



PRELIMINARY

FACTUAL AIRCRAFT ACCIDENT REPORT 02/2011

General Civil Aviation Authority

Air Accident Investigation Department

Abu Dhabi, UAE

**Grumman G21G, N221AG
Al Ain International Airport
27th February 2011
United Arab Emirates**



GCAA

دولة الامارات العربية المتحدة
الهيئة العامة للطيران المدني
UAE General Civil Aviation Authority

OBJECTIVE

This investigation is performed in accordance with the UAE Federal Act No 20/1991, promulgating the Civil Aviation Law, Chapter VII, Aircraft Accidents, Article 48, and in conformity to ICAO Annex 13 to the Chicago Convention.

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.



AIRCRAFT ACCIDENT BRIEF

GCAA AAI Report No.:	02/2011
Operator/owner:	Private, registered owner: Triple S Aviation LLC
Aircraft Type and Registration and MSN¹:	McKinnon G21G, N221AG, MSN 1240
No. and Type of Engines:	Two Turbo Prop, TPE331 Series
Date and Time (UTC):	27 th February 2011, 20:07 UAE LT (_+4 UTC)
Location:	Al Ain International Airport, Taxiway "F", between Taxiway "K" and "C" N 24 ^o 15' 30.941'' E 055 ^o 36' 40.541''
Type of Flight:	General Aviation
Persons on Board:	4
Injuries:	4 Fatal
Nature of Damage:	Aircraft completely destroyed

The accident, involving a Grumman G-21, registration N221AG, was notified to the General Civil Aviation Authority (GCAA), on 27th February, 2011 at about 1610 UTC. An Investigation Team was dispatched and reached the accident site within one hour. The Team coordinated with all Authorities on site by initiating the accident investigation process according to the already prepared and exercised plans. The Air Accident Investigation ("AAI") of the GCAA is leading the investigation as the United Arab Emirates ("UAE") is the State of Occurrence.

Notes:

- ¹ The word ("Aircraft") in this report implies the accident aircraft.
- ² The word "Team" in this report implies the Accident Investigation Team lead by an Investigator-In-Charge assigned by the GCAA of the UAE and encompasses investigators from the GCAA and an accredited representative from the National Transportation Safety Board ("NTSB") of the United States of America.
- ³ LT is the Local Time of the UAE which is +4 hours of the Coordinated Universal Time.

¹ As shown in the Federal Aviation Administration Registry



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FACTUAL INFORMATION

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

HISTORY OF FLIGHT

On February 27th, 2011, at approximately 1556 UTC, a Grumman G-21, registration N221AG Aircraft, with total four persons onboard, departed its parking ramp located in Al Ain International Airport.

The purpose of the flight was to perform one circuit with a low approach then onwards clearance to Riyadh, Saudi Arabia. The Aircraft taxied on Taxiway "E" ("TWY" E) to reach Runway ("RWY") 19 that was the planned takeoff runway.

After approximately eight minutes of taxiing, the aircraft lined up on the threshold of RWY 19. The Aircraft waited for approximately one and half minutes until takeoff clearance was obtained.

The Aircraft started to move and accelerate normally. Witnesses reported that shortly after liftoff, and during initial climb, the Aircraft veered to the left and kept airborne until impacted with down nose and left roll attitude. The Aircraft went for a distance of approximately 32 meters until came to a complete stop.

The Aircraft was destroyed by the impact and subsequent fire. All occupants were fatally injured.

INJURIES TO PERSONS

Injuries	Flight Crew	Cabin Crew	Passengers	Other	Total
Fatal	2	-	2	-	4
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	-	-	-	-	-
Total	2	-	2	-	4

DAMAGE TO AIRCRAFT

The aircraft was destroyed due to significant impact forces and subsequent fire.

OTHER DAMAGE

None

PERSONNEL INFORMATION

Table 1 illustrates the operational qualifications and experience of the pilot in command at the time of the occurrence.

Table 1- Personnel Information: Pilot in command qualifications and experience Captain

Pilot 1 (Pilot In Command ("PIC"))	
Gender	Male
Date of Birth	24 th February 1983
Licence Category and Rating	CPL: AIRPLANE MULTIENGINE SEA AIRPLANE SINGLE ENGINE LAND AIRPLANE SINGLE ENGINE SEA ATPL: AIRPLANE MULTIENGINE LAND
Class & date of last medical	Pending, 6 th October 2009

AIRCRAFT INFORMATION

General Information

Manufacturer	Grumman (McKinnon) ²
Model	G21G
MSN	1240
Year of manufacture	1944
Registration	N221AG
TSN	9912 hours
CSN	Unknown

Certificate of Airworthiness

Issuing Authority	The Federal Aviation Administration ("FAA") of the United States of America
Issue date	17 th May, 1996
Valid till	No expiry date

Certificate of Registration

Issuing Authority	The FAA
Issue date	17 th December, 2009
Last inspection	10 th June, 2010

² The original manufacturer was Grumman, McKinnon was the type certificate holder.

Empty weight	7980.64 pounds
E.W. C. G in % MAC	Arm 16.92, Moment 135003.99 pounds-inches
Last Weight and Balance	28 th May, 2010
Engines	Two Turbo Prop Pratt & Whitney TPE-331-2UA-2030
S/N Engine No. 1	97002 73HRS SMOH
Engine No. 2	97001 73HRS SMOH
Propellers	Two Hartzell constant speed 3-blades propellers HC-B3TN-5E
S/N Propeller No. 1	BUA 7076 73 HRS SMOH
Propeller No. 2	BUA 7078 73 HRS SMOH

Maintenance History

The initial collected documents brought to the UAE Investigation Team's knowledge that the Aircraft was modified in sometime before entering the UAE, the Team is in ongoing communication with the United States National Transportation Safety Board ("NTSB") for obtaining more exact information from the aircraft records.

During its stay in Al Ain Airport from the period between 24th August 2010 until the date of the accident, the Aircraft was kept parked inside a hangar which owner witnessed that he didn't experience any maintenance or preservation work since the aircraft entry. The owner added that only some preventive maintenance works were performed on the day of the accident in addition to activities pertinent to installation of extra fuel tank with no exact information of whether the tank was fixed at its place onboard the aircraft, connected to the fuel system or refueled.

METEOROLOGICAL INFORMATION

There was no significant weather at the time of the accident.

COMMUNICATION

The following is a summary of the communication sequence as made between the Aircraft and Al Ain International Airport tower

- 15:44:48³** N221AG conducted radio checks with ground controller ("GMC")
- 15:46:09** N221AG requested clearance for Riyadh
- 15:46:47** N221AG clarified his request advising one circuit with a low approach will be required then onwards clearance to Riyadh
- 15:49:02** Al Ain GMC advised N221AG he could start at his discretion.
- 15:50:46** N221AG advised engine start on the Horizon ramp
- 15:52:16** N221AG requested taxi clearance from the parking ramp
- 15:52:20** GMC cleared N221AG to the holding point RWY 19 which was acknowledge by N221AG
- 15:52:38** GMC advised N221AG the QNH was 1014 which was read back by N221AG

³ Time in UTC

- 15:52:58** N221AG was advised to expect a left hand closed circuit not above two thousand feet VFR. GMC advised N221AG to request IFR clearance from the Tower airborne.
- 15:53:08** N221AG read back the clearance for the 'left traffic' VFR two thousand or below.
- 15:53:53** GMC requested persons onboard from N221AG which was reported as four (4).
- 15:55:13** N221AG advised he will delay taxi at the parking ramp for three minutes.
- 15:56:03** N221AG reported ready for taxi and was cleared to taxi to the holding point RWY 19
- 15:57:53** GMC issued N221AG IFR clearance which was read back and verified by the GMC.
- 16:02:38** N221AG contacted the Tower Aerodrome Control ("ADC") reporting ready for closed circuit. ADC held N221AG at the holding point due to traffic.
- 16:02:55** The controller clarified that N221AG only required one circuit, which was confirmed
- 16:03:56** N221AG was instructed by ADC to line up and wait.
- 16:05:37** N221AG was cleared for takeoff by ADC with surface wind passed and requested to report left downwind which was acknowledged.

FLIGHT RECORDERS

According to the Federal Aviation Regulations of the United States, the Aircraft was not required to be equipped with flight recorders.

WRECKAGE AND IMPACT INFORMATION

The main wreckage was almost one unit; the wings, flight controls, engines mainframe were damaged but stayed at their original place. The two propellers and the left hand tyre were found at various locations but close to the main wreckage. The cockpit was the most severely damaged zone where the windows scattered and the seats out of place (figures 1, 2 and 3 in the Appendix).

The cargo door as well as the passengers' door disintegrated and departed the aircraft. Most of passengers' seats also departed their fixtures and scattered.

The post impact fire consumed the majority the Aircraft left side structure, whereas the right side exhibited less damage and burnt metals.

The nose of the Aircraft was heading about 060°

Green smears and narrow scars were observed at the yellow edge of the asphalt paved TWY ("F") with loose green head rivets which could indicate that the smears were drawn and scars were engraved by the Aircraft nose bell green skin.

Another impact scar was observed at a lateral distance of approximately 8.4 meters from the green smear mark. The distances were matching with the aircraft wing dimensions with both floats-up configuration⁴ which could introduce a clue that the scar was engraved by the left wing float.

Three propeller slash marks were observed at the left side of the green smears whereas two were to the right side, the pitch distances of the right and left slash marks were almost similar with an average of 0.5 meters.

Neither scars nor smears were noticed along a distance of approximately 26 meters from the last impact mark, engraved by the right propellers, to the Aircraft final settlement.

⁴ Wing span 50.94 feet (15.53 meters, half the span is 7.77 meters)



GCAA

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FIRE

There was no evidence of inflight fire. The Aircraft destroyed due to impact and subsequent fire.

SURVIVAL ASPECTS

This accident was non-survivable.



ONGOING INVESTIGATION ACTIVITIES

1. Lab examinations on one of or both engines and propellers are going to be performed at a GCAA's determined engine/propeller overhaul facility.
2. The cockpit central instruments panel is going to be examined and the necessary indicators would be examined in the lab.
3. The Aircraft records are going to be collected and reviewed thoroughly.
4. Similar accidents and incidents are going to be searched and reviewed.
5. Crew history will be reviewed with focus on human factors perspective.

SAFETY CONCERNS AND ACTIONS

None issued yet.

APPENDIX

Figure 1- Main wreckage, looking Forward



Figure 2- Main wreckage, looking Aft- Cockpit and right wing



Figure 3- Main wreckage, looking Aft- Left wing

