

Accident to Deccan Aviation Pvt.Ltd.  
Bell 206 B-3 Helicopter VT-DAP on  
3<sup>rd</sup> March 2002 at Kovvadalanka (Andhra Pradesh)

**REPORT OF  
THE COMMITTEE OF INQUIRY**



Lt. General A.Natarajan, AVSM,VSM  
**Chairman**  
**Committee of Inquiry**

**Member**

Mr.Yashpal  
Sr.Manager  
Pawan Hans Helicopters Ltd.  
New Delhi

**Member Secretary**

Mr.Bir Singh Rai  
Regional Controller of Air Safety  
Civil Aviation Department  
Hyderabad

REPORT OF INVESTIGATION OF AIRCRAFT ACCIDENT AIRCRAFT  
REGISTRATION PVT. LTD. BELL 47 G-II  
KUVVADALAMALA VILLAGE NEAR KUNNAVAYA AP  
10-03-2002  
INDEX

PART	SUBJECT	PAGE NO.
A	Introduction	2
B	Factual Information	8
C	Analysis	21
D	Conclusion	26
E	Recommendation	28
F	Acknowledgement	29

4. Name of the Owner  
Helicopter Leasing International Inc.  
PURUSEI Building, 27 Floor, 1-6-19  
Yasen, Chuo-ku, Tokyo 100-0009
5. Name of the Operator  
Denton Aviation Pvt. Ltd.  
Jakkur Aerodrome, Bellary Road,  
Bangalore.
6. Name of the Pilot-in-Command  
Capt. G.V.Menon
7. Date and time of accident  
03.03.2002 about 07:50 hrs IST
8. Last point of departure  
Kunnavayal - Ananya Projects
9. Point of intended landing of aircraft  
Hydrosheld - Ananya Projects
10. Place & location of accident  
Kuvvadalamala Village near Kunnavaya AP  
Lat 12° 32' 30" N Long 77° 45' 30" E  
11. Nature of Accident  
Helicopter lost control along with  
tail rotor due to no time to impact of water  
while hovering over open flood

REPORT OF COMMITTEE OF INQUIRY ON THE ACCIDENT INVOLVING DECCAN AVIATION PVT. LTD BELL 206 HELICOPTER VT-DAP ON 3.3.2002 AT KOVVADALANKA VILLAGE NEAR ELURU, ANDHRA PRADESH.

1. Aircraft

Type and Model : Bell 206 B-3 Helicopter

Engine

Maker : Rolls Royce

Type : Allison 250-C 20B

Engine S/N : CAE 835829.

2. Nationality : Indian

3. Registration : VT - DAP

4. Name of the Owner : Helicopter Leasing International Inc.  
FUKUSEL Building, 7<sup>th</sup> Floor, 1-6-19  
Yaesu, Chuo-ku, Tokyo 1030028.

5. Name of the Operator : Deccan Aviation Pvt. Ltd.,  
Jakkur Aerodrome, Bellary Road,  
Bangalore.

6. Name of the Pilot-in-Command : Capt. G.V.Menon

7. Date and time of accident : 03.03.2002 about 07:50 Hrs.(IST)

8. Last point of departure : Bhimavaram ( Andhra Pradesh)

9. Point of intended landing of aircraft : Hyderabad (Andhra Pradesh)

10. Place & location of accident : Kovvadalanka Village near Eluru(A.P)  
Long-16° 36' and 42" & Lat-81°  
11' and 09".

11. Nature of Accident : Helicopter tail boom along-with  
tail rotor sheared off due to impact of water,  
while hovering over Fish Pond.

On 23rd March 2002 at 0700 hrs IST, the Pilot Captain and Engineer Officer started the flight from Bangalore to Hyderabad with cabin crew comprising of two cabin crew members and one flight attendant. The aircraft took off from Bangalore at 0700 hrs IST (0700Z) on 23/03/2002, at Korveadikere Village near Bangalore. The aircraft was flying from Bangalore to Hyderabad via the Vellore route.

The aircraft reached Hyderabad at 0745 hrs IST. The Pilot Captain and Engineer Officer carried out preflight inspection and the passengers landed from DIAL Express Hotel and arrived at S.R.K Engineering College, Hyderabad where the flight had been booked. The flight had been booked at night in the S.R.K Engineering College, Hyderabad and booked on behalf of Mr. R. Venkateswaran, Managing Director, Sri Venkateswara Group.

## PART A

### INTRODUCTION

This document is issued by the Board of Directors of PIAA (Pilot Instructors Association of India) to provide information on the following aspects of the aircraft accident:

- Details of the aircraft.
- Details of the passengers.
- Details of the crew.
- Details of the aircraft operator.
- Details of the aircraft maintenance.
- Details of the aircraft operation.
- Details of the aircraft accident.
- Details of the investigation.
- Details of the findings.
- Details of the recommendations.

## PART A

### SUMMARY

Bell 206 B-3 Helicopter VT-DAP operated by M/s Deccan Aviation while operating chartered flight from Bhimavaram(Andhra Pradesh) to Hyderabad was involved in an accident immediately after take-off at 0750 Hrs(IST) on 3.3.2002, at Kovvadalanka Village near Eluru, approximately 20 nautical miles away from take-off point killing all the three occupants onboard.

On 3.3.2002 at 0700 Hrs(IST), the Pilot Capt.G.V.Menon and Technician Shri Mukherjee carried out preflight inspection and the helicopter took-off from D.N.R.College Ground and landed at S.R.K.Engineering College Helipad where Hon'ble Lok Sabha Speaker halted at night in the SRK Engineering College Guest House and boarded the helicopter alongwith his Personal Assistant Shri K.S.Raju.

Venkata Ramanna Fish Pond

There were three persons on board namely, the Pilot-in-Command Capt.G.V.Menon, Hon'ble Lok Sabha Speaker Shri G.M.C.Balayogi and his Personal Assistant Shri K.S. Raju at the time of the accident. The helicopter took-off from S.R.K.Engineering College Helipad at about 0735 Hrs(IST). The weather prevailing at Bhimavaram at the time of departure was normal and the visibility was good. The same was stated and confirmed by Capt Ravinder Singh and Capt A.P.S.Bhattal pilot of other two helicopters VT-DAK and VT-DAL, respectively, who had taken off from the same helipad little earlier to Capt G.V.Menon (Exhibit No.1). Shri P.Mukherjee, technician stated that the take-off was normal (Exhibit No.2). After approximately 15 minutes of flight towards Hyderabad, the helicopter was first sighted by owners of Venkatramana Fish Pond over the Kovvadalanka Village.

The eye-witness, Shri Mungari Durga Rao stated that he heard the sound of helicopter (Exhibit No.3) and also stated that he was unable to see the helicopter from 100 /150 meters due to thick fog prevailing at that time. The eye-witness stated that he could see the helicopter trying to come down and sit in the middle of Venkat Ramana Fish Pond (which measures 300 meters by 300 meters approximately). The helicopter was seen close to the water at about 75 meters of the Eastern bank of the fish pond. Suddenly, the helicopter rose from the water surface and the witness thereafter noticed the rear portion of the helicopter hitting the water with heavy thud noise. Immediately, the helicopter rose up in the air and passed through the coconut trees on the bank of the fish pond and touched one of the coconut trees at about 10 feet height from water level. According to the eye-witness, the helicopter lost its directional control and made 2 - 3 spins violently over the Venkat Ramana Fish Pond and hit the eastern bank of Mandala Anjaneyulu fish tank in a forward motion at a distance of about 175 meters from the point of impact of the tail in the other pond i.e. Venkata Ramana Fish Pond.

After crash landing, on the eastern bund of fish tank, the helicopter was totally smashed and completely broken (also placed at Exhibit no. 6). All the persons on board received fatal injuries. The persons working in the fish ponds rushed to the spot after a little while and could see the pilot struggling for life while other persons were already dead. Within few minutes, the pilot also died without receiving first aid.

Shri Mani stated (Exhibit No.4) that having recognised the occupant as Hon'ble Speaker Shri G.M.C.Balayogi , he informed the local police through his cellular phone. The local police authorities immediately arrived at the site of the accident to take necessary action and lodged FIR (Exhibit no.24). The bodies of Shri G.M.C.Balayogi, Shri K.S.Raju and the Pilot G.V.Menon were retrieved from the helicopter and shifted to Eluru Government Hospital

The Government of India constituted a Committee of Inquiry under Rule 74 of the Aircraft Rules, 1937 under the Chairmanship of Lt.Gen.A.Natarajan, AVSM,VSM, Sh. Yashpal, Sr. manager Engg, Pawan Hans Helicopters Ltd, as member and Sh Bir Singh Rai, Regional Controller of Air Safety as member secretary.

The DGCA officials from Air Safety accompanied by Airworthiness department were rushed to the site of accident from Hyderabad immediately on receipt of information of the accident. The Director General of Civil Aviation Shri H.S.Khola, the Chairman of the Committee of Inquiry Lt.Gen.A.Natarajan, AVSM,VSM with other members arrived at the crash site on 4.3.2002 at 1130 Hrs(IST) to obtain the first hand account of accident.

The statements from the eye-witnesses and police officials were recorded. The wreckage and situations were photographed and thoroughly inspected. The helicopter parts were separated at accident site for transportation and further investigation. The wreckage was shifted manually to boats and brought to road head and loaded into truck for shifting to Bangalore and was held under the safe custody of Controller of Airworthiness, Bangalore. The vital components viz., part of the tail-boom, engine, fuel samples from the barrels, fuel filter and main drive shaft were handed over to the various agencies in India and abroad for detailed investigation.

The Chairman of Inquiry Committee along-with the members held public hearing at Bhimavaram and Eluru on 8.4.2002 so that additional information , if any, which may be useful for the investigation, could be obtained. A large number of representations from various groups representing various interests were received and studied. The committee visited and inspected the office and maintenance facilities of The Deccan Aviation Pvt. Ltd at Bangalore. An interim report was submitted to Government of India, Ministry of Civil Aviation.

The Committee carried out the examination of wreckage and the investigation was completed.

where the helicopter reportedly had just now. Executive controller of Deccan Aviation

One of the members of the committee, Shri Yashpal visited Indianapolis, USA to oversee the testing of the engine at the facilities of the Rolls Royce, the original manufacturer of the engine. M/s Rolls Royce, USA has submitted the test report of the engine (Exhibit No.5).

After going through all the statements and investigation reports, the committee deliberated to conclude its finding and submit the report.

#### INITIATION OF INVESTIGATION:

On receiving the information about the accident, Shri Bir Singh Rai, Regional Controller of Air Safety, Hyderabad and Shri L.Sadasivam, Controller of Airworthiness, Hyderabad were asked by the office of DGCA to rush to the accident site immediately which is about 350 Kms away from Hyderabad. The officers arrived at the accident site by road on 4.3.2002 at 0830 Hrs(IST). Initially, Shri Bir Singh Rai, Regional Controller of Air Safety, Hyderabad was appointed as Inspector of Accident, under Rule 71 of Aircraft Rules, 1937 by the Director General of Civil Aviation vide Lr.No.AV.15013/3/2002-AS dated 3.3.2002 to investigate the accident.

The Govt. of India, Ministry of Civil Aviation constituted a Committee of Inquiry under Rule 74 of Aircraft Rules, 1937 vide Notification No.AV.15013/3/2002-VE dated 3.3.2002 to investigate the accident. The Committee was headed by Lt.Gen.A.Natarajan, AVSM, VSM with Shri Yashpal, Senior Manager(Engg.), Pawan Hans Helicopters Ltd., New Delhi as member and Shri Bir Singh Rai, Regional Controller of Air Safety, Hyderabad as Member-Secretary. The Headquarters of the Committee was at New Delhi.

The Committee carried out the examination of wreckage and inspected the place where the helicopter reportedly hit the water. Extensive photographs (Exhibit No.6) were

taken. The committee also examined the key eye-witnesses and police officials and recorded their statements as below.

Shri Mungari Durga Rao..... Exhibit No.3  
Shri Moru Manikyala Rao alias Mani ,.... Exhibit No.4  
Smt. Jaya mangala Ravulamma, ..... Exhibit No.7  
Shri Mungare Sathyanarayana, ..... Exhibit No.8  
Shri Tirupati Venkanna, ..... Exhibit No.9  
Shri Jayamangala Kannaiah, ..... Exhibit No.10  
Shri Mandala Anjaneyulu, ..... Exhibit No.11  
Shri P.Rambabu, ..... Exhibit No.12

The statement (Exhibit No.13) of Supdt. Of Police, West Godavari Distt. and statement (Exhibit No. 14) of Dy. Supdt. of Police, Narsapur (sub-division of West Godavari Distt.) were also recorded .

During the course of enquiry, the Committee visited the Bhimavaram helipad from where the helicopter had earlier taken off for the fateful flight.

The wreckage of crashed helicopter was dismantled with the help of local labour and the technicians from the Deccan Aviation Ltd., Bangalore. Because of the extent of the damage and location and situation of the helicopter, some portion of wreckage of the helicopter had to be cut and separated for the transportation purpose. A due care was taken to ensure that loss of evidence/damage was restricted to bare minimum and all vital components viz., transmission assembly and the engine, instrument panel, fuel filter etc. were taken out with minimum damage possible. The wreckage was subsequently stored at Bangalore in the safe custody of Controller of Airworthiness Bangalore .

It was observed after pulling of the tail of the helicopter from the water that certain portion of tail-boom along-with tail-rotor blades was missing. A prolonged search for the same was carried out with the help of local villagers. Ultimately, two broken tail-rotor blades were found floating on the water surface in the Venkata Ramana Fish Pond and the portion of the tail-boom along-with the tail rotor gear box and tail-rotor hub were pulled out of the bottom surface of the tank at about 75 meters from the shore, confirming the fact that the helicopter first hit the water and lost both of its tail-rotor blades and part of the tail-boom, as stated by the eye-witness. After removing the transmission assembly from the wreckage it was observed that the rotation of mast was free and without any excessive friction. Similarly, compressor and the turbine when rotated with the hand, rotated freely. A decision was taken to send the following items for further investigation :

- a) Fuel sample from the barrels utilized for refuelling to Director General of Civil Aviation(DGCA) Laboratory, New Delhi, for quality and contamination, if any.
- b) Small available quantity of fuel drained from the Low pressure fuel filter to DGCA Lab, for quality control check and contamination, if any.
- c) The broken portion of the tail-boom to National Aerospace Laboratory, Bangalore for investigating the cause of fracture.
- d) The Main Drive shaft to National Aerospace Laboratory, Bangalore for investigation.
- e) Helicopter engine (Allison 250 C 20J S.No.835829) to Original Engine Manufacturer, M/s Rolls Royce, Indianapolis, U.S.A. to determine the state/serviceability of engine at the time of accident.
- f) The Engine low pressure Fuel Filter to M/s Rolls Royce, Indianapolis, USA for signs of any debris or congestant present in the fuel tank/filtration system.

PART A

FACTUAL INFORMATION

On 23rd Oct 2002 Helicopter with registration no VJ-BAP was leased from Helicorp  
Ltd 2300 G.S. Helicopters with registered no VJ-BAP and leased from Helicorp  
Ltd by Interphil Inc., Tokyo, Japan and operated by Boston Aviation Pte Ltd.  
Interphil International Ltd, Tokyo, Japan and operated by Boston Aviation Pte Ltd  
with its registered operator Permit No 2307 issued on 12.9.1997 and valid upto 11.09.2002 with its  
leased office located at Bangalore. The helicoppter was hired by Global Peace Initiative, a  
non profit organization to fly Honble Lok Sabha Speaker Dr. George Fernandes from  
Bengaluru (Karnataka) to Hyderabad on 13.10.2002. The helicoppter was flown to  
Bengaluru (Karnataka) District to Hyderabad on 13.10.2002. The helicoppter was flown to  
Bengaluru (Karnataka) District to Hyderabad on 13.10.2002. The helicoppter was flown to  
Bengaluru (Karnataka) District to Hyderabad on 13.10.2002. The helicoppter was flown to  
Bengaluru (Karnataka) District to Hyderabad on 13.10.2002.

PART B

FACTUAL INFORMATION

With reference to your letter regarding the fact, the Honble speaker in the foregoings accident  
was flying from Bengaluru to Hyderabad on 13.10.2002. After  
The helicoppter was being flown by Capt G.V.Menon with report from 23.2.2002. After  
the last maintenance of the engine at Verna on 23.02.2002, he had not headed any  
aircraft or only when he flew to Bengaluru on the previous day prior to the accident  
which was due to reduction of passengers from encounter during transported by  
aircraft. The passengers were having abnormal breathing systems of fuel and had  
resulted in oxygen supply system for supplementing the flight.

The aircraft's cockpit window was found broken and seized by the CAA after  
being reported by Controller of Air Traffic, Bengaluru. Capt G.V.Menon who was  
in command in the cockpit while the speaker occupied the left seat. The speaker died  
in the cabin of the aircraft.

## PART B

### 1. FACTUAL INFORMATION

#### 1.1 History of Flight

##### 1.1.1.

Bell 206 B-3 Helicopter with registration No. VT-DAP was leased from Helicopter Leasing International Inc., Tokyo, Japan and operated by Deccan Aviation Pvt Ltd.( Non-scheduled operator Permit No.2/97 issued on 12.9.1997 and valid upto 11.09.2002) with its Head Office located at Bangalore. The helicopter was hired by Global Peace Initiative, a voluntary social organization to fly Hon'ble Lok Sabha Speaker Shri G.M.C.Balayogi from Bhimavaram(West Godavari District) to Hyderabad on 3.3.2002. The helicopter was flown to Bhimavaram on the previous day and positioned at D.N.R.College ground. Thereon, the helicopter was flown to S.R.K.Engineering College Helipad at 0700 Hrs(IST) on 3.3.2002 for the Hon'ble Lok Sabha Speaker. The helicopter took-off from helipad at 0735 Hrs (IST) with total 3 persons on board including the Pilot, the Hon'ble speaker and his Personal Assistant.

The helicopter was being flown by Capt.G.V.Menon with effect from 28.2.2002. After the last replacement of the engine at Varnasi on 28.02.2002, he had not reported any abnormality or snag when he flew to Bhimavaram on the previous day prior to the accident flight. The helicopter was re-fuelled at Bhimavaram from epicoated barrels transported by truck from Hyderabad. The helicopter was having approximately 30 gallons of fuel and had uplifted 45 gallons (total 75 gallons) for commencing the flight.

A pre-flight inspection schedule was found carried out and signed by the Capt. who was authorized by Controller of Airworthiness, Bangalore . Capt.G.V.Menon occupied the right-seat in the cockpit while the speaker occupied the left-seat. His personal assistant was in the cabin at the rear.

### 1.1.2.

Capt.G.V.Menon had filed a flight plan with FIC(Exhibit No. 15), Chennai on telephone, prior to departure from Bhimavaram. FIC, Chennai had approved the flight plan from Bhimavaram to Hyderabad through direct routing at 3000 feet AGL under Visual Flight Rules (VFR). The helicopter took-off at about 0735 Hrs (IST) and headed for Hyderabad. The crash site is about 2-3 nautical miles away to the left of direct routing between Bhimavaram and Hyderabad.

Apparently, shortly after the take-off, the pilot encountered poor visibility and kept deviating to the left due to weather. Even after deviation, he continued to encounter poor visibility due to fog as reported by the eye-witness. Under VFR, the pilot is required to maintain the visual ground contact, therefore the pilot continued to descend so that the ground contact is not lost. In doing so, he got into a committed situation wherefrom he was not in a position to go back. With the worsening visibility, he came so low such that further flight was risky and he wanted to make a precautionary landing. After steadyng the helicopter, he realized, perhaps due to slight drifting of fog, that he is not on ground but on water surface almost in the middle of Venkata Ramana Fish Pond. While initiating immediate corrective action, he pulled up the helicopter without accurately judging his clearance from water surface and in the process when the nose of the helicopter pulled up, the tail of the helicopter hit the water bed causing breakage of tail-rotor blades and part of tail-boom.

With the tail-rotor already rotating at 1700 rpm approx of aircraft engine in full power when the tail rotor contacted water surface caused disintegration of its tail-boom at about 3 feet from the tail rotor-side. Both the tail-rotor blades sheared off immediately after the impact and were found floating in the pond. The tail-rotor gear box along-with vertical fin had sheared off and fallen in the pond at the place where the tail boom hit the water surface and was lying underneath the water at that location.

After the helicopter tail section hit the water, the breakage of tail-boom caused the loss of directional control. The pilot was unaware of the extent of damage to the helicopter and with full power, he continued towards the Eastern side of the pond. Since, the engine

was developing full power, the helicopter rose to 10 meters above the water surface and crossed the pond flying through a row of coconut trees and while passing through them, the rear portion of the helicopter hit the branches of a coconut tree at about 10 ft height (some coconut leaves were found stuck between horizontal stabilizer and tail boom).

Immediately after leaving the Venkata Ramana Fish Pond without directional control the helicopter started spinning violently over the adjacent ponds. After making two-three such violent spinning, it hit the eastern bank of the Mandala Anjaneyulu Fish tank. The impact had been with the forward body of helicopter making contact with a strong muddy bank of height 3 to 4 feet . Since, the helicopter was in spin and had gained sufficient forward momentum, the structure had collapsed and the occupants were killed due to the impact.

The fuel tank with rubber cells burst immediately after the impact and all the fuel in the tank leaked-out into the pond. The workers feeding the fish at Venkata Ramana Fish Pond and other adjacent fish ponds had watched the whole mishap. After the helicopter crashed on the bund, the workers rushed to the spot after pause of few minutes and tried to rescue the occupants.

The aircraft was completely destroyed due to the impact with the muddy fish tank. As they approached the wreckage, they found all the three occupants were profusely bleeding without any movement, the pilot in command was struggling for life. Other two occupants had already died and after a while , the pilot also died before receiving any first aid.

Shri Mani, owner of 'Mandala Anjaneyulu Fish Pond who was at the spot stated (Exhibit No. 4) that having identified the person sitting at the left pilot seat as the Hon'ble Lok Sabha Speaker, he immediately informed the local police about the accident.

The local police immediately rushed to the spot and cordoned-off the area. With the help of the local people, the bodies were removed and transported to Eluru Govt. Hospital. After the post-mortem of the deceased, bodies were handed over to the relatives/employers.

The belongings of passengers were also handed over to the relatives/employers by the local police.

The helicopter was brought to Bhimavaram on the previous day of the accident and was provided with sufficient security by the police during the period the helicopter was positioned at Bhimavaram.

All the three persons on board died in the accident and there was no injury to any of the ground personnel working in the fish pond.

#### **1.2. INJURIES TO PERSONS**

INJURIES	CREW	PASSENGERS	OTHERS
FATAL	1	2	---
SERIOUS	NIL	NIL	NIL
MINOR/NONE	NIL	NIL	NIL

#### **1.3 DAMAGE TO AIRCRAFT**

The aircraft was completely damaged due to the impact with the muddy fish tank bund. The extent of the damage can be seen from the photographs of the wreckage (Exhibit No. 6). There was no fire.

#### **1.4 OTHER DAMAGE**

The helicopter crashed on the fish tank bund and the entire fuel carried in the helicopter leaked into the fish tank. Fearing that the fish would die of fuel spillage, the owner of the tank siphoned off the floating fuel and saved the fish. So, there was no other damage due to the accident.

## **1.5 PERSONAL INFORMATION**

Name : Capt. G.V.Menon(Lt.Col. Retd.)

Date of Birth : 3.11.1954

Age : 47 years

Licence Type : CHPL-464 issued on 10.6.1999 and valid upto 9.6.2003.  
FRTOL No.7600 valid upto 9.6.2003.  
Medical done on 23.10.2001, valid upto 22.4.2002.

Endorsement : Chetak and Bell 206B3 Helicopters

His flying hours experience till 28.2.2002 as forwarded by Deccan Aviation (Exhibit No. 16) is as follows :

	DAY			NIGHT			<b>TOTAL</b>
	Dual	Pilot	Co-Pilot	Dual	Pilot	Co-Pilot	
<b>HT-2</b>	22.45	---	---	---	---	---	22.45
<b>CHEATAK</b>	41.25	206.20	43.25	4.15	27.35	2.15	325.15
<b>CHEETAH</b>	170.25	1644.30	968.55	14.25	82.05	51.35	2931.55
<b>BELL206B</b>	8.55	652.05	0.30	1.30	0.30	---	663.30
<b>TOTAL</b>	243.30	2502.55	1012.50	20.10	110.10	53.50	3943.25

His total flying experience till 28.2.2002 was 3943.25 Hours.

Experience during last 3 months : 148.20 Hours

Experience during last 30 days : 83.25 Hours

Experience during last 7 days : 15.30 Hours

Experience during last 24 Hours : 2.10 Hours

As per the records available, he was not involved in any accident earlier.

## 1.6 AIRCRAFT INFORMATION

### 1.6.1

The Bell helicopter model 206B-3 is a single pilot, five place, single engine, light helicopter with a two-blade semirigid main rotor, and a tail rotor that provides directional control.

The airframe consists of a semimonocoque fuselage with metal and fiberglass covering an aluminium-alloy monocoque tailboom that supports the vertical fin, fixed horizontal stabilizer, tail rotor, and tail rotor drivetrain and aerodynamically shaped couplings and fairings to protect all roof mounted components. The primary load-carrying structures are two built in cabin bulkheads, a vertical control tunnel from the floor to the cabin roof and a pair of longitudinal beams in the cabin roof.

Landing gear is tubular skid type made of aluminium alloy.

Bell 206 helicopter VT-DAP was manufactured by Bell Textron, USA SI.No.4129 and manufactured in October, 1991. It was initially issued with Indian Certificate of Airworthiness No.2406 on 9.7.1999 which was valid till 8.7.2000 under normal category and sub-division passenger. The C of A was subsequently renewed annually and it was valid till 8.7.2002. The Aero-Mobile Licence A-348 was valid upto Dec'2002. The Certificate of Registration No 2997 was issued on 7.6.1999 and valid upto 31.5.2002. The validity of Lease was upto 31.5.2002. Non-Scheduled Operator Permit No.2/1997 was issued on 12.9.1997. The maximum all-up weight authorized was 1451.50 kgs. The total hours done since manufacturing was 1952 hours.

On 18.2.2002, the pilot reported engine chip light warning coming on during run-up at Varnasi. On 19.2.2002, fine metal paste in both chip detectors fitted on engine accessory gear-box was found and engine No. CAE 270511 declared unserviceable and replaced with serviceable engine SI.No.CAE 835829 removed from Helicopter VT-DAN as per procedures and a successful test-flight was carried out. On 28.02.2002, associated air-frame components required to be replaced were changed.

1.6.3

The hours done by the aircraft as on date of accident were as follows:

Total flying hours since new	:	1952:12
Hours done at the time of C of A	:	1799:22
Hours done at last 100 Hr/3 months Insp.	:	1869:42
Hours done at last 50 Hr/1 month Insp.	:	1945:12
Hours done since last flight release certificate	:	8:55
Hours since last engine change	:	9:40

1.6.4

The hours done by the engine as on date of accident were as follows :

Hours since new	:	9493:41
Hours since last overhaul	:	Not applicable

## 1.7 METROLOGICAL INFORMATION

1.7.1

The accident had occurred at about 0750 Hrs (IST). As per the information available from Metrological Deptt., there was no reception of satellite cloud imageries and data at metrological Office, Hyderabad on 3.3.2002 as the system was shut down from 28.2.2002 due to change over of satellite from INSAT 2C to INSAT 3C. They do not have any metrological observations at Bhimavaram and Kovvadalanka to provide exact metrological data. However, weather observations from 0100 UTC to 0300 UTC {(0630 to 0830 Hrs(IST)} of 3.3.2002 recorded at Met Office, Gannavaram (Vijayawada Airport) are given below.

1. MET REPORT AT 0100 UTC VOBZ 030100z wind CALM visibility 5000 meters FEW clouds 20000FT(6000M) Temperature 21°c Due point 20 QNH 1009 hpa (2980inches hg) QFE 1007 hpa (2974 inches hg.)

2. SPECIAL WEATHER REPORT AT 0200 UTC VOBZ 030200z wind CALM Visibility 0200 meters Fog SKY OBSCURED Temperature 22°c Due point 21 QNH 1011 hpa (2985 inches hg) QFE 1008 hpa (2977 inches hg.)

3. MET REPORT AT 0300 UTC VOBZ 030300z wind CALM Visibility 0200 meters Fog SKY OBSCURED Temperature 24°C Due point 23 QNH 1011 hpa (2985 inches hg) QFE 1009 hpa (2980 Inches hg).

It is informed by Met Office that no requisition was received either from Deccan Aviation or from the pilot concerned regarding Met briefing for the flight from Bhimavaram to Hyderabad on 3.3.2002 and accordingly no briefing was provided by this office for the said flight.

However, according to eye-witness visibility near the crash site was about 75-100 meters approx.

#### **1.8 AIDS TO NAVIGATION**

Direct reading Compass, Automatic direction Finder, Global Positioning System

#### **1.9 COMMUNICATIONS**

VHF(Very High Frequency) set -2 off

#### **1.10 AERODROME INFORMATION**

##### **1.10.1**

The helicopter being operated from uncontrolled helipad at Bhimavaram, West Godavari District (located at Lat N16° 32' Long E 81° 32'), i.e. not applicable.

#### **1.11 FLIGHT RECORDERS**

NOT FITTED ON THIS HELICOPTER

#### **1.12 WRECKAGE AND IMPACT INFORAMTION**

On examination of the wreckage, it was observed that main rotor-blades were broken, cockpit and cabin of the helicopter collapsed, top of the cabin fractured, hydraulic servos were found intact in its position, tail-boom attached, engine and its transmission system found without any damage. Subsequent to recovery of tail rotor gear-box, tail rotor blades, fin and part of tail-boom from the bottom of water pond(place of first impact), the complete

wreckage was available for examination / investigation and photography (Exhibit No.6). Presently, wreckage is held under the safe custody of Controller of Airworthiness, Bangalore.

#### NOTES :

**Cockpit Instrument Reading :-** As shown in the photograph of instrument panel (Exhibit No. 6).

**Cockpit controls, levers and Switch settings :-** Cyclic stick hand grip found broken, throttle fully open and jammed, battery switch in "OFF" position, fuel valve switch in "ON" position, collective stick fully down.

**Identification of relevant instruments :-** Exhibit No.6

**ELT Antenna co-axial cable found snapped due to impact.**

**Radio frequencies selected :-** Both radio VHF sets were found in "ON" position. Being digital display, frequencies were not readable.

**Trim tab control settings :-** Almost all the control tubes found fractured due to impact.

**Significant damage in or to cockpit area:-** Cockpit completely smashed due to Impact (Photographs Exhibit No.6).

**Documents located in cockpit area and on site, secure documents:-** DGCA approved technical logbook along-with the copies of the documents required to be carried on board as per Civil Aviation Requirements(CAR) found and retrieved.

**Pilot Log Book :-** The log book could not be traced.

**Any other significant items:-** Nil

**Damage to control runs:-** Control rods through vertical channel found broken, pitch change links found broken, servo controls apparently normal, main rotor blades broken but still attached by the trailing edge strip, main rotor hub and swash plate intact (Photographs Exhibit No.6).

**Relationship between control settings and trim tab positions:-** Not applicable.

**Fuel cock, cross-feed, booster pump and priming pump setting or position:-** Throttle fully open, fuel valve switch in "ON" position, booster-pump, circuit breakers selected to "ON" position.

Helicopter crashed with full forward momentum i.e., with forward and gravitational forces acting on it on the Eastern bund of Mandala Anjaneyulu Fish Pond and was

completely damaged. The fuselage had separated from the undercarriage by shearing of the mounting assembly.

### **1.13. MEDICAL AND PATHOLOGICAL INFORMATION**

Immediately after the accident, the workers at the fish pond rushed to the site and tried to rescue the passengers. They had found the passenger sitting on the left-seat of the cockpit and in the cabin dead. The pilot of helicopter was struggling for life with severe injuries and within in no time, he also died without receiving any medical/first-aid. Local Police were informed immediately with the help of cell phone by Shri Mani , owner of Anjaneyulu Fish Tank. The local police arrived at the site after about half-an-hour of information and removed the bodies from the helicopter. The bodies were later sent for post-mortem to Eluru Government Hospital. The post-mortem report (Exhibit No.17) of pilot does not indicate any incapacitation and / or presence of alcohol.

### **1.14 FIRE**

There was no fire in the accident

### **1.15 SURVIVAL ASPECTS**

The accident was not survivable. The helicopter collided with fish tank bund with high forward momentum. The impact was so severe that the occupants received fatal injuries.

### **1.16 TESTS AND RESEARCH**

#### **1.16.1 – PROBABLE EMERGENCY CONDITIONS**

The helicopter flight manual describes the following conditions under which the pilot has to land as soon as possible (as per Chapter No.3) :-

- a) Engine oil pressure low, high or fluctuating
- b) Illumination of engine chip light
- c) Engine failure
- d) Illumination of tail-rotor chip light
- e) Tail-rotor control failure
- f) Illumination of transmission chip light

- g) Transmission oil temperature is high
- h) Transmission oil pressure low
- i) Main-drive shaft failure
- j) Battery hot.

#### 1.16.1.1

For conditions listed under a, b, and c , the engine was tested for full performance at manufacturers facility and certified to have been working satisfactorily at the time of accident.

The parameters recorded during the test run were normal and to the required specification.

The engine test run was witnessed by the Member of Committee Shri Yashpal, Senior Manager(Engg.), Pawan Hans Helicopters Limited at Indianapolis, USA. A report (Exhibit No.5) was submitted by the Original Equipment Manufacturer Rolls Royce, USA. From the eye-witnesses statements and the evidences collected from the accident site, it has undoubtedly being corroborated that the engine was developing sufficient power and the helicopter could climb over 10 meters from the ground level. From the above, it is proved that the engine was not the contributory factor for the accident.

the tail boom, tail drive shaft, tail rotor control shaft and the tail rotor blades were tested at National Aerospace Laboratory, Bangalore

For conditions listed under (d) and (e), tail rotor failure could have resulted due loss of pitch control, failure of the drive shaft, gear ceasure, missing rotor blades or combination of the above conditions. None of the above conditions were prevailing as the helicopter was seen approaching straight on a steady flight for landing at the middle of the fish pond. All parts of the tail rotor such as rotors, gear box & its attachment, pitch control mechanism were found lying under the water at one location, except the tail rotor blades which were floating around. It amounts that there was no failure of any of the components of trail rotor system prior to the accident. Also, the analysis carried out by National Aerospace Laboratory reported (Exhibit NO.18) that the breaking of tail boom, tail drive shaft, tail rotor control shaft and tail rotor blades were due to impact load.

For conditions (f), (g) and (h), i.e. transmission chip light "ON": The investigation team had inspected the chip detectors of the system and found no metal particles. Further the gear box was strip inspected at the Deccan Aviation hangar , in the presence of members of the

committee on 29-7-02, at Bangalore and there was no sign of any damage to the internal parts or signs of gear box operating without / less quantity of oil and therefore conditions under (g) & (h) were not prevalent before the accident.

For condition (i), i.e. Main drive shaft failure: Investigated by National Aerospace Laboratory, Bangalore and revealed that there was no failure of main drive shaft during flight (Exhibit No. 23).

For condition (j), i.e. Battery hot: The battery condition was checked in the Deccan Aviation battery shop and found not heating up during rapid charging and discharging and was found satisfactory, battery temperature sensors were found satisfactory and is not a contributory factor for making a precautionary landing.

(Exhibit of Annexure)

#### **1.16.2 -EXAMINATION OF TAIL-ROTOR UNIT, BOOM & STRUCTURE**

The detached tail-rotor unit consisting of the vertical fin, boom structure, tail-rotor gear box and the broken rotor blades were tested at National Aerospace Laboratory, Bangalore and the report submitted by National Aerospace Laboratory (Exhibit No. 18) revealed that the failure was due to the impact of the tail boom with the water surface. After examining the report, the tail gear box was strip opened in the presence of the members of the committee and found to contain mud mixed with oil. Subsequent to cleaning of mud, the Tail Gear Box was found rotating freely.

#### **1.16.3 FUEL FILTER CONTAMINATION TEST**

The engine fuel filter was removed and sent to M/s Rolls Royce, Indianapolis, USA for detailed examination of any debris accumulated in the filter to ascertain the probable internal failure of the engine. The Rolls Royce report( Exhibit No.5) indicated that there was no metallic material or debris in the filter.

#### **1.16.4 FUEL CONTAMINATION TEST**

A small quantity of (46 ml.) was drawn from the Low pressure filter of the helicopter and submitted to DGCA ,New Delhi Laboratory for tests. As the quantity was so small and no tests could be carried out, it was decided to mix this small quantity of fuel with a known quality sample and carryout complete range of tests for any deterioration in the quality. The report (Exhibit No.22) did not indicate any contamination of fuel.

#### **1.17 ORGANISATION AND MANAGEMENT INFORMATION**

Capt. Gopinath is the Managing Director of Deccan Aviation Pvt. Ltd., Bangalore and Capt.Samuel is the Executive Director. Capt. Samuel is responsible for operation of aircrafts. The company has maintenance base at Bangalore and headed by the Q.C.M.(approved by Director of Airworthiness).

#### **1.18 PROFILE OF MANAGEMENT**

Both the promoters of the company, Capt.G.R.Gopinath and Capt.K.J.Samuel are ex-servicemen. The Chairman of the company is Lt.Gen.N.S.Narahari, PVSM(Retd.), Capt.Samuel who retired as a Lt.Col.from the Army Aviation is a helicopter pilot. He is the Executive Director. Capt. Gopinath who is an established businessman is the Managing Director.

#### **1.19 ADDITIONAL INFORMATION**

NIL

#### **1.20 USEFUL OR EFFECTIVE INVESTIGATION TECHNIQUES**

NIL

60

## PART C

The Helicopter was manufactured by Bell Textron USA in Dallas, USA and delivered to Minochop Leasing International Inc., Tokyo, Japan. The helicopter was leased to Kishan Aviation Pvt Ltd, Bangalore for commercial operation under registration number VT-DAP on 12.9.1997. The helicopter was registered under part 6 of the Indian Air Regulations with registration number VT-DAP for single pilot operation.

The Helicopter was issued with Certificate of Airworthiness (C of A) No. D-10202 on 14.10.2001. The certificate was renewed continuously with validity upto 6.7.2002. The helicopter was fitted with all necessary equipments and instruments for commercial operations in India as per Civil Aviation Requirements. The helicopter was maintained by the operator using the PROGCA Approved Technical Manual, Maintenance and Quality Control manual.

## PART C

All applicable maintenance and inspection records and log books of operations were found completed on the helicopter. The status of major components of the Helicopter were within serviceable limits prescribed by the manufacturer and were operating satisfactorily.

The Helicopter has been operating in different places in India. On 28.2.2002, the helicopter was operating in Varanasi (U.P.) and the engine oil light came on. This resulted in change of engine at Varanasi. The affected engine (H130, 747511) was replaced with another engine with serial no. 747509. Since the other engine was new, no further investigation was done on the engine.

The engine had undergone a major overhaul and was in good condition. The engine was checked for any damage and was found to be in good condition. The engine was then reassembled and tested.

## PART C

### 2. ANALYSIS

#### Airworthiness Aspects

The helicopter was manufactured by Bell Textron, USA in October 1991 and purchased by Helicopter Leasing International Inc., Tokyo, Japan. The helicopter was leased by M/s Deccan Aviation Pvt.Ltd., Bangalore for commercial operation under non-scheduled operations in India on 12.9.1997. The helicopter was registered under passenger category with Registration number VT-DAP for single pilot operation.

The helicopter was issued with Certificate of Airworthiness (C of A) No.2406 on 9.7.1999. The certificate was renewed continuously with validity upto 8.7.2002. The helicopter was fitted with all necessary equipments and instruments for commercial operation in India as per Civil Aviation Requirements. The helicopter was maintained by the operator who has a DGCA approved maintenance organization and Quality Control manual.

All applicable mandatory modifications and inspections were found complied on the helicopter. The status of major components of the helicopter were within serviceable life prescribed by the manufacturer and were operating satisfactorily.

The helicopter had been operating in different places in India. On 28.2.2002, the helicopter was operating in Varanasi (U.P.) and the engine Chip light came on. This necessitated change of engine at Varanasi. The affected engine Sl.No.207511 was replaced with an engine Sl.No 835829 having done 9484.46 Hours since new along-with the associated airframe components required to be replaced.

Shri Vidya Babu AME # 5485 and approval No. 52/01 stated (Exhibit No. 19) that the engine replacement was carried out by an appropriately licenced aircraft maintenance engineer with the help of experienced technicians.

The replacement of engine was carried out as per the approved engine change schedule and run-up was carried out after the installation. The engine run-up was satisfactory and the helicopter was subjected to test flight for 30 minutes and found satisfactory. After that helicopter flew from Varnasi to Bhimavaram on 1<sup>st</sup> and 2<sup>nd</sup> March, 2002 for 8 Hours and 55 minutes without any snag on the engine.

The helicopter was operating at various airports and away from main airports. Refuelling of helicopter at locations away from main airports was carried out by a mobile refuelling team drawing fuel from epicoated barrels owned by the company. The refuelling was carried out by experienced technicians under the supervision of pilots. The refuelling equipment and barrels etc. were inspected by the Committee and found meeting the requirements. The fuel sample taken from the barrels were sent to DGCA Laboratory, New Delhi and tested for full specification and the report (Exhibit No.20) revealed that fuel was found satisfactory.

The helicopter was parked at Bhimavaram throughout the night and was flown to SRK Engineering College half-an-hour prior to the departure. The Dy. Supdt. Of Police (Narsapur) stated (Exhibit No.14) that at both the places, the helicopter was guarded by security personnel deployed by local police authorities.

The helicopter was flown by Capt.G.V.Menon continuously for three days after engine change and he had not reported any snag on the helicopter or its systems. He had carried out pre-flight inspection before departure on 3.3.2002. Since the preflight inspection was satisfactory, he decided to take-off.

As per the eye-witness and the evidences collected from the accident site indicate that the helicopter had climbed-up about 10 meters from the ground level and was able to fly-away from the pond. This indicates that the engine was developing sufficient power in combination with the lift generating system to confirm that the system was serviceable.

## 2.2 WEATHER

The helicopter took-off from uncontrolled helipad and metrological briefing was not obtained by the pilot. The weather reported by the eye-witnesses at the site of the accident indicated very poor visibility due to fog. However, detailed met report obtained from Gannavaram(Vijayawada) is given above at para 1.7.1.

## 2.3 SABOTAGE ASPECTS

The Deputy Suptd. Of Police Narsapur reported (Exhibit No.14) that helicopter was parked in Bhimavaram under the custody of police security personnel deployed by the district authorities. Also the fuel retrieved from the engine fuel filter passed all the relevant tests. A firm conclusion is therefore drawn that sabotage was not cause of accident. The report from CID { Andhra Pradesh} (Exhibit No.21) has also confirmed that there was no possibility of sabotage.

## 2.4 FLIGHT RECORDERS

Not installed.

## 2.5 CIRCUMSTANCES LEADING TO UNCONTROLLABLE SPIN OF HELICOPTER

### 2.5.1

As stated in the report above that weather over Bhimavaram and its adjoining areas was not conducive to VFR flying due to poor visibility and perhaps got worsened over Kovvadalanka. The pilot decided not to continue the flight and tried to locate a suitable place for landing. Making an unplanned landing was considered more appropriate than continuing the flight due to poor visibility and also keeping in view the VVIP on board.

He was perhaps in search of proper location and finally decided to land at a place which happened to be a fish pond. After having decided to land, he continued to descend and was making landing approach. As he came very close to the ground, he realized that

the green surface below was not ground but it was a fish pond with full of greenish water. Realizing his mistake, he suddenly pulled-up to move-away from the pond. In that process, while pulling-up, the tail-boom hit the water surface heavily and with the tail-rotors rotating at about 1700 rpm resulted in shearing off of the tail-boom.

Perhaps not knowing the extent of damage to the helicopter, the pilot continued to climb-out from the pond, with the intention of landing at the adjoining land. Since, the tail-boom was broken and the rotors along with the gear-box and vertical fin detached, the helicopter virtually lost its ability of directional control and started spinning on its own counter to main-rotor torque.

Perhaps, he was puzzled with the behaviour of the helicopter on loss of directional control and not knowing what to do next, he flew to the adjacent pond. While crossing the eastern bank, the helicopter hit a coconut tree and made two to three spins before it came down and hit the Anjaneyulu fish tank bund with forward momentum.

## 2.6 PILOT FACTOR

### 2.6.1

Capt.G.V.Menon held a valid CHPL licence No.464 and the licence was endorsed with the requisite ratings. He had logged 3952:10 hours of flying out of which 672:15 hrs on Bell 206 helicopter. He had flown extensively all over Andhra Pradesh and he was very familiar in flying in that area. He was not due for his medical examination when he was flying on that day. The post-mortem report (Exhibit No.17) also revealed that he was not under the influence of alcohol.

### 2.6.2

Prior to departure to Hyderabad, he had carried a pre-flight inspection at Bhimavaram and ensured sufficient fuelling of the helicopter. After ensuring proper functioning of the engine and systems, he decided to take off from Bhimavaram to proceed to Hyderabad. Prior to departure, he also contacted Air Traffic Control, Chennai on telephone and obtained flight clearance along-with FIC/ADC numbers.

He continued the flight and flew on heading towards Hyderabad for about 15 minutes to a distance of approximately 20 nautical miles. When he reached a place called Kovvadalanka, because of thick fog surrounding him, he descended to a height considered safe by him. He was in search of appropriate place to land. As an error of judgement, he mistook the green coloured water pond as land surface. Apparently he realized this too late that he was on water surface and not on appropriate land. His abrupt effort to hurriedly lift the helicopter caused the tail boom to hit the water. The tail boom broke and helicopter went into uncontrolled spin leading to the accident.

Perhaps, he could have avoided taking that decision of landing and instead he could have climbed to sufficient height and continued his flight to Hyderabad which is not permitted as per VFR rules(Ground contact to be maintained throughout the flight).

PART D  
CONCLUSION

## PART D

### 3.1. General aspects

#### 3.1.1. Helicopter

3.1.1.1. The helicopter had a valid Canadian Airworthiness Certificate.

3.1.1.2. The cabin weight and C.G. off-set after were within limits.

3.1.1.3. The helicopter had sufficient fuel to complete the flight.

3.1.1.4. The helicopter was serviceable and no mechanical problems for certification.

3.1.1.5. No characteristic signs of sabotage observed and was not considered as a factor in the accident.

3.1.1.6. The visibility at the Kowadlanksi and other abutting areas was poor due to fog, as per eye-witnesses.

3.1.1.7. The accident took place after about 15 minutes of flying in a foggy weather condition (poor visibility) while flying.

## PART D

3.1.2. Apparently the pilot had misclassified the water surface as plain running free from Obstructions / trees.

## CONCLUSION

3.1.3. Since the flight was conducted out of ATC zone, the ATC was not considered as a factor in the accident.

3.2.1. The evidence has shown no cause to believe that the helicopter has suffered any damage or impact damage during take-off and landing.

3.2.2. There was no evidence of fire in the cabin.

3.2.3. There was no evidence of any damage to the aircraft structure.

3.2.4. The information has shown by the pilot that he had not been able to see the ground because of the fog.

3.2.5. The importance of fuel flow in determining whether the accident resulted in an accident.

3.2.6. The helicopter was still operating after the accident.

3.2.7. The investigation has shown that the cause of the accident was the low visibility.

## PART D

### 3. CONCLUSIONS

#### 3.1 - FINDINGS

- 3.1.1 The helicopter had a valid Certificate of Airworthiness.
- 3.1.2. The all-up weight and C.G. of helicopter were within limits.
- 3.1.3 The helicopter had sufficient fuel to complete the flight.
- 3.1.4. The helicopter was serviceable and no snag/defect awaiting for rectification.
- 3.1.5. No characteristic signs of sabotage observed and was not considered as a factor in the accident.
- 3.1.6. The visibility at the Kovvadalanka and other adjoining areas was poor due fog as per eye-witnesses.
- 3.1.7. The accident took place after about 15 minutes of flying in a foggy weather condition (poor visibility) while executing unplanned landing.
- 3.1.8. Apparently the pilot had misjudged the water surface as plain ground free from Obstructions / trees.
- 3.1.9. Since the flight was conducted out of ATC zone, the ATC was not considered a factor in the accident.
- 3.2.0. No evidence has come to notice to indicate that the helicopter had suffered any Foreign Object Damage during take-off and in-flight.
  - 3.2.1. There was no evidence of fire in flight.
  - 3.2.2. There was no in-flight failure of any components of the helicopter.
  - 3.2.3. The engine and associated systems were working satisfactorily at the time of impact.
  - 3.2.4. The investigation on the engine by Original Equipment Manufacturer revealed proper functioning of the engine.
  - 3.2.5. The investigation of fuel filter by Original Equipment Manufacturer revealed no abnormality.
  - 3.2.6. The main-rotor and other systems were functioning normally.
  - 3.2.7 There was no evidence to indicate failure of any component during flight.

- 3.2.8 The flight crew held appropriate licence to undertake the flight.
- 3.2.9. The pilot had marginally exceeded the FDTL as per approved Operations Manual (of Deccan Aviation) by DGCA.
- 3.3.0. The oil cooler replaced at Varanasi was not entered in appropriate air frame log book. However, this lapse has been procedural and had no effect on the safety of the helicopter.

#### 4. CAUSE OF ACCIDENT :

The accident was caused when the pilot unable to continue the flight due poor visibility while searching for an appropriate place to land, made an error of judgment by mistaking the pond water as land surface.

After realizing so when he attempted to lift the helicopter from a low height , the tail boom contacted water surface and got separated causing the helicopter to spin and crash land.

#### RECOMMENDATION

## PART D

- the level of emergency right to and from various places from a continuing emergency.
- b) That the air traffic control system must be further strengthened and the appropriate authority, control centre and local weather forecasters must continue their advocacy.
- c) The plan should undergo periodic review, including with scientific information, the identification and action in all kinds of emergency conditions including weather, terrain and aircraft.
- d) The ATCA should study the requirement and contents of technical training. A separate study by a committee be carried out to examine the present existing policy with regard to training and refresher training and recommendations made.

## PART E

# RECOMMENDATION

*President*  
Mr. General A. H. M. Jaffer  
Chairman  
Committee of Safety

*We agree*

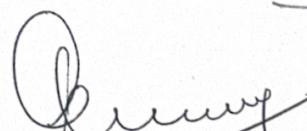
President - New Delhi

Dated : 11 September 2002

## PART E

### 5. RECOMMENDATIONS:

- a) The pilots operating flight to and from remote places from uncontrolled airspace, helipads and air strips should obtain en-route weather report/information from the appropriate authorities, observe caution about local weather phenomenon and conduct flight accordingly.
- b) The pilots should undergo periodic refresher training with specific emphasis on the identification and action to all kinds of emergency conditions including weather, terrain and aircraft.
- c) The DGCA should evolve the requirement and contents of refresher training. A separate study by a committee be carried out to examine the present existing policy vis-à-vis ICAO regulation and refresher training and recommend remedial measures to incorporate better retraining method i.e., syllabus and periodicity, agency/training institution to be so identified and certified. The committee should also recommend the cost factor and its implications on the operating cost.



(Lt. General A. Natarajan, AVSM, VSM)  
Chairman  
Committee of Inquiry

We agree

  
(Yashpal)  
Member  
Committee of Inquiry

  
(Bir Singh Rai)  
Member Secretary  
Committee of Inquiry

Place : New Delhi

Dated : 16 September, 2002