| v. | Total Flying Experience | : | 7605.09 hours |
| vi. | On type experience | : | 4122:05 hours |
| vii. | Valid Lic / Medical / Ratings / Checks | : | Yes |
| viii. | Total Duty Time | : | 08 hours |
| ix. | Flying time | : | 03:18 hours |

(b) Co-Pilot

- | | | | |
|-------|--|---|--|
| i. | Name | : | Maj. (R) Raja Muhammad Fakhar ul Islam |
| ii. | Duty | : | Co-Pilot |
| iii. | Where seated | : | Left seat |
| iv. | Status | : | Employed as a pilot in Aga Khan Foundation |
| v. | Total Flying Experience | : | 4226:02 hours |
| vi. | On type experience | : | 1349.09 hours |
| vii. | Valid Lic / Medical / Ratings / Checks | : | Yes |
| viii. | Total Duty Time | : | 08 hours |
| ix. | Flying time | : | 03:18 hours |

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7. Information on other passengers on board

- (a) No. of persons on board : 1 + 06
- (b) Names : (Crew Chief + 06 pax)
- (i) Mr. Abid Krem
 - (ii) Mrs. Abid Krem
 - (iii) Mr. Nabi Flight Engineer
 - (iv) Ms. Sadia Beg
 - (v) Ms. Alia
 - (vi) Ms. Allian
- (c) Any injury : Nil

8. Weather Forecasts : Refer to exhibit

9. Is weather a factor : Yes

10. Is serviceability of Nav Aids a factor : No

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11.

Aftab Husain
(CAPT. S. AFTAB HUSAIN)
Flight Inspector Pilot (Helicopter)
Investigation Incharge

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5 - 8

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BRIEF DESCRIPTION

1. Aga Khan Foundation Helicopter HB -XTA Bell 412-SP was on a routine flight to Gilgit carrying 06 passengers on 16th February, 2003. The Helicopter was flown by Capt.(Retd) Kaleem Bokhari (Captain) and Maj. (Retd) Raja Muhammad Fakhar ul Islam as co-pilot.
2. The take off was initially planned at 0830 hours PST but because of reported bad weather enroute was delayed to 0900 hours and then subsequently to 0930 hours. The Helicopter finally took off at 0952 hrs PST and climbed to 6500 feet. The pilot encountered light rain and scattered clouds throughout the flight upto Pattan (SARPI). Approximately 5 miles short of Pattan the captain decided to return back to Islamabad after seeing low clouds in the valley ahead of Pattan. (SARPI) which is approximately 76 NM from Islamabad.
3. The Helicopter made three precautionary landings (Not on prepared Helipads) during the return journey to Islamabad, one at Darba (approximately 65 NM from Islamabad) to check the vibrations, which were felt in the Helicopter, a second landing was made between G.T. Road and Golra Sharif approximately 10 NM west of the Islamabad Airport due to bad weather, this landing site was 03 Kms away from G.T. Road towards Golra Sharif near a small village known as Sarai Khurbooza. The third landing was made very close to G.T. Road approximately only 500 meters away and 2-3 KMs from tarnol gate towards Peshawar on G.T. Road.
4. The Helicopter landed back safely at Islamabad airport at about 1434 hours PST.

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INVESTIGATION AND ANALYSIS

1. **Brief about Capt. (R) Kaleem Bokhari (PIC) :** Capt. Kaleem Bokhari (PIC) of the Helicopter HB-XTA holds valid CPL of Switzerland as well as CAA Pakistan Licence. He has a total of 7606 hours flight hours and 4123 hours on the type experience. He is holder of valid class 1 medical and duly rated on the Bell 412-SP Helicopter. His base checks / Line checks are valid till Sept, 2003. He is an employee of Aga Khan Foundation.

2. **Brief about Maj.(R) Raja Muhammad Fakhr-ul-Islam (co-pilot):** Major (Retd) Fakhr-ul-Islam (co-pilot) of the Helicopter HB-XTA is a holder of valid CPL from Switzerland and CAA Pakistan. He has a total Flying experience of 4226 hours and on type experience of 1350 hours. He is holding valid class 1 medical from CAA Pakistan duly rated on the Bell 412-SP Helicopter. His base check / line Flight Checks are valid till April 2003 and 2004 respectively. He is an employee of Aga Khan Foundation.

3. **Legality for under taking the mission:** The Helicopter HB-XTA is a foreign registered aircraft, belongs to Aga Khan Foundation Islamabad and meeting the following requirements:-

- (a) Is holder of valid Aerial works Licence class 1 of CAA (both Domestic / International) (Exhibit 'V').
- (b) Is holder of valid AOC for aerial works (Exhibit 'T').
- (c) The company holds valid rating on the Ops specs for such operations. (Exhibit 'U').
- (d) The Pilots were holding valid CPL. (Exhibit 'S').
- (e) The Pilots were holding appropriate medical category.

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(Exhibit 'S').

- (f) The Pilots were meeting the recent Flying experience requirement in accordance with CAR'S.
- (g) The weather standards for the departure airfield as well as enroute weather requirements are duly approved and part of the Operations Manual. (Exhibit 'J').
- (h) The Helicopter was insured as per CARs requirement. Therefore, Aga Khan Foundation was legally permitted to undertake this mission.

4. **Nature of Operations :** The Aga Khan Foundation is involved in private Operations with two Foreign registered (Switzerland) Helicopters. After determining the legality of the mission undertaken, the question arises as to why this forced landing incident took place. The following possibilities, could result in such a situation :-

- (a) Weather factor
- (b) Fuel factor
- (c) Navigation factor
- (d) Communication factor
- (e) Technical factor
- (f) Flight Safety factor

- (a) **Weather factor :** The take off was delayed in the interest of Flight Safety from 0830 hours to 0930 hours due to the prevalent marginal weather (though within limits) at Islamabad Airport, enroute and destination (Gilgit). However, at the time of take off at 0952 hours the weather was within limits for under taking a mission according to the

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laid down approved criteria in the operations manual. Please refer to exhibit 'J'. There is no reliable system available to obtain the enroute weather from Islamabad to Gilgit. The weather is obtained from an Army personnel on duty at Pattan (SARPI), who passes the weather information as per his perception / understanding and is not qualified / educated on this aspect.

- (b) **Fuel factor** : This aspect was considered at length but eventually ruled out as a probable cause because of no supporting evidence available to prove this aspect. The Helicopter landed back at Islamabad Airport with 700 Lbs. of fuel remaining, sufficient to fly for another 01 hour approximately and 300 Lbs. more than the minimum reserve fuel. This aspect was checked against the Tech. Log, PSO bills of refuelling and the Helicopter fuel consumption graph (please refer to Exhibits 'R', 'P' 'N', 'L2'). The point to ponder was that while reaching Pattan on outward journey, it took approximately one hour of flying time but the return journey to Islamabad took 02 hours & 18 minutes of flying time. However, this extra time has been accounted for by the PIC as (witness No.1 Q.No.6) as the time consumed in search and Recce of places for the subsequent 03 landings / takeoffs at different places on return journey.
- (c) **Navigation factor**: This factor was taken into consideration but was ruled out because of the following:-
- (i) The pilots have made hundred of trips flying on this route alone.

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(ii) The navigational aids carried in the aircraft were serviceable and considered sufficient to bring the Helicopter back to Islamabad in case of being unsure of position at any time. The aids are NDB, VOR and the pilots carry portable GPS with them.

(iii) They were in contact with Cherat control all the time and reported their landings at Darba and near Golra to Cherat and Chaklala ATC respectively (Exhibits 'F' 'G' & 'H').

(iv) The route flown is inside the valley along the river Indus all the time. The high peaks along the route and low ceiling of Helicopter prohibits flying over the peaks / mountains.

(d) **Technical factor** : The Helicopter was fit to fly before the mission and after mission record also do not reveal any major maintenance work except the replacement of masking tape, which was removed at Darba, where precautionary landing was made to check the vibrations in the Helicopter. This masking tape on main rotors became wet & loose because of continuously flying through rain on outward journey from Islamabad to Gilgit. (Exhibit 'Q').

(e) **Communication factor** : This is a problem area as the Radar loses contact with the low flying aircraft in the valleys beyond 6-10 NM ahead of margalla. Therefore, the Helicopter was not in contact with the Radar Control as it was Flying low due to bad weather. **This problem was further aggravated by the wrong call (Exhibits 'F' 'G' 'H') from the HB-XTA pilot that he is landing 10 NM. East of the Airfield, which falls into "Kilo**

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Area” prohibited for over flying by all the aircraft. Where as in fact he was landing 10 NM west of the Airfield between Golra and G.T. Road. The Radio was switched off after landing to preserve the battery for subsequent start. The ATC, Radar Controller and Cherat control could not establish contact with the Helicopter due to this reason. This wrong call alerted the Radar Controller and he under took actions as required by him i.e. informing Kahuta, Local police Airport Manager CAA etc. This fact has been acknowledged by witness No.2 and the Chief Pilot of the company as well (Witness No. 4) in their statements.

(f) **Flight Safety factors** : Once the above mentioned factors are ruled out than the only possibility remains that the landing was made keeping the aspect of Flight Safety in mind. This aspect is further strengthened after viewing the weather forecast of Islamabad Airport at that point of time (Exhibit 'C'). It shows marginal weather conditions (i.e. thunder storm / showers and poor visibility) prevalent at that time. The advantage of Helicopter lies in its ability to land any where, whenever the pilot is in doubt or circumstances so require. The pilot inspite of his vast experience did not press on with the mission and decided to land and wait for the clearance of weather, which was a good decision from Flight Safety point of view.

5. **Interviewing the passengers** : The passengers could not be interviewed as they belong to Gilgit and the family had one male, a woman and rest small children. Moreover it is felt that they could not have thrown much light on Technical aspects of these forced landings at different places while diverting back to Islamabad.

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OBSERVATIONS

1. Some observations made during the inquiry, which were not contributory towards the incident, are :-
 - (a) The date on maintenance log has been changed from 14th February, 2003 to 16th February, 2003 by cutting the former date. A fresh proforma was not made for the flight.
 - (b) The enroute weather obtaining procedure from pattan (SARPI) is unsatisfactory. The weather information is supplied complimentary by an army duty NCO, not qualified on this aspect, but passes the information on his observations.

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FINDINGS

1. The mission was properly authorized.
2. No irregularity or violations of any CAA rule and regulations leading to the incident was detected.
3. The procedures governing the diversions and flying in bad weather are adequate for Helicopter Operations.
4. The Helicopter HB-XTA is a foreign registered Helicopter flown by Pakistani pilots having Swiss as well as Pakistani Commercial Pilot Licences.
5. The incident took place because of the wrong position report given by the co-pilot while landing near Golra (Islamabad), which also went unnoticed by the pilot-in-command.
6. Chaklala ATC, Cherat control and the Radar Controller could not contact the Helicopter because the Radio was switched off after the landing.

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FINALIZATION

The incident is finalized as avoidable, which was a result of wrong position report at the time of landing in diversion.

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RECOMMENDATIONS

1. The pilots of Aga Khan Foundation are Pakistani Nationals and holders of Swiss as well as Pakistani Commercial Pilot Licences. It is recommended that a letter of advise be issued to both the pilots, i.e. to the co-pilot for giving the wrong call while landing near Golra and to the Pilot-in-command for the lack of supervision. The DLS may be consulted before issuing any such letter because the Aga Khan Helicopters are operating on foreign registration and the pilots are operating these Helicopters on foreign Licences. CAR 280 also requires that the investigation report be dispatched to the state of registry of the aircraft.
2. The Aga Khan Foundation is operating since last over 20 years in Pakistan on foreign registration of Helicopters. The organization be asked to register their Helicopters in Pakistan.