



## **REPUBLIC OF NAMIBIA**

### **MINISTRY OF WORKS AND TRANSPORT**

### **DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATION**

### **CIVIL AIRCRAFT INCIDENT REPORT**

INCID/111013/01-02

<b>OPERATION</b>	: Scheduled International Flight
<b>AIRCRAFT</b>	: ZS-SXY
<b>LOCATION</b>	: Hosea Kutako International Aerodrome
<b>DATE</b>	: 11 <sup>th</sup> October 2013

<b>TABLE OF CONTENTS</b>	<b>PAGE</b>
a) FORWARD .....	<i>i</i>
b) ABBREVIATIONS.....	<i>ii</i>
c) SYNOPSIS .....	1
1. FACTUAL INFORMATION.....	2
1.1 HISTORY OF THE FLIGHT.....	2
1.2 INJURIES TO PERSONS.....	3
1.3 DAMAGE TO AIRCRAFT.....	3
1.4 OTHER DAMAGE .....	4
1.5 PERSONNEL INFORMATION .....	4
1.6 AIRCRAFT INFORMATION .....	5
1.7 METEOROLOGICAL INFORMATION.....	6
1.8 AIDS TO NAVIGATION .....	6
1.9 COMMUNICATIONS .....	6
1.10 AERODROME INFORMATION .....	7
1.11 FLIGHT RECORDERS .....	7
1.12 WRECKAGE AND IMPACT INFORMATION .....	8
1.13 MEDICAL AND PATHOLOGICAL INFORMATION .....	9
1.14 FIRE .....	10
1.15 SURVIVAL ASPECTS .....	9
1.16 TEST AND RESEARCH .....	9
1.17 ORGANIZATIONAL AND MANAGEMENT INFORMATION.....	9
1.18 ADDITIONAL INFORMATION.....	9
1.19 USEFUL INVESTIGATIVE TECHNIQUES .....	9
2.0 ANALYSIS .....	10

## 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 incident.

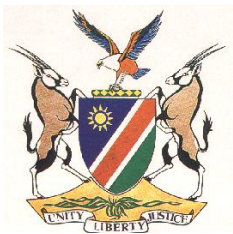
In accordance with *Aviation Act (Act No 74 of 1962)* and the provisions of Annex 13 to the convention on International Civil Aviation Organization, the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual 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 letter and spirit of Annex 13 and other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.

## **ABBREVIATIONS**

AD	-	Airworthiness Directive
AGL	-	Above Ground Level
AMO	-	Aircraft Maintenance Organization
AOC	-	Air Operated Certificate
ATPL	-	Airline Transport Pilot License
C of A	-	Certificate of Airworthiness
C of R	-	Certificate of registration
CPL	-	Commercial Pilot License
CDL	-	Configuration Distribution List
CRM	-	Crew Resources Management
CVR	-	Cockpit Voice Recorder
DAAI	-	Directorate of Aircraft Accident Investigation
ETA	-	Estimated Time of Arrival
FDR	-	Flight Data Recorder
FL	-	Flight Level
ICAO	-	International Civil Aviation Organization
ILS	-	Instrument Landing System
MPI	-	Mandatory Periodic Inspection
NAMCARS	-	Namibia Civil Aviation Regulations
NAM-CATS	-	Namibia Civil Aviation Technical Standards
SB	-	Service Bulletins
SOPs	-	Standard Operating Procedures
PAPI	-	Precision Approach Path Indicator
UTC	-	Universal Time Co-ordinate

		Ministry of Works and Transport			INCID/111013/01-02	
<b>DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATION</b> <b>INCIDENT REPORT – EXECUTIVE SUMMARY</b>						
<b>Aircraft Registration</b>	ZS-SXY	<b>Date of Incident</b>	11th October 2013		<b>Time of Incident</b>	13:47 UTC
<b>Type of Aircraft</b>	Airbus A330-243		<b>Type of Operation</b>		Scheduled	
<b>Pilot-In-Command License Type</b>		ATPL	<b>Age</b>	56	<b>License Valid</b>	Yes
<b>Pilot-In-Command Flying Experience</b>		Total Flying Hours	21352.30		Hours on Type	1288.05
<b>Last point of departure</b>		Oliver Tambo International Airport ( FAOR)				
<b>Next point of intended landing</b>		Hosea Kutako International Airport (FYWH)				
<b>Location of the incident site with reference to easily defined geographical points (GPS readings if possible)</b>						
On the Apron. GPS S 22° 29'9 & E 017° 27'46						
<b>Meteorological Information</b>		Wind: 190°, Wind speed: 5 knots, Visibility: 10 km, Temperature: 31°C, Cloud cover: Cavok, Cloud base: None, Dew point: 0°				
<b>Number of people on board</b>		12 + 150	<b>No. of people injured</b>	0	<b>No. of people killed</b>	0
<b>Synopsis</b>						
<p>The Directorate of Aircraft Accident Investigations (DAAI) was notified of the incident by the Air Traffic Controller (ATC) at 14:30 UTC on the 11<sup>th</sup> Oct 2013. The South African Civil Aviation's Accident and Incident Investigation Division was notified of the incident and thereby availed an off-site accredited representative. The DAAI was responsible for organizing and conducting the investigations and is releasing this final report and publishing it on its website.</p> <p>The flight was a scheduled international flight with 12 crew members and 150 passengers aboard, it departed from Oliver Tambo International Airport (FAOR) to Hosea Kutako International Airport (FYWH) Namibia and scheduled to return the same day.</p> <p>The ZS-SXY aircraft landed on runway 26 at Hosea Kutako International airport (FYWH) at 13:43 UTC, the crew were cleared via taxiway C and upon entering the apron, the tower instructed them to follow the Marshaller's instructions, the marshaller was on the western side of the apron. The marshaller was between a BA 6275 (B737) and a V5-ANO (A330) aircraft. He directed the crew to taxi straight ahead and then to make a sharp turn of about 90° to the left then park the airbus between the two aircrafts at an angled nose-in position.</p> <p>A wing walker was on the wingtip of the stationary V5-ANO aircraft to ensure wingtip clearance. As the crew taxied to the designated parking area in the apron adjacent to the V5-ANO aircraft, they made a sharp turn over 90 degrees as instructed however the clearance was not sufficient enough and its wingtip clipped the stationary V5-ANO's, the crew only realized the occurrence after engine shutdown.</p> <p>There were no injuries although both aircraft sustained slight damages on the wingtips which were temporary repaired the same day and both aircraft flew on their respective schedules.</p> <p>Both the Captain and the First Officer of the ZS-SXY were suitably licensed and qualified to conduct the flight.</p>						
<b>Probable Cause:</b> ZS-SXY Aircraft maneuvered too closely to the parked V5-ANO aircraft.						
<b>Contributory factors:</b>						
<ol style="list-style-type: none"> <li>1. Lack of Apron Management System (aircraft stands allocation, aircraft parking guidance system etc)</li> <li>2. Lack of an approved training program for marshallers (who also function as rescue and fire fighters) that conforms to Namibian Regulatory Requirements and international standards.</li> <li>3. A culture of non-adherence to aerodrome parking procedures by both pilots and marshallers.</li> </ol>						



# AIRCRAFT INCIDENT REPORT

**Name of Owner/Operator** : South African Airways  
**Manufacturer** : Airbus  
**Model** : A330-200  
**Nationality** : South African  
**Registration Marks** : ZS-SXY  
**Place** : Hosea Kutako Airport  
**Date** : 11 October 2013  
**Time** : 13:47 UTC

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

## Disclaimer:

*This report is given without prejudice to the rights of the Directorate of Aircraft Incident Investigations, which are reserved.*

## Purpose of the Investigations:

*In accordance with Aviation Act (Act No 74 of 1962) and ICAO Annex 13 to the Chicago Convention on International Civil Aviation, this report was compiled with sole interest of the promotion of aviation safety and the reduction of the risk of aviation accidents 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 the 11 October 2013, an Airbus A330-200 with registration ZS-SXY operated by South African airways for a regional flight, took off at 12:11 UTC from Oliver Tambo Airport (FAOR) to Windhoek Hosea Kutako airport (FYWH). Flight SA072 (ZS-SYX) was scheduled for a 1:41 minutes flight at FL 400 from runway 03L at FAOR to FYWH runway 26 which is at 5639ft (field elevation) and had Gaborone (FBSK) as the alternate.
- 1.1.2 ZS-SXY with a crew of 12 and 150 passengers landed in Windhoek at 13:43 UTC and was cleared for runway 26 and then to depart via taxiway C following the Marshaller's instructions. The marshaller was on the western side of the apron while the wing walker (who is required to ensure sufficient clearance between the wingtips and any obstacle) was positioned on the wingtip of an Air Namibia airbus A330 with registration V5-ANO parked close by.
- 1.1.3 According to the first officer who was taxiing the aircraft at the time, he was directed by marshaller to taxi straight ahead and then made a sharp turn of over 90° so as to park between a British Airways BA 6275 and the V5-ANO (see sketch appendix 2). The first officer stated that he then made short periods of intermitted left turns and then straight ahead in order to turn into parking position. A wing walker was at the left wingtip of the V5-ANO and according to the pilot indicated that they should proceed at all times and at no point did he stop them. The first officer stated that he had a good view of the marshaller and wing walker at all time.
- 1.1.3 The marshaller indicated that he had signaled the crew of the ZS-SXY to the spot on the apron that he wanted it parked he then started a series of signals to position the aircraft to the spot. He

stated that he constantly kept signaling that the crew turn but the aircraft was not taxiing slow enough resulting in delayed turn and thereby reduced clearance between the two aircraft. The wing walker indicated that he issued constant signals for the pilot to turn more to the left away from V5-ANO and however it was too late.

- 1.1.4 During the ensuing parking procedure the wingtip of ZS-SXY clipped the wingtip of the stationary V5-ANO. The crew stated that they did not realize what had happened until the aircraft stopped as directed and the engines shut down only then that the engineer informed them of the incident.
- 1.1.5 There were no injuries to the crew, passengers or anyone else on the ground, however both aircraft sustained slight damages on the wingtips (see attached figure 1& 2) ZS-SXY underwent temporary repairs and was safely dispatched, while V5-ANO was dispatched in accordance with Airbus's Configuration Distribution List (CDL-57-02) where the winglet was removed for subsequent repairs.
- 1.1.6 Mass and balance was within the prescribed limit.
- 1.1.7 The weather was fine with a very good visibility at the time of the incident.
- 1.1.8 Geographic positions of the incident position was recorded as GPS S 22° 29'9 & E 017° 27'46 elevation 5612ft, (1711m), time of occurrence 15H35 UTC. Daytime.

## 1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	0	0	0	0
Serious	0	0	0	0
Minor	0	0	0	0
None	0	0	0	0

## 1.3 Damage to Aircraft

- 1.3.1 ZS-SXY A332 sustained slight damage on the right winglet.



Figure 1: Right winglet damage



## 1.4 Other Damage

- 1.4.1 V5-ANO, Airbus A330 aircraft sustained slight damages on its left winglet which had to be detached in accordance with CDL guidelines by V5-ANO and Airbus engineers.



Figure 2: V5-ANO A330 winglet removed.

## 1.5 Personnel Information

**Captain** (Monitoring pilot at the time of the incident)

Nationality		South African			
Licence No	0270003601	Gender	Male	Age	56
Licence valid		Yes	Type Endorsed	Yes	
Ratings		Instrument and Night Flight Rating			
Restrictions		Corrective lenses required for flight			

Flying Experience:

Total Hours	21352.30
Total Past 90 Days	168.55
Total on Type Past 90 Days	63.35
Total on Type	1288-05



**First officer** (Flying pilot at the time of the incident)

Nationality		South African			
Licence No	0271016057	Gender	Male	Age	37
Licence valid		Yes	Type Endorsed	Yes	
Ratings		Instrument and Night Flight Rating			
Restrictions		No restrictions			

## Flying Experience:

Total Hours	6808.7
Total Past 90 Days	140.2
Total on Type Past 90 Days	40.0

**Marshaller**

Nationality		Namibian			
Licence No	None	Gender	Male	Age	29
Licence valid		None	Type Endorsed	none	
Ratings		none			
Medical Expiry Date		none			
Restrictions		none			

**1.6 Aircraft Information****Airframe:**

Type	Airbus A330-243	
Manufacturer	Airbus	
Aircraft Serial Number	1210	
Year of Manufacture	2011	
Total Airframe Hours	11792.53 Hrs	
Last Annual Inspection (Date & Hours)	11/09/ 2013	11408.13Hrs
Hours since Last Annual Inspection	n/a	
C of A (Issue Date)	11 May 2007	
C of A (Expiry Date)	11 May 2011	
C of R (Issue Date) (Present owner)	11 May 2007	
Operating Categories	Standard	

**Engine 1:**

Type	Rolls Royce Trent 772B-60/16
Engine Serial Number	41866
Hours since New	9046 H / 1272 C
Hours since Overhaul	No shop visits yet (overhaul hours not reached)

## Engine 2:

Type	Rolls Royce Trent 772B-60/16
Engine Serial Number	41884
Hours since New	14463 H / 1944 C
Hours since Overhaul	No shop visits yet (overhaul hours not reached )

## 1.7 Meteorological Information

1.7.1 The meteorological information below was those provided in the pilot's accident/incident questionnaire.

Wind direction	190° m	Wind speed	5 knots	Visibility	10 km
Temperature	31°C	Cloud cover	CAVOK	Cloud base	None
Dew point	0				

## 1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation equipment suited to the type of aircraft and no difficulties with Navigation Aids were reported. The aircraft was operated and landed on a licensed aerodrome which had serviceable navigations aids.

## 1.9 Communications.

1.9.1 The airports and aircraft's communication equipments were serviceable, and air traffic services were standard.

## 1.10 Aerodrome Information

1.10.1

Aerodrome Location	Hosea Kutako Airport (Windhoek)	
Aerodrome Co-ordinates	S 22° 29'9 & E 017° 27'46	
Aerodrome Elevation	5,640 ft / 1,719 m	
Runway Designations	08	26
Runway Dimensions	4,532m	50m
Runway Used	26	
Runway Surface	Asphalt	
Approach Facilities	ILS (VOR-DME)	
Visual aid	PAPI	

NB: The aerodrome was last inspected by the Namibian Regulatory Authority on 31 December 2012, prior to the incident.

There is no official parking bays/stands markings gives the impression of such as they were done many years ago and are not applicable anymore.

The aerodrome did not have surveillance cameras overlooking the apron at the time of incident.

Appendix 2 shows a sketch of aircrafts at the apron relative to the intersection C and runway 26.



Figure 3: Hosea Kutako Airport layout



Figure 4: Hosea Kutako Airport close-up layout

## 1.11 Flight Recorders

1.11.1 The aircraft was equipped with standard Flight Data Recorders (FDR) and Cockpit Voice Recorder (CVR) as required for that type of aircraft.



## 1.12 Wreckage and Impact Information

1.12.1 The aircraft sustained slight damages on its right winglet.



Figure 5. Close-up view of the right winglet damage.



Figure 6. Winglet damage.

### **1.13 Medical and Pathological Information**

1.13.1 No medical tests were conducted as none were required.

### **1.14 Fire**

1.14.1 There was no pre or post impact fire during the incident.

### **1.15 Survival Aspects**

1.15.1 The incident exerted minimal forces on the aircraft therefore this was a survivable incident.

### **1.16 Tests and Research.**

1.16.1 No further tests were carried out and none were required.

### **1.17 Organizational and Management Information**

#### *Operator*

1.17.1 This was a scheduled regional flight.

1.17.2 The aircraft was owned and operated by South African Airways.

1.17.3 The Certificate of Airworthiness and that of Registration were all valid at the time of incident

#### *Aerodrome*

1.17.4 The aerodrome was last audited by the Namibian Regulatory Authority on the 31 December 2012.

1.17.5 The aerodrome management could not produce an approved Aerodrome Operations Manual during the investigations as required by NAMCARS139.02.3.

1.17.6 The aerodrome management could not present an Approved Training Programme for marshallers or other areas of operations during the investigations.

1.17.7 The aerodrome at that time had been operating without a 'fit and proper' person responsible for Quality Assurance.

1.17.8 The aerodrome had a valid aerodrome licence issued on 17<sup>th</sup> January 2013 and valid for 12 months.

### **1.18 Additional Information**

1.18.1 The Aerodrome's management had also issued several correspondences (email) to the airline with concerns of some of their pilot's failure to follow instructions as issued by the marshallers.

1.18.2 Several other Operators operating at the Aerodrome were interviewed concerning the standard of marshalling. Some had strong apprehension on the quality of marshalling, there was a general feeling that there was poor grasp of important factors such as prevailing wind conditions, aircraft turning radii, different aircraft and their wingspan etc. Safety reports were constantly issued by the pilots in this regards.

### **1.19 Useful or Effective Investigation Techniques**

1.19.1 None were used nor considered in this investigation.

## **2. ANALYSIS**

- 2.1. Fine weather conditions prevailed on the aerodrome at the time of landing and taxing.
- 2.2. The review of appropriate documents revealed that the aerodrome had been operating without an approved Aerodrome Operations Manual as required by NAMCARS139.02.3. The operations manual details all aerodrome operating and training activities in which the company may engage. This was identified in Audit findings 07/2012 again in the 2013 audit and until the time of the accident and subsequent investigation did not present any approved document, however a draft document had been in the approval process.
- 2.3. The investigations revealed that the airline had complained several times to the Aerodrome's Management, about the non-adherence of International marshalling Standards and Procedures. Several correspondences (official letters), were also sent to the regulator as well as DAAI.
- 2.4. Several other Operators at the Aerodrome were interviewed concerning the quality of marshalling at the specific airport most had strong concerns on the quality of marshalling. There was a general feeling that there was poor grasp of important factors such as prevailing wind conditions, aircraft turning radii, different aircraft and their wingspan etc.
- 2.5. The Aerodrome had also issued several correspondences (email) to the operator with concerns of the specific Operator's pilots who failed to follow instructions as issued by the marshallers. In one of the reports, the airport manager emphasized that the non-adherence of marshaller's directives by the specific operator's pilots was a serious safety concern and had also been raised during an audit from the operator's aviation authorities.
- 2.6. The investigations revealed that the Aerodrome did not have an approved corporate training and qualification program for its marshallers and did not provide evidence of similar document for other airside personnel.
- 2.7. The investigations revealed that the Aerodrome's corporate structure was not acceptable to the regulator as required by NAMCAR'S (Namibian Civil Aviation Regulations) 139.02.4. The Quality and Safety Manager were neither acceptable nor did he posses guidance material necessary to perform the Quality Assurance Program. (NAMCARs see appendix1)

## **3. CONCLUSION**

### **3.1 Findings**

- 3.1.1 The Captain and First officer's licence were valid at the time of the incident.
- 3.1.2 The flight crew's medical certificates were valid.
- 3.1.3 Weather was ruled out as a factor on this incident.
- 3.1.4 The aircraft's Certificate of Airworthiness (C of A) and Certificate of Registration (C of R) were all valid at the time of incident.
- 3.1.5 The Aerodrome Operator did not have an Apron Management System under its Aviation Safety Program
- 3.1.6 The Aerodrome did not have an Approved Aerodrome Operations Manual as required by NAMCARS139.02.3.
- 3.1.7 The Aerodrome did not have an approved corporate training and qualification program for its marshallers and did not provide evidence of similar document for other airside personnel.
- 3.1.8 The Aerodrome's corporate structure was not acceptable to the regulator as required by NAMCAR'S 139.02.4.



- 3.1.9 The Airline had complained several times to the Aerodrome Management about non-adherence by marshallers of international aerodrome standard procedures. The ensuing interviews revealed that the marshallers who were primarily employed as firemen, only underwent in-house training which was not certified nor was it approved by the Namibian Regulatory Authority.
- 3.1.10 Wide bodied aircraft on previous occasions were parked with insufficient clearance between the wing tips and as a result were delayed due to being unable to turn and taxi.

### **3.2 Probable Cause/s**

- 3.2.1 Investigations determined that the cause of the incident was that ZS-SXY maneuvered too close to the stationary V5-ANO.

### **3.3 Contributing Factors**

- 3.3.1 Lack of an approved training program for marshallers that conforms to regulatory requirements and international standards.
- 3.3.2 Lack of Apron Management System (aircraft parking guidance system, demarcation and identification of aircraft stands that would have guided the marshaller and flight crew.
- 3.3.3 A culture of non-adherence to aerodrome parking procedures by The Airline's pilots as well as the aerodrome's marshallers.

## **4. SAFETY RECOMMENDATIONS**

### **4.1 *Safety recommendation number 001/2014 SXY***

It is recommended that the Aerodrome Operator review its Quality and Safety Assurance System that encompasses all areas of the organization that impact the safety of ground operations. This shall include promulgating an Aerodrome Operational Manual that is acceptable to the regulator, that demonstrates the procedures and methods for ensuring the provisions of the regulations are complied with. It shall also include a robust Quality Assurance Program that will ensure the aerodrome operates and is maintained in accordance with part 139 of NAMCARS.

### **4.2 *Safety recommendation number 002/2014 SXY***

It is recommends that the Aerodrome asses and develop safe parking procedures according to established SARP's such as in the apron guidance system.

### **4.3 *Safety recommendation number 003/2014 SXY***

It is recommended that the Aerodrome install surveillance cameras at critical areas such as the apron. This would not only enhance safety but will serve as an excellent tool for identifying hazards, auditing performance and adherence to SARPs but also as training tool.

### **4.4 *Safety recommendation number 004/2014 SXY***


It is recommended that the Namibian Civil Aviation Authority enhance its aerodrome certification process by implementing a mechanism to ensure that all non-compliances identified during certification inspections or surveillance activities are either resolved or subjected to exemptions with associated mitigation measures to ensure an equivalent level of safety.

### **4.4 *Safety recommendation number 004/2014 SXY***

It is recommended that the Regulating Authority takes appropriate action on continued failure of any airline that fail to comply with national requirements.

It is recommended that the Regulating Authority takes appropriate action on continued failure of any airline that fail to comply with national requirements.

Compiled by:

  
Hateni Mweshixwa  
Investigator-in-charge

Date: 20/05/2016

For the Director of Aircraft Accident Investigation

Released by:

  
Alpheus G. Naruseb, MP  
MINISTER: MINISTRY OF WORKS AND TRANSPORT



Date: 2016/05/30

## **Appendices**

### **Appendix 1**

#### **NAMCARS**

878 Government Gazette 2 January 2001 No. 2467

#### **SUBPART 2**

#### **LICENSING AND OPERATION OF AERODROMES**

##### **Requirement for license**

**139.02.1** (1) No person shall operate an aerodrome which serves aeroplanes operated in terms of the regulations in Part 121, except under the authority of, and in accordance with the provisions of, an aerodrome licence issued under this Subpart.

(2) An aerodrome operator who is not required under sub regulation (1) to hold an aerodrome licence, may apply for an aerodrome licence in terms of this Subpart.

##### **Aerodrome design requirements**

**139.02.2** (1) An applicant for the issue of an aerodrome licence shall ensure that the aerodrome is provided with –

- (a) physical characteristics;
- (b) obstacle limitation surfaces;
- (c) visual aids for -
  - (i) navigation;
  - (ii) denoting obstacles; and
  - (iii) denoting the restricted area;
- (d) equipment and installations; and
- (e) an airspace classification referred to in Part 172,

appropriate to the characteristics of the aircraft it intends to serve, the lowest meteorological minima for each runway, and the ambient light conditions during the operation of aircraft.

(2) The physical characteristics, obstacle limitation surfaces, visual aids, and equipment and installations provided at the aerodrome shall comply with the appropriate specifications, interrelated by the aerodrome reference code system, as prescribed in Document NAM-CATS-AH.

##### **Operations manual**

**139.02.3** An applicant for the issue of an aerodrome licence shall provide the Director with an operations manual which shall contain –

- (a) a statement by the accountable manager and compliance officer confirming that the operations manual and any included manuals define the organisation of the applicant and demonstrate the procedures and methods for ensuring that the provisions of the regulations in this Part will be complied with at all times;
- (b) particulars of the personnel referred to in regulation 139.02.5(1);
- (c) an organisational chart showing lines of responsibility of the personnel referred to in regulation 139.02.5(1);
- (d) the limitations on the use of the aerodrome referred to in regulation 139.02.2;
- (e) a description of the characteristics of and the infrastructure available at the aerodrome, which, taking into consideration the limitations referred to in paragraph (d), comply with the aerodrome design requirements referred to in regulation 139.02.2;
- (f) the aerodrome emergency management system referred to in regulation 139.02.6;

- (g) a description of the aerodrome's rescue and fire fighting capability which, taking into consideration the limitations referred to in paragraph (d), complies with the requirements prescribed in regulation 139.02.7;
- (h) the aerodrome environment management programme referred to in regulation 139.02.8;
- (i) the procedures for the notification of aerodrome data and information referred to in regulation 139.02.9;
- (j) the quality assurance system referred to in regulation 139.02.4;
- (k) a description of the security measures taken at the aerodrome to comply with the provisions of the Civil Aviation Offences Act, 1972 (Act 10 of 1972), and the regulations made there under;
- (l) the procedures to control, amend and distribute the operations manual; and
- (m) where applicable, the intended air traffic services and the approach and airspace categories.
- (n) preventative maintenance procedure for aerodrome facilities and equipment.

### **Quality assurance system**

**139.02.4** (1) The applicant shall establish a quality assurance system containing an aviation safety programme, for the control and supervision of the operation and maintenance of the aerodrome and its services and facilities.

(2) The minimum standards for a quality assurance system shall be as prescribed in Document NAM-CATS-AH.

### **Personnel requirements**

1. The applicant shall engage, employ or contract –

- (a) a senior person identified as the accountable manager and compliance officer of the organization concerned, to whom contractual authority has been granted to ensure that all activities undertaken by the organisation are carried out in accordance with the applicable requirements prescribed in this Subpart, and who shall in addition be vested with the following powers and duties in respect of the compliance with such requirements:
  - (i) Unrestricted access to work performed or activities undertaken by all other persons as employees of, and other persons rendering service under contract with, the organisation;
  - (ii) full rights of consultation with any such person in respect of such compliance by him or her;
  - (iii) powers to order cessation of any activity where such compliance is not effected;
  - (iv) a duty to establish liaison mechanism with the Director with a view to ascertain correct manners of compliance with the said requirements, and interpretations of such requirements by the Director, and to facilitate liaison between the Director and the organisation concerned; and
  - (v) powers to report directly to the management of the organisation on his or her investigations and consultations generally, and in cases contemplated in subparagraph(iii), and with regard to the results of the liaison contemplated in subparagraph (iv);
- (b) a competent person who is responsible for quality assurance, and who has direct access to the accountable manager and compliance officer referred to in paragraph (a) on matters affecting the aviation safety programme; and
- (c) Adequate personnel, including an aerodrome manager, to operate and maintain the aerodrome and its services and facilities according to the requirements prescribed in this Subpart.

2. The applicant shall establish a procedure for initially assessing, and a procedure for maintaining, the competence of those personnel involved in operating and maintaining the aerodrome and its services and facilities.

Appendix 2

Sketch of the sequence of the occurrence

