

CONFIDENTIAL



PAKISTAN CIVIL AVIATION AUTHORITY
Safety Investigation Board



REVISED INVESTIGATION REPORT
(25 JULY 2012)

FATAL ACCIDENT OF CESSNA 150 AIRCRAFT, REG AP-BCS
OF HYBRID AVIATION (PVT) AT MODEL TOWN
LAHORE, ON 23 FEBRUARY 2012

INVESTIGATION REPORT INTO FATAL ACCIDENT OF CESSNA-150 AIRCRAFT
REG: AP-BCS, OF HYBRID AVIATION (PVT) ON 23 FEBRUARY 2012
AT MODEL TOWN, LAHORE

SYNOPSIS: Cessna-150 aircraft of M/s Hybrid Aviation (Pvt) was scheduled to fly a training flight to conduct local Circuit and Landings exercise. The aircraft got airborne at 1332 hrs local with Capt Anita Qureshi as Instructor Pilot (IP) on RH seat and Under Training Pilot Waqar Asif, as Student Pilot (SP) on LH seat. The Runway in use was RWY-32. After a flight of 33 minutes at 1405 hrs aircraft reported Down Wind (D/W) for RWY-32. Later, it was known through media and telephone calls to Walton that an aircraft had crashed in H-Block of Model Town Lahore. On visit to the crash site by the Operator and GM Walton Aerodrome who recognized it to be mishap aircraft AP-BCS of Hybrid Aviation (Pvt) Cessna-150. The aircraft was completely destroyed and both the pilots received fatal injuries.



INVESTIGATION AUTHORITY: Immediately on the receipt of information of crash, a proposed plan of the investigation team members was put up to DG CAA. Same was forwarded to MoD for seeking approval under Rules 273, CARs-1994. On approval by MoD on 6 March 2012, DG CAA issued notification of investigation on 13 March 2012. As per the directive of MoD the investigation was to be completed by 15 March 2012, which was later extended till 30 March 2012. The report was finalized on 4th April 2012.

Compliant to MoD directions vide MoD letter No.AT-8(1)2010, dated 25 June 2012, the investigation report was reviewed by respective members, and the revised report was finalized on 25th July 2012. Revised report may be read in conjunction with the Appendices and Attachments placed with report finalized earlier on 4th April 2012.

1. FACTUAL INFORMATION

- 1.1 **History of Flight:** The mishap aircraft AP-BCS had flown a Cross Country flight on route Walton-Sialkot-Walton from 1035hrs to 1250hrs in the morning of 23 February 2012, for flight duration of 2hrs and 15min before undertaking mishap flight.
- 1.2 **Damage to Aircraft:** Aircraft Cessna-150, Reg. No. AP-BCS was completely destroyed by the force of the impact.
- 1.3 **Injuries to the Persons:** Both the occupants, the Lady Instructor Pilot and Male Student Pilot received fatal injuries.
- 1.4 **Aircraft Information:** Aircraft was inducted in to Hybrid Aviation on 4 August 1992 with 5758.30 hours from M/S Javed Aviation:

1.4.1 Aircraft:

i.	Aircraft make	:	Cessna
ii.	Type of Aircraft	:	150D
iii.	Manufacturing Date	:	11 Jan 1964
iv.	Serial No	:	150-60317
v.	Aircraft Registration	:	AP-BCS
vi.	Aircraft Hours	:	8117.55FH

1.4.2 Engine:

i.	Engine Type/Model	:	Continental O-200A
ii.	Engine S No	:	285185-R
iii.	Date of Manufacture	:	12-08-1992
iv.	Date of Installation	:	10-01-2012
v.	Engine TBO	:	1800 hrs / 12 years
vi.	Engine Hours after Overhaul	:	120.15 hrs

1.4.3 Propellers:

i.	Propeller Type/Model	:	McCauley (Fixed Pitch)
ii.	Propeller S No	:	F-2004
iii.	Propeller Hours	:	119.45 hrs
iv.	Installed on	:	22-01-2012



Cockpit view of Cessna 150 aircraft

1.5 **Flight Crew Information:**

Captain Anita Qureshi : Instructor Pilot, CAA SNo: 5442
 CPL : No 2944 from Peshawar Flying Club in 2009.
 Date of Birth : 12 March 1987
 Medical Validity Date : 31 July 2012
 Nationality : Pakistani
 Marital Status : Single
 Total Flight Experience : **410:00 Hours**
 Ratings : SE: C-150, C-152, 172, ME: Piper PA-23, C-414
 Flight Instructional Training qualified, FI Standardization Check Date: 18 Feb 2012 (by CFI)

Mr Sheikh Waqar Asif : Under Training Student Pilot
 Date of Birth : 1 March 1991
 Medical Validity Date : 30 Apr 2012
 Nationality : Pakistani, Marital Status: Single
 Total Flying Experience : **45:50 Hours** (till 17 Feb 2012)
 Student Pilot had completed initial **23:00 hrs** of flying training at Lahore Flying Club. The mishap SP had joined Hybrid Aviation and started to fly in late January 2012.

1.6 **Meteorological Information:** Weather remained fair between 13:25 hrs to 14:25 hrs, with surface wind westerly 07 to 09 knots, clear sky, visibility between 6 to 7Km, and temperature 22 degrees C. There was no weather warning.

1.7 **Flight Recorder / CVR:** Aircraft was not equipped with FDR / CVR.

1.8 **Fire / Smoke:** No smoke and fire was reported and observed on ground.

1.9 **Wreckage Description:** The wreckage description is covered in details in Technical report of the investigation. However, important pictorial views are appended as below:



1.10 Chronology of Events:

LOCAL TIME REFERENCES	ACTIVITY OF AP-BCS
13:27 Hrs	AP-BCS (male voice) contacted Walton Flight Service Station and requested taxi clearance
13:32 Hrs	Aircraft reported (female voice) airborne from Walton
13:35 Hrs	Aircraft (female voice) reported over Model Town Park for the first time which is a position on downwind leg of Walton circuit
13:41 Hrs	After making first landing the aircraft (female voice) reported position over Model Town Park for second time
13:44 Hrs	Aircraft (female voice) reported airborne for the third time
13:47 Hrs	Aircraft (female voice) reported position over Model Town Park for the third time on downwind leg of Walton circuit
13:53Hrs	Aircraft (female voice) reported position over Model Town Park for the fourth time on downwind leg of Walton circuit
13:54 Hrs	Aircraft (female voice) reported turning final for runway 32 and also reported that the aircraft will fly through meaning that the aircraft will not land rather it will over fly the runway
13:58 Hrs	Aircraft (female voice) reported turning for downwind, meaning that after overflying the runway it was tuning to the direction of downwind

13:59 Hrs	Aircraft (female voice) reported position over Model Town Park for the fifth time on downwind leg of Walton circuit
14:01 Hrs	Aircraft (female voice) reported turning final runway 32 and also reported that the aircraft will make touch and go
14:05 Hrs	Aircraft (female voice) reported position over Model Town Park for the sixth time on downwind leg of Walton circuit
14:24 Hrs	Walton informed AP-BDN that one of their aircraft has fallen on ground in Model Town
14:26 Hrs	Walton informed AP-BDN that BCS has crashed in Model Town

- 1.11 **Tests and Researches:** As a process of investigation, several tests and researches were required to be undertaken by members of the investigation team, as well as by the departments of GoP and the Local Govt. Generally, onboard flight recorders do provide substantial facts and information about the occurrence. However, the aircraft AP-BCS was not equipped with any Flight Recorders (CVR & FDR). Various tests and analysis conducted during the investigation are as under.

S No	TESTS & RESEARCHES	ATTACHMENT
1	Aircraft ELT activation Report from SUPARCO and ATS	A-4
2	Walton FSS Office (ATC) Radio-Transmission tape extract, dated 24 March 2012	A-1
3	Aircraft hand refueling exercise by SIB at Hybrid Apron area	-
4	Forensic Analysis by Punjab Forensic Science Agency, Home Dept, Thoker Niaz Baig Lahore, dated 24 March 2012	Appendix-A
5	Post Mortem / Autopsy by Civil Hospital, Lahore, dated – March 2012	M-2 & M-3
6	Walton Circuit & Landing pattern in air evaluation by SIB, dated 14 March 2012	Appendix-B
7	Cellular phones (aircrew) calls records	Appendix-C
8	Aviation Fuel Tests by Army Stores Inspection Depot (ASID), dated 14 March 2012	T-2
9	Carburetor visual Inspection by Engr Liaquat Ali Khan, Dy CE Technical Services Engineering (AW Management), PIAC. dated 29 March 2012	T-1

1.12 Conduct of Investigation:

- 1.12.1 Initial news of the accident was broken by the electronic media at around 14:20 hrs on 23 February 2012, which did provide live information and comments by eye witnesses present at the crash site. After the proposed composition of Investigation team, the members reached crash site Lahore at 2100 hrs. Earlier, GM Walton Aerodrome along with Senior Airworthiness Surveyor, Lahore were tasked to collect onsite evidences and take custody of required record from the Operator location. Rescue operation was conducted and had been completed before the arrival of investigation team members. Rescue operation entailed drilling and cutting the aircraft parts, bending and separating aircraft and cockpit parts to retrieve bodies badly compressed against the cockpit front instrument panel / engine fire wall.

1.12.2 After the initial wreckage inspection and study, photography and video recording, collection of statements and comments of available eye witnesses, it was ensured that the wreckage is in the custody of local Police authority till next morning.

1.12.3 After the initial wreckage inspection, the investigation team members reached Equipment Control Room (ECR) at AllAP, Lahore late at night to listen to ATC tape recordings and to collect the tape extracts and statements etc. The activity for the first day was concluded at 0500 am on 24 February 2012. On Subsequent days 24-26 February 2012, the major activities at crash location included:

- a. Wreckage inspect in day light.
- b. Collection of further clues, evidences, statements and interviews with available eye witnesses
- c. Photography and video making
- d. Conduct of Forensic Analysis
- e. Conduct of Autopsy and Post Mortem formalities
- f. Wreckage shifting to Walton premises
- g. Visit to Operators facilities, interviews and statements with Operators personnel
- h. Visit to Walton Aerodrome facilities, and other General Aviation Organizations

1.13 **Probable causes under investigation:** During the first visit to Walton and the crash site, all probable causes were kept under consideration and analyzed accordingly. However, as the investigation progressed and with the detailed study and analysis of wreckage, the statements/interviews at later stages, and the videos and media clips, investigation team was to focus on following most probable causes and/or contributory factors (**Appendix-D**).

- a. Bird Hit
- b. Act of Sabotage
- c. Medical / Incapacitation of aircrew
- d. Air Traffic Services
- e. Technical
- f. Operation
- g. Organizational Factors
- h. Human Factors
- i. Any other cause as is perceived by any team members

1.14 **Investigation related meetings and co-ordination:** At the receipt of news, all routine activities at SIB were ceased, and the process of investigation co-ordination was started. The co-ordination included directing CAA and local administration authorities for assistance and facilitation. Meetings within the Investigation Team members to highlight and refresh procedures and to set a way forward were also discussed. Following visits and Co-ordination meetings held both at Walton Aerodrome and HQ SIB, Karachi. (**Appendix-E & F**)

- a. Assembly at SIB on 23 February 2012
- b. First Co-ord meeting and visit at Walton on 23-25 February 2012

- c. In-house progress meeting on 05-06 Mar 2012
- d. In-house progress meeting on 12 Mar 2012
- e. Second Co-ord meeting and visit at Walton on 13-14 March 2012
- f. In-house progress Meeting at SIB Karachi on 18 Mar 2012
- g. Third Co-ord Meeting at SIB Karachi on 28-29 Mar 2012.
- h. In-house Meeting at SIB Karachi on 30 Mar to 02 Apr 2012
- i. Meetings (tele-conversation & in person) and exchange of correspondence/emails with Ops and ATS members (July 2012)
- j. Final meeting of all 05 investigation team members at SIB Karachi on 25 July 2012 to finalize "Revised Report".

1.15 **Investigation Support:** Walton Aerodrome management was exceedingly co-operative and forthcoming in facilitating the investigation process with prompt arrangements as and when desired by Investigation team members. Sr AW Surveyor, Lahore was a great help in performing actions on behalf of SIB, during the course of investigations, and visits of SIB team.

2. OBSERVATIONS

2.1 During the course of investigation, following observations are also highlighted:

- 2.1.1 As both the bodies were badly compressed against the cockpit front instrument panel, the rescue operation had to employ various tools (Drilling, Axing, bending of parts, etc) to separate the bodies. With the result, following main instruments could not be located from the crash site;
 - i. Both the Fuel Quantity Indicators
 - ii. Oil Temp and Oil Press gauges were found but needles / pointers openly exposed without top glass covers
 - iii. RPM gauge without the needle pointer, only indicating total Flight hours.
 - iv. Air Speed Indicator with needle indicating **vertical** position at 0 or less than 40 KIAS.
- 2.1.2 Tech Log book required to be maintained in the respective aircraft, instead it was retrieved from the personal custody of CEO Hybrid on 25 February 2012.
- 2.1.3 The Organizational Approval was not valid on the day of accident, and the maintenance was still being carried out by Hybrid Co.
- 2.1.4 Routine defect recording, engine parameters adjustment, hydraulic leak, throttle adjustment, instrument defective etc were not found indicated in tech log and as such only scheduled inspections were found indicated.
- 2.1.5 Organization was operating with expired approval and without approved Exposition Manual.
- 2.1.6 The fire extinguisher found at the scene had no date of expiry and looked worn out.

- 2.1.7 Numbers of TV Channels live reporting / film reports with effect from 1420 hrs onwards did not show use of water or measures to remove the fuel from the crash site.
- 2.1.8 IT Tower recently constructed North of Walton is situated in the close vicinity to the LH Down Wind leg for RWY-32.
- 2.1.9 Govt of Punjab letter No SO(CC) Report.6/2012, dated 24 Feb 2012 (**Appendix-G**), received vide MoD letter No 3/2/2011 (CT)-7002/3, dated 5 Mar 2012, highlights concerns with reference to accident under investigation.
- 2.1.10 Safety Investigation Board is extremely understaffed, where each investigator is engaged with several investigations at one time. Because of which investigators from other departments of CAA are included in the constitution of investigation team. These investigators are required to perform investigation duties, in addition to their routine activities.

3. ANALYSIS CONCLUSIONS

- 3.1 Detailed analysis reports of all the four main aspects (Med, ATS, Tech, & Ops) of the investigation are placed as parts of the main report under respective titles. The conclusions of each analysis parts is presented below:
- a. **Medical:** The injuries stated in post-mortems are antemortem and caused by blunt means. The cause of death in this case is injury to the vital organs which caused death individually and collectively in ordinary course of nature.
 - b. **Air Traffic Services:** Walton aerodrome is assumed to be an uncontrolled aerodrome and has many inbuilt potential flight safety hazards. Though, Air Traffic Services role has not directly contributed towards the causation of the fatal accident, yet controlled aerodrome procedures and adequate facilities are likely to minimize continuing breaches of unauthorized and indiscipline flight operations.
 - c. **Technical:** The physical Impact/ Wreckage damage pattern indicates that the Aircraft hit the ground straight "Nose-Down" with a Steeper Impact Angle; brakeage to the aircraft and its engine parts was consequential. All the significant structural parts of the aircraft were accounted for at the accident site. The aircraft, its engine and all related systems were functioning normal; the aircraft was airworthy till sudden contact disappearance at 1405 hrs with ATC and it fatally crashed. Probably, the low instructional experience of aircrew and incorrect handling techniques in training circuit flying at low altitude might have caused the crash.
 - d. **Operation:** Considering the steep angle, low speed and wreckage condition at the time of impact, it is concluded that aircraft stalled and subsequently mishandled by the aircrew and thus crashed. The exact cause of the crash could be one of the following two. First; engine flameout due to fuel starvation or some failure and subsequently mishandled by the aircrew resulting into crash, Second; aircrew while practicing unauthorized stall and recovery maneuver could not apply the correct recovery techniques and thus crashed. Therefore to arrive at the exact cause of the initiation of emergency situation, it is recommend

dispatching the engine and propeller to OEM facility for their final comments, as to whether the engine was functioning or had already flamed out at the time of crash.

4. CONCLUSION

- 4.1 At Walton Aerodrome, almost all training institutions and aircraft are in the practice of demonstrating and conducting aircraft stall and its recovery at incipient stage at circuit height of 800 ft AGL, which is in violation of established procedures and SOPs. Such exercises are required to be practiced at or above 3000 ft AGL in designated flying areas. Also, as there is no transponder monitoring with Walton or by AIAP Lahore, unauthorized flying activities remain unnoticed and not reported. As, Walton Aerodrome is operating under "uncontrolled" environment, the Operators have adapted to some unauthorized practices too. On an average, there are over 100 -120 departures and landings (including circuit flying) recorded on daily basis. Accordingly, on any month the number of departures and landings reaches a figure of around 3500. Despite of continued and regular flying activity, there seems to be no agency responsible for managing the flight operation at Walton. The existing CAA oversight level for the aviation activity at Walton is therefore, considered lacking.
- 4.2 There have been occasions, earlier as well as during the investigation process, where Hybrid Aviation, the Operator, has displayed practices jeopardizing aviation safety and influencing the process of investigation. Conduct of routine flying in the absence of authorized Chief Flying Instructor (CFI), Chief Engineer (CE) and CFI not been able to provide records to investigation team during the investigation without the consent of Hybrid Aviation CEO, and taking custody of onboard documents of mishap aircraft after the crash, are few glaring cases in point.
- 4.3 The impact of aircraft with ground indicates, aircraft being at high dive angles, at low air speeds with right bank angles / right side-slip, wreckage spread in a small and confined area within the space of a drive way to a car porch. The aircraft was though, completely destroyed, but in one piece and did not leave any oil & fuel splashes / marks on the white clean wall in the very near vicinity of hardly 3-5 feet of impact point. Therefore, it can be safely established that aircraft was under stalled conditions at the time of impact.
- 4.4 As stated, before the mishap flight, the aircraft was topped up to maximum capacity and the fuel endurance was documented as 04:30 hours. Having flown for only 33 minutes, to maximum of 41 minutes, the aircraft would consume maximum of 20-25% of total fuel. Because of no smoke and fire observed at the crash point, nil/less fuel (equal to 8-10 lit unusable fuel in the tanks) spilled on the ground and confined aircraft wreckage; the possibility of engine failure because of probable fuel starvation in the circuit needs to be clearly ascertained.
- 4.5 During the evaluation of Walton Circuit in a similar aircraft, it was established that the aircraft can successfully undertake flameout landing while flying from various points in the circuit pattern of Walton aerodrome, provided correct and specified height, speed and spacing is maintained.

- 4.6 The perception of general public and some of aviation experts owing to the video clips/pictures shown by the electronic media that mishap aircraft had made or was involved in several orbits before the crash, is ruled out on the pretext that the video clips and pictures of aircraft in the orbit shown by media were in fact of another aircraft i.e. AP-BDN (and not AP-BCS) as clearly seen and read in the pictures.
- 4.7 The crash of AP-BCS has been the result of application of incorrect procedures by mishap Instructor Pilot, where IP, while flying at circuit height could not recognize the aircraft stall at the very incipient stage, and timely execute the correct recovery actions. However, whether the aircraft was stalled during unauthorized stall and recovery practice in the circuit, or was this stall caused during the maneuver to "exchange speed into height", after fuel / engine related malfunction at circuit height, could not be established with complete consensus.

5. FINALIZATION

- 5.1 **Cause of Crash:** Incorrect and delayed application of stall recovery procedures by Instructor Pilot resulted in crash of aircraft. Human Factor-Aircrew-Captain of aircraft-Avoidable.
- 5.2 **Contributory Factors:** Organizational – Known unsafe practices and prevailing culture at the Operator (M/s Hybrid Aviation), as well as uncontrolled / unregulated air traffic environment and inadequate oversight at Walton Aerodrome.

6. FINDINGS

Detailed findings of all the four analysis reports (Med, ATS, Tech & Ops) of the investigation are available along with the respective analysis parts of the report under respective titles. Following findings merit mentioning in the main report:

6.1 Medical related findings:

- 6.1.1 Both the aircrew were medically fit to undertake AP-BCS flight. Medical / Post mortem report did not reveal any other cause of death, and the cause of death is established / attributed to aircraft impact with ground.

6.2 ATS related findings:

- 6.2.1 Presence of an air traffic controller in FSS office to discharge duty single handedly and continuously for 12 hours is an unsafe practice.
- 6.2.2 The operational facilities available in Walton are inadequate and the aerodrome has not been certified, therefore operation is not under the over sight and control by the Regulatory.
- 6.2.3 On duty FSS officer (ATCO) responsible for the provision of Flight Information Service and Alerting service to the aircraft flying in Walton circuit has no visual contact with the aircraft.

- 6.2.4 Number of residential set ups, buildings and flat structures exist within close vicinity of Walton violating airfield clearance policy.
- 6.2.5 No evidence of agreement of the aircraft operators at Walton has been found which could indicate that the Operators are operating at Walton at their own risk and cost.
- 6.2.6 No bird activity was reported by any source on the mishap day at and around the time of crash.
- 6.2.7 With the passage of time lot of new residential areas and high rise buildings have come up in the sounding of Walton aerodrome which has started to pose danger to the human lives and property on ground.
- 6.2.8 There exist dichotomy between ELT activation timings reported by Karachi RCC and the eyewitness. Also, ELT distress signal was not reported by any aircraft flying at the time of crash.
- 6.2.9 Under the existing setup, Air Traffic Service has no contribution towards causation of the accident under investigation.
- 6.3 Technical related findings:**
- 6.3.1 No evidence of any abnormality in the systems / distress by aircrew about any emergency as per ATC tape was observed / shown till their sudden contact disappearance at 1405 hrs with ATC.
- 6.3.2 The examination of the wreckage did not point to any technical problem with the aircraft which could have contributed to the accident. All the significant structural parts of the aircraft were accounted for at the accident site. All aircraft systems performance remained normal till the impact with the ground.
- 6.3.3 The fire was not caused as there was no friction involved prior to impact as aircraft hit the ground straight "Nose-Down". No evidence of engine fire was identified on engine parts prior and after the impact.
- 6.3.4 No abnormality was noticed in AVN 100 LL fuel sample report.
- 6.3.5 The correctness of circuit pattern at Walton and execution of safe landing in case of engine flameout at any point in the circuit was successfully simulated.
- 6.3.6 Non presence of substantial fuel declared by "Ops Member" and conclusion about engine flameout with recommendations to send the engine and propellers abroad for examination / analysis appears to be needless as regardless of engine flame out or otherwise he was required to determine the cause of Crash/Consequent Fatalities.
- 6.3.7 There was no evidence of any in flight fire, bird hit, fatigue, internal or external sabotage and explosive device, which could have caused the accident.

6.4 Operation Related Findings:

- 6.4.1 The Instructor Pilot lacked Instructional experience.
- 6.4.2 CFI was on leave on the day of accident; however the mission was authorized by the acting supervisor who was not approved by GMGA (North).
- 6.4.3 Contrary to SOPs, Flying Training Organizations operating at Walton aerodrome are carrying out Stall & Recovery and Medium Level Turns exercises at Circuit height (800ft AGL). It appears that the mishap Instructor Pilot may have also decided to practice stall and recovery at lower heights i.e. at circuit height of just 800ft AGL.
- 6.4.4 The initiation of an emergency condition which led to subsequently mishandling by aircrew is yet to be determined.
- 6.4.5 Aerodrome facilities are inadequate for type and frequency of flying being conducted at Walton.

7. RECOMMENDATIONS

7.1 ADMINISTRATIVE RECOMMENDATIONS:

- 7.1.1 Govt of Punjab letter referred as Appendix-C be studied by concerned Directorates of PCAA for timely addressing the concerns.
- 7.1.2 While AAIB is approved and implemented, inadequacies of trained HR and supporting infrastructure be ensured at existing Safety Investigation Board, PCAA for timely completion of Quality Investigations.
- 7.1.3 Appropriate agency be tasked to study the existence of Walton aerodrome viz-a-viz the risks being posed to increasing residential areas in the near vicinity of Walton.

7.2 SAFETY RECOMMENDATIONS:

- 7.2.1 Walton aerodrome be declared as controlled aerodrome with required facilities and regulations, as early as possible.
- 7.2.2 As an interim measure, following be ensured to continue with ongoing flight operation:
 - a) ATC Tower be constructed with the provisions of required facilities.
 - b) The aerodrome be certified and the existing ATS Procedures be reviewed.
 - c) Required Airport Service / facilities be created for safe operation.
- 7.2.3 Operation Directorate be tasked to study the existing role and task of Rescue Coordination Center (RCC), ensure its effectiveness and timely reporting of ELT Distress Signal information.
- 7.2.4 Airfield Clearing Policy as per CAA Rules be ensured around Walton Aerodrome for the safety of aircraft and residents.

- 7.2.5 Existing "aircraft hand refueling procedures" needs to be studied by Regulatory for making it safer, traceable and auditable.
- 7.2.6 Routine defect recording and engine parameters adjustment etc are required to be recorded.
- 7.2.7 All General Aviation Instructor Pilots should undergo a comprehensive training to meet all sorts of Emergencies.
- 7.2.8 Anomalies, shortcomings, safety compromise etc as pointed out by Ops Member being GM GA (North) may immediately be viewed to prevent such a situation in future.
- 7.2.9 All the flying school to stop practicing stall and recovery maneuver in the circuit pattern. They should practice in respective training area at height above 3000 A.G.L.
- 7.2.10 Instructors being inducted into the flying clubs/schools be subjected to Flight Check by CFI and by respective GM GAs.
- 7.2.11 CFIs to ensure that instructors and students to fly the correct circuit pattern with proper spacing and communications.
- 7.2.12 In the absence of CFI, training flight is not to be conducted. If it is inevitable, then respective GM General Aviation prior permission may be sought.
- 7.2.13 CAA Regulatory to devise mechanism for ensuring existence of conducive and safety culture in flying organizations. Regulatory to also ensure complete empowerment to the management (CFI & CE) with Operators, authorized by CAA, in discharging their duties.
- 7.2.14 Considering the accident to be a fatal case, Engine and Propeller of crashed aircraft be sent to