



AAI Case Reference: 13/2011

AIR ACCIDENT INVESTIGATION SECTOR

PRELIMINARY UPDATE

SERIOUS INCIDENT FACTUAL REPORT

RUNWAY EXCURSION

**General Civil Aviation Authority
Of
United Arab Emirates**



SERIOUS INCIDENT

NAME OF THE OPERATOR : Alpha Aviation Academy
NAME OF THE OWNER : Global Hedge Resources Inc.
MANUFACTURER : Cessna
AIRCRAFT MODEL : C172S
NATIONALITY : UAE
REGISTRATION : A6-MPL
LOCATION COORDINATES : Lat Long 25°19'42"N 55°31'2"E
(On the runway of Sharjah International Airport)
DATE & TIME : 05th December 2011, 16:55 Local Time

Notes:

1. All times in the report are Local Time (Local time in UAE was UTC+ 4h)
2. The word "Aircraft" in this report implies the aircraft involved in the accident
3. The word "Team" in this report implies the Investigation Team

This accident investigation is performed in accordance with UAE Federal Act No. 20 (1991), Promulgating the Civil Aviation Law, Chapter VII, Aircraft Accidents, Article 48, and in conformity to Annex 13 to the Chicago Convention on International Civil Aviation.

The sole objective of this investigation is to prevent aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

The information contained in this preliminary update report is derived from the factual information gathered during the ongoing investigation of the occurrence. Later interim reports or the final report may contain altered information in the case that new evidence appears during the ongoing investigation that requires changes to the information depicted in this report.

Reports are publicly available from :

<http://www.gcaa.gov.ae/en/epublication/pages/investigationreport.aspx>

Any specific safety issues identified during the course of the investigation will be advised to all parties through the GCAA Safety Recommendations (SR) procedure.

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ABBREVIATIONS

A	Aeroplane
AFM	Aircraft Flight Manual
AMM	Aircraft Maintenance Manual
AMO	Approved Maintenance Organization
AMS	Approved Maintenance Schedule
amsl	above mean sea level
ATC	Air Traffic Control
ATPL	Air Transport Pilot License
CAAP	Civil Aviation Advisory Publication
CAR	UAE Civil Aviation Regulation
CAR-OPS	UAE Civil Aviation Regulation – Flight Operation
CAT	Category
CAVOK	Cloud and Visibility OK
CFI	Certificated Flight Instructor
CG	Centre of Gravity
C of A	Certificate of Airworthiness
COM	Communication
CP	Cadet Pilot
CRJ	Canadair Regional Jet (The Bombardier)
CRM	Cockpit Resource Management
CVR	Cockpit Voice Recorder
Cm	centimeter
CMR	Certificate of Maintenance Review
CPL	Commercial Pilot License
EICAS	Engine Indicating and Crew Alerting System
ELP	English Language Proficiency
FAA	Federal Aviation Administration
FDR	Flight Data Recorder
FE	Flight Examiner
FTO	Flight Training Organization
GCAA	UAE General Civil Aviation Authority
Hrs	hours

ICAO	International Civil Aviation Organization
IIC	Investigator in Charge
ILS	Instrument Landing System
JAA	Joint Aviation Authorities
Kg	kilogram
KIAS	Knots Indicated Air Speed
Km	kilometers
LDA	Landing Distance Available
Ldg	Landing
LH	Left Hand
LT	Local Time
M	meters
Mb	Millibars
MCC	Multi Crew Co-operation
MHz	Mega Hertz
MPL	Multi-Crew Pilot Licence
MPM	Maintenance Program Manual
MSI	Major Structural Inspection
MSN	Manufacturer Serial Number
No.	Number
OK	all correct
OMRK	Ras Al Khaimah International Airport
OMSJ	Sharjah International Airport
OMUQ	Umm Al Quwain Airport
PAPI	Precision Approach Path Indicator
PPL	Private Pilot License
QNH	barometric pressure adjusted to sea level
RH	Right Hand
S/E	Single Engine
SN	Serial Number
SOP	Standard Operating Procedures
TM	Training Manual
TO	Take Off
TSO	Time Since Overhaul

TSN	Time Since New
T1	Training Area 1
UAE	United Arab Emirates
UTC	Co-ordinated Universal Time
VHF	Very High Frequency
VOR	Very High Frequency Omni directional Range (Navigation System)

Synopsis

The GCAA were informed about the accident via the ROSI within 24 hours of the incident and the AAI section of GCAA in accordance with ICAO Annex 13 immediately formed an Investigation Team (Team). The State of the Manufacturer (United States of America) was notified and assigned an Accredited Representative to the investigation. The UAE GCAA will lead the investigation and issue the final report.

On December 05th, 2011, a Cessna C172S aircraft, registration A6-MPL, operated by a UAE based Flight Training Organisation, departed from Sharjah International Airport (OMSJ) for a Navigation (NAV) training solo cross country flight, returning to OMSJ, with 1 crew member on board. During landing on Runway 30, at approximately 16:55L, the aircraft contacted the runway, the right wing lifted and aircraft veered to the left. The pilot was unable to control the aircraft, with the aircraft eventually coming to a stop off the runway and into the sand. Damage was sustained to the engine propeller and the right hand wing.

No crew injuries were experienced during the occurrence.

1.0 Factual Information

1.1 History of the Flight

On December 05th, 2011, a Cessna C172S aircraft, registration A6-MPL, operated by an UAE based Flight Training Organisation, departed from Sharjah International Airport (OMSJ) for a solo cross country NAV training flight with one flight crew, cadet pilot, on board. The flight was his 31st sortie and part of multi-pilot license (MPL) training program. The navigation cross country flight, which was uneventful, included various landmarks in the UAE. During the final landing back at Sharjah International Airport, the aircraft touched down on the runway. Shortly after the contact with the runway, the right wing lifted and subsequently the aircraft veered to the left and departed the runway into the sand. The pilot was unable to control the aircraft with rudder and aileron applications.

The cadet pilot started the flight phase of the MPL program in January 2011 and had flown 51.8 hours dual and 2.9 hours solo prior to 05/Dec/2011 and on this day it was his first NAV solo flight.

On the day of the accident, the cadet pilot reported for duty at 1430L for a planned NAV Solo flight for an ETD of 1530L. He stated that he was adequately rested and prepared for his NAV Solo. His night rest was ten hours as per his statement. Upon his arrival at the Training Organisation, he performed the preflight checks, consulted with his Flight Instructor who reviewed his flight plan and cleared the cadet pilot to proceed on the flight.

The flight plan meant that the cadet pilot would fly OMSJ- Hilew Village- Al Dhaid – OMRK- OMUQ – Hilew Village and back to OMSJ with a flight time of 60 mins.

Takeoff was ordinary from runway (RWY) 30 with good weather conditions throughout the flight. The flight had no reported difficulties and on the return leg, 3 miles from final approach into OMSJ, ATC requested the cadet pilot to vacate the RWY 30 after landing at Taxiway D.

The approach for landing was without any event with speed at 65kts and 30 degrees flap. Touchdown was made after the 1000 foot marker and on the center line of RWY 30.

Upon touchdown, the cadet pilot reported that the aircraft lifted, without his intervention, from the right side and sank back to the ground after hitting the right wing. He then tried to control the aircraft by applying full right rudder and full right aileron at which time he was unable to have any positive impact on the aircraft movement. The aircraft at this time had veered to the left off the active RWY and came to a stop in the sand. At this time the cadet pilot turned the engine off and contacted ATC.

The airport fire brigade responded to the scene of the accident and at which time the Training Organisation was also contacted. The cadet pilot was without any injury, however he was taken to the Sharjah Airport Medical center for an examination and additional tests after an accident.

The aircraft was eventually removed from the sand with the assistance of Sharjah Civil Aviation.

1.2 Injuries to Persons

Injuries	Flight Crew	Cabin Crew	Passengers	Other	Total
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	1	-	-	-	1
Total	1	-	-	-	1

1.3 Damage to Aircraft

Damage occurred as noted:

1. Engine Propeller
2. Right Hand Wingtip
3. Right hand wing outermost rib together with leading edge skin attaching to the rib.
4. Right hand strobe light lens
5. Right hand NAV lamp lens.
6. As a result of the propeller damage, and as per the Aircraft Engineer, the Engine will require inspection.

(See Appendix 1).

1.4 Other Damage

Except for one Airfield Ground Light, AGL, on the edge of the runway there were no other damage such as buildings, vehicles, navigation facilities, aerodrome structures and installations was reported. Additionally the Team was not made aware to any significant damage to environment.

(See Appendix 2).

1.5 Personnel Information

1.5.1 The Cadet Pilot

Pilot	:	Male, 32 years old
All classroom training and checking	:	Current at the time of the serious incident
Proficiency Check	:	Current at the time of the serious incident
Medical certificate	:	Class1, valid up to 31 st December 2011
Flying Experience		
Total Dual hours on all aircraft types	:	51.3 hrs (C172S)
Total Solo Hours	:	2.9 hrs
1 st Solo Flight	:	10-Novemeber-2011
Total Hours last 30 days	:	9.7 Dual hrs, and 2.9 Solo Hrs
Total Hours last 24 hours	:	0.0 hrs
Previous rest and duty period		
Off Duty period	:	More than 24 hrs

1.5.2 History of the Cadet Pilot

Date enrolled at Flight Training Organisation	:	06 th September 2009
Flight program enrolled for:	:	Multi Crew Pilot License (MPL) Course (class 03/09)
Planned Duration ¹	:	14 months (Expected completion date Aug 2010)
Pilapt ² Profile aptitude Score	:	3 (Low Flying Training Potential) ³
ATPL Theoretical Knowledge Completion	:	Certificate issued on 24 th July 2010.

¹ Reference Flight Training Organization memo to Cadet Pilot dated 23rd July 2009 and 2nd memo from FTO dated 16th May 2010.

² The founder of People Technologies is Eugene Burke, the author of the PILAPT[®] tests and psychometric models. People Technologies is a research based consultancy specializing in the development of bespoke human assessment. As the name implies, People Technologies' mission is to help organizations identify and maximize their people resources. People Technologies is best known for its extensive work and research in the area of Aviation Psychology. Research on PILAPT[®] has been published in various scientific papers at conferences worldwide and PILAPT[®] is now recognized as the modern standard for pilot selection. (www.pilapt.com)

³ Reference FTO Doc # 991230 & Session 070808-1. Based on a score of 1 to 10 (1/2/3 Low, 4/5/6/7 Moderate, 8/9/10 High).

Quote from PILAPT®: “Based on several years of research, these PILAPT® tests have been designed to ensure that organizations can quickly and easily select applicants that will be safe and competent pilots. PILAPT® has been used by military and commercial clients since 1997. PILAPT's® ongoing validation process consistently shows accurate prediction of pilot performance. Today the tests are used all over the world in twenty countries and are internationally recognized as best practice in pilot selection. To date, over 30,000 have been assessed with PILAPT® in 11 different languages. Not only will PILAPT® tests save you time and money at the selection stage, they will also help you to avoid wasted time and resources in training. In an "MPL" (Multi-Crew Pilot Licence) world where there is a shortage of pilot talent, PILAPT® is a compelling choice for airlines and training schools who are seeking more advanced and accurate data in order to identify, with confidence, those pilots with the talent to become top performers in the future”- Unquote.

1.6 Aircraft Information

The Cessna 172 Skyhawk is a four-seat, single-engine, and high-wing fixed-wing aircraft with a tricycle landing gear. Cessna aircraft was first flown in 1955.

The accident aircraft was a 172S, first introduced in 1998 and powered by a Lycoming IO-360-L2A piston engine producing 180 horsepower (134 kW). The maximum engine rpm was 2,700 rpm.

As of 2009, only the S model is in production.

1.6.1 Aircraft General Information

Aircraft Type:	C172S
Aircraft Manufacturer:	Cessna Aircraft Company
Aircraft MSN:	172S9137
Aircraft MTOWA:	1162 kgs
Date Registered in UAE	15 th July 2010
Date of first C of A under UAE Registry :	24 th Feb 2011
C of A expiry date:	23 rd Feb 2012
C of A category:	Transport (Passenger)
Aircraft Station License:	Issued on 10 th Jan 2011 and valid

	until 09 th Jan 2012
Insurance Validity Period:	effective from 01 st Nov 2010 to 31 st Dec 2011
Aircraft Total Flight Hours:	4174.6
Last CMR date:	20 th October 2011
Next Due CMR	19 th February 2012

Engines

Engine Type:	IO-360-L2A
Engine Manufacturer:	Textron Lycoming
Engines' ESN:	L-30351-51A
Engines' TSO (hrs):	996.9

Propellers

Propeller Model:	1A170/JHA7660
Propeller Manufacturer :	McCauley Propeller Systems
Propeller SN:	UG23005
Propeller TSN/TSO	240.2 (TSO)

1.6.2 Aircraft C172 MSN 172S9137 Historical Data

The Aircraft was built in 2002 under Type Certificate number 3A12 and its first flight was in August 2002. Most of the flight time was with a flight school in Florida, USA, under registration N533ER.

During the third quarter of 2008, the aircraft was deregistered from USA and was re-registered as RP-C3549 in the Philippines, Certificate of Registration number CN3CR080582. Total aircraft flight hours at de-registration is not confirmed but the last entry in the USA on the Airframe Maintenance Log book on 5th Sep 2008 indicated 3793.0 hours. The Certificate of Airworthiness for RP-C3549 was issued in category Normal and was effective from October 2008 to October 2009.

On 18th June 2009, the aircraft was de-registered from the Philippines and the same day an Export Certificate of Airworthiness was issued for the United Arab Emirates, UAE. The total aircraft flight hours was 3853.3 which means that during the aircraft stay in the Philippines the aircraft had flown for approximately 60.3 hours.

From June to September of 2009, the aircraft disassembly and transportation to the UAE started with the intention of it being re-assembled in the UAE and operate with the Flight Training Organization.

At the beginning of October 2009, the aircraft reassembly started at a UAE based Maintenance Repair Organization (MRO) and eventual had its first flight in the UAE as well as going into service with the FTO in February 2011. The first Certificate of Registration was issued on 15th July 2010 with registration markings A6-MPL and the first Certificate of Airworthiness in Transport Passenger category was issued on 24th February 2011.

1.6.3 Assembly of Aircraft C172 MSN 172S9137 at UAE

Work Order Reference:	ALA/09/A/001
Reason for work order:	Assembling of Aircraft A6-MPL
Scope of Work:	Carry out as required (Wording from the Cover Sheet)
Maintenance Program Manual ref:	GCAA/AMS/185 Issue 1 Rev 0. Dated 01 st April 2010
Major inspections Performed:	1000 Hr & Annual & 50 Hr Inspections
Release Certificate Authority:	GCAA
Aircraft Maintenance Manual Ref:	Cessna C172 AMM. <u>No revision date available.</u>
Export C of A from Philippines iss:	18 th June 2009
Aircraft Flight Hours:	3853.3
Start date of Assembly:	06 th October 2009
Last Weight Check:	25 th January 2010 ⁴
Compass swing carried out:	14 th February 2010 ⁵

⁴ Reference AMO document card no: 0520/1 of Work Order ALA/09/A/001

CRS for ALA/09/A/001 signed on: 20th January 2011
Certificate of Fitness for Flight Iss: 09th February 2011
Expiry Date of Fitness for Flight: 16th February 2011
Test Flight completed on: 11th February 2011
Certificate of Registration Iss: 15th July 2010
Certificate of Airworthiness Iss: 24th February 2011

A review of Work Order ALA/09/A/001 revealed the following points:

1. There was no Maintenance Contract/Agreement presented to the investigation Team between the FTO and the MRO for the assembly work done on work order ref ALA/09/A/001 dated 06th October 2009.
2. The work to be performed on the reassembly of the aircraft and any other inspections was not defined at the time the work commenced on 06th October and evolved during the rebuild of the aircraft.
3. The aircraft maintenance log had no mention of any disassembly of the aircraft that was performed before it was shipped to UAE from the Philippines⁶.
4. There was no traceability for serviceability and serviceable labels of parts reassembled on the aircraft. As per statements from the AMO and the FTO, the aircraft was received at the MRO with major parts disassembled. However, all new parts replaced on the aircraft had serviceable labels attached.
5. Some work cards and the major reassembly of the aircraft, had no cross reference to the maintenance manual.
6. The actual major reassembly consisting of 462 specific tasks, were all signed off on two dates, 17th January 2010 for mainly Avionics trade and 20th May 2010 for all A&C trade.
7. Many of the major reassembly work involving flight controls, control cables and critical assembly points on the aircraft had no reference of duplicate inspections. This is a requirement of GCAA CAR Part V Chapter 2 Section 9.
8. One of the certifying engineer's who signed off for the major reassembly work on 20th May 2010 and other work before 09th Dec 2010, was not in possession of a UAE type rated licence on C172 aircraft. His type rating on the C172 was endorsed on 07th December 2010 by the UAE GCAA and the MRO issued the company authorization after that on 09th Dec 2010.
9. The certifying engineer⁷ mentioned in point 8 above, was not an employee of the MRO and there was no evidence that he was contracted to the MRO⁸.

⁵ As per the FTO approved Maintenance Program, GCAA/AMS/185, Compass swing is due every 1 year/12 months

⁶ For info: As per UAE GCAA CAR Part V Chapter 2 section 13.1, an export C of A is only issued for a complete aircraft.

⁷ The certifying engineer was trained by and tested in the MRO company procedures, documentation and quality prior to him being given an authorisation. The authorisation of this engineer was at the FTO request and was detailed in the maintenance contract.

⁸ Reference UAE GCAA CAR Part V Chapter 3 (CAR145) section AMC 145.30(d) Personnel Requirements which states that: "Has sufficient staff means that the organization employs or contracts such staff of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should be employed to ensure organizational stability. Contract staff, being part time or full time should be made aware that when working for the organization they are subjected to compliance with the organization's procedures specified in the maintenance organization exposition relevant to their duties. For the purpose of this sub-paragraph, employed means the person is directly employed as an individual by the maintenance organization approved under CAR 145 whereas contracted means the person is employed by another organization and contracted by that organization to the maintenance organization approved under CAR 145."

10. There was no evidence that the compass swing was scheduled after it was done on 14th February 2010 as per the approved Maintenance Program, GCAA/AMS/185, this should be carried out every 1 year/12 months.

The aircraft was eventually test flown on 11th February 2011 after approximately 15 months under maintenance and there were nil defects reported by the flight crew.

1.6.4 Occurrences on Aircraft C172 MSN 172S9137

1. Under registration N533ER on 07th May 2007, Tach Time 3750.7 hrs, at Payson Airport, Payson, Arizona, a student pilot was flying under VFR rules on his first VFR solo cross country. During landing phase, due to high approach airspeed, the pilot attempted to land long and allow the airspeed to decay resulting in the airplane contacting the runway 1700 feet beyond the threshold with the nose wheel and the propeller striking the runway first. The airplane bounced, and landed hard approximately 95 feet further down the runway, again sustaining propeller strikes. It became airborne for another 125 feet before striking the runway and departing to the left, passing through turf and coming to rest on the adjacent taxiway.⁹

The airplane sustained substantial damage including a buckled and split firewall, propeller strikes and a destroyed nose wheel tire and bearing.

There was no injury to the student pilot.

As per the Airframe Maintenance Log, extensive and major repairs including replacement/repairs of major structural parts, replacement of engine/propeller, removal/installation/rigging of most flight control surfaces and other repairs/replacement of parts was carried out by a FAA Approved Repair Station.

The aircraft Certificate of Release to Service was eventually signed on 07th Aug 2007.

2. Under registration A6-MPL, on 31st March 2011, A/C Total Time of 3934.4 hrs, at Sharjah International Airport, a student pilot from the FTO on his first solo flight, during the landing phase, the aircraft bounced on the initial touchdown followed by a severe and uncontrollable veer to the left and finally a nose down pitch which resulted in a propeller strike.¹⁰

Damage assessment report was not made available.

There was no injury to the student pilot.

The repair was completed and the major parts replaced were the engine, propeller, new mounts and other items as mentioned on the Airframe Maintenance Log. Aircraft CRS was signed on 20th June 2011.

⁹ Reference USA National Transport Safety Board Accident file number LAX07CA171

¹⁰ Reference UAE GCAA ROSI-3340-110331-AOAW and Flight Training Organization CFI report dated 31st March 2011.

3. Under registration A6-MPL, on 05th December 2011, which is the accident being investigated. ¹¹

1.6.5 Aircraft Maintenance Program for A6-MPL

Maintenance Program Manual Reference:	GCAA/AMS/185 approved by GCAA on 29 th Apr 2010
Last Inspection:	50 hrs inspection completed on 17 th November 2011 at A/C Total Time of 4162.2 hours
Next Inspection Due:	100 hrs inspection at Tach Time 503.4 hours as per Aircraft Technical log # A00283 entry on 17 th Nov 2011 ¹² .
Last Major Check:	200 Hour Inspection completed on 13 th Aug 2011 at A/C Total Time of 4025.0 hrs.
Last CMR:	Issued on 20 th October 2011
Next CMR Due:	19 th February 2012

1.6.6 Aircraft Maintenance Contract for A6-MPL

As the FTO was not operating under part M nor was approved as a CAR 145 AMO organization, a Maintenance Contract for Engineering and Maintenance Support was signed between the FTO and a UAE based MRO with the dates of coverage as noted:

1 st Contract:	Signed on:	24 th March 2010
	Expiry date:	23 rd March 2011
2 nd Contract:	Signed on:	31 st October 2010
	Expiry date:	30 th October 2011

At Sharjah, the MRO was approved to perform up to 50 Hr inspection and Line Maintenance tasks.

On the date of the accident, 05th Dec 2011, there was no maintenance agreement in place between the FTO and any other MRO as the 2nd Maintenance and Engineering Contract expired on 30th October 2011.

Also, all the work performed and certified by the Engineer for the A&C trade for the duration of the Maintenance and Engineering Contract, was an employee of the FTO but issued an approval from the MRO ¹³.

1.6.7 Inspection Program as per MPM

As the Flight Training Organization was not approved to carry out its own aircraft maintenance, there was a signed agreement between the FTO and a UAE based GCAA approved CAR 145 Maintenance Repair Organization

¹¹ Reference UAE GCAA ROSI-5862-111206-AOAW

¹² The entry in the Aircraft Technical log for the next inspection due should have been for 200 hour inspection as the last 200 hr inspection was done at Aircraft hrs of 4025.0 and the aircraft last inspection, 50 hr, was done at Aircraft hrs 4162.2.

¹³ Due to the use of this non MRO engineer is the reason why, when the MRO applied for Line Station at Sharjah for the FTO, at the FTO request, the limitation imposed was up to only 50 Hour inspection.

(MRO) to carry out all maintenance on the two C172s operated by the FTO. However, the FTO was responsible to obtain the necessary approvals from the GCAA with regards to the Maintenance Program.

As per the maintenance agreement and the approvals granted to the MRO by the GCAA, only Line maintenance and 50 hour inspections were approved for Sharjah with all other higher checks above 50 hours to be done at the MRO facility located in Abu Dhabi.

The Operator's Approved Maintenance Program Manual for the two Cessna C172 has been detailed in the Operator's AMS No. GCAA/AMS/185 document, Issue 1, Rev 0 that has been approved by the GCAA on 01st April 2010.

The scheduled inspection of the Aircraft was defined as the following:

1. Check A - Pre Flight Schedule

Done before each flight with a new pilot and signed by the Flight Instructor or CFI (or his deputy) IAW Section 5.1 of the Maintenance Schedule ¹⁴.

2. Not to exceed Flight Hours Inspection of 50 (or not to exceed 60day), 100 (or not to exceed 12months), 200, 400, 600 and 1000 (or not to exceed 3 years).

3. Out of Phase Maintenance Program as per the Approved Maintenance Program, GCAA/AMS/185.

4. C of A Test Flight

To be carried out at each annual renewal of Certificate of Airworthiness.

Until the day of occurrence, the Aircraft last inspection was 50 hours inspection, which was accomplished on 17th November 2011. On this inspection, there were no defects reported.

1.6.8 History of Defects from Feb 2011

On 31st March 2011, A/C Total Time of 3934.4 hrs, at Sharjah International Airport, a student pilot from the FTO on his first solo flight, during the landing phase, the aircraft bounced on the initial touchdown followed by a severe and uncontrollable veer to the left and finally a nose down pitch which resulted in a propeller strike. ¹⁵

The repair was completed and the major parts replaced were the engine, propeller, new mounts and other items as mentioned on the Airframe Maintenance Log. The aircraft CRS was eventually signed on 20th June 2011.

A review of Aircraft Technical Log from 19th October 2011 and the recorded Airframe Maintenance Log from June 2011 revealed, other than the schedule maintenance checks like 50, 100, 200 hour checks, there were no significant defects on A6-MPL. In addition, there were no defects noted on the Damage/Repair Mapping chart, form No FTO/ENG/010, as well as no defects on the Acceptable Deferred Defect List (ADD), Form FTOM 13.

¹⁴ The Daily Check was removed from the maintenance program by permission of the UAE GCAA on 21st Nov 2011 ref GCAA Doc # 21292/55391/DXB/AW/11.

¹⁵ Reference GCAA ROSI-3340-110331-AOAW and Flight Training Organization CFI report dated 31st March 2011.

From 19th October 2011 till the date of the accident, the aircraft had accumulated approximately 50 flight hours and numerous landings with the only defect was for replacement of the Attitude Gyro as it could not stabilize. This defect was reported and rectified on 28th November 2011 by replacement of the unit.

On the day of the accident, 05th December 2011, the aircraft was first flown by a fellow Cadet Pilot on a scheduled sortie, S37, on a NAV Solo flight for a block time of 1.42 hours and there were no reported defects in the Aircraft Technical Log.

1.6.9 Mass and Balance

The last weight and balance was performed on 25th January 2010 with the weight report showing nil significant changes to the C of G.

On the day of the accident, the following chart depicts the center of gravity moment envelope acceptable range and the calculations done by the Cadet Pilot:

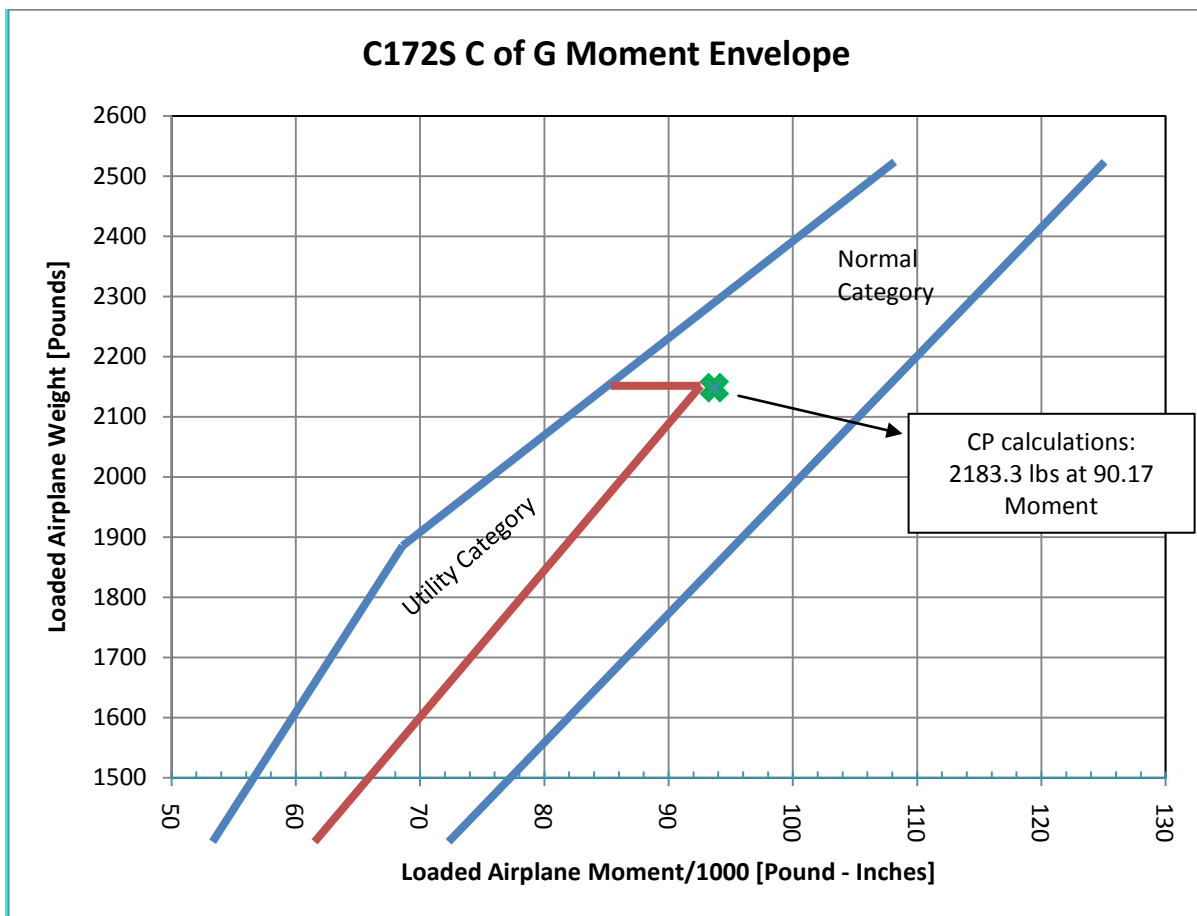


Figure 5 Aircraft C of G Envelope on the Day ¹⁶

¹⁶ Reference FTO OM Part C Section 3 Loading 3.1.11 and FTO Form CS 24 (Dispatch Release & Authorization Form) signed on 05th Dec 2011.

1.7 Meteorological Information

The weather report as per ATC report at Sharjah International Airport at 12:52 UTC at the time of the accident was as follows ¹⁷:

Wind : 290 degrees / 10 knots
Cloud and Visibility : CAVOK
Temperature : 28 degrees centigrade
Runway Condition : Dry
QNH : 1016 mb
Forecast : No significant change
Turbulence : No ¹⁸

1.8 Aids to navigation

The flight was performed under VFR and no aids to navigation were utilised.

As per the FTO, the flight plan submitted for this flight was as per the Operations Manual Part C section 6.1, VFR NAV 3 as shown. The flight would have taken the CP from OMSJ—AL HILLEW—AL DHAID—OMRK—OMUQ—AL HILLEW back to OMSJ. This was reviewed and approved by the Flight Instructor.

¹⁷ Reference GCAA ATC ROSI-5855-111205-ATC and Sharjah ATC report.

¹⁸ Reference GCAA ATC ROSI-5855-111205-ATC , an A320 had taken off approximately 4 minutes before A6-MPL landed.



1.9 Communications

The following is the transcript received from Sharjah ATC on the day of the event, 05th Dec 2011:

From the transcript, the CP had to extend downwind for approximately 1min 30 secs due to the delay in the A320 departure. After the A320 departed, the CP was cleared to continue the approach for landing and landed approximately 4 mins after the A320 departure. The approximate time of the runway excursion of the C172 was 16:49:00.

At 16:48:40, ATC had just given clearance to continue approach for flight TRV3320 into OMSJ.

At 16:49:09, ATC first informed TRV3320 to continue approach and soon after requested TRV3320 to perform a go around as the C172 had departed the runway.

ATC then contacted Rescue 1 and Safety 1 to proceed to the aircraft.

Contact was made to the CP by ATC at 16:51:31 and the CP responded to ATC a few seconds after informing that he was okay.

1.10 Aerodrome Information

Sharjah International airport has the two runways with the following physical characteristics and declared distances:

Designations RWY NR	TRUE & MAG BRG	Dimensions of RWY(M)	Strength (PCN) and surface of RWY and SWY
12	122° / 121°	4063 x 45	asphalt with 300 M Concrete 80 / F / B / X / U 70 / R / A / W / U
30	302° / 301°	4063 x 45	asphalt with 300 M Concrete 80 / F / B / X / U 70 / R / A / W / U

RWY Designator	TORA (M)	TODA (M)	ASDA (M)	LDA (M)
12	4063	4063	4063	4063
30	4063	4063	4063	3764

Runway conditions were normal with relative stable environmental conditions for the day with good visibility.

1.11 Flight Recorders

The Aircraft weight is below 5700kg, and according to CAR Part IV – CAR OPS 1.470, it is not required to be equipped with FDR (Flight Data Recorder) nor CVR (Cockpit Voice Recorder).

The Aircraft was not equipped with FDR or CVR.

1.12 Wreckage and impact information

There were no reported pertinent material failures and component malfunctions, prior to or during the occurrence.

1.13 Medical and Pathological Information

Medical test of the Cadet Pilot was performed after the accident. There was no evidence that physiological factors or incapacitation affected the performance of flight crew member.

1.14 Fire

There was no evidence of fire in flight or after the occurrence.

1.15 Survival aspects

For the purpose of this occurrence there was no search and rescue activity involved. Additionally there was no evacuation performed and the pilot exited the aircraft by his own means.

1.16 Tests and research

No special tests and research performed.

1.17 Organizational and management information.

The Operations of the Flight Training Organisation has been approved by the UAE GCAA.

1.18 Additional Information

1.18.1 Previous aircraft accidents reported at the Flying School

There were two (2) occurrences of similar nature at the Training Organisation both in March 2011.

1. Registration A6-MPA, on 14th March 2011, Cessna 172S, at Sharjah International Airport, a student pilot on his 38th Sortie, VFR Navigation cross country, on landing departed the runway after touch down to the left onto the rough surface causing damage to the propeller and left hand wing tip.¹⁹
2. Registration A6-MPL, on 31st March 2011, A/C Total Time of 3934.4 hrs, at Sharjah International Airport, a student pilot from the FTO on his first solo flight, during the landing phase, the aircraft bounced on the initial touchdown followed by a severe and uncontrollable veer to the left and finally a nose down pitch which resulted in a propeller strike.²⁰

Damage assessment report was not made available.

There was no injury to the student pilot.

The repair was completed and the major parts replaced were the engine, propeller, new mounts and other items as mentioned on the Airframe Maintenance Log.

Aircraft CRS was signed on 20th June 2011.

¹⁹ Reference UAE GCAA ROSI-3169-110315-AOAW.

²⁰ Reference UAE GCAA ROSI-3340-110331-AOAW and Flight Training Organization CFI report dated 31st March 2011.

1.18.2 Aim of the Flight Training Organization Courses

1. Multi-Crew Pilot Licence Course:

The aim of the course is to ensure a level of knowledge and skill appropriate to a co-pilot on a multi crew aircraft type.

2. Core Flying Skills:

The aim of the this phase is to ensure a level of competency in the handling and management of light aircraft in a professional environment together with an introduction to non-technical skills and Threat and Error Management.

3. Basic Phase:

The aim of this phase is to complete the theoretical knowledge aspects of the MPL as required by CAAP 37. Multi-Crew Cooperation (MCC) theoretical knowledge instruction will precede the simulator flying, which is aimed to further develop IF skills and knowledge /operation of turbine powered aircraft in a multi-crew environment.

4. Intermediate Phase:

The aim of this phase is to enhance competency in the IFR environment by the use of Line Orientated Flight Training (LOFT) in a complex or type specific turbine 2 crew operations with advanced non-technical skills and Threat and Error Management.

5. Advanced Phase:

The aim of the Advanced Phase is to complete the transition to the A320 together with AWOPS training and aircraft training so that the candidate is assessed as having a high probability of successfully completing the Airline Operators Conversion Course (OCC) within a normal time frame.

1.18.3 Pre-entry requirements for the MPL Course

1. Have a sufficient level of education to permit on schedule assimilation of the theoretical and practical knowledge requirements of the course.
2. To demonstrate knowledge of English language competency to the ICAO level 4 prior to licence issue
3. To demonstrate an aptitude for a career as a professional airline pilot.
4. To hold a Class 1 Medical prior to course entry.

1.18.4 Assessment for Selection to the MPL Course

1. Education will be assessed by review of paper qualifications and written tests in mathematics and English comprehension.
2. English language competency will be assessed during the initial interview. The candidate will be required to read a passage of technical English
3. Aptitude will be tested by hand/eye coordination exercises, psychometric and numeracy tests using the Pilapt system.

1.18.5 Theoretical Knowledge Instructions for the MPL Course

The Ground Studies element of the training will be conducted to the standard of the ATPL (A) and type rating knowledge requirements. Flight training may be conducted during this period subject to agreements between the CFI and the CGI.

1.18.6 Licence and Rating Application Requirements for Multi-Crew Licence (MPL)

Before an applicant is issued an MPL license, the following are the minimum requirements :-

1. 70 hours flying on aircraft
2. Pass the required NAA exams
3. A total of 240 hours of which 170 hours will be on simulators with an equal number of hours as PF and PNF.
4. Pass a Licence Skill Test on the A320
5. Complete 12 take-off and landings in an A320 to a consistently safe standard. The last 3 must be unaided either physically or verbally
6. ATPL Theoretical Knowledge.
7. Have attained the age of 18 years.
8. Maintained a current Class 1 Medical.

1.18.7 Duration of the Courses

MPL Course Outline

Core Skills

ATPL Ground school

28 weeks

70 hours Flying

16 weeks

44 weeks

Basic Skills

MCC, CRM

1 week

60 hrs FNPT2 MCC Turbine Complex Aircraft

7 weeks

8 weeks

Intermediate

A320 ground school

2 weeks

FMGS

1 week

48 hrs 2 crew LOFT

3 weeks

6 weeks

Advanced

15 x 4 hrs full flight sim detail including AWOPS & LST

3 weeks

2 hours flight landing practice A320, 12 landings

1 day

3 weeks and 1 day

NB The course duration is approximately 62 training weeks, and does not include leave, public holidays etc., and is subject to satisfactory progress and factors outside the control of the FTO.

1.19 Useful or effective investigation technique

No useful or effective investigation technique was used.

2.0 Analysis

To be determined.

3.0 Conclusions

To be determined.

3.1 Findings

To be determined.

3.2 Causes

To be determined.

4.0 Safety Recommendations

To be determined.

5.0 Ongoing Investigations

To date, the investigation process has identified several opportunities of improvement, which the Team pursues





Figure A1-1 : Damaged Right Hand Outboard Wing

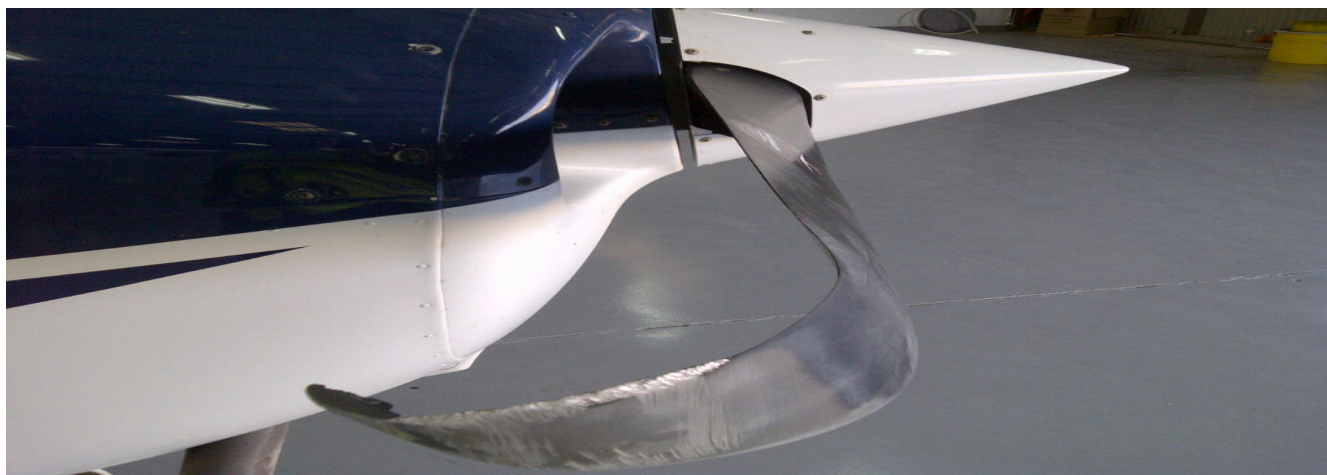


Figure A1-2: Damaged Engine Propeller



Figure A2-1: Damaged Airfield Ground Lighting Equipment