

TECHNICAL GUIDANCE MATERIAL

for APPROVAL OF THE OPERATOR'S MAINTENANCE PROGRAMME

SUBJECT: TECHNICAL GUIDANCE MATERIAL FOR OPERATOR'S MAINTENANCE PROGRAMME APPROVAL

EFFECTIVE DATE: 11 November 2020

APPLICABILITY

This Guidance Material is applicable to SACAA approved AOC Holders.

PURPOSE:

This Guidance Material establishes the requirements for the approval of the operator's maintenance programme. It is aimed to provide guidance for the development and submission for approval of an Aircraft Maintenance Programme to the SACAA.

REQUIREMENTS:

Part 93, 121; 127, 128 and 135 of the SACAR 2011, as amended.

1. REFERENCE:

- i. CAR Part 93, 121, 127, 128 and 135 Subpart 6.
- ii. CAR Part 93, 121, 127, 128 and 135 Subpart 9.
- iii. CAR 43.02.8
- iv. CAR 43.02.1
- v. CATS 43.02.8
- vi. CATS 43.02.3

2. TERMS AND ABBREVIATIONS:

TERM	DEFINITION
N/A	N/A

ABBREVIATION	DESCRIPTION
AI	Avionics Inspector
AD	Airworthiness Directive
AMO	Aircraft Maintenance Organisation
AOC	Air Operator Certificate

ABBREVIATION	DESCRIPTION
APU	Auxiliary Power Unit
CAR	Civil Aviation Regulations
CATS	Civil Aviation Technical Standard
CMR	Certification Maintenance Requirements
DCA	Director of Civil Aviation
E: ASO	Executive Aviation Safety Operations
EDTO	Extended Diversion Time Operations
MCM	Maintenance Control Manual
MPD	Maintenance Planning Document
MRB	Maintenance Review Board
MSG	Maintenance Steering Group
SACAA	South African Civil Aviation Authority
SB	Service Bulletin
SM: FOD	Senior Manager Flight Operations Department
SSID	Supplemental Structural Inspection Programme
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TGM	Technical Guidance Material

3. APPROVAL OF THE OPERATOR'S MAINTENANCE PROGRAM

3.1 Maintenance programme

- a. Every aircraft shall be maintained in accordance with a maintenance programme approved by the SACAA, which shall be periodically reviewed and amended accordingly.
- b. The maintenance programme and any subsequent amendments shall be approved by the SACAA.
- c. The maintenance programme must establish compliance with:
 - i. Maintenance instructions customised in accordance with aircraft configuration (aircraft make, model and serial number) of aircraft as approved by the Type Certificate Holder.
 - ii. Any modification embodiment instructions on the aircraft, through supplementary type certificate holders, continuing airworthiness issued by type certificate holder and any other organisation that publishes such data in accordance with the requirements of the CARs, or
 - iii. Instructions issued by the DCA if they differ from subparagraph (i) and (ii) or in the absence of specific recommendations, or
 - iv. Instructions defined by the operator and approved by the SACAA if they differ from subparagraphs above.
- d. The maintenance programme shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to specific operations. The programme must include a reliability programme when the maintenance programme is based:
 - i. on Maintenance Steering Group logic (MSG-3 logic);

- ii. includes condition monitored components:
 - iii. it does not contain overhaul time periods for all significant system components and
 - iv. when specified by the manufacturer's MPD or MRB.
- e. The Reliability Programme as stipulated in CAR 93, 121; 127; 128 or 135 SUBPART 9, shall meet the requirements of SA-CATS 43.02.8 SECTION D PART 6.

3.2 Maintenance programme- requirements

- a. The term "maintenance programme" is intended to include schedule maintenance tasks, the associated procedures and standard maintenance practices. The term "maintenance schedule" is intended to embrace the scheduled maintenance tasks alone.
- b. The aircraft should only be maintained to one approved maintenance programme at a given point in time. Where an operator wishes to change from one approved programme to other, a transfer check or inspection may need to be performed in order to implement the change.
- c. The maintenance programme details should be reviewed at least annually. As a minimum revision of documents affecting the programme basis need to be considered by the operator for inclusion in the maintenance programme during the annual review. Applicable mandatory requirements for compliance with the requirements of the SACAA shall be incorporated into the operator's maintenance programme as soon as possible.
- d. The aircraft maintenance programme should contain a preface which will define the maintenance programme contents, the inspection standards to be applied, permitted variations to task frequencies and where applicable, any procedure to manage the evolution of established check or inspection intervals.
- e. The approved aircraft maintenance programme should reflect applicable mandatory regulatory requirements addressed in documents issued by the TC holder.
- f. Repetitive maintenance tasks derived from modifications and repairs should be incorporated into the approved maintenance programme

3.3 Maintenance programme compliance

- a. An operator's maintenance programme should normally be based upon the maintenance review board (MRB) report where applicable, the maintenance planning document (MPD), the relevant chapters of the maintenance manual or any other maintenance data containing information on scheduling. Furthermore, an operator's maintenance programme should also take into account any maintenance data containing information on scheduling for components.
- b. Instructions issued by the SACAA/State of design/State of operator can encompass all types of instructions from a specific task for a particular aircraft to complete recommended maintenance schedules for certain aircraft types that can be used by the /operator directly.
- c. Where an aircraft type has been subjected to the MRB report process, an operator should normally develop the initial operator's aircraft maintenance programme based upon the MRB report.

- d. Where an aircraft is maintained in accordance with an aircraft maintenance programme based upon the MRB report process, any associated programme for the continuous surveillance of the reliability, or health monitoring of the aircraft should be considered as part of the aircraft maintenance programme.
- e. Aircraft maintenance programme for aircraft types subjected to the MRB report process should contain identification cross reference to the MRB report tasks such that it is always possible to relate such task to the current approved aircraft maintenance programme. This does not prevent the approved aircraft maintenance programme from being developed in the light of service experience to beyond the MRB report recommendations but will show the relationship to such recommendations
- f. Some approved aircraft maintenance programme, not developed from the MRB process, utilise reliability programme. Such reliability programme should be considered as a part of the approved maintenance programme

4. CONTENT OF THE MAINTENANCE PROGRAMME

4.1 General requirements

The maintenance programme should contain the following basic information:

- a. The type/model and registration number of the aircraft, engines and, where applicable, auxiliary power units and propellers.
- b. The name and address of the operator.
- c. The reference, the date of issue and issue number of the approved maintenance programme.
- d. A statement signed by the, operator to the effect that the specified aircraft will be maintained to the programme and that the programme will be reviewed and updated as required.
- e. Contents/list of effective pages and their revision status of the document.
- f. Check periods which reflect the anticipated utilisation of the aircraft. Such utilisation should be stated and include a tolerance of not more than 10%, however this is not applicable to calendar and cycle limits (except when stated by the TC holder). Where utilisation cannot be anticipated, calendar time limits should also be included.
- g. Procedures for the escalation of established check periods, where applicable and acceptable to the SACAA.
- h. Provision to record the date and reference of approved amendments incorporated in the maintenance programme.
- i. Details of pre-flight maintenance tasks that are accomplished by maintenance staff. *“(Pre-flight walk around checks, or daily and pre-departure checks intended to be performed by flight crew, need not form part of the approved maintenance programme. These tasks should be addressed in other sections of the MCM)”*
- j. The tasks and the periods (intervals/frequencies) at which each part of the aircraft, engines, APU's, propellers, components, accessories, equipment, instruments, electrical and radio apparatus, together with the associated systems and installations should be inspected. This should include the type and degree of inspection required.
- k. The periods at which components should be checked, cleaned, lubricated, replenished, adjusted and tested.
- l. If applicable, details of ageing aircraft system requirements together with any specified sampling programme.

- m. If applicable, details of specific structural maintenance programme where issued by the type certificate holder including but not limited to:
 - i. Maintenance of structural Integrity by damage Tolerance and SSID.
 - ii. Structural maintenance programme resulting from the SB review performed by the TC holder.
 - iii. Corrosion prevention and control.
 - iv. Repair Assessment. (repetitive structural maintenance based on the dent and buckle report).
 - v. Widespread Fatigue Damage
- n. If applicable a statement of the limit of validity in terms of total flight cycles/calendar date/flight hours for the structural programme.
- o. The periods at which overhauls and/or replacements by new or overhauled components should be made.
- p. A cross-reference to other documents approved by the SACAA which contain the details of maintenance tasks related to mandatory life limitations, CMR's and ADs.
- q. Note: To prevent inadvertent variations to such tasks or intervals these items should not be included in the main portion of the maintenance programme document, or any planning control system, without specific identification of their mandatory status.
- r. Details of, or cross-reference to, any required reliability programme or statistical methods of continuous surveillance.
- s. A statement that practices and procedures to satisfy the programme should be to the standards specified in the TC holder's Maintenance Instructions. In the case of approved practices and procedures that differ, the statement should refer to them.
- t. Each maintenance task quoted should be defined in a definition section of the programme.
- u. The design and application of the maintenance programme shall take into account human factors principles in accordance with CAR 43.02.1 (6) read with SA-CATS 43.02.3.2(2).

4.2 Programme basis

- 4.2.1 An aircraft maintenance programme should normally be based upon the MRB report, where applicable, and the TC holder's maintenance planning document or Chapter 5 of the maintenance manual, (i.e. the manufacturer's recommended maintenance programme). The structure and format of these maintenance recommendations may be re-written by the operator to better suit the operation and control of the particular maintenance programme.
- 4.2.2 For a newly type-certificated aircraft where no previously approved maintenance programme exists, it will be necessary for the operator to comprehensively appraise the manufacturer's recommendations (and the MRB report where applicable,) together with other airworthiness information, in order to produce a realistic programme for approval.
- 4.2.3 For existing aircraft types, it is permissible for the operator to make comparisons with maintenance programme previously approved. It should not be assumed that a programme approved for one operator

would automatically be approved for another. Evaluation should be made of the aircraft/fleet utilisation, landing rate, equipment fitted and, in particular, the experience of the operator when assessing an existing programme. Where the SACAA is not satisfied that the proposed maintenance programme can be used as is, the SACAA should request appropriate changes such as additional maintenance tasks or de-escalation of check frequencies as necessary.

4.3 Amendments

Amendments (revisions) to the approved maintenance programme should be made by the operator, to reflect changes in the TC holder's recommendations, modifications, service experience, or as required by the SACAA. The operator should further specify on the approved maintenance programme, when will these changes be incorporated to the manual.

- 4.3.1 All amendments made to the aircraft maintenance programme shall be submitted to the DCA for approval, unless prior approval has been obtained by the operator to incorporate changes directly.
- 4.3.2 The operator who can incorporate changes on the approved maintenance programme must have a prior approved procedure to affect these amendments. The amendments shall be controlled through a temporary revision of the approved maintenance programme (this privilege will usually only be practical for a large aircraft operator).
- 4.3.3 The changes in paragraph (4.3.1) shall only be applicable to individual scheduled or unscheduled tasks which are brought about the changes from the TC holder. This temporary revision shall only be applicable to aircraft maintenance programme drawn up and approved in accordance with SA-CATS 43.02.8 SECTION D, H and I.

Note: SA-CATS 43.02.8 SECTION D, H and I under Amendments *“Subsection (1) is not to be construed as prohibiting any additional maintenance. Not specifically mentioned in this programme that may be required to ensure that the aircraft can be operated safely. Such maintenance may be undertaken without the approval of the ADCA, provided the latter is advised of such requirement and an application for the amendment of this maintenance programme is made accordingly. The DCA may waive the amendment requirement.”*

4.4 Permitted variations to maintenance periods

The operator may only vary the periods prescribed by the programme with the approval of the SACAA or through procedure developed in the maintenance programme and approved by the SACAA.

4.5 Periodic review of maintenance programme contents

- 4.5.1 The operator's approved maintenance programme should be the subject to periodic reviews to ensure that they reflect current TC holders' recommendations, revisions, to the MRB report if applicable, mandatory requirements and the maintenance needs of the aircraft.
- 4.5.2 The operator should review the detailed requirements at least annually for continued validity in the light of operating experience.
- 4.5.3 Each operator must employ appropriate means to assess the continued effectiveness of their approved maintenance programme. This can be listed on the MCM. AOC holders are mandated to establish a formal process for this evaluation in accordance with CATS 43.02.3.1(1)(j).
- 4.5.4 The aircraft maintenance programme should have a system for continuous monitoring, investigation, data collection, analysis, corrective action, and corrective action follow-up that ensures all parts of the

maintenance program are effective and are being performed in accordance with the operator's approved manual.

5. APPROVAL OF MAINTENANCE PROGRAM

5.1 Introduction

This Chapter describes the procedures for the approval of Operator's initial aircraft maintenance programme, and its subsequent amendments.

5.2 Application for Initial Approval of the Maintenance Programme

5.2.1 The following documents shall be submitted to the Authority:

- a. The proposed maintenance programme.
- b. The proposed reliability programme, as required.
- c. Source documents (As applicable: TCDS, MRB report, MPD, Chapter 5 of the Maintenance Manual, life limitations, Corrosion Prevention Control Programme, Life Limitations, Certification Maintenance Requirements, etc.).
- d. Design status (Type specification, AD status, modification and repair status) of each aircraft listed in the maintenance programme.

5.2.2 Where the maintenance programme differs from the Type Certificate (TC) Holder's recommendations, the Authority must be provided with the appropriate technical justifications for such differences, as shown in paragraph 5.2.4 below.

5.2.3 In relation to the above, differences from the original TC Holder's recommendation may consist of:

- a. Addition of tasks.
- b. Deletion of tasks.
- c. Modification to tasks.
- d. Change in tasks frequencies.

5.2.4 Where comparisons are made with maintenance programme(s) previously approved, the following additional documents shall be submitted to the SACAA:

- a. The previously approved maintenance programme.
- b. A detailed comparison between both fleet of aircraft, relevant to the maintenance programme items concerned by the comparison, in terms of:
 - i. Type of operation (long/short haul, EDTO/non EDTO, fleet utilisation rate, climate environment, etc.).
 - ii. Fleet technical standard (modification standard, customer options, TC variants, structural repairs, etc.).

- iii. Maintenance factors (aircraft age, applicable maintenance practices and procedures, reliability programme, SB implementation policy, lubrication programme, etc.).
- 5.2.5 When differences are shown in reference to paragraph 5.2.4. (b) Above, such differences should be reflected in the operator's proposed maintenance programme, and justification to the changes should be provided.

5.3 Initial Approval of the Maintenance Programme

- 5.3.1 Upon receipt of the paragraph 5.2.1 and -where applicable- paragraph 5.2.4, documents, the Inspector must review the proposed maintenance programme in order to:
- a. Establish compliance with the maintenance programme content requirements as specified above.
 - b. Establish compliance with the source documents and,
 - c. Where the programme deviates from the source document, ensure that the technical justifications provided by the Operator are appropriate.
- 5.3.2 Where relevant, the SACAA Inspector must in addition review the paragraph 5.2.4 documents and ensure that any differences arising from the paragraph 5.2.4(b) comparison is properly reflected in the proposed maintenance programme.
- 5.3.3 When the Inspector is satisfied that compliance is established and/or that the technical justifications are appropriate, the SACAA will issue an approval of the Maintenance Programme.
- 5.3.4 The recommended method of maintenance programme approval is for the SACAA to stamp and sign the programme list of effective pages. Also, the approval of the maintenance programme should be notified by an Authority approval letter/certificate.
- 5.3.5 The SACAA approval/non-approval of the maintenance programme should be made known to the operator within 30 days of receipt of the application.
- 5.3.6 Notwithstanding paragraph 5.3.5 above, when a maintenance programme approval is needed before the 30 days period, the Authority may agree to issue a provisional approval of the maintenance programme in accordance with the following procedure:
- a. The maintenance programme will be approved for a limited period of time.
 - b. The Inspector will only review those maintenance tasks from the source documents which are due within the above period of time.
 - c. The maintenance programme provisional approval may include any additional limitation raised by the paragraph (b) review.
 - d. The Inspector will then review the complete programme so that the complete programme may be approved -or not approved- at the end of the above period of time the latest.

5.4 Application for an amendment to an approved maintenance programme

- 5.4.1 The Operator shall nominate a person who shall be responsible for the up keep or control of the maintenance programme, including ensuring that the programme is suitably amended where applicable following the regular review.
- 5.4.2 A revision to a maintenance programme may include:
- a. Additions of tasks.
 - b. Deletions of tasks.
 - c. Modifications to tasks.
 - d. Changes in tasks frequencies.
 - e. Changes to the list of aircraft subject to the maintenance programme.
- 5.4.3 The following documents shall be submitted to the SACAA
- a. The proposed revision to the maintenance programme.
- 5.4.4 When submitting an aircraft maintenance programme amendment, the operator should indicate the affected items and the justification for the change, such as:
- a. A letter accompanying the application. The letter must indicate which pages have been amended and the amendment status will be indicated on those pages. (the amendment letter should be submitted for each amendment).
 - b. Each time an amendment is approved, the revision number and pages affected by the revision must be indicated on the revision control block of the aircraft maintenance programme.
 - c. A detailed supporting data should also be included with the amendment application. The supporting data will usually result from a revision change of the source document the aircraft maintenance programme is based on, or an approved reliability programme.
 - d. Operators should make allowance for the time needed to assess the application, which will be dependent upon the workload at the time. Applications will normally be assessed on a first come, first served basis.
 - e. The Inspector will then review the maintenance programme for approval.

5.5 Organisation approval for the approval of maintenance programme amendments

- 5.1.1 Notwithstanding paragraph 4 and 5 above, an organisation may be approved to provide reports and certify that the content of the maintenance amendments complies with the appropriate requirements.
- 5.1.2 Accordingly, the approval of the amendment to the maintenance programme will be promulgated in accordance with the Operator's procedures.

6. AIRCRAFT MAINTENANCE PROGRAMME FOR AIRCRAFT OPERATED BY MULTIPLE AOCs.

6.1 General

Although aircraft maintenance programme are not transferable, operators may base their maintenance programme upon the initial approved owner's manual or another operator who is operating that aircraft; Provided:

- 6.1.1 In a case where initial aircraft maintenance programme was approved for the owner in accordance with CAR 43.02.8 with its associated technical standards. The owner must make available the aircraft maintenance programme to the AOC holder.
- 6.1.2 It is the responsibility of the AOC holder to ensure that the maintenance programme meets the operational requirements including but not limited to, the utilisation of the aircraft, the type of operation, including the environment conditions where the aircraft will be operating.
- 6.1.3 Analysis of maintenance programme developed in this way will involve a comparison between the two operations (the initially approved to the intended programme).
- 6.1.4 Approval will depend upon the applicant's ability to demonstrate that the aircraft configuration, type of operation, type of evaluation program and operation environment are essentially the same in both cases.
- 6.1.5 A comparison of the reliability programme (where applicable) of the previous operator and the applicant would be required. In addition, the assessment will take into account the relative experience of each operator with the aircraft type, or with similar types.
- 6.1.6 An operator may not take credit for another operator's established TBO, or other intervals (through reliability programme or experience), unless the operator can show equivalent competence and experience.
- 6.1.7 Where the operations are similar, but appropriate experience cannot be demonstrated, the operator may be allowed to base his maintenance programme upon the other operator's, but without credit for the other operator's experience in the development of intervals.

Note: If the assessment of the maintenance programme results in changes to tasks or intervals, it will be necessary to re-calculate the times when the tasks are next due. It should be noted that the approval of a new maintenance programme and the transfer or moving of aircraft to a different maintenance programme are two separate issues, example: moving the aircraft from phased to progressive inspection due to utilisation changes.

Note: With the latter, the operator will be required to conduct a bridging-check in order to realign the maintenance. A 'bridging check' is not in itself a maintenance package; it is the result of a detailed analysis of the transfer aircraft maintenance history in relation to the Maintenance Programme the aircraft is to be placed under.

6.2 Aircraft Maintenance Programme Monitoring

Each operator must employ appropriate means to assess the continued effectiveness of their approved maintenance programme. This can be listed on the MCM and the AOC holder is mandated to establish a formal process for this evaluation in accordance with CATS 43.02.3.1(1)(j).

- 6.2.1 The aircraft maintenance programme should have a system for continuous monitoring, investigation, data collection, analysis, corrective action, and corrective action follow-up that ensures all parts of the maintenance program are effective and are being performed in accordance with the operator's approved manual.

“Effective” means achieving the desired results according to the maintenance program objectives and the standards that the operator, has set. "Program performance" means that all personnel are following your program as you have documented it in your manual.

- 6.2.2 It should be further stated on the maintenance program who will be responsible for the original copy. Furthermore, each operator's MCM or maintenance agreement should have a procedure for continued airworthiness meetings between the operators and the contracted AMO and how often should these meetings happen (to include the planning organisation if it's not the contracted AMO).
- 6.2.3 The meetings in 6.2.2 shall be an official formal meeting with set agenda, attendees and minutes.
- 6.2.4 It will be the responsibility of each AOC holder to ensure that the maintenance procedures as approved on their respective MCM are not contradictory to eliminate ambiguity to the contracted AMO maintaining the aircraft.

6.3 Aircraft Maintenance Programme Controls

Even though it is permissible for multiple AOC holder to have a similar aircraft on its Operations Specifications, using one aircraft maintenance programme is permissible and;

- 6.3.1 Each operator shall be required to have a copy of the approved maintenance programme.
- 6.3.2 This can be controlled through a distribution list, listing the operators who are required to have a copy of the approved aircraft maintenance program.
- 6.3.3 If the AMO responsible for maintenance and the organisation responsible for maintenance planning of the aircraft are not the same, that should be clearly stated on the Lease Agreement. The owner should further give access of the Airworthiness Data to all affected AOC holders and these should be imbedded on the Lease Agreement.
- 6.3.4 The Maintenance Agreement between the AOC holders and the contracted AMO should clearly detail how the relationship will be handled to cover any detail that is not covered on the MCM. The maintenance agreement should seek to iron out any differences and ambiguity, including the details of who is responsible for the maintenance records.

6.4 Aircraft Maintenance Programme Amendments




Once the operator has determined above, the amendments shall be incorporated to the existing approved maintenance programme.

- 6.4.1 The application submission must be accompanied by the permission to use letter signed by the owner permitting the operator to use and amend the maintenance programme.
- 6.4.2 The operator will be mandated to sign the commitment statement of the amended aircraft maintenance programme. The amendments application shall meet the requirements of paragraph 4.3 and 5.4.4.
- 6.4.3 The maintenance programme amendments shall be submitted to the SACAA for approval prior to the addition of the aircraft to a respective AOC holder Operations Specifications.
- 6.4.4 Operators should make allowance for the time needed to assess the application, which will be dependent upon the workload at the time. Applications will normally be assessed on a first come, first served basis and also as per the SASACAA service level agreement (SLA).

6.5 Aircraft Maintenance Programme based on SA-CATS 43.02.8 SECTION B, C, E, F and G

The operator of an aircraft which its Aircraft Maintenance Programme is based on SA-CATS 43.02.8 SECTION B, C, E, F and G shall be required to have a drawn-up aircraft maintenance programme in accordance with the said technical standard.

6.5.1 However, the maintenance programme in paragraph 6.5 does not require the DCA's approval as it already approved in accordance with the provision stipulated in the technical standard "Provided that the Maintenance Programme is drawn up in accordance with this Technical Standard, it serves as the approved aircraft maintenance programme for the particular aeroplane, without the need to forward it to the DCA for his or her approval. However, any deviation from the provisions of this Technical Standard shall require the prior approval of the DCA"

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