OFFICE OF THE AIRCRAFT ACCIDENT INVESTIGATION COMMITTEE OF BANGLADESH
MINISTRY OF CIVIL AVIATION & TOURISM
3RD FLOOR CAAB HEADQUARTERS (OLD BUILDING) KURMITOLA DHAKA-1229

REF. NO. 30.00.0000.013.33.006.21 (CESSNA-152/S2-AGG/ 16 MAR 2021)-121 **14 March 2022**

Information for Recipients and Public

1. *Appended below (next page onwards) is the 'Final Report', together with the Safety Recommendations, of Investigation of Accident of Cessna-152 Aircraft, Reg S2-AGG of BFA & GA Ltd, occurred on 16 March 2021 at Lalpur Tanor, Located at South-West of VGRJ Airport, Rajshahi, Bangladesh.*

2. *Designated by the Head of the Aircraft Accident Investigation Committee of Bangladesh (AAIC-BD), the Investigator-in-Charge (IIC) of the Aircraft Accident Investigation Team (AAIT) has prepared this Final Report, as Bangladesh being the State of occurrence as well as the State of Registry and the State of Operator of the aircraft.*

3. *Earlier, on 17 March 2021, the AAIC-BD had sent to all concerned, the 'Notification' of the accident, which was in conformity with Standard 4.1 of Annex 13 and thereafter, dispatched and published the 'Preliminary Report' on 13 April 2021, in conformity with Standard 7 of Annex 13.*

4. *As per standard 6.3 of ICAO Annex 13, the AAIC-BD has sent to all concerned, the draft final report on 11th January 2022 and requested to provide comments on this draft final report within 60 (sixty) days from the date of the transmittal of correspondence. The AAIC-BD did not receive any comments before the deadline.*

5. *The AAIC-BD is dispatching and publishing this Final Report within twelve months from the date of occurrence as per standard 6.5 of Annex 13.*

6. *This Final Report will now be available in the website www.caab.gov.bd (Menu: AAIC-BD) for public view.*

Head
Aircraft Accident Investigation Committee
Bangladesh

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FINAL REPORT

Investigation into Accident of Cessna-152 Aircraft, Reg No S2-AGG of Bangladesh Flying Academy & General Aviation Ltd. Occurred on 16 March 2021 at Lalpur, 11 NM North West of VGRJ Airport, Rajshahi, Bangladesh

This accident investigation has been conducted by the Aircraft Accident Investigation Committee-Bangladesh (AAIC-BD), in accordance with Bangladesh Civil Aviation Act 2017 and in conformity with Annex 13 to the Chicago Convention on International Civil Aviation Organization. The occurrence has been categorized as 'Accident' as per the definition of Annex-13.

The Head of AAIC-BD formed a two member Aircraft Accident Investigation Team (AAIT) comprising the investigators from AAIC-BD to investigate into the 'Accident' vide Memorandum No: 30.00.0000.013.33.003.21 Date 17 March 2021. Member Engineering of AAIC-BD was designated as Investigator-In-Charge (IIC) and Member Operations as AAIT-member. The AAIT started the investigation immediately and visited the place of accident at Lalpur located at a 11 NM North East of VGRJ. The team carried out a 'field investigation' at Lalpur followed by investigations at Rajshahi.

This 'Final Report' has been prepared following the 'Preliminary Report' which was published on 13 April 2021 and the Draft Final Report which was sent on 11th January 2022 to relevant authorities, organizations, and agencies for their significant and substantiated comments. This report has been compiled in accordance with the requirements of standard 6.3 of ICAO Annex-13.

According to ICAO and that of AAIC-BD, the sole objective of this investigation is to prevent aircraft accident and incidents and it is not the purpose of this investigation to apportion blame or liability.

The information contained in this report has been derived from the factual information and evidence from tests and research, which has been gathered so far during investigation locally. During investigation, the team found the evidence of huge metal chips in residual engine oil, which indicated that some of the internal parts of cylinder got either damaged, partially damaged, broken or worn-out.

The team came to a conclusion that a tear-down inspection is required to be carried out to find out the internal parts which were exactly damaged, partially damaged, broken or worn-out.

The team contacted 'Lycoming', the engine manufacturer through NTSB to carry out a 'tear-down investigation' at their facilities in USA. The manufacturer agreed to do so but the engine was required to be shipped to their facilities in USA. Due to world-wide Covid-19 Pandemic, the shipment of the engine to manufacturer's facilities remains pending.

There is a time binding to publish the Final report within 12 months as per standard 6.5 of Annex-13. To fulfill this requirement, this Final Report has been prepared on the basis of factual information and evidence so far gathered form tests and research, which have been carried out locally by the Team.

At this stage the Investigation Team has declared the investigation 'closed'. However, the Team has kept the option to re-open the investigation as per Standard 5.13 of Annex-13 wherein it is mentioned, ''If, after the investigation has been closed, new and significant evidence becomes available, the State which conducted the investigation shall re-open it.''

Should the Team reopen the investigation, it will include any new finding, conclusion, safety recommendation etc. after receiving the tear-down inspection report from the manufacturer.

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1. TITLE

1..11 Name of Operator	Bangladesh Flying Academy and General Aviation Ltd.
1.1.2 Name of Manufacturer	Cessna
1.1.3 Aircraft Model	Cessna-152
1.1.4 Aircraft Nationality	Bangladesh
1.1.5 Aircraft Registration Marks	S2-AGG
1.1.6 Place of Occurrence	Lalpur, Tanore Upazilla 11 NM North West of VGRJ Airport, Rajshahi
1.1.7 Date of Occurrence	16 March 2021

2. SYNOPSIS

2.1.1 Identification of Accident Investigation Authority?	Aircraft Accident Investigation Committee of Bangladesh (AAIC-BD).
2.1.2 Notification of accident to national and foreign authorities?	Office of the Aircraft Accident Investigation Committee-Bangladesh notified to all relevant Authorities and Agencies as per Standard 4.1 of ICAO Annex 13.
2.1.3 Accredited Representation?	(a) Having received the Notification from the AAIC-BD, the NTSB responded immediately and confirmed that they would remain standby for any kind of support, should the AAIC-BD require; (b) After visiting the place of accident having seen the wreckage and quick field investigation, the AAIT assumed that the root cause of the accident is the total loss of engine oil. Some visual checks were carried to find out the cause of leakage of engine oil system, appearantly found no damage to the hoses of pressure and return line but traces of oil were detected underneath the fuselage starting from exhaust of the breather line till end of fuselage (bottom side), in the installation bolt of No. 2 cylinder and many other places. (c) As the engine failed and the status of the engine at the time of failure was not known to AAIT, it was decided to consult with the manufacturer through accredited representative to get their opinion for further steps to find out the reason of oil leakage. (d) Accordingly, the AAIT requested NTSB to assign 'US Accredited Representative' (ACCREP) to provide assistance on this issue. The NTSB, nominated an Accredited Representative who was included in the investigation. (e) The AAIT apprised the US-ACCREP about the AAIT's intention regarding sending the engine to the Manufacturer for necessary investigation, and accordingly, sent the related 'Photographs' of the affected damaged aircraft, oil leakage area, especially the areas where oil traces were found underneath the fuselage etc. for NTSB's comment. (f) The AAIT also contacted 'Lycoming', the engine manufacturer, through NTSB to carry out 'tear-down' inspection of the engine at Manufacturer's facilities in USA, if so necessitated.
2.1.4 Organization of the Investigation?	Aircraft Accident Investigation Committee-Bangladesh (AAIC-BD)
2.1.5 Authority releasing the report?	Aircraft Accident Investigation Committee of Bangladesh (AAIC-BD)
2.1.6 Date of publication of report?	14 March 2022.
2.1.7 Brief resume of the circumstances	(a) As a part of routine flying program, the Chief Flying Instructor (CFI) of the company was scheduled as the Instructor Pilot (IP) of the flight on 16 March 2021 to take-up a Student Pilot (SP) for PPL-Navigation Check Flight with a Cessna-152, Registration Number S2-AGG aircraft.

leading to the accident?	(b) The flight was conducted in Visual Meteorological Condition (VMC) under Visual Flight Rules (VFR) at 1000 feet above ground level. (c) The aircraft was flown for about 0:45 hrs from the time of departure. Thereafter, the aircraft developed some engine vibration followed by decrease of engine oil pressure and increase of engine oil temperature as well as loss of engine power causing loss of aircraft flight height. Eventually the aircraft engine failed at a height of 300' AGL. (d) The flight crew gave 'Mayday' (Emergency) call and forced-landed the aircraft on a potato growing field at Lalpur at a radial 345^0, DME 11 NM from VGRJ. (e) During ground roll, the aircraft hit an elevated aisle that resulted the breakage and detachment of the nose landing gear, which eventually made the fuselage to topple over and finally resting upside-down on the potato growing field. (f) There was neither any fire nor any personnel injury as a result of this accident, except that the Instructor Pilot received a very minor forehead cut injury while evacuating the aircraft.

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3. BODY

3.1 FACTUAL INFORMATION

3.1.1 History of Flight

3.1.1.1 Flight number?	S2 AGG
3.1.1.2 Type of operation?	PPL- NAV Check Flight
3.1.1.3 Last point of departure?	VGRJ, Rajshahi, Bangladesh.
3.1.1.4 Time of departure (Local or UTC)?	0716 UTC
3.1.1.5 Point of intended landing?	VGRJ, Rajshahi, Bangladesh

3.1.1.6 Description of the flight and events leading to the accident?

(a) As a part of the flying program, the IP (Instructor Pilot) & Chief Flying Instructor (CFI) of the company was scheduled on 16 March 2021 to take-up a Student Pilot (SP) for PPL- Navigation Check Flight with a Cessna-152 aircraft, Registration S2-AGG.

(b) The flight was conducted in Visual Meteorological Condition (VMC) under Visual Flight Rules (VFR)

(c) The aircraft took-off at 07:25 UTC for navigation check flight for Rajshahi-Naogaon-Nachol-Rajshahi route. They were maintaining 1000' AGL. The aircraft set course at 07:26 from Rajshahi and arrived over Naogaon (30 NM) at 07:47 UTC. After reaching Naogaon, it set course for Nachol (27 NM) and arrived over Nachol at 08:08 UTC. At this point IP asked SP to divert towards Rohanpur, located 07 NM from Nachol. Accordingly, SP set course for Rohanpur, estimating arrival at 08:13 UTC.

(d) After 2-3 minutes of flying following setting course form Nachol, the SP reported that the aircraft was vibrating. The IP immediately took over the control and decided to go back to the Base, Rajshahi (VGRJ). Accordingly, the aircraft set course for Rajshahi which was 22 NM to VGRJ.

(e) After a while, the IP observed that vibration was increasing, followed by the decrease of engine oil pressure and simultaneous increase of engine oil temperature. The IP observed engine power loss that resulted the aircraft losing heights as well.

(f) AT 14 NM away from VGRJ, the IP contacted Rajshahi tower and reported about the aircraft vibration with engine parameter indication of low oil pressure, high oil temperature and at the same time flight path condition of gradual loss of aircraft height. The VGRJ tower controller replied to have copied the message and advised the aircraft to maintain own comfortable situation and to report final runway 17 of VGRJ.

(g) At 08:22 UTC, S2-AGG reported maintaining VOR Radial 345 and while at 12 DME reported passing through 500-600' AGL. The IP declared emergency by calling 'MAY DAY'.

(h) The VGRJ airfield being yet at an unreachable distance away, the flight crew then started looking for suitable ground area to make forced landing.

(i) Most of the ground area was built up with electric pylon, potato plants, water pumps, ditches and potato packed sacks etc.

(j) While looking for landing area, at 300' the aircraft's engine failed. In this situation flight crew found reasonably plain a potato field and made a forced landing at the potato fields, which were located

at a place known as Lalpur, about 11 NM North West from VGRJ.

(k) The potato fields were even but having aisles (slightly 2-3' high used for the separation of two adjacent lands) in between.

(l) The aircraft travelled 126.5 M from the point of touch down and hit an elevated aisle that resulted the breakage and detachment of the nose landing gear of the aircraft.

(m) The aircraft further travelled 19 M from the detachment of NLG, resulting fuselage to topple over the aircraft nose which finally rested upside-down on the potato field.

(n) The aircraft travelled on the potato field about 145.5 M from touchdown point to its rested position.

(o) At this stage, IP instructed the SP to go out of the cockpit and subsequently the IP also came out from the cockpit using the side doors of the aircraft. The SP didn't have any physical injury but the IP had very minor fore-head injury (Cut mark on the nose) while evacuating the aircraft through the side-door.

(p) The local fire vehicles reached the crash site within 10-15 minutes of the accident. As there was neither any fire of the aircraft or associated surroundings, nor there was any significant personal injury to anybody, the fire vehicles left the place of occurrence after staying at the crash site for sometimes.

(q) As there was a huge crowd from the adjacent locality who reached the place pf occurrence to see the accident aircraft, the local police and civil aviation security personnel cordoned the aircraft, provided security and safety of the aircraft and relevant evidences.

(r) The Go-Team, designated by the Head of AAIC-BD, reached the accident site on 17 March 2021 and had an in-depth inspection of the wreckage and surroundings as a part of field investigation.

(s) After visiting the place of accident and having inspected the wreckage and at length field investigation the AAIT assumed that the cause of the accident could be the total loss of engine oil.

(t) The Go-team carried out visual checks to find out the cause of leakage of engine oil system. Although apparently no damage could be found to the hoses of pressure and the return line, traces of oil was detected underneath the fuselage starting from exhaust of the breather-line till end of fuselage (bottom side), in the installation bolt of No.2 cylinder and many other places.

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3.1.1.7 Reconstruction of the significant portion of the flight path?

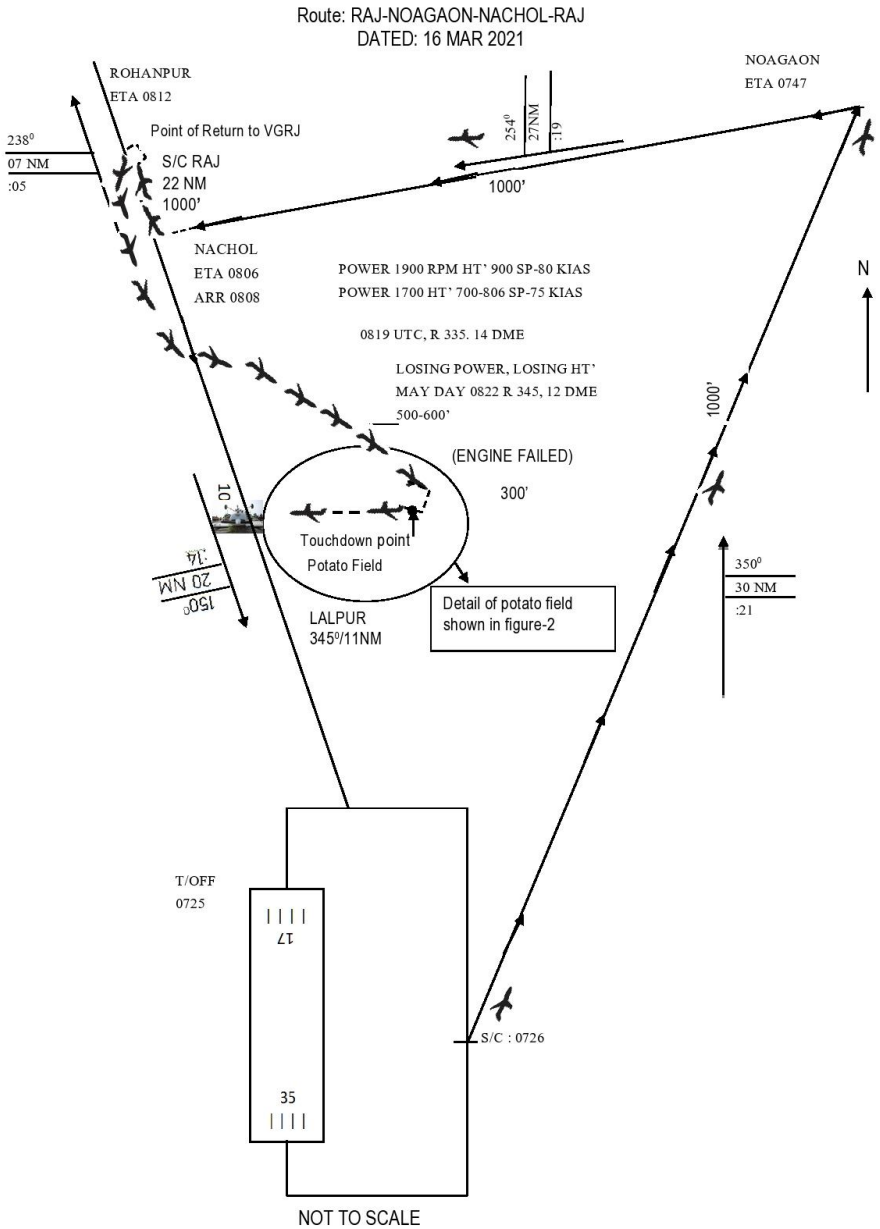
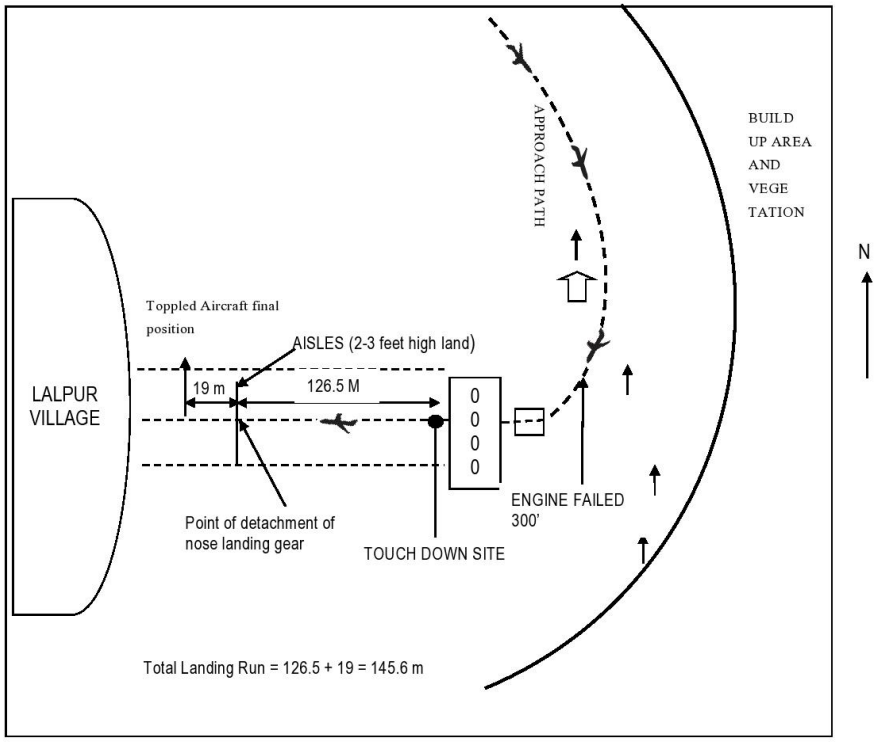


FIGURE-1: FLIGHT Route: RAJ-NOAGAON-NACHOL-LALPUR (Forced Landing)

FORCEO LANDING SITE- LALPUR
11NM FROM VGRJ
RADIAL 345⁰
DATE: 16 MAR 2021



LEGEND

1. ELECTRIC PYLON :
2. WATER MACHINE :
3. DITCH :
4. SACKS OF POTATO : 0000
5. AISLES :

NOT TO SCALE

FIGURE-2: Detail of Potato Field at LALPUR.

3.1.8 Location (latitude, longitude, elevation)?	Lalpur, Tanore Upazilla R345 DME,11 NM from VGRJ Airport, Rajshahi, Bangladesh (a) Latitude: 23.977981 N (b) Longitude: 88.684875 E (c) Elevation: 55 Feet
3.1.1.9 Time of the accident (Local or UTC)?	0825 UTC
3.1.1.10 Whether day/night?	Day

3.1.2 Injuries to Persons

Injuries	Crew	Passenger	Others
3.1.2.1 Fatal?	No	N/A	N/A
3.1.2.2 Serious?	No	N/A	N/A
3.1.2.3 Minor?	YES (Instructor Pilot got minor injury)	N/A	N/A

3.1.3 Damage to Aircraft (Brief description)

3.1.3.1 Destroyed?	No

3.1.3.2 Substantially damaged? — Yes, as described below:

S/N	Nomenclature	Part No.	Figure No. from IPC	Page No. of IPC
01	Nomenclature	0450073-1	60	230
02	Propeller (McCauley) both tips bent with shaft	1A103/TCM	60-1	230
03	Lycoming Engine, type & Model 0-235-L2C	S/N. L-146476-15	OH manual 1-1	1-1
04	Mount Assembly, Engine	0451003-36	62-6	248
05	Nose Landing Gear broken, (Strut Assy. Nose Gear)	0442504-13	34	128
06	Bearing Rod end	S1823-3	33	126
07	VOR Antenna & Beacon light.	KX 155/165 Manual #.006-0579-0006		
08	VHF Rt. Antenna broken	KX-155/165		
09	Wind shield broken	0413419-201	32	124
10	Engine bearer bent (Left side) Eng. Mound assy.	0451003-36	62	246
11	Breather line plastic portion broken.	0400343-13	62	246
12	Oil cooler hose cap assembly bent.	MS20825-60	63A	256
13	Upper portion of the Rudder broken (Vertical stabilizer Fin)	0430011-1	22	190
14	Right wing damaged	0523565	4	28
15	Horizontal stabilizer both left & right damaged	0432001-23	21A	86
16	Line assembly fuel	0400311-79	81-50	318
17	Fairing assembly Main gear (Left)	0441217-215	38-37	134
18	Fairing assembly Main gear (Right)	0441217-214	38-37	134
19	Aileron Assy. Left	0523800	15-17	61/62
20	Aileron Assy. Right	0523800-1	15-17	61/62
21	Wing assy. Complete (LH. & RH) standard range	Nil	3	24
22	Elevator Assy. Left	0432001-51	21	6A
23	Elevator Assy. Right	0432001-52	21	6A
24	Fuselage (Skin Left)	0413004-35	27-11	105
25	Fuselage (Skin Right)	0413004-36	27-11	105
26	Fairing strut lower RH.	0421002-2	17	14

3.1.3.3 Slightly damaged?	N/A

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3.1.3.4 Other damage?	N/A
3.1.3.5 Damage to Runway	N/A

3.1.4 Other Damage:

3.1.4.1 Other Damage	NIL

3.1.5 Personnel information

3.1.5.1 Pertinent information concerning each of the flight crew members regarding age, validity of licenses, ratings, mandatory checks, flying experience (total and on type) and relevant information on duty time?	**Instructor Pilot** (a) Date of Birth: 31 Dec 1964 (b) Age: 57 (c) Nationality: Bangladeshi (d) License: CPL NO – 210 (e) Ratings: Flight Instructor (f) Mandatory Checks: Flight Instructor & Instrument Rating (g) Flying Experience (Total): 5088:45 Hours (h) Flying Experience on type: 4032:30 Hours (i) License Validity: 30 Sep 2021 (j) Medical Status: Class – 1 (One)	**Student Pilot** (a) Date of Birth: 12 Feb 1999 (b) Age: 22 (c) Nationality: Bangladeshi (d) License: SPL – BFA/109 (e) Ratings: N/A (f) Flying Experience (Total): 43:00 Hours (g) Flying Experience on type: 43:00 Hours (h) License Validity: 01 Jul 2021 (i) Medical Status: Class – 2 (Two)
3.1.5.2 Brief statement of qualifications and experience of other crew members?	N/A	
3.1.5.3 Pertinent information regarding other personnel, such as air traffic services, maintenance, etc., when relevant?	**Air Traffic Services** (a) Air Traffic Controller-2; (b) Aerodrome Operator-1; (c) Fire Fighter-05; (d) Crash Tender Serviceable (but very old, water leakage at various point); (e) Fire fighter dress available 05 sets (03 good shape, but 02 poor condition); (f) Walkie Talkie set for communication was available; (g) Emergency drill practiced: weekly 03-days; (h) Fire Observatory Tower – Available, but not manned.	**Maintenance Services** (a) Wind-sock, Runway 35 side was not effective; (b) Wind-sock, Runway 17 side was effective; (c) A lot of pebbles in the middle portion of the Runway surface observed.

3.1.6 Aircraft information

3.1.6.1 Brief statement on airworthiness and maintenance of the aircraft (indication of deficiencies known prior to and during the flight to be included, if having any bearing on the accident)?	(a) The Aircraft Cessna Model-152 Registration No. S2-AGG, MSN 15284604 has completed 12513:20 Hrs on 16 March 2021. The aircraft was manufactured in February 1979 and was registered in Bangladesh on 31 August 2010. (b) The engine type 'Lycoming', Model 0-235-L2C, Sl No. L-16476-15 was installed on 18.08.2020 with 0:0 hrs after overhaul; completed 459:45 hrs till 16.03.2021. (c) The Check-I was carried out from 13-15 December 2020, vide Work Order No GFA/57/20, dated 13 December 2020; (d) The Maintenance Release was issued vide No. 06/2020.

	(e) This maintenance release is valid for 60 days up to 12 February 2021 or 100 flight hours, whichever occurs earlier. (f) Quality assurance was carried out on 15 December 2021 by the Company Quality Assurance Manager. (g) The aircraft Cessna S2-AGG carried out two missions on 16 March 2021 prior to this accident. (h) The origination (pre-flight) check was duly carried out by the licensed engineer and went for first mission for 1:25 Hrs. (i) The aircraft was again prepared for next mission by carrying out transit check (through flight) and handed over for the flight crew. (j) As per maintenance log, there was no defect known prior to and during the flight. (k) As per the document, no airworthiness directives/service bulletins were due to this aircraft. (l) The certificate of airworthiness of the aircraft Cessna-152, S2-AGG has been renewed by CAAB and is valid till 28 October 2021. (m) There was verbal entry on S2-AGG of mild vibration by another pilot on 15th March 2021. The same aircraft had an observation on ideal RPM after the first sortie on 16th March 2021. (n) The aircraft log book, engine log book and defect register was checked; no remarkable defects were found in relation to engine performance. (o) The aircraft maintenance log from August 2020 to March 2021 was checked. Found no remarkable entry on engine by the pilot. (p) The engine Model 0-235-L2C SL No: L-16476-15 was overhauled at Admark overhaul Inc, FAA approved repair station #JL4R288M, Fort Lauderdale, Florida, USA. The total accumulated time was 13,647:20 hours and time since overhaul was 0:0 hours. The engine has been inspected, overhauled, test run in accordance with manufacturer's specification and current Federal Aviation Regulation and was found airworthy for return to service. Accordingly, maintenance Release was issued by Admark overhaul Inc, Florida, USA. (q) This engine was supplied by 'GETEXI', a Bangladeshi company and received on 17.11.2020 by BFA & GA. (r) Check 1 was carried out on 21.02.2021; oil filter Pt No. CH48110-1 Qauntity-01 and spark plug Pt no. REM 37 BY qauntity-2 was replaced. (s) The accident took place due to engine failure in the air on 16.03.2021 only after completing 459:45 hrs after overhaul.
3.1.6.2 Brief statement on performance, if relevant, and whether the mass and centre of gravity were within the prescribed limits during the phase of operation related to the accident. (If not and if of any bearing on the accident give details.)?	The mass and centre of gravity of the aircraft didn't have any bearing on the accident.
3.1.6.3 Type of fuel used?	100 LL Grade Aviation Fuel (Blue) and 100 (Formally 100/130) Grade Aviation Fuel (Green)

3.1.7 Meteorological information

3.1.7.1 Brief statement on the meteorological conditions appropriate to the circumstances including both forecast and actual conditions, and the availability of meteorological information to the crew?	(a) Surface Wind: 300 degree, 10 knots (b) Vis: 7 Km; (c) QBB: NSC (d) QNH: Hz (e) QFE:1007.9 (f) QNH:1009 (g) Temp: 33 Degree C (h) Crew received the Met Information. (i) Hourly weather forecast is available at weather office at VGRJ Terminal Building.
3.1.7.2 Natural light conditions at the time of the accident (sunlight, moonlight, twilight, etc.)?	Sunlight.

3.1.8 Aids to navigation

3.1.8.1 Pertinent information on navigation aids available, including landing aids such as ILS, MLS, NDB, PAR, VOR, visual ground aids, etc., and their effectiveness at the time?	(a) NDB RJ 228 KHZ H24 242632.87N 0883649.35E (Serviceable); (b) DVOR RAJ 114.6 MHZ H24 242621.18N 0883654.10E (Serviceable); (c) VORDME RAJ 1180 MHZ H24 242621.18N 0883654.10E (Serviceable); (d) VASI: Available on both RWY. (e) Wind Sock: Serviceable on RWY 17 side; Unserviceable on RWY 35 side.

3.1.9 Communications.

3.1.9.1 Pertinent information on aeronautical mobile and fixed service communications and their effectiveness?	Aerodrome Control Service Rajshahi Tower 128.3 MHZ - Tower communication equipment was reported to be serviceable.

3.1.10 Aerodrome information

3.1.10.1 Pertinent information associated with the aerodrome, facilities and condition, or with the take-off or landing area if other than an aerodrome?	(a) VGR ARP co-ordinates AD 242619.39N 0883658.56E; (b) Distance and direction from city 07 KM North of Town; (c) AD elevation / reference temperature 55FT/400 C; (d) MAG VAR 50' W;

3.1.11 Flight recorders

3.1.11.1 Location of the flight recorder installations in the aircraft, their condition on recovery and pertinent data available therefrom?	No flight recorder was installed in this Aircraft.

3.1.12 Wreckage and impact information

3.1.12.1 General information on the site of the accident and the distribution pattern of the wreckage, detected material failures or component malfunctions. Details concerning the location and state of the different pieces of the	(a) The aircraft forced landed on potato fields at Lalpur, Radial 345^0 DME 11 NM from VGRJ. (b) After touch down, it covered 126.5 M landing run and hit the aisles (2-3' high), where the nose landing gear got broken and detached from the aircraft (figure-1 A). (c) Following the detachment of the nose landing gear, the aircraft travelled 19M, resulting the fuselage to topple over the aircraft nose and rested up-side down shown below was the final stop down point of the aircraft (Figure-1 B).

wreckage are not normally required unless it is necessary to indicate a break-up of the aircraft prior to impact. Diagrams, charts and photographs may be included in this section or attached in the appendices?

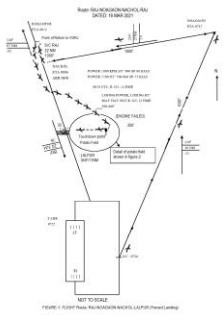


Figure-1 (A)

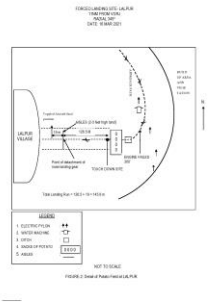


Figure-1 (B)

(d) The aircraft sustained the following damage:

1. Both edges of the propeller bended. (Figure-2)
2. Nose landing gear broke and got detached (Figure-3)
3. Cracks and deformation of both wing surface in several place (Figure-4)
4. Lower tube of oil breather line got broken (Figure-5)
5. Top of the vertical stabilizer and rudder assemblies broke (Figure-6)
6. Deformation of surface of horizontal stabilizer (Figure-7)

Figure-2

Figure-3

Figure-4

Figure-5

Figure-6

Figure-7

3.1.13 Medical and pathological information

3.1.13.1 Brief description of the results of the investigation undertaken and pertinent data available therefrom?	IP got minor injury; he was given first aid. SP was not hurt.

3.1.14 Fire

3.1.14.1 If fire occurred, information on the nature of the occurrence, and of the firefighting equipment used and its effectiveness?	There was no evidence of fire.

3.1.15 Survival aspects

3.1.15.1 Brief description of search, evacuation and rescue, location of crew and passengers in relation to injuries sustained, and failure of structures such as seats and seat-belt attachments?	N/A

3.1.16 Tests and research

3.1.16.1 Brief statements regarding the results of tests and research?

(a) The team carried out required tests and research, which includes the oil sump check, oil filter check, compression check and spark plug checks. The details of each checks are given below:

(1) Oil sump check:

a. The team cut the locking wire and opened the lock nut, took the sample of residual oil from the sump; checked for metal contamination, found lot of tiny metal chips in the residual oil. (Photograph 1)

b. Removed the oil screen from the sump and checked for metal chips; found approximately 0.8 mm size metal chip on the screen. (Photograph 2)

Photograph 1: Metal Chips of residual oil in sump

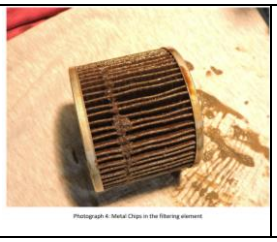
Photograph 2: Metal Chips on sump screen

(2) Oil filter check:

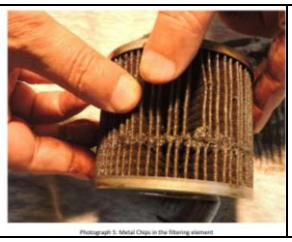
a. The installed oil filter was removed, the body (outer cover) of the filter was cut and checked for metal chips, also took the sample of residual oil. The findings are mentioned below:

- A lot of metal chips (very small in size) were found in the body of the filter. (Photograph 3)
- A lot of metal chips were found in the filtering elements. (Photograph 4 and 5)
- A lot of metal chips were found in the residual oil. (Photograph 6)

Photograph 3: Metal Chips in the body of filter



Photograph 4: Metal Chips in the filtering element



Photograph 5: Metal Chips in the filtering element

Photograph 6: Metal Chips in the residual oil

(3) Compression check:

a. Initially we could move the propellor up to 180^0 but after pouring 5.5 quartz of oil, it was possible to move 360^0.

b. The compression checks were carried out initially by putting the thumb over top sparking plug hole with top plug removed; found the followings:

- The pressure was felt in No 1 and No 2 cylinder.
- No pressure was felt in No 3 and No 4 cylinder.
- The piston movement from top to down was felt by finger in No 1 and No 2 Cylinder
- In No 3-cylinder, uneven surface with sharp edge was felt by finger but piston was moving from top to down.
- In No 4 cylinder, the piston was not moving at all.

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c. Compression check by fixing differential pressure gauge:

The pressure gauge was installed on the hole of top spark plug with supplied 80 PSI and found the following results:

Cylinder Position	Gauge reading	
1. Cylinder No 1	80/20	Photographs 7
2. Cylinder No 3	80/0	Photographs 9
3. Cylinder No 2	80/28	Photographs 8
4. Cylinder No 4	80/0	Photographs 9


Photograph 7: Compression Check of Cylinder No 1


Photograph 8: Compression Check of Cylinder No 2


Photograph 9: Compression Check of Cylinder No 3 and 4

(4) Spark plug Check:

The spark plugs were removed and found the followings:

No	Position	Gap in inches	Remarks	
Cylinder No 1	Top	0.022	Ceramic broken	
	Bottom	0.018	Normal	
Cylinder No 2	Top	0.018	Normal	
	Bottom	0.018	Normal	
Cylinder No 3	Top	0.022	Severe carbon deposition, ceramic broken	Photograph 11: Spark Plug No 3
	Bottom	0.018	Normal	Photograph 12: Spark Plug No 3
Cylinder No 4	Top	0.022	Normal	Photograph 13: Spark Plug NO 4
	Bottom	0.018	Carbon deposition	Photograph 14: Spark Plug No 4


Photograph 11: Spark Plug No 3 Top


Photograph 12: Spark Plug No 3 Bottom


Photograph 13: Spark Plug NO 4 Top


Photograph 14: Spark Plug No 4 Bottom

(b) To find out the reason of metal chips and oil leakage the team decided to carry out further checks by dismantling (tear-down) engine. For doing so, the team inquired from the Cessna-152 operators in Bangladesh, whether they have the facilities, required tools and expertise to dismantle the engine and carry out the investigation without loosing the earlier evidences, which is very vital to find out the root cause. In reply two operators has expressed their inability to carry search check and one operator informed that the dismantle

	might be possible but can't assure the loosing of earlier evidences. (c) At this stage, the team decided to seek help from the 'Lycoming', the engine manufacturer of the engine to carry out the investigation by dismantling the engine in their facilities at Williamsport, PA 17701 USA. The manufacturer agreed to investigate free of charge but the cost of freight to be borne by Bangladesh. (d) On getting the consent from the manufacturer, the AAIT decided to dispatch the engine to the Manufacturer for necessary investigation.

3.1.17 Organizational and Management Information

3.1.17.1 Pertinent information concerning the organizations and their management involved in influencing the operation of the aircraft. The organizations include, for example: the operator; the air traffic services; airway, aerodrome and weather service agencies; and the regulatory authority. The information could include, but not be limited to, organizational structure and functions, resources, economic status, management policies and practices, and regulatory framework?	Bangladesh Flying Academy and General Aviation Ltd: (a) Some of the interested and enthused personnel in aviation decided to form a club to organize pilots training in erstwhile East Pakistan. As such East Pakistan flying club Ltd was formed and incorporated under Indian company act of VII of 1913 Company was registered in May1948. (b) After liberation of Bangladesh, the flying club was renamed as Bangladesh flying club Ltd. (c) Again, Bangladesh flying club Ltd was renamed as Bangladesh Flying Academy and General Aviation Ltd in 2004. (d) From the inception of the organization, it was registered as Public Limited Company (e) BFA and GA has an approved Memorandum of understanding and articles of association by the Registrar, Joint stock companies under companies Act 1994. (f) It provides training for: (1) PPL (2) CPL (3) CPL conversion. (4) FIR (g) This company has a total of 400 life members of different categories (h) BFA has no shareholder or Investor or donors for financial support (i) Its operation and financial expenditure solely depend on income from the students. (j) An executive committee elected by the life members for a tenure of two years. (k) The executive committee is headed by a President, with 3 Vice Presidents, General Secretary, Joint Secretary and 5 members (l) All administrative and financial decisions are taken by the President and or Secretary General within their limitation and in executive committee meeting (m) The principal office of the BFA at Dhaka: Hazrat Shahjalal International Airport, Kurmitola (n) Operational base at Rajshahi, Shah Makhdum Airport. (o) At the time of the occurrence, the BFA & GA had two aircraft, S2-ADQ and S2-AGG: (1) S2-ADQ: Was grounded earlier - An engine change was being performed; (2) S2-AGG: Forced landed at Lalpur, Rajshahi and under investigation. (p) Number of Flight Instructors: Full time-2 and Honorary- 2 (q) Ground Instructors: Full time- 1 and Guest Speakers -05

	(r) Total students: Around 60 (including 20 CPL conversion students) (s) Room facility: Two Class for CPL and PPL course of student capacity 26 and 14 respectively (t) Audio- visual training Aids: Overhead Projectors and Portable Sound System (u) Record of all students: All student records are maintained both in Ground Section Dhaka and Operations section at Dhaka and Rajshahi base (v) Number employee: 29 (w) Accommodation: BFA provides accommodation to all students and Flight Instructors at Rajshahi operational base (x) Hangar and aircraft maintenance facility: At present, the BFA & GA uses the hangar and maintenance facility under an agreement at Rajshahi base with Galaxy Flying Academy.

3.1.18 Additional information

3.1.18.1 Relevant information not already included in 3.1.1 to 3.1.16?	(a) During physical check of store, maintenance documents and maintenance facilities by the AAIT, queries were asked, some of which are mentioned below: (1) While checking the store, found life expired o rings PT No. MS 287775-288 in bin no 4 was kept as serviceable item. The item was procured in 4Q 01, that is, 4th quarter 2001, shelf life was 15 years, which expired in 4th quarter 2016. (2) One oil filter was checked; Found the 'serviceable tag' was issued by the AME without date and no other documents like 'Authorized Release Certificate' (ARC) was found with the filter; (3) The store register was not maintained properly. While comparing with the Register, the availability of the number of filters was found less. (4 were available instead of 5). No proper explanation was given for the missing filter. (4) The present 'Maintenance Control Manual (MCM)' is outdated, issued initially in 2014, no revision has been incorporated till date. To answer this query, the AAIT was informed that the BFA & GA prepared 'Maintenance Organization Exposition (MOE)' Manual and 'Continuing Airworthiness Management Exposition (CAME)' Manual as per the new policy of CAA Bangladesh and has already submitted to CAA in December 2021 for approval. However, the approval of the two documents remains pending till the writing of this report. (5) During investigation at Rajshahi, the team didn't find appropriate and adequate tools and ground support equipment for proper maintenance. (b) During interview, one of the flight crew of the company, who flew on the preceding flight on 15-03-2021 and 16-03-2021 informed that there was mild vibration on S2-AGG on 15-03-2021 flight and had observation of having less RPM at idle rpm. The AAIT was informed by the captain to have informed the chief engineer and CFI verbally about the discrepancy. The AAIT confirmed on this issue that no maintenance work was done as written entry in the Aircraft Maintenance log was not done. (c) The AAIT observed that BFA & GA was granted extension of AMO and exemption of Maintenance Manager by the CAA for six months effective from 09-12-2020 to 08-06-2021 with a few discrepancies remaining unresolved.

3.1.19 Useful or effective investigation techniques

3.1.19.1 When useful or effective investigation techniques have been used during the investigation, briefly indicate the reason for using these techniques and refer here to the main features as well as describing the results under the appropriate subheadings 3.1.1 to 3.1.17?	(a) The investigation techniques used by the AAIT in conducting this investigation have been adopted as per the instructions provided in ICAO Annex-13, Appendix-1, Para-1.19 and that of Doc-9756, Part-4, Para-1.19.

3.2 ANALYSIS

[The following analysis has been made based on the information documented in **'Factual information',** findings of tests and research mentioned in Para: 3.1.16 and which is relevant to the '**Determination of Conclusions'** and **'Causes and/or Contributing Factors'.]**

The analysis of this accident has been complied through the assessment of the following areas:

(a) 3.2.1 Tests and Research
(b) 3.2.2 Man
(c) 3.2.3 Machine
(d) 3.2.4 Environment
(e) 3.2.5 Organization & Motivation aspect.

3.2.1 Tests and Research

3.2.1.1 Tests and research	The analysis is made on the basis of tests and research the details of which is mentioned in para 3.1.16 (a) The followings are the finding of the oil sump and oil filter check: (1) A lot of tiny metal chips were found in residual oil of the oil sump. (2) Approximately 0.8 mm size metal chip was found on the screen of oil sump. (3) A lot of metal chips (very small in size) were found in the body of the filter. (4) A lot of metal chips were found in the filtering elements. (5) A lot of metal chips were in the residual Oil from filter The presence of metal chips (good quality) in the oil sum, screen and filter indicates that these metal chips are the outcome of damaged, partial damaged or worm out of some internal parts in one, more or in all cylinders of the engine. To find out which internal parts have exactly damaged, partially damaged, broken or worn out can be confirmed after carrying out a tear-down inspection at manufacturer's facilities. (b) The following are the findings of 'compression check': (1) From the result of the compression check, it is evident that the piston of no 1 and 2 cylinder was moving from top to bottom but pressure was holding partially, meaning that, certain pressure was leaking. (2) The piston of No 3 cylinder was moving from top to bottom but pressure was not holding. (3) The piston of No 4 Cylinder was not moving and pressure was not holding at all. (c) The outcome of the 'compression check' indicates that the damaged or partial damaged or broken or worn out of some internal parts in one, more or in all cylinders allow the pressure to leak and

	forced/causes the engine oil to leak/ drain through vent/breather line and other points. During field investigation and compression check, apparently no damage could be found to the hoses of pressure and return line of the oil system, traces of oil was detected underneath the fuselage, starting from the exhausts of the breather/vent line till the end of the bottom side of the fuselage. However, the ultimate reason for oil drain can be confirmed after tear-down inspection check at manufacturer's facilities. (d) Spark Plug Check: As there is no remarkable findings, the spark plug check was not considered as a contributory factor to this accident. (e) However, the findings and analysis may be changed after getting the report of tear-down investigation at manufacturer's facilities. In that case, the AAIT will re-open the investigation as per standard 5.13 of Annex-13.

3.2.2 Man

3.2.2.1 Man?	**Instructor Pilot (IP)** (a) Has the responsibility as chief flight instructor (CFI) of BFA & GA ltd to ensure regulatory and company compliance with regard to flight crew training. (b) There was a verbal entry on S2-AGG of mild vibration by another pilot, which was intimated to CFI and maintenance engineer on 15 March 2021. (c) CFI carried out the next sortie with the same aircraft on 15 March 2021. (d) Aircraft S2-AGG was again flown on 16 March 2021 by another pilot and he had an observation on ideal RPM; Again, it was intimated verbally to the CFI and the maintenance engineer. (e) The IP went with SP on navigational check flight Rajshahi-Naogaon-Nachol-Rajshahi after crossing Nachol, on the way to Rohanpur, SP reported vibration with pressure lowering and temperature increasing of oil system. Immediately IP took over the control and decided to return back to Base. While returning he was maintaining 1000' but after a while, aircraft was losing height and power. At about 12 NM away from VGRJ, aircraft lost height to 500-600'; at the stage IP gave informed tower and gave a 'May Day' call. As there was no alternate but to land, IP tried to find a suitable place to land. But the area had vegetation, electric lines, ditches etc. At this stage at 300' the engine failed. In this situation IP managed to cross those obstacles and forced landed on potato fields. The effort of safe landing is commendable by the IP. However, he could land with flaps on. (f) The team further analyzed the operational aspect and is in the opinion that action taken by IP was appropriate with an observation that he could land with 'flaps on'.
	Student Pilot (a) The student Pilot (SP) had total flying experience of 43:00 Hrs. He was absent from flying for more than 06 month prior to the day of accident. However, he went for Dual flying for 45 minutes on 16th March, followed by General Flying (1:00 Hour) and thereafter the Navigation Check Flight. (b) On the way to Rohanpur after crossing Nachol the SP observed vibration and reported to IP. (c) The performance of the SP was assessed as normal.

Air Traffic Controller

(a) On 16th March 2021 the ATC duty controller was on duty from 0700-1230 UTC. He gave the start up to S2-AGG at 0716 UTC.

(b) When the aircraft was in distress, he advised the pilot to report to final RWY-17, the shortest way to approach the airfield.

(c) He informed Airport Manager (APM) to make the fire vehicle fully ready.

(d) Following the forced landing of the aircraft in Potato field, he informed the airport Police Station (PS) requesting to pass the message to Tanore PS for safety and security of the personnel and aircraft at the crash site.

(e) The duty controller also informed the fire vehicle of Tanore Civil Defense to move to the crash spot for handling any emergency situation.

(f) The duty controller also found his relative from the locality to provide support for safety of the two pilot and aircraft.

(g) The action taken by duty controller is considered to be commendable. He went beyond his official responsibility and involved his relative to provide support for safety and security of aircraft and pilots.

(a) Company Maintenance Engineer/ Manager

(1) Company maintenance engineer was on duty on 16th March 2021 at Rajshahi. He is also the maintenance manager of BFA & GA. He is a licensed engineer on Type. He occasionally visits the base of operations at Rajshahi to perform the job of aircraft maintenance engineer (AME) and seldom provides effective supervision, planning and development on safe maintenance procedure and activities for the company as Maintenance Manager.

(2) He appeared for interview and submitted all the related documents which were necessary for the investigation.

(b) Company Quality Assurance Manager

(1) The quality assurance manager started working from 05 January 2021.

(2) He was on course module-10 at BATC from 07.02.21 till 14.03.2021.

(3) When the accident took place, he was in Dhaka.

(4) He did not visit the maintenance facilities at Rajshahi since his joining.

(5) Check I was carried out on 21.02.2021. He did not sign-on the quality assurance as he was in Dhaka.

(6) No independent assurance system was found to observe the compliance of CAA requirements to ensure that maintenance activities were accomplished to satisfactory standard of airworthiness and workmanship.

	(7) No quality audit was carried out to oversee the standard of maintenance activities. (8) It is learnt that the appointed quality assurance manager has left the organization. Presently, the quality assurance is done by the contracted personnel form other organization.

3.2.3 Machine

3.2.3.1 Machine?	(a) The accident took place due to engine failure in the air. As such the engine was the focal point of investigation to find out the root cause. (b) All the structural damages were due to the after effect of this accident. (c) The engine type 'Lycoming' Model O-235-L2C SL no L-16476-15 was installed to aircraft S2-AGG on 18.08.2020 with total time 13,647:20 Hours since new and 0:0 hours since overhaul. (d) The engine was overhauled at Admark overhaul Inc, FAA approved repair station # JL4R 288M, Florida, USA and was received on 17.11.2020 by BFA & GA. (e) The accident took place on 16.03.2021 after completing 459:45 hours after overhaul. (f) During field level inspection, very less amount of engine oil (almost nil) was found while checking by dip stick. Apparently, no damage could be found to the hoses of pressure and return line of the oil system, traces of oil was detected underneath the fuselage. (g) During 'Test and Research', the AAIT found the evidences of huge metal chips in residual engine oil, filter, which indicates that some of the internal parts of cylinder got either damaged, partially damaged, broken or worn out, allowing cylinder pressure to leak and caused engine oil to drain. (h) In view of the above, the AAIT decided that a tear-down (dismantling) inspection is required to find out exactly which internal parts have damaged, partially damaged, broken or worn-out. (i) The team is in the process of sending the engine to manufacturer facilities in USA for tear-down inspection.

3.2.4 Environment

3.2.4.1 Environment?	Not contributary with this accident

3.2.5 Organizational & Motivation aspect:

3.2.5.1 Organizational Aspect?	(a) The AAIT found some organizational lapses, which are mentioned below: (1) BFA & GA is having Head office in Dhaka and operational activities are carried out at Rajshahi. Some maintenance works used to be carried out in Dhaka but operations and related maintenance was carried out at Rajshahi. The top management personnel very rarely visit Rajshahi. As such, effective supervision and control was lacking by the top management on total operational and maintenance activities at Rajshahi.

	(2) Technical Store: The present technical store was not in organized condition. All the aircraft spares, engine oil, grease, tyres etc. are kept in one rack/ one place. The room is not temperature and humidity controlled. The same room is used to keep the aircraft documents and sitting arrangements for maintenance manager/personnel. (3) Accommodation: There is inadequacy of space in present existing building at Rajshahi. All the class rooms, briefing- debriefing room, instructor's sitting room, store, technical documents including dining is housed in present small building. (4) Fuel shed and hangar: The fuel barrels are kept under open sky. There is no hangar of BFA & GA for maintenance at Rajshahi. The maintenance works are carried out in the hangar of Galaxy Aviation Ltd under agreement. (5) Tools and ground support equipment at Rajshahi: There is shortage of appropriate and adequate tools and ground support equipment at Rajshahi.
3.2.5.2 Motivation aspect	(a) While discussing with the employees, the AAIT felt that the employees are not motivated to work for the organization.

3.3 CONCLUSIONS

Appended below are the finding, causes and or contributing factors established in the investigation.

3.3.1 Findings, Causes and/ or Contributing factors

3.3.1.1 Findings?	(a) The 'Findings' are made from the basis of tests and research, the details of which is mentioned in para 3.1.16 (b) The following are the findings of the oil sump and oil filter check: (c) A lot of tiny metal chips were found in residual oil of the oil sump. (d) Approximately 0.8 mm size metal chip was found on the screen of oil sump. (e) A lot of metal chips (very small in size) were found in the body of the filter. (f) A lot of metal chips were found in the filtering elements. (g) A lot of metal chips were in the residual Oil from filter (h) The following are the findings of 'compression check': (i) From the result of the compression check, it is evident that the piston of No 1 & 2 cylinder was moving from top to bottom but pressure was holding partially, that means, contains pressure was leaking. (j) The piston of No 3 cylinder was moving from top to bottom but pressure was not holding at all. (k) The piston of No 4 Cylinder was not moving and pressure was not holding at all. (l) Spark Plug Check: As there is no remarkable findings, the spark plug check was not considered as a contributory factor to this accident. (m) However, the findings may be changed after getting the report of tear-down investigation at manufacturer's facilities. In that case, the team will re-open the investigation as per standard 5.13 of Annex-13.

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3.3.2 Causes

3.3.2.1 Causes?	(a) The accident took place due to engine failure in the air. On the basis of evidences found during test and research, the AAIT is in the opinion that the causes of the engine failure were due to damaged, partial damaged, broken or worn-out of some internal parts in one, more or in all cylinders that allowed the cylinder pressure to leak and caused the engine oil to drain through vent/ breather-line or other points. (b) However, this can be ascertained after carrying out the tear-down investigation at manufacturer's facilities and if new outcome, will be mentioned in the re-opened investigation report.

3.3.3 Contributing Factors

3.3.3.1 Contributing Factors?	(a) Lack of effective supervision by top and mid-level management officials on total operational and maintenance activities at Rajshahi. (b) Lack of effective monitoring and supervision by the Maintenance and Quality Assurance system for safe maintenance and operations. (c) Shortage of skilled technician and mechanics in the company. (d) Absence any system to provide proper classroom training for its employees and technicians on the type aircraft. (e) Absence of updating efforts of Manuals of the Company. (f) Faulty keeping of store inventories. (g) Discrepancy on keeping records in the Register vis a vis the stored maintenance items. (h) Non-availability of proper shed or place for storing Fuel, Oil, Lubricants and other Equiment. (i) Shortage of appropriate tools and adequate ground support equipment at Rajshahi to carry out the maintenance job properly and safely. (j) Granting extension of AMO and exemption of Maintenance Manager by the CAA while maintenance-related discrepancies remained unresolved.

3.4 SAFETY RECOMMENDATIONS

3.4.1 Intermediary Safety Recommendations

3.4.1.1 Intermediary Safety Recommendations?	Intermediary Safety Recommendations were not raised.

3.4.2 Safety Recommendations

3.4.2.1 Safety Recommendations?	**(a) Applicable to the Bangladesh Flying Academy and General Aviation Ltd:** (1) BFA & GA should develop a system to carry out an effective supervision by the top and mid-level management on total operational and maintenance activities at Rajshahi. (2) The BFA & GA should also develop an effective system of monitoring and supervising its 'Quality Assurance and Maintenance System'. (3) There should be some skilled and knowledgeable technicians and mechanics to provide proper classroom training (mostly practical oriented) on the aircraft type. (4) A full-time quality assurance manager may be recruited to carry out the quality assurance responsibilities for the company. (5) A proper store with temperature and humidity-controlled space should be established to keep the spares, rubberized items, all lubricants and grease etc. as per the standard store facilities followed in aviation. (6) Responsible Store officer/ keeper may be made available to ensure issue, receipt of the spares with proper documented procedures, especially in the question of shelf life or life expired items. (7) Preferably, a customized inventory control software may be introduced for proper accountability and functioning of the store. (8) BFA & GA should reorganize its system by having the 'Maintenance Organization Exposition (MOE) Manual and 'Continuing Airworthiness Management Exposition (CAME) manual approved to meet the present regulation of the CAA. (9) The BFA & GA should ensure to have sufficient classrooms facility, briefing-debriefing rooms, instructors' and managers' seating room, technical library, dining and room for maintenance personnel, etc., in order to create a better environment for the trainers, trainees and all other employees. (10) Appropriate fuel shed with fire extinguishing facilities to be made available. (11) BFA & GA should have appropriate tools and adequate ground support equipment at Rajshahi. (12) Pilot should make written defect-entry in aircraft maintenance logbook and accordingly rectification work should be carried out by the maintenance personnel.

(13) BFA & GA should develop a 'Safety Maintenance Culture' by motivating the employee through frequent visit to facilities, briefing to personnel and make them feel that their job is vital for the organization.

(b) Applicable to the Civil Aviation Authority of Bangladesh (CAAB):

(1) Prior to granting extension of AMO, AOC or C of A, the Civil Aviation Authority of Bangladesh should ensure that the incumbent operator fulfills all the requirements specified in the approved checklist.

(2) Civil Aviation Authority of Bangladesh should approve the documents submitted by BFA & GA with regard to Maintenance Organization Exposition (MOE) and Continuous Airworthiness Management Exposition (CAME) at the earliest.

4. APPENDICES

4.1 All evidences, documents, photographs etc., will be preserved in 'File'

4.2 Some additional photo evidences

END OF THE REPORT