

**Kingdom of Saudi Arabia
General Authority of Civil Aviation**

GACA REGULATION



Section 8 Airworthiness of Aircraft

Edition 2.0

FOREWORD

The following Regulations governing Airworthiness of Aircraft are based on Articles 1, 2, 3, 4, 5, 6, 9, 11, 14, 24, 25, 25, 29, 30, 31, 49, 50,51, 5253, 59,76, 68,69,70,80, 81,82,83,84, 85, 86,87, 91, 92, 93, 94, 97, 175 and 177 of the Civil Aviation Act that has been approved by the Council of Ministers Resolution No. 185 dated 17/07/1426H and issued by the Royal Decree No. M/44 dated 18/07/1426H. (23/08/2005G).

The promulgation of this regulation is based on the authority granted in Article 179 of the Civil Aviation Act, and is issued under the authority of the President, General Authority of Civil Aviation, as a duly delegated representative of the GACA Board of Directors, in accordance with Order No.T-41, dated 30/12/1429H (28/12/2008G).

The General Authority of Civil Aviation is responsible for the preparation and distribution of all regulations in sufficient quantities so that all service providers and aircraft operators based in the Kingdom of Saudi Arabia are able to obtain an authentic copy prior to the effective date of the Regulation.

APPROVED:

Original Signed

Fahad Bin Abdullah Al Saud
President, General Authority of Civil Aviation,

Effective Date: 14 November, 2013

CONTENT RULES

1) Organization Structure:

- a) GACA has established an Airworthiness Division (AW) within the Aviation Standards Department (ASD) of the Safety and Economic Regulation Sector (S&ER) with the following responsibilities:
1. Carry out the function of safety regulation of airworthiness of aircraft. This includes promulgation of airworthiness regulations, requirements, directives, and implementation policies, which are periodically reviewed to ensure they remain relevant and appropriate to the airworthiness of aircraft,
 2. Ensure and enforce compliance with the applicable regulations and procedures of GACAR Section 8 including the identification of conditions and circumstances under which AW are allowed to deal with, and resolve events involving certain deviations internally, within the context of this regulation,
 3. Perform safety oversight functions including audits, inspections, investigations, and data analysis; on pre-established annual audit program and frequent inspections of areas of greater safety concern or need, as identified by the analysis of data, or as instructed by Senior Management,
 4. Certify the airworthiness of aircrafts registered in the Kingdom to include aircraft noise and engine emissions requirements, and maintain current data base for aircraft airworthiness certifications,
 5. Certify major aircrafts alterations and repairs and conduct compliance and conformity inspections to ensure airworthiness,
 6. Review and approve aircraft flight manuals (AFM), structural repair, minimum equipment list (MEL), Configuration Deviation List (CDL), overhaul, fueling/refueling/de-fueling, and ground servicing, manuals
 7. Review and approve registered aircrafts' weight and balance control, reliability, corrosion control, and structural integrity programs,
 8. Ensure the maintenance of registered aircrafts in accordance with all requirements and applicable standards for the particular aircraft design and series through:
 - a) Review and approval of maintenance manuals, programs, and schedules for all registered aircrafts,
 - b) Regular surveillance and inspection of common carriers,
 - c) Inspect and certify in and out of Kingdom stations repairing Saudi-registered aircrafts,
 - d) Inspect and certify mechanics, repairmen and other maintenance personnel working in repair stations handling Saudi-registered aircrafts to ensure their capabilities in maintaining and repairing aircrafts. This includes as well assessing and approving their training program,
 - e) Evaluate application for and appoint Designated Engineering Representatives (DERs),
 9. Participate in incident and accident investigations.

2) Rules of Constructions:

- a) To avoid any misunderstanding within this regulation, certain words are to be interpreted as having specific meanings when they are used, unless the context requires otherwise:
 1. Words importing the singular include the plural;
 2. Words importing the plural include the singular; and
 3. Words importing the masculine gender include the feminine
- b) In this regulation, the following protocol is used:
 1. The words "**Shall**" and "**must**" indicate that compliance is compulsory.
 2. The word "**should**" indicates a recommendation. It does not means that compliance is optional but rather that, where insurmountable difficulties exist, the GACA-S&ER may accept an alternative means of compliance, provided that an acceptable safety assurance from the authority shows that the safety requirements will not be reduced below that intended by the requirement.
 3. The word "**Can**" or "**May**" is used in a permissive sense to state authority or permission to do the act prescribed, and the words "no person may * * *" or "a person may not * * *" mean that no person is required, authorized, or permitted to do the act prescribed;
 4. The word "**will**" is used to express the future; and
 5. The word "**Includes**" means "**includes but is not limited to**".

AMENDMENT PROCEDURE

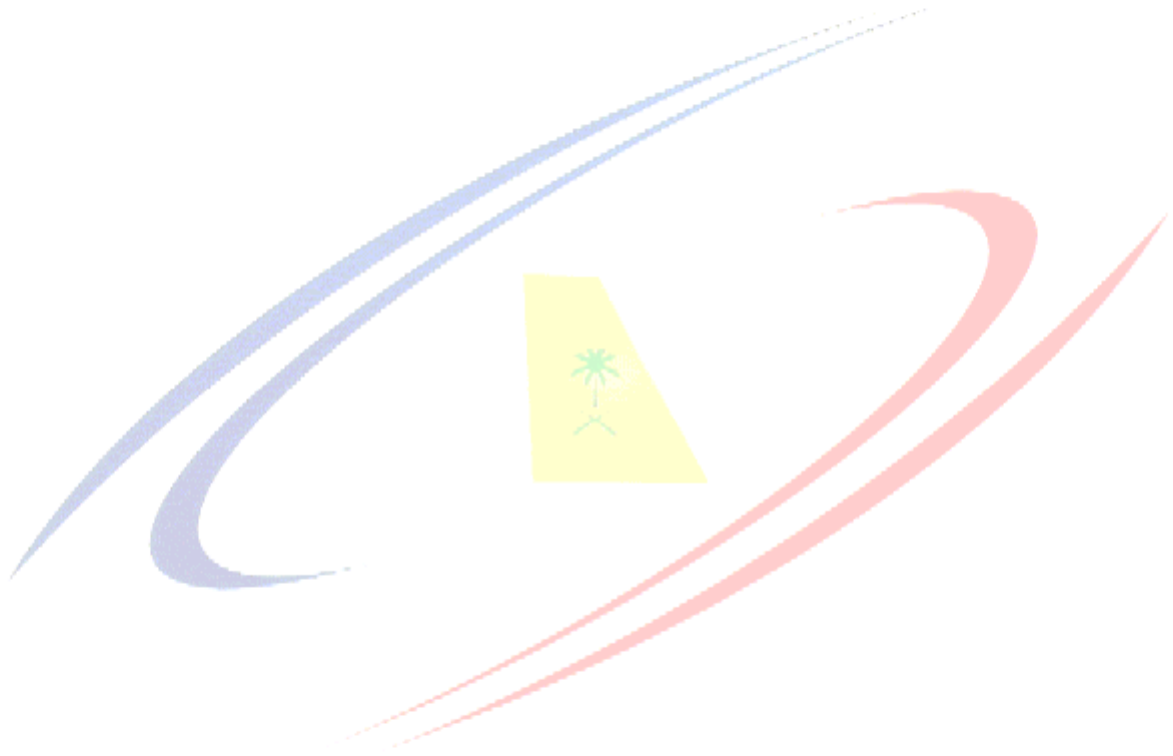
The existing General Authority of Civil Aviation Regulations (GACAR) will be periodically reviewed to reflect the latest updates of International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARP's); it will be also amended to reflect the latest aviation safety provisions issued by GACA and other regional and international civil aviation organizations. A complete revised edition incorporating all amendments will be published every three years from the original effective date of this regulation. The amendment procedure shall be as follows:

1. When the General Authority of Civil Aviation (GACA) receives an amendment to any of the current ICAO Annexes that can affect the provisions of this regulation, it will be forwarded by the Vice President of International Organization Affairs to the Vice President, Safety and Economic Regulation (S&ER) who in turn will provide a copy of this amendment to the concerned department for study and comments taking into account the ICAO deadline for the reply.
2. When any GACA department or stakeholder proposes an amendment to this regulation, it will send a letter with the proposed amendment including a clear justification and argument for such amendment. Following the receipt of an amendment proposal, the S&ER will analyze this proposal and forward its comments and any proposed decision action to the S&ER Vice President.
3. An accepted amendment proposal will be prepared as draft amendment to the GACAR-Section 8 and forwarded to the originator of the amendment proposal and concerned GACA department (s) for further review and comment within a specified timeline.
4. All accepted amendments will be drafted in the form of Notices of Proposed Amendments (NPA) and forwarded to all concerned parties including stakeholders for comment within a two-month reply period. The NPA shall indicate the proposed Amendment's effective date.
5. Following the receipt of NPA replies, the S&ER will analyze the comments received and produce a new draft in consultation with the concerned GACA department. The final draft will be submitted to President of the General Authority of Civil Aviation for formal approval prior to publication.
6. The Amendment's effective date will take into account the comments of all the concerned parties and stakeholders.
7. Any differences between the GACAR Section 8 new amendment and ICAO Annex 8 Standards and Recommended Practices will be forwarded to ICAO as a Difference and published as it is in the Aeronautical Information Publication (AIP).
8. All concerned parties and stakeholders will be provided a copy of the new amendment and will be requested to update their copy of the GACAR Section 8 accordingly.
9. It is the responsibility of all concerned parties to keep their copy of GACAR-Section 8 and other GACA regulation publication up to date.

SUPPLEMENTARY REGULATIONS

From time to time it will be necessary to issue regulations which supplement or augment the GACAR Regulations. The following procedures will apply:

1. Supplementary regulations will be issued in the form of a GACA Regulation Circular (RC).
2. The GACA Regulation Circular will be approved by the President.
3. The process for preparation and publishing of the GACA Regulation Circular will be addressed in the GACA Quality System Manual.



AMENDMENT RECORD

This edition reflects the Eleventh Edition of ICAO Annex 8 up to and including amendment 104

[illegible]

LIST OF CURRENT DIFFERENCES TO ICAO SARPS

GACA Regulation Section 8 is based on ICAO Annex 8. The following is a list of differences with the GACA Regulation and the ICAO Standards and Recommended Practices (SARPS). Differences have been notified to ICAO and are also published in the KSA Aeronautical Information Publication (AIP-GEN 1.7).

ICAO Annex 8 – Airworthiness of Aircraft – Amendment 104			
SARP Identifier	SARP	Regulation Reference	Difference
Chapter 1 1.0.3	Type Certificate. A document issued by a Contracting State to define the design of an aircraft type and to certify that this design meets the appropriate airworthiness requirements of that State.	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR 21.21, 21.41	Regulatory requirements would require that a Saudi Arabia type certificate certifies that the aircraft meets national regulations for aircraft noise, fuel venting and exhaust emission requirements.
Chapter 1 Reference Definition 1.0.3	Maintenance. The performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR part 1 and 43	ICAO's definition includes any one or a combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair. Modifications are not included in the GACA's definition of maintenance. Instead they are referred to as alterations and defined under the term major alteration.
Chapter 1 Reference Definition 1.0.3	Performance Class 1 helicopter. A helicopter with performance such that, in case of engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area.	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR 1.1	In Saudi Arabia, helicopters are classified as either Category A or B only.
Chapter 1 Reference Definition 1.0.3	Performance Class 2 helicopter. A helicopter with performance such that, in case of engine failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after take-off or after a defined point before landing, in which cases a forced landing may be required.	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR 1.1	In Saudi Arabia, helicopters are classified as either Category A or B only.
Chapter 1 Reference Definition 1.0.3	Performance Class 3 helicopter. A helicopter with performance such that, in case of engine failure at any point in the flight profile, a forced landing must be performed.	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR 1.1	In Saudi Arabia, helicopters are classified as either Category A or B only.
Chapter 1	"Standard atmosphere. An atmosphere	GACA REG.	GACA uses the U.S.

Reference Definition 1.0.3	<p>defined as follows:</p> <p>a) the air is a perfect dry gas;</p> <p>b) the physical constants are:</p> <p>— Sea level mean molar mass: M0 = 28.964 420 × 10-3 kg mol-1</p> <p>— Sea level atmospheric pressure: P0 = 1013.250 hPa</p> <p>— Sea level temperature: t0 = 15°C</p> <p>T0 = 288.15 K</p> <p>— Sea level atmospheric density: ρ0 = 1.225 0 kg m-3</p> <p>— Temperature of the ice point: Ti = 273.15 K</p> <p>— Universal gas constant: R* = 8.314 32 JK-1mol-1</p> <p>c) the temperature gradients are:</p> <table><thead><tr><th colspan="2">Geopotential altitude</th><th rowspan="2">Temperature gradient (km) (Kelvin per standard From To geopotential kilometre)</th></tr><tr><th></th><th></th></tr></thead><tbody><tr><td>-5.0</td><td>11.0</td><td>-6.5</td></tr><tr><td>11.0</td><td>20.0</td><td>0.0</td></tr><tr><td>20.0</td><td>32.0</td><td>+1.0</td></tr><tr><td>32.0</td><td>47.0</td><td>+2.8</td></tr><tr><td>47.0</td><td>51.0</td><td>0.0</td></tr><tr><td>51.0</td><td>71.0</td><td>-2.8</td></tr><tr><td>71.0</td><td>80.0</td><td>-2.0</td></tr></tbody></table> <p>N1. The standard geopotential metre has the value 9.80665 m2 s-2.</p>	Geopotential altitude		Temperature gradient (km) (Kelvin per standard From To geopotential kilometre)			-5.0	11.0	-6.5	11.0	20.0	0.0	20.0	32.0	+1.0	32.0	47.0	+2.8	47.0	51.0	0.0	51.0	71.0	-2.8	71.0	80.0	-2.0	SECTION 8- AIRWORTHINESS GACAR/FAR 1.1	Standard Atmosphere, 1962. This standard contains a sea-level molecular weight (M0) of 28.9644 kg (kg-mol)-1. The U.S. Standard Atmosphere, 1962 is in agreement with ICAO Standard Atmosphere up to 65,000 feet in altitude.
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71.0	80.0	-2.0																											
Chapter 4 Reference 4.2.3 Standard	<p>State of Registry The State of Registry shall:</p> <p>a) ensure that, when it first enters on its register an aircraft of a particular type for which it is not the State of Design and issues or validates a Certificate of Airworthiness in accordance with 3.2 of this part, it shall advise the State of Design that it has entered such an aircraft on its register;</p> <p>b) determine the continuing airworthiness of an aircraft in relation to the appropriate airworthiness requirements in force for that aircraft;</p> <p>c) develop or adopt requirements to ensure the continuing airworthiness of the aircraft during its service life, including requirements to ensure that the aircraft:</p> <p>iv) continues to comply with the appropriate airworthiness requirements after a modification, a repair or the installation of a replacement part; and</p> <p>v) is maintained in an airworthy condition and in compliance with the maintenance requirements of Annex 6,</p>																												

	<p>and where applicable, Parts III, IV and V of this Annex;</p> <p>f) upon receipt of mandatory continuing airworthiness information from the State of Design, adopt the mandatory information directly or assess the information received and take appropriate action;</p> <p>g) ensure the transmission to the State of Design of all mandatory continuing airworthiness information in respect of a product or a modification which it, as the State of Registry, originated in respect of that aircraft; and</p> <p>h) ensure that, in respect of aeroplanes over 5 700 kg and helicopters over 3 175 kg maximum certificated take-off mass, there exists a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse</p>		
Chapter 7	7.2 Operating limitations	GACA REG. SECTION 8- AIRWORTHINESS GACAR/FAR 25.1581, 25.1583. GACA/FAA Advisory Circular 25.1581-1 Difference filed.	ICAO requires that limitations are expressed in suitable units and corrected if necessary. Saudi Arabian advisory material states that the flight manual units should be consistent with the flight deck instrumentation, placards, and other measuring devices for a particular airplane.
Reference 7.2.1	Limitations which might be exceeded in flight and which are defined quantitatively shall be expressed in suitable units. These limitations shall be corrected if necessary for errors in measurements so that the flight crew can, by reference to the instruments available to them, readily determine when the limitations are reached.		
Standard			
Chapter 8	"Lighting and marking Emergency lighting, if installed, shall have the following characteristics:	GACA Regulations Section 8: GACAR/FAR: a) 23.812 d) 23.811 e) 23.967(e	Under I.5.e: Fuel tanks must be designed, located, and installed so as to retain fuel.
Reference 8.5	<p>a) independence from main electrical supply;</p> <p>b) automatic activation upon loss of normal power/impact;</p> <p>c) visual indication of emergency exits;</p> <p>d) illumination both inside and outside the aeroplane during evacuation; and</p> <p>e) no additional hazards in the event of fuel spillage, emergency landings and minor crash events.</p>		
Standard			

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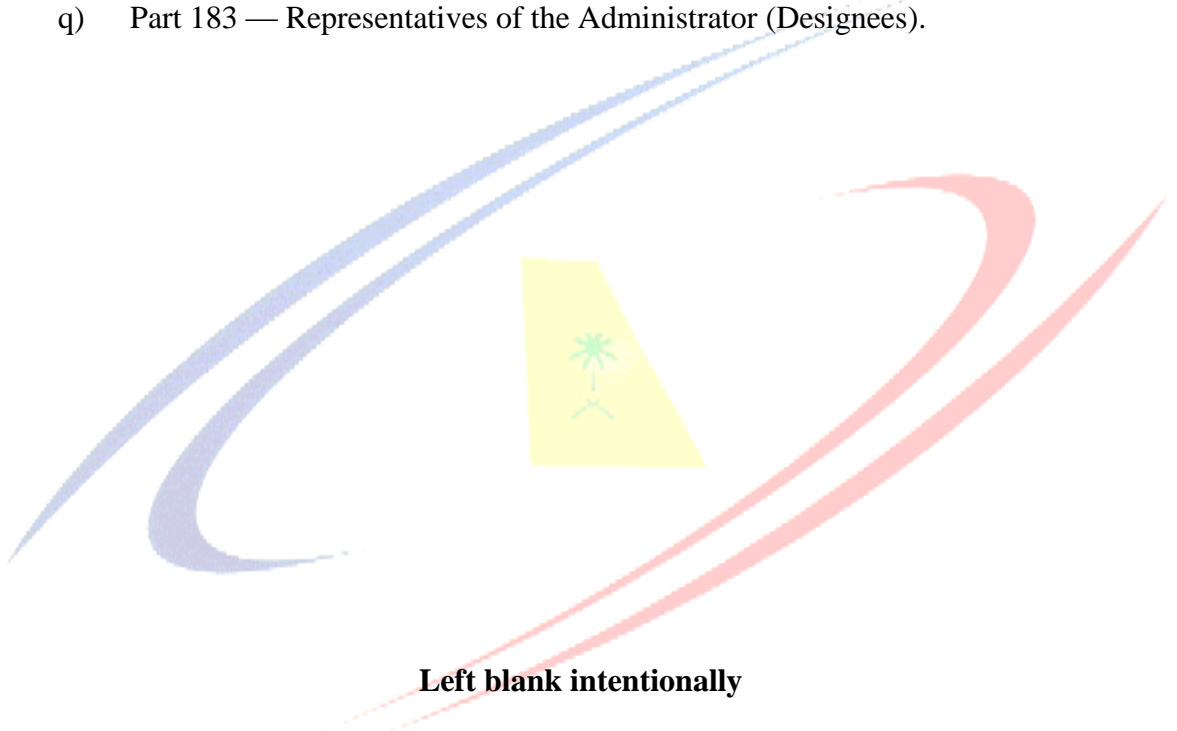


CHAPTER 1 - AIRWORTHINESS OF AIRCRAFT

- 1) The General Authority of Civil Aviation (GACA) adopted the United States of America Airworthiness of Aircraft Regulations through the 14 CFR, and its supporting handbooks, manuals, Advisory Circulars (ACs), Directives, policy, guidance material, Orders, Notices, and specific GACA requirements as amended, to be GACA Regulation Section 8 Airworthiness of Aircraft.
- 2) The adoption of the United States Aircraft Airworthiness Regulation is based on GACA Board of Directors Order No. T- 4-26, dated 28/08/1428H (10/09/2007G). Based on this Order, GACA also adopted the United States Aviation Safety Regulations regarding Personnel Licensing, Operation of Aircraft, and Environmental Protection to be part of GACA Regulations until GACA develops its own regulations for these areas.
- 3) GACA promulgated civil aviation safety regulations that comprise the following sections:

Section 1 -	Personnel Licensing (GACAR /FAR)
Section 2 -	Rules of the Air
Section 3 -	Meteorological Service for Air Navigation
Section 4 -	Aeronautical Charts
Section 5 -	Units of Measurement to be Used in Air and Ground Operations
Section 6 -	Operation of Aircraft (GACAR /FAR)
Section 7 -	Aircraft Nationality and Registration Marks
Section 8 -	Airworthiness of Aircraft (GACAR /FAR)
Section 9 -	Facilitation (RESERVED)
Section 10 -	Aeronautical Telecommunications
Section 11 -	Air Traffic Services
Section 12 -	Search and Rescue
Section 13 -	Aircraft Accident and Incident Investigation
Section 14 -	Aerodromes
Section 15 -	Aeronautical Information Services
Section 16 -	Environmental Protection (GACAR /FAR)
Section 17 -	Aviation Security (RESERVED)
Section 18 -	The Safe Transportation of Dangerous Goods by Air
Section 19 -	Safety Management
Section 21 -	Safety Management System
- 4) Any differences between GACAR Section 8/14 CFR Parts and ICAO Annex 8 Standards and Recommended Practices (SARP's) will be reported to ICAO and reflected in Kingdom of Saudi Arabia (KSA) Aeronautical Information Publications (AIP's).
- 5) GACAR Section 8/14 CFR Parts provisions related to airworthiness and maintenance of aircraft are addressed in 14 CFR Parts, supported by handbooks, manuals, Advisory Circulars (ACs), Directives, policy, guidance materials, Orders and Notices and more specifically through the following 14 CFR Parts:
 - a) Part 21 — Certification Procedures for Products and Parts;
 - b) Part 23 — Airworthiness Standards: Normal, Utility, Acrobatic and Commuter Category Airplanes;
 - c) Part 25 — Airworthiness Standards: Transport Category Airplanes;

- d) Part 26 — Continued Airworthiness and Safety Improvements for Transport Category Airplanes;
- e) Part 27 — Airworthiness Standards: Normal Category Rotorcraft;
- f) Part 29 — Airworthiness Standards: Transport Category Rotorcraft;
- g) Part 31 — Airworthiness Standards: Manned Free Balloons;
- h) Part 33— Airworthiness Standards: Aircraft Engines;
- i) Part 34— Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes;
- j) Part 35 — Airworthiness Standards: Propellers;
- k) Part 36 — Noise Standards: Aircraft Type and Airworthiness Certification;
- l) Part 39 — Airworthiness Directives;
- m) Part 43 — Maintenance, Preventive Maintenance, Rebuilding, and Alteration;
- n) Part 65 — Certification: Airmen Other than Flight Crewmembers;
- o) Part 145 — Repair Stations;
- p) Part 147 — Aviation Maintenance Technician Schools; and
- q) Part 183 — Representatives of the Administrator (Designees).



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CHAPTER 2 - ADDITIONAL GAGA REGULATION

Reserve

