SOUTH AFRICAN CIVIL AVIATION AUTHORITY

CIVIL AVIATION ACT, 2009 (ACT NO. 13 OF 2009)

AMENDMENT OF SA-CATS 4 OF 2026

The Director of Civil Aviation has, in terms of section 163 (1) of the Civil Aviation Act, 2009 (Act No. 13 of 2009) amended the South African Civil Aviation Technical Standards as reflected in the Schedule hereto. The Amendments as contained in the Schedule shall come into operation on the date of publication of the Thirty Sixth Amendment, Regulation 2026.

Poppy Khoza
Director of Civil Aviation
Date: 10 AUG 2026

GENERAL EXPLANATORY NOTE:

[ ] Words in bold type in square brackets indicate omissions from existing technical standards.

_____ Words underlined with a solid line indicate insertions in existing technical standards.

SCHEDULE

AMENDMENT OF SA-CATS 43

1. Document SA-CATS 43 is hereby amended by the insertion after Appendix 2 of the following Appendix:

"**APPENDIX 3**

MINIMUM REQUIREMENTS FOR A CONDITION MONITORING PROGRAMME APPLICABLE TO PRIVATELY OPERATED, TYPE-CERTIFICATED GENERAL AVIATION PISTON ENGINE AEROPLANE (MCM ≤ 5 700 KG) AND ROTORCRAFT (MCM ≤ 3 175 KG)

This Appendix informs the development and implementation of a Condition Monitoring Program as it applies to the affected engines maintained in terms of an Aircraft Maintenance Programme, provided in Technical Standard 43.02.8, as applicable. A Condition Monitoring Programme does not constitute a standalone maintenance programme and has no independent approval status outside of an Aircraft Maintenance Programme.

Provided that a Condition Monitoring Programme is drawn up in accordance with this Technical Standard, it serves as the official aircraft maintenance and Condition Monitoring

Programme for a particular aircraft. Any change to the Condition Monitoring Programme shall be made in Condition Monitoring Programme documents, and the changes shall be recorded in the track changes by the aircraft operator.

1. Applicability

1.1 The objective of this Appendix is to provide a structured condition-monitoring framework based on evidence of actual engine condition to support continued safe operation of an eligible piston engine beyond the manufacturer's recommended time or calendar Time Between Overhaul through a documented, risk-based condition-monitoring approach until the engine condition shows that it shall be withdrawn from service, in terms of Part 91 and Part 43 and a Condition Monitoring Program.

1.2 This Appendix prescribes the minimum requirements and framework for implementing and applying a Condition Monitoring Programme where an owner of a privately operated, type-certificated piston engine elects a condition monitoring approach, only.

1.3 A Condition Monitoring Programme applies to privately operated, type-certificated piston engines installed on South African-registered general aviation aircraft maintained in terms of Part 43, where an owner elects to operate a condition monitoring in accordance with Parts 91 and 43 of the Regulations.

2. Responsibilities

2.1 Owner

An owner of an aircraft shall ensure that a Condition Monitoring Programme is prepared and signed as an indication of acceptance of legal responsibility for continuing airworthiness decisions.

2.2 Approved AMO

An AMO approved in terms of Part 145 shall perform and supervise inspections and maintenance tasks conducted under the Condition Monitoring Programme and shall issue the applicable maintenance logbooks, work packs and the Certificate of Release to Service in accordance with Part 43.

3. Change control and records

3.1 Any changes to a Condition Monitoring Programme and its adoption statement shall be made by the applicable AMO.

3.2 . All condition monitoring data, trend analysis, findings and corrective actions associated with a Condition Monitoring Progamme shall be documented in the applicable engine maintenance logbook which shall accompany the engine in perpetuity. All subsequent overhaul or replacement of parts associated with ethe engine shall be recorded accordingly in the engine maintenance logbook as prescribed in Part 43.

4. Entry criteria: eligibility for a condition monitoring operation beyond Time Based Overhaul

4.1 Engine history: Class I product

(1) The engine must have a documented history of the following:

(a) Engine logbooks since the last engine overhaul;

(b) Recent blowby or leak-down results;

(c) Oil consumption records;

(d) Prior overhaul records;

(e) Documented AD/SB records; and

(f) The standard SACAR logbook requirements as provided in Part 43 and this Document SA-CATS applies.

4.2 Baseline condition assessment: Class I and Class II products

(a) An initial baseline condition assessment shall be performed by an appropriately rated AMO to establish the general serviceability of the engine before entry into the Condition Monitoring Programme.

(b) Following the initial baseline assessment, continued inspections shall be performed during each inspection or oil change interval as per the Original Equipment Manufacture (OEM) intervals and standards for the first 12 months or 100 hours, whichever occurs first, thereafter, if the condition remains stable, revert to normal inspection maintenance and Mandatory Periodic Inspection (MPI) routines.

(c) A baseline condition assessment shall include, the following grouped evaluation areas, using OEM recommended or industry-accepted methods appropriate to the engine type and configuration, as applicable:

(i) Lubrication system condition, including oil filter inspection and oil sample analysis;
(ii) Internal engine condition, including borescope inspection of cylinders and associated intake and exhaust components;
(iii) Combustion and sealing condition, including cylinder leak-down or blowby assessment;
(iv) Ignition and fuel delivery system condition, including magneto or ignition timing checks, spark plug condition, and inspection of fuel nozzles, carburettor or fuel-injection components, as applicable;
(v) General engine mechanical and operational condition, including engine run-up observations and other checks necessary to support an assessment.

(d) Where the baseline condition assessment identifies a condition that renders the engine unserviceable, such condition shall be rectified before Condition Monitoring Programme entry, failing which the engine shall not be eligible for operation on condition.

(e) By signing the Condition Monitoring Programme (CMP), the owner of an aircraft acknowledges and accepts the conditions, operational limitations, risks and restrictions applicable to the Programme and agrees that participation therein is undertaken at the owner's own risk. An aircraft owner further acknowledges that the acceptance of the Condition Monitoring Programme by the Authority does not constitute a warranty, approval or certification of the continued airworthiness of the aircraft, nor does it relieve an aircraft owner, operator or AMO, as applicable, of their respective responsibilities under the Civil Aviation Regulations, 2011. The Authority shall not be liable for any loss, damage, injury or occurrence arising from latent defects, inadequate or defective inspections, improper maintenance, or any act or omission of an aircraft owner, operator, an AMO, maintenance personnel or any other person responsible for the continued airworthiness of an aircraft.

Provided that the Condition Monitoring Programme has been prepared in accordance with this Technical Standard and accepted by the Authority, it shall constitute the official aircraft maintenance and Condition Monitoring Programme for the particular aircraft. Any amendment to the Condition Monitoring Programme shall be incorporated into the Condition Monitoring Programme documentation, clearly identified by means of tracked changes or an equivalent revision control system, and maintained as part of the permanent record of the Condition Monitoring Programme.

4.3 Inspection of Class III components

(a) Accessible Class III and elastomeric components associated with the engine installation, including hoses, seals, O-rings, baffles, mountings, clamps and

associated hardware, shall be inspected for condition, age-related deterioration and serviceability during applicable scheduled maintenance inspections, and repaired or replaced where necessary in accordance with Part 43 and the applicable OEM standards for continued airworthiness, before Condition Monitoring Programme entry.

4.4 Time-limited components: Class II products

(a) OEM time-limited Class II components and accessories installed on an engine shall continue to be maintained in accordance with the applicable OEM standards and established time or hourly limits for continued airworthiness.

(b) Operation on condition under this Appendix does not mandate the overhaul or replacement of such components unless required by an applicable Airworthiness Directive or where condition assessment indicates that continued serviceability cannot be assured.

5. Monitoring elements and intervals: recommended minimum practices

(a) The monitoring elements and intervals prescribed in section 5 represent recommended minimum practices for a Condition Monitoring Programme.

5.1 Continuous operational monitoring

(a) Continuous operational monitoring shall consist of normal pilot observations during flight and ground operation, conducted in accordance with an Aircraft Flight Manual and the operating practices in terms of Part 91.

(b) The pilot shall record engine hours and flight time and shall note any abnormal engine indications or behaviour observed during operation in the flight folio, as applicable.

(c) Abnormal indications may include unexpected changes in engine temperatures, pressures, vibration, power output or oil consumption relative to normal operation for that engine.

(d) All monitoring elements and intervals in section 5 are structured so that time and calendar factors inform risk assessment, while escalation and corrective action remain driven by observed condition and trend behaviour, consistent with established condition monitoring principles.

5.2 Oil system inspection and oil analysis

5.2.1 Oil filter and screen inspection

(a) Oil filters, screens and chip detectors that were installed shall be inspected at each oil change and whenever the engine is opened for maintenance.

(b) Any metallic debris identified shall be assessed in context with previous inspections, oil analysis trends and engine operating history, in accordance with applicable OEM standards, instructions and recognised aviation engineering practice.

(c) The presence of metallic debris shall not automatically mandate engine withdrawal or overhaul but shall trigger an investigation to determine appropriate rectification as per the OEM standards.

5.2.2 Spectrographic oil analysis

(a) Oil analysis results shall be interpreted on a trend and rate-of-change basis and shall not, in isolation, constitute grounds for mandatory grounding or overhaul.

(b) Additional oil sampling intervals shall be determined based on utilisation, operating environment, and observed trend behaviour, and may be determined by the AMO where justified and documented within the Condition Monitoring Programme.

(c) Oil samples shall be collected using recognised aviation sampling practices and analysed by a South African National Accreditation System accredited laboratory or equivalent where escalation or trend confirmation is required.

(d) Oil analysis results shall be evaluated in conjunction with other condition monitoring indicators, including oil filter inspections, operational observations and maintenance findings.

5.2.3 Cylinder condition assessment

(a) Cylinder condition assessment methods may include blowby testing, differential pressure or leak-down testing, borescope inspection, or other OEM -approved diagnostic methods.

(b) Where cylinder condition assessment is conducted, test methods, procedures, equipment, calibration requirements, acceptance criteria and interpretation of results shall be in accordance with applicable OEM standards.

5.2.4 Low utilisation and extended inactivity

(a) Where an aircraft or engine operating under a Condition Monitoring Programme has not accumulated flight time for an extended period, including periods of six (6) months or more without operation, monitoring and inspection requirements shall be appropriate to the actual utilisation and storage conditions.

(b) Where extended inactivity is identified as a potential risk factor, the scope of any additional inspection shall be proportionate to the assessed risk, storage conditions, environmental exposure and prior operating history.

(c) Where required, a condition assessment appropriate to the duration and nature of the inactivity shall be performed, and shall include:

(i) review of storage or preservation actions taken;
(ii) inspection for corrosion, contamination or deterioration;
(iii) operational checks and engine ground run; or
(iv) any additional inspections recommended by OEM standards or approved data.

(d) An AMO shall determine the scope of such assessment in accordance with applicable OEM standards and shall be documented in the engine maintenance records.

5.2.5. Corrosion considerations

(a) A Condition Monitoring Programme shall consider environmental exposure, operating conditions and periods of inactivity that may increase corrosion risk.

(b) Where corrosion or age-related deterioration is identified and assessed as posing an unacceptable risk to continued safe operation, appropriate corrective action shall be determined in accordance with OEM standards, which may include increased inspection frequency, repair, replacement or withdrawal from service.

6. Data, thresholds and decision limits

(a) An AMO shall establish and apply assessment criteria based on applicable OEM standards and the specific operating environment of the engine and shall

apply them in a manner consistent with established on-condition maintenance principles.

(b) No single parameter shall, in isolation, mandate withdrawal unless continued safe operation cannot be assured.

6.1.1 Blowby or Leak-down

(a) Cylinder performance results shall be assessed against OEM standards and historical trend data.

(b) A result below OEM standards or a significant adverse trend compared to prior results shall require further investigation and rectification as applicable or withdrawal if not remediable.

6.1.2 Borescope Findings

(a) Borescope findings shall be evaluated in accordance with OEM standards.

(b) Findings such as scoring, ridge wear, cracking, valve distress, glazing or debris shall require further investigation, monitoring and rectification based on severity, progression and corroborating indicators.

6.1.3 Vibration

(a) Abnormal or increased vibration indications during flight or ground runs shall be assessed relative to an engine's established operating conditions.

(b) A sudden onset or progressive increase in vibration levels shall require further investigation and rectification, as applicable.

6.1.4 Oil Consumption

(a) Oil consumption shall be monitored and assessed against OEM standards.

(b) A sustained increase beyond OEM standards or a significant deviation from an established baseline shall require further investigation and rectification, as applicable.

(c) Where operational profiles such as aerobatic or other irregular operations affect oil consumption characteristics which may vary from the OEM limits, such usage shall be documented in the Condition Monitoring Programme and recorded in the flight folio.

6.1.5 Metallic Debris or Ferrous Particles

(a) Metallic debris identified during oil filter or chip detector inspection shall be assessed in accordance with OEM standards.

(b) The presence of abnormal or progressive metallic wire-like or ferrous debris shall require grounding and further investigation and rectification, as applicable.

7. Decision tree and escalation priority

The escalation process under this Appendix shall be based on the assessment of condition trends, rate of change and corroborating indicators, and shall be applied in a manner consistent with established on-condition maintenance principles.

7.1 Green Condition – Normal

(a) A Green Condition exists where monitored parameters remain stable and within expected limits, with no adverse trends identified.

(b) Continued operation is permitted.

(c) Monitoring and inspection intervals shall continue in accordance with the Condition Monitoring Programme and applicable OEM standards guidance.

(d) No operational restrictions are required.

7.2 Amber Condition – Cautionary

(a) An Amber Condition exists where emerging adverse trends are identified, including a gradual deterioration or an increase in oil analysis values, minor compression deterioration, or operating parameters trending toward published limits.

(b) Further investigation shall be initiated to determine the cause, severity and progression of the condition.

(c) If found satisfactory, continued operation may be permitted subject to increased monitoring or defined operational limitations, as determined by an AMO.

(d) A corrective action plan shall be implemented based on the AMO inspection and operating risk.

(e) A single amber classification shall not, in itself, mandate grounding.

7.3 Escalation of Amber Conditions

(a) Where adverse or multiple amber trends persist, accelerate, or are corroborated by additional indicators, the engine condition shall be re-assessed.

(b) Escalation to grounding of an aircraft shall occur where an AMO assessment indicates that the engine condition may no longer support continued safe operations.

(c) A decision relating to a grounding of an aircraft shall be based on condition severity, progression and risk, and not on the number of prior Amber events alone.

7.4 Red Condition – Immediate Action

(a) A Red Condition exists where findings indicate the engine condition presents an unacceptable risk to continued safe operation, including but not limited to confirmed abnormal metallic debris, rapid deterioration of compression, severe structural or combustion distress identified on borescope, or a significant loss of engine performance.

(b) An aircraft shall be grounded pending further investigation and rectification.

(c) The continued operation shall only resume once the condition has been rectified and serviceability re-established in accordance with Part 43.

7.5 Threshold Definition and Documentation

(a) Thresholds, alert criteria and escalation logic applicable to each engine shall be documented in the engine logbook.

(b) The published OEM standards limitations shall be used where available.

(c) Where OEM standards limitations do not exist, recognised laboratory reference ranges and engineering standards may be used as guidance.

8. Record keeping and reporting

(a) All maintenance actions, inspections, findings, corrective actions and releases associated with a Condition Monitoring Programme shall be recorded using approved maintenance logbooks as provided in Part 43.

8.1 Maintenance and Condition Monitoring Records

(a) The following records shall be maintained to support condition monitoring and trend assessment, where applicable:

(i) engine logbook entries;

(ii) oil filter inspection records and associated findings;

(iii) oil analysis laboratory reports;

(iv) borescope inspection reports and images where practical, and where generated;

(v) blowby or leak-down test results; and

(vi) Certificates of Release to Service for maintenance performed.

(b) Records may be retained within approved work packs, electronic maintenance systems, or logbooks, provided traceability and integrity are maintained.

8.2 Certification and Regulatory Compliance

(a) All maintenance and inspections performed under the Condition Monitoring Programme shall be certified by an AMO as provided in Part 43.

(b) Nothing in this Appendix alters the certification, release-to-service or record-keeping obligations as provided in Part 43.

8.3 Minimum Entry Content

(a) A maintenance or condition monitoring entry may include, as applicable:

(i) date of inspection or maintenance;

(ii) aircraft hours: Hobbs or airframe TSN and engine TSN or TSO where relevant;

(iii) description of findings and condition assessment;

(iv) details of corrective action taken, if any; and

(v) signature, licence number and approval reference of the certifying AMO.

8.4 Record Retention for Trend Analysis

(a) Condition monitoring records shall be retained for a period sufficient to enable effective trend analysis and continued airworthiness decision-making.

(b) At a minimum, records shall be retained until the next overhaul, engine replacement or withdrawal from service.

(c) Longer retention periods shall apply only where required by Part 43 record-keeping provisions or where necessary to support ongoing trend evaluation.

9. Quality assurance and compliance oversight

9.1 All inspections, monitoring activities, maintenance actions and certifications performed in support of a Condition Monitoring Programme shall be carried out by an AMO.

9.2 Compliance with the requirements of this Appendix shall be subject to an AMO's existing quality assurance system.

9.3 Condition monitoring is not a substitute for the Approved Aircraft Maintenance Programme (AMP) and proper maintenance and shall not be used to mask defects, defer rectification, or compensate for inadequate maintenance practices.

10. Adoption of Condition Monitoring Programme

10.1 Where an owner of an aircraft elects to operate an engine on condition in terms of this Appendix, the applicable Condition Monitoring Programme shall be incorporated into the aircraft's existing maintenance documentation and accepted by such owner of an aircraft.

10.2 Entry into the Condition Monitoring Programme shall be documented following completion of a baseline condition assessment appropriate to the engine type, utilisation and available history, and documented confirmation by an AMO that the assessment and any required maintenance actions have been carried out and recorded as provided in Part 43.

11. Engine identification: on-condition operation

11.1 Each aircraft fitted with an engine operated on condition shall be marked with a clearly visible and legible sign bearing the words "**THIS AIRCRAFT ENGINE IS OPERATED ON CONDITION**", positioned on the exterior or interior of the aircraft in a location readily visible to passengers.

12. Statement following maintenance inspection or condition review

12.1 Following completion of an applicable maintenance inspection or condition review conducted in terms of this Appendix, an AMO shall record a statement in the engine logbook confirming the following:

(a) the engine condition has been assessed in accordance with the Condition Monitoring Programme; and

(b) based on the findings at the time of inspection, the engine is considered satisfactory for continued operation on condition.

12.2 The statement referred to in section 12.1 shall apply only until the next scheduled inspection, condition review, or earlier escalation triggered by adverse trends, and shall not be construed as a guarantee of future condition.".