

**SOUTH AFRICAN CIVIL AVIATION AUTHORITY
AIRCRAFT SAFETY DEPARTMENT**

**MAINTENANCE ADVISORY NOTICE
GENERAL # 44 (REVISION 1)**

**DESIGN ORGANISATION APPROVAL AND SUPPLEMENTAL TYPE CERTIFICATE REQUIREMENTS
FOR MODIFICATIONS**

Applicability: Owners, Operators and their associated Organisations

Compliance

Compliance with this Maintenance Advisory Notice (MAN) is considered mandatory by this Authority.

1. Introduction

This Maintenance Advisory Notice supersedes MAN #44 dated 17 September 2010.

The initial MAN #44 granted a twelve month amnesty, which will be ending on the 17 September 2011 to the industry to comply with CAR PART 147. The Director for Civil Aviation has granted an extension for a further six months ending on the 17 March 2012.

2. Background

The SACAA has noted that applicants for modification approvals (form CA43-14) do not comply with the requirements of Part 21.05.1(1); Part 43.02.15; Part 147.02.1 and Part 147.03.1 of the SA Civil Aviation Regulations (SACAR) of 1997, as amended, when applying for the modification approval of an aircraft.

The SACAA acknowledges that there are organizations which will be affected by the strict enforcement of the said regulations, and hence the purpose of this MAN is to establish a transition period, and to enforce the Supplemental Type Certificate (STC) requirement to major modifications only, until such time as SACAR Part 21.05.1(1) is amended in line with the definition of an STC in Part 1.

The current process of handling major modifications will therefore be affected by this MAN, in that all major modifications will require a Part 21 design approval, where applicable; and design data is submitted in accordance with SACAR Part 147.02.1 or 147.03.1, by a Design Organisation, approved in terms of Part 147.

3. Relevant Regulations

3.1 Part 1 – Definitions

Currently, the SACAR Part 1 defines the following terms used throughout the current regulations, and classifies modifications into two categories, namely major and minor modifications and design changes.

“Supplemental type certificate” means a certificate issued in terms of regulations 21.05.3, which authorises the holder thereof to alter a product for which such holder is not the type certificate holder, by introducing a **major change in the type design** which is not great enough to require a new application for a type certificate;

“Major change” means any change in the type design which is extensive enough to require a substantially complete investigation to **determine compliance** with the type certification basis;

“Major modification” means a modification not listed in the aircraft, aircraft engine, or propeller specifications –

- (a) which may appreciably affect weight, balance, structural strength, performance, powerplant operations, flight characteristics, or other qualities affecting airworthiness; or
- (b) which is not done according to accepted practices or cannot be done by elementary operations;

“Minor modification” means a modification other than a major modification;

3.2 Part 21 - Certification Procedures for Products and Parts

SACAR Part **21.05.1 (1)** (Requirements for supplemental type certificate) states:

*“Any person who is not the holder of a type certificate and who alters a product by introducing **any change in the type design**, but not great enough to require a new application for a type certificate, shall apply to the Commissioner for the issuing of a supplemental type certificate.”*

SACAR Part **21.08.3** states:

“...

- (2) The applicant shall, in addition to the provisions of sub-regulation (1), provide the Commissioner with proof that –
 - (a) the aircraft conforms to an appropriate type certificate or type acceptance certificate;
 - (b) any modification to the aircraft **conforms to the design changes approved** for the type;

...”

3.3 Part 43 - General Maintenance Rules

SACAR Part **43.02.15** states:

- (1) No person shall, without the prior written approval of the Commissioner, **carry out** any modifications, including **changes to equipment** or the **installation** thereof, which affect, or are likely to affect, the serviceability of the aircraft, or the safety of its occupants or of any other persons or property.
- (2) Before the approval of the Commissioner is considered for a modification as referred to in sub-regulation (1), the owner of the aircraft, or any other person who applies for the modification, shall –
- (a) **furnish** the Commissioner with such information, data, calculations, reports on tests, drawings or wiring diagrams relating to the design, and proof of effectiveness or airworthiness of such modification, as the Commissioner may require; and
 - (b) be accompanied by the appropriate fee as prescribed in Part 187.
- (3) Notwithstanding the provisions of sub-regulations (1) and (2), such modifications as may from time to time be recommended by the manufacturer of the type of aircraft or equipment concerned, may be carried out if the modifications are carried out in accordance with the said manufacturer's recommendations."

3.4 Part 147 - Design Organisations for Products, Parts and Appliances

SACAR Part **147.02.1** (Approval of Design Organisation (Products), Requirement for Approval) states:

*"No organisation shall design **any product or a change thereto**, except under the authority of, and in accordance with the provisions of, a design organisation approval issued under this Subpart."*

Similarly, SACAR Part **147.03.1** (Approval of Design Organisation (Parts and Appliances), Requirement for Approval) states:

*"No organisation shall design **any product, or a change thereto**, except under the authority of, and in accordance with the provisions of, a design organisation approval issued under this Subpart."*

4. Discussion

The terms "modification", "alteration", "design change" or "repair" may be used interchangeably in this text, as all these terms are in the context of a change to the type design.

4.1 Part 21 compliance

From the above regulations and definitions, it is clear that there is a discrepancy relating to the applicability of an STC to either any, or only to a major, design change.

The purpose of this MAN is to clarify that in fact, the intent that design data of major modifications (i.e. a major change in the type design) should be approved by means of an STC, in terms of SACAR Part 21 Subpart 5.

This is in line with international authorities such as the FAA, EASA and Transport Canada; and will be enforced from the effective date of this MAN.

All new major modifications (design changes), therefore require an STC issued in terms of Part 21, or equivalent.

An STC is a design approval only, therefore if multiple articles are to be produced; the organisation will require a form of manufacturing or production approval. Please contact the Manufacturing Section to discuss their requirements.

Note that major design changes mandated by an Airworthiness Directive, recommended by Service Bulletin, or a repair scheme detailed in the Structural Repair Manual from the manufacturer, etc. do not require a Part 21 design approval, as per SACAR Part 43.02.15 (3).

Minor modifications (design changes) are handled as per AIC 61.6.

4.2 Part 43 Compliance

The Modification Approval Application form, CA 43-14, has been used in the past to approve a modification data pack. However, from SACAR 43.02.15, this process is to approve the embodiment or installation of the modification (i.e. an approval to carry out the installation task in terms of SACAR Part 43) on a specific aircraft.

It should not be used as a method of approving design data. A design change is approved in terms of SACAR Part 21 (e.g. STC, TSO, PMA, amended TC etc.).

If the modification is a new design, or does not hold a Part 21 approval, and is considered a major modification to the aircraft type design, then a Part 21 design approval must be pursued to approve the design concurrently with a Part 43 modification approval to embody the modification to an aircraft.

All modification applications (CA 43-14 form) are assessed and classified either by the SACAA, or by an appropriately rated Design Organisation (DO), in order to classify the modification (design change) as either major or minor.

4.3 Part 147 Compliance

It is also evident from the regulations that only an approved Design Organisation, issued in terms of SACAR Part 147, may design any change to an aircraft, and hence provide design data for a major or minor modification.

It is proposed that an extension period be granted for 6 months from the effective date of this MAN, to allow for organizations supplying design data to industry, to comply with the provisions of SACAR Part 147.

At the end of this transition period, all design data submitted for a modification, or a Part 21 approval, shall be submitted by an appropriately rated Design Organisation, approved in terms of SACAR Part 147.

5. Conclusion

The following will be enforced from the effective date of the MAN:

1. In all instances where any modification is to be embodied on an aircraft, a completed CA43-14 form (Modification Approval Application) and/or a CA 43-08 form (Modification and Repair Notification) will be submitted along with supporting documents to the SACAA as is the current norm.
2. The installation approval of a major or minor modification (design change) onto a specific aircraft will be issued in terms of Part 43.02.15 i.e. a CA43-14 "Modification Approval".
3. Minor modifications will be processed in accordance with the current AIC 61.6.
4. Major modifications will require the design data to be approved in terms of Part 21 of the SACARs. Where there is no Part 21 approval or equivalent in place (e.g. the modification is a new design change), the applicant will also need to apply for the issuance of an STC in terms of SACAR Part 21 Subpart 5. The "Permanent Modification Approval" will only be granted once the design and installation approval requirements have been finalized.
5. An extension period of 6 months effective from the date of this MAN, will be implemented to allow affected organizations to obtain a Design Organisation Approval in terms of SACAR Part 147.
6. Design data may be accepted from organisations without an approved Design Organisation during this extension period, provided the applicant has demonstrated intent to obtain a DOA by the end of the transition period.
7. After the 6 month extension period, design data for major modifications (design changes), shall be submitted by an appropriately rated Design Organisation approved in terms of SACAR Part 147.

Owners, operators and organisations are required to familiarize themselves with the above requirements.

6. Queries

Any queries as a result of this MAN should be addressed to the Manager: Certification Engineering at the following email address: AircraftCertDept@caa.co.za

This MAN is issued in the interest of aviation and public safety.


Director of Civil Aviation

2011-09-17
Date

Recipients of this notice are requested to ensure that these are copied to their in-house or contracted organisations, to relevant outside contractors, and to all members of their staff who could have interest in this information or who need to take appropriate action in response to this notice.