Civil Aviation Safety Authority
of Papua New Guinea

Advisory Circular

AC140-06

Maintenance and Serviceability of Security Screening Equipment

Initial Issue

07 May 2025

GENERAL

Civil Aviation Safety Authority of Papua New Guinea Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

PURPOSE

The purpose of this Advisory Circular (AC140-06) is to provide comprehensive guidance to aviation security service providers, aerodrome operators, and other regulated entities on the maintenance and serviceability of security screening equipment. This AC outlines acceptable means of compliance with the requirements of PNG Civil Aviation Rule (CAR) Part 140, particularly those related to the operational reliability, performance standards, and ongoing serviceability of security screening systems.

RELATED CAR

This Advisory Circular relates specifically to Rule 140.105 of the Civil Aviation Rules Part 140, which requires aviation security service providers and aerodrome operators to ensure that all security screening equipment is maintained in a serviceable condition. Rule 140.105 requires the implementation of maintenance procedures that ensure the continued operational effectiveness and reliability of such equipment.

CHANGE NOTICE

This Advisory Circular (AC140-06) is the initial issue. It introduces the first formal guidance issued by the Civil Aviation Safety Authority of Papua New Guinea on the maintenance and serviceability of security screening equipment.

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1. MAINTENANCE REQUIREMENTS

Operators must establish and implement a documented Maintenance Programme for all security screening equipment, including:

(a) Preventive maintenance schedules based on manufacturer recommendations.

Preventive maintenance involves regular, planned maintenance activities designed to prevent equipment failures before they occur. Operators should follow the manufacturer's recommended maintenance schedules, which typically include routine inspections, cleaning, lubrication, and replacement of worn or aging components. This ensures that the equipment remains in optimal working condition and reduces the likelihood of unexpected breakdowns.

(b) Corrective maintenance procedures for malfunctioning equipment.

Corrective maintenance refers to the repair or replacement of equipment components that have failed or are not functioning correctly. Operators should establish procedures for promptly addressing equipment malfunctions, including diagnosing the issue, obtaining necessary replacement parts, and performing repairs. This helps to minimize downtime and ensures that security screening operations can continue without significant interruptions

(c) Calibration and performance verification routines.

Calibration and performance verification are critical to ensuring that security screening equipment operates accurately and effectively. Operators should establish routines for regularly calibrating equipment according to manufacturer specifications and verifying its performance through tests and checks. This includes ensuring that detection capabilities are maintained and that the equipment meets required sensitivity and accuracy standards.

(d) Maintenance logs and reporting mechanisms.

Operators must maintain detailed logs of all maintenance activities, including preventive and corrective maintenance, calibration, and performance verification. These logs should include information such as the date of maintenance, the nature of the work performed, the personnel involved, and any parts replaced. Additionally, operators should establish mechanisms for reporting maintenance activities and any issues encountered to relevant authorities, such as the Civil Aviation Safety Authority of Papua New Guinea (CASA PNG).

(e) The programme must be reviewed annually or after any significant equipment upgrade or regulatory change.

To ensure that the Maintenance Programme remains effective and up-to-date, operators should conduct annual reviews of the programme. This review should assess the effectiveness of the maintenance activities, identify any areas for improvement, and incorporate any changes in manufacturer recommendations, regulatory requirements, or equipment upgrades. This helps to ensure that the programme continues to meet the needs of the operation and complies with relevant standards.

2. SERVICEABILITY STANDARDS

Equipment must be maintained in a serviceable condition at all times. This includes:

(a) Meeting performance benchmarks as defined in AC140-03 Screening Equipment Performance Testing and Detection Standards.

Serviceability standards require that security screening equipment meets specific performance benchmarks to ensure its effectiveness. Operators should refer to AC140-03 Screening Equipment Performance Testing and Detection Standards for detailed performance criteria, including detection capabilities, sensitivity levels, and operational reliability. Regular testing and calibration should be conducted to verify that the equipment meets these benchmarks.

(b) Ensuring detection capabilities are not degraded (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Detection capabilities are critical to the effectiveness of security screening equipment. Operators must ensure that the equipment's ability to detect prohibited items is not compromised. This involves regular performance checks, calibration, and maintenance activities to maintain the equipment's sensitivity and accuracy. Any degradation in detection capabilities should be addressed immediately through corrective maintenance

(c) Removing from service any equipment that fails to meet operational standards until repaired or replaced (PNG CAR Part 140).

If security screening equipment fails to meet operational standards, it must be removed from service until it is repaired or replaced. This ensures that only fully functional and reliable equipment is used in security screening operations. Operators should have procedures in place for identifying and addressing equipment failures, including obtaining replacement parts and performing necessary repairs

(d) Serviceability checks must be conducted daily before operational use (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Daily serviceability checks are essential to ensure that security screening equipment is operational and effective before each use. These checks should include visual inspections, functional tests, and calibration verification. Any issues identified during these checks should be addressed immediately to prevent equipment failures during operation.

3. INSPECTION PROCEDURES

Operators must conduct routine inspections to verify the operational status of equipment. These inspections should include:

(a) Visual checks for physical damage or tampering (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Visual inspections involve checking the equipment for any signs of physical damage, wear, or tampering. This includes inspecting the exterior and interior components for cracks, dents, loose connections, or other issues that could affect the equipment's performance. Any damage or tampering should be reported and addressed immediately.

(b) Functional tests (e.g., image clarity, alarm response) (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Functional tests are conducted to verify that the equipment is operating correctly. This includes testing the clarity of images produced by X-ray machines, the response of alarms, and the accuracy of detection capabilities. Functional tests should be performed regularly and any issues identified should be addressed through corrective maintenance.

(c) Calibration verification (PNG CAR Part 140, AC140-03 Screening Equipment Performance Testing and Detection Standards).

Calibration verification involves checking that the equipment is properly calibrated and meets the required performance standards. This includes verifying that the equipment's sensitivity and accuracy are within acceptable limits. Calibration verification should be conducted regularly and any deviations should be corrected immediately.

(d) Documentation of inspection results (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Operators must document the results of all inspections, including visual checks, functional tests, and calibration verification. This documentation should include details such as the date of the inspection, the personnel involved, the findings, and any corrective actions taken. Maintaining accurate records of inspections helps to ensure compliance with regulatory requirements and supports ongoing maintenance activities.

(e) Inspection intervals must be defined in the Maintenance Programme and aligned with manufacturer guidance (AC140-03 Screening Equipment Performance Testing and Detection Standards).

The frequency of inspections should be defined in the Maintenance Programme and aligned with manufacturer recommendations. This ensures that inspections are conducted at appropriate intervals to maintain the equipment's operational status. Operators should review and update the inspection intervals regularly to reflect any changes in manufacturer guidance or regulatory requirements.

4. RECORD KEEPING

Detailed records must be maintained for:

(a) All maintenance and inspection activities (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Operators must maintain detailed records of all maintenance and inspection activities. This includes preventive and corrective maintenance, calibration, performance verification, and routine inspections. Records should include information such as the date of the activity, the nature of the work performed, the personnel involved, and any parts replaced. Accurate record-keeping helps to ensure compliance with regulatory requirements and supports ongoing maintenance activities.

(b) Equipment faults and corrective actions (AC140-03 Screening Equipment Performance Testing and Detection Standards)

Records of equipment faults and corrective actions are essential for tracking the performance and reliability of security screening equipment. Operators should document any faults identified during maintenance or inspections, as well as the corrective actions taken to address them. This helps to identify recurring issues and supports continuous improvement of maintenance practices.

(c) Calibration and performance test results (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Calibration and performance test results should be documented to verify that the equipment meets required standards. This includes recording the results of calibration checks, performance tests, and any adjustments made to the equipment. Maintaining accurate records of calibration and performance tests helps to ensure that the equipment remains operational and effective

(d) Personnel conducting maintenance and inspections (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Operators must maintain records of the personnel responsible for conducting maintenance and inspections. This includes documenting their training, certification, and any refresher training completed. Ensuring that personnel are properly trained and certified helps to maintain the quality and reliability of maintenance activities

(e) Records must be retained for a minimum of 24 months and made available to CASA PNG upon request (AC140-03 Screening Equipment Performance Testing and Detection Standards).

All maintenance and inspection records must be retained for a minimum of 24 months and made available to the CASA PNG upon request. This ensures that records are available for regulatory audits and inspections, and supports ongoing compliance with regulatory requirements.

5. TRAINING AND CERTIFICATION

Personnel responsible for maintenance and inspection must:

(a) Be trained on the specific types of equipment they service (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Personnel responsible for maintenance and inspection must receive training on the specific types of security screening equipment they service. This includes understanding the equipment's operation, maintenance requirements, and troubleshooting procedures. Training should be provided by the equipment manufacturer or an approved training provider.

(b) Understand relevant regulatory and manufacturer requirements (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Personnel must be familiar with relevant regulatory requirements and manufacturer recommendations for the maintenance and serviceability of security screening equipment. This includes understanding the standards and guidelines set out in ICAO Doc 8973, ICAO Doc 10047, and PNG CAR Part 140. Ensuring that personnel are knowledgeable about these requirements helps to maintain compliance and operational effectiveness.

(c) Be certified by an approved training provider (PNG CAR Part 140, AC140-03 Screening Equipment Performance Testing and Detection Standards).

Personnel responsible for maintenance and inspection must be certified by an approved training provider. Certification ensures that personnel have the necessary skills and knowledge to perform maintenance and inspection activities effectively. Operators should maintain records of personnel certification and ensure that certifications are kept up-to-date.

(d) Refresher training must be conducted every 24 months or when new equipment is introduced (AC140-03 Screening Equipment Performance Testing and Detection Standards).

Refresher training should be conducted every 24 months or when new equipment is introduced. This helps to ensure that personnel remain knowledgeable about the latest maintenance practices and regulatory requirements. Refresher training should cover any updates to equipment operation, maintenance procedures, and regulatory standards.

6. COMPLIANCE AND ENFORCEMENT

CASA PNG will conduct audits and inspections to verify compliance with this AC. Non-compliance may result in:

(a) Findings and corrective action requests (PNG CAR Part 140 and AC140-03 Screening Equipment Performance Testing and Detection Standards).

CASA PNG will conduct audits and inspections to verify compliance with the requirements of this Part 140. If non-compliance is identified, CASA PNG may issue findings and request corrective actions to address the issues. Operators should have procedures in place for responding to findings and implementing corrective actions to ensure ongoing compliance.

(b) Suspension or revocation of certification (PNG CAR Part 140).

Non-compliance with the requirements of this AC may result in the suspension or revocation of certification. Operators must ensure that they comply with all regulatory requirements and maintain the serviceability of security screening equipment to avoid certification issues.

(c) Administrative penalties (PNG CAR Part 140 and Offences Regulations Act).

In cases of significant non-compliance, CASA PNG may impose administrative penalties. Operators should ensure that they comply with all regulatory requirements and maintain accurate records to avoid penalties.

(d) Operators are encouraged to conduct internal audits to ensure ongoing compliance (PNG CAR Part 140).

Operators are encouraged to conduct internal audits to verify compliance with the requirements of this AC. Internal audits help to identify any areas of non-compliance and support continuous improvement of maintenance practices. Operators should establish procedures for conducting internal audits and addressing any findings.

Appendix A - Sample Maintenance and Serviceability Log Template

This appendix provides a sample template for logging maintenance and serviceability activities of security screening equipment. Operators can customize this template to suit their specific needs and regulatory requirements.

Date	Equipment ID	Maintenance Activity	Performed By	Remarks

Appendix B: Sample Compliance Checklist

This appendix provides a sample compliance checklist to ensure adherence to the guidelines and standards outlined in this AC. Operators can customize this template to suit their specific needs and regulatory requirements to conduct internal audits and verify compliance with PNG CAR Part 140.

Rule	Requirement	Compliant (Yes/No)		Remarks
140.101	Continued Compliance	☐	☐	
140.103	Changes to Exposition	☐	☐	
140.105	Maintenance of Security Screening Equipment	☐	☐	
140.107	Serviceability Standards	☐	☐	
140.109	Inspection Procedures	☐	☐	
140.111	Record Keeping	☐	☐	
140.113	Training and Certification	☐	☐	
140.115	Compliance and Enforcement	☐	☐	