REPUBLIC OF NAMIBIA

CIVIL AVIATION

DOCUMENT NAM-CATS-148

(MANUFACTURING ORGANISATIONS)

NAMIBIAN CIVIL AVIATION TECHNICAL

STANDARDS RELATING TO MANUFACTURING ORGANISATIONS

1. GENERAL

Section 22A of the Aviation Act, 1962 (as amended by section 5 of the Aviation Amendment Act, 1998) empowers the Director: Civil Aviation to issue technical standards for civil aviation on the matters which are prescribed by regulation.

The Director: Civil Aviation has pursuant to the empowerment mentioned above, on (date) issued technical standards relating to manufacturing organisations to be known as Document NAM-CATS-148.

2. PURPOSE

Document NAM-CATS-148 contains the standards, rules, requirements, methods, specifications, characteristics and procedures which are applicable in respect of design organisations.

Each reference to a technical standard in this document, is a reference to the corresponding regulation in the Namibian Civil Aviation Regulations, 2001 as amended, for example, technical standard 148.02.6 refers to regulation 6 of Subpart 2 of Part 148 of the Regulations.

The abbreviation “CAR” is used throughout this document when referring to any regulation. The abbreviation “TS” refers to any technical standard.

3. SCHEDULES AND NOTES

Guidelines and recommendations in support of any particular technical standard, are contained in schedules to, and/or notes inserted throughout the technical standards.

NAM-CATS 148
Manufacturing Organisations

List of technical standards

148.02.2 APPLICATION FOR APPROVAL OR AMEND-MENT OF MANUFACTURING ORGANISATION

1. Form of application

148.02.3 ISSUING OF APPROVAL

1. Form of approval

148.02.4 QUALITY SYSTEM

1. Minimum standards for a quality system

148.02.4A SAFETY MANAGEMENT SYSTEM

1. Minimum Standards for the Safety Management System

148.02.5 MANUAL OF PROCEDURE

1. Information to be contained in manual of procedure

148.02.10 CHANGES TO THE TERMSOF APPROVAL

1. Form of application

148.02.12 PRIVILEGES

148.02.14 ANNUAL DECLARATION AND CURRENCY FEE

ANNEXURES

Annexure A: Application for a manufacturing organisation approval and for the amendment/renewal of a manufacturing organisation approval

Annexure B: Manufacturing organisation approval

148.02.2 APPLICATION FOR APPROVAL OR AMEND-MENT OF MANUFACTURING ORGANISATION

1. Form of application

The form referred to in CAR 148.02.2(a), in which application must be made for the issuing of a manufacturing organisation approval with an M rating, or an amendment thereof, is contained in Annexure A.

148.02.3 ISSUING OF APPROVAL

1. Form of approval

The form referred to in CAR 148.02.3(2), on which a manufacturing organisation approval with an M rating is issued, is contained in Annexure B.

148.02.4 QUALITY SYSTEM

1. Minimum standards for a quality system

(1) The objectives of the quality system referred to in CAR 148.02.4(2) are –

(a) to monitor, and report to management, the level of compliance with the organisation's manual of procedure and airworthiness requirements;

(b) to correct any non-compliance identified and to implement actions to prevent the recurrence of such non-compliance; and

(c) to present to management for the purpose of review and implementing further corrective or preventive action, quality indicators such as audit reports, accidents, incident occurrences, customer complaints and personnel reports.

(2) The quality system must include –

(a) Quality audit of the organisation

A description of, or reference to, a procedure of the quality audits to be performed on the organisation.

(b) Quality audit of products, parts or appliances

A description of, or reference to, a procedure of the quality audits to be done on the products, parts or appliances during manufacturing work.

(c) Quality audit remedial action

A description of, or reference to, a procedure of remedial actions to be taken after quality audits.

(d) Management analyses and overview

A description of, or reference to, a procedure for bringing to the attention of management quality indicators (such as audit reports, progress on corrective action, accidents, incidents, occurrences, customer complaints and personnel reports) and documenting the appropriate action decided and implemented to maintain an adequate level of conformance to air-worthiness requirements.

(e) Personnel competence and training

A description of, or reference to, a procedure for the competence required of personnel and the programme of training and recurrent training of personnel.

(f) Personnel records

A description of, or reference to, a procedure of the methods to be used for keeping technical records of personnel.

(g) Quality audit personnel

A chart or a list indicating the qualifications of quality audit personnel.

(h) Qualifying inspectors and mechanics

A description of, or reference to, a procedure for the competence required of qualifying inspectors or mechanics, and a programme of training and recurrent training of personnel.

(i) Exemption/concession control

A description of, or reference to, a procedure to be used when permission is required to deviate from the requirements of the organisation’s manual of procedure, or to deviate from specified product, part or appliance manufacturing tasks.

(j) Specialised activities

A description of, or reference to, a procedure for applying specialised activities.

(3) Measures must be taken to ensure that the system is understood, implemented and complied with at all levels.

(4) The quality control system must be documented in the manual of procedure referred to in CAR 148.02.5.

148.02.4A SAFETY MANAGEMENT SYSTEM

1. Minimum Standards for the Safety Management System

The safety management system, referred to in regulation 148.02.4A include:

(a) A clear definition of the level of safety that the organisation intends to achieve;

(b) Proof by the manufacturing organisation tot the Director that adequate safety measures to maintain the required level of safety will be or have been instituted;

(c) The components and elements described in section 2 below.

2. Components and elements required for a safety management system

(1) Safety Policy and Objectives

(a) Management commitment and responsibility

(i) A manufacturing organisation shall define its safety policy which shall be in accordance with international and national requirements, and which shall be signed by the accountable executive.

(ii) The safety policy shall reflect its commitments regarding safety; including a clear statement about the provision of the necessary human and financial resources for its implementation; and be communicated, with visible endorsement, throughout the organisation.

(iii) The safety policy shall be reviewed at least biannually to ensure that it remains relevant and appropriate to the organisation.

(b) Safety accountabilities of managers

(i) A manufacturing organisation shall identify the accountable executive who, irrespective of other functions, shall have ultimate responsibility and accountability for the implementation and maintenance of the SMS.

(ii) A manufacturing organisation shall identify the safety accountabilities of all members of senior management, irrespective of other functions. Safety accountabilities and authorities shall be documented and communicated throughout the organisation.

(c) Appointment of key safety personnel

(i) A manufacturing organisation shall identify a safety manager, if he or she is not performing this function, to be the responsible individual and focal point for the implementation and maintenance of an effective SMS.

(ii) The safety manager shall report directly to the accountable manager (CEO or MD of the operator, organisation or provider) with respect to any significant safety concerns with unacceptable risk and with respect to implementation and maintenance of the SMS.

(iii) The selection criteria for safety managers or safety officers and suggested attributes and qualifications include:

(aa) Broad operational knowledge and experience in the functions of the organisation;

(bb) Sound knowledge of safety management principles and practices, including theoretical training and theoretical experience;

(cc) At least 2 years of experience (safety officer) and at least 5 years of experience (safety manager) with the implementation and management of an aviation safety management system;

(dd) Good written and verbal communication skills;

(ee) Well-developed interpersonal skills;

(ff) Com puter literacy;

(gg) The ability to relate at all levels, both inside and outside the organisation;

(hh) Organisational ability;

(ii) Capable of working unsupervised;

(jj) Good analytical skills;

(kk) Leadership skills and authoritative approach;

(ll) Worthy of respect among peers and management;

(mm) Project management skills.

(d) SMS implementation plan

(i) A manufacturing organisation shall develop and maintain an SMS implementation plan that defines the organisation's approach to manage safety in a manner that meets the organisation's safety needs.

(ii) The SMS implementation plan of a manufacturing organisation shall explicitly address the coordination between the SMS of the manufacturing organisation and the SMS of other service providers (that may affect aviation safety and security) with whom the manufacturing organisation may interface during the provision of services.

(iii) The SMS implementation plan shall be endorsed by senior management of the organisation.

(e) Coordination of emergency response planning

A manufacturing organisation shall develop, coordinate and maintain an emergency response plan that ensures orderly and efficient transition from normal to emergency operations, and return to normal operations.

(f) Documentation

(i) A manufacturing organisation shall develop and maintain SMS documentation to describe the following:

(aa) safety policy and objectives;

(bb) the SMS requirements;

(cc) the SMS procedures and processes;

(dd) the accountabilities, responsibilities and authorities for procedures and processes; and

(ee) the SMS outputs.

(ii) A manufacturing organisation shall incorporate its safety management documentation into its manual of procedures to communicate its approach to safety throughout the operation, or in a separately approved SMS manual.

(2) Safety risk management

(a) Hazard identification process

A manufacturing organisation shall develop and maintain a formal process for effectively collecting, recording, acting on and generating feedback about hazards in operations, based on a combination of reactive, proactive and predictive methods of safety data collection.

Note: *Reactive methods refer to methods of identifying hazards that are based on the investigation of occurrences. Proactive methods aim to use any other information within the organisation for the identification of potential hazards. Predictive methods rely on data that is collected within the organisation that could be used effectively to predict the existence of hazards, usually done by t rend analysis.*

(b) Risk assessment and mitigation process

(i) A manufacturing organisation shall develop and maintain a formal risk management process that ensures analysis (in terms of probability and severity of occurrence), assessment (in terms of tolerability or acceptability) and control (in terms of mitigation) of risks to an acceptable level.

(ii) The following matrixes should be used for purposes of analyzing and assessing risk:

Risk Severity Matrix

Risk Severity definition	*Description: Consequence (can lead to)…*	*Examples of what to look out for…*
Category A Catastrophic	One or multiple deaths & complete loss/ destruction of equipment	A major accident.
Category B Hazardous	Serious injuries/Major Damage to equipment	Large reduction in safety margins, physical distress or workload such that the operators cannot be relied upon to perform their tasks accurately or completely.
Category C Major	Minor injuries/ Minor equipment damage	A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of increase in workload, or as a result of conditions impairing their efficiency.
Category D Minor	Incidents	Operating limitations are breached. Procedures are not used correctly.
Category E Negligible	Negligible/Inconvenience	Few consequences. No safety consequences. Nuisance.

Risk Probability Matrix

Likelihood/ Probability Category	*Description*	*Examples of what to look out for*
1	Extremely improbable (Rare)	Almost inconceivable that the event will occur.
2	Improbable (Seldom)	Very unlikely that the event will occur. It is not known that it has ever occurred before.
3	Remote (Unlikely)	Unlikely but could possibly occur. Has occurred rarely.
4	Occasional	Likely to occur sometimes. Has occurred infrequently.

5	Frequent	Likely to occur many times/regularly. Has occurred frequently/regularly.

RISK PROBABILITY		RISK SEVERITY				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

Risk assessment Index	Suggested Criteria
5A, 5B, 5C, 4A, 4B, 4C, 3A, 3B, 2A	Unacceptable under the existing circumstances. Risk mitigation critical.
5D, 4D, 3C, 3D, 2B, 2C, 1A, 1B	Risk mitigation required. It might require management decision.
5E, 4E, 3E, 2D, 2E, 1C, 1D, 1E	Acceptable.

(iii) The following is an example of strategies that canbe introduced for mitigation (risk control):

Avoidance	The operation or activity is cancelled because the risks exceed the benefits of continuing the operation or activity.
Reduction	The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks.
Segregation of exposure	Action is taken to isolate the effects of risks or build in redundancy to protect against it.

(iv) Alternative means of analyzing, assessing and controlling risk may be implemented by the approved training organisation with the approval of the Director.

(v) All safety information reported to the Director shall be in the format specified in the above matrixes.

(vi) A manufacturing organisation shall also define those levels of management with authority to make decisions regarding the tolerability/acceptability of safety risks, and the introductions of mitigating measures.

(3) Safety assurance

(a) Monitoring and measurement of safety performance

(i) A manufacturing organisation shall develop and maintain the means to verify the safety performance of the organisation compared to the safety policy and objectives, and to validate the effectiveness of safety risk controls.

(ii) The safety reporting procedures relating to safety performance and monitoring shall clearly indicate which types of operational behaviours are acceptable or unacceptable, and include the conditions under which immunity from disciplinary action would be considered. A non-punitive policy is required to enhance the reporting culture. Immunity from disciplinary action may not be granted in instances of violation and negligence..

(b) The management of change

A manufacturing organisation shall develop and maintain a formal process to identify changes within the organization which may affect established processes and services; to describe the arrangements to ensure safety performance before implementing changes; and to eliminate or modify safety risk controls that are no longer needed or effective due to changes in the operational environment.

(c) Continuous improvement of the SMS

A manufacturing organisation shall develop and maintain a formal process to identify the causes of sub-standard performance of the SMS, determine the implications of sub-standard performance in operations, and eliminate such causes. This may be achieved through audits of the SMS to ensure its effective implementation.

(4) Safety promotion

(a) Training and education

(i) A manufacturing organisation shall develop and maintain a safety training programme that ensures that personnel

responsible for the associated functions as contained in the SMS are trained and competent to perform the SMS duties.

(ii) The scope of the safety training shall be appropriate to each individual's involvement in the SMS.

(b) Safety communication

A manufacturing organisation shall develop and maintain formal means for safety communication, which ensures that all personnel are fully aware of the SMS, conveys safety critical information, and explains why particular safety actions are taken and why safety procedures are introduced or changed.

(5) Safety reporting requirements

(a) The manufacturing organisation shall report any significant safety concern identified through its SMS to the Director within 7 days of it being verified.

(b) The manufacturing organisation shall report the following safety information to the Director on an annual basis, as per a schedule agreed to with the Director:

(i) The top 20 hazards identified by the manufacturing organisation;

(ii) The mitigation strategies implemented to address the risk

148.02.5 MANUAL OF PROCEDURE

1. Information to be contained in manual of procedures

1.1 The information referred to in CAR 148.02.5(b), which must be contained in the manual of procedure of the applicant, must include the following:

1.1.1 Management

(1) Corporate commitment

A statement containing the commitment of the accountable manager and the organisation to comply with the airworthiness requirements as set out in this document and approved by the Director.

(2) Management personnel

A list of the key management personnel and their positions.

(3) Duties and responsibilities of the management personnel

A statement containing the duties and responsibilities of each management position mentioned in paragraph (2). For clarity, additional positions may be added.

(4) Management organisation chart

The chart must show all line management positions down to supervisory level.

(5) Personnel

(a) The titles and names of the personnel required by CAR 148.02.1.

(b) The duties and responsibilities of the personnel mentioned in paragraph (a), including matters for which they have responsibility to deal directly with the Director on behalf of the organisation.

(c) Details of the procedures required by CAR 148.02.1 regarding the competence of the personnel.

(6) General description of facilities at each address intended to be approved

A description of the facilities and layout referred to in CAR 148.02.1(a) is required.

(7) Organisation's intended/approved scope of work

A statement of the scope of work being applied for.

(8) Notification procedure to the Director regarding changes in the organisation's activities/approval/location/personnel

A statement indicating who is responsible for notifying the Director regarding changes, and what changes are subject to notification.

(9) Manual of procedure amendment procedures

A statement regarding the responsibility and procedure for amendment of the manual of procedure, as well as the associated documents referred to in the manual of procedure.

1.1.2 Manufacturing procedures

(1) Arrangement with approved design organisation

A description of, or reference to, the manner in which CAR 148.02.13(e) will be complied with.

(2) Technical literature, equipment, materials and facilities

A description of, or reference to, compliance with CAR 148.02.1(b).

(3) Storage, segregation and protection of products, parts or appliances

A description of, or reference to, a procedure for storing, segregating and protecting products, parts or appliances and for the materials and supplies to be used.

(4) Acceptance of tools and equipment

A description of, or reference to, a procedure for acceptance of tools and equipment by the organisation for use in the manufacturing of products, parts or appliances.

(5) Calibration of tools and equipment

A description of, or reference to, a procedure for the calibration of tools and equipment to be used in the manufacturing of products, parts or appliances.

(6) Use of tools and equipment by personnel

A description of, or reference to, a procedure for the methods in which special tools and equipment are used.

(7) Cleanliness standards of manufacturing facility

A statement regarding the standard of cleanliness to be maintained at each manufacturing facility.

(8) Manufacturing documentation

A description of, or reference to, a procedure for the relevant documentation to be used and instructions for the completion thereof.

1.2 The manual of procedure must contain the information to demonstrate that the organisation has the management, resources and procedures to comply with the requirements of CAR Part 148.

1.3 The manual of procedure may either be a self contained document, or it may refer to other documents referred to in the manual of procedure which will be considered to be equally binding on the organisation.

148.02.10 CHANGES TO THE TERMSOF APPROVAL

1. Form of application

The form referred to in CAR 148.02.10(1)(a), in which an application for the changes to a manufacturing organisation approval with a M rating must be made, is contained in Annexure A.