

REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATIONS

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AIRCRAFT ACCIDENT INVESTIGATIONS

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Ausspannplatz Windhock

NAMIBIA

Enquiries: T. H. Herman

Our Ref: 3/48

Date: 14 May 2014

To

Minister of Works and Transport

Deputy Minister of Works and Transport PS: Ministry of Works and Transport

RE: AIRCRAFT ACCIDENT REPORT

Please find attached the final report on the above subject accident. In accordance with the International Civil Aviation Organization Annex 13 - Aircraft Accident and Incident Investigation - Standard 6.13, final reports shall be published as soon as possible in the interest of accident prevention.

It is recommended that copies of these final reports be made available to the public and other interested parties upon request. Your approval is therefore sought to release the said report.

14.05. 2014 DIRECTOR: AIRCRAFT ACCIDENT INVESTIGATIONS

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FOREWORD

This report presents the factual information, data analysis, conclusions, and safety recommendations reached during the investigation. The purpose of the investigation was to establish the circumstances surrounding this accident.

In accordance with the provisions of Annex 13 to the convention on International Civil Aviation Organization, the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual or group of individuals. The main objective was to identify the systematic deficiencies and draw lessons, from the occurrence, which might help to prevent accidents and incidents in the future. To this end, many a time, the reader may be interested in whether or not an issue was a direct cause of the accident (that has already taken place), whereas the investigator is mainly concerned with the prevention of future accidents/incidents.

As a result, usage of this report for any purpose other than (the latter and spirit of Annex 13 and other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.

ABBREVIATION

AGL - Above Ground Level

UTC - Universal Time Co-ordinate

FDR - Flight Data Recorder

CVR - Cockpit Voice Recorder

°C - Degrees Celsius

ICAO - International Civil Aviation Organization

C of R - Certificate of registration

MHZ - Megahertz

MOP - - Manual of Procedure



DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATION ACCIDENT REPORT – EXECUTIVE SUMMARY

	Aircraft Registration	V5-PVS	Date of Accident	08 N 2014	larch	Time of accident	±15:35 UTC	
	Type of Aircraft	AIRCAM 1999	AIRCAM 1999			Type of Operation Aerial work		
	Pilot- In - Command License Type		Private Pilot License	Age	59	Licence Valid	Yes	
	Pilot- In-Command Flying Experience		Total Flying Hours	±134	10	Hours on Type	±49.5	
	Last point of departure		Eros Airport (FYWE)					
	Next point of intended landing		Ongava Lodge					
7	Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
1	Northern part of Etos	ha National Park E	016° 00' 23"; S	18º 3	4' 42	2"		

Meteorological Information	Wind	Wind: 330°, Wind speed: 3kts, Visibility: >10km, Temperature 31°C, Cloud cover: Scattered, Cloud base: Unknown, Dew point: 17.					
Number of people on board	1	No. of people injured		No. of fatalities	1		

On the 08th March 2014, at around 09:13 UTC an Aircam 1999 Ultra-light aircraft took off on runway 01 at Eros airport (FYWE) for a low level flight to Ongava lodge in Etosha National park with 04h30 minutes fuel endurance on board and 03h30minutes flying time. The expected arrival time at Ongava was 14:30 UTC but the aircraft never arrived at Ongava as per the schedule. The only communication sent by the pilot was to his son through short text messages that he was in Outjo at 14:13 UTC and that was the last time he communicated his position. 20 hours after the aircraft departed Eros Airport, a Search and Rescue was activated and the aircraft was found on the 10th March 2014 crashed along the Ekuma river, 83 km north of Ongava lodge and 75 km south of Ondangwa at geographical coordinates of: E 016 00 23: S 18 34 42.

The Directorate of Aircraft Accident Investigation was notified about the accident by a local Air Traffic Service Unit. No foreign authorities were notified nor were they required to be part in the investigation and no accredited representative was required. One Aircraft Accident Investigator from the Directorate of Aircraft Accident Investigation carried out the investigation as a sole investigator. The Minister of Works and Transport was responsible for the release of the official final accident report.

Although the weather was fine in Etosha area where the accident happened, there were isolated thunder storms associated with showers in the vicinity and southerly wind prevailed at the time.

The pilot was fatally injured during the accident.

The pilot was a holder of a valid Private Pilot Licence and a valid medical certificate with restriction to wear suitable corrective lenses. The investigation revealed that the pilot did not hold a Micro light pilot License which is a requirement as per Nam-Cars part 103.01.02.

The last Annual Inspection prior to the accident was certified by Lisama on 01 December 2013 at a total of 141.6 airframe hours. At the time of the accident, the aircraft had accumulated a further ± 52.6 airframe hours since the last Annual Inspection was certified.

Probable Cause

Loss of control

Contributing factor

Steep turn at low altitude with insufficient airspeed.

Cross Control stall

Loss of situational awareness.

Performance of primary task flying the aircraft was relegated to secondary task because of free hand photography while in control of an aircraft.



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator

: BV Investments 622 CC.

Manufacturer

: Lockwood Aircraft

Model

: Air-cam1999

Nationality

Namibia

Registration Marks

: V5 - PVS

Place

: Etosha National Park

Date

: 08th March 2014

All times given in this report are Co-ordinated Universal Time (UTC).

Disclaimer:

The report is given without prejudice to the rights of the Directorate of Aircraft Accident Investigations, which are reserved.

Purpose of the Investigations:

In terms of the Aviation Act (act No 74 of 1962) and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of risk of aviation accident or incidents and not to apportion blame or establish legal liability.

This report contains facts relating to aircraft accidents or incidents which have been determined at the time of issue. The report may therefore be revised should new and substantive facts be made available to the investigator (s).

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On 08th March 2014, at around 10:59 UTC, an Air-cam 1999 aircraft took off from run way 01 at Eros airport (FYWE) for a low level flight to Ongava lodge with the pilot as the sole occupant.
- 1.1.2 The aircraft had 4 hours 30 minutes fuel endurance on board and flying time to Ongava of 3:30 minutes.
- 1.1.3 The last communication from the pilot was a short text message he sent to his son that the aircraft was in Outjo at around 14:13 UTC.
- 1.1.4 The expected time of arrival at Ongava was 14:30 UTC but the aircraft never arrived at Ongava as per the estimated time of arrival and hence all the aircraft and the pilot's mode of communication were not reachable.

- 1.1.5 On the 9th March 2014 at 20: 20 UTC, 20 hours after the aircraft departed Eros Airport, the family notified the Air Traffic Service Unit at Eros Airport that the aircraft did not arrive at Ongava. The Search and Rescue was activated.
- 1.1.6 The aircraft was found on the 10th March 2014 crashed in Etosha National park along the Ekuma river, 83 km north of Ongava and 75 km south of Ondangwa at geographical coordinates: E 016° 00′ 23″; S 18° 34′ 42″.
- 1.1.7 Although the weather was fine in Etosha area where the accident happened, there were isolated thunder storms associated with showers in the vicinity and southerly wind prevailed at the time.
- 1.1.8 The pilot was fatally injured in the accident.
- 1.1.9 No ground -base or airborne witnesses to the accident were identified.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	01		- ·	1-9
Serious		-		
Minor	P	-		
None		,	F-1	

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed by impact forces





1.4 Other Damage

1.4.1 There was no other damage caused.

1.5 Personnel Information

Nationality		Namibian					
Licence No	The pilot does not hold a Micro light pilot license	Gender	Male	Age	59		
Licence valid Ratings		NO Type Endorsed		NO			
		NIL					
Medical Expir	Medical Expiry Date		30/09/2014				
Restrictions		Suitable corrective lenses					
Previous Accidents		10/10/2013 runway excursion on landing with V5- MTC at Sesriem, aircraft sustained structural damage					

Flying Experience:

Total Hours	±1340
Total Past 90 Days	± 62.2
Total on Type Past 90 Days	±49.5
Total on Type	± 49.5

1.6 Aircraft Information

Airframe:

Type	Air-cam 1999 AC 041 Lockwood aircraft (USA)		
Serial No.			
Manufacture			
Year of Manufacture	1999		
Total Airframe Hours (At time of accident)	±178.0		
Last Annual Inspection (Date & Hours)	01 December 2013	141.6	
Hours since Last MPI	±52.6		
Experimental Certificate: EXP/001/2013 (Issue Date)	16 December 2013		
C of R (Issue Date) Present owner	16 December 2013		
Operating Categories	Restricted		

Right Hand Engine:

Туре	Rotax 912 S
Serial No.	4425115
Hours since New	±158.0
Hours since Overhaul	Not due

Left Hand Engine:

Туре	Rotax 912 S	
Serial No.	4425114	
Hours since New	± 158.0	
Hours since Overhaul	Not due	

Right Hand Propeller.

Туре	Warp drive
Serial No.	T 8678
Hours since New	N/A
Hours since Overhaul	N/A

Left Hand Propeller.

Туре	Warp drive	
Serial No.	T 8679	
Hours since New	N/A	
Hours since Overhaul	N/A	

1.7 Meteorological Information

The following weather information was obtained from the pilot's Questionnaire.

Wind direction	330°	Wind speed	3kts	Visibility	>10km
Temperature	31°c	Cloud cover	Scattered	Cloud base	Unknown
Dew point	17				

1.8 Aids to Navigation

- 1.8.1 The aircraft was equipped with standard navigation equipments that are applicable for the type.
- 1.8.2 No difficulties with Navigation Aids were known or reported.

1.9 Communications.

1.9.1 There was no reported communication problem between the pilot and the air traffic controller who handled the flight from Eros Airport. The aircraft was broadcasting his position on unmanned frequency 124.8 MHz.

1.10 Aerodrome Information

1.10.1 Not applicable. The accident took place in the Etosha National park at a geographical coordinates: E 016° 00' 23"; S 18° 34' 42".

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with Flight Data Recorder (FDR) or Cockpit Voice Recorder (CVR). Neither was it required by the current regulations for this type of aircraft.

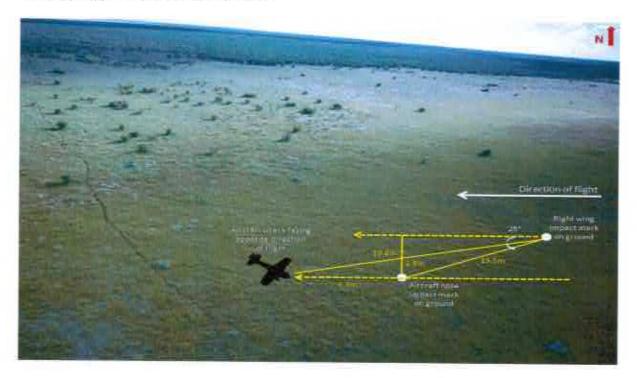
1.12 Wreckage and Impact Information



- 1.12.1 The aircraft was flying in a steep bank of about 45° and impacted the ground with the right wing first followed by the forward section. From the last impact the aircraft accelerated 6.3 metres forward, turn 180° to the direction of flight and came to rest.
- 1.12.2 The right wing was destroyed and found detached from the empennage.
- 1.12.3 The forward section was destroyed by the impact, the right main under carriage was damage and the wheel was found around 40 metres from the wreckage.
- 1.12.4 Because of the wobbling effect the tail section was found broken upward.
- 1.12.5 The three propellers on the right engine were found broken off and one piece of the propeller was found around 70 metres in the direction of flight from the wreckage.
- 1.12.6 Most of the instruments got damaged but the two engine RPM gauges and the position of the throttle indicates that the engine was at full power with both gauges indicating about 5800 Revolution per minute (RPM).



The graphic picture of the accident site



- 1.12.3 Right wing impact to nose impact point =13.5 metres
- 1.12.4 Right wing impact to where the aircraft fuselage came to rest =19.8 metres
- 1.12.5 The width from the Right wing impact point to the fuselage impact point =2.5 metres
- 1.12.6 Fuselage impact point to where the aircraft came to rest 6.3 metres
- 1.12.7 Right wing impact point angle to nose impact point 25°

1.13 Medical and Pathological Information

- 1.13.1 The pilot's file contain a valid medical certificate for a Private Pilot License with restriction for Suitable corrective lenses.
- 1.13.2 Toxicology could not be carried out because of the state in which the body was found.
- 1.13.3 As per the autopsy carried out the cause/causes of death was multiple injury of multi organ trauma.

1.14 Fire

1.14.1 There was no pre- or post impact fire.

1.15 Survival Aspects

- 1.15.1 Although the pilot was safely secured with the aircraft safety harness, the impact force exceeded the human body tolerance, therefore the accident was not survivable.
- 1.16 Tests and Research
- 1.16.1 There was a down load of the pilot's camera.
- 1.16.2 There was no other test carried out.

1.17 Organizational and Management Information

1.17.1 According to the maintenance records, the aircraft was maintained in accordance with the Regulator's requirement Document LS/1 and the manufacturer. The organisation that carried out the Annual Inspection could not provide it's <u>approved</u> Manual of Procedure neither the Regulatory Authority was in possession of a copy of such document.

1.18 Additional Information

- 1.18.1 The pictures retrieved from the pilot's camera revealed that moments before the crash the pilot was flying too low while taking pictures of an elephant in line with the thunder storm in the distance. Taking pictures while flying this type of aircraft (three axis control) severely affects the ability to maintain a safe flight.
- 1.18.2 The information from the pictures especially related to the position of the aircraft to the elephant and the timing they were taken indicate a lot of steep turns were made in close proximity to the ground.
- 1.18.3 Information obtained through interviewing people close to the pilot and his photographic work revealed that the camera used was heavy and it can only be handled with two hands during the photographic session, which means the pilot has to leave the flight control column to operate the camera which in turn makes the flying a second priority.

1.18.4 The following pictures were taken moments before the crash.

1st PICTURE

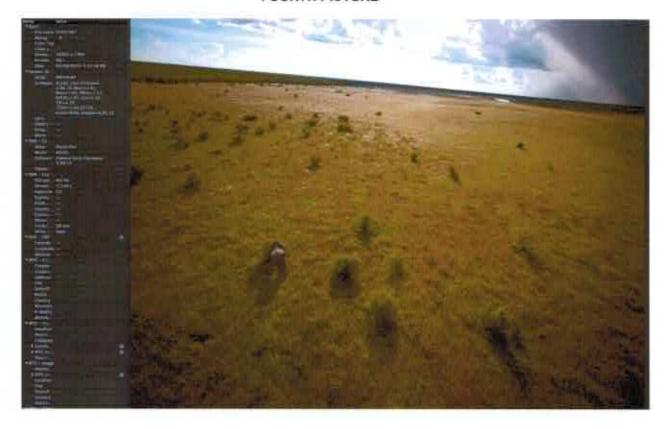




THIRD PICTURE



FOURTH PICTURE



1.18.5 Picture one up to fourth indicate how low the pilot was flying and some indicate the time taken putting into consideration the position of the aircraft from one picture to the next. It was clear that the pilot made steep turns to align the elephant with the storm in the background.

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2 ANALYSIS

- 2.1.1 The aircraft departed Eros Airport on the 08 March 2014 at 10:59 UTC. There was 4hrs 30 minutes fuel endurance on board. The estimated flying time to Ongava was 03hrs 30 minutes. The expected time of arrival at Ongava was 14:30 UTC.
- 2.1.2 The aircraft never arrived at Ongava.
- 2.1.3 The pilot diverted to Outjo where he later sent a short text message to the son confirming his position at 14:13 UTC.
- 2.1.4 The pilot flew to the northern part of Etosha National park where he took pictures of the storm that existed in the area. While taking pictures of the storm he spotted an elephant in the vicinity and descended in order to capture the elephant in line with the storm that was in the background.
- 2.1.5 While taking photos, the pilot executed a lot of steep turns at low level to enable the aircraft to position on the side of the elephant where pictures can be taken in line with the thunder storm.
- 2.1.6 In the process of taking pictures and making steep turns at low level, the pilot increased power while banking at 45° resulting in cross control stall. The aircraft impacted the ground right wing first followed by the forward section.
- 2.1.7 The exercise of taking pictures while flying requires the aircraft speed to be reduced just above the stalling speed and in this case the aircraft was flown low for the pilot to take a picture of the running elephant in line with the storm. It was a dangerous exercise for a single pilot whom had to do both activities at the same time: flying and taking pictures of a moving elephant in line with the thunder storm.
- 2.1.8 There were some isolated thunder showers east of where the accident occurred.
- 2.1.9 The pilot who was the sole occupant was fatally injured during the crash.

3 CONCLUSION

3.1 Findings

3.1.1 Pilot:

The pilot was a holder of a private pilot license however, he did not have a micro light pilot license as required by NAM-CARS Part 103.01.2 which stated that "no person shall act as a pilot in command of micro light aeroplane unless such a person is a holder of a valid micro light aeroplane pilot license issued in term of part 61".

The pilot was not a member of any Micro light Association as stipulated in NAM-CARS part 103.01.2 (e) that "before a pilot fly a micro light aircraft that pilot must be a bona fide member of an aviation recreation organisation approved by the Director in term of part 146".

The pilot's medical certificate was valid with restriction for suitable corrective lenses.

3.1.2 Operation:

The investigation revealed that the pilot was taking pictures and flying below the minimum height acceptable in Etosha National Park which is 1000 metres AGL as per AIC 22.7 Dated 1996/04/15.

The pilot was not in possession of a valid permit from the relevant stake holder of the national park that allowed him to take pictures of animals in the National Park while flying at low level.

Carrying out this type of operation with a three axis control aircraft flown by a single pilot while undertaking aerial photographic work is deemed dangerous.

The pilot diverted from the planned route which was Eros to Ongava and then flew to the northern part of Etosha National Park to take advantage of the weather phenomenon.

3.1.3 Aircraft:

The Aircraft's Experimental Certificate and that of Registration(C OF R) were all valid.

According to the maintenance records the aircraft was maintained in accordance with Document LS/1 and the manufacturer's requirement.

There was no evidence of any defect or malfunction in the aircraft that could have contributed to the accident.

There was no evidence of engine, airframe or system malfunction prior to the accident.

The aircraft was structurally intact prior to impact and damages to the aircraft were attributed to the impact forces.

The fuel that remained in the aircraft left hand wing tank was uncontaminated and of the recommended grade.

3.1.4 Medical:

There was no evidence that physiological factors and toxicology affected the performance of the pilot for the fact that they cannot be carried out because of the state in which the body was found.

3.1.5 The Regulatory Authority

The investigation revealed that the Licensing Section of the Regulatory Authority had been incorrectly issuing Temporary Approval Instructor Rating to an individual pilot to carry out training and rating in different micro light aircraft while the individual does not hold a Micro light license and instructor qualification which contravened NAM-CARS part 61.26.1, 61.26.2, 61.26.3, 61.26.4, 61.26.5, 61.26.6, 61.26.6, 61.26.7 and 61.26.8. See document issued by the Regulatory Authority in Appendix A.

The Regulator and the organisation that certified the annual inspection could not provide a copy of an approved Manual of Procedure (MOP).

There was no evidence to suggest that the micro light organisation had authority to operate from the Regulator.

3.1.6 Training of the pilot on the (Aircam) Aircraft.

The training and the rating of the pilot on the Aircam aircraft and the endorsement of that training in the pilot logbook was done by a pilot who does not hold a valid micro light pilot license and instructor qualifications which contravene NAM CARS Part 103.01.2 and part 61.26.1.

3.2 Probable Cause/s

3.2.1 Loss of control

3.3 Contributing factor

- 3.3.1 Steep turn at low altitude with insufficient airspeed.
- 3.3.2 Cross Control stall
- 3.3.3 Loss of situational awareness.
- 3.3.4 Performance of primary task flying the aircraft was relegated to secondary task because of free hand photography while in control of an aircraft.

4. SAFETY RECOMMENDATIONS

- 4.1 It is recommended that the Regulatory Authority should put measures in place to ensure that the Licensing Section adheres to the Requirement and procedure as laid down in NAM-CARS.
- 4.2 It is recommended that the Regulatory Authority should look into the operation of the organisation that was responsible for safety oversight on non-certified aircraft and it's documentation.
- 4.3 It is recommended that the organisation that was responsible for safety oversight for recreational flying must re-examine its operations and provide confidence that they can meet Regulatory requirements.

Date: 14/05/2014

Compiled by:

T.H.Herman

Investigator - in - Charge

Released by:

Erkki Nghimtina MP

MINISTER: MINISTRY OF WORKS AND TRANSPORT

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Office of the

APPENDIX A

The following attached documents were found being issued by the Licensing Section of the Regulatory Authority (DCA) to an individual pilot to carry out training on micro light aircraft while that particular pilot does not hold the required Micro light Pilot License and other added qualification to carry out such training.

The issuing of such documents by the Regulatory Authority was not in accordance with Nam-Cars part 61.26.1 up to 61.26.8.

The Licensing Section of the Regulatory Authority is aware of finding number 3.1.5 in the Accident Investigation report on V5-PVS Accident in Etosha National Park that the pilot who gave training to the accident pilot on the Aircam dated 21-23 January 2014 does not have the required Rating and License to carry out such training.

T.H.Herman

Investigator-in-charge



Tel: 264-61-702263 Fax: 264-61-702244

DIRECTORATE OF CIVIL AVIATION

Private Bag 12003 Ausspannplatz Windhoek Namibia

Date: 09 January 2012

Ref: Temp Instructor C170

To: Mr. Gustav Holtz (# PA0083)

TEMP APPROVAL C170 INSTRUCTOR

Further you request temporary permission is hereby granted for you to act as a FLIGHT INSTRUCTOR on C170 for the purposes of issuing a C170 Type Rating for the following Pilot's:

P.W. van Schalkwyk (#PA 22239)

A.P. Ferreira (#PA 0731)

A.L. van der Merwe (#PA 02199)

W. Mulder (#TA4019)

Part (61.16.1), (61.16.2), (61.16.3), (61.16.4) of the Namibian Civil Aviation Regulations must be complied with.

Fly Safe.....

DIRECTORATE OF CIVIL AVIATION

TE BAG 12008

WAD HOEK

V872 -91- 0 9

Graeme van Niekerk

Chief Personnel Licensing

For: DIRECTOR: CIVIL AVIATION



Tel: 264-61-702263

Fax: 264-61-702244

DIRECTORATE OF CIVIL AVIATION

Private Bag 12003 Ausspannplatz Windhock Namibia

Date: 20 December 2013

Ref: Temp Instructor Aircam

To: Mr. Gustav Holtz (# PA0083)

TEMP APPROVAL (AIRCAM) INSTRUCTOR

Further you request temporary permission is hereby granted for you to act as a FLIGHT INSTRUCTOR on a AIRCAM for the purposes of issuing a AIRCAM Type Rating + Instructor Rating for the following Pilot:

Mr. Heiner Schlusche. (Commercial Pilot (Microlight) Grade I Instructor)

Part (61.16.1), (61.16.2), (61.16.3), (61.16.4) of the Namibian Civil Aviation Regulations must be complied with.

Fly Safe.....

Graeme van Niekerk

Chief Personnel Licensing

For: DIRECTOR: CIVIL AVIATION

HEINER SCHLUSCHE DE 451/10 GR1

Hallusche. DE 457/10



Tel: 264-61-702263 Fax: 264-61-702244

DIRECTORATE OF CIVIL AVIATION

Private Bag 12003 Ausspannplatz Windhoek Namibia

Date: 22 January 2014

Ref: Temp Instructor Aircam

To: Mr. Gustav Holtz (# PA0083)

TEMP APPROVAL (AIRCAM) INSTRUCTOR

Further you request temporary permission is hereby granted for you to act as a FLIGHT INSTRUCTOR on a AIRCAM for the purposes of issuing a AIRCAM Type Rating for the following Pilot's:

- 1. Paul van Schalkwyk (*PA 22239)
- 2. Henri van Schalkwyk (*PA 5004)
- 3. Piet Keil (*PA 0091)

Part (61.16.1), (61.16.2), (61.16.3), (61.16.4) of the Namibian Civil Aviation Regulations must be complied with.

Fly Safe.....

Convertion completed for bull un Schalkwyk (PA 22259) 24/01/2014

Graeme van Niekerk

Chief Personnel Licensing

For: DIRECTOR: CIVIL AVIATION

OH-12 hoo 8.